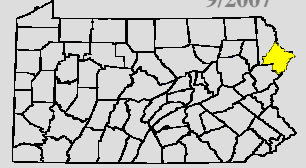


Worksite in Focus

Pike County German Valley Road

9/2007



Project Overview:

The portion of German Valley road that presents Greene Township with the most maintenance issues is a low-lying 300' section where a small tributary crosses the road. The small tributary and associated wetland are dammed by the road and forced into a single 18" crosspipe. To make matters worse, the tributary empties into a wetland lake immediately after crossing under German Valley Road. This roadside wetland and lake combination cause frequent roadway flooding and a continually wet road base. The roadway is "perpetually sinking" into the wetland, creating long-term stream pollution and maintenance nightmares. In addition to concerns about groundwater and a sinking roadway, surface water overtops the road several times annually.



Photo 1 & 2. Before the project, the road was saturated due to the surrounding wetlands. A 300' long French mattress with three 15" overflow pipes was installed on the site. Notice the elevation of the road compared to the tree on the right with red arrow. DSA has not been placed yet.



Photo 3. French mattress with overflow pipe installation in progress. 600' of DSA will be placed over the site after the mattress is given some time to settle.

Project Facts

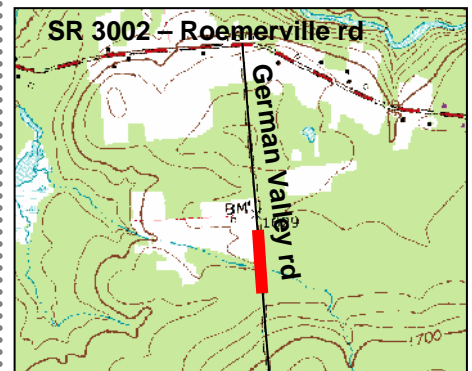
Project: German Valley Road
 Project Owner: Greene Township
 Watershed: UNT to Bridge Creek
 Project Length: 600 feet
 Date Completed: 2007

Cost Estimates:

Materials: ~\$17,000
 Equip: ~\$ 9,000
 Total: ~\$26,000
 In-Kind: ~\$ 4,000

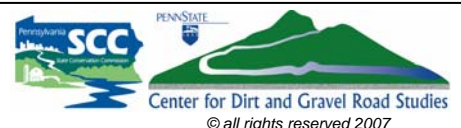
For More Information:

Center for Dirt and Gravel Road Studies
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The Plan:

Due to the wetland topography, there is virtually no fall from one side of the road to the other. A French mattress with overflow pipes will effectively reconnect the wetland hydrology and manage high flow events. Replacing the existing damaged stream pipe will help to establish a low-flow channel. The larger pipe capacity and elevated "flow-through" road bed should result in a dryer, more stable and less erosive road. A General Permit #11 was obtained for this project.

Improved pipe size:

The existing 18" pipe is undersized, partially crushed, and over half-filled with sediment. It will be removed and replaced with a 24" plastic pipe, embedded 6" into the stream bottom. Cover for the larger pipe will be obtained by importing fill and creation of a French mattress over the pipe.

French mattress:

This site is ideally suited to a French mattress because it is surrounded by wetlands on both sides. A 300' long French mattress will be constructed around the pipe as shown in Photo 4. The mattress consists of 18" of ASSHTO # 1 stone, sandwiched between layers of class 2A geotextile fabric (see photo 3). The French mattress will be just above the main stream pipe to allow diffuse flow through the roadway when water during high flows. In addition, three 15" "emergency overflow" pipes will be installed in the French mattress at 20' intervals from the stream pipe. See Photo 5 below for details. The mattress was covered with class 2A separation fabric and an additional 6" of 2A aggregate. Driving Surface Aggregate is planned for the site after the mattress has had time to settle. An added benefit of the French mattress on this site is that the fabric will act as a snowshoe to keep road material from sinking into the wetland, as was typically the case on this site. See the Center's technical bulletin for more details on French mattresses.

