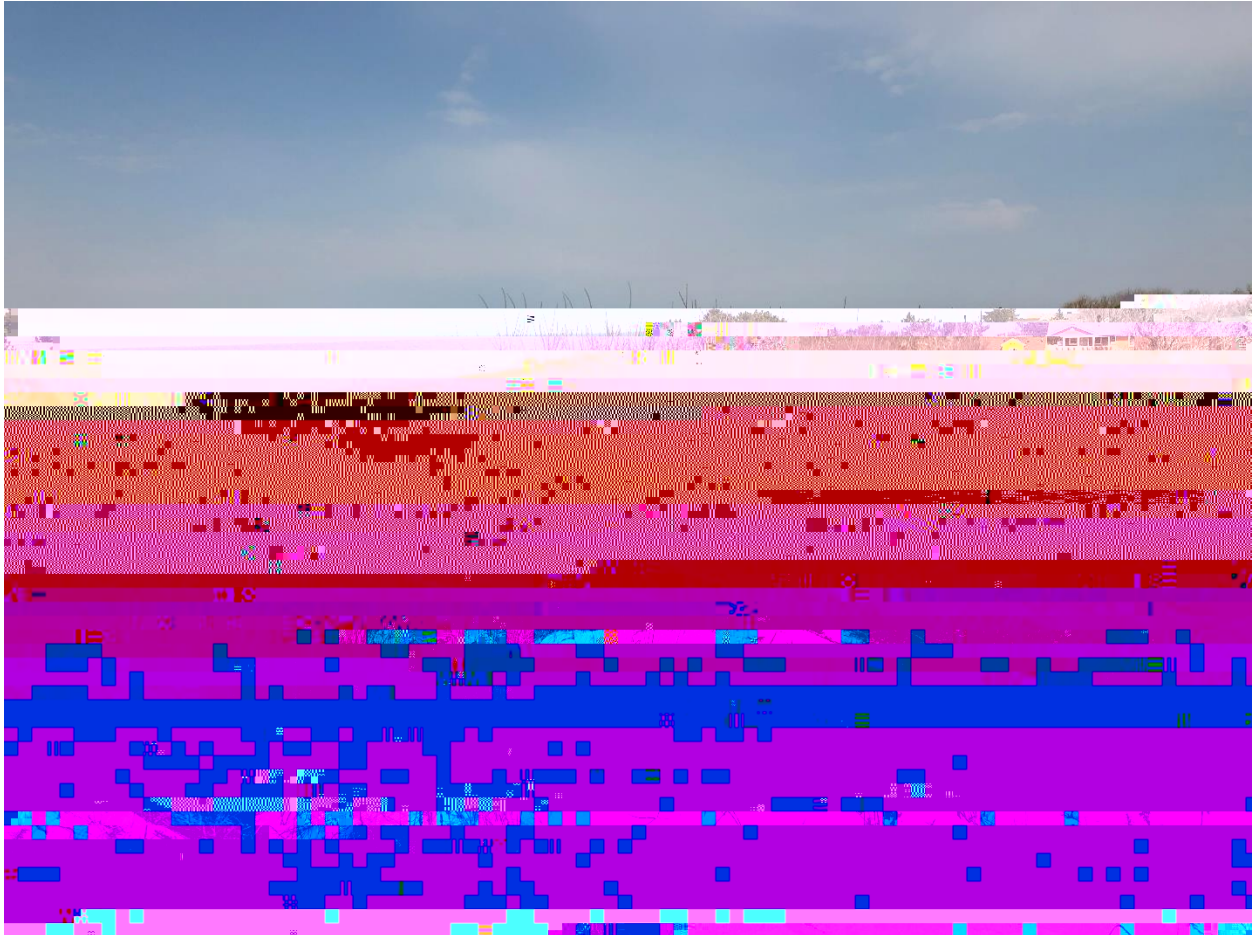


**ANNUAL REVIEW FOR 2018
OF THE CAPE MAY POINT, NJ MUNICIPAL BEACHES**



The photo above taken on April 24, 2018 from the instrument set-up location on the dune crest near Brainard Avenue looking west gives a scope and scale to the Cape May Point dune system. The alignment of the roof peaks on Stites Avenue with the Delaware Bay horizon means that the dune is within 4 feet of the roof peak elevation or about 33 feet above the water surface at high tide. The distance from the grass at the dune toe on the beach to the homes is about 500 feet. The Borough's efforts since the 1980's has produced a high level of storm protection.

