East Lyme Public Trust Foundation, Inc.

NEWS and UPDATES

February 1, 2015 Volume 3 Number 1

Niantic Bay Boardwalk Reconstruction Progress

Prior issues of these NEWS & UPDATES Vol. 1 & 2 concerned the design and reconstruction of the eastern most 2,500± linear feet of East Lyme Overlook Park, a.k.a. Niantic Bay Boardwalk. This Volume concerns the western most half of the Park. Its locus map appears above.

Unlike the eastern half of the park, its western half was storm damaged (See * http://publictrustfoundation.org/StormDamage.pdf), and that redesign and reconstruction has waited until now for the collection of funds derived from: 1)FEMA (Federal Emergency Management Administration) grants, 2) a long drawn out settlement from the original design firm, 3) two Town insurance settlements, and 4) a state $500,000 STEAP grant (Small Town Economic Assistance Program). Those funds enabled East Lyme to use $4,570,604 for the redesign and reconstruction of the western half (i.e. 2,750± ft.) of Overlook Park. The staging area for reconstruction of the western half of the Park is located on McCook Point Park, adjacent to Overlook Park. That staging area is seen in the panorama photograph at the bottom of this page that was taken on

October 15, 2014. A service road, photographed below, leads from the staging area down the slope in the distance and past Hole in the Wall Beach to join the Overlook Park pathway at the Hole in the Wall railroad underpass.

Stone is being stored at the staging area, and some of it crushed, for use as back fill and/or armour riprap where needed along the reconstruction site. The staging area is also used to prepare the approximately 635 steel sheet piles that are required to build the interlocked and armoured sea wall that will run parallel to the shoreline along the western half of the Park. Steel sheet piles are shown above right being welded together in pairs that are

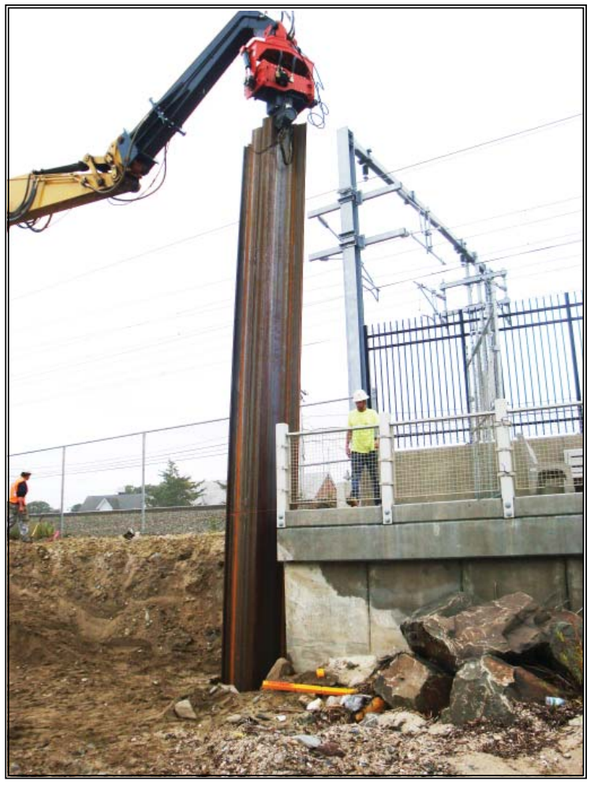
about 52 inches wide. One finished pair is seen in end view lying on the ground immediatly left of the welder. A tractor is shown in the photograph below as it moves up the service road toward the staging area. It is pulling

a flat bed trailer that is used to carry the assembled steel sheet pile sections from the staging area, where the steel is assembled and welded, to the work site, where each steel sheet pile is aligned and driven into the beach to create the sea wall that is described in more detail on the following pages.

*See hyperlink note on Page 3

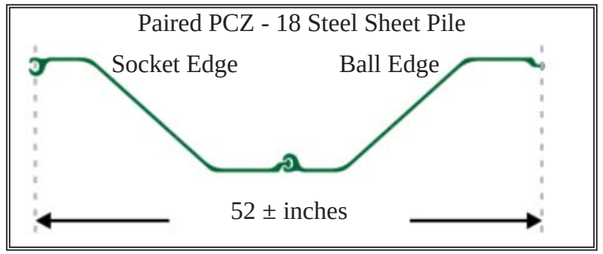
Pile driving began on September 25, 2014, when the photograph below was taken as the first pair of steel sheet piles were being placed by a pile driver - also known as a vibratory hammer pile driver. It is mounted to an excavator and is controlled by a single operator, with all hydraulic functions integrated in a simple joystick-mounted control.

