

Prepared for:



State of Oregon
Department of
Environmental
Quality

**Oregon Department of Environmental Quality
811 SW Sixth Avenue
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**INSPECTOR GUIDANCE BOOKLET
FOR CONSTRUCTION SITE
EROSION AND SEDIMENT CONTROL**

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SECTION 1 INTRODUCTION

The purpose of best management practices (BMPs) included in a construction site Erosion and Sediment Control Plan (ESCP) is to reduce or eliminate pollutant discharge associated with construction activities, particularly the discharge of sediment. In order to be effective, a program with adequate BMPs must be properly designed, implemented, inspected and maintained. The Oregon statewide NPDES storm water general permit (NPDES1200-C General Permit) sets forth required frequencies of inspections to be conducted by the permittee's Erosion and Sediment Control Inspector for active and inactive sites. For active sites, permittee inspections are required daily during periods of storm water or snowmelt runoff, within 24 hours after any storm event greater than 0.5 inches of rain during a 24-hour period and at least once every seven days during non-rainy periods (see Section 3.2 for more detail). In addition, inspections are often conducted by local, and state, government inspectors to check for site compliance both with provisions of the NPDES 1200-C General Permit and other local requirements. Local governments may have more stringent requirements than those required by the NPDES 1200-C General Permit.

Inspections need to include all disturbed areas of the site as well as material and waste storage areas, stockpile areas, construction site entrances and exits, and any sensitive areas, discharge locations, and receiving waters. Contractor inspections should document any problems encountered and the contractor must take steps to maintain or improve BMPs to mitigate pollutant discharges.

This booklet presents guidelines to assist erosion and sediment control inspectors with site compliance assessment activities. The guidelines are applicable to both the permittee's Erosion and Sediment Control Inspector conducting regular inspections as well as government inspectors conducting compliance inspections. This booklet includes the following parts:

- Section 1 - Introduction
- Section 2 - Important Regulations
- Section 3 - Inspection Guidelines
- Table 1. Common BMP Installation Mistakes and Maintenance Problems
- Form 1. Sample Construction Site BMP Inspection Report
- Form 2. Inspection Checklist for Compliance with Oregon NPDES 1200-C General Permit



SECTION 2 IMPORTANT REGULATIONS

In Oregon, the NPDES storm water permitting program is administered by the Oregon Department of Environmental Quality (DEQ). Generally, projects that disturb one or more acres are required to comply with the NPDES 1200-C General Permit, which applies to construction activities including clearing, grubbing, grading, excavation, and stockpiling activities conducted by project owners or operators, except projects conducted by public agencies. A separate permit (Permit 1200-CA) has been issued by DEQ that applies to construction land disturbance activities conducted by public agencies. This is an “umbrella” permit that covers all construction operations conducted by the agency. However, erosion and sediment control plans are customized for each specific construction project.

Compliance with the NPDES 1200-C General Permit requires submittal of an application form, ESCP Worksheet, the ESCP, Land Use Compatibility Statement, and fees. In addition, the NPDES 1200-C General Permit requires that an ESCP be submitted to and approved by DEQ or its agent (some specific cities and counties have chosen to act as agents to facilitate NPDES 1200-C General Permit implementation in their jurisdictions) and implemented by the permittee. The major provisions of the NPDES 1200-C General Permit require: no discharge of significant amounts of sediment to surface waters; implementation of the ESCP; maintenance of BMPs; proper material and waste handling; compliance with water quality standards in the Oregon Administrative Rule (OAR) 340-041 and any Total Maximum Daily Loads (TMDLs) for specific basins; and visual inspection of BMPs. Each of these components must be completed in conformance with conditions specified in the NPDES 1200-C General Permit. A Notice of Termination (NOT) form must be submitted once all soil disturbance activities and final stabilization of exposed soils have been completed. A copy of the NPDES 1200-C General Permit is available at <http://www.deq.state.or.us/wq/wqpermit/Gen1200C.pdf>. Application forms, the NOT form, and guidelines are available at <http://www.deq.state.or.us/wq/wqpermit/Gen1200CGuidance.pdf>.

Other important regulations that may apply to individual construction sites include: local erosion control or storm water requirements, local grading ordinances; Oregon water quality standards; TMDLs if the project contributes pollutants to a basin or receiving water listed for water quality impairment under Section 303(d) of the Clean Water Act; and Underground Injection Control (UIC) requirements. For more information on these regulations and requirements, refer to Section 1 of the DEQ Erosion and Sediment Control Manual.



SECTION 3 INSPECTION GUIDELINES

The BMPs identified in an ESCP are designed to minimize the transport of contaminants to receiving waters. The performance of the measures is dependent on how the BMPs are implemented and maintained, and the severity of weather conditions during their implementation. To provide for the continued performance of the measures, they should be monitored before, during, and after significant storm events. During grading and construction, the permittee is responsible for maintaining storm water BMPs.

