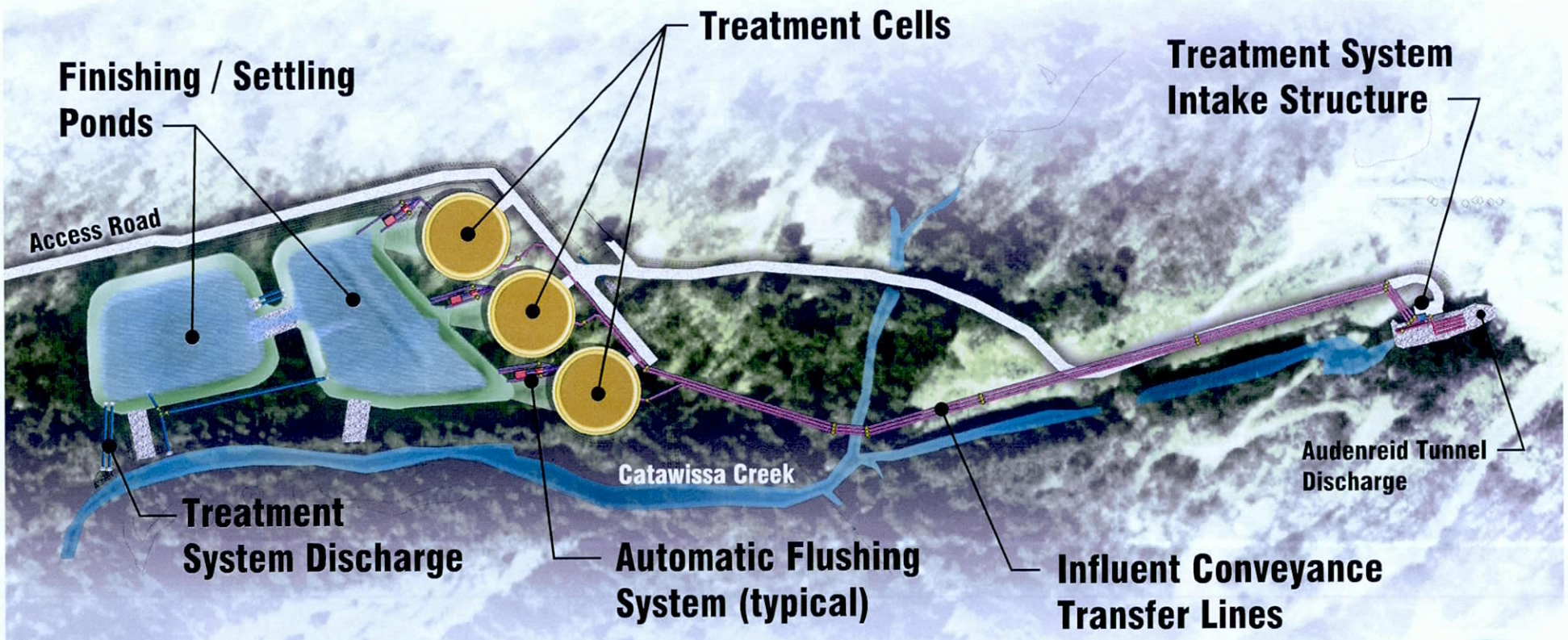
Abandoned Mine Drainage Treatment System

