



TOWN OF KILL DEVIL HILLS

Land Where Flight Began

MEMORANDUM

June 8, 2020

TO: KDH Board of Commissioners

FROM: Debora P. Díaz, Town Manager

REF: New Business

1. 2022 Beach Nourishment Project Design and Permitting – Proposal - Coastal Protection Engineering of North Carolina, Inc. (Attached NB-1)

As a part of the Town's initial Beach Nourishment project in 2017, the Town has followed the adopted annual monitoring plan that has included surveys of the nourishment area for any changes in the profile of our beach. Re-nourishment was planned for five years from the initial project, unless, as a result of the surveys, re-nourishment was recommended earlier.

Planning Director Meredith Guns' attached memorandum highlights the process for the 2022 nourishment project, which also includes the Towns of Duck, Southern Shores, and Kitty Hawk. Following interviews for qualified firms to oversee the project, Coastal Protection Engineering of North Carolina, Inc., was unanimously recommended. Although under another name, the principal staff of the firm managed the initial nourishment project.

Staff recommends approval of the proposal from Coastal Protection Engineering of North Carolina, Inc., in the amount of \$400,233.75 and a motion will be in order to authorize the Town Manager to expend those funds from the Beach Nourishment Capital Reserve Fund for the purposes stated in this memorandum and the design and permitting agreement.

Director of
Planning and Inspections
MEREDITH GUNS

Building Inspector
MARTY SHAW
CHARLES THUMAN

Code Enforcement Officer
JORDAN BLYTHE



Assistant Director of
Planning and Inspections
CAMERON RAY

Senior Planner
RYAN LANG

Zoning Administrator
DONNA ELLIOTT

THE TOWN OF KILL DEVIL HILLS NORTH CAROLINA

PLANNING DEPARTMENT

June 8, 2020

Memorandum

To: Debbie Diaz, Town Manager

From: Meredith Guns, Planning Director 

Subject: 2022 Beach Nourishment Project Design and Permitting – Proposal – Coastal Protection Engineering of North Carolina, Inc.

Attached is a proposal from Coastal Protection Engineering of North Carolina, Inc. for the upcoming 2022 Beach Nourishment Project. The proposal is for professional services associated with design and permitting of the 2022 Beach Nourishment Project. The initial nourishment project was completed in the summer of 2017. Since that project, the Town has followed the adopted monitoring plan which includes annual monitoring of the nourishment area for changes in the beach profile. This monitoring was performed to determine when re-nourishment would be necessary and how much materials would be required. As addressed in the plan, re-nourishment was planned for 5 years from the initial project, unless there was an event that required re-nourishment earlier.

In March, Kitty Hawk, Kill Devil Hills, Southern Shores and Duck reviewed Request for Qualifications for a firm that could assist the towns with the upcoming re-nourishment project as required for large projects. The towns interviewed the qualified firms and unanimously agreed on Coastal Protection Engineering of North Carolina, Inc. This firm has recently changed names, but the principal staff are the same as the firm that assisted the towns with the 2017 project. The Senior Program Manager, Ken Willson, and his team designed, permitted and managed the initial nourishment project. They have also conducted the annual monitoring and analysis. This firm's experience on our project and institutional history is unmatched.

The proposal provides project management, development of environmental documentation and permit applications, coordination with agencies during permitting, conducting beach fill engineering analysis and design, conducting borrow area investigations, determine sediment compatibility and design borrow areas. The design and permitting will prepare the Town for bidding and construction of the 2022 project.

Staff recommends approval of the proposal from Coastal Protection Engineering of North Carolina, Inc. in the amount of \$400,233.75.

ATTACHMENT NB-1



COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC

4038 MASONBORO LOOP ROAD

WILMINGTON, NC 28409

910-399-1905

June 2, 2020

Debbie Diaz
Town Manager
Town of Kill Devil Hills
102 Town Hall Drive
Town of Kill Devil Hills, NC 27948

Proposal: Town of Kill Devil Hills Design and Environmental Permitting Services 2022 Beach Nourishment

Dear Ms. Diaz:

Coastal Protection Engineering of North Carolina, Inc. (CPE-NC) is pleased to provide this proposal for professional services to the Town of Kill Devil Hills (TOWN), associated with the design and permitting of the proposed 2022 beach nourishment project. CPE-NC has a special preferred relationship with Coastal Protection Engineering LLC (CPE), and through that relationship, CPE-NC will utilize personnel, resources, and assets of CPE to perform the proposed services. Furthermore, CPE-NC will sub-contract portions of the work to Aptim Environmental & Infrastructure LLC.

