Environmental Quality

PAT McCRORY
Governor

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Secretary

TO: The Coastal Resources Commission

FROM: Christine A. Goebel, Assistant General Counsel CAG

DATE: September 1, 2016 (for the August 13-14, 2016 CRC Meeting)

RE: **Variance Request by the Town of North Topsail Beach (CRC-VR-16-09)**

Petitioner is the Town of North Topsail Beach ("Town"). The Town holds oceanfront easements for the area north of Topsail Reef Condos toward the New River Inlet in connection with their Inlet Management Plan. Following the Phase 1 channel realignment and nourishment project which was completed in early 2013, the Town began to research various options to protect the 20 structures in this area from erosion in 2014. The Town sought, and was granted a variance from the Commission in November of 2014 to install a sandbag structure up to 45' wide and +12 ft. NAVD but constructed the structure somewhat smaller than the maximum size authorized. As part of the resulting permit, the Town asked for, and was granted authorization to install a geotextile tube the length of the sandbag project as a construction method only. Following completion of the 2014-15 project, the Town indicated that it wanted to keep the tube in place, and after a March 2015 Notice of Violation, the Town petitioned for and was granted a variance in July of 2015 in order to keep the geotube until the planned shallow draft project planned for 2015-16. In April 2016, DCM issued another NOV after the Town failed to timely remove the geotube. As part of the NOV restoration plan, DCM agreed to first let the Town seek another variance from the Commission seeking to keep the tube longer before taking additional enforcement action. The Town submitted a permit modification request to keep the geotube, which was denied by DCM through a letter dated July 26, 2016. On August 3, 2016, DCM received Petitioner's variance application seeking to keep the geotextile tube at least until the sandbag permit expires in November of 2022.

The following additional information is attached to this memorandum:

Attachment A:	Relevant Rules
Attachment B:	Stipulated Facts
Attachment C:	Petitioner's Positions and Staff's Responses to Variance Criteria
Attachment D:	Petitioner's Variance Request Materials
Attachment E:	2014 Variance Stipulated Exhibits
Attachment F:	Easements
Attachment G:	2015 Variance Stipulated Exhibits
Attachment H:	2015 Variance Powerpoint
Attachment I:	2016 Variance Stipulated Exhibits
cc(w/enc.):	Brian Edes, Town Attorney, electronically
	Mary Lucasse, Special Deputy AG and CRC Counsel, electronically

RELEVANT STATUTES OR RULES **APPENDIX A**

15A NCAC 07H .0301 OCEAN HAZARD CATEGORIES

The next broad grouping is composed of those AECs that are considered natural hazard areas along the Atlantic Ocean shoreline where, because of their special vulnerability to erosion or other adverse effects of sand, wind, and water, uncontrolled or incompatible development could unreasonably endanger life or property. Ocean hazard areas include beaches, frontal dunes, inlet lands, and other areas in which geologic, vegetative and soil conditions indicate a substantial possibility of excessive erosion or flood damage.

15A NCAC 07H .0302 SIGNIFICANCE OF THE OCEAN HAZARD CATEGORY

(a) The primary causes of the hazards peculiar to the Atlantic shoreline are the constant forces exerted by waves, winds, and currents upon the unstable sands that form the shore. During storms, these forces are intensified and can cause significant changes in the bordering landforms and to structures located on them. Ocean hazard area property is in the ownership of a large number of private individuals as well as several public agencies and is used by a vast number of visitors to the coast. Ocean hazard areas are critical, therefore, because of both the severity of the hazards and the intensity of interest in the areas.
(b) The location and form of the various hazard area landforms, in particular the beaches, dunes, and inlets, are in a permanent state of flux, responding to meteorologically induced changes in the wave climate. For this reason, the appropriate location of structures on and near these landforms must be reviewed carefully in order to avoid their loss or damage. As a whole, the same flexible nature of these landforms which presents hazards to development situated immediately on them offers protection to the land, water, and structures located landward of them. The value of each landform lies in the particular role it plays in affording protection to life and property. (The role of each landform is described in detail in Technical Appendix 2 in terms of the physical processes most important to each.) Overall, however, the energy dissipation and sand storage capacities of the landforms are most essential for the maintenance of the landforms' protective function.

15A NCAC 07H .0303 MANAGEMENT OBJECTIVE OF OCEAN HAZARD AREAS

(a) The CRC recognizes that absolute safety from the destructive forces indigenous to the Atlantic shoreline is an impossibility for development located adjacent to the coast. The loss of life and property to these forces, however, can be greatly reduced by the proper location and design of structures and by care taken in prevention of damage to natural protective features particularly primary and frontal dunes. Therefore, it is the CRC's objective to provide management policies and standards for ocean hazard areas that serve to eliminate unreasonable danger to life and property and achieve a balance between the financial, safety, and social factors that are involved in hazard area development.
(b) The purpose of these Rules shall be to further the goals set out in G.S. 113A-102(b), with particular attention to minimizing losses to life and property resulting from storms and long-term erosion, preventing encroachment of permanent structures on public beach areas, preserving the natural ecological conditions of the barrier dune and beach systems, and reducing the public costs of inappropriately sited development. Furthermore, it is the objective of the Coastal Resources

Commission to protect present common-law and statutory public rights of access to and use of the lands and waters of the coastal area.

15A NCAC 07H .0308 SPECIFIC USE STANDARDS FOR OCEAN HAZARD AREAS

(a) Ocean Shoreline Erosion Control Activities:

(1) Use Standards Applicable to all Erosion Control Activities:
(A) All oceanfront erosion response activities shall be consistent with the general policy statements in 15A NCAC 07M .0200.
(B) Permanent erosion control structures may cause significant adverse impacts on the value and enjoyment of adjacent properties or public access to and use of the ocean beach, and, therefore, are prohibited. Such structures include bulkheads, seawalls, revetments, jetties, groins and breakwaters.
(C) Rules concerning the use of oceanfront erosion response measures apply to all oceanfront properties without regard to the size of the structure on the property or the date of its construction.
(D) All permitted oceanfront erosion response projects, other than beach bulldozing and temporary placement of sandbag structures, shall demonstrate sound engineering for their planned purpose.
(E) Shoreline erosion response projects shall not be constructed in beach or estuarine areas that sustain substantial habitat for fish and wildlife species, as identified by natural resource agencies during project review, unless mitigation measures are incorporated into project design, as set forth in Rule .0306(i) of this Section.
(F) Project construction shall be timed to minimize adverse effects on biological activity.
(G) Prior to completing any erosion response project, all exposed remnants of or debris from failed erosion control structures must be removed by the permittee.
(the remainder of (a)(1) is omitted in this staff recommendation)

(2) Temporary Erosion Control Structures:
(A) Permittable temporary erosion control structures shall be limited to sandbags placed landward of mean high water and parallel to the shore.
(B) Temporary erosion control structures as defined in Part (2)(A) of this Subparagraph shall be used to protect only imminently threatened roads and associated right of ways, and buildings and their associated septic systems. A structure shall be considered imminently threatened if its foundation, septic system, or right-of-way in the case of roads, is less than 20 feet away from the erosion scarp. Buildings and roads located more than 20 feet from the erosion scarp or in areas where there is no obvious erosion scarp may also be found to be imminently threatened when site conditions, such as a flat beach profile or accelerated erosion, increase the risk of imminent damage to the structure.
(C) Temporary erosion control structures shall be used to protect only the principal structure and its associated septic system, but not appurtenances such as pools, gazebos, decks or any amenity that is allowed as an exception to the erosion setback requirement.
(D) Temporary erosion control structures may be placed seaward of a septic system when there is no alternative to relocate it on the same or adjoining lot so that it is landward of or in line with the structure being protected.
(E) Temporary erosion control structures shall not extend more than 20 feet past the sides of the

structure to be protected. The landward side of such temporary erosion control structures shall not be located more than 20 feet seaward of the structure to be protected or the right-of-way in the case of roads. If a building or road is found to be imminently threatened and at an increased risk of imminent damage due to site conditions such as a flat beach profile or accelerated erosion, temporary erosion control structures may be located more than 20 feet seaward of the structure being protected. In cases of increased risk of imminent damage, the location of the temporary erosion control structures shall be determined by the Director of the Division of Coastal Management or their designee.

(F) Temporary erosion control structures may remain in place for up to two years after the date of approval if they are protecting a building with a total floor area of 5000 sq. ft. or less and its associated septic system, or, for up to five years for a building with a total floor area of more than 5000 sq. ft. and its associated septic system. Temporary erosion control structures may remain in place for up to five years if they are protecting a bridge or a road. The property owner shall be responsible for removal of the temporary structure within 30 days of the end of the allowable time period.

(G) Temporary sandbag erosion control structures may remain in place for up to five years from the date of approval if they are located in a community that is actively pursuing a beach nourishment project, and for up to eight years from the date of approval if they are located in an Inlet Hazard Area adjacent to an inlet for which a community is actively pursuing an inlet relocation project. For purposes of this Rule, a community is considered to be actively pursuing a beach nourishment or inlet relocation project if it has:

(i) an active CAMA permit, where necessary, approving such project; or

(ii) been identified by a U.S. Army Corps of Engineers' Beach Nourishment Reconnaissance Study, General Reevaluation Report, Coastal Storm Damage Reduction Study or an ongoing feasibility study by the U.S. Army Corps of Engineers and a commitment of local or federal money, when necessary; or

(iii) received a favorable economic evaluation report on a federal project or,

(iv) is in the planning stages of a project that has been designed by the U.S. Army Corps of Engineers or persons meeting applicable State occupational licensing requirements and has been initiated by a local government or community with a commitment of local or state funds to construct the project and the identification of the financial resources or funding bases necessary to fund the beach nourishment or inlet relocation project.

If beach nourishment or inlet relocation is rejected by the sponsoring agency or community, or ceases to be actively planned for a section of shoreline, the time extension is void for that section of beach or community and existing sandbags are subject to all applicable time limits set forth in Part (F) of this Subparagraph.

(H) Once the temporary erosion control structure is determined to be unnecessary due to relocation or removal of the threatened structure, a storm protection project constructed by the U.S. Army Corps of Engineers, a large-scale beach nourishment project or an inlet relocation project, it shall be removed by the property owner within 30 days of official notification from the Division of Coastal Management regardless of the time limit placed on the temporary erosion control structure.

(I) Removal of temporary erosion control structures shall not be required if they are covered by dunes with stable and natural vegetation.

(J) The property owner shall be responsible for the removal of remnants of all portions of any

damaged temporary erosion control structure.

(K) Sandbags used to construct temporary erosion control structures shall be tan in color and three to five feet wide and seven to 15 feet long when measured flat. Base width of the structure shall not exceed 20 feet, and the height shall not exceed six feet.

(L) Soldier pilings and other types of devices to anchor sandbags shall not be allowed.

(M) An imminently threatened structure may be protected only once, regardless of ownership unless the threatened structure is located in an Inlet Hazard Area and in a community that is actively pursuing an inlet relocation project in accordance with (G) of this Subparagraph. Existing temporary erosion control structures located in Inlet Hazard Areas may be eligible for an additional eight year permit extension provided that the structure being protected is still imminently threatened, the temporary erosion control structure is in compliance with requirements of this Subchapter and the community in which it is located is actively pursuing an inlet relocation project in accordance with Part (G) of this Subparagraph. In the case of a building, a temporary erosion control structure may be extended, or new segments constructed, if additional areas of the building become imminently threatened. Where temporary structures are installed or extended incrementally, the time period for removal under Part (F) or (G) of this Subparagraph shall begin at the time the initial erosion control
structure is installed. For the purpose of this Rule:

(i) a building and septic system shall be considered as separate structures.

(ii) a road or highway shall be allowed to be incrementally protected as sections become imminently threatened. The time period for removal of each section of sandbags shall begin at the time that section is installed in accordance with Part (F) or (G) of this Subparagraph.

(N) Existing sandbag structures may be repaired or replaced within their originally permitted dimensions during the time period allowed under Part (F) or (G) of this Subparagraph.

15A NCAC 07M .0201 DECLARATION OF GENERAL POLICY

It is hereby declared that the general welfare and public interest require that development along the ocean and estuarine shorelines be conducted in a manner that avoids loss of life, property and amenities. It is also declared that protection of the recreational use of the shorelines of the state is in the public interest. In order to accomplish these public purposes, the planning of future land uses, reasonable rules and public expenditures should be created or accomplished in a coordinated manner so as to minimize the likelihood of damage to private and public resources resulting from recognized coastal hazards.

15A NCAC 07M .0202 POLICY STATEMENTS

(a) Pursuant to Section 5, Article 14 of the North Carolina Constitution, proposals for shoreline erosion response projects shall avoid losses to North Carolina's natural heritage. All means should be taken to identify and develop response measures that will not adversely affect estuarine and marine productivity. The public right to use and enjoy the ocean beaches must be protected. The protected uses include traditional recreational uses (such as walking, swimming, surf-fishing, and sunbathing) as well as commercial fishing and emergency access for beach rescue services. Private property rights to oceanfront properties including the right to protect that property in ways that are consistent with public rights should be protected.

(b) Erosion response measures designed to minimize the loss of private and public resources to erosion should be economically, socially, and environmentally justified. Preferred response measures for shoreline erosion shall include but not be limited to AEC rules, land use planning and land classification, establishment of building setback lines, building relocation, subdivision regulations and management of vegetation.

(c) The replenishment of sand on ocean beaches can provide storm protection and a viable alternative to allowing the ocean shoreline to migrate landward threatening to degrade public beaches and cause the loss of public facilities and private property. Experience in North Carolina and other states has shown that beach restoration projects can present a feasible alternative to the loss or massive relocation of oceanfront development. In light of this experience, beach restoration and sand renourishment and disposal projects may be allowed when:

(1) Erosion threatens to degrade public beaches and to damage public and private properties;

(2) Beach restoration, renourishment or sand disposal projects are determined to be socially and economically feasible and cause no significant adverse environmental impacts;

(3) The project is determined to be consistent with state policies for shoreline erosion response and state use standards for Ocean hazard and Public Trust Waters Areas of Environmental Concern and the relevant rules and guidelines of state and federal review agencies.

When the conditions set forth in this Paragraph can be met, the Coastal Resources Commission supports, within overall budgetary constraints, state financial participation in Beach Erosion Control and Hurricane Wave Protection projects that are cost-shared with the federal government and affected local governments pursuant to the federal Water Resources Development Act of 1986 and the North Carolina Water Resources Development Program (G.S. 143-215.70-73).

(d) The following are required with state involvement (funding or sponsorship) in beach restoration and sand renourishment projects:

(1) The entire restored portion of the beach shall be in permanent public ownership;

(2) It shall be a local government responsibility to provide adequate parking, public access, and services for public recreational use of the restored beach.

(e) Temporary measures to counteract erosion, such as the use of sandbags and beach pushing, should be allowed, but only to the extent necessary to protect property for a short period of time until threatened structures may be relocated or until the effects of a short-term erosion event are reversed. In all cases, temporary stabilization measures must be compatible with public use and enjoyment of the beach.

(f) Efforts to permanently stabilize the location of the ocean shoreline with seawalls, groins, shoreline hardening, sand trapping or similar protection devices shall not be allowed except when the project meets one of the specific exceptions set out in 15A NCAC 7H .0308.

(g) The State of North Carolina will consider innovative institutional programs and scientific research that will provide for effective management of coastal shorelines. The development of innovative measures that will lessen or slow the effects of erosion while minimizing the adverse impacts on the public beach and on nearby properties is encouraged.

(h) The planning, development, and implementation of erosion control projects will be coordinated with appropriate planning agencies, affected governments and the interested public. Maximum efforts will be made by the state to accommodate the interest of each interested party consistent with the project's objectives. Local, state, and federal government activity in the coastal area should reflect an awareness of the natural dynamics of the ocean front. Government policies should not only address existing erosion problems but should aim toward minimizing future erosion problems. Actions required to deal with erosion problems are very expensive. In addition to the direct costs

of erosion abatement measures, many other costs, such as maintenance of projects, disaster relief, and infrastructure repair will be borne by the public sector. Responses to the erosion should be designed to limit these public costs.

(i) The state will promote education of the public on the dynamic nature of the coastal zone and on effective measure to cope with our ever changing shorelines.

STIPULATED FACTS **ATTACHMENT B**

1. The Petitioner in this case is the Town of North Topsail Beach ("Petitioner" or "Town"). The Town is represented by Town Attorney Brian Edes. DCM Staff are represented by Asst. General Counsel Christine Goebel.

2. The site at issue in this case is located at the north end of North Topsail Beach, and includes the beach waterward of the first line of stable natural vegetation from just north of the Topsail Reef condominiums toward New River Inlet to the northernmost house on New River Inlet Road, which includes 39 parcels of land with 20 duplexes structures/40 residences (the "Site"). At the time these 20 structures were constructed, they were "second row" homes. The Site is depicted in the Project Narrative section of the stipulated exhibits, and in other exhibits, attached. The Town holds easements, which are attached as stipulated exhibits, on these oceanfront parcels in order to use the property for the purposes of implementing beach nourishment projects.

3. The Site is located within the Ocean Erodible and Inlet Hazard Areas of Environmental Concern (AECs).

4. The long-term average annual erosion rate at the Site is 2-feet per year. The Site is entirely within the Inlet Hazard AEC which uses the rate for the adjacent ocean hazard area per 15A NCAC 7H .0310(a)(1). Staff agrees that this Site experienced accelerated erosion in the 12-15 months prior to the November 2014 variance hearing.

5. According to the Town's Project Engineer, Tom Jarrett, P.E. of Coastal Planning & Engineering (CP&E), one of the unique features of the area is the influence of the New River Inlet, or more specifically, the ebb tide delta of the inlet, on sediment transport along the shoreline. This is demonstrated by the photo shown in Exhibit 15 (an attached exhibit) in which incoming waves from the southeast are refracted around the ebb tide delta resulting in a change in sediment transport direction (as indicated by the arrows) just south of New River Inlet. The area in which the direction of sediment transport changes as a result of wave refraction is commonly referred to as a nodal zone. In general, the nodal zone is characterized by the net movement of material away from or out of the zone. While a nodal zone will generally always exist adjacent to a tidal inlet, the influence of the nodal zone on the shoreline of North Topsail Beach is enhanced due to the absence of significant shoal accumulations on the south side of the inlet. The absence of shoal material south of the inlet is one of the issues the channel relocation project was designed to address, i.e., the purpose of moving the channel was to encourage the reconfiguration of the inlet's ebb tide delta through the redistribution of shoal material from the north side of the inlet to the south side. In support of this fact, Mr. Jarrett has provided portions of the Final Environmental Impact Statement for the North Topsail Beach Shoreline Protection Project which was prepared in December of 2009 ("FEIS"), a copy of which is attached as a stipulated exhibit.

History of the Site

6. The north end of the Town has a history of erosion. More detailed information about the history of erosion and past beach nourishment projects can be found in Appendix B of the FEIS which is attached as a stipulated exhibit. A brief summary prepared by Mr. Jarrett regarding past nourishment projects between 2002 and 2011 ("Jarrett Erosion History Report") is also attached as a stipulated exhibit.

7. According to the FEIS, the erosion of the shoreline south of New River Inlet has been a persistent problem since around 1984 when the bar channel of New River Inlet shifted its alignment toward Onslow Beach. Prior to 1984, the north end of North Topsail Beach was accreting at an average rate of 6.1 feet/year. Following the change in channel position and orientation, the north end began to erode at an average rate of 5.3 feet/year. Most of the accelerated erosion was attributed to the higher degree of exposure of the north end to wave energy. That is, prior to the channel shift, the south side of the ebb tide delta provided a breakwater effect with waves breaking relatively far offshore. With the loss of the south side delta, more wave energy was able to be transmitted directly to the shoreline. This, combined with the development of flood channels running close to and parallel to the north end, greatly increased sediment transport rates to the north.

8. Since 1993, and despite the use of sandbag structures in some places, 11 residential structures, all of which were located seaward of the existing 20 structures at the Site, were either removed or lost to erosion.

The Town's Inlet Management Plan/FEIS

9. Beginning in 2006, the Town hired CP&E to develop an Inlet Management Plan for the New River Inlet ("Inlet Management Plan"). This Inlet Management Plan was completed in December 2009 and memorialized in the FEIS publication. The entire Inlet Management Plan is covered by the Department of the Army permit SAW 2005-00344 dated May 16, 2001. CAMA Major Permit #79-10 was issued on July 21, 2010 authorizing Phase I of the Inlet Management Plan. A modification on October 12, 2012 authorized a change to the beach fill density, the amount of material to be removed from the ocean bar channel, and removed a previously permitted upland disposal site. This CAMA permit was further modified more recently on September 26, 2013 authorizing Phase 5 of the Inlet Management Plan to be developed during the 2014-15 dredging window, an increase in beach fill densities, and allowed Phase 5 to take place before Phases 2-4 if necessary. Copies of this permit and its modifications are attached as stipulated exhibits.

10. Phase 1 of the Inlet Management Plan was completed in February 2013. It included the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The material removed during the repositioning of the channel was used as beach fill along 7,730 feet of shoreline south of New River Inlet, as seen in the attached stipulated exhibits.

11. The Town's stated purpose for moving the ocean bar channel of New River Inlet, as stated in the FEIS, was for the purpose of inducing sand accumulation on the south side of the inlet's ebb tide delta. Based on the documented historic behavior of the inlet, the Town believed that moving the channel to a more central position with an alignment approximately perpendicular to the adjacent shorelines would result in accretion of the shoreline south of the inlet. The time required for the new channel to have a positive impact on the shoreline was estimated in the FEIS to be 3-4 years per a letter by Dr. William Cleary, a copy of which is attached.

12. According to Mr. Jarrett, the behavior of the shoreline on the north end of North Topsail Beach is tied to the position and alignment of the main bar channel of New River Inlet. Morphological studies of New River Inlet, reported in the FEIS, describe the relationship between the position and alignment of the channel and the response of the shorelines on both sides of the inlet. The FEIS also identified a position and alignment of the bar channel that would provide a beneficial impact on the north end shoreline. Based on the FEIS, the Town of North Topsail Beach elected to artificially move the channel to the preferred position and alignment indicated by the morphological studies.

13. The construction of Phase 1 moved the mean high water (MHW) shoreline an average of 272 feet seaward of the pre-project MHW shoreline in the area between Building #1 of Topsail Reef and the south shoulder of New River Inlet (baseline stations 1149+00 to 1160+00). Based on an August 2014 beach profile survey by Gahagan & Bryant, the MHW shoreline north of Topsail Reef had receded between 200 and 250 feet since completion of Phase 1, which is equivalent to rates of between 130 ft/yr. and 167 ft/yr. Visual inspections of the beach show it has continued to erode since the August 2014 survey and the MHW shoreline has returned to essentially its pre-project position. According to Mr. Jarrett, while the rate of loss of the fill placed during Phase 1 of the management plan has been higher than anticipated, the loss is comparable to losses experienced from previous fills created by the USACE through disposal of navigation maintenance material removed during maintenance of the AIWW and portions of the channel passing through Cedar Bush Cut from the AIWW to the inlet.

14. According to Mr. Jarrett in his Jarrett (2014) Erosion History Report, based on the documented history of shoreline changes along the north end of North Topsail Beach, he believes that the recent acceleration in the rate of shoreline change is not related to the channel relocation project. Instead, Mr. Jarrett believes that much of the accelerated erosion can be attributed to the unnatural shoreline configuration created by the beach fill, i.e., the conditions that were causing the north end to erode prior to relocating the channel, such as the absence of a significant shoal on the south side of the inlet and the presence of flood channels, still persist. Mr. Jarrett believes these conditions will continue to exist until such time the newly aligned channel effects the predicted changes in the ebb tide delta of New River Inlet. Until that time, waves will continue to impact the area in such a way as to cause accelerated sediment transport from the north end and into New River Inlet.

15. According to the "Year 2 Post-Construction Physical Monitoring Report" dated October 2014 and prepared by CP&E, a copy of which is attached as a stipulated exhibit ("Monitoring Report"), monitoring of the inlet demonstrated some of the expected results taking place with sand accumulating on the south side of the inlet. However, the rate of build-up, as predicted, was

relatively slow. As a result, the north end of North Topsail Beach has continued to experience high rates of erosion. As of August 2014, most of the fill placed north of the Topsail Reef Condominiums in February of 2013 had been lost, as shown in photographs attached as stipulated exhibits.

16. The FEIS stated the periodic maintenance of the ocean bar channel would be necessary at approximately 4-year intervals in order to keep the channel in its preferred position and alignment. Material removed to maintain the channel is to be used to provide periodic nourishment of the North Topsail Beach shoreline including the shoreline nourished during Phase 1.

17. The Corps permit allows maintenance of the channel to be accomplished once every four years providing one of two channel maintenance thresholds are met. One channel threshold is associated with shoaling of the channel and the second is based on the position and alignment of the channel. Following Phase 1's completion in February 2013, the Town is not permitted to maintain the channel until at least the 2016/2017 environmental dredge window.

18. Based on site photographs, the final remnants of the dune which was created as part of the Phase 1 project and was evident in August 7, 2014 photos attached, has completely eroded as shown in photos attached taken in Late-September 2014.

19. In addition to the threat to homes, flooding of the area has increased with flood waters spilling on to New River Inlet Road and side streets during times of high tide, at least four times in late-2014, as seen in photographs attached as stipulated facts.

Larger Sandbag Revetment CAMA Permit Process

20. Beginning in the early summer of 2014, Town officials and their agents began to contact DCM Staff to inquire about possible options for protecting homes at the Site from erosion that was taking place following Phase 1. DCM issued a modification to permit 191-05 on August 14, 2014 authorizing sand from an upland source to be placed at the Site. This permit was originally issued on December 5, 2005 following Hurricane Ophelia and authorized for dune reconstruction at the Site. The work authorized by the modification of CAMA Major Permit #191-05 has not been undertaken.

21. On or about August 15, 2014, the Town, with help from its CP&E consultants Tom Jarrett and Ken Willson, submitted a CAMA Major Permit Application seeking to install approximately 1,450 linear feet of geotextile tubes (7.5' tall and 45' circumference tubes) at the Site. This permit application was deemed complete (except for the receipt of all of the easement agreements from the Town, which were received later) by DCM on August 27, 2014, and was sent to the resource agencies for comment through the CAMA Major Permit process. Because the geotube proposed was inconsistent with the Commission's rules limiting the size of sandbags allowed as temporary erosion control, DCM Staff planned to deny this permit application on or soon after the public notice period ended on September 19, 2014. The Town was planning to seek a variance from this permit denial.

22. On September 18, 2014, DCM received a "modification" request to the initial geotextile tubes proposal, proposing to also place 35,000 to 50,000 cubic yards of sand in a "sand bench" to raise the elevation of the beach at the Site approximately 6' in elevation, and then place the geotube on top of the "sand bench". DCM determined that the significant changes and increased scope of this "modified" project were going to require a new CAMA permit application from the Town, including new notice of the modified project to the public and adjacent neighbors, and new review by the resource agencies.

23. Following discussions between the Town, its agents, DCM and other resource agencies, the Town submitted its "final design" sandbag proposal on September 26, 2014. This new CAMA Major Permit application was deemed complete by DCM on October 3, 2014, a copy of which is attached as a stipulated exhibit. Also, on October 2, 2014, DCM retired the Town's initial geotube project application, following receipt of this new CAMA Major Permit application for its "final design."

24. The final design proposed installing sandbags at the Site, from the existing larger sandbag revetment at Building #1 of Topsail Reef and extending north approximately 1,450 feet parallel to the existing shoreline. A 50-foot return wall would extend landward from the north end of the sandbag structure just north of the home located at 2378 New River Inlet Road. A plan view of the sand bag revetment and a typical cross-section view of proposed revetment are shown in the stipulated exhibits. The proposed borrow site for the sand needed to fill the proposed sandbags was an area of approximately 5 acres on the point, just north of the Site, also called "the spit."

25. Topsail Reef was authorized by two variances of the Commission (in July 2012 and October 2014) to construct a revetment similar to the larger size being proposed by the Town, just south of the Site.

26. The proposed sandbag revetment would follow an alignment roughly parallel to the seaward-most support piles of the threatened residential structures with the landward toe of the revetment positioned as close as practical to the front support piles of the structures. In this regard, the authorized temporary erosion control structure would be located no more than 45 feet waterward of the waterward most pilings of those buildings controlling the alignment of the temporary erosion control structure from 2304 New River Inlet Rd. to the northern terminus of the temporary erosion control structure, namely those structures at: 2304 New River Inlet Rd., 2314 New River Inlet Rd., 2354 New River Inlet Rd., 2362 New River Inlet Rd., 2368 New River Inlet Rd., and 2378 New River Inlet Rd. No portion of the temporary erosion control structure between 2304 New River Road and the southern terminus of the temporary erosion control structure will be located more than 115 feet waterward of the waterward most piling of each building.

27. As part of the CAMA Major Permit Application process, adjacent neighbors and the public were given notice of the Town's final design CAMA permit application through publication in the Star News on October 8, 2014. DCM staff received only one comment—an objection from the adjacent riparian property owner of Topsail Reef, which was later retracted.

28. Also as part of the CAMA Major Permit application process, the Town's application, Field Report, and other materials were sent to resource agencies for comment. Of those agencies who responded, the DCM Fisheries Specialist raised concerns regarding the proposal due to concerns about surf zone habitat, though DCM did not deem these concerns sufficient to support permit denial. Copies of the field report and the noted comments received by DCM are attached as stipulated exhibits.

29. On October 21, 2014, DCM staff conducted a site visit of the subject area and determined that "site conditions [had] deteriorated and emergency action is warranted". Consequently, at the Town's request, the DENR Secretary authorized the issuance of an Emergency CAMA Major Permit, which allows DCM discretion to suspend public notice, adjacent riparian notice, and the normal agency coordination process. In this case, once the emergency permit authority was activated for this site, DCM coordination with federal agencies was halted.

30. On October 24, 2014, DCM issued CAMA Emergency Major Permit 92-14 to the Town, authorizing its final design, but conditioning this approval on compliance with the Commission's rules limiting the size of sandbag structures to a base width of 20' and a height of 6'.

31. The Town stipulated that its "final" design proposal was inconsistent with the Commission's rules limiting the size of sandbag structures.

32. On November 7, 2014, DCM received the Town's 2014 variance petition. The Town also requested an expedited hearing, sooner than the Commission's scheduled December meeting. A copy of the petition, notice of the variance request to the adjacent riparian owners, and the documents related to the expedited hearing request are attached.

33. The tax value of the structures at the Site and their lots total about $9 million as shown in the attached stipulated exhibits, and their loss from the tax base would reduce the annual tax revenue of the Town $35,388 based on the proposed 2016 tax rate of $0.3932 per $100.

34. The proposed larger sandbag revetment in the 2014 variance request was intended to protect the 20 threatened residential structures for at least 2.5 years or until such time the beach fill project provided under Phase 1 of the North Topsail Beach shoreline/inlet management plan can be renourished. In addition, the Town of North Topsail Beach is committed to managing the north end shoreline by maintaining the preferred position and alignment of the New River Inlet ocean bar channel and using the material removed to maintain the channel to nourish the northern 7.25 miles of its ocean shoreline. Both the channel maintenance program and periodic nourishment are intended to maintain and/or preserve the dune and beach system in as near a natural state as possible.

35. On October 15, 2014, the Town's Board of Aldermen passed resolution 2014-13 which allowed for a special assessment to be imposed pursuant to NCGS 160A-238, in order to fund the larger sandbag structure proposed in this variance, with 50% of the total cost (which estimated at approximately $2.3 million for the total project) to be paid by the 39 parcel-owners identified in the resolution based on oceanfront frontage. This assessment resolution was then the subject of a public hearing on November 6, 2014. On November 6, 2014, the Town passed resolution 2014-

16 which confirmed the assessment, and Draft meeting minutes reflect the five public comments received. Copies of both resolutions and the Draft meeting minutes are attached as stipulated exhibits. On November 14, 2014, the Town issued a Notice of Special Meeting scheduled for November 19, 2014 to receive recommendations on the selection of a contractor for this sandbag project. The Town Board passed the resolution.

36. The Town of North Topsail Beach, in its November 2014 variance request, sought a variance of conditions 1 & 2 of CAMA Major Permit #92-14. Specifically:

The Town is requesting a variance to condition 1 in that the Town proposes to construct a temporary erosion control structure with a base width of 45 feet and a height sufficient to achieve an elevation of +12.0 ft. NAVD.

The Town is requesting a variance to condition 2 in that the Town proposes that no portion of the authorized temporary erosion control structure shall be located more than 45 feet waterward of the waterward most pilings of those buildings controlling the alignment of the temporary erosion control structure from 2304 New River Inlet Rd. to the northern terminus of the temporary erosion control structure, namely those structures at: 2304 New River Inlet Rd., 2314 New River Inlet Rd., 2354 New River Inlet Rd., 2362 New River Inlet Rd., 2368 New River Inlet Rd., and 2378 New River Inlet Rd. No portion of the temporary erosion control structure between 2304 New River Road and the southern terminus of the temporary erosion control structure will be located more than 115 feet waterward of the waterward most piling of each building.

November 2014 Variance Hearing

37. On November 19, 2014, the Commission heard the Town's 2014 Variance Petition for larger sandbags than allowed by Commission rules, at an expedited hearing held in person in Wilmington, and also by phone. The Commission voted to grant the Town's request for a variance in order for the Town to install sandbags larger than those allowed by rule, up to a base width of 45' and an elevation of +12.0 ft. NAVD. Also, the Town was allowed to go waterward by as much as 115' from the waterward pilings as requested. On November 24, 2014, the Commission issued a written Final Agency Decision granting the Town's request, a copy of which is attached.

38. An additional 275 linear feet of sandbags authorized in the traditional 6' by 20' configuration was added to CAMA Major Permit #92-14 through a minor modification in order to protect additional properties to the north of the originally permitted larger sandbag structure.

Geotextile Tubes as Construction Method Modification Request

39. On November 24, 2014, Town consultant Tom Jarrett called DCM with a request to further modify CAMA Major Permit #92-14 in order to down-scale the size of the sandbag structure from the 45' by +12.0 ft. NAVD which was allowed by the Commission, to a smaller structure. DCM Staff confirmed that if it was smaller, but within the limits set by the variance, it was allowable.

40. Later on November 24, 2014, DCM received another call from the Town's agent with a request to allow the use of a temporary geotextile containment tube to stabilize the project area while the larger sandbag structure was being installed. This was the first time the Town raised this as a proposal.

41. In a series of emails and a report during the November 24-26, 2015 period, copies of which are attached, the Town formalized its request to use the geotextile tubes as a temporary construction method, and made its commitment to remove them following the installation of the approved sandbag revetment. This request also showed the reduction in size of the proposed sandbag structure, now proposed with an elevation of 7.5' - 9.0' above grade instead of the elevation of +12.0 ft. NAVD proposed and granted by variance.

42. The Town's stated purpose of the use of the geotextile tube was two-fold: 1) The tube would allow for a safer work environment landward of the tube to expedite the installation of the sandbag revetment; and 2) The tube would stabilize the area around the foundations of the houses and the property between the landward side of the houses and the road. In discussions with DCM Staff, Staff was clear that these were to be used as a temporary, construction method only, were not to be part of the sandbag structure's design, and were to be removed immediately following sandbag revetment construction, along with the scour apron and chock tubes, which were also inconsistent with the Commission's rules

43. The permit issued by DCM on November 26, 2014, permitted the Town to use a temporary geotextile tube for construction purposes during sandbag installation. A copy of this modified permit is attached.

44. Condition 11 of CAMA Major Permit #92-14 as Amended on November 26, 2014, states:

In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containment tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division.

45. The temporary geotextile tube was permitted for construction purposes only and was not originally intended to be a lasting feature of the sandbag revetment. Both the Town and the Town's consultant agreed to this in writing, as seen in an attached stipulated exhibit.

Construction of the Sandbag Revetment

46. Mobilization of equipment to the project area began on December 9, 2014.

47. A geotextile tube was filled in place on top of a scour apron seaward of the proposed sandbag revetment location. The first tube was placed on December 13, 2014 (Project Narrative Figure 1). The 10th tube was placed on December 22, 2014 (Project Narrative Figure 2).

48. The original plan was to extend the tube south along the shoreline and terminate in a shore parallel orientation 50 ft. north of the Topsail Reef sandbag revetment.

49. During the installation of the tube, the contractors and engineer observed high velocities of water flowing out of the protected area during ebbing tides. If such flows were channeled toward the Topsail Reef revetment, there would be a high probability of scour to occur around the base of the Topsail Reef return wall. The contractor and CPE-NC agreed to turn the southern end of the tube landward and tie into high ground prior to shutting down for the Christmas break in order to avoid such a scenario. Figure 2 on the Project Narrative shows the orientation of the southernmost tube after installation.

50. The geotextile tube worked as designed providing temporary protection to the work area and preventing further loss of sand from the project area during the construction of the sandbag revetment. The nominal dimension of the temporary tube is 30 ft. in circumference. The tubes achieved variable heights of approximately 3 to 5 ft. and a width of 12 ft. Individual tubes range in length from 100 to 150 ft.

51. The contractor returned to the project site on December 28th, 2014 and began laying the base layer of the sand bag revetment in the vicinity of 2378 New River Inlet Road on the northern end of the project area.

52. On January 14, 2015, the contractor cut through the southernmost temporary tube in order to construct the sand bag revetment. Over the course of the following two weeks the southernmost tube deflated and the remains of the southern-most tube, scour apron, and chock tube were removed.

53. Construction of the sandbag revetment extending approximately 1,500 ft. north from the Topsail Reef was substantially completed on February 25, 2015. Approximately, 1,350 ft. of the tube is still in place fronting the revetment from 2378 to 2290 New River Inlet Road. On February 24, 2015, the Town's authorized agent sent DCM an email indicating that construction on the sand bag revetment was complete.

54. Beginning around December 1, 2014, and working at the same time as the Town's sandbag revetment project at the Site, work on Phase 5 of the Town's project began to place a 14' + NAVD by 25' wide dune with a 45' wide berm waterward of the dune at the western-most portion of the Town's larger project area. That sand was dredged from an offshore borrow site approximately ½ to 1 ½ miles offshore from the northern extent of Phase 5. The dredging operations for Phase 5 ended on Saturday, June 20, 2015. The Town's consultant CP&E performed a survey of Phase 5 in July of 2015 and April of 2016.

Lawsuit filed against the Town regarding the Sandbag Revetment and Assessment

55. In May of 2015, a group of Homeowners subject to the sandbag revetment assessment filed a lawsuit against the Town alleging, among other things, that the revetment was insufficient to protect their property. As a consequence of the lawsuit, the Town has held the collection of the assessment in abeyance.

56. On June 23, 2016, the Town received a letter from the Local Government Commission expressing its concern over the significant decrease in the Town's General Fund Balance noting that the assessment was intended to increase the Town's General Fund and asking the Town to provide a response as to the status of the assessment collections as well as the Town's plans to increase the fund balance. See Letter from Local Government Commission, attached as a stipulated exhibit.

Request to keep the Geotextile Tube and Notice of Violation

57. On February 27, 2015, DCM sent a letter to the Town Manager notifying the Town that it needed to begin removal of the geotextile tube, the chock tubes and the scour apron. A copy of this letter is attached.

58. On March 5, 2015, CPE-NC sent a letter to DCM requesting further modification to CAMA Major Permit #92-14 as Modified on November 26, 2014, that would allow the sand tube to remain for the duration of the sand bag permit. A copy of this letter is attached.

59. On March 12, 2015, DCM's Major Permit Manager Doug Huggett responded to this request via email indicating a modification requesting permission to allow these structures to remain would be inappropriate given that this was now a permit compliance issue, and that the request was incomplete. A copy of this email is attached.

60. On March 20, 2015 the Town's authorized agent from CP&E responded to DCM's request to remove the geotextile tube. A copy of this response is attached.

61. On March 26, 2015, DCM issued a Notice of Violation (NOV) to the Town as the construction of the sandbag revetment was complete but the Town had not removed the temporary geotextile tube, and attached a proposed restoration plan requiring removal of the tubes. A copy of this NOV and the associated restoration plan are attached.

62. On April 24, 2015, DCM issued a revised restoration plan to the Town, indicating that it could either remove the geotextile tubes as promised, or could proceed with the variance process in time for the Commission's July 15, 2015 meeting to seek a variance from the Commission in order to keep the geotextile tubes in place for some period of time.

63. On May 4, 2015, the Town signed and returned the revised restoration agreement, indicating that they wished to proceed with the variance process at the Commission's July 15, 2015 meeting.

CAMA Major Permit #92-14 Major Modification Application

64. Pursuant to the revised restoration plan, on May 1, 2015 the Town sent a revised major modification request, which DCM accepted as complete, seeking to retain the geotextile tubes as a part of the temporary erosion control structures. Section 8a of the modification request states that the tubes would "…remain in place until the Onslow maintenance navigation and disposal of material along the north end of North Topsail Beach can occur, or until March 31, 2016." A copy of the Town's modification request, an updated project narrative and other modification application materials are attached.

65. As part of the CAMA Major Permit Modification Application process, adjacent neighbors and the public were given notice of the Town's CAMA permit application through publication in the Star News on May 11, 2014. No comments were received by DCM staff.

66. Also as part of the CAMA Major Permit Modification application process, the Town's application, Field Report, and other materials were sent to resource agencies for comment. Of those agencies who responded, the DCM Fisheries Specialist raised concerns regarding the proposal due to concerns about surf zone habitat, though DCM did not deem these concerns sufficient to support permit denial. Comments were also received from the Wildlife Resources Commission, raising concerns about the project. Copies of the field report and the noted comments received by DCM are attached as stipulated exhibits.

67. On June 2, 2015, DCM denied the Town's request due to the geotextile tubes' inconsistency with the Commission's rules regarding temporary erosion control devices found at 15A NCAC 7H. 0308(a) (2) (K) and (L) which regulate the size of sandbags and which prohibit the use of anchoring devices for sandbags. A copy of this permit denial letter is attached.

August 2015 Variance

68. On July 16, 2015, oral arguments were made to the Commission to allow the sand tube to remain in place until completion of an Onslow County-sponsored shallow-draft channel navigation project. The navigation project would remove shoal material from portions of the Atlantic Intracoastal Waterway, the Channel to Jacksonville, and Cedar Bush Cut and deposit the material along the north end of North Topsail Beach. Based on information at that time, the volume of material to be removed to maintain the channels appeared sufficient to cover the shoreline from New River Inlet south to the area fronting Topsail Reef.

69. On July 16, 2015, the Commission voted to approve the variance and added a condition to the variance that allowed the sand tube to remain in place until completion of an Onslow County shallow-draft navigation project or by June 30, 2015, whichever comes first. On August 14, the Commission issued its written order and a permit modification to this effect was issued by Staff on August 29, 2015, a copy of which are attached as stipulated exhibits.
Onslow County's Shallow Draft Inlet Navigation Project

70. Onslow County, in cooperation with the Town of North Topsail Beach, obtained permits that allowed the County to maintain authorized federal navigation channels in the vicinity of North Topsail Beach including the channel through Cedar Bush Cut, the southern portion of New River, and sections of the AIWW where these channels meet (USACE Permit No. SAW-2014-02012 (GP # 198000291), CAMA Permit No. 138-15 (Amended on 12/10/15), DWR 401 Water Quality Certification #2015-0605).

71. The Petitioner states that a cost estimate was developed for construction of the Onslow County project including development of bidding documents and contractor coordination, dredge mobilization, cost to pump sand to beach, and construction observations. The cost to implement this alternative was estimated at $1,694,500. The state, county, and North Topsail Beach cost-shared in the permitting and construction with the Town of North Topsail Beach responsible for 25% of the total cost or $423,625.

72. Between March 22, 2016 and April 22, 2016, slightly more than 130,000 cubic yards of material was removed from the channels and deposited along portions of the north end of North Topsail shoreline between 2396 New River Inlet Road (baseline station 1163+00) and 2300 New River Inlet Road (baseline station 1152+00).

73. The Petitioner states that the original plan for disposal of the navigation maintenance material began at a point opposite the intersection of New River Inlet Road and River Road (approximately baseline station 1157+00) with the disposal extending as far south as the volume of material would allow. The area expected to be covered by the navigation maintenance material included the entire portion of the sandbag revetment fronted by the geotextile containment tube. However, Petitioner contends that conditions along the north end changed from the time the contract was bid to the time the contractor began to mobilize for the job and there was not enough dry sand beach in front of the sandbag revetment to allow the contractor to install the discharge pipeline in the location originally proposed. Therefore, an amendment to the contract was issued that allowed the contractor to begin disposal just north of the sandbag revetment (near baseline station 1163+50). With disposal starting north of the sandbag revetment, the length of shoreline covered by the navigation maintenance material did not extend along the entirety of the sandbag revetment fronted by the geotextile containment tube. As a result, the disposal area only extended to about baseline station 1152+00.

74. On April 26, 2016, DCM was informed that the project was completed and this was verified by DCM on a May 19, 2016 site visit. On or about June 1, 2016, DCM issued a Notice of Violation (NOV) to the Town requiring removal of the geotube as required by the permit, or to seek a variance from the Commission at the September Commission meeting. The Town responded that it would seek a variance from the Commission at the September meeting.

75. Petitioner contends that at the present time (August 2016) a significant portion of the navigation maintenance material deposited in front of the sandbag revetment has been removed from the area with the majority of the material migrating north and depositing along the New River Inlet shoreline. Therefore, Petitioner contends that the conditions that existed prior to the navigation maintenance project that were conducive to potential scour and undermining of the sandbag revetment remain in effect today.

76. The Parties stipulate that whether the tube is covered or not can change often.

77. Pursuant to the NOV restoration plan, on June 14, 2016 (dated June 3, 2016), the Town again requested a modification to CAMA Permit 92-14 to allow the sand tubes to remain in place for at least the duration of the existing sandbag revetment permit, which expires in November 2022, or until a more long-term solution to the erosion problem can be implemented. A copy of the modification request is attached as a stipulated exhibit and includes notice, the DCM major permit forms, the project narrative, and an attached letter from Dr. Cleary. A copy of DCM's 2016 field report is also attached as a stipulated exhibit. During the permit review process, the WRC provided new comments and attached their 2015 and 2014 comments. A copy of the WRC 2016 comments is attached as a stipulated exhibit. In connection with the 2016 modification request, no other new objections were received by DCM.

78. By letter dated July 26, 2016, the Division of Coastal Management denied the Town's request to modify the permit, a copy of which is attached as a stipulated exhibit.

The Town's Consultant's Opinion Reports

79. As described in the March 5, 2015 Letter from CP&E to DCM, which is attached as a stipulated exhibit, Tom Jarrett opines that the geotextile tube along the north end of the sandbag revetment continues to provide vital scour protection and its removal could result in dramatic failure of a portion of the sand bag revetment. Mr. Jarrett opines that significant accretion of sand has occurred along the southern portions of geotextile tube. Approximately 1,000 ft. of the southern portion of the containment tube has been partially or completely covered with sand. (See March 5, 2015 Letter from CP&E to DC, attached as a stipulated exhibit).

80. In Tom Jarrett's opinion, the tubes have not had any noticeable adverse impact to adjacent shorelines as compared to revetments composed of only sand bags. (March 5, 2015 Letter from CP&E to DCM, attached as a stipulated exhibit). Mr. Jarrett further opines that allowing the geotextile tube to remain until expiration of the sandbag revetment permit would not have any greater negative impact on adjacent properties than the impacts associated with the sand bag revetment itself. (March 5, 2015 Letter from CP&E to DCM, attached as a stipulated exhibit).

81. In Tom Jarrett's opinion, the rapidly changing conditions along the north end of North Topsail Beach and the accelerated rate of loss of material from the area has made it abundantly clear that the sand bag revetment alone will most likely not be able to protect the homes or the roads in this area for a sufficient amount of time to allow for the recovery of the shoreline associated with the channel realignment project.

82. In Tom Jarrett's opinion, with the ocean bar channel having retuned to a position and alignment comparable to that which existed prior to the 2012-13 channel relocation project, reconfiguration of the ebb tide delta of New River Inlet has essentially ceased. The movement of the channel to the north and the subsequent impacts on the ebb tide delta are documented in the last two project monitoring reports, one dated September 2015 (attached as stipulated exhibit) and a draft version of the latest report dated June 2016 (attached as stipulated exhibit). As a result, positive impacts of the inlet channel on shoreline along the north end of North Topsail Beach will

likely not occur until the channel can again be moved back to a preferred position and alignment. At the present time, the Town of North Topsail Beach anticipates performing channel maintenance during the 2017-18.

83. Tom Jarrett stated in an April 27, 2016 letter to North Topsail Beach Town Manager, Mr. Stuart Turille that "[c]onditions contributing to erosion along the north end of North Topsail Beach have not changed significantly since March of 2015" and since the material deposited along the north end from the navigation maintenance project did not extend along the entirety of the sandbag revetment, the sandbag revetment continues to be subject to possible failure due to undermining and scour if the sand tubes are removed. This letter is attached as a stipulated exhibit.

84. Tom Jarrett opinion is that restoring the channel to a preferred position and alignment will not cause immediate changes along the north end of North Topsail Beach. In this regard, the time required for the north shoreline to respond to the preferred channel was projected to take at least five years before some positive impacts began to be manifest and possible 15 years before the shoreline retuned to a condition comparable to that which existed during the mid-1980's. These projections assumed the channel would be maintained in perpetually in its preferred position. Even though the initial channel relocation project was carried out in 2012-13, the changes in the ebb tide delta resulting from this initial effort have for the most part been negated due to the inability to hold the channel in its preferred position and alignment. Therefore, the expected changes in the ebb tide delta and its impact on the shoreline along the north end of North Topsail Beach have been delayed.

Opinion of Dr. William J Cleary, Professor Emeritus,
University of North Carolina at Wilmington

85. In a letter dated May 25, 2016, attached as stipulated exhibit, Dr. William J. Cleary called attention to scour of the sea bed immediately seaward of the sandbag revetment that resulted from the combined impacts of Perigean tide events in September and October of 2015 and the passage of Hurricane Joaquin. In his opinion, the erosion of the low-tide beach contributed to the slumping of some of the sandbags which in turn led to overtopping of the revetment and steepening of the foreshore profile in the area fronting most of the sandbag revetment. Dr. Cleary opines that based on his personal observation and shoreline change data, 'the removal of the [geotextile-tube] will have serious consequences on the stability of the sand bag revetment and that its removal will ultimately lead to accelerated erosion of the sea bed adjacent to the sand bags due to a variety of wave-related processes. In turn, the consequent degradation of the sand bag armoring will have dire consequences for the homes currently protected by the sand bags".

86. With the prospect of an extended period of recovery along the north end of the island associated with the channel relocation project, the Town is considering applying for a permit to construct a terminal groin on the south shoulder of New River Inlet in the event the next channel relocation project does not produce the needed positive shoreline impacts in a timely manner. Authority to consider a terminal groin at New River Inlet was recently provided by Session Law 2015-241 Section 14.6.(r).

87. Based on experience with permitting similar structures, permits for a terminal groin will likely not be available for at least a year once the resource agency review process is initiated. At this time (August 2016), the Town together with Onslow County has issued an RFQ seeking qualified firms to develop long-term management plans for New River Inlet to include but not be limited to consideration of a terminal groin.

Continuing Efforts to Address the Erosion Problem

88. Since the completion of the sandbag revetment, the Town has spent over $500,000 to maintain the revetment according to an August 2016 statement of Assistant Town Manager Carin Faulkner, a copy of which is attached as a Stipulated Exhibit.

89. In July 2015, the Town authorized CPE-NC to conduct an alternative channel analysis using the numerical model known as Delft3D. Delft3D is a state of the art model that has the capability of simulating changes in inlet morphology in response to man-induced changes. The model was used to evaluate a full range of possible channel positions and alignments. The alternative analysis was completed in June 2016 and recommended the channel realignment permit be modified to allow for an alternative channel alignment that pivots the 2012/2013 channel clockwise 17 degrees. The Town executed a contract with CPE-NC on April 14, 2016 to assist with securing permits for this project. It is anticipated that permits will be issued in the fall of 2016 and that the project will be constructed during the winter of 2017/2018.

90. In July 2015, the Town contracted with CPE-NC to use the Delft3D model to conduct a preliminary assessment of the possible use of a terminal groin on the south side of New River Inlet as a means of controlling the erosion along the shoreline immediately south of New River Inlet. The preliminary analysis simulated six (6) terminal groin of different lengths and orientations. The preliminary assessment indicated a terminal groin could be effective in controlling erosion on the north end of town.

91. On July 26, 2016, the Town of North Topsail Beach and Onslow County entered into an interlocal agreement to collaborate in the commission and funding of a study to determine the best available options for the establishment of hardened structures including but not limited to terminal groins, jetties, or a combination thereof, to maintain the navigation channel through the New River inlet to authorized depths over the next 50 years and to protect the existing. It is clear that the long-term sustainability of the Town's storm damage reduction project will require sand from New River Inlet. Onslow County's primary interest is to maintain dependable navigation through New River Inlet in the most cost effective manner possible over a term of 50 years. To that end, the Town of North Topsail Beach issued a Request for Qualifications (RFQ) seeking qualified engineering firms to conduct a study to determine the best options, including hard structures, to maintain the navigation channel through New River Inlet and protect development on the adjacent shorelines.

The Commission's History of Examining the use of Geotextile Tubes

92. At the September 16, 2010 Commission meeting, DCM Staff presented information to the Commission about the use of geotextile tubes for temporary erosion control, following Spencer Rogers' presentation at the July 2010 Commission meeting suggesting their use as an alternative. A copy of the meeting powerpoint is attached.

93. At the 2010 presentation, Staff raised public safety concerns about the geotextile tubes stability and their ability to roll, and susceptibility to complete failure if damaged. Due to these concerns, Staff recommended against amending the rules for temporary erosion control structures to all ow the use of geotextile tubes. Following this presentation, the Commission took no action to initiate rulemaking regarding geotextile tubes.

94. At the April 29, 2015 Commission meeting, DCM Staff presented a powerpoint similar to that used in 2010, and raised the same concerns about geotextile tubes, and again recommended against rulemaking. A copy of the meeting powerpoint is attached. At the July 2016 Commission meeting, geotextile tubes were once again discussed and the Commission decided against their inclusion in the temporary erosion control structure rules.

The Town's Variance Request

95. The Town is requesting a variance from 15A NCAC 7H. 0308(a)(2)(K) and (L), as noted in the July 26, 2016 CAMA major modification denial, in order to keep the geotextile tubes in place as a part of the temporary erosion control sandbag structures until the Town of North Topsail Beach can identify a long-term solution for the erosion problem on the extreme north end of the Town's shoreline. In this regard, the Town intends to fully explore the possibility of installing a terminal groin immediately adjacent to New River Inlet. To that end, the Town of North Topsail Beach has entered into an interlocal agreement with Onslow County, dated July 26, 2016 (attached as stipulated exhibit) "to collaborate in the commission and funding of a study to determine the best available options for the establishment of hardened structures including but not limited to terminal groins, jetties, or a combination thereof, to maintain the navigation channel through the New River inlet to authorized depths over the next 50 years and to protect the existing shorelines." In the event Onslow County and the Town of North Topsail Beach are not successful in obtaining a permit to construct a hardened structure at New River Inlet by November 2022, the Town of North Topsail Beach requests modification of the sandbag permit to allow the sand tube to remain during for the duration permitted for the sandbag revetment (November 2022).

STIPULATED EXHIBITS

All Exhibits for the 2014 Variance - CRC-VR-14-16

All Exhibits for the 2015 Variance - CRC-VR-15-05

New Exhibits for 2016 variance, including:

- 2015 Order of the Commission issuing the variance

-2016 Notice of Violation and signed restoration plan

- May 25, 2016 letter Opinion from Dr. Bill Cleary to Town Attorney with attachments

-Cleary CV

-CP&E Contract for Terminal Groin Feasibility Study

-July 26, 2016 Interlocal Agreement between Town and County for Groin / Jetty study

-July 29, 2016 RFQ issued by Town

-June 23, 2016 Letter from Local Government Commission to Town

-2016 DCM Field Report for modification request

-April 27, 2016 letter from Tom Jarrett to Stuart Turille

-Jarrett CV

-July 26, 2016 DCM Denial letter

-Carrin Faulkner's August 2016 statement re Town maintenance costs

-June 2016 Modification Request application, including project narrative

-2016 comments from WRC

-Staff's Powerpoint

-Town's Powerpoint

PETITIONER'S and STAFFS' POSITIONS **ATTACHMENT C**

I. Will strict application of the applicable development rules, standards, or orders issued by the Commission cause the petitioner unnecessary hardships? If so, the petitioner must identify the hardships.

Petitioner's Position: Yes.

The Town of North Topsail Beach ("Town") is seeking a variance to condition 11 of the Amended CAMA Major Permit #92-14, issued on 26 Nov. 2014.

The Town is requesting a variance to condition 11 in that the Town proposes to keep the authorized temporary construction containment tube as a part of the temporary erosion control structures for the duration of the existing sandbag revetment permit, which expires in November 2022, or until the Town can develop a long-term solution to the erosion problem on the north end of the Town, whichever occurs first.

The Town of North Topsail Beach completed Phase 1 of its multifaceted inlet and shoreline management plan in February 2013, with the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The material removed during repositioning of the channel was used to construct a beach fill along 7,730 feet of shoreline south of New River Inlet.

As stated in a prior permit application, the beach fill along the north end of North Topsail Beach experienced rapid rates of volume loss resulting in the eventual loss of all of the fill material north of Topsail Reef by August 2014. In response to the emergency situation created by the rapid deterioration of the fill, the Town of North Topsail Beach applied for a permit to construct a sandbag revetment along approximately 1500 feet of shoreline north of Topsail Reef. While this initial request was denied due to the size of the proposed sandbag revetment, the Town of North Topsail Beach was ultimately issued an Amended CAMA Major Permit (Permit #92-14) dated November 26, 2014 through the variance process.

In addition to the enlarged size of the sandbag revetment, the permit allowed the Town to use a temporary sand filled containment tube to provide protection to the area during installation of the sandbag revetment. The conditions of the permit required the temporary containment tube to be removed immediately upon completion of the sandbag revetment or by May 21, 2015, whichever occurred sooner. A typical cross-section of the sandbag revetment and temporary containment tube is provided in Figure 1. As of the date of this application, approximately 1,350 ft of the containment tube is still in place fronting the revetment from 2378 to 2290 New River Inlet Road.

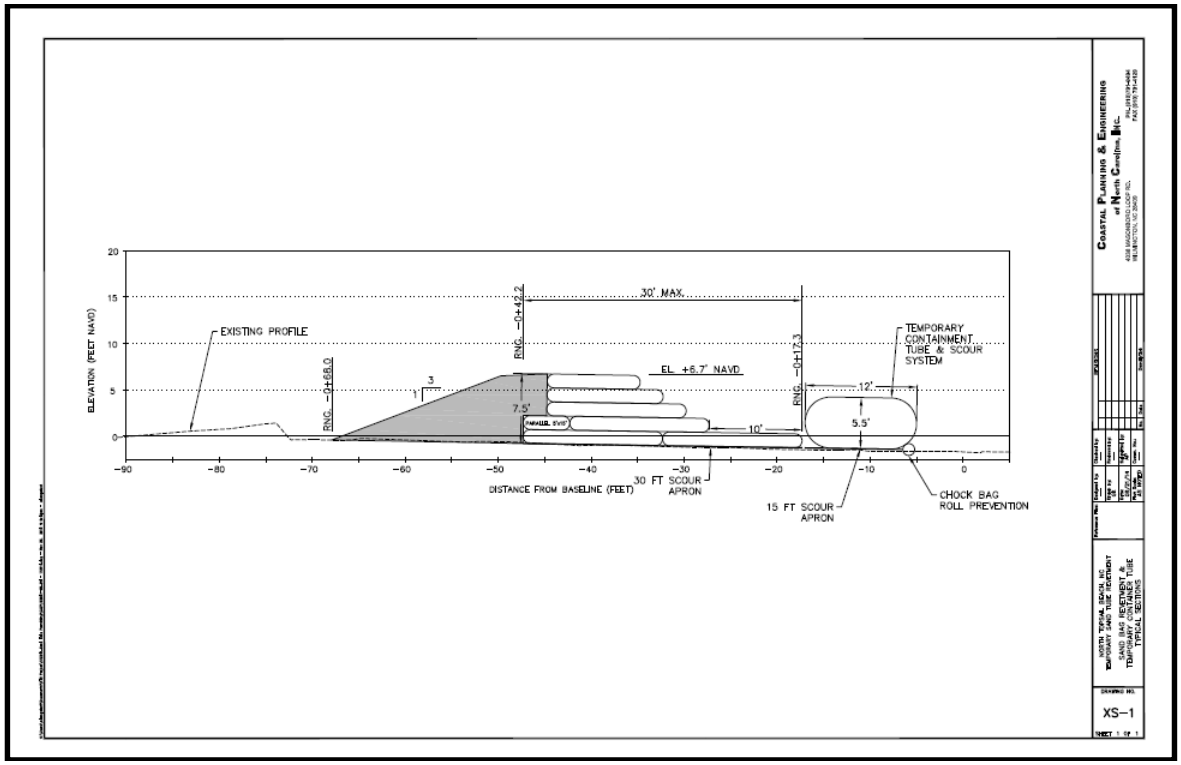

Figure 1 – Cross-Section of sandbag revetment and temporary containment tube.

The sandbag revetment was essentially completed on February 25, 2015. An aerial photograph taken of the project site on March 20, 2015 via a drone is shown in Figure 2.

Figure 2. March 20, 2015 drone aerial photo of sandbag revetment.

As can be seen in the aerial photo, the northern end of the sand tube was exposed while most of the tube along the south end of the sandbag revetment was buried. The exposed portion of the sand tube on the north end of the revetment was continuing to provide substantial scour protection for the sandbag revetment. However, due to the volatility of the shoreline in the area, portions of the sand tube are alternately buried and covered. A series of ground photos of the completed sandbag revetment showing some exposed and buried sand tube are provided on Figure 3 to 7. The figures are arranged in a north to south order.

Figure 3 – March 6, 2015 photo of sandbag revetment and sand tube at north end of revetment.

Figure 4 – March 6, 2015 photo of sandbag revetment and sand tube at north end of revetment.

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Figure 5 – March 6, 2015 photo of sandbag revetment and partially buried sand tube

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Figure 6 – March 6, 2015 photo of sandbag revetment and partially buried sand tube near the middle of the sandbag revetment

Figure 7 – March 6, 2015 photo showing buried sand tube along south end of sandbag revetment.

Along those portions of the revetment where the tube is still exposed, the tube is clearly providing scour protection to the sand bag revetment. Also, given the dynamic behavior of the shoreline in the area as the inlet adjusts to a post-realignment equilibrium, recent positive trends could reverse, exposing the southern portion of the sand bag revetment to possible scour damage if the tube is removed prematurely. In this regard, the inlet bar channel has migrated north of its preferred corridor and has assumed an east-northeast orientation which directs its flow toward the south end of Onslow Beach. As a result, the redistribution of sediment on the ebb tide delta from the north side to the south side, which occurred during an 18-month period after the channel was relocated in 2013, has ceased and there are indications the build-up of sediment on the south side of the inlet is being slowly eroded with redistribution back to the north side of the inlet.

At the time the channel relocation project was being formulated, the State of North Carolina prohibited the use of terminal groins as a means to control shoreline behavior adjacent to tidal inlets. Authority to consider a terminal groin at New River Inlet was recently provided by Session Law 2015-241 Section 14.6.(r). In response to this new authority, the Town of North Topsail Beach in cooperation with Onslow County, has recently issued an RFQ for professional services to design and permit a harden structure at New River Inlet that will aid in the maintenance of a navigable channel through New River Inlet and provide protection to development on the adjacent shorelines on North Topsail Beach.

Given the amount of time normally associated with the design and permitting of a hardened structure at an inlet, the Town is continuing to make plans to relocate the inlet bar channel during the 2017-18 environmental dredging window. While most of the material removed to relocate the channel will be used to provide beach fill along the shoreline designated as Phase 2 in the Town's adopted inlet and shoreline management plan, some of the material may be used to nourish a portion of the Phase 1 shoreline to provide interim protection to development on the extreme north end of the town until a long-term plan can be implemented.

The immediate removal of the partially buried and exposed sand tube will likely result in rapid scour along the toe of the sand bag revetment. This will lead to the failure of the sand bag revetment which will, in turn, likely lead to the destruction of the 20 residential structures located between Topsail Reef and New River Inlet.

The tax value of these structures and their lots total roughly $9 million and their loss from the tax base would reduce the annual tax revenue of North Topsail Beach based on the proposed 2015 tax rate of $0.3932 per $100. The loss of these 20 structures could have a secondary impact on the assessed value of other structures in the area.

In addition to the potential loss of the 20 residential structures, the deteriorated condition of the shoreline on the north end of town has resulted in frequent episodes of wave over-washing of the beach berm and flooding of New River Inlet Road and connecting side streets. Continued recession of the shoreline could eventually undermine New River Inlet Road and cutoff access to homes on the north end of town. Moreover, the Town has expended in excess of $2 million dollars on the construction and maintenance of the revetment. The Town is earnestly seeking a long term solution to the erosion issues in the subject area however this endeavor will take time. The Town's financial resources are limited and the loss of a $2+ million erosion control asset would constitute an extreme hardship.

Staffs' Position: No.

Staff does not believe a strict application of the Commission's rules limiting the size and materials used for erosion control structures on the oceanfront will cause Petitioner unnecessary hardships. DCM acknowledged in the November 2014 variance petition that accelerated erosion at the Site was causing Petitioner and the 20 adjacent homeowners unnecessary hardships. However, the hardships at issue in this variance are only those caused by not being allowed to retain the geotextile tubes even longer than last authorized by the Commission through the 2015 variance in addition to the oversized, previously authorized sandbag structure. While Petitioner may experience hardships due to the cost of placing the geotextile tubes for only a short duration, the cost of removal, and the possible impacts to the larger sandbag structure that may occur if the tubes are removed, Staff contends that these hardships are not unnecessary given that the tubes were allowed only to facilitate construction of the sandbag structure, and should have been factored into the cost and functionality of the project design.

In the November 2014 variance, Staff agreed with Petitioner that strict application of the Commission's rules caused Petitioner an unnecessary hardship because the use of the standard sandbag revetment dimensions appeared to be insufficient to protect the 20 houses until the owners could relocate their property or until to next planned beach nourishment at the Site. That variance was granted and permitted, and allowed Petitioner to construct a sandbag structure "with a base width of 45 feet and a height sufficient to achieve an elevation of +12.0 ft. NAVD." However, instead of building a structure as large as that allowed by the Commission, Petitioner down-sized their project and constructed a sandbag structure approximately 30' wide and with less elevation than the +12 ft. NAVD allowed by the variance and permit (i.e. Sheet 3 of 4 Typical Cross Section – Permitted Sand Bag revetment shows an elevation of + 6.8' NAVD). If Petitioner had constructed the larger sandbag structure as authorized, and had used a design that was not reliant on the presence of the geotextile tubes, the tubes would not be necessary now to afford the 20 homes protection until the Town decides what next steps are to be taken in this area- terminal groin, channel realignment, nourishment, or other possibility. Petitioner now asserts that "[t]he immediate removal of the partially buried and exposed sand tube will likely result in rapid scour along the toe of the sand bag revetment. This will lead to the failure of the sand bag revetment which will, in turn, likely lead to the destruction of the 20 residential structures located between Topsail Reef and New River Inlet." Staff disagrees with Petitioner's conclusion that barring the retention of the tubes, all 20 structures will be "destroyed" given the presence of the existing sandbag revetment, which could still be enlarged to the initially permitted dimensions under the 2014 variance.

In 2003, CAMA was amended to include 113A-115.1, which prohibited the use of erosion control structures along the ocean shoreline, except in a few specific situations. The Commission's rules did allow for the continued use of "temporary erosion control structures" comprised of sandbags to protect only imminently threatened structures, defined as those within 20 feet of the erosion scarp. The installation and design standards in the Commission's rules reflect the temporary nature of the structures, and demonstrate that sandbags were not intended as large, permanent structures. The Commission's rules further stated in 15A NCAC 07M.0202(e) that

these temporary measures are to be used "only to the extent necessary to protect property for a short period of time until the threatened structures can be relocated or until the effects of a short-term erosion event are reversed." This rule emphasizes that sandbags should only offer immediate relief and provide time to find a permanent solution.

Staff's position is that the Commission's previously authorized "supersized" sandbags, larger than those allowed by rule, was sufficient to afford the temporary protection allowed by sandbags. However, the continued use of the geotextile tubes waterward of the reduced-size structure should not have been relied upon by Petitioner. The size and construction of the sandbag structure with the tubes significantly expands what is allowed by rule and previous variances.

As Petitioner opted to install a sandbag structure smaller than that authorized by the November 2014 variance, which should have been designed not to rely on the retention of the construction tubes, and because Petitioner can still reconfigure the existing sandbag structure to the full size allowed by the 2014 variance, Staff's position is that strict application of the sandbag rules prohibiting the retention of the geotextile tubes are not unnecessary hardships resulting from following the Commission's rules.

II. Do such hardships result from conditions peculiar to the petitioner's property, such as location, size, or topography of the property? Explain.

Petitioner's Position: Yes.

The behavior of the shoreline on the north end of North Topsail Beach is imminently tied to the position and alignment of the main bar channel of New River Inlet. Morphological studies of New River Inlet, reported in the project EIS, clearly demonstrated the relationship between the position and alignment of the channel and the response of the shorelines on both sides of the inlet. The studies also identified a position and alignment of the bar channel that would provide a beneficial impact on the north end shoreline. Based on these studies, the Town of North Topsail Beach elected to artificially move the channel to the preferred position and alignment indicated by the morphological studies. As previously stated, repositioning of the channel was completed in February 2013.

The major negative impacts of New River Inlet on the North Topsail Beach shoreline occurs within the first 3,000 feet of shoreline south of the inlet, which extends to approximately Building #5 of Topsail Reef. However, there is some influence of the inlet on the shoreline a mile south of the inlet.

The Phase 1 fill moved the MHW shoreline in front of the eight buildings constituting Topsail Reef an average of 235 feet. As of August 2016, the increase in the width of the beach at MHW relative to the pre-Phase 1 fill varied from about 0 feet in front of Building #1 (northernmost building of Topsail Reef) to around 75 feet at Building #8 (the southernmost building). The variable width of the shoreline fronting Topsail Reef is evident in the oblique aerial photo provided in Figure 8, which was obtained by Dr. William Cleary (UNCW, retired) on October 5, 2014.

Figure 8 – Oblique Aerial Photo provided by Dr. William Cleary

One of the unique features of the area is the influence New River Inlet, or more specifically, the ebb tide delta of the inlet, has on sediment transport along the shoreline. This is demonstrated by the photo shown in Figure 9 in which incoming waves from the southeast are refracted around the ebb tide delta resulting in a change in sediment transport direction (as indicated by the arrows) just south of New River Inlet. The area in which the direction of sediment transport changes as a result of wave refraction is commonly referred to as a nodal zone. In general, the nodal zone is characterized by the net movement of material away from or out of the zone.

While a nodal zone will generally always exist adjacent to a tidal inlet, the influence of the nodal zone on the shoreline of North Topsail Beach is enhanced due to the absence of significant shoal accumulations on the south side of the inlet. The absence of shoal material south of the inlet is one of the issues the channel relocation project was designed to address, i.e., the purpose of moving the channel was to encourage the reconfiguration of the inlet's ebb tide delta through the redistribution of shoal material from the north side of the inlet to the south side.

Figure 9 – Diagram of Nodal Zone.

Monitoring of the inlet over the first 2 years after the channel was moved in 2013 indicated the ebb tide delta was deflating on the north side while sediment was accumulating on the south side. This initial response was as predicted during the plan formulation for the project. However, between September 2014 and May 2015, the channel migrated northeast outside of the realigned channel corridor and assumed an orientation to Onslow Beach. The response to the position of the ocean bar channel between April 2015 and April 2016 has been a deflation of the outer portion of the ebb shoal fronting North Topsail Beach and a buildup of the ebb shoal fronting Onslow Beach. While the Town of North Topsail Beach is making plans to reposition the channel to a preferred position and alignment during the 2017-18 environmental dredging window, in the interim, the shoreline along the north end of the town will be subjected to erosion stresses that will continue to pose a threat of undermining the sandbag revetment. Even if the channel is restored to its preferred position in 2017-18, the reconfiguration of the ebb tide delta following the first channel relocation event demonstrated reconfiguration of the ebb tide delta will take years before it begins to have a positive impact on the North Topsail Beach shoreline.

The subject project is located within the Inlet Hazard AEC for the New River Inlet and is influenced by the dynamic inlet processes. The hardships associated with the Petition directly result from the conditions peculiar to the subject property.

Staffs' Position: No.

In the November 2014 variance and in the July 2015 variance, Staff disagreed with Petitioner that its hardship is caused by conditions peculiar to the subject property, noting that the Site is within a CRC-designated Inlet Hazard Area of Environmental Concern, and the dynamic shoreline changes that commonly occur in all Inlet Hazard Areas along the coast of North Carolina. This continues to be Staff's position.

As Staff noted then and now, the Site is located within the Inlet Hazard AEC for the New River Inlet and is clearly influenced by inlet processes. The Commission's rules note that inlets are especially volatile and are known to regularly experience both erosion and accretion. In this case, Phase 1 of the Town's channel realignment project moved the channel, and even the Town agrees that the subsequent erosion rates are typical of this inlet. While the rate of loss of the fill placed during Phase 1 of the management plan has apparently been higher than anticipated, the loss is comparable to losses experienced following previous U.S. Army Corps of Engineers beach projects involving the disposal of navigation maintenance material. Indeed, the rate at which the spoil placed in early-2016 was removed from the beach where it was placed was typical and predictable. It is therefore difficult for Staff to agree that merely being located near the New River Inlet and the flood channel fulfills the peculiarity criterion regarding "location, size, or topography of the property."

III. Do the hardships result from the actions taken by the Petitioner? Explain.

Petitioner's Position: No.

The situation at the north end of North Topsail Beach is not related to any actions taken by the Town. The Town implemented Phase 1 of its shoreline/inlet management plan for the expressed purpose of alleviating some of the erosion stress impacting development along the entire north end of town. While there are continuing issues with the northern 3,000 feet, 4,300 feet of the beach fill provided during Phase 1 of the project continues to function as anticipated.

Since 1993 and in spite of the installation of emergency sand bag structures allowed under 15A NCAC 7H .0308, eleven (11) residential structures that were located seaward of the existing 20 structures succumbed to erosion. Six of these 11 structures were lost between October 2008 and October 2009. Thus, the severe erosion on the north end pre-dated the Town's implementation of Phase 1.

As further evidence of the pre-existing erosion problem, the Topsail Reef Homeowners Association installed a "super-sized" sandbag revetment to protect the 8 buildings in the condominium complex. Work on the super-sized revetment began in March 2012 and was completed in October 2012 well before work on Phase 1 was initiated.

Had Phase 1 not been implemented, there is a strong likelihood many of the remaining 20 ocean front residential structures north of Topsail Reef would have had to be abandoned or

demolished. Without the Phase 1 beach fill, there is little doubt all would have easily met the CRC's imminently threatened criteria.

The erosion of the shoreline south of New River Inlet has been a persistent problem since around 1984 when the bar channel of New River Inlet shifted its alignment toward Onslow Beach. Prior to 1984, the north end of North Topsail Beach was accreting at an average rate of 6.1 feet/year. Following the change in channel position and orientation, the north end began to erode at an average rate of 5.3 feet/year. Most of the accelerated erosion was attributed to the higher degree of exposure of the north end to wave energy. That is, prior to the channel shift, the south side of the ebb tide delta provided a breakwater effect with wave breaking relatively far offshore. With the loss of the south side delta, more wave energy was able to be transmitted directly to the shoreline. This, combined with the development of flood channels running close to and parallel to the north end, greatly increased sediment transport rates to the north.

This change in the behavior of the shoreline ultimately resulted in the Town adopting channel realignment as a main feature of its overall shoreline and inlet management plan. While the rate of loss of the fill placed during Phase 1 of the management plan has been higher than anticipated, the loss is comparable to losses experienced from previous fills created by the US Army Corp of Engineers through disposal of navigation maintenance material removed during maintenance of the AIWW and portions of the channel passing through Cedar Bush Cut from the AIWW to the inlet.

Ongoing monitoring of the Phase 1 project area and a recent numerical modeling study conducted by the Town's coastal engineering consultants concluded that high rates of erosion of the sand placed as part of the Phase 1 project along the north end of North Topsail Beach are due to the creation of a shoreline alignment out of equilibrium with existing conditions. This is demonstrated in Figure 10 which shows a schematic of the post-construction shoreline and the natural shoreline. Again, the major condition controlling the alignment of the shoreline on the extreme north end of North Topsail Beach and rapid erosion of fill placed along this section of shoreline was the absence of a significant volume of material in the ebb tide delta on the south side of New River Inlet. As fill has been placed along the north end of the Town, the natural shoreline has assumed an alignment that passed through the middle of Topsail Reef and angles north into New River Inlet.

Another finding of the recent numerical modeling study conducted by the Town's coastal engineering consultants is that simulated sediment transport patterns and erosion/sedimentation patterns suggest material filling in the channel is not coming from the beach, but rather the adjacent shoals and the interior inlet system. This combined with the finding that the high rates of erosion were due to the alignment of the shoreline as opposed to the dredging of the channel during the Phase 1 project further demonstrate that the hardship has not resulted from the petitioner's actions. This finding was corroborated by monitoring of the fill that Town placed during the March/April Navigation project in that fill placed along the north end rapidly migrated from sections fronting the sand bag revetment to the spit (north) and toward Topsail Reefs (south). This rapid erosion of sand from sections of the beach occurred independently with any dredging of the ocean bar channel directly adjacent to North Topsail Beach.

Figure 10. Schematic showing post-construction shoreline orientation (solid red line) and natural shoreline (dashed red line).

As mentioned above, much of the accelerated erosion can be attributed to the unnatural shoreline configuration created by the beach fill, i.e., the conditions that were causing the north end to erode prior to relocating the channel, such as the configuration of the shoal on the south side of the inlet and the presence of flood channels, still persist. These conditions will continue to exist until such time the newly aligned channel effects the predicted changes in the ebb tide delta of New River Inlet. Until that time, waves will continue to impact the area in such a way as to cause accelerated sediment transport from the north end and into New River Inlet.

Based on the documented history of shoreline changes along the north end of North Topsail Beach, the recent acceleration in the rate of shoreline change is not related to the channel relocation project. Moreover, all structures on the project site were built in accordance with the erosion setbacks established by the CRS at the time of their construction and in fact were "second row" homes when constructed.

The Town's commitments to remove the geotextile sand tube in accordance with the permit conditions when construction was completed was based on its belief that the sand bag revetment alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. However, the rapidly changing conditions along the north end of the island and the accelerated rate of loss of material from the area has made it abundantly clear that the removal of the geotextile sand tube could jeopardize the integrity of the revetment.

Likewise, the Town's commitments to remove the geotextile sand tube in accordance with the variance and attendant permit modification issued on August 29, 2015 was based on the belief that the 2016 Navigation Maintenance Project (funded by the Town, County and State) would have placed enough sand along the entire length of the revetment fronted by the geotextile containment tube sufficient to obviate the immediate concerns associated with removing the geotextile containment tubes. However, the Towns' consultants continue to maintain the opinion that the geotextile sand tube provides substantial scour protection for sand bag revetment. Moreover, one of the Town's consultants has recently opined that due to heavy wave action associated with storms, including but not limited to Hurricane Joaquin, the tube's "removal will ultimately lead to accelerated erosion of the sea bed adjacent to the sand bags" and "[i[n turn, the consequent degradation of the sand bag armoring will have dire consequences for the homes currently protected by the sand bags." Inasmuch as the Town cannot control wave action or the dynamic nature of the area, these hardships are not the result of any actions taken by the Town.

Staffs' Position: Yes.

Staff agreed with the Petitioner in its November 2014 variance petition that the Town has done nothing to accelerate the erosion affecting the Site and has taken significant steps to address the problem, including the development and implementation of its Inlet Management Plan. However, the hardships at issue in the July 2015 variance petition and this new 2016 variance petition, are only those caused by not being allowed to retain the tubes in addition to the larger sandbag structure. Petitioner sought and is now seeking again to keep the geotextile tubes long-term and possibly until 2022, as more than a temporary construction method. The resulting hardships are the cost of placing the tubes for a short duration, the cost of removing the tubes, and the possible impacts to the larger sandbag structure which may occur if the tubes are removed.

It was made clear in the discussion surrounding Petitioner's 2014 request to DCM Staff to employ the use of geotextile tubes as a temporary construction method that permitting would be limited to the initial construction period only. The Town and its contractor assured they understood this in writing, and also agreed to a permit condition reiterating that the geotextile tubes would only serve as a temporary construction method. Staff's position is that hardships result from the actions taken by the Petitioner, including their decisions to scale-down the previously authorized sandbag structure and their decision to rely on the 2016 project when such navigation projects often are short lived in addressing erosion issues.

IV. Will the variance requested by the petitioner (1) be consistent with the spirit, purpose, and intent of the rules, standards or orders issued by the Commission; (2) secure the public safety and welfare; and (3) preserve substantial justice? Explain.

Petitioner's Position: Yes.

The expressed objectives of the CRC rules are to provide management policies that eliminate unreasonable danger to life and property which achieve a balance between financial, safety, and social issues. The goals of the CRC management policies are to minimize losses to life and property due to storms and long term erosion as well as preserving the ecological conditions of the dune and beach system.

If the containment tube is removed prematurely, there is a high probability all of the 20 threatened residential structures will be lost within the next 12 to 18 months either by virtue of the effects of long-term erosion or impacts of a moderate coastal storm. While the Town of North Topsail Beach is moving forward with plans to reposition the inlet bar channel to a preferred position and alignment during the 2017-18 environmental dredging window, the relatively long time required for the inlet and shoreline to respond favorably to the relocated bar channel has prompted the Town to partner with Onslow County to acquire professional services to evaluate alternative means to maintain navigable depths in New River Inlet and provide erosion and storm damage protection for development on the north end of North Topsail Beach. By virtue of authority provided by the NC Legislature's passage of Session Law 2015-241 Section 14.6.(r), the alternatives to be evaluated will include the possible use of hardened structures.

Based on experience with the design and permitting of similar structures in North Carolina, the permitting of any hardened structure for New River Inlet could at least 3 years once the effort is initiated. Assuming a contract for the work is awarded this year (2016), construction of a structure at New River Inlet may not occur until at least 2019 or 2020. With the erosion stress on the north end of North Topsail Beach expected to remain high during this design and implementation period, there will be a continuing need to maintain the sandbag structure in its present form which includes the scour protection provided by the sand tube.

Some relief to the erosion threat could come as early as the 2017-18 environmental dredging window with relocation of the inlet bar channel back to its preferred position and alignment, but based on the performance of the fill placed in the area during construction of Phase 1, protection provided by any beach fill placed north of Topsail Reef is expected to be short lived.

As the 20 structures become more exposed, their eventual destruction could pose a serious threat to the safety of the public that uses the area for recreational purposes. This threat could come from floating debris, submerged and/or hidden piles, as well as other anthropogenic items remaining once the property is abandoned. Allowing the authorized containment tube to remain part of the temporary erosion control structures until such time the Town can implement a long-term solution to the erosion problem or for at least the duration of the permit for the sandbag revetment which ends in November 2022 will significantly lessen any unreasonable danger(s) to life and adjacent property from the foregoing dangers.

Observations made since completion of the sandbag revetment indicate the tube has not had any noticeable adverse impact to adjacent shorelines as compared to revetments composed of only sand bags. Therefore, allowing the sand tube to remain until the Town can implement a long-term solution or at least for the duration of the time allowed for the sand bag revetment would not have any greater negative impact on adjacent properties than the impacts associated with the sand bag revetment itself.

The containment tube was successful in providing temporary protection to the work area and preventing further loss of sand from the project area since completion of the sand bag revetment.

Although no sand was placed directly on any tubes or bags during the navigation channel maintenance project, the influx of sand to the system resulted in the temporary burying of some additional sections of the sand tube however portions of the tube covered by the navigation maintenance material are now uncovered as some of the material has migrated out of the placement area.

The containment tube currently continues to provide vital scour protection and its removal could result in dramatic failure of a portion of the sand bag revetment. While there were positive changes in the ebb tide delta associated with the initial relocation of the inlet bar channel while the channel was positioned in its intended orientation the rapidity at which the channel shoaled and migrated north demonstrated that the bar channel would have to be maintained in its preferred position and alignment in perpetuity and require more frequent maintenance than anticipated. Based on projections provided in the FEIS for the Town's shoreline and inlet management plan, positive shoreline impacts associated with the new channel were not expected for at least 5 years with full recovery of the shoreline back to a condition that existed in the mid-1980's taking at least 15 years.

The granting of this variance will achieve a balance between financial, safety, and social issues. It will allow the Town to pursue a longer term solution while preserving a $2+ million-dollar asset while also protecting millions of dollars' worth of property and infrastructure. It will provide for further safety of the homes and infrastructure in the subject area while at the same time avoiding the safety risk associated with the destruction of the property such as floating debris, submerged and / or hidden piles as well as other items that could / would be left behind if the properties were destroyed and abandoned as the same would pose serious threats to the safety of the public that uses the area for recreational purposes. There is no evidence that existence of the tubes is causing any adverse effects on adjacent shorelines. Accordingly, the granting of this variance is consistent with the spirit, purpose and intent of the rules of the Commission, it secures the public safety and welfare, and it promotes substantial justice.

CONCLUSION

The commitments to remove the authorized sand tube in accordance with the permit conditions were made in good faith by the Town and based on the belief that the sand bag revetment alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. Likewise, the Town's commitments to remove the sand tube in accordance with the permit modification issued on August 29th, 2015 was based on the good faith belief that the 2016

Navigation Maintenance Project would have placed enough sand along the entire length of the revetment fronted by the geotextile containment tube sufficient to obviate the immediate concerns associated with removing the geotextile containment tubes. However, the rapidly changing conditions along the north end of the island and the accelerated rate of loss of material from the area has made it abundantly clear that the sand bag revetment alone will not be able to protect the homes or the roads in this area for a sufficient amount of time to allow for gradual recovery of the shoreline associated with the channel realignment project or provide a sufficient amount of time for the Town to evaluate and possibly implement an alternative long-term protection project. Therefore, the Town respectfully petitions the Coastal Resources Commission to amend Condition No. 11 in the Amended CAMA Major Permit #92-14 to allow the authorized containment tube to remain part of the temporary erosion control structures until such time the Town of North Topsail Beach can identify and implement an alternative long-term protection project. Formulation and implementation of such an alternative could take at least 3 years. While the effort for developing an alternative long-term plan is underway, the Town of North Topsail Beach also requests that as a minimum sandbag revetment permit be modified to allow the sand tube to remain for the duration of the permit for the sandbag revetment which expires in November 2022.

Staffs' Position: No.

While Staff agrees that adopting management policies that eliminate unreasonable danger to life and property are among the expressed objectives of the CRC's rules, Staff disagrees that the variance requested by the Town is consistent with the spirit, purpose, and intent of the rules, standards or orders issued by the Commission, protects public safety and welfare, or preserves substantial justice.

The spirit, purpose and intent of the Commission's rules for the Ocean Hazard Area of Environmental Concern is to allow *temporary* erosion control for imminently threatened structures, while limiting the size of the individual sandbags and the dimensions of the overall structure that may be permitted. In 2003, CAMA was amended to include 113A-115.1, which prohibited the use of erosion control structures along the ocean shoreline, except in a few specific situations. The Commission's rules did allow for the continued use of "temporary erosion control structures" made of sandbags to protect only imminently threatened structures, which were those within 20 feet of the erosion scarp. The installation and design standards in the Commission's rules reflect the temporary nature of the structures, and demonstrate that sandbags were not intended as large, permanent structures. Further, the Commission stated in 15A NCAC 07M.0202(e) that these temporary measures are to be used "only to the extent necessary to protect property for a short period of time until the threatened structures can be relocated or until the effects of a short-term erosion event are reversed." This rule emphasizes that sandbags should only offer immediate relief and provide time to find a permanent solution. The Commission's size limits on individual sandbags and limits on the overall structure size are intended to promote structural stability and effectiveness, while maintaining the temporary nature and the public's right of safe access to the beach.

Geotextile tubes can be less stable than the sandbag structures allowed by the Commission's rules, as evidenced by the need for the chock bags for roll protection. The Commission's rules specifically prohibit soldier pilings and other types of anchoring devices. Staff also notes that a portion of the Town's geotextile tube has already been removed as intended, and those sandbags do not appear to have failed due to scour. Additionally, the smaller bags at the north end of the Site, which were constructed at the 6' by 20' dimensions, have also not failed due to scour. Staff's position is that the Town's geotextile tubes, which are in violation of the Commission's standards and the Commission's 2015 variance order and resulting permit, are not necessary for the sandbag structure to perform its intended function, and allowing them to remain for an extended period of time, beyond the spring 2016 deadline imposed by the Commission at the July 2015 variance hearing, would not be consistent with the spirit, purpose and intent of the Commission's sandbag rules.

Additionally, Staff believes that allowing the geotextile tubes, chock tubes and scour apron to remain for an extended period of time would not protect public safety and welfare. Staff raised public safety and access concerns about geotextile tubes at the 2010 and 2015 presentations on geotextile tubes made to the Commission, and these concerns remain today.

INDEX TO ATTACHMENTS

#1	Cover, Staff Rec and Attachments A, B, & C (This pdf)	
#2	Attachment D:	Petitioner's Petition
#3	Attachment E:	All Exhibits for the 2014 Variance - CRC-VR-14-16
#4	Attachment F:	Easements
#5	Attachment G:	All Exhibits for the 2015 Variance - CRC-VR-15-05
#6	Attachment H:	2015 Powerpoint
#7	Attachment I:	New Exhibits for 2016 Variance – CRC-VR-16-09, including

There are 7 pdf files total

ATTACHMENT D:

PETITIONERS' VARIANCE REQUEST MATERIALS

Crossley McIntosh & Collier

CROSSLEY MCINTOSH COLLIER HANLEY & EDES, P.L.L.C.
ATTORNEYS AT LAW

JOHN F. CROSSLEY (1921-2006)
DOUGLAS F. MCINTOSH (1959-2016)
CLAY ALLEN COLLIER
ANDREW HANLEY
BRIAN E. EDES
NORWOOD P. BLANCHARD III
ANDREW PENNY

5002 RANDALL PARKWAY
WILMINGTON, NC 28403

TELEPHONE 910/762-9711
FAX 910/256-0310
TOLL FREE 800/499-9711

E-mail briane@cmclawfirm.com

August 3, 2016

Braxton Davis
Director, NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557
(252) 808-2808 ext. 202
Via Email: Braxton.Davis@NCDENR.Gov

RE: Town of North Topsail Beach Variance Petition

Dear Mr. Davis:

On behalf of the Town of North Topsail Beach, I am transmitting the following along with this letter:

1) Signed copy of the Town's Variance Petition (DCM Form 11);
2) The subject permit;
3) The description of the proposed development including a site plan;
4) Proof of notice to the adjacent property owners;
5) The Town's written reasons and arguments as to how the Town meets the four variance criteria; and
6) A draft set of proposed stipulated facts and stipulated exhibits.

Per the instructions of Mrs. Christy Goebel, I have not included a copy of the subject easements as they are the same ones previously submitted in connection with the previous variance(s) associated with this project. Should you need for me to send those again I will be glad to do so.

Please also allow this letter to serve as the Town's written stipulation that the proposed development / condition is inconsistent with the strict application and letter of the rule(s) at issue.

Sincerely,

Brian E. Edes
Town Attorney, North Topsail Beach

CAMA VARIANCE REQUEST FORM **DCM FORM 11**
DCM FILE No.:_____

PETITIONER'S NAME Town of North Topsail Beach
COUNTY WHERE THE DEVELOPMENT IS PROPOSED Onslow

Pursuant to N.C.G.S. § 113A-120.1 and 15A N.C.A.C. 07J .0700 *et seq.,* the above named Petitioner hereby applies to the Coastal Resources Commission (CRC) for a variance.

VARIANCE HEARING PROCEDURES

A variance petition will be considered by the CRC at a regularly scheduled meeting, heard in chronological order based upon the date of receipt of a complete petition. 15A N.C.A.C. 07J .0701(e). A complete variance petition, as described below, must be *received* by the Division of Coastal Management (DCM) a minimum of six (6) weeks in advance of the first day of a regularly scheduled CRC meeting to be eligible for consideration by the CRC at that meeting. 15A N.C.A.C. 07J .0701(e). The final set of stipulated facts must be agreed to at least four (4) weeks prior to the first day of a regularly scheduled meeting. 15A N.C.A.C. 07J .0701(e). The dates of CRC meetings can be found at DCM's website: **www.nccoastalmanagement.net**

If there are controverted facts that are significant in determining the propriety of a variance, or if the Commission determines that more facts are necessary, the facts will be determined in an administrative hearing. 15A N.C.A.C. 07J .0701(b).

VARIANCE CRITERIA

The petitioner has the burden of convincing the CRC that it meets the following criteria:

(a) Will strict application of the applicable development rules, standards, or orders issued by the Commission cause the petitioner unnecessary hardships? Explain the hardships.

(b) Do such hardships result from conditions peculiar to the petitioner's property such as the location, size, or topography of the property? Explain.

(c) Do the hardships result from actions taken by the petitioner? Explain.

(d) Will the variance requested by the petitioner (1) be consistent with the spirit, purpose, and intent of the rules, standards or orders issued by the Commission; (2) secure the public safety and welfare; and (3) preserve substantial justice? Explain.

Please make your written arguments that Petitioner meets these criteria on a separate piece of paper.
The Commission notes that there are some opinions of the State Bar which indicate that non-attorneys may not represent others at quasi-judicial proceedings such as a variance hearing before the Commission.

These opinions note that the practice of professionals, such as engineers, surveyors or contractors, representing others in quasi-judicial proceedings through written or oral argument, may be considered the practice of law. Before you proceed with this variance request, you may wish to seek the advice of counsel before having a non-lawyer represent your interests through preparation of this Petition.

For this variance request to be complete, the petitioner must provide the information listed below. The undersigned petitioner verifies that this variance request is complete and includes:

____ The name and location of the development as identified on the permit application;

____ A copy of the permit decision for the development in question;

____ A copy of the deed to the property on which the proposed development would be located;

____ A complete description of the proposed development including a site plan;

____ A stipulation that the proposed development is inconsistent with the rule at issue;

____ Proof that notice was sent to adjacent owners and objectors*, as required by 15A N.C.A.C. 07J .0701(c)(7);

____ Proof that a variance was sought from the local government per 15A N.C.A.C. 07J .0701(a), if applicable;

____ Petitioner's written reasons and arguments about why the Petitioner meets the four variance criteria, listed above;

____ A draft set of proposed stipulated facts and stipulated exhibits. Please make these verifiable facts free from argument. Arguments or characterizations about the facts should be included in the written responses to the four variance criteria instead of being included in the facts.

____ This form completed, dated, and signed by the Petitioner or Petitioner's Attorney.

**Please contact DCM or the local permit officer for a full list of comments received on your permit application. Please note, for CAMA Major Permits, the complete permit file is kept in the DCM Morehead City Office.*

Due to the above information and pursuant to statute, the undersigned hereby requests a variance.

Signature of Petitioner or Attorney

August 3, 2016
Date

Brian E. Edes, Town Attorney
Printed Name of Petitioner or Attorney

briane@cmclawfirm.com
Email address of Petitioner or Attorney

5002 Randall Parkway
Mailing Address

(910) 762-9711
Telephone Number of Petitioner or Attorney

Wilmington NC 28403
City State Zip

(910) 256-0310
Fax Number of Petitioner or Attorney

DELIVERY OF THIS HEARING REQUEST

This variance petition must be **received by** the Division of Coastal Management at least six (6) weeks before the first day of the regularly scheduled Commission meeting at which it is heard. A copy of this request must also be sent to the Attorney General's Office, Environmental Division. 15A N.C.A.C. 07J .0701(e).

Contact Information for DCM:

By mail, express mail or hand delivery:
Director
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

By Fax:
(252) 247-3330

By Email:
Check DCM website for the email address of the current DCM Director
www.nccoastalmanagement.net

Contact Information for Attorney General's Office:

By mail:
Environmental Division
9001 Mail Service Center
Raleigh, NC 27699-9001

By express mail:
Environmental Division
114 W. Edenton Street
Raleigh, NC 27603

By Fax:
(919) 716-6767

Revised: July 2014

Crossley McIntosh & Collier

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ATTORNEYS AT LAW

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* Of Counsel

5002 RANDALL PARKWAY
WILMINGTON, NC 28403

TELEPHONE 910/762-9711
FAX 910/256-0310
TOLL FREE 800/499-9711

E-mailjarrettm@cmclawfirm.com

August 2, 2016

Topsail Reef HOA
PO BOX 79032
Charlotte, NC 28271-7047

Subject: Request for Variance to Amended CAMA Major Permit #92-14
Construction Containment Tube
Town of North Topsail Beach
North Topsail Beach, Onslow County, North Carolina

Dear Topsail Reef HOA:

The Town of North Topsail Beach is seeking a variance to condition 11 of the Amended CAMA Major Permit #92-14.

1. The Town is requesting a variance to condition 11 in that the Town proposes to keep the authorized temporary construction containment tube as a part of the temporary erosion control structures until the Town can complete its review of long-term solutions for the erosion problem, including but not limited to consideration of a terminal groin, or until November 2022, the expiration date for the permit for the existing sandbag revetment.

This letter is in response to 15A NCAC 07J .0701(c)(7) which requires an applicant to notify adjoining property owners of the application for a variance.

Sincerely,

Brian E. Edes
Town Attorney, North Topsail Beach

Cc: 2224 New River Inlet Road, NTB, NC

Crossley McIntosh & Collier

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* Of Counsel

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TELEPHONE 910/762-9711
FAX 910/256-0310
TOLL FREE 800/499-9711

E-mail jarrettm@cmclawfirm.com

August 2, 2016

Topsail Reef HOA
PO BOX 79032
Charlotte, NC 28271-7047

Subject: Request for Variance to Amended CAMA Major Permit #92-14
Construction Containment Tube
Town of North Topsail Beach
North Topsail Beach, Onslow County, North Carolina

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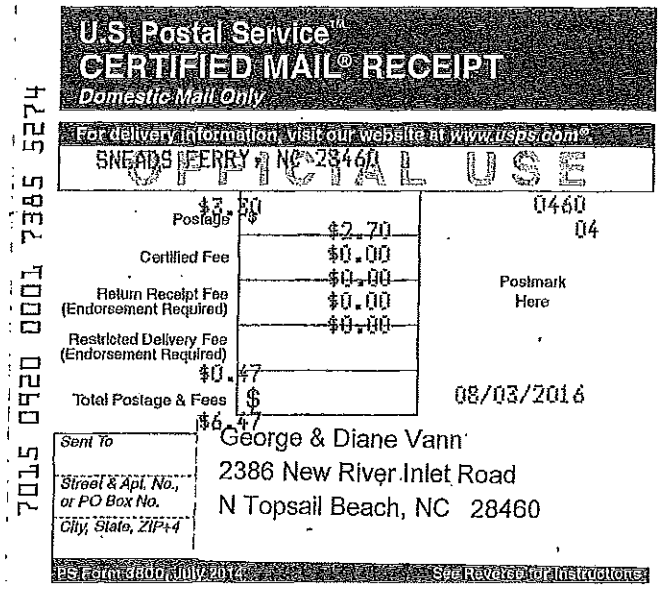
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George & Diane Vann
2386 New River Inlet Road
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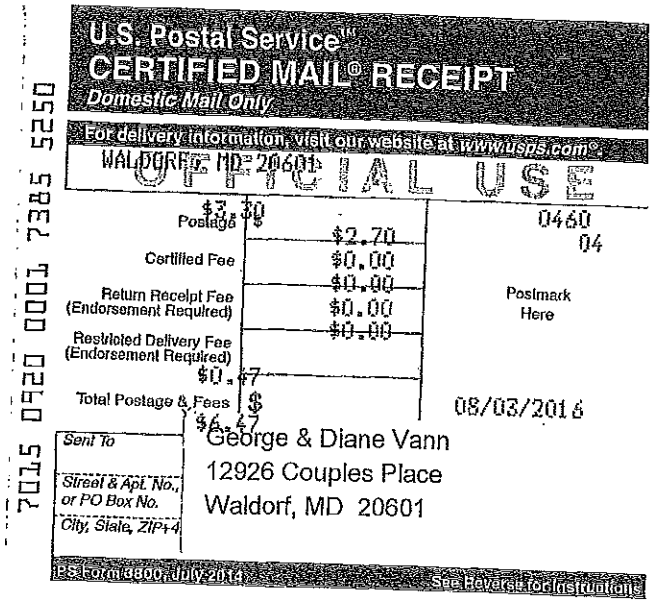
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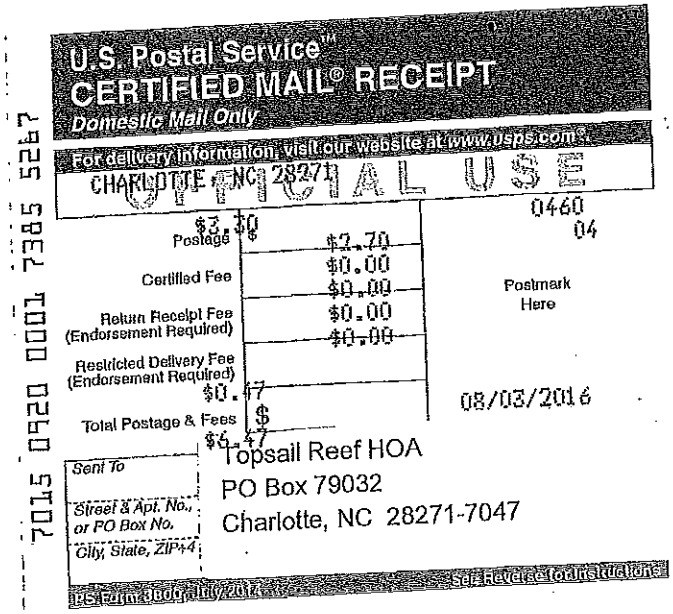
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PO Box 79032
Charlotte, NC 28271-7047
PS Form 3800, July 2014
See Reverse for Instructions
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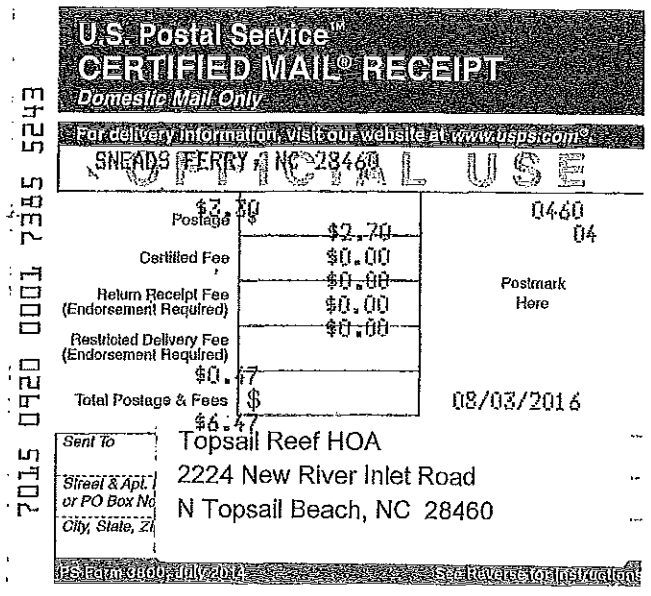
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2224 New River Inlet Road
N Topsail Beach, NC 28460
PS Form 3800, July 2014
See Reverse for Instructions
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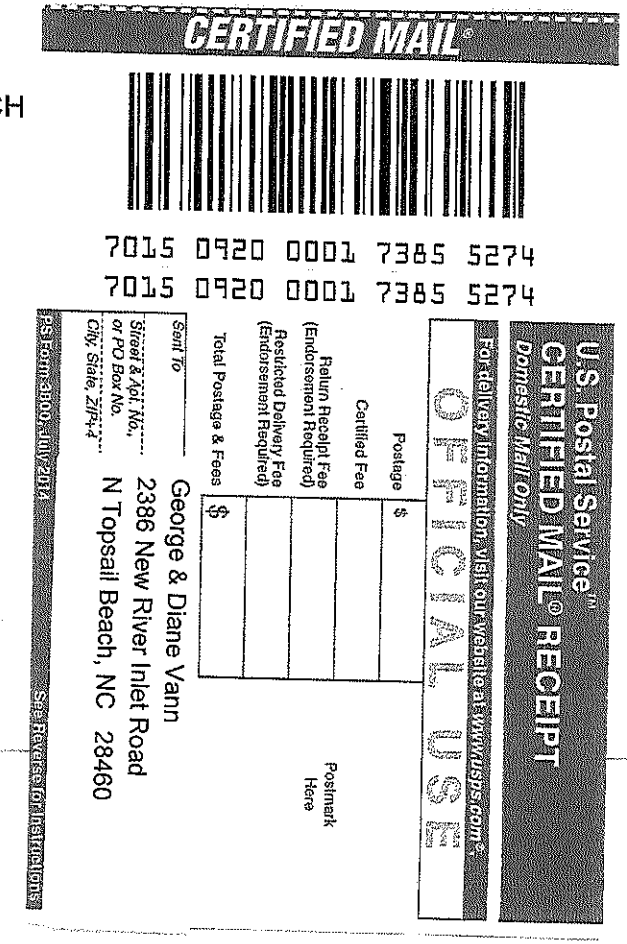
TOWN OF NORTH TOPSAIL BEACH
2008 Loggerhead Court
North Topsail Beach, NC 28460



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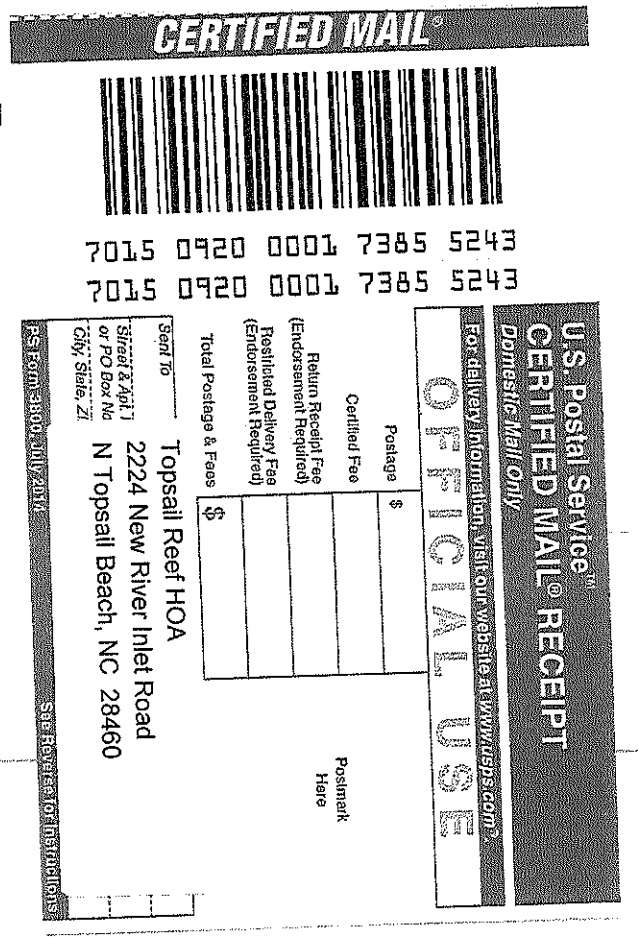
North Topsail Beach, NC 28460



3699283

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2224 New River Inlet Road
N Topsail Beach, NC 28460

9590 9401 0036 5071 9928 38

2. Article Number *(Transfer from service label)*
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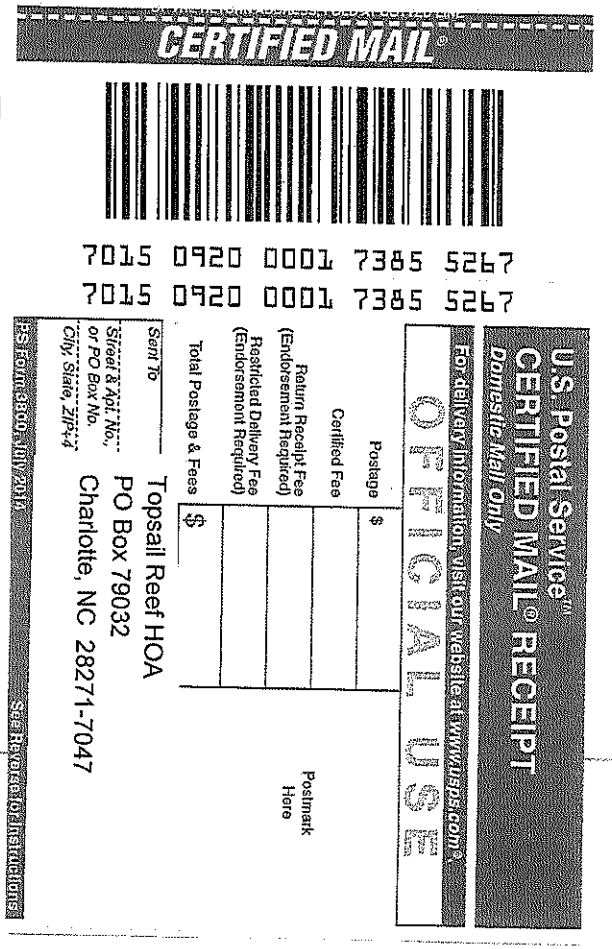
North Topsail Beach, NC 28460



3699280

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Charlotte, NC 28271-7047

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PS Form 3811, April 2015 PSN 7530-02-000-9053

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

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Sent To: George & Diane Vann
Street & Apt. No., or PO Box No.: 12926 Couples Place
City, State, ZIP+4: Waldorf, MD 20601

PS Form 3800, July 2014 — See Reverse for Instructions

TOWN OF NORTH TOPSAIL BEACH
2008 Loggerhead Court
North Topsail Beach, NC 28460

3699281

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1. Article Addressed to:

George & Diane Vann
12926 Couples Place
Waldorf, MD 20601

9590 9401 0036 5071 9928 14

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  - Return receipt servic
    with a record of deliv
    recipient's signature);
    hardcopy return recei
    version. For a hardco
    complete PS Form 38
    Receipt attach PS Fo

PS Form 3800, July 2014

Attachment E:
Stipulated Exhibits from the 2014 Variance
Which are incorporated into this 2015 variance

All Exhibits for CRC-VR-14-16:

1. Easements from the oceanfront owners at the Site to the Town (attached separately as **Attachment F**)
2. Exhibit 15 photo
3. FEIS for Inlet Management Project- Table of Contents and Executive Summary only
4. Jarrett Erosion History Report, Jarrett affidavit and Jarrett Erosion Report
5. CAMA Major Permit 78-10 as amended
6. August 2014 Shoreline Survey Beach Profiles
7. Cleary Letter
8. October 2014 Monitoring Report
9. Sandbag "Final Design" CAMA Major Permit application including project narrative, updated design plan, DCM forms, riparian notice, AEC hazard notice, etc.
10. Fisheries objections
13. DCM Field Report
12. Emergency Permit email from DCM to Town dated October 21, 2014
13. CAMA Major Permit 92-14 with cover letter
14. Tax base information from town
15. Town resolution 2014-13
16. Town resolution 2014-16
17. Draft Town meeting minutes showing public comment on sandbag project
18. Notice of Town meeting on 11/19/14 to put sandbag project to bid
19. Various site photographs included in the 2014 powerpoint presentation


1163+00
1160+00
1155+00
1150+00
1145+00
1140+00
River Dr
Port Dr
Oyster Ln
Coastal Dr
1568
New River Inlet Rd
Marine Dr
Image © 2014 DigitalGlobe
843 ft
Google earth

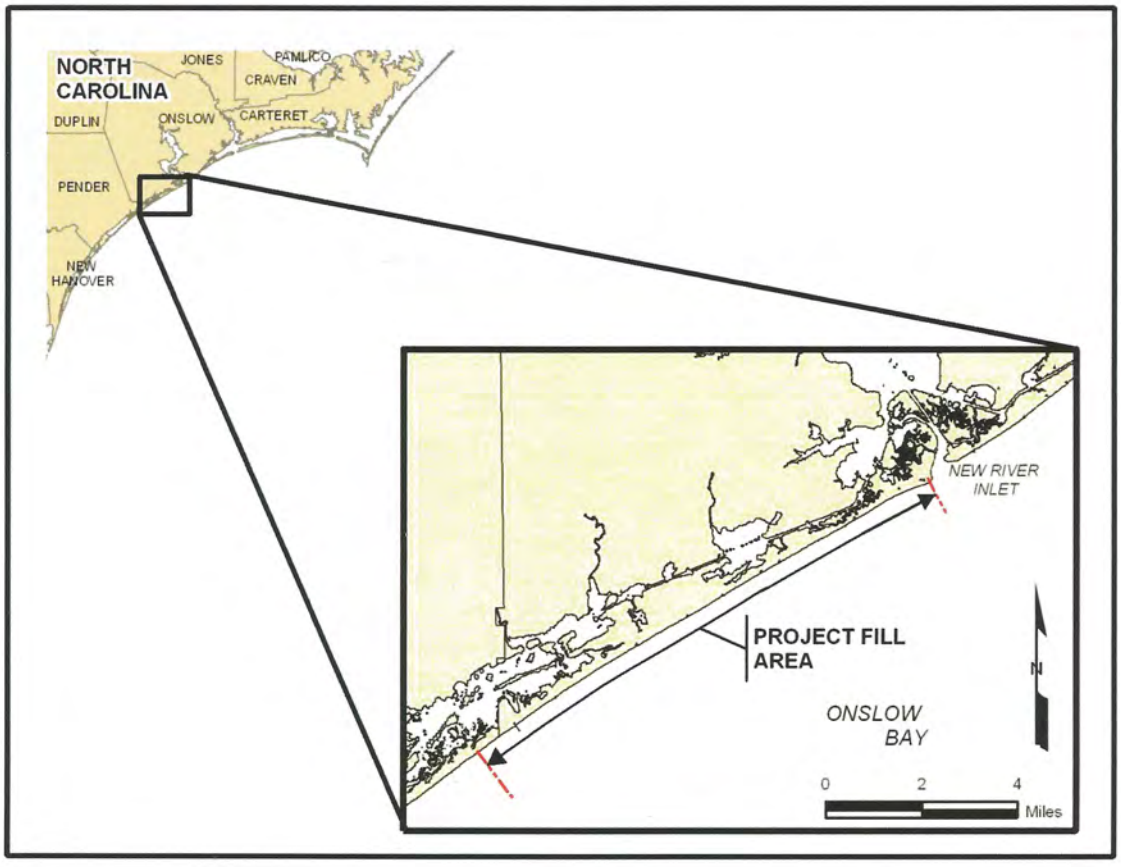
U.S. Army Corps
of Engineers®
Wilmington District

VOLUME I OF III
SECTIONS 1-8

FINAL
ENVIRONMENTAL IMPACT STATEMENT
DECEMBER 2009

NORTH TOPSAIL BEACH SHORELINE PROTECTION PROJECT

NORTH TOPSAIL BEACH, NORTH CAROLINA



For more information and comments, contact Mr. Mickey T. Sugg, U.S. Army Corps of Engineers, Regulatory Division, P.O. Box 1890, Wilmington, North Carolina 28402-1890, phone (910) 251-4811, facsimile (910) 251-4025 or via e-mail: mickey.t.sugg@saw02.usace.army.mil

Table of Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

APPENDIX B

Engineering Analysis

Final Engineering Analysis
Shoreline Protection Project
Town of North Topsail Beach, North Carolina

Prepared for:

North Topsail Beach, North Carolina

Prepared by:

Coastal Planning & Engineering of North Carolina, Inc.
4038 Masonboro Loop Rd.
Wilmington, NC 28409

July 2009

Executive Summary

North Topsail Beach has an 11.1 mile ocean shoreline that occupies the north end of Topsail Island. The Town is bordered on the south by the Town of Surf City and on the north by New River Inlet. Development and infrastructure within the corporate limits of the North Topsail Beach have been damaged during recent storm events and remain vulnerable to damage associated with coastal storms. The north end of the Town is the most vulnerable area due to erosion and shoreline fluctuations caused by uncontrolled changes in position and alignment of the New River Inlet ocean bar channel. The Town is seeking Federal and State permits to allow implementation of a non-Federally funded shoreline and inlet management project that would preserve the Town's tax base, protect its infrastructure, and maintain its tourist oriented economy.

Most of the northern 7.25 miles of the town's shoreline (shoreline north of baseline station 785+00) lies within the Coastal Barrier Resource System (CBRS) and is not eligible for federal storm damage protection. The southern 3.85 miles is presently being evaluated for a possible federal storm damage reduction project.

Seven alternatives were considered and the applicant's preferred alternative is Alternative 3: Implementation of an Inlet Management Plan for New River Inlet and construction of a beach fill along 11.1 miles of the Town's shoreline. The design template for the beach fill within the CBRS includes an artificial dune with a crest elevation of +14.0 feet above NAVD fronted by a variable width horizontal beach berm at elevation +6.0 feet NAVD. The dune feature of the template would only be constructed in areas where the existing dune is inadequate. The beach fill proposed for the southern 3.85 miles is only intended to provide interim projection until such time the federal storm damage reduction project is implemented. The design template for the beach fill along the southern 3.85 miles consists of a horizontal berm at elevation +6.0 feet NAVD.

The inlet management plan includes repositioning the of the main ocean bar channel to a more southerly alignment and periodic maintenance of the preferred position and alignment. The new channel would be constructed to a bottom width of 500 feet and a depth of -18 feet NAVD. Construction of the new channel would require the removal of 635,800 cubic yards of material based on the most recent survey of New River Inlet. Of this total volume 544,400 cubic yards is compatible with the native beach and 91,400 cubic yards incompatible. The incompatible material, which would be deposited in an upland disposal area, consists of a mixture of clay and shells. The compatible inlet material has an average mean grain size of 0.39 mm and would be used to initially construct the beach fill portion of the project along the northern 1.7 miles (9,000 feet) of the project area.

Maintenance of the new channel in the preferred position and along the preferred alignment is critical for the recovery of the extreme northern end of the town's shoreline. Therefore, the inlet management plan includes two channel thresholds which could trigger channel maintenance. The first threshold is based on shoaling of the new channel while the second is based on the position and orientation of the channel. For the shoaling threshold, channel maintenance would

be required when shoaling of the new channel reaches 85% of the initial dredge volume. The position threshold would be exceeded when the channel migrates outside the preferred channel corridor established during initial construction. The time required for the channel to migrate out of the preferred corridor is not known, however; channel shoaling is expected to reach the 85% threshold within 3 to 4 years after construction. Accordingly, formulation of the inlet management plan portion of the project assumed channel maintenance would be required at least every 4 years.

An offshore borrow area has been identified to provide beach fill for the remaining 9.4 miles of the North Topsail Beach shoreline. The borrow area is horseshoe shaped and located between 1 and 2 miles offshore, due south of the Town Hall. The borrow area contains approximately 6,551,000 cubic yards, 357,000 cubic yards of which is coarse material with a mean grain size of 0.33 mm and the balance composed of finer material with a mean grain size of 0.21 mm. The native beach has a mean grain size of 0.23mm.

Hardbottoms exist offshore of North Topsail Beach with some hardbottom areas located approximately 900 to 3,600 ft from the baseline stations. In order to avoid direct impacts on these relatively close hardbottom areas, coarse fill material from the offshore borrow area or from the construction and/or maintenance of the new channel in New River Inlet will be placed in these areas. The use of coarser fill material will require less volume to construct the design beach fill template and will move the point of intercept of the fill with the existing beach profile well landward of the nearshore hardbottom areas. The point of intercept is the seaward most point where the beach fill would ultimately tie into the existing bottom following post-construction adjustments.

The Town of North Topsail Beach proposes to construct the project in 5 phases based on its anticipated funding stream. The first phase of construction would occur between 16 November 2010 and 31 March 2011 (environmental dredging window) and would involve the relocation of the New River Inlet channel. Material from the channel relocation would be used to construct 9,000 feet of the beach fill from baseline station 1160+00, located next to New River Inlet, to 1070+00. Phase II would occur during the November 2012 to March 2013 dredging window and would cover 10,120 feet of shoreline between baseline stations 968+80 to 1070+00. Material for Phase II would come from the offshore borrow area. Coarse material from the offshore borrow area would be placed between baseline stations 1020+00 and 1070+00 (nearshore hardbottom areas) with the balance of the area constructed with material from the northeast portion of the borrow area.

Phase III would be scheduled for the November 2014 to March 2015 dredging window or 4 years after the initial channel relocation and would cover the shoreline between baseline stations 785+00 and 900+00. This is an area that includes hardbottoms approximately 900 to 2,700 ft from the baseline stations and would be constructed using coarse material from either the offshore borrow area or coarse shoal material removed to reestablish the position and alignment of the inlet bar channel. Based on shoaling predictions in the new channel, the 85% shoaling threshold would be exceeded within the first four years following channel relocation which would trigger the first channel maintenance operation. The predicted shoaling of the new

channel would be sufficient to initially construct the beach fill in Phase III and provide periodic nourishment for the beach fill constructed during Phase I.

Phase IV, which would be scheduled for the 2016 to 2017 environmental dredging window, would be constructed using material from the offshore borrow area and would cover the shoreline north of station 900+00 to 968+80. Phase IV would complete the beach fill within the North and Central Sections of North Topsail Beach. Construction of Phase IV would also correspond to the time nourishment could be required along the Phase II shoreline (968+80 to 1070+00). Since channel maintenance would not be scheduled at this time, nourishment of Phase II would be accomplished using coarse material from the offshore borrow area.

Phase V, the final initial construction phase, would occur during the 2018 to 2019 environmental dredging window and would provide an interim beach fill along the southern 20,320 feet of the town's shoreline. Phase V would also be constructed using material from the offshore borrow area.

Construction of Phase V would be scheduled 8 years after initial construction of the new bar channel in New River Inlet and, based on the theoretical shoaling predictions, could occur at the same time maintenance of the new channel is required. By this time, all or portions of the shoreline segments constructed during Phases I to IV would be in need of periodic nourishment, therefore, the inlet channel maintenance material could be deposited between the inlet and baseline station 785+00. The exact location of disposal would depend on the performance of the fill placed in the four segments.

Following initial construction of the beach fill portion of the project, material removed to maintain the preferred channel position and alignment would be used to provide periodic nourishment of the beach fill between station 785+00 and New River Inlet.

EXHIBIT 25:

EXHIBIT _____

AFFIDAVIT OF TOM JARRETT

Tom Jarrett, having been duly sworn, says the following:

1. I am a professional engineer licensed to practice in North Carolina.

2. I earned a B.S. in Civil Engineering from N.C. State University in 1965 and an M.S. in Civil Engineering from N.C. State University in 1967. I worked for the U.S. Army Corps of Engineers for over thirty-four years, until I retired in 2000.

3. While working for the U.S. Army Corps, I served as the Wilmington District's Chief of Coastal Engineering and Hydrology from 1985 to 2000 and was involved in the engineering work for numerous projects including the Morehead City harbor deepening; the Oregon Inlet terminal groin; the Masonboro Inlet jetty and sand management plan; and shore protection projects at Fort Fisher State Historic Site, Ocean Isle Beach, Wrightsville Beach, Carolina Beach and Kure Beach.

4. Since 1996, I have served on the North Carolina Coastal Hazards Science Panel, which advises the North Carolina Coastal Resources Commission.

5. I have received numerous awards for my work including the North Carolina Order of the Long Leaf Pine, an award from the Florida Shore and Beach Preservation Association, and U.S. Army Corps Wilmington District Civilian Distinguished Employee Award.

6. Today, I work as an Engineering Manager/Director with Coastal Planning & Engineering of North Carolina, Inc., a CBI Company, and in this capacity I have been involved in the engineering work for the North Topsail Beach shoreline protection project which includes the channel realignment of the New River Inlet.

7. In prior years, the United States Army Corps of Engineers had been depositing dredge spoil from the New River Inlet Atlantic Intracoastal Waterway crossing and from the

Cedar Bush Cut along a 2,000 to 5,000 linear foot area located generally in front of the area extending from the shoulder of New River Inlet south to the Topsail Reef Condominium complex in North Topsail Beach. The last Corps disposal operation occurred in 2013. Based on my experience working on the North Topsail Beach shoreline protection project, I know that the Town of North Topsail Beach is seriously considering performing maintenance dredging of the New River Inlet channel possibly as early as the 2015-16 dredging window. Maintenance of the channel could involve the removal of 500,000 cubic yards to 600,000 cubic yards of beach quality sand with disposal of the material along the north end of the town's shoreline.

8. Also based on my experience working on the North Topsail Beach shoreline protection and the New River Inlet channel relocation projects, I know the extreme north end of North Topsail Beach is extremely vulnerable to accelerated erosion during southwesterly storm events as well as frequent reversals in the direction of littoral sand movement due to the impacts of the ebb tide delta of New River Inlet on waves as they approach the area from the southeast as well as the southwest. In addition, flood tide channels run parallel and adjacent to the beach which accelerates the rate of sediment transport away from the area immediately fronting the shoreline situated north of Topsail Reef.

9. On behalf of the Town of North Topsail Beach (TOWN) I applied for an emergency major CAMA permit on September 26, 2014 to protect 20 threatened structures located north of the Topsail Reef Condominium. As proposed, the emergency permit would have authorized the TOWN to install a sandbag revetment approximately forty feet wide with a maximum crest elevation of +12 feet NAVD88 in the area beginning at Building #1 of Topsail Reef and extending to 2378 New River Inlet Road.

10. In my professional opinion, a sandbag revetment of the size proposed in the September 26, 2014 emergency CAMA permit application is necessary to protect the area until such time the TOWN is permitted to perform maintenance of the new bar channel and deposit the dredged material along the shoreline south of New River Inlet. Under existing permit conditions for the TOWN's Shoreline and Inlet Management Plan, maintenance of the new channel cannot be performed until the 2016-17 environmental dredging window.

11. The emergency CAMA permit issued by the North Carolina Division of Coastal Management on October 24, 2014 only authorizes a sandbag revetment six feet high, twenty feet wide and twenty feet seaward of the buildings. A revetment of this height and size will be insufficient to prevent water from reaching the 20 threatened structures and will likely be overwashed during a storm. Should the sandbags be overwashed, the integrity of the revetment could be seriously comprised.

Tom Jarrett, P.E.

NORTH CAROLINA
NEW HANOVER COUNTY

I, Karyn A. Wehner, a Notary Public for said County and State, do hereby certify that Tom Jarrett personally appeared before me this day and acknowledged that he has executed the foregoing document in his individual capacity.

Witness my hand and official seal/stamp, this 7 day of October, 2014.

(SEAL)

Karyn A. Wehner
Notary Public
My commission expires: 6-24-2015

November 13, 2014

History of Erosion on the North End of North Topsail Beach

The recent high rate of erosion experience by the fill placed along the north end of North Topsail Beach was not a manifestation of the channel relocation project associated with Phase 1 of the North Topsail Beach Shoreline and Inlet Management Plan. First and foremost in this argument was the abject failure of past beach nourishment efforts to have any long-lasting effect in slowing the rate of shoreline retreat. All of these previous beach nourishment events occurred prior to the construction of Phase 1. A brief summary of past beach nourishment efforts follows.

The USACE has deposited navigation maintenance material along the north end of North Topsail Beach in the area generally between the south shoulder of New River Inlet and the south end of the Topsail Reef Condominiums. The material was obtained through maintenance of the Atlantic Intracoastal Waterway (AIWW) where it intersects with New River and the channel leading to New River Inlet known as Cedar Bust Cut. Some of the material was also removed from Cedar Bush Cut. The dates and documented amounts of the fills placed by the USACE on the north end of North Topsail Beach are provided in Table 1.

Table 1. USACE disposal of navigation maintenance material on the north end of North Topsail Beach between 2002 and 2013.

Year	Contractor	Volume (CY)
2002	Cottrell	154,196
2004	Cottrell	77,004
2006	Unknown	100,534
2010	Southwind	185,000
2011	Cottrell	54,792
Total		**571,526**

As shown in Table 1, the total volume of material placed on the north end of North Topsail Beach between 2002 and 2011, or prior to the construction of Phase 1 of the town's shoreline and inlet management plan was 571,526 cubic yards. The volume of material deposited along the north end of North Topsail Beach between 2002 and 2011 is comparable to the in place volume of 566,244 cubic yards deposited during construction of Phase 1 of the town's shoreline and inlet management plan.

While the performances of the fills were not documented with survey data, evidence provided by the comparison of Google Earth photos taken between July 2002 and May 2011, which are provided in Figures 1 to 7 below, clearly show that in spite of the rather substantial amounts of beach fill, the shoreline continue to erode at an inordinate rate. This rapid rate of erosion eventually resulted in the loss of the structures that were situated seaward of the present front row of structures north of Topsail Reef. The loss of this row of structures, which at the time were protected by 20-ft x 6-ft sandbag revetments, is evident by comparing Figures 4 to 6.

The failure of these previous beach nourishment efforts to have a significant impact on slowing the rate of shoreline retreat was the primary reason the Topsail Reef HOA elected to install a super-sized sandbag revetment in 2012 to protect the eight buildings making up the Topsail Reef Condominium complex. Again, all of this occurred prior to the channel relocation.

Furthermore, the existence of abnormal erosion on the north end of North Topsail Beach was the very reason the town elected to implement the channel relocation project as part of Phase 1 of its management plan. The objectives of the channel relocation portion of the project was to induce reconfiguration of the ebb tide delta of New River Inlet through the redistribution of ebb tide delta material from the north side of the inlet to the south side. This process of ebb tide delta reconfiguration was projected to take up to 5 years before significant positive impacts would occur on the north end and up to 15 years before the shoreline was restored to a condition comparable to that which existed in the early to mid 1990's.

In summary, the rapid loss of the beach fills created by USACE disposal operations mimics the behavior of the beach fill placed during construction of Phase 1 of the town's shoreline and inlet management plan. Since this rapid rate of loss of fill occurred before the bar channel was relocated, the erosion of the fills was due to pre-existing conditions. For the most part, these same conditions still exists since the channel relocation project has not had time to have an impact on the north end of North Topsail Beach.

The pre-existing conditions include (1) the small size of the south side of the ebb tide delta of New River Inlet compared to the north side, (2) the presence of flood channels running parallel to and juxtaposed to the shoreline, and (3) the existing of a nodal zone just south of New River Inlet.

The relatively small size of the south side of the ebb tide delta exposes the north end of North Topsail Beach to large waves that are capable of transporting large quantities of littoral material. The combination of large waves interacting with the flood currents moving along the shoreline toward New River Inlet accelerates the rate of sediment transport north of Topsail Reef relative to the rate of sediment transport moving into the area from the south. The third pre-existing factor contributing to the high rate of sediment loss is the existence of a nodal zone created by wave refracting around the ebb tide delta. In this regard, waves moving toward North Topsail Beach from the southeast, which would normally transport sediment to the south, are refracted to such a degree that the direction of the waves impacting the shoreline are changed to the southwest just south of the inlet and in so doing move sediment north and into New River Inlet. As a result, the area north of Topsail Reef rarely receives littoral sand from the north which creates and imbalance in the sediment budget for the area.

This assessment of the conditions on the north end of North Topsail Beach are based on my almost 48 years of experience in dealing with coastal and inlet processes along the North Carolina coast and my detailed assessment of the littoral transport regime in the vicinity of New River Inlet developed during the formulation of the North Topsail Reef Shoreline and Inlet Management Plan as well as my involvement with the CRC Coastal Hazards Science Panel in the reformulation of Inlet Hazard Areas.

Tom Jarrett, P.E.
NC License 005545
Engineering Manager/Director
Coastal Planning & Engineering of N.C., Inc.

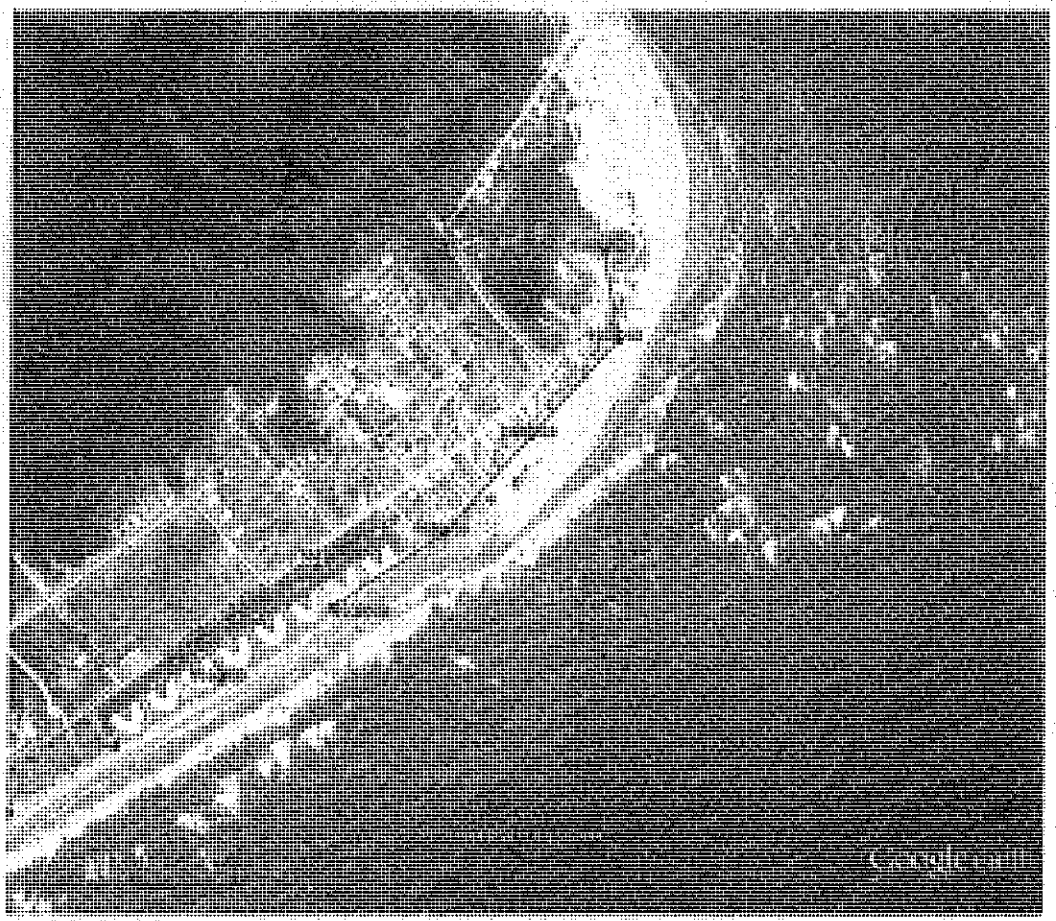


Figure 1. July 2002 Beach disposal operation on north end of North Topsail Beach by USACE. USACE deposited 154,150 cy in 2002.

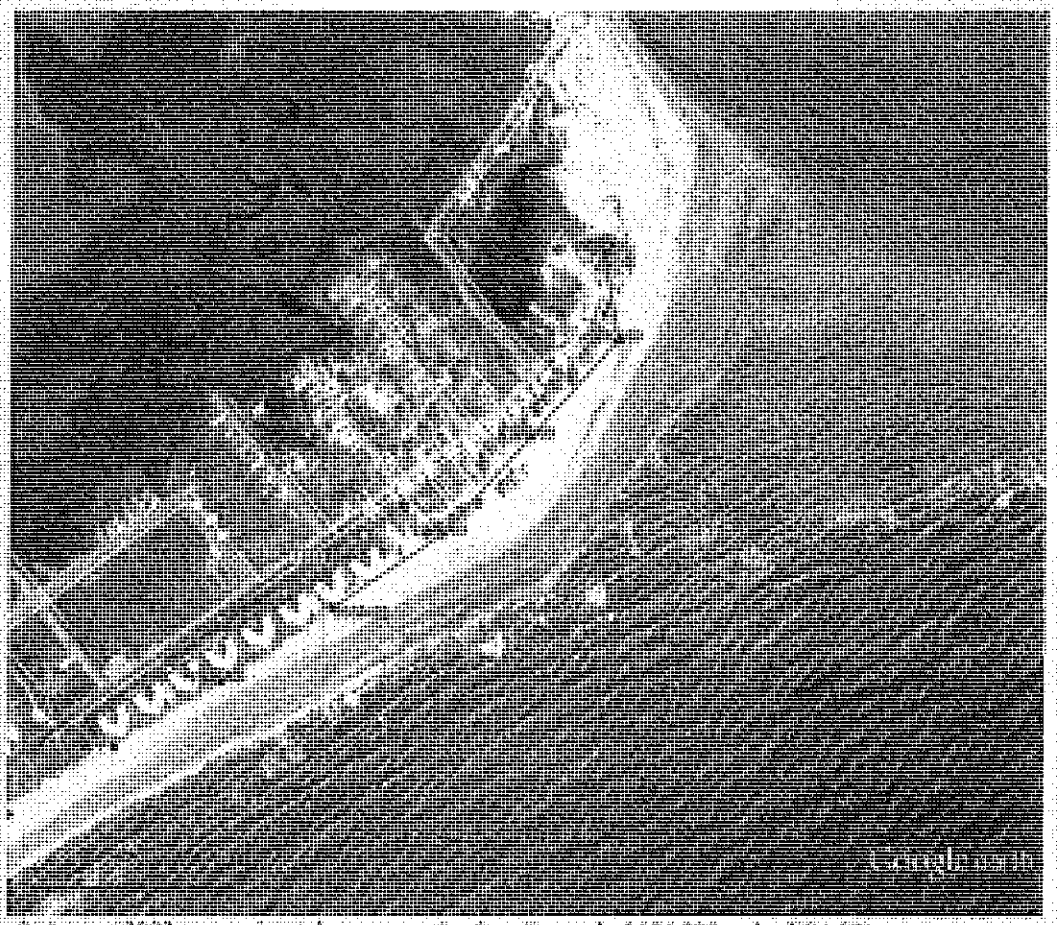


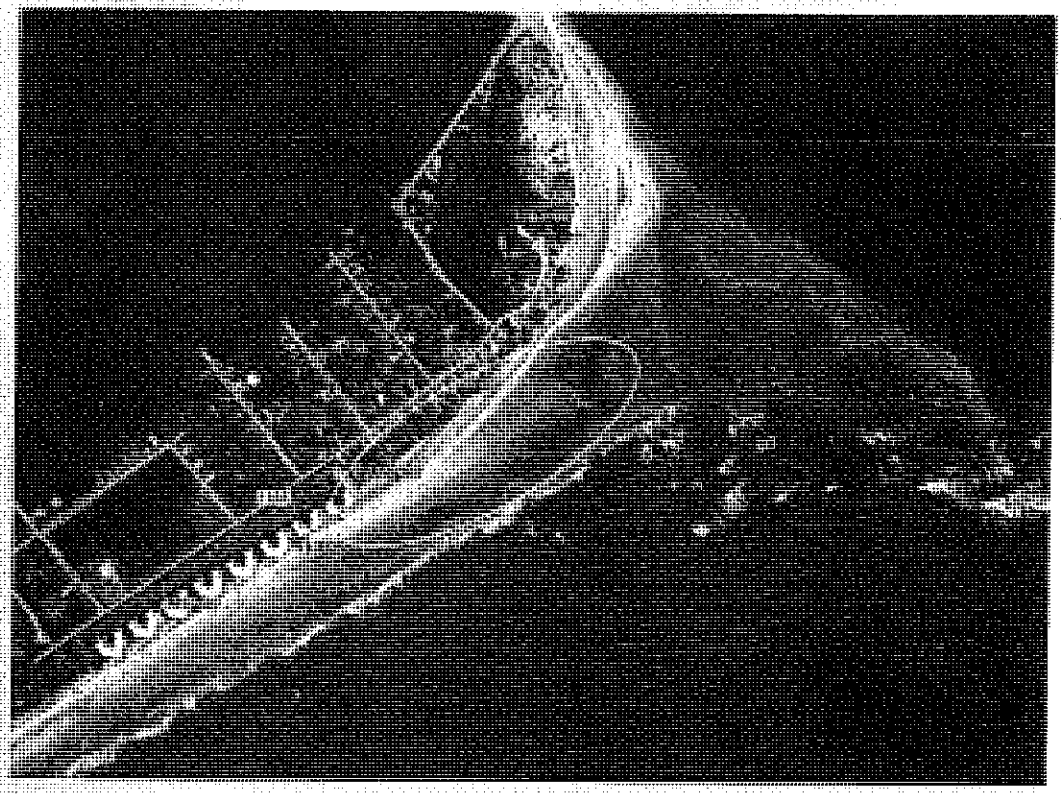
Figure 2. August 2002 approximately one month after disposal of 154,200 cy by USACE.

Figure 3. March 2009 approximately 7 months after USACE disposal operation.

Figure 4. March 2008. USACE had deposited [illegible] cy in 2008.

Figure 5. October 2005 post-disposal operation by USACE.

Figure 6. October 2018.



Statement by Tom Jarrett, P.E., NC License No. 005545
Subject: Erosion of the north end of North Topsail Beach

The Town of North Topsail Beach completed Phase 1 of its multifaceted inlet and shoreline management plan in February 2013 with the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The location of the new channel and the area nourished by with the material removed to relocate the channel is provided on Figure 1. The conditions of the north end of North Topsail Beach before and after the construction of Phase 1 are shown on Figures 2 and 3, respectively.

Figure 1. Plan view of Phase 1 of the North Topsail Beach Shoreline and Inlet Management Plan.

Figure 2. North end of North Topsail Beach prior to the construction of Phase 1.

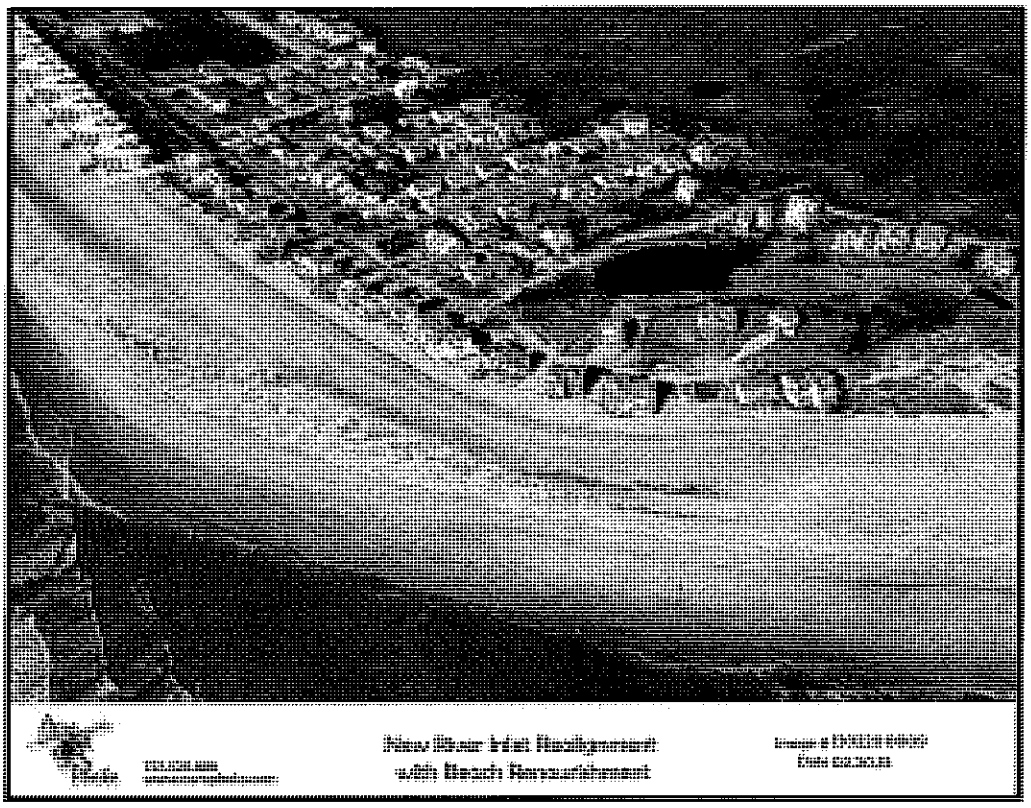


Figure 3. North end of North Topsail Beach after completion of Phase 1.

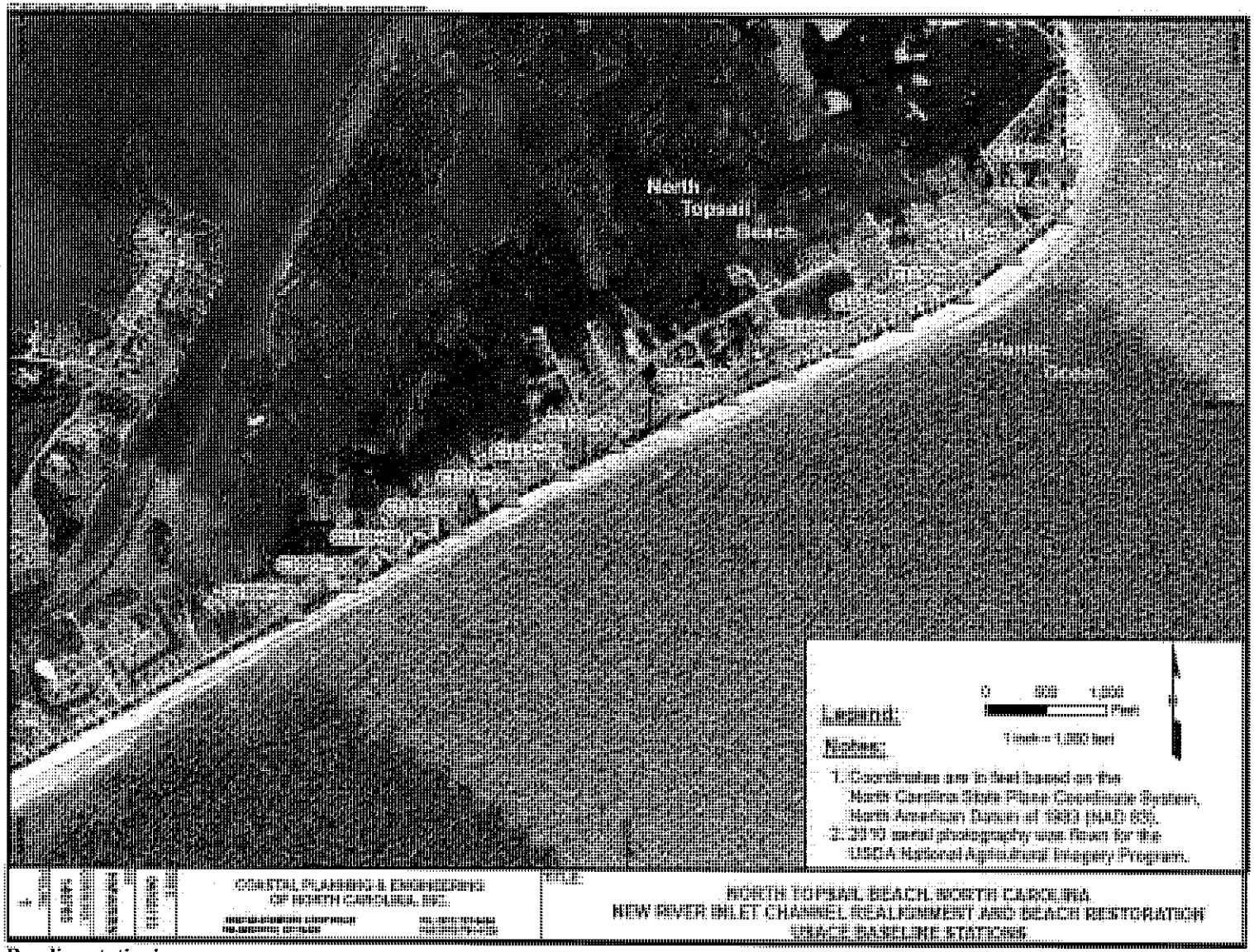


Figure 4. Baseline stationing.

The material removed during repositioning of the channel was used to construct a beach fill along 7,730 feet of shoreline south of New River Inlet. The construction of Phase 1 moved the mean high water (MHW) shoreline an average of 272 feet seaward of the pre-project MHW shoreline in the area between Building #1 of Topsail Reef (approximately baseline station 1149+00) and the south shoulder of New River Inlet (baseline station 1160+00). The locations of baseline stations along the north end of North Topsail Beach are provided on Figure 4 with plots of the beach cross-sections taken between baseline stations 1149+00 and 1155+00 before and after the construction of the beach fill provided on Figures 5 to 11. Also shown on Figures 5 to 11 are the results of a beach profile survey conducted by the engineering firm of Gahagan & Bryant in August 2014 for the Topsail Reef HOA.

Comparison of the post-construction survey taken in February 2013 and the August 2014 survey by Gahagan & Bryant, the shoreline north of Topsail Reef has receded between 200 and 250 feet which is equivalent to shoreline recession rates of between 130 ft./yr. and 167 ft./yr.

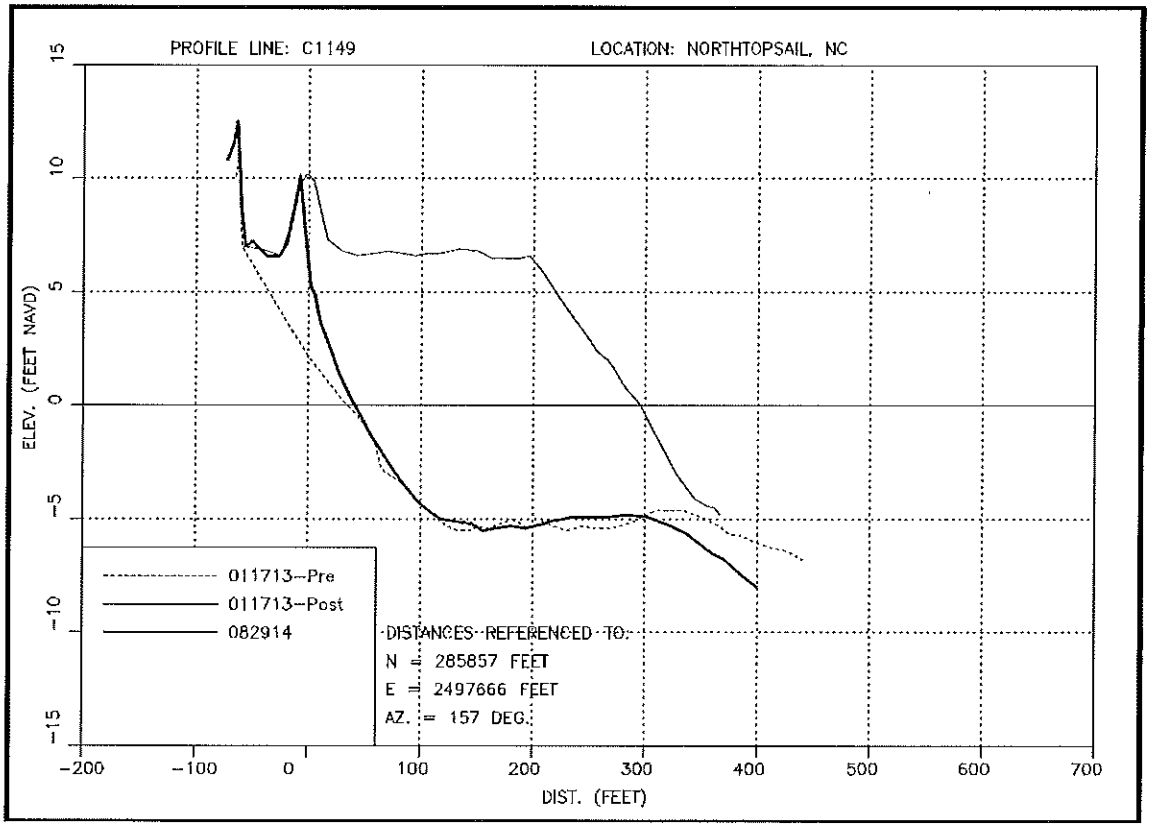


Figure 5. Cross-section plots profile 1149+00.

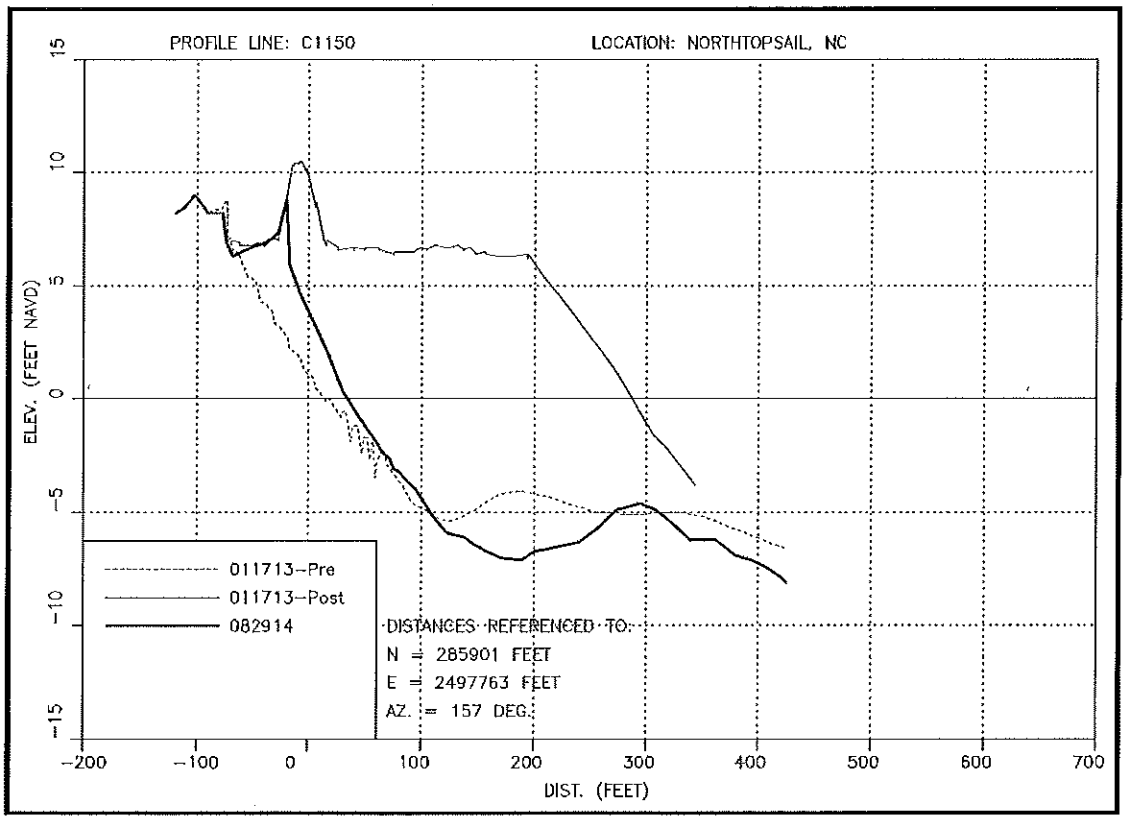


Figure 6. Cross-section plots profile 1150+00.

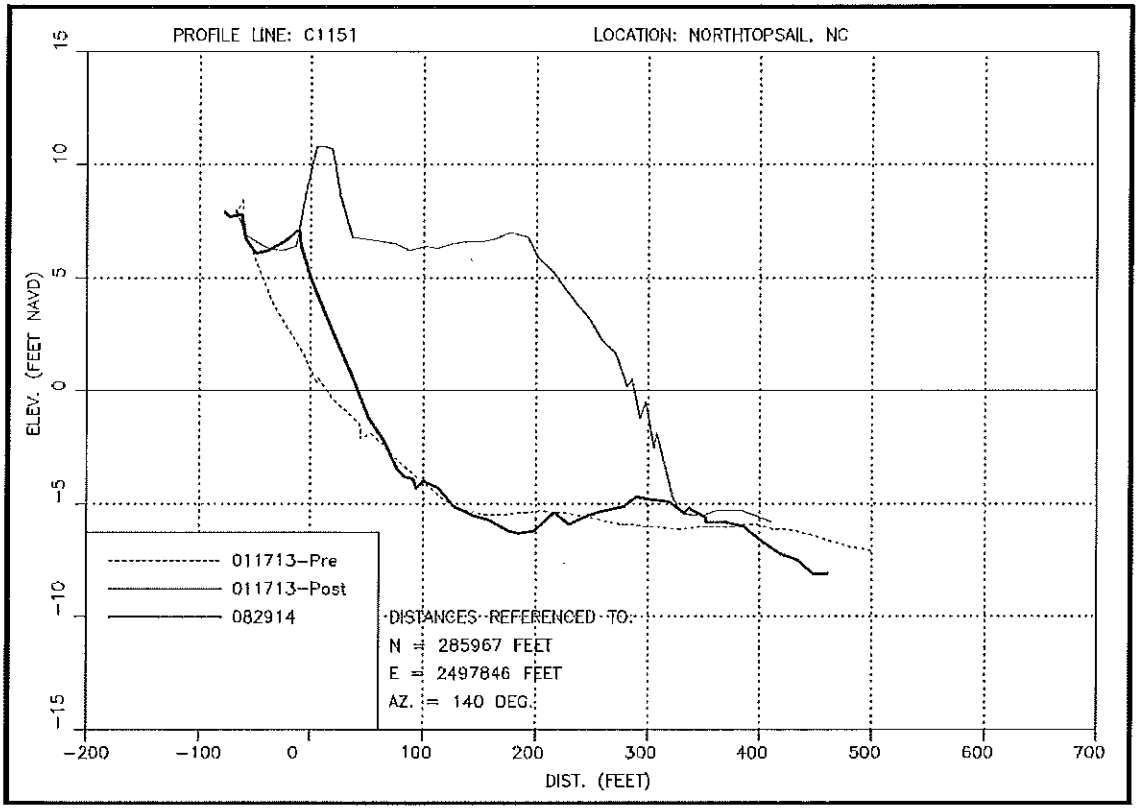


Figure 7. Cross-section plots profile 1151+00.

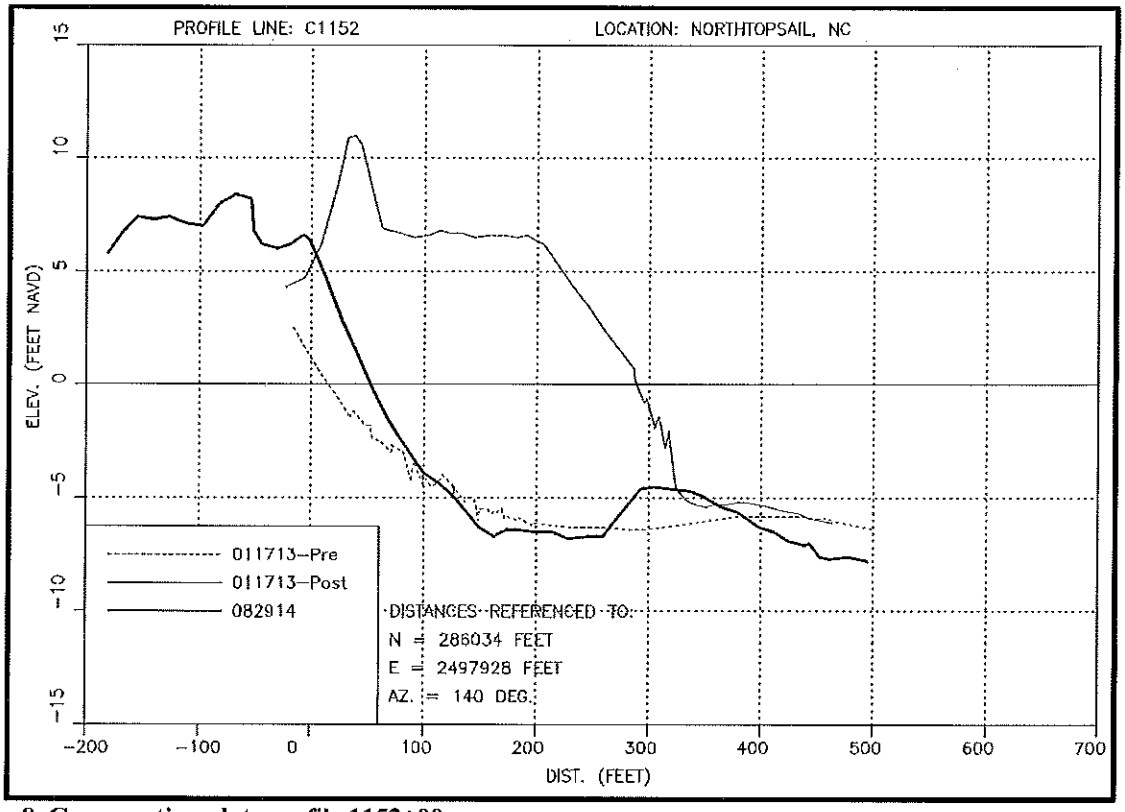


Figure 8. Cross-sectiou plots profile 1152+00.

