APPENDICES

ESA COMPLIANCE GUIDANCE FOR HUD-FUNDED PROJECTS

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APPENDIX A:
HUD PROGRAMMATIC BIOLOGICAL OPINION

PROGRAM ADMINISTRATIVE CRITERIA
STORMWATER DESIGN CRITERIA
PROGRAM REPORTING CRITERIA

October 7, 2016

The following administrative elements and design criteria comprise the actions required of the U.S. Department of Housing and Urban Development (HUD) and/or Responsible Entities (RE) to comply with the Terms and Conditions detailed in Section 2.9.4 of the HUD Programs Biological Opinion (opinion). A glossary of terms is provided in Appendix D.

1. **HUD Environmental Review**. To demonstrate compliance with the Endangered Species Act (ESA) requirements for consultation with the National Marine Fisheries Service (NMFS) in Oregon, the environmental review for a HUD project must include:
   a. An effects determination.
      i. **No Effect**. A project may be determined to have "no effect" on ESA-listed species or designated critical habitat(s), if:
         (1) The project retains 100% of the water quality design storm onsite through infiltration, evaporation, or evapotranspiration best management practices (BMPs), as applied to the entire project site (i.e. all impervious and landscape areas);
         (2) The project will not impact an area of natural habitat, a wetland, or riparian area;
         (3) The project complies with all state and local building codes and stormwater regulations;
         (4) The project does not rely on underground injection control (UIC) methods to meet retention criteria; and
         (5) The project is certified by an engineer licensed to practice in the state of Oregon.

         If a "no effect" determination is warranted, no further consultation with NMFS is required. Further guidance is provided in the *Endangered Species Act Guidance for Oregon* document, available on-line at: http://portal.hud.gov/hudportal/documents/huddoc?id=Oregon_ESA_NEG.pdf

      ii. **May Affect, <u>Not</u> Likely to Adversely Affect**. Project's with potential stormwater effects can no longer reach a determination of "may affect, not likely to adversely affect" (NLAA).

      iii. **May Affect, Likely to Adversely Affect**. A project that cannot meet the requirements for a No Effect determination should reach a determination of "may affect, likely to adversely affect" (LAA) for ESA-listed species and designated critical habitat(s). Projects that are "likely to adversely affect" ESA-listed species and critical habitats must:

(1) Develop and carry out a post-construction stormwater management plan (PCSMP), as described below.
(2) The PCSMP must be reviewed and approved by NMFS.

2. **NMFS Review and Approval Process**. To request NMFS review and approval of a PCSMP, HUD or the RE must submit the following:
   a. The Action Notification Form
   b. A PCSMP
   c. The Stormwater Information Form

   Items a through c, above, are described in Appendix B, Part 1 and Part 2. Items a through c should be submitted at least 60-days before the desired completion of the environmental review record for the proposed project.

3. **Stormwater Management Plan**. A PCSMP must include the following information:
   a. All relevant plans, drawings, and exhibits that describe, explain, and define the proposed project. Both the Stormwater Information Form (Appendix B) and any engineering design sheets must be stamped and signed by a licensed, professional engineer.
   b. A site map for the project that identifies all:
      i. Property boundaries and project boundaries, especially if the project includes activities extending beyond/outside the property or parcel boundaries.
      ii. Impervious areas, landscape areas, and natural areas (e.g., forested areas, wetlands, riparian zones) within the project boundaries.
      iii. Location and extents of all low-impact development (LID) practices by type and capacity. Define each LID facility's capacity in terms of discharge and volume managed. Appropriate units of measure include cubic feet per second (cfs) and cubic feet (ft^3).
      iv. Location and extent of manufactured stormwater treatment technologies by type and capacity.[1] Describe each technology's capacity per the guidance described in 3(b)(iii), above.
      v. Location and extent of other structural source control practices by type and capacity (e.g., special practices for known or suspected contaminated sites). Describe each practice's capacity per the guidance described in 3(b)(iii), above, as applicable.
      vi. All runoff discharge points and conveyance paths to the nearest receiving water.

[1] Manufactured stormwater treatment technologies and are acceptable if a product has been certified through the Washington State Department of Ecology's (DOE) Evaluation of Emerging Stormwater Treatment Technologies Technology Assessment Protocol (TAPE). Proposed products should be designated as General Use Level Designation (GULD), but Conditional Use Designation (CULD) technologies may be considered with sufficient justification. Products proposed to treat runoff from streets, parking areas, or other areas where metals are of concern (zinc roofs, other metal roof products, etc.) must be listed on the "Enhanced" tab of the emerging technologies list. The emerging technologies list can be found on DOE's website at: http://www.ecy.wa.gov/programs/wq/stormwater/newtech/technologies.html.

c. A description of how LID and other practices will manage all precipitation on-site up to the water quality design storm, and provide adequate treatment for runoff that will be discharged from the site. If 100% treatment of the water quality design storm is achieved, runoff discharged in excess of the water quantity design storm is considered treated.

d. A description and schedule of the proposed inspection and maintenance activities for the treatment facilities, including the party legally responsible for maintenance and monitoring activities. Provide contact information for the legally responsible party.

e. The name, email address, and telephone number of the person responsible for designing the stormwater management facilities so that NMFS may contact that person if additional information is necessary.

4. **Stormwater Management Practices**. Post-construction stormwater management emphasizes LID methods that emphasize the use of on-site features to maximize evapotranspiration and infiltration that will improve water quality and reduce hydromodification (i.e., alteration of the natural flow of water through the watershed). Examples of LID practices, ordered by preference, include, but are not limited to:

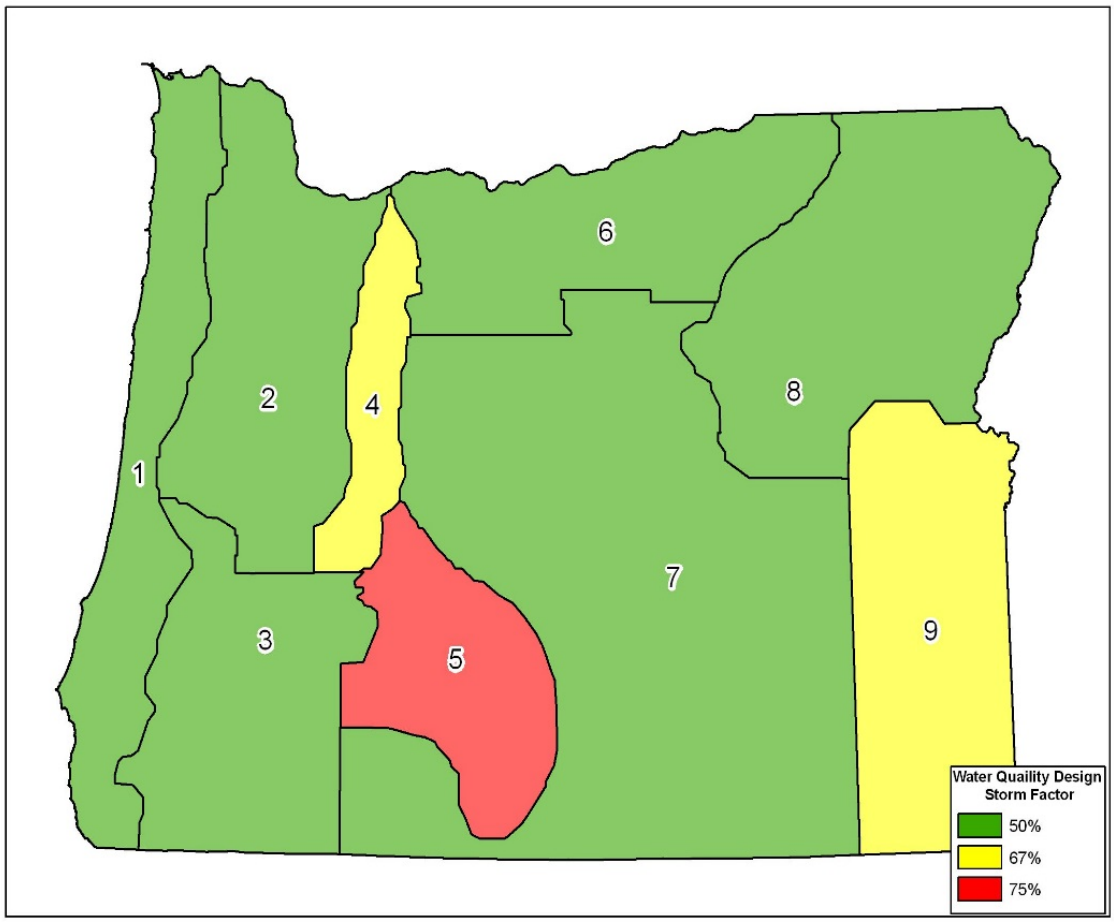
a. Minimize impervious area
    i. Share parking spaces
    ii. Minimize pavement widths
    iii. Minimize front setbacks
    iv. Share driveways
    v. Minimize building footprint
    vi. Minimize roadway cross sections
    vii. Minimize new pavement

b. Limit disturbance
    i. Construction sequencing
    ii. Conserve soils with best drainage
    iii. Cluster development
    iv. Tree protection

c. Landscape and hardscape areas
    i. Restored soils
    ii. Tree planting
    iii. De-pave existing pavement (such that it becomes pervious area)
    iv. Contained planters (over impervious areas)
    v. Vegetated roof
    vi. Porous pavement
    vii. Infiltration rain garden, LID swale, Stormwater planter
    viii. Soakage trench (some forms of UIC may count as LID)
    ix. Drywell (some forms of UIC may count as LID)
    x. Water quality conveyance swale
    xi. Vegetated filter strips
    xii. Downspout disconnection
    xiii. Lined rain garden, LID swale, Stormwater planter

5. **Water Quality Design**. All stormwater treatment practices and facilities occurring in climate zones 1, 2, 3, 6, 7, and 8 (Figure 1) must be designed to treat 50% of the cumulative rainfall from the 2-year, 24-hour storm for the project site (referred to as the water quality design storm).