Under this proposal, CPE-NC will provide project management, develop environmental documentation and permit application, coordinate with agencies during permitting, conduct beach fill engineering analysis and design, conduct borrow area investigations, determine sediment compatibility and design borrow areas.

The Scope of Professional Services (the Services) is attached to this proposal as Exhibit A. The Work included under Tasks 1, 2, 3 and 4 will be performed for a lump sum fee of \$400,233.75.

Breakdown of Costs and Schedule of Deliverables:

Exhibit B includes a breakdown of costs by Task. Some costs associated with Tasks 1, 2, and 3 are being cost shared between the Towns of Duck, Southern Shores, Kitty Hawk, and Kill Devil Hills. In the event that any of the Towns decide not to move forward with the design and permitting of the project, the other 3 Towns' costs would necessarily increase.

Exhibit C provides a list of deliverables, which includes the following:

- Monthly progress reports;
- Major CAMA Permit Application;
- Dept. of the Army Permit Application;
- BOEM Lease Request Packet



- Final Environmental Assessment;
- Final Supplemental Essential Fish Habitat Assessment;
- Engineering Report;
- Borrow Area Design Report

CPE-NC's performance of the proposed Services is conditioned upon negotiation of mutually acceptable contract terms and conditions. In that regard, attached to this proposal is our standard Services Agreement for your consideration as the terms and conditions that will govern our performance of the proposed Services.

If this proposal is acceptable to you, please have the attached Services Agreement signed, and return it to me. CPE-NC will then sign the Services Agreement and return a fully executed copy to you for your records.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Willson', written over a horizontal line.

Ken Willson

Senior Program Manager

Coastal Protection Engineering of North Carolina, Inc.

Office: 910-399-1905

Mobile: 910-443-4471

kwillson@coastalprotectioneng.com

COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC.
SERVICES AGREEMENT
FIXED PRICE BASIS

All in accordance with the following terms and conditions.

1. **SCOPE OF SERVICES:** **COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC. ("CPE-NC")** agrees to perform for the undersigned CLIENT, engineering and consulting ("Services") described in the attached Proposal and/or as follows:

Proposal: Design and Environmental Permitting Services 2022 Beach Nourishment, Town of Kill Devil Hills, North Carolina

2. **FEES, INVOICES AND PAYMENTS:** The Services will be performed for the lump sum fee of **\$400,233.75 (Four hundred thousand, two hundred thirty-three dollars and seventy-five cents).**

Invoices will be submitted by CPE-NC no more frequently than every month, 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-half percent (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. Likewise, to the extent that CPE-NC discloses to CLIENT, business or technical information that CPE-NC clearly marks in writing as confidential or proprietary, CLIENT will exercise reasonable efforts to avoid the disclosure of such information to others.

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; or by North Carolina Public Records 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 and its officers and employees 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 their employment. CLIENT shall defend, indemnify and save harmless CPE-NC (including its

borrowed servants and their employers and its officers, and employees) from and against, any loss or damage to tangible property, or injury to persons, to the extent arising from the negligent acts or omissions or willful misconduct of CLIENT, its officers and employees.

8. **LIMITATIONS OF LIABILITY:**

- a. 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, , OR ANY OTHER CAUSE OF ACTION, SHALL NOT EXCEED EXCEPT FOR THE MUTUAL INDEMNIFICATIONS SET FORTH IN SECTION 7 ABOVE. 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, THE AMOUNT OF COMPENSATION FOR SUCH SERVICES,
- b. CONSEQUENTIAL DAMAGES: FURTHER AND REGARDLESS OF ANY OTHER PROVISION HEREIN, CPE-NC SHALL NOT BE LIABLE FOR ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFITS, DECLINE IN PROPERTY VALUE, REGULATORY AGENCY FINES, LOST PRODUCTION OR LOSS OF USE) INCURRED BY CLIENT OR FOR WHICH CLIENT MAY BE LIABLE TO ANY THIRD PARTY OCCASIONED BY THE SERVICES OR BY APPLICATION OR USE OF REPORTS OR OTHER WORK PERFORMED HEREUNDER.

