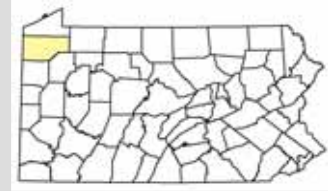


Worksite in Focus

Crawford County Foote Road

9/8/04



Foote Road is located on a steep site where drainage is limited on both sides of the road by high road banks, residential land use, and soils with low permeability. The topography of the site is such that road drainage directed off the road at one location flows downhill onto the road in another location. These issues combined with high volumes of off-ROW drainage from intersecting roads and driveways made Foote Road a constant maintenance problem. Parallel ditches on both sides of the road were eroded by “hungry” fast-moving water to depths exceeding 5 ft.

Project Objectives

1. Prevent direct discharge of road drainage into a headwater tributary of Oil Creek.
2. Manage off-ROW drainage before it flows onto the road and complicates already difficult drainage issues.
3. Improve road drainage within the limitations of the site by dividing flow with additional drainage outlets to keep road material on the road and eliminate persistent ditch maintenance.

Project Considerations

Landowner concerns and issues were a factor on this project. Finding suitable locations to outlet water was difficult because of the topography and soil characteristics of the site and high road banks. Adding landowner constraints made addressing drainage an even bigger challenge. By working with the landowners and the conservation district, a solution was found that satisfied stakeholders and addressed drainage problems.

Project Statistics



Road:	Foote Road
Road Owner:	Oil Creek Township
Affected Watershed:	Oil Creek, Allegheny River
Project Length:	2900 ft
Cost:	\$135,454
Date Completed:	August 2004



before
Before: Limited drainage outlets meant road drainage concentrated in narrow deep road ditches that eroded deeper and deeper over time.

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Before: The entrenched road trapped drainage, concentrating it and increasing its erosive potential. After: The elevation of the road is raised, eliminating the right side road ditch and allowing water to sheet flow off the road.

Project Solutions

Adding perforated underdrain: Underdrain was installed in the ditch, eliminating perennial ditchflow.

Filling the road: The elevation of the road was raised by filling the road profile. In some areas, the ditch was eliminated entirely allowing drainage to sheet flow off the road (above right). Where ditches were necessary, the ditch was shaped with a wide shallow profile to give road drainage an area to dissipate its erosive energy.

Diverting off-ROW drainage: Water that had flowed onto Foote Road from driveways and intersecting roads at both ends of the worksite is kept off the road with drainage structures and by re-shaping of the road with fill material (right).

Pipes through the bank: The entrenched road could not be corrected in some areas because raising the road elevation was impractical. Adding a pipe through the bank allowed placement of a drainage structure where a road bank would otherwise have prevented a drainage outlet.



After: This driveway was re-shaped with fill material to direct water coming down the driveway into a pipe and keep it from spilling onto the road itself.

Cost Summary

Total Project Value:	\$135,454
District Funding:	\$135,454
Materials	\$9,000
Pipe Installation	\$2,500
DSA & placement	\$66,576
Filling & shaping	\$57,378

This project was completed entirely by a contractor.

For More Information

The Center for Dirt and Gravel Road Studies
 (814) 865-5355
www.dirtandgravelroads.org

Crawford Conservation District
 Dave Hall
 (814) 724-1793

* Directions to Foote Road worksite: From Titusville: Follow State Highway 8 north towards Hydetown. At the fork in the road veer left onto State Highway 408. Turn left onto State Route 2029 (Johnson Road). Foote Road begins approximately 1.3 miles ahead. The worksite runs the entire length of Foote Road from the intersection with Johnson Road to the intersection with Ralston Road.

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