Green Infrastructure & Stormwater Management CASE STUDY

The Black Rock Sanctuary

Location: Phoenixville, Chester County, PA
Client: Chester County Department of Parks and Recreation
Design Firm(s): KMS Design Group, LLC, The Major Group
Landscape architect/Project contact: Carl R. Kelemen, RLA, FASLA
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ASLA Chapter: Pennsylvania/Delaware

Project Specifications

Project Description: The Black Rock Sanctuary project began as a restoration/reclamation project. The goal was to reclaim and create wetland areas within a decanting basin that was built by the Commonwealth of Pennsylvania in the 1940's. The site was used as a repository for dredge spoils taken from the Schuylkill River, the majority of which was coal silt. The project, constructed over a period of 10 years, resulted in approximately 47 acres of new or enhanced wetlands, 10 acres of native plant meadows. Additional stormwater related BMPs included rain gardens, vegetated swales (both armored and unarmored), porous pavement areas, biofilters, a forebay system and curbless paved areas.

Project Type:
Open Space-Park
A retrofit of an existing property

Design features: Bioretention facility, rain garden, bioswale, porous pavers, curb cuts, forebay system, and porous pavements (in addition to pavers).
This project was designed to meet the following specific requirements or mandates: To meet funding criteria, developer/client preference, PA Department of Education for teaching environmental science to K-12 students

**Impervious area managed:** 1 acre to 5 acres

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** Greater than 5 acres

**The regulatory environment and regulator was** supportive of the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? The entire project was predicated on the development of a sustainable site devoted to the preservation and enhancement of habitat for wildlife, particularly migratory waterfowl. Usable green space was designed to encourage the observation of wildlife and/or education of park users about wetland environments and wildlife.

**Cost & Jobs Analysis**

**Estimated Cost of Stormwater Project:** $100,000-$500,000 (Public funding: Federal, state, regional, private foundation)

**Was a green vs. grey cost analysis performed?** No

**Cost impact of conserving green/open space to the overall costs of the site design/development project:** It did not. The park is dedicated open space and the wetland/stormwater BMP work was key to the development of the site.

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Did not influence costs.

**Number of jobs created:** 10 temporary (construction related)

**Job hours devoted to project:**

- Planning and Design: 5,000
Construction: 10,000
Annual Maintenance: 500

Performance Measures
Stormwater reduction performance analysis:
2-year: 100%  5-year: 100%  10-year: 100%  25-year: 100%  50-year: 100%  100-year: 100%

Community & economic benefits that have resulted from the project: The community has gained an amenity that has translated into increased visitorship to the community and the park. It has also increased the environmental quality in the area.

Project Recognition

Additional Information
Links to images: http://www.nps.gov/ncrc/programs/lwcf/exemp_prjts/LWCF_PA.pdf
http://www.chesco.org/ccparks/cwp/view.asp?a=1550&q=616465
http://www.chesco.org/ccparks/cwp/view.asp?a=1578&q=621974
http://www.chesco.org/ccparks/cwp/view.asp?a=1578&q=627266

This property is a one of a kind development that takes advantage of its location along the East Coast Flyway to provide high quality wetland environments/breeding and nesting habitat for migratory waterfowl, educational opportunities for users, open space for refreshment and exercise, water quality improvement and important storm water control.