



USEPA Targeted Watershed Grant Project for the Millstone Watershed Fact Sheet

Pike Run Habitat Enhancement and Restoration Project Montgomery Township, Somerset County

In 2003, the Stony Brook-Millstone Watershed Association (SBMWA) received a Targeted Watersheds Grant from the United States Environmental Protection Agency (US EPA). As part of this project, SBMWA decided to restore a 1400-foot segment of Pike Run, a tributary to the Beden Brook.

The site is located in the very actively used Montgomery Park, owned and maintained by Montgomery TWP. This reach of Pike Run has degraded due to ever-increasing upstream development, resulting in the redirection of enormous amounts of stormwater runoff directly to the stream. As a result, there are very flashy flows during and after rainstorms, which have eroded the stream bottom down to bedrock in much of the reach, incised the stream channel approximately 3-5 feet below the top of bank, widened and straightened the stream, eliminated the typical riffle-pool habitats, and disconnected the stream from its floodplain.

SBMWA contracted with TRC Omni to design a stream restoration project that would improve instream habitat, ease

stormflow pressure, stabilize stream banks, and restore habitat in this very visible stream reach. Partnering with Montgomery TWP (the TWP) and NJDEP's Division of Watershed Management, the project was implemented in three phases: restoration of a wetland meadow, installation of instream structures, and stabilization of stream banks.

Wetland meadow pre-restoration



Phase 1 occurred in May 2007 when volunteers planted nearly 2800 native riparian and wetland species of shrubs and herbaceous plugs in a 1.27-acre wetland meadow adjacent to Pike Run. The area had been

maintained by mowing to the stream edge, but was rarely used recreationally because of its wet nature. The TWP Parks Department installed a 7-foot deer fence around the tilled area to protect plants, giving them a greater chance of survival.

Pike Run at normal flow



Pike Run at high flow



Restored wetland meadow, Oct. 2007



Phase 2, instream restoration, occurred in August 2007 and involved the installation of a series of instream structures (single-wing deflectors paired with cover logs) downstream of the wetland restoration area. Single-wing deflectors are constructed of natural logs and boulders. Placement of the deflectors on alternating banks will, over time, re-direct stream flow to create a meandering stream flow pattern within the existing banks. Since regrading the banks using more traditional streambank stabilization methods would result in the loss of both significant trees and a large amount of municipal park acreage, the project had to focus within the existing banks. Deposition occurring naturally upstream of the deflector will result in the formation of riffles, and scouring downstream of the structure will form pools to create instream habitat for macroinvertebrates and fish. Additionally, 126 native trees and shrubs planted by the deflectors and cover logs will protect the banks from potential erosion and grow to become good instream fish habitat along the banks.

Single-wing deflector



Cover log



Single-wing deflector with cover log upstream of it



Phase 3, which took place in December 2007, involved planting 1000 live stakes along Pike Run's streambanks near the single-wing deflectors, cover logs, and between the pedestrian bridge and the structures using volunteers (Figures 8 and 9). These live stakes must be planted during the dormant season. The native dogwoods, willows, and viburnums will grow into trees and shrubs that will further stabilize the banks and provide good fish habitat. The live stakes used in a 1997 Pike Run streambank stabilization project at Montgomery Park are thriving, indicating that this method works very well here.

Volunteers plant live stakes



Live stakes installed and flagged



Summary: The Pike Run Habitat Enhancement and Restoration Project has been a really exciting project to design and implement. With time it is expected to significantly improve instream habitat and water quality in Pike Run. This innovative method provides a means of improving impaired streams while working solely within the existing stream channel. When done correctly, this method results in very minor streambank disturbance during installation and can significantly improve instream habitat and stream flow conditions. It can open a whole new door to stream restoration possibilities in New Jersey where many impaired streams are similarly constrained by surrounding land uses and are not eligible for the more traditional restoration methods.