All disturbed areas of the site, areas for material storage, locations where vehicles enter or exit the site, and all the erosion and sediment and non-stormwater pollution controls that are identified as part of the plan must be inspected. Problem areas must be documented, and control measures identified and implemented immediately. This effort must continue for the duration of time it takes for the site to be finally stabilized and any permanent measures required by the ESCP are in place and performing adequately

3.1 Site-Specific BMP Inspection and Maintenance

Following installation of erosion and sediment control measures, a walkthrough or site inspection should be conducted to ascertain that all measures have been implemented in the field, that erosion is being controlled, and that sediment and other pollutants are not being transported off-site or into critical areas on-site. Any improper installation or any repairs necessary to complete the job should be noted at this time. It should be noted that some local municipalities may also have timeliness requirements based on the nature of repairs. Another purpose of the site walkthrough is to identify critical inspection locations and monitoring points where control measures will need to be routinely checked for performance and checked after storm events. These critical points must include:

- All disturbed areas of the site
- Material storage areas
- Locations where vehicles enter or exit the site
- All erosion and sediment control BMPs
- Discharge outfall visual monitoring points.

BMPs must be in good operating condition until the area they protect has been completely stabilized and the construction activity is completed. In the absence of



significant storm events, all BMPs must be inspected by the contractor in accordance with any schedule required by the local agency and before any predicted, significant rainfall.

During rainfall events, the permittee's inspector must have the ability to call out work crews to immediately repair the erosion and sediment control measures. Appropriate materials and equipment should be kept on hand to enable a quick and rapid response. Also, some municipalities have specific "on-hand" emergency supply requirements that must be followed.

3.2 Inspection Frequency

In accordance with the NPDES 1200-C General Permit, active sites must be inspected by the permittee or the permittee's representative (typically the contractor) daily during storm water or snowmelt runoff and within 24 hours after any storm event greater than 0.5 inches in a 24-hour period. Active sites must be inspected at least every 7 days during periods of no runoff. Any site that is inactive for greater than 7 days must be inspected every two weeks. Exposed areas must be stabilized and inspected before a site is left in an inactive state.

The inspector should record any damages or deficiencies in the control measures on an inspection report form (See Section 3.5). The damage or deficiencies should be corrected as soon as practicable after the inspection but in no case later than 7 days after the inspection. Any changes that may be required to correct deficiencies in the ESCP should also be made as soon as practicable after the inspection but in no case later than 7 days after the inspection.

Inspections by local jurisdictions with oversight responsibility as DEQ agents, or as authorized by local ordinances, should be conducted at a frequency dictated by the agreement between DEQ and the jurisdiction, or by local policies and procedures.

3.3 BMP-Specific Installation Mistakes and Maintenance Problems

The most frequent cause of BMP failure is lack of preventative practices and poor maintenance of installed BMPs. Erosion prevention and sediment control BMPs must be inspected regularly and operated and maintained using specific procedures to perform properly. Installation mistakes can also impair BMP performance. Inspectors should pay particular attention to BMP maintenance problems and installation mistakes during inspections. Common installation mistakes and maintenance problems for erosion prevention, sediment control, and runoff control BMPs are identified by BMP in Table 1



on pages 6-13 of this guidance booklet. Additional information on BMP installation and maintenance can be found within the BMPs included in the Oregon DEQ Erosion and Sediment Control Manual (BMP numbers used in the manual are referenced in Table 1), local municipalities' manuals and BMPs included with the site-specific ESCP.

3.4 Vegetation Establishment Criteria

Since vegetation typically is the primary form of permanent erosion control, it is important to ascertain how quickly and how well the vegetation is becoming established. Monitoring for vegetation establishment should be conducted for all applicable projects in accordance with local requirements. General guidelines for vegetation establishment monitoring are as follows. Vegetation should be monitored monthly to evaluate the following:

- The type of vegetation that is growing (as compared to the type of vegetation that was planted);
- The density of vegetation that is growing, including the percent of ground that is covered; and
- Any areas of erosion, including the type of erosion (such as sheet erosion, rilling, gullyng, localized scour, etc.)

Based on regular evaluations of vegetation establishment, recommendations should be made as to whether the vegetation is establishing well, or whether additional measures should be taken, such as overseeding, fertilizing, erosion repair, or irrigation. Vegetation monitoring should continue until the vegetation reaches maturity and is providing the anticipated erosion control effectiveness.

3.5 Inspection and Maintenance Reports

Inspection reports should be prepared during each inspection conducted by the permittee or contractor. Local jurisdictional representatives may make their own reports. Reports should include information on damages or deficiencies, maintenance or repair activities, monitoring information, and vegetation establishment. Inspection reports prepared by the permittee should be kept for a period of three years after completion of final site stabilization.