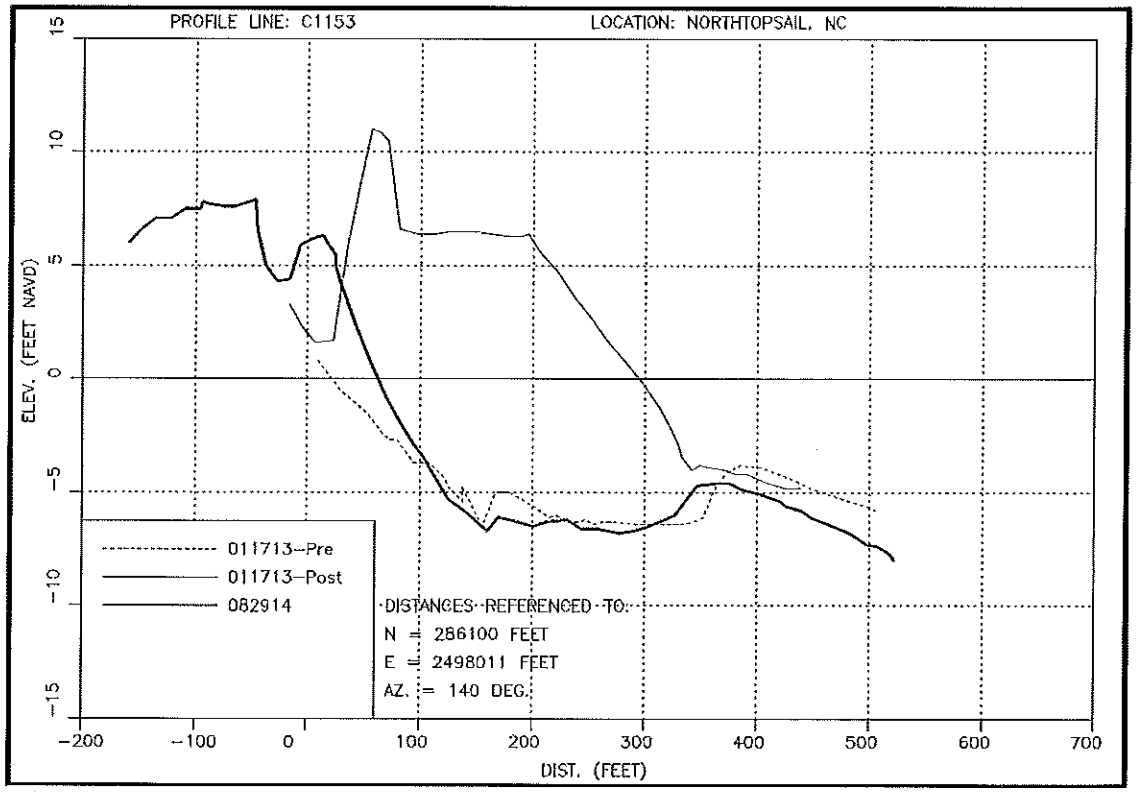


Figure 9. Cross-sectiou plots profile 1153+00.

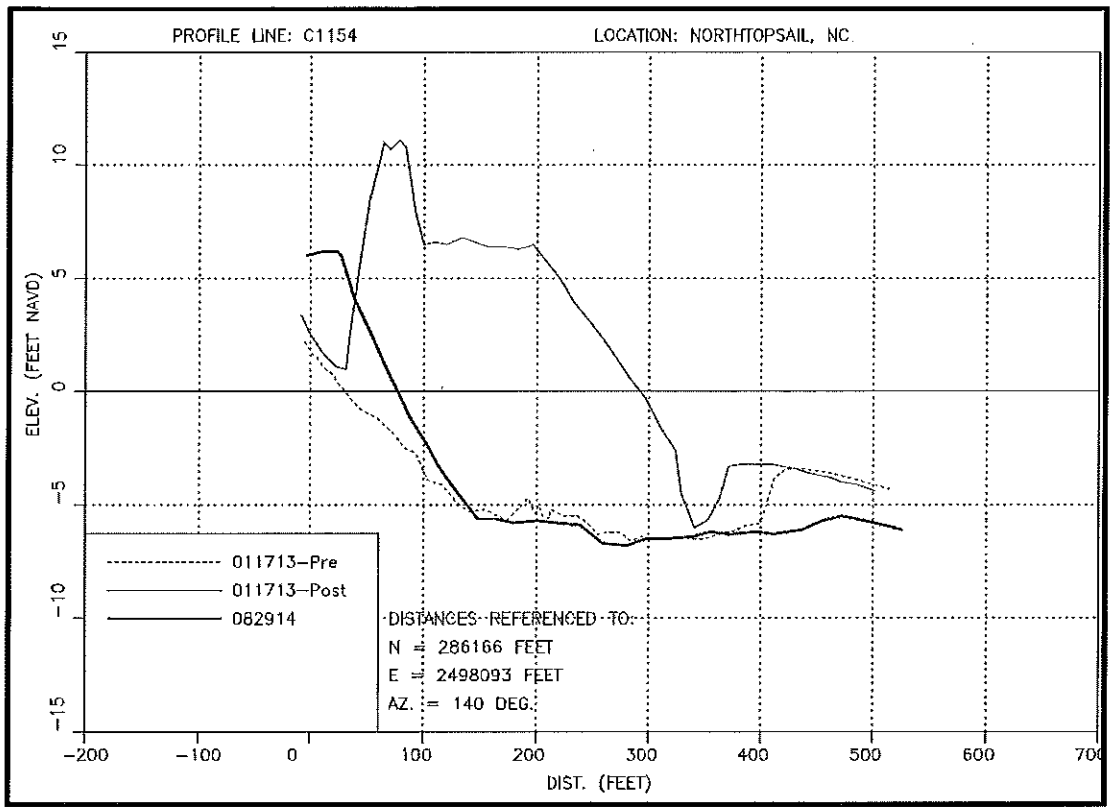


Figure 10. Cross-section plots profile 1154+00.

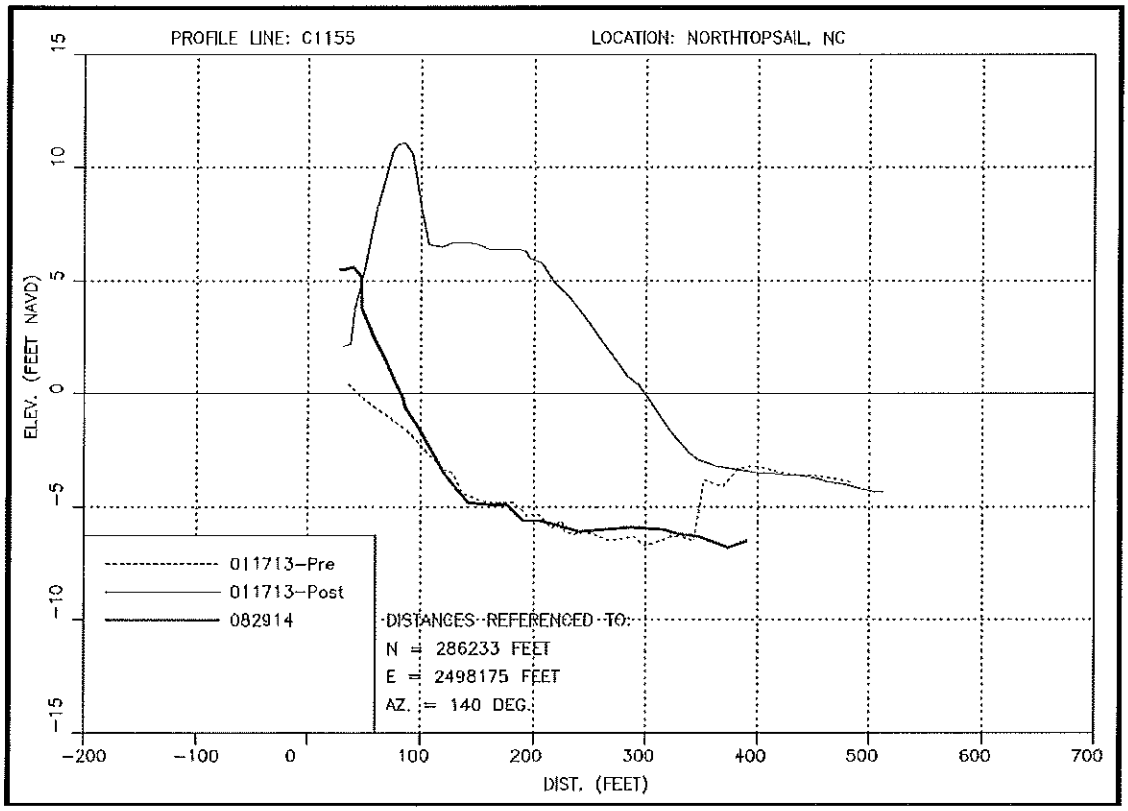


Figure 11. Cross-section plots profile 1155+00.

The ocean bar channel of New River Inlet was moved for the purpose of inducing sand accumulation on the south side of the inlet's ebb tide delta. Based on the documented historic behavior of the inlet, moving the channel to a more central position with an alignment approximately perpendicular to the adjacent shorelines would result in accretion of the shoreline south of the inlet. The time required for the new channel to begin to have a positive impact on the shoreline was estimated to be at least 5 years with the full impact of the new channel and associated reconfigured ebb tide delta on the shoreline along the north end of North Topsail Beach taking possibly 15 years.

Monitoring of the inlet has demonstrated some of the expected results are taking place with sand accumulating on the south side of the inlet, however, the rate of build-up, as predicted, has been relatively slow. As a result, the north end of North Topsail Beach has continued to experience high rates of erosion. As of October 2014, most of the fill placed north of the Topsail Reef Condominiums has been lost Figure 12.

Figure 12. October 22, 2014 photo looking north from Building #1 of Topsail Reef.

The loss of the beach fill has placed approximately 20 homes located north of Topsail Reef in imminent danger of being severely damaged or possibly destroyed. In addition to the threat to the homes, flooding of the area has been exasperated with flood waters spilling on to New River Inlet Road and side streets (Figure 13).

Figure 13. Flooding on north end of North Topsail due to wave overwash.

The overall management plan for New River Inlet and the shoreline of North Topsail Beach allows for the periodic maintenance of the ocean bar channel in order to keep the channel in its preferred position and alignment. Material removed to maintain the channel is to be used to provide periodic nourishment of the North Topsail Beach shoreline including the shoreline nourished during Phase 1.

The conditions of the permits issued for the project only allows maintenance of the channel to be accomplished every four years providing one of two channel maintenance thresholds are met. One channel threshold is associated with shoaling of the channel while the second is based on the position and alignment of the channel. With the initial project being completed in February 2013, under existing permit conditions, the Town of North Topsail Beach will not be allowed to maintain the channel until the 2016-17 dredging window (November 16, 2016 to March 31, 2017). Given the present condition of the shoreline, the Town of North Topsail Beach needs to take immediate emergency measures in order to prevent the loss of the 20 threatened homes between now and the time it is allow to maintain the channel.

The temporary sand bag revetment allowed under CAMA (15A NCAC 7H.1700), which is limited to a height of 6 feet above the existing ground and a maximum bottom width of 20 feet, in my opinion, is not adequate to provide the degree of protection deemed necessary to protect the 20 homes for the next 2.5 years. This is evident by the history of failure of previously permitted sandbag revetment in the area as demonstrated in Figure 14. The homes shown in Figure 14, which have since been removed, were positioned seaward of the 20 structures presently being threatened.

Figure 14. Example of failed sandbag revetment on north end of North Topsail Beach.

The proposed super-sized sand bag revetment is intended to protect the 20 threatened residential structures for at least the next 2.5 years or until such time the beach fill provided under Phase 1 of the North Topsail Beach shoreline/inlet management plan can be nourished. In addition, the Town of North Topsail Beach is committed to managing the north end shoreline by maintaining the preferred position and alignment of the New River Inlet ocean bar channel and using the material removed to maintain the channel to nourish the northern 7.25 miles of its ocean shoreline. Both the channel maintenance program and periodic nourishment are intended to maintain and/or preserve the dune and beach system in as near a natural state as possible.

Under existing conditions, there is a high probability some of the 20 threatened residential structures could be lost within the next 6 to 12 months either by virtue of the effects of long-term erosion or impacts of a moderate coastal storm. The temporary protection the super-sized sandbag revetment would provide for the 20 threatened structures north of Topsail Reef will afford the Town additional time to evaluate and possibly modify its shoreline and inlet management options.

Tom Jarrett, P.E. License No. 005545
Engineering Manager
Coastal Planning & Engineering of NC, Inc.
A CBI Company

Permit Class
NEW

DCM - WIRO

Permit Number
79-10

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onslow Counties at New River Inlet and Ocean Beach, within Town limits, as requested in the permittee's application dated 9/29/09, AEC Hazard Notice dtd. 8/27/08, mitigation/monitoring plan dtd. 9/09, & workplan drawings 1-19 dtd. rcd. 9/30/09 & PV-1, DE-1 & XS-1 all dtd. 11/24/09

This permit, issued on **July 21, 2010**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) In order to protect threatened and endangered species and to minimize adverse impacts to offshore, nearshore, intertidal and beach resources no excavation or beach nourishment activities shall occur from April 1 to November 15 of any year without prior approval from the Division of Coastal Management in consultation with the Division of Marine Fisheries and the Wildlife Resources Commission.

Excavation

2) Unless specifically altered herein, all excavation activities shall take place entirely within the areas indicated on attached workplan drawings.

3) No excavation shall take place within 400' of any identified hard bottom resource area.

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

June 12, 2014

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Dwight V Huggett

for James H. Gregson, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

RECEIVED
JUL 27 2010
DCM WILMINGTON

Signature of Permittee

ADDITIONAL CONDITIONS

4) Excavation shall not exceed the following limits;

a. Bar Channel -17' average (NGVD-29)
b. Offshore Borrow Area(s) -47' average (NGVD-29)

Overdredging is specifically prohibited.

5) In order to minimize impacts to aquatic resources, and in accordance with commitments made by the permittee, maintenance excavation of the new inlet channel shall not take place more frequently than once every four years.

6) Excavation shall be accomplished by cutter suction hydraulic dredge. Use of any other method of excavation shall require modification of this permit.

Beach Nourishment

7) This permit authorizes beach nourishment activities to be carried out one (1) time along the entire reach of the requested project area. Any request to carry out additional activities within an area where nourishment activities have been completed under this permit shall require a modification of this permit.

8) Prior to the initiation of beach nourishment activity along each section of beach, the existing mean high water line shall be surveyed and a copy provided to the Division of Coastal Management.

NOTE: The permittee is advised that the State of North Carolina claims title to all currently submerged lands and any future lands that are raised above the Mean High Water level as a result of this project.

9) Prior to the initiation of any beach nourishment activity above the normal high water contour (NHW) within the limits of the permittee's jurisdiction, easements or similar legal instruments shall be obtained from all impacted property owners.

10) Prior to the initiation of any beach nourishment activity, the permittee shall coordinate with the Division of Coastal Management to determine the static vegetation line that shall be used as the reference point for measuring future oceanfront setbacks. The static vegetation line, which is defined as the vegetation line that existed within one year prior to the onset of initial project construction, shall be established using on-ground observation and survey or aerial imagery. This static vegetation line shall then be marked and a survey depicting this static vegetation line shall be submitted to the Division of Coastal Management prior to any beach nourishment activities.

11) The seaward nourishment limit shall be conducted in accordance with the approved work plats labeled Figures 15-17 (Typical Construction Profiles) dated received 9/30/09.

12) Temporary dikes shall be used to retain and direct flow of material parallel to the shoreline to minimize surf zone turbidities. The temporary dikes shall be removed and the beach graded in accordance with approved profiles upon completion of pumping activities in that particular section of beach.

ADDITIONAL CONDITIONS

13) Should the dredging operations encounter sand deemed non-compatible with 15A NCAC 07H .0312 (Technical Standards for Beach Fill Projects), the dredge operator shall immediately cease operation and contact the NCDCM. Dredge operations shall resume only after resolution of the issue of sand compatibility.

14) In order to prevent leakage, dredge pipes shall be routinely inspected. If leakage is found and repairs cannot be made immediately, pumping of material shall stop until such leaks are fixed.

15) Once a section is complete, piping and heavy equipment shall be removed or shifted to a new section and the area graded and dressed to final approved slopes.

16) Land-based equipment necessary for beach nourishment work shall be brought to the site through existing accesses. Should the work result in any damage to existing accesses, the accesses shall be restored to pre-project conditions immediately upon project completion in that specific area.

NOTE: The permittee is advised that any new access site would require a modification of this permit.

17) Where oceanfront development exists at elevations nearly equal to that of the native beach, a low protective dune shall be pushed up along the backbeach to prevent slurry from draining towards the development.

18) Dune disturbance shall be kept to a minimum. Any alteration of existing dunes shall be coordinated with the Division of Coastal Management as well as the appropriate property owner(s). All disturbed areas shall be restored to original contours and configuration with reference to the surveyed normal high water line and shall be revegetated immediately following project completion in that specific area.

Upland Disposal of Non-beach Compatible Materials

19) All excavated materials shall be confined above the normal high water line and landward of regularly or irregularly flooded wetlands behind adequate dikes or other retaining structures to prevent spillover of solids into any marsh or surrounding waters.

20) The disposal area effluent shall be contained by pipe or similar device to a point at or beyond the normal low water level, and beyond areas containing significant shellfish resources or areas of submerged aquatic vegetation.

21) The terminal end of the pipeline shall be positioned at or greater than 50 feet from any part of the dike and a maximum distance from spillways to allow settlement of suspended sediments.

22) A water control structure shall be installed at the intake end of the effluent pipe to assure compliance with water quality standards.

23) The diked disposal area shall be constructed a sufficient distance from the normal high water level or any marsh to eliminate the possibility of dike erosion into surrounding wetlands or waters.

ADDITIONAL CONDITIONS

24) The disposal area shall be properly graded and provided a ground cover sufficient to restrain erosion within 30 working days of completion of each phase of the project.

25) The spoil disposal area shall be inspected and approved by a representative of the Division of Coastal Management prior to the commencement of any dredging activities.

Mitigation and Monitoring

26) Unless specifically altered herein, the permittee shall fully implement the attached North Topsail Beach Shoreline Protection Project Mitigation and Monitoring Plan, including all reporting requirements. All monitoring reports referenced in this plan shall be submitted to the Division of Coastal Management and the Division of Marine Fisheries.

27) Immediately after completion of each phase of the beach nourishment project, and prior to the next three sea turtle nesting seasons, beach compaction shall be monitored and tilling shall be conducted as deemed necessary by the Division of Coastal Management in coordination with appropriate review agencies.

28) Immediately after completion of any phase of the beach nourishment project, and prior to the next three nesting seasons, monitoring shall be conducted to determine if escarpments are present that would affect nesting sea turtles or public access. If such escarpments are present, the permittee shall coordinate with the Division of Coastal Management for necessary remediation.

29) Unless specifically modified herein, all mitigative commitments and/or biological monitoring commitments made during the environmental review process as found in the Final Environmental Impact Statement shall be adhered to.

Cultural Resource Protection

30) There exists the possibility that the authorized activities may unearth a beached shipwreck. Should such a finding occur, the permittee shall immediately move to another area. The NCDCR Underwater Archaeology Branch shall be contacted at (910) 458-9042 to determine appropriate response procedures.

General

31) This permit shall not be assigned, transferred, sold, or otherwise disposed of to a third party without the written approval of the Division of Coastal Management.

32) The permittee and/or his contractor shall schedule a pre-construction conference with the Division of Coastal Management prior to the initiation of any dredging activities.

ADDITIONAL CONDITIONS

33) The permittee shall obtain any necessary authorizations or approvals from the US Army Corps of Engineers prior to initiation of any permitted activity. All conditions of this Federal approval shall be adhered to.

34) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, hydraulic fluids, etc., necessary to carry out the project.

35) The N.C. Division of Water Quality has authorized the proposed project under General Water Quality Certification No. 3642 (DWQ Project No. 081764V2), which was issued on 6/4/10. Any violation of the Water Quality Certification shall also be considered a violation of this CAMA Permit.

36) No sand shall be placed on any sand bags that have been determined by the Division of Coastal Management to be subject to removal under 15A NCAC 07H .0308(a)(2). In order to ensure compliance with this condition, the Division of Coastal Management shall be contacted at (910) 796-7215 prior to project initiation so that Division staff may meet on site with the permittee and/or contractor.

NOTE: The permittee is advised that the Division of Coastal Management shall regulate the removal of existing sandbags and the placement of new sandbags in accordance with 15A NCAC 07H .0308(a)(2)(F), or in accordance with any variances granted by the N.C. Coastal Resources Commission.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

NOTE: Future nourishment activities may require a modification of this permit. The permittee shall contact a representative of the Division at (910) 796-7215 prior to the commencement of any such activity for this determination.

Permit Class
MODIFICATION/MINOR

Permit Number
79-10

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onlsow Counties at New River Inlet and Ocean Beach, within Town limits, as requested in the permittee's application letter dated 9/4/12, Figures 1-3, 4a and 4b, all dated received 9/26/12

This permit, issued on **October 12, 2012**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) Unless specifically altered herein, this Minor Modification authorizes the following modifications to the active permit, all as described in the attached letter dated 9/14/12 and the attached workplan drawings dated 9/26/12:
   a. An increase in the volume of beach quality material from within the authorized ocean bar channel borrow area. This Minor Modification does not authorize an increase in the previously authorized depth of excavation in this area.
   b. An alteration in authorized beach fill densities.
   c. The discontinuation of the use of the previously approved upland spoil disposal area.
   d. Modifications of the scope of the previously approved *Donax* aquaculture and reseeding study.

2) This Minor Modification shall be attached to the original of Permit No. 79-10, which was issued on 7/21/10, and copies of both documents shall be readily available on site when a Division representative inspects the project for compliance. All conditions and stipulations of the original permit remain in force under this Minor Modification unless specifically altered herein.

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

June 12, 2014

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Douglas V Huggett
for Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

Interim Town Manager Signature of Permittee

Permit Class
MODIFICATION/MINOR

Permit Number
79-10

COPY

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onslow County at New River Inlet and Ocean Beach, within Town Limits, as requested in the permittee's letter dated 8/1/13, including the attached workplan drawings (3), 2 dated 8/8/13 and 1 dated received in the MHC Office on 8/21/13

This permit, issued on September 26, 2013, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) Unless specifically altered herein, this minor modification authorizes an increase in the density of fill to rates of 50 to 92 cubic yards per linear foot (cy/lf) with an average of 75 cy/lf, as well as skipping Phases 2-4 and proceeding to Phase 5 of the permitted project, all as expressly and specifically set forth in the attached work plan drawings.

2) This minor modification shall be attached to the original of Permit No. 79-10, which was issued on 7/21/10, the minor modification issued on 10/12/12, and copies of all documents shall be readily available on site when Division personnel inspect the project for compliance.

3) All conditions and stipulations of the active permit remain in force under this minor modification unless specifically altered herein.

(See attached sheet for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

June 12, 2014

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Douglas V. Huggett

for Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

Stuart Tuille

Stuart Tuille
Town Manager
Signature of Permitt

ADDITIONAL CONDITIONS

Army Corps of Engineers Conditions

4) All equipment must use the dedicated construction access points at Stations 900+00 (New River Inlet Road Beach Access) and/or Station 650+00 (Gray Street) as shown in the attached permit figure.

5) All personnel involved in the construction process along the beach will be trained in recognizing the presence of piping plovers and red knots prior to the initiation of the work on the beach. A contractor representative authorized to stop or redirect work shall be responsible for conducting a shorebird survey prior to 9:00 am each day of sand placement activities. The survey shall cover the work area and any location where equipment is expected to travel. The contractor shall note on their Quality Assurance form for each day any observance of red knots and/or piping plovers; and those forms, which verify the observance of those species, shall be submitted to the USACE Wilmington District Office the following day.

6) All necessary precautions and measures will be implemented so that any activity will not kill, injure, capture, pursue, harass, or otherwise harm any protected federally listed species (such as sea turtles, whales, manatees, shortnose and Atlantic sturgeon, and piping plover). While accomplishing the authorized work, if the permittee discovers or observes a damaged or hurt listed endangered or threatened species, the USACE will be immediately notified so that required coordination can be initiated with the U.S. Fish and Wildlife and/or National Marine Fisheries Service.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

Permit Class
MODIFICATION/MINOR

Permit Number
79-10

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

COPY

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onslow County at New River Inlet and Ocean Beach, within Town Limits, as requested in the permittee's letter dated 12/20/13

This permit, issued on **June 17, 2014**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) Unless specifically altered herein, this minor modification authorizes the town to construct phases II-V of the permitted beach nourishment project in any sequence the town deems necessary, so long as the previously permitted volumes and templates are not altered.

2) This minor modification authorizes a one-time extension of the moratorium until April 30, 2015. All future events shall adhere to the moratorium dates as shown on the active permit.

3) This minor modification shall be attached to the original of Permit No. 79-10, which was issued on 7/21/10, as well as all subsequent modifications, refinements and renewals, and copies of all documents shall be readily available on site when Division personnel inspect the project for compliance.

(See attached sheet for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

June 12, 2014

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Douglas V. Huggett

for Braxton C. Davis, Director
Division of Coastal Management

RECEIVED
JUN 23 2014
DCM-MHD CITY

This permit and its conditions are hereby accepted.

Signature of Permittee

ADDITIONAL CONDITIONS

4) All conditions and stipulations of the active permit remain in force under this minor modification unless specifically altered herein.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

Permit Class
AMENDED

Permit Number
79-10

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

COPY

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onslow County at New River Inlet and Ocean Beach, within Town Limits, as requested in the permittee's letter dated 12/20/13

This permit, issued on **June 20, 2014**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) Unless specifically altered herein, this minor modification authorizes the town to construct phases II-V of the permitted beach nourishment project in any sequence the town deems necessary, so long as the previously permitted volumes and templates are not altered.

2) This minor modification authorizes a one-time extension of the moratorium until April 30, 2015. All future events shall adhere to the moratorium dates as shown on the active permit.

3) This minor modification shall be attached to the original of Permit No. 79-10, which was issued on 7/21/10, as well as all subsequent modifications, refinements and renewals, and copies of all documents shall be readily available on site when Division personnel inspect the project for compliance.

RECEIVED
JUN 30 2014

(See attached sheet for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

June 12, 2015

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

for Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

Signature of Permittee

ADDITIONAL CONDITIONS

4) All conditions and stipulations of the active permit remain in force under this minor modification unless specifically altered herein.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

Dail, Jason

From: Priest, Adam T. <adam.priest@cbi.com>
Sent: Friday, October 03, 2014 12:17 PM
To: Dail, Jason
Subject: NTB Sand Bag Revetment

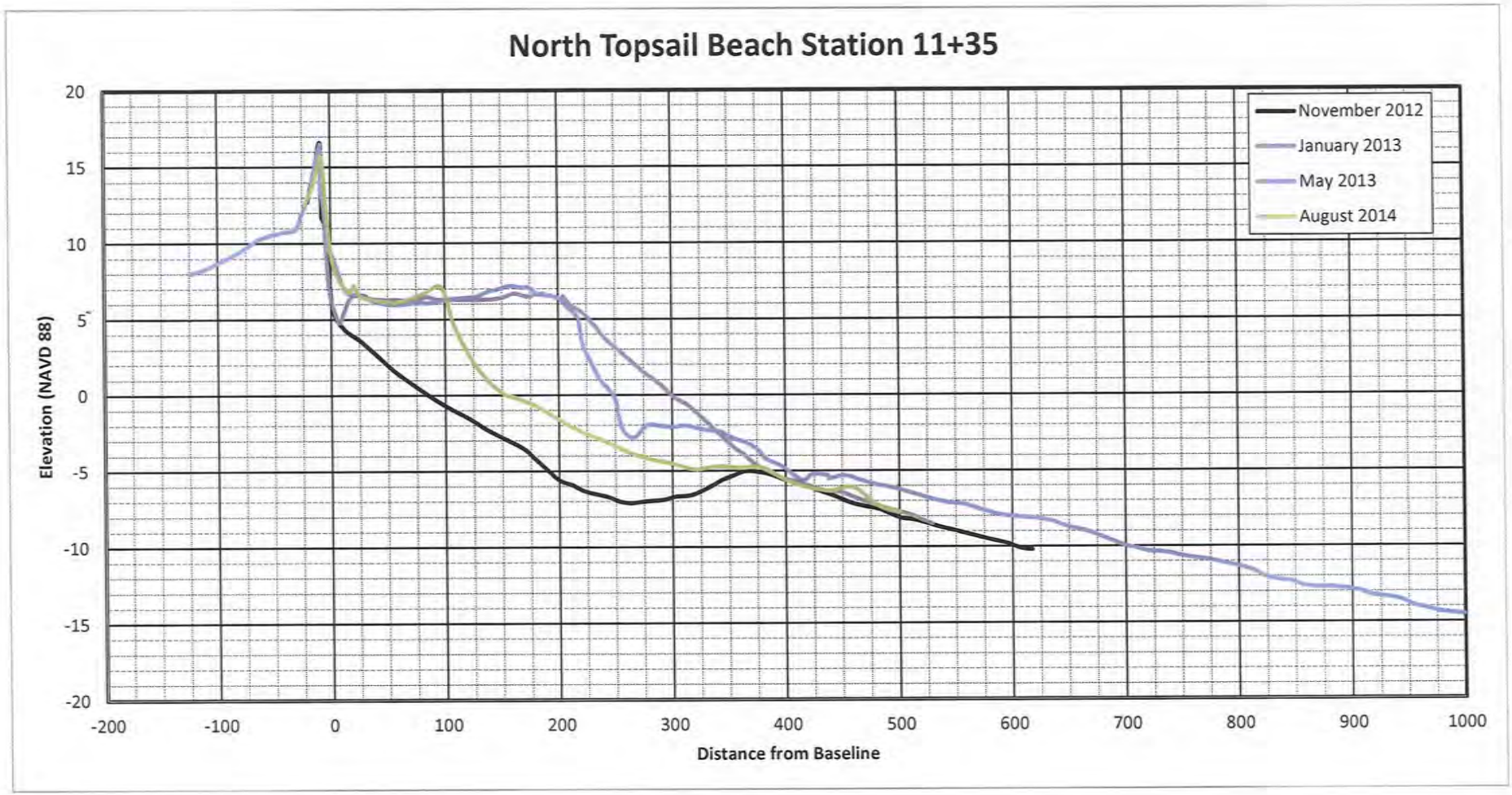
Jason,

The information provided in the Town of North Topsail Beach, Application for CAMA Major Development Permit submitted on September 26th 2014 regarding the area impacted by the sand bag revetment above and below the Mean High Water (MHW) line was based on a recent shoreline survey performed August 29, 2014. The Topsail Reef condominium contracted with Bill Forman of Bearing Point Consulting to have the shoreline surveyed. Bearing Point subcontracted the survey to Gahagan and Bryant Associates and the data was provided to CPE. All calculations to determine the areal extent of the sand bag revetment seaward of the MHW line were based on this most recent survey data. As stated in the permit the maximum distance the sand bag revetment footprint extends waterward of the NHW is 7.1 ft. This maximum distance occurs at approximately Station 1155+00 based on the recent MHW survey data collected August 29th, 2014. Between stations 1152+00 and 1157+00 the footprint of the sand bag revetment extends an average of 4.6 ft waterward of the MHW line. This accounts for an area of approximately 2,300 sq. ft (0.053 ac) of the sand bag revetment footprint (also known as the disposal area) that is waterward of the most recent MHW line data. Please let me know if this information is sufficient for you evaluation, if you require any further information please let me know.

Thank you,

Adam Priest
Engineer 1
Coastal, Ports and Marine
Environmental & Infrastructure
Tel: + 1 910 791 9494
Cell: + 1 850 276 1265
Fax: + 1 910 791 4129
adam.priest@CBI.com

CB&I
4038 Masonboro Loop Road
Wilmington, NC 28409
USA
www.CBI.com


North Topsail Beach Station 11+35
Elevation (NAVD 88)
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Distance from Baseline
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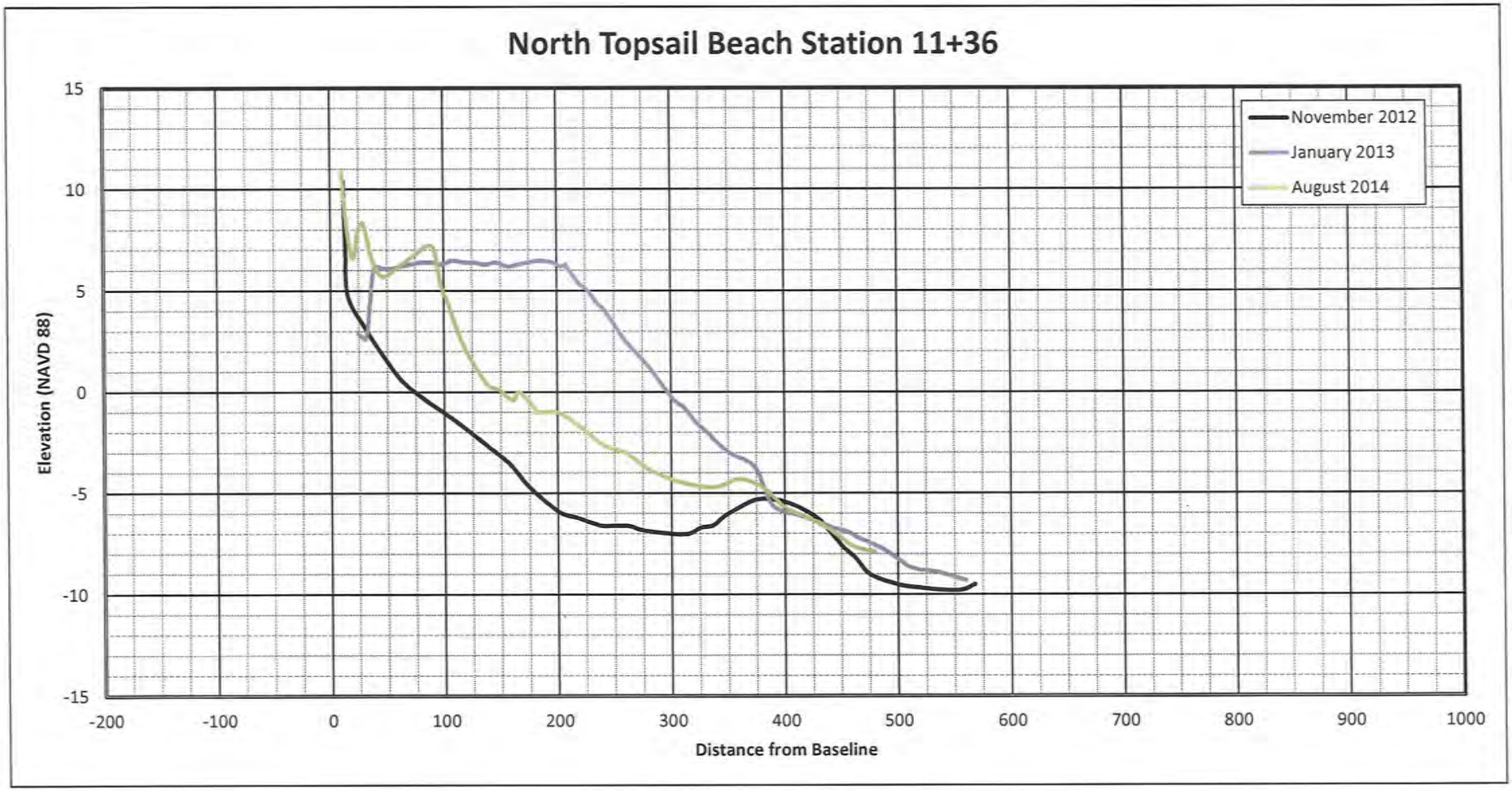
January 2013
May 2013
August 2014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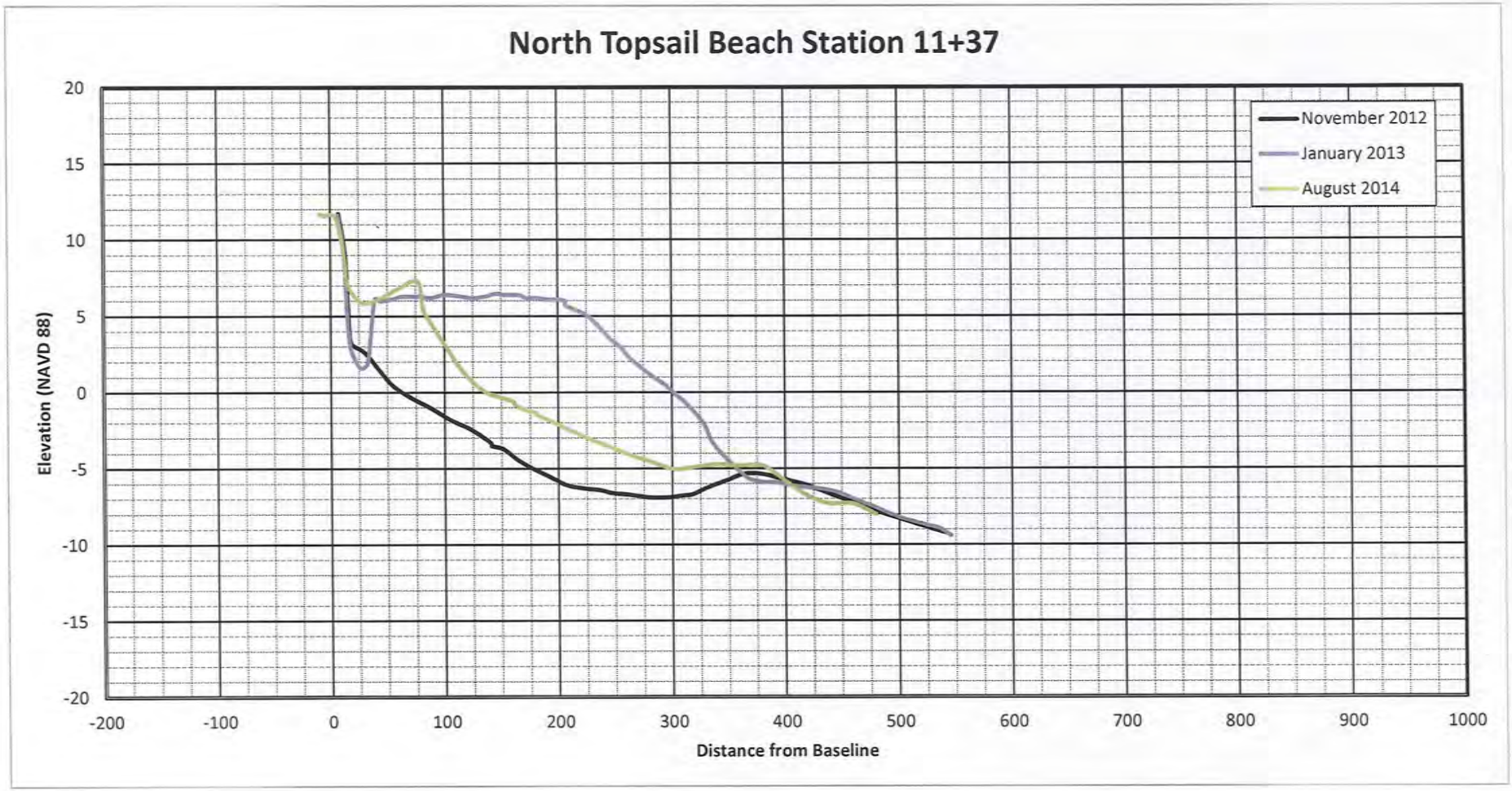
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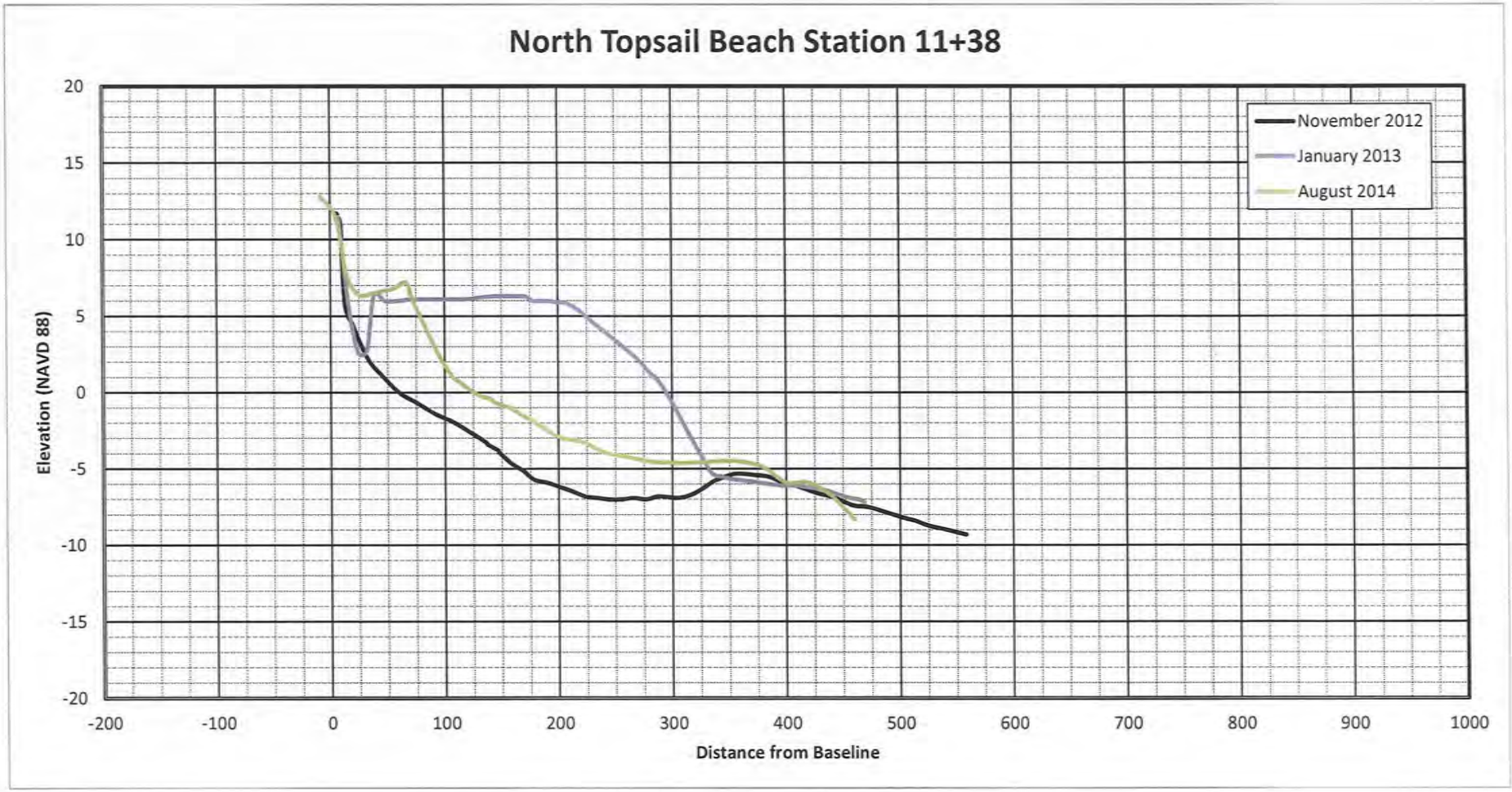
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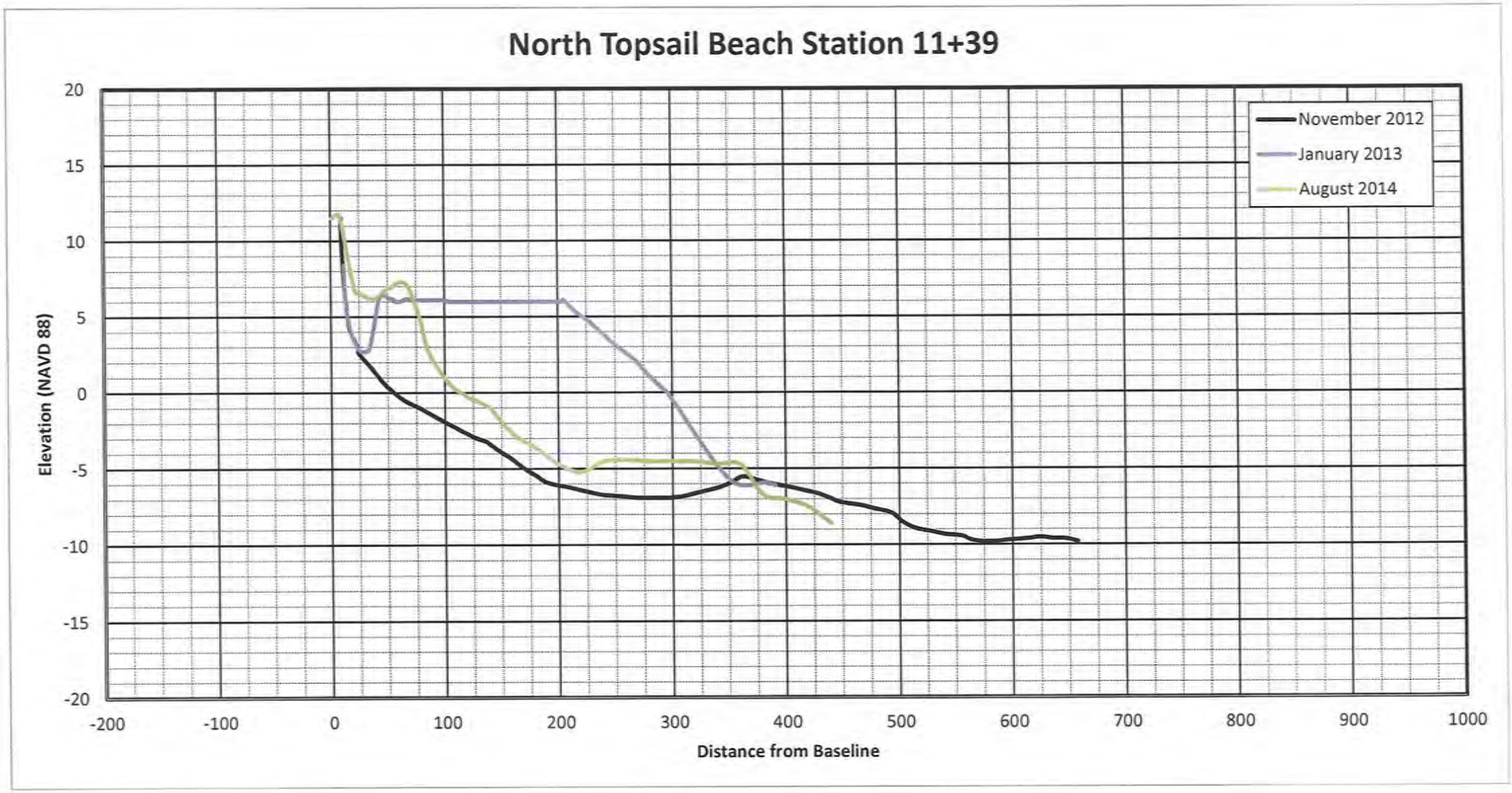
January 2013
August 2014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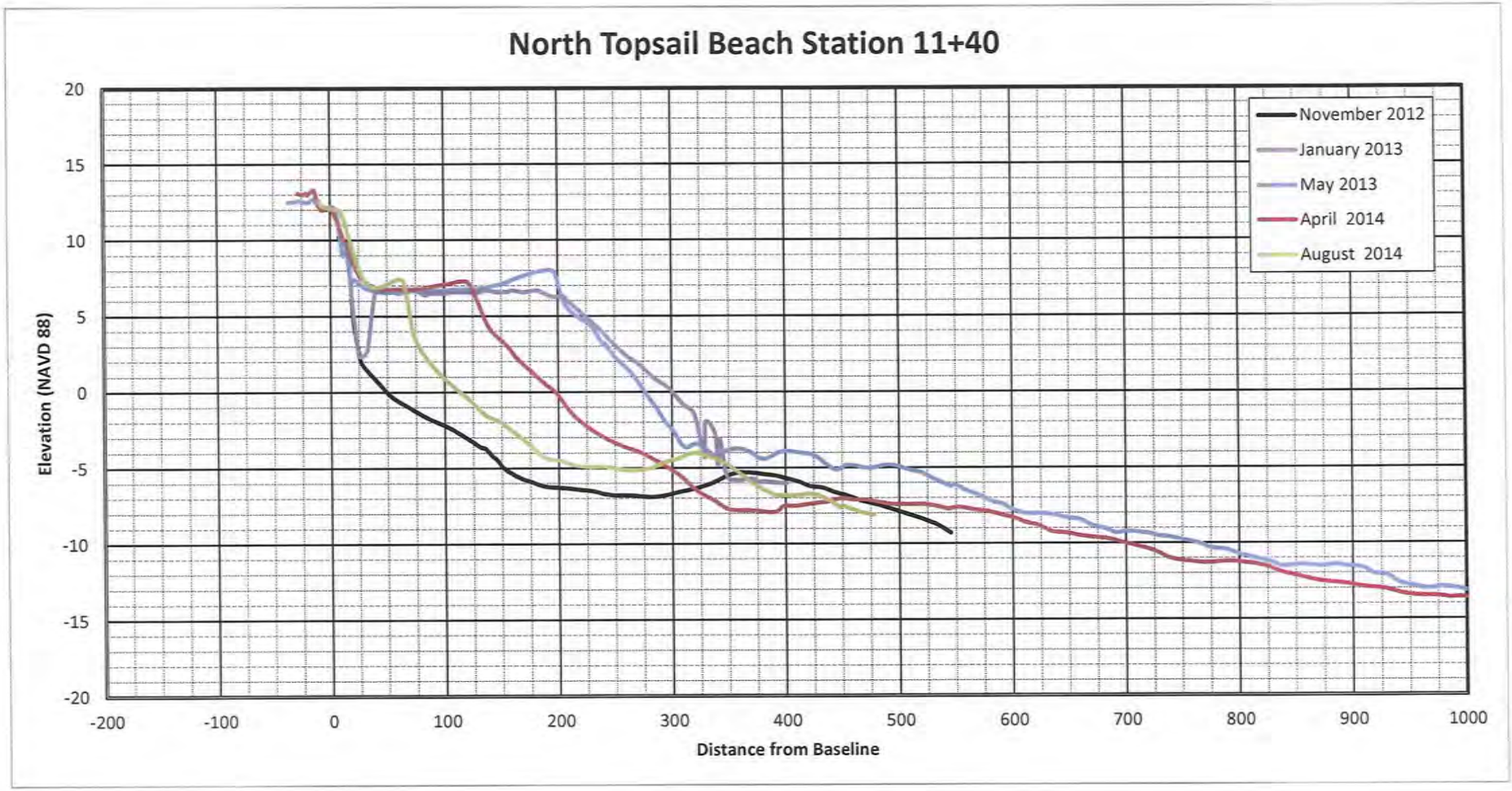
Distance from Baseline
November 2012
January 2013
August 2014


North Topsail Beach Station 11+40
Elevation (NAVD 88)
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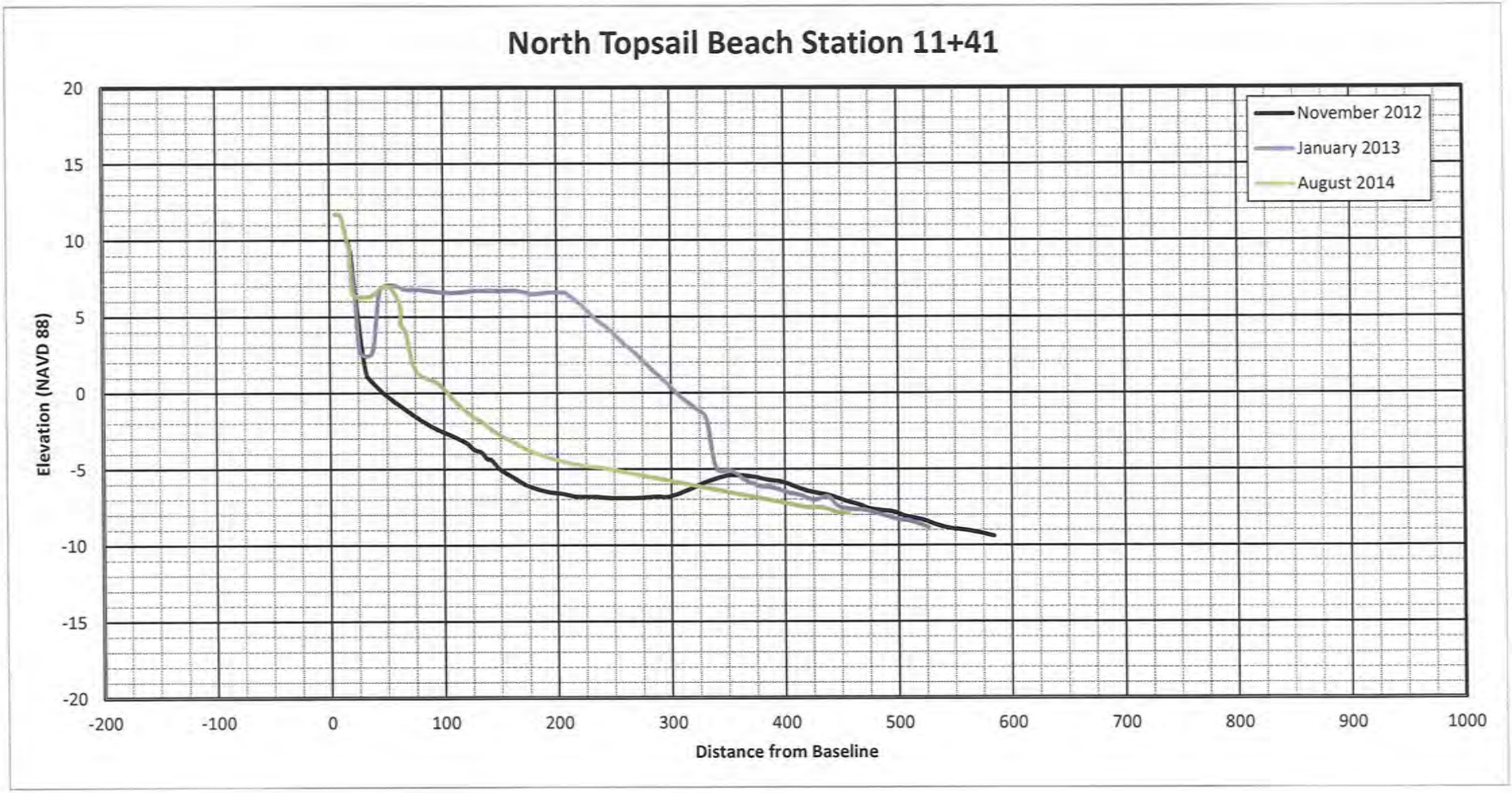
Distance from Baseline
November 2012
January 2013
May 2013
April 2014
August 2014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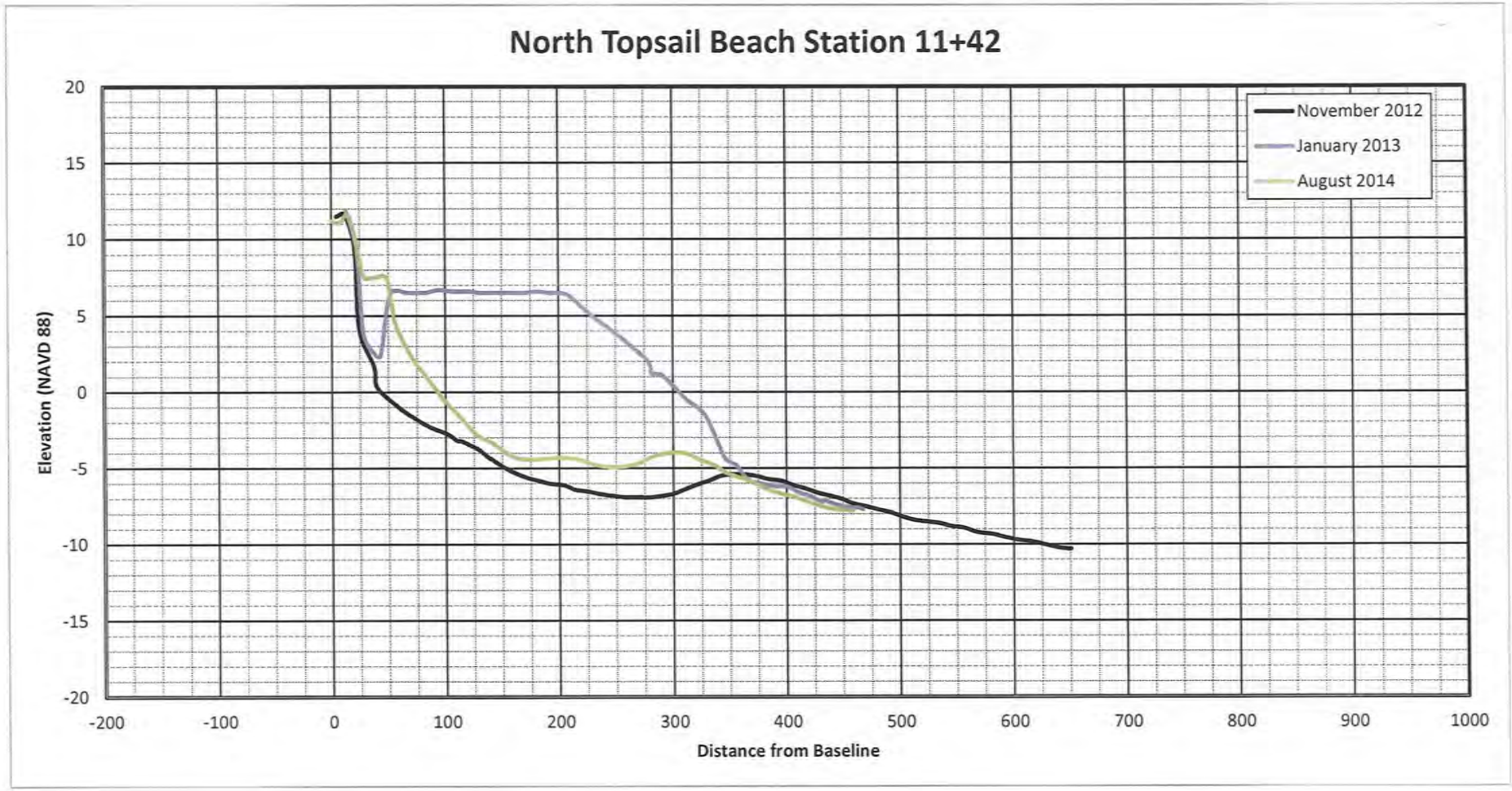
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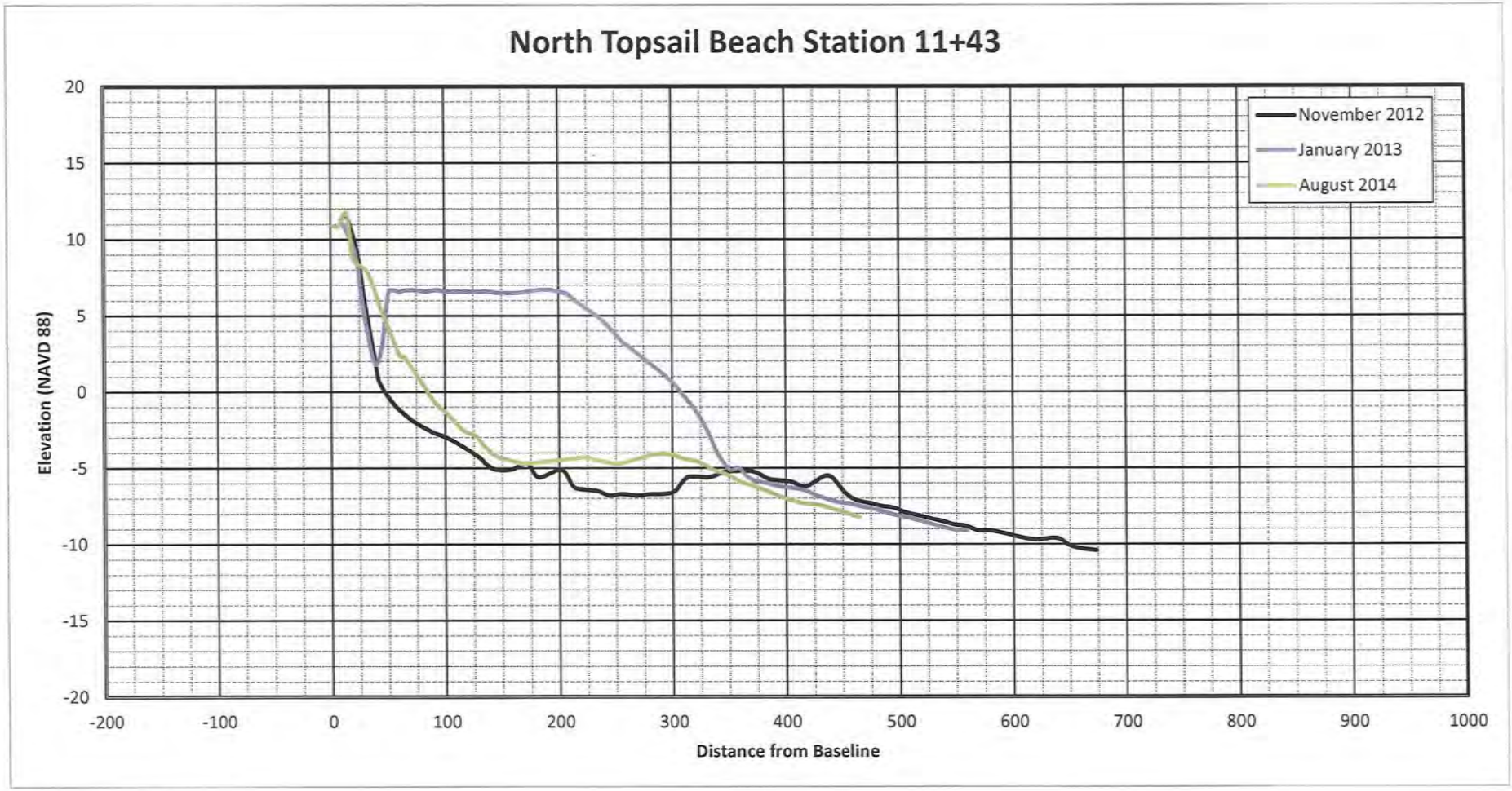
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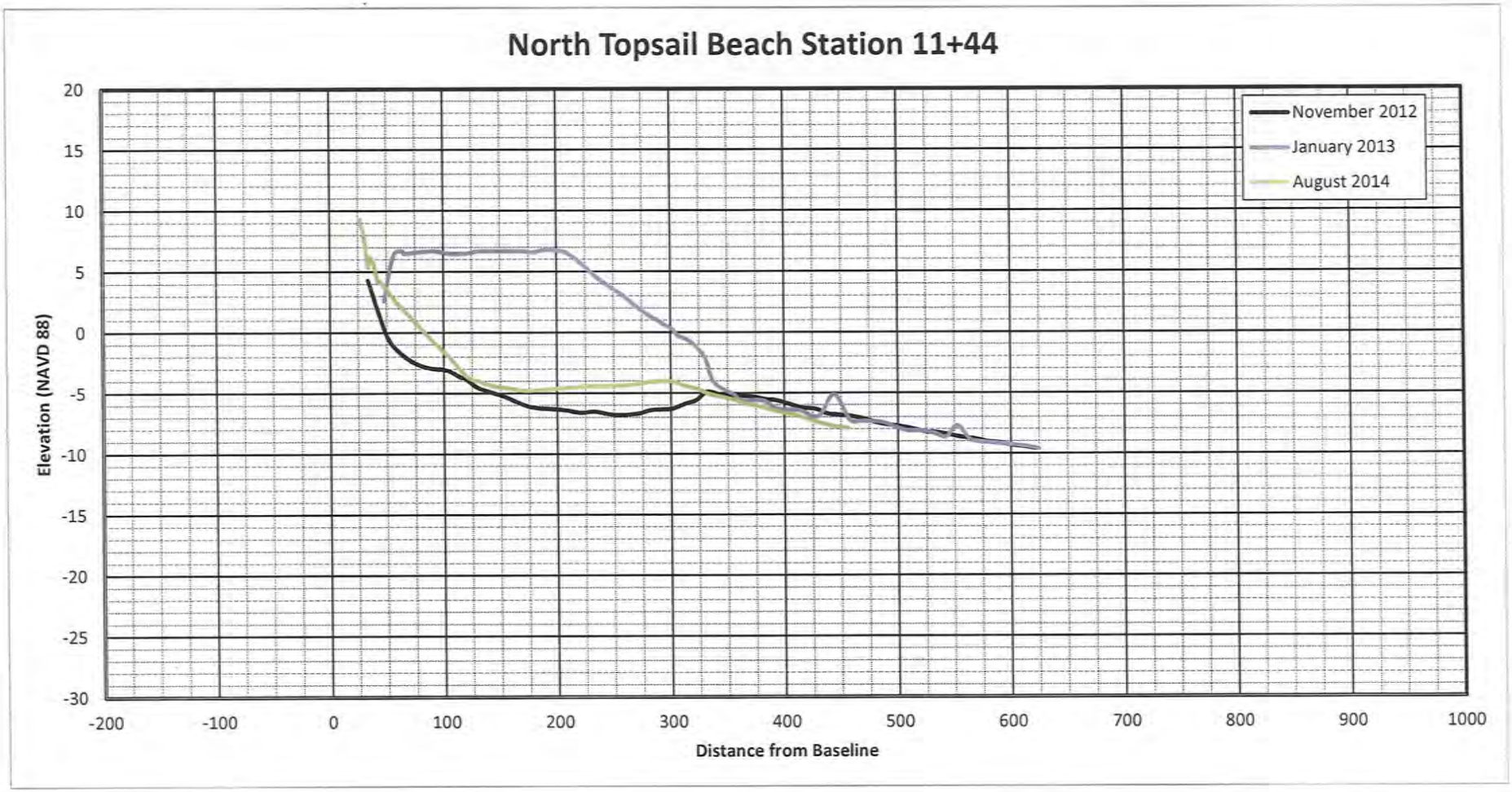
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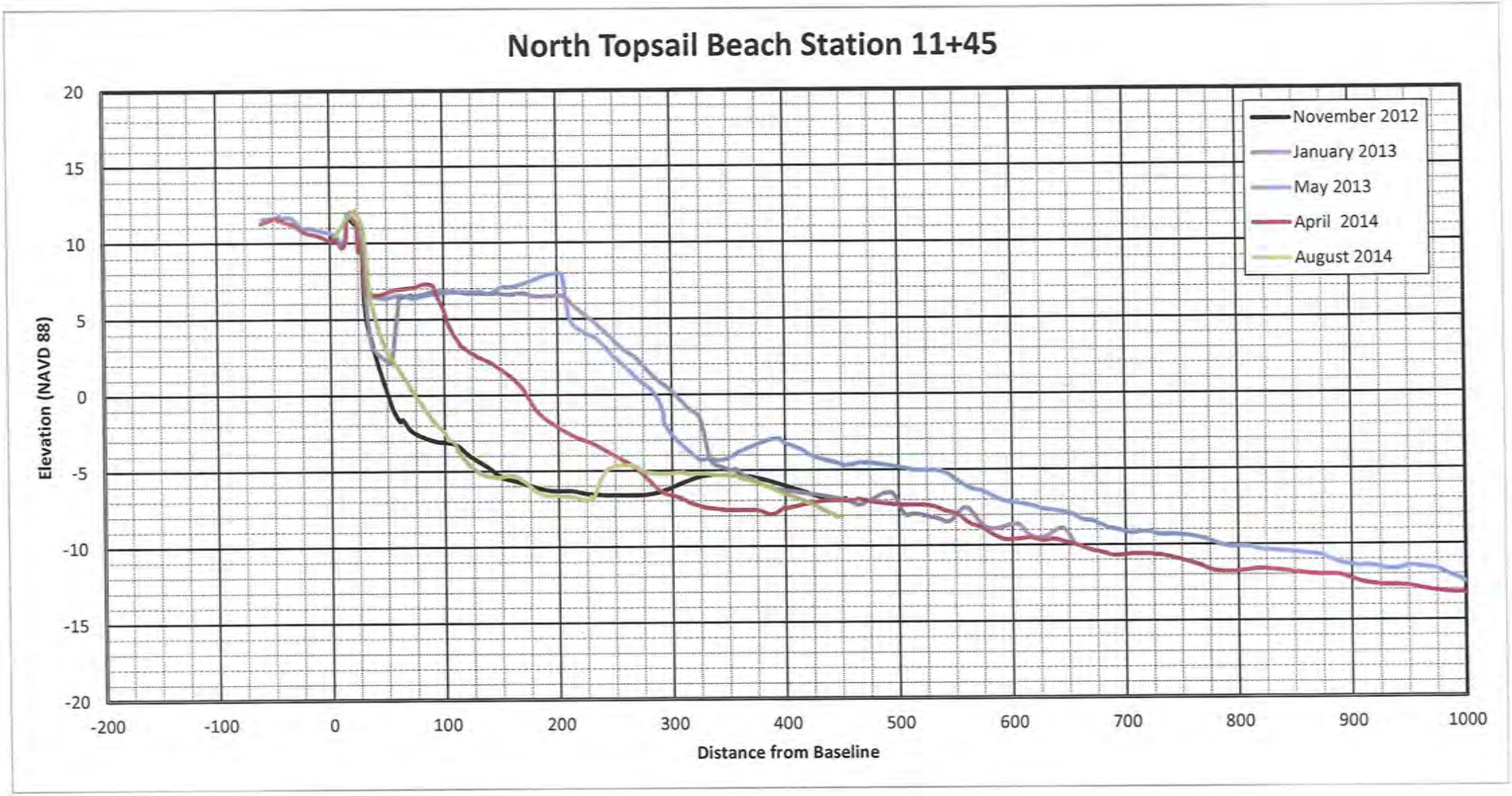
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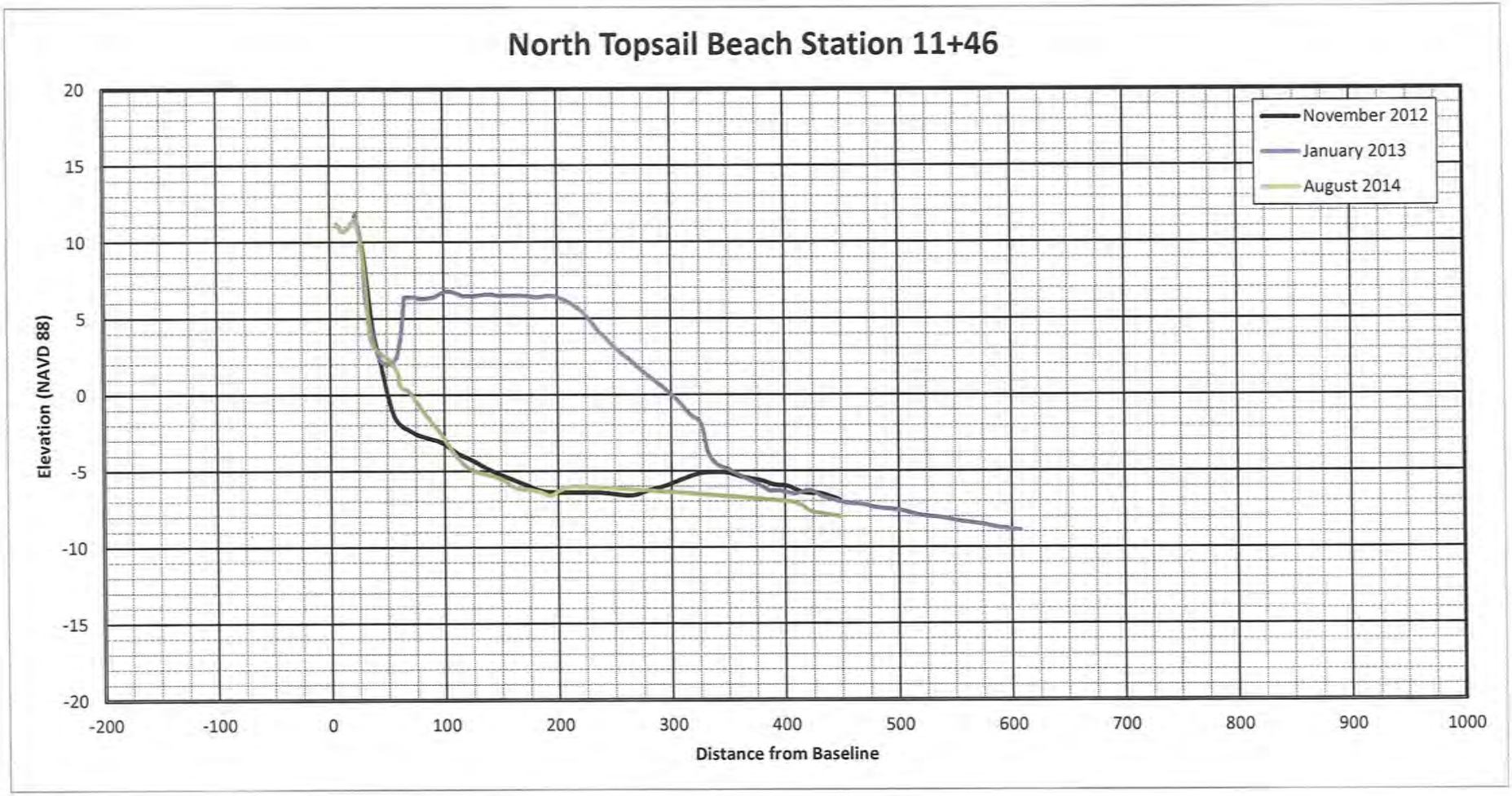
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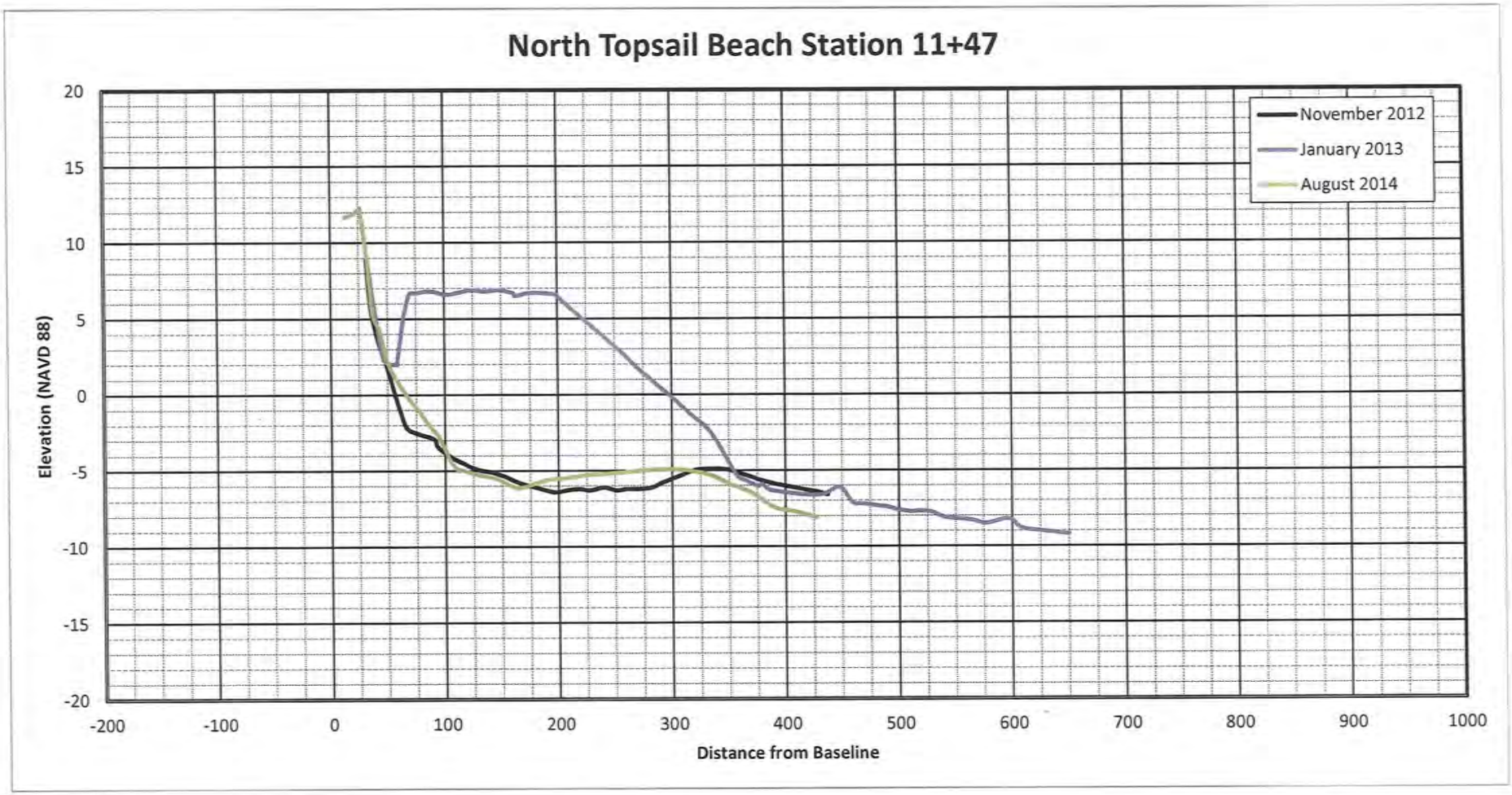
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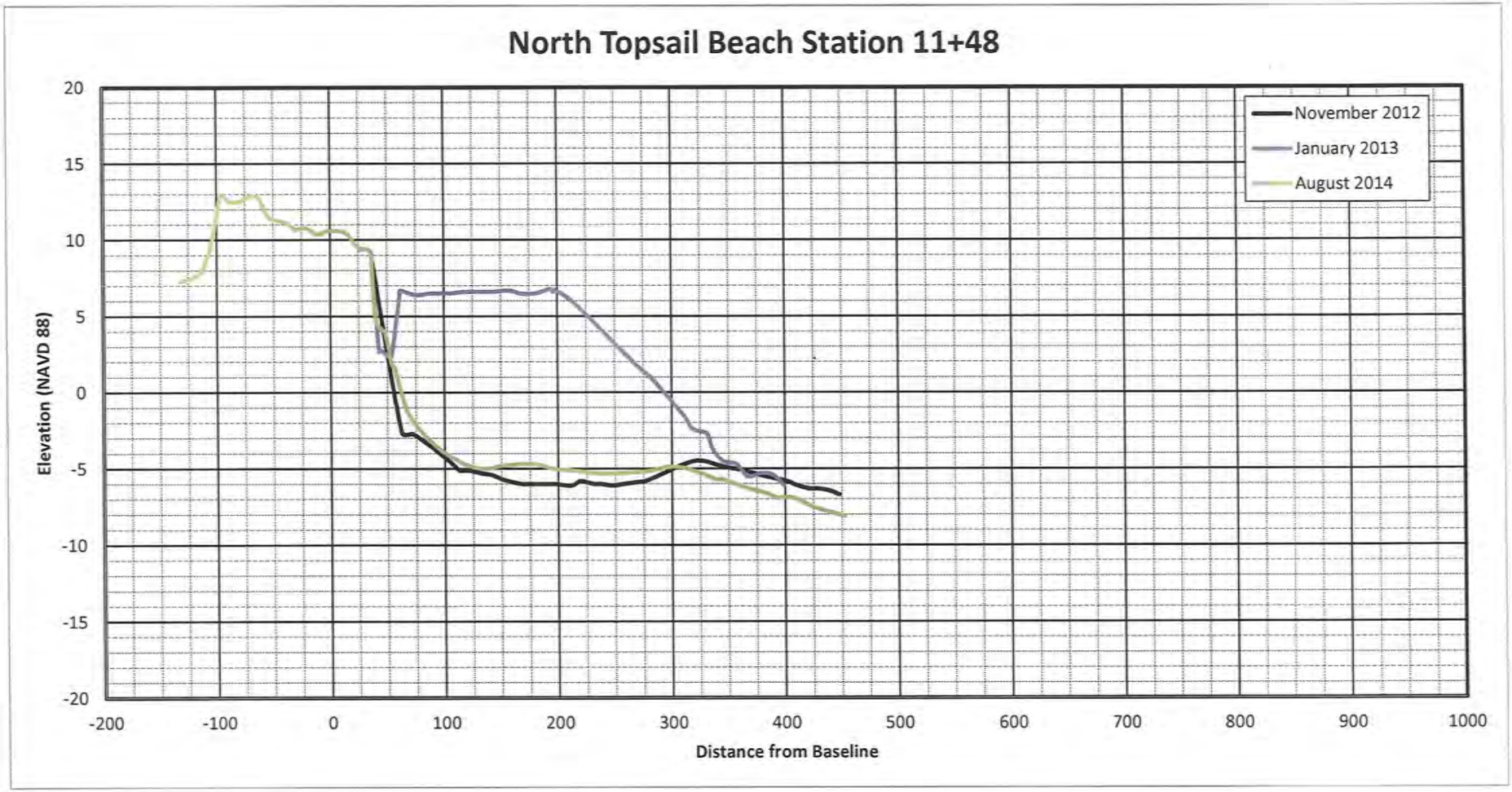
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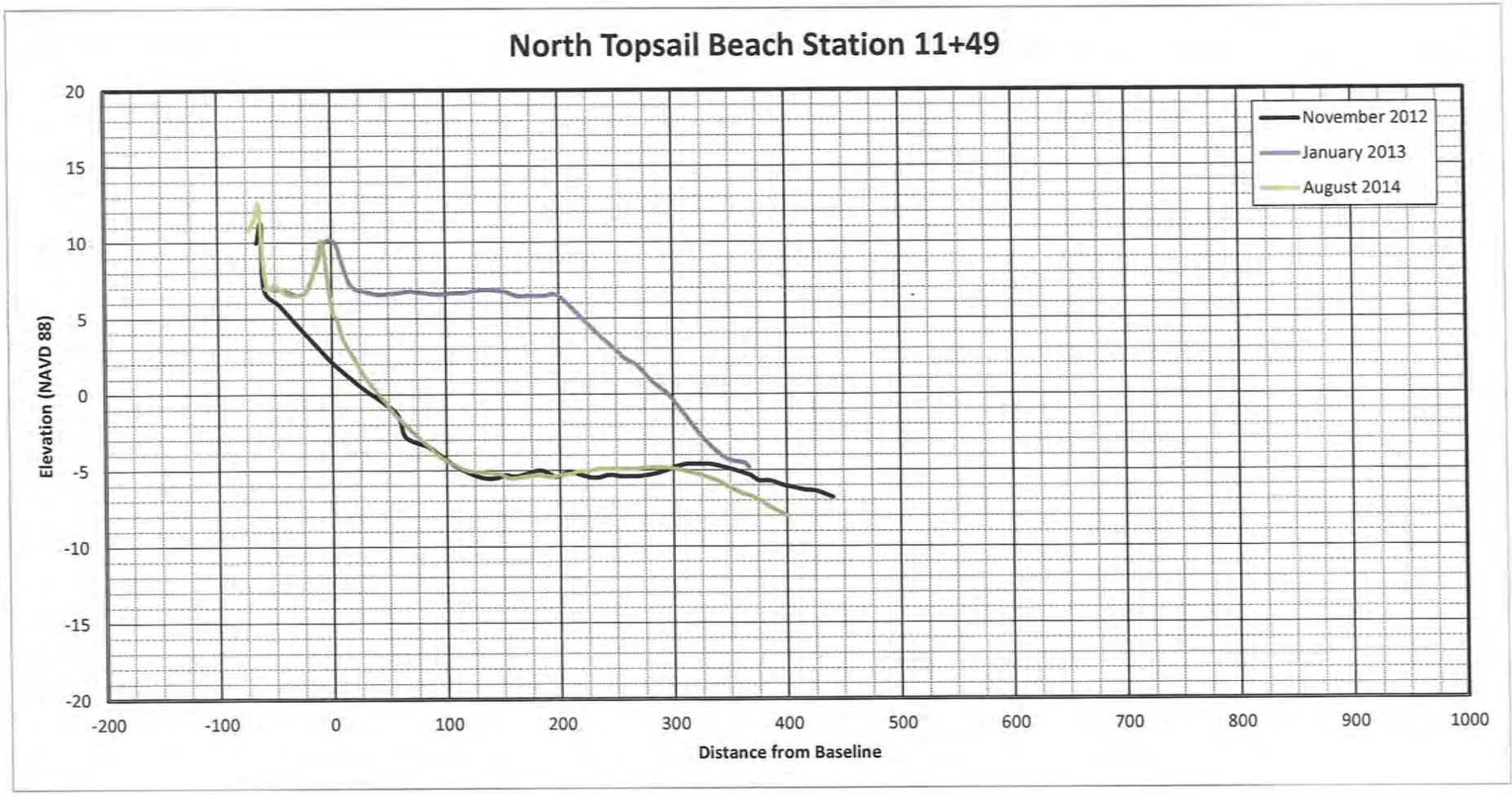
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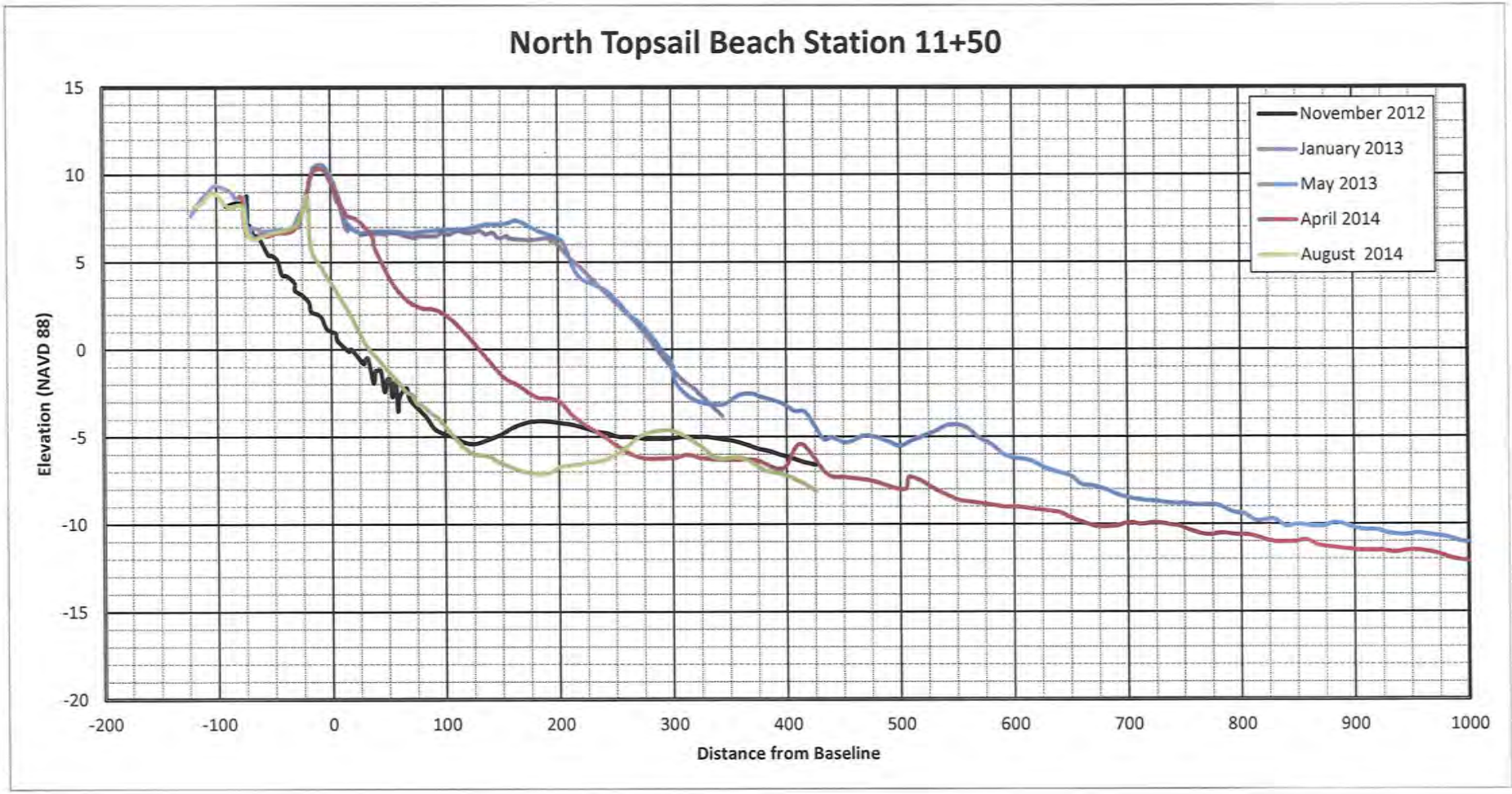
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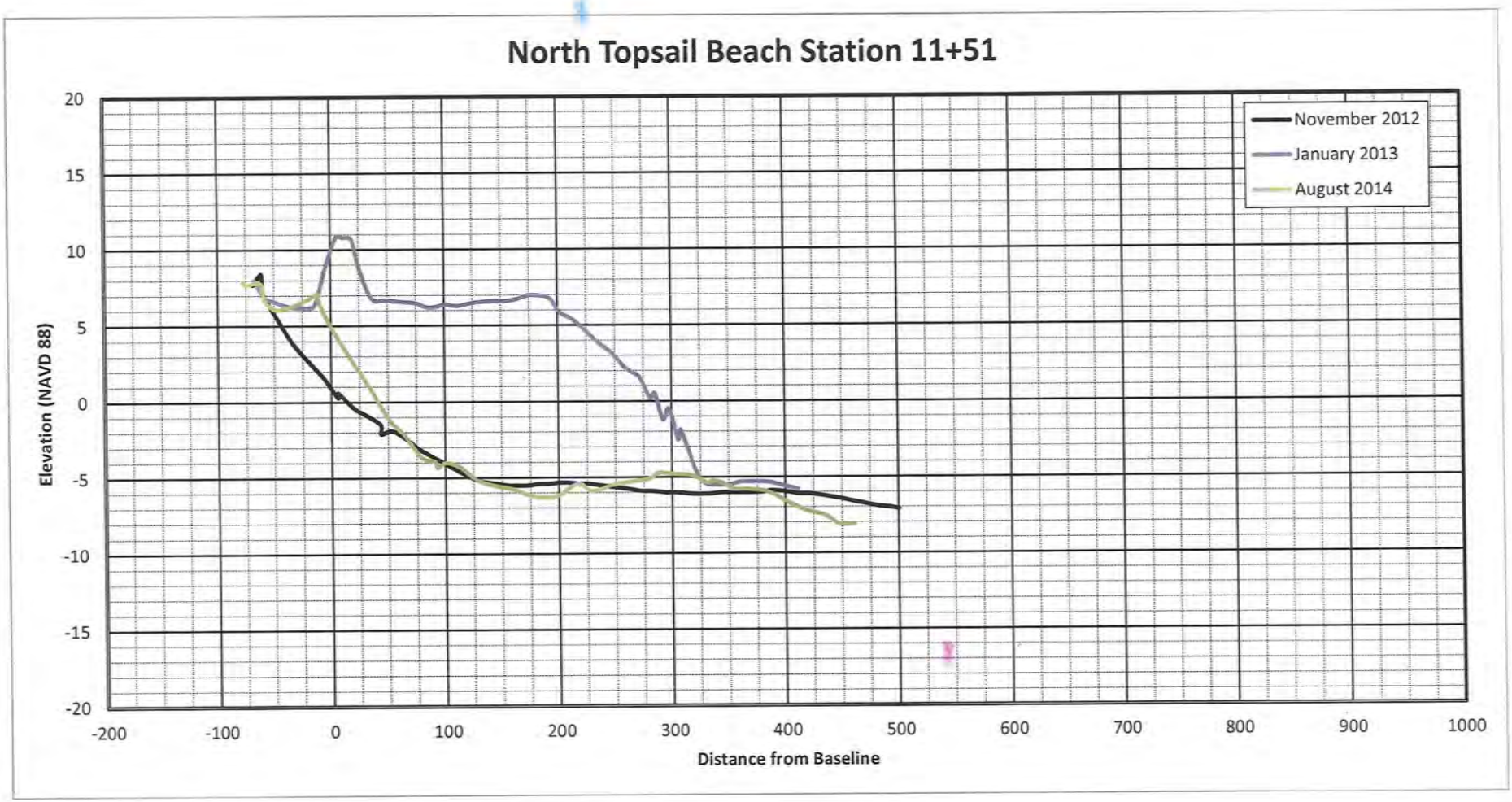
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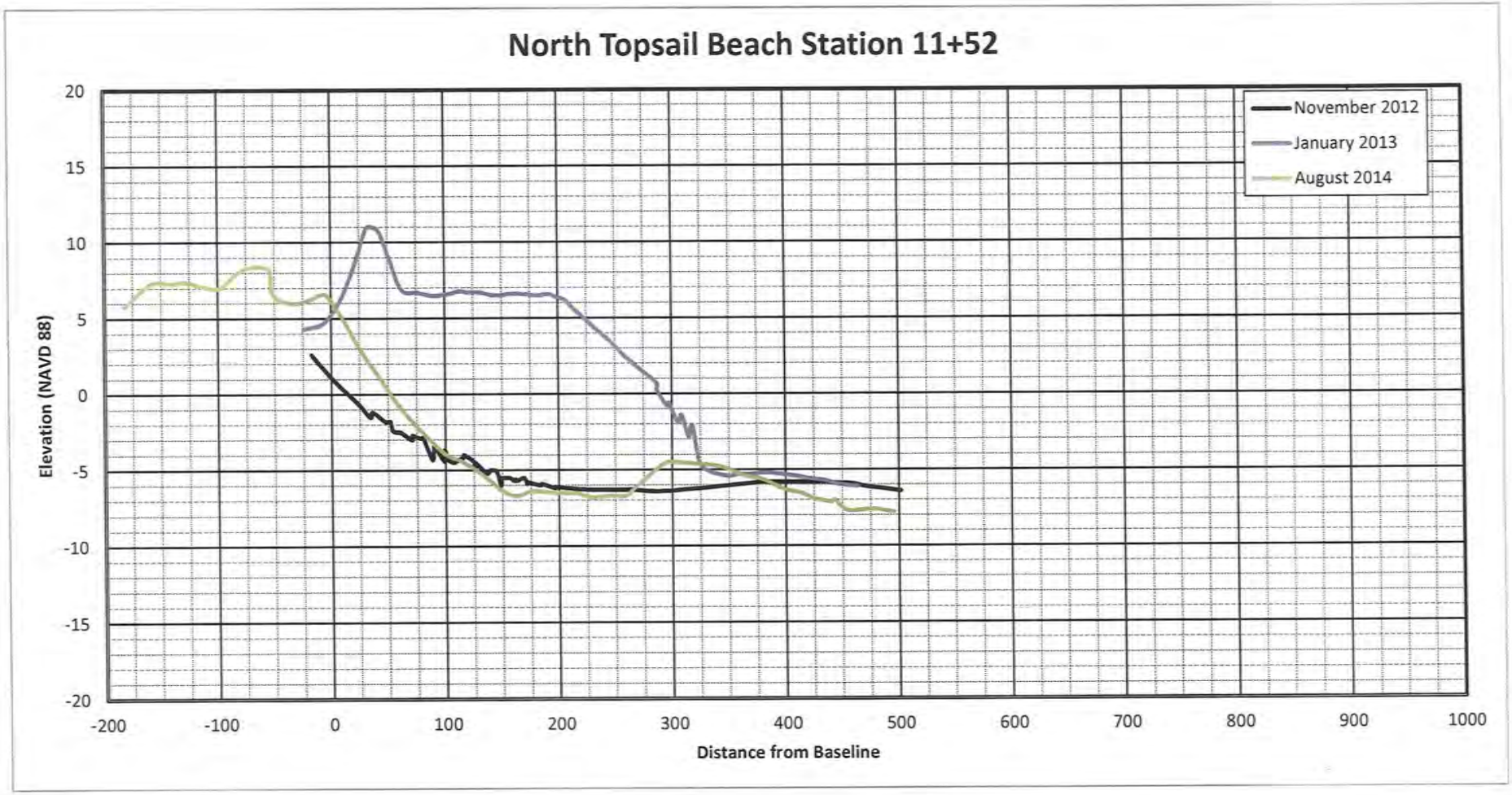
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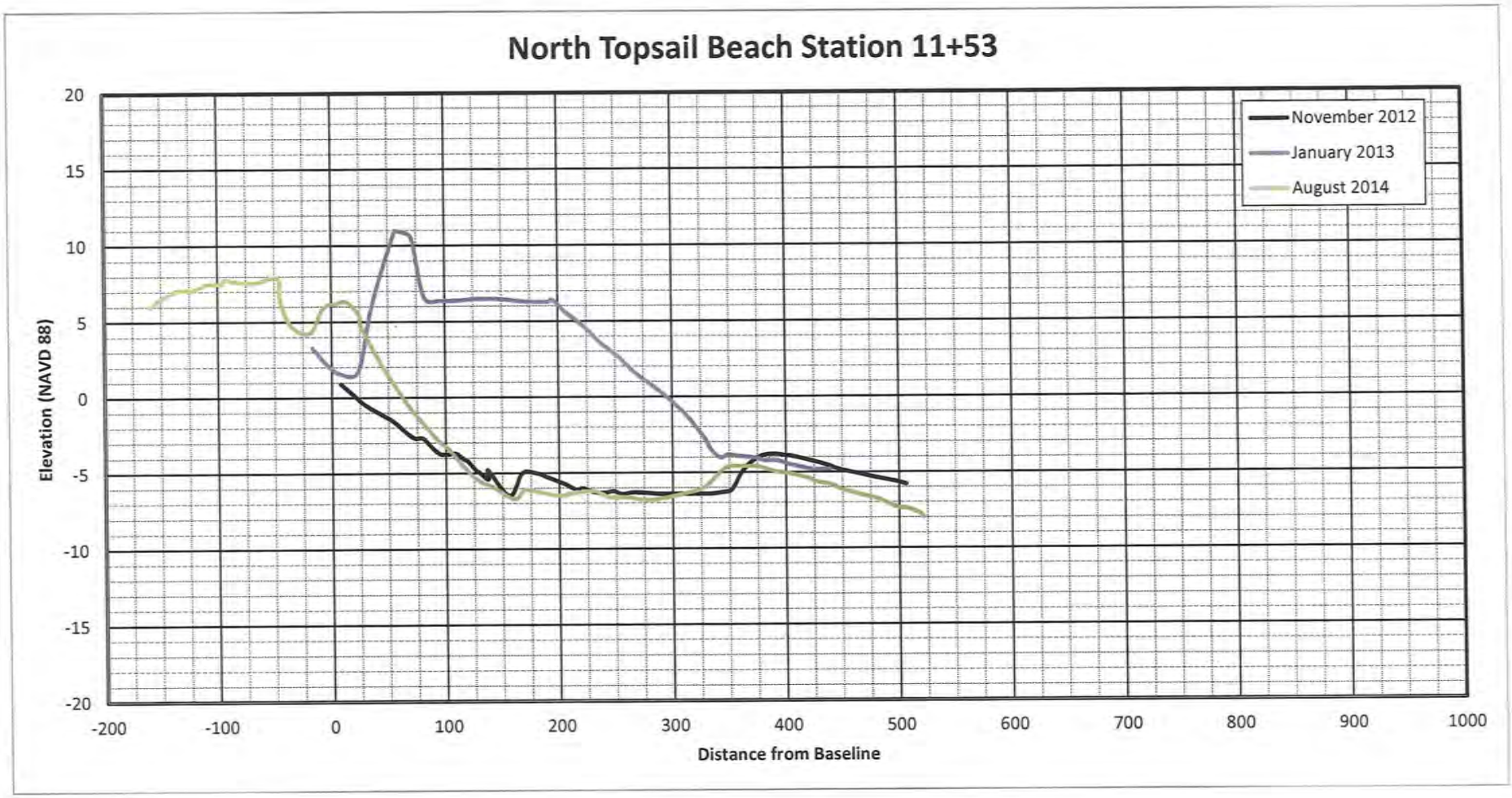
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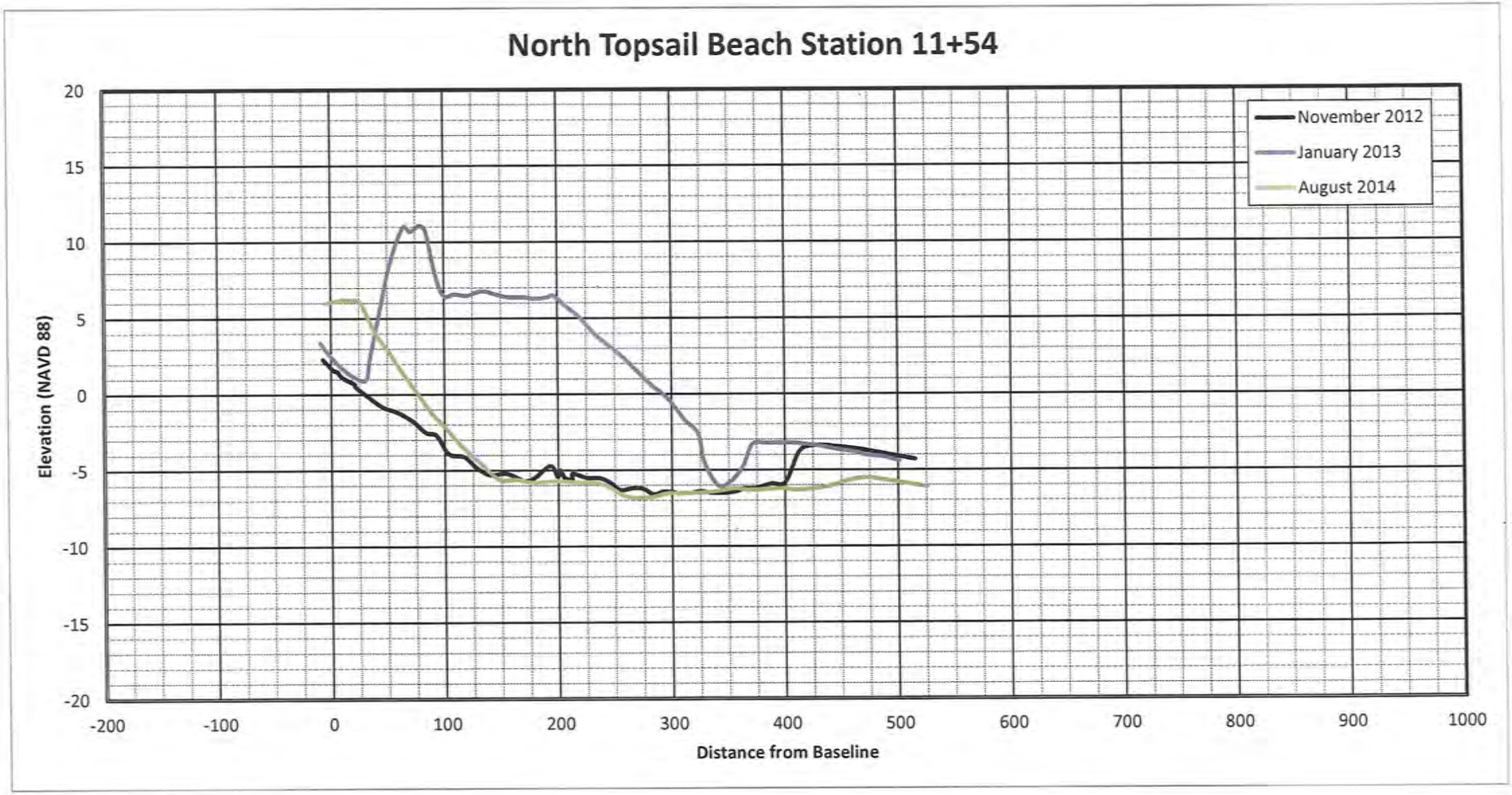
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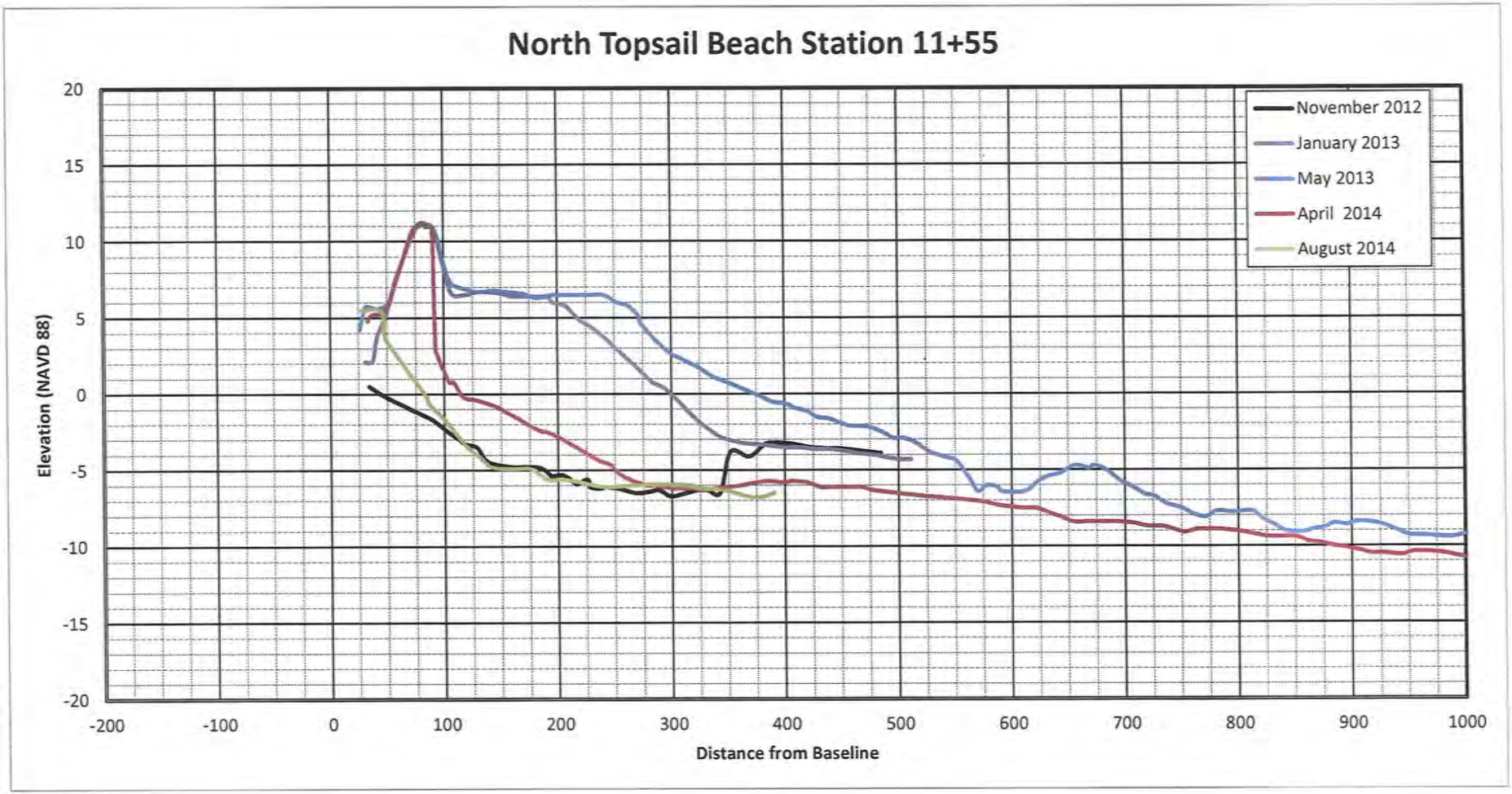
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Distance from Baseline
November 2012
January 2013
May 2013
April 2014
August 2014

Mr. Brian E. Edes 14 November 2014

Crossley McIntosh Collier Hanley & Edes, PLLC
Attorneys-at-Law
5002 Randall Parkway
Wilmington, North Carolina 28403

Dear Mr. Edes:

I have been asked to express my opinion regarding the cause of the erosion along the North Topsail Beach oceanfront shoreline immediately adjacent to New River Inlet. This 4,500 ft shoreline segment has been a chronic erosion zone for the past two decades. The shoreline retreat along this shoreline reach was/is related to the easterly movement of the outer bar channel and the attendant reconfiguration of the ebb-tidal delta. The consequence of the shape changes resulted in the removal of the wave sheltering-effect of the ebb delta along the North Topsail Beach oceanfront. This condition has existed along the above mentioned erosion hot-spot since the early 1990s.

In January 2013, the ebb channel was realigned in a near shore-normal fashion in an effort to restore the conditions that once favored accretion along the above mentioned shoreline. A realignment of the outer bar channel was predicted to result in major changes including an enlargement of the southwestern ebb shoal segment offshore the eroding shoreline. Realignment of the channel also afforded an opportunity to re-nourish the eroding shoreline with the compatible dredge material. The repositioned ebb channel was predicted to result in shoreline accretion along the erosion hot-spot when the outer bar had reconfigured to an optimum shape. The length of time necessary to achieve this configuration was estimated to range from 3 to 4 years.

When the project was completed in January 2013, the planform of the renourished oceanfront shoreline was *not* in equilibrium with the conditions that existed in early 2013. As a result, the fill material along North Topsail Beach began to erode because of the lack of a breakwater effect provided by the yet to be reconfigured southwestern portion of the ebb-tidal delta. During the past 1.8 years the ebb delta has reconfigured but not to the extent predicted for the optimum conditions at the end of 3-4 years. It is my opinion that

if the channel had not been relocated erosion would still have occurred and may likely have occurred at an earlier date.

Respectively,

William J. Cleary

William J. Cleary Ph. D., PG

Town of North Topsail Beach
North Carolina

North Topsail Beach Shoreline Protection Project

Phase I
New River Inlet Channel Realignment
& Beach Restoration

Year 2 Post-Construction Physical Monitoring Report

(Aerial Photo dated Oct. 2014)

USACE Permit SAW 2005-00344

October 2014

Prepared By:
Coastal Planning & Engineering of North Carolina, Inc.
4038 Masonboro Loop Road
Wilmington, NC 28409

EXECUTIVE SUMMARY

The Town of North Topsail Beach completed Phase 1 of a comprehensive shoreline protection project in February 2013. The New River Inlet ocean bar channel was realigned closer to North Topsail Beach to provide stability to the shoreline. The realignment of the channel was designed to cause the ebb tide delta of New River Inlet to reconfigure with a build-up of material on the south side and deflation of the north side. Once the south side of the ebb tide delta fully responds to the new bar channel position and alignment, a process that could take 5 years or more, the reconfigured ebb delta will provide a protective buffer between offshore wave forces and the project shoreline. The reconfigured ebb tide delta will also divert flood tide currents offshore and away from the inlet shoreline which will alleviate some of the erosion forces that plagued the area prior to construction.

Material removed from the New River Inlet was placed along 7,735 ft. of shoreline to widen the beach berm (+6.0 ft. NAVD88) approximately 135 ft. The project extended south from New River Inlet to Shipwatch Villas, or from station 1163+00, on the north end of Topsail Island, to station 1090+00.

Marinex Construction began dredging the new channel on November 26, 2012 and completed the dredging work for Phase 1 45 days later on January 9, 2013. The work was accomplished with the Dredge *Savannah*. The ocean bar channel in New River Inlet was excavated to an average depth of -18 ft. NAVD88 and a 500 ft. width. Approximately 592,000 cy of material were removed from the 3,500 ft. long channel and placed on the shoreline of North Topsail Beach. The in-place volumetric calculations reflect the beach received approximately 566,244 cy, or an average fill density of +73 cy/lf. Due to mitigation efforts for impacts sustained from Hurricane Sandy, the placed density was approximately 13 cy/lf higher than the permitted density. The average shoreline change measured as a result of the construction at the Mean High Water (MHW) contour (+1.4 ft. NAVD88) was a seaward movement of 170 ft.

A monitoring plan to document the projects performance has been established by the Town of North Topsail Beach. The plan specifies profile surveys along the project shoreline and within New River Inlet to record the current conditions. The survey results will be compared with pre-construction and post-construction monitoring data to calculate shoreline position and volume change within the project area.

The federal permit (USACE, 2011) also requires monitoring of the south end of Onslow Beach to identify impacts that may occur due to the project's construction and document sediment migration patterns along the beach strand and within the pre-construction ocean bar channel. The Onslow Beach surveys will also document changes in the northern ebb shoal of New River Inlet as it responds to the channel realignment.

Phase 1 Project Area

Based on the findings of the April 2014 monitoring, the Phase 1 Project Area was divided into two regions to more accurately assess the changes occurring along the project beach. The two

regions are the northern end of the project from just north of River Dr. to the north end of the Topsail Reef condominiums (station 1160+00 to 1145+00) and the beach strand portion of the project from station 1145+00 to station 1090+00. The northern area was evaluated separately as it experienced higher than expected erosion rates attributed to the influence of the New River Inlet.

The shoreline and volumetric analysis of the inlet influenced area (station 1160+00 to 1145+00) indicate this area experienced erosion from May 2013 to April 2014. The linear changes in the Mean High Water (MHW) contour, +1.4 ft. NAVD88, and the foreshore position measured an average retreat of -155 ft. and -233 ft. landward, respectively. The results of the volume analysis indicate that this area lost approximately -123,000 cy or -74 cy/lf. This area is being highly influenced by a nodal zone. A nodal zone is an area of localized erosion created when there is a divergence in the predominant direction of sediment transport. The change in direction is a result of wave refraction around the ebb delta. The curvature of the ebb tide delta acts as a focusing lens which causes the wave crests to change direction as they pass over the delta resulting in wave crests moving in the direction of the inlet regardless of the offshore direction. The point where the wave direction changes due to wave refraction is referred to as the nodal zone. Nodal zones are a naturally occurring phenomenon at inlets with ebb deltas.

Volumetric analysis of the beach strand portion of the project area (station 1145+00 to 1090+00) calculated that the area experienced a net volumetric loss of -98,000 cy or approximately -22 cy/lf from May 2013 to April 2014. The linear changes in the Mean High Water (MHW) contour, +1.4 ft. NAVD88, and the foreshore position measured an average retreat of -41 ft. and -48 ft. landward, respectively. These relatively high rates of change are mostly due to profile adjustments after construction and additional erosional impacts from above average intensity winter weather that affected the project area prior to the April 2014 monitoring event.

Adjacent Shoreline to the South

The linear shoreline analysis of the profiles south of the project area between the May 2103 and April 2014 surveys (stations 1090+00 to 1040+00) showed average seaward changes along the MHW (+1.4 ft. NAVD88) and foreshore contours of +9 ft. and +12 ft., respectively. The volume change calculated for the same section of shoreline also shows a net of approximately +3,000 cy between May 2013 and April 2014. The results and comparisons of profiles indicated losses and gains occurred at each station but overall this area experienced relative stability since May 2013.

Ocean Bar Channel Shoaling

Five (5) hydrographic survey data sets collected within the limits of the realigned channel since the project was constructed were compared to determine shoaling of the realigned channel. By January 2014 or approximately one year following construction, the new bar channel had accumulated 334,400 cy which was equal to 56% of the initial dredge volume. By April 2014 (15 months post-construction) the volume of material captured by the new channel was 448,000 cy or about 76% of the initial dredge volume. A channel shoaling analysis conducted during the engineering and design phase of the project predicted that approximately 286,000 cy (48%) of

the material would shoal into the channel during the first year. Although the measured shoaling of the channel suggests a slightly higher shoaling rate, the rates appear to be generally in line with what was predicted.

In response to the shoaling, the thalweg, or deepest portion of the channel, has shifted to the north along the landward sections of the channel and to the southwest along the outer sections of the channel. As a result of the shifting alignment, the average depth along the thalweg of the bar channel as of April 2014 was approximately elevation -12 ft. NAVD88 with depths ranging from -10 ft. to -19.5 ft. NAVD88.

Ebb Shoal Reconfiguration

The April 2014 monitoring data suggests the North Topsail Beach ebb shoal reconfiguration is continuing to develop as expected. The changes in the ebb tide delta as seen in the profile data show the shoal offshore of Onslow Beach migrating landward and to the south indicating a continuation of the ebb delta "deflation" north of the inlet. Comparison of May 2013 and April 2014 beach profile surveys also show that the pre-construction ocean bar channel and flood channels have filled in. The shoaling of the pre-construction ocean bar channel and flood channels is generally seen as a positive sign that the ebb shoal is reconfiguring as designed. Comparison of the profile surveys along the North Topsail Beach shoulder (south of inlet) shows an increase in the volume of sand accumulating within the ebb shoal area along the profile at station 1160+00. This is a further indication that the realignment of the channel is affecting the development of the ebb delta to reconfigure offshore of the north end of North Topsail Beach.

Onslow Beach

The shoreline and volume change analysis for Onslow Beach (station 50+00 to 90+00) shows a continuation of the net positive shoreline trends in April 2014. The analysis indicates the shoreline continues to experience relative stability with seaward migrations of the MHW and foreshore contours between May 2013 and April 2014 of +5 ft./yr. and +2 ft./yr., respectively. The volumetric analysis also indicates relative stability along the Onslow Beach shoreline with a net annual average volume change of 0 cy/ft./yr. between May 2013 and April 2014. This result does not mean there was no change only that there was a balance between the volumes changes occurring along the profiles. Comparisons between the October 2012 and April 2014 surveys also show net positive results in the MHW and shoreline migration of +9 ft./yr. and +4 ft./yr., respectively as well as a net positive volume change rate +5 cy/ft./yr. While these results are a decrease from the May 2013 survey they still present an overall stable condition of the Onslow Beach shoreline.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

INTRODUCTION

The Town of North Topsail Beach completed Phase 1 of a comprehensive shoreline protection project in February 2013. The Phase 1 work entailed realigning the New River Inlet ocean bar channel closer to North Topsail Beach to provide stability to the shoreline. The new alignment was excavated to an average depth of -18 ft. NAVD88 and a 500 ft. width. A measured 592,000 cy of material were removed from the approximate 3,500 ft. long channel and placed on the North Topsail Beach shoreline. Material was placed south from New River Inlet to Shipwatch Villas, or from station 1163+00 to 1090+00, respectively.

In preparation of the New River Inlet Channel Realignment and Beach Restoration, the Town of North Topsail Beach adopted a monitoring protocol to document the performance of Phase 1 (CPE-NC, 2013b). Project performance is measured by shoreline and volumetric change along the fill area and adjacent shoreline up to 5,000 ft. The performance of the realigned channel is also documented by measuring the infilling rate and controlling depth of the channel.

Additional monitoring is also required by the federal permit (USACE, 2011) to evaluate potential impacts from construction. A main element of the additional monitoring concentrates on the performance of Onslow Beach, located to the north of New River Inlet. The monitoring is intended to evaluate any adverse impacts the channel realignment causes along the southern strand of Onslow Beach. The shoreline migration rates measured after the channel realignment will be compared to historic rates to identify what, if any, impacts occur.

The northern ebb shoal of New River Inlet and the pre-construction location of the ocean bar channel must also be monitored to evaluate the channel infilling rate. This rate will be used to estimate the timeframe and extent for the creation of intertidal and subtidal shoals within the existing channel footprint and to determine when the new bar channel is eligible for maintenance as dictated by conditions within the federal permit. In this regard, channel maintenance can only be performed every four years and only then if the shoal volume in the new channel reaches 85% of the initial dredged volume or if the channel thalweg migrates out of the preferred channel corridor.

As originally formulated, the Phase 1 fill was to include an area with nearshore hardbottoms located between station 1080+00 and 1065+00 which would have required pre- and post-construction monitoring of the hardbottom areas. Pre-construction monitoring of the hardbottom area was accomplished in October 2012, however, mitigation of the erosion impacts associated with Hurricane Sandy combined with the finite quantity of sand available from the realigned channel, did not allow the Phase 1 fill to extend into the nearshore hardbottom area. As a result, the post-construction monitoring requirement of the hardbottom area was waived by the USACE (CPE-NC, 2013a).

MONITORING ACTIVITIES

Beach profile surveys were conducted to assess the response and measure potential impacts of the beach after completion of the Phase 1 project. The coverage area for the beach profiles extends approximately 9,000 ft. north of New River Inlet (Onslow Beach) to approximately 13,000 ft. south of the inlet (North Topsail Beach). A hydrographic survey of the ebb shoal of New River Inlet was also conducted to measure the channel performance. Below is a list of the monitoring areas and the station limits used to conduct the respective analysis.

Beach Profiles:

- Project Shoreline and Adjacent Beach (North Topsail Beach Stations 1040+00 to 1165+00)
- New River Inlet Ebb Shoal and the Pre-Construction Ocean Bar Channel (Onslow Beach Stations 0+00 to 40+00, North Topsail Beach Stations 1150+00 to 1170+00, and Channel Stations 0+00 to 34+00)
- Onslow Beach (Onslow Beach Stations 50+00 to 90+00)

Hydrographic Surveys

- New River Inlet Ebb Shoal

In May 2013, the first post-construction survey was conducted to capture conditions approximately 3 months after construction. In April 2014, the second post-construction survey was conducted to capture conditions approximately 15 months after construction. The monitoring profiles conducted for pre-construction in all areas were spaced at approximately 1,000 ft. intervals. However, during the 2013 post-construction monitoring, the profile spacing was reduced to 500 ft. along the North Topsail Beach shoreline. The profile density was increased to capture potential anomalies in the shoreline or 'hot-spots' in the sediment migration patterns after fill placement occurred. In 2014, the monitoring survey collected profile data along the beach strand section of the project area from Station 1040+00 to 1140+00 at 1,000 ft. intervals and 500 ft. intervals along the northern section of the project shoreline from station 1140+00 to station 1160+00.

Post-construction hydrographic survey data of New River Inlet was also incorporated into the monitoring analysis. The Record "or As-Built" survey conducted by the Contractor at the conclusion of construction (Jan. 2013) was compared with an April 2012 (pre-construction) and an April 2013 (post-construction) survey performed by the USACE. These surveys were used to quantify the volume of material removed from the channel during construction and the volume of material that has accumulated in the realigned channel since construction. A hydrographic survey of the New River Inlet was also conducted in April 2014 to assess the condition of the channel and calculate the shoaled volume within the dredged channel footprint. The shoaling measurements will assist in providing justification for periodic dredging. As mentioned above, maintenance of the new bar channel may not occur more than once every four (4) years and only then if the volume of shoal material is at least 85% of the volume originally removed or if the if the channel thalweg migrates outside the 500 ft. wide realigned channel corridor (USACE, 2011).

METHOD FOR DETERMINING SHORELINE AND FORESHORE CHANGE

Shoreline changes along North Topsail Beach and Onslow Beach were determined at each station by comparing the position of the Mean High Water (MHW) contour (+1.4 ft. NAVD88) and changes in the position of a theoretical foreshore in which the theoretical foreshore position is an average of the position of the +4.5 ft. NAVD88, +1.4 ft. NAVD88 (MHW), -2.8 ft. NAVD88 (MLW) and -6.0 ft. NAVD88 contours. Changes in the position of the theoretical foreshore are generally less variable than shoreline changes determined based on a single contour.

Results of the shoreline change analysis are reported in terms of actual shoreline change at each station for the given monitoring period and an annual average rate of change since the time of construction.

METHOD FOR DETERMINING VOLUMETRIC CHANGES

The net change in the volume was calculated for profiles along North Topsail Beach (1160+00 to 1040+00) and Onslow Beach (50+00 to 90+00) between the pre-construction, post-construction, and subsequent monitoring surveys. Volume comparisons were conducted between each consecutive monitoring event to calculate the individual changes. Total volume change across the project area was calculated using the average end area method to determine the total change in volume. The results establish a reference for comparing erosion or accretion trends in future monitoring events.

Volume changes are reported to define how the shorelines of North Topsail Beach and Onslow Beach are responding to the project. On North Topsail Beach, the volumes within the beach fill area were calculated for each profile from the landward limit of the survey to the offshore extent of the fill envelope (approximately 400 ft. offshore). The volume changes south of the beach fill area (station 1080+00 to 1040+00) were calculated for the “active profile”, i.e., the portion of the profile above the -21 NAVD88 contour. The -21 ft. NAVD88 contour is referred to as the depth of closure (DOC) (CPE-NC 2009a). The DOC is the elevation where profiles maintain a relatively constant form between monitoring events. Volumetric calculations on Onslow Beach covered the active profile for comparison with historic trends.

PHASE 1 PROJECT AREA AND ADJACENT SHORELINES

Approximately 13,000 ft. of the North Topsail Beach shoreline beginning at New River Inlet, were included in this monitoring event. The coverage area includes profiles at stations 1170+00 south to 1040+00 and is separated into three shoreline segments (Figure 1). Beginning at the northern limits, the first shoreline segment is referenced as "North Topsail Beach Inlet Shoreline". This area is located on the interior shoreline of the New River Inlet where a sand spit has formed since the May 2013 monitoring and is represented by profiles located at stations 1170+00 through 1163+00. The Phase 1 project fill area is the largest segment and encompasses profiles from stations 1160+00 to 1090+00. Based on the results of the April 2014 monitoring, the Phase 1 segment was subdivided into two areas; the area within the influence of the New River Inlet, which lies between stations 1160+00 and 1145+00, and the straight beach strand area from station 1145+00 south to station 1090+00 which is outside the immediate influence of the inlet. These areas are referenced as the "Inlet Influenced Area" and the "Beach Fill Performance Area". The southernmost shoreline segment is referenced as "Adjacent Shoreline South of Project Area" and extends approximately 5,000 ft. south of the fill limits to station 1040+00.

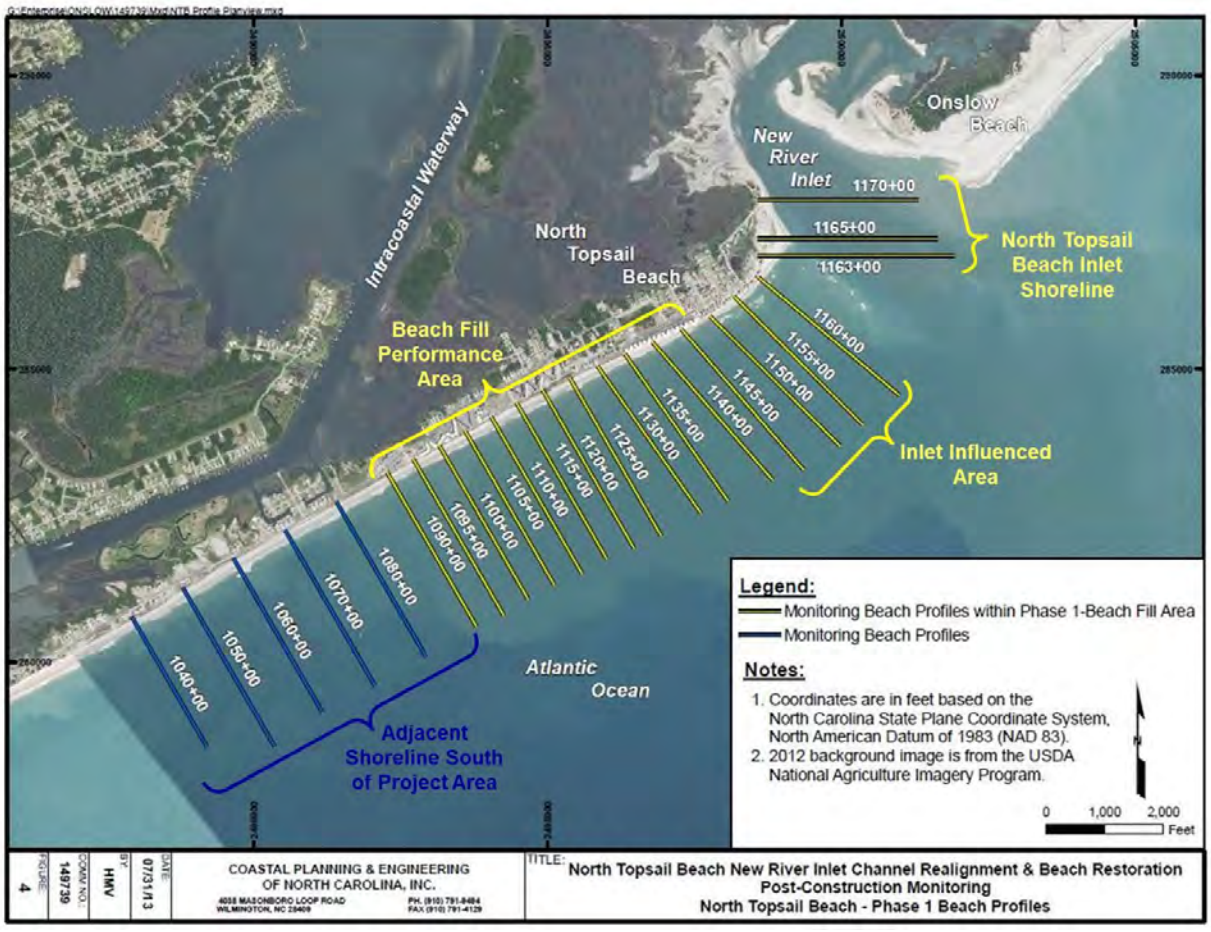

Figure 1 – Profiles Monitored for the Project Area and Adjacent Beach

The April 2014 survey collected profile data along North Topsail Beach at 1,000 ft. intervals from station 1140+00 to 1040+00 and 500 ft. intervals from station 1140+00 to 1160+00. The profile control is provided in Table 1.

Table 1 – Monitoring Stations for North Topsail Beach

Area Designation	Station No.	Northing	Easting	Azimuth (°)
North Topsail Beach Inlet Shoreline	1170+00	287,875.00	2,498,578.40	90
	1165+00	287,219.68	2,498,582.32	90
	1163+00	286,929.08	2,498,583.99	90
Phase 1 - Inlet Influenced Project Area	1160+00	286,564.36	2,498,586.24	130
	1155+00	286,232.66	2,498,174.95	135
	1150+00	285,901.00	2,497,763.00	135
Phase 1 - Beach Fill Performance Area	1145+00	285,679.04	2,497,274.34	139
	1140+00	285,457.10	2,496,785.00	139
	1135+00	**285,255.20**	**2,496,316.35**	**145**
	1130+00	285,053.30	2,495,847.70	145
	1125+00	**284,850.85**	**2,495,378.10**	**150**
	1120+00	284,648.20	2,494,908.50	150
	1115+00	**284,421.30**	**2,494,471.70**	**150**
	1110+00	284,194.20	2,494,034.90	150
	1105+00	**283,946.33**	**2,493,595.06**	**150**
	1100+00	283,698.50	2,493,155.20	150
	1095+00	**283,467.27**	**2,492,713.91**	**150**
	1090+00	283,236.10	2,492,272.60	150
Adjacent Shoreline South of Project Area	1080+00	282,735.00	2,491,406.50	150
	1070+00	282,253.20	2,490,531.60	150
	1060+00	281,776.90	2,489,653.30	150
	1050+00	281,282.40	2,488,784.60	150
	1040+00	280,782.70	2,487,919.90	150

Coordinates Reference North Carolina State Plane Zone 3200 NAD 83 ft.

MHW Shoreline Change

The April 2014 monitoring results show the Inlet Influence Area (station 1160+00 to 1145+00) as the most heavily eroded area along the project shoreline. This area experienced an average landward movement of the MHW contour (+1.4 ft. NAVD88) of -155 ft. since May 2013. The completed project (Jan. 2013) placed fill in this area that resulted in an average seaward movement of the +263 ft. in the MHW contour. Comparisons between the June 2012 and April 2014 surveys measured an average shoreline width remaining of +47 ft. at the MHW contour.

The excessive shoreline recession in this area is highly influenced by the changes occurring at the inlet and has experienced erosion rates higher than were expected. The mechanism partly responsible for the increased rate of erosion is related to the shape of the ebb shoal acting as a focusing lens which causes incoming waves to change direction as they pass over the shoal and are redirected towards the inlet. This phenomenon is known as wave refraction. The section of shoreline experiencing the most erosion is known as a nodal zone. The nodal zone is an area where sand is being transported in opposite directions and is naturally present at all inlets with ebb tide deltas. This area is located in between where waves that are refracted by the shoal transport sand towards the inlet and waves bypassing the shoal transport sand south and away from the inlet. As the ebb shoal develops and more sand is deposited, the effective depth over the ebb shoal will decrease and shoal will provide a sheltering effect to the northern portion of the shoreline. The decrease in water depth over the ebb shoal will cause waves to break further offshore thereby reducing the erosional effect of the wave refraction and promote shoreline stability at this location. Table 2 presents the MHW shoreline results between the Pre-Construction, As-Built, Post-Construction, and subsequent Monitoring survey events for each of the project sections.

Table 2 – North Topsail Beach MHW (+1.4 ft. NAVD88) Shoreline Change Summary

Area Designation	Pre-Con (June 2012) to As-Built (Jan. 2013)	Post-Con (May 2013) to April 2014	Pre-Con (June 2012) to April 2014
	Average Migration (ft.)		
North Topsail Beach Inlet Shoreline (1165+00 – 1163+00)	-	+110	-
Phase 1 – Inlet Influenced Area (1160+00 – 1145+00)	+263	-155	+47
Phase 1 – Beach Fill Performance Area (1145+00 – 1090+00)	+145	-41	+112
Adjacent Shoreline South Of Project Area (1090+00 – 1040+00)	+5[2]	+9	+14

1. (+ Number) Indicates seaward advance, (- Number) Indicates landward retreat.
2. Pre-Con to As-Built shoreline changes for the Adj. Shoreline South of Project Area (1080+00 to 1050+00) are results from June 2012 to May 2013 surveys.

As previously noted, the profile spacing used for the June 2012 pre-construction survey was 1,000 ft. Therefore, no profile information was collected at stations 1145+00 and 1155+00 during the 2012 survey. The MHW and Foreshore shoreline change results between the June 2012 and April 2014 surveys represent the changes occurring at the 1,000 ft. profile stations since the June 2012 survey did not include measurements at stations 1145+00 and 1155+00. Since, changes measured between May 2013 and April 2014 include survey data for these two stations, the results of the May 2013 to April 2014 time period are not directly comparable to the changes measured between June 2012 and May 2013.

The linear change of the MHW contour as a result of the fill placed in the Beach Fill Performance area (stations 1145+00 to 1090+00) extended the MHW contour seaward of the pre-construction shoreline by an average of +145 ft., as measured by the January 2013 As-Built survey. The April 2014 monitoring results indicate that the MHW shoreline in this area retreated by an average of -41 ft. since May 2013. Some of these changes are due to profile adjustments after construction and additional erosional impacts from above average intensity winter weather that affected the project area prior to the April 2014 monitoring event. Based on the changes measured between the June 2012 and the April 2014 surveys this area had an average of +112 ft. of shoreline remaining at the MHW contour.

The MHW contour along the adjacent shoreline south of the project area experienced minimal change from May 2013 to April 2014. The linear change measured an average seaward advance of +9 ft. from May 2013 to April 2014. The northern most stations (1080+00 to 1060+00) advanced an average of +16 ft., whereas the southern stations (1050+00 and 1040+00) receded landward an average of -14 ft. The April 2014 results show less variation in the MHW changes between profiles than were observed during the As-Built survey and show only a slight increase over the As-Built MHW change of +5 ft. seaward advance. Overall, the changes along the shoreline south of the project area since construction indicate the area is experiencing relative stability.

The shoreline and volumetric changes for the northern profiles at stations 1165+00 and 1163+00 are being identified separately because they are highly influenced by the changes occurring at the inlet; most notably the growth of the sand spit at the northern tip of North Topsail Beach. The MHW shoreline measurements in April 2014 at stations 1165+00 and 1163+00 showed average seaward changes of +154 ft. and +9 ft., respectively; however, significant variability exists along these beach profiles because of the growth of the sand spit. The linear changes of the MHW contour along the entire project shoreline measured between the June 2012 Pre-Construction survey and the January 2013 As-Built survey and the change in the position of the MHW shoreline between May 2013 and April 2014 and the overall net change between June 2012 (pre-construction) and April 2014 are provided in Table 3. Appendix A shows graphical comparisons of the North Topsail Beach monitoring profiles.

Table 3 – North Topsail Beach MHW (+1.4 ft. NAVD88) Change

Area Designation	Station No.	Pre-Con (June 2012) to As-Built (Jan. 2013) (ft.)	Post-Con (May 2013) to April 2014 (ft.)	Pre-Con (June 2012) to April 2014 (ft.)
North Topsail Beach Inlet Shoreline	1170+00	-	-29	-
	1165+00	-	+154	-
	1163+00	-	+9	-
Phase 1 Inlet Influenced Area	1160+00	+296	-116	-19
	1155+00	+262	-230	-
	1150+00	+275	-163	+112
Phase 1 Beach Fill Performance Area	1145+00	+236	-111	-
	1140+00	+245	-87	+130
	1130+00	+172	-39	+137
	1120+00	+105	-31	+105
	1110+00	+88	-20	+96
	1100+00	+155	-4	+102
	1090+00	+69	+9	+99
Adjacent Shoreline South of Project Area(2)	1080+00	+70	+14	+84
	1070+00	-22	+27	+5
	1060+00	-5	+7	+2
	1050+00	-24	-12	-36
	1040+00	-	-16	-

1. (+ Number) Indicates seaward advance, (- Number) Indicates landward retreat.
2. Pre-Con to As-Built shoreline changes for the Adj. Shoreline South of Project Area (1080+00 to 1050+00) are results from June 2012 to May 2013 surveys.

Foreshore Changes

The linear change of the shoreline was also analyzed by a method termed foreshore change. This method averages the horizontal positions of selected contours (+4.5 ft., +1.4 ft., -2.8 ft., and -6.0 ft. NAVD88) to show an average change of a representative shoreline position. The monitoring results indicate that the project shoreline as a whole experienced similar change in the foreshore contour in comparison with the change experienced in the MHW contour. The average foreshore changes between the survey events for each shoreline area are shown in Table 4.

Table 4 – North Topsail Beach Foreshore Change Summary

Area Designation	Pre-Con (June 2012) to Post-Con (May 2013)	Post-Con (May 2013) to April 2014	Pre-Con (June 2012) to April 2014
	Average Change (ft.)		
North Topsail Beach Inlet Shoreline (1165+00 – 1163+00)	-	+180	-
Phase 1 – Inlet Influenced Area (1160+00 – 1145+00)	+196	-233	-37
Phase 1 – Beach Fill Performance Area (1145+00 – 1090+00)	+97	-32	+65
Adjacent Shoreline South Of Project Area (1090+00 – 1040+00)	-19	+12	-7

1. (+ Number) Indicates seaward advance, (- Number) Indicates landward retreat.

The change in the foreshore contour along the Inlet Influenced Area, located in the vicinity of the nodal zone, receded by an average of -233 ft. between May 2013 and April 2014. This result is a net landward change greater than the seaward change of +196 ft. that occurred from June 2012 to May 2013. The average foreshore change from June 2012 to April 2014 measured a recession of -37 ft. landward of the pre-construction foreshore shoreline. These results indicate that the average foreshore contour receded further landward than the average seaward positions recorded for this shoreline segment in previous surveys.

The results of the foreshore analysis along the Beach Fill Performance Area (station 1145+00 to 1090+00) showed that the area experienced an average seaward advance of +97 ft. between June 2012 and May 2013. The changes along the profiles between May 2013 and April 2014 resulted in a recession of -32 ft. in the foreshore position. This change may not be representative of long-term changes due to post-fill adjustments and the advent of atypical winter storm conditions. Over time, erosion rates are expected to moderate. The net change in the foreshore position between June 2012 (Pre-Construction) and April 2014 was measured as a net positive change of +65 ft. which is an indication approximately two-thirds of the added width provided by the beach fill was still in place.

The foreshore change results in the Adjacent Shoreline South of the Project area showed a net positive average migration of +12 ft. from May 2013 to April 2014, a reversal from the landward change of -19 ft. measured between June 2012 and May 2013. The April 2014 results show that from May 2013 the profiles experienced seaward increases ranging from +23 ft. to +40 ft. These results indicate that this area is not experiencing adverse impacts as a result of the Phase 1 project.

The change in the foreshore contour along the North Topsail Beach Inlet Shoreline (stations 1165+00 and 1163+00) from May 2013 to April 2014 showed an average seaward increase of +180 ft. The profiles at stations 1165+00 and 1163+00 experienced changes of +272 ft. and +88 ft., respectively. The variations in the profiles are representative of the significant fluctuations that have occurred within the inlet and the growth of the sand spit since the May 2013 survey. The linear changes of the foreshore contour migration along the entire project shoreline measured during the pre-construction (June 2012), the post-construction (May 2013) and the April 2014 monitoring event are shown in Table 5.

Table 5 – North Topsail Beach Foreshore Change

Area Designation	Station No.	Pre-Con (June 2012) to Post-Con (May 2013) (ft.)	Post-Con (May 2013) to April 2014 (ft.)	Pre-Con (June 2012) to April 2014) (ft.)
North Topsail Beach Inlet Shoreline	1170+0	-	-11	-
	1165+00	-	+272	-
	1163+00	-	+88	-
Phase 1 Inlet Influenced Area	1160+00	+149	-269	-121
	1155+00	-	-246	-
	1150+00	+243	-196	+47
Phase 1 Beach Fill Performance Area	1145+00	-	-145	-
	1140+00	+174	-117	+57
	1130+00	+139	-38	+101
	1120+00	+100	-8	+91
	1110+00	+88	-5	+82
	1100+00	+61	-16	+45
	1090+00	+16	-4	+12
Adjacent Shoreline South of Project Area	1080+00	-17	+6	-10
	1070+00	-2	+21	+19
	1060+00	-18	+22	+4
	1050+00	-40	-2	-41
	1040+00	-	+9	-

1. (+ Number) Indicates seaward advance, (- Number) Indicates landward retreat.

Volume Change

The calculations performed to measure the volumetric change from the May 2013 post-construction survey to the April 2014 determined a net loss in volume of approximately -222,000 cy or an average density of -39 cy/lf between stations 1160+00 and 1090+00 over the approximate 7,000 ft. fill area. As previously stated, the Phase 1 project shoreline was divided into two areas, the Inlet Influenced Area (station 1160+00 to 1145+00) and the Beach Fill Performance Area (station 1145+00 to 1090+00). The areas are assessed separately due to the increased erosion occurring along the northern 1,500 ft. of shoreline being impacted by the inlet influenced nodal zone. The remaining 5,500 ft. of shoreline south of the inlet, within the Beach Fill Performance Area, is performing as expected. A summary of the volumetric changes between the survey events are shown in Table 6 for the entire project area.

Table 6 – North Topsail Beach Volume Change Summary

Area Designation	As-Built (Jan 2013) to Post-Con (May 2013)		Post-Con (May 2013) to April 2014		Pre-Con (June 2012) to April 2014[1]	
	(cy)	(cy/lf)	(cy)	(cy/lf)	(cy)	(cy/lf/yr.)
North Topsail Beach Inlet Shoreline (1165+00 – 1163+00)	+1,033	+1	+36,873	+110	-	-
Phase 1 – Inlet Influenced Area (1160+00 – 1145+00)	+176,313	+103	-123,470	-74	+19,015	+6
Phase 1 – Beach Fill Performance Area (1145+00 – 1090+00)	+370,889	+67	-98,003	-22	+212,933	+20
Adjacent Shoreline South Of Project Area[2] (1090+00 – 1040+00)	+19,406[2]	+7[2]	+3,177	+1	+22,369	+3

[1] 1.8 years used to calculate change rate between 2012 and 2014 surveys.
[2] Pre-Con to As-Built shoreline changes for the Adj. Shoreline South of Project Area (1080+00 to 1050+00) are results from June 2012 to May 2013 surveys.

The results of the volumetric analysis show that a fill volume of approximately +176,000 cy or a fill density of +103 cy/lf was placed within the Inlet Influenced area during the construction of the Phase 1 project as measured by the January 2013 As-Built survey. Additional fill was placed in this area in anticipation of the potential for higher than expected erosion rates. An analysis of the survey data indicates that approximately -123,000 cy of fill was lost over an 11-month period, from the May 2013 post-construction survey to the April 2014 monitoring survey. This is equal to an average density of -74 cy/lf or a rate of -81 cy/lf/yr. As mentioned previously, the erosion in this area is considered to be the result of a nodal zone that has created an area of increased erosion adjacent to the inlet. As the ebb shoal continues to develop the shoal is

expected to provide increased protection from incoming waves and cause waves to break further offshore thereby reducing the erosional effect of the nodal zone.

The January 2013 As-Built survey shows that the Beach Fill Performance area (stations 1145+00 to 1090+00) received approximately +371,000 cy or +67 cy/lf of fill as a part of the Phase 1 project. The results of the volume change calculated between May 2013 and April 2014 showed that the area experienced a net loss of -98,000 cy or an average of -22cy/lf along the 5,500 ft. shoreline segment. The erosion rate calculated for this 11-month period is equivalent to -25 cy/lf/yr. Although this area is out-performing the Inlet Influenced area, the rate of erosion is not considered representative of typical conditions affecting the project shoreline and is expected to moderate over time. These changes are considered to be a result of material migrating south out of the project area as well as profile adjustments after construction. In addition, the area experienced additional erosional impacts from above average intensity winter weather that affected the project area prior to the April 2014 monitoring event. The volume change results between June 2012 and April 2014 show that approximately 213,000 cy of fill remains within the project area seaward of the pre-construction profile.

The results of the volumetric analysis for the adjacent shoreline south of the fill area showed a net gain of approximately +19,000 cy, or approximately +7 cy/lf/yr. from June 2012 to May 2013. The volumetric change occurring south of the fill area from May 2013 to April 2014 shows a minimal gain of approximately +3,200 cy, or approximately +1 cy/lf/yr. indicating stable conditions along this shoreline segment. Overall, the change from June 2012 to April 2014 is a net positive volume of approximately +22,000 cy equal to a rate of +3 cy/lf/yr. These results are reinforced by the seaward migration of the MHW contour and foreshore change suggesting that this area has remained relatively stable since the Phase 1 project was constructed.

The volume changes experienced along the North Topsail Beach inlet shoreline from May 2013 to April 2014 are associated with the growth of the sand spit that has developed in that area. The inlet profiles at stations 1165+00 and 1163+00 experienced volume increases of +133 cy/ft. and +83 cy/ft., respectively between May 2013 and April 2014 surveys. The profiles at stations 1165+00 and 1163+00 were not surveyed in June 2012 therefore no comparison can be made with subsequent surveys. The sand spit formation is a result of the fill being transported toward the inlet by the nearshore currents driven by the inlet flood channel. As the ebb shoal continues to develop and build up offshore the influence of the flood channel currents is expected to decrease. The volumetric changes at each station between each of the survey events are shown in Table 7.

Table 7 – North Topsail Beach Volume Changes

Station No.	As-Built Post-Construction (Jan. 2013) (cy/lf)[1]	Post-Con (May 2013) to April 2014 (cy/lf)	Pre-Con (June 2012) to April 2014 (cy/lf)
1165+00	-	+133	-
1163+00	+1	+87	-
1160+00	+88	-58	-18
1155+00	+101	-97	-4
1150+00	+115	-81	+27
1145+00	+101	-61	+30
1140+00	+102	-45	+34
1130+00	+85	-22	+56
1120+00	+52	-7	+41
1110+00	+51	-5	+42
1100+00	+54	-12	+29
1090+00	+35	-5	+22
1080+00	-3	+3	0
1070+00	+10	+3	+13
1060+00	-1	+6	+5
1050+00	0	-14	-14
1040+00	-	-6	-

1. Pre-Con to As-Built shoreline changes for the Adj. Shoreline South of Project Area (1080+00 to 1050+00) are results from June 2012 to May 2013 surveys.

Volume Change in the Realigned Channel

Monitoring of the channel area was performed through analysis of updated survey data collected by the USACE Wilmington District and by CPE-NC. The channel survey conducted by the USACE Wilmington District was performed in January 2014, approximately one (1) year after the channel was dredged. CPE-NC performed of survey of the channel in April 2014 as part of the on-going post-construction monitoring program. Those surveys were compared with the January 2013 Record Survey performed by Marinex Construction, Inc. that documented the as-built condition of the channel. These three (3) survey events were used to complete an updated volume change analysis for the realigned channel. The channel footprint with the respective stations used in the volume analysis is shown in Figure 2. The channel profiles are shown in Appendix B. The elevation contours shown in Figure 2 illustrate the location of the realigned channel in April 2013. The -10 ft. NAVD88 contour is highlighted in yellow and serves as a reference contour to assist in delineating the changes of the ebb tide delta.

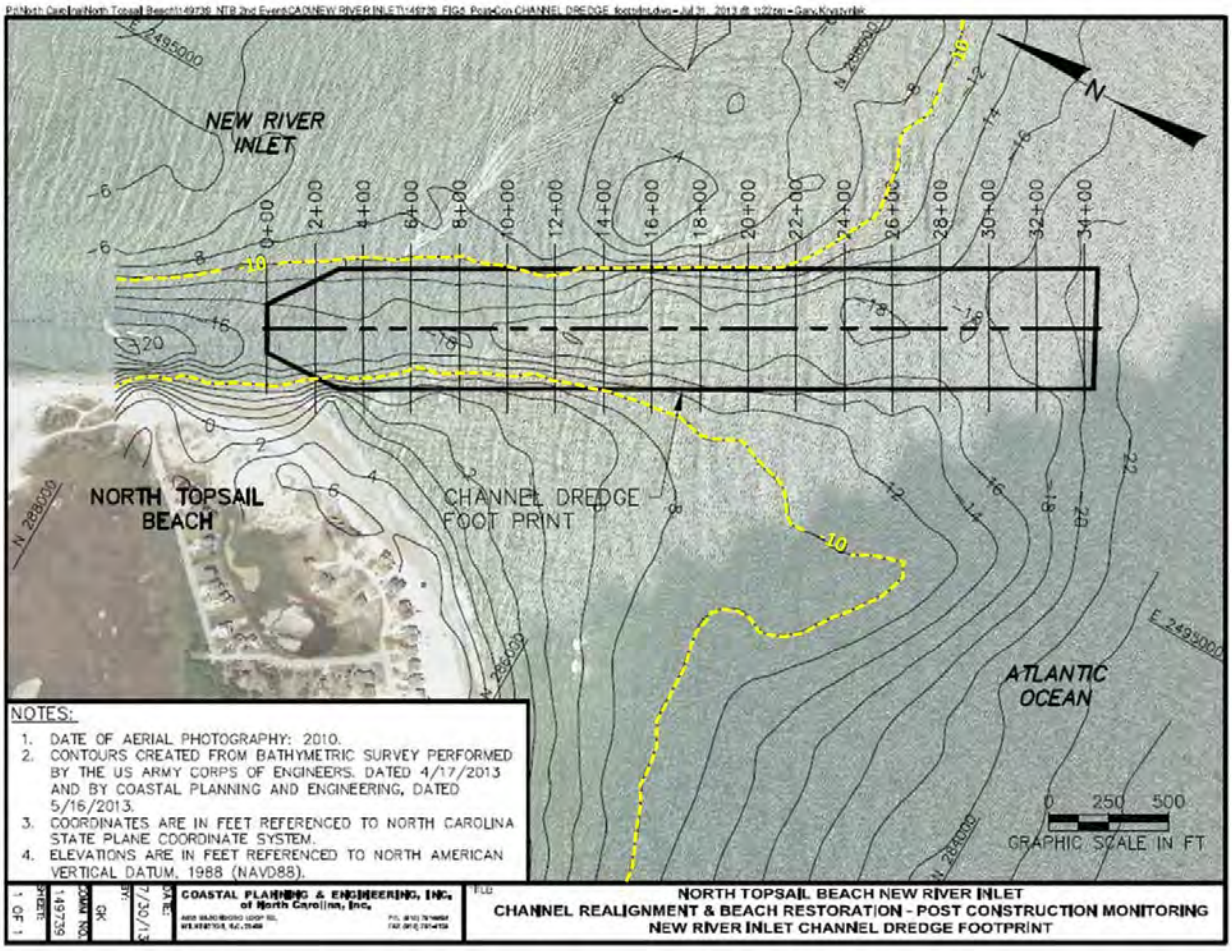

Figure 2 – New River Inlet Realigned Channel Contour Map (April 2013)

Analysis of the January 2013 post-dredge survey and the January 2014 survey show that approximately 334,400 cy of material (56% of the original dredged volume) has accumulated within the channel limits in 1 year since the project was constructed. This volume represents only the amount of material that has accumulated within the channel footprint. The calculated 1-year volume is approximately 15% greater than the shoaling volume predicted for the first year following construction. Volume calculations based on the January 2013 survey and the April 2014 survey show that the volume within the channel footprint increased by 25% to approximately 448,000 cy. The April 2014 volume indicates approximately 76% of the total volume dredged during construction has shoaled back into the channel limits. The increase from January to April 2014 is considered to be a result of the extreme winter weather experienced along the North Topsail Beach shoreline and not representative of a long-term infilling rate. Table 8 shows total shoaled volume and the volumetric change measured at each station between the three (3) survey events.

Table 8 – Volumetric Changes in the Realigned Channel

Station No.	Pre-Con to Post-Con (April 2012 to Jan. 2013)	1-Year Post-Con (Jan. 2013 to Jan. 2014)	Post-Con to Post-Mon (Jan. 2013 to April 2014)
	(cy/lf)	(cy/lf)	(cy/lf)
0+00	-82	-10	-39
2+00	-95	9	-51
4+00	-141	50	73
6+00	-166	45	171
8+00	-199	64	171
10+00	-227	75	167
12+00	-285	156	216
14+00	-294	159	179
16+00	-302	129	172
18+00	-304	133	140
20+00	-271	105	121
22+00	-266	165	189
24+00	-188	173	183
26+00	-114	147	200
28+00	-62	98	169
30+00	-21	94	123
32+00	+8	25	12
34+00[1]	+11	64	34
Total (cy)	**-592,000**	**+334,400**	**+448,000**

1. Effective Distance of Station 34+00 extends to the end of the channel alignment (Approx. Station 34+50).

Although the measured shoaling of the channel based on recent surveys suggests a slightly higher rate, the shoaling appears to be generally in line with what was predicted (Table 9). Future monitoring events will track changes in the shoaling rate and actual volumes shoaled into the channel.

Table 9 – Predicted Shoaling Rates from Engineering Report (CPE-NC, 2009a)

Years Following Construction	Predicted Shoal Volumes (cy)	Calculated Shoal Volumes (cy)
1	286,000	334,400
2	171,000	-
3	105,000	-
4	65,000	-
4-Year Total	627,000	-

Although the analysis indicates portions of the channel footprint have shoaled, the shoaled volumes presented do not reflect on the navigability of the channel. Figure 3 shows the elevation contours from the April 2014 survey and the original alignment of the new channel.

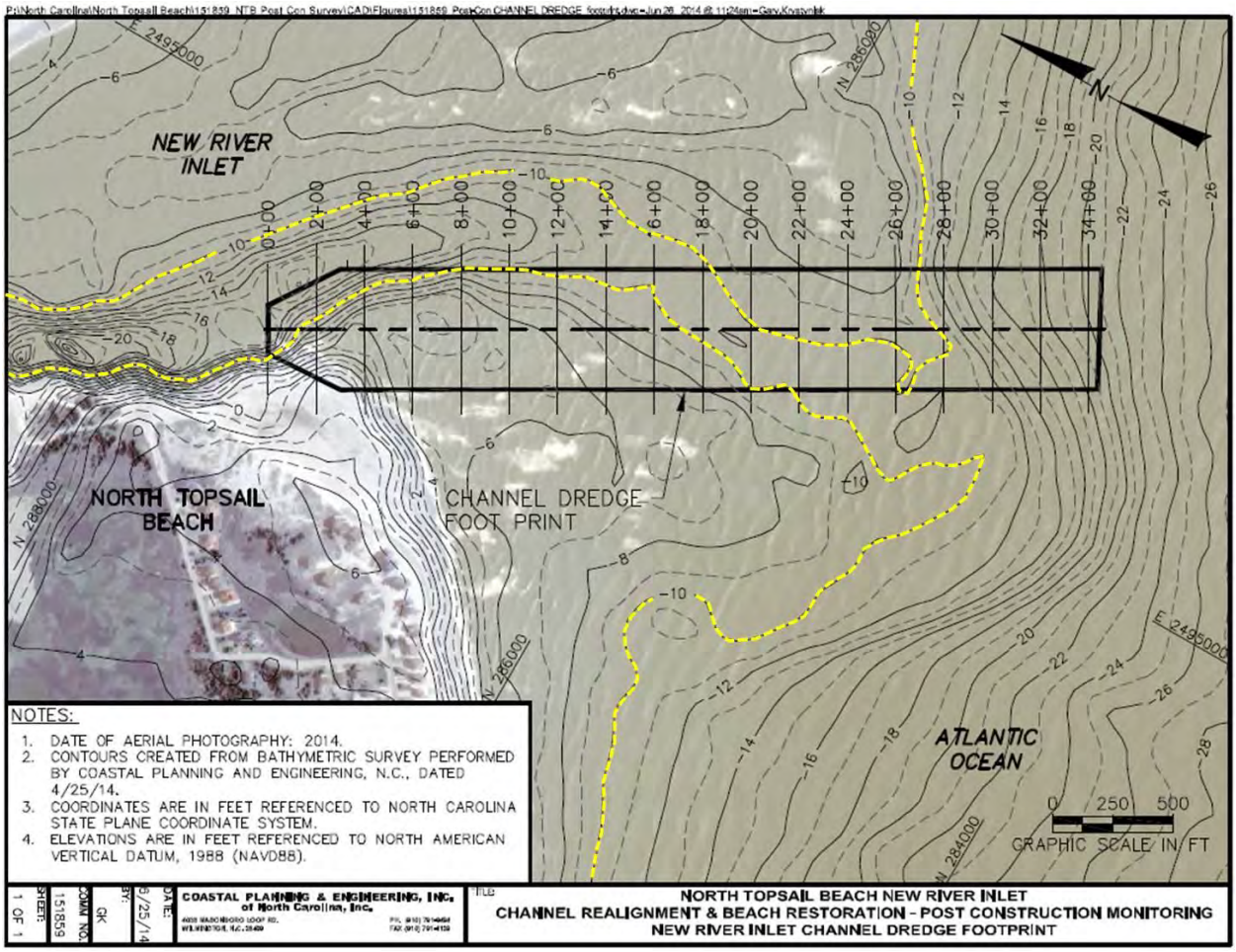

Figure 3 – New River Inlet Realigned Channel Contour Map (April 2014)

The contours show the channel has adjusted and remains navigable where the -10 ft. NAVD88 contour (highlighted in yellow) outlines the thalweg, or deepest portion of the channel. The average depth along the thalweg of the adjusted channel was determined to be at an approximate elevation of -12 ft. NAVD88. The channel depths range from -10 ft. to -19.5 ft. NAVD88 (or -7.2 ft. to -16.7 ft. MLW). The April 2014 survey shows the channel thalweg, or deepest portion of the channel, is maintaining deep water access through the inlet and remains in a favorable location for continued development of the ebb tide delta off of North Topsail Beach.

EBB SHOAL RECONFIGURATION

The ebb shoal has historically experienced dynamic changes from year to year based on the position of the ocean bar channel. Design estimates forecasted that the outer limits of the ebb shoal would constrict "or deflate" towards the Onslow Beach inlet shoulder and the realigned channel and expand on the North Topsail Beach shoulder. The channel realignment is also expected to result in the infilling of the pre-construction ocean bar channel and flood channels as the main flow is redirected through the realigned channel. This process is necessary to re-configure the ebb shoal similar to the 1988 position as shown in Figure 4.

Figure 4 – Historical New River Inlet Aerial

A combination of survey data are being used to monitor the reconfiguration of the New River Inlet ebb shoal. These data include beach profiles along North Topsail Beach (stations 1150+00 to 1170+00 on Figure 1), beach profiles along Onslow Beach (Table 10) (stations 0+00 to 40+00 on Figure 5), and hydrographic surveys of the ebb shoal complex. The survey data collected provides information on the reconfiguration of the ebb shoal. These data also allow for the monitoring of the shoaling of the pre-construction ocean bar channel and flood channels.

Table 10 – Inlet Shoreline Monitoring Stations for Onslow Beach

Station No.	Northing	Easting	Azimuth (°)
0+00	289,104.1	2,500,601.0	240
5+22	288,895.7	2,501,077.5	215
10+00 SW	288,722.9	2,501,524.2	192
10+00 SE	288,722.9	2,501,524.2	145
20+00	289,297.5	2,502,343.6	145
30+00	289,871.1	2,503,162.8	145
40+00	290,444.6	2,503,981.9	145

Coordinates Reference North Carolina State Plane Zone 3200 NAD 83 ft.

