



# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018  
Project End Date: March 25, 2023

Permit Number: 2018-9-4+01  
FPA/Public Notice Number: N/A  
Application ID: 13036

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
WSDOT ATTENTION: Virginia Stone 310 Maple Park Ave SE Olympia, WA 98501-2348	

**Project Name:** Beaver Dam Removal and Modification

**Project Description:** Remove newly constructed beaver dams that are less than one year old and modify beaver dams that are located in waters of the state within WSDOT’s right-of-way. The purpose of the activity is to rectify water backed up behind the beaver dam that is causing flooding of the roadway/ adjacent property or is causing instability of the roadway fill.

## PROVISIONS

1. **AUTHORIZATION LIMITATION:** This statewide general Hydraulic Project Approval (HPA) authorizes the following WSDOT beaver dam management activities: Remove or modify newly constructed beaver dams that are less than one year old and located in waters of the state within WSDOT’s right-of-way. This Hydraulic Project Approval does not authorize equipment crossings of the stream. All other work requires a separate HPA.
2. **TIMING LIMITATION:** You may begin the project immediately and you must complete the project by March 25, 2023. New or recently built beaver dams and associated debris may be removed and/or repositioned from streams, rivers, and other waters of the state year round provided:
  - a. The beaver dam has only been in existence for one year or less and does not have newly established wetland plant communities or trees showing stress from being inundated by water.
  - b. The new beaver dam has the potential to threaten public safety, public property (in the area the dam is influencing backwater flooding and erosion), or WSDOT Right-of-way (ROW) infrastructure.
  - c. The stream is adequately flowing with enough water volume to ensure the upstream channel remains wetted and fish are able to move out of the area as the water level is dropping.
3. **APPROVED PLANS:** You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife, except as modified by this Hydraulic Project Approval. You must have a copy of these plans and this HPA available on site during all phases of the project construction.
  - a. WSDOT Environmental Compliance Assurance Procedure (ECAP) for maintenance in WSDOT’s Environmental Manual Section 700.02.
  - b. The Best Management Practices Field Guide consistent with the most recent version of the Regional Road Maintenance Endangered Species Act Program Guidelines (RRMP) Part 2: Best Management Practices.
  - c. **INVASIVE SPECIES CONTROL:** Thoroughly clean all equipment and gear before arriving and leaving the job site to prevent the transport and introduction of invasive species if activities are conducted within the riparian area or floodway. Properly dispose of any water and chemicals used to clean gear and equipment. WSDOT maintenance staff must implement the specifications in WSDOT Integrated Roadside Vegetation Management Plans to control the spread of noxious and nuisance weeds, and Maintenance Operations AIS (aquatic invasive species) protocols included in the permit application. Additionally, the Washington Department of Fish and Wildlife’s “Invasive Species Management Protocols” (November 2012) are available online at <http://wdfw.wa.gov/publications/01490/wdfw01490.pdf> for more



# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018

Permit Number: 2018-9-4+01

Project End Date: March 25, 2023

FPA/Public Notice Number: N/A

Application ID: 13036

information.

4. NOTIFICATION: You must contact the Regional Habitat Program Manager (RHPM) (see contact information below) at least three business days before starting planned maintenance work. You do not have to notify WDFW prior to starting unscheduled maintenance work but must contact the RHPM within three business days after starting the work. The notification must include the starting date, description of work, waterbody name, location including road number and milepost if applicable, and this HPA's permit number and APP ID.

5. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife of the problem. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may require additional measures to mitigate impacts.

## STAGING, JOB SITE ACCESS, AND EQUIPMENT

6. Where practicable and based on site conditions, the work must be accomplished by hand or with hand-held tools, such as chain saw, peavey or come-along winch. Use of a vehicle-mounted winch may be allowed provided compliance with the provisions of this HPA can be met.

7. Use existing roadways or travel paths if heavy equipment is needed.

8. Station and operate equipment used for this project such that the drive mechanisms (wheels, tracks, tires, etc.) do not enter waterward of the ordinary high water line. Equipment used for this project may operate waterward of the ordinary high water line.

9. Limit the removal of native bankline vegetation to the minimum amount needed to manage the beaver dam. Trees measuring 4.5 feet or greater in height above grade or with a diameter of four inches or greater must not be damaged.

10. If wet or muddy conditions exist, in or near a riparian zone or wetland area, use equipment that reduces ground pressure.

11. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.

12. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

## BEAVER DAM MANAGEMENT

13. Beaver dam management must be implemented using the least impacting method that workers can safely perform.

14. During and immediately after beaver dam management, monitor upstream and downstream for stranded fish in isolated pools. Capture and safely move all stranded or isolated fish to the nearest free-flowing water.

15. Retain all natural habitat features on the bed or banks including large woody material and boulders.

16. Do not disturb large woody material embedded in the stream bed or banks. Large woody material (LWM) means trees or tree parts larger than four inches in diameter and longer than six feet, and rootwads, wholly or partially



## HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018

Permit Number: 2018-9-4+01

Project End Date: March 25, 2023

FPA/Public Notice Number: N/A

Application ID: 13036

---

waterward of the ordinary high water line.

17. Beaver dam notching, compressing, or removal must occur in a manner that ensures the gradual, slow release of impounded water.

18. When notching a beaver dam, the notch must not extend below the height of the accumulated sediment behind the dam.

19. After the water level across the dam equalizes, the dam may be carefully modified or removed in a manner that minimizes the release of accumulated sediments. This will also prevent damage to the stream bed and banks from scour and erosion.

20. Any breach in a beaver dam must not be wider than the downstream channel.

21. If non-embedded woody material must be moved then:

- a. Place the wood directly back in the channel immediately downstream of the structure.
- b. LWM must not be destroyed or reduced in value as fish habitat. LWM must not be cut into smaller pieces, except to the extent necessary to allow floating or suspension of LWM to reposition it away from the ROW infrastructure (e.g. culvert). Root wads must not be removed from the trunk (bole). Boles must not be reduced in girth.
- c. Natural woody material that is smaller than LWM may be, in order of preference, repositioned within the stream, floated downstream, deposited on the bank, or removed and disposed of so not to re-enter the watercourse.
- d. If releasing or repositioning LWM downstream of a work site could create an unsafe hazard to life, the public, property or roadway infrastructure, the LWM may be placed below the OHWL at another nearby location within the same waterbody.

22. Where LWM cannot be floated free, it must be suspended during repositioning so it does not damage the bed or banks. Full suspension must be used to avoid damage to riparian vegetation. It is understood that during the careful process of repositioning the LWM, minor or temporary disturbance of the riparian vegetation and the ground could potentially occur. This level of disturbance is acceptable provided those impacts are expected to recover quickly and naturally.

23. When repositioning or removing large woody material, minimize releasing bedload, logs, or debris downstream.

### CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

24. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site is complete.

25. All erosion control materials that will remain onsite must be composed of 100% biodegradable materials.

26. Straw used for erosion and sediment control, must be certified free of noxious weeds and their seeds.

27. Stop all hydraulic project activities except those needed to control erosion and siltation, if flow conditions arise that will result in erosion or siltation of waters of the state.

### DEMOBILIZATION AND CLEANUP

28. Upon completion of the project, restore the disturbed bed, banks, and riparian zone to pre-project condition to the extent possible.

29. Replace native riparian zone vegetation damaged or destroyed by construction with native trees and native shrubs at a ratio of at least 1:1 by the end of the first growing season after impact. If replacement plants fail, additional



# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018  
Project End Date: March 25, 2023

Permit Number: 2018-9-4+01  
FPA/Public Notice Number: N/A  
Application ID: 13036

plantings, or successful natural recruitment is required prior to the next growing season to achieve and maintain at least 1:1 replacement.

30. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

31. Remove temporary erosion and sediment control methods after the job site is stabilized or within three months of project completion, whichever is sooner.

32. ANNUAL REPORTING: A calendar year annual report must be uploaded to Application ID 13036 in the Aquatic Protection Permitting System (APPS) in unlocked Microsoft Excel (\*.xlsx) format by February 28 of the following year. In the final year of the HPA, the report must be submitted prior to the expiration date. An annual report is also required if no work was conducted. (If APPS is replaced, the annual report may be emailed to HPAapplications@dfw.wa.gov.) The annual report must include:

- a. Permittee, contact person, address, telephone number, date of report, time period.
- b. The permit number for this HPA, summary of the total number of individual projects by region and statewide.
- c. Problem(s) encountered: Provision violation (inability to comply with provision), lack of notification to WDFW, any impacts to fish life and water quality from problem, any corrective actions taken to rectify these problems. If the Environmental Compliance Assurance Procedure (ECAP) or similar procedure was used, what activity triggered the procedure.
- d. Recommendations for improvement to best management practices and permit provisions.
- e. List of individual projects completed: By region including water body name, road number and milepost if applicable, latitude and longitude, date and duration of work, description of work.

## WDFW REGIONAL HABITAT PROGRAM MANAGERS (RHPM) CONTACT INFORMATION:

Region 1: Asotin, Columbia, Ferry, Garfield, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman: Mark Wachtel (or acting RHPM); Mark.Wachtel@dfw.wa.gov; WDFW, Region 1, 2315 N Discovery PL Spokane Valley, WA. 99216-1566; (509) 892-1001.

Region 2: Adams, Chelan, Douglas, Grant, Okanogan: Carmen Andonaegui (or acting RHPM), Carmen.Andonaegui@dfw.wa.gov, WDFW, Region 2, 1550 Alder ST NW Ephrata, WA 98823- 9699; (509) 754-4624.

Region 3: Benton, Franklin, Kittitas, Yakima: Perry Harvester (or acting RHPM), Perry.Harvester@dfw.wa.gov; WDFW, Region 3, 1701 S 24th AVE Yakima WA 98902-5720; (509) 575-2740.

Region 4: King, Island, San Juan, Skagit, Snohomish, Whatcom: Brendan Brokes (or acting RHPM), Brendan.Brokes@dfw.wa.gov.; WDFW, Region 4, 16018 Mill Creek Blvd Mill Creek, WA 98012-1296; 425-775-1311.

Region 5: Clark, Cowlitz, Klickitat, Lewis, Skamania, Wahkiakum: David Howe (or acting RHPM), David.Howe@dfw.wa.gov.; WDFW, Region 5, 2108 Grand Blvd Vancouver, WA 98661; (360) 696-6211.

Region 6: Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific, Pierce, Thurston: David Kloempken (or acting RHPM), David.Kloempken@dfw.wa.gov; WDFW, Region 6, 48 Devonshire RD Montesano, WA 98563-9618; (360) 249 -4628.

