

Stormwater Management Program (SWMP)



City of Moscow

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NPDES Permit #IDS028398

November, 2021

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ACRONYMS

ACM	Alternative Control Measure
BMP	Best Management Practice
CFR	Code of Federal Regulations
CGP	Construction General Permit, i.e., the most current version of the NPDES General Permit for Stormwater Discharges from Construction Activities in Idaho
CWA	Clean Water Act
ERP	Enforcement Response Policy
EPA	United States Environmental Protection Agency, Region 10
FR	Federal Register
GIS	Geographic Information System
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
MEP	Maximum Extent Practicable
ML	Minimum Levels
MCC	Moscow City Code
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit, i.e., the most current version of the NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities in Idaho
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
pg/L	Picograms per Liter
PCB	Polychlorinated biphenyls
PDF	Portable Document Format
POTW	Publicly Owned Treatment Works
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control SWMP Stormwater Management Program

SWPPP Stormwater Pollution Prevention Plan

TMDL Total Maximum Daily Load

TSS Total Suspended Solids

US United States

USC United States Code

WA Washington

WD EPA Region 10 Water Division

WDOE Washington Department of Ecology

WLA Waste Load Allocation

DEFINITIONS

Stormwater Control System - The City maintained system of ditches, channels, swales, culverts, basins, treatment systems, gutters, inlets, storm pipes, outfalls, ponds, creeks, rivers, wetlands, and any other appurtenances necessary, useful or convenient for the orderly collection, conveyance, treatment, and disposal of municipal stormwater runoff.

1. BASIC SWMP INFORMATION

1.1 Staff Organization

The City of Moscow Stormwater Division's current staff are as follows:

Deputy City Supervisor Public Works and Services – Tyler Palmer

Environmental Services Manager – Kyle Steele

Streets and Storm Manager – Steve Schulte

Regulatory Programs and Projects Supervisor – Ty Thompson

Stormwater Operations and Maintenance Supervisor – Dana Rand

Stormwater Operations and Maintenance Operator – Rich Dimmick

Administrative Assistant – Jennifer Rossini

Administrative Assistant – Tammy Gray

Currently, the Operations and Maintenance division of the Stormwater Department consists of a Stormwater Supervisor and one Senior Maintenance Worker. Development Review Engineering services are provided by the City's Engineering Division. The Regulatory Programs and Projects Supervisor manages the day-to-day regulatory compliance duties. Administrative support is provided by Administrative Assistants from both the Environmental Services Department and The Streets/Storm Division. One O & M Operator and the Development Review and Inspection Technician will be hired in the Spring of 2022. The organization charts detailing anticipated full staffing levels are included in Tables 1 and 2 below.

Table 1. Street/Storm Division Organization Chart

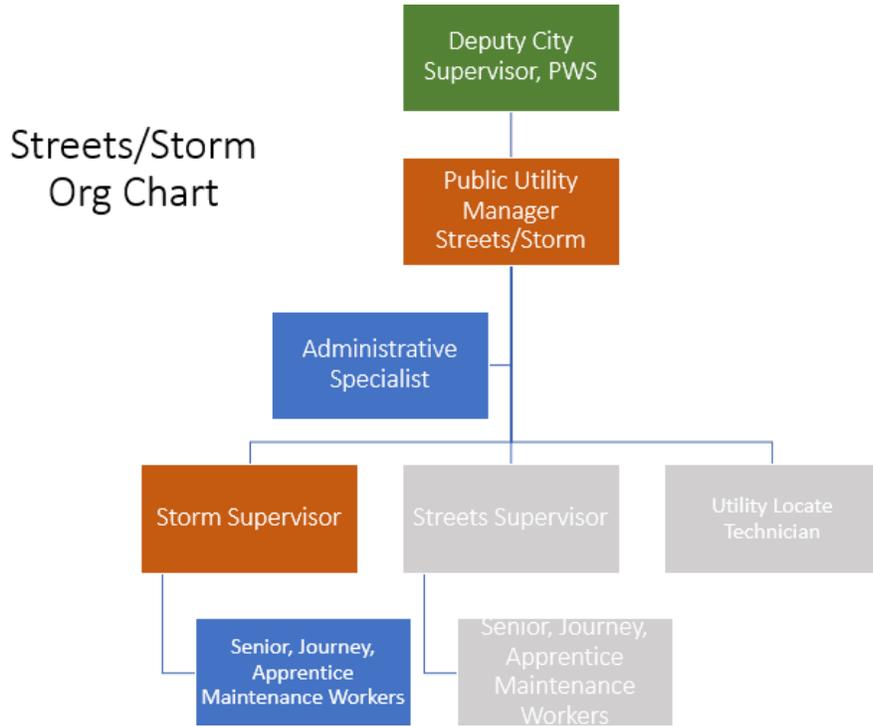
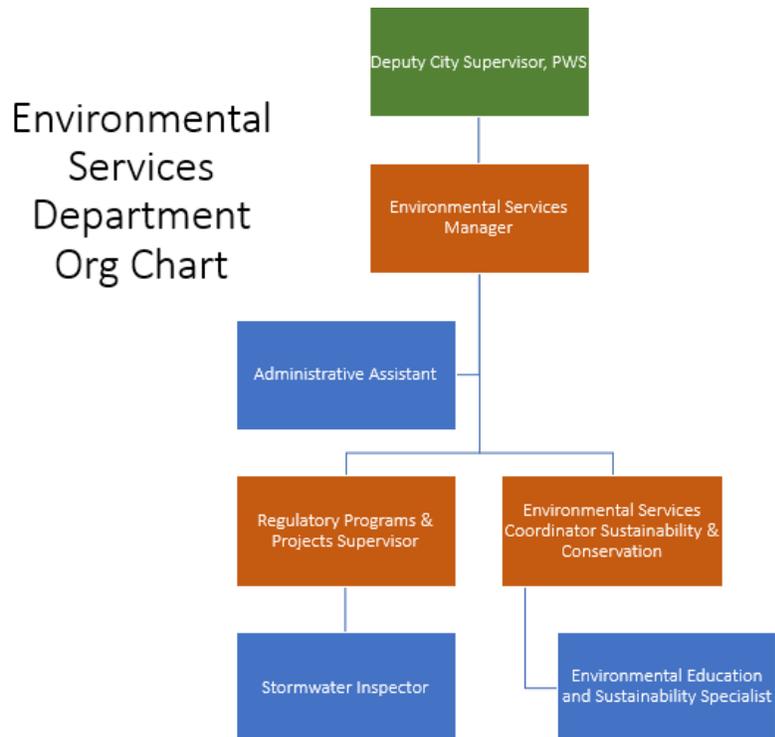


