

A photograph of a white dog running away from the camera on a sandy beach. The beach is flanked by water on both sides, with some marshy areas visible in the distance. Houses are visible in the background on the left side.

Borough of Fenwick Hepburn Preserve

Dune & Marsh Preservation Project

**CIRCA Connecticut Living Shorelines Workshop
November 20, 2017**



Project Location

T-Sheet 1880



LIGHT
(Hodgkins 1883)

JETTIES

0 250 500 1,000 Feet
0 50 100 200 Meters

March 1934



0 250 500 1,000 Feet
0 50 100 200 Meters

CT State Library for the scanned aerial photographs. The University of Connecticut Library
MAGIC program for the online access to scanned historic images. The University of Connecticut
Cooperative Extension System for rectifying the images. PythonAddin_MapSeries_V4d40S.mxd

March 1957



0 250 500 1,000 Feet
0 50 100 200 Meters

PythonAddin_MapSeries_V4d4QS.mxd

J. Stocker 12/8/2014 UCONN.CES

March 1965



0 250 500 1,000 Feet

0 50 100 200 Meters

PythonAddin_MapSeries_V4d40S.mxd

March 1990



March 2004



0 250 500 1,000 Feet
0 50 100 200 Meters

PythonAddin_MapSeries_V4d40S.mxd

J. Stocker 12/8/2014 UCONN CES

June 2006



0 250 500 1,000 Feet

0 50 100 200 Meters

PythonAddin_MapSeries_V4d40S.mxd

June 2010



0 250 500 1,000 Feet

0 50 100 200 Meters

PythonAddin_MapSeries_V4d40S.mxd

J. Stocker 12/8/2014 UCONN CES

March 2012



PythonAddin_MapSeries_V4d40S.mxd

November 2012



0 250 500 1,000 Feet

0 50 100 200 Meters

PythonAddin_MapSeries_V4d4OS.mxd

A photograph of a marsh restoration site. In the foreground, there is a wooden structure, possibly a bird nest or a monitoring station, made of sticks and debris, mounted on a wooden post. The structure is surrounded by tall, green marsh grasses. In the background, there are more marshes, trees, and a clear blue sky. The text "Marsh Restoration Project 2001" is overlaid in the center of the image.

Marsh Restoration Project 2001

Phragmites Infestation - Fenwick

Map 2 of 2



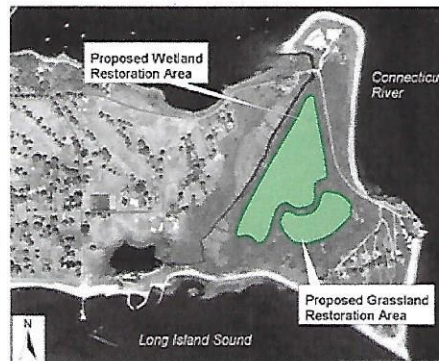
Sound Outlook, June 2003

Lynde Point Marsh to be Restored Through National Grant

In the last issue of *Sound Outlook* we described Connecticut's tidal wetland restoration program. This issue, we are pleased to report another step forward in this successful initiative. The DEP's Office of Long Island Sound Programs has received a grant of \$80,000 from the U.S. Fish & Wildlife Service's National Coastal Wetlands Conservation Grant Program to restore the 10-acre Lynde Point marsh in the borough of Fenwick in Old Saybrook. The total estimated cost of the project, which will forward the goals of the Long Island Sound Habitat Restoration Initiative, is \$221,000.

The Lynde Point marsh, which was filled with dredged spoils during dredging of the Connecticut River in the 1940s, has lost all natural wetland functions and values, and is now dominated by common reed,

Phragmites australis. The wetland, which will be restored through the removal of the clean, sandy dredge sediments and the construction of several small ponds, will provide habitat for forage species such as Atlantic silverside, killifish, bay anchovy, grass shrimp and bay shrimp. These species will, in turn, support larger fish, osprey, bald eagles wading birds and terns.



