FINAL REPORT:
McCASLIN ROAD MINE DRAINAGE TREATMENT PROJECT

Environmental Stewardship/Watershed Protection Project
Growing Greener Project Document No. 4100034884
Project No. GD050276

Watershed: Montour Run (Allegheny County)
Grantee: Montour Run Watershed Association (MRWA)

DEP Project Advisor: Ron Horansky

A. Technical Report

1. Narrative Description of Project

   a. What was the project supposed to accomplish?

      (1) Remediation of an abandoned mine drainage (AMD) discharge from the abandoned Clinton Lake Coal Mine. This project was to bring about immediate water quality improvement in the headwaters of the West Fork of Enlow Run, a tributary to Montour Run, located just north of the village of Clinton, PA in Findlay Township, Allegheny County.
      (2) Significant decrease in acidity and metal loadings (particularly aluminum) to the West Fork of Enlow Run.
      (3) Creation of a naturally functioning wetland for water treatment and high-value wildlife habitat.
      (4) Expansion of education/outreach and stakeholder involvement in watershed restoration.

   b. What you actually did and how it differs from your plan?

      The project to design and construct the McCaslin Road Mine Drainage Treatment Facility followed plans to the degree possible. The treated discharge was originally designated as Site MP5 in the Abandoned Mine Drainage Cleanup Plan for the Montour Run Watershed of September 2003. Emanating from a 6" PVC pipe just to the west of Clinton Road (SR3089), it flowed into storm water drainage facilities, beneath Clinton Road and directly entered the headwaters of the West Fork of Enlow Run.

      The concept identified in the Cleanup Plan was to utilize a two-acre site east of the road along the stream channel, owned by the Township of Findlay and used as its Public Works Facility. The abatement measures were to include an auto-flush limestone pond and a settling pond with adjoining wetland. Limestone aggregate used by itself to neutralize the discharge eliminated the potential for nuisance odors typically present when compost is used in passive systems.

      (1) A low-maintenance passive treatment facility has been established and is successfully treating acidic, metal-bearing drainage that previously degraded the West Fork of Enlow Run. Required tasks included design, permitting, erosion and sedimentation controls, and construction of the restoration site.

(2) The system consists of:

- Six-inch PVC pipe encased in 12" steel pipe conveying the AMD discharge under the road, in lieu of the originally planned 8-inch steel casing.

- A limestone neutralization bed [Automatic Flushing Vertical Flow Pond (AFVFP)], relocated to the north side of the entrance road (Public Works Drive) from its original concept location behind the Public Works salt sheds. This bed is an automatically flushing vertical flow pond using 800 tons of AASHTO #1 limestone. Untreated mine drainage enters the AFVFP via a 10'-long perforated 6" SCH40 PVC pipe bedded in ~23 tons of R-4 riprap (inlet manifold). An underdrain consisting of a total of 90' of 8" Perforated SDR35 PVC installed in 4 separate single-line sections drains the limestone bed into a concrete siphon vault. The vault houses a Fluid Dynamic Siphons, Inc. Model 648 Automatic Dosing Siphon with optional 648/634 trigger mechanism.

- An 8,200 square-foot (SF) settling pond/wetland (SPWL) (5,900 SF pond + 2,300 SF wetland) downstream of the AFVFP.

- The SPWL drains via a rock-line outfall channel to an unnamed tributary to the West Fork of Enlow Run.

- See As-Built Schematic (attached).

c. What were your successes and reasons for your success?

(1) The discharge was previously very acidic, with an average pH of 3.3, and it had a fairly high aluminum concentration, averaging about 30 mg/L.

(2) The system is now preventing about 14,000 lbs of acid and 1,700 lbs of aluminum annually from entering the West Fork of Enlow Run.

(3) As a result, the health of an estimated 2 miles' length of this stream has been substantially improved. Our success in obtaining these results has been due primarily to the capabilities of our prime subcontractor, BioMost, Inc., and its sub-tier contractor, Quality Aggregates, Inc. with additional help provided by Centerline Boring, Inc.