A sample construction site BMP inspection report is provided as Form 1 in this guidance booklet on page 14. In addition, an inspection checklist for assessing overall site compliance with the NPDES 1200-C General Permit is provided as Form 2 on pages 17-20. Form 2 may be used by jurisdictional inspectors as well as by permittees and contractors to assess permit compliance.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
Erosion Prevention (EP)			
EP-1	Scheduling	<ul style="list-style-type: none"> Failure to consider scheduling and timing of construction activities to limit work during the rain season or prior to or during anticipated storms. Failure to minimize the amount of soil disturbed at any given time. 	<ul style="list-style-type: none"> Consider the scheduling and timing of construction activities relative to potential pollutant impacts throughout construction.
EP-2	Preservation of Existing Vegetation	<ul style="list-style-type: none"> Protective fencing is placed too close to the tree instead of at the drip line, resulting in over-compaction over the root zone. 	<ul style="list-style-type: none"> Check that protective fencing is clearly marked and installed at appropriate areas, particularly to protect sensitive vegetation areas and buffer zones.
EP-3	Surface Roughening	<ul style="list-style-type: none"> Roughening the slope in the wrong direction. Slope roughening should be performed parallel to the slope contours and perpendicular to the direction of flow. If a slope is roughened perpendicular to the slope contours, it can cause runoff to concentrate on the slope face and result in the development of rills and gullies. 	<ul style="list-style-type: none"> Check seeded slopes for signs of erosion such as rills and washes. Fill these areas slightly above original grade, then roughen, reseed, and mulch as soon as possible.
EP-4	Topsoiling	<ul style="list-style-type: none"> Site topsoils are poor quality and not recognized as such. Deficient topsoil not amended with necessary nutrients and microorganisms for sustainable plant growth and erosion-resistant topsoil. 	<ul style="list-style-type: none"> Soil horizons should be removed and stored in segregated piles, preferably less than 1 meter high, until reapplied as topsoil. Topsoil stored longer than 6 months should be re-seeded to maintain microorganisms.
EP-5	Temporary Seeding and Planting	<ul style="list-style-type: none"> Improper calculation of seeding rate, based on seed purity and germination information. 	<ul style="list-style-type: none"> Inspect frequently to verify that vegetation is growing. Reseed areas to prevent sheet and rill erosion. Spot seed in small areas.
EP-6	Permanent Seeding and Planting	<ul style="list-style-type: none"> Improper calculation of seeding rate, based on seed purity and germination information. 	<ul style="list-style-type: none"> Inspect frequently to verify that vegetation is growing. Reseed areas to prevent sheet and rill erosion. Spot seed in small areas.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
EP-7	Mycorrhizae / Biofertilizers	<ul style="list-style-type: none"> Applying mycorrhizae at incorrect application rates. Applying too much phosphorous or applying fungicides that limit mycorrhizal effectiveness. 	<ul style="list-style-type: none"> If plants are not growing vigorously, analyze mycorrhizal density in soil to determine if more is needed.
EP-8	Mulches	<ul style="list-style-type: none"> Improper calculation of amount of mulch needed resulting in inadequate coverage. It is important to calculate the slope area and take into account the roughness, which can affect how much mulch is needed to obtain the specified application rate. Improperly applying bonded fiber matrix. If the matrix is not applied from multiple directions, it can result in “shadowing,” which results in inadequate coverage of the soil. Placing straw¹ without properly crimping, netting, or tackifying the straw to the ground. This can result in loose straw becoming mobilized by wind or water, and an inadequately protected slope. Insufficient straw depth to prevent erosion of soil and loss of seeds. 	<ul style="list-style-type: none"> Monitor for short-term performance (longevity of surface treatment) and long-term performance (vegetation establishment). Loss of mulch material and seed through sheet or rill erosion should be repaired through reapplication. General surface slippage or lack of vegetation establishment should be investigated and treated on a site specific basis. Reapply sufficient thickness of straw to cover soil and seeds.
EP-9	Compost Blankets ²	<ul style="list-style-type: none"> Application in areas of concentrated flow and at less than optimal thicknesses (see BMP for recommendations). 	<ul style="list-style-type: none"> Check compost thickness and inspect for signs of rill or gully erosion. Re-apply compost blanket to maintain specified thickness. Maintain runoff controls and divert upgradient flows.
EP-10	Erosion Control Blankets and Mats	<ul style="list-style-type: none"> Not enough staples holding a rolled erosion control product (RECP) in-place can result in erosion occurring under the blanket (underrilling). Stretching the RECP too tightly, rather than draping it across the terrain, can result in vegetation pushing the blanket up, losing contact with the soil. Installing the overlaps in wrong direction can result in the blanket 	<ul style="list-style-type: none"> Check for erosion and undermining. Repairs should be made immediately. Repair slope if washout or breakage occurs and re-install material.

¹ Local straw sources should be used. State agriculture authority may disallow use of straw from elsewhere due to spread of noxious weeds, disease, and other concerns.

