

# **Stony Run Streambank Restoration**

## **East Cocalico Township**

### **Community Conservation Grant - Clean Water Fund**

#### **Lancaster County Community Foundation**

#### **Project Details**

The area of Stony Run selected for this project flows through a mowed area between Hill Road and a wooded portion of the site. The land is owned by the Township. The area within the woods included wetlands, therefore that area was not part of the project to avoid the permitting issues related to the wetlands. The total length of the stream selected for this project was 265 feet. At each location there was significant erosion on only one side of the stream – on the outside of the meanders. In all cases the opposite side of the streambank was fully vegetated and without steep slopes. On the eroding sides of the stream the vertical bank height ranged from 3.0 to 4.0 feet.

Streambank restoration requires a general permit from PA DEP, but in Lancaster County general permit applications are processed by the Conservation District. The required permit is the GP-3, “Bank Rehabilitation, Bank Protection and Gravel Bar Removal.” The permit application was prepared by Township staff. We received notification that the GP-3 had been approved in late January 2021.

The earth moving for the project was delayed until the weather would allow for the disturbed areas to revegetate rapidly. The actual work was done in May 2021. The eroding streambanks were modified to a 1V:2H slope to reduce the erosive force of the water, especially during storm events. After the slopes were reduced, they were seeded with a native plant mix from Ernst Seeds, (ERNMX-263, “Piedmont Province Riparian Mix”). After seeding, the exposed soils were covered with matting (Rollmax BioNet S-150BN Erosion Control Blanket).

The earthmoving to reduce the slopes of the eroding banks produced an estimated volume of soil of 107 cubic yards. As the soil was excavated it was placed directly into a dump truck and moved to the “soil disposal area” a few hundred feet from the stream (protected by a “silt sock”), and out of the flood plain. After all of the soil had been relocated, the area was also reseeded.

Since the project was completed, we have had several substantial storms. On June 8, 2021 in response to a severe thunderstorm, the stream rose to near bankfull without any apparent damage to the matting or the slopes. With a fairly dry summer, the seed mix has been slow to become established. However, it should fill in more fully when we get additional rainfall.

Using the “default effectiveness values” as specified in the Pollution Reduction Plan instructions (3800-PM-BCW0100k Rev. 3/2017), a value of 115 pounds of sediment reduced for every linear foot of the streambank restored, the 265-foot length of the project results in an estimate of an annual reduction in sediment loss of 30,475 pounds per year. With a total project cost of \$12,483.18 (\$7,483.18 in Township matching in-kind contributions, plus the \$5,000.00 from the grant). This works out to be a total cost of approximately \$0.41 per pound of sediment reduction.

## **Project Budget**

All of the grant funds were spent on the project. The project expenses and the Township's in-kind contributions are given in the attached spread sheet. The in-kind match was valued at \$7,483.18, which works out to an in-kind contribution ratio of \$1.50 in Township funds for every dollar of the grant.

Purchases for the project included a gas-powered water pump that connects to a garden hose for watering using water from the stream during extended dry periods.

## **Live-stake nursery**

Using trees and shrubs provided through the Ten Million Trees project, we obtained a variety of species that were planted into the riparian buffer around the project. The total buffer width is 75 feet. Around half of that distance will be wildflower meadow, and the remainder will be planted with trees and shrubs. The side of the project facing the Township building is limited to shrubs which will be kept to a height limit of four feet because of safety concerns related to the Police Station located in the Township building. The concern is to not create locations where people could potentially hide and ambush officers. Other trees near the Police Station were removed several years ago for the same reason, and the corn grown in the leased farm field around the Township Building has been replaced with a forage crop.

The Live-stake nursery will be used to provide live stakes to Township residents for use on streambanks on their properties within the Township. We plan on holding public workshops where residents can learn how to use live-stakes and also receive a free supply for their projects. There are many residential properties within the Township with streambanks where there is significant erosion, partly due to people maintaining lawn right up the edge of the stream. The Township plans ongoing efforts to educate our residents on proper stream maintenance.

With the help of volunteer UGI employees, we planted 139 trees and shrubs adjacent to the reach of the stream where the project was done. We have ordered additional plants for fall delivery that will be added to the buffer zone/live-stake nursery.

## **Sign and Public Education**

A sign was made using project funds to explain the project and to acknowledge the support of the organizations involved in the project: Lancaster County Foundation, National Fish and Wildlife Federation, Lancaster Clean Water Partners, and East Cocalico Township. Hopefully the educational value of this project, because of its proximity to the Township building, will encourage Township residents to make improvements to streams on their own properties. An article about the project will appear in the Township's Fall/Winter 2021 newsletter (a copy is at the end of this report).