LOCATION #1: , , WA



# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018  
Project End Date: March 25, 2023

Permit Number: 2018-9-4+01  
FPA/Public Notice Number: N/A  
Application ID: 13036

WORK START: March 26, 2018		WORK END: March 25, 2023				
<u>WRIA</u>		<u>Waterbody:</u>			<u>Tributary to:</u>	
<u>1/4 SEC:</u>	<u>Section:</u>	<u>Township:</u>	<u>Range:</u>	<u>Latitude:</u>	<u>Longitude:</u>	<u>County:</u>
						Statewide
<u>Location #1 Driving Directions</u>						

## APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person (s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.



# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018

Permit Number: 2018-9-4+01

Project End Date: March 25, 2023

FPA/Public Notice Number: N/A

Application ID: 13036

---

**MINOR MODIFICATIONS TO THIS HPA:** You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov). You should allow up to 45 days for the department to process your request.

**MAJOR MODIFICATIONS TO THIS HPA:** You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at <http://wdfw.wa.gov/licensing/hpa/>. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to [HPAapplications@dfw.wa.gov](mailto:HPAapplications@dfw.wa.gov). You should allow up to 45 days for the department to process your request.

## APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

**A. INFORMAL APPEALS:** WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.



# HYDRAULIC PROJECT APPROVAL

Washington Department of  
Fish & Wildlife  
PO Box 43234  
Olympia, WA 98504-3234  
(360) 902-2200

Issued Date: March 26, 2018  
Project End Date: March 25, 2023

Permit Number: 2018-9-4+01  
FPA/Public Notice Number: N/A  
Application ID: 13036

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

Habitat Biologist      Jeffrey.Kamps@dfw.wa.gov  
Jeffrey Kamps      360-757-3034

for Director  
WDFW

# WASHINGTON STATE

## Standard Hydraulic Project



AGENCY USE ONLY
Date Received: 2018-02-09
Application ID :13036
Online Submission
Amended Application

01. Application Information	<p><b>* Application Type:</b></p> <p>Standard</p> <p><b>* I am applying for a General HPA.</b></p> <p>Yes</p> <p><b>* Site Description:</b></p> <p>Statewide Beaver Dam Removal and Modification in WSDOT right-of-way.</p> <p><b>* Are you applying for a long-term HPA for agricultural irrigation or stock watering purposes under RCW 77.55.021 (9)(c)?</b></p> <p>No</p>
02. Project Identification	<p><b>* Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development)</b></p> <p>Beaver Dam Removal and Modification</p> <p><b>* Simplified Project Type(s) (check all that apply):</b></p> <p>Beaver Dam Modification, Road Maintenance Work</p> <p><b>* Do you want to apply using simplified application form?</b></p> <p>No</p>
03. Applicant	<p><b>* Business Name (if applicable)</b></p> <p>WSDOT</p> <p><b>* First Name</b></p> <p>Virginia</p> <p><b>* Last Name</b></p> <p>Stone</p> <p><b>* Address 1</b></p> <p>310 Maple Park Ave SE</p> <p><b>* City</b></p> <p>Olympia</p> <p><b>* State/Province</b></p> <p>WA</p> <p><b>* Zip Code (12345 or 12345-1234)</b></p> <p>98501-2348</p> <p><b>* Country</b></p>

03. Applicant	United States
04. Applicant Account Type	<b>* Please select one applicant account type</b> Government – State
05. Authorized Agent or Contact	<b>* No agent will be acting on behalf of the Applicant</b> Yes <b>* Business Name (if applicable)</b> WSDOT <b>* First Name</b> Virginia <b>* Last Name</b> Stone <b>* Address 1</b> 310 Maple Park Ave SE <b>* City</b> Olympia <b>* State/Province</b> WA <b>* Zip Code (12345 or 12345-1234)</b> 98501-2348 <b>* Country</b> United States
06. Property Owner(s)	<b>* Check here if Property Owner is the same as Applicant</b> Yes <b>* Business Name (if applicable)</b> WSDOT <b>* First Name</b> Virginia <b>* Last Name</b> Stone <b>* Address 1</b> 310 Maple Park Ave SE <b>* City</b> Olympia <b>* State/Province</b> WA <b>* Zip Code (12345 or 12345-1234)</b> 98501-2348 <b>* Country</b>

06. Property Owner(s)	United States
07. Project Location	<p><b>* Location</b></p> <p>Site Name:  Work Start Date: Work End Date:</p> <p>Address: , Statewide, WA, United States  Latitude: Longitude:</p> <p>WRIA: Stream Number: Stream Name:  Parcel No: 100 Year Flood:  Drive Direction:  -----</p>
08. Project Description	<p><b>* Type of equipment used</b></p> <p>Hand tools, excavators, and other equipment.</p> <p><b>* Summarize the overall project.</b></p> <p>Remove newly constructed beaver dams that are less than one year old and modify beaver dams that are located in waters of the state within WSDOT's right-of-way. The purpose of the activity is to rectify water backed up behind the beaver dam that is causing flooding of the roadway/ adjacent property or is causing instability of the roadway fill.</p> <p><b>* Describe how you plan to construct each project element. Include specific construction methods and equipment to be used. Identify where each element will occur in relation to the nearest waterbody. Indicate which activities are within the 100-year flood plain.</b></p> <p>REMOVAL:  The beaver dam will be removed by hand, hand held devices, or equipment. Water backed up behind the dam will be released slowly to minimize turbidity or stranding of fish that may be located in the waterbody. Equipment will be staged where it will minimize impacts to the riparian area or flood plain.</p> <p>Woody material removed from the dam will be allowed to float downstream, repositioned in the system, placed along the bank, or removed from the site. All large woody material will be repositioned within the system. Woody material embedded into the bed or bank of the waterbody will not be disturbed.</p> <p>NOTCHING:  A section of the beaver dam will be removed to lower the water level behind the dam. This is done by hand, hand held devices, or equipment such as an excavator with a 'thumb' attachment.  Any woody material removed will be allowed to float downstream, repositioned in the system, placed along the bank, or removed from the site.</p> <p>COMPRESSING:  A section of the dam will be pushed down in place to lower its overall height which will lower the water level behind the dam. This is done by hand, hand held devices, or equipment such as an excavator bucket.</p> <p><b>* Requested Project Start Date:</b></p> <p>03/26/2018</p> <p><b>* Requested Project End Date:</b></p> <p>03/25/2023</p>
09. Waterbodies (other than wetlands): Impacts and Mitigation	<p><b>* Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment.</b></p>

09. Waterbodies (other than wetlands): Impacts and Mitigation	<p>Water will be slowly released to minimize turbidity and other adverse impacts within the waterbody. This will also allow time for fish and other aquatic animals to move out of the area where the water level is dropping.</p> <p>Coverage is only requested for the removal of beaver dams that are less than one year old. This will minimize that likelihood of the area behind the dam becoming a functioning wetland which would have substantial habitat for an array of plants and animals.</p> <p>The method of removing or modifying the beaver dam will be site specific and be based on the safest and least impacting method to perform the work. If equipment needs to be stationed where soils are saturated, an environmental mat will be used to minimize any damage to the vegetation and compaction of the soils.</p> <p><b>* Will your project impact a waterbody or the area around a waterbody?</b></p> <p>Yes</p> <p><b>* Describe how your project will impact a waterbody or the area around a waterbody.</b></p> <p>See question above.</p> <p><b>* Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies?</b></p> <p>NA</p> <p><b>* Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies?</b></p> <p>WSDOT will seek a standard individual HPA if compensatory mitigation is required.</p> <p><b>* Describe the source and nature of any fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody.</b></p> <p>Not applicable, since beaver dam removal and modification activities do not require fill.</p> <p><b>* For all excavating or dredging activities, describe the method for excavating or dredging type and amount of material you will remove, and where the material will be disposed.</b></p> <p>Not applicable, since beaver dam removal and modification activities do not require excavation or dredging.</p>
10. SEPA Compliance	<p><b>* Compliance with the State Environmental Policy Act (SEPA).</b>  <b>For more information about SEPA, go to "<a href="http://www.ecy.wa.gov/programs/sea/sepa/e-review.html">http://www.ecy.wa.gov/programs/sea/sepa/e-review.html</a>"</b></p> <p>SEPA review is complete. I will upload, mail, or deliver a copy of the SEPA determination letter as part of this application..</p>



**Washington State  
Department of Transportation**

Transportation Building  
310 Maple Park Avenue S.E.  
P.O. Box 47300  
Olympia, WA 98504-7300  
360-705-7000  
TTY: 1-800-833-6388  
[www.wsdot.wa.gov](http://www.wsdot.wa.gov)

February 5, 2018

Washington Dept. of Fish and Wildlife  
Habitat Program  
600 Capitol Way North  
Olympia WA 98501-1091

Dear Mr. Kamps:

Beaver dams can cause flooding that erodes the highway embankment and causes water to flow over the roadway that creates a safety hazard for the traveling public. Maintenance work includes removing or modifying beaver dams within waters of states along WSDOT's right-of-way. Beaver dam removal is limited to dams that are less than a year old. Activities will be limited to the Beaver Dam General HPA provisions as issued by WDFW.

We have evaluated this activity and found the work to be categorically exempt from a SEPA threshold termination pursuant to WAC 468-12-800 (1) (u).

Sincerely,

A handwritten signature in blue ink that reads "Gretchen Coker".

