



Green Infrastructure & Stormwater Management CASE STUDY

Leader Heights

Location: S. George Street, York Township, York County, PA

Client: Multi-Properties, Inc.

Design Firm(s): RGS Associates, Inc.

Landscape architect/Project contact: RGS Associates, Inc.

Email: johns@rgsassociates.com

ASLA Chapter: Pennsylvania/Delaware

Project Specifications

Project Description: Construction of 23 multi-family residential buildings clustered throughout the site with associated infrastructure. The stormwater methodology utilized pervious concrete for parking spaces as well as driveways, parking aisles, etc. to infiltrate stormwater where the runoff is created. Additional measures include stormwater quality inlets and protection, underground rate control and/or pipe trenches, innovated landscaping and raingardens, plunge pools and stilling basins.

Project Type:

Multifamily residential

Part of a new development

Design features: Bioretention facility, rain garden, porous pavers, and curb cuts.

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

State statute, local ordinance

Impervious area managed: greater than 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: 1 acre to 5 acres. The project scope examined environmentally sensitive areas and proposes to preserve and enhance a stream and wetland corridor bisecting the site. This corridor measures approximately 70' in width.

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 developer was well aware of the enhancement of property values through the use of these BMP's and a useable open space for passive recreational opportunities and overall environmental benefits. The energy savings will be evaluated through the selected architect.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$1,000,000-\$5,000,000 (Public funding: Not available)

Related Information:

- Pervious Concrete Paving 19,122 SY \$960,000
- Regular Bituminous Paving 10,450 SY \$240,000
- Stormwater WQ Structures 12 Each \$48,000
- Piping & Underdrain 2,985 LF \$140,000

Was a green vs. grey cost analysis performed? Yes. This cost opinion was developed for utilization of the site with the above mentioned measures vs. traditional stormwater measures. In traditional measures, the land area for "traditional" BMP's such as a detention basin eliminated too much useable area to allow for redevelopment of the site.

Cost impact of conserving green/open space to the overall costs of the site

design/development project: The enhancement of the open space added approximately 5% to the overall costs of the project. This project is approximately a \$8.5 million dollar project and we are enhancing the open space/floodplain by placing amenities, removing invasive vegetation, repairing disturbed areas and planting adequate riparian buffers, which has been estimated at \$400,000.

Cost impact of conserving green/open space for stormwater management over

traditional site design/site development approaches (grey infrastructure)? Slightly increased. The BMP's proposed increased construction costs by approximately \$800,000 or 10% of the total project costs. However, these green infrastructure and stormwater management techniques allowed for the site to be fully developed while adding 20% more units. So, if looking at the value of the project per unit, the benefits greatly outweigh the additional construction costs.

Number of jobs created: estimated 200 construction jobs, 4 permanent maintenance jobs

Job hours devoted to project:

Planning and Design: 350 hours

Construction: unknown
Annual Maintenance: unknown

Performance Measures

Stormwater reduction performance analysis:

Infiltrate the entire 2-year storm event on site, as well as reduce post development peak flows by 50% of the pre-development calculated for all storms up to and including the 100-year event.

Community & economic benefits that have resulted from the project: This project will serve the municipality as a showcase for addressing stormwater concerns and issues with the new regulations of the State as well as local requirements based off of the PA DEP's Model Ordinance that was adopted. This project also serves as a showcase for sites that are greatly limited for BMP's due to the topographic nature and presence of environmentally sensitive areas located in close proximity. The previous land use of the parcels were two (2) very old mobile home parks, so the removal of these parks and re-development will have positive property value impacts, though at this time has not been calculated.

Additional Information

Links to images:

<https://docs.google.com/leaf?id=0B8f7DyvUHm2bZGE4OTdkYjMtYzM0OC00NjlwLWFhMWQtMDBjZiFhNTBjOTRi&hl=en>