



REQUEST FOR QUALIFICATIONS

**Bogue Banks Master
Beach Nourishment Plan**

Carteret County, North Carolina

April 15, 2009

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Request for Qualifications
Bogue Banks Master Beach Nourishment Plan
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Carteret County, under the auspices of the County's Beach Commission and Shore Protection Office is currently seeking the services of a qualified engineering/environmental firm or team to develop and design a multi-decadal (no less than 30-year) Shore Protection Program for the 25-mile island of Bogue Banks. The proposed scope of services also includes the preparation of compulsory documentation associated with State and National Environmental Protection Act coordination, and the successful procurement of permits to construct and maintain the Shore Protection Program. Because of various regulatory and legal restrictions concerning hard structures in the State of North Carolina, the main element of the proposed Shore Protection Program will very likely be beach nourishment. To this effect, the County has a rich nourishment history and maintains a dense and regularly-monitored beach profiling network. This Request for Qualification (RFQ) summarizes this and other background information in addition to the general long-term approach the County wishes to take regarding shore protection in an effort to provide your firm with sufficient information to develop a qualification submittal. All applicants are also highly encouraged to visit the Shore Protection Office's websites at www.protectthebeach.com and www.protectthebeachmaps.com for additional information above that contained in this RFQ. All interested firms must respond to this RFQ by **May 15, 2009 at 5 pm.**

1.0 Physiographic Setting

Bogue Banks is a ~25-mile long south-facing barrier island located on the "low-energy" (west) limb of the Cape Lookout foreland (Fig. 1). It is oriented in an approximate east to west direction between Beaufort and Bogue Inlets, located on the east and west terminuses of the island, respectively. The island is bound to the north by Bogue Sound, a relatively shallow water body through which the Atlantic Intracoastal Waterway (AIWW) passes. Fort Macon State Park occupies the eastern 1.4 miles of the island. Political subdivisions on the rest of the island include, from east to west; the Town of Atlantic Beach (AB), the Town of Pine Knoll Shores (PKS), the Town of Indian Beach (IB), the unincorporated area of Salter Path, and the Town of Emerald Isle (EI).

The width of the upland portions of the island varies from a minimum of approximately 800 feet to a maximum of over 4,000 feet. The narrowest part of the island, which ranges in width from 800 feet to 1,000 feet, is located along the eastern 15,000 feet of EI while widest part of the island, which measures over 4,000 feet, is located on the western 27,000 feet of the island, also within the corporate limits of EI. This area is covered by dense vegetation including one of the few remaining maritime forests in North Carolina. A second maritime forest area is also

located on Bogue Banks between the east portion of IB through PKS. This reach of the island includes the Theodore Roosevelt Natural Area on the sound side, which is the only portion of Bogue Banks included in the Coastal Barrier Resources System. General elevations across the interior of the island range from 15 to 25 feet above mean sea level (MSL) while dune elevations along the oceanfront of the island reach elevations of over 30 feet above MSL within the Fort Macon State Park and generally range between 20 and 25 feet above MSL over most of the island. The high elevations characterizing Bogue Banks are reflected in FEMA's flood hazard maps, which place most of the island above the 100-year flood level and large portions of the island above the 500-year flood level. For the most part, the sound side of the island is devoid of an extensive marsh fringe that otherwise characterizes most barrier islands in North Carolina. The only areas of extensive marsh shown on U.S. Geological Survey Quadrangle Maps lie behind the island from Fort Macon State Park to AB and behind portions of EI. These marsh areas appear to be related to relict flood deltas of both named and unnamed historic inlets.

