

Oak Lodge Water Services

Stormwater Management Program Document

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Storm Sewer System (MS4) Discharge Permit

Permit Number: 101348



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Oregon Department of Environmental Quality

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List of Abbreviations

BMP	Best Management Practice
CWA	Clean Water Act
CCSD#1	Clackamas County Service OLWS #1
CCWET	Clackamas County Water Education Team
DEQ	Department of Environmental Quality
OLWS	Oak Lodge Water Services OLWS
DTD	Clackamas County Department of Land Use and Transportation
ESC	Erosion and Sediment Control
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detention and Elimination
IGA	Intergovernmental Agreement
GI	Green Infrastructure
I/C	Industrial and Commercial
LA	Load Allocations
LID	Low Impact Development
NPDES	National Pollutant Discharge Elimination System
MEP	Maximum Extent Practicable
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
O&M	Operations and Maintenance
OERS	Oregon Emergency Response System
OLWS	Oak Lodge Water Services
NAICS	North American Industrial Classification System
PI	Public Involvement
ROW	Right-of-Way
SF	Square Feet
SIC	Standard Industrial Classification
SOP	Standard Operating Procedure
SWMP	Stormwater Management Program Document
TMDL	Total Maximum Daily Load
UIC	Underground Injection Control
WLA	Waste Load Allocations
WPCF	Water Pollution Control Facility

Section 1 SWMP Overview

1.1 Introduction

Under the federal Clean Water Act (CWA) and Oregon Revised Statute 468B.050, Oregon Department of Environmental Quality (DEQ) has issued the Oak Lodge Water Services (OLWS) a renewed National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Phase I Discharge Permit, effective October 1, 2021.

This Stormwater Management Program Document (SWMP) describes activities related to implementation of the OLWS's NPDES MS4 Permit. The SWMP contains best management practices (BMPs), which outline the specific tasks that the OLWS will conduct to prevent and reduce stormwater pollution to the maximum extent practicable (MEP) to protect water quality and satisfy the requirements of the NPDES MS4 Permit and the CWA.

OLWS is a co-permittee on the Clackamas County NPDES MS4 Permit, along with 11 other agencies. The first permit (101348) was issued in 1995. A second permit was issued in 2005 after an appeal and a modification. A third permit was issued in 2012, expired in 2017 and went into administrative extension until a renewed permit was issued September 15th, 2021, with an effective date of October 1st, 2021.

This 2022 version of the OLWS's SWMP was developed based on a review and evaluation of the OLWS's stormwater management program, including activities and accomplishments implemented during the previous permit term and during the administrative extension period. The OLWS has used an adaptive management process to assess and modify, if necessary, BMPs to achieve reductions in stormwater pollutants to the MEP. This SWMP update considers available technologies and practices; review of SWMP measurable goals and tracking measures; and evaluation of OLWS resources available to implement programs.

The BMPs are evaluated annually during the preparation of the NPDES MS4 Annual Report. The annual reports include the status of implementing each BMP and any proposed modifications or adaptations of the program. Any updates made to this 2022 SWMP are made in accordance with Schedule A.2.f of the NPDES Permit and documented in the change log provided as Appendix B.

1.2 Background

This section documents the permit coverage area and the relationship between the NPDES MS4 Permit, SWMP, and Total Maximum Daily Load (TMDL) obligations.

1.2.1 OLWS Overview

OLWS is located in Clackamas County, approximately 5 miles south of the City of Portland. OLWS is bound on the west by the Willamette River, which runs north-south along the OLWS boundary; on the north by the City of Milwaukie; on the south by the City of Gladstone; and, to the east by unincorporated Clackamas County (Clackamas County Service OLWS #1 or CCSD#1) – see Figure 1-1.

OLWS provides water, sanitary sewer and surface water management services to approximately 29,000 residents and covers a total of 6.5 square miles. OLWS serves a mature, primarily developed community, and most new development occurs as in-fill with a few small subdivisions and residential partitions. Land use is primarily residential, commercial, and industrial; with most commercial and industrial development located along the Oregon Highway 99-E corridor, which runs north-south and divides the OLWS almost in half. Residential land use is distributed throughout the OLWS, and there are also numerous areas of public use, including several parks and open space areas.

OLWS implements its surface water management program within its jurisdictional boundary, but not within areas already encompassed within a city or Clackamas County Water Environment Services. Therefore, the area where the surface water program applies is 5.2 square miles. OLWS and Clackamas County Department of Land Use and Transportation (DTD) entered a Memorandum of Understanding (MOU) in 2013 to outline their cooperative working relationship for the purpose of Surface Water System Prevention and Emergency Maintenance for Clackamas County (County) transportation and MS4 Permit compliance by the OLWS. DTD manages public roads and the stormwater collection system within the public right-of-way (ROW). The MOU defines responsibility for the OLWS and DTD with respect to infrastructure (catch basins, storm lines, streets, and ditches) inspection and maintenance.

1.2.2 Coverage Area

OLWS is comprised of eight major basins: Kellogg Creek, Courtney Springs, Milwaukie, North Boardman, Rinearson, River Forest, South Boardman, and Willamette River. Several watersheds cross multiple jurisdictions. The map in Figure 1-1 illustrates the total area within the representative watersheds as well as the surrounding jurisdictions. Additional maps related to the OLWS's stormwater system and stormwater program are included on OLWS' MS4 website in the Watershed Protection section.

The OLWS is in the Lower Willamette subbasin. Two major tributaries to the Willamette River run east-west through the OLWS: River Forest Creek and Boardman Creek. The watersheds associated with these tributaries are located entirely within the OLWS boundary. The River Forest Creek watershed encompasses a 796-acre drainage area, and Boardman Creek encompasses a 1,312-acre drainage area. Other tributaries located in the OLWS include Willamette Creek, Linden Creek, and Rinearson Creek. The associated watersheds, or portions of watersheds, ultimately discharge to the Willamette River.

Stormwater in some areas of the OLWS is under the jurisdiction of non-OLWS entities. Due to the unique nature of the OLWS and its reliance on DTD for maintenance related activities within the ROW, BMPs include reference to responsible agencies and departments. While the OLWS's permit does not cover discharges from non-OLWS entities, the agencies share information and coordinate efforts to reduce stormwater pollutants.

The BMPs described within this SWMP are applied throughout the entire OLWS's urban services boundary. The programs operate on an OLWS-wide basis, working to reduce the discharge of pollutants to natural waterways to the maximum extent practicable.

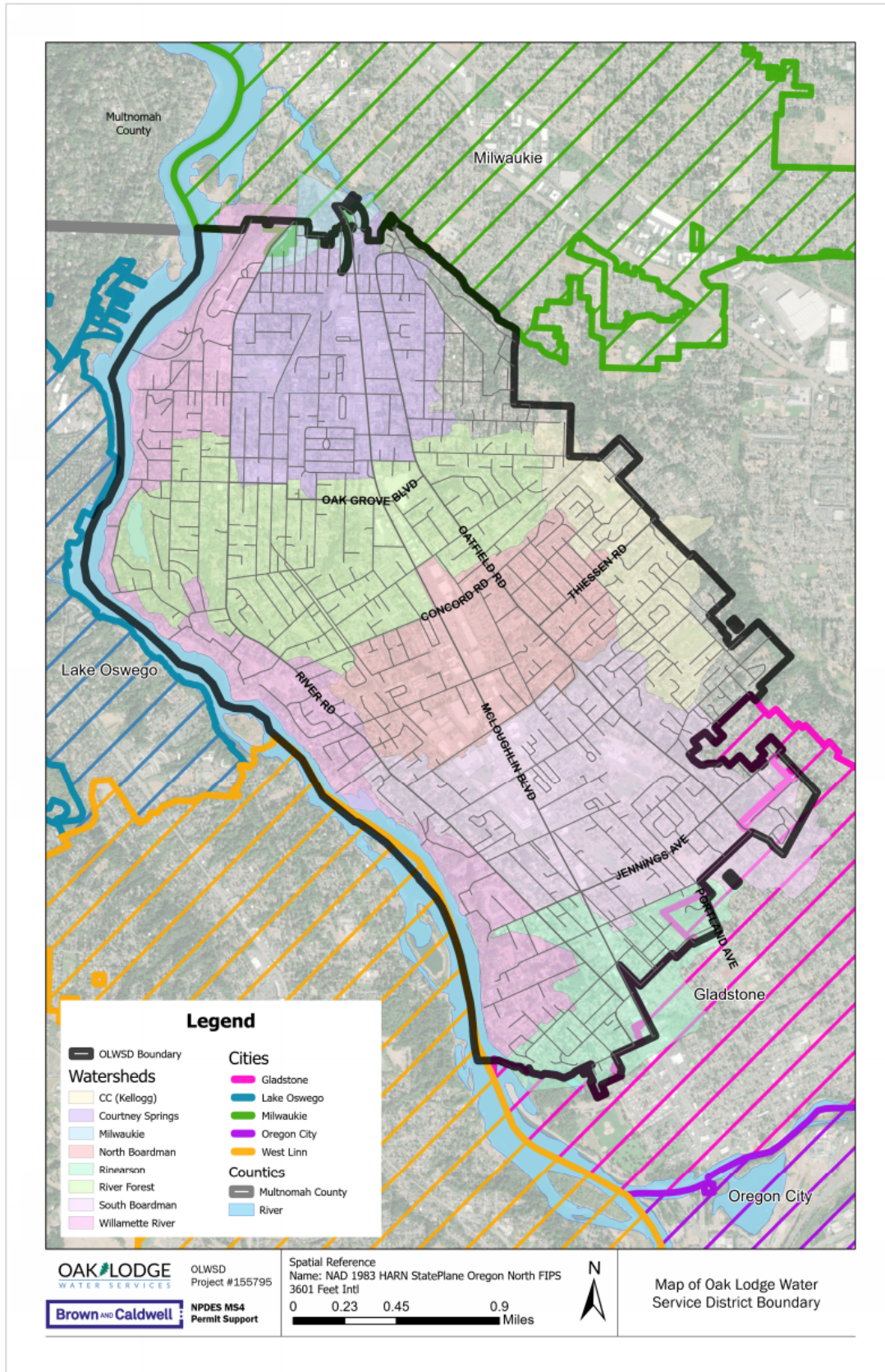


Figure 1-1. Map of OLWS Boundary

1.2.3 Relationship to TMDLs

In addition to the NPDES MS4 Permit requirements, OLWS is subject to Total Maximum Daily Load (TMDL) regulations under the CWA. TMDLs serve as plans for restoring impaired or polluted waters. They identify the maximum amount of a specific pollutant that a body of water can receive while still meeting water quality standards. In Oregon, DEQ identifies load allocations (LAs) for nonpoint sources of pollution and waste load allocations (WLAs) for point sources. Municipal stormwater discharges are regulated as point sources if they are covered by a NPDES MS4 permit.

The OLWS is a designated management agency for the following TMDLs for municipal stormwater:

- Bacteria (E. coli)
- Mercury in the Willamette Basin, Water Quality Management Plan issued by EPA on December 30, 2019 and reissued with modification on February 4, 2021.

Point sources of pollutants and associated WLAs are regulated under the NPDES permitting program and nonpoint sources are managed by TMDL implementation Plans. As OLWS implements their NPDES MS4 permit jurisdiction-wide, the NPDES MS4 permit addresses the OLWS's TMDL obligations under Schedule D.3, which states:

“DEQ incorporated performance measures in Schedule A.3.c, d, e, and f to address water quality impairments and EPA-approved or issued TMDL allocations issued to date. Compliance with the permit’s terms and conditions is presumed to be in compliance with TMDL Waste Load Allocations (WLAs) issued before the effective date of this permit...”