Figure 1. Water Quality Design Storm by Oregon Climate Regions



Regions: (1) Oregon Coast; (2) Willamette Valley; (3) Southwestern Valleys; (4) Northern Cascades; (5) High Plateau; (6) North Central; (7) South Central; (8) Northeast; (9) Southeast.
Source: Oregon Dept. of Transportation (2008).

All stormwater treatment practices and facilities occurring in climate zones 4 and 9 must provide treatment for 67% of the 2-year, 24-hour storm. Stormwater treatment practices and facilities occurring in climate zone 5 must provide treatment for 75% of the 2-year, 24-hour storm. Note: ESA-listed species considered in this opinion are unlikely to occur in climate zones 5 or 9. Also note: on-site retention (i.e. infiltration, evapotranspiration) of the appropriate storm event is considered treatment.

6. **Water Quantity Design**. Water quantity management (retention or detention facilities) is required, unless the outfall of the stormwater facility discharges directly into a major water body (e.g., mainstem Columbia River, Willamette River downstream of Eugene, large lakes, reservoir, ocean, or estuary). On-site retention should use LID methods to the

maximum extent feasible and facilities of any kind must collectively limit discharge to match pre-developed discharge rates (i.e., the discharge rate of the site based on its natural groundcover and prior to human development) for flows from the following events:

a. 50% of the 2-year, 24-hour storm (i.e. Water Quality Design Storm); and,
b. 2-year, 24-hour storm; and,
c. 5-year, 24-hour storm; and,
d. 10-year 24-hour storm
e. Hydromodification Design. If a HUD funded project will:
    i. Discharge peak runoff of more than 0.5 cfs during the 2-year, 24-hour storm; and,
    ii. Into an intermittent or perennial water body in a watershed smaller than 100 square miles; and,
    iii. Does not discharge directly into a major water body (e.g., mainstem Columbia River, Willamette River downstream of Eugene, large lakes, reservoir, ocean, or estuary); then,
    iv. Flow control treatment and practices must be designed using continuous modeling to maintain the frequency and duration of flows generated by storms within the following endpoints:
        (1) Lower discharge endpoint, by U.S. Geological Survey (USGS) flood frequency zone = 50% of 2-year event (i.e. Water Quality Design Storm)
        (2) Upper discharge endpoint
            a. Entrenchment ratio[2] <2.2 = 10-year event, 24-hour storm; or,
            b. Entrenchment ratio >2.2 = bank overtopping event

7. **Conveyance**. When conveyance is necessary to discharge treated stormwater directly into a surface water or a wetland, the following requirements apply:
    a. Maintain natural drainage patterns such that runoff is not redirected to a different drainage basin (i.e. watershed, subwatershed) from the pre-project conditions.
    b. To the maximum extent feasible, ensure that water quality treatment for the project is completed before commingling with offsite runoff during conveyance.
    c. Prevent erosion of the flow path from the project to the receiving water and, if necessary, provide a discharge facility made entirely of manufactured elements (e.g., pipes, ditches, discharge facility protection) that extends at least to the ordinary high water elevation of the receiving water.

8. **Project Completion Report**. HUD or the RE must submit the Project Completion Report (Appendix B, Part 3) within 60-days following the end of construction. If installation of vegetation is delayed to occur during more favorable growing conditions

[2] Entrenchment ratio is a measurement of the vertical containment of a stream or river. It is calculated as the floodprone width, divided by the surface bankfull discharge width. The lower the entrenchment ratio, the more vertical containment of flood flows exists. Higher entrenchment ratios depict more floodplain development. U.S. Environmental Protection Agency. 2016. Watershed Academy Web: Fundamentals of Rosgen Stream Classification System. U.S. Environmental Protection Agency website, available at: https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=1259. Updated February 26, 2016. Accessed May 19, 2016.

(e.g., spring or fall), submit the Project Completion Report following completion of all vegetation installation. The Project Completion Report should include all information necessary to document that the project was constructed in compliance with the provisions of this opinion, including such materials as final plans, as-built drawings, photos of installed facilities, etc.

9. **Failure to Report May Trigger Reinitiation**. NMFS may recommend reinitiation of this consultation if HUD or the RE fails to provide all applicable notifications and completion reports or fails to attend quarterly and annual meetings, as specified.

APPENDIX B:
HUD PROGRAMMATIC BIOLOGICAL OPINION

E-MAIL SUBMITTAL GUIDELINES & INSTRUCTIONS
ACTION NOTIFICATION FORM GUIDELINES & INSTRUCTIONS
STORMWATER INFORMATION FORM GUIDELINES & INSTRUCTIONS
PROJECT COMPLETION REPORT GUIDELINES & INSTRUCTIONS

FOR USE WITH FORMS DATED OCTOBER 7, 2016

Notifications, communications, and submittals related to projects submitted for approval under the HUD Programmatic Biological Opinion (Opinion) are to be submitted via email to the HUD Programmatic Mailbox.

Use of the HUD Programmatic E-mail Box

Use the HUD programmatic e-mail box at HUDBiOp.wcr@noaa.gov to complete the following:

- Notify NMFS of a pending project,
- Request that NMFS review and approve the post-construction stormwater management plan (PCSMP) for a HUD funded project,
- Submit project review and compliance documents,
- Withdraw a request for review,
- Submit the project completion form, and
- Submit the monitoring and maintenance report.

The mailbox will send you an automatic reply after receipt of any message, but you will not receive any other communication from the programmatic e-mail box. Please direct all other communications or questions to the appropriate NMFS biologist or branch chief.

Please only submit one request for review, withdrawal, or completion report per e-mail.

If project files exceed the mailbox limit of 10 megabytes (per email), you may send multiple emails containing the information or request access to NMFS' FTP site. If sending multiple emails, please indicate in the subject line how many emails will be sent in total and identify each email in the series (e.g., 1 of 3, 2 of 3, 3 of 3). If you have a file/files that exceeds the 10 mb email limit, send a request for FTP site access via the email mailbox. An invitation will be sent that will allow you to upload files without a size limit.

E-mail Title Requirements

In the subject line of the email (see below for requirements), clearly state the type of action you are requesting (i.e., Action Notification, Withdrawal, etc.), Project Name, Applicant Name (HUD Office or Responsible Entity), County, Waterway (to which the project will discharge), and the NMFS' Project Tracking Number (if/once received from NMFS).

Use caution when entering the necessary information in the subject line. If these titling conventions are not used, NMFS will not accept the e-mail.

Examples:

> *Action Notification: Project Name, Affordable Housing Development Program, Multnomah County, Willamette River*

Withdrawal: Project Name, Housing Authority of Jackson County, Jackson County, Bear Creek, WCR-2016-540

Project Completion: Project Name, Planning & Development Department, City of Eugene, Willamette River, WCR-2017-031

Project Documents: Project Name, Office of Community Development, Washington County, Tualatin River, WCR-2017-045

Action Notification and Stormwater Information Forms

HUD or the RE must submit an Action Notification Form, a complete Stormwater Information Form, and a complete PCSMP to the HUD programmatic e-mailbox to request that NMFS review and approve the PCSMP for a HUD project. Within 7 calendar days of receiving all necessary review materials, NMFS will inform the applicant which staff person was assigned to complete the review and provide the NMFS project tracking number. Within 30 calendar days NMFS will determine whether the proposed stormwater plan is approved or not.

If asked, the consultation biologist will provide an estimate of the time necessary to complete the review based on the complexity of the proposed action and work load considerations at the time of the request.

NMFS may delay its review if the Action Notification Form, the Stormwater Information Form, or the PCSMP is incomplete or unsatisfactory. Please contact NMFS early during the development phase of a project if you have any questions about how these guidelines may affect your project.