Table 2. Environmental Services Department Organization Chart



1.2 Receiving Waters

The waterbodies identified in Table 3 receive storm water discharges from the City of Moscow MS4.

Table 3. City of Moscow MS4 Receiving Water Summary

Receiving Waterbody Segments	WQS Classification	Impairment/Pollutant of Concern	TMDLs? (Yes/No)	Applicable WLAs (Yes/No)	No. of Discharging Outfalls
Paradise Creek ID17060108CL005_02 Paradise Creek - Urban boundary to Idaho/Washington border	Cold water biota, secondary recreation, and agricultural supply	E. coli; Nutrient/Eutrophica- tion Biological Indicators; Sedimentation/ Siltation; Temperature	Yes	No	198
Paradise Creek (WA portion): Paradise Creek 10443; 10439; 10444		Fecal coliform bacteria			N/A
South Fork Palouse River ID17060108CL002_03 S. Fork Palouse River - Gnat Cr. to Idaho/Washington border		Nutrient/Eutrophica- tion Biological Indicators; Sedimentation/ Siltation; Temperature	Yes	No	9
S. Fork Palouse River (WA portion): SF Palouse River 6712; 6711; 6710; 6707		Fecal coliform bacteria; Chlorinated pesticides; Polychlorinated Biphenyls			N/A

The City of Moscow's MS4 is also interconnected with the University of Idaho's MS4, which discharges to the waterbodies identified in Table 4.

Table 4. University of Idaho MS4 Receiving Water Summary

Receiving Waterbody Segments	WQS Classification	Impairment/Pollutant of Concern	TMDLs? (Yes/No)	Applicable WLAs (Yes/No)	No. of Discharging Outfalls
Paradise Creek ID17060108CL005_02 Paradise Creek - Urban boundary to Idaho/Washington border	Cold water biota, secondary recreation, and agricultural supply	E. coli; Nutrient/Eutrophication Biological Indicators; Sedimentation/Siltation; Temperature	Yes	No	Unknown
Paradise Creek (WA portion): Paradise Creek 10443; 10439; 10444		Fecal coliform bacteria			N/A

1.3 SWMP Information and Statistics

As required in Section 2.5.4 of its Phase II NPDES MS4 Permit (MS4 Permit), the City of Moscow “must maintain a method of gathering, tracking, and using SWMP information to set priorities and assess Permit compliance.” The City currently tracks the amount of machine time and operator hours used to accomplish street sweeping and catch basin cleaning. In 2020, the most recent data available, 893 hours of debris removal activities resulted in an estimated 625 tons of materials removed from the stormwater control system. Additionally, Public Involvement, Education, and Outreach efforts are tracked by staff. Details for FY2021 can be found in Section 5.5 of this document.

1.4 Transfer of Ownership, Operational Authority, or Responsibility for SWMP Implementation

According to Permit Section 2.5.6, the City “must implement the required SWMP control measures of this Permit in all new areas added or transferred to the Permittee’s MS4.” There have not been any new areas added or incorporated in into the City’s MS4 jurisdiction.

2 MAPS OF THE SEPARATE STORM SEWER SYSTEM

As of October 2016, the City’s physical stormwater infrastructure asset is composed of:

- 2,338 stormwater inlets/catch basins
- 1,026 manholes
- 94 miles of storm drain pipe
- 1.2 miles of culverts

- 10 miles of open ditch
- 9.5 miles of receiving waters (Paradise Creek, Hogg Creek, S. Fork Palouse River)
- 207 known outfalls to receiving waters
- 43 surface detention facilities

A map of the City's stormwater sewer system, receiving waters, and drainage basins is included in Figures 1 and 2 on pages 19 and 20. The map can be accessed online at: www.ci.moscow.id.us/Maps

3 TARGETING POLLUTANTS OF CONCERN

3.1 Monitoring/Assessment of MS4 Discharges to Impaired Waters

Part 4.2 of the City's MS4 Permit requires the City to submit a Monitoring/Assessment Plan that is designed to quantify, at a minimum, pollutant loadings from the MS4 into Paradise Creek for E. coli. Part 4.3 requires the City to define and implement at least one (1) activity designed to reduce E. coli from the MS4 into Paradise Creek. This plan has been developed to comply with Part 4.2 and the quality assurance (QA) objectives defined in Part 6.2.7 of the MS4 Permit.

Dry Weather Outfall Screening Program

The City of Moscow is required to conduct a dry weather analytical and field screening monitoring program to identify non-stormwater flows from MS4 outfalls during dry weather. Staff will inspect a minimum of 75 outfalls per year in the Paradise Creek basin (including Hogg Creek), with all known outfalls to be inspected by September 30, 2024. At locations in which dry weather flows are identified, samples will be collected for laboratory analysis of E. coli and total phosphorous.