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 forty five (45) 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 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 SECTIONS herein)** and have caused this Agreement to be executed by their duly authorized representatives as of the date set forth below.

Executed on June _____, 2020

COASTAL PROTECTION ENGINEERING OF NORTH CAROLINA, INC.

By (Sign): _____

Print Name: Kenneth Willson

Title: President

Address: 4038 Masonboro Loop Road,

 Wilmington, North Carolina, 28409

Phone: (910) 399-1905

Fax: N/A

E-mail: kwillson@coastalprotectioneng.com

TOWN OF KILL DEVIL HILLS, NORTH CAROLINA

By (Sign): _____

Print Name: _____

Title: _____

Address: _____

Phone: _____

Fax: _____

E-mail: _____

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

Coastal Protection Engineering of North Carolina, Inc. (CPE-NC) will provide engineering, environmental, and geotechnical services to the Town of Kill Devil Hills (TOWN) in support of a beach nourishment project scheduled for 2022. The specific services include project management, environmental documentation and permitting, engineering design, borrow area investigations and design, and a baseline survey of the native beach.

The CPE-NC project manager will be responsible for project administration of the Scope of Work with assistance from other senior staff as appropriate. Administration includes coordination with the client, progress meetings and status updates, budget control, scheduling, planning, internal meetings, managing sub-contractors, and other associated management tasks required to complete the project according to the scope in a timely manner. Five (5) in-person project meetings between CPE-NC and the TOWN are anticipated over the anticipated 12 months to complete this Scope of Work. Four (4) of the meetings are assumed to be multi-Town meetings, for which costs will be shared among the Towns. The fifth meeting is intended to be an update to Board of Commissioners to provide project updates and to answer any questions from staff or elected officials. In addition to these meetings, CPE-NC will provide the TOWN with a monthly 1-page summary of activities via e-mail. Costs associated with Project Management have been incorporated into each of the project tasks, which are described in detail below.

TASK 1: Environmental Documentation and Permitting

Sub-Task A: Permitting

The construction of the beach nourishment project along portions of the TOWN's shoreline will require permits from the Department of the Army (U.S. Corps of Engineers, or USACE) in order to satisfy the National Environmental Policy Act (NEPA). In addition, a Coastal Area Management Act (CAMA) Major Permit will be required by the North Carolina Division of Coastal Management (NC DCM). Major permits are necessary for activities that require other state or Federal permits, for projects that cover more than 20 acres, or for construction covering more than 60,000 square feet. Applications for CAMA Major Permits are reviewed by ten (10) state and four (4) Federal agencies before a decision is made.

The USACE will issue the Department of the Army (DA) permit, but project planning and formulation during the preparation of the environmental documents will also include consultation with other Federal agencies including, but not necessarily limited to, the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Bureau of Ocean and Energy Management (BOEM), and the Environmental Protection Agency (EPA). The lead State agency will be the NC DCM who will issue the CAMA Major Permit, but coordination will involve other State agencies including, but not limited to, the North Carolina Division of Marine Fisheries (NC DMF), North Carolina Wildlife Resources Commission (NC WRC), North Carolina Division of Water Resources, (NC DWR), and North Carolina Division of Water Quality (NC DWQ).

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

Task 1 includes the development and submittal of the complete Department of Army (DA) Individual Permit (IP) application and the CAMA Major Permit application directly to the respective agencies.

The CAMA Major Permit application package will include the required MP-1 and MP-2 forms along with plan drawings and adequate additional information that will serve to satisfy the various divisions and agencies who will review the application. This will include information pertaining to borrow area sediment characteristics, threatened and endangered species (marine and terrestrial), essential fish habitat (EFH), and other natural resources. Similar information will be provided in an IP application to the USACE Regulatory Division. Four (4) hard copies and ten (10) CDs of the CAMA Major Permit application, project drawings, and other attachments will be produced and provided to NC DCM for dissemination to the resource agencies for review. Additionally, four (4) hard copies and four (4) CDs of the DA IP application and attachments will be provided to USACE for review and dissemination to federal resource agencies. A \$400 permit fee will be required to submit the CAMA Major Permit application. This cost is not included in the cost of CPE-NC's proposal and will be requested from the TOWN at the time the application is to be submitted.

