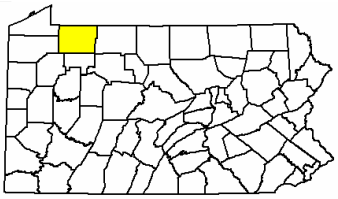
Worksite in Focus

Warren County
Hatch Run Access Lane

2/2006



Project Overview:

This project was completed on an access road to a 350 acre District owned Conservation Demonstration Area. The road provides access to trails, fishing, bird watching, and several conservation demonstration areas. The access road also serves as a right-of-way for two lumber companies and one private landowner. This project provided improvements to the existing narrow road while reducing the environmental impact on nearby Hatch Run.

Project Considerations:

Although lightly traveled, the access road was a major source of sediment pollution to Hatch Run. The road was entrenched, or lower than the surrounding terrain, for much of its length. Because the road was entrenched, very little opportunities existed to get water out of the road drainage system using turnouts and crosspipes. The road acted as a funnel to transport water and sediment directly into the stream channel. Most of the water that fell on, or came to the roadway was collected in roadside ditches where it entered the headwaters of a small tributary to Hatch Run. The main focus of this project was to reduce concentrated drainage by raising the road, installing underdrain, adding crosspipes, and using "through-the-bank" pipes to provide more drainage outlets.

Project Facts

Project:	Hatch Run Access Lane
Project Owner:	Warren Conservation District
Watershed:	Hatch Run
Project Length:	2,750 feet
Date Completed:	May 2006

Cost Summary

Pipes and underdrain	$ 3,330
Shale and labor	$ 39,436
Total Project Cost:	$ 42,766

For More Information:

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

Warren Conservation District: (814) 563-3117

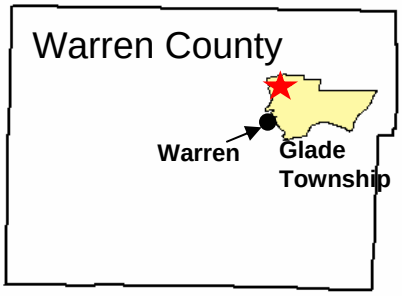


Photo 1 & 2. This Before & After sequence illustrates many of the techniques used on the site. Before, road drainage continued in the ditch for almost 2000' where it emptied into a stream. After, this section does not affect the stream.

Before and After:

1. Road elevation was raised approx. 3'. Downslope ditch is eliminated. Note road elevation compared to red arrow on tree.
2. Underdrain installed in ditch to collect spring seeps
3. New crosspipe carries road drainage across road into woods.

The publishers of this publication gratefully acknowledge the financial support of the Pennsylvania State Conservation Commission. For additional information or assistance, contact: Center for Dirt & Gravel Roads Studies, Penn State University, 207 Research Unit D, University Park, PA 16802 (Toll-Free Phone: 1-866-668-6683, Fax: 814-863-6787, Email: dirtandgravel@psu.edu). Additional copies available on our website at: www.dirtandgravelroads.org

Center for Dirt and Gravel Road Studies

Raising the Road Profile: Approximately 3,100 tons of crushed bank run gravel were imported for use as road fill. Fill was placed in 8" – 10" lifts and compacted. Filling the road back to a natural elevation eliminated the need for a downslope ditch on much of the road, and provided the necessary cover to install additional crosspipes to outlet the upslope ditch. ***(Photo 1 & 2)***

Underdrain: Approximately 800 feet of underdrain were installed along the access road to collect the many springs and seeps that brought water to the road ditch. ***Photo 1*** shows an example of the saturated road ditch that existed along much of the road before the project. Underdrain consisted of a 2' x 2' trench lined with geo-textile and filled with clean stone and a perforated 4" pipe. Underdrains were continued under the roadway where they could be outletted separately from crosspipes and road drainage. ***(Photo 3)***

"Through-the-bank" Pipes: Three "through-the-bank" pipes were used to outlet water from the road drainage system. These pipes have their inlet in the road ditch where they collect drainage and convey it "through the bank" to a location where it will drain away from the road. These pipes are used instead of a traditional "turnout trench" that leaves a scar on the landscape and requires frequent maintenance. ***Photo 4*** shows the outlet of a "through-the-bank" pipe. The inlet of the pipe is in the downslope or near road ditch.

Surface Drainage Controls: Several gradebreaks were incorporated into the road surface as part of raising the road elevation. These gradebreaks are simply elongates "speed humps" in the road surface that prevent water from flowing down the roadway and force it into roadside ditches. They are typically used over crosspipes to supply additional pipe cover and force water off of the road and into the pipe.

Summary: These practices were used on approximately 2,750 feet of the access road to minimize stream impacts. Before this project, the road drainage system **was** the headwaters of the stream! Using the techniques described here to minimize concentrated flow, the road drainage system has been disconnected from the stream drainage system as much as possible. Road drainage is now dispersed at many places along the road to encourage infiltration instead of stream pollution.

Photo 3: Underdrain installation in progress. Underdrain continues under road and outlets separately from crosspipe.

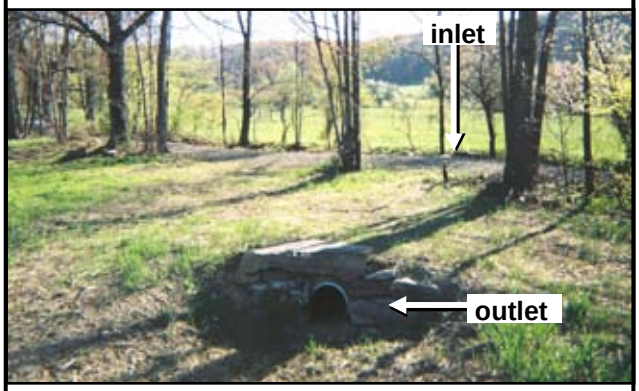


Photo 4: "Through-the-bank" pipe conveys water from ditch away form road with minimal disturbance and maintenance.

Photo 5: New Crosspipe installation with gradebreak. Top of gradebreak obscures car in bottom of gradebreak.

Site Map & Directions:
From Rt 6, take Rt62 through Warren. Turn right at light onto Hatch Run Road. Continue ~1 mile to picnic pavilion on left. Park at pavilion for walking access to road.