The program must emphasize screening activities to detect and identify illicit discharges and illegal connections, and to reinvestigate potentially problematic MS4 outfalls throughout the City's MS4 Permit Area. Dry weather discharges have an increased likelihood of being the result of illicit discharges and/or illegal connections (i.e. sanitary sewer cross connections) which could contribute pollutants of concern to receiving waters and that could cause or contribute to a violation of Idaho Water Quality Standards (IDAPA 58.01.02). Refer to the City' Stormwater Management Program Pollutant Reduction Activities Plan and Monitoring/Assessment and Quality Assurance Project Plan in Appendix 1 for full details.

The plan was submitted to the EPA and IDEQ on September 29, 2021. Members of the public can assist with monitoring and assessment by reporting any known outfalls with dry weather flows to the Regulatory Programs and Projects supervisor. The program is scheduled to begin in the summer of 2022 after a 14-day period without significant rainfall has occurred.

3.2 Pollutant Reduction Activities

The City of Moscow's MS4 discharges to two designated impaired waters: Paradise Creek and the South Fork Palouse River. Those waterbodies are impaired as noted in Table 1. The purpose of the following pollutant reduction activity proposal is to reduce the loading of selected pollutants from the discharges of the City MS4 into local receiving waters in accordance with Section 4.3 of the MS4 Permit.

Activity 1. Dry weather outfall assessment, monitoring, and mitigation: Paradise Creek E. coli and nutrient reduction strategy.

This project aims to eliminate detect and eliminate any continuous sources of E. coli and/or nutrients which could impact established TMDL target concentrations. Section 3.2.5.2 of the MS4 Permit requires at least 50 annual dry weather outfall inspections in the permit area. Staff will inspect a minimum of 75 outfalls per year in the Paradise Creek basin (including Hogg Creek), with all known outfalls to be inspected by September 30, 2024. The results of those analytical tests will be used to inform actions regarding further upstream investigations in search of the source of any identified pollutants.

At locations in which dry weather flows are identified, samples will be collected for laboratory analysis of E. coli and total phosphorous. All illicit discharges identified through this process will be eliminated within 60 days as prescribed in Section 3.2.6.

Activity 2. Increased street sweeping frequency, catch basin cleaning, and catch basin inspection: South Fork of the Palouse River sediment and nutrient reduction strategy.

The City of Moscow proposes to implement an enhanced sediment removal and monitoring project for portions of the MS4 that drain to the South Fork of the Palouse River (SFPR). Section 3.5.5.3 of the MS4 Permit include sweeping of all roadways within the MS4 at least annually. For sections that drain to the SFPR, this frequency will be initially increased to at least twice annually. Additionally, all catch basins within this area will be cleaned within a one-year period, and those catch basins will be inspected within one year following cleaning to evaluate the effectiveness of the enhanced street sweeping schedule.

All sediment collected through street sweeping will be categorized based on weight and swept curb miles. Well established national data exists for sediment and nutrient loading from debris collected through street sweeping. The City will use that data to derive pollutant reduction estimates based on the activities performed as part of this pollutant reduction strategy.

4 LEGAL AUTHORITY AND ENFORCEMENT

According to Section 2.5.2 of the MS4 Permit, the City “must maintain relevant ordinances and/or regulatory mechanisms to control pollutant discharges into and from its MS4 and to comply with this Permit.” There are currently 5 local ordinances in place, along with State and Federal regulations, that allow the City to meet the requirements of this section as identified below. Moscow City Codes can be accessed online at: www.ci.moscow.id.us/City-Code

The City of Moscow relies on the following legal authorities	
1. To prohibit and eliminate illicit discharges to the MS4:	Title 5, Chapter 3 – Sewers Sections 3-19 and 3-21.
2. To control the discharge of spills, dumping or disposal of materials other than storm water to the MS4:	Title 5, Chapter 3 – Sewers Sections 3-19 and 3-21.
3. To control the discharge of storm water and pollutants from land disturbance and	Title 5, Chapter 15 – Stormwater Runoff Control Title 5, Chapter 6 – Excavations Section 6-14.

development, both during the construction phase and after site stabilization has been achieved	Title 7, Chapter 1 – International Building Code Section 1-4. 3316.3.2, A. & B.
4. To control the contribution of pollutants from one MS4 to another interconnected MS4;	Title 5, Chapter 19 – Stormwater User Fees Section 19-7
5. To require local compliance with such requirements; and	Title 5, Chapter 3 – Sewers Section 3-33 Title 5, Chapter 15 – Stormwater Runoff Control Section 15-9 Title 7, Chapter 1 – International Building Code Section 1-4. 3316.3.7
6. To carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and noncompliance with the Permit.	Title 5, Chapter 3 – Sewers Section 3-27 Title 5, Chapter 6 – Excavations Section 6-26. Title 7, Chapter 1 – International Building Code Section 1-4. 3316.3.5

5 STORM WATER CONTROL MEASURES TO REDUCE POLLUTANTS TO THE MAXIMUM EXTENT PRACTICABLE

The following sections describe the City of Moscow’s program to reduce pollutants in the MS4 discharges to the maximum extent practicable, as required by Permit Part 3. Each section summarizes the mandatory program, and describes how the City of Moscow meets each program component.