Clackamas Group Phase I NPDES MS4 Permit, Schedule D.3.a

This SWMP is the OLWS's plan to control pollutant runoff to address TMDL WLAs for bacteria and total mercury (TSS as a surrogate). Schedule D.3.b also requires the OLWS to conduct and submit a mercury minimization assessment with the annual report due December 1, 2022. To facilitate addressing this requirement, BMPs outlined in this SWMP include reference to the targeted TMDL pollutants addressed with implementation of BMPs. In addition, Schedule D.3.c of the NPDES MS4 permit requires the OLWS to conduct a TMDL pollutant load reduction evaluation, and Schedule D.3.d requires the OLWS to establish pollution load reduction benchmarks for relevant TMDL pollutants in conjunction with the NPDES MS4 Permit renewal application.

The SWMP covers point sources of pollutants and associated WLAs. OLWS also conducts activities to address temperature as a non-point source TMDL pollutants. The OLWS's TMDL Implementation Plan addresses pollution reduction strategies for specific for temperature. The TMDL Implementation Plan complements the SWMP.

1.3 Stormwater Program Overview

The activities outlined in this SWMP impact and are implemented by multiple OLWS departments. This section provides an overview of the participating departments and the OLWS's organizational structure as well as an outline of the SWMP organization in relation to Phase I NPDES MS4 Permit requirements.

1.3.1 Stormwater Program Organization

Stormwater program activities in the OLWS are implemented by staff in many groups and departments. The Technical Services department/group is the lead group responsible for planning and tracking activities related to this SWMP. The following departments/groups participate in stormwater program operations or implement programs that reduce pollutant sources before they can enter stormwater runoff.

- Engineering
- Planning /Development Services

- Wastewater /Water Field Operations
- GIS
- Communications/Outreach

1.3.2 Stormwater Program Partners

As in previous permit terms, several activities related to meeting specific permit requirements are conducted by another jurisdiction on behalf of OLWS through IGAs and MOUs. To clarify the OLWS’s permit responsibilities, areas of responsibility are outlined specific to each BMP.

1.3.3 SWMP Organization

The SWMP is organized into the major stormwater program categories listed in Table 1-1 below. The categories closely correspond to the Schedule A.3 control measures per the NPDES MS4 permit. Within each stormwater program category, this SWMP outlines best management practices (BMPs) to address the NPDES MS4 Permit requirements to reduce the discharge of pollutants to the maximum extent practicable. The BMPs are organized with numbering and titles based on the program categories. The BMPs listed in this summary are only those that address the explicit requirements of the SWMP as described in Schedule A.3 of the 2021 NPDES MS4 Permit. Additional activities within the OLWS’s stormwater program that do not specifically align with permit requirements may not be included in this document.

The BMPs include measurable goals and tracking measures that will be used to report progress to DEQ on an annual basis. The reporting period is July 1 through June 30 of each year, with annual reports on activities due to DEQ by December 1 each year.

Table 1-1. Stormwater Program Organizational Categories		
Category Title	NPDES MS4 Permit Requirement	BMP Naming Abbreviation
Public Education and Outreach	Schedule A.3.a	PEO
Public Involvement	Schedule A.3.b	PI
Illicit Discharge Detection and Elimination	Schedule A.3.c	ILL
Erosion and Sediment Control	Schedule A.3.d	EC
Post Construction	Schedule A.3.e	PC
Municipal Operations and Maintenance*	Schedule A.3.f	OM
Industrial and Commercial Program	Schedule A.3.g	IND

*BMP OM-4 includes activities related to Schedule A.3.h.

1.3.4 SWMP Development

Since the OLWS’s received its first NPDES MS4 permit from DEQ in 1995, their SWMP has been through numerous iterations to align with reissuance of the NPDES MS4 permits and meet the respective permit renewal requirements. With each iteration, OLWS conducts an evaluation to identify areas where modifications to the SWMP are appropriate. Existing BMPs are reviewed by those responsible for implementing the BMP to propose changes to the BMP that enhance effectiveness. BMP revisions are reviewed internally to ensure that commitments and activities are accurate and achievable.

In 2022, the OLWS conducted a detailed evaluation of the existing SWMP using a gap analysis strategy to compare OLWS’ proposed SWMP changes (per their 2017 NPDES MS4 permit renewal) to the 2021 NPDES MS4 permit requirements. The evaluation also reviewed the OLWS’s annual reports and considered input

from OLWS staff responsible for implementing each BMP. Based on OLWS experience, some BMPs were streamlined to reflect work previously completed and other BMPs were adjusted to better reflect the way the OLWS operates. New BMPs were identified to increase program effectiveness and accommodate new NPDES MS4 permit requirements. Measurable goals and tracking measures were developed or adjusted (if needed) for each BMP.

1.4 SWMP Document Reference Library

Stormwater program implementation requires numerous codes, ordinances policies, procedures, guidance manuals, checklists, forms, mapping, and other related documents. Throughout this SWMP the relevant documents (reference documents) are noted within each program category or BMP. The referenced documents have been compiled into an MS4 Program Reference Library that can be found on the OLWS's website. At the time of publication, the website location is:

<https://www.oaklodgewaterservices.org/ms4-permit-library>

MS4 related maps will be accessible at the time of publication on the OLWS' webpage at:

<https://www.oaklodgewaterservices.org/ms4-maps>

In accordance with the NPDES MS4 permit requirements, OLWS also prepares a report of stormwater program activities each year. The annual report is submitted to DEQ by December 1 each year and posted on the OLWS's stormwater program website for public access.

<https://www.oaklodgewaterservices.org/watershed-protection>



Section 2 SWMP Control Measures

The following sections detail the BMPs applicable to the Schedule A.3 Stormwater Management Program Control Measures. The control measures being addressed are separated into the following categories:

- A. Public Education and Outreach
- B. Public Involvement and Participation
- C. Illicit Discharge Detection and Elimination
- D. Construction Site Runoff Control
- E. Post-Construction Site Runoff for New Development and Redevelopment
- F. Pollution Prevention and Good Housekeeping for Municipal Operations
- G. Industrial and Commercial Facilities

Tables 2A-2G, included in each respective category, identify which of the OLWS's BMPs correspond to the individual components of the Schedule A.3 permit requirements to meet the stormwater management program control measures.

2.1 Public Education and Outreach

Public education and outreach are an integral component of a successful stormwater pollution prevention program. Increasing public knowledge on local water quality issues is key to obtaining public support and ownership for stormwater programs. OLWS partners with multiple agencies and non-profits to support public outreach and experiential education focused on stormwater, as well as maintains separate public outreach efforts.

Table 2-1 outlines the OLWS’s BMPs to address the permit requirements for Schedule A.3.a.

Table 2-1. Public Education and Outreach				
Schedule A.3.a Permit Requirements	Applicable BMPs			
	PEO-1	PEO-2	PEO-3	ILL-1
i. Education and Outreach Program	■	■		
ii. Stormwater Education Activities	■			■
iii. Priority Audiences and Topics	■			
iv. Tracking and Assessment	■	■	■	■

Each of the Public Education and Outreach centered BMPs are described in detail in the following BMP table:

- PEO-1: Public Education to Reduce Discharges of Pollutants in Stormwater
- PEO-2: Erosion Control Training Opportunities
- PEO-3: Employee Training

Supporting BMPs that assist in meeting the requirements of this permit language can be found in the following section:

- ILL-1: Implement the Illicit Discharge Implementation Program (**Section 2.3**)

OLWS conducts a variety of public education and outreach programs to address stormwater issues that are significant in the community. The following Category A table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each public education and outreach BMP. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform future education and outreach activities.

Category A. Public Education and Outreach BMPs		
PEO-1: Public Education to Reduce Discharges of Pollutants in Stormwater	OLWS BMP Number	PEO-1
	OLWS BMP Name	Public Education to Reduce Discharges of Pollutants in Stormwater
	BMP Implementation Responsibility	OLWS Outreach and Communications
	Reference Document(s)	Outreach, Education and Public Involvement Framework
	Permit Year	Ongoing
	BMP Description	<p>OLWS continues to implement the OLWS’ Outreach, Education, and Public Involvement Framework to document their public education strategy aimed at reducing the discharge of pollutants associated with a variety of activities including but not limited to:</p> <ol style="list-style-type: none"> 1. The application of pesticides, herbicides and fertilizers by citizens. 2. Illicit discharges and public reporting to notify OLWS of unallowable waste materials in the storm drainage system. The OLWS website allows citizens to report incidents directly via a 24-hour emergency hotline or email. 3. Available OLWS programs for residents to improve water quality. 4. Proper disposal of waste oil and household hazardous waste. <p>OLWS utilizes various education and outreach partnerships and mechanisms including bill inserts, presentations and outreach to schools, direct mailings including bi-monthly newsletters in customer bills, informational signs, and the OLWS website to promote public awareness of water quality issues related to the above-mentioned practices. Stormwater outreach is provided in both English and Spanish. Key audiences reflected in the public education strategy document include but are not limited to:</p> <ul style="list-style-type: none"> • General public (e.g., renters, homeowners, homeowner associations, youth, and other groups) • Local elected officials, land use planners, engineers, developers, and/or employees of the co-permittees responsible for implementing the SWMP, as appropriate • Construction site operators • Businesses (including industrial and commercial facilities) <p>OLWS is an active partner and participant with other agencies in the region and statewide, including the Clackamas County Water Education Team (CCWET), a consortium of educators dedicated to promoting hands-on exploration of the local watershed. CCWET provides in-school presentations, resources for teachers, and field trip opportunities.</p> <p>OLWS also conducts outreach to schools within the OLWS boundaries, both directly and through partnerships with several local non-profit providers.</p> <p>To aid in public education related to proper disposal of waste materials, OLWS implements a catch basin stenciling program. Efforts vary by year based on volunteer and staff participation.</p>

Category A. Public Education and Outreach BMPs		
PEO-1:	Measurable Goals	<ul style="list-style-type: none"> • Maintain the OLWS Outreach, Education and Public Involvement Framework document, updating periodically to reflect new educational campaigns implemented. • Promote educational information related to pollutant discharge through newsletters, brochures, signage and/or bill inserts. A minimum of one bill insert (or equivalent) will be distributed annually. • Provide education and outreach to private landowners with stormwater management facilities on an ongoing basis. • Continue to stencil catch basins on an ongoing basis, as staff and volunteer opportunities allow. • Continue joint outreach activities with Clackamas co-permittees and regional partners through the Clean Rivers Coalition.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number, types, and topics of public educational materials dispersed to the public annually. 2. Track the number and type of education and outreach provided to private landowners with stormwater management facilities. 3. Track coordinated public outreach activities with local co-permittees. 4. Record the number of catch basins stenciled in each year.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

Category A . Public Education and Outreach BMPs		
PEO-2: Erosion Control Training Opportunities	OLWS BMP Number	PEO-2
	OLWS BMP Name	Erosion Control Training Opportunities
	BMP Implementation Responsibility	OLWS Outreach and Communications Staff and OLWS Development Review Staff
	Reference Document(s)	Erosion Prevention and Sediment Control Planning and Design Manual (2020)
	Permit Year	Ongoing
	BMP Description	The OLWS provides a link to the <i>Erosion Prevention and Sediment Control Planning and Design Manual</i> to engineers, contractors, and the public, which includes BMPs for sediment control and erosion prevention applicable to local and state (1200-C) permitting needs. Additional information is provided upon request, in conjunction with plan review activities. Additional training and certification opportunities are communicated to construction site operators when available.
	Measurable Goals	<ul style="list-style-type: none"> • Maintain a link to the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual on the OLWS’s website. • Develop a check list (or equivalent) guidance for developers and engineers requesting building permits, site development permits, or construction inspection services to aid in erosion control plan development by December 1, 2024, in conjunction with updates to OLWS Design and Construction Standards.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track methods and tools to notify construction site operators of erosion control requirements and training opportunities.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