**Photographs of project.**



1-Streambank before restoration



2-Streambank after restoration



3-Removing walnut trees at top of bank



4-Installing silt-sock at soil disposal area



5-Excavation of soil from banks



6-Spreading soil in disposal area



7- Excavation completed



8- Seeding banks



9- Installing protective matting



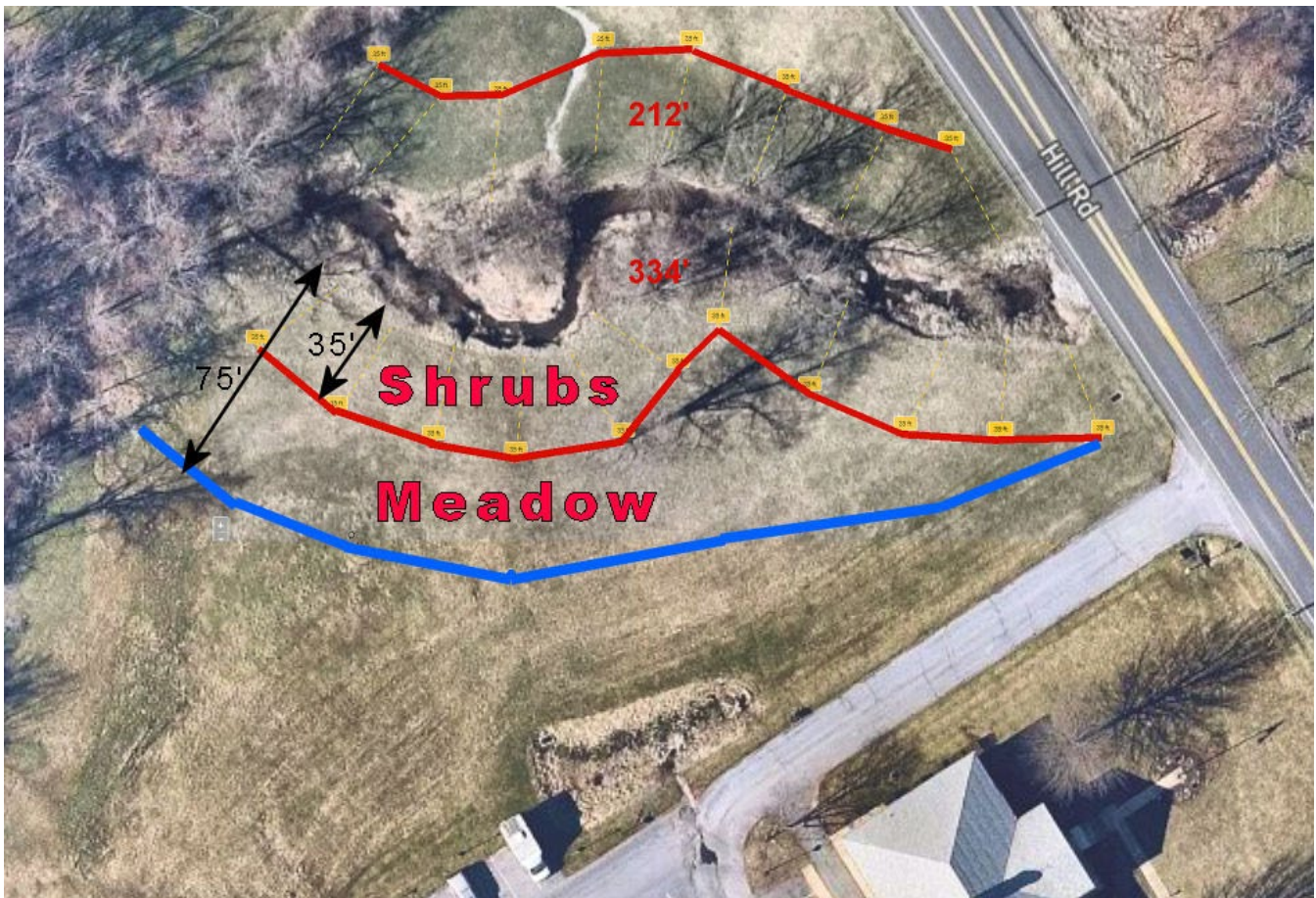
10- UGI volunteers planting trees and shrubs



11-Hill Road flooding on June 8, 2021



12- Flooding on June 8, 2021



15-Riparian buffer around project



Project sign along Hill Road