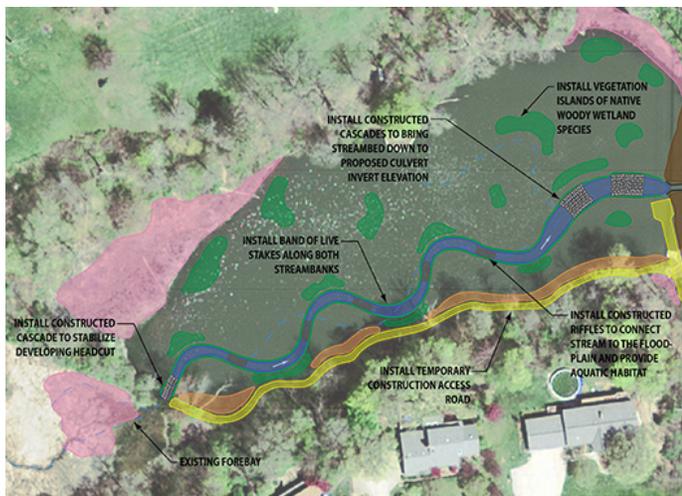


LAKE COUNTY

Morley Road Stream Restoration Design-Build

Concord Township, Ohio



With an adaptive management approach that included retaining accumulated sediment on site, a former pond was fully restored as a riparian forest.

When the Ohio Department of Natural Resources realized that the dam and outlet were failing on a 75-year old manmade lake, landowners decided to drain the pond behind the dam and the County joined in the effort to fully restore natural stream flow. Draining the pond exposed a 2.4-acre mud flat of accumulated soft sediment. If the stream were replaced in its original channel, much of that sediment would eventually wash down, compromising water quality. The County turned to Biohabitats for a design-build restoration that fit the budget available through a 319 grant.

Biohabitats took an adaptive management approach to reestablishing the channel and revegetating the site. Given the available budget and site conditions, especially the four feet of unconsolidated silt, Biohabitats approached the restoration by constructing riffles along a new stream channel alignment. The design had to address the potential oxidation of the sediments in the dewatering, which creates a pH imbalance that makes the solid inhospitable to plant life. The riffles were accordingly built at the elevation of the ponded sediment, and grade controls were included to prevent further incision of the new channel.

The original pond also had a forebay that had filled with sediment and become a wetland. To prevent a headcut through this wetland, the design set an upstream grade control structure at an elevation to backwater the channel through the wetland and create a transitional area. This transitional area allows excess sediment load to drop out of the water column before entering the restored reach. Downstream, a boulder drop inlet ties the reach into the newly installed culvert under Morley Road.

Stream banks were stabilized with native shrub vegetation (bioengineering live stakes) such as dogwoods, willows, buttonbush, and containerized sycamore and speckled alder. The species and planting plan was designed to withstand repeated inundation with stormwater. Such shrub vegetation can quickly form a dense rootmat to resist erosion and the above ground mass shades the channel and provides habitat

for terrestrial wildlife. Beyond the channel bank “islands” of native floodplain forest were established, and as the trees and shrubs mature, they will begin to out-compete invasives such as phragmites and cattail, which cannot tolerate shade.

Biohabitats conducted all of the baseline investigations, completed the flow modeling, prepared construction plans (60% design since design-build), a NWP 27 application, managed the construction, and performed post-construction monitoring. Meadville Land Services constructed the project.

SERVICES

- Inventory & Assessments
- Design
- Permitting
- Design-Build
- Construction Management
- Post-construction Monitoring
- Management
- Public Outreach

*conservation planning
ecological restoration
regenerative design*



800.220.0919
www.biohabitats.com