Withdrawing a Request for Review

If it is necessary to withdraw a request for review, submit a separate email with the word "WITHDRAWAL" at the beginning of the e-mail subject line, but otherwise follow the email titling conventions as described above. State the reason for the withdrawal in the email. If HUD or an RE re-submits a request for NMFS review that has been previously withdrawn, NMFS will process the resubmittal as if it was a new action notification.

Action Completion Report. HUD or the RE must submit the Action Completion Report to NMFS within 60 days of finishing construction of the stormwater management facilities for a HUD funded project. NMFS recognizes that many times the installation of vegetation for stormwater facilities is delayed until the appropriate planting season. In cases where the project is completed, except for the vegetation installation, please delay submittal of the Action Completion Report until all aspects of the stormwater facilities are complete. Failure to submit the Action Completion Report may result in NMFS recommending reinitiation of this consultation.

Detailed instructions on completing each form follows.

ACTION NOTIFICATION FORM

HUD PROGRAMMATIC OPINION

Submit this form to NMFS 60 days prior to the anticipated completion of the project's environmental review. Submit by email to: ***HUDBiOp.wcr@noaa.gov*****.** Applies only to projects that qualify for inclusion under NMFS' HUD Programmatic Biological Opinion for Projects in Oregon **# WCR-2016-4853**.

PROJECT NAME		**DATE OF REQUEST**	
PROJECT APPLICANT INFORMATION		**PROJECT LOCATION INFORMATION**	
RESPONSIBLE ENTITY		**COUNTY**	
NAME	**PHONE**	**STREET ADDRESS**	
TITLE	**EMAIL**	**CITY**	**ZIP**
HUD OFFICE/PROGRAM		**6TH FIELD HUC NAME**	
NAME	**PHONE**	**6TH FIELD HUC #**	
TITLE	**EMAIL**	**PROJECT LATITUDE**	
APPLICANT /CONSULTANT		**LONGITUDE**	
NAME	**PHONE**	**CONSTRUCTION START DATE**	
TITLE	**EMAIL**	**CONSTRUCTION END DATE**	

NMFS SPECIES & CRITICAL HABITAT PRESENT IN ACTION AREA

- ☐ UPPER WILLAMETTE RIVER CHINOOK
- ☐ UPPER WILLAMETTE RIVER STEELHEAD
- ☐ LOWER COLUMBIA RIVER CHINOOK
- ☐ LOWER COLUMBIA RIVER COHO
- ☐ LOWER COLUMBIA RIVER STEELHEAD
- ☐ COLUMBIA RIVER CHUM
- ☐ MIDDLE COLUMBIA RIVER STEELHEAD
- ☐ UPPER COLUMBIA RIVER CHINOOK
- ☐ UPPER COLUMBIA RIVER STEELHEAD
- ☐ OREGON COAST COHO
- ☐ SOUTHERN OREGON/ NORTHERN CALIFORNIA COASTS COHO
- ☐ SNAKE RIVER SPRING/ SUMMER-RUN CHINOOK
- ☐ SNAKE RIVER FALL-RUN CHINOOK
- ☐ SNAKE RIVER STEELHEAD
- ☐ SNAKE RIVER SOCKEYE
- ☐ SOUTHERN DPS GREEN STURGEON
- ☐ EULACHON

EFH SPECIES OCCURRING IN THE ACTION AREA

- ☐ PACIFIC SALMON, CHINOOK
- ☐ PACIFIC SALMON, COHO
- ☐ COASTAL PELAGICS
- ☐ GROUNDFISH

PROJECT DESCRIPTION

Form Version: October 7, 2016

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INSTRUCTIONS FOR COMPLETING THE ACTION NOTIFICATION FORM

The following information provides guidance or instructions on completing each field of the Action Notification Form. Submit the Action Notification Form to the HUD Mailbox at HUDBiOp.wcr@noaa.gov. Email subject line title conventions are as follows:

Action Notification: Project Name, Applicant Name, County, Waterway (to which project discharges)

ACTION NOTIFICATION FORM

Field Name	Guidance/Instructions
Project Name	Enter the official name of the project (e.g. how the project will be referenced in the Environmental Review Record).
Date of Request	Enter the date the Action Notification Form was submitted. Enter the date in the 8 digit MM/DD/YYYY format.
Project Applicant Information	
Responsible Entity	Provide the name of the Responsible Entity (e.g. County, City, State Program, etc.) that will manage/oversee/carry out/ or otherwise be responsible for the proposed project. Provide the RE project manager's **Name**, **Job Title**, **Phone Number**, and **Email Address** for the proposed project.
HUD Office/ Program	Provide the name of the HUD Office or Program from which project funding is received. Provide the HUD manager's **Name**, **Job Title**, **Phone Number**, and **Email Address** for the project.
Applicant / Consultant Name	Provide the name of the applicant, if different than the RE. If the RE is the applicant, please identify the project consultant or stormwater engineer who should be included in notifications about about project status. Provide the applicant's/consultant's **Name**, **Job Title**, **Phone Number**, and **Email Address** for the project.
Project Location Information	
County	Enter the name of the county in which the project occurs.
Street Address	Enter the street address for the project. Include the City and Zip Code. If a legal street address is not available, provide the closest street name(s).
6th Field HUC Name and Number	Provide the 10-digit, 6th field Hydrologic Unit Code (HUC) number and the associated watershed name. This information can be found by accessing the Oregon Explorer website. Go to http://oregonexplorer.info/. Enter the street address of the proposed property. In the "Explore this Place" information pop-up box you will find the project location's latitude and longitude (to answer the next question on the form) and the name of the watershed in which the project is located. Click on the name of the watershed and the map will zoom in, the 10-digit 6th field HUC number should be displayed under the watershed name on the map. If the name and HUC number do not immediately appear, zoom in on the map using the "+" button in the upper left-hand corner of the map. If you need assistance completing this section of the form, please contact NMFS directly. If the linked website is not functioning, please inform NMFS.
Latitude and Longitude	Provide the Latitude and Longitude in signed degrees format (e.g., 45.XX, -122.XX). This information can be found by accessing the Oregon Explorer website, as described above.

Field Name	Guidance/Instructions
Proposed Construction Period	Provide the proposed **Start Date** for construction and anticipated **End Date** for construction.
ESA-listed Species & Critical Habitat in the Action Area	If known, check the appropriate boxes for ESA-listed species and Critical Habitats within the project's action area. Note, the project's action area extends from the project's location and extends to the Pacific Ocean. Consequently, a project in the Willamette Valley may affect all ESA-listed species that occur/utilize the Lower Columbia River. If you need assistance completing this section of the form, please contact NMFS directly.
EFH Species Occurring in the Action Area	If known, check the appropriate boxes for Essential Fish Habitat (EFH) species potentially occurring in the project's action area (See note above about extent of the action area). If you need assistance completing this section of the form, please contact NMFS directly.
Project Description	Provide a concise description of the proposed action. Please include the nature of the project (e.g. construct low income single-family housing, community center, multi-family apartment complex with low income vouchers, etc.), the acreage of the project site, how much impervious surface area will be created (post-construction), how stormwater will be treated and managed (very generally), and whether the project meets or exceeds NMFS' stormwater design criteria. If the project will not meet NMFS' stormwater design criteria, please contact NMFS directly prior to submitting this form.

To contact NMFS directly, call Brad Rawls at (503) 230-5414 or by email at brad.rawls@noaa.gov.

STORMWATER INFORMATION FORM

HUD PROGRAMMATIC OPINION

If you are submitting a project that includes a stormwater plan for review, please fill out the following cover sheet **to be included with** any stormwater management plan and any other supporting materials. Please have the project engineer provide their signed stamp in the box to the right. Submit this form with/or after the Action Implementation Form to NMFS at ***HUDBiOp.wcr@noaa.gov***.

