



Buzzards Bay National Estuary Program Drift Road stormwater treatment designs project

Monday, October 28, 2013 at 4 PM
Westport Town Hall
Selectmen's meeting room

Joseph Costa, Executive Director, Buzzards Bay NEP, MCZM

Michael Clark, PE, Principal - Polaris Consultants LLC

Visit our website: www.buzzardsbay.org

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joe.costa@state.ma.us

Agenda

Tuesday, August 27, 2013

Westport Town Hall, Selectmen's meeting room

4:00 – 4:05	Costa:	Welcome, introductions, opening remarks
4:05 – 4:15		Overview of Project Goals, stream vs. estuary impacts
4:15 – 4:20		Brochure, Website
4:20 – 4:25		Schedule for Highway Department Test pits
4:25 – 4:50	Clark:	Discussion of BMPs, site considerations
4:50 – 5:00	All:	Question and answer, discussion

Project Origins

June 2012: The Town of Westport applied to the Buzzards Bay NEP for a \$20,000 technical assistance municipal grant for funding for engineering designs to treat stormwater discharging to the East Branch of the Westport River from Drift Road

November 2012: MA Executive Office of Environmental Affairs announced Westport would receive the technical assistance grant.

The required match: your DPW would dig the necessary test pits and provide municipal staff to participate in the development of the designs.

[This was not the first time the Town of Westport applied for a grant. In 2009 we hired Norfolk Ram to develop stormwater designs to treat stormwater discharges from the Westport Middle School. You subsequently received a section 319 grant from Massachusetts DEP in the amount of \$233,930 to construct the stormwater treatment designs.]

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Contract Details and Oversight

End Date: December 31, 2013

The principal end product to be produced by the vendor is stamped engineer site plans and supporting design calculations to address stormwater runoff.

Task 1- Data Inventory, Collection, and Analysis

Plan profiles, determination of contributing areas both pervious and impervious surfaces on private and public property, soil logs and water table. Westport Highway Department will provide the equipment and operator to dig all test pits.

Task 2 – Designs: preliminary, draft final, final

Task 3 – Meetings

- a. An initial meeting with the Buzzards Bay NEP, staff from the town of Westport and partners to discuss goals and objectives.
- b. A meeting on the preliminary design. (NOV)
- c. A public meeting with the Westport Board of Selectmen to discuss the draft final design plans (DEC)



Other staff contacts:

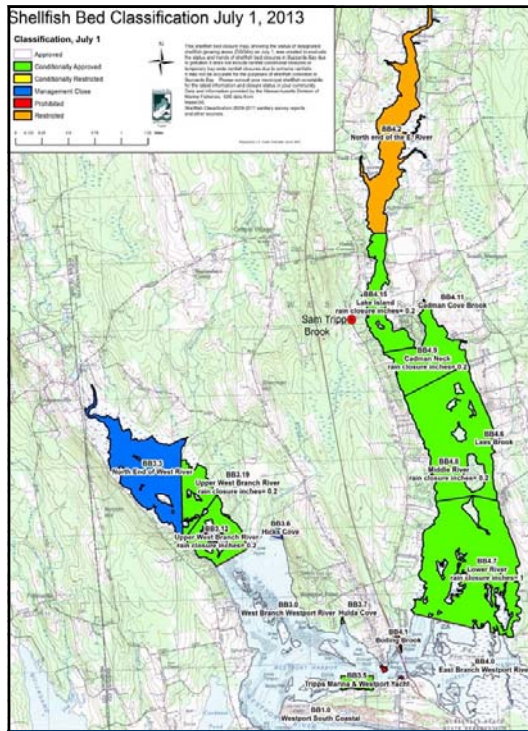
Wetland Issues:
John Rockwell,
508.291.3625 x14

Stormwater Designs:
Bernadette Taber
(USDA/NRCS)
508.291.3625 x16

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Proposed Evaluation Criteria.

- Pretreatment Requirements
- Efficiency in removing bacteria, TSS and nitrogen
- **Construction and maintenance costs**
- Maintenance with existing Town equipment.
- Stormwater contributory area.
- Ability to infiltrate run-off and need for underdrains.
- Ability to pass large storm events.
- **Impact on surrounding infrastructure and property.**
- **Easements**
- Amount of the Water Quality Volume that can be treated.