Gretchen Coker  
Permitting Compliance Program Manager  
Environmental Services Office

# **Best Management Practices Field Guide**

**for  
ESA § 4 (d) Habitat Protection**

**March 2004**

**Maintenance and Operations Division  
Maintenance Office**



**Washington State Department of Transportation**



# Contents

---

<b>GLOSSARY OF ACRONYMS .....</b>	<b>5</b>
<b>INTRODUCTION .....</b>	<b>6</b>
<b>MAINTENANCE CREWS PDA CHECKLIST INSTRUCTIONS .....</b>	<b>7</b>
<b>ESA FIELD GUIDE PDA CHECKLIST FOR MAINTENANCE CREWS .....</b>	<b>11</b>
<b>RMEC FIELD GUIDE INSTRUCTION .....</b>	<b>14</b>
<b>#1: ROADWAY SURFACE .....</b>	<b>15</b>
ACTIVITIES: .....	15
BMP TABLE: .....	15
<b>#2: ENCLOSED DRAINAGE SYSTEMS .....</b>	<b>18</b>
ACTIVITIES: .....	18
BMP TABLE: .....	18
<b>#3: CLEANING ENCLOSED DRAINAGE SYSTEMS .....</b>	<b>21</b>
ACTIVITIES: .....	21
BMP TABLE: .....	21
<b>#4: OPEN DRAINAGE SYSTEMS .....</b>	<b>23</b>
ACTIVITIES: .....	23
BMP TABLE: .....	23
<b>#5: WATERCOURSES AND STREAMS .....</b>	<b>27</b>
ACTIVITIES: .....	27
BMP TABLE: .....	27
<b>#6: STREAM CROSSINGS .....</b>	<b>31</b>
ACTIVITIES: .....	31
BMP TABLE: .....	31
<b>#7: GRAVEL SHOULDERS .....</b>	<b>35</b>
ACTIVITIES: .....	35
BMP TABLE: .....	35
<b>#8: STREET SURFACE CLEANING .....</b>	<b>38</b>
ACTIVITIES: .....	38
BMP TABLE: .....	38

<b>#9: BRIDGE MAINTENANCE.....</b>	<b>40</b>
ACTIVITIES: .....	40
BMP TABLE: .....	40
<b>#10: SNOW AND ICE CONTROL.....</b>	<b>44</b>
ACTIVITIES: .....	44
BMP TABLE: .....	44
<b>#11: EMERGENCY SLIDE/WASHOUT REPAIR.....</b>	<b>46</b>
ACTIVITIES: .....	46
BMP TABLE: .....	46
<b>#12: CONCRETE .....</b>	<b>49</b>
ACTIVITIES: .....	49
BMP TABLE: .....	49
<b>#13: SEWER SYSTEMS.....</b>	<b>52</b>
ACTIVITIES: .....	52
BMP TABLE: .....	52
<b>#14: WATER SYSTEMS.....</b>	<b>55</b>
ACTIVITIES: .....	55
BMP TABLE: .....	55
<b>#15: VEGETATION.....</b>	<b>58</b>
ACTIVITIES: .....	58
BMP TABLE: .....	58

## **Glossary of Acronyms**

---

BMPs	Best Management Practices
ESA	Endangered Species Act
HPA	Hydraulic Project Approval
LWM	Large Woody Material
PDA	Personal Data Assistant
RMEC	Regional Maintenance Environmental Coordinator
RRMP	Regional Road Maintenance ESA Program Guidelines
ROW	Right-of-Way
WDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

## Introduction

---

This guide is intended for WSDOT maintenance crews and regional maintenance environmental coordinators who work within sensitive priority areas (red). The guide was developed to train and alert staff as to when and where to apply and report implementation of the Regional Road Maintenance Endangered Species Act (ESA) Program Guidelines (RRMP) Best Management Practices (BMPs).

Knowing the location of aquatic habitat within the Right-of-Way (ROW) and using BMPs during maintenance activities in these sensitive priority areas (red) will conserve listed ESA threatened salmonids species habitat. The BMPs are not prescriptive, but are outcome based. The best professional judgment of **trained** maintenance personnel is instrumental in meeting the BMP outcomes (minimize erosion and sedimentation, contain pollutants and minimize impacts to vegetation root zone).

This guide provides instructions for filling out the Personal Data Assistant (PDA) checklist documenting WSDOT compliance with ESA § 4(d) "take" limits for the RRMP. This checklist constitutes the proof of your compliance with RRMP.

Following the Guide will not only conserve listed salmonids, but help protect water quality and quantity, aquatic and shoreline habitats and the traveling public safety.

Failure to document compliance could result in a violation under the ESA.

# Maintenance Crews PDA Checklist Instructions

---

Determine the location of proposed work. Is work located within a **Red** sensitive area? If yes start a record. If no you're done, go to work. (Consult Roadside-Sensitive Management Area Atlas or fish sticks.)

Yes = PDA record.

1. Enter organization code number.
2. Enter name (last and first).
3. Enter beginning date work will be conducted.
4. Enter estimated ending date work will be completed.
5. Enter location (Highway # and mile post (beginning & ending)).
6. Enter work operation number.
7. Does the work have the potential to disturb/expose soils, discharge pollutants or disturb vegetation root systems? If no, record is complete, go to work.
8. Is work covered under a General Permit? If yes select from the pull down menu the general permit used. If no, contact regional maintenance environmental coordinator and secure permits if necessary.
9. Write in waterbody name.
10. Choose one Regional Road Maintenance ESA Program Guidelines (RRMP) Maintenance Category from the pull down menu that most closely fits your work. Review and implement routine and site specific BMPs for that maintenance category.

## **#1 Roadway Surface**

Activities include the following: pothole and square cut patching; removing paved surface or roadway base; repairing roadway base; repaving; adding gravel or grading roads, access roads, or ROW surfaces; dust control; extending pavement edge; paving gravel shoulder; crack sealing; overlay; chip seal; resurfacing; pavement marking and traffic channelization; traffic control features.

## **#2 Enclosed Drainage Systems**

Enclosed drainage systems include the following: facilities, retention/detention facilities, pollution control devices, manholes, catch basins, vaults, pipes, access roads and inlets/outlets.

## **#3 Cleaning Enclosed Drainage Systems**

Removing debris, sediments and liquids from enclosed drainage systems using a vacuum/flush truck ("Vactor") by hand or other mechanical means. Enclosed drainage systems include the following: facilities, retention/ detention facilities, manholes, catch basins, vaults, pipes, access roads, pollution control devices and inlets.

## **#4 Open Drainage Systems**

Systems include facilities, retention/detention facilities, swales, pollution control devices, manholes, catch basins, vaults, pipes, culverts, ditches, and inlets/outlets. Open drainage system includes stormwater conveyance systems that were created entirely by artificial means, such as roadside ditches and storm or surface water runoff facilities. These structures are not watercourses, streams or wetlands.

## **#5 Watercourses and Streams**

Repair, replacement, installation and maintenance tasks performed on watercourses or streams. Activities may include structural repair/replacement, slope stabilization, sediment removal, vegetation management, debris removal, access road maintenance, habitat maintenance and improvements (for example fish ladders, weirs and large woody material).

## **#6 Stream Crossings**

Repair, cleaning, maintenance, installation or replacement/upgrade of stream crossing facilities, such as pipes, arch pipes, box culverts, fish ladders, weirs, sediment pools, access roads and bridges.

## **#7 Gravel Shoulders**

Maintenance tasks performed on gravel shoulders improve drainage, restore proper grade, restore filtering capability, maintain vegetation to provide adequate site distance, smooth rutting and remove buildup of sediment before entering drainage system.

## **#8 Street Surface Cleaning**

Removing soil, organic material, dust, trash and other debris.

**#9 Bridge Maintenance**

Activities include inspecting, testing, repairing, replacing, maintaining, painting or resurfacing components of the bridge; such as the electrical system, substructure, superstructure, surface footings, piers, supports, access roads, abutments, ramps and vegetation management.

**#10 Snow and Ice Control**

Activities include snow blowing, plowing, drift removal, winter sand cleanup, sanding, anti-icing and de-icing application.

**#11 Emergency Slide/Washout Repair**

Activities include removal of slide/washout material from ROW; backfilling or stabilizing slope, reestablishment of damaged roadway structures; repairing and cleaning drainage system, restoring access road, revegetating, and/or armoring with rock.

**#13 Sewer Systems**

Repair, replace, install and maintain operating components of sewer facilities, including, but not limited to, treatment facilities, lift stations, pump stations, main lines, collection lines, trunk lines, interceptors, lake lines, access roads, associated ROW and storage/detention facilities.

**#14 Water Systems**

Repair, replace, install and maintain operating components of water system facilities, including, but not limited to, treatment plants, transmission mains, distribution lines, fire flow systems, reservoirs, tunnels, pump stations, meters, flushing, dewatering, services, access roads and associated ROWs or water system structures.

**#15 Vegetation**

Activities include repair, replacement, installation, removal and/or maintenance of the vegetation with the ROW.

11. Does maintenance work involve concrete? If yes, check box. Review routine and site specific BMPS.

**#12 Concrete**

Maintenance activities performed on the concrete structures, such as concrete roadways, sidewalks, driveways, curb and gutter sections include the following: removal or repair of damaged sections and installation of new structures.

12. Select the appropriate Site Specific BMPs from pull down menu.
13. Write in other site specific BMPs used that aren't listed in the pull down menu.
14. Write in any comments regarding process or observations on BMPs that can improve the program.

# ESA Field Guide PDA Checklist for Maintenance Crews

Is work located within any **Red** sensitive areas? If yes start record. If no, you're done, go to work. (Consult Roadside Sensitive Management Areas Atlas or fish sticks.)

Work Information	
1. Org Code: _____	5. Location: _____
2. Name (last and first): _____	Highway # _____
3. Beginning Date: _____	Beginning Mile Post _____
4. Estimated Ending Date: _____	Ending Mile Post _____

6. Work Operation Number: \_\_\_\_\_

Checklist		
Steps	Yes/No	Comments
7. Does work have the potential to disturb/expose soils, discharge pollutants, or disturb vegetation root system?		
8. Is work covered under a General Permit? If yes, check the appropriate general permit that will be used to conduct the work. If no, contact Regional Maintenance Environmental Coordinator and secure permits if necessary.		<ul style="list-style-type: none"> <li><input type="checkbox"/> Removal of Beaver Dams HPA Control # GH-D9450-01</li> <li><input type="checkbox"/> Debris Removal/Relocation HPA Control # GH-D9416-03</li> <li><input type="checkbox"/> Bridge Cleaning &amp; Washing HPA Control # GH-D9448-01</li> <li><input type="checkbox"/> Bridge Painting, Including Preparatory Cleaning, Washing, and Abrasive Blasting. HPA Control # GH-D9448-01</li> <li><input type="checkbox"/> Bridge General Maintenance &amp; Repair HPA Control # GH-D9448-01</li> <li><input type="checkbox"/> Bridge Deck Overlay Replacement HPA Control # GH-D9448-01</li> <li><input type="checkbox"/> No general permit, contact the RMEC and secured permits if necessary.</li> </ul>

