

WHEEL CREEK WATERSHED ASSESSMENT, STREAM RESTORATION & SWM RETROFIT



DESCRIPTION

PHOTOS

● Harford County, MD

BayLand conducted an assessment of the 435-acre Wheel Creek Watershed that contained over 12,000 feet of stream corridor. Concept designs and cost estimates were developed for stream restoration of the 6,700 feet of heavily impacted priority stream reaches identified along with several best management practice retrofit opportunities that would provide 123 acres of impervious area treatment for \$3.9 million. BayLand used the results of the assessment to prepare a Small Watershed Action Plan that was reviewed and approved by the Environmental Protection Agency.

Following completion of the watershed assessment, BayLand prepared construction documents for 5,700 feet of stream restoration along Lower Wheel Creek. The natural channel restoration design included: stabilizing eroding stream banks, terraces and slopes; restoring stable channel dimensions to improve sediment transport capacity and eliminate lateral erosion; installing in-stream structures (log-boulder step-pools, constructed riffles, log-boulder j-hooks, log-hook runs, toe wood, and soil fabric lifts) for grade control; and creating in-stream habitat and pollutant removal via riparian nutrient processing and floodplain reconnection. The restoration design included BMP retrofit designs for four adjacent wetland water quality basins and outfall rehabilitations to provide water quality treatment for runoff from nearby residential communities' unmanaged storm drain systems.

The combined project provides water quality credit for 65 acres of impervious area treatment and 166, 32 and 20,600 pounds per year removal of Total Nitrogen, Total Phosphorous and Total Suspended Solids respectively towards Harford County's municipal separate storm sewer system permit and Total Maximum Daily Load reduction requirements.

Construction of the first phase began in November 2015 and was completed in March 2016. Construction of the second phase began in August 2016 and was completed in March 2017 before the start of the stream closure period. Both phases were completed under budget and on schedule.

● Client | Harford County Department of Public Works

Engineer | BayLand

Subconsultants | Clear Creeks

Completed | 2017

Construction Cost | \$3,900,000

