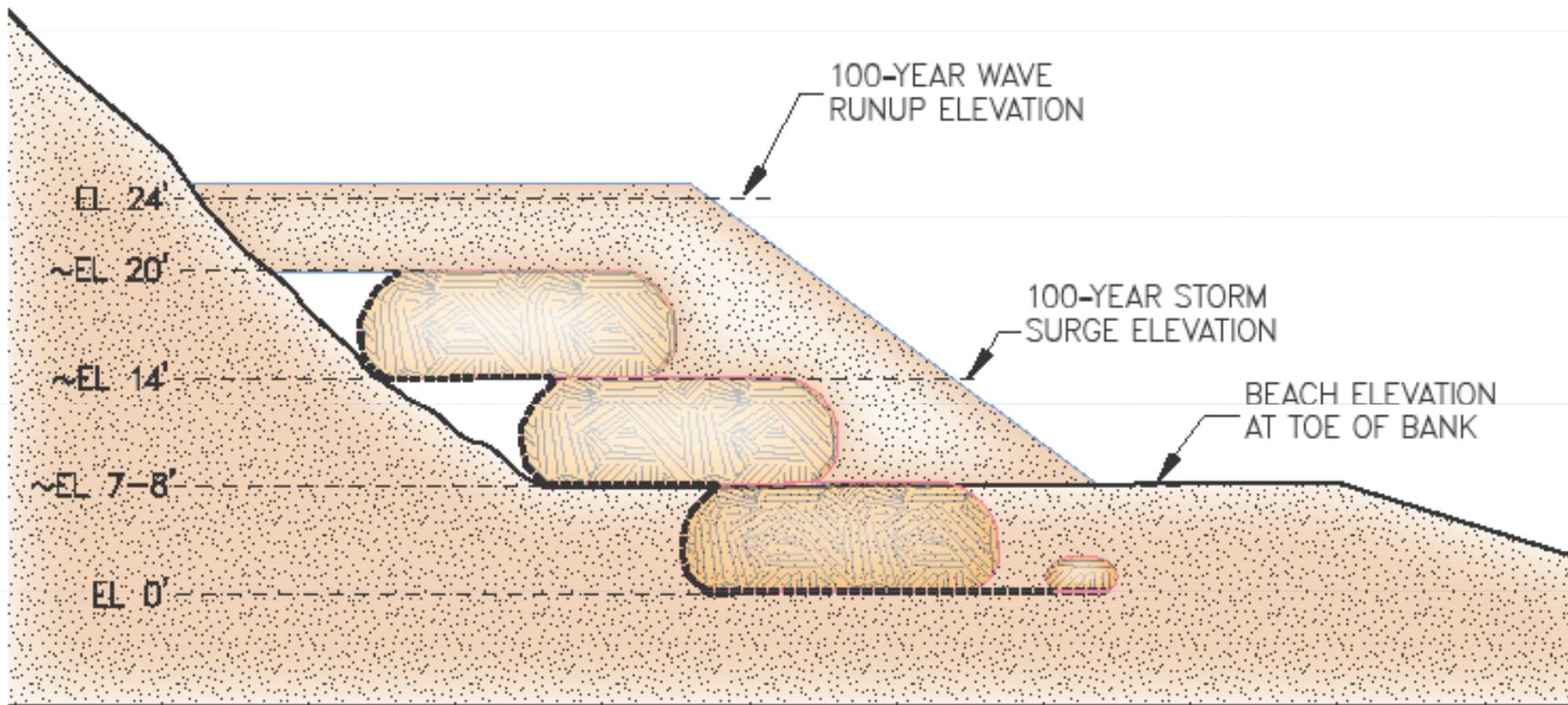


Temporary Baxter Road Stabilization Project
Supplemental Information for 4/30/14 Hearing
Siasconset Beach Preservation Fund
and
Town of Nantucket



Engineering Basis of Design



THIS DRAWING IS NOT TO SCALE

Planting Plan

American beachgrass will be planted first.

American beachgrass in use along Baxter Road and on north shore of Nantucket.

American beachgrass specifically recommended by CZM for coastal banks.

Fertilizer will not be used if required as part of an Order of Conditions.

Upper 5 to 7 feet will be reserved for swallows.

Minor addition of sand needed at 93 and 97 Baxter Road (areas outside of sand delivery locations) to prepare a planting bed for the American beachgrass by smoothing deeper rills and gullies.