9. Identify waterbody being impacted.		
10. Review and select Regional Road Maintenance ESA Program Guidelines maintenance category that most closely fits the work. Check the box of maintenance category selected. Review and implement routine and site specific BMPs for that maintenance category.		<ul style="list-style-type: none"> <li><input type="checkbox"/> #1 Roadway Surface</li> <li><input type="checkbox"/> #2 Enclosed Drainage Systems</li> <li><input type="checkbox"/> #3 Cleaning Enclosed Drainage Systems</li> <li><input type="checkbox"/> #4 Open Drainage Systems</li> <li><input type="checkbox"/> #5 Watercourses and Streams</li> <li><input type="checkbox"/> #6 Stream Crossings</li> <li><input type="checkbox"/> #7 Gravel Shoulders</li> <li><input type="checkbox"/> #8 Street Surface Cleaning</li> <li><input type="checkbox"/> #9 Bridge Maintenance</li> <li><input type="checkbox"/> #10 Snow and Ice Control</li> <li><input type="checkbox"/> #11 Emergency Slide/Washout Repair</li> <li><input type="checkbox"/> #13 Sewer Systems</li> <li><input type="checkbox"/> #14 Water Systems</li> <li><input type="checkbox"/> #15 Vegetation</li> </ul>
11. Does work involve concrete? If yes, check box. Review and implement routine and site specific BMPs.		<ul style="list-style-type: none"> <li><input type="checkbox"/> #12 Concrete</li> </ul>
12. Check the appropriate boxes for the site specific BMPs that were utilized.		<ul style="list-style-type: none"> <li><input type="checkbox"/> Aqua Barrier</li> <li><input type="checkbox"/> Back of Slope Planting</li> <li><input type="checkbox"/> Cofferdam</li> <li><input type="checkbox"/> Coir Fabric</li> <li><input type="checkbox"/> Coir Log</li> <li><input type="checkbox"/> Concrete Containment (1)</li> <li><input type="checkbox"/> Concrete Containment (2)</li> <li><input type="checkbox"/> Construction Access Road</li> <li><input type="checkbox"/> Continuous Berm</li> <li><input type="checkbox"/> Curb Inlet Sediment Trap</li> <li><input type="checkbox"/> Dewatering</li> <li><input type="checkbox"/> Diaper Netting</li> <li><input type="checkbox"/> Ditch Lining</li> <li><input type="checkbox"/> Diversion Berm</li> <li><input type="checkbox"/> Diversion Channel</li> <li><input type="checkbox"/> Dust Control</li> <li><input type="checkbox"/> Excelsior Filled Log</li> <li><input type="checkbox"/> Filter Fabric</li> <li><input type="checkbox"/> Grass Lined Channel</li> </ul>

		<ul style="list-style-type: none"> <li><input type="checkbox"/> Gravel Filled Sump</li> <li><input type="checkbox"/> Half Round Filter</li> <li><input type="checkbox"/> Hand Seeding</li> <li><input type="checkbox"/> Hydroseeding</li> <li><input type="checkbox"/> Inlet Protection</li> <li><input type="checkbox"/> Kimble Filter Pipe</li> <li><input type="checkbox"/> Large Woody Material</li> <li><input type="checkbox"/> Live Staking</li> <li><input type="checkbox"/> Mulching</li> <li><input type="checkbox"/> Plastic Covering</li> <li><input type="checkbox"/> Plywood Work Platform</li> <li><input type="checkbox"/> Rip Rap</li> <li><input type="checkbox"/> Rock Check Dam</li> <li><input type="checkbox"/> Sandbag</li> <li><input type="checkbox"/> Sedimentation Sump</li> <li><input type="checkbox"/> Silt Fence</li> <li><input type="checkbox"/> Silt Mat</li> <li><input type="checkbox"/> Siltation Pond/Settling Tank</li> <li><input type="checkbox"/> Soil Stabilization (Blankets/Matting)</li> <li><input type="checkbox"/> Straw Bale Barrier (1)</li> <li><input type="checkbox"/> Straw Bale Barrier (2)</li> <li><input type="checkbox"/> Straw Bale Barrier (3)</li> <li><input type="checkbox"/> Straw Log</li> <li><input type="checkbox"/> Stream Bank Stabilization</li> <li><input type="checkbox"/> Stream Bypass</li> <li><input type="checkbox"/> Streambed Gravel</li> <li><input type="checkbox"/> Surface Roughening</li> <li><input type="checkbox"/> Sweeping</li> <li><input type="checkbox"/> Temporary Sediment Trap</li> <li><input type="checkbox"/> Triangular Silt Dike</li> <li><input type="checkbox"/> Turbidity Curtain</li> <li><input type="checkbox"/> Vactoring</li> <li><input type="checkbox"/> Vegetative Buffer</li> <li><input type="checkbox"/> Washed Rock</li> </ul>
<p>13. Write in any additional site specific BMPs that were utilized, but not listed in 7 above.</p>		
<p>14. Write any comments regarding process or BMPs that can improve the program.</p>		

## RMEC Field Guide Instruction

---

1. Maintenance notifies RMEC with proposed in water work activity or potential work activity that could impact water. The notification will include maintenance contact and location (Highway # and mile post). Go to Step 2.
2. RMEC or appropriate individual submits individual permit application. Go to Step 3.
3. RMEC or appropriate individual receives permit approval. Go to Step 4.
4. RMEC or appropriate individual contacts maintenance crew to inform them that work is covered under an individual permit. Provide a copy of the applicable permit to the crews. Go to Step 5.
5. Maintenance fills out PDA checklist and goes to work with copies of the appropriate permits on site.

# #1: Roadway Surface

---

**Activities:**

Activities include the following: pothole and square cut patching; removing paved surface or roadway base; repairing roadway base; repaving; adding gravel or grading roads, access roads, or ROW surfaces; dust control; extending pavement edge; paving gravel shoulder; crack sealing; overlay; chip seal; resurfacing; pavement marking and traffic channelization; traffic control features.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintenance of Roadway Surfaces</b>	Perform repairs, replacement and maintenance of roadway surface.
<b>Shoulder Work</b>	Maximize opportunities for shoulder work, which will increase infiltration or bio-filtration. (See also Maintenance Category #7, Gravel Shoulders)
<b>Equipment/ Tools</b>	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials, on site to allow prompt clean up of spills.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At end of shift, park equipment in designated areas. Clean equipment and tools offsite in an area where pollutants can be contained. If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/ Debris Disposal</b></p>	<p>After repairs are completed, remove construction/ maintenance waste materials from work site and dispose of and/or recycle.</p> <p>If area is swept with a pickup sweeper, the material will be hauled out of the area to appropriate disposal site.</p>
<p><b>Painting/ Marking</b></p>	<p>Follow state and federal guidelines for handling paint and other traffic marking material.</p> <p>Stripe roadways in dry weather.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soils shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>

**Site Specific BMPs**

*Continued from preceding page.*

Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:

**“Filter/Perimeter Protection”**

- |                          |                        |
|--------------------------|------------------------|
| Coir Log                 | Kimble Filter Pipe     |
| Continuous Berm          | Silt Fence             |
| Curb Inlet Sediment Trap | Silt Mat               |
| Excelsior Filled Log     | Straw Bale Barrier (1) |
| Filter Fabric            | Straw Bale Barrier (2) |
| Gravel Filled Sump       | Straw Bale Barrier (3) |
| Half Round Filter        | Straw Log              |
| Inlet Protection         | Washed Rock            |

**“Reduce Potential for Soil Erosion”**

- |                          |  |
|--------------------------|--|
| Back of Slope Planting   | Live Staking                             |
| Construction Access Road | Mulching                                 |
| Ditch Lining             | Plastic Covering                         |
| Dust Control             | Soil Stabilization<br>(Blankets/Matting) |
| Filter Fabric            | Surface Roughening                       |
| Grass Lined Channel      | Sweeping                                 |
| Hand Seeding             | Vegetative Buffer                        |
| Hydroseeding             |  |

**“Reduce Water Velocity/Erosive Forces”**

- |                        |                           |
|------------------------|---------------------------|
| Back of Slope Planting | Sandbag                   |
| Coir Fabric            | Silt Fence                |
| Coir Log               | Silt Mat                  |
| Continuous Berm        | Straw Bale Barrier (1)    |
| Ditch Lining           | Straw Bale Barrier (2)    |
| Excelsior Filled Log   | Straw Bale Barrier (3)    |
| Hand Seeding           | Straw Log                 |
| Hydroseeding           | Stream Bank Stabilization |
| Large Woody Material   | Surface Roughening        |
| Live Staking           | Triangular Silt Dike      |
| Mulching               | Turbidity Curtain         |
| Rip Rap                | Vegetative Buffer         |
| Rock Check Dam         |                           |

Go to <http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

## #2: Enclosed Drainage Systems

---

**Activities:**

Enclosed drainage systems include the following: facilities, retention/detention facilities, pollution control devices, manholes, catch basins, vaults, pipes, access roads and inlets/outlets.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintaining Enclosed Drainage Systems</b>	Perform repairs, replacement and maintenance of enclosed drainage systems.
<b>Equipment/Tools</b>	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials, on site to allow prompt clean up of spills.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>				
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>				
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>				
<p><b>Site Specific BMPs</b></p>					
<p><b>BMPs</b></p>	<p><b>Description</b></p>				
<p><b>Are you disturbing soils?</b></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soil shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>				
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next</i></p>	<p>Use any of the following three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes, or other waterbodies:</p> <p><b>“Filter/Perimeter Protection”</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Coir Log</td> <td style="width: 50%;">Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence
Coir Log	Kimble Filter Pipe				
Continuous Berm	Silt Fence				

<i>page.</i>																																							
<p><b>Site Specific BMPs</b> <i>Continued from preceding page.</i></p>	<p><b>“Filter/Perimeter Protection” (Con’t)</b></p> <table border="0"> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p><b>“Reduce Potential for Soil Erosion”</b></p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Live Staking</td> </tr> <tr> <td>Construction Access Road</td> <td>Mulching</td> </tr> <tr> <td>Ditch Lining</td> <td>Plastic Covering</td> </tr> <tr> <td>Dust Control</td> <td>Soil Stabilization (Blankets/Matting)</td> </tr> <tr> <td>Filter Fabric</td> <td>Surface Roughening</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Sweeping</td> </tr> <tr> <td>Hand Seeding</td> <td>Vegetative Buffer</td> </tr> <tr> <td>Hydroseeding</td> <td></td> </tr> </table> <p><b>“Keep Water from Work Area”</b></p> <table border="0"> <tr> <td>Aqua Barrier</td> <td>Plastic Covering</td> </tr> <tr> <td>Cofferdam</td> <td>Sandbag</td> </tr> <tr> <td>Dewatering</td> <td>Stream Bypass</td> </tr> <tr> <td>Diversion Berm</td> <td>Vactoring</td> </tr> <tr> <td>Diversion Channel</td> <td></td> </tr> </table> <p>Go to  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Back of Slope Planting	Live Staking	Construction Access Road	Mulching	Ditch Lining	Plastic Covering	Dust Control	Soil Stabilization (Blankets/Matting)	Filter Fabric	Surface Roughening	Grass Lined Channel	Sweeping	Hand Seeding	Vegetative Buffer	Hydroseeding		Aqua Barrier	Plastic Covering	Cofferdam	Sandbag	Dewatering	Stream Bypass	Diversion Berm	Vactoring	Diversion Channel	
Curb Inlet Sediment Trap	Silt Mat																																						
Excelsior Filled Log	Straw Bale Barrier (1)																																						
Filter Fabric	Straw Bale Barrier (2)																																						
Gravel Filled Sump	Straw Bale Barrier (3)																																						
Half Round Filter	Straw Log																																						
Inlet Protection	Washed Rock																																						
Back of Slope Planting	Live Staking																																						
Construction Access Road	Mulching																																						
Ditch Lining	Plastic Covering																																						
Dust Control	Soil Stabilization (Blankets/Matting)																																						
Filter Fabric	Surface Roughening																																						
Grass Lined Channel	Sweeping																																						
Hand Seeding	Vegetative Buffer																																						
Hydroseeding																																							
Aqua Barrier	Plastic Covering																																						
Cofferdam	Sandbag																																						
Dewatering	Stream Bypass																																						
Diversion Berm	Vactoring																																						
Diversion Channel																																							

