Stormwater Management Report

for

Stonefield Court Subdivision

Site Address:

Rhododendron Drive TL 18-12-04-44-03800 Florence, Oregon 97439

Prepared For:

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Digitally Signed: 2022.08.09

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Submitted:

July 28, 2022

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ENGINEER'S CERTIFICATION

I hereby certify that this Stormwater Management Report for Stonefield Court Subdivision 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.

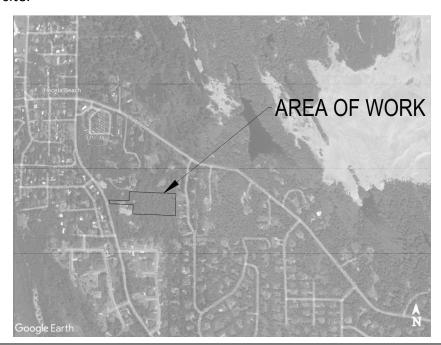
Revision 0 August 9, 2022

PROJECT OVERVIEW & DESCRIPTION

The following narrative describes the methodology, analysis, and results of the stormwater management design for the Stonefield Court Subdivision.

The subject site consists of 4.52 acres of vacant, undeveloped land zoned single family residential, located in Florence, Oregon, east of Rhododendron Drive on Taxlot 18-12-04-44-03800. The property is bordered to north, east, and south by unannexed, developed, single family residential property. The property is bordered to the west by Rhododendron Drive. The site consists of dense native vegetation with slopes ranging from 10 to 25 degrees. Stormwater currently infiltrates into the ground with no discernable channelized runoff patterns and no nearby receiving water bodies. There are no developed stormwater destinations designated for collection of runoff from the property. The property has recently annexed to the City of Florence.

The proposed project is a 14-lot residential subdivision with average lot sizes of 0.24 Acres. The developer plans to fully develop the individual lots into single family residential homes that average 2560 square feet in size. The development will include a public roadway that connects to Rhododendron Drive and terminates in a cul-de-sac at the east end of the property and includes a street stub to the vacant property to the south for future street connectivity. Public utilities including, underground power, water, telecommunications, wastewater, and stormwater will be located within the roadway right-of-way, or the adjacent Public Utility Easement. All stormwater from impervious surfaces, public roadway, driveways, house rooftops, will be collected in vegetated swales and soakage trenches for treatment and infiltration on site.



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METHODOLOGY

DESIGN PARAMETERS

The stormwater management system has been designed in accordance with the City of Florence Stormwater Design Manual (SDM) dated November 2010 and Revised September 2011. A combination of the Presumptive Approach and the Performance Approach, as outlined in Sections 4.2.2 and 4.2.3 respectively of the SDM, were used for design of the stormwater management system. Hydrology calculations were completed using the NRCS method with design rainfall storms as provided in Table 4.1 of the SDM. Infiltration tests were performed and determined a site infiltration rate of 65 in/hr. A design infiltration rate of 4 in/hr was used in all areas that were not pre-treated for pollution, and 10 in/hr for the swale that treats the water with a double chambered catch basin.

Hydrology and runoff/infiltration calculations were performed by Autodesk Storm Sanitary Analysis (SSA) software in combination with Excel spreadsheets. Output reports from SSA and Excel spreadsheet calculations are attached in the calculations section.

STORMWATER MANAGEMENT TECHNIQUES

Vegetated swales as outlined in Section 5.3 of the SDM are proposed to manage stormwater runoff from the paved roadway, driveway areas and many of the house rooftop areas. Soakage Trenches as outlined in Section 5.7 of the SDM are utilized for collection and infiltration of the remaining house rooftop areas. The Soakage Trenches will receive runoff only from single family residential rooftops and are therefore exempt from DEQ rules for Underground Injection Control (UIC) requirements. Therefore, a groundwater investigation was not required by the stormwater management manual because there are no UIC's on the project

ANALYSIS

APPROACH

The site is divided into 52 separate catchments with runoff conveyed via sheet flow, and pipes where required, to individual vegetated swales, most of which are located within the public road right-of-way. The Presumptive Approach was used to design all of the east and south Swales as well as Swale W1. The Performance Approach was used to design Swales W2 through W36. The Performance Approach was used because the proposed swales were not capable of infiltrating the entire design storm events when using the Presumptive Approach.

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VEGETATED SWALES

Vegetated Swales are designed to treat and infiltrate runoff in accordance with Section 5.3 and Detail SW-300-302 of the SDM. Subsurface dewatering systems are not included in the design as high groundwater levels are not indicated on the site. The vegetated swales include check dams, as required to store and infiltrate the 25-year design storm. The size and location of the swales were limited due to site slopes, required roadway widths, and utilities. The west swales are limited in size due to the proximity to the adjacent property. The chain of swales on the west side failed to infiltrate the entire design storm with both presumptive and performance approaches and therefore have an overflow into the existing storm drainage facility on Rhododendron. However, with the site tested infiltration rate of 65 in/hr the actual overflow runoff is predicted to minimal or none.

SOAKAGE TRENCHES

Soakage Trenches are utilized to infiltrate runoff from rooftop areas only from houses on Lots 1,2,7-12 and 14. Soakage Trenches are designed in accordance with Section 5.7 and Detail SW-180 of the SDM. All Soakage Trenches are located on private property and sized to treat 3600 SF of impervious area. They are designed to be eight-foot-wide by twenty-feet-long and two-foot-deep and filled with clean sand. The trenches will be buried under a 6-inch-thick portion of soil to allow for planting.

FNGINFFRING CONCLUSIONS

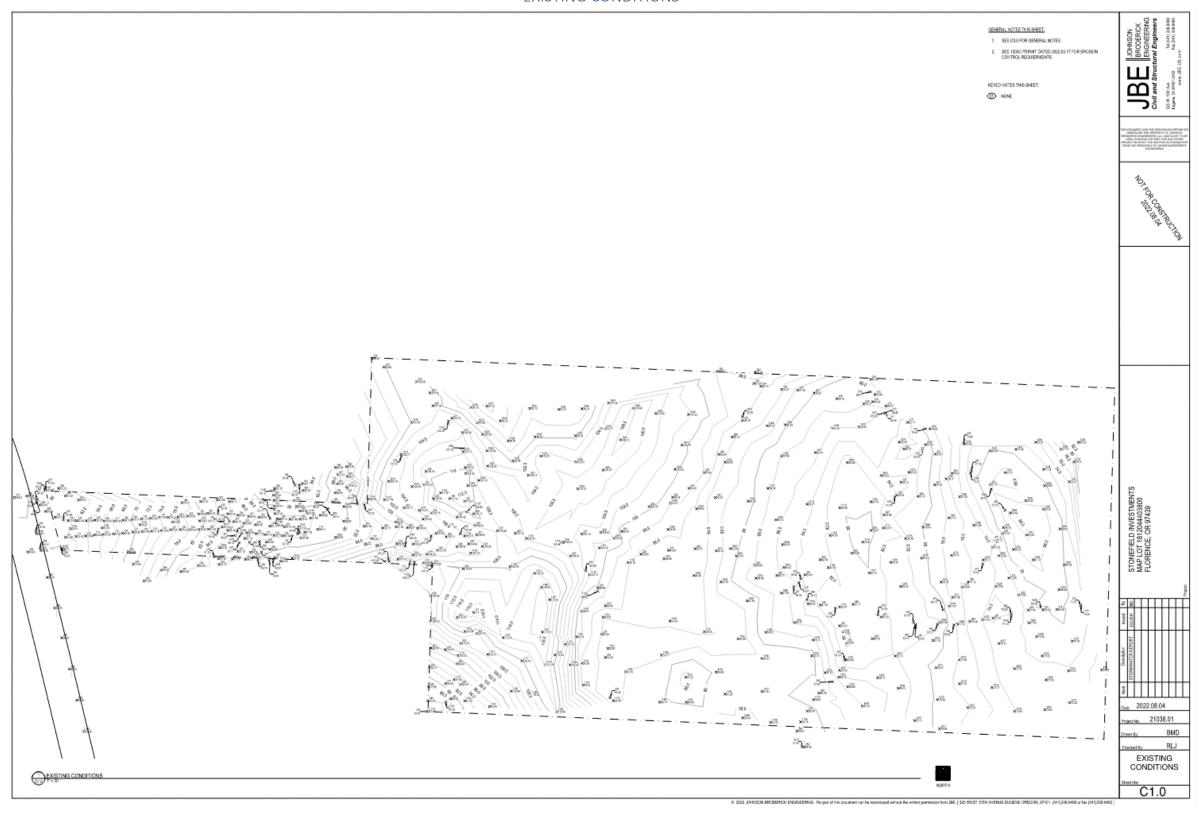
Supporting calculations confirm that the inflow hydrograph of the 25-year, 24-hour storm event can be stored and infiltrated in the vegetated swales to east and south ends of the project. The west end of the project will treat the maximum amount and overflow the rest into the existing storm water ditch along Rhododendron. There is a portion of the west street that cannot be collected or treated in any manner, during any storm due to the steep slopes of the project site and the potential future developments in the Rhododendron ROW. All runoff from the site during the Water Quality Design Storm event is retained and infiltrated on site.

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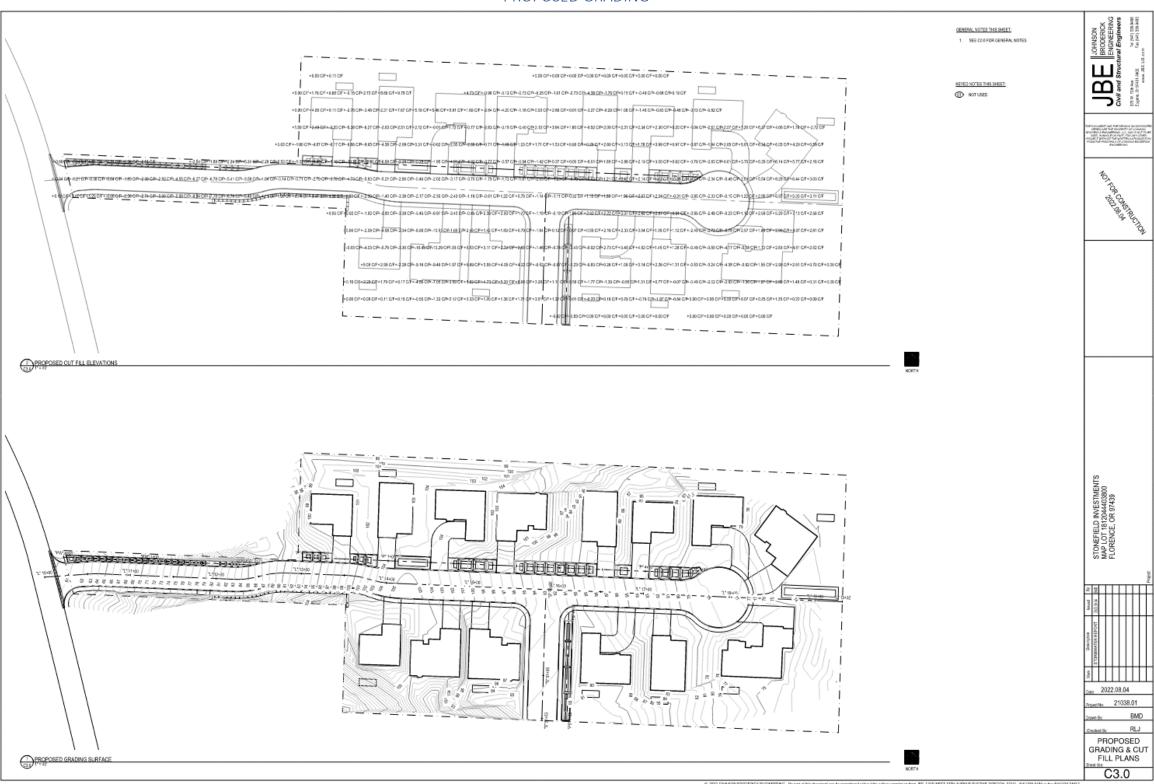
APPENDIX

APPENDIX A: SITE MAPS

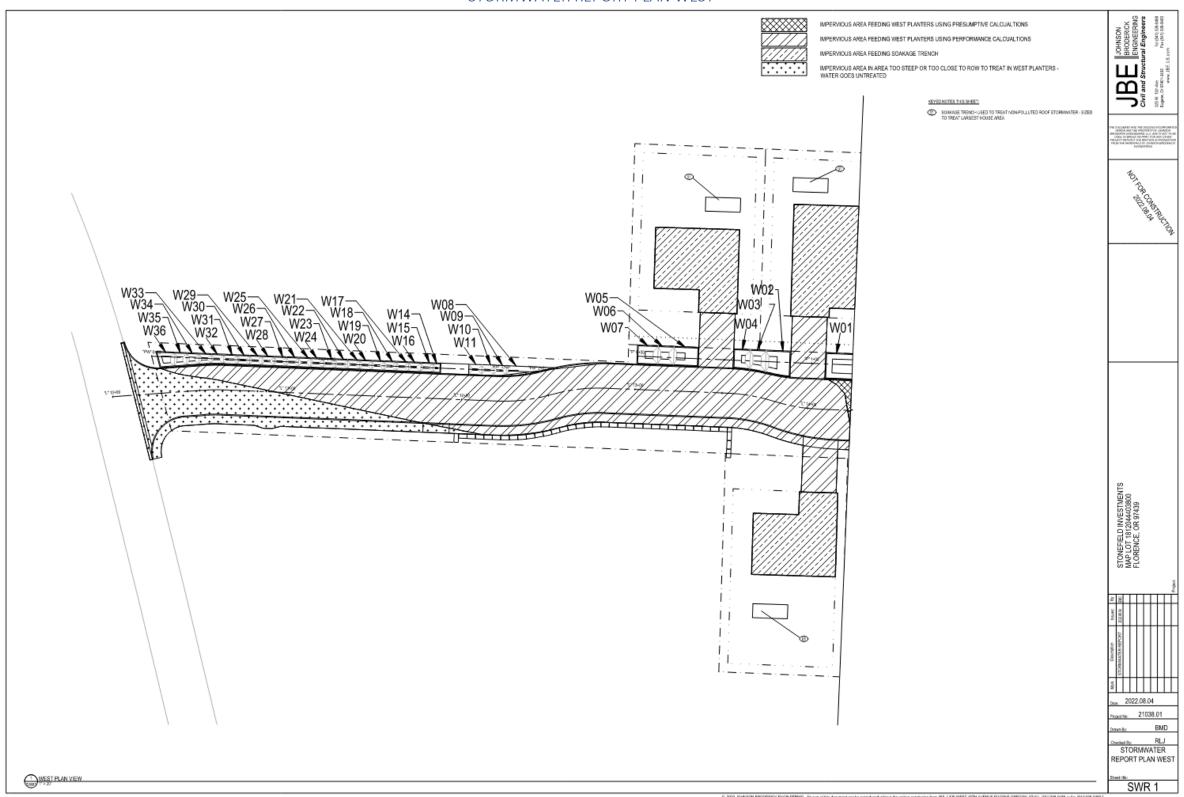
EXISTING CONDITIONS



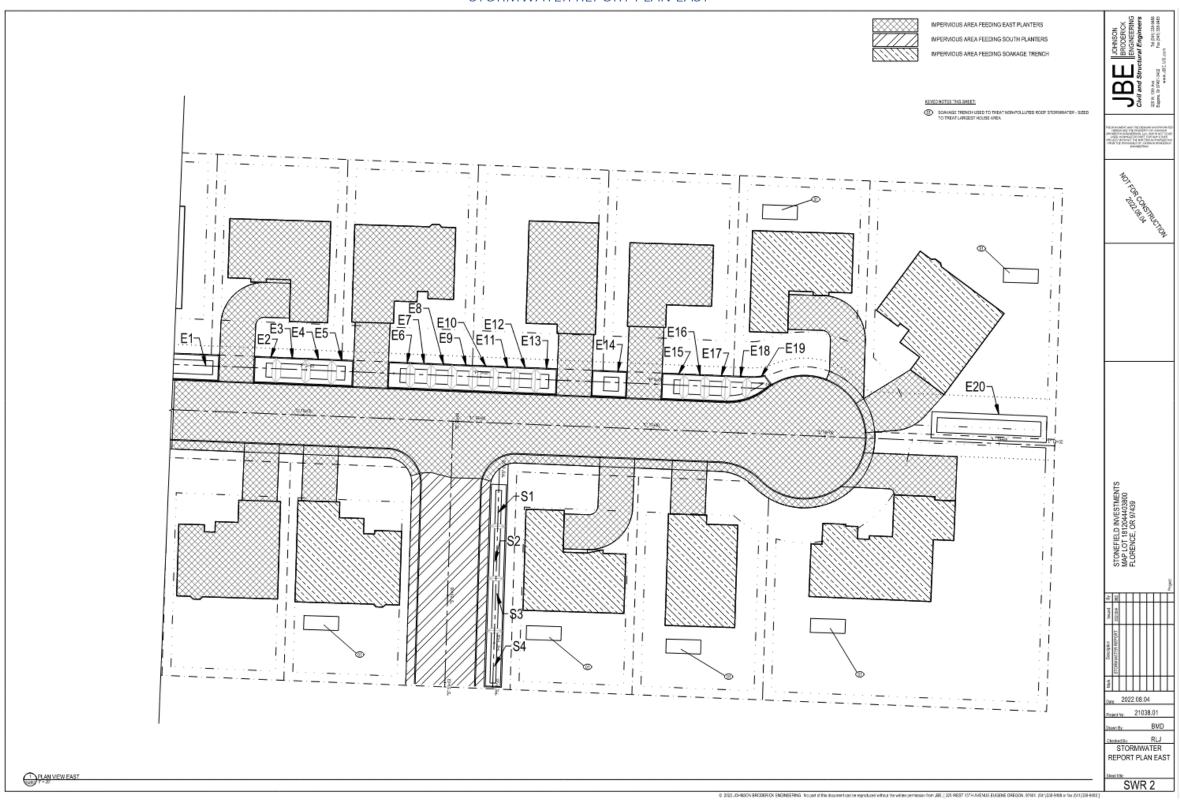
PROPOSED GRADING



STORMWATER REPORT PLAN WEST



STORMWATER REPORT PLAN EAST



APPENDIX B: CALCULATIONS

EAST PLANTER PRESUMPTIVE APPROACH

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 Hour Gtorm,	THOO TYPE IA RUIII	Tan Distri			
Project Name:	21038.01 - Stonefie	eld Court Subdivison		Date:	5/12/2022	
Project Address:		rive 18-12-04-44-03800		Permit Number:		
	Florence, OR 9743			Planter ID:		
Designer:	Brodie Davis			Input Planter ID 1:		
•				Input Planter ID 2:		
Instructions:				Overflow Planter ID:		
Design Requirements:						
Choose "Yes" from the dr	opdown boxes below	v next to the design standa	ards require	ements for this facility.		
Pollution Reduction		1		ollution treatment or water is not from a contar	mineted course	
	· ·	II IIO Selected lacinty must ounc	apic p	Mution treatment of water is not norm a some.	illidieu source	
Flow Contr						
Destination	on (DT) Yes	*An infiltration facility must be ch	hosen as the fa	acility type to meet destination requirements (overflow allowed)	
Catchment Details:						
	Segment 1			Segment 2		
Length of Cate	hment Sheet Flow=	25 ft	ı	ength of Catchment Sheet Flow=	0 ft	
_			•	•		
Approximate	Catchment Slope=	2%		Approximate Catchment Slope=	8%	
	2			Commont 4		
	Segment 3		_	Segment 4		
•	ent Shallow Flow=		Lei	ngth of Catchment Shallow Flow=		
Approximate	Catchment Slope=	50%		Approximate Catchment Slope=	50%	
Flow Velocity	Pre Development=	14.0 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
_	Post Development=			Flow Velocity Post Development=		
1 1011 101001., .	Ost Development	14.0		Tow relocity i out botto opine	100	
	Segment 5			Segment 6		
Less makes and On	_	a a		_	9	
	pen Channel Flow=			Length of Open Channel Flow=		
Approximate	Catchment Slope=	5%		Approximate Catchment Slope=		
Cross sec	tional Area of Flow	0.043 sf		Cross sectional Area of Flow	0.045 sf	
	Wetted Perimeter	1.000 ft		Wetted Perimeter	1.560 ft	
Flow Velocity	Pre Development=		Ī	Flow Velocity Pre Development=		
_	Post Development=			•		
FIOW VEIOCILY I	20st Development-	3.72	ľ	Flow Velocity Post Development=	4.41 ft/s	
Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
	. Coeff. Post Dev. S			lannings Rough. Coeff. Post Dev.		
Site Data-Post Develop						
Site Data-Post Develop	ment					
Total Square Footage	e Impervious Area=	110.8 sqft	Tota	I Square Footage Pervious Area=	0 sqft	
l ·	pervious Area CN=			Pervious Area CN=		
	Po					
Total Square Footage	of Drainage Area=	111 sft	Time of C	concentration Post Development=	0.4 min	
	chted Average CN=		Tillie Of C	Officeritiation Post Development-	0.4	
	J					
Site Data-Pre Developm	ent (Data in th	is section is only used i	f Flow Con	trol is required)		
Pre	-Development CN=	85	Time of	Concentration Pre-Development=	11.9 min	
Soil Data						
		0.4 in /hm (0 .)				
	oil Infiltration Rate= oil Infiltration Rate=	64 in/hr (See Note 4 in/hr	e 4)	Destination Design= Soil Infiltration Rate	4 in/hr	
Design Storms Used Fo	r Calculations					
Requirement	Rainfall Depth	Design Storm				
•		· ·				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall				

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	375 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	25 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	13.33 ft	_		Facility End Slope=	4 to 1
Max. Ponding Depth =	12 in			Basin Volume=	66.0 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	3.384

Pollution Reduction-Calculation Results		
Peak Flow Rate to Stormwater Facility =	0.001 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater		
Facility =	6 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility=	0.0 in	Overflow to Planter: None
Drawdown Time=	0.2 hours	
	ts Pollution Reduction Stan	
YES Meets Require	ement of No Facility Flooding? (C	Overflow Permitted into Separate Planter to meet Standards)
YES Meets Require	ement for Maximum of 18 Hour D	rawdown Time?
Flow Control-Calculation Results		
Peak Flow Rate to Stormwater Facility =	0.004 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater		
Facility =	45 cf	Total Overflow Volume= 0 cf
		Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility=	2.2 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time=	0.2 hours	Overflow to Planter: None
Pre-Development Rund Peak Flow Rate = Total Runoff Volume = Yes Facility Sizing Mee	off Data 0.002 cfs 32 cf sts Flow Control Standards?	
Too I domey claimy moo	no i ioni common ciamanaci.	
YES Meets Require	ement for Post Development offs ement for Maximum of 18 Hour D	ite flow less or equal to Pre-Development Flow? rawdown Time?
Destination-Calculation Results		
Peak Flow Rate to Stormwater Facility = Total Runoff Volume to Stormwater Facility = Max. Depth of Stormwater in Facility= Drawdown Time=	0.004 cfs 45 cf 2.2 in 0.2 hours	Peak Facility Overflow Rate= 0.000 cfs Total Overflow Volume= 0 cf Overflow to Planter: None
Yes Facility Sizing Mee	ts Destination Standards?	
-	ement of No Facility Flooding? ement for Maximum of 18 hour D	rawdown Time?

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 mour otomi,	Tittee Type II Titalii	ian Biotin			
Project Name:	21038.01 - Stonefie	eld Court Subdivison		Date:	5/12/2022	
Project Address:		rive 18-12-04-44-03800		Permit Number:		
•	Florence, OR 9743			Planter ID:	<u>E2</u>	
Designer:	Brodie Davis			Input Planter ID 1:	<u>E1</u>	
				Input Planter ID 2:	None	
Instructions:				Overflow Planter ID:	<u>E3</u>	
Design Requirements:						
Choose "Yes" from the di	ondown boxes below	v next to the design standa	ards require	ments for this facility.		
Pollution Reduction		1		llution treatment or water is not from a contar	minated source	
Flow Contr	` '	II 110 solootoa laolity maot s.is	il liave apro po	nution treatment of water to not norm a serial	minated source	
	` '					
Destination	on (DT) Yes	*An infiltration facility must be ch	nosen as the fa	cility type to meet destination requirements (overflow allowed)	
Catchment Details:						
	Segment 1			Segment 2		
Length of Catc	hment Sheet Flow=	70 ft	L	ength of Catchment Sheet Flow=	0 ft	
_	Catchment Slope=			Approximate Catchment Slope=		
· ·PP		1070		The same same same same same same same sam	0.70	
	Segment 3			Segment 4		
Longth of Catchin	nent Shallow Flow=	25 ft	Lon	gth of Catchment Shallow Flow=	0 ft	
•			Len	•		
• •	Catchment Slope=			Approximate Catchment Slope=		
Flow Velocity	Pre Development=	0.7 ft/s		Flow Velocity Pre Development=		
Flow Velocity F	Post Development=	5.6 ft/s	F	low Velocity Post Development=	14.0 ft/s	
				-		
	Segment 5			Segment 6		
Length of O	pen Channel Flow=	0 ft		Length of Open Channel Flow=	0 ft	
	Catchment Slope=			Approximate Catchment Slope=		
Cross sec	tional Area of Flow			Cross sectional Area of Flow		
	Wetted Perimeter			Wetted Perimeter		
Flow Velocity	Pre Development=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s	
Flow Velocity F	Post Development=	3.72 ft/s	F	low Velocity Post Development=	4.41 ft/s	
Mannings Roug	h. Coeff. Pre Dev. S	hoot Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flows 0.1	
	. Coeff. Post Dev. S			annings Rough. Coeff. Post Dev.		
		neet riow- 0.011	141	allilligs Rough. Coeff. Fost Dev.	Open Flow- U.U.T	
Site Data-Post Develop	ment					
Total Square Footage	e Impervious Area=	1679.5 sqft	Tota	Square Footage Pervious Area=	0 sqft	
	•		1014	Pervious Area CN=		
""	pervious Area CN=	98		Pervious Area Civ-	00	
T-4-! Omisens Factors	f Designant Areas	1000 -#	T: of C		0.5	
Total Square Footage	_		Time of C	oncentration Post Development=	0.5 min	
Wei	ghted Average CN=	98				
Site Data-Pre Developm	ent (Data in th	is section is only used it	f Flow Con	rol is required)		
Pre	-Development CN=	85	Time of 0	Concentration Pre-Development=	12.7 min	
Soil Data						
	oil Infiltration Rate= oil Infiltration Rate=	64 in/hr (See Note 4 in/hr	: 4)	Destination Design= Soil Infiltration Rate	4 in/hr	
Design Storms Used Fo	r Calculations					
Requirement	Rainfall Depth	Design Storm				
•		· ·				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall				

Facility Data					
Facility Type =	Int	filtration Swale		Facility Surface Area=	187.5 sqft
Surface Width =	15 ft	<u> </u>		Facility Slope=	8.33%
Surface Length =	12.5 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	3.50 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	31.8 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.112

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.009 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	
Facility = 88 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 4.0 in	Overflow to Planter: E3
Drawdown Time= 0.2 hou	rs .
Yes Facility Sizing Meets Pollution	
YES Meets Requirement of No	Facility Flooding? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for M	aximum of 18 Hour Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.063 cfs	Peak Facility Overflow Rate= 0.053 cfs
Total Runoff Volume to Stormwater	,
Facility = 675 cf	Total Overflow Volume= 106 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 0.7 hou	Overflow to Planter: E3
Pre-Development Runoff Data Peak Flow Rate = 0.032 cfs Total Runoff Volume = 479 cf NO Facility Sizing Meets Flow C	ontrol Standards?
i acinty Sizing Meets 1 low C	Jill of Standards:
	ost Development offsite flow less or equal to Pre-Development Flow? aximum of 18 Hour Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.063 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.053 cfs
Facility = 675 cf	Total Overflow Volume= 106 cf
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E3
Drawdown Time= 0.7 hou	urs — — — — — — — — — — — — — — — — — — —
NO Facility Sizing Meets Destina	ition Standards?
NO Meets Requirement of No YES Meets Requirement for M	Facility Flooding? aximum of 18 hour Drawdown Time?