PREPARED FOR: THE BOROUGH OF CAPE MAY POINT
215 LIGHTHOUSE AVENUE
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May 20, 2018

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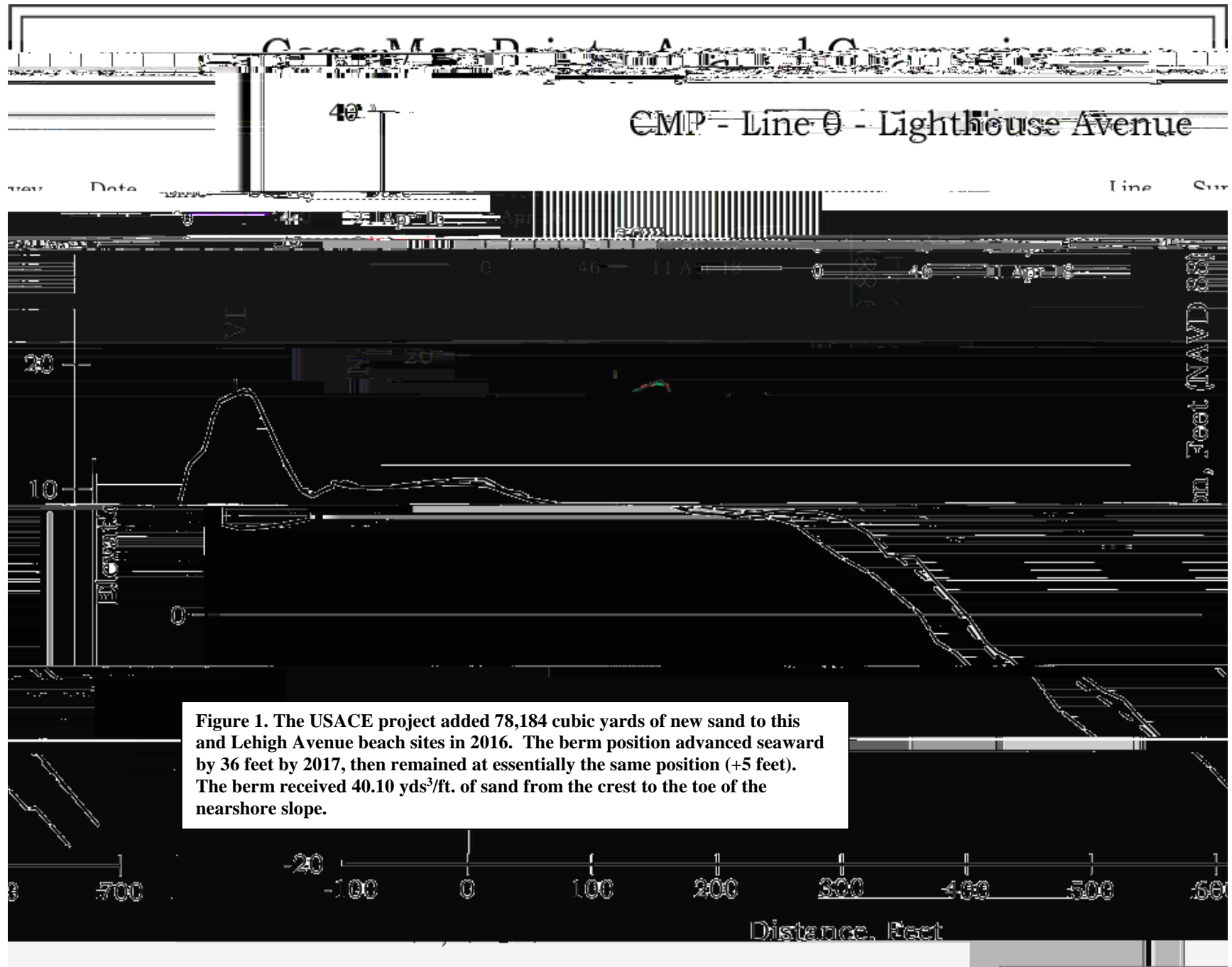
Introduction:

The annual survey of the nine cross section stations on the municipal beach was completed by the Stockton University Coastal Research Center (CRC) on April 11, 12, 2018. These were compared to previous surveys that were conducted April 2016 and April 2017. The findings included in this report complete the annual review of the municipal beaches prior to the 2018 beach bathing season.

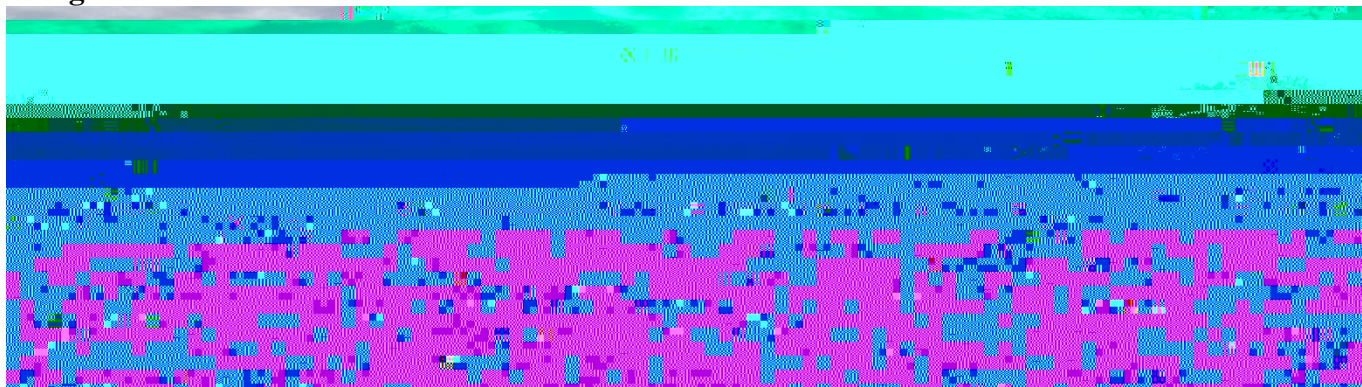
The US Army Corps of Engineers (USACE

Beach Monitoring Program:

