

Bulletin Weekend

Volume 106 - No. 217

AUGUST 30 - 31, 2008

50¢ Newsstand/35¢ Home Delivery

Massive streambank mitigation project now underway in Ligonier

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The Loyalhanna Watershed Association (LWA) has worked over the years bracing the banks of the streams within the Ligonier Valley from erosion with the help of young volunteers and area conservation organizations, but the current project under way in Ligonier along Route 30 is massive in scale, encompassing 1,800 feet of Loyalhanna Creek on both sides of the bank, and requires professional contractors to move the many tons of stone.

The project begins at the confluence of Mill Creek and Loyalhanna Creek and follows the Loyalhanna along the farm and fields of Robert Ray to approximately 500 feet from Two Mile Run Road.

A temporary bridge has been constructed through the creek so the construction vehicles can cross without damaging private roads and the bridge will be taken out when the project is completed in late September.

This time of year the stream is very low and contractors Wallace and Pancher of Hermitage have been working on schedule beneath sunny skies.

The project will cost approximately \$230,000 and is fully funded by PennDOT as part of efforts to offset an encroachment to Monastery Run during the Route 30/981 construction project near St. Vincent College.

According to Daryle Fish, president of the Loyalhanna Watershed Association, "Because of the work out there PennDOT is required to do a streambank mitigation project. Since there was an astounding need for this they decided to fund it."

The LWA pitched the project to PennDOT and it was selected because, according to LWA executive director Drew Banas, "They impacted the watershed and they wanted to keep the project in the watershed and selected what best fit their needs."

Banas reported that his organization targeted the project area after a past survey by LWA intern Scott Millberg identified it as one of the major erosion areas on the upper Loyalhanna.

The area loses 2 to 3 feet of streambank each year as a result of flooding and if nothing were done the eastbound lanes of Route 30 could be threatened.

On the other side of Loyalhanna Creek, along the Ray property, large sycamores and a portion of planted field containing corn and soybeans are falling away.

The streambank restoration efforts have proven successful on 10 other project areas along Mill Creek starting in Waterford where in 2006 a \$50,000 Growing Greener grant set off the work there.

While these projects are not as large in scope (the largest on Mill Creek being 200 feet), they have had a significant role in combating erosion and have formed a complete and comprehensive foundation for efforts downstream.

The result of mitigation efforts also is illustrated just upstream from the current project where stone and log veins have steadied the bank through the nature park's delayed harvest fishing area.

The current project was engineered by Skelly and Loy Inc., and includes a variety of structures employed to stop erosion and build the bank.

Another aim of the project is to deepen the water, which will make it cooler and a better habitat for trout. Features of the mitigation project include:

- 500 feet of sawtooth deflectors that will catch sediment and route the current away from the bank and push the stream out toward its center. These are comprised of limestone boulders arranged in a sawtooth pattern.

- Removal of gravel bars and placement of root wads throughout the project area. Root wads are the trunk and roots of large trees that are buried into the dirt along the bank and covered with limestone boulders. The root wad faces upstream and collects sediment that rebuilds the bank.

Gravel bars are areas of sediment that collect in the stream and form islands of gravel. These are being shoveled off to 6 inches above the low water level to improve the flow of the stream.

- 450 feet of rock barbs with root wads. Rock barbs are longer than sawtooth deflectors and reach almost halfway across the stream. They consist of larger rock and are built parallel to each other like large stone docks.

Rock barbs are designed to catch silt and provide habitat for fish and other animals. There will be three rock barbs extending 30 feet into the water. Each will be 8 feet wide and stand 3 feet out of the water.

- Log veins and tree planting. Log veins will be installed through the remainder of the project area downstream from the rock barbs. The LWA is being careful to preserve the canopy cover from existing trees in this area.

