

Call for Papers

36th Annual 2014 NAAMLPA Conference

September 21-24

Sheraton Hotel at Capitol Square

75 East State Street, Columbus, Ohio

Abstract for proposed presentation w/ power point

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Transforming a Brownfield to a Garden – How an AMD Pond Became the Lotus Pond

This presentation would highlight the recent addition of a drainable limestone treatment system for an acid mine drainage (AMD) discharge within the Pittsburgh Botanic Garden (PBG). The discharge is from an abandoned deep mine complex that dates back to the mid-1920's, and located within a forested area of the Garden called the Asian Woodland. The treatment system is within an area permitted by the PA Department of Environmental Protection for re-mining or "daylighting" abandoned deep coal mines. However, due to the unique topography, special landscape features and vegetation, an alternate approach for the treatment of the small AMD discharge had to be found.

The treatment system was designed to eliminate a single source of mine water pollution. Its remediation is important because of several factors: an existing pond had been rendered lifeless due to the AMD seep; surrounding plantings have a low tolerance for AMD; and, as a public outdoor recreation space, there is a health, safety and aesthetic concern.

A plan was developed to treat the discharge within a drainable concrete tank filled with 450 tons of crushed limestone. Water flows by gravity through the flooded limestone bed, which neutralizes the acidity and removes the Aluminum. The bed is drained empty every week using a solar powered controller to maintain the aggregate's permeability. The system discharges aluminum hydroxide precipitates into a settling basin below the main Asian Pond. The result is now a healthy pond with aquatic life that is the central feature of the Asian Woodland and the Japanese Garden that is being designed. Several drawings and photographs of the system at different stages of construction and the surrounding landscape will be shown together with a discussion of environmental impact and cost to build. This system could be easily adapted to other low flow AMD sites.

Funding was obtained from the PA DEP Growing Greener program; the Office of Surface Mines; Trout Unlimited; Allegheny County Conservation District; and the Foundation for Pennsylvania Watersheds. The system became operational in the fall of 2013, and won the 2014 Pennsylvania Governor's Award for Environmental Excellence