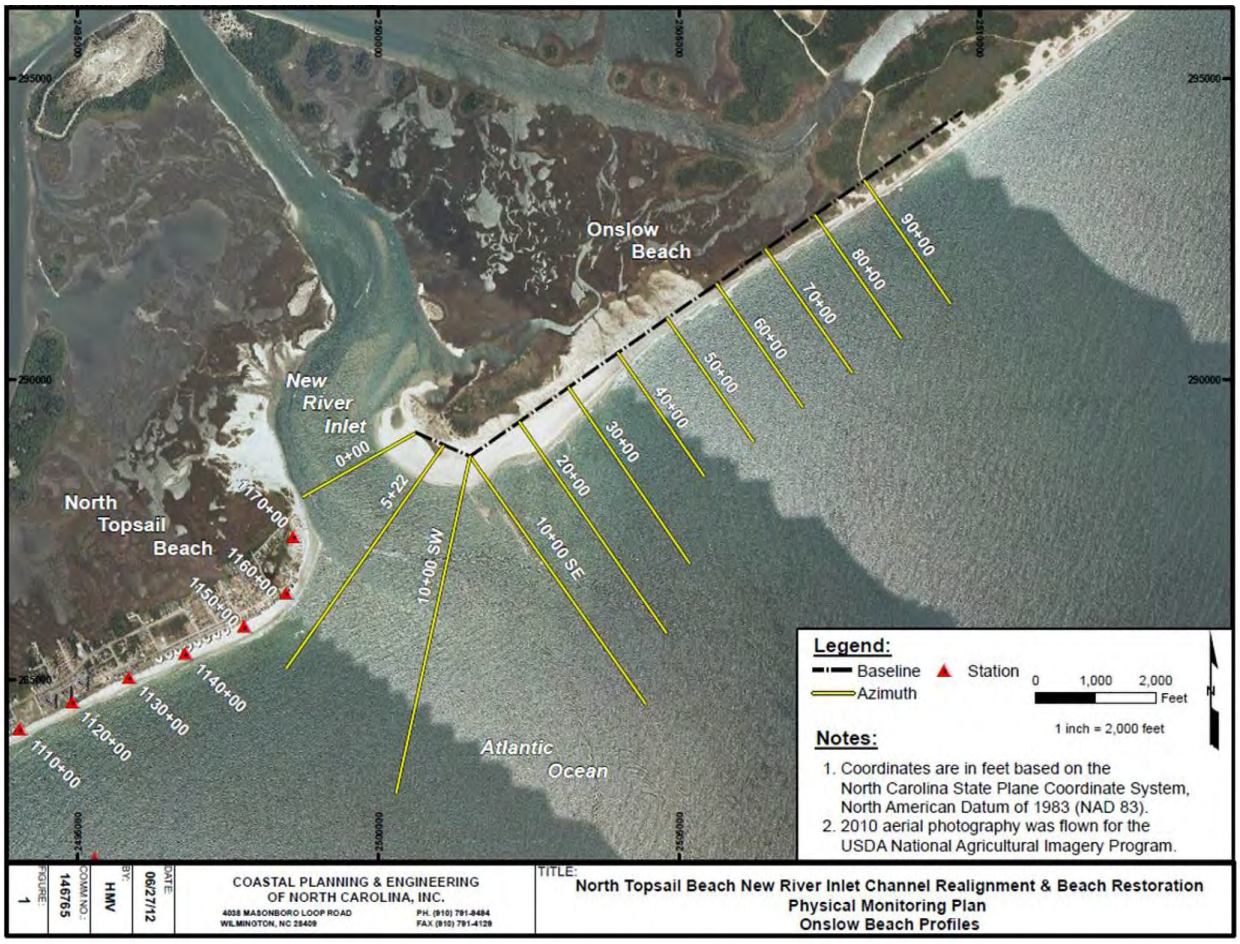

Figure 5 – Monitoring Stations along Onslow Beach

The evaluation of the reconfiguration of the ebb shoal assumed the delta is bounded by the MHW (+1.4 ft. NAVD88) contour on the landward side and the -10 ft. NAVD88 contour on the seaward side. The -10 ft. NAVD88 contour is used as the seaward reference to monitor the changes along the outer perimeter of the ebb shoal while the MHW contour provides an indication of changes along the shoreline. The changes in the position of these contours provide the basis for assessing the progress of the reconfiguration of the ebb shoal, which is the primary objective of the channel realignment.

Figure 6 shows locations of the profile lines and the associated MHW (+1.4 ft. NAVD88) and -10 ft. NAVD88 contours resulting from four surveys: April 2012, October 2012, May 2013, and April 2014. The April 2012 survey was performed by the USACE Field Research Facility and was used for the pre-construction survey of the inlet. The October 2012 survey was conducted by Gahagan & Bryant and only covers profiles originating from Onslow Beach. The May 2013 and April 2014 surveys were conducted by CPE-NC and included profiles on North Topsail Beach and Onslow Beach.

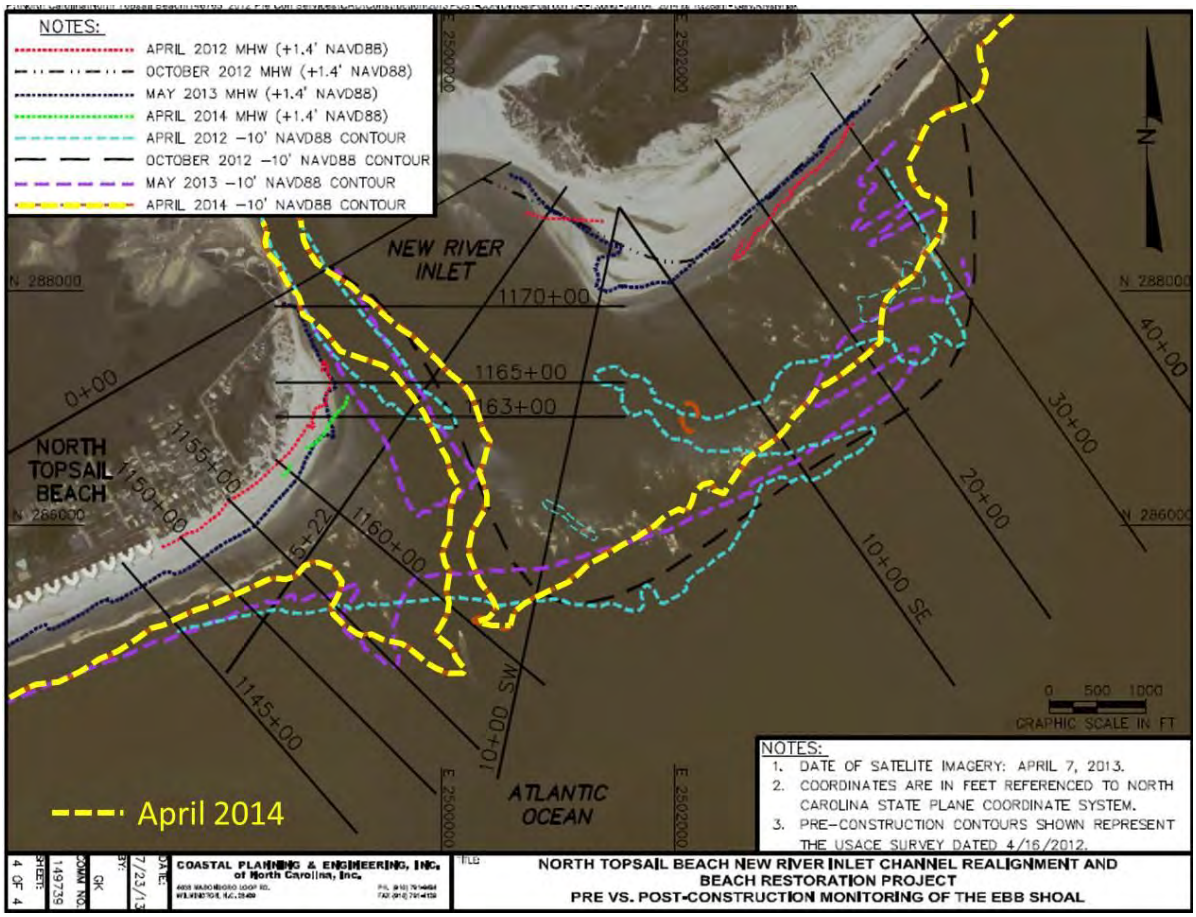

Figure 6 – New River Inlet Ebb Shoal Extents

The results from the April 2014 survey showed the MHW position along the Onslow Beach shoulder (stations 10+00 SW to 40+00) receded an average of -159 ft. in comparison to the May 2013 survey. This is a reversal from the shoreline advance of +130 ft. recorded between October 2012 and May 2013. The profiles on the point of the Onslow Beach shoulder (stations 10+00 SE and 10+00 SW) experienced the greatest change between the surveys. The profiles at station 10+00 SE and 10+00 SW measured an average seaward advance of +323 ft. in the MHW from October 2012 to May 2013, where the same profiles retreated landward an average of -288 ft. from May 2013 to April 2014. Conversely, the MHW contour along the interior inlet profiles (stations 5+22 and 0+00) on Onslow Beach shifted toward the channel by an average of +352 ft. from May 2013 to April 2014 where the previous surveys (October 2012 to May 2013) recorded an average landward movement of -82 ft. in the MHW contour at stations 5+22 and 0+00. The changes in the Onslow Beach profiles as of April 2014 show a loss of sediment on the inlet shoulder profiles and a buildup of sediment along the interior inlet profiles suggesting that sediment migrated from the shoulder of Onslow Beach into the interior of the inlet and south toward the channel.

The post-monitoring results for the changes in the -10 ft. NAVD88 contour (indicated by the yellow dashed line in Figure 6) on the north side of the inlet show that between stations 30+00 and 10+00 SE (Onslow Beach) the contour receded an average distance of -364 ft. from May 2013 to April 2014. This is a continuation of the ebb shoal landward migration that measured an

average retreat of -128 ft. between stations 30+00 and 10+00 SE from October 2012 and May 2013. A comparison of profiles on the south side of the inlet, at station 1160+00 (refer to Figure 6 and Figure 8), shows that the -10 ft. NAVD88 contour advanced seaward by approximately 400 ft. between May 2013 and April 2014. The changes in the -10 ft. NAVD88 contour location over the course of the surveys suggests a landward migration of the contour on the north side of the channel and a seaward shift of the contour on the south side of the channel. The shoreward movement of the contour on the north side suggests the shoal is deflating because the realigned channel has redirected the distribution of sand away from the north (Onslow Beach) side of the inlet.

Over time, it is expected that as the ebb shoal reconfigures, in response to the channel realignment, a landward progression of the -10 ft. NAVD88 contour along the northern lobe of the ebb shoal will continue to occur in addition to infilling of the flood channels. Conversely, the southern lobe of the ebb shoal offshore of North Topsail Beach would be expected to show an increased areal extent and shallower offshore depths as a result of the channel realignment. The ebb shoal growth is attributed to sediment deposited by the realigned channel offshore of the North Topsail Beach shoreline.

Comparison of the beach profiles on the Onslow Beach side of the inlet clearly shows the landward movement of the MHW contour and the landward movement of the -10 ft. NAVD88 contour from October 2012 to May 2013. Similar trends can be seen for the profile plots for stations 5+22, 10+00 SE, 20+00, and 30+00, suggesting the ebb shoal is deflating in size north of the channel in response to the realigned channel. The profile comparison for each station located along Onslow Beach is shown in Appendix C for reference.

Examination of profile plots taken along both the Onslow Beach and North Topsail Beach shoulders provide insight into the landward progression and shoaling occurring on the northern lobe of the ebb delta and growth of the ebb delta's southern lobe offshore of North Topsail Beach. Comparison of the profiles at station 10+00 SE on the shoulder of Onslow Beach (Figure 7) shows the infilling of the pre-construction ocean bar channel that occurred between October 2012 and May 2013 and the continued recession of the -10 ft. NAVD88 contour through April 2014. The -10 ft. NAVD88 contour moved landward a distance of 103 ft. from October 2012 to May 2013 and by April 2014 the contour was 256 ft. further landward than in May 2013. The plot also shows the landward migration of an anomalous "high point" shoal feature that was evident in the October 2012 survey (identified by the red arrow). The shoal feature in the May 2013 profile (identified by the yellow arrow) is approximately 500 ft. further landward than the high point feature in October 2012. The April 2014 profile shows the high point shoal feature, identified by the green arrow, approximately 500 ft. further landward than in May 2013. The plot also shows a flood channel on the May 2013 profile that does not appear on the April 2014 profile. The changes of the profiles on the plot in Figure 7 illustrate the landward migration of the northern lobe of the ebb tide delta. Similar trends are seen on all profiles between 10+00 SW and 30+00 (Onslow Beach) (Appendix C) and suggest that the ebb tide delta is reconfiguring as expected.

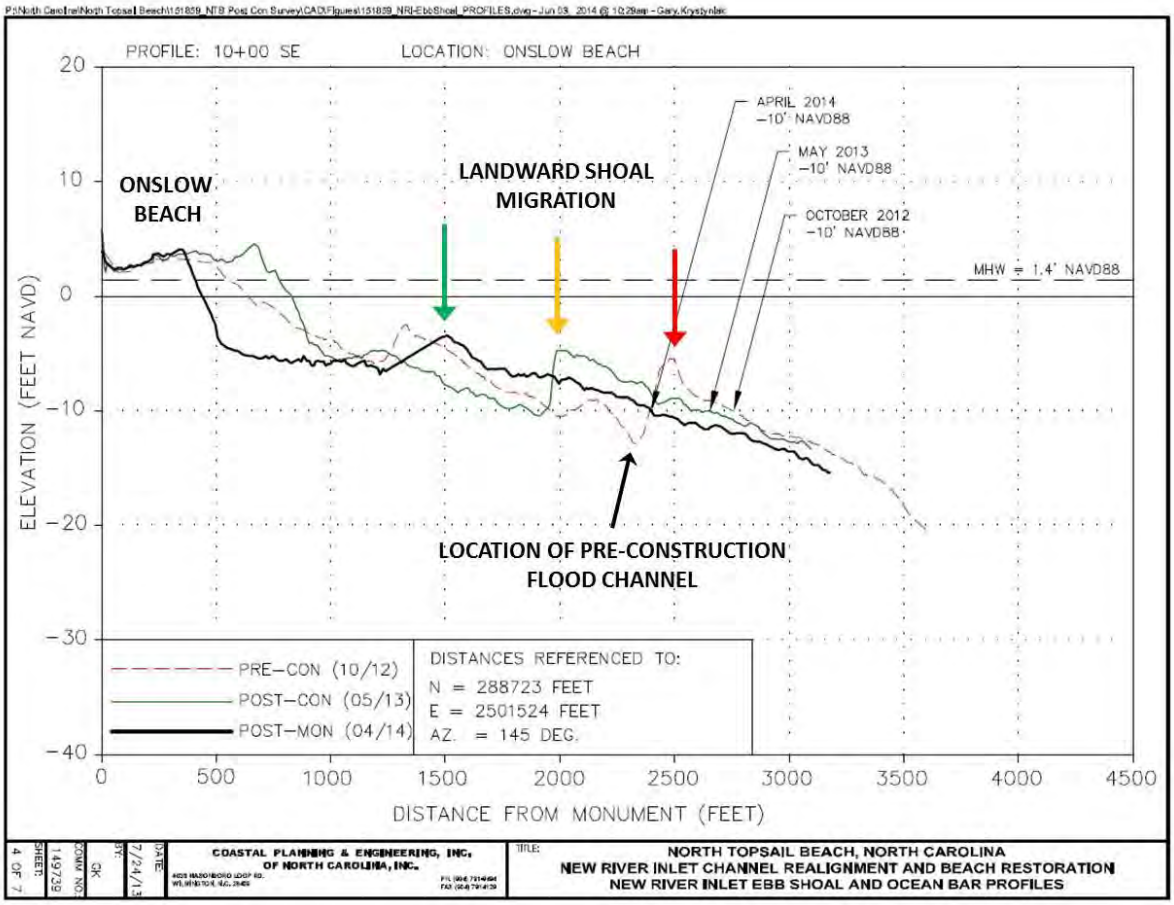

Figure 7 – Onslow Beach Inlet Shoulder – Ebb Shoal Profile

Changes to the ebb shoal south of the inlet are shown on the comparison plot of the beach profiles at station 1160+00 in Figure 8. Station 1160+00 is located at the northern end of the project, southeast of the realigned channel, extending from the beach across the southern lobe of the ebb tide delta (refer to Figure 6). In general, the comparison plot shows the erosion that occurred along the beach (red shaded area) from May 2013 to April 2014 and the increase in the amount of sediment on the offshore portion of the profile (green shaded area) between May 2013 and April 2014. The erosion at this location is attributed to the effects of a nodal zone or localized area of erosion caused by waves refracting around the ebb shoal. The increase in sediment on the offshore profile extends 2,000 ft. with increases of 5 ft. to 7 ft. of sand in some areas and indicates that sediment carried seaward by the ebb tidal currents through the realigned channel is being deposited on the south side of the New River Inlet.

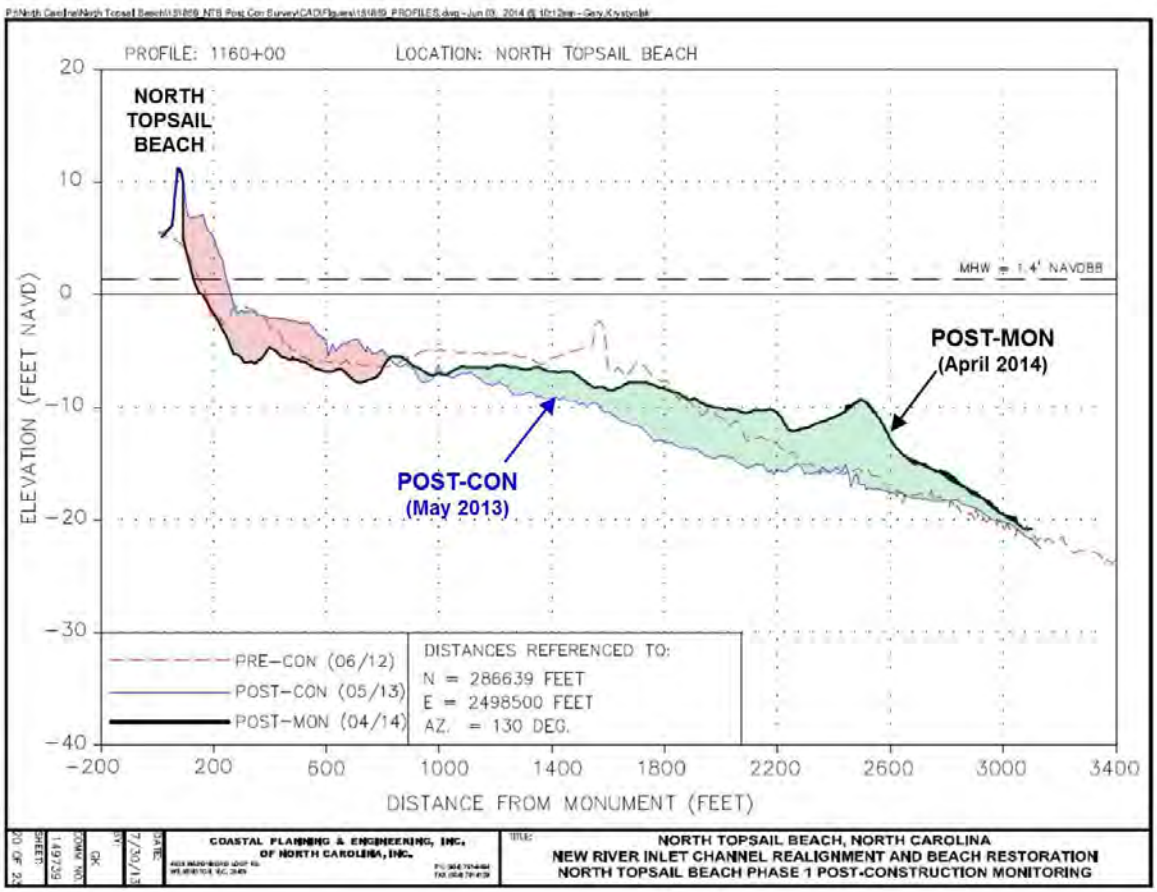

Figure 8 – North Topsail Beach Inlet Shoulder – Ebb Shoal Profile

The increased deposition of sediment is contributing to the development and reformation of the preferred ebb shoal configuration off of North Topsail Beach. As more sediment is deposited on the ebb shoal, the effective depth will decrease and cause waves to break further offshore thereby reducing the erosional effect at the nodal zone and promoting shoreline stability at this location. The Engineering Report developed during the design of the project (CPE-NC, 2009a) estimated that the time needed for the south side of the ebb tide delta to assume a size necessary to have a significant impact on slowing erosion rates on the extreme north end of North Topsail Beach would be around 5 years. The increased deposition observed on the offshore profile at Station 1160+00 and the seaward increases of the -10 ft. NAVD88 contour on the south side the inlet are positive indications that the ebb shoal is reconfiguring in response to the realignment of the channel as expected. Future monitoring will assist in assessing the changes to the ebb shoal complex as it continues to reconfigure and migrate toward the position maintained in 1988.

ONSLOW BEACH

The northern 5,000 ft. of the Onslow Beach monitoring area is represented by stations 50+00 to 90+00 (Figure 5). Shoreline and volumetric changes were analyzed along this beach strand to determine whether the channel realignment produced increased recession rates for Onslow Beach. The calculated shoreline migration and erosion rates were compared to historic rates measured between 2005 and October 2012 (pre-construction). The profiles selected for this monitoring are listed in Table 11.

Table 11 – Onslow Beach Monitoring Stations

Station No.	Northing	Easting	Azimuth (°)
50+00	291,018.2	2,504,801.1	145
60+00	291,591.8	2,505,620.2	145
70+00	292,165.4	2,506,439.4	145
80+00	292,738.9	2,507,258.5	145
90+00	293,312.5	2,508,077.7	145

Coordinates Reference North Carolina State Plane Zone 3200 NAD 83 ft.

MHW Shoreline Change

The post-construction shoreline position was analyzed to show the migration of the MHW contour (+1.4 ft. NAVD88) and the foreshore change for Onslow Beach. The results show that the migration of the MHW contour through the post-monitoring has continued to experience relative stability from May 2013 to April 2014 with an average seaward migration of +5 ft. Over the course of the monitoring, the Onslow Beach MHW shoreline has increased by a net average of +15 ft. or an annual average rate of +9 ft./yr. since October 2012. The results show that the Onslow Beach shoreline continues to experiencing a net positive trend along the MHW contour, opposite to the historic rate of -12 ft./yr. calculated between 2005 and 2012. The MHW shoreline change rates as well as the annualized average rate of change for Onslow Beach are shown for each profile location in Table 12.

Table 12 – Onslow Beach MHW Migration

Station No.	Historic Trend (Aug. 2005 - Oct. 2012) (ft./yr.)	Pre- to Post-Con (Oct. 2012 - May 2013) (ft./yr.)	May 2013 - April 2014 (ft./yr.)	Oct. 2012 - April 2014 (ft./yr.)
50+00	+4.5	-16	+3	-5
60+00	-9	+43	+10	+23
70+00	-14	+46	0	+19
80+00	-19	+5	+2	+3
90+00	-23	N/A	+11	+6
Annual Avg. (ft./yr.)	-12	+20	+5	+9

1. (+ Number) Indicates seaward advance, (- Number) Indicates landward retreat.

Foreshore Shoreline Change

The post-construction data was also used to analyze the foreshore change along Onslow Beach. Consistent with the MHW shoreline change analysis, the foreshore shoreline change analysis also showed a continuation of positive trends in the migration of the foreshore. The analysis of results between the May 2013 and April 2014 surveys show that the foreshore shoreline experienced an average seaward migration of +2 ft. Since October 2012, before the project was constructed, the foreshore average has maintained a net positive migration of +7 ft. for an average annual rate of +4 ft./yr. in April 2014. The average annual foreshore change rate experienced between August 2005 and October 2012 was -10 ft./yr. Similar to the MHW measurements above, the post-construction monitoring results show a continued net positive trend contrary to the historic trend prior to the construction of the project. The foreshore change rates and the annualized rates of change since construction are shown for each station in Table 13.

Table 13 – Onslow Beach Foreshore Change

Station No.	Historic Trend (Aug. 2005 - Oct. 2012) (ft./yr.)	Pre- to Post-Con (Oct. 2012 - May 2013) (ft./yr.)	May 2013 - April 2014 (ft./yr.)	Oct. 2012 - April 2014 (ft./yr.)
50+00	+7	-2	-25	-16
60+00	-5.5	+19	+5	+11
70+00	-13	+37	+3	+17
80+00	-18	+6	+14	+11
90+00	-19	N/A	+12	-2
Annual Avg. (ft./yr.)	-10	+15	+2	+4

1. (+ Number) Indicates seaward advance, (- Number) Indicates landward retreat.

Volume Change

The profile data collected during the April 2014 post-monitoring survey was used to update the volumetric changes that have occurred along Onslow Beach since the Phase 1 Project was completed. The post-monitoring results show that the area experienced a net volume change of approximately 0 cy/lf from May 2013 to April 2014, where the losses on the southern profiles were balanced by gains on the northern profiles. This indicates that the Onslow Beach shoreline is experiencing relative stability and has not been adversely impacted by the changes occurring at the New River Inlet. The annualized volumetric change rates for each profile along the Onslow Beach shoreline between August 2005 and April 2014 are shown in Table 14.

Table 14 – Onslow Beach Volumetric Changes

Station No.	Historic Annual Trend Aug. 2005 to Oct. 2012	Oct. 2012 to Post-Con (May 2013)	Post-Con (May 2013) to April 2014	Oct. 2012 to Post-Mon (April 2014)
	(cy/lf/yr)			
50+00	+13	-2	-21	-13
60+00	-1	+31	-1	+12
70+00	-9	+50	-9	+15
80+00	-12	+6	+14	+11
90+00	-13	N/A	+15	0
Annual Average (cy/lf/yr)	-4	+22	0	+5

The volumetric analysis compared the changes between the Oct. 2012 and April 2014 surveys and calculated an average change of +8 cy/lf or an annual average change rate of +5 cy/lf/yr. The 2014 post-monitoring show a decrease in the long-term change rate from the +22 cy/lf/yr between Oct. 2012 and May 2013, however, the most recent results continue to indicate a net positive trend in the volume change along Onslow Beach.

CONCLUSION

The second post-construction physical monitoring event for the North Topsail Beach Phase 1 project was performed in April 2014. The monitoring consisted of profile surveys to evaluate shoreline and volumetric changes within the project vicinity and hydrographic surveys to evaluate the realigned channel performance. The results were used to document the project performance and to identify potential adverse impacts that may have been created.

The coverage area extended north from New River Inlet to include approximately 9,000 ft. of shoreline on Onslow Beach and south from the inlet to include approximately 13,000 ft. of North Topsail Beach. The shoreline on Onslow Beach was separated into two (2) segments. The northern segment is referenced as Onslow Beach and contains stations 50+00 to 90+00. Monitoring activities within this area concentrated on the performance of the Onslow Beach shoreline. The southern segment, from stations 0+00 to 40+00, contains the northern inlet shoulder of New River Inlet along the Onslow Beach shoreline. Beach profile surveys conducted along this region of Onslow Beach as well as those conducted along stations 1140+00 through 1170+00 on North Topsail Beach were used to evaluate the performance of the ebb shoal of New River Inlet as well as the pre-construction ocean bar channel and flood channels.

Based on the findings of the April 2014 monitoring, the Phase 1 Project Area was divided into two regions to more accurately assess the changes occurring along the project beach. The two regions are the northern end of the project from just north of River Dr. to the north end of the Topsail Reef between stations 1160+00 and 1145+00, referred to as the “Inlet Influenced Area” and the beach strand portion of the project from station 1145+00 to 1090+00, referenced as the “Beach Fill Performance Area”. The Inlet Influenced area was evaluated separately as it

experienced higher than expected erosion rates attributed to the influence of the New River Inlet and the effects of a nodal zone within the area.

The Inlet Influenced area, along the northern end of North Topsail Beach, experienced higher than expected rates of erosion which is attributed to the effects of a nodal zone (or localized area of erosion) adjacent to the New River Inlet. The Phase 1 project moved the shoreline an average of +263 ft. seaward of the pre-construction profile and placed approximately +176,000 cy or +103 cy/lf of fill in this area. The physical monitoring results for the area show an average landward retreat of the MHW shoreline by approximately -155 ft. occurred from May 2013 to April 2014. The volume analysis calculated that the area lost approximately -123,000 cy or -74 cy/lf between stations 1160+00 and 1145+00. Although this area experienced significant erosion, the continued development of the ebb shoal offshore of North Topsail Beach will provide increased protection from incoming waves as the effective depth over the shoal decreases causing waves to break further offshore reducing the erosional effect of the nodal zone and promoting shoreline stability at this location.

The physical monitoring results show that the Beach Fill Performance area of the Phase 1 project (stations 1145+00 to 1090+00) lost an average of -22 cy/lf of fill or approximately -98,000 cy from May 2013 to April 2014. The MHW shoreline within the area measured an average retreat of -41 ft from May 2013 to April 2014. The completed Phase 1 project placed approximately +371,000 cy or +67 cy/lf of fill along the 5,500 ft. length of shoreline. The degree of change within the Beach Fill Performance area is not unexpected considering the above average intensity winter weather that affected the project area prior to the April 2014 monitoring event and migration of material south out of the project area. However, the erosion rates are not regarded as representative of typical conditions affecting the project shoreline.

The MHW and foreshore shoreline changes south of the project area between stations 1090+00 and 1050+00 showed a seaward increase of +9 ft. and +12 ft., respectively from May 2013 and April 2014. The volume change calculated for the same section of shoreline shows a gain of approximately +3,000 cy, or approximately +1 cy/lf/yr. These results are a continuation of the positive net shoreline and volume changes recorded from June 2012 to May 2013.

Five (5) hydrographic survey data sets collected within the limits of the realigned channel since the project was constructed were compared to determine shoaling of the realigned channel. The April 2014 survey conducted by CPE-NC showed that approximately 76% (or 448,000 cy) of the dredged volume has shoaled back into the channel footprint. The January 2013 (1-Year post dredging) survey conducted by the USACE showed that approximately 56% (or 334,400 cy) of the dredged volume has shoaled back into the channel footprint. Shoaling analysis conducted during the engineering and design phase of the project predicted that by Year 1 approximately 286,000 cy (48%) of material would shoal into the channel during Year 1. Although the measured shoaling of the channel based on recent surveys suggests a slightly higher shoaling rate, the rates appear to be generally in line with what was predicted. The average depth along the thalweg, or deepest portion of the channel, as of April 2014 was measured at approximate elevation -12 ft. NAVD88, ranging from -10 ft. to -19.5 ft. NAVD88. The April 2014 survey shows the channel thalweg is maintaining deep water access through the inlet and remains in a favorable location for continued development of the ebb tide delta off of North Topsail Beach.

Monitoring of the ebb shoal suggests that the reconfiguration is taking place as expected. The MHW contour along the Onslow Beach shoulder (north of the inlet) has moved southward; toward the channel while the -10 ft. NAVD88 contour has continued to move landward. This trend suggests that the ebb shoal offshore of Onslow Beach is migrating landward and to the south indicating a continuation of the ebb shoals deflation north of the inlet. Profile comparisons of the May 2013 and April 2014 profile surveys along the North Topsail Beach shoulder (south of inlet) show an increase in the volume of sand between the -7 ft. NAVD88 and -20 ft. NAVD88 contour. The results suggest that this material is being deposited in this area due to the realignment of the channel and is contributing to the reconfiguration of the ebb shoal as expected. Comparison of the May 2013 and April 2014 beach profile surveys also show that the pre-construction ocean bar channel and flood channels that appeared in the May 2013 survey have filled in and is generally seen as a positive sign that the ebb shoal is reconfiguring as designed.

Shoreline and volume change analysis of the Onslow Beach shoreline (stations 50+00 to 90+00) shows a continuation of the net positive trends in April 2014. Shoreline change and volume change analysis between May 2013 and April 2014 show a seaward migration of both the MHW and foreshore contours and minimal change in the volume of sand. The average volume change rate between August 2005 and October 2012 was -4 cy/ft./yr; whereas the rate between October 2012 and April 2014 was +5 cy/ft./yr. This is equivalent to a net positive volume increase of 53,000 cy along Onslow Beach from October 2012 to April 2014. While the seaward migration of the MHW and Foreshore contours and accretion is not believed to be a direct result of the Phase 1 project construction, it is clear that as of April 2014, the Onslow Beach shoreline between stations 50+00 and 90+00 has not experienced any adverse impacts with regards to loss of beach.

REFERENCES

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CPE-NC, (2013b) North Topsail Beach Shoreline Protection Project; Phase 1 New River Inlet Channel Realignment & Beach Restoration; Physical Monitoring Plan. Wilmington.

CPE-NC, (2009a) Final Engineering Analysis; Shoreline Protection Project; Town of North Topsail Beach, North Carolina. Wilmington

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CPE-NC, (2009b) North Topsail Beach Shoreline Protection Project; Final Environmental Impact Statement. Wilmington.

Ryscavage, J. M., Action ID 2005-00344 (paper file copy 2004-00344) record of decision / statement of findings. USACE Wilmington District, Wilmington.

USACE, (2011), Department of the Army Permit. SAW2005-00344. Wilmington.

APPENDIX A

NORTH TOPSAIL BEACH - PHASE 1 MONITORING
BEACH PROFILES

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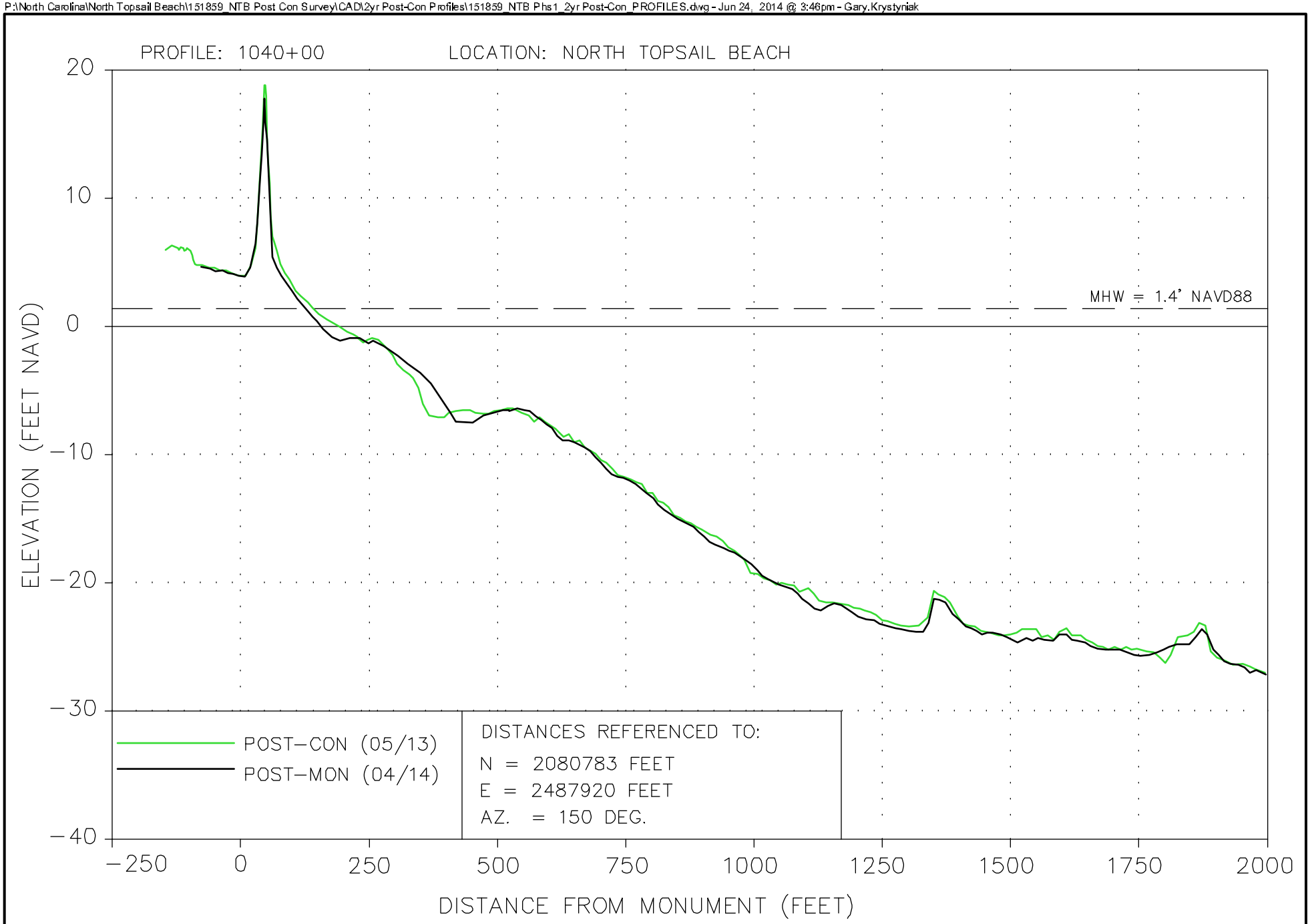

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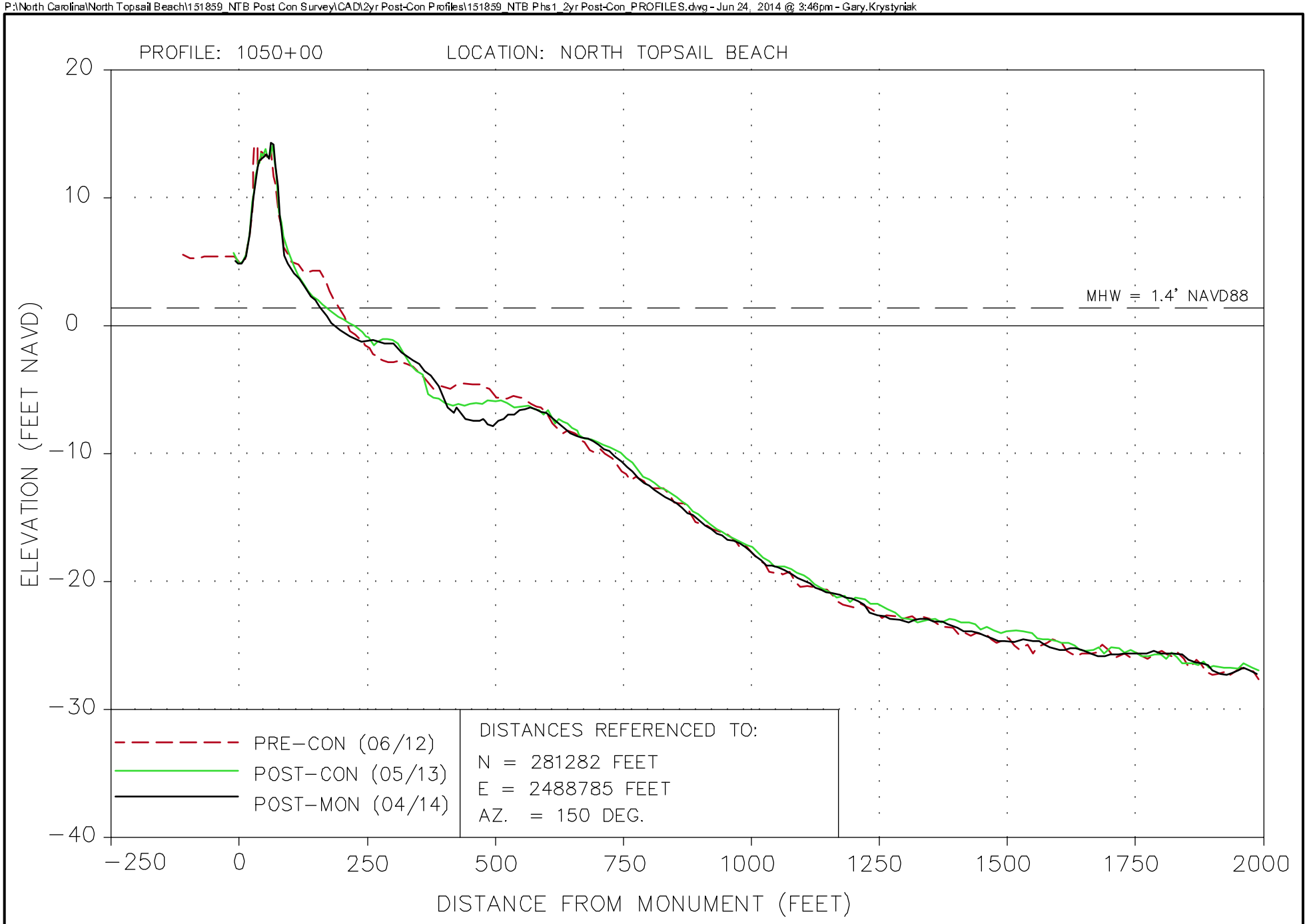

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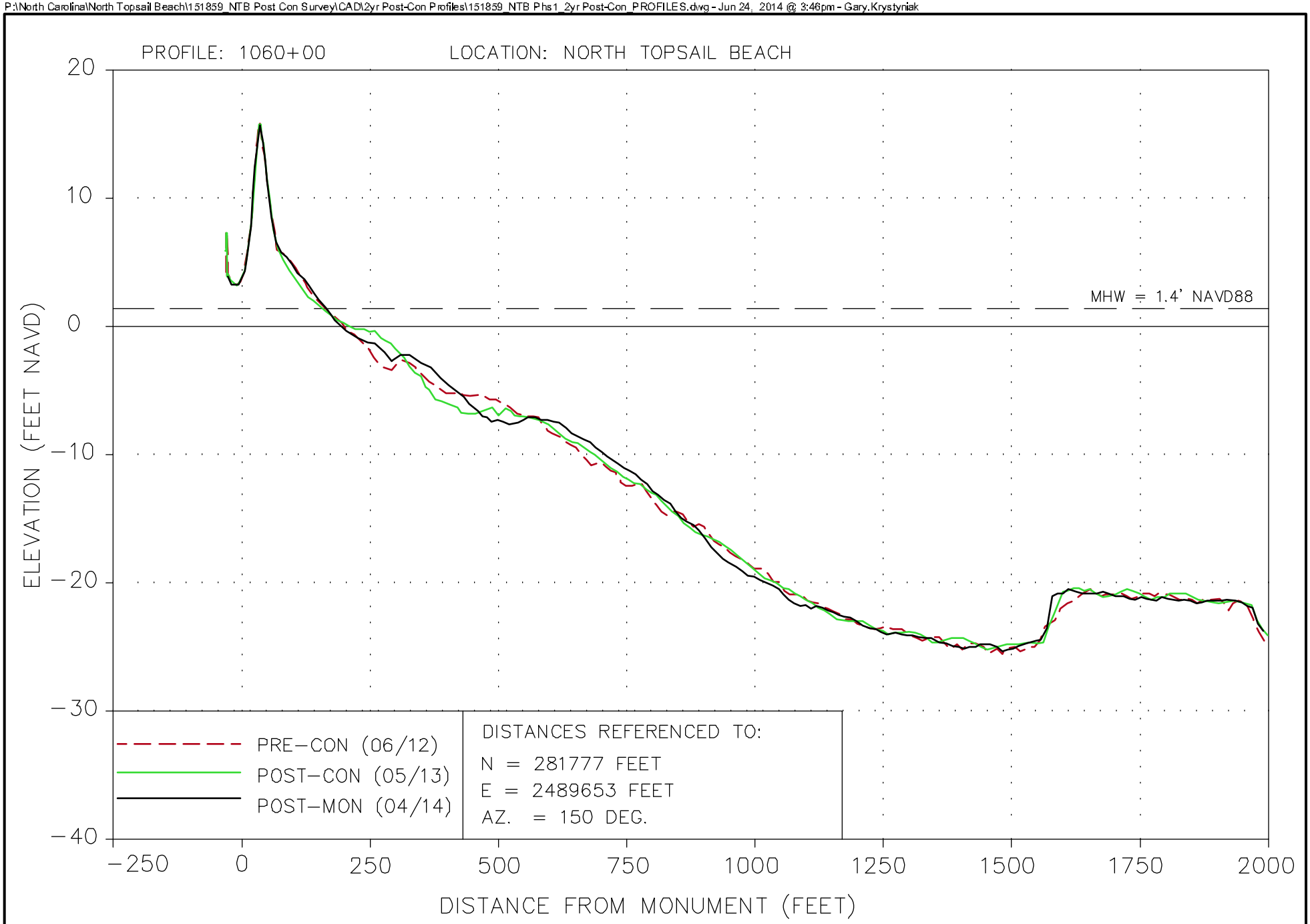

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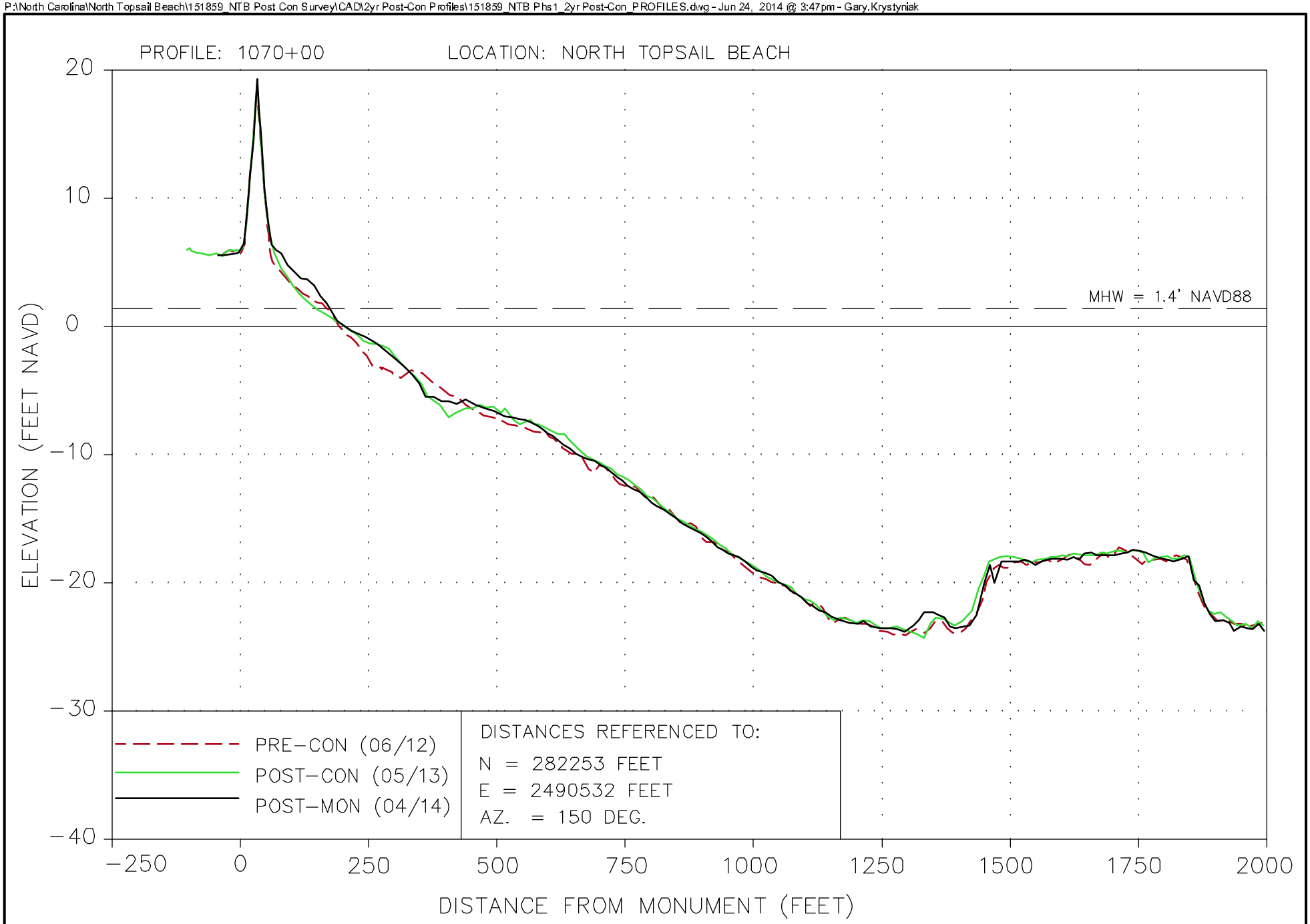

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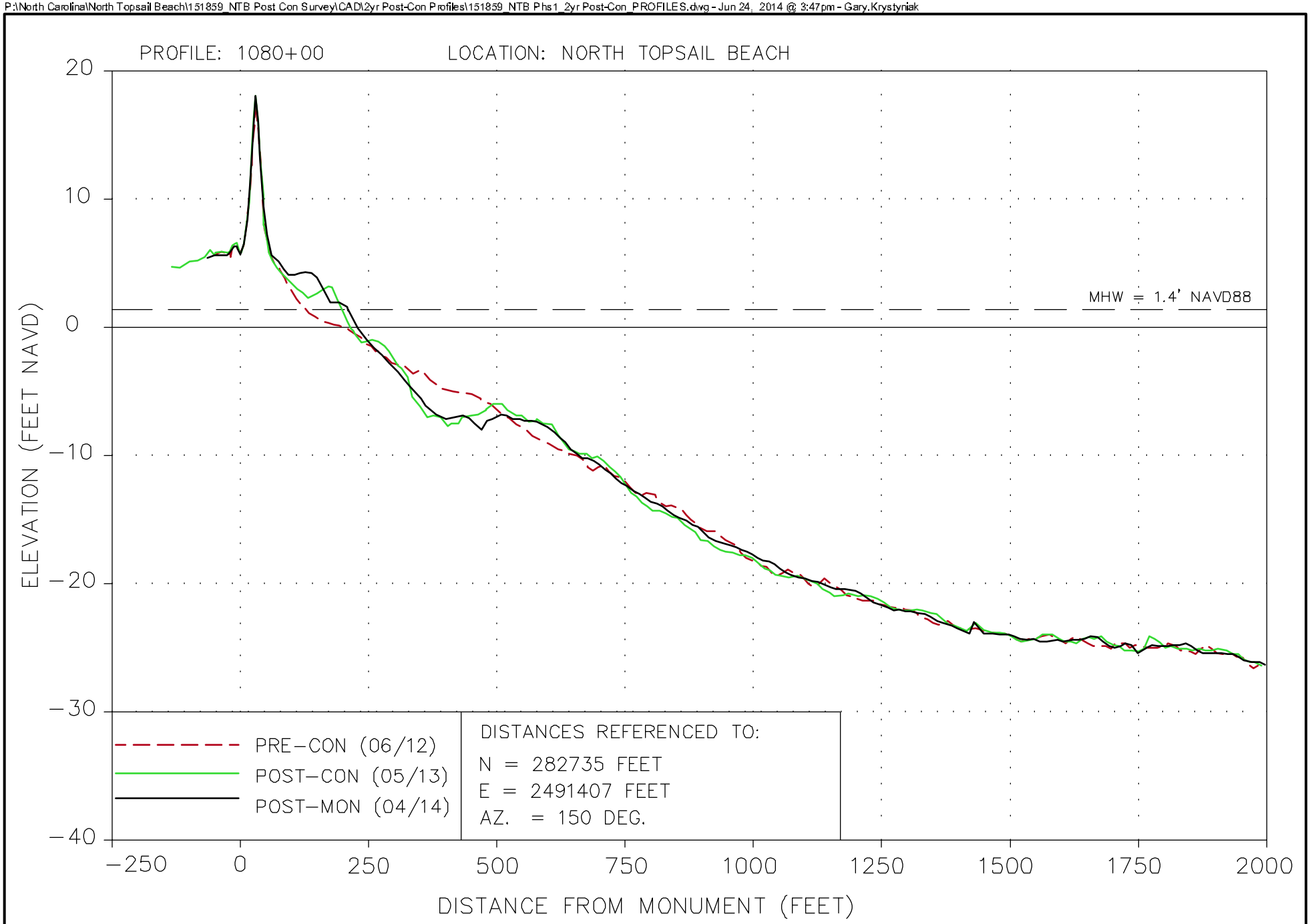

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5 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 7914129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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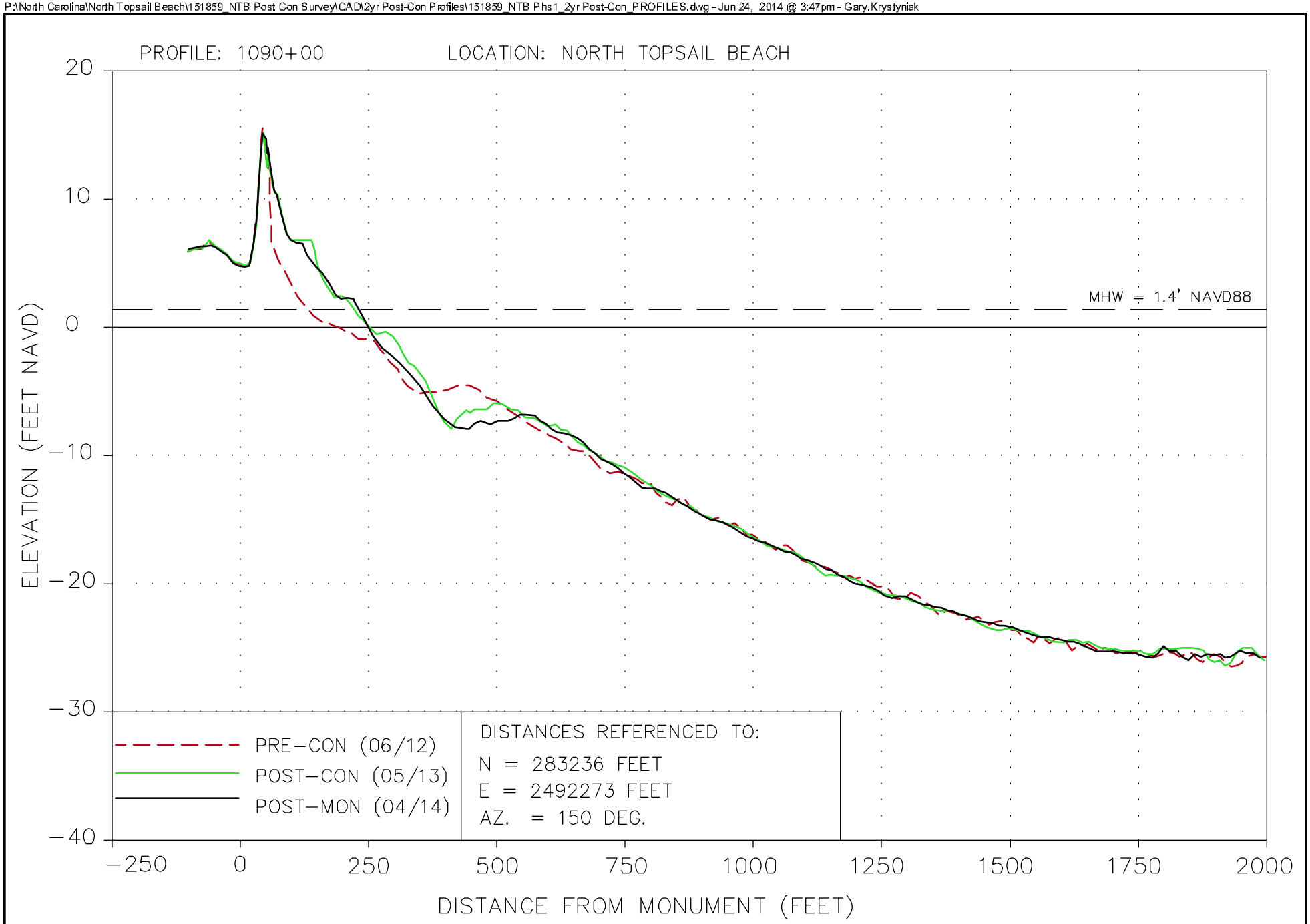

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6 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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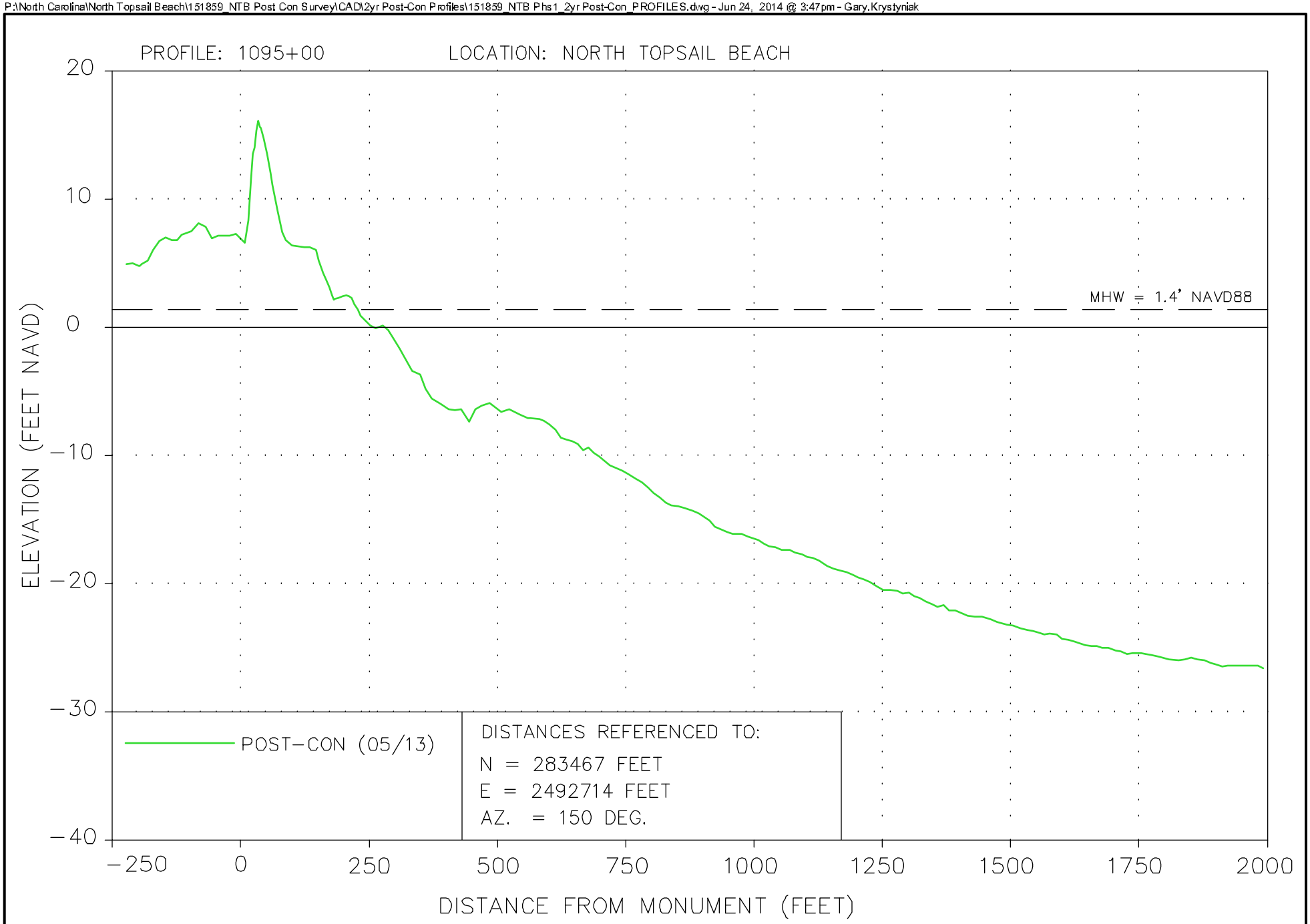

SHEET: 7 OF 23	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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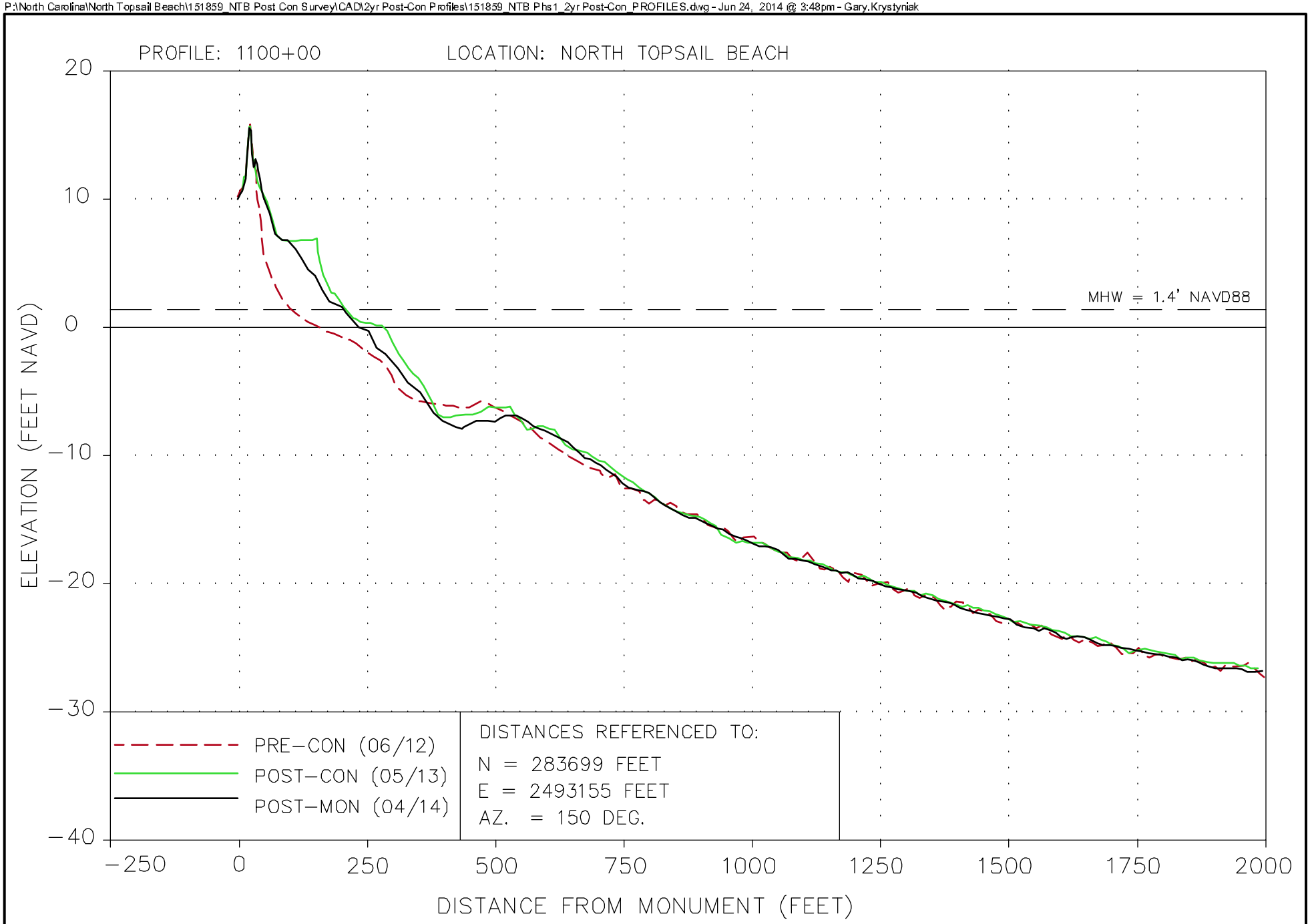

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8 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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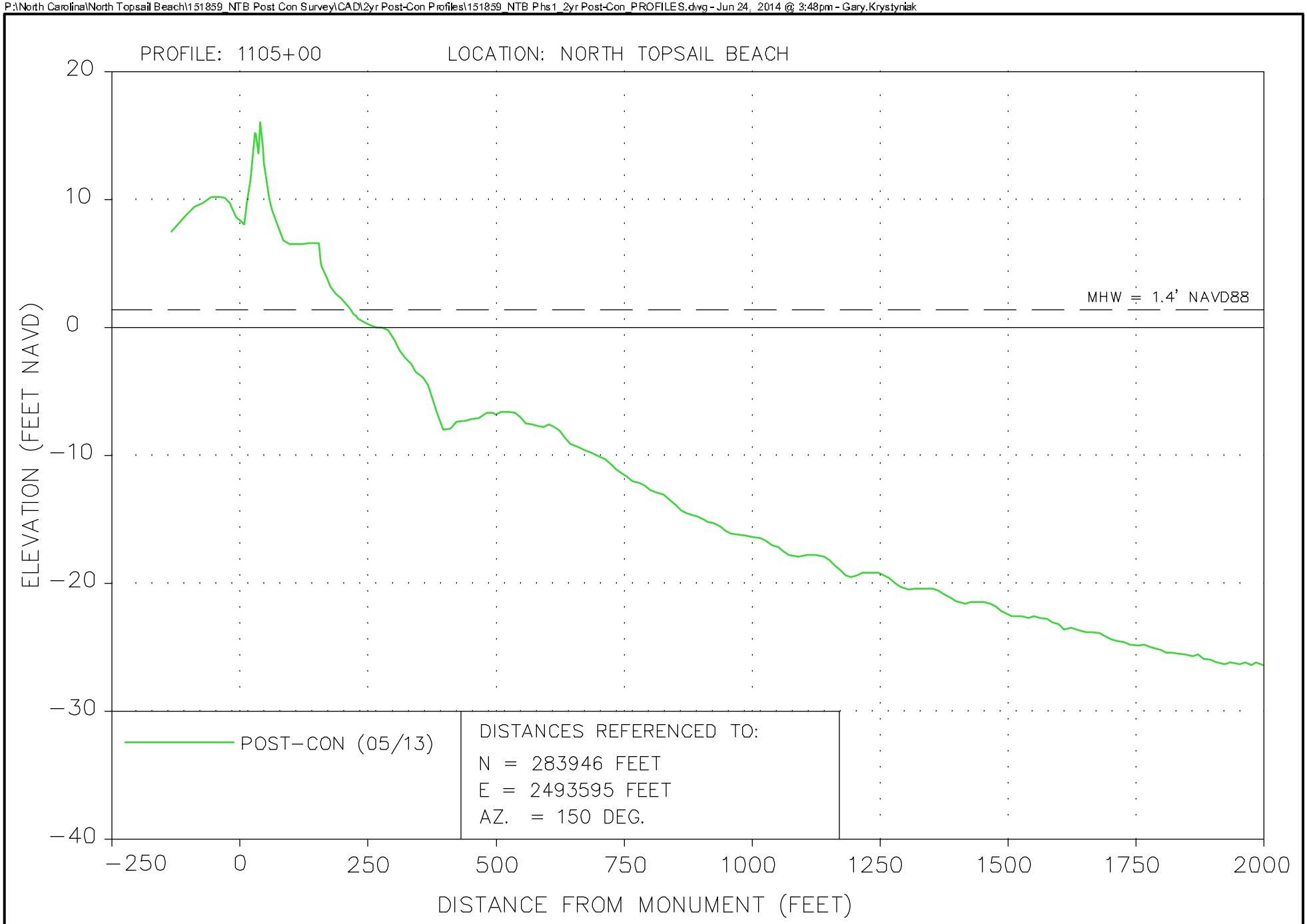

SHEET: 9 OF 23	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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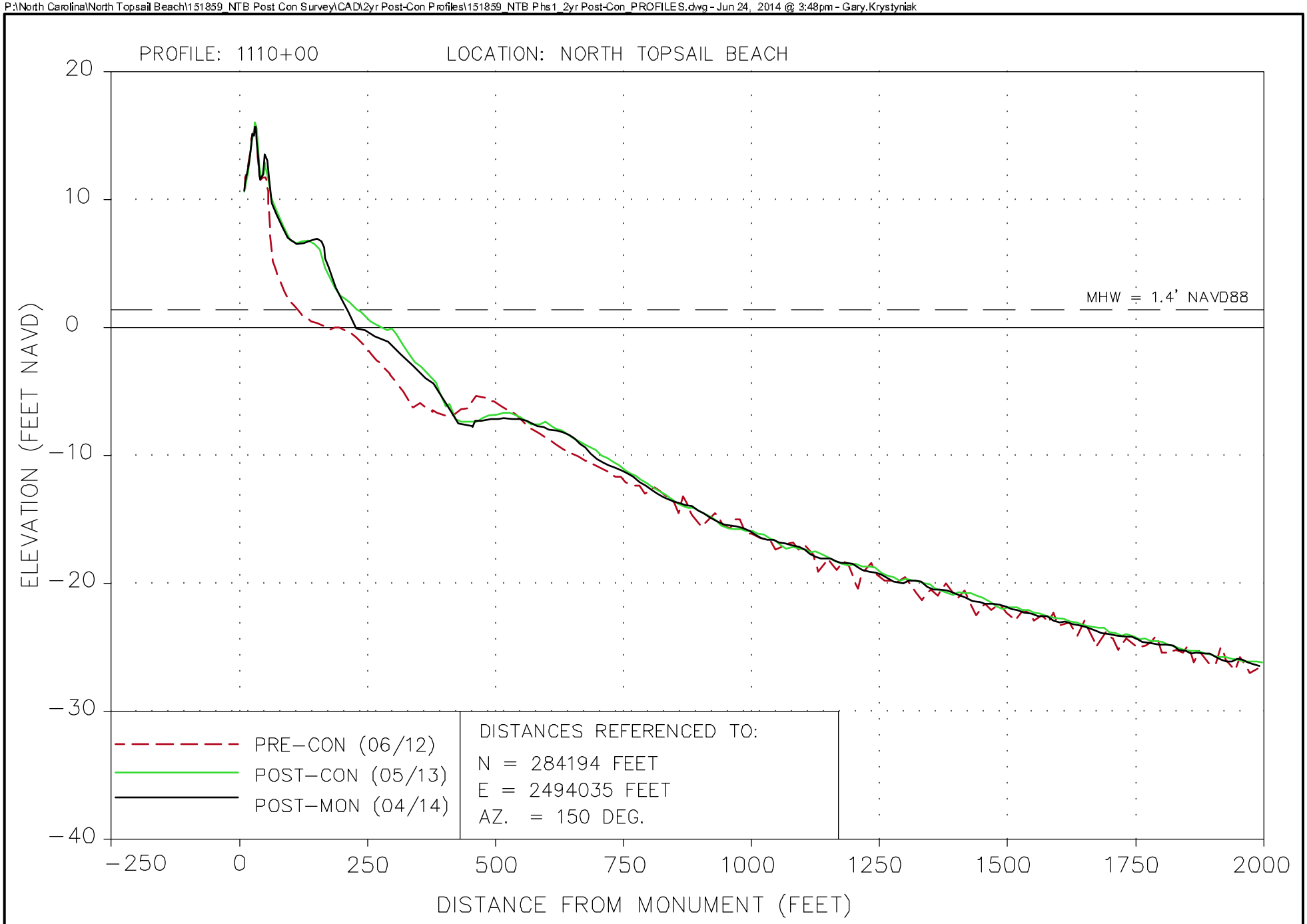

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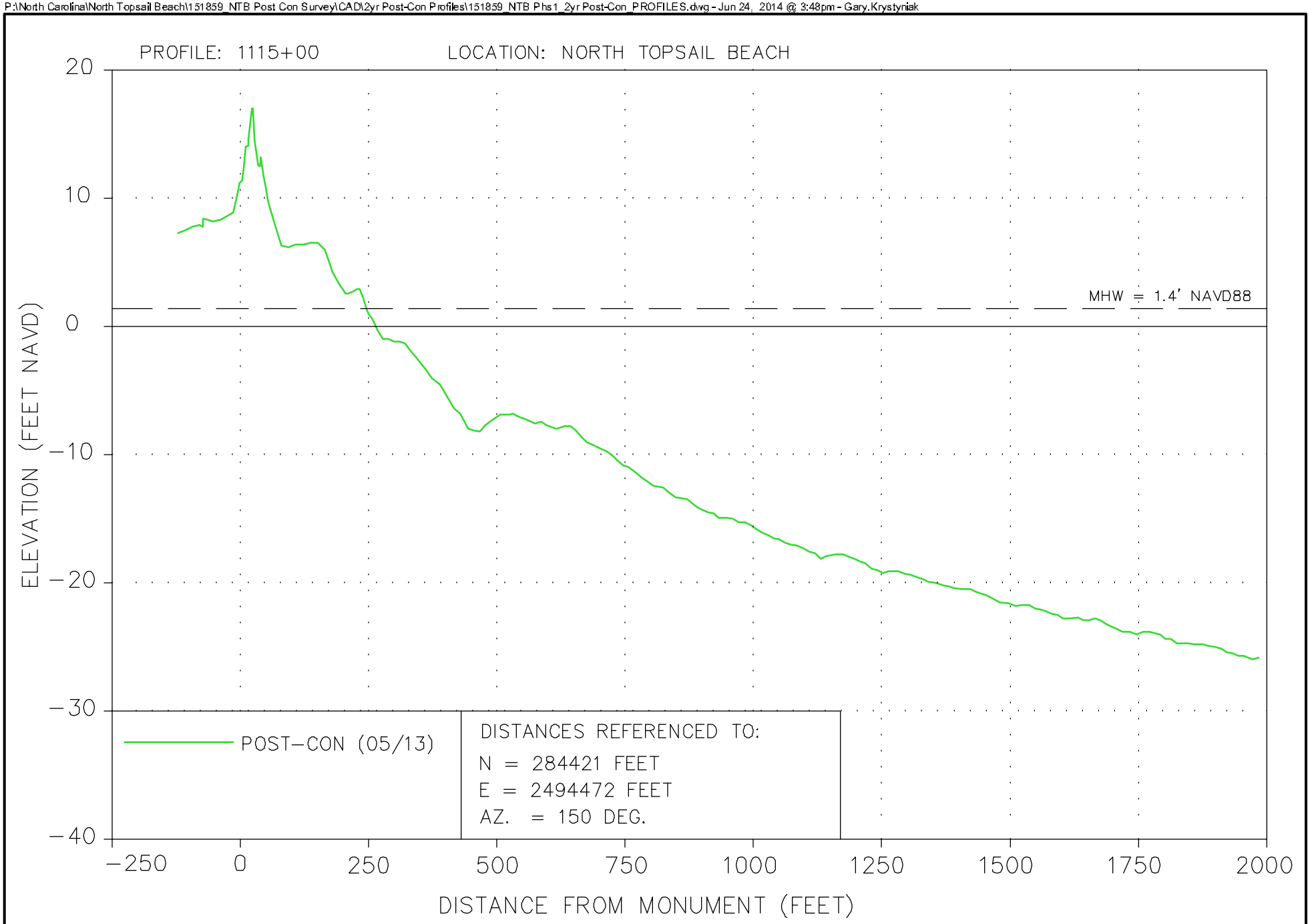

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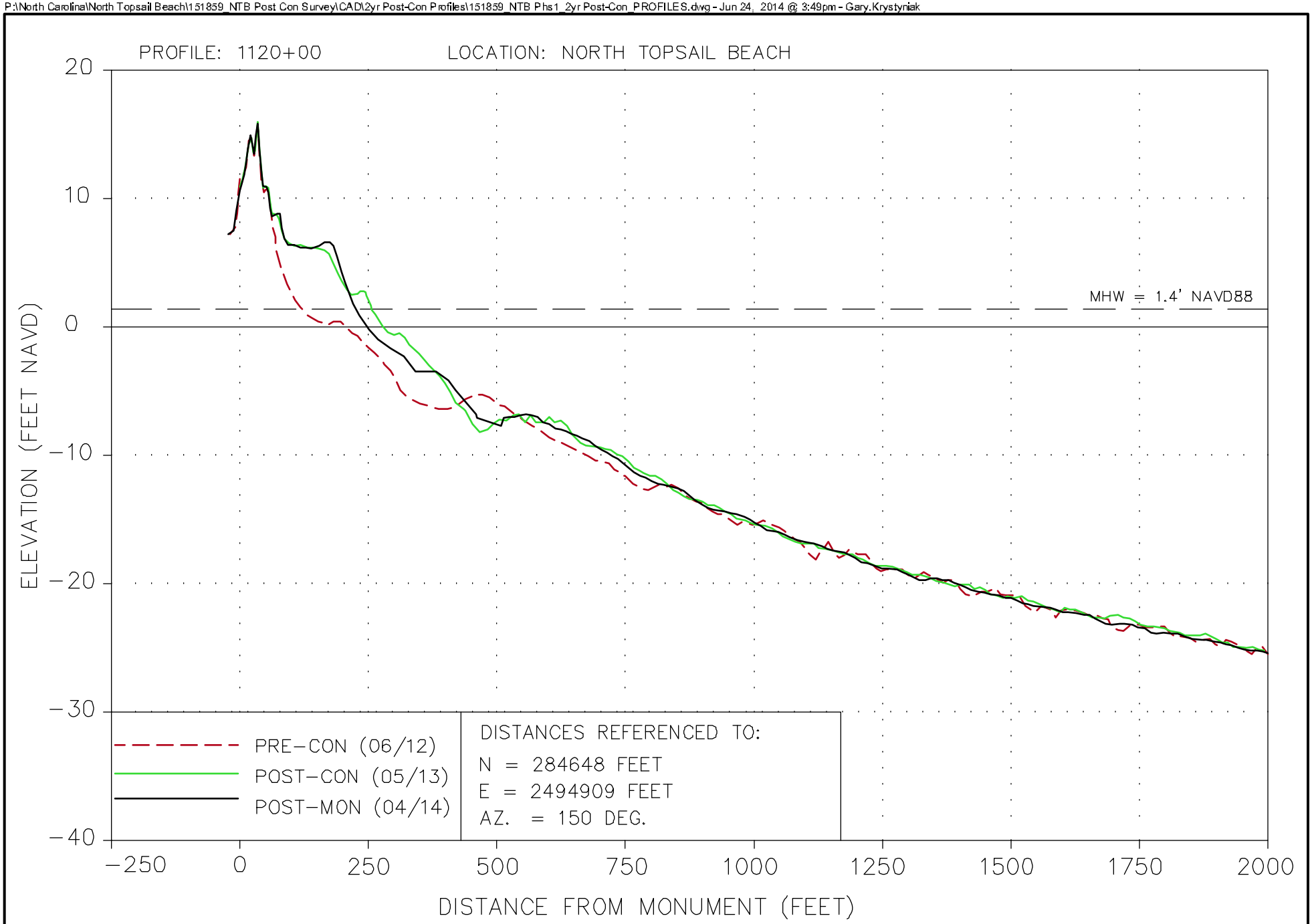

SHEET:	COMM NO.:	BY:	DATE:
12 OF 23	151859	GK	6/23/14

COASTAL PLANNING & ENGINEERING, INC.
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4038 MASONBORO LOOP RD.
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PH. (904) 791-9494
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TITLE:

NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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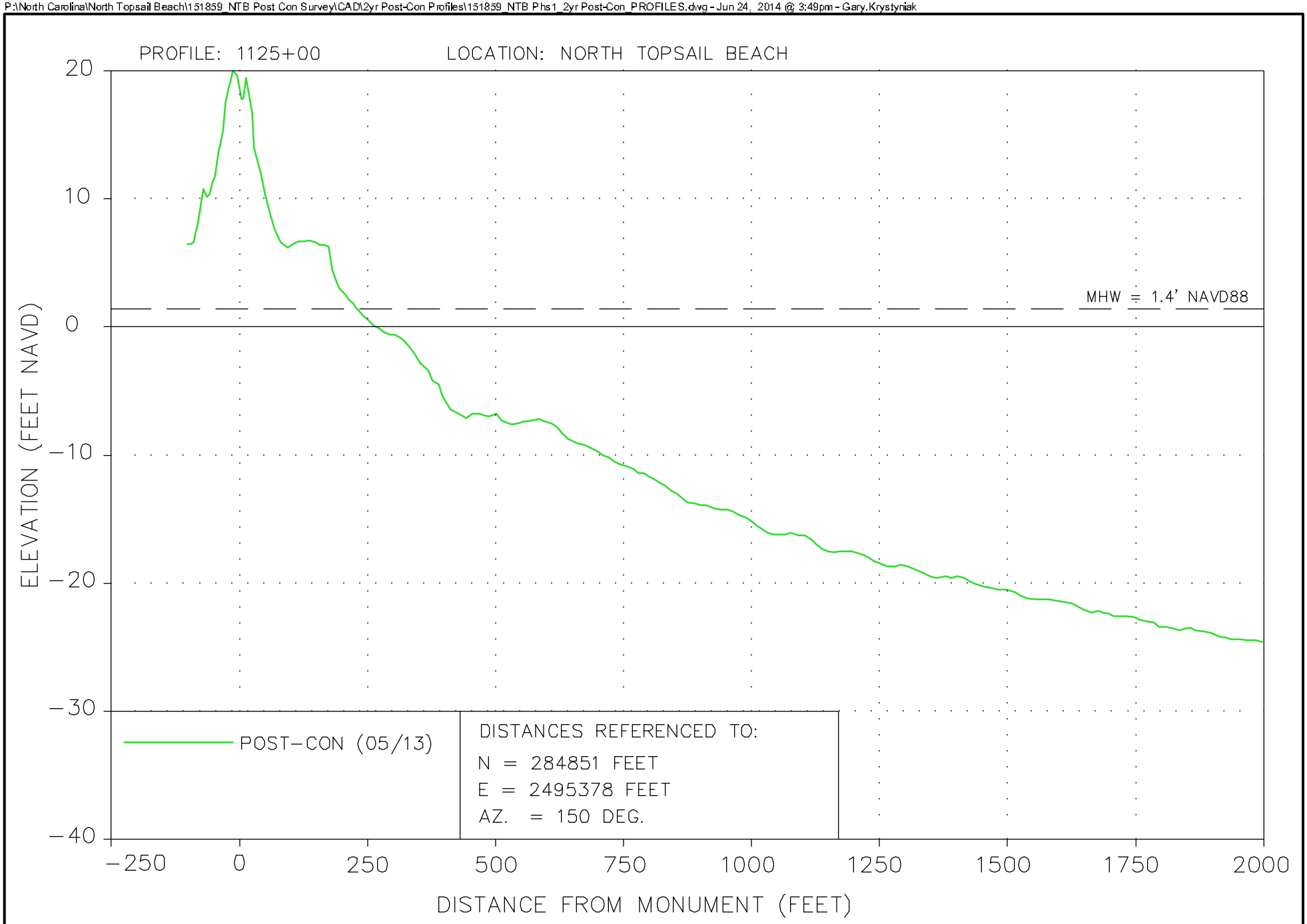

SHEET: 13 OF 23
COMM NO.: 151859
BY: GK
DATE: 6/23/14

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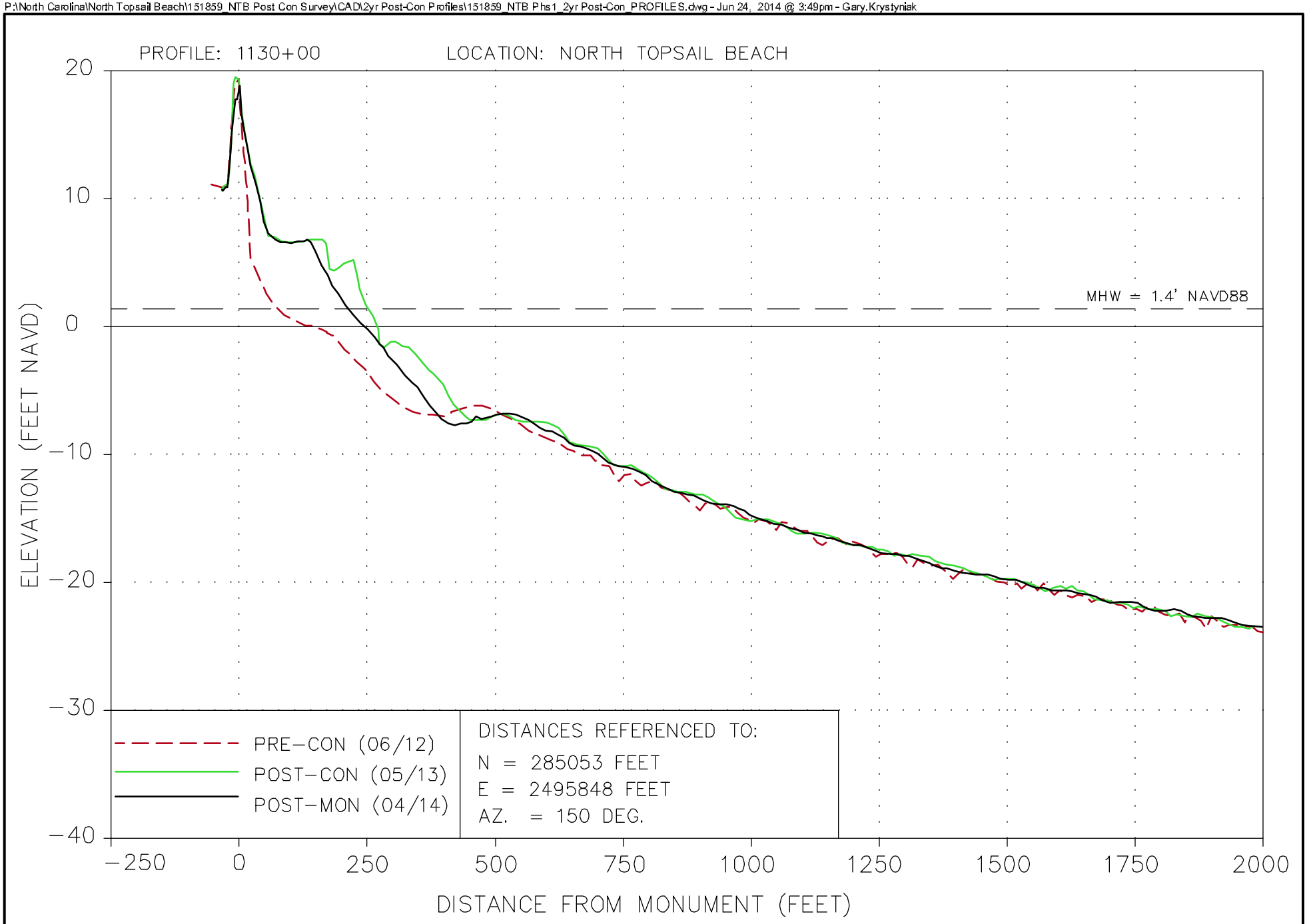

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14 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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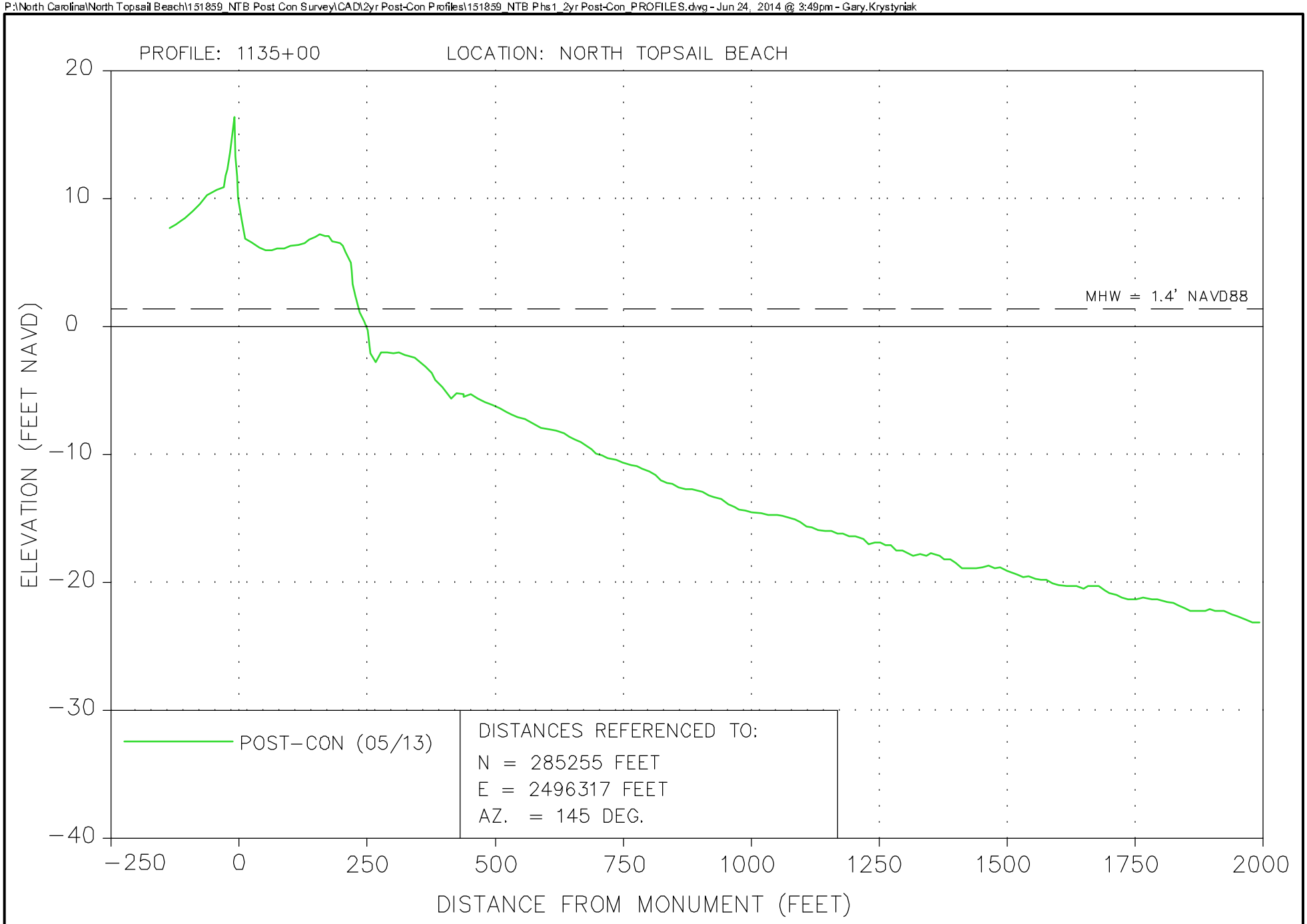

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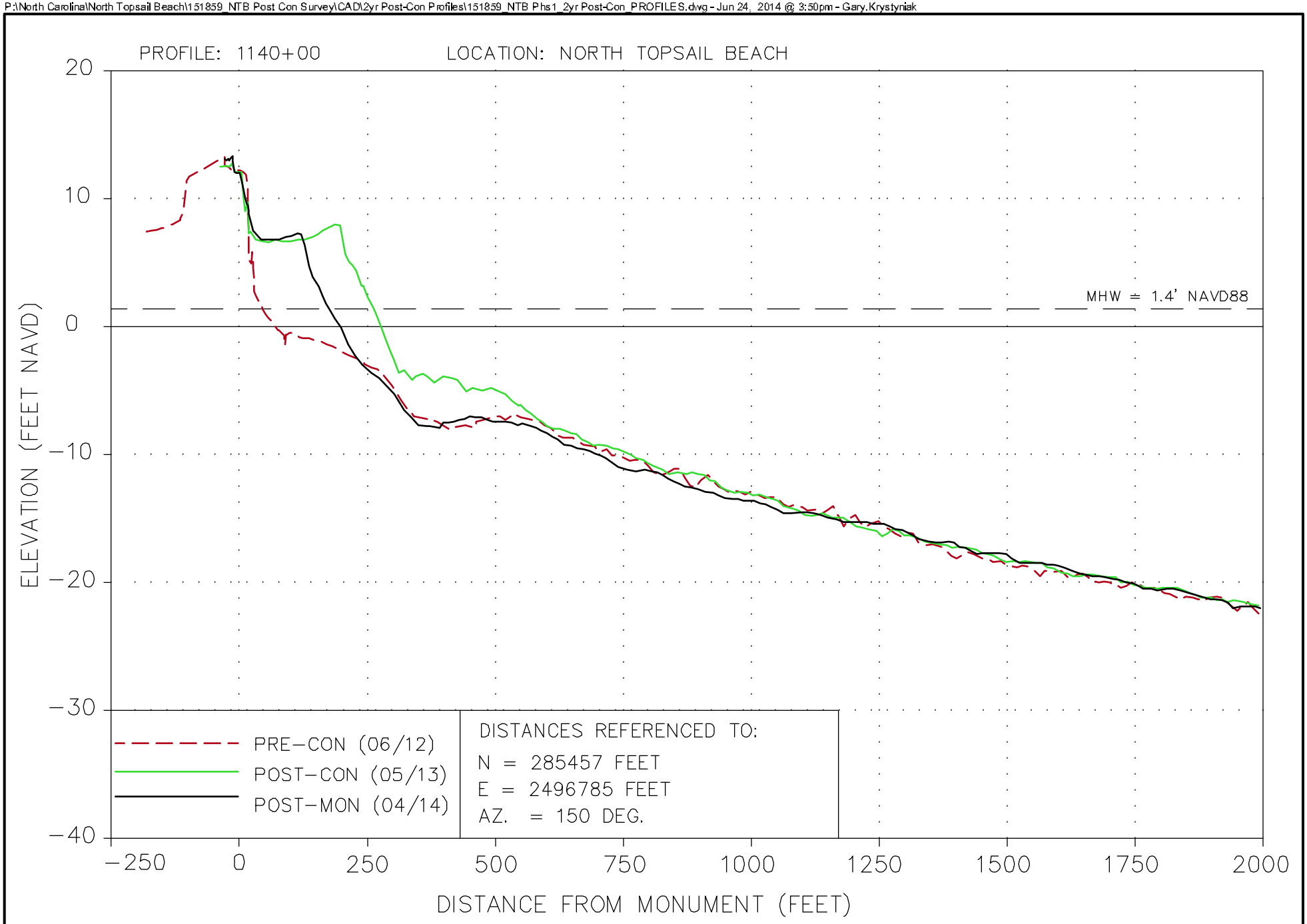

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16 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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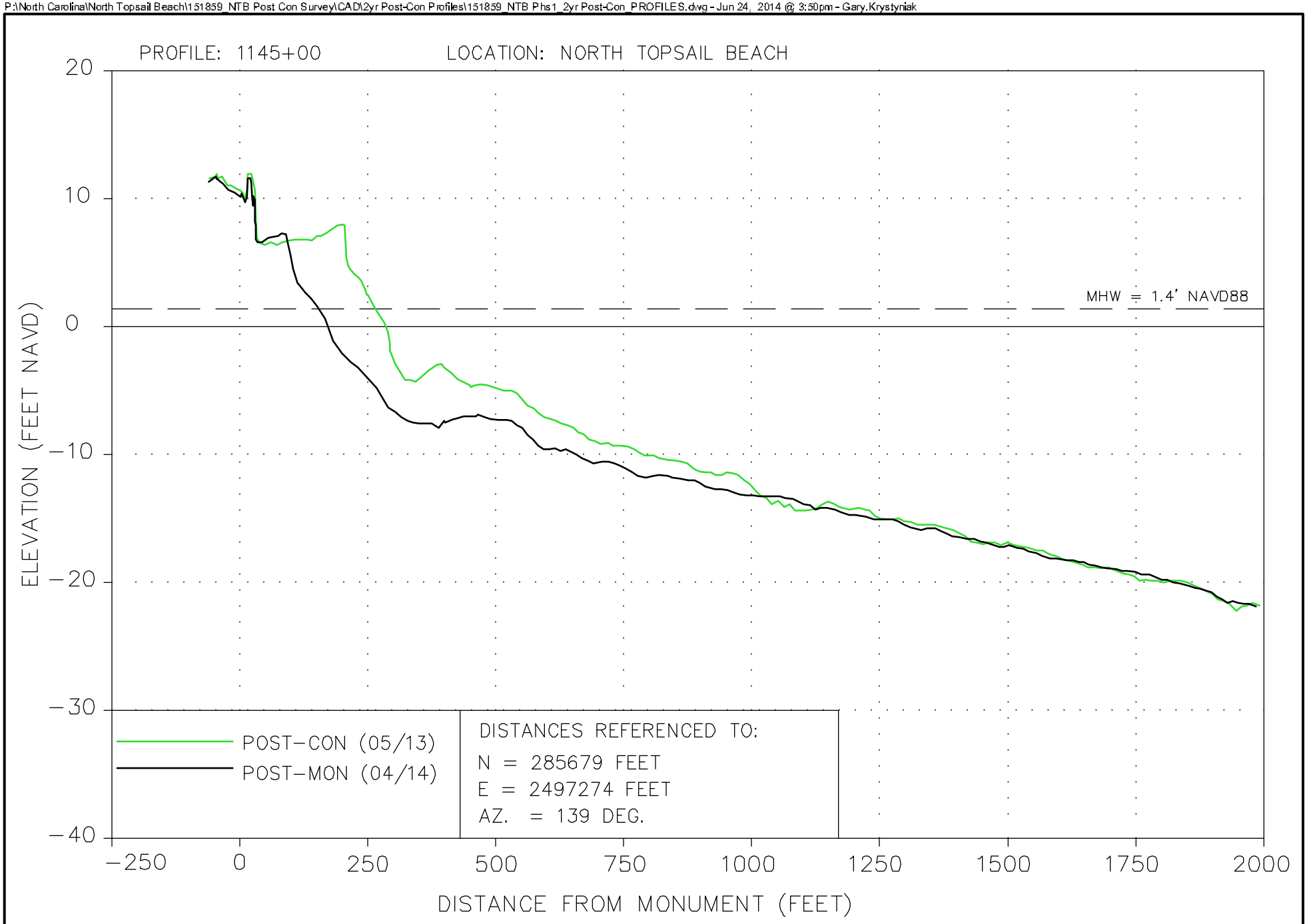

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17 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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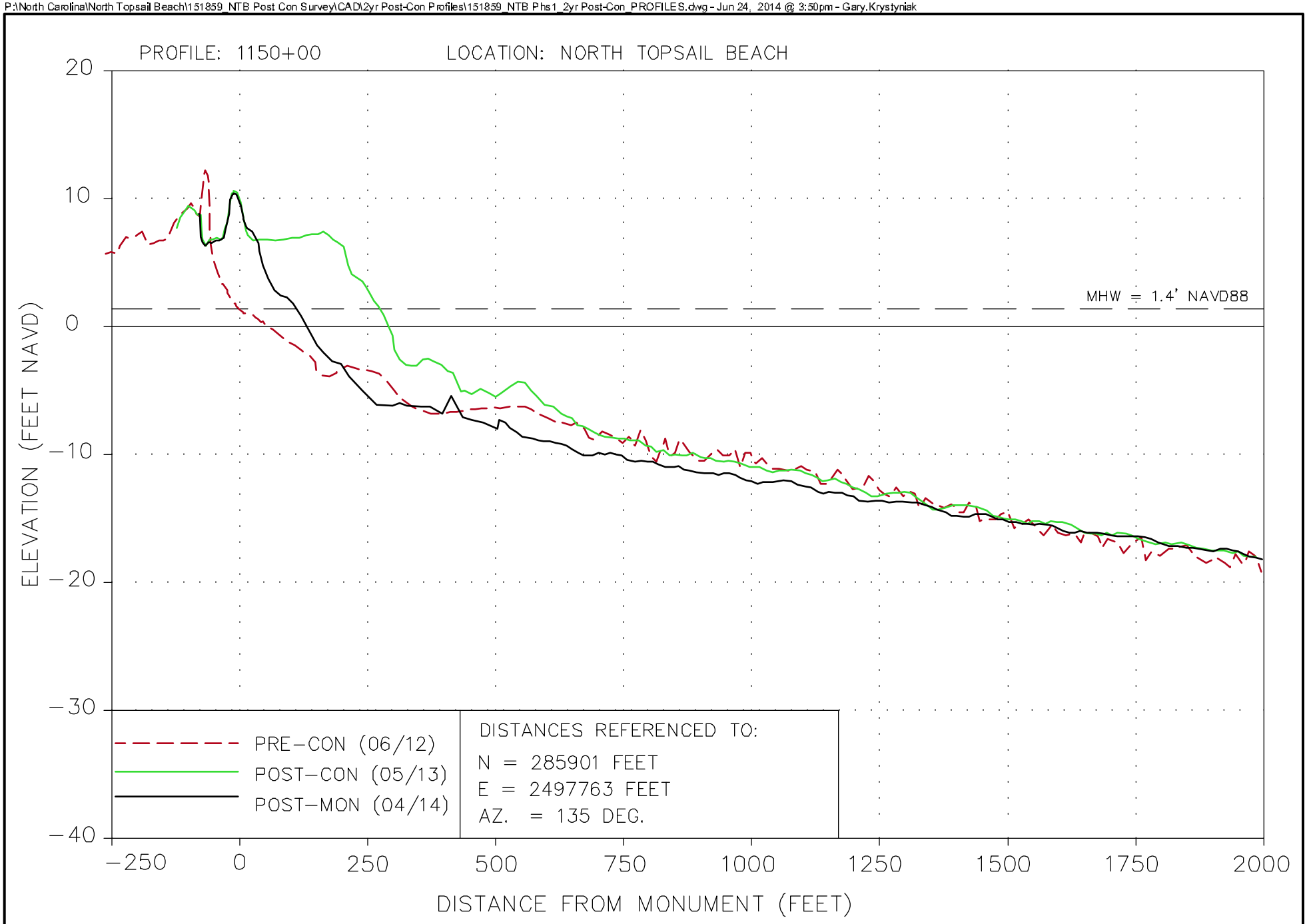

SHEET:	COMM NO.:	BY:	DATE:		TITLE:
18 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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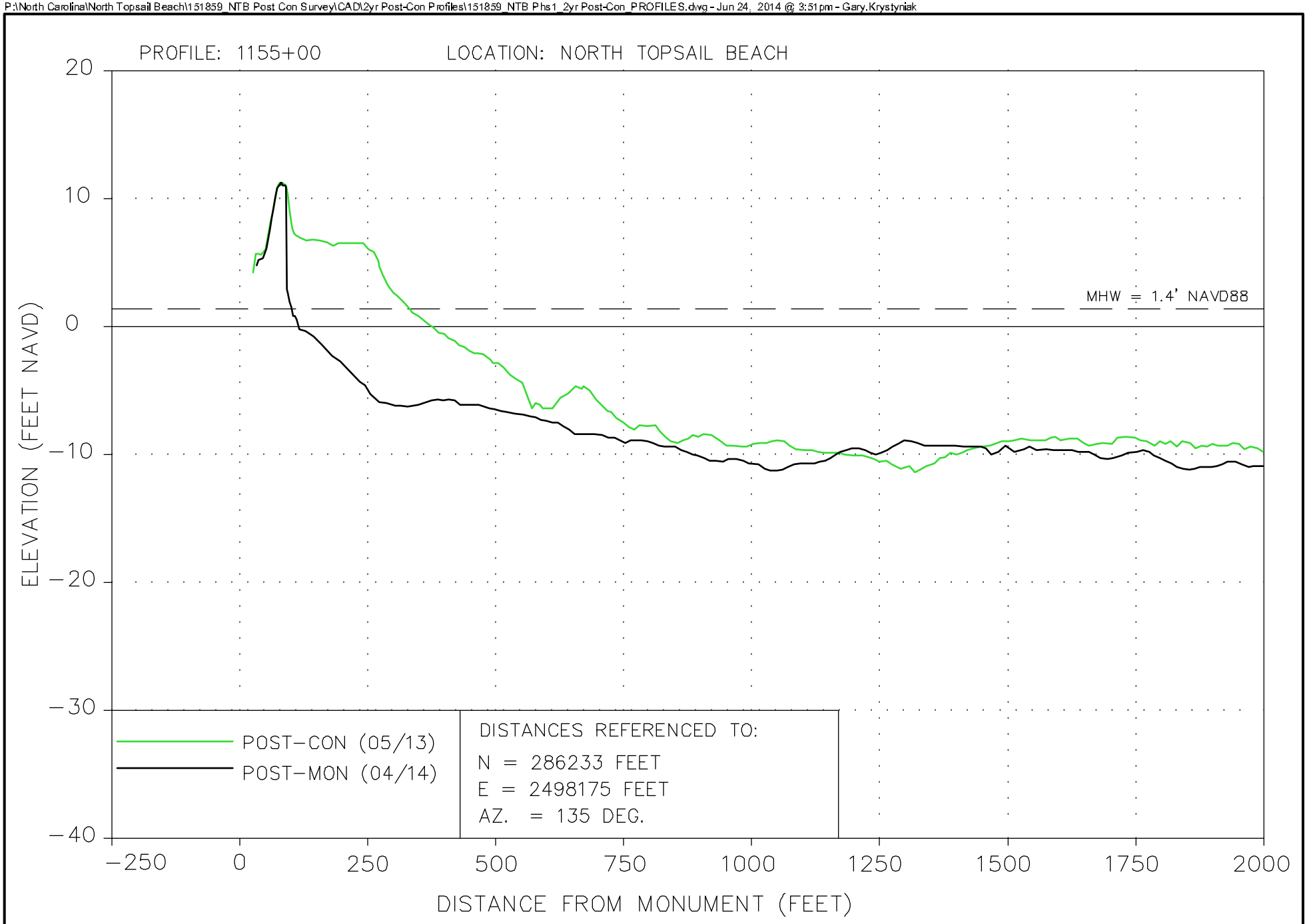

SHEET: 19 OF 23

COMM NO.: 151859

BY: GK

DATE: 6/23/14

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TITLE:

NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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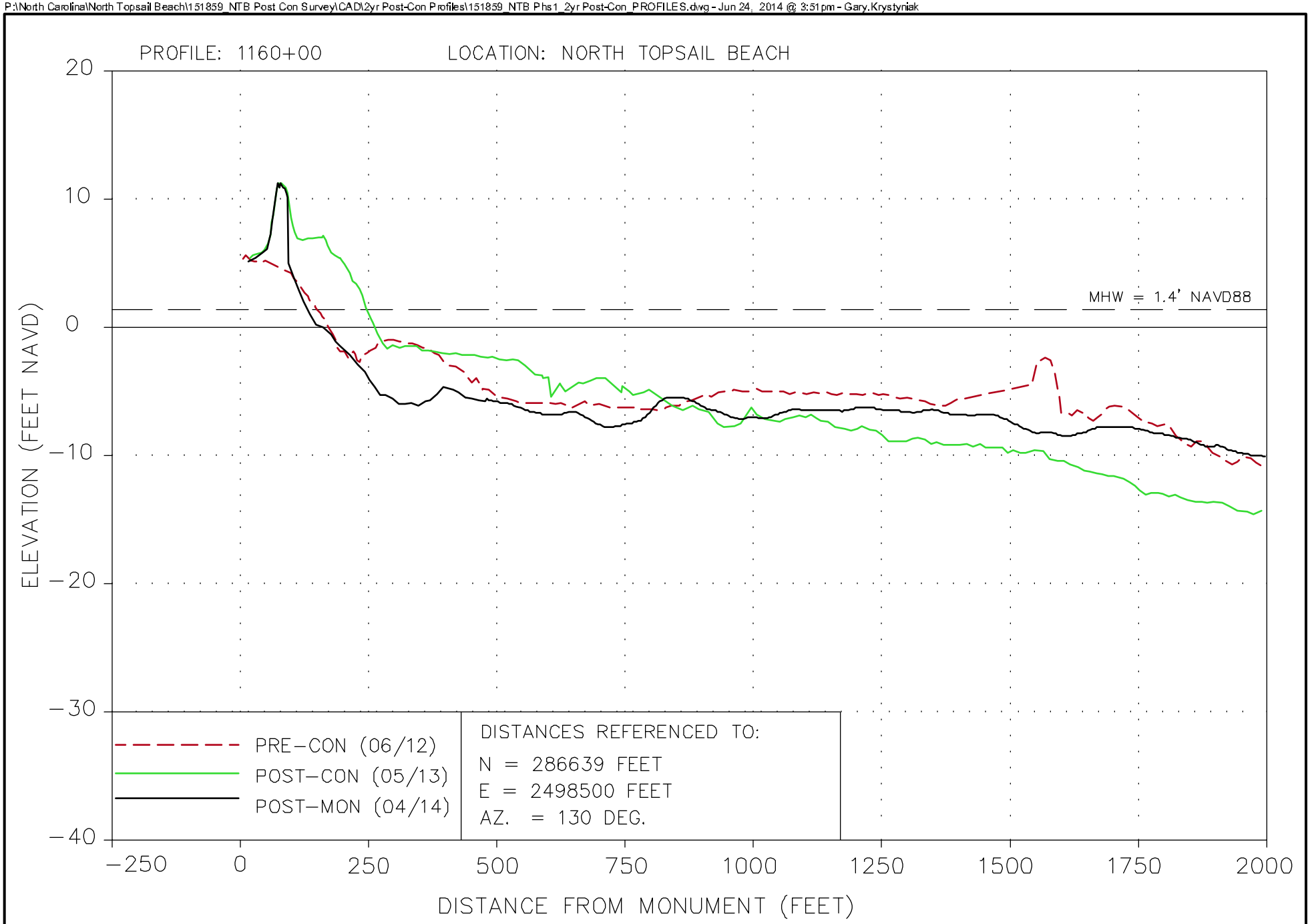

SHEET: 20 OF 23
COMM NO.: 151859
BY: GK
DATE: 6/23/14

COASTAL PLANNING & ENGINEERING, INC.
OF NORTH CAROLINA, INC.
4038 MASONBORO LOOP RD.
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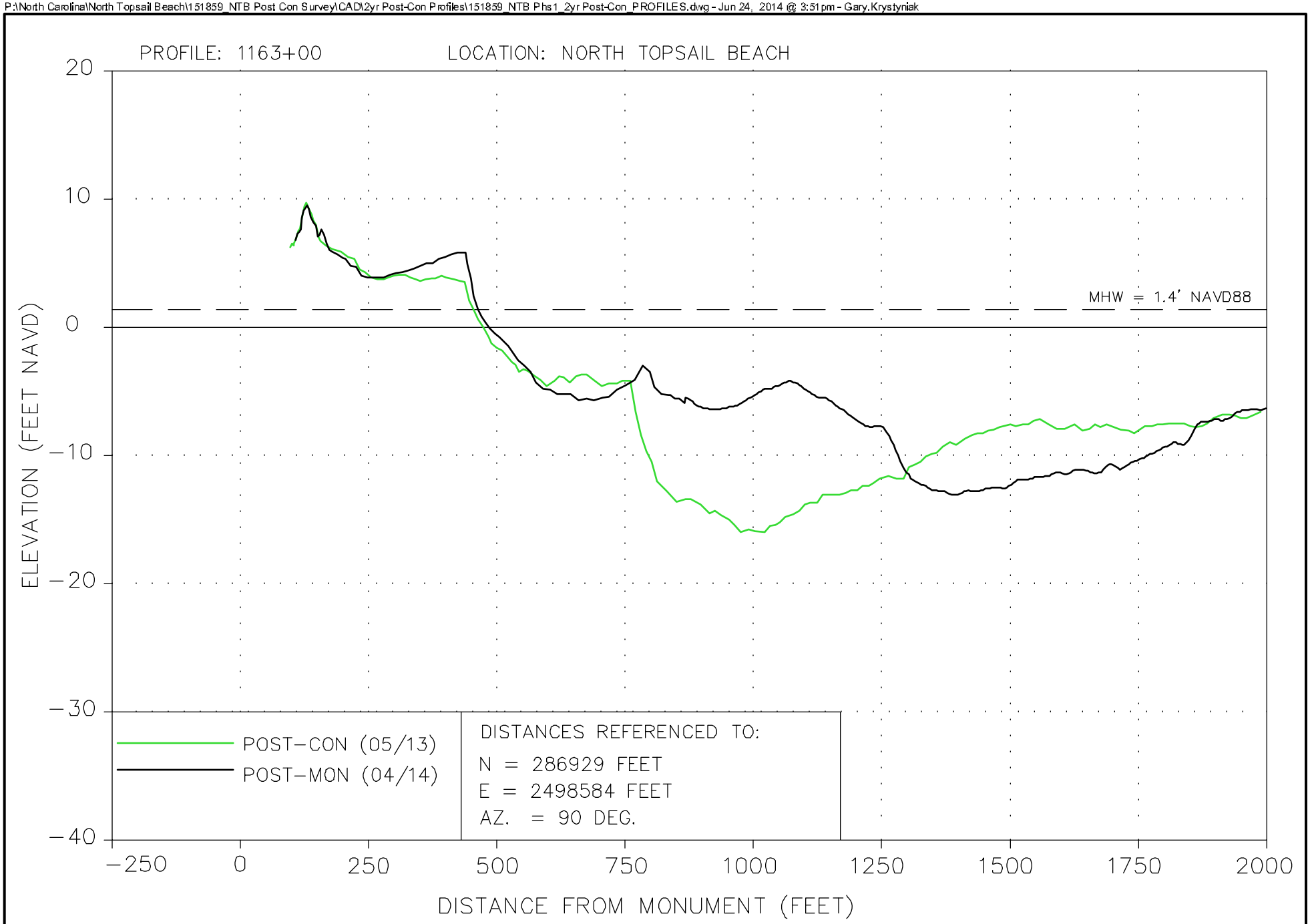

SHEET: 21 OF 23	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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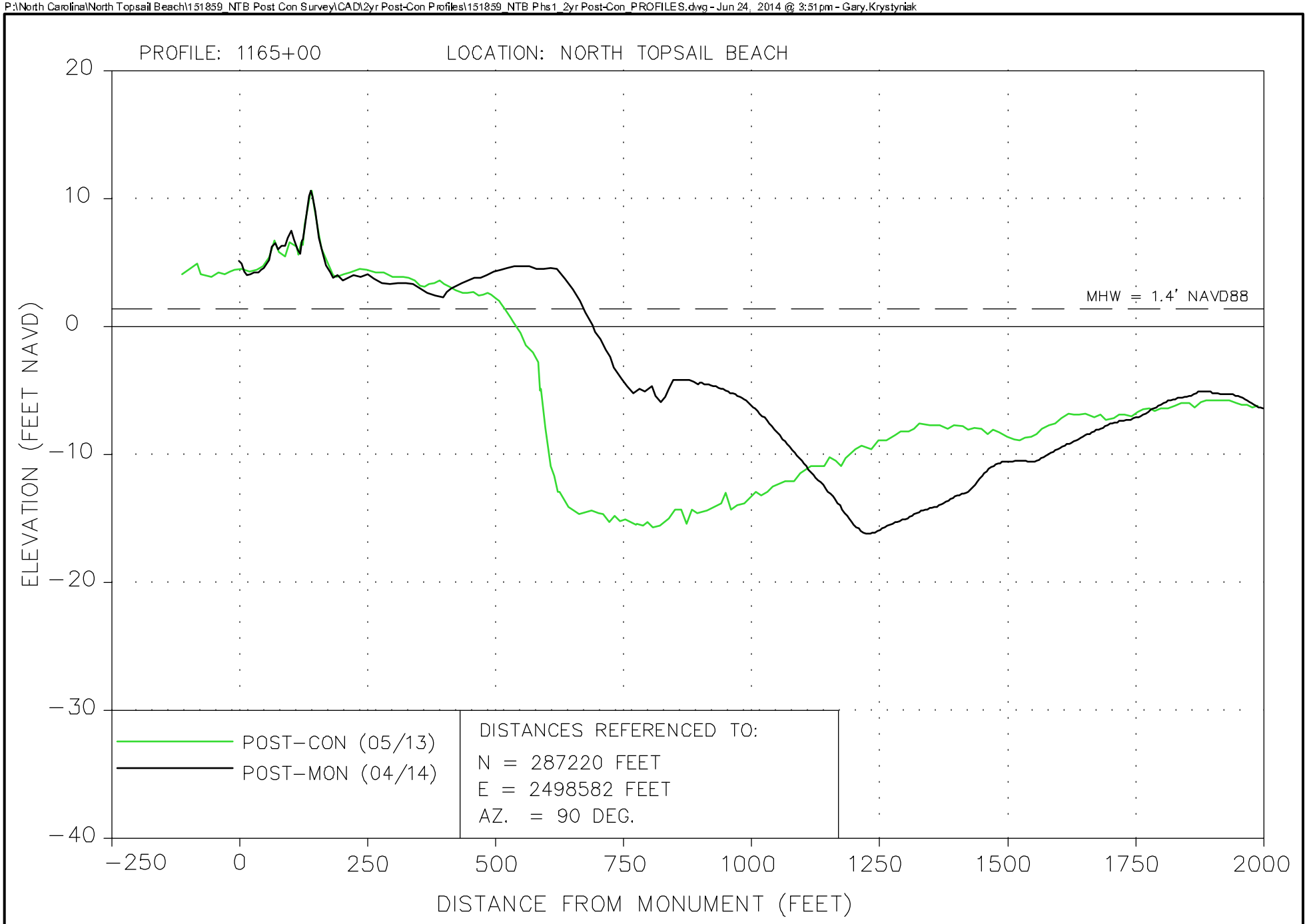

SHEET: 22 OF 23	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

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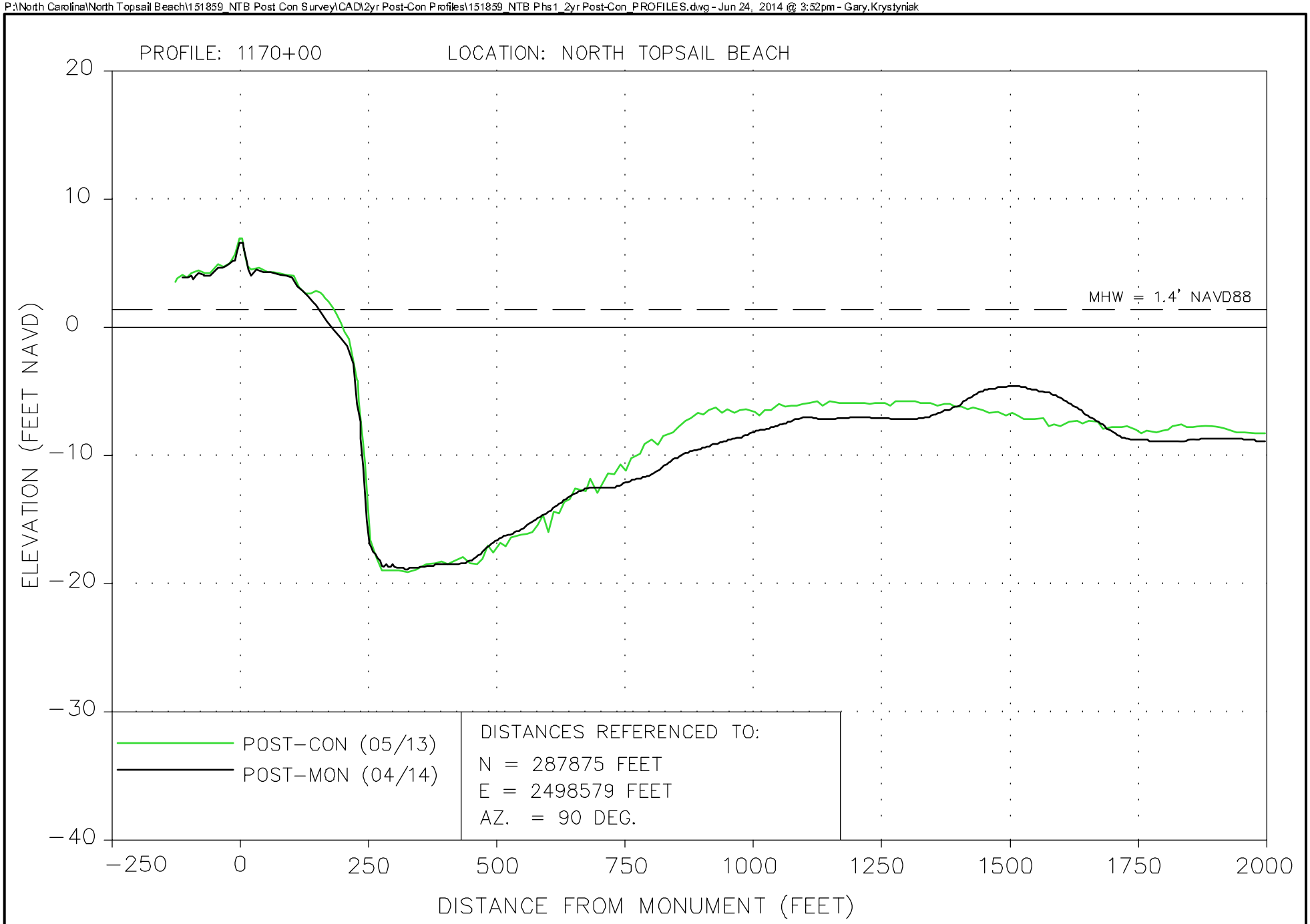
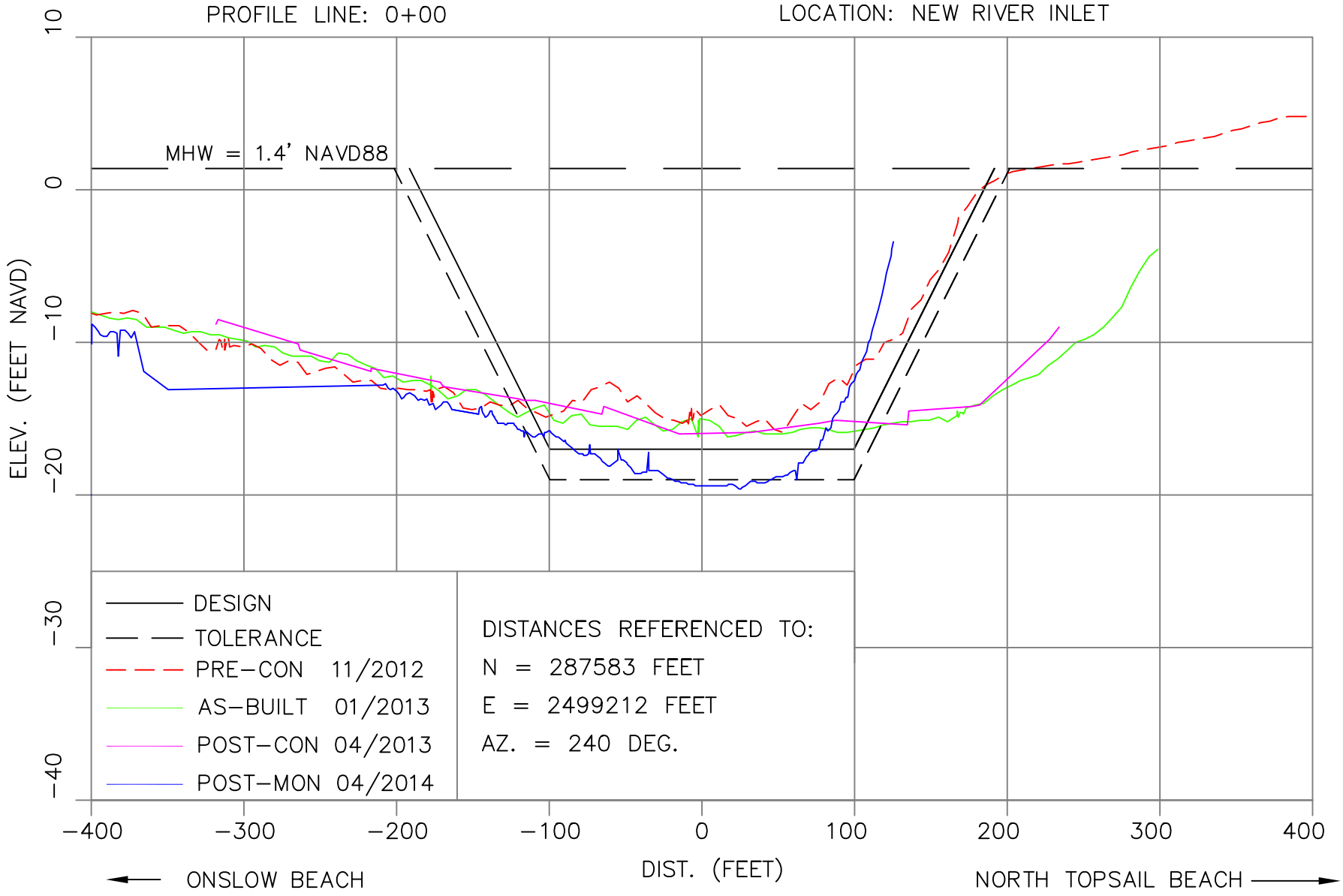


SHEET:	COMM NO.:	BY:	DATE:		TITLE:
23 OF 23	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NORTH TOPSAIL BEACH PHASE 1 POST-CONSTRUCTION MONITORING

APPENDIX B

NEW RIVER INLET CHANNEL SURVEY PROFILES



SHEET:	COMM NO.:	BY:	DATE:
1 OF 18	151859	ATP	6/27/2014

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.
4038 MASONBORO LOOP RD.
WILMINGTON, NC 28409
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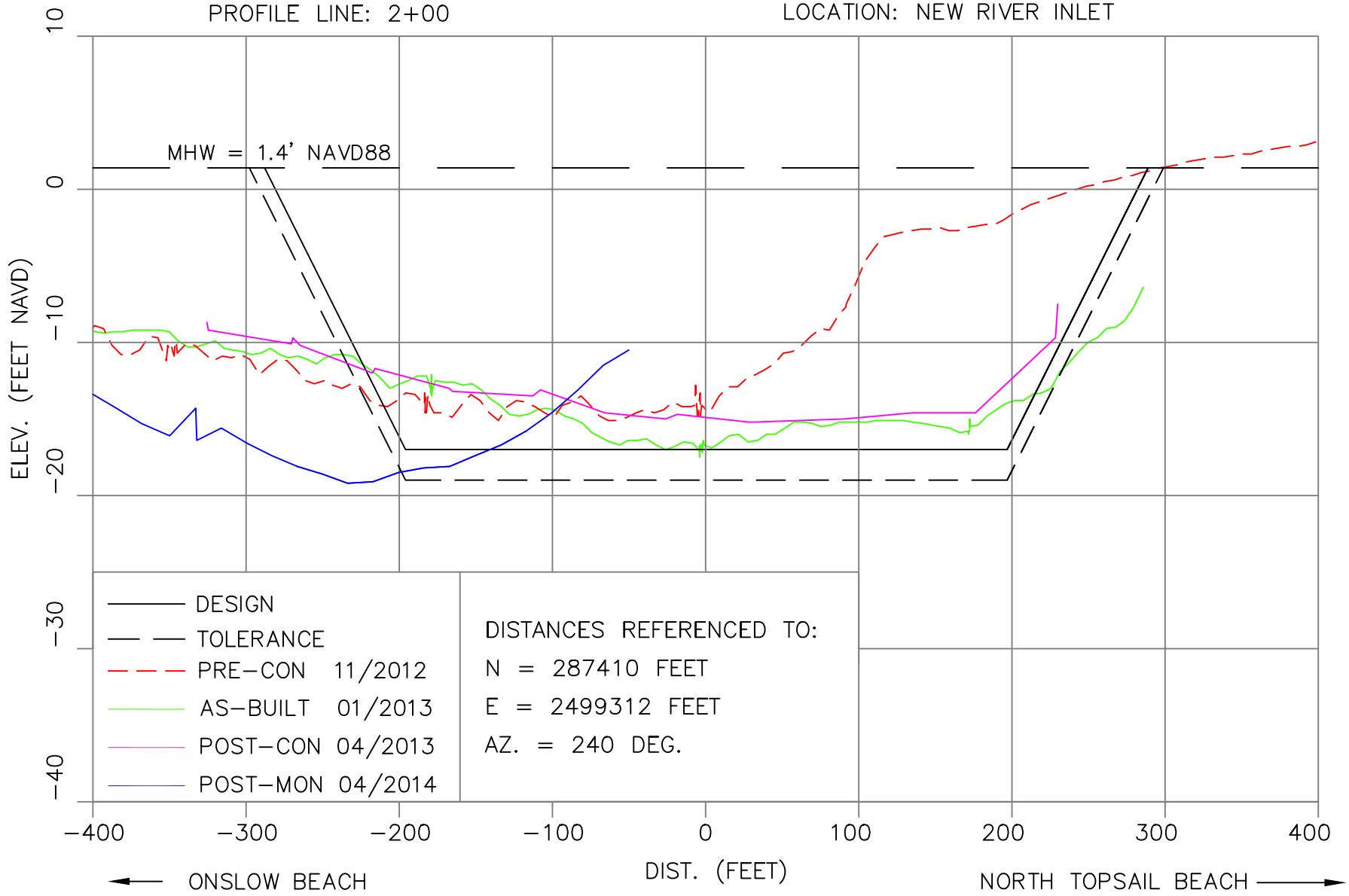
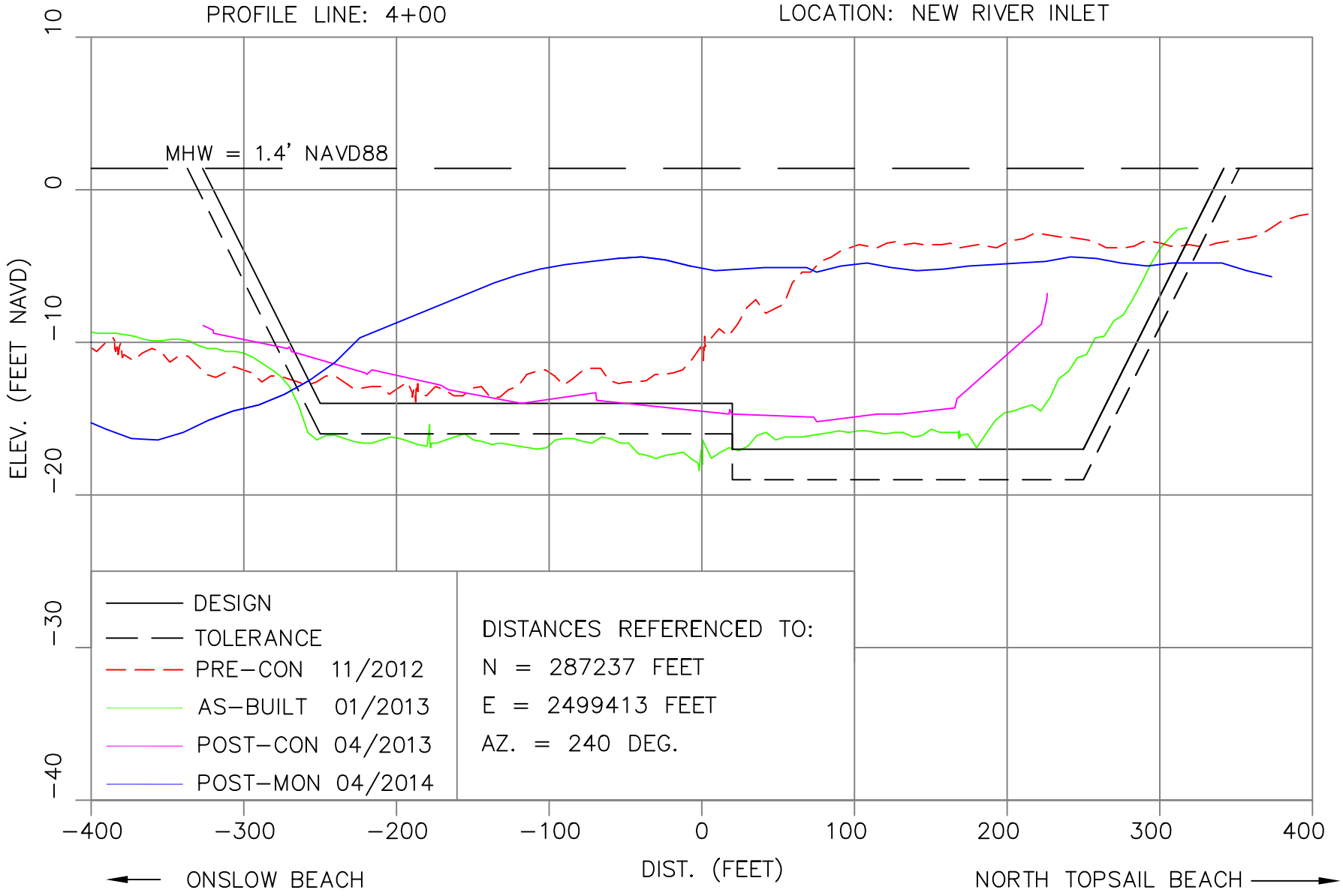
TITLE:

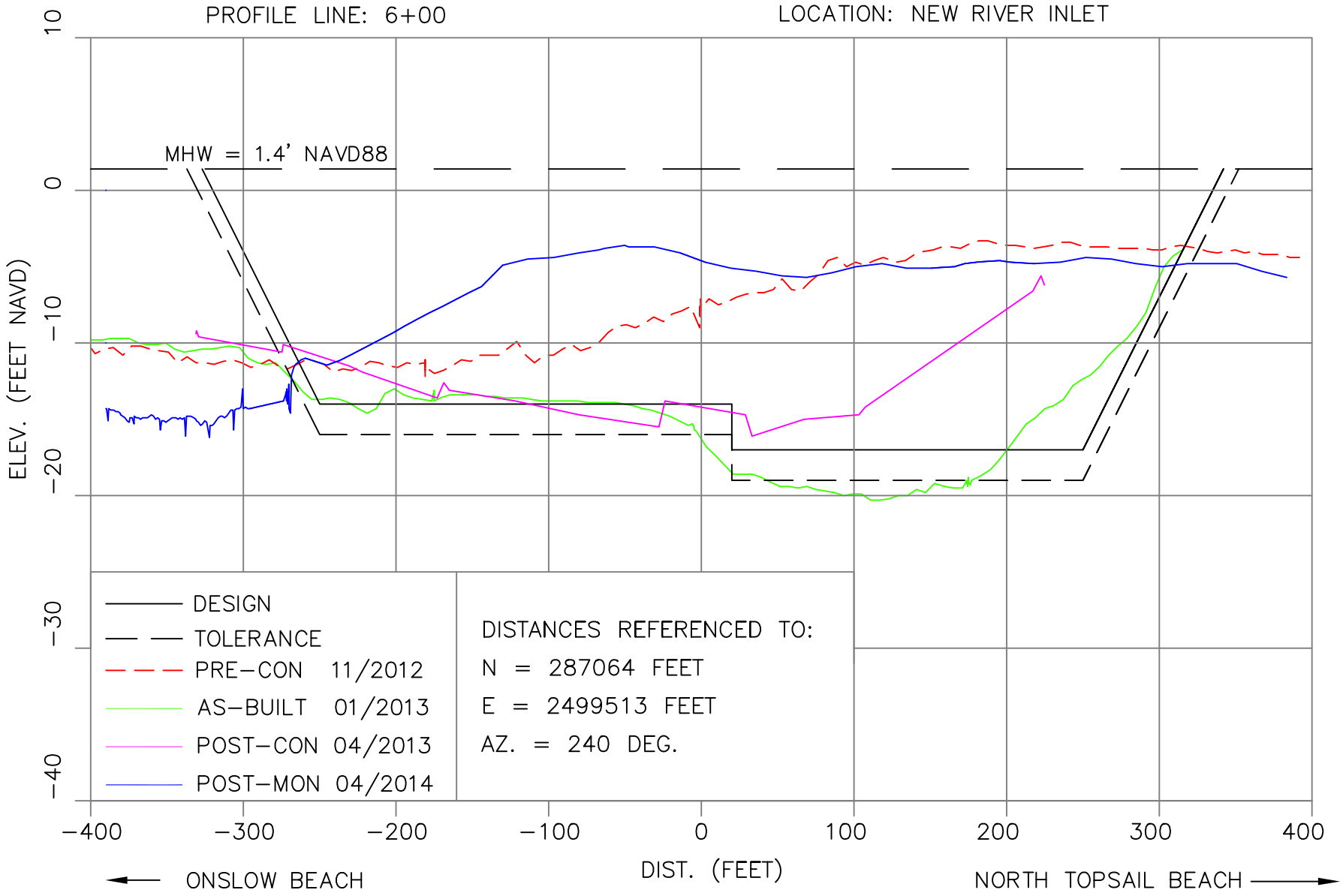
NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



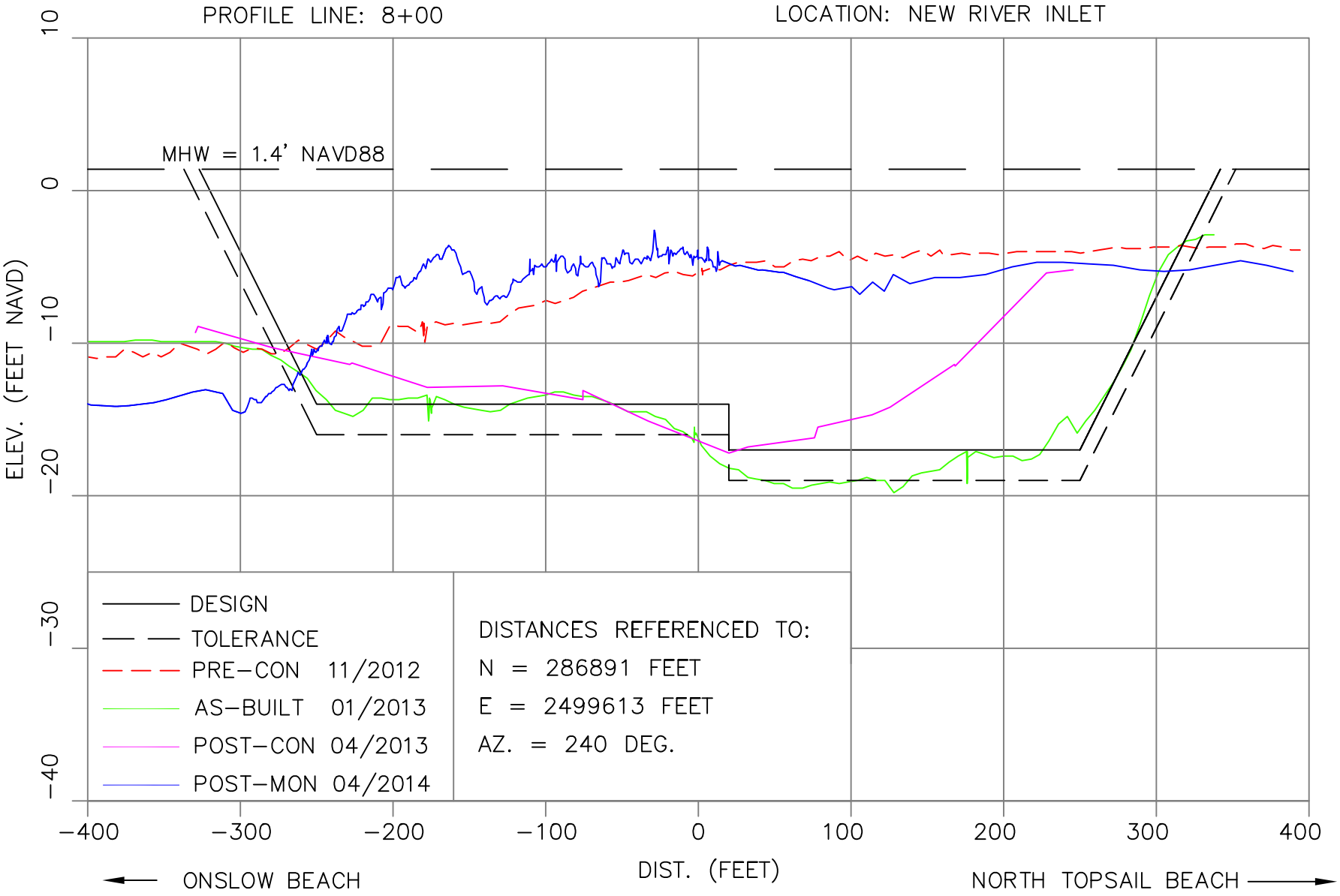
SHEET: 2 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET: 3 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET: 4 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON

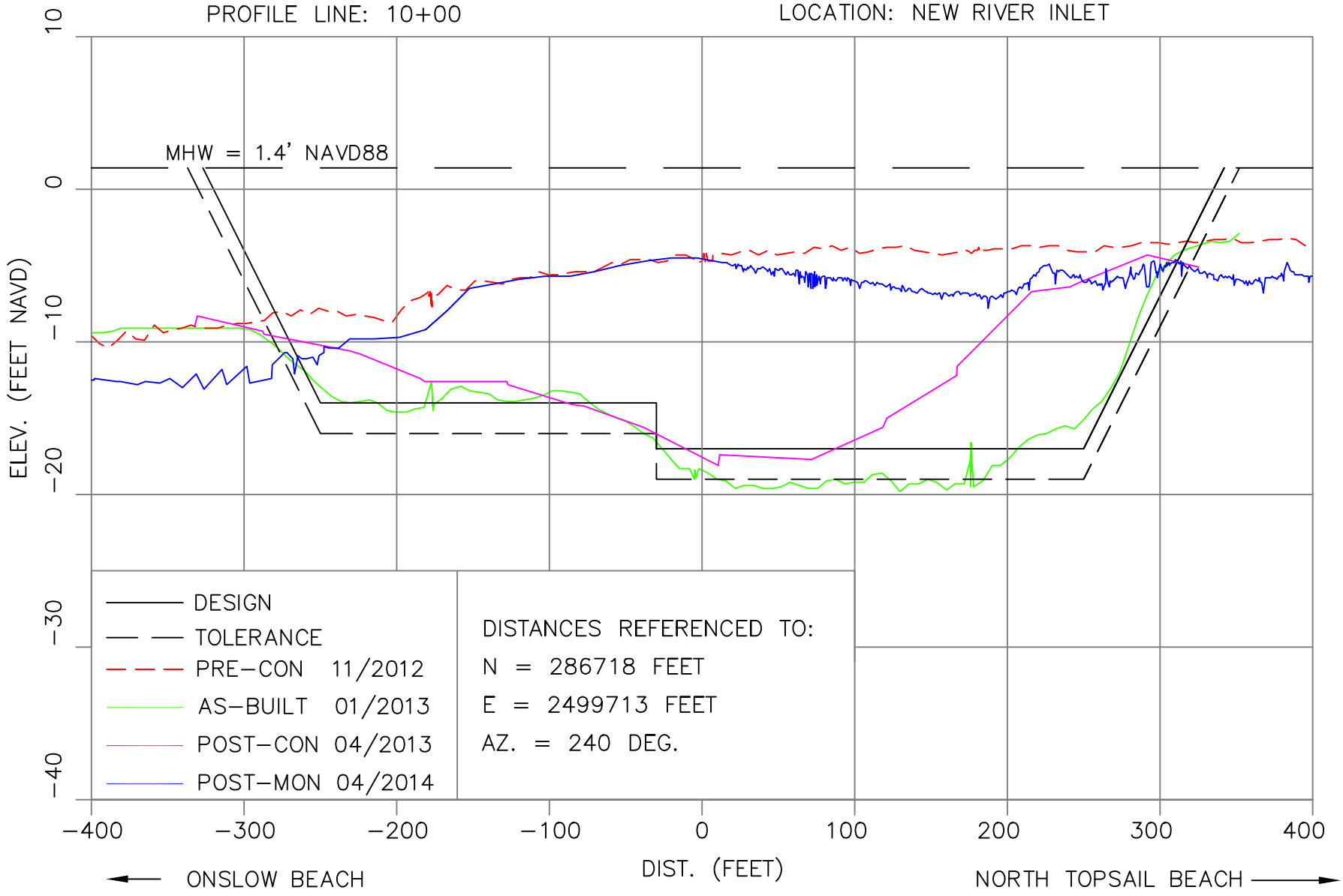


SHEET:	COMM NO.:	BY:	DATE:
5 OF 18	151859	ATP	6/27/2014

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.
4038 MASONBORO LOOP RD.
WILMINGTON, NC 28409
PH. (904) 791-9494
FAX (904) 791-4129

TITLE:

NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET:	COMM NO.:	BY:	DATE:
6 OF 18	151859	ATP	6/27/2014

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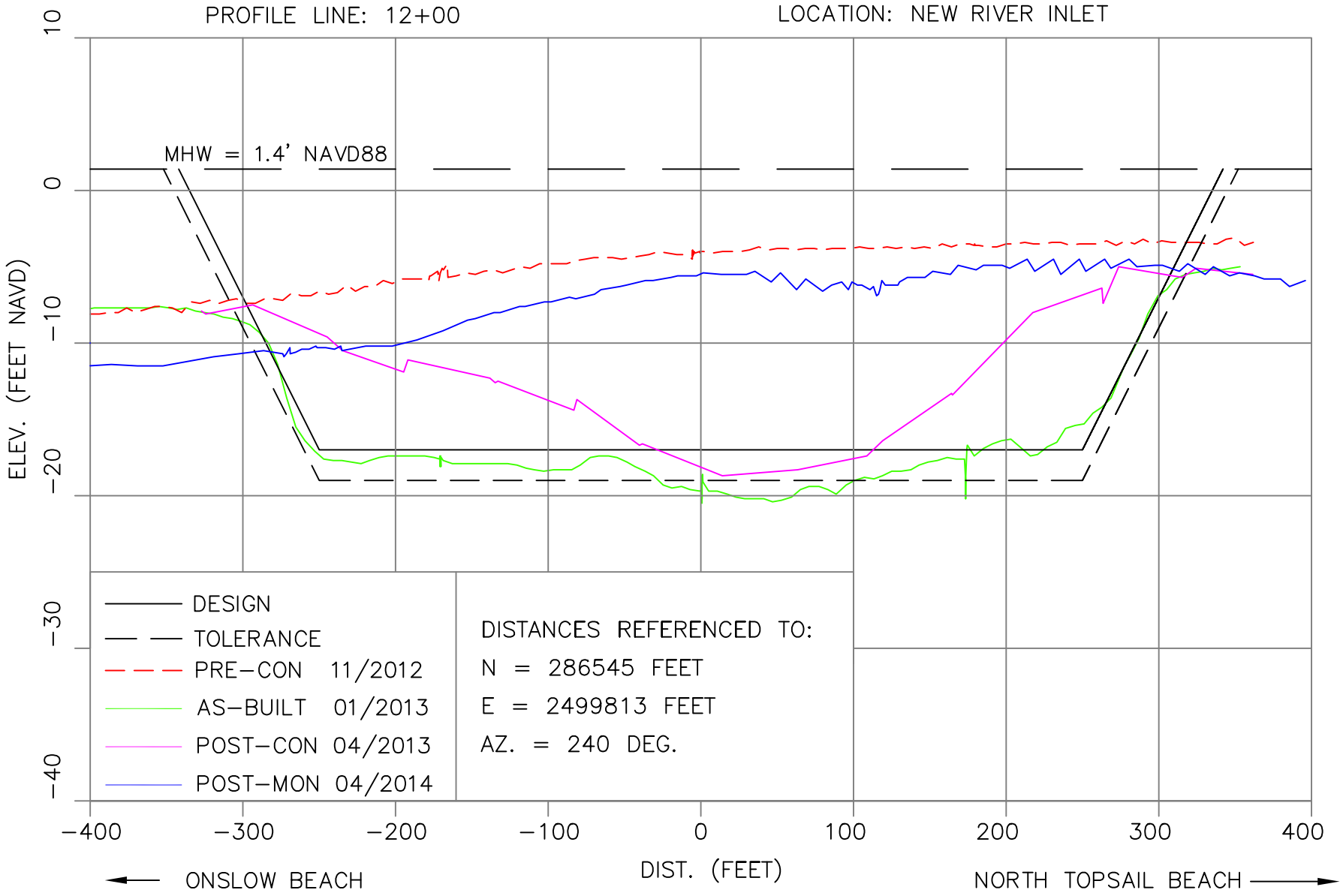
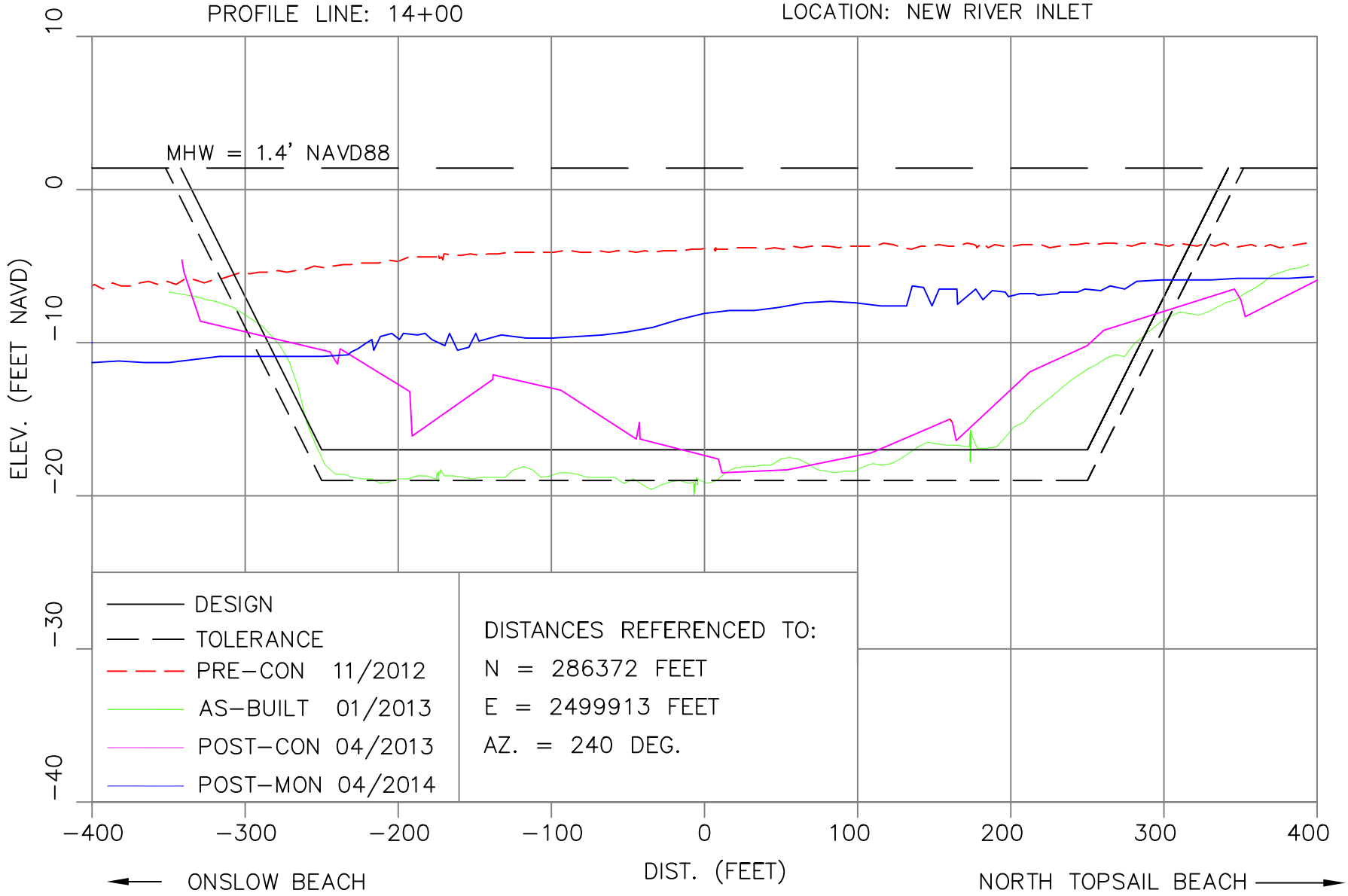


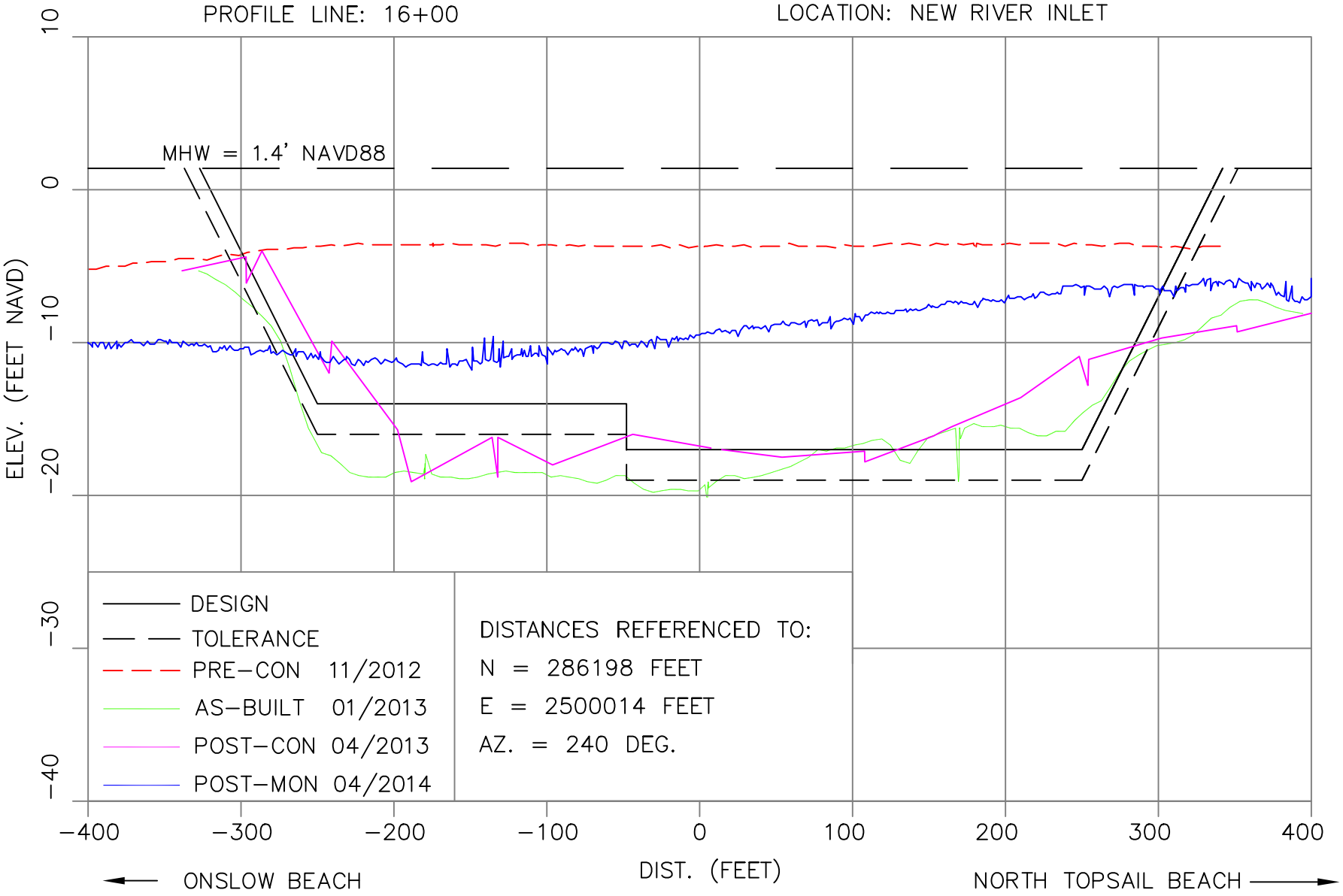
SHEET:	COMM NO.:	BY:	DATE:	
7 OF 18	151859	ATP	6/27/2014	**COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.** 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129

TITLE:

NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET: 8 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET:	COMM NO.:	BY:	DATE:
9 OF 18	151859	ATP	6/27/2014

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TITLE:

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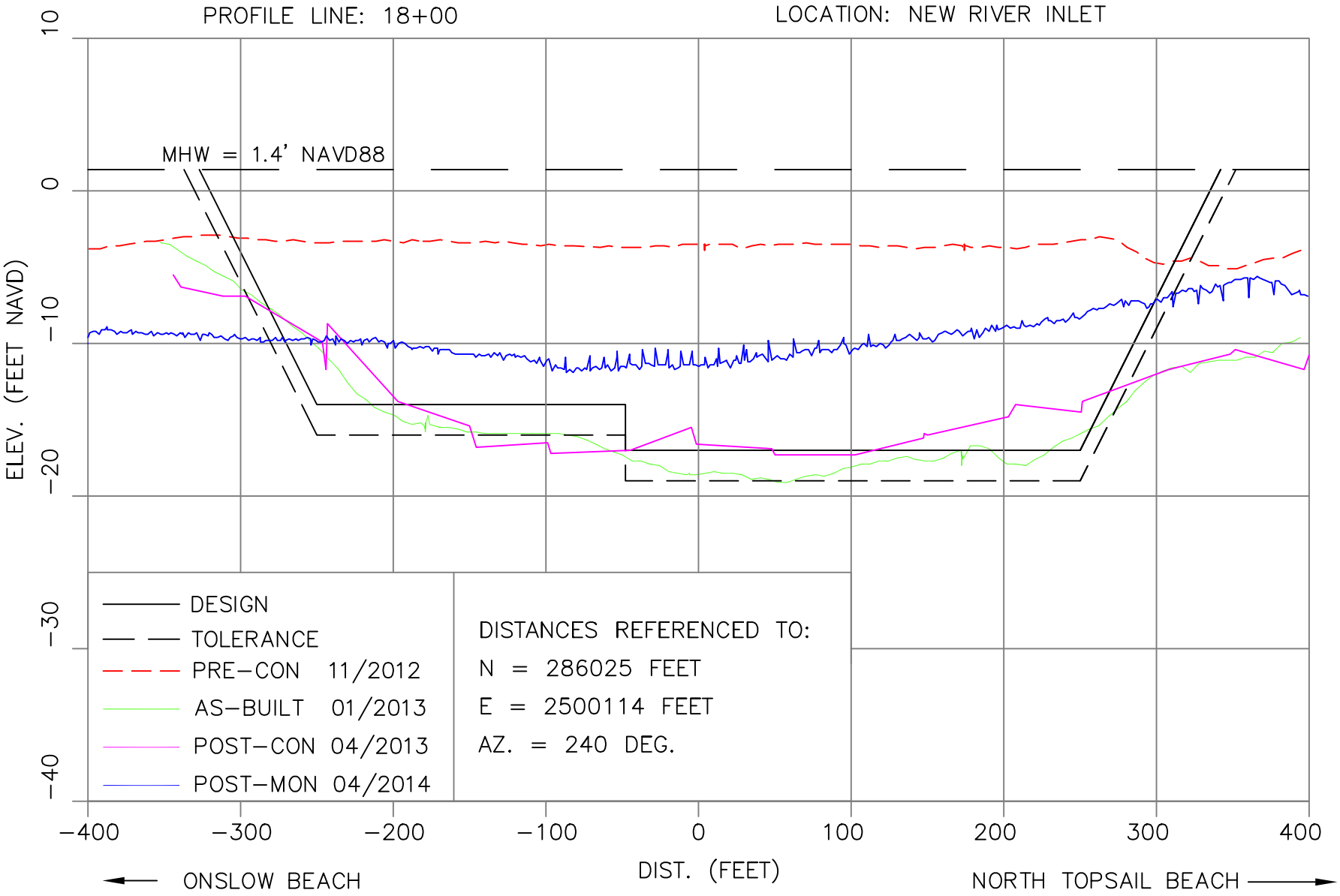
NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET:	COMM NO.:	BY:	DATE:
10 OF 18	151859	ATP	6/27/2014

