North Carolina Coastal Resources Commission

Public Hearing on Proposed Rule Amendments:

15A NCAC 07H .0304 AECs within Ocean Hazard Areas
15A NCAC 07H .0312 Technical Standards for Beach Fill Projects

November 3, 2020 at 11:00 AM

Meeting by Webex
Click here to join the meeting

TO SUBMIT PUBLIC COMMENTS:

Members of the public are invited to submit comments to the Coastal Resources Commission by email to DCMcomments@ncdenr.gov. Please list "AEC Amendment" and/or "Beach Nourishment" in the subject line.

Written comments may also be mailed to:

Braxton Davis, Director
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

PROPOSED RULE AMENDMENTS: 15A NCAC 07H .0304 AECS WITHIN OCEAN HAZARD AREAS

The ocean hazard AECs contain all of the following areas:

(1) Ocean Erodible Area. This is the area where there exists a substantial possibility of excessive erosion and significant shoreline fluctuation. The oceanward boundary of this area is the mean low water line. The landward extent of this area is the distance landward from the first line of stable and natural vegetation as defined in 15A NCAC 07H .0305(a)(5) to the recession line established by multiplying the long-term annual erosion rate times 90; provided that, where there has been no long-term erosion or the rate is less than two feet per year, this distance shall be set at 180 feet landward from the first line of stable and natural vegetation. For the purposes of this Rule, the erosion rates are the long-term average based on available historical data. The current long-term average erosion rate data for each segment of the North Carolina coast is depicted on maps entitled "North Carolina 2019 Oceanfront Setback Factors & Long-Term Average Annual Erosion Rate Update Study" and approved by the Coastal Resources Commission on February 28, 2019 (except as such rates may be varied in individual contested cases or in declaratory or interpretive rulings). In all cases, the rate of shoreline change shall be no less than two feet of erosion per year. The maps are available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at http://www.nccoastalmanagement.net.

(2) Inlet Hazard Area. The inlet hazard areas are natural-hazard areas that are especially vulnerable to erosion, flooding, and other adverse effects of sand, wind, and water because of their proximity to dynamic ocean inlets. This area extends landward from the mean low water line a distance encompassing that area within which the inlet migrates, based on statistical analysis, and shall consider such factors as previous inlet territory, structurally weak areas near the inlet, and external influences such as jetties, terminal groins, and channelization. The areas on the maps identified as Inlet Hazard Areas included in the report entitled INLET HAZARD AREAS, The Final Report and Recommendations to the Coastal Resources Commission, 1978, as amended in 1981, by Loie J. Priddy and Rick Carraway are incorporated by reference and are hereby designated as Inlet Hazard Areas, except for:

(a) the location of a former inlet which has been closed for at least 15 years;

(b) inlets that due to shoreline migration, no longer include the current location of the inlet; and

(c) inlets providing access to a State Port via a channel maintained by the United States Army Corps of Engineers.

In all cases, the Inlet Hazard Area shall be an extension of the adjacent ocean erodible areas and in no case shall the width of the inlet hazard area be less than the width of the adjacent ocean erodible area. This report is available for inspection at the Department of Environmental Quality, Division of Coastal Management, 400 Commerce Avenue, Morehead City, North Carolina or at the website referenced in Item (1) of this Rule.

(3) Unvegetated Beach Area. Beach areas within the Ocean Hazard Area where no stable and natural vegetation is present may be designated as Unvegetated Beach Areas on either a permanent or temporary basis as follows:

(a) An area appropriate for permanent designation as an Unvegetated Beach Area is a dynamic area that is subject to rapid unpredictable landform change due to wind and wave action. The areas in this category shall be designated following studies by the Division of Coastal Management. These areas shall be designated on maps approved by the Coastal Resources Commission and available without cost from any Local Permit Officer or the Division of Coastal Management on the internet at the website referenced in Item (1) of this Rule.

(b) An area that is unvegetated as a result of a hurricane or other major storm event may be designated by the Coastal Resources Commission as an Unvegetated Beach Area for a specific period of time, or until the vegetation has re-established in accordance with 15A NCAC 07H .0305(a)(5). At the expiration of the time specified or the re-establishment of the vegetation, the area shall return to its pre-storm designation.

The Commission designates as temporary unvegetated beach areas those oceanfront areas ~~of Surf City and North Topsail Beach in which the vegetation line as shown on the United States National Oceanic and Atmospheric Administration imagery dated September 17, 2018 was destroyed as a result of Hurricane Florence in September 2018.~~ of:

(i) Surf City and North Topsail Beach in which the vegetation line as shown on the Unites States National Oceanic and Atmospheric Administration imagery dated September 17, 2018 was destroyed as a result of Hurricane Florence in September 2018, and

(ii) Oak Island in which the vegetation line as shown on the United States National Oceanic and Atmospheric Administration and Geological Survey imagery dated August 4, 2020 was destroyed as a result of Hurricane Isaias in August 2020.

The designation AEC boundaries can be found on the Division's website at ~~https://files.nc.gov/ncdeq/Coastal%20Management/GIS/unvegetated_beach_aec.pdf~~. https://files.nc.gov/ncdeq/Coastal%20Management/GIS/unvegetated_beach_aec.pdf and https://files.nc.gov/ncdeq/Coastal%20Management/GIS/unveg_beachAEC_Oak_Island.zip. This designation shall continue until such time as the stable and natural vegetation has reestablished, or until the area is permanently designated as an unvegetated beach area pursuant to Sub-Item (3)(a) of this Rule.