² To prevent cross-contamination of storm water, compost source materials should be derived from “green” feedstocks that are free of contaminants (e.g., manure, treated or painted wood), and preferably certified accordingly.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
		<p>being lifted by the runoff. Providing inadequate overlaps between adjacent blankets can result in erosion occurring between the blankets.</p> <ul style="list-style-type: none"> • Not trenching the blanket at the top of slope can result in the blanket being lifted by the runoff, or water flowing under the blanket. • Improper soil preparation 	
EP-11	Soil Binders	<ul style="list-style-type: none"> • Product not applied at manufacturer's specification • Applying stabilizers/tackifiers without sufficient drying time before rainfall (typically 24 hours). • Selecting a product that is not best suited for the area installed (considering longevity, curing time, resistance to abrasion, and compatibility with existing vegetation). 	<ul style="list-style-type: none"> • Soil binders must be maintained by reapplying in high traffic areas, after storm events, or after being in-place for an extended period.
EP-12	Stabilization Mats	<ul style="list-style-type: none"> • Possible increased sedimentation or undesirable flow disruption if mats are placed incorrectly. 	<ul style="list-style-type: none"> • Check vehicles and equipment using mats for gas, oil and fluid leaks.
EP-13	Wind Erosion Control	<ul style="list-style-type: none"> • Inadequate application rate is used or binder selection is inappropriate for the soil type. 	<ul style="list-style-type: none"> • Water, tackifiers, or covers must be re-applied or maintained to maintain effectiveness.
EP-14	Live Staking	<ul style="list-style-type: none"> • Improper handling of living vegetation. It is important that the living vegetation be cut during its dormant period and handled properly. Placing the bud end rather than the butt end of a live stake into the ground, for example, can preclude the stake from rooting and leafing. It is also important to keep the cuttings moist prior to placement. 	<ul style="list-style-type: none"> • Irrigation required if installed in arid areas.
EP-15	Pole Planting	<ul style="list-style-type: none"> • Failure to soak the poles for 5 to 7 days or install the pole through the vadose zone and below the permanent water table.. 	<ul style="list-style-type: none"> • Inspect for vegetation growth in accordance with vegetation establishment criteria (Section 3.4)
EP-16	Live Fascines and Brush Wattles	<ul style="list-style-type: none"> • Toe erosion and/or flanking can cause loss of the structure, if not combined with a toe protection in areas where shear stresses and velocities exceed limits for the soils underlying the structure. Flanking can be caused by insufficient keying-in of the structure. 	<ul style="list-style-type: none"> • Fascines should be keyed into the bank at least 3 ft (1 m) on both upstream and downstream ends. • Proper backfilling is essential to the successful rooting of the fascine. • Inspections should occur after each of the first few floods, and/or twice the first year, and at least once each year thereafter.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
EP-17	Brush Box	<ul style="list-style-type: none"> Proper backfilling is essential to the successful rooting of the brush box. The backfill shall be worked into the cutting interstices during construction and compacted behind and below the bundle by walking on and working from the brush box terrace. 	<ul style="list-style-type: none"> Inspect for vegetation growth in accordance with vegetation establishment criteria (Section 3.4) Check for proper backfill and that non-rooting species are not more than 50% of woody material.
EP-18	Fascines with Subdrains	<ul style="list-style-type: none"> The subdrain must be properly designed, correctly sized and wrapped with a suitable geotextile to exclude fines and allow water through. 	<ul style="list-style-type: none"> Failure to inspect and flush the drain as necessary based on inspections via the clean-out access tube can lead to clogging and poor performance.
EP-19	Live Pole Drains	<ul style="list-style-type: none"> Use of pole drains when a surface runoff control measure is necessary 	<ul style="list-style-type: none"> Stakes must be reinstalled if loosened due to saturation of the slope or frost action. Rills and gullies around wattles must be repaired.
EP-20	Brush Packing or Live Gully Fill Repair	<ul style="list-style-type: none"> Seepage and runoff must be excluded from the fill area as much as possible to reduce risk of saturation and washout. 	<ul style="list-style-type: none"> Diversion of runoff away from fill areas must be maintained during initial stages of vegetation establishment. Check for wet spots or seeps in fill which indicate subsurface seepage problems. Examine surface of fill for evidence of runoff erosion such as rills.
EP-21	Sodding	<ul style="list-style-type: none"> Failure to use certified materials, properly prepare the subgrade (even surface of healthy soil, free of weeds and debris), and roll sod after installation to ensure good contact with soil. 	<ul style="list-style-type: none"> Inspect for vegetation growth in accordance with vegetation establishment criteria (Section 3.4) Maintenance should consist of mowing, weeding, and ensuring that the irrigation system is operating properly and as designed to sustain growth.
<i>Sediment Control (SC)</i>			
SC-1	Sediment Fence	<ul style="list-style-type: none"> Sediment fence stake pockets should be placed on the uphill side of the sediment fence, so if the stitching of the pocket pulls out, the fabric will still drape against the stakes. The bottom of the fabric of the fence should be trenched into the ground, or else water and sediment can flow under the sediment fence. The sediment fence should be placed on the contour, or else a "flume" will be created where flow and sediment can concentrate. A failure is likely to occur at such a concentration point, and the flume 	<ul style="list-style-type: none"> Sediment fences should be cleaned of accumulated sediment after each major storm, or when deposition is 1/3 of the barrier height. Breaks or overtopped areas should be replaced or repaired immediately. Fences should be repaired and the accumulated sediment dispersed to a stable area. Sediment fence should be removed when the area being protected is fully stabilized and prior to termination of permit coverage.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
		<p>will release concentrated flow and sediment down the face of the slope.</p> <ul style="list-style-type: none"> • Sediment fence is designed for sheet flow only, and should never be placed over concentrated flows, such as channels or streams. • Sediment fence is designed for relatively small drainage areas, and should not be placed at the bottom of a large drainage area that will overwhelm the sediment fence in the first storm event. 	
SC-2	Sand Bag Barrier	<ul style="list-style-type: none"> • Flooding when sand bags are used where gravel bags are appropriate. Sand bags are less permeable than gravel bags and should be used to block flow such as non-storm water discharges. 	<ul style="list-style-type: none"> • Barriers should be cleaned of accumulated sediment after each major storm.
SC-3	Gravel Bag Berm	<ul style="list-style-type: none"> • Use of gravel bags when sand bags are more appropriate. Gravel bags should be used for most sediment control applications but should not be relied on solely to block flows such as non-storm water from entering storm drains. 	<ul style="list-style-type: none"> • Barriers should be cleaned of accumulated sediment after each major storm.
SC-4	Straw Bale Dike ³ (note: some jurisdictions don't allow straw bale dikes)	<ul style="list-style-type: none"> • Not imbedding straw bales, or anchoring bales in place where required to reduce erosion under and around bales. 	<ul style="list-style-type: none"> • Sediment should be removed when it reaches a depth of 6 inches (15 cm) behind the barrier. • Bales showing signs of degradation (e.g., broken binding, fungus and seed growth, etc.) should be replaced.
SC-5	Rock and Brush Filters	<ul style="list-style-type: none"> • Flooding when filters are installed without sufficient space to allow for ponding behind filter. 	<ul style="list-style-type: none"> • Barriers should be cleaned of accumulated sediment after each major storm, or when deposition is 1/3 of berm height or 12 inches (30 cm), whichever comes first.
SC-6	Compost Berms and Socks	<ul style="list-style-type: none"> • Flooding when berms/socks are placed in areas without sufficient space for ponding behind berm. • Placement in areas of concentrated flow. 	<ul style="list-style-type: none"> • Barriers should be cleaned of accumulated sediment after each major storm, or when deposition has reached 1/3 of the exposed height of the berm.
SC-7	Fiber Rolls or Wattles	<ul style="list-style-type: none"> • When used as a slope interrupter device, fiber rolls must be properly trenched into the slope, and staked in place or flow will go underneath the slope interrupter devices and result in erosion. 	<ul style="list-style-type: none"> • If used as a sediment barrier (e.g. drain inlet protection), rolls should be cleaned of accumulated sediment after each major storm.

