City of Charleston

Barberry Woods Drainage Project

Charleston, South Carolina

Barberry Woods Concept Plan sections.

A holistic, nature-based solution protects two flood-prone, coastal communities while enhancing regional ecology and climate resilience.

SERVICES

Ecological Restoration
Conservation
Climate Change
Coastal
Water
Urban Ecology
Community

Since 2005, the neighborhoods of Barberry Woods and The Cottages at Johns Island had experienced flooding during significant storms. This was due to undersized infrastructure unable to handle runoff from the 574-acre watershed. Seeking a solution that would not only alleviate flooding, but also confront the impending impacts of climate change and enhance community protection and connectivity, the City of Charleston turned to a team led by WK Dickson and including Biohabitats. Biohabitats provided ecological expertise to enhance understanding of site conditions and contribute to conceptual and final design.

Biohabitats began by delineating wetlands, conducting a tree survey, characterizing vegetation, installing groundwater monitoring wells, and consulting on soil parameters. Based on this ecological assessment, and applying the principles of the Dutch Dialogues™, which are predicated on respecting the capacity of natural systems, Biohabitats helped develop a strategy to transform poorly functioning stormwater infrastructure into a braided channel system. Complete with infiltration wetlands and bio-terraces, the nature-based design helps slow down, spread out, and filter stormwater while enhancing habitat. It emphasizes connections among marshes and freshwater, and groundwater and surface water.

After supporting the client's pursuit and ultimate attainment of a NFWF grant to implement the project by providing editing and QA/QC of the grant application, Biohabitats helped craft final designs. The restoration, which transformed the stormwater infrastructure into a functioning ecosystem, helped set the stage for a future linear park. It also advanced one of the City's primary project goals: to model a paradigm shift away from grey infrastructure to an approach that prioritizes nature-based strategies to mitigate flooding while providing multiple ecological and community benefits.