



Green Infrastructure & Stormwater Management CASE STUDY

The Steel Yard

Location: Providence, RI

Client: The Steel Yard - Ms. Drake Patten, Executive Director

Design Firm(s): The Klopfer Martin Design Group

Landscape architect/Project contact: Kaki Martin, ASLA

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ASLA Chapter: Boston



Photo: by Annali Kiers, courtesy of the Steel Yard.

Project Specifications

Project Description: The Steel Yard's cleanup is a showcase for regenerative design in a tough environment. Within industrial Providence, our project is a public intervention that upends commonly held notions of blighted neighborhoods and shows the potential for real, actively engaged—not simply 'adaptive'—re-use. The Steel Yard's landscape for learning embodies the non-profit's mission through innovative (and necessarily inexpensive) brownfield remediation, stormwater filtration/reduction, purposeful design and placemaking.

The design intent is to create a memorable and flexible place for this growing, arts-based non-profit that embodies their mission, engages the site's unique existing structures, utilizes the best sustainable practices possible within a constrained budget, and provides a public landscape to an underserved neighborhood of Providence.

Project Type:

Non-profit/institutional/education/industrial arts/

Open space

A retrofit of an existing property

Design features: Bioswale, porous pavers, curb cuts, and pervious concrete.

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

State statute, local ordinance, to meet funding criteria, developer/client preference

Impervious area managed: 5,000 sq/ft to 1 acre

Amount of existing green space/open space conserved or preserved for managing stormwater on site: less than 5,000 sq/ft

The regulatory environment and regulator was apprehensive about the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? The project had to handle the clients day-to-day activities of teaching, making and receiving deliveries, act as a defacto public park and handle the series of large public events that the client holds which can have over a 1,000 attendees at a time on site.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$500,000-\$1,000,000 (Public funding: Federal, state, and private donations also contributed significantly to the project)

Related Information: The project cost of \$800,000 included capping of contaminated soil, stormwater management in the form of bioswales and a variety of pervious pavements, accomodation of vehicular traffic and other site amenities.

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: Had we not also been needing to provide a clean cap over contaminated soil at the same time we would have saved more money. Having said that, keeping more green and less pavement is always helpful for the bottom line.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Significantly reduced costs (10% or greater savings). The permitting agencies were pushing for us to use an underground stormwater storage system rather than infiltrate. The cost of this strategy was estimated at a number that exceeded the budget for the entire project - the entire project would have been unfeasible. After a stand-off of sorts, the regulatory agency relented and agreed with our infiltration strategy.

Number of jobs created: Unknown

Job hours devoted to project:

Planning and Design: 1,500-2,000 hours

Construction: 5-6 months full time of average 3 person crew

Annual Maintenance: unknown at this time - very minimal

Performance Measures

Stormwater reduction performance analysis:

Using bioswales and various pervious pavements, the project was designed to manage and infiltrate 90% of annual rainfall.

Community & economic benefits that have resulted from the project: These two quotes say it best:

- "The Steel Yard's mission, and thus the intent of the cleanup, is focused on community redevelopment through an economy built on vernacular creativity. In the last 7 years, the Yard has steadily recast artists as laborers and laborers as artists. This work required a site plan to match. The bold marriage of strong, innovative design with environmental sustainability (on a small budget) perfectly matches the Yard's mantra of teaching by showing." Ms. Drake Patten Executive Director
- " We embedded lessons from The Steel Yard in the city's comprehensive plan, so it will have an impact on the process for a long time." Congressman and Former Mayor, David Cicilline

Project Recognition

BSLA Honor Award 2011; Providence Historic Preservation Award 2011; Metropolis Magazine January 2011 "Rising from the Ashes"

Additional Information

Links to images: <http://www.klopfmartin.com/> Go to projects campus+masterplanning,
The Steel Yard