Stormwater Pollution Prevention Plan (SWPPP)

46.660792, -122.954703 SE Hilltop Dr

Prepared By:

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Fuller Designs Project No.: 2402
May 15, 2024

Project Information

Prepared for: Hilltop Dr Storm Drainage
46.660792, -122.954703

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References 2019 Stormwater Management Manual for Western Washington

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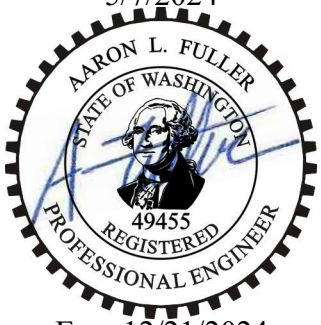
5/7/2024



Exp. 12/21/2024

"I hereby certify that this Stormwater Pollution and Prevention Plan for the Hilltop Storm Drainage project has been prepared by me or under my supervision. I hereby acknowledge and agree that the jurisdiction does not and will not assume liability for the sufficiency, suitability, or performance of facilities designed by me."

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Stormwater Pollution Prevention Plan

Introduction

The Hilltop Storm Drainage project proposes to reroute stormwater runoff so it will not continue to erode private property by installing approximately 186 LF of 12-inch CPSSP drainage pipe, approximately 144 LF of drainage swale, two catch basins, and two culverts. The project will also resurface 1,200 SF of existing pavement, remove and replace 30 LF of chain link fence, install 38 LF of new chain link fence, and perform other related work.

General Requirements

Clearing and grading activities for the Project shall be permitted only to the approved site development plan. These clearing and grading areas were established to preserve sensitive areas, buffers, native growth protection easements, and tree retention areas.

The SWPPP shall be implemented beginning with initial land disturbance and until final stabilization. Sediment and Erosion Control BMPs shall be consistent with the BMPs contained in Volumes III and IV of the 2019 WSDOE SWMMWW.

Seasonal Work Limitations - From October 15 through April 1, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the local permitting authority that silt-laden runoff will be prevented from leaving the site through a combination of the following:

1. Site conditions, including existing vegetative coverage, slope, soil type, and proximity to receiving waters
2. Limitations on activities and the extent of disturbed areas
3. Proposed erosion and sediment control measures

Project Requirements - Construction SWPPP Elements

The elements shall apply and be implemented throughout project construction. Self-contained sites (discharges only to groundwater) must comply with all elements except for Element 3: Control Flow Rates.

Element 1: Preserve Vegetation/Mark Clearing Limits

Required actions to fulfill Element 1 are as follows:

- Before 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.
- Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable.

Highlighted are suggested BMPs to fulfill Element 1 for the Project are (but not limited to) as follows:

- BMP C101: Preserving Natural Vegetation
- BMP C102: Buffer Zones
- BMP C103: High-Visibility Fence
- BMP C233: Silt Fence

Element 2: Establish Construction Access

Required actions to fulfill Element 2 are as follows:

- Limit construction vehicle access and exit to one route, if possible.
- Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs to minimize sediment tracking onto public roads.
- Locate wheel wash or tire baths on-site if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.
- If sediment is tracked off-site, clean the affected roadway thoroughly at the end of each day, or more frequently if necessary (for example, during wet weather). Remove the sediment from roads by shoveling, sweeping, or pick up and transport the sediment to a controlled sediment disposal area.
- Conduct street washing only after the sediment is removed following the above procedure.
- Control street wash wastewater by pumping back on-site or otherwise preventing it from discharging into systems tributary to the State's waters.

Highlighted are suggested BMPs to fulfill Element 2 for the Project are (but not limited to) as follows:

- BMP C105: Stabilized Construction Access
- BMP C106: Wheel Wash
- BMP C107: Construction Road/ Parking Stabilization

Element 3: Control Flow Rates

Required actions to fulfill Element 3 are as follows:

- 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 stormwater runoff from the project site.
- Where necessary to comply with the bullet above, construct stormwater retention or detention facilities as one of the first grading steps. Assure that detention facilities function properly before constructing site improvements (e.g., impervious surfaces).
- If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

Uncontrollable flow rate activities are not anticipated to occur, as such BMPs are not suggested unless otherwise necessary. Control Flow Rate BMPs include:

- BMP C203: Water Bars
- BMP C207: Check Dams

- BMP C209: Outlet Protection
- BMP C233: Silt Fence
- BMP C235: Wattles
- BMP C240: Sediment Trap
- BMP C241: Sediment Pond (Temporary)

Element 4: Install Sediment Controls

Required actions to fulfill Element 4 are as follows:

- Design, install, and maintain adequate erosion controls, and sediment controls to minimize pollutants' discharge.
- Construct sediment control BMPs (sediment ponds, traps, filters, etc.) as one of the first grading steps. These BMPs shall be functional before other land-disturbing activities take place.
- 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.
- Before the runoff leaves a construction site or before the discharge to an infiltration facility, direct stormwater runoff from the disturbed areas through a sediment pond or other appropriate sediment removal BMP. Runoff from fully stabilized areas may be discharged without a sediment removal BMP but must meet the flow control performance standard in Element #3, bullet #1.
- Locate BMPs intended to trap sediment on-site to avoid interference with juvenile salmonids' movement attempting to enter off-channel areas or drainages.
- Where feasible, design outlet structures that withdraw impounded stormwater from the surface avoid discharging sediment that is still suspended lower in the water column.

