



Green Infrastructure & Stormwater Management CASE STUDY

Deerpath Golf Course

Location: Lake Forest, IL

Client: City of Lake Forest

Design Firm(s): Lohmann Golf Designs, Inc., Bleck Engineering, Applied Ecological Services

Landscape architect/Project contact: Todd Quitno

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ASLA Chapter: None

Project Specifications

Project Description: In 2005, the City of Lake Forest (IL) renovated Deerpath Golf Course, which was routinely flooded by runoff from a nearby hospital campus. The project included the construction of a 1-acre retention pond and several acres of man-made wetlands to serve as an attractive, effective overflow network. Ducks, heron and egrets have since found a home at Deerpath, and the wetland system is working effectively to filter the polluted off-site water before it re-enters the nearby Skokie River. The retention pond, which provides a strategic hazard along the 12th fairway, will serve as the primary irrigation source when the course transitions over from their current City-supplied system.

Project Type:

Golf course / recreation

A retrofit of an existing property

Design features: Bioretention facility, bioswale, use of emergent, wet prairie and mesic prairie plantings developed in a bioswale drainage pattern to slow the influx of water and filter suspended solids, installed at ingress and egress of stormwater.

Retention and release of flood water through series of ponds and decorative weir structure to control stormwater and provide aesthetic appeal.

This project was designed to meet the following specific requirements or mandates:

State statute, county ordinance, local ordinance, flood control and water quality requirements per the Lake County Stormwater Management Commission

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 client requested that the pond system be designed to supply irrigation use in the future and minimize the dependence on City-provided well water. The new pond system also eliminates the costly pumping needed to remove stormwater from the site.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$500,000-\$1,000,000 (Public funding: Regional - \$120,000 Best Practices Grant)

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: Since the project area was part of an existing golf course, the function of which remained the same following construction, preserving the open space in that function was a mandatory parameter of the project. The golf course was an ideal location for the stormwater management because a rudimentary system was already in place and land was available for the expansion and enhancement of this system.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs. This project was initiated as more of a reaction to the increased stormwater runoff that the golf course was experiencing due to adjacent development and the negative impact it had on course operations. The resulting benefits to the adjacent property(ies) in terms of flood control and water quality were an added bonus. The cost savings experienced by the golf course were reduction in course closures and revenue loss (flooding), and use of the water storage as a future source for irrigation and animal habitat. Traditional gray infrastructure would not have allowed the latter.

Number of jobs created: None

Job hours devoted to project:

Planning and Design: Landscape architect - 200 hrs; Engineer/Environmental Consultant - unknown

Construction: Land. arch. - 60 hrs.

Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:

Stormwater storage capacity designed to provide 1.5 times the pre-existing storage capacities of the localized site for all storm events.

Community & economic benefits that have resulted from the project: The project was designed to enhance the golf course playing experience and minimize course downtime due to previous flooding issues - the result of both being measurable enhancements to the property. Controlling the release of floodwaters into the Skokie River has improved down stream flood conditions to some degree. The biggest impact, however, is the vast improvement in water quality at the point of release due to the filtering capacity of the wetland system. This has greatly improved downstream water quality.

The improvements to the overall property, which is surrounded by development on all sides, has allowed for a variety of wildlife to prosper on site, including water fowl, deer and other animals. The project also improved habitat for the Blanding's Turtle, a threatened species native to the area.

Additional Information

Links to images: <http://www.lohmann.com/renovation-restoration/deerpath/index.html>