Coastal grassland and remnants of historic maritime shrubland and forest which were cleared for farmland in the 1800s are also associated with the wetland restoration site, and are threatened by non-native invasive plants including bittersweet, multiflora rose and bush honeysuckle. These species will be removed and a healthy native plant community restored.

The Lynde Point restoration project will be conducted by the DEP's Wetland Restoration Unit using a variety of equipment designed specifically for work in wetlands. All work will be completed between October 1, 2002 and December 31, 2003. For more information, contact Lori Benoit of OLISP at 860-424-3034 or by email at lori.benoit@po.state.ct.us.

June 2004



before

0 250 500 1,000 Feet

0 50 100 200 Meters

June 2006



after

0 250 500 1,000 Feet

0 50 100 200 Meters

PythonAddin_MapSeries_V4d40S.mxd

Stock 12/8/2014 UCONN CES



In Support of
Fenwick's Marsh Restoration Project

Saturday, August 9, 2003

Family Fun Day

At the Pier

FOR ALL FENWICKIANS

11 AM to 3 PM

11 AM MARSH MADNESS Bike Parade

Must be 'Mensly Creative, From Flag Pole to the Pier

11 AM-3 PM Family Fun Day Carnival

Madly Fun 'Family' Booths – Momentous Osprey Shoot Out

Face Painting – Mischievous Dunking Machine & More

Cookout Lunch

Miraculous Prizes for All

3 PM MESMERIZING MARSH HOLE-IN-ONE

For a Brand New Golf Cart at the Brainard Hole

11 AM – 4:30 PM – Silent Auction Masterpieces

AN EVENING OF MARSH MADNESS

AT THE MARSH TENT: 12 NEPONSET AVE., FENWICK

6-9 PM

MARSH MARGUERITAS, MARTINIS, & MORE


MARVELOUS MUNCHIES, MAD 'MOSH' FUN

AND

MAGNIFICENT SILENT AND LIVE AUCTIONS

Invitations for "An Evening of Marsh Madness" will be mailed to you.
Bring Your Friends! This Marsh Madness Evening is by Invitation only.





Hepburn Dune Restoration Project 2007



Filtrex[®] tubing was filled with sand and mulch...



and used to rebuild
the dunes.





The reconstruction
was completed in the
fall of 2007 and...





planted in March 2008
with American beach
grass and switch grass.





The grasses became
well established...