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 Hour Gtorn.,	NROO Type IA Ruii	IIaii Disti	Dution		
Project Name:	21038.01 - Stonefie	eld Court Subdivison		Date:	12/22/2021	
Project Address:		rive 18-12-04-44-03800		Permit Number:		
	Florence, OR 9743			Planter ID:		
Designer:	Brodie Davis			Input Planter ID 1:	<u>E2</u>	
-				Input Planter ID 2:	None	
Instructions:				Overflow Planter ID:		
Design Requirements:						
Choose "Yes" from the di	rondown boxes belov	v next to the design stand	lards require	ments for this facility.		
Pollution Reduction		V 110/10 to 11/10 11/10/10/10/10	u. 40 . 5 q	monto for tine lacing.		
Flow Contr	` '					
	` '					
Destination	on (DT) Yes	*An infiltration facility must be cl	hosen as the fa	cility type to meet destination requirements (overflow allowed)	
Catchment Details:						
	Segment 1			Segment 2		
Length of Catc	hment Sheet Flow=	29.5 ft	L	ength of Catchment Sheet Flow=	0 ft	
•	Catchment Slope=			Approximate Catchment Slope=		
App. vaniere	Outominont Grops	970		Approximate entermient ereps	070	
	Segment 3			Segment 4		
I anoth of Catchin	•	6	Lor	•	f.	
_	nent Shallow Flow=		Len	ngth of Catchment Shallow Flow=		
• •	Catchment Slope=			Approximate Catchment Slope=		
Flow Velocity	Pre Development=	14.0 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
Flow Velocity I	Post Development=	14.0 ft/s	F	Flow Velocity Post Development=	14.0 ft/s	
				-		
	Segment 5			Segment 6		
Length of O	pen Channel Flow=	0 ft		Length of Open Channel Flow=	0 ft	
	Catchment Slope=			Approximate Catchment Slope=		
	ctional Area of Flow			Cross sectional Area of Flow		
01000 000				Wetted Perimeter		
=	Wetted Perimeter		I			
•	Pre Development=			Flow Velocity Pre Development=		
Flow Velocity I	Post Development=	3.72 ft/s	F	Flow Velocity Post Development=	4.41 ft/s	
Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8	ı	Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
Mannings Rough	. Coeff. Post Dev. S	heet Flow= 0.011	М	lannings Rough. Coeff. Post Dev.	Open Flow= 0.011	
Site Data-Post Develop	ment					
Total Square Footage	e Impervious Area=	4317 sqft	Tota	I Square Footage Pervious Area=	0 sqft	
	•		1014			
""	npervious Area CN=	98		Pervious Area CN=	85	
T / 10 Factors	CD Income Amount	1047 - 6	- :	1 . Deet Davidenment	0.0	
Total Square Footage	_		Time of C	oncentration Post Development=	0.2 min	
Wei	ghted Average CN=	98				
Site Data-Pre Developm	nent (Data in th	is section is only used i	if Flow Con	trol is required)		
Pre	e-Development CN=	85	Time of (Concentration Pre-Development=	7.6 min	
Soil Data						
Tooted Co	oil Infiltration Rate=	64 in/hr (See Note	o 4\	Postination Posinne	4 in/hr	
	oil Infiltration Rate=	4 in/hr	± 4)	Destination Design= Soil Infiltration Rate		
Design Storms Used Fo	or Calculations					
Requirement	Rainfall Depth	Design Storm				
	· · · · · · · · · · · · · · · · · · ·	•				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall				

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	371.49 sqft
Surface Width =	21 ft	_		Facility Slope=	8.33%
Surface Length =	17.69 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	14 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	3 to 1
Bottom Length =	12.02 ft	_		Facility End Slope=	1 to 1
Max. Ponding Depth =	12 in			Basin Volume=	102.0 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.086

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.022 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	
Facility = 226 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 5.5 in	Overflow to Planter: E4
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Red	uction Standards?
YES Meets Requirement of No Facility	Flooding? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum	of 18 Hour Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.215 cfs	Peak Facility Overflow Rate= 0.194 cfs
Total Runoff Volume to Stormwater	· —
Facility = 1841 cf	Total Overflow Volume= 471 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 1.2 hours	Overflow to Planter: E4
Pre-Development Runoff Data Peak Flow Rate = 0.090 cfs Total Runoff Volume = 1232 cf	
NO Facility Sizing Meets Flow Control	Standards?
NO Meets Requirement for Post Development For Maximum	elopment offsite flow less or equal to Pre-Development Flow? of 18 Hour Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.162 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.194 cfs
Facility = 1735 cf	Total Overflow Volume= 471 cf
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E4
Drawdown Time= 1.2 hours	
NO Facility Sizing Meets Destination S	tandards?
NO Meets Requirement of No Facility YES Meets Requirement for Maximum	

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 11001 0101111,	THEOUT PO TA TURN	Idii Disti i			
Project Name:	21038.01 - Stonefie	ld Court Subdivison		Date:	12/22/2021	
Project Address:		rive 18-12-04-44-03800		Permit Number:		
	Florence, OR 9743			Planter ID:		
Designer:	Brodie Davis			Input Planter ID 1:	E3	
-				Input Planter ID 2:		
Instructions:				Overflow Planter ID:		
Design Requirements:						
Choose "Yes" from the dr	rondown hoxes below	v next to the design standa	ards require	ments for this facility		
Pollution Reduction		I HEAL TO THE GOOGH STAILE	arus roquiis	ments for this facility.		
	` '					
Flow Contr	` '					
Destination	on (DT) Yes	*An infiltration facility must be ch	hosen as the fa	cility type to meet destination requirements (overflow allowed)	
Catchment Details:						
	Segment 1			Segment 2		
Length of Catcl	hment Sheet Flow=	84 ft	1	ength of Catchment Sheet Flow=	0 ft	
_			-	- Approximate Catchment Slope		
Approximate	Catchment Slope=	9%		Approximate Catchinent Slope-	8%	
	0 >4 0			Commont 4		
	Segment 3		_	Segment 4		
•	ent Shallow Flow=		Len	gth of Catchment Shallow Flow=		
Approximate	Catchment Slope=	50%		Approximate Catchment Slope=	50%	
Flow Velocity	Pre Development=	14.0 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
Flow Velocity F	Post Development=	14.0 ft/s	F	low Velocity Post Development=	14.0 ft/s	
	Segment 5			Segment 6		
Length of O	pen Channel Flow=	0 ft		Length of Open Channel Flow=	0 ft	
	Catchment Slope=			Approximate Catchment Slope=		
Cross sec	tional Area of Flow			Cross sectional Area of Flow		
	Wetted Perimeter			Wetted Perimeter		
_	Pre Development=			Flow Velocity Pre Development=		
Flow Velocity F	Post Development=	3.72 ft/s	F	low Velocity Post Development=	4.41 ft/s	
Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8	ı	Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
)	. Coeff. Post Dev. S	heet Flow= 0.011	М	annings Rough. Coeff. Post Dev.	Open Flow= 0.011	
Site Data-Post Develop	ment					
Total Square Footage	e Impervious Area=	387 sqft	Tota	Square Footage Pervious Area=	0 sqft	
	pervious Area CN=		1014	Pervious Area CN=	85	
""	pervious Area CN-	90		Pervious Area CN-	85	
T-4-10	-	007 - #	Ti		0.0	
Total Square Footage	_		Time of C	oncentration Post Development=	0.6 min	
Weig	ghted Average CN=	98				
Site Data-Pre Developm	ent (Data in th	is section is only used i	f Flow Con	rol is required)		
Pre	-Development CN=	85	Time of 0	Concentration Pre-Development=	17.5 min	
Soil Data						
	il Indilanation Daton	C4 in/br (Cas Nata	- 4\	Dardination Daring	A lim/lan	
	oil Infiltration Rate=	64 in/hr (See Note 4 in/hr	÷ 4)	Destination Design= Soil Infiltration Rate	4 in/hr	
Design 50	on infiltration Rate=	4 111/111		Son innitration Rate		
Design Storms Used Fo	r Calculations					
Requirement	Rainfall Depth	Design Storm				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall				

Facility Data					
Facility Type =	li	nfiltration Swale		Facility Surface Area=	255 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	17 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	12.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	66.0 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.659

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.002 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	,
Facility = 20 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 1.1 in	Overflow to Planter: E5
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reductio	n Standards?
YES Meets Requirement of No Facility Floor	ding? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18	Hour Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.209 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.195 cfs
Facility = 626 cf	Total Overflow Volume= 299 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N/A cfs
Drawdown Time= 0.2 hours	Overflow to Planter: E5
Pre-Development Runoff Data Peak Flow Rate = 0.007 cfs Total Runoff Volume = 110 cf	
NO Facility Sizing Meets Flow Control Stand	dards?
NO Meets Requirement for Post Development YES Meets Requirement for Maximum of 18	ent offsite flow less or equal to Pre-Development Flow? Hour Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.014 cfs	Peak Facility Overflow Rate= 0.195 cfs
Total Runoff Volume to Stormwater	
Facility = 156 cf	Total Overflow Volume= 299 cf Overflow to Planter: F5
Max. Depth of Stormwater in Facility= 12.0 in Drawdown Time= 0.2 hours	Overnow to Flanter. E5
Drawdown Time= 0.2 hours	
NO Facility Sizing Meets Destination Standa	ards?
NO Meets Requirement of No Facility Floor YES Meets Requirement for Maximum of 18	=

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 Hour Gronn,	Tires Type II Train	Tan Biotin			
Project Name:	21038.01 - Stonefie	ld Court Subdivison		Date:	5/12/2022	
Project Address:		rive 18-12-04-44-03800		Permit Number:		
,	Florence, OR 9743			Planter ID:		
Designer:	Brodie Davis			Input Planter ID 1:	E4	
· ·				Input Planter ID 2:		
Instructions:				Overflow Planter ID:		
Design Requirements:						
Choose "Yes" from the di	rondown hoxes helov	v next to the design stand	ards require	ements for this facility		
Pollution Reduction				•		
	` '	*if no selected facility must eithe	er have apre po	ollution treatment or water is not from a contar	ninated source	
Flow Contr	` '					
Destination	on (DT) Yes	*An infiltration facility must be cl	hosen as the fa	acility type to meet destination requirements (overflow allowed)	
Catchment Details:						
	Commont 1			Sagment 2		
	Segment 1	0.4		Segment 2	6	
_	hment Sheet Flow=		L	ength of Catchment Sheet Flow=		
Approximate	Catchment Slope=	9%		Approximate Catchment Slope=	8%	
	Segment 3			Segment 4		
Length of Catchn	nent Shallow Flow=	<mark>0 f</mark> t	Ler	ngth of Catchment Shallow Flow=	0 ft	
Approximate	Catchment Slope=	2%		Approximate Catchment Slope=	50%	
Flow Velocity	Pre Development=	1.0 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
-	Post Development=			Flow Velocity Post Development=		
I low velocity i	- OSt Development-	143		low velocity rost bevelopment-	14.0	
	Segment 5			Segment 6		
Longth of O	pen Channel Flow=	0 ft		Length of Open Channel Flow=	0 ft	
	Catchment Slope=			Approximate Catchment Slope=		
Cross sec	tional Area of Flow			Cross sectional Area of Flow	0.045 sf	
	Wetted Perimeter	1.000 ft	_	Wetted Perimeter	1.560 ft	
Flow Velocity	Pre Development=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s	
Flow Velocity I	Post Development=	3.72 ft/s] 1	Flow Velocity Post Development=	4.41 ft/s	
	h. Coeff. Pre Dev. S			Mannings Rough. Coeff. Pre Dev.	•	
)	. Coeff. Post Dev. S	heet Flow= 0.011	N	lannings Rough. Coeff. Post Dev.	Open Flow= 0.011	
Site Data-Post Develop	ment					
Total Square Footage	e Impervious Area=	485.5 sqft	Tota	I Square Footage Pervious Area=	0 sqft	
	pervious Area CN=			Pervious Area CN=	85	
	pervious Area Oit	00		r civious Aidu on	00	
Total Square Footage	of Drainage Area=	486 sft	Time of C	oncentration Post Development=	0.6 min	
	ghted Average CN=		Tillie Of C	oncentration Fost Development-	0.0	
- ,	J J .					
Site Data-Pre Developm	ent (Data in th	is section is only used i	f Flow Con	trol is required)		
Pre	e-Development CN=	85	Time of	Concentration Pre-Development=	17.1 min	
Soil Data						
Tested So	oil Infiltration Rate=	64 in/hr (See Note	e 4)	Destination Design=	4 in/hr	
	oil Infiltration Rate=	4 in/hr		Soil Infiltration Rate		
Design Storms Used Fo	or Calculations					
		Design Storm				
Requirement	Rainfall Depth	•				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall				

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	187.5 sqft
Surface Width =	15 ft	_		Facility Slope=	8.33%
Surface Length =	12.5 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	5.43 ft	_		Facility End Slope=	4 to 1
Max. Ponding Depth =	12 in			Basin Volume=	44.2 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.386

Pollution Reduction-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.00	2 cfs Peak Facility Overflow Rate= 0.000 cfs								
Total Runoff Volume to Stormwater									
Facility = 2	5 cf Total Overflow Volume= 0 cf								
	2 in Overflow to Planter: None								
Drawdown Time= 0.	2 hours								
	Yes Facility Sizing Meets Pollution Reduction Standards?								
YES Meets Requirement	of No Facility Flooding? (Overflow Permitted into Separate Planter to meet Standards)								
YES Meets Requirement	for Maximum of 18 Hour Drawdown Time?								
Flow Control-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.21	3 cfs Peak Facility Overflow Rate= 0.202 cfs								
Total Runoff Volume to Stormwater	- · · · · · · · · · · · · · · · · · · ·								
Facility = 49	3 cf Total Overflow Volume= 251 cf								
	Peak Off-Site Flow Rate								
	0 in Filtration Facility Underdrain= N\A cfs								
Drawdown Time= 0.	2 hours Overflow to Planter: None								
Total Runoff Volume = 13	9 cfs 9 cf								
NO Facility Sizing Meets Flo	w Control Standards?								
	for Post Development offsite flow less or equal to Pre-Development Flow? for Maximum of 18 Hour Drawdown Time?								
Destination-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.01 Total Runoff Volume to Stormwater	8 cfs Peak Facility Overflow Rate= 0.202 cfs								
	5 cf Total Overflow Volume= 251 cf								
	0 in Overflow to Planter: None								
	2 hours								
NO Facility Sizing Meets De	stination Standards?								
· · · · · · · · · · · · · · · · · · ·	of No Facility Flooding? for Maximum of 18 hour Drawdown Time?								

Project Information Project Name: 21038.01 - Stonefield Court Subdivison Date: 12/22/2021 Project Address: Rhodeodendron Drive 18-12-04-44-03800 Permit Number: NA Florence, OR 97439 Planter ID: E6 Designer: Brodie Davis Input Planter ID 1: None		Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Address: Rhadeadendron Drive 18-12-04-44-03800 Permit Number: NA Planter ID: ES Input Planter ID: ES	Project Information							
Project Address: Rhadeadendron Drive 18-12-04-444-03900 Permit Number: NA Planet ID: Est Input Planet ID: Es		21038 01 - Stonefie	ld Court Subdivison	Date:	12/22/2021			
Designer:	_							
Instructions: Insure Planter ID 1: Est Input Planter ID 2: Mone Instructions: Overflow Planter ID: Est Input Planter ID: Est I	,							
Instructions: Design Requirements: St.	Designer:		-					
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) The DT) The	Instructions:			•				
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) The DT) The								
Pollution Reduction (PR) Yes Flow Control (PC) Yes The infiliation facility must be chosen as the facility type to meet destination requirements (overflow allowed)	Design Requirements:							
Pollution Reduction (PR) Yes Flow Control (PC) Yes The infiliation facility must be chosen as the facility type to meet destination requirements (overflow allowed)	Choose "Yes" from the di	ropdown boxes below	next to the design standards r	requirements for this facility				
Flow Control (FC) Destination (DT) Yes Destination (DT) Yes An infiltration facility must be chosen as the facility type to meet destination requirements (overflow allowed) Catchment Details: Segment 1 Length of Catchment Sheet Flowe 94 Approximate Catchment Slope= 95 Approximate Cat				equilibrilie for alle facility.				
Catchment Details: Segment 1 Segment 2 Length of Catchment Sheet Flow Segment 3 Segment 4 Length of Catchment Sheet Flow Segment 4 Length of Catchment Sheet Flow Segment 3 Segment 4 Length of Catchment Sheet Flow Segment 3 Segment 4 Length of Catchment Sheet Flow Segment 5 Length of Catchment Sheet Flow Segment 5 Length of Open Channel Flow Segment 6 Length of Catchment Slope Segment 6 Length of Catchment Slope Segment 6 Length of Catchment Slope Segment 6 Leng		` '						
Segment 2 Length of Catchment Sheet Flow= \$4		` '						
Segment 1	Destination	on (DT) Yes	*An infiltration facility must be chosen a	as the facility type to meet destination requirements (overflow allowed)			
Length of Catchment Sheet Flow= 84	Catchment Details:							
Length of Catchment Sheet Flow= 84								
Approximate Catchment Slope= 9% Segment 3 Segment 4 Length of Catchment Shallow Flow= Description Approximate Catchment Shallow Flow= Description Approximate Catchment Shallow Flow= Description Approximate Catchment Slope= 50% Approximate Catchment Slope= 50% Approximate Catchment Slope= 50% Approximate Catchment Slope= 50% Approximate Catchment Slope= 14.0 ft/s Flow Velocity Pro Development= 14.0 ft/s Flow Velocity Pro Development= 14.0 ft/s Flow Velocity Prost Development= 14.0 ft/s Flow Velocity Prost Development= 14.0 ft/s Approximate Catchment Slope= 5% Approximate Catchment Slope= 14.0 ft/s Approximate Catchment Slope= 12% Approximate Catchment Slope= 12% ft/s Approximate Catchment Slope= 12% ft/		_		•				
Segment 3 Segment 4	Length of Catcl	hment Sheet Flow=	84 ft	Length of Catchment Sheet Flow=	0 ft			
Length of Catchment Shallow Flow= Approximate Catchment Slope= 50% Flow Velocity Pre Development= 14.0 ft/s Segment 6 Length of Open Channel Flow= Approximate Catchment Slope= 50% Approximate Catchment Slope= 12% Ap	Approximate	Catchment Slope=	9%	Approximate Catchment Slope=	8%			
Length of Catchment Shallow Flow= Approximate Catchment Slope= 50% Flow Velocity Pre Development= 14.0 ft/s Segment 6 Length of Open Channel Flow= Approximate Catchment Slope= 50% Approximate Catchment Slope= 12% Ap		-						
Length of Catchment Shallow Flow= Approximate Catchment Slope= 50% Flow Velocity Pre Development= 14.0 ft/s Segment 6 Length of Open Channel Flow= Approximate Catchment Slope= 50% Approximate Catchment Slope= 12% Ap		Segment 3		Segment 4				
Approximate Catchment Slope 50% Approximate Catchment Slope Flow Velocity Pre Development 14.0 ft/s Flow Velocity Prost Development 15%	Longth of Cataba	•	O ff	· ·	O ff			
Flow Velocity Pre Development= Flow Velocity Prost Development= Segment 6 Length of Open Channel Flow= OApproximate Catchment Slope= Flow Velocity Prost Development= OAD Prost Development= O	•			•				
Segment 5 Segment 6 Length of Open Channel Flow= O	• •	•		• •				
Segment 5	Flow Velocity	Pre Development=	14.0 ft/s	Flow Velocity Pre Development=	14.0 ft/s			
Length of Open Channel Flow= 0 Approximate Catchment Slope= 5% Approximate Catchment Slope= 5% Cross sectional Area of Flow 0.043 sf	Flow Velocity F	Post Development=	14.0 ft/s	Flow Velocity Post Development=	14.0 ft/s			
Length of Open Channel Flow= 0 Approximate Catchment Slope= 5% Approximate Catchment Slope= 12% Cross sectional Area of Flow 0.043 Sf Wetted Perimeter 1.000 ft Wetted Perimeter 1.560 ft Flow Velocity Pre Development= 0.41 ft/s Flow Velocity Pre Development= 0.41 ft/s Flow Velocity Pre Development= 0.42 ft/s Flow Velocity Pre Development= 0.49 ft/s Flow Control 5.06 inches Flood Control								
Length of Open Channel Flow= 0 Approximate Catchment Slope= 5% Approximate Catchment Slope= 12% Cross sectional Area of Flow 0.043 Sf Wetted Perimeter 1.000 ft Wetted Perimeter 1.560 ft Flow Velocity Pre Development= 0.41 ft/s Flow Velocity Pre Development= 0.41 ft/s Flow Velocity Pre Development= 0.42 ft/s Flow Velocity Pre Development= 0.49 ft/s Flow Control 5.06 inches Flood Control		Seament 5		Seament 6				
Approximate Catchment Slope= Cross sectional Area of Flow 0.043 sf	Length of O	_	O ff		O ff			
Cross sectional Area of Flow Wetted Perimeter 1.000 ft W								
Wetted Perimeter 1.000 ft Wetted Perimeter 1.560 ft ft/s Flow Velocity Pre Development 0.41 ft/s Flow Velocity Pre Development 0.49 ft		-						
Flow Velocity Pre Development= 0.41 ft/s Flow Velocity Pre Development= 0.49 ft/s Flow Velocity Post Development= 3.72 ft/s Flow Velocity Post Development= 4.41 ft/s flow Velocity Post Development= 6.49 ft/s flow Velocity Post Development= 6.49 ft/s flow Velocity Post Development= 6.49 ft/s flow Velocity Post Development= 6.41 ft/s flow Velocity Post Development=	Cross sec							
Flow Velocity Post Development 3.72 ft/s Flow Velocity Post Development 4.41 ft/s Mannings Rough. Coeff. Pre Dev. Sheet Flow= 0.8		Wetted Perimeter	1.000 ft	Wetted Perimeter	1.560 ft			
Mannings Rough. Coeff. Pre Dev. Sheet Flow= 0.8	Flow Velocity	Pre Development=	0.41 ft/s	Flow Velocity Pre Development=	0.49 ft/s			
Mannings Rough. Coeff. Post Dev. Sheet Flow= O.011	Flow Velocity F	Post Development=	3.72 ft/s	Flow Velocity Post Development=	4.41 ft/s			
Mannings Rough. Coeff. Post Dev. Sheet Flow= O.011		<u>'</u>		•				
Mannings Rough. Coeff. Post Dev. Sheet Flow= O.011	Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8	Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1			
Site Data-Post Development Total Square Footage Impervious Area				Mannings Rough, Coeff, Post Dev.	Open Flow= 0.011			
Total Square Footage Impervious Area Impervious Area CN= 98)							
Total Square Footage of Drainage Area	Site Data-Post Developi	ment						
Total Square Footage of Drainage Area	Total Square Footage	e Impervious Area=	4307.2 sqft	Total Square Footage Pervious Area=	0 sqft			
Site Data-Pre Development (Data in this section is only used if Flow Control is required) Pre-Development CN= 85 Time of Concentration Pre-Development= 17.5 min Soil Data Tested Soil Infiltration Rate= 64 in/hr (See Note 4) Destination Design= 4 in/hr Design Soil Infiltration Rate= 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Im	pervious Area CN=	98	Pervious Area CN=	85			
Site Data-Pre Development (Data in this section is only used if Flow Control is required) Pre-Development CN= 85 Time of Concentration Pre-Development= 17.5 min Soil Data Tested Soil Infiltration Rate= 64 in/hr (See Note 4) Destination Design= 4 in/hr Design Soil Infiltration Rate= 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control		•						
Site Data-Pre Development (Data in this section is only used if Flow Control is required) Pre-Development CN= 85 Time of Concentration Pre-Development= 17.5 min Soil Data Tested Soil Infiltration Rate= 64 in/hr (See Note 4) Destination Design= 4 in/hr Design Soil Infiltration Rate= 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Total Square Footage	of Drainage Area=	4307 sft Tim	e of Concentration Post Development=	0.6 min			
Site Data-Pre Development (Data in this section is only used if Flow Control is required) Pre-Development CN= 85 Time of Concentration Pre-Development= 17.5 min Soil Data Tested Soil Infiltration Rate= 64 in/hr (See Note 4) Destination Design= 4 in/hr Design Soil Infiltration Rate= 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control		•						
Pre-Development CN= 85 Time of Concentration Pre-Development= 17.5 min Soil Data Tested Soil Infiltration Rate= Design Soil Infiltration Rate= 4 in/hr (See Note 4) Destination Design= 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	•							
Tested Soil Infiltration Rate= 64 in/hr (See Note 4) Destination Design= 4 in/hr Soil Infiltration Rate= 1 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Site Data-Pre Developm	ient (Data in th	is section is only used if Flov	w Control is required)				
Tested Soil Infiltration Rate= Design Soil Infiltration Rate= 1		-Development CN=	85 Tir	me of Concentration Pre-Development=	17.5 min			
Design Soil Infiltration Rate 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Soil Data							
Design Soil Infiltration Rate 4 in/hr Soil Infiltration Rate Design Storms Used For Calculations Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Tested So	oil Infiltration Rate=	64 in/hr (See Note 4)	Destination Design=	4 in/hr			
Requirement Rainfall Depth Design Storm Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Design So	oil Infiltration Rate=	4 in/hr					
Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Design Storms Used Fo	or Calculations						
Pollution Reduction 0.83 inches Water Quality Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	Requirement	Rainfall Depth	Design Storm					
Flow Control 5.06 inches Flood Control Destination 5.06 inches Flood Control	•		·					
Destination 5.06 inches Flood Control								
				7				

Facility Data					
Facility Type =	Int	iltration Swale		Facility Surface Area=	187.5 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12.5 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	3.50 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	31.8 cf
Depth of (Soil) =	24 in		Ratio of Fa	acility Area to Impervious Area=	0.044

Pollution Reduction-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.022 cfs	Peak Facility Overflow Rate= 0.000 cfs								
Total Runoff Volume to Stormwater									
Facility = 225 cf	Total Overflow Volume= 0 cf								
Max. Depth of Stormwater in Facility= 9.7 in	Overflow to Planter: E7								
Drawdown Time= 0.2 hours									
Yes Facility Sizing Meets Pollution Redu	Yes Facility Sizing Meets Pollution Reduction Standards?								
YES Meets Requirement of No Facility	Flooding? (Overflow Permitted into Separate Planter to meet Standards)								
YES Meets Requirement for Maximum of	of 18 Hour Drawdown Time?								
Flow Control-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.362 cfs	Peak Facility Overflow Rate= 0.352 cfs								
Total Runoff Volume to Stormwater	, , , , , , , , , , , , , , , , , , , ,								
Facility = 1980 cf	Total Overflow Volume= 1161 cf								
	Peak Off-Site Flow Rate								
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs								
Drawdown Time= 1.5 hours	Overflow to Planter: E7								
Pre-Development Runoff Data Peak Flow Rate = 0.076 cfs Total Runoff Volume = 1229 cf									
NO Facility Sizing Meets Flow Control S	tandards?								
NO Meets Requirement for Post Devel YES Meets Requirement for Maximum of	opment offsite flow less or equal to Pre-Development Flow? of 18 Hour Drawdown Time?								
Destination-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.160 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.352 cfs								
Facility = 1731 cf	Total Overflow Volume= 1161 cf								
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E7								
Drawdown Time= 1.5 hours									
NO Facility Sizing Meets Destination Sta	andards?								
NO Meets Requirement of No Facility YES Meets Requirement for Maximum of	-								

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>				
Project Name:	21038.01 - 9	Stonefie	ld Court Subdivison		Date:	12/22/2021	
Project Address:			rive 18-12-04-44-03800		Permit Number:		
1.10,000.7144.1000.	Florence, C				Planter ID:		
Designer:	Brodie Day		<u> </u>		Input Planter ID 1:		
Designer.	biodie Dav	<u>13</u>					
					Input Planter ID 2:		
Instructions:					Overflow Planter ID:	<u>E8</u>	
Design Requirements:							
Choose "Yes" from the di	opdown box	es belov	next to the design stand	dards requi	rements for this facility.		
Pollution Reduction		Yes	l		-		
	` ′						
Flow Contr	ol (FC)	Yes					
Destination	on (DT)	Yes	*An infiltration facility must be	chosen as the	facility type to meet destination requirements (overflow allowed)	
Catchment Details:	. /		· · · · · · · · · · · · · · · · · · ·			,	
Catchinent Details.							
	Segmen	t 1			Segment 2		
Length of Catc	-		0 ft		Length of Catchment Sheet Flow=	0 ft	
_					_		
Approximate	Catchment	Slope=	9%		Approximate Catchment Slope=	8%	
	Segmen	t 3			Segment 4		
Longth of Cataba	_	1	O ft	1.	_	O ff	
Length of Catchn				L	ength of Catchment Shallow Flow=		
Approximate	Catchment	Slope=	50%		Approximate Catchment Slope=	50%	
Flow Velocity	Pre Develo	pment=	14.0 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
Flow Velocity I		•			Flow Velocity Post Development=		
Flow velocity i	OSt Develo	pillelit-	14.0		riow velocity rost bevelopment-	14.0	
	Segmen	t 5	_		Segment 6	_	
Length of O	oen Channe	I Flow=	0 ft		Length of Open Channel Flow=	0 ft	
Approximate					Approximate Catchment Slope=		
• •		-					
Cross sec	tional Area	of Flow			Cross sectional Area of Flow	0.045 sf	
	Wetted Pe	rimeter	1.000 ft		Wetted Perimeter	1.560 ft	
Flow Velocity	Pre Develo	pment=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s	
Flow Velocity I		-			Flow Velocity Post Development=		
Flow velocity i	Post Develo	pinent-	3.72	I	riow velocity Post Development-	4.41	
Mannings Roug	h. Coeff. Pre	Dev. S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
Mannings Rough					Mannings Rough. Coeff. Post Dev.		
wannings Rough	. Coeii. Pos	t Dev. S	neet Flow- 0.011		Maillings Rough. Coeff. Post Dev.	Open Flow- 0.011	
Site Data-Post Develop	ment						
Total Square Footage	e Impervious	s Area=	0.1 sqft	To	tal Square Footage Pervious Area=	0 sqft	
Im	pervious Ar	roa CN=	98		Pervious Area CN=		
1111	pei vious Ai	ea Cit-	90		reivious Alea CN-	03	
		i					
Total Square Footage	of Drainage	e Area=	0 sft	Time of	Concentration Post Development=	0.0 min	
Wei	ghted Avera	ge CN=	98				
Site Data-Pre Developm	ent (Da	ata in th	is section is only used	if Flow Co	ntrol is required)		
Pre	-Developme	ent CN=	85	Time o	f Concentration Pre-Development=	0.0 min	
Soil Data	· .				<u> </u>		
	il ladite d	n D=4	04 in/h- 10	- 4)	B # # 5 5	4 : //	
	oil Infiltration oil Infiltration		64 in/hr (See Not 4 in/hr	e 4)	Destination Design= Soil Infiltration Rate		
Design Storms Used Fo	r Calculatio	ns					
Requirement	Rainfall [Depth	Design Storm				
Pollution Reduction	0.83 inc	ches	Water Quality				
Flow Control	5.06 inc		Flood Control				
Destination	5.06 inc		Flood Control				
Time of Concentration	3.46 inc	ches	2-Year, 24- Hour Rainfa	II			

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	1800.000

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	,
Facility = 0 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 0.1 in	Overflow to Planter: E8
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction S	Standards?
YES Meets Requirement of No Facility Flooding	? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18 Ho	ur Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.352 cfs Total Runoff Volume to Stormwater Facility = 1161 cf	Peak Facility Overflow Rate= 0.341 cfs Total Overflow Volume= 607 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 0.2 hours	Overflow to Planter: E8
Pre-Development Runoff Data Peak Flow Rate = 0.000 cfs Total Runoff Volume = 0 cf NO Facility Sizing Meets Flow Control Standard NO Meets Requirement for Post Development YES Meets Requirement for Maximum of 18 Hole	offsite flow less or equal to Pre-Development Flow?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.000 cfs Total Runoff Volume to Stormwater Facility = 0 cf Max. Depth of Stormwater in Facility = 12.0 in Drawdown Time = 0.2 hours	Peak Facility Overflow Rate= 0.341 cfs Total Overflow Volume= 607 Overflow to Planter: E8
NO Facility Sizing Meets Destination Standards	s?
NO Meets Requirement of No Facility Flooding YES Meets Requirement for Maximum of 18 hou	

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 Hour Gronn,	Tires Type II Train				
Project Name:	21038.01 - Stonefie	ld Court Subdivison	Date: 12/22/2021			
Project Address:		rive 18-12-04-44-03800	Permit Number: NA			
•	Florence, OR 9743		Planter ID: E8			
Designer:	Brodie Davis		Input Planter ID 1: E7			
			Input Planter ID 2: None			
Instructions:			Overflow Planter ID: E9			
Design Requirements:						
Choose "Yes" from the dr	ropdown boxes below	v next to the design standa	dards requirements for this facility.			
Pollution Reduction		V 110/10 to this decorpt	durab roqui omonto for ano lasiny.			
Flow Contr	` '					
	` '					
Destination	on (DT) Yes	*An infiltration facility must be ch	chosen as the facility type to meet destination requirements (overflow allowed)			
Catchment Details:						
	Segment 1		Segment 2			
Length of Cate	hment Sheet Flow=	0 ft	Length of Catchment Sheet Flow= 0			
_			Approximate Catchment Slope= 8%			
Approximate	Catchment Slope=	9%	Approximate Catchment Slope=1070			
	Segment 3		Segment 4			
Length of Catchm	nent Shallow Flow=	0 ft	Length of Catchment Shallow Flow= 0 ft			
Approximate	Catchment Slope=	50%	Approximate Catchment Slope= 50%			
Flow Velocity	Pre Development=	14.0 ft/s	Flow Velocity Pre Development= 14.0 ft/s			
_	Post Development=		Flow Velocity Post Development= 14.0 ft/s			
I low volucity i	-03t Development	14.0	1 low velocity rost bevelopment-			
	Commant E		Commont 6			
	Segment 5		Segment 6			
	pen Channel Flow=		Length of Open Channel Flow= 0 ft			
Approximate	Catchment Slope=	5%	Approximate Catchment Slope= 12%			
Cross sec	tional Area of Flow	0.043 sf	Cross sectional Area of Flow 0.045 sf			
	Wetted Perimeter	1.000 ft	Wetted Perimeter 1.560 ft			
Flow Velocity	Pre Development=		Flow Velocity Pre Development= 0.49 ft/s			
-	Post Development=		Flow Velocity Post Development= 4.41 ft/s			
1 1011 101001.5 .	OSt Development	0.72	1 low velocity Foot Development			
Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8	Mannings Rough. Coeff. Pre Dev. Open Flow= 0.1			
	. Coeff. Post Dev. S		Mannings Rough. Coeff. Post Dev. Open Flow= 0.011			
Site Data-Post Develop	ment					
Total Square Footage	e Impervious Area=	0.1 sqft	Total Square Footage Pervious Area= 0 sqft			
	pervious Area CN=	98	Pervious Area CN=			
••••	ipervious Area ON-	30	1 civious Aicu On-			
Total Causes Footoge	of Ducinous Auson	Ooft	Time of Concentration Post Povelonment			
Total Square Footage	_		Time of Concentration Post Development= 0.0 min			
Weig	ghted Average CN=	98				
Site Data-Pre Developm	ent (Data in th	is section is only used i	if Flow Control is required)			
	-Development CN=	85	Time of Concentration Pre-Development= 0.0 min			
Soil Data						
Tested So	oil Infiltration Rate=	64 in/hr (See Note	tte 4) Destination Design= 4 in/hr			
	il Infiltration Rate=	4 in/hr	Soil Infiltration Rate			
			on minute nate			
Design Storms Used Fo	or Calculations					
Requirement	Rainfall Depth	Design Storm				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall	all I			