5.1 Construction Site Runoff Control

To control the discharge of storm water and pollutants from land disturbance during the construction phase the City of Moscow must:

- Require appropriate erosion, sediment, and waste management requirements for construction site activity that results in land disturbance of 5,000 square feet (ft²) or more.
- Establish installation and use guidelines for required erosion/sediment/waste management during all phases of construction site activity.
- At a minimum, review preconstruction site plans for construction sites that will result in land disturbance of one (1) or more acres, using a checklist or similar process to consider and address potential water quality impacts from the site activities.
- Inspect and enforce erosion, sediment, and waste management requirements on construction sites.
- Establish an inspection prioritization plan
- Establish an enforcement response policy
- Ensure that Permittee staff is trained to conduct these activities.

In Moscow, construction site operators for construction sites that disturb greater than 1 acre must control for erosion and sediment in accordance with MCC Title 7, Ch. 1, and the City of Moscow Erosion and Sediment Control Standards Technical Guidance Handbook. Enforcement of these requirements during construction is accomplished by the Engineering Department through withholding of security deposits and stop work orders for non-compliance. All active construction sites are subject to regular bi-weekly on-site inspections, with increased visits when off-site sediment tracking is observed or reported.

The City of Moscow does not currently have a process in place to inform construction project proponents of their responsibility to obtain NPDES Construction General Permit coverage for sites disturbing > 1 acre, nor is there an Enforcement Response Policy in place. Both of these requirements of the MS4 Permit will be accomplished no later than April 3, 2024.

5.2 Storm Water Management for Areas of New Development and Redevelopment

To control the discharge of storm water and pollutants from land disturbance and development, after construction is completed, the City of Moscow must:

- Require the installation and long-term maintenance of permanent storm water controls at new development and redevelopment project sites that result from land disturbance of 1 acre or more.
 - Permanent storm water controls must be sufficient to retain onsite the runoff volume produced from a 24-hour, 95th percentile storm event; or sufficient to provide the level of pollutant removal greater than the pollutant removal expected by using onsite retention of runoff volume produced from a 24 hour, 95th percentile storm event.
 - Alternatively, storm water treatment requirements must be required that can attain an equal or greater level of water quality benefits as onsite retention of storm water discharges from new development and redevelopment sites.
 - Other alternatives may be allowed for projects to meet the onsite retention requirement at a particular project site based on technical infeasibility, and/or site constraints.
- Establish proper installation and use guidelines for permanent storm water controls – the Permittee may establish different types of controls for different types and/or sizes of site development activity.
- At a minimum, review and approve preconstruction plans for permanent storm water controls at new development and redevelopment sites that result from land disturbance of one (1) or more acres.
- Periodically inspect “high priority” permanent storm water controls for proper installation and operation, using an inspection prioritization system.
- Maintain an inspection prioritization plan and enforcement response policy.
- Maintain a database inventory to track and manage the operational condition of permanent storm water controls.
- Ensure the appropriate Permittee staff is trained to conduct these activities.

In Moscow, project site operators are required to install permanent stormwater control sites in accordance with MCC Title 5, Ch. 15 and the Moscow Stormwater Control Standards, by installing stormwater control facilities that can detain up to the 25-year storm event and will not increase the peak runoff rate beyond preconstruction levels. No building or grading permits are issued unless facilities of this nature are included in construction plans, the design of which are approved by the City. No certificate of occupancy is issued until such facilities are installed and approved.

No later than April 3, 2024 the City will develop an Enforcement Response Plan, an inspection and maintenance program for permanent stormwater control facilities, a tracking/database management tool, and a policy for managing O & M agreements with other responsible parties (including other MS4 permittees and owners of private facilities).

5.3 Pollution Prevention/Good Housekeeping for MS4 Operations

To properly operate and maintain the MS4, and its facilities using prudent pollution prevention and good housekeeping, the City of Moscow must:

- Maintain a current Map of the MS4, including an inventory of all Outfalls and other features.
- Inspect catch basins and inlets at least once every five years. using an inspection prioritization plan.
- Maintain or clean catch basins based on those inspections.
- If applicable, maintain Operation and Maintenance (O&M) Procedures for Streets, Roads, Highways and Parking Lots, including:
 - If applicable, inventory and manage Street/Road Maintenance Materials
 - If applicable, implement a Street, Road, Highway and Parking Lot Sweeping Management Plan
- Maintain O&M Procedures for Other Municipal Areas and Activities to protect water quality.
- Use best practices to reduce the discharge of pollutants to the MS4 associated with the Permittee's application and storage of pesticides, herbicides and fertilizers.
- Develop site-specific Pollution Prevention Plans for Permittee-owned Facilities.
- Work cooperatively with other entities to control litter on a regular basis.
- Ensure the appropriate Permittee staff is trained to conduct these activities.

No later than April 3, 2024 the City of Moscow will complete the following activities in accordance with Section 3.5 of its MS4 Permit:

Develop an inlet/catch basin inspection targeting procedure; develop an O & M procedures manual for streets, roads, highways, and parking areas, including at least annual sweeping schedules; complete an inventory and management plan for street/road maintenance materials; O & M procedures for other municipal areas and activities; requirements for pesticide, herbicide, and fertilizer applications; SWPPPs for City facilities; litter control methods, and appropriate staff training in these Pollution prevention/good housekeeping procedures.

5.4 Illicit Discharge Detection and Elimination

To prohibit and eliminate illicit discharges to the MS4, the City of Moscow must:

- Enforce an ordinance that effectively prohibits illicit discharges into the MS4;
- Respond to Complaints or Reports of illicit Discharges from the Public;
- Keep Track of Complaints/Reports, and any Response Actions Taken;
- Conduct MS4 outfall screening inspections during dry weather;
- Follow-up to determine the source of a recurring illicit discharge identified as a result of complaints, or of the dry weather screening investigations within thirty (30) days;
- Take appropriate action to address the source of an ongoing illicit discharge;
- Prevent and Respond to Spills to the MS4, as appropriate;
- Coordinate with other entities for the proper disposal of used oil and toxic materials;
- Ensure the appropriate Permittee staff is trained to conduct these activities.