Engineers' Signed Stamp

PROJECT INFORMATION	NMFS PROJECT TRACKING #: WCR- -
PROJECT NAME	COUNTY
TYPE OF PROJECT (select all that apply)	☐ REDEVELOPMENT ☐ RESIDENTIAL ☐ INSTITUTIONAL ☐ NEW DEVELOPMENT ☐ COMMERCIAL ☐ OTHER
HAVE YOU CONTACTED ANYONE AT NMFS	☐ YES ☐ NO If Yes, Who:
NEAREST RECEIVING WATER	
STORMWATER DESIGNER / ENGINEER INFORMATION	NAME
AFFILIATION/FIRM	PHONE EMAIL
STORMWATER DESIGN MANUAL USED, INCLUDING YEAR/VERSION	
DESCRIBE WHICH ELEMENTS OF YOUR STORMWATER PLAN THAT CAME FROM THE MANUAL EMPLOYED	

DESIGN STORMS

1	**2-YEAR, 24-HOUR STORM** [Consult: http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm]	INCHES	IN/HR
2	**WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR STORM)** [Except climate regions 4 & 9 (67%) and climate region 5 (75%)]	INCHES	
3	**WATER QUANTITY DESIGN STORM (10-YEAR, 24-HOUR STORM)** [Consult: http://www.wrcc.dri.edu/pcpnfreq/or10y24.gif]	INCHES	

SITE CHARACTERISTICS

4	**TOTAL PROJECT AREA** [Lot/Parcel acreage + any additional ground disturbance area]	ACRES	FT^2
5	**TOTAL IMPERVIOUS SURFACE AREA** [Existing impervious acreage + Proposed impervious acreage]	ACRES	FT^2
6	**TOTAL LANDSCAPE AREA** [Landscaping acreage + Vegetated treatment facility acreage]	ACRES	FT^2
7	**WILL IMPERVIOUS AREA BE REDUCED FROM CURRENT CONDITIONS? IF YES, BY HOW MUCH?** ☐ YES ☐ NO	ACRES	FT^2
8	**IS THE SITE CONTAMINATED?** [If yes, provide investigation results to NMFS]	☐ YES ☐ NO	

WATER QUALITY INFORMATION

9	ARE LOW IMPACT DEVELOPMENT (LID) METHODS INCORPORATED INTO DESIGN?	☐ YES ☐ NO
10	HOW MUCH OF TOTAL STORMWATER IS TREATED USING LID?	% FT^3

11 SPECIFIC LID WATER QUALITY TREATMENT ELEMENTS INCORPORATED

SITE DESIGN ELEMENTS	TREATMENT METHODS	OTHER LID WATER QUALITY TREATMENT METHODS
☐ SITE LAYOUT	☐ VEGETATED ROOF	☐ LID NAME
☐ CLUSTERED DEVELOPMENT	☐ INFILTRATION RAIN GARDEN / LID SWALE	SOURCE
☐ DE-PAVE EXISTING PAVEMENT	☐ INFILTRATION STORMWATER PLANTERS	☐ LID NAME
☐ CONSERVE SOILS W/ BEST DRAINAGE	☐ SOAKAGE TRENCH	SOURCE
☐ TREE PROTECTION	☐ DRYWELL	☐ LID NAME
☐ CONSTRUCTION SEQUENCING	☐ WATER QUALITY SWALE	SOURCE
☐ REFORESTATION/TREE PLANTING	☐ VEGETATED FILTER STRIPS	
☐ RESTORED SOILS	☐ LINED RAIN GARDEN/LID SWALE	
☐ POROUS PAVEMENT	☐ LINED STORMWATER PLANTER	

12	DESCRIBE THE TREATMENT TRAIN, INCLUDING PRETREATMENT AND LID BMPS USED TO TREAT WATER QUALITY	
13	WHY THIS TREATMENT TRAIN WAS CHOSEN FOR THE PROJECT SITE	
14	PAGE IN STORMWATER PLAN WHERE MORE DETAILS CAN BE FOUND	
15	STORMWATER TREATMENT REQUIRED	VOLUME FT^3 PEAK DISCHARGE CFS AREA TREATED FT^2
16	IS THE WATER QUALITY DESIGN STORM FULLY TREATED?	VOLUME ☐ YES ☐ NO PEAK DISCHARGE ☐ YES ☐ NO
17	IF ANSWER TO 16 IS "NO," WHY NOT? HOW WILL PROJECT OFFSET THE EFFECTS FROM UNTREATED STORMWATER?	

WATER QUANTITY INFORMATION

18	DOES THE PROJECT DISCHARGE DIRECTLY INTO A MAJOR WATER BODY? [Large water body = ocean, estuary, mainstem Columbia River, Willamette River downstream of Eugene]		☐ YES	☐ NO
19	PRE-DEVELOPMENT RUNOFF RATE AND VOLUME	WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR)	CFS	FT^3
		WATER QUANTITY DESIGN STORM (10-YEAR 24-HOUR)	CFS	FT^3
20	POST-DEVELOPMENT RUNOFF RATE AND VOLUME	WATER QUALITY DESIGN STORM (50% OF 2-YEAR, 24-HOUR)	CFS	FT^3
		WATER QUANTITY DESIGN STORM (10-YEAR 24-HOUR)	CFS	FT^3

** POST-DEVELOPMENT RUNOFF RATE MUST BE LESS THAN OR EQUAL TO PRE-DEVELOPMENT RUNOFF RATE **

WATER QUANTITY INFORMATION (CONTINUED)

21	**METHODS USED TO LIMIT STORMWATER DISCHARGE FROM PROJECT**
22	**PAGE IN STORMWATER PLAN WHERE MORE DETAILS CAN BE FOUND**
23	**SPECIFIC LID DISCHARGE REDUCTION ELEMENTS INCORPORATED** **MANAGEMENT METHODS** / **OTHER LID WATER QUANTITY MANAGEMENT ELEMENTS** ☐ POROUS PAVEMENT ☐ SOAKAGE TRENCH ☐ LID NAME ☐ INFILTRATION RAIN GARDEN / LID SWALE ☐ DRYWELL SOURCE ☐ INFILTRATION STORMWATER PLANTERS ☐ DOWNSPOUT DISCONNECTION
24	**ARE BOTH WATER QUANTITY DESIGN STORMS FULLY MANAGED (I.E. ATTENUATED)?** **VOLUME** ☐ **YES** ☐ **NO** **PEAK DISCHARGE** ☐ **YES** ☐ **NO**
25	**IF NO, WHY NOT? HOW WILL THE PROJECT OFFSET THE EFFECTS FROM UNMANAGED STORMWATER?**
26	**IS THE POST-DEVELOPED PEAK DISCHARGE >0.5 CFS DURING THE 2-YEAR, 24-HOUR STORM EVENT? IF YES, FLOW CONTROL MANAGEMENT REQUIRED** ☐ **YES** ☐ **NO**
27	**FLOW CONTROL PROPOSED** **CFS** **% OF 2-YEAR, 24-HOUR STORM EVENT**

MAINTENANCE AND INSPECTION PLAN

28	**HAVE YOU INCLUDED A STORMWATER MAINTENANCE AND INSPECTION PLAN?** ☐ **YES** ☐ **NO**
29	**CONTACT INFORMATION FOR THE PARTY/PARTIES THAT WILL BE LEGALLY RESPONSIBLE FOR PERFORMING/ CONTRACTING THE INSPECTIONS AND MAINTENANCE OF THE STORMWATER FACILITIES:**
	NAME
	AFFILIATION/RESPONSIBILITY
	PHONE **EMAIL**
	NAME
	AFFILIATION/RESPONSIBILITY
	PHONE **EMAIL**
	NAME
	AFFILIATION/RESPONSIBILITY
	PHONE **EMAIL**
	NAME
	AFFILIATION/RESPONSIBILITY
	PHONE **EMAIL**

OTHER RELEVANT INFORMATION

INSTRUCTIONS FOR COMPLETING THE STORMWATER INFORMATION FORM

The following information provides guidance or instructions on completing each field of the Stormwater Information Form. The Stormwater Information Form can be submitted with the Action Notification Form or separately. Please note that review of the submitted project cannot begin until the receipt of all required information, which includes the Stormwater information Form. Submit to the HUD Mailbox at HUDBiOp.wcr@noaa.gov. Email subject line title conventions are as follows:

If submitted with the Action Notification Form:

Action Notification: Project Name, Applicant Name, County, Waterway (to which project discharges)

If submitted separate from the Action Notification Form:

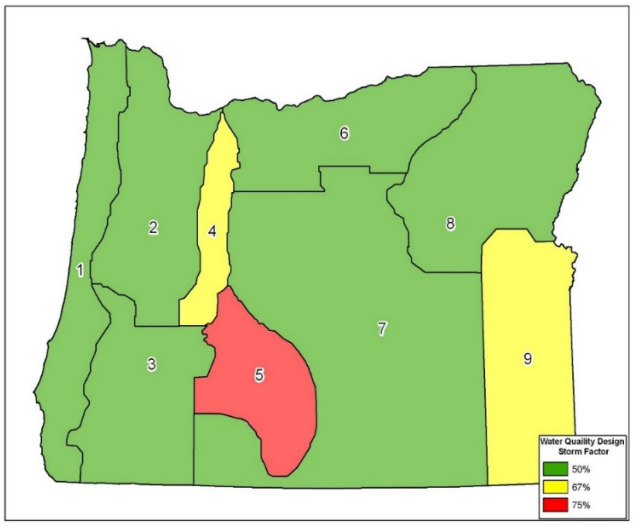
Project Files: Project Name, Applicant Name, County, Waterway (to which project discharges), NMFS Tracking Number

