

CHAPTER 6

INSTALLATION AND MAINTENANCE OF BEST MANAGEMENT PRACTICES

Introduction

Changes made to the land during construction have far reaching effects, both on and off the construction site. Contractors can make important contributions to protecting water quality by installing the appropriate practices. Because of the many potential effects on the local ecosystem, the services of qualified engineering, design and environmental professionals are necessary in the land grading and construction activities associated with developing a site.

This chapter describes practices to help prevent or minimize erosion and sediment movement and pollutant discharge from a construction site. Remember also that pollutants can move through the soil on the construction site, enter shallow groundwater directly and contaminate drinking water supplies. This can be prevented by cleaning up the site before construction begins and by preventing pollutants from entering the site.

Use of Sections in This Chapter

This chapter provides general information on practices and controls. (For more detailed BMP design criteria, refer to the design manuals listed below.) This chapter is organized in sections by the type of controls and the practice or the function they provide.

The first section is Site Preparation, it covers practices and procedures that should be operational prior to land clearing and grading, such as construction exit pads and wheel wash structures as well as practices to install as topsoil is removed and grading begins.

The second section, titled Pollution Prevention and Good Housekeeping, includes those types of devices and site practices employed to reduce or eliminate pollutants other than sediment from discharging from the construction site. This would include solid waste, sanitary waste, petroleum or hazardous waste, concrete wash water and other pollutants.

The third section discusses surface stabilization or erosion control techniques that are necessary as soon as possible following land disturbing activities. Most erosion control devices work by dissipating the energy in the raindrop to reduce the potential for soil to be dislodged during a storm event. However, there are a wide range of surface stabilization options available depending on the function they need to perform.

Remember that erosion controls are preventive measures to keep soil in place, whereas sediment control devices are remediation measures for sediment that is moving with the stormwater flow.

Section four discusses runoff or sediment controls. These types of controls work primarily by slowing the flow and ponding the stormwater. This dissipates the energy in the flowing water so suspended sediment can settle out of the water and not leave the construction site. This results in treated or cleaner stormwater leaving the site.

Section five of this chapter includes any practice installed during construction that is designed as a permanent feature to control the stormwater discharge for quantity and/or quality once the site is fully stabilized and operational (post construction stormwater control). These permanent devices are built during the construction phase of the project but are not typically put into use until after construction is complete and the site is stabilized. Today's stormwater management goals require permanent practices that control stormwater quality as well as quantity. The site manager or job foreman should be aware of all planned post-construction measures designed for this purpose.

The site superintendent can refer to [Section 5](#) of this chapter for a better understanding of permanent water quality devices shown on site plans, in addition to understanding placement of stream buffers and the placement of stormwater control measures. To differentiate from temporary (during construction) controls, permanent/post construction controls will be referred to as Stormwater Control Measures, or SCMs, and not BMPs which refer to temporary controls. This section will also discuss how to retro-fit controls from use as a sediment control during construction to a post-construction operational or SCM control. This discussion will include timing of the construction and functioning of these types of control devices.

Each section in this chapter has an index tab, so that finding the practice is easier. To help the contractor, site manager, job foreman or inspector, each section is broken into the following six basic components.

Practice Description

Defines the practice, describes where and for what it is used, and may include other basic information.

Recommended Minimum Requirements

Gives some suggested specifications or requirements for the practices that should be respected as minimums. However, this is only a guide and any required design standards should be followed. This part also suggests either a qualified or registered design professional (see [Glossary](#)) be the designer of the practice. Note: Site specific designs for the watershed, topography and soils may dictate more restrictive requirements.

Construction Installation

Gives step-by-step procedures for installing the practices, with a construction verification checklist at the end. For some practices, several options are given. (e.g., Soil Bioengineering for Slope Protection covers nine different practices).

Maintenance, Inspection and Removal

Designed to help the site manager or a designated employee ensure that needed inspections and maintenance activities are completed.

Common Problems and Solutions

Lists problems that are often found on sites and recommendations for solutions. Many of the common problems can be avoided by using the recommended minimum requirements and following the construction sequence. This tips can also be used to troubleshoot problems and when the design professional may need to be contacted.

Design Manual References

Reference manuals to be followed for design plans and specifications include but are not limited to the following:

Georgia Stormwater Management Manual, Atlanta Regional Commission, August 2001.
www.georgiastormwater.com/

Kansas City APWA Standards and Specifications BMP Manual
kcmetro.apwa.net/chapters/kcmetro/specifications.asp

Low Impact Development Manual for Michigan: A Design Guide for Implementers and Reviewers
SEMCOG 2008 www.semco.org/lowimpactdevelopmentreference.aspx

Manual of Best Management Practices for Stormwater Quality March 2008, Mid America Regional Council. kcmetro.apwa.net/chapters/kcmetro/specs/APWA_BMP_Manual_Mar08.pdf

Maryland Stormwater Design Manual, Volumes I & II, Maryland Department of the Environment, 2000. 2009 Revised. Maryland Department of the Environment, Baltimore, MD.
www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.asp.

Springfield Storm Drainage Criteria Manual draft 2007. Wright Water Engineers,.
www.springfieldmo.gov/stormwater/developer.html

The Minnesota Stormwater Manual, Version 2 November 2005, Minnesota Pollution Control Agency, <http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html>