Use of erosion control blanket or jute netting proposed.

No equipment on beach needed; access will be from the top.



67 Baxter Road

Planting Plan

Beachgrass will be planted first.

Woody vegetation will be planted after the bank surface is stabilized.
Common juniper has been removed.



American Beachgrass
(*Ammophila breviligulata*)



Bearberry
(*Arctostaphylos uva-ursi*)



Beach Heather
(*Hudsonia tomentosa*)



Bayberry
(*Myrica pensylvanica*)



Beach Plum
(*Prunus maritima*)

Failure Criteria

Based on Maintenance, Monitoring, and Mitigation Requirements

1. Failure to provide the required sand mitigation volume (currently specified as 22 cy/lf/yr) on an annual basis (defined as April 1 through March 31).
2. Failure to conduct the required shoreline and post-storm monitoring.
3. Failure to repair and/or replace the geotextile tubes in a timely manner from storm-related or other types of damage.
4. Excessive change in updrift or downdrift beach cross section that can be attributed to the project. Determination will consider: (a) Whether areas immediately adjacent to the project are eroding in excess of historic erosion rates; (b) The ongoing erosion of the adjacent unprotected sections of coastal bank and how the volume of this erosion compares to the sand mitigation volume

If failure occurs, an appropriate course of action will be determined, and may include: a change in the placement of the template sand, an increase in the volume of mitigation sand, or if those adjustments are not effective in correcting the problem, system removal.

If removal is necessary, geotextile will be removed and discarded; sand will be spread on beach.

Temporary Nature of Project

Geotube project proposed for most threatened section of Baxter Road and is an “interim” project.

Applicants seek an Order of Conditions for 3 years, with the understanding that this can be extended three times in one year intervals.

Expect that this requested Order of Conditions will be replaced by a subsequent Order for an expanded project to protect all of Baxter Road or it will become moot due to a total failure of the bluff.

Removal of the “interim” geotube project is proposed only if there is a “failure” under the Order, or if a long-term, expanded coastal engineering structure replacing it is not approved.