STORMWATER INFORMATION FORM

Field Name	Guidance/Instructions
NMFS Project Tracking #	Enter the 8+ digit tracking number assigned to the proposed project. NMFS will provide this number to you in an email following submittal of the Action Notification Form. If you are submitting the Stormwater Information Form with the Action Notification Form, NMFS will complete this field and provide the tracking number to you via email. The format for this number is WCR-201X-ZZZZ, where "X" is the year the project is submitted and "Z" is a 4+ digit number unique to the project.
Project Name	Enter the official name of the project (e.g. how the project will be referenced in the Environmental Review Record).
County	Enter the name of the county in which the project occurs.
Type of Project	Please check the boxes that best describe the proposed project. Please identify whether the proposed project is new development or redevelopment of an existing property. Indicate whether the project is a residential, commercial, or institutional property. If the project is something other than the options provided, select "Other" and briefly describe the project in the text field.
Have You Contacted Anyone at NMFS	Respond "Yes" or "No," as appropriate. If you answer "Yes," please identify the name of the NMFS personnel with whom you communicated. If you have discussed this project at a HUD quarterly meeting, you should respond "Yes" and "HUD Quarterly Meeting on DD/MM/YYYY."
Nearest Receiving Water	Provide the name of the nearest receiving water that will receive stormwater runoff from the project. If the project discharges to more than one receiving water, please include all receiving waters. If the project will discharge to a municipal stormwater or combined sewer system, please indicate the receiving water where the stormwater or combined sewer system discharges. If the municipal system discharges to a sewage treatment facility prior to discharge to a receiving water, please include such information. If you need additional assistance completing this section of the form, please contact NMFS directly.
Stormwater Designer/ Engineer Contact Info	Provide the name of the licensed engineer who designed the stormwater treatment for the proposed project. Provide the **Name**, **Affiliation / Firm**, **Phone Number**, and **Email Address** of the stormwater engineer for the proposed project.

Field Name	Guidance/Instructions
Stormwater Manual Used	Enter the name of the stormwater manual used to design the project's stormwater treatment and management system. Examples include: City of Portland, Clean Water Services, Western Washington, etc. Include the version or date of the stormwater manual employed. If the stormwater design criteria employed is derived from another manual (e.g. City of XXXXX, based on the Portland Stormwater Manual), please indicate which manual the criteria is based on.
Elements Incorporated into Project Design	Explain which elements of the project's stormwater design are taken from the stormwater manual employed.

DESIGN STORMS

#	Field Name	Guidance/Instructions
1	**2-Year, 24-Hour Storm**	The 2-Year, 24-Hour storm event for the proposed project's location is used to model the water quality and water quantity design storms. Enter the number of inches of precipitation (up to 2 significant digits) for the 2-Year, 24-Hour storm event for the proposed project's location. Also, enter the precipitation intensity in inches per hour (up to 2 significant digits). To find this information got to http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm. Enter the latitude and longitude for the project and click "Submit." The information will be displayed as the second row on the generated table.
2	**Water Quality Design Storm**	The water quality design storm is defined as 50% of the 2-Year, 24-Hour storm event for the proposed project's location, except as described below. Enter the inches of precipitation (up to 2 significant digits). The design storm is dependent on which climate zone the project is located, as follows (see below figure): Climate zones 1, 2, 3, 6, or 8: Design Storm = 50% of the 2-year, 24-hour storm Climate zones 4 and 9: Design Storm = 67% of the 2-year, 24-hour storm Climate zone 5: Design Storm = 75% of the 2-year, 24-hour storm  Regions: (1) Oregon Coast; (2) Willamette Valley; (3) Southwestern Valleys; (4) Northern Cascades; (5) High Plateau; (6) North Central; (7) South Central; (8) Northeast; (9) Southeast. Source: Oregon Dept. of Transportation (2008).

#	Field Name	Guidance/Instructions
3	**Water Quantity Design Storm**	The water quantity design storm is defined as the 10-year, 24-hour storm event for the proposed project's location. Enter the number of inches of precipitation (up to 2 significant digits). A map of 10-year, 24-hour storm isopluvials for Oregon may be downloaded from the Western Region Climate Center website at: http://www.wrcc.dri.edu/pcpnfreq/or10y24.gif.
SITE CHARACTERISTICS		
4	**Total Project Area**	Enter the total area for the proposed project in Acres (up to 3 significant digits) and Square Feet (no significant digits). Total project area should include all areas within the limits of construction and will typically correspond to the parcel(s) comprising the project site. If a project will require ground disturbance outside the project footprint (e.g., installation of utility vaults in the sidewalk), include such area in the project area.
5	**Total Impervious Surface Area**	Enter the amount of total impervious surface area for the proposed project, post construction, in Acres (up to 3 significant digits) and Square Feet (no significant digits). This should be the sum of existing impervious surface area and new impervious surface area that will be constructed. If the project will be causing ground disturbance outside the parcel boundary, such as for utility construction in the public right of way, include such area as well, even if the disturbed area will be replaced in kind (i.e. existing sidewalk replaced with new sidewalk). Impervious surface area includes all surfaces that are considered impervious to infiltration from rainwater, such as roofs, sidewalks, roadways, and similar surfaces.
6	**Total Landscape Area**	Enter the amount of proposed, post-construction, landscaping area in Acres (up to 3 significant digits) and Square Feet (no significant digits). Landscaped area include proposed vegetated areas (e.g., lawns, parkway strips, shrubbery, trees, vegetated stormwater facilities, etc.) but are not protected natural areas (e.g., forested areas, wetlands, riparian zones) that will be left in an undisturbed state.
7	**Impervious Surface Area Reduction**	Respond "Yes" or "No," as appropriate. If you answer "Yes," enter the amount of exiting impervious surface area that will be removed in Acres (up to 3 significant digits) and Square Feet (no significant digits). Do not include existing impervious area that will be replaced with new impervious area.
8	**Is the Site Contaminated**	Respond "Yes" or "No," as appropriate. If you answer "Yes," please submit any remedial investigations (e.g., Environmental Site Assessment Phase I/Phase II) and remedial action reports (e.g., Remedial Investigation/Feasibility Study, Notice of No Further Action, etc.) that apply to the property.
WATER QUALITY INFORMATION		
9	**LID Methods Incorporated**	Indicate if Low Impact Development (LID) stormwater treatment methods that are incorporated into the proposed design.
10	**Volume of Stormwater Treated by LID**	Indicate the percentage of stormwater that is treated by LID stormwater methods. **(OPTIONAL)** Indicate the volume of stormwater (in CFS) treated by LID methods. A template to calculate LID treatment is available at: http://www.deq.state.or.us/wq/tmdls/lidmanual.htm
11	**Specific LID Stormwater Treatment Methods**	Check the boxes of all LID stormwater treatment methods incorporated into the project's design. If the design employs an LID method not listed, select the "Other" box and include the name of the LID method and the source from which it is derived (e.g., stormwater manual).

#	Field Name	Guidance/Instructions
12	**Treatment Train Employed**	Describe the treatment train employed to treat the project's stormwater. Include methods for interception, evapotranspiration, pre-treatment, treatment, bioretention, and other relevant features of how stormwater treatment and retention is achieved. This should include a description of site scale treatment trains and BMP-scale treatment trains. Site Scale Example: Stormwater treatment is incorporated into site design from the outset to maximize on-site infiltration and limit the amount of stormwater generated from impervious surfaces. Over 30% of the large trees (> 8-inches dbh) occurring on the project site will be conserved under the proposed plan and will be supplemented with additional tree and shrub plantings for landscaping and stormwater areas. All landscaped areas will be amended with compost (3 inches for rain gardens, 1.75 inches for lawns) to a depth of 12 inches to improve infiltration of rainfall, preventing runoff. Impervious surfaces associated with parking areas will be reduced by using permeable pavers for the front third of each parking space. Stormwater generated from rooftops is collected into stormwater planters for pre-treatment and retention before detention in an underground stormwater vault system, after which it will discharge into the municipal stormwater system. Precipitation falling on sidewalks and parking areas is reduced through interception and re-evaporation by trees covering approximately 25% of these impervious areas. Stormwater generated from sidewalks and parking areas fully infiltrates the water quality design storm in stormwater planters. Storms larger than the water quality design storm are discharged into the municipal stormwater system. BMP Scale Example: Compost amended landscape areas: The compost specified is from a U.S. Composting Council Seal of Testing Assured (STA) supplier. Stormwater Planters: Stormwater planters will incorporate a crushed rock pad, sized using U.S. Army Corps of Engineers rock pad standards, to dissipate energy from the concentrated flows at the inlet. Plantings have been designed to provide 90% cover over each facility bottom within a 2-year period. Non-plastic, biodegradable erosion control fabric will protect exposed soil from erosion. Infiltration into the subsoils, confirmed through testing where facilities will be located, provides treatment for pollutants such as nitrogen, phosphorus, copper, zinc, hydrocarbons, biologicals and sediment. During large storms, flows exceeding the facility's design depth top a weir in the side of the planters and cascade into a catch basin. By placing the catch basin outside the facility, less water is exposed to pollution and this lower amount of water spends less time in contact with the metal catch basin grates than if it were placed inside the facility.
13	**Why treatment train was chosen**	Explain why the proposed treatment train was selected for the project. Include discussion of any site constraints (e.g., infiltration rate limitations, local ordinances, soil conditions, etc.) that informed the selection and design of stormwater elements.
14	**Where in the stormwater plan more details can be found**	Identify the section in the project's stormwater plan that discusses the decisions underlying the proposed stormwater design, including site constraints.

