

## S9. STORMWATER POLLUTION PREVENTION PLAN

An adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity shall be prepared and implemented in accordance with the requirements of this permit beginning with initial soil disturbance and until *final stabilization*.

### A. The SWPPP shall meet the following objectives:

1. To implement Best Management Practices (BMPs) to prevent erosion and *sedimentation*, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.
2. To prevent violations of surface water quality, ground water quality, or sediment management standards.
3. To control peak volumetric flow rates and velocities of stormwater discharges.

### B. General Requirements

1. The SWPPP shall include a narrative and drawings. All BMPs shall be clearly referenced in the narrative and marked on the drawings.

The SWPPP narrative shall include documentation to explain and justify the pollution prevention decisions made for the project. Documentation shall include:

- a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.);
  - b. Potential erosion problem areas;
  - c. The 12 elements of a SWPPP in S9.D.1-12, including BMPs used to address each element;
  - d. Construction phasing/sequence and general BMP implementation schedule;
  - e. The actions to be taken if BMP performance goals are not achieved; and
  - f. Engineering calculations for ponds and any other designed structures.
2. The Permittee shall modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee shall take the following actions:
    - a. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the inspection or investigation;

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- b. Fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, but no later than 10 days from the inspection or investigation; and
  - c. Document BMP implementation and maintenance in the site log book.
3. The Permittee shall modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

#### C. Stormwater Best Management Practices (BMPs)

BMPs shall be consistent with:

1. Stormwater Management Manual for Western Washington (most recent edition), for sites west of the crest of the Cascade Mountains;
2. Stormwater Management Manual for Eastern Washington (most recent edition), for sites east of the crest of the Cascade Mountains; or
3. Other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention and are approved by Ecology; or
4. Documentation in the SWPPP that the BMPs selected provides an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:
  - a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs being selected; and
  - b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

#### D. SWPPP – Narrative Contents and Requirements

The Permittee shall include each of the 12 elements below in S9.D.1-12 in the narrative of the SWPPP and ensure that they are implemented unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits
  - a. Prior to beginning land disturbing activities, including clearing and grading, clearly mark all clearing limits, *sensitive areas* and their *buffers*, and trees that are to be preserved within the construction area.
  - b. The duff layer, native top soil, and natural vegetation shall be retained in an undisturbed state to the maximum degree practicable.

2. Establish Construction Access

- a. Construction vehicle access and exit shall be limited to one route, if possible.
- b. Access points shall be stabilized with a pad of quarry spalls, crushed rock, or other *equivalent BMP*, to minimize the tracking of sediment onto public roads.
- c. Wheel wash or tire baths shall be located on site, if the stabilized construction entrance is not effective in preventing sediment from being tracked onto public roads.
- d. If sediment is tracked off site, public roads shall be cleaned thoroughly at the end of each day, or more frequently during wet weather. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area.
- e. Street washing is allowed only after sediment is removed in accordance with S9.D.2.d. Street wash wastewater shall be controlled by pumping back on site or otherwise be prevented from discharging into systems tributary to waters of the state.

3. Control Flow Rates

- a. Properties and waterways downstream from development sites shall be protected from erosion due to increases in the velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.
- b. Where necessary to comply with S9.D.3.a., stormwater retention or *detention* facilities shall be constructed as one of the first steps in grading. Detention facilities shall be functional prior to construction of site improvements (e.g., impervious surfaces).
- c. If permanent infiltration ponds are used for flow control during construction, these facilities shall be protected from siltation during the construction phase.

4. Install Sediment Controls

- a. Stormwater runoff from disturbed areas shall pass through a sediment pond or other appropriate sediment removal BMP, prior to leaving a construction site or prior to discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but shall meet the flow control performance standard of S9.D.3.a.
- b. Sediment control BMPs (sediment ponds, traps, filters, etc.) shall be constructed as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.

- c. BMPs intended to trap sediment on site shall be located in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.