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	1800.000

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	
Facility = 0 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 0.1 in	Overflow to Planter: E9
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction	n Standards?
YES Meets Requirement of No Facility Flood	ling? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18	Hour Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.341 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.330 cfs
Facility = 607 cf	Total Overflow Volume= 432 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 0.2 hours	Overflow to Planter: E9
Pre-Development Runoff Data Peak Flow Rate = 0.000 cfs Total Runoff Volume = 0 cf	
NO Facility Sizing Meets Flow Control Stand	lards?
NO Meets Requirement for Post Developme YES Meets Requirement for Maximum of 18	ent offsite flow less or equal to Pre-Development Flow? Hour Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.330 cfs
Total Runoff Volume to Stormwater	-
Facility = 0 of Max. Depth of Stormwater in Facility = 12.0 in	Total Overflow Volume= 432 cf Overflow to Planter: F9
Max. Depth of Stormwater in Facility= 12.0 in Drawdown Time= 0.2 hours	Overnow to Flanter. E9
Diawdown Time 0.2 nours	
NO Facility Sizing Meets Destination Standa	rds?
NO Meets Requirement of No Facility Flood YES Meets Requirement for Maximum of 18	=

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information		Tire o Type In Trainian						
Project Name:	21038.01 - Stonefie	ld Court Subdivison	Date: 12/2	22/2021				
Project Address:		ive 18-12-04-44-03800	Permit Number: NA					
•	Florence, OR 97439		Planter ID: E9					
Designer:	Brodie Davis		Input Planter ID 1: E8					
			Input Planter ID 2: Non	<u>ne</u>				
Instructions:			Overflow Planter ID: E10					
Design Requirements:								
Choose "Yes" from the di	ropdown boxes below	next to the design standards	requirements for this facility.					
Pollution Reduction		3	,					
Flow Contr	` '							
	` '							
Destination	on (DT) Yes	*An infiltration facility must be chosen	as the facility type to meet destination requirements (overflo	ow allowed)				
Catchment Details:								
	Segment 1		Segment 2					
I amouth of Cata	_	100 ft		ft				
_	hment Sheet Flow=		Length of Catchment Sheet Flow=	ft				
Approximate	Catchment Slope=	9%	Approximate Catchment Slope= 8%					
	Segment 3		Segment 4					
Length of Catchn	nent Shallow Flow=	63 ft	Length of Catchment Shallow Flow= 0	ft				
Approximate	Catchment Slope=	9%	Approximate Catchment Slope= 50%	6				
• •	Pre Development=		Flow Velocity Pre Development= 14.0					
•	Post Development=		Flow Velocity Post Development= 14.0					
I low velocity i	ost Development-	103	1 low velocity Post Development	103				
	0		0 10					
	Segment 5	_	Segment 6	_				
	pen Channel Flow=		Length of Open Channel Flow= 0	ft				
Approximate	Catchment Slope=	5%	Approximate Catchment Slope= 12%	ó				
Cross sec	tional Area of Flow	0.043 sf	Cross sectional Area of Flow 0.04	45 sf				
	Wetted Perimeter	1.000 ft	Wetted Perimeter 1.56	60 ft				
Flow Velocity	Pre Development=	0.41 ft/s	Flow Velocity Pre Development= 0.49	9 ft/s				
Flow Velocity I	Post Development=	3.72 ft/s	Flow Velocity Post Development= 4.41					
,		•						
Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8	Mannings Rough. Coeff. Pre Dev. Ope	en Flow= 0.1				
	. Coeff. Post Dev. S		Mannings Rough. Coeff. Post Dev. Ope					
9		0.011	Mainings Rough. Coen. Post Dev. Ope	11110W= 0.011				
Site Data-Post Develop		1000						
Total Square Footage	•	1288 sqft	Total Square Footage Pervious Area=	0 sqft				
Im	pervious Area CN=	98	Pervious Area CN=	85				
	·							
Total Square Footage	of Drainage Area=	1288 sft Tin	ne of Concentration Post Development=	0.8 min				
Wei	ghted Average CN=	98						
Site Data-Pre Developm	ont (Data in th	is section is only used if Flo	w Control is required)					
	·		<u> </u>					
	-Development CN=	85 Ti	me of Concentration Pre-Development=	21.6 min				
Soil Data								
	oil Infiltration Rate= oil Infiltration Rate=	64 in/hr (See Note 4) 4 in/hr	Destination Design= Soil Infiltration Rate	4 in/hr				
Design Storms Used Fo	or Calculations							
Requirement	Rainfall Depth	Design Storm						
Pollution Reduction	0.83 inches	Water Quality						
Flow Control	5.06 inches	Flood Control						
Destination	5.06 inches	Flood Control						
Time of Concentration	3.46 inches	2-Year, 24- Hour Rainfall						

Facility Data					
Facility Type =	I	nfiltration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft	_		Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.140

Pollution Reduction-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.006 cfs	Peak Facility Overflow Rate= 0.000 cfs							
Total Runoff Volume to Stormwater								
Facility = 67 cf	Total Overflow Volume= 0 cf							
Max. Depth of Stormwater in Facility= 3.1 in	Overflow to Planter: E10							
Drawdown Time= 0.2 hours								
Yes Facility Sizing Meets Pollution Reduction	on Standards?							
YES Meets Requirement of No Facility Floo	ding? (Overflow Permitted into Separate Planter to meet Standards)							
YES Meets Requirement for Maximum of 18	B Hour Drawdown Time?							
Flow Control-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.377 cfs	Peak Facility Overflow Rate= 0.366 cfs							
Total Runoff Volume to Stormwater								
Facility = 947 cf	Total Overflow Volume= 458 cf							
	Peak Off-Site Flow Rate							
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain N\A cfs							
Drawdown Time= 0.3 hours	Overflow to Planter: E10							
Pre-Development Runoff Data								
Peak Flow Rate = 0.021 cfs								
Total Runoff Volume = 367 cf								
NO Facility Sizing Meets Flow Control Stan	dards?							
NO Meets Requirement for Post Developm YES Meets Requirement for Maximum of 18	nent offsite flow less or equal to Pre-Development Flow? B Hour Drawdown Time?							
Destination-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.047 cfs	Peak Facility Overflow Rate= 0.366 cfs							
Total Runoff Volume to Stormwater Facility = 517 cf	Total Overflow Volumes 459 of							
Facility = 517 cf Max. Depth of Stormwater in Facility= 12.0 in	Total Overflow Volume= 458 cf Overflow to Planter: E10							
Drawdown Time= 0.3 hours	overnour to Figure 2.10							
NO Facility Sizing Meets Destination Stand	ards?							
NO Meets Requirement of No Facility Floo YES Meets Requirement for Maximum of 18	=							

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>					
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:			rive 18-12-04-44-03800		Permit Number:			
1.10,000.7144.1000.		OR 9743			Planter ID:			
Designer:	Brodie Da		<u> 2</u>		Input Planter ID 1:			
Designer.	Di ouie Da	<u>avi5</u>						
					Input Planter ID 2:			
Instructions:					Overflow Planter ID:	<u>E11</u>		
Design Requirements:								
Choose "Yes" from the di	ropdown bo	oxes belov	v next to the design stand	dards requi	rements for this facility.			
Pollution Reduction	_	Yes	l		•			
	` ′							
Flow Contr	OI (FC)	Yes						
Destination	on (DT)	Yes	*An infiltration facility must be o	chosen as the	facility type to meet destination requirements (overflow allowed)		
Catchment Details:	\ /		,		, ,	,		
Outconnent Details.								
	Segme	ent 1			Segment 2			
Length of Catc	_		100 ft		Length of Catchment Sheet Flow=	0 ft		
_					_			
Approximate	Catchme	nt Slope=	9%		Approximate Catchment Slope=	8%		
	Segme	ent 3			Segment 4			
Length of Catchn	nent Shallo	ow Flow=	64 ft	1.	ength of Catchment Shallow Flow=	0 ft		
				_	_			
Approximate		_			Approximate Catchment Slope=			
Flow Velocity	Pre Deve	lopment=	0.8 ft/s		Flow Velocity Pre Development=	14.0 ft/s		
Flow Velocity I	Post Devel	lopment=	6.0 ft/s		Flow Velocity Post Development=	14.0 ft/s		
,					,	·		
	C	4 -			Sammant C			
	Segme				Segment 6			
Length of O	pen Chanr	nel Flow=	0 ft		Length of Open Channel Flow=	0 ft		
Approximate	Catchme	nt Slope=	5%		Approximate Catchment Slope=	12%		
• •	tional Are	-			Cross sectional Area of Flow			
01033 360								
		Perimeter			Wetted Perimeter			
Flow Velocity	Pre Deve	lopment=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s		
Flow Velocity I	Post Devel	lopment=	3.72 ft/s		Flow Velocity Post Development=	4.41 ft/s		
•		•		•	•			
Mannings Roug	h Cooff B	Pro Dov. S	hoot Flow- 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flows 0.1		
•								
Mannings Rough	. Coeff. Po	ost Dev. S	heet Flow= 0.011		Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
Site Data-Post Develop	ment							
Oite Data-i Ost Developi	illonit							
Total Square Footage	e Impervio	us Area=	3275.5 sqft	To	tal Square Footage Pervious Area=	0 sqft		
-	-				•			
ım	pervious	Area CN-	98		Pervious Area CN=	85		
Total Square Footage	of Draina	age Area=	3276 sft	Time of	Concentration Post Development=	0.8 min		
Wei	ghted Ave	rage CN=	98		-			
	_							
Site Data-Pre Developm	nent (Data in th	is section is only used	if Flow Co	ontrol is required)			
Dro	-Developr	mont CN-	85	Time o	f Concentration Pre-Development=	21.6 min		
FIE	-Developi	Hent CN-	00	Tille	1 Concentration Fre-Development	21.0		
Soil Data								
	oil Infiltrati		64 in/hr (See Not	te 4)	Destination Design=			
Design Storms Used Fo	oil Infiltrati		4 in/hr		Soil Infiltration Rate			
	ı							
Requirement	Rainfal	I Depth	Design Storm					
Pollution Reduction	0.83 i	nches	Water Quality					
Flow Control		nches	Flood Control					
Destination	5.06 i		Flood Control					
Time of Concentration	3.46 i	nches	2-Year, 24- Hour Rainfal	II				

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.055

Pollution Reduction-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.016 cf	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= 6.2 in	Overflow to Planter: E11							
Drawdown Time= 0.2 hours								
Yes Facility Sizing Meets Pollut	Yes Facility Sizing Meets Pollution Reduction Standards?							
YES Meets Requirement of N	o Facility Flooding? (Overflow Permitted into Separate Planter to meet Standards)							
YES Meets Requirement for I	Maximum of 18 Hour Drawdown Time?							
Flow Control-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.487 cf	Peak Facility Overflow Rate= 0.476 cfs							
Total Runoff Volume to Stormwater	,							
Facility = 1774 cf	Total Overflow Volume= 892 cf							
	Peak Off-Site Flow Rate							
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs							
Drawdown Time= 1.3 ho	ours Overflow to Planter: E11							
Pre-Development Runoff Data Peak Flow Rate = 0.054 cf. Total Runoff Volume = 934 cf. NO Facility Sizing Meets Flow 0								
r domey claiming moote rion of	on or orange and a							
	Post Development offsite flow less or equal to Pre-Development Flow? Maximum of 18 Hour Drawdown Time?							
Destination-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.121 cf	Peak Facility Overflow Rate= 0.476 cfs							
Facility = 1316 cf	Total Overflow Volume= 892 cf							
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E11							
Drawdown Time= 1.3 ho	ours							
NO Facility Sizing Meets Destir	nation Standards?							
NO Meets Requirement of N YES Meets Requirement for I	o Facility Flooding? Maximum of 18 hour Drawdown Time?							

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information	24 11001 0t011,	THEOUT PO TA ING.						
Project Name:	21038.01 - Stonefie	ld Court Subdivison		Date:	12/22/2021			
Project Address:	Rhodeodendron Di	rive 18-12-04-44-03800		Permit Number:				
	Florence, OR 97439			Planter ID:				
Designer:	Brodie Davis			Input Planter ID 1:				
				Input Planter ID 2:				
Instructions:				Overflow Planter ID:	<u>E12</u>			
Design Requirements:								
Choose "Yes" from the dr	randown hoxes below	v next to the design stand	ards require	ments for this facility				
Pollution Reduction		I HEAL TO THE GOORS TOTAL	arus roquii s	illelies for this facility.				
	` '							
Flow Contr	` '							
Destination	on (DT) Yes	*An infiltration facility must be cl	hosen as the fa	cility type to meet destination requirements (overflow allowed)			
Catchment Details:								
	Segment 1			Segment 2				
Length of Catcl	hment Sheet Flow=	0 ft	L	ength of Catchment Sheet Flow=	0 ft			
_	Catchment Slope=			Approximate Catchment Slope=				
	-							
	Segment 3			Segment 4				
Length of Catchm	nent Shallow Flow=	0 ft	Ler	gth of Catchment Shallow Flow=	0 ft			
	Catchment Slope=			Approximate Catchment Slope=				
• •	•							
_	Pre Development=			Flow Velocity Pre Development=				
Flow Velocity I	Post Development=	6.0 ft/s	ŀ	Flow Velocity Post Development=	14.0 ft/s			
	- , -							
	Segment 5			Segment 6				
	pen Channel Flow=			Length of Open Channel Flow=				
Approximate	Catchment Slope=	5%		Approximate Catchment Slope=	12%			
Cross sec	tional Area of Flow	0.043 sf		Cross sectional Area of Flow	0.045 sf			
	Wetted Perimeter	1.000 ft		Wetted Perimeter	1.560 ft			
Flow Velocity	Pre Development=		Ī	Flow Velocity Pre Development=				
_	Post Development=			Flow Velocity Post Development=				
,			Ţ	, , , , , , , , , , , , , , , , , , , ,				
Mannings Rougi	h. Coeff. Pre Dev. S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1			
	. Coeff. Post Dev. S		M	annings Rough. Coeff. Post Dev.	Open Flow= 0.011			
Site Data-Post Develop	mont							
Total Square Footage	e Impervious Area=	•	Tota	I Square Footage Pervious Area=	0 sqft			
lm	pervious Area CN=	98		Pervious Area CN=	85			
Total Square Footage	of Drainage Area=	0 sft	Time of C	oncentration Post Development=	0.0 min			
Weig	ghted Average CN=	98						
Site Data-Pre Developm	ent (Data in th	is section is only used i	if Flow Con	trol is required)				
Pre	-Development CN=	85	Time of	Concentration Pre-Development=	0.0 min			
	-Bevelopinient oit-	00	Time of	Someoni ation i re-Bevelopinent-	0.0			
Soil Data		<u> </u>						
	il Infiltration Rate=	64 in/hr (See Note	e 4)	Destination Design=	4 in/hr			
Design So	oil Infiltration Rate=	4 in/hr		Soil Infiltration Rate				
Design Storms Used Fo	r Calculations							
Requirement	Rainfall Depth	Design Storm						
Pollution Reduction	0.83 inches	Water Quality						
Flow Control	5.06 inches	Flood Control						
Destination	5.06 inches	Flood Control						
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall						

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	1800.000

Pollution Reduction-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.000 cfs								
Total Runoff Volume to Stormwater	,								
Facility = 0 cf	Total Overflow Volume= 0 cf								
Max. Depth of Stormwater in Facility= 0.1 in	Overflow to Planter: E12								
Drawdown Time= 0.2 hours	Drawdown Time= 0.2 hours								
Yes Facility Sizing Meets Pollution Reduction	n Standards?								
YES Meets Requirement of No Facility Flood	ing? (Overflow Permitted into Separate Planter to meet Standards)								
YES Meets Requirement for Maximum of 18 H	Hour Drawdown Time?								
Flow Control-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.476 cfs Total Runoff Volume to Stormwater Facility = 892 cf	Peak Facility Overflow Rate= 0.464 cfs Total Overflow Volume= 609 cf								
	Peak Off-Site Flow Rate								
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs								
Drawdown Time= 0.2 hours	Overflow to Planter: E12								
Pre-Development Runoff Data Peak Flow Rate = 0.000 cfs Total Runoff Volume = 0 cf NO Facility Sizing Meets Flow Control Stand	ards?								
YES Meets Requirement for Maximum of 18 H	nt offsite flow less or equal to Pre-Development Flow? Hour Drawdown Time?								
Destination-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.464 cfs								
Total Runoff Volume to Stormwater Facility = 0 of	Total Quartless Valuman								
Max. Depth of Stormwater in Facility= 12.0 in	Total Overflow Volume= 609 cf Overflow to Planter: F12								
Drawdown Time= 0.2 hours	evernous to Figure 12								
NO Facility Sizing Meets Destination Standar	rds?								
NO Meets Requirement of No Facility Flood YES Meets Requirement for Maximum of 18 h	=								

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u>, , , , , , , , , , , , , , , , , , , </u>					
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:			rive 18-12-04-44-03800		Permit Number:			
1.10,000.7144.1000.	Florence,				Planter ID:			
Designer:	Brodie Da		2		Input Planter ID 1:			
Designer.	Di ouie Da	1715			<u> </u>			
					Input Planter ID 2:			
Instructions:					Overflow Planter ID:	<u>E13</u>		
Design Requirements:								
Choose "Yes" from the di	ropdown bo	oxes belov	next to the design stand	dards requir	rements for this facility.			
Pollution Reduction	_	Yes		•	•			
	` ′							
Flow Contr	OI (FC)	Yes						
Destination	on (DT)	Yes	*An infiltration facility must be o	chosen as the	facility type to meet destination requirements (overflow allowed)		
Catchment Details:	· /		,		, ,	,		
Outconnent Details.								
	Segme	ent 1			Segment 2			
Length of Catc	-		100 ft		Length of Catchment Sheet Flow=	0 ft		
•					_			
Approximate	Catchmer	nt Siope=	12%		Approximate Catchment Slope=	8%		
	Segme	ent 3			Segment 4			
Length of Catchn	nent Shallo	w Flow=	80 ft	16	ength of Catchment Shallow Flow=	0 ft		
					_			
Approximate		-			Approximate Catchment Slope=			
Flow Velocity	Pre Devel	opment=	0.8 ft/s		Flow Velocity Pre Development=	14.0 ft/s		
Flow Velocity I	Post Devel	opment=	6.0 ft/s		Flow Velocity Post Development=	14.0 ft/s		
,					, , , , , , , , , , , , , , , , , , , ,			
	C				Commont C			
	Segme				Segment 6			
Length of O	pen Chann	nel Flow=	0 ft		Length of Open Channel Flow=	0 ft		
Approximate	Catchmer	nt Slope=	5%		Approximate Catchment Slope=	12%		
• •	tional Area	-			Cross sectional Area of Flow			
01033 360								
		Perimeter			Wetted Perimeter			
Flow Velocity	Pre Devel	opment=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s		
Flow Velocity I	Post Devel	opment=	3.72 ft/s		Flow Velocity Post Development=	4.41 ft/s		
•		•						
Mannings Roug	h Cooff B	ro Dov. S	hoot Flow = 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow 0.1		
•								
Mannings Rough	. Coeff. Po	st Dev. S	heet Flow= 0.011		Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
Site Data-Post Develop	mont							
Oite Data-i Ost Developi	illollit							
Total Square Footage	e Impervio	us Area=	1558 sqft	Tof	al Square Footage Pervious Area=	0 sqft		
	pervious A		98		Pervious Area CN=			
•••	ipei vious A	Alea CIV-	98		reivious Alea CN-	85		
Total Square Footage	of Draina	ge Area=	1558 sft	Time of	Concentration Post Development=	0.8 min		
Wei	ghted Avei	rage CN=	98					
	_							
Site Data-Pre Developm	ient (l	Data in th	is section is only used	If Flow Co	ntrol is required)			
Pre	-Developn	nent CN=	85	Time of	f Concentration Pre-Development=	19.3 min		
Soil Data								
Tested So	oil Infiltrati	on Rate=	64 in/hr (See Not	e 4)	Destination Design=	4 in/hr		
	oil Infiltrati		4 in/hr		Soil Infiltration Rate			
Design Storms Used Fo								
	ı		_					
Requirement	Rainfall	Depth	Design Storm					
Pollution Reduction	0.83 ir	nches	Water Quality					
Flow Control	5.06 ir		Flood Control					
Destination	5.06 ir		Flood Control					
Time of Concentration	3.46 ir	nches	2-Year, 24- Hour Rainfal	il				

Facility Data					
Facility Type =	I	nfiltration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft	_		Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.116

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.008 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	
Facility = 81 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 3.6 in	Overflow to Planter: E13
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction	n Standards?
YES Meets Requirement of No Facility Flood	ling? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18	Hour Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.522 cfs	Peak Facility Overflow Rate= 0.511 cfs
Total Runoff Volume to Stormwater	
Facility = 1232 cf	Total Overflow Volume= 667 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility=	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 0.5 hours	Overflow to Planter: E13
Pre-Development Runoff Data	
Peak Flow Rate = 0.027 cfs	
Total Runoff Volume = 444 cf	
NO Facility Sizing Meets Flow Control Stand	lards?
NO Meets Requirement for Post Developme YES Meets Requirement for Maximum of 18	ent offsite flow less or equal to Pre-Development Flow? Hour Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.058 cfs	Peak Facility Overflow Rate= 0.511 cfs
Total Runoff Volume to Stormwater	Total Quarters Values and CO7 of
Facility = 626 cf Max. Depth of Stormwater in Facility = 12.0 in	Total Overflow Volume= 667 cf Overflow to Planter: E13
Drawdown Time= 0.5 hours	Overnow to Flanter. [15
2.0.00	
NO Facility Sizing Meets Destination Standa	rds?
NO Meets Requirement of No Facility Flood YES Meets Requirement for Maximum of 18	=

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>					
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:			rive 18-12-04-44-03800		Permit Number:			
1.10,000.7144.1000.		OR 9743			Planter ID:			
Designer:	Brodie D		<u>2</u>		Input Planter ID 1:			
Designer.	Di oule D	avis						
					Input Planter ID 2:			
Instructions:					Overflow Planter ID:	<u>E14</u>		
Design Requirements:								
Choose "Yes" from the dr	ropdown b	oxes belov	v next to the design stand	dards requir	ements for this facility.			
Pollution Reduction		Yes	l	•	,			
	` ′							
Flow Contr	OI (FC)	Yes						
Destination	on (DT)	Yes	*An infiltration facility must be	chosen as the	facility type to meet destination requirements (overflow allowed)		
Catchment Details:	\ /		•		, ,	,		
Outconnent Details.								
	Segme	ent 1			Segment 2			
Length of Catc	•		100 ft		Length of Catchment Sheet Flow=	0 ft		
_					-			
Approximate	Catchme	nt Slope=	9%		Approximate Catchment Slope=	8%		
	Segme	ent 3			Segment 4			
Length of Catchr	ent Shall	ow Flow=	64 ft	l e	ength of Catchment Shallow Flow=	0 ft		
					_			
Approximate		_			Approximate Catchment Slope=			
Flow Velocity	Pre Deve	lopment=	0.8 ft/s		Flow Velocity Pre Development=	14.0 ft/s		
Flow Velocity F	Post Deve	lopment=	6.0 ft/s		Flow Velocity Post Development=	14.0 ft/s		
					, , , , , , , , , , , , , , , , , , , ,			
	C	4 -			Commont C			
	Segm				Segment 6			
Length of O	pen Chan	nel Flow=	30 ft		Length of Open Channel Flow=	0 ft		
Approximate	Catchme	nt Slope=	3%		Approximate Catchment Slope=	12%		
Cross sec	tional Are	a of Flow	0.025 sf		Cross sectional Area of Flow	0.045 sf		
0.000 000								
		Perimeter			Wetted Perimeter			
Flow Velocity	Pre Deve	lopment=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s		
Flow Velocity F	Post Deve	lopment=	3.76 ft/s		Flow Velocity Post Development=	4.41 ft/s		
				_				
Mannings Roug	h. Coeff. F	Pre Dev. S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1		
Mannings Rough	. Coeff. Po	ost Dev. S	heet Flow= 0.011		Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
					. 33			
Site Data-Post Develop								
Total Square Footage	e Impervio	ous Area=	2500 sqft	Tot	al Square Footage Pervious Area=	0 sqft		
Im	pervious	Area CN=	98		Pervious Area CN=	85		
Total Square Footage	of Duning		2500 off	Time of	Concentration Doct Development	1.0 min		
		•		i ime or	Concentration Post Development=	1.0 min		
Weig	ghted Ave	rage CN=	98					
Site Data-Pre Developm	ent (Data in th	is section is only used	if Flow Co	ntrol is required)			
Pre	-Developi	ment CN=	85	Time of	Concentration Pre-Development=	22.8 min		
Soil Data								
Tested So	ail Infiltrat	ion Pato-	64 in/hr (See Not	te 4)	Destination Design=	4 in/hr		
Design So			4 in/hr	.6 4)	Soil Infiltration Rate			
Design Storms Used Fo			4 111/111		Joh minu audit Kate			
Requirement		I Depth	Design Storm					
Pollution Reduction		nches	Water Quality					
Flow Control	5.06 i	nches	Flood Control					
Destination	5.06 i	nches	Flood Control					
Time of Concentration		nches	2-Year, 24- Hour Rainfa					

Facility Data					
Facility Type =	I	nfiltration Swale		Facility Surface Area=	187.5 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12.5 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	5.43 ft	_		Facility End Slope=	4 to 1
Max. Ponding Depth =	12 in			Basin Volume=	44.2 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.075

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 = 131 cf	Total Overflow Volume= 0 cf				
Max. Depth of Stormwater in Facility= 5.0 in	Overflow to Planter: E14				
Drawdown Time= 0.2 hours					
Yes Facility Sizing Meets Pollution Reduction St	andards?				
YES Meets Requirement of No Facility Flooding?	? (Overflow Permitted into Separate Planter to meet Standards)				
YES Meets Requirement for Maximum of 18 Hou	r Drawdown Time?				
Flow Control-Calculation Results					
Peak Flow Rate to Stormwater Facility = 0.602 cfs	Peak Facility Overflow Rate= 0.591 cfs				
Total Runoff Volume to Stormwater					
Facility = 1671 cf	Total Overflow Volume= 905 cf				
	Peak Off-Site Flow Rate				
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs				
Drawdown Time= 0.8 hours	Overflow to Planter: E14				
Pre-Development Runoff Data					
Peak Flow Rate = 0.041 cfs					
Total Runoff Volume = 713 cf					
NO Facility Sizing Meets Flow Control Standard	s?				
NO Meets Requirement for Post Development o YES Meets Requirement for Maximum of 18 Hour	ffsite flow less or equal to Pre-Development Flow? r Drawdown Time?				
Destination-Calculation Results					
Peak Flow Rate to Stormwater Facility = 0.092 cfs	Peak Facility Overflow Rate= 0.591 cfs				
Total Runoff Volume to Stormwater	7 (10 %)/ (10 %)				
Facility = 1004 cf	Total Overflow Volume= 905 cf Overflow to Planter: F14				
Max. Depth of Stormwater in Facility= 12.0 in Drawdown Time= 0.8 hours	Overnow to Flamer. E14				
Diawdown Time 0.8 nours					
NO Facility Sizing Meets Destination Standards	?				
NO Meets Requirement of No Facility Flooding? YES Meets Requirement for Maximum of 18 hour					

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 Hour Gronn,	interest i per intritalina i e					
Project Name:	21038 01 - Stonefie	ld Court Subdivison	Date:	12/22/2021			
Project Address:		ive 18-12-04-44-03800	Permit Number:				
110,001714410001	Florence, OR 97439		Planter ID:				
Designer:	Brodie Davis		Input Planter ID 1:				
	<u> </u>		Input Planter ID 2:				
Instructions:			Overflow Planter ID:				
Design Requirements:							
Choose "Yes" from the di	ropdown boxes below	next to the design standards r	requirements for this facility				
Pollution Reduction			- 4				
	` '						
Flow Contr	` '						
Destination	on (DT) Yes	*An infiltration facility must be chosen a	as the facility type to meet destination requirements (overflow allowed)			
Catchment Details:							
	Segment 1		Segment 2				
_	hment Sheet Flow=		Length of Catchment Sheet Flow=	0 ft			
Approximate	Catchment Slope=	11%	Approximate Catchment Slope=	8%			
	•						
	Segment 3		Segment 4				
Length of Catchin	nent Shallow Flow=	95 ft	Length of Catchment Shallow Flow=	0 ft			
_			•				
• •	Catchment Slope=		Approximate Catchment Slope=				
Flow Velocity	Pre Development=	0.8 ft/s	Flow Velocity Pre Development=	14.0 ft/s			
Flow Velocity I	Post Development=	6.0 ft/s	Flow Velocity Post Development=	14.0 ft/s			
	Segment 5		Segment 6				
Length of O	pen Channel Flow=	0 ft	Length of Open Channel Flow=	0 ft			
	Catchment Slope=		Approximate Catchment Slope=				
Cross sec	tional Area of Flow		Cross sectional Area of Flow				
	Wetted Perimeter	1.000 ft	Wetted Perimeter	1.560 ft			
Flow Velocity	Pre Development=	0.41 ft/s	Flow Velocity Pre Development=	0.49 ft/s			
Flow Velocity I	Post Development=	3.72 ft/s	Flow Velocity Post Development=				
,		•	1	·			
Mannings Roug	h. Coeff. Pre Dev. S	heet Flow= 0.8	Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1			
	. Coeff. Post Dev. S		5 5				
9		heet Flow= 0.011	Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011			
Site Data-Post Develop							
Total Square Footage	e Impervious Area=	3345 sqft	Total Square Footage Pervious Area=				
Im	pervious Area CN=	98	Pervious Area CN=	85			
	•						
Total Square Footage	of Drainage Area=	3345 sft Tim e	e of Concentration Post Development=	0.9 min			
. Wei	ghted Average CN=	98	•				
- '	J J -						
Site Data-Pre Developm	ient (Data in th	is section is only used if Flov	v Control is required)				
	-Development CN=	85 Tin	ne of Concentration Pre-Development=	20.3 min			
Soil Data							
	oil Infiltration Rate=	64 in/hr (See Note 4)	Destination Design=				
	oil Infiltration Rate=	4 in/hr	Soil Infiltration Rate				
Design Storms Used Fo	or Calculations						
Requirement	Rainfall Depth	Design Storm					
Pollution Reduction	0.83 inches	Water Quality					
Flow Control	5.06 inches	Flood Control	_				
			\dashv				
Destination	5.06 inches	Flood Control					
Time of Concentration	3.46 inches	2-Year, 24- Hour Rainfall					

Facility Data					
Facility Type =	li	nfiltration Swale		Facility Surface Area=	303 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	20.2 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	8.53 ft	_		Facility End Slope=	4 to 1
Max. Ponding Depth =	12 in			Basin Volume=	57.9 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.091

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.017 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	
Facility = 175 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 6.1 in	Overflow to Planter: E15
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction St	andards?
YES Meets Requirement of No Facility Flooding?	? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18 Hou	r Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.715 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.701 cfs
Facility = 2249 cf	Total Overflow Volume= 1254 cf
	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 1.0 hours	Overflow to Planter: E15
Pre-Development Runoff Data Peak Flow Rate = 0.056 cfs Total Runoff Volume = 954 cf NO Facility Sizing Meets Flow Control Standard	
NO Meets Requirement for Post Development o YES Meets Requirement for Maximum of 18 Hour	offsite flow less or equal to Pre-Development Flow? Torawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.123 cfs Total Runoff Volume to Stormwater Facility = 1344 cf	Peak Facility Overflow Rate= 0.701 cfs Total Overflow Volume= 1254 cf
Max. Depth of Stormwater in Facility= 12.0 in Drawdown Time= 1.0 hours	Overflow to Planter: E15
NO Facility Sizing Meets Destination Standards	?
NO Meets Requirement of No Facility Flooding? YES Meets Requirement for Maximum of 18 hour	