Last year f



Lehigh Avenue



CMP-1 (Cell 1) stretches from the Lighthouse Avenue groin to Lehigh Avenue. Prior to the initial USACE project no dry beach was present between the rock groins. Shore protection was provided by a rock seawall that armored the seaward dune slope. Beyond the groins the seafloor steeply dropped into the adjacent tidal channel. The initial USACE project re-established a dry recreational berm and covered the seawall with sand to restore the dune.

This site also received sand during the USACE authorized second maintenance project conducted between November 2012 and January 2013. The project restored the design beach width and elevation. The beach width increased by 60 feet with 56.39yds³/ft. of sand added to each foot of shoreline seaward from the dune toe. Following the project the beach elevation was 10 feet NAVD 88 and extended about 170 feet seaward of the seaward dune toe. The most recent project counted both Lighthouse and Lehigh sites as one placement volume at 78,174 cubic yards. The visual impact is like that seen at Lighthouse Avenue with both sites seeing similar shoreline advances. Both sites also remained quite stable during the

Lehigh to Whilden Avenues

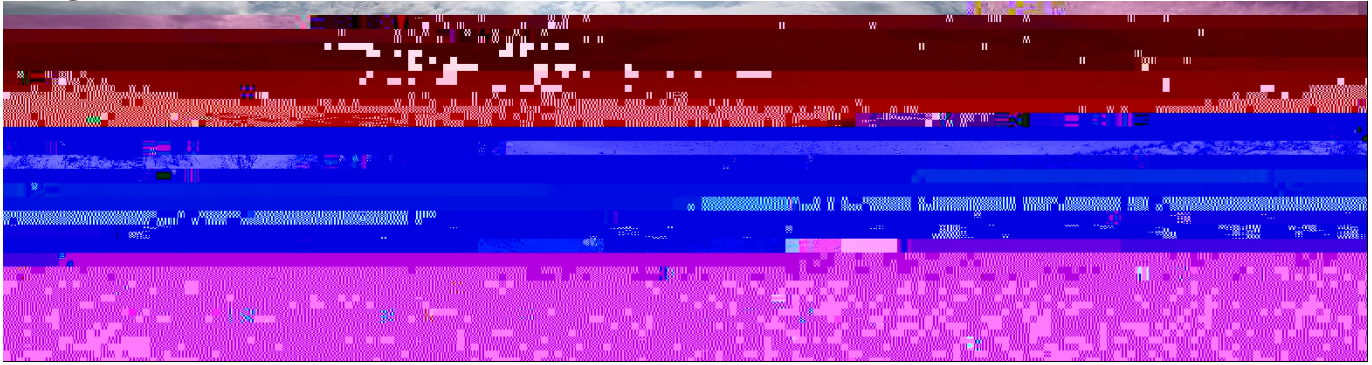


Figure 3. This view from the beach entrance shot April 12, 2018 shows the beach from groin to groin along with the dunes.

The CMP-2 (Cell 2) beach is the southeastern-most of the groin cells with an early installation of the “Beachsaver” units from 1993, which still are functioning and show on the profile cross-section at the 520-foot distance from the reference point and remain relatively stable. Sand added to the system during the initial USACE project has resulted in the near burial of a rock seawall that served as property protection prior to the project. No additional sand was placed here during the 2013 2nd maintenance cycle.

The recent cycle of USACE sand placement also did not directly put sand into this cell. However, the natural transfer of material created a 16-foot shoreline advance and an net gain of 27.64 yds³/ft. in sand volume. This gain occurred in the first year following the 2016 project with minor changes since.

The “Beachsaver” unit crest has been incrementally buried by sand reducing its exposure above the seabed from 6 to 3.5 feet above the nearshore seabed slope. Landward of the units, a trough remains at similar depths to last year, with a 110-foot area between the zero elevation position and the barriers. The top elevation has remained constant for many years, so the structure appears stable. At low tide the distance would be less than 110 feet and at high tide a bit more. The depth at the base of the beachsaver is 10.25 feet NAVD 1988.

The reef crest protrudes up to elevation -6 feet NAVD88. In this position the units are unlikely to be encountered by swimmers this season within the middle of the groin cell. Caution and restrictions should be in placed closer to the groins where the shoreline sand extends outward toward the concrete reef along each groin. The lower profile exposed in the water column means less wave surge over the reef and a lower risk of swimmer injury from the surging waves.