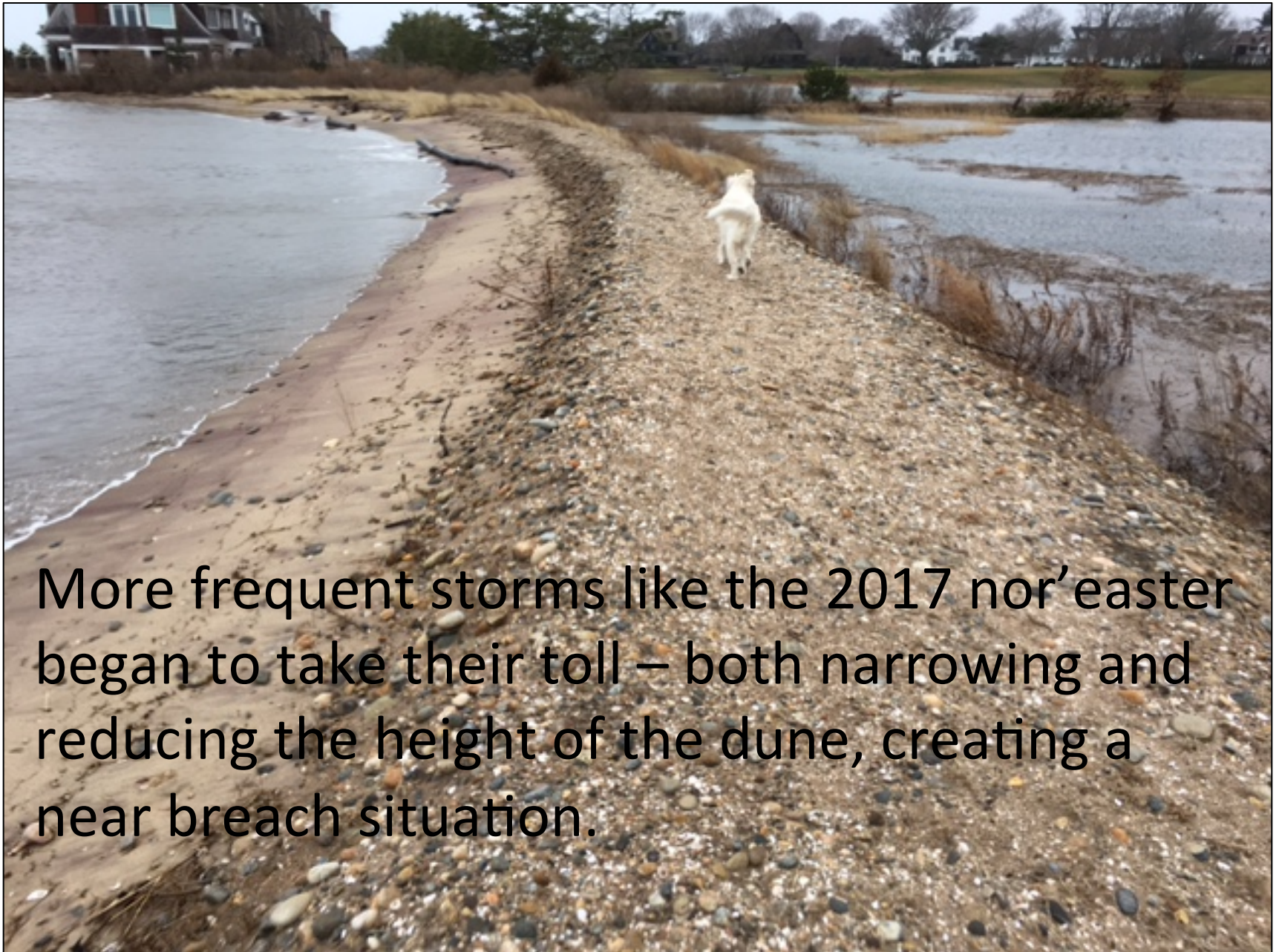
until Irene and then Sandy hit.



The back to back storms tore out the socks...



and deposited sand in the marsh.



More frequent storms like the 2017 nor'easter began to take their toll – both narrowing and reducing the height of the dune, creating a near breach situation.

Dune and Marsh Preservation Project

An aerial photograph showing a coastal landscape. In the upper left, there is a golf course with green fairways and sand traps, adjacent to several houses. A large, dark, irregularly shaped pond or marsh is situated in the middle left. To the right of this pond, a white rectangular box highlights a specific area of land and water, labeled 'Project Site'. The area within the box appears to be a mix of dune and marshland. The bottom of the image shows a body of water, likely the ocean, with a sandy beach area visible between the land and the water.

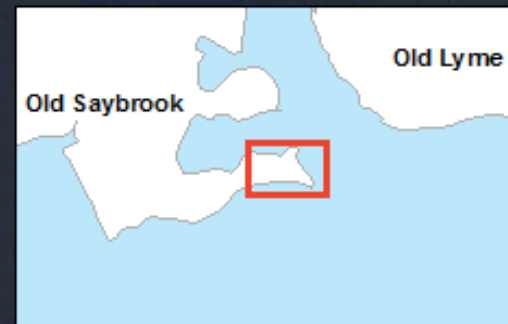
Project Site



In a very high tide, there is very little dune between the beach and Lynde Point marsh / Crab Creek.

