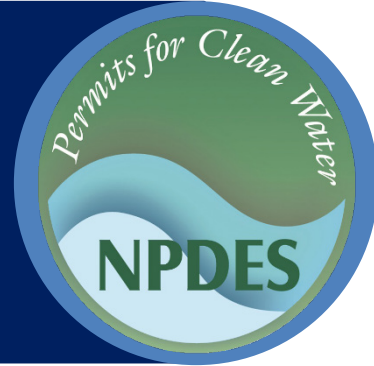




# Stormwater Best Management Practice

## Construction Phase Plan Review



**Minimum Measure:** Construction Site Stormwater Runoff Control  
**Subcategory:** Municipal Program Oversight

### Description

Municipal separate storm sewer system (MS4) permittees should have procedures for site plan review that incorporate consideration of potential water quality impacts. State or EPA Construction General Permit (CGP) requirements include requirements to develop stormwater pollution prevention plans for projects that disturb 1 acre of land or more (sometimes less depending on local requirements) and to identify erosion and sediment controls (ESCs) as well as controls for “other waste” at the site. Construction site stormwater controls reduce the generation and transport of pollutants and sediment in stormwater discharges from construction activities—generally by requiring the project applicant (either the design engineer or construction staff) to develop a stormwater pollution prevention plan (SWPPP) to control pollutants and stormwater discharges. The SWPPP is broader in scope than an ESC plan or site plan and encompasses both. EPA’s *Developing Your Stormwater Pollution Prevention Plan* guide provides additional information about developing a construction SWPPP (U.S. EPA, 2007).

This fact sheet describes the construction phase plan review process to meet MS4 permit requirements. Related activities include a [municipal construction inspection program](#), [contractor training](#) and [local ordinances for construction site stormwater controls](#).

### Program Implementation

Municipal staff who are familiar with the components of the SWPPP and applicable local regulations should review ESC plans to ensure they address local requirements and consider water quality impacts. ESC plans are generally part of the SWPPP; MS4 permittees can choose to review the entire SWPPP or just the site plan portion, depending on how they implement their municipal program.

A successful review program will support the MS4 permittee’s ability to ensure that project applicants achieve ESC requirements using stormwater controls



Municipal staff reviewing a construction plan.

that may include non-structural (e.g., good housekeeping) and structural (e.g., silt fence) practices to reduce stormwater pollutant discharges from construction sites.

### Construction Plan Review Procedures

Developing construction plan review procedures typically includes the following four topics:

- *Identifying responsible plan review staff.* Some MS4 permittees review ESC plans through an existing permit application process. The permittee should clearly identify staff responsible for ESC plan review. The permittee should also ensure that there is periodic feedback between the plan review staff and inspection staff to make sure that construction staff install the approved controls in the plans at the construction site and that the controls are properly functioning.
- *Developing a system to track plans.* Most MS4 permittees already have systems to track plans that project applicants have submitted for review. Some MS4 permittees have also identified projects that may need coverage under their state CGPs. One particularly effective way that some have used to address CGP coverage involves using a construction project tracking system that requires

project applicants to submit proof of their Notice of Intent submittal to the permitting authority before approving a project. Some MS4 permittees notify project applicants that they should apply for permit coverage for projects disturbing more than 1 acre that discharge stormwater.

- This system could also include specifics about the ESC plan, such as the site size and the plan's review status. After a construction project begins, the system should ideally track information on inspection and enforcement actions related to that site and identify a construction staff point of contact.
- *Developing tools and procedures for consistent plan review.* Permittees should develop tools such as checklists to ensure that plan reviews are consistent and thorough. These checklists should address the ESC plan elements that this fact sheet describes below, in addition to the common issues and problems inspectors find at sites.
- *Training municipal staff.* Plan review staff should receive training on the local selection, installation and maintenance requirements for the ESC measure, as well as EPA/state construction permitting requirements. Many sources offer training, including the [International Erosion Control Association](#).