Sediment is not expected to be uncontrollable, as such BMPs are not suggested unless otherwise necessary. Sediment Control BMPs include:

- BMP C231: Brush Barrier
- BMP C232: Gravel Filter Berm
- BMP C233: Silt Fence
- BMP C234: Vegetated Strip
- BMP C235: Wattles
- BMP C240: Sediment Trap
- BMP C241: Sediment Pond (Temporary)
- BMP C250: Construction Stormwater Chemical Treatment
- BMP C251: Construction Stormwater Filtration

Element 5: Stabilize Soils

Required actions to fulfill Element 5 are as follows:

- Stabilize exposed and unworked soils 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 early on areas to be paved, and dust control.

- Control stormwater volume and velocity within the site to minimize soil erosion.
- Control stormwater discharges, including peak flow rates and total stormwater volume, to minimize erosion at outlets and minimize downstream channel and stream bank erosion.
- Soils must not remain exposed and unworked for more than the time periods set forth below to prevent erosion:
    - During the dry season (April 2 – October 14): 7 days
    - During the wet season (October 15 - April 1): 2 days
    - Note that projects performing work under an NPDES Construction Stormwater General Permit issued by Ecology will have more restrictive time periods.
- Stabilize soils at the end of the shift before a holiday or weekend, if needed, based on the weather forecast.
- Stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.
- Minimize the amount of soil exposed during construction activity.
- Minimize the disturbance of steep slopes.
- Minimize soil compaction and, unless infeasible, preserve topsoil.

Highlighted are suggested BMPs to fulfill Element 5 for the Project are (but not limited to) as follows:

- BMP C120: Temporary & Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets & Blankets
- BMP C123: Plastic Covering
- BMP C124: Sodding
- BMP C125: Topsoiling/ Composting
- BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection
- BMP C130: Surface Roughening
- BMP C131: Gradient Terraces
- BMP C140: Dust Control

Element 6: Protect Slopes

Required actions to fulfill Element 6 are as follows:

- Design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing the continuous length of a slope with terracing and diversions, reducing slope steepness, and roughening sloped surfaces (for example, track walking).
- Divert off-site stormwater (run-on) or groundwater 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.
- At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.

- Place excavated material on the uphill side of trenches, consistent with safety and space considerations.
- Place check dams at regular intervals within constructed channels that are cut down a slope.

Highlighted are suggested BMPs to fulfill Element 6 for the Project are (but not limited to) as follows:

- BMP C120: Temporary & Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets & Blankets
- BMP C123: Plastic Covering
- BMP C124: Sodding
- BMP C130: Surface Roughening
- BMP C131: Gradient Terraces
- BMP C200: Interceptor Dike & Swale
- BMP C201: Grass-Lined Channels
- BMP C203: Water Bars
- BMP C204: Pipe Slope Drains
- BMP C205: Subsurface Drains
- BMP C206: Level Spreader
- BMP C207: Check Dams
- BMP C208: Triangular Silt Dike (TSD)

Element 7: Protect Drain Inlets

Required actions to fulfill Element 7 are as follows:

- Protect all storm drain inlets made operable during construction so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.
- Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless the product manufacturer specifies a different standard).

Highlighted are suggested BMPs to fulfill Element 7 for the Project are (but not limited to) as follows:

- BMP C220: Inlet Protection

Element 8: Stabilize Channels and Outlets

Required actions to fulfill Element 8 are as follows:

- Design, construct and stabilize all on-site conveyance channels.
- Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the outlets of all conveyance systems.

Un-stabilized channels and outlets are not anticipated to occur, as such BMPs are not suggested unless otherwise necessary. Control Flow Rate BMPs include:

- BMP C122: Nets and Blankets
- BMP C202: Riprap Channel Lining

- BMP C207: Check Dams
- BMP C209: Outlet Protection
- BMP C233: Silt Fence

Element 9: Control Pollutants

Required actions to fulfill Element 9 are as follows:

- Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants.
- Handle and dispose of all pollutants, including waste materials and demolition debris that occur on-site in a manner that does not contaminate stormwater.
- Provide cover, containment, and protection from vandalism 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 must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the largest tank's volume within the containment structure. Double-walled tanks do not require additional secondary containment.
- Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.
- To prevent discharge to surface water, discharge the wheel wash or tire bath wastewater to a separate on-site treatment system such as closed-loop recirculation or upland application, or the sanitary sewer, with local sewer district approval.
- Apply fertilizers and pesticides in a manner and at application rates that will not result in a chemical loss to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.
- Use BMPs to prevent contamination of stormwater runoff by pH modifying sources. The sources for this contamination 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.
- Adjust the pH of stormwater 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.
- Obtain written approval from Ecology before using a chemical treatment other than CO2 or dry ice to adjust pH.

