

**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
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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) project efforts since 2007 were detailed last year. The District’s project manager, Dwight Pakan provided the CRC with his data on sand volumes placed within the Cape May City to Cape May Point region by the start of 2017. Those numbers are provided below. No subsequent USACE work has been done since early 2017.

The April 2014 and March 2015 surveys last year provided a one and two-year assessment of the 2013 project and this document adds a third year evaluation to those. According to Mr. Dwight Pakan, project manager for this USACE project the final effort was:

<i>Area 1 - USCG Training Center</i>	<i>611,729 CY</i>	<i>Cape May Inlet west jetty to STA 30.</i>
<i>Area 2 - Wilmington Ave</i>	<i>36,070 CY</i>	<i>STA 65 to STA 85 (centered on Wilmington Ave).</i>
<i>Area 3 - Cove</i>	<i>183,610 CY</i>	<i>3rd Ave groin to STA 25.</i>
<i>Area 4 - Lehigh Beach</i>	<i>78,184 CY</i>	<i>STA 75 in CMPSP to Lehigh Ave groin (Lehigh Beach groin compartment plus an area east to Lighthouse Ave.).</i>
<i>Area 5 - St Pete's Beach</i>	<i>42,300 CY</i>	<i>STA 96 to STA 103 (St Pete's Beach groin compartment).</i>

The past winter season was one of minimal hurricane impact along the mid-Atlantic coastline. In spite of monumental damage in Texas, Florida, and the Caribbean Islands, hurricanes tracked out to sea past the NJ shoreline. Hurricanes Gert and Jose tracked offshore into the north Atlantic yielding large waves, but no storm damage. The winter started cold and dry through most of January and February 2018. March proved to be a storm “lion” producing four northeast events about 6 to 10 days apart with a fifth event in early April. This series did not allow for beach recovery between storms, so erosion became cumulative over that 5 week interval. Snow and cold rains accompanied these storms making the early spring particularly unpleasant.

After observing the elevations apparent at each of the pedestrian access paths to the beach in Cape May Point, on May 4, 2018 a quick GPS elevation survey of the highest point over the dune on each access path was done. The range was from 26.7 feet to 11.9 feet with the lowest site at Alexander Avenue and the highest elevation found at the Pearl Avenue access. The dune elevations are quite consistent with few locations having inter-access sections lower in elevation than the pathways. A complete maximum dune elevation would need to wait until winter because of the presence of poison ivy in the vegetated dune crest interior.

**Table 1
Beach Access Pathway Crest Elevation**

<u>Site Name</u>	<u>Elevation (feet NAVD 1988)</u>	<u>Site Name</u>	<u>Elevation</u>
Lehigh Avenue	17.3	Cape Avenue	24.8
Vehicle Access Road	17.6	Pearl Avenue	26.7
Whilden Avenue	17.1	Brainard Avenue	19.5
Coral Avenue	17.7	Stites Avenue	16.8
South Lake Drive	16.4	Alexander Avenue	11.9
Surf Avenue Vehicle Access Road	24.5		

Beach Monitoring Program:

The CRC established the Borough’s beach monitoring program in 1991 to address the changes observed along the shoreline. Nine permanent monitoring survey lines were established at the following sites along the Borough’s ocean and bay shorelines. Each profile starts at a fixed reference position behind the dunes, crosses the dunes, beach and extends over 600 feet into the water, ending at a depth of 12-16 feet. Each cross section is located midway between the rock groins that define each of the beach cells. Below is a list of the monitoring site locations and the survey number and dates included in this report:

CMP-0: Lighthouse Avenue	Survey 45	April 24, 2017
CMP-1: Lehigh Ave	Survey 45	April 24, 2017
CMP-2: Whilden Ave	Survey 45	April 26, 2017
CMP-3: Coral Ave	Survey 45	April 26, 2017
CMP-4: Lake Drive	Survey 45	April 24, 2017
CMP-5: Cape Avenue	Survey 45	April 26, 2017
CMP-6: Pearl Avenue	Survey 45	April 26, 2017
CMP-7: Stites Avenue	Survey 45	April 24, 2017
CMP-8: Alexander Avenue	Survey 45	April 24, 2017

The summary table below compiles the annual shoreline and beach volume change information between 2017 and 2018. The shoreline changes are based on the advance (seaward) or the retreat (landward) of the zero elevation datum position on each cross section. This elevation represents the “shoreline” position; it approximates the proper change horizontally for any shoreline point selected on the beachface subject to daily wave run-up. The unit sand volume computed for the cross section in cubic yards of sand per foot of shoreline is multiplied by the distance between the groins in Cape May Point to arrive at the net volume in the right column for each cell.

**Table 2.
Profile Shoreline & Sand Volume Changes
April 2017 to April 2018**

Profile Number	Shoreline Change (feet)	Volume Change (yds ³ /ft)	Cell Distance (feet)	Net Volume Change (yds ³)
CMP-0	4.9	5.98	420	2,510
CMP-1	-16.8	-7.65	445	-3,405
CMP-2	-8.6	6.90	460	3,175
CMP-3	-9.3	12.06	450	5,425
CMP-4	-31.7	-10.52	675	-7,102
CMP-5	-23.5	-4.70	690	-3,243
CMP-6	-17.7	1.33	710	944
CMP-7	-17.3	-0.06	680	-42
CMP-8	-1.0	5.90	660	3,892
Total Volume Change for Cape May Point =				2,155

Last year from April 2017 to April 2018, the Borough’s beaches recorded a gain of 2,155 cubic yards of sand focused on the eastern and western ends of the Borough’s shoreline. The greatest loss was seen at three sites (CMP 1, 4, and 5) while two sites (CMP 6 and 7) remained relatively constant, and four sites (CMP 0, 2, 3 and 8) gained sand. The annual shoreline shifts were landward in all but CMP 0, with the Lake Drive site retreating 32 feet landward.

The summary table below compiles the shoreline and beach volume change information from April 2016 to beach conditions in April, 2018 covering the last two years of surveying.

Table 3
Profile Shoreline & Sand Volume Changes
April 2016 to April 2018

Profile Number	Shoreline Change (feet)	Volume Change (yds ³ /ft)	Cell Distance (feet)	Net Volume Change (yds ³)
CMP-0	36.2	40.10	420	16,842
CMP-1	53.0	39.98	445	17,792
CMP-2	15.6	27.64	460	12,713
CMP-3	-4.6	23.58	450	10,609
CMP-4	12.9	13.17	675	8,887
CMP-5	-15.4	3.15	690	2,173
CMP-6	-17.7	2.34	710	1,663
CMP-7	2.4	11.52	680	7,830
CMP-8	-40.3	-17.01	660	-11,228
Total Volume Change for Cape May Point =				67,280

In the two year interval between April of 2016 and April of 2018 the Borough beaches gained 67,280 cubic yards of new sand likely related to the most recent efforts by the US Army Corps of Engineers. Clearly, between the recent year’s change and these results over two years, the lion’s share of sand volume gain took place in 2016 into early 2017. The work completed in late 2016 within the Borough directly placed 110,484 cubic yards of new sand on some Borough beaches. The bi-annual carryover shows that two-thirds of the sand is still present. Only CMP-8 showed a 2-year loss volume, that was not related to last year’s changes. The overall change showed that the dunes gained sand as the wind moved material from the beach into the dunes raising some elevations by up to 8-10 feet vertically (CMP-6).