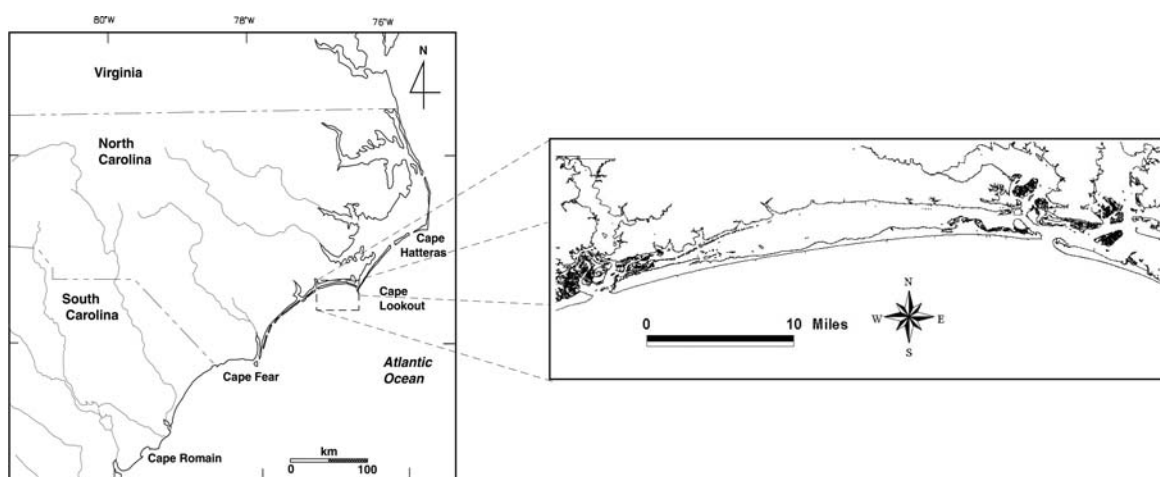


Fig. 1 – Site vicinity map of the North Carolina coast with a detailed illustration of the ~25-mile long island of Bogue Banks, located in Carteret County and bordered by Beaufort and Bogue Inlets, located east and west of the island, respectively.

Given the relatively high elevations existing along most of Bogue Banks, the major threat to coastal development is associated with the continuation of long-term erosion that ultimately compromises the high, natural frontal dune system. The long-term erosion rate is caused by many factors including; sediment removed from the system by navigation projects, storms, differences in sediment transport along the island, and sea-level rise. Shoreline change rates along Bogue Banks, as recorded utilizing data obtained prior to significant beach nourishments (i.e., pre-2001) varied from accretion in beach disposal areas of AB to over 3.5 feet per year of recession along portions of PKS, IB, and EI. Most of the island is listed as having an erosion rate of less than 2.5 or 2 feet/year by the N.C. Division of Coastal Management (latest dataset is 1998). After a roughly 30-year quiescent period of tropical cyclone activity, five landfall tropical storms/hurricanes impacted Bogue Banks from 1996 – 1999. Hurricane *Floyd* caused an average recession of the natural dune along Bogue Banks of approximately 15 feet in 1999. The island was also impacted recently by *Isabel* and *Ophelia* in 2003 and 2005, respectively, but much of the island had received significant nourishment by then.

2.0 Major Nourishment and Dredging Activities (Historical)

2.1 The Morehead City Harbor Federal Navigation Project

The Morehead City Harbor Federal Navigation Project (MCH) is also situated in Carteret County, and involves maintenance and construction dredging of Beaufort Inlet that separates Shackleford and Bogue Banks, located to the east and west of the inlet, respectively. Traditionally, the scope of dredging operations conducted by the United States Army Corps of Engineers (USACE) is divided into four regions known as Range A, the Cutoff, Range B and the turning basin (Fig. 2).

