

Indiana Department of Natural Resources Division of Reclamation, Abandoned Mine Lands Section

Site 309, Mill Creek Highwall

Location

Pike County, IN



A Significant Safety Problem

Approximately 4,200 linear feet of highwall was located directly adjacent to County Road 450 East, a narrow and sharply curving road heavily travelled by local residents. The highwall had a maximum height of 110 feet. The road was part of a school bus route, but it was not wide enough for vehicles to pass the bus without pulling off to the side. It had poor sight distances and hidden guardrails, and erosion of the highwall undermined the road's stability and created further safety hazards for drivers.



Unconsolidated material at the top of the highwall would have continued to erode, undermining the surface stability.

The position of the guardrail shows how close the road is to the edge of the highwall.



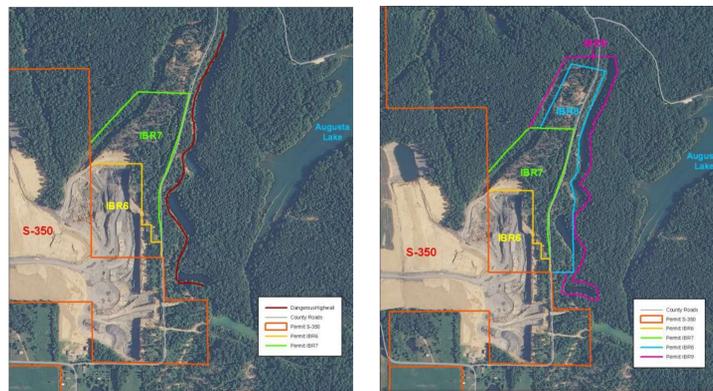
The eroding hillside threatens to encroach upon the road surface.



An Innovative Solution

Triad Mining, Inc. has been operating the Augusta Mine, a surface coal mine to the south and west of the proposed reclamation area, since 2002. Incidental Boundary Revision #7 extended the mining operations to the west side of County Road 450 East, directly adjacent to the dangerous highwall on the east side of CR 450 East.

Because the expansion of Augusta Mine was so close to the highwall, AML staff approached Triad and formed a Cooperative Agreement for Triad to mine through the dangerous highwall as part of their operations. As a result of this partnership, Incidental Boundary Revisions #8 and #9 were delineated to include the highwall and the pit lakes on the east side of the road.



After IBR #7 was approved, AML staff worked with Triad Mining to delineate IBR's #8 and #9 so that the highwall could be reclaimed.

A Successful Reclamation

A typical highwall backfill leaves a relatively steep slope, because gentler slopes require more fill material and increase cost. This highwall reduction resulted in a better end product with rolling hills that approximate the original landscape of the area.

The landscape now enjoys gentle, rolling hills



This project included the construction of a new ephemeral stream, a unique and diverse habitat that supports many plant and animal species. The 1,400 foot stream designed using natural stream morphology has a nonlinear shape and a variety of substrates. The stream should provide valuable wildlife habitat in addition to improving the water quality of Augusta Lake, which has persistent water quality problems associated with acid seeps.



The new stream has a non-linear path and variable substrate.

The replacement of a narrow and sharply curving county road was another major benefit of this project. With the support of the Pike County Commissioners, Triad Mining closed CR 450E during mining operations and rebuilt it with two twelve-foot lanes. The road has been straightened considerably, eliminating the blind corners and hidden guardrails. With a traditional highwall backfill, the road would not have been replaced.

The new road enjoys gentler slopes and increases public safety.



Not backfilling the highwall also eliminated the need for borrow material from the Sugar Ridge Fish & Wildlife Area. Sugar Ridge draws numerous fishermen and hunters and offers year-round recreational opportunities.

Project Highlights

- ◆ 4,200 feet of 110-foot highwall removed, eliminating an extreme public safety hazard
- ◆ 0.8 miles of treacherous county road replaced, greatly benefitting local residents and school bus routes
- ◆ \$5,909,900 or 95% cost savings (\$6,214,900 cost estimate vs. \$305,000 spent)
- ◆ 23.7 acres of state Fish & Wildlife area saved from impact (35 acre estimate vs. 11.3 acres impacted)
- ◆ 1,400 feet of new stream constructed using natural stream design techniques
- ◆ Cooperating entities:
 - INDR Division of Reclamation, Title IV and Title V
 - IDOA, Division of Public Works
 - Army Corps of Engineers, Newburgh Field Office
 - IDNR Division of Fish & Wildlife, Sugar Ridge FWA
 - Pike County Commissioners
 - Triad Mining