Review of Each of the Beach Cells in Cape May Point:

This section describes the changes documented at each profile location. Beach volume and shoreline changes were calculated from April 2017 to April 2018 and from April 2016 to April 2018 as shown in the tables above. The individual site review includes a new panoramic photo taken during the latest survey and annual comparison plots for the past three years to document changes to the beach at each location. Individual site descriptions are included for each profile.

Lighthouse Avenue



Figure 1. This year a series of panoramic views were taken from the dunes to provide an extended view of the entire beach cell. The photo taken in April 12, 2018 shows the dune and its vegetation looking over the beach seaward of the dunes. This remains a substantially wider beach as a result of the USACE work.

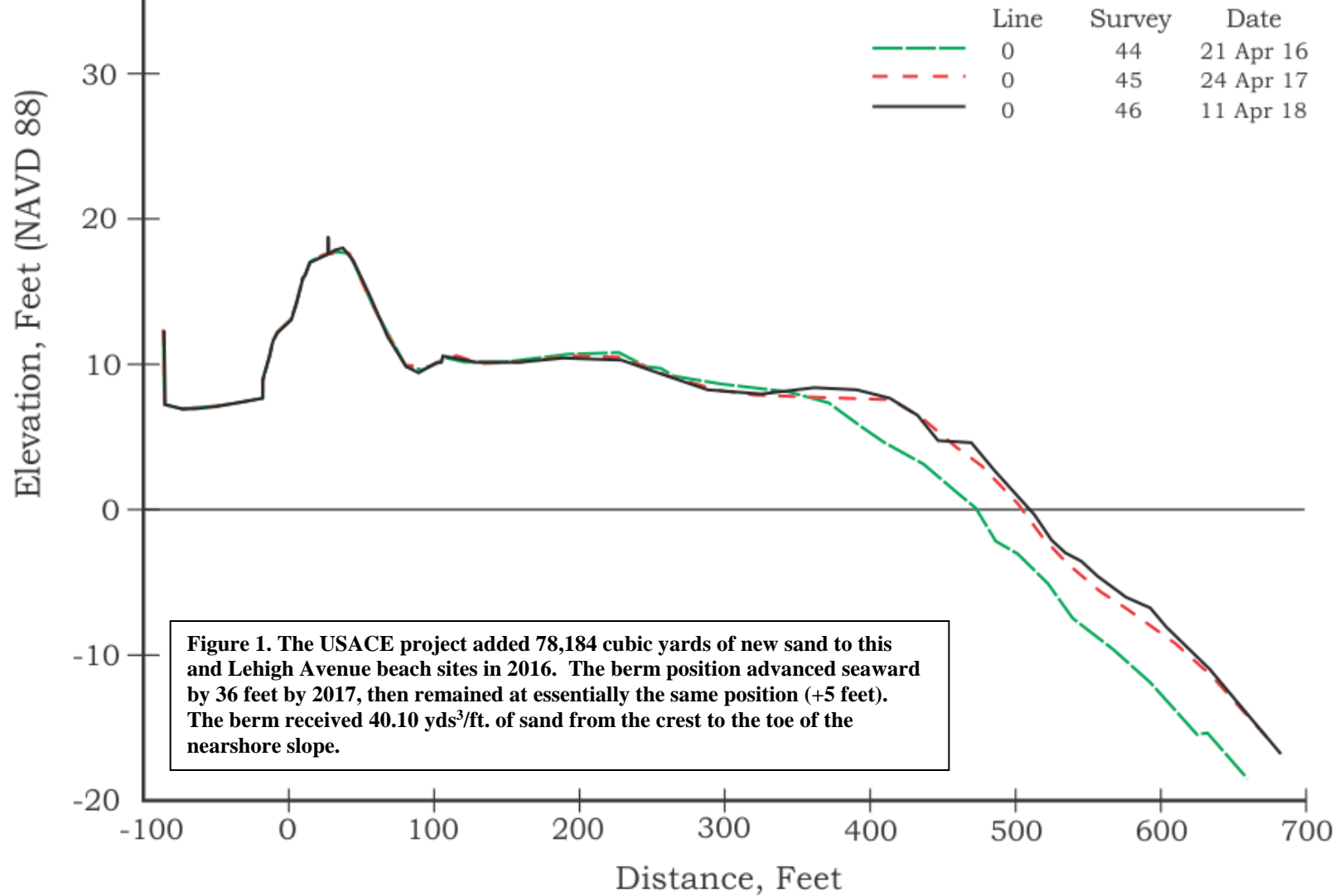
CMP-0 (Cell 0) is the northeastern-most cell that borders the State Park and is bounded to the southwest by a rock groin. This location has benefited tremendously from the USACE Lower Cape May Meadows – Cape May Point restoration project, where initial construction was completed June 2007. The project added over 250 feet of recreational beach berm and established a stable dune system 100 feet wide at the toe with a crest elevation of 18 feet NAVD88. Prior to the initial project the beach was narrow; a small dune armored with tensor mats on the seaward slope protecting the exposed dune system from severe erosion. There is no public access from Lighthouse Avenue to the beach.

The USACE authorized a second maintenance project with construction from November 2012 to January 2013. The project restored the design beach width and elevation. The beach width increased by 58 feet with 63.13yds³/ft. of sand added per foot of shoreline seaward of the dune toe. Following the project the beach elevation ranged from 10-11 feet NAVD 88 and extended 275 feet seaward of the dune toe.

In 2016, USACE activity added 78,184 cubic yards of new material to this site and the Lehigh Avenue beach immediately to the southwest. The cross sections show that the beach grew wider following the 2016 survey and remained stable since.