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.
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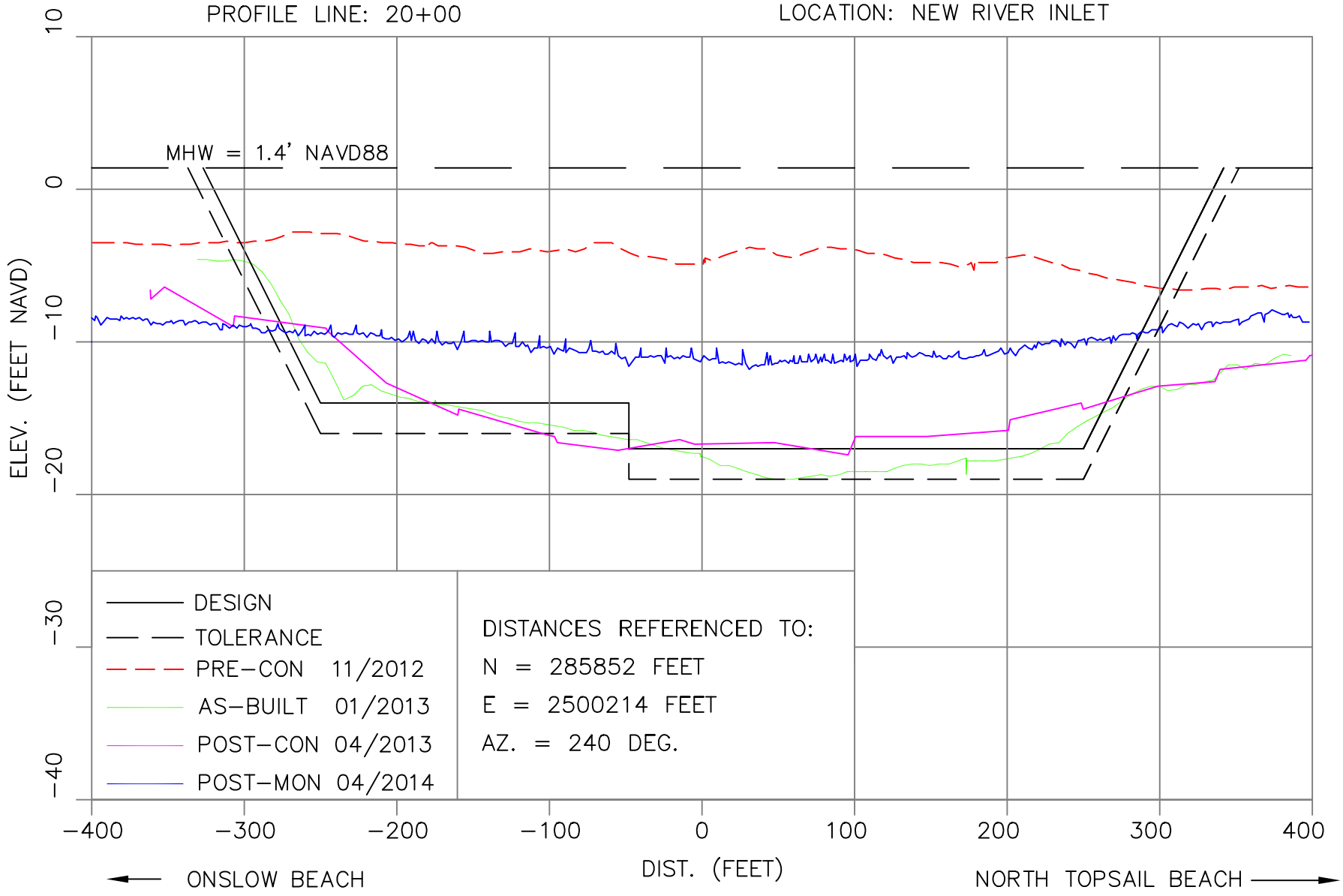
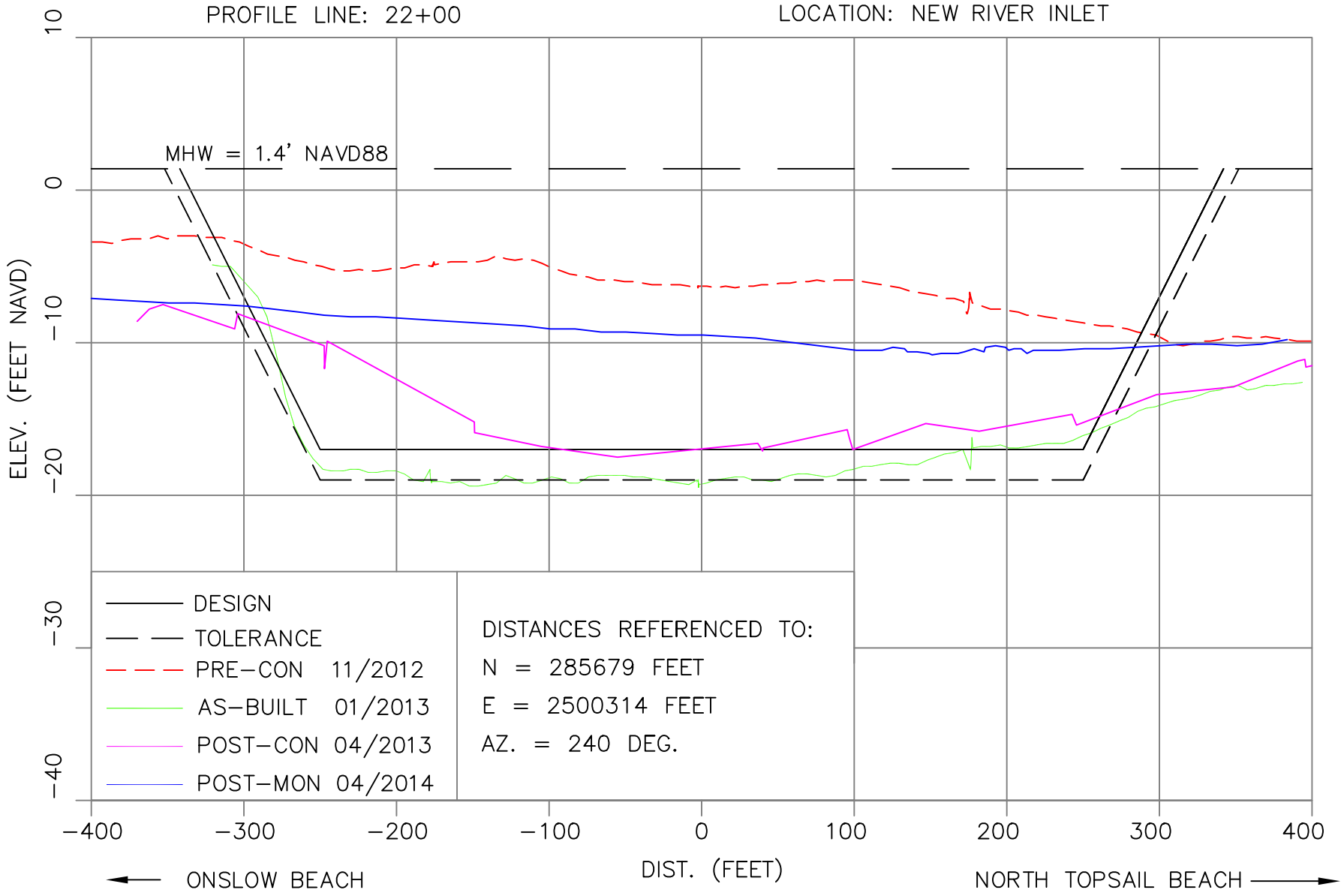
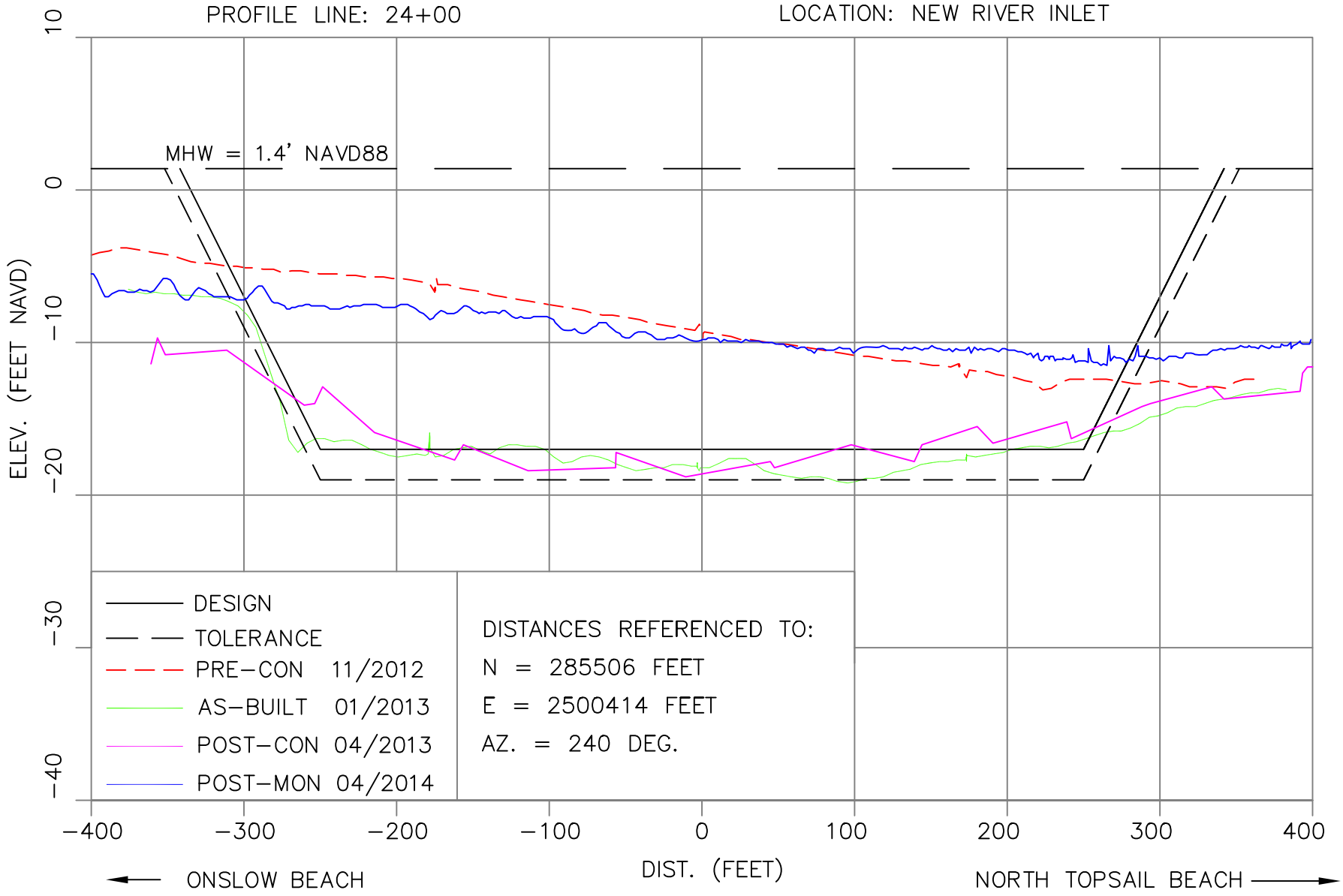


SHEET: 11 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	**COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.** 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	**NORTH TOPSAIL BEACH, NORTH CAROLINA** **NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION** **NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON**



SHEET: 12 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



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13 OF 18	151859	ATP	6/27/2014	**COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.** 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129

TITLE:

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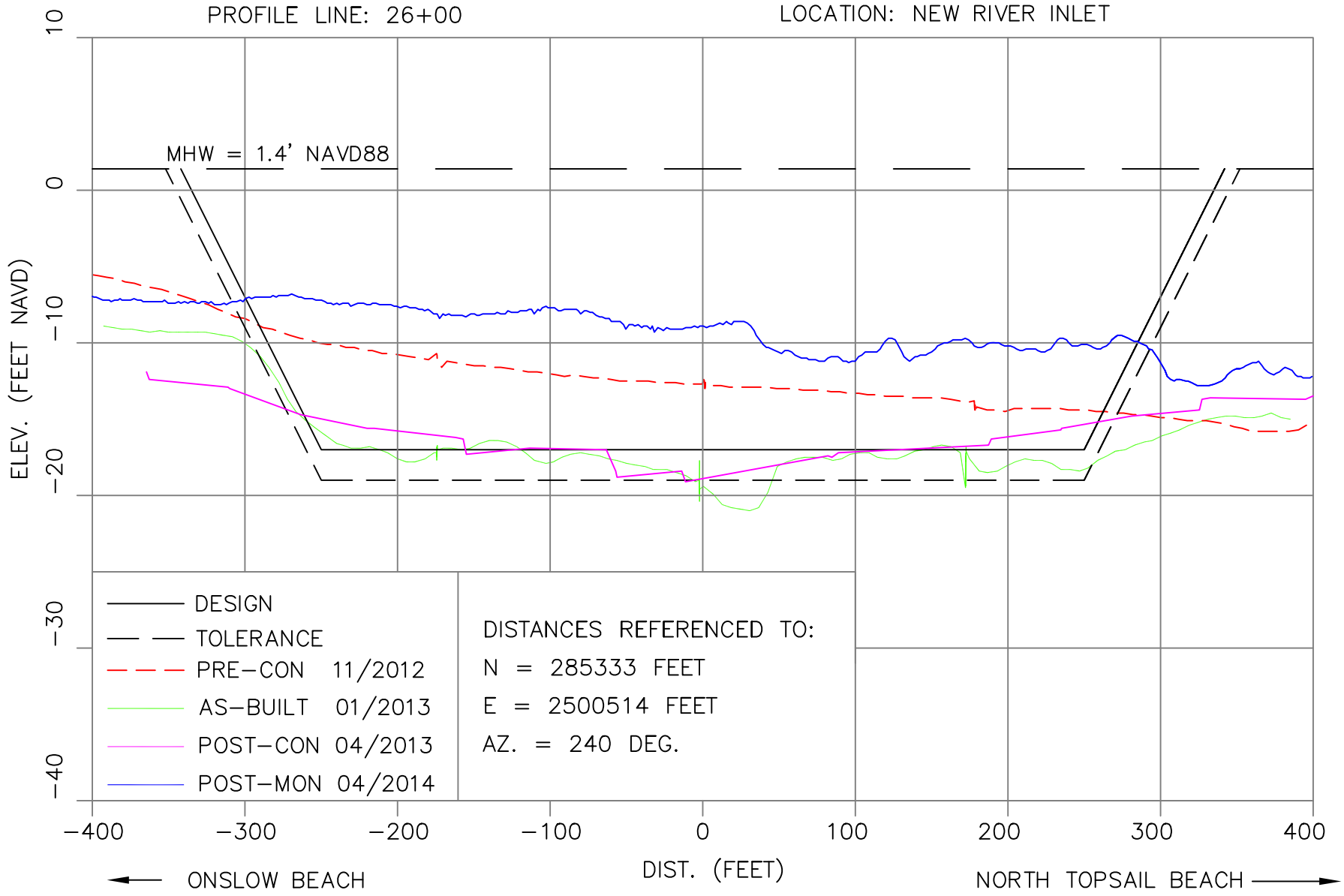
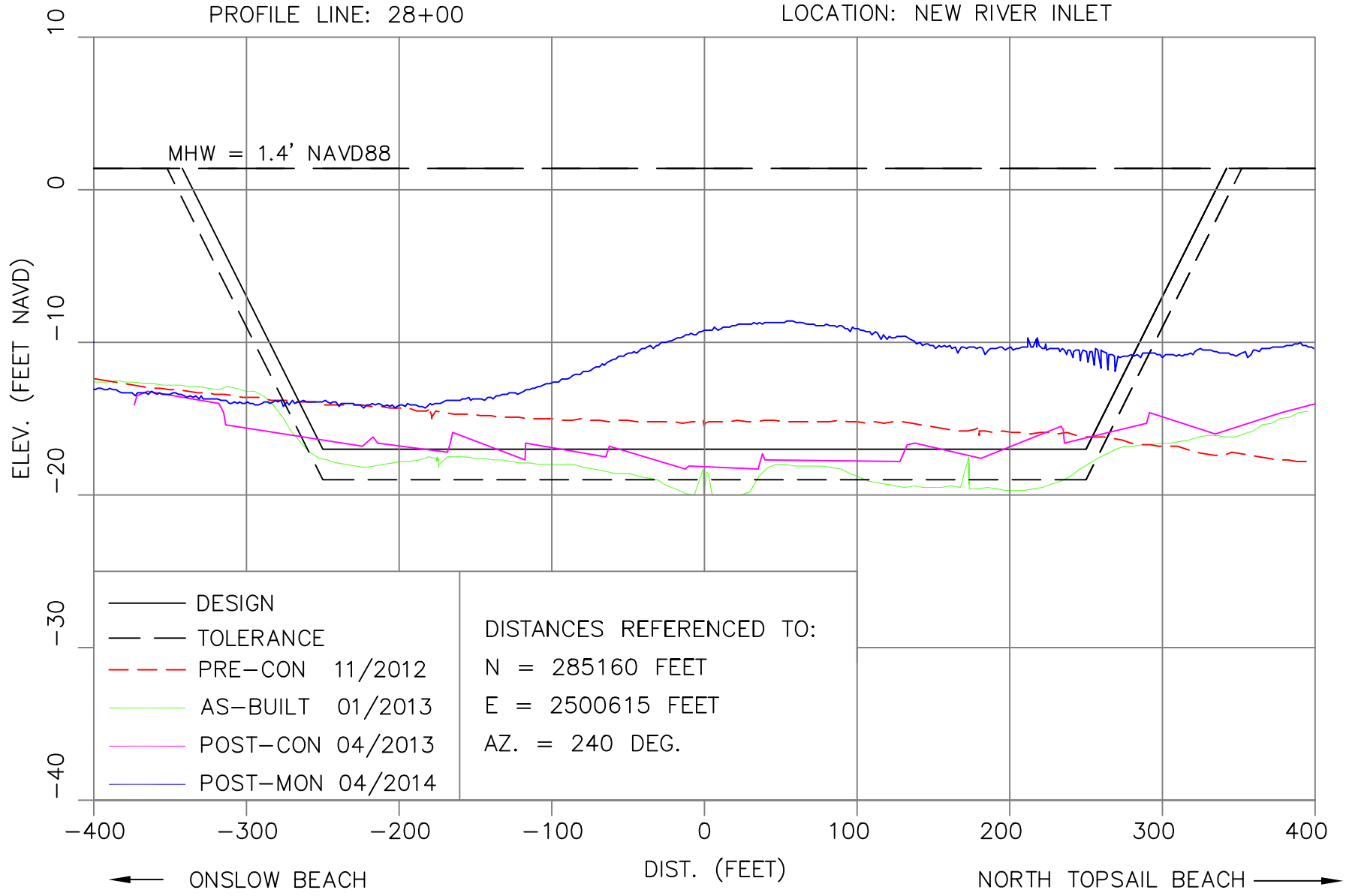
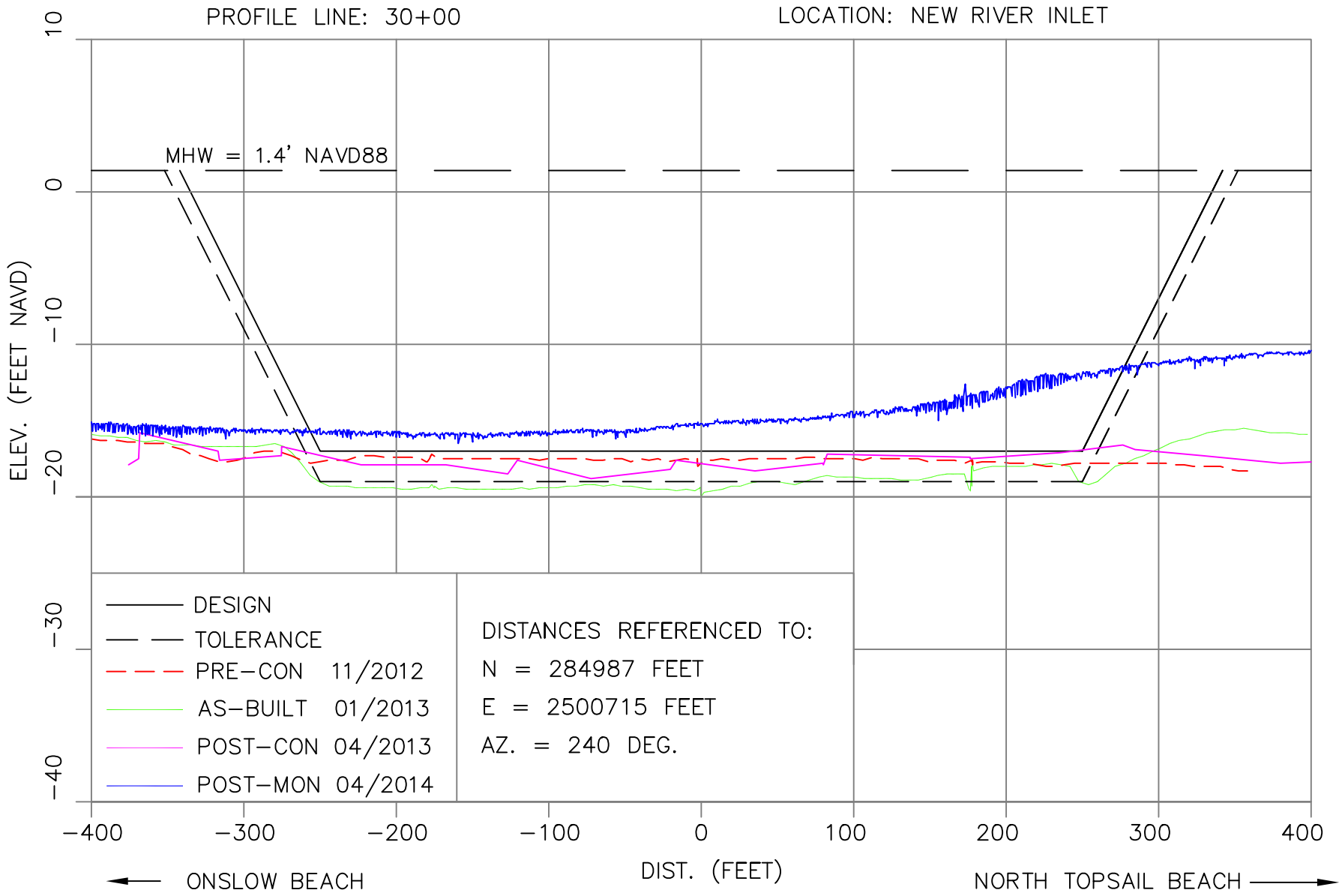
NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET: 14 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON



SHEET: 15 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	**COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.** 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	**NORTH TOPSAIL BEACH, NORTH CAROLINA** **NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION** **NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON**



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16 OF 18	151859	ATP	6/27/2014

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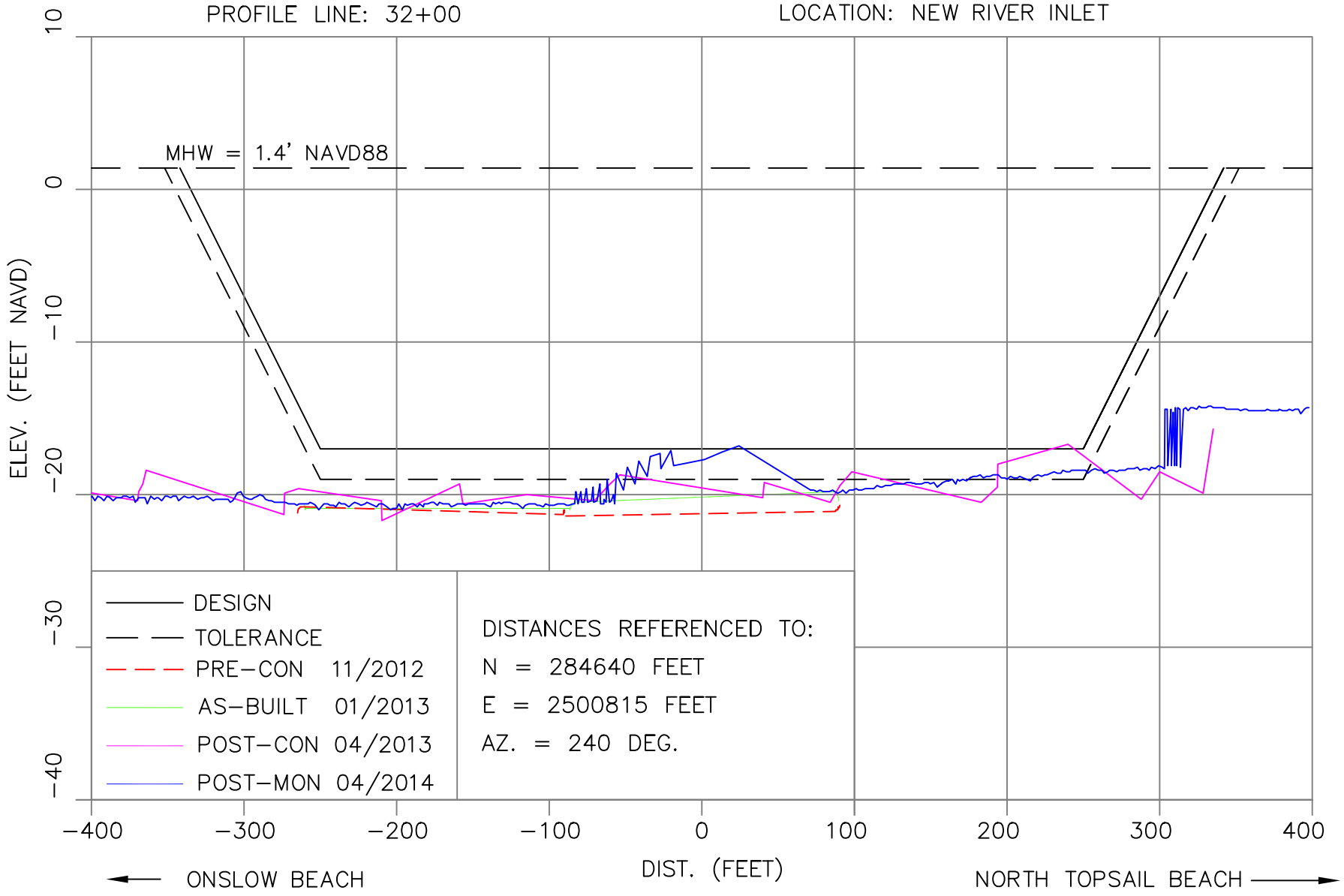
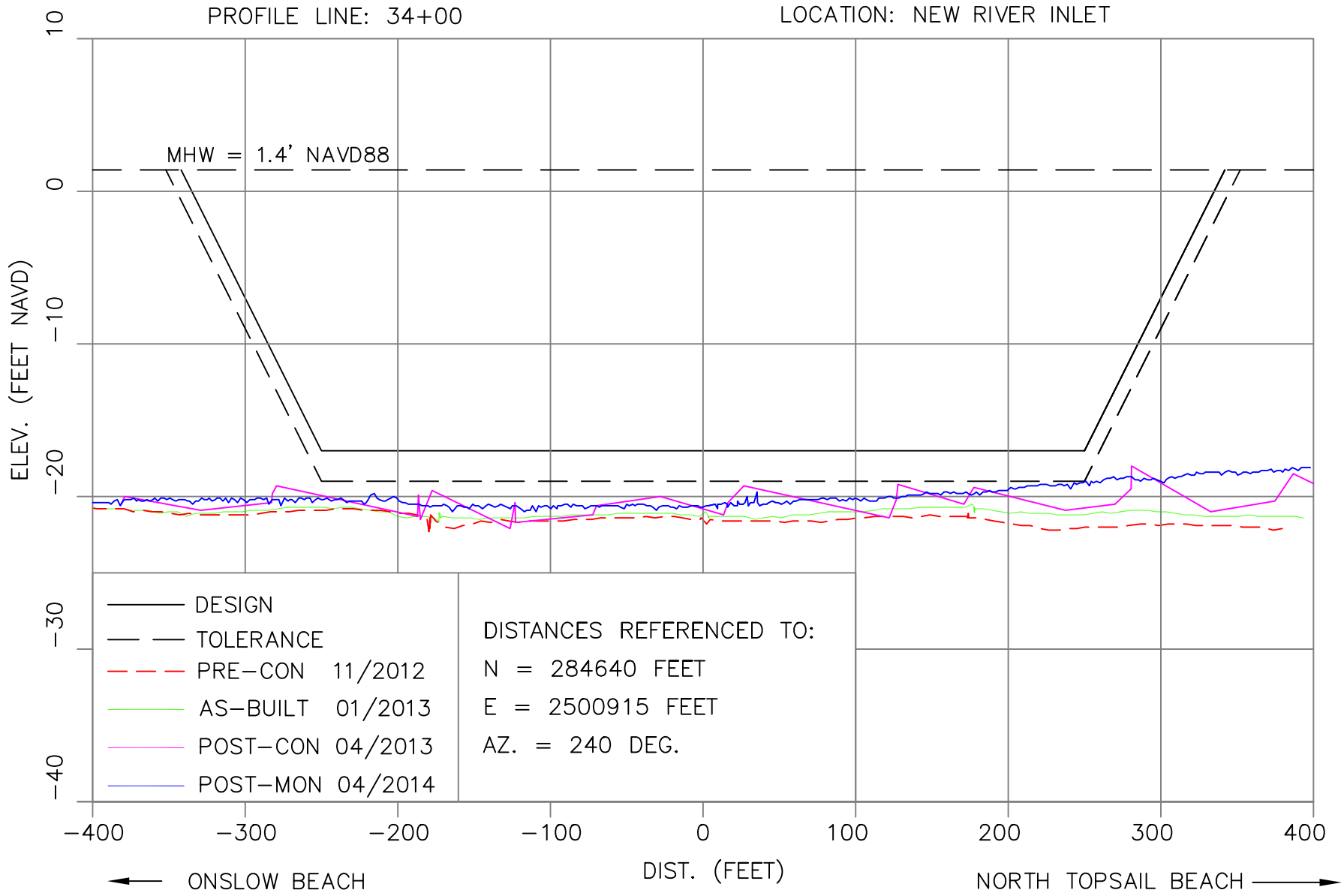


SHEET: 17 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	**COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.** 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	**NORTH TOPSAIL BEACH, NORTH CAROLINA** **NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION** **NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON**

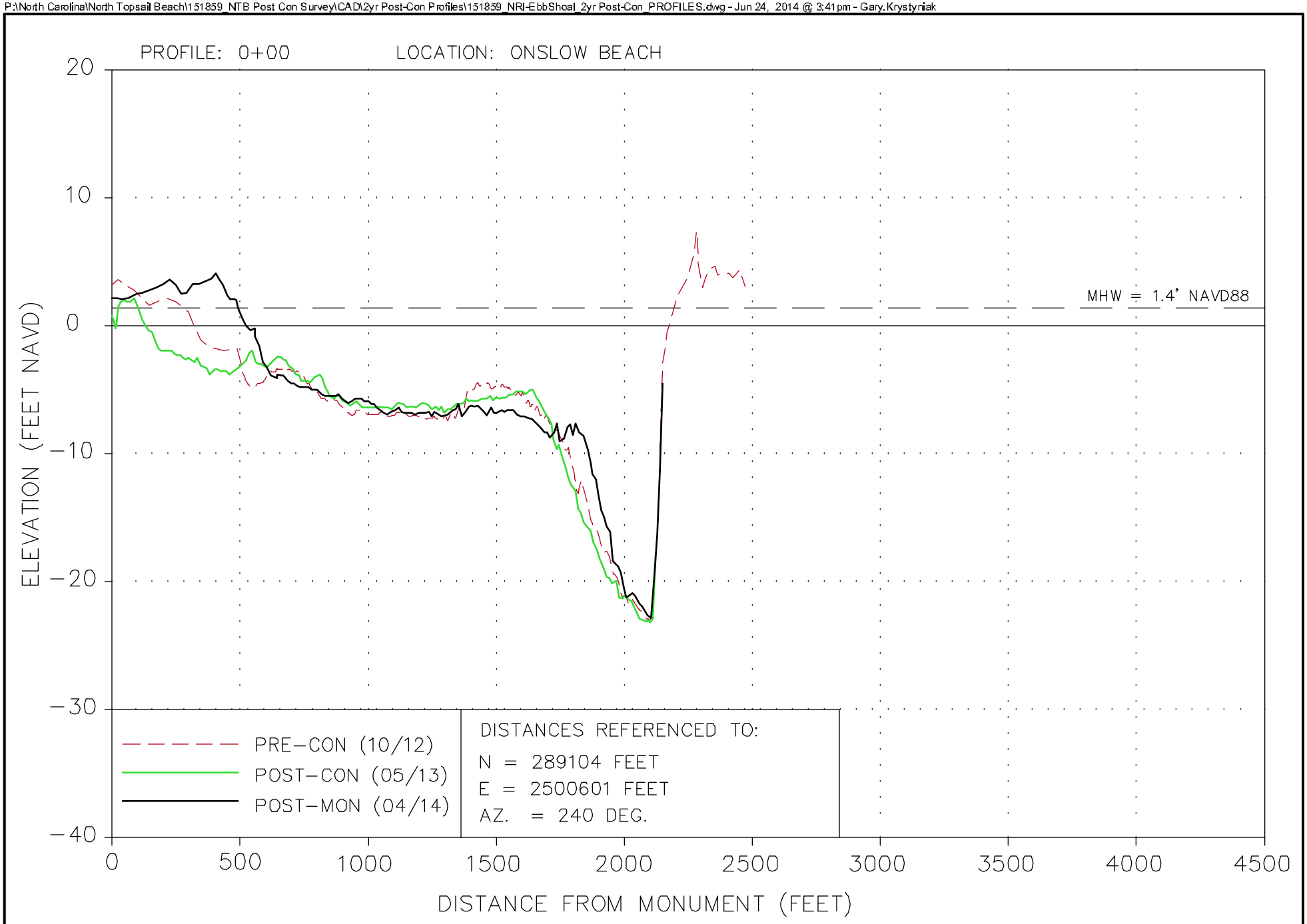


SHEET: 18 OF 18	COMM NO.: 151859	BY: ATP	DATE: 6/27/2014	COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, NC 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE:	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET POST-CON MONITORING PROFILE COMPARISON

APPENDIX C

ONSLOW BEACH INLET SHOULDER - EBB SHOAL PROFILES

P:\North Carolina\North Topsail Beach\151859_NTB Post Con Survey\CAD\2yr Post-Con Profiles\151859_NRI-EbbShoal_2yr Post-Con_PROFILES.dwg - Jun 24, 2014 @ 3:41pm - Gary.Krystyniak



SHEET: 1 OF 7	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET EBB SHOAL AND OCEAN BAR PROFILES

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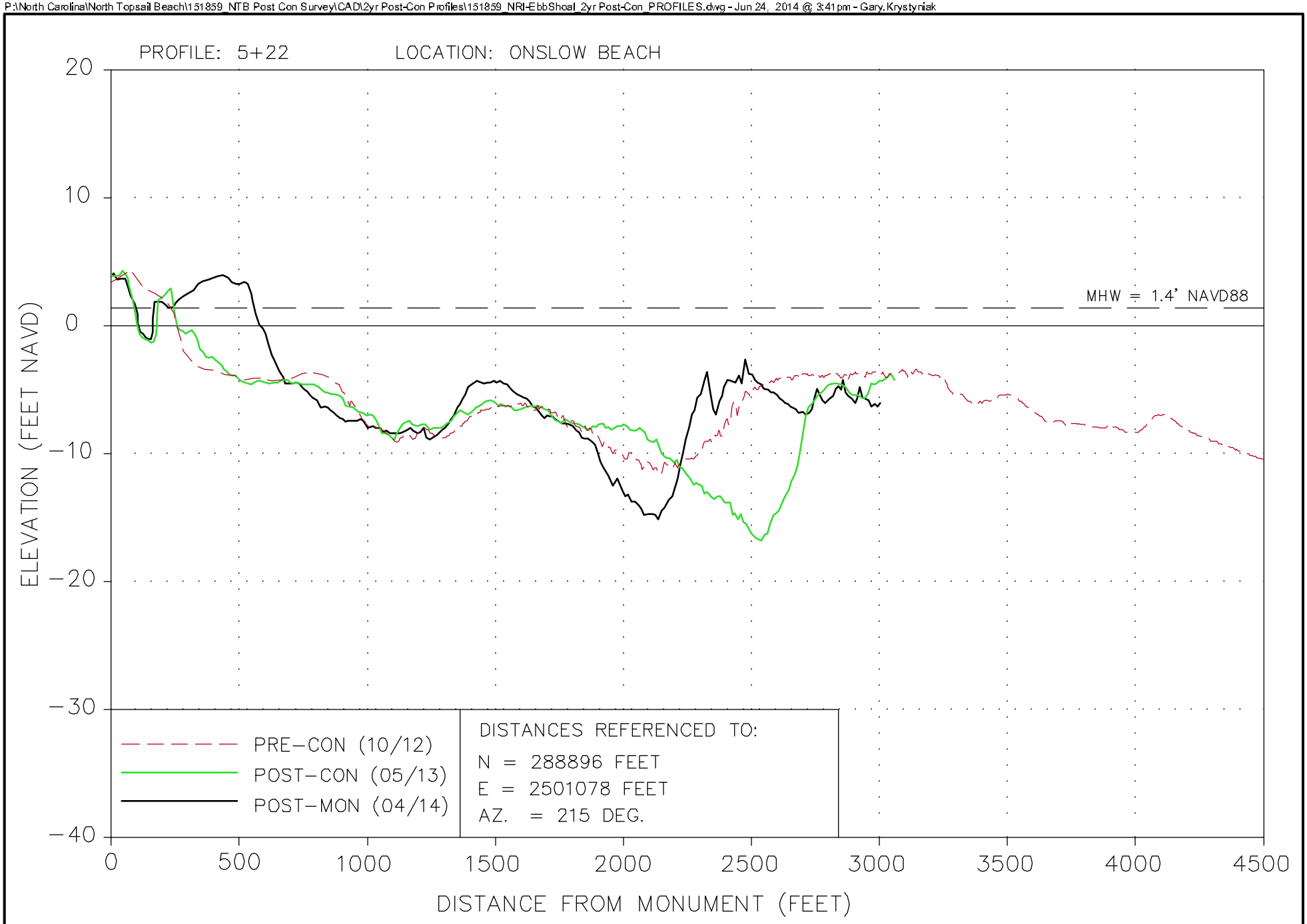

SHEET:	COMM NO.:	BY:	DATE:		TITLE:
2 OF 7	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET EBB SHOAL AND OCEAN BAR PROFILES

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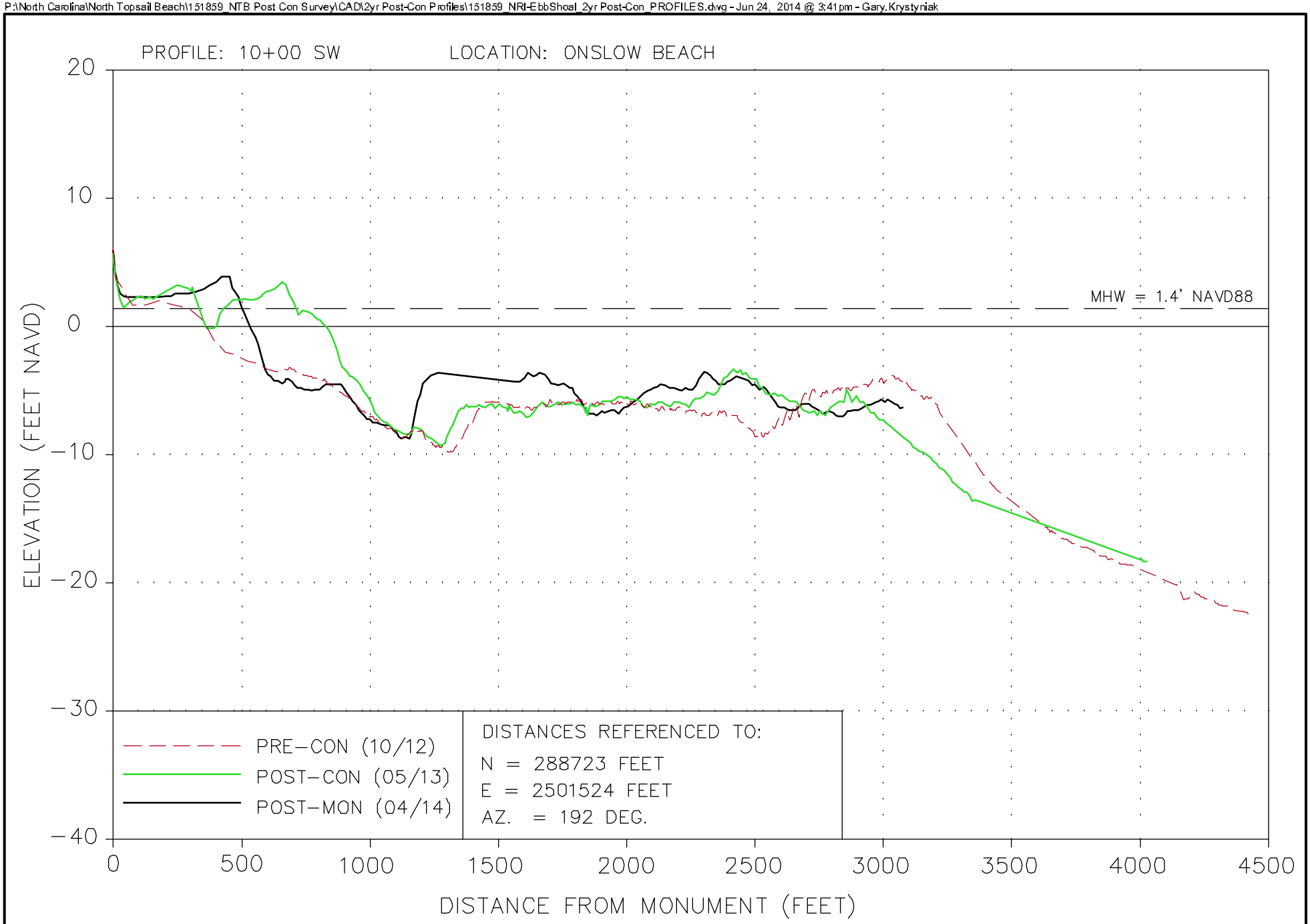

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3 OF 7	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET EBB SHOAL AND OCEAN BAR PROFILES

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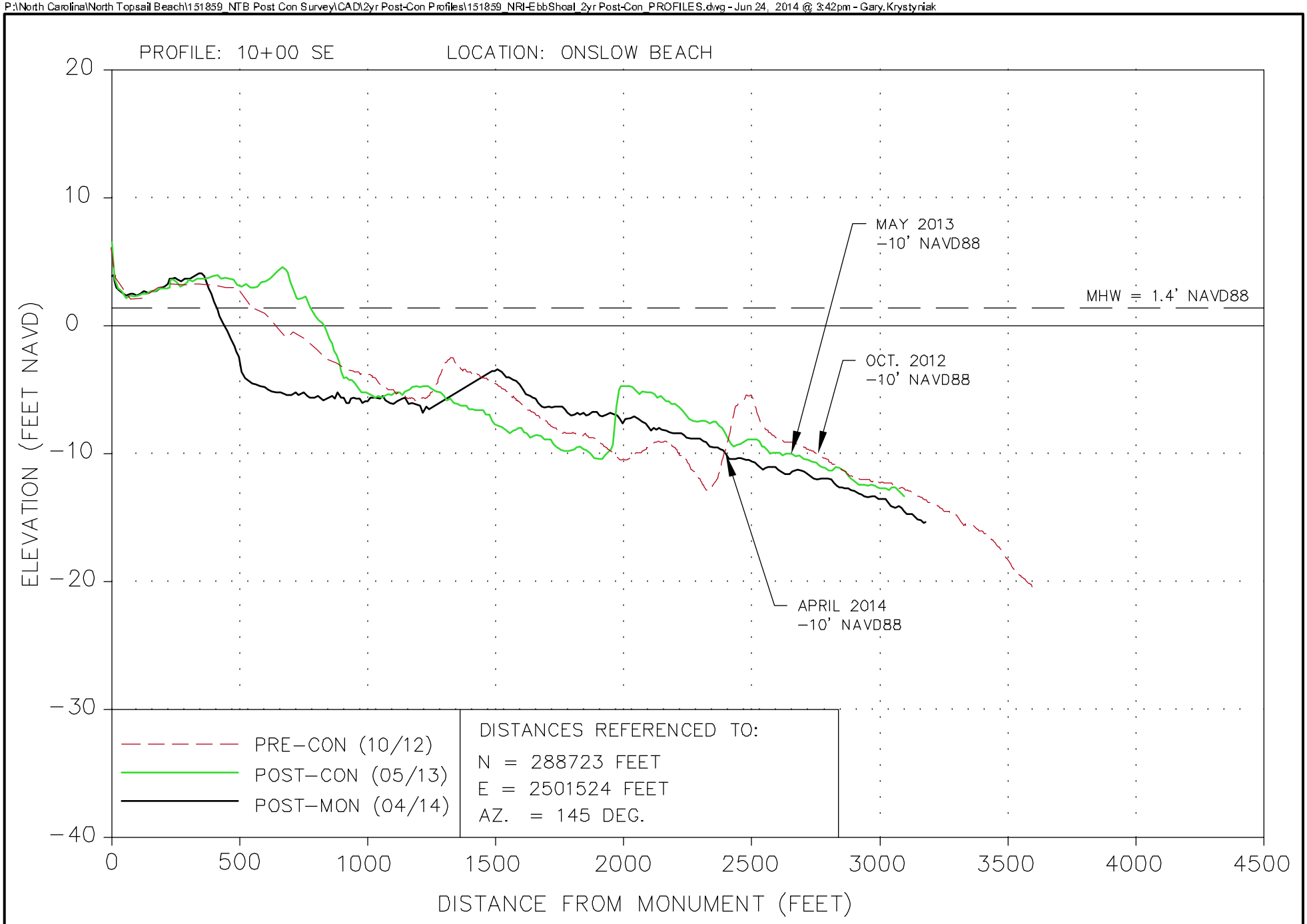

SHEET:	COMM NO.:	BY:	DATE:		TITLE:
4 OF 7	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET EBB SHOAL AND OCEAN BAR PROFILES

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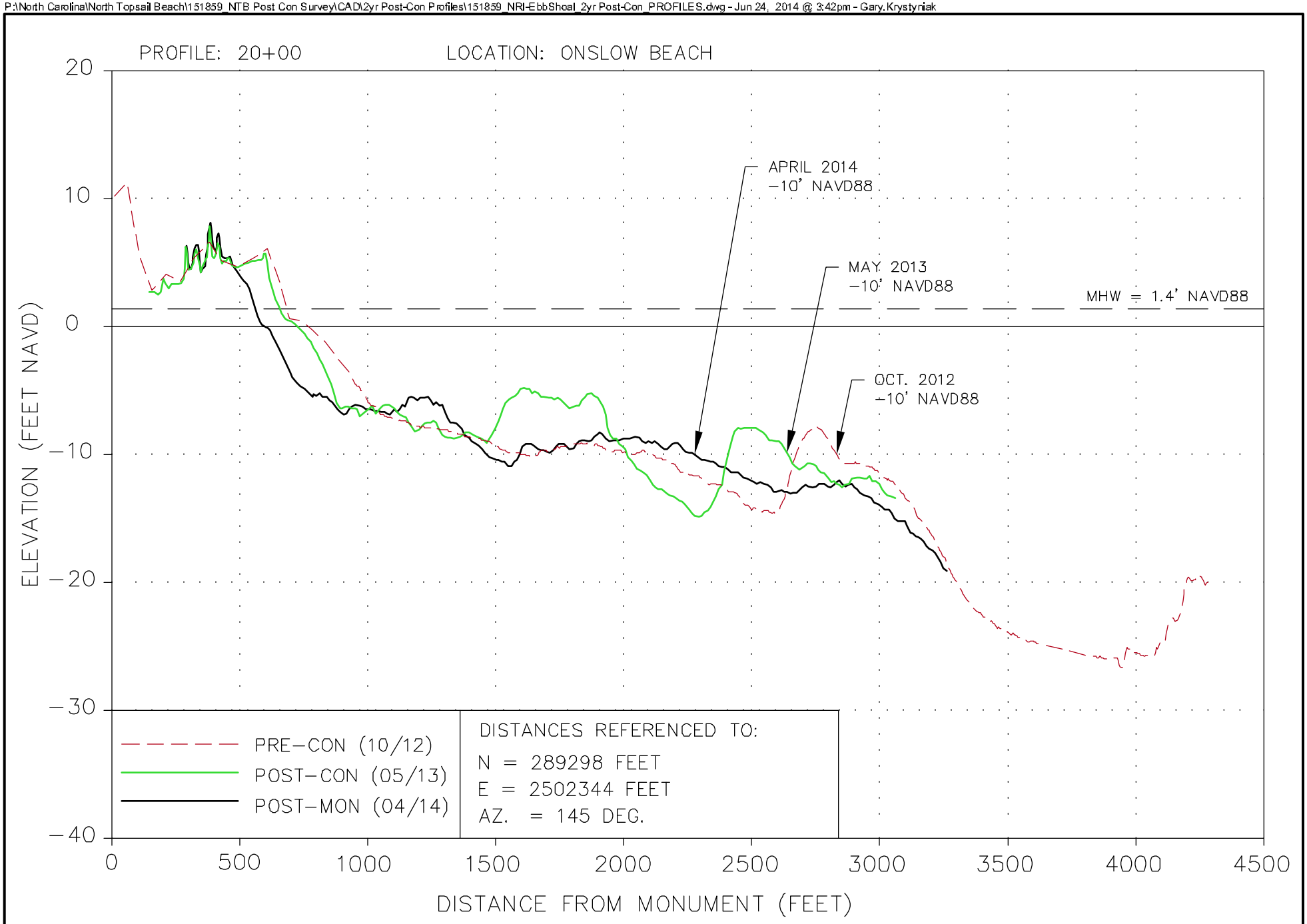

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5 OF 7	151859	GK	6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION NEW RIVER INLET EBB SHOAL AND OCEAN BAR PROFILES

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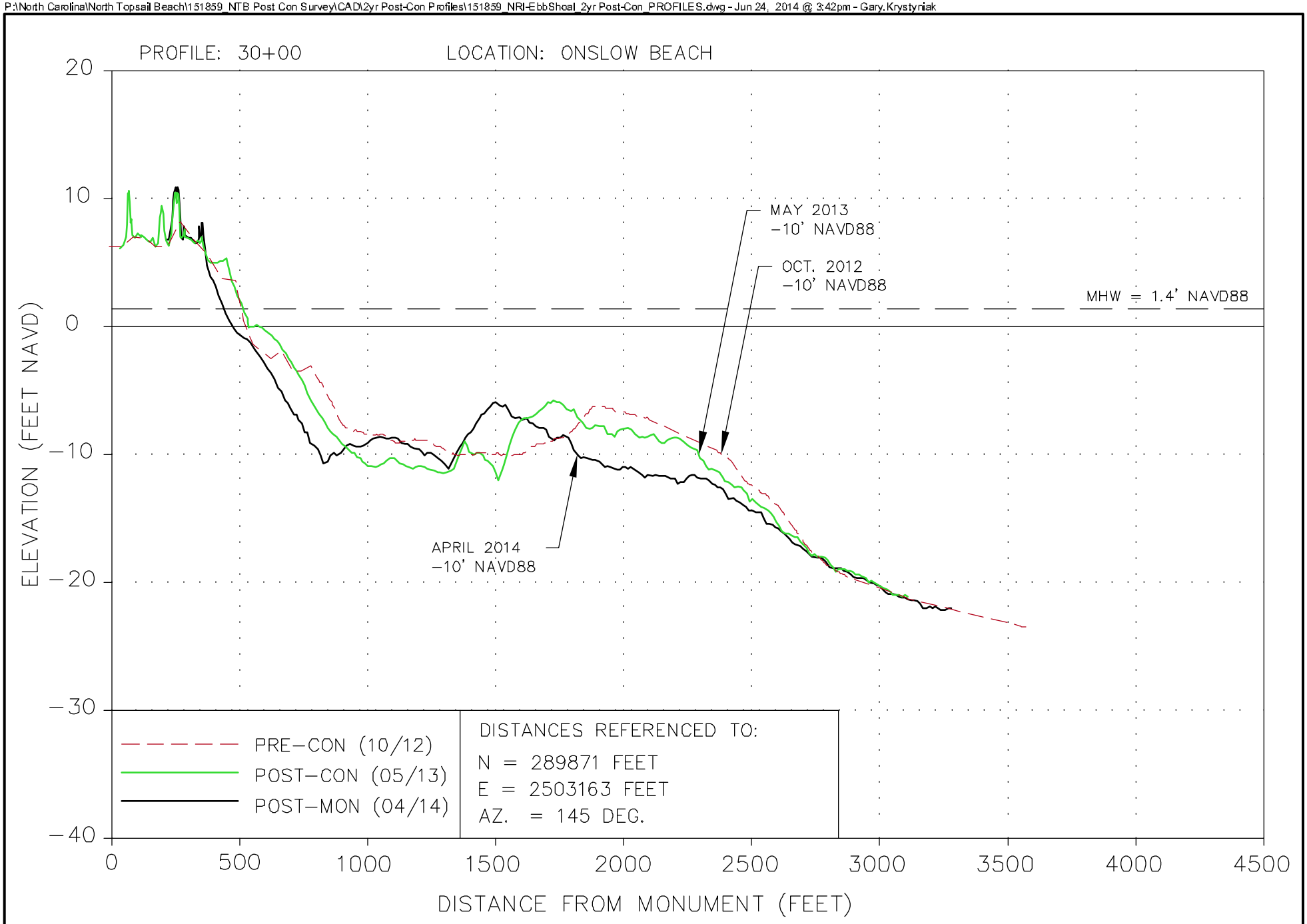

SHEET: 6 OF 7
COMM NO.: 151859
BY: GK
DATE: 6/23/14

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TITLE:

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NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
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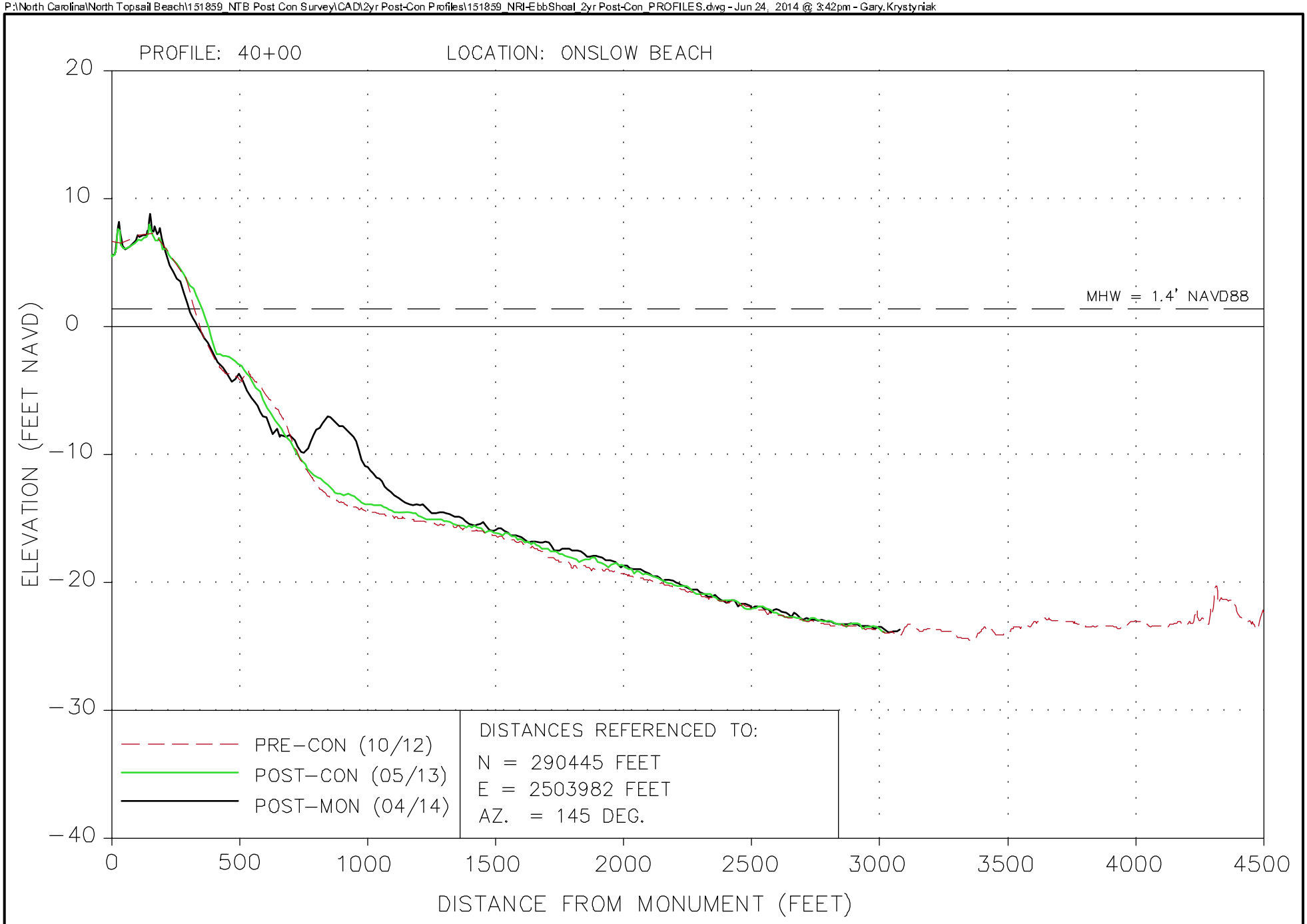

SHEET: 7 OF 7
COMM NO.: 151859
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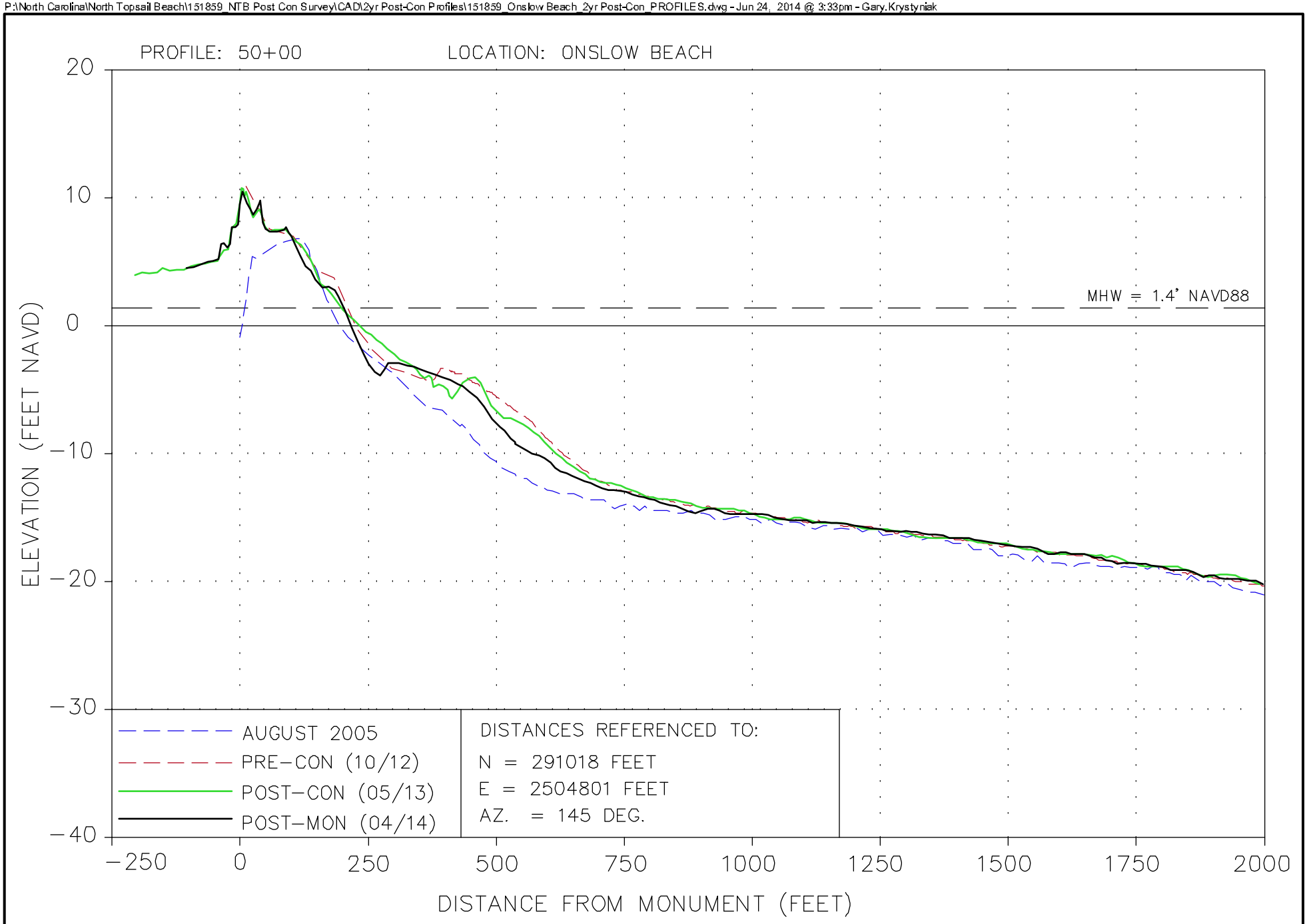
TITLE:

NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
NEW RIVER INLET EBB SHOAL AND OCEAN BAR PROFILES

APPENDIX D

ONSLOW BEACH MONITORING BEACH PROFILES

P:\North Carolina\North Topsail Beach\151859_NTB Post Con Survey\CAD\2yr Post-Con Profiles\151859_Onslow Beach_2yr Post-Con_PROFILES.dwg - Jun 24, 2014 @ 3:33pm - Gary.Krystyniak



SHEET: 1 OF 6
COMM NO.: 151859
BY: GK
DATE: 6/23/14

COASTAL PLANNING & ENGINEERING, INC.
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PH. (910) 791-9494
FAX (910) 791-4129

TITLE:
NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
ONSLOW BEACH PROFILE COMPARISON PRE-CONSTRUCTION MONITORING

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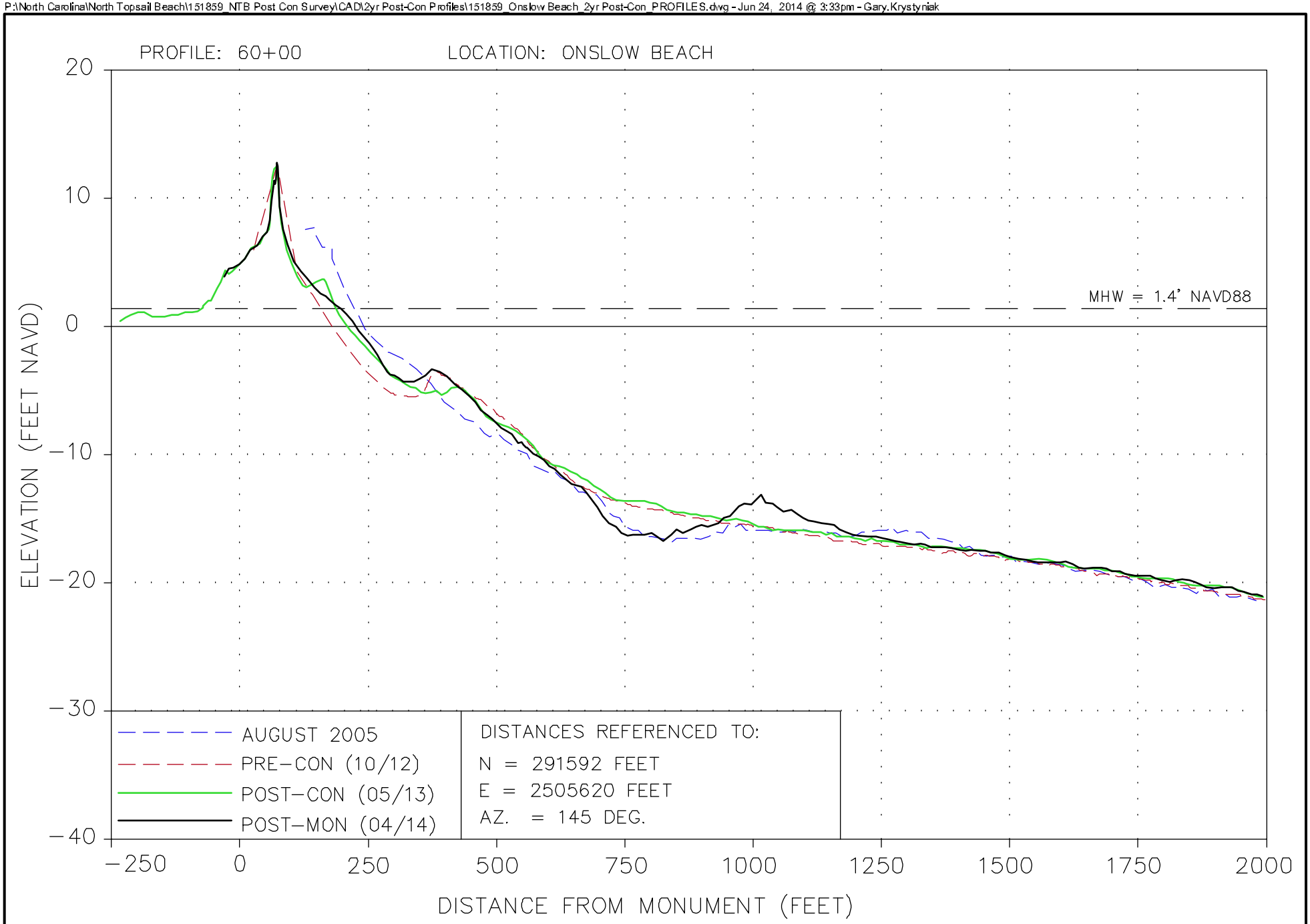

SHEET: 2 OF 6	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION ONSLOW BEACH PROFILE COMPARISON PRE-CONSTRUCTION MONITORING

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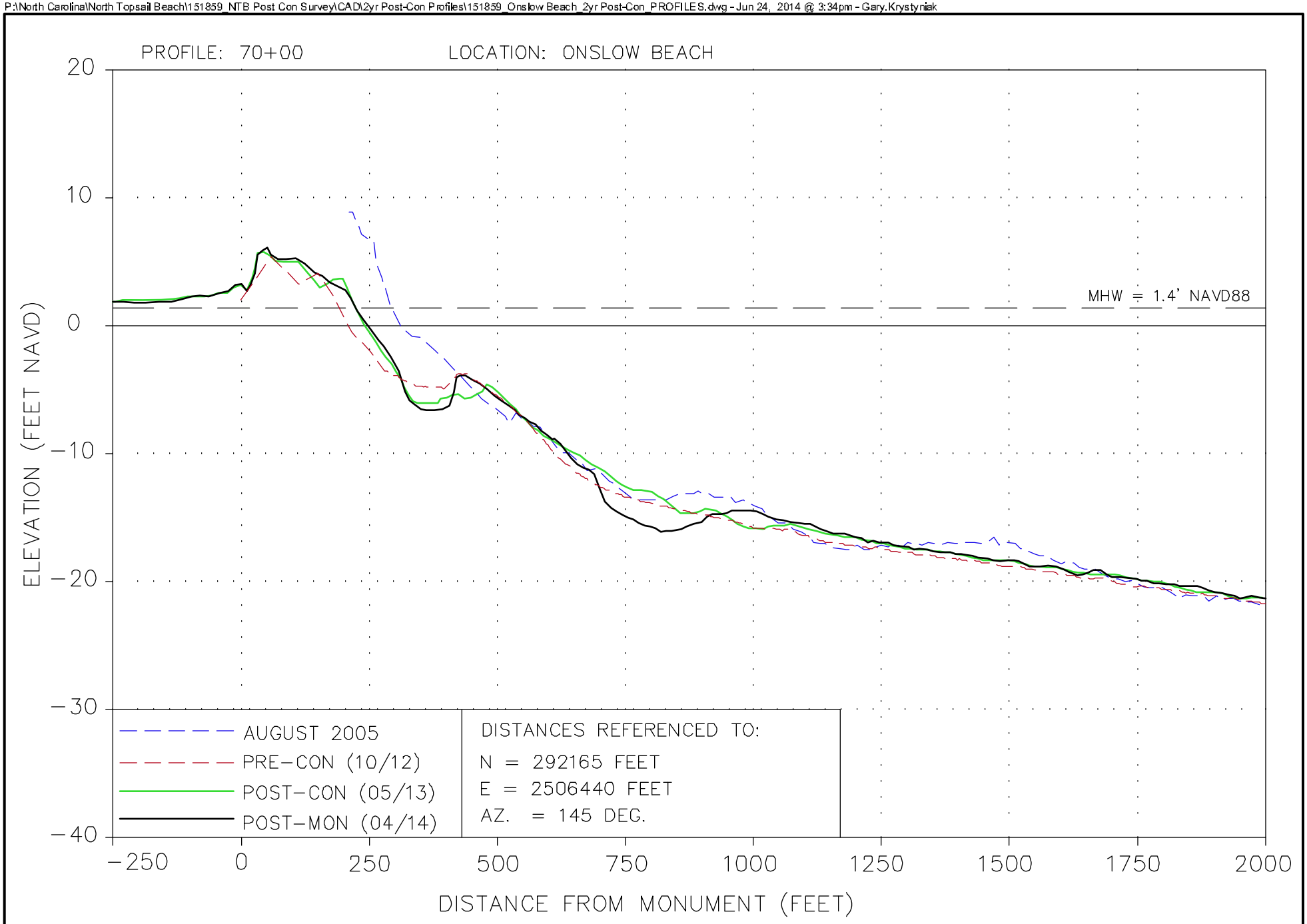

SHEET: 3 OF 6	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION ONSLOW BEACH PROFILE COMPARISON PRE-CONSTRUCTION MONITORING

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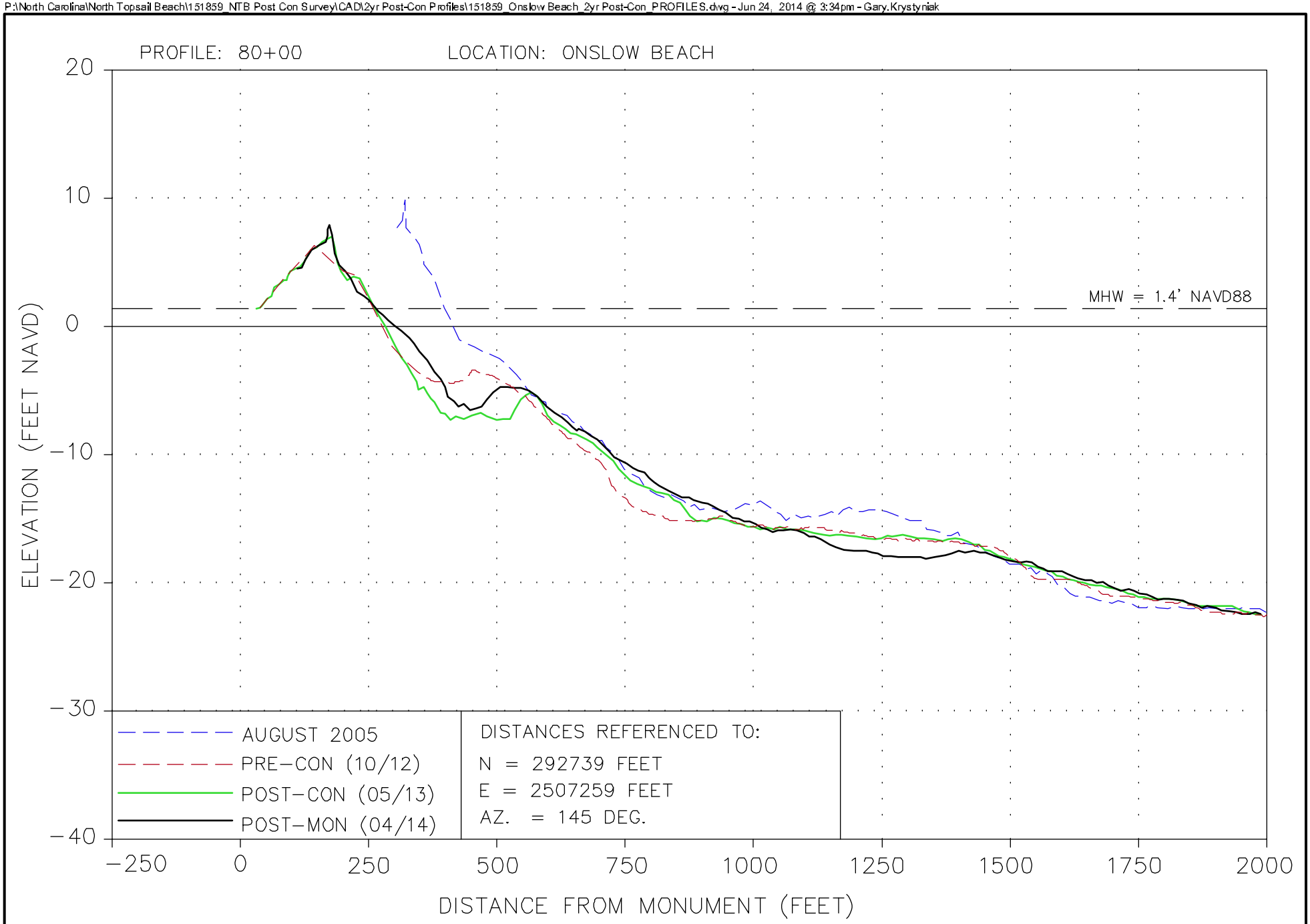
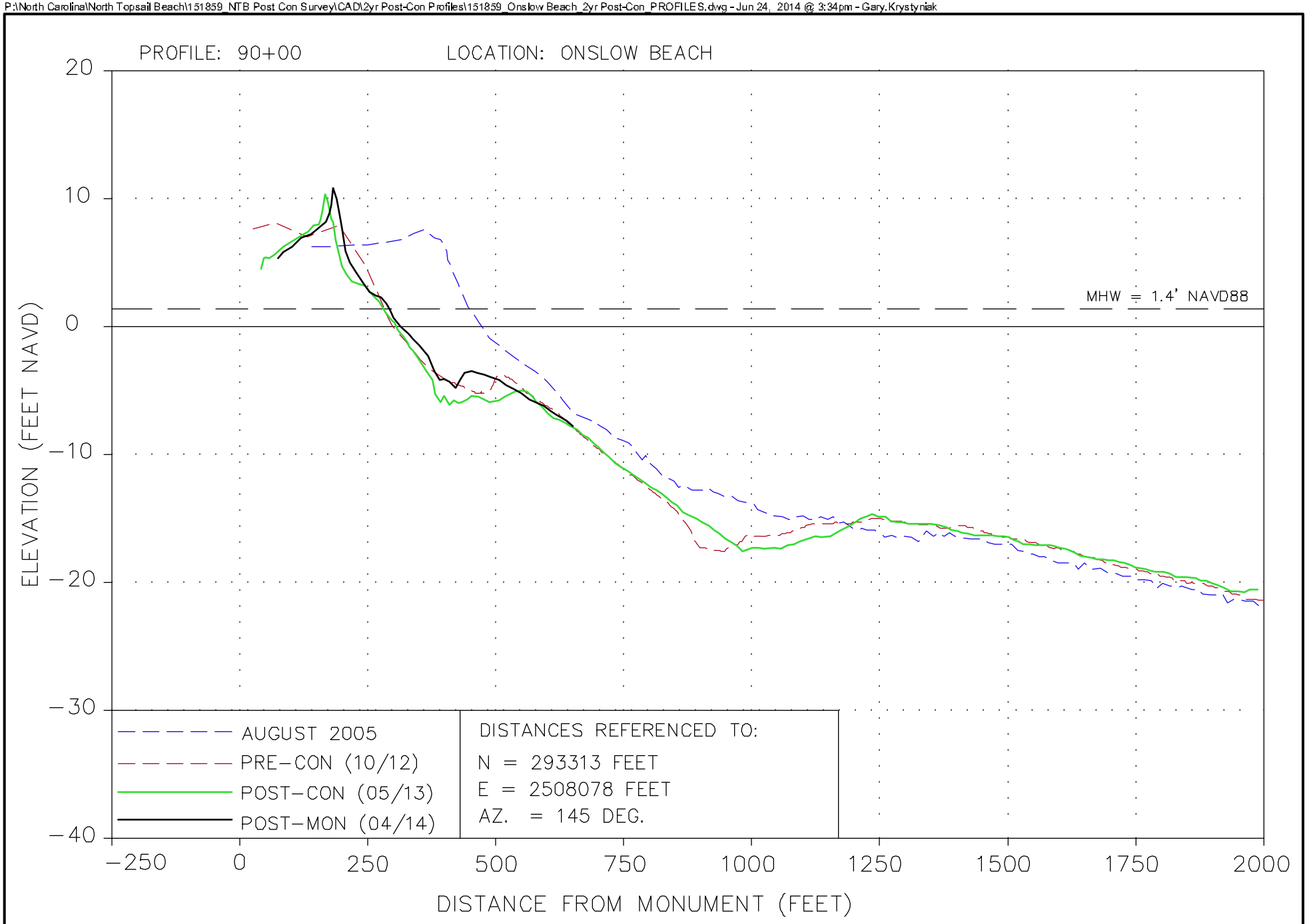


SHEET: 4 OF 6	COMM NO.: 151859	BY: GK	DATE: 6/23/14	COASTAL PLANNING & ENGINEERING, INC. OF NORTH CAROLINA, INC. 4038 MASONBORO LOOP RD. WILMINGTON, N.C. 28409 PH. (904) 791-9494 FAX (904) 791-4129	TITLE: NORTH TOPSAIL BEACH, NORTH CAROLINA NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION ONSLOW BEACH PROFILE COMPARISON PRE-CONSTRUCTION MONITORING

P:\North Carolina\North Topsail Beach\151859_NTB Post Con Survey\CAD\2yr Post-Con Profiles\151859_Onslow Beach_2yr Post-Con_PROFILES.dwg - Jun 24, 2014 @ 3:34pm - Gary.Krystyniak



SHEET: 6 OF 6
COMM NO.: 151859
BY: GK
DATE: 6/23/14

COASTAL PLANNING & ENGINEERING, INC.
OF NORTH CAROLINA, INC.
4038 MASONBORO LOOP RD.
WILMINGTON, N.C. 28409
PH. (904) 791-9494
FAX (904) 791-4129

TITLE:
NORTH TOPSAIL BEACH, NORTH CAROLINA
NEW RIVER INLET CHANNEL REALIGNMENT AND BEACH RESTORATION
ONSLOW BEACH PROFILE COMPARISON PRE-CONSTRUCTION MONITORING

APPENDIX E

SUMMARY OF MEAN HIGH WATER (MHW) LOCATIONS

Table 1 – Survey Control for Onslow Beach

Profile	Easting	Northing	Azimuth	April 2014 Range to MHW EL +1.4 ft. (NAVD88)
0+00	2,500,601.00	289,104.10	240°	491.0
5+22	2,501,077.50	288,895.70	215°	558.7
10+00 SW	2,501,524.20	288,722.90	192°	501.8
10+00 SE	2,501,524.20	288,722.90	145°	410.4
20+00	2,502,343.57	289,297.45	145°	560.9
30+00	2,503,162.80	289,871.10	145°	438.7
40+00	2,503,981.91	290,444.63	145°	303.0
50+00	2,504,801.06	291,018.21	145°	202.1
60+00	2,505,620.21	291,591.79	145°	197.3
70+00	2,506,439.36	292,165.36	145°	223.6
80+00	2,507,258.52	292,738.94	145°	265.2
90+00	2,508,077.67	293,312.51	145°	292.2

1. Coordinates Reference NC State Plane NAD83 ft.

Table 2 – Survey Control for North Topsail Beach

Profile	Easting	Northing	Azimuth	April 2014 Range to MHW EL +1.4 ft. (NAVD88)
1170+00	2,498,578.40	287,875.00	90°	153.5
1165+00	2,498,582.32	287,219.68	90°	672.3
1163+00	2,498,583.99	286,929.08	90°	463.7
1160+00	2,498,586.24	286,564.36	130°	130.6
1155+00	2,498,174.95	286,232.66	135°	100.9
1150+00	2,497,763.00	285,901.00	135°	110.7
1145+00	2,497,274.34	285,679.04	139°	154.8
1140+00	2,496,785.00	285,457.10	139°	175.8
1135+00	2,496,316.35	285,255.20	145°	-
1130+00	2,495,847.70	285,053.30	145°	212.7
1125+00	2,495,378.10	284,850.85	150°	-
1120+00	2,494,908.50	284,648.20	150°	226.1
1115+00	2,494,471.70	284,421.30	150°	-
1110+00	2,494,034.90	284,194.20	150°	209.1
1105+00	2,493,595.06	283,946.33	150°	-
1100+00	2,493,155.20	283,698.50	150°	203.4
1095+00	2,492,713.91	283,467.27	150°	-
1090+00	2,492,272.60	283,236.10	150°	230.6
1080+00	2,491,406.50	282,735.00	150°	211.0
1070+00	2,490,531.60	282,253.20	150°	174.8
1060+00	2,489,653.30	281,776.90	150°	165.0
1050+00	2,488,784.60	281,282.40	150°	159.5
1040+00	2,487,919.90	280,782.70	150°	126.8

1. Coordinates Reference NC State Plane NAD 83 ft.

Town of North Topsail Beach

Daniel Tuman, Mayor
Tom Leonard, Mayor Pro Tem
Aldermen:
Suzanne Gray
Don Harte
Richard Macartney
Richard Peters

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Town Clerk

Winner of 2014 Best Restored Beaches Award

September 26, 2014

Mr. Jason Dail
Division of Coastal Management
North Carolina Department of Environment
and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Re: Town of North Topsail Beach, Application for CAMA Major Development Permit including Excavation and Fill (Forms DCM-MP-1 and DCM-MP-2)

Dear Mr. Dail:

On behalf of the Town of North Topsail Beach, I am submitting an application for a Major Permit under the Coastal Area Management Act (see attachments).

The Town of North Topsail Beach completed Phase 1 of its beach and inlet management plan in February 2013. Phase 1 included relocating the main bar channel of New River Inlet to a preferred position and alignment and deposition of the dredged material along approximately 7,730 feet of the town's shoreline south of New River Inlet. The intent of the bar channel relocation was to induce a build-up of material on the south side of New River Inlet which would eventually result in accretion along the northern portion of the town's shoreline.

The response of New River Inlet to the new channel will take some time. Since completion of Phase 1, the area north of the Topsail Reef Condominium has experienced inordinate erosion with most of the fill material placed in this area being eroded. The loss of the fill material has placed the homes north of Topsail Reef in imminent danger requiring interim erosion response measures to protect threatened homes until such time the inlet channel can be maintained and the relocated channel begins to have a positive impact on the condition of the shoreline along the extreme north end of Town.

As you are aware, we submitted an application for a sand tube revetment on August 22nd; however, due to continued erosions in the project area a single stacked sand tube would not achieve the preferred elevation of 12.0 ft. NAVD88. Given the change in conditions, we are re-submitting our application for a geotextile revetment to be constructed out of stacked sand bags as opposed to a single stack sand tube.

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Our beach management plan calls for re-nourishment of Phase 1 in the winter of 2016/2017. Our existing permits would not allow for dredging of the channel or placement of sand in Phase 1 prior to this time. Without the ability to dredge the inlet channel, there is no other economical source of beach nourishment material that could provide the volume of material that has characteristics needed to protect the area for at least the next 2 years.

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2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
Fax (910) 328-4508

Given the severity of the erosion, the use of conventional 20-foot wide by 6-foot high sandbag revetments as presently allowed by the CAMA (15A NCAC 7H.1700) would not be able to protect the threatened homes for the required 2 year period. As evidence of this, prior to the placement of the Phase 1 beach fill, most of the affected property owners had attempted to protect their property using the conventional sandbag design but all of the installations failed primarily due to undermining of the seaward edge of the bags (Figure 1). The structures and sandbags shown in Figure 1, which were located seaward of the present line of structures north of the Topsail Reef Condominiums, no longer exist.

The Topsail Reefs HOA located just south of the proposed project area constructed a revetment similar to that being proposed in our application (Figure 2). This structure has performed well thus far, which lends itself to the construction of a similar structure along the northernmost section of Phase 1 where erosion has been the most severe.

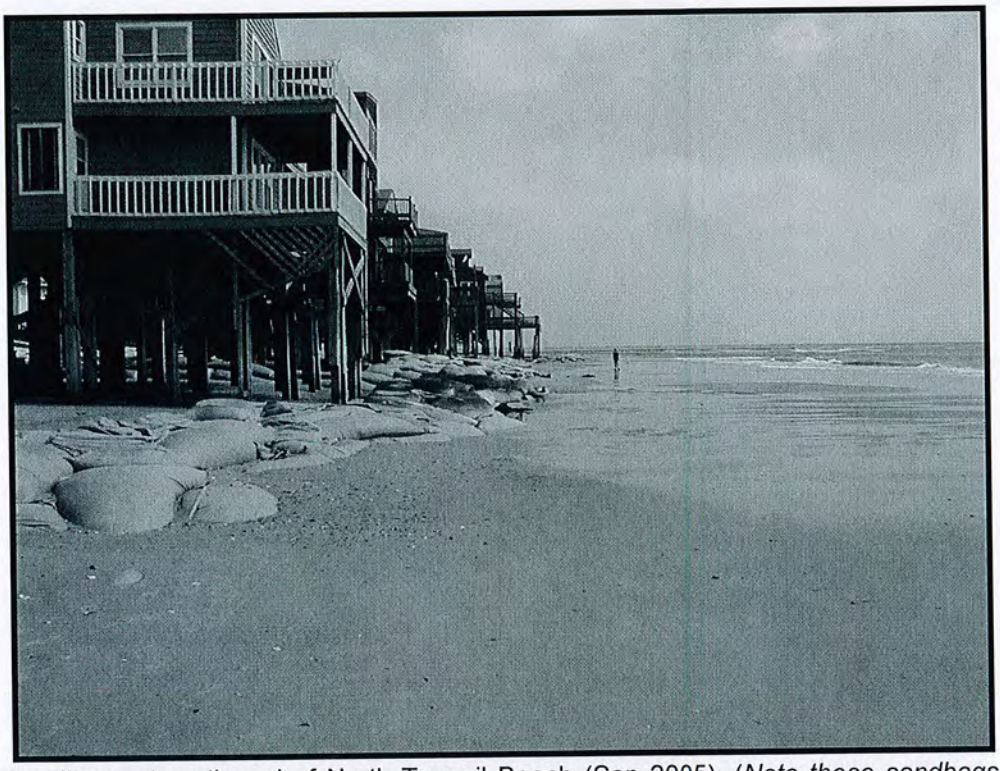

Figure 1. Sandbags at north end of North Topsail Beach (Sep 2005). (*Note these sandbags no longer exist as they fronted buildings that were located seaward of the present structures north of Topsail Reef that were subsequently demolished.)*

Figure 2. Sandbags revetment at Topsail Reefs Building 1 (Sep 2014).

Based on information obtained from the DCM website, three structures north of Topsail Reef are listed as having existing sandbags. However, as shown in Photo 1 in the attached Project Narrative, none of the bags were visible prior to the construction of Phase 1 of the North Topsail Beach project. The existing sandbags are reportedly located at 2332, 2334, and 2368 New River Inlet Road (State Rd. 1568).

As an alternative to the conventional sandbag revetment (3 – 2 – 1 stacked configuration), the Town of North Topsail Beach proposes to install a sand bag revetment structure consisting of a stacked configuration of sand filled geotextile bags with a crest elevation of approximately +12 feet NAVD. Sand to construct the revetment would be obtained from the sand spit north of the project area and adjacent to New River Inlet and supplemented by sand from a borrow site located off the island. The bags proposed for use will have a filled height of approximately 1.67 ft., a width of approximately 4.0 ft. and lengths ranging from 9.0 ft. to 14.0 ft. The total bottom width of the sand bag installation would be about 42 feet. Details of the proposed sand bag structure are provided in the attached permit application forms.

Documents attached to this letter include:

- Completed application forms DCM-MP-1 and DCM-MP-2;
- Project and contact information;
- Application fee of $475;
- List of names and addresses of adjacent property owners; and
- Vicinity map, plan view, and cross section plats

A copy of the application and letter of notification has been submitted to the adjacent property owners (shown on the attached list) by certified mail. The letter of notification and postal receipts are attached as proof of notification. Signed return receipts will be submitted as they become available.

Please contact me at 910.328.1349 Ext. 26 (office) or 910.367.3961 (cell), or Mr. Tom Jarrett and or Mr. Ken Willson with Coastal Planning & Engineering of North Carolina at 910.791.9494 (office) or 910.264.2166 (cell - Tom)/910.443.4471 (cell – Ken) should you have any questions or need additional information.

Sincerely,

Stuart Turille

Stuart Turille, Town Manager
North Topsail Beach

Cc: Dan Tuman, Mayor of North Topsail Beach
Tom Jarrett, CPE-NC
Ken Willson, CPE-NC
Mickey Sugg, USACE
Doug Huggett, NCDCM
Jonathan Howell, NCDCM

Attachment 4.
List of Adjacent Property Owners:

4. LIST OF ADJACENT PROPERTY OWNERS

SOCHIN JONATHAN L & NANCY K FR
52 FEATHER BED LN
SOUTH HERO VT 05486

CHALMIN JEAN P & EILEEN
33 GOLDEN EYE LN
PORT MONMOUTH NJ 07758

MARTIN EDWARD B & GAIL H
703 OLD AMWELL RD
HILLSBOROUGH NJ 08844

HORNBECK JAMES R & ELIZABETH M
PO BOX 249
WAWARSING NY 12489

COZY HOMES OF NORTH CAROLINA INC
9450 WEHRLE DR
CLARENCE NY 14031 1826

MCCARTHY EDWARD F & MARY TRUST
2022 WATERLOO RD
BERWYN PA 19312

NIELSEN WAYNE F & MARGARET S
19471 YOUNGS CLIFF RD
STERLING VA 20165

VANN GEORGE C & DIANN L
12926 COUPLES PL
WALDORF MD 20601

QUINN PATRICK & THOMAS
8287 CHOPTANK RD
PASADENA MD 21122

CONEY ROGER TRUSTEE
7874 PROMONTORY CT
VIENNA VA 22027

WEINSTEIN SYDNEY T & OTHERS
11936 HOLLY BRANCH CT
GREAT FALLS VA 22066

JOHNSON DENICE V & DAVID W
3521 BLITHEWOOD DR
RICHMOND VA 23225

KRUSHELNISKY KENNETH & FRANCES
1506 MONMOUTH DR
HENRICO VA 23238 4828

KREIGHBAUM WILLIAM M
100 BUCKTAIL RUN
YORKTOWN VA 23692

MILLER HUGH O & TERRY M BROWN
108 WALNUT RD
DANVILLE VA 24541

MAURAKIS TIMOTHY A & ANDREW P &
318 OAK CREEK DR
DANVILLE VA 24541

PAOLINI ALEX & PAUL HAZINSKI &
PO BOX 8848
CHARLESTON WV 25303

MILLER VICTOR D TRUSTEE
2904 FRENCH OAK AVE
THE VILLAGES FL 32163 2322

HALDEMAN DEAN W & PATRICIA S
648 EAST AVE
SHINNSTON WV 26431

GIOVINAZZO JORGE L & VALERIE L
2249 MORLOW DR
BURLINGTON NC 27215

WIFORD CYNTHIA M
55 HAMLET GROVE DR
PITTSBORO NC 27312

NEAL GEORGE III
3203 HENDERSON RD
GREENSBORO NC 27410 6032

MATHEWS JOHN J & LYNN K
3 CAUSEWAY CT
GREENSBORO NC 27455

HEID GERARD J & MARYANN
7878 QUAIL HOLLOW CT
WEST CHESTER OH 45069

TYSON STREET PARTNERS INC
120 LIVINGSTONE DR
CARY NC 27513

WILLCOX WESTMORE C & SMARANDA S
824 CHURCHILL DR
CHAPEL HILL NC 27517 3003

DOUGHERTY JAMES PATRICK & SARA MARIE
54 IDLEWOOD LN
CLAYTON NC 27527

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TEEN PATRICK A & EILEEN F
10320 GRAFTON RD
RALEIGH NC 27615

MALONE KAREN B
4727 COUNTRY LN
ROCKY MOUNT NC 27803

PROCTOR RUSSELL L III & NANCY W &
2148 JOELENE DR
ROCKY MOUNT NC 27803

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TOPSAIL REEF HOMEOWNERS ASSO
2224 NEW RIVER INLET RD
N TOPSAIL BEACH NC 28460

BOYLE EDWARD F
PO BOX 1202
SNEADS FERRY NC 28460

KOSKO JOSEPH M
2280 1 NEW RIVER INLET RD
N TOPSAIL BEACH NC 28460

BARRKATT LLC
15145 BEECH DR
LOWELL AR 72745

SULLIVAN MARK & CINDA
PO BOX 1141
SNEADS FERRY NC 28460

LEWIS SALLY K
4705 RIVER RD
MUNCIE IN 47304

POLANCO FAUSTO A JR & AMIE E
2276 1 NEW RIVER INLET RD
SNEADS FERRY NC 28460

BURNS FRED J & SYLVIA TRUSTEES
1669 NEW RIVER INLET RD
NORTH TOPSAIL BEACH NC 28460

FARLEY RICHARD J & MARGUERITE A
2300 NEW RIVER INLET RD # 1
NORTH TOPSAIL BEACH NC 28460

GRAZIOSI GENE & MICHELLE
1075 DAVENPORT PL
WINTERVILLE NC 28590

MILLER MICAH M & SIDDHARTHA M
VELANDY
4014 PENHURST DR
MARIETTA GA 30062 6161

SPERR EDWIN V & SHELBY J
3056 WALTON WAY
AUGUSTA GA 30909

Attachment 5.
Example letter notifying adjacent property owners

DATE

(Adjacent Property Owner)
xxxx New River Inlet Road
North Topsail Beach, NC 28460

Subject: Proposed Sand Bag Installation North of Topsail Reef

Dear (Property Owner):

The Town of North Topsail Beach has plans to install a geotextile sand bag revetment along approximately 1,450 feet of shoreline north of the Topsail Reef Condominiums. The north end of the structure will curve back about 50 feet making the total 1,500 ft. This proposed action is taken in response to inordinate erosion occurring north of Topsail Reef.

The sand bag would begin at the existing sandbag revetment at Building #1 of Topsail reef and would extend approximately 1,450 feet north in front of 20 residential structures north of Topsail Reef Condominiums. The top of the sand bag revetment would be at elevation 12.0 ft., which is approximately the height of the dune constructed during the Phase 1 in 2012/2013. The revetment will have a total base width of approximately 45 feet when completed.

This letter is in response to CAMA permit application requirements to notify adjacent property owners of the intended action. Adjacent property owners have the right to protest the application.

Sincerely,

Stuart Turille
Town Manager North Topsail Beach

Attachments

1. **Project Narrative**
2. **Exhibit 1 – Sand Source**
3. **Sheet 1 of 3 to Sheet 3 of 3 - Vicinity Map, Plan View, and Typical Cross-Section**
4. **List of Adjacent Property Owners**
5. **Example letter notifying adjacent property owners**

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name Town of North Topsail Beach			Project Name (if applicable) Phase 1 Emergency Sandbag Revetment
Applicant 1: First Name Stuart	MI	Last Name Turille	
Applicant 2: First Name N/A	MI N/A	Last Name N/A	
If additional applicants, please attach an additional page(s) with names listed.			
Mailing Address 2008 Loggerhead Court	PO Box N/A	City North Topsail Beach	State NC
ZIP 28460	Country Onslow	Phone No. 910 - 328 - 1349 ext. NA	FAX No. N/A
Street Address *(if different from above)* N/A	City N/A	State N/A	ZIP N/A-
Email townmanager@north-topsail-beach.org			

2. Agent/Contractor Information

Business Name Coastal Planning & Engineering of NC, PC			
Agent/ Contractor 1: First Name James	MI T.	Last Name Jarrett	
Agent/ Contractor 2: First Name N/A	MI N/A	Last Name N/A	
Mailing Address 4038 Masonboro Loop Rd	PO Box N/A	City Wilmington	State NC
ZIP 28409		Phone No. 1 910-791-9494 ext. N/A	Phone No. 2 910-264-2166 ext. N/A
FAX No. 910-791-4129		North Carolina Professional Engineering License 005545	
Street Address *(if different from above)* N/A	City N/A	State N/A	ZIP N/A -
Email James.Jarrett@cbi.com			

3. Project Location

County (can be multiple)	Street Address	State Rd. #
Onslow	New River Inlet Rd	N/A

Subdivision Name	City	State	Zip
N/A	Town of North Topsail Beach	NC	28460

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
910-328-1349 ext. N/A	N/A, , , ,

a. In which NC river basin is the project located?	b. Name of body of water nearest to proposed project
White Oak River Basin	New River Inlet and Atlantic Ocean
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. New River Inlet and Atlantic Ocean
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. Town of North Topsail Beach

4. Site Description

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.)
Approximately 1,450 feet.	198,200 sq ft (4.55 ac)
c. Size of individual lot(s) N/A, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* approximately +2 to +6 ft above NHW or roughtly +4 to +8 ft NAVD88

e. Vegetation on tract

No native dune grasses are present seaward of the erosion scarp line due to continuing erosion issues and past efforts associated with Phase 1 of the beach management project. Sand fencing and dune vegetation were installed on the artificial dune included in the beach fill design but the continuing erosion has destroyed almost all of the fencing and grass. (Photo Nos. 3 to 5 in the attached Project Narrative).

f. Man-made features and uses now on tract

There are currently 20 residential structures located along the ocean shoreline north of the Topsail Reef Condominiums. New River Inlet Road is located immediately landward of the homes. The residential structures serve as both permanent residences and rental properties.

g. Identify and describe the existing land uses adjacent to the proposed project site.

The property immediately south of the proposed sand tube installation is occupied by the Topsail Reef Condominiums. To the north, the area is undeveloped and bounded by New River Inlet. The Topsail Reef Condominiums are protected by a sandbag revetment installed in 2012.

h. How does local government zone the tract?	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable)
R-1 Residential	☒Yes ☐No ☐NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal? ☐Yes ☒No

k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. NA

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l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐ NA
m. (i) Are there wetlands on the site?	☐Yes ☒No
(ii) Are there coastal wetlands on the site?	☐Yes ☒No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☐Yes ☐No
n. Describe existing wastewater treatment facilities. N/A	
o. Describe existing drinking water supply source. N/A	
p. Describe existing storm water management or treatment systems. N/A	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?

☐Commercial
☐Public/Government
☒Private/Community

b. Give a brief description of purpose, use, and daily operations of the project when complete.

The sand bag revetment will provide temporary erosion protection for 20 residential structures north of the Topsail Reef Condominiums and some flood protection to a portion of New River Inlet Road north of Port Drive. Flooding in this area is occurring during normal spring high tides due to wave over washing the beach (Photo No. 6 in the Attached Project Narrative). A vicinity map, general layout of the proposed sand bag structure, and a typical cross-section of the revetment is provided on Sheets 1 of 3 to 3 of 3 in the Attachments.

c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored.

In order to achieve a design elevation of approximately +12 feet NAVD, the revetment will be built on top of the existing grade at the time of construction in a stacked configuration of sand bags. The material needed to fill the sand bags will be removed from the sand "spit" shown in Exhibit 1 in the Attachments and transported via dump trucks to designated locations where a hopper, or large container, will be stationed. This sand will be supplemented with material from an off-island borrow area as needed. The hopper and associated pumps and filling equipment will be stationed within the area to be disturbed as identified in Figure B on Sheet 2 of 3 in the Attachments. As the sand bags are filled the hopper and associated pumps used to create the slurry within the hopper will be moved. Multiple sand bags can be filled from one hopper location; however, it is anticipated that the hopper and pumps will need to be moved as the work progresses. The sand from the borrow site will be placed into the hopper. A pump will be used to draw water from the ocean and discharge it into the hopper. The sand/water "slurry" in the hopper will then be pumped into the sand bags. No open "pit" will be created as all of the pumping will be contained within the hopper and discharged into the sand bags. Prior to filling the bags, bulldozers and frontend loaders will be used to grade the area prior to placement of the sand bags and will maneuver the sand bags into position. All work will be performed above the NHW line. A temporary berm will be formed on the seaward side of the work area and will provide a buffer from wave action. The existing material within the footprint of where the sand bags will be placed will be used to create the berm. The temporary berm will also inhibit any direct discharge of water from the work area back into the ocean. The bulldozer will be on standby during sand bag placement and once the bags have been filled will be used to flatten out the temporary berm and final dress the area.

d. List all development activities you propose.

The single purpose of the project is to install the temporary sand bag revetment in the area fronting the 20 residential structures north of the Topsail Reef Condominiums.

e. Are the proposed activities maintenance of an existing project, new work, or both? A total of 15 sandbag structures have been installed along the north end of North Topsail Beach north of Topsail Reef. Due to the erosion this area has experienced in recent years, only three of the 15 sandbag structures that have been installed are currently in place in front of existing residences. The remainder of the standard size sandbag structures permitted in this area (3-2-1 stacked structure) have either been removed or were installed at residential structures that were seaward of the current row of oceanfront homes and no longer exist. Although there have been sandbag structures installed in this area in the past, 17 of the 20 residences proposed to be protected by the emergency sand bag revetment do not have sandbag structures installed in front of them. The three remaining sandbag revetments, located at 2332, 2334, and 2368 New River Inlet Rd. (State Rd. 1568) have been buried and are not presently visible as discussed in the attached Project Narrative.	New Work
f. What is the approximate total disturbed land area resulting from the proposed project? The sand bag revetment would cover approximately 1,450 linear feet of ocean shoreline with a 50-foot wingwall or tieback on the north end (Sheet 2 of 3 in the Attachments). Installation will disturb an area about 60 feet wide resulting in a total disturbed area of approximately 2.2 acres. Construction activities landward of the sand bags, i.e. placement and filling of hopper between the existing residences and areas between residences and sand bags will disturb approximately 1.4 acres. Excavation of material from the sand spit on the north end of the island will disturb approximately 5.0 acres. The total disturbed area will be approximately 8.6 acres.	Approximately 8.6 ☐Sq.Ft or ☒Acres
g. Will the proposed project encroach on any public easement, public access way or other area that the public has established use of? The sand bag structure will cover the area from the front of the 20 residential structures and extend approximately 45 ft. seaward. This area is changing dramatically day to day but based on the most recent survey data, the landward portion of the structure would be constructed at an elevation ranging from 5.5 – 6.9 ft. NAVD; whereas the seaward edge would extend out to elevations ranging from 0.7 – 5.2 ft. NAVD. The mean high water elevation is +1.4 ft. NAVD. With the sand bag revetment installed (See Figure B on Sheet 2 of 3 in the Attachments) the sand bags may extend seaward of the mean high water elevation of beach. Some of the residences north of Topsail Reef presently impose some restrictions on public access during times of high tide. As a result, installation of the sand bag structure would not have a significant incremental impact on public access in the project area at the time of high tide.	☒Yes ☐No ☐NA
h. Describe location and type of existing and proposed discharges to waters of the state. N/A - No discharges will be made into state waters (see description of construction methodology in item c).	
i. Will wastewater or stormwater be discharged into a wetland? If yes, will this discharged water be of the same salinity as the receiving water?	☐Yes ☒No ☐NA ☐Yes ☐No ☒NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal. While there is no formal mitigation proposed for the sand bag revetment installation, the Town of North Topsail Beach will continue to monitor the area with beach profile surveys associated with its ongoing inlet/beach management plan. The Town expects to perform maintenance of the new channel through New River Inlet in the next 2 to 2.5 years. At that time, some of the dredged material could be used to provide beach nourishment in the sand bag project area. Maintenance of the inlet channel will be predicated on satisfying conditions contained in DOA permit SAW 2005-00344 and CAMA permit 79-10.	☐Yes ☒No ☐NA

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative. (See attached)

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

No work has been done at the site for this project. See Sheets 2 of 3 and 3 of 3 in the Attachments for the plan view of the proposal and a typical cross-section, respectively. Sheet 2 of 3 shows both the site plan (Figure A) and the areas that would likely be disturbed during construction (Figure B).

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site. (See Sheet 1 of 3 in the Attachments)

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties. N/A

e. The appropriate application fee. Check or money order made payable to DENR.

f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.

Name See Attached	Phone No.
Address	
Name	Phone No.
Address	
Name	Phone No.
Address	

g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

Permittee: Town of North Topsail Beach (management plan)	DOA Permit SAW-2005-00344
Permittee: Town of North Topsail Beach (management plan)	CAMA Permit 79-10
Permittee: town of North Topsail Beach (Off-Island Truck Haul Operation)	CAMA Permit 191-05 (As modified)

h. Signed consultant or agent authorization form, if applicable.

i. Wetland delineation, if necessary.

j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*

k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date Sept. 26, 2014 Print Name Stuart Turille

Signature Stuart Turille

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Please indicate application attachments pertaining to your proposed project.

☒DCM MP-2 Excavation and Fill Information ☐DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

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☐DCM MP-4 Structures Information

Form DCM MP-2

EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length							
Width							
Avg. Existing Depth					NA	NA	
Final Project Depth					NA	NA	

1. EXCAVATION ☐

a. Amount of material to be excavated from below NHW or NWL in cubic yards.

None

b. Type of material to be excavated.

Beach sand and shell.

c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW ____ ☐SAV ____ ☐SB ____

☐WL ____ ☒None

(ii) Describe the purpose of the excavation in these areas:

N/A.

d. High-ground excavation in cubic yards.

Between 14,000 and 17,000 cubic yards to fill the sand bags. Material will be obtained from a combination of the sand spit (approximately 10,000 cy) and material trucked in from an off island source (up to 7,000 cy).

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2. DISPOSAL OF EXCAVATED MATERIAL

☒ *This section not applicable*

a. Location of disposal area.

Material excavated from a combination of the spit and the off-island borrow source will be used to fill sand bags to construct the revetment.

b. Dimensions of disposal area.

The approximate area to be covered by the sandbags will be 67,500 sq. ft. (1.55 acres). Area covered = 1,500 ft long x 45 feet wide.

c. (i) Do you claim title to disposal area?

☐Yes ☐No ☒NA

(ii) If no, attach a letter granting permission from the owner.

d. (i) Will a disposal area be available for future maintenance?

☐Yes ☐No ☒NA

(ii) If yes, where?

e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☒None

(ii) Describe the purpose of disposal in these areas:

N/A

f. (i) Does the disposal include any area in the water?

☐Yes ☒No ☐NA

(ii) If yes, how much water area is affected?

3. SHORELINE STABILIZATION

(If development is a wood groin, use MP-4 – Structures)

☐ *This section not applicable*

a. Type of shoreline stabilization:

☐Bulkhead ☐Riprap ☐Breakwater/Sill ☐ Other: Geotextile Sand Bag revetment

b. Length: 1450 ft plus a 50-ft wingwall

Width: Total approximately 45 feet.

c. Average distance waterward of NHW or NWL: 0 feet (

d. Maximum distance waterward of NHW or NWL: 7.1 ft.

e. Type of stabilization material:

Two primary bag dimensions are proposed. Per the manufacturer's specifications, both bags, when filled, will have widths of approximately 4 ft. and a filled height of between 1.5 ft. and 2.0 ft. The difference in the two types of bags proposed are their lengths, which are proposed to be 9 ft. and 14 ft., respectively. The revetment will be constructed out of a combination of these bags to achieve a base width not to exceed 45 ft. and an elevation of approximately 12.0 ft. NAVD.

f. (i) Has there been shoreline erosion during preceding 12 months?

☒Yes ☐No ☐NA

(ii) If yes, state amount of erosion and source of erosion amount information.

Beach profile surveys taken in the area as part of the Town of North Topsail Beach's shoreline management program have documented shoreline recession rates of between 196 feet/year to 246 feet/year in the area north of Topsail Reef since completion of the Phase 1 beach nourishment project in February 2013. Examples of the profile surveys are provided in Figures 2 and 3 in the Project Narrative.

g. Number of square feet of fill to be placed below water level. NONE

Bulkhead backfill _____ Riprap _____

Breakwater/Sill _____ Other geotextile sand filled bags

h. Type of fill material.

Geotextile bags filled with sand.

i. Source of fill material.

Sand bags will be filled with a combination of sand obtained from the surface of the sand spit located

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adjacent to New River Inlet (see Exhibit 1 in the Attachments) and an off-island borrow source. All excavation of the material will be above the NHW line.

4. OTHER FILL ACTIVITIES
(Excluding Shoreline Stabilization)

☐ *This section not applicable*

a. (i) Will fill material be brought to the site? ☒Yes ☐ No ☐NA

If yes,

(ii) Amount of material to be placed in the water

None

(iii) Dimensions of fill area

N/A

(iv) Purpose of fill

To fill geotextile sand bags

b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW ____ ☐SAV ____ ☐ SB ____

☐WL ____ ☒None

(ii) Describe the purpose of the fill in these areas: To fill geotextile sand bags

5. GENERAL

a. How will excavated or fill material be kept on site and erosion controlled?

All fill brought to the site will be used to fill geotextile sand bags. See explanation of construction methodology in item c of DCM MP-1)

b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?

Bulldozer, dump trucks, frontend loader, water pump.

c. (i) Will navigational aids be required as a result of the project?

☐Yes ☒No ☐NA

(ii) If yes, explain what type and how they will be implemented.

d. (i) Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No ☐NA

(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.

Sept. 26, 2014

Date

Project Name

Phase 1 Emergency Sand Bag Revetment – North end North Topsail Beach

Applicant Name

Town of North Topsail Beach

Applicant Signature Stuart Tuttle Town Manager

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Attachment 1.
Project Narrative

The Town of North Topsail Beach completed Phase 1 of its multifaceted inlet and shoreline management plan in February 2013 with the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The material removed during repositioning of the channel was used to construct a beach fill along 7,730 feet of shoreline south of New River Inlet.

The condition of the north end of North Topsail Beach prior to construction of the Phase 1 beach fill project is shown in Photo 1 with the condition immediately after construction provided in Photo 2.

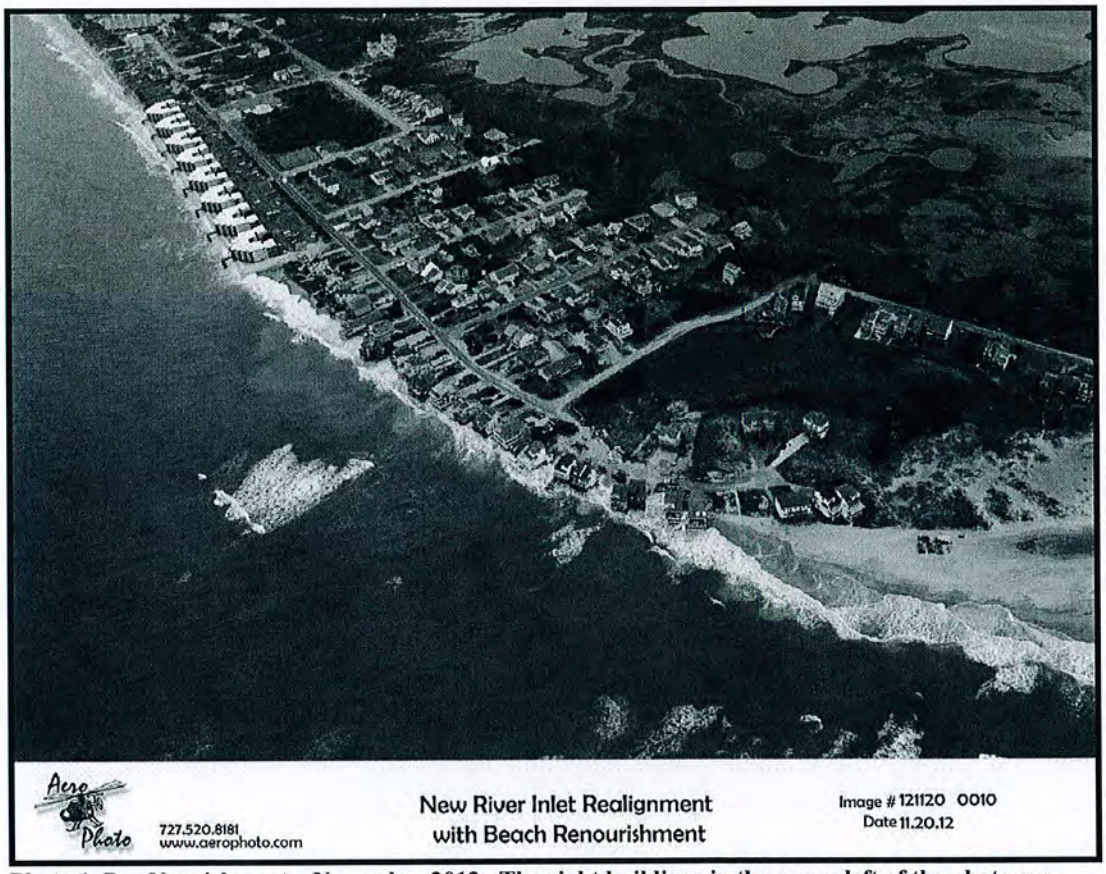


Photo 1. Pre-Nourishment – November 2012. The eight buildings in the upper left of the photo are the Topsail Reef Condominiums.

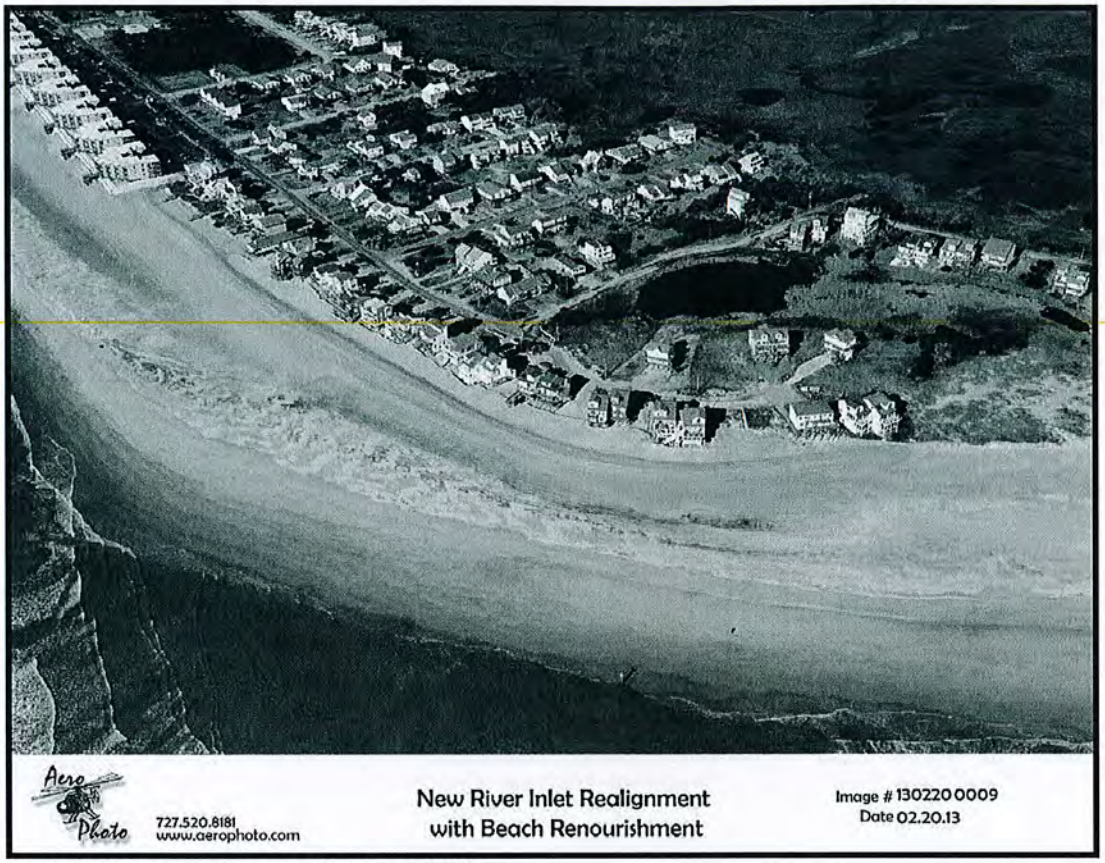


Photo 2. Post-Nourishment – February 2013.

The ocean bar channel of New River Inlet was moved for the purpose of inducing sand accumulation on the south side of the inlet's ebb tide delta. Based on the documented historic behavior of the inlet, moving the channel to a more central position with an alignment approximately perpendicular to the adjacent shorelines would result in accretion of the shoreline south of the inlet. The time required for the new channel to have a positive impact on the shoreline was estimated to be at least 5 years.

Monitoring of the inlet has demonstrated some of the expected results are taking place with sand accumulating on the south side of the inlet, however, the rate of build-up, as predicted, has been relatively slow. As a result, the north end of North Topsail Beach has continued to experience high rates of erosion. As of August 2014, most of the fill placed north of the Topsail Reef Condominiums has been lost as shown in Photo 3 to Photo 5.

The beach profiles taken at baseline stations 1150+00 and 1155+00, located north of the Topsail Reef Condominium (Figure 1), in April 2012 immediately after completion of the Phase 1 beach fill and approximately one year later in May 2014 are provided in Figures 2 and 3, respectively. The minimum distance between the front of the residences north of Topsail Reef and mean high water (+1.4 feet NAVD) is approximately 65 feet. The average distance between mean high water (+1.4 feet NAVD) and the front of the five residences located north of Topsail Reef was about 217 feet while the distance from mean high water to the front of the next five residences north of baseline station 1155+00 averaged 137 feet. Obviously, these distances do not conform to the imminently threated

definition used by DCM to determine when structures are eligible for temporary protection. However, when the rate of shoreline recession over the approximate one-year post-construction period in taken into account, the continuation of these measured recession rates will ultimately result in all 10 of these home becoming imminently threaten, as defined by DCM, in less than a year. The same holds true for the northern 10 residences. As the shoreline continues to encroach closer to the residences, installation of emergency structures will become increasingly difficult due to having to work in the active surf zone. This could limit construction to times of low water along some sections of the project area.

The condition on the north end of the island has continued to deteriorate as demonstrated by Photo 3a which was taken on September 14, 2014. As is evident in Photo 3a, the final remnants of the artificial dune included with the Phase 1 project, which were evident in the August 7, 2014 photo of the area provided in Photo No. 3, has been completely removed.

In addition to the threat to the homes, flooding of the area has been exasperated (Photo 6) with flood waters spilling on to New River Inlet Road and side streets during times of high tide.

Photo No. 3. View looking north of Topsail Reef Building #1 – August 7, 2014. Arrow identifies house shown in Photo No. 4.

Photo No. 3a. Condition as of September 14, 2014.

Photo No. 4. House north of Topsail Reef Building #1. View looking north toward New River Inlet. – August 7, 2014.

Photo No. 5. View looking south toward Topsail Reef Building #1 – August 7, 2014.

Photo No. 6. Flooding on north end of North Topsail Beach – August 5, 2014.

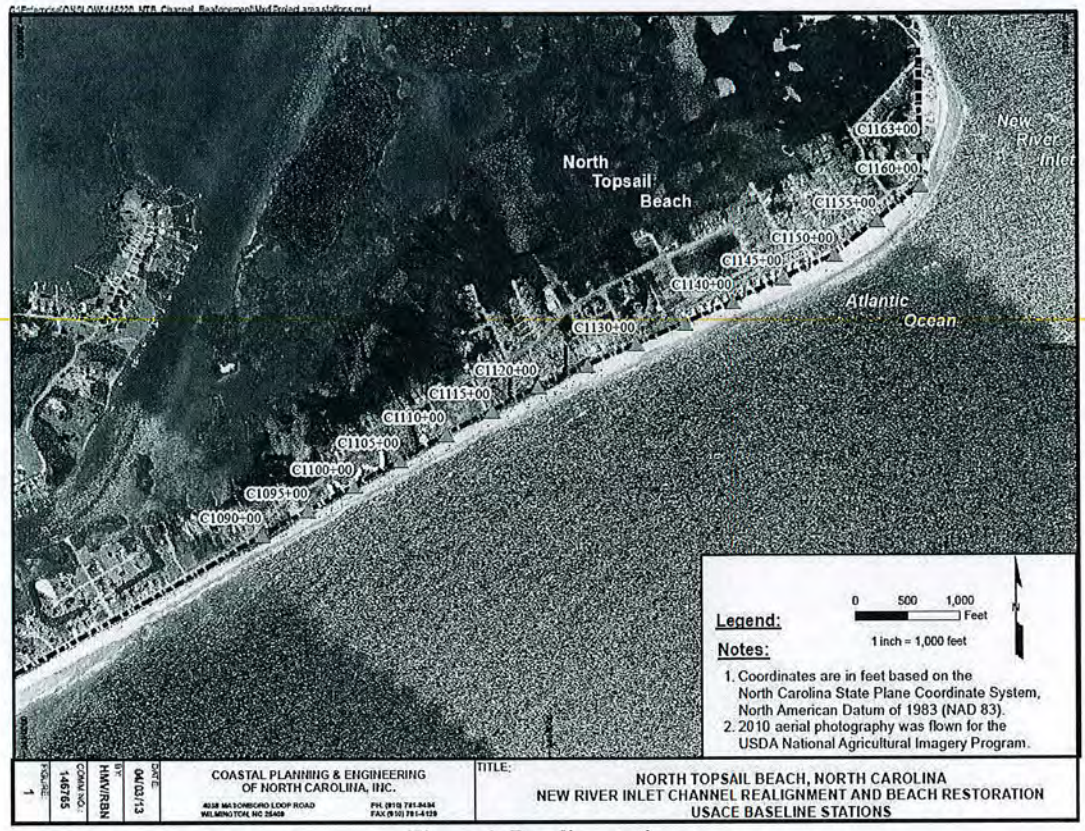


Figure 1. Baseline stations.

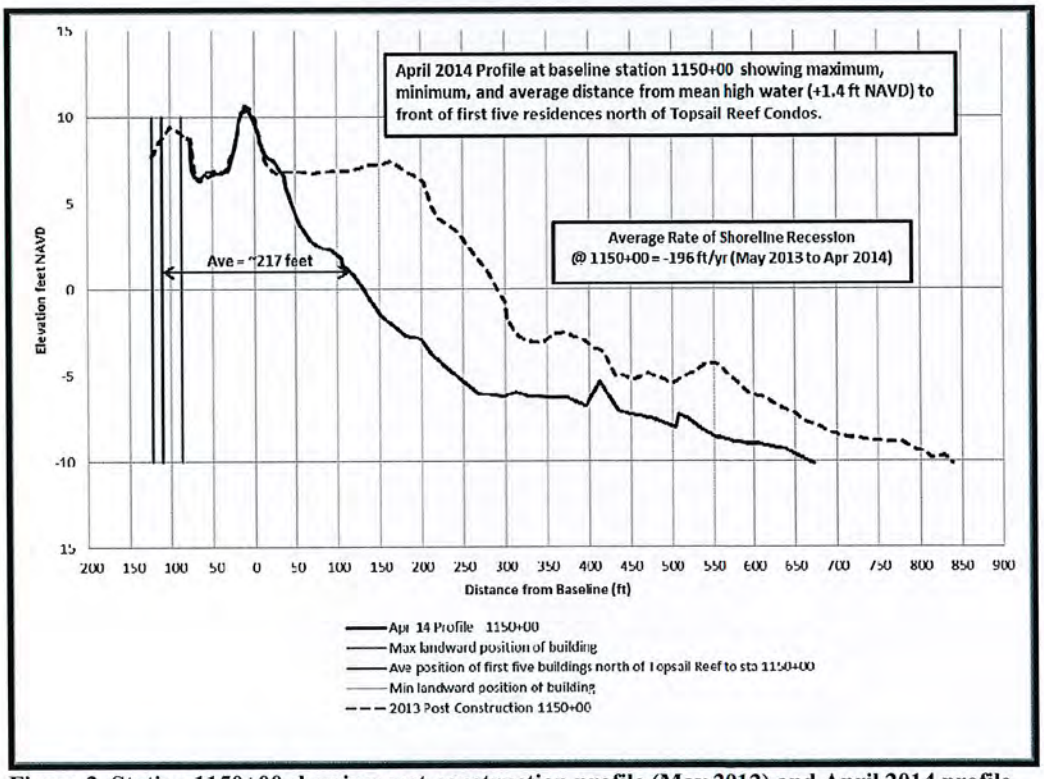


Figure 2. Station 1150+00 showing post-construction profile (May 2012) and April 2014 profile.

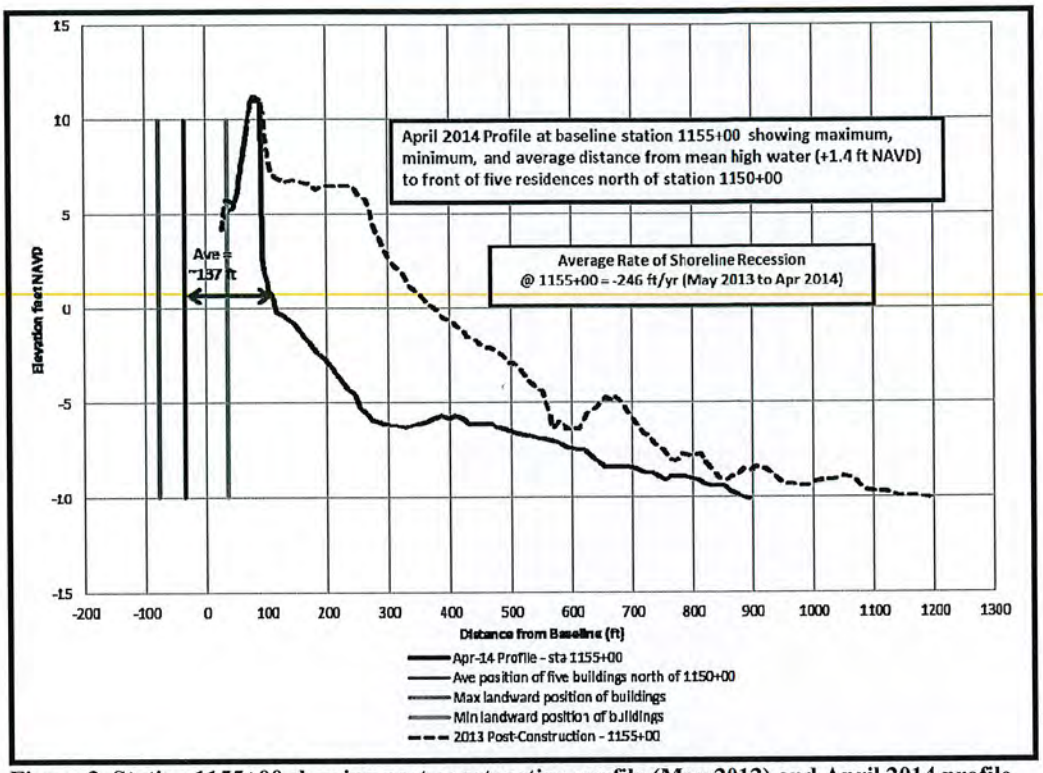


Figure 3. Station 1155+00 showing post-construction profile (May 2012) and April 2014 profile.

The overall management plan for New River Inlet and the shoreline of North Topsail Beach allows for the periodic maintenance of the ocean bar channel in order to keep the channel in its preferred position and alignment. Material removed to maintain the channel is to be used to provide periodic nourishment of the North Topsail Beach shoreline including the shoreline nourished during Phase 1.

The conditions of the permits issued for the project only allows maintenance of the channel to be accomplished every four years providing one of two channel maintenance thresholds are met. One channel threshold is associated with shoaling of the channel while the second is based on the position and alignment of the channel. With the initial project being completed in February 2013, the Town of North Topsail Beach is not permitted to maintain the channel until at least the 2016/2017 environmental dredge window. Given the present condition of the shoreline, the Town of North Topsail Beach needs to take immediate emergency measures in order to prevent the loss of the 20 threatened residential structures between now and the time it is permitted to maintain the channel.

The temporary sand bag revetment allowed under CAMA (15A NCAC 7H.1700), which is limited to a height of 6 feet above the existing ground and a maximum bottom width of 20 feet, is not adequate to provide the degree of protection deemed necessary to protect the 20 residential structures for a minimum of 2 years. This is evident by the history of failure of previously permitted sandbag revetment in the area as demonstrated in Photo 7. Furthermore, the Topsail Reefs HOA located just south of the proposed project area constructed a revetment similar to that being proposed in this application (Photo 8). This

structure has performed well thus far, which lends itself to the construction of a similar structure along the northernmost section of Phase 1 where erosion has been the most severe. Therefore, the Town of North Topsail Beach has elected to install a sand bag structure to achieve an elevation of 12.0 ft. NAVD.

A plan view of the sand bag revetment is provided on Sheet 2 of 3 (Figures A and B) and a typical cross-section view of proposed revetment is shown on Sheet 3 of 3 in the Attachments.

The proposed sand bag would begin at the existing "super-sized" sandbag revetment at Building #1 of the Topsail Reef Condominium and extend 1,450 feet parallel to the existing shoreline. A 50-foot return wall would extend landward from the north end of the sand bag structure just north of the home located at 2378 New River Inlet Road.

A schematic of the tie-in of the proposed sandbag revetment with the existing Topsail Reef revetment is shown if Figure 4. As indicated in Figure 4 shown in the plan view on Sheet 2 of 3 in the Attachments, outer toe of the proposed sandbag revetment would correspond approximately to the position of the seaward toe of the existing Topsail Reef revetment with the alignment of the proposed sandbag revetment gradually transitioning landward for a distance of about 200 feet. From the end of the transition north to the northern most residential structure, the proposed sandbag revetment would follow an alignment roughly parallel to the seaward most support piles of the threatened residential structures with the landward toe of the revetment positioned as close as practical to the front support piles of the structures. The gradual transition between the Topsail Reef revetment and the proposed sandbag revetment should reduce the concentration of wave energy associated with an approximate 90° change in the alignment of the sandbags and thus reduce the potential for scour at the seaward toe of the bags at that point.

Figure 4. Schematic of tie-in of proposed sandbag revetment to the existing Topsail Reef sandbag revetment.

Photo 7. Example of failed sandbag revetment on north end of North Topsail Beach. Photo taken in September 2005. All of these sandbags and structures, which were located seaward of the present row of homes north of Topsail Reef, have been removed.

Photo 8. Sandbags revetment at Topsail Reefs Building 1 (Sep 2014).

Attachment 2.
EXHIBIT 1 – Sand Source

Sand source for sand bags

Attachment 3.
VICINITY MAP, PLAN VIEW, & TYPICAL CROSS-SECTION

(Sheets 1 of 3 to 3 of 3)

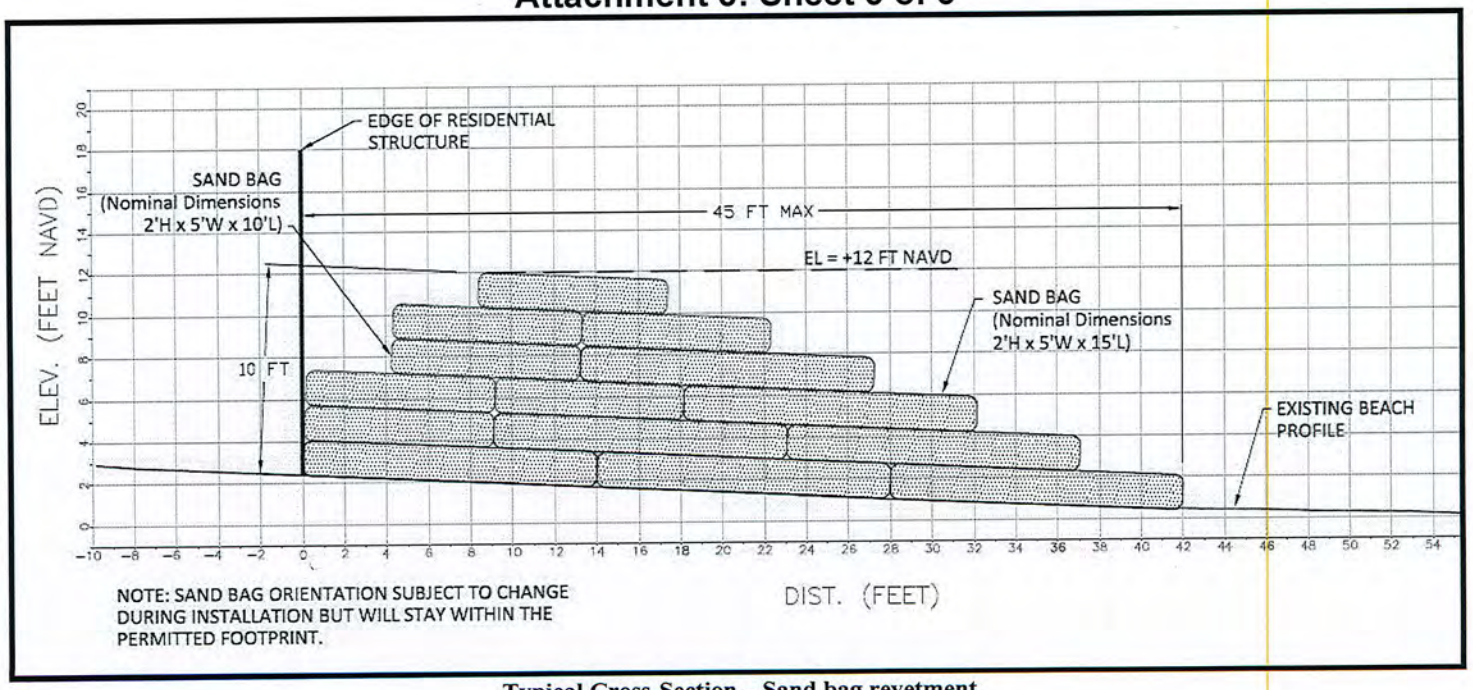
Attachment 3: Sheet 1 of 3

Vicinity Map – Emergency Sand Bag Revetment – North End North Topsail Beach

Figure A. Plan view of sand bag revetment

Figure B. Plan view of sand bag revetment footprint, proposed area to be disturbed, transition to Topsail Reef revetment and location of the First Line of Stable Natural Vegetation (FLSNV).

Attachment 3: Sheet 3 of 3



Typical Cross-Section – Sand bag revetment

OCEAN HAZARD AEC NOTICE

Project is in an: X **Ocean Erodible Area** X **High Hazard Flood Area** X **Inlet Hazard Area**

Property Owner: Town of North Topsail Beach

Property Address: N. River Inlet Road (far north end)

Date Lot Was Platted: N/A

This notice is intended to make you, the applicant, aware of the special risks and conditions associated with development in this area, which is subject to natural hazards such as storms, erosion and currents. The rules of the Coastal Resources Commission require that you receive an AEC Hazard Notice and acknowledge that notice in writing before a permit for development can be issued.

The Commission's rules on building standards, oceanfront setbacks and dune alterations are designed to minimize, but not eliminate, property loss from hazards. By granting permits, the Coastal Resources Commission does not guarantee the safety of the development and assumes no liability for future damage to the development. Permits issued in the Ocean Hazard Area of Environmental Concern include the condition that structures be relocated or dismantled if they become imminently threatened by changes in shoreline configuration. The structure(s) must be relocated or dismantled within two (2) years of becoming imminently threatened, and in any case upon its collapse or subsidence.

The best available information, as accepted by the Coastal Resources Commission, indicates that the annual long-term average ocean erosion rate for the area where your property is located is 2 feet per year.

The rate was established by careful analysis of aerial photographs of the coastline taken over the past 50 years.

Studies also indicate that the shoreline could move as much as 450 feet landward in a major storm.

The flood waters in a major storm are predicted to be about 14-16' feet deep in this area.

Preferred oceanfront protection measures are beach nourishment and relocation of threatened structures. Hard erosion control structures such as bulkheads, seawalls, revetments, groins, jetties and breakwaters are prohibited. Temporary sand bags may be authorized under certain conditions.

The applicant must acknowledge this information and requirements by signing this notice in the space below. Without the proper signature, the application will not be complete.

Stuart Tuille — Oct. 2, 2014

Property Owner Signature — *Date*

(Town Manager)

SPECIAL NOTE: This hazard notice is required for development in areas subject to sudden and massive storms and erosion. Permits issued for development in this area expire on December 31 of the third year following the year in which the permit was issued. Shortly before work begins on the project site, the Local Permit Officer must be contacted to determine the vegetation line and setback distance at your site. If the property has seen little change since the time of permit issuance, and the proposed development can still meet the setback requirement, the LPO will inform you that you may begin work. Substantial progress on the project must be made within 60 days of this setback determination, or the setback must be re-measured. Also, the occurrence of a major shoreline change as the result of a storm within the 60-day period will necessitate re-measurement of the setback. It is important that you check with the LPO before the permit expires for official approval to continue the work after the permit has expired. Generally, if foundation pilings have been placed and substantial progress is continuing, permit renewal can be authorized. It is unlawful to continue work after permit expiration.

For more information, contact:

Jason Dail

Local Permit Officer

127 Cardinal Drive

Address

Wilm NC 28405

Locality

910-796-7221

Phone Number

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Revised May 2010

SANDBAG REMOVAL NOTICE

TO WHOM IT MAY CONCERN:

I, Stuart Turille, Town Manager, give permission to CP&E-NC to act as my agent in my behalf in obtaining a CAMA ~~General~~ MAJOR Permit to place sandbags as a temporary erosion control structure in front of my property at at point just north of Topsail Reef condominiums to 2382 New river Inlet Rd.

I, Stuart Turille, Town Manager, have read the specifications in 15A NCAC 7H-0308(a)(2) and understand that the sand bags may remain in place for up to 5 years after the date of permit approval. I understand that I will be responsible for removing the sandbags within 30 days after that date or at any time that they are determined by DCM staff or its agent to be unnecessary due to relocation or removal of the structure. I will also be responsible for removing any damaged sandbags during the period they are authorized to be in place.

I also understand that the removal of the sandbags shall not be required if at the specified date for removal they are determined by DCM staff to be covered by dunes with vegetation sufficient to be considered stable and natural.

AUTHORIZED SIGNATURE: Stuart Turille

DATE: October 3, 2014

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OCT 03 2014

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OCT 07 2014
DCM-MHD CITY

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

George VANN
12926 Couples PL
WALDORF, MD 20601

DCM-HAND
OCT 20 2014
RECEIVED

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) [signature] C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

RECEIVED
DCM WILMINGTON, NC
OCT 15 2014

3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☑ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service lab) 7012 3460 0003 6878 1125

PS Form 3811, July 2013 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

TOPSAIL REEF HOA
2224 New River Inlet Rd
N. TOPSAIL BEACH, NC
28460

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

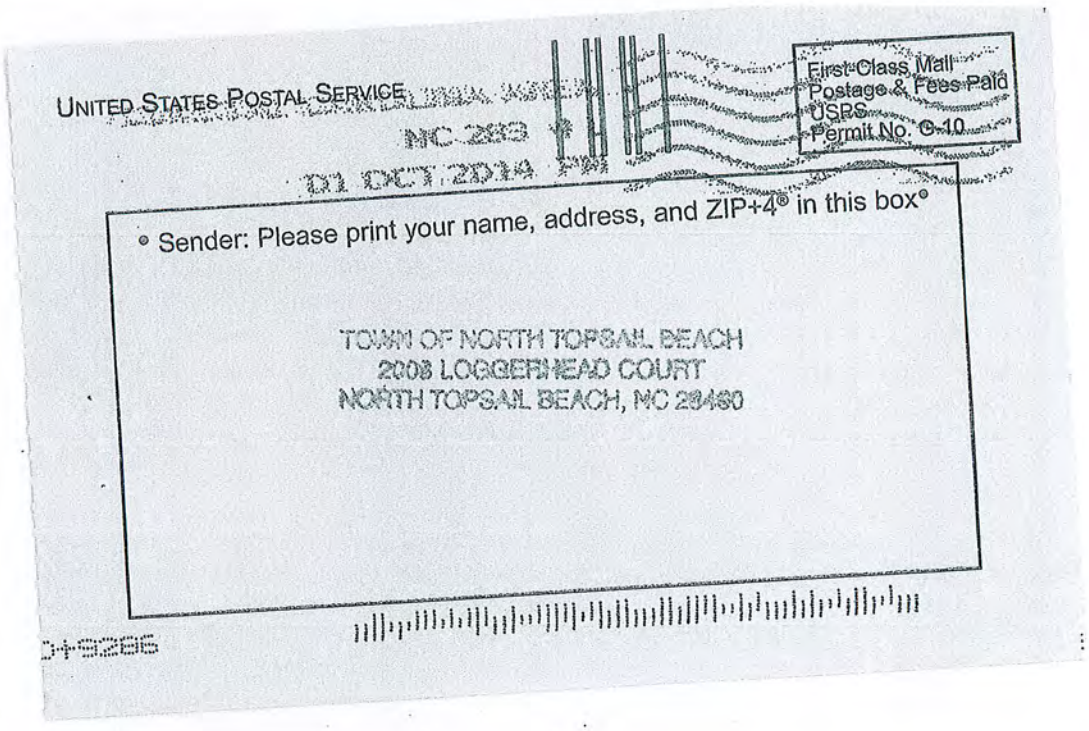
RECEIVED
DCM WILMINGTON, NC
OCT 15 2014

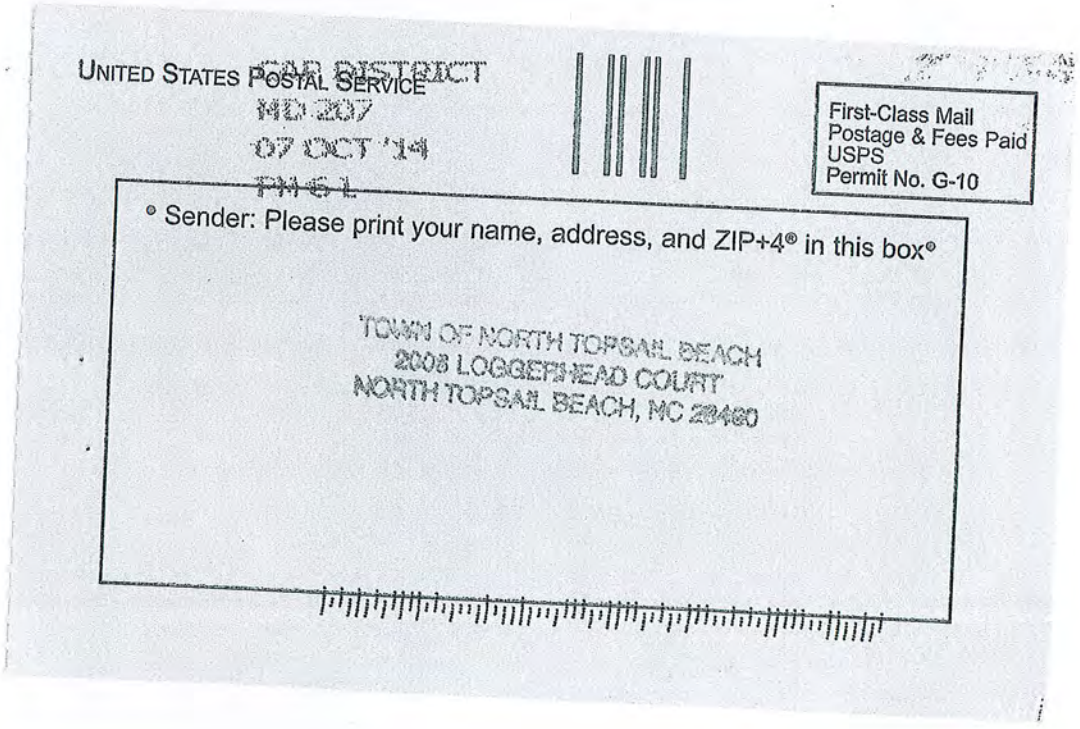
3. Service Type
☑ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service) 7012 3460 0003 6878 1118

PS Form 3811, July 2013 Domestic Return Receipt


UNITED STATES POSTAL SERVICE
NC 283
01 OCT 2014
First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10
° Sender: Please print your name, address, and ZIP+4® in this box°
TOWN OF NORTH TOPSAIL BEACH
2008 LOGGERHEAD COURT
NORTH TOPSAIL BEACH, NC 28460


UNITED STATES POSTAL SERVICE
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First-Class Mail
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Permit No. G-10
° Sender: Please print your name, address, and ZIP+4® in this box°
TOWN OF NORTH TOPSAIL BEACH
2008 LOGGERHEAD COURT
NORTH TOPSAIL BEACH, NC 28460

NOTES:

1. DATE OF AERIAL PHOTOGRAPHY: OCTOBER 5, 2014.
2. COORDINATES ARE IN FEET BASED ON THE NORTH CAROLINA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD83).
3. ELEVATIONS ARE IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
4. FIRST LINE OF STABLE NATIVE VEGETATION (FLSNV) WAS STAKED BY A FIELD REPRESENTATIVE OF THE (NCDCM) NORTH CAROLINA DIVISION OF COASTAL MANAGEMENT.
5. PRE DREDGE MEAN HIGH WATER LINE SURVEYED BY MARINEX NOV. 16, 2012 MULTIPLE SURVEYS USED TO CAPTURE MHW POSITIONS.

LEGEND:

- FIRST LINE OF STABILIZED NATIVE VEGETATION (FLSNV) OCTOBER 3, 2012
- PRE CONSTRUCTION (MHW) MEAN HIGH WATER NOVEMBER 2012
- AREA TO BE DISTURBED BY CONSTRUCTION ACTIVITIES
- EMERGENCY SAND TUBE REVETMENT FOOTPRINT

COASTAL PLANNING & ENGINEERING of North Carolina, Inc.
4038 MASONBORO LOOP RD.
WILMINGTON, NC 28409
PH. (910)791-9494
FAX (910) 791-4129

REVISIONS

No.	Date	Description

Designed by: AP
Drawn by: ___
Checked by: AMB
Reviewed by: AP
Date: 10/27/14
Submitted by: JTU
Plot Scale: AS NOTED
Comm. No.: 145108
Reference Files:

NORTH TOPSAIL BEACH, NC
NORTH END SAND BAG REVETMENT PROJECT
TEMPORARY SAND BAG REVETMENT
LOCATION PLAN

DRAWING NO.
PV-1
SHEET 3 OF 5

P:\North Carolina\North Topsail Beach\145845_Sand Tube Permitting\CAD\145108-SB_PV.dwg - Oct 28, 2014 @ 9:35am - GaryKrystyniak

North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Pat McCrory
Governor

John E. Skvarla, III
Secretary

MEMORANDUM:

TO: Jonathan Howell, DCM Assistant Major Permits Coordinator

FROM: Jessi Baker, DCM Fisheries Resource Specialist JB

SUBJECT: Town of North Topsail Beach MODIFIED Sandbag Revetment, Onslow County, NC

DATE: October 23, 2014

A North Carolina Division of Coastal Management (DCM) Fisheries Resource Specialist has reviewed the subject permit application for proposed actions that impact fish and fish habitats. The applicant proposes to install a large sandbag revetment on the beach in front of structures on the Northern end of the island. The total revetment will be approximately 1,500 feet long, up to 10 feet tall, and 45 feet wide.

The intertidal beach zone supports an important prey source for various fishes (ex. red drum and flounder) as well as providing forage, nursery, and refuge areas for species such as kingfish and pompano. Oceanfront shoreline armoring is well documented to degrade beach surf zones by effecting erosion rates and sediment grain size which can result in a much narrower surf zone, increased turbidity, and a reduced abundance and diversity of benthic macroinvertebrates (Deaton et al. 2010, Defeo et al. 2009, and Pilkey and Wright 1988).

The placement of a shore-parallel, hardened structure like a large sandbag revetment on an eroding oceanfront beach has a high likelihood of resulting in significant losses of swash zone fish habitat. Ultimately, erosive processes could undermine the structure itself, resulting in compromised infrastructure, including sewer systems which would further degrade the surf zone habitat. For these reasons, use of shore-parallel, hardened structures are likely to result in significant adverse impacts to surf zone fish habitat.

Please feel free to contact Jessi Baker at (252) 808-2808 ext. 213 or jessi.baker@ncdenr.gov if you have any further questions or concerns.

References

Deaton, A.S., W.S. Chappell, K. Hart, J. O'Neal, B. Boutin. 2010. North Carolina Coastal Habitat Protection Plan. North Carolina Department of Environment and Natural Resources. Division of Marine Fisheries, NC. 639 pp.

Pilkey, O. H. and H.L. Wright. 1988. Seawalls versus beaches. Journal of Coastal Research SI(4): 41-64.

Defeo, P. K., D.S. Schoeman, J. D. T.A. Schlacher, A. Jones, M. Lastra, and F. Scapini. 2009. Threats to sand beach ecosystem: A review. Estuarine, Coastal and Shelf Science 89(1-2): 1-12.

400 Commerce Ave., Morehead City, NC 28557
Phone: 252-808-2808 \ FAX: 252-247-3330 Internet: www.nccoastalmanagement.net

NCDENR

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

October 3, 2014

Division of Coastal Management
MEMORANDUM:

TO: Jessi Baker
Fisheries Resource Specialist
Division of Coastal Management

FROM: Jonathan Howell, NC DENR-DCM Assistant Major Permits Coordinator
400 Commerce Avenue, Morehead City, NC 28557 ***(Courier 11-12-09)***

SUBJECT: CAMA / Dredge & Fill Application Review

Applicant: ***Town of North Topsail Beach***
Modified Phase 1 Emergency Sandbag Revetment

Project Location: *along the oceanfront beach from 2276 to 2382 New River Inlet Drive, adjacent to the Atlantic Ocean, in North Topsail Beach, Onslow County*

Proposed Project: *to install a large sandbag revetment (+/-1500 linear ft.) to protect the residential structures located along the north end of Topsail Island*

Please indicate below your agency's position or viewpoint on the proposed project and ***return this form to Jonathan Howell*** at the address above by ***October 29, 2014.***
If you have any questions regarding the proposed project, contact Jason Dail at (910)796-7221 when appropriate, in depth comments with supporting data is requested.

REPLY:

_____ This agency has no objection to the project as proposed.

_____ This agency has no comment on the proposed project.

_____ This agency approves of the project only if the recommended changes are incorporated. See attached.

__X__ This agency objects to the project for reasons described in the attached comments.

SIGNED Jessi Baker **DATE** 10/23/14

RECEIVED
OCT 07 2014
DCM-MHD CITY

N.C. Division of Coastal Management
127 Cardinal Drive Ext., Wilmington, NC 28405
Phone: 910-796-7215 \ FAX: 910-395-3964 Internet: www.nccoastalmanagement.net

DIVISION OF COASTAL MANAGEMENT
FIELD INVESTIGATION REPORT

1. **APPLICANT'S NAME**: Town of North Topsail Beach – "Phase I Emergency Sandbag Revetment" - **Modified**

2. **LOCATION OF PROJECT SITE**: The project site is located along the oceanfront beach from 2276 to 2382 New River Inlet Drive, adjacent to the Atlantic Ocean, in North Topsail Beach, Onslow County.

Photo Index – **2006**: 28-(6497): Oceanfront & Inlet
2000: 28-(391): Oceanfront & Inlet
1995: 28-(379): Oceanfront & Inlet
State Plane Coordinates – **GPS File:** P111811B **X**: 2449610 **Y**: 256997
Lat.: 34°31'29.15"N **Long:** 77°20'47.98"W

3. **INVESTIGATION TYPE**: CAMA / D&F

4. **INVESTIGATIVE PROCEDURE**: **Dates of Site Visit** – Multiple visits between Jan. 2013 and September 2014
Was Applicant Present – Yes

5. **PROCESSING PROCEDURE**: **Application Received** – Complete 10/3/14 (with exceptions)
Office – Wilmington

6. **SITE DESCRIPTION**:
   - **(A)** **Local Land Use Plan** – Town of North Topsail Beach
     Classification From LUP – No Classification / Developed
   - **(B)** **AEC(s) Involved**: OH, IH
   - **(C)** **Water Dependent**: Yes
   - **(D)** **Intended Use**: **Private**/Government
   - **(E)** **Wastewater Treatment: Existing** – Municipal Sewer
     Planned - N/A
   - **(F)** **Type of Structures**: **Existing** – Commercial and Residential structures and access-ways
     Planned – Sand bag revetment
   - **(G)** **Estimated Annual Rate of Erosion**: 2'/year **Source** – LTAASCR 2011 Update

7. **HABITAT DESCRIPTION**: **[AREA]**

	DREDGED	FILLED	OTHER
(A) Vegetated Wetlands (coastal)	**N/A**	**N/A**	**N/A**
(B) Non-Vegetated Wetlands - open water	**N/A**	~2,300 sq. ft. (sand bags placed on beach)	**N/A**
(C) Other (Highground) *N/A – Not applicable	**N/A**	~65,200 sq. ft. (sand bags placed on beach)	~5.0 acres (217,800 sq. ft., sand removed from spit)

RECEIVED
OCT 07 2014
DCM-MHD CITY

- **(D)** **Total Area Disturbed**: 6.54 acres (285,300 sq. ft.)
- **(E)** **Primary Nursery Area**: No
- **(F)** **Water Classification**: SA **Open:** NO

8. PROJECT SUMMARY: The applicant is proposing to install a large sandbag revetment from 2276 to 2382 New River Inlet Road (+/- 1,500 linear feet), to protect the residential structures located along the north end of Topsail Island.

9. PROJECT DESCRIPTION:

This CAMA major permit application is a modified version of the CAMA major permit application that was submitted in August 2014 and circulated on, or around August 28, 2014, for the installation of a revetment structure (i.e. "Geo-tube") along the northern end of North Topsail Beach. The information presented in this application package still includes the installation of a sand bag revetment in the same general area as the "Geo-tube" project; however, this proposal includes the installation of traditional sand bags, in lieu of the large Geo-tube(s). The relative information of the new project is described below.

The project site is located in North Topsail Beach, specifically between 2276 and 2382 New River Inlet Road, adjacent to the Atlantic Ocean, in Onslow County. To get to the site from Wilmington take US HWY 17 N to NC Hwy 210, which is located at the Lowe's Home Improvement on US HWY 17. Turn right onto NC Hwy 210 and continue across the Surf City Swing Bridge. Take a left at the first street N. New River Drive (NC Hwy 210). Continue on NC Hwy 210 until you reach the New River Inlet Road (approximately 8.15miles). Turn right onto New River Inlet Road and continue to the far end. Turn left at the stop sign and the project area will be located on the right hand side of the road, just north of the Topsail Reef Condominium complex. The project area would span from the north side of the Topsail Reef Condos, north to the property identified by the Onslow County Tax office as 2382 New River Inlet Road. The current elevation of the project area ranges from approximately 6' NAVD to approximately 8' NAVD. The project site is adjacent to commercial (condos) and residential properties. The project site is bordered by New River Inlet to the north, the Atlantic Ocean to the East and commercial and residential properties to the south and west. The high ground portion of the property is primarily un-vegetated with the exception of lawn grasses and ornamental landscaping around the existing homes.

The Annual erosion rate in the project area is 2'/year per the Division of Coastal Management's 2011 Annual Erosion Rate maps. Currently, the Town's proposal is to install a large sandbag revetment to protect the 20 or so homes located north of the Topsail Reef Condominium complex. This particular area of North Topsail Beach has experienced "accelerated erosion" within the past 12-15 months and the shoreline is progressively receding. Of the 20 or so properties included in this permit request, roughly 15 are considered "imminently threated", or have an erosion escarpment within twenty (20) feet of the foundation of the structure(s).

The Town of North Topsail Beach currently has an active CAMA Permit (No.79-10) that authorizes sand deposition along the entire ocean front area of North Topsail Beach. The material used for this project includes excavated material from the New River Inlet Channel Re-alignment project, as well as excavation from a near-shore borrow site. To date, the Town has completed Phase I of the shoreline stabilization/channel re-alignment project, which happens to include the area for which the applicant is requesting the sandbag revetment. Permit No. 79-10 was originally issued on July 21, 2010, and later amended on June 20, 2014. The permit is scheduled to expire on June 12, 2015. Plans are underway to begin completion of Phases V of the shoreline stabilization project once the moratoriums are lifted for turtle nesting (i.e. November 15th).

The Town of North Topsail Beach Land Use Plan does not have a "dry sand beach" classification: However; the upland areas of this project are classified as Developed. The waters of the project site are classified as SA by the NC Division of Water Quality. The NC Division of Marine Fisheries has NOT designated this area of New River / Atlantic Ocean as a Primary Nursery Area, and the waters adjacent to the proposed project are CLOSED to the harvesting of shellfish.

PROPOSED PROJECT:

The applicant is proposing to install approximately 1,500 linear feet of oversized sand bags from roughly 2276 New River Inlet Road to 2382 New River Inlet Road. As proposed, the sand bag revetment would adjoin, or abut, the existing temporary erosion control structure(s) located along the eastern side of Topsail Reef Condominiums and would span north, terminating at 2382 New River Inlet Road (owned by the Town of North Topsail Beach). As designed, the sand bag revetment would consist of multiple bag layers, with a base width of 45' and a crest height of 12' NAVD. The proposed sand bag structure would be similar to the existing oversized sand bag revetment located adjacent to the project site, at Topsail Reef, Buildings 1-5.

As described, traditional sandbags (i.e. each tan in color, 3'-5' in width and 7'-15' in length) would be installed along 1,500 linear feet of beach. The sand bags would abut a majority of existing homes in the area; however there are several properties just north of Topsail Reef where the bags would extend oceanward/seaward of the structures approximately 20'-30'. Along these 5-6 homes, the landward side of the proposed sandbags would be located a distance of 20'-30' away from the foundation of these structures. It is believed the intent of this orientation is to create a uniform alignment (i.e. straight line) so that the proposed bags would connect directly to the existing sand bags located at Topsail Reef. As proposed, the sand bags would be installed parallel to the shoreline, along the seaward side of the existing homes/dwellings. The sand bags would be placed atop a scour apron that would span the entire length of the project. As stated by the applicant, the sand bag revetment would be for protection of the aforementioned structures, and not for the creation of any new dune, or dune core.

Information provided by the applicant's agent (Coastal Planning and Engineering, a.k.a. CP&E) indicates that a mean high water boundary survey was performed in the vicinity of the proposed project under a contract with Bearing Point Consulting, on August 29, 2014. Based on data collected from the August 29, 2014 survey, it appears the proposed sand bag revetment (seaward toe of eastern most bags) would be placed along an alignment that would extend no more than approximately 7.1' below the mean high water line. However, it appears that additional erosion has taken place in the project area since the August 29, 2014 survey, thereby creating a larger footprint for sand bag placement below the mean high water level. Nevertheless, the applicant has accounted for approximately 2,300 sq. ft. of impacts below the mean high water line and approximately 65,200 sq. ft. of impacts above the mean high water line as a result of the installation of the proposed sand bag revetment. These numbers will likely change again prior to initiation of the project due to the tidal fluctuations and wind/wave energy in the immediate vicinity of the project.

According to the application package, site drawings and project narrative, the applicant intends to fill the sand bags with sand currently held in storage from an area north of the project site, labeled and referred to as the "spit". The spit is a broad, relatively flat, dry sand beach area that is located along the far northeast section of the island. The area is generally undisturbed, with the exception of foot traffic, and vegetation is beginning to propagate throughout. The elevation of the spit is roughly 2'-4' above the normal high water level, with a slight depression in the center. In total, the spit consists of approximately 5.0 acres of what the Town considers premium sand for shoreline protection immediately adjacent to the referenced properties. As designed, the applicant would remove approximately 12"-15" (top layer) from the spit, or approximately 10,000 cubic yards, which is what the applicant's engineer estimate is needed for the sand bags. In addition, the applicant proposes to haul in, or truck in the remaining 7,000 cubic yards of sand bag fill material from an off-site source. Any fill material trucked in and placed in the bags should be clean, compatible material of similar size, color and shape.

As planned, the construction methodology would proceed as follows: The Town, or its contractor, would use an excavator and/or front end loader to remove the required amount of material from the spit. Once loaded, the dry sand would be placed in a "hopper" where it would be mixed with seawater (pumped from the surf zone into the hopper) to create a "slurry". From there, the slurry would be pumped into the bags. As I understand the process, the hopper would move up and down the beach, in conjunction with the filling of the bags. In addition, the sand trucked in from the off-site borrow source would be added to the hopper and mixed together, just as the material collected from the spit.

Based on historical documentation (i.e. DCM files), it appears the applicant's proposal would result in a sand bag revetment over/atop existing temporary erosion control structures. Our records indicate that several homes in the vicinity of the project site received sand bag permits and actually installed sandbags at these properties back in the 1990's. Some of the sand bags still remain intact and were visible prior to the deposition of sand associated with the shoreline stabilization/channel re-alignment project.

10. ANTICIPATED IMPACTS

The applicant's proposal to remove sand from the "spit" would result in the disturbance of approximately 5.0 acres of dry sand beach, from which approximately 10,000 cubic yards of material would be removed. The excavated material would be pumped into a 1,500 linear foot section of sand bags measuring approximately 45' in base width and up to a height of 12' NAVD. Approximately 2,300 sq. ft. (7' x 1,500') of material would be placed at or below the normal high water level, while approximately 65,200 sq. ft. would be placed above the elevation of normal high water. The applicant has provided a copy of the oceanside easement agreement for this project (as it corresponds to the shoreline protection project) and it appears the scope of the work is consistent with the intent of the easement agreement. Impacts to the "spit" area, as a result of project completion, are uncertain and unknown at this time. Increases in turbidity should be expected during the project; however, they should dissipate once the project is complete.

Submitted by: Jason Dail **Date:** October 3, 2014 **Office:** Wilmington

EXHIBIT 23:

From: Brian Edes
To: Andrea O"Dell
Subject: FW: Questions on North End of North Topsail Beach Permitting
Date: Friday, November 07, 2014 5:03:57 PM

From: Davis, Braxton C [mailto:Braxton.Davis@NCDENR.Gov]
Sent: Tuesday, October 21, 2014 6:17 PM
To: Stuart Turille
Cc: Mayor Tuman; 'Tom Leonard'
Subject: RE: Questions on North End of North Topsail Beach Permitting

Mr. Turille,
Based on another site visit by staff today, we agree that site conditions have deteriorated and emergency action is warranted. The Secretary has authorized our issuance of an Emergency CAMA Major Permit for your project in accordance with NCGS 113A-118, which will terminate the public notice and adjacent property owner notification periods. The emergency permit will be conditioned upon your ability to satisfy all other state and federal permits and authorizations, and will be conditioned to only authorize a structure that conforms with the size limitations and other standards established by the Coastal Resources Commission's rules on temporary erosion control structures.

You may begin requesting an expedited CRC variance proceeding as soon as your emergency permit is issued; however, prior to your request for an expedited hearing by the CRC, I would advise you to: 1) secure all other permits and authorizations, and 2) be able to provide, if requested, a financial assurance that guarantees the Town's ability to commence with the project immediately following the issuance of a variance by the Commission.

Due to the Commission's meeting tomorrow and Thursday in Wilmington, staff may not be able to issue the emergency CAMA major permit until Friday of this week. I hope this will not cause you any delays given that you will still need to coordinate with the Corps of Engineers and any other relevant regulatory or resource agencies.

I hope that this helps. I will give you a call to discuss later – my cell phone battery just died and I am getting ready to drive to Wilmington, so I may not be able to call you until tomorrow.

Talk to you soon,
Braxton

Braxton Davis
Director, NC Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557
(252) 808-2808 ext. 202

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

October 27, 2014

Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, N.C. 28460

Dear Sir or Madam:

The enclosed permit constitutes authorization under the Coastal Area Management Act, and where applicable, the State Dredge and Fill Law, for you to proceed with your project proposal. The original (buff-colored form) is retained by you and it must be available on site when the project is inspected for compliance. Please sign both the original and the copy and return the copy to this office in the enclosed envelope. Signing the permit and proceeding means you have waived your right of appeal described below.

If you object to the permit or any of the conditions, you may request a hearing pursuant to NCGS 113A-121.1 or 113-229. Your petition for a hearing must be filed in accordance with NCGS Chapter 150B with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27611-6714, (919) 733-2698 within twenty (20) days of this decision on your permit. You should also be aware that another qualified party may submit an objection to the issuance of this permit within twenty (20) days.

The project plan is subject to those conditions appearing on the permit form. Otherwise, all work must be carried out in accordance with your application. Modifications, time extensions, and future maintenance requires additional approval. Please read your permit carefully prior to starting work and review all project plans, as approved. If you are having the work done by a contractor, it would be to your benefit to be sure that he fully understands all permit requirements.

From time to time, Department personnel will visit the project site. To facilitate this review, we request that you complete and mail the enclosed Notice Card just prior to work initiation. However, if questions arise concerning permit conditions, environmental safeguards, or problem areas, you may contact Department personnel at any time for assistance. By working in accordance with the permit, you will be helping to protect our vitally important coastal resources.

Sincerely,

Douglas V. Huggett

Douglas V. Huggett
Major Permits and Consistency Manager

Enclosure

Permit Class
EMERGENCY

Permit Number
92-14

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

_X_ Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

_X_ Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onslow County at Atlantic Ocean from 2276 to 2382 New River Inlet Road, as requested in the permittee's application dated 9/26/14, including the attached workplan drawings (3), Figures 1-3 of 3 all dated received in the MHC office on 10/7/14 and AEC Hazard Notice dated 10/2/14.