## #3: Cleaning Enclosed Drainage Systems

---

**Activities:**

Removing debris, sediments and liquids from enclosed drainage systems using a vacuum/flush truck ("Vactor"), by hand or other mechanical means. Enclosed drainage systems include the following: facilities, retention/detention facilities, manholes, catch basins, vaults, pipes, access roads, pollution control devices and inlets.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Cleaning Enclosed Drainage Systems</b>	Maintain drainage systems.
<b>Pre-Activity</b>	<p><b>Cleaning Enclosed Drainage Systems:</b> Use BMPs that include, but are not limited to:</p> <ul style="list-style-type: none"> <li>• Blocking facility outlet.</li> <li>• Using less water.</li> <li>• Blocking downgradient end of pipe.</li> </ul>
<b>Equipment/Tools</b>	<p>When using high-pressure flushing equipment, vacuum out solids to reduce sediment and turbidity from moving downgrade throughout the drainage system.</p> <p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials, on site to allow prompt clean up of spills.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b> <i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>Remove and dispose of collected materials and liquids off site.</p> <p>Solid materials removed from the site will be taken to a disposal or recycling area.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

## #4: Open Drainage Systems

### **Activities:**

These systems include facilities, retention/detention facilities, swales, pollution control devices, manholes, catch basins, vaults, pipes, culverts, ditches and inlets/outlets. (Open drainage systems that are part of the watercourses and streams systems are covered in Maintenance Category #5, Watercourses and Streams.)

### **BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintaining Open Drainage Systems</b>	Maintain drainage systems.
<b>Permits</b>	Maintenance activities within waters of the state will be covered under Maintenance Category #5, Watercourses and Streams.
<b>Scheduling</b>	Plan and schedule work in dry conditions, except in emergency situations.
<b>Equipment/ Tools</b>	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations.</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater.</li> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filter, antifreeze, cleaning solutions lead-acid batteries, tires, hydraulic and transmission fluid.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>Surfaces shall be cleaned following the discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move equipment and tools off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>Remove and dispose of collected materials and liquids off site.</p> <p>Solid materials removed from the site will be taken to a disposal or recycling area.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect the soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>During winter season – October through June – no soils shall remain exposed and unworked for more than two days.</li> <li>During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Leave vegetative buffer outside of work zone to provide biofiltration and shading outside of the back slope of ditch.</p> <p>Leave vegetative buffer of grasses and small forbs between the shoulder and ditch if the area is wide enough.</p> <p>Leave vegetated sections of grasses and small forbs in ditchline where sediment buildup does not impede flow or infiltration.</p> <p>After removal of sediments from ditch line, replant disturbed soils with grasses and small forbs.</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>

**Site Specific BMPs**

*Continued from preceding page.*

Use any of the four BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:

**“Filter/Perimeter Protection”**

- |                          |                        |
|--------------------------|------------------------|
| Coir Log                 | Kimble Filter Pipe     |
| Continuous Berm          | Silt Fence             |
| Curb Inlet Sediment Trap | Silt Mat               |
| Excelsior Filled Log     | Straw Bale Barrier (1) |
| Filter Fabric            | Straw Bale Barrier (2) |
| Gravel Filled Sump       | Straw Bale Barrier (3) |
| Half Round Filter        | Straw Log              |
| Inlet Protection         | Washed Rock            |

**“Keep Water from Work Area”**

- |                   |                  |
|-------------------|------------------|
| Aqua Barrier      | Plastic Covering |
| Cofferdam         | Sandbag          |
| Dewatering        | Stream Bypass    |
| Diversion Berm    | Vactoring        |
| Diversion Channel |                  |

**“Reduce Potential for Soil Erosion”**

- |                          |  |
|--------------------------|--|
| Back of Slope Planting   | Filter Fabric                            |
| Construction Access Road | Live Staking                             |
| Ditch Lining             | Mulching                                 |
| Dust Control             | Plastic Covering                         |
| Filter Fabric            | Soil Stabilization<br>(Blankets/Matting) |
| Grass Lined Channel      | Surface Roughening                       |
| Hand Seeding             | Sweeping                                 |
| Hydroseeding             | Vegetative Buffer                        |

**“Reduce Water Velocity/Erosive Forces”**

- |                        |                        |
|------------------------|------------------------|
| Back of Slope Planting | Sandbag                |
| Coir Fabric            | Silt Fence             |
| Coir Log               | Silt Mat               |
| Continuous Berm        | Straw Bale Barrier (1) |
| Ditch Lining           | Straw Bale Barrier (2) |

*Continued on next page.*

<p><b>Site Specific BMPs</b></p> <p><i>Continued from preceding page.</i></p>	<p>Excelsior Filled Log  Grass Lined Channel  Hand Seeding  Hydroseeding  Large Woody Material  Live Staking  Mulching  Rip Rap  Rock Check Dam</p> <p>Go to  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>	<p>Straw Bale Barrier (3)  Straw Log  Stream Bank Stabilization    Surface Roughening  Triangular Silt Dike  Turbidity Curtain  Vegetative Buffer</p>
---	--	---

## #5: Watercourses and Streams

---

**Activities:**

These activities may include structural repair/replacement, slope stabilization, sediment removal, vegetation management, debris removal, access road maintenance, habitat maintenance and improvements (for example, fish ladders, weirs and large woody material).

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintenance of Watercourses &amp; Streams</b>	Maintain drainage systems that are watercourses and/or streams.
<b>Permits</b>	Maintenance activities within waters of the state will be reviewed by WDFW and permitted with an HPA, as necessary.  When required, habitat restoration will be designed and constructed in accordance with applicable permits.
<b>Scheduling</b>	Plan and schedule work in dry conditions or when flows are anticipated to be at their lowest when possible.
<b>Fish Exclusion</b>	Follow "Fish Exclusion Protocol" (RRMP Appendix E) and permit conditions during maintenance activities.  Fish will be excluded from the construction area using appropriate methods such as the use of nets, dewatering at a controlled rate and removal of stranded fish according to HPA permit conditions.
<b>Equipment/ Tools</b>	Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations: <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> </ul>

<p><b>Are you disturbing soils?</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Minimize disturbance to riparian vegetation:</p> <ul style="list-style-type: none"> <li>• Mark job site.</li> <li>• Flag work area.</li> <li>• Operate equipment to minimize damage to riparian habitat.</li> </ul> <p>Leave vegetative buffer of grasses and small forbs between the shoulder and ditch if the area is wide enough.</p> <p>Leave vegetated section in ditchline, where sediment buildup does not impede flow or infiltration.</p> <p>Leave vegetative buffer outside of work zone to provide biofiltration and shading outside of the back slope of ditch.</p> <p>Monitor water quality in accordance with permit requirements.</p> <p>Monitor plantings in accordance with permit requirements.</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																				
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the four BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p> <p><b>“Filter/Perimeter Protection”</b></p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p><b>“Keep Water from Work Area”</b></p> <table border="0"> <tr> <td>Aqua Barrier</td> <td>Plastic Covering</td> </tr> <tr> <td>Cofferdam</td> <td>Sandbag</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Aqua Barrier	Plastic Covering	Cofferdam	Sandbag
Coir Log	Kimble Filter Pipe																				
Continuous Berm	Silt Fence																				
Curb Inlet Sediment Trap	Silt Mat																				
Excelsior Filled Log	Straw Bale Barrier (1)																				
Filter Fabric	Straw Bale Barrier (2)																				
Gravel Filled Sump	Straw Bale Barrier (3)																				
Half Round Filter	Straw Log																				
Inlet Protection	Washed Rock																				
Aqua Barrier	Plastic Covering																				
Cofferdam	Sandbag																				

<p><b>Site Specific BMPs</b></p> <p><i>Continued from preceding page.</i></p>	<p><b>“Keep Water from Work Area” (con’t)</b></p> <p>Dewatering  Diversion Berm  Diversion Channel</p> <p>Stream Bypass  Vactoring</p> <p><b>“Habitat Protection/Maintenance”</b></p> <p>Coir Fabric  Coir Log  Excelsior Filled Log  Hand Seeding</p> <p>Hydroseeding  Large Woody Material  Live Staking  Streambed Gravel</p> <p><b>“Reduce Water Velocity/Erosive Forces”</b></p> <p>Back of Slope Planting  Coir Fabric  Coir Log  Continuous Berm  Ditch Lining  Excelsior Filled Log  Grass Lined Channel  Hand Seeding  Hydroseeding</p> <p>Large Woody Material  Live Staking  Mulching  Rip Rap</p> <p>Rock Check Dam  Sandbag  Silt Fence  Silt Mat  Straw Bale Barrier (1)  Straw Bale Barrier (2)  Straw Bale Barrier (3)  Straw Log  Stream Bank Stabilization  Surface Roughening  Triangular Silt Dike  Turbidity Curtain  Vegetative Buffer</p> <p>Go to:  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>
---	--

## #6: Stream Crossings

---

### **Activities:**

Repair, cleaning, maintenance, installation or replacement/upgrade of stream crossing facilities, such as pipes, arch pipes, box culverts, fish ladders, weirs, sediment pools, access roads and bridges. Maintenance within waters of the state will be reviewed by the WDFW.

