New Jersey Water Supply Authority
Watershed Protection Programs
Fact Sheet #4
Manalapan Brook Watershed Restoration and Protection Plan
Thompson Park Rain Garden Demonstration Project

Manalapan Brook Watershed Restoration and Protection Plan

Manalapan Lake is a 48 acre lake at the downstream end of a once-rural Manalapan Brook watershed which drains 17,254 acres that is developing rapidly but still includes significant agricultural areas. Manalapan Brook is a typical NJ coastal plain subwatershed, with sandy soils and a gently sloping topography.

Between 2004 and 2009, stream assessments and water quality sampling were performed in the Manalapan Brook Watershed. Based on the results of the field work, the pollutant of concern is Total Suspended Solids (TSS). Suspended solids are made up of small particles that are washed into the stream with storm water runoff, and soil that is flushed from stream banks during storm events. In high concentrations, these particles can create turbid, or cloudy, conditions that result in increased water temperatures, decreased light penetration, and decreased dissolved oxygen.

In 2010, through a federal Clean Water Act 319 (h) grant from the New Jersey Department of Environmental Protection, a watershed restoration and protection plan was developed for the Manalapan Brook watershed. The plan makes recommendations on how best to manage the watershed to reach water quality goals and to address the pollutant loads entering Manalapan Lake and the streams in the watershed. The plan includes several projects to reduce TSS, the first of which is a rain garden demonstration project in Thompson Park. Additional projects will follow, and will include retrofit of stormwater facilities, streambank stabilization and land management actions.

What is a Rain Garden?

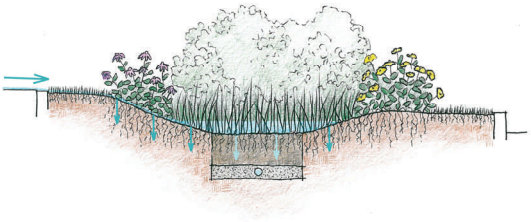
A rain garden is a planted, shallow depression that is designed to capture rainwater runoff (also called stormwater) from impervious surfaces like driveways, rooftops, walkways, and compacted lawn areas. This runoff can carry salt, sand, pet waste, pesticides, fertilizers, leaves and grass clippings, oil, litter, and many other pollutants into nearby waterways. Once in the garden, the polluted water is taken up by the plants, infiltrates into the ground or evaporates as water vapor back to the atmosphere. Through these processes, the volume of stormwater reaching storm drains and surface waterways is reduced and is less polluted.

Typical rain garden adjacent to parking lot

The size and depth of the garden is determined by the volume of runoff that will reach the garden, soil characteristics and other constraints of the site. Rain garden plants should be native hardy perennial species that can survive in both wet and dry conditions. Some rain garden maintenance is required, including weeding, pruning, and removing sediment that accumulates. For more information on rain gardens visit Rutgers University Water Resources Program webpage at: http://water.rutgers.edu/Rain_Gardens/RGWebsite/raingardens.html.

Thompson Park Rain Garden

Thompson Park, located in Monroe Township and Jamesburg Borough, Middlesex County, is a highly utilized County Park. This site was selected for the demonstration rain garden for its proximity to Manalapan Lake and the treatment the rain garden would provide to water entering the lake from the adjacent parking lot. This rain garden is also intended to be a highly visible example for homeowners to gain insight and information in order to plan and install their own rain gardens.



Schematic of Thompson Park Rain Garden

The main function of the rain garden is to act as a filter for pollutants. The parking lot island rain garden in Thompson Park is designed to filter some of the common pollutants that wash off parking lot during rain events, such as motor oil, road salt, and sediment. Runoff from this parking lot enters storm drains, which then flow directly into Manalapan Lake.

This rain garden is designed to treat approximately 12,800 square feet of the parking lot. The pre-existing soil in the island was significantly compacted, which reduces the soils ability to allow water to infiltrate and move within the soil. As a result, the soil has been amended with sand and organic matter, which will aid infiltration. A perforated PVC under-drain has also been added to accommodate the large volumes of runoff that the garden will capture. Types of plants in this garden include Coneflowers, Joe Pye Weed, Wild Bergamot, and Summersweet.

For more information:

- Middlesex County Department of Planning http://www.co.middlesex.nj.us/planningboard/index.asp
- Middlesex County Department of Parks and Recreation http://www.co.middlesex.nj.us/parksrecreation/index.asp
- New Jersey Department of Environmental Protection—Division of Watershed Management http://www.nj.gov/dep/watershedmgt/
- New Jersey Water Supply Authority http://www.raritanbasin.org/rain_garden.html (Heather Barrett, hbarrett@raritanbasin.or (908) 685-0315 x231)
- Rutgers University Water Resources Program http://water.rutgers.edu/
- Native Plant Society of New Jersey (Rain Garden Manual, Native Plant List) http://www.npsnj.org/

Demonstration project partners:

COUNTY OF MIDDLESEX

COUNTY OF MIDDLESEX PARKS AND RECREATION

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

NEW JERSEY EST. 1981 WATER SUPPLY AUTHORITY

RUTGERS New Jersey Agricultural Experiment Station
Cooperative Extension of Middlesex County

Water Resources Program