

CHAPTER 9 – EROSION AND SEDIMENT CONTROL DESIGN



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9.1 INTRODUCTION

This chapter lists the steps for developing a Erosion and Sediment Control (ESC) plan, which is a required component of a Drainage Submittal or permit. Controlling erosion and preventing sediment and other pollutants from leaving the project site during construction can be achieved by implementing the best management practices (BMPs) identified in this chapter. The ESC plan shall outline specific construction BMPs for a project site to avoid adverse stormwater impacts from construction activities on water resources, roads, drainage facilities, surrounding properties and other improvements. Potential impacts due to erosion and sedimentation include:

- Sediment accumulation in culverts, storm drains and open channels, resulting in decreased capacities and the potential for increased flooding and increased maintenance frequency;
- Sedimentation of storage ponds and swales, resulting in decreased infiltrative and storage capacity, and the potential for increased flooding and failure;
- Clogging and failure of Underground Injection Control (UIC) facilities;
- Destruction of vegetation, topsoil and seeds, making re-establishment of vegetation difficult;
- Increased turbidity, reducing water quality in water bodies; and,
- Air pollution due to fugitive dust.

Implementation of an effective ESC plan may help to reduce these potential impacts as well as other unforeseen environmental impacts and associated costs.

Although the construction phase of a project is usually considered a temporary condition, construction work may take place over several seasons. All BMPs used in the course of construction should be of sufficient size, strength, and durability to readily outlast the expected construction schedule and operate properly during the design storm rainfall conditions (see Basic Requirement No. 6 in Chapter 2 for design storm criteria).

9.2 APPLICABILITY

Land-disturbing activities are activities that result in a change in existing soil cover (vegetative or non-vegetative) or site topography. Land-disturbing activities include, but are not limited to, demolition, construction, clearing and grubbing, grading and logging. The following land-disturbing activities require an ESC plan:

- Major land-disturbing activities involving 1 acre or more of disturbed area; or,
- Minor land-disturbing activities, such as grading, involving less than 1 acre of disturbed area but requiring a permit by the local jurisdiction.

An ESC plan, when required, shall be submitted with either the road and drainage plans or the permit application, prior to any land-disturbing activity. Clearing and grading activities for developments will be permitted only if conducted pursuant to an accepted site development plan that establishes permitted areas of clearing, grading, cutting, and filling. When establishing these permitted clearing and grading areas, consideration shall be given to minimizing removal of existing trees and minimizing disturbance and compaction of native soils except as needed for building purposes. These permitted clearing and grading areas and any other areas with a preservation requirement, such as critical or sensitive areas, buffers, native growth protection easement areas or tree retention areas, shall be delineated on the site plans and development site plan. ESC plans are only required to address the area of land that is subject to the land-disturbing activity for which a permit is being requested and the area of land that will serve as the stockpile or staging area for materials.

9.3 EXEMPTIONS

An ESC plan is typically not required for the following activities:

- Commercial agriculture as regulated under RCW Chapter 84.34.020;
- Forest practices regulated under WAC Title 222, except for Class IV General Forest Practices that are conversions from timberland to other uses;
- Actions by a public utility or any other governmental agency to remove or alleviate an emergency condition, restore utility service, or reopen a public thoroughfare to traffic;
- Land divisions, interior improvements to an existing structure, and other activities requiring permits or approvals for which there is no physical disturbance to the surface of the land; and,
- Minor land-disturbing activities that do not require a permit.

Although an ESC plan may not be required for the situations noted above, that does not relieve the proponent from the responsibility of controlling erosion and sediment during construction nor the liability of damage claims associated with adverse impacts on off-site properties.

9.4 EROSION AND SEDIMENT CONTROL (ESC) PLAN

9.4.1 INTRODUCTION

The ESC plan must be prepared by a professional engineer currently licensed in the State of Washington with a good working knowledge of hydrology and ESC practices, or a Certified Erosion and Sedimentation Control Technician. A copy of the

ESC plan must be located on the construction site or within reasonable access to the site. As site construction progresses, the ESC plan may require modification to reflect changes in site conditions.

