

CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN NARRATIVE

Element 1 - Preserve Vegetation/Mark Clearing Limits. Prior to beginning land-disturbing activities, including clearing and grading, all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area should be clearly marked, both in the field and on the plans, to prevent damage and offsite impacts. Plastic, metal, or stake wire fence may be used to mark the clearing limits. Retain the duff layer, native top soil, and natural vegetation in an undisturbed state to the maximum degree practicable

Element 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 guarry spall or crushed rock to minimize the tracking of sediment onto public roads. (C) Wheel wash or tire baths should be located on site, if applicable.

(D) Public roads shall at a minimum be cleaned thoroughly at the end of each day. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area. Street washing will be allowed only after sediment is removed in this manner. (E) Street wash wastewater shall be controlled by pumping back on site, or otherwise be prevented from discharging into systems tributary to state surface waters.

(F) Control street wash wastewater by pumping back on site, or otherwise prevent it from discharging into systems tributary to waters of the state.

Element 3 - Control Flow Rates (A) Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the velocity and

peak volumetric flow rate of storm water runoff from the project site. (B) Properties subject to Minimum Requirement No. 5 and/or No. 7 shall implement controls as early in the development as is practicable to mitigate for flow rates. (c) Where necessary to comply with Minimum Requirement No. 7, stormwater retention/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). (D) If permanent infiltration ponds are used for flow control during construction, these facilities should be protected from siltation during the construction phase

Element 4 - Install Sediment Controls.

(A) Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. (B) Construct sediment control BMPs (sediment ponds, traps, filters, etc.) as one of the first steps in grading. These BMPs shall be functional before other land-

disturbing activities take place (C) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.

m Direct storm water runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard in subsection (F)(2)(e)(iii)(A) of this section.

(E) Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages (F) Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

Element 5 – Stabilize Soils

(A) All exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from the erosive forces of raindrop impact and flowing water. and wind 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 early on areas to be paved, and dust control. (B) Control stormwater volume and velocity within the site to minimize soil erosion.

C Control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel

and stream bank erosion (D) From October 1st through April 30th of each year, no soils shall remain exposed and unworked for more than two days. From May 1st to September 30th of each year, no soils shall remain exposed and unworked for more than seven days. This condition applies to all soils on site, whether at final grade or not. (E) Stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.

(F) Minimize the amount of soil exposed during construction activity.

(G) Minimize the disturbance of steep slopes. $_{\mbox{(H)}}$ Minimize soil compaction and, unless infeasible, preserve topsoil.

()Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, soil application of polyacrylamide

(PAM), early application of gravel base on areas to be paved, and dust control (J) Soil stabilization measures selected should be appropriate for the time of year, site conditions, estimated duration of use, and potential water quality impacts that stabilization agents may have on downstream waters or ground water.

(K) Soil stockpiles must be stabilized and protected with sediment trapping measures and, where possible, locate away from storm drain inlets, waterways and drainage

channels. (L) Work on linear construction sites and activities, including right-of-way and easement clearing, roadway development, pipelines, and trenching for utilities, shall not exceed the capability of the individual contractor for his portion of the project to install the bedding materials, roadbeds, structures, pipelines, and/or utilities, and to restabilize the disturbed soils, meeting the timing conditions listed above.

Man addition, at the discretion of the public works director, those sites unable to maintain the guality of their stormwater discharge may be required to provide soil stabilization to all exposed soil areas regardless of the working status of the area. Upon written notification, the property owner shall provide full stabilization of all exposed soil areas within 24 hours.

Element 6 - Protect Slopes

(A) Cut and fill slopes shall be designed and constructed 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 (for example, track walking).

 $_{\mbox{(B)}}$ Consider soil type and its potential for erosion. (C) Reduce slope runoff velocities by reducing the continuous length of slope with terracing and diversions, reduce slope steepness, and roughen slope surface. (D) Divert upslope drainage and run-on waters from off site with interceptors at top of slope. Off-site stormwater should be handled separately from stormwater generated

on the site. Diversion of off-site stormwater around the site may be a viable option. Diverted flows shall be redirected to the natural drainage location at or before the property boundary E) Contain down slope collected flows in pipes, slope drains, or protected channels to prevent erosion. Temporary pipe slope drains must handle the peak volumetric flow rate calculated using a 10-minute time step from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year one-hour flow

rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must 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 must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model to predict flows, bare soil areas should be modeled as "landscaped area. (F) Provide drainage to remove ground water intersecting the slope surface of exposed soil areas.

(G) Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.

 $_{(H)}$ Check dams shall be placed at regular intervals within trenches that are cut down a slope. (1) Stabilize soils on slopes, as specified in Element No. 5.

Element 7 – Protect Drain Inlets

(A) All storm drain inlets made operable during construction shall be protected so that storm water runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.

(h) All approach roads shall be kept clean, and all sediment and street wash water shall not be allowed to enter storm drains without prior and adequate treatment unless treatment is provided before the storm drain discharges to waters of the state.

Element 8 - Stabilize Channels and Outlets.