(4) State Ports Inlet Management Area. These are areas adjacent to and within Beaufort Inlet and the mouth of the Cape Fear River, providing access to a State Port via a channel maintained by the Unites States Army Corps of Engineers. These areas are unique due to the influence of federally-maintained channels, and the critical nature of maintaining shipping access to North Carolina's State Ports. These areas may require specific management strategies not warranted at other inlets to address erosion and shoreline stabilization. State Ports Inlet Management Areas shall extend from the mean low water line landward as designated on maps approved by the Coastal Resources Commission and available without cost from the Division of Coastal Management, and on the internet at the website at https://files.nc.gov/ncdeq/Coastal%20Management/GIS/state_port_aec.pdf.

History Note: *Authority G.S. 113A-107; 113A-107.1; 113A-113; 113A-124;*

Eff. September 9, 1977;
Amended Eff. December 1, 1993; November 1, 1988; September 1, 1986; December 1, 1985;
Temporary Amendment Eff. October 10, 1996;
Amended Eff. April 1, 1997;
Temporary Amendment Eff. October 10, 1996 Expired on July 29, 1997;
Temporary Amendment Eff. October 22, 1997;
Amended Eff. April 1, 2020; July 1, 2016; September 1, 2015; May 1, 2014; February 1, 2013; January 1, 2010; February 1, 2006; October 1, 2004; April 1, 2004; August 1, 1998.

Oak Island - DRAFT Unvegetated Beach AEC

Legend

Unvegetated Beach AEC (DRAFT)

An Unvegetated Beach Area of Environmental Concern (AEC) is being proposed for this portion of Oak Island because of significant overwash and loss of vegetation caused by Hurricane Isaias (08/03/2020).

A Measurement Line is being proposed as a temporary feature from which oceanfront setbacks are measured until the vegetation is re-established, and considered stable and natural.

For more information please contact the NC Division of Coastal Management's Wilmington District Office at 910-796-7215.

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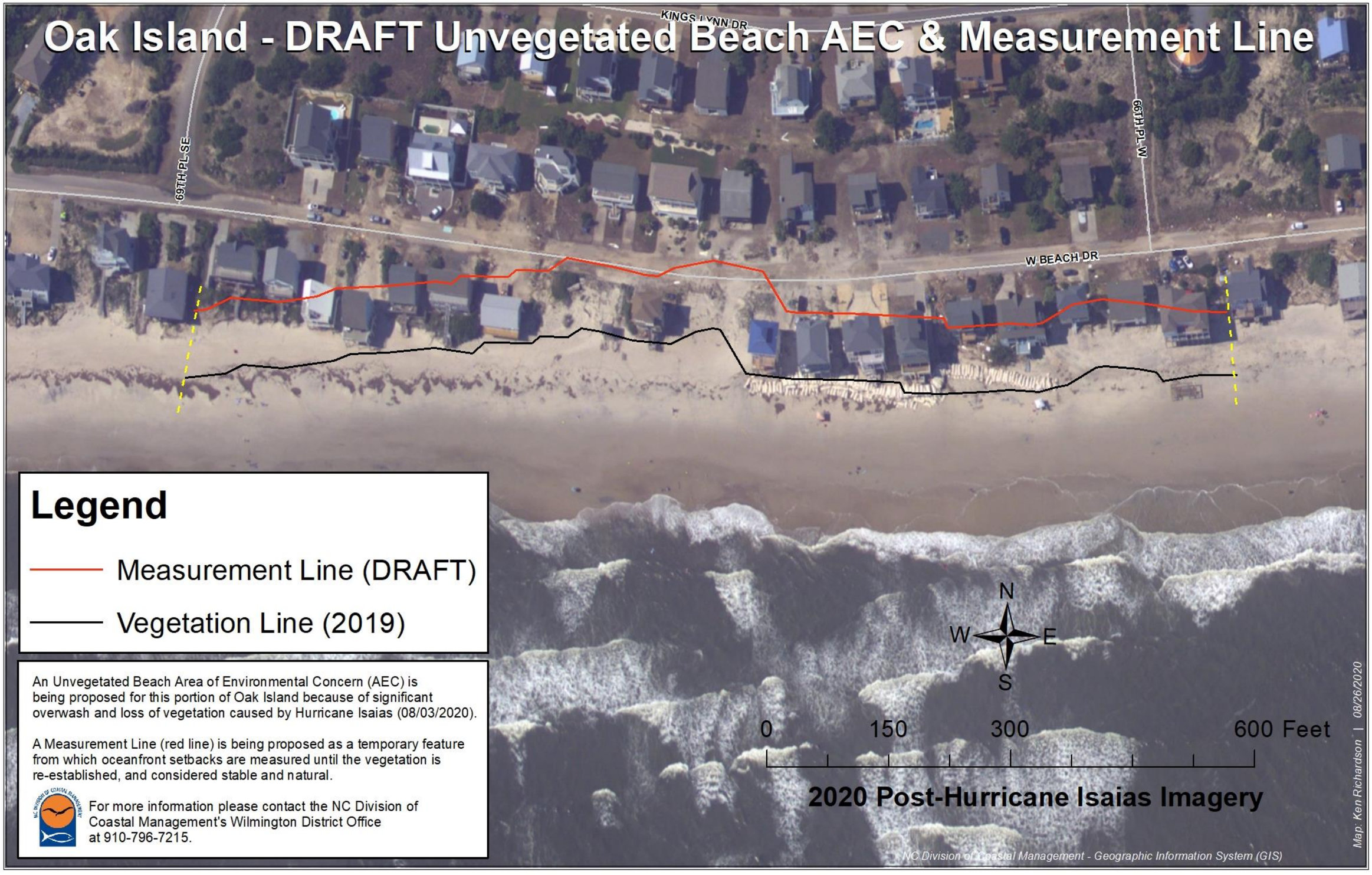
2019 Brunswick County Imagery

Oak Island - DRAFT Unvegetated Beach AEC & Measurement Line



Legend

Measurement Line (DRAFT)

Vegetation Line (2019)

An Unvegetated Beach Area of Environmental Concern (AEC) is being proposed for this portion of Oak Island because of significant overwash and loss of vegetation caused by Hurricane Isaias (08/03/2020).