In accordance with MCC Title 5, Ch. 3, Sections 3-19 and 3-21, the discharge of any substance beside stormwater runoff or unpolluted water to the City's Stormwater Control System is prohibited. Industrial cooling water or unpolluted industrial process water may be discharged to a storm drain or natural outlet upon approval of the City Engineer. Dechlorinated drinking water associated with water production or distribution processes may also be discharged.

A minimum of 50 outfalls must be screened for dry weather flows per year. Stormwater division staff will screen at least 75 per year beginning in the spring/summer of 2022 as detailed in section 3.1 of this document.

Reports of illicit discharges to the stormwater control system are forwarded on to the Regulatory Programs and Projects Supervisor who conducts an initial investigation to locate the spill, and identify the substance if possible. The Regulatory Programs and Projects Supervisor then coordinates a spill containment response with operations staff, including the deployment of absorbent booms/socks in affected receiving waters. Staff is then directed to investigate parts of the stormwater control system upstream of the illicit discharge in order to locate the source. This can include the water body, outlets, storm sewers, and catch basins and inlets.

This process was employed in the Spring of 2021 upon a report of an oil-like substance located in Paradise Creek to the Environmental Services Department. Oil absorbing socks and pads were used to contain and remove the spill to the extent practicable. Operations staff began investigating the stormwater control system in a methodical fashion based on the MS4 map and potential sources of the discharge. When an oil slick was found in a connected catch basin, CCTV cameras were used to detect an illicit connection to the storm sewer system. The source of the illicit discharge, a motor vehicle repair shop, was identified within 5 days of the initial report. The owner was notified and told to cease any and all discharges to the identified connection. A notice was delivered requiring actions to remedy the situation by either disconnecting and abandoning the current floor drain or installing an oil water separator and connecting to the sanitary sewer system within one year.

5.5 Education, Outreach, and Public Involvement

To educate and involve members of the public to learn about pollutants in storm water and similarly significant issues, the City of Moscow must conduct, or contract with other entities to conduct, an ongoing education, outreach, and public involvement program. The City must also comply with applicable State and local public notice requirements when implementing any public involvement activities. Within one year of the Permit effective date, the City of Moscow must, at a minimum:

- Select at least one audience and focus its efforts on conveying relevant messages.
 - Distribute and/or offer at least eight (8) educational messages or activities over the permit term to selected audience(s)
 - Begin to assess, and track, activities to gauge the audience’s understanding of the relevant messages and adoption of appropriate behaviors.
- Target specific educational material to the construction/engineering/design community regarding construction site runoff control and permanent storm water controls.
- Maintain and advertise a publicly accessible website to provide all relevant SWMP materials.

In 2021, the City of Moscow used a variety of media in outreach efforts to connect with the general public as follows:

Events

- April- Wyland National Mayor’s Challenge for Water conservation
 - *Annual National competition held by the Wyland Foundation to encourage water conservation, waste reduction, litter control, and healthy waterways.*
- 6/11- Paradise Creek Clean up
- 8/21- Downtown Clean up:
 - *Annual event, usually held in April, where the public is invited to join City Staff to pick up litter (including the micro-litter too small to be caught by the street sweeper), sweep up leaves, etc.*
- 11/5- Project WET Workshop:
 - *Workshop for educators in Moscow that provides curriculum (Project WET) as well as training on Moscow-specific stormwater issues*
- Downtown Stormwater Mural
 - *Installation of a large mural around a prominent storm drain downtown to provide passive education to residents*
- 10/21- Palouse Basin Water Summit

Miscellaneous

- Stormwater Utility information board

- *Created to provide basic information about the City's MS4 permit, what is required of the City as a result, and the information on the new Stormwater Utility created to help fund*

Social Media Posts

- 4/22- Earth Day post; 9 likes
 - *Includes 5 easy things that can be done to help the earth including conserving water, reducing waste, and using active transportation*
- 8/18- Utility Launch post; 1k views
 - *Includes basic information on our stormwater system, examples of contaminants and NPDES permit monitoring requirements that the City must meet.*
- 8/25- Topic: Clean Water Act; 1k views
 - *includes information on the Clean Water Act and how it relates to the City's new permit and new stormwater utility*
- 8/31- Topic: Stormwater mural video 1.5K views
 - *Reminder that what goes down the catch basins ends up in local water ways without treatment*
- 9/1- Topic: Reactionary to Ready - Cleaning a Catch Basin video; 1.1k views
 - *Includes information on what kinds of projects will be funded by the new stormwater utility.*
- 9/8- Topic: How much will the fee be/how was fee determined; 614 views
 - *Includes basic information on how residential stormwater fees were determined, how Equivalent Service Units (ESU) were determined, how Impervious Surface Areas (ISA) are defined, and what fees will be used for.*
- 9/15- Topic: New and Enhanced services; 1.2K views
 - *Includes information on what kinds of enhanced services will be funded through the new stormwater utility*
- 9/22- Topic: Utility fee/overview of utility; 777 views
 - *Includes basic information about our storm system and what funds will be used for.*
- 9/29- Topic: Irrigation Season closing/water conservation; 19 likes, 5 shares
 - *Focus on water conservation through the regulating irrigation.*
- 10/6- Topic: Palouse Basin Water Summit; 12 likes, 4 shares
 - *Promotion of the annual water summit, with a focus on water conservation.*
- 11/2- Topic: Reminder of new fee on utility bill; 1.3K views