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>				
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021	
Project Address:			rive 18-12-04-44-03800		Permit Number:		
1.10,000.7144.1000.		OR 9743			Planter ID:		
Designer:	Brodie D		<u> </u>		Input Planter ID 1:		
Designer.	Di oule D	avis					
					Input Planter ID 2:		
Instructions:					Overflow Planter ID:	<u>E16</u>	
Design Requirements:							
Choose "Yes" from the di	ropdown b	oxes belov	next to the design stand	dards requi	rements for this facility.		
Pollution Reduction		Yes	l		,		
	` ′						
Flow Contr	ol (FC)	Yes					
Destination	on (DT)	Yes	*An infiltration facility must be	chosen as the	facility type to meet destination requirements (overflow allowed)	
Catchment Details:	\ /		•		, ,	,	
Outconnent Details.							
	Segme	ent 1			Segment 2		
Length of Catc	•		100 ft		Length of Catchment Sheet Flow=	0 ft	
_					_		
Approximate	Catchme	nt Slope=	9%		Approximate Catchment Slope=	8%	
	Segm	ent 3			Segment 4		
Length of Catchn	ent Shall	ow Flow=	75 ft	Le	ength of Catchment Shallow Flow=	0 ft	
Approximate					Approximate Catchment Slope=		
		_					
Flow Velocity		•			Flow Velocity Pre Development=		
Flow Velocity I	Post Deve	lopment=	6.0 ft/s		Flow Velocity Post Development=	14.0 ft/s	
	Segm	ent 5			Segment 6		
l amouth of O	_		0			0 4	
Length of O					Length of Open Channel Flow=		
Approximate	Catchme	nt Slope=	5%		Approximate Catchment Slope=	12%	
Cross sec	tional Are	a of Flow	0.043 sf		Cross sectional Area of Flow	0.045 sf	
	Wetted	Perimeter	1.000 ft		Wetted Perimeter	1.560 ft	
Flam Valación				1			
Flow Velocity		-			Flow Velocity Pre Development=		
Flow Velocity I	Post Deve	lopment=	3.72 ft/s	I	Flow Velocity Post Development=	ft/s	
Mannings Roug	h. Coeff F	Pre Dev S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
Mannings Rough					Mannings Rough. Coeff. Post Dev.		
		osi Dev. S	neet Flow= 0.011		Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011	
Site Data-Post Develop							
Total Square Footage	e Impervio	ous Area=	4047 sqft	Tot	al Square Footage Pervious Area=	0 sqft	
Im	pervious	Area CN=	98		Pervious Area CN=	85	
Total Square Footage	of Draina	ano Aros=	4047 sft	Time of	Concentration Post Development=	0.8 min	
		•		Time of	Concentration 1 ost Development	0.0	
vvei	gntea Ave	rage CN=	98				
Site Data-Pre Developm	ent (Data in th	is section is only used	if Flow Co	ntrol is required)		
					, ,	04.4	
	-Developi	ment CN=	85	lime o	f Concentration Pre-Development=	21.4 min	
Soil Data							
Tested So Design So		ion Rate= ion Rate=	64 in/hr (See Not	te 4)	Destination Design= Soil Infiltration Rate		
Design Storms Used Fo	r Calculat	tions					
Requirement	Rainfal	II Depth	Design Storm				
Pollution Reduction		nches	Water Quality				
Flow Control	+ +	inches	Flood Control				
Destination	5.06 i	inches	Flood Control				
Time of Concentration	3.46 i	inches	2-Year, 24- Hour Rainfa	II			

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	187.5 sqft
Surface Width =	15 ft	<u> </u>		Facility Slope=	8.33%
Surface Length =	12.5 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	3.50 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	31.8 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.046

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 = 211 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 9.2 in	Overflow to Planter: E16
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction	n Standards?
YES Meets Requirement of No Facility Flood	ing? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18 H	Hour Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.850 cfs	Peak Facility Overflow Rate= 0.840 cfs
Total Runoff Volume to Stormwater Facility = 2880 cf	Total Overflow Volume= 2063 cf
2000	Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time= 1.5 hours	Overflow to Planter: E16
Pre-Development Runoff Data	
Peak Flow Rate = 0.067 cfs	
Total Runoff Volume = 1155 cf	
NO Facility Sizing Meets Flow Control Stand	ards?
NO Meets Requirement for Post Developme YES Meets Requirement for Maximum of 18 H	nt offsite flow less or equal to Pre-Development Flow? Hour Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.149 cfs	Peak Facility Overflow Rate= 0.840 cfs
Total Runoff Volume to Stormwater	Total Occupion Values and Cooking
Facility = 1626 cf	Total Overflow Volume= 2063 cf Overflow to Planter: E16
Max. Depth of Stormwater in Facility= 12.0 in Drawdown Time= 1.5 hours	Overnow to Flainter. E10
Diawdowii Tillie-	
NO Facility Sizing Meets Destination Standar	rds?
NO Meets Requirement of No Facility Floodi YES Meets Requirement for Maximum of 18 h	=

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information		· • • • • • • • • • • • • • • • • • • •						
Project Name:	21038.01 - Stonef	ield Court Subdivison	Date: 12/22/2021					
Project Address:		Drive 18-12-04-44-03800	Permit Number: NA					
•	Florence, OR 974		Planter ID: E16					
Designer:	Brodie Davis	_	Input Planter ID 1: E15					
· ·			Input Planter ID 2: None					
Instructions:			Overflow Planter ID: E17					
mon donono.			Cromow Figure 15.					
Design Requirements:								
Choose "Yes" from the d	ropdown boxes belo	ow next to the design stand	dards requirements for this facility.					
Pollution Reduction								
	` '							
Flow Conti	` '							
Destination	on (DT) Yes	*An infiltration facility must be	chosen as the facility type to meet destination requirements (overflow allowed)					
Catchment Details:								
			2 12					
	Segment 1		Segment 2					
•	hment Sheet Flow		Length of Catchment Sheet Flow= 0					
Approximate	Catchment Slope	= 9%	Approximate Catchment Slope= 8%					
	Segment 3		Segment 4					
Longth of Catchn	nent Shallow Flow	= <mark>75</mark> ft	Length of Catchment Shallow Flow= 0					
	Catchment Slope		Approximate Catchment Slope= 50%					
Flow Velocity	Pre Development	= <mark>0.8</mark> ft/s	Flow Velocity Pre Development= 14.0 ft/s					
Flow Velocity I	Post Development	= <mark>6.0</mark> ft/s	Flow Velocity Post Development= 14.0 ft/s					
	Segment 5		Segment 6					
Length of O	pen Channel Flow	= 0 ft	Length of Open Channel Flow= 0					
• •	Catchment Slope		Approximate Catchment Slope= 12%					
Cross sec	tional Area of Flo		Cross sectional Area of Flow 0.045					
	Wetted Perimete	r 1.000 ft	Wetted Perimeter 1.560 ft					
Flow Velocity	Pre Development	= 0.41 ft/s	Flow Velocity Pre Development= 0.49 ft/s					
Flow Velocity I	Post Development	= 3.72 ft/s	Flow Velocity Post Development= 4.41 ft/s					
Mannings Roug	h. Coeff. Pre Dev.	Sheet Flow= 0.8	Mannings Rough. Coeff. Pre Dev. Open Flow= 0.1					
		Sheet Flow= 0.011	Mannings Rough. Coeff. Post Dev. Open Flow= 0.011					
		0.011	mainings rough. Soon. 1 Set Sev. Sport flow					
Site Data-Post Develop	ment							
Total Square Footage	e Impervious Area	= 4047 sqft	Total Square Footage Pervious Area= 0 sqft					
lm	pervious Area CN	= 98	Pervious Area CN= 85					
Total Square Footage	•		Time of Concentration Post Development= 0.8 min					
Wei	ghted Average CN	= 98						
Site Data-Pre Developm	nent (Data in	this section is only used	if Flow Control is required)					
Pre	e-Development CN	= 85	Time of Concentration Pre-Development= 21.4 min					
Soil Data								
	oil Infiltration Rate oil Infiltration Rate		e 4) Destination Design= 4 in/hr Soil Infiltration Rate					
Design Storms Used Fo	or Calculations							
Requirement	Rainfall Depth	Design Storm						
Pollution Reduction	0.83 inches	Water Quality						
Flow Control	5.06 inches	Flood Control						
Destination	5.06 inches	Flood Control						
Time of Concentration	3.46 inches	2-Year, 24- Hour Rainfa	d .					

Facility Data					
Facility Type =	li	nfiltration Swale		Facility Surface Area=	187.5 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12.5 ft	Free Board: Start =	2.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	3.50 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	31.8 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.046

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 = 211 cf	Total Overflow Volume= 0 cf								
Max. Depth of Stormwater in Facility= 9.2 in	Overflow to Planter: E17								
Drawdown Time= 0.2 hours									
Yes Facility Sizing Meets Pollution Reduction Standards?									
YES Meets Requirement of No Fa	acility Flooding? (Overflow Permitted into Separate Planter to meet Standards)								
YES Meets Requirement for Maxi	mum of 18 Hour Drawdown Time?								
Flow Control-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.989 cfs	Peak Facility Overflow Rate= 0.980 cfs								
Total Runoff Volume to Stormwater									
Facility = 3689 cf	Total Overflow Volume= 2873 cf								
	Peak Off-Site Flow Rate								
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs								
Drawdown Time= 1.5 hours	Overflow to Planter: E17								
Pre-Development Runoff Data Peak Flow Rate = 0.067 cfs Total Runoff Volume = 1155 cf NO Facility Sizing Meets Flow Con	trol Standards?								
I active of the control of the contr	tioi Staituaius :								
	Development offsite flow less or equal to Pre-Development Flow? mum of 18 Hour Drawdown Time?								
Destination-Calculation Results									
Peak Flow Rate to Stormwater Facility = 0.149 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.980 cfs								
Facility = 1626 cf	Total Overflow Volume= 2873 cf								
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E17								
Drawdown Time= 1.5 hours									
NO Facility Sizing Meets Destination	on Standards?								
NO Meets Requirement of No Fa	ncility Flooding? mum of 18 hour Drawdown Time?								

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>					
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:			rive 18-12-04-44-03800		Permit Number:	NA .		
•	Florence,				Planter ID:	E17		
Designer:	Brodie Da		_		Input Planter ID 1:			
· ·					Input Planter ID 2:			
Instructions:					Overflow Planter ID:			
					CTOCH. Names 12.			
Design Requirements:								
Choose "Yes" from the di	ropdown bo	oxes belov	v next to the design stand	dards requir	ements for this facility			
Pollution Reduction	_	Yes			emente ici ane idemiy.			
	` ′							
Flow Contr	` ′	Yes						
Destination	on (DT)	Yes	*An infiltration facility must be	chosen as the	facility type to meet destination requirements (overflow allowed)		
Catchment Details:								
	_							
	Segme				Segment 2			
Length of Catc	hment She	et Flow=	0 ft		Length of Catchment Sheet Flow=	0 ft		
Approximate	Catchmer	nt Slope=	9%		Approximate Catchment Slope=	8%		
	Segme	ent 3			Segment 4			
Length of Catchn	_		0 ft	l e	ngth of Catchment Shallow Flow=	0 ft		
_					_			
Approximate		-			Approximate Catchment Slope=			
Flow Velocity	Pre Devel	lopment=	0.8 ft/s		Flow Velocity Pre Development=	ft/s		
Flow Velocity I	Post Devel	lopment=	6.0 ft/s		Flow Velocity Post Development=	ft/s		
	Segme	ent 5			Segment 6			
Length of O	_		0 ft		Length of Open Channel Flow=	0 ft		
•	-							
Approximate		-			Approximate Catchment Slope=			
Cross sec	tional Are	a of Flow	0.043 sf		Cross sectional Area of Flow	0.045 sf		
	Wetted F	Perimeter	1.000 ft		Wetted Perimeter	1.560 ft		
Flow Velocity	Pre Devel	-	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s		
Flow Velocity I		-			Flow Velocity Post Development=			
1 low volocity i	OST BUTCH	оршон	0.72	I	Tion velocity i our bevelopment	4.41		
Mannings Roug	h Cooff D	ro Dov. S	hoot Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1		
•								
Mannings Rough	. Coeπ. Po	ost Dev. 5	neet Flow= 0.011	ļ	Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
Site Data-Post Develop	ment							
Total Square Footage	e Impervio	us Area=	0.1 sqft	Tot	al Square Footage Pervious Area=	0 sqft		
	-			100				
ım	pervious A	Area CN=	98		Pervious Area CN=	85		
Total Square Footage	of Draina	ige Area=		Time of	Concentration Post Development=	0.0 min		
Wei	ghted Ave	rage CN=	98					
Site Data-Pre Developm	nent (Data in th	is section is only used	if Flow Co	ntrol is required)			
	•				· · · · · · · · · · · · · · · · · · ·			
	-Developn	nent CN=	85	lime of	Concentration Pre-Development=	: 0.0 min		
Soil Data								
	oil Infiltrati oil Infiltrati		64 in/hr (See Not 4 in/hr	te 4)	Destination Design= Soil Infiltration Rate			
Design Storms Used Fo	r Calculat	ions						
Requirement	Rainfall	l Depth	Design Storm					
Pollution Reduction	0.83 ir		Water Quality					
Flow Control	5.06 ir		Flood Control					
Destination	5.06 ir	nches	Flood Control					
Time of Concentration	3.46 ir	nches	2-Year, 24- Hour Rainfa	II				

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	180 sqft
Surface Width =	15 ft			Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	54.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	1800.000

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	
Facility = 0 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 0.1 in	Overflow to Planter: E18
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction St	tandards?
YES Meets Requirement of No Facility Flooding?	? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18 Hou	r Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.980 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.968 cfs
Facility = 2873 cf	Total Overflow Volume= 2225 cf
May Donth of Chammunton in Facilities 40.0 in	Peak Off-Site Flow Rate Filtration Facility Underdrain= N\A cfs
Max. Depth of Stormwater in Facility= 12.0 in Drawdown Time= 0.3 hours	Filtration Facility Underdrain= N\A cfs Overflow to Planter: E18
Diawdowii Time 0.3 nouis	Overnow to Flanter. E10
Pre-Development Runoff Data	
Peak Flow Rate = 0.000 cfs	
Total Runoff Volume = 0 cf	
NO Facility Sizing Meets Flow Control Standard	ls?
NO Meets Requirement for Post Development of YES Meets Requirement for Maximum of 18 Hou	offsite flow less or equal to Pre-Development Flow? r Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.000 cfs	Peak Facility Overflow Rate= 0.968 cfs
Total Runoff Volume to Stormwater Facility = 0 cf	Total Overflow Volume= 2225 cf
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E18
Drawdown Time= 0.3 hours	evenion to Figure 210
5.5	
NO Facility Sizing Meets Destination Standards	?
NO Meets Requirement of No Facility Flooding? YES Meets Requirement for Maximum of 18 hour	
inotes requirement for maximum of 10 flour	. Brandonii Tillio

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>					
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:			rive 18-12-04-44-03800		Permit Number:			
1.10,000.7144.1000.		OR 9743			Planter ID:			
Designer:	Brodie Da		<u> 2</u>		Input Planter ID 1:			
Designer.	Di ouie Da	avis			<u> </u>			
					Input Planter ID 2:			
Instructions:					Overflow Planter ID:	<u>E19</u>		
Design Requirements:								
Choose "Yes" from the di	ropdown be	oxes belov	v next to the design stand	dards requi	rements for this facility.			
Pollution Reduction	_	Yes	l	•	•			
	` ′							
Flow Contr	OI (FC)	Yes						
Destination	on (DT)	Yes	*An infiltration facility must be o	chosen as the	facility type to meet destination requirements (overflow allowed)		
Catchment Details:	\ /		,		3 31	,		
Outconnent Details.								
	Segme	ent 1			Segment 2			
Length of Catc	_		100 ft		Length of Catchment Sheet Flow=	0 ft		
_					_			
Approximate	Catchme	nt Slope=	9%		Approximate Catchment Slope=	8%		
	Segme	ent 3			Segment 4			
Length of Catchn	ent Shall	ow Flow=	87 ft	1.0	ength of Catchment Shallow Flow=	0 ft		
					_			
Approximate		-			Approximate Catchment Slope=			
Flow Velocity	Pre Deve	lopment=	0.8 ft/s		Flow Velocity Pre Development=	ft/s		
Flow Velocity I	Post Deve	lopment=	6.0 ft/s		Flow Velocity Post Development=	14.0 ft/s		
,					, , , , , , , , , , , , , , , , , , , ,			
	C	4 -			Commont C			
	Segme				Segment 6			
Length of O	pen Chanı	nel Flow=	0 ft		Length of Open Channel Flow=	0 ft		
Approximate	Catchme	nt Slope=	5%		Approximate Catchment Slope=	12%		
Cross sec		-			Cross sectional Area of Flow			
01033 360								
		Perimeter			Wetted Perimeter			
Flow Velocity	Pre Deve	Iopment=	0.41 ft/s		Flow Velocity Pre Development=	0.49 ft/s		
Flow Velocity I	Post Deve	lopment=	3.72 ft/s		Flow Velocity Post Development=	4.41 ft/s		
•		•						
Mannings Roug	h Cooff E	Pro Dov. S	hoot Flow- 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1		
•								
Mannings Rough	. Coeff. Po	ost Dev. S	heet Flow= 0.011		Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
Site Data-Post Develop	ment							
Oite Data-i Ost Developi	Hone							
Total Square Footage	e Impervio	ous Area=	1325 sqft	Tof	tal Square Footage Pervious Area=	0 sqft		
	pervious				Pervious Area CN=			
••••	ipei vious	Alea CIV-	98		Pervious Area CN-	85		
Total Square Footage	of Draina	age Area=	1325 sft	Time of	Concentration Post Development=	0.9 min		
Wei	ghted Ave	rage CN=	98					
Site Data-Pre Developm	ient (Data in th	is section is only used	if Flow Co	ntrol is required)			
Pre	-Developr	ment CN=	85	Time o	f Concentration Pre-Development=	21.6 min		
	-Бечеюрі	nent On-	00	111110	- Concentration i re-Bevelopment	21.0		
Soil Data								
Tested So	oil Infiltrati	ion Rate=	64 in/hr (See Not	te 4)	Destination Design=	4 in/hr		
Design So			4 in/hr	- ',	Soil Infiltration Rate			
			7 11//111		Jon militation Rate			
Design Storms Used Fo	r Calculat	tions						
Requirement	Rainfal	I Depth	Design Storm					
Pollution Reduction		nches	Water Quality					
	1							
Flow Control	.	nches	Flood Control					
Destination	5.06 i	nches	Flood Control					
Time of Concentration	3.46 i	nches	2-Year, 24- Hour Rainfal					

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	168 sqft
Surface Width =	14 ft			Facility Slope=	8.33%
Surface Length =	12 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	7 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	7.60 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	12 in			Basin Volume=	49.3 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.127

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 = 69 cf	Total Overflow Volume= 0 cf								
Max. Depth of Stormwater in Facility= 3.5 in	Overflow to Planter: E19								
Drawdown Time= 0.2 hours									
Yes Facility Sizing Meets Pollution Reduction Standards?									
YES Meets Requirement of No Facility Flooding?	(Overflow Permitted into Separate Planter to meet Standards)								
YES Meets Requirement for Maximum of 18 Hour	Drawdown Time?								
Flow Control-Calculation Results									
Peak Flow Rate to Stormwater Facility = 1.017 cfs	Peak Facility Overflow Rate= 1.007 cfs								
Total Runoff Volume to Stormwater	1.501 sis								
Facility = 2757 cf	Total Overflow Volume= 2188 cf								
	Peak Off-Site Flow Rate								
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs								
Drawdown Time= 0.5 hours	Overflow to Planter: E19								
Pre-Development Runoff Data Peak Flow Rate = 0.022 cfs Total Runoff Volume = 378 cf NO Facility Sizing Meets Flow Control Standards NO Meets Requirement for Post Development of	s? ffsite 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 = 0.049 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 1.007 cfs								
Facility = 532 cf	Total Overflow Volume= 2188 cf								
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E19								
Drawdown Time= 0.5 hours									
NO Facility Sizing Meets Destination Standards	?								
NO Meets Requirement of No Facility Flooding? YES Meets Requirement for Maximum of 18 hour									

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information			<u> </u>					
Project Name:	21038.01	- Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:			rive 18-12-04-44-03800		Permit Number:			
1.10,000.7144.1000.		, OR 9743			Planter ID:			
Designer:	Brodie D		<u> </u>		Input Planter ID 1:			
Designer.	Di ouie D	<u>avis</u>						
					Input Planter ID 2:			
Instructions:					Overflow Planter ID:	<u>E20</u>		
Design Requirements:								
Choose "Yes" from the di	ropdown b	oxes belov	next to the design stand	dards requir	ements for this facility.			
Pollution Reduction		Yes	l		-			
	` ′							
Flow Contr	ol (FC)	Yes						
Destination	on (DT)	Yes	*An infiltration facility must be	chosen as the	acility type to meet destination requirements (overflow allowed)		
Catchment Details:	· /		·			,		
Outconnent Details.								
	Segm	ent 1			Segment 2			
Length of Catc	_		100 ft		Length of Catchment Sheet Flow=	0 ft		
_					-			
Approximate	Catchme	nt Siope=	9%		Approximate Catchment Slope=	8%		
	Segm	ent 3			Segment 4			
Length of Catchn	ent Shall	ow Flow=	117 ft	Le	ngth of Catchment Shallow Flow=	0 ft		
Approximate					Approximate Catchment Slope=			
		_						
Flow Velocity		•			Flow Velocity Pre Development=			
Flow Velocity I	Post Deve	lopment=	6.0 ft/s		Flow Velocity Post Development=	14.0 ft/s		
	Segm	ent 5			Segment 6			
l amouth of O	_		0			0		
Length of O					Length of Open Channel Flow=			
Approximate	Catchme	nt Slope=	5%		Approximate Catchment Slope=	12%		
Cross sec	tional Are	a of Flow	0.043 sf		Cross sectional Area of Flow	0.045 sf		
	Wetted	Perimeter	1.000 ft		Wetted Perimeter	1.560 ft		
Flam Valación				1				
Flow Velocity		-			Flow Velocity Pre Development=			
Flow Velocity I	Post Deve	elopment=	3.72 ft/s		Flow Velocity Post Development=	4.41 ft/s		
Mannings Roug	h Coeff I	Pre Dev. S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1		
Mannings Rough		ost Dev. S	neet Flow= 0.011	ı	Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
Site Data-Post Develop								
Total Square Footage	e Impervi	ous Area=	4718 sqft	Tot	al Square Footage Pervious Area=	0 sqft		
Im	pervious	Area CN=	98		Pervious Area CN=	85		
	•							
Total Square Footage	of Drain	ann Arna-	4718 sft	Time of (Concentration Post Development=	1.0 min		
		•		Tille Of V	Soncentiation Fost Development-	1.0		
Wei	ghted Ave	erage CN=	98					
Site Data-Pre Developm	ent	(Data in th	is section is only used	if Flow Cor	ntrol is required)			
		ment CN=	85		Concentration Pre-Development=	22.3 min		
Soil Data			30					
Tested So Design So		ion Rate= ion Rate=	64 in/hr (See Not 4 in/hr	te 4)	Destination Design= Soil Infiltration Rate			
Design Storms Used Fo	r Calcula	tions						
Requirement	Rainfa	II Depth	Design Storm					
Pollution Reduction		inches	Water Quality					
Flow Control		inches	Flood Control					
Destination	5.06	inches	Flood Control					
Time of Concentration	3.46	inches	2-Year, 24- Hour Rainfa	II				

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	127.5 sqft
Surface Width =	8.5 ft			Facility Slope=	8.33%
Surface Length =	15 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	1.5 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	9.10 ft	_		Facility End Slope=	3 to 1
Max. Ponding Depth =	12 in			Basin Volume=	22.9 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.027

Pollution Reduction-Calculation Results						
Peak Flow Rate to Stormwater Facility = 0.024 cfs	Peak Facility Overflow Rate= 0.011 cfs					
Total Runoff Volume to Stormwater	·					
Facility = 246 cf	Total Overflow Volume= 15 cf					
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: E20					
Drawdown Time= 0.7 hours						
NO Facility Sizing Meets Pollution Reduction S						
NO Meets Requirement of No Facility Flooding	g? (Overflow Permitted into Separate Planter to meet Standards)					
YES Meets Requirement for Maximum of 18 Ho	ur Drawdown Time?					
Flow Control-Calculation Results						
Peak Flow Rate to Stormwater Facility = 1.180 cfs	Peak Facility Overflow Rate= 1.174 cfs					
Total Runoff Volume to Stormwater						
Facility = 4083 cf	Total Overflow Volume= 3586 cf					
	Peak Off-Site Flow Rate					
Max. Depth of Stormwater in Facility= 12.0 in	Filtration Facility Underdrain= N\A cfs Overflow to Planter: F20					
Drawdown Time= 2.0 hours	Overnow to Flanter. E20					
Pre-Development Runoff Data						
Peak Flow Rate = 0.077 cfs						
Total Runoff Volume = 1346 cf						
NO Facility Sizing Meets Flow Control Standar	ds?					
NO Meets Requirement for Post Development YES Meets Requirement for Maximum of 18 Ho	offsite flow less or equal to Pre-Development Flow? ur Drawdown Time?					
Destination-Calculation Results						
Peak Flow Rate to Stormwater Facility = 0.173 cfs	Peak Facility Overflow Rate= 1.174 cfs					
Total Runoff Volume to Stormwater Facility = 1896 cf	Total Overflow Volume= 3586 cf					
Max. Depth of Stormwater in Facility= 12.0 in	Overflow to Planter: F20					
Drawdown Time= 2.0 hours						
NO Facility Sizing Meets Destination Standard	s?					
NO Meets Requirement of No Facility Flooding YES Meets Requirement for Maximum of 18 hor						

	Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information		THE TYPE IT THE						
Project Name:	21038 01 - Stonefie	ld Court Subdivison	Date:	12/22/2021				
Project Address:		ive 18-12-04-44-03800	Permit Number:					
•	Florence, OR 97439		Planter ID:					
Designer:	Brodie Davis		Input Planter ID 1:	E19				
			Input Planter ID 2:	None				
Instructions:			Overflow Planter ID:	None				
Design Requirements:								
Choose "Yes" from the dr	ropdown boxes below	next to the design standards	requirements for this facility.					
Pollution Reduction		3	,					
Flow Contr	` '							
	` '							
Destination	on (DT) Yes	*An infiltration facility must be chosen	as the facility type to meet destination requirements (overflow allowed)				
Catchment Details:								
	Segment 1		Segment 2					
Longth of Catal	hment Sheet Flow=	37 ft	Length of Catchment Sheet Flow=	63 ft				
•			_					
Approximate	Catchment Slope=	15%	Approximate Catchment Slope=	3%				
	Segment 3		Segment 4					
Length of Catchm	nent Shallow Flow=	28 ft	Length of Catchment Shallow Flow=	0 ft				
Approximate	Catchment Slope=	1%	Approximate Catchment Slope=	50%				
• •	Pre Development=		Flow Velocity Pre Development=					
	Post Development=		Flow Velocity Post Development=					
I low velocity i	ost Development-	103	riow velocity rost bevelopment-	14.0				
	0		0 4 0					
	Segment 5	-	Segment 6					
	pen Channel Flow=		Length of Open Channel Flow=					
Approximate	Catchment Slope=	5%	Approximate Catchment Slope=	12%				
Cross sec	tional Area of Flow	0.043 sf	Cross sectional Area of Flow	0.045 sf				
	Wetted Perimeter	1.000 ft	Wetted Perimeter	1.560 ft				
Flow Velocity	Pre Development=	0.41 ft/s	Flow Velocity Pre Development=	0.49 ft/s				
-	Post Development=		Flow Velocity Post Development=					
			The state of the					
Mannings Poug	h. Coeff. Pre Dev. S	heat Flow= 0.8	Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1				
	. Coeff. Post Dev. S		Mannings Rough. Coeff. Post Dev.					
)		leet Flow- 0.011	Maillings Rough. Coeff. Post Dev.	Open Flow- 0.011				
Site Data-Post Develop								
Total Square Footage	•	9245 sqft	Total Square Footage Pervious Area=					
Im	pervious Area CN=	98	Pervious Area CN=	85				
	·							
Total Square Footage	of Drainage Area=	9245 sft Tin	ne of Concentration Post Development=	1.2 min				
Weig	ghted Average CN=	98						
Site Data-Pre Developm	ent (Data in th	is section is only used if Flo	ow Control is required)					
	·							
	-Development CN=	85 Ti	me of Concentration Pre-Development=	28.6 min				
Soil Data								
	oil Infiltration Rate= oil Infiltration Rate=	64 in/hr (See Note 4) 10 in/hr	Destination Design= Soil Infiltration Rate					
Design Storms Used Fo	or Calculations							
Requirement	Rainfall Depth	Design Storm						
Pollution Reduction	0.83 inches	Water Quality						
Flow Control	5.06 inches	Flood Control						
Destination	5.06 inches	Flood Control						
Time of Concentration	3.46 inches	2-Year, 24- Hour Rainfall						

Facility Data					
Facility Type =	In	filtration Swale		Facility Surface Area=	1020 sqft
Surface Width =	15 ft			Facility Slope=	0.00%
Surface Length =	68 ft	Free Board: Start =	1.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	1.00 in	Facility Start (Uphill) Slope=	3 to 1
Bottom Length =	61.50 ft	_		Facility End Slope=	3 to 1
Max. Ponding Depth =	12 in			Basin Volume=	676.5 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	0.110

Pollution Reduction-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.057 cfs	Peak Facility Overflow Rate= 0.000 cfs							
Total Runoff Volume to Stormwater								
Facility = 498 cf	Total Overflow Volume= 0 cf							
Max. Depth of Stormwater in Facility= 0.0 in	Overflow to Planter: None							
Drawdown Time= 0.2 hours								
Yes Facility Sizing Meets Pollution Reduction Standards?								
YES Meets Requirement of No Facil	lity Flooding? (Overflow Permitted into Separate Planter to meet Standards)							
YES Meets Requirement for Maximu	um of 18 Hour Drawdown Time?							
Flow Control-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.671 cfs	Peak Facility Overflow Rate= 0.000 cfs							
Total Runoff Volume to Stormwater								
Facility = 5435 cf	Total Overflow Volume= 0 cf							
	Peak Off-Site Flow Rate							
Max. Depth of Stormwater in Facility= 11.5 in	Filtration Facility Underdrain= N\A cfs							
Drawdown Time= 0.2 hours	Overflow to Planter: None							
Pre-Development Runoff Data Peak Flow Rate = 0.137 cfs Total Runoff Volume = 2638 cf								
Yes Facility Sizing Meets Flow Control	of Standards?							
	evelopment offsite flow less or equal to Pre-Development Flow? um of 18 Hour Drawdown Time?							
Destination-Calculation Results								
Peak Flow Rate to Stormwater Facility = 0.337 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.000 cfs							
Facility = 3714 cf	Total Overflow Volume= 0 cf							
Max. Depth of Stormwater in Facility= 11.5 in Drawdown Time= 0.2 hours	Overflow to Planter: None							
Yes Facility Sizing Meets Destination	Standards?							
YES Meets Requirement of No Facil	lity Flooding? um of 18 hour Drawdown Time?							

