# Green Infrastructure & Stormwater Management CASE STUDY

## Northern Kentucky Sanitation District No. 1 (SD1) & Public Service Park

**Location:** Fort Wright, KY
**Client:** Nothern Kentucky Sanitation District
**Design Firm(s):** Human Nature, Inc.; Humpert Wolnitzek Architects; Woolpert; Thelen Associates; Lamson Design
**Landscape architect/Project contact:** David Whittaker, ASLA
**Email:** dwhittaker@humannature.cc
**ASLA Chapter:** Ohio

Photo: Human Nature, Inc.

### Project Specifications

**Project Description**: The campus of SD1 embodies the mission of this progressive public agency by creating a regional laboratory for sustainable stormwater management and site restoration. The site elegantly integrates and links together several stormwater best management practices, including a green roof, wetlands, retention basin, detention basin, permeable pavements, and a cistern. Several hands-on demonstration features are used to educate the general public, developers, and over 2,000 students per year about the sensitive stewardship of water resources.

**Project Type**:
Institutional/education
A retrofit of an existing property

**Design features**: Bioretention facility, rain garden, bioswale, green roof, cistern, and porous pavers.

**This project was designed to meet the following specific requirements or mandates:**
Local ordinance, developer/client preference

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

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** 1 acre to 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?** Yes**,** they wanted interpretive elements and walking trails as part of the project to encourage visitors to learn more about stormwater management and its applications in their communities

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** $1,000,000-$5,000,000 (Public funding: State, regional, local)

**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:** Costs were higher but client wanted the site to be an educational showcase for a variety stormwater BMPs. In addition the client wanted a walking trail adjacent to the BMPs and to an existing riparian environment for employee health and well being.

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Slightly increased. The stormwater management features included overlooks and interpretive signage, and the sizes of the open space BMPs were larger than typical due to engineering concerns about the ability of the open air system to handle large storm events. So far, the BMPs have met or exceeded expectations related to stormwater management.

**Number of jobs created:** Unknown

**Job hours devoted to project:**

Planning and Design: 800

Construction: 300
Annual Maintenance: Not available

## Performance Measures

**Stormwater reduction performance analysis:**
100% of a 2-year storm is retained on site

**Community & economic benefits that have resulted from the project:** Over 2,000 third graders per year visit the site as part of their curriculum to learn about watersheds and stormwater management. SD1 staff lead students in a variety of experiments throughout the site. In addition, developers and other municipalities have visited the site to learn how learn about BMPs and how to integrate them into their projects. SD1 staff continue to measure the effectiveness of the green roof and other BMPs to see how they perform over time.

## Project Recognition

Kentucky Chapter ASLA Award of Excellence; Green Roofs for Healthy Cities Award of Excellence for Extensive Institutional Roof

## Additional Information

**Links to images:** http://humannature.cc/index.asp?page=sustain_sd1
http://humannature.cc/index.asp?page=greeninfrastructure_site_sd1_park