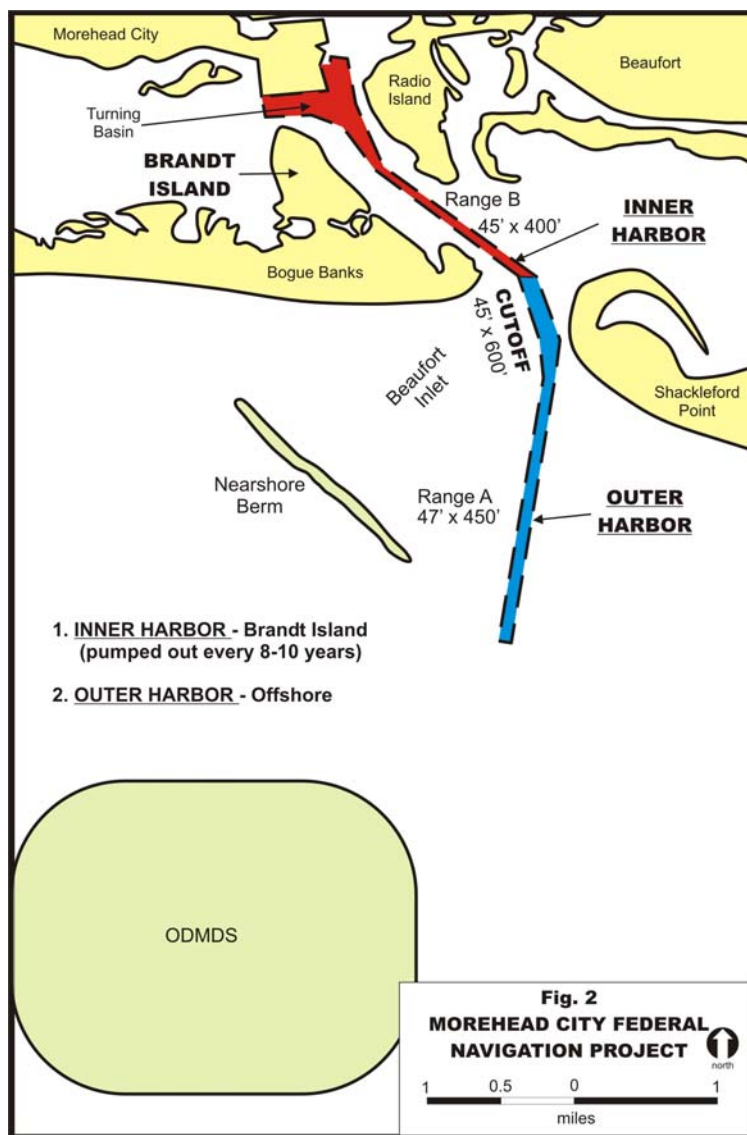


Fig. 2 – Schematic of the Morehead City Harbor Federal Navigation Project highlighting major dredging reaches and disposal areas. A Dredged Material Management Plan is currently being prepared for the project that will likely alter the disposal methodologies and areas.

Historically, the Cutoff and Range A have been maintained by hopper dredging that collects sediment from the base of the channel and travels to one of two disposal areas located 1 to approximately 2.5 miles offshore. Maintenance and

construction of Range B and the turning basin, known as the inner harbor, has been conducted on a bi-annual basis utilizing a pipeline dredge that carries sediment from these areas to the confined disposal site of Brandt Island, located north of Fort Macon State Park (referred to as "Brant" Island historically). Because of the limited capacity of this site and the absence of other suitable upland disposal site areas, dredged material was temporarily stored in Brandt Island for a period of 8 to 10 years and subsequently transferred to beach disposal sites located toward the eastern portion of Bogue Banks to create accommodation space for future dredge spoils. The procedure that includes the final removal of material from Brandt Island has been commonly referred to as a "pump-out". Inner harbor material has also been piped directly to Bogue Banks beaches concurrently with Brandt Island pump-outs during major construction improvements (channel deepening). The disposal of dredged material to eastern Bogue Banks is the least-costly option for the USACE, and therefore no costs are incurred by the County or individual municipalities. Most material from the shipping berths is dredged and disposed of at a full cost to the State.

Sediment quality concerns regarding the inner harbor material that was transferred to the beach from Brandt Island in 2005 and legal action pursued by the County concerning outer harbor dredging and disposal methods have resulted in the preparation of a new Dredged Material Management Plan (DMMP). Pursuant to conditions stipulated in a legal settlement, the USACE must complete the DMMP by October 2011. The USACE has also developed a three-year Interim Operation Plan (IOP) that will be implemented until the DMMP is completed. Importantly the IOP, and likely the DMMP, includes a beach disposal option for Ft. Macon and a portion or the entirety of AB.

The County is most concerned with the offshore dumping of beach quality sand that has been dredged from the MCH since its inception. Roughly 50 million cubic yards (cy) of sand have been dumped offshore and a Section 111 report by the USACE and an Independent Study contracted by the County both document the cumulative loss of ~16 million cy to Bogue Banks and ~24 million cy to the ebb delta, with the remaining losses attributed to Shackleford Banks and the flood delta system. The reports also document deflation and seaward displacement of the ebb delta and shoreface steepening along the Bogue Banks oceanfront.

2.2 Nourishment Chronology

A timeline of nourishment projects and matters concerning the MCH is attached, and is provided in general terms in this section. In the wake of the hurricanes that impacted Bogue Banks in the 1990s, County leadership began to take formal steps to address erosion concerns along the ~25-mile long island of Bogue Banks. The USACE was requested to conduct a reconnaissance study to evaluate participation in a 50-year Shore Protection Project, consultants were retained to develop the locally-funded Bogue Banks Restoration Project, occupancy tax legislation was being developed to create a beach nourishment reserve fund and a County-wide Beach Commission, a Section 111 Report was close to being completed that addressed dredging impacts to the beaches of Bogue Banks, and initial stages of Section 933 beneficial use of dredged material projects were all in the motion.

Since hurricane *Floyd* in 1999, roughly 10 million cy of sand have been placed along the beaches of Bogue Banks at a total cost of approximately \$80 million total

(State, Federal, and local dollars). For the sake of brevity, the projects can be classified in three different categories and are depicted graphically as Figure 3 in addition to being outlined in the attachment; **(1)** Nourishment projects that were predominantly locally-funded (90% municipal – 10% State) and utilized offshore borrow sources or Bogue Inlet as a source of sand, **(2)** Projects either 100% or partially funded by the Federal government involving either actively or previously disposed dredged material from the MCH, and **(3)** Projects that were reimbursed by FEMA utilizing offshore disposal areas (also associated with MCH dredging).