#	Field Name	Guidance/Instructions
	Stormwater Treatment Required (Volume)	**Volume**: Enter the value for the post-developed volume generated by the water quality design storm in cubic feet (ft^3). To calculate this value you can input the results from a modeling software or use the simple calculation methods below. To calculate runoff volume the equation: V = (A) (DS) may be used Where: V = Runoff volume in cubic feet (ft^3) A = Impervious Surface Area of the site in square feet (ft^2) DS = Design Storm precipitation in feet (ft) Example: calculate the runoff volume from a fully developed (e.g. 100% impervious surface area) parcel 0.574 acres in size, with a design storm precipitation of 1.25 in. The entire site will be redeveloped as impervious surface area. V = (A) (DS) = (0.574 ac) (1.25 in) Convert Units: A = 0.574 ac → 25,000 ft^2 DS = 1.25 in. → 0.104 ft V = (25,000 ft^2) (0.104 ft) → **V = ~2,604 ft^3** 2,604 ft^3 of stormwater treatment must be provided for the project site. If you are using modeling software to calculate treatment volume, please indicate in the stormwater plan which modeling software was employed to determine the required stormwater treatment (e.g., HydroCAD), relevant software version (e.g., ver. 9.9), and the modeling method used (e.g., SBUH, etc.).
15	**Stormwater Treatment Required (Peak Discharge)**	**Peak Discharge**: Enter the value for the post-developed peak discharge of the water quality design storm in cubic feet per second (cfs). To calculate this value you can input the results from a modeling software or use the simple calculation methods below. To calculate peak discharge via the "Rational Method," the equation q = (C) (i) (A) may be used. Where: q = peak discharge or runoff rate in cfs C = the runoff coefficient for the area discharging runoff i = the storm intensity in inches/per hour A = the area of the discharge area in acres The runoff coefficient, C, is a unitless variable that represents the fraction of rainfall striking the drainage area that becomes runoff from that drainage area. Values for C for a variety of types of drainage areas can be found in handbooks, textbooks, on the internet, or from the ODOT Hydraulics Manual, Chapter 7: https://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/docs/Hydraulics/Hydraulics%20Manual/CHAPTER_07.pdf Example: Calculate the peak discharge for a 1.5-acre lot. The runoff coefficient for this site is determined to be 0.85, based on existing impervious surfaces, site slopes, and local soils. The specified design storm intensity has been determined to be 0.045 in/hr. q = CiA = (0.85) (0.045 in/hr) (1.23 ac) Convert Units: C = 0.85 (unitless) i = 0.045 in/hr → 1.04 x10^{-6} ft/sec A = 1.23 ac → 53,578 ft^2 q = (0.85) (1.04 x10^{-6} ft/sec) (53,578 ft^2) = **~0.05 ft^3/sec** The peak discharge for the design storm is ~0.05 cfs.

#	Field Name	Guidance/Instructions
15	**Stormwater Treatment Required (Area Treated)**	**(OPTIONAL)** Indicate the area of stormwater treated by LID methods. A template to calculate LID treatment is available at: http://www.deq.state.or.us/wq/tmdls/lidmanual.htm. Chapter 4 (version 1 preferred) provides a step-by-step method for considering BMPs and estimating the area of runoff they manage and references an Excel file called the LID Implementation Form. For example, deciduous tree canopy over an impervious area can only be considered to manage 25% of that area. The rest must drain to another facility for management of peak flows. Use the LID Implementation Form to enter areas. Facility sizing for concentrated of volumes (e.g. determining the size of a stormwater planter or an LID swale) cannot be completed until this template is adapted by your jurisdiction, so size facilities using other methods and enter the areas managed on the LID Implementation Form and ignore other worksheets in the Excel file.
16	**Water Quality Design Storm Fully Treated**	Respond "Yes" or "No," whether the water quality design storm's volume is fully treated and whether the water quality design storm's peak discharge is fully treated.
17	**How will the project offset the effects from untreated stormwater?**	If you responded "No" to either volume or peak discharge in question 16, explain how the effects of untreated stormwater volume and peak discharge rate will be mitigated, such that ESA-listed species and designated critical habitat are not injured or impaired.
	WATER QUANTITY INFORMATION	
18	**Does Project Discharge into a Large Waterbody**	Indicate whether the project will discharge into a large waterbody. NMFS defines a large waterbody as either the Pacific Ocean, the Willamette River downstream of Eugene, the Columbia River, or other large lakes or impoundments. If you need additional assistance completing this section of the form, please contact NMFS directly.
19	**Pre-Development Runoff Rate**	Enter the pre-development runoff rate for the project site for the 2-year, 24-hour storm and the 10-year storm in cubic feet per second (cfs). Pre-development site conditions assume the conditions prior to human development or disturbance.
20	**Post-Development Runoff Rate**	Enter the post-development runoff rate for the project site for the 2-year, 24-hour storm and the 10-year storm in cubic feet per second (cfs).
	**** Post Development Runoff Rate Must be Equal to or Less Than Pre-Development Runoff Rates ****	
21	**Methods Used to Limit Discharge**	Describe the stormwater design's methods for limiting stormwater discharge from the project site. Include methods for interception, evapotranspiration, bioretention, detention, and other relevant features of how stormwater retention and detention is achieved. Example: Stormwater management is incorporated into site design from the outset to maximize on-site infiltration and limit the amount of stormwater discharging from the site. Over 25% of the large trees (> 8-inches dbh) occurring on the project site will be conserved under the proposed plan to increase interception of precipitation, re-evaporation, and to provide enhanced infiltration of rainfall that passes through the canopy. Supplemental tree and shrub plantings for landscaping and stormwater treatment will further reduce stormwater generation through interception and infiltration; however, these practices (continues on following page)

#	Field Name	Guidance/Instructions
21	**Methods Used to Limit Discharge** (continued)	are most effective during storms smaller than the water quantity design storm. Stormwater runoff generated from rooftops is collected into stormwater planters for retention and partial infiltration of the water quality design storm before discharging into an underground detention vault, after which it is discharged into the municipal stormwater system. Precipitation falling on sidewalks and parking areas is reduced by using permeable pavers for the front third of each parking space, increasing infiltration. Stormwater runoff generated from sidewalks and parking areas is fully infiltrated during the water quality design storm. Infiltration of the water quality storm was shown through modeling to attenuate the water quantity design storm, so no detention was needed for these areas. Runoff, when it occurs, is discharged into the municipal stormwater system.
22	**Where in the stormwater plan more details can be found**	Identify the section in the project's stormwater plan that discusses the decisions underlying the proposed water quantity management design decisions, including site constraints.
23	**Specific LID Discharge Reduction Methods**	Check the boxes of all LID stormwater discharge reduction methods incorporated into the project's design. If the design employs an LID method not listed, select the "Other" box and include the name of the LID method and the source from which it is derived (e.g. stormwater manual).
24	**Water Quantity Design Storm Fully Managed (Volume)**	Respond "Yes" or "No," whether the water quantity design storm's volume is fully managed and whether the water quantity design storm's peak discharge is fully managed.
25	**How will the project offset the effects from unmanaged stormwater?**	If you responded "No" to either volume or peak discharge in question 24, explain how the effects of unmanaged stormwater volume and peak discharge will be mitigated, such that ESA-listed species and designated critical habitat are not injured or impaired.
26	**Peak discharge >0.5 cfs during the 2-Year, 24-Hour storm event**	Indicate whether the peak discharge will be greater than 0.5 cfs during the 2-year, 24-hour storm event. If yes, flow control management will be required to minimize hydromodification impacts.
27	**Flow control proposed**	If the response to question 26 is "Yes," enter the amount of flow control provided in cfs and as a percentage of the storm event (i.e. 2-year, 24-hour storm).

MAINTENANCE AND INSPECTION PLAN		
#	**Field Name**	**Guidance/Instructions**
28	**Is Maintenance and Inspection Plan Included**	Indicate whether a maintenance and inspection plan is included in the project's stormwater plan. The maintenance and inspection plan should describe the elements of the stormwater system, the inspection schedule and process, legal and financial responsibility for carrying out inspections and maintenance activities, sample inspection log, and who the maintenance and inspection reports will be sent to (e.g. city, county, or other jurisdictional entity).
**** NMFS cannot complete review without a maintenance and inspection plan ****		

#	Field Name	Guidance/Instructions
29	**Contact Information for Maintenance and Inspection Entities**	Provide the contact information for the party or parties who will be legally responsible for performing/contracting the inspections and maintenance of the stormwater facilities.

OTHER RELEVANT INFORMATION

Include any other relevant information that may be helpful in evaluating the proposed stormwater plan and design.