This permit, issued on **October 24, 2014**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) In keeping with 15A NCAC 07H.0308(a)(2)(K) of the rules of the Coastal Resources Commission, the base width of the authorized temporary erosion control structure shall not exceed 20 feet, and the height shall not exceed six feet.

2) No portion of the authorized temporary erosion control structure shall be located more than 20 feet waterward of the imminently threatened structure.

(See attached sheet for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

December 31, 2017

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

Signature of Permittee

ADDITIONAL CONDITIONS

3) Sandbags used to construct the temporary erosion control structures shall be tan in color and three to five feet wide and seven to 15 feet long when measured flat.

NOTE: The configuration of the individual sandbags may vary from that shown on the attached workplan drawings, so long as the dimensions, alignment, and size requirements of Conditions 2, 3, and 4 of this permit are not exceeded.

4) Soldier pilings and other types of devices to anchor the sandbags shall not be allowed.

5) Sand used to backfill the sandbags shall be of the same general characteristics as the sand in the area in which the material is to be placed. In order to ensure compliance with this requirement, the permittee shall coordinate the location of the backfill borrow source with a representative of the Division of Coastal Management prior to initiation of any backfilling activities.

6) The temporary erosion control structures may remain in place for up to eight years from October 24, 2014.

7) Once the temporary erosion control structure is determined to be unnecessary due to relocation or removal of the threatened structure, a storm protection project, a beach nourishment project or an inlet relocation project, it shall be removed by the permittee within 30 days of official notification by the Division of Coastal Management regardless of the time limit placed on the temporary erosion control structure. However, removal of the authorized temporary erosion control structures shall not be required if they are covered by dunes with stable and natural vegetation.

8) If the temporary erosion control structure becomes damaged, the permittee shall be responsible for the removal of remnants of all portions of the structure(s).

9) There is the potential that work may occur during the sea turtle nesting window which runs from 01 May to 15 November, or until the last known nest has hatched. To reduce the potential for any unintended impacts to nesting sea turtles and their nests, should any work take place during the sea turtle nesting window, the NC Wildlife Resources Commission requests that the work be expedited to the greatest extent possible. All work should be conducted during the daytime only and only begin after qualified sea turtle monitors have evaluated the project area for any potential sea turtle nesting activities.

10) The permittee and/or his or her contractor shall meet with a representative of the Division prior to project initiation.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required, including but not limited a permit from the US Army Corps of Engineers.

NOTE: Future development of the permittee's property may require a modification of this permit. Contact a representative of the Division at (910) 796-7215 prior to the commencement of any such activity for this determination.

STATE OF NORTH CAROLINA
Department of Environmental and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405
(910) 796-7215

FILE ACCESS RECORD

DIVISION OF COASTAL MANAGEMENT

DATE / TIME 10/29/14 1:30-2:30 pm

NAME Mike Giles

REPRESENTING Coastal Federation

PHONE 910-231-6687

Guidelines for Access: The staff of Wilmington Regional Office is dedicated to making public records in our custody readily available to the public for review and copying. We also have the responsibility to the public to safeguard these records and to carry out our day-to-day program obligations. Please read carefully the following guidelines signing the form:

1. CAMA Major Permits are issued out of the Morehead City District Office. The COMPLETE file is in the Morehead Office and may contain additional information and/or comments which may not be in the WIRO file.

2. Due to the large public demand for file access, we request that you call at least a day in advance to schedule an appointment to review the files. **Appointments will be scheduled between 9:00am and 3:00pm.** Viewing time ends at 4:45pm. **Anyone arriving without an appointment may view the files to the extent that time and staff supervision is available.**

3. You must specify files you want to review **by facility name.** The number of files that you may review at one time will be limited to five.

4. You may make copies of a file when the copier is not in use by the staff and if time permits. Cost per copy is $.05 cents. **Payment may be made by check, money order, or cash at the reception desk. Copies totaling $5.00 or more can be invoiced for your convenience.**

5. ***FILES MUST BE KEPT IN ORDER YOU FOUND THEM.*** Files may not be taken from the office. To remove, alter, deface, mutilate, or destroy material in one of these files is a misdemeanor for which you can be fined up to $500.00. No briefcases, large totes, etc. are permitted in the file review area.

6. In accordance with General Statue 25-3-512, a $25.00 processing fee will be charged and collected for checks on which payment has been refused.

	FACILITY NAME	COUNTY
1.	North Topsail Beach, emer. Sandbags MP 92-14	Onslow Co
2.		
3.		
4.		

Signature	Date	Time In	Time Out
[signature]	10/29/14	1:30	

COPIES MADE 19 PAID $.95¢ INVOICE

Town of North Topsail Beach

Daniel Tuman, Mayor
Tom Leonard, Mayor Pro Tem
Aldermen:
Suzanne Gray
Don Harte
Richard Macartney
Richard Peters

Winner of 2014 Best Restored Beaches Award

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Town Clerk

STATE OF NORTH CAROLINA
ONSLOW COUNTY

CLERK'S CERTIFICATION

I, CARIN Z. FAULKNER, Town Clerk of the Town of North Topsail Beach, North Carolina, do hereby certify that the attached is a true and correct copy of the following:

TOWN OF NORTH TOPSAIL BEACH
BUDGET ORDINANCE
FISCAL YEAR 2014-2015

The original of which is now on file in the office of the Town Clerk of North Topsail Beach, North Carolina.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official Seal of the Town of North Topsail Beach, North Carolina, this the 14th day of November 2014.

Carin Z. Faulkner
Town Clerk

(SEAL)

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
Fax (910) 328-4508

TOWN OF NORTH TOPSAIL BEACH
BUDGET ORDINANCE
FISCAL YEAR 2014-2015

BE IT ORDAINED by the Governing Board of the Town of North Topsail Beach, North Carolina:

GENERAL FUND

SECTION 1: The following amounts are hereby appropriated in the General Fund for the operation of the Town government and its activities for the fiscal year beginning July 1, 2014, and ending June 30, 2015, in accordance with the chart of accounts heretofore established for this Town:

Appropriations

GOVERNING BODY	$107,152
ADMINISTRATION	430,422
POLICE DEPARTMENT	976,230
PLANNING & ZONING	101,324
BUILDING INSPECTIONS	130,844
PUBLIC WORKS	241,377
STREETS	127,500
PUBLIC BUILDINGS & GROUNDS	125,300
SANITATION COLLECTIONS	384,988
RECREATION	55,000
ELECTIONS, SALES TAX PAYOUT & COMMITTEES	4,500
TRANSFER	0
CONTINGENCY	0
INSURANCE	151,474
FIRE DEPARTMENT	710,180
	$3,546,291

SECTION 2: It is estimated that the following revenues will be available in the General Fund for the fiscal year July 1, 2014, and ending June 30, 2015:

Revenues

STATE	$ 982,000
TOWN	130,209
PROPERTY TAX	1,927,651
REFUSE	345,488
INTEREST	16,000
TRANSFER IN	141,943
GRANTS	3,000
FUND	**$3,546,291**

SECTION 3:

There is hereby levied a tax at the rate of $.3932 ($.2361 General Fund and $.1571 Beach Nourishment Fund) per one hundred dollars ($100) valuation of property as listed for taxes as of January 1, 2011, for the purpose of raising the revenue listed as "Ad Valorem Taxes" in the General Fund in Section 2 of this ordinance. This rate is based on a total estimated valuation of property for the purposes of taxation of $818,453,300 and an estimated rate of collection of 97.57 percent.

SECTION 4: The Town Manager is hereby authorized to transfer appropriations as contained herein under the following conditions:

(A) Town Manager may transfer amounts between line-item expenditures within a department without limitation and without a report being required.

(B) Town Manager may transfer amounts up to $500 between functional areas, within the same fund. He/she must make an official report on such transfers at the next regular meeting of the Governing Board.

(C) Town Manager may not transfer any amounts between funds, except as approved by the Governing Board in the budget ordinance as amended.

(D) Contracts in excess of $40,000 shall first be approved by Board of Aldermen. The Town Manager has authority for execution under that amount, and must be a budgeted item.

SECTION 5: The attached Schedule of Fees is hereby adopted for the fiscal year beginning July 1, 2014, and ending June 30, 2015. These fees may be amended during the fiscal year by Board action.

SECTION 6: Copies of the budget ordinance shall be furnished to the Clerk to the Governing Board and to the Town Manager and Finance Officer to be kept on file by them to be used in the execution of their duties regarding the disbursement of funds.

ADOPTED THIS 5th DAY OF JUNE, 2014.

Daniel Tuman, Mayor

Carin Z. Faulkner, Town Clerk

CZF

EXHIBIT 12: Total Assessed Taxable Value-North End Properties

Parcel ID	Total Taxable Assessed Value - Onslow County Tax Office
027899	$ 367,650.00
044407	$ 266,540.00
028000	$ 291,590.00
044408	$ 266,980.00
033556	$ 256,580.00
035832	$ 317,110.00
044410	$ 276,670.00
002201	$ 258,620.00
002202	$ 234,590.00
002200	$ 288,320.00
002199	$ 205,440.00
002198	$ 231,480.00
002197	$ 230,980.00
002196	$ 245,060.00
002195	$ 233,710.00
042613	$ 206,740.00
002194	$ 215,670.00
015866	$ 279,760.00
042612	$ 269,870.00
015864	$ 207,310.00
042746	$ 215,330.00
008559	$ 239,220.00
033884	$ 250,290.00
010292	$ 217,260.00
042745	$ 210,600.00
034795	$ 198,050.00
018022	$ 232,190.00
041856	$ 228,090.00
030654	$ 207,270.00
034334	$ 192,640.00
005654	$ 211,520.00
042744	$ 211,810.00
001574	$ 217,760.00
034336	$ 211,940.00
034337	$ 201,090.00
001572	$ 208,580.00
001571	$ 206,210.00
034338	$ 221,750.00
TOTAL	**$ 9,032,270.00**

Town of North Topsail Beach

Daniel Tuman, Mayor
Tom Leonard, Mayor Pro Tem
Aldermen:
Suzanne Gray
Don Harte
Richard Macartney
Richard Peters

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Town Clerk

STATE OF NORTH CAROLINA
ONSLOW COUNTY

CLERK'S CERTIFICATION

I, CARIN Z. FAULKNER, Town Clerk of the Town of North Topsail Beach, North Carolina, do hereby certify that the attached is a true and correct copy of the following:

RESOLUTION 2014-13 - Preliminary Assessment Resolution
Beach Erosion Control and Flood and Hurricane Protection Works
North End Sand Bag Revetment

RESOLUTION 2014-16 - Assessment Resolution
Beach Erosion Control and Flood and Hurricane Protection Works
North End Sand Bag Revetment

EXCERPT FROM BOARD OF ALDERMEN REGULAR MEETING MINTUES
November 6, 2014 (Draft – not approved yet)
Public Hearing – Preliminary Assessment Resolution for Beach Erosion and Flood and Hurricane Protection Works, North End Sand Bag Revetment

The original of which is now on file in the office of the Town Clerk of North Topsail Beach, North Carolina.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official Seal of the Town of North Topsail Beach, North Carolina, this the 12th day of November 2014.

Carin Z. Faulkner
Town Clerk

(SEAL)

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
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Town of North Topsail Beach

Daniel Tuman, Mayor
Tom Leonard, Mayor Pro Tem
Aldermen:
Suzanne Gray
Don Harte
Richard Macartney
Richard Peters

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Town Clerk

RESOLUTION 2014-13

PRELIMINARY ASSESSMENT RESOLUTION

BEACH EROSION CONTROL AND FLOOD AND HURRICANE PROTECTION WORKS NORTH END SAND BAG REVETMENT PROJECT

WHEREAS, the area north of the Topsail Reef Condominiums in North Topsail Beach has experienced inordinate erosion and has placed homes and public infrastructure north of Topsail Reef in imminent danger requiring interim erosion response measures until such time the New River Inlet can be maintained and the relocated channel begins to have a positive impact on the condition of the shoreline; and

WHEREAS, the Town of North Topsail Beach intends to undertake a sand bag revetment project on the north end of Topsail Island to provide temporary erosion protection for the residential ocean front structures north of the Topsail Reef Condominiums and to provide some flood protection to a portion of New River Inlet Road north of Port Drive; and

WHEREAS, the proposed sand bag revetment would begin at the existing "super-sized" sand bag revetment at Building #1 of the Topsail Reef Condominiums and extend 1,450 feet parallel to the existing shoreline and a 50-foot return wall would extend landward from the north end of the sand bag structure just north of the home located at 2378 New River Inlet Road; and

WHEREAS, North Carolina General Statute 160A-238 gives municipalities the authority to make special assessments against benefited property for all or part of the costs of acquiring, constructing, reconstructing, extending, or otherwise building or improving beach erosion control and flood and hurricane protection works.

NOW, THEREFORE, BE IT RESOLVED by the Board of Aldermen of the Town of North Topsail Beach, North Carolina:

1) That, in light of the threatened state of the property and infrastructure, the above mentioned Project is found to be sufficient and desirable in all respects.

2) As provided in North Carolina General Statute 160A-238, special assessments for beach erosion control and flood and hurricane protection works will be imposed as follows, by way of:

   a. An assessment shall be made on the basis of frontage abutting on a beach or shoreline protected or benefited by the project, at an equal rate per foot of frontage.

   b. The properties with frontage abutting the project that will be benefitted by the Project have been identified as properties having the Onslow County Parcel identification numbers (PARID): 027899, 044407, 028000, 044408, 044409, 033556, 035832, 044410, 002201, 002202, 002200, 002199, 002198, 002197, 002196, 002195, 042613, 002194, 015866, 042612, 015864, 042746, 008559, 033884, 010292, 042745, 034795, 018022, 041856, 030654, 034334, 005654, 042744, 001574, 034336, 034337, 001572, 001571, 034338.

   c. The estimated high-end cost of the project is $2.3 million.

3) That fifty percent (50%) of the cost of said Project will be hereafter assessed upon the properties receiving the improvements as follows:

   a. The total cost shall be levied based upon the frontage abutting on the beach protected or benefited by the project, at an equal rate per foot of frontage per N.C.G.S. 160A-238.

   b. The Town will assess fifty percent (50%) of the cost of the project. This assessment will be assessed to the property owners in five (5) annual installments.

   c. The "Assessment Roll" will be prepared identifying owners of those properties with frontage abutting the Project in compliance with N.C.G.S. 160A-227, briefly describing their lot, parcel or tract of land assessed, the basis for the assessment, the amount of each assessment, the terms of payment, and any discounts.

   d. Interest shall be set at three and one-half percent (3.5%) per annum.

   e. The assessed property owner has the option to pay all of their total assessment in one (1) payment without incurring interest. This payment must be paid within 30 days after the publication of the notice that the Assessment Roll has been confirmed.

4) That because of the emergency nature of the project, *none* of the assessments for the properties with frontage abutting on the Project described herein shall be held in abeyance.

5) That the assessments for the properties with frontage abutting on the Project provided herein shall be payable based upon one of the following methods;

   a. In cash; or

   b. If any property owner shall so elect and give notice of the fact to the Board of Aldermen in accordance with Chapter 160A, Sections 232 and 233 of the General Statutes of North Carolina, he shall have the option and privilege of paying the assessment in five (5) equal annual installments, said installments to bear interest at the rate of three and one-half percent (3.5%) per annum, upon confirmation and publication of the assessment roll.

6) That a Public Hearing on the matters covered in this preliminary resolution shall be held at the next regular meeting of the Board of Aldermen on **November 6, 2014 at 6:30 p.m.** in the Town Hall Meeting Room located at 2008 Loggerhead Court North Topsail Beach, N.C. 28460, which is three weeks from the date of the adoption of this resolution.

Adopted this the 15th day of October 2014.

Daniel Tuman, Mayor

(Seal)

ATTEST:

Carin Z. Faulkner, Town Clerk

C25

Town of North Topsail Beach

Daniel Tuman, Mayor
Tom Leonard, Mayor Pro Tem
Aldermen:
Suzanne Gray
Don Harte
Richard Macartney
Richard Peters

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Town Clerk

RESOLUTION 2014-16

ASSESSMENT RESOLUTION

BEACH EROSION CONTROL AND FLOOD AND HURRICANE PROTECTION WORKS NORTH END SAND BAG REVETMENT PROJECT

WHEREAS, the area north of the Topsail Reef Condominiums in North Topsail Beach has experienced inordinate erosion and has placed homes and public infrastructure north of Topsail Reef in imminent danger requiring interim erosion response measures until such time the New River Inlet can be maintained and the relocated channel begins to have a positive impact on the condition of the shoreline; and

WHEREAS, the Town of North Topsail Beach intends to undertake a sand bag revetment project on the north end of Topsail Island to provide temporary erosion protection for the residential ocean front structures north of the Topsail Reef Condominiums and to provide some flood protection to a portion of New River Inlet Road north of Port Drive; and

WHEREAS, the proposed sand bag revetment would begin at the existing "super-sized" sand bag revetment at Building #1 of the Topsail Reef Condominiums and extend 1,450 feet parallel to the existing shoreline and a 50-foot return wall would extend landward from the north end of the sand bag structure just north of the home located at 2378 New River Inlet Road; and

WHEREAS, North Carolina General Statute 160A-238 gives municipalities the authority to make special assessments against benefited property for all or part of the costs of acquiring, constructing, reconstructing, extending, or otherwise building or improving beach erosion control and flood and hurricane protection works.

NOW, THEREFORE, BE IT RESOLVED by the Board of Aldermen of the Town of North Topsail Beach, North Carolina:

1) That, in light of the threatened state of the property and infrastructure, the above mentioned Project is found to be sufficient and desirable in all respects.

2) As provided in North Carolina General Statute 160A-238, special assessments for beach erosion control and flood and hurricane protection works will be imposed as follows, by way of:

   a. An assessment shall be made on the basis of frontage abutting on a beach or shoreline protected or benefited by the project, at an equal rate per foot of frontage.

   b. The properties with frontage abutting the project that will be benefitted by the Project have been identified as properties having the Onslow County Parcel identification numbers (PARID): 027899, 044407, 028000, 044408, 044409, 033556, 035832, 044410, 002201, 002202, 002200, 002199, 002198, 002197, 002196, 002195, 042613, 002194, 015866, 042612, 015864, 042746, 008559, 033884, 010292, 042745, 034795, 018022, 041856, 030654, 034334, 005654, 042744, 001574, 034336, 034337, 001572, 001571, 034338.

   c. The estimated high-end cost of the project is $2.3 million.

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
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3) That fifty percent (50%) of the cost of said Project will be hereafter assessed upon the properties receiving the improvements as follows:

   a. The total cost shall be levied based upon the frontage abutting on the beach protected or benefited by the project, at an equal rate per foot of frontage per N.C.G.S. 160A-238.

   b. The Town will assess fifty percent (50%) of the cost of the project. This assessment will be assessed to the property owners in five (5) annual installments.

   c. The "Assessment Roll" will be prepared identifying owners of those properties with frontage abutting the Project in compliance with N.C.G.S. 160A-227, briefly describing their lot, parcel or tract of land assessed, the basis for the assessment, the amount of each assessment, the terms of payment, and any discounts.

   d. Interest shall be set at three and one-half percent (3.5%) per annum.

   e. The assessed property owner has the option to pay all of their total assessment in one (1) payment without incurring interest. This payment must be paid within 30 days after the publication of the notice that the Assessment Roll has been confirmed.

4) That because of the emergency nature of the project, *none* of the assessments for the properties with frontage abutting on the Project described herein shall be held in abeyance.

5) That the assessments for the properties with frontage abutting on the Project provided herein shall be payable based upon one of the following methods;

   a. In cash; or

   b. If any property owner shall so elect and give notice of the fact to the Board of Aldermen in accordance with Chapter 160A, Sections 232 and 233 of the General Statutes of North Carolina, he shall have the option and privilege of paying the assessment in five (5) equal annual installments, said installments to bear interest at the rate of three and one-half percent (3.5%) per annum, upon confirmation and publication of the assessment roll.

6) That a Public Hearing on the matters covered in the preliminary resolution was held on **November 6, 2014 at 6:30 p.m.** in the Town Hall Meeting Room located at 2008 Loggerhead Court North Topsail Beach, N.C. 28460, which is three weeks after the date of the adoption of the preliminary resolution.

Adopted this the 6th day of November 2014.

Daniel Tuman, Mayor

(Seal)

ATTEST:

Carin Z. Faulkner, Town Clerk

CZF

Board of Aldermen
Regular Meeting
Minntes
Thursday, November 6, 2014
6:30 P.M.*

PRESENT: Mayor Daniel Tuman, Mayor Pro Tem Tom Leonard, Aldermen Suzanne Gray, Don Harte, Richard Macartney and Richard Peters, Town Attorney Brian Edes, Town Manager Stuart Turille and Town Clerk Carin Faulkner.

I. **CALL TO ORDER:** Mayor Tuman called the meeting to order at 6:30 p.m.

II. **INVOCATION:** Mayor Tuman gave the invocation.

III. **PLEDGE OF ALLEGIANCE:** Mayor Tuman led those present in the Pledge of Allegiance.

IV. **APPROVAL OF AGENDA:**

- Mayor Pro Tem Leonard made a motion to approve the agenda with the addition of a Closed Session per NCGS 143-318.11 (3) to consult with the Town Attorney.
- Alderman Peters seconded the motion to approve the amended agenda.
- The motion passed unanimously.

V. **PUBLIC HEARINGS & PRESENTATIONS:**

A. Public Hearing – Preliminary Assessment Resolution for Beach Erosion Control and Flood and Hurricane Protection Works, North End Sand Bag Revetment Project:

- Mr. Turille introduced this item and made a presentation (Attachment A).
- Mayor Pro Tem Leonard made a motion to open the public hearing. Alderman Gray seconded the motion. The motion passed unanimously.

*There are attachments to these minutes.

Citizens made the following comments:

Cinda Sullivan of 2344 New River Inlet Road - Ms. Sullivan made comments in favor of the sand bag project. She said she is willing to pay the assessment to save her home. She loves her house and wants to keep her house. She said it is fortunate that the Town is pitching in. She said that individually, the homeowners cannot save one house, not one.

John Matthews of 2376 New River Inlet Road - Mr. Matthews said he has lived here for 17 years and has seen a lot of erosion. He commented that there is not much time left for the houses. He described the amount of sand lost under his house. He said that there are alternatives to waiting on the variance, such as the Town declaring a State of Emergency. He said that the Town should consider this, that the state will pay up to 75% of the cost. He said he thinks that this situation falls in the category of an emergency. He said that he appreciates what the Town has done and that the property owners there have spent a lot of money reconstructing. He said there is just not any time left.

Fred Burns of 2378 New River Inlet Road – Mr. Burns said he agreed with Mr. Matthews. He expressed concern about the design of the sand bag revetment and thinks that the water is going to go around the revetment and affect the road and houses nearby. He thinks that the revetment might speed up the water movement toward the north end. He quoted some previous comments made by Mr. Robert Neal, an engineer with CP&E, which were favorable to the design of the channel realignment and its effectiveness. He said he thinks the Town needs to think about what it is doing before it spends millions again. He thinks the engineers of the inlet realignment should be held liable as an engineer who designs a building that falls down should be held liable.

Cynthia Wiford of 2368 New River Inlet Road – Ms. Wiford thanked the Board, she said that the Board has been supportive of the property owners and have worked hard to help them save their houses. She said that this is an emergency; there is no doubt about it. She supports the idea of declaring a state of emergency. She described what she has gone through to protect her home and said that she is lucky that she knows people that can help her with it. She said the houses are sinking and that it's just a matter of a storm or two. She said we are all here because of the beach, every property owner his here because of the beach. She asked the Board to consider a graduated assessment that includes not just the oceanfront property owners. She said she does not know how much more the oceanfront owners can stand. She said if the road goes the Town will lose money. She asked the Board to reconsider who pays and how much to make it fair. She also expressed that the new beach in front of their houses is now State land and they don't own it anymore, she said the Town should repair it since they have lost the rights to it.

Frances Krushcluisky of 2276 New River Inlet Road – Ms. Krushelnisky said that she lives further south of some of the other homes but described the cables and wires that are now becoming exposed near her home and it is now a safety issue. She said that she has owned the home since 2001 so she used to have a row of houses in front of her. She said she agrees with the state of emergency. She said that the timeline that the Town Manager presented is not fast enough. She said when people come to the north end and see what it looks like they are shocked.

- Alderman Gray made a motion to close the public hearing. Mayor Pro Tem Leonard seconded the motion. The motion passed unanimously.
- There was discussion about the resolution, the uniqueness and urgency of the situation, and about whether the Mayor should declare a State of Emergency.
- Mr. Edes said given the legal hurdles for the variance, he advises that if the Town decides to declare a State of Emergency that it is not in lieu of the sand bag project. He said if the resolution passes tonight the Town can still declare a State of Emergency.
- Mayor Tuman said he did not think the State of Emergency is going to speed up the construction of the sand bag revetment. He said that it still requires the actions of engineers, contractors, and willing bidders to start the construction and that it is still 2-3 weeks away.
- Mayor Pro Tem Leonard said that the Town needs to act on this resolution first and task Town Staff to research the State of Emergency and see what we can find out.
- Mayor Pro Tem Leonard made a motion that the North Topsail Beach Board of Aldermen adopt Resolution 2014-16, Resolution for Beach Erosion Control and Flood and Hurricane Protection Works, North End Sand Bag Revetment Project as presented (Attachment B). Alderman Harte seconded.
- There was discussion.
- The motion passed unanimously.

B. Public Hearing – Proposed Amendment to Sec. 8.04.02 Signs that do not require a permit:

- Mr. Edes introduced this item and read the staff report.
- Alderman Macartney made a motion to open the public hearing. Alderman Gray seconded the motion. The motion passed unanimously.
- No one came forward to speak.
- Alderman Gray made a motion to close the public hearing. Alderman Macartney seconded the motion. The motion passed unanimously.
- Alderman Macartney made a motion to adopt Ordinance 2014-11 as presented and recommended by the Planning Board. Alderman Harte seconded the motion.
- There was discussion.
- The motion failed 3 to 2 Aldermen Gray and Macartney voting in favor.
- There was discussion.
- Mayor Pro Tem Leonard made a motion to recommend that the Planning Board re-examine the sign ordinance (Sec. 8.04.02) and consider reducing the size of signs allowed from 32 square feet to 18 square feet. Alderman Harte seconded the motion.

CF

Town of North Topsail Beach

Daniel Tuman, Mayor
Tom Leonard, Mayor Pro Tem
Aldermen:
Suzanne Gray
Don Harte
Richard Macartney
Richard Peters

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Town Clerk

Winner of 2014 Best Restored Beaches Award

NOTICE OF SPECIAL MEETING
North Topsail Beach Board of Aldermen

Wednesday
November 19, 2014
5:00 P.M.

The Town of North Topsail Beach Board of Aldermen will hold a Special Meeting on Wednesday, November 19th 2014 at 5:00 P.M. This meeting will be held in the Meeting Room of the North Topsail Beach Town Hall, located at 2008 Loggerhead Court, North Topsail Beach, North Carolina.

The purpose of this meeting is for the Board of Aldermen to receive recommendations on the selection of a contractor for the North End Sand Bag Revetment Project. Action may be taken at this meeting.

Contact North Topsail Beach Administration at 910.328.1349 for additional information.

Carin Z. Faulkner, Town Clerk

Posted 11/14/2014

Town of North Topsail Beach
VARIANCE REQUEST

2276-2382 New River Inlet Road

North Topsail Beach, North Carolina

Onslow County

Presentation Prepared by: Jason Dail

Date: November 16, 2014


Wilmington District
Right-of-Way Vertices
Right-of-Way Monuments
Harborline Points
Navigation Channel Points
Setback Points
Right-of-Way
Harborlines
Disposal Areas
Navigation Channels
Setbacks
Last Update: 19 Aug 2011
View of project area courtesy of Google Earth 2011.
New River Inlet
New River Inlet
Sand Spit
Project area
1568
Oyster Ln
Sea Gull Ln
1353 ft
© 2014 Google
©2009 Google
© 2014 Europa Technologies
34°31'37.27" N 77°20'29.45" W elev 0 ft
Eye alt 4697 ft


Wilmington District
Right-of-Way Vertices
Right-of-Way Monuments
Harborline Points
Navigation Channel Points
Setback Points
Right-of-Way
Harborlines
Disposal Areas
Navigation Channels
Setbacks
Last Update: 19 Aug 2011
2382 New River Inlet Road
2276 New River Inlet Road
Overview of Project Area
Topsail Reef
Photo courtesy of Google Earth – 2011 Imagery
Port Dr
Oyster Ln
Sea Gull Ln
1568
New River Inlet Rd
761 ft
© 2014 Europa Technologies
34°31'30.09" N 77°20'46.92" W elev 8 ft
Eye alt 2649 ft
©2009 Google


Overview of project area. Photo courtesy of Google Earth – April 2013
Wilmington District
Right-of-Way Vertices
Right-of-Way Monuments
Harborline Points
Navigation Channel Points
Setback Points
Right-of-Way
Harborlines
Disposal Areas
Navigation Channels
Setbacks
Last Update: 19 Aug 2011
Port Drive Beach Access
Beach Access (BA47)
Project Area
Port Dr
1568
Oyster Ln
Coastal Dr
579 ft
© 2014 Google
Image © 2014 DigitalGlobe
© 2014 Europa Technologies
34°31'30.56" N 77°20'45.76" W elev 7 ft
©2009 Google
Eye alt 2018 ft

View of project area looking north from Beach Access 47. Photo taken by DCM staff on August 1, 2014.


View Looking South from Port Drive Beach Access.
Photo taken by DCM staff on August 1, 2014
Topsail Reef
Erosion Escarpment


2324 New River Inlet Road
Erosion Escarpment
DUNES
DUNES
View looking North from Port Drive Beach Access.
Photo taken by DCM staff on August 1, 2014


View of project site looking South from Port Drive Beach Access. Photo taken by DCM staff on August 11, 2014.
2314 New River Inlet Road
Topsail Reef


Photo of project area looking North from beach.
Photo taken by DCM staff on August 11, 2014.
2324 New River Inlet Road

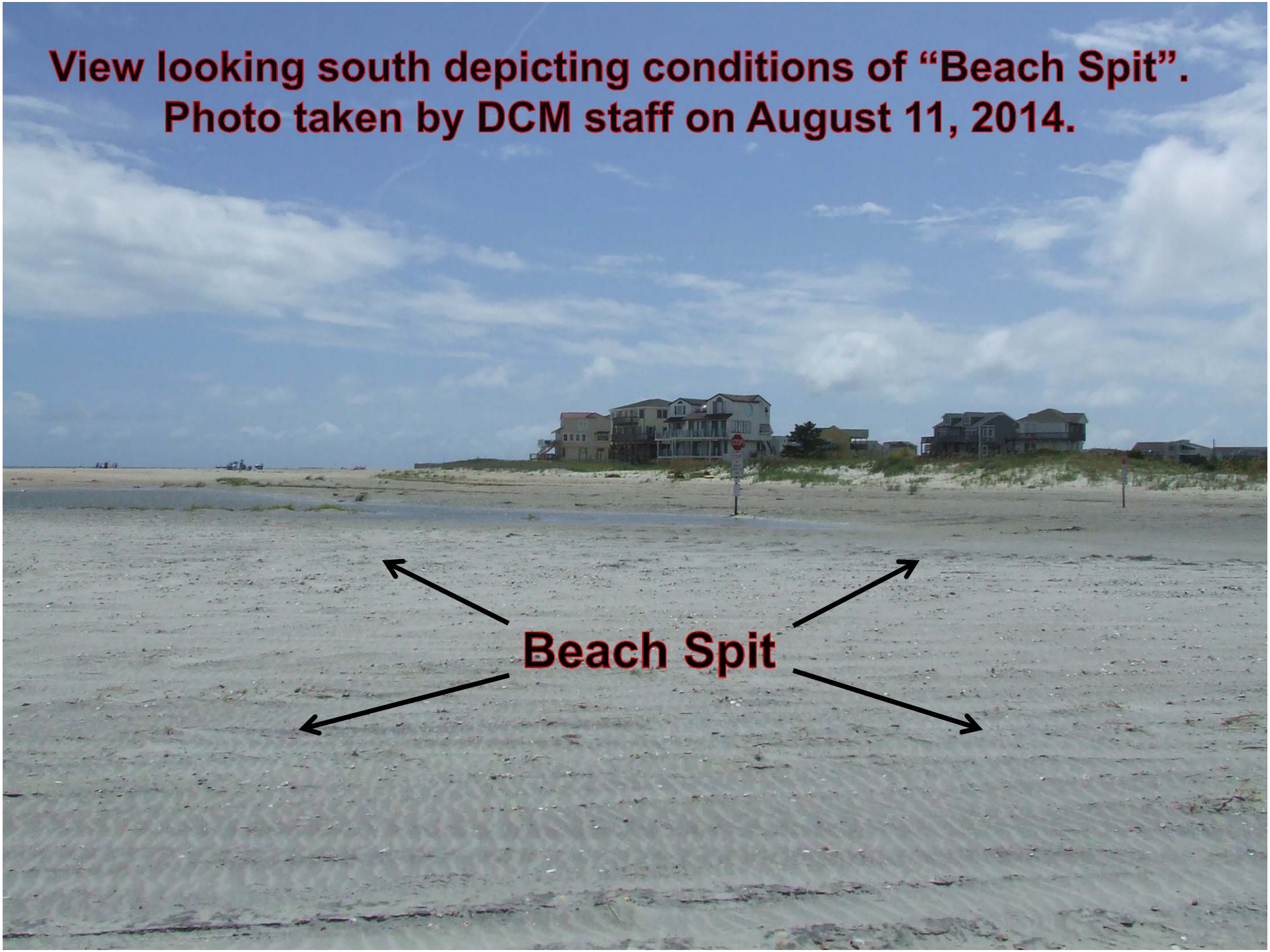

View looking south depicting conditions of “Beach Spit”.
Photo taken by DCM staff on August 11, 2014.
Beach Spit


Photo showing northern terminus of Topsail Reef sand bag revetment
Topsail Reef – Building #1
The Town's sand bag proposal would tie-in and/or connect here:
WARNING

Aero Photo

727.520.8181
www.aerophoto.com

New River Inlet Realignment
with Beach Renourishment

Image # 121120 0010
Date 11.20.12


Photo provided by Petitioner – Labeled "North End North Topsail Beach After Construction of Phase 1 February 20, 2013"
Aero Photo
727.520.8181
www.aerophoto.com
New River Inlet Realignment
with Beach Renourishment
Image # 130220 0009
Date 02.20.13


Photo provided by Petitioner – Labeled “North End before Phase 1 November 23, 2012”


Photo provided by Petitioner –
Labeled “North End after
Phase 1 January 30, 2013”

Photo provided by Petitioner

Example of Pre-Existing Condition

Slide courtesy of Dr. William Cleary


Longitudnal Bar
Marginal Flood Channel
Elongating Spit
Incipient Linear Bar Complex
Photo provided by Petitioner
October 5, 2014 Photo and Slide Courtesy of Dr. William Cleary
10/5/2014


Photo provided by Petitioner
Elongating Spit
Linear Bar
FC
Longitudnal Bar
October 5, 2014 Photo and Slide Courtesy of Dr. William Cleary
10/5/2014


Elongating Spit
Marginal Flood Channel
Photo provided by Petitioner
October 5, 2014 Photo and Slide Courtesy of Dr. William Cleary


October 5, 2014 Photo and Slide Courtesy of Dr. William Cleary
Elongating Spit
Linear Bar Complex
Flood Channel
Longitudnal Bar
Photo provided by Petitioner
10/5/2014

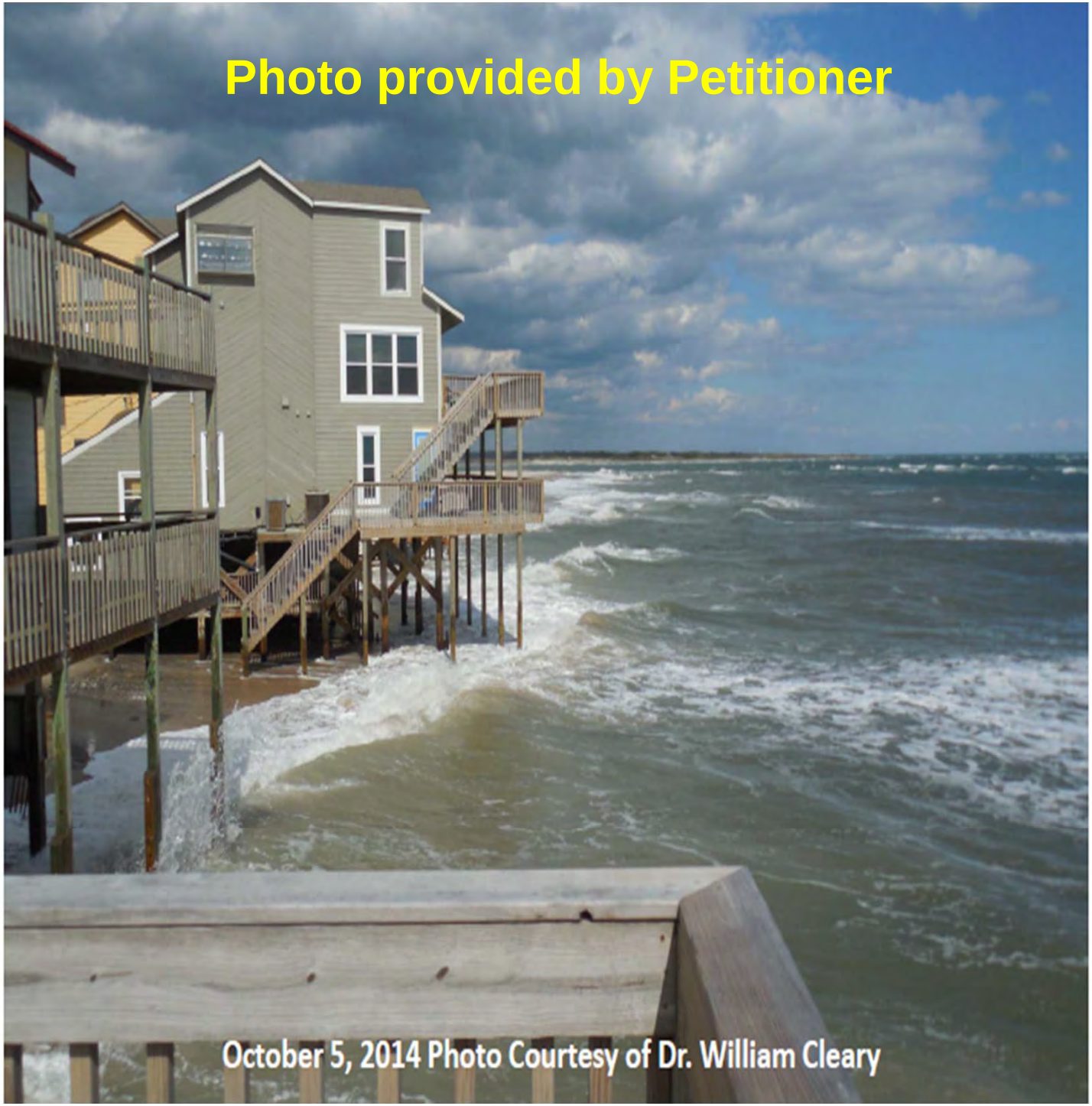


Photo provided by Petitioner
October 5, 2014 Photo Courtesy of Dr. William Cleary

North End North Topsail Beach
October 16, 2014
Note old sandbag revetment

North End North Topsail Beach
October 16, 2014

Attachment F:

Easements from the oceanfront owners to the Town of North Topsail Beach

Doc ID: 009811360002 Type: CRP
Recorded: 08/08/2012 at 11:27:24 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3793 PG 304-305

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044409

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: SOCHIN JONATHAN L & NANCY K FR
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** **Subject to Easement:** That ocean front property identified as the address of 2364 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-58, and described in **[check applicable box]:**
   - ☑ Deed Book 2126 and Page 920 of the Onslow County Registry recorded 10-OCT-03 as NR BEACH CB S1 L8A of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** **on** ***Property*** **Where** ***Activities*** **May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

In front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the ***Property***, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 30 day of MARCH, 2012.

Signature: _____

Print Name: Jonathan L. Sochin

Signature: _____

Print Name: NANCY K. FRANTZ

STATE OF Vermont
COUNTY OF Grand Isle

I, Louise H. Koss,
a Notary Public of the County and State aforesaid, certify that Jonathan Sochin and Nancy K. Frantz personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 30 day of March, 2012.

_____
Notary Public
My commission expires: 02/10/2015

LOUISE M KOSS NOTARY PUBLIC STATE OF VERMONT

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811060002 Type: CRP
Recorded: 06/05/2012 at 11:26:54 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG238-239

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #035832

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: HORNBECK JAMES R & ELIZABETH M
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2356 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-59.1, and described in [check applicable box]:
   - ☒ Deed Book 1676 and Page 72 of the Onslow County Registry recorded 12-JAN-01 as NR BEACH CB 1 L9A of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or

In front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; **(d) Grantor** acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; **(e)** This Easement binds **Grantor**, runs with the title to the ***Property***, and terminates on **December 31, 2042; (f) Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under **Grantor**; (ii) **Grantor** will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and **(g) Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the **Grantor** under seal, and if an entity, **Grantor** has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 31st day of May, 2012.

Signature: Elizabeth Hornbeck

Print Name: Elizabeth Hornbeck

Signature: Amanda F. Carlsen

Print Name: Amanda F. Carlsen

STATE OF New York
COUNTY OF Ulster

I, Amanda F. Carlsen,
a Notary Public of the County and State aforesaid, certify that Elizabeth M. Hornbeck
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of May 31, 2012.

Amanda F. Carlsen
Notary Public
My commission expires:

AMANDA F CARLSEN
Lic. #01CA6246090
Notary Public-State of New York
Qualified In ULSTER
My Commission Expires 08/09/2016

Signature: James R Hornbeck

Print Name: James R Hornbeck

Signature: _____

Print Name: _____

STATE OF New York
COUNTY OF Ulster

I, Amanda F. Carlsen,
a Notary Public of the County and State aforesaid, certify that James R. Hornbeck
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of June 1, 2012.

Amanda F. Carlsen
Notary Public
My commission expires:

AMANDA F CARLSEN
Lic. #01CA6246090
Notary Public-State of New York
Qualified In ULSTER
My Commission Expires 08/09/2016

Doc ID: 009811200002 Type: CRP
Recorded: 08/08/2012 at 11:27:08 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG268-269

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #34336

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: NIELSEN WAYNE F & MARGARET S
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2284-A NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-14.1, and described in **[check applicable box]:**
   - ☑ Deed Book 2652 and Page 678 of the Onslow County Registry recorded 9-May-06 as N TPSL SH 2 BA L48B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 29 day of May, 2012.

Signature: _____

Print Name: Wayne Nielsen

Signature: _____

Print Name: _____

STATE OF VIRGINIA
COUNTY OF LOUDOUN

I, Sheraz Francis, a Notary Public of the County and State aforesaid, certify that WAYNE NIELSEN and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of 31st May, 2012.

_____
Notary Public
My commission expires: 2/29/2016

SHERAZ FRANCIS
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES FEB. 29, 2016
COMMISSION # 7205839

Signature: _____

Print Name: Margaret S. Nielsen

Signature: _____

Print Name: _____

STATE OF VIRGINIA
COUNTY OF LOUDOUN

I, Sheraz Francis, a Notary Public of the County and State aforesaid, certify that Margaret Nielsen and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of 31st May, 2012.

_____
Notary Public
My commission expires: 2/29/2016

SHERAZ FRANCIS
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES FEB. 29, 2016
COMMISSION # 7205839

Doc ID: 009810980002 Type: CRP
Recorded: 06/08/2012 at 11:26:44 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG218-219

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #031813

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: CONEY ROGER TRUSTEE
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2390 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-53.1, and described in **[check applicable box]:**
   - ☑ Deed Book 2536 and Page 176 of the Onslow County Registry recorded 12-OCT-05 as NR BEACH CB 1 L3B of and as shown on Map Book and Page NO-SUBDIV of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

In front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the ***Property***, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 16 day of March, 2012.

Signature: Roger Corey TTE

Print Name: Roger Corey

Signature: _____

Print Name: _____

STATE OF Virginia
COUNTY OF Fairfax

I, Ana Bonilla,
a Notary Public of the County and State aforesaid, certify that Roger Corey
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 16th day of March 2012.

A. Bonilla
Notary Public
My commission expires:

ANA CECILIA BONILLA
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES JAN. 31, 2016
NOTARY # 7084801

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009968720003 Type: CRP
Recorded: 08/14/2012 at 03:46:10 PM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG622-624

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #1571

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: KRUSHELNISKY KENNETH & FRANCES
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-10

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: KRUSHELNISKY KENNETH & FRANCES
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of, 2276-2 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-10, and described in [check applicable box]:

   ☒ Deed Book 1751 and Page 777 of the Onslow County Registry recorded 9/11/2001 as N TPSL SH 2 BA L44A of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. "***Activities***" are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHERFOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 26th day of June, 2012.

Signature: _____

Print Name: Kenneth Krushelnisky

Signature: Frances Krushelnisky

Print Name: Frances Krushelnisky

STATE OF North Carolina
COUNTY OF Onslow

I, Carin Z. Faulkner,
a Notary Public of the County and State aforesaid, certify that Kenneth Krushelnisky and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 26th day of June, 2012.

_____
Notary Public
My commission expires:
November 22, 2016

CARIN Z. FAULKNER NOTARY PUBLIC NEW HANOVER COUNTY, NC

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009966750003 Type: CRP
Recorded: 08/14/2012 at 03:45:13 PM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG631-633

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #34795

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MAURAKIS TIMOTHY A & ANDREW P &
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-22.1

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MAURAKIS TIMOTHY A & ANDREW P &
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the *Property* to conduct *Activities* in the *Easement Area* (as those italicized terms are defined below), subject to the following conditions:

1. *Property* Subject to Easement: That ocean front property identified as the address of, 2304 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-22.1, and described in [check applicable box]:

   ☑ Deed Book 3296 and Page 261 of the Onslow County Registry recorded 9/18/2009 as N TPSL SH 2 BA L56B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. *Easement Area* on *Property* Where *Activities* May Take Place: That portion of the *Property*, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. *Activities*. *"Activities"* are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering *Easement Area* contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the *Easement Area*. *Activities* do not include moving or damaging permitted permanent improvements within the *Easement Area*.

4. *Grantor Reserved Rights*. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 20 day of June, 2012.

Signature: _____

Print Name: Timothy A. Maurakis

Signature: _____

Print Name: ANDREW P. MAURAKIS

STATE OF Virginia
COUNTY OF Danville

I, Donna N. Gibson, a Notary Public of the County and State aforesaid, certify that Timothy Maurakis and Andrew P. Maurakis personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of June, 2012.

_____
Notary Public
My commission expires: 1-31-2016

Signature: _____

Print Name: V BICOOVAR'S

Signature: _____

Print Name: _____

STATE OF ILLINOIS
COUNTY OF LAKE

I, _____, a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

DONNA N. GIBSON
COMMONWEALTH OF VIRGINIA
COMMISSION # 1999324
NOTARY PUBLIC

(9)

Doc ID: 009866770003 Type: CRP
Recorded: 08/14/2012 at 03:46:16 PM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG637-639

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #1574

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: NEAL GEORGE III
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-14

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: NEAL GEORGE III
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the *Property* to conduct *Activities* in the *Easement Area* (as those italicized terms are defined below), subject to the following conditions:

1. *Property* Subject to Easement: That ocean front property identified as the address of, 2284-B NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-14, and described in [check applicable box]:

   ☑ Deed Book 3622 and Page 844 of the Onslow County Registry recorded 7/14/2011 as N TPSL SH 2 BA L48A of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. *Easement Area* on *Property* Where *Activities* May Take Place: That portion of the *Property*, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. *Activities*. *"Activities"* are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering *Easement Area* contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the *Easement Area*. *Activities* do not include moving or damaging permitted permanent improvements within the *Easement Area*.

4. *Grantor Reserved Rights*. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions:* (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 29th day of MAY, 2012.

Signature: _____

Print Name: GEORGE C. NEAL III

Signature: _____

Print Name: _____

STATE OF NC.
COUNTY OF Guilford

I, LeeAnn K Wolfe,
a Notary Public of the County and State aforesaid, certify that George C Neal III and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of June 12, 2012.

_____
Notary Public
My commission expires: March 8, 2016

LEEANN K. WOLFE
Notary Public
Guilford County, North Carolina
My Commission Expires March 8, 2016

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 010112230003 Type: CRP
Recorded: 10/23/2012 at 10:23:42 AM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3870 PG184-186

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #5654

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR:TYSON STREET PARTNERS INC
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property Subject to Easement:*** That ocean front property identified as the address of2290-2 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-16, and described in **[check applicable box]:**
   ☑Deed Book3636and Page940 of the Onslow County Registry recorded 40766as N TPSL SH 2 BA L50Aof and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   ☐ See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights.*** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a)Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the*Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c)Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities*orSHORELINE PROTECTION PROJECT will provide the *Property*; (d)Grantor acknowledges (i) any raised lands created seaward of apre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f)Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 31 day of August, 2012.

Signature: Suzanne Ohanlon

Print Name: Suzanne Ohanlon

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Dare

I, Myshaina J. Kehinde,
a Notary Public of the County and State aforesaid, certify that Suzanne Ohanlon
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of August 31, 2012.

Myshaina J. Kehinde
Notary Public
My commission expires: June 10, 2017

Myshaina J. Kehinde
NOTARY PUBLIC
Wake County, NC

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of _____, 2012.

_____
Notary Public
My commission expires:

BUSINESS CORPORATION ANNUAL REPORT

NAME OF BUSINESS CORPORATION: Tyson Street Partners, Inc.

SECRETARY OF STATE ID NUMBER: 0419007 STATE OF FORMATION: NC

Filing Office Use Only

☒ Changes

REPORT FOR THE FISCAL YEAR END: 12/31/2011

SECTION A: REGISTERED AGENT'S INFORMATION

1. NAME OF REGISTERED AGENT: Suzanne O'Hanlon

2. SIGNATURE OF THE NEW REGISTERED AGENT: Suzanne O'Hanlon
SIGNATURE CONSTITUTES CONSENT TO THE APPOINTMENT

3. REGISTERED OFFICE STREET ADDRESS & COUNTY	4. REGISTERED OFFICE MAILING ADDRESS
120 Livingstone Dr	120 Livingstone Dr
Cary, NC 27513 Wake	Cary, NC 27513

SECTION B: PRINCIPAL OFFICE INFORMATION

1. DESCRIPTION OF NATURE OF BUSINESS: Consulting

2. PRINCIPAL OFFICE PHONE NUMBER: (919) 210-2222 3. PRINCIPAL OFFICE EMAIL:

4. PRINCIPAL OFFICE STREET ADDRESS & COUNTY	5. PRINCIPAL OFFICE MAILING ADDRESS
120 Livingstone Dr	2420 Tyson St
Cary, NC 27513 Wake	Raleigh, NC 27612

SECTION C: OFFICERS (Enter additional Officers in Section E.)

NAME: Suzanne O'Hanlon	NAME: Suzanne O'Hanlon	NAME:
TITLE: President	TITLE: Secretary	TITLE:
ADDRESS:	ADDRESS:	ADDRESS:
120 Livingstone Dr.	120 Livingstone Dr.	
Cary, NC 27513	Cary, NC 27513	

SECTION D: CERTIFICATION OF ANNUAL REPORT. Section D must be completed in its entirety by a person/business entity.

Suzanne O'Hanlon — August 19, 2012
SIGNATURE — DATE
Form must be signed by an officer listed under Section C of this form

Suzanne O'Hanlon — President
Print or Type Name of Officer — TITLE

SUBMIT THIS ANNUAL REPORT WITH THE REQUIRED FILING FEE OF $25

MAIL TO: Secretary of State, Corporations Division, Post Office Box 29525, Raleigh, NC 27626-0525

RECEIVED
AUG 27 2014
TON, NC

Doc ID: 009868810002 Type: CRP
Recorded: 08/14/2012 at 03:45:19 PM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG646-647

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #33884

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: TEEN PATRICK A & EILEEN F
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the **Grantee**, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2314-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-26.1, and described in **[check applicable box]:**
   - ☑ Deed Book 3411 and Page 477 of the Onslow County Registry recorded 40326 as N TPSL SH 2 BA L60B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the _____ day of _____, 2012.

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this_ day of _____, 2012.

_____
Notary Public
My commission expires:

Signature: Eileen F Teen

Print Name: EILEEN F TEEN

Signature: Patrick A Teen

Print Name: PATRICK A. TEEN

STATE OF NORTH CAROLINA
COUNTY OF WAKE

I, KATHRYN JACKSON,
a Notary Public of the County and State aforesaid, certify that EILEEN F TEEN
and PATRICK A TEEN
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 27 day of JULY, 2012.

KATHRYN JACKSON NOTARY PUBLIC WAKE COUNTY, NC

Kathryn Jackson
Notary Public
My commission expires: 08-01-2015

Doc ID: 009810930002 Type: CRP
Recorded: 06/08/2012 at 11:26:41 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG210-211

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002200

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: CHALMIN JEAN P & EILEEN
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2342 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-38, and described in **[check applicable box]:**
   - ☑ Deed Book 662 and Page 355 of the Onslow County Registry recorded 12-AUG-83 as N TPSL 2 BA L71&72AE1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

In front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; (e) This Easement binds **Grantor**, runs with the title to the ***Property***, and terminates on **December 31, 2042**; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 10th day of March, 2012.

Signature: _____

Print Name: Jean Pierre Chalmin

Signature: _____

Print Name: Eileen Chalmin

STATE OF New Jersey
COUNTY OF Monmouth

I, Maria Mignone,
a Notary Public of the County and State aforesaid, certify that Jean Pierre Chalmin and Eileen Chalmin personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 10 day of March, 2012.

_____
Notary Public
My commission expires:

MARIA MIGNONE
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES AUG. 3, 2016

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009986640003 Type: CRP
Recorded: 08/14/2012 at 03:45:02 PM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG596-598

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #1572

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: COZY HOMES OF NORTH CAROLINA INC
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-12

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: COZY HOMES OF NORTH CAROLINA INC
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of, 2280-2 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-12, and described in **[check applicable box]:**

   ☑ Deed Book 3337 and Page 133 of the Onslow County Registry recorded 12/17/2009 as N TPSL SH 2 BA L46B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 11th day of July, 2012.

Signature: Jeanne Mahyon

Print Name: Jeanne Mahyon

Signature: _____

Print Name: _____

STATE OF New York
COUNTY OF Erie

I, Marlene P. Valentine,
a Notary Public of the County and State aforesaid, certify that Jeanne Mahyon and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 11 day of July, 2012.

Marlene P. Valentine
Notary Public
My commission expires: May 29 2015

MARLENE P VALENTINE
Notary Public, State of New York
No. 01-VA6059510
Qualified in Niagara County
My Commission Expires 05/29/2015

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811420002 Type: CRP
Recorded: 06/08/2012 at 11:27:30 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG316-317

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044405

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: VANN GEORGE C & DIANN L
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2386 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-54, and described in **[check applicable box]:**
   - ☑ Deed Book 1881 and Page 838 of the Onslow County Registry recorded 12-AUG-02 as NR BEACH CB S1 L4 of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

In front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; **(d) Grantor** acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; **(e)** This Easement binds **Grantor**, runs with the title to the ***Property***, and terminates on **December 31, 2042; (f) Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under **Grantor**; (ii) **Grantor** will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and **(g) Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the **Grantor** under seal, and if an entity, **Grantor** has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 8th day of March, 2012.

Signature: G. C. Vann

Print Name: GEORGE C. VANN

Signature: Diann L Vann

Print Name: Diann L Vann

STATE OF MARYLAND
COUNTY OF Charles

I, Teresa A Cory,
a Notary Public of the County and State aforesaid, certify that DIANN LYNN VANN and George C VANN personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of March 8, 2012.

Teresa A Cory
Notary Public
My commission expires: 05/08/2013

TERESA A. CORY NOTARY PUBLIC PRINCE GEORGE'S CO., MD

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009886840012 Type: CRP
Recorded: 08/14/2012 at 03:46:22 PM
Fee Amt: $26.00 Page 1 of 12
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3831 PG 654-665

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #42745

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: WEINSTEIN SYDNEY T & OTHERS
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property Subject to Easement:*** That ocean front property identified as the address of 2310-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-24.1, and described in **[check applicable box]:**
   - ☑ Deed Book 1165 and Page 838 of the Onslow County Registry recorded 24-Feb-94 as N TPSL SH 2 BA L58B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights.*** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on **December 31, 2042**; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 29 day of June, 2012.

Signature: Pauline M Weinstein

Print Name: PAULINE WEINSTEIN

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Onslow

I, Christine Z Henderson, a Notary Public of the County and State aforesaid, certify that Pauline Weinstein and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 29th day of June, 2012.

Christ Z Henderson
Notary Public
My commission expires: 6/20/16

CHRISTINE Z HENDERSON
NOTARY PUBLIC
Onslow County
North Carolina
My Commission Expires June 20, 2016

Signature: Mila Masur

Print Name: Mila Masur

Signature: DM

Print Name: DANIEL R MASUR

STATE OF North Carolina
COUNTY OF Onslow

I, Christine Z Henderson, a Notary Public of the County and State aforesaid, certify that Mila Masur and Daniel R Masur personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 29th day of June, 2012.

Christ Z Henderson
Notary Public
My commission expires: 6/20/16

CHRISTINE Z HENDERSON
NOTARY PUBLIC
Onslow County
North Carolina
My Commission Expires June 20, 2016

LAST WILL AND TESTAMENT

OF

SIDNEY THOMAS WEINSTEIN

I, SIDNEY THOMAS WEINSTEIN, a resident of Great Falls in Fairfax County in the Commonwealth of Virginia, and a citizen of the United States, do make, publish and declare this my last will and testament ("Will") and revoke all former wills and codicils.

I am married to PAULINE M. WEINSTEIN, and references to my "Wife" are to her. My Wife and I have three children, HALEE F. WEINSTEIN, MILA S. MASUR and MICHAEL D. WEINSTEIN. References to my "child(ren)" are to them.

ARTICLE ONE - TANGIBLE PERSONAL PROPERTY:

I may leave a list or other writing describing certain items of my tangible personal property to be distributed to certain named individuals. If I leave a writing, and it is legally binding, I direct that it be followed and prevail over the dispositions below in this Article. If the writing is not legally binding, I request that my wishes, as expressed therein, be followed.

If no writing is found within thirty (30) days of my death, my estate shall be administered as if none exists.

I give all items not contained in a list to my Wife, PAULINE M. WEINSTEIN, if she survives me.

If my Wife does not survive me, I give the items to my children who survive me, to be divided in approximately equal shares, as they agree, or if they are unable to agree, as the Executor determines. The determination of the Executor is conclusive on all persons interested in my estate. The living children of a deceased child of mine shall take the share of their parent.

ARTICLE TWO - PAYMENT OF TAXES:

The Executor shall pay all estate, inheritance, legacy, succession or other death taxes imposed on account of my death (including interest and penalties on those taxes, but excluding any tax imposed as a result of a direct skip under Chapter 13 or IRC sections 2036, 2041 or 2044, or a corresponding section of state law) (collectively, "Estate Taxes"), from the residue of my estate, including any trust established under my Will to hold part or all of the residue.

Initials: _____

MALONEY & YURACHEK, P.C., 104 North Oak Street, Falls Church, Virginia 22046

Any asset upon which Estate Taxes are imposed that would be entitled to any deduction in computing any Estate Taxes shall have the full benefit of that deduction in determining its proper share of Estate Taxes.

ARTICLE THREE - RESIDUE:

A. I give the rest, residue and remainder of my property and estate, real and personal, of whatever nature and wherever situated, including any property before mentioned but not effectually disposed of ("residue") to my Wife, PAULINE M. WEINSTEIN, if she survives me.

If my Wife survives, but disclaims any assets, the assets shall be distributed to the Trustee of the Weinstein Family Trust.

B. If my Wife fails to survive me, or if the Weinstein Family Trust is created, at the death of my Wife, the assets shall be divided into as many equal shares as required to provide one (1) share for each of my children who is living and one (1) share for the then living issue, *per stirpes*, of each child of mine who has died leaving issue surviving.

Any share for the issue of a deceased child shall be further divided into as many equal shares as required to provide one share for each of the issue, *per stirpes*.

The share or portion for each beneficiary shall be distributed to him or her, subject to the provisions of Article Four.

C. If the Weinstein Family Trust ("Family Trust") is created by the provisions of this Article, the trust shall be managed and administered according to the following terms:

1. During the lifetime of my Wife, the Trustee shall distribute to or for her all of the net income of the Family Trust.

2. The Trustee shall also distribute to or for my Wife as much of the trust principal as required for her health, education and maintenance and for support in her accustomed manner of living. In making distributions under this paragraph, the Trustee need not consider other sources of income and assets available to my Wife.

3. The primary purpose of the Family Trust is to provide for my Wife and to insure that she is able to enjoy a comfortable lifestyle throughout her lifetime. The Trustee shall give primary consideration to the needs and desires of my Wife.

4. My Wife as Trustee has no authority to participate in any distribution as to which she would be an Interested Trustee, as that term is defined herein.

5. Upon the death of my Wife, assets remaining in the Family Trust shall be distributed as provided in Paragraph B of this Article.

D. If under the terms of this Article a part of my estate would be distributable to a beneficiary immediately upon receipt by the Trustee, notwithstanding any provision herein to the contrary, I direct that part of my estate be distributed by the Executor directly to the beneficiary.

ARTICLE FOUR - TRUST PROVISIONS FOR CERTAIN BENEFICIARIES:

If the Executor or Trustee determines it is in the best interests of a beneficiary to do so, property passing to a beneficiary who has not reached twenty-five (25) ("beneficiary") at the time the property is to be distributed to him or her may be distributed instead to the Trustee. The property shall be held in a separate trust for each beneficiary who would otherwise receive property outright, and each beneficiary shall be the sole beneficiary of his or her separate trust share (referred to in this Article as a "trust").

A. The following provisions apply during the term of each trust.

1. The Trustee shall distribute to or for the beneficiary as much of the net income and/or principal of the trust as the Trustee determines advisable for the beneficiary's health, education, maintenance and support in his or her accustomed manner of living.

It is my preference, but not my direction, that priority be given to distributions for educational expenses for any beneficiary who has not completed his or her education.

2. The Trustee may distribute to or for the beneficiary as much of the net income and/or principal of the trust as the Trustee determines for any purpose.

3. Undistributed net income shall be accumulated and added to principal annually.

B. At the earlier of the date on which the beneficiary reaches twenty-five (25) or the end of the Maximum Duration for Trusts, defined below, the Trustee shall distribute the remaining trust property to the beneficiary, or if he or she is not then living, to the estate of the beneficiary.

C. The Maximum Duration for Trusts means the longest period that property may be held in trust under this Agreement under the applicable rules governing perpetuities, vesting, accumulations, the suspension of alienation, and the like (including any applicable period in gross such as twenty-one (21) years and ninety (90) years).

If under those rules the Maximum Duration for Trusts shall be determined (or alternatively determined) with reference to the death of the last survivor of a group of persons alive on the date of my death, those persons shall be my Wife and my descendants.

ARTICLE FIVE - SPENDTHRIFT TRUST:

No interest in any trust hereunder shall be subject to the liabilities or creditor claims of any beneficiary or to assignment or anticipation.

If the Trustee determines that a beneficiary would not benefit as greatly from any outright distribution of trust income or principal because of the availability of the distribution to the beneficiary's creditors, the Trustee shall instead expend those amounts for the benefit of the beneficiary. This direction is intended to enable the Trustee to give the beneficiary the maximum possible benefit and enjoyment of all of the trust income and principal to which the beneficiary is entitled.

ARTICLE SIX - QUALIFIED RETIREMENT BENEFITS:

"Qualified Retirement Benefits" means amounts held in or payable pursuant to a plan (of whatever type) qualified under Code Sec. 401 or an individual retirement arrangement under Code Sec. 408 or Code Sec. 408A or a tax-sheltered annuity under Code Sec. 403 or any other benefit subject to the distribution rules of Code Sec. 401(a)(9).

The Executor or Trustee may exercise any right to determine the manner and timing of payment of Qualified Retirement Benefits that is available to the recipient of the benefits, but must exercise these rights in a manner consistent with the federal income tax rules regarding required distributions under Code Sec. 401(a)(9).

The Executor and Trustee are authorized to identify and designate the person who is the "designated beneficiary" under applicable provisions of the Code and Regulations, and whose life expectancy may be used to measure payments to any trust. The Executor or Trustee may name as designated beneficiary any person to whom income, principal, or both may then be distributable under the terms of this Will or any trust hereunder.

Notwithstanding any other provision herein, the Executor or Trustee shall promptly distribute to the beneficiary outright and free of trust, all amounts withdrawn by or distributed to the Executor or Trustee from any plan, trust or account as to which that person is the designated beneficiary, and that are not otherwise distributable to the person under other provisions herein.

ARTICLE SEVEN - EXECUTORS AND TRUSTEES:

A. I appoint my Wife, PAULINE M. WEINSTEIN, as Executor of my estate. If she ceases or fails to serve, I appoint my daughter, HALEE F. WEINSTEIN, as Alternate.

Initials: _____

Executor. If she ceases or fails to act, I name my daughter, MILA S. MASUR, or my son, MICHAEL D. WEINSTEIN, in that order, as Alternate Executor.

If the Weinstein Family Trust is created at my death, my Wife may act as sole Trustee of the trust if she wishes to do so. If my Wife fails or ceases to act as Trustee, or if at any time a Co-Trustee is needed and my Wife fails to appoint one, I appoint my daughter, HALEE F. WEINSTEIN as (Co-)Trustee of the Weinstein Family Trust. If my daughter ceases or fails to act, I name MILA or MICHAEL, in that order, to succeed her.

I appoint one or both of my surviving children as Trustee of the trust under Article Four.

B. Any Trustee may appoint a Successor Trustee to serve upon the death, incapacity or resignation of the Trustee making the appointment, *provided*, that no appointment of a Successor is effective if any Successor appointed herein is willing and able to act.

Any Executor or Trustee may appoint a Co-Executor or Co-Trustee, *provided*, that if more than one Executor or Trustee is acting at the time, the appointment must be unanimous.

Any appointment shall be made by a written instrument delivered to the individual appointed, to all adult beneficiaries and to the Guardian(s) of minor beneficiaries and may be revoked or changed by a similar instrument prior to becoming effective.

A Trustee may resign by a written instrument filed in the court where this Will is probated, and the resignation takes effect upon the filing.

C. I direct that the Trustees not be required to file annual accounts with a court as otherwise required by Virginia (or any other state) law and that the Executor and Trustees be exempt from giving bond or other security.

D. An "Interested Trustee" for any trust is a Trustee who is (i) a transferor of property to the trust, including a person whose qualified disclaimer resulted in property passing to the trust; or (ii) a person who is or in the future may be eligible to receive income or principal pursuant to the terms of the trust. A Trustee described in (i) is an Interested Trustee only with respect to the transferred property (including income and gain on, and reinvestment of, such property). A person is described in (ii) even if he or she has a remote contingent remainder interest, but is not described in (ii) if the person's only interest is as a potential appointee under a Non-Fiduciary Power of appointment held by another person the exercise of which will take effect only in the future, such as a testamentary power held by a living person. A Trustee who is not an Interested Trustee is a "Disinterested Trustee."

Notwithstanding any other provisions of this Will, each Trustee is prohibited from making, voting on, or otherwise participating in any discretionary distribution of income or

Initials: _____

principal from a trust that would discharge or substitute for a legal obligation of that Trustee, including the obligation to support a beneficiary of the trust.

E. Each Executor and Trustee shall be reimbursed for expenses and is entitled to receive reasonable compensation in accordance with the law of Virginia in effect at the time of payment, unless an Executor or Trustee waives compensation.

If an institution with trust powers acts as Executor or Trustee, it shall be compensated in accordance with its fee schedule as in effect at the time of payment.

ARTICLE EIGHT - FIDUCIARY POWERS:

Without prior authority from any court, as to any property in my estate or any trust, or otherwise in their possession, any Executor or Trustee may exercise all powers conferred by law upon Executors and Trustees, or both (including all of those powers more particularly enumerated in Section 64.1-57 of the Code of Virginia, as amended, which powers are incorporated herein by reference), or expressed in this Will, and I intend that these powers be construed in the broadest possible manner, except as otherwise specifically noted herein:

- Power to determine what property is covered by general descriptions in this Will.

- Power to pay my debts (including the expenses of my last illness, which may be paid out of my estate) and the expenses of my funeral and disposition of my remains in keeping with my wishes, as soon as the convenience of my estate permits and without regard to any limitation in applicable law as to the amount of the expenses.

If any property in which I have an interest is encumbered by a deed of trust or lien or is pledged to secure any obligation, I intend that the indebtedness not mandatorily be charged to or paid by my estate, but that the Executor have absolute discretion as to whether the indebtedness is paid in whole or in part.

- Power to pay or deliver any legacy without waiting the time prescribed by law.

- Except as otherwise specifically provided, power to apply to the use of any person any property, whether principal or income, vesting in or payable to that person, and in the case of a minor (a) to do so without regard either to the duty of any person to furnish support for the minor or the availability of other funds for that purpose, or (b) to pay or deliver the same to the minor, or to a guardian or custodian under a gifts or transfer to minors act, including a custodian selected by the Executor or Trustee (who may select age twenty-one (21) for termination of the custodianship), or to a parent of a minor, or to a person with whom the minor resides.

SAW

Initials: ____

• Power without the consent of any beneficiary to make distributions (including the satisfaction of any pecuniary bequest) in cash or in specific property, real or personal, or an undivided interest therein, or partly in cash and partly in such property.

• Power to exchange, lease or mortgage real property or to sell the property at public or private sale, for cash or upon credit or partly for cash and partly for credit and upon other terms the Executor or Trustee determines, and to execute and deliver deeds, leases, mortgages and other related instruments. No purchaser is liable for the application of the proceeds of any sale.

• Power to take any action with respect to any security, stock, bond, commodity, certificate of deposit, treasury bill or note, option, annuity, interest in a mutual fund, limited partnership interest or any other type of property, real or personal, tangible or intangible, of whatever kind and nature without limitation, and specifically to exercise or decline to exercise any stock option.

• Power to allocate receipts and disbursements between income and principal in the manner the Executor or Trustee determines, even though a particular allocation may be inconsistent with otherwise applicable state law.

• Subject to other provisions herein, power to permit any person having any interest in the income of the trust to occupy real property upon terms the Trustee deems proper, whether rent free or for the payment of taxes, insurance, maintenance and ordinary repairs, or otherwise; however, my Wife shall not be required to pay for her use of any real property.

• Power to exercise all rights, elections, options, privileges and other powers, to receive all payments, in respect of any insurance policy on my life or the life of another if the policy is owned by me or relating to me or any other person, including but not limited to the power to collect dividends, death or other benefits (including disability benefits), surrender payments, and any other payment that is due or collectible, and if I am the owner of a policy of insurance on the life of another, power to continue paying the premiums or to discontinue payments, in the discretion of the Executor or Trustee.

ARTICLE NINE - DEFINITIONS AND MISCELLANEOUS PROVISIONS:

The following definitions and miscellaneous provisions apply under this Will:

A. References to "children" and "descendants" include children and descendants whenever born as well as those legally adopted prior to the age of nineteen (19).

B. If the date of death of a beneficiary is relevant to his or her entitlement, a beneficiary who dies within ninety (90) days following the date of my death or the termination

of, or distribution from, any trust under this Will, is deemed to have predeceased me for all purposes of this Will.

C. Property to be divided among the surviving or then living descendants of any person, "*per stirpes*" shall be divided into as many equal shares as there are then living children or descendants of deceased children of that person. A share allocated to a deceased child of a person shall be divided further among the surviving or then-living descendants of the deceased child in the same manner.

D. References to the "Internal Revenue Code" or "Code" or to provisions thereof are to the Internal Revenue Code of 1986, as amended at the time in question. References to the "Regulations" or "Regs" are to the Treasury Regulations under the Internal Revenue Code.

E. If I am the custodian of any property for the benefit of a minor under the Uniform Gifts to Minors Act or Uniform Transfer to Minors Act of any state and if no successor custodian is otherwise appointed, I appoint my Wife as successor custodian. If my Wife is unable or unwilling to serve as successor, I appoint any of my children as successor custodian. I also delegate to my Wife or if she fails to serve, to any of my children, all rights I hold at the time of my death with respect to any account created under IRC §529 or any similar account.

IN WITNESS WHEREOF, I have set my hand this 11th day of May, 2007.

SW

SIDNEY THOMAS WEINSTEIN

The foregoing instrument, published and declared by the Testator to be his Last Will and Testament ("Will"), in the presence of us, all present at the same time, who at his request, in his presence and in the presence of each other, have hereto subscribed our names as witnesses this 11th day of May, 2007.

Sharon L Snell residing at Mechanicsburg, Pa.

Jessica Adam residing at Woodbridge V.A.

COMMONWEALTH OF VIRGINIA,
COUNTY OF FAIRFAX, to-wit:

Before me, the undersigned notary public, on this day personally appeared SIDNEY THOMAS WEINSTEIN, Sharon Snell, and Jessica Adam, known to me to be the Testator and the witnesses, respectively, whose names are signed to the foregoing instrument and, all of these persons being by me first duly sworn, SIDNEY THOMAS WEINSTEIN, the Testator, declared to me and to the witnesses in my presence that the instru-

ment is his Will that he had willingly signed and executed it in the presence of the witnesses as his free and voluntary act for the purposes therein expressed; that the witnesses stated before me that the foregoing Will was executed and acknowledged by the Testator as his Will in the presence of the witnesses who in his presence and at his request, and in the presence of each other subscribed their names as attesting witnesses on the day of the date of the Will, and that the Testator, at the time of execution of the Will, was over the age of eighteen (18) years and of sound and disposing mind and memory.

Sworn and acknowledged before me by SIDNEY THOMAS WEINSTEIN, the Testator, and Sharon Snell, witness, and Jessica Adams, witness, this 11th day of May, 2007.

Notary Public

My Commission Expires: July 31, 2007

8274\weinstein.will

MALONEY & YURACHEK, P.C., 104 North Oak Street, Falls Church, Virginia 22046

COMMONWEALTH OF VIRGINIA - CERTIFICATE OF DEATH

DEPARTMENT OF HEALTH - DIVISION OF VITAL RECORDS - RICHMOND

COPY A FOR DIVISION OF VITAL RECORDS

REGISTRATION AREA NUMBER: 139 | CERTIFICATE NUMBER: 1669 | STATE FILE NUMBER:

DECEDENT

1. FULL NAME OF DECEDENT: Sidney (first) Thomas (middle) Weinstein (last)
2. SEX: male [X] female [ ]
3. DATE OF DEATH (mo) (day) (year): May 24, 2007
4. AGE: 72 years
If under 1 year: months / days
If under 1 day: hours / minutes
5. DATE OF BIRTH (mo) (day) (year): November 1, 1934
6. WAS DECEDENT EVER IN U.S. ARMED FORCES? yes [X] no [ ]

PLACE OF DEATH

7. NAME OF HOSPITAL OR INSTITUTION OF DEATH (If not, so state): None - Residence
DOA [ ] Out Pt. Emer Rm [ ] Inpatient [ ]
8. COUNTY OF DEATH (If independent city, leave blank): Fairfax County
8. CITY OR TOWN OF DEATH: Great Falls
Inside City or Town Limits? yes [ ] no [X]
10. STREET ADDRESS OR RT. NO. OF PLACE OF DEATH: 11936 Holly Branch Court

USUAL RESIDENCE OF DECEDENT

11. STATE (OR FOREIGN COUNTRY) OF DECEDENT'S RESIDENCE: Virginia
12. COUNTY OF DECEDENT'S RESIDENCE (If independent city, leave blank): Fairfax County
13. CITY OR TOWN OF RESIDENCE: Great Falls
Inside City or Town Limits? yes [ ] no [X]
14. STREET ADDRESS OR RT. NO. OF RESIDENCE: 11936 Holly Branch Court
ZIP CODE: 22066

PERSONAL DATA OF DECEDENT

15. NAME OF DECEDENT'S FATHER: Morris Weinstein
16. MAIDEN NAME OF DECEDENT'S MOTHER: Ida Mozenter
17. RACE OF DECEDENT: White
18. OF HISPANIC ORIGIN? (If yes, specify Cuban, Mexican, Puerto Rican, etc.): no [X] yes [ ]
19. EDUCATION (Specify only highest grade completed): Elementary/Secondary (0-12): ____ College (1-4 or 5+): 5+
20. CITIZEN OF WHAT COUNTRY: U.S.A.
21. BIRTHPLACE (State or country): New Jersey
22. NEVER MARRIED [ ] DIVORCED [ ] MARRIED [X] WIDOWED [ ]
23. IF MARRIED OR WIDOWED, NAME OF SPOUSE (If divorced leave blank): Pauline Weinstein
24. SOCIAL SECURITY NUMBER: 153 - 30 - 0833
25. USUAL OR LAST OCCUPATION: Intelligents Officer
26. KIND OF BUSINESS OR INDUSTRY: U. S. Army
27. INFORMANT - OR SOURCE OF INFORMATION - RELATIONSHIP: Pauline Weinstein - Wife

CAUSE OF DEATH

TO PHYSICIAN: Complete and sign medical certification (item 28) and return both copies to funeral director as soon as possible after determination of cause.

NOTE: If "Pending" must be indicated, so state in part 1 and notify registrar of final decision as soon as possible.

MEDICAL CERTIFICATION

28. PART I. Enter the disease, injuries, or complications that caused the death. Do not enter the mode of dying, such as cardiac or respiratory arrest, shock, or heart failure. List only one cause on each line.

IMMEDIATE CAUSE (Final disease or condition resulting in death): (a) Chronic Obstructive Airway Disease
DUE TO (OR AS A CONSEQUENCE OF):

Sequentially list conditions, if any, leading to immediate cause. Enter UNDERLYING CAUSE (disease or injury that initiated events resulting in death) LAST
(b) DUE TO (OR AS A CONSEQUENCE OF):
(c)

PART II. Other significant conditions contributing to death but not resulting in the underlying cause given in Part I.

28a. AUTOPSY AUTHORIZED BY: yes [ ] no [X]

28b. IF FEMALE, WAS THERE A PREGNANCY IN PAST 3 MONTHS? yes [ ] no [ ] unknown [ ]
28c. IF EXTERNAL CAUSE, IT WAS: PRIMARY [ ] or CONTRIBUTING [ ] TO CAUSE OF DEATH
28d. DESCRIBE HOW INJURY RELATING TO DEATH OCCURRED
28e. TIME OF INJURY (mo) (day) (year): A.M. P.M.
28f. INJURY OCCURRED: while at work [ ] not while at work [ ]
28g. PLACE OF INJURY (home, farm, factory, street, office bldg., etc.)
28h. (city or town) (county) (state)

29. To the best of my knowledge, death occurred at 6:15 PM on the date and place and from the cause(s) stated.
DATE SIGNED: 5/25/16
ACTUAL SIGNATURE OF ATTENDING PHYSICIAN: R Weinberg
NAME OF ATTENDING PHYSICIAN (Type or Print): R Weinberg
ADDRESS OF ATTENDING PHYSICIAN: 4715 N 15th St Arlington VA 22205

FUNERAL DIRECTOR

30. BURIAL [ ] REMOVAL [ ] CREMATION [X]
PLACE OF BURIAL, REMOVAL, ETC.: Metropolitan Crematory (name of cemetery or crematory) Alexandria, VA (city or county) (state)
31. (Signature of funeral director or person acting as such who filed certificate)
FUNERAL DIRECTOR'S LICENSE NUMBER OR ID#:
NAME OF FUNERAL HOME AND ADDRESS: Jefferson Funeral Chapel 5755 Castlewellan Dr. Alexandria, VA 22315

REGISTRAR

32. (Signature of registrar)
DATE RECORD FILED: 5/30/07
RESERVED FOR REGISTRAR'S USE

VS-2.7M4

This is to certify that this is a true and correct reproduction of the original record filed with the FAIRFAX COUNTY HEALTH DEPARTMENT, FAIRFAX VIRGINIA.

MAY 30, 2007
DATE ISSUED

DEPUTY REGISTRAR

(SEAL)

VOID IF ALTERED OR DOES NOT BEAR IMPRESSED SEAL

Doc ID: 010112090002 Type: CRP
Recorded: 10/23/2012 at 10:23:28 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3870 PG151-152

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #15866

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR:KREIGHBAUM WILLIAM M
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** **Subject to Easement:** That ocean front property identified as the address of2324-2 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-30, and described in **[check applicable box]:**
   ☑Deed Book3415and Page539 of the Onslow County Registry recorded 40333as N TPSL 2 BA L64A E1/2of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   ☐See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a)Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the*Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c)Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities*orSHORELINE PROTECTION PROJECT will provide the *Property*; (d)Grantor acknowledges (i) any raised lands created seaward of apre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f)Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 21st day of August, 2012.

Signature: William M Kreighbaum

Print Name: WILLIAM M KREIGHBAUM

Signature: _____

Print Name: _____

STATE OF VA
COUNTY OF York

I, Kathryn E. Wason, a Notary Public of the County and State aforesaid, certify that William M. Kreighbaum and N/A personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 21st day of August, 2012.

Kathryn E Wason
Notary Public
My commission expires: 5/31/16

KATHRYN E. WASON NOTARY PUBLIC REG. #207857 MY COMMISSION EXPIRES 5/31/16 COMMONWEALTH OF VIRGINIA

Signature: William M Kreighbaum

Print Name: WILLIAM M KREIGHBAUM

Signature: _____

Print Name: _____

STATE OF VA
COUNTY OF York

I, Kathryn E. Wason, a Notary Public of the County and State aforesaid, certify that William M. Kreighbaum and N/A personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 21st day of August, 2012.

Kathryn E Wason
Notary Public
My commission expires: 5/31/16

KATHRYN E. WASON NOTARY PUBLIC REG. #207857 MY COMMISSION EXPIRES 5/31/16 COMMONWEALTH OF VIRGINIA

Doc ID: 009812160002 Type: CRP
Recorded: 08/08/2012 at 03:29:19 PM
Fee Amt: $26.00 Page 1 of 2
Revenue Taxi $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG637-638

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #033556

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: PAOLINI ALEX & OTHERS
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2362 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-58.1, and described in [check applicable box]:
   - ☑ Deed Book 2943 and Page 317 of the Onslow County Registry recorded 06-SEP-07 as NR BEACH CB S1 L8B of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. "***Activities***" are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 19 day of March, 2012.

Signature: _____

Print Name: ALEX PAOLINI

Signature: _____

Print Name: CARL HIGGINBOTHAM

STATE OF West Virginia
COUNTY OF Kanawha

I, Lisa Marker,
a Notary Public of the County and State aforesaid, certify that Alex Paolini and Carl Higginbotham personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of March 19 2012.

_____
Notary Public
My commission expires: 8/25/16

OFFICIAL SEAL
Notary Public, State Of West Virginia
LISA R. MARKER
103 Walnut Street
Dunbar, WV 25064
My Commission Expires August 25, 2016

Signature: _____

Print Name: PAUL HAZINSKI

Signature: _____

Print Name: _____

STATE OF West Virginia
COUNTY OF Kanawha

I, Lisa Marker,
a Notary Public of the County and State aforesaid, certify that Paul Hazinski and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of March 19 2012.

_____
Notary Public
My commission expires: 8/26/16

OFFICIAL SEAL
Notary Public, State Of West Virginia
LISA R. MARKER
103 Walnut Street
Dunbar, WV 25064
My Commission Expires August 25, 2016

Doc ID: 010210780002 Type: CRP
Recorded: 12/19/2012 at 12:02:00 PM
Fee Amt: $26.00 Page 1 of 2
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3903 PG 29-30

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002198

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: GIOVINAZZO JORGE L & VALERIE L
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

EXCISE TAX PAID $ 0

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2338 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-36, and described in [check applicable box]:
   - ☑ Deed Book 2867 and Page 117 of the Onslow County Registry recorded 03-MAY-07 as N TPSL 2 BA L69&70AE1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the _____ day of _____, 2012.

Signature: _____

Print Name: Jorge Luis Giovinazzo

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Wake

I, Lois M. Kurtz,
a Notary Public of the County and State aforesaid, certify that Jorge Luis Giovinazzo and Valerie Giovinazzo personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 2 day of December, 2012.

Lois M Kurtz
Notary Public
My commission expires: 10/11/2016

LOIS M. KURTZ NOTARY PUBLIC WAKE COUNTY, N.C.

Signature: _____

Print Name: Valerie Giovinazzo

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Wake

I, Lois M. Kurtz,
a Notary Public of the County and State aforesaid, certify that Valerie Giovinazzo and Jorge Luis Giovinazzo personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 2 day of December, 2012.

Lois M Kurtz
Notary Public
My commission expires: 10/11/2016

LOIS M. KURTZ NOTARY PUBLIC WAKE COUNTY, N.C.

Doc ID: 009811150002 Type: CRP
Recorded: 06/08/2012 at 11:27:03 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG258-259

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044410

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MALONE KAREN B
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** **Subject to Easement:** That ocean front property identified as the address of 2354 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-59, and described in **(check applicable box):**
   - ☑ Deed Book 2813 and Page 438 of the Onslow County Registry recorded 02-FEB-07 as NR BCH CB S1 L9B of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** **on** ***Property*** **Where** ***Activities*** **May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 30th day of March, 2012.

Signature: Karen B Malone

Print Name: KAREN B MALONE

Signature: N/A

Print Name: N/A

STATE OF North Carolina
COUNTY OF Onslow

I, Christine Z Henderson,
a Notary Public of the County and State aforesaid, certify that Karen B Malone and N/A personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of 30th March 2012.

Christine Z Henderson

Notary Public
My commission expires: 6/20/16

CHRISTINE Z HENDERSON
NOTARY PUBLIC
Onslow County
North Carolina
My Commission Expires June 20, 2016

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____

Notary Public
My commission expires:

(4)

Doc ID: 010112150004 Type: CRP
Recorded: 10/23/2012 at 10:23:34 AM
Fee Amt: $26.00 Page 1 of 4
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3870 PG164-167

BEACH NOURISHMENT EASEMENT AGREEMENT

For Onslow County Parcel ID #8559

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: PROCTOR RUSSELL L III & NANCY W &
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

AUG 2 7 2014

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #008559

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: PROCTOR RUSSELL L III & NANCY W &
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2314-2 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-26, and described in **[check applicable box]:**

   ☑ Deed Book 706 and Page 464 of the Onslow County Registry recorded 20-Aug-1984 as N TPSL 2 BA L60A E1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or

page 2 of 3

repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this Instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 13th day of August, 2012.

Signature: Russell L. Proctor III

Print Name: Russell L. Proctor III

Signature: _____

Print Name: _____

STATE OF NC
COUNTY OF Nash

I, Jennifer Joyner, a Notary Public of the County and State aforesaid, certify that Russell Proctor III and _____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this 13th day of August 2012.

Jennifer Joyner
Notary Public

My commission expires: 5-1-16

Jennifer Joyner, Notary Public
Nash County, North Carolina
My Commission
Expires 5-1-16

Signature: Nancy W. Proctor

Print Name: Nancy W. Proctor

Signature: _____

Print Name: _____

STATE OF NC
COUNTY OF Nash

I, Jennifer Joyner, a Notary Public of the County and State aforesaid, certify that Nancy Proctor and _____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this 13th day of August, 2012.

Jennifer Joyner
Notary Public

My commission expires: 5-1-16

Jennifer Joyner, Notary Public
Nash County, North Carolina
My Commission
Expires 5-1-16

page 3 of 3

repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the ***Property***, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 13th day of August, 2012.

Signature: Charles D. Ward

Print Name: Charles D. Ward

Signature: _____

Print Name: _____

STATE OF NC
COUNTY OF Nash

I, Jennifer Joyner,
a Notary Public of the County and State aforesaid, certify that Charles D. Ward and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 13th day of August, 2012.

Jennifer Joyner
Notary Public

My commission expires: 5-1-16

Jennifer Joyner, Notary Public
Nash County, North Carolina
My Commission Expires 5-1-16

Signature: Neil M. Ward

Print Name: Neil M. Ward

Signature: _____

Print Name: _____

STATE OF NC
COUNTY OF Nash

I, Jennifer Joyner,
a Notary Public of the County and State aforesaid, certify that Neil M. Ward and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 13th day of August, 2012.

Jennifer Joyner
Notary Public

My commission expires: 5-1-16

Jennifer Joyner, Notary Public
Nash County, North Carolina
My Commission Expires 5-1-16

(3)

Doc ID: 009866700003 Type: CRP
Recorded: 08/14/2012 at 03:46:08 PM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3831 PG 616-618

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #10292

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: HEID GERARD J & MARYANN
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-24

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: HEID GERARD J & MARYANN
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of, 2310 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-24, and described in [check applicable box]:

   ☑ Deed Book 2475 and Page 22 of the Onslow County Registry recorded 7/1/2005 as N TPSL SH 2 BA L58A of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. "***Activities***" are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 27th day of July, 2012.

Signature: _____

Print Name: Gerard J Heid

Signature: _____

Print Name: MaryAnn Heid

STATE OF Ohio
COUNTY OF Butler

I, Katie Seitz,
a Notary Public of the County and State aforesaid, certify that MaryAnn + Gerard Heid and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 27th day of July, 2012.

_____
Notary Public
My commission expires:

L. KATIE SEITZ
Notary Public, State of Ohio
My Commission Expires
August 30, 2015

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811450002 Type: CRP
Recorded: 06/08/2012 at 11:27:33 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG322-323

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044408

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: WIFORD CYNTHIA M
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the **Grantee**, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2368 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-57, and described in **[check applicable box]:**
   - ☑ Deed Book 1665 and Page 209 of the Onslow County Registry recorded 14-NOV-00 as NR BEACH CB S1 L7B of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. "***Activities***" are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this Instrument to be signed in the entity name by its duly authorized agent and its seal to be affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 14th day of March 2012.

DANA H. CAUDILL NOTARY PUBLIC ALAMANCE COUNTY

Signature: _____

Print Name: Cynthia M. Wiford

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Alamance

I, Dana H. Caudill,
a Notary Public of the County and State aforesaid, certify that Cynthia M. Wiford and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 14th day of March, 2012.

Dana H. Caudill
Notary Public
My commission expires: 3-21-14

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 010112130002 Type: CRP
Recorded: 10/23/2012 at 10:23:32 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3870 PG160-161

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #2194

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MILLER VICTOR D TRUSTEE
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property Subject to Easement:*** That ocean front property identified as the address of 2328-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-32, and described in [check applicable box]:
   - ☑ Deed Book 1240 and Page 72 of the Onslow County Registry recorded 22-May-1995 as N TPSL SH 2 BA L66BW1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a)Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the*Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c)Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities*orSHORELINE PROTECTION PROJECT will provide the *Property*; (d)Grantor acknowledges (i) any raised lands created seaward of apre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f)Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this Instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 17 day of October, 2012.

Signature: Victor D. Miller Trustee

Print Name: Victor D. Miller

Signature: _____

Print Name: _____

STATE OF Ohio
COUNTY OF Henry

I, Teresa Erford,
a Notary Public of the County and State aforesaid, certify that Victor D Miller
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of 10-17, 2012.

Teresa Erford
Notary Public
My commission expires:

Teresa Erford
Notary Public, State of Ohio
My Commission Expires 5/26/2016

NOTARIAL SEAL STATE OF OHIO

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811180002 Type: CRP
Recorded: 06/08/2012 at 11:27:08 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG264-265

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002195

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MILLER HUGH O & TERRY M BROWN
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2334 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-33, and described in **[check applicable box]:**
   - ☑ Deed Book 2794 and Page 827 of the Onslow County Registry recorded 29-DEC-06 as N TPSL 2 BA L67&68BW1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

2334 NHK 778C-33

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 9th day of March, 2012.

Signature: Hugh O. Miller

Print Name: Hugh O. Miller

Signature: _____

Print Name: _____

STATE OF Virginia
COUNTY OF Pittsylvania

I, Allene O. Adkins, a Notary Public of the County and State aforesaid, certify that Hugh O. Miller and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of March 9th, 2012.

Allene O. Adkins
Notary Public 295557
My commission expires: 2-28-2016

Signature: Terry Toler (Brown)

Print Name: Terry Toler (Brown)

Signature: _____

Print Name: _____

STATE OF Virginia
COUNTY OF Pittsylvania

I, Allene O. Adkins, a Notary Public of the County and State aforesaid, certify that Hugh O. Miller and Terry Toler (Brown) personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of March 9th, 2012.

Allene O. Adkins
Notary Public 295557
My commission expires: 2-28-2016

ALLENE O. ADKINS NOTARY PUBLIC COMMONWEALTH OF VIRGINIA

RECEIVED
DCM WILMINGTON, NC
AUG 27 2014

(2)

Doc ID: 010112170002 Type: CRP
Recorded: 10/23/2012 at 10:29:36 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3870 PG171-172

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #15864

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: QUINN PATRICK & THOMAS
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2318-2 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-28, and described in [check applicable box]:
   - ☑ Deed Book 2025 and Page 442 of the Onslow County Registry recorded 19-May-2003 as N TPSL SH 2 BA L62 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 21 day of August, 2012.

Signature: _____

Print Name: Patrick Quinn

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Onslow

I, Carin Z. Faulkner, a Notary Public of the County and State aforesaid, certify that Patrick Quinn and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 21 day of August, 2012.

_____
Notary Public
My commission expires:
November 22, 2016

CARIN Z. FAULKNER NOTARY PUBLIC NEW HANOVER COUNTY, NC

Signature: _____

Print Name: Thomas H. Quinn

Signature: _____

Print Name: _____

STATE OF Maryland
COUNTY OF Anne Arundel

I, Nathan Alexander Maloney, a Notary Public of the County and State aforesaid, certify that Thomas H. Quinn and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 1 day of September, 2012.

_____
Notary Public
My commission expires: 7-16-2016

NATHAN ALEXANDER MALONEY NOTARY PUBLIC ANNE ARUNDEL COUNTY, MD JULY 2, 2016

Doc ID: 009811160002 Type: CRP
Recorded: 06/06/2012 at 11:27:04 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG260-261

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002197

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MCCARTHY EDWARD F & MARY TRUST
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the *Property* to conduct *Activities* in the *Easement Area* (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2338 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-35, and described in **[check applicable box]:**
   - ☑ Deed Book 1635 and Page 25 of the Onslow County Registry recorded 19-JUN-00 as N TPSL SH 2 BA L69B&70B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the *Property*, if any, which (I) is seaward of the first line of stable vegetation, or (II) is seaward of the toe of the frontal sand dune adjacent to the beach, or (III) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities*.** *"Activities"* are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering *Easement Area* contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the *Easement Area*. *Activities* do not include moving or damaging permitted permanent improvements within the *Easement Area*.
4. ***Grantor Reserved Rights*.** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions*:** **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from *Activities* on the *Property*; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

778C-35 2338 NHP

In front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; (e) This Easement binds **Grantor**, runs with the title to the ***Property***, and terminates on **December 31, 2042**; (f) **Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and (g) **Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 5th day of March, 2012.

Signature: _____

Print Name: _____

Signature: Edward F. McCarthy

Print Name: Edward F. McCarthy

STATE OF PA
COUNTY OF Chester

I, Kaeyla R Coffman,
a Notary Public of the County and State aforesaid, certify that Edward F McCarthy and Mary A McCarthy personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 5 day of March, 2012.

Kaeyla R Coffman
Notary Public
My commission expires: 11/9/15

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAEYLA R. COFFMAN, Notary Public
West Goshen Township, Chester County
My Commission Expires November 9, 2015

Signature: Mary W McCarthy

Print Name: _____

Signature: Mary W McCarthy

Print Name: Mary W. McCarthy

STATE OF PA
COUNTY OF Chester

I, Kaeyla R Coffman,
a Notary Public of the County and State aforesaid, certify that Mary A McCarthy and Edward F McCarthy personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 5 day of March, 2012.

Kaeyla R Coffman
Notary Public
My commission expires: 11/9/15

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAEYLA R. COFFMAN, Notary Public
West Goshen Township, Chester County
My Commission Expires November 9, 2015

Doc ID: 009966730003 Type: CRP
Recorded: 08/14/2012 at 03:46:11 PM
Fee Amt: $25.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG625-627

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #42744

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MARTIN EDWARD B & GAIL H
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-16.1

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MARTIN EDWARD B & GAIL H
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of, 2290-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-16.1, and described in **[check applicable box]:**

   ☑ Deed Book 674 and Page 513 of the Onslow County Registry recorded 11/29/1983 as N TPSL SH 2 BA L50B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 8TH day of JUNE, 2012.

Signature: Edward B. Martin

Print Name: EDWARD B. MARTIN

Signature: _____

Print Name: GAIL H. MARTIN (RELEASED)

STATE OF New Jersey
COUNTY OF Somerset

I, Elizabeth M. Hollenbach, a Notary Public of the County and State aforesaid, certify that Edward B. Martin and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 8th day of June, 2012.

Elizabeth M. Hollenbach
Notary Public
My commission expires: Oct, 13, 2016

ELIZABETH M. HOLLENBACH
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires October 13, 2016

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____, a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811410002 Type: CRP
Recorded: 08/08/2012 at 11:27:29 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3793 PG 314-315

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #040431

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: TOPSAIL REEF HOMEOWNERS ASSO
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the *Property* to conduct *Activities* in the *Easement Area* (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-1, and described in [check applicable box]:
   - ☑ Deed Book 0 and Page 0 of the Onslow County Registry recorded 01-JAN-81 as TPSL REEF C/A of and as shown on Map Book and Page 20-069 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the *Property*, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities*.** *"Activities"* are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering *Easement Area* contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the *Easement Area*. *Activities* do not include moving or damaging permitted permanent improvements within the *Easement Area*.
4. ***Grantor Reserved Rights*.** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions*:** (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the *Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 9 day of MARCH, 2012.

Signature: Donald J. Street

Print Name: Donald J. Street
PRESIDENT OF TOPSAIL REEF HOMEOWNERS ASSOCIATION, INC.

Signature: –

Print Name: –

STATE OF NC
COUNTY OF Wake

I, Patricia E Winschel,
a Notary Public of the County and State aforesaid, certify that Donald J. Street and – personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 9th day of March 2012.

Patricia E Winschel
Notary Public
My commission expires:

PATRICIA E. WINSCHEL NOTARY PUBLIC WAKE COUNTY, N.C.

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 010168110002 Type: CRP
Recorded: 11/28/2012 at 09:14:48 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County NC
Rebecca L. Pollard Reg. of Deeds
BK3887 PG232-233

EXCISE TAX PAID $ 0

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #34338

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: POLANCO FAUSTO A JR & AMIE E
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the **Grantee**, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property Subject to Easement:*** That ocean front property identified as the address of 2276-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-10.1, and described in **[check applicable box]:**
   - ☒ Deed Book 3212 and Page 619 of the Onslow County Registry recorded 17-Apr-2009 as N TPSL SH 2 BA L44B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights.*** **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. *Other Conditions*: (a) **Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; (b) **Grantee** has no responsibility to restore or repair natural forces damage; (c) **Grantee** makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; (d) **Grantor** acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; (e) This Easement binds **Grantor**, runs with the title to the ***Property***, and terminates on **December 31, 2042**; (f) **Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the **Grantor** or anyone claiming by, through or under **Grantor**; (ii) **Grantor** will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and (g) **Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the **Grantor** under seal, and if an entity, **Grantor** has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the **Grantor** has executed this Easement this the _____ day of _____, 2012.

Signature: _____

Print Name: Anne Sanders-Polanco

Signature: _____

Print Name: Fausto A. Polanco Jr.

STATE OF California
COUNTY OF Riverside

I, Kimberly Martinez.
a Notary Public of the County and State aforesaid, certify that Anne S Polanco and
and Fausto A Polanco JR
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 16 day of November, 2012.

_____
Notary Public
My commission expires: 06/21/2013

OFFICIAL SEAL
KIMBERLY MARTINEZ
NOTARY PUBLIC-CALIFORNIA
COMM. NO. 1961006
RIVERSIDE COUNTY
MY COMM. EXP. JUNE 21, 2013

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 010111990006 Type: CRP
Recorded: 10/23/2012 at 10:23:18 AM
Fee Amt: $26.00 Page 1 of 6
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3870 PG118-123

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044404

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: GRAZIOSI GENE & MICHELLE
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044404

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: GRAZIOSI GENE & MICHELLE
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2392 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-53, and described in **[check applicable box]:**

   ☑ Deed Book 2504 and Page 494 of the Onslow County Registry recorded 17-AUG-05 as NR BEACH CB 1 L3A of and as shown on Map Book and Page 22-205 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this Instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 17th day of August, 2012.

Signature: Gene Graziosi

Print Name: Gene Graziosi

Signature: Michelle Grazios by Gene Graziosi POA

Print Name: Michelle Graziosi

STATE OF North Carolina
COUNTY OF Onslow

I, Corin Z. Faulkner,
a Notary Public of the County and State aforesaid, certify that Gene Graziosi and ____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this 17th day of August, 2012.

Notary Public
My commission expires: November 22, 2016

CORIN Z. FAULKNER NOTARY PUBLIC NEW HANOVER COUNTY, NC

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

Notary Public
My commission expires:

BOOK 1980 PAGE 485

2003 MAR -3 AM 10:56

#30 F+F

—Space above this line must be completely blank—

STATE OF North Carolina
COUNTY OF Pitt

LIMITED POWER OF ATTORNEY

I, Michelle Grazioli hereby make, constitute and appoint my husband, Gene Grazioli, my true and lawful attorney-in-fact, for me and in my name, place and stead for the purposes hereinafter set out.

I hereby give and grant unto my attorney-in fact full authority to make, execute, grant, convey, date, consent to, swear to, verify, acknowledge, publish, deliver, record and file and take any action in connection with, at any time or times, the purchase and financing of Unit 309-B, Villa Capelani. Phase One, Onslow County, North Carolina, as more described on Exhibit "A" attached hereto, including but not limited to:

(a) Any and all documents, instruments or other items required by or furnished by the lender, for financing, including, but not limited to, the Truth-In-Lending, Note and Deed of Trust for the loan;
(b) The HUD-1 Settlement Statement which reflects the receipt and disbursement of all funds;
(c) Any forms or documents needed to procure insurance on the property including, but not limited to, title, hazard and flood insurance;
(d) Any forms required by the lender or closing attorney to finalize the purchase or refinance of the above referenced property; and
(e) Any documents pertaining to the §1031 Exchange of the property, if applicable.

Giving and granting unto my said attorney-in-fact full power and authority to do and perform each and every act and thing requisite, necessary or appropriate to be done as fully to all intents and purposes as I might or could do if personally present, hereby ratifying all that my said attorney shall lawfully do or cause to be done by virtue of these presents. This Power of Attorney shall not be affected by my subsequent incapacity or mental incompetence.

Book: 1980 Page: 485 Seq: 1

BK1980 PG486

ATTACHMENT

EXHIBIT 'A'

BEING known and designated as Unit No. 309-B, as shown on a plat(s) or plan(s) entitled "Villa Capriani, Phase One", recorded in Unit Ownership Book 2, Pages 8 through 8-O in the office of the Register of Deeds of Onslow County, North Carolina, reference to which is hereby made for a more particular description; together with all rights and easements appurtenant to said unit as specifically enumerated in the "DECLARATION OF CONDOMINIUM" issued by RESORT EQUITIES, INC., as recorded in Book 940, Page 564, et seq., as amended in Book 944, Page 93, Onslow County Registry, and pursuant thereto, membership in Villa Capriani Homeowners Association, a North Carolina non-profit corporation.

BK 1980 PG 487

THIS LIMITED POWER OF ATTORNEY SHALL EXPIRE AFTER 120 DAYS.

WItness my hand and seal this the 11 day of February 2003.

Michelle Graziosi

STATE OF North Carolina
COUNTY OF Pitt

I, Nikita H. Patel, a Notary Public of said County and State certify that Michelle Graziosi personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal this 11 day of February, 2003

Nikita H. Patel
Notary Public

My Commission Expires: April 14, 2006

NORTH CAROLINA, Craven County
The foregoing certificate(s) of Nikita H. Patel
Notary(ies) Public is (are) certified to be correct. This instrument was presented for registration and recorded in this office in Book 1980 Page 485 This 3rd day of March 2003 at 10:56 o'clock A M.
Michelle M. Howell By: _____
Register of Deeds, Craven County

Book: 1980 Page: 485 Seq: 3

Doc ID: 009810890002 Type: CRP
Recorded: 08/08/2012 at 11:26:37 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG202-203

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002199

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: BOYLE EDWARD F
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2340 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-37, and described in [check applicable box]:
   - ☑ Deed Book 1415 and Page 555 of the Onslow County Registry recorded 08-DEC-97 as N TPSL 2 BA L71&72BW1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this Instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this Instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 3 day of APRIL, 2012.

Signature: Edward F Boyle

Print Name: EDWARD F BOYLE

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Onslow

I, Kimberly Weaver,
a Notary Public of the County and State aforesaid, certify that Edward Boyle and _____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this day of April 3, 2012.

Kimberly Weaver
Notary Public
My commission expires:

KIMBERLY WEAVER NOTARY PUBLIC ONSLOW COUNTY, N.C. MY COMMISSION EXPIRES Dec 16, 2012

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811390002 Type: CRP
Recorded: 08/08/2012 at 11:27:27 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG310-311

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002202

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: SULLIVAN MARK & CINDA
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** **Subject to Easement:** That ocean front property identified as the address of 2344 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-40, and described in **[check applicable box]:**
   - ☑ Deed Book 1665 and Page 229 of the Onslow County Registry recorded 14-NOV-00 as N TPSL 2 BA LW73&74B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area*** **on** ***Property*** **Where** ***Activities*** **May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this Instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 30th day of March, 2012.

Signature: Mark R. Sullivan

Print Name: Mark R. Sullivan

Signature: Cinda B. Sullivan

Print Name: Cinda B. Sullivan

STATE OF North Carolina
COUNTY OF Onslow

I, Carin Z. Faulkner,
a Notary Public of the County and State aforesaid, certify that Mark R. Sullivan and Cinda B. Sullivan personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this 30th day of March, 2012.

Carin Z Faulkner
Notary Public
My commission expires:

CARIN Z. FAULKNER NOTARY PUBLIC NEW HANOVER COUNTY, NC

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing Instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811190002 Type: CRP
Recorded: 09/06/2012 at 11:27:07 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG266-267

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #42612

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MILLER MICAH M & SIDDHARTHA M VELANDY
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2324-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-30.1, and described in **[check applicable box]:**
   - ☑ Deed Book 2400 and Page 243 of the Onslow County Registry recorded 28-Feb-05 as N TPSL 2 BA L64B W1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities*.** ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights*.** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions*:** **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 30th day of May, 2012.

Signature: _____

Print Name: Siddhartha M. Velandy

Signature: _____

Print Name: _____

STATE OF Florida
COUNTY OF Hillsborough

I, Mario Russica, Major, USMC, Judge Advocate, a Notary Public of the County and State aforesaid, certify that Siddhartha M. Velandy and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of May, 2012.

_____
Notary Public Maj M. J. Russica, USMCR

My commission expires: INDEFINITE

The undersigned is a Judge Advocate and Commissioned Officer in the U.S. Marine Corps and is certified as a Notary Public under the provisions of Title 10, USC Sections 936 and 1044a No Seal Required

Signature: _____

Print Name: Micah M. Miller

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Onslow

I, Robert L Monical a Notary Public of the County and State aforesaid, certify that Micah M Miller and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of 31 May, 2012.

_____
Notary Public

My commission expires: 5/4/201

ROBERT L MONICAL NOTARY PUBLIC ONSLOW COUNTY, NC

Doc ID: 009866710003 Type: CRP
Recorded: 08/14/2012 at 03:45:09 PM
Fee Amt: $26.00 Page 1 of 3
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3831 PG619-621

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #34337

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: KOSKO JOSEPH M
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-12.1

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: KOSKO JOSEPH M
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until December 31, 2041 to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of, 2280-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-12.1, and described in [check applicable box]:

   ☑ Deed Book 1614 and Page 719 of the Onslow County Registry recorded 3/20/2000 as N TPSL SH 2 BA L46A of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area*** on ***Property*** Where ***Activities*** May Take Place: That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: (a) Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property***; (b) Grantee has no responsibility to restore or repair natural forces damage; (c) Grantee makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will

provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this Instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 10th day of August, 2012.

Signature: _____

Print Name: Joseph M. Kosko

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Wake

I, Kelly D. Gray, a Notary Public of the County and State aforesaid, certify that Joseph M. Kosko and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 10 day of August, 2012.

Kelly D. Gray
Notary Public
My commission expires: 09.14.2016

KELLY D. GRAY NOTARY PUBLIC WAKE COUNTY, NC Comm. Exp. 9-14-2016.

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____, a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

Doc ID: 009811120002 Type: CRP
Recorded: 06/08/2012 at 11:27:00 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG252-253

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #42746

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: LEWIS SALLY K
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property Subject to Easement:*** That ocean front property identified as the address of 2318-1 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-28.1, and described in **[check applicable box]:**
   ☑ Deed Book 3223 and Page 860 of the Onslow County Registry recorded 8-May-09 as N TPSL SH 2 BA L62B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   ☐ See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** ***"Activities"*** are those tasks required of the Town under its Shoreline Protection Project, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the Shoreline Protection Project over, at, on, under and above the ***Easement Area. Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area.***

4. ***Grantor Reserved Rights.*** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions:*** **(a)** Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from ***Activities*** on the ***Property;*** **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

338-1 N.H.R.
778

In front of the *Property* or protective effects the *Activities* or SHORELINE PROTECTION PROJECT will provide the *Property*; (d) Grantor acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f) Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the 9th day of May, 2012.

Signature: Sally Lewis

Print Name: Sally Lewis

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Onslow

I, Kimberly Weaver,
a Notary Public of the County and State aforesaid, certify that Sally Lewis
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of May 9, 2012.

Kimberly Weaver
Notary Public
My commission expires: Dec. 16, 2013

KIMBERLY WEAVER NOTARY PUBLIC ONSLOW COUNTY, N.C. MY COMMISSION EXPIRES Dec. 16, 2013

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

Upsize

Doc ID: 010168120006 Type: CRP
Recorded: 11/26/2012 at 09:19:21 AM
Fee Amt: $26.00 Page 1 of 6
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3887 PG234-239

EASEMENT AGREEMENT

EXCISE TAX PAID $ 0

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW

THIS EASEMENT AGREEMENT ("Easement Agreement") is made, entered into, and effective this 16th day of November 2012, by and between Richard and Marguerite Farley ("Grantors" or "Farleys") and the Town of North Topsail Beach ("Grantee" or "the Town").

RECITALS

Grantors are the owners of real property located at 2300 New River Inlet Road, Unit 1, North Topsail Beach, North Carolina 28460 and more particularly described in deed book 1353 at page 152 of the records of the Onslow County Register of Deeds and further described in map book 20 at page 15 ("the Property"). The Grantee is a North Carolina municipal corporation seeking to institute an erosion control project on or in public trust waters and beaches within the Grantee's corporate limits and may require access over certain portions of private oceanfront property in order to complete the project. As an accommodation to the Grantee, the Grantors agree to grant an easement over a portion of their property to allow the project to proceed.

NOW THEREFORE, for and in consideration of the easement granted herein, the sum of One Dollar ($1.00) in hand paid and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and as an accommodation by the Grantors, the Farleys and the Town do hereby covenant and agree as follows:

Section 1: Easement for Erosion Control Project. The Grantors hereby grant to the Grantee an easement ("Easement") over the portion of the Property which is seaward of a point twelve feet from the last step of the wooden staircase ("Staircase") facing toward the Atlantic Ocean and descending from the wooden rear deck of the Farleys' home located on the Property. The Staircase is further described as 12.4 foot set of wood steps on the land survey attached hereto as **Exhibit A.** Exhibit A is incorporated by reference and made a part of the Easement Agreement. The Staircase does not mean those wood steps indicated in Exhibit A which face toward New River Inlet Road and are adjacent to the wood planter and concrete drive. In the event that the Staircase is moved or altered, the Easement area will remain fixed based on the location of the Staircase as indicated in Exhibit A. The parties agree that changes to the shoreline shall have no effect on the location of the Easement and that the location of the Easement does not change. The Grantee's use of the Easement is subject to the additional terms and conditions described herein.

Section 2: Easement Duration. The Easement is granted for a time certain and shall expire and be extinguished by its own terms on August 1, 2016.

Section 3: Activities Permitted in the Easement. The Easement may be used by the Grantee for the sole and exclusive purpose of ingress, egress, and regress of personnel, equipment, and materials to the Town's erosion control project construction

site located in or on public trust waters or beaches. The Grantors and Grantee hereby agree that (a) parking or storing equipment or materials and (b) erecting structures or fixtures (whether permanent or temporary) are prohibited in the Easement. The parties further agree that such conduct constitutes an overburdening of the Easement as contemplated under North Carolina law.

Section 4: Grantors' Rights to Construction in Easement. The Grantors reserve the right to construct dune walkover structures and sand retention fences for erosion control to the extent such construction is allowed by applicable federal, state, or local laws or regulations. The Grantee agrees that the erection of structures described in this section by the Grantors does not constitute an obstruction or violation of the Grantee's rights of use of the Easement.

Section 5: Indemnification by Grantee. The Grantee will indemnify, hold harmless and defend the Grantors for any claim arising from its conduct or activities in the Easement.

Section 6: Easement in Gross. The Easement granted to the Grantee by this Easement Agreement is an easement in gross, is not a commercial easement, and may not be assigned by the Grantee.

Section 7: No Warranty of Title. The Grantors make no warranties, covenants, or representations regarding title to the Property or area of the Property subject to the Easement.

Section 8: Enforcement. In the event of a breach of this Easement Agreement by any party of any of the terms, conditions or provisions hereof, the party suffering the breach shall be entitled forthwith to full and adequate relief by injunction or other

available legal and equitable remedies from the consequences of such breach. All costs and expenses incurred by the prevailing party to secure the observance of any of the terms of this Easement Agreement, including the cost of any suit or legal proceedings and reasonable attorneys' fees incurred thereby at all tribunal levels, shall be assessed against the non-prevailing party. Failure to enforce any provision of this Easement Agreement shall in no event be deemed a waiver of the right to do so thereafter.

Section 9: Entire Agreement; Amendment. This Easement Agreement is the sole and entire agreement and understanding of the parties with respect to the matters contemplated herein. All prior agreements, representations or understandings whether written or oral, shall be merged herein and shall not be construed to change, amend, alter or appeal or invalidate this Easement Agreement. This Easement Agreement may be amended only by a written instrument executed by the parties and recorded in the office of the Register of Deeds of Onslow County.

IN WITNESS WHEREOF, the Farleys and the Town have signed and sealed this Easement Agreement as of the date and year first above written.

Signatures appear on page five of the Easement Agreement.

GRANTORS:

Richard J. Farley

Sworn to and subscribed before me this 16 day of November 2012.

Notary Public

My Commission Expires: Dec. 16, 2013

KIMBERLY WEAVER NOTARY PUBLIC ONSLOW COUNTY, N.C. MY COMMISSION EXPIRES Dec. 16, 2013

Marguerite A. Farley

Sworn to and subscribed before me this 16 day of November 2012.

Notary Public

My Commission Expires: Dec. 16, 2013

KIMBERLY WEAVER NOTARY PUBLIC ONSLOW COUNTY, N.C. MY COMMISSION EXPIRES Dec. 16, 2013

GRANTEE:

Town of North Topsail Beach

By:

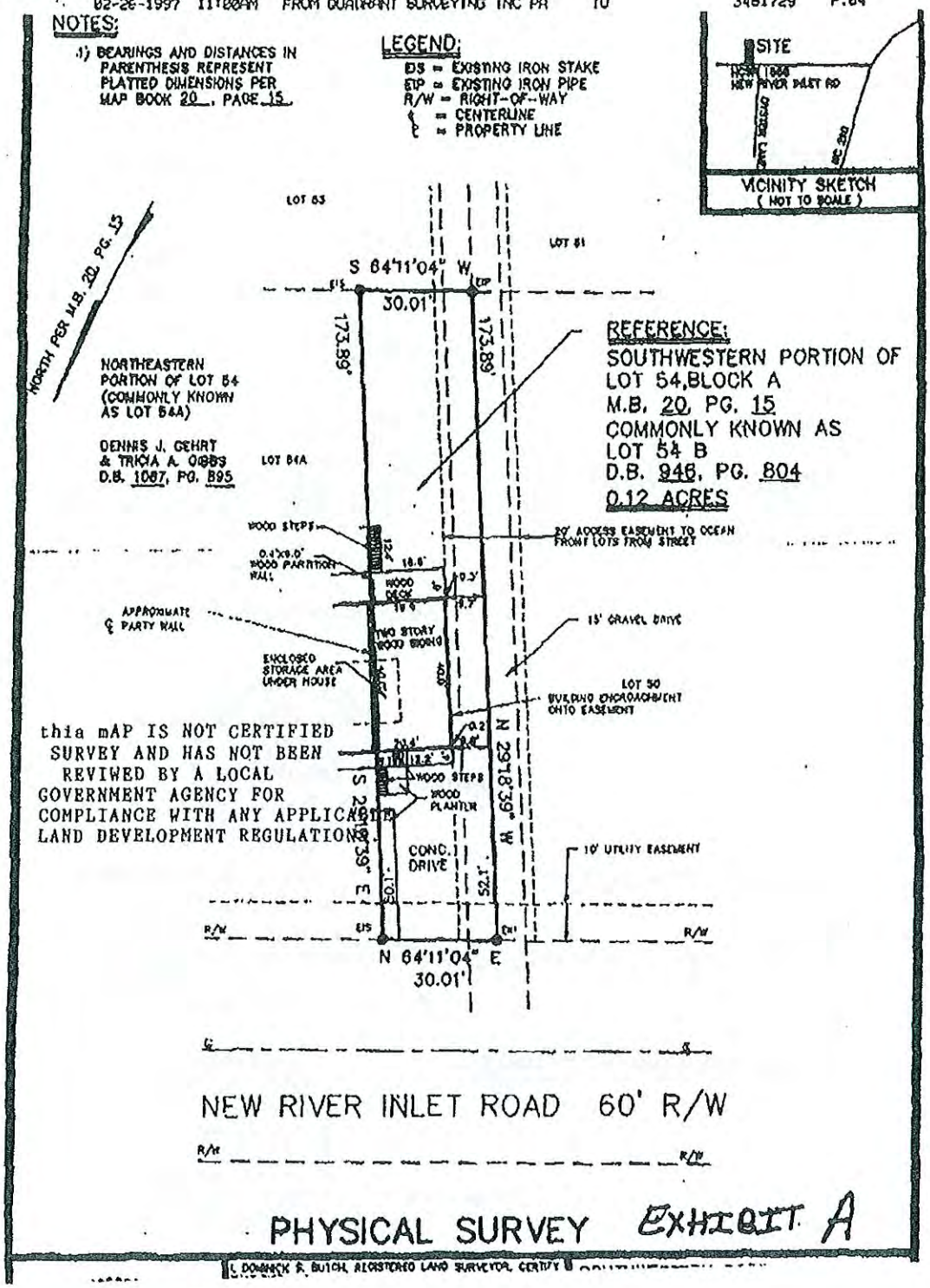
Title: Interim Town Manager

Sworn to and subscribed before me this 16 day of November 2012.

Notary Public

My Commission Expires: Dec. 16, 2013

KIMBERLY WEAVER NOTARY PUBLIC ONSLOW COUNTY, N.C. MY COMMISSION EXPIRES Dec. 16, 2013



Doc ID: 009811370002 Type: CRP
Recorded: 08/08/2012 at 11:27:26 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK3793 PG306-307

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #028000

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: SPERR EDWIN V & SHELBY J
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "Grantor") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "Grantee") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** Subject to Easement: That ocean front property identified as the address of 2370 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-57.1, and described in **[check applicable box]:**
   - ☑ Deed Book 1235 and Page 12 of the Onslow County Registry recorded 21-APR-95 as NR BEACH CB S1 L7A of and as shown on Map Book and Page 22-205 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a)** Grantee will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #044407

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MATHEWS JOHN J & LYNN K
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the Grantee, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property*** **Subject to Easement:** That ocean front property identified as the address of 2376 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778D-56, and described in **[check applicable box]:**

   ☑ Deed Book 1596 and Page 473 of the Onslow County Registry recorded 17-DEC-99 as NR BEACH CB S1 L6B of and as shown on Map Book and Page 22-205 of the Onslow County Registry.

   ☐ See Exhibit A attached.

2. ***Easement Area on Property Where Activities May Take Place:*** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area. Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area.***

NO DUNES
JM
4/17/12

4. ***Grantor Reserved Rights.*** Grantor reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions:*** **(a)** Grantee will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property;*** **(b)** Grantee has no responsibility to restore or repair natural forces damage; **(c)** Grantee makes no representations on sand volume, if any, to be placed on or

5. *Other Conditions*: (a)Grantee will indemnify, hold harmless and defend the Grantor for any claim arising from *Activities* on the*Property*; (b) Grantee has no responsibility to restore or repair natural forces damage; (c)Grantee makes no representations on sand volume, if any, to be placed on or in front of the *Property* or protective effects the *Activities*orSHORELINE PROTECTION PROJECT will provide the *Property*; (d)Grantor acknowledges (i) any raised lands created seaward of apre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) Grantee makes no representation on the precise location of either the most seaward boundary of the *Property* or the most landward extent of the public trust beach; (e) This Easement binds Grantor, runs with the title to the *Property*, and terminates on December 31, 2042; (f)Grantor and signatories acting on its behalf warrant and covenant that (i) Grantor's title to the *Property* is free and discharged from all right, title, claim or interest of the Grantor or anyone claiming by, through or under Grantor; (ii) Grantor will hold harmless, indemnify and defend Grantee from such claims; and (iii) all signatories executing this instrument on behalf of Grantor have authority to do so; and (g) Grantee shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the Grantor under seal, and if an entity, Grantor has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the Grantor has executed this Easement this the _____ day of _____, 2012.

Signature: Lynn Mathews

Print Name: LYNN K. MATHEWS

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Guilford

I, Elizabeth B. Cox,
a Notary Public of the County and State aforesaid, certify that Lynn K Mathews and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of Aug. 14, 2012.

Elizabeth B Cox
Notary Public
My commission expires:

ELIZABETH B COX NOTARY PUBLIC GUILFORD COUNTY, NC

Signature: John J Mathews

Print Name: JOHN T. MATHEWS

Signature: _____

Print Name: _____

STATE OF North Carolina
COUNTY OF Guilford

I, Reshanda Lunsford,
a Notary Public of the County and State aforesaid, certify that John T Mathews and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of August 17, 2012.

Notary Public
My commission expires:

RESHANDA LUNSFORD NOTARY PUBLIC GUILFORD COUNTY, NC MY COMMISSION EXPIRES June 19 2017

(2)

Doc ID: 010111950002 Type: CRP
Recorded: 10/23/2012 at 10:23:14 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3870 PG 104-105

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #42613

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: BIG SKY DEVELOPERS LLC & MICHAEL A WARD***
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the **Grantee**, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2328 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-32.1, and described in **[check applicable box]:**
   - ☑ Deed Book 3298 and Page 260 of the Onslow County Registry recorded 23-Sep-2009 as N TPSL 2 BA L66A E1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.

2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** ***"Activities"*** are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: **(a)Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c)Grantee** makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities***orSHORELINE PROTECTION PROJECT will provide the ***Property***; **(d)Grantor** acknowledges (i) any raised lands created seaward of apre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; **(e)** This Easement binds **Grantor**, runs with the title to the ***Property,*** and terminates on **December 31, 2042; (f)Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the **Grantor** or anyone claiming by, through or under **Grantor**; (ii) **Grantor** will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and **(g) Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the **Grantor** under seal, and if an entity, **Grantor** has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the **Grantor** has executed this Easement this the 23 day of August, 2012.

Signature: Michael A. Ward

Print Name: Michael A. Ward

Signature: R Thomas Bell

Print Name: R. THOMAS BELL

STATE OF NC
COUNTY OF Guilford

I, Katherine R Haney,
a Notary Public of the County and State aforesaid, certify that Michael A. Ward and R. THOMAS BELL personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of 8/23, 2012.

Katherine R Haney
Notary Public
My commission expires: 3-8-2014

KATHERINE R. HANEY
NOTARY PUBLIC
GUILFORD COUNTY, NC
My Commission Expires March 8, 2014

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, thisday of _____, 2012.

_____
Notary Public
My commission expires:

RECEIVED
DCM WILMINGTON, NC
AUG 2 7 2012

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #778C-22.1

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: MAURAKIS TIMOTHY A & ANDREW P &
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the **Grantee**, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of, 2304 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-22.1, and described in **[check applicable box]:**

☑ Deed Book 3296 and Page 261 of the Onslow County Registry recorded 9/18/2009 as N TPSL SH 2 BA L56B of and as shown on Map Book and Page 20-015 of the Onslow County Registry.

☐ See Exhibit A attached.

2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.

3. ***Activities.*** "***Activities***" are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.

4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.

5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will

provide the ***Property***; **(d) Grantor** acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; **(e)** This Easement binds **Grantor,** runs with the title to the ***Property,*** and terminates on **December 31, 2042; (f) Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the **Grantor** or anyone claiming by, through or under **Grantor;** (ii) **Grantor** will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and **(g) Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the **Grantor** under seal, and if an entity, **Grantor** has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the **Grantor** has executed this Easement this the 20 day of June, 2012.

Signature: _____

Print Name: Timothy A. Maurakis

Signature: _____

Print Name: ANDREW P. MAURAKIS

STATE OF Virginia
COUNTY OF Danville

I, Donna N. Gibson,
a Notary Public of the County and State aforesaid, certify that Timothy Maurakis and Andreas P. Maurakis personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of June, 2012.

_____
Notary Public
My commission expires: 1-31-2016

DONNA N. GIBSON
COMMONWEALTH OF VIRGINIA
COMMISSION # 199324
NOTARY PUBLIC

Signature: _____

Print Name: V BICOOVARS

Signature: _____

Print Name: _____

STATE OF ILLINOIS
COUNTY OF LAKE

I, _____,
a Notary Public of the County and State aforesaid, certify that _____ and _____ personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this day of _____, 2012.

_____
Notary Public
My commission expires:

RECEIVED
DCM WILMINGTON, NC
AUG 27 2014

Doc ID: 009811380002 Type: CRP
Recorded: 06/08/2012 at 11:27:26 AM
Fee Amt: $26.00 Page 1 of 2
Revenue Tax: $0.00
Onslow County, NC
Rebecca L. Pollard Reg. of Deeds
BK 3793 PG 308-309

BEACH NOURISHMENT EASEMENT AGREEMENT
For Onslow County Parcel ID #002201

STATE OF NORTH CAROLINA
COUNTY OF ONSLOW
GRANTOR: SULLIVAN CINDA B
GRANTEE: TOWN OF NORTH TOPSAIL BEACH
TERM: THIRTY (30) YEARS
EXCISE TAX: $ 0.00

In exchange for the sum on One Dollar ($1.00) and other good and valuable considerations, the receipt of which is acknowledged, the Grantor and Grantor's heirs and assigns (collectively "**Grantor**") convey to the Town of Topsail Beach, North Carolina, a municipal corporation ("Town") and on behalf of its representatives, agents, employees, officials, engineers, consultants, surveyors, contractors, subcontractors, permittees, invitees and assignees (collectively "**Grantee**") does now grant and convey unto the **Grantee**, this Easement until **December 31, 2041** to go upon the ***Property*** to conduct ***Activities*** in the ***Easement Area*** (as those italicized terms are defined below), subject to the following conditions:

1. ***Property* Subject to Easement:** That ocean front property identified as the address of 2346 NEW RIVER INLET RD, North Topsail Beach, NC 28445 and, Onslow County Tax Parcel ID #778C-39, and described in **[check applicable box]:**
   - ☑ Deed Book 2194 and Page 197 of the Onslow County Registry recorded 13-FEB-04 as N TPSL 2 BA L73&74AE1/2 of and as shown on Map Book and Page 20-015 of the Onslow County Registry.
   - ☐ See Exhibit A attached.
2. ***Easement Area* on *Property* Where *Activities* May Take Place:** That portion of the ***Property***, if any, which (i) is seaward of the first line of stable vegetation, or (ii) is seaward of the toe of the frontal sand dune adjacent to the beach, or (iii) is seaward of the crest of the erosion escarpment, whichever feature is most landward.
3. ***Activities***. *"Activities"* are those tasks required of the Town under its **Shoreline Protection Project**, which tasks include evaluating, surveying, studying, monitoring, inspecting, preserving, patrolling, constructing, operating, maintaining, repairing, rehabilitating, nourishing, and replacing the public beach, the dune system and other erosion control and storm damage reduction measures together with appurtenances thereto, including depositing sand, altering ***Easement Area*** contours and profiles, building berms and dunes, moving, storing, and removing construction equipment and supplies, erecting and removing temporary structures, and performing any other work necessary and incident to the **Shoreline Protection Project** over, at, on, under and above the ***Easement Area***. ***Activities*** do not include moving or damaging permitted permanent improvements within the ***Easement Area***.
4. ***Grantor Reserved Rights***. **Grantor** reserves the right to construct dune walkover structures to the extent allowed by any applicable Federal, State or local laws or regulations, provided that such structures shall not violate the integrity of the dune in shape, dimension or function.
5. ***Other Conditions***: **(a) Grantee** will indemnify, hold harmless and defend the **Grantor** for any claim arising from ***Activities*** on the ***Property***; **(b) Grantee** has no responsibility to restore or repair natural forces damage; **(c) Grantee** makes no representations on sand volume, if any, to be placed on or

in front of the ***Property*** or protective effects the ***Activities*** or SHORELINE PROTECTION PROJECT will provide the ***Property***; **(d) Grantor** acknowledges (i) any raised lands created seaward of a pre-project mean high water mark is the property of the State of North Carolina subject to the public trust; (ii) the fluctuating state of the ocean beach; and (iii) **Grantee** makes no representation on the precise location of either the most seaward boundary of the ***Property*** or the most landward extent of the public trust beach; **(e)** This Easement binds **Grantor**, runs with the title to the ***Property,*** and terminates on **December 31, 2042; (f) Grantor** and signatories acting on its behalf warrant and covenant that (i) **Grantor's** title to the ***Property*** is free and discharged from all right, title, claim or interest of the **Grantor** or anyone claiming by, through or under **Grantor**; (ii) **Grantor** will hold harmless, indemnify and defend **Grantee** from such claims; and (iii) all signatories executing this instrument on behalf of **Grantor** have authority to do so; and **(g) Grantee** shall have the right to temporarily or permanently assign this easement to the federal, state, or county governments, or any agencies or department thereof or any governmental authority formed to implement beach nourishment, renourishment and / or stabilization related to the Shoreline Protection Project.

IN WITNESS WHEREOF this instrument is executed by the **Grantor** under seal, and if an entity, **Grantor** has caused this instrument to be signed in the entity name by its duly authorized agent and its seal to be hereunto affixed, and IN TESTIMONY WHEREOF, the **Grantor** has executed this Easement this the 30th day of March, 2012.

Signature: Cinda B. Sullivan

Print Name: Cinda B. Sullivan

Signature: _____

Print Name: _____

STATE OF Onslow
COUNTY OF North Carolina

I, Carin Z. Faulkner,
a Notary Public of the County and State aforesaid, certify that Cinda B. Sullivan
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this 30 day of March, 2012.

Carin Z. Faulkner
Notary Public
My commission expires:

CARIN Z. FAULKNER NOTARY PUBLIC NEW HANOVER COUNTY, NC

Signature: _____

Print Name: _____

Signature: _____

Print Name: _____

STATE OF _____
COUNTY OF _____

I, _____,
a Notary Public of the County and State aforesaid, certify that _____
and _____
personally appeared before me this day and acknowledged the execution of the foregoing instrument.

Witness my hand and official stamp or seal, this _____ day of _____, 2012.

_____
Notary Public
My commission expires:

RECEIVED
DCM WILMINGTON, NC
AUG 27 2014

Attachment G:

New Stipulated Exhibits for this 2015 Variance

20. The Major Permit Modification Application submitted by the Town to the Division of Coastal Management, dated May 1, 2015, together will all forms, attachments and appendices.
21. Correspondence from the Division of Coastal Management to the Town, dated February 27, 2015.
22. Correspondence from Coastal Planning and Engineering of North Carolina, Inc. to DCM, dated March 5, 2015
23. Correspondence from Coastal Planning and Engineering of North Carolina, Inc. to DCM, dated March 18, 2015
24. June 25, 2015 Statement of Tom Jarrett, P.E.
25. The CRC's November 24, 2014 Final Agency Decision granting the Town's 2014 Variance petition
26. Modification to CAMA Major Permit #92-14 authorizing "regular" sized bags on the north end
27. Email chain from November 24-26, 2014 regarding the geotextile tube request, including commitments to remove
28. Report from Town regarding use of geotextile tubes and new proposed size of sandbag structure
29. Permit #92-14 as Amended on November 26, 2014
30. Project Narrative from Town
31. Correspondence from DCM to Town on March 12, 2015.
32. March 20, 2015 response from Town to DCM
33. March 26, 2015 NOV and restoration plan
34. April 24, 2015 revised restoration plan
35. May 4, 2015 signed copy of revised restoration plan
36. Comments from permit review process from DCM Fisheries Specialist and WRC
37. DCM Field Report for modification request
38. June 2, 2015 DCM Denial letter
39. 2010 powerpoint re: geotextile tubes by DCM to CRC
40. 2015 powerpoint re: geotextile tubes by DCM to CRC

41. Updated powerpoint with aerial and ground level site photographs (Attached separately as **Attachment H**)

May 1, 2015

Ms. Debra Wilson
Division of Coastal Management
North Carolina Department of Environment
and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

RE: Revised Restoration Plan for Town of North Topsail Beach Regarding CAMA Violation No. 15-05D- Property located between 2276 & 2392 New River Inlet Road, Onslow County – Request for Modification to Permit #92-14.

Dear Ms. Wilson,

The Town of North Topsail Beach (TOWN) acknowledges the receipt of your April 24, 2015 notice directing the TOWN to submit a CAMA Major Modification application to allow the temporary construction containment tubes, chock tubes and scour aprons to remain until the completion of the planned Onslow County shallow-draft navigation project or March 31, 2016; whichever is sooner. The sand tube was permitted through the CRC variance process on November 26, 2014 (CAMA Major Permit 92-14).

The condition of the permit for which the TOWN is seeking a modification is the extension of time in which the temporary construction containment tube can remain prior to its removal. As stipulated in Permit #92-14, the containment tube was to be removed upon completion of the sandbag revetment or by May 21, 2015; whichever is sooner. As we explained in our letter dated March 20, 2015, while we have seen some positive shoreline changes along the north end of North Topsail Beach, the behavior of the shoreline remains volatile. This volatility continues to threaten the possible undermining of portions of the sandbag revetment. The potential for undermining is currently being held in check by the presence of the sand tubes.

A complete application package is attached and includes a detailed project narrative along with an aerial photo of the project site taken near the time of completion of the sandbag revetment. Other information being submitted with this request includes forms MP-1, MP-4, an AEC Hazard Notice, list of adjacent riparian owners notified, easements showing ownership, and the required fee. Please note that we will supplement or amend any of these items as needed.

Please contact me at 910.791.9494 (office) or 910.443.4471 (cell) should you have any questions or need additional information.

Very truly yours,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

Ken Willson
Project Manager

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

RECEIVED
MAY 12 2015
DCM-WILMINGTON, NC

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name: Town Of North Topsail Beach			Project Name (if applicable): Phase 1 Emergency Sandbag Revetment 92-14MM
Applicant 1: First Name: Stuart	MI:	Last Name: Turille	
Applicant 2: First Name: N/A	MI: N/A	Last Name: N/A	
If additional applicants, please attach an additional page(s) with names listed.			
Mailing Address: 2008 Loggerhead Court	PO Box: N/A	City: North Topsail Beach	State: NC
ZIP: 28460	Country: USA	Phone No.: 910 - 328 - 1349 ext. n/a	FAX No.: N/A - -
Street Address *(if different from above)*: N/A	City: N/A	State: N/A	ZIP: N/A-
Email: townmanager@north-topsail-beach.org			

2. Agent/Contractor Information

Business Name: Coastal Planning & Engineering Of Nc, Inc.			
Agent/ Contractor 1: First Name: Kenneth	MI: N/A	Last Name: Willson	
Agent/ Contractor 2: First Name: N/A	MI: N/A	Last Name: N/A	
Mailing Address: 4038 Masonboro Loop Rd	PO Box: N/A	City: Wilmington	State: NC
ZIP: 28409		Phone No. 1: 910 - 791 - 9494 ext.	Phone No. 2: 910 - 264 - 2166 ext. n/a
FAX No.: 910 791 4129	Contractor #:		
Street Address *(if different from above)*: N/A	City: N/A	State: N/A	ZIP: N/A -
Email: kenneth.willson@cbi.com			

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APPLICATION for
Major Development Permit

3. Project Location

County (can be multiple)	Street Address		State Rd. #
Onslow	New River Inlet Road		N/A
Subdivision Name	**City**	**State**	**Zip**
N/A	North Topsail Beach	NC	28460 -

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
910 - 328 - 1349 ext. n/a	N/A, , , ,

a. In which NC river basin is the project located?	b. Name of body of water nearest to proposed project
White Oak River Basin	New River Inlet and Atlantic Ocean
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. New River Inlet and Atlantic Ocean
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. North Topsail Beach

4. Site Description

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.)
Approximately 1350 ft.	16,200 sq. ft.
c. Size of individual lot(s) n/a, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* 5 ft. MHW ☐NHW or ☐NWL

e. Vegetation on tract

No vegetation is present due to presence of sandbag revetment, past erosion and construction activities associated with Phase I of the beach management project.

f. Man-made features and uses now on tract

There are currently 20 residential structures located along the ocean shoreline north of the Topsail Reef Condominiums. New River Inlet Road is located immediately landward of the homes. The residential structures serve as both permanent residences and rental properties. A sand bag revetment was constructed along approximately 1,500 ft. of shoreline, north of Topsail Reefs Condominiums in February 2015. The revetment includes a 50 ft. return wall that extends from the northern terminus of the revetment perpendicular to shore and ties into the existing upland dune system. An additional 330 ft. segment of the revetment extends north of the initially constructed revetment.

g. Identify and describe the existing land uses adjacent to the proposed project site.

The property immediately south of the installed sand tube is occupied by oceanfront residential condominiums. To the north, the area is undeveloped and bounded by New River Inlet. The Topsail Reef Condominiums are protected by a sandbag revetment installed in 2012.

h. How does local government zone the tract?	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable)
R-1 Residential	☒Yes ☐No ☐NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal?	☐Yes ☒No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy.	☐Yes ☒No ☐NA
If yes, by whom?	N/A
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐NA

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<Form continues on next page>

m. (i) Are there wetlands on the site?	☐Yes ☒No
(ii) Are there coastal wetlands on the site?	☐Yes ☒No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☐Yes ☐No

n. Describe existing wastewater treatment facilities.

n/a

o. Describe existing drinking water supply source.

n/a

p. Describe existing storm water management or treatment systems.

n/a

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	☐Commercial ☐Public/Government ☒Private/Community

b. Give a brief description of purpose, use, and daily operations of the project when complete.

The Town of North Topsail Beach believes leaving the temporary containment sand tubes in place continues to provide vital scour protection to the sand bag revetment constructed in February 2015, and its removal prior to the placement of navigation maintenance material could result in dramatic failure of a portion of the sand bag revetment.

c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored.

n/a

d. List all development activities you propose.

The Town proposes to leave the temporary containment sand tube in place until March 31, 2016 or upon completion of the Onslow County channel maintenance activites.

e. Are the proposed activities maintenance of an existing project, new work, or both?	maintenance
f. What is the approximate total disturbed land area resulting from the proposed project?	16,200 ☒Sq.Ft or ☐Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☒Yes ☐No ☐NA

h. *Describe location and type of existing and proposed discharges to waters of the state.*

N/A

i. Will wastewater or stormwater be discharged into a wetland?	☐Yes ☒No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☐Yes ☐No ☒NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☐Yes ☒No ☐NA

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APPLICATION for
Major Development Permit

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.

e. The appropriate application fee. Check or money order made payable to DENR.

f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.

Name George and Diann Vann — Phone No.
Address 2386 New River Inlet Rd., 12926 Couples Pl., Waldorf, MD 20601

Name Wayne and Margaret Nielson — Phone No.
Address 19471 Youngs Cliff Rd., Sterling, VA 20165

Name George Neal III — Phone No.
Address 3203 Henderson Rd., Greensboro, NC 27410-6032

g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

Permittee: Town of North Topsail Beach (management plan)	DOA Permit SAW-2005-00344
Permittee: Town of North Topsail Beach (management plan)	CAMA Permit 79-10
Permittee: Town of North Topsail Beach (Off-Island Truck Haul)	CAMA Permit 191-05(As modified)
Permittee: Town of North Topsail Beach (Sand Bag revetment	CAMA Permit 92-14 (As Amended)
Permittee: Town of North Topsail Beach (Sand Bag revetment)	DOA Pemit SAW-2014-01700

h. Signed consultant or agent authorization form, if applicable.

i. Wetland delineation, if necessary.

j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*

k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 5/1/15 Print Name Kenneth Wilson (Agent; Coastal Planning & Engineering of North Carolina)

Signature

Please indicate application attachments pertaining to your proposed project.

☐DCM MP-2 Excavation and Fill Information ☐DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

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Form DCM MP-4

STRUCTURES

(Construction within Public Trust Areas)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. DOCKING FACILITY/MARINA CHARACTERISTICS

☒ *This section not applicable*

a. (i) Is the docking facility/marina:
☐Commercial ☐Public/Government ☐Private/Community

b. (i) Will the facility be open to the general public?
☐Yes ☐No

c. (i) Dock(s) and/or pier(s)
(ii) Number _____
(iii) Length _____
(iv) Width _____
(v) Floating ☐Yes ☐No

d. (i) Are Finger Piers included? ☐Yes ☐No
If yes:
(ii) Number _____
(iii) Length _____
(iv) Width _____
(v) Floating ☐Yes ☐No

e. (i) Are Platforms included? ☐Yes ☐No
If yes:
(ii) Number _____
(iii) Length _____
(iv) Width _____
(v) Floating ☐Yes ☐No
Note: Roofed areas are calculated from dripline dimensions.

f. (i) Are Boatlifts included? ☐Yes ☐No
If yes:
(ii) Number _____
(iii) Length _____
(iv) Width _____

g. (i) Number of slips proposed
_____
(ii) Number of slips existing
_____

h. Check all the types of services to be provided.
☐ Full service, including travel lift and/or rail, repair or maintenance service
☐ Dockage, fuel, and marine supplies
☐ Dockage ("wet slips") only, number of slips: _____
☐ Dry storage; number of boats: _____
☐ Boat ramp(s); number of boat ramps: _____
☐ Other, please describe:
_____

i. Check the proposed type of siting:
☐ Land cut and access channel
☐Open water; dredging for basin and/or channel
☐Open water; no dredging required
☐Other; please describe:
_____

j. Describe the typical boats to be served (e.g., open runabout, charter boats, sail boats, mixed types).
_____

k. Typical boat length: _____

l. (i) Will the facility be open to the general public?
☐Yes ☐No

m. (i) Will the facility have tie pilings?
☐Yes ☐No
(ii) If yes number of tie pilings?
_____

2. DOCKING FACILITY/MARINA OPERATIONS

☒ *This section not applicable*

a. Check each of the following sanitary facilities that will be included in the proposed project.

☐ Office Toilets

☐ Toilets for patrons; Number: _____; Location: _____

☐ Showers

☐ Boatholding tank pumpout; Give type and location: _____

b. Describe treatment type and disposal location for all sanitary wastewater.

c. Describe the disposal of solid waste, fish offal and trash.

d. How will overboard discharge of sewage from boats be controlled?

e. (i) Give the location and number of "No Sewage Discharge" signs proposed.

(ii) Give the location and number of "Pumpout Available" signs proposed.

f. Describe the special design, if applicable, for containing industrial type pollutants, such as paint, sandblasting waste and petroleum products.

g. Where will residue from vessel maintenance be disposed of?

h. Give the number of channel markers and "No Wake" signs proposed. _____

i. Give the location of fuel-handling facilities, and describe the safety measures planned to protect area water quality.

j. What will be the marina policy on overnight and live-aboard dockage?

k. Describe design measures that promote boat basin flushing?

l. If this project is an expansion of an existing marina, what types of services are currently provided?

m. Is the marina/docking facility proposed within a primary or secondary nursery area?

☐Yes ☐No

n. Is the marina/docking facility proposed within or adjacent to any shellfish harvesting area?
☐Yes ☐No

o. Is the marina/docking facility proposed within or adjacent to coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW _____ ☐SAV _____ ☐SB _____
☐WL _____ ☐None

p. Is the proposed marina/docking facility located within or within close proximity to any shellfish leases? ☐Yes ☐No
If yes, give the name and address of the leaseholder(s), and give the proximity to the lease.

_____

_____

3. BOATHOUSE *(including covered lifts)*

☒*This section not applicable*

a. (i) Is the boathouse structure(s):
☐Commercial ☐Public/Government ☐Private/Community
(ii) Number _____
(iii) Length _____
(iv) Width _____
Note: Roofed areas are calculated from dripline dimensions.

4. GROIN *(e.g., wood, sheetpile, etc. If a rock groin, use MP-2, Excavation and Fill.)*

☒*This section not applicable*

a. (i) Number _____
(ii) Length _____
(iii) Width _____

5. BREAKWATER *(e.g., wood, sheetpile, etc.)*

☒*This section not applicable*

a. Length _____

b. Average distance from NHW, NWL, or wetlands
_____

c. Maximum distance beyond NHW, NWL or wetlands
_____

6. MOORING PILINGS and BUOYS

☒*This section not applicable*

a. Is the structure(s):
☐Commercial ☐Public/Government ☐Private/Community

b. Number _____

c. Distance to be placed beyond shoreline _____
Note: This should be measured from marsh edge, if present.

d. Description of buoy (color, inscription, size, anchor, etc.)
_____
_____
_____
_____

e. Arc of the swing _____

7. GENERAL

a. Proximity of structure(s) to adjacent riparian property lines
n/a

b. Proximity of structure(s) to adjacent docking facilities.
n/a

Note: For buoy or mooring piling, use arc of swing including length of vessel.

c. Width of water body
n/a

d. Water depth at waterward end of structure at NLW or NWL
n/a

e. (i) Will navigational aids be required as a result of the project?
☐Yes ☒No ☐NA
(ii) If yes, explain what type and how they will be implemented.
n/a

8. OTHER

☐ *This section not applicable*

a. Give complete description:

A temporary sand-filled containment tube was constructed as part of the Phase I Emergency Sand Bag Revetment on the north end of North Topsail Beach, for the purpose of providing protection to the area during installation of the sandbag reventment. The containment tube is approximately 1,350 ft. long and 12 ft. wide, and affects approximatley 16,200 sq. ft. of shoreline. The containment tube was constructed at approximately 5 ft NAVD. The existing permit requires the temporary containment tube to be removed upon completion of the sandbag revetment, or May 21, 2015, whichever is sooner. Portions of the containment tube are alternatiely buried and covered depending on shoreline conditions; those exposed portions are providing scour protection of the sandbag revetment. Removal of the tube at this time may therefore result in rapid scour along the toe of the revetment, and subsequent failure of the revetment. The Town is seeking a permit modification to allow the temporary containment tube to remain in place until the Onslow maintenance navigation and disposal of material along the north end of North Topsail Beach can occur, or March 31, 2016.

5/1/2015
Date

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North Topsail Beach Shoreline Protection Project-Phase 1
Emergency Sand Bag Revetment
Project Name

Town of North Topsail Beach
Applicant Name

(Agent: Coastal Planning & Engineering of NC)
Applicant Signature

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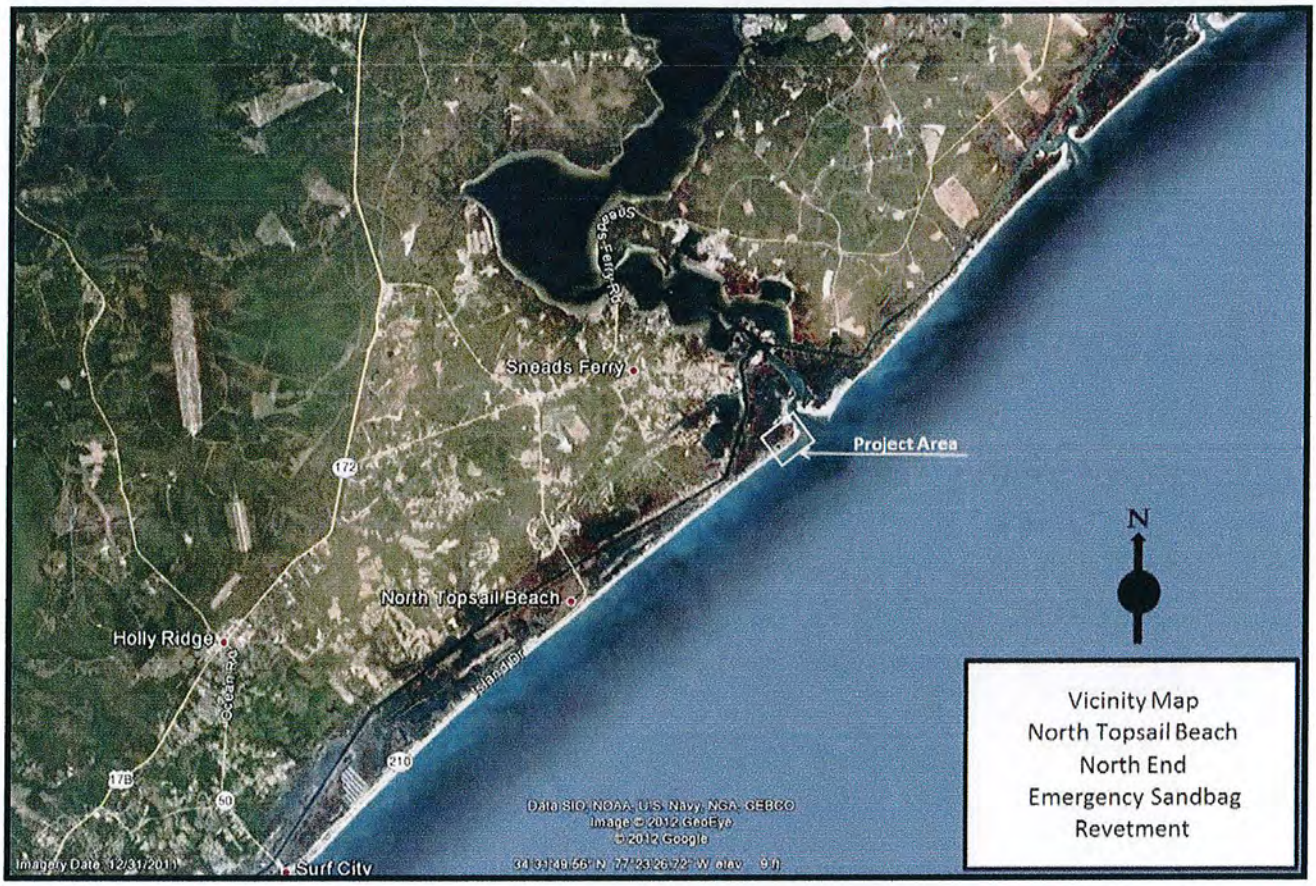
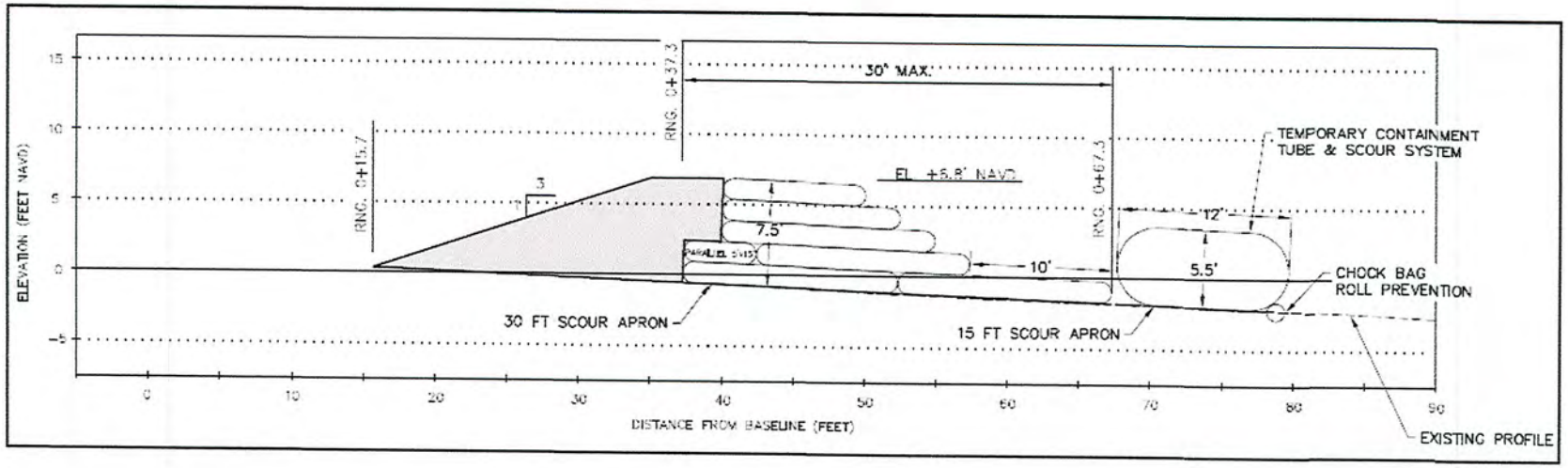
Sheet 1 of 4. Vicinity Map

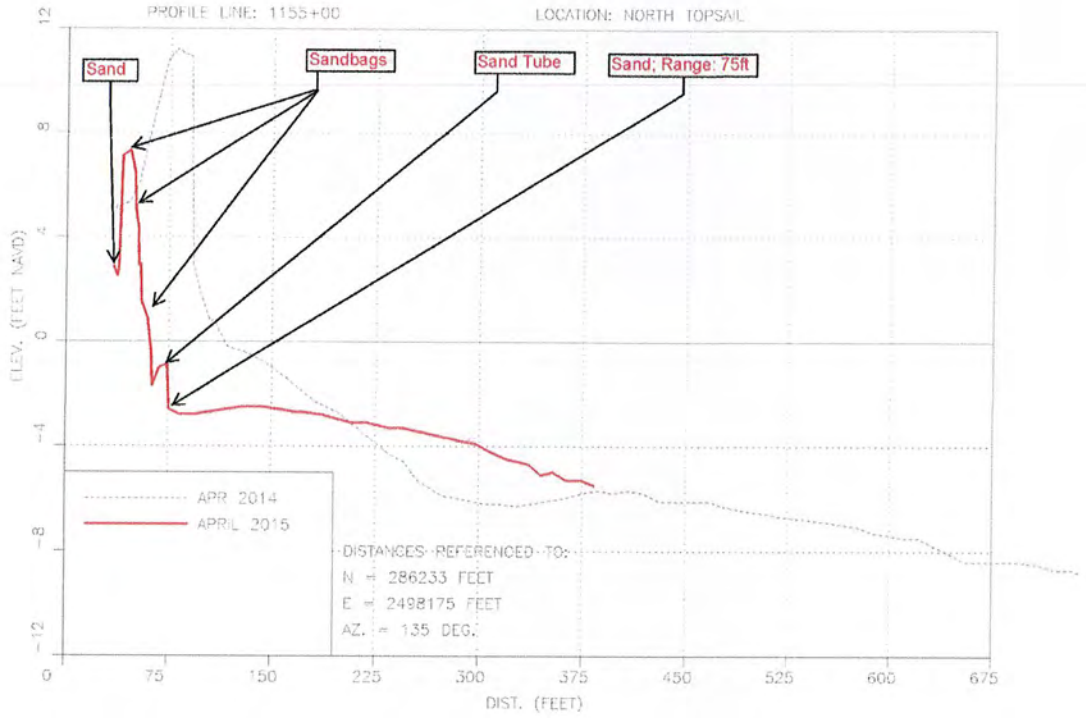


Sheet 2 of 4. Plan view of sandbag revetment and geotube

Sheet 3 of 4. Typical Cross-Section – Permitted Sand bag revetment



Sheet 4 of 4. Typical Profiles



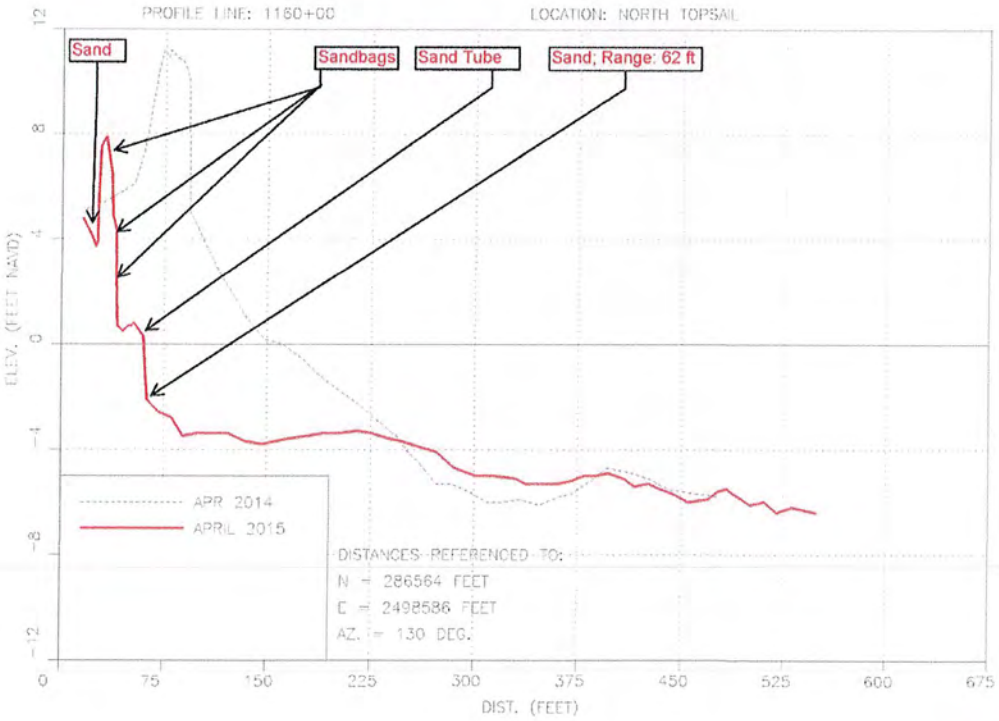


Figure 1. Aerial photo of the sand bag revetment project area taken February 20, 2015 showing the condition of the tube. (Photo Courtesy of Mike Capuano)

Figure 2. March 6, 2015 photo of sandbag revetment and sand tube at north end of revetment.

Figure 3. March 6, 2015 photo of sandbag revetment and sand tube at north end of revetment.

Figure 4. March 6, 2015 photo of sandbag revetment and partially buried sand tube.

Figure 5. March 6, 2015 photo of sandbag revetment and partially buried sand tube near middle of sandbag revetment.

Figure 6. March 6, 2015 photo showing buried sand tube along south end of sandbag revetment.

2.1.2 6b and c. Location Map and Work Plats

See Appendix A.

2.1.3 6d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.

See Appendix B.

2.1.4 6f. Adjacent Riparian Landowner Notifications

See Appendix C.

2.1.5 6h. Signed Agent Authorization Form.

See Appendix B.

2.1.6 6j. Signed AEC Hazard Notice.

See Appendix B.

Coastal Planning & Engineering of North Carolina, Inc.
4038 MASONBORO LOOP ROAD
WILMINGTON, NC 28409
Tel: 910.791.9494

May 1, 2015

Re: REVISED RESTORATION PLAN FOR THE TOWN OF NORTH TOPSAIL BEACH. REQUEST FOR MODIFICATION TO PERMIT #92-14.

Adjacent Riparian Property Owner Notification

Dear Sir or Madam:

On behalf of the Town of North Topsail Beach (TOWN), Coastal Planning & Engineering of North Carolina (CPE-NC), Inc. is submitting a Coastal Area Management Act (CAMA) Major Permit Modification application to the North Carolina Division of Coastal Management (NC DCM) for work occurring within an Area of Environmental Concern.

As more completely described in the attached application, the TOWN intends to submit a CAMA Major Modification application to allow the temporary construction containment tubes, chock tubes and scour aprons to remain until the completion of the planned Onslow County shallow-draft navigation project or March 31, 2016 whichever is sooner.

