Oregon
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DATE: May 14, 2024

TO: Wesley Thomas, PE
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FROM: Jonathan Horowitz, PE
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**RE: TECHNICAL MEMORANDUM – PROPOSED MODIFICATION OF APPROVED SOURCE CONTROL MEASURES
ODOT FACILITY IN PORTLAND HARBOR PROJECT AREA**

PURPOSE

The purpose of this technical memorandum is to inform the Oregon Department of Environmental Quality (DEQ) of proposed modifications to the previously approved Source Control Measures (SCMs) included in the Oregon Department of Transportation's (ODOT's) Final Portland Harbor Source Control Feasibility Study (Final FS) and Portland Harbor Source Control Supplemental US30 Feasibility Study (Supplemental FS). As the design work on the project advances, previously unknown/undiscovered site conditions and constraints indicate that alternative SCMs would better serve the project's purpose: receipt of a Source Control Determination.

INTRODUCTION

ODOT conducted a feasibility study to evaluate a range of potential structural source control measures for controlling highway stormwater discharging to Portland Harbor. DEQ approved recommended SCMs for four drainage areas that drain segments of I-5, I-405, the Fremont Bridge (WR-306, WR-307, FB-W, FB-E), and the two drainage areas that drain the St. Johns Bridge (WR-510 and OF-52) based on information presented in the Final FS. However, additional evaluation was needed to develop more tenable solutions for the remaining drainage areas along US30.

To select the remaining SCMs along US30, ODOT came to a mutual agreement with DEQ to undertake a Supplemental FS in order to ensure that all potential SCMs for US30 had been thoroughly considered and evaluated, and to recommend any additional SCMs that were determined to be feasible. Based on the conclusions of the ODOT Supplemental FS Team, and the application of these conclusions to the balancing factor evaluations, ODOT identified alternative recommended structural remedies for twelve of the 21 drainage areas evaluated

in the Supplemental FS. These recommendations include the construction of four Modified Ditches, five Rain Gardens, two Filter Vaults, seven PHS units, and three Biofiltration Swales. In total, these recommended SCMs are estimated to treat 27.5 additional acres of ODOT impervious roadway within the Portland Harbor Investigation Area.

The following table 4.1 summarizes selected SCMs from the Final FS as well as recommended SCMs for the Supplemental FS.

Table 4.1. Summary of Selected and Recommended Structural SCMs[44]

	ODOT Facility Element	Outfall I.D.	Total ODOT Drainage Area (acres)	Selected/Recommended Structural SCM(s)	Est. Drainage Area Treated (acres)	Est. % Drainage Area Treated
Final FS Selections	I-5/Fremont Bridge E	WR-306	34.1	Biofiltration Swale and Modular Wetland[45]	26.6	78%
	I-405/Fremont Bridge W	WR-307	40.6	Tank Media Filter (or Cartridge Filter Vault)	36.5	90%
	Fremont Br. Ctr Span (E)	(FB-E)	1.1	Cartridge Filter Vault (or Tank Media Filter)	1.1	100%
	Fremont Br. Ctr Span (W)	(FB-W)	1.1	Cartridge Filter Vault (or Tank Media Filter)	1.1	100%
	St Johns Bridge W	WR-510	1.4	Cartridge Filter Vault (or Tank Media Filter)[46]	1.4	100%
	St Johns Bridge E	OF-52	1.9	Cartridge Filter Vault (or Tank Media Filter)	1.9	100%
Supplemental FS Recommendations	US30 South	OF-16	3.9	Recommendation: Rain Gardens (x3) and PHS	3.9	100%
		OF-17	4.5	Recommendation: PHS	2.4	53%
		OF-18	5.7	Recommendation: Rain Gardens (x2), and PHS	5.6	98%
		OF-19	10.0	Recommendation: Modified Ditch and PHS	4.0	40%
		OF-22	0.4	*Recommend additional effectiveness monitoring*	0.0	0%
		WR-584	0.4	*Recommend additional effectiveness monitoring*	0.0	0%
		OF-22C	12.1	Recommendation: Modified Ditches (x3) and PHS retrofit	2.6	21%
		WR-206	1.4	Recommendation: Filter Vault[47]	0.5	36%
		WR-205	2.6	*Recommend additional investigation of alternative PHS locations*	*To be determined*	*To be determined*
		WR-207	1.1	*Recommend additional effectiveness monitoring*	0.0	0%
	US30 North	WR-208	1.1	Recommendation: Biofiltration Swale	0.7	64%
		WR-211	2.3	Recommendation: Biofiltration Swale *(combined with WR-208)*	1.3	57%
		OF-22D	3.4	Recommendation: Filter Vault[48]	1.7	50%
		WR-209	1.8	*Recommend additional effectiveness monitoring*	0.0	0%
		WR-202	2.0	*Recommend additional effectiveness monitoring*	0.0	0%
		WR-203	0.9	*Recommend additional effectiveness monitoring*	0.0	0%
		WR-102	1.7	*Recommend additional effectiveness monitoring*	0.0	0%
		WR-126	1.4	Recommendation: Biofiltration Swale and PHS	1.4	100%
		WR-204	2.3	Recommendation: Biofiltration Swale	2.0	87%
		WR-79	3.7	Recommendation: PHS	1.4	38%
		WR-153	0.8	*Recommend drainage connection investigation; monitoring*	0.0	0%