Category A. Public Education and Outreach BMPs		
PEO-3: Employee Training	OLWS BMP Number	PEO-3
	OLWS BMP Name	Employee Training
	BMP Implementation Responsibility	OLWS Water Quality Coordinator
	Reference Document(s)	Appendix A: Staff Training Table
	Permit Year	Ongoing
	BMP Description	<p>OLWS provides a variety of training opportunities for OLWS staff on topics associated with stormwater quality. Training sessions are provided in accordance with the Staff Training Table (see Appendix A) to educate OLWS staff and crews on appropriate erosion control measures, proper spill response procedures, safe work practices, and record keeping. Training sessions are also used to present training type materials related to stormwater quality and the MS4 NPDES permit requirements.</p> <p>Staff also attend local trainings and conferences including the Oregon ACWA Stormwater Summit, Clean Rivers Coalition, Clackamas County Water Education Team, and the Clackamas County Water Environment Short School. Staff attend Clackamas co-permittee meetings to further engage in collective efforts related to education, monitoring, and NPDES requirements.</p> <p>Additional staff training is detailed in Staff Training Table for:</p> <ul style="list-style-type: none"> • Illicit Discharge Detection and Elimination • Construction Runoff Control • Post-Construction Site Runoff for New Development and Redevelopment • Pollution Prevention and Good Housekeeping for Municipal Operations • Commercial and Industrial Facilities
	Measurable Goals	<ul style="list-style-type: none"> • Attend relevant stormwater management training based on need and availability. • Participate in Clackamas co-permittee meetings and other advisory committee meetings facilitated by local agencies.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of staff obtaining training by activity annually. 2. Estimate the equivalent annual training hours provided internally and externally.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

2.2 Public Involvement and Participation

The public provides valuable input and assistance to OLWS’ stormwater pollution prevention program. The goal of the public involvement is to effectively engage a diverse cross-section of people who can participate in stormwater pollution prevention activities. The public involvement efforts is closely tied with the public education and outreach efforts.

Table 2-2 outlines the OLWS’s BMPs to address the permit requirements for Schedule A.3.b.

Table 2-2. Public Involvement and Participation			
Schedule A.3.b Permit Requirements	Applicable BMPs		
	PI-1	PI-2	PEO-1
i. Publicly Accessible Website	■		
ii. Stewardship Opportunity		■	■
iii. Tracking and Assessment	■	■	■

Each of the Public Involvement and Participation centered BMPs are described in detail in the following BMP Category B Table:

- PI-1: Public Involvement and Participation
- PI-2: Healthy Watersheds Committee

Supporting BMPs that assist in meeting the requirements of this permit language can be found in the following section:

- PEO-1: Public Education to Reduce Discharges of Pollutants in Stormwater (**Section 2.1**)

OLWS conducts a wide variety of public involvement programs to provide opportunities for the public to effectively participate in the development of the SWMP control measures. The following Category B Table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each public involvement and participation BMP. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform future education and outreach activities.

Category B. Public Involvement and Participation BMPs		
PI-1: Public Involvement and Participation	OLWS BMP Number	PI-1
	OLWS BMP Name	Public Involvement and Participation
	BMP Implementation Responsibility	OLWS Outreach and Communications Staff and Water Quality Coordinator
	Reference Document(s)	OLWS website: https://www.oaklodgewaterservices.org/watershed-protection
	Permit Year	Ongoing
	BMP Description	<p>OLWS will provide opportunity for public participation in the development, implementation, and modification of the OLWS’s stormwater management program.</p> <p>SWMP revisions, monitoring plan updates, and referenced SOPs and other required documentation will be provided to the public in advance of submittal to DEQ for opportunity to comment via the OLWS’s website. Comments on the documents will be collected and considered; responses to comments will be provided upon request.</p> <p>Annual reports will be posted on the OLWS’s website for public viewing.</p> <p>OLWS’ SWMP Reference Library is available on the OLWS website to help provide public access to the relevant references noted within the SWMP. A click counter will be incorporated into the OLWS website to determine how many times the SWMP is opened/ viewed.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Provide the public opportunity to comment on SWMP revisions, monitoring plan updates, and TMDL benchmarks prior to submittal to DEQ. Subsequently, curate and update references in the SWMP Reference Library as needed. • Post the annual report on the OLWS’s website in conjunction with submittal to DEQ. • Maintain the MS4 Document Library on OLWS website.
	Tracking Measures	<ol style="list-style-type: none"> 1. Keep a count of the number of comments/questions received from the public on documents distributed for the 30-day public review. 2. Conduct an annual review of the website and document revised content and links as needed.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

Category B. Public Involvement and Participation BMPs		
PI-2: Healthy Watersheds Committee	OLWS BMP Number	PI-2
	OLWS BMP Name	Healthy Watersheds Committee
	BMP Implementation Responsibility	OLWS District Engineer
	Reference Document(s)	N/A
	Permit Year	Ongoing
	BMP Description	The OLWS has assembled a stakeholder subcommittee which meets as needed to facilitate ongoing public input related to surface water and stormwater management issued and projects. The Healthy Watersheds Committee participates in the adaptive management process, advises on fiscal matters, and assists in prioritizing resources.
	Measurable Goals	<ul style="list-style-type: none"> • Maintain the Healthy Watersheds Committee to facilitate public participation in surface water and stormwater management efforts.
	Tracking Measures	<ol style="list-style-type: none"> 1. Report on Healthy Watersheds Committee activities annually.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

2.3 Illicit Discharge Detection and Elimination

An illicit discharge is defined in EPA's stormwater regulations as any discharge to an MS4 that is not composed entirely of stormwater unless exempt by the permit. Stormwater is defined as the portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels, or pipes into a defined surface water channel or a constructed infiltration facility. Illegal discharges to the storm sewer from industrial facilities, commercial businesses, and residents can be a significant source of water pollution. Deteriorating piping in the sanitary sewer and storm drain systems may also be a source of pollution if sanitary sewage seeps into the stormwater system.

The goal of the Illicit Discharge Detection and Elimination (IDDE) Program is to detect and eliminate illegal discharges and illicit connections to the storm drain system. OLWS accomplishes this implementation of ordinances and enforcement procedures, MS4 mapping, a dry weather screening program, a spill response program, and staff training.

Table 2-3 outlines the OLWS's BMPs to address the permit requirements for Schedule A.3.c.

Table 2-3. Illicit Discharge Detection and Elimination				
Schedule A.3.c Permit Requirements	Applicable BMPs			
	ILL-1	ILL-2	ILL-3	OM-7
i. MS4 Map		■		■
ii. Ordinance and/or Other Regulatory Mechanisms	■			
iii. Enforcement Procedures	■		■	
iv. Program to Detect and Eliminate Illicit Discharges	■		■	
v. Dry Weather Screening Program		■		
vi. Illicit Discharge Detection and Elimination Training and Education		■		
vii. Tracking and Assessment	■	■	■	■

Each of the Illicit Discharge Detection and Elimination centered BMPs are described in detail in the following Category C BMP Table:

- ILL-1: Implement the Illicit Discharges Elimination Program
- ILL-2: Conduct Annual Dry Weather Field Screening
- ILL-3: Implement the Spill Response Program

Supporting BMPs that assist in meeting the requirements of this permit language can be found in the following section:

- OM-7: GIS System and Asset Management Database (**Section 2.6**)

Additional information on the IDDE program can be found in the IDDE SOP (see SWMP Reference Library on OLWS's website), Spill and Illicit Discharge Enforcement Response Plan, Design and Construction Standards, and Rules and Regulations. The Category C Table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each IDDE BMP. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform future IDDE priority areas and activities.

Category C. Illicit Discharge Detection and Elimination BMPs		
ILL-1: Implement the Illicit Discharges Elimination Program	OLWS BMP Number	ILL-1
	OLWS BMP Name	Implement the Illicit Discharges Elimination Program
	BMP Implementation Responsibility	Clackamas County Code Enforcement, OLWS Water Quality Coordinator and OLWS Pollution Prevention Staff
	Reference Document(s)	<ul style="list-style-type: none"> • OLWS Design and Construction Standards (2021) • OLWS Rules and Regulations (2018) • Spill and Illicit Discharge Enforcement Response Plan (as appendix to the Illicit Discharge Detention and Elimination SOP) • Illicit Discharge Detection and Elimination SOP (2023)
	Permit Year	Ongoing
	BMP Description	<p>OLWS' current <i>Design and Construction Standards</i> describe activities which are prohibited with respect to discharge to the public storm water system, including illicit discharges. OLWS has the authority to conduct appropriate response procedures and enforce against responsible parties per the OLWS's <i>Rules and Regulations</i>, Section 11 and as described in the OLWS's Spill and Illicit Discharge Enforcement Response Plan (Enforcement Response Plan).</p> <p>The OLWS partners with Clackamas County for code enforcement procedures, as outlined in Section 11.5 of the <i>Rules and Regulations</i>, which outline the enforcement as applicable to the violation class. The violation classes (I, II, and III) are detailed in Section 11.4 of the <i>Rules and Regulations</i>.</p> <p>The Spill and Illicit Discharge Enforcement Response Plan, including procedures and timeframes, are also documented in Appendix C of the OLWS's <i>Illicit Discharge Detection and Elimination Standard Operating Procedure</i> (SOP). In accordance with the SOP, all citizen complaints and staff observations regarding a possible illicit connection will be investigated. OLWS will continue to implement a public education and outreach program to explain illicit connections, effects on surface water, and process for correction.</p> <p>Additionally, the OLWS utilizes the planning process and connection inspections to help provide assurance that cross-connections in development and redevelopment do not occur. OLWS staff trained in Oregon Plumbing Code witness the installation and testing of sanitary sewer laterals to avoid cross connections with the storm system and address illicit discharge. OLWS personnel inspect storm sewer piping from water quality and water quantity facilities to confirm proper connection to the municipal storm sewer.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Update the Spill and Illicit Discharge Enforcement Response Plan to clarify enforcement procedures and response timeframes in accordance with the NPDES MS4 permit by December 1, 2023.
	Tracking Measures	<ol style="list-style-type: none"> 1. Status of updating the SOP and Enforcement Response Plan for consistency with current practice. 2. Track the number, location, resolution, and enforcement activities related to any identified illicit discharge.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

Category C. Illicit Discharge Detection and Elimination BMPs		
ILL-2: Conduct Annual Dry Weather Field Screening	OLWS BMP Number	ILL-2
	OLWS BMP Name	Conduct Annual Dry Weather Field Screening
	BMP Implementation Responsibility	OLWS Water Quality Coordinator
	Reference Document(s)	<ul style="list-style-type: none"> • IDDE SOP (2023) • Appendix A: Staff Training Table
	Permit Year	Ongoing
	BMP Description	<p>OLWS conducts illicit discharge inspections, monitoring, and investigations annually during dry-weather conditions (typically between August and October) in accordance with the OLWS IDDE SOP. OLWS has identified five (5) high priority inspection locations within its service area. The IDDE SOP lists and maps those high priority inspection locations by drainage basin and contributing land use type. The OLWS maintains a map of dry weather field screening locations - see OM-7: GIS System and Asset Management Database for more information. OLWS does not currently have chronic illicit discharge locations, but locations may be added if identified.</p> <p>IDDE specific training is outlined in Staff Training Table.</p> <p>Trained personnel conduct the inspections and complete data inspection forms, which are kept on file at the OLWS. Dry weather flows are inspected for a variety of visual characteristics, and sources of flows are characterized as either permissible or non-permissible.</p> <p>If non-permissible discharges are suspected, sampling, analysis, and upstream investigation are conducted as per the IDDE SOP.</p> <p>The IDDE SOP will be updated to incorporate modified dry weather field screening locations by December 1, 2023, in conjunction with review and update of the location prioritization criteria.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Conduct annual dry-weather illicit discharge inspections at all priority locations. Investigate all suspected non-permissible discharges. • Annually maintain the MS4 maps to reflect dry weather field screening locations (i.e., priority locations) and major outfalls. • Review and update prioritization criteria associated with dry weather field screening locations by December 1, 2023, and update locations accordingly.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track annual dry weather field screening activities at the high priority inspection locations. 2. Summarize inspection results and indicate locations requiring sampling and/or investigations. 3. Updated dry weather screening prioritization criteria and adjusted locations, as applicable.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

