

COASTAL PLANNING & ENGINEERING OF NORTH CAROLINA, INC.

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July 24, 2012

Steve Foster
Town of North Topsail Beach
2008 Loggerhead Court
North Topsail Beach, NC 28460

**Re: North Topsail Beach
New River Inlet Channel Realignment & Beach Restoration
Project Synopsis**

Dear Mr. Foster:

The New River Inlet Channel Realignment & Beach Restoration is proposed for construction during the 2012/2013 dredging season. Construction is anticipated to begin as early as November 16, 2012 and must be completed by April 1, 2013. The project entails removal of approximately 597,000 cubic yards for construction of a 500 ft. wide channel at a depth of -17 NAVD88. Two (2) locations have been identified where a shallower depth must be specified to avoid known concentrations of clay. These areas are shown on the drawings as 'clay avoidance areas' and specify a -14 NAVD88 design elevation.

Beach placement will extend from the north end of Topsail Island, adjacent to New River Inlet, and reach approximately 9,500 feet to midway between Marina Way and Bay Court. The shoreline (Ele. 1.4 NAVD88) will be extended an average initial width of approximately 180 feet across the project area. The width is expected to adjust rapidly after construction as the beach reshapes with the natural wave climate. Some areas along the beach may see a reduction in the 180 foot beach width of as much as 100 ft. or more as the sand equilibrates, migrating seaward to nourish the sub marine portions of the beach profile. This is expected to occur within the first year after construction.

The sand will be placed up to an elevation of 6.5 NAVD88 to extend the existing beach. This elevation is approximately 5 feet above mean high water (MHW) and should be very close to the existing vegetation line on the beach. The construction documents allow the Contractor a tolerance of 1 vertical foot below the 6.5 NAVD88 elevation for sand placement to qualify for payment. The tolerance is provided to account for the method of construction and varying placement densities. The Contractor will be placing the sand by hydraulic pipeline and spreading the material with heavy construction equipment (bull-dozers, etc.). Providing the tolerance eliminates potential issues arising from the material being adjusted by wind, waves, or any other force that may shift the sands prior to the Contractor's surveying the material for payment.

New River Inlet will be dredged to a minimum depth of -17 NAVD88 and may extend an additional 2 feet (-19 NAVD88). The additional depth allows the Contractor maneuverability to ensure material above the -17 ft. contour is removed. The dredging will be conducted by a hydraulic cutterhead. The equipment cannot be controlled to limit excavation to certain elevation and allow for all the material above that elevation to be removed. Approximately half of the cutterhead diameter must be placed below the -17 NAVD88 contour to ensure material above the -17 contour is removed.



Typical View of a Hydraulic Cutterhead

There are two (2) areas designated in the drawings where clayey material has been identified above the -17 contour. Excavation limits have been raised in these areas to avoid placing clay on the beach. Material above an elevation of -14 NAVD88 will be removed in the areas where clay is identified.

Work is expected on a 24-hour per day basis, 7 days a week including holidays (Thanksgiving, Christmas, New Years, Martin Luther King Day, Presidents Day). The Contractor shall be required to control night-time noise and lighting. However, a back-up alarm on the shore-based equipment and safety lighting on the dredge are expected to create disturbances during the evening and night-time hours.

The Contractor is expected to 'stage' or store materials along the beach and at the terminus of New River Road. Access along New River Road shall be maintained but will most likely be constricted between the residential units and inlet located at the end of the road. Staging along the beach should be contained within an approximate 750 ft. section of beach that will be closed to the public during construction. This closed section will be the Contractor's immediate work area and will progress down the beach. The Contractor will also be allowed to use the beach access located near Bay Court but will not be allowed to impede others from using the same access.



Typical View of Staging Area on the Beach

During construction increased traffic along the roadways is not expected to be an issue; however an increase in water-based traffic will be noticeable. Navigation through New River Inlet shall not be prohibited by the Contractor, but recreational vessels will need to take caution. The Contractor shall be bound to abide by all US Coast Guard regulations but similar to road construction, the dredging equipment will create potential hazards to unaware boaters.

The work must be completed no later than March 31, 2013. This is a permit requirement due to environmental concerns from the state and federal agencies. If the work is not satisfactorily completed by March 31, 2013 the Town has the option to require the Contractor to complete the work during the 2013/2014 dredging season. The Contractor will be required to remove all equipment from the beach until November 16, 2013. The Contractor may then complete the work, but will be charged \$1,000 / day for every day it takes to complete the work. The \$1,000 / day is considered liquidated damages to the Town for the project extending beyond the original completion date.

The Contractor will invoice for work on a monthly basis except for mobilization costs. Sixty (60%) percent of the mobilization costs will be due to the Contractor when the production requirement of an estimated 5,000 cubic yards is placed on the beach within a 24-hr period. The estimate will be made by reviewing the dredging records and visual observations of the beach. The 5,000 cubic yard requirement is equivalent to filling a football field approximately 3 ft. high. (The total beach placement of 597,000 cubic yards is equivalent to filling a football field approximately 35 stories high.) The 5,000 cubic yard requirement is also near the minimum production level that provides adequate time to complete the project within the approximate 135 day construction window.

The Town will be able to hold as retainage 10% of all monies invoiced until the work is completed. The Town may elect to stop withholding retainage from the invoices once 50% of the work is complete if the Contractor is on schedule and performing in an acceptable manner. If the Town elects to stop withholding retainage approximately 5% of the construction value will be available to the Town to correct any deficiencies in the work. The 5% is in addition to the required Performance Bond the Contractor will provide. The bond will be equivalent to construction cost and may be used to correct any deficient work of the Contractor also.

The remaining specifications detail construction standards, requirements and submittals the Contractor must adhere to or provide to allow review and proper accounting of the work. These specifications will aid to credit the work completed and to document the final measurements of the realigned channel and restored beach. The specifications are standard industry regulations and are provided to help ensure a beneficial project for the Contractor and the Town.

If you have any questions or comments, please contact me.

Sincerely,

COASTAL PLANNING & ENGINEERING, INC.



Kenneth T. Willson
Project Manager