(4) The design and construction of the McCaslin Road Mine Drainage Treatment Facility was described in a press release that was distributed to area newspapers. An on-site dedication ceremony for the completed facility was attended by approximately 15 citizens and officials on November 5, 2009.

d. What problems were encountered and how you dealt with them?

Significant delays and unanticipated efforts were incurred in transitioning the approved Growing Greener funding from the originally proposed Wilson School Project to the McCaslin Road Project. The actual landowner, adjacent to the Wilson School, was unwilling to accommodate an AMD treatment facility on his property.

e. How your work contributed to solution of original problems?

The BioMost design concept utilizing automatic flushing removed the need for personnel to regularly visit the site to perform manual flushing of the vertical flow pond.

f. What else needs to be done?

The McCaslin Road project is the fourth AMD treatment facility constructed to date in the Watershed. Other implementation projects remain to be completed as per recommendations in the MRWA's Abandoned Mine Drainage Cleanup Plan of September 2003. The specific AMD discharge that presently is most limiting to water quality in the main trunk of Montour Run is the tributary identified as Milk Run. A landowner willing to have a Milk Run remediation facility sited on his property has been identified. Funding remains the central issue.

g. What are your plans for disseminating results of your work?

We will appear at a Findlay Township supervisors' meeting in the near future to present a copy of this report. A copy will also be permanently placed on file at the West Allegheny Library in Imperial, PA. Additional copies will be sent to local Pennsylvania representatives, and a copy will be exhibited with the MRWA's public displays.

The As-Built Schematic, Operation, Maintenance & Replacement Plan, and water monitoring data (including pre and post construction) along with other information have been uploaded to Stream Restoration Incorporated's website: www.datashed.org. Specifically the McCaslin Road Project can be found at: http://www.datashed.org/project.php?ProjectID=457

h. How well did your spending align with your budget request?

The $146,984 Growing Greener funding granted by the Pennsylvania Department of Environmental Protection for this project was completely consumed on the project tasks. Matching cash, goods, and services valued at $31,087 were provided by prime subcontractor BioMost and its partners Quality Aggregates Inc. and G&C Coal Analysis Lab.

2. Summary in 50 words or less suitable for sharing with the public:

A new facility has been installed to treat acidic, metal-bearing drainage from an abandoned underground coal mine located west of Clinton Road (SR3089) in Findlay Township, Allegheny County. The system is preventing about 14,000 lbs of acid and 1,700 lbs of aluminum annually from entering the West Fork of Enlow Run. This was a project of the Montour Run Watershed Association with prime subcontractor BioMost, Inc. The $178,071 total project cost was funded with $146,984 from the DEP's Growing Greener program and $31,087 in matching cash, goods, and services provided by BioMost and its partners.

3. Accomplishment Worksheets: attached.

4. Photographs: attached.

5. Detailed Technical Report: not applicable.

6. Operation, Maintenance, and Replacement Plans: attached (including O&M Schematic).

B. Financial Report: submitted under separate cover.

This project was financed in part by a Growing Greener Grant provided by the Pennsylvania Department of Environmental Protection. The views expressed herein are those of the author and do not necessarily reflect the views of the Department of Environmental Protection.

Stan Sattinger
Vice President, MRWA
July 28, 2010

MP5 discharge prior to treatment issuing from existing 6” PVC pipe flowing into storm water facilities along Clinton Road (SR-3089).

80’ long 12” diameter steel casing installed beneath Clinton Road to conduct the AMD discharge to the treatment facility. A six-inch SCH40 PVC pipe was inserted into the steel casing.

Construction of the settling pond/wetland downstream of the AFVFP.

View of project site looking north from the west side of Clinton Road

Centerline Boring, Inc. of Zelienople, PA installing 12” diameter steel casing. The horizontal bore crossed under an 8” water line owned by Findlay Township Municipal Authority, Clinton Road (SR3089), and a 4” steel Dominion Peoples gas line

Dedication of the McCaslin Road Mine Drainage Treatment Facility on November 5, 2009 (Note attendees standing on AFVFP installed in working/stockpile are of Findlay Township Public Works facility.

View of Settling Pond (back ground) and Wetland (foreground) with safety fence.