A rain garden and infiltration trench installed in the Sandpiper Pines neighborhood.

Sandpiper Pines Rain Gardens & Infiltration Trenches - Town of South Bethany

Project Status:
Completed June 2016

Project Summary

Background

Most development in and around the Town of South Bethany was completed prior to state stormwater regulations. Untreated runoff enters the Town's poorly-flushed residential canals, which have acute water quality problems. Anchorage Canal receives stormwater runoff from a 125-acre drainage area that includes nearly a mile of Coastal Highway, the Sea Colony high-rise apartments, the Town of Middlesex Beach, and a portion of South Bethany. This was the fifth major implementation effort in the Anchorage Canal Drainage Area Stormwater Retrofit Demonstration Initiative, which began with a planning study in 2008. The Initiative demonstrates a variety of coastal stormwater retrofits, with a focus on low-cost solutions and native coastal vegetation.

Project Description

Three infiltration trenches and five combined bioretention/infiltration facilities were designed and constructed within the Sandpiper Pines subdivision of South Bethany. Biochar, a type of charcoal, was added to the soil to increase nitrogen removal and improve infiltration rates. Together these green infrastructure practices treat stormwater runoff from 10 acres of residential development.

Objective

Excess nutrients in Little Assawoman Bay have resulted in murky waters with poor habitat for fish and shellfish. This project reduces inputs of pollutants to Anchorage Canal and Little Assawoman Bay by an estimated 10.3 pounds of nitrogen, 1.7 pounds of phosphorus, and 596 pounds of sediment per year. It adds 10 acres to the Inland Bays Pollution Control Strategy goal for increasing stormwater retrofits in the watershed. The project also serves as a demonstration of innovative green infrastructure practices for bayside communities.

Project Contact:
Dr. Marianne Walch
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Project Partner(s):
Town of South Bethany.

Funding & Partners:
Total project cost: $150,313

Funding Partners: DNREC Community Water Quality Improvement Grant; Town of South Bethany; US EPA.

Contractor(s):
TetraTech, Inc.; EA Engineering, Science, and Technology, Inc.; A-Del Construction Co., Inc.

Project Timeline:
The grant was awarded in January 2015, and construction was completed in June 2016.

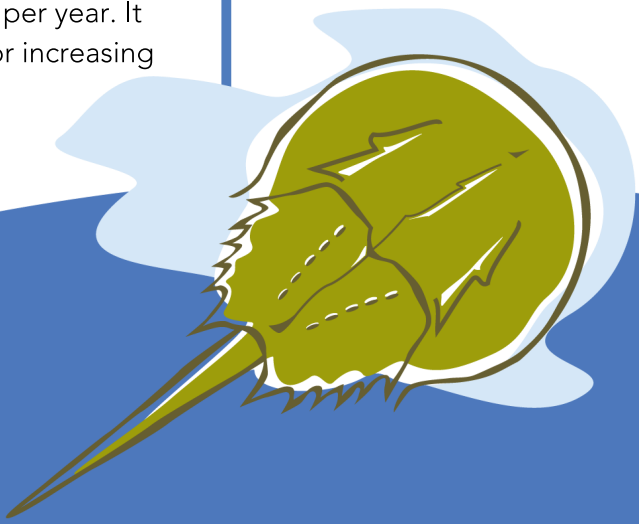

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Image: Rocks covering the infiltration trenches were chosen to blend attractively with existing driveways and garden areas.

Clean Water Act

This project aligns with objectives outlined in the Clean Water Act.

Outputs and Outcomes:

- Annual reductions of 10.3 pounds of nitrogen, 1.7 pounds of phosphorus, and 596 pounds of sediment entering Anchorage Canal and Little Assawoman Bay through runoff
- Ten acres added towards the Inland Bays Pollution Control Strategy Goal of treating 4,500 acres of lands developed prior to the State stormwater regulations
- Improved water quality (reduced nutrient and algal concentrations and improved dissolved oxygen and water clarity) in the Anchorage Canal and Little Assawoman Bay

Outcomes/Conclusions

This project is part of a long-term collaborative initiative of the Center and its partners to demonstrate stormwater retrofit practices within the Anchorage Canal Drainage Area. The initiative has made substantial progress towards its goal of reducing nutrient loads to the Canal by 40% in accordance with the Pollution Control Strategy for the Inland Bays.

CCMP Focus Area

This project fulfills objectives outlined in the Comprehensive Conservation Management Plan (CCMP) for the Delaware Inland Bays.

- Focus Area: Water Quality Management
- Objective: Reduce nutrient input to residential canals and lagoons

Highlight

The Town of South Bethany was honored in 2013 with a Friend of the Bays Partner Award for their long and productive partnership with the Center in support of cleaner Inland Bays.

Image: Sign commemorating the ongoing partnership between the Town and Center to improve water quality in the canals.

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The Delaware Center for the Inland Bays is a non-profit organization established in 1994 to promote the wise use and enhancement of the Inland Bays and its watershed. With its many partners, the Center conducts public outreach and education, develops and implements restoration projects, encourages scientific inquiry and sponsors research. To learn how you can get on board with the bays, please visit www.inlandbays.org and follow us on Facebook @deinlandbays!