³ Straw bales are considered to be one of the least preferred BMPs due to rigorous maintenance requirements. In addition, some jurisdictions don't allow the use of straw bale dikes.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
SC-8	Storm Drain Inlet Protection	<ul style="list-style-type: none"> Using inlet protection measures that divert flow, rather than filter flow, can result in flooding of adjacent areas, or overwhelming adjacent inlets. Bypassing of inlet protection due to insufficient packing of the ends of Biofilter bags. Bypassing of the inlet protection due to overflow slots on drain inlet insert devices. 	<ul style="list-style-type: none"> Inlet filters for storm drains should be inspected and cleaned after each significant storm event and repaired promptly. Sediment shall be removed after each significant storm event and deposited in a stable area where it will not be subject to erosion. If the inlet protection device becomes clogged with sediment it must be carefully removed from the inlet and either cleaned or replaced.
SC-9	Temporary Sediment Basin	<ul style="list-style-type: none"> Constructing a basin that is too wide and not long enough can result in short-circuiting of the basin and discharge of sediment out of the basin. 	<ul style="list-style-type: none"> Temporary and permanent sediment basins should be cleaned of accumulated sediment after every significant storm event, or when sediment reaches ten percent of the basin capacity. Removed sediment shall be properly disposed of in a stable area that is not susceptible to erosion.
SC-10	Entrance/Exit Tracking Controls	<ul style="list-style-type: none"> While gravel for temporary construction entrances should be coarse enough (3-6 inches with no minus) to shake loose soil that adheres to the vehicles' wheels and undercarriage, it should not be so coarse and angular that it causes damage to tires. 	<ul style="list-style-type: none"> Stabilized gravel construction entrances shall be inspected for the transport of sediment onto public rights-of-way, and any tracked sediment shall be removed immediately by vacuum sweeping and not washed off by water trucks. If tracking is an ongoing problem, a wheel wash facility should be added to the site.
SC-11	Entrance / Exit Tire Wash	<ul style="list-style-type: none"> Installation of tire wash without other entrance/exit tracking controls, resulting in excessive sediment loading on tire wash. 	<ul style="list-style-type: none"> Failure to remove accumulated sediment from tire wash.
SC-12	Undercut Lots	<ul style="list-style-type: none"> Not providing sufficient capacity in undercut area serving as a temporary sediment trap. 	<ul style="list-style-type: none"> Remove accumulated sediment to maintain capacity in undercut area.
Runoff Control (RC)		A common error on construction sites occurs when runoff control measures are not installed before the rainy season. Even the best erosion and sediment control measures cannot perform properly if runoff is not controlled. Uncontrolled runoff down the face of a slope can result in severe gulying.	
RC-1	Slope Drain	<ul style="list-style-type: none"> Improper backfill around and under pipes can result in unstable contact between pipe and soil and water saturating soil and under pipe, causing undermining and erosion. 	<ul style="list-style-type: none"> Slope drains should be inspected after every significant storm event and repairs should be made promptly. Inspectors should check for scour holes and undermining, particularly at inlet and outlet points.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
RC-2	Energy Dissipator	<ul style="list-style-type: none"> • Energy dissipaters and rip rap that are not sized appropriately to protect against design velocities. 	<ul style="list-style-type: none"> • Lined drainage channels and energy dissipaters should be inspected at regular intervals and after major storms. Debris should be removed and repairs made where necessary. • Special attention should be given to outlets and points where concentrated flow enters the channel. Eroded areas should be repaired immediately. • Inspectors should check for sediment accumulation, piping, bank instability, and scour holes, and repairs should be made promptly.
RC-3	Diversion of Run-on	<ul style="list-style-type: none"> • Diversion channels must be properly sized to convey design flows around disturbed soil areas or other areas of concern. 	<ul style="list-style-type: none"> • Diversion measures must be maintained to remove debris and sediment, repair linings, and replace lost rip rap as-needed.
RC-4	Temp. Diversion Dike	<ul style="list-style-type: none"> • Dike should be adequately sized to prevent overtopping / breaching. 	<ul style="list-style-type: none"> • Excessive sediment accumulation in the ditch or swale behind the berm.
RC-5	Grass-lined Channel (Turf reinforcement mats)	<ul style="list-style-type: none"> • See installation problems for Erosion Control Blankets and Mats. 	<ul style="list-style-type: none"> • Lined drainage channels and energy dissipaters should be inspected at regular intervals and after major storms. Debris should be removed and repairs made where necessary. Special attention should be given to outlets and points where concentrated flow enters the channel. Eroded areas should be repaired immediately. Inspectors should check for sediment accumulation, piping, bank instability, and scour holes, and repair promptly.
RC-6	Trench Drain ⁴	<ul style="list-style-type: none"> • Failure to excavate the trench deep enough to reach the impermeable base of a perched groundwater system. 	<ul style="list-style-type: none"> • Clogged drains can lead to loss of drainage capacity and saturation and buildup of pore pressure in the streambank.
RC-7	Drop Inlet	<ul style="list-style-type: none"> • Improper design of drop inlet can result in excessive sediment in runoff due to inadequate residence time in ponded area. 	<ul style="list-style-type: none"> • Clogging of down-pipe resulting in overtopping of embankment and erosion of downstream dam face.
RC-8	Minimizing TSS During Instream	<ul style="list-style-type: none"> • Conducting in-stream construction during low flow periods when sediment impacts are the greatest. 	<ul style="list-style-type: none"> • Inspect the stability and performance of all erosion and sediment control measures used during in-stream

