



down to earth

Environmental Restoration Quarterly • Summer 2018

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Blue Ridge Manor

By : Kelly Martin, Watershed Grants Technician

In June 2016, the Bureau of Resource Management (BRM) received a grant award from the Maryland Department of Natural Resources, Chesapeake & Atlantic Coastal Bays Trust Fund which included \$225,490 towards construction funding of the Blue Ridge Manor stormwater management facility retrofit in New Windsor.

The original stormwater management facility for the Blue Ridge Manor subdivision was constructed in the early 1990s. Stormwater management was provided by a detention basin that became overgrown due to the unmaintainable steep slopes.



Before

The BRM recently completed the retrofit of the facility to a surface sand filter that provides water quality, channel protection, and peak management of the 10 year storm for the 31 acre drainage area, of which, 7.7 acres are impervious. Excess fill materials from the facility construction were hauled to the New Windsor lagoon. The new facility, which is owned by the Town of New Windsor, was graded to support long term maintenance.



After

Partial grant funding for this project was provided by:



Department of Land and Resource Management (LRM) • Bureau of Resource Management (BRM)
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Protecting and managing Carroll County's natural resources for the pleasure and enjoyment of its Citizens

Stream Channel Stability, is self-recovery possible?

By Byron Madigan, Water Resource Supervisor

Despite decades of stormwater best management practice (BMP) implementation, the continued degradation of urban streams remains a concern. Impervious cover within urban watersheds reduces groundwater infiltration vital for water supply, and causes accelerated runoff to our streams through increased volume and velocity to the receiving channel. This increase accelerates stream bank erosion, resulting in greater sediment and nutrient loads within the stream corridor.

Downcutting or channel incision is a common feature of urban stream channels as a result of high volume scouring flows and lateral constraints to channel migration (Wolman, 1967; Henshaw and Booth, 2000). Fraley et al. (2009) found that bank erosion contributed an estimated 43% of the suspended sediment load in an urbanizing Pennsylvania tributary.

There are a variety of approaches when addressing urban runoff, but does a stream channel have the ability to self-recover for some distance downstream following the implementation of specific BMPs?

To date there has been a significant amount of research on the effectiveness or pollutant removal efficiencies of various stormwater BMP designs, but not much on what physical changes occur within the receiving stream below the facility following implementation.

A research grant was awarded to Carroll County from the Chesapeake Bay Trust's (CBT) Restoration Research Grant Program to evaluate the effectiveness of upland BMP implementation on stream channel stability.

This study is being done through a partnership with the Center for Watershed Protection (CWP) to quantify stream bank erosion and changes in "channel stability" through reductions in storm flow magnitude, duration and frequency of retrofits that reduce the upstream discharge to "woods in good condition" up to the 10-year 24-hour design storm.

Monitoring for this project is focused on the physical changes within the receiving stream, and utilizes geomorphic monitoring parameters to assess the effectiveness of the retrofit. Bank pins that consist of 2' rebar are placed at strategic locations below the retrofit to measure bank retreat, and cross sectional measurements are being done by the County survey department to establish lateral and vertical movement of the stream channel over time. Pressure transducers were installed to measure stage height or the flashiness of the channel during storm events before and after the retrofit.

The results of the study which should be available mid-2019 aim to provide recommendations to credit flow controlling BMPs as a hydrogeomorphic stream stabilization technique for inclusion as part of the nutrient and sediment credits for the Chesapeake Bay Total Maximum Daily Load (TMDL).



Discharge measurement to establish flow conditions within receiving channels



Bank Pin measuring lateral retreat from erosion



PVC tubing houses pressure transducer that records stage height/flashiness



Westminster High School, 2008



Westminster High School, 2018



Hawk Ridge Stormwater Management Facility Retrofit

By Janet O'Meara, Watershed Management Coordinator

In 2014 Carroll County partnered with the eight municipalities through a Memorandum of Agreement (MOA) to perform restoration to treat currently untreated impervious. The Bureau of Resource Management identified projects within each of the municipalities. These projects will work towards meeting the goals set forth by the National Pollution Discharge Elimination System (NPDES) Permit and Total Maximum Daily Load (TMDL) requirements associated with the Chesapeake Bay.