Category C. Illicit Discharge Detection and Elimination BMPs		
ILL-3: Implement the Spill Response Program	OLWS BMP Number	ILL-3
	OLWS BMP Name	Implement the Spill Response Program
	BMP Implementation Responsibility	OLWS Water Quality Coordinator and OLWS Field Operations Staff
	Reference Document(s)	<ul style="list-style-type: none"> Spill and Illicit Discharges Enforcement Response Plan
	Permit Year	Ongoing
	BMP Description	<p>OLWS responds to all spills reported by the public or observed by OLWS staff in accordance with the OLWS’s Spill and Illicit Discharges Enforcement Response Plan (Enforcement Response Plan).</p> <p>OLWS responds to non-hazardous or minor spills reported by citizens or observed by OLWS staff. Spill response associated with non-hazardous materials generally involves notification of Operations staff that can assess and respond to spill mitigation. Mitigation measures include application of absorbent pads and booms to prevent discharges from entering the stormwater conveyance system and to dispose of all contained materials. Select OLWS vehicles are equipped with containment materials so when a spill is reported, the vehicles can respond promptly. In addition, the Spill and Illicit Discharge Response Form (included in the IDDE SOP) is in select Operations vehicles, which outlines the procedures for collecting information pertaining to a spill. If necessary, the OLWS Operations staff will report the incident to the Oregon Emergency Response System (OERS) and/or to Oregon DEQ.</p> <p>Clackamas County Fire OLWS No. 1 Hazardous Materials Team responds to chemical and hazardous waste spills within the OLWS. Generally, all emergency calls reporting a spill are forwarded to the Fire Department. Procedures for response are outlined in the Fire OLWS’s Response Protocols.</p> <p>OLWS maintains records of spill containment activities. The file contains a description of the spill including date, suspected material, source, cause response, and any resultant water quality problems. The OLWS will report on these activities in the annual report.</p>
	Measurable Goals	<ul style="list-style-type: none"> Implement the spill response protocols as outlined above. Coordinate with the Clackamas County Fire OLWS No. 1, Clackamas County DTD, and DEQ as necessary to respond to spills. Equip select Operations vehicles with spill response equipment and the Spill and Illicit Discharge Response Form.
	Tracking Measures	<ol style="list-style-type: none"> Indicate the number of spills reported and potentially affecting the OLWS’s MS4. Indicate the source and response (via OLWS or Clackamas County) to reported spills. Report the number of spills and spill responses logged in Lucidity (database system).

Category C. Illicit Discharge Detection and Elimination BMPs		
ILL-3	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

2.4 Construction Site Runoff Control

Construction projects often involve the removal of vegetation and excavation of soils. When vegetation is removed velocity from stormwater runoff typically increases and disturbed soils can be carried offsite to storm inlets or receiving waters. Soil particles can transport nutrients to waterways, contribute to increases in stream temperature, reduce channel capacity, and have negative impacts to aquatic habitat. Other potential pollutant causing activities conducted at construction sites, include materials storage, fueling, and vehicle and equipment use. Staging areas and equipment use to lead to soil compaction further increasing stormwater runoff from the site. A robust and enforceable construction site runoff control program is a vital piece in reducing pollution in stormwater runoff.

The goal of the construction site runoff control program is to prevent sediment from leaving construction sites through the implementation of properly selected and installed BMPs. OLWS maintains a 1200-CN permit from DEQ to regulate construction sites up to 5-acres. OLWS implements the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual as well as provisions OLWS’s Rules and Regulations and Design and Construction Standards. Education is provided for both municipal staff and members of the design/engineering/construction community. Chapter 11 of the OLWS Rules and Regulations provides the District with the legal authority to enforce erosion prevention and sediment control on construction sites. Construction site runoff controls are accomplished through regulatory requirements, plan review and permitting, construction site inspections, enforcement procedures, training, education, inspections, and tracking.

Table 2-4 outlines the OLWS’s BMPs to address the permit requirements for Schedule A.3.d.

Table 2-4. Construction Site Runoff Control				
Schedule A.3.d Permit Requirements	Applicable BMPs			
	EC-1	EC-2	PEO-2	PEO-3
i. Ordinance and/or Other Regulatory Mechanisms	■			
ii. Erosion and Sediment Control Plans (ESCPs)	■			
iii. Erosion and Sediment Control Plans Review	■			
iv. Construction Site Inspections		■		
v. Enforcement Procedures		■		
vi. Construction Runoff Control and Training Education			■	■
vii. Tracking and Assessment	■	■	■	■

Each of the Construction Site Runoff Control centered BMPs are described in detail in the following Category D BMP Table:

- EC-1: Erosion Control Ordinances
- EC-2: Erosion Control Inspections

While the supporting BMP that assist in meeting the requirements of this permit language can be found in the following section:

- PEO-2: Erosion Control Training Opportunities (Section 2.1)
- PEO-3: Employee Training (Section 2.1)

The Category D Table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each construction site runoff control BMP. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform future construction site runoff control BMPs.

Category D - Construction Site Runoff Control BMPs		
EC-1: Erosion Control Ordinances	OLWS BMP Number	EC-1
	OLWS BMP Name	Erosion Control Ordinances
	BMP Implementation Responsibility	OLWS Development Review Staff
	Reference Document(s)	<ul style="list-style-type: none"> • OLWS Design and Construction Standards (2021) • OLWS Rules and Regulations (2022) • Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual
	Permit Year	Ongoing
	BMP Description	<p>OLWS administers erosion prevention and sediment control requirements in accordance the OLWS’ <i>Rules and Regulations</i>, Section 10.15 and the OLWS’s <i>Design and Construction Standards</i>, Section 2.1004. These sections detail the policies, procedures, and enforcement mechanisms related to the OLWS’ issuance of Erosion Control/Surface Water Management Permits. Construction activities that affect 500 SF or more or 250 SF or more within the undisturbed buffer, sensitive areas, or riparian areas must obtain an Erosion Control/Surface Water Management Permit.</p> <p>The OLWS has adopted the <i>Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual</i> for technical specifications regarding erosion control plan submittal requirements and recommended erosion control measures. The document also includes measures related to good housekeeping and addressing non-stormwater related waste. This document is periodically updated and includes suggested structural and non-structural erosion control BMPs.</p> <p>OLWS is an agent to DEQ to implement 1200-CN permits, which cover sites between one and five acres. Local permits (i.e., an Erosion Control/Surface Water Management Permit) are also issued to these size sites. 1200-C permits will be required as issued by DEQ and consistent with the requirements of DEQ’s 1200-C Guidance Manual. OLWS reviews the 1200-C permit as obtained from the applicant during plan review.</p> <p>During the plan review process, new and redevelopment will be assessed for compliance with the OLWS’ erosion control standards and provisions outlined in the Code and Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual using an internal review checklist. The OLWS’ written approval of erosion control plans and specifications is required prior to erosion control facility construction and installation. OLWS requires verification that a DEQ-issued 1200-C permit was obtained from the applicant during the plan review process and issues local ESCL permits for individual child lots.</p>

Category D - Construction Site Runoff Control BMPs		
EC-1: Erosion Control Ordinances	Measurable Goals	<ul style="list-style-type: none"> • Maintain the OLWS’s Rules and Regulations and the OLWS’s Design and Construction Standards related to erosion and sediment control policies, procedures, and enforcement over the permit term. • Require receipt of an OLWS Erosion Control/Surface Water Management Permits for all construction sites disturbing an area greater than 500 SF or 250 SF within an undisturbed buffer, sensitive area, or riparian area. • Develop an option for simplified ESCP and/or prescriptive BMPs for small or low-risk construction sites to aid in erosion control plan development by December 1, 2024, in conjunction with updates to OLWS Design and Construction Standards. • Update the current drainage/ESC plan internal review checklist by June 1, 2023 to detail plan review activities in accordance with 1200-CN permit requirements and receipt of a 1200-C permit, if applicable.
	Tracking Measures	<ol style="list-style-type: none"> 1. Report any updates or modifications to the OLWS’s <i>Rules and Regulations</i> and the OLWS’s <i>Design and Construction Standards</i> for consistency with permit requirements and current practices. 2. Record the number of OLWS Erosion Control/ Surface Water Management Permits issued annually. 3. Report and post updated guidance or checklists developed to support erosion control plan development or reviews.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