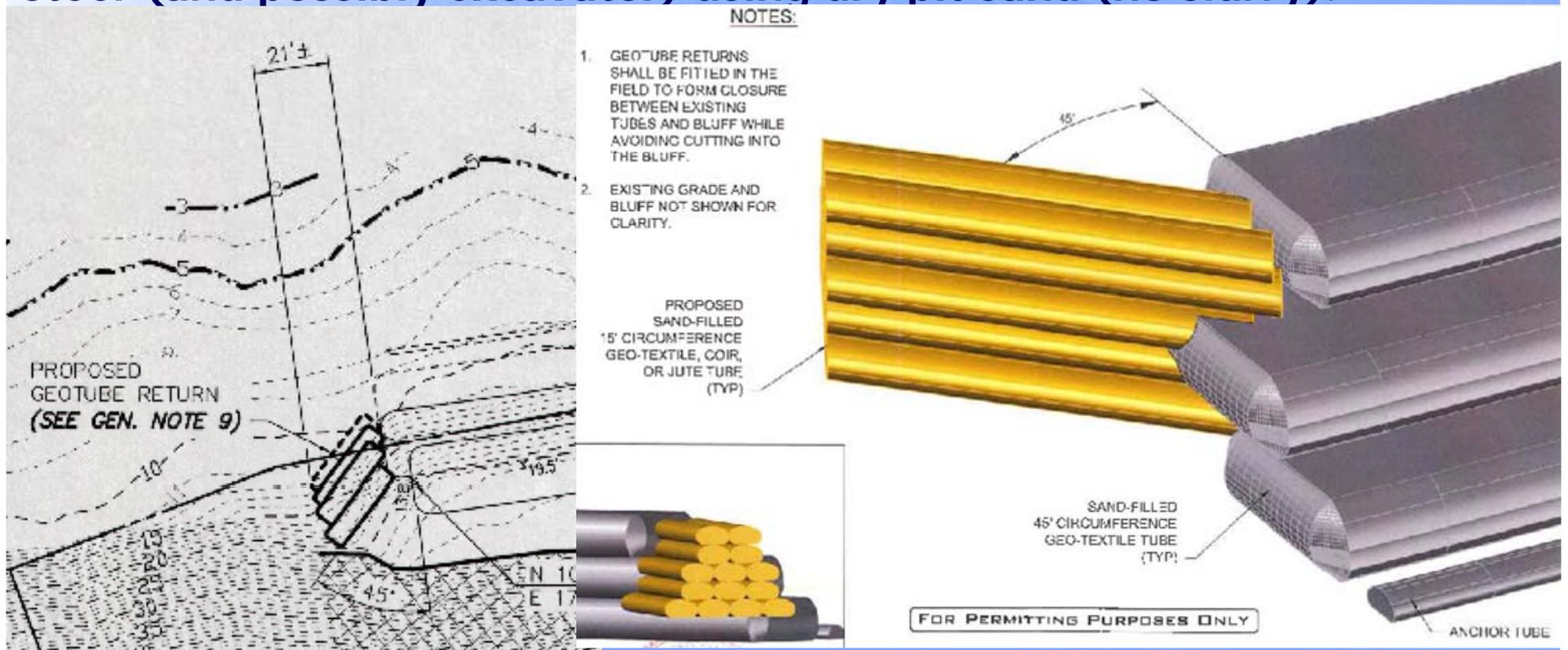


Image courtesy of George Riethof and the 'Sconset Trust

Construction Narrative

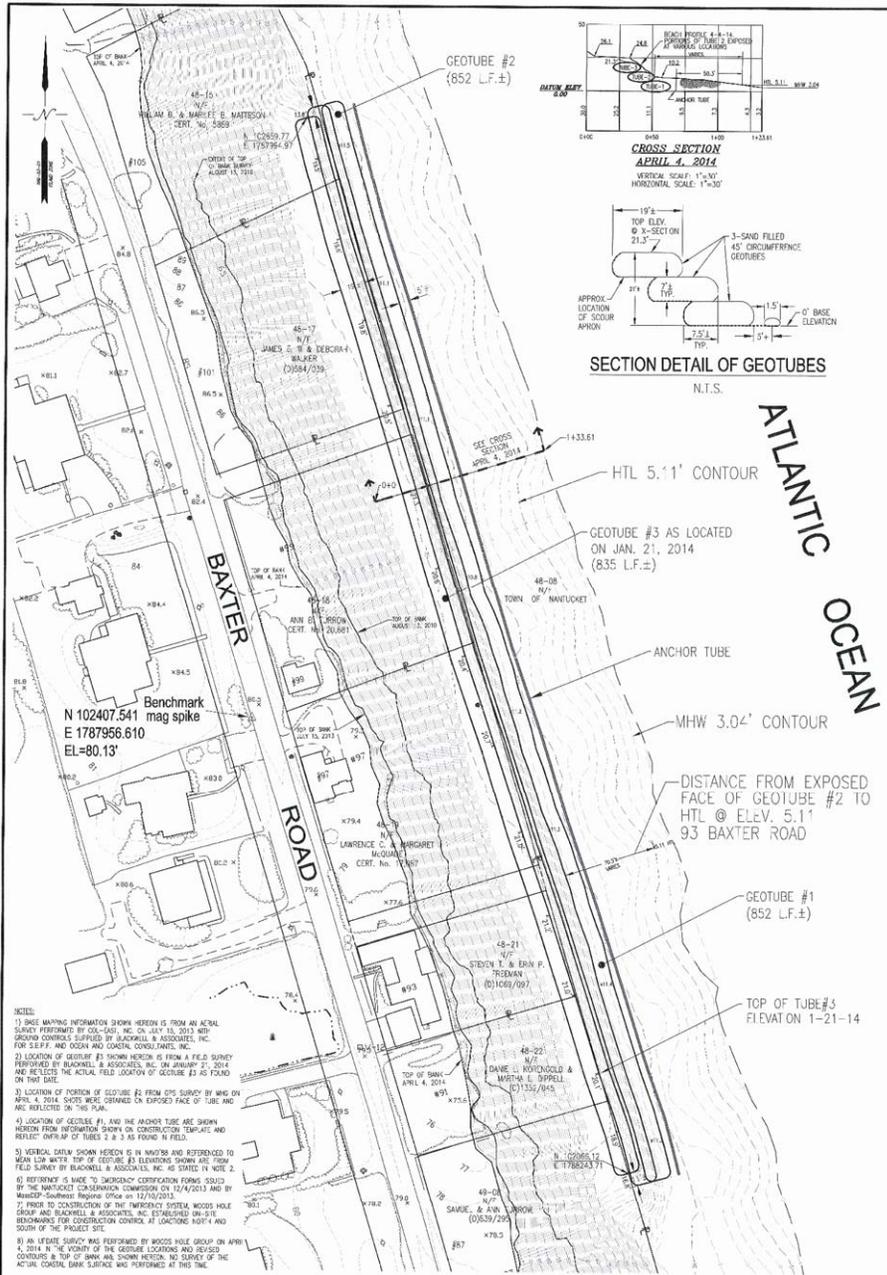
Narrative: Detailed narrative provided in 4/25/14 submittal.