Highlighted are suggested BMPs to fulfill Element 9 for the Project are (but not limited to) as follows:

- BMP C151: Concrete Handling
- BMP C152: Sawcutting & Surface Pollution Prevention
- BMP C153: Material Delivery, Storage, and Containment
- BMP C154: Concrete Washout Area
- BMP C250: Construction Stormwater Chemical Treatment

- BMP C251: Construction Stormwater Filtration
- BMP C252: Treating & Disposing of high pH water

Element 10: Control De-Watering

Required actions to fulfill Element 10 are as follows:

- Discharge foundation, vault, and trench dewatering water, which has similar characteristics to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.
- Discharge clean, non-turbid dewatering water, such as well-point groundwater, to systems tributary to, or directly into surface waters of the State, as specified in Element #8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that "surface waters of the State" may exist on a construction site as well as off-site; for example, a creek running through a site.
- Handle highly turbid or otherwise contaminated dewatering water separately from stormwater.
- Other treatment or disposal options may include:
    1. Infiltration
    2. Transport off-site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters
    3. Ecology-approved on-site chemical treatment or other suitable treatment technologies
    4. Sanitary or combined sewer discharge with local sewer district approval if there is no other option
    5. Use of a sedimentation bag that discharges to a ditch or swale for small volumes of localized dewatering

De-watering activities are not anticipated to occur, as such BMPs are not suggested unless otherwise necessary. Control Flow Rate BMPs include:

- BMP C203: Water Bars
- BMP C236: Vegetative Filtration

Element 11: Maintain BMPs

Required actions to fulfill Element 11 are as follows:

- Maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function following BMP specifications.
- Remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

Highlighted are suggested BMPs to fulfill Element 11 for the Project are (but not limited to) as follows:

- BMP C150: Materials on Hand
- BMP C160: Certified Erosion & Sediment Control Lead

Element 12: Manage the Project

Required actions to fulfill Element 12 are as follows:

- Phase development projects to the maximum degree practicable and consider seasonal work limitations.
- Inspection and monitoring – Inspect, maintain, and repair all BMPs as needed to ensure continued performance of their intended function. Projects regulated under the Construction Stormwater General Permit must conduct site inspections and monitoring in accordance with Special Condition S4 of the Construction Stormwater General Permit.
- Maintaining an updated construction SWPPP – Maintain, update, and implement the SWPPP.
- Projects that disturb one or more acres must have site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL). Project sites disturbing less than one acre may have a CESCL or a person without CESCL certification conduct inspections. By initiating construction, the SWPPP must identify the CESCL or inspector, who must always be present on-site or on-call.
- The CESCL or inspector (project sites less than one acre) must have the skills to assess the:
    - Site conditions and construction activities that could impact the quality of stormwater
    - Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges
- The CESCL or inspector must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. They must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.
- Based on the results of the inspection, construction site operators must correct the problems identified by:
    - Reviewing the SWPPP for compliance with the 13 construction SWPPP elements and making appropriate revisions within seven (7) calendar days of the inspection.
- Immediately begin the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems not later than within ten (10) days of the inspection. If the installation of necessary treatment BMPs is not feasible within ten (10) days, the construction site operator may request an extension within the initial 10day response period.
- Documenting BMP implementation and maintenance in the site logbook (sites larger than one acre).
- The CESCL or inspector must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The CESCL or inspector may reduce the inspection frequency for temporary stabilized, static sites to once every calendar month.

Highlighted are suggested BMPs to fulfill Element 12 for the Project are (but not limited to) as follows:

- BMP C150: Materials on Hand
- BMP C160: Certified Erosion & Sediment Control Lead
- BMP C162: Scheduling

Element 13: Protect Low Impact Development BMPs

Required actions to fulfill Element 13 are as follows:

- 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 removing sediment and any sediment-laden Bioretention/rain garden soils and replacing the removed soils with soils meeting the design specification.
- 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.
- 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.
- Pavement fouled with sediments or no longer passing an initial infiltration test must be cleaned using procedures in accordance with this manual or the manufacturer's procedures.
- Keep all heavy equipment off existing soils under LID facilities excavated to final grade to retain the soils' infiltration rate.

Adverse activities are not anticipated to occur, as such BMPs are not suggested unless otherwise necessary. Protecting Low Impact Development BMPs include:

- BMP C102: Buffer Zones
- BMP C103: High-Visibility Fence
- BMP C200: Interceptor Dike and Swale
- BMP C201: Grass-Lined Channels
- BMP C207: Check Dams
- BMP C208: Triangular Silt Dike (TSD)
- BMP C231: Brush Barrier
- BMP C233: Silt Fence
- BMP C234: Vegetated Strip