The permitting process for both the USACE and NC DCM will facilitate the issuance of additional approvals required by federal and state agencies prior to the implementation beach nourishment project. These include:

- NEPA Compliance
- NC DCM Coastal Area Management Act (CAMA) Major Permit
- NC DWR General Water Quality Certification
- NC State Historic Preservation Office's concurrence
- DA Individual Permit in compliance with Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act
- USFWS and NMFS concurrence with Section 7 of the Endangered Species Act (ESA).
- NMFS concurrence with the Magnuson-Stevens Fishery Conservation and Management Act.
- US EPA concurrence with the Clean Water Act (CWA)

CPE-NC proposes participation in up to two (2) additional meetings with the various agencies/stakeholders during the permit application development and review. Additional coordination with resource agencies/stakeholders will be conducted via telephone and email correspondences as needed. The submittal of the CAMA Major Permit application and DA IP application will serve as project deliverables.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

CPE-NC will, in good faith, submit complete DA IP and CAMA Major Permit applications; however, the USACE and/or NC DCM may issue a Request for Additional Information (RAI) in response to these permit applications. Should this occur, an additional task order will be submitted to the TOWN under a separate Scope of Work to address the specific RAI requirements.

Sub-Task B: BOEM Lease Request

The use of borrow material obtained from within federal waters on the Outer Continental Shelf (OCS) requires the issuance of a lease agreement from BOEM under the auspices of the Outer Continental Shelf Lands Act (OCSLA). It is expected that material for this proposed project will be obtained from Borrow Area A (one of the two areas included in the lease agreement between Dare County and BOEM issued to support the 2017 nourishment event) or a new yet-to-be-defined borrow area in the OCS. A request for a new non-competitive negotiated lease agreement that will allow for the use of borrow material from within federal waters will be developed and submitted to BOEM for their consideration. Elements included in the lease request may include:

1. A detailed description of the proposed project and how it qualifies under Section 8(k) of the OCSLA
2. A description of the proposed borrow area(s) and placement area(s) including digital maps and ESRI shapefiles and metadata depicting the same, navigation features, geologic sampling locations, and any hard or live-bottom benthic habitat
3. Any geological data (such as sediment sample locations and grain size data, core logs, photographs, *etc.*) and geophysical data (such as sub-bottom profiler, marine magnetometer, sidescan sonar, and bathymetric data, *etc.*) used in borrow area selection and design
4. Any other known uses of the OCS or other infrastructure in the borrow area
5. A description of the environmental evaluations and corresponding documents that have been completed or are being prepared for offshore and onshore components of the project, including any NEPA documentation
6. A target date or range of dates when the resources will be needed
7. A description of the person or government entities undertaking the project
8. A list of any permits, licenses, or authorizations required for the project and their current status
9. Any known potential inconsistencies with state or local statutes, regulations, or ordinances
10. The name, title, telephone number, mailing address and email address of any points of contact for any federal agencies, state, or local governments, and contractor(s) with whom the applicant has contracted or intends to contract
11. A statement explaining who authorized the project, and whether it is federally authorized
12. A statement explaining how the project is to be funded, indicating whether it is federally funded in whole or in part

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

The submittal of the aforementioned information to BOEM will serve as a project deliverable.

Sub-Task C: Environmental Documentation

Prior to the 2017 nourishment event, the USACE determined that an Environmental Assessment (EA) was required from each applicant associated with the multi-town cooperative project. In addition, a single “Batched” Biological Assessment (BA) and a single Programmatic Essential Fish Habitat (EFH) assessment covering the proposed action of all four towns was required. An interagency meeting was held on April 29, 2020, to determine the necessary environmental documentation that would meet NEPA requirements and support the permitting approach associated with this proposed maintenance project. During that meeting it was determined that a single comprehensive EA covering the actions of all four beach projects could be developed. A new Programmatic EFH would not be required and, rather, the existing Programmatic EFH from the 2017 project could be supplemented with updated information as needed. Finally, it was determined that the proposed project should be covered by the recently revised South Atlantic Regional Biological Opinion (SARBO) and, therefore, a new or supplemental BA would not be necessary. Rather, to ensure compliance with Section 7 of the Endangered Species Act, CPE-NC will coordinate with BOEM and USACE to ensure all relevant information is provided to USFWS and NMFS during their consultation efforts.

