

Creating Best Management Practices – Outside the Box!

Finding the appropriate stormwater BMP in an ultra-urban environment is often a challenging if not impossible proposition for local governments tasked to meet the NPDES Phase I or II Municipal Stormwater Discharge Permitting requirements. For ease of construction or implementation, the consulting community and /or local government's have typically turned to the "tried and true" structural BMP's to meet the state or federally mandated pollutant reduction goals in their communities. Unfortunately, traditional BMP's may not be realistic or worse yet, may not be appropriate for certain communities. In these cases, "outside the box" thinking is required. One environmentally conscious neighborhood in metro Atlanta is considering an innovative application of stream restoration measures to improve the water resources in their community while simultaneously benefiting the local government in meeting NPDES requirements. This historically significant neighborhood was constructed in the early 20th century and over time; infill commercial and residential buildings and new road construction produced an ultra-urban environment with imperviousness greater than 50% in the watershed. The stormwater infrastructure in the community typically consists of corrugated metal pipe, concrete box culverts and concrete channels.

The neighborhood association in this 750 acre watershed is evaluating a creative and innovative "green design" BMP known as "stream daylighting" to re-capture a natural perennial stream (in excess of 3000 ft in length) that once existed over 100 years ago. Daylighting involves removing the existing "hardscape" stormwater conveyance structures and replacing this infrastructure with vegetated stream channels. This water quality initiative will attempt to construct and re-establish these stream systems in as close proximity to the original stream alignment as possible.

For many years, it was common practice for governments to bury streams in highly urbanized areas and rarely was waterways considered an amenity. The primary rationale for such practice was for flood control, decrease in maintenance of the waterway (paradoxically little or no consideration was given to the effects of increased erosion potential downstream of piped streams), increased development potential or any combination thereof. Consequently, the natural disinfection and processing of nutrients that streams provided no longer existed and water quality suffered from point and non-point source pollutants. This project will apply daylighting principals, in combination with establishing riparian buffers where practical, and incorporating structural and non-structural BMP's. These improvements are expected to increase dissolved oxygen levels and aquatic biota, decrease stream temperatures and reduce non-point source pollutant loading in the downstream reaches of the watershed. Equally important, this demonstration project will include an "outdoor ecological laboratory" for the neighborhood school, walking trails, and environmental stewardship and awareness for the protection of the community's natural water resources. The project leaders believe that it's possible to "turn back the clock" on stormwater management and water quality such that the stream channel has a level of sustainability similar to what existed prior to development.

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