#### 5. Stabilize Soils

- a. Exposed and unworked soils shall be stabilized by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.
  - b. Depending on the geographic location of the project, no soils shall remain exposed and unworked for more than the time periods set forth below to prevent erosion:
    - West of the Cascade Mountains Crest
      - During the dry season (May 1 - Sept. 30): 7 days
      - During the wet season (October 1 - April 30): 2 days
    - East of the Cascade Mountains Crest, except for Central Basin\*
      - During the dry season (July 1 - September 30): 10 days
      - During the wet season (October 1 - June 30): 5 days
    - The Central Basin\*, East of the Cascade Mountains Crest
      - During the dry Season (July 1 - September 30): 30 days
      - During the wet season (October 1 - June 30): 15 days
- \*Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

The time period may be adjusted by a local jurisdiction, if the jurisdiction can show that local precipitation data justify a different standard.

- c. Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.
- d. Soil stockpiles shall be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from *storm drain* inlets, waterways, and drainage channels.

#### 6. Protect Slopes

- a. Design and construct cut and fill slopes in a manner that will minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (e.g., track walking).
- b. Off-site stormwater (run-on) or groundwater shall be diverted away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.

- c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.
  - i. West of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the peak 10-minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis shall use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis shall use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."
  - ii. East of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.
- d. Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.
- e. Check dams shall be placed at regular intervals within constructed channels that are cut down a slope.

#### 7. Protect Drain Inlets

- a. All storm drain inlets made operable during construction shall be protected so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.
- b. Inlet protection devices shall be cleaned or removed and replaced when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

#### 8. Stabilize Channels and Outlets

- a. All temporary on-site conveyance channels shall be designed, constructed, and stabilized to prevent erosion from the following expected peak flows:
  - i. West of the Cascade Mountains Crest: Channels shall handle the peak 10 minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis shall use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis shall use the temporary or permanent project land cover

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condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Channels shall handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

b. *Stabilization*, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches shall be provided at the outlets of all conveyance systems.

#### 9. Control Pollutants

a. All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater.

b. Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks shall include secondary containment.

c. Maintenance, fueling, and repair of heavy equipment and vehicles shall be conducted using spill prevention and control measures. Contaminated surfaces shall be cleaned immediately following any spill incident.

d. Wheel wash or tire bath wastewater shall be discharged to a separate on-site treatment system or to the *sanitary sewer* with local sewer district approval.

e. Application of fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' label requirements for application rates and procedures shall be followed.

f. BMPs shall be used to prevent or treat contamination of stormwater runoff by pH modifying sources. These sources include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters. Permittees shall adjust the pH of stormwater if necessary to prevent violations of water quality standards.

g. Permittees shall obtain written approval from Ecology prior to using chemical treatment, other than CO<sub>2</sub> or dry ice to adjust pH.

#### 10. Control De-Watering

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- a. Foundation, vault, and trench de-watering water, which have similar characteristics to stormwater runoff at the site, shall be discharged into a controlled conveyance system prior to discharge to a sediment trap or sediment pond.
- b. Clean, non-turbid de-watering water, such as well-point ground water, can be discharged to systems tributary to, or directly into surface waters of the state, as specified in S9.D.8, provided the de-watering flow does not cause erosion or flooding of receiving waters. Clean de-watering water should not be routed through stormwater sediment ponds.
- c. Other de-watering disposal options may include:
  - i. infiltration
  - ii. transport offsite in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters,
  - iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies,
  - iv. sanitary sewer discharge with local sewer district approval, if there is no other option, or
  - v. use of a sedimentation bag with *outfall* to a ditch or swale for small volumes of localized de-watering.
- d. Highly turbid or contaminated dewatering water shall be handled separately from stormwater.

#### 11. Maintain BMPs

- a. All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function in accordance with BMP specifications.
- b. All temporary erosion and sediment control BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

#### 12. Manage the Project

- a. Development projects shall be phased to the maximum degree practicable and shall take into account seasonal work limitations.
- b. Inspection and Monitoring

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All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections and monitoring shall be conducted in accordance with S4.

#### c. Maintaining an Updated Construction SWPPP

The SWPPP shall be maintained, updated, and implemented in accordance with Conditions S3, S4 and S9.

#### E. SWPPP – Map Contents and Requirements

The SWPPP shall also include a vicinity map or general location map (e.g. USGS Quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP shall also include a legible site map (or maps) showing the entire construction site. The following features shall be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads;
2. Cut and fill slopes indicating the top and bottom of slope catch lines;
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities;
4. Areas of soil disturbance and areas that will not be disturbed;
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas;
7. Locations of all surface water bodies, including wetlands;
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface water body, including wetlands;
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority; and
10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.