Project Goals

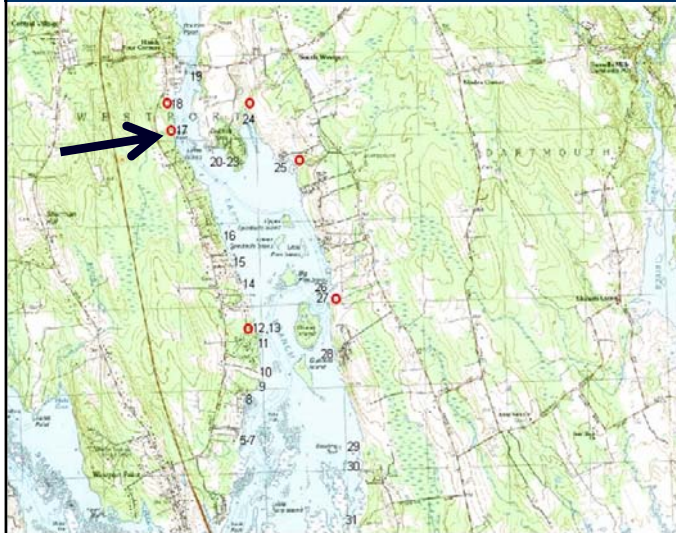
The primary goal of the project is to reduce bacterial discharges to the Westport River in order to both prevent expansion or lead to reductions of existing closures in space or time or rainfall amount.

Important secondary goals are to reduce sediments and other pollutants, minimize erosive damage to Sam Tripp Brook, preserve natural stream temperatures

With respect to shellfish bed closures, we recognize no one project in a system the size of the WR will change closure status, but that many similar actions must be taken to reduce pollution discharges.

Discharge Importance

The MA Div of Marine Fisheries conducts periodic sanitary surveys of shellfish growing areas. In their 2012 annual review DMF noted that of the 31 actual and potential pollution sources on the East Branch, Sam Tripp Brook was one of 6 identified as an actual contributing source.



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Brochure & Website

buzzardsbay.org/drift-road-westport-stormwater.html

Westport Board of Selectmen
Water Resources Management Committee
Westport Town Hall
618 Main Road
Westport, MA 02770

Development of Designs for the Treatment of Stormwater Discharging from Drift Road to Sam Tripp Brook, Westport, MA

Approximate flow of stormwater along Drift Road into Sam Tripp Brook.

Why does the stormwater from Drift Road need to be treated?

The volume of stormwater discharging from Drift Road into Sam Tripp Brook has increased in recent years. The higher volumes of stormwater, coupled with severe storms, led to the collapse of the Sam Tripp Brook culvert under Drift Road. While the culvert was replaced in 2012 with federal disaster relief funds, the larger volumes of stormwater continue to cause erosion along the road, dumping sediments and pollutants into the brook. The excess flows are also causing erosion of the stream banks and bottom and contributing to the overall degradation of Sam Tripp Brook. In addition, Sam Tripp Brook flows into the East Branch of the Westport River, and the pollutants from this brook contribute to the closure of shellfish beds in the upper East Branch. The Massachusetts Division of Marine Fisheries (DMF) has identified this brook as a known contributor of fecal coliform bacteria. Fecal coliform bacteria are used by DMF to determine shellfish bed closures.

What is the area covered by this work?

The area of stormwater contribution lies roughly between the junction of Riverside Street to the south of Sam Tripp Brook and Cardinal Lane to the north of Sam Tripp Brook. The treatment of stormwater will principally occur within the road layout. However, some property owners along the road may voluntarily participate in the effort to reduce stormwater by allowing discharges of treated stormwater on their property.

In 2012, the Town of Westport applied for, and received, a grant from the Buzzards Bay National Estuary Program (NEP), a unit of Massachusetts Office of Coastal Zone Management. The purpose of the grant is to develop engineering designs to reduce the volume of stormwater discharging to Sam Tripp Brook and to reduce the concentration of stormwater pollutants affecting both the stream and Westport River.

In August 2013, Polaris Consultants, LLC was hired to develop these stormwater treatment designs. The Buzzards Bay NEP will oversee and administer the contract on behalf of the town. This work is being undertaken in partnership with the Westport Water Resources Management Committee, the USDA Natural Resource Conservation Service, and the Westport River Watershed Alliance. The design phase will be completed by January 2014.

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Brochure & Website

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The town owns the road layout, which includes the paved road area and a strip of land on either side. This map shows approximate, not actual, property bounds along Drift Road.