A Measurement Line (red line) is being proposed as a temporary feature from which oceanfront setbacks are measured until the vegetation is re-established, and considered stable and natural.

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Oak Island - DRAFT Unvegetated Beach AEC & Measurement Line

Legend

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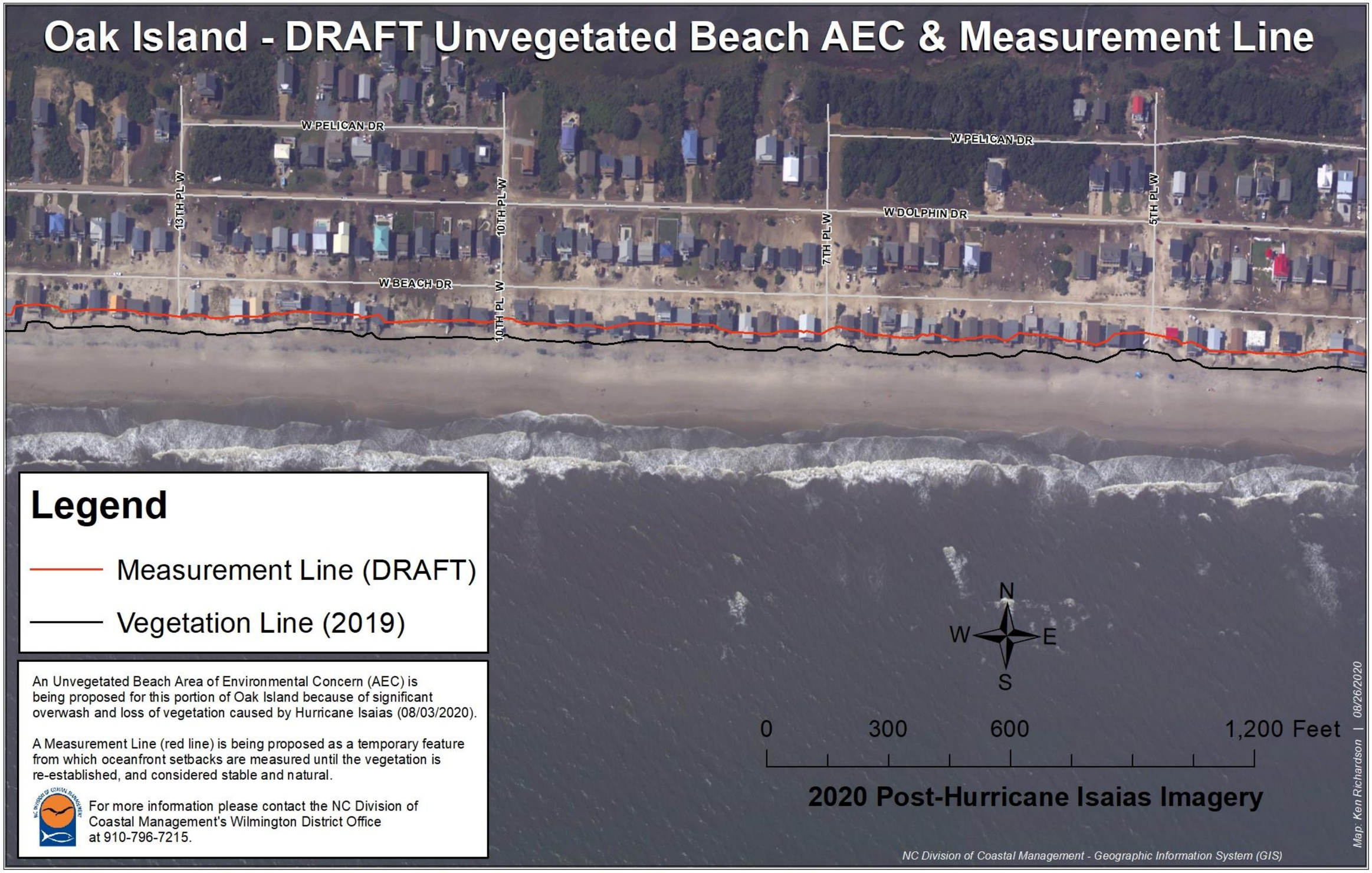