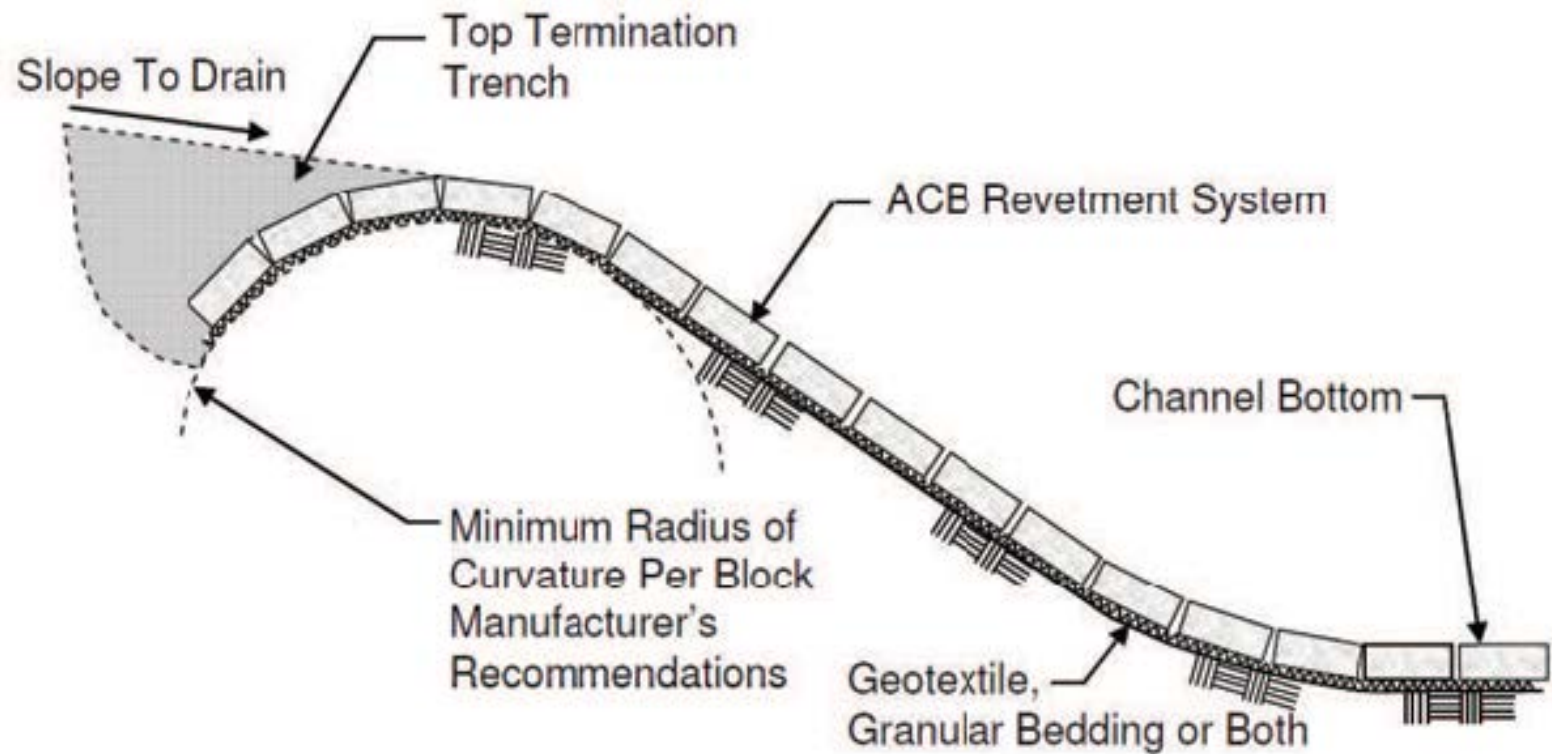


November 2012



A breach in the dune will allow Crab Creek to flow between Long Island Sound and South Cove, changing the salinity in the marsh, modifying the habitat, and effectively cutting the Borough in two.