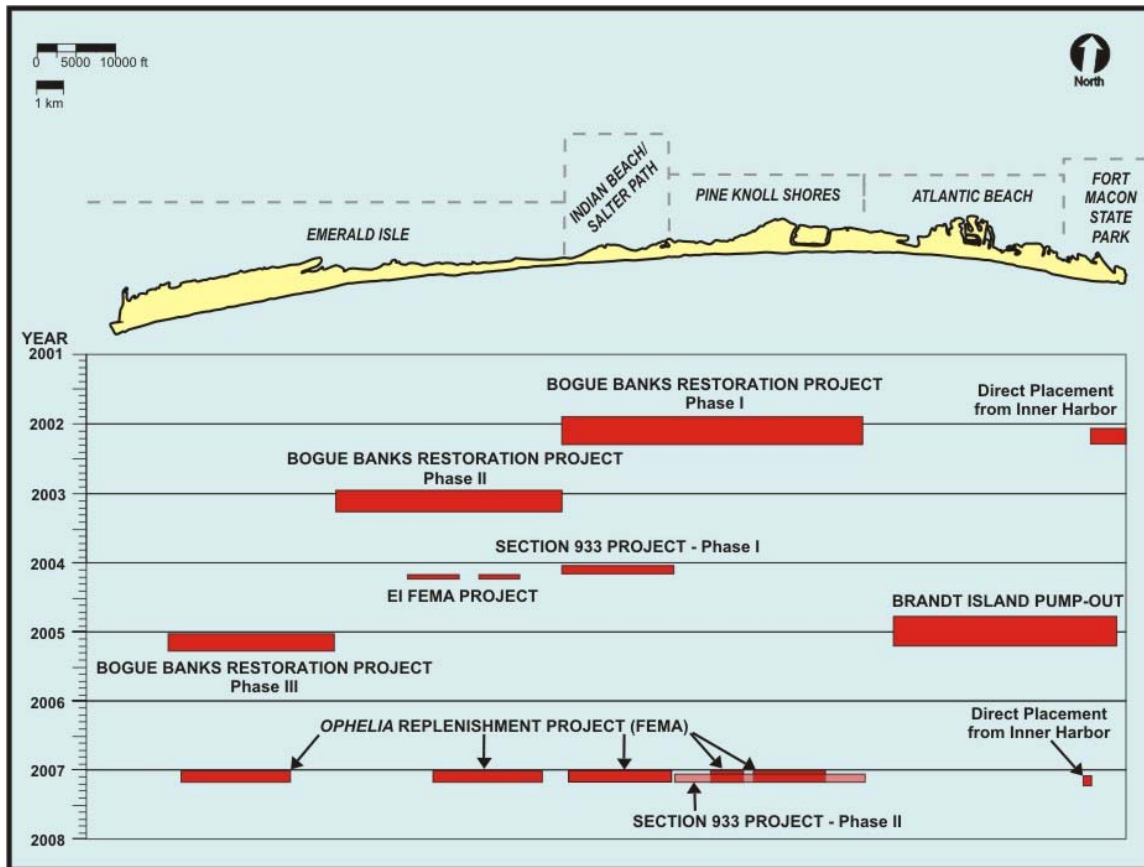


Fig. 3 – Site map of Bogue Banks depicting the geographic ranges of beach nourishment projects constructed in the 2000s. The general timeline for each construction event is represented along the vertical axis of the graph.

3.0 Current Beach Nourishment Status

The County's efforts concerning the USACE Bogue Banks Shore Protection Project Feasibility Study, while ongoing, will apparently take a few more years to complete, approve, and authorize. Even if the study reaches these steps (completion, approval, and authorization), funding prospects from the Federal government to construct and maintain the project are not looking promising.

In the interim, the County maintains a dense profiling network that is monitored on an annual basis, and includes 122 and 18 profiles along Bogue Banks and Bear Island, respectively spaced at roughly 1,000 feet intervals and 24 profiles along Shackleford Banks spaced at roughly 2,000 feet intervals. The profile network has been utilized to monitor beach conditions, assess the longevity of nourishment

projects, gain insights to sediment transport, etc. Based upon the analysis completed for the Bogue Banks Restoration Project a decade ago, we have been using 225 cubic yards per linear foot (cy/ft) as a minimum volumetric target (Fig. 2). The 225 cy/ft benchmark (as measured from the foredune to -12 NAVD 88) was generally created after a post-hurricane *Floyd* survey was completed in 1999 – AB had well over 225 cy/ft on average and sustained no damage. Conversely, the remaining portions of the island (PKS, IB/Salter Path, and EI) had significantly less than 225 cy/ft and sustained major damage. In theory the nourishment projects taken place this decade would have been designed to provide a specific degree of advance fill with respect to the 225 cy/ft threshold, but in practice the communities/County were opportunistic in many instances and took advantage of dredged maintenance material associated with the MCH to augment the sand volume along Bogue Banks. Regardless, our most recent data (2008) indicates we are above our target minimum of 225 cy/ft, and is obviously a result of all the nourishment projects that have taken place this decade.

