Fact Sheet

NPDES Permit Number:	IDS028576
Public Comment Period Issuance Date:	December 11, 2020
Public Comment Period Expiration Date:	January 25, 2021
Technical Contact:	Misha Vakoc
	(206) 553-6650 or (800) 424-4372
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The U.S. Environmental Protection Agency (EPA) Proposes to Issue a National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges To:

University of Idaho

EPA Region 10 proposes to issue a NPDES permit authorizing the discharge of stormwater from all municipal separate storm sewer system (MS4) outfalls owned and/or operated by the University of Idaho (University) in Latah County, Idaho. The University is also referred to in this document as "the Permittee." Permit requirements are based on Section 402(p) of the Clean Water Act (CWA), 33 U.S.C. § 1342(p), and EPA regulations for permitting municipal stormwater discharges (40 CFR §§ 122.26, 122.30-35, and 123.35; see also 64 FR 68722 [Dec. 8, 1999] and 81 FR 89320 [Dec. 9, 2016]).

In June 2019, EPA determined that discharges from the University's MS4 contributed to violations of water quality standards in Paradise Creek. As such, pursuant to EPA's residual designation authority under 40 CFR §§ 122.26(a)(1)(v) and 122.26(a)(9)(iii), EPA designated the University's MS4 as a regulated small MS4 that required a NPDES permit. In addition, EPA required the University to submit a NPDES permit application for the MS4 discharges by December 2019. The issue of whether the designation was proper remains open during the comment period on NPDES Permit No. IDS028576. See 40 CFR § 124.52(c). Therefore, EPA is also taking comment on whether the initial designation of the University's MS4 was appropriate.

The Permit requires the implementation of a comprehensive stormwater management program (SWMP) and outlines the control measures to be used by the Permittee to reduce pollutants in their stormwater discharges to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the CWA. Annual reporting is required to reflect the status of the SWMP implementation.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures;
- the rationale for EPA's decision to designate the University's MS4 as a regulated small MS4 requiring NPDES permit coverage;
- descriptions of the regulated MS4 discharges to be covered under the Permit; and
- explanation of the control measures and other Permit terms and conditions; and

EPA requests public comment on all aspects of the designation decision and the Permit.

State CWA Section 401 Certification

EPA will request that the Idaho Department of Environmental Quality (IDEQ) certify the Permit pursuant to Section 401 of the CWA, 33 U.S.C. § 1341. Questions or comments regarding the certification should be directed to:

Idaho Department of Environmental Quality
Lewiston Regional Office
ATTN: Sujata Connell, Surface Water Quality Manager
1118 "F" Street
Lewiston, ID 83501

Public Comment and Opportunity for Public Hearing

Because of the COVID-19 virus, access to the Region 10 EPA building is limited. Therefore, EPA requests that all comments on the draft permit or requests for a public hearing be submitted via email to Misha Vakoc (vakoc.misha@epa.gov). If you are unable to submit comments via email, please call 206-553-6650.

Persons wishing to comment on, or request a Public Hearing for, the draft Permit must do so in writing by the expiration date of the Public Comment period. A request for Public Hearing must state the specific NPDES permit, the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the comment period ends, and all comments have been considered, EPA's Regional Director for the Water Division will make a final decision regarding permit issuance. If EPA receives no comments, the tentative conditions in that draft permit will become final. If comments are submitted, EPA will prepare an individual response to comments document for that Permit and, if necessary, will make changes to the draft Permit. After making any necessary changes, EPA will issue the Permit with its corresponding response to comments document, unless issuance of a new draft Permit is warranted pursuant to 40 CFR § 122.14. The Permit will become effective no earlier than thirty (30) days after the issuance date, unless the Permit is appealed to the Environmental Appeals Board pursuant to 40 CFR § 124.19.

Documents Available for Review

The draft Permit, and other information is available on EPA Region 10 website at: https://www.epa.gov/npdes-permits/stormwater-discharges-municipal-sources-idaho-and-washington OR https://www.epa.gov/npdes-permits/idaho-npdes-permits.

Because of COVID-19 response, there is no public access to the Region 10 EPA buildings at this time. Therefore, EPA cannot make hard copies available for viewing at our offices.

For technical questions regarding the Permits listed above or this Fact Sheet, contact Misha Vakoc at the phone number or E-mail listed above. Services for persons with disabilities are available by contacting Audrey Washington at (206) 553-0523.

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
CZARA	Coastal Zone Act Reauthorization Amendments
EFH	Essential Fish Habitat
ESA	Endangered Species Act
EPA	United States Environmental Protection Agency, Region 10
FR	Federal Register
GI	Green Infrastructure
GSI	Green Stormwater Infrastructure
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IPDES	Idaho Pollutant Discharge Elimination System
LA	Load Allocation
LID	Low Impact Developoment
mg/L	Milligrams per Liter
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UA	Urbanized Area
US	United States
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
WA	Washington
WAC	Washington Administrative Code
WD	EPA Region 10 Water Division
WDOE	Washington Department of Ecology
WLA	Wasteload Allocation
WQS	Water Quality Standards

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1. Introduction

Stormwater is the surface runoff that results from rain and snow melt. Urban development alters the land's natural infiltration, and human activity generates a host of pollutants that can accumulate on paved surfaces. Uncontrolled stormwater discharges from urban areas can negatively impact water quality. The National Pollutant Discharge Elimination System (NPDES) regulations establish permit requirements for discharges from certain municipal separate storm sewer systems (MS4s) located in a U.S. Census-defined Urbanized Area (UA). Appendix 1 of this Fact Sheet details the types of pollutants typically found in urban stormwater, and explains the regulatory background for the MS4 permit program.

The terms "municipal separate storm sewer" and "small municipal separate storm sewer system" are defined at 40 CFR §122.26(b)(8) and (b)(16), respectively. MS4s include any publicly-owned conveyance or system of conveyances used for collecting and conveying stormwater that discharge to waters of the United States. MS4s are designed for conveying stormwater only, and are not part of a combined sewer system, nor part of a publicly owned treatment works. Such a system may include roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains.[1] In Idaho, various public entities own and/or operate MS4s, including, but not limited to: cities and counties; local highway districts; Idaho Transportation Department; and colleges and universities.

A *regulated small MS4* is defined as any MS4 located in an UA as defined by the Bureau of the Census from the latest Decennial Census.

The term may also describe any small MS4 located outside of an UA that is designated as regulated by the NPDES permitting authority. See 40 CFR §§ 122.26(a)(1)(v), 122.26(a)(9), and 122.32(a). Such a designation by the NPDES permitting authority may be based on a finding that discharges from the MS4 contribute to a violation of a water quality standard, is a significant contributor of pollutants to waters of the United States, and/or substantially contributes to the pollutant loadings of a physically interconnected (and otherwise regulated) small MS4.

This Fact Sheet provides the technical basis for EPA's decision to:

1) Finalize the decision to designate the MS4 owned and/or operated by the University as a "regulated small MS4" (see Fact Sheet Section 1.1. and Appendix 5); and
2) Issue a NPDES Permit authorizing stormwater discharges from the regulated small MS4 owned and/or operated by the University and located in the corporate boundaries of the City of Moscow (City) in Latah County, Idaho.[2]

1.1 EPA's Decision to Designate the University's MS4 as a Regulated Small MS4

Pursuant to 40 CFR §§ 122.26(a)(1)(v) and 122.26(a)(9)(iii), in June 2019, EPA designated the MS4 owned and/or operated by the University as a regulated small MS4 requiring a NPDES permit. The initial designation was based on the determination that the University's MS4 discharges contribute to violations of the water quality standards (WQS) in portions of Paradise Creek flowing through both States of Idaho and Washington, and are a significant contributor of pollutants. EPA made the determination after evaluating available water

[1] *See*: 40 CFR §122.26(b); 40 CFR §122.32(a); and EPA 1990.
[2] Note: The City of Moscow was designated a regulated small MS4 and has responsibilities to manage MS4 discharges under NPDES Permit No. IDS028398 as issued by EPA on August 5, 2019.

quality data for bacteria (fecal coliform and *E.coli*) from both IDEQ and the Washington Department of Ecology (WDOE), as well as considering other relevant factors (such as whether existing environmental programs were in place to adequately address the discharges). EPA's designation is included as Appendix 5 of this document.

Background: The Idaho portion of Paradise Creek was initially listed by IDEQ as impaired for fecal coliform and other pollutants, and in 1997 IDEQ developed the *Paradise Creek TMDL: Water Body Assessment and Total Maximum Daily Load* (Paradise Creek TMDL). In calendar year 2000, IDEQ revised its water quality bacteria indicators from fecal coliform to *E. coli;* the current Idaho water quality standard for protecting secondary contact recreation is a geometric mean of one hundred twenty-six (126) *E. coli* organisms cfu/100 mL, based on a minimum of five (5) samples taken every three (3) to seven (7) days over a thirty (30) day period. IDEQ subsequently used *E.coli* sampling to review progress toward meeting the 1997 TMDL bacteria allocation in Paradise Creek.

Water quality information reviewed by EPA for water years 2006 through 2008 showed that, although the Idaho portion of Paradise Creek was not violating IDEQ's *E. coli* standard, WDOE monitoring data collected immediately downstream of the Idaho/Washington border showed violations of Washington's standard for fecal coliform during both wet weather and dry weather sampling.

Beginning in 2007, EPA discussed designation of both the City's and the University's MS4 discharges with relevant stakeholders, and in 2008 EPA designated the City as a regulated small MS4. In late 2011, EPA met again with University representatives to discuss a tentative decision to designate the University's MS4 based on a determination that the discharges contributed to a violation of Washington WQS. However, EPA deferred action at that time.

Current Water Quality Status: In 2015, IDEQ updated the Paradise Creek TMDL to reference its *E. coli* standard. To establish *E. coli* pollutant allocation targets, IDEQ conducted in-stream sampling between May 2013 through April 2014 sufficient to calculate monthly geometric means comparable to the *E.coli* standard, at a location representative of pollutant loading from the urban area after the Creek has passed through the City and the University jurisdictions. All of the calculated monthly geometric means exceeded the 126 cfu/100 mL criterion.[3] As a result, IDEQ's *Paradise Creek TMDL 2015 Bacteria Addendum* (2015 TMDL Addendum) approved by EPA in November 2016, establishes a revised daily *E. coli* load allocation (LA) for nonpoint sources, and waste load allocations (WLAs) for point sources of 126 cfu/100 mL (i.e., the water quality standard). The 2015 TMDL Addendum also confirms that urban runoff from the University and the City are contributing sources of *E. coli* in Paradise Creek.[4] Additional discussion is included in Appendix 4 of this document.

EPA's Designation: After updating its designation analysis using more recent Idaho water quality information, on June 19, 2019, EPA concluded that stormwater discharges from the University's MS4 contribute to exceedances of the applicable WQS for Paradise Creek and are a significant contributor of pollutants to Paradise Creek. Meanwhile, existing environmental programs are insufficient to adequately address these discharges. The designation analysis is included as Appendix 5 in this document. As a result, EPA required

[3] IDEQ 2015. Specifically, see Appendix B, Table B-1, and Appendix C.
[4] IDEQ's 2015 TMDL Addendum incorporates by reference the detailed pollutant source inventory and discussion of contributing nonpoint pollutant sources located in the subbasin from the original 1997 TMDL for Paradise Creek.

the University to submit a NPDES permit application by December 20, 2019, and the University submitted its application as requested.[5]

Pursuant to 40 CFR § 124.52(b), when EPA uses its designation authority, the issue of whether the designation was proper remains open for consideration during the public comment period. Therefore, EPA seeks comment on whether the designation of the University's MS4 is proper.

1.2 Idaho NPDES Program Authorization

On June 5, 2018, EPA approved Idaho's application to administer and enforce the Idaho Pollutant Discharge Elimination System (IPDES) program. IDEQ is assuming permitting authority under the IPDES program in phases over a four-year period in accordance with the Memorandum of Agreement between IDEQ and EPA, and subject to EPA oversight and enforcement. IDEQ will obtain permitting authority for the stormwater phase on July 1, 2021. At that time, all documentation required by the permit will be sent to IDEQ rather than to EPA and any decision under the permit stated to be made by EPA or jointly between EPA and IDEQ will be made solely by IDEQ. Permittees will be notified by IDEQ when this transition occurs.

1.3 Applicant and Permit Area

In accordance with Clean Water Act (CWA) Section 402(p), 33 U.S.C. § 1342(p), and 40 CFR §122.32, EPA is proposing to issue a NPDES permit on a jurisdiction-wide basis to the University for discharges of municipal stormwater from the University's MS4 located in the corporate boundaries of the City of Moscow in Latah County, Idaho. See Appendix 2 for a map of the Permit Area.

EPA received a NPDES permit application from the University on December 23, 2019, describing a proposed stormwater management program (SWMP) designed to reduce pollutants in discharges from the MS4 to the maximum extent practicable (MEP). EPA determined the application was complete on January 28, 2020.

Applicant	Physical Address
University of Idaho Facilities – Utilities & Engineering Services	875 Perimeter Drive, MS 2281 Moscow ID 83844-2281

1.4 Description of the MS4 and Discharge Locations

The University's 2019 permit application describes the MS4 as follows; see also Appendix 2:

> "The University of Idaho MS4 serves a municipal campus of 1367 acres with mix urban and agricultural uses. The University has an agricultural and urban interface boundary as well as a shared political boundary with the City of Moscow, Idaho. The University maintains approximately 25 - outfalls discharging to Paradise Creek. Operations and maintenance activities include agricultural, industrial process water, domestic water, and landscape operations and activities supporting a campus population of 10,000 students with approximate capacity of 2,500 full-time students living on campus."

[5] University of Idaho 2019.

1.5 Permit Development

The NPDES permitting authority must include permit conditions in each MS4 permit that meet all of the requirements of 40 CFR § 122.34, stating in specific, clear, and measurable terms what is required to reduce the discharge of pollutants to the MEP, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA.[6]

The University MS4 Permit is being issued for the very first time; as such 40 CFR § 122.34(a)(1) allows the NPDES permitting authority to specify a period of up to five years to fully comply with conditions of the first term MS4 permit. EPA is providing the University up to 4.5 years to fully implement all required stormwater management control measures set forth in the Permit.

EPA has considered a variety of information in order to develop the Permit terms and conditions, including but not limited to:

- The MS4 Permit application submitted in December 2019;
- EPA issued MS4 permits in Idaho, such as Permit No. IDS028398 for City of Moscow;
- IDEQ's 2020 Integrated Report describing IDEQ's assessment of waters, and similar impaired waters listings by WDOE, for Paradise Creek and the South Fork Palouse River, as well as applicable TMDL;
- Input from Idaho stakeholders in 2016 and 2017 on EPA's preliminary draft MS4 general permit(s), which were not issued;
- EPA guidance and national summary information regarding MS4 permits,[7] including:
    - *Compendium Part 1: Six Minimum Control Measure Provisions*, November 2016;
    - *Compendium Part 2: Post Construction Performance Standards*, November 2016;
    - *Compendium Part 3: Water Quality-Based Requirements*, April 2017;
    - *Summary of State Post Construction Stormwater Standards*, July 2016;
    - EPA's November 2014 Memo entitled *Revisions to the November 22, 2002 Memorandum "Establishing TMDL Wasteload Allocations (WLAs) for Stormwater Sources and NPDES Permit Requirements Based on Those WLAs*;" and the
    - *MS4 Permit Improvement Guide*, April 2010.
- Conclusions and recommendations from the National Research Council Report entitled *Urban Stormwater Management in the United States*, dated October 2008;
- Technical developments in the field of stormwater management, including recent research and information on the effective and feasible methods for the on-site management and treatment of stormwater using practices commonly referred to as "low impact development" (LID), "green infrastructure" (GI) and/or "green stormwater infrastructure" (GSI) techniques.

[6] See 40 CFR §122.34(a) and EPA 2016a.
[7] EPA documents listed here are available at https://www.epa.gov/npdes/stormwater-discharges-municipal-sources

- Other MS4 permits issued by EPA for regulated MS4s in Washington, Puerto Rico, Massachusetts, and New Mexico, as well as MS4 permits issued by other state NPDES permitting authorities.

A partial list of references supporting the development of the MS4 Permit is provided in Section 4 of this document. All supporting references are available in the Administrative Record for this action.

1.6 Average Annual Precipitation in the Moscow, Idaho Area

The National Oceanic and Atmospheric Administration's (NOAA's) Western Regional Climate Center maintains historical climate information for various weather stations throughout the western United States. The Moscow area receives an annual average precipitation of approximately 23.8 inches, and an annual average snowfall of approximately 49.8 inches.

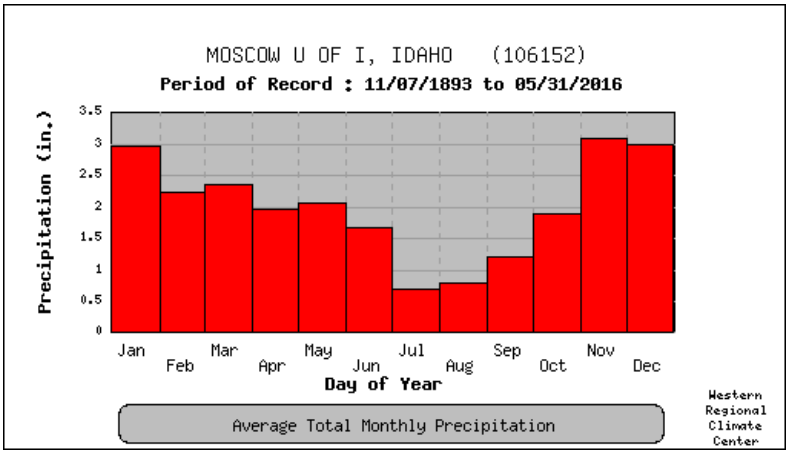

Figure 1. Average Total Monthly Precipitation in the Moscow, Idaho Area.

1.7 Receiving Waters

EPA intends to issue the Permit authorizing discharges from the MS4 owned and/or operated by the University to waters of the United States (U.S.) that include Paradise Creek. All discharges to waters of the U.S. located in the Permit Area must also comply with any limitations that may be imposed by the State as part of its water quality certification pursuant to CWA Section 401, 33 U.S.C. § 1341. See also Section 3.7 of this Fact Sheet. IDEQ has classified Paradise Creek as fresh water with designated beneficial uses as listed in Table 1.

NPDES permit conditions must also meet the applicable water quality requirements of affected States other than the State in which the discharge originates, which may include downstream States.[8] Paradise Creek originates in Idaho and flows west into Washington. Therefore, in addition to meeting Idaho water quality requirements, the permit conditions must also meet the applicable State of Washington WQS as listed in Table 1.

[8] See 40 CFR §122.44(d).

Table 1*. Designated Beneficial Uses for Waters Receiving Regulated MS4 Discharges*		
Receiving Water	**IDAPA or WAC Citation**	**Designated Beneficial Uses***
Paradise Creek	58.01.02.120.01	Cold water aquatic life, and secondary contact recreation.
	WAC 173-201A-600	Salmonid spawning, rearing, & migration; primary contact recreation; domestic, industrial, & agricultural water supply; stock watering; wildlife habitat; harvesting; commerce and navigation; boating; and aesthetic values.

* *Note: All waters in Idaho must also be protected for industrial and agricultural water supply, wildlife habitats, and aesthetics*.

1.7.1 Anti-degradation

EPA is required under Section 301(b)(1)(C) of the CWA, 33 U.S.C. § 1311(b)(1)(C), and implementing regulations (40 CFR §§ 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure compliance with State water quality standards, including antidegradation requirements. The State of Idaho has an EPA-approved antidegradation policy as well as antidegradation implementation procedures (IDAPA 58.01.02.051). EPA expects that IDEQ will provide an antidegradation analysis in the CWA §401 certification. Once EPA has received a final §401 certification, EPA will review the antidegradation analysis to ensure that it is consistent with CWA Section 301(b)(1)(C).

1.7.2 Water Quality and Total Maximum Daily Loads

Any water body that does not, and/or is not, expected to meet the applicable State water quality standards is described as "impaired" or as a "water quality-limited segment." Section 303(d) of the CWA, 33 U.S.C. § 1313(d), requires States to identify impaired water bodies in the State and develop total maximum daily load (TMDL) management plans for those impaired water bodies. TMDLs define both WLAs for point sources and LAs for non-point sources that specify how much of a particular pollutant can be discharged from both regulated and unregulated sources, respectively, such that the water body will again meet State water quality standards.

IDEQ's 2020 *Integrated Section 303(d)/Section 305(b) Report* (2020 Integrated Report) contains the list of impaired water bodies in Idaho required by CWA Section 303(d). Similarly, WDOE's *2016 Water Quality Assessment Repor*t lists impaired water bodies in Washington.[9] Table 2 summarizes the status of Paradise Creek as the waterbody receiving the MS4 discharges covered by the Permit; waterbody assessment units, or segments, that IDEQ and WDOE consider impaired; and any applicable TMDL(s) for those segments.

[9] The IDEQ's 2020 Integrated Report is available online at: https://www.deq.idaho.gov/water-quality/surface-water/monitoring-assessment/integrated-report.aspx.

The WDOE's 2016 Water Quality Assessment Report is available online at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d/EPA-approved-assessment

Table 2. ***Status of Waters Receiving Regulated MS4 Discharges***			
Receiving Water	**Waterbody Assessment Unit**	**Impairment Pollutants**	**TMDL Status**
Paradise Creek	ID17060108CL005_02 *Paradise Creek - Urban boundary to Idaho/Washington border*	*E. coli* Nutrient/Eutrophication Biological Indicators Sedimentation/Siltation Temperature	*Paradise Creek TMDL Water Body Assessment and Total Maximum Daily Load* *Paradise Creek Total Maximum Daily Load Implementation Plan* December 1999; EPA Approved 2000. *Paradise Creek TMDL 2015 Bacteria Addendum*, October 2015; EPA Approved November 2016.
Paradise Creek (WA portion)	17060108000255 *Paradise Creek* *WDOE Listing ID: 10444*	Fecal Coliform Bacteria pH, Dissolved oxygen, Temperature	*South Fork Palouse River Fecal Coliform Bacteria Total Maximum Daily Load - Water Quality Improvement Report* WDOE Publication No. 09-10-060. October 2009. EPA Approved 2009.

Both IDEQ and WDOE established LAs and pollutant reduction targets for bacteria (*E.coli* and fecal coliform, respectively) in Paradise Creek. Additional discussion is provided in Appendix 4 of this document.

NPDES permit terms and conditions for regulated stormwater discharges must be consistent with the assumptions and requirements of applicable WLAs or LAs in the TMDLs.[10] In general, EPA's guidance recommends that the NPDES permitting authority authority use best management practices (BMPs) to implement WLAs and load reduction targets for MS4 discharges in a NPDES permit. When using BMPs as narrative permit limitations to implement a WLA or load reduction target, the NPDES permit must include a monitoring mechanism to assess compliance.[11]

In order to address *E.coli/*bacteria consistent with the TMDLs for Paradise Creek, the Permit requires the University to conduct at least one (1) pollutant reduction activity, and appropriate monitoring/assessment activities. The University must develop and submit a description of its pollutant reduction and monitoring/assessment activities within two years of the Permit effective date. Upon NPDES permitting authority review, EPA will modify the Permit to incorporate the specific actions. Additional discussion of EPA's rationale for these provisions is provided in Section 2.5 and Appendix 4 of this document.

In the event that EPA approves other TMDLs for Paradise Creek, and those TMDL(s) contain WLA(s) for one or more regulated MS4s, the NPDES permitting authority may choose to modify the Permit to incorporate additional provisions if needed. Permit Part 8.1 addresses such a permit modification, consistent with the NPDES regulations at 40 CFR §§ 122.62, 122.64 and 124.5.

[10] See: 40 C.F.R. §§ 122.34(c)(1) and 122.44(d)(1)(vii)(B).
[11] See: EPA 1996; EPA 2002; EPA 2014a; EPA 2014b; a nd EPA 2016b.

2. Basis for Permit Conditions

2.1 General Information

NPDES permits for regulated small MS4s must include terms and conditions to reduce the discharge of pollutants from the MS4 to the MEP, to protect water quality, and to satisfy the appropriate water quality requirements under the CWA. At a minimum, MS4 permit terms and conditions must satisfy the requirements set forth in 40 CFR § 122.34(a) through (e).

MEP is the statutory standard that describes the level of pollutant reduction that MS4 operators must achieve. What constitutes MEP "should continually adapt to current (*water quality*) conditions and BMP effectiveness, and should strive to attain water quality standards."[12] Neither the CWA nor the stormwater regulations provide a precise definition of MEP which provides for maximum flexibility in MS4 permitting.

EPA has described the iterative process of imposing the MS4 standard, including what is necessary to reduce pollutants to the MEP, over consecutive (future) permit terms as: (1) the NPDES permitting authority defining clear, specific, and measurable NPDES permit requirements; (2) the MS4 Permittee implementing the required actions as part of a comprehensive program; and (3) the NPDES permitting authority and MS4 Permittee evaluating the effectiveness of BMPs used to date, current water quality conditions, and other relevant information.[13]

All MS4 permits must include terms and conditions that are "clear, specific, and measurable," and consist of narrative, numeric, and/or other types of requirements. Examples include: implementation of specific tasks or practices; BMP design requirements; performance requirements; adaptive management requirements; schedules for implementation, maintenance, and/or frequency of actions.[14]

Such stormwater control measures are managerial, physical, and/or structural BMPs that, when used singly or in combination, reduce the downstream quality and quantity impacts of storm water runoff. A variety of studies demonstrate that such stormwater control measures effectively reduce runoff volume and peak flows, and remove pollutants. When designed, implemented, constructed, and maintained correctly as part of a comprehensive stormwater management program (or SWMP), the control measures - in combination with the prohibitions and other conditions of the Permit as described in this Fact Sheet below - have a positive effect on water quality and other biological indices.[15]

As discussed in Section 1.5 of this Fact Sheet, since this is the first permit for the University, the Permit allows the Permittee to work towards compliance with the required terms and conditions during the first 4.5 years (5-year permit term) to establish compliance with the terms and conditions. In order for the Permittee to comply with the MS4 standard, EPA has defined the stormwater management control measures and evaluation requirements that the Permittee must implement. To reduce the discharge of pollutants from the MS4 to the MEP, the Permittee must implement and enforce the stormwater management (or SWMP) control measures outlined in Permit Part 3 (SWMP Control Measures). To protect water quality, the Permittee must conduct monitoring and/or assessment activities targeted at reducing the impairment pollutants of concern in Permit Part 4 (*Special Conditions for Discharges to*

[12] EPA 1999, pages 68753-68734.
[13] EPA 2016 pages 89338.-89339; 40 CFR 122.34(a)(2)
[14] See 40 CFR 122.34(a).
[15] EPA 1999a; EPA 1999b; EPA 2006; NRC 2008; EPA 2016b; WERF 2017.