Returns: 15-foot circumference geotextile, jute, or coir tubes will be field-fitted at a 45 degree angle between the geotubes and the bluff. No excavation into bluff proposed. Bottom elevation of +3 to +4 MLW to avoid need for shoring; top equal to height of third geotube if project is limited to 3 tubes currently in place. Constructed via skid steer (and possibly excavator) using dry pit sand (no slurry).



Updated As-Built Plan

- As-built plan updated after April 2014 shoreline survey.
- Updated beach contours and top of bank position shown.
- Seaward edge of tier 2 geotube surveyed; sand template surveyed.
- Sand template shown.



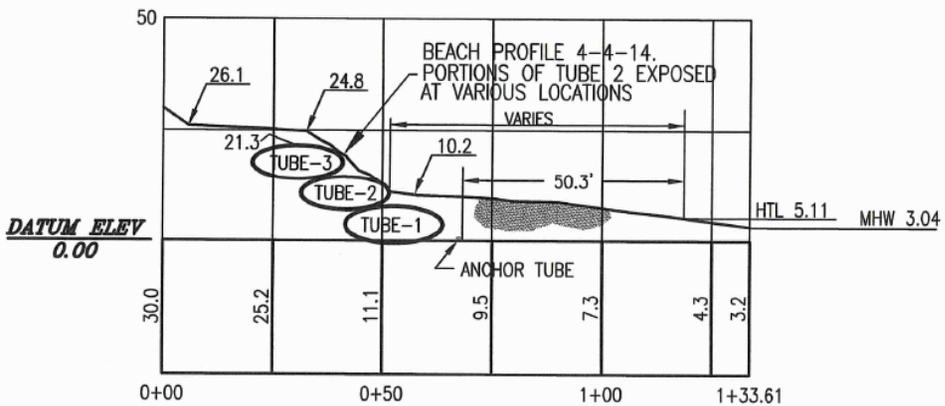
NOTES:

- 1) BENCH MARKING INFORMATION SHOWN HEREON IS FROM AN ACTUAL SURVEY PERFORMED BY COL-CAS, INC. ON JULY 15, 2013 WITH GEOTUBE CONTROL SURVEYS BY BLACKWELL & ASSOCIATES, INC. FOR S.E.P.F. AND OCEAN AND COASTAL CONSULTANTS, INC.
- 2) LOCATION OF GEOTUBE #1 FROM HEREON IS FROM A FIELD SURVEY PERFORMED BY BLACKWELL & ASSOCIATES, INC. ON JANUARY 21, 2014 AND REFLECTS THE ACTUAL FIELD LOCATION OF GEOTUBE #1 AS FOUND ON THAT DATE.
- 3) LOCATION OF PORTION OF GEOTUBE #2 FROM THIS SURVEY BY MHO ON APRIL 4, 2014 SHOWN HEREON IS ON EXPOSED FACE OF TUBE AND ARE REFLECTED ON THIS PLAN.
- 4) LOCATION OF GEOTUBE #3 AND THE ANCHOR TUBE ARE SHOWN HEREON FROM INFORMATION SHOWN ON CONSTRUCTION TEMPLATE AND RELATED OVERLAP OF TUBES 1 & 2 AS FOUND IN FIELD.
- 5) VERTICAL DATA SHOWN HEREON IS IN WHOLE FEET AND REFERENCED TO MEAN SEA WATER TOP OF GEOTUBE #3 ELEVATIONS SHOWN ARE FROM FIELD SURVEY BY BLACKWELL & ASSOCIATES, INC. AS NOTED IN NOTE 2.
- 6) REFORMER IS MADE TO EMERGENCY CERTIFICATION FORMS ISSUED BY THE NAUTICK COAST GUARD COMMISSION ON 03/04/2013 AND BY MAINE-Southern Region Office on 02/10/2014.
- 7) PRIOR TO CONSTRUCTION OF THE EMERGENCY SYSTEM, WOODS HOLE GROUP AND BLACKWELL & ASSOCIATES, INC. ESTABLISHED SURVEY BENCHMARKS FOR CONSTRUCTION CONTROL AT LOCATIONS NOT-4 AND SOUTH OF THE PROJECT SITE.
- 8) AN URGENT SURVEY WAS PERFORMED BY WOODS HOLE GROUP ON APRIL 4, 2014 IN THE VICINITY OF THE GEOTUBE LOCATIONS AND BEACH CONTOURS & TOP OF BANK ARE SHOWN HEREON. NO SURVEY OF THE ACTUAL BEACH SURFACE WAS PERFORMED AT THIS TIME.

