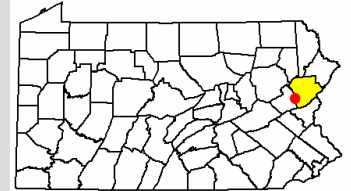


# Worksite in Focus

## Monroe County "Hell Hollow"

"THE" original Dirt and Gravel Road Project 8/2007



### Project Overview:

In celebration of the 10 year anniversary of the Dirt and Gravel Road Maintenance Program, we would like to spotlight "Hell Hollow Road", the first project completed under the program back in 1998. Hell Hollow was completed as a demonstration project with Program Staff, Monroe Conservation District, and Polk Township cooperating to break ground for the Dirt and Gravel Road Program.

### Project Considerations:

Hell Hollow Road traverses several small watersheds that drain into Penn Forest Reservoir. The road is located just upstream of the Reservoir which supplies drinking water to the City of Bethlehem. Poor road conditions, chronic sediment pollution, and frequent large scale washouts were common occurrences on Hell Hollow road. The seemingly small "Hell Creek" swells to immense proportions when storms hit the 3,000+ acre watershed. To make matters worse, as Hell Creek approaches the road, the channel becomes braided and flood waters spread across much of the valley floor (see map on lower right). The resulting road was wet, rutted, and would regularly be completely washed out due to high flows. Before the project, road conditions were so bad that the township had considered abandoning the road. Woody Colbert, former Program Coordinator, took up the cause and made Hell Hollow a demonstration project that became the first site completed as part of the fledgling Dirt and Gravel Road Maintenance Program in 1998.

### Project Facts

Project:	Hell Hollow Road
Project Owner:	Polk Township
Watershed:	Hell Creek / Penn Forest Res.
Project Length:	8,000 feet
Date Completed:	1998

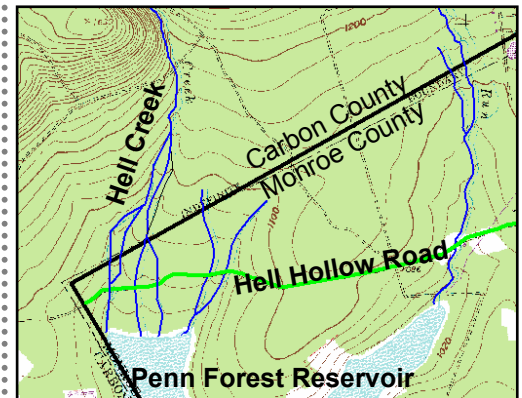
### Cost Summary

D&G Grant	\$ 51,000
Township In-kind	\$ 17,000
<b>Total Project Cost:</b>	<b>\$ 68,000</b>

### For More Information:

The Center for Dirt and Gravel Road Studies  
(814) 865-5355 [www.dirtandgravelroads.org](http://www.dirtandgravelroads.org)

Monroe Conservation District: (570) 629-3060



**Photo 1 & 2** This low lying section of road was frequently flooded. By addressing surface drainage and reinforcing the overflow area, road impacts were minimized.

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**Problem:** Poor road base and drainage meant water was retained on the road surface.

**Solution:** Base was added in some locations, and the entire road was reshaped to ensure proper drainage. Separation fabric was used over much of the roadway due to the excess of groundwater in the area. Hard aggregate (precursor to DSA) was placed over most of the road

**Problem:** Continual washout of large concrete pipe due to high water flows.

**Solution:** Concrete pipe was reset at proper angle, and incorporated into the road fill with geotextile fabric. A substantial headwall and endwall were built to protect the pipe. A high-water bypass was created beside the pipe. This bypass was a ~100 foot long level section of road at an elevation just under the top of the concrete pipe. During flood flows, water would flow over this reinforced bypass instead over and around the pipe.

**Problem:** Water would overtop the road in several places during high flows as Hell Creek escaped from its braided channel.

**Solution:** Several reinforced crossings were created to allow flood waters to flow over the road without damaging it. Some crossings were reinforced with geo-grid and filled with stone as shown in picture 5.



**Photo 3&4.** Before and after of concrete pipe. Note how pipe is scoured before, protected after.



**Photo 5.** Geocell and stone fill for water crossing.

## 10 Years Later.....

All things considered, the Dirt and Gravel Road Program's pilot project had been a remarkable success, and it has made a believer out of at least one township... Lee Everett has been with Polk Township, Monroe County since before the project was completed in 1998. Lee can be seen hard at work in the blue shirt in Photo 5 above as he places stone in the low-water crossing.

*"Before the project, you could barely get through the road, it was all mud,"* says Lee. Shale fill, separation fabric, and "experimental" Driving Surface Aggregate were used on the many wet spots along the road. *"I am sold on the project, I think it works,"* says Lee about the 10 year old project. The only section of the road that has required maintenance over the last 10 years is the overflow area by the large concrete pipe. The area has washed out three times in the last decade. This area was a designed overflow area to save the pipe, which used to wash out completely in such high flows. Water routinely flows over the other low-water crossings without incident.

One of the most amazing aspects of the project is the longevity of the Driving Surface. *"We haven't done a damn thing to that road,"* exclaims Lee. The surface has, in fact, never been graded throughout its ten year life. 2007 marked the first time that the township has had to go out and fill potholes on the road. *"We have used that fabric ever since,"* says Lee. Unfortunately for Polk Township, Hell Hollow is the only unpaved road they own.