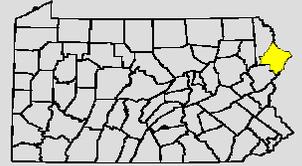


# Project Summary

## Pike County Whittaker Road



9/2007

### Project Overview:

Approximately 500 feet of Whittaker Road lies in the broad flat floodplain of Saw Creek. Saw Creek has a braided wetland channel where it intersects Whittaker road. There are two main channels crossing Whittaker road, approximately 300 feet apart. One of the major problems with the site is that both channel crossings are undersized, causing the stream to overtop and erode the road surface and pipe area during high flows. Photos 1 and 2 below illustrate the effects of these high flows.



Photo 1. When the undersized stream pipes reach capacity, water flows over the road at this point. Large quantities of aggregate are routinely washed into the floodplain and stream.

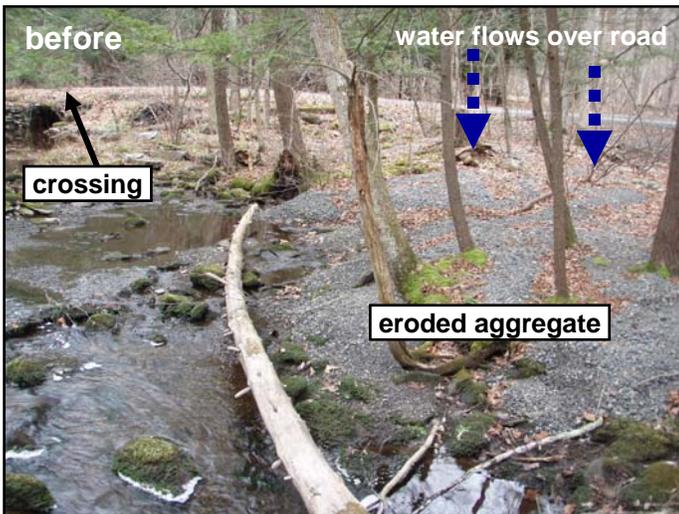


Photo 2. The environmental impact of this road is made obvious by the mass quantities of aggregate that have been washed into the stream by many years of high flows.

*Special thanks to Pike County Conservation District for funding this project in conjunction with the 2007 Maintenance Workshop, and to the Delaware State Forest District for in-kind equipment and labor.*

### Project Facts

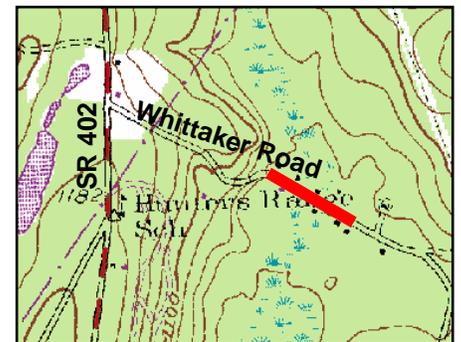
Project: Whittaker Road  
Project Owner: Porter Township  
Watershed: Saw Creek  
Project Length: 500 feet  
Date Completed: 2007

### Cost Estimate:

Materials: ~\$3,000  
Equip & Labor: ~\$5,000 (in-kind: Forestry)  
Total: ~\$8,000

### For More Information:

Center for Dirt and Gravel Road Studies  
(814) 865-5355 [www.dirtandgravelroads.org](http://www.dirtandgravelroads.org)  
Pike Conservation District: (570) 226-8220



## The Plan:

Since one of the major problems on this site stems from undersized pipes, the ideal solution would be to replace the pipes with larger structures. Unfortunately, financial limitations of the project prevented the use of a bottomless arch pipe or bridge to accommodate higher flows.

Since increasing pipe size was not a financially viable option, the second best option was to protect the pipes and road area from scour. This plan called for the addition of a headwall to protect pipes that are eroding, as well as three "High-Water Bypasses" to control the flow of water over the road.



Photo 3. One of the stream crossings is pictured here. Both crossings have identical sized double pipes. Water flowing over this pipe in high flows has eroded the unprotected crossing, which is why you see construction barriers on the road.

## Headwalls:

A headwall will be constructed around both of the pipes pictured in Photo 3. The stream is currently eroding into the road area around these two unprotected pipes. The protective headwalls will serve two important goals: first to protect the pipe area and road edge from scour during high flows; second to increase the hydraulic capacity of the pipes. More information on headwall and endwall construction can be found in the Center's attached technical bulletin. A General Permit # 11 is pending for headwall construction.

## High-Water Bypass:

A high-water bypass is a low spot designed to allow water to flow over the roadway with minimal damage to the road surface. The Whittaker Road bypasses will be reinforced with fabric, 6" geocell, and ASSHTO #3 stone (see photo 4). The final elevation of the bypasses will be just below the elevation of the top of the pipes at the stream crossing. This means that as the pipes reach their flow capacity, water will start to back up until it finds the high water bypasses and is directed across the roadway. This will prevent the pipe from being eroded or washed out completely. More information on high-water bypasses can be found in the Center's technical bulletins.

Photo 4. Installation of third high-water-bypass showing:

A: before construction

B: trench is dug ~10" deep, fabric is placed in trench, geo-cell is being placed and pinned into place

C: Geocell has been pinned in place and is being filled with ASSHTO #3 clean stone

D: completed bypass is compacted with roller. DSA will then be spread over bypass and surrounding area. Bypass must be lowest point in finished road!

