Receiving Streambank Regeneration Through Restoration of Upland Hydrology

Increasing impervious cover within urbanizing watersheds reduces groundwater infiltration and causes accelerated runoff to our streams. The increased discharge volume and velocity to the receiving channel, accelerates stream bank erosion, and results in greater sediment and nutrient loads within the stream corridor.

There are two ways to effectively reduce streambank destabilizing velocity increases in receiving channels. The first is traditional natural channel design stream restoration, increasing the plan form and bank resistance. The second is restoring the watersheds approximate forested condition hydrology through enhanced upland stormwater management; storing the total bankfull runoff volume, dissipating the acquired kinetic energy in the water pool, and allowing natural processes to regenerate the receiving stream corridors.

Carroll County has been experimenting with enhanced stormwater techniques since 2000 and began incorporating enhanced techniques into stormwater retrofits in 2008. Observations since 2008 have clearly indicated streambank regeneration occurring downstream of these facilities. Efforts have been undertaken to develop a procedure to measure and quantify the water quality benefits associated with downstream bank stabilization/regeneration.

This presentation will review the enhanced techniques, engineering modifications, and future work to quantify these observed benefits.

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