250 500 1,000 Feet
50 100 200 Meters



To prevent a breach, the Borough considered an articulated concrete mat on the waterward side of the dune with planting within the cells of the concrete.

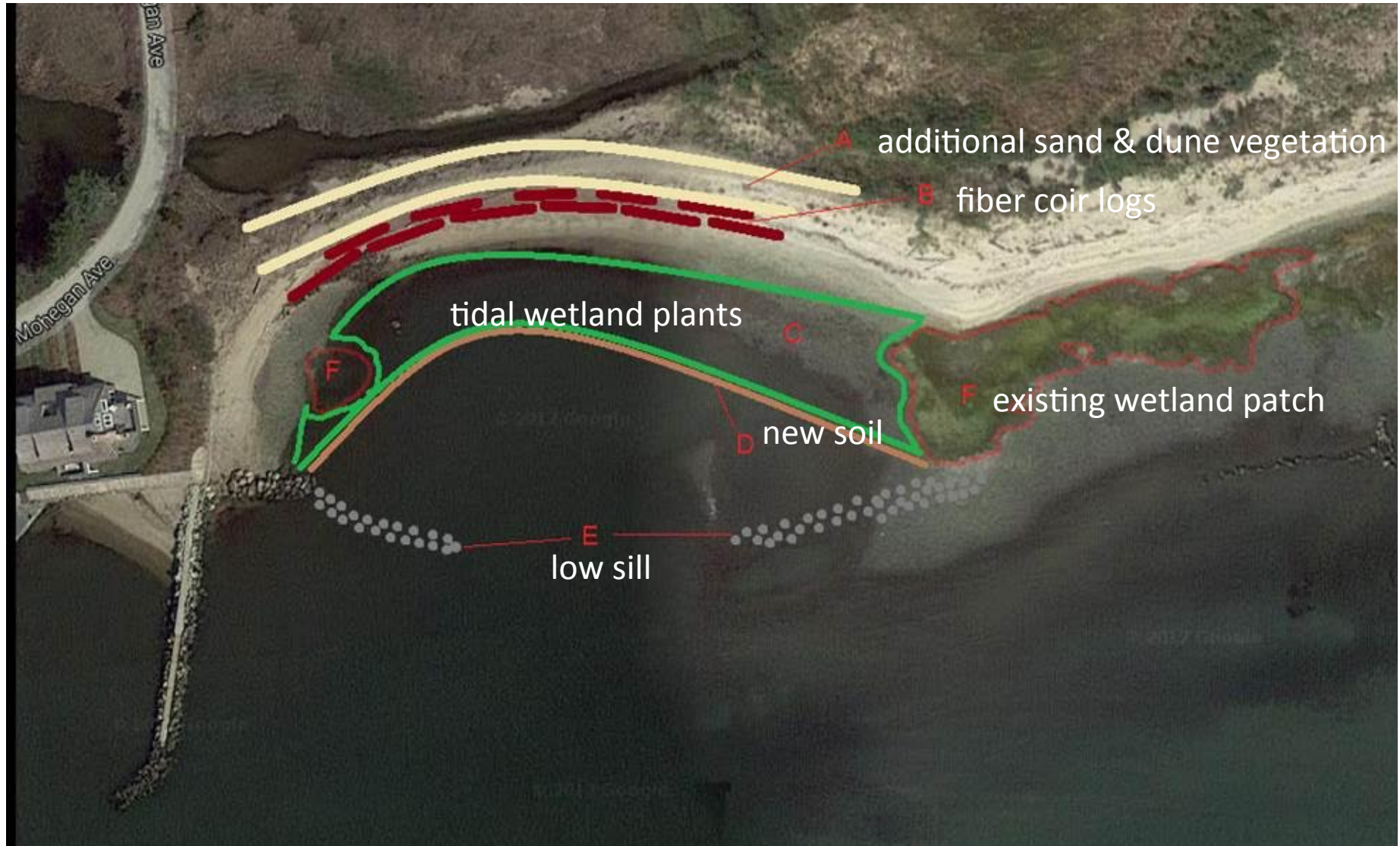
Wave action has stripped most of the sand and vegetation from the area in front of the dune...



But along the eastern end of the project area, an existing rock sill has attenuated the waves sufficiently to protect both sand and vegetation.



People were ready to consider alternative solutions.





**Borough of Fenwick
Hepburn Dune and Marsh Preservation Project
Old Saybrook, Connecticut
June 9, 2017**

**Coastal Engineering Services
Request for Qualifications and Proposal**

Introduction: The Borough of Fenwick is a municipality in the State of Connecticut which is located at the mouth of the Connecticut River at its confluence with Long Island Sound, and has the following Boards and Commissions: A Board of Warden and Burgesses; Planning and Zoning Commission; Park Commission; Zoning Board of Appeals; Historic District Commission; and Harbor Management Commission.

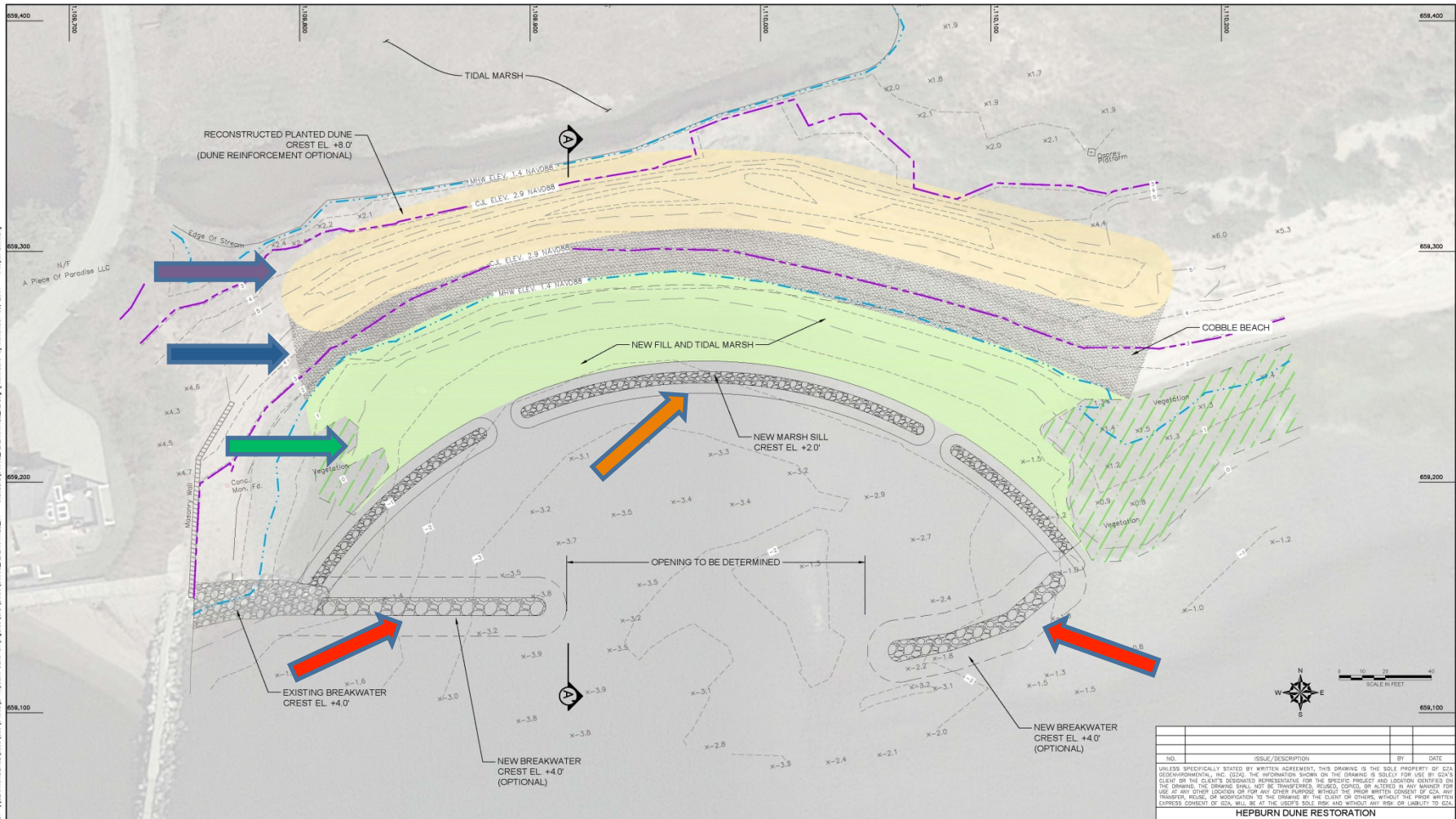
The Borough of Fenwick (BOF) Government mission is to provide an effective network of public services in a responsible and efficient manner supporting the common good of our community. In so doing, our commitment is to enhance the ecological sustainability of our coastal resources and improve access to/from our community in a safe and efficient manner.

Invitation & Summary: The BOF is soliciting a Statement of Qualifications and Proposals from a select group of Coastal Engineers for the development of a plan for the restoration of an approximate 450-foot long section of dune and associated tidal marsh fronting on Long Island Sound. As shown on the



GZA GeoEnvironmental

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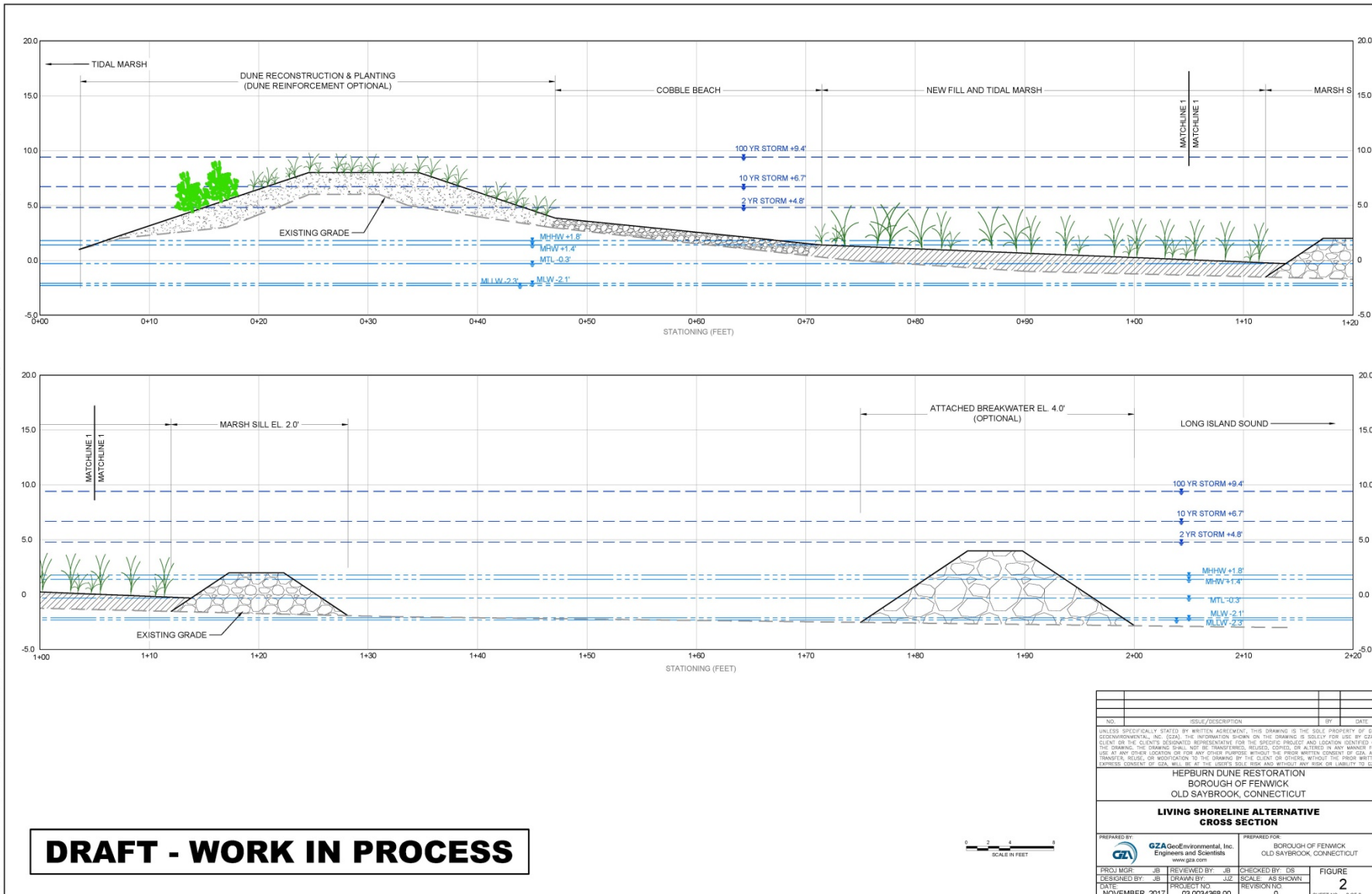


DRAFT - WORK IN PROCESS

GENERAL NOTES

- DATUM: CONTROLS AND POINTS REFERENCE NORTH AMERICAN DATUM OF 1988 (NA88). HORIZONTAL DATUM REFERENCES NORTH AMERICAN DATUM OF 1983 (NA83). CONNECTICUT STATE PLANE COORDINATE SYSTEM, US FOOT.
- EXISTING CONDITIONS GAO FILE PROVIDED BY NATHAN L. JACOBSON AND ASSOCIATES, INC. (NJAA) AND FILE TITLED "108700097.DWG" DATED APRIL 2017.
- ADDITIONAL TOPOGRAPHY AND SURVEY CONTROL LOCATION PROVIDED BY GZA GEOENVIRONMENTAL, INC. ON AUGUST 7, 2017. SURVEY CONTROL LOCATIONS USING REAL-TIME KINEMATIC DIFFERENTIAL GLOBAL POSITIONING SYSTEM UNIT (RTK GPS) USED TO REGENERATE THE SURVEY DRAWING PROVIDED BY NJAA TO CONNECTICUT STATE PLANE COORDINATE SYSTEM.
- AERIAL IMAGE FROM GOOGLE EARTH, DATED OCTOBER 2016. IMAGE SAVED SEPTEMBER 29, 2017.

NO.	ISSUE/DESCRIPTION	BY	DATE
1	UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S ASSOCIATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REPRODUCED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA AND WITHOUT THE CONSENT OF GZA WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.		
HEPBURN DUNE RESTORATION BOROUGH OF FENWICK OLD SAYBROOK, CONNECTICUT LIVING SHORELINE ALTERNATIVE DUNE AND BEACH RECONSTRUCTION, MARSH SILL, ATTACHED BREAKWATER			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR:	BOROUGH OF FENWICK OLD SAYBROOK, CONNECTICUT
PROJECT NO.:	03 0034368.00	REVISION NO.:	0
DATE:	NOVEMBER, 2017	CHECKED BY:	DS
		DESIGNED BY:	JB
		DRAWN BY:	ALZ
		SCALE:	AS SHOWN
		FIGURE	1
		SHEET NO.	1 OF 2



Questions