Slippery Rock Creek Stream Bank Stabilization

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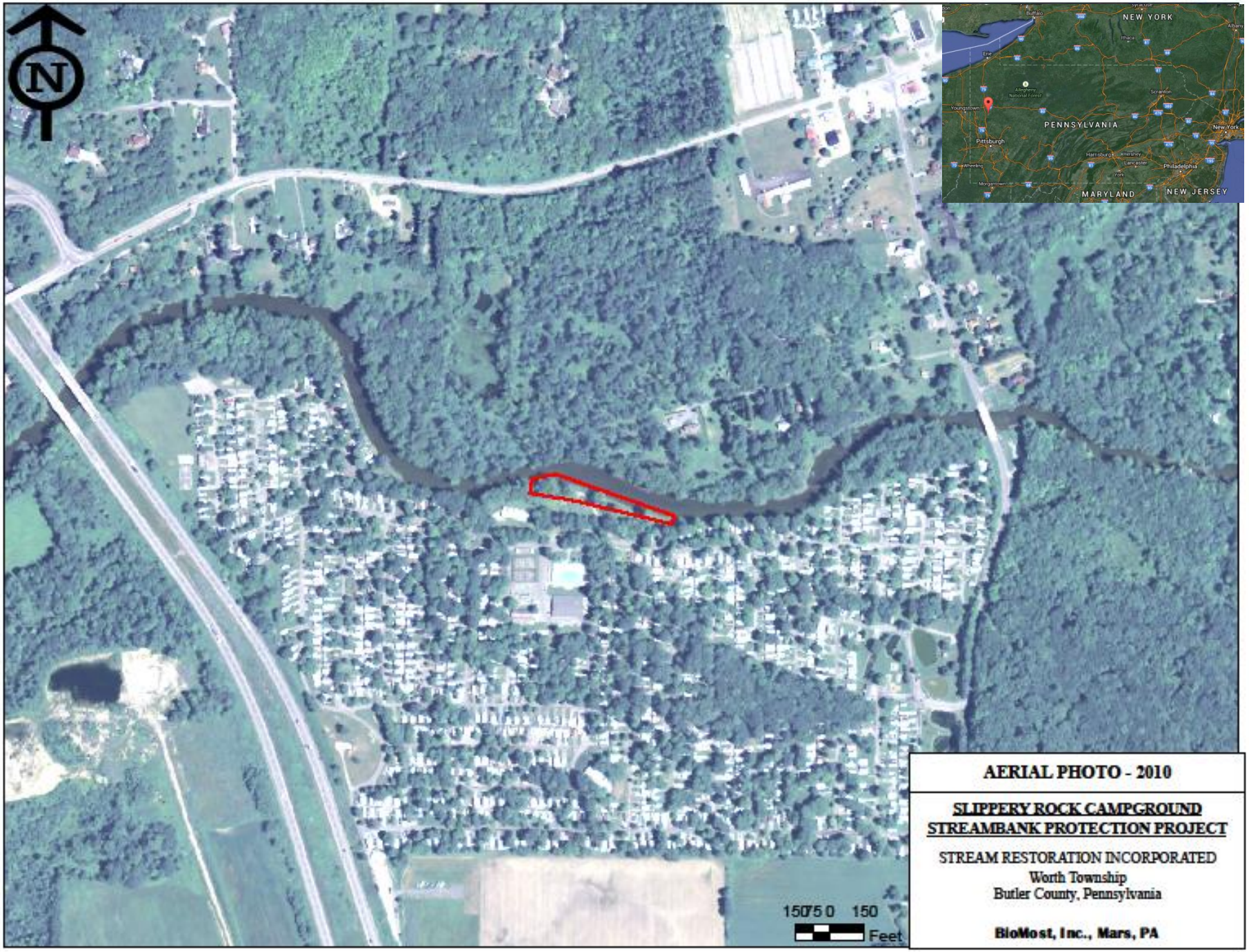

AERIAL PHOTO - 2010

SLIPPERY ROCK CAMPGROUND STREAMBANK PROTECTION PROJECT

STREAM RESTORATION INCORPORATED
Worth Township
Butler County, Pennsylvania

BioMost, Inc., Mars, PA

Erosional and Stabilization Concerns

- Major loss of property
- Under cutting and slumping
- Utility pole and utility line concerns

Goals

- Limit erosion on the property of the Slippery Rock Campground
  - Regrading of the cut bank
  - Placement of “Rip Rap” for stabilization
  - Temporary erosion control using geotextile
  - Permanent erosion control and reforestation
- Establish a riparian buffer zone for stream protection and to increase biodiversity in the area
  - 50ft zone running the length of the project area
- Provide aquatic habitat
  - Placement of root wads

Construction Phase 1: *Break Everything*

Photo to the right: Before the bulk of the construction could begin a power line had to be moved back from the stream bank. The photo to the left shows slumping that occurred due to the large amount of undercutting from the stream.

Photo to the left shows the initial phase of pulling back the embankment to allow for placement of rip rap and increase stabilization. Photo to the right shows a temporary bench used to transport and place rip rap along the toe of the streambank.

Construction Phase 2: *Riprap*

- Limestone boulders that range from 12in-36in
- Used for slope stabilization and erosion control


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E50

Construction Phase 3: *The Root Wads*


Bobcat

Construction Phase 4: *Grading*

Construction Phase 5: *Final Touches*

Coconut fiber erosion control blankets were laid along the bank and stapled in place to provide temporary erosion control until vegetation can take hold. Gravel was then placed on the designated paths to allow unrestricted access to the stream for fisherman and other recreational activities.

First Test

I’ll give it a Pass

After the flood waters subsided there were areas with up to 3in of deposited sand and silt. The lower water velocities due to the rip rap, coconut fiber blanket, and vegetation allowed for deposition of sediments instead of erosion.

Planting

- Took place on April 10th 2015
- Planted over 2,700 live stakes consisting of black and silky willow
- 25 pin oaks
- 50 American Chokecherrys
- 50 Hemlocks
- 100 White Oaks

Check-up photos from May 29th 2015.

Live stake growth after 2 months was extensive with an estimated survival rate greater than 95%

Planted tree budded and produced leaves and show good potential for the future.

Brush layering was placed in various locations during construction and show growth at every location when laying was placed.

Live stake growth along the toe with tall grasses up the bank.


*Special Thanks To The Geography, Geology, and the Environment Club from Slippery Rock University, and the staff of the Slippery Rock Campground Association.
Questions?