⁴ Designed and maintained to drain or de-water an area (French Drain); not an underground injection control (UIC) device. Discharge must be to surface.



Table 1. Common BMP Installation Mistakes and Maintenance Problems

BMP No.	BMP Description	Common Installation/Application Mistakes	Inspection/Maintenance Guidelines
	Construction		construction on a daily basis or more frequently during critical stages of in-stream construction.
RC-9	In-Stream Diversion Techniques	<ul style="list-style-type: none"> • Conducting diversion activities without confirming local, state and federal permitting and design requirements. 	<ul style="list-style-type: none"> • All stream diversions must be closely maintained and monitored. • Pumped diversions require 24-hour monitoring of pumps
RC-10	In-Stream Isolation Techniques	<ul style="list-style-type: none"> • Installing isolation methods such as cofferdams without obtaining applicable permits. 	<ul style="list-style-type: none"> • Inspect isolation devices daily or more frequently during storm events. Inspect for sediment buildup and any gaps, holes or scour related to the structure. Repair areas immediately.
RC-11	Check Dams	<ul style="list-style-type: none"> • Placing a check dam or barrier so that the abutments are not at a higher elevation than the center of the barrier can result in flow around the ends of the barrier. • Not trenching the bottom of the check dam or barrier can result in undermining of the barrier. 	<ul style="list-style-type: none"> • Check dams should be checked for undermining and/or short-circuiting and repaired or replaced if necessary. • Check dams should be cleaned after each significant storm event or when accumulated sediment reaches half the height of the check dam. • Check dams should be keyed into the channel banks a minimum of 18 inches to prevent flow around the dam.



Oregon DEQ

FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

BMP INSPECTION TYPE:

Initial Inspection Re-Inspection Final Special _____

(Note type of special inspection – e.g., complaint response, corrective action, etc.)

