



Reedy River Restoration Project | City of Greenville, South Carolina

- **Project Highlights**
- Stream Bank Restoration
- Navigable Water Course Improvement
- Stakeholder Consultation and Management
- Permitting (SC DHEC, US ACOE)
- Creation of PER and bid documents (drawings, specifications, bid schedule, and contract)

Client

City of Greenville

Description

The City of Greenville discovered an area of severe river bank erosion that was threatening an area of old City landfill bordering the Reedy River. Rogers & Callcott was hired to perform a study and recommend an engineered solution to the problem. Upon completion of the study, the City proceeded with the preferred option.

This project involved preliminary and detailed design, bidding support and construction oversight for The Reedy River Bank Restoration Project. This consisted of approximately 650 linear feet of river bank restoration employing a combination of bio-engineering and structural restoration techniques to stabilize the river bank and prevent further release of municipal solid waste into the water course. Additionally, it provided cover material as needed to minimize direct exposure to landfill waste which may harm humans and the environment.

Restoration methods included the removal of threatened areas of the landfill and replacing them with five foot lifts of large diameter native rock. Bio-engineered soil lifts consisting of four compacted soil lifts encapsulated in bio-degradable geofabric were placed to an elevation slightly above the 100-year flood mark. Live plant stakes consisting of willow branch cuttings were then inserted into the soil lifts to take root and produce vegetative growth. A new slope

cover consisting of one foot of compacted soil, native grasses and erosion control blankets completed the restoration.

Rogers & Callcott prepared and implemented the design, obtained all required state and federal permits, prepared plans and specifications and managed the construction of an extensive restoration of the east bank of the Reedy River.

Unique Aspects

Design and construction for this highly sensitive project required extensive involvement and coordination with several local, state and federal agencies as well as environmental conservation groups such as Upstate Forever, Friends of the Reedy River and the Conestee Foundation. Open dialog with the stakeholders allowed a solution that was acceptable to the various parties.

Lessons Learned

Urban growth and development have adversely affected the water quality and stability of streams and rivers nationwide, creating numerous challenges for watershed managers. Bank erosion has the potential to devastate adjacent land, leading to property loss, building damage and water quality issues. Using bio-engineered material along with a natural vegetation solution allows the Reedy River to recover from the landfill exfiltration.

Challenges and Solutions

Challenge #1: As the value of land near streams increase, the need for effective bank protection techniques becomes more important.

Solution #1: Streambank stabilization and restoration is a highly effective tool for the protection of property and critical

watersheds alike, offering public and private entities a proven method to physically restore, enhance and beautify the streams and rivers in our communities.

Challenge #2: Minimizing hardscape (paving, pipes, walls) when improving natural features within the environment.

Solution #1: Explore using low impact development (LID), including bio swales, rain harvesting, green roofs, and infiltration trenches. Additionally, porous pavement can be used in parking lots to help reduce runoff and associated offsite stormwater flow.

Outcome

The City is continuing to improve water quality along the Reedy River with ongoing projects. Stormwater management along with protection of natural water courses is increasing in importance as environmental awareness is raised.