### **BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Permits</b>	<p>Maintenance activities within waters of the state will be reviewed by WDFW and permitted with an HPA, as necessary.</p> <p>When required, habitat restoration will be designed and constructed in accordance with applicable permits.</p>
<b>Scheduling</b>	<p>If seasonal watercourses or stream, schedule work during dry conditions.</p> <p>Plan and schedule work in dry conditions or low flow conditions except in emergency situations if possible (HPA).</p>
<b>Fish Exclusion</b>	<p>Follow “Fish Exclusion Protocol” (See RRMP Appendix E) and permit conditions during maintenance activities.</p> <p>Fish will be excluded from the construction area using appropriate methods such as the use of nets, dewatering at a controlled rate and removal of stranded fish according to HPA permit conditions.</p>
<b>Equipment/ Tools</b>	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> </ul>
<i>Continued on next page.</i>	
<b>Equipment/</b>	<ul style="list-style-type: none"> <li>• Perform equipment and vehicle maintenance in</li> </ul>



<p><b>soils?</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Mark job site.</li> <li>• Flag work area.</li> <li>• Position equipment to protect riparian habitat.</li> </ul> <p>Monitor water quality.</p> <p>Restore vegetation appropriate for site conditions within riparian areas.</p> <p>Protect outflows by bio-vegetation techniques or armoring to reduce erosion.</p> <p>Monitor vegetation and stream habitat in accordance with permit conditions.</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																																		
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the four BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies.</p> <p><b>“Filter/Perimeter Protection”</b></p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p><b>“Keep Water from Work Area”</b></p> <table border="0"> <tr> <td>Aqua Barrier</td> <td>Plastic Covering</td> </tr> <tr> <td>Cofferdam</td> <td>Sandbag</td> </tr> <tr> <td>Dewatering</td> <td>Stream Bypass</td> </tr> <tr> <td>Diversion Berm</td> <td>Vactoring</td> </tr> <tr> <td>Diversion Channel</td> <td></td> </tr> </table> <p><b>"Habitat Protection/Maintenance"</b></p> <table border="0"> <tr> <td>Coir Fabric</td> <td>Hydroseeding</td> </tr> <tr> <td>Coir Log</td> <td>Large Woody Material</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Live Staking</td> </tr> <tr> <td>Hand Seeding</td> <td>Streambed Gravel</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Aqua Barrier	Plastic Covering	Cofferdam	Sandbag	Dewatering	Stream Bypass	Diversion Berm	Vactoring	Diversion Channel		Coir Fabric	Hydroseeding	Coir Log	Large Woody Material	Excelsior Filled Log	Live Staking	Hand Seeding	Streambed Gravel
Coir Log	Kimble Filter Pipe																																		
Continuous Berm	Silt Fence																																		
Curb Inlet Sediment Trap	Silt Mat																																		
Excelsior Filled Log	Straw Bale Barrier (1)																																		
Filter Fabric	Straw Bale Barrier (2)																																		
Gravel Filled Sump	Straw Bale Barrier (3)																																		
Half Round Filter	Straw Log																																		
Inlet Protection	Washed Rock																																		
Aqua Barrier	Plastic Covering																																		
Cofferdam	Sandbag																																		
Dewatering	Stream Bypass																																		
Diversion Berm	Vactoring																																		
Diversion Channel																																			
Coir Fabric	Hydroseeding																																		
Coir Log	Large Woody Material																																		
Excelsior Filled Log	Live Staking																																		
Hand Seeding	Streambed Gravel																																		

<p><b>Site Specific BMPs</b></p> <p><i>Continued from preceding page.</i></p>	<p><b>“Reduce Water Velocity/Erosive Forces”</b></p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Rock Check Dam</td> </tr> <tr> <td>Coir Fabric</td> <td>Sandbag</td> </tr> <tr> <td>Coir Log</td> <td>Silt Fence</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Mat</td> </tr> <tr> <td>Ditch Lining</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Hand Seeding</td> <td>Straw Log</td> </tr> <tr> <td>Hydroseeding</td> <td>Stream Bank Stabilization</td> </tr> <tr> <td>Large Woody Material</td> <td>Surface Roughening</td> </tr> <tr> <td>Live Staking</td> <td>Triangular Silt Dike</td> </tr> <tr> <td>Mulching</td> <td>Turbidity Curtain</td> </tr> <tr> <td>Rip Rap</td> <td>Vegetative Buffer</td> </tr> </table> <p>Go to  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>	Back of Slope Planting	Rock Check Dam	Coir Fabric	Sandbag	Coir Log	Silt Fence	Continuous Berm	Silt Mat	Ditch Lining	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Grass Lined Channel	Straw Bale Barrier (3)	Hand Seeding	Straw Log	Hydroseeding	Stream Bank Stabilization	Large Woody Material	Surface Roughening	Live Staking	Triangular Silt Dike	Mulching	Turbidity Curtain	Rip Rap	Vegetative Buffer
Back of Slope Planting	Rock Check Dam																										
Coir Fabric	Sandbag																										
Coir Log	Silt Fence																										
Continuous Berm	Silt Mat																										
Ditch Lining	Straw Bale Barrier (1)																										
Excelsior Filled Log	Straw Bale Barrier (2)																										
Grass Lined Channel	Straw Bale Barrier (3)																										
Hand Seeding	Straw Log																										
Hydroseeding	Stream Bank Stabilization																										
Large Woody Material	Surface Roughening																										
Live Staking	Triangular Silt Dike																										
Mulching	Turbidity Curtain																										
Rip Rap	Vegetative Buffer																										

## #7: Gravel Shoulders

---

**Activities:**

Maintenance tasks performed on gravel shoulders improve drainage, restore proper grade, restore filtering capability, maintain vegetation to provide adequate site distance, smooth rutting and remove buildup of sediment before entering drainage system.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintenance of Gravel Shoulders</b>	Perform maintenance. Remove built-up sediment and sod. Restore gravel shoulder. Roll shoulder material to ensure proper grade and retention of sediment control qualities.
<b>Scheduling</b>	Periodically remove sediment deposits and vegetation during the dry season when possible with a motor grader.
<b>Equipment/ Tools</b>	Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations: <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> </ul>

*Continued on next page.*

<p><b>Equipment/Tools</b> <i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained. If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p> <p>Use pickup sweepers to remove materials from roadway in assigned areas.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

**Site Specific BMPs**

<b>BMPs</b>	<b>Description</b>
<p><b>Are you disturbing soils?</b></p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p> <p>Minimize disturbance to vegetation outside of shoulder area. Leave vegetative strip where possible between the gravel and ditch line for biofiltration.</p>

**Site Specific BMPs**

*Continued from preceding page.*

Use the BMP outcome category listed below at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:

**“Filter/Perimeter Protection”**

Coir Log	Silt Fence
Continuous Berm	Silt Mat
Curb Inlet Sediment Trap	Straw Bale Barrier (1)
Excelsior Filled Log	Straw Bale Barrier (2)
Gravel Filled Sump	Straw Bale Barrier (3)
Filter Fabric	Inlet Protection
Half Round Filter	Straw Log
Kimble Filter Pipe	Washed Rock

Go to  
<http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

## #8: Street Surface Cleaning

### **Activities:**

Removing soil, organic material, dust, trash and other debris to keep road surfaces clean and remove sediment from the roadway before it enters the storm drain system, surface water system, watercourses, streams or other waterbodies. The removal of dust also reduces airborne pollution and sediment loading.

### **BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Pre-Activity</b>	Use clean up procedures that protect water quality.
<b>Equipment/ Tools</b>	<p>Control speed of sweeper to minimize airborne particulates and remove maximum amount of debris.</p> <p>Use water spray system on sweeper to reduce dust.</p> <p>Use pickup sweepers to remove materials from roadway in assigned areas.</p> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible.</p> <p>Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> </ul>
<i>Continued on next page.</i>	

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, hydraulic and transmission fluids and tires.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

## #9: Bridge Maintenance

---

### **Activities:**

Bridge maintenance activities include inspecting, testing, repairing, replacing, maintaining, painting or resurfacing components of the bridge such as the electrical system, substructure, superstructure, surface footing, piers, supports, access roads, abutments, ramps and vegetation management.

### **BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Permits</b>	Bridge maintenance activities requiring an HPA will be reviewed with the WDFW and permitted prior to construction in accordance with the HPAs.
<b>Scheduling</b>	If bridge maintenance is to be performed in a seasonal watercourse or stream, schedule the work during dry conditions if possible.
<b>Habitat Measures</b>	Maintain or add areas of spawning, migration, feeding, or rearing habitat as directed by WDFW (HPA) permit, public safety and ROW structure conditions allow.  Place appropriate streambed material (HPA).
<b>Equipment/ Tools</b>	Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible.  Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations: <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/ maintenance waste materials from work site and dispose of and/or recycle.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Minimize disturbance to riparian vegetation:</p> <ul style="list-style-type: none"> <li>• Mark job site.</li> <li>• Flag work area.</li> </ul>

<p><b>Are you disturbing soils?</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>Operate equipment to minimize damage to riparian habitat.</li> </ul> <p>Monitor water quality in accordance with permit requirements.</p> <p>Restore vegetation where appropriate for site conditions within riparian areas (HPA).</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																																				
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the five BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p> <p><b>“Filter/Perimeter Protection”</b></p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p><b>“Reduce Potential for Contaminants Falling into Water”</b></p> <table border="0"> <tr> <td>Diaper Netting</td> <td>Plywood Work Platform</td> </tr> </table> <p><b>"Settling"</b></p> <table border="0"> <tr> <td>Coir Fabric</td> <td>Silt Mat</td> </tr> <tr> <td>Continuous Berm</td> <td>Siltation Pond/ Settling Tank</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Rock Check Dam</td> <td>Straw Log</td> </tr> <tr> <td>Sandbag</td> <td>Temporary Sediment Trap</td> </tr> <tr> <td>Sedimentation Sump</td> <td>Triangular Silt Dike</td> </tr> <tr> <td>Silt Fence</td> <td>Turbidity Curtain</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Diaper Netting	Plywood Work Platform	Coir Fabric	Silt Mat	Continuous Berm	Siltation Pond/ Settling Tank	Curb Inlet Sediment Trap	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Filter Fabric	Straw Bale Barrier (3)	Rock Check Dam	Straw Log	Sandbag	Temporary Sediment Trap	Sedimentation Sump	Triangular Silt Dike	Silt Fence	Turbidity Curtain
Coir Log	Kimble Filter Pipe																																				
Continuous Berm	Silt Fence																																				
Curb Inlet Sediment Trap	Silt Mat																																				
Excelsior Filled Log	Straw Bale Barrier (1)																																				
Filter Fabric	Straw Bale Barrier (2)																																				
Gravel Filled Sump	Straw Bale Barrier (3)																																				
Half Round Filter	Straw Log																																				
Inlet Protection	Washed Rock																																				
Diaper Netting	Plywood Work Platform																																				
Coir Fabric	Silt Mat																																				
Continuous Berm	Siltation Pond/ Settling Tank																																				
Curb Inlet Sediment Trap	Straw Bale Barrier (1)																																				
Excelsior Filled Log	Straw Bale Barrier (2)																																				
Filter Fabric	Straw Bale Barrier (3)																																				
Rock Check Dam	Straw Log																																				
Sandbag	Temporary Sediment Trap																																				
Sedimentation Sump	Triangular Silt Dike																																				
Silt Fence	Turbidity Curtain																																				

