

Corrugated Polyethylene pipe mitigates mine runoff

PROBLEM:

Underground and surface mining have altered much of the landscape of Central Pennsylvania. Over the years, stormwater runoff has permeated the loosened soil, called "strip spoil," and ponded in abandoned mines, leading to acid mine drainage that has damaged concrete highway drainage pipes.

THE CORRUGATED POLYETHYLENE PIPE SOLUTION:

Retained to design a retail center in Clearfield, Penn., L. Robert Kimball and Associates, Ebensburg, Penn., used more than 11,000 feet of smooth interior corrugated polyethylene pipe to construct an extensive stormwater drainage system. "Given the aggressiveness of the groundwater, no other pipe material offered the long life and ease of installation that corrugated polyethylene pipe possesses," said Drew Smith, project construction coordinator. • The site improvements significantly reduced the production of acid mine runoff by reducing the area of mined land exposed to rain and snow. Stormwater runoff from the parking lot flows into the storm drain system, and into a nearby creek, where it joins a much-reduced flow of acid runoff from polyethylene French drains inside the vacant deep mines. • The HDPE improvements eliminated the Pennsylvania Department of Transportation's (PennDOT) need to replace highway drainage pipes near the development. The acid mine runoff prematurely eroded the concrete pipes, but will not affect the new HDPE replacements.

INSTALLATION DETAILS:

4" - 54" diameters comprised the system. Some was used in unique applications, such as the large diameter pipe that was converted into distribution boxes for adjacent wetland construction. Other pipe was cut in half lengthwise and used as a diffuser for water entering the wetland.

Project: Acid Mine Runoff Remediation

Location: Clearfield, PA

Engineer: L. Robert Kimball and Associates, Inc., Ebensburg, PA

Contractor: L. Robert Kimball and Associates, Inc., Ebensburg, PA

Timing: Summer, 1997

"With the...site improvements, stormwater infiltrating the strip mined soil has greatly reduced the production of acid mine drainage."

Drew Smith, L. Robert Kimball and Associates, Inc., Ebensburg, PA