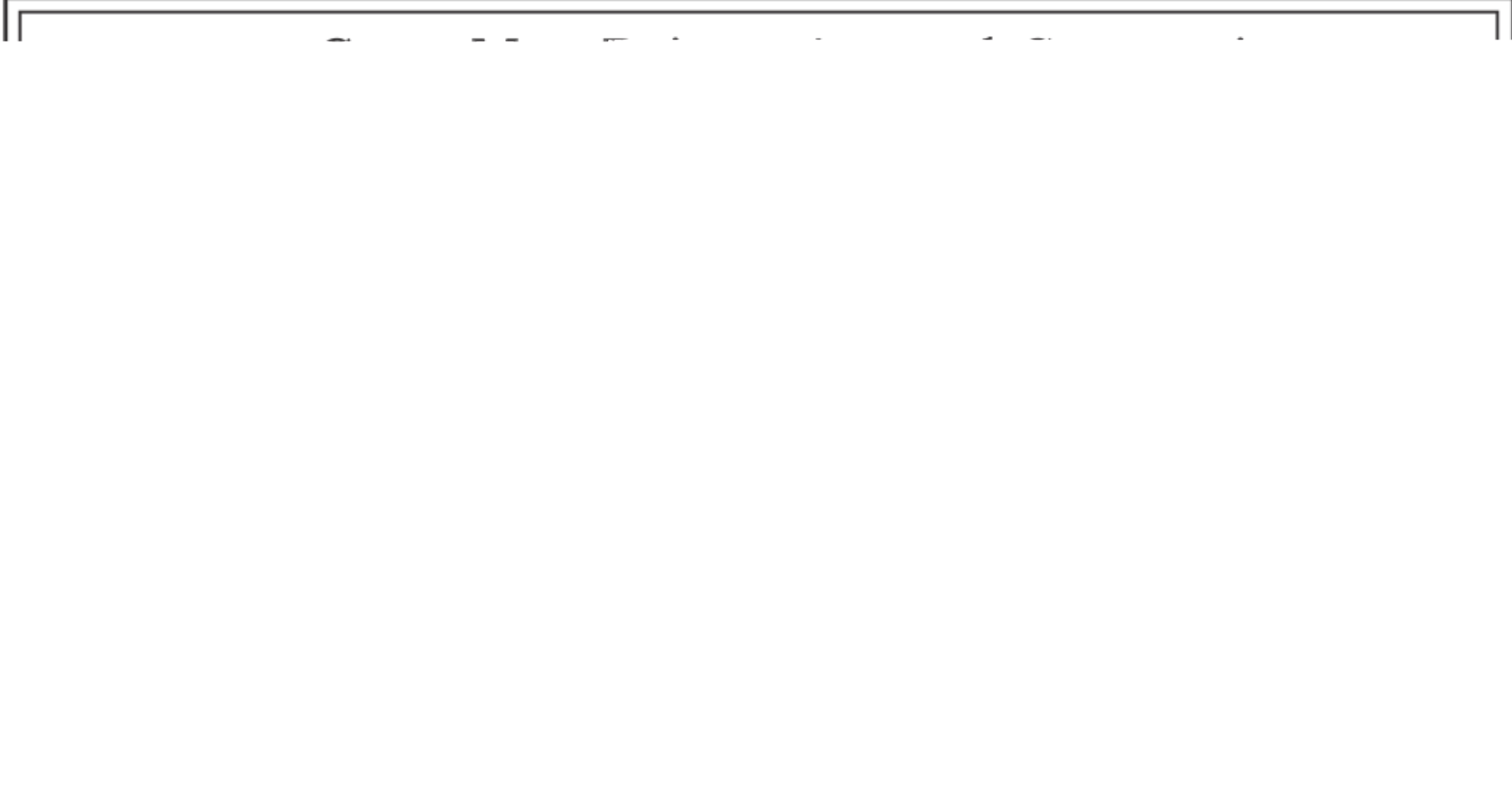


Figure 3. No sand was placed directly on this beach during the 2016 USACE renourishment project. A modest volume of sand accumulated on the foredune slope and beachface slope. 27.64 yds³/ft. of sand were added to the dunes, beach and offshore slope since April 2016. A 9-foot shoreline retreat occurred in the past 12 months. The reef unit remained stable, located approximately 110 feet seaward of the shoreline; seafloor elevation at the reef is -10.5 feet NAVD 88.

Whilden to Coral Avenues;

CMP-3 is bounded by rock groins at Whilden Avenue and Coral Avenue. This beach cell was the other original 1993 “Beachsaver” unit installation in Cape May Point. Sand added to the system during the initial USACE project had resulted in the near burial of the entire beach unit structure. No additional sand was placed here during the 2nd maintenance cycle (2012-2013). No new sand was added here during the 2016 USACE project either. Sand accumulated on the dunes, and minimally on the beach. The largest sand volume gain occurred at and beyond the beachsaver reef offshore.