The ESC plan must accompany the road and drainage plans, grading plan, or permit request and should be integrated into the grading plan whenever possible. It must contain sufficient information to demonstrate to the local jurisdiction that potential problems associated with erosion, sediment, and pollution have been adequately addressed for the proposed project. The drawings and notes should be clear and concise and describe when and where each BMP is to be implemented.

9.4.2 MINIMUM REQUIREMENTS FOR ESC PLANS

At a minimum, all ESC plans must be legible, reproducible and on good quality 24" x 36" bond paper, and must contain the following information:

- Title block, north arrow, scale and plan preparation date;
- Name of property owner, permit applicant, anticipated contact person on-site, and the stamp and signature of the engineer who prepared the plan (note that for municipal projects, this information will not be available until the pre-construction conference);
- Vicinity map, section, township and range, project address, project boundaries and dimensions;
- Description of project, list of on-site soils and existing vegetation, location of any existing water bodies and/or critical areas;
- Summary description of ESC BMPs utilized (see Section 9.4.3);
- ESC Standard Plan Notes (see Appendix 9A);
- Construction Sequence (see Section 9.4.3)

9.4.3 BEST MANAGEMENT PRACTICES FOR ESC PLANS

BMPs must be used to comply with the requirements of this chapter. It is not the intent of this chapter to limit innovative or creative efforts to effectively control erosion and sedimentation. Experimental ESC management practices to improve erosion control technology and meet the purpose and intent of this chapter are encouraged as a means of solving erosion and sedimentation problems. Minor modifications to standard BMPs are considered experimental ESC management practices and, as with any proposed BMP, must be reviewed and accepted by the local jurisdiction. It is important to note that not only do new facilities and off-site properties need to be protected from erosion and sedimentation, but existing facilities on-site or downstream also need to be evaluated and protected if there is potential for damage due to lack of erosion control.

As the season and subsequent site conditions dictate, alterations to existing ESC BMPs may be warranted or additional ESC measures may be required. Note that items below that are shown in *italics* are considered *General Erosion and Sedimentation Control Notes* (see Appendix 9A for complete list). These notes shall be shown on the ESC plan, when applicable to the given project site.

BMPs are referenced in this chapter by their identification code in the September 2004 *Stormwater Management Manual for Eastern Washington* (e.g., BMP C101, BMP C102). Detailed examples and descriptions of these BMPs are included in Chapter 7 of the Eastern Washington manual. At a minimum, the following items shall be addressed in the ESC plan:

1. Construction Sequence

- *The following construction sequence shall be followed in order to best minimize the potential for erosion and sedimentation control problems:*
 - a) *Clear and grub sufficiently for installation of temporary ESC BMPs;*
 - b) *Install temporary ESC BMPs; constructing sediment trapping BMPs as one of the first steps prior to grading;*
 - c) *Clear, grub and rough grade for roads, temporary access points and utility locations;*
 - d) *Stabilize roadway approaches and temporary access points with the appropriate construction entry BMP;*
 - e) *Clear, grub and grade individual lots or groups of lots;*
 - f) *Temporarily stabilize, through re-vegetation or other appropriate BMPs, lots or groups of lots in situations where substantial cut or fill slopes are a result of the site grading;*
 - g) *Construct roads, buildings, permanent stormwater facilities (i.e. inlets, ponds, UIC facilities, etc.);*
 - h) *Protect all permanent stormwater facilities utilizing the appropriate BMPs;*
 - i) *Install permanent ESC controls, when applicable; and,*
 - j) *Remove temporary ESC controls when:*
 - ◆ *Permanent ESC controls, when applicable, have been completely installed;*
 - ◆ *All land-disturbing activities that have the potential to cause erosion or sedimentation problems have ceased; and,*
 - ◆ *Vegetation had been established in the areas noted as requiring vegetation on the accepted ESC plan on file with the local jurisdiction.*

2. *Clearing Limits*

- Distinctly mark all clearing limits, both on the plans and in the field—taking precaution to visibly mark separately any sensitive or critical areas, and their buffers, and trees that are to be preserved—prior to beginning any land-disturbing activities, including clearing and grubbing; and,
- If clearing and grubbing has occurred, there is a window of 15 days in which construction activity must begin, otherwise the cleared area must be stabilized.
- Suggested BMPs:
 - BMP C101: Preserving Natural Vegetation
 - BMP C102: Buffer Zones
 - BMP C103: High Visibility Plastic or Metal Fence
 - BMP C104: Stake and Wire Fence