In order to remain qualified for FEMA reimbursement to replace sand lost in response to a Federally-declared disaster event, the municipalities have adopted a maintenance plan whereby nourishment is necessary when/where one half of the beachfill volume only associated with the Bogue Banks Restoration Project has eroded. Recently, the State passed new rules allowing for municipalities to be granted static vegetation line exceptions. The exception is contingent upon communities developing and adhering to 30-year nourishment plans with nourishment trigger(s) developed on a community-by-community basis. The static line in the past has fixated the vegetation line in perpetuity to the location it existed pre-nourishment. Because the vegetation line is the anchor for oceanfront setback building determinations in N.C., property owners could not take advantage of the natural vegetation line as it oscillated seaward following nourishment, rendering some properties as permanently non-conforming. The new static line exception rule provides a mechanism for the static line to be erased as long as the beach is maintained, therefore allowing building setbacks to be applied to the present-day vegetation line.

4.0 Proposed Scope of Work (Engineering Report and NEPA/SEPA Document)

4.1 Engineering Report - Conceptually and the first focus of the proposed scope of work is to develop a master nourishment plan instead of acting upon potentially three different benchmarks, or triggers for beach nourishment that exist at the present (Fig. 4) – the 225 cy/ft benchmark, the FEMA reimburseable benchmark, and the yet-to-be determined 30-year static line plan(s). AB, although part of USACE plans for dredged material disposal associated with the MCH, would also be part of a new local nourishment strategy in the event of a contingency and to better gain a sense of regional needs. If Federal operation & maintenance funding for the MCH dissipates in the future, then the needs for AB will even be more pressing and again warrant participation in regional planning. While a more “volumetric approach” has been utilized to date, the County is amenable to other methodologies and to this effect, the proposed scope of work will entail a complete assessment of Bogue Banks, the establishment and evaluation of beach health indicators, a review concerning the strength and weaknesses of past nourishment projects (i.e., effectiveness), and development of a master nourishment and beach preservation program.

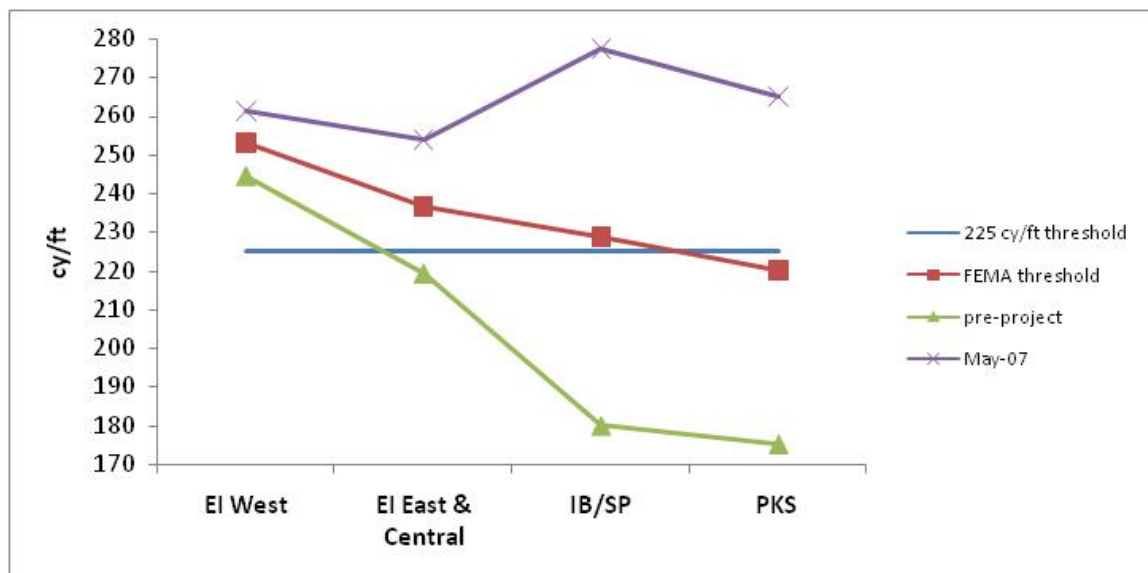


Fig. 4 – Average management reach volumes for two different time periods and two different nourishment thresholds. The pre-nourishment, 1999 volumes are in green and the post-nourishment, 2007 volumes are in purple. The 225 cy/ft benchmark that was established for the Bogue Banks Restoration Project is the blue line, and the FEMA maintenance threshold for each reach (when/where 50% of the beachfill has eroded) is in red. Another potential trigger that is not depicted is the threshold for 30-year static line exception plans.