Impaired Waters). Where the Permittee's MS4 discharge(s) may be contributing to an ongoing excursion above an applicable water quality standard, and a long-term solution is needed to address the MS4 contribution, the Permit establishes an adaptive management process in Permit Part 5 (*Required Response to Excursions of Idaho Water Quality Standards*). Evaluation and reporting requirements are outlined in Permit Part 6 (*Monitoring, Recordkeeping and Reporting*).

2.2 Discharges Authorized By The Permit

Permit Part 1.2 conditionally authorizes municipal stormwater discharges, and certain types of non-stormwater discharges, from the Permittee's MS4 in the Permit Area, provided that the Permittee complies with the Permit's terms and conditions. Where monitoring or other information shows that a pollutant in a Permittee's MS4 discharge is causing or contributing to an ongoing excursion above the applicable Idaho water quality standard, the Permittee must comply with the notification and other adaptive management requirements in Permit Part 5 (*Required Response to Excursions of Idaho Water Quality Standards*). See also Section 2.6 of this Fact Sheet.

The Permit outlines conditions and prohibitions related to snow disposal (Permit Part 2.2); stormwater discharges associated with industrial and construction activities (Permit Part 2.3); and discharges unrelated to precipitation events (i.e., "non-stormwater discharges;" Permit Part 2.4) that are similar to the requirements found in other MS4 NPDES Permits issued by EPA in Idaho.

EPA acknowledges that, in some urban Idaho watersheds, non-stormwater sources (in the form of landscape irrigation, springs, rising ground waters, and/or groundwater infiltration) are routinely present during dry weather discharges from the MS4(s). The Permit requires the Permittee to determine whether a detected dry weather MS4 discharge is an "allowable" discharge. Section 2.4.2 of this Fact Sheet discusses the related dry weather outfall screening requirements included as Permit Parts 3.2.5 and 3.2.6.

2.3 Permittee Responsibilities

Permit Part 2.5 outlines Permittee responsibilities. In general, the Permittee is responsible for Permit compliance related to its MS4 and associated discharges.

Permit Part 2.5.1 allows the Permittee to implement one or more of the control measures by sharing responsibility with another entity. The Permittee must enter into a written agreement with the outside party, in order to minimize any uncertainty about the other entity's responsibilities to the Permittee. The Permittee remains responsible for compliance with the Permit obligations in the event the other entity fails to implement the control measure (or any component thereof). See 40 CFR §122.35.[16]

Permit Part 2.5.2 requires the Permittee to maintain adequate legal authority to implement and enforce the required SWMP control measures as allowed and authorized pursuant to applicable Idaho law.[17] Without adequate legal authority or other mechanisms that allow control over what enters or discharges from the MS4, the Permittee cannot perform vital

[16] EPA encourages the University to work in partnership with the City of Moscow on common stormwater management issues, including possible future arrangements as co-Permittees under a single NPDES permit. Federal regulations at 40 CFR § 122.33(b)(2)(iii) allow two or more regulated MS4 entities to jointly apply as a group to obtain discharge authorization under an individual permit. Once a permit is issued to the group, each entity is responsible for compliance with the Permit's terms and conditions.
[17] See EPA 2010

stormwater management functions, such as performing inspections, requiring installation and proper operation of pollutant control measures within its jurisdiction, and/or enforcing such requirements.

Federal stormwater requirements at 40 CFR § 122.34(b) require MS4 permits to include term and conditions directing Permittees to "use an ordinance or other regulatory mechanism to implement portions of the mandatory SWMP control measures." EPA recognizes that universities and other special purpose entities do not have formal ordinance authority under Idaho state law. In such cases, EPA expects the Permittee to control pollutants into and from their MS4 by using all relevant regulatory mechanisms available pursuant to applicable Idaho state law. EPA recognizes that the University's jurisdictional authority extends only within the boundaries of its properties, and that the principle regulatory mechanisms for ensuring compliance with the Permit's stormwater control measures are through policies, standard operating procedures, construction contracts, and/or other permissions granted for working on University property. EPA has therefore used the term "regulatory mechanisms" in the University MS4 Permit, recognizing that the term includes relevant policies, contract terms, standard operating procedures, and/or other means available pursuant to Idaho state law.

In the event that legal authority does not currently exist, EPA provides the Permittee with a compliance deadline of 4.5 years to establish the necessary authority to comply with the Permit. The Permittee is expected to summarize its legal authorities to impose and enforce the required control measure components in the SWMP Document required by Permit Part 2.5.3. An updated SWMP Document must be submitted as part of the Permit Renewal Application required by Permit Part 8.2, no later than 180 days before the Permit expiration date.

Permit Part 2.5.3 requires the Permittee to develop, and update as necessary, a written SWMP Document.[18] The SWMP Document summarizes the physical characteristics of the MS4, and describes how the Permittee conducts the required SWMP control measures in its jurisdiction. EPA has provided a suggested format for the SWMP Document as an appendix to the Permit, and notes that other MS4 Permittees have already developed such documents that can be used as examples.[19] The SWMP Document addresses three audiences and purposes:

1. General Public – The written SWMP serves to inform and involve the public in implementation of the local SWMP;
2. EPA and IDEQ - The written SWMP provides the permitting authority a single document to review to understand how the MS4 Permittee will implement its SWMP

[18] See 40 CFR §122.34(b) and discussion of the relationship between the SWMP and required permit terms and conditions in *EPA 2016b* at pages 89339-89341. In contrast, the purpose of the Annual Report is to summarize the Permittee's activities during the previous reporting period, and to provide an assessment or review of the Permittee's compliance with the Permit.

[19] See, for example, SWMP plan documents authored by the City of Coeur d'Alene (http://www.cdaid.org/files/Engineering/Storm waterManagementPlan.pdf); City of Nampa (http://www.cityofnampa.us/DocumentCenter/View/1513); and Boise State University (http://www.partnersforcleanwater.org/media/182277/2014_boise_state_university_swmp.pdf). Other examples include the Cities of Bellevue, WA; Tacoma, WA; and/or available through the Permit's Administrative Record.

and comply with Permit requirements; and

3. Permittee Management and staff - The written SWMP can potentially be used by the Permittee(s) as an internal planning or briefing document.

The SWMP Document should also describe the Permittee's unique implementation issues such as cooperative or shared responsibilities with other entities.

The requirement for the Permittee to develop and maintain a SWMP Document is an enforceable condition of the Permit. However, the contents of the SWMP Document are not directly enforceable as requirements of the Permit. As a result, the Permittee may create and subsequently revise the SWMP Document, as necessary, to reflect how the stormwater management activities are implemented in compliance with the Permit. Therefore, updates to the SWMP Document may occur without review or approval by EPA or IDEQ.

The first iteration of the Permittee's SWMP Document must be available to EPA, IDEQ, and the public by posting the Document on a publicly available website (required by Permit Part 3.1.8) no later than the due date of the 1st Year Annual Report. If applicable, the SWMP Document must be updated to include any waterbody specific requirements pursuant to Permit Part 4, no later than the due date of the 2nd Year Annual Report. At a minimum, the SWMP Document must be updated to reflect the Permittee's current implementation of their control measures and submitted with the Permit Renewal Application, as required by Permit Part 8.2 no later than 180 days prior to the expiration date of the Permit.

Permit Part 2.5.4 requires the Permittee to track indicator statistics and information to document and report on SWMP implementation progress.

Permit Part 2.5.5 requires the Permittee to provide adequate financial support, staffing, equipment, and other support capabilities to implement the SWMP control measures and other Permit requirements. The Permittee demonstrates compliance with this provision by fully implementing the requirements of the Permit. The Permittee is not required to keep track of, or report, their implementation costs, though it might be appropriate and helpful for the Permittees to track their program investment in some manner. The Permit does not require specific staffing or funding levels, thus providing flexibility and incentive for Permittees to adopt the most efficient methods to comply with Permit requirements.

EPA encourages the Permittee to establish stable funding sources for ongoing SWMP implementation, and enter cooperative working relationships with other regulated small MS4s. Technical resources, such as the *Water Finance Clearinghouse* developed by EPA's Water Infrastructure and Resiliency Finance Center,[20] are available to help Permittees identify sustainable funding solutions. EPA supports comprehensive long-term planning to identify investments in stormwater infrastructure and system management that complement other community development initiatives and promote economic vitality. EPA notes that the University's 2019 application includes a statement regarding fiscal resourcing for the SWMP, and includes a Permanent Building Fund Project List with potential funding sources identified.

Permit Part 2.5.6 requires the Permittee to extend its stormwater control measures to all areas under their direct control when new areas served by the MS4 are annexed, or when areas previously served by the MS4 are transferred to another entity. The Permittee must report changes in ownership or operational authority to EPA and IDEQ through the SWMP

[20] See: https://www.epa.gov/waterfinancecenter

Document and Annual Reports. The Permittee is reminded to make associated revisions to MS4 system maps or other records as soon as possible.

2.3.1 Alternative Control Measure Requests

The Permit requires the implementation of SWMP control measures, or control measure components. Where a Permittee must revise or update SWMP control measures, or control measure components, full implementation must be accomplished no later than 180 days prior to the Permit expiration date. To provide implementation flexibility, the Permit allows the Permittee the discretion to submit requests to implement one or more Alternative Control Measures (ACM).

As outlined in Permit Part 2.6.1, the Permittee may submit supplemental or individualized documents, plans, or programs that are deemed equivalent to a comparable SWMP control measure, or control measure component, in Permit Part 3, along with supporting rationale and information. Requests for ACM(s) must be submitted no later than two years after the Permit effective date.[21] Upon determining that the ACM request(s) is equivalent to a comparable Permit SWMP control measure, or control measure component, and results in a modification of the Permit terms and conditions, the NPDES permitting authority will provide opportunity for public comment and, if requested, a public hearing. The Permitting Authority will consider all comments received on the ACM and resulting change in permit terms and conditions before issuing a final decision.[22]

The opportunity for ACM(s) relative to any SWMP control measure, or control measure component, in Permit Part 3 offers the Permittee maximum flexibility for SWMP implementation. For example, the Permittee may request EPA and IDEQ to consider an alternative means of implementing a SWMP control measure as a whole (such as the Construction Site Runoff control measure specified by Part 3.3); or, the Permittee may request EPA to consider an alternative SWMP control measure component, such as the specific requirement in Part 3.3.3 (*Construction Site Runoff Control Specifications*).

Pursuant to Permit Part 2.6.2, an ACM also includes the Permittee's individual or collective plans or programs to address discharges to impaired waters, as specified by Permit Part 4 (*Special Conditions for Discharges to Impaired Waters*). The opportunity to modify the Permit to incorporate specific monitoring/assessment and pollutant reduction activities offers flexibility for the Permittee to specify how they intend to make continued progress toward applicable water quality improvement targets for their watershed. A Permittee may work independently, or with others, to conduct reasonable, meaningful, and necessary actions that reduce pollutants from the MS4 and protect water quality.

2.4 SWMP Requirements

Permit Part 3 contains clear, specific, and measurable requirements to address the minimum control measures in 40 CFR § 122.34(a) and (b) that serve to reduce pollutants in MS4 discharges to the MEP. For each control measure, EPA has outlined specific tasks, BMPs, design requirements, performance requirements, adaptive management requirements, schedules for implementation and maintenance, and/or frequency of actions. Each minimum control measure is comprised of actions and activities that EPA refers to as

[21] Pursuant to Permit Part 8.1, no provision is stayed until the modification process to recognize the ACM is complete.
[22] EPA 2016b.

SWMP control measure components.

EPA considered the 2019 application submitted by the University, and the existing SWMPs implemented by other MS4s in Idaho, during development of the Permit terms and conditions. The Permit establishes expectations for the level of effort necessary to reduce pollutants in MS4 discharges and therefore defines the MS4 permit standard for the University.

EPA recognizes that each regulated MS4 is unique, and that each operator has different circumstances that guides their approach to stormwater management and pollutant control. To address these unique circumstances, the Permit allows implementation flexibility, while setting consistent expectations through clear, specific, and measurable permit requirements.

2.4.1 Public Education, Outreach, and Public Involvement/Participation

Permit Part 3.1 addresses the required SWMP control measures for public education, outreach, and involvement requirements consistent with 40 CFR §§ 122.34(b)(1) and (b)(2). Public education, outreach, and involvement are essential parts of any plan to reduce stormwater pollutants, because the daily activities of people contribute significantly to the types and sources of pollutants in urban settings. As citizens learn about the impacts of their actions on local water resources, they are more likely to change their behaviors.

Although the University does not have a traditional “resident population” like cities and counties, the University infrastructure supports a campus population of 10,000 students with approximate capacity of 2,500 full-time students living on campus. The University’s 2019 application refers to a variety of public education, outreach, and involvement activities that support the University’s SWMP implementation, including: (1) the development of an education campaign for the general public focused on topics including, but not limited to, use and disposal of landscaping chemicals, toxic chemicals, and household hazardous waste; (2) engaging the construction and development community during the process to update local BMP standards; (3) consulting with the University’s Sustainable Environment Commission to advise the University Facilities Department regarding appropriate BMPs to be considered for adoption; and (4) promoting public participation/public comment on the SWMP and policy revisions through press releases, and other appropriate advertisements. EPA strongly encourages the University to work cooperatively with the City of Moscow and others within the Paradise Creek watershed as well as the State, to choose education and public involvement activities that are both meaningful and relevant to local needs.

When scoping possible activities, EPA also recommends that Permittees consider the recommendations found in the EPA document, *Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways to Engage Neighboring Communities*. See also Section 3.1 of this Fact Sheet.

The Permit contains the following Public Education, Outreach, and Involvement SWMP control measure components:

- Permit Part 3.1.1 establishes a compliance deadline of one year from the Permit effective date for the Permittee to begin, or update and continue, their public education, outreach, and involvement activities in the Permit Area. This provision also establishes a deadline by which any ACM Request must be submitted.
- Permit Part 3.1.2 specifies requirements for the Public Education, Outreach and Involvement Program. To the extent allowable pursuant to the authority granted the

Permittee under Idaho state law, the Permittee must work to educate and engage interested stakeholders in the development and implementation of the SWMP control measures.

- Permit Part 3.1.3 requires the Permittee to distribute and/or offer a minimum of eight educational messages to at least one of the four audiences listed in Part 3.1.4 during the Permit term.
- Permit Part 3.1.4 identifies target audiences (i.e., General Public; Business/Industrial/Commercial/Institutions; Construction/Development Professionals; and Elected Officials, Land Use Policy and Planning Staff). For each audience, the Permit includes a non-exclusive list of suggested topics for the Permittee to consider as its focus during the Permit term.
- Permit Part 3.1.5 requires the Permittee to assess, or to participate in an effort to assess, the understanding and adoption of behaviors by the target audience(s). A vital, yet challenging, component of a successful education program is the assessment of whether the Permittee's efforts are achieving the goals of increasing public awareness and behavior change to improve water quality. EPA recognizes and encourages the long-term nature of such assessment activities, and notes that there may be opportunities for the Permittee to work together within the State, or with other watershed organizations, on specific MS4 topics if they choose to do so.
- Permit Part 3.1.6 requires the Permittee to maintain records of its education, outreach, and public involvement activities.
- Permit Part 3.1.7 requires the Permittee to provide educational opportunities related to certain SWMP control measures at least twice during the Permit term. The Permittee may plan opportunities in a manner such that the relative success of their educational efforts can be articulated as required by Permit Part 3.1.5.
- Permit Part 3.1.8 requires the Permittee to maintain and promote at least one publicly-accessible website to provide relevant SWMP information to the public. Relevant information includes the Permittee’s SWMP Document, links to relevant public education material, and easily identifiable (and up to date) Permittee contact information such that members of the public may easily call or email to report spills or illicit discharges, and/or ask questions, etc.

2.4.2 Illicit Discharge Detection and Elimination

Permit Part 3.2 contains requirements for the Permittee to address illicit discharges and spill response within their jurisdiction. At a minimum, EPA requires that the Permittee maintain the ability to prohibit, detect, and eliminate illicit discharges from their MS4s.

The purpose of this SWMP control measure is to require the Permittee to provide ongoing surveillance and deterrence to prevent pollutant loadings caused by illicit discharges into the Permittee’s MS4. Illicit discharges can enter the MS4 through direct connections (e.g., wastewater piping mistakenly or deliberately connected to the storm drains), or through indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain inlets, or discarded paint or used oil dumped directly into a drain). Both types of illicit discharge can contribute excessive pollutants into the MS4, and in turn can negatively affect water quality. Investigating for and eliminating such illicit discharges from entering the MS4 improves water quality.

The Permittee is responsible for the quality of the discharges from their MS4, and therefore has an interest in locating and discontinuing any uncontrolled non-stormwater discharges into and from their MS4. To ensure that pollutants from non-stormwater discharges are adequately controlled, the Permittee should work cooperatively with the City of Moscow and use their collective abilities to address illicit discharges in their jurisdiction.

The Illicit Discharge Detection and Elimination (IDDE) control measure components required by 40 CFR §122.34(b)(3) directs the Permittee to manage illicit discharges to the MS4 by:

- Maintaining a map of the MS4 showing the location of all outfalls and names of the receiving waters;
- Effectively prohibiting discharges of non-stormwater to the MS4 through the use of an appropriate regulatory mechanism, and provide for enforcement of that prohibition as needed;
- Implementing a program to detect and address non-stormwater discharges, including procedures to identify problem areas, determine sources of the problem(s), remove the source if one is identified, and document the actions taken; and
- Informing public employees, businesses, and the general public of the hazards associated with illegal discharges and improper disposal of waste, and publicize appropriate public reporting of illicit discharges when they occur.

In its application, the University identifies a schedule for implementing each of the activities listed above. The University may update its existing program over the course of the Permit term to accomplish the SWMP control measure components described below. Full implementation of a comprehensive IDDE program can effectively reduce as yet unknown discharges containing bacteria, sediment, and nutrients through the MS4, consistent with the pollutant load reduction goals of the Paradise Creek TMDL.

- Permit Part 3.2.1 establishes a compliance deadline 180 days before the Permit expiration date for the Permittee to update their existing illicit discharge program activities, and/or to fully impose any new program components outlined in this Part. EPA believes this timeframe is justified to allow the Permittee adequate opportunity to ensure all the components are sufficiently addressed in the Permit Area. This provision also defines the date by which any ACM Request must be submitted.
- Permit Part 3.2.2 requires the Permittee to maintain a current MS4 map, and an accompanying inventory of the features that comprise the MS4 system. The Permit requires an updated MS4 Map and Outfall Inventory to be submitted as part of the Permit Renewal Application pursuant to Permit Part 8.2. The purpose of the MS4 Outfall Map and Inventory is to record and verify MS4 outfall locations, including relevant descriptive system characteristics. EPA expects the Permittee to know the locations and characteristics of all outfalls that it owns/operates through mapping their infrastructure and associated assets. The Permittee is encouraged to couple the Inventory with other SWMP control measures, such as the operation and maintenance requirements in Permit Part 3.5, to help inform their inspection and/or maintenance prioritization.The University submitted a detailed MS4 map as part of its 2019 permit application; the map must be updated as necessary throughout the permit term and maintained as part of the SWMP documentation.

  Permit Part 3.2.2 also requires the Permittee to identify and characterize any MS4

outfall(s) with ongoing dry weather flows as a result of irrigation return flows and/or groundwater seepage. Knowing both the location and characteristics of such outfall(s) is an important data point in areas where the MS4 discharges to phosphorus- and/or nitrogen- impaired waters. The MS4 Map and Outfall Inventory can be collectively reassessed by IDEQ and the Permittee at the time of Permit reissuance to tailor future control measures in the next permit term that address potential non-stormwater discharges that may be contributing to a water quality impairment.

- Permit Part 3.2.3 requires the Permittee to prohibit non-stormwater discharges into the MS4 through enforcement of an ordinance or other legal mechanism to the extent allowable under Idaho state law. Part 3.2.3 identifies minimum prohibitions that EPA expects the Permittee to enforce in its jurisdiction.

  As previously noted, EPA recognizes the University does not have the legal authority to enact enforceable ordinances. The University may cite to its existing policies, standard operating procedures, cooperative agreements, or other legal means of ensuring that non-stormwater discharges found discharging through the MS4 will be eliminated when necessary.

  EPA clarifies that it is unnecessary for the legal mechanism to cite all the individual prohibitions listed, provided that the Permittee's legal mechanism can be used to address such discharges if found to be discharging into the MS4. This provision provides a minimum expectation for the legal mechanism to prohibit non-stormwater discharges that negatively impact water quality.

- Permit Part 3.2.4 describes EPA's expectations for the Permittee's Illicit Discharge Complaint Reporting and Response Program. The Permittee must maintain and advertise a publicly accessible and available means to report illicit discharges. The Permittee must respond to reports within two (2) days and maintain records regarding actions taken. These programs can be promoted to the public in concert with the public education requirements in Permit Part 3.1. Staff assigned to handle calls should be trained in stormwater issues and emergency response in order to gather and transfer the right information to responders. Conducting an investigation as soon as possible after the initial complaint report is crucial to the success of this program.

- Permit Part 3.2.5 requires the Permittee to conduct a dry weather analytical and field screening monitoring program to identify non-stormwater flows from MS4 outfalls during dry weather. Additionally, this program must emphasize screening activities to detect and identify illicit discharges and illegal connections, and to reinvestigate potentially problematic MS4 outfalls throughout the Permit Area. EPA has added prescriptive requirements to (1) prioritize visual screening of at least 50 outfalls per year throughout the Permittee's jurisdiction (Permit Part 3.2.5.2); (2) use appropriate screening and monitoring protocols when flows are identified during dry weather (Permit Part 3.2.5.3.); and (3) ensure proper recordkeeping/documentation (Permit Part 3.2.5.4).

  Data collected through the Permittee's regular screening of its outfalls during dry weather, and through the public reporting of illicit discharges and connections, can reveal important trends in the types of pollutants generated within and transported into the MS4. Permit Part 3.2.2.6 requires the Permittee to locate and map the

occurrences of illicit discharges in order to target appropriate response actions over time. EPA recommends that samples taken during dry weather screening be analyzed for pH, total chlorine, detergents, total copper, total phenols, fecal coliform bacteria, and/or turbidity to assist in source identification.

Appropriate threshold limits for dry weather monitoring results are important to distinguish pollutant spikes from normal background conditions at a particular outfall. For example, the Ada County Highway District has established threshold levels for their dry weather screening program that, when exceeded, result in retesting to determine whether the sample was an isolated event or an ongoing water quality issue.[23] The Permittee should also consider establishing a visual baseline for each outfall type to aid in determining what constitutes "normal" dry weather flows, and to distinguish between background conditions (uncontaminated ground water infiltration, for example) versus abnormal, non-stormwater flows that are prohibited by the Permit.

- Permit Part 3.2.6 requires mandatory follow-up actions for recurring illicit discharges (identified through complaint reports and/or Permittee screening activities). Response activities must begin within 30 days of identifying elevated concentrations of screening parameters, and action must be taken to eliminate problem discharges within 60 days. Specific timelines are included to direct timely initiation of actions to reduce or fully eliminate a known or newly identified problem.

  Due to the diverse nature and sources of water quality impacts in urban settings in Idaho, both EPA and IDEQ are concerned about inputs of irrigation return flows and/or groundwater seepage through MS4s. Permit Part 3.2.6 requires the Permittee to list identified MS4 outfall locations where irrigation return flows and/or groundwater seepage are present during dry weather (see also See also Permit Part 3.2.2.6.). This is a first, interim step towards an assessment of water quality impacts resulting from these specific non-stormwater discharges. For any MS4 outfall where ongoing dry weather discharges are identified by the Permittee as associated with irrigation return flows and/or groundwater seepage, the term "appropriate action" in Permit Part 3.2.6 means, at a minimum, documentation in the Annual Report of the MS4 outfall location, and the Permittee's determination of the source as either irrigation return flows or groundwater seepage. EPA encourages the Permittee to take action to eliminate such flows if it is identified as a source of pollutants pursuant to Permit Part 2.4.5.2. At a minimum, a summary list of all such outfall locations must be submitted with the Permit Renewal Application. This information will be collectively reassessed by EPA, IDEQ, and the Permittee at the time of the permit renewal to tailor future control measures to appropriately address non-stormwater discharges that may be contributing excess nutrient loads to receiving waters.

- Permit Part 3.2.7 requires the Permittee to respond to spills, and maintain appropriate spill prevention and response capabilities as appropriate within their jurisdiction. Through coordination with state and/or local agencies (under this provision, "agencies" refers to the organizations responsible for spill response), the goal is to provide maximum water quality protection at all times. EPA has included an explicit requirement directing the Permittee to notify the appropriate IDEQ

[23] ACHD 2019.

regional office, Idaho State Communications Center, and/or the National Response Center, as specified by IDEQ in its CWA Section 401 certifications for prior MS4 permits issued by EPA.[24]

- Permit Part 3.2.8 requires coordination with appropriate agencies to ensure the proper disposal of used oil and toxic materials by employees and the public.
- Permit Part 3.2.9 requires the Permittee to train appropriate staff to respond to spills, complaints, and illicit discharges/connections to the MS4. Permittee staff can be the "eyes and ears" of the stormwater program if they are trained to identify illicit discharges and spills or evidence of illegal dumping.