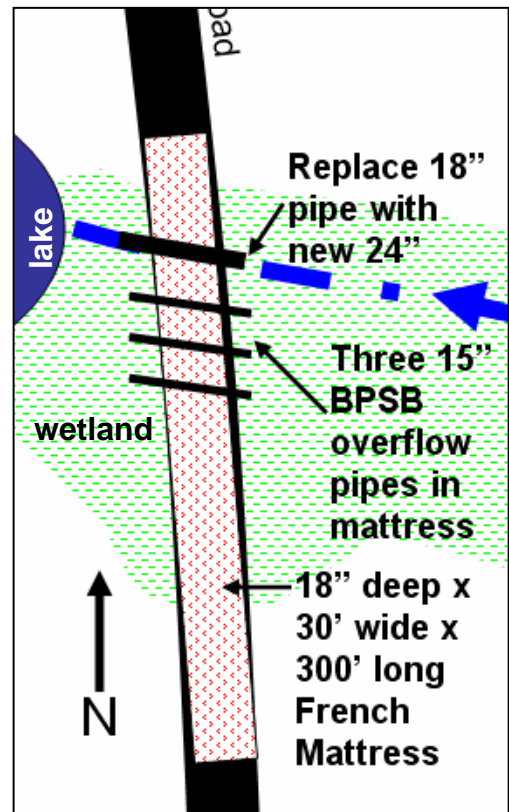


Photo 4. Site plan for German Valley Road.

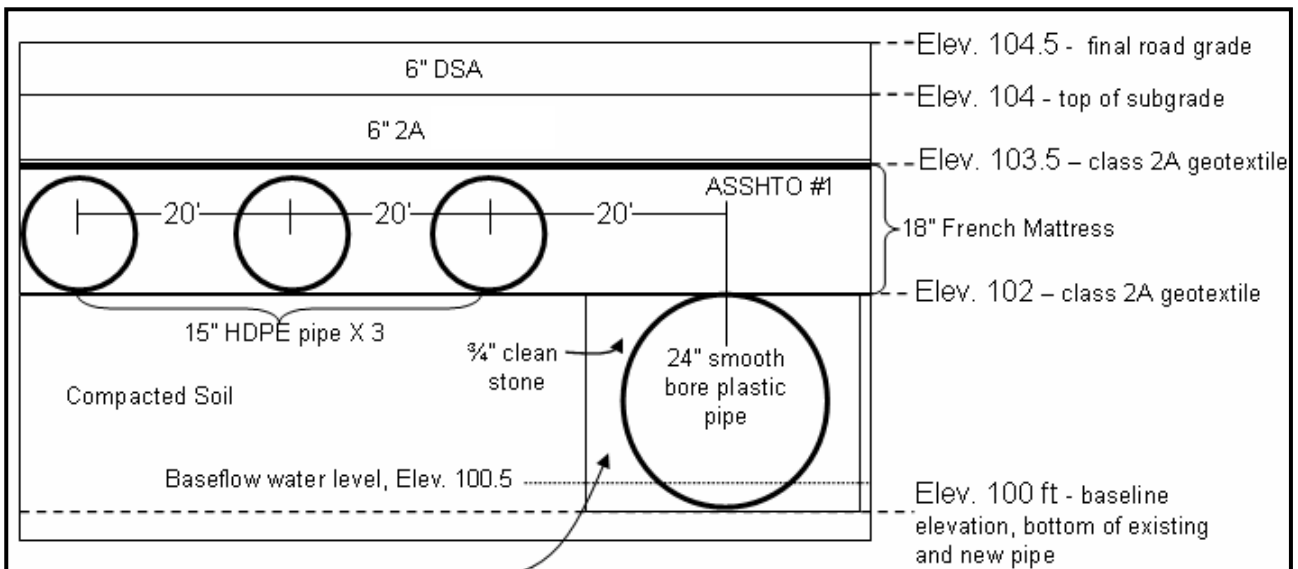


Photo 4. Side view of French mattress and pipes on German Valley Road. Vertical scale is accurate. Horizontal scale is compressed.