The excavator pushes down while the hammer vibrates and the rigid steel sheet pile slowly sinks into the sand/



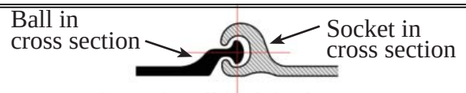
gravel as if by magic!
Placing the second, and subsequent sheet piles, is more difficult but, is also rather magical because the process interconnects the sheet piles one with the next such that the final seawall is much stronger and much more resistent to being pounded by the sea than would a single sheet pile standing “all by its lonesome.”

The seawall strength is largely due to the steel sheet piles being specified for reconstruction of Overlook Park require that they interlock, similar to the interlocking closures invented for plastic storage bags. The interlocking mechanism of the Overlook sheet piles is defined in the illustration to the immediate right of this paragraph.



The above cross sectional view of a typical PCZ — 18 steel sheet pile design is the system used to construct the eastern seawall at Overlook Park. The photograph below illustrates the critical step of positioning such a twin sheet pile suspended above one that has been driven. A single PCZ — 18 sheet pile weighs 50.4 lb/ft. A 32.9 foot long single sheet pile therefore, weights 1,658.16 lb.

This type and length of pile is specified for use between Station 27+78 (the end of the eastern half of Overlook Park), and Station 1+50, which is 150 feet east of Hole in the Wall underpass. Since the piles are driven as twins, each such paired pile weighs 3,316.32 lb. Once this 3,316.32 lb. suspended sheet pile is guided by the muscle power and experience of the worker to align its ball joint with the socket joint of the driven pile, the suspended pile is lowered a few inches to insure it has interlocked



PCZ - 18 Ball and Socket Joint

The Ball-and-Socket Interlock was introduced in the United States in the late 1930’s and continues to be the preferred interlock by piling contractors and engineers.

The advantages of the ball and socket interlock over other interlocks are:

- Most rugged, durable, and flexible interlock available
- Ideal for reuse in multiple projects
- Higher “buy back” value
- Easier driving and extraction
- Highest interlock strength

with the lower sheet pile. The worker moves out of the immediate work area, as a safety requirement, and the suspended sheet pile is only then slowly lowered until it starts to sink into the ground.

At this point in the process, the hydraulic jaw of the vibratory hammer pile driver, which carried the full weight of the suspended sheet pile, is pressed downward controlled by the operator of the excavator. The vibrator is then started and drives the new pile into the ground to match a specified elevation, usually that of the adjacent pile.

Sheet piles 25.9 feet long are specified to construct the last 150 feet of the seawall that ends at Hole in the Wall. These 7 foot shorter sheet piles are used because subsurface testing carried out in advance of construction revealed granite bedrock that would stop the penetration of longer piles.

The photograph above was taken on October 5, 2014, at 3:24 pm EST when a New York bound Amtrak train passed the half-way point of Overlook Park. The steel-sheet piles seen in the foreground are the first of the approximately 635 that will comprise the 2,750± foot long seawall from the end of the eastern half of the Park, seen on the right of the photograph, to its terminus at Hole in the Wall. They will finally be locked together by a reinforced concrete cap that will run the full length of the steel sheet piles, which will be backfilled with gravel having a maximum stone size of 3.5 inches and compacted in 6” lifts (i.e layers). The waal way thus created will be finished with a 6” thick concrete sidewalk. A similar sidewalk on the eastern half of the walkway is seen in cross section indicated on the far right in the photograph.