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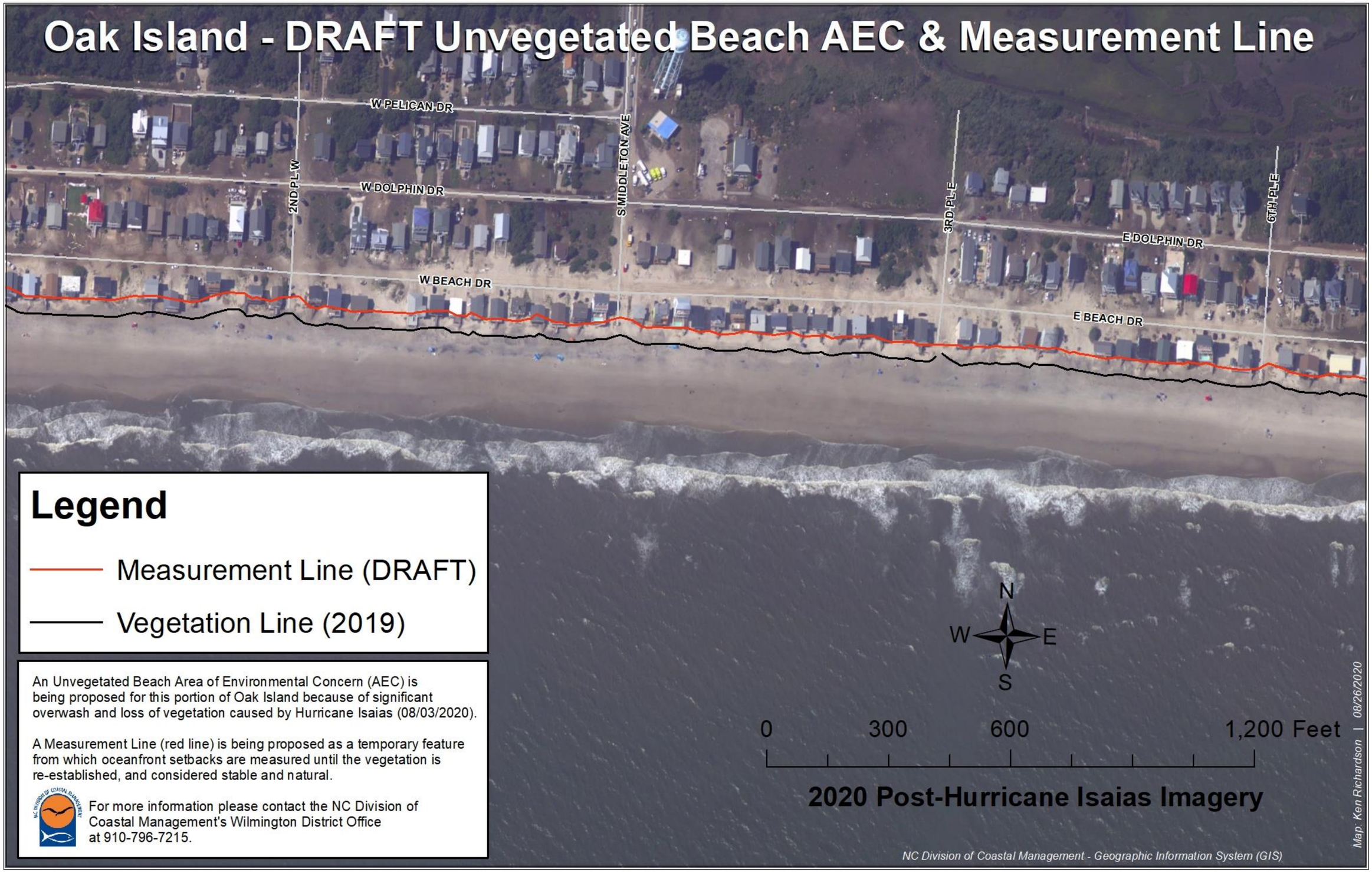
2020 Post-Hurricane Isaias Imagery

NC Division of Coastal Management - Geographic Information System (GIS)

Map: Ken Richardson | 08/26/2020

Oak Island - DRAFT Unvegetated Beach AEC & Measurement Line



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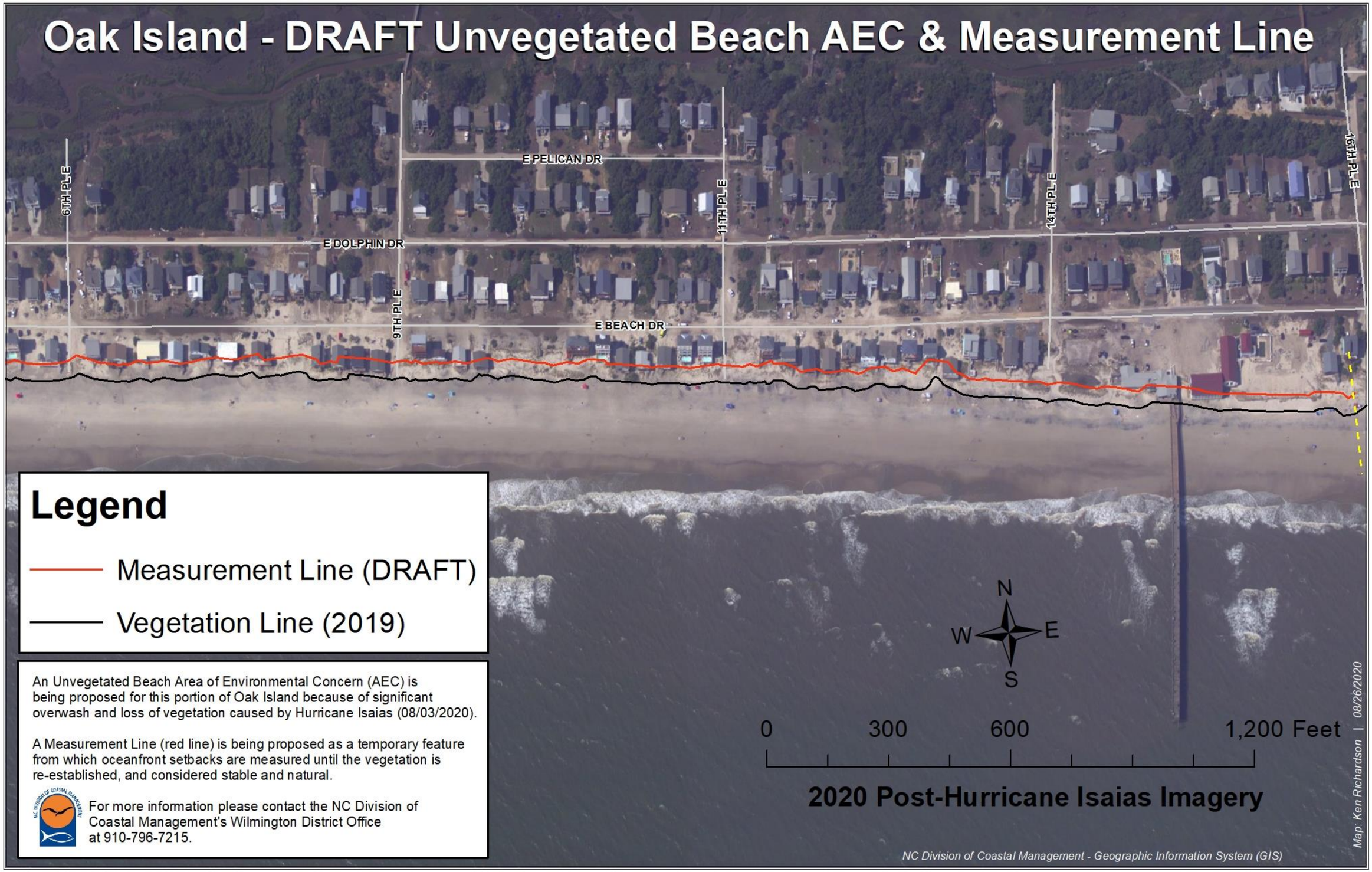