SOUTH PLANTER PRESUMPTIVE APPROACH

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information		птостуро птиш	210011				
Project Name:	21038.01 - Stonefie	ld Court Subdivison		Date:	12/22/2021		
Project Address:		rive 18-12-04-44-03800		Permit Number:			
•	Florence, OR 97439			Planter ID:	<u>S1</u>		
Designer:	Brodie Davis			Input Planter ID 1:	None		
				Input Planter ID 2:	<u>None</u>		
Instructions:				Overflow Planter ID:	<u>S2</u>		
Design Requirements:							
Choose "Yes" from the di	opdown boxes below	v next to the design standa	ards require	ements for this facility.			
Pollution Reduction		1		ore treatemnt in place infiltration rate may be	1∩ in/hr		
Flow Contr	` '	11 Water 11 on 112 p = 1.2 2	o, o. p ,	, , , , , , , , , , , , , , , , , , , ,	10 110/11		
	` '				0		
Destination	on (DT) Yes	*An infiltration facility must be ch	osen as the ta	acility type to meet destination requirements (overflow allowed)		
Catchment Details:							
	Segment 1			Segment 2			
Length of Catc	hment Sheet Flow=	45 ft	L	ength of Catchment Sheet Flow=	0 ft		
_	Catchment Slope=			Approximate Catchment Slope=			
· 'PP		070		Approximate externion 211 p.	070		
	Segment 3			Segment 4			
I anoth of Catchin	Ū	G G	Lou	•	6		
	nent Shallow Flow=		Lei	ngth of Catchment Shallow Flow=			
• •	Catchment Slope=			Approximate Catchment Slope=			
Flow Velocity	Pre Development=	0.8 ft/s		Flow Velocity Pre Development=			
Flow Velocity F	Post Development=	6.5 ft/s	F	Flow Velocity Post Development=	14.0 ft/s		
				-			
	Segment 5			Segment 6			
Length of O	pen Channel Flow=	0 ft		Length of Open Channel Flow=	0 ft		
	Catchment Slope=			Approximate Catchment Slope=			
				Cross sectional Area of Flow			
U1055 550	tional Area of Flow						
	Wetted Perimeter			Wetted Perimeter			
-	Pre Development=			Flow Velocity Pre Development=			
Flow Velocity F	Post Development=	4.85 ft/s		Flow Velocity Post Development=	4.41 ft/s		
					: -		
	h. Coeff. Pre Dev. S			Mannings Rough. Coeff. Pre Dev.			
	. Coeff. Post Dev. S	heet Flow= 0.011	IV	lannings Rough. Coeff. Post Dev.	Open Flow= 0.011		
Site Data-Post Develop	nent						
Total Square Footage	- Impervious Area=	618 sqft	Tota	l Square Footage Pervious Area=	0 sqft		
	pervious Area CN=			Pervious Area CN=	85		
""	pervious Alea Oit-	90		FEI VIUUS AI EA CIN-	00		
Tatal Sauces Footoge	-f Dinces Aroo-	C10 off	Time of C		0.6 min		
Total Square Footage	-		Time of C	oncentration Post Development=	0.6 min		
Wei	ghted Average CN=	98					
Site Data-Pre Developm	ent (Data in th	is section is only used if	f Flow Con	trol is required)			
	·				47.4 min		
	-Development CN=	85	Hille Oi	Concentration Pre-Development=	17.4 min		
Soil Data							
Tested So	oil Infiltration Rate=	64 in/hr (See Note	4)	Destination Design=	4 in/hr		
	il Infiltration Rate=	4 in/hr	,	Soil Infiltration Rate			
Design Storms Used Fo	r Calculations						
Requirement	Rainfall Depth	Design Storm					
Pollution Reduction	0.83 inches	Water Quality					
Flow Control	5.06 inches	Flood Control					
Destination	5.06 inches	Flood Control					
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfall					

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	239 sqft
Surface Width =	10 ft			Facility Slope=	0.02%
Surface Length =	23.9 ft	Free Board: Start =	2.00 in	Facility Side Slope=	4 to 1
Flat Bottom Width =	3.3333 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	4 to 1
Bottom Length =	19.23 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	8.00 in			Basin Volume=	76.6 cf
Depth of (Soil) =	12 in		Ratio of F	acility Area to Impervious Area=	0.387

Pollution Reduction-Calculation Results		
Peak Flow Rate to Stormwater Facility =	0.003 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater		
Facility =	32 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility=	0.1 in	Overflow to Planter: S2
Drawdown Time=	0.2 hours	
Yes Facility Sizing Me	eets Pollution Rec	duction Standards?
YES Meets Requ	irement of No Facilit	y Flooding? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requ	irement for Maximur	n of 18 Hour Drawdown Time?
Flow Control-Calculation Results		
Peak Flow Rate to Stormwater Facility =	0.023 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater		
Facility =	248 cf	Total Overflow Volume= 0 cf
		Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility=	2.4 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time=	0.2 hours	Overflow to Planter: S2
Pre-Development Ro Peak Flow Rate = Total Runoff Volume =	0.011 cfs 176 cf	
Yes Facility Sizing Mo	eets Flow Control	Standards?
YES Meets Requ		velopment offsite flow less or equal to Pre-Development Flow? n of 18 Hour Drawdown Time?
Destination-Calculation Results		
Peak Flow Rate to Stormwater Facility = Total Runoff Volume to Stormwater Facility = Max. Depth of Stormwater in Facility= Drawdown Time=	0.023 cfs 248 cf 2.4 in 0.2 hours	Peak Facility Overflow Rate= 0.000 cfs Total Overflow Volume= 0 cf Overflow to Planter: S2
Diawdowii Tillie-	0.2 110015	
Yes Facility Sizing Me	eets Destination S	Standards?
	irement of No Facilit irement for Maximur	y Flooding? n of 18 hour Drawdown Time?

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information		into typo mitaini	2.00				
Project Name: Project Address:		ld Court Subdivison rive 18-12-04-44-03800 9		Date: Permit Number: Planter ID: Input Planter ID 1:	<u>S2</u>		
Instructions:				Input Planter ID 2: Overflow Planter ID:			
Design Requirements:							
Choose "Yes" from the dr Pollution Reduction Flow Contr Destination Catchment Details:	on (PR) Yes	·	e, or polution p	ements for this facility. ore treatemnt in place infiltration rate may be acility type to meet destination requirements (or			
Catchinient Details.							
_	Segment 1 hment Sheet Flow= Catchment Slope=		ι	Segment 2 ength of Catchment Sheet Flow= Approximate Catchment Slope=			
Approximate Flow Velocity	Segment 3 nent Shallow Flow= Catchment Slope= Pre Development= Post Development=	12% 0.8 ft/s		Segment 4 ngth of Catchment Shallow Flow= Approximate Catchment Slope= Flow Velocity Pre Development= Flow Velocity Post Development=	50% 14.0 ft/s		
Approximate Cross sec Flow Velocity	Segment 5 pen Channel Flow= Catchment Slope= tional Area of Flow Wetted Perimeter Pre Development= Post Development=	5% 0.025 sf 0.390 ft 0.53 ft/s	,	Segment 6 Length of Open Channel Flow= Approximate Catchment Slope= Cross sectional Area of Flow Wetted Perimeter Flow Velocity Pre Development= Flow Velocity Post Development=	12% 0.045 sf 1.560 ft 0.49 ft/s		
	h. Coeff. Pre Dev. S . Coeff. Post Dev. S			Mannings Rough. Coeff. Pre Dev. lannings Rough. Coeff. Post Dev.			
Site Data-Post Develop	ment						
Total Square Footage Im	e Impervious Area= pervious Area CN=	•	Tota	I Square Footage Pervious Area= Pervious Area CN=			
Total Square Footage Weig	e of Drainage Area= ghted Average CN=		Time of C	oncentration Post Development=	0.8 min		
Site Data-Pre Developm	ent (Data in th	is section is only used if	f Flow Con	trol is required)			
Pre	e-Development CN=	85	Time of	Concentration Pre-Development=	24.7 min		
Soil Data							
	oil Infiltration Rate= oil Infiltration Rate=	64 in/hr (See Note 4 in/hr	4)	Destination Design= Soil Infiltration Rate	4 in/hr		
Design Storms Used Fo	r Calculations						
Requirement	Rainfall Depth	Design Storm					
Pollution Reduction	0.83 inches	Water Quality					
Flow Control	5.06 inches	Flood Control					
Destination Time of Concentration	5.06 inches	Flood Control 2-Year 24- Hour Rainfall					

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	300 sqft
Surface Width =	10 ft			Facility Slope=	1.55%
Surface Length =	30 ft	Free Board: Start =	0.00 in	Facility Side Slope=	4 to 1
Flat Bottom Width =	3.3333 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	27.29 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	8.00 in			Basin Volume=	68.9 cf
Depth of (Soil) =	12 in		Ratio of F	acility Area to Impervious Area=	0.222

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 = 71 cf	Total Overflow Volume= 0 cf					
Max. Depth of Stormwater in Facility= 1.7 in	Overflow to Planter: S3					
Drawdown Time= 0.2 hours						
Yes Facility Sizing Meets Pollution Reduction St	tandards?					
YES Meets Requirement of No Facility Flooding	? (Overflow Permitted into Separate Planter to meet Standards)					
YES Meets Requirement for Maximum of 18 Hou	r Drawdown Time?					
Flow Control-Calculation Results						
Peak Flow Rate to Stormwater Facility = 0.050 cfs	Peak Facility Overflow Rate= 0.000 cfs					
Total Runoff Volume to Stormwater						
Facility = 544 cf	Total Overflow Volume= 0 cf					
	Peak Off-Site Flow Rate					
Max. Depth of Stormwater in Facility= 7.3 in	Filtration Facility Underdrain= N\A cfs					
Drawdown Time= 0.2 hours	Overflow to Planter: S3					
Pre-Development Runoff Data						
Peak Flow Rate = 0.021 cfs						
Total Runoff Volume = 386 cf						
Yes Facility Sizing Meets Flow Control Standard	ls?					
YES Meets Requirement for Post Development of YES Meets Requirement for Maximum of 18 Hou	offsite flow less or equal to Pre-Development Flow? r Drawdown Time?					
Destination-Calculation Results						
Peak Flow Rate to Stormwater Facility = 0.050 cfs	Peak Facility Overflow Rate= 0.000 cfs					
Total Runoff Volume to Stormwater						
Facility = 544 cf	Total Overflow Volume= 0 cf					
Max. Depth of Stormwater in Facility= 7.3 in	Overflow to Planter: S3					
Drawdown Time= 0.2 hours						
Yes Facility Sizing Meets Destination Standards	?					
VES Mosts Partitionant of No Equility Florations	,					
YES Meets Requirement of No Facility Flooding? YES Meets Requirement for Maximum of 18 hou						

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information		inter type manual	2.00				
Project Name: Project Address:		ld Court Subdivison rive 18-12-04-44-03800		Date: Permit Number: Planter ID: Input Planter ID 1:	<u>S3</u>		
Instructions:				Input Planter ID 2: Overflow Planter ID:	None		
Design Requirements:							
Choose "Yes" from the dr Pollution Reduction Flow Contr Destination Catchment Details:	on (PR) Yes	·	ce, or polution p	ements for this facility. ore treatemnt in place infiltration rate may be acility type to meet destination requirements (
Catchinient Details.							
_	Segment 1 nment Sheet Flow= Catchment Slope=		L	Segment 2 ength of Catchment Sheet Flow= Approximate Catchment Slope=			
Approximate Flow Velocity	Segment 3 nent Shallow Flow= Catchment Slope= Pre Development= Post Development=	12% 0.8 ft/s		Segment 4 ngth of Catchment Shallow Flow= Approximate Catchment Slope= Flow Velocity Pre Development= Flow Velocity Post Development=	50% 14.0 ft/s		
Approximate Cross sec Flow Velocity	Segment 5 pen Channel Flow= Catchment Slope= tional Area of Flow Wetted Perimeter Pre Development= Post Development=	5% 0.025 sf 0.390 ft 0.53 ft/s	,	Segment 6 Length of Open Channel Flow= Approximate Catchment Slope= Cross sectional Area of Flow Wetted Perimeter Flow Velocity Pre Development= Flow Velocity Post Development=	12% 0.045 sf 1.560 ft 0.49 ft/s		
	h. Coeff. Pre Dev. S . Coeff. Post Dev. S			Mannings Rough. Coeff. Pre Dev. lannings Rough. Coeff. Post Dev.			
Site Data-Post Develop	ment						
Total Square Footage Im	e Impervious Area= pervious Area CN=	1350 sqft 98	Tota	I Square Footage Pervious Area= Pervious Area CN=	0 sqft 85		
Total Square Footage Weig	of Drainage Area= ghted Average CN=	1350 sft 98	Time of C	oncentration Post Development=	0.8 min		
Site Data-Pre Developm	ent (Data in th	is section is only used i	f Flow Con	trol is required)			
Pre	-Development CN=	85	Time of	Concentration Pre-Development=	24.7 min		
Soil Data							
Design So	oil Infiltration Rate= oil Infiltration Rate=	64 in/hr (See Note 4 in/hr	÷ 4)	Destination Design= Soil Infiltration Rate	4 in/hr		
Design Storms Used Fo	r Calculations						
Requirement	Rainfall Depth	Design Storm					
Pollution Reduction	0.83 inches	Water Quality					
Flow Control	5.06 inches	Flood Control					
Destination Time of Concentration	5.06 inches	Flood Control 2-Year 24- Hour Rainfall					

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	300 sqft
Surface Width =	10 ft			Facility Slope=	1.55%
Surface Length =	30 ft	Free Board: Start =	0.00 in	Facility Side Slope=	4 to 1
Flat Bottom Width =	3.3333 ft	Free Board: End =	0.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	27.29 ft	_		Facility End Slope=	2 to 1
Max. Ponding Depth =	8.00 in			Basin Volume=	68.9 cf
Depth of (Soil) =	12 in		Ratio of F	acility Area to Impervious Area=	0.222

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 =	71 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility=	1.7 in	Overflow to Planter: S4
Drawdown Time=	0.2 hours	
Yes Facility Sizing Me	eets Pollution Rec	duction Standards?
YES Meets Requ	irement of No Facilit	y Flooding? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requ	irement for Maximun	n of 18 Hour Drawdown Time?
Flow Control-Calculation Results		
Peak Flow Rate to Stormwater Facility =	0.050 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	0.000	5.555
Facility =	542 cf	Total Overflow Volume= 0 cf
		Peak Off-Site Flow Rate
Max. Depth of Stormwater in Facility=	7.3 in	Filtration Facility Underdrain= N\A cfs
Drawdown Time=	0.2 hours	Overflow to Planter: S4
_		
Pre-Development Ru	inoff Data	
Peak Flow Rate =	0.021 cfs	
Total Runoff Volume =	385 cf	
Yes Facility Sizing Me	eets Flow Control	Standards?
		relopment offsite flow less or equal to Pre-Development Flow? n of 18 Hour Drawdown Time?
Destination-Calculation Results		
Peak Flow Rate to Stormwater Facility = Total Runoff Volume to Stormwater	0.050 cfs	Peak Facility Overflow Rate= 0.000 cfs
Facility =	542 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility=	7.3 in	Overflow to Planter: S4
Drawdown Time=	0.2 hours	
Yes Facility Sizing Me	eets Destination S	Standards?
-	irement of No Facilit irement for Maximun	y Flooding? n of 18 hour Drawdown Time?

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution						
Project Information	24 Hour Storm,	NROS Type IA Raili	וומוו טוטנוו	bution		
Project Name:	21038 01 - Stonefi	eld Court Subdivison		Date:	12/22/2021	
Project Address:		rive 18-12-04-44-03800		Permit Number:		
,	Florence, OR 9743			Planter ID:		
Designer:	Brodie Davis	_		Input Planter ID 1:	<u>S3</u>	
				Input Planter ID 2:	None	
Comments				Overflow Planter ID:	<u>S5</u>	
	ne pollution controll sto	rm is 4 in/hr. On the larger stor	rms where pol	lution contol is not the focus, a infiltration	rate of	
10 in/hr is used.						
Design Requirements:						
Choose "Yes" from the dr	opdown boxes belo	w next to the design stand	lards require	ements for this facility.		
Pollution Reduction	on (PR) Yes	*If water from non poluted sour	ce, or polution	ore treatemnt in place infiltration rate may be	10 in/hr	
Flow Contr	` '		•	-		
Destination		+ A = i=file=tion facility must be a	' as the fe	"" to the state of	0 = U d\	
	ווע) ופּאַ	*An intiltration facility must be d	chosen as the to	acility type to meet destination requirements (overflow allowed)	
Catchment Details:						
	Segment 1			Segment 2		
Length of Catcl	hment Sheet Flow=	75 ft	ı	ength of Catchment Sheet Flow=	0 ft	
_	Catchment Slope		-	-Approximate Catchment Slope=		
Approximate	Catcillient Slope-	370		Approximate Gatchinent Stope-	870	
	Segment 3			Segment 4		
Length of Catchm	ent Shallow Flow=	ft ft	Lei	ngth of Catchment Shallow Flow=		
Approximate	Catchment Slope=	12%		Approximate Catchment Slope=	50%	
Flow Velocity	Pre Development=	0.8 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
_	Post Development=			Flow Velocity Post Development=		
,	00. 20.0.0,			1011 101001.3 1 001 201 212 212	.55	
	Segment 5			Segment 6		
Lameth of O	_	4		_		
	pen Channel Flow=			Length of Open Channel Flow=		
	Catchment Slope			Approximate Catchment Slope=		
Cross sec	tional Area of Flow			Cross sectional Area of Flow		
	Wetted Perimeter	r <mark>0.390 ft</mark>	_	Wetted Perimeter	1.560 ft	
Flow Velocity	Pre Development=	0.53 ft/s		Flow Velocity Pre Development=	0.49 ft/s	
Flow Velocity F	ost Development=	4.85 ft/s		Flow Velocity Post Development=	4.41 ft/s	
	-		•	-		
Mannings Rough	h. Coeff. Pre Dev. S	Sheet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
	. Coeff. Post Dev. S			lannings Rough. Coeff. Post Dev.	•	
9		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			орен не пол	
Site Data-Post Develop	ment					
Total Square Footage	Imporvious Aroa	2066 sqft	Tota	I Square Footage Pervious Area=	0 sqft	
	•	•	1016	_		
ım	pervious Area CN=	98		Pervious Area CN=	85	
				<u>-</u> .		
Total Square Footage	_		Time of C	oncentration Post Development=	0.8 min	
Weig	ghted Average CN=	98				
Site Data-Pre Developm	ont /Data in t	his section is only used	if Elow Con	tral is required)		
Pre	-Development CN=	85	Time of	Concentration Pre-Development=	26.1 min	
Soil Data						
Tested Sc	il Infiltration Rate=	64 in/hr (See Note	e 4)	Destination Design=	10 in/hr	
Design So	il Infiltration Rate=	= 4 in/hr		Soil Infiltration Rate		
Design Storms Used Fo	r Calculations					
Design Otolino Good i G	o Calculations					
Requirement	Rainfall Depth	Design Storm				
Pollution Reduction	0.83 inches	Water Quality				
Flow Control	5.06 inches	Flood Control				
Destination	5.06 inches	Flood Control				
Time of Concentration	3 46 inches	2-Year 24- Hour Rainfal	ı			

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	323.3 sqft
Surface Width =	10 ft			Facility Slope=	1.55%
Surface Length =	32.33 ft	Free Board: Start =	0.00 in	Facility Side Slope=	4 to 1
Flat Bottom Width =	3.3333 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	2 to 1
Bottom Length =	28.45 ft	_		Facility End Slope=	3 to 1
Max. Ponding Depth =	8.00 in			Basin Volume=	70.5 cf
Depth of (Soil) =	12 in		Ratio of F	acility Area to Impervious Area=	0.156

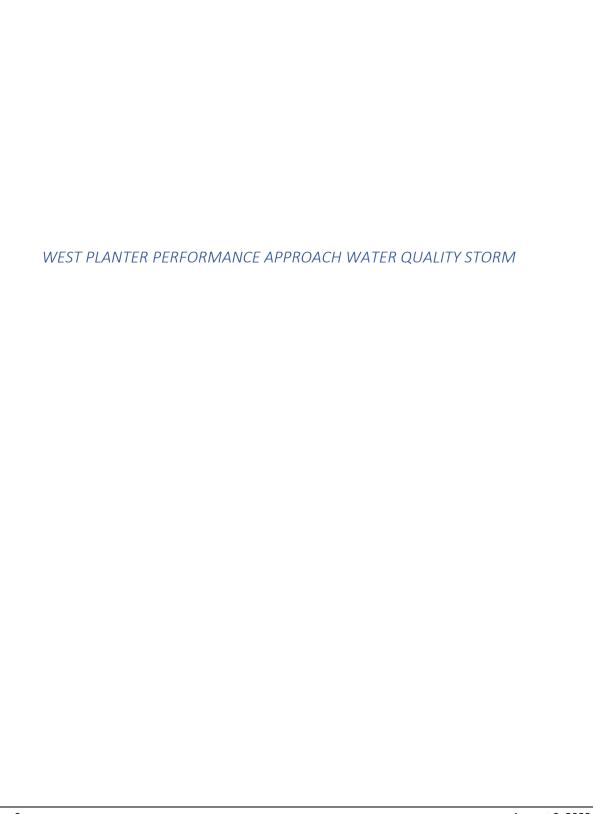
Pollution Reduction-Calculation Results									
Peak Flow Rate to Stormwater Facility =	0.010 cfs	Peak Facility Overflow Rate= 0.000 cfs							
Total Runoff Volume to Stormwater									
Facility =	108 cf	Total Overflow Volume= 0 cf							
Max. Depth of Stormwater in Facility=	2.3 in	Overflow to Planter: S5							
Drawdown Time=	0.2 hours								
Yes Facility Sizing Meets Pollution Reduction Standards?									
		y Flooding? (Overflow Permitted into Separate Planter to meet Standards)							
YES Meets Requ	irement for Maximun	n of 18 Hour Drawdown Time?							
Flow Control-Calculation Results									
Peak Flow Rate to Stormwater Facility = Total Runoff Volume to Stormwater Facility =	0.076 cfs 830 cf	Peak Facility Overflow Rate= 0.000 cfs Total Overflow Volume= 0 cf							
		Peak Off-Site Flow Rate							
Max. Depth of Stormwater in Facility=	6.0 in	Filtration Facility Underdrain= N\A cfs							
Drawdown Time=	0.2 hours	Overflow to Planter: S5							
YES Meets Requ	0.032 cfs 589 cf eets Flow Control irement for Post Dev	Standards? relopment offsite flow less or equal to Pre-Development Flow? n of 18 Hour Drawdown Time?							
Destination-Calculation Results	monioni ioi maximan	To To Tour Diamagnii Tillio							
	0.070	Book Foelike Overfler Brit Cook							
Peak Flow Rate to Stormwater Facility = Total Runoff Volume to Stormwater Facility =	0.076 cfs 830 cf	Peak Facility Overflow Rate= 0.000 cfs Total Overflow Volume= 0 cf							
Max. Depth of Stormwater in Facility= Drawdown Time=	6.0 in 0.2 hours	Overflow to Planter: S5							
Yes Facility Sizing Me	eets Destination S	Standards?							
-	irement of No Facility irement for Maximun	y Flooding? n of 18 hour Drawdown Time?							

WEST PLANTER PRESUMPTIVE APPROACH

Stormwater Surface Filtration/Infiltration Facility Sizing Spreadsheet 24 Hour Storm, NRCS Type 1A Rainfall Distribution							
Project Information							
Project Name:	21038 01	- Stonefie	ld Court Subdivison		Date:	12/22/2021	
Project Address:			rive 18-12-04-44-03800		Permit Number:		
1.10,000.7144.1000.		o, OR 9743			Planter ID:		
Designer:	Brodie D		<u> 2</u>		Input Planter ID 1:		
Designer.	<u> Dioule L</u>	<u>Javis</u>					
					Input Planter ID 2:		
Instructions:					Overflow Planter ID:	<u>None</u>	
Design Requirements:							
Choose "Yes" from the dr	ropdown l	ooxes belov	v next to the design stand	dards requ	irements for this facility.		
Pollution Reduction					-	10: "	
	` ′		"If water from non poluted sour	ce, or polution	on pre treatemnt in place infiltration rate may be	TO In/nr	
Flow Contr	ol (FC)	Yes					
Destination	on (DT)	Yes	*An infiltration facility must be o	chosen as th	e facility type to meet destination requirements (overflow allowed)	
Catchment Details:	_ ` /		•		, ,	,	
Catchinent Details.							
	Segm	nent 1			Segment 2		
Length of Catcl	•		35 ft		Length of Catchment Sheet Flow=	0 ft	
•							
Approximate	Catchme	ent Slope=	2%		Approximate Catchment Slope=	8%	
	Segm	ent 3			Segment 4		
Length of Catchr	ent Shal	low Flow=	0 ft	1	ength of Catchment Shallow Flow=	0 ft	
				-	_		
Approximate		_			Approximate Catchment Slope=		
Flow Velocity	Pre Deve	elopment=	0.8 ft/s		Flow Velocity Pre Development=	14.0 ft/s	
Flow Velocity F	Post Deve	elopment=	6.5 ft/s		Flow Velocity Post Development=	14.0 ft/s	
					, , , , , , , , , , , , , , , , , , , ,		
	C				Sammant C		
	Segm				Segment 6		
Length of O	pen Char	nel Flow=	0 ft		Length of Open Channel Flow=	0 ft	
Approximate	Catchmo	ent Slope=	5%		Approximate Catchment Slope=	12%	
• •		ea of Flow			Cross sectional Area of Flow		
01033 360							
		Perimeter			Wetted Perimeter		
Flow Velocity	Pre Dev	elopment=	0.53 ft/s		Flow Velocity Pre Development=	0.49 ft/s	
Flow Velocity F	Post Deve	elopment=	4.85 ft/s		Flow Velocity Post Development=	4.41 ft/s	
		-		•			
Mannings Roug	h. Coeff.	Pre Dev. S	heet Flow= 0.8		Mannings Rough. Coeff. Pre Dev.	Open Flow= 0.1	
Mannings Rough					Mannings Rough. Coeff. Post Dev.		
wannings Rough	. Coeii. P	ost bev. 5	neet Flow= 0.011		Mannings Rough. Coeff. Post Dev.	Open Flow= 0.011	
Site Data-Post Develop	ment						
Total Square Footage	e Impervi	ous Area=	119 sqft	To	otal Square Footage Pervious Area=	0 sqft	
Im	nervious	Area CN=	98		Pervious Area CN=	85	
••••	ipoi vious	Alou Oil	00		T CIVIOUS AIGU OIL	88	
		_				0.5	
Total Square Footage	of Drain	age Area=	119 sft	Time of	f Concentration Post Development=	0.5 min	
Wei	ghted Av	erage CN=	98				
Site Data-Pre Developm	ent	(Data in th	is section is only used	if Flow C	ontrol is required)		
Pre	-Develop	ment CN=	85	Time	of Concentration Pre-Development=	15.2 min	
Soil Data							
Tootod Co	il Infiltra	tion Rate=	64 in/hr (See Not	to (1)	Destination Design=	4 in/hr	
		tion Rate=	4 in/hr	E 4)	Soil Infiltration Rate		
Design Storms Used Fo			4 11/111		Jon minication Rate		
			Docian Starm				
Requirement		II Depth	Design Storm				
Pollution Reduction	0.83	inches	Water Quality				
Flow Control	5.06	inches	Flood Control				
Destination	5.06	inches	Flood Control				
Time of Concentration		inches	2-Year, 24- Hour Rainfal	II .			

Facility Data					
Facility Type =		Infiltration Swale		Facility Surface Area=	247.5 sqft
Surface Width =	15 ft	_		Facility Slope=	0.00%
Surface Length =	16.5 ft	Free Board: Start =	0.00 in	Facility Side Slope=	3 to 1
Flat Bottom Width =	8 ft	Free Board: End =	2.00 in	Facility Start (Uphill) Slope=	0 to 1
Bottom Length =	11.83 ft	_		Facility End Slope=	4 to 1
Max. Ponding Depth =	12.00 in			Basin Volume=	130.2 cf
Depth of (Soil) =	24 in		Ratio of F	acility Area to Impervious Area=	2.080

Pollution Reduction-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.001 cfs	Peak Facility Overflow Rate= 0.000 cfs
Total Runoff Volume to Stormwater	· —
Facility = 6 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 0.0 in	Overflow to Planter: None
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Pollution Reduction	Standards?
YES Meets Requirement of No Facility Floodin	g? (Overflow Permitted into Separate Planter to meet Standards)
YES Meets Requirement for Maximum of 18 Ho	our Drawdown Time?
Flow Control-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.004 cfs Total Runoff Volume to Stormwater Facility = 48 cf	Peak Facility Overflow Rate= 0.000 cfs
Facility = 48 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 0.0 in	Peak Off-Site Flow Rate Filtration Facility Underdrain= N\A cfs
Drawdown Time= 0.2 hours	Overflow to Planter: None
Statudown Fillio	Comment of Famour Mone
Pre-Development Runoff Data	
Peak Flow Rate = 0.002 cfs	
Total Runoff Volume = 34 cf	
Yes Facility Sizing Meets Flow Control Standa	rds?
YES Meets Requirement for Post Development YES Meets Requirement for Maximum of 18 Ho	t offsite flow less or equal to Pre-Development Flow? our Drawdown Time?
Destination-Calculation Results	
Peak Flow Rate to Stormwater Facility = 0.004 cfs Total Runoff Volume to Stormwater	Peak Facility Overflow Rate= 0.000 cfs
Facility = 48 cf	Total Overflow Volume= 0 cf
Max. Depth of Stormwater in Facility= 0.0 in	Overflow to Planter: None
Drawdown Time= 0.2 hours	
Yes Facility Sizing Meets Destination Standard	ds?
YES Meets Requirement of No Facility Floodin	g?
YES Meets Requirement for Maximum of 18 ho	



```
Autodesk® Storm and Sanitary Analysis 2016 - Version 13.4.133 (Build 0)
*****
Project Description
******
*****
Analysis Options
Flow Units ..... cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ..... Horton
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Horton, wetted area
Starting Date ...... JUN-01-2022 00:00:00
Ending Date ..... JUN-02-2022 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ...... 00:05:00
Wet Time Step ..... 00:05:00
Dry Time Step ...... 01:00:00
Routing Time Step ...... 30.00 sec
*****
Element Count
Number of rain gages ..... 1
Number of subbasins ..... 33
Number of nodes ..... 34
Number of links ..... 33
Number of pollutants ..... 0
Number of land uses ..... 0
******
Subbasin Summary
Subbasin
                          Equiv. Imperv. Average
                    Total
                                                     Raingage
                          Width Area Slope
ft % %
                     Area
                    acres
                   W02
W03
W04
W05
W06
W07
80W
                     0.04
                           10.50 100.00 12.0000
                            3.50
1.25
W09
                     0.02
                                    100.00
                                            12.0000
                                    100.00 12.0000
W10
                     0.01
                                   100.00 12.0000
W11
                     0.01
                            1.25
                            4.60
1.25
                     0.02
                                    100.00
                                            12.0000
W14
                                   100.00 12.0000
W15
                     0.01
                             1.25
                                            12.0000
W16
                     0.01
                                    100.00
W17
                     0.01
                             1.25
                                    100.00
                                            12.0000
W18
                     0.01
                             1.25
                                    100.00 12.0000
                             1.25
                                    100.00
W19
                     0.01
                                            12.0000
                             1.25
                                           12.0000
W20
                     0.01
                                    100.00
                             1.25
                                    100.00 12.0000
100.00 12.0000
                     0.01
W21
W22
                     0.01
                             1.25
W23
                     0.01
                             1.25
                                    100.00 12.0000
                              1.25
```

0.01

0.01

1.25

W24

W25

100.00

100.00 12.0000

12.0000

W26 W27 W28 W29 W30 W31 W32 W33 W34 W35	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00 0 12.00	0000 - 0000 - 0000 - 0000 - 0000 - 0000 - 0000 -		
************** Node Summary							

