

Lehigh Valley Greenways Conservation Landscape SUCCESS STORY

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Archibald Johnston Preserve Riparian Buffer Restoration and Bioswale Master Plan

SUMMARY

The Friends of Johnston are working on the restoration of 44 acres of preserved fallow farmland. The property will serve as part of the Johnston Estate Park complex and nature center. Stormwater is a major concern on the property causing erosion, sedimentation, deforestation and flooding. In order to protect the HQ-CWF Monocacy Creek we are developing a plan for an engineered marshland and bioswale. We also planted a warm season grass meadow and riparian buffer study plots for environmental study and reforestation

FUNDING

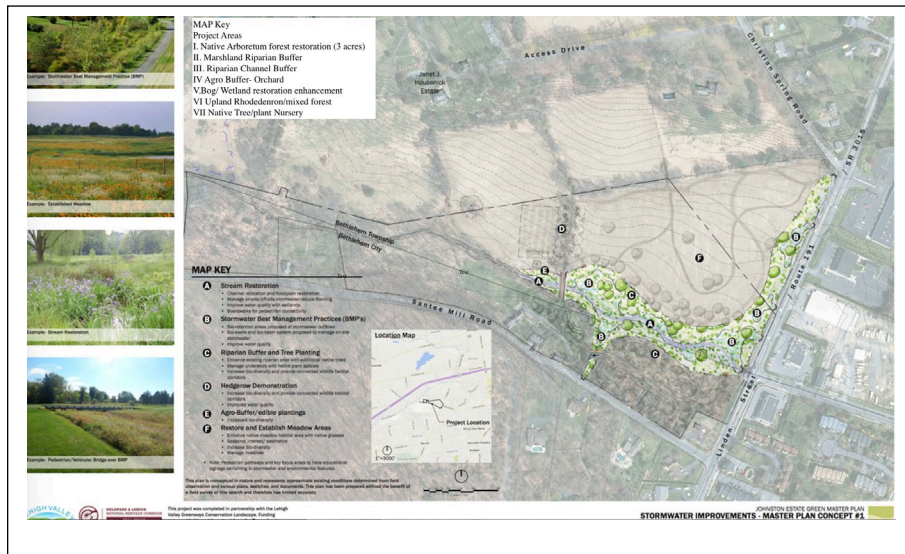
Grant Award:
\$10,000.00

Match:
\$23,804.00

Total Project Cost:
\$33,804.00

PARTNERSHIP IS KEY

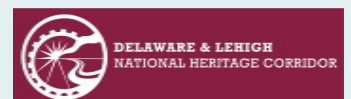
- Boy Scout volunteers helped to clear and plant native trees and shrubs
- local landscaper is donating services
- PSU Master Watershed Stewards, Master Gardeners and a forester and local municipalities are guiding the project



CHALLENGE

Restoration of 44-acres of the fallow farmland to protect the HQ-CWF Monocacy Creek from stormwater runoff. provide wildlife habitat, protect from deer browse, environmental study and create trails for recreation.

The Johnston Preserve is surrounded by open drainage ditches designed in the 1970's to drain 1.2 square miles when much of the surrounding properties were still farms. The increased storm events and increase in impervious surface are causing severe erosion and depositing of sediment, hydrocarbons, trash and road materials. A study of the soils and hydrogeology must be completed to convert the area to a functional wetland.



SOLUTION

The management of stormwater on the site is very complex and will take several different methods to mitigate. FOJ broke the site into projects- the riparian buffer and field could be completed immediately utilizing FOJ volunteers including 23 Scouts and professionals who designed and installed seven fenced riparian forestry buffer study plots. These plots are monitored to provide the data necessary to understand the complex properties of the site and provide best management principles for continued the restoration. The ten-acre field was cleared of the corn stalks and planted with warm season grasses that are managed yearly by a local farmer. Land Studies environmental engineering was engaged to study the 16-acre frontage and developed a stormwater management master concept plan that included micro pools, sheet flow and an engineered marshland and bioswale. This concept plan is the first step in the process of developing a functional stormwater management system.

RESULTS

- 1) 23 volunteers worked together to design and plant 100 native trees and shrubs in 7 fenced in plots.
- 2) The 10-acre field was planted with warm season grasses and is managed annually by a local farmer.
- 3) Land studies made several site visits and developed a master concept plan for stormwater management was designed with several natural mitigation methods sheet flow for infiltration, micro pools for nutrient and sediment containment and a 1000' bioswale to replace the existing failing open stormwater channel that is suffering from severe erosion and causing flooding to the adjacent properties and the Monocacy Creek.
- 4) Temporary signage was developed and installed on site to educate visitors on the projects and the benefits of buffer plantings.

Contact



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COMING SOON!

ENGINEERED MARSH AND MEADOW

FOJ is working in coordination with Land Studies engineering, Audubon, and our State and local government agencies to create a new, pedestrian-safe entrance to The Johnston Estate. The engineered marsh will provide for Stormwater Management, trail creation and Habitat Restoration for many insects and animals including the bird species of Green Pond Marsh. This project will help decrease, clean and infiltrate the stormwater before it enters the Monocacy Creek and utilizes open space to assist municipalities in meeting their MS4 stormwater management responsibilities to decrease flooding and protect our waterways.

Funding and materials for this project were provided by:
PA DCNR, PennVEST, Northampton County Open Space Initiative, City of Bethlehem, Bethlehem Township, Palmer Township, Back Yards for Wildlife, Octoraro Native Plant Nursery, and the volunteers of Friends of Johnston, Inc.



PROJECT IN PROGRESS

FORESTED RIPARIAN BUFFERS ARE ESSENTIAL FOR HEALTHY STREAMS

They are the most *cost-effective* way to:

- Filter excess nutrients, sediment, and pesticides from runoff
- Improve the safety and reliability of the water supply
 - Reduce water treatment costs
 - Stabilize stream banks
 - Reduce flooding
- Maintain ideal water temperature for aquatic animals
- Protect native plant species and provide habitat for wildlife
 - Absorb and store carbon from the air
- Feed streams with organic matter essential for bottom dwelling organisms
 - Help conserve scenic and recreation areas

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