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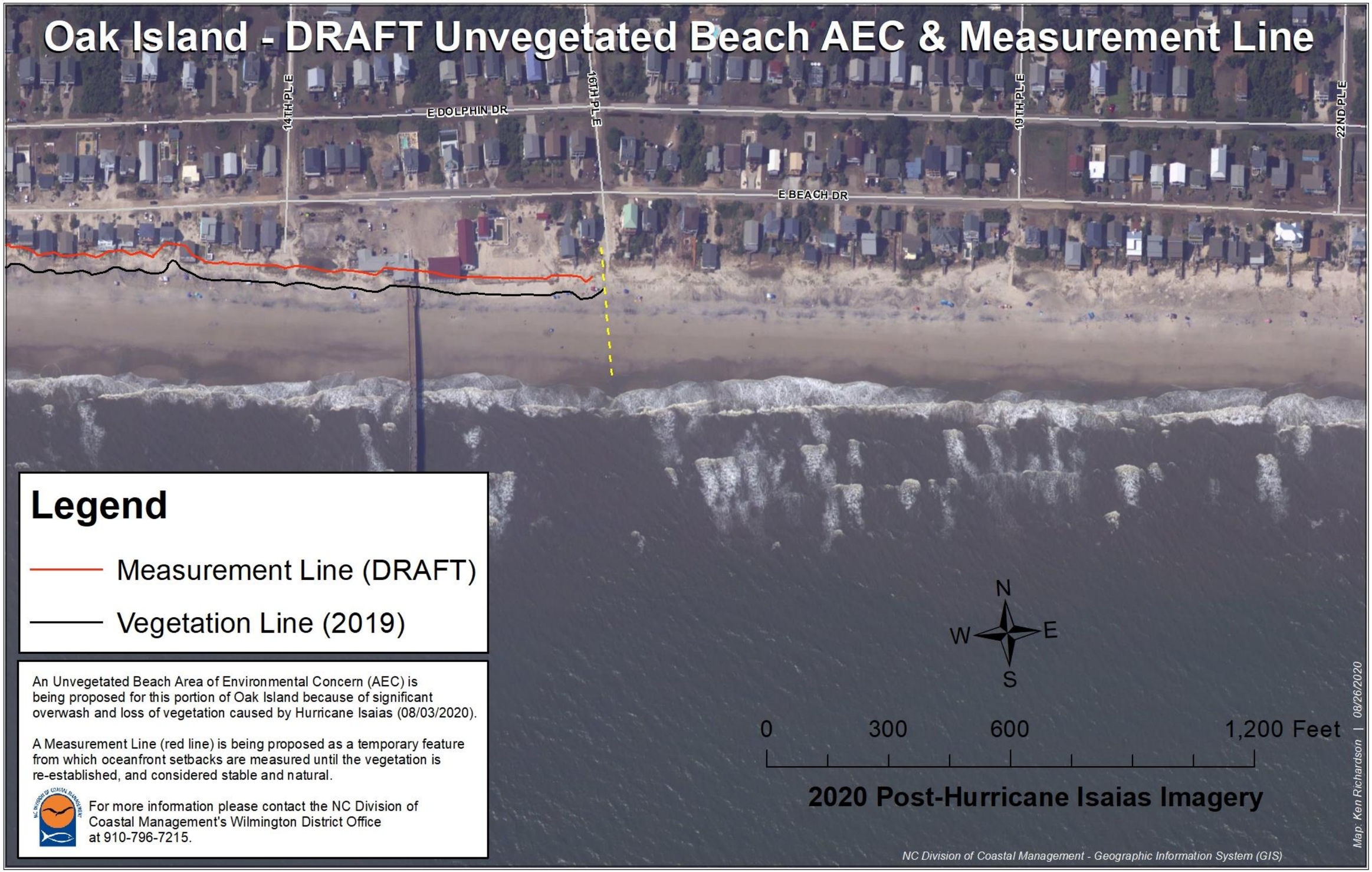