CPE-NC does not anticipate the need for field studies to collect any additional environmental data; therefore, this cost proposal does not reflect any additional field studies. In the event such field studies are determined to be necessary, a change order will be requested with a modified Scope of Work. The costs associated with these environmental documents, their scopes provided in greater detail below, have been developed under the assumption that each of the four towns associated with the multi-town cooperative beach nourishment project will cost share the expense equally. It is possible that a resource or regulatory agency will issue a RAI in response to these environmental documents. Should this occur, an additional task order will be submitted to the TOWN under a separate Scope of Work to address the specific RAI requirements.

A description of the environmental documentation efforts are as follows:

Environmental Assessment (EA):

An EA under NEPA is a concise public document that provides sufficient evidence and analysis for determining whether USACE should issue a Finding of No Significant Environmental Impact (FONSI) or prepare an EIS. It is designed to help public officials make decisions that are based on an understanding of the human and physical environmental consequences of the proposed project and take actions, in the location and design of the project, that protect, restore and enhance the environment. The core elements of an EA in 40 CFR § 1508.9:

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

1. The need for the proposal,
2. Alternatives as required by NEPA § 102(2)(E),
3. The environmental impacts of your proposed action and the alternatives, and
4. The agencies and persons consulted.

CPE-NC will utilize the existing EA developed for the TOWN along with the information drafted in the EAs previously developed for the other towns associated with the 2017 multi-town cooperative project to create a new comprehensive EA that assesses the impacts of the actions proposed by all four towns collectively. This single document will include a description of the specific actions proposed for each of the four towns and will be utilized by the USACE and BOEM to ensure NEPA requirements are met.

A Preliminary Draft EA will be submitted to the USACE Regulatory Division and the BOEM for internal editing. Once all comments from USACE Regulatory have been addressed, a notification to the Federal Register will declare the release of the Draft EA to the public. Following a 30-day commenting period, CPE-NC will address all comments received by the USACE. A Final EA will then be developed and released again via an announcement to the Federal Register. Ten (10) printed copies and ten (10) digital copies of the Final EA will be produced and submitted to the USACE and BOEM.

The submittal of the Final EA will serve as a project deliverable.

Supplemental Programmatic Essential Fish Habitat (EFH) Assessment: The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) was enacted by the U.S. Congress to protect marine fish stocks and their habitat, prevent and stop overfishing and minimize bycatch. Congress defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The MSFCMA requires that EFH be identified for all fish species federally managed by the Fishery Management Councils (FMCs) and NMFS.

CPE-NC will supplement the Programmatic EFH utilized by NMFS for the 2017 multi-town cooperative beach nourishment project with additional information, newly designated EFH constituents (should they exist), and updated biological data relevant to the project area. Furthermore, should new borrow area(s) be delineated, information on those sites will also be included. The Supplemental Programmatic EFH assessment will be submitted by CPE-NC on behalf of the four towns to the USACE and BOEM. The USACE and BOEM will then enter consultation with NMFS Habitat Conservation Division (HCD) who will review the document to ensure it is comprehensive and complete. Once determined that the document is comprehensive and complete, NMFS HCD is anticipated to issue their concurrence to the USACE fulfilling this aspect of the NEPA requirement.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

The submittal of the Final Supplemental Programmatic EFH assessment will serve as a project deliverable.

Biological Assessment (BA): As mentioned above, based on communications with USACE and BOEM, it is presumed that due to the issuance of the 2020 SARBO, this project will not require the submittal of a BA. However, under Section 7 of the ESA, federal agencies must consult with USFWS and NMFS Protected Resource Division (PRD) on activities that may affect ESA-listed species. These federal agency consultations are designed to help federal agencies in fulfilling their duty to ensure that their actions do not jeopardize the continued existence of a species or destroy or adversely modify designated critical habitat. As such, to ensure compliance with Section 7 requirements, CPE-NC will facilitate the consultation process between the USACE and BOEM and the federal resource agencies to ensure that they are provided adequate information regarding the anticipated project-related impacts as they pertain to protected species. CPE-NC will also respond to additional data requests by USFWS and NMFS PRD as needed.

TASK 2: Engineering and Design

In 2015, CPE-NC completed a detailed engineering design report for the TOWN Beach Management Program. The recommended design included the construction of a beach fill project along the northern approximately 12,500 feet of oceanfront consisting of a 40-foot wide dune at elevation +15.0 feet NAVD88, fronted by a variable width berm at elevation +6.0 feet NAVD88. The proposed project also included advance fill to maintain the integrity of the project design over a 5-year renourishment interval. That project was constructed in 2017 and has been monitored annually by CPE-NC since that time.

