

# 1) Background of Organization

## Description of our watershed

The Pittsburgh Botanic Garden is transforming a 460-acre brownfield site at the southern end of Settlers Cabin County Park within Allegheny County into a world-class, comprehensive Botanic Garden. On 140 acres of the site, the Botanic Garden is engaged in an innovative reclamation project whereby the coal in the abandoned mines will be exposed and removed. While that work proceeds to the south of the site, garden progress is focused on the northern end of the site. Initial Garden development is concentrated on the Woodland Gardens, an area that was deep mined but never strip mined. In 2011, over nine acres of the Appalachian Plateau Woodlands was cleared of invasive species, over 300 native trees and over 1,000 native shrubs and herbaceous perennials were planted. A solar powered irrigation system was built to care for the new plants. Two miles of trails were built throughout the woodland area. The Sprout Tree Nursery with its own solar powered irrigation system was built in another area of the site.

At the edge of the Appalachian Plateau Woodlands where the Asian Woodlands begins is the area where there is an acid mine drainage seep.

The acid mine drainage in the Woodland Gardens flows into an existing pond – which is lifeless – and then discharges to a stream that eventually flows into Pinkerton Run, which flows to Robinson Run and then to Chartiers Creek. The AMD produced is generally severe, with pH less than 4 and high concentrations of aluminum. Chartiers Creek is also seriously impacted by abandoned mine drainage. The AMD severely degrades the quality of the stream through the precipitation of unsightly metal solids. The stream then flows through an existing wetland area that the PBG would like to restore and develop as an exhibit. Before making this investment, the AMD must be remediated.



The Chartiers Creek Rivers Conservation Plan identifies AMD as a major water quality problem, but no specific remediation recommendations are made. There are several watershed associations in the Chartiers Creek watershed that are making progress on AMD remediation and stream quality restoration. However, there is not currently an active group in the Robinson Run watershed. AMD remediation by the PBG will be the first non-profit restoration activity in the watershed.

This project was selected because it is in the middle of the area we are developing first. It is important to address so as to make the site more conducive to plant and animal health, clean the pond and stream and allow a wetland garden to thrive. Addressing this issue highlights the problem of AMD and its resolution to students and the greater community. We have had several classes at the site for interested visitors to learn about the AMD issue and its resolution. Continuing education is planned.

The impact of the PBG Acid Mine Drainage & Education Initiative includes restoring the pond and increasing the pH of a portion of the stream from 3 to 7, removing metal sludge currently precipitating into the stream, reducing acidity and aluminum levels, restoring 2700 feet of stream that currently has no aquatic life and eliminating a large and only known source of AMD in the Woodland area of Botanic Garden.

The goal was to develop a plan to fix the AMD problem, enhance the area, turn it into an asset and



an integral part of the new botanic garden where students and visitors can see the role of passive technologies in water clean-up. We anticipate that the project will remove 10,000 pounds of acidity per year as well as 1,000 pounds of aluminum per year.

Eagle Scout Brandon Growark built and installed monitoring stations (flumes and weirs) at key locations and initiated a monitoring program that provided flow measurements and water chemistry analyses. Based on that data, a plan to treat the AMD passively was recently developed.

Funds provided by the FPW supported the characterization of the AMD woodland discharge and the flow and chemical analysis. FPW funding also contributed to the conceptual treatment design that is being further developed at this time.

Project partners for the overall project include Hedin Environmental, Trout Unlimited, and Brandon Growark, an Eagle Scout candidate, several Boy Scout troops, Chatham University Landscape Architectural Department for their Masters program, Bidwell Training Center for horticultural externships relating to forestry, Allegheny County, Collier Township and North Fayette Township.

Bob Hedin, president of Hedin Environmental, is managing our remining, reclamation, and restoration activities. Hedin Environmental provided initial evaluation of the AMD problem and oversaw the Eagle Scout project through a technical assistance grant from Trout Unlimited.

This grant is also paying for materials needed to construct the monitoring stations. The TU grant only supported the initial AMD reconnaissance and station installation.