Node	Element	Inve	ert		Ponded		
ID	Type	Elevati	on ft	ft	Area ft²	Inflow	
Out-06	OUTFALL	58.	50	59.33 100.74	0.00		
P02	STORAGE	99.					
P03	STORAGE	98.		99.75	101.60		
P04 P05	STORAGE STORAGE	98. 93.		98.74 94.58	92.40 96.20		
P06	STORAGE	93. 92.		93.47	91.30		
P07	STORAGE	91.		92.01	113.87		
P08	STORAGE	82.	64	83.13	68.70		
P09	STORAGE	81.	70	82.19	33.70		
P10	STORAGE	80.		81.35	33.90		
P11	STORAGE	80.		80.51	40.90		
P14 P15	STORAGE STORAGE	77. 76.		77.99 77.15	19.40 33.90		
P16	STORAGE	76. 75.		76.31	33.90		
P17	STORAGE	74.		75.47	33.90		
P18	STORAGE	74.		74.63	33.90		
P19	STORAGE	73.	29	73.79	33.90		
P20	STORAGE	72.		72.95	33.90		
P21	STORAGE	71.		72.11	33.90		
P22	STORAGE	70.		71.27	33.90		
P23 P24	STORAGE STORAGE	69. 69.		70.43 69.59	33.90 33.90		
P25	STORAGE	68.		68.75	33.90		
P26	STORAGE	67.		67.91	33.90		
P27	STORAGE	66.		67.07	33.90		
P28	STORAGE	65.	73	66.23	33.90		
P29	STORAGE	64.		65.39	33.90		
P30	STORAGE	64.		64.55	33.90		
P31 P32	STORAGE STORAGE	63. 62.		63.59 62.86	38.80 34.50		
P33	STORAGE	61.		62.14	37.70		
P34	STORAGE	60.		61.48	43.00		
P35	STORAGE	60.		60.97	48.60		
P36	STORAGE	59.	94	60.55	70.70		
*********** Link Summary ********** Link	From Node	To Node	E	lement	Lengt	h Slope	e Manning's
ID	110m 110dc	10 11000		уре	f f		-
OF-04 OF-07 OF-11 OF-36 CD-02	P04 P07 P11 P36 P02	P05 P08 P14 Out-06 P03	C C C	ONDUIT ONDUIT ONDUIT ONDUIT ONDUIT	29. 81. 18. 20.	0 10.7407 3 15.6284	0.0150 0.0150

CD-03 CD-05 CD-06 CD-08 CD-09 CD-10 CD-14 CD-15 CD-16 CD-17 CD-18 CD-19 CD-20 CD-21 CD-22 CD-23 CD-24 CD-25 CD-26 CD-27 CD-28 CD-29 CD-30 CD-31 CD-32 CD-33 CD-34 CD-35	P03 P05 P06 P08 P09 P10 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35	P04 P06 P07 P09 P10 P11 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 P36	WEIR WEIR WEIR WEIR WEIR WEIR WEIR WEIR			
**************************************	on Summary					
********* Link Design		Depth/	Width	No. of	Cross	Full Flow
ID Flow		Diameter		Barrels	Sectional	Hydraulic
Capacity					Area	
cfs		ft	ft		ft²	ft
OF-04 0.63	CIRCULAR			1	0.09	0.08
OF-07 0.54	CIRCULAR	0.33	0.33	1	0.09	0.08
OF-11 0.65	CIRCULAR	0.33	0.33	1	0.09	0.08
OF-36 6.08	CIRCULAR	0.83	0.83	1	0.55	0.21
Runoff Quan	************* tity Continuity *****	Volume acre-ft	Depth inches			
Evaporation Infiltration Surface Rund Final Surfa	pitation Loss n Loss off ce Storage Error (%)	0.024 0.000 0.000 0.024 0.000 -0.104	0.829 0.000 0.000 0.815 0.014			
	************** g Continuity	Volume acre-ft	Volume Mgallons			

```
******

      by Weather Inflow
      0.000
      0.000

      Wet Weather Inflow
      0.024
      0.008

      Groundwater Inflow
      0.000
      0.000

      RDII Inflow
      0.000
      0.000

      External Inflow
      0.000
      0.000

      External Outflow
      0.000
      0.000

      Surface Flooding
      0.000
      0.000

      Evaporation Loss
      0.000
      0.000

      Initial Stored Volume
      0.000
      0.000

      Final Stored Volume
      0.000
      0.000

      Continuity Error (%)
      98.524

***********
EPA SWMM Time of Concentration Computations Report
            Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))
            Tc = Time of Concentration (min)
            L = Flow Length (ft)
           n = Manning's Roughness
i = Rainfall Intensity (in/hr)
           S = Slope (ft/ft)
Subbasin W02
            Flow length (ft):
                                                                       1677.12
            Pervious Manning's Roughness:
                                                                         0.10000
            Impervious Manning's Roughness:
                                                                       0.01100
           Pervious Rainfall Intensity (in/hr):
                                                                       0.03453
            Impervious Rainfall Intensity (in/hr):
                                                                        0.03453
                                                                      12.00000
            Slope (%):
            Computed TOC (minutes):
                                                                            39.26
Subbasin W03
                                                                           69.70
           Flow length (ft):
            Pervious Manning's Roughness:
                                                                        0.10000
            Impervious Manning's Roughness:
                                                                        0.01100
            Pervious Rainfall Intensity (in/hr):
                                                                       0.03453
            Impervious Rainfall Intensity (in/hr):
                                                                        0.03453
            Slope (%):
                                                                       12.00000
           Computed TOC (minutes):
                                                                             5.82
Subbasin W04
           Flow length (ft):
                                                                           69.70
            Pervious Manning's Roughness:
                                                                       0.10000
            Impervious Manning's Roughness:
                                                                       0.01100
            Pervious Rainfall Intensity (in/hr):
                                                                        0.03453
            Impervious Rainfall Intensity (in/hr):
                                                                         0.03453
                                                                       12.00000
            Slope (%):
            Computed TOC (minutes):
                                                                             5.82
Subbasin W05
```

Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	143.75 0.10000 0.01100 0.03453 0.03453 12.00000 8.99
Subbasin W06	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	124.15 0.10000 0.01100 0.03453 0.03453 12.00000 8.23
Subbasin W07	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	145.21 0.10000 0.01100 0.03453 0.03453 12.00000 9.05
Subbasin W08	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	165.53 0.10000 0.01100 0.03453 0.03453 12.00000 9.79
Subbasin W09	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	219.05 0.10000 0.01100 0.03453 0.03453 12.00000 11.58
Subbasin W10	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr):	209.10 0.10000 0.01100 0.03453 0.03453

<pre>Slope (%): Computed TOC (minutes):</pre>	12.00000 11.26
Subbasin W11	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	271.82 0.10000 0.01100 0.03453 0.03453 12.00000 13.18
Subbasin W14	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	192.24 0.10000 0.01100 0.03453 0.03453 12.00000 10.70
Subbasin W15	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.03453 0.03453 12.00000 10.09
Subbasin W16	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W17	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W18	

Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.03453 0.03453 12.00000 10.09
Subbasin W19	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W20	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.03453 0.03453 12.00000 10.09
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.03453 0.03453 12.00000 10.09
Subbasin W22	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W23	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26

Subbasin W24	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W25	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W26	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W27	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.03453 0.03453 12.00000 10.09
Subbasin W28	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W29	
Flow length (ft): Pervious Manning's Roughness:	209.10 0.10000

<pre>Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):</pre>	0.01100 0.03453 0.03453 12.00000 11.26
Subbasin W30	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.03453 0.03453 12.00000 14.36
Subbasin W31	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.03453 0.03453 12.00000 14.36
Subbasin W32	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	348.49 0.10000 0.01100 0.03453 0.03453 12.00000 15.29
Subbasin W33	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.03453 0.03453 12.00000 14.36
Subbasin W34	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.03453 0.03453 12.00000 11.26

Subbasin W35

Flow length (ft): 313.64 Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness:

O.01100
Pervious Rainfall Intensity (in/hr):

O.03453
Impervious Rainfall Intensity (in/hr):

O.03453 12.00000 Slope (%): Computed TOC (minutes): 14.36

Subbasin W36

Flow length (ft): 196.03 Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 Pervious Rainfall Intensity (in/hr): 0.03453 Impervious Rainfall Intensity (in/hr): 0.03453 Slope (%): 12.00000 Computed TOC (minutes): 10.83

***** Subbasin Runoff Summary

Subbasin Time of	Total	Total	Total	Total	Total	Peak	Runoff	
ID	Rainfall	Runon	Evap.	Infil.	Runoff	Runoff	Coefficient	
Concentration			-					
	in	in	in	in	in	cfs		days
hh:mm:ss								
W02	0.83	0.00	0.00	0.00	0.81	0.01	0.974	0
00:39:15	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0
W03 00:05:49	0.83	0.00	0.00	0.00	0.82	0.00	0.989	0
W04	0.83	0.00	0.00	0.00	0.82	0.00	0.989	0
00:05:49	0.03	0.00	0.00	0.00	0.02	0.00	0.303	O
W05	0.83	0.00	0.00	0.00	0.82	0.00	0.988	0
00:08:59								
W06	0.83	0.00	0.00	0.00	0.82	0.00	0.988	0
00:08:14								_
W07	0.83	0.00	0.00	0.00	0.82	0.00	0.988	0
00:09:02 W08	0.83	0.00	0.00	0.00	0.82	0.01	0.987	0
00:09:47	0.03	0.00	0.00	0.00	0.02	0.01	0.507	U
W09	0.83	0.00	0.00	0.00	0.82	0.00	0.986	0
00:11:34								
W10	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15								
W11	0.83	0.00	0.00	0.00	0.82	0.00	0.986	0
00:13:10 W14	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:42	0.03	0.00	0.00	0.00	0.02	0.00	0.907	U
W15	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:05	0.00		2.00	2.00		3.00	0.307	ŭ
W16	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15								
W17	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0

00:11:15								
W18	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:05 W19	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
W20	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:05	0.03	0.00	0.00	0.00	0.02	0.00	0.507	O
W21	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:05								
W22	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15								
W23	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15	0.00	0 00	0.00	0.00	0.00	0.00	0 007	0
W24 00:11:15	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
W25	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15	0.03	0.00	0.00	0.00	0.02	0.00	0.907	U
W26	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15								
W27	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:05								
W28	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15								
W29	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15 W30	0.83	0.00	0.00	0.00	0.82	0.00	0.985	0
00:14:21	0.03	0.00	0.00	0.00	0.02	0.00	0.965	U
W31	0.83	0.00	0.00	0.00	0.82	0.00	0.985	0
00:14:21								
W32	0.83	0.00	0.00	0.00	0.82	0.00	0.985	0
00:15:17								
W33	0.83	0.00	0.00	0.00	0.82	0.00	0.985	0
00:14:21								
W34	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:11:15 W35	0.83	0.00	0.00	0.00	0.82	0.00	0.985	0
00:14:21	0.03	0.00	0.00	0.00	0.02	0.00	0.903	U
W36	0.83	0.00	0.00	0.00	0.82	0.00	0.987	0
00:10:49		2.00	2.00	2.00	3.02	2.00	2.307	Ū

Node ID	Average Depth Attained	Maximum Depth Attained	Maximum HGL Attained		of Max irrence	Total Flooded Volume	Total Time Flooded	Retention Time
	ft	ft	ft	days	hh:mm	acre-in	minutes	hh:mm:ss
Out-06	0.00	0.00	58.50	0	00:00	0	0	0:00:00
P02	0.30	0.77	100.63	0	08:51	0	0	0:00:00
P03	0.00	0.05	98.93	0	08:10	0	0	0:00:00
P04	0.00	0.02	98.20	0	08:04	0	0	0:00:00
P05	0.37	0.77	94.58	0	08:00	0.00	210	0:00:00
P06	0.31	0.75	93.47	0	08:00	0.00	172	0:00:00
P07	0.32	0.45	92.10	0	11:12	0.00	972	0:00:00
P08	0.41	0.50	83.14	0	08:00	0.00	462	0:00:00
P09	0.28	0.50	82.20	0	08:00	0.00	156	0:00:00
P10	0.11	0.50	81.36	0	08:00	0.00	72	0:00:00
P11	0.12	0.52	80.54	0	08:01	0.00	47	0:00:00
P14	0.30	0.51	78.00	0	08:01	0.00	97	0:00:00
P15	0.08	0.50	77.16	0	08:01	0.00	35	0:00:00

P16	0.09	0.51	76.32	0	08:06	0.00	23	0:00:00
P17	0.09	0.51	75.48	0	08:12	0.00	14	0:00:00
P18	0.07	0.43	74.56	0	08:22	0	0	0:00:00
P19	0.08	0.29	73.58	0	08:15	0	0	0:00:00
P20	0.06	0.26	72.71	0	08:14	0	0	0:00:00
P21	0.06	0.26	71.87	0	08:14	0	0	0:00:00
P22	0.08	0.29	71.06	0	08:15	0	0	0:00:00
P23	0.08	0.29	70.22	0	08:15	0	0	0:00:00
P24	0.08	0.29	69.38	0	08:15	0	0	0:00:00
P25	0.08	0.29	68.54	0	08:15	0	0	0:00:00
P26	0.08	0.29	67.70	0	08:15	0	0	0:00:00
P27	0.06	0.26	66.83	0	08:14	0	0	0:00:00
P28	0.08	0.29	66.02	0	08:15	0	0	0:00:00
P29	0.08	0.29	65.18	0	08:15	0	0	0:00:00
P30	0.12	0.37	64.42	0	08:19	0	0	0:00:00
P31	0.16	0.42	63.51	0	08:18	0	0	0:00:00
P32	0.12	0.36	62.72	0	08:20	0	0	0:00:00
P33	0.08	0.31	61.96	0	08:18	0	0	0:00:00
P34	0.03	0.20	61.16	0	08:14	0	0	0:00:00
P35	0.01	0.15	60.56	0	08:15	0	0	0:00:00
P36	0.03	0.22	60.16	0	08:15	0	0	0:00:00

		Lateral Inflow	Inflow	Peak Occu	Inflow	Flooding Overflow	Fl Occu	ooding rrence
Out-06 P02 P03	OUTFALL	0 - 00	0.00		00:00	0.00		
P02	STORAGE	0.01	0.01	0	08:10	0.00		
P03	STORAGE	0.00	0.00	0	08:00	0.00		
P04	STORAGE	0.00	0.00	0	08:00	0.00		
P05	STORAGE	0.00	0.00	0	08:00	0.00	0	07:43
P06	STORAGE		0.00	0	08:00	0.00	0	07:36
P07	STORAGE	0.00	0.00	0	08:00	0.00	0	08:00
P08	STORAGE	0.01	0.01	0	08:00	0.00	0	07:42
P09	STORAGE	0.00	0.01	0	08:00	0.00	0	07:42
P10	STORAGE	0.00	0.01	0	08:00	0.00	0	07:49
P11	STORAGE	0.00	0.01	0	08:00	0.01	0	07:56
P14	STORAGE	0.00	0.01	0	08:01	0.00	0	07:57
P15	STORAGE	0.00	0.01	0	08:01	0.01	0	08:00
P16	STORAGE	0.00	0.01	0	08:01	0.00	0	08:05
P17	STORAGE		0.01	0	08:06	0.00	0	08:11
P18	STORAGE	0.00	0.01	0	08:12	0.00		
P19	STORAGE	0.00	0.00	0		0.00		
P20	STORAGE	0.00	0.00	0	08:00	0.00		
P21	STORAGE	0.00	0.00	0	08:00	0.00		
P22	STORAGE	0.00	0.00	0	08:00	0.00		
P23	STORAGE	0.00	0.00	0	08:00	0.00		
P24	STORAGE	0.00	0.00	0	08:00	0.00		
P25	STORAGE	0.00	0.00	0	08:00	0.00		
P26	STORAGE	0.00	0.00	0	08:00	0.00		
P27	STORAGE	0.00	0.00	0	08:00	0.00		
P28	STORAGE	0.00	0.00	0	08:00	0.00		
P29	STORAGE	0.00	0.00	0	08:00	0.00		
P30	STORAGE	0.00	0.00	0	08:00	0.00		
P31	STORAGE	0.00	0.00	0	08:00	0.00		
P32	STORAGE		0.00	0		0.00		
P33	STORAGE		0.00	0		0.00		
P34		0.00	0.00	0	08:00	0.00		
P35	STORAGE		0.00	0	08:00	0.00		
P36	STORAGE	0.00	0.00	0	08:00	0.00		

	ge Node ID		Maximum	Time	of Max	Average	Average	Maximum	
Maximum	Time of Max.	Total Ponded	Ponded	Ponded		Ponded	Ponded		
Exfiltr	ation Exfiltr				ronaea	ronaea	ronaea	Scorage Node	
D-+-	D-+-		Volume		Volume	Volume	Volume	Outflow	
Rate	Rate	Volume 1000 ft³	(응)	davs	hh:mm	1000 ft ³	(응)	cfs	
cfm	hh:mm:ss		(- /				(- /		
P02		0.027	77	0	08:50	0.006	16	0.00	
0.39	8:50:00	0.224							
P03	0.40.00	0.000	0	0	08:10	0.000	0	0.00	
0.02 P04	8:10:00	0.002	0	0	08:04	0.000	0	0.00	
0.02	8:00:00	0.000 0.001	U	U	08:04	0.000	U	0.00	
P05	0.00.00	0.001	100	0	07:05	0.000	54	0.00	
0.02	8:00:00	0.016		_					
P06		0.001	100	0	07:35	0.000	46	0.00	
0.02	6:40:00	0.015							
P07	7 45 00	0.002	100	0	07:49	0.008	503	0.00	
0.04 P08	7:45:00	0.020	100	0	05:34	0.002	73	0.01	
0.08	8:00:00	0.003 0.093	100	U	05:54	0.002	73	0.01	
P09	0.00.00	0.003	100	0	07:10	0.001	34	0.01	
0.08	8:00:00	0.056							
P10		0.004	100	0	07:48	0.000	11	0.01	
0.10	8:00:00	0.027							
P11	0 00 00	0.004	100	0	07:55	0.000	10	0.01	
0.10 P14	8:00:00	0.028 0.003	100	0	07:43	0.001	37	0.01	
0.07	9:20:00	0.003	100	U	07:43	0.001	37	0.01	
P15	3.20.00	0.004	100	0	08:00	0.000	7	0.01	
0.10	8:00:00	0.021							
P16		0.004	100	0	08:05	0.000	7	0.01	
0.10	8:05:00	0.022							
P17	0 10 00	0.004	100	0	08:11	0.000	6	0.01	
0.10 P18	8:10:00	0.021 0.003	71	0	08:22	0.000	4	0.00	
0.08	8:20:00	0.003	71	U	00.22	0.000	4	0.00	
P19	0.20.00	0.001	30	0	08:14	0.000	3	0.00	
0.05	8:15:00	0.018							
P20		0.001	23	0	08:14	0.000	2	0.00	
0.04	8:10:00	0.015							
P21	0 10 00	0.001	23	0	08:14	0.000	2	0.00	
0.04 P22	8:10:00	0.015 0.001	30	0	08:14	0.000	3	0.00	
0.05	8:15:00	0.018	30	0	00.14	0.000	9	0.00	
P23		0.001	30	0	08:14	0.000	3	0.00	
0.05	8:15:00	0.018							
P24		0.001	30	0	08:14	0.000	3	0.00	
0.05	8:15:00	0.018	20	^	00.14	0 000	2	0.00	
P25 0.05	8:15:00	0.001 0.018	30	U	08:14	0.000	3	0.00	
P26	0.13.00	0.001	30	Ο	08:14	0.000	3	0.00	
0.05	8:15:00	0.018	0.0			2.000	J		
P27		0.001	23	0	08:14	0.000	2	0.00	

0.04	8:10:00	0.015						
P28		0.001	30	0	08:14	0.000	3	0.00
0.05	8:15:00	0.018						
P29		0.001	30	0	08:14	0.000	3	0.00
0.05	8:15:00	0.018						
P30		0.002	51	0	08:19	0.000	7	0.00
0.07	8:15:00	0.027						
P31		0.002	63	0	08:18	0.000	9	0.00
0.07	8:15:00	0.027						
P32		0.002	51	0	08:20	0.000	7	0.00
0.08	8:20:00	0.029						
P33		0.002	38	0	08:18	0.000	5	0.00
0.07	8:15:00	0.027						
P34		0.001	14	0	08:14	0.000	1	0.00
0.05	8:10:00	0.018						
P35		0.001	12	0	08:15	0.000	1	0.00
0.08	8:15:00	0.011						
P36		0.003	16	0	08:14	0.000	1	0.00
0.15	8:15:00	0.047						

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Out-06	0.00	0.00	0.00
System	0.00	0.00	0.00

Link ID Ratio of		Element Stal Reported	Т	ime of	Maximum	Length	Peak Flow	Design	Ratio of
Maximum		tal Reported Type .me Condition	Pea	k Flow	Velocity	Factor	during	Flow	Maximum
Maximum	11	me condition	0ccu	rrence	Attained		Analysis	Capacity	/Design
Flow Surchar	ged		_		_ ,		_	_	
Depth min	utes	i	days	hh:mm	ft/sec		cfs	cfs	Flow
рерси шти	uces	•							
						4 00		0.50	
OF-04	0	CONDUIT	0	00:00	0.00	1.00	0.00	0.63	0.00
0.00 OF-07	U	Calculated CONDUIT	0	11:13	0.00	1.00	0.00	0.54	0.00
0.01	0	Calculated	U	11.13	0.00	1.00	0.00	0.54	0.00
OF-11	O	CONDUIT	0	08:01	2.58	1.00	0.01	0.65	0.01
0.08	0	Calculated							
OF-36		CONDUIT	0	00:00	0.00	1.00	0.00	6.08	0.00
0.00	0	Calculated							
CD-02		WEIR	0	00:00			0.00		
0.00									
CD-03		WEIR	0	00:00			0.00		
0.00									
CD-05		WEIR	0	08:00			0.00		
0.00									

CD-06	WEIR	0	08:00	0.00
0.00 CD-08	WEIR	0	08:00	0.01
0.00 CD-09	WEIR	0	08:00	0.01
0.00				
CD-10 0.00	WEIR	0	08:00	0.01
CD-14 0.00	WEIR	0	08:01	0.01
CD-15	WEIR	0	08:01	0.01
0.00 CD-16	WEIR	0	08:06	0.01
0.00 CD-17	WEIR	0	08:12	0.01
0.00 CD-18	WEIR	0	00:00	0.00
0.00 CD-19	WEIR	0	00:00	0.00
0.00 CD-20	WEIR	0	00:00	0.00
0.00	WEIR	U		
CD-21 0.00	WEIR	0	00:00	0.00
CD-22	WEIR	0	00:00	0.00
0.00 CD-23	WEIR	0	00:00	0.00
0.00 CD-24	WEIR	0	00:00	0.00
0.00 CD-25	WEIR	0	00:00	0.00
0.00				
CD-26 0.00	WEIR	0	00:00	0.00
CD-27 0.00	WEIR	0	00:00	0.00
CD-28	WEIR	0	00:00	0.00
0.00 CD-29	WEIR	0	00:00	0.00
0.00 CD-30	WEIR	0	00:00	0.00
0.00 CD-31	WEIR	0	00:00	0.00
0.00 CD-32	WEIR	0	00:00	0.00
0.00 CD-33	WEIR	0	00:00	0.00
0.00 CD-34	WEIR	0	00:00	0.00
0.00				
CD-35 0.00	WEIR	0	00:00	0.00

All links are stable.

Routing Time Step Summary

Minimum Time Step : 30.00 sec

Average Time Step : 30.00 sec

Maximum Time Step : 30.00 sec

Percent in Steady State : 0.00

Average Iterations per Step : 1.00

Analysis began on: Mon Jun 13 09:57:18 2022 Analysis ended on: Mon Jun 13 09:57:20 2022 Total elapsed time: 00:00:02

WEST PLANTER PERFORMANCE APPROACH 2YR STORM

```
Autodesk® Storm and Sanitary Analysis 2016 - Version 13.4.133 (Build 0)
*****
Project Description
******
*****
Analysis Options
Flow Units ..... cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ..... Horton
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Horton, wetted area
Starting Date ...... JUN-01-2022 00:00:00
Ending Date ..... JUN-02-2022 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ...... 00:05:00
Wet Time Step ..... 00:05:00
Dry Time Step ...... 01:00:00
Routing Time Step ...... 30.00 sec
*****
Element Count
Number of rain gages ..... 1
Number of subbasins ..... 33
Number of nodes ..... 34
Number of links ..... 33
Number of pollutants ..... 0
Number of land uses ..... 0
******
Subbasin Summary
Subbasin
                          Equiv. Imperv. Average
                    Total
                                                     Raingage
                          Width Area Slope
ft % %
                     Area
                    acres
                   W02
W03
W04
W05
W06
W07
80W
                     0.04
                           10.50 100.00 12.0000
                            3.50
1.25
W09
                     0.02
                                    100.00
                                            12.0000
                                    100.00 12.0000
W10
                     0.01
                                   100.00 12.0000
W11
                     0.01
                            1.25
                            4.60
1.25
                     0.02
                                    100.00
                                            12.0000
W14
                                   100.00 12.0000
W15
                     0.01
                             1.25
                                            12.0000
W16
                     0.01
                                    100.00
W17
                     0.01
                             1.25
                                    100.00
                                            12.0000
W18
                     0.01
                             1.25
                                    100.00 12.0000
                             1.25
                                    100.00
W19
                     0.01
                                            12.0000
                             1.25
                                           12.0000
W20
                     0.01
                                    100.00
                             1.25
                                    100.00 12.0000
100.00 12.0000
                     0.01
W21
W22
                     0.01
                             1.25
W23
                     0.01
                             1.25
                                    100.00 12.0000
```

W24

W25

100.00

12.0000

100.00 12.0000

1.25

1.25

0.01

0.01

W26 W27 W28 W29 W30 W31 W32 W33 W34	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10	0.00 12.00 0.00 12.00	000 - 000 - 000 - 000 - 000 - 000 - 000 - 000 -		

Node Summary						
Node	Element	Invert		Ponded		
ID	Туре	Elevation ft		Area ft²	Inflow	
 Out-06	OUTFALL	 58.50	 59.33	0.00		
P02	STORAGE	99.86	100.74	177.50		
P03 P04	STORAGE	98.88		101.60		
P04 P05	STORAGE STORAGE	98.18 93.81		92.40 96.20		
P06	STORAGE	92.72	93.47	91.30		
P07	STORAGE	91.65		113.87		
P08 P09	STORAGE STORAGE	82.64 81.70		68.70 33.70		
P10	STORAGE	80.86		33.90		
P11	STORAGE	80.02		40.90		
P14 P15	STORAGE STORAGE	77.49 76.66		19.40 33.90		
P16	STORAGE	75.81		33.90		
P17	STORAGE	74.97		33.90		
P18 P19	STORAGE STORAGE	74.13 73.29		33.90 33.90		
P20	STORAGE	72.45		33.90		
P21	STORAGE	71.61		33.90		
P22 P23	STORAGE STORAGE	70.77 69.93		33.90 33.90		
P24	STORAGE	69.09		33.90		
P25	STORAGE	68.25		33.90		
P26 P27	STORAGE STORAGE	67.41 66.57		33.90 33.90		
P28	STORAGE	65.73		33.90		
P29	STORAGE	64.89		33.90		
P30 P31	STORAGE	64.05 63.09		33.90 38.80		
P32	STORAGE STORAGE	62.36		34.50		
P33	STORAGE	61.65	62.14	37.70		
P34 P35	STORAGE STORAGE	60.96 60.41		43.00 48.60		
P36	STORAGE	59.94		70.70		
************* Link Summary						

Link ID	From Node	To Node	Element Type	Length ft	_	Manning's Roughness
OF-04	DO1	D05	CONDITT	20 5	1/1 7707	0.0150
OF-07	P04 P07	P05 P08	CONDUIT CONDUIT	29.5 81.0		0.0150 0.0150
OF-11	P11	P14	CONDUIT	18.3	15.6284	0.0150
OF-36	P36	Out-06 P03	CONDUIT	20.0	10.2500	0.0150
CD-02	P02	r U3	WEIR			

CD-03 CD-05 CD-06 CD-08 CD-09 CD-10 CD-14 CD-15 CD-16 CD-17 CD-18 CD-19 CD-20 CD-21 CD-22 CD-23 CD-24 CD-25 CD-26 CD-27 CD-28 CD-29 CD-30 CD-31 CD-32 CD-33 CD-34 CD-35	P03 P05 P06 P08 P09 P10 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35	P04 P06 P07 P09 P10 P11 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 P36	WEIR WEIR WEIR WEIR WEIR WEIR WEIR WEIR			
Cross Section	4					
Link Design	Shape	Depth/	Width	No. of	Cross	Full Flow
ID Flow		Diameter		Barrels	Sectional	Hydraulic
Capacity					Area	Radius
cfs		ft	ft		ft²	ft
OF-04	CIRCULAR	0.33	0.33	1	0.09	0.08
0.63 OF-07	CIRCULAR	0.33	0.33	1	0.09	0.08
0.54 OF-11	CIRCULAR	0.33			0.09	
0.65						
OF-36 6.08	CIRCULAR	0.83	0.83	1	0.55	0.21
Runoff Quan	************* tity Continuity *****	Volume acre-ft	Depth inches			
Evaporation Infiltration Surface Rund Final Surface	pitation Loss n Loss off ce Storage Error (%)	0.101 0.000 0.000 0.100 0.001 -0.105	3.455 0.000 0.000 3.435 0.023			
	***************** g Continuity	Volume acre-ft	Volume Mgallons			

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******
***********
EPA SWMM Time of Concentration Computations Report
       Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))
       Tc = Time of Concentration (min)
       L = Flow Length (ft)
       n = Manning's Roughness
i = Rainfall Intensity (in/hr)
       S = Slope (ft/ft)
Subbasin W02
       Flow length (ft):
                                            1677.12
       Pervious Manning's Roughness:
                                             0.10000
       Impervious Manning's Roughness:
                                            0.01100
       Pervious Rainfall Intensity (in/hr):
                                            0.14394
       Impervious Rainfall Intensity (in/hr):
                                             0.14394
                                           12.00000
       Slope (%):
       Computed TOC (minutes):
                                               22.17
Subbasin W03
                                              69.70
       Flow length (ft):
       Pervious Manning's Roughness:
                                             0.10000
       Impervious Manning's Roughness:
                                             0.01100
       Pervious Rainfall Intensity (in/hr):
                                            0.14394
       Impervious Rainfall Intensity (in/hr):
                                             0.14394
       Slope (%):
                                            12.00000
       Computed TOC (minutes):
                                                3.29
Subbasin W04
       Flow length (ft):
                                              69.70
       Pervious Manning's Roughness:
                                            0.10000
       Impervious Manning's Roughness:
                                            0.01100
       Pervious Rainfall Intensity (in/hr):
                                             0.14394
                                             0.14394
       Impervious Rainfall Intensity (in/hr):
                                            12.00000
       Slope (%):
       Computed TOC (minutes):
                                                3.29
Subbasin W05
```

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Flow length (ft):
                                                    143.75
                                                    0.10000
        Pervious Manning's Roughness:
        Impervious Manning's Roughness:
                                                   0.01100
                                                  0.14394
        Pervious Rainfall Intensity (in/hr):
        Impervious Rainfall Intensity (in/hr):
                                                   0.14394
        Slope (%):
                                                  12.00000
        Computed TOC (minutes):
                                                       5.08
Subbasin W06
        Flow length (ft):
                                                    124.15
        Pervious Manning's Roughness:
                                                   0.10000
        Impervious Manning's Roughness:
                                                   0.01100
        Pervious Rainfall Intensity (in/hr):
                                                  0.14394
        Impervious Rainfall Intensity (in/hr):
                                                   0.14394
        Slope (%):
                                                   12.00000
        Computed TOC (minutes):
                                                       4.65
Subbasin W07
        Flow length (ft):
                                                    145.21
                                                   0.10000
        Pervious Manning's Roughness:
        Impervious Manning's Roughness:
                                                  0.01100
        Pervious Rainfall Intensity (in/hr):
                                                   0.14394
                                                    0.14394
        Impervious Rainfall Intensity (in/hr):
                                                  12.00000
        Slope (%):
        Computed TOC (minutes):
                                                       5.11
Subbasin W08
                                                    165.53
        Flow length (ft):
        Pervious Manning's Roughness:
                                                    0.10000
        Impervious Manning's Roughness:
                                                   0.01100
        Pervious Rainfall Intensity (in/hr):
                                                  0.14394
        Impervious Rainfall Intensity (in/hr):
                                                    0.14394
        Slope (%):
                                                  12.00000
        Computed TOC (minutes):
                                                       5.53
Subbasin W09
        Flow length (ft):
                                                    219.05
        Pervious Manning's Roughness:
                                                   0.10000
        Impervious Manning's Roughness:
                                                   0.01100
        Pervious Rainfall Intensity (in/hr):
                                                   0.14394
        Impervious Rainfall Intensity (in/hr):
                                                   0.14394
        Slope (%):
                                                   12.00000
        Computed TOC (minutes):
                                                       6.54
Subbasin W10
        Flow length (ft):
                                                    209.10
                                                  0.10000
        Pervious Manning's Roughness:
        Impervious Manning's Roughness:
        Impervious Manning's Roughness: 0.01100
Pervious Rainfall Intensity (in/hr): 0.14394
Impervious Rainfall Intensity (in/hr): 0.14394
```