NO.	DATE	DESCRIPTION	BY	FUNCTION AND SIGNATURE
3	4/24/14	PER COMMENTS EPSILON & SIG	LCA	
2	4/15/14	UPDATED SURVEY BY MHO 4-4-14	LCA	
1	1/25/14	PER COMMENTS J.S. CHOI	JSC	

BLACKWELL & ASSOCIATES, Inc.
PROFESSIONAL LAND SURVEYORS & CIVIL ENGINEERS
201 TRADOLE CIRCLE
NAUTICK, MASSACHUSETTS 02254
(508) 226-7626
www.blackwell-survey.com

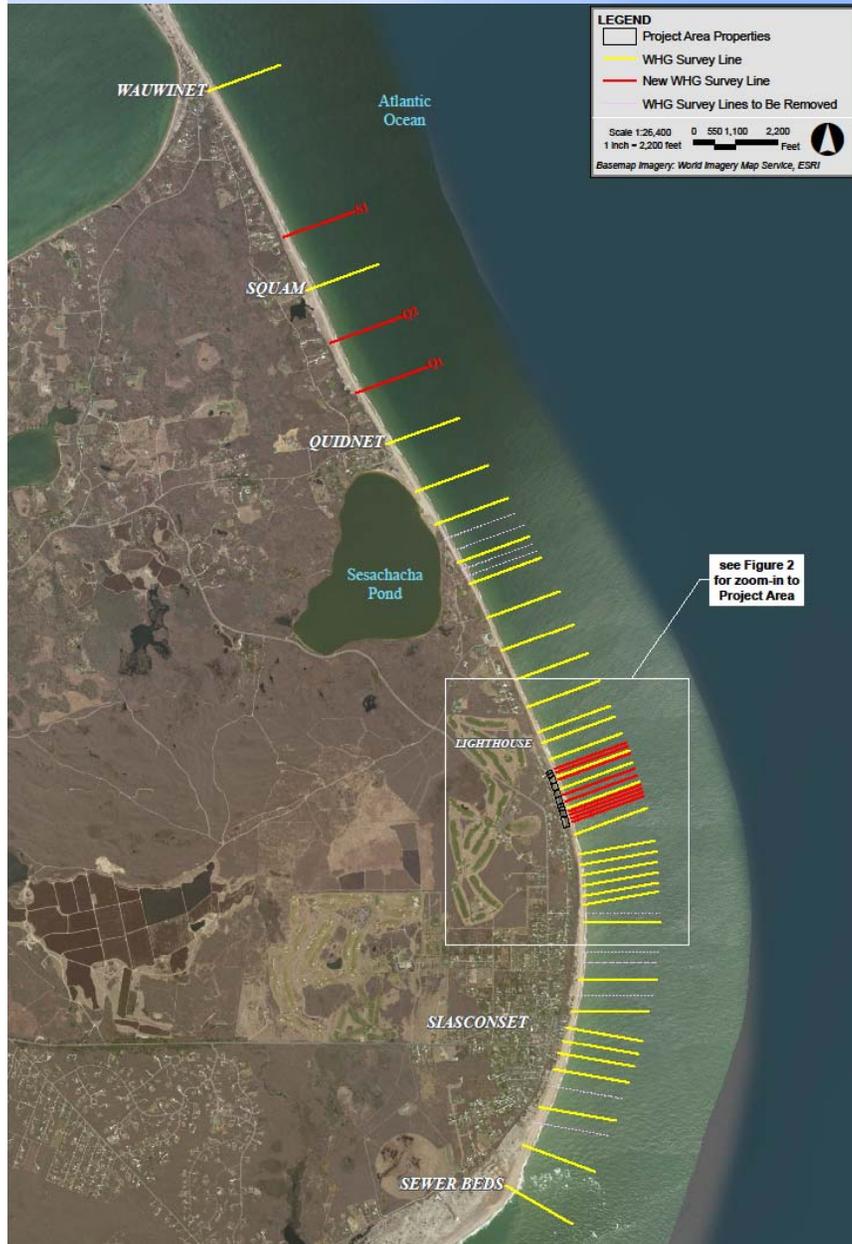
RECORD DRAWING
EMERGENCY INSTALLATION OF
SAND FILLED GEOTUBES
PREPARED FOR: SAUGOSET BEACH PRESERVATION FUND
1 BEACH - 30 FEET - JANUARY 27, 2014
SHEET 1 OF 1 B-7275