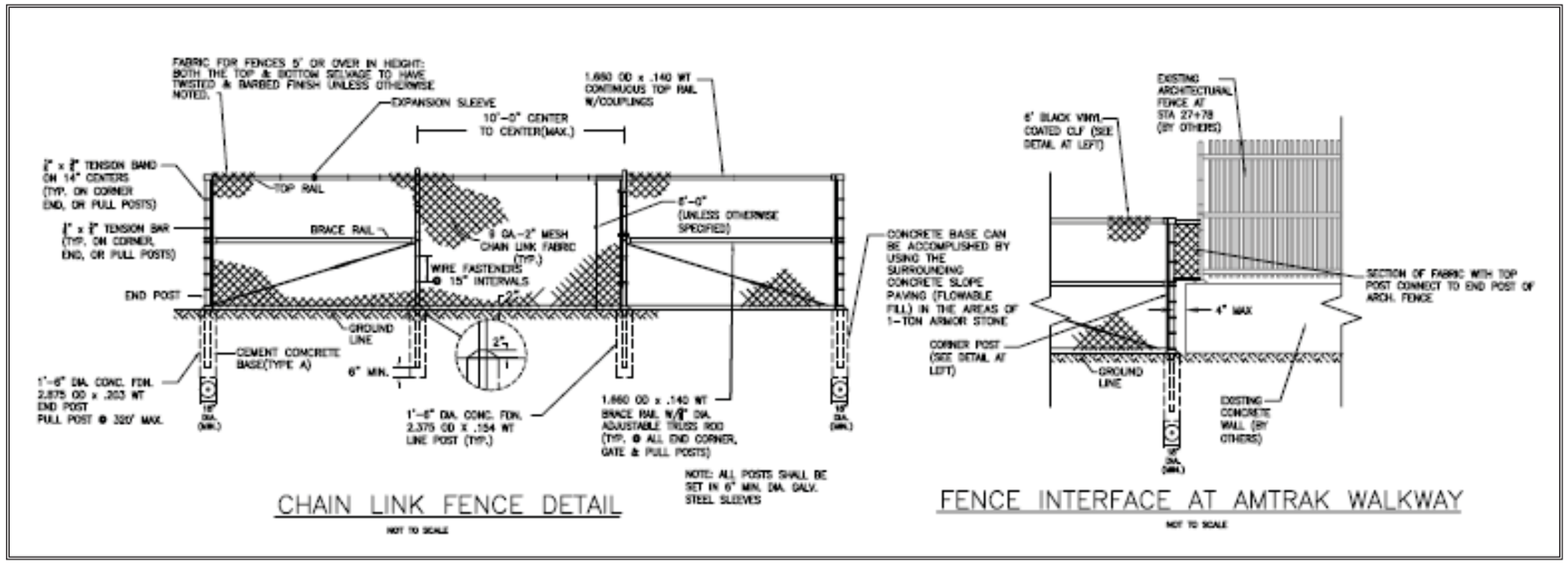
Between the end of the eastern half of the Park and its ternimus at Hole in the Wall, 9 Gauge, 2” mesh, vinyl-dipped black, chain link fence will separate the walkway from the railroad embankment. The detail of that fence is summarized in the two illustrations shown at the top of the following page

Also illustrated on the next page are two drawing of the fence used along the south side (i.e the water side) of the walkway. A thermoplastic railing system 3’ 6” high will extend along the water side of the walkway. When connected to Hole in the Wall, expected in the summer of 2015, Overlook Park will once again provide public access to its original uninterrupted length of 1.1 miles.

An AVCON® thermoplastic railing system was suggested by the project designers, Parsons Brinckerhoff, Inc. of Massachusetts. This safety fence will be bolted to the concrete cap poured to encase the top of the sheet piles that form the seawall stretching 2,750 feet between the end of the eastern half of the Overlook and its terminus at Hole in the Wall.

The fence is designed to withstand the abuse of “high traffic” areas, such as is expected on the Overlook. The thermoplastic material, out of which the fence is fabricated, is particularly appropriate because of its resistance to the coastal zone environment, especially salt water, to which the fence will be subjected.

The photograph in the lower right of the following page is of a section of Belmar 7, the Protective Series AVCON Thermoplastic Railing System that is specified for use

