

Capehart Brook Restoration, Phase I

#2011RT16

Waterbody Name: Capehart Brook
Location: Bangor, Penobscot County
Waterbody Status: Urban Impaired Stream
Project Grantee: City of Bangor
Project Duration: April 2011 – November 2013
319 Grant Amount: \$60,000
Local Match: \$96,120



PROBLEM:

Stormwater runoff from the 15% impervious cover of the watershed is the largest source of pollution to Capehart Brook. Stormwater runoff from roads, roofs, and parking lots in developed areas flows quickly carrying dirt, oils, metals, and other pollutants, and sending high volumes of flow to the brook. Developed areas in the watershed are primarily residential. The watershed is 48% non-developed, particularly in the southern portion of the watershed. These non-developed woodland areas absorb and filter stormwater pollutants and help protect the water quality of the brook. To support Class B aquatic life uses, the watershed needs the characteristics of a watershed with 8% impervious cover according to the *Maine Impervious Cover TMDL for Impaired Streams* (DEP 2012). The TMDL and the Stream Corridor Survey recommended disconnecting runoff from impervious surfaces to reduce volume, slow velocity, and filter out contaminants.

PROJECT DESCRIPTION:

The subsurface bioretention cells installed at the Rangeley South and Downeast School sub-catchments will provide much needed reduction in peak flows and will filter out pollutants commonly found in urban stormwater. It is expected that this project along with several successive phases will effectively disconnect 10% of the impervious area of the entire watershed from directly draining to the storm system, a needed step towards restoring the brook.

This project also focused on educating single-family homeowners regarding stormwater problems and solutions. The Capehart Brook watershed is filled with single-family homes where the disconnection of impervious areas can occur by capturing rain water from rooftops and parking areas and installing infiltration systems. Two dozen homeowners received technical assistance and materials, free of charge, to install rain barrels or rain gardens. Also, volunteers were solicited from the surrounding community to assist with stenciling storm drains and to participate in a stream clean-up to raise awareness about the impact of stormwater on Capehart Brook.

PROJECT OUTCOMES:

- A subsurface bioretention cell was installed at Rangeley South which treats and attenuates stormwater from six acres of the housing development prior to discharging to Capehart Brook.
- A subsurface bioretention cell was installed at the Downeast School which treats and attenuates stormwater from 0.5 acres of developed area (60% impervious) prior to discharging to Capehart Brook.
- The City of Bangor Public Works Department became familiar with construction and maintenance of subsurface bioretention cell treatment systems.
- The runoff going to Capehart Brook from the project area has been reduced by 50%. The remainder of the runoff from the project area is cooled, filtered, and attenuated, mitigating its impact on Capehart Brook.
- The bioretention cell portion of the project prevents an estimated 5.7 tons of sediment, 6.6 lbs. of Phosphorus and 9.1 lbs. of Nitrogen from entering Capehart Brook annually.
- The rain barrel and rain garden portion of the project remove an additional 0.21 pounds of phosphorous and 1.2 pounds of Nitrogen from entering Capehart Brook annually.



Downeast School biocell during construction.



Downeast School biocell after construction.

PROJECT PARTNER:

Bangor Housing Authority

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Suggested Citation:

Maine Department of Environmental Protection (2014) "Nonpoint Source Management Program 2013 Annual Report," Document # DEPLW-1269. Augusta: MDEP.