Borrow sources envisioned for the nourishment program could very well be obtained from the ODMDS, or actively maintained portions of the outer harbor of the MCH. While the ODMDS is preferable for many reasons; the County will strive to find the most economical borrow site(s) available that have sediment quality at least equal to the ODMDS. These other borrow sources could include offshore sites preliminarily investigated by the USACE for the Bogue Banks Feasibility Study and/or beneficial use material either actively or previously dredged from the maintenance of authorized navigation projects near Bogue Banks. Bogue Inlet should also be evaluated as a source of sand for western Bogue Banks, possibly utilizing shoal material that actively infills the dominant ebb channel or as part of maintenance efforts to keep the channel in a stable position over time. The engineering report should also address “smaller” beach disposal efforts associated with low dredge volume navigation projects inclusive of the Federally-maintained shallow-draft waterway network in the area. The Engineering Report should also incorporate contingencies such as emergency, post-storm beachfills into the analyses and compulsory environmental documentation.

4.2 NEPA/SEPA Coordination - The NEPA/SEPA Document (Environmental Impact Statement) coupled with the Engineering Report should be programmatic in nature. This would be the master document identifying all the impacts (short and long-term, cumulative) and offsetting measures of as many beach activities as possible. As briefly mentioned above, these activities could include AIWW dredging with concurrent beach disposal, beneficial use projects, FEMA replacement projects, etc. Granted it is unfeasible to forecast all the possible issues and impacts that may surface years or decades from now, but the programmatic EIS should provide a mechanism to capture the potential beach nourishment activities that could occur over the lifespan of the nourishment program.

Based on our cursory discussions with the Federal and State clearinghouse agencies, it is envisioned a 30-year (or longer) permit would ultimately be secured. This authorization would include a list of special conditions to address the separate events that could occur during the 30-year period. The special conditions contained in the permit authorization could require the County to undergo a notification review process and receive consequent written approval prior to conducting each discrete nourishment event. From the State's perspective, the written approval may be in the form of a minor/major permit for each nourishment event if the State is unable to grant a 30-year permit. Regardless, this type of initiative would streamline the permitting processes over the 30-year life of the nourishment program. It is also assumed the proposed programmatic EIS would be independent of the environmental document associated with the ongoing USACE Bogue Banks Feasibility Study.

The summary of the proposed scope of work presented in section 4 of this RFQ should not be construed as absolute, and can be modified subsequent to consultation with the selected firm.

5.0 Information Requested from Potential Firms

In order for your firm's submission to be considered responsive, it must include the following and be limited to no more than 10 pages, not including any appendices.

- (A) A brief introduction of the team (internal or external to your firm) responsible to complete the range of services required – predominantly engineering design and environmental coordination/permitting. This introduction should include; (1) company background(s), (2) a list of key personnel that have appropriate coastal engineering, geology, biology, and environmental experience with similar projects, including personnel that would interface most with Carteret County and the resource agencies, and (3) a list with an abbreviated summary of relevant project experience that your firm (or team) has.
- (B) The *general* engineering approach your firm would employ to; (1) evaluate and monitor beach conditions and (2) develop benchmarks and nourishment triggers understanding the heterogeneity that exist along Bogue Banks. Your firm should discuss the sand sources envisioned to be used for the nourishment program and provide a very loose chronology of beach nourishment events. This will be used to ascertain your firm's understanding of the sand resources previously used or investigated and those associated with the Federal and possible non-Federal navigation projects in the area, in addition to your firm's understanding of dredging methodologies/approaches that will be the most efficient for the nourishment program.
- (C) The *general* approach your firm (or team) would utilize for the programmatic SEPA/NEPA document preparation and coordination leading to the successful procurement of permit(s). This information will be utilized to ascertain your firm's understanding of the types or permit options available for the nourishment program that are the most realistic for this type of effort and your understanding of the regulatory procedures employed by the State and Federal clearinghouse agencies in North Carolina.

- (D) Any other information that may be helpful to the Beach Commission in evaluating your firm's proposal, i.e., equipment capabilities, additional personnel, publication citations, etc.

6.0 Selection Process and Local Governance Information

The Carteret County Board of Commissioners has the ultimate responsibility to enter into a contract for services agreement with the most qualified firm demonstrating the most effective and practical approach for the proposed beach nourishment program. However, the County Board of Commissioners decision will be predicated on the Beach Commission's recommendation once the selection process has been completed. Qualification submittals are due on Friday, May 15, 2009 at 5 pm. Upon receipt of the proposals, a 7-member group including five Beach Commission members, inclusive of representatives from each Bogue Banks municipality will rank the firms and invite the top-ranked firms for an interview. Fees for professional services and contract terms can be negotiated subsequent to the interview process and identification of the most favorable firm. A representative from both the State Division of Water Resources and Coastal Management will constitute a non-voting bloc within the 7-member selection group. To reiterate, although each firm's qualifications will be a consideration, the Beach Commission's and municipality's primary factor in selecting the winning firm could be predicated on the firm's understanding of Bogue Banks and the recommended engineering and regulatory approach.