The minor retreat at the zero elevation on the beach width keeps the “Beachsaver” units within relative close proximity to the shoreline, approximately 100 feet. The concrete crest protrudes to elevation -5.0 feet (NAVD88 zero datum) while the base is at -8 to -9 feet NAVD88. Sand deposition has reduced the exposure from 6 to 2.5 feet above the seabed. This location

North Myrtle Beach, SC - Annual Comparison

Civil & Environmental Engineering

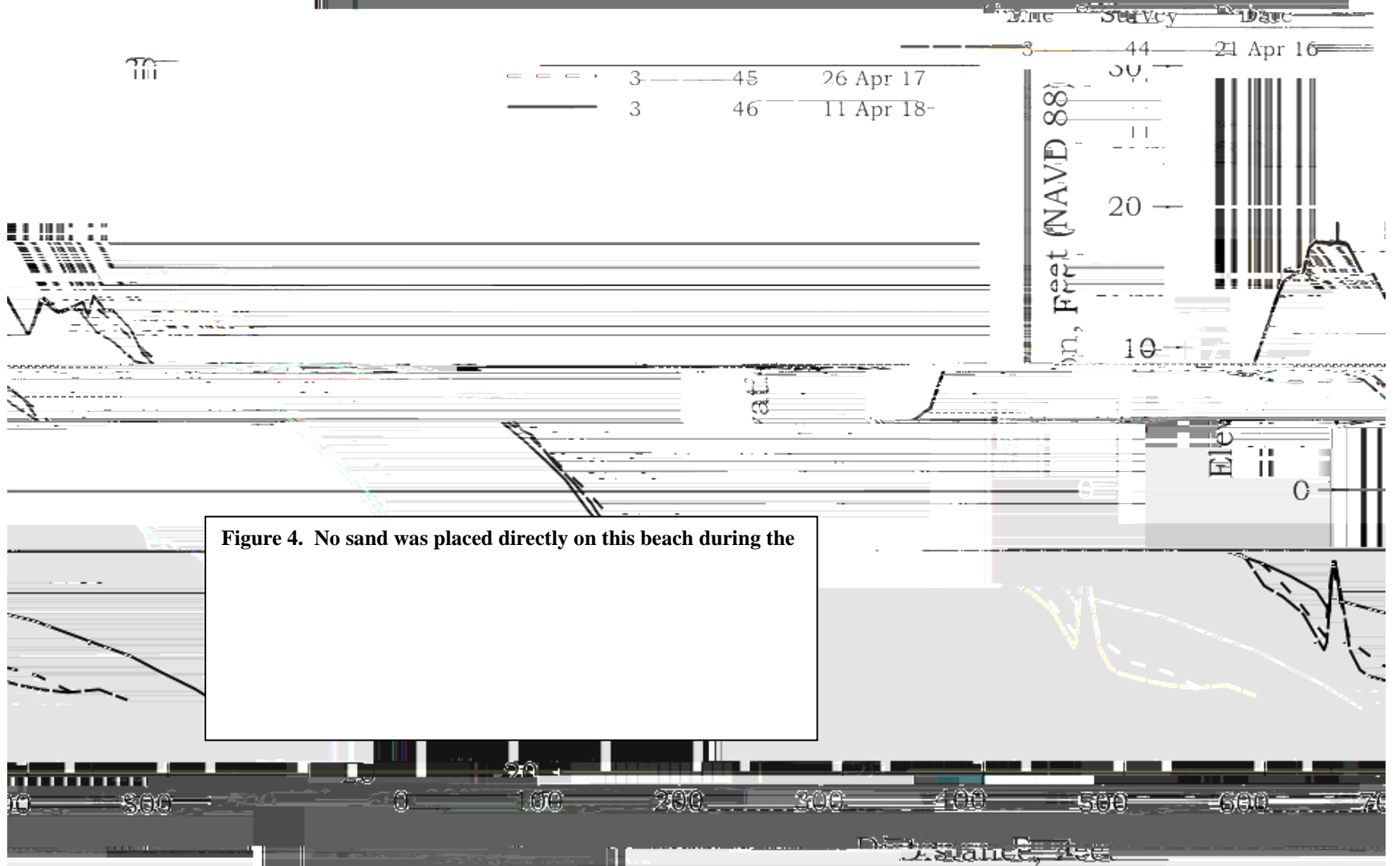
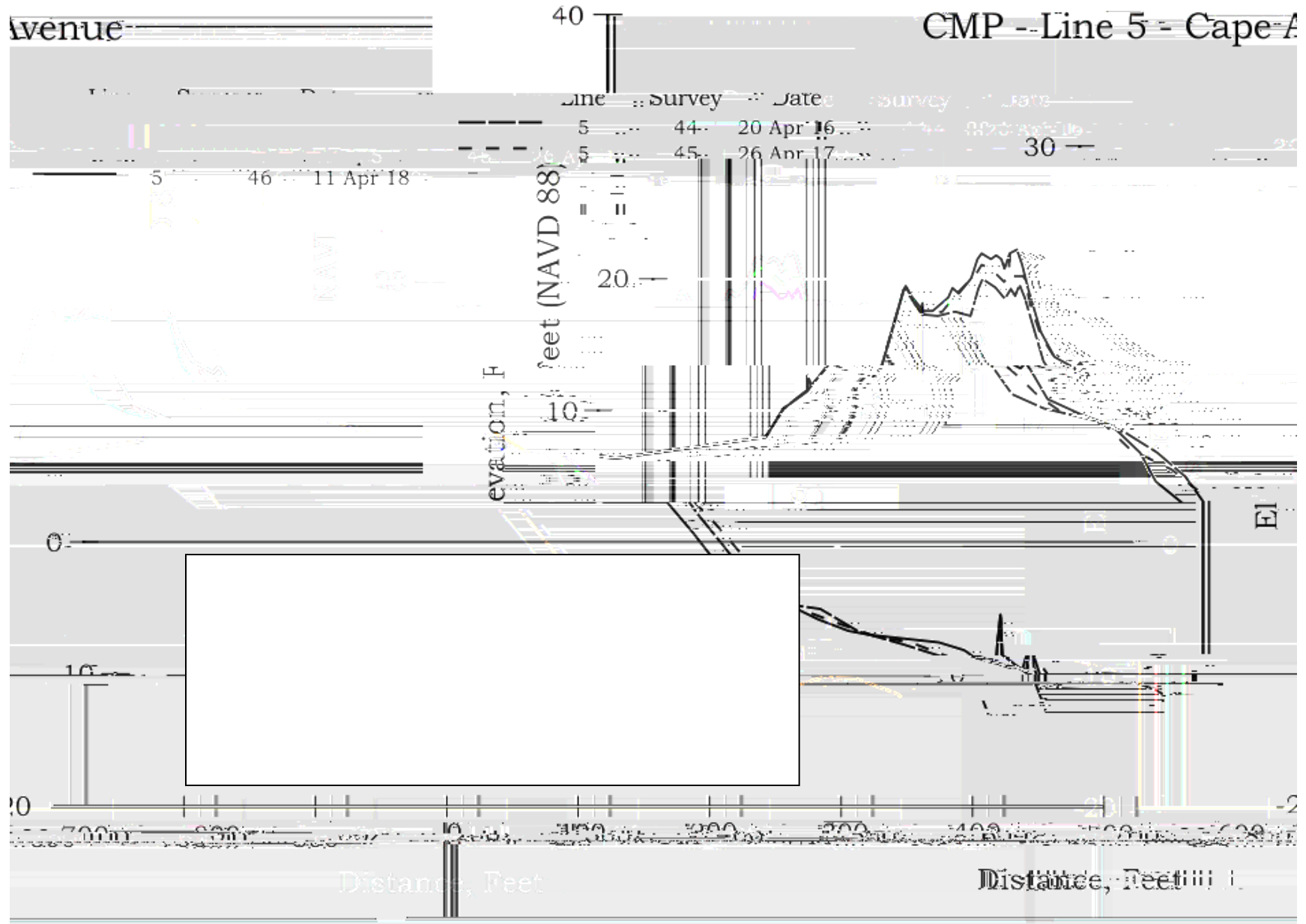