Attached to this notice, please find a copy of the application as submitted to the NC DCM office. Within 30 days from receipt of this notice you may submit comments regarding the referenced project to the following address:

Attn: Ms. Debra Wilson
Division of Coastal Management
North Carolina Department of Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Sincerely,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

Greg Finch, Agent, CPE-NC

South End Adjacent Riparian Owners

- 2284-B New River Inlet Road
  George Neal III
  3203 Henderson Rd.
  Greensboro, NC 27410-6032

- 2284-A New River Inlet Road
  Wayne and Margaret Nielson
  19471 Youngs Cliff Rd.
  Sterling, VA 20165

North End Adjacent Riparian Owners

- 2386 New River Inlet Rd.
  George and Dianne Vann
  12926 Couples Pl.
  Waldorf, MD 20601

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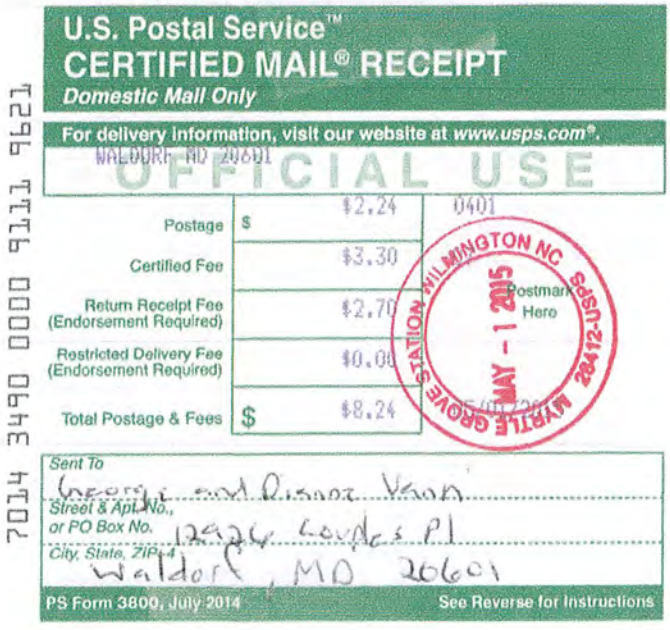

AEC HAZARD NOTICE

Project Is In An: X Ocean Erodible Area X High Hazard Flood Area X Inlet Hazard Area

Property Owner: Town of North Topsail Beach

Property Address: _____

Date Lot Was Platted: _____

This notice is intended to make you, the applicant, aware of the special risks and conditions associated with development in this area, which is subject to natural hazards such as storms, erosion and currents. The rules of the Coastal Resources Commission require that you receive an AEC Hazard Notice and acknowledge that notice in writing before a permit for development can be issued.

The Commission's rules on building standards, oceanfront setbacks and dune alterations are designed to minimize, but not eliminate, property loss from hazards. By granting permits, the Coastal Resources Commission does not guarantee the safety of the development and assumes no liability for future damage to the development. Permits issued in the Ocean Hazard Area of Environmental Concern include the condition that structures be relocated or dismantled if they become imminently threatened by changes in shoreline configuration. The structure(s) must be relocated or dismantled within two (2) years of becoming imminently threatened, and in any case upon its collapse or subsidence.

The best available information, as accepted by the Coastal Resources Commission, indicates that the annual long-term average ocean erosion rate for the area where your property is located is 4 to 11.7 feet per year.

The rate was established by careful analysis of aerial photographs of the coastline taken over the past 50 years.

Studies also indicate that the shoreline could move as much as 300 feet landward in a major storm.

The flood waters in a major storm are predicted to be about 16 feet deep in this area.

Preferred oceanfront protection measures are beach nourishment and relocation of threatened structures. Hard erosion control structures such as bulkheads, seawalls, revetments, groins, jetties and breakwaters are prohibited. Temporary sand bags may be authorized under certain conditions.

The applicant must acknowledge this information and requirements by signing this notice in the space below. Without the proper signature, the application will not be complete.

Carla Fa 4/29/2015

Applicant Signature *Date*

Asst. Town Manager / Town Clerk

SPECIAL NOTE: This hazard notice is required for development in areas subject to sudden and massive storms and erosion. Permits issued for development in this area expire on December 31 of the third year following the year in which the permit was issued. Shortly before work begins on the project site, the Local Permit Officer must be contacted to determine the vegetation line and setback distance at your site. If the property has seen little change since the time of permit issuance, and the proposed development can still meet the setback requirement, the LPO will inform you that you may begin work. Substantial progress on the project must be made within 60 days of this setback determination, or the setback must be remeasured. Also, the occurrence of a major shoreline change as the result of a storm within the 60-day period will necessitate remeasurement of the setback. It is important that you check with the LPO before the permit expires for official approval to continue the work after the permit has expired. Generally, if foundation pilings have been placed and substantial progress is continuing, permit renewal can be authorized. It is unlawful to continue work after permit expiration.

For more information, contact:

Jason Dail

Local Permit Officer

127 Cardinal Drive Extension

Address

Wilmington, NC 28403

Locality

910 796-7221

Phone Number

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[illegible] CITY

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MAY 01 2015

Revised 2/07

N.C. DIVISION OF COASTAL MANAGEMENT

AGENT AUTHORIZATION FORM

Date 4/28/2015

Name of Property Owner Applying for Permit:

Town of North Topsail Beach

Mailing Address:

2008 Loggerhead Ct.
North Topsail Beach, NC 28460

I certify that I have authorized (agent) Coastal Planning & Engineering of North Carolina, Inc. **to act on my behalf, for the purpose of applying for and obtaining all CAMA Permits necessary to install or construct (activity)** North Topsail Beach Geotube permit extension **at (my property located at)** Northern end of North Topsail Beach oceanfront shoreline.

This certification is valid thru (date) 12/31/2015.

Cam Z Fan 4/28/2015

Property Owner Signature **Date**

Asst. Town Manager/Town Clerk

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MAY 0 1 2015

North Carolina Department of Environment and Natural Resources

Pat McCrory,
Governor

Donald R. van der Vaart
Secretary

February 27, 2015

Certified Mail 7006 0810 0004 4480 2743
Return Receipt Requested

Town of North Topsail Beach
C/o Stuart Turille, Town Manager
2008 Loggerhead Ct.
North Topsail Beach, NC 28460

Compliance Action Plan: Removal of "Geotube" located between 2276 & 2392 New River Inlet Road.

Dear Mr. Turille:

The North Carolina Division of Coastal Management (DCM) received notification from your consultant/engineer/agent (Coastal Planning and Engineering of NC, PC), via email on February 24, 2015, indicating that the installation of the sand bag revetment associated with CAMA Major Permit 92-14 was complete.

As you are aware, the DCM issued CAMA Major Permit 92-14 on October 24, 2014, for the installation of a sand bag revetment within the project area, measuring 6' in height x 20' in base width. Shortly thereafter, the DCM amended CAMA Major Permit 92-14 (by CRC variance) on November 26, 2014, to allow for the installation of a larger sand bag revetment (12' in height NAVD88 x 45' in base width). In addition, the November 26, 2014, amended permit authorized the installation of a "temporary construction containment tube" otherwise referred to as a "geotube" which was to be installed immediately oceanward of the most oceanward toe of the sandbag revetment structure. A scour apron and "chock" tube was also authorized under this permit, and the placement of that structure was to be installed no further oceanward than the oceanward toe of the temporary construction containment tube. As proposed, these structures were to be used to assist in the safe construction of the temporary sand bag revetment.

Based on commitments made by you, as referenced in Condition 11) of CAMA Major Permit 92-14 (issued on November 26, 2014), the authorized temporary construction containment tube (Geotube) was to be "removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner". Furthermore, Condition 13) of CAMA Major Permit 92-14 (issued on November 26, 2014), required that "all portions of the scour apron and chock tubes located oceanward of the temporary sandbag revetment shall be removed in their entirety at the same time as the associated temporary construction containment tubes".

In order to ensure compliance with the commitments made by you, as well as the applicable permit requirements, the DCM is requesting that you provide a plan of action to our office within fourteen days (14) from receipt of this letter. The action plan should include a detailed timeline for removal of these structures, and should outline the construction methodology used for complete removal of the temporary construction containment tube, "chock" tube and scour apron.

Once a plan of action has been received by our office, we will evaluate your proposal and provide additional guidance if necessary. If no additional information is required, you may proceed with fulfilling the conditional requirements of your permit (92-14).

In the meantime, if you have any questions or require further guidance, please feel free to give me a call at (910) 796-7266.

Thank you for your prompt attention to this matter.

Sincerely,

Debra Wilson
District Manager

Enclosures

Cc: WiRO files
Ken Wilson, Coastal Planning & Engineering of NC, Inc., 4038 Masonboro Loop Road, Wilmington, NC 28409

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

4038 MASONBORO LOOP ROAD, WILMINGTON, NC 28409 910-791-9494 PHONE 910-791-4129 FAX

March 5, 2015

Ms. Debra Wilson
Division of Coastal Management
North Carolina Department of Environment
and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

RE: Compliance Action Plan – Regarding "Geotube" located between 2276 & 2392 New River Inlet Road.

Dear Ms. Wilson,

This letter is in response to your request for an action plan regarding the removal of the "Geotube" located between 2276 and 2392 New River Inlet Road, dated February 27, 2015. As you are aware, the permit issued by the North Carolina Division of Coastal Management (NC DCM) on November 26, 2014, permitted the applicant, the Town of North Topsail Beach, to use a temporary containment tube for construction of the project. Due to continued rapid deterioration of the project area leading up to construction, the Town requested the design modification to use a temporary geotextile containment tube to stabilize the project area. The stated purpose of the containment tube was two-fold. 1) The containment tube would allow for a safer work environment landward of the tube to expedite the installation of the sand bag revetment; and 2) The containment tube would stabilize the chronic erosion threatening both the foundations of the houses and the property between the landward side of the houses and the road.

Mobilization of equipment to the project area began on December 9, 2014. In order to allow for construction of the sand bag revetment, a geotextile containment tube was filled in place on top of a scour apron seaward of the proposed sand bag revetment location. The first containment tube was placed on December 13, 2014 (Figure 1). The 10th tube was placed on December 22, 2014 (Figure 2). The original plan was to extend the tube south along the shoreline and terminate in a shore parallel orientation 50 ft. north of the Topsail Reef revetment. However, during the installation of the tube, the contractors and engineer observed high velocities of water flowing out of the protected area during ebbing tides. If such flows were channeled toward the Topsail Reef revetment, there would be a high probability of scour to occur around the base of the Topsail Reef return wall. The contractor and CPE-NC agreed to turn the southern end of the geotube landward and tie into high ground prior to shutting down for the Christmas break in order to avoid such a scenario. Figure 2 shows the orientation of the southernmost temporary containment tube after installation.

The containment tube worked as designed providing temporary protection to the work area and preventing further loss of sand from the project area during the construction of the sand bag revetment. The nominal dimension of the temporary containment tube is 30 ft. in circumference. The tubes achieved variable heights of approximately 3 to 5 ft. and a width of 12 ft. Individual tubes range in length from 100 to 150 ft.

The contractor returned to the project site on December 28th, 2014 and began laying the base layer of the sand bag revetment in the vicinity of 2378 New River Inlet Road on the northern end of the project area. On January 14th, the contractor cut through the southernmost temporary containment tube in order to construct the sand bag revetment. Over the course of the following two weeks the southernmost containment tube deflated and the remains of the southern-most tube, scour apron, and chock tube were removed. Construction of the sand bag revetment extending approximately 1,500 ft. north from the Topsail Reef was substantially completed on February 25, 2015. As of the date of this letter approximately, 1,350 ft. of the containment tube is still in place fronting the revetment from 2378 to 2290 New River Inlet Road.

910 443 4471

Figure 1. Northern-most temporary containment tube installed December 13, 2014.

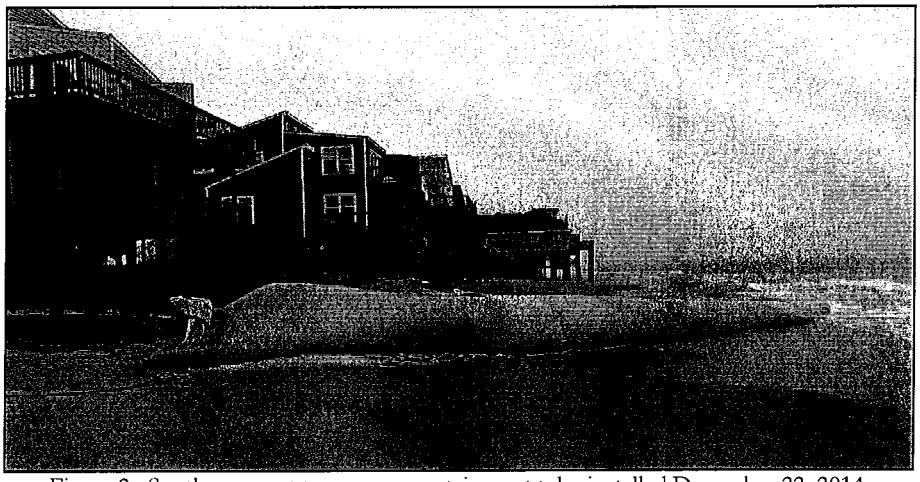


Figure 2. Southern-most temporary containment tube installed December 22, 2014.

As you indicated in your letter, Condition 11 of CAMA Major Permit #92-14 states:

> In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containment tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division.

The Town acknowledges the temporary containment tube was permitted for construction purposes only and was not intended to be a lasting feature of the sand bag revetment. The Town signed the permit with the intent to comply with all conditions of the Permit.

Significant accretion of sand has occurred along the southern portions of containment tube throughout the last month of construction. Approximately 1,000 ft. of the southern portion of the containment tube has been partially or completely covered with sand (Figure 3). Given the amount of burial that has taken place, the excavation and removal of the tube at this point would likely be detrimental to the integrity of the sand bag revetment.

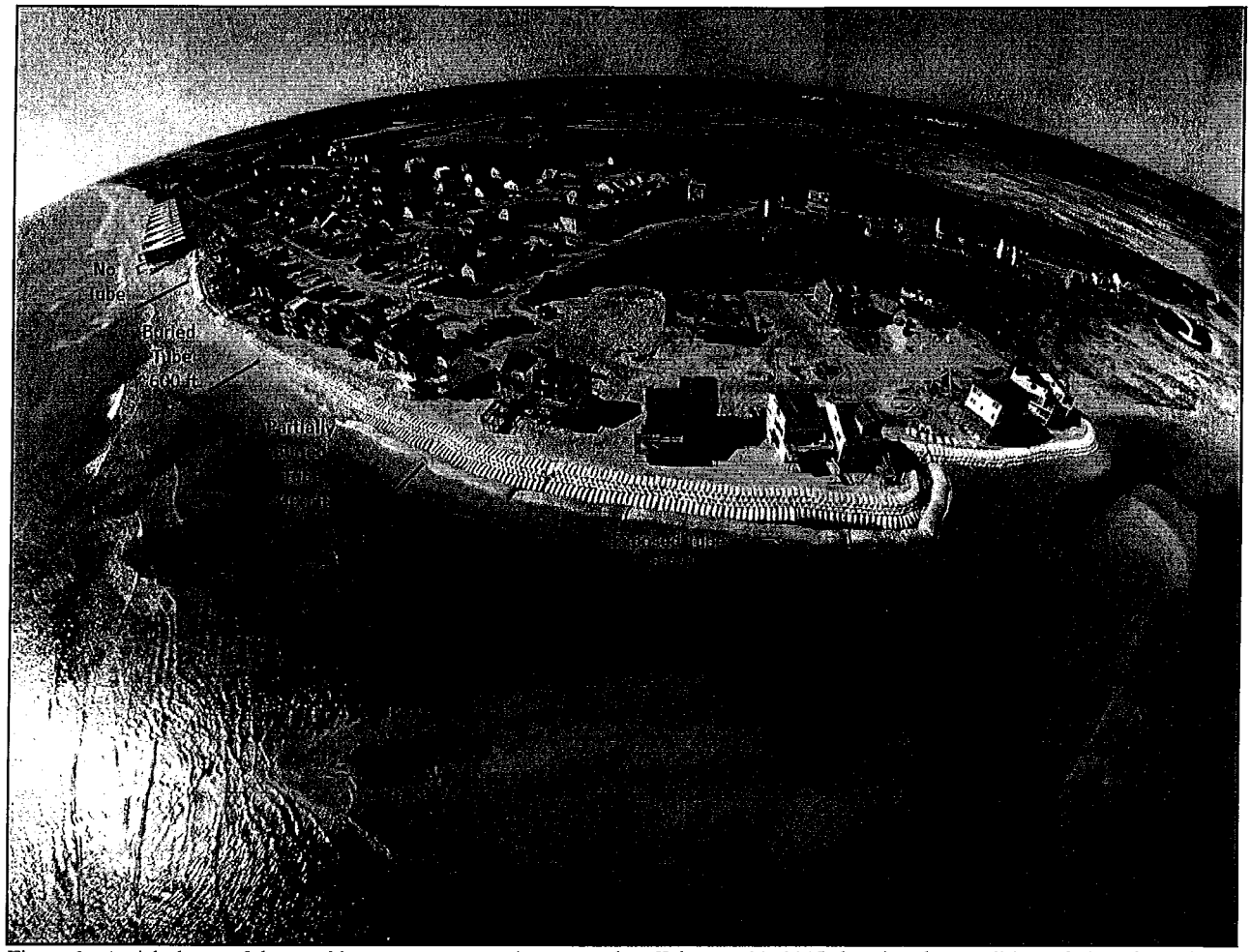


Figure 3. Aerial photo of the sand bag revetment project area taken February 20, 2015 showing the condition of the tube. (Photo Courtesy of Mike Capuano)

Likewise, in those portions of the revetment where the tube is still exposed, the tube is clearly providing scour protection to the sand bag revetment. In my professional opinion, the removal of the partially buried and exposed sand tube will result in rapid scour along the toe of the sand bag revetment located in these areas which will in turn lead to the failure of the sand bag revetment.

Observations made during the construction process indicate the tubes have not had any noticeable adverse impact to adjacent shorelines as compared to revetments composed of only sand bags. Therefore, allowing the sand tube to remain for the duration of the time allowed for the sand bag revetment would not have any greater negative impact on adjacent properties than the impacts associated with the sand bag revetment itself.

The intent of the channel realignment project constructed by the Town of North Topsail Beach between December 2012 and February 2013 under CAMA Major Permit #79-10 was to induce reconfiguration of the ebb delta by redistributing material from the north side of the delta to the south side. A build-up of material on the south side of the ebb tide delta would provide a higher degree of wave sheltering to the north end of North Topsail Beach which should eventually lead to a reduction in shoreline erosion rates immediately south of the inlet in the short term and possibly some widening of the beach in the long term. Figure 4 shows a schematic diagram of the expected ebb shoal reconfiguration. Engineering documents associated with the permitting and design of the project stated that predictions of the actual time for the shoreline between stations 1140+00 (area from between Buildings #5 and #6 of

Topsail Reef) and 1160+00 (south shoulder of New River Inlet) to respond to the new channel cannot be made with a high degree of certainty; however, significant accretion should occur within 5 years with full recovery occurring within 15 years following the channel relocation (CPE-NC, 2009). These projections were based on the implementation of a channel maintenance program that would maintain the channel in the preferred location.

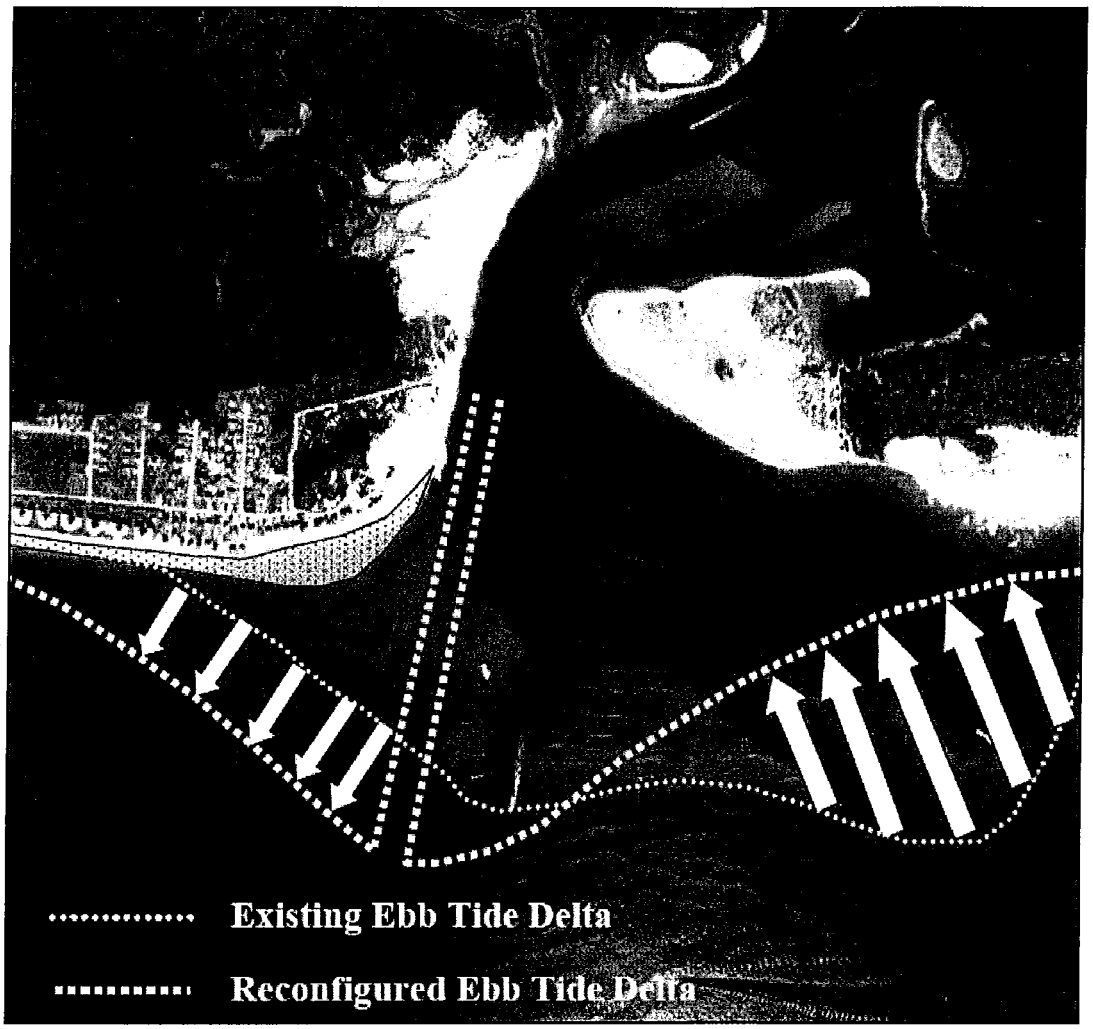


Figure 4. Schematic diagram showing the intended reconfiguration of the ebb tide delta as a result of the channel realignment project (Photo from October 2003).

The Town of North Topsail Beach is committed to establishing and maintaining a healthy beach along the north end of the Island. The Town has also shown a commitment to protect New River Inlet Road to allow the ocean front property owners as well as those property owners along Oyster Lane, Port Dr., River Drive, and the Beach Club to continue to have access to their property. This commitment was clearly demonstrated by the Town undertaking the Sand Bag Revetment project.

The Town continues to monitor the channel realignment project closely. Monitoring data over the past 2 years suggests that the ebb shoal is reconfiguring to a preferred alignment as designed; however as stated in the engineering documents, this process will take time.

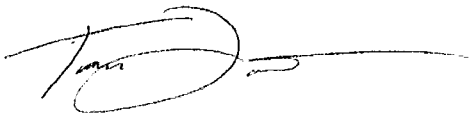
The commitments to remove the sand tubes in accordance with the permit conditions were made in good faith and based on the belief the sand bag revetment alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. However, the rapidly changing conditions along the north end of North Topsail Beach and the accelerated rate of loss of material from the area has made it abundantly clear that the sand bag revetment alone will not be able to protect the homes or the roads in this area for a sufficient amount of time to allow for gradual recovery of the shoreline associated with the channel realignment project.

For all of the reasons stated above, the Town of North Topsail Beach is requesting a permit modification to allow the sand tubes to remain in place for the duration of the permit as stated in Condition 4 and Condition 7 of CAMA Major Permit #92-14 governing the time limits of the sand bags.

Please contact me at 910.791.9494 (office) or 910.264.2166 (cell) or Mr. Ken Willson at 910.443.4471 (cell) should you have any questions or need additional information.

Very truly yours,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.



Tom Jarrett, P.E.
Project Engineer

Cc:

Ken Willson (CPE-NC)
Stuart Turille (North Topsail Beach)
Braxton Davis (Div. of Coastal Management)
Doug Huggett (Div. of Coastal Management)
Jonathan Howell (Div. of Coastal Management)
Jason Dail (Div. of Coastal Management)

June 25, 2015

Statement by Tom Jarrett, P.E., NC License No. 005545
Subject: Sand Tube Containment Structure – North Topsail Beach, NC

The sand tube containment structure was originally intended to provide temporary protection to the north end of North Topsail Beach during the installation of the sandbag revetment extending north of Topsail Reef to approximately 2378 New River Inlet Road.

Following the completion of the sandbag revetment on February 24, 2015, the sand tube was observed to be providing substantial scour protection to the seaward toe of the sandbag revetment, particularly in the area of the return wall located north of and adjacent to 2378 New River Inlet Road. As of today (June 25, 2015), large segments of the sand tube are not visible either as a result of burial or deflation due to damage caused by vandals. Regardless of the present state of the sand tube containment structure, the portions of the sand tube that remain is continuing to provide critical protection against scour.

Onslow County, in cooperation with the Town of North Topsail Beach, is in the process of obtaining non-federal permits to allow the County to maintain certain federal navigation channel in the New River Inlet area including sections of the AIWW, Cedar Bush Cut, and the southern portion of the channel leading from the AIWW through New River to the City of Jacksonville. Material removed to maintain the channels, which is estimated to be between 65,000 cubic yards and 110,000 cubic yards, would be deposited along approximately 3,000 feet of shoreline beginning near 2378 New River Inlet Road and extending to a point opposite Building #8 of Topsail Reef. In my opinion, the placement of this material in front of the sand bag revetment combined with the scour protection provided by the sand tube containment structure should provide adequate protection to the area until such time the ocean bar channel of New River Inlet is restored to its preferred position and alignment. Based on existing permit conditions, the earliest the channel restoration work can be accomplished will be during the 2016-2017 environmental dredging window.

Coastal Planning & Engineering of NC, Inc. (A CB&I Company) continues to monitor the shoreline along the north end of North Topsail Beach to document the impacts of the channel relocation project on the configuration of the ebb tide delta of New River Inlet and the shoreline along the north end of North Topsail Beach as well as the shoreline along the south end of Onslow Beach. A report covering changes observed over the first two years following the initial relocation of the channel completed in February 2013, also as referenced as "Monitoring Report", provided indications that the south side of the ebb tide delta of New River Inlet was showing some signs of sediment accumulation as predicted. However, the process of ebb tide delta reconfiguration will take years and will depend on routine maintenance to keep the channel in its preferred location and alignment. In this regard, the EIS for the North Topsail Beach Shoreline and Inlet Management Plan indicated measurable positive impacts on the north end shoreline could take 5 years with full recovery of the shoreline possibly taking up to 15 years.

Given this relatively long period for substantial recovery of the north end shoreline, maintaining the integrity of the sandbag revetment is imperative for the protection of the structures and

infrastructure in the area north of Topsail Reef. It is my professional opinion that maintenance of the sandbag revetment as a viable erosion response measure, at least over the next two years, is dependent on the scour protection being provided by the sand tube containment structure. By allowing the sand tube containment structure to remain until the area is nourished with the navigation maintenance material should assure the continued protection of the upland area and allow the time necessary for the channel relocation project to begin having positive impacts on the area.

Tom Jarrett, P.E. License No. 005545
Engineering Manager
Coastal Planning & Engineering of NC, Inc.
A CBI Company

STATE OF NORTH CAROLINA	)	BEFORE THE NORTH CAROLINA
	)	COASTAL RESOURCES COMMISSION
COUNTY OF ONSLOW	)	**CRC-VR-14-16**
	)	
	)	
IN THE MATTER OF:	)	
PETITION FOR VARIANCE BY	)	**FINAL AGENCY DECISION**
THE TOWN OF	)	
NORTH TOPSAIL BEACH	)	

This matter was heard on oral arguments and stipulated facts at a special meeting of the North Carolina Coastal Resources Commission (hereinafter Commission) on November 18, 2014 in Wilmington, North Carolina pursuant to N.C. Gen. Stat. § 113A-120.1 and 15A NCAC 7J .0700, *et seq.* Assistant Attorney General Christine A. Goebel, Esq. appeared for the Department of Environment and Natural Resources, Division of Coastal Management and Brian E. Edes, Esq. appeared on behalf of Petitioner the Town of North Topsail Beach.

Upon consideration of the Stipulated Facts and Exhibits, the record documents and the arguments of the parties, the Commission adopts the following:

STIPULATED FACTS

1. The Petitioner in this case is the Town of North Topsail Beach ("Petitioner" or "Town"). The Town is represented by Town Attorney Brian E. Edes, Esq.

2. The site at issue in this case is located at the north end of North Topsail Beach, and includes the beach waterward of the first line of stable natural vegetation from just north of the Topsail Reef condominiums toward New River Inlet to the northernmost house on New River Inlet Road, which includes 39 parcels of land with 20 duplexes structures/40 residences (the "Site"). At the time these 20 structures were constructed, they were "second row" homes. The Site is depicted in the Project Narrative section of the Stipulated Exhibits, and in other

Stipulated Exhibits all of which were provided to the Commission as attachments to the DCM Staff Recommendation. The Town holds easements on these oceanfront parcels for the purposes of beach nourishment projects. Copies of the easements were provided to the Commission in the Stipulated Exhibits attached to the DCM Staff Recommendation.

3. The Site is located within the Ocean Erodible, High-Hazard Flood and Inlet Hazard AECs.

4. The long-term average annual erosion rate at the Site is two-feet per year. The Site is entirely within the Inlet Hazard AEC which uses the rate for the adjacent ocean hazard area per 15A NCAC 7H .0310(a)(1). DCM agrees that this Site has experienced accelerated erosion in the last twelve to fifteen months.

5. According to the Town's Project Engineer, Tom Jarrett, P.E. of Coastal Planning & Engineering (CP&E), one of the unique features of the area is the influence New River Inlet, or more specifically, the ebb tide delta of the inlet, has on sediment transport along the shoreline. This is demonstrated by the photo shown in Stipulated Exhibit 15 (provided to the Commission as an attachment to the DCM Staff Recommendation) in which incoming waves from the southeast are refracted around the ebb tide delta resulting in a change in sediment transport direction (as indicated by the arrows) just south of New River Inlet. The area in which the direction of sediment transport changes as a result of wave refraction is commonly referred to as a nodal zone. In general, the nodal zone is characterized by the net movement of material away from or out of the zone. While a nodal zone will generally always exist adjacent to a tidal inlet, the influence of the nodal zone on the shoreline of North Topsail Beach is enhanced due to the absence of significant shoal accumulations on the south side of the inlet. The absence of shoal

material south of the inlet is one of the issues the channel relocation project was designed to address, i.e., the purpose of moving the channel was to encourage the reconfiguration of the inlet's ebb tide delta through the redistribution of shoal material from the north side of the inlet to the south side. In support of this fact, Mr. Jarrett has provided portions of the Final Environmental Impact Statement for the North Topsail Beach Shoreline Protection Project which was prepared in December of 2009 ("FEIS"). Relevant portions of the FEIS were provided to the Commission as a stipulated exhibit attached to the DCM Staff Recommendation.

History of the Site

6. The north end of the Town has a history of erosion. More detailed information about the history of erosion and of nourishment can be found in Appendix B of the FEIS. A brief summary prepared by Mr. Jarrett regarding past nourishment projects between 2002 and 2011 ("Jarrett Erosion History Report") was also provided to the Commission as a stipulated exhibit attached to the DCM Staff Recommendation.

7. According to the FEIS, the erosion of the shoreline south of New River Inlet has been a persistent problem since around 1984 when the bar channel of New River Inlet shifted its alignment toward Onslow Beach. Prior to 1984, the north end of North Topsail Beach was accreting at an average rate of 6.1 feet/year. Following the change in channel position and orientation, the north end began to erode at an average rate of 5.3 feet/year. Most of the accelerated erosion was attributed to the higher degree of exposure to wave energy at the north end. That is, prior to the channel shift, the south side of the ebb tide delta provided a breakwater effect with waves breaking relatively far offshore. With the loss of the south side delta, more wave energy was transmitted directly to the shoreline. This, combined with the development of

flood channels running close to and parallel to the north end, greatly increased sediment transport rates to the north.

8. Since 1993, and despite the use of sandbag structures in some places, eleven residential structures located seaward of the existing 20 structures at the Site were either removed or lost to erosion.

The Town's Inlet Management Plan/FEIS

9. Beginning in 2006, the Town hired CP&E to develop an Inlet Management Plan for the New River Inlet ("Inlet Management Plan"). This Inlet Management Plan was completed in December 2009 and memorialized in the FEIS. The entire Inlet Management Plan is covered by the Department of the Army permit SAW 2005-00344 dated May 16, 2001. CAMA Major Permit No. 79-10 was issued on July 21, 2010 authorizing Phase I of the Inlet Management Plan. A modification on October 12, 2012 authorized a change of the beach fill density and a change in the amount of material to be removed from the ocean bar channel, and removed a previously permitted upland disposal site. This CAMA permit was further modified on September 26, 2013 at which time Phase 5 of the Inlet Management Plan was authorized for installation during the 2014-15 dredging window. Copies of this permit and its modifications were provided to the Commission as Stipulated Exhibits attached to the DCM Staff Recommendation.

10. Phase 1 of the Inlet Management Plan was completed in February 2013. It included repositioning the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. Material removed during the channel realignment was used as beach fill along 7,730 feet of shoreline south of the

New River Inlet, as seen in the Stipulated Exhibits provided to the Commission as attachments to the DCM Staff Recommendation.

11. The Town's stated purpose for moving the ocean bar channel of New River Inlet, documented in the FEIS, was to increase sand accumulation on the south side of the inlet's ebb tide delta. The time required for the new channel to have a positive impact on the shoreline was estimated in the FEIS to be three to four years as set forth in a letter by Dr. William Cleary which was provided to the Commission as an attachment to the DCM Staff Recommendation.

12. According to Mr. Jarrett, the behavior of the shoreline on the north end of North Topsail Beach is tied to the position and alignment of the main bar channel of New River Inlet. Morphological studies of New River Inlet, reported in the FEIS, describe the relationship between the position and alignment of the channel and the response of the shorelines on both sides of the inlet. The FEIS also identified a position and alignment of the bar channel that would provide a beneficial impact on the north end shoreline. Based on the FEIS, the Town of North Topsail Beach elected to artificially move the channel to the preferred position and alignment indicated by the morphological studies.

13. The construction of Phase 1 moved the mean high water (MHW) shoreline an average of 272 feet seaward of the pre-project MHW shoreline in the area between Building #1 of Topsail Reef and the south shoulder of New River Inlet (baseline stations 1149+00 to 1160+00). Based on an August 2014 beach profile survey by Gahagan & Bryant, the MHW shoreline north of Topsail Reef has receded between 200 and 250 feet since completion of Phase 1, which is equivalent to rates of between 130 feet per year and 167 feet per year. Visual inspections of the beach document continued erosion since the August 2014 survey: The MHW

shoreline has returned to essentially its pre-project position. According to Mr. Jarrett, while the rate of loss of the fill placed during Phase 1 of the management plan has been higher than anticipated, the loss is comparable to losses experienced from previous fills created by the USACE through disposal of navigation maintenance material removed during maintenance of the AIWW and portions of the channel passing through Cedar Bush Cut from the AIWW to the inlet.

14. Based on the documented history of shoreline changes along the north end of North Topsail Beach, Mr. Jarrett opines that the recent acceleration in the rate of shoreline change is not related to the channel relocation project. Instead, Mr. Jarrett concludes that much of the accelerated erosion can be attributed to the unnatural shoreline configuration created by the beach fill, *i.e.*, the conditions that were causing the north end to erode prior to relocating the channel, such as the absence of a significant shoal on the south side of the inlet and the presence of flood channels, still persist. Mr. Jarrett has stated that these conditions will continue to exist until such time as the newly aligned channel effects the predicted changes in the ebb tide delta of New River Inlet. Until that time, waves will continue to impact the area in such a way as to cause accelerated sediment transport from the north end and into New River Inlet.

15. According to the October 2014 "Year 2 Post-Construction Physical Monitoring Report" prepared by CP&E ("Monitoring Report"), a copy of which was provided to the Commission as a Stipulated Exhibit attached to the DCM Staff Recommendation, monitoring of the inlet has demonstrated some of the expected results are taking place with sand accumulating on the south side of the inlet. However, the rate of build-up has been relatively slow. As a result, the north end of North Topsail Beach has continued to experience high rates of erosion. As of

August 2014, most of the fill placed north of the Topsail Reef Condominiums in February of 2013 has been lost, as shown in photographs provided to the Commission as Stipulated Exhibits attached to the DCM Staff Recommendation.

16. The FEIS stated the periodic maintenance of the ocean bar channel will be necessary at approximately four-year intervals to keep the channel in its preferred position and alignment. Material removed during channel maintenance will be used to periodically nourish the North Topsail Beach shoreline including the shoreline nourished during Phase 1.

17. The Corps permit allows maintenance of the channel to be accomplished once every four years providing one of two channel maintenance thresholds are met. One channel threshold is associated with shoaling of the channel and the second is based on the position and alignment of the channel. Following Phase 1's completion in February 2013, the Town is not permitted to maintain the channel until the 2016/2017 environmental dredge window.

18. Based on Site photographs, the final remnants of the artificial dune which was part of the Phase 1 project and was evident in August 7, 2014 photos, has completely eroded by late September 2014. Copies of the August 7, 2014 and September 2014 photographs were provided to the Commission as attachments to the DCM Staff Recommendation.

19. In addition to the threat to homes, flooding of the area has increased. At least four times in late 2014, flood waters spilled onto New River Inlet Road and side streets during high tide. Photographs of the flooding were provided to the Commission as Stipulated Exhibits attached to the DCM Staff Recommendation.

20. As the shoreline continues to move closer to the residences, installation of emergency structures will likely become increasingly difficult because the work will take place

in the active surf zone. This could limit construction to times of low water along some sections of the project area.

CAMA Permit Process

21. Beginning in the early summer of 2014, the Town and its agents contacted DCM to inquire about possible options for protecting homes at the Site from the erosion taking place following Phase 1. DCM issued a modification to permit 191-05 on August 14, 2014 authorizing sand from an upland source to be placed at the Site. This permit was originally issued on December 5, 2005 following Hurricane Ophelia and authorized dune reconstruction at the Site. Various other options were discussed by DCM and the Town, including the use of sandbags or geotubes. The Town has not done the work authorized by the modification to CAMA Major Permit No. 191-05.

22. On or about August 15, 2014, the Town, with help from CP&E consultants Tom Jarret and Ken Willson, submitted a CAMA Major Permit Application seeking to install approximately 1,450 linear feet of geotubes at the Site (the size of the geotubes requested was 7.5 feet tall and 45 feet in circumference). This permit application was deemed complete by DCM on August 27, 2014 (except for the receipt of all of the easement agreements from the Town which were received later), and was sent to the resource agencies for comment through the CAMA Major Permit process. Because the proposed geotube design was inconsistent with the Commission's rules limiting the size of sandbags used for temporary erosion control, DCM planned to deny the permit application after the public notice period ended on September 19, 2014. The Town indicated it would seek a variance from the permit denial.

23. On September 18, 2014, DCM received a "modification" request to the initial application requesting permission to install geotubes. In the modification, the Town proposed placing 35,000 to 50,000 cubic yards of sand in a "sand bench" raising the elevation of the beach at the Site approximately 6 feet, and then placing the geotube on top of the "sand bench." Given the significant changes and increased scope of the modified project, DCM determined that the Town was required to submit a new CAMA permit application, including new notice of the modified project to the public and adjacent neighbors and review of the modified project by the resource agencies.

24. Following discussions between the Town, its agents, DCM and other resource agencies, the Town submitted a "final design" for the sandbag proposal on September 26, 2014. On October 2, 2014 DCM closed the Town's initial geotube project application in light of the new CAMA Major Permit application. The new CAMA Major Permit application was deemed complete on October 3, 2014. A copy of the October 3, 2014 application was provided to the Commission as a Stipulated Exhibit attached to the DCM Staff Recommendation.

25. The final design proposes to install sandbags at the Site, from the existing larger sandbag revetment at Building No. 1 of Topsail Reef and extending north approximately 1,450 feet parallel to the existing shoreline. A 50-foot return wall would extend landward from the north end of the sand bag structure just north of the home located at 2378 New River Inlet Road. A plan view of the sand bag revetment and a typical cross-section view of proposed revetment were provided to the Commission in the Stipulated Exhibits attached to the DCM Staff Recommendation. The proposed borrow site for the sand needed to fill the proposed sandbags is an area approximately 5 acres on the point, just north of the Site, called "the spit."

26. Topsail Reef Homeowners Association (the "HOA") received two variances from the Commission in July 2012 and October 2014 to construct a sandbag revetment similar to the larger size sandbag structure the Town proposed just south of the Site.

27. The proposed sandbag revetment would follow an alignment roughly parallel to the seaward most support piles of the threatened residential structures with the landward toe of the revetment positioned as close as practical to the front support piles of the structures. In this regard, the authorized temporary erosion control structure would be located no more than 45 feet waterward of the waterward most pilings of those buildings controlling the alignment of the temporary erosion control structure from 2304 New River Inlet Rd. to the northern terminus of the temporary erosion control structure, namely those structures at: 2304 New River Inlet Rd., 2314 New River Inlet Rd., 2354 New River Inlet Rd., 2362 New River Inlet Rd., 2368 New River Inlet Rd., and 2378 New River Inlet Rd. No portion of the temporary erosion control structure between 2304 New River Road and the southern terminus of the temporary erosion control structure will be located more than 115 feet waterward of the waterward most piling of each building.

28. As part of the CAMA Major Permit Application process, adjacent neighbors and the public were given notice of the Town's final design CAMA permit application through publication in the Star News on October 8, 2014. As part of the application process, DCM staff received one comment—an objection from the adjacent riparian property owner Topsail Reef, which was later retracted.

29. Also as part of the CAMA Major Permit application process, the Town's application, the Field Report, and other materials were sent to resource agencies for comment. Of

those agencies who responded, the DCM Fisheries Specialist objected to the proposal based on concerns about surf zone habitat. DCM did not deem this objection sufficient to support permit denial. Copies of the field report and the noted comments received by DCM were provided to the Commission as Stipulated Exhibits attached to the DCM Staff Recommendation.

30. On October 21, 2014 DCM staff conducted a site visit of the subject area and determined that "site conditions [had] deteriorated and emergency action is warranted". Consequently, the DENR Secretary authorized the issuance of an Emergency CAMA Major Permit, which allows DCM discretion to suspend public notice, adjacent riparian notice, and the normal agency coordination process. Once emergency permit authority was activated for this Site, DCM stopped the ongoing coordination with the federal agencies.

31. On October 24, 2014, DCM issued CAMA Emergency Major Permit 92-14 to the Town, authorizing its final design, but conditioning approval on compliance with the Commission's rules limiting the size of sandbag structures to a base width of 20 feet and a height of 6 feet.

32. The Town stipulated that its final design proposal is inconsistent with the Commission's rules limiting the size of sandbag structures.

33. On November 7, 2014, DCM received the Town's variance petition. Given conditions at the Site, the Town requested that the hearing on the variance petition be expedited and that the matter be heard before the Commission's scheduled December meeting. A copy of the request and supporting documents, DCM's response, and the Chairman's decision were provided to the Commission in the stipulated exhibits attached to the DCM Staff Recommendation. The Chairman granted the request based on the requirements set forth in

North Carolina General Statutes at § 143-318.12(f) which provide that an emergency meeting may be scheduled in situations where "generally unexpected circumstances" are present requiring "immediate consideration by the public body."

34. The tax value of the structures at the Site and their lots total about $9 million as shown in the Stipulated Exhibits provided to the Commission as attachments to the DCM Staff Recommendation. If these properties were destroyed and no longer paid taxes, the loss to the tax base would reduce the annual tax revenue of the Town by $35,388 based on the proposed 2015 tax rate of $0.3932 per $100.

35. The proposed larger sand bag revetment is intended to protect the 20 threatened residential structures for at least the next 2.5 years or until such time the beach fill provided under Phase 1 of the North Topsail Beach shoreline/inlet management plan can be renourished. In addition, the Town is committed to managing the north end shoreline by maintaining the preferred position and alignment of the New River Inlet ocean bar channel and using the material removed to maintain the channel and thereby nourish the northern 7.25 miles of its ocean shoreline. Both the channel maintenance program and periodic nourishment are intended to maintain and/or preserve the dune and beach system in as near a natural state as possible.

36. On October 15, 2014, the Town's Board of Aldermen passed resolution 2014-13 which allowed for a special assessment to be imposed pursuant to NCGS 160A-238 in order to fund the larger sandbag structure proposed in this variance, with 50 percent of the total cost (which estimated at approximately $2.3 million for the total project) to be paid by the 39 parcel-owners identified in the resolution based on oceanfront frontage. This resolution was the subject of a public hearing on November 6, 2014. On November 6, 2014, the Town passed resolution

2014-16 which confirmed the assessment, and draft meeting minutes reflect the five public comments received. Copies of both resolutions and the draft meeting minutes were provided to the Commission as Stipulated Exhibits attached to the DCM Staff Recommendation.

37. On November 14, 2014, the Town issued a Notice of Special Meeting scheduled for November 19, 2014 to receive recommendations on the selection of a contractor for the sandbag project.

38. The Town is seeking a variance to conditions 1 and 2 of CAMA Major Permit No. 92-14. Specifically, the Town is requesting a variance to condition 1 so that the Town may construct a temporary erosion control structure with a base width of 45 feet and a height sufficient to achieve an elevation of +12.0 ft. NAVD. The Town is requesting a variance to condition 2 to change the location of the structure and proposes that no portion of the authorized temporary erosion control structure shall be located more than 45 feet waterward of the waterward most pilings of those buildings controlling the alignment of the temporary erosion control structure from 2304 New River Inlet Rd. to the northern terminus of the temporary erosion control structure. And, no portion of the temporary erosion control structure between 2304 New River Road and the southern terminus of the temporary erosion control structure will be located more than 115 feet waterward of the waterward most piling of each building.

STIPULATED EXHIBITS

Included for the Commission's review were the Petitioner's variance request and supporting materials and Stipulated Exhibits including the following documents:

- Proof of Notice to Topsail Reef, George Vann November 7, 2014;
- Photographs and graphics labeled Exhibits 1-22;
- Statement by Tom Jarrett with photographs;

- Letter to Brian Edes from CRC re expedited meeting November 10, 2014;
- Beach nourishment easements from 38 oceanfront owners to the Town;
- Exhibit 15 aerial photo 2014 Google;
- Relevant portions of FEIS for Inlet Management Project dated July 2009;
- Tom Jarrett Erosion History Report dated Nov. 13, 2014; Jarrett affidavit Oct. 7, 2014 and Jarrett Erosion Report;
- CAMA Major Permit 79-10 as amended , issued July 21, 2010;
- CAMA Modification Permits 79-10 Oct. 12, 2012; Sept. 26, 2013; June 17, 2014; and June 20, 2014;
- August 2014 Shoreline Survey Beach Profiles Stations 11+35 to 11+55 (CBI);
- Cleary Letter;
- October 2014 Monitoring Report;
- Sandbag "Final Design" CAMA Major Permit application and attachments;
- Comment from DCM Fisheries Specialist;
- DCM Field Report;
- Emergency Permit email from DCM to Town dated October 21, 2014;
- CAMA Major Permit 92-14 with cover letter;
- Tax base information from Town;
- Town resolution 2014-13;
- Town resolution 2014-16;
- Draft Town meeting minutes showing public comment on sandbag project;
- Notice of Town meeting on November 19, 2014 to put sandbag project to bid;
- Various site photographs (22 photos) included in PowerPoint presentation.

CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the parties and the subject matter.

2. All notices for the proceeding were adequate and proper.

3. Petitioner has met the requirements in N.C.G.S. § 113A-120.1(a) and 15 NCAC

07J .0703(f) which must be found before a variance can be granted as set forth below.

A. Strict application of the Commission's Sandbag Rules will cause unnecessary hardships.

The Commission's Rules set forth in 15A NCAC 7H .0308 (Sandbag Rules) relate to temporary erosion control structures and prohibit sandbag structures more than twenty feet wide and six feet high. In addition, these rules require that no portion of the authorized temporary erosion control structure be located more than 20 feet waterward of the imminently threatened structure. In this case, Petitioner has demonstrated that following construction of Phase 1 of the North the North Topsail Beach Shoreline Management Plan in February 2013 the MHW shoreline moved an average of 272 feet seaward of the pre-project MHW shoreline in the area between Building No. 1 of Topsail Reef and the south shoulder of New River Inlet (baseline stations 1149+00 to 1160+00). Following the change in channel position and orientation, the north end began to erode at an average rate of 5.3 feet per year. Based on an August 2014 beach profile survey by Gahagan & Bryant, conducted in support of the sandbag permit application for the Topsail Reef HOA, the MHW shoreline north of Topsail Reef has receded between 200 and 250 feet which is equivalent to rates of between 130 feet per year and 167 feet per year. This erosion rate is exponentially higher than the historical erosion rate for this area. The area has continued to erode since the August 2014 survey with visual inspections of the area indicating all of the nourishment material has been lost and the MHW shoreline has returned to essentially its pre-project position.

The erosion of the Phase 1 fill north of Topsail Reef has positioned the MHW shoreline well within 20 feet of the foundation of all of the twenty residential structures located between Topsail Reef and New River Inlet. Given the condition of the beach, the proximity of the 20

structures to the existing MHW shoreline, and the documented rate of shoreline recession, all 20 of the residential structures satisfy the imminently threatened criteria as defined in 15 NCAC 07H.308 (a)(2)(B).

Based on the past performance of permitted sandbag structures in this area, a sandbag revetment of a size allowed under 15A NCAC 7H.308 would not protect the 20 structures during the interim period between now and when the Town of North Topsail Beach can provide periodic nourishment in the area. Material for periodic nourishment of the beach fill will be obtained from dredging operations to maintain the preferred channel. Based on permit conditions, the Town can only maintain the bar channel every 4 years. As a result, maintenance of the channel cannot be accomplished until the 2016-2017 dredging window. The intent of the channel relocation portion of the project was to induce shoreline accretion on the north end of North Topsail Beach through the reconfiguration the ebb tide delta of New River Inlet. The reconfiguration of the ebb tide delta would occur as the result of the eventual redistribution of the ebb tide delta material from the north side of the inlet to the south side. As discussed in the EIS for the project, reconfiguration of the ebb tide delta could take five years before the new channel has a positive impact on the shoreline and full recovery of the shoreline could take 15 years.

The Town does not want to abandon the Inlet Management Project without going through at least one channel maintenance cycle. In order to protect the threatened structures until the maintenance of the new channel is allowed, a more robust temporary structure is needed than the one allowed under 15A NCAC 7H.308.

In its recommendation to the Commission, DCM acknowledged that strict application of the rules issued by the Commission will cause Petitioner unnecessary hardships. Based on both

DCM staff site observations and information from the Town's engineering consultant Tom Jarrett of CP&E, DCM acknowledged that there is accelerated erosion at the Site and most of the sand placed on the beach in 2012 has eroded away. DCM further agreed that Petitioner faces unnecessary hardship due to the impact of the accelerated erosion on the 20 structures located on the Site. Finally DCM agreed that the six foot by twenty foot sandbags authorized under the Commission's rules and the waterward location of those bags requirement by the rules may not be sufficient to protect the structures until the predicted channel alignment changes have occurred and the beach is renourished in 2016.

Based on the facts presented and the agreement by the parties, the Commission affirmatively finds that Petitioner has shown that the hardship caused by denying a permit for the proposed temporary enlarged sandbag structure is unnecessary insofar as by allowing a larger sandbag structure Petitioner may protect the residences located on the Site and the adjacent shoreline until the shoreline has received the projected benefits from the channel realignment or has received additional beach nourishment in 2016. Therefore, the strict application of this rule would cause Petitioner hardship and the Commission affirmatively finds that Petitioner has met the first factor without which a variance cannot be granted.

b. Petitioner has demonstrated that the hardship results from conditions peculiar to Petitioner's property.

The Commission affirmatively finds that Petitioner has demonstrated that the hardship results from conditions peculiar to the property. Specifieally, the long term average annual erosion rate for the Site is two feet per year. (Stip. Fact No. 4) However, in the last twelve to fifteen months the Site has experienced accelerated erosion. (Stip. Fact No. 4) In that time, the MHW shoreline has receded between 200 and 250 feet which is equivalent to erosion rates

between 130 feet per year and 167 feet per year. (Stip. Fact Nos. 10-13) The beach fill placed during the renourishment project has already been lost. (Stip. Fact No. 18) Furthermore, Petitioner has demonstrated that the Site is peculiar in that it is impacted by the Town's Inlet Management Plan which as part of Phase 1 repositioned the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The Town's stated purpose for moving the ocean bar channel is to induce sand accumulation on the south side of the inlet's ebb tide delta. However, the time required for the new channel to have a positive impact on the shoreline was estimated to be from three to four years. (Stip. Fact No. 11)

In its recommendation to the Commission, DCM disagrees with the claim that Petitioner's hardship is caused by conditions peculiar to the property on the grounds that shorelines within an Inlet Hazard AEC can be expected to experience volatile conditions including both significant erosion and accretion. For this reason, DCM argues that accelerated erosion near an inlet should not be considered a condition peculiar to Petitioners' property.

However, while the Site is located within the currently applicable Inlet Hazard AEC for the New River Inlet both parties agree accelerated erosion at the Site is greatly in excess of the long term average annual erosion rate of two feet per year. Furthermore, the Site is impacted not simply by natural inlet conditions but man-made impacts from the Inlet Management Plan. Accordingly, without prejudice to future consideration of conditions at the Site or any other property located in an Inlet Hazard AEC, the Commission affirmatively finds that the accelerated erosion and impacts from the Inlet Management Plan are conditions peculiar to the Site and concludes that Petitioners have met the second factor in N.C.G.S. §113A-120.1(a)(2).

c. Petitioner has demonstrated that the hardship does not result from actions taken by Petitioner.

The Commission affirmatively finds that Petitioner has demonstrated that any hardship does not result from actions taken by the Petitioner. Specifically, Petitioner states that it has done nothing to accelerate or otherwise aggravate the erosion problem at the property. Moreover, all the structures on the Site were built in accordance with the erosion setbacks established by the Commission at the time they were constructed and in fact were "second row homes" when constructed. In its recommendation to the Commission, DCM agreed that Petitioners have done nothing to accelerate the erosion affecting the shoreline at the Site and have taken significant steps to address the problem, including the development and implementation of its Inlet Management Plan. Given the agreement on this issue and based on the facts presented, the Commission affirmatively finds that Petitioner has demonstrated that it has met the third factor required for a variance pursuant to N.C.G.S. §113A-120.1(a)(2).

d. Petitioner has demonstrated that the requested variance is consistent with the spirit, purpose and intent of the Commission's rules, will secure public safety and welfare, and will preserve substantial justice.

Petitioner has demonstrated (a) that the requested variance is consistent with the spirit, purpose and intent of the Commission's rules, (b) that it will secure public safety and welfare, and (c) that it will preserve substantial justice. Specifically, the Commission's Sandbag Rules are, in effect, an exception to the General Assembly and the Commission's ban on permanent erosion control structures, and allow the temporary use of sandbags for "imminently threatened structures." While the Commission's Rules, including limitations on the use of sandbags, are sufficient in most cases, in some situations the permitted sandbag structures may not be of sufficient size to offer temporary protection as intended by the rules. In this case, Petitioner has

demonstrated that the accelerated erosion has already imminently threatened structures on the Site. Furthermore, Petitioner is pursuing long-term solutions through the Inlet Management Plan and has requested the super-sized sand bag revetment to protect the 20 threatened residential structures for at least the next 2.5 years or until such time the beach fill provided under Phase 1 of the Inlet Management Plan can be nourished. In addition, the Town is committed to managing the north end shoreline by maintaining the preferred position and alignment of the New River Inlet ocean bar channel and using the material removed to maintain the channel to nourish the northern 7.25 miles of its ocean shoreline. Both the channel maintenance program and periodic nourishment are intended to maintain and/or preserve the dune and beach system in as near a natural state as possible.

In its recommendation to the Commission, DCM agreed the proposed expansion of the sandbag revetment in front of Petitioners' lots is consistent with the spirit, purpose, and intent of the rules since it appears that despite the Town's best efforts to address the erosion issue though its nourishment and inlet relocation plan, smaller sandbags may not be sufficient to protect the 20 structures at the Site until the plan can be given sufficient time to improve the shoreline. Moreover, DCM agreed that the proposed placement of larger sandbags to protect the 20 structures at the Site is consistent with the spirit, purpose, and intent of the Commission's rules since the sandbag rules are, in effect, an exception to the General Assembly's and the Commission's ban on permanent erosion control structures. In its Shoreline Erosion Policies, the Commission has determined that "[T]emporary measures to counteract erosion, such as the use of sandbags . . . should be allowed, but only to the extent necessary to protect property for a short period of time until threatened structures may be relocated or until the effects of a short-term

erosion event are reversed" through nourishment. "In all cases, temporary stabilization measures must be compatible with public use and enjoyment of the beach." 15A NCAC 7M .0202(e). By setting limitations on the placement, size and duration of sandbags, the Commission recognized that they are to be used in certain circumstances with well-defined criteria. In this case, DCM agreed with Petitioner's argument that at the Site, the "regular" sized bags may not be sufficient to protect those structures until the next nourishment cycle happens or the predicted results of Phase 1 occur. Given the agreement on this issue and based on the facts presented, the Commission affirmatively finds that the requested variance is consistent with the spirit, purpose and intent of the Commission's rules,

The second assessment to be made is whether the variance proposed by Petitioners will impact public safety and welfare. Petitioners have demonstrated that the structures on the Site are imminently threatened. As the structures become more damaged, their eventual destruction could pose a serious threat to the safety of the public that uses the public trust area for recreational purposes. This threat could result from floating debris, submerged and/or hidden pilings, as well as other anthropogenic items remaining once the property is abandoned. In addition to the threat to public safety arising from damaged structures, flooding of the area has increased with flood waters spilling on to New River Inlet Road and side streets during times of high tide, at least four times in late-2014. (Stip. Fact No. 19) Continued recession of the shoreline could eventually undermine New River Inlet Road and cutoff access to homes on the north end of town which would impact the public ability to safely travel through the area.

In its recommendation to the Commission, DCM does not disagree that the variance will secure public safety and welfare. Given the agreement on this issue and based on the facts

presented, the Commission affirmatively finds that the requested variance will serve to protect public safety and welfare.

The third assessment to be made as part of the analysis of the fourth variance factor is whether by granting the requested variance, the Commission will preserve substantial justice. Petitioners claim that by granting the variance substantial justice will be preserved by permitting the Petitioners to install and maintain a sandbag revetment to protect the structures on Site long enough for the Inlet Management Plan to take effect. Moreover, Petitioner explains that the property owners should be afforded every opportunity to protect and preserve their interest as long as such actions do not prevent the public's right to access and use of the area as provided by both common-law and statutory pubic rights. In this regard, the proposed super-sized sand bag structure is to be located as close to the seaward foundation of the threatened structures as practical. Once installed, the public should still be able to pass seaward of the sandbag revetment during most tide conditions.

In its recommendation to the Commission, DCM agrees with the Petitioner that the variance will preserve substantial justice because it will allow the Petitioner to protect structures at this Site while it implements its Inlet Management Plan. Moreover, given the proximity of the structures to the ocean in combination with erosion experienced in this area, the public's access in front of these properties is already limited. Thus, increasing the waterward footprint of the sandbags proposed from what the Emergency Permit currently allows should not have significant additional impacts on the public's access to the beach and will preserve substantial justice.

In this case, the Commission agrees with the Town and DCM that granting the variance will preserve substantial justice as the beach in front of Petitioners' property is already only

marginally available for use by the public and as habitat. Therefore, allowing larger sandbags at this Site would not signifieantly harm public trust and habitat usage but would provide temporary erosion protection until the beaeh nourishment goes into effect.

For the above stated reasons, the Commission affirmatively finds that Petitioner has met the fourth faetor required by N.C.G.S. § 113A-120.1(a) as long as the proposed development eonforms to the conditions ineluded in the variance granted below.

ORDER

THEREFORE, the requested variance from 15A NCAC 7H .0308 is GRANTED with the following CONDITIONS:

(1) All sandbags installed at the Site in conformance with a permit or permit modification issued pursuant to this variance are temporary and may only remain in place for eight years from the date of this final agency decision granting the variance.

(2) Petitioners are required to begin construction on the proposed development at the Site within six (6) months of the date of this final agency decision granting the variance. If construction is not begun by May 21, 2015, the variance is null and void and Petitioners will not be allowed to construct the proposed development as it is inconsistent with the Commission's Sandbag Rules;

(3) The granting of this variance does not relieve Petitioner of the responsibility for obtaining a CAMA permit from the proper permitting authority and all other required permits.

This variance is based upon the Stipulated Facts set forth above. The Commission reserves the right to reconsider the granting of this variance and to take any appropriate action should it be shown that any of the above Stipulated Facts is not true or has substantially changed.

This the 24th day of November 2014.

Frank D. Gorham III

Frank D. Gorham, III, Chairman
Coastal Resources Commission

CERTIFICATE OF SERVICE

This is to certify that I have this day served the foregoing FINAL AGENCY DECISION upon the parties by the methods indicated below:

Brian E. Edes, Town Attorney
5002 Randall Parkway
Wilmington, NC 28403

Certified Mail/ Return Receipt Requested and Electronically at:
briane@cmclawfirm.com

Christine A. Goebel, Esq.
Assistant Attorney General
N.C. Department of Justice

Electronically at
cgoebel@ncdoj.gov

Braxton C. Davis
Angela Willis
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Electronically at
braxton.davis@ncdenr.gov
angela.willis@ncdenr.gov

This the 24th day of November, 2014

Mary L. Lucasse
Special Deputy Attorney General and Commission Counsel
N.C. Department of Justice
P.O. Box 629
Raleigh, N. C. 27602

Permit Class
MODIFICATION/MINOR

Permit Number
92-14

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460**

Authorizing development in Onslow County at Atlantic Ocean from 2276 to 2392 New River Inlet Road, as requested in the permittee's letter dated 12/16/14, including the attached workplan drawings (2), 1 dated received in the Morehead City office on 12/23/14 and Figure 1 not dated.

This permit, issued on **December 31, 2014**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

1) Unless specifically altered herein, this minor modification authorizes the placement of sandbags at 2382, 2386, 2390 and 2392 New River Inlet Road, all expressly and specifically set forth in the attached permit drawing and project narrative.

2) This minor modification shall be attached to the original of Permit No. 92-14, which was issued on 10/24/14, as well as all subsequent amendments, and copies of all documents shall be readily available on site when Division personnel inspect the project for compliance.

3) All conditions and stipulations of the active permit remain in force under this minor modification unless specifically altered herein.

(See attached sheet for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

December 31, 2017

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Doug V Huggett

Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

Signature of Permittee

ADDITIONAL CONDITIONS

4) In keeping with 15A NCAC 07H.0308(a)(2)(K) of the rules of the Coastal Resources Commission, the base width of the authorized temporary erosion control structure shall not exceed 20 feet, and the height shall not exceed six feet.

NOTE: The configuration of the individual sandbags may vary from that shown on the attached workplan drawings, so long as the dimensions, alignment, and size requirements of Condition No. 4 of this permit are not exceeded.

5) This permit does not authorize an extension of the geotube permitted by CRC Variance dated November 26, 2014.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

NOTE: Future development of the permittee's property may require a modification of this permit. Contact a representative of the Division at (910) 796-7215 prior to the commencement of any such activity for this determination.

Howell, Jonathan

From: Willson, Kenneth <Kenneth.Willson@cbi.com>
Sent: Tuesday, November 25, 2014 12:25 PM
To: 'Stuart Turille'; Huggett, Doug
Cc: Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Jarrett, James; Howell, Jonathan; 'Brian Edes' (briane@cmclawfirm.com); dan tuman (ntopsail@charter.net); tom.leonardntb@yahoo.com; Rosov, Brad
Subject: RE: Temporary construction measures
Attachments: RAI Response CPE-NC November 25 2014_.pdf

Importance: High

Stuart,

Please see the e-mail below from Mr. Doug Huggett with the Division of Coastal Management requesting additional information regarding the construction methods and means proposed for the North Topsail Beach North End Sand Bag Revetment Project, which include the use of a temporary geotextile containment tube. CPENC has drafted the attached letter describing the details of the use of the temporary containment tube as well as an updated drawing.

Please respond directly to the DCM regarding their request for a commitment by the Town to remove the construction tubes immediately upon completion of construction of the authorized oversized bags. Your prompt attention is appreciated.

Doug,

Please find a letter attached with the below requested information. Please let me know if you need any additional information.

Kind Regards,
Ken

From: Huggett, Doug [mailto:doug.huggett@ncdenr.gov]
Sent: Monday, November 24, 2014 5:36 PM
To: Jarrett, James; Howell, Jonathan
Cc: Willson, Kenneth; Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Huggett, Doug
Subject: RE: Temporary construction measures

Tom

Yes, we need the detail on what you described below, especially as it relates to temporary construction bag size/dimension, location relative to the toe of the authorized oversized sandbag structure, and a solid commitment by the Town to remove the construction bags immediately upon completion of construction of the authorized oversized bags.

We have discussed internally, and we believe that we need to add this to the variance permit we were ready to issue today (less than two hours after getting the variance order from the CRC Chairman), so we are going to hold off on that issuance until we get the additional info. However, with the holidays (and associated travel plans) upon us, we need the additional info in to us no later than lunch time tomorrow (Tuesday) so we can get this done this week. Otherwise it could be Monday of next week before we can finalize this.

I hope this makes sense. If not, e-mail me or call me.

Thanks and good luck

Doug

From: Jarrett, James [mailto:James.Jarrett@cbi.com]
Sent: Monday, November 24, 2014 5:10 PM
To: Huggett, Doug; Howell, Jonathan
Cc: Willson, Kenneth; Priest, Adam T.
Subject: FW: Temporary construction measures

FYI
This is the message I sent to our folks.

Did I leave anything out? We will get you something by tomorrow morning. According to Ken, they plan to place the tube within the 45-foot corridor. That should be reflected in the drawing (sketch).

If you need something else just respond to ALL.

Tom Jarrett, P.E.
Mgr Engrg II
Coastal, Ports and Marine
Tel: (910) 791-9494
Cell: (910) 264-2166
Fax: (910) 791-4129

From: Jarrett, James
Sent: Monday, November 24, 2014 4:24 PM
To: Willson, Kenneth; Priest, Adam T.
Cc: Brian Edes (BrianE@cmclawfirm.com)
Subject: Temporary construction measures

Talked with Doug Huggett and Jonathan regarding use of temporary sand tube. They need the following:
A drawing or sketch of the proposed sand tube
How far waterward will it be placed
The sand source for filling the tube
The method to remove the tube when done.

They wanted to issue the variance today but will wait on our input and try and work that into the new permit. Might have to submit a minor permit mod by not sure about that.

Tom Jarrett, P.E.
Mgr Engrg II
Coastal, Ports and Marine
Tel: (910) 791-9494
Cell: (910) 264-2166
Fax: (910) 791-4129

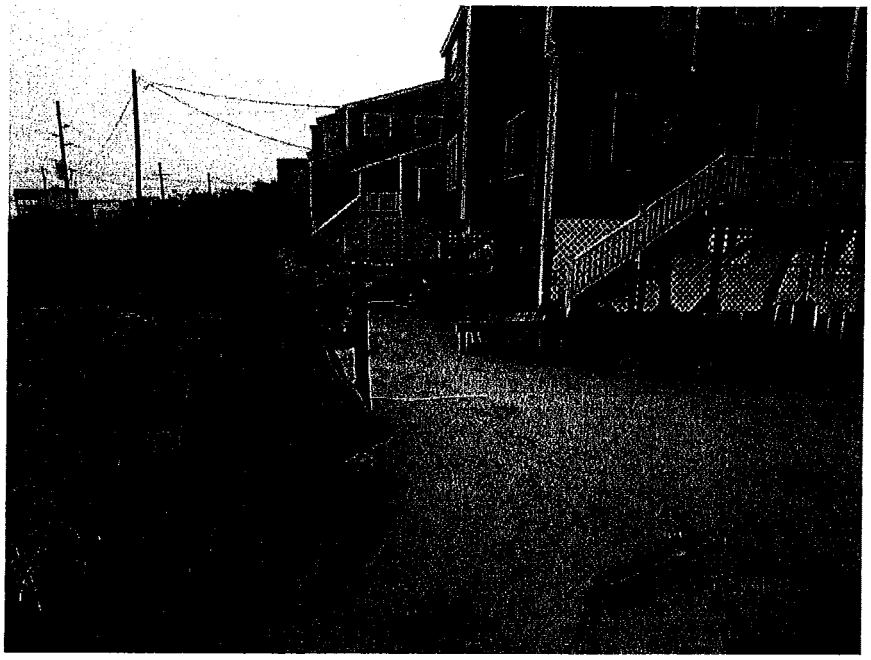


Photo 2.

Photo 3.

Following the construction of the temporary containment tube, the sand bag revetment will be constructed on top of the scour apron and immediately landward of the containment tube as shown in the attached drawing. The total footprint of the sand bag revetment and temporary containment tube will not exceed a total footprint of 45-feet. To be clear, the containment tube WILL NOT be placed seaward of the 45 ft. wide footprint proposed in the permit application. The sand bag revetment will be constructed to an approximate height of 7.5 to 9.0 ft. above grade. The nominal dimension of the bags measured flat will be 5 feet in width. Lengths of bags can vary from 7.5

Huggett, Doug

From: Willson, Kenneth <Kenneth.Willson@cbi.com>
Sent: Tuesday, November 25, 2014 12:25 PM
To: 'Stuart Turille'; Huggett, Doug
Cc: Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Jarrett, James; Howell, Jonathan; 'Brian Edes' (briane@cmclawfirm.com); dan tuman (ntopsail@charter.net); tom.leonardntb@yahoo.com; Rosov, Brad
Subject: RE: Temporary construction measures
Attachments: RAI Response CPE-NC November 25 2014_.pdf

Importance: High

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Please respond directly to the DCM regarding their request for a commitment by the Town to remove the construction tubes immediately upon completion of construction of the authorized oversized bags. Your prompt attention is appreciated.

Doug,

Please find a letter attached with the below requested information. Please let me know if you need any additional information.

Kind Regards,
Ken

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Sent: Monday, November 24, 2014 5:36 PM
To: Jarrett, James; Howell, Jonathan
Cc: Willson, Kenneth; Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Huggett, Doug
Subject: RE: Temporary construction measures

Tom

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We have discussed internally, and we believe that we need to add this to the variance permit we were ready to issue today (less than two hours after getting the variance order from the CRC Chairman), so we are going to hold off on that issuance until we get the additional info. However, with the holidays (and associated travel plans) upon us, we need the additional info in to us no later than lunch time tomorrow (Tuesday) so we can get this done this week. Otherwise it could be Monday of next week before we can finalize this.

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Sent: Monday, November 24, 2014 5:10 PM
To: Huggett, Doug; Howell, Jonathan
Cc: Willson, Kenneth; Priest, Adam T.
Subject: FW: Temporary construction measures

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If you need something else just respond to ALL.

Tom Jarrett, P.E.
Mgr Engrg II
Coastal, Ports and Marine
Tel: (910) 791-9494
Cell: (910) 264-2166
Fax: (910) 791-4129

From: Jarrett, James
Sent: Monday, November 24, 2014 4:24 PM
To: Willson, Kenneth; Priest, Adam T.
Cc: Brian Edes (BrianE@cmclawfirm.com)
Subject: Temporary construction measures

Talked with Doug Huggett and Jonathan regarding use of temporary sand tube. They need the following:
A drawing or sketch of the proposed sand tube
How far waterward will it be placed
The sand source for filling the tube
The method to remove the tube when done.

They wanted to issue the variance today but will wait on our input and try and work that into the new permit. Might have to submit a minor permit mod by not sure about that.

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COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

4038 MASONBORO LOOP ROAD, WILMINGTON, NC 28409 910-791-9494 PHONE 910-791-4129 FAX

November 25, 2014

Mr. Doug Hugget
North Carolina Division of Coastal Management
400 Commerce Ave.
Morehead City, NC 28557

RE: Construction Methods for North Topsail Beach North End Sand Bag Revetment Project

Dear Mr. Huggett,

This letter is in response to your e-mail request for additional information dated November 24, 2014 regarding means and methods to be used to construct the North Topsail Beach, North End Sand Bag Revetment Project. Please find the requested additional information including a drawing of the proposed construction cross section.

After observing the continued rapid deterioration of the project area after sea conditions on November 23rd and 24th (See photos below), a decision was made between the Town, CPE-NC, and the contractor to modify the original design to use a temporary geotextile containment tube to stabilize the project area. In order to allow for construction of the sand bag revetment, a geotextile containment tube will be filled and placed on top of the scour apron and seaward of the proposed sand bag revetment location in order to provide temporary protection to the work area. The nominal dimensions of the temporary containment tube will be 30 ft. in circumference. The tube is expected to achieve a height of approximately 5 to 6 ft and a width of 12 ft. Individual tubes will range in length from 100 to 200 ft. The purpose of the containment tube is two-fold. 1) The temporary structure will allow for a safer work environment landward of the tube, which will expedite the installation of the sand bag revetment. 2) The temporary structure will stabilize the chronic erosion currently threatening both the foundations of the houses and the property between the landward side of the houses and the road.

Photo 1

Photo 2.

Photo 3.

Following the construction of the temporary containment tube, the sand bag revetment will be constructed on top of the scour apron and immediately landward of the containment tube as shown in the attached drawing. The total footprint of the sand bag revetment and temporary containment tube will not exceed a total footprint of 45-feet. To be clear, the containment tube WILL NOT be placed seaward of the 45 ft. wide footprint proposed in the permit application. The sand bag revetment will be constructed to an approximate height of 7.5 to 9.0 ft. above grade. The nominal dimension of the bags measured flat will be 5 feet in width. Lengths of bags can vary from 7.5

ft. in length (minimum) to 15 ft. in length (maximum), measured flat. All bags will have an approximate height, when filled, of approximately 1.5 ft. While the sand bag revetment is being constructed, the area landward of the revetment will be backfilled with beach compatible sand to provide support and stability to the revetment.

The re-designed configuration of the sand bag revetment, including the temporary containment tube will require less sand than the original sand bag revetment. No additional sand sources will be needed to construct the project.

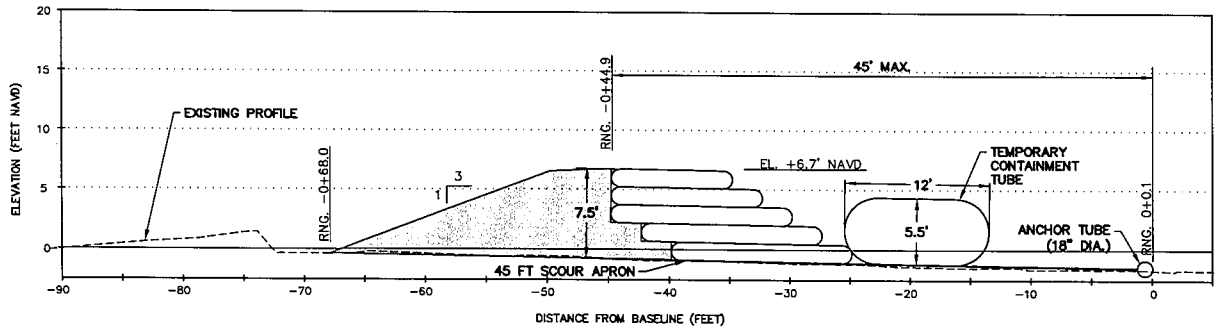
Upon completion of the project, the temporary containment tube will be removed. Removal of the tube will be accomplished by cutting through the geotextile fabric along the seaward base of the tube. The top of the tube will then be pulled back and secured so that the sand inside is exposed. Over the course of several days, based on sea conditions, the wave action will scour out the sand and redistribute it within the littoral system. Once the sand is sufficiently removed from the tube, a land based long reach excavator will be used to lift the geotextile fabric out of the water and dispose of it. Upon removal of the temporary containment tube, the Town may elect to place additional sand bags within the permitted footprint to achieve a cross section comparable to the original design.

Please contact me at 910.791.9494 (office) or 910.443.4471 (cell) should you have any questions or need additional information.

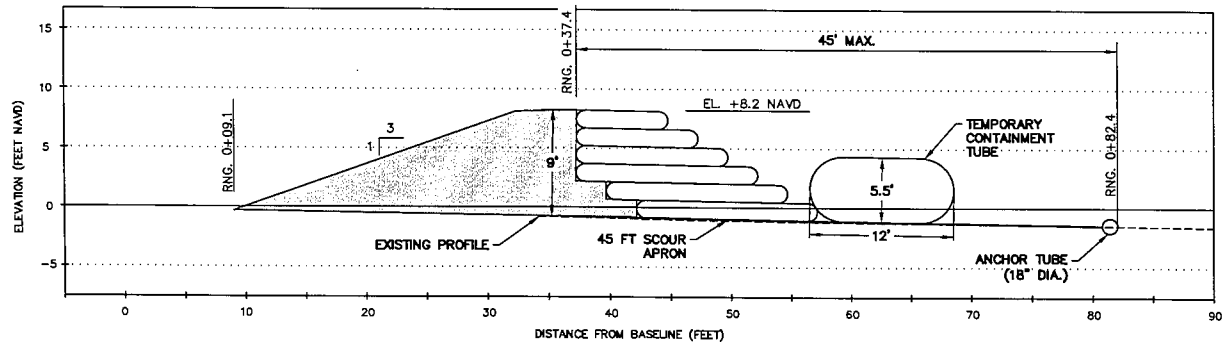
Very truly yours,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

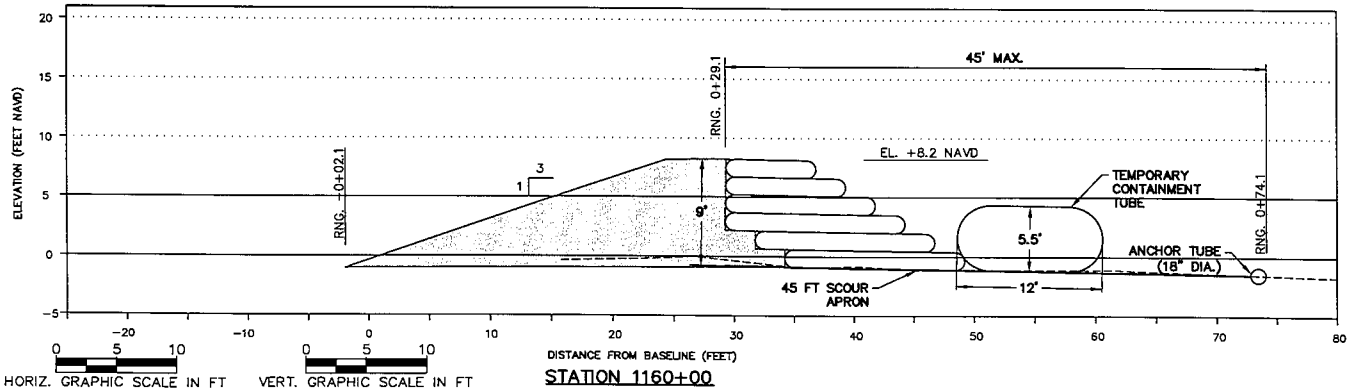
Kenneth Willson
Project Manager



STATION 1150+00



STATION 1155+00



STATION 1160+00

LEGEND:

- EXISTING PROFILE
- CONSTRUCTION
- BACK FILL

NOTES:

1. VERTICAL DATUM IS IN FEET BASED ON NAVD 1988.
2. ELEVATIONS SHOWN ON THE PLANS ARE BASED ON SURVEYS PERFORMED IN JUNE AND NOVEMBER 2012. AN UPDATED PRE-CONSTRUCTION SURVEY WILL BE PERFORMED AS PART OF THIS CONTRACT, SEE TECHNICAL SPECIFICATIONS – 12.4.

COASTAL PLANNING & ENGINEERING of North Carolina, Inc.
4038 MASONBORO LOOP RD.
WILMINGTON, NC 28409
PH. (910)791-4484
FAX (910)791-4129

REVISIONS

No.	Date	Description

Drawn by: CK | Designed by: | Checked by: | Reviewed by: | Submitted by: AP | Comm. No.:

Reference Files:

Date: 08/21/14
PLS NOTED AS NOTED

NORTH TOPSAIL BEACH, NC
TEMPORARY SAND TUBE REVETMENT
SAND BAG REVETMENT & TEMPORARY CONTAINER TUBE TYPICAL SECTIONS

DRAWING NO.
XS-1

SHEET 1 OF 1

Huggett, Doug

From: Stuart Turille <townmanager@north-topsail-beach.org>
Sent: Tuesday, November 25, 2014 2:59 PM
To: 'Willson, Kenneth'; Huggett, Doug
Cc: 'Priest, Adam T.'; Wilson, Debra; Davis, Braxton C; Dail, Jason; 'Jarrett, James'; Howell, Jonathan; "Brian Edes"; 'dan tuman'; tom.leonardntb@yahoo.com; 'Rosov, Brad'; 'Carin Faulkner'
Subject: RE: Temporary construction measures--NTB
Attachments: Flooding--NTB Photo 3, November 24, 2104.jpg; Photo 1 from November 24, 2014.jpg; Flooding November 24, 2014--Photo-2.jpg

Mr. Huggett:

Based on conditions at the project area, our engineers and selected contractor recommended that, in order to construct
our project in the most timely fashion, a temporary geotextile tube containment should be used to secure the site.

It is the Town's intention to remove this temporary measure upon completion of the project.

FYI—Regarding the use of the tube: attached are photos from yesterday's storm.

Stuart Turille
Town Manager
North Topsail Beach

From: Willson, Kenneth [mailto:Kenneth.Willson@cbi.com]
Sent: Tuesday, November 25, 2014 12:25 PM
To: Manager; Huggett, Doug
Cc: Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Jarrett, James; Howell, Jonathan; 'Brian Edes' (briane@cmclawfirm.com); dan tuman (ntopsail@charter.net); tom.leonardntb@yahoo.com; Rosov, Brad
Subject: RE: Temporary construction measures
Importance: High

Stuart,

Please see the e-mail below from Mr. Doug Huggett with the Division of Coastal Management requesting additional information regarding the construction methods and means proposed for the North Topsail Beach North End Sand Bag Revetment Project, which include the use of a temporary geotextile containment tube. CPENC has drafted the attached letter describing the details of the use of the temporary containment tube as well as an updated drawing.

Please respond directly to the DCM regarding their request for a commitment by the Town to remove the construction tubes immediately upon completion of construction of the authorized oversized bags. Your prompt attention is appreciated.

Doug,

Please find a letter attached with the below requested information. Please let me know if you need any additional information.

Kind Regards,
Ken

From: Huggett, Doug [mailto:doug.huggett@ncdenr.gov]
Sent: Monday, November 24, 2014 5:36 PM
To: Jarrett, James; Howell, Jonathan
Cc: Willson, Kenneth; Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Huggett, Doug
Subject: RE: Temporary construction measures

Tom

Yes, we need the detail on what you described below, especially as it relates to temporary construction bag size/dimension, location relative to the toe of the authorized oversized sandbag structure, and a solid commitment by the Town to remove the construction bags immediately upon completion of construction of the authorized oversized bags.

We have discussed internally, and we believe that we need to add this to the variance permit we were ready to issue today (less than two hours after getting the variance order from the CRC Chairman), so we are going to hold off on that issuance until we get the additional info. However, with the holidays (and associated travel plans) upon us, we need the additional info in to us no later than lunch time tomorrow (Tuesday) so we can get this done this week. Otherwise it could be Monday of next week before we can finalize this.

I hope this makes sense. If not, e-mail me or call me.

Thanks and good luck

Doug

From: Jarrett, James [mailto:James.Jarrett@cbi.com]
Sent: Monday, November 24, 2014 5:10 PM
To: Huggett, Doug; Howell, Jonathan
Cc: Willson, Kenneth; Priest, Adam T.
Subject: FW: Temporary construction measures

FYI
This is the message I sent to our folks.

Did I leave anything out? We will get you something by tomorrow morning. According to Ken, they plan to place the tube within the 45-foot corridor. That should be reflected in the drawing (sketch).

If you need something else just respond to ALL.

Tom Jarrett, P.E.
Mgr Engrg II
Coastal, Ports and Marine
Tel: (910) 791-9494
Cell: (910) 264-2166
Fax: (910) 791-4129

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To: Willson, Kenneth; Priest, Adam T.
Cc: Brian Edes (BrianE@cmclawfirm.com)
Subject: Temporary construction measures

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They wanted to issue the variance today but will wait on our input and try and work that into the new permit. Might have to submit a minor permit mod by not sure about that.

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Mgr Engrg II
Coastal, Ports and Marine
Tel: (910) 791-9494
Cell: (910) 264-2166
Fax: (910) 791-4129

Huggett, Doug

From: Willson, Kenneth <Kenneth.Willson@cbi.com>
Sent: Wednesday, November 26, 2014 2:51 AM
To: Huggett, Doug; Howell, Jonathan; Wilson, Debra
Cc: Priest, Adam T.; Davis, Braxton C; Dail, Jason; Jarrett, James; 'briane@cmclawfirm.com'; 'ntopsail@charter.net'; 'tom.leonardntb@yahoo.com'; Rosov, Brad; 'townmanager@north-topsail-beach.org'
Subject: RE: Temporary construction measures
Attachments: 152841-Sand Bag NEW Design Profile with Parallel 5x15.pdf

Doug/Jonathan/Debbie,

Thanks again for all of the time and effort you and your staff have put into this project. I can assure you that those of us involved realize the lengths that DCM and the CRC have gone to in order to get us to this point. Again, I want to reiterate that all of the adaptations that we have made to take this project to construction have been made in good faith that we were complying with the spirit of the rules and policies of DCM. I submit that some of the confusion resulted from a lack of clarity on my part as to where discretion in the "methods and means" to construct a project ends. In the future we will be quick to discuss any potentially controversial methods and means to construct a project with Division staff.

Earlier this week when we recommended the modified structure, we believed that as long as we didn't construct a structure that exceeded the original footprint, it would be agreeable to the Division. We fully understand the Divisions concerns with extending the scour apron seaward of both the sand bag revetment and the temporary containment tubes. With regards to the anchor tubes, I read permit condition #4, which reads: *Soldier pilings and other types of devices to anchor the sand bags shall not be allowed*, to apply more to the sand bags, than holding the scour apron in place. We now clearly understand the Division's objection to the anchor tube concept.

The Town and property owners are presented with a difficult scenario, where in order to stabilize the area in a timely manner so as to prevent the loss of a structure, they are going to spend a significant portion of the money allocated for the sand bag structure on a temporary measure (containment tube). It is our belief that this temporary containment tube will; 1) allow for a safer work environment landward of the tube, which will expedite the installation of the sand bag revetment; and 2) will temporarily (i.e. 6-monnths or until the sand bag revetment can be constructed, whichever is less) stabilize the chronic erosion currently threatening both the foundations of the houses and the property between the landward side of the houses and the road. This is a costly measure to buy time enough to install a permissible sand bag revetment without losing structures. Moving forward with the temporary containment tube to "stop the bleeding" will result in a reduction in both the width and height of the sand bag structure the Town can afford.

After our conversation Tuesday afternoon, CPE-NC staff contacted the contractors to brief them on the agreed upon conditions. The contractors voiced some concern about the stability of the temporary containment tube in the absence of the extended scour apron and anchor tube. More specifically, the contractors were concerned that the temporary containment tube may be undermined and or roll while in place. This could result in both a loss of the functionality of the temporary tube and or an inability to retrieve the entirety of the material at the time of removal. Likewise, the contractors were concerned that if the scour apron were to be cut back to the front of the sand bag revetment when the temporary containment tube is removed, the front of the revetment could be in jeopardy of slumping.

In order to address their concerns we are proposing a slightly modified cross section from the one submitted in the letter dated 11/25/14. The new cross section (See Attached) is a modified version of the cross section for Station 1150+00. The revised cross section included in the attached drawing widens the sand bag revetment base to 30 feet by using 2 – 5' x 15' bags stacked perpendicular to shore on the bottom layer. On the second Layer we have included an

extra shore parallel bag to help with added stability on the landward side. The temporary containment tube will still be placed within the original 45 ft. wide footprint and will be underlain by a scour apron. We are also proposing to use a series of 18 inch diameter "chock Bags" to prevent the sand tube from rolling seaward as well as prevent excessive scour to occur under the temporary containment tube. The chock bags are 15' in length as opposed to a continuous tube. The contractor has recommended this as a secondary option to the anchor tubes and extended scour apron.

As discussed yesterday, we would still agree to remove the sand tube upon completion of the project or 6 months, whatever is less. We would also remove the chock bags at that time. We would also agree to remove the scour apron seaward of the seaward toe of the sand bag revetment after the temporary containment tube is removed.

I realize we are all chasing a moving target and the frustration that occurs when you believe you are about to put this thing to bed and something else comes up. That's exactly what we've been dealing with for 4 + months with the project area. Again, we sincerely appreciate all of your patience and your ability to work with us through very difficult times. Please feel free to contact me on my cell phone if you have any questions about this information. If need be we can assemble in short order for a conference call.

Sincere Regards,

Ken Willson
Client Program Manager 1
Coastal, Ports & Marine.
Environmental & Infrastructure
Tel: + 1 910 791 9494
Cell: + 1 910 443 4471
Fax: + 1 910 791 4129
Kenneth.willson@CBI.com

CB&I
4038 Masonboro Loop Road
Wilmington, NC 28409
USA
www.CBI.com

From: Rosov, Brad
Sent: Tuesday, November 25, 2014 3:37 PM
To: Willson, Kenneth; 'doug.huggett@ncdenr.gov'; 'townmanager@north-topsail-beach.org'
Cc: Priest, Adam T.; 'debra.wilson@ncdenr.gov'; 'braxton.davis@ncdenr.gov'; 'jason.dail@ncdenr.gov'; Jarrett, James; 'jonathan.howell@ncdenr.gov'; 'briane@cmclawfirm.com'; 'ntopsail@charter.net'; 'tom.leonardntb@yahoo.com'
Subject: RE: Temporary construction measures

Jonathan, Tom, and Ken-
Please call in to a conference call with Adam and I at **4pm today**. The call in information is as follows:

Call in #: 1 866-692-3158
Password: 5711420#

Thank you,

Brad Rosov

Scientist IV
Coastal, Ports & Marine
Environmental & Infrastructure
Tel: +1 910 791 9494
Cell: +1 910 352-1555
Fax: +1 910 791 4129
brad.rosov@CBI.com

CB&I
4038 Masonboro Loop Rd.
Wilmington, NC 28409
United States
www.CBI.com

From: Willson, Kenneth
Sent: Tuesday, November 25, 2014 3:32 PM
To: doug.huggett@ncdenr.gov; townmanager@north-topsail-beach.org
Cc: Priest, Adam T.; debra.wilson@ncdenr.gov; braxton.davis@ncdenr.gov; jason.dail@ncdenr.gov; Jarrett, James; jonathan.howell@ncdenr.gov; briane@cmclawfirm.com; ntopsail@charter.net; tom.leonardntb@yahoo.com; Rosov, Brad
Subject: Re: Temporary construction measures

We'll be in touch with you shortly to setup a conference call.

Sent from my HTC on the Now Network from Sprint!

----- Reply message -----
From: "Huggett, Doug" <doug.huggett@ncdenr.gov>
Date: Tue, Nov 25, 2014 3:20 pm
Subject: Temporary construction measures
To: "Willson, Kenneth" <Kenneth.Willson@cbi.com>, "'Stuart Turille'" <townmanager@north-topsail-beach.org>
Cc: "Priest, Adam T." <adam.priest@cbi.com>, "Wilson, Debra" <debra.wilson@ncdenr.gov>, "Davis, Braxton C" <Braxton.Davis@NCDENR.Gov>, "Dail, Jason" <jason.dail@ncdenr.gov>, "Jarrett, James" <James.Jarrett@cbi.com>, "Howell, Jonathan" <jonathan.howell@ncdenr.gov>, "'Brian Edes' (briane@cmclawfirm.com)" <briane@cmclawfirm.com>, "dan tuman (ntopsail@charter.net)" <ntopsail@charter.net>, "tom.leonardntb@yahoo.com" <tom.leonardntb@yahoo.com>, "Rosov, Brad" <Brad.Rosov@cbi.com>

Ken/Brad/Tom

We have some significant questions about this proposed change. It appears that this is a more significant redesign of the proposal that received a variance than what we discussed yesterday. I think we need to have a conference call on this as soon as possible. Jonathan is in through the end of the day today, and I will be in tomorrow (I am in participating in mediation conference on a permit appeal right now). Please call one of us as soon as possible to discuss.

Thanks

Doug

From: Willson, Kenneth [mailto:Kenneth.Willson@cbi.com]
Sent: Tuesday, November 25, 2014 12:25 PM
To: 'Stuart Turille'; Huggett, Doug

Cc: Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Jarrett, James; Howell, Jonathan; 'Brian Edes' (briane@cmclawfirm.com); dan tuman (ntopsail@charter.net); tom.leonardntb@yahoo.com; Rosov, Brad
Subject: RE: Temporary construction measures
Importance: High

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Kind Regards,
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Cc: Willson, Kenneth; Priest, Adam T.; Wilson, Debra; Davis, Braxton C; Dail, Jason; Huggett, Doug
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Thanks and good luck

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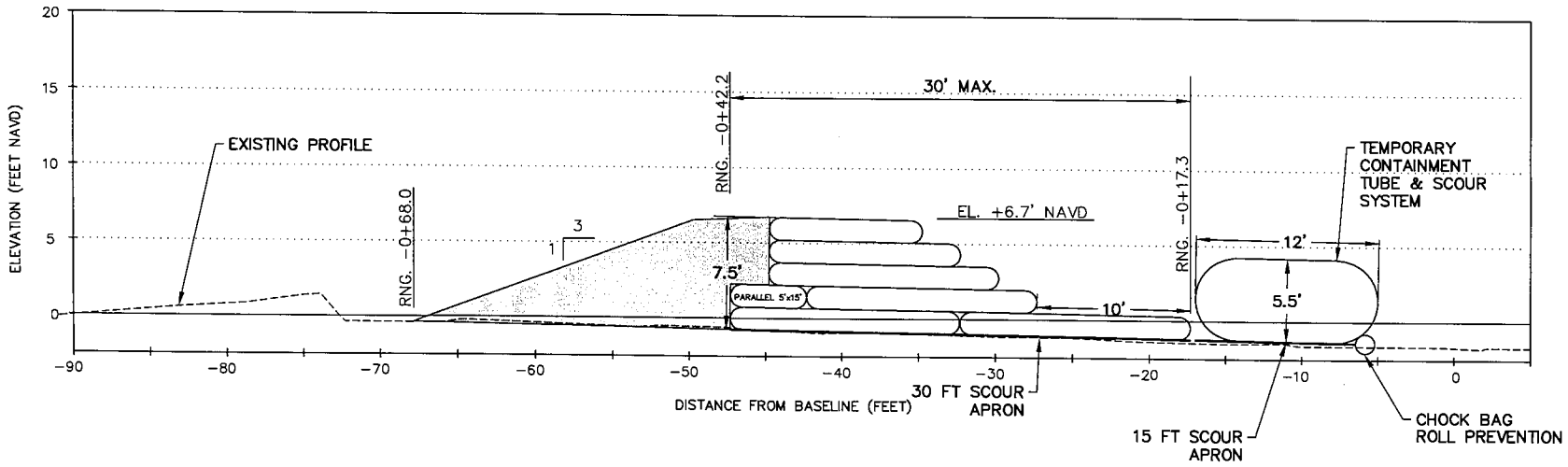


COASTAL PLANNING & ENGINEERING of North Carolina, Inc.
4038 MASONBORO LOOP RD.
WILMINGTON, NC 28409
PH. (910)791-4844
FAX (910) 791-4139

REVISIONS

No.	Date	Description

Designed by: ---
Drawn by: DR
Date: 09/21/14
Plot Scale: AS NOTED
Checked by: ---
Reviewed by: ---
Submitted by: AP
Comm. No.: ---
Reference Files:

NORTH TOPSAIL BEACH, NC
TEMPORARY SAND TUBE REVETMENT
SAND BAG REVETMENT & TEMPORARY CONTAINER TUBE TYPICAL SECTIONS

DRAWING NO.
XS-1
SHEET 1 OF 1

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

December 1, 2014

Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, N.C. 28460

Dear Sir or Madam:

The enclosed permit constitutes authorization under the Coastal Area Management Act, and where applicable, the State Dredge and Fill Law, for you to proceed with your project proposal. The original (buff-colored form) is retained by you and it must be available on site when the project is inspected for compliance. Please sign both the original and the copy and return the copy to this office in the enclosed envelope. Signing the permit and proceeding means you have waived your right of appeal described below.

If you object to the permit or any of the conditions, you may request a hearing pursuant to NCGS 113A-121.1 or 113-229. Your petition for a hearing must be filed in accordance with NCGS Chapter 150B with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27611-6714, (919) 733-2698 within twenty (20) days of this decision on your permit. You should also be aware that another qualified party may submit an objection to the issuance of this permit within twenty (20) days.

The project plan is subject to those conditions appearing on the permit form. Otherwise, all work must be carried out in accordance with your application. Modifications, time extensions, and future maintenance requires additional approval. Please read your permit carefully prior to starting work and review all project plans, as approved. If you are having the work done by a contractor, it would be to your benefit to be sure that he fully understands all permit requirements.

From time to time, Department personnel will visit the project site. To facilitate this review, we request that you complete and mail the enclosed Notice Card just prior to work initiation. However, if questions arise concerning permit conditions, environmental safeguards, or problem areas, you may contact Department personnel at any time for assistance. By working in accordance with the permit, you will be helping to protect our vitally important coastal resources.

Sincerely,

Douglas V. Huggett
Major Permits and Consistency Manager

Enclosure

North Carolina Department of Environment and Natural Resources

Pat McCrory,
Governor

Donald R. van der Vaart
Secretary

February 27, 2015

Certified Mail 7006 0810 0004 4480 2743
Return Receipt Requested

Town of North Topsail Beach
C/o Stuart Turille, Town Manager
2008 Loggerhead Ct.
North Topsail Beach, NC 28460

Compliance Action Plan: Removal of "Geotube" located between 2276 & 2392 New River Inlet Road.

Dear Mr. Turille:

The North Carolina Division of Coastal Management (DCM) received notification from your consultant/engineer/agent (Coastal Planning and Engineering of NC, PC), via email on February 24, 2015, indicating that the installation of the sand bag revetment associated with CAMA Major Permit 92-14 was complete.

As you are aware, the DCM issued CAMA Major Permit 92-14 on October 24, 2014, for the installation of a sand bag revetment within the project area, measuring 6' in height x 20' in base width. Shortly thereafter, the DCM amended CAMA Major Permit 92-14 (by CRC variance) on November 26, 2014, to allow for the installation of a larger sand bag revetment (12' in height NAVD88 x 45' in base width). In addition, the November 26, 2014, amended permit authorized the installation of a "temporary construction containment tube" otherwise referred to as a "geotube" which was to be installed immediately oceanward of the most oceanward toe of the sandbag revetment structure. A scour apron and "chock" tube was also authorized under this permit, and the placement of that structure was to be installed no further oceanward than the oceanward toe of the temporary construction containment tube. As proposed, these structures were to be used to assist in the safe construction of the temporary sand bag revetment.

Based on commitments made by you, as referenced in Condition 11) of CAMA Major Permit 92-14 (Amended per CRC variance November 26, 2014), the authorized temporary construction containment tube (Geotube) was to be "removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containmant tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division." Furthermore, Condition 13) of CAMA Major Permit 92-14 required that "all portions of the scour apron and chock tubes located oceanward of the temporary sandbag revetment shall be removed in their entirety at the same time as the associated temporary construction containment tubes".

N.C. Division of Coastal Management
127 Cardinal Drive Ext., Wilmington, NC 28405
Phone: 910-796-7215 \ FAX: 910-395-3964 Internet: www.nccoastalmanagement.net

In order to ensure compliance with the commitments made by you, as well as with the Rules of the Coastal Resources Commission and the applicable permit requirements, the DCM is requesting that you provide a plan of action to our office within fourteen days (14) from receipt of this letter. The action plan should include a detailed timeline for removal of these structures, and should outline the construction methodology used for complete removal of the temporary construction containment tube, "chock" tube and scour apron.

Once a plan of action has been received by our office, we will evaluate your proposal and provide additional guidance if necessary. If no additional information is required, you may then proceed with fulfilling the conditional requirements of your permit (92-14).

In the meantime, if you have any questions or require further guidance, please feel free to give me a call at (910) 796-7266. Thank you for your prompt attention to this matter.

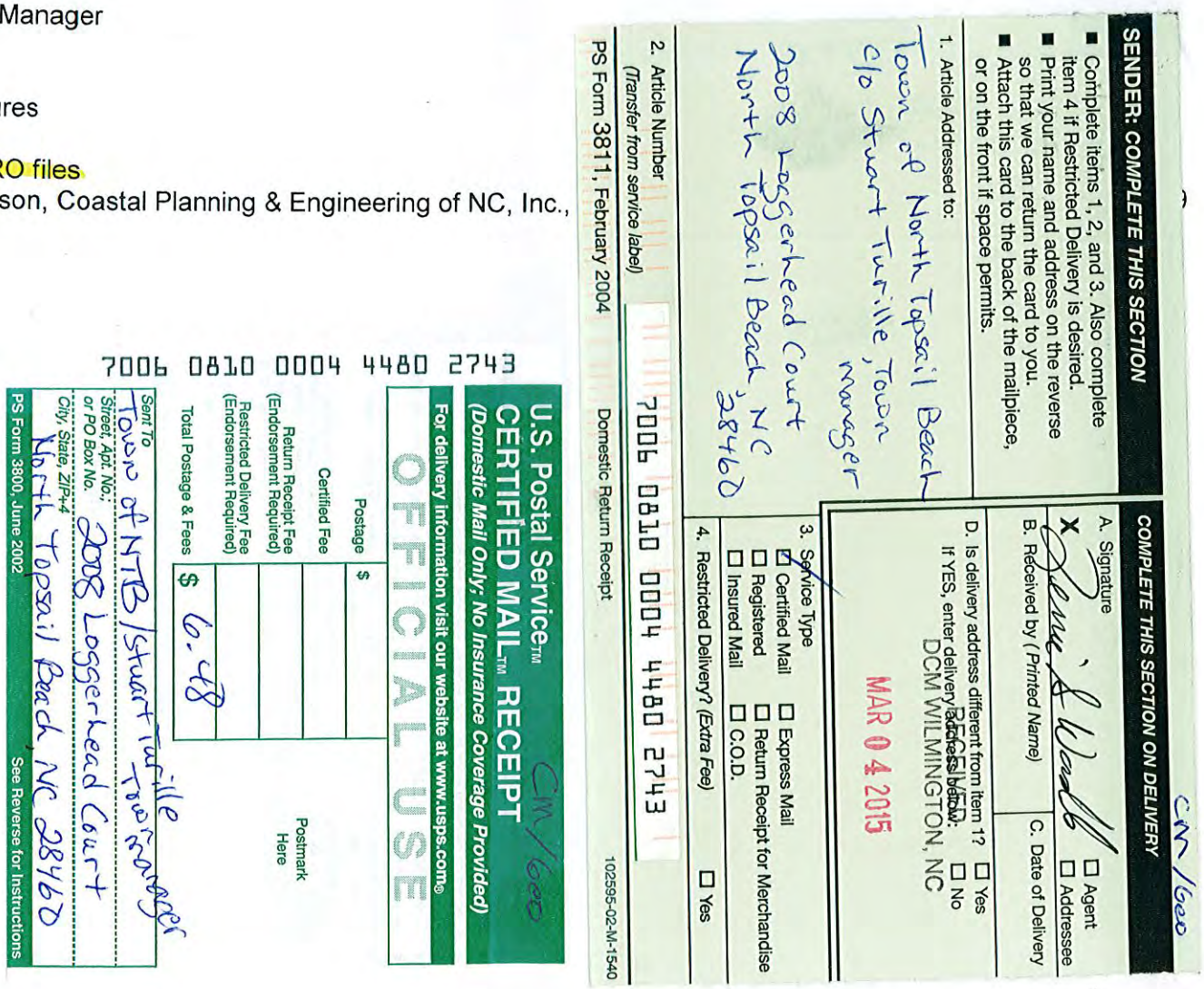
Sincerely,

DE 92

Debra Wilson
District Manager

Enclosures

Cc: WiRO files
Ken Wilson, Coastal Planning & Engineering of NC, Inc.,



From: Huggett, Doug
Sent: Thursday, March 12, 2015 10:57 AM
To: Willson, Kenneth
Cc: Dail, Jason; Howell, Jonathan; Davis, Braxton C; 'Stuart Turille'; Carin Faulkner; Jarrett, James; Davis, Braxton C; Huggett, Doug; Wilson, Debra
Subject: RE: Response to Geotube Letter - Feb. 27 2015

Ken

Following a full review of your request, DCM has determined that the removal of the geo-tubes and anchor tubes is a permit compliance issue at this point in time, and that it would be inappropriate to process a modification requesting permission to potentially allow these structures to stay in. This decision was based in part on the firm upfront commitment of the Town of North Topsail Beach to remove these structures immediately following project completion, as well as the language of the permit conditions relating to the removal of these structures. Consequently, we have determined that we cannot process this as a modification request. Therefore, we still expect the Town to submit for DCM's approval a removal plan as outlined in DCM's letter of February 27, 2015. This plan should be submitted to this office no later than Monday, March 16, 2015. Please contact either Debbie Wilson or myself if you have any questions concerning the content of the removal plan.

Thank you for all your efforts on this matter

Sincerely,

Doug Huggett

From: Willson, Kenneth [mailto:Kenneth.Willson@cbi.com]
Sent: Thursday, March 05, 2015 10:59 PM
To: Wilson, Debra
Cc: Dail, Jason; Howell, Jonathan; Huggett, Doug; Davis, Braxton C; 'Stuart Turille'; Carin Faulkner; Jarrett, James
Subject: Response to Geotube Letter - Feb. 27 2015

Ms. Wilson,

Please find attached a letter in response to your correspondence dated February 27, 2015 regarding a Compliance Action Plan for the "Geotube" located between 2276 and 2392 New River Inlet Road at North Topsail Beach. As indicated in the letter the Town is requesting a permit modification to allow the sand tubes to remain in place for the duration of the permit as stated in Condition 4 and Condition 7 of CAMA Major Permit #92-14 governing the time limits of the sand bags.

Please feel free to reach out to Mr. Jarrett or myself with any questions regarding the information provided in the letter.

Sincere Regards,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

4038 MASONBORO LOOP ROAD, WILMINGTON, NC 28409 910-791-9494 PHONE 910-791-4129 FAX

March 20, 2015

Ms. Debra Wilson
Division of Coastal Management
North Carolina Department of Environment
and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

RE: Compliance Action Plan – Regarding "Geotube" located between 2276 & 2392 New River Inlet Road.

Dear Ms. Wilson,

The Town of North Topsail Beach (TOWN) acknowledges the receipt of your February 27, 2015 letter directing the TOWN to submit an action plan for the removal of the temporary sand tube installed between 2276 and 2392 New River Inlet Road. The sand tube was permitted through the CRC variance process on November 26, 2014 (CAMA Major Permit 92-14). The TOWN also acknowledges it had agreed to remove the temporary tube upon completion of the sand bag revetment or by May 21, 2015 whichever date came first.

In response to your February 27, 2015 letter, on behalf of the TOWN we (CPE-NC) submitted a letter dated March 5, 2015 requesting a modification to the permit that would allow the sand tube to remain for the duration of the sand bag permit. On March 12, 2015, Mr. Doug Huggett responded to this request via email indicating a modification requesting permission to allow these structures to remain would be inappropriate. Mr. Huggett stated this decision was based primarily on the firm commitment by the TOWN to remove the sand tubes immediately following project completion as well as other conditions included in the language of the permit conditions. Mr. Huggett reiterated DCM still expected to receive removal plan from the TOWN.

While at this time the conditions along the shoreline fronting the sand bag revetment appear to be improving as much of the sand tube is now covered by sand, conditions along the extreme north end of the sand bag revetment have not improved dramatically. This is the area where the temporary sand tube continues to provide critical scour protection for the sand bag revetment.

Onslow County, in cooperation with the Town of North Topsail Beach, is in the process of seeking non-federal permits that will allow the County to maintain authorized federal navigation channels in the vicinity of North Topsail Beach including the channel through Cedar Bush Cut, the southern portion of New River, and sections of the AIWW where these channel meet. In accordance with the permit request, the material that would be removed to maintain the channels would be deposited along portions of the north end of North Topsail Beach including the area immediately fronting the sand bag revetment. Onslow County anticipates having the permits in time to perform the maintenance dredging during the upcoming environmental dredging window which runs from November 16, 2015 to March 31, 2016.

Given the dynamic nature of the area just south of New River Inlet and the uncertainty of future shoreline responses in this area, the Town of North Topsail Beach again request consideration of modifying the sand bag permit to allow the sand tubes to remain in place until the completion of Onslow County's channel maintenance/beach disposal activities. The TOWN expects the addition of the navigation maintenance material will provide the level of protection needed to sustain the area until such time the ocean bar channel of New River Inlet can be restored to a preferred position and alignment as allowed under DOA SAW 2005-00344 dated May 16, 2001 and CAMA Major Permit#78-10.

As previously stated, the commitments by the Town of North Topsail Beach to remove the sand tubes in accordance with the permit conditions were made in good faith and based on the belief the sand bag revetment alone would be

able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. In spite of the renewed request for a permit modification to extend the time allowed for the temporary sand tube, the Town of North Topsail Beach remains committed to remove the sand tubes once the channel maintenance activities are completed and the area exhibits signs of continued recovery/stabilization.

There have been some recent positive shoreline responses in the area fronting the sand bag revetment as evidence by the burial of a large portion of the temporary sand tube structure. The TOWN believes that these positive changes combined with the placement of navigation maintenance material in front of the sand bag revetment will be sufficient to protect the area. However, as noted above, the sand tube along the north end of the sand bag revetment continues to provide vital scour protection and its removal prior to the placement of the navigation maintenance material could result in dramatic failure of a portion of the sand bag revetment. Also, given the dynamic behavior of the shoreline in the area as the inlet adjusts to a post realignment equilibrium, the recent positive trends could reverse exposing the southern portion of the sand bag revetment to possible scour damage if the tubes are removed prematurely.

Therefore, the Town of North Topsail Beach again request a modification of the existing CAMA permit 92-14 to extend the time the sand tubes can remain in place until at least March 31, 2016 or upon completion of the Onslow County channel maintenance activities.

Please contact me at 910.791.9494 (office) or 910.264.2166 (cell) or Mr. Ken Willson at 910.443.4471 (cell) should you have any questions or need additional information.

Very truly yours,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

Tom Jarrett, P.E.
Project Engineer

Cc:

Ken Willson (CPE-NC)
Stuart Turille (North Topsail Beach)
Mayor Daniel Tuman (North Topsail Beach)
Braxton Davis (Div. of Coastal Management)
Doug Huggett (Div. of Coastal Management)
Jonathan Howell (Div. of Coastal Management)
Jason Dail (Div. of Coastal Management)
Brian Edes (Town Attorney)

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

NOTICE OF VIOLATION
March 26, 2015

CERTIFIED MAIL #7011 0110 0000 9947 1577
RETURN RECEIPT REQUESTED

Town of North Topsail Beach
c/o Stuart Turille, Town Manager
2008 Loggerhead Ct.
North Topsail Beach, NC 28460

RE: VIOLATION(S) OF CAMA MAJOR DEVELOPMENT PERMIT NO. 92-14
CAMA VIOLATION #15-05D

Dear Mr. Turille:

This letter is in reference to my letter dated February 27, 2015, and the Town's response from its authorized agent, Coastal Planning and Engineering of NC, PC via e-mail on March 20, 2015, for property located between 2276 & 2392 New River Inlet Road, adjacent to the Atlantic Ocean and located in the Town of North Topsail Beach, in Onslow County, North Carolina.

Information gathered by me for the NC Division of Coastal Management (DCM) shows that the Town of North Topsail Beach ("the Town") has violated the terms or conditions of CAMA/Dredge and Fill State Permit No. 92-14 ("the Permit") which was issued to the Town by the Coastal Resources Commission (CRC) and the North Carolina Department of Environment and Natural Resources. I hereby request that the Town immediately ***CEASES AND DESISTS*** such violation(s) and complies with the terms and conditions of the permit. If the terms and conditions of a permit are not complied with, the permit becomes null and void from the date of its issuance.

On October 24, 2014, the Permit was issued to the Town for the installation of a sandbag revetment within the project area. The sandbag revetment was authorized for dimensions measuring 6 feet in height by 20 feet in base width. The Division amended or modified the Permit on November 26, 2014, pursuant to the applicant's request, to allow for the installation of a larger sand bag revetment measuring 12 feet in height (elevation according to NAVD88) by 45 feet in base width. In addition, the permit modification authorized the installation of a "temporary construction containment tube," otherwise referred to as a "geotube," which was to be installed at the seaward-most toe of the sandbag revetment structure. A scour apron and "chock" tube was also authorized through this permit modification. This

authorization was granted with the terms that the scour apron and chock tube structures were to be placed no further oceanward than the seaward-most toe of the temporary containment tube that was used to construct the temporary sandbag revetment structure.

The Permit and its modifications were issued for major development in the Ocean Hazard and Inlet Hazard Areas of Environmental Concern (AEC), adjacent to the Atlantic Ocean, in accordance with North Carolina General Statutes N.C.G.S. 113A-118. The Permit included the following terms and conditions(s):

1. Condition No. 11: "In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sandbag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containment tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division."

2. Condition No. 13: "The scour apron and chock tubes shall extend no further oceanward than the oceanward toe of the temporary construction containment tube. All portions of the scour apron and chock tubes located oceanward of the temporary sandbag revetment shall be removed in their entirety at the same time as the associated temporary construction containment tubes."

For the following reasons, the Town is in violation of the above terms and conditions(s) of said permit:

1. The North Carolina Division of Coastal Management received notification from the Town's authorized agent, Coastal Planning and Engineering of NC, PC; via email on February 24, 2015, indicating that the installation of the sand bag revetment associated with the Permit was complete.

2. To date, as verified during a site visit on March 25, 2015, the temporary construction containment tubes and the temporary scour apron and "chock" tubes used for constructing the authorized sandbag revetment have not been removed.

To comply with the terms and condition(s) of the permit issued to the Town of North Topsail Beach, the Town must:

1. Remove the temporary construction containment tubes and all portions of the scour apron and chock tubes.

If the Town intends to cooperate with this request, the person authorized by the Town is requested to please sign one of the attached Restoration Agreements and return it in the enclosed, self-addressed envelope within ten (10) days of receipt of this letter. Failure to comply with this request or respond back to this office prior to the requested deadline with an acceptable schedule for compliance will be

interpreted as a refusal or failure to cooperate and may result in a Notice of Continuing Violation, a court injunction being sought ordering compliance, or other enforcement action.

A civil assessment of up to $10,000 plus investigative costs may be assessed against any violator. Each day that the development described in this Notice is continued or repeated may constitute a separate violation that is subject to an additional assessment up to $10,000.

The relevant statutes and regulations are available from this office, and I am willing to assist the Town in complying with the requirements of these laws. A site inspection will be made in the near future to determine whether this **REQUEST TO CEASE AND DESIST** has been complied with. I request that you as Town Manager please contact me immediately at (910) 796-7215 to discuss resolution of this important matter.

Thank you for your time and cooperation. Upon completion of the restoration as requested in the Restoration Plan Agreement and to the satisfaction of the Division of Coastal Management, the Town will be notified as to the amount of the civil assessment for failure to comply with the terms, conditions, or requirements of the permit.

Sincerely,

Debra D. Wilson
District Manager

cc (w/enc.): Braxton Davis, Director, DCM
Roy Brownlow, Compliance Coordinator, DCM
Christy Goebel, Assistant Attorney General
Tyler Crumbley, USACE
Brian Edes, Attorney for North Topsail Beach

RESTORATION PLAN
For
Town of North Topsail Beach Property
C/o Mr. Stuart Turille, Town Manager
CAMA Violation No. 15-05D
Property located between 2276 & 2392 New River Inlet Road, Onslow County

1. Remove the temporary construction containment tube and all portions of the scour apron and chock tubes.

I, Mr. Stuart Turille, on behalf of the Town of North Topsail Beach, agree to complete this restoration to the satisfaction of the Division of Coastal Management (DCM) by **April 26, 2015**, or provide an explanation for non-compliance and a reasonable request for time extension. When corrective actions are complete, I will notify the DCM so the work can be inspected.

SIGNATURE: _____

DATE: _____

It is the policy of the Coastal Resources Commission to assess a civil penalty plus investigative costs against all violations. The amount assessed will depend upon several factors, including the nature and area of the resources that were affected and the extent of the damage to them. If restoration is not undertaken or satisfactorily completed, a substantially higher civil assessment may be levied and an injunction may be sought to require restoration.

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

April 24, 2015

CERTIFIED MAIL #7011 0110 0000 9947 1591
RETURN RECEIPT REQUESTED

Town of North Topsail Beach
c/o Stuart Turille, Town Manager
2008 Loggerhead Court
North Topsail Beach, NC 28460

Dear Mr. Turille:

Enclosed, please find a Revised Restoration Agreement for Notice of Violation #15-05D. Since the March 26, 2015 issuance to the Town of NOV #15-05D, and based on discussions with the Town, it's agents/contractors and internally, we have decided to revise the restoration agreement in this case and have included a new alternative restoration plan option. Please sign one copy and return to me by May 4, 2015 in the enclosed envelope. Please have your Town Attorney call our Attorney, Christy Goebel with any questions.

DCM looks forward to resolving this enforcement matter with the Town.

Sincerely,

Debra D. Wilson
District Manager
Division of Coastal Management
Wilmington Regional Office

cc by e-mail:
Christy Goebel, Assistant Attorney General
Sam Hayes, General Council - NC DENR
Brian E. Eades, Attorney for the Town of North Topsail Beach
Braxton Davis, Director - Division of Coastal Management

N.C. Division of Coastal Management
127 Cardinal Drive Ext., Wilmington, NC 28405
Phone: 910-796-7215 \ FAX: 910-395-3964 Internet: www.nccoastalmanagement.net

Town of North Topsail Beach
April 24, 2015

REVISED
RESTORATION PLAN
For
Town of North Topsail Beach Property
c/o Mr. Stuart Turille, Town Manager

CAMA Violation No. 15-05D
Property located between 2276 & 2392 New River Inlet Road, Onslow County

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1. Remove the temporary construction containment tubes, all portions of the scour apron located oceanward of the temporary sandbag revetment, and all chock tubes within ten (10) days upon receipt of this notice; or

2. Within ten (10) days upon receipt of this notice, the Town shall submit a CAMA Major Modification application that is complete to the satisfaction of the DCM seeking to modify Permit 92-14 to allow the temporary construction containment tubes, chock tubes and scour aprons to remain until the completion of the planned Onslow County shallow-draft navigation project or March 31, 2016, whichever is sooner. Following the anticipated denial of the modification request, and no later than June 3, 2015, the Town will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town and DCM will work diligently to agree on a set of stipulated facts no later than June 17, 2015. The Town will seek a variance from the CRC at its July 15-16, 2015 meeting. If such variance request is denied by the CRC, or the variance request submitted by the Town is not heard at the July 15-16, 2015 CRC meeting, the aforementioned structures shall be removed by July 31, 2015.

I, Mr. Stuart Turille, on behalf of the Town of North Topsail Beach, agree to comply with this restoration to the satisfaction of the Division of Coastal Management (DCM) within ten (10) days upon receipt of this notice, or provide an explanation for non-compliance. When corrective actions are complete, the Town will notify the DCM so the work can be inspected.

SIGNATURE: _____

DATE: _____

It is the policy of the Coastal Resources Commission to assess a civil penalty plus investigative costs against all violations. The amount assessed will depend upon several factors, including the nature and area of the resources that were affected and the extent of the damage to them. If restoration is not undertaken or satisfactorily completed, a substantially higher civil assessment will be levied and an injunction sought to require restoration.

127 Cardinal Drive Ext., Wilmington, North Carolina 28405-3845
Phone: 910-796-7215 \ FAX: 910-395-3964 \ Internet: www.nccoastalmanagement.net

Town of North Topsail Beach
April 24, 2015

REVISED
RESTORATION PLAN
For
Town of North Topsail Beach Property
c/o Mr. Stuart Turille, Town Manager

CAMA Violation No. 15-05D
Property located between 2276 & 2392 New River Inlet Road, Onslow County

---

1. Remove the temporary construction containment tubes, all portions of the scour apron located oceanward of the temporary sandbag revetment, and all chock tubes within ten (10) days upon receipt of this notice; or

✓ 2. Within ten (10) days upon receipt of this notice, the Town shall submit a CAMA Major Modification application that is complete to the satisfaction of the DCM seeking to modify Permit 92-14 to allow the temporary construction containment tubes, chock tubes and scour aprons to remain until the completion of the planned Onslow County shallow-draft navigation project or March 31, 2016, whichever is sooner. Following the anticipated denial of the modification request, and no later than June 3, 2015, the Town will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town and DCM will work diligently to agree on a set of stipulated facts no later than June 17, 2015. The Town will seek a variance from the CRC at its July 15-16, 2015 meeting. If such variance request is denied by the CRC, or the variance request submitted by the Town is not heard at the July 15-16, 2015 CRC meeting, the aforementioned structures shall be removed by July 31, 2015.

I, Mr. Stuart Turille, on behalf of the Town of North Topsail Beach, agree to comply with this restoration to the satisfaction of the Division of Coastal Management (DCM) within ten (10) days upon receipt of this notice, or provide an explanation for non-compliance. When corrective actions are complete, the Town will notify the DCM so the work can be inspected.

NTB has chosen option 2 and submitted CAMA Major mod permit.

SIGNATURE: Stuart Turille

DATE: May 4, 2015

It is the policy of the Coastal Resources Commission to assess a civil penalty plus investigative costs against all violations. The amount assessed will depend upon several factors, including the nature and area of the resources that were affected and the extent of the damage to them. If restoration is not undertaken or satisfactorily completed, a substantially higher civil assessment will be levied and an injunction sought to require restoration.

127 Cardinal Drive Ext., Wilmington, North Carolina 28405-3845
Phone: 910-796-7215 \ FAX: 910-395-3964 \ Internet: www.nccoastalmanagement.net

North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

TO: Jonathan Howell, Assistant Major Permits Processing Coordinator
Division of Coastal Management
North Carolina Department of Environment and Natural Resources

FROM: Maria T. Dunn, Coastal Region Coordinator
Habitat Conservation Program

DATE: May 29, 2015

SUBJECT: CAMA Dredge/Fill Permit Application for Town of North Topsail Beach, Major Modification to 92-14, Onslow County, North Carolina.

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) reviewed the permit application with regard to impacts on fish and wildlife resources. The project site is located between 2276 and 2382 New River Inlet Road adjacent the Atlantic Ocean and New River Inlet. Our comments are provided in accordance with provisions of the Coastal Area Management Act (G.S. 113A-100 through 113A-128), as amended, Sections 401 and 404 of the Clean Water Act, as amended, and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The applicant proposes to extend the time granted for the existing temporary construction containment tubes (Geo-tubes) to March 31, 2016, or until the Onslow County channel maintenance project is completed.

The NCWRC commented on the original permit application (Deaton 18 September 2014). At this time we stated significant concern for the structures with regard to hardening of the shoreline, the removal of sea turtle nesting habitat, and the loss of shorebird foraging area. Site visits have been conducted periodically to observe the structures and their impacts.

Our comments and concerns from the original review remain the same. A copy of the September 18, 2014 memorandum is included for reference.

Thank you for the opportunity to provide comment on this permit modification. If you need further assistance or additional information, please contact me at (252) 948-3916 or at maria.dunn@ncwildlife.org

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

TO: Jonathan Howell, Assistant Major Permits Processing Coordinator
NCDENR Division of Coastal Management

FROM: Shannon L. Deaton, Program Manager
Habitat Conservation Program

Shannon Deaton

DATE: September 18, 2014

SUBJECT: CAMA Dredge/Fill Permit Application for Town of North Topsail Beach, Onslow County, North Carolina.

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) reviewed the permit application with regard to impacts on fish and wildlife resources. The project site is located between 2276 and 2382 New River Inlet Road adjacent the Atlantic Ocean and New River Inlet. Our comments are provided in accordance with provisions of the Coastal Area Management Act (G.S. 113A-100 through 113A-128), as amended, Sections 401 and 404 of the Clean Water Act, as amended, and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The applicant proposes to install a large sand bag (Geo-tube) revetment for approximately 1,450' to protect residential structures located along the north end of Topsail Island near the New River Inlet fronting the Atlantic Ocean. The Geo-tubes have a dimension of 7.5' in height and 45' in diameter and are proposed to be filled with approximately 10,000 cubic yards of sand from a nearby spit removing 12 to 15 inches of material from a 5 acre area. . This material will be mixed with water from the surf zone, slurried, and placed in the Geo-tube. The structure will lie approximately 20' below the normal high water level and 25' above the elevation of normal high water. This project area is included within the beach nourishment project covered under Permit No. 79-10. The waters at the project location are classified SA by the Environmental Management Commission.

The NCWRC has reviewed the proposed project as a permanent hardening of the shoreline since the project as proposed does not meet conditions for temporary sand bags of imminently threatened structures. Sandbagging is intended as a temporary measure to minimize erosion with an alternate long term plan. Construction of a permanent hardened shoreline interferes with sediment transport, the natural migration of barrier islands, and increased erosion or scour to

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

adjacent properties. With these review considerations, the placement of the Geo-tube will significantly inhibit sea turtle access to the beach and remove nest laying area. The filling of the Geo-tube using 5 acres of material from the nearby spit will have habitat impacts by removing foraging and nesting habitats for shorebirds including species such as piping plover, red knot, and several tern species.

Additionally, this project is within a permitted beach nourishment project which does not allow current shoreline structures/bags to be covered. NCWRC worked with the Town of North Topsail Beach to minimize impacts for the nourishment project and ensured the permit's conditions addressed our wildlife resource concerns. The addition of a 1,450' Geo-tube within this project boundary is contrary to NCWRC's minimization goals. Due to these concerns, NCWRC questions if the beach nourishment permit (Permit 79-10) will have reduced and altered effectiveness if this project is permitted as proposed.

As proposed, this project will have significant adverse impacts to wildlife resources and we are requesting that alternatives be considered before this project is permitted. The NCWRC does not object to sandbagging of this area in the traditional sense as specified in NC Division of Coastal Management (NCDCM) rule, but we do not view sand bag revetments as long term solutions to control erosion issues along ocean front beaches. Please see our attached recommendations for the use of sand bags when deemed necessary by NCDCM.

Thank you for the opportunity to review and comment on this permit application. Please feel free to contact Maria Dunn at (252) 948-3916 or at maria.dunn@ncwildlife.org if there are any additional questions or concerns.

Recommendations for the use of sand bags under emergency conditions to minimize impacts to wildlife resources for coastal counties

North Carolina Wildlife Resources Commission

If it is determined imminently threatened structures should be protected with sand bags as specified in NC Division of Coastal Management (NCDCM) rule, NCWRC has these concerns and recommendations:

- Proposed work should be conducted outside the shorebird and sea turtle nesting moratoria, or from April 1 – November 15, or until the last know turtle nest has hatched. If this project is declared an emergency and sandbags must be placed at imminently threatened structures during the moratoria, we request that the work be expedited to the greatest extent possible to reduce the potential for any unintended impacts to nesting sea turtles and their nests. All work should be conducted during the daytime only and only begin after qualified sea turtle monitors have evaluated the project area for any potential sea turtle nesting activities. Regular sea turtle monitoring occurs on Topsail Beach and we strongly recommend that the applicant coordinate appropriately with this group.

- The NCWRC would like the applicant to be aware of rule 15A NCAC 7H .0308 (a) (2) (g) in regards to sand bag removal in a timely fashion. This rule outlines that sandbags should not be allowed to remain in place for more than five years since North Topsail Beach has a beach nourishment plan currently permitted for this project area.

- It is preferred that material used to fill sand bags comes from an offsite source. If it is determined that material from the spit could be used, we request NCDCM and the applicant consult with the NCWRC and USFWS to reduce impact to this area. Minimization of impact may include creating a tidal pool shorebirds could utilize and overall less area of impact with less removal of material.

North Carolina Department of Environment and Natural Resource

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

May 8, 2015

RECEIVED

MAY 13 2015

DCM-Fisheries
WARO

MEMORANDUM:

TO: Shane Staples
Fisheries Resource Specialist
DCM - WaRO

FROM: Jonathan Howell, NC DENR-DCM Assistant Major Permits Coordinator
400 Commerce Avenue, Morehead City, NC 28557 ***(Courier 11-12-09)***

SUBJECT: CAMA / D&F Permit Application Review

Applicant: ***Town of North Topsail Beach 92-14MM***

Project Location: 2284 – 2382 New River Inlet Rd., adjacent to the Atlantic Ocean, In NTB, Onlsow County

Proposed Project: Applicant proposes to extend the time granted for the existing temporary construction containment tubes (2284 - 2382 New River Inlet Rd., adjacent to the Atlantic Ocean), to remain in place through March 31, 2016, or until the Onslow County channel maintenance project is completed., in North Topsail Beach, Onslow Co.

Please indicate below your agency's position or viewpoint on the proposed project and ***return this form to Jonathan Howell*** at the address above by ***June 1, 2015.*** If you have any questions regarding the proposed project, contact Jason Dail at (910)796-7221 when appropriate, in depth comments with supporting data is requested.

REPLY: _____ This agency has no objection to the project as proposed.

_____ This agency has no comment on the proposed project.

_____ This agency approves of the project only if the recommended changes are incorporated. See attached.

__X__ This agency objects to the project for reasons described in the attached comments.

SIGNED Shane A. Staples **DATE** 5/29/15

N.C. Division of Coastal Management
127 Cardinal Drive Ext., Wilmington, NC 28405
Phone: 910-796-7215 \ FAX: 910-395-3964 Internet: www.nccoastalmanagement.net

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

MEMORANDUM:

TO: Jonathan Howell, DCM Assistant Major Permit Coordinator

FROM: Shane Staples, DCM Fisheries Resource Specialist

SUBJECT: Town of Topsail Beach 92-14MM

DATE: 5/29/15

A North Carolina Division of Coastal Management (DCM) Fisheries Resource Specialist has reviewed the subject permit application for proposed actions that impact fish and fish habitats. The Town of North Topsail Beach is requesting authorization to allow for an existing temporary containment tube (Geotube) to remain in place until March 31, 2016 or until completion of the Onslow County channel maintenance.

The structures in question interfere with normal intertidal habitat functions and processes. The intertidal beach zone supports benthic organisms such a coquina clams and mole crabs as well as foraging, nursery, and refuge areas for various juvenile fishes which support predatory species that feed in the area such as red drum and flounder. Oceanfront shoreline armoring is documented to degrade beach surf zones by changing erosion patterns and rates as well as effecting sediment grain size. This can result in a narrower surf zone, increased turbidity, and reduced abundance and diversity of benthic macroinvertebrates.

A large shoreline hardening structure, such as the Geotubes in question, remaining in place for an extended period of time is likely to have significant adverse impacts to habitats critical to fish, shellfish, and other organisms that inhabit or simply frequent the intertidal zone. These impacts include continued loss of habitat that is currently filled by the bags and degradation to the surrounding habitat caused by the Geotubes' interference with normal beach shoreline processes. Additionally, pictures taken by a NCWRC representative during a site visit on May 15, 2015 show the structures largely uncovered; removing these structure before they can become entrench in the beach would reduce impacts habitat in the area possible during removal operations.

Contact Shane Staples at (252) 948-3950 or shane.staples@ncdenr.gov with further questions or concerns.

DIVISION OF COASTAL MANAGEMENT
FIELD INVESTIGATION REPORT

1. **APPLICANT'S NAME**: Town of North Topsail Beach –**Major Permit Modification, No. 92-14**

2. **LOCATION OF PROJECT SITE**: The project site is located along the oceanfront beach from 2284 to 2382 New River Inlet Drive, adjacent to the Atlantic Ocean, in North Topsail Beach, Onslow County.

Photo Index – **2006**: 28-(6497): Oceanfront & Inlet
2000: 28-(391): Oceanfront & Inlet
1995: 28-(379): Oceanfront & Inlet
State Plane Coordinates – **GPS File:** P111811B **X**: 2449610 **Y**: 256997
Lat.: 34°31'29.15"N **Long:** 77°20'47.98"W

RECEIVED
MAY 12 2015

3. **INVESTIGATION TYPE**: CAMA / D&F

4. **INVESTIGATIVE PROCEDURE**: **Dates of Site Visit** – Multiple visits between Jan. 2013 and April 2015
Was Applicant Present – Yes

5. **PROCESSING PROCEDURE**: **Application Received** – Complete 5/1/15 (with exceptions)
Office – Wilmington

6. **SITE DESCRIPTION**:
(A) **Local Land Use Plan** – Town of North Topsail Beach
Classification From LUP – No Classification / Developed
(B) **AEC(s) Involved**: OH, IH
(C) **Water Dependent**: Yes
(D) **Intended Use**: Government
(E) **Wastewater Treatment:** **Existing** – Municipal Sewer
Planned - N/A
(F) **Type of Structures**: **Existing** – Commercial and Residential structures and access-ways
Planned – Sand bag revetment
(G) **Estimated Annual Rate of Erosion**: 2'/year **Source** – LTAASCR 2011 Update

7. **HABITAT DESCRIPTION**:

	[AREA] DREDGED	FILLED	OTHER
(A) Vegetated Wetlands (coastal)	**N/A**	**N/A**	**N/A**
(B) Non-Vegetated Wetlands - open water	**N/A**	~16,200 sq. ft. (existing temporary containment tube – i.e. "Geotube")	**N/A**
(C) Other (Highground) *N/A – Not applicable	**N/A**	**N/A**	**N/A**

(D) **Total Area Disturbed**: 0.37 acres (16,200 sq. ft.) +
(E) **Primary Nursery Area**: No
(F) **Water Classification**: SA **Open:** NO

8. PROJECT SUMMARY: The applicant is requesting authorization which would allow the existing temporary containment tube (Geotube) to remain in place for an extended period of time.

9. PROJECT DESCRIPTION:

The permittee is requesting approval; through this CAMA major permit modification, to allow for the continued operation, function and/or placement of the existing temporary containment tube ("Geotube"), between 2284 and 2382 New River Inlet Road, North Topsail Beach. The information presented in this application package specifically addresses the continued use of the temporary containment tube, with no other relevance to any other sand bag, or temporary erosion control features. The relative information of the new project is described below.

The project site is located in North Topsail Beach, specifically between 2284 and 2382 New River Inlet Road, adjacent to the Atlantic Ocean, in Onslow County. To get to the site from Wilmington take US HWY 17 N to NC Hwy 210, which is located at the Lowe's Home Improvement on US HWY 17. Turn right onto NC Hwy 210 and continue across the Surf City Swing Bridge. Take a left at the first street N. New River Drive (NC Hwy 210). Continue on NC Hwy 210 until you reach the New River Inlet Road (approximately 8.15 miles). Turn right onto New River Inlet Road and continue to the far end. Turn left at the stop sign and the project area will be located on the right hand side of the road, just north of the 2282 New River Inlet Road. The project area spans from the northern side of 2284 New River Inlet Road, north to the property identified by the Onslow County Tax office as 2382 New River Inlet Road. The current elevation of the project area ranges from approximately 6' NAVD to approximately 8' NAVD. The project site is adjacent to residential properties. The project site is bordered by New River Inlet to the north, the Atlantic Ocean to the East and residential properties to the south and west. The high ground portion of the property is primarily un-vegetated with the exception of lawn grasses and ornamental landscaping around the existing homes.

The Annual erosion rate in the project area is 2'/year per the Division of Coastal Management's 2011 Annual Erosion Rate maps. Previous field investigation reports have demonstrated this particular area of North Topsail Beach experiences "accelerated erosion" and the shoreline is progressively receding.

PROJECT DESCRIPTION:

The Town of North Topsail Beach currently has several CAMA Major Development Permits that are active, including CAMA Major Permit No. 79-10 (Shoreline Stabilization), No. 191-05 (Beach Bulldozing) and No. 92-14 (Sand bag revetment). CAMA Major Permit No. 92-14, which was amended by CRC variance on November 26, 2014, authorized the installation of approximately 1,500 linear feet of sand bags (sand bag revement) and approximately 1,200 linear feet of temporary construction containment tube (i.e. Geotube) along the ocean front area of North Topsail Beach, between 2276 and 2382 New River Inlet Road. Prior to installation of the sand bag revetment structures, the Town's contractor installed the temporary construction containment tube, which was to be used as a safety feature while installing the sand bag revetment. Once the temporary construction containment tube was installed, the contractor(s) began installing the revetment along the project shoreline (starting from the northern terminus working south). Following completion of the sand bag revetment, the Town (through its consultant – Coastal Planning and Engineering) began to seek authorization which would allow the temporary containment tube to remain in place, as noted in the sequence of events detailed below.

On February 24, 2015, Division of Coastal Management (DCM) staff received a written notice from Coastal Planning and Engineering, indicating the sand bag revetment was complete.

On February 27, 2015, DCM sent a certified letter to the Town of north Topsail Beach requesting a "Compliance Action Plan" for removal of the temporary erosion control tubes (i.e. temporary construction containment tube).

The letter detailed the commitments made by the permittee (Town of North Topsail Beach), as referenced in Condition No. 11) of CAMA Major Permit No. 92-14. Specifically, Condition No. 11) of CAMA Major Permit No. 92-14 stated "*In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner.*"

On March 20, 2015, Coastal Planning and Engineering staff member Tom Jarrett, P.E., submitted a written response to DCM's "Compliance Action Plan" indicating that "*conditions along the shoreline fronting the sand bag revetment appear to be improving as much of the sand tube (i.e. Geotube or temporary containment tube) is now covered by sand*", but "*conditions along the extreme north end of the sand bag revetment have not improved dramatically*". In addition, the permittee's consultant described the inlet hazard area as being "dynamic" in nature and the uncertainty of future shoreline responses in the area should be taken into consideration for allowing the temporary containment tube in place until the completion of Onslow County's channel maintenance project. At this time, it should be noted that DCM has not received a CAMA Major development permit request from Onslow County requesting authorization to dredge New River Inlet, so the uncertainty of when this project will happen is unknown. Data collected during multiple site visits (by DCM staff) following completion of the sand bag revetment project show that nearly two-thirds of the temporary construction containment tube was exposed at some point along its alignment.

On March 26, 2015, DCM staff issued a Notice of Violation (NOV) to the permittee for violation of CAMA Major Permit No. 92-14 (CAMA Violation #15-05D) for failure to comply or meets the requirements of Conditions No. 11 and No. 13 of CAMA Major Permit No. 92-14. Restoration and/or fulfillment of the NOV required that the permittee "*remove the temporary construction containment tubes and all portions of the scour apron and chock tubes*". The Town (permittee) was provided a ten (10) day time period (from the receipt date of the NOV) to provide a response to the NOV, by way of remediation through one of the restoration agreements.

On May 4, 2015, DCM staff received a signed copy of the "Revised Restoration Plan for North Topsail Beach Property" dated April 24, 2015, from Stuart Turille (Town Manager, North Topsail Beach) indicating the Town would submit a CAMA Major Permit Modification application to DCM within ten (10) days from receipt of the NOV. The actions sought through the permit modification request would include the allowance of the temporary construction containment tubes, chock tubes and scour aprons until the completion of the planned Onslow County shallow draft navigation project or March 31, 2016, whichever is sooner. Additionally, the agreed upon restoration plan stated "*Following the anticipated denial of the modification request, and no later than June 3, 2015, the Town will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town and DCM will work diligently to agree on a set of stipulated facts no later than June 17, 2015. The Town will seek a variance from the CRC at its July 15-16, 2015 meeting. If such a variance request is denied by the CRC, or the variance request submitted by the Town is not heard at the July 15-16, 2015 CRC meetin, the aforementioned structures shall be removed by July 31, 2015.*"

Information provided by the applicant's agent (Coastal Planning and Engineering, a.k.a. CP&E) indicates the Town would like to seek approval to keep the sand filled construction containment tube, which was constructed as part of the Phase I Emergency Sand Bag Revetment Project for the purpose of providing additional protection to the area being inundated by tides and wave action. The Town suggests the existing containment tube is partly to mostly covered by sand along the alignment; however, the height of the containment tube has varied over time, in relation to elevation of the beach, which has varied by winds, tides and waves. As previously mentioned, the Town is seeking relief from the conditions stated in CAMA Permit No. 92-14, until

such time that either the construction containment tubes have been completely covered with sand, or until the County completes their channel/beach nourishment project.

10. ANTICIPATED IMPACTS

The applicant's proposal to keep the temporary construction containment tube in place would result in the continued filling of approximately 16, 200 sq. ft. of public trust area. Additionally, approximately 16, 200 sq. ft. of publicly accessible beach would be restricted by its continued placement.

Submitted by: Jason Dail **Date:** May 7, 2015 **Office:** Wilmington

2 ATTACHMENTS

2.1 DCM MP-1. ADDITIONAL INFORMATION

2.1.1 6a. Project Narrative.

The Town of North Topsail Beach completed Phase 1 of its multifaceted inlet and shoreline management plan in February 2013 with the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The material removed during repositioning of the channel was used to construct a beach fill along 7,730 feet of shoreline south of New River Inlet.

As stated in a prior permit application, the beach fill along the north end of North Topsail Beach experienced rapid rates of volume loss resulting in the eventual loss of all of the fill material north of the Topsail Reef by August 2014. In response to the emergency situation created by the rapid deterioration of the fill, the Town of North Topsail Beach applied for a permit to construct a sandbag revetment along approximately 1500 feet of shoreline north of Topsail Reef (See Appendix A). While this initial request was denied due to the size of the proposed sandbag revetment, the Town of North Topsail Beach was ultimately issued a CAMA Major Permit (Permit #92-14) dated November 26, 2014 through the variance process.

In addition to the enlarged size of the sandbag revetment, the permit allowed the Town to use a temporary sand filled containment tube to provide protection to the area during installation of the sandbag revetment. The conditions of the permit required the temporary containment tube to be removed immediately upon completion of the sandbag revetment, or by May 21, 2015, whichever occurred sooner. A typical cross-section of the sandbag revetment and temporary containment tube is provided in Appendix A.

The sandbag revetment was essentially completed on February 25, 2015. An aerial photograph taken of the project site on February 20, 2015 via a drone is shown in Figure 1 below.

As can be seen in the aerial photo, the northern end of the sand tube was exposed while most of the tube along the south end of the sandbag revetment was buried. The exposed portion of the sand tube on the north end of the revetment was continuing to provide substantial scour protection for the sandbag revetment. However, due to the volatility of the shoreline in the area, portions of the sand tube are alternately buried and covered. A series of ground photos of the completed sandbag revetment taken March 6, 2015, show some exposed and buried sand tubes are provided on Figure 2 to 6. The figures are arranged in a north to south order.

Along those portions of the revetment where the tube is still exposed, the tube is clearly providing scour protection to the sand bag revetment. The removal of the partially buried and exposed sand tube will likely result in rapid scour along the toe of the sand bag revetment located in these areas that will in turn lead to the failure of the sand bag revetment.

Onslow County, in cooperation with the Town of North Topsail Beach, is in the process of seeking non-federal permits that will allow the County to maintain authorized federal navigation channels in the vicinity of North Topsail Beach including the channel through Cedar Bush Cut, the southern portion of New River, and sections of the AIWW where these channel meet. In accordance with the permit request, the material that would be removed to maintain the channels would be deposited along portions of the north end of North Topsail Beach including the area immediately fronting the sand bag revetment. Onslow County anticipates having the permits in time to perform the maintenance dredging during the upcoming environmental dredging window that runs from November 16, 2015 to March 31, 2016.

Given the dynamic nature of the area just south of New River Inlet and the uncertainty of future shoreline responses in this area, the Town of North Topsail Beach again request consideration of modifying the sand bag permit to allow the sand tubes to remain in place until the completion of Onslow County's channel maintenance/beach disposal activities. The Town expects the addition of the navigation maintenance material will provide the level of protection needed to sustain the area until such time the ocean bar channel of New River Inlet can be restored to a preferred position and alignment as allowed under DOA SAW 2005-00344 dated May 16, 2001 and CAMA Major Permit#78-10.

As previously stated, the commitments by the Town of North Topsail Beach to remove the sand tubes in accordance with the permit conditions were made in good faith and based on the belief the sand bag revetment alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. In spite of the renewed request for a permit modification to extend the time allowed for the temporary sand tube, the Town of North Topsail Beach remains committed to remove the sand tubes once the channel maintenance activities are completed and the area exhibits signs of continued recovery/stabilization.

There have been some recent positive shoreline responses in the area fronting the sand bag revetment as evidence by the burial of a large portion of the temporary sand tube structure. The Town believes that these positive changes combined with the placement of navigation maintenance material in front of the sand bag revetment will be sufficient to protect the area. However, the sand tube along the north end of the sand bag revetment continues to provide vital scour protection and its removal prior to the placement of the navigation maintenance material could result in dramatic failure of a portion of the sand bag revetment. Also, given the dynamic behavior of the shoreline in the area as the inlet adjusts to a post-realignment equilibrium, the recent positive trends could reverse exposing the southern portion of the sand bag revetment to possible scour damage if the tubes are removed prematurely. In this regard, during a visit to the site on April 7, 2015, the shoreline response in the area fronting the bags appeared to have changed with more of the bags being exposed along the south end of the sandbag revetment.

Given the continued dynamic changes in the shoreline fronting the sandbag revetment and the potential for failure of the revetment due to scour along the seaward toe of the structure, the Town of North Topsail Beach requests a modification of the existing CAMA permit #92-14 to extend the time the sand tubes can remain in place until at least March 31, 2016 or upon completion of the Onslow County channel maintenance activities.

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

June 2, 2015

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Town of North Topsail Beach
c/o Stuart Turille
2008 Loggerhead Court
North Topsail Beach, NC 28460

Dear Mr. Turille:

This letter is in response to your application for a major modification to permit no. 92-14 under the Coastal Area Management Act (CAMA), in which authorization was requested to allow the existing temporary construction containment tubes, as well as associated scour aprons and "chock tubes", located between 2284-2382 New River Inlet Road, to remain in place until at least March 16, 2016, or until the completion of a channel maintenance and beach nourishment project currently under development by Onslow County. Processing of the application, which was received as complete by the Division of Coastal Management's (DCM) Wilmington Regional Office on May 1, 2015, is now complete. Based on the state's review, the Division of Coastal Management has made the following findings:

1) The Town of North Topsail Beach was issued emergency CAMA Major Permit No. 92-14 on October 24, 2014 to allow for the construction of a 20' x 6' sandbag revetment at the subject property. CAMA Major Permit No. 92-14 was amended by way of a variance granted by the Coastal Resources Commission (CRC) on November 26, 2014 to allow for the construction of a 45' x 12' sandbag revetment.

2) Immediately prior to the issuance of the November 26th, 2014 Major Modification to CAMA Major Permit 92-14, the Town requested permission to install temporary construction containment tubes, and associated scour aprons and chock tubes seaward of the alignment of the sand bag revetment. The purpose of the temporary construction containment tubes was to "allow for a safer work environment landward of the tube, which will expedite the installation of the sand bag revetment." The Town further stated in a letter dated November 25, 2015, "Upon completion of the project, the temporary containment tube will be removed".

3) The temporary construction containment tube, as well as associated scour aprons and chock tubes, were not determined by the Division to constitute an additional erosion control response, and therefore could be permitted, provided that a) structures were designed in a manner that served only as a temporary construction methodology, and b) that a commitment was received from the Town stating that

the temporary construction containment tubes, scour aprons and chock tubes would be removed in their entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner.

4) On November 26, 2014, a Major Modification to CAMA Permit No. 92-14 was issued. The Major Modification included the following conditions:

> 11) In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containment tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division.
>
> and
>
> 13) The scour apron and "chock" tubes shall extend no further oceanward than the oceanward toe of the temporary construction containment tube. All portions of the scour apron and chock tubes located oceanward of the temporary sandbag revetment shall be removed in their entirety at the same time as the associated temporary construction containment tubes.

5) On February 24, 2015, the Division received notice from the Town's consultant that construction of the sand bag revetment was complete.

6) On February 27, 2015, the Division formally requested from the Town a plan for the removal of the temporary construction containment tubes, scour aprons and chock tubes.

7) Based upon the failure of the Town to proceed with a removal plan for these structures, the Division issued a Notice of Violation (NOV) to the Town on March 26, 2015. During settlement negotiations relating to the NOV, the Town was given the option to apply for a Major Modification to Permit No. 92-14, requesting permission to leave the temporary construction containment tubes, scour aprons and chock tubes in place until at least March 16, 2016, or until the completion of a channel maintenance and beach nourishment project currently under development by Onslow County. The Town chose this option, with the understanding that a variance from CRC rules would be necessary to allow these structures to remain in place.

8) The project will be located within the Ocean Hazard AEC and is therefore subject to the use standards of NCAC 7H.0308(a)(2)(K) and NCAC 7H.0308(a)(2)(L), the Ocean Hazard AEC Temporary Erosion Control Structures regulations of the N.C. Division of Coastal Management.

9) NCAC 7H.0308(a)(2)(K) states in part, "Sandbags used to construct temporary erosion control structures shall be tan in color and three to five feet wide and seven to fifteen feet long when measured flat."

10) NCAC 7H.0308(a)(2)(L) states, "Soldier pilings and other types of devices to anchor sandbags shall not be allowed."

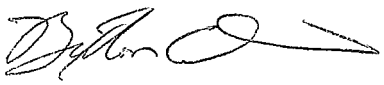
11) Based upon the findings outlined above, the proposed project has been determined to be inconsistent with NCAC 7H.0308(a)(2)(K) and NCAC 7H.0308(a)(2)(L).

Given the preceding findings, it is necessary that your request for issuance of a CAMA Major Modification to Permit No. 92014 under the Coastal Area Management Act be denied. This denial is made pursuant to N.C.G.S. 113A-120(a)(8) which requires denial for projects inconsistent with the state guidelines for Areas of Environmental Concern or local land use plans.

If you wish to appeal this denial, you are entitled to a contested case hearing. The hearing will involve appearing before an Administrative Law Judge who listens to evidence and arguments of both parties before making a final decision on the appeal. Your request for a hearing must be in the form of a written petition, complying with the requirements of §150B of the General Statutes of North Carolina, and must be filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714, within twenty (20) days from the date of this denial letter. A copy of this petition should be filed with this office.

Another response to a permit denial available to you is to petition the Coastal Resources Commission for a variance to undertake a project that is prohibited by the Rules of the Coastal Resources Commission. Applying for a variance requires that you first acknowledge and recognize that the Division of Coastal Management applied the Rules of the Coastal Resources Commission properly in processing and issuing this denial. You may then request an exception to the Commission's Rules based on hardships to you resulting from unusual conditions of the property. To apply for a variance, you must file a petition for a variance with the Division of Coastal Management Director and the State Attorney General's Office on a standard form, which must be accompanied by additional information on the nature of the project and the reasons for requesting a variance. The variance request may be filed at any time, but must be filed a minimum of six weeks before a scheduled Commission meeting for the variance request to be eligible to be heard at that meeting. The standard variance forms may be obtained by contacting a member of my staff, or by visiting the Division's web page at http://www.nccoastalmanagement.net/web/cm/90.

Sincerely,



Braxton C. Davis
Director, Division of Coastal Management

cc: U.S. Army Corps of Engineers, Wilmington, NC

USE OF GEO-TEXTILE TUBES FOR TEMPORARY EROSION CONTROL

NC Coastal Resources Commission

September 16, 2010

Tancred Miller

NC Division of Coastal Management

Problems with Sandbags*

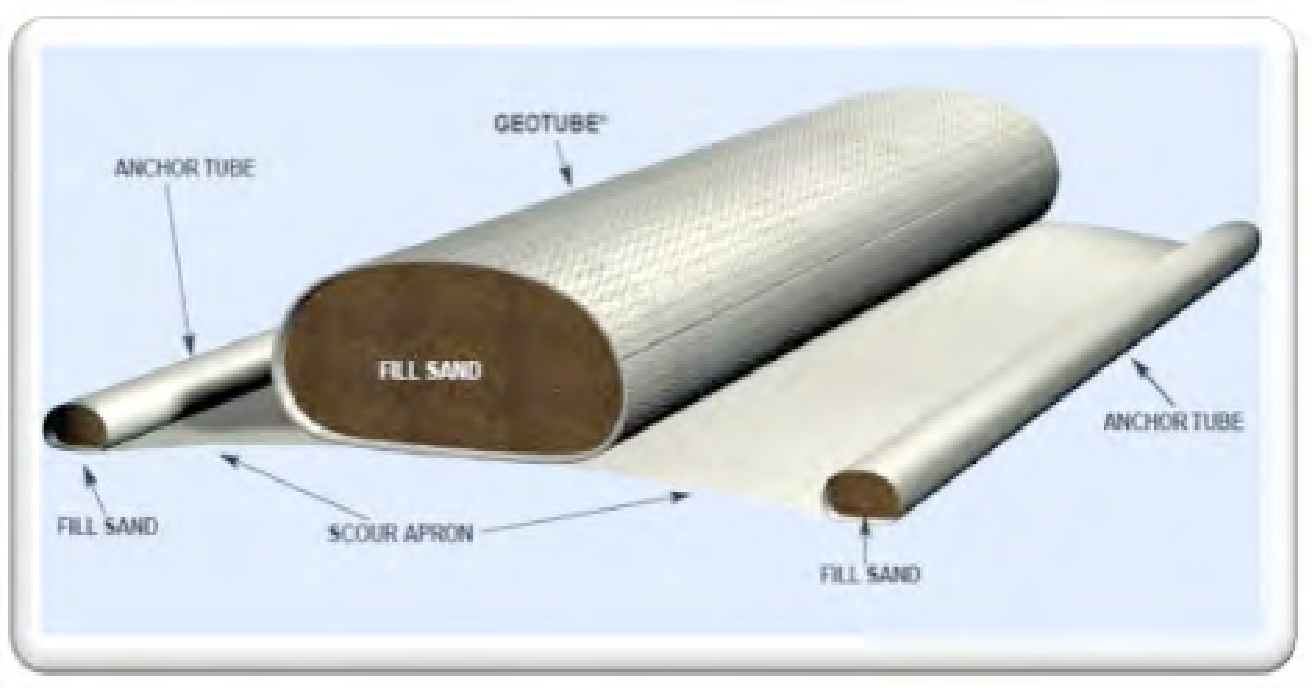
*(*from Spencer Rogers' July 2010 presentation)*

- Difficulties in enforcing structure size (height, width, configuration)
- Litter and debris from damaged and abandoned bags
- Impact on adjacent beaches and neighboring properties (footprint)

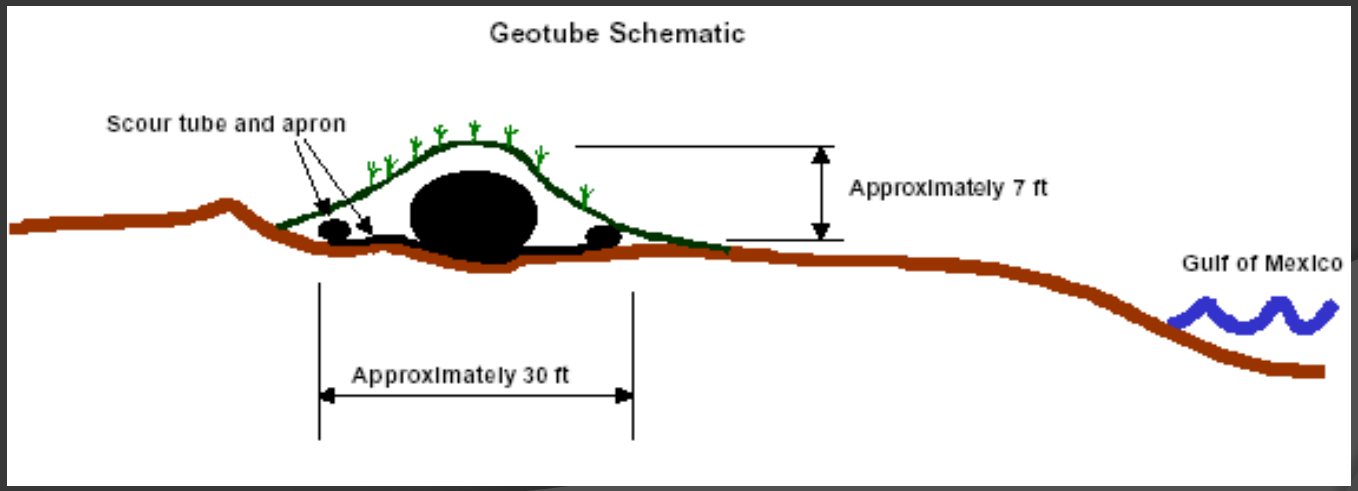
Advantages of Geo-Tubes*

*(*from Spencer Rogers' July 2010 presentation)*

- Easier to enforce structure size (height, width, configuration)
- ~2/3 less fabric to cause litter and debris from damaged and abandoned bags
- Less impact on adjacent beaches and neighboring properties (50% smaller footprint)
- Stronger standard fabric
- Lower cost to the property owner



Source: www.tcmirafi.com



Source: Gibeaut et al., 13th Biennial CZ Conference, 2003.

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

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Issues with Geo-Tubes

- Relatively untested at lot scale; more commonly installed in 1+ mile lengths
- Typically installed in excavated trenches and covered to mimic natural dune
  ** almost impossible to keep vegetated*
  ** additional complication of excavating on the beach/under the dune*
  ** if partially buried, total height is an issue*
- Damage to tube can result in total failure – loss of protection and cost to repair

Issues with Geo-Tubes

- Impossible to climb if uncovered (safety concern, especially at high tide)
- Used with scour pad and anchor tubes
  ** current rule prohibits anchoring*
  ** scour pads and anchor tubes have not performed well*
- Work best when buried
- Likely to roll – steeper beaches plus wave energy makes them unstable. BIG SAFETY CONCERN.
- Feasible on lot scale?

Staff Response to Spencer Rogers' Presentation

- Enforcing size and configuration much less of an issue since Commission clarified how structures are to be measured
- Support an alternative that uses less fabric and could lessen debris
- Support an alternative that decreases the footprint
- Support an alternative that is lower cost to property owners

Staff Position on Geo-Tubes

- Public safety must be a top concern—these structures are large, heavy, and can be unstable
- Not opposed to a trial of tubes on a limited basis if a willing property owner comes forward
- Tube is essentially a large sandbag; allowable under CAMA, but violates size and anchoring provisions of CRC's rules

Staff Recommendations

- Geo-textile tubes are not a proven technology to warrant a change in the CRC's rules so that they can be permitted
- Tubes may be worthwhile to test if willing property owner(s) can be found and the safety concerns are addressed
- Since tubes violate size and anchoring limitations, best to consider as a variance

Credit: Infrastructure Alternatives, infralt.com/wallops-island/

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

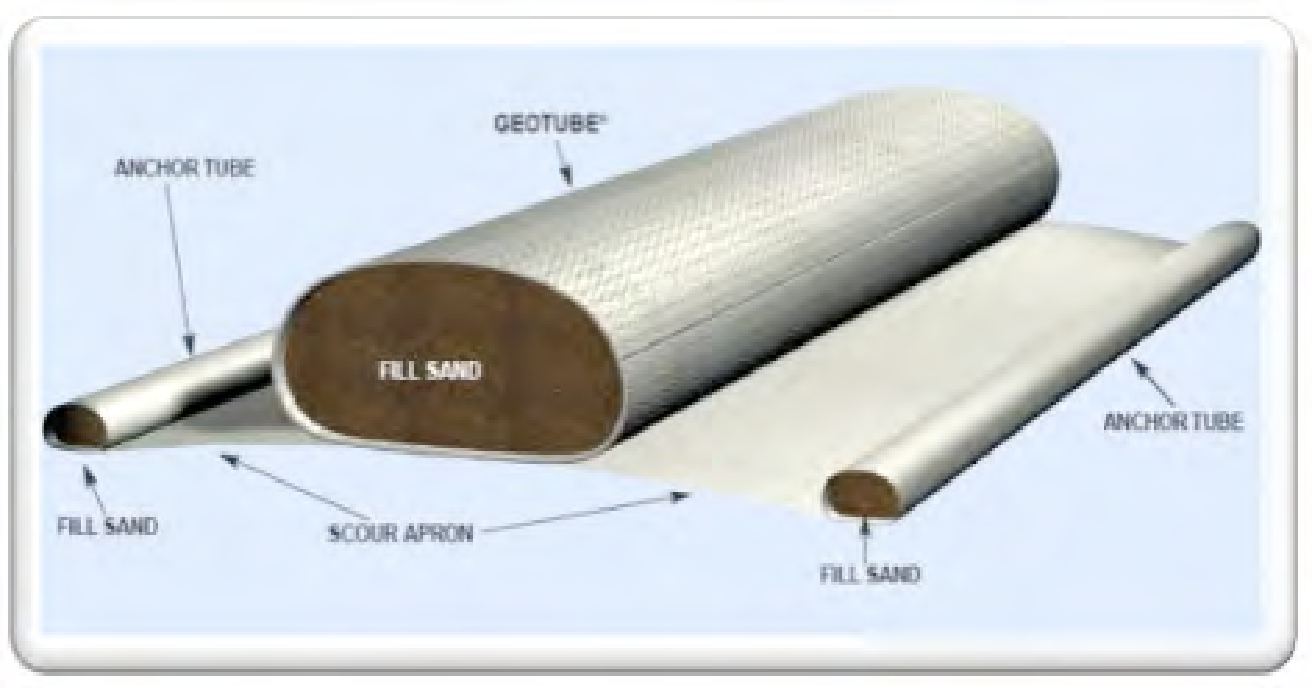
USE OF GEOTEXTILE TUBES FOR TEMPORARY EROSION CONTROL

NC Coastal Resources Commission

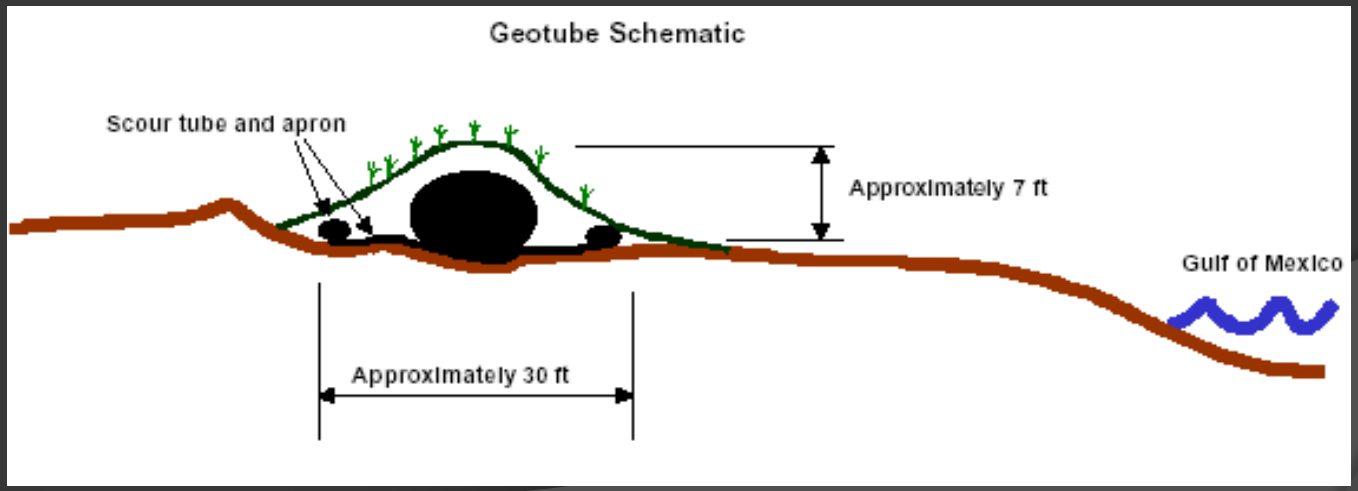
April, 2015

Tancred Miller

NC Division of Coastal Management



Source: www.tcmirafi.com



Source: Gibeaut et al., 13th Biennial CZ Conference, 2003.

