

# Leaves, Trees & BMPs

## Designing with maintenance in mind



By Sean Darcy

Preserving large trees as runoff interceptors is an integral part of low impact development, as is incorporating trees and vegetation in filtration beds, rain gardens and bio-retention systems. These systems are beneficial and provide essential functions of the natural landscape: infiltration, evaporation, transpiration, interception and shading.

Depending on the type of tree or vegetation retained on site or planted within a

facility, there will be varying types of organic matter released throughout the year. Organic matter for a green field is beneficial, as the load can easily be assimilated, allows for decomposition, and provides essential nutrients for soil and nourishment for future vegetation. Organic matter for a storm water facility likewise can be beneficial, but also can increase excessive nutrient loads that cannot be assimilated, and may block inlets, blind surface beds, alter flow paths and change percolation rates through the soil.

In general, storm water policy has not yet been able to integrate specific design guidelines associated with mass or material load, as they are site specific and variable. The preference has been to deal with mass and material load as an inspection and maintenance activity rather than as a design element. While it is easier to digest a surface blinding load as an inspection and maintenance activity, it is better to incorporate additional design features and safety factors that account for organic load, rather than

relying on modifications to the original design through inspections or increased maintenance activities.

Whether considering a new development, redevelopment or retrofit project, it is likely that the surrounding area contains additional sources of organic

load. Depending on the frequency and type of organic load encountered, additional modifications to the system can be incorporated at the design stage to account for onsite additions of organic load. A few additional design modifications to consider are:

- Minimizing organic content in the soil and mulch;
- Adding soil amendments to the soil mix to prevent phosphorus leaching;
- Increasing storage capacity within the structure to prevent early bypass;
- Additional safety factors to increase the facility size and the surface loading capacity;
- Additional and/or wider inlets to increase avenues into the facility; and
- Selecting vegetation that releases minimal organic material.

Designing a facility with maintenance in mind to allow for the accumulation of organic matter within should improve its long-term function—and with that, bring peace of mind. **SWS**

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