PROJECT COMPLETION REPORT

HUD PROGRAMMATIC OPINION

Submit this form within 60 days of completing all work, including vegetation installation. Submit by email to: ***HUDBiOp.wcr@noaa.gov*****.**

DATE OF NOTIFICATION		**NMFS TRACKING #** **[Number Provided by NMFS]**	**WCR-** -
PROJECT NAME		**COUNTY**	
RESPONSIBLE ENTITY		**APPLICANT/CONSULTANT**	
NAME	**PHONE**	**NAME**	**PHONE**
TITLE	**EMAIL**	**TITLE**	**EMAIL**
CONSTRUCTION COMPLETION DATE			

COMPLIANCE DOCUMENTATION

1 **An explanation of the stormwater system as built or installed by the construction contractor, including any on-site changes from the original plans. Add additional sheets, if necessary.**

☐ Attached as a separate document

2 **Photographs of the constructed stormwater facility, including photos of the outfall structure, vegetation, facility location relative to other site features, etc.**

☐ Attached

3 **A map showing the stormwater facility's location(s)**

☐ Attached

4 **As built design drawings for the stormwater facility and site stormwater collection system (PDF versions only please. No CAD files)**

☐ Attached

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INSTRUCTIONS FOR COMPLETING THE PROJECT COMPLETION REPORT

The following information provides guidance or instructions on completing each field of the Project Completion Report. This form must be submitted within 60-days of completing all project work. Email subject line title conventions are as follows:

> *Project Completion Report: Project Name, Applicant Name, County, Waterway (to which project discharges), NMFS Tracking #*

PROJECT COMPLETION REPORT

Field Name	Guidance/Instructions
Date of Notification	Enter the 8 digit date you are submitting this report in the MM/DD/YYYY format.
NMFS Project Tracking #	Enter the 8+ digit tracking number assigned to the proposed project. This will be the same number NMFS provided to you following submittal of the Action Notification Form.
Project Name	Enter the official name of the project (e.g. how the project will be referenced in the Environmental Review Record.
County	Enter the name of the county in which the project occurs.
Responsible Entity	Provide the name and contact information of the Responsible Entity who will manage / oversee / carry out / or otherwise be responsible for the proposed project. Provide the **Name**, **Job Title**, **Phone Number**, and **Email Address** of the named responsible entity for the proposed project.
Applicant / Consultant	Provide the name and contact information of the applicant (if different than the RE) or of the consultant (if applicable) who should be included in compliance notifications for the proposed project. Provide the **Name**, **Job Title**, **Phone Number**, and **Email Address** of the named applicant / consultant for the proposed project.
Construction Completion Date	Enter the 8 digit date that project construction was completed in in the MM/DD/YYYY format.

COMPLIANCE DOCUMENTATION

#	Field Name	Guidance/Instructions
1	**Description of Stormwater System Constructed**	Describe the stormwater system as built or installed by the construction contractor, including any on-site changes from the original plans. If the design, sizing, or methods were changed from those described in the Stormwater Information Form and PCSWMP, provide information on what necessitated the changes and how the changes affect the stormwater treatment and management for the site. Changes to the stormwater system may require re-submittal of the Stormwater Information Form and a revised project stormwater plan so that NMFS can assess whether the system is in compliance with the opinion. Check the box if the above response is attached as a separate document.
2	**Photos of Constructed Stormwater Facilities**	Provide photographs of the constructed stormwater facilities, including photos of outfall structure(s), vegetation, facility location(s) relative to other site features, etc. Check the box indicating the requested photos are attached.
3	**Site Map**	Provide a site map showing the stormwater facility location(s). Check the box indicating the requested site map(s) is/are attached.
4	**As-Built Plans**	Provide an electronic copy of the as-built plans for the project. Do not send CAD files please, PDFs are sufficient. Check the box indicating the requested site plans are attached.

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APPENDIX C:
Low-Impact Development (LID) References

Cahill, M. 2016. Low Impact Development in Western Oregon: A Practical Guide for Watershed Health. Green Girl Land Development Solutions LLC, Portland Oregon. A Report for Oregon Department of Environmental Quality, Portland, Oregon.

City of Portland. 2016. Stormwater Management Manual. Bureau of Environmental Services. (August)

Clean Water Services. 2009. Low Impact Development Approaches Handbook. Hillsboro, Oregon. (July)

Hinman, C. 2005. Low Impact Development: Technical Guidance Manual for Puget Sound. A Report for the Puget Sound Action Team and Washington State University, Pierce County Extension. Olympia, Washington. (January)

National Association of Home Builders. 2003. The Practice of LID Development. A Report for HUD and the Partnership for Advancing Technology in Housing. 2003. Washington, D.C. (July)

Transportation Research Board. 2006. National Cooperative Highway Research Program (NCHRP) Report 565. Evaluation of Best Management Practices for Highway Runoff Control. Washington, D.C.

U.S. EPA. 2000. Low-Impact Development (LID): A Literature Review. Office of Water, Washington, D.C. (October)

Washington State Department of Ecology. 2011. Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies: Technology Assessment Protocol – Ecology (TAPE). Lacey, Washington.

Washington State Department of Ecology. 2014. Stormwater Management Manual for Western Washington. Water Quality Program. Lacey, Washington. (December)

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APPENDIX D:
Glossary of Terms

Glossary of Terms and Abbreviations

Best management practice (BMP). A device, practice, or method for removing, reducing, retarding, or preventing targeted stormwater runoff constituents, pollutants, and contaminants from reaching receiving waters.[1]

Biofiltration. Use of amended soils, compost, and vegetation to remove pollutants from stormwater by maximizing contact between the stormwater and vegetation and media. Biofiltration is used in flow-through treatment systems, such as bio-swales and amended soil filter strips, and in facilities that pond the stormwater, also known as bioretention facilities.

Biological Opinion (opinion). Endangered Species Act - Section 7 Programmatic Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for U.S. Department of Housing and Urban Development Housing Programs in Oregon. Consultation Number: WCR-2016-4853. United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, West Coast Region. Issued July 25, 2016.

Bioretention. The process in which contaminants and sedimentation are removed from stormwater runoff. Stormwater is collected into the treatment area, which consists of a grass buffer strip, sand bed, ponding area, organic or mulch layer, planting soil, and plants. Runoff passes first over or through a sand bed, which slows the runoff's velocity, distributes it evenly along the length of the ponding area, which consists of a surface organic layer or groundcover and the underlying planting soil. The ponding area is graded, its center depressed. Water is ponded to a depth of approximately 15cm (5.9 inches) and gradually infiltrates the bioretention area or is evapotranspired. The bioretention area is graded to divert excess runoff away from itself. Stored water in the bioretention area planting soil exfiltrates over a period of days into the underlying soils.

Bioslopes, or ecology embankments. Linear flow-through stormwater runoff treatment facilities that can be sited along highway side-slopes, medians, borrow ditches, or other linear depressions. They consist of four basic components: a gravel no-vegetation zone, a vegetated filter strip, the ecology-mix bed, and a gravel-filled underdrain trench.

Bioswales. Landscape elements designed to remove silt and pollution from surface runoff water consisting of a swaled drainage course with gently sloped sides (less than 6%) and filled with vegetation, compost or riprap.

Catchment. The area that drains an individual development site to its first intersection with a stream, ranging from a few acres up to several hundred acres in size. Best management practices and site design are the management focus at this scale.

Constructed wetland. Natural-looking, lined marsh systems that pretreats wastewater by filtration, settling, and bacterial decomposition.

Contained planter BMP. A container with plants placed over an impervious surface intentionally implemented to reduce runoff and prevent or reduce pollution.

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[1] U.S. Environmental Protection Agency. Preliminary Data Summary of Urban Stormwater Best Management Practices. Retrieved from: http://www.epa.gov/guide/stormwater/files/montch1and2.pdf

Contaminated soils. Soils at sites where contaminants have accumulated as a result of historic activities, not necessarily limited to industrial sites. Contaminated sites have a highly regulated development path with additional permitting. Coordination with the local DEQ Cleanup program is advised.

Conveyance swale. Long, open channel that conveys stormwater runoff, but may not provide substantial water quality treatment due to a lack of tall, structured plants to slow flows. These are not considered LID BMPs. An example of a conveyance swale is a rock lined roadside ditch.

Detention/Detain. The attenuation (i.e. reduction of peak flows) of runoff from a design storm by storing and releasing runoff slowly to the downstream waterways with no reduction in volume on-site. Detention has been used to reduce flooding, but has been found to be inadequate at protecting downstream water quality. The Environmental Protection Agency now prefers low impact development BMPs, which reduce flooding and improve downstream water quality.[2] Because detention facilities do not reduce runoff and have been found to pollute water with temperature, scouring, and changing flows that impact streams, detention facilities are not considered an LID BMP.

Downspout disconnection. A form of dispersion that directs a building's roof drains to a lawn or garden instead of into storm sewer pipes.

Drywell. A well, assemblage of perforated pipes, or drain tiles that receive runoff and infiltrate that runoff underground.