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2020 Post-Hurricane Isaias Imagery

NC Division of Coastal Management - Geographic Information System (GIS)

Map: Ken Richardson | 08/26/2020

PROPOSED RULE AMENDMENTS: 15A NCAC 07H .0312 TECHNICAL STANDARDS FOR BEACH FILL PROJECTS

15A NCAC 07H .0312 TECHNICAL STANDARDS FOR BEACH FILL PROJECTS

Placement of sediment along the oceanfront shoreline is referred to in this Rule as "beach fill." Sediment used solely to establish or strengthen dunes ~~or~~ shall conform to the standards contained in 15A NCAC 07H .0308(b). Sediment used to re-establish state-maintained transportation corridors across a barrier island breach in a disaster area as declared by the Governor is not considered a beach fill project under this Rule. Beach fill projects including beach nourishment, dredged material disposal, habitat restoration, storm protection, and erosion control may be permitted under the following conditions:

(1) The applicant shall characterize the recipient beach according to the following ~~methodology:~~ methodology. Initial characterizations of the recipient beach shall serve as the baseline for subsequent beach fill projects:

(a) Characterization of the recipient beach is not required for the placement of sediment directly from and completely confined to a cape shoal system, or maintained navigation channel or associated sediment basins within the active nearshore, beach or inlet shoal ~~system;~~ system. For purposes of this Rule, "cape shoal systems" include Frying Pan Shoals at Cape Fear, Lookout Shoals at Cape Lookout, and Diamond Shoals at Cape Hatteras;

(b) Sediment sampling and analysis shall be used to capture the ~~three-dimensional~~ spatial variability of the sediment characteristics including grain size, sorting and mineralogy within the natural system;

(c) Shore-perpendicular transects shall be established for topographic and bathymetric surveying of the recipient ~~beach shall be conducted to determine the beach profile.~~ beach. Topographic and bathymetric surveying shall occur along a minimum of five shore-perpendicular transects evenly spaced throughout the entire project ~~area.~~ area with spacing not to exceed 5,000 feet (1,524 meters) in the shore-parallel direction. Each transect shall extend from the frontal dune crest seaward to a depth of 20 feet (6.1 meters) or to the shore-perpendicular distance 2,400 feet (732 meters) seaward of mean low water, whichever is in a more landward position. ~~Transect spacing shall not exceed 5,000 feet (1,524 meters) in the shore-parallel direction.~~ Elevation data for all transects shall be ~~referenced to the North American Vertical Datum of 1988 (NAVD 88) and the North American Datum of 1983 (NAD 83);~~ compliant with Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600) of the N.C. General Statutes;

(d) ~~No fewer than 13 sediment samples shall be taken along each beach profile transect. At~~ Along each transect, at least one sample shall be taken from each of the following morphodynamic zones where present: frontal dune, frontal dune toe, mid berm, mean high water (MHW), mid tide (MT), mean low water (MLW), trough, bar crest and at even depth increments from 6 feet (1.8 meters) to 20 feet (6.1 meters) or to a shore-perpendicular distance 2,400 feet (732 meters) seaward of mean low water, whichever is in a more landward position. The total number of samples taken landward of MLW shall equal the total number of samples taken seaward of MLW;

(e) For the purpose of this Rule, "sediment grain size categories" are defined as "fine" (less than 0.0625 millimeters), "sand" (greater than or equal to 0.0625 millimeters and less than 2 millimeters), "granular" (greater than or equal to 2 millimeters and less than 4.76 millimeters) and "gravel" (greater than or equal to 4.76 millimeters and less than 76 millimeters). Each sediment sample shall report percentage by weight of each of these four grain size categories;

(f) A composite of the simple arithmetic mean for each of the four grain size categories defined in Sub-Item (1)(e) of this Rule shall be calculated for each transect. A grand mean shall be established for each of the four grain size categories by summing the mean for each transect and dividing by the total number of transects. The value that characterizes grain size values for the recipient beach is the grand mean of percentage by weight for each grain size category defined in Sub-Item (1)(e) of this Rule;

(g) Percentage by weight calcium carbonate shall be calculated from a composite of all sediment ~~samples along each transect defined in Sub-Item (1)(d) of this Rule.~~ samples. The value that characterizes the carbonate content of the recipient beach is a grand mean calculated by summing the average percentage by weight calcium carbonate for each transect and dividing by the total number of transects. ~~For beaches on which fill activities have taken place prior to the effective date of this Rule, the Division of Coastal Management shall consider visual estimates of shell content as a proxy for carbonate weight percent;~~

(h) The ~~total~~ number of sediments greater than or equal to one inch (25.4 millimeters) in diameter, and shell material greater than or equal to three inches (76 millimeters) in ~~diameter, observable on the surface of the beach between mean low water (MLW) and the frontal dune toe, shall be calculated for an area of 50,000 square feet (4,645 square meters) within the beach fill project boundaries. This area is considered a representative sample of the entire project area and referred to as the "background" value;~~ diameter shall be differentiated and calculated through visual observation of an area of 10,000 square feet centered on each transect, and between mean tide level (MTL) and the frontal dune toe within the beach fill project boundaries. A simple arithmetic mean shall be calculated for both sediments and shell by summing the totals for each across all transects and dividing by the total number of transects, and these values shall be considered representative of the entire project area, and referred to as the "background" values for large sediment and large shell material;

(i) Beaches that received sediment prior to the effective date of this Rule shall be characterized in a way that is consistent with Sub-Items (1)(a) through (1)(h) of this Rule and ~~shall~~ may use data collected from the recipient beach prior to the addition of beach ~~fill. If such data were not collected or are unavailable, a dataset best reflecting the sediment characteristics of the recipient beach prior to beach fill shall be developed in coordination with the Division of Coastal Management; and~~ fill where data are available, and in coordination with the Division of Coastal Management; and

(j) All data used to characterize the recipient beach shall be provided in digital and hardcopy format to the Division of Coastal Management upon request.