The RFQ/interview/selection process and final scope of work (once fully developed) will be completed under the general direction of the Carteret County Beach Commission with assistance by the local municipalities. The Shore Protection Manager will be the point-of-contact for all matters associated with the RFQ, including questions respondents may have, and the proposed nourishment program. The Shore Protection Manager will also work with the selected firm to finalize reports and presentations, and to keep the Beach Commission and municipalities apprised of any developments.

The 11-member Beach Commission is a State legislatively-mandated organization appointed by the County Board of Commissioners. The functions, membership criteria, and governing duties are detailed in the State Law concerning the County's occupancy tax (SL 2007-0112), whereby a portion thereof is dedicated for the sole purpose of beach nourishment. Although the occupancy tax law stipulates that the Beach Commission may not contract with any person, firm, or agency; the County Board of Commissioners are obligated to the recommendations of the Beach Commission regarding the expenditure of room occupancy tax proceeds dedicated to beach nourishment.

7.0 Submittal Information and Questions/Answer Protocol

Please submit eight (8) copies of your qualification submittal to following address (next page) by **May 15, 2009, 5 pm**. We appreciate your understanding regarding the high number of copies we are requesting – it is commensurate to the amount of local and State partners that are part of this effort. Questions regarding this RFQ should be provided in e-mail to rudi@carteretcountygov.org. Questions and subsequent responses from the Shore Protection Office will be posted on www.protectthebeach.com/temp/2009rfq where they will be available for review by all interested firms.

Attn: Greg "Rudi" Rudolph
Carteret County Shore Protection Office
Emerald Isle Town Hall
7500 Emerald Drive
Emerald Isle, NC 28594

The Beach Commission as an appointed body of the County, reserves the right to reject any and all proposals, negotiate with the best qualified firm regarding fees and/or the scope of services, or postpone the decision for an indefinite period. It is anticipated that the Board of Commissioners will act on the recommendation from the Beach Commission; however, qualifications are submitted at the sole risk of prospective firms.

Attachment – Bogue Banks Nourishment and Dredging Chronology

< 1999 and 2000

- Nourishment was generally limited to Ft. Macon and Atlantic Beach prior to 2001, and solely related to disposal activities associated with the Morehead City Harbor. Brandt Island pump-outs in 1986 and 1994.
- Pine Knoll Shores becomes concerned with erosion after the 1994 pump-out, request Corps of Engineers to pursue a Section 111 Study to determine if harbor dredging is impacting municipality's beach. Pine Knoll Shores Beach Preservation Association founded.
- Hurricanes *Bertha* and *Fran* (1996), *Bonnie* (1998), and *Dennis* and *Floyd* (1999) all impact Bogue Banks and result in a major organizational effort including the Bogue Banks Beach Preservation Task Force (County government ad hoc committee) – also, the Pine Knoll Shores Beach Preservation Association becomes the Bogue Banks Beach Preservation Association.
- County retains consultants in 1999 to assess the beaches and develop a locally-funded nourishment plan for Pine Knoll Shores, Indian Beach/Salter Path, and Emerald Isle (~17 miles) – termed the Bogue Banks Restoration Project. County also develops a financing plan for a County-wide bond referendum that fails in a 2000 vote.

2001

- County signs Feasibility Agreement with the Corps of Engineers in 2001 (4 yr study - \$3.3. million estimated cost) for the development of a 50-year [Shore Protection Project](#). Efforts began in 1999 and included a reconnaissance study.
- County also requests a Section 933 Project in 2001 associated with the Morehead City Harbor project (target areas are Indian Beach/Salter Path and Pine Knoll Shores) – 2 year study at \$600,000 total cost.
- County and municipalities successfully introduce a new occupancy tax bill to the State General Assembly that establishes the Carteret County Beach Commission and mandates a portion of the occupancy tax to be designated for the purpose of beach nourishment. General Assembly passes the bill (SL 2001-381 – later modified and currently [SL 2007-112](#)). While the taxing concept is not new, the [Beach Commission](#) is the first group mandated by the State to address beach nourishment issues. Beach Commission/County develops the [Shore Protection Office](#) in the later stages of 2001 – also the first office of its kind in the State.
- Corps of Engineers release the final Section 111 Report and conclude that the Morehead City Federal Navigation Project is not causing damages to the shorelines of Bogue Banks.
- Pine Knoll Shores and Indian Beach/Salter Path develop a new financing plan for the locally funded nourishment project that failed in the County-wide bond referendum. Two tax districts are established (oceanfront and non-oceanfront) – vote passes in all Towns and in all districts in 2001.

2002 – 2003

- [First phase](#) of the Bogue Banks Restoration Project is constructed along the shorelines of Pine Knoll Shores and Indian Beach/Salter Path in winter 2001-02 (~7 miles). Issues develop concerning sediment quality from the offshore borrow sites. A preponderance of

tires and turtle takings also create logistical and cost issues that result in a 9% and 41% shortfall of the sand delivered to Pine Knoll Shores and Indian Beach/Salter Path, respectively and leaves a 3,500 foot gap in Indian Beach/Salter Path - 1,733,580 total cubic yards delivered.

