



# Green Infrastructure & Stormwater Management CASE STUDY

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## Diamond B Construction Bridge Truss Courtyard

**Location:** Alexandria, LA

**Client:** Bryan and Renee Bossier

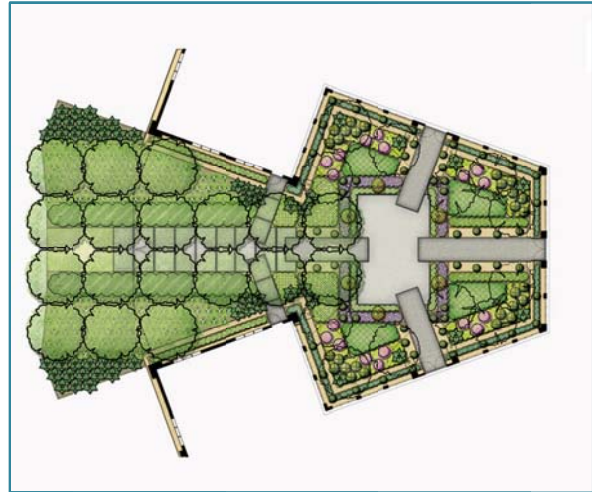
**Design Firm(s):** Jeffrey Carbo Landscape Architects

**Landscape architect/Project contact:** Project Manager - Rebecca O'Neal, Affiliate ASLA

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**ASLA Chapter:** Louisiana



### Project Specifications

**Project Description:** Diamond B Construction is a road and bridge construction company headquartered in Central Louisiana, with offices throughout Louisiana. The company also manufactures concrete, aggregate, and asphalt products, as well as road signs and striping/surfacing products. After hiring the architect, the clients came to us and asked for our involvement in site planning for the new executive offices, which employ approximately 40 people. Our project role included the design of an employee and guest central courtyard space. The use of recycled, native landscape, and materials specific to the company's mission drove the overall design direction. Our scope also expanded to the interiors, to include paint and finish schedules for the entire office, as well as extensive design recommendations for the lobby and conference areas, including furniture and art embellishments.

The centerpiece of the project, the courtyard pavilion, required many hours of coordination and detail design. The salvaging of the Highway 84 Bridge over the Black River became a project in and of itself requiring permitting, coordination, and transportation. The design of the pavilion then became based on what was available and useful, from trusses, to metal beams, chains, and wood. Roof storm water is carried from rainchains to oversized rock channels which flow through rain gardens planted with native plants. The rain gardens filter overflow stormwater and then fill catch basins that flow through subsurface pipe to an existing open drainage canal. Curbs were eliminated in multiple areas to allow stormwater to drain into adjacent bioswales planted with native Louisiana iris which slows the flow and filters the stormwater.

**Project Type:**

Commercial  
Part of a new  
development

**Design features:** Rain garden, bioswale, downspout removal, curb cuts, 4" grass gaps in paving, and loose drainage channels of rock were used to manage stormwater.

**This project was**

**designed to meet the following specific requirements or mandates:** Local ordinance

**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** 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, the client was very conscience of building with sustainable design which included energy savings, allowing for green space and allowing for overall property enhancements.

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$100,000-\$500,000 (Public funding: None)

**Related Information:** Costs approximately \$125,000.00-\$150,000.00 Total. -Structure- \$80,000.00 -Drainage/Sitework/Hardscape +/- \$40,000.00 -Landscape- \$30,000.00

**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:** All site work was proposed in an efficient way to conserve open space, therefore site infrastructure cost was less than it would have been had the site planning component been more ambitious.

**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). It reduced costs by the site design having less paving, and use of gravel and aquatic bioswales meant less pipe.

**Number of jobs created:** +/- 25

**Job hours devoted to project:**

Planning and Design: 100

Construction: 4,000

Annual Maintenance: 80

## Performance Measures

**Stormwater reduction performance analysis:**

Data not available

**Community & economic benefits that have resulted from the project:** We understand the need for developing affordable designs that can be maintained over time. We incorporate sustainable design elements within the project. By incorporating a mixture of stormwater management, adaptive re-use of materials, and the use of native plantings, we provide the best solution to the site. The aspect of economic sustainability comes into play when considering the long term maintenance of a project. We strive to design for the client's ability and desire to maintain the design in this manner, the end result can provide for both economic and environmental sustainability.

## Project Recognition

Louisiana Chapter 2011 Merit Award

## Additional Information

**Links to images:** [www.jeffreycarbo.com](http://www.jeffreycarbo.com)

[http://jeffreycarbo.com/proj\\_gallery.php?aid=54&categoryid+4&projid=155](http://jeffreycarbo.com/proj_gallery.php?aid=54&categoryid+4&projid=155)

Roof stormwater is carried from rainchains to oversized gravel channels which flow to rain gardens planted with native plants. The rain gardens filter overflow stormwater and then fill catch basins that flow through pipes to an existing open drainage canal. In multiple areas, curbs were eliminated to allow stormwater to drain into adjacent bioswales planted with native Louisiana iris which slows the flow and filters the stormwater.