2.4.3 Construction Site Storm Water Runoff Control

This SWMP control measure requires the Permittee to control construction site runoff discharges into their MS4s. 40 CFR §122.34(b)(4) requires the Permittee to use an ordinance or regulatory mechanism to require proper construction site controls for sediment, erosion, and waste management at sites with land disturbance of one (1) or more acres. Additionally, construction activities disturbing less than one (1) acre are subject to this regulation if that activity is part of a common plan of development or sale that exceeds one (1) acre. Other mandatory control measure components are procedures for site plan review that considers potential water quality impacts; procedures for site inspection and enforcement; and procedures for the receipt and consideration of information submitted by the public.

Construction activities (such as clearing vegetation and excavating, moving, and compacting earth and rock) significantly change the land surface. The consequences of construction activitities during rain events include: reduced stormwater infiltration, increased runoff volume and intensity, and higher soil erosion rates. While sediment and other pollutants are readily mobilized by precipitation during land disturbance activity, such discharges can be effectively prevented through the use of reasonable and effective erosion and sedimentation controls. Examples include the use of construction sequencing, and vegetative- or non-vegetative stabilization techniques.[25]

Local oversight is key to ensuring that construction site operators use appropriate techniques to prevent pollutant discharges to the MS4s. Although discharges from all construction sites disturbing one or more acres in Idaho are independently subject to the *NPDES General Permit for Storm Water Discharges from Construction Activity*, #IDR120000 (Construction General Permit or CGP), it is appropriate for the MS4 operator to directly impose local construction site management requirements in their jurisdiction to prevent construction-related pollutants from entering the MS4s.

The University's 2019 NPDES permit application outlined its plan to review existing stormwater management erosion control codes and to include stormwater quantity (volume) control; update/modify existing codes/standard as needed to ensure enforceability related to installation and maintenance of BMPs and cessation of construction activities at the end of the construction season; publish updated BMP standards; implement a process to ensure that developers obtains CGP coverage as appropriate; and increase onsite inspections to confirm compliance with local requirements.

[24] IDEQ 2017; IDEQ 2019; IDEQ 2020.
[25] EPA 1999, pages 68758-68759; EPA 2009a, pages 7-3 through 7-26.

Individual components of the Permit's Construction Site Runoff Control Measure are described below:

- Permit Part 3.3.1 establishes a compliance deadline of 180 days before the Permit expiration date for the Permittee to update its existing programs, if needed, to impose any new or revised control components in the Permit Area. This provision also defines the date by which any ACM Request must be submitted.
- Permit Part 3.3.2 outlines the expected scope of the Permittee's legal mechanism to reduce and prevent runoff from construction sites in its jurisdiction that disturb one (1) acre or more.
- Permit Part 3.3.3 requires written specifications to define appropriate site level controls for construction activities within the Permittee's jurisdiction. EPA clarifies that the type and extent of site-level erosion, sediment, and waste management controls will likely be different depending on site size and location. Therefore, the Permittee has the discretion to determine how best to control sediment and other pollutants in runoff from different sized construction sites.
- Permit Part 3.3.4 requires a preconstruction site plan review process to address construction site activity that will result in land disturbance of one (1) or more acres, and includes consideration of public input. This review can be conducted using a checklist or similar process to consider and address potential water quality impacts from the site activities.
- Permit Part 3.3.5 requires the Permittee to conduct prioritized construction site inspections and to enforce the applicable requirements as needed. At a minimum, the Permittee must inspect and enforce their requirements at construction sites occurring in their jurisdictions that disturb one (1) or more acres.
- Permit Part 3.3.6 requires the Permittee to have a written enforcement response policy or plan to guide and prioritize their oversight, inspection, and enforcement efforts.
- Permit Part 3.3.7 requires the Permittee to provide proper training for construction staff conducting plan review and inspections.

Ensuring that construction sites use appropriate erosion and sedimentation controls through BMP specifications, site plan review, in field inspection and enforcement has been shown to significantly reduce sediment loadings to nearby water bodies. By reducing sediment discharges, the University also commensurately reduces nutrients and other pollutants that bind to the sediment particles. Such control measures, when properly implemented, reduce overall pollutant loading, and are therefore consistent with the pollutant reduction expectations in the applicable TMDLs for Paradise Creek. See Appendix 4 for additional discussion of the TMDLs for Paradise Creek.

2.4.4 Post Construction Stormwater Management from New Development and Redevelopment

Permit Part 3.4 requires the Permittee to implement and enforce a program to control runoff from new development and redevelopment project sites, including projects involving streets and roads.

Pursuant to 40 CFR § 122.34(b)(5), the University must impose these controls at sites disturbing one (1) or more acres and at sites less than one acre, which are part of a common plan of development or sale that exceeds one acre. The Permittee must address runoff from new development and redevelopment project sites using a locally appropriate combination of structural and/or non-structural BMP requirements.[26] Further, the Permittee must enforce the requirements using an appropriate regulatory mechanism, to the extent allowable under state or local law, and ensure the adequate long-term operation and maintenance of these BMPs.[27]

The Permit uses the term "permanent stormwater controls" instead of "post-construction stormwater management controls" to mean those controls that will treat or control pollutants in stormwater runoff from the development site on a permanent basis after construction is complete. This terminology is consistent with other MS4 permits issued by EPA Region 10 since 2012.

The University stated in its 2019 NPDES permit application that it intends to review the existing policies related to stormwater quantity/volume and stormwater quality, and to modify, as necessary, to ensure enforceability of requirements related to storm event standards, timing of facility installation, facility maintenance, and maintenance by property owners. In addition, the University indicated that it intends to publish Water Quantity and Quality BMP standards and Private Facility BMP standards; perform inspection of private stormwater control facilities to ensure proper operation and maintenance; and adopt riparian buffer protection standards along Paradise Creek.

- Permit Part 3.4.1 establishes a compliance deadline of 180 days before the Permit expiration date to refine the existing runoff control program, if needed, to impose any new SWMP control measure components in the Permit Area. This timeframe is justified to allow the Permittee the flexibility to adjust their existing programs as necessary. This provision also defines the date by which any ACM Request must be submitted.
- Permit Part 3.4.2 requires the Permittee to update their legal regulatory mechanism to incorporate an onsite stormwater retention standard, or require treatment equivalent to the onsite retention standard, for new development and redevelopment sites. The purpose of this requirement is to prevent the creation of excess stormwater discharges, and pollutant loadings, from the impervious surfaces associated with the urban development. Use of onsite stormwater management controls at such sites will reduce pollutants in regulated MS4 discharges to the MEP and proactively protect Idaho receiving waters by ensuring that water quality protections continue over the long term. Additional rationale for including the requirement for onsite retention of stormwater runoff from new development and redevelopment is provided Appendix 3 of this Fact Sheet.

  Permit Part 3.4.2 also allows for alternative mitigation in situations where complete onsite retention of the target runoff volume is infeasible. The Permittee may apply an alternative standard if it is deemed to be equally protective, or more protective, of the

[26] "Non-structural requirements" include, but are not limited to, planning, zoning, and other local requirements such as buffer zones. "Structural controls" include, but are not limited to, the use of storage, infiltration basins, or vegetative practices such as rain gardens or artificial wetlands. *See*: 40 CFR§122.34(b)(5)(iii).
[27] See EPA 2012; EPA 2009a; and 40 CFR §122.34(b)(5).

onsite stormwater management design standard as articulated in the Permit. For example, alternative local compliance with the Permittee's calculated stormwater management design standard could take the form of off-site mitigation or payment in lieu programs. The Permittee could consider creating an inventory of appropriate alternative stormwater management techniques, and/or using planning mechanisms (such as completed sub-watershed plans or other appropriate means) to identify priority areas within sub-watersheds of their jurisdiction(s) where off-site mitigation, and/or public stormwater mitigation projects, could be implemented.

- Permit Part 3.4.3 requires the Permittee to maintain written specifications for the permanent stormwater controls allowed by the Permittee at development sites within their jurisdiction. These specifications must be utilized at sites disturbing at least one (1) or more acres.
- Permit Part 3.4.4 requires the Permittee to review and approve site plans for permanent stormwater controls at sites resulting from land disturbance of one (1) or more acres. Specific standards are a critical component of the program, but even the best local requirements must be supported by a review component to ensure that the locally established performance standards are met. To comply with this requirement, the Permittee must have the authority to withhold approvals when it determines that the controls at a specific site are not designed to meet established standards for permanent stormwater control.
- Permit Part 3.4.5 outlines the requirement for the Permittee to inspect and enforce its requirements for permanent stormwater controls at sites resulting from land disturbance of one or more acres. Inspection of permanent control measures is key to ensuring water quality protection over the long term. Without periodic inspection or maintenance, the permanent controls can instead become pollutant sources, rather than a means of prevention. An effective local inspection process, combined with appropriate enforcement if necessary, ensures that onsite controls are built according to approved plans and specifications, and use proper materials and installation techniques. EPA expects the Permittee to prioritize its inspection and enforcement to include any new permanent stormwater controls installed after the Permit effective date.
- Permit Part 3.4.6 requires the Permittee to ensure the long-term operation and maintenance (O&M) of permanent stormwater controls through the use of a database inventory to track and manage the operational condition of permanent stormwater controls within its jurisdiction. This database inventory can take the form of a computerized maintenance management system or asset management system that allows for the electronic logging of O&M tasks. Ongoing O&M is necessary to ensure that the BMPs will perform as designed over time. Inadequate maintenance of existing stormwater management controls is a primary shortcoming for most local SWMPs across the country. As with any infrastructure, deferred maintenance can increase costs and negatively affect receiving waters. Unmaintained BMPs will ultimately fail to perform their design functions, and can become a nuisance and/or pose safety problems.[28] The Permittee must track those permanent controls which

[28] NRC 2008; Shaver, et al 2007.

are known to them, or for which they accept ownership, beginning no later than the Permit effective date.

- Permit Part 3.4.7 requires the Permittee to ensure that their staff are sufficiently trained and/or qualified to review site plans for permanent stormwater controls, and/or for inspecting the installation and operation of permanent stormwater controls.

2.4.5 Pollution Prevention and Good Housekeeping for MS4 Operations

As noted above, O&M is an integral part of any SWMP, and, when coupled with good housekeeping and pollution prevention principles, reduces the risk of water quality problems from MS4 discharges. The minimum requirements for this control measure are set forth in 40 CFR § 122.34(b)(6) which includes the implementation of an O&M program "intended to prevent or reduce pollutant runoff from municipal operations;" and an employee training program. EPA has also included requirements for site-specific stormwater pollution prevention plans (SWPPPs) at the Permittees' own maintenance buildings and similar facilities that discharge stormwater into the MS4. .

Permit Part 3.5 requires the Permittee to properly operate and maintain their MS4, actively manage runoff from Permittee owned and/or operated facilities, and conduct their municipal activities to prevent or reduce the discharge of pollutants from the MS4.

The Permittee must focus on maintenance of their MS4 to protect water quality. Due to the diversity of MS4 facilities, ensuring that appropriate inspection and maintenance schedules are in place for each type of infrastructure/facility is both relevant and necessary. O&M procedures should include some manner or protocol for testing and safely disposing of waste materials and any associated decant water collected from catch basins or other MS4 infrastructure.

The individual SWMP control measure components under the Pollution Prevention/Good Housekeeping control measure in Permit Part 3.5 are reasonable, practicable, and consistent with other MS4 permits issued by EPA Region 10 since 2012.The specific requirements are summarized below:

- Permit Part 3.5.1 establishes a compliance deadline of 180 days before the Permit expiration date for the Permittee to update its existing program(s), and/or to impose any new program components, in the Permit Area. EPA believes this timeframe is justified to allow the Permittee adequate opportunity to adjust its existing programs, as necessary, and ensure the required actions are sufficiently addressed in the Permit Area. This provision also defines the date by which any ACM Request(s) must be submitted.
- Permit Part 3.5.2 outlines requirements for the inspection of all Permittee catch basins and inlets within the MS4 service area at least once every five years, and requires appropriate cleaning and/or maintenance activities based on the findings of those inspections.

Because roads and streets function as an integral part of the drainage conveyance systems within the Permit Area, and other Urbanized Areas of Idaho, EPA has included explicit provisions for appropriate stormwater management through O&M activities for roads, streets, highways and parking lots.

- Permit Part 3.5.3 requires the Permittee to review and update their O&M procedures for streets, roads, highways, and parking lots that are owned, operated, and/or

maintained by the Permittee to ensure procedures are protective of water quality and reduce the discharge of pollutants through the MS4.

Permit Part 3.5.3.3 also requires the Permittee to consider using water conservation measures for all landscaped areas associated with streets, roads, highways, and parking lots to prevent landscape irrigation water from discharging through the MS4. Excessive landscape watering can contain fertilizers and other compounds that, when discharged through the MS4, can increase nitrogen and phosphorus loading to impaired waters. Landscape irrigation can be considered an allowable non-stormwater discharge only when it is not a source of pollution under the Idaho WQS. See Permit Part 2.4.

- Permit Part 3.5.4 requires the Permittee with street, road and highway maintenance responsibilities to ensure that road material stockpiles (such as sand, salt, or sand with salt stockpiles) are managed in a manner that prevents pollutants from discharging to the MS4 or into any receiving water. An inventory of all such street materials must be maintained. No later than 180 days prior to the Permit expiration date, as part of the Permit Renewal Application required by Permit Part 8.2, the Permittee must assess their Material Storage Locations for water quality impacts, and must describe any structural or non-structural improvements made by the Permittee to prevent runoff from discharging to the MS4 or directly to a receiving water. A Permittee without street maintenance responsibilities does not have an obligation to comply with this provision.
- Permit Part 3.5.5 requires the Permittee with street, road, highway and parking lot responsibilities to document the adequacy of their sweeping activities through a sweeping management plan. Any Permittee without street sweeping responsibilities does not have an obligation to comply with this provision.
- Permit Part 3.5.6 requires the Permittee to review and update their O&M procedures for a variety of other typical municipal activities to ensure procedures protect water quality and reduce the discharge of pollutants through the MS4.
- Permit Part 3.5.7 requires the Permittee to ensure that their staff, and others operating in public areas owned and/or operated by the Permittee, are appropriately handling and/or using pesticides, herbicides, and fertilizers used within the Permit Area. This provision is consistent with the *NPDES General Permit for Discharges from The Application of Pesticides, for the State of Idaho,* NPDES Permit No. IDG870000.
- Permit Part 3.5.8 requires the Permittee to manage onsite materials at their maintenance yards and to prevent pollutants in runoff through use of SWPPPs. Plans developed for such locations can use the basic SWPPP framework identified in various EPA guidance materials and may follow a “template plan” to establish basic requirements that can be tailored to the location/responsible staff.
- Permit Part 3.5.9 requires the Permittee to work cooperatively to reduce litter in their jurisdictions to prevent the conveyance of trash and other material through the MS4.
- Permit Part 3.5.10 requires the Permittee to ensure that all staff responsible for the stormwater infrastructure management and O&M activities are trained and/or otherwise qualified to conduct such activities with attention to prevent potential water quality impacts.

2.5 Requirements for Discharges to Water Quality-Impaired Receiving Waters

Consistent with 40 CFR § 122.34(c), Permit Part 4 requires the University to define and conduct quantitative monitoring/assessment and at least one pollutant reduction activity to address the impairment pollutants of concern in MS4 discharges, consistent with the WLAs and pollutant reduction targets for MS4 discharges in the Paradise Creek TMDLs. For the purposes of the Permit, the phrase "impairment pollutants" means any pollutant identified by IDEQ or EPA as a cause of impairment of any waterbody that receives MS4 discharges authorized under the Permit. Appendix 4 of this document contains a further discussion of the TMDL, and rationale for monitoring/assessment and pollutant reduction activity required by Permit Part 4.

EPA has included requirements in Permit Part 4 for the University to submit, within two years of the Permit effective date, a written description of at least one pollutant reduction activity, and a monitoring/assessment plan, to be conducted during the remainder of the Permit term. EPA, in consultation with IDEQ, will review the submitted materials, and the NPDES permitting authority will modify the Permit to incorporate the pollutant reduction activities and monitoring/assessment plan.

The Permittee may choose to implement a new activity, or to continue ongoing efforts designed to reduce the discharge of the impairment pollutants into Paradise Creek. Acceptable activities must be linked to the goal of reducing impairment pollutants, be coordinated with available water quality management plan(s), and must be designed to measure the relative success or failure of such actions over time.

EPA believes it is appropriate to allow the Permittee the opportunity to recommend pollutant reduction and monitoring/assessment activities needed to address the receiving water impairments. This process will allow the Permittee flexibility in defining what and how they will address impairments consistent with the goals of the applicable TMDLs and associated watershed advisory group(s). Through the Permit modification process, this approach also provides information and transparency to interested members of the public.

2.6 Requirements for Excursions above the Idaho Water Quality Standards

Permit Part 5 sets forth requirements for the Permittee to report and address excursions above the Idaho WQS as directed by Permit Part 2.1. EPA has outlined an adaptive management approach for use when there are ongoing discharges from the MS4 that cause or contribute to excursions above the applicable Idaho WQS and are not being addressed by other SWMP control measure requirements.

Permit Part 5 provides the Permittee with the opportunity to use adaptive management principles to scope corrective action steps to address ongoing, prolific pollutant source(s). Where such solutions may involve structural controls, require capital expenditures, and/or that necessitate long term planning and implementation schedules, Permit Part 5 provides opportunity for the Permittee to define and articulate such long-range investment plans.

EPA supports robust long-term planning for stormwater management by MS4 entities, and recognizes that the most successful stormwater planning uses multi-benefit approaches to solve stormwater pollution control challenges. It also recognizes that for a plan to be more affordable, MS4 entities such as the University need to make financial investments over a time horizon of sufficient length to allow for cost efficiencies through working with other

municipal programs.[29] EPA notes that the University's 2019 permit application includes a discussion of fiscal resourcing and a list of anticipated capital improvement and repair projects.

Any Permittee that submits information pursuant to Permit Part 5 will be prompted to report on their incremental progress towards their identified milestones in both their Annual Report, and as part of a complete Permit Renewal Application.

2.7 Monitoring, Recordkeeping and Reporting Requirements

Consistent with 40 CFR § 122.34(d), Permit Part 6 requires that the Permittee evaluate program compliance, keep records, and submit Annual Reports. Furthermore, Section 308 of the CWA, 40 CFR § 122.44(i), and subsequent EPA guidance requires monitoring, where necessary, to determine compliance with terms and conditions of a NPDES permit.

2.7.1 Compliance Evaluation

Permit Part 6.1 requires the Permittee to assess their compliance with the Permit requirements annually and to document the evaluation through the submittal of an Annual Report. EPA has provided a concise "fillable PDF" Annual Report format for use during the Permit term. The five-year permit term will coincide with EPA's national transition to online reporting for MS4 permits, which is expected to occur no later than December 2025. Once primacy for the NPDES stormwater permit program is transferred to IDEQ, the Permittee may request different reporting frequencies in the subsequent MS4 permit, pursuant to 40 CFR § 122.34(d)(3).[30]

2.7.2 Monitoring and/or Assessment Activities

Permit Part 6.2 requires the Permittee to evaluate the effectiveness of their SWMP at protecting water quality by quantifying their stormwater pollutant reductions. Implementing monitoring and/or assessment activities allows the Permittee to assess the effectiveness of stormwater management actions, aides in determining whether pollutant reduction goals in applicable TMDLs are met, and to justify budgets that support stormwater programs. While many MS4 program goals are output-based (e.g. number of stormwater treatment practices installed, number of educational brochures distributed), which can be useful from a program accounting standpoint, such measurements often cannot be used to quantify changes in water quality resulting from MS4 program activities.[31]

EPA proposes that the Permittee collect objective data that can be used to evaluate the relative success of SWMP control measures and can be used to assess whether MS4 discharges cause or contribute to violations of Idaho water quality standards. Permit Part 6.2 also requires the Permittee to submit a revised or updated monitoring/assessment plan as directed by Permit Part 4 that meets the quality assurance objectives at Permit Part 6.2.6 no later than two years after the Permit effective date. This deadline is consistent with other MS4 permits issued by EPA in Idaho since 2019. Standard NPDES permit conditions are included in Part 6.2 related to representative sampling, additional monitoring, and use of sufficiently sensitive testing methods. If the Permittee elects to monitor MS4 discharges, Permit Part 6.2.5 summarizes the basic components of any wet weather stormwater discharge monitoring.

[29] EPA 2016d.
[30] EPA 2015c; EPA 2020a; EPA 2020b.
[31] CWP 2009.

EPA recognizes that the MS4 permits in Idaho should not impose a "one size fits all" monitoring and assessment approach. The guidelines at Permit Part 6.2. provide the Permittee the flexibility to develop and implement monitoring/assessment activities that are appropriate for their MS4. The NPDES permitting authority will modify the Permit to incorporate the Permittee's intended monitoring plan. MS4 stakeholders around the country have found that relevant watershed-level questions must drive a Permittee's monitoring and assessment choices. Because water quality benefits will only be realized over the long-term, it is important for MS4 Permittees to invest their time and energy into long-term implementation mechanisms that are linked to appropriate monitoring and assessment actions. Monitoring and assessment data contributes to new knowledge, and resulting data should then be made broadly available.[32] Examples of monitoring/assessment activities that the Permittee may consider include:

- Conducting biological or macroinvertebrate sampling, instream monitoring, or other means to assess certain parameters or watershed outcomes.
- Focused efforts to influence human behavior through outreach and educational efforts.
- Working collaboratively with other entities within a watershed or across the state to accomplish the SWMP goals.

Permit Part 6.2.6 requires the Permittee to create, or revise any existing, Quality Assurance Project Plans (QAPP) to guide the intended monitoring/assessment activities.

2.7.3 Recordkeeping and Reporting

Permit Part 6.3 requires the Permittee to keep all records associated with the Permit for a period of at least five years, and submit such records only when requested by EPA. The Permittee must ensure that SWMP materials are available to the public, and they may charge a reasonable fee for copies and/or require a member of the public to provide advance notice of their request. As previously noted, Permit Part 3.1 requires the Permittee to provide their SWMP Document to the public electronically via one or more dedicated websites.

Permit Part 6.4 describes the overall reporting requirements, including the schedule and required content for the Annual Report, the final monitoring/assessment report, and the pollutant reduction activity report. At a minimum, the Permittee must submit Annual Reports of progress to both EPA and IDEQ using the recommended Annual Report format provided in the Permit Appendix no later than 61 days after the close of relevant reporting period. The Annual Report format will prompt the Permittee for appropriate information according to compliance dates specified in the final Permit.

No later than December 21, 2025, all NPDES reports submitted in compliance with an applicable MS4 permit must be submitted electronically through EPA's national electronic reporting system.[33] Until the electronic system is available, the Permittee must submit signed versions of their Annual Reports to EPA and IDEQ addresses provided in the Permit.

2.8 Standard Permit Conditions

Permit Parts 7 and 8 contain standard regulatory language that must be included in all

[32] Stein 2013; EPA 2016; NRC 2008.
[33] EPA 2015c; EPA 2020.

NPDES permits. The standard regulatory language addresses compliance responsibilities, and other general requirements. Although certain provisions may not strictly apply to MS4 facilities (for example, the upset or bypass provisions), it is mandatory that the NPDES permitting authority include each of the standard provisions in a NPDES permit. Such provisions are included in other Idaho MS4 NPDES permits issued by EPA since 2012. EPA notes that if a particular provision in Permit Parts 7 or 8 does not apply to the Permittee's MS4 discharges or facilities, the Permittee does not need to comply with that provision.

2.8.1 Duty to Reapply

In accordance with 40 CFR § 122.46(a), NPDES permits are in effect for a fixed term not to exceed five (5) years. Permit Part 8.2 requires the Permittee to submit an NPDES permit renewal application no later than 180 days before the Permit expiration date if it intends to continue operational control and management of MS4 discharges after the Permit expiration date.

Because there are no NPDES application forms for the MS4 permit program, Permit Part 8.2.1 describes the expected content of a complete Permit Renewal Application. The deadline for the Permit Renewal Application (180 days before the permit expiration date) corresponds to the Permit's implementation/compliance dates; therefore, as part of any request for continued permit coverage, the Permittee must submit the attachments listed in Permit Part 8.2.1 to demonstrate how they have complied with the current Permit requirements.

The Permittee must submit a 5th Year Annual Report, by the Permit expiration date, using the format provided in the Appendix B of the Permit. In the event that a new permit is not issued on or before the Permit expiration date, any Permittee that has submitted a Permit Renewal Application in accordance with Part 8.2, may be authorized to continue discharging under an administrative extension of the Permit. If the Permittee is granted an administrative extension, they must continue to adhere to the terms and conditions of the Permit, which includes submitting the Annual Report(s) by the anniversary of the Permit expiration date, until coverage under a reissued or replacement Permit is available.

3. Other Legal Requirements

3.1 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high, and adverse human health or environmental effects of its programs, policies, and activities." EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations, or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, EPA Region 10 will prioritize enhanced public involvement opportunities for EPA-issued permits that may involve activities with significant public health or environmental impacts on already overburdened communities. For more information, please visit https://www.epa.gov/environmentaljustice/learn-about-environmental-justice

As part of the permit development process, EPA Region 10 conducted a screening analysis to determine whether the Permit action could affect overburdened communities. EPA uses a

nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool is used to identify permits for which enhanced outreach may be warranted.

Based on this screening, Moscow, Idaho, is identified as an area where potentially overburdened communities reside. In order to ensure that individuals in this area are able to participate meaningfully in the NPDES permit process, EPA will work to ensure that interested stakeholders in the area, and throughout the state, are informed and able to provide their input on appropriate local stormwater management activities.

EPA encourages all MS4 Permittees to review (and to consider adopting, where appropriate) *Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities* as described in EPA document available at https://www.federalregister.gov/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process#p-104.

3.2 Endangered Species Act

The Endangered Species Act (ESA) Section 7(a)(2) requires federal agencies to consult with the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) regarding potential effects an action may have on listed endangered species.