3. *Construction Access Route*

- Limit access for construction vehicles to one route whenever possible;
- Stabilize the construction access route with quarry spalls or crushed rock to minimize the tracking of sediment onto roadways;
- *Inspect all roadways, at the end of each day, adjacent to the construction access route. If it is evident that sediment has been tracked offsite and/or beyond the roadway approach, removal and cleaning is required.*
- *If sediment removal is necessary prior to street washing, it shall be removed by shoveling or pickup sweeping and transported to a controlled sediment disposal area.*
- *If street washing is required to clean sediment tracked offsite, once sediment has been removed, street wash wastewater shall be controlled by pumping back on-site or otherwise prevented from discharging into systems tributary to waters of the state;*
- Locate wheel washes or tire baths, if applicable to ESC plan, on site. Dispose of wastewater into a separate temporary on-site treatment facility in a location other than where a permanent stormwater facility is proposed; and,
- *Restore construction access route equal to or better than the pre-construction condition.*
- Suggested BMPs:
 - BMP C105: Stabilized Construction Entrance
 - BMP C106: Wheel Wash

- BMP C107: Construction Road/Parking Area Stabilization

4. *Install Sediment Controls*

- *Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum extent practical;*
- Pass stormwater runoff from disturbed areas through a sediment pond prior to leaving a construction site or discharging to an infiltration facility;
- Keep sediment on the project site, to the maximum extent practical, in order to protect adjacent properties, water bodies, and roadways;
- Stabilize earthen structures such as dams, dikes, and diversions with either quarry spalls, seed or mulch, or a combination thereof;
- Locate sediment facilities such that they will not interfere with natural drainage channels or streams; and,
- *Inspect sediment control BMPs weekly at a minimum, daily during a storm event, and after any discharge from the site (stormwater or non-stormwater). The inspection frequency may be reduced to once a month if the site is stabilized and inactive.*
- Suggested BMPs:
 - BMP C230: Straw Bale Barrier
 - BMP C231: Brush Barrier
 - BMP C232: Gravel Filter Berm
 - BMP C233: Silt Fence
 - BMP C234: Vegetated Strip
 - BMP C235: Straw Wattles
 - BMP C240: Sediment Trap
 - BMP C241: Temporary Sediment Pond

5. *Soil Stabilization*

- Select appropriate BMPs to protect the soil from the erosive forces of raindrop impact, flowing water and wind, taking into account the expected construction season, site conditions and estimated duration of use;
- *Control fugitive dust from construction activity in accordance with state and local air quality control authorities with jurisdiction over the project area;*
- *Stabilize exposed unworked soils (including stockpiles), whether at final grade or not, within 10 days during the regional dry season (July 1 through September 30) and within 5 days during the regional wet season*

(October 1 through June 30). Soils must be stabilized at the end of a shift before a holiday weekend if needed based on the weather forecast. This time limit may only be adjusted by a local jurisdiction with a “Qualified Local Program,” if it can be demonstrated that the recent precipitation justifies a different standard and meets the requirements set fourth in the Construction Stormwater General Permit; and,

- Stabilization practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabric and mats, soil application of polyacrylamide (PAM) and the early application of gravel base on areas to be paved, and dust control.
- Suggested BMPs:
 - BMP C120: Temporary and Permanent Seeding
 - BMP C121: Mulching
 - BMP C122: Nets and Blankets
 - BMP C123: Plastic Covering
 - BMP C124: Sodding
 - BMP C125: Topsoiling
 - BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection
 - BMP C130: Surface Roughening
 - BMP C131: Gradient Terraces
 - BMP C140: Dust Control

6. Protection of Inlets

- *Protect inlets, drywells, catch basins and other stormwater management facilities from sediment, whether or not facilities are operable, so that stormwater runoff does not enter the conveyance system (both on and off site) without being treated or filtered to remove sediment;*
- *Keep roads adjacent to inlets clean; sediment and street wash water shall not be allowed to enter the conveyance system (both on and offsite) without prior treatment;*
- *Inspect inlets weekly at a minimum and daily during storm events. Inlet protection devices shall be cleaned or removed and replaced before 6 inches of sediment can accumulate.*
- Suggested BMP:
 - BMP C220: Storm Drain Inlet Protection