Cape May Point - Annual Comparisons

CMP - Line 0 - Lighthouse Avenue



Lehigh Avenue



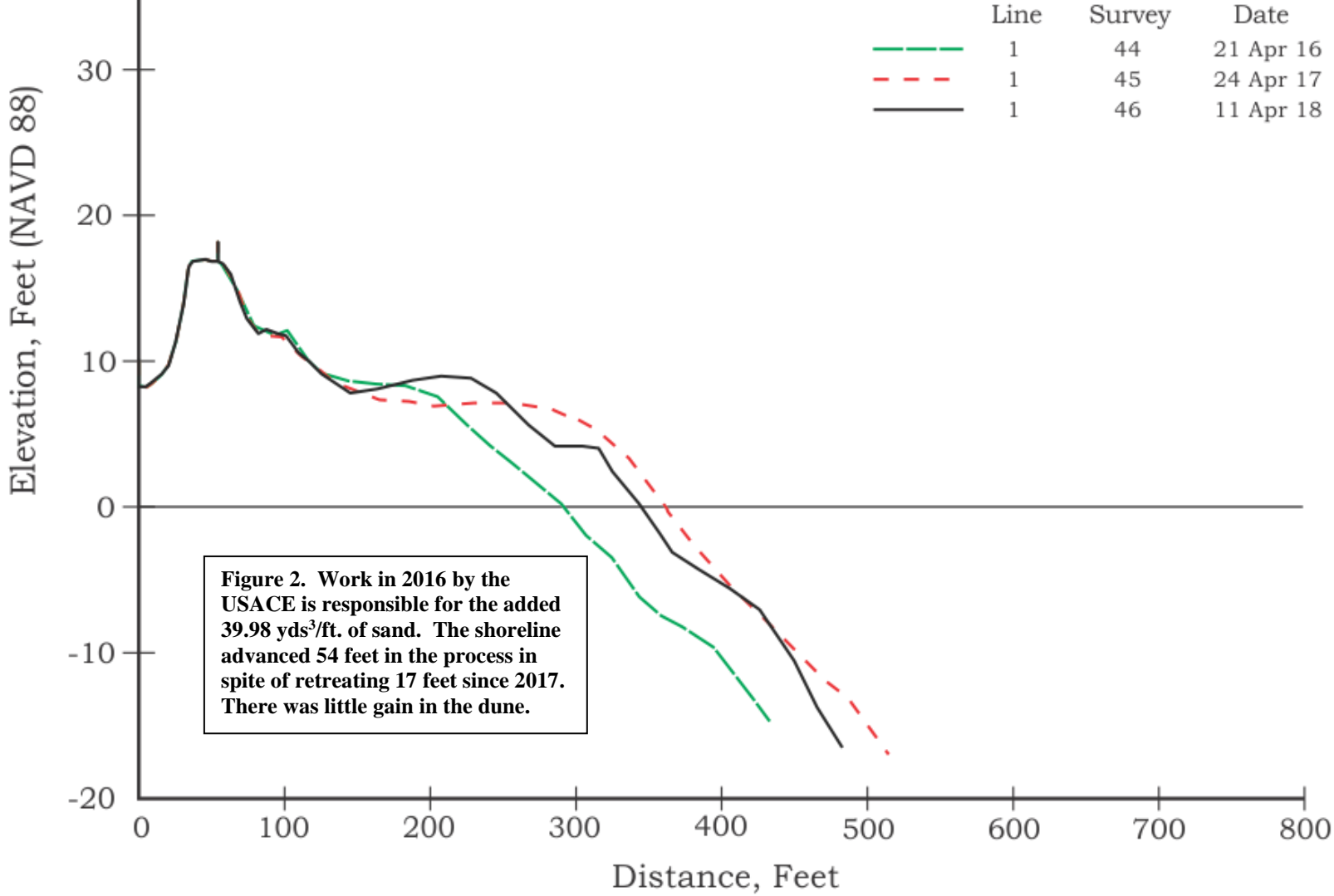
Figure 2. Taken on April 12, 2018, the photo shows the dunes and a stable to slightly accretive beach. Dune vegetation is sparse directly seaward of the reference location, but improves to the sides.

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 following year.

Cape May Point - Annual Comparisons

CMP - Line 1 - Lehigh Avenue



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.

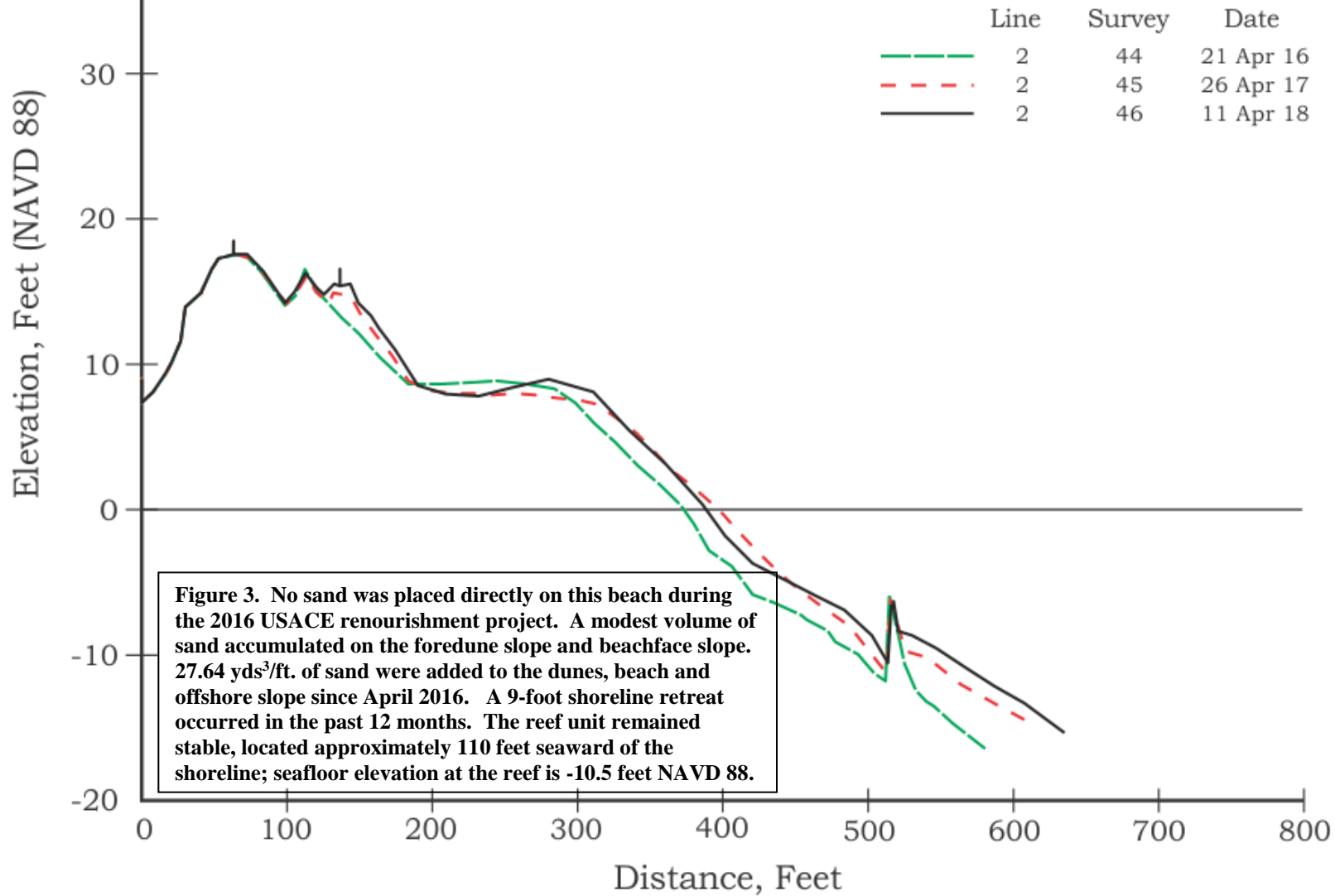
The recent cycle of USACE sand placement also did not directly put sand into this cell. However, the natural transfer of material created a 16-foot shoreline advance and an net gain of 27.64 yds³/ft. in sand volume. This gain occurred in the first year following the 2016 project with minor changes since.