(A) All temporary on-site conveyance channels shall be designed, constructed and stabilized to prevent erosion from expected peak flows. Channels must handle the peak volumetric flow rate calculated using a 10-minute time step from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10year, one-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must 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 Western Washington Hydrology Model to predict flows, bare soil areas should be modeled as "landscaped area

(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.

Element 9 - Control Pollutants.

(A) Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. (B) All pollutants, including waste materials and demolition debris, that occur on site during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater.

Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and noninert wastes present on the site (see Chapter 173-304 WAC, as currently enacted or hereafter modified, for the definition of inert waste, which is incorporated herein by this reference). (D) Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Emergency repairs may be performed on site using temporary plastic placed beneath and, if raining, over the vehicle.

(E) Wheel wash, or tire bath wastewater, shall be discharged to a separate on-site treatment system or to the sanitary sewer FApplication of agricultural chemicals, including 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' recommendations shall be followed for application rates and procedures. (6) Management of pH-modifying sources shall prevent contamination of runoff and stormwater collected on the site. 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, and concrete pumping and mixer washout waters.

(H) Adjust the pH of storm water if necessary to prevent violations of water quality standards. (Assure that washout of concrete trucks is performed off site or in designated concrete washout areas only. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete

discharge to surface waters of the state is prohibited.

u) Obtain written approval from Ecology before using chemical treatment other than CO2 or dry ice to adjust pH.

Element 10 - Control Dewatering

(A) All foundation, vault, and trench dewatering 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. Channels must be stabilized, as specified in Element No. 8. (B) Clean, nonturbid dewatering water, such as well-point ground water, can be discharged to systems tributary to state surface waters, as specified in Element No. 8, provided the dewatering flow does not cause erosion or flooding of the receiving waters. These clean waters should not be routed through sediment ponds with

(C) Highly turbid or otherwise contaminated dewatering water, such as from construction equipment operation, clamshell digging, concrete tremie pour, or work inside

a cofferdam, shall be handled separately from stormwater at the site. m Other disposal options, depending on site constraints, may include, by way of example; (1) infiltration, (2) transport off site in vehicle, such as a vacuum flush truck for legal disposal in a manner that does not pollute state waters, (3) on-site treatment using Ecology approved chemical treatment or other suitable treatment

technologies,

(4) sanitary or combined sewer discharge with local sewer district approval, or there is no other option, (5) use of a sedimentation bag that discharges to a ditch or swale for small volumes of localized dewatering.

Element 11 – Maintain BMPs

stormwater

stabilized.

(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. All maintenance and repair shall be conducted in accordance with BMPs. (B) Sediment control BMPs shall be inspected weekly or after a runoff-producing storm event during the dry season and daily during the wet season. All projects that disturb an area greater than one acre shall have a certified erosion control lead available to the site. This erosion control lead shall be responsible to provide

overview of ongoing day-to-day erosion control requirements. The erosion control lead shall (within 24 hours) report to the city and Department of Ecology any site discharges that exceed state water guality standards that have or are likely to have entered waters of the state. (C)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. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation shall be permanently

Element 12 – Manage the Project

(A) Phasing of Construction. Development projects shall be phased where feasible in order to prevent, to the maximum extent practicable, the transport of sediment from the development site during construction. Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing

activities for any phase (B) When establishing these permitted clearing and grading areas, consideration should be given to minimizing removal of existing trees and minimizing disturbance/compaction of native soils except as needed for building purposes. Permitted clearing and grading areas and any other areas required to preserve critical or sensitive areas, buffers, native growth protection easements, or tree retention areas, shall be delineated on the site plans and the development site. Coordination with Utilities and Other Contractors. The primary project proponent shall evaluate, with input from utilities and other contractors, the stormwater management requirements for the entire project, including the utilities, when preparing the construction SWPPP.

(D) Inspection and Monitoring. All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function (F) For any project disturbing more than one acre, a certified professional in erosion and sediment control shall be identified in the construction SWPPP and shall be on site or on call at all times. Certification may be through the Washington State Department of Transportation/Associated General Contractors (WSDOT/AGC) Construction Site Erosion and Sediment Control Certification Program or any equivalent local or national certification and/or training program, in the city's discretion (F) Whenever inspection and/or monitoring reveals that the BMPs identified in the construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, the SWPPP shall be modified, as appropriate, in a timely manner. (G) Maintenance of the Construction SWPPP. The construction SWPPP shall be retained on site. The construction SWPPP shall be modified whenever there is a significant change in the design, construction, operation, or maintenance of any BMP.

Element 13 – Protect Low Impact Development BMPs

(A) Protect all bioretention and rain garden BMPs from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the bioretention and/or rain garden BMPs. Restore the BMPs to their fully functioning condition if they accumulate sediment during construction. Restoring the BMP must include removal of sediment and any sediment-laden bioretention/rain garden soils, and replacing the removed soils with soils meeting the design specification

(B) Prevent compacting bioretention and rain garden BMPs by excluding construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment (C) Control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base

material or pavement. Do not allow sediment-laden runoff onto permeable pavements or base materials. (D) Pavement fouled with sediments or no longer passing an initial infiltration test must be cleaned using procedures in accordance with the Ecology Manual or the manufacturer's procedures

Keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade





