

## A-5. Construction



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### Overview

In addition to selecting the best SCM for a given site, the designer, in consultation with the owner and contractor, needs to consider the constructability of proposed SCM's in the process. While an SCM may appear to be the ideal candidate based on efficiency, another SCM may prove a better selection based on a variety of considerations including the ease of construction or the ability to “kill two birds with one stone” and use the same SCM for other purposes such as sediment control during construction. This is especially true in those cases where local government regulations require peak runoff control or other stormwater management during construction. Once the ideal SCM has been selected, designed, and construction is ready to begin, consideration should be given to the following.

### Construction Sequence

A construction sequence should be a part of all stormwater management plans. This is especially true in those cases where an SCM will play a role in stormwater management during construction as well as after construction is complete. The construction sequence should

discuss at what stage in the site development the SCM will be constructed; what activities must be completed prior to its completion (such as site stabilization for infiltration and filtration SCMs); at what stages of construction requests for inspection by regulatory authorities is required; when and how a dual purpose SCM will be converted to its final form as a post construction control device; when various types of vegetation should be planted; how the device should be maintained until construction of the site is completed; and the process for obtaining final approval and transferring responsibility of the SCM to the final owner.

## Construction Oversight

Similar to proper maintenance, failure to ensure proper installation is a leading cause of SCM failure. In some cases, the contractor responsible for the construction of buildings and other improvements on a site may have limited experience or understanding with how SCMs function or their construction. In those cases, it is imperative that the designer or professional, who may be ultimately certifying an SCM, be involved in monitoring its construction. Critical areas include: elevations of excavations, berms, pipes and structure inverts, avoiding soil compaction, proper soil preparation, measuring in-situ infiltration capacities, media mixes, and proper care of plants for vegetation establishment. Oversight may also include modifying the design and submitting revisions to permitting authorities when conditions encountered in the field warrant changes.

*Figure 1: Using Proper Equipment to Avoid Media Compaction During Construction*



## Stabilization Prior to SCM Installation

It cannot be emphasized enough that site stabilization must be completed prior to installation of SCMs that rely on infiltration or filtration as part of their treatment mechanism. Numerous failures have been attributed to sediment washing off the contributing watershed, clogging media, and impeding the infiltration process. Careful planning and scheduling may be required to ensure enough time is allowed for establishment of adequate soil stabilizing vegetation towards the end of a project and the need to install SCMs arises. In some cases, vegetation can begin to be established as soon as grading operations are completed. In others, placement of sod or other immediate stabilization techniques may be necessary in order to meet the

project's scheduled completion. Where planting season or other unavoidable issues prevent adequate vegetation establishment, regulatory authorities may be consulted in regard to options such as providing letters of credit or other financial assurances to allow issuance of a certificate of occupancy pending the completion of a required SCM.

**Figure 2: Covered Side Slopes to Protect Bioretention Media During Construction**



## Water Management

SCMs are generally located in areas where runoff collects and concentrates. Consequently, managing stormwater runoff that runs through or ponds on the site is an important consideration. A path for runoff to move through the site without damaging recently completed work or surrounding improvements should be laid out or provisions made for collecting and pumping the runoff to an acceptable location. In all cases, proper treatment of the runoff should be provided to remove suspended sediment in conformance with sedimentation and erosion control practices. Providing vegetative or other soil stabilization at the end of each day as the project proceeds should also be considered to minimize soil loss and prevent the need to continually repair eroding areas.