In preparation of the anticipated 2022 project, CPE-NC will evaluate design adaptations aimed at improving the overall project performance of the beach nourishment project and provide an engineering report describing the recommendations. The design adaptations will focus on three (3) primary aspects. The first aspect of the design evaluation will focus on how to mitigate the effects of the hot spot erosion that is likely to persist due to the irregular offshore bathymetry. There are probably particular wave events that exacerbate the erosion in these hotspot areas and understanding the wave conditions and processes that drive the erosion hotspot formation will help us improve our nourishment design in terms of modifications to the fill template and fill density distribution. Second, CPE-NC will evaluate erosion rates observed since construction of the 2017 project to determine if modifications in the prescribed advanced fill are warranted. Third, CPE-NC will evaluate the proposed constructed berm height elevation. Pending approval of these recommendations, CPE-NC will incorporate the updated design into the permit applications described under Task 1.

Beach Profile Data: As previously stated, CPE-NC has conducted annual monitoring surveys of the project since 2017. CPE-NC is currently under contract with the TOWN to

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

collect beach profile data in June 2020. Furthermore, following the impacts of Hurricane Dorian in 2019, CPE-NC collected post-storm beach profile data to evaluate storm impacts and apply for FEMA emergency funding to repair storm damages to the project. These data will be used to evaluate the design adaptations described in the previous paragraph.

Beach Fill Performance Evaluation and Modeling. The re-nourishment project design will be based on a detailed analysis of the performance of the 2017 beach nourishment project and numerical modeling estimates of future project performance. Offshore bathymetric anomalies, such as the features observed offshore of Kill Devil Hills, affect wave propagation patterns along the shoreline creating wave shadow and wave focusing zones, and generating hydraulic gradients (higher water in wave focusing zones, and lower water in wave shadowing zones). It is widely known that erosion hotspots commonly occur areas where there are large gradients in wave height along the coast (*i.e.*, Benedet and List, 2018). These hotspots develop as a result of gradients of currents and sediment transport alongshore, which are in turn driven by the hydraulic gradients and small changes in wave angle caused by the offshore features. In the case of Kill Devil Hills we proposed to use an advanced process based numerical model, Delft3D, to understand the processes and the particular wave conditions that cause erosion hotspot formation within the project area. Furthermore, we will use the model to evaluate project design alternatives aimed at reducing or managing hotspot erosion losses so that the design template is preserved in the hotspot erosion area during the project design lifetime.

Since 2017, CPE-NC has been monitoring the performance of the project in and around historic erosion hot spots to better understand the erosional trends. A series of shore parallel bathymetric surveys offshore of Kitty Hawk and Kill Devil Hills have confirmed the presence of irregular offshore bathymetry, which is likely impacting wave approach resulting in hot spot erosion.

As previously stated, in order to understand the processes that drive erosion hotspot formation in Kill Devil Hills and further evaluate design alternatives to predict and mitigate the effects of hot spot erosion, we will employ the highly advanced process-based model Delft3D. Delft3D is a world leading 3D modeling suite used to investigate hydrodynamics, sediment transport and morphology (beach and dune erosion) and water quality for coastal environments. The software has proven its capabilities on many coastal engineering projects and coastal research initiatives around the world and has been extensively used in the United States to evaluate beach nourishment performance. Our lead numerical modeler, Dr. Benedet was one of the first coastal scientists to utilize Delft3D to evaluate beach nourishment performance in the United States in the early 2000s. Additional details of the model can be found at: <https://oss.deltares.nl/web/delft3d/about>

In the spirit of collaboration among the four northern Dare County Towns to achieve project cost savings and efficiencies, CPE-NC will develop a regional wave and flow model that can be utilized by all four of the Towns to evaluate project specific engineering alternatives. Existing datasets of bathymetric and topographic data for the project area,

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

coupled with hydrodynamic measurements from the USACE FRF will be the main sources of data for the numerical modeling. A regional flow and wave grid will be developed for the region extending from the northern end of the TOWN to the southern end of the Town of Kill Devil Hills project area. The regional Delft3D WAVES and FLOW will be calibrated to wave measurements conducted at the FRF.