<p><b>Site Specific BMPs</b></p> <p><i>Continued from preceding page.</i></p>	<p><b>"Habitat Protection/Maintenance"</b></p> <table border="0"> <tr> <td>Coir Fabric</td> <td>Hydroseeding</td> </tr> <tr> <td>Coir Log</td> <td>Large Woody Material</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Live Staking</td> </tr> <tr> <td>Hand Seeding</td> <td>Streambed Gravel</td> </tr> </table> <p><b>"Reduce Water Velocity/Erosive Forces"</b></p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Rock Check Dam</td> </tr> <tr> <td>Coir Fabric</td> <td>Sandbag</td> </tr> <tr> <td>Coir Log</td> <td>Silt Fence</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Mat</td> </tr> <tr> <td>Ditch Lining</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Hand Seeding</td> <td>Straw Log</td> </tr> <tr> <td>Hydroseeding</td> <td>Stream Bank Stabilization</td> </tr> <tr> <td>Large Woody Material</td> <td>Surface Roughening</td> </tr> <tr> <td>Live Staking</td> <td>Triangular Silt Dike</td> </tr> <tr> <td>Mulching</td> <td>Turbidity Curtain</td> </tr> <tr> <td>Rip Rap</td> <td>Vegetative Buffer</td> </tr> </table> <p>Go to  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>	Coir Fabric	Hydroseeding	Coir Log	Large Woody Material	Excelsior Filled Log	Live Staking	Hand Seeding	Streambed Gravel	Back of Slope Planting	Rock Check Dam	Coir Fabric	Sandbag	Coir Log	Silt Fence	Continuous Berm	Silt Mat	Ditch Lining	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Grass Lined Channel	Straw Bale Barrier (3)	Hand Seeding	Straw Log	Hydroseeding	Stream Bank Stabilization	Large Woody Material	Surface Roughening	Live Staking	Triangular Silt Dike	Mulching	Turbidity Curtain	Rip Rap	Vegetative Buffer
Coir Fabric	Hydroseeding																																		
Coir Log	Large Woody Material																																		
Excelsior Filled Log	Live Staking																																		
Hand Seeding	Streambed Gravel																																		
Back of Slope Planting	Rock Check Dam																																		
Coir Fabric	Sandbag																																		
Coir Log	Silt Fence																																		
Continuous Berm	Silt Mat																																		
Ditch Lining	Straw Bale Barrier (1)																																		
Excelsior Filled Log	Straw Bale Barrier (2)																																		
Grass Lined Channel	Straw Bale Barrier (3)																																		
Hand Seeding	Straw Log																																		
Hydroseeding	Stream Bank Stabilization																																		
Large Woody Material	Surface Roughening																																		
Live Staking	Triangular Silt Dike																																		
Mulching	Turbidity Curtain																																		
Rip Rap	Vegetative Buffer																																		

## #10: Snow and Ice Control

### **Activities:**

Activities include snow blowing, plowing drift removal, winter sand cleanup, sanding anti-icing and de-icing application.

### **BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Operational</b>	<p>Minimize use of salt by reducing salt-to-sand ratios.</p> <p>Treat sand clean up as part of the emergency: remove sand as a priority in order to remove sediments.</p> <p>Plow snow in areas that allow vegetation to filter and contain sand.</p> <p>Prioritize clean up efforts to aquatic habitat areas to minimize impacts.</p> <p>Prioritize clean up in areas <u>without</u> sediment collection systems.</p>
<b>Equipment/ Tools</b>	<p>Tool and Equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials, onsite to allow prompt clean up of spills.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move equipment and tools off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>Remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

# #11: Emergency Slide/Washout Repair

## Activities:

Slides and washout repair activities may include the following: removal of slide/washout material from ROW; backfilling or stabilizing slope, reestablishment of damaged roadway structures; repairing and cleaning drainage system; restoring access road; revegetating and/or armoring with rock.

## BMP Table:

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Permits</b>	<p>Follow regions notification procedures. Maintenance within waters of the state will be reviewed by WDFW and permitted with an HPA, as necessary.</p> <p>When required habitat restoration will be designed and constructed in accordance with applicable permits.</p>
<b>Fish Exclusion</b>	<p>Where practical and without jeopardizing the emergency response, in a timely manner, "Fish Exclusion Protocol" (See RRMP Appendix E) and permit conditions will be followed during maintenance activities.</p> <p>Fish will be excluded from the construction area using appropriate methods such as the use of net, dewatering at a controlled rate and removal of stranded fish according to HPA permit conditions.</p>
<b>Equipment/ Tools</b>	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible.</p> <p>Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> </ul>

*Continued on next page.*

<p><b>Equipment/Tools</b> <i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/maintenance waste materials from site for disposal or recycling.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>
<p><b>Site Specific BMPs</b> <i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p>

**Site Specific BMPs**

*Continued from preceding page.*

**“Filter/Perimeter Protection”**

- |                          |                        |
|--------------------------|------------------------|
| Coir Log                 | Kimble Filter Pipe     |
| Continuous Berm          | Silt Fence             |
| Curb Inlet Sediment Trap | Silt Mat               |
| Excelsior Filled Log     | Straw Bale Barrier (1) |
| Filter Fabric            | Straw Bale Barrier (2) |
| Gravel Filled Sump       | Straw Bale Barrier (3) |
| Half Round Filter        | Straw Log              |
| Inlet Protection         | Washed Rock            |

**“Keep Water from Work Area”**

- |                   |                  |
|-------------------|------------------|
| Aqua Barrier      | Plastic Covering |
| Cofferdam         | Sandbag          |
| Dewatering        | Stream Bypass    |
| Diversion Berm    | Vactoring        |
| Diversion Channel |                  |

**“Reduce Water Velocity/Erosive Forces”**

- |                        |                           |
|------------------------|---------------------------|
| Back of Slope Planting | Rock Check Dam            |
| Coir Fabric            | Sandbag                   |
| Coir Log               | Silt Fence                |
| Continuous Berm        | Silt Mat                  |
| Ditch Lining           | Straw Bale Barrier (1)    |
| Excelsior Filled Log   | Straw Bale Barrier (2)    |
| Grass Lined Channel    | Straw Bale Barrier (3)    |
| Hand Seeding           | Straw Log                 |
| Hydroseeding           | Stream Bank Stabilization |
| Large Woody Material   | Surface Roughening        |
| Live Staking           | Triangular Silt Dike      |
| Mulching               | Turbidity Curtain         |
| Rip Rap                | Vegetative Buffer         |

Go to  
<http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

## #12: Concrete

**Activities:**

Maintenance activities performed on the concrete structures, such as concrete roadways, sidewalks, driveways, curb and gutter sections include the following: removal or repair of damaged sections and installation of new structures.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Equipment/ Tools</b>	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<i>Continued on next page.</i>	

<p><b>Material/Debris Disposal</b></p> <p><i>Continued from preceding page.</i></p>	<p>After repairs are complete, remove construction/ maintenance waste materials from site for disposal or recycling.</p>																
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>																
<p><b>Site Specific BMPs</b></p>																	
<p><b>BMPs</b></p>	<p><b>Description</b></p>																
<p><b>Are you disturbing soils?</b></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the two BMP outcomes categories at or around the work site to reduce turbidity, sediment and/or worksite pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p> <p><b>“Filter/Perimeter Protection”</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Coir Log</td> <td style="width: 50%;">Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock
Coir Log	Kimble Filter Pipe																
Continuous Berm	Silt Fence																
Curb Inlet Sediment Trap	Silt Mat																
Excelsior Filled Log	Straw Bale Barrier (1)																
Filter Fabric	Straw Bale Barrier (2)																
Gravel Filled Sump	Straw Bale Barrier (3)																
Half Round Filter	Straw Log																
Inlet Protection	Washed Rock																

<p><b>Site Specific BMPs</b></p> <p><i>Continued from preceding page.</i></p>	<p><b>"Containment"</b></p> <p>Concrete Containment (1)      Vactoring</p> <p>Concrete Containment (2)</p> <p>Go to  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>
---	---

## #13: Sewer Systems

---

**Activities:**

Repair, replace, install and maintain operating components of sewer facilities, including, but not limited to, treatment facilities, lift stations, pump stations, main lines, collection lines, interceptors, lake line, access roads, associated ROW and storage/detention facilities.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintenance of Sewer Systems</b>	Maintain sewer system.
<b>Equipment/ Tools</b>	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials; on site to allow promptly clean up of spills.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/ maintenance waste materials from site for disposal or recycling.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:</p>

**Site Specific BMPs**

*Continued from preceding page.*

**“Filter/Perimeter Protection”**

- |                          |                        |
|--------------------------|------------------------|
| Coir Log                 | Kimble Filter Pipe     |
| Continuous Berm          | Silt Fence             |
| Curb Inlet Sediment Trap | Silt Mat               |
| Excelsior Filled Log     | Straw Bale Barrier (1) |
| Filter Fabric            | Straw Bale Barrier (2) |
| Gravel Filled Sump       | Straw Bale Barrier (3) |
| Half Round Filter        | Straw Log              |
| Inlet Protection         | Washed Rock            |

**“Keep Water from Work Area”**

- |                   |                  |
|-------------------|------------------|
| Aqua Barrier      | Plastic Covering |
| Cofferdam         | Sandbag          |
| Dewatering        | Stream Bypass    |
| Diversion Berm    | Vactoring        |
| Diversion Channel |                  |

**“Reduce Potential for Soil Erosion”**

- |                          |  |
|--------------------------|--|
| Back of Slope Planting   | Live Staking                             |
| Construction Access Road | Mulching                                 |
| Ditch Lining             | Plastic Covering                         |
| Dust Control             | Soil Stabilization<br>(Blankets/Matting) |
| Filter Fabric            | Surface Roughening                       |
| Grass Lined Channel      | Sweeping                                 |
| Hand Seeding             | Vegetative Buffer                        |
| Hydroseeding             |  |

Go to  
<http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

## #14: Water Systems

**Activities:**

Repair, replace, install and maintain operating components of water system facilities including, but not limited to, treatment plant, transmission mains, distribution lines, fire flow systems, reservoirs, tunnels, pump stations, meters, flushing, dewatering, services, access roads and associated ROWs or water system structures.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Water Systems</b>	Maintain sewer system.
<b>Operational</b>	Develop protocols for dechlorination of water. Develop a flushing program.
<b>Equipment/ Tools</b>	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials; on site to allow promptly clean up of spills.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/maintenance waste materials from site for disposal or recycling.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:</p>