CROSS SECTION
APRIL 4, 2014

VERTICAL SCALE: 1"=30'
HORIZONTAL SCALE: 1"=30'

Shoreline Monitoring Program



- Spring surveys (toe of bank to -5 MLW)
- Fall surveys (toe of bank to ~3,000 feet offshore or -25ft to -35ft contour, whichever is less)
- Top of bank monitored along profiles in project area and w/in 300' of ends



Monitoring Program

Post-Storm Reports: Following significant storms:

- Photo-documentation of geotubes and sand template
- Estimate of volume lost from sand template
- Estimate of beach level in front of geotubes. If replenishment is required, estimated volume of replenishment and schedule.
- Identification of the location of any exposed geotextile.
- Identification of any repair required to the geotextile.
- Visual observation of the ends of the tubes to determine if flanking is occurring.

Reports to be submitted within 3-7 days of end of a storm.

Analysis of Results (Annual Report):

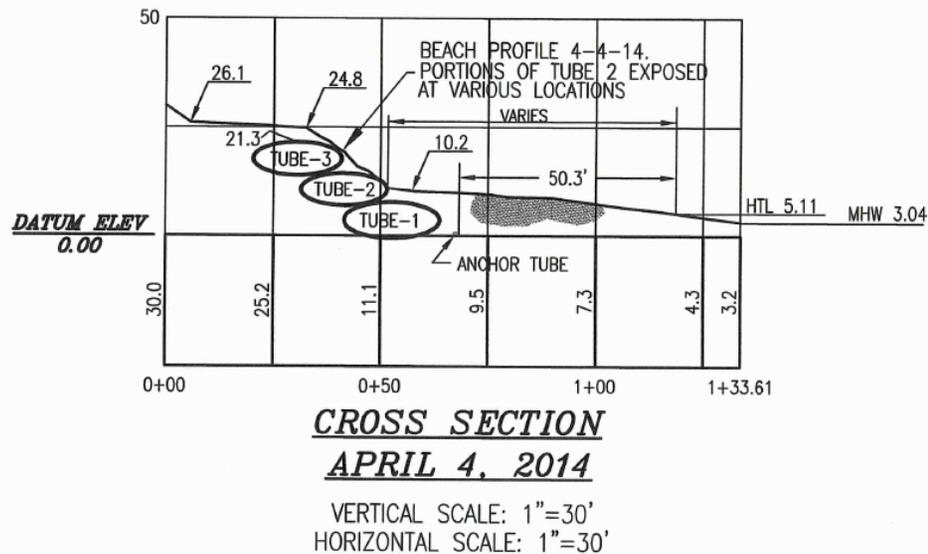
- Review beach transect data to estimate accretion and erosion distances at each monitored transect.
- Calculate accretion and erosion volumes at transect locations.
- Compare top of bank locations and estimate bank retreat over the previous 12 months.
- Calculate bank volume loss in the project area and 300 feet north and south.
- Submit data and computations to the Conservation Commission for review with a recommendation for changes to nourishment program if required.

Sand Nourishment Program



- Provide the initial cover of 22 cy/lf during and/or immediately following construction.
- Annually in April starting in 2014: Provide additional sand and/or adjust the existing template sand to obtain a minimum of 2' cover over the geotubes to protect them from UV degradation. The volume of any sand placed in April will be recorded and counted towards the annual 22 cy/lf requirement.
- Annually in November starting in 2014: Place an additional volume of sand to ensure a substantial sand cover (10-15 cy/lf) is available at the onset of the winter storm season. Throughout the winter, place additional sand on an as-needed basis (when half the vertical height of the lowest geotube is exposed.) If the balance of the 22 cy/lf volume is not placed in its entirety during the 2014-2015 winter, the balance of the sand will be placed by March 31, 2015.
- Provide delivery tickets on an annual basis.