Figure 4. No sand was placed directly on this beach during the

Coral Avenue to Lake Drive

The Lake Drive (CMP-4, Cell 4) beach cell is bounded by the rock groins at Coral Avenue and south of Lake Drive (closer to Surf Avenue). This cell does not contain any nearshore “Beachsaver” structures but it has received sand both during the initial project and in the 2nd maintenance cycle nourishment project g 612 792 r



Cape May to North Wildwood Comparisons

CMP Line 6 - Beach Elevation

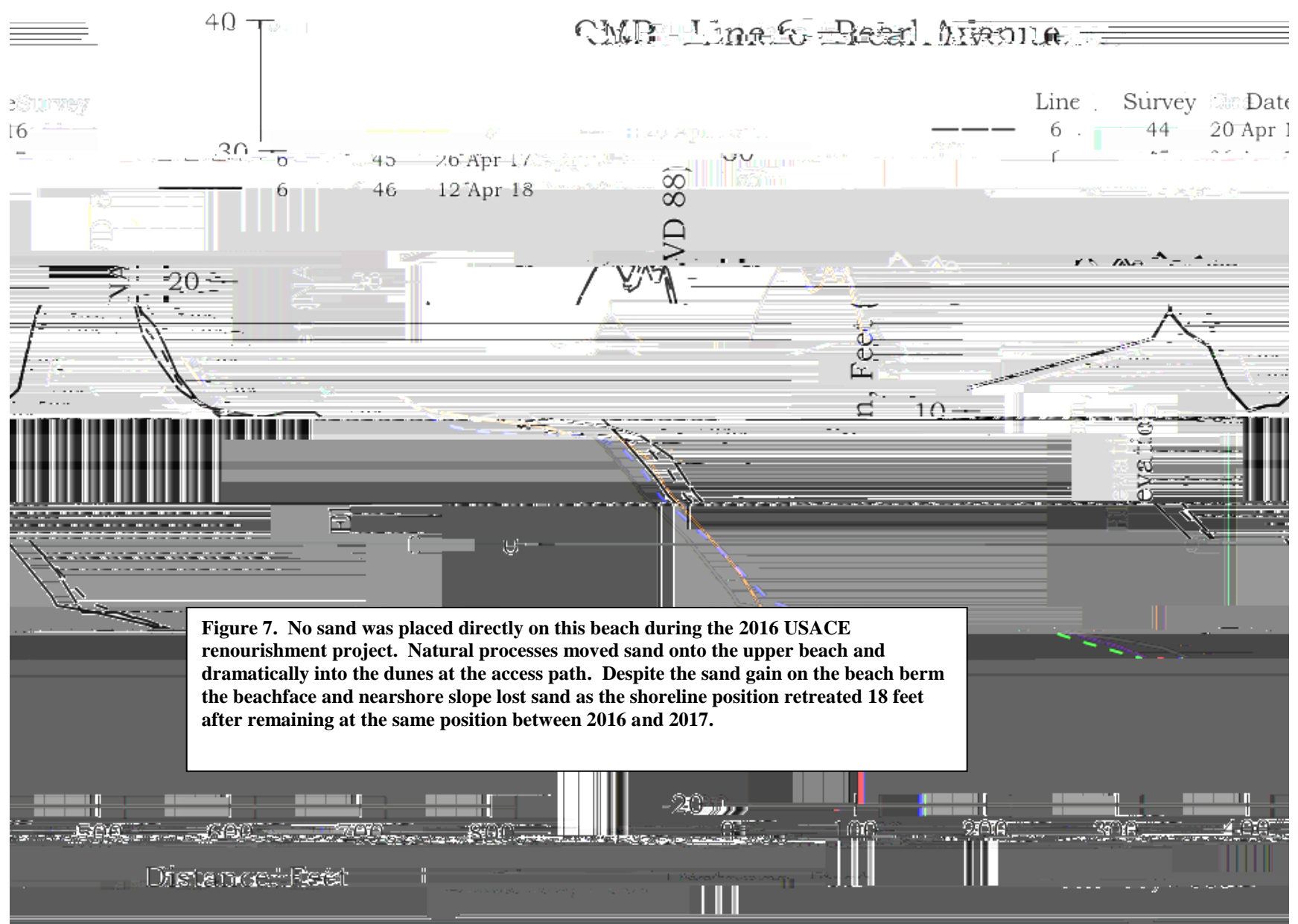


Figure 7. No sand was placed directly on this beach during the 2016 USACE renourishment project. Natural processes moved sand onto the upper beach and dramatically into the dunes at the access path. Despite the sand gain on the beach berm the beachface and nearshore slope lost sand as the shoreline position retreated 18 feet after remaining at the same position between 2016 and 2017.

Pearl to Stites Avenues

Profile CMP-7, located southeast of Brainard Avenue, (Cell 7) is bounded by the rock groins near Pearl Avenue and Stites Avenue. The cell has not received