(2) Characterization of borrow areas is not required if completely confined to a cape shoal system. For the purposes of this Rule, "cape shoal systems" include the Frying Pan Shoals at Cape Fear, Lookout Shoals at Cape Lookout, and Diamond Shoals at Cape Hatteras. The applicant shall characterize the sediment to be placed on the recipient beach according to the following methodology:

(a) The characterization of borrow areas including submarine sites, upland sites, and dredged material disposal areas shall be designed to capture the ~~three-dimensional~~ spatial variability of the sediment characteristics including grain size, sorting and mineralogy within the natural system or dredged material disposal area;

(b) The characterization of borrow sites ~~shall~~ may include ~~sediment characterization data provided by the Division of Coastal Management where available. These data can be found in individual project reports and studies, and shall be provided by the Division of Coastal Management upon request and where available;~~ historical sediment characterization data where available and collected using methods consistent with Sub-Items (2)(c) through (2)(g) of this Rule, and in coordination with the Division of Coastal Management.

(c) Seafloor surveys shall measure elevation and capture acoustic imagery of the seafloor. Measurement of seafloor elevation shall cover 100 ~~percent~~ percent, or the maximum extent practicable, of each submarine borrow site and use survey-grade swath sonar (*e.g.* multibeam or similar ~~technologies) in accordance with current US Army Corps of Engineers standards for navigation and dredging.~~ technologies). Seafloor imaging without an elevation component (*e.g.* sidescan sonar or similar technologies) shall also cover 100 ~~percent~~ percent, or the maximum extent practicable, of each ~~borrow site and be performed in accordance with US Army Corps of Engineers standards for navigation and dredging.~~ site. Because shallow submarine areas can provide technical challenges and physical limitations for acoustic measurements, seafloor imaging without an elevation component may not be required for water depths less than 10 feet (3 meters). Alternative elevation surveying methods for water depths less than 10 feet (3 meters) may be evaluated on a case-by-case basis by the Division of Coastal Management. Elevation data shall be tide-

and motion-corrected and ~~referenced to NAVD 88 and NAD 83.~~ compliant with Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600) of the N.C. General Statutes. Seafloor imaging data without an elevation component shall ~~be referenced to the NAD 83. All final seafloor survey data shall conform to standards for accuracy, quality control and quality assurance as set forth by the US Army Corps of Engineers (USACE). The current surveying standards for navigation and dredging can be obtained from the Wilmington District of the USACE.~~ also be compliant with Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600) of the N.C. General Statutes. For offshore dredged material disposal sites, only one set of imagery without elevation is required. Sonar imaging of the seafloor without elevation is also not required for borrow sites completely confined to maintained navigation channels, and for sediment deposition basins within the active nearshore, beach or inlet shoal system;

(d) Geophysical imaging of the seafloor subsurface shall be used to characterize each borrow site ~~and shall use survey grids with a line spacing not to exceed 1,000 feet (305 meters). Offshore dredged material disposal sites shall use a survey grid not to exceed 2,000 feet (610 meters) and only one set of geophysical imaging of the seafloor subsurface is required. Survey grids shall incorporate at least one tie point per survey line.~~ site. Because shallow submarine areas can pose technical challenges and physical limitations for geophysical techniques, subsurface data may not be required in water depths less than 10 feet (3 meters), and the Division of Coastal Management shall evaluate these areas on a case-by-case basis. Subsurface geophysical imaging shall not be required for borrow sites completely confined to maintained navigation channels, and for sediment deposition basins within the active nearshore, beach or inlet shoal system, or upland sites. All final subsurface geophysical data shall use accurate sediment velocity models for time-depth conversions and be ~~referenced to NAD 83;~~ compliant with Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600) of the N.C. General Statutes;

(e) ~~Sediment~~ With the exception of upland borrow sites, sediment sampling of all borrow sites shall use a vertical sampling device no less than 3 inches (76 millimeters) in diameter. Characterization of each borrow site shall use no fewer than five evenly spaced cores or one core per 23 acres (grid spacing of 1,000 feet or 305 meters), whichever is greater. Characterization of borrow sites completely confined to maintained navigation channels or sediment deposition basins within the active nearshore, beach or inlet shoal system shall use no fewer than five evenly spaced vertical samples per channel or sediment basin, or sample spacing of no more than 5,000 linear feet (1,524 meters), whichever is greater. Two sets of sampling data (with at least one dredging event in between) from maintained navigation channels or sediment deposition basins within the active nearshore, beach or inlet shoal ~~system~~ system, or offshore dredged material disposal site (ODMDS) may be used to characterize material for subsequent nourishment events from those areas if the sampling results are found to be compatible with Sub-Item (3)(a) of this Rule. ~~In submarine borrow sites other than maintained navigation channels or associated sediment deposition basins within the active nearshore, beach or inlet shoal system where water depths are no greater than 10 feet (3 meters), geophysical data of and below the seafloor are not required, and sediment sample spacing shall be no less than one core per six acres (grid spacing of 500 feet or 152 meters).~~ Vertical sampling shall penetrate to a depth equal to or greater than permitted dredge or excavation depth or expected dredge or excavation depths for pending permit applications. ~~All sediment samples shall be integrated with geophysical data to constrain the surficial, horizontal and vertical extent of lithologic units and determine excavation volumes of compatible sediment as defined in Item (3) of this Rule;~~ Because shallow submarine areas completely confined to a maintained navigation channel or associated sediment basins within the active nearshore, beach or inlet shoal system can pose technical challenges and physical limitations for vertical sampling techniques, geophysical data of and below the seafloor may not be required in water depths less than 10 feet (3 meters), and shall be evaluated by the Division of Coastal Management on a case-by-case basis;