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.

Cape May Point - Annual Comparisons

CMP - Line 2 - Wilden Avenue



Whilden to Coral Avenues;



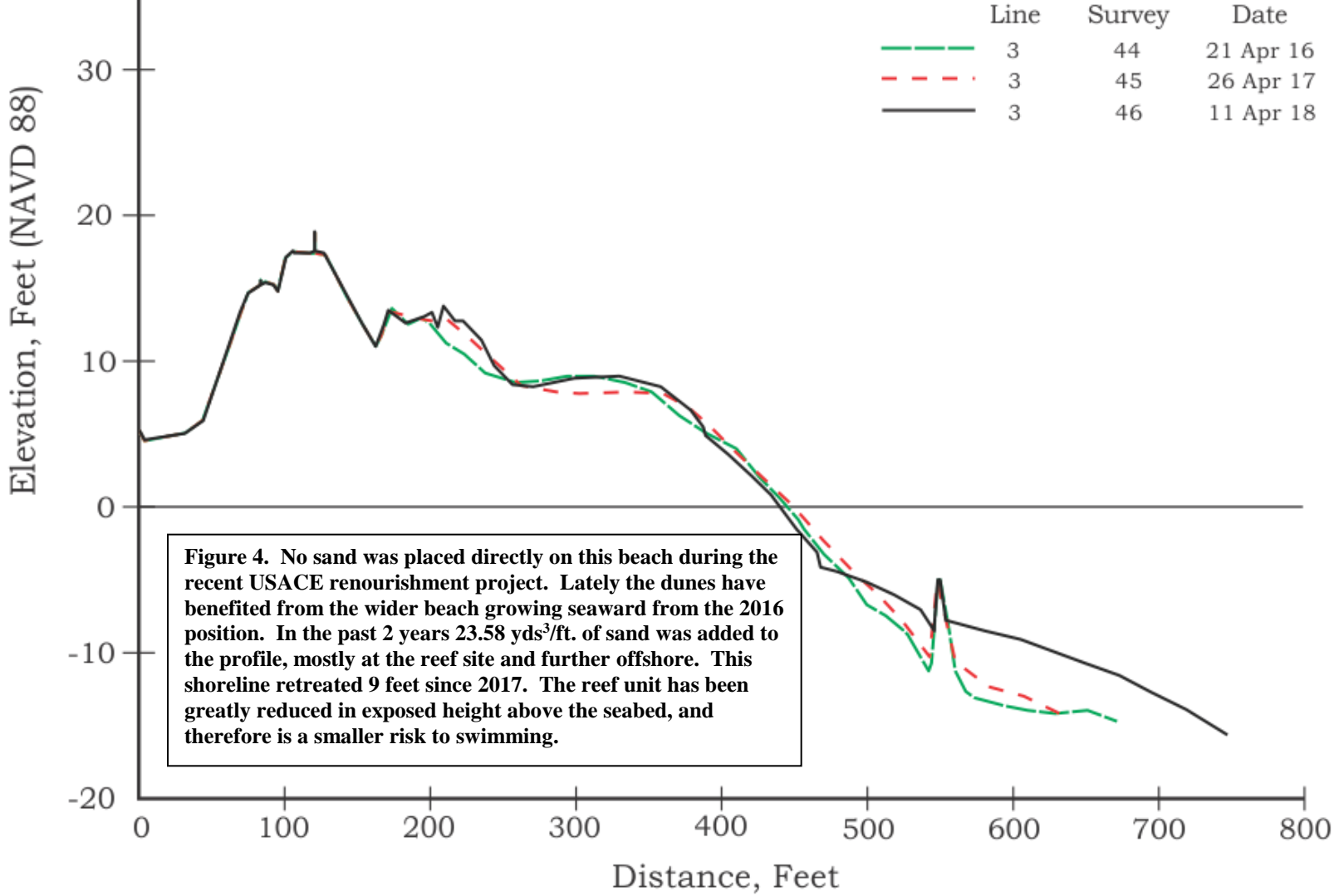
Figure 4. This view from the profile reference position on April 12, 2018 shows the dune vegetation and the beach extent seaward of this location.

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 has been restricted for several years as the beach width brings the zero elevation position within 100 feet of the reef structure. Water access could be allowed here in mid-beach but water access near the groins where the units are closer to shore should be prohibited. The wave surge turbulence over the reef has been reduced since less of it is exposed above the sand.