### Elements of an Effective ESC Plan

Plan review staff should check site plans to ensure they address common, critical elements and comply with local requirements. Some MS4 permittees also review site plans to see if they comply with state and/or EPA CGP requirements, as applicable. The following are elements of an effective ESC plan (adapted from MDE, NRCS, & MASCD [2011] and MPCA [2017]) that should be checked as part of the plan review process:

1. *Minimize clearing and grading.* ESC plans should take all measures possible to avoid clearing/grading stream buffers, forest conservation areas, wetlands, springs and seeps, highly erodible soils, steep slopes, environmental features, and stormwater infiltration areas. They should clearly delineate and convey limits of disturbance to construction staff.
2. *Protect waterways.* ESC plans should identify waterbodies on-site and adjacent to the site. If construction activities occur near a waterbody, clearing/grading activities should be minimal and ESC plans should include silt fencing and/or earthen dikes.
3. *Phase construction to limit soil exposure.* ESC plans should break activities into phases. Plans should limit grading activities to the phase immediately under construction to decrease the time that soil is exposed, which, in turn, decreases the potential for erosion. Additional phases should begin when the last phase is near completion and preferably when construction staff have stabilized exposed soil. Construction scheduling should facilitate the installation of ESC measures before the start of construction, detail time limits for soil stabilization after grading occurs and schedule maintenance.
4. *Stabilize exposed soils.* ESC plans should stabilize exposed soils within two weeks of the onset of earth-disturbing activities. The long-term goal is to establish permanent vegetation after each construction phase. [Mulch](#), [hydroseeding](#), [geotextile](#) or other soil coverage measures may protect exposed soil while facilitating vegetation growth. The ESC plan should detail the appropriate plant species to seed, as well as weather and climactic conditions necessary for successful vegetation establishment.
5. *Protect steep slopes and cuts.* ESC Plans should avoid cutting and grading steep slopes (>15 percent) wherever possible. If a steep slope exists, ESC plans should redirect all water flowing onto the slope with terraces, diversions or a [slope drain](#). They should also require anchoring of the [silt fence](#) at the top and toe of the slope, although this measure may not provide adequate protection by itself. On steep slopes, ESC plans should combine jute netting and erosion control blankets ([geotextiles](#)) with seeding, soil matting or mulching, as seeding alone may not be effective.
6. *Install perimeter controls to filter sediments.* ESC plans should include ESC practices, such as silt fences, around the perimeter of the construction site. Additional practices, such as a [fiber roll](#) on the inside (site-facing) of the silt fence, further improve filtration. In areas of heavy flows or breach concern, ESC plans should include a properly sized earthen dike with a stabilized outlet. In addition, plans should include adequate [inlet controls](#) to protect catch basin

7. inlets receiving stormwater flows from the construction site.
8. *Employ advanced sediment settling controls.* ESC plans should implement **sediment basins** or other large-scale sediment control practices, if necessary, where space is available; however, discharge from basins should be non-turbid. The use of skimmers and multiple-cell basins supports sediment dropout.
9. *Certify and train site operators/contractors on SWPPP and ESC plan implementation.* Site operators and their staff should receive training to effectively install and manage ESC practices. Meetings and site inspections by permittee staff provide opportunities to discuss effective ESC installation and maintenance. Permittee inspectors should strongly commit to contractor education to develop a constructive and responsive relationship.
10. *Control waste at the construction site.* The ESC plan and SWPPP should describe the type of construction waste at the site (e.g., discarded building materials, concrete truck washout, chemicals, litter, sanitary waste) and how construction staff will control that waste to minimize adverse impacts to water quality. For example, the plan should clearly label **concrete washout** and trash storage areas, which construction staff should contain and locate away from waterbodies and catch basin inlets. If necessary, a design engineer should develop a **spill prevention and control plan**.
11. *Inspect and maintain ESC practices.* Each ESC plan should clearly describe construction **ESC practice inspection and maintenance procedures**, including inspection staff and inspection frequency. Ideally, the plan should include an example inspection form. Inspections should occur regularly and immediately before and after rain events. The plan should also describe how construction staff will maintain the ESC practices.

#### Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's National Menu of Best Management Practices (BMPs) for Stormwater website

## References

Maryland Department of the Environment (MDE), Natural Resources Conservation Service (NRCS), & Maryland Association of Soil Conservation Districts (MASCD). (2011). *2011 Maryland standards and specifications for soil erosion and sediment control*. Baltimore, MD: Maryland Department of the Environment.

Minnesota Pollution Control Agency. (2017). *MS4 staff site plan review guidance*. In *Minnesota stormwater manual*.

U.S. Environmental Protection Agency (U.S. EPA). (2007). *Developing your stormwater pollution prevention plan: A guide for construction sites* (EPA 833-R-06-004).

#### Disclaimer

*This fact sheet is intended to be used for informational purposes only. These examples and references are not intended to be comprehensive and do not preclude the use of other technically sound practices. State or local requirements may apply.*