

This quarterly newsletter is intended to increase public awareness and provide educational information on the importance of environmental planning and implementation on the local, state and federal levels

October – December 2005



Pitt County Environmental Planning

At a glance: ♦ Monthly SESC Activity Report ♦ Maintaining a Compliant Construction Site: Silt Fences and Stabilized Construction Entrances ♦ Rain Gardens/LID

MAINTAINING A COMPLIANT CONSTRUCTION SITE



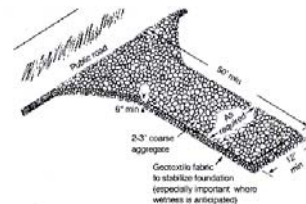
Silt Fences

A **silt fence** is a temporary barrier designed to trap sediment on a construction site. It consists of a synthetic fabric that is stretched by attaching it to supporting posts. The silt fence is entrenched about six inches in the ground, since it is used for the purposes of promoting deposits of sediment on the uphill side and for filtering sheet runoff as it passes through the fabric. This particular BMP is intended to intercept and retain small amounts of sediment from disturbed areas, but is unsuitable for areas of concentrated flow, such as ditches. Rock check dams, described in our last newsletter, are ideally suited for this purpose.

The advantages of silt fences are they are easy to install, cost effective, and the materials used are readily available. Research conducted on silt fences demonstrates that they can trap much higher percentages of suspended solids than other methods commonly used to prevent sediment from leaving construction sites. Disadvantages include the fact that this BMP is not effective for concentrated flows less than one cubic foot per second, silt fence fabric becomes clogged with fine particles easily, reducing flow rate and contributing to failure rate due to water

either overtopping the fence or bypassing the ends. Failure rate of silt fences is low, but improper installation invites breaches which lead to sediment loss. The fences must be inspected often, particularly after rain events and daily during prolonged rainfall. When sediment reaches one-half the height of the fence, deposits should be removed to prevent failure.

Silt fences should be created from continuous fabric cut to the length of the barrier to avoid the use of joints. If joining two pieces of filter cloth is unavoidable, the joint should be created only at support posts, and about six inches of fabric needs to be overlapped in order to securely seal potentially weak spots in the fence. Install this BMP in a crescent shape along the contour of the disturbed area, rather than in a straight line or up and down a hill.



Stabilized Construction Entrance

The entrance/exit point of a construction site must be **stabilized** to reduce tracking of mud and dirt from disturbed areas onto public rights-of-way and roads by construction vehicles. This is achieved by creating a temporary sediment removal device—in this case, a six-inch deep pad of crushed rock wide enough for two vehicles to pass safely. This BMP is dictated by site conditions and is particularly



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PUBLIC MEETINGS Planning Board – 3rd Wednesday of each month at 5:30 pm
 County Commissioners – 1st and 3rd Monday of every month (9 am and 6 pm, respectively)

important adjacent to water bodies, or wherever unpaved entrances or exits pose the threat of transporting mud or sediment off-site, and where dust is a problem during periods of dry weather.

The success of a stabilized construction entrance depends on limiting the points of entrance/exit to the construction site, and then designing a BMP that will support the heaviest vehicles and equipment that will ultimately use it. Like all BMP's, this one requires routine inspection for damage, and frequent maintenance to ensure it is working properly. Some degree of street sweeping or vacuuming will be required to maintain clean road conditions outside of this stabilized entrance, and if the entrance becomes clogged with sediment, the sediment must be removed to prevent it from migrating off-site. Periodically, up to two additional inches of crushed rock may need to be added as a top dressing to maintain a stabilized entrance, but this BMP may be removed after final site stabilization is achieved.

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Are Rain Gardens a Reliable LID BMP?



A group of innovative BMPs called LIDs or low impact development strategies are gaining acceptance as cost-effective replacements for more costly "pump and dump" systems previously utilized to dispose of stormwater runoff. Visually appealing, LIDs are primarily designed to minimize the ecological impacts of urban development by mimicking natural watershed hydrological functions in order to improve subdivision landscapes.

Typically responsibility for maintaining these LIDs transfers from developer to homeowner upon purchase; at \$3 to \$4 per square foot required annually to maintain infiltration systems like dry wells and rain gardens*, these systems consume only a fraction of the cash outlay required to maintain traditional collection and conveyance systems. However, figures vary wildly in terms of the actual cost of

every other year maintenance, ranging anywhere from \$80 to \$3,400 for a seventy-square foot area**. Heavy metals and bacteria are removed by this BMP at a rate of nearly 90%***, but Nitrogen, Phosphorus, and salt remain virtually unchanged – only 10% of each**** is eliminated – regardless of which plants are chosen, or how the water is filtered prior to percolating down through the soil layers at the bottom of this retention basin. These mineral deposits, along with silt and other unwanted solid materials must be periodically removed, and are most often replaced with a dressing of fresh mulch to improve porosity of the surface.

Success or failure in terms of getting the new owner to maintain the LIDs set up is largely a matter of creating an attractive BMP and planting the perception that maintaining this BMP will add value to the property. Research has demonstrated that property owners, in protecting their vested economic interests in their homes, generally experience a high level of success maintaining rain gardens.*****

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* Figured obtained from a Partnership for Advancing Technology in Housing (PATH) study, a public-private initiative dedicated to improving America's housing developed by the National Association of Home Builders (NAHB) Research Center.
 ** Figures interpolated from a variety of sources, including an article from the EPA's website entitled, "BMP Maintenance Guidance Helps Homeowners Associations."
 *** Figured obtained from a Partnership for Advancing Technology in Housing (PATH) study.
 **** EPA estimate, <http://www.epa.gov>
 ***** Research cited by Larry Coffman, Associate Director of Programs and Planning Division for Prince George County, Maryland, Department of Environmental Resources <http://www.lid-stormwater.net/intro/background.htm>

Monthly SESC Activity Report				
	Oct	Nov	Dec	Yearly Totals
New Projects	1	5	2	32
Site Inspections	114	102	98	1,094
Notices of Violation	4	2	0	24
Disturbed Acres	10.5	31.35	4.90	250.26