The Hawk Ridge facility is located within the Town of Sykesville. This facility along with the Shannon Run stormwater facility which is located just downstream, were identified as an opportunity to retrofit two existing facilities within the town, bringing the facilities up to current State and County stormwater management standards while treating currently untreated impervious surface. The County contracted with Carroll Land Services to perform the design work for this project. Throughout the design process, community meetings were held with the residents, and the project was presented to the Town Council.

The Hawk Ridge facility is being converted to a shallow wetland facility. The slopes will be no steeper than 3:1 to allow for efficient machine mowing. Step pools will be added to convey the drainage entering the facility near the spring house, while the storm drain entering the facility between the homes on Caracara Court will be extended to enter a newly created forebay for the facility. The newly created wetland facility will consist of shallow marsh areas, a micro pool, and forebay. Upon completion, the facility will be planted with a variety of native species. Construction of the facility was awarded to Stambaugh's, Inc. Construction began in March, but has been delayed due to recent rain events. It is anticipated that construction will wrap up in mid-August.

Partial grant funding for this project was provided by:



Winners Presented with Environmental Awareness Awards

By: Brenda Dinne, Special Projects Coordinator

The Carroll County Environmental Advisory Council (EAC) announced the winners of the 2018 Environmental Awareness Awards. The EAC and the Board of County Commissioners held a joint awards presentation on June 20, 2018.

The purpose of the awards program is to promote awareness of the environment and acknowledge exemplary accomplishments in the protection, conservation, and improvement of our environmental resources. The Carroll County Commissioners adopted the Environmental Awareness Awards program in 1990 to recognize individuals and groups that have demonstrated these qualities through their actions or projects. Awards are presented biennially for endeavors and projects that result in positive benefit to the environment and have the potential for long-term community environmental benefit in each of five categories: Individual, Institution, Agriculture, Business, and Student.

The award for the Individual category went to Nancy Bittler for her leadership with the 4H GOES Club and Venturing Crew 202. In the Business category, Legacy Septic & Excavation LLC was awarded for the free classes in septic maintenance that the company offers at the library branches. In the Institution category, Bryan Shumaker won for incorporating the Living Reef Action Campaign goals into school curriculum and activities. In the Student category, Stella Schoberg took the award for her leadership with her school Environmental Club and recycled fashion show. Carolyn and Mike Krome took the Agriculture award for their conservation and education initiatives on their farm.

The award winners' names and a brief description of their efforts can be found on the EAC webpage at <http://ccgovernment.carr.org/ccg/eac/>.



*Nancy Bittler
Individual*



*Legacy Septic & Excavation LLC
Business*



*Bryan Shumaker
Institution*



*Carolyn and Mike Krome
Agriculture*

Grants News:

The Bureau of Resource Management is happy to announce the award of \$150,000 from the Department of Natural Resources, Chesapeake & Atlantic Coastal Bays Trust Fund, Natural Filters Program for the Carroll County Stream Buffer Initiative. This funding will be used for streamside tree plantings on properties in the Double Pipe Creek and South Branch Patapsco watersheds which address nutrient reduction requirements associated with the County's National Pollutant Discharge Elimination System (NPDES) Permit.



Help Pollinators Locate & Flourish in Your Garden

(source: University of Maryland Extension Home & Garden Information Center <http://extension.umd.edu/hgic/>)

- Include local native flowering plants in your landscape.
- Choose plants with a variety of colors.
- Choose flowers with different shapes and sizes.
- Choose plants with different flowering times to provide forage all season.
- Select plants with different heights and growth habits.
- Include plants that are favored food for butterfly caterpillars; the loss of foliage is well worth it! Accept some foliage loss.
- Reduce or eliminate the use of pesticides (including herbicides).