7. *Runoff from Construction Sites*

- Protect down-gradient properties, waterways, and stormwater facilities from possible impacts due to increased flow rates, volumes, and velocities of stormwater runoff from the project site that may temporarily occur during construction;
- *Construct stormwater control facilities (detention/retention storage pond or swales) before grading begins. These facilities shall be operational before the construction of impervious site improvements; and,*
- Protect permanent infiltration ponds that are used for flow control during construction.
- Suggested BMPs:
 - BMP C240: Sediment Trap
 - BMP C241: Temporary Sediment Pond

8. *Washout Site for Concrete Trucks and Equipment*

- Designate the location of a slurry pit where concrete trucks and equipment can be washed out. Slurry pits are not to be located in or upstream of a swale, drainage area, stormwater facility or water body, or in an area where a stormwater facility is existing or proposed.
- Suggested BMP:
 - BMP C151: Concrete Handling

9. *Material Storage/Stockpile*

- Identify locations for storage/stockpile areas, within the proposed ESC plan boundaries, for any soil, earthen and landscape material that is used or will be used on-site;
- *Stockpile materials (such as topsoil) on-site, keeping off roadway and sidewalks; and,*
- Maintain on-site, as feasible, items such as gravel and a roll of plastic, for emergency soil stabilization during a heavy rain event, or for emergency berm construction.
- Suggested BMP:
 - BMP C150: Materials On Hand

10. *Cut and Fill Slopes*

- Consider soil type and its erosive properties;

- Divert any off-site stormwater run-on or groundwater away from slopes and disturbed areas with interceptor dikes, pipes or temporary swales. Off-site stormwater shall be managed separately from stormwater generated on-site;
- Reduce slope runoff velocities by reducing the continuous length of slope with terracing and diversion, and roughening the slope surface;
- Place check dams at regular intervals within ditches and trenches that are cut into a slope; and,
- Stabilize soils on slopes, where appropriate.
- Suggested BMPs:
 - BMP C120: Temporary and Permanent Seeding
 - BMP C130: Surface Roughening
 - BMP C131: Gradient Terraces
 - BMP C200: Interceptor Dike and Swale
 - BMP C201: Grass-Lined Channels
 - BMP C204: Pipe Slope Drains
 - BMP C205: Subsurface Drains
 - BMP C206: Level Spreader
 - BMP C207: Check Dams
 - BMP C208: Triangular Silt Dike (Geotextile-Encased Check Dam)

11. Stabilization of Temporary Conveyance Channels and Outlets

- Design, construct and stabilize all temporary on-site conveyance channels to prevent erosion from the expected flow velocity of a 2-year, NRCS Type II, 24-hour frequency storm or 2-year Rational Method event, in the post-developed condition; and,
- Stabilize outlets of all conveyance systems adequately to prevent erosion of outlets, adjacent streambanks, slopes and downstream reaches.
- Suggested BMPs:
 - BMP C202: Channel Lining
 - BMP C209: Outlet Protection

12. Dewatering Construction Site

- Discharge any effluent of dewatering operations that has similar characteristics to stormwater runoff at the site, such as foundation, vault,

and trench dewatering, into a controlled system prior to discharge into a sediment trap or sediment pond; and,

- Handle highly turbid or otherwise contaminated dewatering effluent, such as from a concrete pour, construction equipment operation, or work inside a coffer dam, separately from stormwater disposed of on-site.
- Consider other disposal options such as:
 - infiltration;
 - transportation off site for legal disposal in a way that does not pollute;
 - treatment and disposal on-site with chemicals or other technologies;and,