EPA reviewed current endangered and threatened species maps, species lists, and other available information from both NOAA Fisheries and USFWS, and determined that issuance of the Permit for discharges from the University of Idaho MS4 will have no effect on any listed endangered or threatened species or designated critical habitat; therefore, for this Permit action, consultation is not required. EPA reached this conclusion based on the following information:

1. There are no anadromous fish in the Palouse River system because the Palouse River Falls (located in Washington) blocks fish migration.[34] Based on location of the MS4 discharges, EPA determines that consultation with NOAA Fisheries is not required, because issuance of the Permit in the Moscow area will have no effect on any threatened or endangered species under NOAA Fisheries jurisdiction.

2. Species lists from USFWS indicate that Spalding's Catchfly (*Silene spaldingii*) and Water Howellia (*Howellia aquatilis*) are two threatened species that may occur near the University of Idaho and the City of Moscow, however, no critical habitat is designated for either species near this area.

   Spalding's catchfly *(Silene spaldingii*) is an herbaceous perennial plant. It is a regional endemic found predominantly in bunchgrass grasslands and sagebrush-steppe, and occasionally in open pine communities in eastern Washington, northeastern Oregon, west-central Idaho, western Montana, and barely extending into British Columbia, Canada.[35] There are two areas with identified populations of Spalding's catchfly, namely, the *Canyon Grasslands* along the Snake, Salmon, Clearwater, Grande Ronde, and Imnaha Rivers in Idaho, Oregon, and Washington; and the *Palouse Grasslands* in southeastern Washington and adjacent west central Idaho.

[34] Tetra Tech 2011.
[35] USFWS 2007.

Spalding's catchfly within the Palouse Grasslands is restricted to small fragmented populations ("eyebrows," field corners, cemeteries, rocky areas, and steptoes) on private lands, and in larger remnant habitats such as research lands owned by Washington State University. Elevations occupied by Spalding's catchfly within the Palouse Grasslands range from 700 to 1,340 meters (2,300 to 4,400 feet). In general populations of Spalding's catchfly are restricted to small, remnant patches of native habitat, predominately located on private land and/or federal land managed by Bureau of Land Management and U.S. Forest Service.[36]

Elevation of the Moscow city center near the University of Idaho is approximately 786 meters (2,579 feet) above sea level.[37] In general, MS4 discharges to be authorized by the Permit may have limited impact on species that live in the aquatic environment. However, EPA finds no information indicating that any remaining populations of Spalding's Catchfly currently occur near the University of Idaho or within the Moscow city boundary. Based on this information, EPA determines that issuance of the Permit will have no effect on the Spalding's Catchfly.

Water howellia (*Howellia aquatilis*) is a winter annual aquatic plant that grows 4-24 inches high. The plant grows in areas that were once associated with glacial potholes and former river oxbows that flood in the spring, but usually dry at least partially by late summer. It is often found in shallow water and on the edges of deep ponds partially surrounded by deciduous trees such as aspen or cottonwood.[38]

In Idaho, the only known Water howellia site is on the flood plain of the Palouse River, in ponds formed by the gradual migration of the river channel. Three ponds, each less than 0.1 hectare (0.25 ac) in area occur on a parcel of private land occasionally used for pasture. The site is tracked by the Idaho Conservation Data Center as the Harvard-Palouse River Flood Plain Conservation Site.[39]

EPA finds no information indicating that any Water howellia populations currently occur near the University of Idaho or within the Moscow city boundary. Based on this information, EPA determines that issuance of the Permit will have no effect on Water howellia.

3.3 Essential Fish Habitat

Essential Fish Habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish spawning, breeding, feeding, or growing to maturity. The Magnuson-Stevens Fishery Conservation and Management Act requires EPA to consult with the NOAA-Fisheries if a proposed action has the potential to adversely affect (by reducing the quality and/or quantity of) EFH. Based on University's location, EPA has determined that the issuance of the Permit will have no effect on any EFH species in the vicinity of the MS4 discharges; therefore, consultation is not required for this action.

3.4 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of federal undertakings on historic properties listed on, or

[36] USFWS 2007, pages 21 and 24; USFWS 1999, pages 67815 and 67819.
[37] See: https://en.wikipedia.org/wiki/Moscow,_Idaho
[38] USFWS Species Profile at https://ecos.fws.gov/ecp0/profile/speciesProfile.action?spcode=Q2RM
[39] Litchardt & Gray 2003.

eligible for listing on, the National Register of Historic Places. The term federal "undertaking" in NHPA regulations to include a project, activity, or program of a federal agency that can result on changes in the character or use of historic properties, if any historic properties are located in the area of potential effects for that project, activity or program. See 36 CFR § 802(o). Historic Properties include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. See 36 CFR § 802(e). Federal undertakings include EPA's issuance of a NPDES permit.

EPA has determined that the reduction of pollutants in runoff through compliance with a MS4 discharge permit will not result in the disturbance of any site listed or eligible for listing in the National Historic Register. Therefore, EPA believes that the actions associated with the Permit are also in compliance with the terms and conditions of the National Historic Preservation Act.

Pursuant to Permit Part 8.10, the Permittee is reminded that they must comply with applicable state, Tribal and local laws, including those concerning protection of historic properties. If any permitted entity engages in any activity which meets all of the following criteria, then they must consult with and obtain approval from the State Historic Preservation Office prior to initiating the activity:

- The permitted entity is conducting the activity in order to facilitate compliance with the MS4 Permit;
- The activity includes excavation and/or construction; and
- The activity disturbs previously undisturbed land.

Examples of actions that may meet the above criteria include, but are not limited to: retention/detention basin construction; storm drain line construction; infiltration basin construction; dredging; and stabilization projects (*e.g.*, retaining walls, gabions). The requirement to submit information on plans for future earth disturbing is not intended for activities such as maintenance and private development construction projects.

3.5 National Environmental Policy Act and Other Federal Requirements

40 CFR § 122.49 lists the federal laws that may apply to the issuance of permits i.e., ESA, NHPA, the Coastal Zone Act Reauthorization Amendments (CZARA), NEPA, and Executive Orders, among others. The NEPA compliance program requires analysis of information regarding potential impacts, development, and analysis of options to avoid or minimize impacts; and development and analysis of measures to mitigate adverse impacts.

EPA has not promulgated effluent limitation guidelines or new source performance standards specific to MS4 discharges. Therefore, MS4 permits are not subject the NEPA.

Idaho is not located in the U.S. coastal zone, so CZARA does not apply to the issuance of the Permit. In addition, the Permit will not authorize the construction of any water resources facility or the impoundment of any water body. No regulated small MS4s are located in areas with Wild and Scenic River designations. Therefore, EPA determines that the Fish and Wildlife Coordination Act, 16 USC § 661 et seq., and the Wild and Scenic Rivers Act, 16 USC § 470 et seq., does not apply to the issuance of the Permit.

3.6 Permit Dates

The Permit will expire five years from the effective date. As proposed, the Permit assumes

an effective date of February 1, 2021. Compliance dates for SWMP control measure implementation, Annual Report submittals, etc., will be identified in the Permit (in the upfront Schedule and in pertinent text) based on the final Permit's effective date.

3.7 State Certification of the Permit

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. As a result of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards, or treatment standards established pursuant to any State law or regulation.

As previously noted, EPA will request that IDEQ certify the permit for the University's MS4 discharges. Questions or comments regarding the IDEQ's CWA §401 certification should be directed to the IDEQ's Lewiston Regional Office at 208-799-4370.

4. References Used in this Permitting Decision

The following is a partial list of references supporting the development of the Permit; additional references are available in the Administrative Record for the permit action.

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EPA 2008b. *Fact sheet for NPDES Permit No. IDS028118 (City of Caldwell)* pages 21-23

EPA 2008d *Response to Comments for NPDES Permit No. IDS028207 (Lakes Highway District MS4)* November 2008.

EPA 2009a*. Technical Guidance on Implementing Section 438 of the Energy Independence and Security Act*, US EPA, December 2009.

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Appendix 1 – Statutory And Regulatory Overview

Pollutants Typically Found in Urban Runoff

Stormwater is the surface runoff that results from rain and snow melt. Urban development alters the landscape's natural infiltration, and human activity generates pollutants that accumulate on paved or impervious surfaces. Uncontrolled pollutants and flow associated with stormwater discharges from urban areas can negatively affect water quality. Contaminants enter stormwater from a variety of sources in the urban landscape. Urban stormwater is often a contributing factor where there is a water quality standard impairment in a particular water body. Stormwater or urban runoff typically contains a mixture of pollutants, including the following major constituents:

- Sediment;
- Nutrients (nitrogen and phosphorus);
- Chlorides;
- Trace metals;
- Petroleum hydrocarbons;
- Microbial pollution;Organic chemicals (pesticides, herbicides, and industrial); and
- Temperature.[40]

An increase in impervious surface cover will increase the amount of runoff. Effects of runoff generally take one of two forms. First, an increase in the type and quantity of pollutants in stormwater runoff, where these pollutants become suspended in runoff and are carried to receiving waters, and can impair the aquatic life uses of these waters. The second kind of runoff effect occurs by increasing the quantity of water delivered to the water body as a result of storms. Increased impervious surface area (such as, parking lots, driveways, and rooftops) interrupts the natural process of gradual percolation of water through vegetation and soil, and the water that would percolate under natural conditions may instead be discharged through the MS4. The effects of this alteration include streambank scouring and downstream flooding, which can affect aquatic life and damage property.[41]

Statutory and Regulatory Background for the MS4 Permit Program

The federal Clean Water Act (CWA) Section 402(p), 33 U.S.C. § 1342(p) and the National Pollutant Discharge Elimination System (NPDES) stormwater regulations establish permit requirements for regulated MS4 discharges. Section 402(p)(3)(B) of the CWA, 33 U.S.C. §1342(p)(3)(B) requires any NPDES permit for MS4 discharges to effectively prohibit non-precipitation related flows from entering the MS4, and require controls to reduce the discharge of pollutants to the maximum extent practicable (MEP), including management practices, control techniques, and system design and engineering methods, and such other provisions determined to be appropriate by the NPDES permitting authority.

Definitions of relevant terms, such as "*municipal separate storm sewer*," and "*small MS4*," are found at 40 CFR §122.26(b). In general, a *municipal separate storm sewer* includes any publicly -owned conveyance or system of conveyances that discharges to waters of the United States, is designed or used for collecting and conveying stormwater, is not a combined sewer, and is not part of a publicly owned treatment works. A *municipal separate storm sewer system*, or MS4, includes roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches,

[40] Shaver, Horner, et al. 2007; EPA 1990; EPA 1999a, and EPA 1999b.
[41] USGS and EPA, 2015, page 61.

man- made channels, and/or storm drains.[42]

In 1990, EPA developed the first phase of federal stormwater regulations as directed by the CWA. The "Phase I" regulations established NPDES permit application and related requirements for discharges from large MS4s and medium MS4s. The Phase I regulation identified the large- and medium MS4s nationally based on the 1990 Census population. Based on the 1990 Census in Idaho, the Phase I stormwater regulations automatically designated MS4 operators discharging within the boundaries of Garden City and Boise as medium MS4s.[43]

In 1999, EPA developed the "Phase II" stormwater regulations, and designated additional small MS4s as needing NPDES permits. Regulated small MS4s include any MS4 discharge not already covered by Phase I that is located (partially or wholly) within an Urbanized Area (UA) as defined by the latest decennial Census. Regulated small MS4s in Idaho are located in Census-defined UAs of Coeur d'Alene; Lewiston; Nampa; Boise; Pocatello; and Idaho Falls. The Phase II regulation also defines regulated small MS4s as those systems with a UA that serve military bases or other properties owned by the United States; colleges and universities; large hospital or prison complexes; and highway systems.[44] In Idaho, various public entities own and/or operate regulated small MS4s within UAs, including, but not limited to: cities and counties; local highway districts; ITD; and state or community colleges and universities

The Phase II regulation includes authority for EPA (or states that administer the NPDES program as the permitting authority) to require NPDES permits for other unregulated stormwater discharges by a designation process.[45]

Permits for small MS4 discharges must include terms and conditions to reduce the discharge of pollutants from the MS4 to the MEP, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act.[46] The MS4 permittee must control pollutants in their MS4 discharges to the MEP by addressing the six "minimum control measures," i.e., public education and outreach, public participation and involvement, illicit discharge detection and elimination, construction site runoff control, post construction runoff control, and pollution prevention and good housekeeping. A regulated small MS4 operator may seek NPDES permit coverage under an available general permit, or the operator may apply for an individual permit.[47]

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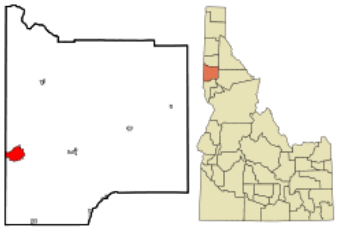
[42] *See*: 40 CFR §122.26(b); 122.32(a); and EPA 1990.
[43] In December 2000, EPA issued a single individual NPDES permit (#IDS027561) for the Phase I MS4 discharges owned/operated by six co-permittees operating in Garden City and Boise, ID; EPA reissued Permit #IDS027561 effective January 2013 -January 2018.
[44] *See*: 40 CFR §§ 122.26(b)(16) and 122.30 through 37; and EPA 1999. U.S. Census maps for the Coeur d'Alene, Lewiston (ID)-Clarkston (WA), Nampa, Boise, Pocatello, and Idaho Falls UAs are available at http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/.
[45] *See:* 40 CFR § 122.26(a)(9)(i)(C) and (D)
[46] *See*: CWA Section 402(p)(3); 40 CFR §122.34(a); EPA 2016a and 2016b. EPA now refers to this phrase as the *MS4 permit standard*.
[47] *See:* 40 CFR § 122.34(b).

Appendix 2 – Maps: University of Idaho Campus Properties and Storm Drain Maps

Figure A.2.1 University of Idaho Campus Properties in the Moscow, Idaho Area
This map below is derived from University of Idaho's Interactive Campus Maps, https://facilities.dfm.uidaho.edu/A/Download/geolocation2.html.



Note: The border representing the WA/ID state line extends north/south and is indicated by a vertical gray line.

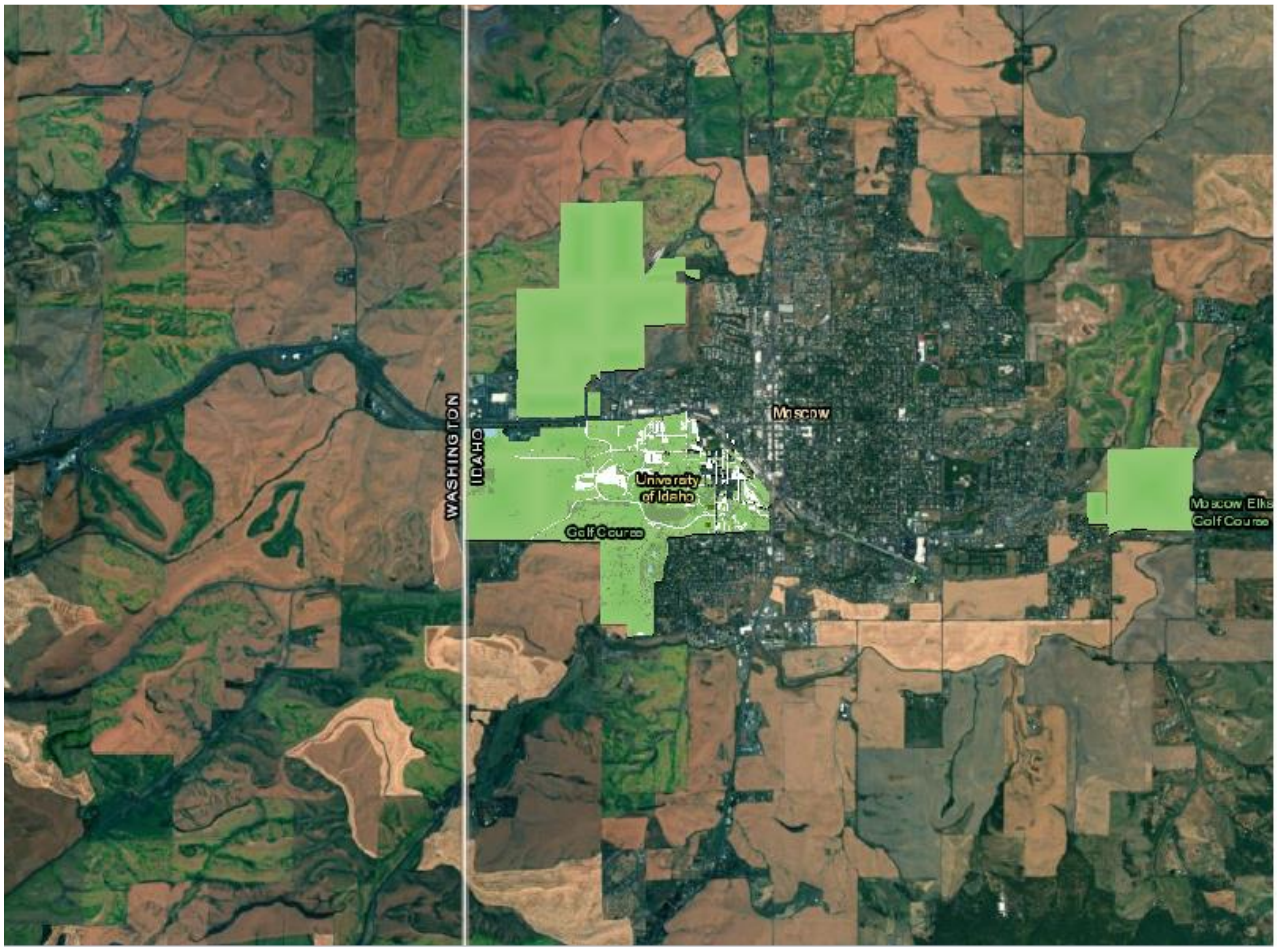
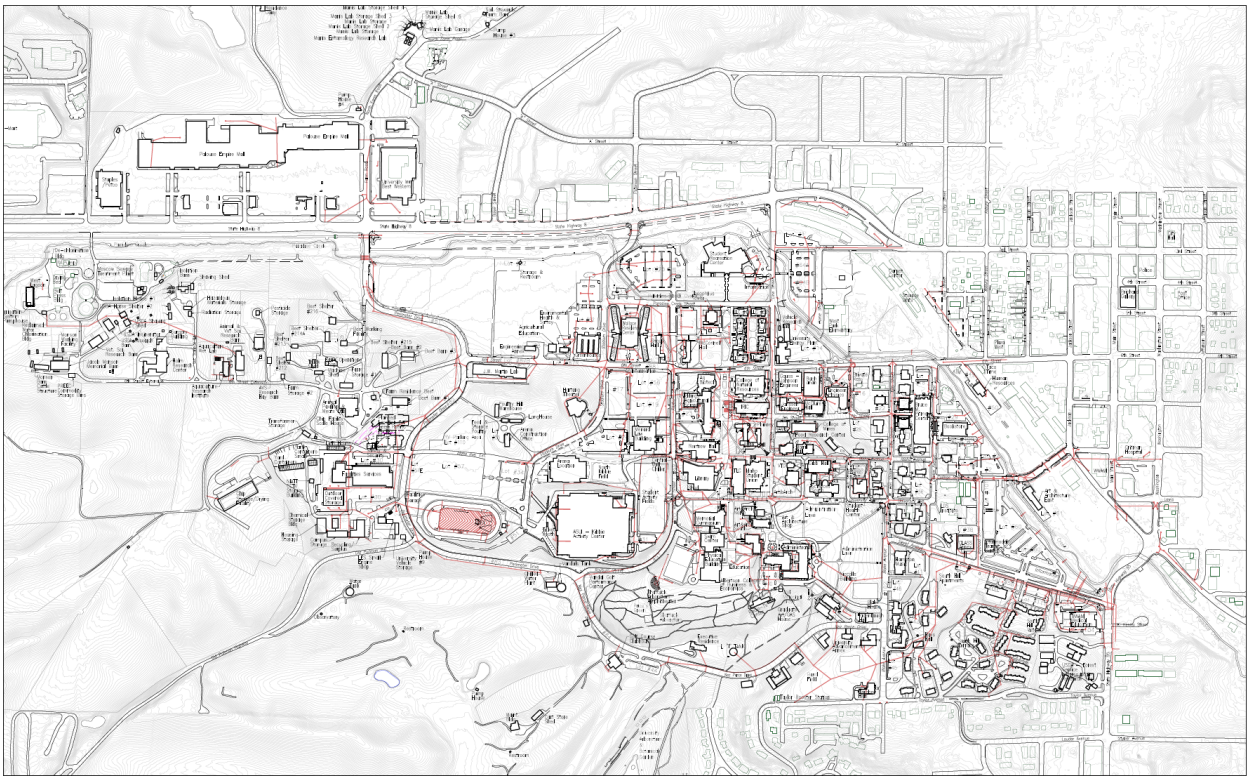


Figure A.2.2 University of Idaho Campus Storm Lines
The map below is a partial representation of the storm sewer line maps submitted by the University as part of the 2019 permit application.



Appendix 3 - Rationale For Onsite Stormwater Retention Standard or Treatment Equivalent In Permit Part 3.4

The requirements in Permit Part 3.4 will improve upon the site design specifications, guidelines, and other policy documents that are currently required by MS4 Permittee jurisdictions in Idaho. The purpose of requiring an onsite stormwater design standard in this and other Idaho MS4 permits is to reduce pollutants in regulated MS4 discharges to the MEP, and improve upon the protection of water quality in Urbanized Areas of Idaho by helping to maintain or restore stable hydrology in adjacent receiving waters.

The following discussion provides additional background on EPA's rationale for including this requirement being necessary to meet the MS4 permit standard in the Idaho portion of the Paradise Creek watershed.

It is well understood nationally that uncontrolled runoff from new development and redeveloped areas negatively affects receiving water bodies.[48] Pavement and other impervious surfaces in urban settings prevent infiltration of precipitation, and the resulting runoff increases both in volume and velocity, which in turn causes the erosion of stream banks and scouring of streambeds. Fine sediments and pollutants from automobiles, landscape pesticides, and fertilizers enter waterbodies, and can damage fish spawning areas and other aquatic habitat. Where traditional stormwater management practices typically employ engineered, end-of-pipe practices, (that tend to control only peak flow rates and total suspended solids concentrations), such conventional practices typically fail to address widespread and cumulative hydrologic modifications within a watershed that increase runoff volumes and rates, causing excessive erosion and stream channel degradation. Traditional practices also fail to treat runoff for nutrients, pathogens, and metals pollutants typically found in urban settings.[49]

Permanent stormwater control measures that involve prevention- such as product substitution, better site design, downspout disconnection, and conservation of natural areas - as well as watershed and land use planning, can dramatically reduce both the volume of runoff and pollutant loads from new development and redevelopment. In particular, site-level stormwater control measures that harvest, infiltrate, and evapotranspire stormwater runoff are critical to reducing the volume and pollutant loading associated with smaller storms.[50]

"Green Infrastructure" (GI) or "green stormwater infrastructure" (GSI), are terms used to describe the type of permanent stormwater management techniques that are cost-effective, sustainable, and environmentally friendly. Such techniques, including site level "Low Impact Development" (LID) practices, at new development or redevelopment projects involve both stormwater management and land development strategies emphasizing conservation and integration of natural features with small scale engineered hydrologic controls to more closely mimic predevelopment hydrologic function. A comprehensive approach to long-term stormwater management using GI/GSI, and LID seeks to:

- Preserve, protect and enhance natural landscape features, such as undisturbed forests, meadows, wetlands, and other undisturbed areas that provide natural stormwater management;
- Reduce overall land consumption, and use land efficiently, to reduce total watershed or regional impervious cover;

[48] EPA 1983; EPA 1999.
[49] Shaver, et al., 2007. Holz, 2008; and Horner, 2008.
[50] NRC 2008.

- Recycle land by directing new development to already degraded land, e.g., parking lots, vacant buildings, abandoned malls; and
- Direct stormwater into the ground near where it fell through infiltration, prevent rainfall from falling to the ground through interception, return water back to the atmosphere through evapotranspiration, and/or otherwise manage storm water through reuse techniques.[51]

Since 2008, EPA has encouraged MS4 jurisdictions to employ a volume-based approach to stormwater management at new development and redevelopment sites. This approach includes requirements for the design, construction, and maintenance of permanent stormwater practices that manage rainfall on-site, to generally prevent the off-site discharge of precipitation from all rainfall events below a certain size. EPA considers a volume-based stormwater management approach to be appropriate in this and other MS4 permits in Idaho because such techniques are widely acknowledged as a means of preventing pollutants from entering the receiving water; further, such techniques directly address the need to maintain and, where necessary, restore predevelopment hydrology for duration, rate, and volume of stormwater flows.

Many GSI/LID strategies involve bioretention, or infiltrating runoff through soil. Bioretention practices include use of porous pavements, green roofs, bioswales, and rain gardens. Various studies confirm the effectiveness of GSI/LID practices to reduce contaminants, restore hydrology, and protect the health of aquatic species. Research and on-the-ground experience suggests that all LID practices can perform effectively in a wide variety of geographic areas as long as procedures for proper design, implementation, and maintenance are established and followed.[52]

Many MS4 Permittees in Idaho currently require onsite retention and infiltration practices at development sites in their jurisdictions, and integrate aspects of a GSI/LID approach for such new development and redevelopment sites. Based on evidence that such GSI/LID approaches are indeed practicable for use in Idaho communities, EPA is now requiring such site design approaches in this and other MS4 permits in Idaho to better address post-construction stormwater discharges.

The Permit requires the Permittees to use local ordinances or regulatory mechanisms to require the volume of water from storms $\leq$ 95th percentile event to be managed entirely onsite, and not discharged to surface waters, in order to fully protect Idaho receiving waters. The *95th percentile rainfall event* is the rainfall event that is greater than 95% of all rainfall events over a period of record (typically using a minimum 30-year period of record). In general, this calculation excludes extremely small rain events that are $\leq$0.1 of an inch of rainfall or less (because such small rainfall events typically do not result in any measurable runoff due to absorption, interception, and evaporation by permeable, impermeable, and vegetated surfaces).[53]

EPA has previously calculated example target design storm volumes, as illustrated below. Using available 24-hour precipitation data through 2012 from the National Oceanic and Atmospheric Administration, EPA analyzed the average rainfall depth occurring in the Idaho MS4 Permit

[51] See: American Rivers 2013; EPA 2006*;* EPA 1999*,* at pages 68725 – 68728 and 68759; EPA 2008; and EPA 2009a.
[52] For example, see Ahiablame, et al, 2012; Spromberg, J.A. et al. 2016; and McIntyre, J.K, et al. 2016; and other references in the Administrative Record.
[53] See: Hirschman and Kosco, 2008

Areas. See Table A below. In the Urbanized Areas of Idaho, approximately 95% of all storms result in rainfall volumes of approximately 0.82 inches or less, ranging between 0.57 inches to 0.82 inches.