Cape May Point - Annual Comparisons

CMP - Line 3 - Coral Avenue



Coral Avenue to Lake Drive



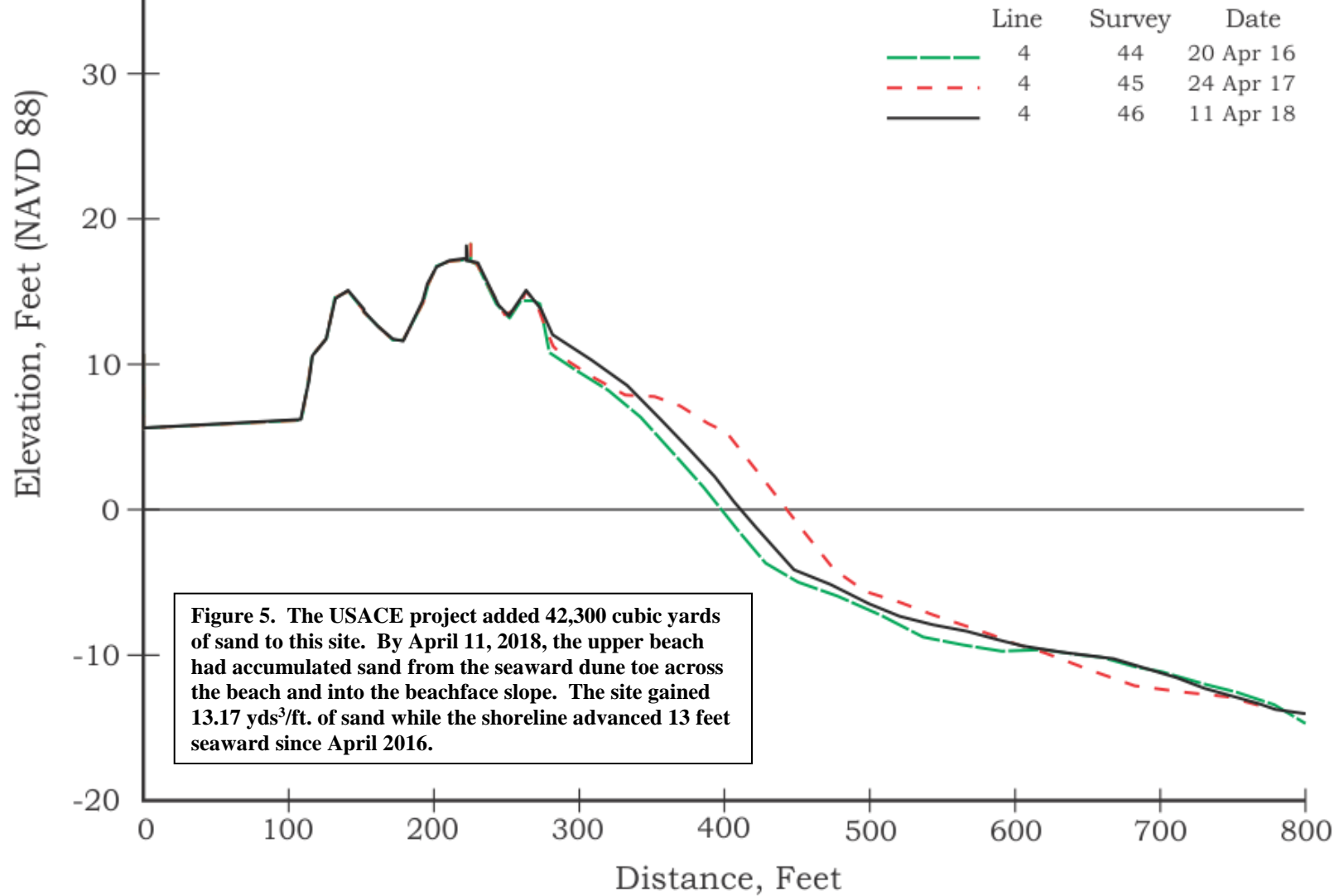
Figure 5. A similar view on April 12, 2018 shows the entire cell between the two groins along with the beach entrance path and the foredune vegetation.

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. Over the 2012/2013 winter, the USACE reported sand placement of 37,000 cubic yards in the Lake Drive beach cell (Dwight Pakam, USACE). This site also received modest sand placement in 2016 (42,300 cubic yards, Dwight Pakam, personal communication).

The 2016 placement volume was spread into the dunes and offshore over the following year. The net change was a small gain of 13.17 yds³/ft. as the sand adjusted to the wave conditions. The beach is not as wide as it was in 2017, but wider than it was in 2016. The 2017 to 2018 change saw a 32-foot shoreline retreat combined with the loss of 10.52 yds³/ft. in sand volume.

Cape May Point - Annual Comparisons

CMP - Line 4 - Lake Avenue



Surf to Cape Avenues



Figure 6. The view above was taken April 12, 2018 and includes the survey instrument, the dune vegetation, the beach extent and the two cell-defining groins.

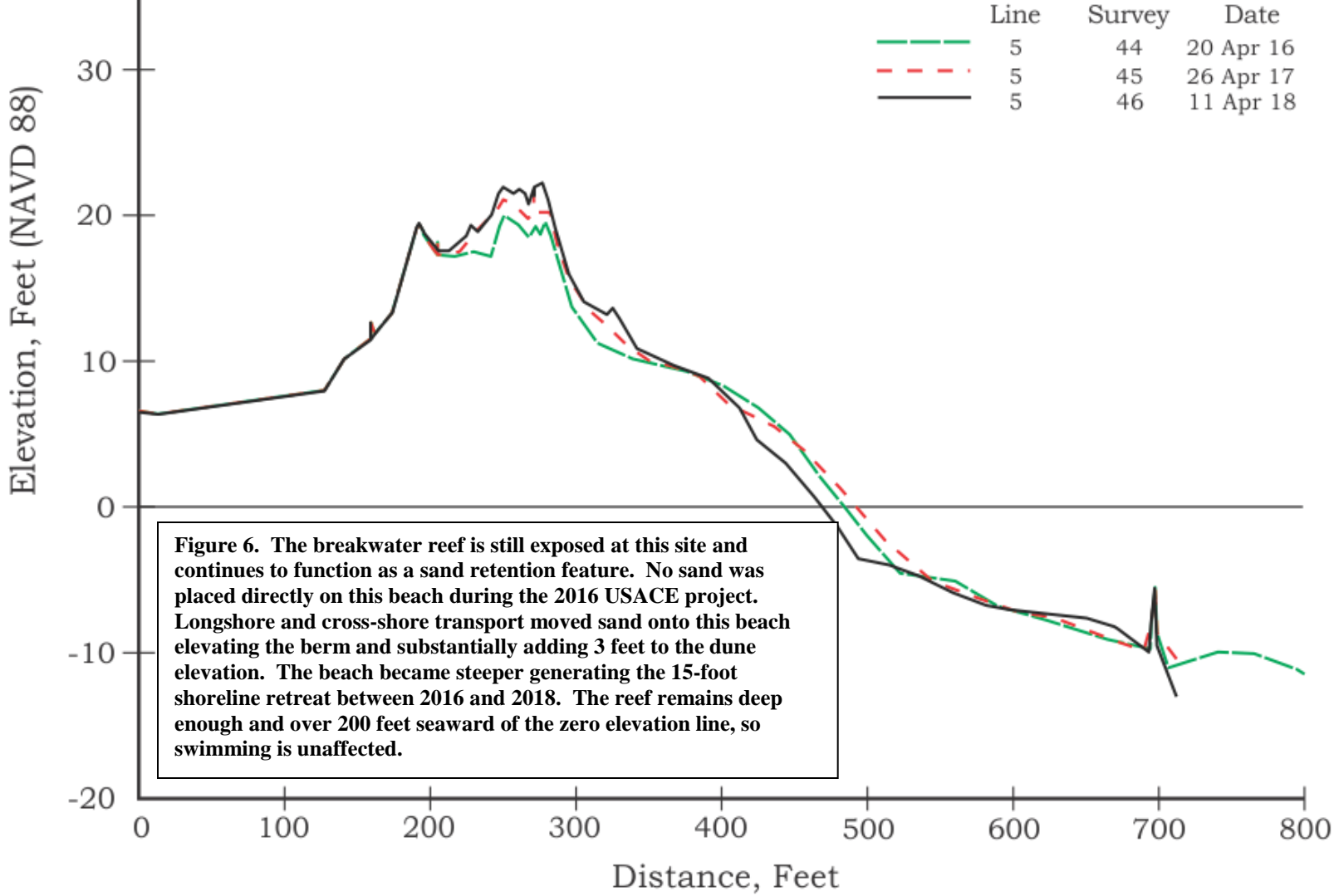
CMP-5 (Cell 5) contains the nearshore “beachsaver” units installed in 2002 during the USACE CMP-227 experimental project. The breakwater units are still present, located just over 200-feet seaward of the zero elevation shoreline position. These units are furthest from the shoreline and lowest in elevation in the cell’s mid-section where swimming is allowed. That prevents individuals from encountering the units. In this cell the units pose little threat to recreational swimming but swimming along the rock groins should be restricted where the units are closer to shore due to sand accumulation at the rocks.