13. Control of Pollutants Other Than Sediment on Construction Sites

- Control on-site pollutants, such as waste materials and demolition debris, in a way that does not cause contamination of stormwater or groundwater. Woody debris may be chopped or mulched and spread on-site;
- *Cover, contain and protect all chemicals, liquid products, petroleum products, and non-inert wastes present on-site from vandalism (see Chapter 173-304 WAC for the definition of inert waste), use secondary containment for on-site fueling tanks;*
- *Conduct maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system repairs, solvent and de-greasing operations, fuel tank drain down and removal, and other activities that may result in discharge or spillage of pollutants to the ground or into stormwater runoff using spill prevention measures, such as drip pans. Clean all contaminated surfaces immediately following any discharge or spill incident. If raining, perform on-site emergency repairs on vehicles or equipment using temporary plastic over and beneath the vehicle;*
- *Conduct application of agricultural chemicals, including fertilizers and pesticides, in such a manner, and at application rates, that inhibits the loss of chemicals into stormwater runoff facilities. Amend manufacturer's recommended application rates and procedures to meet this requirement, if necessary; and,*
- Locate pH-modifying sources, such as bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and cutting, exposed aggregate processes, and concrete pumping and mixer washout waters, downstream and away from any stormwater facilities or location of proposed stormwater facilities. Adjust pH if necessary to prevent violations of water quality standards. Obtain approval from Ecology for using chemicals other than liquid CO₂ or dry ice to adjust pH.

- Suggested BMPs:
 - See also Chapter 10 – Source Control
 - BMP C151: Concrete Handling
 - BMP C152: Sawcutting and Surfacing Pollution Prevention

14. Permanent BMPs

- Include permanent BMPs, if necessary, in the ESC plan to ensure the successful transition from temporary BMPs to permanent BMPs; and,
- Restore and rehabilitate temporary BMPs that are proposed to remain in place after construction as permanent BMPs.

15. Maintenance of BMPs

- *Inspect on a regular basis (at a minimum weekly, and daily during/after a runoff producing storm event) and maintain all ESC BMPs to ensure successful performance of the BMPs. Conduct maintenance and repair in accordance with individual ESC BMPs outlined in this section; and,*
- *Remove temporary ESC BMPs within 30 days after they are no longer needed. Permanently stabilize areas that are disturbed during the removal process.*

9.4.4 MODIFICATION TO ESC PLANS

ESC plans may be modified after submittal to the reviewing agency. An amended plan shall be submitted to illustrate any modifications to the methods used to prevent and control erosion and sedimentation.

9.5 ADDITIONAL INFORMATION REGARDING ESC PLANS

9.5.1 PERFORMANCE STANDARDS

The following performance standards represent a minimum threshold for controlling soil erosion and sedimentation caused by land-disturbing activities and will be used to determine if the requirements of this chapter have been met:

1. Minimize Tracking onto Roadways

This performance standard has not been met if soil, dirt, mud or debris is visibly tracked onto the road area and a reasonable attempt to control it through the use of ESC BMPs is not evident.

2. Protection of Roadways, Properties and Stormwater Facilities

This performance standard has not been met if there is visible downstream deposition of soil, dirt, mud or debris, originating from the project site, on adjacent or down-gradient roads, properties or stormwater systems.

3. Proper Washout of Concrete Trucks and Equipment

This performance standard has not been met if there is observation or evidence of concrete washout outside the area designated for concrete washout on the accepted ESC plan.

4. Protection of Water Bodies, Streams and Wetlands

This performance standard has not been met if there is obvious turbidity or deposition of soil, dirt, mud, or debris from the project site into adjacent water bodies or into sensitive or critical areas and their buffers. In addition, the performance standard requires that no construction activity, material or equipment encroach into sensitive or critical areas.

9.5.2 MAINTENANCE RESPONSIBILITY

The proponent is responsible to ensure that BMPs are used, maintained, and repaired so that the performance standards continue to be met. After all land-disturbing activity is complete and the site has been permanently stabilized, maintenance and the prevention of erosion and sedimentation is the responsibility of the property owner. Special criteria regarding the degradation of water resources are found in the Washington Administrative Code of various state agencies such as the Departments of Ecology, Natural Resources, and Fish and Wildlife.

9.5.3 ENFORCEMENT AND APPEALS PROCESS

Review the local jurisdiction's code to determine the enforcement and appeal processes for violation of the above performance standards.

APPENDIX 9A – ESC STANDARD PLAN NOTES

The following ESC Standard Plan Notes originate from Section 9.4.3. These notes are an overall set; use only what applies to the given project.