Category D - Construction Site Runoff Control BMPs													
EC-2: Erosion Control Inspections	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">OLWS BMP Number</td> <td>EC-2</td> </tr> <tr> <td>OLWS BMP Name</td> <td>Erosion Control Inspections</td> </tr> <tr> <td>BMP Implementation Responsibility</td> <td>OLWS Water Quality Coordinator</td> </tr> <tr> <td>Reference Document(s)</td> <td> <ul style="list-style-type: none"> OLWS Rules and Regulations (2022) Appendix A: Staff Training Table </td> </tr> <tr> <td>Permit Year</td> <td>Ongoing</td> </tr> <tr> <td>BMP Description</td> <td> <p>OLWS conducts a minimum of three (3) inspections during construction activities at all sites requiring an OLWS Erosion Control/Surface Water Management Permit. Inspections are conducted to ensure proper implementation of erosion control measures.</p> <p>An initial site inspection is conducted to assess the location of erosion control facility installations and the potential for offsite discharge of soil and debris. A final inspection is performed, and the Permit closed when the excavation and grading is finished at the site and the soil has been stabilized to a point where erosion potential is negligible. A minimum of one (1), interim inspection is conducted during a period of high construction activity, ideally after a storm event, or a maximum of three weeks from the previous inspection to ensure erosion control measures and facilities are being appropriately used and maintained.</p> <p>OLWS staff fills out an initial inspection form through Accela during the initial site inspection and populates an electronic erosion control log with information including project contact information, project size, dates of approved erosion control plan, inspections, complaints, and deficiencies as identified during additional erosion control inspections. Accela is accessible by DEQ and is a database that maintains all inspection records, including OLWS inspections of 1200-C sites. After the inspections are complete, the site contractor/superintendent is notified via email that an inspection was conducted and requesting any needed information.</p> <p>Enforcement is conducted in conjunction with Chapter 11 of OLWS's <i>Rules and Regulations</i>. For sites that are less than five acres with an initial erosion control violation or where ineffective erosion control is observed, a Notice of Non-Compliance is initially issued, which includes a written description of the requirements for repair and implement a time frame for compliance. If not resolved within the required time frame, a Stop Work Order is issued, and upon approval of a revised erosion control plan to the OLWS, the contractor shall immediately implement additional facilities and techniques of the revised plan. The OLWS may require the installation of interim erosion control measures prior to submittal of the revised plan.</p> <p>For sites holding a 1200-C permit, if erosion control violations or ineffective erosion control is observed, OLWS will notify DEQ and enforcement will occur in accordance with the 1200-C permit provisions.</p> <p>Construction Site Runoff Control training for inspectors is outlined in Staff Training Table.</p> </td> </tr> </table>	OLWS BMP Number	EC-2	OLWS BMP Name	Erosion Control Inspections	BMP Implementation Responsibility	OLWS Water Quality Coordinator	Reference Document(s)	<ul style="list-style-type: none"> OLWS Rules and Regulations (2022) Appendix A: Staff Training Table 	Permit Year	Ongoing	BMP Description	<p>OLWS conducts a minimum of three (3) inspections during construction activities at all sites requiring an OLWS Erosion Control/Surface Water Management Permit. Inspections are conducted to ensure proper implementation of erosion control measures.</p> <p>An initial site inspection is conducted to assess the location of erosion control facility installations and the potential for offsite discharge of soil and debris. A final inspection is performed, and the Permit closed when the excavation and grading is finished at the site and the soil has been stabilized to a point where erosion potential is negligible. A minimum of one (1), interim inspection is conducted during a period of high construction activity, ideally after a storm event, or a maximum of three weeks from the previous inspection to ensure erosion control measures and facilities are being appropriately used and maintained.</p> <p>OLWS staff fills out an initial inspection form through Accela during the initial site inspection and populates an electronic erosion control log with information including project contact information, project size, dates of approved erosion control plan, inspections, complaints, and deficiencies as identified during additional erosion control inspections. Accela is accessible by DEQ and is a database that maintains all inspection records, including OLWS inspections of 1200-C sites. After the inspections are complete, the site contractor/superintendent is notified via email that an inspection was conducted and requesting any needed information.</p> <p>Enforcement is conducted in conjunction with Chapter 11 of OLWS's <i>Rules and Regulations</i>. For sites that are less than five acres with an initial erosion control violation or where ineffective erosion control is observed, a Notice of Non-Compliance is initially issued, which includes a written description of the requirements for repair and implement a time frame for compliance. If not resolved within the required time frame, a Stop Work Order is issued, and upon approval of a revised erosion control plan to the OLWS, the contractor shall immediately implement additional facilities and techniques of the revised plan. The OLWS may require the installation of interim erosion control measures prior to submittal of the revised plan.</p> <p>For sites holding a 1200-C permit, if erosion control violations or ineffective erosion control is observed, OLWS will notify DEQ and enforcement will occur in accordance with the 1200-C permit provisions.</p> <p>Construction Site Runoff Control training for inspectors is outlined in Staff Training Table.</p>
OLWS BMP Number	EC-2												
OLWS BMP Name	Erosion Control Inspections												
BMP Implementation Responsibility	OLWS Water Quality Coordinator												
Reference Document(s)	<ul style="list-style-type: none"> OLWS Rules and Regulations (2022) Appendix A: Staff Training Table 												
Permit Year	Ongoing												
BMP Description	<p>OLWS conducts a minimum of three (3) inspections during construction activities at all sites requiring an OLWS Erosion Control/Surface Water Management Permit. Inspections are conducted to ensure proper implementation of erosion control measures.</p> <p>An initial site inspection is conducted to assess the location of erosion control facility installations and the potential for offsite discharge of soil and debris. A final inspection is performed, and the Permit closed when the excavation and grading is finished at the site and the soil has been stabilized to a point where erosion potential is negligible. A minimum of one (1), interim inspection is conducted during a period of high construction activity, ideally after a storm event, or a maximum of three weeks from the previous inspection to ensure erosion control measures and facilities are being appropriately used and maintained.</p> <p>OLWS staff fills out an initial inspection form through Accela during the initial site inspection and populates an electronic erosion control log with information including project contact information, project size, dates of approved erosion control plan, inspections, complaints, and deficiencies as identified during additional erosion control inspections. Accela is accessible by DEQ and is a database that maintains all inspection records, including OLWS inspections of 1200-C sites. After the inspections are complete, the site contractor/superintendent is notified via email that an inspection was conducted and requesting any needed information.</p> <p>Enforcement is conducted in conjunction with Chapter 11 of OLWS's <i>Rules and Regulations</i>. For sites that are less than five acres with an initial erosion control violation or where ineffective erosion control is observed, a Notice of Non-Compliance is initially issued, which includes a written description of the requirements for repair and implement a time frame for compliance. If not resolved within the required time frame, a Stop Work Order is issued, and upon approval of a revised erosion control plan to the OLWS, the contractor shall immediately implement additional facilities and techniques of the revised plan. The OLWS may require the installation of interim erosion control measures prior to submittal of the revised plan.</p> <p>For sites holding a 1200-C permit, if erosion control violations or ineffective erosion control is observed, OLWS will notify DEQ and enforcement will occur in accordance with the 1200-C permit provisions.</p> <p>Construction Site Runoff Control training for inspectors is outlined in Staff Training Table.</p>												

Category D - Construction Site Runoff Control BMPs		
EC-2: Erosion Control Inspections	Measurable Goals	<ul style="list-style-type: none"> • Maintain an inventory of active construction sites including contact information, project size, date of approved ESC plan, inspections, and complaints. Summarized metrics to be provided to DEQ upon request. • Inspect all sites requiring an Erosion Control/Surface Water Management Permit a minimum of three (3) times during construction activities. • Issue Notice of Non-Compliance and/or stop work orders and, as applicable, notify DEQ when ineffective erosion control is observed on 1200-C sites. • Develop additional tools to aid in effective implementation of an erosion and sediment control program (i.e., updated construction site inspection checklist, updated Accela forms) by December 1, 2024, in conjunction with updates to OLWS Design and Construction Standards and report/ post updates as required. • Update enforcement response procedures specific to erosion and sediment control by December 1, 2023, as needed.
	Tracking Measures	<ol style="list-style-type: none"> 1. Record the number of erosion control inspections conducted annually in accordance with Accela. 2. Report the number of construction sites where enforcement provisions per OLWS’s <i>Rules and Regulations</i> were issued annually. 3. Document status of updated ESC enforcement procedures and developed guidelines or checklists, as required.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

2.5 Post-Construction Site Runoff for New Development and Redevelopment

Stormwater runoff from new development and redevelopment of urban areas impacts the quality and quantity of stormwater discharges. Stormwater that flows through developed areas has the potential to carry pollutants such as sediment, nutrients, hydrocarbons, and litter to water bodies degrading the water quality. Degraded water quality negatively impacts aquatic habitats and threatens human uses. Increases in impervious area associated with development decreases the amount of stormwater that can percolate into the ground which increases the flow rate and quantity of stormwater discharged to receiving waters. An increase to the quantity and flow rate of stormwater discharge can cause streambank scouring, channel incising, and downstream flooding, which could lead to a loss of aquatic habitats and damage to property.

The NPDES MS4 Permit requires that OLWS develop a site performance standard based on a numeric stormwater retention requirement (NSRR). The site performance standards should target natural surface or predevelopment hydrologic function and encourage a retention first approach to stormwater control designs. If onsite retention is not feasible for a given site, OLWS may establish alternative site performance standards that result in treatment of a design storm representing at least 80% of average annual runoff. The permit requires OLWS to continue to prioritize Low Impact Development (LID) and Green Stormwater Infrastructure (GI) to reduce pollution by retaining and treating stormwater near where it falls. OLWS’ codes and standards will be evaluated and updated as needed during the permit term to align with required performance standards.

Table 2-5 outlines the OLWS’s BMPs to address the permit requirements for Schedule A.3.e.

Table 2-5. Post-Construction Site Runoff for New Development and Redevelopment					
Schedule A.3.e Permit Requirements	Applicable BMPs				
	PC-1	OM-5	OM-6	OM-7	PE0-3
i. Ordinance and/or Other Regulatory Mechanisms	■				
ii. Prioritization of Low Impact Development & Green Infrastructure	■				
iii. Post-Construction Stormwater Management Requirements	■				
iv. Water Quality Benefit Offset Programs*	■				
v. Post-Construction Site Runoff Plan Review	■				
vi. Long-Term Operation and Maintenance (O&M)		■	■	■	
vii. Training and Education					■
viii. Tracking and Assessment	■	■	■	■	■

* To be addressed by December 2024 in conjunction with the compliance deadlines in the permit.

Each of the Post-Construction Site Runoff for New Development and Redevelopment centered BMPs are described in detail in the following Category E BMP Table:

- PC-1: Post-Construction Site Runoff Controls

While the supporting BMPs that assist in meeting the requirements of this permit language can be found in the following sections:

- OM-5: Public Stormwater System Cleaning and Maintenance (Section 2.6)
- OM-6: Private Water Quality Facility Maintenance (Section 2.6)

- OM-7: GIS System and Asset Management Database (Section 2.6)
- PEO-3: Employee Training (Section 2.1)

The Category E Table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each post-construction site runoff for new development and redevelopment BMP. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform construction and education/outreach activities.

Category E - Post-Construction Site Runoff for New Development and Redevelopment BMPs		
PC-1: Post-Construction Site Runoff Controls	OLWS BMP Number	PC-1
	OLWS BMP Name	Post-Construction Site Runoff Controls
	BMP Implementation Responsibility	OLWS Development Review Staff
	Reference Document(s)	<ul style="list-style-type: none"> • OLWS Design and Construction Standards (2021) • OLWS Rules and Regulations (2022) • City of Portland Stormwater Management Manual (2020) • Appendix A: Staff Training Table
	Permit Year	Ongoing
	BMP Description	<p>OLWS reviews new and redevelopment for compliance with OLWS's <i>Rules and Regulations</i>, Section 10.20 and the OLWS's <i>Design and Construction Standards (D&C)</i>, Section 2.1005. Code and standards detail the policies and requirements related to conveyance, stormwater quantity control, infiltration, and water quality control. Development activities that affect 1,000 SF or more of new and redeveloped impervious surface must implement post-construction stormwater management. Recorded operations and maintenance agreements are required for onsite facilities and are submitted before permit issuance.</p> <p>The OLWS references Chapter 2 of the <i>City of Portland's Stormwater Management Manual (SWMM)</i> for the design of stormwater facilities. Acceptable water quality facilities are listed in Code and include vegetative facilities promoting infiltration.</p> <p>OLWS uses Accela and an internal review checklist for design submittals in accordance with requirements outlined in the D&C to review development applications. The required submittal includes completed inspection form, narrative, stormwater drainage report, infiltration/ geotechnical testing, and facility design calculations and details. Plan reviewers use the checklist to document the technical feasibility and site constraints related to onsite management of stormwater runoff as well as downstream analysis needs/ requirements and respective treatment and flow control facility sizing.</p> <p>OLWS will conduct a review of their <i>D&C</i> to document OLWS' existing strategy to prioritize LID and GI strategies for stormwater management as well as adherence to the NSSR or alternative compliance standard. Modifications to the <i>D&C</i> will be made to improve upon OLWS' existing strategy and comply with requirements of the NPDES MS4 permit.</p> <p>Post-construction stormwater management specific training is outlined in Staff Training Table</p>

Category E - Post-Construction Site Runoff for New Development and Redevelopment BMPs		
Measurable Goals		<ul style="list-style-type: none"> • Review all new and redevelopment plans for conformance with the OLWS’s Surface Water Management Standards including requirements for infiltration and water quality facilities. • Facilitate updates to the D&C through an integrated process with engineering and operations staff in accordance with regulatory compliance dates. Efforts may include a regulatory gap analysis to compare the current standards to the detailed permit requirements in Schedule A.3.e.iii. • Document OLWS’s LID/GI strategy by December 1, 2023. • Update the D&C to include the Numeric Stormwater Retention Requirement (NSSR) or Alternative Site Performance Standards by December 1, 2024.
PC-1	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of development applications reviewed and approved for compliance with the stormwater regulations. 2. Track the number, type, and drainage area of stormwater facilities installed to address post-construction requirements. 3. Track updates to the D&C in accordance with the regulatory compliance dates and upload documentation in the MS4 Reference Library.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

2.6 Pollution Prevention and Good Housekeeping for Municipal Operations

The goal of the pollution prevention program is to reduce discharge of pollutants to receiving waters by properly operating and maintaining OLWS facilities using good housekeeping BMPs. Municipal operations include a wide variety of activities conducted to maintain OLWS-owned and operated property and facilities. These activities can lead to pollutants-- such as sediment, chemicals from pesticide, nutrients from fertilizers, and litter-- reaching the MS4 system and receiving waters. OLWS maintains an MOU with Clackamas County to maintain stormwater infrastructure in the right-of-way.