Sand did accumulate on the landward side of the beachsaver array, but offshore a very steep decline occurred making the seabed considerably deeper compared to the 2016 survey.

No sand was placed west of Lake Drive during the 2012-2013 USACE renourishment project or during the recent 2016 effort, but natural processes have moved sand from east to west along the Borough’s shoreline over time. The wider beaches have provided a source of sand for the wind to move sand onto the seaward slope and crest of the dune. This process added 3.15 yds³/ft. in sand volume combined with a 15-foot shoreline retreat landward. The majority of the shoreline retreat occurred in 2017 at 24 feet of landward shoreline movement cancelled most of the 2016 to 2017 advance. The sand volume in the past year declined by 4.70 yds³/ft.

Cape May Point - Annual Comparisons

CMP - Line 5 - Cape Avenue



Cape to Pearl Avenues



Figure 7. This view was taken April 12, 2018 at the dune crest looking south across the beach. The beach access pathway from Pearl Avenue traverses the trees before climbing up the landward dune slope. This past winter the summit accumulated almost 10 feet vertically making the ascent the most challenging in Cape May Point.

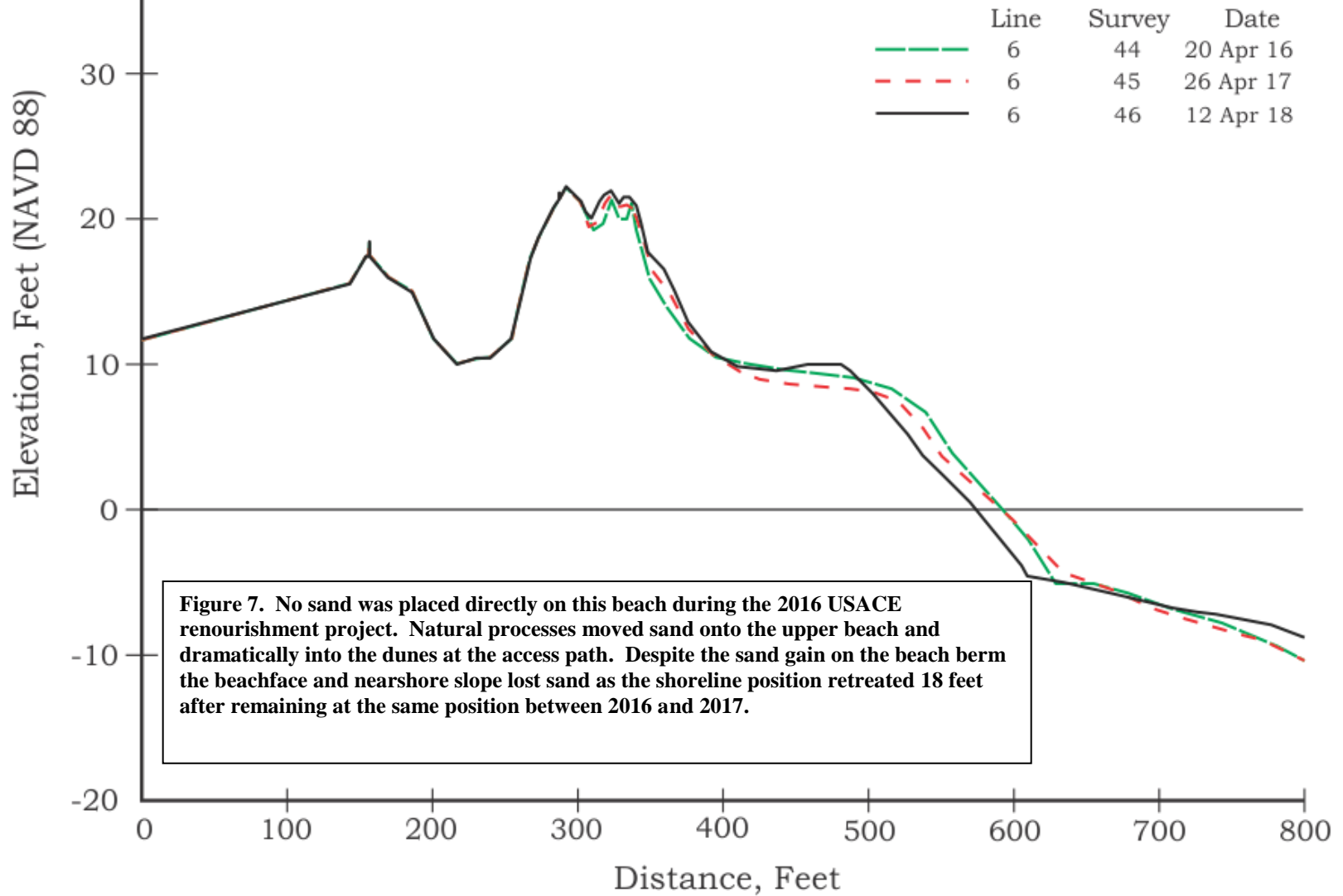
CMP-6 (Cell 6) is bounded by the rock groins at Cape Avenue and Pearl Avenue. The nearshore bay floor contains the “Double Tee” structures that were installed as part of the USACE CMP-227 experimental project. These units were quickly buried and have remained buried by sand in the past nine annual surveys. Consequently, they have limited ability to influence additional sand retention.

Sand shed from the initial up drift federal project beaches moves into this site seasonally by predominant longshore drift. The barrier units are located on the seafloor 11 feet below the 0.0 ft. NAVD88 datum and buried by 4 feet of sand nearly 100 feet offshore. The units however might be accessible adjacent to the rock groins, and any recreational activity in the water close to the rock groins is already prohibited.

No sand was placed this far west during the USACE nourishment project, so beach building has been a result of natural processes. By April 2018, sand added to the dunes and offshore, but the beachface retreated 18 feet. Over the past two years the sand volume did increase a small amount (2.34 yds³/ft.). The past year saw an 18-foot shoreline retreat combined with a 1.33 yds³/ft. sand volume gain, therefore the changes appear to be consistent and relatively small in sand quantity added or lost.

