



The bioretention facilities in Smith Mountain Lake State Park, one of the first areas to make use of the application in the state, take the place of wet ponds, which would have looked out of place in the park's forest setting.

## Bioretention systems come to Virginia state park

SMITH MOUNTAIN LAKE, Va. - Designs are complete and construction is underway for bioretention systems in Virginia's Smith Mountain Lake State Park. Bioretention makes use of plants and microorganisms to improve water quality.

Anderson & Associates, Blacksburg, Va., designed the stormwater retention systems for the Virginia Division of State Parks.

The bioretention facility was a first for Anderson & Associates and one of the first in the state. It is intended to be a natural-looking system for reducing the pollutant levels in stormwater runoff.

According to Project Engineer Chris Hornung, a wet pond would normally be utilized, but such a facility would have looked out of place in the forest setting of the park.

"We talked with the Virginia Department of Conservation and Recreation and we came up with this bioretention facility idea, which is pretty much a combination of infiltration and using plants and microorganisms in the soil to treat the runoff," Hornung explained.

The process involves excavation of the area and filling it with a sand bottom and fairly permeable planting soil. Different types of plants that aren't susceptible to damage from high concentrations of pollutants are utilized. The runoff is routed toward these plants, which

allow filtration. The plants treat the runoff through microorganisms in the soil that eat the pollutants, including oil and gas wastes from the roads.

The difficult part, Hornung said, was choosing plant species that closely resemble indigenous species, so the area won't look like a facility.

All told, seven facilities of similar design will be installed in the park. Each will capture about an acre of runoff.

Hornung noted that the bioretention facilities provide more than just stormwater quality.

"They can also be substituted for landscaping requirements, and if you can use it with these requirements you're also doubling for stormwater management," he said.

In addition, bioretention areas can serve as wind breaks and noise reducers in urban areas, according to Hornung.

The practice of bioretention was developed by the Prince George's County, Md., Department of Environmental Resources.

The Smith Mountain Lake State Park project includes water, on-site septic and electric power, as well as design and construction of 6,000 feet of paved road.

Breakell, Inc., Roanoke, Va., serves as the general contractor. ■

## WEB WATCH

<http://www.ngs.noaa.gov/> The home of the National Geodetic Survey offers policy statements, software to download, information on products for purchase (including data sheets on CD-ROM), listings of available services, and links to related geodetic resources.

<http://www.hdm.com/gis3.htm> Great GIS Net Sites highlights — what else? You'll find links to GIS-related sites including those that offer conferences, news, online GIS, employment opportunities, data, and software, as well as sites of private companies offering GIS and mapping services.

<http://hum.amu.edu.pl/~zbow/glob/glob1.htm> A Web site for everyone who likes maps. The Great Globe Gallery on the World Wide Web includes more than 100 globes, maps, and related images.

<http://www.grip.com> The Global Resources Industrial Park site presents the offerings of construction industry manufacturers. It allows users to search an extensive library of manufacturer-supplied information from a long list of product categories ("Abatement - Hazardous Materials" to "Wood Veneers"). Many manufacturers' catalogs can be ordered directly through the site.

<http://dnj.digiweb/ESIENEWS.Index.htm> Technical Software News is chock full of reviews and articles on engineering software. In addition, a product directory and chat room are offered.

<http://www.constructionnet.net/> Construction Net bills itself as an online trade show. Within the site, "halls" are provided for contractors and professionals, manufacturers, and local distributors. Firms can submit information about themselves as providers of professional design services, which can then be viewed by other browsers who are searching for consultants or subconsultants.

<http://www.weather.com> Tune in to the Weather Channel to check current conditions and forecasts throughout the country.

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