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

Credit: Infrastructure Alternatives, infralt.com/wallops-island/

Gulf County FL Project Evaluation Report, http://www.ajstechnology.com/GeotubeReport.pdf

Issues to Consider

- Not meant to be “temporary”
- Tubes are meant to be buried
  ** difficult to keep covered*
  ** requires excavation of the beach or dune*
- Damage to tube can result in total failure
- Used with scour pad and anchor tubes
  ** current rule prohibits anchoring*
- Are tubes feasible at lot scale?
  ** current rule limits bag and structure size*
- How to authorize (permit vs. variance)

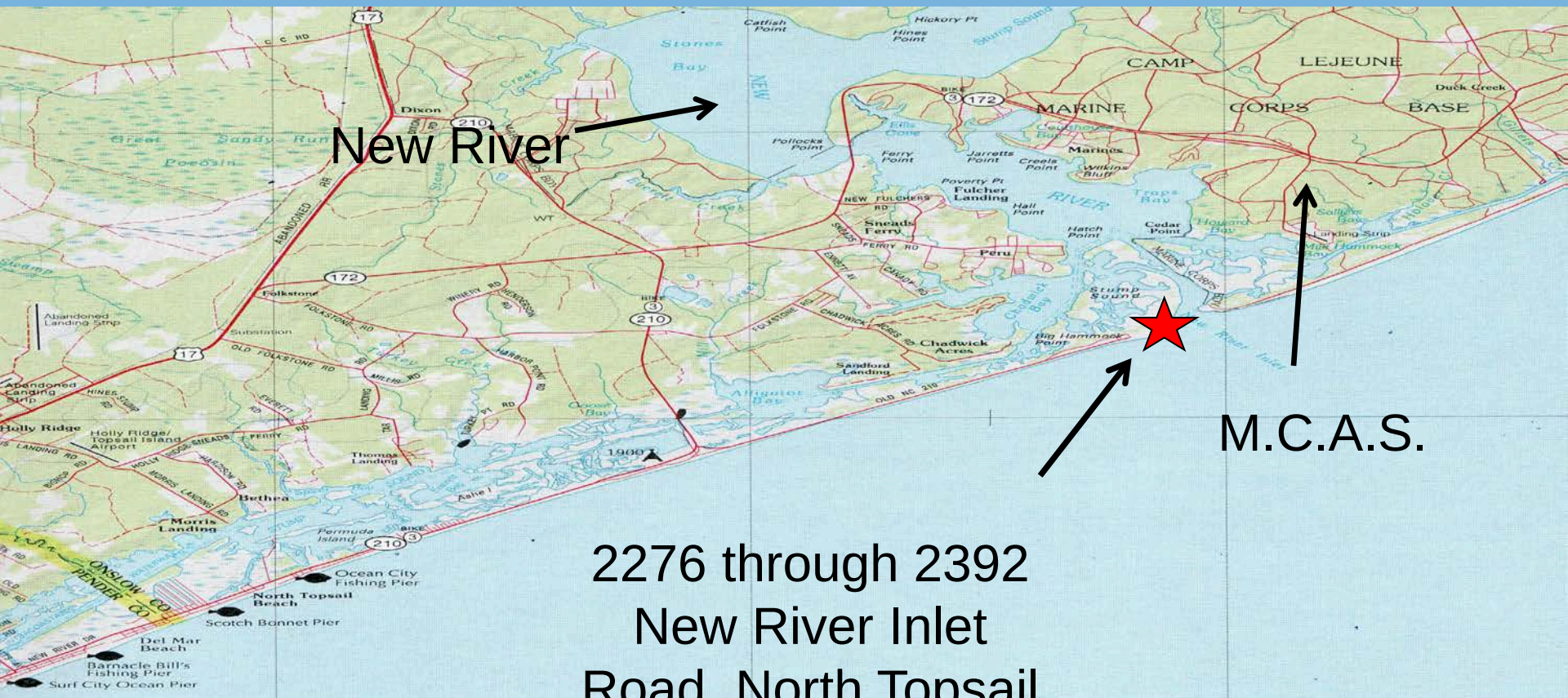
Staff Position

- Support an alternative that uses less fabric, lessens debris, decreases the footprint, and lower costs to applicants
- Tubes are not prohibited under CAMA, but cannot be permitted under current rules.
- Continue for now to consider as a variance (except in proposed SP IMA) until other issues are resolved (e.g. permanent nature, anchoring, size limits)

VARIANCE REQUEST
For
Town of North Topsail Beach

Project Location: 2276 through 2392 New River Inlet Road North Topsail Beach, Onslow County, NC

July 15, 2015



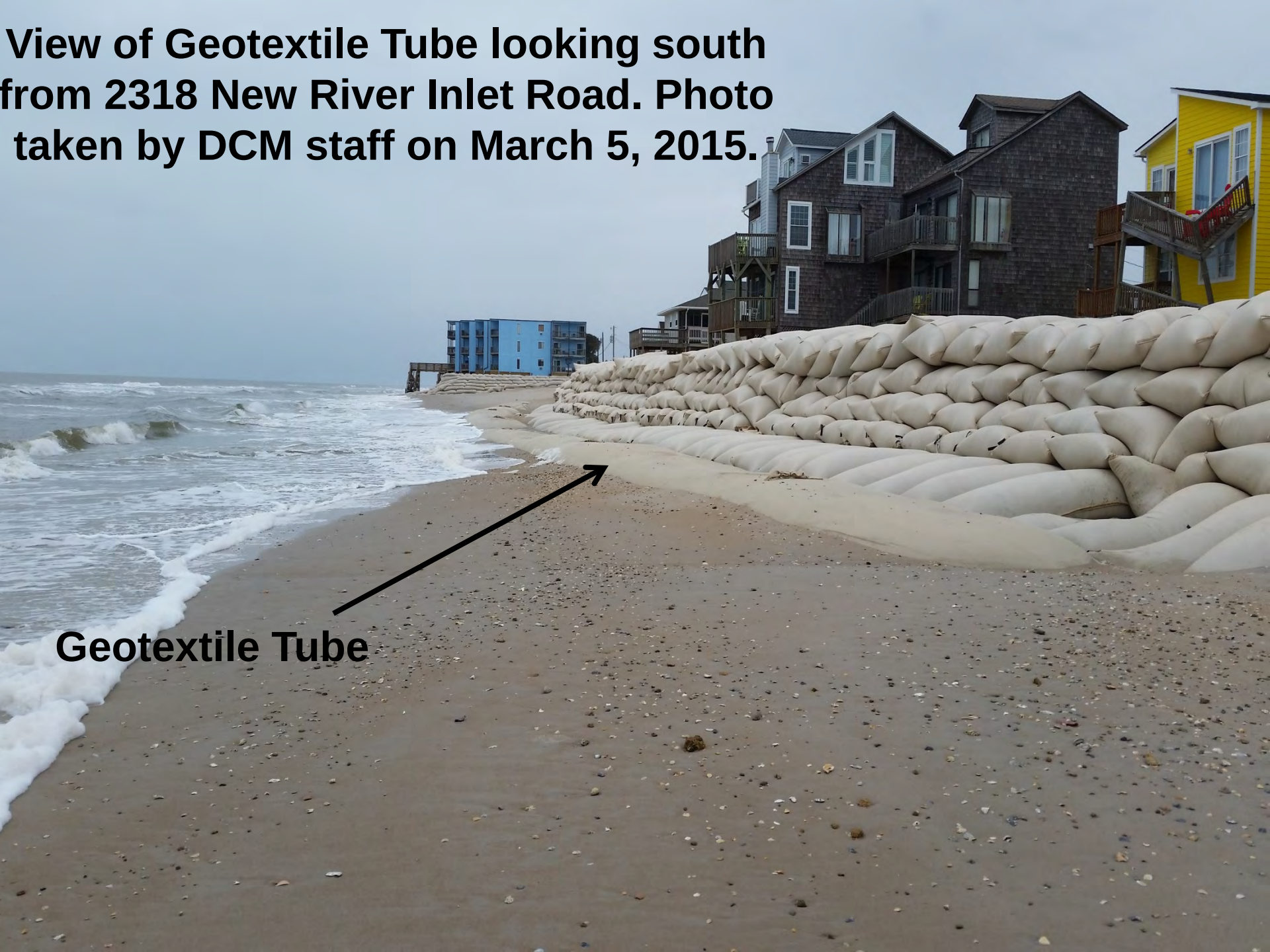
2276 through 2392
New River Inlet
Road, North Topsail
Beach

Vicinity Map taken from North Carolina Atlas
2012


General location map of the Site per Google Earth - 2011.
Approximate extent of Geotextile Tube
Google earth
1993
Imagery Date: 12/31/2011 34°31'33.00" N 77°20'43.90" W elev 0 ft eye alt 2483 ft

Aerial photo of Site provided by North Topsail Beach. – date: 2015


View of Geotextile Tube looking north from 2318 New River Inlet Road. Photo taken by DCM staff on March 5, 2015.
Geotextile Tube


View of Geotextile Tube looking south from 2318 New River Inlet Road. Photo taken by DCM staff on March 5, 2015.
Geotextile Tube

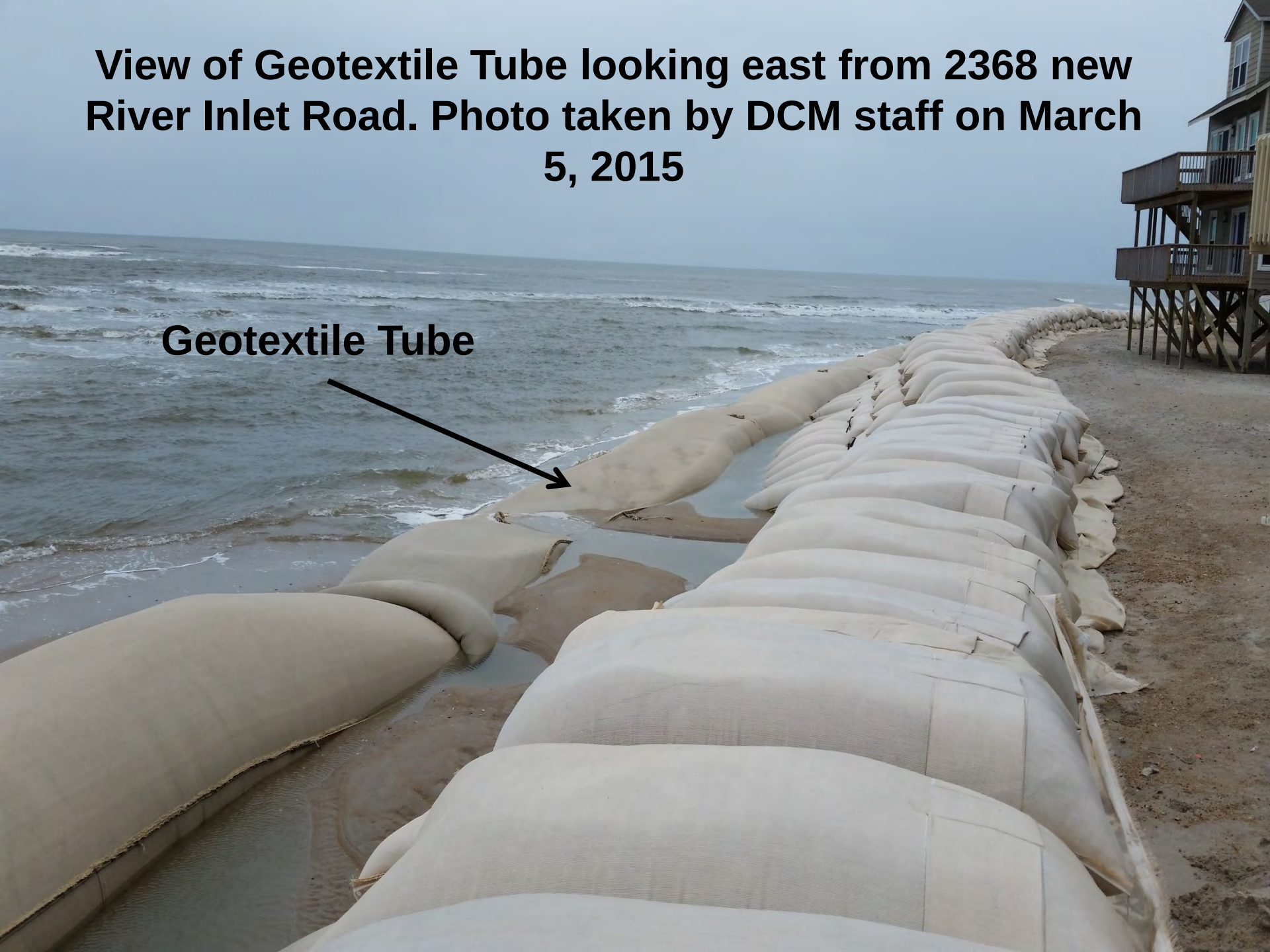

View of Geotextile Tube looking east from 2368 new River Inlet Road. Photo taken by DCM staff on March 5, 2015
Geotextile Tube

Photo of Geotextile Tube looking north from 2378 New River Inlet Road. Photo courtesy of North Topsail Beach.

Photo of Geotextile Tube near 2378 New River Inlet Road. Photo courtesy of DCM, dated May 19, 2015.

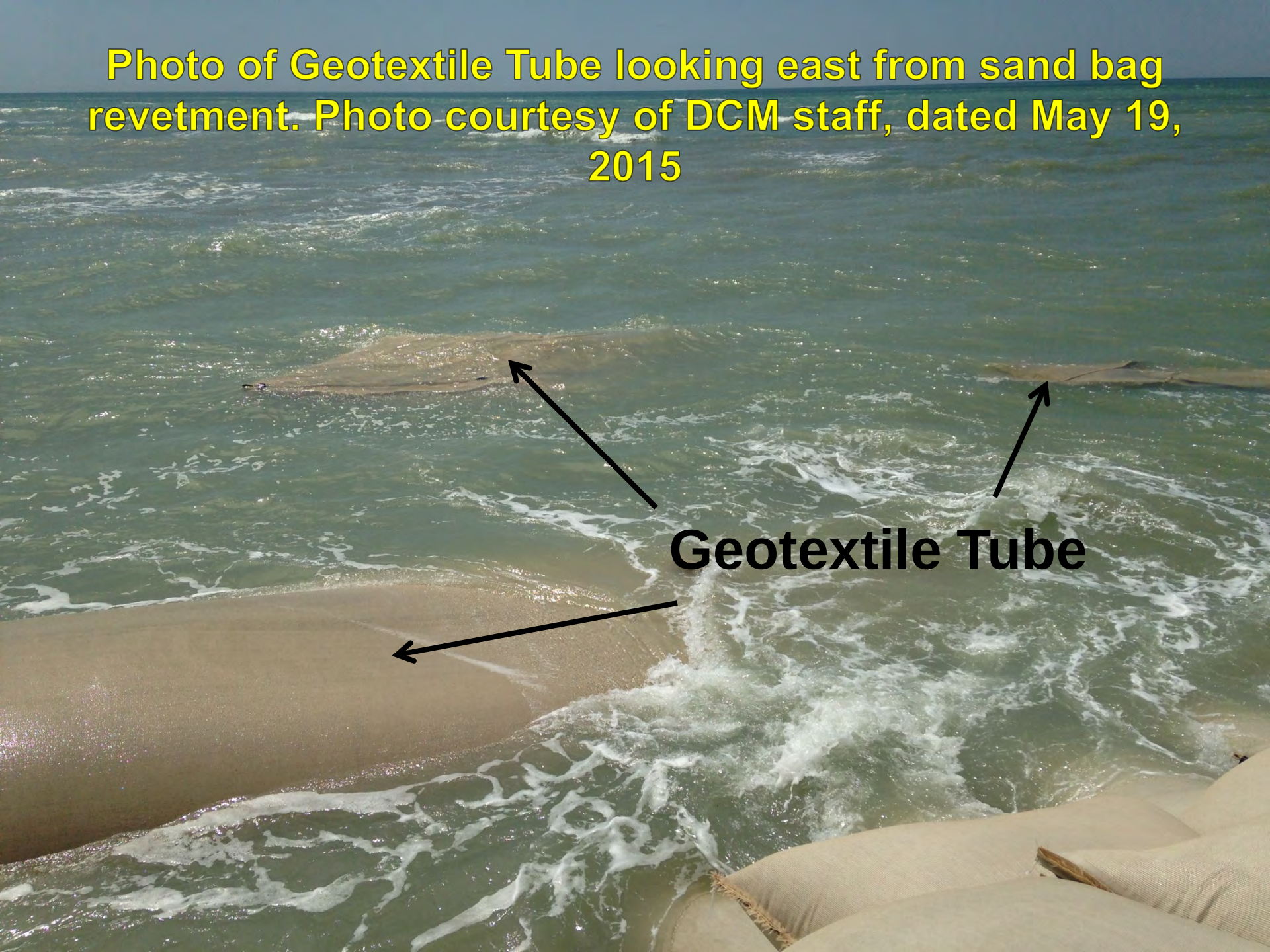


Photo of Geotextile Tube looking east from sand bag revetment. Photo courtesy of DCM staff, dated May 19, 2015
Geotextile Tube


View of Geotextile Tube looking north from 2378 New River Inlet Road. Photo courtesy of DCM, dated May 19, 2015.
Geotextile Tube

ATTACHMENT I:

STIPULATED EXHIBITS

New Exhibits for 2016 Variance – CRC-VR-16-09, including:

- 2015 Order of the Commission issuing the variance

-2016 Notice of Violation and signed restoration plan

- May 25, 2016 letter Opinion from Dr. Bill Cleary to Town Attorney with attachments

-Cleary CV

-CP&E Contract for Terminal Groin Feasibility Study

-July 26, 2016 Interlocal Agreement between Town and County for Groin / Jetty study

-July 29, 2016 RFQ issued by Town

-June 23, 2016 Letter from Local Government Commission to Town

-2016 DCM Field Report for modification request

-April 27, 2016 letter from Tom Jarrett to Stuart Turille

-Jarrett CV

-July 26, 2016 DCM Denial letter

-Carrin Faulkner's August 2016 statement re Town maintenance costs

-June 2016 Modification Request application, including project narrative

-2016 comments from WRC

-Staff's Powerpoint

-Town's Powerpoint

STATE OF NORTH CAROLINA	BEFORE THE NORTH CAROLINA COASTAL RESOURCES COMMISSION
COUNTY OF ONSLOW	**CRC-VR-15-05**
IN THE MATTER OF: PETITION FOR VARIANCE BY TOWN OF NORTH TOPSAIL BEACH	**FINAL AGENCY DECISION**

This matter was heard on oral arguments and stipulated facts at the regularly scheduled meeting of the North Carolina Coastal Resources Commission (hereinafter "Commission") on July 16, 2015 in Beaufort, North Carolina pursuant to N.C. Gen. Stat. § 113A-120.1 and 15A NCAC 7J .0700, *et seq.* Assistant Attorney General Christine A. Goebel, Esq. appeared for the Department of Environment and Natural Resources, Division of Coastal Management (hereinafter "DCM") and Attorney Brian E. Edes appeared on behalf of Petitioner Town of North Topsail Beach.

Upon consideration of the record documents and the arguments of the parties, the Commission adopts the following:

STIPULATED FACTS

1. The Petitioner in this case is the Town of North Topsail Beach ("Petitioner" or "Town"). The Town is represented by the Town's attorney, Brian E. Edes, Esq.

2. The site at issue in this case is located at the north end of North Topsail Beach, and includes the beach waterward of the first line of stable natural vegetation from just north of the Topsail Reef condominiums to the northernmost house on New River Inlet Road. There are 39 parcels of land with 20 duplexes structures (which include 40 residences) along this stretch of the beach (hereinafter the "Site"). At the time the 20 structures were constructed, they were

"second row" homes. The Site is described in the Project Narrative section of the stipulated exhibits, and in other portions of the stipulated exhibits. The Town holds easements on these oceanfront parcels in order to use the property for the purpose of implementing beach nourishment projects.

3. The Site is located within the Ocean Erodible, High-Hazard Flood and Inlet Hazard Areas of Environmental Concern (AEC).

4. The long-term average annual erosion rate at the Site is 2-feet per year. The Site is entirely within the Inlet Hazard AEC which uses the rate for the adjacent ocean hazard area per 15A NCAC 7H .0310(a)(1). DCM agreed with Petitioner that this Site experienced accelerated erosion in the 12-15 months before the November 2014 variance hearing.

5. According to the Town's Project Engineer, Tom Jarrett, P.E. of Coastal Planning & Engineering (CP&E), one of the unique features of the area is the influence of the New River Inlet, or more specifically, the ebb tide delta of the inlet, on sediment transport along the shoreline. This is demonstrated by the photo shown in Exhibit 15 in which incoming waves from the southeast are refracted around the ebb tide delta resulting in a change in sediment transport direction (as indicated by the arrows) just south of New River Inlet. The area in which the direction of sediment transport changes as a result of wave refraction is commonly referred to as a nodal zone. In general, the nodal zone is characterized by the net movement of material away from or out of the zone. While a nodal zone will generally always exist adjacent to a tidal inlet, the influence of the nodal zone on the shoreline of North Topsail Beach is enhanced due to the absence of significant shoal accumulations on the south side of the inlet. The absence of shoal material south of the inlet is one of the issues the channel relocation project was designed to

address, i.e., the purpose of moving the channel was to encourage the reconfiguration of the inlet's ebb tide delta through the redistribution of shoal material from the north side of the inlet to the south side. In support of this fact, Mr. Jarrett provided portions of the Final Environmental Impact Statement for the North Topsail Beach Shoreline Protection Project prepared in December of 2009 (hereinafter "FEIS").

History of the Site

6. The north end of the Town has a history of erosion. Detailed information about the history of erosion and past beach nourishment projects was provided to the Commission in Appendix B of the FEIS. Mr. Jarrett also prepared a summary of the nourishment projects which were completed between 2002 and 2011 (hereinafter "Jarrett Erosion History Report").

7. According to the FEIS, the erosion of the shoreline south of New River Inlet has been a persistent problem since around 1984 when the bar channel of New River Inlet shifted its alignment toward Onslow Beach. Prior to 1984, the north end of North Topsail Beach was accreting at an average rate of 6.1 feet per year. Following the change in channel position and orientation, the north end began to erode at an average rate of 5.3 feet per year. Most of the accelerated erosion was attributed to the north end's increased exposure to wave energy. That is, prior to the channel shift, the south side of the ebb tide delta provided a breakwater effect with waves breaking relatively far offshore. With the loss of the south side delta, more wave energy was transmitted directly to the shoreline. This, combined with the development of flood channels running close to and parallel to the north end, greatly increased sediment transport rates to the north.

8. Since 1993, and despite the use of sandbag structures in some places, 11

residential structures, all of which were located seaward of the existing 20 structures at the Site, were either removed or lost to erosion.

The Town's Inlet Management Plan/FEIS

9. Beginning in 2006, the Town hired CP&E to develop an Inlet Management Plan for the New River Inlet (hereinafter "Inlet Management Plan.") This Inlet Management Plan was completed in December 2009 and memorialized in the FEIS publication. The entire Inlet Management Plan is covered by the Department of the Army permit SAW 2005-00344 dated May 16, 2001. CAMA Major Permit No. 79-10 was issued on July 21, 2010 authorizing Phase I of the Inlet Management Plan. The October 12, 2012 modification authorized a change to the beach fill density, the amount of material to be removed from the ocean bar channel, and removed a previously permitted upland disposal site. This CAMA permit was further modified on September 26, 2013 and authorized Phase 5 of the Inlet Management Plan to be developed during the 2014-15 dredging window, an increase in beach fill densities, and allowed Phase 5 to take place before Phases 2-4 if necessary.

10. Phase 1 of the Inlet Management Plan was completed in February 2013 and included the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The material removed during the repositioning of the channel was used as beach fill along 7,730 feet of shoreline south of New River Inlet.

11. The Town's purpose in moving the ocean bar channel of New River Inlet, as stated in the FEIS, was to induce sand accumulation on the south side of the inlet's ebb tide delta. Based on the documented historic behavior of the inlet, the Town believed that moving the

channel to a more central position with an alignment approximately perpendicular to the adjacent shorelines would result in accretion of the shoreline south of the inlet. According to Dr. William Cleary's letter, the FEIS estimated that the time required for the new channel to have a positive impact on the shoreline was three to four years.

12. According to Mr. Jarrett, the behavior of the shoreline on the north end of North Topsail Beach is tied to the position and alignment of the main bar channel of New River Inlet. Morphological studies of New River Inlet, reported in the FEIS, describe the relationship between the position and alignment of the channel and the response of the shorelines on both sides of the inlet. The FEIS also identified a position and alignment of the bar channel that would provide a beneficial impact on the north end shoreline. Based on the FEIS, the Town of North Topsail Beach elected to artificially move the channel to the preferred position and alignment indicated by the morphological studies.

13. The construction of Phase 1 moved the mean high water (MHW) shoreline an average of 272 feet seaward of the pre-project MHW shoreline in the area between Building No. 1 of Topsail Reef and the south shoulder of New River Inlet (baseline stations 1149+00 to 1160+00). Based on an August 2014 beach profile survey by Gahagan & Bryant, the MHW shoreline north of Topsail Reef had receded between 200 and 250 feet since completion of Phase 1, which is equivalent to rates of between 130 feet per year and 167 feet per year. Visual inspections of the beach show it has continued to erode since the August 2014 survey and the MHW shoreline has returned to essentially its pre-project position. According to Mr. Jarrett, while the rate of loss of the fill placed during Phase 1 of the management plan has been higher than anticipated, the loss is comparable to losses experienced from previous fills created by the

USACE through disposal of navigation maintenance material removed during maintenance of the AIWW and portions of the channel passing through Cedar Bush Cut from the AIWW to the inlet.

14. According to Mr. Jarrett, based on the documented history of shoreline changes along the north end of North Topsail Beach, the recent acceleration in the rate of shoreline change is not related to the channel relocation project. *See,* Jarrett Erosion History Report. Instead, Mr. Jarrett states that much of the accelerated erosion can be attributed to the unnatural shoreline configuration created by the beach fill, i.e., the conditions that were causing the north end to erode prior to relocating the channel, such as the absence of a significant shoal on the south side of the inlet and the presence of flood channels, still persist. Mr. Jarrett states these conditions will continue to exist until such time the newly aligned channel effects the predicted changes in the ebb tide delta of New River Inlet. Until that time, waves will continue to impact the area in such a way as to cause accelerated sediment transport from the north end to New River Inlet.

15. According to the "Year 2 Post-Construction Physical Monitoring Report" dated October 2014 and prepared by CP&E ("Monitoring Report"), monitoring of the inlet has demonstrated some of the expected results are taking place with sand accumulating on the south side of the inlet. However, the rate of build-up, as predicted, has been relatively slow. As a result, the north end of North Topsail Beach has continued to experience high rates of erosion. As of August 2014, most of the fill placed north of the Topsail Reef Condominiums in February 2013 has been lost.

16. The FEIS stated the periodic maintenance of the ocean bar channel would be

necessary at approximately four-year intervals in order to keep the channel in its preferred position and alignment. Material removed to maintain the channel is to be used to provide periodic nourishment of the North Topsail Beach shoreline including the shoreline nourished during Phase 1.

17. The USACE permit allows maintenance of the channel to be accomplished once every four years providing one of two channel maintenance thresholds are met. One channel threshold is associated with shoaling of the channel and the second is based on the position and alignment of the channel. Following Phase 1's completion in February 2013, the Town is not permitted to maintain the channel until the 2016/2017 environmental dredge window.

18. Based on site photographs taken in late September 2014, the final remnants of the artificial dune which was part of the Phase 1 project and was evident in August 7, 2014 photos, has completely eroded.

19. In addition to the threat to homes, flooding of the area has increased with flood waters spilling on to New River Inlet Road and side streets at least four times in late-2014 during high tides.

Larger Sandbag Revetment CAMA Permit Process

20. Beginning in the early summer of 2014, Town and its agents contacted DCM and inquired about possible options for protecting homes at the Site from erosion taking place following Phase 1. DCM issued a modification to permit No. 191-05 on August 14, 2014 authorizing sand from an upland source to be placed at the Site. This permit was originally issued on December 5, 2005 following Hurricane Ophelia and authorized dune reconstruction at the Site. The Town has not undertaken the work authorized by the modified permit.

21. On or about August 15, 2014, the Town, with help from its CP&E consultants Tom Jarrett and Ken Willson, submitted a CAMA Major Permit Application seeking to install approximately 1,450 linear feet of geotextile tubes (7.5 feet tall and 45 feet circumference) at the Site. This permit application was deemed complete (except for the receipt of all of the easement agreements) by DCM on August 27, 2014, and was sent to the resource agencies for comment as part of the CAMA Major Permit process. Because the proposed geotextile tube was inconsistent with the Commission's rules limiting the size of sandbags used for temporary erosion control, DCM planned to deny this permit application after the public notice period ended on September 19, 2014. The Town indicated it planned to seek a variance from this denial.

22. On September 18, 2014, DCM received a request from the Town that the initial geotextile tubes proposal be modified by adding 35,000 to 50,000 cubic yards of sand in a "sand bench" to raise the elevation of the beach at the Site to approximately 6 feet in elevation, and to place the geotextile tube on top of the "sand bench." DCM determined that the significant changes and increased scope of the modified project required a new application for a CAMA permit from the Town, including new notice of the modified project to the public and adjacent neighbors, and new review by the resource agencies.

23. Following discussions between the Town, its agents, DCM and other resource agencies, the Town submitted its proposal with a final sandbag design on September 26, 2014. On October 3, 2015, DCM determined the new CAMA Major Permit application was complete. On October 2, 2014, DCM retired the Town's initial application following receipt of the new application for a CAMA Major Permit based on the modified design.

24. The final design requested permission to install sandbags at the Site from the

existing larger sandbag revetment at Building No. 1 of Topsail Reef extending north approximately 1,450 feet parallel to the existing shoreline. A 50-foot return wall would extend landward from the north end of the sand bag structure just north of the home located at 2378 New River Inlet Road. A plan view of the sand bag revetment and a typical cross-section view of proposed revetment were provided to the Commission in the stipulated exhibits. The proposed borrow site for the sand needed to fill the proposed sandbags is an area of approximately five acres on the point, just north of the Site, also called "the spit."

25. Topsail Reef received two variances from the Commission in July 2012 and October 2014 to construct a revetment just south of the Site similar to the larger size sandbag structure proposed by the Town.

26. The proposed sandbag revetment would follow an alignment roughly parallel to the seaward-most support piles of the threatened residential structures with the landward toe of the revetment positioned as close as practical to the front support piles of the structures. In this regard, the authorized temporary erosion control structure would be located no more than 45 feet waterward of the waterward most pilings of those buildings controlling the alignment of the temporary erosion control structure from 2304 New River Inlet Rd. to the northern terminus of the temporary erosion control structure, namely those structures at: 2304 New River Inlet Road, 2314 New River Inlet Road, 2354 New River Inlet Road, 2362 New River Inlet Road, 2368 New River Inlet Road, and 2378 New River Inlet Road. No portion of the temporary erosion control structure between 2304 New River Road and the southern terminus of the temporary erosion control structure will be located more than 115 feet waterward of the waterward most piling of each building.

27. As part of the CAMA Major Permit Application process, adjacent neighbors and the public were given notice of the Town's CAMA permit application including the final design for the sandbag revetment through publication in the Star News on October 8, 2014. DCM staff received only one comment—an objection from the adjacent riparian property owner of Topsail Reef, which was later withdrawn.

28. Also as part of the CAMA Major Permit application process, the Town's application, Field Report, and other materials were sent to resource agencies for comment. Of the agencies responding, the DCM Fisheries Specialist raised concerns about the impact of the project on the surf zone habitat. DCM did not deem these concerns sufficient to support permit denial.

29. On October 21, 2014, DCM staff conducted a site visit of the subject area and determined that "site conditions [had] deteriorated and emergency action is warranted". Consequently, at the Town's request, the DENR Secretary authorized the issuance of an Emergency CAMA Major Permit, which allows DCM discretion to suspend public notice, adjacent riparian notice, and the normal agency coordination process. Once the emergency permit authority was activated for the Site, DCM coordination with federal agencies was halted.

30. On October 24, 2014, DCM issued CAMA Emergency Major Permit 92-14 to the Town, authorizing its final design, but conditioning this approval on compliance with the Commission's rules limiting the size of sandbag structures to a base width of 20 feet and a height of 6 feet.

31. The Town stipulated that its "final" design proposal was inconsistent with the Commission's rules limiting the size of sandbag structures.

32. On November 7, 2014, DCM received the Town's 2014 variance petition. The Town also requested an expedited hearing before the Commission's scheduled December meeting.

33. The tax value of the structures at the Site and their lots total about $9 million, and their loss from the tax base would reduce the annual tax revenue of the Town by $35,388 based on the proposed 2015 tax rate of $0.3932 per $100.

34. The proposed larger sand bag revetment in the 2014 variance request was intended to protect the 20 threatened residential structures for at least two and a half years or until such time the beach fill provided under Phase 1 of the North Topsail Beach shoreline/inlet management plan can be renourished. In addition, the Town is committed to managing the north end shoreline by maintaining the preferred position and alignment of the New River Inlet ocean bar channel and using the material removed to maintain the channel to nourish the northern 7.25 miles of its ocean shoreline. Both the channel maintenance program and periodic nourishment are intended to maintain and/or preserve the dune and beach system in as near a natural state as possible.

35. On October 15, 2014, the Town's Board of Aldermen passed resolution 2014-13 which allowed for a special assessment to be imposed pursuant to NCGS 160A-238, in order to fund the larger sandbag structure proposed in this variance, with 50 percent of the total cost (which was estimated to be approximately $2.3 million for the total project) paid by the 39 parcel-owners identified in the resolution based on oceanfront frontage. This assessment resolution was the subject of a public hearing on November 6, 2014. On November 6, 2014, the Town passed resolution 2014-16 confirming the assessment. Draft meeting minutes reflect the

five public comments received. On November 14, 2014, the Town issued a Notice of Special Meeting scheduled for November 19, 2014 to receive recommendations on the selection of a contractor for this sandbag project. The Town Board passed the resolution, and is now waiting to tally the final costs of the project before starting the assessment process.

36. In its November 2014 variance request, the Town sought a variance of conditions 1 and 2 of CAMA Major Permit No. 92-14. Specifically:

> The Town is requesting a variance to condition 1 in that the Town proposes to construct a temporary erosion control structure with a base width of 45 feet and a height sufficient to achieve an elevation of +12.0 ft. NAVD.
>
> The Town is requesting a variance to condition 2 in that the Town proposes that no portion of the authorized temporary erosion control structure shall be located more than 45 feet waterward of the waterward most pilings of those buildings controlling the alignment of the temporary erosion control structure from 2304 New River Inlet Rd. to the northern terminus of the temporary erosion control structure, namely those structures at: 2304 New River Inlet Rd., 2314 New River Inlet Rd., 2354 New River Inlet Rd., 2362 New River Inlet Rd., 2368 New River Inlet Rd., and 2378 New River Inlet Rd. No portion of the temporary erosion control structure between 2304 New River Road and the southern terminus of the temporary erosion control structure will be located more than 115 feet waterward of the waterward most piling of each building.

November 2014 Variance Hearing

37. At an expedited hearing on November 19, 2014, the Commission heard the Town's 2014 Variance Petition for larger sandbags than allowed by law. The Commission voted to grant the Town's request for a variance and allow it to install sandbags larger than those allowed by rule, up to a base width of 45 feet and an elevation of +12.0 ft. NAVD. The Commission also granted the Town's request to go waterward by as much as 115 feet from the

waterward pilings. On November 24, 2014, the Commission issued a written Final Agency Decision granting the Town's request.

38. An additional 275 linear feet of sandbags authorized in the traditional 6 foot by 20 foot configuration were added to CAMA Major Permit No. 92-14 through a minor modification in order to protect additional properties to the north of the originally permitted larger sandbag structure.

Geotextile Tubes as Construction Method Modification Request

39. On November 24, 2014, Town consultant Tom Jarrett called DCM with a request to further modify CAMA Major Permit No. 92-14 in order to down-scale the size of the sandbag structure from the 45 feet by +12.0 ft. NAVD allowed by the Commission, to a smaller structure. DCM Staff confirmed to the Town that a smaller structure, within the limits set by the variance, was allowable.

40. Later on November 24, 2014, DCM received another call from the Town's agent with a request to allow the use of a temporary geotextile containment tube to stabilize the project area while the larger sandbag structure was being installed. This was the first time the Town raised this proposal.

41. In a series of emails and a report during the November 24-26, 2015 period, the Town formalized its request to use the geotextile tubes as a temporary construction method, and made a commitment to remove them following the installation of the approved sandbag revetment. This request also showed the reduction in size of the proposed sandbag structure, now proposed with an elevation of 7.5 feet - 9.0 feet above grade instead of the elevation of +12.0 feet NAVD proposed and granted by variance.

42. The Town's stated purpose for using the geotextile tube was two-fold: 1) The tube would allow for a safer work environment landward of the tube to expedite the installation of the sandbag revetment; and 2) The tube would stabilize the area around the foundations of the houses and the property between the landward side of the houses and the road. In discussions with DCM Staff, the Town confirmed that these geotextile tubes were to be used as a temporary, construction method only, were not to be part of the sandbag structure's design, and were to be removed immediately following construction of the sandbag revetment, along with the scour apron and chock tubes, which were also inconsistent with the Commission's rules

43. The permit issued by DCM on November 26, 2014, permitted the Town to use a temporary geotextile tube for construction purposes during sandbag installation.

44. Condition 11 of CAMA Major Permit No. 92-14 as amended on November 26, 2014, states:

> In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containment tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division.

45. The temporary geotextile tube was permitted for construction purposes only and was not originally intended to be a lasting feature of the sand bag revetment. Both the Town and the Town's consultant agreed to this in writing.

Construction of the Sandbag Revetment

46. Mobilization of equipment to the project area began on December 9, 2014.

47. A geotextile tube was filled in place on top of a scour apron seaward of the proposed sand bag revetment location. The first tube was placed December 13, 2014 (Project Narrative Figure 1). The tenth tube was placed December 22, 2014 (Project Narrative Figure 2).

48. The original plan was to extend the tube south along the shoreline and terminate in a shore parallel orientation 50 feet north of the Topsail Reef sandbag revetment.

49. During the installation of the tube, the contractors and engineer observed high velocities of water flowing out of the protected area during ebbing tides. If such flows were channeled toward the Topsail Reef revetment, there would be a high probability of scour occurring around the base of the Topsail Reef return wall. The contractor and CPE-NC agreed to turn the southern end of the tube landward and tie into high ground in order to avoid such a scenario. Figure 2 on the Project Narrative shows the orientation of the southernmost tube after installation.

50. The geotextile tube worked as designed providing temporary protection to the work area and preventing further loss of sand from the project area during the construction of the sandbag revetment. The nominal dimension of the temporary tube is 30 feet in circumference. The tubes achieved variable heights of approximately 3 to 5 feet and a width of 12 feet. Individual tubes range in length from 100 to 150 feet.

51. Following a break over the Christmas holiday, the contractor returned to the project site on December 28, 2014 and began laying the base layer of the sand bag revetment in the vicinity of 2378 New River Inlet Road on the northern end of the project area.

52. On January 14, 2015, the contractor cut through the southernmost temporary tube in order to construct the sand bag revetment. Over the course of the following two weeks the southernmost tube deflated and the remains of the southern-most tube, scour apron, and chock tube were removed.

53. Construction of the sand bag revetment extending approximately 1,500 feet north from Topsail Reef was substantially completed on February 25, 2015. Approximately, 1,350 feet of the tube is still in place fronting the revetment from 2378 to 2290 New River Inlet Road. On February 24, 2015, the Town's authorized agent sent DCM an email indicating that construction on the sand bag revetment was complete.

54. Beginning around December 1, 2014 work on Phase 5 of the Town's project began to place a 14 feet + NAVD by 25 foot wide dune with a 45 foot wide berm waterward of the dune at the western-most portion of the Town's larger project area. That sand was dredged from an offshore borrow site approximately one half to one and one half miles offshore from the northern extent of Phase 5. The dredging operations for Phase 5 ended on Saturday, June 20, 2015 and demobilization efforts are underway now. The Town's consultant CP&E plans to do a survey of Phase 5 in July.

Request to keep the Geotextile Tube and Notice of Violation

55. On February 27, 2015, DCM sent a letter to the Town Manager notifying the Town that it needed to begin removing the geotextile tube.

56. On March 5, 2015, CPE-NC sent a letter to DCM requesting further modification to CAMA Major Permit No. 92-14 as modified on November 26, 2014, allowing the geotextile tube to remain for the duration of the permit.

57. On March 12, 2015, DCM's Major Permit Manager Doug Huggett responded to the request via email indicating a modification to allow these structures to remain would be inappropriate given that this was now a permit compliance issue, and that the request was incomplete.

58. On March 20, 2015 the Town's authorized agent from CP&E responded to DCM's request to remove the geotextile tube.

59. On March 26, 2015, DCM issued a Notice of Violation (NOV) to the Town as the construction of the sand bag revetment was complete but the Town had not removed the temporary geotextile tube. DCM also issued a proposed restoration plan requiring removal of the geotextile tubes.

60. On April 24, 2015, DCM issued a revised restoration plan to the Town, indicating that it could either remove the geotextile tubes as promised, or could proceed to seek a variance from the Commission during with the upcoming July 15, 2015 meeting for permission to keep the geotextile tubes in place for some period of time.

61. On May 4, 2015, the Town signed and returned the revised restoration agreement, indicating that they wished to proceed with the variance process at the Commission's July 15, 2015 meeting.

Application for Major Modification to CAMA Major Permit No. 92-14

62. Pursuant to the revised restoration plan, on May 1, 2015 the Town sent a revised major modification request, which DCM accepted as complete, seeking to retain the geotextile tubes as a part of its temporary erosion control structures. Section 8a of the modification request states that the tubes would "...remain in place until the Onslow maintenance navigation and

disposal of material along the north end of North Topsail Beach can occur, or until March 31, 2016."

63. As part of the CAMA Major Permit Modification Application process, adjacent neighbors and the public were given notice of the Town's CAMA permit application through publication in the Star News on May 11, 2014. No comments were received.

64. Also as part of the CAMA Major Permit Modification application process, the Town's application, Field Report, and other materials were sent to resource agencies for comment. Of those agencies responding, the DCM Fisheries Specialist raised concerns regarding the proposal due to concerns about surf zone habitat, though DCM did not deem these concerns sufficient to support permit denial. Comments were also received from the Wildlife Resources Commission, raising concerns about the project.

65. On June 2, 2015, DCM denied the Town's request because the geotextile tube design was inconsistent with the Commission's rules regarding temporary erosion control devices found at 15A NCAC 7H. 0308(a)(2)(K) and (L) which regulate the size of sandbags and prohibit the use of anchoring devices for sandbags.

Onslow County's Proposed Shallow-Draft Inlet Navigation Project

66. Onslow County, in cooperation with the Town, is in the process of seeking non-federal permits that will allow the County to maintain authorized federal navigation channels in the vicinity of North Topsail Beach including the channel through Cedar Bush Cut, the southern portion of New River, and sections of the AIWW where these channels meet. In accordance with the permit request, the material removed to maintain the channels would be deposited along portions of the north end of North Topsail Beach including the area immediately fronting the

sand bag revetment. The application for this project was accepted as complete on June 4, 2015 by DCM, with the exception of the signed certified mail receipts, and is currently being circulated for comment through the CAMA major permit process. Tom Jarrett projects that between 65,000 and 110,000 cubic yards of sediment will be deposited from this project on about 3,000 feet of shoreline along the extreme North End of North Topsail Beach.

67. Onslow County hopes to have the permits in time to perform the maintenance dredging during the upcoming environmental dredging window, which runs from November 16, 2015 to March 31, 2016.

68. A cost estimate was developed for construction of the Onslow County project including development of bidding documents and contractor coordination, dredge mobilization, cost to pump sand to beach, and construction observations. The cost to implement this alternative is estimated at $1,694,500. The state, county, and North Topsail Beach have shared the permitting costs and there are verbal commitments by all three entities to share the cost of construction as well. Based on the project plan, the Town would be responsible for 25 percent of the total cost ($423,625.00).

The Town's Consultant's Reports

69. In a March 18, 2015 letter from CP&E to DCM, Tom Jarrett opines that the geotextile tube along the north end of the sand bag revetment continues to provide vital scour protection and its removal prior to the placement of the navigation maintenance material could result in dramatic failure of a portion of the sand bag revetment. According to a March 5, 2015 letter from CP&E to DCM, significant accretion of sand has occurred along the southern portions of geotextile tube throughout the last month of construction. Approximately 1,000 feet of the

southern portion of the containment tube has been partially or completely covered with sand. According to Mr. Jarrett, given the amount of burial that has taken place, the excavation and removal of the geotextile tube at this point would likely be detrimental to the integrity of the sand bag revetment.

70. In addition, according to Mr. Jarrett, the tubes have not had any noticeable adverse impact on the adjacent shorelines based on a comparison to revetments composed of only sand bags. Mr. Jarrett further opines that allowing the geotextile tube to remain until March 31, 2016 or the completion of Onslow County's channel maintenance/beach disposal activities, whichever is later, would not have any greater negative impact on adjacent properties than the impacts associated with the sand bag revetment itself. *See* March 5, 2015 letter from CP&E to DCM.

71. In Mr. Jarrett's opinion, the rapidly changing conditions along the north end of North Topsail Beach and the accelerated rate of material lost has made it abundantly clear that the sand bag revetment alone will most likely not be able to protect the homes or the roads in this area for a sufficient amount of time to allow for gradual recovery of the shoreline associated with the channel realignment project. *See* March 5, 2015 Letter from CP&E to DCM.

72. The Year 2 Post-Construction Physical Monitoring Report (included as a stipulated exhibit provided to the Commission) suggests that the ebb shoal is reconfiguring to a preferred alignment as designed; however as stated in the engineering documents, this process will take time.

73. The commitments by the Town to remove the sand tubes in accordance with the permit conditions were based on the Town's Consultant's belief that the sand bag revetment

alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. In spite of this request for a permit modification to extend the time allowed for the geotextile tube to remain in place, the Town remains committed to removing the geotextile tubes once the channel maintenance activities are completed and the area exhibits signs of continued recovery/stabilization.

74. The stated purpose of the channel realignment project constructed by the Town between December 2012 and February 2013 under CAMA Major Permit No. 79-10 was to induce reconfiguration of the ebb delta by redistributing material from the north side of the delta to the south side.

75. According to the Town's consultants, a build-up of material on the south side of the ebb tide delta would provide a higher degree of wave sheltering to the north end of North Topsail Beach which should eventually lead to a reduction in shoreline erosion rates immediately south of the inlet in the short term and possibly some widening of the beach in the long term.

76. According to the Town's consultants, the actual time for the shoreline between stations 1140+00 (area from between Topsail Reef Buildings Nos. 5 and 6) and 1160+00 (south shoulder of New River Inlet) to respond to the new channel cannot be made with a high degree of certainty; however, significant accretion should occur within five years with full recovery occurring within 15 years following the channel relocation.

77. Representatives of the Town state that the Town is committed to establishing and maintaining a healthy beach along the north end of the Island. The Town contends that it has also shown a commitment to protect New River Inlet Road to allow the ocean front property owners

as well as those property owners along Oyster Lane, Port Drive, River Drive, and the Beach Club to continue to have access to their property, as shown by the Sand Bag Revetment project.

A History of the Commission's Examination of the Use of Geotextile Tubes

78. At the September 16, 2010 Commission meeting, DCM Staff presented information to the Commission about the use of geotextile tubes for temporary erosion control, following Spencer Rogers' presentation at the July 2010 Commission meeting suggesting their use as another method of temporary erosion control.

79. At the 2010 presentation, Staff raised public safety concerns about the geotextile tubes stability, ability to roll, and their difficulty to climb when uncovered. Due to these concerns, Staff recommended against rulemaking to allow geotextile tubes. Following this presentation, the Commission took no action to initiate rulemaking regarding geotextile tubes.

80. At the April 29, 2015 Commission meeting, DCM Staff presented a PowerPoint similar to that used in 2010, and raised the same public safety concerns about geotextile tubes, and again recommended against rulemaking to allow the use of geotextile tubes as another method of temporary erosion control.

The Town's Variance Request

81. The Town is requesting a variance from 15A NCAC 7H. 0308(a)(2)(K) and (L), as noted in the June 2, 2015 CAMA major modification denial, in order to keep the geotextile tubes in place as a part of the temporary erosion control sandbag structures until March 31, 2016 or the completion of Onslow County's channel maintenance/beach disposal activities, whichever is later.

STIPULATED EXHIBITS

Included with the Petition and the Staff Recommendation for the Commission's review were the following Stipulated Exhibits:

- All Exhibits for CRC-VR-14-16, as well as the following new exhibits:
- Major Permit Modification Application submitted by the Town to the DCM, May 1, 2015, together will all forms, attachments and appendices.
- Correspondence from the DCM to the Town, dated February 27, 2015.
- Correspondence from Coastal Planning and Engineering of North Carolina, Inc. to DCM, March 5, 2015
- Correspondence from Coastal Planning and Eng of NC, Inc. to DCM, March 18, 2015
- June 25, 2015 Statement of Tom Jarrett, P.E.
- Updated PowerPoint with aerial and ground level site photographs
- CRC's November 24, 2014 Final Agency Decision granting 2014 Variance petition
- Modification to CAMA Major Permit #92-14 authorizing "regular" sized bags, north end
- Email chain from November 24-26, 2014 regarding the geotextile tube request, including commitments to remove
- Report from Town re use of geotextile tubes and new proposed size of sandbag structure
- Permit #92-14 as Amended on November 26, 2014
- Project Narrative from Town
- Correspondence from DCM to Town on March 12, 2015.
- March 20, 2015 response from Town to DCM
- March 26, 2015 NOV and restoration plan
- April 24, 2015 revised restoration plan
- May 4, 2015 signed copy of revised restoration plan

- Comments from permit review process from DCM Fisheries Specialist and WRC
- DCM Field Report for modification request
- June 2, 2015 DCM Denial letter
- 2010 PowerPoint re: geotextile tubes by DCM to CRC
- 2015 PowerPoint re: geotextile tubes by DCM to CRC

CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the parties and the subject matter.

2. All notices for the proceeding were adequate and proper.

3. Petitioner has met the requirements in N.C.G.S. § 113A-120.1(a) and 15 NCAC 07J .0703(f) which must be found before a variance can be granted as set forth below.

A. Strict application of Ocean Hazard Rules will cause unnecessary hardships.

The Commission's rules relating to the Ocean Erodible, High-Hazard Flood and Inlet Hazard Areas of Environmental Concern set forth at 15A NCAC 7H .0301, .0302 and .0303 are designed to prevent danger to life, property and prevent encroachment of permanent structures on public beach areas. In addition, 15A NCAC 7H .0308 limits the use of erosion control structures to protect property by requiring temporary placement for a short period of time in order to minimize the loss of resources to erosion, while still protecting the public's right to use and enjoy the beach.

The conditions in amended CAMA Major Permit No. 92-14 required the Town to remove the temporary containment geotextile tube immediately upon completion of the sandbag revetment or by May 21, 2015, whichever came first. The Town received a NOV based on its

failure to comply with the terms of the permit. Without the variance, the Town would be required to come into compliance with its permit and remove the temporary containment geotextile tubes.

In its request for a variance, the Town stated that it completed Phase 1 of its multifaceted inlet and shoreline management plan in February 2013 which included repositioning the New River Inlet ocean bar channel. The material removed during this process was used as beach fill along 7,730 feet of shoreline south of New River Inlet. By August 2014, all of the fill material placed north of Topsail Reef had been lost. In response to the emergency situation created by the rapid deterioration of the fill, the Town applied for a permit to construct a sandbag revetment along approximately 1500 feet of shoreline north of Topsail Reef. DCM issued amended CAMA Major Permit No. 92-14 on November 26, 2014 pursuant to a variance the Commission granted the Town. The permit allowed the Town to use a temporary sand filled containment tube to provide protection to the area during installation of the sandbag revetment. The conditions of the permit required the temporary containment tube to be removed immediately upon completion of the sandbag revetment or by May 21, 2015, whichever occurred sooner. The sandbag revetment was essentially completed on February 25, 2015. However, in violation of the permit condition, approximately 1,350 feet of the containment tube are still in place fronting the revetment from 2378 to 2290 New River Inlet Road.

The Town has provided information from its consultant Mr. Jarrett concluding that along portions of the revetment where the geotextile tube is exposed, the tube is providing scour protection to the sand bag revetment. Mr. Jarrett also opined that the premature removal of the partially buried and exposed geotextile tube will likely result in rapid scour along the toe of the sand bag revetment leading to the failure of the sand bag revetment and possible destruction of

the 20 residential structures located between Topsail Reef and New River Inlet.

The Town provided information to the Commission that the tax value of these structures and their lots total roughly $9 million. If these properties are lost from the tax base, the Town's annual tax revenue of North Topsail Beach would be reduced by approximately by $35,388 based on the proposed 2015 tax rate of $0.3932 per $100. In addition, the loss of these 20 structures could have a secondary impact on the assessed value of other structures in the area.

In addition to the potential loss of the 20 residential structures, the deteriorated condition of the shoreline on the north end of town has resulted in frequent episodes of wave over-washing of the beach berm and flooding of New River Inlet Road and connecting side streets. Continued recession of the shoreline could eventually undermine New River Inlet Road and cut off access to homes on the north end of town.

Onslow County, in cooperation with the Town, is in the process of seeking non-federal permits that will allow the County to maintain authorized federal navigation channels in the vicinity of North Topsail Beach. In accordance with the permit request, the material removed to maintain the channels would be deposited along portions of the north end of North Topsail Beach including the area immediately fronting the sand bag revetment. The application for this project was accepted as complete on June 4, 2015 by DCM, with the exception of the signed certified mail receipts, and is currently being circulated for comment through the CAMA major permit process. Tom Jarrett projects that between 65,000 and 110,000 cubic yards of sediment will be deposited from this project on about 3,000 feet of shoreline along the extreme North End of North Topsail Beach. Onslow County hopes to have the permits in time to perform the maintenance dredging during the upcoming environmental dredging window, which runs from

November 16, 2015 to March 31, 2016.

The Commission affirmatively finds that strict application of the Rules would cause Petitioner unnecessary hardship insofar as requiring the Town to remove the geotextile tubes prior to the upcoming beach nourishment (planned for the 2015/2016 environmental dredging window) may cause damage to the 20 houses currently protected by the geotextile tubes without measurable improvement to the shoreline system. For these reasons, the Commission affirmatively finds that Petitioner has met the first factor without which a variance cannot be granted.

B. Petitioner has demonstrated that the hardship results from conditions peculiar to Petitioner's property.

The Commission affirmatively finds that Petitioner has demonstrated that the hardship results from conditions peculiar to the property. Specifically, the Site is located within the Inlet Hazard AEC for the New River Inlet and is influenced by the dynamic inlet processes. The behavior of the shoreline on the north end of North Topsail Beach is imminently tied to the position and alignment of the main bar channel of New River Inlet as shown by morphological studies of New River Inlet reported in the project EIS. The studies also identified a position and alignment of the bar channel that would provide a beneficial impact on the north end shoreline. Based on these studies, the Town of North Topsail Beach elected to artificially move the channel to the preferred position and alignment indicated by the morphological studies. The Town implemented Phase 1 of the channel realignment project channel and repositioning the channel was completed in February 2013. Prior to the channel realignment, the nodal influence on North Topsail Beach was enhanced due to the absence of significant shoal accumulations on the south side of the inlet. The absence of shoal material south of the inlet is one of the issues the channel

relocation project was designed to address, i.e., the purpose of moving the channel was to encourage the reconfiguration of the inlet's ebb tide delta through the redistribution of material from the north side of the inlet to the south side. Monitoring of the inlet since the channel was moved seems to indicate some redistribution of material is occurring; however, the process will take years before it has a significant positive impact on the north end of North Topsail Beach. Given the realignment of the channel and its impact on North Topsail Beach, the Commission affirmatively finds that Petitioner has demonstrated that the hardship results from conditions peculiar to the property and has met the second factor required for the grant of its request for a variance.

C. Petitioner has demonstrated that the hardship does not result from actions taken by Petitioner.

The Commission affirmatively finds that Petitioner has demonstrated that the hardship does not result from actions taken by the Petitioner. Specifically, the Town has done nothing to accelerate the erosion affecting the Site and has taken significant steps to address the problem, including the development and implementation of its Inlet Management Plan. While the losses from the beach fill have been higher than anticipated, the condition of most of the shoreline included in the Phase 1 fill is still better, in terms of the beach width measured at MHW than it was prior to construction of Phase 1. The exception, as previously noted, lies in the area north of Topsail Reef.

The Town's commitments to remove the geotextile sand tube in accordance with the permit conditions when construction was completed was based on its belief that the sand bag revetment alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the

area. However, the rapidly changing conditions along the north end of the island and the accelerated rate of loss of material from the area has made it abundantly clear that the sand bag revetment alone will not be able to protect the homes or the roads in this area for a sufficient amount of time to allow for gradual recovery of the shoreline associated with the channel realignment project.

For these reasons, the Commission affirmatively finds that Petitioner has demonstrated that it has met the third factor required for a variance.

D. Petitioner has demonstrated that the requested variance is consistent with the spirit, purpose and intent of the Commission's rules, will secure public safety and welfare, and will preserve substantial justice.

The Commission affirmatively finds that Petitioner has demonstrated (a) that the requested variance is consistent with the spirit, purpose and intent of the Commission's rules, (b) that it will secure public safety and welfare, and (c) that it will preserve substantial justice.

Specifically, the spirit, purpose and intent of the Commission's rules for the Ocean Hazard Area of Environmental Concern is to allow temporary erosion control for imminently threatened structures, while limiting the size of the individual sandbags and the dimensions of the overall structure that may be permitted. In 2003, CAMA was amended to include 113A-115.1, which prohibited the use of erosion control structures along the ocean shoreline, except in a few specific situations. The Commission's rules allow for the continued use of "temporary erosion control structures" made of sandbags to protect imminently threatened structures within 20 feet of the erosion scarp. The installation and design standards in the Commission's rules reflect the temporary nature of the structures, and demonstrate that sandbags were not intended as large, permanent structures. As stated in 15A NCAC 07M.0202(e), these temporary measures

are to be used "only to the extent necessary to protect property for a short period of time until the threatened structures can be relocated or until the effects of a short-term erosion event are reversed." This rule demonstrates that sandbags should only offer immediate relief and time to find a permanent solution. The Commission's size limits on individual sandbags and limits on the overall structure size are intended to promote structural stability and effectiveness, while maintaining the temporary nature and the public's right of safe access to the beach. Given the Town's commitment to renourish the North Topsail Beach during the 2015/2016 dredging window, the Commission affirmative finds that Petitioner's proposed development is consistent with the spirit, purpose, and intent of the Commission's Rule as long as Condition No. 11 in amended CAMA Major Permit No. 92-14 is revised to allow the authorized containment tube to remain part of the temporary erosion control structures until June 30, 2016 or the Onslow County's channel maintenance/beach disposal activities are completed whichever comes first.

The second assessment to be made is whether the variance proposed by the Petitioner will impact public safety and welfare. Petitioner submits, and the Commission agrees that if the deadline for removal of the geotextile tubes is extended, public safety and welfare will be protected insofar as the structures will receive some additional protection which may prevent their imminent destruction. Floating debris, submerged and/or hidden piles, as well as other anthropogenic items remaining once these properties are abandoned would pose a serious threat to the safety of the public that uses the area for recreational purposes. Allowing the containment tube to remain as part of the temporary erosion control structures until such time as navigation maintenance material is deposited or June 30, 2016 whichever comes first will significantly lessen any unreasonable danger(s) to life and adjacent property from the foregoing dangers.

Observations made during the construction process indicate the tubes have not had a noticeable adverse impact on adjacent shorelines as compared to revetments composed of only sand bags. Therefore, allowing the sand tube to remain for an extended period of time should not have any greater negative impact on adjacent properties than the impacts associated with the sand bag revetment itself. will have no adverse effect on public safety and welfare.

Finally, the Commission agrees that a variance will preserve substantial justice by allowing the Town to use the geotextile tubes to stabilize the permitted sand bag revetment, preserve the work already done to protect the North End of the island, and preserve the interests of the Town and the North End property owners until such time as the deposit of navigation maintenance material takes place in 2015/2016, and the realignment of New River Inlet begins to yield positive effects. For these reasons, the Commission affirmatively finds that Petitioner has met the fourth factor required by N.C.G.S. § 113A-120.1(a) subject to the condition that the Town's temporary use of the geotextile tube will be extended no longer than June 30, 2016 or when the renourishment project is completed whichever comes first.

During oral argument before the Commission, the Town explicitly agreed that it would remove the temporary geotextile tube when the beach renourishment project was completed or by June 31, 2016 whichever came first.

ORDER

THEREFORE, the Town's request for a variance from 15A NCAC 7H. 0308(a)(2)(K) and (L) in order to extend the time to keep the geotextile tubes in place as a part of the temporary erosion control sandbag structures is GRANTED subject to the condition that the geotextile tubes will be removed when Onslow County's channel maintenance/beach disposal project is

complete or by June 30, 2016 whichever comes first.

The granting of this variance does not relieve Petitioner of the responsibility for obtaining any other required permits from the proper permitting authority. This variance is based upon the Stipulated Facts set forth above. The Commission reserves the right to reconsider the granting of this variance and to take any appropriate action should it be shown that any of the above Stipulated Facts is not true or has materially changed.

This the 14th day of August 2015.

Frank D. Gorham III

Frank D. Gorham, III, Chairman
Coastal Resources Commission

CERTIFICATE OF SERVICE

This is to certify that I have this day served the foregoing FINAL AGENCY DECISION upon the parties by the methods indicated below:

Stuart Turille, Town Manager
Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, NC 28460

Certified Mail/ Return Receipt Requested and
Electronically:
townmanager@north-topsail-beach.org

Brian E. Edes, Town Attorney
Crossley McIntosh & Collier
5002 Randall Parkway
Wilmington, NC 28403

U.S. Mail and Electronically at
bedes@cmclawfirm.com

Christine A. Goebel, Esq.
Assistant Attorney General
N.C. Department of Justice

Electronically at
cgoebel@ncdoj.gov

Braxton C. Davis
Angela Willis
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Electronically at
braxton.davis@ncdenr.gov and
angela.willis@ncdenr.gov

This the 14th day of August, 2015

Mary L. Lucasse
Special Deputy Attorney General and Commission Counsel
N.C. Department of Justice
P.O. Box 629
Raleigh, N. C. 27602

Coastal Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

BRAXTON DAVIS
Director

NOTICE OF VIOLATION
June 3, 2016

CERTIFIED MAIL 7011 2000 0002 2768 8240
RETURN RECEIPT REQUESTED

Town of North Topsail Beach
c/o Stuart Turille, Town Manager
2008 Loggerhead Ct.
North Topsail Beach, NC 28460

RE: NOTICE OF VIOLATION AND REQUEST TO CEASE UNAUTHORIZED DEVELOPMENT
CAMA VIOLATION #16-17D

Dear Mr. Turille:

This letter is in reference to your response via e-mail to Jason Dail on March 31, 2016, where you quoted "My goal is to comply with the permit requirement to remove the tube upon conclusion of the project" in addition to a site visit conducted by DCM staff on May 19, 2016 for property located between 2276 & 2392 New River Inlet Road, adjacent to the Atlantic Ocean located in the Town of North Topsail Beach, in Onslow County, North Carolina.

Information gathered by NC Division of Coastal Management (DCM) staff shows that the Town of North Topsail Beach has violated the terms or conditions of CAMA/Dredge and Fill State Permit No. 92-14, which was issued to the Town of North Topsail Beach by way of a major modification pursuant to a variance from the Coastal Resources Commission (CRC) and the North Carolina Department of Environmental Quality on August 29, 2015. I hereby request that you immediately ***CEASE AND DESIST*** such violation(s) and comply with the terms and conditions of the above permit. If the terms and conditions of a permit are not complied with, the permit becomes null and void from the date of its issuance.

On October 24, 2014, CAMA/ Dredge and Fill State Permit No. 92-14 was issued to The Town of North Topsail Beach for the installation of a sandbag revetment within the project area. The sandbag revetment was authorized for dimensions measuring 6 feet in height by 20 feet in base width. On November 26, 2014 the DCM amended CAMA/ Dredge and Fill State Permit No. 92-14, in accordance with the CRC's variance order No. 14-16, to allow for the installation of a larger sand bag revetment (12 feet in height NAVD88 by 45 feet in base width). In addition, the permit, as amended on the November 26, 2014, authorized the installation of a "temporary construction containment tube" otherwise referred to as a "geotube" which was to be installed immediately at the seaward-most toe of the sandbag revetment structure. A scour apron and temporary "chock" tube was also authorized under this permit modification, the placement of the scour apron and chock tube structures were authorized no further oceanward than the seaward-most toe of the temporary containment tube used to construct the temporary sandbag revetment structure.

On August 29, 2015 the DCM amended CAMA/Dredge and Fill State Permit No. 92-14 in accordance with the CRC's variance order No.15-05. Permit Condition No. 1 allowed the temporary construction containment (geotextile) tubes to remain in place until the Onslow County channel maintenance/beach disposal project is complete, or by June 30, 2016, whichever comes first.

This permit was issued for major development in the Ocean Hazard and Inlet Hazard Areas of Environmental Concern (AEC), adjacent to the Atlantic Ocean, in accordance with North Carolina General Statutes (N.C.G.S.) 113A-118. This permit included the following terms and conditions(s):

(1) Condition No. 1 states: "In keeping with the Variance granted by the Coastal Resources Commission (CRC) on July 16, 2015 and the CRC Variance Order signed by the CRC Chairman on August 15, 2015, the temporary construction containment (geotextile) tubes shall be removed when the Onslow County channel maintenance/beach disposal project is complete, or by June 30, 2016, whichever comes first."

(2) Condition No. 3 states: All conditions and stipulations of the active permit, including Condition No. 13 of the Amended Permit requiring that the associated scour aprons and "chock" tubes be removed when the associated geotextile tubes are removed, remain in force under this Major Modification unless specifically altered herein.

For the following reasons, you are in violation of the above terms and condition(s) of said permit:

(1) The DCM received ICW/New River Navigation Project - Observation Reports #34 & #35 from the Town of North Topsail Beach's authorized agent, Coastal Planning and Engineering of NC, PC; via email on April 26, 2016. According to the ICW/New River Navigation and Channel Maintenance Project Construction Observation report, dated April 26, 2016, "No sand or discharge samples were collected today since dredge and disposal activities have been completed" indicating that the Onslow County channel maintenance/beach disposal project is complete.

(2) To date, and as verified during a site visit on **May 19, 2016,** the temporary construction containment tubes and the temporary scour apron and "chock" tubes used for constructing the authorized sandbag revetment have not been removed.

To comply with the terms and condition(s) of the permit issued to the Town of North Topsail Beach, the Town of North Topsail Beach must:

(1) Remove the temporary construction containment tubes and all portions of the scour apron and chock tubes within thirty (30) days; or

(2) Within thirty (30) days upon receipt of this notice, the Town of North Topsail Beach shall submit a CAMA Major Modification application that is complete to the satisfaction of the DCM seeking to modify Permit 92-14 to allow the temporary construction containment tubes, chock tubes and scour aprons to remain. Following the anticipated denial of the modification request, and no later than August 3, 2016 the Town of North Topsail Beach will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town of North Topsail Beach and DCM will work diligently to agree on a set of stipulated facts in anticipation of

the variance being heard by the CRC at its September 13-14, 2016 meeting. If such variance request is denied by the CRC, or the variance request submitted by the Town of North Topsail Beach is not heard at the September 13-14, 2016 CRC meeting, the aforementioned structures shall be removed by September 30, 2016.

If the Town of North Topsail Beach intends to cooperate with this request, the person authorized by the Town of North Topsail Beach, is requested to sign one of the attached Restoration Agreements and return it in the enclosed, self-addressed envelope within ten (10) days of receipt of this letter. Failure to comply with this request or respond back to this office prior to the requested deadline with an acceptable schedule for compliance will be interpreted as a refusal or failure to cooperate and may result in a Notice of Continuing Violation, as well as a court injunction being sought ordering compliance, or other enforcement action.

A civil assessment of up to $10,000 plus investigative costs may be assessed against any violator. Each day that the development described in this Notice is continued or repeated may constitute a separate violation that is subject to an additional assessment of $10,000.

The relevant statutes and regulations are available from this office, and I am willing to assist the Town of North Topsail Beach in complying with the requirements of these laws. A site inspection will be made in the near future to determine whether this **REQUEST TO CEASE AND DESIST** has been complied with. I request that you, as Town Manager please contact me immediately at (910)796-7266 to discuss resolution of this important matter.

Thank you for your time and cooperation. Upon completion of the restoration as requested in the Restoration Plan Agreement to the satisfaction of the Division of Coastal Management, the Town of North Topsail Beach will be notified as to the amount of the civil assessment for failure to comply with the terms, conditions, or requirements of such permit.

Sincerely,

Debra D. Wilson
District Manager

Enclosures

Cc: Braxton Davis, Director, DCM
Roy Brownlow, Compliance Coordinator, DCM
Tyler Crumbley, USACE
Brian Edes, Attorney for the Town of North Topsail Beach

RESTORATION PLAN
For
Town of North Topsail Beach Property
C/o Mr. Stuart Turille, Town Manager
CAMA Violation No. 16-17D
Property located between 2276 & 2392 New River Inlet Road, Onslow County

1. Remove the temporary construction containment tubes, all portions of the scour apron located oceanward of the temporary sandbag revetment, and all chock tubes within thirty (30) days upon receipt of this notice; or

2. Within thirty (30) days upon receipt of this notice, the Town shall submit a CAMA Major Modification application that is complete to the satisfaction of the DCM seeking to modify Permit 92-14 to allow the temporary construction containment tubes, chock tubes and scour aprons to remain. Following the anticipated denial of the modification request, and no later than August 3, 2016 the Town will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town and DCM will work diligently to agree on a set of stipulated facts in anticipation of the variance being heard by the CRC at its September 13-14, 2016 meeting. If such variance request is denied by the CRC, or the variance request submitted by the Town is not heard at the September 13-14, 2016 CRC meeting, the aforementioned structures shall be removed by September 30, 2016.

I, Mr. Stuart Turille, on behalf of the Town of North Topsail Beach, agree to comply with one of these options within this restoration plan to the satisfaction of the Division of Coastal Management (DCM) within 10 days upon receipt of this notice, or provide an explanation for non-compliance. When corrective actions are complete, the Town will notify the DCM so the work can be inspected.

SIGNATURE: Stuart Turille

DATE: June 6, 2016

It is the policy of the Coastal Resources Commission to assess a civil penalty plus investigative costs against all violations. The amount assessed will depend upon several factors, including the nature and area of the resources that were affected and the extent of the damage to them. If restoration is not undertaken or satisfactorily completed, a substantially higher civil assessment will be levied and an injunction sought to require restoration.

127 Cardinal Drive Ext., Wilmington, North Carolina 28405-3845
Phone: 910-796-7215 \ FAX: 910-395-3964 \ Internet: www.nccoastalmanagement.net

From: William J Cleary WJC
To: Mr. Brian Edes
Date: 25 May 2016
Re: North Topsail Beach Shoreline Recent Changes

Dear Mr. Edes:

Mr. Stuart Turille, the Town Manager of North Topsail Beach, requested that I provide you information pertaining to the changes in the shoreline conditions along the North Topsail Beach during the past year. According to Stuart, the information below is needed for support in the filing of an application relating to the variance modification involving the removal of the geo-tube along the northernmost North Topsail Beach oceanfront shoreline. The narrative that follows is based on studies that I have conducted for the Town.

Figure 1 shows the North Topsail Beach shoreline conditions on June 13, 2015. The image was obtained ~four months after the completion of the sand bag "revetment" project in February 2015. The aerial photograph depicts a relatively wide low-tide beach that fronts the sandbag armored shoreline reach. The letter designations that appear on the Figure 1 (A, B & C) delineate locations where oceanfront change measurements were made of the shoreline erosion (red colored #s) that occurred between June 13 and October 7, 2015. Figure 2 is a satellite image (9/10/15) of the same area that depicts the shoreline conditions approximately three months later than those depicted in Figure 1. Inspection of Figure 2 shows that the width of the low-tide beach has changed little with the exception of the reach near "A" where the flood channel has widened and consequently eroded a portion of the low tide beach (compare to Fig.1). Further inspection of Figure 2, illustrates that the dry beach width and its lateral extent have increased during the three-month period.

Significant oceanfront shoreline changes occurred during the latter part of September and early October 2015 when several periods of Perigean tides (King or Supermoon tides). The drone captured oblique aerial photographs imaged in Figure 3, depict the results of

wave overtopping during a Perigean tidal event. During a period of several weeks, relatively strong onshore winds exacerbated the effects of the extreme water levels during which time storm waves broke well landward of the normal surf zone. This period of time of elevated water levels coincided with the passage of Hurricane Joachim some distance offshore the Town. During the passage of the large storm, incident waves continually broke at the base of the revetment and as water levels increased the wave broke across the seaward slope of the bags. As the plunging waves broke along the seaward slope and at base of the structure, scouring of the sea bed occurred resulting in a general deepening immediately seaward of the sandbags. Consequently, a number of bags slumped, further degrading the integrity of the "revetment".

The combination of the above events ultimately led to extensive erosion of the low-tide beach (Figs. 1 and 4). Erosion of the low-tide platform (low-tide beach) was variable and ranged from 225ft in vicinity of Location "A" to 86ft in vicinity of Location "C" immediately updrift of the Topsail Reef Condominiums (Figs. 1 and 4). The erosion of the low-tide beach promoted the subsequent failure (slumping, etc.,) of sand bags in areas along the armored shoreline, overtopping (overwash) and steepening of the foreshore profile along a major portion of the aforementioned shoreline reach (Figs. 4-7). Figure 8 depicts Pre- and Post-Hurricane Joachim images of the oceanfront shoreline. A comparison of the images clearly shows the effect of the erosion and the consequent steepening of the lower foreshore profile. Note the location of the zone of breaking waves.

The Drone captured images of 19 February 2016 depicted in Figure 8 show the incident waves breaking along the base of the sand bags further that led to scouring of the sea bed promoting further slumping of the bags. This process frequently occurred during the subsequent months and may considered the norm.

The most recent cross-shore survey of the sand bags and the near shore area occurred in mid-March 2016. Two of the many resulting profiles profiles are imaged on Figures 9 and 10, the locations of which are shown on Figure 11 (red-colored lines). Profile 1155+00 (Fig. 9) is located ~500ft southwest of Location "A" imaged on Figures 1 and 4. A cursory

inspection of the profile changes shows that the sea bed has been both deepened and steepened. The dip in the seabed at the 100ft mark likely is related to breaking waves. The changes along this profile typify the profiles to the southwest along the sand bag armored shoreline. Profile 1160+130 is located northeast of profile 1150+00, a shoreline reach transitional to New River Inlet, and as such is heavily influence by tidal currents, waves and currents augmented by breaking waves. A comparison of the April 2015 and the March 2016 surveys again shows an overall deepening of the beachface. Historically, shoreline changes in this area have been heavily influenced by the marginal flood channel.

In brief, it is my opinion based on personal observation and shoreline change data that the removal of the geo-tube will have serious consequences on the stability of the sand bag "revetment". Its removal will ultimately lead to accelerated erosion of the sea bed adjacent to the sand bags due to a variety of wave-related processes. In turn, the consequent degradation of the sand bag armoring will have dire consequences for the homes currently protected by the sand bags.

Please advise if clarification is needed.

Regards,

William J. Cleary
Emeritus Professor of Geology, UNCW
Professional Geologist NC #475


North Topsail Beach
Pond
Seaward limit of low-tide beach (10/7/15)
FC
A
225 ft
B
131 ft
C
86 ft
Topsail Reef
Modified image, Courtesy NOAA
6/13/2015

Figure 1

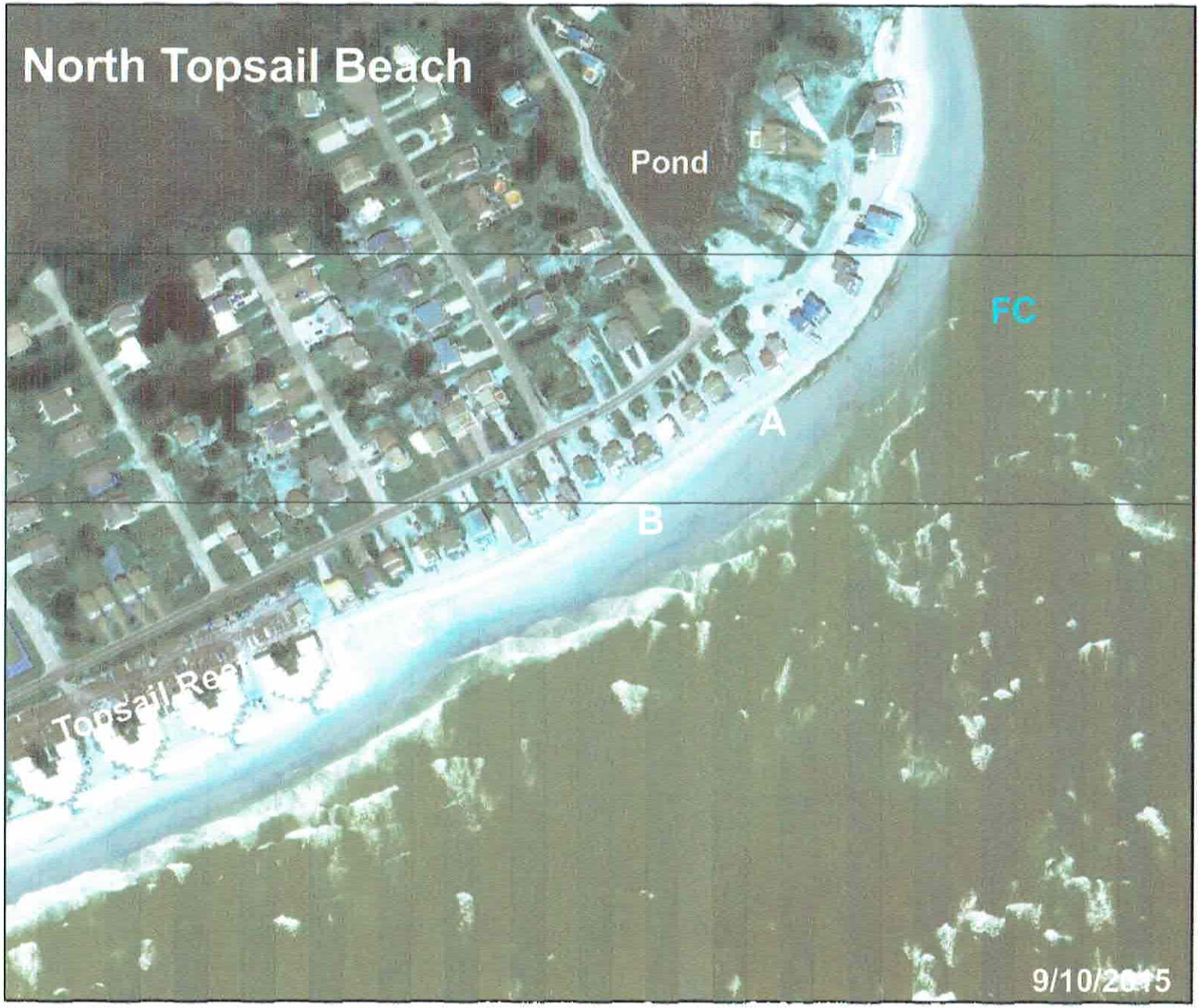


Figure 2


A
9/30/2015
Topsail Reef
B
9/30/2015
North Topsail Beach
C
Modified drone images, Courtesy Onslow Co. Government. 9/30/2015

Figure 3


North Topsail Beach
Pond
FC
A 225 ft
B 131 ft
C 86 ft
Modified image, Courtesy NOAA
10/7/2015

Figure 4


North Topsail Beach
A
10/07/2015
B
Co. Emergency Services
10/07/2015

Figure 5


North Topsail Beach
Topsail Reef
Modified Image, Courtesy Onslow Co. Emergency Services
10/07/2015

Figure 6


North Topsail Beach
Pond
Topsail Reef
Wide, laterally extensive low-tide beach
A
Modified image, Courtesy NOAA
6/13/2015
Post-Hurricane Joachim
Steepened Nearshore profile
B
10/07/2015

Figure 7


https://vimeo.com/156088939
North Topsail Beach
A
Modified image after Jeff Wensel," North Topsail Beach Erosion 2/19/16 Drone Video
2/19/2016
Washover Sediment
Slumped Bags
B
2/19/2016

Figure 8

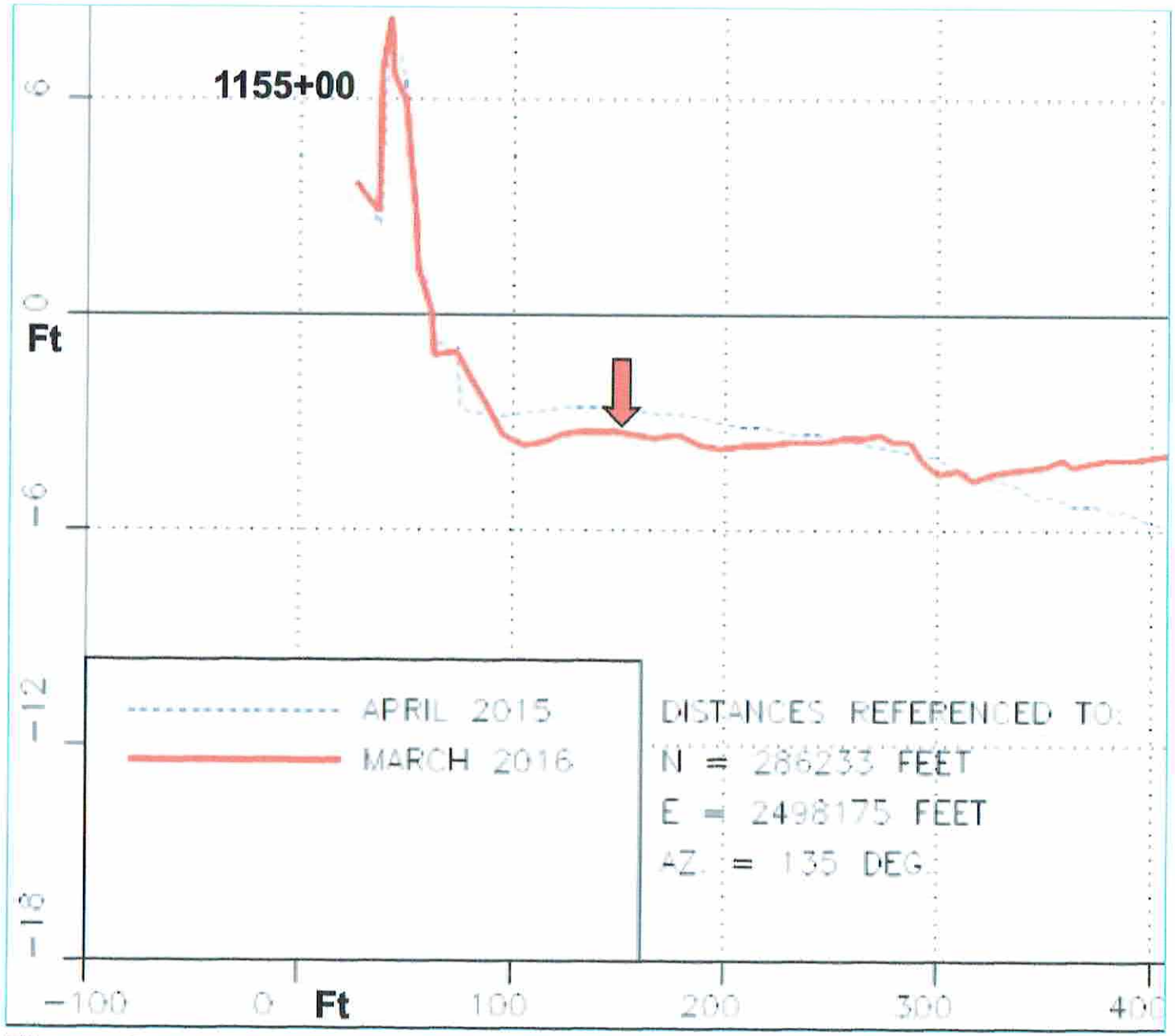

1155+00
6
0
-6
-12
-18
Ft
APRIL 2015
MARCH 2016
DISTANCES REFERENCED TO:
N = 286233 FEET
E = 2498175 FEET
AZ. = 135 DEG.
-100
0
Ft
100
200
300
400

Figure 9

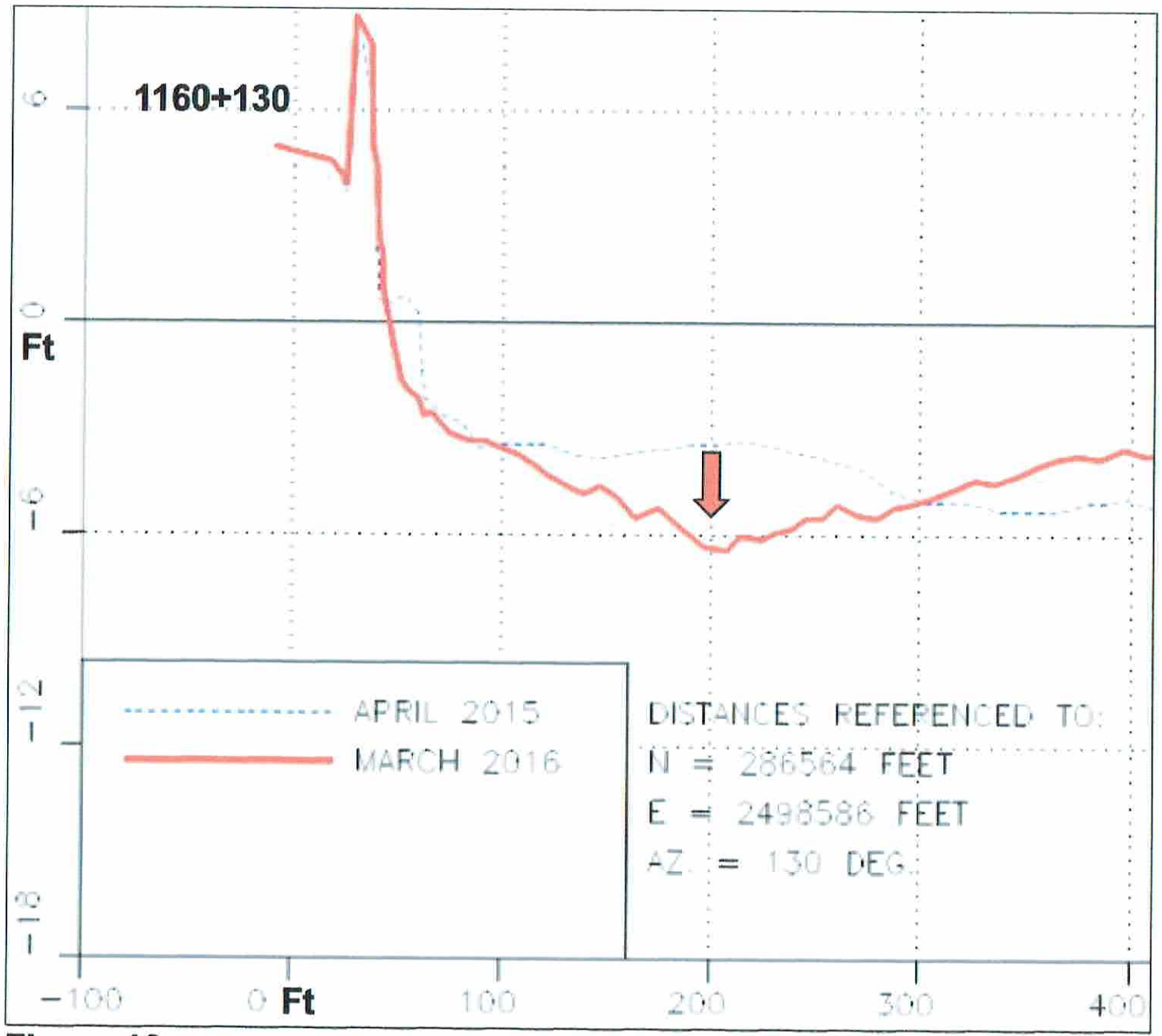
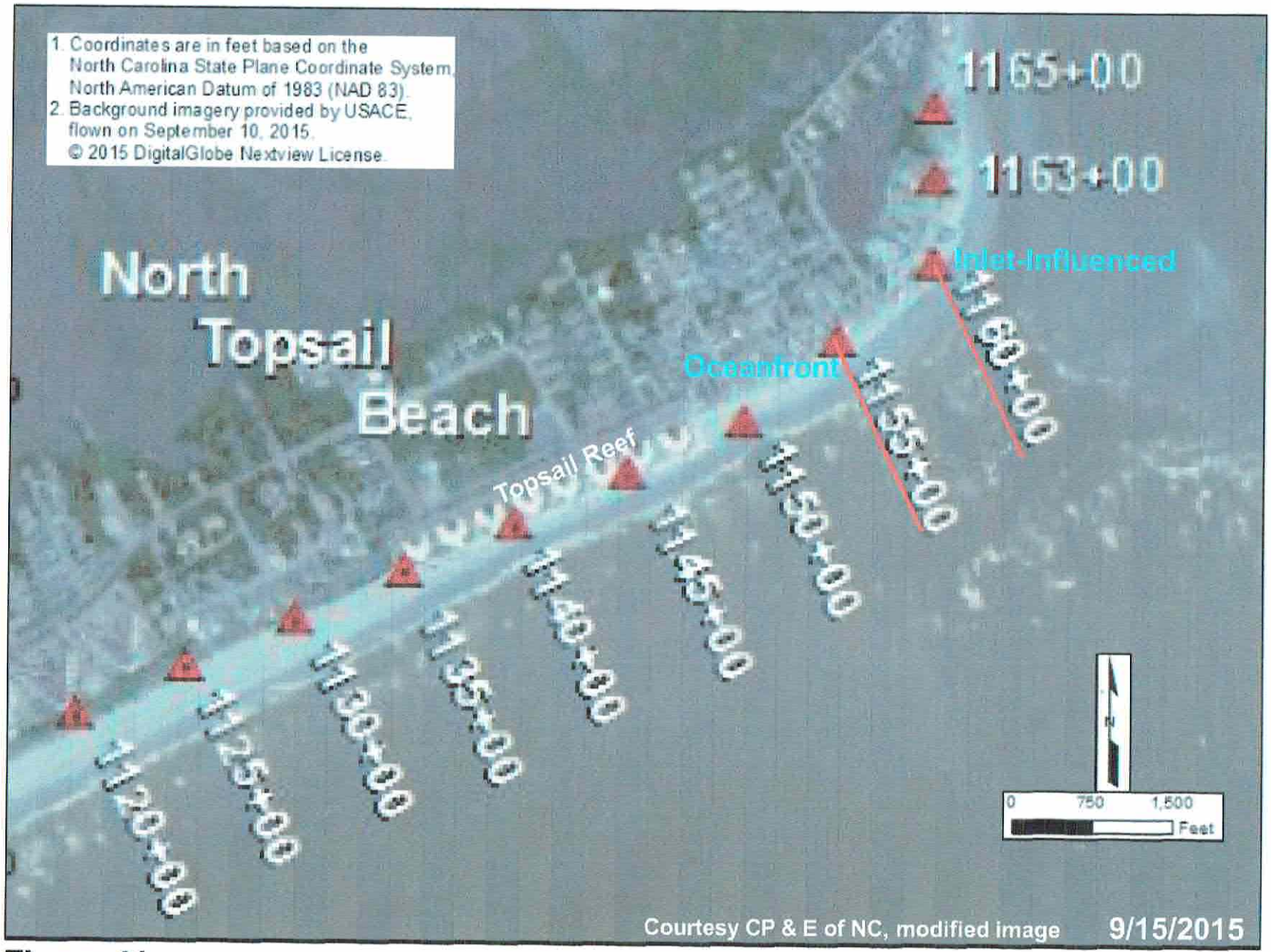

1160+130
6
0
Ft
-6
-12
-18
APRIL 2015
MARCH 2016
DISTANCES REFERENCED TO:
N = 286564 FEET
E = 2498586 FEET
AZ = 130 DEG.
-100
0 Ft
100
200
300
400

Figure 10


1. Coordinates are in feet based on the North Carolina State Plane Coordinate System, North American Datum of 1983 (NAD 83).
2. Background imagery provided by USACE, flown on September 10, 2015.
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North Topsail Beach
Topsail Reef
Oceanfront
Inlet-Influenced
1165+00
1163+00
1160+00
1155+00
1150+00
1145+00
1140+00
1135+00
1130+00
1125+00
1120+00
N
0
750
1,500
Feet
Courtesy CP & E of NC, modified image
9/15/2015

Figure 11

Dr. William J. Cleary

Dr. William J. Cleary is a marine and coastal geologist whose interests have included coastal management oriented investigations involving inlet and hurricane related shoreline changes and the modification of inlet systems for sand resources for nourishment purposes. His inner continental shelf studies focused on the inter-relationships between the shoreface geology and the nature of shoreline change along the adjacent barriers and headlands. Geologic mapping of these offshore areas was based on remotely sensed data and SCUBA diving based sampling programs.

Dr. Cleary was a Professor of Geology in the Department of Earth Sciences at the University of North Carolina at Wilmington (UNCW) from 1972 to 2009 and is now Professor Emeritus of Geology at UNCW. He received his BS degree in Geology at Southern Illinois University in 1965 and subsequently received his MS Degree in Geology at Duke University in 1968. Prior to receiving his Ph.D. Degree in Geology at the University of South Carolina in 1972, Dr. Cleary worked as a Petroleum Exploration Geologist with Pan American Petroleum Corporation. Upon completion of his doctoral degree, he held a post-doctoral research position at the University of South Carolina in Columbia, South Carolina. Dr. Cleary's research, while at the University of South Carolina, involved genesis and transport of sand on the continental margin and in the deep ocean. Such a diverse background has afforded him the opportunity to work in a variety of marine and coastal settings.

Since the early 1980s Cleary's research focused on coastal geology, shoreline erosion related to inlets, and offshore sand resources. Additionally, he has traveled extensively to give presentations of his scientific research in order to promote scholarship and educational ties between UNCW and with other academic institutions, and thus expand UNCW's exposure as a marine science research facility. Dr. Cleary has acted as Chief Scientist on numerous NSF and NOAA/NURC sponsored scientific cruises. Much of his earlier research in the deep ocean was funded by the National Science Foundation, and more recently his coastal oriented research was funded by NOAA's National Undersea Research Center at UNCW and North Carolina Sea Grant. He supervised or advised approximately 30 Graduate Students at UNCW and other universities. He has authored or co-authored over 75 publications in national and international scientific journals. His paper dealing with beach nourishment on storm-impacted barriers in Southeastern North Carolina won the 16th International Coastal Symposium Award for best professional paper.

STAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

.038 MASONBORO LOOP ROAD, WILMINGTON, NC 28409 910-791-9494 PHONE 910-791-4129 FAX
INTERNET: http://www.coastalplanning.net

April 01, 2015

Stuart Turille
Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, NC 28460

Re: Proposal: Town of North Topsail Beach, North Carolina: Annual Monitoring of Phase 1 Project and Numerical Modeling/Design Analysis of the Channel Realignment Maintenance Project #1 and Terminal Groin

Dear Mr. Turille:

This letter is in response to the Town of North Topsail Beach's (TOWN) request for a proposal to provide physical and biological monitoring of the Phase 1 Beach Nourishment and Channel Realignment Project as well as numerical modeling and design analysis associated with the channel realignment maintenance project and a terminal groin. CPE-NC has a special preferred relationship with CB&I Environmental & Infrastructure, Inc. (CB&I), and through that relationship CPE-NC will utilize CB&I's personnel, resources and assets to perform the proposed Services.

The Scope of Professional Services (the Services) is attached to this proposal as Exhibit A. These services include data collection (beach profile and hydrographic surveys), development of annual monitoring reports, data review and processing, model setup, model calibration, channel design performance evaluation, design and performance evaluation of a terminal groin, biotic community mapping and preparation of submittals, as well as project management.

Breakdown of Costs and Schedule of Deliverables:

The Work included under Tasks 1 through 6 will be performed for a lump sum fee of $449,225.00. Exhibit B includes a breakdown of costs by Task. Barring any unforeseen circumstances, CPE-NC anticipates completing the Services, and providing the following deliverables associated with the Services to the Town no later than 12 months following receipt of your written authorization to proceed. Please see Exhibit C – List of Deliverables, for a description of each of the following:

- Monthly Progress Reports;
- Phase 1 Annual Beach and Inlet Monitoring Report (2015);
- Modeling Report and Engineering Report Addendum – Channel Design Analysis;
- Summary of Findings – Terminal Groin Modeling/Design Analysis; and
- Biotic Community Mapping Submittal

CPE-NC's performance of the proposed Services is conditioned upon mutually acceptable contract terms and conditions. In that regard, attached to this proposal is our Services Agreement for your consideration as the terms and conditions that will govern our performance of the proposed Services.

If the proposal is acceptable to you, please forward two (2) executed originals of the agreement to me. CPE-NC will then sign the Agreement and return an original for your records.

Very truly yours,

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

Gordon Thomson, P.E.
Director

EXHIBIT "A"
SCOPE OF PROFESSIONAL SERVICES
TOWN OF NORTH TOPSAIL BEACH, NORTH CAROLINA
ANNUAL MONITORING OF PHASE 1 PROJECT AND NUMERICAL MODELING/DESIGN ANALYSIS OF THE CHANNEL REALIGNMENT MAINTENANCE PROJECT #1 AND TERMINAL GROIN

INTRODUCTION

On August 15, 2014, the Town of North Topsail Beach (TOWN) authorized Coastal Planning & Engineering of North Carolina, Inc. (CPE-NC) to develop a contingency report to consider modifications to the existing long-term inlet management strategy associated with the Town's long-term beach and inlet management program. The final report included four (4) modifications to consider with regards to the inlet management program. This scope of work includes numerical modeling and design work associated with Alternatives 3 (modifications for the 2nd channel realignment event presently scheduled for the 2016-17 environmental dredging window) and Alternative 4 (installation of a terminal groin structure on the south side of New River Inlet). This scope of work also includes services associated with assisting the Town with the 3rd year of annual monitoring (Physical Monitoring and Biotic Community Mapping) required by the Department of the Army permit SAW 2005-00344 associated with the Phase 1 project constructed in 2012/2013.

CPE-NC proposes to provide professional services to the TOWN, associated with numerical modeling and design analysis of both the 1st channel realignment maintenance project scheduled for 2016/2017 and a terminal groin. This proposal includes data collection (beach profile and hydrographic surveys), development of annual monitoring reports, data review and processing, model setup, model calibration, channel design performance evaluation, design and performance evaluation of a terminal groin, biotic community mapping and preparation of submittals, as well as project management. These tasks are described in detail in the following sections.

TASK 1 – BEACH AND INLET MONITORING SURVEYS

As a condition of the Department of the Army permit SAW 2005-00344, the TOWN must monitor 30 inlet and beach profiles in the vicinity of New River Inlet and Onslow Beach following construction of the inlet realignment portion of the project. The first post-construction event was conducted in May, 2013 and the second in May, 2014. During the planning of the spring 2014 post-construction monitoring event, the TOWN requested that CPE-NC conduct a hydrographic survey of the ebb shoal at New River Inlet to better assess the reconfiguration of the shoal. This survey was conducted concurrently with the May 2014 beach profile surveys.

This current proposal covers the 3rd post-construction beach profile survey and 2nd post-construction hydrographic survey of the ebb shoal at New River Inlet. Below is a list of the monitoring areas and the station limits proposed to be surveyed.

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- Project Shoreline and Adjacent Beach (North Topsail Beach Stations 1040+00 to 1130+00 @ 1,000 ft. spacing) 10 profiles
- Project Shoreline along northern section (North Topsail Beach Stations 1140+00 to 1160+00 @ 500 ft. spacing) 5 profiles
- New River Inlet (Onslow Beach Stations 0+00 to 40+00, North Topsail Beach Stations 1163+00 to 1170+00) 10 Profiles
- Onslow Beach (Onslow Beach Stations 50+00 to 90+00) 5 Profiles
- New River Inlet Ebb Shoal, inlet gorge, and Cedar Bush Cut at 50-foot spaced lines across the survey area as well as tie lines. (As shown in Figure 1).

These surveys will be used to evaluate project performance during the 3rd annual monitoring of the Phase 1 Project. Likewise the data will be used in the numerical model setup described under Task 3.

Beach profiles will extend landward from their respective baseline station until a structure is encountered or a range of 25 feet beyond the dune is reached, whichever is more seaward. Elevation measurements will also be taken seaward along the profile to a range of 2,500 feet beyond the shoreline or to the -30 NAVD88 contour, whichever is more landward.

Upland data collection will include all grade breaks and changes in topography to provide a representative description of the conditions at the time of the work. The maximum spacing between data points along individual profiles will be 25 feet. The upland work will extend into wading depths sufficiently to provide a minimum 50-foot overlap with the offshore portion.

The hydrographic survey work (offshore portions of beach profiles and inlet surveys) will be conducted with industry standard depth sounding equipment and RTK GPS systems. Tide corrections will be obtained redundantly through the use of RTK GPS and a local tide gauge verified to meet the requirements for the specific work. Offshore data points shall also be collected with a maximum spacing of 25 feet.

Horizontal and vertical positioning checks will be conducted to verify the accuracy is within a horizontal limit of 3 feet and a vertical limit of 0.5 ft. for all electronic equipment. Vertical positioning checks for depth measuring equipment will be conducted at 5 ft. increments between the minimum and maximum depths expected.

All work activities and deliverables shall be conducted in accordance with the Minimum Performance Standards for the U.S. Army Corps of Engineers (USACE) (EM 1110-2-1003).

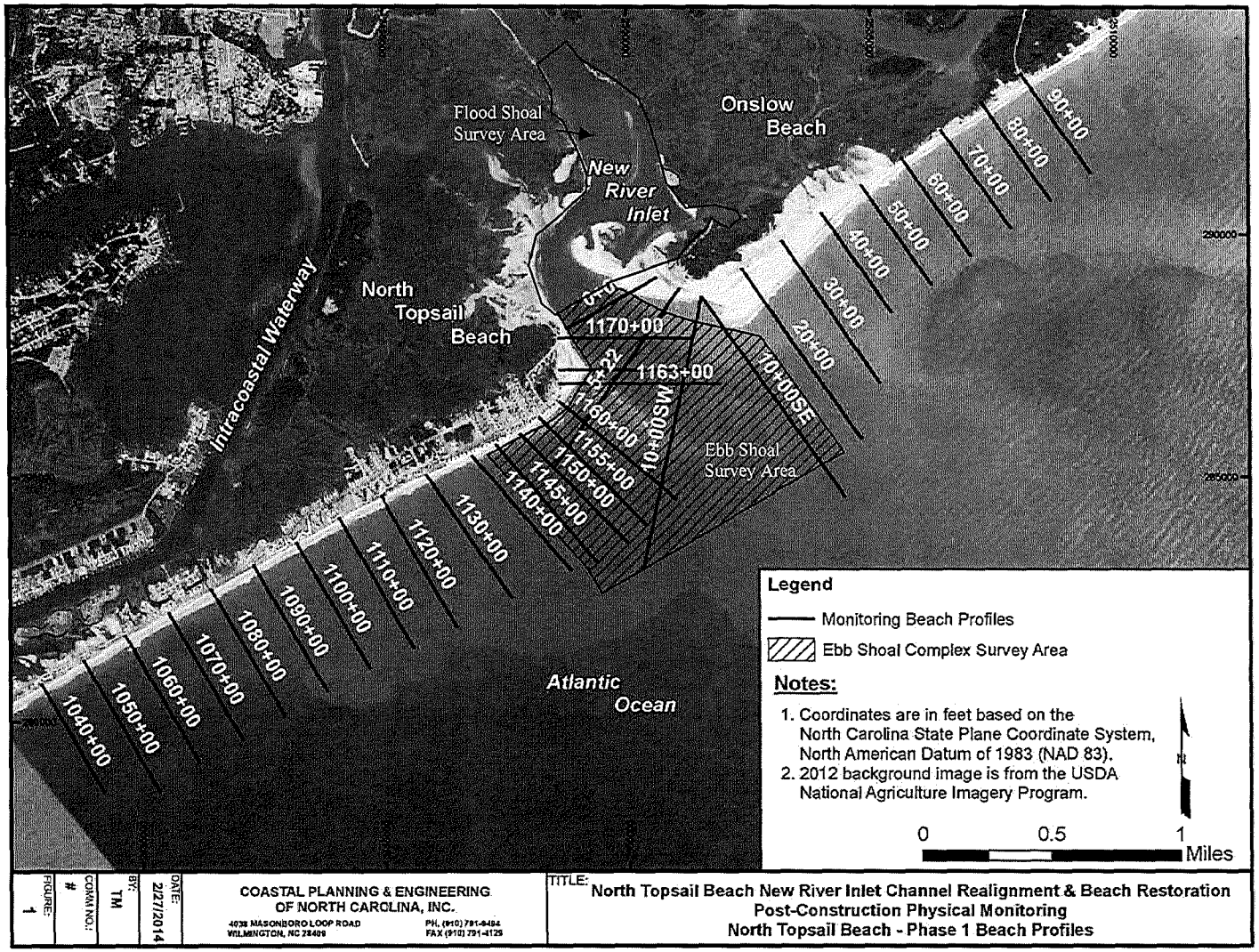

Figure 1. Location map showing profiles and the area in the vicinity of New River Inlet to be surveyed.

The data will be reduced to produce charts and contour maps that will provide data to assess the progress of the reconfiguration of the shoal.

TASK 2 – PHASE 1 ANNUAL BEACH AND INLET MONITORING ANALYSIS AND REPORT

Upon completion of survey operations, CPE-NC will prepare a post-construction physical monitoring report. The monitoring report will satisfy the physical monitoring requirements of the permit as well as provide valuable information to the Town regarding the performance of Phase 1. The report will detail the project performance to date. Project performance is measured by shoreline and volumetric change along the fill area and adjacent shoreline up to 5,000 feet. The performance of the realigned channel will also be documented by measuring the infilling rate and controlling depth of the channel as well as the reconfiguration of the ebb shoal.

The monitoring report will provide the remaining volume of sediment measured at the surveyed profiles along both North Topsail Beach and the Onslow Beach monitoring section. Volumetric measurements of the material remaining within the active profile and above MHW will be provided. Profile drawings will be provided to show a comparison of the current status of the beach with the pre- and post-construction conditions. The waterline migration will also be calculated to show the post construction shoreline migration rates. Plan view drawings of the shoreline position will be provided showing the project limits, approximately 5,000 feet south of the project, and the monitoring section along Onslow Beach. In addition to the report, one (1) in-person meeting is included to present the findings of the monitoring report to the TOWN.

TASK 3 – NUMERICAL MODELING AND ENGINEERING DESIGN ASSOCIATED WITH CHANNEL DESIGN MODIFICATIONS

The primary tool in this investigation will be the Delft3D morphological model (Deltares, 2011, http://www.deltaressystems.com/hydro/product/621497/delft3d-suite).

The Delft3D model is used as an engineering tool to evaluate relative differences in response of a system (beach and/or inlet) to man-induced changes such as channel modification or introduction of a structure(s). Due to the inability to predict weather and sea conditions well into the future, the Delft3D model is not a predictive model. Rather, the model results are only given in terms of the relative difference in the model's response to changes associated with a known set of input parameters such as tides, waves, and winds compared to modeled changes under "existing" conditions.

In this regard, the model is initially run to simulate the response of the system under "existing" conditions given the known set of input parameters. The model results will be recorded to identify model indicated volumetric changes along the adjacent shorelines, changes in the ocean bar channel (channel orientation, shoal volumes, channel depths, etc.), volumetric changes on the ebb tide delta, volumetric changes inside the inlet (Cedar Bush Cut), shoaling of the AIWW/New River Inlet crossing, and shoaling in the in New River north of the AIWW. The model results will also be used to assess relative differences in flow patterns from one option to another including potential changes in the volume of water that would pass through various channels within the system.

Alternative evaluations (such as channel relocations and structural modifications) will be simulated with the same set of input parameters used for the "existing" condition with changes in the response of the various components listed above also documented for each design option. Differences in the indicated responses of the various system components to simulated man-induced changes will form the basis for evaluating potential positive and negative responses within the system. For example, if the model results indicate volumetric losses along the north end of North Topsail Beach under a certain channel option would be greater than the volumetric losses computed for the "existing" condition, those results would be interpreted to represent a potential negative consequence of the option. The differences in the model indicated changes from one option to another will be tempered based on an assessment of the relatively accuracy of the model results.

The Delft3D model package referenced above consists of two models, which are coupled together to determine changes in a topographic and bathymetric surface based on the effects of waves, water levels, winds, and currents. Wave propagation from the offshore to the nearshore area is estimated using the Simulating Waves Nearshore Model (SWAN, http://www.deltares.nl/en/ software/1023814/swan). Delft3D-FLOW utilizes the output waves from SWAN, along with the varying water levels offshore and the bottom bathymetry, to determine the resulting currents, water levels, sediment transport, erosion, and deposition. Based on the estimated erosion and deposition at each time step, the Delft3D-FLOW model calculates the subsequent elevations of the topographic and bathymetric surface and sends the updated bathymetry back to the SWAN model. Typical time steps in Delft3D-FLOW range from 1 second to 60 seconds, while wave propagation estimates in the SWAN model are performed every 1 to 3 hours. Given the interaction between tidal currents and waves at New River Inlet, Delft3D is the best means of evaluating various alternatives (channel relocation and/or terminal groin) to address the erosion problem on the north end of North Topsail Beach adjacent to the inlet. The specific tasks of the Delft3D modeling study to be conducted are described below.

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Sub-Task A – Data Review

This sub-task consists of locating, reviewing, filtering, post-processing, formatting, and analyzing data that will be used in the Delft3D model study. Bathymetric, topographic, and geotechnical data will be used to define model initial conditions while wave, water level, and wind data will be used to define model boundary conditions. Moreover, the model will be calibrated using additional bathymetric, topographic, wave, water level, and current data.

In most Delft3D modeling studies, both Delft3D-FLOW and SWAN are calibrated using locally collected data. Extensive wave, water level, current, topographic, and bathymetric data were collected in the vicinity of New River Inlet between April 16, 2012 and May 25, 2012 as part of the Rivet study (https://scripps.ucsd.edu/projects/rivet/). The Rivet study was funded by the Navy, so permissions to use the data will be needed from the Office of Naval Research Coastal Sciences Office. Cursory review of the data suggests that the existing measurements should be sufficient for calibrating SWAN and Delft3D-FLOW. However, if this data is insufficient or permission to use the data is not granted, additional wave, water level, and current data will need to be collected. The collection of additional wave, water level, and current data is not included in this scope of work and would be addressed by a change order if deemed necessary.

Given the modeling intent is to evaluate various design alternatives, long-term morphological changes need to be simulated. In order to complete long-term simulations, oceanographic and meteorological data must be properly schematized to efficiently simulate morphological changes. Publically available oceanographic and meteorological data will be used to define long-term statistics and create the boundary conditions that drive the models; spectral wave and meteorological data have been collected at Frying Pan Shoals (NDBC 41013, http://www.ndbc.noaa.gov/station_history.php?station=41013) since 2003 while water level and meteorological data have been collected at Wrightsville Beach since 2004 and Beaufort (NOAA 8656483, http://tidesandcurrents.noaa.gov/stationhome.html?id=8656483) since 1996 and 2009, respectively. Topographic and bathymetric data collected in 2005 and annually since 2012 will be used to calibrate the morphological model and test long-term boundary condition schematizations.

Sub-Task B – Model Set-Up

This phase consists of the setup of the Delft3D model so that it can be used to evaluate the performance of various channel alignment and structure design options. At a

minimum, grids developed for the model will cover New River Inlet, the southern extent of Onslow Beach, the northern extent of North Topsail Beach, and the oceanfront areas between the selected alongshore limits. The extent of the model grid will be defined after identifying the data that will be used to drive and calibrate the model. The highest grid resolution will be in the areas immediately surrounding New River Inlet. A regional grid covering the offshore area between Frying Pan Shoals (NDBC 41013) and the coastline may also be needed to examine wave propagation on a regional basis. Using bathymetric and topographic data, grid surfaces describing the present conditions (for model production runs) and key conditions in the recent past (for model calibration) will be created as needed to define initial conditions for the Delft3D-FLOW and SWAN models.

Sub-Task C – Model Calibration

This phase consists of the calibration of the Delft3D model so that it realistically simulates wave, hydrodynamic, and morphological processes. Model calibration will be performed in three stages. First, the SWAN model will be calibrated using existing wave data identified in Sub-Task A. If it is deemed necessary to collect additional oceanographic data, the results of each SWAN calibration run will be compared to the new wave measurements collected in and near New River Inlet. After calibrating the SWAN model, currents and water levels within the Delft3D-FLOW model will be calibrated using water level and current speed measurements identified in Sub-Task A. If it is deemed necessary to collect additional oceanographic data, the results of each Delft3D-FLOW calibration run will be compared to the new water level and current speed measurements collected in and near New River Inlet. Finally, sediment transport, erosion, and deposition within the Delft3D-FLOW model will be calibrated based on observed beach erosion rates over the past 5 years; this step of the calibration is typically the most intensive as it requires appropriate schematization of model boundary conditions so that morphological changes can be simulated efficiently.

Sub-Task D – Channel Design and Performance Evaluation

Evaluations conducted under Sub-Task D are associated with Alternative 3 (Modifications for the 2nd Channel Realignment Event 2016-17) in the CPE-NC Contingency Plan. After model calibration has been completed, various channel design options will be simulated in the Delft3D model over a 5 year period. This task includes the simulation of the No Action scenario ("existing" condition) plus a maximum of 3 channel design options. Model results will be evaluated in terms of beach fill performance and erosional impacts to adjacent beaches and New River Inlet. If nearshore or inlet borrow areas are proposed, they will be incorporated into the initial conditions for

each option to examine the erosional impacts of the borrow areas. The performance and impacts will be assessed using 5-year model results. A similar wave climate will be used to the 5-year calibration period.

A modeling report and an addendum to the original engineering report prepared by CPE-NC in 2009 in support of the North Topsail Beach Shoreline Management plan will be provided as the final deliverables for Task 3. The modeling report will include a detailed description of the methodology employed, hydrodynamic and meteorological data used, and the calibration process. The addendum will provide a summary of the findings and engineering justification for any modifications proposed to the channel orientation or dimensions recommended by the channel design performance analysis.

Task 4 – Structure Design and Performance Evaluation

Evaluations conducted under Task 4 are associated with Alternative 4 (Installation of a Terminal Groin Structure on the South Side of New River Inlet) in the CPE-NC Contingency Plan. Structure design options will be simulated in the Delft3D model over a 5 year period. This task includes the simulation of a maximum of 3 structure design options using variations in the length of the terminal groin and its position relative to New River Inlet. Model results will be evaluated in terms of beach fill performance, erosional impacts to adjacent beaches and New River Inlet, and the ability of structures to retain material on the beach. If nearshore or inlet borrow areas are proposed, they will be incorporated into the initial conditions for each option to examine the erosional impacts of the borrow areas. The performance and impacts will be assessed using 5-year model results. A similar wave climate will be used to the 5-year calibration period.

Sub-Task A – Summary of Findings

A summary of findings will be prepared and submitted to the Town with information comparing the continuation of the channel realignment strategy vs. perusing a terminal groin. CPE-NC will use model results to determine comparative benefits and costs of the two alternatives.

If the Town elects to pursue a terminal groin, an engineering report will be required to support the development of a supplemental EIS. The costs provided for Task 4 do not include those costs (See Caveats in Exhibit B).

Costs associated with Task 4 assume that model setup and calibration were all conducted as part of Task 3. Likewise, the cost assumes no additional data collection is necessary other than that described under Task 1.

TASK 5 POST CONSTRUCTION BIOTIC COMMUMITY MAPPING

Environmental monitoring conducted under Task 5 is required as a condition of the Department of the Army permit SAW 2005-00344. CPE-NC will identify biotic communities, including submerged aquatic vegetation (SAV), shellfish habitat, salt marsh and fringing terrestrial communities, found within the supratidal, intertidal, and subtidal habitats of the New River Inlet permit area. High resolution aerial photography or satellite imagery available from the USACE will be used to interpret the habitat locations. Additional groundtruthing efforts will verify the photo-interpretation results. The habitat limits and acreage identified in the post construction mapping will be compared to pre-construction conditions. A final map of the biotic communities is anticipated to be provided to the TOWN, USACE, NMFS, USFWS, NCWRC, and NCDCM by January 1, 2016. The map will show the habitat limits measured during the pre- and post-construction mapping along with the post construction acreage and percent (%) change from the pre-construction condition.

TASK 6: PROJECT MANAGEMENT

The CPE-NC project manager will be responsible for project administration of the program with assistance from other senior staff as appropriate. Administration includes coordination with the client, progress and status updates, budget control, scheduling, planning, internal meetings, and other associated management tasks required to complete the project according to the scope in a timely manner. In addition to the meeting included under Task 2, CPE-NC staff will be available for up to six (6) in-person project meetings over the anticipated 14 months to complete the contract. In addition to these meetings, CPE-NC will provide the TOWN with a monthly 1 page summary of activities via e-mail.

EXHIBIT B:
BREAKDOWN OF COSTS
TOWN OF NORTH TOPSAIL BEACH, NORTH CAROLINA
ANNUAL MONITORING OF PHASE 1 PROJECT AND
NUMERICAL MODELING/DESIGN ANALYSIS OF THE
CHANNEL REALIGNMENT MAINTENANCE PROJECT #1 AND TERMINAL GROIN

Table 1. Breakdown of the total cost of the Annual Monitoring of Phase 1 Project and Numerical Modeling/Design Analysis of the Channel Realignment Maintenance Project #1 and Terminal Groin proposal

TASK	DESCRIPTION	Cost
1	Beach and Inlet Monitoring Surveys	$47,202.00
2	Phase 1 Annual Beach and Inlet Monitoring Analysis and Report	$16,238.00
* 3	Numerical Modeling and Engineering Design Associated with Channel Design Modifications	$303,340.00
* ** 4	Structure Design and Performance Evaluation	$55,392.00
5	Post Construction Biotic Community Mapping	$7,238.00
6	Project Management	$19,815.00
	TOTAL:	**$449,225.00**

* Cost assumes no additional data collection is necessary other than that described under Task 1.

** Costs associated with Task 4 assume that model setup, calibration, and verification were all conducted as part of Task 4.

Caveats:

This scope of work includes services associated with design and analysis of Alternatives 3 (modifications for the 2nd channel realignment event presently scheduled for the 2016-17 environmental dredging window) and Alternative 4 (installation of a terminal groin structure on the south side of New River Inlet) of the North Topsail Beach Shoreline Protection Project Phase 1 Contingency Plan. However, these services will not directly lead to a permit or permit modification allowing the TOWN to construct either alternative.

As stated in the Contingency Plan, additional tasks that may be required to apply for a permit modification to construct Alternative 3 may include:

- Development of additional environmental documentation;
- Cultural Resource Investigations; and
- Vibracore Surveys and Analysis

The Contingency Plan included an estimate for those services; however, CPE-NC has not included costs in this proposal to provide services associated with the development of additional environmental documentation, cultural resource investigations, or vibracore surveys and analysis. These services were not included in this proposal due to the uncertainty in the specific level of effort required to complete each task. The results of the channel design analysis will dictate the level of services required to obtain permits to construct Alternative 3. Upon

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.
SERVICES AGREEMENT
FIXED PRICE BASIS

All in accordance with the following terms and conditions.

1. **SCOPE OF SERVICES: COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC. ("CPE-NC") agrees to perform for the undersigned CLIENT, engineering and consulting ("Services") described in CPE-NC's Proposal dated April 1, 2015 and its attached Exhibits which are incorporated herein by reference .**

2. **FEES, INVOICES AND PAYMENTS:** The Services will be performed on a fixed price basis as follows: **Four Hundred Forty Nine Thousand and Two Hundred Twenty Five Dollars ($449,225.00).** Invoices will be submitted by CPE-NC no more frequently than every two weeks, with payment due upon CLIENT'S receipt of invoice. Payment shall be in U.S. Dollars. CLIENT shall be responsible for payments (without deduction or offset from the total invoice amount) of any and all sales, use, value added, gross receipts, franchise and like taxes, tariffs and duties levied against CPE-NC or its employees by any government or taxing authority. A service charge equal to one and one-half percent (1 1/2 %) per month, or the maximum rate permitted by law, whichever is less, will be added to all accounts which remain unpaid for more than thirty (30) calendar days beyond the date of the invoice. Should there be any dispute as payments to be made on a percent complete basis to any portion of an invoice, the undisputed portion shall be promptly paid.

3. **CLIENTS COOPERATION:** To assist CPE-NC in performing the Services, CLIENT shall (i) provide CPE-NC with relevant material, data, and information in its possession pertaining to the specific project or activity, (ii) consult with CPE-NC when requested, (iii) permit CPE-NC reasonable access to relevant project sites, (iv) ensure reasonable cooperation of CLIENT's employees in CPE-NC's activities, and (v) notify and report to all regulatory agencies as required by such agencies.

4. **CONFIDENTIALITY:** In the course of performing Services, to the extent that CLIENT discloses to CPE-NC, business or technical information that CLIENT clearly marks in writing as confidential or proprietary, CPE-NC will exercise reasonable efforts to avoid the disclosure of such information to others. Nonetheless, CLIENT shall treat as confidential all information and data furnished to it by CPE-NC in connection with this Agreement including, but not limited to, CPE-NC's technology, formulae, procedures, processes, methods, trade secrets, ideas, inventions, and/or computer programs; and CLIENT shall not disclose such information to any third party.

   Nothing herein is meant to prevent nor shall be interpreted as preventing either party from disclosing and/or using any information or data (i) when the information or data are actually known to the receiving party before being obtained or derived from the transmitting party, (ii) when information or data are generally available to the public without the receiving party's fault at any time before or after it is acquired from the transmitting party; (iii) where the information or data are obtained or acquired in good faith at any time by the receiving party from a third party who has the same in good faith and who is not under any obligation to the transmitting party in respect thereto; (iv) where a written release is obtained by the receiving party from the transmitting party; (v) three (3) years from the date of receipt of such information; or (vi) when required by process of law; provided, however, upon service of such process, the recipient thereof shall use reasonable efforts to notify the other party and afford it an opportunity to resist such process.

5. **DELAYS AND CHANGES IN CONDITIONS:** If CPE-NC is delayed or otherwise in any way hindered or impacted at any time in performing the Services by (i) an act, failure to act or neglect of CLIENT or CLIENT"s employees or any third parties; (ii) changes in the scope of the work; (iii) unforeseen, differing or changed circumstances or conditions including differing site conditions, acts of force majeure (such as fires, floods, riots, and strikes); (iv) changes in government acts or regulations; (v) delay authorized by CLIENT and agreed to by CPE-NC; or (vi) any other cause beyond the reasonable control of CPE-NC, **then** 1) the time for completion of the Services shall be extended based upon the impact of the delay, and 2) CPE-NC shall receive an equitable compensation adjustment. Any such equitable adjustment shall be based on CPE-NC's then current Time and Material Rates, as may be provided in a Rate sheet attached hereto.

6. **INSURANCE:** CPE-NC is presently protected by Worker's Compensation Insurance as required by applicable law and by General Liability and Automobile Liability Insurance (in the amount of $1,000,000 combined single limit) for bodily injury and property damage. Insurance certificates will be furnished to CLIENT on request. If the CLIENT requires further insurance coverage, CPE-NC will endeavor to obtain said coverage, and CLIENT shall pay any extra costs therefor.

7. **INDEMNITIES:** CPE-NC shall defend, indemnify and hold harmless CLIENT from and against loss or damage to tangible property, or injury to persons, to the extent arising from the negligent acts or omissions or willful misconduct of CPE-NC, its borrowed servants and their employer and its subcontractors, and their respective employees and agents acting in the course and scope of

CPE-NC_ CLIENT_____

their employment. CLIENT shall defend, indemnify and save harmless CPE-NC (including its borrowed servants and their employers and its and their affiliated companies and their officers, directors, employees, and agents) from and against, and any indemnity by CPE-NC shall not apply to, loss, damage, injury or liability arising from the acts or omissions of CLIENT, its contractors, and their respective subcontractors, employees and agents, or of third parties.

8. **LIMITATIONS OF LIABILITY:**

GENERAL LIMITATION - CLIENT'S SOLE AND EXCLUSIVE REMEDY FOR ANY ALLEGED BREACH OF WARRANTY BY CPE-NC SHALL BE TO REQUIRE CPE-NC TO RE-PERFORM ANY DEFECTIVE SERVICES. CPE-NC'S LIABILITY AND CLIENT'S REMEDIES FOR ALL CAUSES OF ACTION ARISING HEREUNDER WHETHER BASED IN CONTRACT, WARRANTY, NEGLIGENCE, INDEMNITY, OR ANY OTHER CAUSE OF ACTION, SHALL NOT EXCEED IN THE CUMULATIVE AGGREGATE (INCLUDING ANY INSURANCE PROCEEDS) WITH RESPECT TO ALL CLAIMS ARISING OUT OF OR RELATED TO THIS AGREEMENT, WHATEVER MINIMUM AMOUNT MAY BE REQUIRED BY LAW OR, IF NONE, $1,000,000.00 (WHICH AMOUNT INCLUDES ANY FEES AND COSTS INCURRED IN RE-PERFORMING SERVICES). THE REMEDIES IN THIS AGREEMENT ARE CLIENT'S SOLE AND EXCLUSIVE REMEDIES. CPE-NC SHALL HAVE NO LIABILITY FOR ANY ACTION INCLUDING DISCLOSURE OF INFORMATION WHERE IT BELIEVES IN GOOD FAITH THAT SUCH ACTION IS REQUIRED BY PROFESSIONAL STANDARDS OF CONDUCT FOR THE PRESERVATION OF PUBLIC HEALTH, SAFETY OR WELFARE, OR BY LAW.

9. **GOVERNING LAWS:** This Agreement shall be governed and construed in accordance with the laws of the State of North Carolina.

10. **TERMINATION:** Either party may terminate this Agreement with or without cause upon twenty (20) days' written notice to the other party. Upon such termination, CLIENT shall pay CPE-NC for all Services performed hereunder up to the date of such termination. In addition, if CLIENT terminates, CLIENT shall pay CPE-NC all reasonable costs and expenses incurred by CPE-NC in effecting the termination, including, but not limited to non-cancelable commitments and demobilization costs.

11. **ASSIGNMENT:** Neither CPE-NC nor CLIENT shall assign any right or delegate any duty under this Agreement without the prior written consent of the other, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, CPE-NC may, upon notice to CLIENT, assign, pledge or otherwise hypothecate the cash proceeds and accounts receivable resulting from the performance of any Services or sale of any goods pursuant to this Agreement.

12. **MISCELLANEOUS:**

a. **ENTIRE AGREEMENT, PRECEDENCE, ACCEPTANCE MODIFICATIONS:** The terms and conditions set forth herein constitute the entire understanding of the Parties relating to the provisions of the Services by CPE-NC to the CLIENT. All previous proposals, offers, and other communications relative to the provisions of these Services by CPE-NC, oral or written, are hereby superseded, except to the extent that they have been expressly incorporated by reference herein. In the event of conflict, the three pages of this Agreement shall govern. CLIENT may accept these terms and conditions by execution of this Agreement or by authorizing CPE-NC to begin work. Any modifications or revision of any provisions hereof or any additional provisions contained in any purchase order, acknowledgement or other document issued by the CLIENT is hereby expressly objected to by CPE-NC and shall not operate to modify the Agreement.

b. **DISPUTES, ATTORNEY FEES** – Any dispute regarding this Agreement or the Services shall be resolved first by exchange of documents by senior management of the parties, who may be assisted by counsel. Any thereafter unresolved disputes shall be litigated in the state whose law governs under Section 9 hereunder. In any litigation, the Prevailing Party shall be entitled to receive, as part of any award or judgment, eighty percent (80%) of its reasonable attorneys' fees and costs incurred in handling the dispute. For these purposes, the "Prevailing Party" shall be the party who obtains a litigation result more favorable to it than its last formal written offer (made at least twenty calendar days prior to the formal trial) to settle such litigation.

c. **WAIVER OF TERMS AND CONDITIONS** - The failure of CPE-NC or CLIENT in any one or more instances to enforce one or more of the terms or conditions of this Agreement or to exercise any right or privilege in the Agreement or the waiver by CPE-NC or CLIENT of any breach of the terms or conditions of this Agreement shall not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same shall continue and remain in force and effect as if no such failure to enforce had occurred.

d. **NOTICES** – Any notices required hereunder may be sent by orally confirmed US Mail, courier service (e.g. FedEx), orally confirmed telecopy (fax) or orally confirmed email (further confirmed by US Mail) to the addresses set forth below.

e. **SEVERABILITY AND SURVIVAL** - Each provision of this Agreement is severable from the others. Should any provision of this Agreement be found invalid or unenforceable, such provision shall be ineffective only to

CPE-NC_ CLIENT_JJ2

the extent required by law, without invalidating the remainder of such provision or the remainder of this Agreement.

Further, to the extent permitted by law, any provision found invalid or unenforceable shall be deemed automatically redrawn to the extent necessary to render it valid and enforceable consistent with the parties' intent. The terms and conditions set forth herein shall survive the termination of this Agreement.

CLIENT and CPE-NC agree to the foregoing **(INCLUDING THE LIMITATIONS ON LIABILITY IN SECTION 8 herein)** and have caused this Agreement to be executed by their duly authorized representatives as of the date set forth below.

Executed on April 9 **, 2015.**

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.	CLIENT
By (Sign): Stuart Turille *	By (Sign):
Print Name: Stuart Turille	Print Name:
Title: Town Manager	Title:
Address: 2008 Loggerhead Crt. North Topsail Beach, NC 28460	Address:
Phone: 910-328-1349 x26	Phone:
Fax:	Fax:
E-mail: town manager@north-topsail-beach.org	E-mail:

* I agree only to tasks 1 and 2 at this time. I request that NTB be invoiced only to amount of $40,000 this fiscal yr (by June 30, 2015) with balance due after July 1, 2015.

This instrument has been preaudited in the manner required by The Local Government Budget and Fiscal Control Act.

Governmental Unit Finance Officer

Brenda Hotmire (Signature)

Date 04/10/2015 (Preaudit Certificate must be dated.)

CPE-NC_ CLIENT_____

completion of the channel design analysis, CPE-NC will provide the Town with a proposal for additional services needed to apply for permit modifications.

Additional tasks may also be required to apply for a permit modification to construct Alternative 4, installation of a terminal groin structure on the south side of New River Inlet. As stated in the Contingency Plan, these services may include:

- Development of a supplemental environmental impact statement (SEIS);
- Development of engineering report to support SEIS;
- Cultural Resource Investigations; and

The Contingency Plan included estimates for those services; however, CPE-NC has not included costs in this proposal to provide services associated with the development of the SEIS, engineering report, or cultural resource investigations. If the Town decides to pursue the terminal groin following the structure design and performance analysis, CPE-NC will provide the Town with a proposal for additional services needed to apply for the necessary permits.

EXHIBIT C:
LIST OF DELIVERABLES
TOWN OF NORTH TOPSAIL BEACH, NORTH CAROLINA
ANNUAL MONITORING OF PHASE 1 PROJECT AND
NUMERICAL MODELING/DESIGN ANALYSIS OF THE
CHANNEL REALIGNMENT MAINTENANCE PROJECT #1 AND TERMINAL GROIN

The following items have been identified as deliverables for the completion of this scope of work.

- Monthly Progress Reports;
- Phase 1 Annual Beach and Inlet Monitoring Report (2015);
- Modeling Report and Engineering Report Addendum – Channel Design Analysis;
- Summary of Findings – Terminal Groin Modeling/Design Analysis; and
- Biotic Community Mapping Submittal

A detailed description and an individual schedule for each deliverable are provided below.

Monthly Progress Reports: CPE-NC will provide a 1 page summary of the project status via e-mail approximately every 30 days during the course of the anticipated 12 month contract period. The letter will describe activities completed throughout the month and update the anticipated schedule of milestones as appropriate.

Phase 1 Annual Beach and Inlet Monitoring Report (2015): Upon completion of survey operations, CPE-NC will prepare a post-construction physical monitoring report. The report will detail the project performance to date. The performance of the realigned channel will also be documented by measuring the infilling rate and controlling depth of the channel as well as the reconfiguration of the ebb shoal. The report will provide the remaining volume of sediment measured at the surveyed profiles along both North Topsail Beach and the Onslow Beach monitoring section. Profile drawings will be provided to show a comparison of the current status of the beach with the pre- and post-construction conditions. Plan view drawings of the shoreline position will be provided showing the project limits, approximately 5,000 ft. south of the project, and the monitoring section along Onslow Beach. The report will also include survey methodology, survey notes, control information, profile plots, cross sections, and digital XYZ data. Barring any unforeseen circumstances, the reports will be provided within 90 days following completion of survey operations.

Modeling Report and Engineering Report Addendum – Channel Design Analysis: Following the completion of Task 3: Numerical Modeling and Engineering Design Associated with Channel Design Modifications, CPE-NC will provide a modeling report and an addendum to the original engineering report prepared by CPE-NC in 2009 in support of the North Topsail Beach Shoreline Management plan. The modeling report will include a detailed description of the methodology employed, hydrodynamic and meteorological data used, and the calibration process. The addendum will provide a summary of the findings and engineering justification for any

modifications proposed to the channel orientation or dimensions recommended by the channel design performance analysis. Barring any unforeseen circumstances, the modeling report and addendum will be provided within 12 months following written authorization to proceed.

Summary of Findings – Terminal Groin Modeling/Design Analysis: Following the completion of Task 4: Structure Design and Performance Evaluation, CPE-NC will provide a summary of findings with information comparing the continuation of the channel realignment strategy and managing the north end shoreline with a terminal groin. Model results and engineering analysis will be used to determine comparative benefits and costs of the two alternatives. Barring any unforeseen circumstances, the summary of findings will be provided within 12 months following written authorization to proceed.

Biotic Community Mapping Submittal: Barring any unforeseen circumstances, a final map of the biotic communities will be provided to the TOWN, USACE, NMFS, USFWS, NCWRC, and NCDCM by January 1, 2016. The map will show the habitat limits measured during the pre- and post-construction mapping along with the post construction acreage and percent (%) change from the pre-construction condition.

email description

Stuart Turille

From:	Willson, Kenneth <Kenneth.Willson@cbi.com>
Sent:	Wednesday, April 01, 2015 8:01 PM
To:	Manager; dan tuman (ntopsail@charter.net)
Cc:	carinf@north-topsail-beach.org; Jarrett, James; Priest, Adam T.
Subject:	Modeling and Monitoring Proposal
Attachments:	CPENC Cover Letter.pdf; North Topsail Beach Modeling and Monitoring 2015 Proposal.pdf; North Topsail Beach_2015 Svcs Agmt.pdf

Mr. Mayor/Stuart,

Please find attached the proposal we discussed today. Based on our conversations since the contingency plan was presented February 11, and the final plan delivered in early March, I was under the impression that the Town's desire was to pursue all of the recommendations in the final plan. The attached proposal includes those services required to initiate that strategy.

For your convenience I've included a brief explanation of each Task included in the proposal. A more detailed description is included in the attached documents.

Task 1 – Beach and Inlet Monitoring Surveys – These surveys will include a complete survey of the Ebb Shoal, Inlet throat, Spit area, All of Phase 1, and the south section of Onslow Beach. Please note that the profiles included under this task are those mandated by the permit. This data will be used both to monitor the performance of the Phase 1 project as well as supply the bathymetric data needed to run the model.

Task 2 – Monitoring Report – This is the monitoring report that will describe the results of the 2015 annual monitoring event, including project performance, ebb shoal evolution, channel filling, etc.

Task 3 – Numerical Modeling and Engineering Design Associated with the Channel Design Modifications – This task includes the setup, calibration, and verification of the model. Whether you use the model for the channel modification, a terminal groin, or both, the majority of this task will be required. Also included in this task is the specific analysis proposed to evaluate alternative channel alignments.

Task 4 – Structure Design and Performance Evaluation – This task is the modeling analysis for the terminal groin. The cost is significantly less than Task 3 because it assumes that the setup, calibration, and verification of the model have already been completed under Task 3.

Task 5 – Post Construction Biotic Community Mapping – This task is an item mandated by the permit, that we completed for the Town in 2013, and 2014.

Task 6 – Project Management

We have put a lot of time and effort into developing this proposal for the your consideration. I ask that you please take a look at this proposal and if there are aspects that do not represent the Towns desired direction, that you provide us with specific direction.

Mr. Mayor, please note that the description of Task 3 and 4 in the proposal should answer some of the questions you have about the modeling being proposed.

As always I am available to answer questions.

Kind Regards,

Ken Willson
Client Program Manager 1
Coastal, Ports & Marine.
Environmental & Infrastructure
Tel: + 1 910 791 9494
Cell: + 1 910 443 4471
Fax: + 1 910 791 4129
Kenneth.willson@CBI.com

CB&I
4038 Masonboro Loop Road
Wilmington, NC 28409
USA
www.CBI.com

COUNTY OF ONSLOW, NORTH CAROLINA

AND

TOWN OF NORTH TOPSAIL BEACH, NORTH CAROLINA

INTERLOCAL AGREEMENT

FOR

ENVIRONMENTAL IMPACT STUDY

THIS INTERLOCAL "AGREEMENT" is made, and entered into this the 26 day of July, 2016 by and between **THE COUNTY OF ONSLOW**, a political subdivision of the State of North Carolina, (hereinafter referred to as "COUNTY"), and **THE TOWN OF NORTH TOPSAIL BEACH**, a political subdivision of the State of North Carolina (hereinafter referred to as "TOWN")

RECITALS

WHEREAS, it is of interest to all of the parties to this Agreement to pursue regional solutions to the environmental impact needs that each local government will face in the future;

WHEREAS, the parties to this Agreement desire to collaborate in the commission and funding of a study to determine the best available options for the establishment of hardened structures including but not limited to terminal groins, jetties, or a combination thereof to maintain the navigation channel through the New River inlet to authorized depths over the next 50 years and to protect the existing shorelines;

WHEREAS, the parties to this Agreement desire to collaborate to commission and fund the study based on agreed upon principles as set forth herein; and

WHEREAS, the parties desire to enter into this Agreement pursuant to the statutory authority authorizing interlocal agreements, N.C.G.S. Section 160A-460 to 464, in order to pursue the above stated goals.

NOW THEREFORE, for and in consideration of the mutual promises and covenants contained in this Agreement, the parties agree as follows:

1. The parties agree to collaborate in the commission and funding of a study to determine the best available options for the establishment of hardened structures including but not limited to terminal groins, jetties, or a combination thereof, to maintain the navigation channel through the New River inlet to authorized depths over the next 50 years and to protect the existing shorelines.

2. The Term of this Agreement begins on the date of execution and will automatically terminate at the conclusion of the study unless otherwise agreed upon in writing. In the event of the termination of this Agreement, this Agreement shall be deemed to be null and void, and the parties shall have no further obligations from one to the other thereafter.

3. TOWN agrees to serve as the party that will commission the study; however, all contracts shall be subject to final

approval by COUNTY prior to signature. The parties shall agree to a scope of work, which shall be common to, serve the interests of, and be the property of all parties. Any party requesting additional work outside of the agreed upon scope shall be solely responsible for the costs of such additional work, and the work product shall be the sole property of the entity.

4. COUNTY agrees to provide TOWN with funding for the study at the rate of half the total cost of the study, in an amount not to exceed two-hundred and fifty thousand ($250,000.00) dollars. COUNTY shall not be liable to TOWN for any additional expenses paid or incurred by TOWN, unless otherwise agreed in writing. Unless otherwise specified, TOWN shall submit an itemized invoice to COUNTY by the end of the month during which contract for services is signed. A Purchase Order number may be assigned to encumber the funds associated with this Agreement and must appear on all invoices and correspondence. Payment will be processed promptly upon receipt and approval of the invoice by COUNTY.

5. The parties agree that all of the work product resulting from the study shall be owned jointly and severally by each of the parties to this Agreement. Each party shall receive direct from each service provider a copy of all correspondence, documents, preliminary reports, final reports, and other documents related to the study.

6. The parties agree that the desired result from collaboration on the study would be for all of the parties to work together further to accomplish the objective of maintaining the navigation channel through the New River inlet to authorized depths over the next 50 years and protecting the existing shorelines. To this end, the parties make a good faith commitment to give every favorable consideration possible to collaboration on such further work. However, it is understood that no party is obligated to continue in any project, which might be suggested by the results of the study.

7. This Agreement may be terminated, for cause, by the non-breaching party notifying the breaching party of a substantial failure to perform in accordance with the provisions of this Agreement and if the failure is not corrected within ten (10) days of the receipt of the notification. Upon such termination, the parties shall be entitled to such additional rights and remedies as may be allowed by relevant law. Termination of this Agreement, either with or without cause, shall not form the basis of any claim for loss of anticipated profits by either party.

8. All notices which may be required by this Agreement or any rule of law shall be effective when received by certified mail sent to the following addresses:

   COUNTY OF ONSLOW
   ATTN: County Manager
   234 NW Corridor Blvd.
   Jacksonville, NC 28540

   TOWN OF NORTH TOPSAIL BEACH
   ATTN: Town Manager
   2008 Loggerhead Ct.
   North Topsail Beach, NC 28460

9. This Agreement shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this Agreement shall be brought in the General Court of Justice in the County of Onslow and the State of North Carolina.

10. This Agreement shall constitute the entire understanding between COUNTY and TOWN and shall supersede all prior understandings and agreements relating to the subject matter hereof and may be amended only by written mutual agreement of the parties.

11. By execution hereof, the person signing for TOWN below certifies that he/she has read this Agreement and that he/she is duly authorized to execute this Agreement on behalf of TOWN.

IN TESTIMONY WHEREOF, the parties have expressed their agreement to these terms by causing this Agreement to be executed by their duly authorized office or agent.

Reviewed by Department Head

_____

Date Reviewed: _____

This instrument has been preaudited in the manner required by the Local Government and Fiscal Control Act

_____

Onslow County Finance Officer

TOWN OF NORTH TOPSAIL BEACH

By: Fred J. Burns

Printed Name: Fred J. Burns

Title: Mayor

ONSLOW COUNTY

By: _____

Printed Name: Barbara Ikner

Title: Chairman

Town of North Topsail Beach

Fred J. Burns, Mayor
Richard Macartney, Mayor Pro Tem
Aldermen:
Don Harte
Joann M. McDermon
Richard Peters
Walter Yurek

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

July 29, 2016

RE: **Request for Qualifications, RFQ #2016-04**
Professional Engineering, Planning, Permitting & Design Services
Onslow County & North Topsail Beach: North River Hardened Structure

To Whom It May Concern:

Onslow County and the Town of North Topsail Beach are seeking qualified engineering firms to provide a study to determine the best available options for the establishment of a hardened structure, including but not limited to, terminal groins, jetties, or a combination thereof, to maintain the navigation channel through the New River Inlet to authorized depths to the greatest extent possible and to protect the adjacent existing shorelines at the northern end of North Topsail Beach.

Attached you will find a "Request for Qualifications", which identifies the project anticipated to be undertaken by both agencies during the contract period. In order to be considered all responses must be submitted in writing no later than **2:00 PM (EST) on August 19, 2016**. Firms mailing responses should allow delivery time to ensure timely receipt of their proposals. The responsibility for getting the response to the Town of North Topsail Beach on or before the specified time and date is solely and strictly the responsibility of the responding firm. The Town will in no way be responsible for delays caused by any occurrence. Responses may be hand carried or mailed to:

Town of North Topsail Beach
Attn: Stuart Turille
2008 Loggerhead Court
North Topsail Beach, NC 28460
Hours of Operation: 8:00 a.m. - 5:00 p.m. (EST)

Firms wishing to make on-site visits prior to submitting a qualification package should contact the North Topsail Beach Town Manager, Stuart Turille at (910) 328-1349, to arrange a time and date for an on-site visit of the property. Firms providing responses shall be licensed and responsible for complying with North Carolina laws, regulations, and local ordinances.

The County of Onslow and the Town of North Topsail Beach reserves the right to waive any informalities, to reject any and all responses to the Request for Qualifications, and to accept any responses which in its opinion may be in the best interest of both agencies.

No responses to the Request for Qualifications will be received or accepted after 2:00 PM, EST, August 19, 2016. Late qualification packages will be deemed invalid and returned unopened to the firm.

Thank you,

Stuart Turille

Stuart Turille, Town Manager

REQUEST FOR QUALIFICATIONS
Professional Engineering, Planning, Permitting & Design Services
Onslow County & North Topsail Beach, North Carolina
North River Hardened Structure

I. Introduction

Onslow County and the Town of North Topsail Beach agree to collaborate in the commission and funding of a study to determine the best available options for the establishment of a hardened structure including but not limited to terminal groins, jetties, or a combination thereof, to maintain the navigation channel through the New River inlet to authorized depths to the greatest extent possible and to protect the adjacent existing shorelines, at a location defined as the northern end of North Topsail Beach.

II. Background

The New River Inlet Ocean Bar, located at the mouth of the New River, NC is an area subject to rapid shoaling, rendering boating access to the ocean difficult as draft depth drops to 2-4'. Additionally, the adjacent shoreline is historically prone to rapid erosion in the inlet hazard area (currently, a sand bag revetment is in place to stabilize the erosion). A hardened structure that, to the greatest extent possible, will maintain the navigation channel to authorized depths through the New River Inlet, while allowing sediment build-up in the erosion zone at the northern end of North Topsail Beach is the preferred long-term solution.

III. Scope of Services

The selected firm will be required to perform the following tasks:

- Development/Management of Environmental Impact Statement
- Study available options to meet the purpose and needs of the Town and County generally described as (but not limited) to:

    1. Maintain the navigation channel to authorized depths through the New River inlet
    2. Increase sediment build-up in the erosion zone at the northern end of North Topsail Beach,
    3. Stabilizing the shoreline to provide storm damage reduction to private property and public infrastructure and to protect adjacent shorelines from further erosion
    4. Ensure options allow the continued navigational dredging and use of the New River as a sand source for beach nourishment and also to supplement hardened structures as necessary.

It is assumed that no more than 7 alternatives will be considered in the alternative analysis. Options should be prioritized, based upon their effectiveness in meeting the established purpose and needs. At a minimum options should include:

- Jetties
- Terminal groin
- Terminal groin with routine channel maintenance dredging
- Some combination of terminal groin, jetty or hybrid to meet the stated purpose and needs.

- Conduct an economic analysis that demonstrates how each of the proposed options impacts the protection of property base in North Topsail Beach’s erosion zone. The analysis should also provide a cost-benefit / return on investment report for each of the proposed options.

- Provide a detailed report on the anticipated costs of annual monitoring, on-going maintenance, and frequency of supplemental dredging events for each of the proposed options, contrasting the benefits of each option over the others.
- Manage all studies, reports, meetings and communications required to determine the best design option.
- Provide a detailed report on all findings to the governing bodies of the Town of North Topsail Beach and Onslow County, and to representatives from Marine Corps Base Camp Lejeune while pursuing any permits and prior to construction.
- Upon approval by both governing bodies of a selected design, prepare and submit necessary permit applications.

IV. Submittals

A. Submit three (3) hard copies and one electronic, marked "*RFQ # 2016-04, **North River Hardened Structure***". Submittals will be received no later than **2:00 PM EST, Friday August 19, 2016,** at the Office of the Town Manager, Town of North Topsail Beach, 2008 Loggerhead Court, North Topsail Beach, NC 28460.

B. Qualification packages may be hand-delivered or mailed. If the submittal is sent by mail or commercial express, the Respondent shall be responsible for actual delivery of the qualification package to the proper Town office before the deadline. All submittals become property of the Town. Request for Qualification packages will not be accepted via fax machine. The electronic version may be emailed to: townmanager@ntnbc.org

C. All questions should be emailed to: Stuart Turille, Town Manager, no later than Wednesday, **August 17, 2016 by 12:00 noon**. Email: townmanager@ntnbc.org

D. Time is of the essence and any proposal or addenda pertaining thereto received after the announced time and date for submittal, whether by mail or otherwise, will be rejected. It is the sole responsibility of the firm to ensure that their proposal is received by the Town before the deadline indicated above. There is nothing in this RFQ that precludes the County or the Town from requesting additional information from firms at any time during the qualification process.

E. Nothing herein is intended to exclude any responsibilities or in any way restrain or restrict competition. On the contrary, all responsible firms/individuals are encouraged to submit responses. The County of Onslow and the Town of North Topsail Beach reserves the right to waive any informalities, to reject any and/or all proposals, and to accept any proposal which in its opinion may be in the best interest of both agencies.

F. Qualification packages may be withdrawn by written request prior to submittal deadline.

V. Preparation

A. Firms are to submit qualification packages which present their qualifications and understanding of the services to be performed. Emphasis should be placed on completeness of services offered and clarity of content. All submittals should be complete and carefully worded and must convey all of the information requested. If errors or exceptions are found in the firm's qualification package, or if the package fails to conform to the requirements of the RFQ, the Town will be the sole judge as to whether that variance is significant enough to reject the firm's submittal.

B. Qualification packages should be prepared simply and economically. All data, materials, and documentation shall be available in a clear, concise form. Firms should not include non-pertinent information on other accomplishments of the firm which have no direct bearing on this project, nor shall resumes of individuals who will not be engaged in the work, or pages of other non-projected related material be included. Submittals shall be limited to 25 double sided pages or 50 single sided pages on 8 ½ x 11, minimum 11-point font. Covers and dividers do not count in the 50 pages total.

The firm is solely responsible for all costs and expenses associated with the preparation of the submittal and of any supplementary presentation (including any oral presentation) if requested by County.

C. Firms requiring clarification or interpretation of this RFQ shall make a written request, which shall reach the Town Manager no later than the date and time for submittal of written questions.

D. Any interpretation, correction or change of this RFQ will be made by Addendum. Addenda will be mailed or delivered to all who are known by the Town of North Topsail Beach to have received a complete set of RFQ documents. It is the responsibility of the firm to ensure that all Addenda were received.

E. All submittals shall provide a straight forward, concise description of firm's ability to satisfy the requirements of the RFQ.

F. Qualification packages (and copies) should be bound in a single volume where practical. All documentation submitted with the offer should be bound in that single volume.

G. In addition to the transmittal letter, the Non-Collusion Affidavit must be signed by a principal of the firm or an officer of the corporation duly authorized to bind the corporation.

H. Qualification Packages must be made in the official name of the individual, firm, or corporation under which the business is conducted (showing official business address) and must be signed in ink by a person duly authorized to legally bind the business entity submitting the qualification.

VI. General Terms and Conditions

A. Non-Collusion Affidavit

Each qualification package must be accompanied by a notarized affidavit on non-collusion, executed by the firm or in the case of a corporation, by a duly authorized representative of said corporation. The Non-Collusion Affidavit is provided herein.

B. Addenda/Changes

Any additions, deletions, modifications or changes made to this RFQ shall be processed through the Town of North Topsail Beach. Any deviation from this procedure may result in the disqualification of the firm's submittal or the cancellation of any contract resulting from this RFQ.

C. **Questions**

Questions concerning this RFQ should be directed to:

North Topsail Beach Town Manager
Attn: Stuart Turille
2008 Loggerhead Court
North Topsail Beach, NC 20460
Telephone (910) 328-1349
E-mail: townmanager@ntnbc.org

All questions pertaining to this RFQ must be submitted in writing no later than Wednesday, August 17, 2016 by 12:00 noon.

Only written questions will be considered formal. **Any information given verbally will be considered informal**. Any questions that the agencies feels are pertinent to all proposers will be mailed as an addendum to the RFQ. E-mail messages will be treated as written questions.

D. **Proprietary Information**:
Trade secrets or proprietary information submitted by a firm in connection with a procurement transaction shall not be subject to the public disclosure under the North Carolina Public Records Act pursuant to NC General Statutes §66-152(3). However, the firm must invoke the protection of this section prior to or upon submission of the data or other materials, and must identify the data on other materials to be protected and state the reasons why protection is necessary. **Each individual page considered a trade secret or proprietary information must be labeled "Confidential" in the top right corner.**

E. **Minority Businesses**

The County of Onslow and the Town of North Topsail Beach encourage all businesses, including DBE, minority, and women-owned businesses to respond to all Request for Qualifications.

F. **Award/Contract Time**

No part of this solicitation is to be considered part of a contract nor are any provisions contained herein to be binding of the agencies.

Award shall be made to the responsible firm whose qualifications are determined to be the most advantageous to both agencies, taking into consideration the evaluation factors set forth in the RFQ.

A contract will be awarded to one firm which will be responsible for the work associated with this RFQ. The detailed Scope of Work and schedule of deliverables shall be negotiated with the successful firm for each specified project. The successful firm will be required to enter into a professional services agreement. It is anticipated that contract will be awarded in September 2016.

G. **Subconsultants**

The successful firm shall be responsible for all services performed by a sub-engineer. It shall be the successful firms' responsibility to ensure that all terms required in the attached contract are incorporated into all subcontracts. Nothing contained in any contract resulting from this RFQ shall create any contractual relationship between any sub-engineer and the agencies.

H. **Insurance**

The selected firm shall purchase and maintain in force, at his own expense, such insurance as will protect the firm and both agencies, to include professional liability (E&O), from claims which may arise out of or result from the firm's execution of the work, whether such execution be by himself, his employees, agents, subcontractors/engineers, or by anyone for whose acts any of them may be liable. The insurance coverage shall be such as to fully protect the County, the Town of North Topsail Beach and the general public from any and all claims for injury and damage resulting by any actions on the part of the firm or its forces as enumerated above.

The selected firm shall furnish a copy of an original Certificate of Insurance, naming both agencies as an additional insured. Should any of the policies be canceled before the expiration date, the issuing company will provide thirty (30) days written notice to the certificate holders. The firm shall furnish insurance in satisfactory limits, and show evidence of insurance coverage on behalf of any subcontractors/engineers (if applicable), before entering any agreement to sublet any part of the work to be completed under this contract.

VII. Quality Commitment

Firms are required to demonstrate how they possess and utilize appropriate quality management systems which result in customer satisfaction and continuous improvements.

To satisfy these requirements, firms must demonstrate its commitment to best manage practices and provide services with the highest possible level of quality throughout all phases of Work. Proposals must demonstrate, at a minimum, (1) a complete understanding of the processes utilized within the organization to ensure quality and (2) graphical demonstrations that outline quality and process management within the organization and how they relate with sub-consultants and with the Owner. The response to quality must be deliberate and contain sufficient evidence that the firm has adopted quality and best management practices as an integral part of the organization. As a part of the responses to this request, firms shall demonstrate the organizations design process, e.g. process map, flow chart.

Demonstrate processes in place to recognize, track and analyze project change orders due to errors and omissions (including those caused by any sub consultants) and discuss how these processes are utilized to minimize future occurrences.

VII. Statement of Qualifications Requirements

Interested engineering/consulting firms desiring to provide services should include the following with its Statement of Qualifications:

1. Firm name, address, telephone, fax number, contact person and e-mail address;
2. Year established and former firm names;
3. Names of principles of the firm and states in which they are registered;

4. Types of services for which the firm is qualified;
5. Understanding of the scope of work/services;
6. Related Experience: List and describe related experience over the last three (3) years that are applicable to the proposed project. Information should include:

    - Name and location of the project and the date the work was completed.
    - Project Reference: Name and telephone number of the staff person whom your firm worked with on the project.
    - Name of the project manager assigned to the project
    - Total final combined design and construction dollar amount of the work performed.
    - Number of change orders and total amount of change orders.
    -

7. Ability to work with regulatory and environmental agencies
8. List of staff members and resumes of those persons who will be assigned to work on the project. Include an Organizational Chart but do not include resumes or list of personnel who will not be assigned to the project.
9. List of current ongoing projects that assigned staff is involved with. Include: Project start date; expected completion date, total project cost, the ability to devote staff resources to complete this project.
10. Names of outside consultants (sub-consultants) who would be involved to provide services required for the project. Provide a one-page synopsis for each consultant to include the following information:

    - Individual's proposed role in the project.
    - A resume or brief description of the individual's previous experience as it relates to his/her role in the project.
    - For any proposed sub consultants, indicate how long your firm has worked with the sub-consultant on previous projects.

11. Identify any sub-contractible work that could be performed by minority firms. Provide the name and address of the DBE and M/WBE firms that are anticipated to perform the sub-contractible work.
12. Quality Control and Assurance processes as stated above in Section V.
13. Hourly billing rates charged by your firm each position type and reimbursable expenses.
14. Proposed Schedule

IX. Evaluation Process:

Following the deadline for submittal of qualifications, a review of the submitted qualifications will be by a selection committee established by both agencies. The selection committee will review, analyze and rank all submittals based on their response to the information requested.

If desired, the selection committee may short list the number of qualified firms. It will be at the discretion of both agencies to determine the number of firms that will be on the short list. Agencies may engage in individual discussions with two or more offerors deemed fully qualified, responsible, and suitable on the basis of initial responses and with emphasis on professional competence to provide the required services. Interviews are not anticipated; however, the selection committee may schedule interviews if required in the selection process. Such offerors shall be encouraged to elaborate on their qualifications and performance data or staff expertise pertinent to the proposed project, as well as alternative concepts.

The selection committee may conduct discussions with the firm(s) submitting responses regarding the contract and shall select from among the firm(s) deemed most qualified to provide the required services. Discussions with the firm(s) may consist of written questions and responses, and/or personal interviews with members of the firm(s). **If** personal interviews are required, the persons proposed to be responsible for performing the work required herein shall attend the interview. If requested, firms should be prepared to submit financial status information, which shall be held in confidence.

The Town will negotiate a stipulated sum for the services and a rate schedule to be utilized for additional services outside the scope of work with the most qualified firm at a compensation which is considered to be fair and reasonable to all parties involved. Should the Town be unable to negotiate a satisfactory contract with the firm considered to be most qualified, negotiations with that firm shall be formally terminated.

Negotiations will then proceed with the remaining ranked firms in the same manner until an agreement is reached, unless it is determined by the committee that it is in the best interest of both agencies that the process be terminated or modified.

X. Selection Process

The included criteria, but not limited to, may be used in the evaluation of qualification packages for development of a shortlist to be considered for potential negotiations. These criteria are not necessarily listed in order of importance.