Cape May Point - Annual Comparisons

CMP - Line 6 - Pearl Avenue



Pearl to Stites Avenues



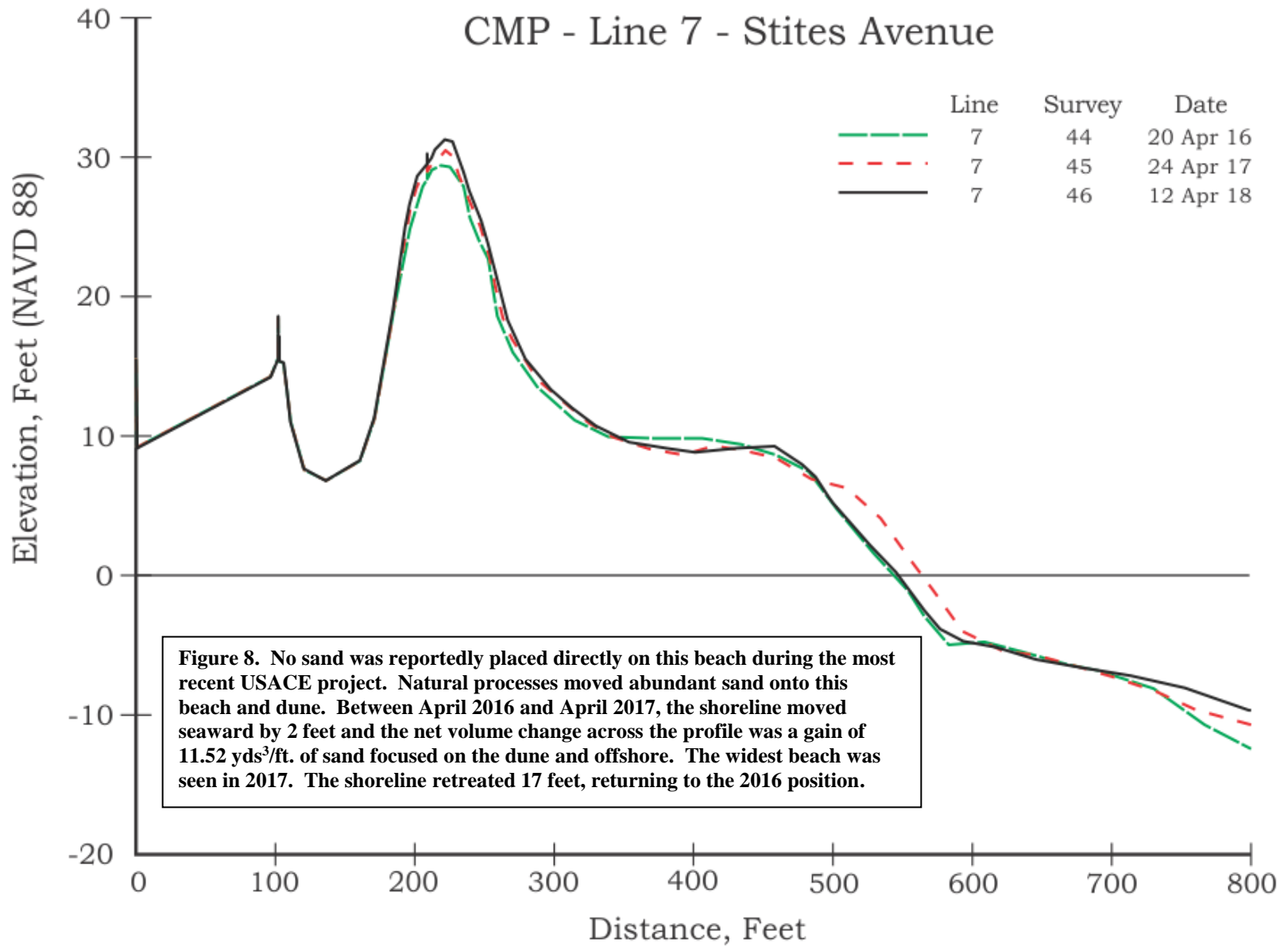
Figure 8. The April 12, 2018 view at CMP-7 shows the scale of the dunes defending this cell's beach.

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 any sand directly from the past USACE beach restoration or maintenance projects. Natural processes dominated by longshore drift continue to transfer sand from east to west along the Borough's shoreline. With no structures present at this location the wide dry beach should provide beach patrons with abundant recreational area and good nearshore swimming conditions for the summer season.

Between April 2016 and April 2018 the sand volume increased by 11.52 yds³/ft. while the shoreline advanced just 2 feet. During the past year, the sand volume declined by just 0.06 yds³/ft. with a 17-foot shoreline retreat. Aeolian transport moved sand to the seaward dune slope and up to the crest. Stites Avenue is the first Cape May Point dune to grow higher than 30 feet in elevation. The wind transport effect has been evident on the Stites Avenue beach access pathway where sand deposition has repeatedly buried the pathway and seating area at the dune crest. This year public works has modified the pathway with a retaining wall on the west side to capture sand and removed the stairway to the beach because the dune has ramped up to the walkover elevation. The pathway is a slope down to the beach extending straight out from the crest area seating space.

Cape May Point - Annual Comparisons

CMP - Line 7 - Stites Avenue



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.