- *includes basic information on our storm system and what the funds will be used for.*
- 11/15- Topic: America Recycles Day
 - *Reminders, fun facts and environmental impacts.*

Utility Billing Newsletters

- January 2021- Topic: EPA Stormwater Update
- August 2021- Topic: Strategic Irrigation Program; Water Conservation Rebate Program
- September 2021- Topic: EPA Mandated Stormwater Program and Fees
- October 2021- Topic: Storm utility Launched!
- November 2021- Topic: Fall Leaf Collection

Website

- Basic information about our Stormwater Sewer System, Moscow MS4 Permit, Stormwater Management Program Plan, Contact Information
- Updated FAQ

The general public was chosen as the primary audience for 2021 given the introduction of Moscow's new Stormwater Utility and associated monthly service fee that began to be assessed in October 2021. Previous outreach was directed towards elected officials and administrative staff due to the novel needs and requirements born from the issuance of the City's MS4 Permit. Future efforts will be directed towards the local construction and development community as pre-construction erosion and sediment control standards and post-construction stormwater control requirements are updated.

6 UNIQUE PROVISIONS SPECIFIC TO THE CITY OF MOSCOW

6.1 Annual Compliance Evaluation

At least once per year, the Permittee must evaluate their compliance with the requirements of its MS4 Permit. A link to these reports, due December 1 annually, can be found on the City's stormwater webpage. The City of Moscow has met all requirements of its MS4 Permit to date.

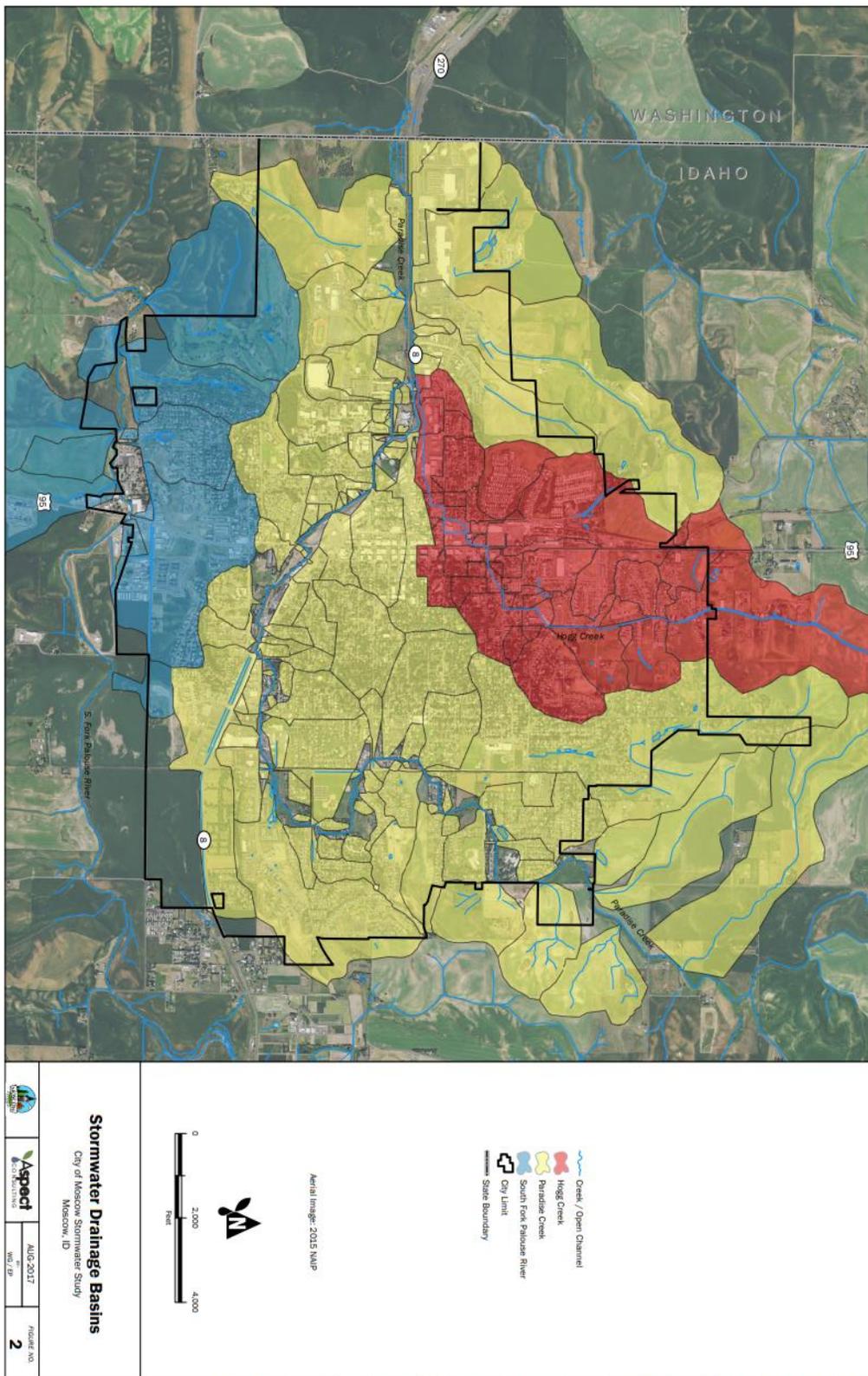
6.2 Alternative Control Measure Requests

On September 29, 2021, the City of Moscow submitted an Alternative Control Measure Request to the U.S. EPA and the Idaho DEQ as allowed for in Section 2.6 of the MS4 Permit. This ACM request was in response to the findings of a city-wide stormwater retention and infiltration feasibility study conducted by Aspect Consulting, LLC for the City of Moscow. That study found that the retention and infiltration of the 95th percentile 24-hour storm event is not likely to be feasible for the majority of areas with the City.

