



Green Infrastructure & Stormwater Management CASE STUDY

Mosdos Ohr Hatorah Rain Garden

Location: Cleveland Heights, OH

Client: Mosdos Ohr Hatorah

Design Firm(s): David Toguchi Landscape Architects; Neff & Associates

Landscape architect/Project contact: David Toguchi, Principal, ASLA

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ASLA Chapter: Ohio

Project Specifications

Project Description: A foreclosed dilapidated house was torn down, recycled, repurposed and converted into a bioretention basin for a rain garden. A potentially dangerous eyesore was converted into an on-site infiltration system and an attractive rain garden with cost-effective results. Effective rain gardens are difficult to install in much of Ohio due to the clay soils.

A school bought an adjacent foreclosed house, in too poor of condition to rehab. The house was torn down, leaving the basement intact, with the floor slab busted up to allow drainage through. The basement was then filled with the demoed brick and concrete and some additional drainage gravel. The remainder of the demoed materials were recycled. The old basement became the bioretention basin for a rain garden on top. All is installed except for the plants for the raingarden going in this coming spring. Future additional parking will also drain into the rain garden. The Planning Director for the City of Cleveland Heights came up with the idea of converting the basement into a drainage basin for a rain garden.

Project Type:

Institutional/education

A retrofit of an existing property

Design features: Rain garden, a bioretention basin, future parking with no curbs draining into the raingarden, and use of perforated underdrain lines.

This project was designed to meet the following specific requirements or mandates: The adaptive reuse of the basement into a cistern/bioretention basin and rain garden was the idea of the City Planning Director and the School went along with the idea.

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: 5,000 sq/ft to 1 acre

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 owner above all else wanted something low maintenance. As a result, the number of plant species was decreased, and only very tough, very adaptive, mostly native plants were used. Plants which could spread to some degree with enough variety of plants to cover different yearly weather extremes. However, with fewer varieties to allow the maintenance people to easily keep track of and not mistake for weeds.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$10,000-\$50,000 (Public funding: None)

Related Information: Project is not yet complete: Rough Estimate: \$9,000, Material \$18,000 labor & equipment

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: Because of the nature of this particular project, the conserving or maintaining of green space was really not a major factor. The costs of this project are mostly impacted by the conversion of the existing basement into a bioretention basin and rain garden. There would have been costs in demolishing the house one way or another. In the process adaptive reuse of a dilapidated structure too run down to rehab was converted into positive element for the neighborhood and handled much of the stormwater on site.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs. To be more precise, the costs increased because of the adaptive reuse of the basement and new rain garden were more expensive than just demoing the house and doing nothing else with it. The dilapidated house had to come down. Any other repurposing or new use of the site probably would have been way more expensive than what was done. We were able to reuse the basement and much of the demoed materials right on site.

Number of jobs created: Unknown - Created work for 2 contractors and the landscape architect.

Job hours devoted to project:
Planning and Design: roughly 70

Construction: roughly 500
Annual Maintenance: roughly 10

Performance Measures

Stormwater reduction performance analysis:

Data is not available. Estimated roughly 80% (4/5ths) or more of the back portion of the property affected, the stormwater would be retained on site.

Community & economic benefits that have resulted from the project: The project should be completed this spring. We believe the rain garden will be an attractive asset to the neighborhood. We are hoping the school will eventually incorporate the rain garden into a learning and possibly a research exercise for the students.

Project Recognition

Additional Information

Links to images: Project should be completed this spring. No images are up at this time.

Due to the current economic housing crisis across the country resulting in a large supply of poorly maintained foreclosed houses and facilities, this project is an innovative example of resourceful adaptive reuse which can be widely applied with comparatively little expense while adding the values mentioned above. Abandoned and/or run down homes and buildings present both a danger and an eyesore to a community, ultimately hurting property values and the image of the neighborhood