

You Want Me to Control WHAT?

UNDERSTANDING THE DIFFERENCE BETWEEN EROSION CONTROL AND SEDIMENT CONTROL

By John Gleason

Confusion regarding the dividing line between erosion control and sediment control abounds in today's California construction industry. Training for storm water pollution prevention plan (SWPPP) developers

has been mandatory since 1999 under the general National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges from construction activities. It is not unusual, however, for a project's erosion control plan to consist

entirely of sediment control best management practices (BMPs)—typically a row or two of sand bags along a construction site's outer perimeter.

When it comes to planning storm water BMPs and implementing them on construction sites, erosion control measures could be classified as missing in action. Asked about the lack of erosion control on a given slope, a contractor is likely to express uncertainty as to the when, what and how of applying BMPs to an area that is actively under construction.

There is an attitude in the industry that controlling erosion in active areas is not possible if crews are to get any work done. Is this view valid, or is it possible to implement erosion control on active sites in a practical manner?

NPDES STANDARDS

First, a review of the requirements. The general NPDES permit states, "At a minimum, the discharger/operator must implement an effective combination of erosion and sediment control on all disturbed areas during the rainy season." No exclusion is provided for



What little erosion this protected slope produces is effectively contained by the silt fence.



Fiber rolls placed along the contours of a slope face provide effective erosion control.

disturbed areas based on their current activity levels.

To address this requirement, a project's contractor must identify the applicable BMPs to be used in the project's SWPPP erosion control (A.6) and sediment control (A.8) sections. It is at this crucial planning phase that the lack of understanding of the distinction between erosion control and sediment control becomes apparent. Here, the project begins sliding down a slippery slope.

EROSION CONTROL VS. SEDIMENT CONTROL

The difference between erosion control and sediment control can be clarified by defining the terms "erosion" and "sediment." Erosion is a process by which sediment particles are displaced. Sediment, as a result of erosion, consists of the soil particles that have been displaced.

Erosion control, then, is a practice that inhibits the erosion process. A sediment control method is used to capture sediment once it is displaced. These two types of controls, when used in effective combination, provide the greatest protection from the storm water runoff that leaves a construction site.

Erosion controls stabilize disturbed

soil. If soil is not stabilized and a storm event takes place, erosion occurs unimpeded. Sand bags or silt fencing installed properly along the site perimeter will reduce the sediment that leaves the site, but these sediment controls are only 40 to 50 percent effective. Implementing erosion controls minimizes the volume of sediment produced so that sediment controls can be more effective in reducing the overall discharge to a storm water drainage system.

Is it possible for a site without erosion controls to have an effective combination of erosion and sediment control? Perhaps, but it is not likely. A site that is self-contained or one with a sediment basin of adequate capacity might be deemed compliant, but these situations are rare, and most contractors will find that both types of controls are necessary.

Erosion control solutions for inactive areas are more straightforward than those for active areas. Effective measures include spraying slopes with hydromulch, soil binder or mulch and covering slopes with plastic, fabric or a blanket. These methods, however, are not feasible for active areas. It would not be reasonable in terms of budget or scheduling to spray active slopes at the end of the work day, only to disturb the

application the next day when construction resumes. The question, then, is what should be done on active areas during the rainy season.

RAIN ISSUES

First, try to limit the active area so that the size is manageable for the application of protection in the event of forecasted storms. The California Department of Transportation normally limits active areas to five acres during the rainy season. Are you prepared to implement an adequate combination of erosion and sediment controls on five acres before a predicted rain event? Make sure to have the necessary materials and personnel available to protect whatever active area is open.

If feasible, a sediment basin or trap should be installed at a gradient below that of the active part of the site. This way, if the area is hit by an unexpected storm, a second line of defense exists. It is becoming more common for project designers to incorporate permanent BMPs, such as sediment basins, to protect the site after construction is completed. Installing and using such BMPs during construction is desirable.

Sediment controls should at least be maintained in any places where they are not in the way of work. If they must be removed for work, they should be stockpiled where they are accessible for immediate implementation in the event of rain. All stockpiles should be covered with plastic or tarps at day's end in order to contribute to erosion control. When removing the covers becomes necessary for work, they should be stored nearby.

GAINING CONTROL

Some BMPs are identified erroneously as sediment controls because they are thought of as perimeter barriers. Placement, though, may alter function, so sediment controls can have erosion control effectiveness as well.

Gravel bags placed along the contours of a slope's face or at the slope's top, as opposed to its toe, provide erosion control. Fiber rolls used in the same manner function as erosion controls and are much easier to install on longer slopes because of their length





A silt fence is typically 40 to 50 percent effective as a site perimeter sediment control.

and light weight. Check dams made of sand or gravel bags can slow the flow of runoff and are easily stockpiled out of the way of construction.

Many contractors are convinced that spray-application erosion control is cost-effective, but this is only true when the contractor is adequately prepared. Mobilizing the vendor is costly, so it is vital to ensure a product is applied

to the best onsite area possible. A project's contractor should make certain there is a sufficient supply of erosion control and covering materials to protect the entire disturbed soil zone.

A few other erosion control and sediment control implementation tips:

- Plan ahead to make sure a vendor is available to respond to storm events, especially during the rainy season.

Plastic sheets or similar materials should be kept on hand as backup.

- Cover the site's steepest areas first, but do not ignore flatter slopes. It may seem unlikely that erosion would affect a large, virtually level area, but do not be fooled. Runoff flows downhill no matter how gentle the slope, and these larger, flatter sections create sheet flow and large amounts of sediment.

- Do not jeopardize your project or risk paying storm water violation fines. Find a reasonable solution for employing an effective combination of erosion and sediment controls for your active areas. **SWS**

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