During this permit term, OLWS will work to develop/ update written pollution prevention policies, strategies, and agreements to document the procedures that are already in place for many municipal operations.

Table 2-6 outlines the OLWS’s BMPs to address the permit requirements for Schedule A.3.f.

Table 2-6. Pollution Prevention and Good Housekeeping for Municipal Operations											
Schedule A.3.f Permit Requirements	Applicable BMPs										
	OM-1	OM-2	OM-3	OM-4	OM-5	OM-6	OM-7	OM-8	OM-9	IND-1	PEO-3
i. Operation and Maintenance Strategy for Existing Controls					■	■					
ii. Inspection, Maintenance, and Cleaning of the MS4					■						
iii. Pollution Prevention in Facilities and Operations	■	■	■						■		
iv. Co-permittee-owned NPDES Industrial Stormwater Permit Facilities	Not Applicable (No 1200-Z OLWS Facilities)										
v. Winter Operations and Maintenance Program*	■							■			
vi. Requirements for Pesticide and Fertilizer Applications		■									
vii. Litter Control*									■		
viii. Materials Disposal*					■						
ix. Flood Control, Transportation, and Other Infrastructure				■							
x. Operations & Maintenance Staff Training											■
xi. Tracking and Assessment	■	■	■	■	■	■	■	■	■	■	■

* Items are new permit requirements that have not historically been measured or tracked by the OLWS.

Each of the Pollution Prevention and Good Housekeeping for Municipal Operations centered BMPs are described in detail in the following **Category F** BMP Table:

- OM-1: Street Sweeping and Maintenance for Public Streets
- OM-2: Minimize Water Quality Impacts Associated with Landscape Management Practices
- OM-3: Coordinate with the Local Fire Department to Minimize Pollutant Discharge from Firefighting Training Activities
- OM-4: Flood Management and Water Quality Projects

- OM-5: Public Stormwater System Cleaning and Maintenance
- OM-6: Private Water Quality Facility Maintenance
- OM-7: GIS System and Asset Management Database
- OM-8: Winter Weather Management
- OM-9: Pollution Prevention for Operations

Supporting BMPs that assist in meeting the requirements of this permit language can be found in the following sections:

- IND-1: Screen Existing and New Industrial Facilities (**Section 2.7**)
- PEO-3: Employee Training (Section 2.1)

The Category F Table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each pollution prevention and good housekeeping for municipal operations BMP. These BMPs were previously divided between elements 7: Pollution Prevention for Municipal Operations, and 8: Stormwater Management Facilities Operation and Maintenance Activities but have been merged into a single SWMP control measure (Category F) under the new permit. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform future pollution prevention and good housekeeping BMPs.

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-1: Street Sweeping and Maintenance for Public Streets	OLWS BMP Number	OM-1
	OLWS BMP Name	Street Sweeping and Maintenance for Public Streets
	BMP Implementation Responsibility	Clackamas County DTD and OLWS District Engineer
	Reference Document(s)	Memorandum of Understanding between Clackamas County and Oak Lodge Sanitary District (2013)
	Permit Year	Ongoing
	BMP Description	<p>OLWS maintains a memorandum of understanding (MOU) with Clackamas County, implemented through the Department of Transportation and Land Development (DTD) to conduct street sweeping of publicly owned, major arterial and curbed streets within the OLWS boundary. Oregon Department of Transportation (ODOT) is solely responsible for maintenance and operation of the state-owned Highway 99E which bisects the OLWS. Private roads are considered owned and managed by the private property owners.</p> <p>Street sweeping is conducted approximately twice per year by Clackamas County, in accordance with conditions and processes identified in the MOU. The County increases this frequency during heavy leaf shedding season, after major construction, after winter deicing activities, and at other times when circumstances dictate the need to minimize the discharge of stormwater pollutants to the MS4.</p> <p>Road maintenance and repair work including roadside ditch maintenance is performed by the County and generally scheduled and conducted during the dry season, when possible, to minimize polluted discharges from entering the stormwater conveyance system. Roadside ditch inspections are conducted in conjunction with sweeping activities and per conditions and processes in the MOU. Any required grading activities will meet requirements as stated in the erosion control regulations.</p> <p>Through the MOU, Clackamas County is responsible for documentation of sweeping and ditch maintenance activities to fulfill the OLWS’s annual reporting obligations.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Maintain existing MOU with Clackamas County DTD to conduct sweeping and maintenance activities. • Meet with Clackamas County to review/refine conditions of the MOU related to street sweeping and zone designations by December 1, 2024. • Schedule and conduct routine road repair and maintenance as needed, during the dry-weather conditions if possible.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of miles swept per year. 2. Track the volume of debris removed during sweeping activities. 3. Track the length of ditches maintained annually. 4. Record updates to the MOU, as applicable
TMDL Pollutants Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli), Total Mercury 	

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-2: Minimize Water Quality Impacts Associated with Landscape Management Practices	OLWS BMP Number	OM-2
	OLWS BMP Name	Minimize Water Quality Impacts Associated with Landscape Management Practices
	BMP Implementation Responsibility	OLWS District Engineer
	Reference Documents	Clackamas County Integrated Pest Management (IPM)
	Permit Year	Ongoing
	BMP Description	<p>OLWS minimizes water quality impacts associated with pest management activities on public properties, specifically at OLWS’s pump stations and at the WWTP, by conforming to provisions of the Clackamas County IPM Program. Pest management and vegetation management efforts are generally contracted out to a third-party firm who manually removes vegetation. In cases where OLWS staff are applying pesticides, OLWS operations staff use commercially available products or contract with a licensed applicator. Contracted chemical applicators are licensed and certified.</p> <p>The OLWS maintains copies of all Material Safety Data Sheets (MSDS), to be made available upon request.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Require all contracted chemical applicators to be licensed and certified. • Refer to the Clackamas County Integrated Pest Management (IPM) as a guide for appropriate pesticide and fertilizer application procedures.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track any policy and/or procedural changes associated with pest management activities within the OLWS.
TMDL Pollutants	<ul style="list-style-type: none"> • Bacteria • Total Mercury 	

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-3: Coordinate with the Local Fire Department to Minimize Pollutant Discharge from Firefighting Training Activities	OLWS BMP Number	OM-3
	OLWS BMP Name	Coordinate with the Local Fire Department to Minimize Pollutant Discharge from Firefighting Training Activities
	BMP Implementation Responsibility	OLWS Water Quality Coordinator and Clackamas Fire District
	Reference Document(s)	N/A
	Permit Year	Ongoing
	BMP Description	<p>The main firefighting “Training Center” is in Clackamas, but minor training activities are held at local fire stations. The OLWS has one local fire station, but the type of training activities conducted at the fire stations would not be expected to impact stormwater.</p> <p>By November 1, 2023, the OLWS will contact Clackamas Fire OLWS #1 to determine what activities they conduct to minimize pollutant discharges associated with firefighting activities. If applicable, the OLWS will provide educational materials to assist Clackamas Fire OLWS #1 in reducing pollutant discharges.</p>
	Measurable Goals	<ul style="list-style-type: none"> • By November 1, 2023, contact Clackamas Fire OLWS #1 to determine what activities are conducted to minimize pollutant discharges associated with firefighting training activities. • As applicable, provide educational information to Clackamas Fire OLWS #1.
	Tracking Measures	1. Track contacts made with Clackamas County Fire OLWS #1.
TMDL Pollutants Addressed	<ul style="list-style-type: none"> • Total Mercury 	

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-4: Flood Management and Water Quality Projects	OLWS BMP Number	OM-4
	OLWS BMP Name	Flood Management and Water Quality Projects
	BMP Implementation Responsibility	OLWS District Engineer
	Reference Document(s)	<ul style="list-style-type: none"> OLWS Retrofit Assessment (2015) OLWS Hydromodification Assessment (2015) Surface Water Management Strategic Plan (2011) Infrastructure Retrofit and Hydromodification Assessment Update (2023)
	Permit Year	Ongoing
	BMP Description	<p>OLWS developed a Surface Water Management Program Plan (SMP) in 1997, which included a comprehensive planning assessment of existing conditions and the identification of future capital improvement projects (CIPs) for flood control and water quality benefits. Plan elements were integrated into OLWS' Surface Water Management Strategic Plan in 2011.</p> <p>OLWS's current Watershed Protection Program Capital Improvement Plan (2020-2025) includes 4 CIPs worth approximately \$1.938 million. In 2015, the OLWS developed a water quality retrofit strategy, which refined CIP concepts and reprioritized projects based on potential water quality benefits. Also, in 2015, OLWS completed a hydromodification assessment, which assessed erosion and incision impacts along surface waters and evaluated strategies to address such impacts.</p> <p>By December 1, 2023, OLWS will review and assess implementation related to the OLWS's Retrofit Strategy and Hydromodification Assessment. The report will identify progress toward, or completion of projects identified in the Retrofit Strategy priority list, with a qualitative assessment of the benefits of those projects, as well as describe any actions taken because of the Hydromodification Assessment. New goals, tools, priorities, and planned or potential projects for addressing ongoing hydromodification and/or water quality impacts will be identified.</p> <p>Over the next permit term, the OLWS will update the SMP to develop a revised CIP to address water quality and quantity needs.</p>

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-4	Measurable Goals	<ul style="list-style-type: none"> • Continue implementation of the SMP and retrofit strategy and hydromodification assessment related to capital projects to address water quality objectives. • In conjunction with public infrastructure projects, continue installing sumped catch basins and manholes to promote collection of sediment and debris. • Document findings and outcomes related to the creation of the OLWS’s Retrofit Strategy and Hydromodification Assessment by December 1, 2023 and maintain an inventory of completed retrofit projects and hydromodification strategies implemented during the permit term. • By December 1, 2026, prepare an updated SMP.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the implementation status of stormwater CIP projects or public infrastructure projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each project. 2. Track the status of updates to the SMP.
	TMDL Pollutants Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli), Total Mercury

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-5: Public Stormwater System Cleaning and Maintenance	OLWS BMP Number	OM-5
	OLWS BMP Name	Public Stormwater System Cleaning and Maintenance
	BMP Implementation Responsibility	Clackamas County DTD and OLWS Maintenance and Operations Staff
	Reference Document(s)	<ul style="list-style-type: none"> Memorandum of Understanding between Clackamas County and Oak Lodge Sanitary District (2013) Zone Cleaning Map Vegetated Stormwater Facility Inspection SOP
	Permit Year	Ongoing
	BMP Description	<p>OLWS’s stormwater conveyance system includes storm pipe, culverts, catchbasins, pollution control manholes, public water quality facilities, and open channel ditches. The OLWS maintains a memorandum of understanding (MOU) with Clackamas County, implemented through the Department of Transportation and Land Development (DTD) to conduct maintenance on the OLWS’s stormwater conveyance system, specifically pipes, catch basins, and pollution control manholes in accordance with frequencies and schedules outlined in the MOU.</p> <p>OLWS inspects approximately 20% of the public stormwater pipes, catchbasins, and pollution control manholes annually, consistent with the street sweeping schedule. OLWS inspects at least 20% of public water quality facilities annually in accordance with the OLWS Vegetated Stormwater Facility Inspection Standard Operating Procedure (SOP). Facilities are inspected for accumulated sediment and debris, indication of illegal dumping and disposal in the facility, and any broken or non-functioning structures in need of repair and/or replacement.</p> <p>Maintenance is conducted concurrent with system inspections and includes the removal of sediment, trash, and debris and replacement of vegetation, as necessary. Established maintenance thresholds are as follows: catchbasins and pollution control manhole sumps will be vactored when the sump has eight inches or more of dirt/sediment/trash accumulation; detention pipes will be vactored out when more than 20% of the volume is taken up with accumulated sediment; material disposal for public storm system cleaning is put into a wet decant facility, located on OLWS property (see BMP OM-9).</p> <p>Per the MOU, OLWS responds to routine service needs and routes service requests to DTD if they require emergency response.</p> <p>The OLWS uses Lucity, a database management tool, for tracking and work orders of scheduled maintenance activities.</p>

