

Breewood Stream Restoration and LID Retrofit

Wheaton, Maryland



Restored stream immediately after planting with inset of severely eroded initial conditions

Montgomery County, Maryland is the state's most populous county. Located just northwest of Washington, DC, in the larger Chesapeake Bay watershed, it also has some of the most stringent MS4 permit requirements in the nation. In 2009, as part of their efforts to meet those requirements, the County selected the Breewood Tributary for restoration.

A tributary to Sligo Creek, and ultimately the Anacostia River, the stream had been severely impacted by stormwater from its densely populated, urban surroundings, where development

predated stormwater management regulations. Much of the runoff entering the tributary through four outfalls had no stormwater management. Because of this, the stream had eroding banks, exposed sewer lines, and fish blockages.

The Breewood watershed is an NPDES monitoring watershed, where the effectiveness of the watershed management plan and various stormwater practices is being examined on their effectiveness to improve stormwater quality. Biohabitats, in a joint venture with Century Engineering, developed a design to restore 1000 linear

A successful NPDES project provides socioeconomic benefits, such as improved safety, access, and aesthetics within public park land, and the ecological uplift and stability of a restored urban stream.

feet of highly unstable, eroding stream channel of the Breewood tributary and retrofit a portion of the contributing drainage area using Low Impact Design (LID) practices to slow down, capture, and treat stormwater runoff.

The stream restoration design included performing a geomorphic and historic setting analysis, alternatives analysis, hydrologic and hydraulic analysis, final design, Federal, state and local permitting, bid support, and construction oversight and management. The selected design approach on two ephemeral channels and one perennial reach utilized a regenerative stream conveyance design to reconnect the channel to the adjacent floodplain and create a variety of in-stream habitat conditions and riparian wetlands. Imported sand and mulch was used to fill the gullies at the

ephemeral headwaters of the project to promote conversion of runoff to groundwater. Below a stabilized sewer line crossing at the confluence, on-site material was used to fill the perennial channel to maximize use of on-site generated excavated material, thus reducing project cost.

The LID retrofit consisted of 10 separate BMP designs within a highly pervious condominium high rise property, including bioretention, micro-bioretention, permeable pavers, and proprietary treatment devices.

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800.220.0919
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