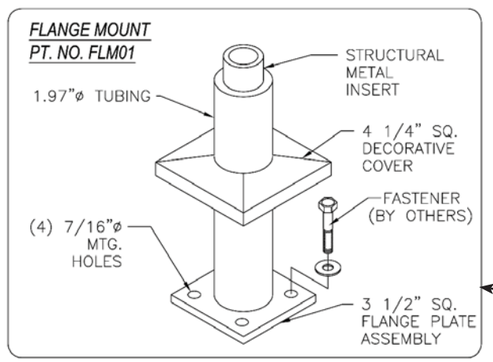


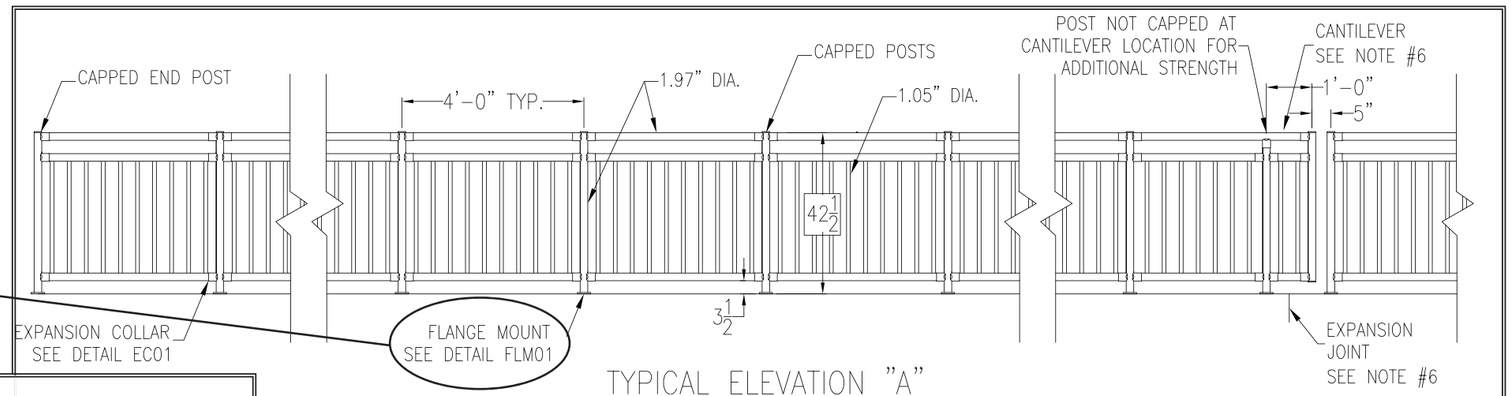
along the western half of Overlook Park. It is fabricated of tubular elements and is grey, which approximates the grey color of the equivalent fence along the eastern half of Overlook Park that was reconstructed and completed by Amtrak on July 12, 2013.

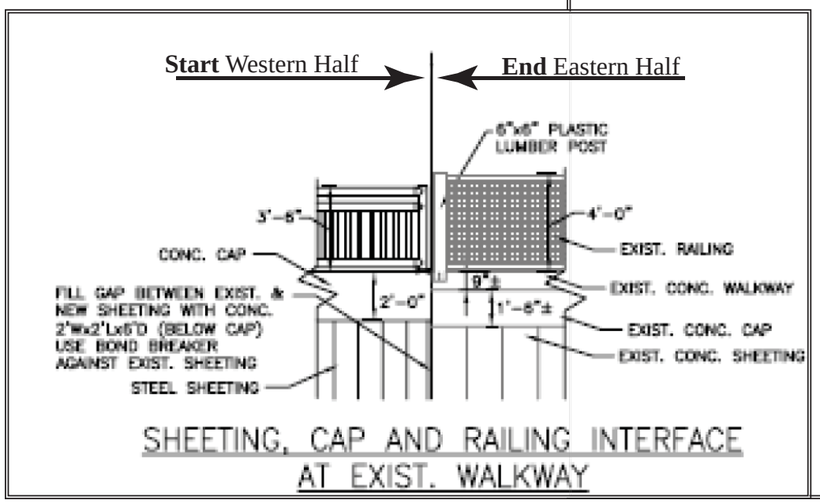
The drawings on this page were extracted from the plans prepared by Parsons Brinckerhoff, Inc. and Applied Coastal Reserach & Engineering, inc. in January 2014, for The Town of East Lyme, Connecticut, Niantic Bay Boardwalk, Project No. 2014-01, Niantic, Connecticut.

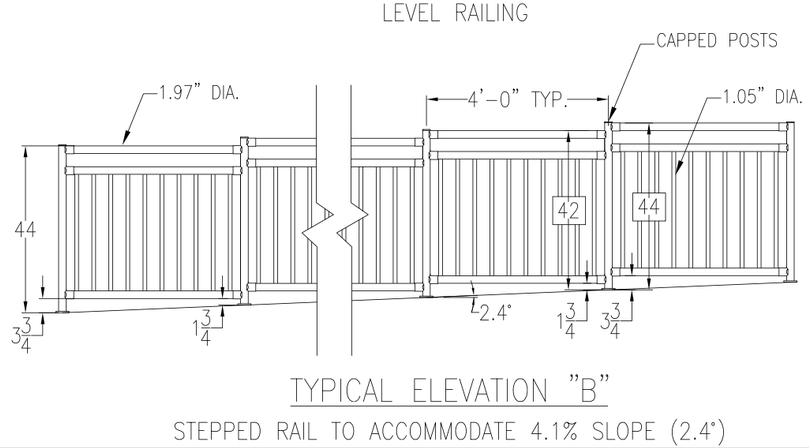
A full set of these contract plans can be accessed at:

http://publictrustfoundation.org/docs/Niantic-Bay-Boardwalk-Plans-Conformed-4-28-14.pdf









Hyperlink Note

If you are reading this report in PDF format online, you can activate the above hyperlink by left clicking it. Otherwise, enter the above internet web site address in your computer browser in order to reach that site.

Belmar7— Protective Series AVCON Thermoplastic Railing System