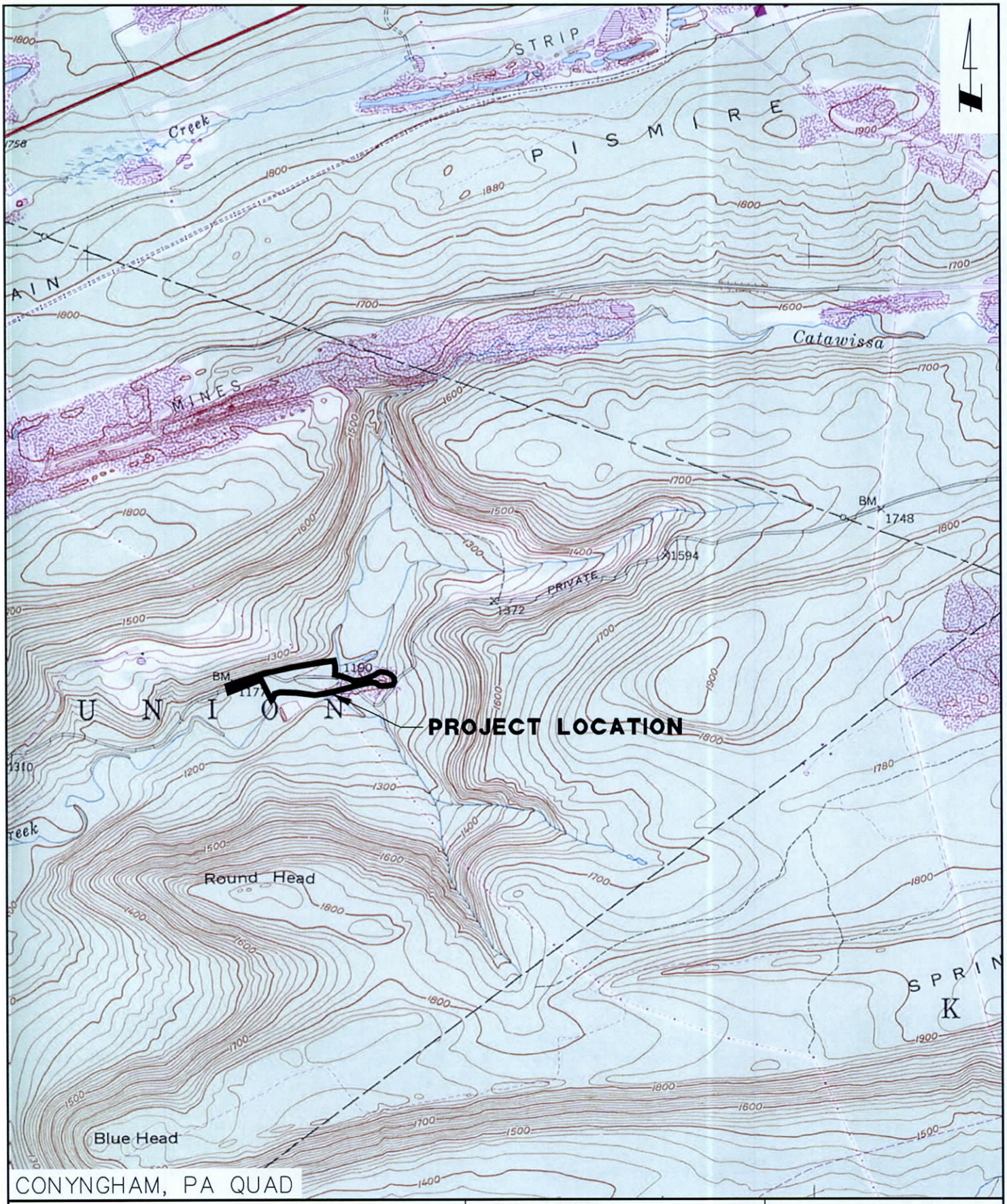


Audenreid Mine Tunnel Discharge

East Union Township, Schuylkill County, PA

RETTEW

SCHUYLKILL CONSERVATION DISTRICT



CONYNGHAM, PA QUAD

SCHUYLKILL CONSERVATION DISTRICT
ABANDONED MINE DRAINAGE REMEDIATION

AUDENREID MINE TUNNEL

EAST UNION TOWNSHIP SCHUYLKILL COUNTY

RETTEW

RETTEW Associates, Inc.
Union Street Station, 101 East Union Street
Pottsville, PA 17901
Phone (570) 622-8222 • Fax (570) 622-4260

DRAWN BY: CH
DATE: FEBRUARY 2005
SCALE: 1" = 2000'
DWG. NO. 04-03883-001

ABANDONED MINE DRAINAGE REMEDIATION PROJECT FOR THE AUDENREID MINE TUNNEL, EAST UNION TOWNSHIP, SCHUYLKILL COUNTY, PA

The Audenreid Mine Tunnel Discharge is located within the Catawissa Creek Watershed approximately 2 miles east of the town of Sheppton in Schuylkill County, Pennsylvania. The discharge is the largest abandoned mine drainage (AMD) discharge within the Catawissa Creek Watershed. Water quality monitoring has shown the average quality of the Audenreid Discharge to be: pH 4.03, alkalinity 2.31 mg/l; acidity 68.08 mg/l, iron 0.70 mg/l, aluminum 7.93 mg/l, and sulfates 136.25 mg/l, with an average flow of 8,478 gallons per minute (gpm). The Audenreid Discharge is located in the very headwaters of the Catawissa Creek and impacts the entire watershed.

This innovative passive treatment system utilizes new technologies and design features to treat the high flows of the Audenreid Discharge. The discharge water is diverted into a series of three, 12' high and 120' wide, circular concrete treatment cells filled with limestone. Once inside these cells, the discharged water reacts with high calcium limestone, which raises the pH of the water and causes the metals to precipitate out of solution. Each treatment cell contains about 4,600 tons of limestone and provides about 2 hours of retention time.

The system must be flushed extensively and frequently in order to manage the accumulation of aluminum hydroxide solids and keep them out of the stream. About every 1.5 hours, the treatment tanks are automatically flushed by a series of automatic siphons into a large settling pond to receive the aluminum precipitate. The water then flows into a second settling pond to provide final polishing before it is returned to the creek.

Funded primarily through an EPA Section 319 Grant, the two million dollar project was completed in the winter of 2005.

The project, conceived by the Catawissa Creek Restoration Association, effectively treats the Audenreid Mine Tunnel Discharge and improves the water quality of the entire Catawissa Creek Watershed. The reduction in pollution levels coincides with the recommendations for reduction published in the Catawissa Creek Watershed TMDL. The treatment system restores approximately 36 miles of the Catawissa Creek allowing it to become a world class trout stream. The remediation of the Audenreid Mine Tunnel Discharge will potentially result in the removal of the Catawissa Creek from the Pennsylvania Department of Environmental Protection's 303(d) List of Impaired Waterways.

The project has had widespread support and received considerable input and assistance from the following project partners: Catawissa Creek Restoration Association, Schuylkill County Conservation District, Columbia County Conservation District, Butler Enterprises, Paragon Adventure Park, Blue Nob Rod & Gun Club, East Union Township, Pa. DEP-Pottsville District Mining Office, Pa. DEP-Bureau of Watershed Management, Pa. DEP-Bureau of Abandoned Mine Reclamation, Eastern Pa. Coalition for Abandoned Mine Reclamation, U.S. Department of the Interior-Office of Surface Mining, Susquehanna River Basin Commission, Pennsylvania Association of Conservation Districts, Natural Resources Conservation Service, Pa. Fish & Boat Commission, Hedin Environmental, RETTEW, Schuylkill County Board of Commissioners, Columbia County Board of Commissioners, James T. O'Hara, Inc.