



# Spring 2012 Hodgson Brook Restoration Project Update

PORTSMOUTH DPW STAFF INSTALLING A BIORETENTION RAIN GARDEN

## Demonstrating stormwater treatment options in the Coakley Rd neighborhood

The Coakley Rd neighborhood located near the Portsmouth traffic circle is in the *lower* Hodgson watershed and is typical of an urban neighborhood built in the 1950's. At the time it was designed and built little thought was given to stormwater beyond sending it onto the street where it picked up pollutants as it traveled to storm drains and then into the brook.

The **COAKLEY RD STORMWATER RETROFIT** was designed to show how a few relatively simple stormwater treatment installations could be integrated seamlessly into the fabric of a neighborhood and business area. These installations are designed to filter out pollutants and by doing so improve the health of the brook



A **WALKABLE DEMONSTRATION AREA**, the installations include **tree box filters**, residential **rain gardens** and **rain barrels**, engineered rain gardens (sometimes referred to as **bioretention areas**) and areas of **restored native stream buffers** which together filter, infiltrate, or reuse polluted stormwater that would otherwise run directly into the brook and be carried into Portsmouth's North Mill Pond and eventually coastal waters. Using the soil as a natural filter provides a cost effective way of reducing pollutants.

## BACKGROUND

The Hodgson Brook Restoration Project began in 1998 when a group of local citizens the **Advocates for the North Mill Pond** initiated a series of studies which revealed that the pond was seriously impacted by the polluted water flowing into it from Hodgson Brook. Through a collaborate effort a watershed restoration plan was developed in 2004 and since then efforts have been funded by grants from the *Clean Water Act Section 319 program administered by the NH Department of Environmental Services (NHDES)*. Over time progress has been made in identifying and eliminating broken sewer pipes and by conducting trash cleanups, regular water quality monitoring and outreach activities and now through the completion of a neighborhood stormwater demonstration project.

## COMPLETED TO DATE

**STREAM BANK RESTORATION** Volunteers planted 238 native shrubs and perennials to restore a segment of stream bank behind the Port Inn during the fall 2010 Day of Caring event. This returned to a more natural state 1,200 sq. ft. of Hodgson Brook stream bank. Incorporated in the area was a stormwater treatment device known as a bioretention area. An additional 74,324 sq. ft. of upland, transition zone and wetland area along the brook is currently (spring 2012) being restored as part of the adjoining Meadowbrook redevelopment.



### NINETEEN RAIN BARRELS

were distributed to residents in the neighborhood. Designed to collect and store roof runoff for outdoor use together, the 55 gallon rain barrels that were donated by the Port Inn will prevent 24,000 gallons of runoff from entering Hodgson Brook while homeowners will have 1,300 gallons of free water for their plantings



**THREE TREE BOX FILTERS** were installed in the Coakley Rd neighborhood. Designed by the UNH Stormwater Center, they are the first of many planned small scale tree boxes to be installed by Portsmouth Public Works staff in the watershed. The soil in the tree boxes acts as a filter collecting sediment and pollutants from street runoff before it is directed back into the traditional stormwater system by under drains. The pollutants are broken down over time by the trees and microorganisms in the soil.

**THREE RESIDENTIAL RAIN GARDENS** were installed in the neighborhood during 2011. The first was installed with the help of UNH and Rutgers Cooperative Extension staffs and included training for 50 area landscape professionals. The last two rain gardens were installed with the help of volunteers from area companies during the fall 2011 United Way Day of Caring event. The plantings, both shrubs and perennials, were chosen to compliment the landscaping and the neighborhood.



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## New Projects Planned for 2012-2013

### PEASE TRADEPORT

A number of projects are currently underway or planned over the next year for the Pease Tradeport including:

- Lot level assessment of stormwater practices currently in place
- The identification of possible locations for future stormwater retrofits
- Development of a stormwater practices maintenance manual

### GREAY BAY COMMUNITY COLLEGE

Installation of two Tree Box Filters and one rain garden and interpretative signage

### SHERBURNE NEIGHBORHOOD

The Sherburne neighborhood located between Borthwick Ave. and Grafton Dr. consists of over 400 circa 1950-60 single family homes.

Neighborhood installations will include:

- Two engineered bioretention rain garden which together will collect and treat 74,000 sq. ft. of street runoff
- Six residential rain gardens
- And twenty rain barrels.

### WATERSHED CHLORIDE TOTAL MAMIMUM DAILY LOAD (TMDL)

TMDL is a calculation of how much of a pollutant (in this case chloride commonly known as road salt) a water body can receive and still meet state water quality standards. Monitoring of Hodgson Brook conducted from 2006-2011 documented significant water quality impacts from the application of chloride used for winter road and parking lot maintenance in the watershed draining to the brook. Chloride levels in the brook exceeding the accepted state standards were observed during winter storms and more significantly during low flow summer months. When completed, the TMDL will set the total amount of chloride that can enter Hodgson Brook and divide the total load among all of the sources in the watershed including roads and parking lots maintained by the NH Department of Transportation, City of Portsmouth Public Works, Pease Development Authority and private winter maintenance companies.



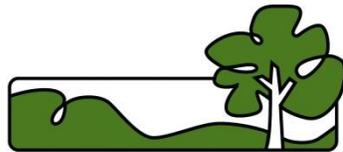
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