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WEATHER: _____ DATE: _____

RAINFALL IN LAST 24 HOURS: _____

RECEIVING WATER /DISCHARGE LOCATION (Note whether site discharges to UIC, 303(d)-listed or otherwise impaired water body and identify if special requirements apply): _____

INSPECTED BY: _____ (print name) _____ (title)

(signature)

Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided below each question or on an attached sheet. For self-inspections, the Contractor should indicate the location of needed correction(s), along with the date corrections are made, on the working ESCP Site Map, posted on-site.

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
1	Are the project <u>ESCP</u> and <u>Site Map</u> up to date, available on-site and being properly implemented?	§3.5.7 §3.5.10			
Notes:					
2	Are BMP's being <u>inspected</u> by the contractor in accordance with permit required frequencies and <u>maintained</u> based on inspections?	§8			
Notes:					
3	Are all <u>discharge points</u> free of any apparent pollutant discharges? Observe and document visual observations of turbidity, color, sheen and floating materials in discharge and if possible in receiving water upstream and downstream within 30 feet of the discharge from the site.	General Permit 1200-C Schedule B, Item 7			
Notes:					



FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
4	Are all <u>perimeter sediment controls</u> in-place where required by the ESCP, properly installed and well maintained?	§6.2.1			
<i>Notes:</i>					
5	Are all <u>storm drain inlets</u> properly protected where required by the ESCP, and well maintained?	§6.2.2			
<i>Notes:</i>					
6	Are <u>construction site entrances and exits</u> properly protected (i.e., through the use of stabilized entrance, tire wash, street sweeping, etc.) to control off-site tracking of sediment and construction related pollutants?	§6.2.4			
<i>Notes:</i>					
7	Are all <u>sediment traps, barriers, and basins</u> constructed in accordance with the ESCP, well maintained and functioning properly?	§6.2.3			
<i>Notes:</i>					
8	Have all <u>disturbed soil areas</u> not being actively worked been <u>temporarily stabilized</u> to protect against erosion in accordance with the ESCP?	§5			
<i>Notes:</i>					
9	Are all <u>other erosion prevention measures</u> in-place and functioning in accordance with the ESCP?	§5			
<i>Notes:</i>					
10	Are all <u>stockpiles</u> located in designated areas and properly protected (inactive - covered or perimeter controls; active - properly located away from storm drains)?	§7.2			
<i>Notes:</i>					



FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
11	Are <u>construction materials and equipment</u> properly stored in dedicated areas away from storm drain discharge locations with secondary containment where appropriate?	§7.2			
<i>Notes:</i>					
12	Are all <u>material handling</u> and storage areas clean and free of spills, leaks, or other deleterious materials?	§7.2			
<i>Notes:</i>					
13	Are all <u>equipment</u> storage and maintenance areas clean and free of spills, leaks, or any other deleterious materials?	§7.2			
<i>Notes:</i>					
14	Are <u>dust control measures</u> being appropriately implemented?	§5.3			
<i>Notes:</i>					
15	Is the site generally free of <u>litter and debris</u> and do <u>construction wastes</u> appear to be properly managed?	§7.2			
<i>Notes:</i>					
16	Are <u>hazardous materials and wastes</u> properly stored, including being covered and stored within berms to provide secondary containment?	§7.2			
<i>Notes:</i>					
17	Have spills or discharges occurred on-site (since the last inspection) that require notification to DEQ (i.e., visible sheen on public waters, over 42 gallons of oil on ground, wastewater overflows, or significant quantities of sediment)? DEQ must be notified orally within 24-hours of reportable discharges.	§ General Permit 1200-C Sch. A, Item 1 Sch. F, B.3 Sch F, B.6 Sch F, D.5			
<i>Notes:</i>					

**FORM 2. INSPECTION CHECKLIST FOR COMPLIANCE WITH
OREGON NPDES 1200-C GENERAL PERMIT**

Item No.	Item Description <i>Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided or on an attached sheet.</i>	YES	NO	N/A
NPDES 1200-C Schedule A – Limitation and Controls for Storm Water Discharges				
1	Performance Limitations –Is the project implementing an approved Erosion and Sediment Control Plan (ESCP) to prevent the discharge of significant amounts of sediment ¹ ?			
Notes:				
2	ESCP Preparation and Submittal – Is a copy of the approved ESCP available on-site?			
Notes:				
3	Does the ESCP contain and is the contractor implementing adequate procedures to meet local erosion and sediment and storm water management requirements?			
Notes:				
4	Is contractor implementing additional wet weather requirements required for land disturbance activities conducted during winter months (October through April) where slopes are greater than 5 % (or less if jurisdictional requirements mandate it) and soils have medium to high erosion potential?			
Notes:				
5	Are controls implemented for allowable non-storm water discharges to minimize sediment transport?			
Notes:				
6	Is there evidence of unallowable non-storm water discharges at the site ² ?			
Notes:				
7	ESCP Requirements – Is the ESCP Site Map (including applicable drawing details) up to date and does it adequately depict erosion and sediment control measures being implemented at the site?			
Notes:				
8	Required Controls and Practices – Are the following being implemented?			
	i. Graveled, paved, or constructed entrances, exits, and parking areas in-place?			
	ii. Unpaved roads on-site are graveled or have other effective measures in-place?			
	iii. No dripping from trucks containing saturated soils and/or use of water-tight trucks?			
	iv. Controls to prevent discharge of wash water from concrete trucks to surface waters?			