What is the road layout?

Municipalities not only own the paved surface of a town road, but they also own a strip of land on either side, in what is called the road layout. This land on either side of the road is not an easement on private property, the town owns it outright.

The photograph above shows an approximate boundary of the road layout and abutting properties based on maps from the town's Assessor's office. As part of this project, Polaris will survey the road layout bounds wherever construction is planned so the town knows precisely where town property ends and private property begins.

It is worth noting that property owners sometimes place plantings or maintain lawns within the road layout. This is less of a problem on Drift Road be-

cause of its rural nature. However, where property owners have made alterations within the road layout, the town will try to avoid work in these areas where possible, and will work with the property owner to address the problem.

How will the stormwater be treated?

There are various ways to treat stormwater. The approaches to treat stormwater are often referred to as Best Management Practices, or "BMPs." In a rural area like Drift Road, water from roads is often directed into the nearby woods and away from wetlands and streams. This is typically the easiest and least expensive option. Stone is typically placed at the outlet of the discharge pipe to reduce, disperse, and slow the stormwater. The water then just percolates into the soil. This may be a strategy useful in some areas of Drift Road.

Where directing flow into an upland wooded area is not an option, a biofiltration swale, or similar feature can be constructed on the side of the road. This is accomplished by excavating a trench then filling it with a mixture of topsoil, sand, and compost, and planting it with grass or other vegetation. This approach will help capture, temporarily store, treat, and slow the passage of stormwater.

The best way to treat stormwater depends on the types of soil present and the depth to groundwater. To determine site conditions, the town will,



Stormwater can be directed into wooded areas instead of into streams or wetlands.



Stormwater can be directed to swales and biofilters along the edge of a road, where some of the water can soak into the ground.

Highway Department will dig test pits along Drift Road to evaluate the soils.

Who will pay for the construction of the stormwater designs?

The Town will work with state and federal agencies to obtain grant funds to pay for the construction of the final designs. Often match is required for these grants, and the Town hopes to meet these match requirements by providing in-kind services by the Town's Highway Department in installing some of the treatment systems.

What can homeowners do to help?

One of the major contributors of stormwater runoff to any street drainage system is from the impervious surfaces (roofs, driveways, patios) from individual house lots. Disconnecting these impervious surfaces reduces the impact stormwater has on downstream resources - in this case San Trapp Brook and the East Branch of the Westport River. Disconnecting can be as simple as redirecting your roof downspouts to your lawn or garden area, or to a drywell or rain barrel. There are many inexpensive solutions as shown by the photographs. Garden and building centers can provide you with the materials you need.

Although somewhat more expensive, disconnecting your driveway from the road drainage system can



If your roof downspout flows into your driveway, which then flows into a town road, consider redirecting the downspout flow into your garden or a wooded area. Your effort will help the town to better manage stormwater pollution.

make the biggest impact. This could be done where your driveway needs resurfacing. Redirect the water to a lawn area or a rain garden. The stormwater will soak into the ground rather than flow onto the town road.

Where can I find more information about this project?

For more information about this project, visit this website:

hazardbay.org/2017/08/08/westport-stormwater.html

This brochure was prepared and printed by the Buzzards Bay National Estuary Program at the request of the Westport Board of Selectmen and Westport Water Resources Management Committee. For more information about the Buzzards Bay National Estuary Program visit hazardbay.org.

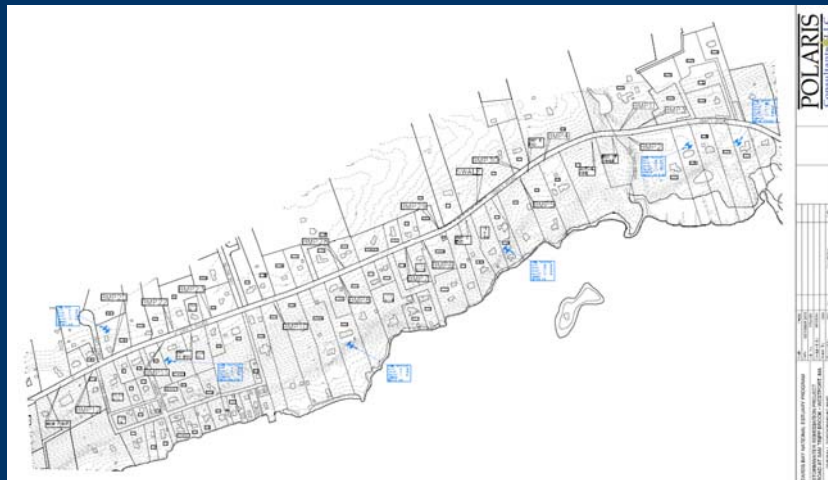


Potential BMP Sites

Best strategy to meet this goal is to reduce, to the greatest extent practicable, the volume of stormwater discharging to the river. This means soaking into the ground (infiltrating) as much stormwater as we can.