~~(f) For offshore dredged material disposal sites, the grid spacing shall not exceed 2,000 feet (610 meters). Characterization of material deposited at offshore dredged material disposal sites after the initial characterization are not required if all of the material deposited~~

~~complies with Sub-Item (3)(a) of this Rule as demonstrated by at least two sets of sampling data with at least one dredging event in between;~~

~~(g)~~ (f) Grain size distributions shall be reported for all sub-samples taken within each vertical sample for each of the four grain size categories defined in Sub-Item (1)(e) of this Rule. Weighted averages for each core shall be calculated based on the total number of samples and the thickness of each sampled interval. A simple arithmetic mean of the weighted averages for each grain size category shall be calculated to represent the average grain size values for each borrow site. Vertical samples shall be geo-referenced and digitally imaged using scaled, color-calibrated photography;

~~(h)~~ (g) Percentage by weight of calcium carbonate shall be calculated from a composite sample of each core. A weighted average of calcium carbonate percentage by weight shall be calculated for each borrow site based on the composite sample thickness of each core. Carbonate analysis is not required for sediment confined to maintained navigation channels or associated sediment deposition basins within the active nearshore, beach or inlet shoal system; and

~~(i)~~ (h) All data used to characterize the borrow site shall be provided in digital and hardcopy format to the Division of Coastal Management upon request.

(3) ~~The Division of Coastal Management shall determine sediment~~ Compliance with these sediment standards shall be certified by an individual licensed pursuant to Chapter 89C or 89E of the N.C. General Statutes. Sediment compatibility is determined according to the following criteria:

(a) Sediment completely confined to the permitted dredge depth of a maintained navigation channel or associated sediment deposition basins within the active nearshore, beach or inlet shoal system is considered compatible if the average percentage by weight of fine-grained (less than 0.0625 millimeters) sediment is less than 10 percent;

(b) The average percentage by weight of fine-grained sediment (less than 0.0625 millimeters) in each borrow site shall not exceed the average percentage by weight of fine-grained sediment of the recipient beach characterization plus five percent;

(c) The average percentage by weight of granular sediment (greater than or equal to 2 millimeters and less than 4.76 millimeters) in a borrow site shall not exceed the average percentage by weight of coarse-sand sediment of the recipient beach characterization plus 10 percent;

(d) The average percentage by weight of gravel (greater than or equal to 4.76 millimeters and less than 76 millimeters) in a borrow site shall not exceed the average percentage by weight of gravel-sized sediment for the recipient beach characterization plus five percent;

(e) The average percentage by weight of calcium carbonate in a borrow site shall not exceed the average percentage by weight of calcium carbonate of the recipient beach characterization plus 15 percent; and

(f) Techniques that take incompatible sediment within a borrow site or combination of sites and make it compatible with that of the recipient beach characterization shall be evaluated on a case-by-case basis by the Division of Coastal Management.

(4) Excavation and placement of sediment shall conform to the following criteria:

~~(a) Sediment excavation depths for all borrow sites shall not exceed the maximum depth of recovered core at each coring location;~~

~~(b)~~ (a) In order to protect threatened and endangered species, and to minimize impacts to fish, shellfish and wildlife resources, no excavation or placement of sediment shall occur within the project area during ~~times~~ any seasonal environmental moratoria designated by the Division of Coastal Management in consultation with other State and Federal ~~agencies. Agencies, unless specifically approved by the Division of Coastal Management in consultation with other State and Federal agencies.~~ The time limitations shall be established during the permitting process and shall be made known prior to permit issuance; and

~~(c)~~ (b) ~~Sediment~~ The total sediments with a diameter greater than or equal to one inch (25.4 millimeters), and shell material with a diameter greater than or equal to three inches (76 millimeters) is considered incompatible if it has been placed on the beach during the beach fill project, is observed between ~~MLW~~ MTL and the frontal dune toe, and is in excess of twice the background value of material of the same size along any ~~50,000 square foot (4,645 square meter)~~ 10,000 square feet section of ~~beach.~~ beach within the beach fill project

boundaries. In the event that more than twice the background value of incompatible material is placed on the beach, it shall be the permittee's responsibility to remove the incompatible material in coordination with the Division of Coastal Management and other State and Federal resource agencies.

History Note: *Authority G.S. 113-229; 113A-102(b)(1); 113A-103(5)(a); 113A-107(a); 113A-113(b)(5) and (6); 113A-118; 113A-124;*
Eff. February 1, 2007;
Amended Eff. April 1, 2021; August 1, 2014; September 1, 2013; April 1, 2008.