**FORM 2. INSPECTION CHECKLIST FOR COMPLIANCE WITH
OREGON NPDES 1200-C GENERAL PERMIT**

Item No.	Item Description <i>Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided or on an attached sheet.</i>	YES	NO	N/A
	v. Correct installation and use of all erosion and sediment control measures (see Table 1 of the Inspection Guidance Booklet or the OR DEQ Erosion and Sediment Control Manual)			
	vi. Procedures in place for prompt maintenance and repair of erosion and sediment control measures?			
<i>Notes:</i>				
9	Additional Controls and Practices – Are the following being implemented as required by the ESCP?			
	i. Minimizing areas of exposed soil and scheduling of grading activities to reduce erosion?			
	ii. Vegetative control practices (preservation of existing vegetation and vegetative erosion prevention practices)?			
	iii. Additional erosion prevention practices (mulching, erosion control blankets, soil tackifiers)?			
	iv. Sediment control practices (silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, rock outlet protection, sediment basins)?			
	v. Stockpile protection?			
	vi. Non-storm water controls (Spill prevention and response procedures, employee training, proper disposal procedures, maintenance of vehicles and equipment, covered material and waste storage areas)?			
<i>Notes:</i>				

**FORM 2. INSPECTION CHECKLIST FOR COMPLIANCE WITH
OREGON NPDES 1200-C GENERAL PERMIT**

Item No.	Item Description <i>Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided or on an attached sheet.</i>	YES	NO	N/A
10	Maintenance Requirements – Are the following being implemented as applicable?			
	a. Clean-up of any significant amounts of sediment within 24 hours of leaving the site? In-stream clean up per OR Div. of State Lands' requirements?			
	b. No intentional washing of sediment into storm sewers or drainage ways?			
	c. Removal of sediment trapped by silt fences when sediment reaches 1/3 of fence height?			
	d. Cleaning of catch basin filters when capacity is reduced by fifty percent?			
	e. Cleaning of sediment basins when capacity is reduced by fifty percent?			
	f. Install erosion and sediment controls before land disturbance except where controls are in the direct path of work?			
	g. Application of fertilizers per manufacturer's guidelines to minimize nutrients in runoff?			
	h. Site stabilization (vegetation, heavy mulch, temporary seeding or other method that does not required germination) when construction activities cease 30 days or more?			
	i. Proper storage, application, and disposal of toxic or hazardous materials?			
	j. Management of abandoned hazardous wastes, used oils, contaminated soils, etc. discovered during construction in accordance with DEQ approved procedures?			
	k. Operation and maintenance of any storm water treatment systems in accordance with an O&M plan approved by DEQ?			
<i>Notes:</i>				
11	Additional Requirements – Do practices at the site appear to violate water quality standards in OAR 340-041, including turbidity standards?			
<i>Notes:</i>				

**FORM 2. INSPECTION CHECKLIST FOR COMPLIANCE WITH
OREGON NPDES 1200-C GENERAL PERMIT**

Item No.	Item Description <i>Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided or on an attached sheet.</i>	YES	NO	N/A
NPDES 1200-C Schedule B – Minimum Monitoring Requirements				
12	Is the site being inspected by qualified personnel identified in the ESCP and in accordance with the permit required frequency ³ ?			
<i>Notes:</i>				
13	Are written site inspection records being kept in accordance with permit requirements and available on-site?			
<i>Notes:</i>				
NPDES 1200-C Schedule C – Compliance Schedule (Applies to sites with UIC discharges only)				
NPDES 1200-C Schedule D – Special Conditions (No site inspection items)				
NPDES 1200-C Schedule F – NPDES General Conditions				
14	Is site in compliance with applicable NPDES General Conditions including notification requirements for anticipated noncompliance and 24-hour spill reporting?			
<i>Notes:</i>				

Notes:

1. Significant amounts of sediment are described in Schedule A as: earth slides or mud flows leaving the construction site; concentrated flows that cause erosion not filtered prior to discharge; turbid flows not filtered prior to discharge; sediment deposits that drain to unprotected or poorly maintained storm drains or catch basins; sediment deposits on public or private streets outside of the permitted construction area; and sediment deposits on any adjacent property outside of the permitted construction area.
2. Allowable non-storm water discharges include firefighting activity, hydrant flushing and potable waterline flushing, air conditioning condensate, dewatering of uncontaminated groundwater, spring water, foundation or footer drain water.
3. Inspection frequency – Active Sites: Daily during storm water or snowmelt runoff and at least every 7 days and within 24 hours after any storm event greater than 0.5 inches in a 24-hour period. Inactive Sites: Every two weeks for sites that are inactive for greater than 7 days. Exposed areas must be stabilized and inspected before leaving an inactive site.