East Lyme Public Trust Foundation, Inc.

NEWS UPDATES

January 15, 2011

Volume 2 Number 1

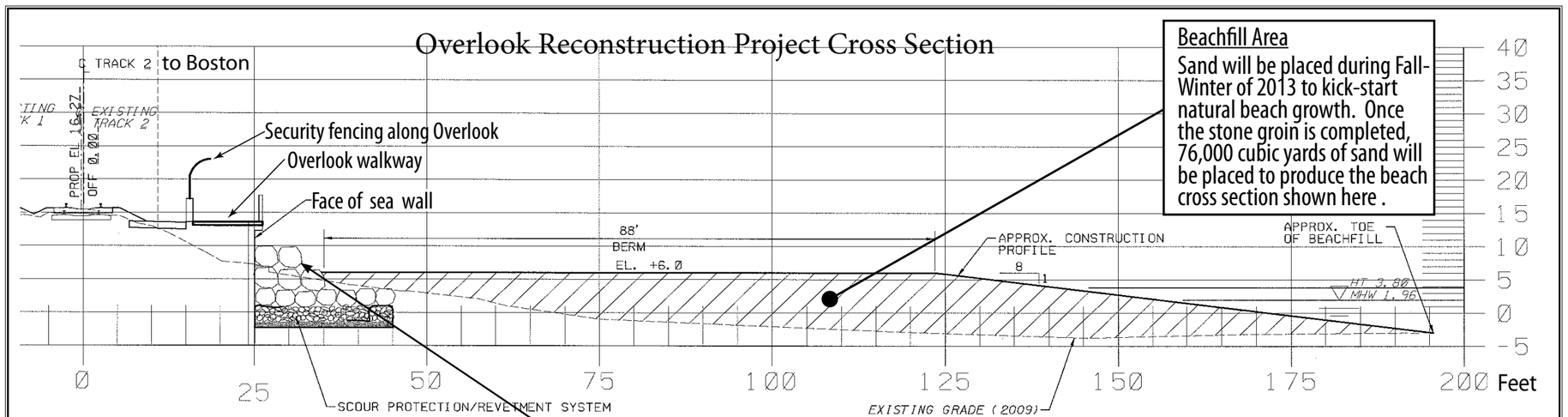
Niantic Bay Boardwalk Reconstruction Progress

Eight months after Amtrak began replacement of the Niantic River Railroad Bridge, its two 12 hour, 6-7 day per week work shifts have resulted in remarkable progress. The Amtrak cross section drawing shown on the right depicts future track alignment and its relationship to the Overlook Walkway as it will appear in the spring of 2013. This cross section is located at Project Station 71 + 00, which is approximately opposite the east end of the Niantic River Transmission Garage on Route 156 (see Page 3). Its characteristics illustrated here are "typical" and represent the planned configuration all along the new sea wall extending to the new stone groin being built parallel to the Niantic River at the easterly end of the Park.

Photographed on December 14, 2010, an ACELA on its run to Boston passes by the Overlook Park sea wall as seen on the right. The new walkway will be constructed along the top of this sea wall. Erosion protection and revetment riprap will be placed along the foot of the sea wall to protect the Overlook and its embankment from storm damage. The Riprap stones will be as large as 7,000 pounds, examples of which are shown above and to the right. These will form the major sea wall armor. Their source vendor is Tilcon New York Inc., 162 Old Mill Road, West Nyack, New York.

Classified as *Trap rock*[1], this riprap is a form of dense igneous rock that tends to form polygonal vertical fractures, most typically hexagonal, but also four to eight sided. The fracture pattern forms when magma (i.e. molten rock in the earth's crust) intrudes as a sill or extrudes as a thick lava flow, and slowly cools. Much of the existing railroad embankment was build of such trap rock as this. It will be shipped by barge from the Tilcon Quarry in North Branford, Connecticut, then unloaded to a temporary dock at the groin and moved from there to be placed at the foot of the sea wall by trucks, one of which is pictured below, right..

For more information visit: http://www.publictrustfoundation.org/docs/10-18-2010.pdf



This ACELA train set is running toward Boston on existing Track 2, which is parallel to the sea wall, the location of which is diagramed in the above cross section. The reconstructed track bed and rails will have a relationship to the Overlook walkway similar to the one that exists today, separated from the Overlook by a kneewall and mesh security fence.