<pre>Slope (%): Computed TOC (minutes):</pre>	12.00000 6.36
Subbasin W11	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	271.82 0.10000 0.01100 0.14394 0.14394 12.00000 7.44
Subbasin W14	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	192.24 0.10000 0.01100 0.14394 0.14394 12.00000 6.05
Subbasin W15	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.14394 0.14394 12.00000 5.70
Subbasin W16	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W17	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W18	

Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.14394 0.14394 12.00000 5.70
Subbasin W19	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W20	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.14394 0.14394 12.00000 5.70
Subbasin W21	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.14394 0.14394 12.00000 5.70
Subbasin W22	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W23	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36

Subbasin W24	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W25	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W26	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W27	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.14394 0.14394 12.00000 5.70
Subbasin W28	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36
Subbasin W29	
<pre>Flow length (ft): Pervious Manning's Roughness:</pre>	209.10 0.10000

	<pre>Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):</pre>	0.01100 0.14394 0.14394 12.00000 6.36
Subbasir	1 W30	
	Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.14394 0.14394 12.00000 8.11
Subbasir	 n W31	
	Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.14394 0.14394 12.00000 8.11
Subbasir	 n W32	
	Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	348.49 0.10000 0.01100 0.14394 0.14394 12.00000 8.64
Subbasir		
	Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.14394 0.14394 12.00000 8.11
Subbasir	n W34	
	Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.14394 0.14394 12.00000 6.36

Subbasin W35

Flow length (ft): 313.64 Pervious Manning's Roughness: 0.10000 0.01100 0.14394 Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): 0.14394 Slope (%): 12.00000 Computed TOC (minutes): 8.11

Subbasin W36

Flow length (ft): 196.03 Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 Pervious Rainfall Intensity (in/hr): 0.14394 Impervious Rainfall Intensity (in/hr): 0.14394 Slope (%): 12.00000 Computed TOC (minutes): 6.12

****** Subbasin Runoff Summary

Total Total Peak Subbasin Total Total Total Runoff Time of Rainfall Runon Evap. Infil. Runoff Runoff Coefficient Concentration in in in in in cfs davs hh:mm:ss 0.06 0 W02 3.45 0.00 0.00 0.00 3.42 0.989 00:22:10 3.45 0.00 0.00 0.00 3.44 0.00 0.997 00:03:17 W 0 4 3.45 0.00 0.00 0.00 3.44 0.00 0.997 0 00:03:17 W05 3.45 0.00 0.00 0.00 3.44 0.01 0.997 0 00:05:04 3.45 0.00 0.00 0.00 3.44 0.00 0.997 Ω W06 00:04:39 W07 3.45 0.00 0.00 0.00 3.44 0.01 0.997 0 00:05:06 3.45 0.00 0.00 0.00 3.44 0.03 0.996 0 W08 00:05:31 W09 3.45 0.00 0.00 0.00 3.44 0.01 0.996 0 00:06:32 3.45 0.00 0.00 0.00 3.44 0.01 0.996 0 W10 00:06:21 W11 3.45 0.00 0.00 0.00 3.44 0.01 0.996 0 00:07:26 3.45 0.00 0.00 0.00 0.02 0.996 W14 3.44 00:06:02 3.45 0.00 0.00 3.44 0.00 0.996 0 W15 0.00 00:05:41 W16 3.45 0.00 3.44 0.01 0.996 0.00 0.00 00:06:21 W17 3.45 0.00 0.00 0.00 3.44 0.01 0.996 0

00.06.21								
00:06:21 W18	3.45	0.00	0.00	0.00	3.44	0.00	0.996	0
00:05:41	3.43	0.00	0.00	0.00	3.44	0.00	0.996	U
W19	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21	3.43	0.00	0.00	0.00	3.44	0.01	0.990	U
W20	3.45	0.00	0.00	0.00	3.44	0.00	0.996	0
00:05:41	3.43	0.00	0.00	0.00	3.44	0.00	0.550	U
W21	3.45	0.00	0.00	0.00	3.44	0.00	0.996	0
00:05:41	3.13	0.00	0.00	0.00	J. 11	0.00	0.330	Ü
W22	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21								
W23	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21								
W24	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21								
W25	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21								
W26	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21								
W27	3.45	0.00	0.00	0.00	3.44	0.00	0.996	0
00:05:41	2 45	0 00	0.00	0.00	2 44	0 01	0.006	•
W28	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21 W29	2 45	0 00	0 00	0.00	2 44	0 01	0 000	0
W29 00:06:21	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
W30	3.45	0.00	0.00	0.00	3.44	0.01	0.995	0
00:08:06	3.43	0.00	0.00	0.00	3.44	0.01	0.993	U
W31	3.45	0.00	0.00	0.00	3.44	0.01	0.995	0
00:08:06	3.13	0.00	0.00	0.00	J. 11	0.01	0.333	Ü
W32	3.45	0.00	0.00	0.00	3.44	0.01	0.995	0
00:08:38								
W33	3.45	0.00	0.00	0.00	3.44	0.01	0.995	0
00:08:06								
W34	3.45	0.00	0.00	0.00	3.44	0.01	0.996	0
00:06:21								
W35	3.45	0.00	0.00	0.00	3.44	0.01	0.995	0
00:08:06								
W36	3.45	0.00	0.00	0.00	3.44	0.02	0.996	0
00:06:06								

Node ID	Average Depth	Maximum Depth	Maximum HGL		of Max irrence	Total Flooded	Total Time	Retention Time
	Attained	Attained	Attained			Volume	Flooded	
	ft	ft	ft	days	hh:mm	acre-in	minutes	hh:mm:ss
Out-06	0.01	0.48	58.98	0	08:17	0	0	0:00:00
P02	0.80	0.89	100.75	0	08:10	0.00	855	0:00:00
P03	0.33	0.88	99.76	0	08:10	0.00	195	0:00:00
P04	0.08	0.62	98.80	0	08:10	0.00	105	0:00:00
P05	0.74	0.78	94.59	0	08:10	0.00	1362	0:00:00
P06	0.72	0.76	93.48	0	08:02	0.00	1354	0:00:00
P07	0.44	0.53	92.18	0	08:03	0.00	1341	0:00:00
P08	0.49	0.52	83.16	0	08:03	0.00	1391	0:00:00
P09	0.48	0.52	82.22	0	08:03	0.00	1366	0:00:00
P10	0.47	0.53	81.39	0	08:03	0.00	1342	0:00:00
P11	0.48	0.58	80.60	0	08:03	0.00	1285	0:00:00
P14	0.49	0.56	78.05	0	07:56	0.02	1328	0:00:00
P15	0.46	0.57	77.23	0	08:17	0.00	1161	0:00:00

P16	0.43	0.61	76.42	0	08:17	0.00	1013	0:00:00
P17	0.40	0.65	75.62	0	08:17	0.00	869	0:00:00
P18	0.37	0.68	74.81	0	08:17	0.00	750	0:00:00
P19	0.36	0.71	74.00	0	08:17	0.00	648	0:00:00
P20	0.32	0.74	73.19	0	08:17	0.00	539	0:00:00
P21	0.31	0.77	72.38	0	08:17	0.00	466	0:00:00
P22	0.31	0.80	71.57	0	08:17	0.00	397	0:00:00
P23	0.31	0.82	70.75	0	08:17	0.00	375	0:00:00
P24	0.30	0.84	69.93	0	08:17	0.00	355	0:00:00
P25	0.30	0.87	69.12	0	07:51	0.00	336	0:00:00
P26	0.30	0.89	68.30	0	08:17	0.00	318	0:00:00
P27	0.27	0.92	67.49	0	08:17	0.00	298	0:00:00
P28	0.29	0.92	66.65	0	07:51	0.00	285	0:00:00
P29	0.29	0.91	65.80	0	08:17	0.00	258	0:00:00
P30	0.35	0.93	64.98	0	08:17	0.00	254	0:00:00
P31	0.39	0.91	64.00	0	08:17	0.00	252	0:00:00
P32	0.35	0.88	63.24	0	08:17	0.00	253	0:00:00
P33	0.30	0.84	62.49	0	08:17	0.00	237	0:00:00
P34	0.22	0.85	61.81	0	08:17	0.00	220	0:00:00
P35	0.19	0.89	61.30	0	08:17	0.01	188	0:00:00
P36	0.25	1.09	61.03	0	08:17	0.00	163	0:00:00

Node ID		Lateral	Inflow	Peak	Time of Maximum Peak Inflow Flooding		Flooding		
		Inflow				Overflow			
		cfs	CIS	aays	nn:mm	cfs	aays	hh:mm	
Out-06	OUTFALL	0.00	3.77	0		0.00			
P02	STORAGE	0.06	0.06	0	08:10	0.00	0	07:41	
P03	STORAGE	0.00	0.06	0	08:10	0.01	0	07:18	
P04	STORAGE	0.00	0.05	0	08:10	0.03	0	07:48	
P05	STORAGE	0.01	0.05	0	08:10	0.00	0	07:51	
P06	STORAGE	0.00	0.05	0	08:02	0.01	0	07:50	
P07	STORAGE	0.01	0.06	0	08:02	0.01	0	07:52	
P08	STORAGE	0.03	0.09	0	08:03	0.00	0	07:53	
P09	STORAGE	0.01	0.11	0	08:03	0.00	0	07:55	
P10	STORAGE	0.01	0.11	0	08:02	0.00	0	07:54	
P11	STORAGE	0.01	0.12	0	08:00	0.00	0	07:53	
P14	STORAGE	0.02	0.13	0	08:01	0.07	0	07:50	
P15	STORAGE	0.00	0.21	0	08:17	0.11	0	08:17	
P16	STORAGE	0.01	0.38	0	08:17	0.19	0	08:17	
P17	STORAGE	0.01	0.55	0	08:17	0.26	0	08:17	
P18	STORAGE	0.00	0.72	0	08:17	0.31	0	08:17	
P19	STORAGE	0.01	0.88	0	08:17	0.37	0	08:17	
P20	STORAGE	0.00	1.05	0	08:17	0.41	0	08:17	
P21	STORAGE	0.00	1.22	0	08:17	0.46	0	08:17	
P22	STORAGE	0.01	1.39	0	08:17	0.50	0	08:17	
P23	STORAGE	0.01	1.56	0	08:17	0.54	0	08:17	
P24	STORAGE	0.01	1.74	0	08:17	0.58	0	08:17	
P25	STORAGE	0.01	2.02	0	08:17	0.56	0	07:51	
P26	STORAGE	0.01	2.12	0	07:51	0.53	0	08:17	
P27	STORAGE	0.00	2.19	0	08:17	0.57	0	08:17	
P28	STORAGE	0.01	2.28	0	08:17	0.56	0	07:51	
P29	STORAGE	0.01	2.29	0	07:51	0.53	0	08:17	
P30	STORAGE	0.01	2.27	0	07:51	0.57	0	08:17	
P31	STORAGE	0.01	2.34	0	08:17	0.26	0	08:17	
P32	STORAGE	0.01	2.25	0	08:17	0.51	0	08:17	
P33	STORAGE	0.01	2.27	0	08:17	0.57	0	08:17	
P34	STORAGE	0.01	2.40	0	08:17	0.68	0	08:17	
P35	STORAGE	0.01	2.61	0	08:17	0.85	0	08:17	
P36	STORAGE	0.02	2.90	0	08:17	0.68	0	08:17	

	ge Node ID Time of Max.	 Maximum Total		Time	of Max	Average	Average	Maximum
- C'1		Ponded			Ponded	Ponded	Ponded	Storage Node
Exfiltra	ation Exfiltr	ation Exfiltra Volume			Volume	Volume	Volume	Outflow
Rate	Rate	Volume	40.)			4000 5: 3		
cfm	hh:mm:ss	1000 ft ³ 1000 ft ³	(%)	days	nn:mm	1000 ft ³	(동)	cfs
			 _					
P02		0.036	100	0	04:27	0.031	88	0.05
0.45	8:10:00	0.587	4.00					
P03 0.37	8:10:00	0.029 0.208	100	0	07:18	0.009	30	0.05
P04	0.10.00	0.208	100	0	07:48	0.002	13	0.04
0.36	8:10:00	0.076						
P05		0.001	100	0	01:19	0.001	108	0.05
0.02 P06	8:10:00	0.023 0.001	100	Λ	01:27	0.001	109	0.05
0.02	0:55:00	0.021	100	U	01.27	0.001	103	0.05
P07		0.002	100	0	01:40	0.012	782	0.06
0.04	1:30:00	0.018	100	0	00 50	0.000	444	0.00
P08 0.09	8:00:00	0.003 0.115	100	Ü	00:50	0.003	111	0.09
P09	0.00.00	0.003	100	0	01:15	0.003	103	0.11
0.09	8:00:00	0.118						
P10	0 00 00	0.004	100	0	01:39	0.004	99	0.11
0.10 P11	8:00:00	0.133 0.004	100	0	02:06	0.004	114	0.11
0.12	8:00:00	0.137	100	ŭ	02.00	0.001		0.11
P14		0.003	100	0	01:29	0.003	100	0.21
0.07	1:25:00	0.095	100	0	02:26	0.004	94	0.38
P15 0.11	8:15:00	0.004 0.128	100	U	02.20	0.004	94	0.30
P16		0.004	100	0	03:03	0.003	84	0.55
0.12	8:15:00	0.121						0 84
P17 0.12	7:50:00	0.004 0.111	100	0	03:49	0.003	75	0.71
P18	7.30.00	0.004	100	0	04:09	0.003	66	0.88
0.12	8:15:00	0.100						
P19	0 15 00	0.004	100	0	04:29	0.002	61	1.05
0.12 P20	8:15:00	0.097 0.004	100	Ω	04:50	0.002	53	1.22
0.12	7:50:00	0.086	100	Ü	01.00	0.002	33	1.22
P21		0.004	100	0	05:08	0.002	48	1.38
0.12	7:50:00	0.081	100	0	05:21	0.002	47	1 55
P22 0.12	7:50:00	0.004 0.082	100	U	05:21	0.002	47	1.55
P23	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.004	100	0	05:31	0.002	45	1.73
0.12	7:50:00	0.079						
P24 0.12	7:50:00	0.004	100	0	05:41	0.002	44	2.01
P25	7.50:00	0.078 0.004	100	0	05:51	0.002	43	2.12
0.12	8:15:00	0.078						
P26	T 50 00	0.004	100	0	06:00	0.002	42	2.18
0.12 P27	7:50:00	0.077 0.004	100	Λ	06:09	0.001	38	2.28
121		0.004	100	J	00.00	0.001	20	2.20

0.12	8:15:00	0.069						
P28		0.004	100	0	06:16	0.002	41	2.29
0.12	7:50:00	0.075						
P29		0.004	100	0	06:20	0.002	40	2.27
0.12	7:50:00	0.075						
P30		0.004	100	0	06:22	0.002	54	2.33
0.12	7:50:00	0.095						
P31		0.003	100	0	06:23	0.002	61	2.25
0.13	8:15:00	0.093		_				
P32		0.004	100	0	06:24	0.002	55	2.27
0.13	7:50:00	0.104						
P33		0.005	100	0	06:28	0.002	45	2.39
0.15	8:15:00	0.101		_				
P34		0.007	100	0	06:36	0.002	28	2.60
0.17	8:15:00	0.088		_				
P35	0.45.00	0.011	100	0	06:57	0.003	26	2.89
0.22	8:15:00	0.126	4.00			0.006		
P36		0.020	100	0	07:19	0.006	29	3.86
0.38	8:10:00	0.229						

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Out-06	10.59	0.12	3.77
System	10.59	0.12	3.77

Link ID	т-	Element	Т	ime of	Maximum	Length	Peak Flow	Design	Ratio of
Ratio of		tal Reported Type	Pea	k Flow	Velocity	Factor	during	Flow	Maximum
Maximum		me Condition	0ccu	rrence	Attained		Analysis	Capacity	/Design
Flow Surcha	rged		92110	hh.mm	f+ /aaa		cfs	cfs	Flow
Depth mi	nutes	•	uays	1111 • 111111	ft/sec		CIS	CIS	FIOW
-1									
OF-04		CONDUIT	0	08:10	4.19	1.00	0.04	0.63	0.07
0.18	0	Calculated							
OF-07		CONDUIT	0	08:03	4.12	1.00	0.06	0.54	0.11
0.23	0	Calculated							
OF-11		CONDUIT	0	08:03	5.60	1.00	0.11	0.65	0.17
0.28	0	Calculated	_						
OF-36	_	CONDUIT	0	08:17	11.63	1.00	3.77	6.08	0.62
0.57	0	Calculated					0.05		
CD-02		WEIR	0	08:10			0.05		
0.00		METD	0	08:10			0.05		
CD-03 0.00		WEIR	U	08:10			0.05		
CD-05		WEIR	0	08:10			0.05		
0.00		WEIK	U	00:10			0.05		
0.00									

CD-06	WEIR	0	08:02	0.05
0.00 CD-08	WEIR	0	08:03	0.09
0.00 CD-09	WEIR	0	08:03	0.11
0.00 CD-10	WEIR	0	08:03	0.11
0.00 CD-14	WEIR	0	08:17	0.21
0.00 CD-15	WEIR	0	08:17	0.38
0.00 CD-16	WEIR	0	08:17	0.55
0.00 CD-17	WEIR	0	08:17	0.71
0.00 CD-18	WEIR	0	08:17	0.88
0.00 CD-19	WEIR	0	08:17	1.05
0.00 CD-20	WEIR	0	08:17	1.22
0.00 CD-21	WEIR	0	08:17	1.38
0.00 CD-22	WEIR	0	08:17	1.55
0.00 CD-23	WEIR	0	08:17	1.73
0.00 CD-24	WEIR	0	08:17	2.01
0.00 CD-25	WEIR	0	07:51	2.12
0.00 CD-26	WEIR	0	08:17	2.18
0.00 CD-27	WEIR	0	08:17	2.28
0.00 CD-28	WEIR	0	07:51	2.29
0.00 CD-29	WEIR	0	08:17	2.29
0.00				
CD-30 0.00	WEIR	0	08:17	2.33
CD-31 0.00	WEIR	0	08:17	2.25
CD-32 0.00	WEIR	0	08:17	2.27
CD-33 0.00	WEIR	0	08:17	2.39
CD-34 0.00	WEIR	0	08:17	2.60
CD-35 0.00	WEIR	0	08:17	2.89
**************************************	bility Indexe ******** ******* Summary	es		
******	*****			

30.00 sec 30.00 sec Minimum Time Step : 30.00 sec
Average Time Step : 30.00 sec
Maximum Time Step : 30.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 1.00 Minimum Time Step Average Time Step

Analysis began on: Mon Jun 13 09:51:19 2022 Analysis ended on: Mon Jun 13 09:51:21 2022 Total elapsed time: 00:00:02

WEST PLANTER PERFORMANCE APPROACH 25YR STORM

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Autodesk® Storm and Sanitary Analysis 2016 - Version 13.4.133 (Build 0)
*****
Project Description
******
*****
Analysis Options
Flow Units ..... cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ..... Horton
Link Routing Method ..... Kinematic Wave
Storage Node Exfiltration.. Horton, wetted area
Starting Date ...... JUN-01-2022 00:00:00
Ending Date ..... JUN-02-2022 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ...... 00:05:00
Wet Time Step ..... 00:05:00
Dry Time Step ...... 01:00:00
Routing Time Step ...... 30.00 sec
*****
Element Count
Number of rain gages ..... 1
Number of subbasins ..... 33
Number of nodes ..... 34
Number of links ..... 33
Number of pollutants ..... 0
Number of land uses ..... 0
******
Subbasin Summary
Subbasin
                    Total
                          Equiv. Imperv. Average
                                                     Raingage
                          Width Area Slope
ft % %
                     Area
                    acres
                   W02
W03
W04
W05
W06
W07
80W
                     0.04
                           10.50 100.00 12.0000
                            3.50
1.25
W09
                     0.02
                                    100.00
                                            12.0000
                                    100.00 12.0000
W10
                     0.01
                            1.25
W11
                     0.01
                                   100.00 12.0000
                     0.02
                             4.60
                                    100.00
                                            12.0000
W14
                            1.25
                                   100.00 12.0000
W15
                     0.01
                             1.25
                                            12.0000
W16
                     0.01
                                    100.00
W17
                     0.01
                             1.25
                                    100.00
                                            12.0000
W18
                     0.01
                            1.25
                                    100.00 12.0000
                             1.25
                                    100.00
W19
                     0.01
                                            12.0000
                             1.25
                                           12.0000
W20
                     0.01
                                    100.00
                             1.25
                                    100.00 12.0000
100.00 12.0000
                     0.01
W21
W22
                     0.01
                             1.25
W23
                     0.01
                            1.25
                                    100.00 12.0000
```

W24

W25

100.00

100.00 12.0000

12.0000

1.25

1.25

0.01

0.01

W26 W27 W28 W29 W30 W31 W32 W33 W34 W35	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10 1.25 10	0.00 12.00 0.00 12.00	000 - 000 - 000 - 000 - 000 - 000 - 000 - 000 -		
********** Node Summary ******** Node ID	Element Type	Invert Elevation ft	Elev.	Ponded Area ft²	External Inflow	
Out-06 P02 P03 P04 P05 P06	OUTFALL STORAGE STORAGE STORAGE STORAGE STORAGE	58.50 99.86 98.88 98.18 93.81 92.72	59.33 100.74 99.75 98.74 94.58 93.47	0.00 177.50 101.60 92.40 96.20 91.30		
P07 P08 P09 P10 P11 P14 P15	STORAGE STORAGE STORAGE STORAGE STORAGE STORAGE STORAGE	91.65 82.64 81.70 80.86 80.02 77.49 76.66	83.13 82.19 81.35 80.51 77.99	113.87 68.70 33.70 33.90 40.90 19.40 33.90		
P16 P17 P18 P19 P20 P21 P22	STORAGE STORAGE STORAGE STORAGE STORAGE	75.81 74.97 74.13 73.29 72.45 71.61 70.77	76.31 75.47 74.63 73.79 72.95 72.11	33.90 33.90 33.90 33.90 33.90 33.90 33.90		
P22 P23 P24 P25 P26 P27 P28	STORAGE STORAGE STORAGE STORAGE STORAGE STORAGE STORAGE	69.93 69.09 68.25 67.41 66.57	70.43 69.59 68.75 67.91 67.07	33.90 33.90 33.90 33.90 33.90 33.90		
P29 P30 P31 P32 P33 P34 P35	STORAGE STORAGE STORAGE STORAGE STORAGE STORAGE STORAGE	64.89 64.05 63.09 62.36 61.65 60.96	64.55 63.59 62.86 62.14 61.48 60.97	33.90 33.90 38.80 34.50 37.70 43.00 48.60		
P36 ******* Link Summary ******* Link	STORAGE From Node	59.94 To Node	60.55	70.70 Length	Slope	Manning ' s
OF-04 OF-07 OF-11	P04 P07 P11	P05 P08 P14	Type CONDUIT CONDUIT CONDUIT	ft 29.5 81.0 18.3	14.7797 10.7407	Roughness 0.0150 0.0150 0.0150
OF-36 CD-02	P36 P02	Out-06 P03	CONDUIT WEIR	20.0		0.0150

CD-03 CD-05 CD-05 CD-06 CD-08 CD-09 CD-10 CD-14 CD-15 CD-16 CD-17 CD-18 CD-19 CD-20 CD-21 CD-22 CD-23 CD-24 CD-25 CD-26 CD-27 CD-28 CD-29 CD-29 CD-30 CD-31 CD-32 CD-33 CD-34 CD-35	P03 P05 P06 P08 P09 P10 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35	P04 P06 P07 P09 P10 P11 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31 P32 P33 P34 P35 P36	WEIR WEIR WEIR WEIR WEIR WEIR WEIR WEIR			
**************************************	on Summary					
********** Link	******** Shape	Depth/	Width	No. of	Cross	Full Flow
Design ID	-	Diameter		Barrels	Sectional	Hydraulic
Flow					Area	Radius
Capacity		ft	ft		ft²	ft
cfs		10	IC		10-	IC
OF-04	CIRCULAR	0.33	0.33	1	0.09	0.08
0.63 OF-07	CIRCULAR	0.33	0.33	1	0.09	0.08
0.54 OF-11	CIRCULAR	0.33	0.33	1	0.09	0.08
0.65 OF-36	CIRCULAR	0.83	0.83	1	0.55	0.21
6.08						
*****	*****	Volume	Depth			
Runoff Quant	tity Continuity ******	acre-ft	inches			
Total Precip Evaporation Infiltration Surface Rund Final Surface	pitation Loss n Loss off ce Storage Error (%)	0.147 0.000 0.000 0.147 0.001 -0.102	5.052 0.000 0.000 5.031 0.027			
	************* g Continuity	Volume acre-ft	Volume Mgallons			

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******
***********
EPA SWMM Time of Concentration Computations Report
       Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))
       Tc = Time of Concentration (min)
       L = Flow Length (ft)
       n = Manning's Roughness
i = Rainfall Intensity (in/hr)
       S = Slope (ft/ft)
Subbasin W02
       Flow length (ft):
                                            1677.12
       Pervious Manning's Roughness:
                                             0.10000
       Impervious Manning's Roughness:
                                            0.01100
       Pervious Rainfall Intensity (in/hr):
                                            0.21050
       Impervious Rainfall Intensity (in/hr):
                                             0.21050
                                           12.00000
       Slope (%):
       Computed TOC (minutes):
                                               19.05
Subbasin W03
                                              69.70
       Flow length (ft):
       Pervious Manning's Roughness:
                                             0.10000
       Impervious Manning's Roughness:
                                             0.01100
                                            0.21050
       Pervious Rainfall Intensity (in/hr):
       Impervious Rainfall Intensity (in/hr):
                                             0.21050
       Slope (%):
                                            12.00000
       Computed TOC (minutes):
                                                2.82
Subbasin W04
       Flow length (ft):
                                              69.70
       Pervious Manning's Roughness:
                                            0.10000
       Impervious Manning's Roughness:
                                            0.01100
       Pervious Rainfall Intensity (in/hr):
                                             0.21050
       Impervious Rainfall Intensity (in/hr):
                                             0.21050
                                            12.00000
       Slope (%):
       Computed TOC (minutes):
                                                2.82
Subbasin W05
```

Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	143.75 0.10000 0.01100 0.21050 0.21050 12.00000 4.36
Subbasin W06	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	124.15 0.10000 0.01100 0.21050 0.21050 12.00000 3.99
Subbasin W07	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	145.21 0.10000 0.01100 0.21050 0.21050 12.00000 4.39
Subbasin W08	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	165.53 0.10000 0.01100 0.21050 0.21050 12.00000 4.75
Subbasin W09	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	219.05 0.10000 0.01100 0.21050 0.21050 12.00000 5.62
Subbasin W10	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr):	209.10 0.10000 0.01100 0.21050 0.21050

<pre>Slope (%): Computed TOC (minutes):</pre>	12.00000 5.46
Subbasin W11	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	271.82 0.10000 0.01100 0.21050 0.21050 12.00000 6.39
Subbasin W14	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	192.24 0.10000 0.01100 0.21050 0.21050 12.00000 5.19
Subbasin W15	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	174.25 0.10000 0.01100 0.21050 0.21050 12.00000 4.89
Subbasin W16	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.21050 0.21050 12.00000 5.46
Subbasin W17	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.21050 0.21050 12.00000 5.46
Subbasin W18	

Flow length (ft): Pervious Manning's Roughnes Impervious Manning's Roughn Pervious Rainfall Intensity Impervious Rainfall Intensi Slope (%): Computed TOC (minutes):	less: 0.01100 (in/hr): 0.21050
Subbasin W19	
Flow length (ft): Pervious Manning's Roughnes Impervious Manning's Roughn Pervious Rainfall Intensity Impervious Rainfall Intensi Slope (%): Computed TOC (minutes):	less: 0.01100 (in/hr): 0.21050
Subbasin W20	
Flow length (ft): Pervious Manning's Roughnes Impervious Manning's Roughn Pervious Rainfall Intensity Impervious Rainfall Intensi Slope (%): Computed TOC (minutes):	less: 0.01100 (in/hr): 0.21050
Subbasin W21	
Flow length (ft): Pervious Manning's Roughnes Impervious Manning's Roughn Pervious Rainfall Intensity Impervious Rainfall Intensi Slope (%): Computed TOC (minutes):	less: 0.01100 (in/hr): 0.21050
Subbasin W22	
Flow length (ft): Pervious Manning's Roughnes Impervious Manning's Roughn Pervious Rainfall Intensity Impervious Rainfall Intensi Slope (%): Computed TOC (minutes):	less: 0.01100 (in/hr): 0.21050
Subbasin W23	
Flow length (ft): Pervious Manning's Roughnes Impervious Manning's Roughn Pervious Rainfall Intensity Impervious Rainfall Intensi Slope (%): Computed TOC (minutes):	ness: 0.01100 (in/hr): 0.21050

Subbasin W24 209.10 Flow length (ft): Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 Pervious Rainfall Intensity (in/hr): 0.21050 Impervious Rainfall Intensity (in/hr): 0.21050 Slope (%): 12.00000 Computed TOC (minutes): 5.46 Subbasin W25 Flow length (ft): 209.10 Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 Pervious Rainfall Intensity (in/hr): 0.21050 Impervious Rainfall Intensity (in/hr): 0.21050 12.00000 Slope (%): Computed TOC (minutes): 5.46 Subbasin W26 Flow length (ft): 209.10 Pervious Manning's Roughness: 0.10000 0.01100 Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): 0.21050 Impervious Rainfall Intensity (in/hr): 0.21050 Slope (%): 12.00000 Computed TOC (minutes): 5.46 Subbasin W27 174.25 Flow length (ft): Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 0.21050 Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): 0.21050 Slope (%): 12.00000 Computed TOC (minutes): Subbasin W28 Flow length (ft): 209.10 Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 Pervious Rainfall Intensity (in/hr): 0.21050 0.21050 Impervious Rainfall Intensity (in/hr): Slope (%): 12.00000 Computed TOC (minutes): 5.46 Subbasin W29 Flow length (ft): 209.10 Pervious Manning's Roughness: 0.10000

<pre>Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):</pre>	0.01100 0.21050 0.21050 12.00000 5.46
Subbasin W30	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.21050 0.21050 12.00000 6.96
Subbasin W31	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.21050 0.21050 12.00000 6.96
Subbasin W32	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	348.49 0.10000 0.01100 0.21050 0.21050 12.00000 7.42
Subbasin W33	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	313.64 0.10000 0.01100 0.21050 0.21050 12.00000 6.96
Subbasin W34	
Flow length (ft): Pervious Manning's Roughness: Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): Impervious Rainfall Intensity (in/hr): Slope (%): Computed TOC (minutes):	209.10 0.10000 0.01100 0.21050 0.21050 12.00000 5.46

Subbasin W35

Flow length (ft): 313.64 Pervious Manning's Roughness: 0.10000 0.01100 Impervious Manning's Roughness: Pervious Rainfall Intensity (in/hr): 0.21050 Impervious Rainfall Intensity (in/hr): 0.21050 Slope (%): 12.00000 Computed TOC (minutes): 6.96