Table A: *Analysis of the 95th Percentile Storm Runoff Volumes for Idaho MS4 Permit Areas*

Urbanized Area/ Permit Area	Rainfall Depth (in) 95th	NOAA Station Location; Period of Record
Coeur d' Alene	0.81888	*COEUR D ALENE, ID (GHCND:USC00101956);1895-2012*
Moscow	0.8188	*MOSCOW U OF I, ID (GHCND:USC00106152);1893-2012*
Caldwell	0.6102	*BOISE AIR TERMINAL, ID (GHCND:USW00024131); 1940-2012*
Nampa	0.5708	*NAMPA 2 NW, ID US ZIP:83687; 1948-2012*
Boise	0.6102	*BOISE AIR TERMINAL, ID (GHCND:USW00024131); 1940-2012*
Lewiston	0.6299	*LEWISTON NEZ PERCE CO AIRPORT, ID (GHCND:USW00024149); 1940-2012*
Pocatello	0.6495	*POCATELLO REGIONAL AIRPORT, ID (GHCND:USW00024156); 1939-2012*
Idaho Falls	0.688	*IDAHO FALLS, ID 83402 ZIP:83402; 1913-2012*

EPA recommends the 95th percentile storm volume be calculated for the Moscow, Idaho area at the start of the Permit term and revisited at the time of permit renewal so that a consistent standard is applied for the duration of the Permit term.

Including a stormwater design standard for onsite stormwater retention in this and other MS4 Permits, expressed as a calculated runoff volume, serves to acknowledge the predicted, incremental increase in storm event volumes in Couer d'Alene and other areas of Idaho. EPA believes such a design standard is preferable to using a single, static statewide rainfall amount (e.g, "0.6 inches total rain"), or a volume calculated from a statistical storm frequency return interval using historic rainfall data.

EPA has evaluated the potential extreme storm event return interval for 24-hour storm events in each of the MS4 Permit Areas in Idaho.[54] The evaluation reflects estimated changes in rainfall patterns over 30-year averages, centered around the years 2035 and 2060, as compared to historical or present-day conditions. Under all evaluated scenarios, the predicted trends in Idaho MS4 Permit Areas show a general increase in ambient temperatures throughout the calendar year, and increased storm magnitude for all return frequencies (i.e., the 5 year, 10 year, …, and

[54] EPA Region 10's analysis of the extreme storm event return interval for the Idaho MS4 Permit Areas is available as part of the Administrative Record. EPA used a risk assessment application designed to help water utilities in adapting to extreme weather events through a better understanding of current and long-term weather conditions; it is available online at https://www.epa.gov/crwu/build-resilience-your-utility.

100 year events). The evaluation also suggests significantly decreased summer precipitation statewide, balanced by increased precipitation during other seasons. Expressing the stormwater design standard for onsite storm water retention in Permit Part 3.4 as a calculated runoff volume therefore defines a practicable and feasible performance standard for permanent stormwater control at new development and redevelopment that will protect Idaho water quality over the long term.

Appendix 4 – Rationale Supporting Requirements In Permit Part 4 For MS4 Discharges To Impaired Waters

Water quality impairments within and downstream of the University of Idaho MS4 Permit Area require that EPA include permit terms and conditions to reflect appropriate requirements that address impairment pollutants consistent with the approved TMDLs for Paradise Creek. See 40 CFR § 122.44 (d)(4) & (d)(5).

Paradise Creek is located in Latah County, Idaho, and is part of the Palouse Subbasin [Hydrologic Unit Code (HUC) 17060108]. Paradise Creek flows from its headwaters on Moscow Mountain in the Palouse Range, through the City of Moscow, across the Idaho/Washington State line, and enters the South Fork of the Palouse River (SF Palouse River) near the eastern boundary of the City of Pullman, Washington. See Appendix 2 for maps of the watershed and Permit area.

EPA designates the University MS4 discharges to the Paradise Creek Assessment Unit (AU) located in the boundary of the City of Moscow as requiring NPDES permit coverage.See Appendix 5.

Receiving Water	**Waterbody Assessment Unit**	**Impairment Pollutants**	**TMDL Status**
Paradise Creek	ID17060108CL005_02 *Paradise Creek - Urban boundary to Idaho/Washington border*	*E. coli* Nutrient/Eutrophication Biological Indicators Sedimentation/Siltation Temperature	*Paradise Creek TMDL Water Body Assessment and Total Maximum Daily Load* *Paradise Creek Total Maximum Daily Load Implementation Plan* December 1999; EPA Approved 2000. *Paradise Creek TMDL 2015 Bacteria Addendum*, October 2015; EPA Approved November 2016.
Paradise Creek (WA portion)	17060108000255 *Paradise Creek* *WDOE Listing ID: 10444*	Fecal Coliform Bacteria pH, Dissolved oxygen, Temperature	*South Fork Palouse River Fecal Coliform Bacteria Total Maximum Daily Load - Water Quality Improvement Report* WDOE Publication No. 09-10-060. October 2009. EPA Approved 2009.

Regarding the portion of Paradise Creek in Idaho: EPA approved IDEQ's *Paradise Creek Water Body Assessment and TMDL* in 1998 (Paradise Creek TMDL). The Paradise Creek TMDL addresses ammonia, nutrients, sediment, bacteria, and temperature, and establishes load allocations (LAs) as in-stream targets for fecal coliform, TSS, and total phosphorus. IDEQ subsequently developed the *Paradise Creek TMDL 2015 Bacteria Addendum* (Paradise Creek 2015 Addendum), to update the bacteria indicator from fecal coliform to *E. coli* based on the current Idaho water quality standards criterion for secondary contact recreation. The combined instream targets for *E. coli* at 126 cfu/100 mL (collected as a 5-sample geometric mean over 30 days); total phosphorus, at 0.136 mg/l during the summer months; and TSS, at 50 mg/l over background for 10 consecutive days. The TMDL(s) identify land development, urban stormwater systems, resident and business activities, roadways, and parking lots as the primary nonpoint

sources of bacteria, TSS, and total phosphorus in the Paradise Creek watershed[55].

The TMDLs state that regulated small MS4 operators must "obtain an NPDES permit from EPA, implement a comprehensive municipal stormwater management program, and use BMPs to control pollutants in stormwater discharges to the maximum extent practicable."[56]

EPA designated the City of Moscow MS4 discharges to Paradise Creek and issued NPDES Permit No. IDS028398 in August 2019; IDEQ's certification of the City MS4 Permit states:

> *The TMDLs require small MS4 operators to obtain a NPDES permit, implement a comprehensive stormwater management and monitoring program, and use BMPs to reduce pollutants of concern in stormwater discharges to the maximum extent practicable. These load allocations were designed to restore the water quality of these AUs to the level necessary to support designated aquatic life and contact recreation beneficial uses and comply with the applicable water quality criteria. The implementation of a comprehensive [SWMP] which includes targeted pollutant reduction activities through BMP implementation and pollutant assessment and monitoring in each impaired AU by the City of Moscow is consistent with the Paradise Creek TMDLs.*[57] Emphasis added.

Regarding the portion of Paradise Creek in Washington: In 2009, EPA approved WDOE's *South Fork Palouse River Fecal Coliform Bacteria Total Maximum Daily Load - Water Quality Improvement Report* (SF Palouse River FC Bacteria TMDL). WDOE conducted wet and dry season sampling in Paradise Creek, a tributary of the SF Palouse River, at the ID/WA border as part of their assessment study. WDOE found a large average pollutant load at the state line-monitoring site during the dry season. The TMDL requires that discharges meet the Washington fecal coliform standards in Paradise Creek at the state border so that sufficient capacity remains in the river for other Washington sources in the SF Palouse River watershed.

The SF Palouse River FC Bacteria TMDL establishes wasteload allocations for selected stormwater outfalls in Washington, expressed as target percent reductions needed to meet WA water quality standards.[58] Based on the unexplained fecal coliform loading to Paradise Creek upstream of the Washington-Idaho state line, the TMDL states that, …"*the City of Moscow should investigate Paradise Creek to determine if the loading is occurring within the city limits. If the load is entering Paradise Creek upstream of the city of Moscow, sources in the county should be investigated and remedied*." Regarding urban stormwater management, the TMDL acknowledges that EPA would issue a permit for the City's MS4 discharges, and further states that, "…*If stormwater pollution is contributing bacteria to Paradise Creek, the NPDES permit should include activities to address this source. Stormwater management in the City of Moscow will help protect Paradise Creek from fecal coliform bacteria*."59

Discussion and Conclusion: EPA must include include permit terms and conditions to reflect appropriate requirements that address impairment pollutants consistent with the approved TMDLs for Paradise Creek. EPA previously established appropriate permit terms and conditions for the City of Moscow MS4 discharges. The University MS4 discharges to the same waterbody

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[55] See P*aradise Creek TMDL*, pages 24 and 45; and *Paradise Creek 2015 Addendum*, page 13
[56] See IDEQ 2015 Addendum, page 29.
[57] See IDEQ's *Final §401 Water Quality Certification for the City of Moscow Municipal Separate Storm Sewer System; NPDES Permit # IDS028398*, dated July 19, 2019
[58] WDOE separately designated both City of Pullman and Washington State University as regulated small MS4s in 2007; as a result, the 2009 SF Palouse River FC Bacteria TMDL established WLAs for point sources and load allocations for other sources within the watershed.
[59] See WDOE 2009, pages 100 and 108.

AU as the City MS4, and EPA has established comparable permit terms and conditions for the University MS4 discharges to Paradise Creek. EPA determines that implementation of the comprehensive SWMP control measures, pursuant to Permit Part 3, and the monitoring/assessment and pollutant reduction activity in Permit Part 4, are consistent with the Paradise Creek TMDLs developed by IDEQ and WDOE. The University may identify activities to augment existing stormwater control measures, or may target new actions, as deemed appropriate by the Permittee, and EPA encourages the University to work with the City, and other regulated MS4 partners in the Paradise Creek watershed, to implement both their SWMP and appropriate activities for pollutant reduction and assessment.

Appendix 5 – EPA's 2019 Designation of the MS4 Owned and/or Operated by the University of Idaho as a *Regulated Small MS4*

This Appendix contains EPA's initial designation document as sent to the University in 2019. Information in the designation document provides the basis for finalizing the designation of the University as a regulated MS4.

Designation of the University of Idaho Municipal Separate Storm Sewer System (MS4) As A Regulated Small MS4

June 2019

I. Introduction

Under Clean Water Act (CWA) Section 402(p), 33 U.S.C. § 1342(p), Congress required the U.S. Environmental Protection Agency (EPA) to establish National Pollutant Discharge Elimination System (NPDES) permitting requirements for certain stormwater discharges. Among other types of stormwater discharges requiring permits, CWA Section 402(p)(2)(e), 33 U.S.C. § 1342(p)(2)(E), provides that the permitting authority may, on a case-by-case basis, determine that a stormwater discharge requires a NPDES permit if the discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the U.S. *See also* 40 CFR § 123.35(a)(1). This authority to require NPDES permits for otherwise unregulated stormwater sources is commonly referred to as the "Residual Designation" authority. In addition, the EPA established stormwater regulations in two phases: Phase I, 55 Fed. Reg. 47,990 (Nov. 16, 1990); and Phase II, 64 Fed. Reg. 68,781 (Dec. 8, 1999). These regulations describe a program that requires many municipal separate storm sewer systems (MS4s) to obtain NPDES permit coverage.

This decision document constitutes the EPA's initial designation of the University of Idaho (University) MS4, in Latah County, Idaho, as a regulated small MS4. As discussed in detail below, the EPA has determined that the University's discharges (1) contribute to an exceedance of water quality standards and/or (2) are a significant contributor of pollutants to waters of the U.S. Therefore, the EPA is designating the discharges from the University's MS4 for regulation under the NPDES program.

Within 180 days of receipt of this initial designation the University of Idaho must submit an NPDES permit application for the discharges from their MS4. See 40 CFR § 122.26(a)(9). The EPA will subsequently propose for public comment a draft NPDES permit to authorize the MS4 discharges. Whether this initial designation is proper will remain open during the public comment period on that draft NPDES permit. See 40 CFR § 124.52(b)-(c). After consideration of all public comments, the EPA will issue a final designation decision along with its final permit decision.

II. Residual Designation Authority

CWA Section 402(p)(2)(e), 33 U.S.C. § 1342(p)(2)(E), provides that the permitting authority may, on a case-by-case basis, determine that a stormwater discharge requires a NPDES permit if the discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the U.S. *See also* 40 CFR § 123.35(a)(1). 40 CFR § 122.26(a)(1)(v) provides that in deciding whether to designate an MS4 as a regulated MS4 subject to NPDES permitting based on its contribution to a violation of a water quality standard or as a significant contributor of pollutants to waters of the United States, the Director may consider the following factors:

(A) The location of the discharge with respect to waters of the United States;

(B) The size of the discharge;

(C) The quantity and nature of the pollutants discharged to waters of the United States; and

(D) Other relevant factors.

40 CFR § 122.26(a)(1)(v)(A) – (D).

In addition, when the EPA promulgated its Phase II Stormwater Regulations in 1999, it designated small MS4s and small construction activity (1-5 acres) for NPDES permitting "to protect water quality." The EPA carried forward the residual designation authority of CWA Section 402(p)(2)(E) along with the authority of (p)(6) as a basis for promulgation of a new residual designation regulation, 40 CFR § 122.26(a)(9)(i)(C)-(D). The preamble to the rule explained that the rule "carries forward" or "preserves" the ability of the EPA and/or the states to designate otherwise unregulated stormwater discharges, individually or categorically, and locally or regionally, for NPDES permitting as necessary to protect water quality. 64 Fed. Reg. 68,781 (Dec. 8, 1999). The U.S. Court of Appeals for the Ninth Circuit upheld the provision on this basis. *Environmental Defense Center, Inc. v. U.S. Environmental Protection Agency, et al.*, 344 F.3d 832, 875 (9th Cir. 2003) (*EDC*).[1]

In doing so, the EPA preserved the discretionary authority of the EPA and states to designate as-yet-unidentified discharges for NPDES permitting, on a case-by-case basis, as necessary and to protect water quality, where the EPA lacked sufficient data to designate on a nationwide basis. 40 CFR § 122.26(a)(9)(i)(D); 64 Fed. Reg. at 68,781. Specifically, "for discharges composed entirely of storm water, that are not required by paragraph (a)(1) of this section to obtain a permit, operators shall be required to obtain a NPDES permit only if," among other circumstances, the State NPDES Program Director or the EPA Regional Administrator "determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard *or* is a significant contributor of pollutants to waters of the United States." 40 CFR § 122.26(a)(9)(i)(D) (emphasis added). *See* 64 Fed. Reg. at 68,781. As noted above, the Ninth Circuit upheld this "residual designation authority" as grounded in and consistent with both CWA Section 402(p)(6) and Section 402(p)(2)(E). *EDC* at 876 (9th Cir. 2003).

The Phase II rule also tasked state NPDES permitting authorities with evaluating small MS4s in non-Census-designated urbanized areas to determine whether NPDES permits are appropriate to protect water quality. 40 CFR § 123.35(b). The NPDES permitting authorities were required to develop a process as well as their own designation criteria for this task. *See id.* In determining significant water quality impacts (i.e., whether the discharge is a significant contributor of pollutants), the EPA recommended "a balanced consideration of the following criteria on a watershed or other local basis: discharge to sensitive waters, high growth or growth potential, high population density, contiguity to an urbanized area, significant contributor of pollutants to waters of the United States, and ineffective protection of water quality by other programs." 40 CFR § 123.35(b)(1)(ii).[2]

[1] "The residual designation authority is grounded both on § 402(p)(6), which broadly authorizes a comprehensive program to protect water quality, and on § 402(p)(2)(5), [sic], which authorizes case-by-case designation of certain polluters and categories of polluters." *Id.*

[2] The guidance about designating additional MS4s outside the urbanized area for NPDES permitting appears in a section of the regulation that establishes requirements for EPA-approved state NPDES programs. When the EPA is the permitting authority, these criteria are also helpful in evaluating whether MS4s not designated by existing regulation should be required to obtain NPDES permits either because they contribute to a violation of a WQS or as "significant contributors of pollutants to waters of the U.S" with inadequate controls on the discharges. When describing the state program regulations in the preamble to the Phase II rule, the EPA clearly referred to states only in their capacity as NPDES permitting authorities. As a general matter, the EPA is required to use the same methods and procedures for implementing the NPDES permit program as it requires of State programs. *See also* CWA § 402(a)(3).

III. Characterizing Stormwater Discharges

General Characteristics of Stormwater from MS4s

MS4 discharges are comprised primarily of urban stormwater.[3] Such discharges typically contain elevated concentrations of pollutants that collect on impervious surfaces, such as streets, driveways, parking lots, and sidewalks. Many studies confirm that the level of imperviousness in an area strongly correlates with the quality of the nearby receiving waters. Urban development creates new pollution sources as population density increases; more people in less space results in greater concentration of pollutants (such as vehicle maintenance waste, pet waste, litter, household hazardous waste, and the like) that can be mobilized by stormwater and discharged from MS4s.[4]

The first national assessment of urban stormwater quality was undertaken for the *Nationwide Urban Runoff Program (NURP)* study in the late 1970s and early 1980s. Overall, data from the NURP study indicated that discharges from separate storm sewer systems draining stormwater from residential, commercial, and light industrial areas carried more than ten times the annual loadings of total suspended solids (TSS) than discharges from municipal sewage treatment plants that provide secondary treatment. The NURP study also indicated that stormwater discharges from residential and commercial areas carried somewhat higher annual loadings of chemical oxygen demand (COD), total lead, and total copper than effluent from secondary treatment plants, as well as high levels of bacteria during warm weather conditions.[5]

The National Stormwater Quality Database (NSQD) indicates significant variations in pollutant loadings among different land uses, however, the data confirm the significance of discharges from MS4s as contributors of pollutants to waters of the United States. For example, the average TSS concentration for all urban stormwater samples was 62.0 mg/L, more than double the 30-day average limit of 30 mg/L for discharges from municipal sewage treatment plants that provide secondary treatment.[6] The median fecal coliform concentration was 4300 mpn/100 mL, which exceeds the former National Recommended Water Quality Criteria (NRWQC) for bathing waters by an order of magnitude.[7]

Population density is related to the level of human activity within an urban setting. Urbanization is directly linked to the amount of total impervious land surfaces within the area. Urbanization alters the natural infiltration capacity of the land, and associated human activity generates a host of pollutants. Impervious land cover causes increasing volumes of stormwater discharges to the receiving water body; receiving water quality is negatively affected by increased pollutant loadings from the impervious land. Various studies

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[3] The term "urban stormwater" is not defined by regulation, nor does it appear in the text of the EPA's storm water regulations. Consistent with the EPA's usage in the preamble to the Phase I and II regulations, the term is used in this document to refer to stormwater discharges from urban areas, including residential, commercial, industrial and mixed-use areas, through separate storm sewers. *See e.g.,* 64 Fed. Reg. at 68,725 – 68,728 (Dec. 8, 1999).

[4] 64 Fed. Reg. at 68,725 (Dec. 8, 1999).

[5] EPA 1983.

[6] Available at http://unix.eng.ua.edu/~rpitt/Research/ms4/Paper/Mainms4paper.html. The NSQD data is summarized in NRC 2008, Table 3-4, pages 155-158.

[7] See EPA's Redbook, Quality Criteria for Water (July 1976) at 79, available at http://water.epa.gov/scitech/swguidance/waterquality/standards/current/index.cfm.

indicate that the amount of imperviousness within an area strongly correlates with adverse water quality impacts of nearby receiving waters.[8]

Characteristics of Stormwater Discharge from the University of Idaho MS4

The University is the state's land-grant research university. The University operates a residential campus that occupies approximately 2.4 square miles within the City of Moscow (Moscow), in Latah County, Idaho. See Figures 1, 2 and 3 below. Land-use types that characterize the campus as it exists today include academic, athletics and recreation; traditional agricultural; housing, transportation/parking; campus and community service operations; and open spaces. The University operates in a manner akin to a small municipal city, insofar as the University plans, constructs, operates, and maintains many of its own utilities and infrastructure, including storm water collection, treatment, and discharge.[9]

The University's properties are drained by a storm sewer system that both interconnects to Moscow's MS4, and discharges directly to Paradise Creek.[10]

Status of Receiving Water

Paradise Creek is part of the Palouse Subbasin [Hydrologic Unit Code 17060108] and flows from its headwaters on Moscow Mountain in the Palouse Range, through Moscow and the University's campus, to the west across the Idaho/Washington State line and enters the South Fork of the Palouse River near the eastern boundary of the City of Pullman, Washington.[11] See Figures 3 and 4 below.

The State of Idaho water quality standards at IDAPA 58.01.02.120.01 establish beneficial uses for Paradise Creek as cold water aquatic life and secondary contact recreation.

Idaho Department of Environmental Quality's (IDEQ) 2014 *Integrated Section 303(d)/Section 305(b) Report* (2014 Integrated Report) contains the list of impaired water bodies in Idaho required by CWA Sections 305(b), 303(d) and 314.[12] The segment of Paradise Creek that flows through the University's campus, Assessment Unit ID 17060108CL005_02 (identified as *Paradise Creek, from the eastern urban boundary to Idaho/Washington border*), is listed in the 2014 Integrated Report as impaired for ammonia, fecal coliform, *E.*

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[8] 64 Fed. Reg. at 68,725 (Dec. 8, 1999).

[9] *University of Idaho Long Range Campus Development Plan (2000)*, especially pages 27-29. https://www.uidaho.edu/infrastructure/facilities/aes/campus-development-plan. For example, the University also maintains fiscal and operational responsibilities for steam generation and distribution and electrical energy distribution; for its own domestic water wells, water storage and distribution of water systems; for reclaimed water collection, treatment and distribution; for chilled water production and distribution; and for sanitary sewage collection and delivery to the community treatment facility.

[10] Moscow 2009.

[11] University of Idaho, 2000; and University of Idaho, 2009.

[12] See IDAPA 58.01.02.120.01 https://adminrules.idaho.gov/rules/2017%20Archive/58/0102.pdf#G2.503877; also, IDEQ's 2014 Integrated Report is available online at: https://www.deq.idaho.gov/assistance-resources/maps-data/. All applicable Idaho TMDL documents are available on IDEQ's website at http://deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/

coli, nutrient/eutrophication, biological indicators, sedimentation/siltation and temperature.[13] The segments immediately upstream of the eastern urban boundary (Assessment Unit ID 17060108CL005_02a, *Paradise Creek from forest habitat boundary to urban boundary)*; and Assessment Unit ID 17060108CL005_02b, *Paradise Creek from source to forest habitat boundary*) are also listed as impaired for *E.coli.*

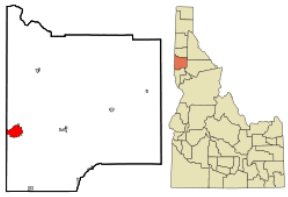
The Washington Department of Ecology's (WDOE) *2015 Water Quality Assessment 305(b) Report and 303(d) list* (WDOE's 303(d) list) identifies the portion of Paradise Creek in Washington State as being impaired for fecal coliform, ammonia, and nutrients. Paradise Creek is a tributary of the South Fork of the Palouse River, which the WDOE lists as impaired for fecal coliform, dissolved oxygen, temperature, and polychlorinated biphenyls (PCBs).[14]

[13] IDEQ previously listed Paradise Creek as impaired for fecal coliform; *E. coli* is currently listed as the impairment due to a change in Idaho's water quality standards regarding secondary contact recreation criteria from a criterion associated with fecal coliform to a more specific criterion for *E. coli*. Note that Paradise Creek and South Fork Palouse River have been listed as impaired by IDEQ in its 1994, 2002, 2010, and 2012 Integrated Reports. Also note that IDEQ considers the Idaho portion of the South Fork Palouse Assessment Unit ID 17060108CL002_03, to be impaired for sediment, nutrients, bacteria and temperature.

[14] See the WDOE *2015 Water Quality Assessment 305(b) Report and 303(d) list*, http://www.ecy.wa.gov/programs/wq/303d/index.html. Note that these waters were also listed as impaired in the WDOE 2004 CWA Section 303(d) report, http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html

Figure 1. University of Idaho Campus Properties in Paradise Creek/South Fork Palouse River Watershed.

Derived from University of Idaho's Interactive Campus Maps, https://facilities.dfm.uidaho.edu/A/Download/geolocation2.html.



Note: The border representing the WA/ID state line extends north/south and is indicated by a vertical gray line.