6.3 Adaptive Management Actions

The City of Moscow has no specific adaptive management action measures to consider at this time.

Figure 2. City of Moscow Stormwater Drainage Basins



**Appendix 1. Pollutant Reduction Activities Plan and Monitoring/Assessment and Quality Assurance
Project Plan**



City of Moscow

Stormwater Management Program

Pollutant Reduction Activities Plan

In Accordance with NPDES Permit No. IDS-028398

September 2021

Introduction

This proposal was created in response to Part 4.3: Pollutant Reduction Activities of the City of Moscow MS4 Permit No. IDS-028398, issued October 1, 2019.

The City of Moscow’s MS4 discharges to two designated impaired waters: Paradise Creek and the South Fork Palouse River. Part 4 of the City’s MS4 Permit details special conditions required for discharges to impaired waters, requiring both quantitative monitoring and assessment of discharges, and the implementation of at least two (2) pollutant reduction activities. Table 1 identifies the impairing pollutants for each waterbody. The purpose of the following pollutant reduction activity proposal is to reduce the loading of selected pollutants from the discharges of the City MS4 into local receiving waters.

Table 1. Receiving Water Impairments (from Page 37 of the City of Moscow MS4 Permit)

Waterbody/Assessment Unit/Description	Impairment Pollutants
Paradise Creek ID17060108CL005_02 Paradise Creek—Urban Boundary to ID/WA Border	E. coli; Nutrient/Eutrophication Biological Indicators; Sedimentation/Siltation; Temperature
Paradise Creek (WA portion) Paradise Creek 10443; 10439; 10444	Fecal coliform bacteria
South Fork Palouse River ID17060108CL002_03	Nutrient/Eutrophication Biological Indicators; Sedimentation/Siltation; Temperature
South Fork Palouse River (WA portion) SF Palouse River 6712; 6710; 6707	Fecal coliform bacteria; Chlorinated pesticides; Polychlorinated Biphenyls

The pollutants identified in Table 1 have long been recognized as pollutants causing impairments and requiring load allocations for those waterbodies through the Subbasin Assessment and TMDL planning process.

The City of Moscow recognizes the importance of reducing bacteria loading to Paradise Creek and sediments and nutrients to the South Fork Palouse River through the implementation of the City’s Stormwater Management Program. As such, the City is planning to implement the following enhanced pollutant reduction strategies in the two watersheds, and is presenting the following proposal for inclusion into the City’s MS4 permit.

Pollutant Reduction Activities

Activity 1. Dry weather outfall assessment, monitoring, and mitigation: Paradise Creek E. coli and nutrient reduction strategy.

The City of Moscow proposes to implement an enhanced dry weather outfall project that aims to identify and eliminate any continuous sources of E. coli and or/nutrients, including potential illicit sanitary sewer connections to the MS4, which could impact the established TMDL target concentrations for E. coli and phosphorous.

Section 3.2.5.2 of the MS4 permit requires at least 50 annual dry weather outfall inspections in the permit area. Staff will inspect a minimum of 75 outfalls per year in the Paradise Creek basin (including Hogg Creek), with all known outfalls to be inspected by September 30, 2024. At locations in which dry weather flows are identified, samples will be collected for laboratory analysis of E. coli and total phosphorous.

The results of those analytical tests will be used to inform actions regarding further upstream investigations in search of the source of any identified pollutants. All illicit discharges identified through this process will be eliminated within 60 days as prescribed in Section 3.2.6.

Activity 2. Increased street sweeping frequency, catch basin cleaning, and catch basin inspection: South Fork of the Palouse River sediment and nutrient reduction strategy.

The City of Moscow proposes to implement an enhanced sediment removal and monitoring project for portions of the MS4 that drain to the South Fork of the Palouse River (SFPR).

Preliminary plans to meet the requirements of Section 3.5.5.3 include sweeping of all roadways within the MS4 at least annually. For sections that drain to the SFPR, this frequency will be initially increased to at least twice annually. Additionally, all catch basins within this area will be cleaned within a one-year period. Those catch basins will then be inspected within one year following cleaning to evaluate the effectiveness of the enhanced street sweeping schedule. These activities are to be completed by December 31, 2023. The street sweeping and catch basin cleaning schedules will be altered as needed based on the results of those catch basin inspections.

All sediment collected through street sweeping will be categorized based on weight and swept curb miles. Well established national data exists for sediment and nutrient loading from debris collected through street sweeping. The City will use that data to derive pollutant reduction estimates based on the activities performed as part of this pollutant reduction strategy.



**City of Moscow Monitoring/Assessment and Quality
Assurance Project Plan
September 2021**

In accordance with NPDES Permit No. IDS-028398

**Prepared by:
City of Moscow
201 N. Main Street
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Introduction

The City of Moscow (City) was issued a Phase II National Pollutant Discharge Elimination System (NPDES II) Permit authorizing discharges of stormwater from the City's Municipally Separate Storm Sewer (MS4) to local receiving waters. The NPDES II Permit requires the implementation of a comprehensive stormwater management program. The City's NPDES II Permit became effective on October 1, 2019 and will expire on September 30, 2024. As of July 1, 2021, the United States Environmental Protection Agency (EPA) has transferred authority to administer and enforce the NPDES II Permit to the Idaho Department of Environmental Quality (IDEQ).