Subbasin W36

Flow length (ft): 196.03 Pervious Manning's Roughness: 0.10000 Impervious Manning's Roughness: 0.01100 Pervious Rainfall Intensity (in/hr): 0.21050 Impervious Rainfall Intensity (in/hr): 0.21050 Slope (%): 12.00000 Computed TOC (minutes):

****** Subbasin Runoff Summary

Total Total Peak Subbasin Total Total Total Runoff Time of Rainfall Runon Evap. Infil. Runoff Runoff Coefficient Concentration in in in in in cfs davs hh:mm:ss 5.05 0.09 0.991 0 W020.00 0.00 0.00 5.01 00:19:02 5.05 0.00 0.00 0.00 5.04 0.00 0.998 W03 00:02:49 W 0 4 5.05 0.00 0.00 0.00 5.04 0.00 0.998 0 00:02:49 W05 5.05 0.00 0.00 0.00 5.04 0.01 0.998 0 00:04:21 5.05 0.00 0.00 0.00 5.04 0.01 0.998 Ω W06 00:03:59 W07 5.05 0.00 0.00 0.00 5.04 0.01 0.997 0 00:04:23 5.05 0.00 0.00 0.00 5.04 0.05 0.997 0 W08 00:04:44 5.05 W09 0.00 0.00 0.00 5.04 0.02 0.997 0 00:05:36 5.05 0.00 0.00 0.00 5.04 0.01 0.997 0 W10 00:05:27 W11 5.05 0.00 0.00 0.00 5.04 0.01 0.997 0 00:06:23 5.05 0.00 0.00 0.00 5.04 0.02 0.997 W14 00:05:11 5.05 0.00 0.00 0.00 5.04 0.01 0.997 W15 0 00:04:53 W16 5.05 0.00 0.00 5.04 0.01 0.997 0.00 00:05:27 W17 5.05 0.00 0.00 0.00 5.04 0.01 0.997 0

00:05:27	F 0.F	0.00	0.00	0.00	F 0.4	0.01	0 007	0
W18 00:04:53	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
W19	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27						***		
W20	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:04:53								
W21	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:04:53 W22	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
W2Z 00:05:27	5.05	0.00	0.00	0.00	5.04	0.01	0.997	U
W23	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27	0.00	0.00	0.00	0.00	0.01	0.01	0.337	ŭ
W24	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27								
W25	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27	F 0F	0 00	0.00	0.00	E 0.4	0 01	0 007	0
W26 00:05:27	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
W27	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:04:53	0.00	0.00	0.00	0.00	0.01	0.01	0.337	ŭ
W28	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27								
W29	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27	F 0F	0 00	0.00	0.00	F 03	0 01	0.006	0
W30 00:06:57	5.05	0.00	0.00	0.00	5.03	0.01	0.996	0
W31	5.05	0.00	0.00	0.00	5.03	0.01	0.996	0
00:06:57								
W32	5.05	0.00	0.00	0.00	5.03	0.01	0.996	0
00:07:25								
W33	5.05	0.00	0.00	0.00	5.03	0.01	0.996	0
00:06:57 W34	5.05	0.00	0.00	0.00	5.04	0.01	0.997	0
00:05:27	3.03	0.00	0.00	0.00	5.04	0.01	0.997	U
W35	5.05	0.00	0.00	0.00	5.03	0.01	0.996	0
00:06:57								
W36	5.05	0.00	0.00	0.00	5.04	0.02	0.997	0
00:05:15								

Node ID	Average Depth Attained	Maximum Depth Attained	Maximum HGL Attained	Occu	of Max irrence	Total Flooded Volume	Total Time Flooded	Retention Time
	ft	ft	ft	days	hh:mm	acre-in	minutes	hh:mm:ss
Out-06	0.02	0.51	59.01	0	07:54	0	0	0:00:00
P02	0.84	0.90	100.76	0	08:00	0.00	1286	0:00:00
P03	0.63	0.89	99.77	0	08:01	0.00	548	0:00:00
P04	0.18	0.64	98.82	0	08:01	0.00	285	0:00:00
P05	0.75	0.79	94.60	0	08:01	0.00	1388	0:00:00
P06	0.73	0.77	93.49	0	08:01	0.00	1381	0:00:00
P07	0.45	0.55	92.20	0	08:02	0.00	1370	0:00:00
P08	0.49	0.53	83.17	0	08:02	0.00	1407	0:00:00
P09	0.49	0.54	82.24	0	08:02	0.00	1394	0:00:00
P10	0.48	0.54	81.40	0	08:01	0.00	1368	0:00:00
P11	0.50	0.61	80.63	0	08:00	0.00	1356	0:00:00
P14	0.50	0.61	78.10	0	07:52	0.03	1334	0:00:00
P15	0.48	0.58	77.24	0	07:50	0.00	1350	0:00:00

P16	0.49	0.63	76.44	0	07:50	0.01	1339	0:00:00
P17	0.48	0.66	75.63	0	07:49	0.01	1329	0:00:00
P18	0.48	0.70	74.83	0	07:49	0.00	1253	0:00:00
P19	0.47	0.73	74.02	0	07:49	0.00	1186	0:00:00
P20	0.45	0.76	73.21	0	07:49	0.00	1116	0:00:00
P21	0.44	0.78	72.39	0	07:49	0.00	1053	0:00:00
P22	0.44	0.81	71.58	0	07:49	0.00	998	0:00:00
P23	0.43	0.85	70.78	0	07:49	0.00	947	0:00:00
P24	0.42	0.96	70.05	0	07:52	0.01	894	0:00:00
P25	0.42	0.94	69.19	0	07:51	0.00	846	0:00:00
P26	0.41	0.91	68.32	0	07:49	0.00	791	0:00:00
P27	0.39	0.90	67.47	0	07:49	0.00	744	0:00:00
P28	0.40	0.90	66.63	0	07:49	0.00	709	0:00:00
P29	0.39	0.92	65.81	0	07:49	0.00	670	0:00:00
P30	0.44	0.91	64.96	0	07:45	0.01	660	0:00:00
P31	0.46	0.91	64.00	0	07:50	0.00	660	0:00:00
P32	0.44	0.89	63.25	0	08:30	0.01	654	0:00:00
P33	0.40	1.02	62.67	0	07:53	0.01	626	0:00:00
P34	0.34	0.87	61.83	0	08:30	0.01	545	0:00:00
P35	0.33	0.94	61.35	0	07:54	0.05	480	0:00:00
P36	0.39	1.12	61.06	0	07:54	0.00	443	0:00:00

Node ID	Element Type	Lateral Inflow	Inflow	Peak Inflow Occurrence		Flooding Overflow	Fl Occu	Occurrence	
		cfs	cfs	days	hh:mm	cfs	days	hh:mm	
Out-06	OUTFALL		4.18						
P02	STORAGE	0.09	0.09	0	08:00	0.01	0	02:36	
P03	STORAGE	0.00	0.09	0	08:00	0.00		05:25	
P04	STORAGE	0.00	0.08	0	08:01	0.01	0	07:43	
P05	STORAGE	0.01	0.08	0	08:01	0.00	0	07:43	
P06	STORAGE	0.01	0.09	0	08:01		0	07:43	
P07	STORAGE	0.01	0.10	0	08:01	0.01	0	07:45	
P08	STORAGE	0.05	0.15	0	08:02	0.00	0	07:47	
P09	STORAGE	0.02	0.17	0	08:02	0.00	0	07:47	
P10	STORAGE	0.01	0.18	0	08:02	0.00	0	07:42	
P11	STORAGE	0.01	0.18	0	08:01	0.01	0	07:43	
P14	STORAGE	0.02	0.21	0	08:00	0.09	0	07:50	
P15	STORAGE	0.01	0.31	0	07:52	0.13	0	07:49	
P16	STORAGE	0.01	0.44	0	07:50	0.22	0	07:50	
P17	STORAGE	0.01	0.61	0	07:49	0.28	0	07:50	
P18	STORAGE	0.01	0.78	0	07:49	0.34	0	07:50	
P19	STORAGE		0.96	0	07:49	0.38	0	07:50	
P20	STORAGE	0.01	1.13	0	07:49	0.44	0	07:50	
P21	STORAGE	0.01	1.32	0	08:29	0.51	0	07:50	
P22	STORAGE	0.01	1.55	0	07:49	0.50	0	07:49	
P23	STORAGE	0.01	1.82	0	07:49	0.55	0	07:49	
P24	STORAGE	0.01	2.04	0	07:49	0.53	0	07:52	
P25	STORAGE	0.01	2.11	0	07:49	0.74	0	07:51	
P26	STORAGE	0.01	2.29	0	07:51	0.56	0	08:29	
P27	STORAGE	0.01	2.25	0	07:49	0.54	0	07:44	
P28	STORAGE	0.01	2.23	0	07:49	0.52	0	07:53	
P29	STORAGE	0.01	2.23	0	07:49	0.58	0	07:53	
P30	STORAGE	0.01	2.30	0	07:49	0.53	0	07:44	
P31	STORAGE	0.01	2.27	0	07:45	0.49	0	08:29	
P32	STORAGE	0.01	2.27	0	07:50	0.54	0	08:29	
P33	STORAGE	0.01	2.28	0	08:30	0.66	0	07:53	
P34	STORAGE		2.46	0	08:30	0.84	0	07:53	
P35	STORAGE	0.01	2.71	0	08:30	1.04	0	07:53	
P36	STORAGE	0.02	3.18	0	07:54	0.75	0	07:54	

	ge Node ID Time of Max.	Maximum Total		Time	of Max	Average	Average	Maximum	
		Ponded			Ponded	Ponded	Ponded	Storage Node	
Exfiltra	ation Exfiltr	ation Exfiltra Volume			Volume	Volume	Volume	Outflow	
Rate	Rate	Volume							
cfm	hh:mm:ss	1000 ft ³	(%)	days	hh:mm	1000 ft ³	(%)	cfs	
CIII	1111.111111.55	1000 10							
P02		0.036	100	0	02:35	0.034	95	0.08	
0.46	8:00:00	0.614							
P03		0.029	100	0	05:25	0.018	64	0.08	
0.38	8:00:00	0.386							
P04	0 00 00	0.016	100	0	06:30	0.005	31	0.08	
0.36	8:00:00	0.161	100	0	00:53	0.001	117	0 00	
P05 0.02	8:00:00	0.001 0.024	100	U	00:53	0.001	11/	0.08	
P06	0.00.00	0.001	100	0	01:00	0.001	119	0.09	
0.02	0:30:00	0.021		•					
P07		0.002	100	0	01:11	0.013	848	0.10	
0.04	1:00:00	0.018							
P08		0.003	100	0	00:34	0.003	117	0.15	
0.09 P09	8:00:00	0.116 0.003	100	0	00:47	0.003	108	0.17	
0.09	8:00:00	0.120	100	U	00.47	0.003	100	0.17	
P10	0.00.00	0.004	100	0	01:13	0.004	104	0.17	
0.11	8:00:00	0.137							
P11		0.004	100	0	01:25	0.005	128	0.18	
0.12	7:50:00	0.142		_					
P14	0.05.00	0.003	100	0	01:02	0.003	104	0.31	
0.07 P15	9:05:00	0.095 0.004	100	0	01:31	0.004	103	0.44	
0.12	7:50:00	0.135	100	O	01.51	0.004	103	0.44	
P16	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.004	100	0	01:40	0.004	102	0.60	
0.12	8:25:00	0.137							
P17		0.004	100	0	01:50	0.004	101	0.77	
0.12	7:45:00	0.137		_					
P18 0.12	7:50:00	0.004	100	0	02:04	0.004	99	0.95	
P19	7:30:00	0.135 0.004	100	0	02:17	0.004	96	1.13	
0.12	7:50:00	0.133	100	O	02.17	0.004	30	1.13	
P20		0.004	100	0	02:30	0.004	92	1.31	
0.12	8:30:00	0.128							
P21		0.004	100	0	02:39	0.003	88	1.55	
0.12	7:45:00	0.123	100	0	00 40	0 000	0.6	1 01	
P22 0.12	7:50:00	0.004 0.122	100	U	02:48	0.003	86	1.81	
P23	7.30.00	0.004	100	0	02:59	0.003	83	2.03	
0.12	8:30:00	0.120	100	Ü	02.00	0.003	03	2.00	
P24		0.004	100	0	03:11	0.003	81	2.10	
0.12	7:45:00	0.117							
P25	7 55 00	0.004	100	0	03:28	0.003	79	2.28	
0.12 P26	7:55:00	0.115 0.004	100	0	03:45	0.003	76	2.25	
0.12	7:55:00	0.112	100	U	00.40	0.003	76	2.23	
P27		0.004	100	0	03:57	0.003	71	2.23	

0.12	8:30:00	0.105						
P28		0.004	100	0	04:06	0.003	72	2.22
0.12	7:55:00	0.109						
P29		0.004	100	0	04:14	0.003	70	2.29
0.12	7:55:00	0.107						
P30		0.004	100	0	04:17	0.003	83	2.26
0.12	7:55:00	0.122						
P31		0.003	100	0	04:18	0.003	90	2.26
0.13	7:50:00	0.119						
P32		0.004	100	0	04:20	0.004	84	2.27
0.14	7:50:00	0.133						
P33		0.005	100	0	04:26	0.004	74	2.46
0.15	8:30:00	0.137						
P34		0.007	100	0	04:43	0.004	56	2.70
0.18	7:55:00	0.135						
P35		0.011	100	0	05:05	0.006	51	3.16
0.22	8:05:00	0.186						
P36		0.020	100	0	05:26	0.011	55	4.24
0.38	8:20:00	0.323						

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Out-06	27.73	0.11	4.18
System	27.73	0.11	4.18

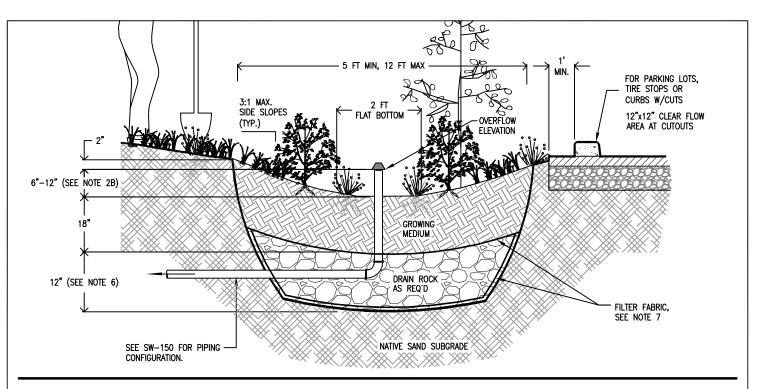
Link ID Ratio of	т-	Element	Т	ime of	Maximum	Length	Peak Flow	Design	Ratio of
Maximum		tal Reported Type .me Condition	Pea	k Flow	Velocity	Factor	during	Flow	Maximum
		ine condition	Occu	rrence	Attained		Analysis	Capacity	/Design
Flow Surcha	rged		a	1.1	St. /		- 5 -		
Depth min	nutes		aays	nn:mm	ft/sec		cfs	cfs	Flow
Вереп шт	iracco	•							
OF-04		CONDUIT	0	08:01	4.88	1.00	0.08	0.63	0.12
0.23	0		Ü	00.01	1.00	1.00	0.00	0.03	0.12
OF-07		CONDUIT	0	08:02	4.75	1.00	0.10	0.54	0.19
0.29	0	Calculated							
OF-11		CONDUIT	0	08:00	6.39	1.00	0.18	0.65	0.28
0.36	0	Calculated			44.00				
OF-36	0	CONDUIT	0	07:54	11.93	1.00	4.18	6.08	0.69
0.61	0	Calculated	0	00 00			0.00		
CD-02 0.00		WEIR	0	08:00			0.08		
CD-03		WEIR	0	08:01			0.08		
0.00		MEIK	U	00.01			0.00		
CD-05		WEIR	0	08:01			0.08		
0.00			Ü	00.01			0.00		

CD-06	WEIR	0	08:01	0.09			
0.00 CD-08	WEIR	0	08:02	0.15			
0.00 CD-09	WEIR	0	08:02	0.17			
0.00 CD-10	WEIR	0	08:01	0.17			
0.00 CD-14	WEIR	0	07:52	0.31			
0.00							
CD-15 0.00	WEIR	0	07:50	0.44			
CD-16 0.00	WEIR	0	07:49	0.60			
CD-17 0.00	WEIR	0	07:49	0.77			
CD-18 0.00	WEIR	0	07:49	0.95			
CD-19	WEIR	0	07:49	1.13			
0.00 CD-20	WEIR	0	08:29	1.31			
0.00 CD-21	WEIR	0	07:49	1.55			
0.00 CD-22	WEIR	0	07:49	1.81			
0.00 CD-23	WEIR	0	07:49	2.03			
0.00 CD-24	WEIR	0	07:49	2.10			
0.00 CD-25	WEIR	0	07:51	2.28			
0.00							
CD-26 0.00	WEIR	0	07:49	2.25			
CD-27 0.00	WEIR	0	07:49	2.23			
CD-28 0.00	WEIR	0	07:49	2.22			
CD-29 0.00	WEIR	0	07:49	2.29			
CD-30 0.00	WEIR	0	07:45	2.26			
CD-31	WEIR	0	07:50	2.26			
0.00 CD-32	WEIR	0	08:30	2.27			
0.00 CD-33	WEIR	0	08:30	2.46			
0.00 CD-34	WEIR	0	08:30	2.70			
0.00 CD-35	WEIR	0	07:54	3.16			
0.00							
Highest Flow In ************ Link CD-34 (14) Link CD-35 (14) Link CD-32 (13) Link CD-31 (12)	*****	S					
Routing Time Step Summary ************************************							

Minimum Time Step : 30.00 sec
Average Time Step : 30.00 sec
Maximum Time Step : 30.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 1.01 Minimum Time Step Average Time Step Maximum Time Step : 30.00 sec : 30.00 sec

Analysis began on: Mon Jun 13 09:29:21 2022 Analysis ended on: Mon Jun 13 09:29:23 2022 Total elapsed time: 00:00:02

APPENDIX C: BMP DETAILS



1. Provide protection from all vehicle traffic, equipment staging, and foot traffic in proposed infiltration areas prior to, during, and after construction.

2. Dimensions:

- a. Width of swale: 6'-15' (JBE EDIT)
- b. Depth of swale (from top of growing medium to overflow elevation); Simplified: 9", Presumptive: Match road grade or less
- c. Longitudinal slope of swale: due to site conditions (JBE EDIT)
- d. Flat bottom width: Min 10" due to site conditions (JBE EDIT)
- e. Side slopes of swale: 3:1 maximum.
- 3. Setbacks (from centerline of facility):
 - a. Infiltration swales must be 10' from foundations and 5' from property lines.
 - b. Flow-through swales must be lined with connection to approved discharge point according to SWDM Section 2.1
- 4. Overflow:
 - a. Overflow required for Simplified Approach
 - b. Inlet elevation must allow for 2" of freeboard, minimum
 - c. Protect from debris and sediment with strainer or
- 5. Piping: shall be ABS Sch.40, cast iron, or PVS Sch.40. 3" pipe required for up to 1,500 sq ft of impervious area, otherwise 4" min. Piping must have 1% grade and follow the Uniform Plumbing Code.
- 6. Drain rock:
 - a. Infiltration swale: None required
 - b. Size for flow-through swale: 3/4" washed
 - c. Depth for Simplified and Presumptive: 12"

DATE: 11-30-10

- 7. Separation between drain rock and growing medium: Use filter fabric.
- 8. Growing medium:
 - a. 18" minimum
 - b. See Appendix B for specification.
- 9. Vegetation: Follow landscape plans otherwise refer to plant list in SWDM Appendix G. Minimum container size is 1 gallon. # of plantings per 100sf of facility area:
 - a. Zone A (wet): 115 herbaceous plants OR 100 herbaceous plants and 4 small shrubs.
 - b. Zone B (moderate to dry). 1 tree AND 3 large shrubs / small trees AND 4 small shrubs AND 140 groundcover plants.

The delineation between Zone A and B shall be either at the outlet elevation or the check dam elevation, whichever is

- 10. Waterproof liner: Shall be 30 mil PVC or equivalent for flow-through facilities.
- 11. Install washed pea gravel or river rock to transition from inlets and splash pad to growing medium.
- 12. Check dams: Shall be placed according to facility design. Refer to SW-340 for profile and spacing.
- 13. Inspections: Call City of Florence Public Works (541) 997-4106 to schedule appropriate inspections.

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS



CITY OF FLORENCE PUBLIC WORKS DEPARTMENT

989 Spruce Street Florence, OR 97439 Phone: 541-997-4106

- Simplified / Presumptive Design Approach -

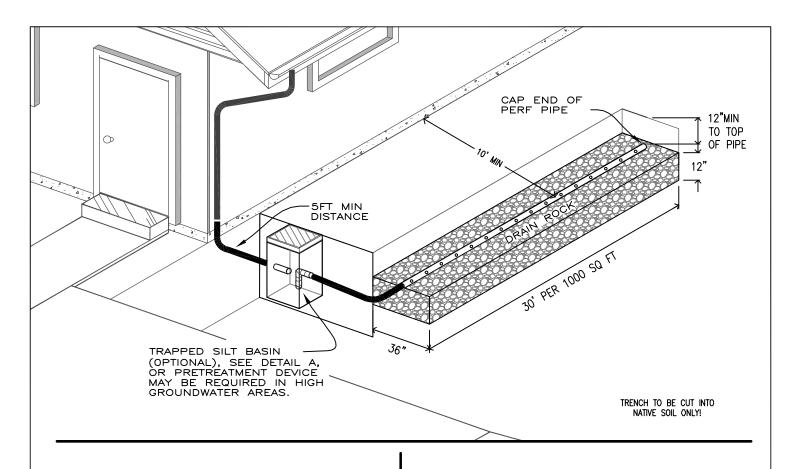
Swale

NUMBER

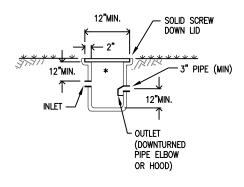
SW-120

August 9, 2022

BE Project: 21038.01 JBE Project No. 21038.01

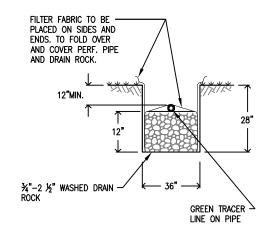


DETAIL A: OPTIONAL TRAPPED SILT BASIN DETAIL



* THE BOTTOM OF THE INLET PIPE MUST NOT BE LOWER THAN THE TOP OF THE OUTLET PIPE.

DETAIL B: SOAKAGE TRENCH CONSTRUCTION



LINE TRENCH SIDES WITH FILTER FABRIC AS SHOWN, ADD 18" OF DRAIN ROCK. PLACE PERF. PIPE AND COVER ALL.

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS



CITY OF FLORENCE PUBLIC WORKS DEPARTMENT

989 Spruce Street Florence, OR 97439 Phone: 541-997-4106

DATE: 11-30-10

Simplified / Presumptive Design Approach -

Soakage Trench

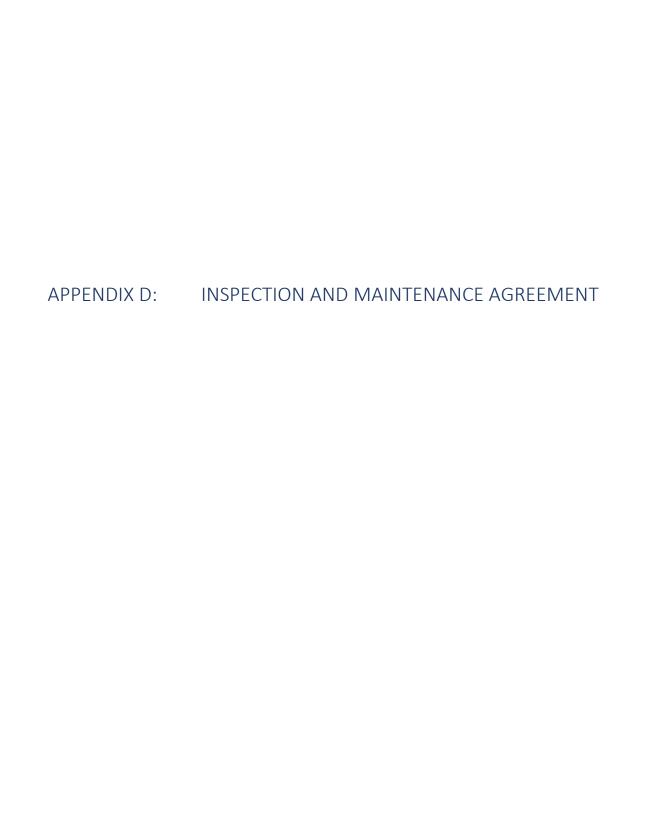
SW-180

NUMBER

August 9, 2022

JBE Project No. 21038.01 Page I C-3

BE Project: 21038.01 2022.08.09 Page 144 of 156



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

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

Property	Address:
----------	----------

Legal description:

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

Recitals

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

Owner shall:

- 1. Implement the stormwater management plan included herein as Attachment "A". (Stormwater disposal and pollution reduction construction details, and source control protection, etc.)
- 2. Implement the stormwater maintenance plan included herein as Attachment "B". (Owner responsibilities such as vegetation control, debris pickup, etc.)
- 3. Inspect the facilities monthly and after significant storm events to determine if maintenance activity is warranted.
- 4. Maintain maintenance and inspection records (in the form of a log book) of steps taken to implement the programs referenced in (1) and (2) above. The log book shall be available for inspection by appointment at 1535 9th Street Florence, OR __. The log book shall catalog any action taken, who took the action, when it was taken, how it was done, and any problems encountered or follow-on actions recommended. Maintenance items ("problems") listed in Attachment "A" shall be inspected as specified in the attached instructions or more often if necessary. The Owner and Users are encouraged to photocopy the individual checklists in Attachment "A" and use them to complete its inspections. These completed checklists would then, in combination, comprise the logbook.
- 5. Submit an annual report to the City of Florence regarding implementation programs referenced in (1) and (2) above. The report must be submitted on or before June 30 of each calendar year after execution of this agreement. At a minimum, the following items shall be included in the report:
 - a. Name, address, and telephone number of the businesses, persons, or firms responsible for maintenance plan implementation, and the persons completing the report.

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

City of Florence shall:

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

Remedies:

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

Owner responsibilities shall remain in effect.

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

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

In Witness whereof, the undersigned has executed this i,20	nstrument on this day of
OWNER(s):	
Signature	
(print name)	
STATE OF OREGON, County of Lane, ss: This instrument was acknowledged before me this 20,by	day of, owner(s) of the above described premises.
	Notary Public for Oregon
	My commission expires
MANAGER, CITY OF FLORENCE In Witness whereof, the undersigned agent of the City of acknowledged the said instrument to be free and voluntary act and deed 20 for the purposes herein mentioned and on oath s	d on this day of
City Manager	
STATE OF OREGON, County of Lane, ss: This instrument was acknowledged before me this 20, by	day of, owner(s) of the above described premises.
	Notary Public for Oregon
	My commission expires

APPENDIX E: OPERATIONS & MAINTENANCE PLAN

Form O&M Page 1of 3

After Recording Return to: Name: Address:

Place Recording Label Here

APPENDIX A.4 Form O&M: Operations and Maintenance Plan

Permit Application No
Owner Name: Stonefield Investments
Phone: (area code required) 541-902-5490
Mailing Address: (return address for records) 1535 9th Street
City/State/Zip:Florence, OR 97439
Site Address: Rhododendron Drive TL 18-12-04-44-03800
City/State/Zip: Florence, OR 97439
Site Legal Description: Florence, OR 97439
1 Responsible Party for Maintenance (check one) X Homeowner association Property Owner Other (describe)
2 Contact Information for Responsible Party(ies) if Other than Owner
Daytime Phone: (area code required)
Simplified Sizing Approach: Attach O&M Specifications from the Florence Stormwater Design Manual Appendix H.
Presumptive and Performance Sizing Approach: Attach the site-specific O&M Plan (See Stormwater Design Manual Section 6).
3 Site Plan Show all facility locations in relation to labeled streets, buildings, or other permanent features on the site. Also show

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

Please complete the table below

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

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

Community Development Department, 250 Highway 101, Florence, OR, 97439 Office hours are 8 - 5, Monday through Friday. Call 541-997-3436 for assistance.

			Required Site Plan (insert)	here or attach separate sheet)
				ached a Site Plan
Please complete this table	Size	Drainage	Impervious Area Treated	Discharge
Туре	(sf)	is from:	(sf)	Point
Soakage Trench	See	calculations a	ו ttached to this report	:
Swale		 	<u> </u>	
BY SIGNING BELO executed by filer and rec Filer signature			nditions contained in this O&M I notary.	Form and in any document
INDIVIDUAL Ackno				
This instrument was a	cknowledged before 1	ne on:		
Ву:				_
Notary Signature:				
My Commission Expi	res:		for notary seal	

CORPORATE Acknowledgement STATE of OREGON county of:	
This instrument was acknowledged before me on:	
By:	
As (title):	
Of (corporation):	
Notary Signature:	
My Commission Expires:	

Soakage Trenches

Operations & Maintenance Plan

Insects & Rodents shall not be harbored in the soakage trench. 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.
 - 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 soakage trench shall be filled.

Soakage Trenches

Operations & Maintenance Plan

Soakage Trenches consist of drain rock and sand, and receive stormwater from roof downspouts and/or area drains. There are various components within the system – piping, silt basin and the trench itself. The Conveyance Piping consists of an inlet pipe (downspout or area drain), an outlet pipe located between the silt basin and the soakage trench, and a perforated pipe, located on top of the aggregate bed of the soakage trench. The Silt Basin is a structure receiving runoff from an inlet pipe and conveying it to the soakage trench. The silt basin serves as the pre-treatment system for the soakage trench, removing sediments and other debris that can impact its proper functioning. All facility components, vegetation, and source controls shall be inspected for proper operations and structural stability. These inspections shall occur, at a minimum, quarterly for the first two years from the date of installation, then two times per year afterwards, or within 48 hours after each major storm. 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:

Soakage trench infiltration: If water is noticed on top of the trench within 48 hours of a major storm, the soakage trench may be clogged.

- Check for debris/sediment accumulation, rake and remove and evaluate upland causes (erosion, surface or roof debris, etc
- Assess the condition of the aggregate and the filter fabric in the trench. If there is sediment in the aggregate, excavate and replace.
- If there is a tear in the filter fabric, repair or replace.

Conveyance Piping: If water ponds over the trench for more than 48 hours after a major storm and no other cause if identified, it may be necessary to remove the filter fabric to determine if the perforated pipe is clogged with sediment or debris.

- Any debris or algae growth located on top of the soakage trench should be removed and disposed of properly.
- If the piping has settled more than 1-inch, add fill material. If there are cracks or releases, replace or repair
 the pipe. If there are signs of erosion around the pipe, this may be an indication of water seeping due to a
 crack or break

Silt Basin: If water remains in the soakage trench for 36-48 hours after storm, check for sediment accumulation in the silt basin

 If less than 50% capacity remains in the basin or 6" of sediment has accumulated, remove and dispose the sediment.

Spill Prevention: Virtually all sites, including residential and commercial, present dangers from spills. All homes contain a wide variety of toxic materials including gasoline for lawn mowers, antifreeze for cars, nail polish remover, pesticides, and cleaning aids that can adversely affect groundwater if spilled. It is important to exercise caution when handling substances that can contaminate stormwater.

Activities that pose the chance of hazardous material spills shall not take place near soakage trenches.

A **Shut-Off Valve or Flow-Blocking Mechanism** may have been required with the construction of the soakage trench to temporarily prevent stormwater from flowing into it, in the event of an accidental toxic material spill. This may also involve mats kept on-site that can be used to cover inlet drains in parking lots. The shut-off valve shall remain in good working order, or if mats or other flow-blocking mechanisms are used, they shall be kept in stock on-site.

Training and/or written guidance information for operating and maintaining soakage trenches 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 soakage trench is required for efficient maintenance. Egress and ingress routes will be maintained to design standards at inspections.

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

- 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.
 - 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.

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

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.