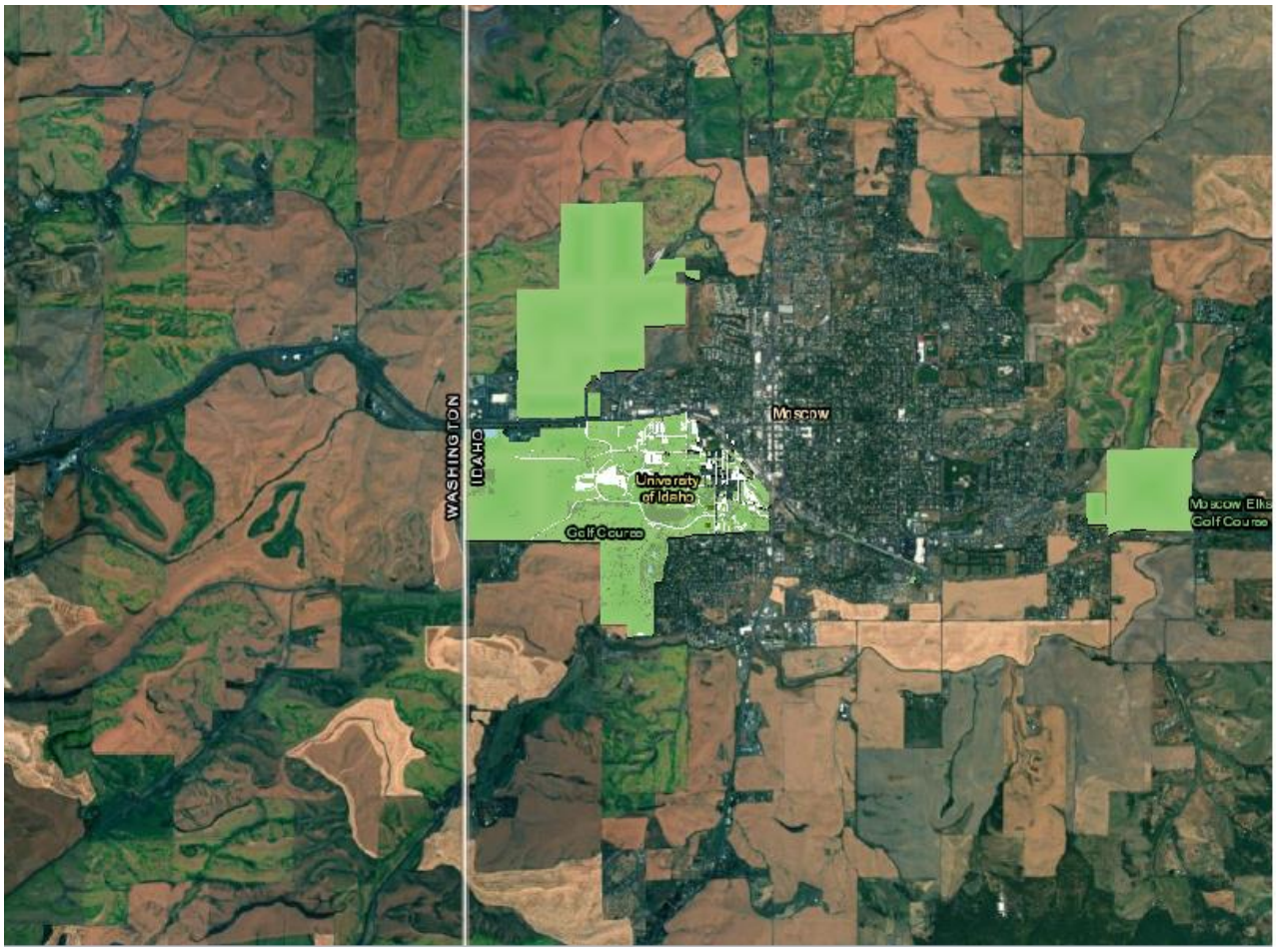


Figure 2. University of Idaho Long Range Campus Development Plan – Illustrative Plan

At: https://www.uidaho.edu/infrastructure/facilities/aes/campus-development-plan/illustrative-plan
See: University of Idaho, 2018.

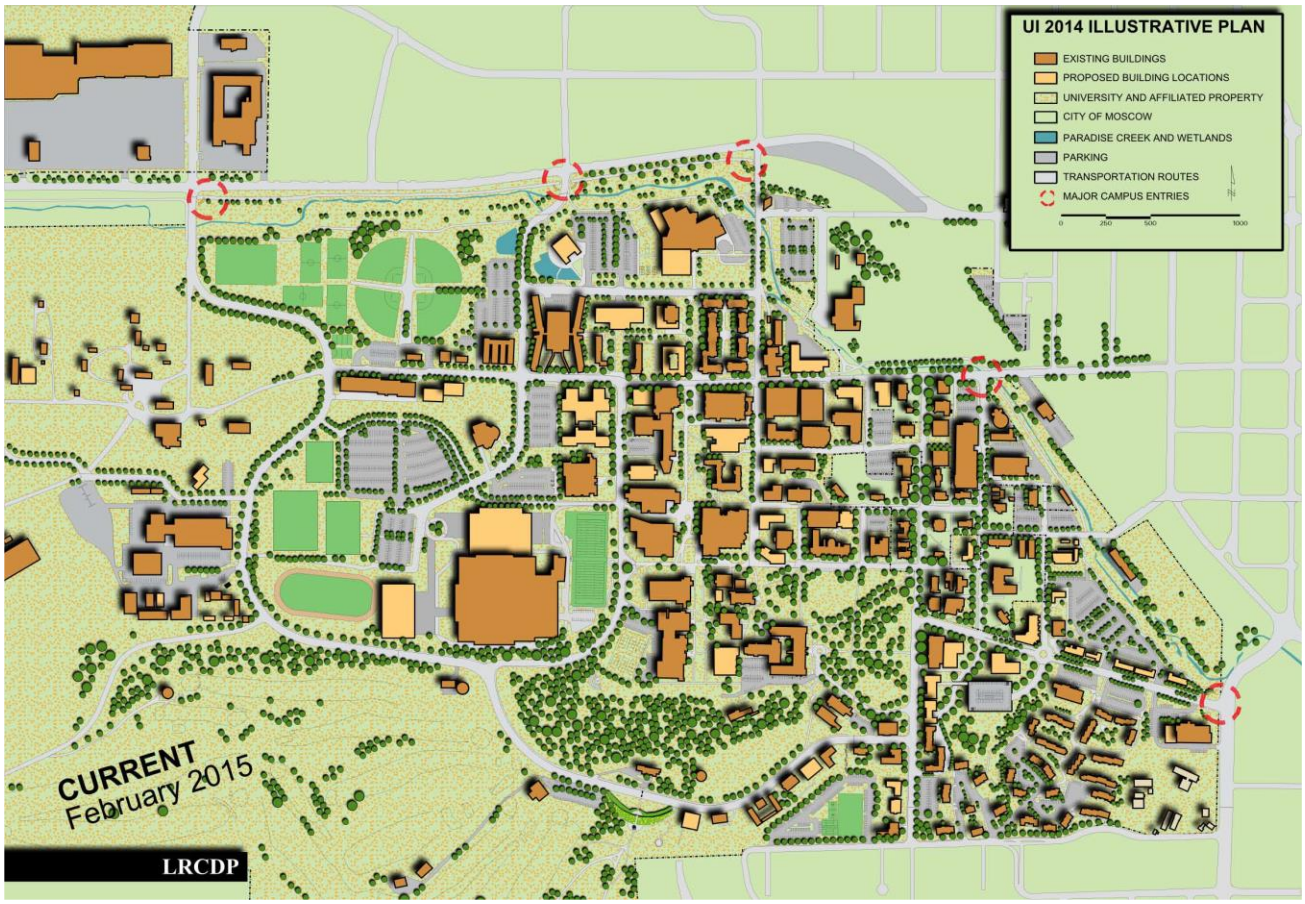


Figure 3. Map of City of Moscow Urban Cluster.

2010 U.S. Census Urban Cluster Reference Map: Moscow, ID available from the U.S. Bureau of the Census: http://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/uc/uc59491_moscow_id/DC10UC59491.pdf

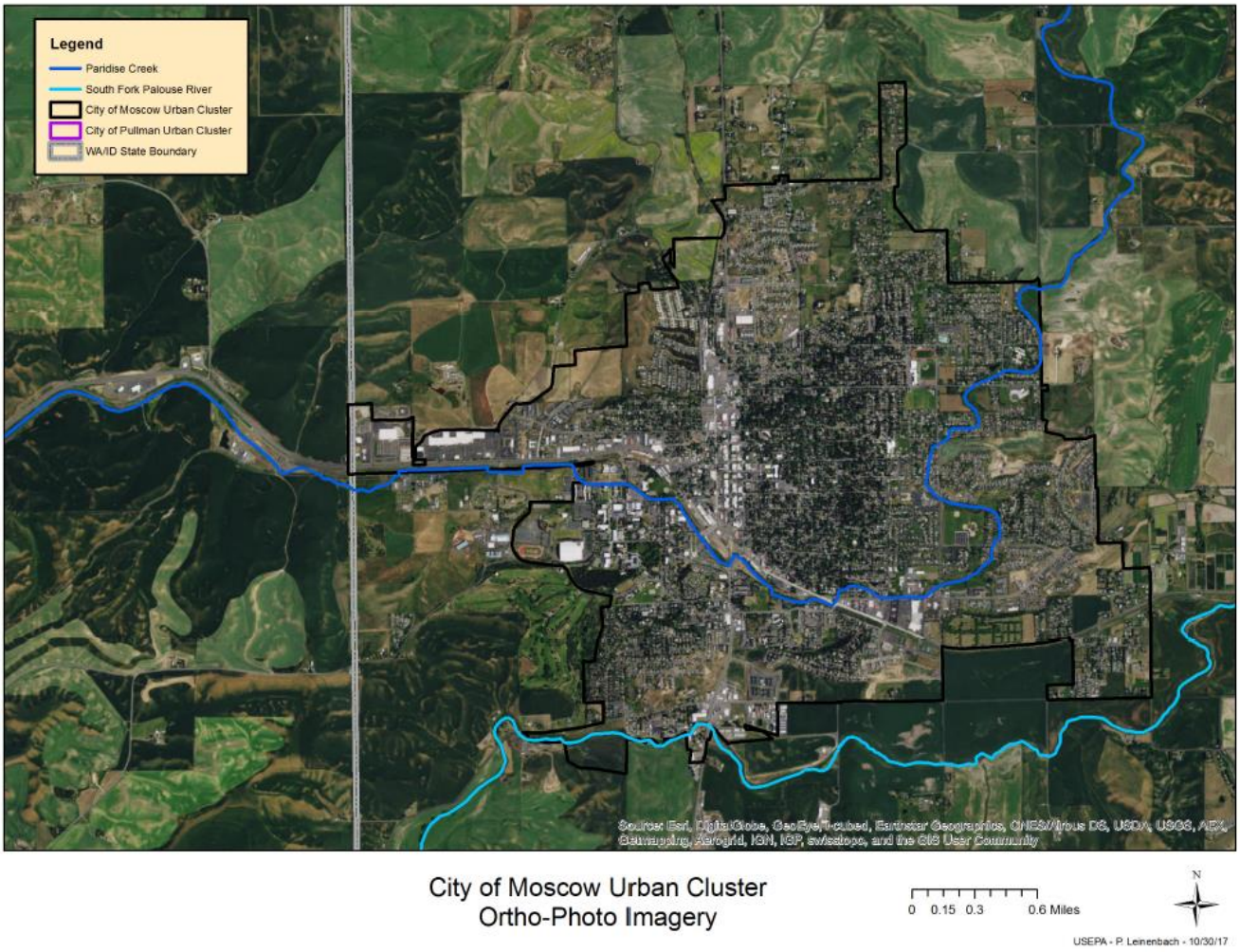
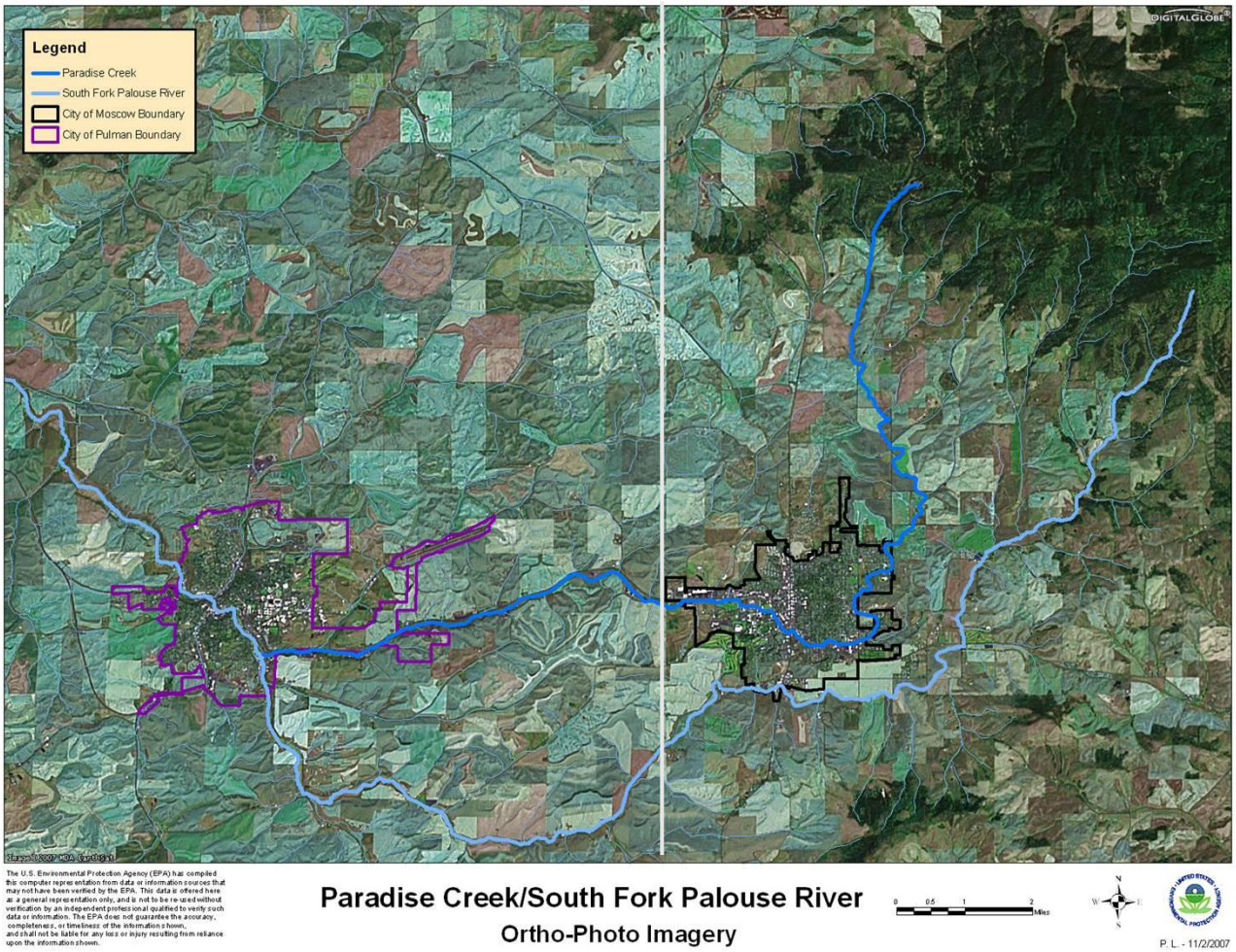


Figure 4. Map of the Paradise Creek/South Fork Palouse River Watershed.

(Sources: EPA 2007 and EPA 2017b.)



IV. Basis for Initial Designation

Background

In early 2007, upon receiving inquiries from representatives of the Washington State University and WDOE, the EPA began its evaluation as to whether MS4s in the Moscow, Idaho area should be designated as "regulated small MS4s" thus requiring a NPDES permit. The EPA began to evaluate whether the discharges contribute to exceedances of water quality standards and/or are significant contributors of pollutants to waters of the U.S. The EPA subsequently notified the University and Moscow of its preliminary determination to designate both MS4s as "regulated small MS4s" under 40 CFR § 122.26(a)(9)(i)(D), based on the criteria listed at 40 CFR § 123.35(b). Later that same year, both the University and Moscow responded by stating that the preliminary designation was unsupported by the available information and data.

WDOE subsequently provided the EPA with additional water quality data collected by WDOE staff from Paradise Creek at the Idaho/Washington border during 2006 and 2007. *See* data summary in Figure Appendix A, Figure A-3 and Table A-4 of this document. Using this and other data collected at the time, in late 2007, WDOE finalized its own designation of Washington State University and the City of Pullman as "regulated small MS4s" and required each of these entities to obtain permit coverage under the *Eastern Washington Phase II Municipal Stormwater General Permit*. Washington State University and the City of Pullman are directly downstream from the University and Moscow. WDOE has continued to encourage the EPA to designate the University and Moscow as "regulated small MS4s," because they contribute to downstream exceedances of Washington State water quality standards in Paradise Creek.

In late 2008, the EPA determined that stormwater discharges from the MS4 owned and/or operated by Moscow contributed to exceedances of the water quality standard for fecal coliform in the State of Washington. The EPA notified Moscow of its initial designation and required Moscow to submit an NPDES permit application no later than September 2009. As part of the application process, the EPA requested that Moscow develop a Storm Water Management Program (SWMP) pursuant to 40 CFR § 122.34.

At the same time, the EPA informally notified the University of its similar intent to designate discharges from the University's MS4 for NPDES permitting because their MS4 discharges contribute to exceedances of the water quality standard for fecal coliform in the State of Washington.[15]

On June 5, 2018, the EPA approved the State of Idaho's application to administer and enforce the Idaho Pollutant Discharge Elimination System (IPDES) program. IDEQ is taking over the IPDES program in phases over a four-year period in accordance with the Memorandum of Agreement (MOA) between IDEQ and the EPA, and subject to EPA oversight and enforcement. IDEQ will obtain permitting authority for the stormwater phase on July 1, 2021.

On November 26, 2018, the EPA proposed to issue a NPDES permit to regulate MS4 discharges from Moscow, and to finalize its determination that Moscow's MS4 discharges contribute to exceedances of applicable water quality standards for Paradise Creek and therefore must be regulated by a NPDES permit when the EPA issues the final permit.

The EPA is now initially designating the University of Idaho's MS4 as a NPDES-regulated small MS4 and is requiring the University to submit a NPDES permit application within 180 days of this initial designation.

15 This informal notification was not an initial designation.

Analysis

In accordance with 40 CFR § 122.26(a)(9)(i)(D), the EPA has discretion to designate stormwater discharges from small MS4s based upon a determination that they contribute to exceedances of water quality standards, including impairment of designated uses, or are significant contributors of pollutants to waters of the U.S., including consideration of habitat and biological impacts, and whether there are sufficient controls to manage such discharges, among other factors. *See also* 33 U.S.C. § 1342(p)(2)(E).

As discussed in detail below, available water quality data and waterbody assessment information indicate that urban storm water discharges from MS4s into Paradise Creek and South Fork Palouse River (1) contribute to exceedances of water quality standards and/or (2) are significant contributors of pollutants to waters of the United States.

The University's MS4 Discharges Contribute to an Exceedance of Water Quality Standards

The University's MS4 discharges to Paradise Creek which is listed in Idaho's 2014 Integrated Report as impaired for ammonia, fecal coliform, *E. coli*, nutrient/eutrophication, biological indicators, sedimentation/siltation and temperature. In addition, WDOE's 303(d) list identifies Paradise Creek at the state line, which is immediately downstream of the University's discharge, as impaired for fecal coliform, ammonia, and nutrients.

Between May 2013 and April 2014, IDEQ conducted instream sampling sufficient to calculate monthly geometric means comparable to the Idaho *E. coli* standard. IDEQ's selected sampling location at Perimeter Drive represents pollutant loading from the urban area after Paradise Creek has passed through Moscow and the University. In addition, instream monitoring for *E.coli* was also conducted upstream of the urban boundary (in AU ID17060108CL005_02a – *forest habitat to urban boundary*). *See* Appendix A, Table A-3. This monitoring data shows that the secondary contact recreation bacteria standard has the *potential* to be exceeded upstream of the urban boundary. In contrast, the data shows that all of IDEQ's calculated monthly geometric means exceeded the 126 cfu/100 mL criterion at the location representing the urban area pollutant load. *See* map monitoring location and monitoring data in Appendix A, Figure A-1 and Table A-1 of this document. Therefore, the instream data shows that the secondary contact recreation bacteria standard is not being met after Paradise Creek passes through the urban area. As a result, through its *Paradise Creek TMDL 2015 Bacteria Addendum*, IDEQ subsequently established a revised load allocation for unregulated nonpoint sources, including urban runoff, equal to the instream water quality target for *E.coli* of 126 cfu/100 ml.[16]

The *Paradise Creek TMDL 2015 Bacteria Addendum* recognizes MS4 discharges as a potential source of pollutants; IDEQ states that MS4 operators must obtain an NPDES permit from the EPA, implement a comprehensive municipal stormwater management program, and use BMPs to control pollutants in stormwater discharges to the maximum extent practicable, in order to prevent harmful pollutants from being washed or dumped into an MS4. IDEQ further clarifies that Paradise Creek is an interstate water, and notes the allocations therein are anticipated to restore Paradise Creek to Idaho's water quality standards in Idaho and to comparable Washington state water quality standards when Paradise Creek crosses the state border and enters Washington.[17] In November 2016, the EPA approved the IDEQ's *Paradise Creek TMDL 2015 Bacteria Addendum.*[18]

[16] See IDEQ 2015, at https://www.deq.idaho.gov/media/60177629/paradise-creek-tmdl-2015-bacteria-addendum.pdf.
[17] Id, pages 6 and 29.
[18] See IDEQ 2015, at pages 9-12, 21, and 24.

IDEQ's data showing that urban stormwater is contributing to a water quality standard exceedance is further confirmed by the data that WDOE provided the EPA. *See* data summary in Figure Appendix A, Figure A-3 and Table A-4 of this document.

Based upon the data provided by WDOE and the information/data set forth in the *Paradise Creek TMDL 2015 Bacteria Addendum*, the EPA concludes that the University's MS4 discharges are contributing to an exceedance of water quality standards in Paradise Creek. Therefore, pursuant to CWA Section 402(p)(2)(E), a NPDES permit is required for these MS4 discharges.

The University's MS4 Discharges are a Significant Contributor of Pollutants to Waters of the U.S.

In addition to concluding that the University's MS4 discharges are contributing to a violation of water quality standards, the EPA is also concluding that the University's MS4 discharges are a significant contributor of pollutants to waters of the U.S. *See* 33 U.S.C. § 1342(p)(2)(E); *see also* 40 CFR § 123.35(b)(1).

In 2002, the EPA Region 10 developed criteria (*see* Table 1) to guide whether unregulated small MS4s should be designated as "regulated small MS4s."[19] These criteria are based on recommendations made in the Phase II rule proposal [63 Fed. Reg. 1562 (January 9, 1998)], and are intended to evaluate whether the MS4 discharges are a significant contributor of pollutants to waters of the U.S. (*i.e.,* whether the discharges cause significant water quality impacts). Notably, these criteria are similar to those considered by the State of Washington to designate additional MS4s outside of urbanized areas. In particular, WDOE used its 2007 Petition Criteria to designate Washington State University and the City of Pullman (located in the same watershed as University of Idaho and City of Moscow). These criteria are also aligned with the IPDES *Designation Criteria and Selection Process for Small Municipal Separate Storm Sewer Systems* (February 2016) that IDEQ will use to designate additional MS4s once IDEQ has obtained storm water permitting authority.[20]

The EPA has used the following criteria as relevant factors to evaluate whether the University's discharges are a significant contributor of pollutants to waters of the U.S. for which designation is warranted.

Table 1. Relevant Factors for Residual Designation of MS4 Discharges

Criterion 1:	Does the municipal separate storm sewer discharge to a sensitive water?
Criterion 2:	Are discharges from the municipal separate storm sewer a significant contributor of pollutants to waters of the United States?
Criterion 3:	Does the municipal separate storm sewer serve a densely populated area?
Criterion 4:	Does the municipal storm sewer serve an area that has experienced high population growth over the last 10 years?
Criterion 5:	Is the municipal separate storm sewer contiguously located to an Urbanized Area or to an already regulated municipal storm sewer?
Criterion 6:	Is the municipal separate storm sewer physically interconnected to another, already regulated municipal storm sewer?
Criterion 7:	Are the water quality impacts of the municipal separate storm sewer already being addressed under other regulations or programs?

[19] U.S. EPA, *EPA Region 10's Designation Criteria for Small Municipal Separate Storm Sewer Systems*. June 2002. See also 40 CFR § 123.35(b)

[20] This IDEQ document is available online at: https://www.deq.idaho.gov/media/60178031/ipdes-designation-criteria-selection-process-small-municipal-separate-storm-sewer-systems-0216.pdf

Criterion 1: Does the Municipal Separate Storm Sewer Discharge to a Sensitive Water?

"Sensitive waters" include public drinking water intakes and their designated protection areas; designated public swimming beaches; State-designated Outstanding Resource Waters; waters within Federal, State and local parks; and waters containing threatened or endangered species and their habitat.[21]

> **Conclusion:** The University's MS4 discharges stormwater directly and indirectly into Paradise Creek, an interstate water body that is considered by both the States of Idaho and Washington as not meeting the applicable state water quality standards. Paradise Creek is not considered a "sensitive water" pursuant to the definition outlined above.

Criterion 2: Are discharges from the municipal separate storm sewer a significant contributor of pollutants to waters of the United States?

IDEQ's 2014 Integrated Report lists the segment of Paradise Creek that flows through the University, Assessment Unit ID 17060108CL005_02 from the eastern urban boundary to Idaho/Washington border, to be impaired for ammonia, fecal coliform, E. coli, nutrient/eutrophication, biological indicators, sedimentation/siltation and temperature. In addition, WDOE's 303(d) list cites the portion of Paradise Creek in Washington State as being impaired for fecal coliform, ammonia, and nutrients. Paradise Creek is a tributary of the South Fork of the Palouse River, which WDOE also lists as impaired for fecal coliform, dissolved oxygen, temperature, and polychlorinated biphenyls (PCBs). [22, 23]

Refer to Figure 4, above, for a map of the Paradise Creek/South Fork Palouse River watershed.
The EPA Region 10 approved the TMDLs for Paradise Creek in both states.[24] Each of the TMDL documents state that operators of MS4s within the Paradise Creek/South Fork Palouse River watershed must actively reduce pollutants discharged through the MS4s to meet the pollutant reduction targets determined necessary to attain the applicable water quality standard(s).

> **Conclusion:**. The University of Idaho discharges stormwater through its MS4 directly and indirectly, via its physical interconnection to the Moscow MS4, to Paradise Creek. Paradise Creek is subject to

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[21] See EPA 1998; IDEQ 2016.