The angular boulders that will be placed at the foot of the sea wall along the beach will have a specific gravity of 3.00 (187 pounds per cubic foot). An example of this quarried stone is depicted above. A view of the source quarry in North Branford, Connecticut is seen at the top right of this page.

At least two Volvo land movers will alternately carry riprap stone from the temporary dock at the groin to the sea wall, thus eliminating the need to carry riprap over the public road system. That use of barges is one of the important efficiencies that the contracting team developed to speed the work and minimize community disruption for both Waterford and East Lyme.

1. Because of the regular vertical fracture planes plus frequent horizontal fractures, trap rock tends to appear in orderly structures resembling piles of blocks, sometimes reminiscent of stairs and inspiring the term "trap", which derives from a Scandinavian word meaning "steps" or "stairs".

Backwash of silt-ladened seawater generated as a result of hydraulic jets of sea water used to sink concrete sea wall slabs in the sand to a depth of aout 12 feet. .

Turbidity Barrier – a floating boom with an attached plastic sheet intended to reduce the movement of suspended pariculates (i.e. silt) from drifting away from the immediate construction site. This barrier is located at the approximate toe of slope of the proposed beachfill.

N

Sea Wall Progress as of 10-28-2010

Taken on Thursday, October 28, 2010, at about 12 noon, this overview shows most of the sea wall construction site. The Turbidity Curtain that parallels the beach is a water quality protection device. It helps to contain turbid waters created as a consequence of construction, and in this project especially the silt and sand that is suspended in the backwash of sea water used to hydrai;ically jet in the sea wall panels. The objective of this turbidity barrier is to reduce movement of silt away from the construction site. The State specifies that such "turbidity curtains" be employed to accomplish the following:

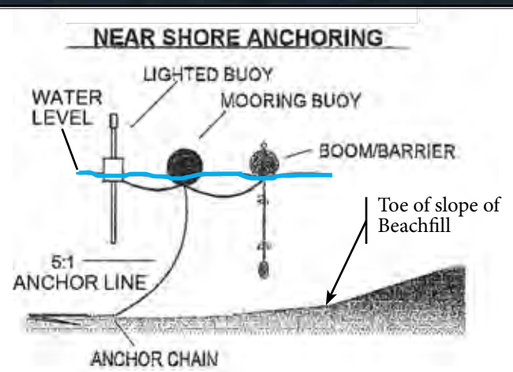
Definition

A temporary, impervious barrier installed in a stream, river, lake or tidal area which will retain silts, sediment, and turbidity within the construction area.

