

UNH Center for Stormwater Technology Evaluation and Verification (CSTEV)

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In August of 2004 the field research facility for the Center for Stormwater Technology Evaluation and Verification (CSTEV) came online. This field research facility, funded by the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), serves as both a site for testing stormwater treatment processes as well as for technology demonstrations. The testing results and technology demonstrations serve a vital role for municipalities, town engineers, and others charged with developing and implementing stormwater management plans. The purpose of the stormwater management plans is to reduce non-point source pollution, the nation's single largest water quality problem.

The research facility houses 3 categories of stormwater treatment processes: conventional structural devices, Low Impact Development (LID) designs, and manufactured devices. Specifically there are 11 technologies including: manufactured devices (infiltration device, filtration device, manhole retrofits, etc), a sand filter, a bioretention system, a gravel wetland, a detention pond, and a swale. In addition to this main field facility, CSTEV researchers are planning two other field projects: a porous pavement parking lot and a street vacuuming study. Both of these projects represent measures to treat and/or minimize stormwater at the source, rather than after it is collected. The latter two projects are scheduled to get underway in Fall 2004.

CSTEV has three main objectives : 1) to provide rigorous independent evaluations of stormwater treatment technologies; 2) to aid municipalities and others charged with developing and implementing stormwater management plans in compliance with Phase II of the Clean Water Act; and 3) to address concerns that have surfaced as the result of research showing that while many conventional stormwater treatments effectively reduce peak flows they commonly do not improve all water quality constituents (sediment, nutrients, metals, hydrocarbons, and/or microorganisms). Many stormwater plans and actions involve some structural measure to remedy the environmental impact of stormwater. Numerous institutions and vendors have developed designs to achieve desirable water quality and storm volume reduction. Although many of these devices are invented or developed on a sound theoretical foundation, few undergo the rigors of independent scientific testing.

When you first visit the research facility, it is remarkable to note how the footprint of the different treatment processes varies, even though all are sized to treat the same water volume and the same peak flow. This reflects the unique applications of the various devices. Not all devices perform the same with respect to removing contaminants and reducing peak flow. Some devices are more appropriate for urban environments in which limited space exists for treatment, while other devices may be more appropriate for situations in which more land is available.

One of the significant challenges in BMP reporting is that evaluations of treatment systems, which are separated spatially and temporally, must be standardized for comparisons to be made. The centerpiece of CSTEVE's efforts is a field facility where devices or designs for stormwater management can be tested in parallel, enabling a controlled setting from which system performance can be evaluated. Using stormwater runoff from a large parking lot, different treatment trains receive equal portions of the same flow, and effluent quality can be monitored on a continuous basis.

Workshops will be run for local municipalities, town engineers/planners, and others charged with developing and implementing stormwater management plans. Workshops will begin the fall of 2004. At the facility, an educational sign is posted adjacent to each treatment process.. These signs include basic information about the device, its footprint, the source of its design, its expected treatment and flow reduction capabilities, and other relevant data. Workshops and tours can be scheduled to view the site and learn more about the devices being tested.

The CSTEVE program is a collaborative effort with participation from federal, state, and municipal agencies along with industry and academia. The Center is funded through CICEET, whose mission is to support the scientific development of innovative technologies for understanding and reversing the impacts of coastal and estuarine contamination and degradation.

For more information, please visit these useful links:

CSTEVE Website: www.unh.edu/erg/cstev/

CICEET Website: <http://ciceet.unh.edu/>

EPA Stormwater Website: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

National Stormwater BMP Database: www.bmpdatabase.org

For more information, please visit our website or contact us.

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