The regional grid will provide boundary conditions to a nested detailed model grid of the Kill Devil Hills project area to evaluate project performance and hotspot erosion. The highest resolution for the TOWN project specific nested grid will be in the areas in the wave breaking zone and beach within the TOWN nourishment project area. The nested morphology model centered in the TOWN to simulate beach performance will be calibrated to the observed performance of the 2017 nourishment project, the main objective of the calibration will be to reproduce the beach volume losses observed during the post-nourishment period and the erosional hot spot behavior.

After model calibration, and following consultation with the TOWN, the Delft3D model will be used to simulate five (5) beach re-nourishment design configurations aimed at enhancing project performance and mitigating hotspot erosion losses during the nourishment lifetime. These alternatives will include various alternatives of beach fill planform configuration such as placement of higher density fill on the hotspot area to serve as a “feeder beach” to neighboring areas, placement of higher density fill downdrift or updrift of the hotspot, and modifications to the offshore bathymetry such as an offshore sand berm aimed at modifying incoming waves and reduce hotspot erosion. These alternatives will be simulated using the Delft3D model for periods of one year and 5 years. The results of the model will be evaluated in terms of annual volumetric losses from the project area.

The Delft3D numerical model developed to support the re-nourishment will be a “working model” for the TOWN to be used as a tool over the long-term to evaluate the project and improve project performance. Specifically, the model may be used to evaluate episodic alongshore losses following the impacts of Hurricanes and Nor’easters. It could also be used to evaluate the potential for dune overtopping and flooding. Furthermore, considering borrow area investigations included in this proposal and likely necessary over the long-term management of the TOWN’s project, new borrow areas identified directly offshore of the project can be modeled to evaluate borrow area impacts to the project or adjacent shorelines and support borrow area permitting efforts.

Advanced Fill Volume Analysis. A key component of a beach fill design is an assessment of periodic nourishment requirements needed to maintain the design profile during the interim period between nourishment events. This quantity of fill placed to maintain the design fill during the interim period between nourishment cycles is referred to as advanced fill. Given the paucity of historic beach profile data covering the project area, initial estimates of advanced fill were based on theoretical longshore transport rates and end losses, as well as an analysis of shoreline changes between 1996 and 2013.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

CPE-NC will evaluate volumetric change rates measured since the 2017 beach nourishment project. CPE-NC will also use the results of the numerical modeling to better resolve expected diffusion losses in the future. Through these analyses, updated volumes for advanced fill will be calculated. These values will be incorporated into the Town's beach maintenance plan to better predict future maintenance costs.

Berm Height Elevation Analysis. The initial beach fill design called for a variable width berm constructed at +6.0 ft. NAVD88. During construction of the project, the constructed berm was overtopped during several high-water events. Water that overtopped the berm infiltrated the sand as water levels subsided, and eventually, the wave climate re-shaped the beach profile into a more natural configuration.

CPE-NC will evaluate the various beach profile data sets collected since the project was constructed in order to evaluate whether a modified design berm elevation might enhance project performance. When a beach project is constructed with a berm elevation that is too low, there is a risk that frequent overtopping of the berm can result in ponding of water on the berm, which can impact recreational users of the beach. Furthermore, if a berm is constructed at an elevation too high, increased and more severe scarping can occur as the profile is evolving in response to wave forces. The analysis will focus on optimizing the berm elevation to minimize both the risk of ponding and the risk of scarping.

Engineering Plans. Once CPE-NC has completed the analyses of the various design adaptations, a set of engineering plans will be developed. The plans will include detailed plan view and cross section view drawings of both the borrow areas and the proposed beach fill, including allowable dredge cut depths, berm elevation, berm width, and project extent. These plans will be incorporated into the permitting applications discussed under Task 1.

Engineering Report. CPE-NC will prepare an engineering report that documents the process employed to evaluate the various design adaptations. The report will include a description of data used, detailed description of the setup and calibration of the Delft3D model, descriptions and results of the various design analyses conducted, and recommended design adaptations.