<p><b>Site Specific BMPs</b> <i>Continued from preceding page.</i></p>	<p><b>“Filter/Perimeter Protection”</b></p> <table border="0"> <tr><td>Coir Log</td><td>Kimble Filter Pipe</td></tr> <tr><td>Continuous Berm</td><td>Silt Fence</td></tr> <tr><td>Curb Inlet Sediment Trap</td><td>Silt Mat</td></tr> <tr><td>Excelsior Filled Log</td><td>Straw Bale Barrier (1)</td></tr> <tr><td>Filter Fabric</td><td>Straw Bale Barrier (2)</td></tr> <tr><td>Gravel Filled Sump</td><td>Straw Bale Barrier (3)</td></tr> <tr><td>Half Round Filter</td><td>Straw Log</td></tr> <tr><td>Inlet Protection</td><td>Washed Rock</td></tr> </table> <p><b>“Keep Water from Work Area”</b></p> <table border="0"> <tr><td>Aqua Barrier</td><td>Plastic Covering</td></tr> <tr><td>Cofferdam</td><td>Sandbag</td></tr> <tr><td>Dewatering</td><td>Stream Bypass</td></tr> <tr><td>Diversion Berm</td><td>Vactoring</td></tr> <tr><td>Diversion Channel</td><td></td></tr> </table> <p><b>“Reduce Potential for Soil Erosion”</b></p> <table border="0"> <tr><td>Back of Slope Planting</td><td>Live Staking</td></tr> <tr><td>Construction Access Road</td><td>Mulching</td></tr> <tr><td>Ditch Lining</td><td>Plastic Covering</td></tr> <tr><td>Dust Control</td><td>Soil Stabilization (Blankets/Matting)</td></tr> <tr><td>Filter Fabric</td><td>Surface Roughening</td></tr> <tr><td>Grass Lined Channel</td><td>Sweeping</td></tr> <tr><td>Hand Seeding</td><td>Vegetative Buffer</td></tr> <tr><td>Hydroseeding</td><td></td></tr> </table> <p>Go to  <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a>  RRMP Part 2 BMPs for installation guidelines.</p>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Aqua Barrier	Plastic Covering	Cofferdam	Sandbag	Dewatering	Stream Bypass	Diversion Berm	Vactoring	Diversion Channel		Back of Slope Planting	Live Staking	Construction Access Road	Mulching	Ditch Lining	Plastic Covering	Dust Control	Soil Stabilization (Blankets/Matting)	Filter Fabric	Surface Roughening	Grass Lined Channel	Sweeping	Hand Seeding	Vegetative Buffer	Hydroseeding	
Coir Log	Kimble Filter Pipe																																										
Continuous Berm	Silt Fence																																										
Curb Inlet Sediment Trap	Silt Mat																																										
Excelsior Filled Log	Straw Bale Barrier (1)																																										
Filter Fabric	Straw Bale Barrier (2)																																										
Gravel Filled Sump	Straw Bale Barrier (3)																																										
Half Round Filter	Straw Log																																										
Inlet Protection	Washed Rock																																										
Aqua Barrier	Plastic Covering																																										
Cofferdam	Sandbag																																										
Dewatering	Stream Bypass																																										
Diversion Berm	Vactoring																																										
Diversion Channel																																											
Back of Slope Planting	Live Staking																																										
Construction Access Road	Mulching																																										
Ditch Lining	Plastic Covering																																										
Dust Control	Soil Stabilization (Blankets/Matting)																																										
Filter Fabric	Surface Roughening																																										
Grass Lined Channel	Sweeping																																										
Hand Seeding	Vegetative Buffer																																										
Hydroseeding																																											

## #15: Vegetation

**Activities:**

Activities include repair, replacement, installation, removal and/or maintenance of the vegetation within the ROW. Vegetation is an integral part of the road ROW structure. Vegetation maintenance includes, but is not limited to, mechanical, chemical, cultural and biological control. It also includes the systems and structures that support the vegetation.

**BMP Table:**

<b>Routine BMPs</b>	
<b>BMPs</b>	<b>Description</b>
<b>Maintenance of ROW</b>	Perform repairs, replacement and maintenance of roadway vegetation.
<b>Maintenance of Shoulder Work</b>	Maximize opportunities for shoulder work, which will increase infiltration or bio-filtration. (See also Category #7, Gravel Shoulders.)
<b>Equipment/ Tools</b>	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> <li>• Routinely inspect equipment, tools and vehicles for leaks or damage.</li> <li>• Keep clean up materials, such as dry absorbent materials; on site to allow promptly clean up of spill.</li> <li>• Promptly repair or replace leaking connections, pipes, hoses and/or valves.</li> </ul> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> <li>• Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.</li> <li>• Remove buildup of oils and grease on equipment.</li> <li>• Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.</li> </ul>

*Continued on next page.*

<p><b>Equipment/ Tools</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• Use drip pans under equipment when maintaining, repairing or servicing in the field.</li> <li>• Use non-toxic solvents whenever possible.</li> <li>• Clean maintenance area storm drain grates regularly.</li> <li>• Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids.</li> <li>• Surfaces shall be cleaned following any discharge or spill incident.</li> </ul> <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p><b>Material/Debris Disposal</b></p>	<p>After repairs are completed, remove construction/ maintenance waste materials from site for disposal or recycling.</p> <p>If area is swept with a pickup sweeper, the material will be hauled out of the area to appropriate disposal site.</p>
<p><b>Spill Prevention &amp; Control</b></p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p><b>Site Specific BMPs</b></p>	
<p><b>BMPs</b></p>	<p><b>Description</b></p>
<p><b>Are you disturbing soils?</b></p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> <li>• During winter season – October through June – no soil shall remain exposed and unworked for more than two days.</li> <li>• During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.</li> </ul>

<p><b>Are you disturbing soils?</b></p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> <li>• These conditions apply to all soils on site, whether or not at final grade.</li> </ul> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																																																
<p><b>Site Specific BMPs</b></p> <p><i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:</p> <p><b>“Filter/Perimeter Protection”</b></p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p><b>“Reduce Potential for Soil Erosion”</b></p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Live Staking</td> </tr> <tr> <td>Construction Access Road</td> <td>Mulching</td> </tr> <tr> <td>Ditch Lining</td> <td>Plastic Covering</td> </tr> <tr> <td>Dust Control</td> <td>Soil Stabilization (Blankets/Matting)</td> </tr> <tr> <td>Filter Fabric</td> <td>Surface Roughening</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Sweeping</td> </tr> <tr> <td>Hand Seeding</td> <td>Vegetative Buffer</td> </tr> <tr> <td>Hydroseeding</td> <td></td> </tr> </table> <p><b>“Reduce Water Velocity/Erosive Forces”</b></p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Rock Check Dam</td> </tr> <tr> <td>Coir Fabric</td> <td>Sandbag</td> </tr> <tr> <td>Coir Log</td> <td>Silt Fence</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Mat</td> </tr> <tr> <td>Ditch Lining</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Hand Seeding</td> <td>Straw Log</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Back of Slope Planting	Live Staking	Construction Access Road	Mulching	Ditch Lining	Plastic Covering	Dust Control	Soil Stabilization (Blankets/Matting)	Filter Fabric	Surface Roughening	Grass Lined Channel	Sweeping	Hand Seeding	Vegetative Buffer	Hydroseeding		Back of Slope Planting	Rock Check Dam	Coir Fabric	Sandbag	Coir Log	Silt Fence	Continuous Berm	Silt Mat	Ditch Lining	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Grass Lined Channel	Straw Bale Barrier (3)	Hand Seeding	Straw Log
Coir Log	Kimble Filter Pipe																																																
Continuous Berm	Silt Fence																																																
Curb Inlet Sediment Trap	Silt Mat																																																
Excelsior Filled Log	Straw Bale Barrier (1)																																																
Filter Fabric	Straw Bale Barrier (2)																																																
Gravel Filled Sump	Straw Bale Barrier (3)																																																
Half Round Filter	Straw Log																																																
Inlet Protection	Washed Rock																																																
Back of Slope Planting	Live Staking																																																
Construction Access Road	Mulching																																																
Ditch Lining	Plastic Covering																																																
Dust Control	Soil Stabilization (Blankets/Matting)																																																
Filter Fabric	Surface Roughening																																																
Grass Lined Channel	Sweeping																																																
Hand Seeding	Vegetative Buffer																																																
Hydroseeding																																																	
Back of Slope Planting	Rock Check Dam																																																
Coir Fabric	Sandbag																																																
Coir Log	Silt Fence																																																
Continuous Berm	Silt Mat																																																
Ditch Lining	Straw Bale Barrier (1)																																																
Excelsior Filled Log	Straw Bale Barrier (2)																																																
Grass Lined Channel	Straw Bale Barrier (3)																																																
Hand Seeding	Straw Log																																																

<p><b>Site Specific BMPs</b></p> <p><i>Continued from preceding page</i></p>	<p>Hydroseeding</p> <p>Large Woody Material</p> <p>Live Staking</p> <p>Mulching</p> <p>Rip Rap</p> <p>Stream Bank Stabilization</p> <p>Surface Roughening</p> <p>Triangular Silt Dike</p> <p>Turbidity Curtain</p> <p>Vegetative Buffer</p> <p>Go to <a href="http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf">http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</a></p> <p>RRMP Part 2 BMPs for installation guidelines.</p>
<p><b>Mowing</b></p>	<p>Grass mowing finished height of two to six inches to minimize scalping of soil surface.</p> <p>Do not mow below ordinary high water mark of streams or waterways.</p>
<p><b>Brush Cutting</b></p>	<p>Grass cutting finished height two to six inches to minimize scalping of soil surface.</p> <p>Native brush vegetation cutting finished height of 12 inches to maximize growth of desirable vegetation.</p> <p>Do not brush cut below the ordinary high water mark of streams and waterways.</p>
<p><b>Hand Cutting</b></p>	<p>Grass cutting length of two to six inches to minimize scalping of soil surface.</p> <p>Do not mow below the ordinary high water mark of streams or waterways.</p>
<p><b>Seeding</b></p>	<p>Avoid overspray into streams, ponds, lakes or wetlands.</p> <p>Cover all exposed soil within project limits to avoid erosion.</p>
<p><b>Chipping</b></p>	<p>Spread chips evenly along Zones 2 or 3.</p> <p>Remove chips from project site.</p>
<p><b>Chemical Application</b></p>	<p>Follow state and federal requirements, along with product label instructions.</p>