Biggest Problems: Large volume of stormwater on a steep slope with mostly poor soils. Treatment in road layout alone may not meet project goals.

Sites below are tentative examples. Actual sites will be chosen after soil tests.

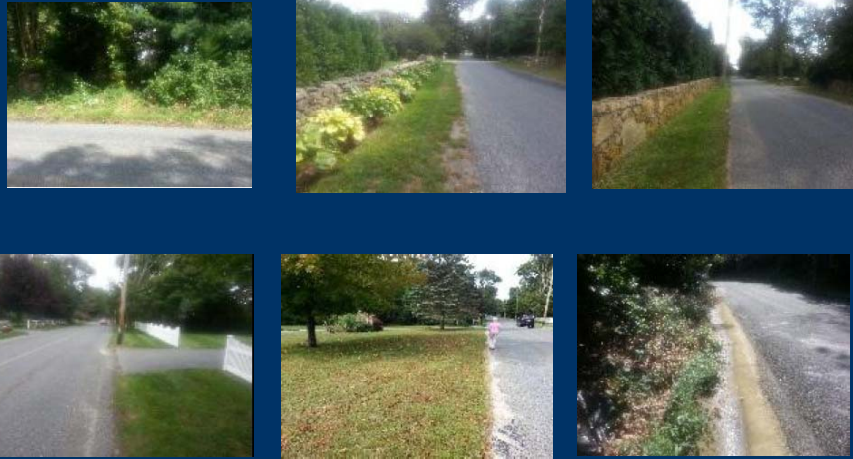


POLARIS
CONSULTANTS LLC

PROJECT: POLARIS CONSULTANTS LLC
DATE: 10/10/2017
SCALE: AS SHOWN
DRAWN BY: J. HARRIS
CHECKED BY: J. HARRIS
APPROVED BY: J. HARRIS

Potential BMP Sites

Examples of existing Conditions



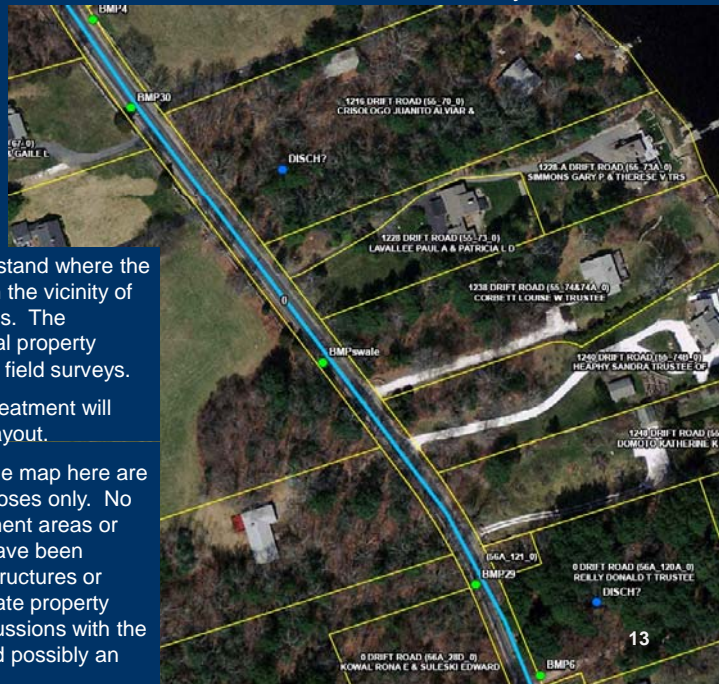
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Desirable to treat some stormwater outside of the road layout

We need to understand where the road layout ends in the vicinity of treatment structures. The delineation of actual property bounds will require field surveys.

Most stormwater treatment will occur in the road layout.

The locations on the map here are for illustration purposes only. No locations for treatment areas or discharge points have been agreed too. Any structures or discharges on private property would require discussions with the property owner and possibly an easement.



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