Applying knowledge to improve water quality
National
Water Program
A Partnership of USDA CSREES
& Land Grant Colleges and Universities

USDA-CSREES 2007 National Water Quality Conference

LID in Western North Carolina: The North Carolina Arboretum Demonstration

Low Impact Development techniques were implemented at the Operations Center at the North Carolina Arboretum in Asheville, NC. The Operations Center is one of the pilot projects that follow the Triangle J Council of Governments' High Performance Building Guidelines. Integrated management practices are combined to mimic predevelopment hydrology and improve water quality from runoff. A green roof, rain garden, rain pockets, permeable parking, cistern, turf reinforced swales and level spreader function together to improve water quality and reduce peak flows of smaller storms. Stormwater is used to create microenvironments that support habitat similar to vernal pools. Runoff from the site falls into several distinct catchment areas that are treated by at least two integrated practices. The green roof drains into a rain garden at the base of the building. Other portions of the roof drain to a storage tank and irrigation system or is treated through rain pockets and turf reinforced swales. All the practices eventually drain to a hybrid level spreader. Additionally, potential point source pollution is minimized by using a pesticide mixing station and oil/water separator in the vehicle wash area. The site is visually appealing and engages the visiting public to rethink stormwater as a resource and not a waste product that needs to be conveyed off site as quickly as possible. Education lectures and tours through NCSU's French Broad Training Center have educated developers, contractors, landowners, design professionals, municipal staff and public officials. These practices were installed and monitored with grant funding from NC DENR Division of Water Resources and Division of Water Quality-Planning Section's, Nonpoint Source, 319 Grant Program.

Author: Jon Calabria
University Affliation: North Carolina State University
Co-Author(s): Kris Carter