Sand Nourishment Program

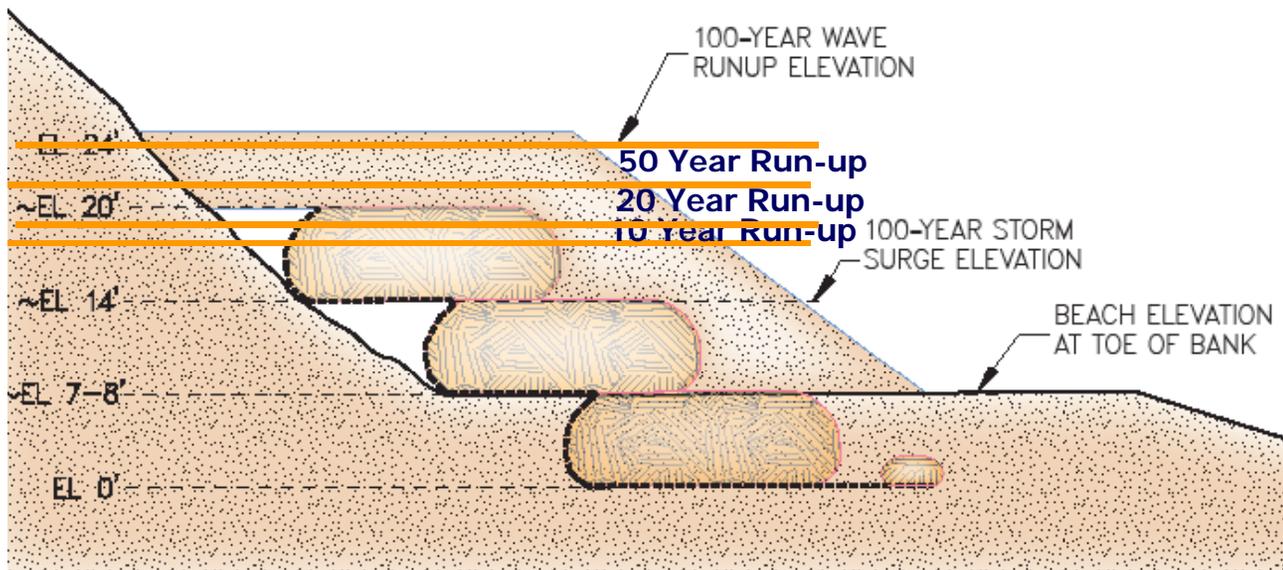


Sand Template is expected to be available to the littoral system.

- Sand template is located seaward of the toe and is more available during lower wave energy events.
- Sand cover is loose sand that is more erodible than native sand in the coastal bank.

During March 26, 2014 storm, ~1.5-2.5 cy/lf contributed by sand cover.

Terraces contributed only 0.25 cy/lf.



Wave runup will be higher in larger storms.

Post-storm reports will estimate sand contribution from the project area vs. unprotected areas and indicate if template needs to be adjusted.

Public Access



SBPF supports adding access from the top of the bluff to the top of the erosion protection system with additional stairs but believes it is premature. SBPF believes additional stairs can be permitted as part of long-term protection project.

Beach access currently provided via Hoick's Hollow, stairs at 65/67 Baxter and to the south, and at Codfish Park.

Regulatory Compliance

Limited Project: Revised NOI Form submitted to reflect DEP feedback that project is not considered a Limited Project.

Enforcement Order: To be resolved through NOI process and most recent submittals.

- **Stormwater Drainage Pipe:** Described in written narrative. SBPF requesting permission to leave it disconnected and abandon it in place unless and until an approval is granted at some time in the future, with a requirement to remove it if becomes exposed.
- **Use of concrete plugs in geotube portholes:** The Applicants are requesting approval for this as a component of the overall project, which was not described in advance but is a standard method for sealing geotubes in this setting.
- **Excavation of the coastal beach below the Mean High Water mark:** Previously submitted information demonstrates that work was not occurring seaward of the Mean High Water mark.
- **Placement of sand on the face of the coastal bank outside the sand delivery areas:** Only sand placement outside the sand delivery areas was at 93 Baxter Road. The Applicants are requesting approval of the existing sand placement at 93 Baxter Road.



The End