

Proposal for
North Carolina Department of Environment and Natural Resources
Division of Water Resources
Water Resources Development Project Grant

Feasibility Study for Stormwater Best Management Practices and
Low Impact Design Retrofit of School Building and Campus

Greenlee Primary School
Spruce Pine, North Carolina

June 30, 2008

Submitted by
Mitchell County Soil and Water Conservation District

II. Official Resolution – See Attachment 1

III. Project Narrative

The Greenlee Primary School was opened in the year 2000 in the town of Spruce Pine and is part of the Mitchell County school system. The school campus drains to Grassy Creek, a tributary of the North Toe River within the French Broad River watershed (Figure 1, Attachment 2). The one-story school building has a large impervious roof area along with a substantial impervious parking lot and driveways located on relatively steep slopes (Figure 2, Attachment 2). There have been continued problems with high runoff volumes and velocities from the site, resulting in erosion and slope failures (Photographs 1 and 2, Attachment 2). Because of the lack of proper stormwater management, portions of the parking lot have also sustained damage and there are potential safety hazards developing on the school grounds in the form of eroded gullies.

The Greenlee Primary School, in partnership with the Mitchell County Soil and Water Conservation District and Blue Ridge Resource Conservation and Development Council (RC&D), desires to implement proper stormwater management at the site to protect downstream water resources. This partnership proposes to retrofit the school site with low impact development (LID) stormwater best management practices (BMPs) and is applying for a Water Resources Development (WRD) grant to conduct a feasibility study in order to evaluate various stormwater management options, select appropriate BMPs for the site, and develop a detailed cost estimate for construction. Once the feasibility study is completed, the partnership intends to seek funding for final design and construction of the stormwater management plan and the LID BMPs identified by the feasibility study.

The partnership would like to incorporate LID BMP measures for three primary reasons: 1) to protect and improve water quality downstream from the site within the North Toe River and French Broad River watersheds, 2) to stabilize the site and prevent further slope failures and damage to infrastructure, and 3) to educate Mitchell County students and teachers and the broader community on the importance of effective stormwater management and LID techniques for protecting watersheds.

The proposed project site has been evaluated and appears to be an ideal location for an LID BMP retrofit and demonstration project because of its upstream watershed location, hydrologic conditions, extent of impervious cover, available space, accessibility, and high visibility to the local community. Photographs 3 through 10 in Attachment 2 show various portions of the school property where opportunities for stormwater LID retrofits exist. The proposed feasibility study will evaluate how best to implement a stormwater management plan and LID BMP demonstration project.

IV. Project Plan and Location Map

The project location is shown on the attached vicinity map and location map in Figures 1 and 2 of Attachment 2. The Greenlee Primary School property encompasses approximately 15 acres and generally slopes from northeast to southwest. The school building is situated on the eastern portion of the property and the estimated impervious area is approximately 5 acres.

The feasibility study will include a survey, site assessment, and preparation of a stormwater management plan for the entire site, with a particular focus on LID BMPs which promote infiltration to reduce stormwater runoff volumes and increase groundwater recharge, as well as biofiltration processes to improve water quality. These BMPs will likely include a combination of the following:

- Downspout disconnection
- Biofiltration swales
- Biofiltration strips
- Bioretention cells
- Raingardens
- Surface stormwater wetlands
- Subsurface stormwater wetlands
- Rainwater cisterns and/or rain barrels

The feasibility study will consider the cost-benefit of these potential BMPs. To increase the treatment effectiveness and volume reduction, the feasibility study will consider opportunities for interconnecting the BMPs as a treatment train. The feasibility study will also evaluate the cost/benefit of utilizing rain barrels and cisterns to collect rain water for reuse as irrigation water during periods of dry weather. The results of the feasibility study will be documented in a report which will include a conceptual design of the stormwater management plan.

ATTACHMENT 1

OFFICIAL RESOLUTION

Resolution

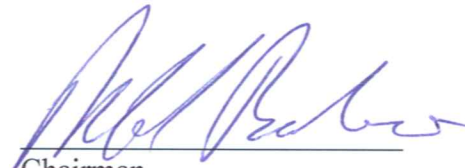
WHEREAS, the Mitchell County Soil and Water Conservation District (SWCD) Board of Supervisors desires to sponsor a study of implementing Stormwater Low Impact Development to improve sediment and erosion control at the Greenlee School, located in Spruce Pine, North Carolina.

NOW, THEREFORE, BE IT RESOLVED THAT:

- 1) The Board requests the State of North Carolina to provide financial assistance to Mitchell County Soil and Water Conservation District for a feasibility study of The Greenlee School Storm Water Study Project, in the amount of \$8,000 or 50-percent of the study costs, whichever is the lesser amount;
- 2) The Board assumes full obligation for payment of the balance of the study costs;
- 3) The Board will comply with all applicable laws governing the award of contracts and the expenditure of public funds by local governments.

Adopted by the Mitchell County SWCD Board of Supervisors this day of
June 12, 2008.

N/A
Clerk to the Board


Chairman