Endangered Species Act (ESA). The Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.).

Essential Fish Habitat (EFH). A Congressional mandate in the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, or Magnuson-Stevens Act. Essential Fish Habitat describes all waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity.

Evaporation. The process of water changing from a liquid to a gas. Evaporation is a significant portion of the annual water cycle that reduces runoff in undeveloped and/or forested areas of Western Oregon.

Evapotranspiration. The collective term for the process of water returning to the atmosphere via interception and evaporation from plant surfaces and transpiration through plant leaves.

Federal action agency. HUD or the Responsible Entity, identified under 24 CFR Part 58.

Filter strip. A filter strip is an area of vegetation, generally narrow and long, that slows the rate of runoff, allowing sediments, organic matter, and other pollutants that are being conveyed by the water to be removed by settling out. Filter strips reduce erosion and the accompanying stream pollution.

Hydrologic Unit Code (HUC). The hydrologic unit code is a sequence of numbers or letters that identify a hydrological feature like a river, river reach, lake, or area like a drainage basin or catchment. As of 2010 there are six levels in the hierarchy, represented by hydrologic unit codes from 2 to 12 digits long, called regions, subregions, basins, subbasins, watersheds, and subwatersheds.

Impervious surface. A surface that prohibits water from soaking into the ground. Examples include roofs, concrete, asphalt, pavers, compacted gravel, compacted clay, plastic liners, and clogged landscape fabric.

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[2] U.S. Environmental Protection Agency. (2009). Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. Retrieved from: http://www.epa.gov/sites/production/files/2015-09/documents/eisa-438.pdf

Infiltration. Flow or movement of water through the soil surface and into the subsoils.

Infiltration ponds or basins (i.e., recharge basins, sumps). Shallow artificial ponds that are designed to infiltrate stormwater though permeable soils into the groundwater aquifer. Infiltration basins do not discharge to a surface water body under most storm conditions, but are designed with overflow structures (pipes, weirs, etc.) that operate during flood conditions.

Isopluvial. Mapped lines of equal rainfall depths.

Likely to Adversely Affect (LAA). A determination of finding under the ESA for a listed species. A finding of "May affect, and is likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure. Exposure to stormwater runoff has been determined to constitute an impact that "May affect, and is likely to adversely affect" listed fish species in Oregon. Actions that are determined to be LAA must enter formal consultation with the U.S. Fish and Wildlife Service and/or NMFS. Use of this opinion is one aspect of formal consultation with NMFS.

Limit disturbance BMP. Any BMP that protects a site or portion of a site in its current, natural vegetated state and/or protects soil permeability.

Low impact development (LID). A pattern of land development that preserves natural resources and promotes opportunities to manage stormwater where it falls. LID relies on a collection of carefully selected techniques to reduce, receive, and clean stormwater runoff to protect and improve water availability and quality. LID designs minimize stormwater runoff based on natural features and decentralized micro-scale controls that intercept, evaporate, transpire, filter, or infiltrate precipitation to avoid or minimize off-site discharge.

Lower discharge endpoint: The design storm depth above which streambank erosion is caused.

LID swale. Long, planted, open channel that conveys stormwater runoff and is designed and constructed to promote infiltration.

Maintenance. Performance of work on a planned, routine basis, or the response to specific conditions and events, as necessary to maintain and preserve the condition of a project feature at an adequate level of service.

Management/Manage. To retain or detain peak flows to reduce streambank scouring and flooding from the water quantity design storms.

Media filters. Media filters are usually two-chambered, including a pretreatment settling basin and a filter bed filled with sand or other absorptive filtering media, used to reduce pollutant loading in runoff.

Minimize impervious area BMP. Any BMP that reduces land area not able to infiltrate or evaporate rainfall or runoff as a result of being covered by buildings, roofs, and roads, parking lots and sidewalks.

Municipal separate storm sewer system (MS4). A conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, manmade channels or storm drains) owned or operated by a governmental entity that discharge to waters of the State.

National Marine Fisheries Service (NMFS).

New development. Any project where the land cover is changed from a natural, pre-developed state into another land cover.

No Effect. A determination of finding under the ESA for a listed species. A finding of "no effect" means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to the action and its environmental consequences. A

determination of "not effect" does not require consultation with the U.S. Fish and Wildlife Service and/or NMFS. Please consult the *Endangered Species Act Guidance for Orego*n for more information on making a "no effect" determination, available at: http://portal.hud.gov/hudportal/documents/huddoc?id=Oregon_ESA_NEG.pdf

Pervious. See "Porous" definition**.**

Permeable. See "Porous" definition.

Post-construction stormwater management plan (PCSMP). A stormwater plan specifically prepared to address long-term stormwater management and treatment from a HUD-funded project, which demonstrates compliance with NMFS' stormwater criteria.

Predevelopment or predeveloped condition. The naturally vegetated land cover and contour (i.e. shape and slope) that would historically have been on a site.

Porous. A material that allows water to pass through it.

Porous pavement. Permeable pavement surface with a stone reservoir underneath. The reservoir temporarily stores surface runoff before infiltrating it into the subsoil. Runoff is thereby infiltrated directly into the soil and receives some water quality treatment. Porous pavement often appears the same as traditional asphalt or concrete but is manufactured without "fine" materials, and instead incorporates void spaces that allow for infiltration.

Post-development or post-developed condition. The land cover on a site as a result of development activities, which may include but is not limited to buildings; roads; sidewalks; ornamental, and working and protected landscapes.

Rainfall management. Use of BMPs to treat and reduce the volumes of stormwater leaving a site by infiltrating or evaporating rain that falls directly on the surface of the BMP. Examples of rainfall management facilities include restored soils, vegetated roofs, and contained planters. When rainfall management BMPs are used, they are referred to as "Runoff Prevention BMPs".

Rain garden. A "sunken garden bed" with gentle side slopes that collects and treats stormwater runoff by ponding runoff and passing it through soils and plants. A rain garden does not function like a wetland nor is it considered a wetland for regulatory purposes.

Redevelopment. Any project where existing land cover, which was previously developed, is changed to another land cover.

Responsible Entity (RE). The city, county, state or Tribe that assumes the responsibility for environmental review decision-making and action that would otherwise apply to HUD, including the responsibility to comply with ESA.

Retention/Retain. The attenuation (i.e. control of flow) of runoff from a design storm by reducing volume on-site through infiltration, evaporation, and evapotranspiration.

Retrofit. Any project that improves water quality from an existing developed area without a change to the land cover contributing runoff.

Runoff prevention BMP. Any BMP that reduces the volume of runoff generated by evaporating and/or infiltrating rainfall that falls directly on it.

Runoff reduction BMP. Any BMP that decreases the volume of runoff leaving a site by evaporating and/or infiltrating runoff directed to the BMP from another area.

Soakage trench. An excavated trench filled with coarse stone that receives runoff and stores it until it infiltrates underground into surrounding soils.

Stormwater or runoff. Surface water runoff that originates as precipitation on a particular site, basin, or watershed.

Stormwater planter. A structural container (either above or sunken into the ground) with vertical side slopes and a flat bottom that collects and treats stormwater runoff, primarily from rooftops, driveways, sidewalks, parking lots, and streets by ponding runoff and passing it through soils and plants.

Treatment/Treat. To reduce pollution in runoff from the water quality design storm.

Treatment train. The use of multiple site- and/or BMP-scale strategies to reduce pollution.

Tree planting. To install a new tree in a permanent location that provides adequate soil volume and other site conditions to meet its long-term health needs.

Tree protection. To preserve trees by fencing, limiting soil compaction, guarding from animal damage and other practices.

Water quality, or quantity, design storm. Depth of rainfall predicted from a storm event of a given frequency used to size water quality treatment and flow control facilities. Watershed. Designated hydrologic unit, or drainage area, typically at the 5th or 6th field, for identification and hierarchical cataloging purposes.

Water quality conveyance swale. Long, planted, open channel that conveys stormwater runoff. These facilities are generally not designed to promote infiltration. Instead, they are designed for conveyance and sometimes detention, providing some water quality treatment.

Underground injection control (UIC). A manmade structure that places fluid underground.[3]

Upper Discharge Endpoint. The design storm depth above which additional discharge does not cause erosion because the floodplain begins conveying water and slows flows; and, impervious surfaces extent has little effect on stream discharges.

U.S. Department of Housing and Urban Development (HUD).

Vegetated filter strips. A dispersion BMP that manages runoff flowing onto it from pavement and roof surfaces.

Vegetated stormwater facilities. This is a general term that applies to rain gardens, stormwater planters, and LID swales, which are configured differently, but achieve a similar, high level of treatment and runoff reduction through intentional temporary ponding of water.

[3] Oregon Department of Environmental Quality. Frequently Asked Questions on UICs. Retrieved from: http://www.deq.state.or.us/wq/uic/faqs.htm#What_is_a_UIC_System

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