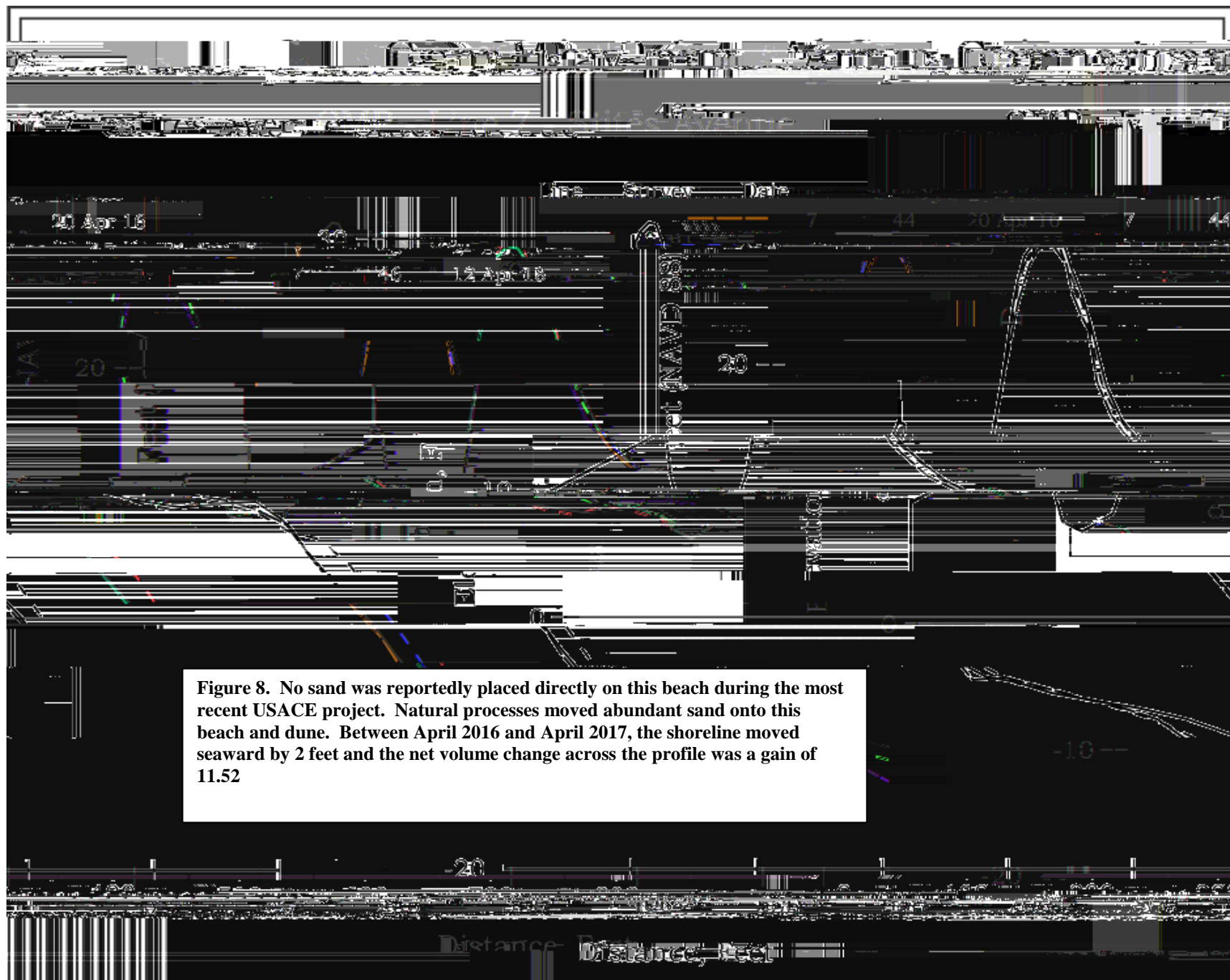


Figure 8. No sand was reportedly placed directly on this beach during the most recent USACE project. Natural processes moved abundant sand onto this beach and dune. Between April 2016 and April 2017, the shoreline moved seaward by 2 feet and the net volume change across the profile was a gain of 11.52

Stites to Alexander Avenues

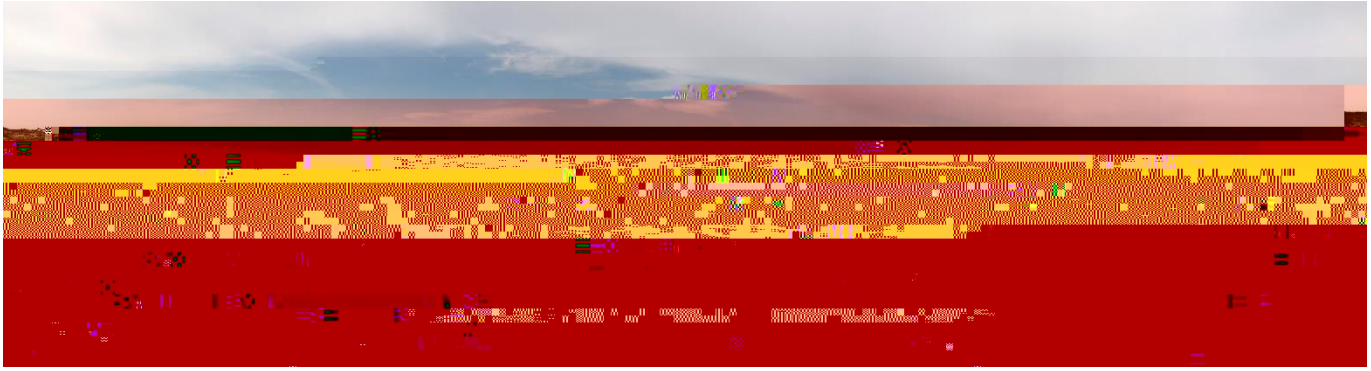


Figure 9. This westernmost cell is defined by The Township of Lower to the right of the Alexander Avenue groin and the CMP-7 cell to the left of the groin on the beach. The tiny figures are the survey crew members much reduced in size by the panoramic view.

The Alexander Avenue location, CMP-8 is the western most beach cell in the Borough. Sand placement was never included for this location during the USACE projects. Natural processes have moved sand from the project beaches to this location. The beach extends seaward nearly to the tip of the western groin. Sediment loss from this cell moves onto the western Delaware Bay shoreline and shoals locally known as the “Cape May Rips”. The offset landward in the beach west of the Alexander Avenue groin means that most of the sand is transported to the nearby bay floor and does not appear on the Sunset Beach shoreline. The dominance of the tidal currents over minimal wave transport landward for sand allows the currents to distribute sand on the shallow bay floor in the vicinity, with minimal quantities making it to the Sunset Beach shoreline.

Following completion of the initial USACE project sand began to accumulate in increasing amounts, 2015 was the first year in which this accretive trend stopped. In 2016, the accretive trend continued with a large wedge of sand accumulating from the seaward dune crest seaward to the profile limits. The dune advanced seaward 20 feet as a result of sand accumulation on the seaward slope. However, by April 2017, the shoreline retreat was 39 feet as 22.33 yds³/ft. in sand volume left the cell. By April 2018, the conditions stabilized as sand added to the seaward dune slope, but changed very little elsewhere along the profile line. The recent annual change was a gain of 5.90 yds³/ft. as the shoreline retreated one foot.

The dry beach provides ample area to support summer recreational activity onshore while the nearshore slope is steeper in this cell with water depths of -10 feet NAVD88 within 100 feet of the shoreline. The steeper slope and drop off near the end of the western groin along with strong tidal currents in this region should probably limit swimming activity by most to the shallow nearshore region. Swimming has not been permitted at Alexander Avenue for many years, but the final groin is a long-time favorite for fishing activities.