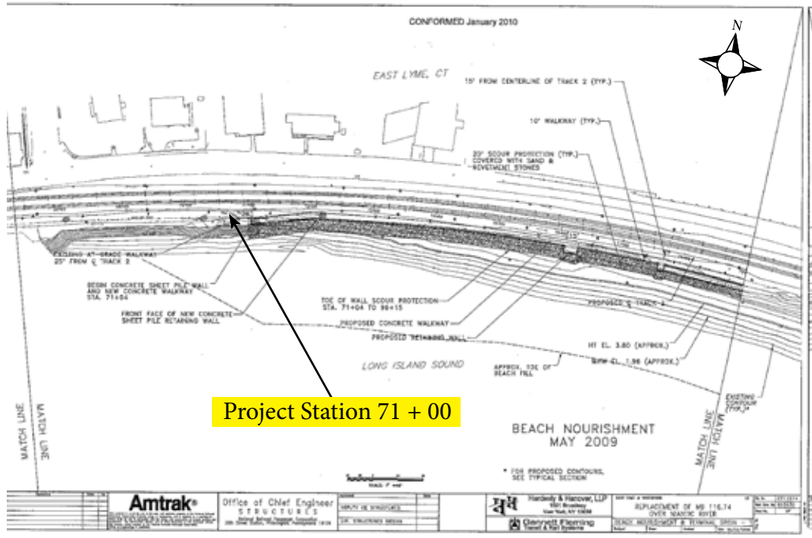
Purpose

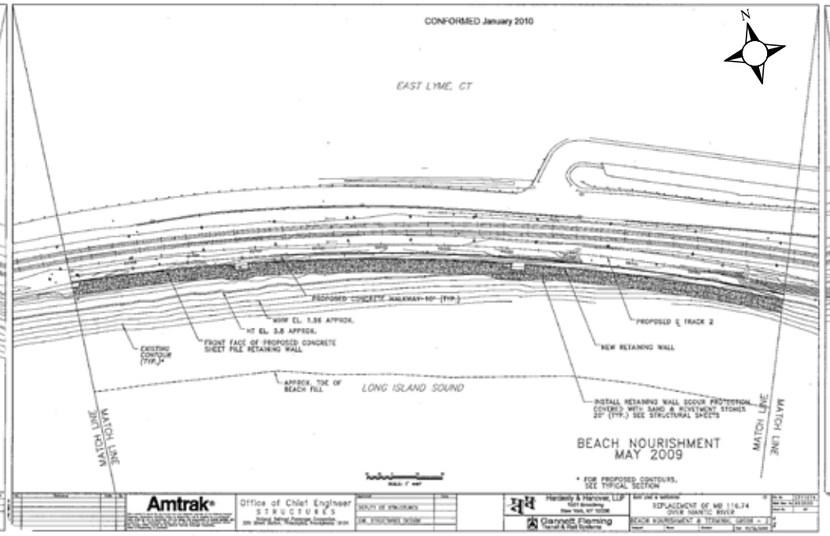
- To promote the settling of suspended solids in water.
- To protect water quality and aquatic habitat in streams, rivers, lakes and tidal areas.

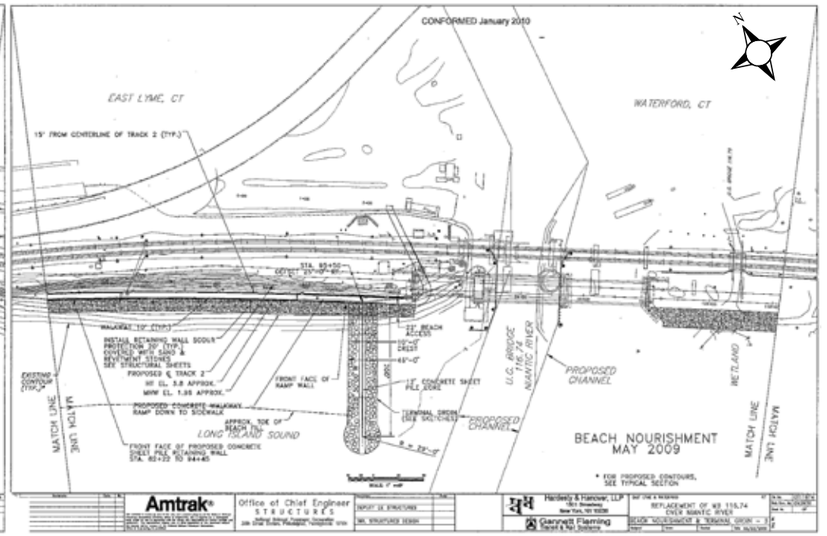
The cross sectional diagram to the right illustrated the main components of the Turbidity Curtain deployed here.



Note that the position of the Turbidity Curtain marks the anticipated extent of the placed 76,000 cubic yards of beach sand fill. The grain size analysis of the existing beach sand and the analysis of the sand proposed for use to nourish and accelerate beach creation is provided. Those analyses are accompanied by the annotated cross section of the new beach profile. The APPROX. TOE OF BEACHFILL, is coincident with the Turbidity Curtain depicted in the aerial photograph above.