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-5: Public Stormwater System Cleaning and Maintenance	Measurable Goals	<ul style="list-style-type: none"> • Maintain existing MOU with Clackamas County DTD to conduct inspection and maintenance of the stormwater collection system. • Inspect 20% of the public stormwater pipes, catch basins and pollution control manholes in accordance with the frequency established in the MOU. • Inspect 30% of all public water quality facilities annually. • Maintain public stormwater system components in accordance with established maintenance thresholds. • Update the SOP for inspection of stormwater assets to incorporate inspection and maintenance enforcement for private facilities (joint effort with OM-6).
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of catch basins, pollution control manholes, and public water quality facilities inspected and maintained annually. 2. Track the volume of debris removed during catch basin/ pollution control manhole maintenance. 3. Document updates, as applicable to the OLWS' SOP for stormwater assets.
	TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-6: Private Water Quality Facility Maintenance	OLWS BMP Number	OM-6
	OLWS BMP Name	Private Water Quality Facility Maintenance
	BMP Implementation Responsibility	OLWS Water Quality Coordinator and OLWS Field Operations Staff
	Reference Document(s)	N/A
	Permit Year	Ongoing
	BMP Description	<p>OLWS currently maintains a private water quality facility inventory using GIS. The OLWS requires privately owned commercial and residential facilities to submit an approved maintenance plan for their water quality and quantity stormwater facilities. Private facility owners receive outreach information and are subject to periodic inspection to ensure proper maintenance and performance.</p> <p>OLWS distributes annual letters to property owners, reminding them of their maintenance obligations. OLWS will conduct annual onsite inspections at 20% of the private stormwater facilities and conduct enforcement in conjunction with OLWS’ Rules and Regulations, Section 11.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Distribute maintenance reminder letters for private facility owners annually. • Annually inspect 20% of private stormwater facilities to ensure maintenance has been conducted consistent with submitted maintenance plans. • Continually review and update (if needed) the OLWS Rules and Regulations to provide sufficient legal authority to inspect and enforce private facility maintenance. • Update the SOP for inspection of stormwater assets to incorporate inspection and maintenance enforcement for private facilities (joint effort with OM-5).
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of letters distributed to private stormwater facility owners annually. 2. Track the number of onsite private stormwater quality facility inspections conducted annually. 3. Document updates, as applicable to the OLWS Vegetated Stormwater Facility Inspection SOP for stormwater assets.
TMDL Pollutants Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-7: GIS System and Asset Management Database	OLWS BMP Number	OM-7
	OLWS BMP Name	GIS System and Asset Management Database
	BMP Implementation Responsibility	OLWS District Engineer
	Reference Document(s)	<ul style="list-style-type: none"> • MS4 Map • IDDE SOP (2023) for priority field screening locations
	Permit Year	Ongoing
	BMP Description	<p>The OLWS' GIS department maintains a stormwater asset inventory in GIS. Applicable assets include stormwater conveyance system features (i.e., pipes, catch basins, pollution control manholes), public and private water quality facilities, industrial stormwater permit locations, outfall locations, municipal structural stormwater controls (water quality, detention facilities and green stormwater infrastructure), and monitoring (dry-weather field screening) locations. Mapping is used to aid in facility inspections, maintenance activities, and enforcement response. If mapping discrepancies are observed, maps are updated accordingly.</p> <p>Select features are available on the publicly available mapping on the OLWS website (link included in Section 1.4) include outfalls, drywells, open channels, dry-weather field screening locations, and pipe/network layer. Online mapping will be updated to include the location and drainage area of new public and private water quality facilities as they are constructed.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Continually maintain the online GIS mapping for public viewing to reflect updated stormwater system and new system assets within the boundaries of OLWS. • As staffing resources permit, add municipal structural stormwater facilities to the online GIS mapping within one year of construction completion. • By December 1, 2023, the OLWS will develop an asset management database to aid in scheduling maintenance activities and conducting follow up activities related to the illicit discharge and industrial commercial inspection programs.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track updates made to the online GIS mapping annually. 2. Record the location and drainage area of new public and private water quality facilities added to the GIS system inventory annually as applicable. 3. Track the status of developing an asset management database.
	TMDL Pollutant Addressed	N/A

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-8: Winter Weather Management	OLWS BMP Number	OM-8
	OLWS BMP Name	Winter Weather Management
	BMP Implementation Responsibility	Clackamas County DTD and OLWS Maintenance and Operations Staff
	Reference Document(s)	Clackamas County Winter Weather Response Program (website)
	Permit Year	Ongoing
	BMP Description	<p>Clackamas County DTD conducts winter weather maintenance on County roads within OLWS. DTD implements a Snow and Ice Response Plan (dated September 30, 2021), which is reviewed and updated regularly. The Snow and Ice Plan addresses how snow removal, sanding, and chemical application is implemented to meet specific service level priorities. Additional winter weather response includes:</p> <ul style="list-style-type: none"> • Road maintenance priorities – identification of high, medium, and low priority routes; regional and local areas are divided into zones and detailed maps and spreadsheets outline exactly what roads need to be plowed/treated in order of priority. • Preparation and operation activities – outlines stockpiling, ice prevention, snow plowing, snow/ice removal, and clean-up. • Education and outreach – outlines general best practices for the public during winter weather and DTD contact information. • Summary of material storage – stockpiling of equipment and materials occurs at 18 sites throughout the county.
	Measurable Goals	<ul style="list-style-type: none"> • Implement the CCDTD winter maintenance strategy as documented. • Update the MOU to incorporate winter maintenance activities and tracking needs within the district.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of winter weather events, quantities and locations of material used on County roads within OLWS.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

Category F - Pollution Prevention and Good Housekeeping for Municipal Operations BMPs		
OM-9: Pollution Prevention for Operations	OLWS BMP Number	OM-9
	OLWS BMP Name	Pollution Prevention for Operations
	BMP Implementation Responsibility	OLWS Maintenance and Operations Staff
	Permit Year	Ongoing
	BMP Description	<p>OLWS operates a water distribution system, wastewater collection system, and maintains a surface water system. The operation and maintenance of these systems includes storing and managing vehicles, materials, and waste related to stormwater facility and infrastructure management. Currently, storage of vehicles and transport of municipal waste (associated with wet decant operations) occurs at the OLWS Water Reclamation Facility. Runoff (including decant water) from the Water Reclamation Facility is piped directly into the treatment plant for treatment prior to discharge.</p> <p>OLWS will be developing an Operations Pollution Prevention Plan to define stormwater pollution prevention procedures to reduce the impact of stormwater runoff from district properties and associated with select OLWS field operations including water line flushing, litter management, and routine pipe and meter replacement.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Develop an OLWS-wide Operations Pollution Prevention strategy by December 1, 2024.
	Tracking Measures	<ol style="list-style-type: none"> 1. Report status of development of the Operations Pollution Prevention Strategy.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) 	

2.7 Industrial and Commercial Facilities

OLWS’ stormwater management program tracks industrial and commercial facilities to reduce pollutants in stormwater discharges to the MS4. These facilities include sites subject to the DEQ-issued 1200-Z industrial stormwater NPDES general permit, as well as commercial and industrial properties that potentially contribute pollutants to the MS4. OLWS does not have any hazardous waste treatment, disposal and recovery facilities; industrial facilities subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986; or facilities subject to Section 313 of the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. 11023;

Table 2-7 outlines the OLWS’ BMPs to address the permit requirements for Schedule A.3.g.

Table 2-7. Industrial and Commercial Facilities			
Schedule A.3.g Permit Requirements	Applicable BMPs		
	IND-1	IND-2	PEO-3
i. Screening for Industrial Stormwater Permitting	■		
ii. Strategy to Reduce Pollutants from Industrial and Commercial Facilities	■	■	
iii. Commercial & Industrial Facility Inspection Staff Training			■
iv. Tracking and Assessment	■	■	■

Each of the Industrial and Commercial Facilities centered BMPs are described in detail in the following **Category G** BMP Table:

- IND-1: Screen Existing and New Industrial Facilities
- IND-2: Address High Pollutant Source Facilities

While the supporting BMP that assist in meeting the requirements of this permit language can be found in the following section:

- PEO-3: Employee Training (Section2.1)

The following Category G Table provides a description, implementation schedule, measurable goals, annual tracking measures, and TMDL pollutants addressed for each industrial and commercial BMP. Measurable goals and tracking measures will be evaluated annually to assess the impact of the BMPs and to inform future industrial and commercial facilities requirements and training.

Category G - Industrial and Commercial Facilities BMPs		
IND-1: Screen Existing and New Industrial Facilities	OLWS BMP Number	IND-1
	OLWS BMP Name	Screen Existing and New Industrial Facilities
	BMP Implementation Responsibility	OLWS Water Quality Coordinator and OLWS Pollution Prevention Staff
	Reference Document(s)	<ul style="list-style-type: none"> • Industrial/Commercial Stormwater Inspection Program SOP • Appendix A: Staff Training Table
	Permit Year	Ongoing
	BMP Description	<p>The need to obtain an industrial stormwater permit is based on onsite activities and the applicable Standard Industrial Classification (SIC) and/or North American Industrial Classification System (NAICS) codes related to the 1200-series NPDES permit.</p> <p>Industrial facility screening activities are outlined in OLWS' Industrial/Commercial Stormwater Inspection Program Standard Operating Procedure (SOP). OLWS continuously reviews new and redevelopment activities related to the need for a property owner to obtain an industrial stormwater permit during the Industrial Users Permit issuance process. OLWS relies on Clackamas County for land use review, development review, and issuance of building permits. OLWS is notified of permitting activities by the County. The OLWS issues Utility Connection permits if a business is changing owners or conducting upgrades to the facility.</p> <p>Annually, in conjunction with BMP IND-2: Address High Pollutant Source Facilities, OLWS will review their existing database of commercial accounts within the district boundaries, to determine whether existing facilities may be subject to an industrial stormwater NPDES permit.</p> <p>If a facility is identified during the permit process or in conjunction with review of the commercial accounts database that would be subject to an industrial stormwater NPDES permit, the facility and DEQ will be notified within 30 days.</p> <p>OLWS maintains a GIS layer of all facilities subject to the 1200-Z permit and will update as new facilities are identified.</p> <p>Industrial and Commercial Facilities specific training is outlined in Staff Training Table</p>
	Measurable Goals	<ul style="list-style-type: none"> • Review new and existing businesses over the permit term to identify additional facilities needing to obtain 1200-Z permits. If facilities are identified, notify DEQ and the facility within 30 days.
	Tracking Measures	<ol style="list-style-type: none"> 1. Track the number of existing or new facilities identified by OLWS that are subject to a stormwater industrial NPDES during the permit term.
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