- Emerald Isle passes a similarly structured bond referendum in March 2002 for the second and third phases of the Bogue Banks Restoration Project. The [second phase](#) of the project is along eastern Emerald Isle (~6 miles) and is constructed in 2003 using the same offshore borrow sites as phase one - 1,867,726 total cubic yards. Emerald Isle also initiates NEPA coordination for the third phase of the restoration project, which includes the realignment of Bogue Inlet with concurrent beach nourishment along western Emerald Isle.
- Municipalities involved with the Bogue Banks Restoration Project also develop FEMA monitoring & maintenance plans to help qualify for the reimbursement of replacing sand lost during a Federally-declared disaster event. *Isabel* impacts Carteret County in 2003.

2004 - 2005

- [Phase I of the Section 933 project](#) is constructed along Indian Beach/Salter Path and the western tip of Pine Knoll Shores in 2004 (~3 miles) utilizing dredged sand from the Morehead City Navigation Project (outer harbor) – 699,282 total cubic yards delivered and the sand quality is deemed excellent by all accounts (textural and aesthetic).
- Emerald Isle utilizes the ODMS associated with the Morehead City Harbor in the waning stages of the 2004 turtle window to deliver 156,000 cubic yards of sand to eastern Emerald Isle (phase two reach of the Bogue Banks Restoration Project) as part of a hurricane *Isabel* FEMA reimbursement effort. Again, sand quality is deemed excellent.
- [Brandt Island Pump-Out](#) begins in November 2004 and concludes in March 2005 - 2,920,729 cubic yards are delivered along a roughly 4.3 miles stretch of beach in Ft. Macon and Atlantic Beach. The early portions of the pump-out encounter mud – create a major concern with the resource agencies and public. The second phase of the Section 933 Project was initially planned to utilize a portion of the Brandt Island material to nourish Pine Knoll Shores. The second phase of the Section 933 Project is cancelled and reassessed – actively dredged sand from the outer harbor will be used to complete the project at a later date.
- [Phase Three of the Bogue Banks Restoration Project](#) (Bogue Inlet Realignment Project) is constructed in winter 2005 and re-positions the ebb channel roughly 3,000 feet west, near the midway point of the Bogue Inlet floodway separating Bogue Banks from Bear Island. 4.5 miles of beach in western Emerald Isle are nourished with 690,868 cubic yards of sand encountered during the cut of the new inlet. Sediment quality is excellent
- Hurricane *Ophelia* stalls in the SE Atlantic for well over a week before grazing Cape Lookout on September 14, 2005.

2006 – 2008

- Olsen Associates, Inc. completes and releases an Independent Study of the Morehead City Harbor Navigation Project in March 2006 that the Beach Commission (County) commissioned in 2004. The report documents impacts to the beach, inlet and nearshore systems the navigation project has caused in the past several decades and compares these results to the Corps Section 111 Report. The Beach Commission retains legal counsel (Kilpatrick Stockton, LLP) later in 2006 to advance the findings of the Independent Study.

- [Phase II of the Section 933 Project](#) is constructed along the shorelines of Pine Knoll Shores in winter 2007 using dredged maintenance material from the Morehead City Outer Harbor. 507,939 cubic yards of sand is delivered along ~4 miles of beach. Sediment quality is generally excellent except for muddy material that was encountered toward the distal (seaward) portions of the outer harbor, which was dumped offshore. Issues arise concerning the volume of good quality sand the contractor can dump offshore, and the lack of coordination between the local sponsor and Corps of Engineers during beachfill activities (template issues).
- The [Ophelia Replenishment Project](#) is also constructed in winter 2007 utilizing the ODMDS. Sand quality is again excellent as 1,241,560 cubic yards of sand is delivered along a cumulative distance of ~10.5 miles in Emerald Isle, Indian Beach/Salter Path, and Pine Knoll Shores.
- Beach Commission (County) files a legal complaint in December 2007 against the Corps of Engineers concerning Morehead City Harbor dredging and disposal practices. County requests new reporting to develop institutional changes that would address impacts to the beach, inlet and nearshore inlet systems.
- Corps of Engineers develops an Interim Operation Plan in 2008 that constitutes a three-year cycle of dredging in the outer and inner harbors. The beach quality sand recycling capability for Brandt Island is removed, and outer harbor sand is scheduled to be placed along the beach (Ft. Macon and Atlantic Beach) in year 1 of the cycle (FY 2010).
- Corps of Engineers and County reaches a legal settlement in December 2008, and agree upon the preparation of a new Dredge Material Management Plan for the harbor that will be completed by October 2011.