- Firms qualifications and experience including location of offices and staffing
- Firms understanding of the project objectives
- Previous work experience of similar projects and demonstrated experience in the design and construction of a hardened structure
- Firm's demonstration of ability to understand the specialized requirements with regulatory and environmental agencies
- Proposed staff, including sub-engineers, proposed to perform the work
- Financial stability of the firm
- Demonstration of Quality Control: Demonstrated systematic approach to quality assurance and interdisciplinary coordinator methodologics throughout the various phases of design and construction administration.
- Demonstration of Cost Control: Demonstrated experience implementing cost saving measures that effectively maximized the utilization of funding from a variety of sources and minimized unnecessary expenses while achieving desired results.
- The ability of the consultant to begin work immediately and complete the projects in a timely manner.
- References: Evaluation of comments received from referenced previous clients

RESPONDER'S CERTIFICATION FORM

I have carefully examined the Request for Qualifications and any other documents accompanying or made a part of this Request for Qualification.

I hereby propose to furnish the professional services for the County of Onslow and the Town of North Topsail Beach in accordance with the instructions, terms, conditions, and requirements incorporated in this Request for Qualification. I certify that all information contained in this response is truthful to the best of my knowledge and belief. I further certify that I am duly authorized to submit this response on behalf of the firm as its act and deed and that the firm is ready, willing and able to perform if awarded the contract.

NAME OF FIRM: _____

BY: (printed name)_____

SIGNATURE: _____

MAILING ADDRESS: _____

CITY/STATE/ZIP CODE: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

ACKNOWLEDGEMENT OF ADDENDA

Responder hereby acknowledges receipt of all Addenda through and including:

Addendum No.	Date	Acknowledgement
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

NON-COLLUSION AFFIDAVIT

State of North Carolina
County of Onslow RFQ No.2016-4

_____, being first duly sworn, deposes and says that:

l. He/She is the _____ (title) of _____(firm's name), the responder that has submitted the attached response;

2. He/She is fully informed respecting the preparation and contents of the attached response and of all pertinent circumstances respecting such response;

3. Such response is genuine and is not a collusive or sham response;

4. Neither the said responder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other responder firm or Person to submit a collusive or sham response in connection with the contract for which the attached response has been submitted or to refrain from responding in connection with such contract, or has in any manner, directly or indirectly sought by agreement or collusion of communication or conference with any other responder, firm or person to fix the price or prices in the attached response, if applicable, or of any other responders, or to fix any overhead, profit or cost element of the response price of the response, if applicable, of any other responder or to secure through collusion, conspiracy, connivance or unlawful agreement any advantage against the County of Onslow, The Town of North Topsail Beach, or any person interested in the proposed contract; and

_____
Signature

_____
Title

NOTARIZE

Subscribed and sworn to before me,

This _____ day of _____, 20___

Notary Public _____

My Commission Expires: _____

Town of North Topsail Beach

Fred J. Burns, Mayor
Richard Macartney, Mayor Pro Tem
Aldermen:
Don Harte
Joann M. McDermon
Richard Peters
Walter Yurek

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

Professional Engineering, Planning, Permitting & Design Services
Onslow County & North Topsail Beach: North River Hardened Structure
Request for Qualifications, RFQ #2016-04

ADDENDUM #1 – August 12, 2016

It has come to the attention of Mr. Turille that his email address was typed incorrectly in two sections of the Request for Qualifications. Please note that the correct email address is townmanager@ntbnc.org.

IV. Submittals

B. Qualification packages may be hand-delivered or mailed. If the submittal is sent by mail or commercial express, the Respondent shall be responsible for actual delivery of the qualification package to the proper Town office before the deadline. All submittals become property of the Town. Request for Qualification packages will not be accepted via fax machine. The electronic version may be emailed to: ~~townmanager@ntnbc.org~~ townmanager@ntbnc.org.

C. All questions should be emailed to: Stuart Turille, Town Manager, no later than Wednesday, **August 17, 2016 by 12:00 noon**. Email: ~~townmanager@ntnbc.org~~ townmanager@ntbnc.org

VI. General Terms and Conditions

C. Questions

Questions concerning this RFQ should be directed to:

North Topsail Beach Town Manager
Attn: Stuart Turille
2008 Loggerhead Court
North Topsail Beach, NC 20460
Telephone (910) 328-1349
E-mail: ~~townmanager@ntnbc.org~~ townmanager@ntbnc.org

All questions pertaining to this RFQ must be submitted in writing no later than Wednesday, August 17, 2016 by 12:00 noon.

NORTH CAROLINA
DEPARTMENT OF STATE TREASURER
STATE AND LOCAL GOVERNMENT FINANCE DIVISION
AND THE LOCAL GOVERNMENT COMMISSION

JANET COWELL
TREASURER

GREGORY C. GASKINS
DEPUTY TREASURER

June 23, 2016

The Honorable Daniel Tuman, Mayor
Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, North Carolina 28460

Dear Mayor Tuman:

The State and Local Government Finance Division in its role as staff to the Local Government Commission has analyzed the audited financial statements of the Town of North Topsail Beach for the fiscal year ended June 30, 2015. The results of the analysis revealed some areas of concern regarding the Town's financial position. The purpose of this letter is to convey those concerns to you and the Board. We request that you respond to this letter, addressing each concern we have raised.

In the General Fund, the percentage of fund balance available for appropriation relative to expenditures has declined over the last three years to its current level of 8.92%. We are concerned that the current level of fund balance available may be too low to provide your government the necessary amount of savings needed to provide cash flow during periods of declining revenues or ebbing cash inflows. This decline was caused by the Town use of fund balance as a source of funds for the transfer to the Beach Nourishment Fund. We understand that the fund balance in the General Fund is expected to increase as payments are received from certain assessments on affected property owners. In your response to this letter please provide an update on receipt of these assessments and include information on any other plans to increase fund balance available.

Please respond in writing within the next 45 days to each concern that we have discussed in this letter. Responses should be on the Town's letterhead, signed and

submitted by mail or by email to unitletter@nctreasurer.com. If you are planning to issue debt that requires the approval of the Local Government Commission, we must have a complete and thorough response to this letter on file prior to the Commission's consideration of your debt application. If we can be of any assistance to you, please contact me at (919) 814-4289.

Sincerely,

Sharon Edmundson

Sharon G. Edmundson, MPA, CPA
Director, Fiscal Management Section

cc: Stuart Turille, Town Manager
Bonnie Kline, Finance Officer
Carr Riggs & Ingram, L.L.C.

DIVISION OF COASTAL MANAGEMENT
FIELD INVESTIGATION REPORT

1. **APPLICANT'S NAME**: Town of North Topsail Beach - **June 2016 Major Permit Modification, No. 92-14**

2. **LOCATION OF PROJECT SITE**: The project site is located along the oceanfront beach from 2284 to 2382 New River Inlet Drive, adjacent to the Atlantic Ocean, in North Topsail Beach, Onslow County.

   Photo Index – **2006**: 28-(6497): Oceanfront & Inlet, **2000:** 28-(391): Oceanfront & Inlet **1995:** 28-(379): Oceanfront & Inlet **State Plane Coordinates** – **X**: 2449610 **Y**: 256997 **Lat.:** 34°31'29.15"N **Long:** 77°20'47.98"W

3. **INVESTIGATION TYPE**: CAMA / D&F

4. **INVESTIGATIVE PROCEDURE**: **Dates of Site Visit(s)** – Multiple visits between Jan. 2013 and June 2016. **Was Applicant Present** – Yes

5. **PROCESSING PROCEDURE**: **Application Received** – Complete 6/14/16 (with exceptions) **Office** – Wilmington

6. **SITE DESCRIPTION**:
   - **(A)** **Local Land Use Plan** – Town of North Topsail Beach
     Classification From LUP – No Classification / Developed
   - **(B)** **AEC(s) Involved**: OH, IH
   - **(C)** **Water Dependent**: Yes
   - **(D)** **Intended Use**: Government
   - **(E)** **Wastewater Treatment: Existing** – Municipal Sewer
     Planned - N/A
   - **(F)** **Type of Structures**: **Existing** – Commercial and Residential structures and access-ways
     Planned – Sand bag revetment
   - **(G)** **Estimated Annual Rate of Erosion**: 2'/year **Source** – LTAASCR 2011 Update

7. **HABITAT DESCRIPTION**:

	[AREA] DREDGED	FILLED	OTHER
(A) Vegetated Wetlands (coastal)	**N/A**	**N/A**	**N/A**
(B) Non-Vegetated Wetlands - open water	**N/A**	~16,200 sq. ft. (existing temporary containment tube – i.e. "Geotube")	**N/A**
(C) Other (Highground) ***N/A** – Not applicable	**N/A**	**N/A**	**N/A**

   - **(D)** **Total Area Disturbed**: 0.37 acres (16,200 sq. ft.) +
   - **(E)** **Primary Nursery Area**: No
   - **(F)** **Water Classification**: SA **Open:** NO

8. PROJECT SUMMARY: The applicant is requesting authorization to allow the existing temporary containment tube (Geotube) to remain in place until 2022.

9. PROJECT DESCRIPTION:

The permittee is requesting approval; through this CAMA major permit modification, to allow for the continued operation, function and/or placement of the existing temporary containment tube ("Geotube"), located between 2284 and 2382 New River Inlet Road, North Topsail Beach. The information presented in this application package specifically addresses the continued use of the temporary containment tube, with no other relevance to any other sand bag, or temporary erosion control features. The relative information of the new project is described below. The projected time line for continued placement would run through 2022, or until a "long-term solution to the erosion problem can be implemented", according to the applicant.

The project site is located in North Topsail Beach, specifically between 2284 and 2382 New River Inlet Road, adjacent to the Atlantic Ocean, in Onslow County. To get to the site from Wilmington take US HWY 17 N to NC Hwy 210, which is located at the Lowe's Home Improvement on US HWY 17. Turn right onto NC Hwy 210 and continue across the Surf City Swing Bridge. Take a left at the first street N. New River Drive (NC Hwy 210). Continue on NC Hwy 210 until you reach the New River Inlet Road (approximately 8.15 miles). Turn right onto New River Inlet Road and continue to the far end. Turn left at the stop sign and the project area will be located on the right hand side of the road, just north of the 2282 New River Inlet Road. The project area spans from the northern side of 2284 New River Inlet Road, north to the property identified by the Onslow County Tax office as 2382 New River Inlet Road. The current elevation of the project area ranges from approximately 6' NAVD to approximately 8' NAVD. The project site is adjacent to residential properties. The project site is bordered by New River Inlet to the north, the Atlantic Ocean to the East and residential properties to the south and west. The high ground portion of the property is primarily un-vegetated with the exception of lawn grasses and ornamental landscaping around the existing homes.

The Annual erosion rate in the project area is 2'/year per the Division of Coastal Management's 2011 Annual Erosion Rate maps. Previous field investigation reports have demonstrated this particular area of North Topsail Beach experiences "accelerated erosion" and the shoreline is progressively receding.

PROJECT DESCRIPTION:

The Town of North Topsail Beach currently has several CAMA Major Development Permits that are active, including CAMA Major Permit No. 79-10 (Shoreline Stabilization), No. 191-05 (Beach Bulldozing) and the **subject CAMA permit, No. 92-14 (Sand bag revetment)**. CAMA Major Permit No. 92-14, which was amended by CRC variance on November 26, 2014, authorized the installation of approximately 1,500 linear feet of sand bags (sand bag revetment) and approximately 1,200 linear feet of temporary construction containment tube (i.e. Geotube) along the ocean front area of North Topsail Beach, between 2276 and 2382 New River Inlet Road. Prior to installation of the sand bag revetment structures, the Town's contractor installed the temporary construction containment tube, which was to be used as a safety feature while

installing the sand bag revetment. Once the temporary construction containment tube was installed, the contractor(s) began installing the revetment along the project shoreline (starting from the northern terminus working south). Following completion of the sand bag revetment, the Town (through its consultant – Coastal Planning and Engineering) began to seek authorization which would allow the temporary containment tube to remain in place, as noted in the sequence of events detailed below.

On February 24, 2015, Division of Coastal Management (DCM) staff received a written notice from Coastal Planning and Engineering, indicating the sand bag revetment was complete.

On February 27, 2015, the DCM sent a certified letter to the Town of north Topsail Beach requesting a "Compliance Action Plan" for removal of the temporary erosion control tubes (i.e. temporary construction containment tube).

The letter detailed the commitments made by the permittee (Town of North Topsail Beach), as referenced in Condition No. 11) of CAMA Major Permit No. 92-14. Specifically, Condition No. 11) of CAMA Major Permit No. 92-14 stated "*In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner.*"

On March 20, 2015, Coastal Planning and Engineering staff member Tom Jarrett, P.E., submitted a written response to DCM's "Compliance Action Plan" indicating that "*conditions along the shoreline fronting the sand bag revetment appear to be improving as much of the sand tube (i.e. Geotube or temporary containment tube) is now covered by sand*", but "*conditions along the extreme north end of the sand bag revetment have not improved dramatically*". In addition, the permittee's consultant described the inlet hazard area as being "dynamic" in nature and the uncertainty of future shoreline responses in the area should be taken into consideration for allowing the temporary containment tube in place until the completion of Onslow County's channel maintenance project. At this time, it should be noted that DCM has not received a CAMA Major development permit request from Onslow County requesting authorization to dredge New River Inlet, so the uncertainty of when this project will happen is unknown. Data collected during multiple site visits (by DCM staff) following completion of the sand bag revetment project show that nearly two-thirds of the temporary construction containment tube was exposed at some point along its alignment.

On March 26, 2015, DCM staff issued a Notice of Violation (NOV) to the permittee for violation of CAMA Major Permit No. 92-14 (CAMA Violation #15-05D) for failure to comply or meets the requirements of Conditions No. 11 and No. 13 of CAMA Major Permit No. 92-14. Restoration and/or fulfillment of the NOV required that the permittee "*remove the temporary construction containment tubes and all portions of the scour apron and chock tubes*". The Town (permittee) was provided a ten (10) day time period (from the receipt date of the NOV) to provide a response to the NOV, by way of remediation through one of the restoration agreements.

On May 4, 2015, DCM staff received a signed copy of the "Revised Restoration Plan for North Topsail Beach Property" dated April 24, 2015, from Stuart Turille (Town Manager, North Topsail Beach) indicating the Town would submit a CAMA Major Permit Modification application to DCM within ten (10) days from receipt of the NOV. The actions sought through the permit modification request would include the allowance of the temporary construction containment tubes, chock tubes and scour aprons until the completion of the planned Onslow County shallow draft navigation project or March 31, 2016, whichever is sooner. Additionally, the agreed upon restoration plan stated "*Following the anticipated denial of the modification request, and no later than June 3, 2015, the Town will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town and DCM will work diligently to agree on a set of stipulated facts no later than June 17, 2015. The Town will seek a variance from the CRC at its July 15-16, 2015 meeting. If such a variance request is denied by the CRC, or the variance request submitted by the Town is not heard at the July 15-16, 2015 CRC meetin, the aforementioned structures shall be removed by July 31, 2015.*"

On August 29, 2015, the DCM amended CAMA/Dredge and Fill Permit No. 92-14 in accordance with the CRC's variance order No. 15-05. Permit Condition No. 1 allowed for the temporary construction containment (geo-textile) tubes to remain in place until completion of the Onslow County channel maintenance/beach disposal project was complete, or until June 30, 2016, whichever came first.

On April 26, 2016, the applicant's agent (Coastal Planning and Engineering of NC, PC) submitted "*Observation Reports No. 34 & No. 35*" indicating that "*No sand or discharge samples were collected today since dredge and disposal activities have been completed*". The subject observation reports conclude that dredging and/or beach fill operations in the area of the temporary construction containment tube were completed on, or prior to April 26, 2016.

On June 3, 2016, DCM staff issued a Notice of Violation (NOV No. 16-17D) to the permittee for violation of CAMA Major Permit No. 92-14, in accordance with the CRC's variance order No. 15-05, for failure to comply or meets the requirements of Conditions No. 11 and No. 13 of CAMA Major Permit No. 92-14. Notice of Violation No. 16-17D also cites failure to comply with Conditions No. 1 of the most recently amended version of CAMA/Dredge and Fill Permit No. 92-14, which states "*In keeping with the Variance granted by the CRC on July 16, 2015, and the CRC Variance Order signed by the CRC Chairman on August 15, 2015, the temporary construction containment tubes shall be removed when the Onslow County channel maintenance/beach disposal project is complete, or by June 30, 2016, whichever comes first.*", and Condition No 3 which states: "*All conditions and stipulations of the active permit, including Condition No. 13 of the Amended Permit requiring that the associated scour aprons and "chock" tubes be removed when the associated geotextile tubes are removed, remain in force under this Major Modification unless specifically altered herein*".

The June 3, 2016, Notice of Violation (NOV NO. 16-17D) provided two (2) restoration plans to include either: 1) Remove the temporary construction containment tubes and all portions of the scour apron and chock tubes within thirty (30) days; or 2) Within thirty (30) days upon receipt of this notice, the Town of North Topsail Beach shall submit a CAMA Major Modification application that is complete to the satisfaction of the DCM seeking to modify Permit 92-14 to allow the temporary construction containment tubes, chock tubes and scour aprons to remain. Following the anticipated denial of the modification request, and no later than August 3, 2016 the Town of North Topsail Beach will submit a variance petition package that satisfies the requirements of the Coastal Resources Commission (CRC). The Town of North Topsail Beach and DCM will work diligently to agree on a set of stipulated facts in anticipation of the variance being heard by the CRC at its September 13-14, 2016 meeting. If such variance request is denied by the CRC, or the variance request submitted by the Town of North Topsail Beach is not heard at the September 13-14, 2016 CRC meeting, the aforementioned structures shall be removed by September 30, 2016.

On June 6, 2016, the Town of North Topsail Beach signed and dated the subject Restoration Plan and on June 14, 2016, the subject CAMA/Dredge and Fill Permit Modification request was submitted.

10. ANTICIPATED IMPACTS

The applicant's proposal to keep the temporary construction containment tube in place would result in the continued filling of approximately 16, 200 sq. ft. of public trust area. Additionally, approximately 16, 200 sq. ft. of publicly accessible beach would be restricted by its continued placement.

Submitted by: Jason Dail **Date:** June 15, 2016 **Office:** Wilmington

April 27, 2016

Stuart Turille
Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, NC 28460

Subject: Geo-Tube Removal

Dear Mr. Turille:

In a letter dated March 5, 2015 I stated that in my professional opinion, the removal of the partially buried and exposed sand tube will result in rapid scour along the toe of the sand bag revetment located in these areas which will in turn lead to the failure of the sand bag revetment. Furthermore, in a follow up letter on March 20, 2015, I stated that the placement of the navigation maintenance material along the north end of North Topsail Beach, scheduled to be placed from a navigation maintenance project between January and April 2016, should provide protection to the sandbag revetment until the New River Inlet channel could be repositioned to a preferred position. The repositioning of the inlet bar channel is scheduled for the 2016-2017 environmental dredging window.

Originally, disposal of the material from the ICW/New River Navigation project was to begin at a point opposite the intersection of New River Inlet Road and River Road, which located opposite baseline station 1157+00 (Figure 1). The project was proposed to extend south as far as the volume of material would permit, which was expected to extend along the entire length of the portion of the revetment fronted by the geotextile containment tube. However, conditions along the north end changed from the time the contract was bid to the time the contractor began to mobilize for the job and there was not enough dry sand beach in front of the sandbag revetment to allow the contractor to install the discharge pipeline in the location originally proposed. Therefore, an amendment to the contract was issued that allowed the contractor to begin disposal just north of the sandbag revetment (near baseline station 1163+50) (Figure 1). With disposal starting north of the sandbag revetment, the length of shoreline covered by the navigation maintenance material did not extend along the entirety of the sandbag revetment fronted by the geotextile containment tube.

The Town of North Topsail Beach has been ordered by the NC Division of Coastal Management to remove the geo-tube in its entirety in accordance with the conditions of Permit #92-14. Conditions contributing to erosion along the north end of North Topsail Beach have not changed significantly since March 2015 and the limited extent of the beach that was covered by the navigation maintenance material results in the sandbag revetment still facing possible damage due to undermining once the geo-tubes are removed.

Very truly yours,

Tom Jarrett, P.E.
Senior Vice President
Coastal Planning & Engineering of NC, Inc.

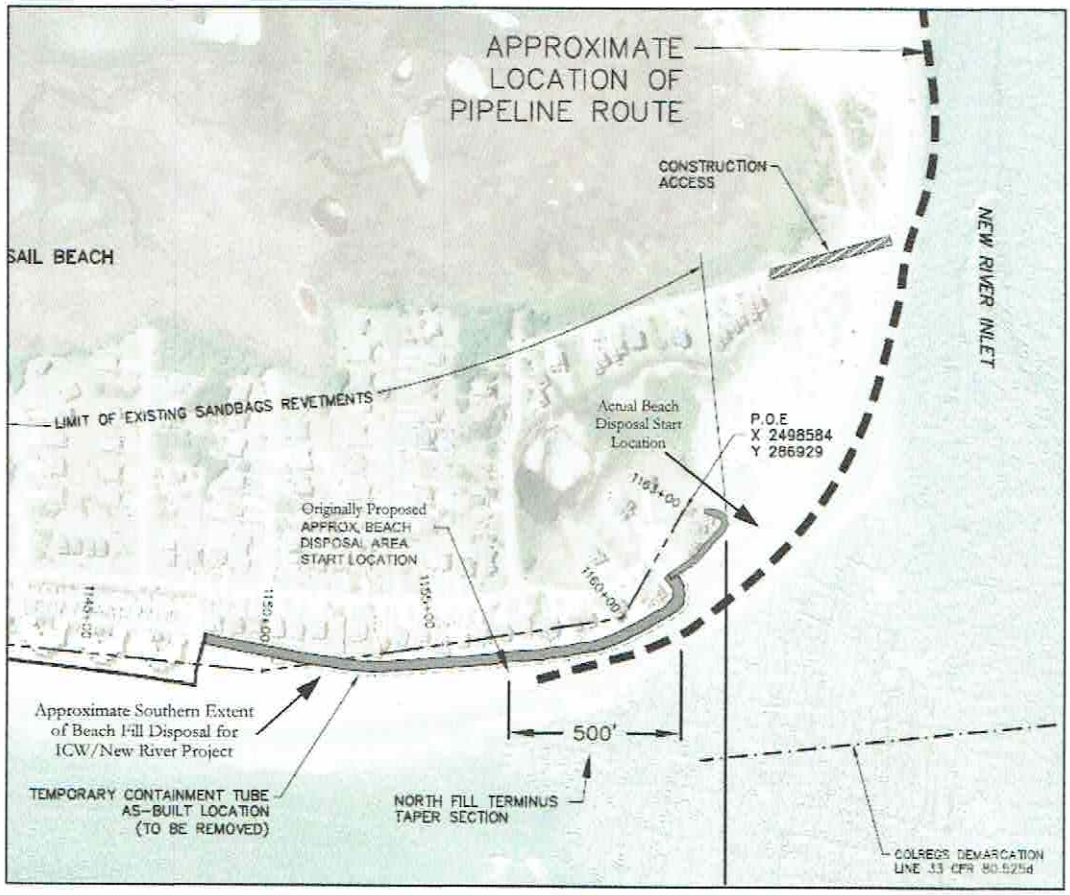

Figure 1. Map showing the originally proposed beach disposal start location and the actual beach disposal start location.

James “Tom” Jarrett, P.E.

Project Manager/Senior Coastal Engineer

Education

- M.S., Civil Engineering, NC State University, 1967
- B.S., Civil Engineering, NC State University, 1965

Associations

- Tau Beta Pi, Honorary Engineering Fraternity
- Chi Epsilon, Honorary Civil Engineering Fraternity
- American Shore & Beach Preservation Assoc.
- American Society of Civil Engineers
- NC Beach, Inlet, & Waterway Assoc.
- Association of Coastal Engineers
- Member of the Coastal Resources Commission Coastal Hazards Science Panel since its inception in 1997

Registrations

- Professional Engineer: North Carolina

Relevant Experience

Prior to Joining CPE-NC, Tom Jarrett worked for the U.S. Army Corps of Engineers for 34 years in the field of Coastal Engineering. Mr. Jarrett served as project engineer in the Coastal Engineering Branch of the Wilmington District; Research Hydraulic Engineering for U.S. Army Waterways Experiment Station where he was appointed Chief of the Coastal Engineering Section in 1985. Mr. Jarrett was then appointed Chief of the Coastal, Hydrology, and Hydraulics Section where he served until his retirement in December 2000. From December 2000 to June 2002 he was sole proprietor of Tom Jarrett Coastal Engineering. Currently, Mr. Jarrett is Senior Vice President of Coastal Planning & Engineering of NC, Inc. (CPE-NC), a CB&I Company.

New River Inlet Section 107 Report – While with the USACE, Mr. Jarrett served as the principal project engineer in the evaluation of navigation improvements for New River Inlet which included an evaluation of jetties and an accompanying sand bypassing system.

Carolina Beach Storm Damage Reduction Project, New Hanover County, NC - Mr. Jarrett served as the principle project engineer in the evaluation of the early performance of this beach fill project completed in 1965. Tom conducted special studies to determine the cause of inordinate erosion of the north end of the project area. One outcome of the investigation was the development of new beach fill design criteria to ensure that sufficient material is placed on the beach to nourish the entire active beach profile. This beach fill design criteria, termed the “profile of translation”, has become a standard in the Coastal Engineering profession. Tom Jarrett continued to oversee the operation of the project, including the revaluation of the project under Section 934 of the Water Resources Development Act of 1986 to determine if federal participation should continue through the year 2014 and annual assessments of the project’s performance and periodic nourishment requirements.

Bogue Inlet Channel Erosion Response Project, NC - Tom Jarrett served as project manager and project engineer for the Bogue Inlet Channel Erosion Response Project which involved the relocation of the main ebb channel of Bogue Inlet 3,550 feet west and nourishing 4.0 miles of shoreline along Emerald Isle to eliminate the erosive impact of tidal currents on the east shoulder of the inlet. State and Federal Permits were acquired by September 2004 with project construction in February 2005.

North Topsail Beach Shore Protection Project, Onslow County, NC - Tom Jarrett served as the project manager and principal coastal engineer for the North Topsail Beach non-Federal Feasibility study to provide protection for the areas of North Topsail Beach located within the CBRA system. Project alternatives included the possible relocation of the navigation channel through New River Inlet and the development of a sand management plan for that inlet as well as the location of suitable offshore sand sources. The project was divided into five phases with the first phase involving the relocation of the bar channel in New River Inlet completed in 2012 and phase 5 along the southern 3.25 miles of the town’s shoreline constructed in 2015. Phase 1 included the construction of a beach fill covering approximately 7,200 feet of shoreline south of New River Inlet.

Masonboro Inlet South Jetty, New Hanover County, NC- Mr. Jarrett was the project engineer leading the design of the south jetty for Masonboro Inlet. He oversaw the conduct of physical model test for the south jetty and participated in the structural design component for the project.

Wrightsville Beach, NC Storm Damage Reduction Project, New Hanover County, NC - Mr. Jarrett developed a detailed sediment budget analysis for the area including an evaluation of the impacts of jetties a Masonboro Inlet, located on the southern end of the beach. The outcome of the investigations was the development of a sand management plan for the Masonboro Inlet project that involves the transfer of littoral sediment from the inlet to Wrightsville Beach and Masonboro Island every 4 years. The sediment budget study resulted in additional federal cost sharing for the project due to the impacts of navigation project

Special Study – Hurricane Impacts on Communities with and without Shore Protection - Mr. Jarrett was a member of a Corps of Engineers study team, assembled to evaluate the impacts of Hurricane Fran (September 1996) on communities with and without federal shore protection projects. The study compared the impacts of the storm on Carolina Beach and Wrightsville Beach, which had federal projects, to the impacts on Kure Beach and Topsail Island communities, which did not have projects.

Oregon Inlet Stabilization Project, Dare County, NC – Mr. Jarrett was the principal project engineer for the Manteo (Shallowbag) Bay project commonly referred to as the Oregon Inlet Stabilization Project. He was responsible for the functional and structural design of the two stabilizing structures proposed for the north and south sides of Oregon Inlet. The functional design involved, among other things, oversight of physical and numerical models used to evaluate the performance of the proposed jetties. The structural design included model tests to determine stability characteristics of various armor units (stone, dolos, etc.) subjected to the shallow-wave breaking environment of Oregon Inlet. He also developed the feature design memorandum for sand management and associated shoreline management thresholds that would determine if post-jetty shoreline changes would be attributed to changes brought on by the stabilization project.

Oregon Inlet Terminal Groin, Dare County, NC - Mr. Jarrett served on a Governor appointed tasks force to develop alternative plans to protect the Bonner Bridge, which spans Oregon Inlet. One of the alternatives was a terminal groin located on the north end of Pea Island. This plan was selected for implementation. Mr. Jarrett worked with the State of North Carolina to obtain the necessary special use permits from the Fish and Wildlife Service and participated in the development of the detailed design and specifications for this work as a member of the District's design team. The final plan selected and eventually constructed mimic the landward end of the south jetty Mr. Jarrett developed while serving as the project engineer for the Oregon Inlet stabilization project.

Terminal Groin Projects – Mr. Jarrett is serving as the project engineer in the design and permitting of three terminal groin projects. The three projects include Figure Eight Island, Ocean Isle Beach, and North Topsail Beach. The Figure Eight Island and Ocean Isle Beach project are in the final permitting stage while the proposed terminal groin for the north end of North Topsail Beach is still in the preliminary formulation stage.

Coastal Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

BRAXTON DAVIS
Director

July 26, 2016

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Town of North Topsail Beach
c/o Stuart Turille
2008 Loggerhead Court
North Topsail Beach, NC 28460

Dear Mr. Turille:

This letter is in response to your application for a major modification to permit no. 92-14 under the Coastal Area Management Act (CAMA), in which authorization was requested to allow the existing temporary construction containment tubes, as well as associated scour aprons and "chock tubes", located between 2284-2382 New River Inlet Road, to remain in place for an extended period of time. Processing of the application, which was received as complete by the Division of Coastal Management's (DCM) Wilmington Regional Office on June 14, 2016, is now complete. Based on the state's review, the Division of Coastal Management has made the following findings:

1) The Town of North Topsail Beach was issued emergency CAMA Major Permit No. 92-14 on October 24, 2014 to allow for the construction of a 20' x 6' sandbag revetment at the subject property. CAMA Major Permit No. 92-14 was amended by way of a variance granted by the Coastal Resources Commission (CRC) on November 26, 2014 to allow for the construction of a 45' x 12' sandbag revetment.

2) Immediately prior to the issuance of the November 26th, 2014 Major Modification to CAMA Major Permit 92-14, the Town requested permission to install temporary construction containment tubes, and associated scour aprons and chock tubes seaward of the alignment of the sand bag revetment. The purpose of the temporary construction containment tubes was to "allow for a safer work environment landward of the tube, which will expedite the installation of the sand bag revetment." The Town further stated in a letter dated November 25, 2015, "Upon completion of the project, the temporary containment tube will be removed".

3) The temporary construction containment tube, as well as associated scour aprons and chock tubes, were not determined by the Division to constitute an additional erosion control response, and therefore could be permitted, provided that a) structures were designed in a manner that served only as a temporary construction methodology, and b) that a commitment was received from the Town stating that the temporary

State of North Carolina | Environmental Quality | Coastal Management
400 Commerce Avenue | Morehead City, NC 28557
252-808-2808 | 252-247-3330 (fax)

construction containment tubes, scour aprons and chock tubes would be removed in their entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner.

4) On November 26, 2014, a Major Modification to CAMA Permit No. 92-14 was issued. The Major Modification included the following conditions:

> 11) In accordance with commitments made by the permittee, the authorized temporary construction containment tube used to assist in the safe construction of the authorized temporary sand bag revetment shall be removed in its entirety either immediately upon project completion, or by May 21, 2015, whichever is sooner. Additionally, should the Division of Coastal Management determine that the temporary construction containment tubes are no longer needed or are no longer serving their intended purpose of providing a safe work environment landward of the tubes, the tubes shall be removed immediately upon written notification by the Division.
>
> and
>
> 13) The scour apron and "chock" tubes shall extend no further oceanward than the oceanward toe of the temporary construction containment tube. All portions of the scour apron and chock tubes located oceanward of the temporary sandbag revetment shall be removed in their entirety at the same time as the associated temporary construction containment tubes.

5) On February 24, 2015, the Division received notice from the Town's consultant that construction of the sand bag revetment was complete.

6) On February 27, 2015, the Division formally requested from the Town a plan for the removal of the temporary construction containment tubes, scour aprons and chock tubes.

7) Based upon the failure of the Town to proceed with the development and implementation of a removal plan for these structures, the Division issued a Notice of Violation (NOV) to the Town on March 26, 2015. During settlement negotiations relating to the NOV, the Town was given the option to apply for a Major Modification to Permit No. 92-14, requesting permission to leave the temporary construction containment tubes, scour aprons and chock tubes in place for an extended period of time.

8) On August 29, 2016, a Major Modification to CMA Permit No. 92-14 was issued pursuant to a Variance granted by the Coastal Resources Commission under the provisions provided for in NCAC 07J.0700. This Major Modification contained the following condition:

> 1) In keeping with the Variance granted by the Coastal Resources Commission (CRC) on July 16, 2015, and the CRC Variance Order signed by the CRC Chairman on August 14, 2015, the temporary construction containment (geotextile) tubes shall be removed when the Onslow County channel maintenance/beach disposal project is complete, or by June 30, 2016, whichever comes first.

9) The Onslow County channel maintenance/beach disposal project was completed on or about April 26, 2016. The Division verified the continued presence of the temporary construction containment tubes on May 19, 2016.

10) Based upon the failure of the Town to proceed with the development and implementation of a removal plan for these structures, the Division issued a Notice of Violation to the Town on June 3, 2016. During settlement negotiations relating to the NOV, the Town was given the option to apply for a Major Modification to Permit No. 92-14, requesting permission to leave the temporary construction containment tubes, scour aprons and chock tubes in place for an additional period of time.

11) NCAC 7H.0308(a)(2)(K) states in part, "Sandbags used to construct temporary erosion control structures shall be tan in color and three to five feet wide and seven to fifteen feet long when measured flat."

12) NCAC 7H.0308(a)(2)(L) states, "Soldier pilings and other types of devices to anchor sandbags shall not be allowed."

13) Based upon the findings outlined above, the proposed project modification has been determined to be inconsistent with NCAC 7H.0308(a)(2)(K) and NCAC 7H.0308(a)(2)(L), as well as the requirements of the Variance granted by Coastal Resources Commission pursuant to NCAC 07J.0700.

Given the preceding findings, it is necessary that your request for issuance of a CAMA Major Modification to Permit No. 92-14 under the Coastal Area Management Act be denied. This denial is made pursuant to N.C.G.S. 113A-120(a)(8) which requires denial for projects inconsistent with the state guidelines for Areas of Environmental Concern or local land use plans.

Town of North Topsail Beach

Fred J. Burns, Mayor
Richard Macartney, Mayor Pro Tem
Aldermen:
Don Harte
Joann M. McDermon
Richard Peters
Walter Yurek

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

August 29, 2016

RE: Expenditures on Revetment Maintenance

To Whom it May Concern:

The Town of North Topsail Beach has spent a total of **$541,505.22** on maintenance of the north end sand bag revetment and sand bag revetment extension. Construction was completed in early February 2015.

Respectfully,

Carin Z. Faulkner
Asst. Town Manager/Town Clerk
Town of North Topsail Beach, NC

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
Fax (910) 328-4508

Town of North Topsail Beach

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Stuart Turille
Town Manager

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Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

June 3, 2016

Ms. Debra Wilson
Division of Coastal Management
North Carolina Department of Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

RE: Permit Modification Request for Town of North Topsail Beach Regarding CAMA Permit 92-14

Dear Ms. Wilson,

The condition of the permit for which the TOWN is seeking a modification is the extension of time in which the temporary construction containment tube can remain prior to its removal. As stipulated in Permit #92-14, the containment tube was to be removed upon completion of the sandbag revetment or by May 21, 2015; whichever is sooner. Furthermore, a variance was granted and a modified permit was issued on August 29, 2015 to allow the containment tubes to stay in place until the Onslow County channel maintenance/beach disposal project is complete, or by June 30, 2016, whichever comes first.

The Onslow County navigation maintenance project that was completed on April 22, 2016 did not end up placing sand along the entirety of the revetment. The project was originally proposed to extend south as far as the volume of material would permit, which was expected to extend along the entire length of the portion of the revetment fronted by the geotextile containment tube. However, conditions along the north end changed from the time the contract was bid to the time the contractor began to mobilize for the job and there was not enough dry sand beach in front of the sandbag revetment to allow the contractor to install the discharge pipeline in the location originally proposed. Due to the changed conditions, the contract was amended to allow the contractor to begin disposal operations north of the sandbag revetment, thereby reducing the length of shoreline fronted by the geotextile containment tube that was covered by the navigation maintenance material.

Furthermore, as included in this submittal, an attached letter from Dr. William Cleary, P.G., and Emeritus Professor of Geology notes that extreme (elevated) water levels resulting from several periods of Perigean (King or Supermoon) tides during the latter part of September and early October 2015 and coinciding with the passage of Hurricane Joaquin and associated storm

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North Topsail Beach, NC 28460

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1.Project Narrative.

The Town of North Topsail Beach completed Phase 1 of its multifaceted inlet and shoreline management plan in February 2013 with the repositioning of the New River Inlet ocean bar channel to a more central location between the south end of Onslow Beach and the north end of North Topsail Beach. The material removed during repositioning of the channel was used to construct a beach fill along 7,730 feet of shoreline south of New River Inlet.

As stated in prior permit applications, the beach fill along the north end of North Topsail Beach experienced rapid rates of volume loss resulting in the eventual loss of all of the fill material north of the Topsail Reef by August 2014. In response to the emergency situation created by the rapid deterioration of the fill, the Town of North Topsail Beach applied for a permit to construct a sandbag revetment along approximately 1500 feet of shoreline north of Topsail Reef. While this initial request was denied due to the size of the proposed sandbag revetment, the Town of North Topsail Beach was ultimately issued a CAMA Major Permit (Permit #92-14) dated November 26, 2014 through the variance process.

In addition to the enlarged size of the sandbag revetment, the permit allow the Town to use a temporary sand filled containment tube to provide protection to the area during installation of the sandbag revetment. The conditions of the permit required the temporary containment tube to be removed immediately upon completion of the sandbag revetment or by May 21, 2015 whichever occurred sooner. A typical cross-section of the sandbag revetment and temporary containment tube is provided in Figure 1.

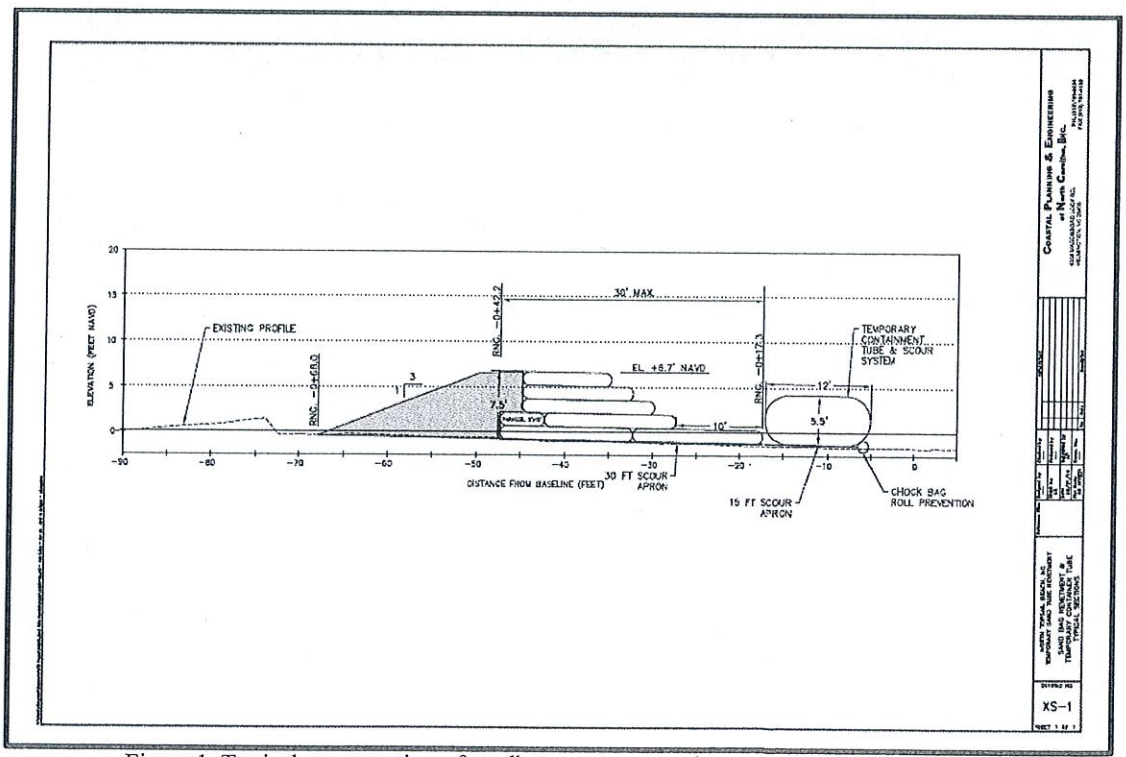


Figure 1. Typical cross-section of sandbag revetment and temporary containment tube.

The sandbag revetment was essentially completed on February 25, 2015. An aerial photograph taken of the project site on February 20, 2015 via a drone is shown in Figure 2.

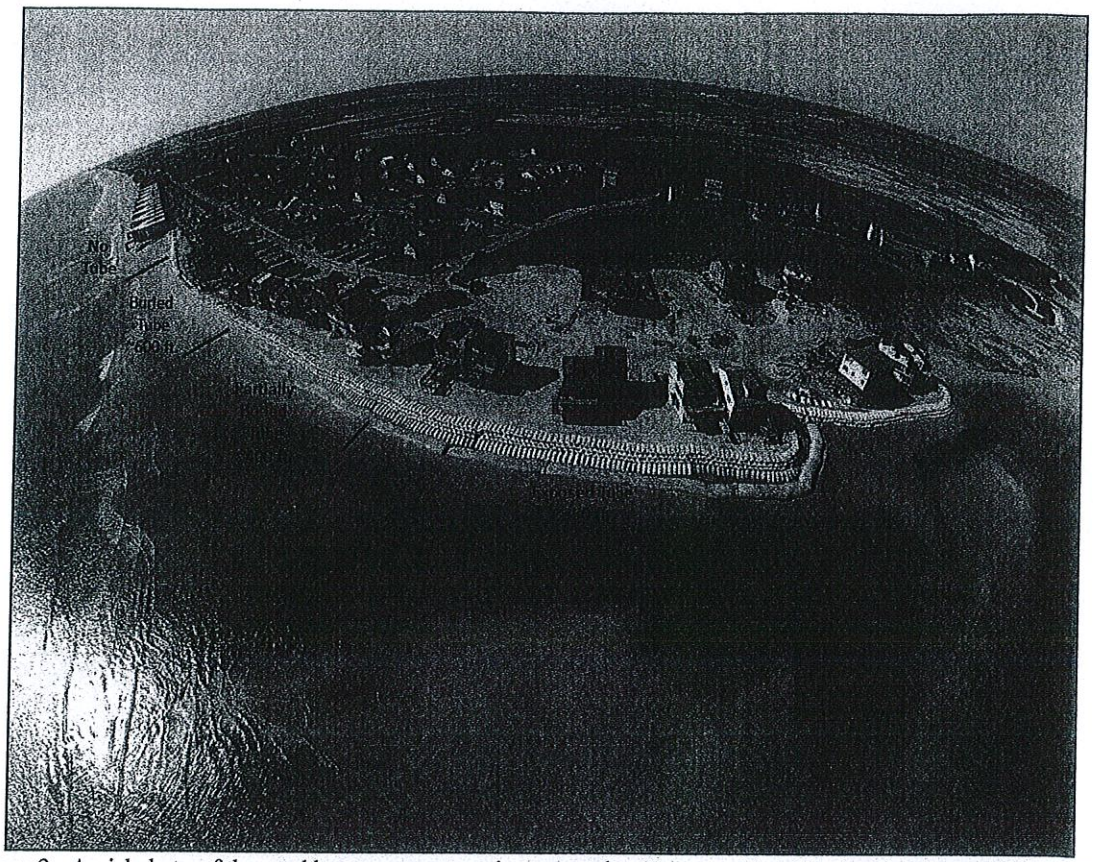


Figure 2. Aerial photo of the sand bag revetment project area taken February 20, 2015 showing the condition of the tube. (Photo Courtesy of Mike Capuano)

As can be seen in the aerial photo, the northern end of the sand tube was exposed while most of the tube along the south end of the sandbag revetment was buried. The exposed portion of the sand tube on the north end of the revetment was continuing to provide substantial scour protection for the sandbag revetment. However, due to the volatility of the shoreline in the area, portions of the sand tube are alternately buried and covered. A series of ground photos of the completed sandbag revetment taken March 6, 2015, show some exposed and buried sand tubes are provided on Figure 3 to 7. The figures are arranged in a north to south order.

In the spring of 2015, the Town requested a permit modification to leave the tube in place for the duration of the sandbag permit. Through discussions with the North Carolina Division of Coastal Management, a plan was developed to allow the Town to leave the tubes in place until either the completion of a proposed navigation maintenance project, which would place sand along the revetment, or June 30, 2016, whichever comes first. A variance was sought by the Town and granted by the CRC on July 16, 2015, and a permit modification was issued on August 29, 2015.

Figure 3. March 6, 2015 photo of sandbag revetment and sand tube at north end of revetment.

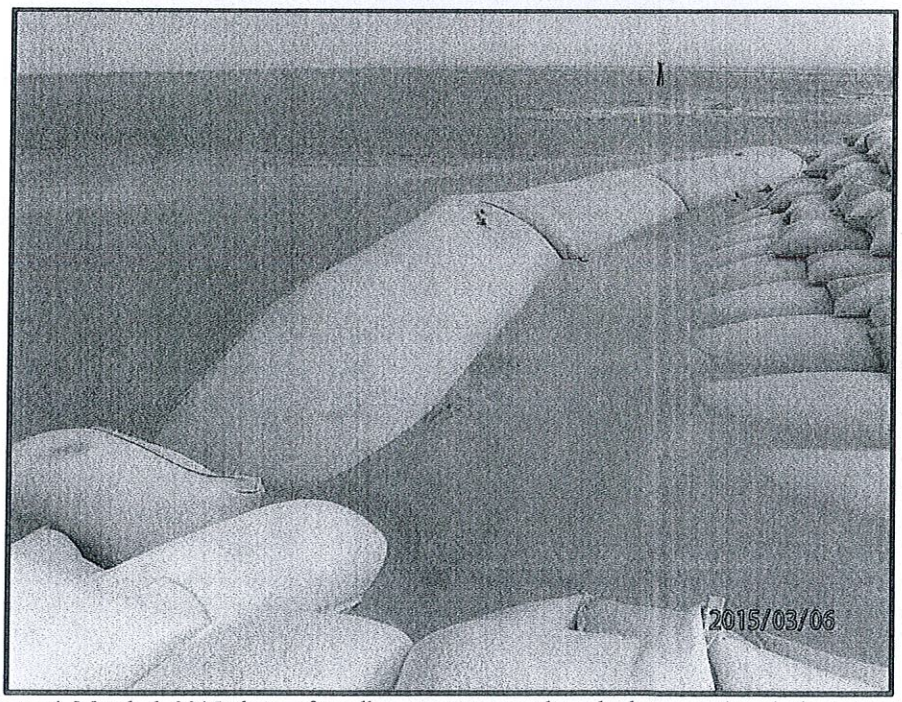


Figure 4. March 6, 2015 photo of sandbag revetment and sand tube at north end of revetment.

Figure 5. March 6, 2015 photo of sandbag revetment and partially buried sand tube.

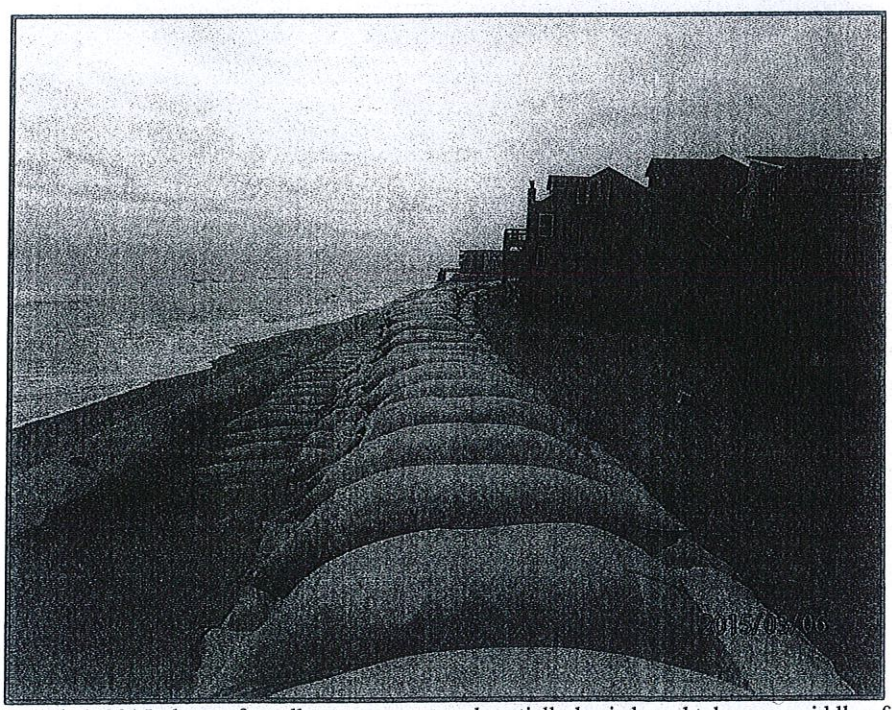


Figure 6. March 6, 2015 photo of sandbag revetment and partially buried sand tube near middle of sandbag revetment.

Figure 7. March 6, 2015 photo showing buried sand tube along south end of sandbag revetment.

Dredging activities associated with the navigation maintenance project ended on April 22, 2016. Originally, disposal of the material from the navigation project was to begin at a point opposite the intersection of New River Inlet Road and River Road, which located opposite baseline station 1157+00 (Figure 8). The project was proposed to extend south as far as the volume of material would permit, which was expected to extend along the entire length of the portion of the revetment fronted by the geotextile containment tube. However, conditions along the north end changed from the time the contract was bid to the time the contractor began to mobilize for the job and there was not enough dry sand beach in front of the sandbag revetment to allow the contractor to install the discharge pipeline in the location originally proposed. Therefore, an amendment to the contract was issued that allowed the contractor to begin disposal just north of the sandbag revetment (near baseline station 1163+50) (Figure 8). With disposal starting north of the sandbag revetment, the length of shoreline covered by the navigation maintenance material did not extend along the entirety of the sandbag revetment fronted by the geotextile containment tube. The photos shown in Figures 9, 10, and 11 show the area during construction of the navigation project currently underway.

In the attached letter (Appendix D), Dr. William Cleary P.G., Emeritus Professor of Geology, states: "...it is my opinion based on personal observation and shoreline change data that the removal of the geo-tube will have serious consequences on the stability of the sand bag "revetment". Its removal will ultimately lead to accelerated erosion of the sea bed adjacent to the sand bags due to a variety of wave-related processes. In turn, the consequent degradation of the sand bag armoring will have dire consequences for the homes currently protected by the sand bags."

Given the dynamic nature of the area just south of New River Inlet, the uncertainty of future shoreline responses in this area, and the limited extent of the beach that will be covered by the navigation maintenance project, the Town of North Topsail Beach again request consideration of modifying the sand bag permit to allow the sand tubes to remain in place until the expiration of the existing permit for the sandbag revetment (November 2022) or until such time the north end of the island stabilizes as a result of the channel relocation portion of the management plan or, if the relocated channel fails to produce the desired shoreline response, until such time the TOWN can install a terminal groin on the south shoulder of New River Inlet, whichever comes first.

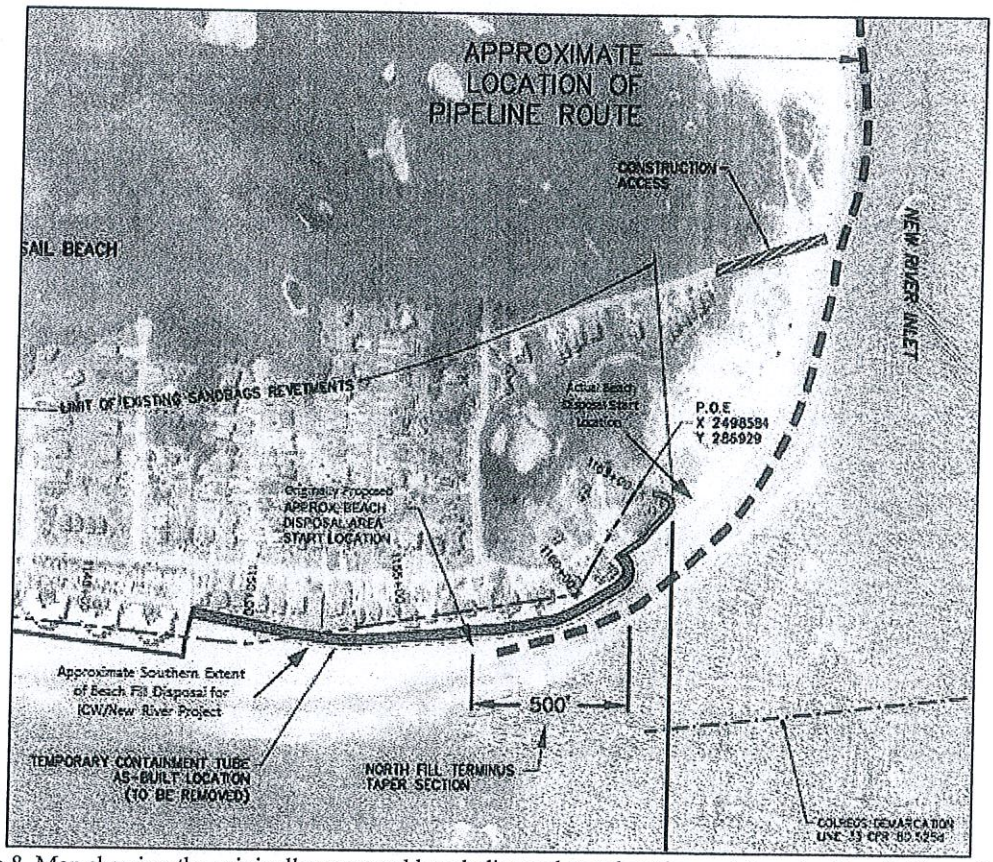


Figure 8. Map showing the originally proposed beach disposal start location and the actual beach disposal start location.

With regard to the channel relocation, the TOWN is moving forward with plans to reposition the ocean bar channel of New River Inlet to a preferred position and alignment as allowed under DOA SAW 2005-00344 dated May 16, 2001 and CAMA Major Permit#78-10. Repositioning of the inlet bar channel is expected to occur during the 2016-2017 environmental dredging window.

Most of the material removed to reposition the channel will be deposited within the beach area designated as Phase 2 of the Town's shoreline and inlet management plan, however, in keeping with this plan, the Town intends to provide periodic maintenance fill within the beach segment covered by Phase 1 in order to maintain the status of Phase 1 as an "Engineered Beach" under the rules established by FEMA.

Figure 9. April 1, 2016 photo showing northern location of the tube during navigation maintenance project construction.

Figure 10. April 3, 2016 photo showing poles placed by the dredge contractor marking the landward location of sand to be placed during the navigation maintenance project construction.

Figure 11. April 22, 2016 photo showing construction of the navigation maintenance project.

As previously stated, the commitments by the Town of North Topsail Beach to remove the sand tubes in accordance with the permit conditions were made in good faith and based on the belief the sand bag revetment alone would be able to provide the degree of protection needed to preserve the area until the inlet channel relocation project begins to produce measurable positive impacts on the area. While there are signs the inlet ebb tide delta has responded in a manner as expected, i.e., material on the north side of the ebb tide delta has migrated on shore as predicted and there have been indications material has begun to accumulate on the seaward portion of the ebb tide delta located south of the bar channel, the channel shoaled at a faster rate than anticipated and in so doing, the channel migrated north close to the position it occupied prior to the initial realignment. Once the channel migrated out of the preferred positon, sediment build-up on the south side of the ebb tide delta slowed. Given this slower rate of sediment accumulation south of the bar channel, the time needed for the north end of the island to respond positively to the preferred bar channel position may be closer to the upper limit of 15 years projected during the formulation of the plan.

With the prospect of an extended period of recovery along the north end of the island associated with the channel relocation project, the Town is considering applying for a permit to construct a terminal groin on the south shoulder of New River Inlet in the event the next channel relocation project does not produce the needed positive shoreline impacts in a timely manner. Authority to consider a terminal groin at New River Inlet was recently provided by Session Law 2015-241 Section 14.6.(r).

Documentation of the success or failure of the channel relocation project to reconfigure the ebb tide delta of New River Inlet to a condition that would produce positive shoreline changes along the north end of the island could take 2 to 3 years following the next channel relocation. If the

Town elects to seek a permit to construct a terminal groin, designing and permitting of the structure could take at least 3 years. If the beach fill placed within Phase 1 during the next channel relocation project erodes at rates comparable to past fills, including that placed during the 2012/2013 project, the sandbag revetment would again be exposed to conditions that could produce serious scour at the seaward toe of the revetment and thus threaten its structural integrity.

In order for the sand bag revetment to continue to provide protection for the threatened homes along the north end of North Topsail Beach until a more long-term solution can be implemented, the sand tubes must be allowed to remain.

Given the continued dynamic changes in the shoreline fronting the sandbag revetment, the limited extent of the beach covered by the navigation maintenance project, the risk of failure of the revetment due to scour along the seaward toe of the structure, and the protracted time period to determine a more permanent solution for the erosion problem, the Town of North Topsail Beach again request a modification of the existing CAMA permit #92-14 to extend the time the sand tubes can remain in place until a more long-term solution to the erosion problem can be implemented.

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name Town Of North Topsail Beach		Project Name (if applicable) Phase 1 Emergency Sandbag Revetment	
Applicant 1: First Name Stuart	MI	Last Name Turille	
Applicant 2: First Name N/A	MI N/A	Last Name N/A	
If additional applicants, please attach an additional page(s) with names listed.			
Mailing Address 2008 Loggerhead Court		PO Box N/A	City North Topsail Beach	State NC
ZIP 28460	Country USA	Phone No. 910 - 328 - 1349 ext. n/a		FAX No. N/A - -
Street Address *(if different from above)* N/A		City N/A	State N/A	ZIP N/A-
Email townmanager@north-topsail-beach.org				

2. Agent/Contractor Information

Business Name N/A				
Agent/ Contractor 1: First Name N/A	MI N/A	Last Name N/A		
Agent/ Contractor 2: First Name N/A	MI N/A	Last Name N/A		
Mailing Address N/a		PO Box N/A	City N/A	State N/A
ZIP N/A		Phone No. 1 N/A - - ext. N/A	Phone No. 2 N/A - - ext. n/a	
FAX No. N/A		Contractor # N/A		
Street Address *(if different from above)* N/A		City N/A	State N/A	ZIP N/A -
Email N/A				

<Form continues on back>

3. Project Location

County (can be multiple)	Street Address		State Rd. #
Onslow	New River Inlet Road		N/A
Subdivision Name	**City**	**State**	**Zip**
N/A	North Topsail Beach	NC	28460 -

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
910 - 328 - 1349 ext. n/a	N/A, , , ,
a. In which NC river basin is the project located? White Oak River Basin	b. Name of body of water nearest to proposed project New River Inlet and Atlantic Ocean
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. New River Inlet and Atlantic Ocean
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. North Topsail Beach

4. Site Description

a. Total length of shoreline on the tract (ft.)	b. Size of entire tract (sq.ft.)
Approximately 1350 ft.	16,200 sq. ft.
c. Size of individual lot(s) n/a, , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* 5 ft. MHW ☐NHW or ☐NWL

e. Vegetation on tract

No vegetation is present due to past erosion and presence of sandbag revetment.

f. Man-made features and uses now on tract

There are currently 20 residential structures located along the ocean shoreline north of the Topsail Reef Condominiums. New River Inlet Road is located immediately landward of the homes. The residential structures serve as both permanent residences and rental properties. A sand bag revetment was constructed along approximately 1,500 ft. of shoreline, north of Topsail Reefs Condominiums in February 2015. The revetment includes a 50 ft. return wall that extends from the northern terminus of the revetment perpendicular to shore and ties into the existing upland dune system. An additional 330 ft. segment of the revetment extends north of the initially constructed revetment. There are temporary containment sand tubes oceanward of the sand bag revetment.

g. Identify and describe the existing land uses adjacent to the proposed project site.

The property immediately south of the installed sand tube is occupied by oceanfront residential condominiums. To the north, the area is undeveloped and bounded by New River Inlet. The Topsail Reef Condominiums are protected by a sandbag revetment installed in 2012.

h. How does local government zone the tract?	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable)
R-1 Residential	☒Yes ☐No ☐NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal?	☐Yes ☒No
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy.	☐Yes ☒No ☐NA
If yes, by whom?	N/A
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property?	☐Yes ☒No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	☐Yes ☒No
(ii) Are there coastal wetlands on the site?	☐Yes ☒No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☐Yes ☐No
n. Describe existing wastewater treatment facilities. n/a	
o. Describe existing drinking water supply source. n/a	
p. Describe existing storm water management or treatment systems. n/a	

5. Activities and Impacts

a. Will the project be for commercial, public, or private use?	☐Commercial ☒Public/Government ☐Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. The Town of North Topsail Beach believes leaving the temporary containment sand tubes in place continues to provide vital scour protection to the sand bag revetment constructed in February 2015, and its removal prior to a more long-term solution to the erosion problem being implemented, could pose a risk of failure of a portion of the sand bag revetment. Currently the Towns is working toward the next channel realignment event scheduled to occur during the 2016/2017 dredge window. Furthermore, the Town is conducting a numerical modeling study to evaluate design alternatives for a terminal groin.	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. n/a	
d. List all development activities you propose. The Town proposes to leave the temporary containment sand tube in place until a more long-term solution to the erosion problem can be implemented, or the sand bag revetment permit expires (2022), whichever comes first.	
e. Are the proposed activities maintenance of an existing project, new work, or both?	maintenance
f. What is the approximate total disturbed land area resulting from the proposed project?	16,200 ☒Sq.Ft or ☐Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☒Yes ☐No ☐NA
h. Describe location and type of existing and proposed discharges to waters of the state. N/A	
i. Will wastewater or stormwater be discharged into a wetland?	☐Yes ☒No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☐Yes ☐No ☒NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☐Yes ☒No ☐NA

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.

e. The appropriate application fee. Check or money order made payable to DENR.

f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.

Name George and Diann Vann	Phone No.
Address 2386 New River Inlet Rd., 12926 Couples Pl., Waldorf, MD 20601	
Name Wayne and Margaret Nielson	Phone No.
Address 19471 Youngs Cliff Rd., Sterling, VA 20165	
Name George Neal III	Phone No.
Address 3203 Henderson Rd., Greensboro, NC 27410-6032	

g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

Permittee: Town of North Topsail Beach (management plan)	DOA Permit SAW-2005-00344
Permittee: Town of North Topsail Beach (management plan)	CAMA Permit 79-10
Permittee: Town of North Topsail Beach (Off-Island Truck Haul)	CAMA Permit 191-05(As modified)
Permittee: Town of North Topsail Beach (Sand Bag revetment	CAMA Permit 92-14 (As Amended)
Permittee: Town of North Topsail Beach (Sand Bag revetment)	DOA Pemit SAW-2014-01700

h. Signed consultant or agent authorization form, if applicable.

i. Wetland delineation, if necessary.

j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*

k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date June 10, 2016 Print Name Stuart Turille

Signature Stuart Turille

Please indicate application attachments pertaining to your proposed project.

☐DCM MP-2 Excavation and Fill Information ☐DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development
☒DCM MP-4 Structures Information

Form DCM MP-2

EXCAVATION and FILL

(Except for bridges and culverts)

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

Describe below the purpose of proposed excavation and/or fill activities. **All values should be given in feet.**

	Access Channel (NLW or NWL)	Canal	Boat Basin	Boat Ramp	Rock Groin	Rock Breakwater	Other (excluding shoreline stabilization)
Length	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Width	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Avg. Existing Depth	N/A	N/A	N/A	N/A	NA	NA	N/A
Final Project Depth	N/A	N/A	N/A	N/A	NA	NA	N/A

1. EXCAVATION

☒ *This section not applicable*

a. Amount of material to be excavated from below NHW or NWL in cubic yards.

_____

b. Type of material to be excavated.

_____

c. (i) Does the area to be excavated include coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☐None

(ii) Describe the purpose of the excavation in these areas:

_____

_____

d. High-ground excavation in cubic yards.

_____

2. DISPOSAL OF EXCAVATED MATERIAL

☒ *This section not applicable*

a. Location of disposal area.

_____

b. Dimensions of disposal area.

_____

c. (i) Do you claim title to disposal area?

☐Yes ☐No ☐NA

(ii) If no, attach a letter granting permission from the owner.

d. (i) Will a disposal area be available for future maintenance?

☐Yes ☐No ☐NA

(ii) If yes, where?

_____

e. (i) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☐CW _____ ☐SAV _____ ☐SB _____

☐WL _____ ☐None

(ii) Describe the purpose of disposal in these areas:

_____

_____

f. (i) Does the disposal include any area in the water?

☐Yes ☐No ☐NA

(ii) If yes, how much water area is affected?

_____

3. SHORELINE STABILIZATION

☐ *This section not applicable*

(If development is a wood groin, use MP-4 – Structures)

a. Type of shoreline stabilization:
☐Bulkhead ☐Riprap ☐Breakwater/Sill ☒Other: Geotextile Containment Tube

b. Length: 1,350 ft.
Width: 15 ft.

c. Average distance waterward of NHW or NWL: 15

d. Maximum distance waterward of NHW or NWL: 15

e. Type of stabilization material:
Sand Filled geotextile containment tube

f. (i) Has there been shoreline erosion during preceding 12 months?
☒Yes ☐No ☐NA
(ii) If yes, state amount of erosion and source of erosion amount information.
Erosion of sand in front of the containment tube continues as discussed in the project narrative attached. The erosion is due to a combination of waves, tidal currents, and the configuration of the New River Inlet.

g. Number of square feet of fill to be placed below water level.
Bulkhead backfill N/A Riprap N/A
Breakwater/Sill N/A Other N/A

h. Type of fill material.
N/A - The Tubes are already full, no additional fill is required for this modification.

i. Source of fill material.
N/A - The tubes are already full, no additional fill is required for this modification.

4. OTHER FILL ACTIVITIES

☒ *This section not applicable*

(Excluding Shoreline Stabilization)

a. (i) Will fill material be brought to the site? ☐Yes ☐No ☐NA
If yes,
(ii) Amount of material to be placed in the water _____
(iii) Dimensions of fill area _____
(iv) Purpose of fill

b. (i) Will fill material be placed in coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.
☐CW _____ ☐SAV _____ ☐SB _____
☐WL _____ ☐None
(ii) Describe the purpose of the fill in these areas:

5. GENERAL

a. How will excavated or fill material be kept on site and erosion controlled?
N/A

b. What type of construction equipment will be used (e.g., dragline, backhoe, or hydraulic dredge)?
N/A - The permit modification is to allow existing tubes to stay in place.

c. (i) Will navigational aids be required as a result of the project?
☐Yes ☒No ☐NA
(ii) If yes, explain what type and how they will be implemented.

d. (i) Will wetlands be crossed in transporting equipment to project site? ☐Yes ☒No ☐NA
(ii) If yes, explain steps that will be taken to avoid or minimize environmental impacts.

6/10/16
Date

Phase I Emergency Sandbag Revetment
Project Name

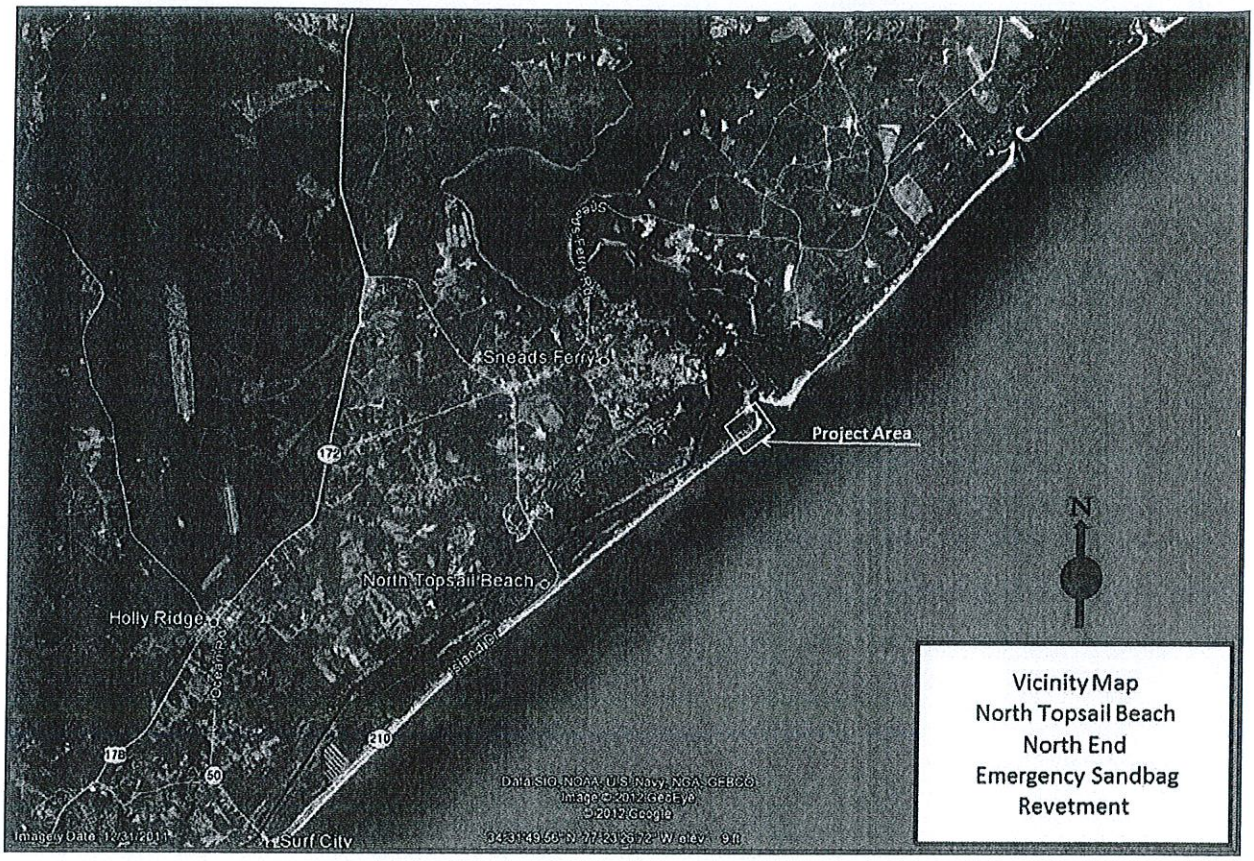
Stuart Turille Stuart Turille

Applicant Name

Stuart Turille

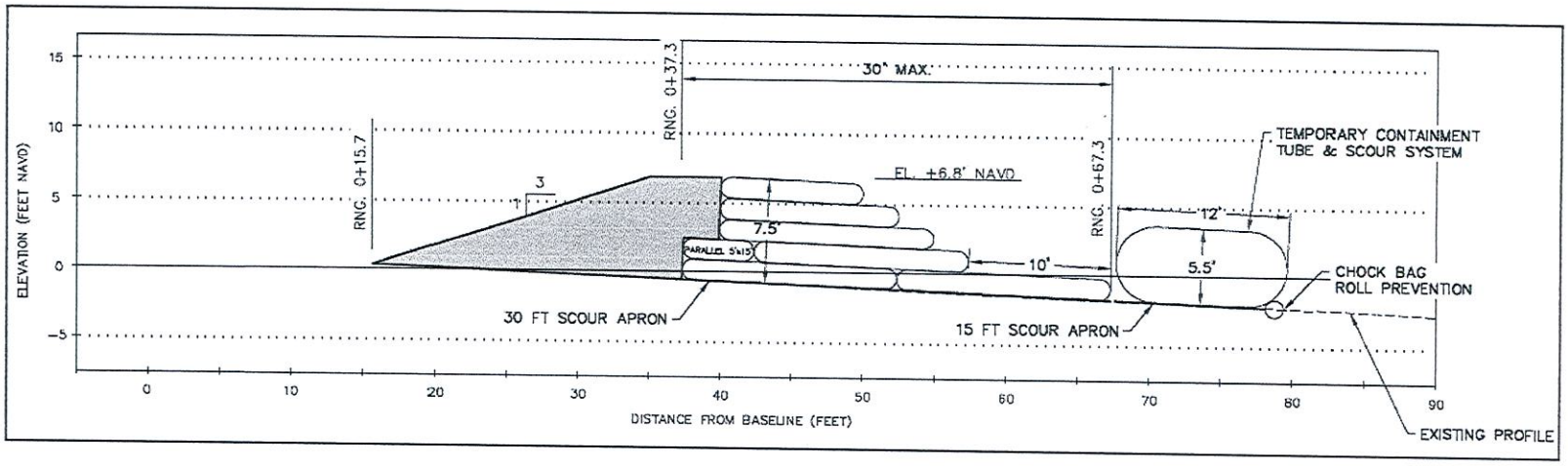
Applicant Signature

Sheet 1 of 4. Vicinity Map

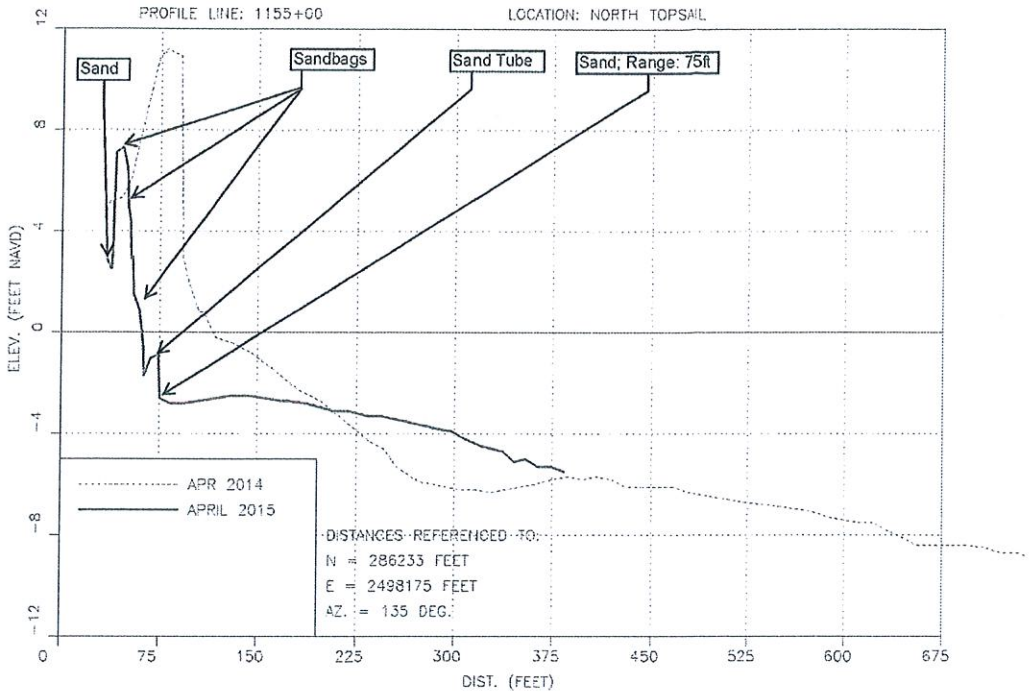


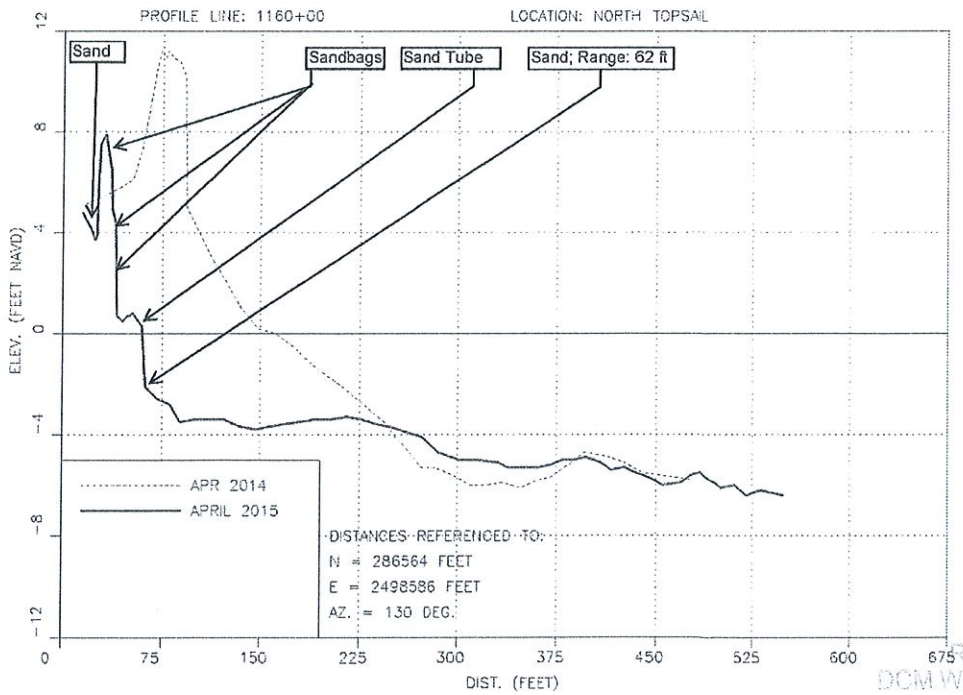
Sheet 2 of 4. Plan view of sandbag revetment and geotube

Sheet 3 of 4. Typical Cross-Section – Permitted Sand bag revetment



Sheet 4 of 4. Typical Profiles





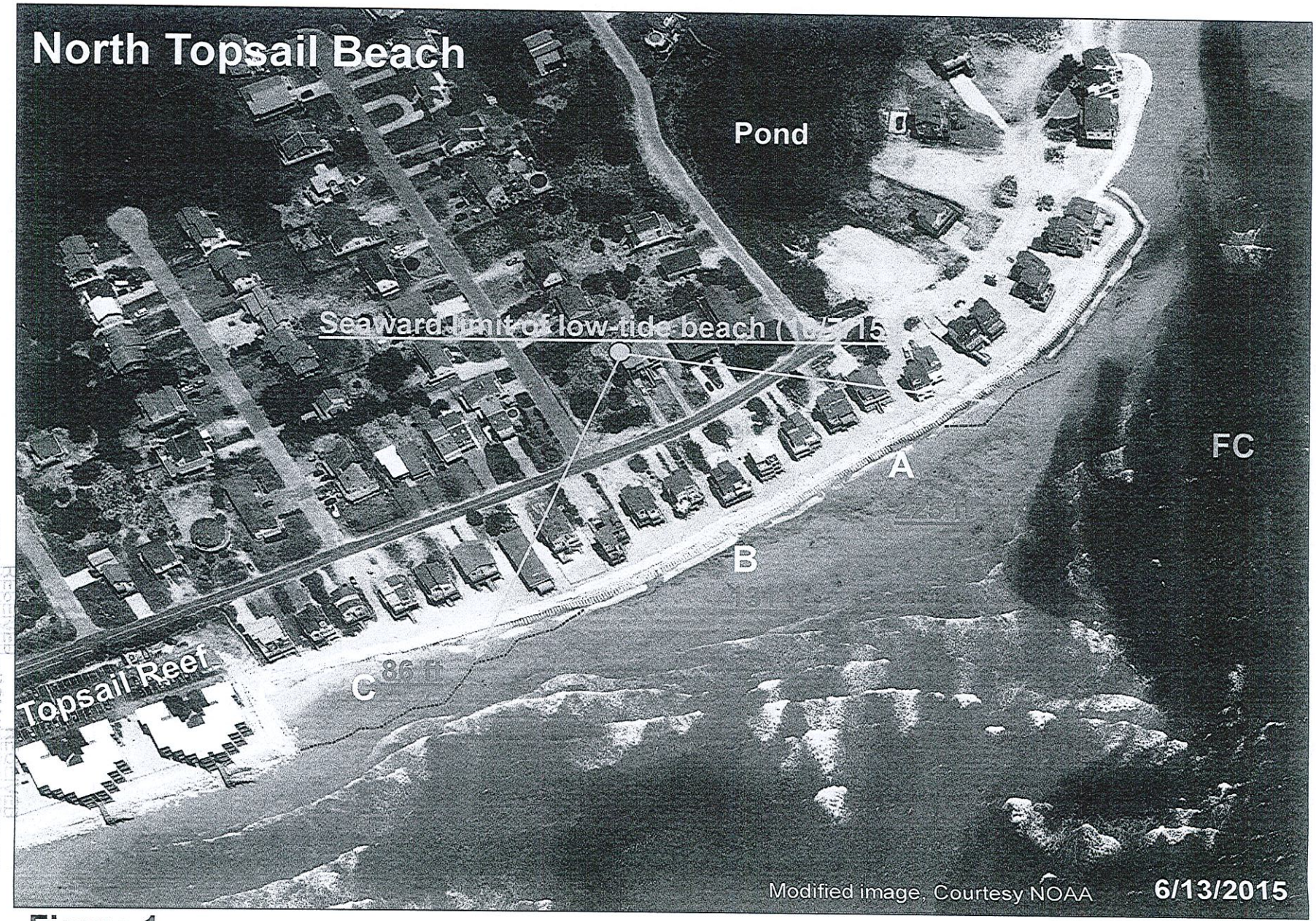


Figure 1

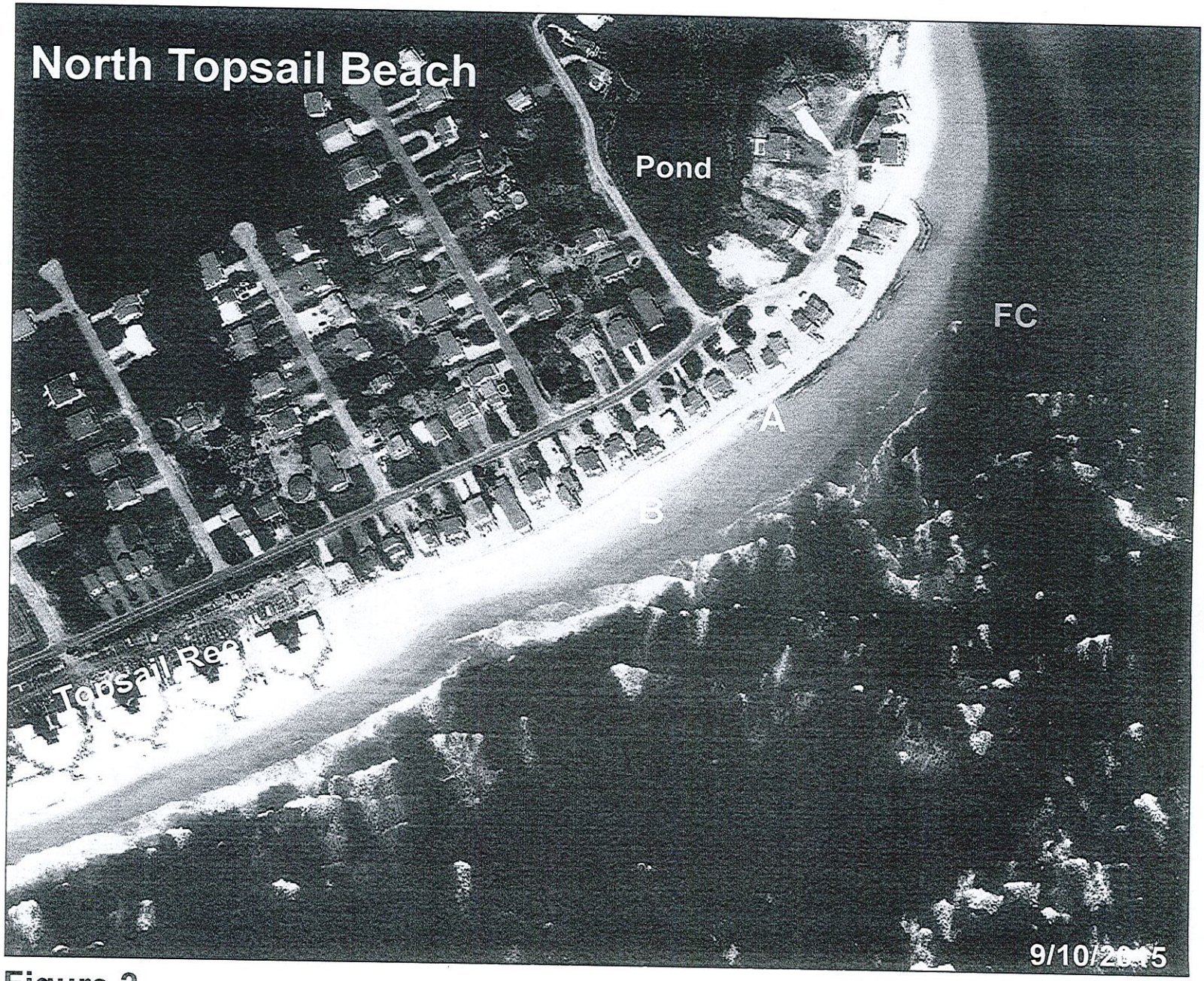


Figure 2

Figure 3

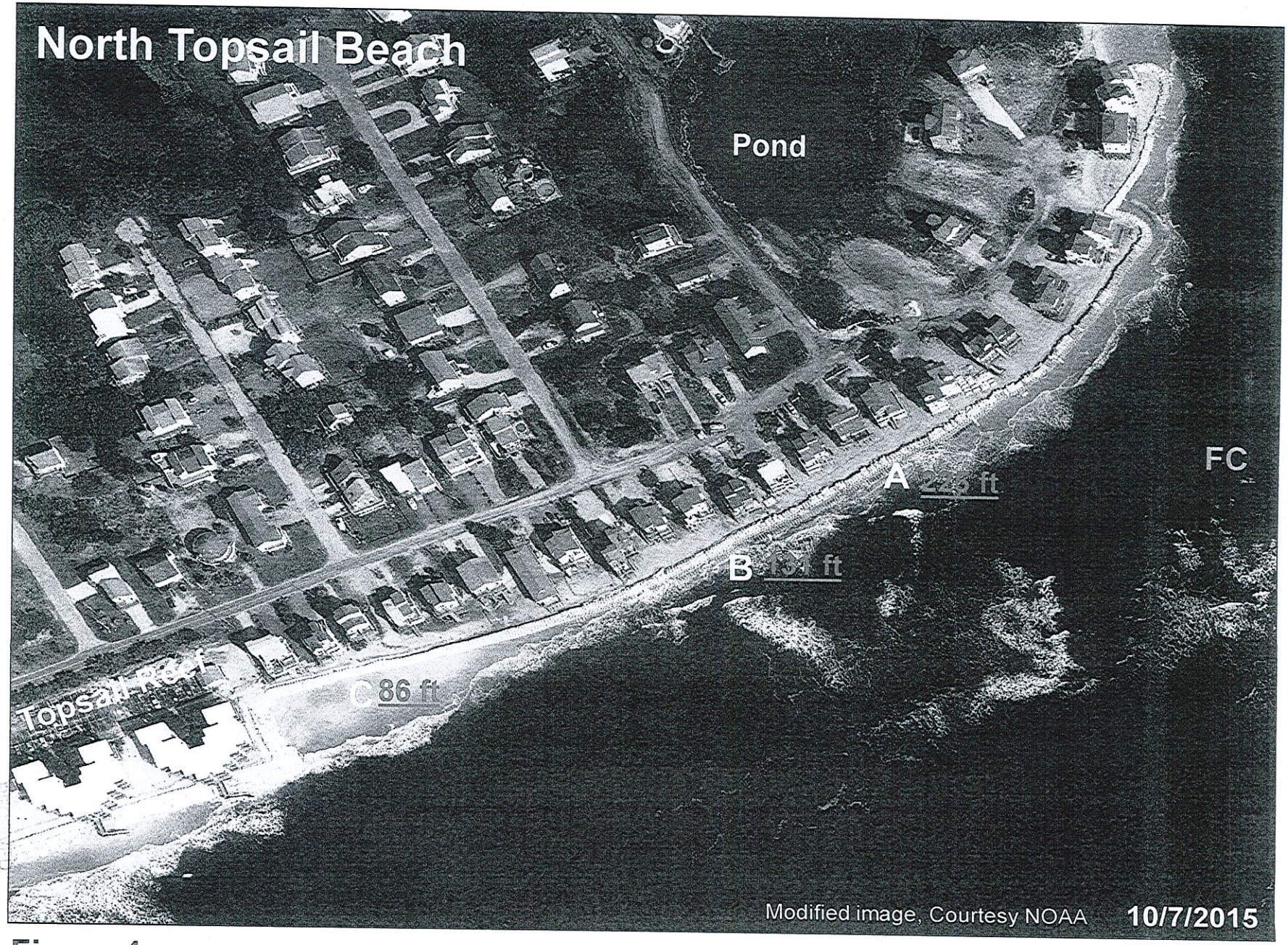

North Topsail Beach
Pond
FC
A
B
Topsail Reef
86 ft
Modified image, Courtesy NOAA
10/7/2015

Figure 4

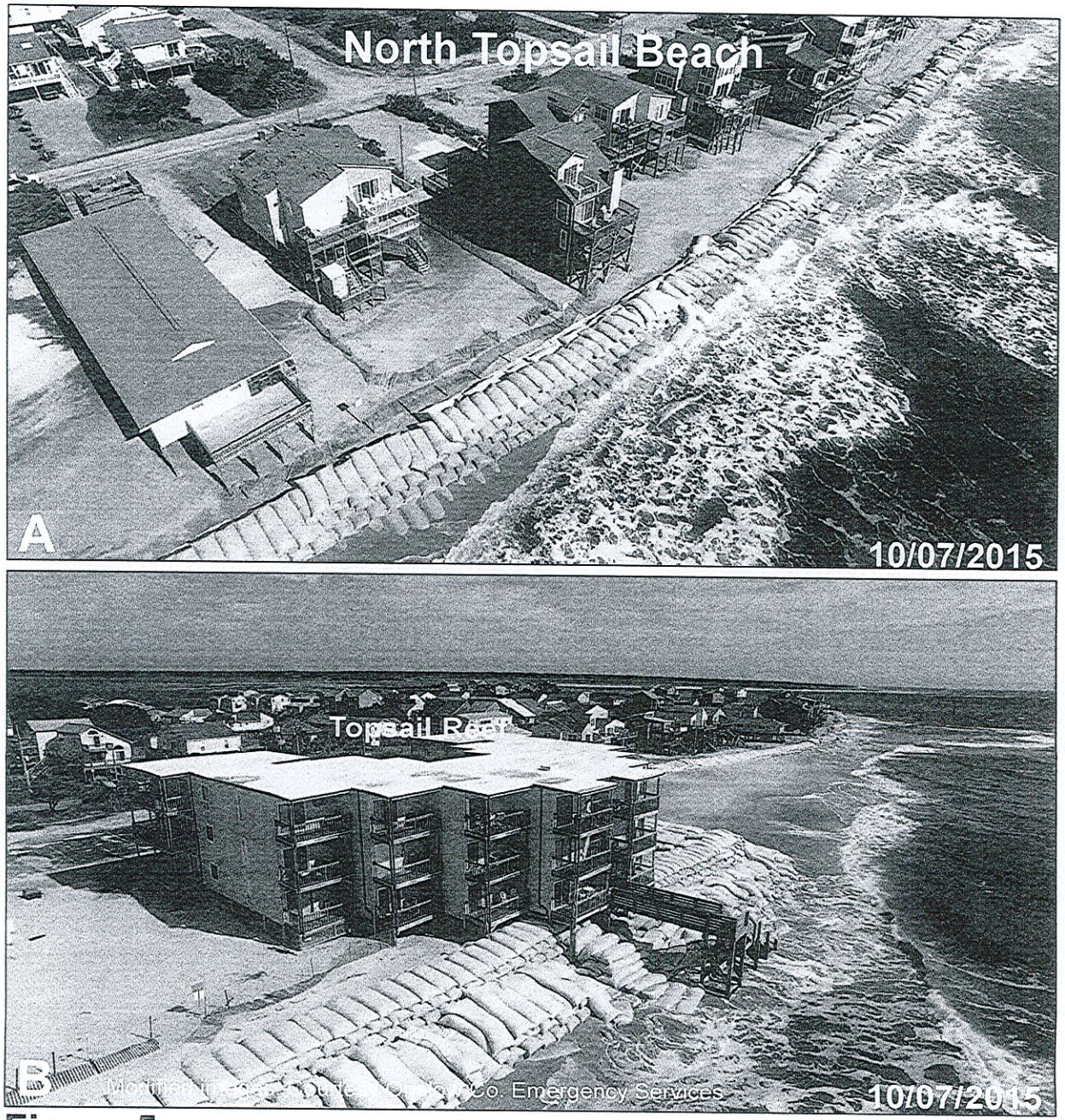


Figure 5

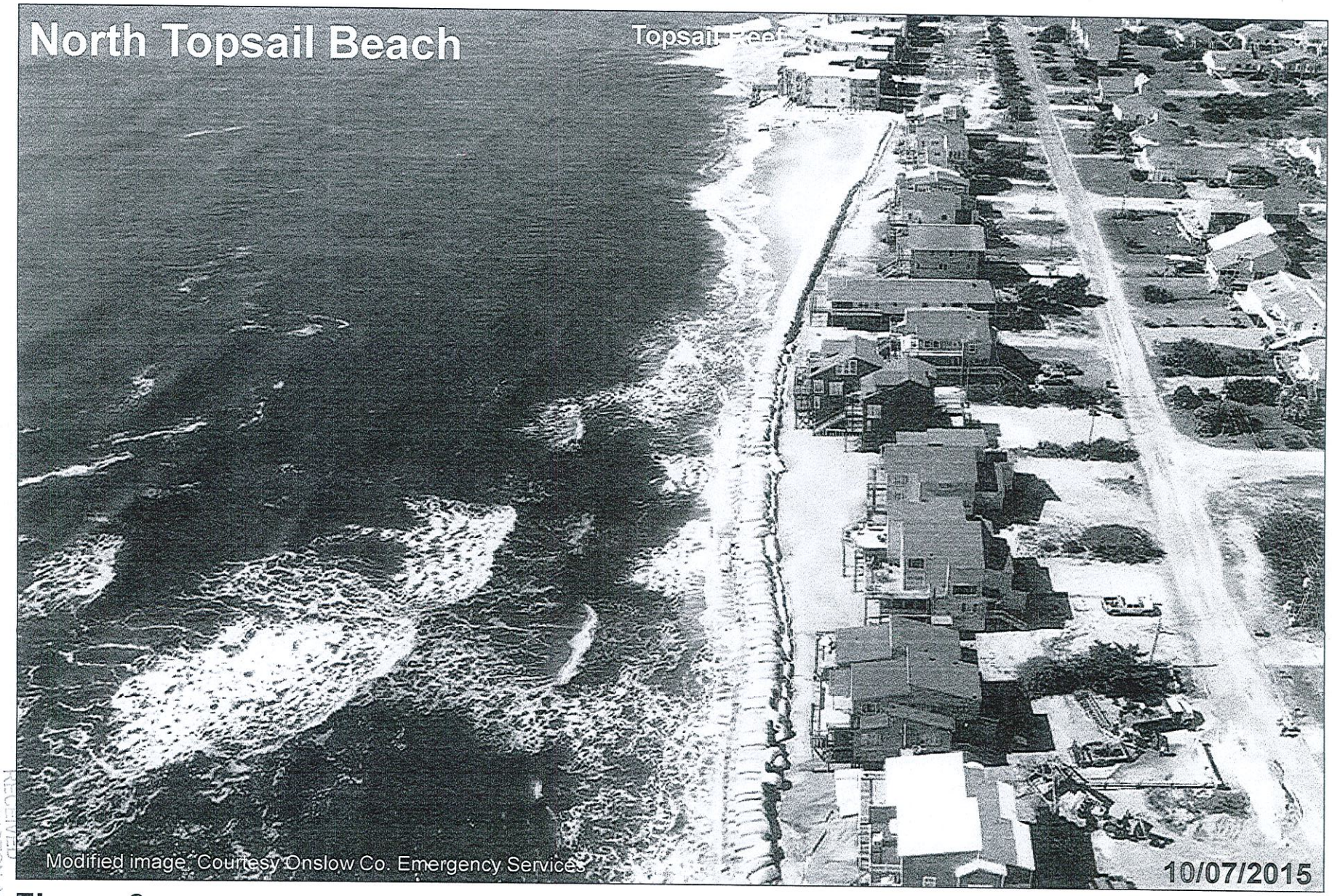


Figure 6

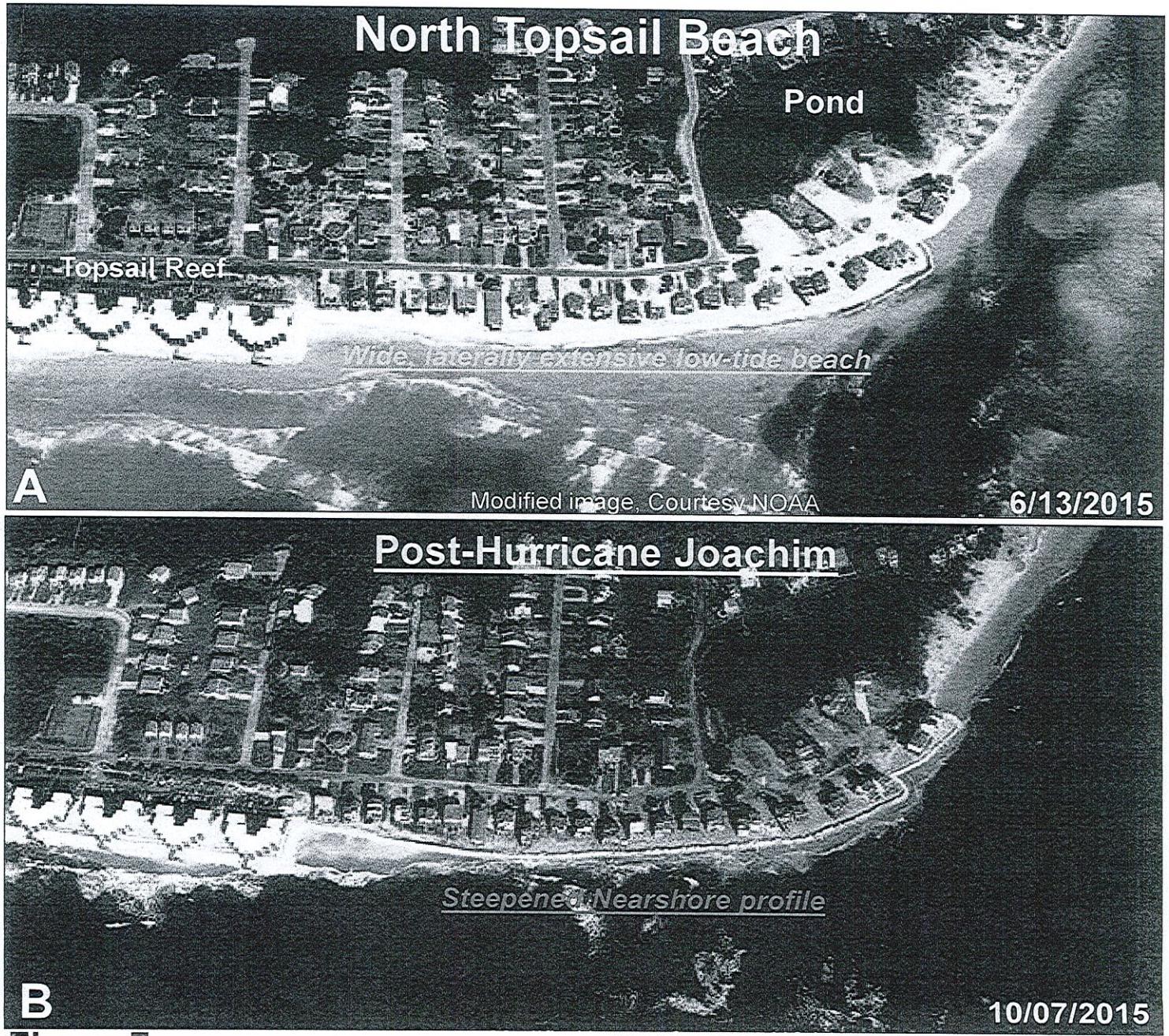


Figure 7

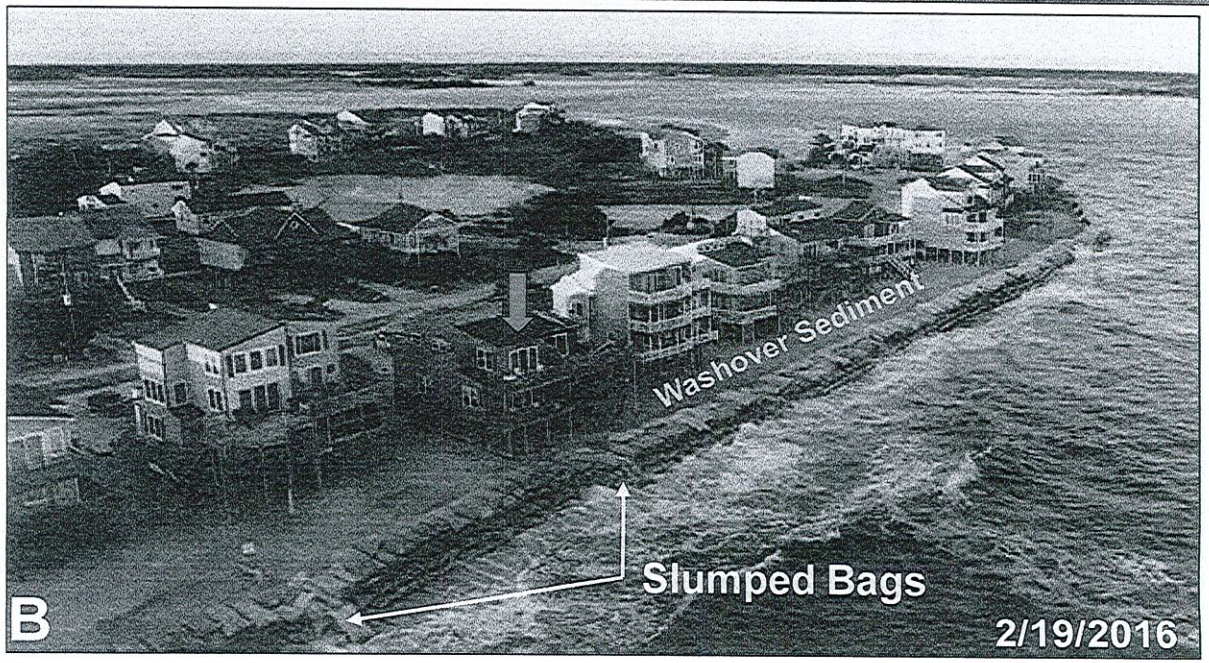


Figure 8

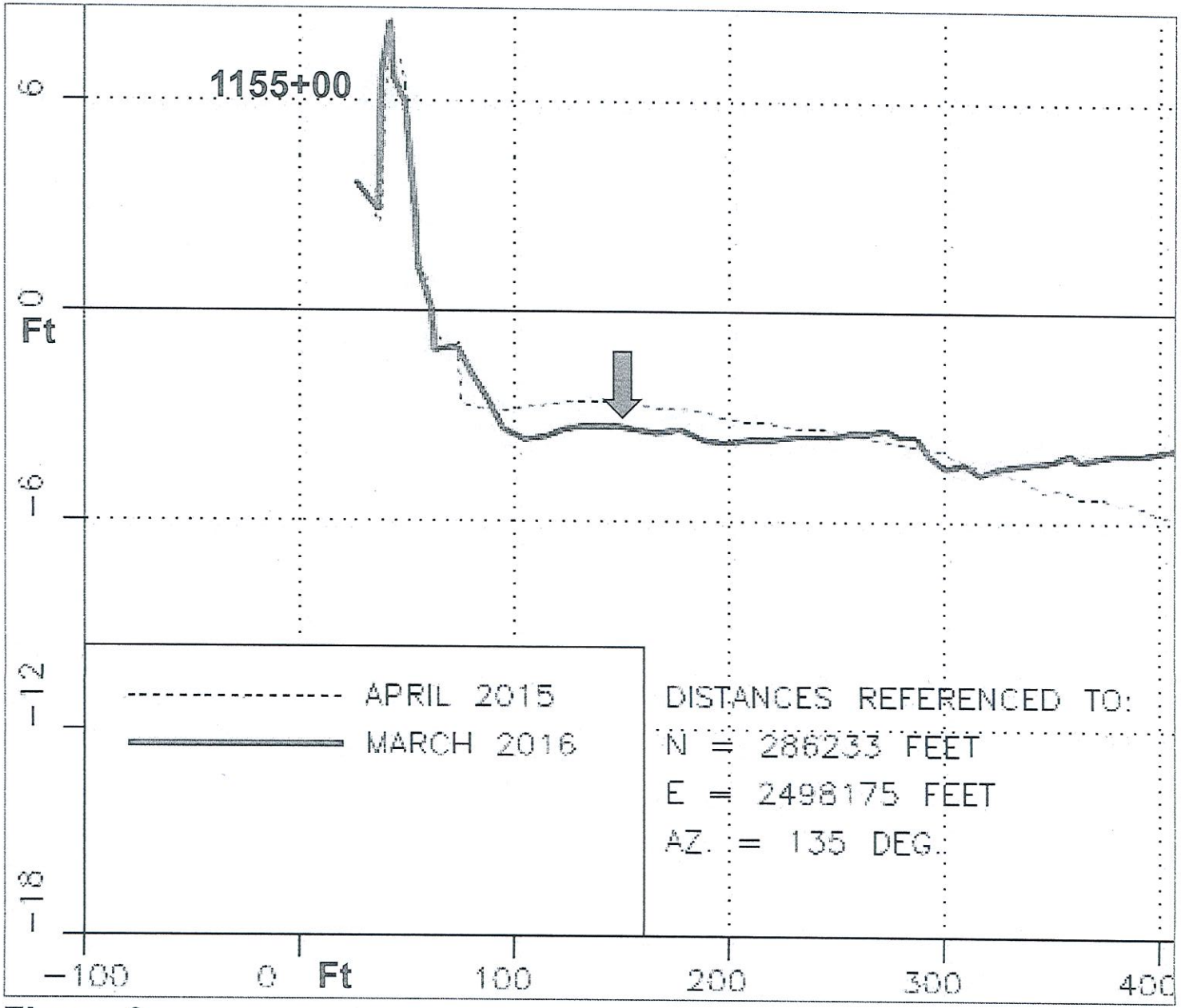


Figure 9

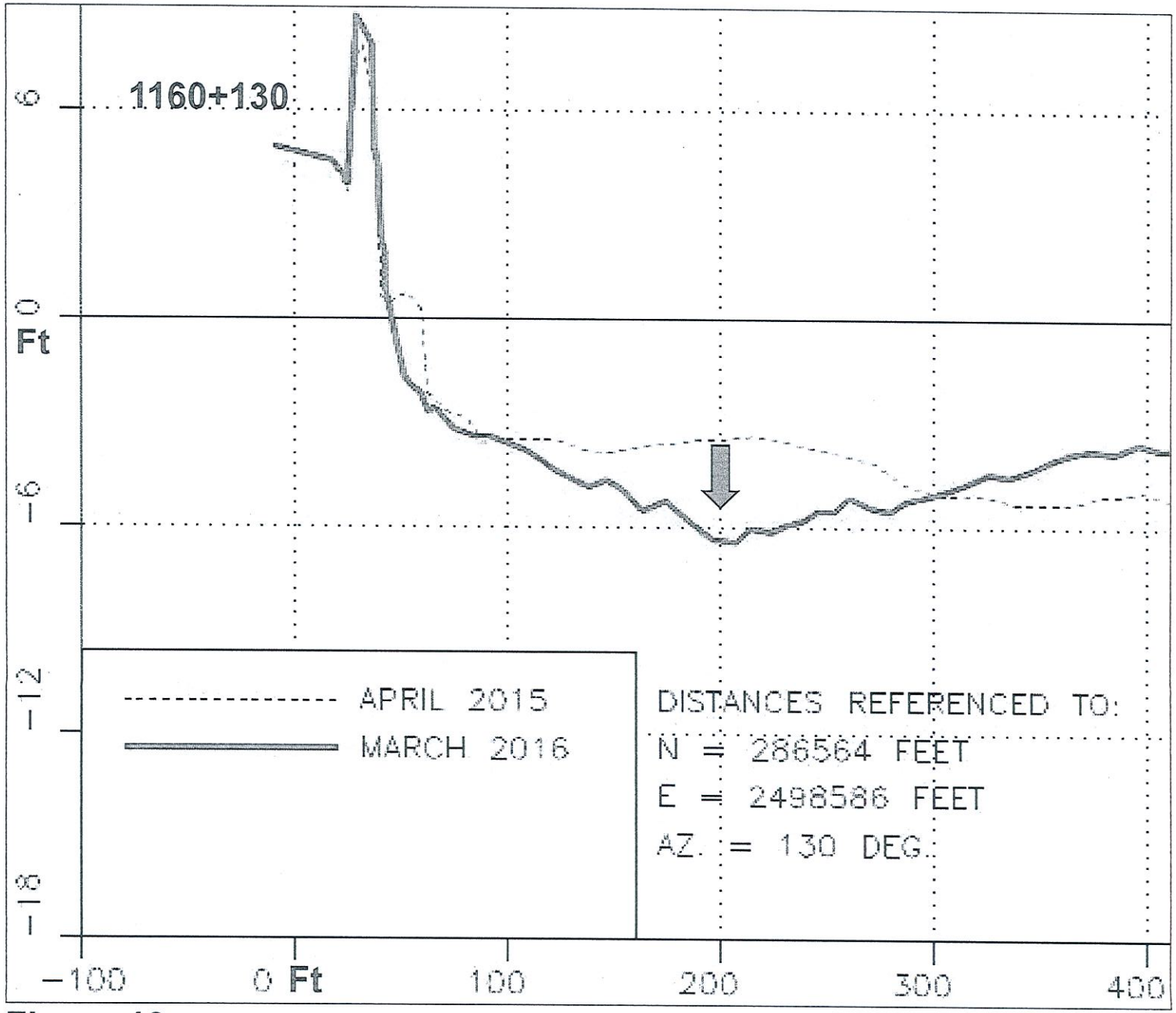


Figure 10

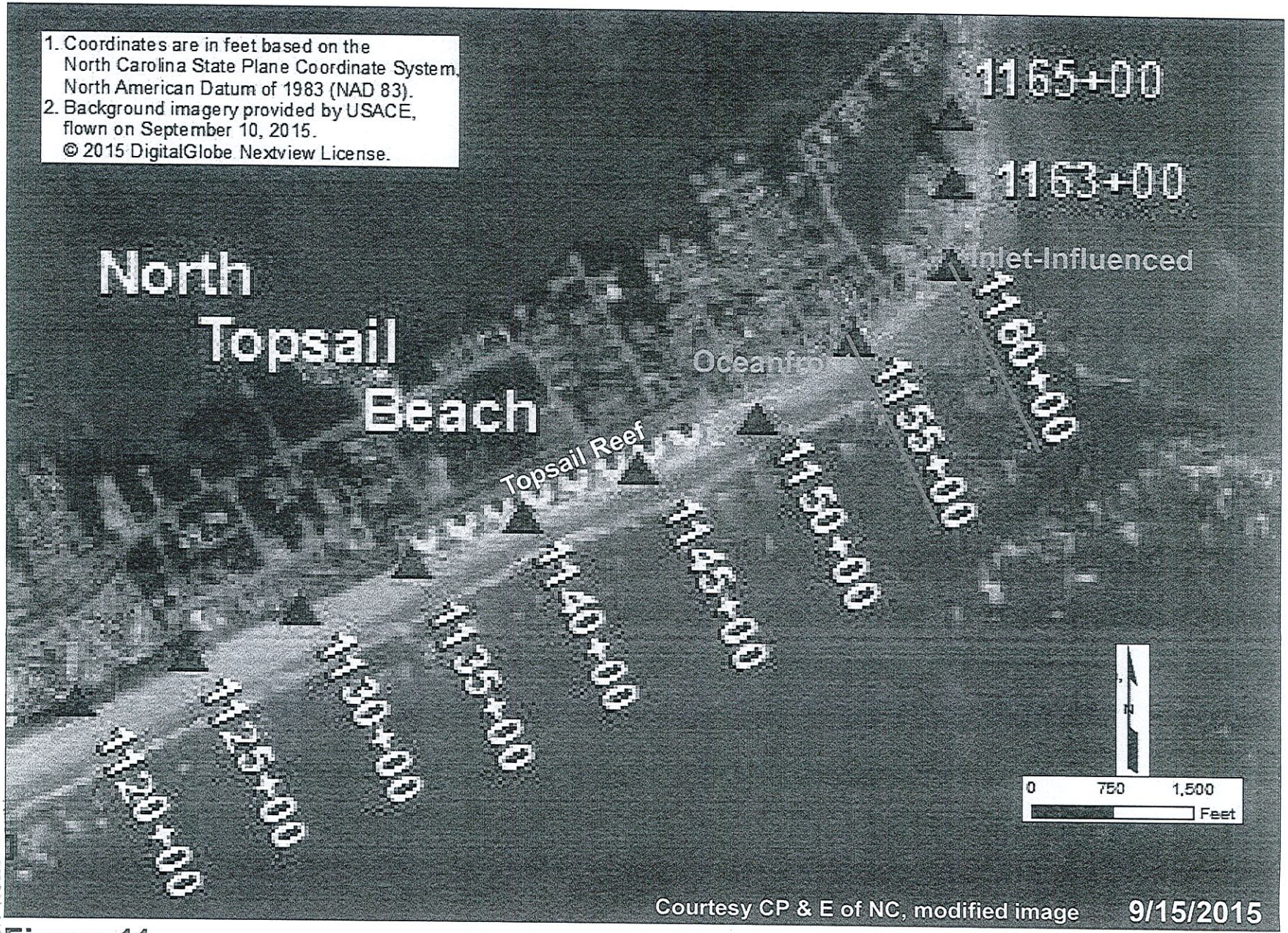


Figure 11

Town of North Topsail Beach

Fred J. Burns, Mayor
Richard Macartney, Mayor Pro Tem
Aldermen:
Don Harte
Joann M. McDermon
Richard Peters
Walter Yurek

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

June 13, 2016

Mr. Jason Dail
Division of Coastal Management
North Carolina Department of Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

RE: Permit Modification Request for Town of North Topsail Beach Regarding CAMA Permit 92-14 - RESUBMITTAL

Dear Mr. Dail,

Per your e-mail communication sent on June 6, 2016, the Town has provided the following additional information to your office:

1. The signed certified mail receipts demonstrating that the adjacent riparian property owners received notification of your planned development.

2. A completed MP-1 Form, Section 4. (f), which includes the existing "temporary containment sand tube" as referred to in the original application.

3. A completed MP-1 Form, Section 5(a), with the use of the project as Public/Government.

4. A completed, signed, and dated MP-2 Form.

5. A check made payable to NCDEQ in the amount of $400.

Sincerely,

Stuart Turille

Stuart Turille
Town Manager

Cc:

Braxton Davis (Div. of Coastal Management)
Doug Huggett (Div. of Coastal Management)
Brian Edes (Town Attorney)

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
Fax (910) 328-4508

Permit Modification Request for Town of North Topsail Beach

Regarding CAMA Permit 92-14

Resubmittal

Prepared by:

The Town of North Topsail Beach

Submitted to:

North Carolina Department of Environment and Natural Resources
Division of Coastal Management
Wilmington Regional Office

June 2016

Permit Modification Request for Town of North Topsail Beach

Regarding CAMA Permit 92-14

RESUBMISSION

Contents

waves caused significant oceanfront shoreline erosion to occur within the sandbag revetment area. The erosion of the shoreline resulted in the steepening of the lower foreshore profile in front of the sandbag revetment. Dr. Cleary goes on to state, in regards to February 2016 drone aerial images of the area, that "incident waves breaking along the base of the sand bags further led to scouring of the sea bed promoting further slumping of the bags. This process frequently occurred during the subsequent months and may be considered the norm." In summation, Dr. Cleary stated that "the removal of the geo-tube will have serious consequences on the stability of the sand bag "revetment". Its removal will ultimately lead to accelerated erosion of the sea bed adjacent to the sand bags due to a variety of wave-related processes."

Additionally, with the prospect of an extended period of recovery along the north end of the island associated with the channel relocation project, the TOWN has already executed a contract to move forward with the modeling and design of a terminal groin that would be required to be completed as part of the permitting process, which could take at least 3 years. With this in mind and given the fact that volatility of the inlet shoreline conditions continues to threaten the possible undermining of portions of the sandbag revetment, the Town is again concerned about the risk of undermining of the structure. Currently, this undermining is being held in check by the presence of the sand tubes.

A complete application package is attached and includes a detailed project narrative along with an aerial photo of the project site taken near the time of completion of the sandbag revetment. Other information being submitted with this request includes forms MP-1, MP-4, an AEC Hazard Notice, list of adjacent riparian owners notified, easements showing ownership, and the required fee. Please note that we will supplement or amend any of these items as needed.

Please contact me at 910.328.1349 (office) should you have any questions or need additional information.

Sincerely,

Stuart Turille

Stuart Turille
Town Manager

Cc:

Braxton Davis (Div. of Coastal Management)
Doug Huggett (Div. of Coastal Management)
Jason Dail (Div. of Coastal Management)
Brian Edes (Town Attorney)

Town of North Topsail Beach

Fred J. Burns, Mayor
Richard Macartney, Mayor Pro Tem
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Richard Peters
Walter Yurek

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

June 3, 2016

NEAL GEORGE III
3203 HENDERSON RD
GREENSBORO NC 27410-6032

SENT CERTIFIED RETURN RECEIPT

Re: REVISED RESTORATION PLAN FOR THE TOWN OF NORTH TOPSAIL BEACH. REQUEST FOR MODIFICATION TO PERMIT #92-14.

Adjacent Riparian Property Owner Notification

Dear Sir or Madam:

The Town of North Topsail Beach (TOWN) is submitting a Coastal Area Management Act (CAMA) Major Permit Modification application to the North Carolina Division of Coastal Management (NC DCM) for work occurring within an Area of Environmental Concern.

As more completely described in the attached application, the TOWN intends to submit a CAMA Major Modification application to allow the temporary construction containment tubes, chock tubes and scour aprons to remain until a more long-term solution to the erosion problem can be implemented, or the sand bag revetment permit expires.

Attached to this notice, please find a copy of the application as submitted to the NC DCM office. Within 30 days from receipt of this notice you may submit comments regarding the referenced project to the following address:

Attn: Ms. Debra Wilson
Division of Coastal Management
North Carolina Department of Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Sincerely,

Stuart Turille

Stuart J. Turille
Town Manager

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
Fax (910) 328-4508

South End Adjacent Riparian Owners

- 2284-B New River Inlet Road
  George Neal III
  3203 Henderson Rd.
  Greensboro, NC 27410-6032

- 2284-A New River Inlet Road
  Wayne and Margaret Nielson
  19471 Youngs Cliff Rd.
  Sterling, VA 20165

North End Adjacent Riparian Owners

- 2386 New River Inlet Rd.
  George and Dianne Vann
  12926 Couples Pl.
  Waldorf, MD 20601

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

NEAL George III
3203 Henderson Rd.
Greensboro, NC
27410-6032

9590 9401 0036 5071 9929 44

2. Article Number *(Transfer from service label)*
15 0920 0001 7385 5144

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

RECEIVED DCM WILMINGTON NC
JUN 14 2016

3. Service Type
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- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
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- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, April 2015 PSN 7530-02-000-9053 Domestic Return Receipt

RECEIVED
DCM WILMINGTON NC
JUN 14 2016

Town of North Topsail Beach

Fred J. Burns, Mayor
Richard Macartney, Mayor Pro Tem
Aldermen:
Don Harte
Joann M. McDermon
Richard Peters
Walter Yurek

Stuart Turille
Town Manager

Carin Z. Faulkner, MPA
Asst. Town Manager/Town Clerk

Nature's Tranquil Beauty

June 3, 2016

NIELSEN WAYNE F & MARGARET S
19471 YOUNGS CLIFF RD
STERLING VA 20165

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North Carolina Department of Environment and Natural Resources
127 Cardinal Drive Extension
Wilmington, North Carolina 28405

Sincerely,

Stuart Turille

Stuart J. Turille
Town Manager

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

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  George and Dianne Vann
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  Waldorf, MD 20601

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Postage	$3.30
Certified Fee	$2.70
Return Receipt Fee (Endorsement Required)	$0.00
Restricted Delivery Fee (Endorsement Required)	$0.00
Total Postage & Fees	$6.47

0460
07
Postmark Here
06/03/2016

Sent To: Neal Geagerr III
Street & Apt. No., or PO Box No.: 3203 Henderson Rd.
City, State, ZIP+4: Greensboro, NC 27410-6302

PS Form 3800, July 2014 — See Reverse for Instructions

7015 0920 0001 7385 5151

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Postage	$3.30
Certified Fee	$2.70
Return Receipt Fee (Endorsement Required)	$0.00
Restricted Delivery Fee (Endorsement Required)	$0.00
Total Postage & Fees	$6.47

0460
07
Postmark Here
06/03/2016

Sent To: Nielsen Wayne + Margaret
Street & Apt. No., or PO Box No.: 19471 Youngs Cliff Rd.
City, State, ZIP+4: Sterling, VA 20165

PS Form 3800, July 2014 — See Reverse for Instructions

7015 0920 0001 7385 5168

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
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WALDORF, MD 20601
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Postage	$3.30
Certified Fee	$2.70
Return Receipt Fee (Endorsement Required)	$0.00
Restricted Delivery Fee (Endorsement Required)	$0.00
Total Postage & Fees	$6.47

0460
07
Postmark Here
06/03/2016

Sent To: Vann George + Diann
Street & Apt. No., or PO Box No.: 12926 Couples Pl
City, State, ZIP+4: Waldorf, MD 20601

PS Form 3800, July 2014 — See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

UANN George + Diana
12926 Couples PL
Waldorf, MD 20601

9590 9402 0036 5071 9929 06

2. Article Number (Transfer from service label)

5 0920 0001 7365 5168

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☑ Agent
☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

6/7

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

WALDORF MD
JUN 08 2016

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☑ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☑ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, April 2015 PSN 7530-02-000-9053 Domestic Return Receipt

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Nature's Tranquil Beauty

June 3, 2016

VANN GEORGE C & DIANN L
12926 COUPLES PL
WALDORF MD 20601

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Wilmington, North Carolina 28405

Sincerely,

Stuart Turille

Stuart J. Turille
Town Manager

2008 Loggerhead Court
North Topsail Beach, NC 28460

ntbnc.org

Phone (910) 328-1349
Toll Free: (800) 687-7092
Fax (910) 328-4508

W

North Carolina Wildlife Resources Commission

Gordon Myers, Executive Director

MEMORANDUM

TO: Heather Coats
Division of Coastal Management
North Carolina Department of Environmental Quality

FROM: Maria T. Dunn, Coastal Coordinator
Habitat Conservation Division

DATE: July 21, 2016

SUBJECT: CAMA Dredge/Fill Permit Modification for Town of North Topsail Beach State Permit No. 92-14, Onslow County, North Carolina.

Biologists with the North Carolina Wildlife Resources Commission (NCWRC) reviewed the permit modification request with regard to impacts on fish and wildlife resources. The project site is located between 2276 and 2382 New River Inlet Road adjacent the Atlantic Ocean and New River Inlet. Our comments are provided in accordance with provisions of the Coastal Area Management Act (G.S. 113A-100 through 113A-128), as amended, Sections 401 and 404 of the Clean Water Act, as amended, and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The applicant wishes to extend the time allowed for the existing temporary construction containment tubes (Geo-tubes) to 2022 or until a "long-term solution to the erosion problem can be implemented". This modification request comes after an already extended period of time, "March 31, 2016 or until the Onslow County channel maintenance project is completed", was granted.

The NCWRC commented on the original permit application (Deaton 18 September 2014) as well as during the first modification request (Dunn 29 May 2015). Our agency stated significant concerns during both occasions. Significant impacts, even when viewed as a short-term, temporary structure include:

- Hardening of the shoreline;
- Degradation of adjacent shorelines due to increased erosion and scour;
- Interference with natural sediment transport and barrier island migration;
- Removal of sea turtle nesting habitat;
- Loss of shorebird foraging area;

Mailing Address: Habitat Conservation • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

Extending the length of time the structure remains continues the impacts listed above as well as increases the Town's dependency on the structure. The structure would likely become a permanent feature as it becomes more difficult to remove or if it is covered during permitted nourishment projects or other natural processes. Allowing the structure to remain, even if covered with sand and vegetation, would essentially establish a hardened shoreline with an impenetrable barrier to nesting sea turtles.

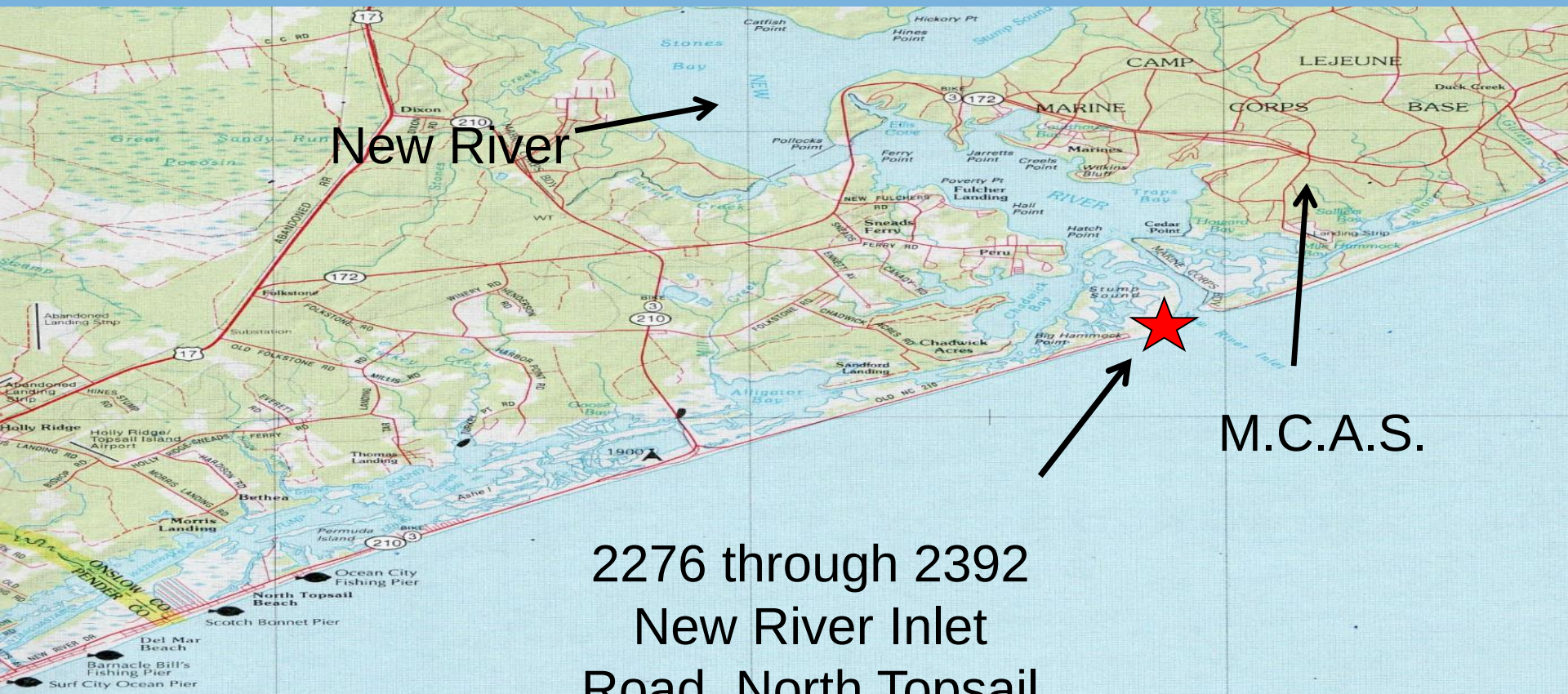
Therefore, the NCWRC continues to have concern with the presence of the Geo-tube and our comments and positions from earlier correspondence remain. Copies of the two previous memorandums are included for record.

We appreciate the opportunity to review and comment on this permit modification. If you need further assistance or additional information, please contact me at (252) 948-3916 or at maria.dunn@ncwildlife.org

VARIANCE REQUEST
For
Town of North Topsail Beach

Project Location: 2276 through 2392 New River Inlet Road North Topsail Beach, Onslow County, NC

September 13, 2016



2276 through 2392
New River Inlet
Road, North Topsail
Beach

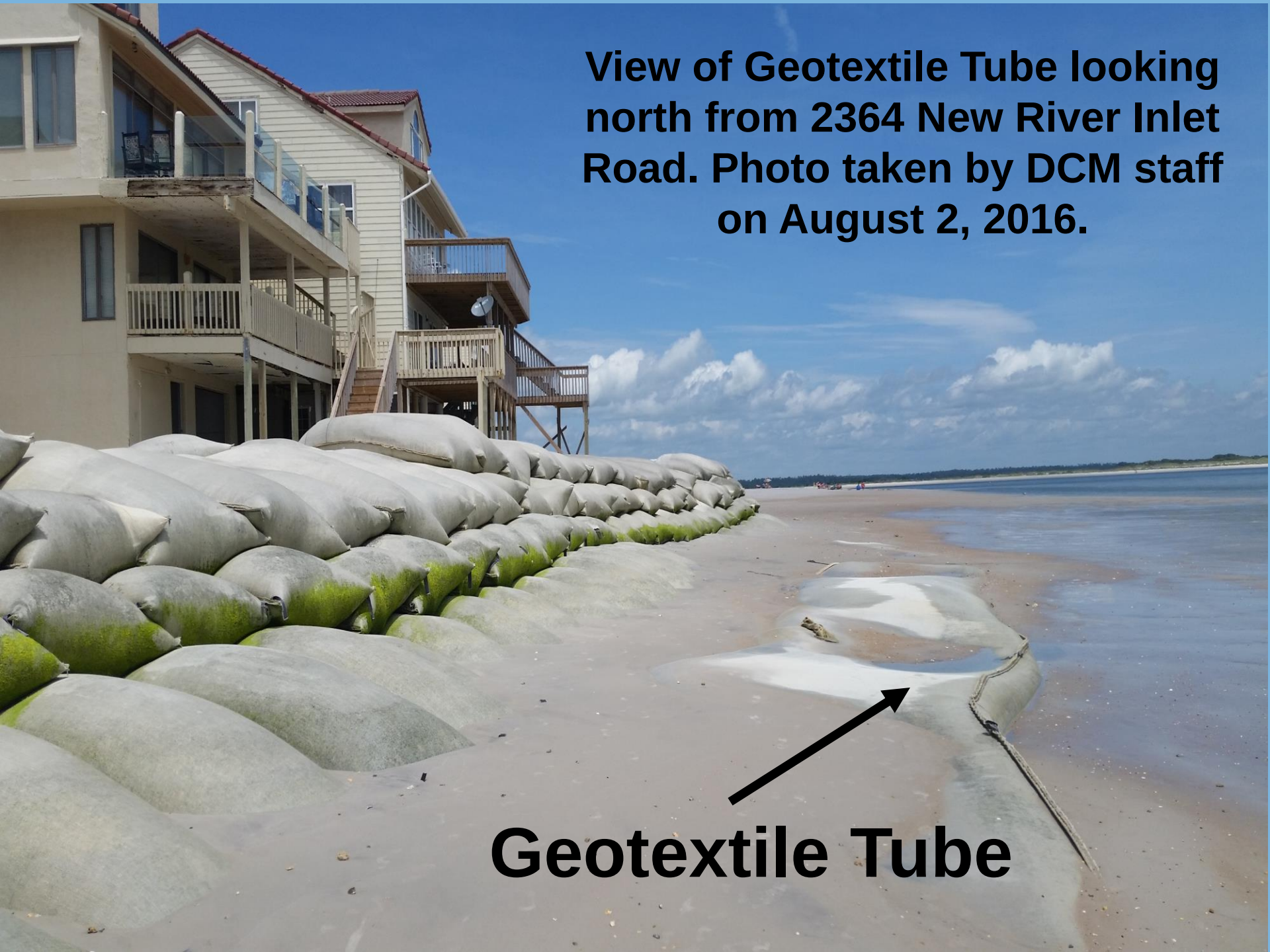
Vicinity Map taken from North Carolina Atlas
2012

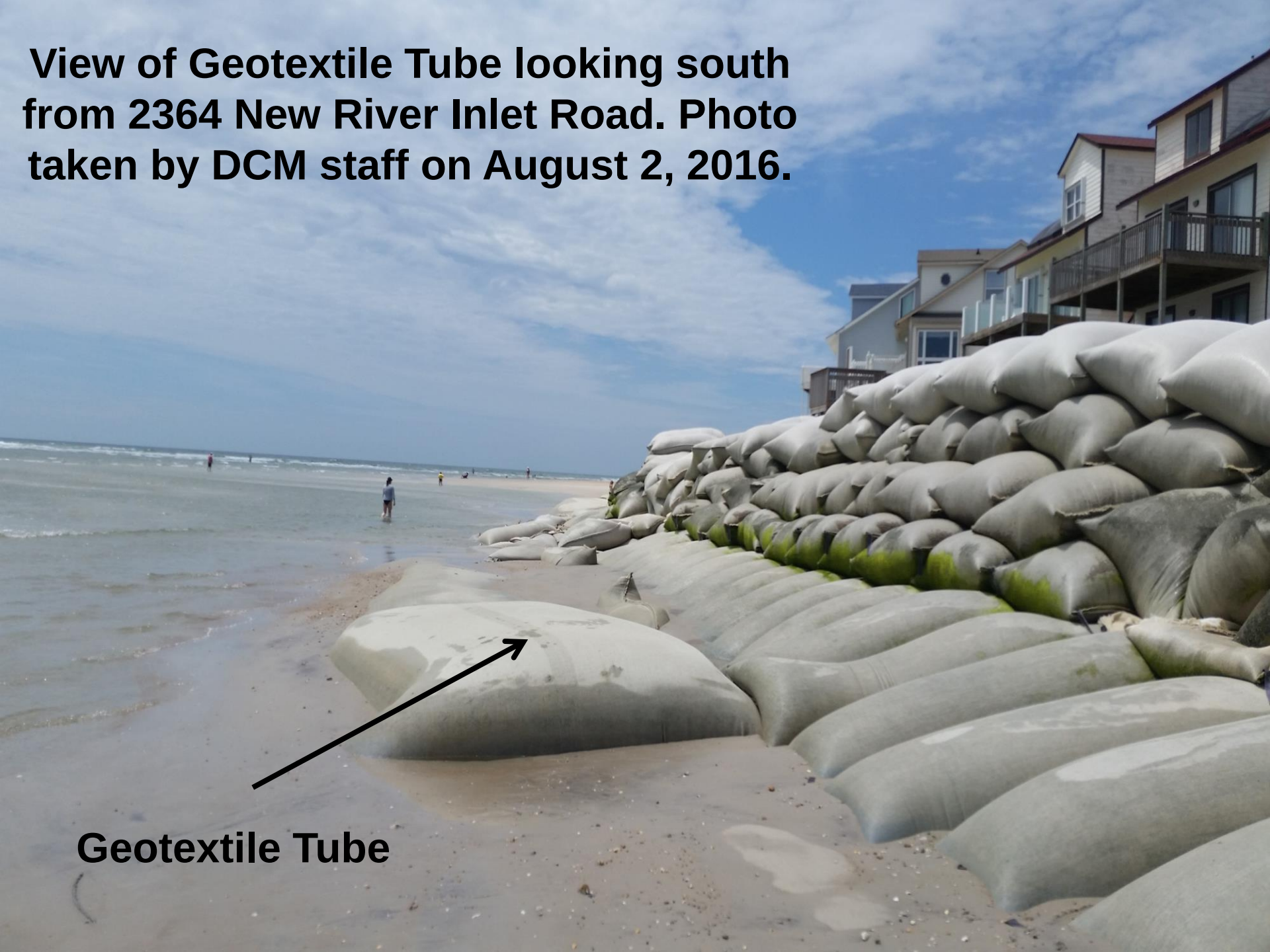

General location map of the Site per Google Earth – 2011.
Approximate extent of Geotextile Tube
Google earth
1993
Imagery Date: 12/31/2011 34°31'33.00" N 77°20'43.90" W elev 0 ft eye alt 2483 ft

General Site Map per Google Earth – October 2015.

Aerial photo of Site provided by North Topsail Beach. – date: Winter/Spring 2015


View of nourishment area looking south from 2332 New River Inlet Road. Photo taken by DCM staff in April 2016.
Approximate location of geotube (covered)


View of Geotextile Tube looking north from 2364 New River Inlet Road. Photo taken by DCM staff on August 2, 2016.
Geotextile Tube


View of Geotextile Tube looking south from 2364 New River Inlet Road. Photo taken by DCM staff on August 2, 2016.
Geotextile Tube


View of Geotextile Tube looking south from 2334 new River Inlet Road. Photo taken by DCM staff on August 2, 2016
Geotextile Tube

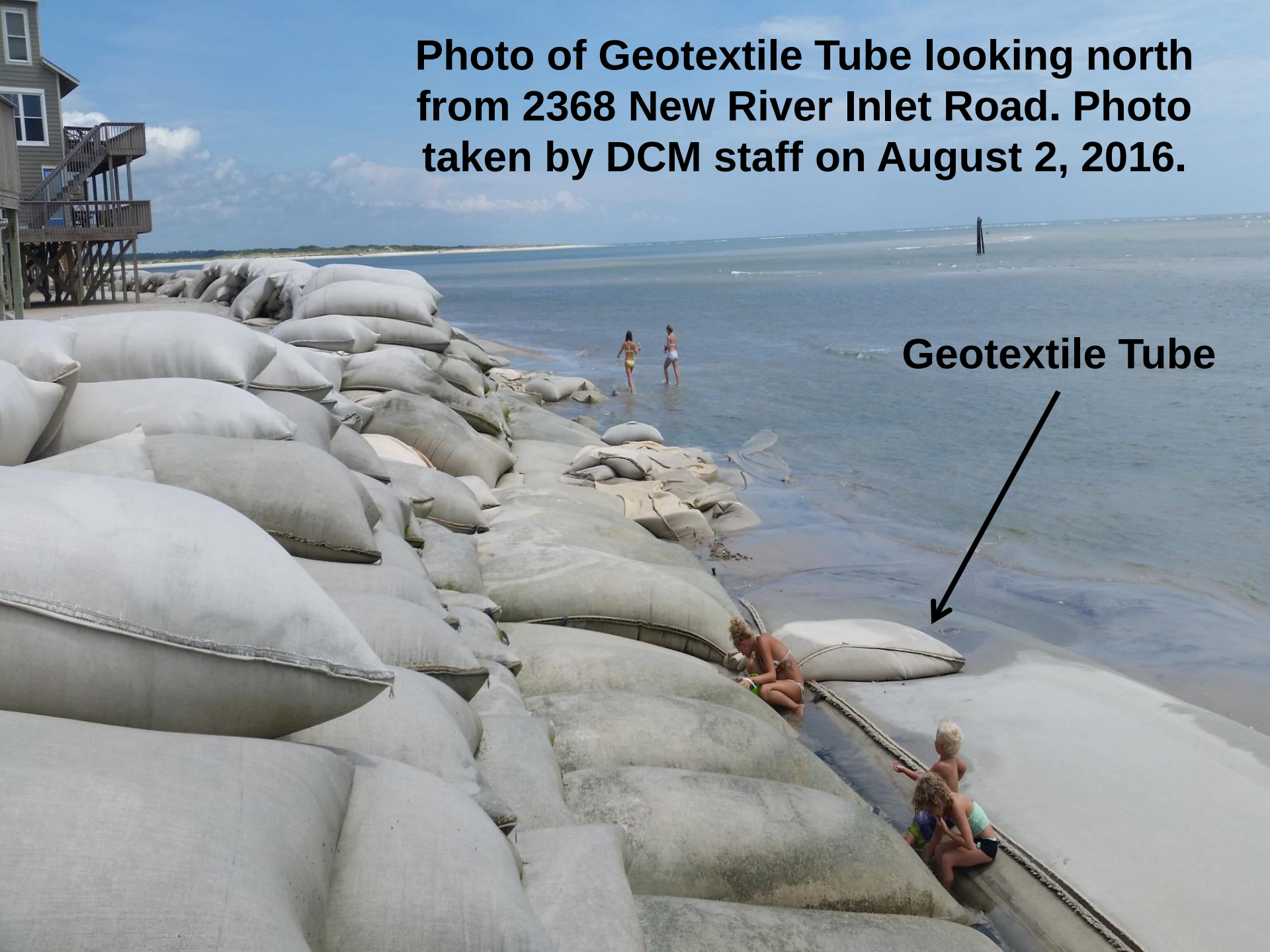


Photo of Geotextile Tube looking north from 2368 New River Inlet Road. Photo taken by DCM staff on August 2, 2016.
Geotextile Tube

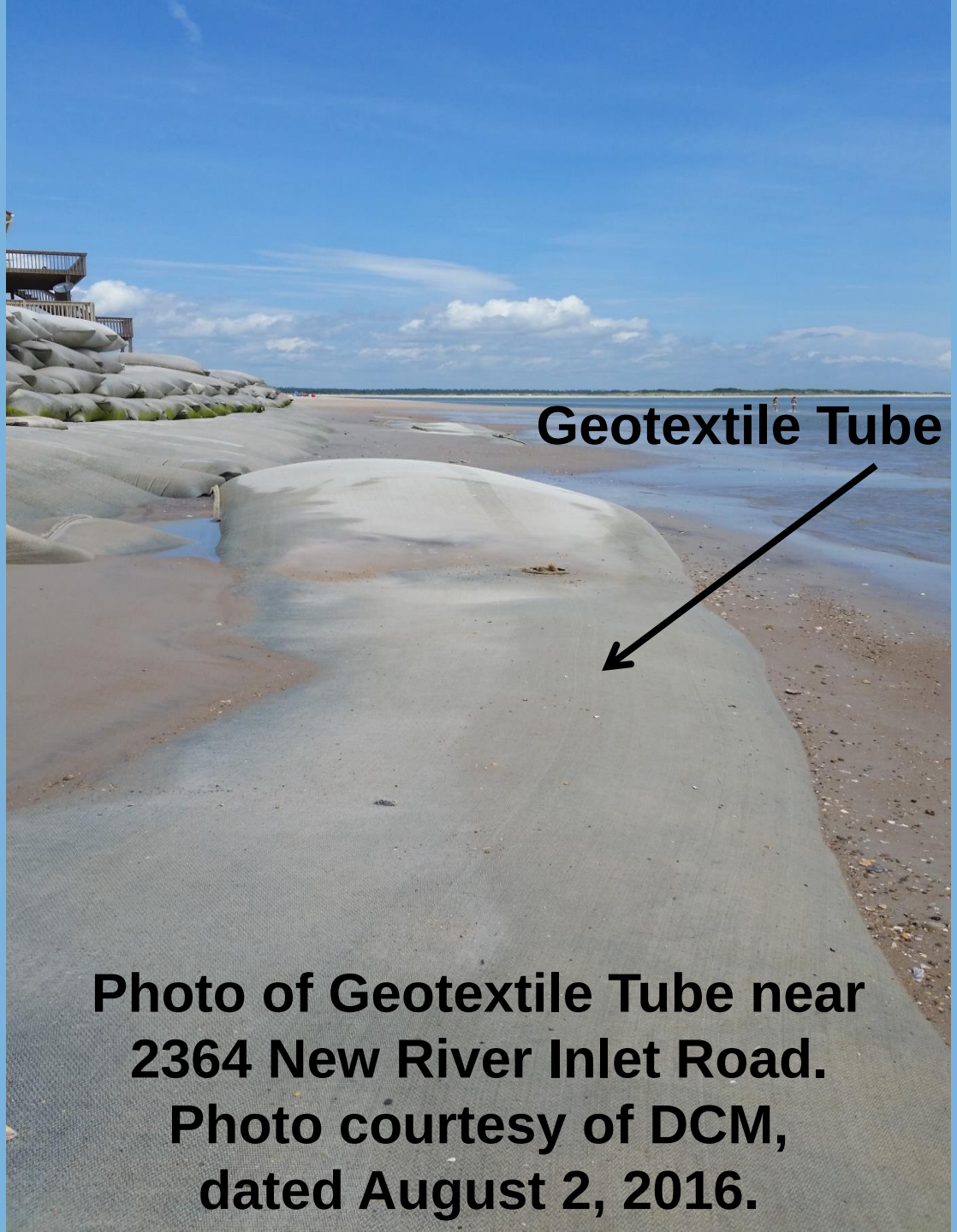


Photo of Geotextile Tube near 2364 New River Inlet Road. Photo courtesy of DCM, dated August 2, 2016.

Photo from November 24, 2014 showing flooding after nor’easter


2014/11/24


2014/11/24


2014/11/24


U-HAUL
2014/11/24


2014/11/24


MILLERITAVILLE
2014/11/24


2014/11/24


2014/11/24


2014/11/24

Conditions 4 months post-construction

Figure 1

Conditions 7 months post-construction

Figure 2

Sept. 10, 2015

Conditions 8 months post-construction

Figure 4

Comparison of June 2015 and October 2015 conditions

Figure 7

Map Showing the Location of Profiles 1160+00 and 1155+00

Figure 11

Beach profile survey plots of data collected along Station 1160+00

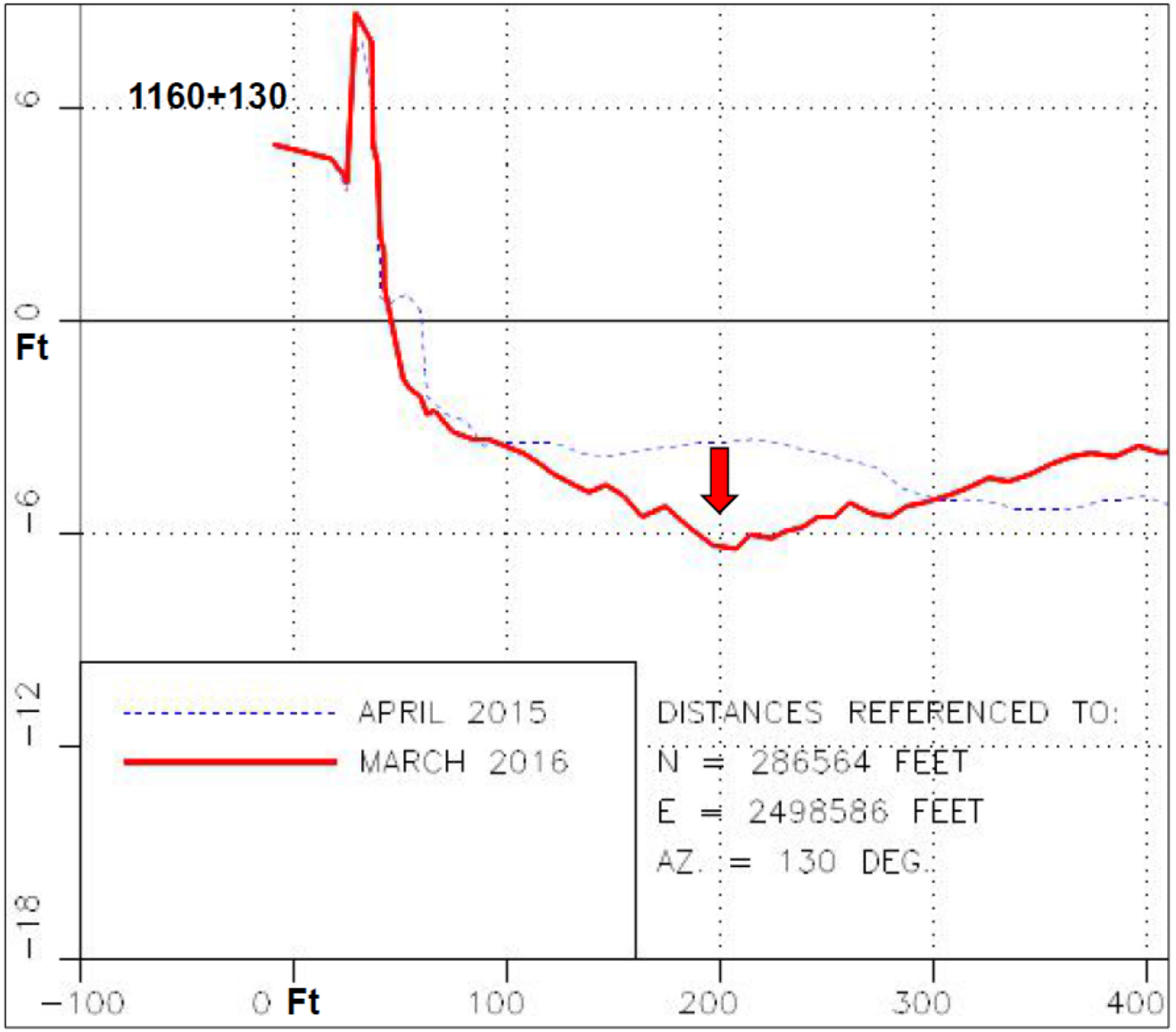


Figure 10

Beach profile survey plots of data collected along Station 1155+00

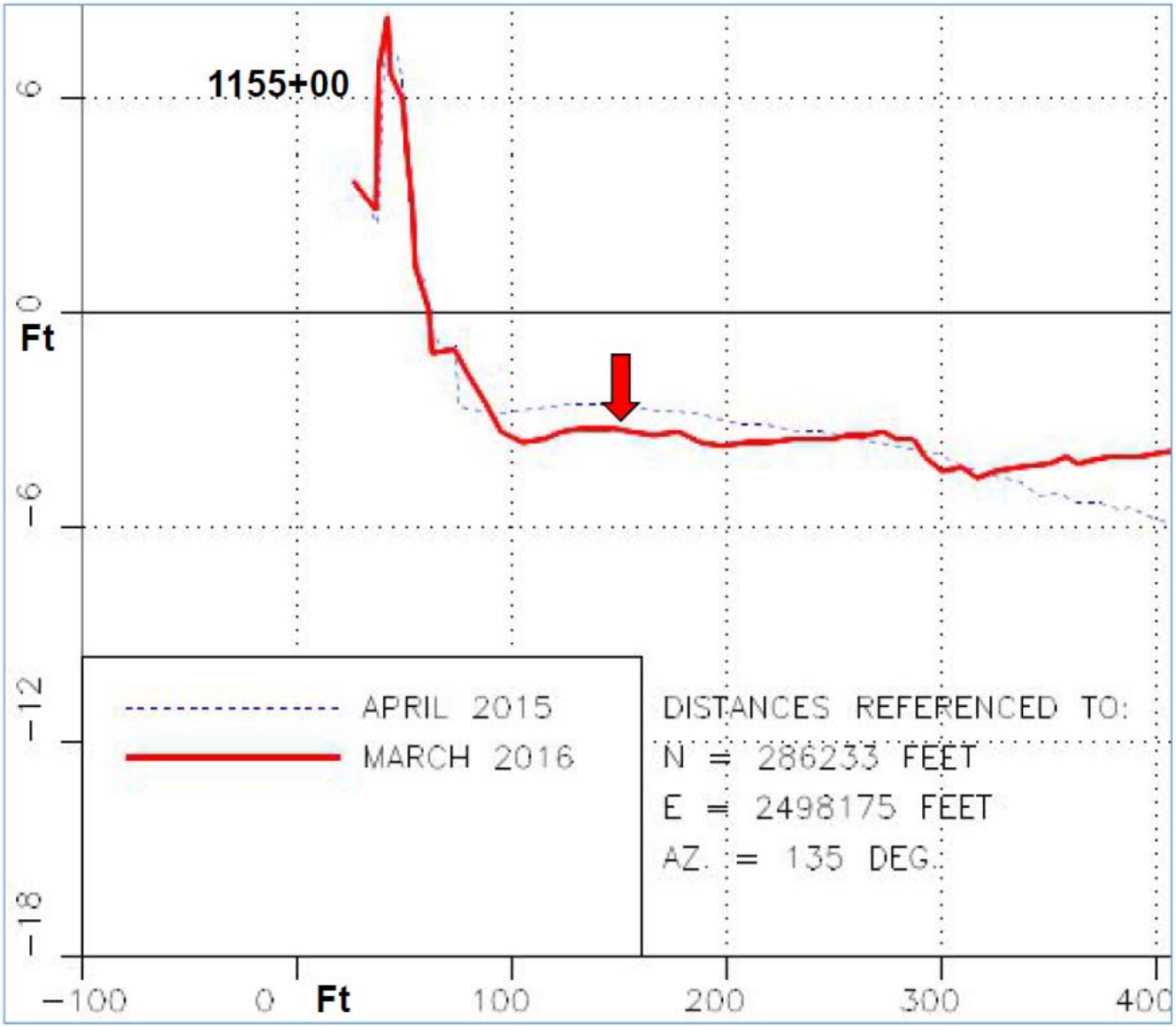
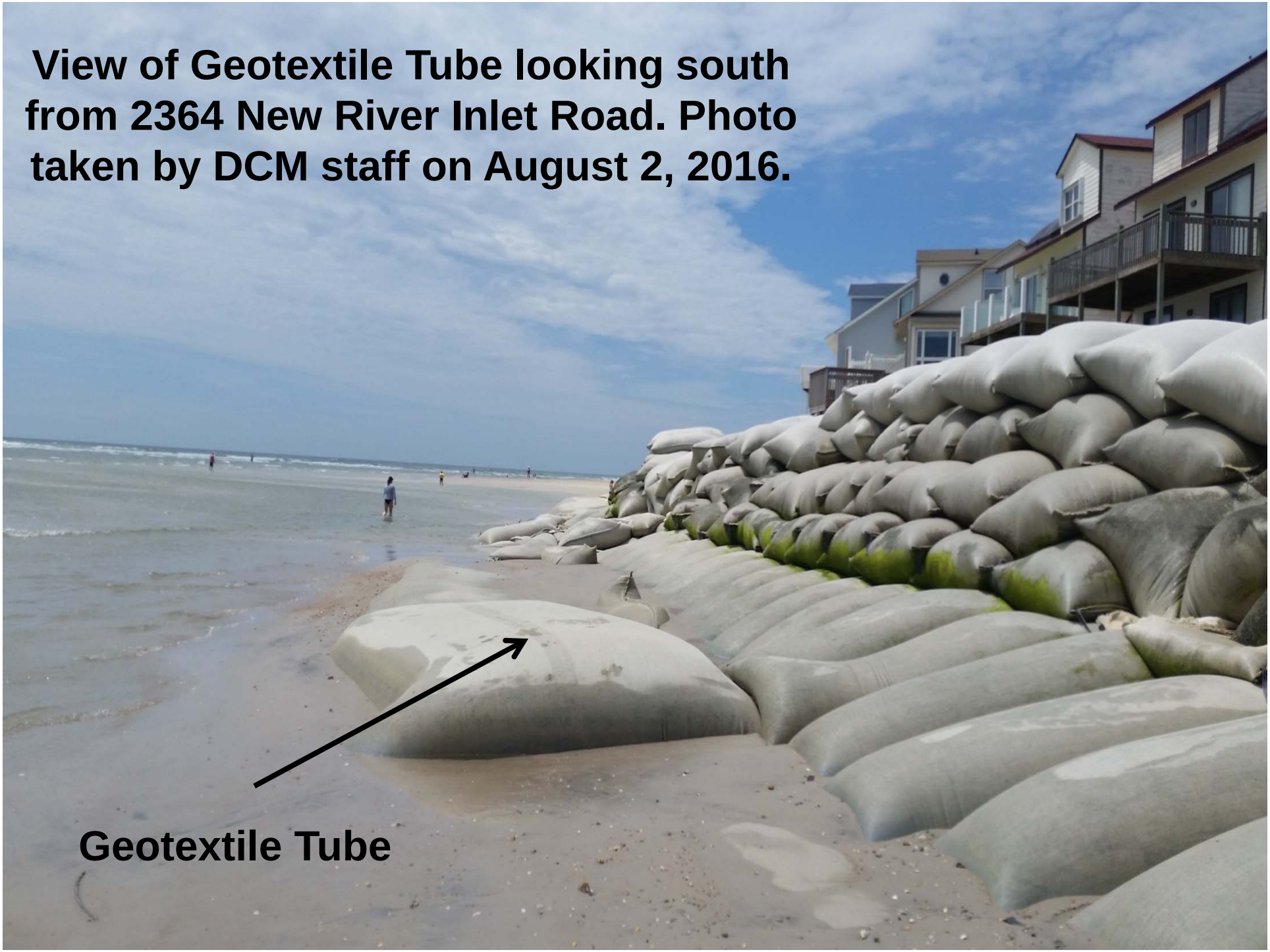


Figure 9


View of nourishment area looking south from 2332 New River Inlet Road. Photo taken by DCM staff in April 2016.
Approximate location of geotube (covered)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Geotextile Tube


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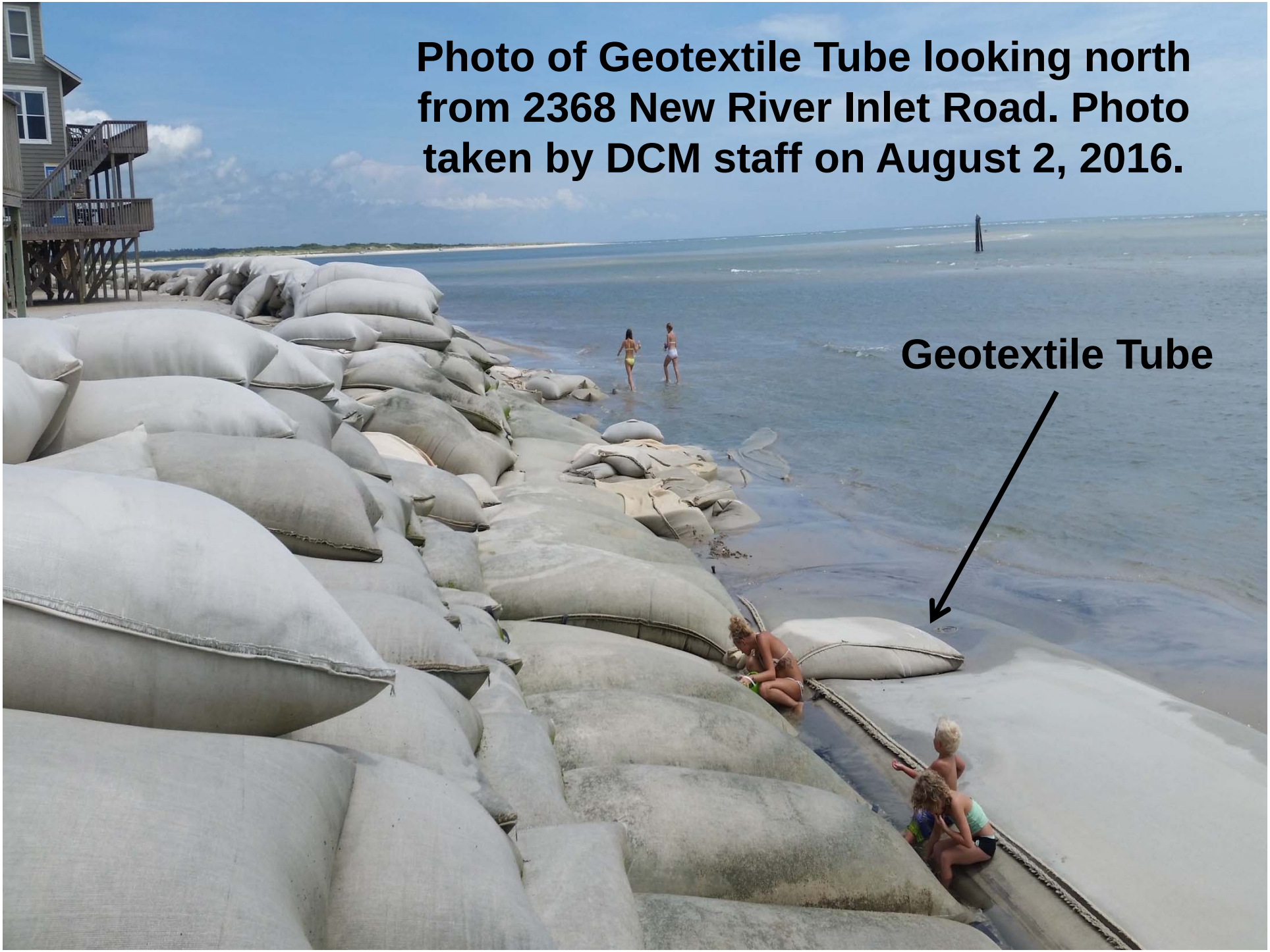
Geotextile Tube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Geotextile Tube

Photo from August 5, 2014 showing flooding