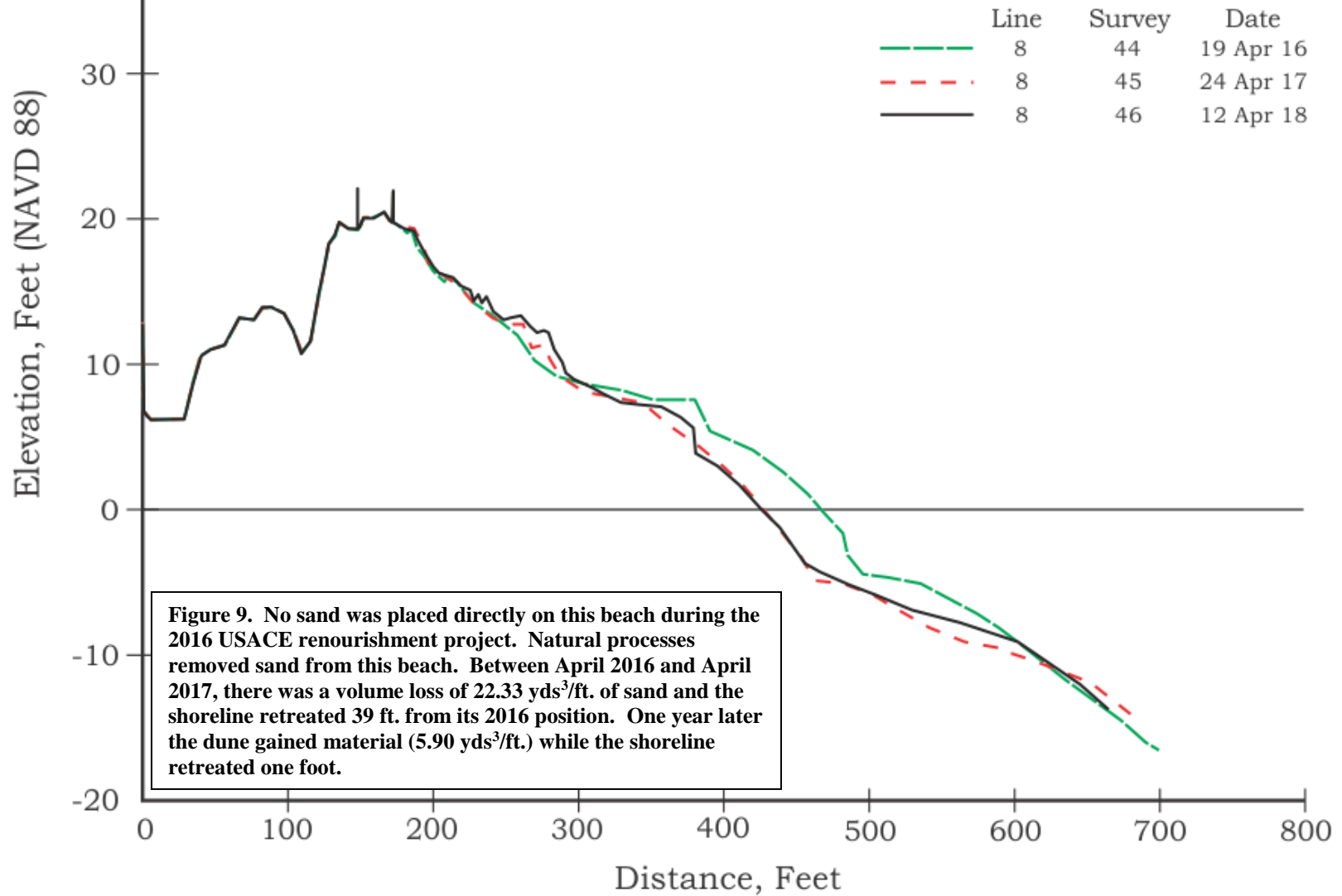
The Alexander Avenue location, CMP-8 is the western most beach cell in the Borough. Sand placement was never included for this location during the USACE projects. Natural processes have moved sand from the project beaches to this location. The beach extends seaward nearly to the tip of the western groin. 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.

Cape May Point - Annual Comparisons

CMP - Line 8 - Alexander Avenue



Summary:

The USACE projects starting in Cape May City in 1989 have significantly increased the available sand budget from Cape May City through Cape May Point. The USACE has completed 11 Cape May City nourishment cycles including the post-Sandy effort completed January 2014. In January 2013, the USACE completed its second nourishment cycle of the Lower Cape May Meadows – Cape May Point project with placement of 345,000 cubic yards of sand. In 2016, an additional 951,893 cubic yards were placed along the entire region's shoreline. All of this sand has resulted in an influx of sand for all the Cape May Point beaches even those western beaches not directly filled. Approximately 108,697 cubic yards (cy) of sand were placed directly on the Borough's beaches during the 2013 project limited to CMP 0, CMP 1 (71,697 cy) and CMP 4 (37,000 cy) cells. Sand has accumulated in the western cells and especially along the eastern shoreline. In 2016, 110,484 cubic yards were added to Cape May Point beaches at Lighthouse, Lehigh and Lake Avenues (CMP 0, 1 and 4). Sand is also derived from sand shed from the USACE project beaches and transferred longshore from the State Park natural area into Cape May Point, where the westerly curve of the shoreline into Delaware Bay allowed deposition on the beach. This process has continued through April 2018. Most change occurred as sand added to the eastern cells. Minimal loss was seen in the mid-section of the Borough coastline, but dune enhancement was extraordinary along the western three cells.

The net sand volume change for 2018 was a small gain of 2,155 cubic yards of sand. At most sites aeolian processes have moved sand from the wider beaches to the seaward dune toe and slope. Each site also showed an accumulation of sand on the recreational beach berm adding from a thin layer of sand up to two-feet thick of additional elevation.

Observations & Recommendations

There has been minimal changes seen in the beach slope, offshore depths, and proximity of the beach to the offshore submerged breakwater units installed at three locations. CMP-2 remains at just over 100 feet from the zero elevation line to the breakwater crest, while CMP-3 is steeper and closer by 20 feet or so. The newer units at Cell CMP-5 at Cape Avenue are relatively distant at 200 feet and much safer for swimming. The Double Tee units at CMP-6 are buried where swimmers might be allowed and not an issue for swimming safety. Recent deposition has reduce the exposed portion of the older reef structures in the Whilden and Coral Avenue cells, so a lower volume of wave surge will come across the reef this summer. Lower surge means weaker currents in proximity to the reef units, making for safer swimming.

1. Cells 0 and 1 do not have structures; the beaches at Lighthouse and Lehigh Avenue gained substantial new sand and remain stable to accretive. Both beaches have steep slopes into deep water with strong tidal currents into and out of Delaware Bay.
2. Cell 2 at Whilden Avenues, the shoreline position (zero datum) is approximately 110 feet distance from the breakwater structure. Depth of the scour trough landward of the units has decreased to -10.5 feet NAVD88 with about half the reef structure now exposed above the sea floor around the units. The swimming area remains limited, especially closer to the groins but should be manageable mid-beach this year. The CRC again recommends installing a line of floats indicating the maximum distance for swimming that should be about 30 feet from the breakwater reef. This is due to wave surge turbulence during larger wave size events.
3. Cell 3 at Coral Avenue, the shoreline position remained constant; the breakwater units in April 2018 were approximately 100 feet from the shoreline position (zero datum). The beachface slope remains fairly steep with a diminished depth at the scour trough landward of the units (-10 feet

NAVD88). The reduction in exposed reef structure above the sand surface reduces the wave turbulence over the reef and makes for safer swimming.

4. Cell 4 has no structures offshore and a relatively flatter nearshore slope. This site remains overall a good option for a swimming beach in Cape May Point this season and the recreational berm is about the same this year. The relatively shallow slope platform in the water between groins make wading and swimmer relatively safer for beach patrons.
5. Cells 5 and 6 contain the newer units but pose minimal risk for swimming in 2018. Both reef structures lie in greater than -8 feet of water approximately 200 hundred feet from the shoreline at low tide. The “Double Tee” structure in Cell 6 is buried with additional sand. Swimming near the groins should always be avoided since the units are slightly closer to the beach adjacent to the rocks.
6. Cells 7 at Stites Avenue benefited from a stable berm area enhancing the recreational value of the beach, this paired with the shallow offshore platform will offer a relatively safe option for swimming.
7. Cell 8 at Alexander Avenue has remained at last year’s width, but the available recreational area has been substantially improved at this beach since 2005. The sand lost from Alexander Avenue does not accumulate on the Sunset Beach segment, but adds to the sediment layers on the nearshore Delaware Bay floor instead.

The Coastal Research Center (CRC) will continue to monitor the conditions on the Cape May Point beaches at the Borough’s request and assist officials with addressing any coastal zone management issues. Please contact the CRC with any questions or concerns.