



GREEN TECHNOLOGY BEST MANAGEMENT PRACTICES

Stormwater Best Management Practices (BMPs) are design, construction, and maintenance practices that minimize the impact of stormwater runoff rates and volumes, prevent erosion, and capture pollutants.

Good stormwater management used to mean moving water away from an area as quickly as possible to prevent flooding. Typically, water was directed from developed areas immediately into our streams. Unfortunately, this approach leads to both flooding of streams and high pollutant loading of our waterways. Stormwater not only causes flooding, but it also contains pollutants such as oil, antifreeze, fertilizers, soil, and other contaminants that can harm the environment.

In recent years, we have begun to think more about the health of our streams, lakes, and bays. In order to have cleaner water and incorporate an environmentally-friendly approach to stormwater, Green Technology was developed in the early mid-1990s. This technique intercepts runoff from rooftops, parking lots, roads, and other impervious surfaces. Stormwater is directed into vegetative areas because vegetation is known to extract a fairly high percentage of pollutants from water. This way, the water is cleaned before entering into a waterway or soaking into the ground, recharging underground water sources. Although Green Technology BMPs sometimes can not be used to manage water quantity (amount of water) alone, they are very effective at improving water quality.

Traditional Approaches

Unlike structural BMPs such as detention ponds (wet ponds) and dry extended detention basins (dry ponds), green technology BMPs are a much simpler approach to stormwater management.



Wet Pond



Dry Pond

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The following information describes the Green Technology BMPs that are commonly being implemented to manage stormwater quality in the State of Delaware.



Bioretention

Bioretention facilities are landscaped depressions filled with a special soil media that are designed to infiltrate and clean stormwater runoff. Incorporated into the urban landscape, they can provide substantial filtering and nutrient removal before runoff is discharged into the conveyance system.



Buffers

Buffers are areas along a waterway specifically designed to treat runoff before it enters into a stream, wetlands, or bay. They are effective at removing sediment, nutrients (such as Nitrogen and Phosphorus), and other pollutants from the water.



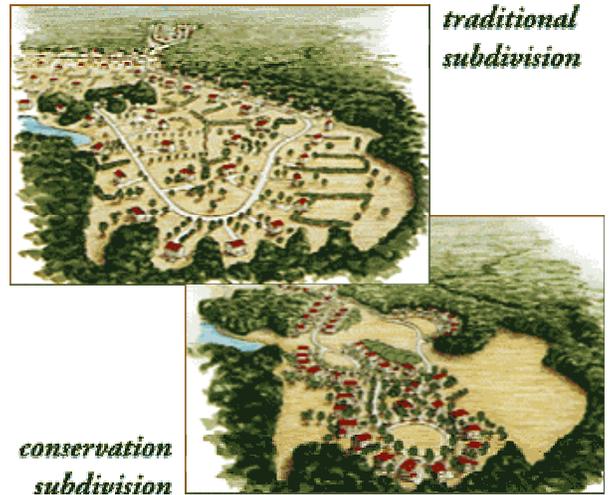
Rain Gardens

Rain gardens are typically used in yards to absorb water that runs off rooftops and other impervious surfaces. Similar to bioretention facilities, they are depressed into the ground in order to encourage infiltration.

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Conservation Site Design

Conservation Site Design focuses on site design standards that reduce the extent of impervious (non-porous) surfaces like pavement and increase the extent of wooded and natural areas.



Filter Strips

Filter strips spread runoff uniformly over a filtering surface of vegetation, providing infiltration and pollutant removal. Filter strips can provide substantial treatment if not overloaded by sediment and runoff.



Source Area Disconnection

Disconnection is the process of directing runoff from impervious surfaces like rooftops or pavement over adjacent vegetated surfaces, providing infiltration and pollutant removal.



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Biofiltration Swales



Biofiltration swales convey runoff at shallow flow depths through wide, flat-bottomed swales. They can be very effective in removing Total Suspended Solids (TSS) and adsorbed metals, although less effective in terms of decreasing the amount of nutrients contained in water.

Infiltration Trenches



Most Green Technology BMPs incorporate infiltration as part of the treatment process. Specific infiltration facilities include infiltration trenches. Infiltration trenches located in swales provide additional wetted surface area and storage volume, and often they can be designed to penetrate shallow impermeable soil profiles to recharge deeper soil horizons.

FOR MORE INFORMATION

For more information, please contact the Delaware Department of Natural Resources and Environmental Control, Sediment and Stormwater Program at (302) 739-9921.