[22] IDEQ previously listed Paradise Creek as impaired for fecal coliform; *E. coli* is currently listed as the impairment due to a change in Idaho's water quality standards regarding secondary contact recreation criteria from a criterion associated with fecal coliform to a more specific criterion for *E. coli*. Note that Paradise Creek and South Fork Palouse River have been listed as impaired by IDEQ in its 1994, 2002, 2010, and 2012 Integrated Reports. Also note that IDEQ considers the Idaho portion of the South Fork Palouse Assessment Unit ID 17060108CL002_03, to be impaired for sediment, nutrients, bacteria and temperature.

[23] The IDEQ's 2014 Integrated Report is available online at: https://www.deq.idaho.gov/assistance-resources/maps-data/. All applicable Idaho TMDL documents are available on IDEQ's website at http://deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls/

See also the WDOE 2015 Water Quality Assessment 305(b) Report and 303(d) list, http://www.ecy.wa.gov/programs/wq/303d/index.html; Paradise Creek and South Fork Palouse River were also listed as impaired in WDOE's 2004 CWA Section 303(d) report, http://www.ecy.wa.gov/programs/wq/303d/2002/2002-index.html

[24] Specifically, these EPA-approved TMDLs in Idaho are *Paradise Creek TMDL: Waterbody Assessment and Total Maximum Daily Load,* IDEQ, December 1997; and *Paradise Creek Total Maximum Daily Load Implementation Plan*, IDEQ, December 1999; *Paradise Creek TMDL 2015 Bacteria Addendum Hydrologic Unit Code 17060108*, IDEQ, October 2015; and, in Washington, S*outh Fork Palouse River Fecal Coliform Bacteria Total Maximum Daily Load - Water Quality Improvement Repor*t, WDOE Publication No. 09-10-060, October 2009.

EPA-approved TMDLs. Each of the Paradise Creek TMDLs identify urban stormwater from MS4 discharges as sources of pollutants of concern to Paradise Creek. Thus, based on the statements in the applicable TMDLs for Paradise Creek, the EPA finds that the University's discharge is a significant contributor of pollutants to waters of the U.S.

Criteria 3 and 4: Does the municipal separate storm sewer serve a densely populated area? Does the municipal storm sewer serve an area that has experienced high population growth over the last 10 years?

Population density is related to the level of human activity and has been shown to be directly linked to total impervious land surfaces; impervious surfaces are directly related to pollutant loadings from storm water runoff.[25]

The University's campus supports approximately 9,430 enrolled students and approximately 6,000 employees.[26] Using these approximate population numbers, the EPA concludes that the MS4 serves a population of 10,000 or more outside of an Urbanized Area. The EPA estimates the population density of this residential and commuter/employee population is 642 people per square mile. As discussed below, the University's MS4 is physically interconnected with the City of Moscow's MS4.

At this broader scale, Moscow is the 12th largest city in Idaho. The population of Moscow grew from 21,291 in Year 2000 to 23,800 in Year 2010, representing a 11.78 % increase over ten years. The population of the Moscow, Idaho Urban Cluster area similarly increased from 21,791 to 24,212, or approximately 11.1%, between Years 2000-2010. The City's population density was recorded by the Year 2010 Census as 3,473 persons per square mile. Between 2010 and 2015, Moscow population continued to increase 5.3% to 25,060 people..[27] Further, the EPA's analysis of images from the 2011 National Landcover Dataset, in Appendix B of this document, illustrates that the average percent of impervious developed surface area within the City of Moscow urban cluster is approximately 33.6%. This average is slightly greater than the impervious developed surface area estimated for the City of Pullman urban cluster (31%), which was designated by Washington in 2007 as a regulated small MS4. In the five-year period between 2006 and 2011, impervious surface areas increased by 7% and 8%, respectively, in the Moscow and Pullman Urban Clusters.[28]

Conclusion: The University's MS4 serves a combined residential and commuter population of 15,430. In addition, increasing population within the greater Moscow area, within the Paradise Creek watershed, combined with the increasing amount of impervious surfaces that accompanies such population growth, are strong indicators of significant pollutant loading from urban stormwater discharges through the University's MS4 discharges to Paradise Creek.

Criterion 5: Is the MS4 contiguously located to an Urbanized Area or to an already regulated

[25] EPA 1998 at page 1562; IDEQ 2016.

[26] Year 2018 estimates, available at *University of Idaho Fast Facts*, https://www.uidaho.edu/about/fast-facts

[27] U.S. Census 2010; U.S. Census 2012.

[28] See: EPA 2017b in Appendix B of this document, and Multi-Resolution Land Characteristics (MRLC) Consortium, http://www.mrlc.gov/.

municipal storm sewer?

As previously noted, the University's MS4 drains an area located in Moscow. See Figure 1.

In November 2018, the EPA proposed to finalize its designation of Moscow as a regulated small MS4 and proposed the NPDES permit in response to the Moscow's MS4 permit application. The EPA will respond to public comment and intends to finalize its designation decision when it issues a final NPDES permit for the City's MS4 discharges. Upon issuance of the MS4 permit for City of Moscow, the University's MS4 will be considered contiguously located to a regulated small MS4. [29]

> **Conclusion:** The University's MS4 is not contiguously located to an Urbanized Area at the current time. Upon the EPA's action to issue a final permit to Moscow (and finalizes the associated designation as a regulated MS4), the University would be contiguously located to a regulated MS4.

Criterion 6: Is the municipal separate storm sewer physically interconnected to another, already regulated municipal storm sewer?

> **Conclusion:** The University's MS4 is identified by maps provided by the City as being physically interconnected to Moscow's MS4 at several locations.[30]When the City of Moscow designation and MS4 permit are finalized, the University's MS4 will be considered physically interconnected to a regulated small MS4.

Criterion 7: Are the water quality impacts of the University of Idaho's MS4 already being addressed under other regulations or programs?

The University of Idaho is not currently addressing water quality impacts from the MS4 in a sufficient manner such that the discharges do not contribute to exceedances of applicable water quality standards or are not a significant contributor of pollutants to waters of the United States.

As a result of the IDEQ's 1997 TMDL for Paradise Creek, both the City of Moscow and the University invested in specific water quality and flow improvement actions designed to reduce pollutant loading to the section of Paradise Creek in the Moscow City limits; these actions were outlined in the 1999 TMDL Implementation Plan. These prior actions included capital improvements designed to reduce pollutant loading from the storm sewer system; and enhanced attention to storm sewer system maintenance. The EPA Region 10 commends the University for these prior actions, which form a foundation for ongoing and comprehensive storm water management. The EPA Region 10 also notes that the 1999 TMDL Implementation Plan, Appendix C, contemplates that both the University and the City will obtain a NPDES permit and implement BMPs as part of their Storm Water Management Programs.

However, the EPA is unaware of any comprehensive or ongoing stormwater management activities being routinely conducted by the University. In light of the most recent water quality monitoring by IDEQ showing that *E. coli* levels in Paradise Creek continue to exceed the applicable Idaho water quality standard, the EPA Region 10 does not consider prior actions by the University to adequately or sufficiently constitute a

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[29] It is also worth noting that the University's MS4 is substantially similar with regard to drainage infrastructure and land use to its downstream neighbor, Washington State University. As noted earlier, both the City of Pullman and Washington State University were designated by WDOE as regulated small MS4s that are subject to WDOE's Eastern Washington Municipal Stormwater Permit.

[30] See: Moscow 2009. See also: EPA 1999 at page 68745: "To be ''physically interconnected,'' the MS4 of one entity, including roads with drainage systems and municipal streets, is physically connected directly to the municipal separate storm sewer of another entity."

dedicated, routine, and comprehensive Storm Water Management Program, which is what the University would have to develop under a small MS4 NPDES permit. Such a program would provide for the regular and ongoing capacity necessary to maintain the MS4 infrastructure and mitigate pollutant sources in order to protect water quality over the long term.

To reduce pollutants of concern in stormwater discharged through the University's MS4, it is both necessary and important that the University work in concert with the City of Moscow to ensure that the following stormwater-specific control measures are part of an ongoing Storm Water Management Program: public education; public involvement; illicit discharge detection and elimination; construction site runoff control; post construction storm water management; and pollution prevention /good housekeeping associated with municipal/University operations.

Ongoing implementation of such a program, as required under a NPDES permit, would reduce sources of bacteria (in the form *E. coli*, and fecal coliform) and other associated pollutants discharged through the University's MS4 in Paradise Creek/South Fork Palouse River watershed, and fulfill the expectations of the Paradise Creek TMDLs developed by both IDEQ and WDOE. Ongoing implementation of such a program is should result in the discharges no longer contributing to exceedances of applicable water quality standards, and no longer being significant contributors of pollutants to waters of the United States.

Conclusion

Based upon the discussion/analysis above, the EPA concludes that the University's MS4 discharges (1) contribute to an exceedance of both Idaho and Washington state water quality standards and (2) are a significant contributor of pollutants to waters of the U.S.

As a result, the University must submit a NPDES permit application for a MS4 permit within 180 days of notification. Upon receiving the permit application, the EPA will then propose a draft permit for public comment. The draft permit will include permit provisions similar to other small MS4 permits in Idaho that address the six minimum control measures, per 40 CFR § 122.34(a) and (b). In addition, the permit will likely stipulate special provisions to address sources of bacterial pollution, as well as monitoring requirements to identify specific sources of pollutants of concern, per 40 CFR § 122.34(a) and (c). The question of whether the initial designation was proper will remain open for consideration during the public comment period and in any subsequent public hearing.

Appendix A: Monitoring Data

Figure A-1. Approximate location of IDEQ's Paradise Creek Monitoring Site at Perimeter Drive, representing the waterbody segments AU ID17060108CL005_02, ID17060108CL005_02a. and ID17060108CL005_02b.

According to the IDEQ's 2015 *Paradise Creek TMDL Bacteria Addendum*,[31] at page 24:

> "The site is at the intersection of Paradise Creek with Perimeter Drive in Moscow, Idaho, located in AU ID17060108CL005_02 at latitude 46.73194 and longitude -117.02479, downstream from the Paradise Creek USGS gage station…. This site is an urbanized area after the creek has passed through the City of Moscow and the University of Idaho campus. The monitoring site characterizes the three AUs at a single discharge point and was sampled from May 2013 through April 2014."

(***Map Source: IDEQ 2015, Page 25.)***

[31] See IDEQ 2015.

Table A-2. IDEQ Monitoring Data from the Perimeter Drive location

Source: IDEQ 2015. Paradise Creek TMDL Bacteria Addendum, Appendix B.

Note: The Idaho water quality standard for *E. coli* is a geometric mean of one hundred twenty-six (126) *E. coli* organisms cfu/100 mL, based on a minimum of five (5) samples taken every three (3) to seven (7) days over a thirty (30) day period.

Paradise Creek *E. coli* data, AU ID17060108CL005_02.

Date	Sample Results (cfu/100 mL)	Continuous Geometric Mean (cfu/100 mL)	Monthly Geometric Mean (cfu/100 mL)	Discharge (cfs)
5/02/2013	263.5			4.4
5/09/2013	529			2.7
5/16/2013	189.1			1.9
5/22/2013	>2419.2			1.8
5/28/2013	>2419.2	688.1	**688.1**	2.0
6/03/2013	517.95	787.7		2.0
6/06/2013	>2419.2	1067.6		0.72
6/11/2013	328.15	1192.0		0.72
6/17/2013	>2419.2	1192.0		0.36
6/24/2013	>2419.2	1192.0	**1192.0**	8.2
7/01/2013	246.15	1027.2		0.64
7/10/2013	479.05	743.0		0.22
7/17/2013	>2419.2	1107.9		0.36
7/24/2013	548.3	823.4		0.14
7/29/2013	923.4	679.1		0.14
8/06/2013	394.7	746.4		0.31
8/12/2013	290.9	675.5		0.14
8/21/2013	264.6	433.9		0.14
8/26/2013	>2419.2	583.9		0.56
8/29/2013	307.6	468.7		0.14
9/04/2013	156.8	389.6		0.22
9/09/2013	875.3	485.7	**485.7**	0.49
9/17/2013	426.9	534.4		0.26
9/23/2013	728.4	420.4		1.6
9/30/2013	697.9	495.2		13
10/03/2013	89.7	442.9		0.56
10/09/2013	411	380.7		1.0
10/15/2013	237.8	338.7		0.22
10/22/2013	751.6	340.8		0.18
10/28/2013	>2419.2	437.0	**437.0**	0.22
11/04/2013	638.8	647.2		1.3
11/07/2013	431	653.3		3.1
11/13/2013	44.7	467.7		0.26
11/19/2013	>2419.2	590.9		3.9
11/25/2013	13.5	209.3	**209.3**	0.42
12/02/2013	>2419.2	273.2		4.1

Table A-2, continued.

Date	Sample Results (cfu/100 mL)	Continuous Geometric Mean (cfu/100 mL)	Monthly Geometric Mean (cfu/100 mL)	Discharge (cfs)
12/05/2013	291.5	252.7		0.72
12/11/2013	>2419.2	561.3		0.26
12/18/2013	816.4	451.7		0.42
12/23/2013	214.2	785.1	**785.1**	5.6
1/02/2014	24.6	313.6		1.9
1/08/2014	1179.2	414.7		1.2
1/15/2014	77.7	208.5		2.4
1/22/2014	378.9	178.8		1.0
1/29/2014	376.4	200.2	**200.2**	2.2
2/03/2014	197	303.5		1.6
2/10/2014	36	151.0		1.1
2/13/2014	579.4	225.7		48
2/19/2014	248.9	207.5		26
2/26/2014	130.4	167.9	**167.9**	12
3/06/2014	160.3	161.1		46
3/10/2014	97.7	196.7		41
3/13/2014	535.9	193.7		16
3/19/2014	64.7	147.9		11
3/25/2014	137.8	149.6	**149.6**	5.3
4/03/2014	62.1	123.7		4.4
4/09/2014	1209.8	204.6		5.6
4/15/2014	100.9	146.5		3.4
4/21/2014	179.5	179.7		N/A
4/28/2014	159.5	185.1	**185.1**	3.4

Notes: milliliter (mL); colony-forming unit (cfu); cubic foot per second (cfs)

Table A-3: IDEQ Additional monitoring data collected upstream of Perimeter Drive location

Source: *IDEQ 2015. Paradise Creek TMDL Bacteria Addendum, Appendix C.*

Additional October 2014 Monitoring Data

Site Name	10/1/14	10/7/14	10/14/14	10/20/14	10/23/14	Monthly Geometric Mean (cfu/100 mL)
Darby Road	11	1	3	1	1	2.0
Mountain View Park	218.7	5.8	1	1	108.1	10.7
Heron's Hideout Park	275.5	27.5	93.9	613.1	24.6	101.4
Perimeter Drive	1203.3	39.3	114.5	32.3	1413.6	189.9

Note: colony-forming unit per 100 milliliters (cfu/100 mL)

Figure A-3. Approximate location of WDOE's monitoring stations near City of Moscow to assess fecal coliform bacteria in support of the WDOE 2009 *South Fork Palouse River Fecal Coliform Bacteria TMDL.*

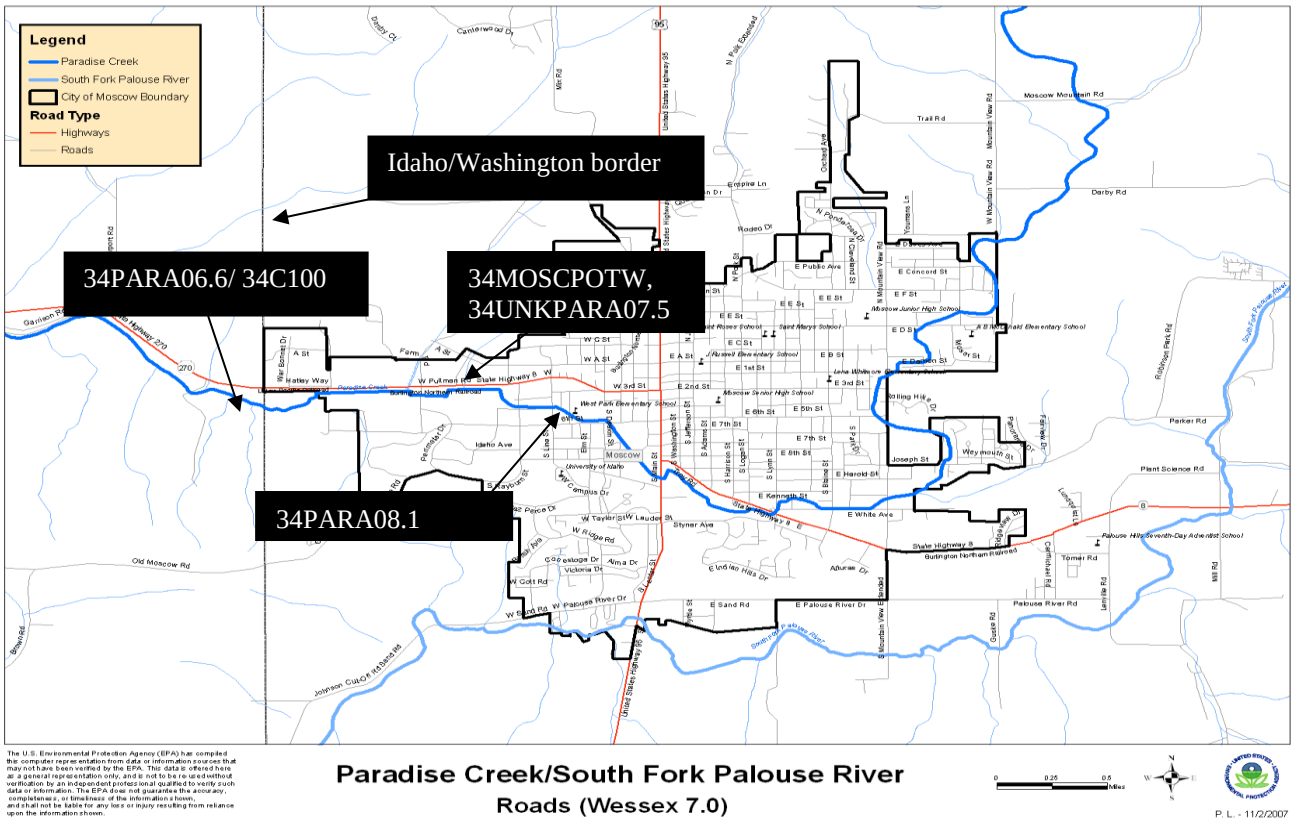

Table A-4. WDOE Monitoring Data

Data collected by WDOE in 2006-2007 to assess fecal coliform bacteria in support of the South Fork Palouse River Fecal Coliform Bacteria TMDL.

Source: WDOE 2009. SF Palouse Fecal Coliform Bacteria TMDL, pages 47 – 49.

Note: Washington's fecal coliform standard is 100 colony forming units per 100 milliliters of solution (cfu/100 mL) geometric mean, and upper 10 percentile of samples < 200 cfu/100mL. Relevant monitoring locations are highlighted in yellow, and results exceeding the WA standard are highlighted in pink.

Table 16. Dry-season and wet-season summary statistics of bacteria counts and target percent reductions for stations in Paradise Creek.

Station ID	Total # of Samples	Mini-mum	10th percen-tile	Geomean*	90th percen-tile	Maxi-mum	% Samples >200 cfu / 100 mL *	Target % Reduction**
Dry Season								
34Para08.1	11	84	64	508	4038	7500	64%	**95%**
34MoscPOTW	7	3	2.4	29	351	640	14%	**43%**
34UnkPara(07.5)	0	----	----	----	----	----	----	**----**
34Para06.6	13	20	45	324	2321	5700	69%	**91%**
34UnkPara(06.3)	1	3	----	----	----	3	----	**0%**
34Para03.8	11	11	29	194	1276	2800	64%	**84%**
34Air00.0	7	1	4.6	115	2908	1700	43%	**93%**
34Para01.1	6	9	5.6	66	777	1800	17%	**74%**
34ParaWSU3	5	1	0.4	3	29	44	0%	**0%**
34Para00.1	12	4	6.1	55	492	1700	17%	**59%**
Wet Season								
34Para08.1	13	3	20	98	488	445	23%	**59%**
34MoscPOTW	11	1	1	4	14	24	0%	**0%**
34UnkPara(07.5)	8	3	7	90	1164	800	63%	**83%**
34Para06.6	15	24	18	156	1350	4400	27%	**85%**
34UnkPara(06.3)	9	1	0	7	151	640	11%	**0%**
34Para03.8	12	4	4	36	326	460	17%	**39%**
34Air00.0	12	9	9	106	1282	4500	50%	**84%**
34Para01.1	11	6	4	34	324	480	18%	**38%**
34ParaWSU3	11	1	0	4	82	460	9%	**0%**
34Para00.1	14	3	3	32	320	930	14%	**37%**

*Cells shaded in these columns are values that exceed Washington State numeric standards.

**Cells shaded in this column are values based on less than 5 samples collected at that station.

Appendix B: Impervious Surface Conditions in Pullman/Moscow Paradise Creek Region

Memorandum October 31, 2017

To: Misha Vakoc, USEPA

From: Peter Leinenbach, USEPA

Subject: Imperious surface conditions in the Pullman/Moscow Paradise Creek Region

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Findings –

Sampling of the 2011 NLCD Dataset showed that:

1. Eighty-four percent (84%) of the land surface within the city of Moscow Urban Cluster boundary is classified in the "developed" category in the 2011 National Landcover Dataset.

2. The weighted average imperviousness of landcover within the city of Moscow Urban Cluster boundary is 33.6% within the 2011 NLCD Percent Developed Imperviousness dataset

3. Impervious developed surface conditions are similar between the city of Moscow and the city of Pullman urban cluster zones.

4. Impervious developed surface area extent has increased within the city of Moscow urban cluster zone during the 2006 to 2011 period.

Datasets -

National Landcover Dataset – NLCD 2011 Percent Developed Imperviousness (https://www.mrlc.gov/nlcd11_data.php)

National Landcover Dataset – NLCD 2006 to 2011 Percent Developed Imperviousness (https://www.mrlc.gov/nlcd11_data.php)

National Landcover Dataset – NLCD 2011 Landcover (https://www.mrlc.gov/nlcd11_data.php)

Moscow and Pullman Urban Cluster Boundaries – 2017 Urban Boundaries dataset (https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2017&layergroup=Urban+Areas)

Methods –

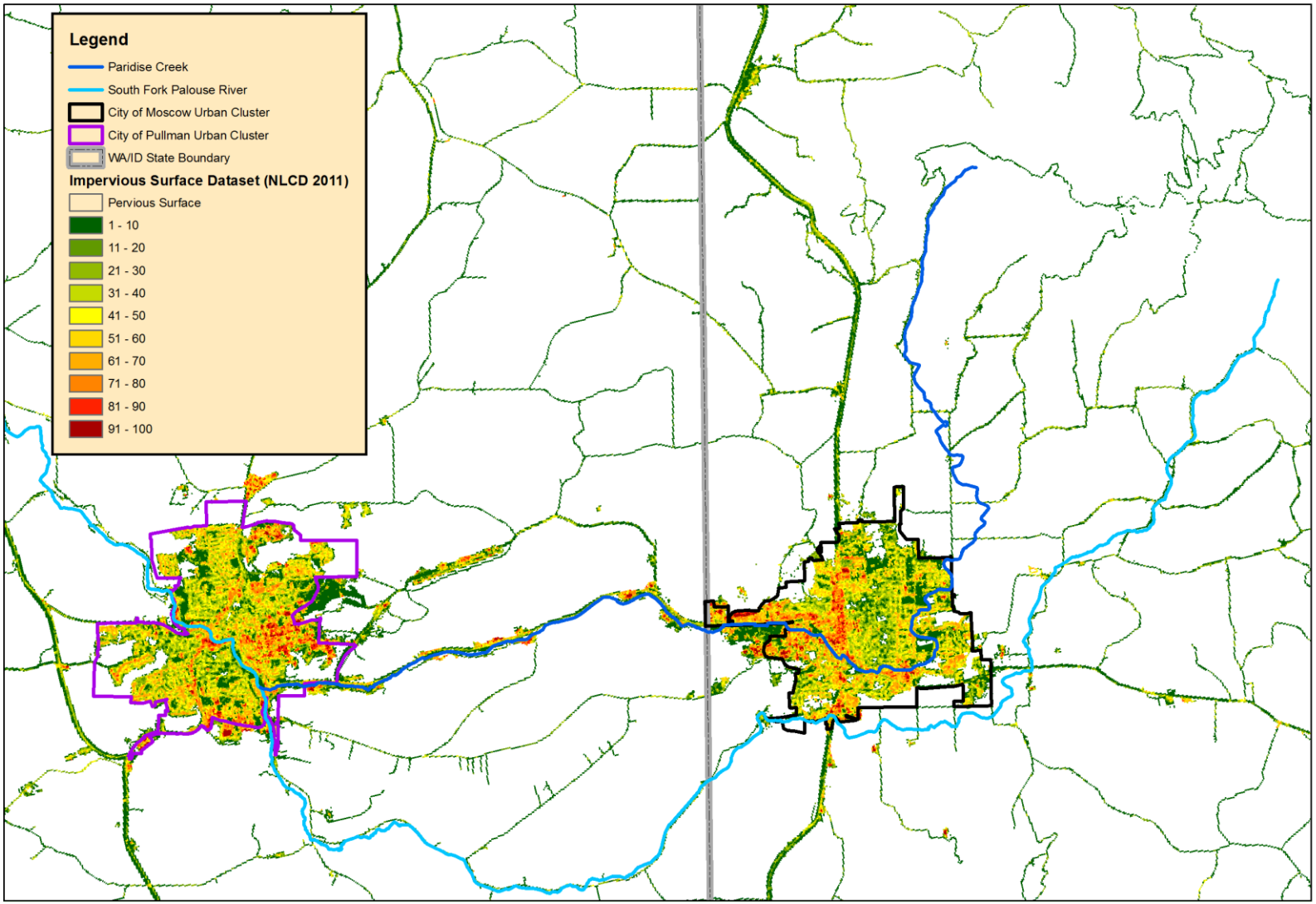
The Zonal Histogram tool in ArcGIS was used to sample the landcover grid datasets by two city cluster polygons.