In 1997, the Paradise Creek Subbasin Assessment and TMDLs was approved by the United States Environmental Protection Agency (EPA) concluding that Paradise Creek was in exceedance of both Idaho and Washington water quality standards (WQS). In Idaho, Paradise Creek was determined water quality limited throughout the watershed, therefore warranting a TMDL to address excess pollutants. Pollutants of concern included: pathogens, nutrients, ammonia, sediment, and stream temperature. Designated beneficial uses for Paradise Creek include cold water aquatic life and secondary contact recreation (IDAPA 58.01.02.120.01).

In 2015, IDEQ completed the *Paradise Creek TMDL 2015 Bacteria Addendum* to address ongoing E. coli bacteria impairments within the watershed. The Addendum was approved by EPA in 2016.

Part 4.2 of the City's NPDES II Permit requires the City to submit a Monitoring/Assessment Plan that is designed to quantify, at a minimum, pollutant loadings from the MS4 into Paradise Creek for E. coli. Part 4.3 requires the City to define and implement at least one (1) activity designed to reduce E. coli from the MS4 into Paradise Creek.

This plan has been developed to comply with Part 4.2 and the quality assurance (QA) objectives defined in Part 6.2.7 of the City's NPDES II Permit.

Dry Weather Outfall Screening Program

The City of Moscow is required to conduct a dry weather analytical and field screening monitoring program to identify non-stormwater flows from MS4 outfalls during dry weather. The program must emphasize screening activities to detect and identify illicit discharges and illegal connections, and to reinvestigate potentially problematic MS4 outfalls throughout the City's Permit Area.

As noted in the City of Moscow Pollutant Reduction Activities Strategy Plan, the City of Moscow proposes to implement an enhanced dry weather outfall project that aims to identify and eliminate any continuous sources of E. coli and nutrients, including potential illicit sanitary sewer connections to the MS4, which could impact the established TMDL target concentrations for E. coli and phosphorous.

Section 3.2.5.2 of the MS4 permit requires at least 50 annual dry weather outfall inspections in the permit area. Staff will inspect a minimum of 75 outfalls per year in the Paradise Creek basin (including Hogg Creek), with all known outfalls to be inspected by September 30, 2024. At locations in which dry weather flows are identified, samples will be collected for laboratory analysis of E. coli and total phosphorus.

The results of those analytical tests will be used to inform actions regarding further upstream investigations in search of the source of any identified pollutants. All illicit discharges identified through this process will be eliminated within 60 days as prescribed in Section 3.2.6.

Sampling Methods

Water Quality:

Bacteriological and Total Phosphorus samples will be collected directly from mid-stream flow (from the outfall pipe) into properly prepared sterile sample bottles. Refer to Table 1 below for a list of parameters, analytical methods, preservation requirements, and holding times.

All sample containers will be equipped with sample labels that will be filled out using water proof markers with the following information: station location, sample identification, date of collection, and time of collection. Sample bottle lids will be securely tightened and stored upright to prevent leakage.

Samples collected pursuant to this plan will be sent to Anatek Labs in Moscow, ID. Samples will be delivered to Anatek on the same day to meet holding time requirements.

Table 1. Water quality parameters

Parameter	Sample Size	Preservation	Holding Time	Method
Bacteria (E. coli)	100 ml	Sodium Thiosulfate	6 Hours	SM9223B
Total Phosphorus	100 ml	Sulfuric Acid	28 days	SM 4500 PF

Personnel Qualifications and Training:

The City of Moscow will ensure that all personnel are trained in proper sample collection and handling techniques. The City's Environmental Services Manager will ensure that prior to conducting sampling activities, personnel will review field procedures and sampling requirements discussed in this document to ensure permit required samples are collected and handled appropriately. All sampling will adhere to Standard Methods, Table 1060: I, Summary of Special Sampling and Handling Requirements, page 1-33.

Quality Assurance and Quality Control (QA/QC)

QA/QC procedures from the field-sampling portion of this project will consist of duplicates (at 10% of the sample load) along with blank samples (one set per sampling day). The field blanks will consist of laboratory-grade de-ionized water, transported to the field and poured off into a prepared sample container. The blank sample is used to determine the integrity of the field teams handling of samples, the condition of the sample containers supplied by the laboratory and the accuracy of the laboratory methods. Duplicates consist of two sets of sample containers filled with the same composite water from the same sampling site. The duplicates are used to determine both field and laboratory precision. The duplicate and blank samples will not be identified as such and will enter the laboratories blindly for analyses. Both the duplicates and blank samples will be stored and handled with the normal sample load for shipment to the laboratory.

Bacteriological samples collected will be transported from the field to Anatek Lab in Moscow where the samples will be run within the 6-hour holding time. Anatek Lab procedures use MPN (most probable number) by Quanti-Tray test to determine *E. coli* and fecal coliform concentrations.

Data Handling:

Data will be reviewed by City of Moscow personnel to ensure that all necessary observations, measurements, and analytical results have been properly recorded. The analytical results will be reviewed for completeness and quality control results. Any suspected errors will be investigated and resolved, if possible. The data will then be stored electronically in the City of Moscow's database.

Data use:

The results of analytical tests will be used to inform actions regarding further upstream investigations in search of the source of any identified pollutants. All illicit discharges identified through this process will be eliminated within 60 days as prescribed in Part 3.2.6 of the permit.

Data generated from this dry weather outfall screening program will be used to assess bacteriological and nutrient concentrations that could cause or contribute to a violation of Idaho Water Quality Standards (IDAPA 58.01.02).

QAPP Updates and Availability

The City of Moscow is required to amend and update this Plan whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the Plan.