



CULBERTSON RUN GREEN STORMWATER INFRASTRUCTURE

PA DEP Growing Greener Plus Program

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PROJECT SUMMARY

PROJECT DESCRIPTION: The project consisted of the retrofit the nearly 50-year old Hawthorne Drive stormwater conveyance system to add water quality function, improved collection and conveyance, enhanced infiltration, and increased rate control to the system. The project included the restoration and improvement of an existing, poor condition vegetated grass swale collection and conveyance system and the installation of new underground stormwater extended detention and infiltration facilities. The retrofit of this system reduces sediment load to Culbertson Run and improves the overall water quality.

STATEMENT OF THE PROBLEM BEING ADDRESSED: East Brandywine Township has a goal of reducing its overall sediment load to all Township streams impaired by sediment by more than 253,895 lbs/yr. The retrofit project was intended to reduce sediment load to the watershed and help the Township achieve sediment load reduction targets.

PROJECT GOALS: The project goals were to: 1) Address ongoing drainage and erosions issues along Hawthorne Drive, and 2) Reduce sediment pollution to the impaired Culbertson Run. Culbertson Run is a TMDL stream as it is part of the Christina River Basin; however, East Brandywine does not have any wasteload allocations (WLAs) assigned. Culbertson Run is also identified as impaired on the Commonwealth's Integrated List of Waters due to siltation from agriculture and habitat alterations. The project was expected to remove 6,344.64 lbs/yr of sediment from the Culbertson Run watershed and improve local flood, drainage, and erosion concerns.

PRACTICES INSTALLED: Approximately 3,800 linear feet of vegetated grass swale was restored and improved. The vegetated swales provide pretreatment and conveyance of stormwater into two (2) underground stormwater infiltration beds and one (1) underground extended detention basin. The system was designed to treat up to the 100-year storm for a 17.35 acre drainage area consisting of primarily low-density residential land use. The project also provides for a high degree of peak rate flow control.



Figure 1- Erosion before project implementation.

After project implementation (June 2021).

COSTS: The total estimated project cost was \$492,042. Funding sources included a \$246,021 grant from the PA DCED Act 13 Marcellus Legacy Fund Watershed Restoration and Protection Program (WRPP).

POLLUTANT LOAD REDUCTION: Based on the calculations in the Township's Pollutant Reduction Plan, the project is effectively removing 6,344.64 lbs/yr from the watershed.

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