

Water Resources Engineering Hydrogeology • Hydrology

Multi-Lynx uses the latest and most appropriate technologies in the most efficient manner to ensure sound water management practice. By using technologies such as GIS and internet-based Data Management Systems, our professionals are able to integrate often competing concepts while at the same time maintaining adequate hydroperiods.

Multi-Lynx has extensive experience in the design, operation, and management of public water supply projects, wastewater management, surface water and groundwater management, and stormwater management.



Stream Channel



Streambank Stabilization



Stream Channel Stabilization



Client Challenge

Cambria County, Pennsylvania has been subjected to aggressive underground and surface mining activities over the years. As a result, in many sections of the County, the groundwater obtained from domestic groundwater wells contains unacceptable and unhealthy levels of dissolved iron, manganese, and hydrogen sulphide. Municipal government officials report that all the residents who obtain their potable water from domestic groundwater wells complain of laundry staining, taste, odor, and staining of bathroom fixtures. The tendency therefore has been the creation of “Water Cooperatives” by small communities for the explicit purpose of obtaining clean and reliable water from regional public water supply authorities.

Cambria County Redevelopment Authority retained Multi-Lynx Companies, Inc. to conduct a public water supply feasibility study of the northwest region of Cambria County. The study involved an assessment and evaluation necessary for the preparation of a small water systems regionalization recommendation for interconnection of several small water systems to the Hastings Municipal Authority. The assessment and evaluation was based on, among others, interviews of affected municipal and local government personnel, a review of past engineering studies conducted for communities within the vicinity of the project, and an engineering site investigation conducted by Multi-Lynx Companies, Inc.

Scope of Work

The objective of the assessment and evaluation was to investigate the feasibility of the physical, operational, and administrative consolidation or regionalization of five small water systems with the Hastings Municipal Authority (HMA). Multi-Lynx analyzed several alternatives for achieving this objective, and, based on the results of the analysis, developed recommendations for implementation of the objective.



Valve Station



Chemical Feed Room

Multi-Lynx Value

The feasibility study included the following task items, among others.

- √ Survey and inventory of existing physical plant, and conditions of each small water system
- √ Evaluation of existing physical plant relative to water distribution options and requirements
- √ Evaluation and analysis of the construction needs appropriate for correcting the existing problems and deficiencies for each of the small water systems, in the form of alternative solutions, and
- √ Determination of construction standards and cost estimates for the different alternative solutions



Client Challenge

During the middle 1980s, the City of Pittsburgh, Pennsylvania experienced rapid decline in population and economic activity. There were little or no nighttime activities in the downtown section of the City. Through studies conducted by regional and national agencies, the City of Pittsburgh became aware of the need for high quality residential housing. Such housing would promote the re-growth of City neighborhoods.

As part of a comprehensive plan to revitalize the City of Pittsburgh, the Housing Authority of the City of Pittsburgh (HACP) entered into an agreement with McCormack Baron Salazar, LLC, a private property developer, to develop several properties in the Bedford Avenue Neighborhood of the City. Initial geotechnical engineering investigation of the development site revealed the presence of shallow groundwater and probable mine voids. Housing Authority of the City of Pittsburgh then issued a task order request to Multi-Lynx Companies, Inc. to conduct a groundwater investigation of the development site, and to prepare recommendations for stormwater and groundwater management, and mine void remediation.

Scope of Work

Objective of the investigation was to determine the sources of the shallow groundwater, develop a stormwater management plan, and to verify the presence or otherwise of mine voids reportedly observed at the excavation of previous structures within the development site. Multi-Lynx was also requested to develop an action plan that would allow resumption of demolition and excavation activities for the proposed new construction.

Multi-Lynx reviewed documents and records maintained by various authorities and agencies to determine the history and subsurface conditions of the site.



Site Investigation Activities

Multi-Lynx installed several soil borings and temporary groundwater monitoring wells on the site. Groundwater levels at the wells were

measured five days per week for a two-week period.



Development Site

Groundwater samples were collected from the wells and analyzed in the laboratory in accordance with United States federal, state, and local environmental health standards. Multi-Lynx also measured groundwater temperature, pH, and other water quality parameters daily, for a five-day period.

The water in the excavations was associated with shallow groundwater within the site. Some contribution was indicated from sewer and waterline leaks. No environmental issues of concern or evidence of acid mine drainage chemical characteristics were identified that warranted environmental remedial actions.