Structural SCM selected in Final FS
Structural SCM recommended in Supplemental FS
No Structural SCM recommended

Final FS Total:	*68.6*	*86%*
Supplemental FS Total:	27.5	43%
Total area treated:	**96.1**	**67%**

PROPOSED MODIFICATIONS TO ARROVED SOURCE CONTROL MEASURES

ODOT is delivering the design of the project with the engineering services of WSP, Inc. During early development of engineering, the project team identified several opportunities for: improved treatment, treatment of “ODOT-only”/non-comingled stormwater, higher quality treatment, and more effective technology. At drainage basins: WR208/WR211, WR126, WR204, OF18, and OF22C the project team is recommending installing manufactured treatment devices (e.g. BioPod, Modular Wetlands, or Filterra) instead of rain gardens and/or biofiltration swales included in the Supplemental FS. While this is a change from the approved proposed improvements, the manufactured treatment devices, in this case BioPods, are

effectively the same type of treatment, in that they treat stormwater via a filtration system prior to discharge. The following table details the proposed modifications.

Summary of

Drainage Basin	US30 Supplemental FS Preferred SCM	Proposed SCM / Treatment Description	Feasibility Study Treatment Area (AC) (ref: Table 4.1 Supplemental FS)	ODOT Area Treated Total (AC)	OffSite Drainage Area Treated (AC)	Total Treatment Area to SCMs (AC)
US 30 NORTH						
WR208/211	Biofiltration Swale	*MTD*	*2.0*	*3.5*	*5.3*	*8.8*
WR126	PHS and Biofiltration Swale	*MTD*	*1.4*	*1.2*	*0*	*1.2*
WR204	Biofiltration Swale	*MTD*	*2.0*	*1.9*	*0*	*1.9*
US 30 SOUTH						
OF16	Rain Gardens and PHS	*MTD and PHS*	*3.9*	*5.4*	*32.4*	*0.9 Enhanced 36.9 Pretreatment*
OF18	Rain Gardens and PHS	*MTD and PHS*	*5.6*	*5.2*	*14.1*	*0.6 Enhanced 19.3 Pretreatment*
WR206	PHS and FV	PHS and MTD (Modular Wetland)	*0.5*	*0.9*	*28.3*	*29.2*

As indicated in the table above, the modifications to the proposed SCMs results in a larger treatment area, with a higher level of treatment.

CONCLUSIONS AND DESIGN PROGRES UPDATE

Progress of the development of the plan set for the project is advancing and the draft 30% plan set is anticipated to be delivered in mid-April. Currently, the project is set to be completed in two construction efforts; one beginning in 2025 and the second the following year.