1. The following construction sequence shall be followed in order to best minimize the potential for erosion and sedimentation control problems:
 - (a) Clear and grub sufficiently for installation of temporary ESC BMPs;
 - (b) Install temporary ESC BMPs, constructing sediment trapping BMPs as one of the first steps prior to grading;
 - (c) Clear, grub and rough grade for roads, temporary access points and utility locations;
 - (d) Stabilize roadway approaches and temporary access points with the appropriate construction entry BMP;
 - (e) Clear, grub and grade individual lots or groups of lots;
 - (f) Temporarily stabilize, through re-vegetation or other appropriate BMPs, lots or groups of lots in situations where substantial cut or fill slopes are a result of the site grading;
 - (g) Construct roads, buildings, permanent stormwater facilities (i.e. inlets, ponds, UIC facilities, etc.);
 - (h) Protect all permanent stormwater facilities utilizing the appropriate BMPs;
 - (i) Install permanent ESC controls, when applicable; and,
 - (j) Remove temporary ESC controls when:
2. Permanent ESC controls, when applicable, have been completely installed;
3. All land-disturbing activities that have the potential to cause erosion or sedimentation problems have ceased; and,
4. Vegetation had been established in the areas noted as requiring vegetation on the accepted ESC plan on file with the local jurisdiction.
5. Inspect all roadways, at the end of each day, adjacent to the construction access route. If it is evident that sediment has been tracked off site and/or beyond the roadway approach, cleaning is required.
6. If sediment removal is necessary prior to street washing, it shall be removed by shoveling or pickup sweeping and transported to a controlled sediment disposal area.
7. If street washing is required to clean sediment tracked off site, once sediment has been removed, street wash wastewater shall be controlled by pumping back on-site or otherwise prevented from discharging into systems tributary to waters of the state.
8. Restore construction access route equal to or better than the pre-construction condition.

9. Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum extent practical.
10. Inspect sediment control BMPs weekly at a minimum, daily during a storm event, and after any discharge from the site (stormwater or non-stormwater). The inspection frequency may be reduced to once a month if the site is stabilized and inactive.
11. Control fugitive dust from construction activity in accordance with the state and/or local air quality control authorities with jurisdiction over the project area.
12. Stabilize exposed unworked soils (including stockpiles), whether at final grade or not, within 10 days during the regional dry season (July 1 through September 30) and within 5 days during the regional wet season (October 1 through June 30). Soils must be stabilized at the end of a shift before a holiday weekend if needed based on the weather forecast. This time limit may only be adjusted by a local jurisdiction with a “Qualified Local Program,” if it can be demonstrated that the recent precipitation justifies a different standard and meets the requirements set fourth in the Construction Stormwater General Permit.
13. Protect inlets, drywells, catch basins and other stormwater management facilities from sediment, whether or not facilities are operable.
14. Keep roads adjacent to inlets clean.
15. Inspect inlets weekly at a minimum and daily during storm events.
16. Construct stormwater control facilities (detention/retention storage pond or swales) before grading begins. These facilities shall be operational before the construction of impervious site improvements.
17. Stockpile materials (such as topsoil) on site, keeping off of roadway and sidewalks.
18. Cover, contain and protect all chemicals, liquid products, petroleum product, and non-inert wastes present on site from vandalism (see Chapter 173-304 WAC for the definition of inert waste), use secondary containment for on-site fueling tanks.
19. Conduct maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system repairs, solvent and de-greasing operations, fuel tank drain down and removal, and other activities that may result in discharge or spillage of pollutants to the ground or into stormwater runoff using spill prevention measures, such as drip pans. Clean all contaminated surfaces immediately following any discharge or spill incident. If raining over equipment or vehicle, perform emergency repairs on site using temporary plastic beneath the vehicle.
20. Conduct application of agricultural chemicals, including fertilizers and pesticides, in such a manner, and at application rates, that inhibits the loss of chemicals into stormwater runoff facilities. Amend manufacturer’s recommended application rates and procedures to meet this requirement, if necessary.
21. Inspect on a regular basis (at a minimum weekly, and daily during/after a runoff producing storm event) and maintain all erosion and sediment control BMPs to ensure successful performance of the BMPs. Note that inlet protection devices shall be cleaned or removed and replace before six inches of sediment can accumulate.

22. Remove temporary ESC BMPs within 30 days after the temporary BMPs are no longer needed. Permanently stabilize areas that are disturbed during the removal process.

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