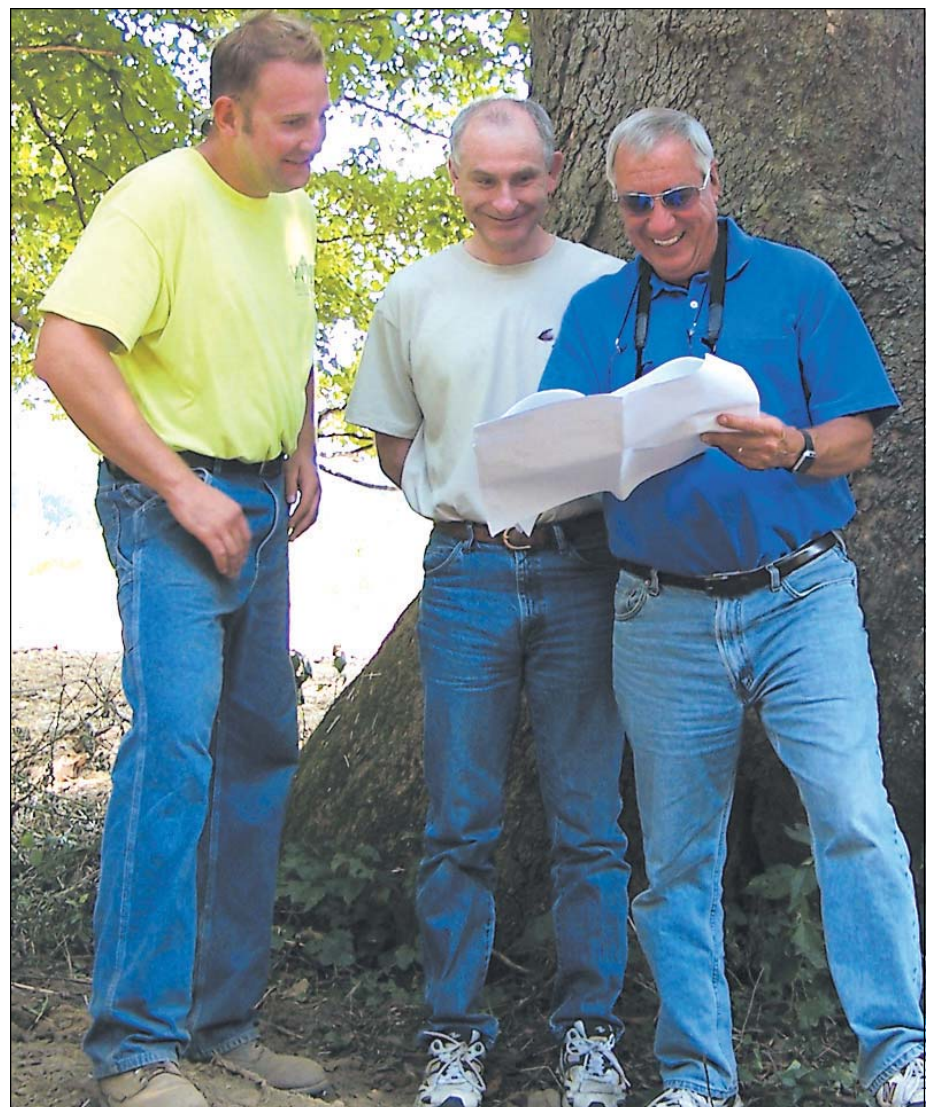
The log veins are large logs installed in the bank facing upstream and held in place with rebar and stone. They are designed similar to root wads and capture sediment, which collects and rebuilds the bank.

- Bridge stones and tree preservation. The LWA acquired large bridge stones salvaged from a bridge in New Florence. The Stones will be placed below the surface of the water to provide cover for fish.

There have also been a dozen trees that were buttressed with rocks to stop them from falling into the creek. In these cases the soil has washed away from the roots of large trees and the rocks are packed underneath them for support.

Several sections along the Route 30 side of the stream have been supported with rock including a 250-foot stretch.

Following this project the Loyalhanna Watershed Association is planning to continue efforts downstream below the Lady of the Lake bed and breakfast.



Neil Hosick of Wallace and Pancher Construction, Loyalhanna Watershed Association President Daryle Fish and Drew Banas, executive director of the LWA, look over the project plans while in the shade of a massive sycamore tree. If not for the current project the tree would have eventually fallen into the stream along with many others. The top photo shows a section of bank that was one of the most eroded in the upper Loyalhanna that is getting special care from contractors as tons of stone are being used to rebuild it. In the middle photo, Hosick and Brian Rowe of the construction company guide a dump truck as it empties stone at a section of the project where rock barbs will be installed.

Photos by Steve Russin