Green Infrastructure & Stormwater Management CASE STUDY

Luther Acres Rain Gardens and Alley Project

Location: Lititz Borough, Lancaster County, PA
Client: Luthercare at Luther Acres
Design Firm(s): RGS Associates Inc.
Landscape architect/Project contact: Joel R. Snyder, RLA, ASLA
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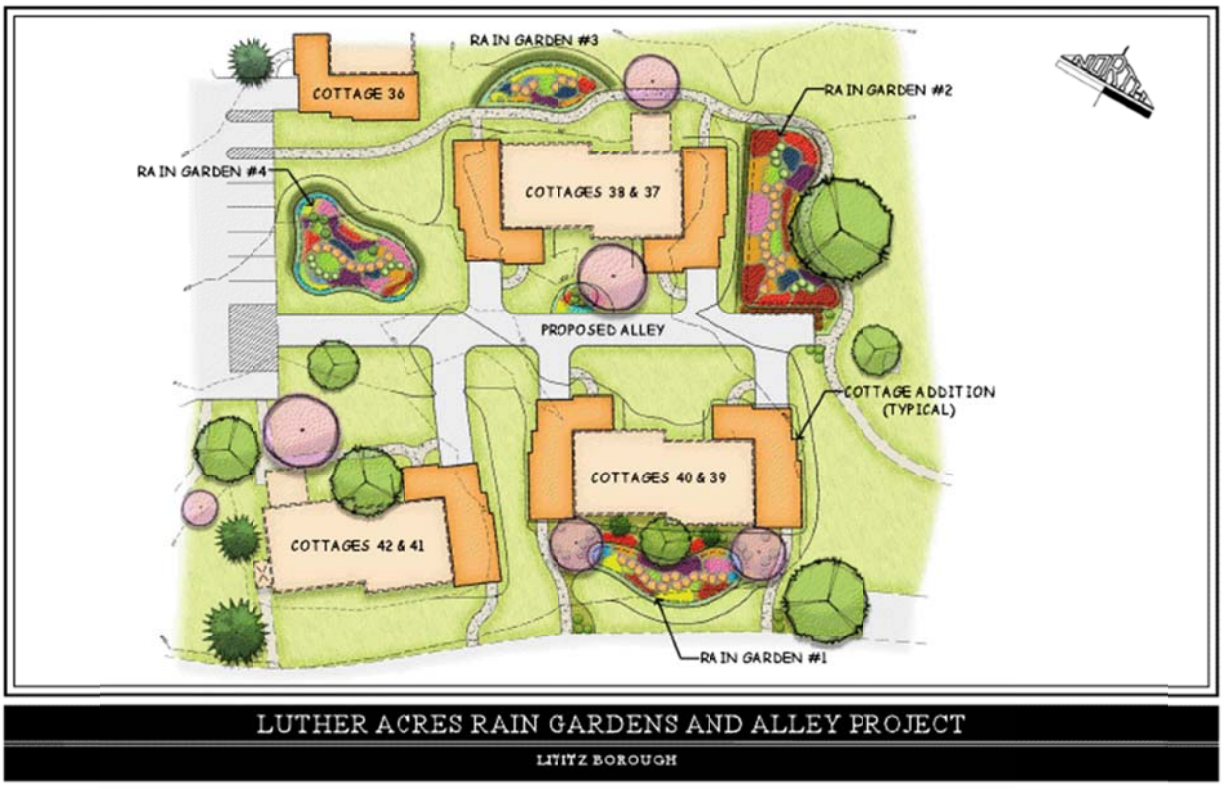
ASLA Chapter: Pennsylvania/Delaware



Project Specifications

Project Description: The Luther Acres rain gardens project is an infill building addition project located on the existing Luther Acres Retirement Community campus, which is located within the Lititz Borough R-1 Residential District. The existing site consists of a total of 54.58 acres with 38.8 acres being located within Lititz Borough. The remaining portion of the campus is located

in Warwick Township. The existing site contains 526 units comprised of 106 skilled care beds, 70 assisted living units, 218 independent living apartment units, and 132 cottage units.

The Luther Acres rain gardens and alley project is in response to a market demand to meet the needs of the new generation of retirees by providing more modern cottages, with attached garages and more living space. Part of Luther Acres' goal was to grow and expand their existing campus in a low impact development fashion. Six existing cottages were proposed for renovation and expansion. In order to accommodate the garages, an alley was proposed between the cottages.

As a result of the building additions and new alley, the net impervious surface area for the site increased, creating a need for stormwater management controls to be implemented. Four heavily planted rain gardens were proposed and constructed as a green infrastructure alternative to traditional grey water methods. Project challenges included extensive work around existing cottages and utilities that needed to be maintained, working with flat topography, and dealing with the increase in impervious surface only through the use of rain gardens, all while minimizing impacts to the existing campus. The result was a design that accomplished the project goals, while creating community amenities through the use of rain gardens.

Project Type:
Other (please specify)
A retrofit of an existing property

Design features: Rain garden, utilized over land sheet flow (no curbing) on the alley as well as disconnecting the downspouts from the storm system.

This project was designed to meet the following specific requirements or mandates:
Local ordinance, 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: 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 client was interested in how utilizing rain gardens would affect the marketability and value of the adjacent residences. Changes in the retirement market indicated that residents were becoming more interested and increasingly aware of green infrastructure practices.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: $10,000-$50,000 (Public funding: Not available)

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: By installing rain gardens, money was saved by avoiding the use of traditional grey water infrastructure (i.e. HDPEP pipes, concrete inlets, endwalls etc). Through the use of rain gardens, we were able to avoid having to reanalyze the existing stormwater basin as well as avoiding having to get as-built survey of the existing stormwater basin and survey of the existing storm structures and piping associated with the basin.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs. The overall cost was likely the same, although not proven, as if it was done with traditional grey infrastructure. The rain gardens provided additional site amenities and added aesthetic appeal to the campus by putting money into a planted stormwater solution versus investing the same monies into underground grey infrastructure.

Number of jobs created: None

Job hours devoted to project:

Planning and Design: 200
Construction: Not available
Annual Maintenance: part of an overall maintenance budget for the campus

Performance Measures

Stormwater reduction performance analysis:
The rain gardens were designed to infiltrate and treat the 100-year flows for all of the impervious surfaces in the drainage watershed.

Community & economic benefits that have resulted from the project: Luther Acres has received lots of positive feedback from adjacent residents upon the installation of the rain gardens. The rain gardens have enhanced the overall appearance and quality of the community.

Additional Information

Links to images:
https://docs.google.com/leaf?id=0B8f7DyvUHm2bZTEzYTM5ZmQtMjEyMS00ZGViLThiM2UtZTYyNjllNDAwOTY1&hl=en