SUBJECT: WASHED SIEVE ANALYSIS (ASTM C-136, C-117)

Material: Beach Nourishment Sand
Source: EDS Garage, Canterbury, CT
Sampled by: Materials Testing, Inc from EDS Garage Pit, Canterbury, CT on 10/11/10

Sieve Size	Percent Passing	Project Specification
⅜" (9.5mm)	100	
¼" (6.3mm)	99.8*	100
#4 (4.75mm)	99.3	
#16 (1.18mm)	92	
#18 (1.00mm)	89.6	
#20 (850µm)	87	
#30 (600µm)	79.7	
#40 (425µm)	67.3	
#50 (300µm)	47.7	
#60 (250µm)	38.2	
#100 (150µm)	18.0	
#140 (106µm)	10.0	
#200 (75µm)	4.0	0-5
	D-15 .135	(0.841 to 0.105mm)
	D-50 .31	(1.0 to 0.25 mm)
	D-85 .73	(1.19 to 0.297 mm)

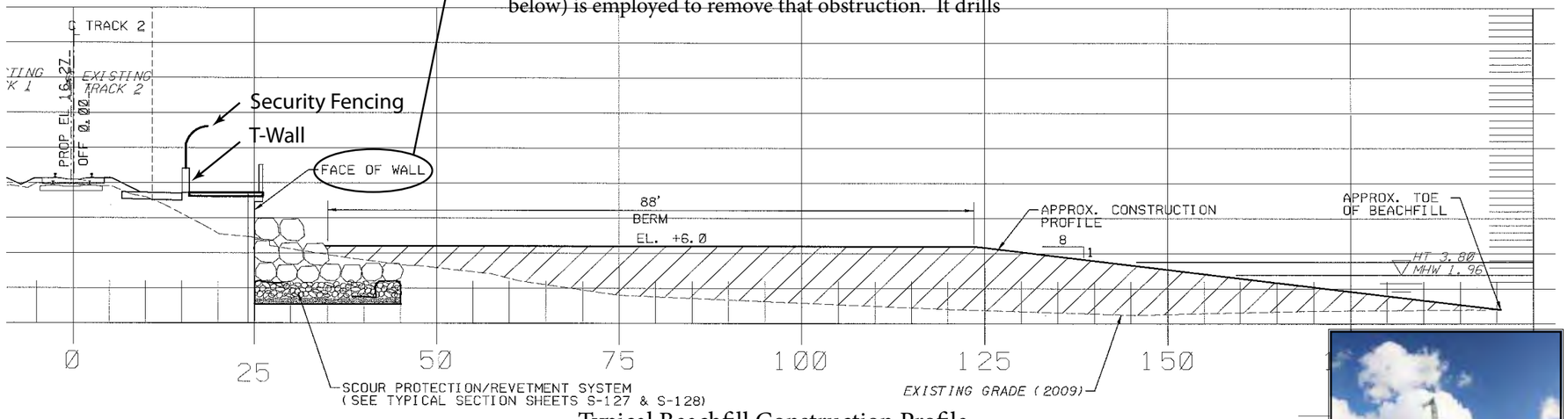
ndicates out of specification limits.

SUBJECT: WASHED SIEVE ANALYSIS (ASTM C-136, C-117)

Material: Existing Onsite Beach Sand **Source:** Onsite from Old Boardwalk Area
Sampled by: Materials Testing, Inc on 5/14/10

Sieve Size	Percent Passing
½" (12.5mm)	100
¼" (6.3mm)	100
#8 (2.36mm)	100
#16 (1.18mm)	99.7
#18 (1.00mm)	99.3
#20 (850µm)	99.0
#30 (600µm)	95.2
#40 (425µm)	26.0
#50 (300µm)	7.7
#60 (250 µm)	4.1
#100 (150µm)	0.6
#140 (106 µm)	1.4
#200 (75µm)	1.2
D-15	0.35
D-50	0.45
D-85	0.54

The *Face of Wall* is the Sea Wall. Constructed of concrete panels, each 20 inches thick, four feet wide, and 38 feet long sheet pile is sunk about 12 feet into the beach using hydraulic methods developed in Florida and imported to this project by the contractors. If and when bedrock or boulders are encountered, the **Soilmec excavator** (see below) is employed to remove that obstruction. It drills a 52 inch diameter hole, supporting the sides of the hole with a steel pipe that prevents collapse. Once drilled to the desired depth, the pipe-lined hole is filled with sand and the pipe is then removed. Sheet pile, or other pre-formed structure, is sunk in the sand by hydraulic jetting, as described previously.