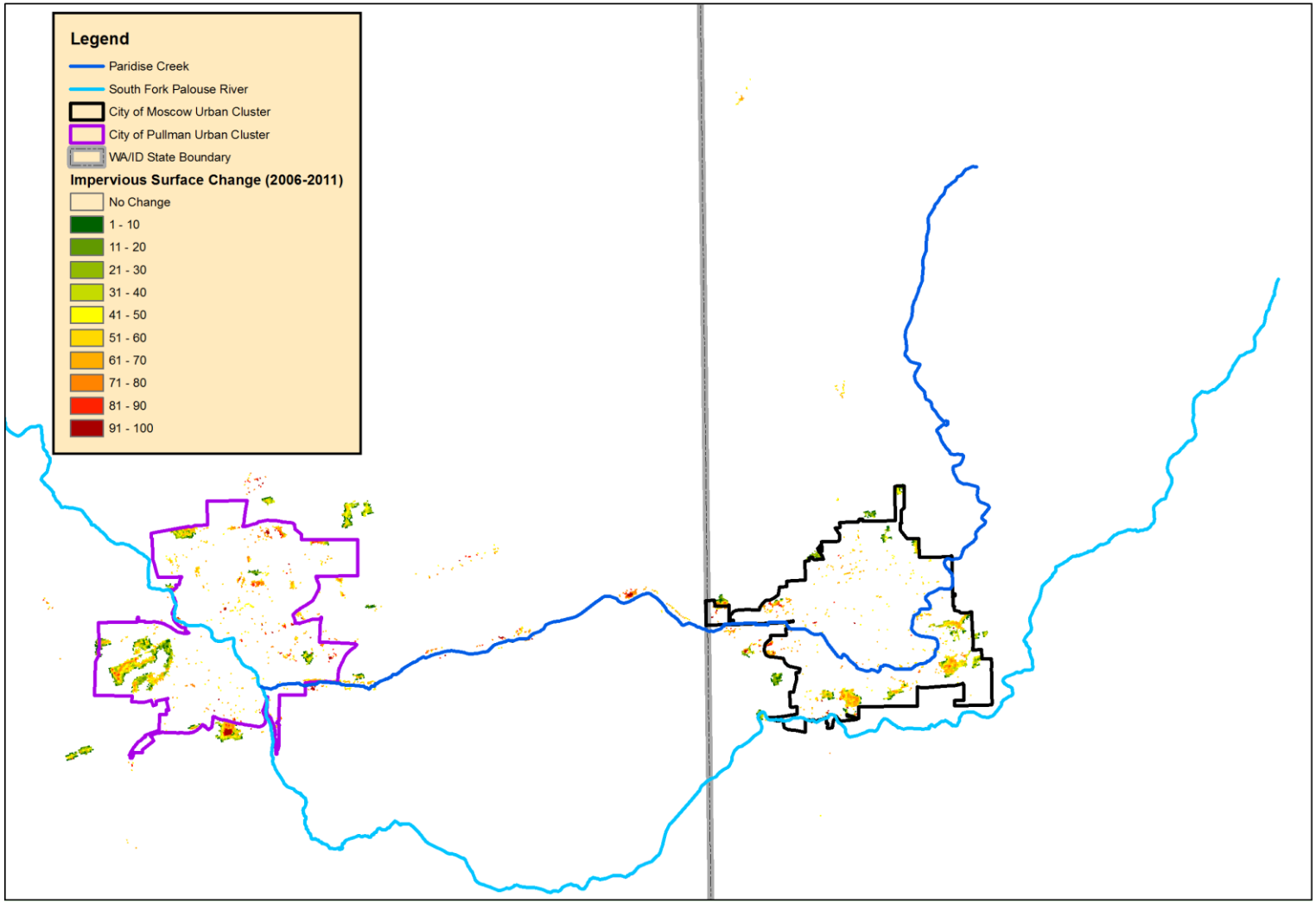
Results –

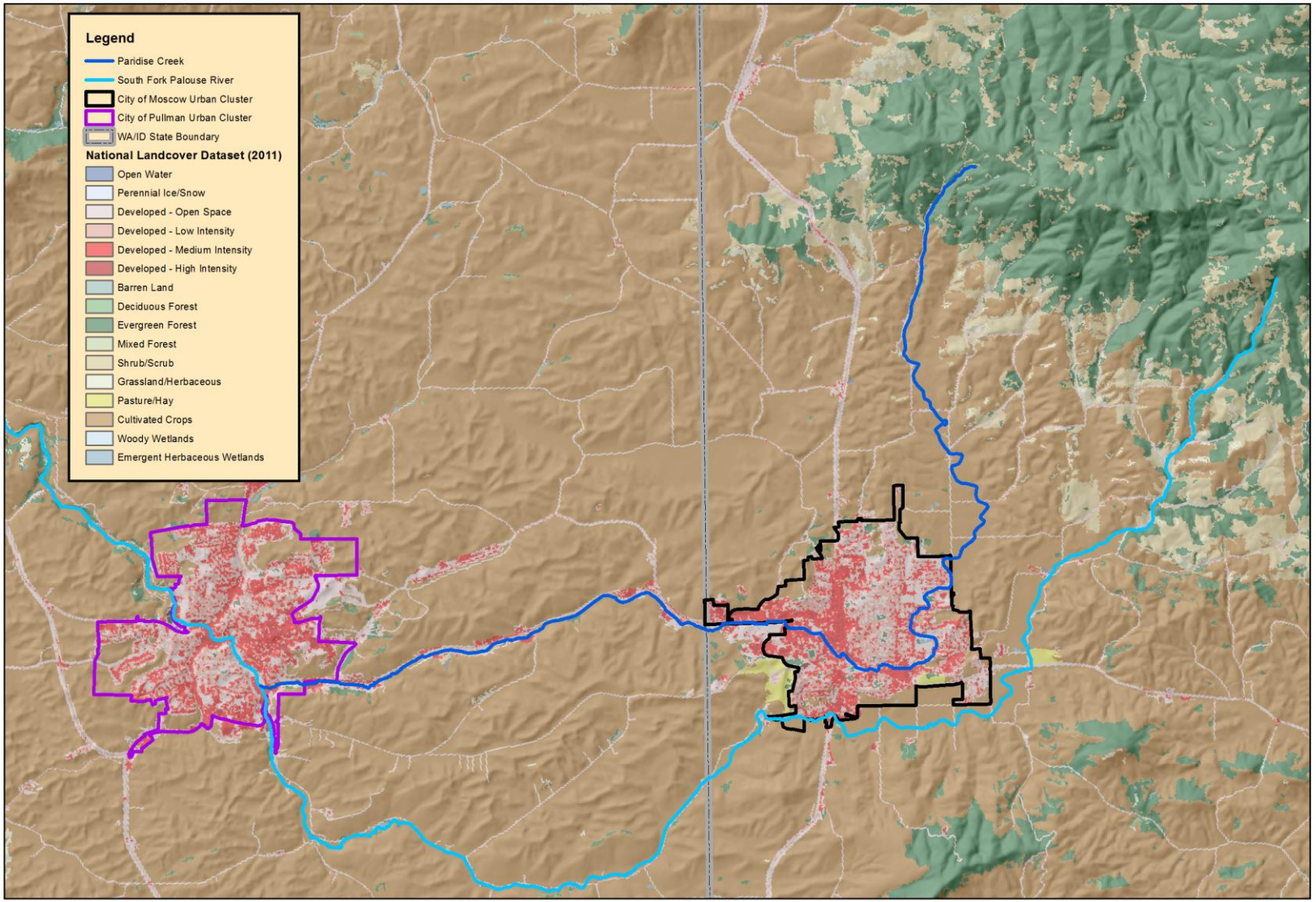
Landcover (NLCD 2011)	Relative Percent within the Moscow Urban Cluster	Relative Percent within the Pullman Urban Cluster
Open Water	< 1%	< 1%
Developed - Open Space	21%	19%
Developed - Low Intensity	32%	29%
Developed - Medium Intensity	27%	26%
Developed - High Intensity	4%	4%
Barren Land	< 1%	< 1%
Deciduous Forest	< 1%	< 1%
Evergreen Forest	2%	< 1%
Mixed Forest	< 1%	< 1%
Shrub/Scrub	< 1%	< 1%
Grassland/Herbaceous	< 1%	< 1%
Pasture/Hay	1%	< 1%
Cultivated Crops	13%	21%
Woody Wetlands	< 1%	< 1%
Emergent Herbaceous Wetlands	< 1%	< 1%

Percent Imperviousness (NLCD 2011)	Within the Moscow Urban Cluster	Within the Pullman Urban Cluster
Weighted Average Imperviousness for All Areas within the Urban Cluster	34%	31%
Weighted Average Imperviousness for Developed Areas within the Urban Cluster	40%	40%

Percent Imperviousness Change from 2006 to 2011 (NLCD 2011)	Within the Moscow Urban Cluster	Within the Pullman Urban Cluster
Percent area with impervious area increase within the Urban Cluster Boundary	7%	8%


Legend
Paridise Creek
South Fork Palouse River
City of Moscow Urban Cluster
City of Pullman Urban Cluster
WA/ID State Boundary
Impervious Surface Dataset (NLCD 2011)
Pervious Surface
1 - 10
11 - 20
21 - 30
31 - 40
41 - 50
51 - 60
61 - 70
71 - 80
81 - 90
91 - 100
Paradise Creek/South Fork Palouse River
Impervious Surface Dataset (2011)
0 0.5 1 2 Miles
N
USEPA - P. Leinenbach - 10/30/17


Legend
Paridise Creek
South Fork Palouse River
City of Moscow Urban Cluster
City of Pullman Urban Cluster
WA/ID State Boundary
Impervious Surface Change (2006-2011)
No Change
1 - 10
11 - 20
21 - 30
31 - 40
41 - 50
51 - 60
61 - 70
71 - 80
81 - 90
91 - 100
Paradise Creek/South Fork Palouse River
Impervious Surface Change Dataset (2006 to 2011)
0 0.5 1 2 Miles
N
USEPA - P. Leinenbach - 10/30/17



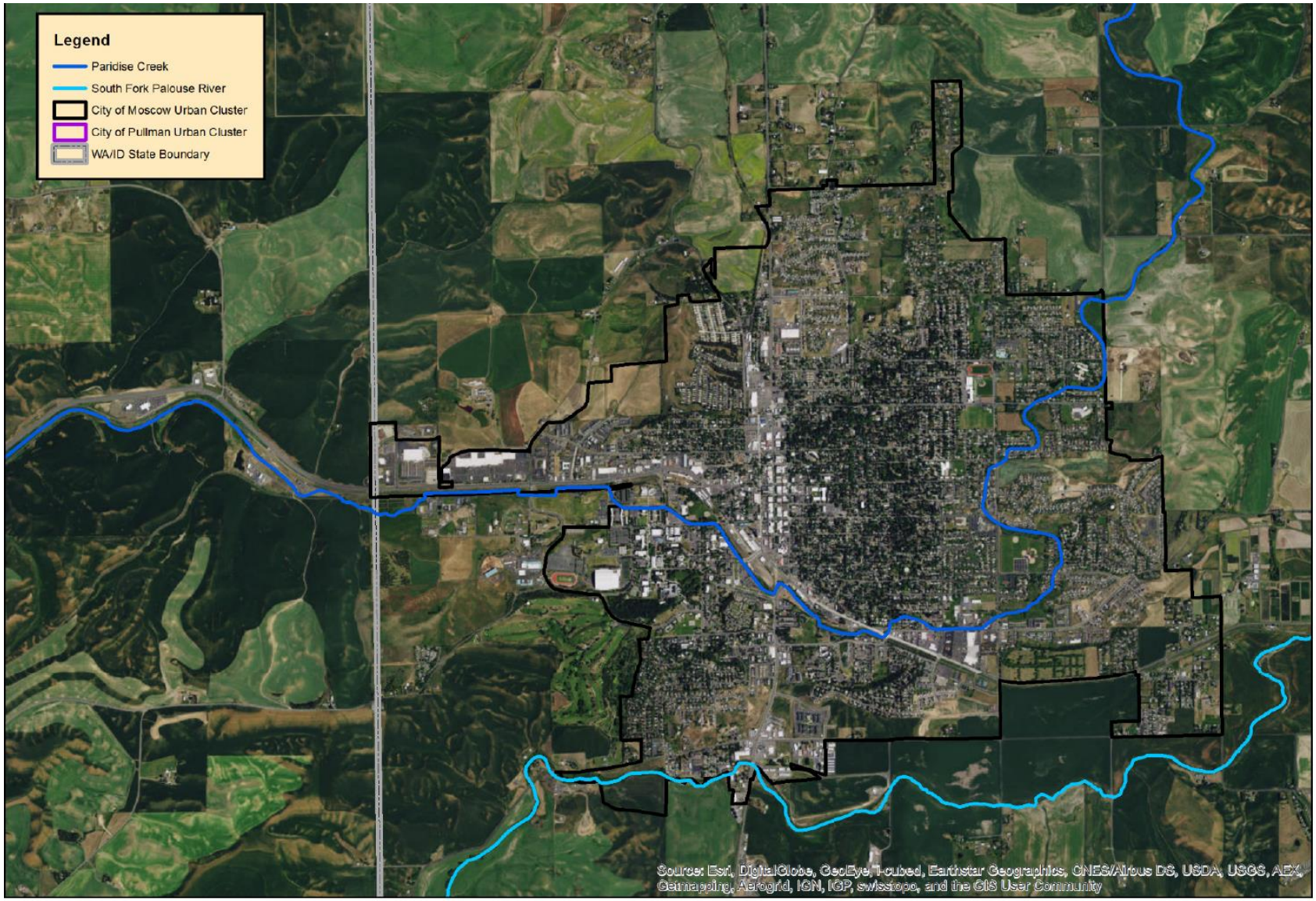
Paradise Creek/South Fork Palouse River
National Landcover Dataset (2011)

0 0.5 1 2 Miles

N

USEPA - P. Leinenbach - 10/30/17

0.6 Miles

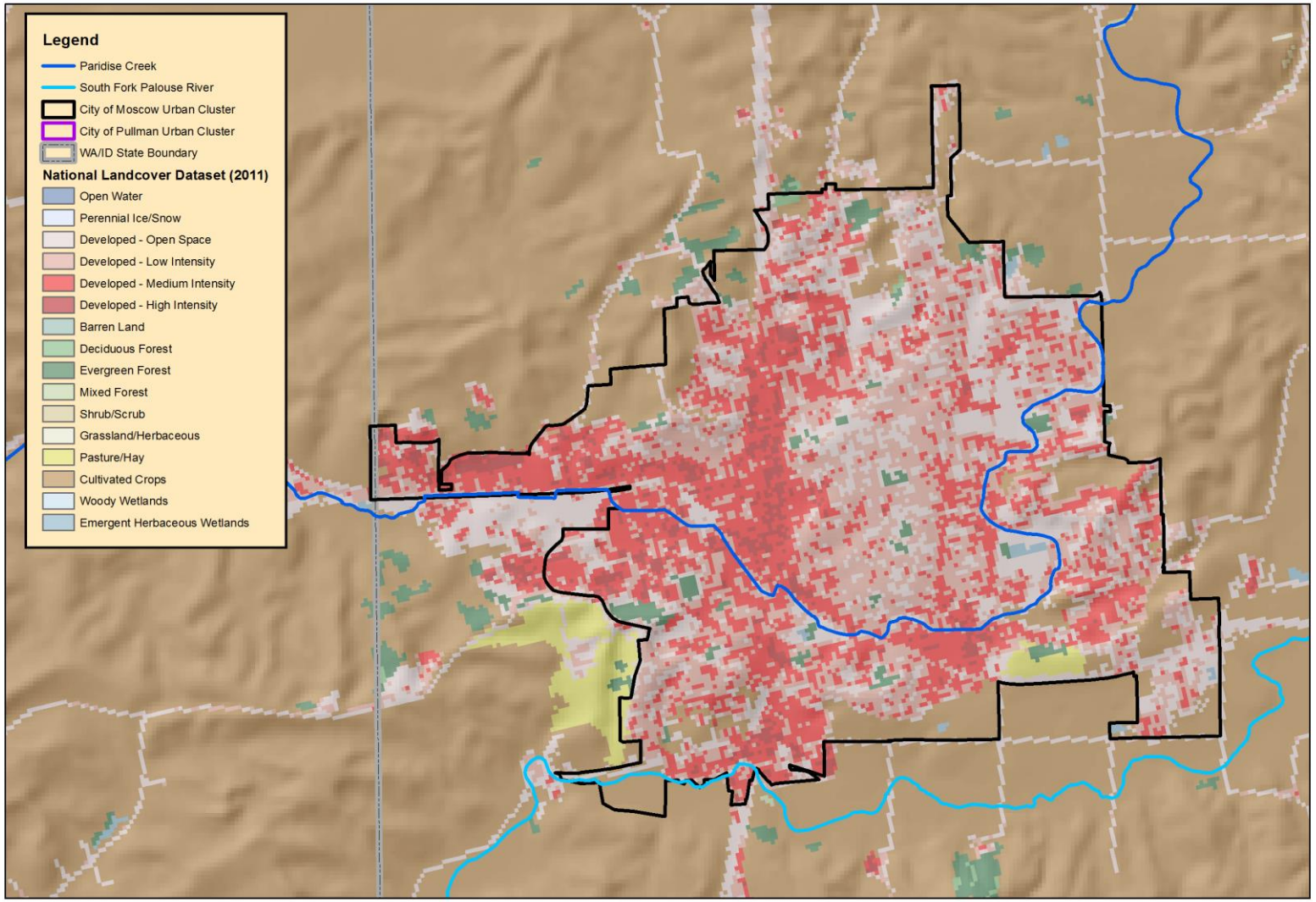


City of Moscow Urban Cluster
Ortho-Photo Imagery

0 0.15 0.3 0.6 Miles

N

USEPA - P. Leinenbach - 10/30/17

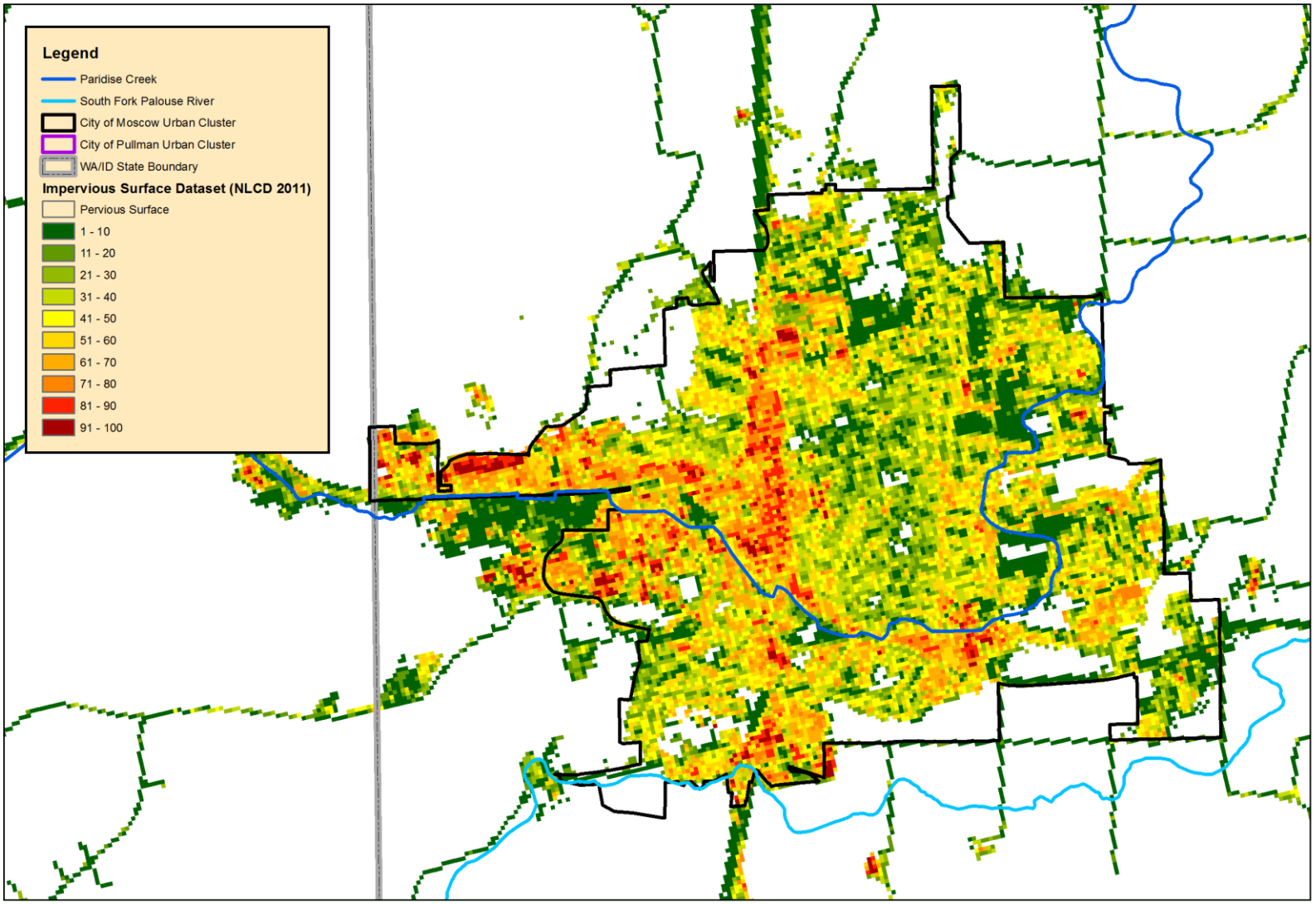


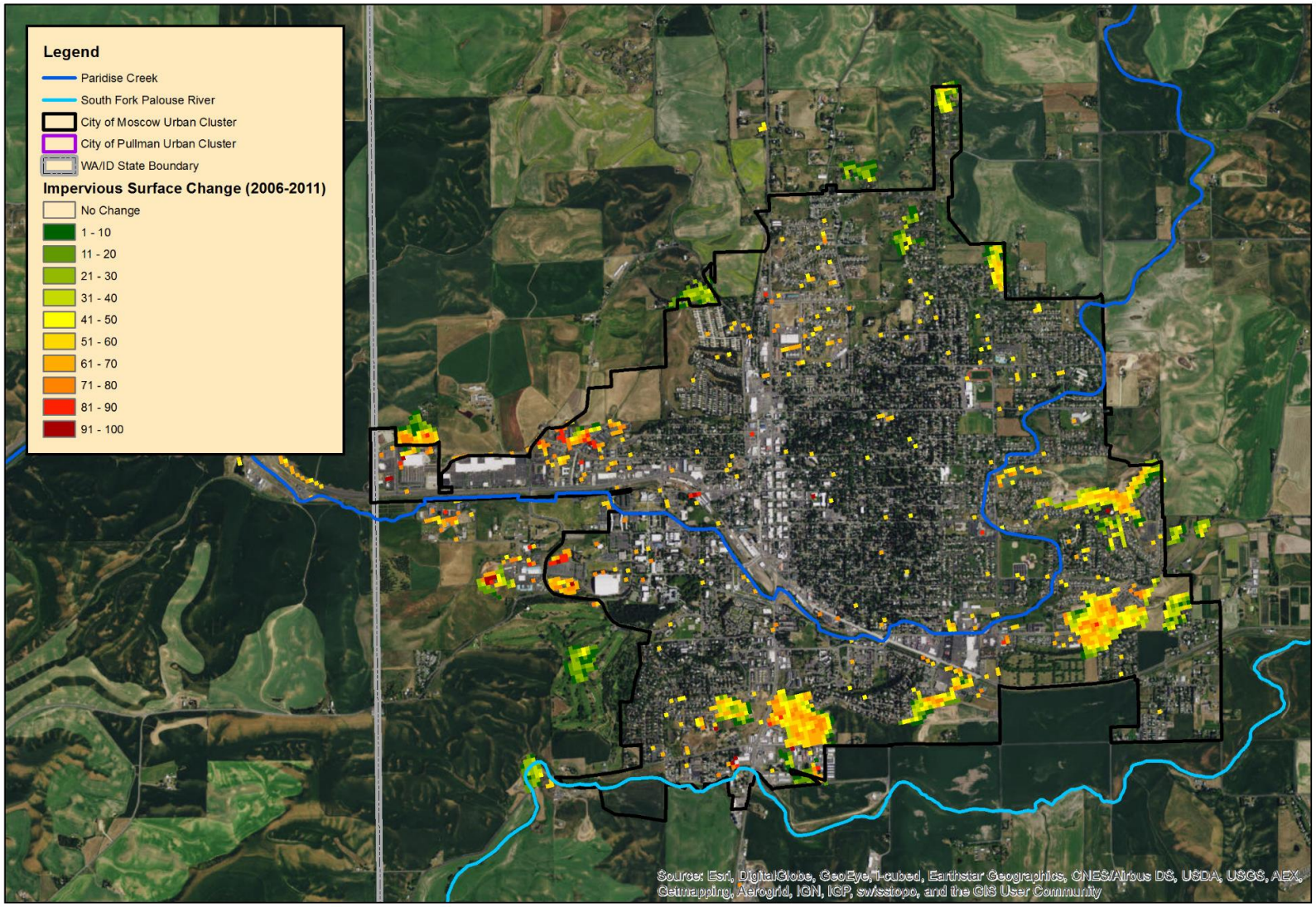
City of Moscow Urban Cluster
National Landcover Dataset (2011)

0 0.15 0.3 0.6 Miles

N

USEPA - P. Leinenbach - 10/30/17


Legend
Paridise Creek
South Fork Palouse River
City of Moscow Urban Cluster
City of Pullman Urban Cluster
WA/ID State Boundary
Impervious Surface Dataset (NLCD 2011)
Pervious Surface
1 - 10
11 - 20
21 - 30
31 - 40
41 - 50
51 - 60
61 - 70
71 - 80
81 - 90
91 - 100
City of Moscow Urban Cluster
Impervious Surface Dataset (2011)
0 0.15 0.3 0.6 Miles
N
USEPA - P. Leinenbach - 10/30/17



City of Moscow Urban Cluster
Impervious Surface Change Dataset (2006 to 2011)

0 0.15 0.3 0.6 Miles

N

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