Category G - Industrial and Commercial Facilities BMPs		
IND-2: Address High Pollutant Source Facilities	OLWS BMP Number	IND-2
	OLWS BMP Name	Address High Pollutant Source Facilities
	BMP Implementation Responsibility	OLWS Water Quality Coordinator and Pollution Prevention Staff
	Reference Document(s)	Industrial/Commercial Stormwater Inspection Program SOP
	Permit Year	Ongoing
	BMP Description	<p>Industrial facility screening activities are outlined in the OLWS' Industrial/Commercial Stormwater Inspection Program Standard Operating Procedure (SOP).</p> <p>OLWS maintains a list of industrial and commercial facilities with the potential to discharge a substantial pollutant load to the MS4. Identification of a high priority facility is based on citizen complaints, results of past inspections, the <i>Industrial Users Survey</i>, and other sources. The list is updated annually and maintained by the OLWS' Pollution Prevention Specialist.</p> <p>Annually at a minimum, inspections (windshield or onsite) will be conducted. Inspections of identified high priority facilities will occur only for facilities with discharges to the municipal storm sewer system. Facilities with a discharge through a private system directly to a surface water body will be the responsibility of Oregon DEQ. Inspection forms will be filled out, documenting the results of each inspection. As needed, technical support will be provided to property owners to improve water quality.</p> <p>Annually, the OLWS will review their existing database of commercial accounts within the OLWS limits, to determine any new businesses or facilities that may warrant inspection or outreach in conjunction this BMP.</p>
	Measurable Goals	<ul style="list-style-type: none"> • Maintain the inventory of high pollutant source facilities continuously over the permit term. • Inspect identified facilities as needed using visual or analytical methods. • When inspections indicate excess levels of stormwater pollution, provide technical assistance to property owners. • Review and update the Industrial/Commercial Facility SOP with updated facility prioritization, inspection and documentation procedures, and compliance with other ordinances by December 1, 2023.
Tracking Measures	<ol style="list-style-type: none"> 1. Track updates to the inventory of high pollutant source facilities. 2. Track the number of inspections performed annually and any enforcement or technical assistance provided. 	
TMDL Pollutant Addressed	<ul style="list-style-type: none"> • Bacteria (E. coli) • Total Mercury 	

2.8 Monitoring and Reporting

OLWS is required to conduct monitoring that includes the collection and analysis of stormwater, instream surface water and macroinvertebrate samples. The monitoring requirements and objectives are outlined in Schedule B of the MS4 permit. OLWS participates in a joint monitoring plan with other Clackamas co-permittees. This joint monitoring plan (i.e., the Comprehensive Clackamas County NPDES MS4 Stormwater Monitoring Plan or CCCSMP) was updated to address the 2021 permit requirements and submitted to DEQ as required with the submittal of this SWMP (December 1, 2022). The new Monitoring Plan describes monitoring objectives, strategy, and procedures for the collection and analysis of stormwater, instream, and macroinvertebrate samples. Objectives of the monitoring program include the evaluation of pollution sources, characterization of stormwater runoff quality, assessment of water quality trends, and assessment of the effectiveness of our stormwater programs. The Monitoring Plan strategy includes both new and existing monitoring locations, sampling frequencies, updated pollutant parameters, analytical methods, quality control procedures, staffing resources, and a summary of field operating procedures. Monitoring data will be submitted to DEQ annually on December 1.

In accordance with the NPDES MS4 permit requirements, OLWS also submits annual reports to DEQ to evaluate OLWS' progress towards implementing the SWMP control measures and associated BMPs. Beginning in 2023, the annual reports will be compiled using the annual report form provided by DEQ. The tracking measures outlined in each BMP table will be used to assess the effectiveness of the BMPs and inform future priorities and actions.

Records of data and information used in the development and implementation of the SWMP will be retained by OLWS for 5 years or for the permit term, whichever is longer. Annual reports are posted on the OLWS' website and are made available to the public and to DEQ upon request.

Appendix A: Staff Training Table

Municipal Staff MS4 Training Strategy

Overview

This document presents OLWS' multi-year and multi-topic training strategy to address stormwater education for municipal staff. OLWS' 2021 NPDES MS4 Permit requires training for municipal staff in several stormwater-related areas. In general, new staff will be trained in the duties of their position upon hire. Existing staff will be trained in the duties of their position on an annual basis. All staff will be trained on updated or changed procedures throughout the permit term, as those changes or updates occur.

This strategy covers training in the following categories:

- Illicit discharge detection and elimination
- Construction site runoff control
- Post construction stormwater management
- Operations and maintenance of stormwater management facilities
- Stormwater pollution prevention for municipal facilities and operations
- Industrial and commercial facilities

The following table outlines OLWS' strategy for conducting the required stormwater training for municipal staff. This strategy is specific to NPDES MS4 Permit requirements. OLWS staff participate in trainings for topics and programs beyond those listed in this strategy, including field safety training and equipment training.

OLWS Staff Training Activities						
Category	NPDES MS4 Permit Reference	Stormwater Training Topic	Target Groups	Frequency/ Years for Training	Potential Resources	Notes
Illicit Discharge Detection and Elimination	A.3.c.vi	Identifying and reporting illicit discharges (including procedures for enforcement and follow-up actions) <ul style="list-style-type: none"> • Investigate • Eliminate • Respond 	District field operations staff Water Quality Coordinator Pollution Prevention Specialist	Annually Bi-Annual Once per permit term	Internal training based on OLWS' IDDE response SOP Online IDDE Modules	
		Dry weather screening procedures, documentation, reporting, and follow-up actions	Water Quality Coordinator Pollution Prevention Specialist	Annually	Annual review of OLWS' Dry weather screening SOP	
Erosion and Sediment Control	A.3.d.vi	Best practices and new technologies for erosion prevention and sediment control	Engineering staff ESC site inspectors	Once in permit term	Online training Vendor provided training	
		Construction site ESC inspection processes and documentation procedures (including violations enforcement processes)	ESC site inspectors	Annually	Internal training based on OLWS' ESC process SOP or inspection checklist	
Post Construction Site Runoff Stormwater Management	A.3.e.vii	Proposed or adopted changes to stormwater design standards and stormwater related land use policies.	Engineering staff Development Services Staff involved with plan review and approval Site inspectors Field operations staff responsible for maintaining stormwater management facilities	Once in permit term	Internal training	Training should be conducted during development (or following adoption) of new or updated stormwater design standards or stormwater related land use policies
		OLWS site inspection processes and documentation procedures (including violation enforcement processes)	Site inspectors	Annually	Internal training based on OLWS' site inspection SOP or inspection checklist	
Operations and Maintenance of Stormwater Management Facilities	A.3.e.vii A.3.f.x	Operation and maintenance best practices for stormwater management facilities	Field operations staff responsible for maintaining stormwater management facilities Private facility inspectors Public facility inspectors Site Inspectors Engineering staff	Once in permit term	Online vendor provided training Internal training	Training is required under two different permit elements.

OLWS Staff Training Activities						
Category	NPDES MS4 Permit Reference	Stormwater Training Topic	Target Groups	Frequency/ Years for Training	Potential Resources	Notes
Stormwater Pollution Prevention for Municipal Facilities and Operations	A.3.f.x	Inspection, cleaning, and documentation/tracking procedures for MS4 related structures (catch basins, storm drains inlets, pipes)	Field operations and maintenance staff	Once in permit term	Internal training based on OLWS' SOP and schedule for MS4 maintenance	Training should be conducted after development of the revised CB inspection and cleaning schedule.
		Stormwater pollution prevention and good housekeeping practices for field operations	Field operations staff Facility inspectors ESC site inspectors Engineering staff Development services staff	Once in permit term	Internal training based on OLWS' municipal pollution prevention plan or SOPs	Conduct in 2024, after update to municipal pollution prevention plan Opportunity to offer training for staff from franchise utilities or other groups that conduct field operations in the OLWS.
		FACILITY stormwater pollution prevention plan and best practices	Field and plant operations and maintenance staff that utilize facilities	Once in permit term	Internal training based on the OLWS' SWPPP	
		Integrated pest management and proper application of pesticides and fertilizers	Field operations and maintenance staff	Once in permit term	Online training External training	
Industrial and Commercial Facilities		Industrial/Commercial facility inspection procedures	Staff responsible for inspecting and evaluating industrial facilities	Once in permit term	Internal training based on the OLWS' Industrial and Commercial Facilities Strategy	Training should be conducted after the OLWS reviews and updates the Industrial and Commercial Facilities Strategy

Reference Permit Language

Schedule A.3.c.vi - Illicit Discharge Detection and Elimination Training and Education Illicit Discharge Detection and Elimination Training and Education The co-permittees must ensure that all persons responsible for investigating and eliminating illicit discharges and illicit connections into the MS4 are appropriately trained to conduct such activities. All staff directly responsible for conducting dry weather screening activities or responding to reports of illicit discharges and spills into the MS4 must be properly trained to conduct such activities, and training strategies and frequencies for staff must be documented and described or referenced in the SWMP.

Schedule A.3.d.vi – Construction Runoff Control Training and Education The co-permittees must ensure that all staff responsible for ESCP reviews, site inspections, and enforcement of the co-permittees' requirements are trained or otherwise qualified to conduct such activities, and training strategies and frequencies must be described or referenced in the SWMP.

Schedule A.3.e.vii – Long-Term Operation and Maintenance Training and Education The co-permittees must ensure that staff responsible for performing post-construction runoff site plan reviews, administering the post-construction program requirements, and performing O&M practices or evaluating compliance with long-term O&M requirements, are trained or otherwise qualified to conduct such activities, and training strategies and frequencies for staff must be described or referenced in the SWMP.

Schedule A.3.f.x – Pollution Prevention and Good Housekeeping for Municipal Operations – O&M Staff Training The co-permittees must continue to ensure that staff responsible for evaluating O&M practices, evaluating compliance with long-term O&M requirements, or ensuring pollution prevention at facilities and during operations are trained or otherwise qualified to conduct such activities. Training strategies and frequencies for staff must be described in the SWMP.

Schedule A.3.g.iii - Commercial & Industrial Facility Inspection Staff Training The co-permittees must ensure that staff responsible for inspecting and evaluating Commercial and Industrial facilities, evaluating compliance with municipal ordinances related to discharges to the MS4, or ensuring pollution prevention at facilities through inspections and/or provision of educational materials on stormwater management, are trained or otherwise qualified to conduct such activities, and training strategies, and frequencies for staff must be described in the SWMP.

Appendix B: SWMP Change Log

Table B-1. Change Log – Oak Lodge Water Services 2022 SWMP¹

Revision Date	Relevant Permit Requirement	Revision Description	An analysis of why the new action is an appropriate alternative from the standpoint of effectiveness, feasibility and/or cost (Schedule A.2.f.ii.(A))	Expectations on the effectiveness of the replacement action or activity (Schedule A.2.f.ii.(B))
December 1, 2023	Schedule A.2.f Review and Modification of the SWMP Document	Added a new SWMP Document date to the cover to reflect the December 1 updates. Included a SWMP Document Change Log as Appendix B for tracking revisions to the 2022 SWMP Document moving forward. Added a sentence to the end of Section 1.1 to introduce the addition of a change log to track SWMP Document revisions.	N/A	N/A
December 1, 2023	Schedule A.3.c, A.3.d, and A.3.e	Updated effective dates for select reference documents.	N/A	N/A
December 1, 2023	Schedule A.3.e.v	Added the City of Portland SWMM as a reference document for inclusion in the document library.	N/A	N/A
December 1, 2023	Schedule A.3.f.v	Updated the link to the Clackamas County Winter Weather Response Program referenced in OM-8.	N/A	N/A
December 1, 2023	Schedule A.3.f.v	For BMP OM-4, included the Infrastructure Retrofit and Hydromodification Assessment Update (2023) as a reference document.	N/A	N/A

Note: This Revision Log documents adaptive management modifications to the SWMP in accordance with Schedule A.2.f. of the NPDES MS4 Permit.