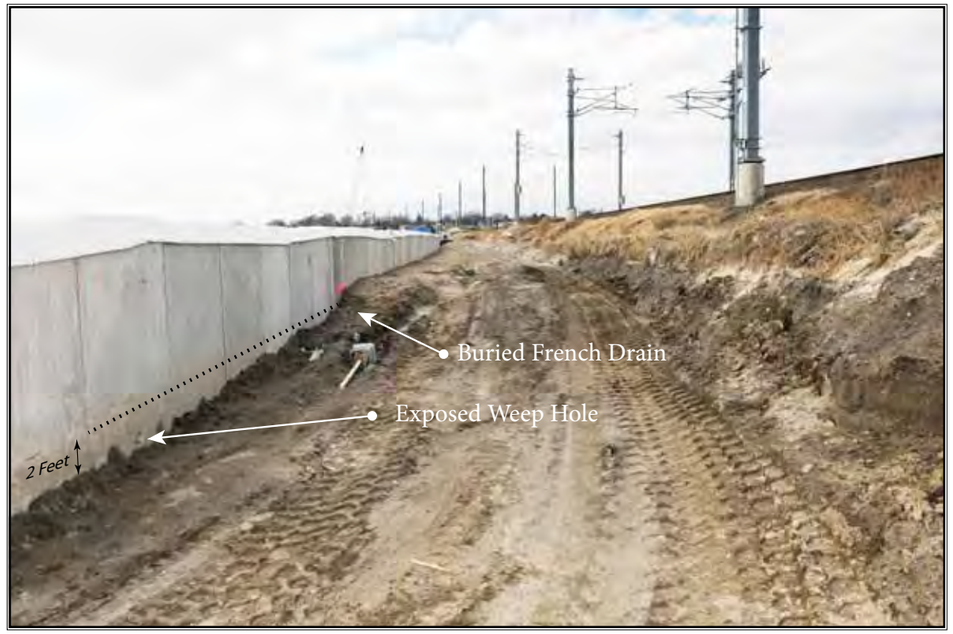


Typical Beachfill Construction Profile
(Station 71+00 to Terminal Groin)

The **Soilmec**, pictured at the right in the background, is used to drill 52 inch diameter holes to remove obstructing bed rock or boulders that would otherwise prevent the safe placement of foundation piles or similar structures, close to the working railroad tracks. Special care is required so as not to excavate near railroad embankments that might cause the rail bed to shift or fail due to movement of its supporting foundation as a direct or indirect consequence of unregulated excavation. Therefore, as the Soilmec holes are being drilled, the steel pipe, shown here lying next to the Amtrak Project Manager, is used to temporarily line the hole. Once the hole is drilled to the necessary twelve or more feet, sand is placed in the hole and then the pipe is withdrawn. The desired and preformed foundation structure, sheet pile or catenary pole is inserted in the sand-filled hole. This involved and relatively expensive process is required in order to hold secure the adjacent rail bed, thus protecting rail traffic during this adjacent construction and preventing any possible catastrophic shifting of the rail embankment and the tracks it supports.

The view below looks westerly toward Hole In The Wall and illustrates the construction process used to install the two foot diameter French Drain buried along the north side of the sea wall. The drain consists of coarse gravel, shown in the photograph below, which is used to fill a porous geotextile wrapped around the gravel which lies against the sea wall, buried at the elevation of the weep holes. Construction of the French Drain is progressing in the direction of the camera.

Additional fill will be added to that shown in this view and the Overlook Walkway surface will finally be constructed at the elevation of the top of the sea wall. Fencing will finish the construction of the walkway elements of the Overlook including the original fencing that will be replaced on the ocean side of the Overlook and a new mesh security fence that will separate the walkway from the railroad embankment proper.



Photographs on this page were taken on January 5, 2011, to depict progress made along the westerly portion of the Amtrak project. The placement of the segmental sea wall, comprised of 4x1.7x38 foot concrete sheet piles, nears completion.

These photographs depict one of the detail involved in this stage of constructing the sea wall and foundation structures that will support the Overlook Walkway and its access to the new beach areas. Construction of a French Drain is needed to help conduct ground water away from the upland side of the sea wall, relieving hydraulic pressure on the wall by directing drainage onto the beach and away from the Overlook walkway and the railroad embankment.

Coarse gravel shown here (#8 - washed 1/2 inch) fills the French Drain, defined above. This view is looking east toward the Niantic River.