TASK 3: Borrow Area Investigations and Design

As part of the agreement between CPE-NC and the TOWN executed on May 8, 2020, a sand search desktop study was conducted to evaluate the potential presence/absence of sand resources in state and federal waters offshore the Towns of Duck, Southern Shores, Kitty Hawk, and Kill Devil Hills. Based on the information compiled and evaluated, several areas have been identified for further investigation. Available geophysical and geotechnical data in the region indicates that there is a potential sand deposit south of previously defined Area C and north of Kill Devil Hills.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

In order to further evaluate these potential sediment resources, CPE-NC will work with our sub-contractor, Aptim Environmental & Infrastructure, LLC (APTIM), to collect additional geophysical and geotechnical data in the area south of Borrow Area C to Kitty Hawk. Exhibit D includes a map showing the location identified for further investigation under Task 3. The Modern Sand Isopach developed by the U.S. Geological Survey (USGS) and historic seismic data and vibracores provide a baseline for the potential sand deposit. CPE-NC will conduct a two-phase survey plan, with Phase 1 consisting of a reconnaissance-level geophysical and geotechnical survey, followed immediately by a Phase 2 design and cultural resource geophysical and geotechnical survey. The investigations will include data acquisition, data processing and interpretation, borrow area design, compatibility analysis, and production of a final geotechnical report.

During the Phase 1 reconnaissance-level geophysical survey, a single-beam echosounder, sidescan sonar, chirp sub-bottom, and magnetometer systems will be used to collect four (4) days of geophysical data on widely-spaced intervals over the entire investigation area. The data will be reviewed in real time to determine the best potential areas to focus the design level investigation and to select up to 15 reconnaissance-level vibracores to be collected within the investigation area. This determination will primarily be based on correlating the historic geotechnical data to the subsurface geophysical data to identify the thickest, coarsest sand deposit possible that is free of incompatible material and obstructions, and that avoids impacts to protected resources. Once vibracore sites have been selected, the geophysical data will be used to conduct a cultural resource clearance of the proposed vibracore locations. At that point, vibracore collection will commence at the cleared locations. Once the Phase 1 vibracores have been collected, the vibracores will be split to evaluate the quality of the sand deposits. Areas to be investigated during Phase 2 (Design Level) will be delineated based on the preliminary evaluation of the Phase 1 vibracores.

The design-level geophysical survey will consist of collecting sidescan sonar, chirp sub-bottom, and magnetometer data at a 30-meter (m) line spacing across the selected area, together with perpendicular tie lines to satisfy the requirements of both borrow area design considerations, as well as cultural resource identification and avoidance criteria. After the completion of the design-level geophysical survey, field operations will transition to geotechnical operations to collect up to 30 vibracores, with one core for up to 23 acres throughout the design-level investigation area. Vibracores will be collected to sufficient depths such that they extend at least two feet below the maximum dredge depth (up to 20 ft. long). Vibracores will be sited such that the chirp sub-bottom lines can be used to correlate the area between vibracores for a better understanding of the relationship between compatible and non-compatible sediment layers. In addition, full-swath multi-beam echosounder, at a tighter line spacing to achieve full seafloor coverage, will be collected over the initially-delineated borrow area (after design-level investigations are complete) to provide full seafloor elevations.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

All sidescan sonar and seismic reflection data will be processed using the SonarWiz.MAP software package developed by Chesapeake Technologies Inc. This software package allows for advanced processing, interpretation, and digital mosaic output and can produce georeferenced HTML's viewable in generic web-browser software programs. SonarWiz.MAP also produces digital geographic information for both sub-bottom and sidescan data that are exportable for incorporation into a GIS database. All sidescan sonar, sub-bottom profile, magnetometer, and bathymetric data collected during the course of the preliminary and design level geophysical survey will be processed and interpreted. In addition, the magnetometer data will be reviewed by a qualified archaeologist for cultural resource interpretation.

Upon completion of field operations, all vibracores will be logged by describing sedimentary properties by layer in terms of layer thickness, color, texture (grain size), composition and presence of clay, silt, gravel, or any other identifying features. The vibracores will be photographed in 2.0 ft. intervals. Sediment samples will be extracted from the vibracores at irregular intervals based on distinct stratigraphic layers in the sediment sequence. The vibracores will then be wrapped and archived. CPE-NC will store cores until the time of construction. After this time, cores may either be relinquished to the client or stored for an additional annual cost of \$25 per core.

The sediment samples will be analyzed to determine color and grain size distribution. During sieve analysis, the wet, dry, and washed Munsell colors will be noted. Sieve analysis of the sediment samples will be performed in accordance with the American Society for Testing and Materials (ASTM) Standard Methods Designation D 422-63 for particle size analysis of soils. This method covers the quantitative determination of the distribution of sand size particles. For sediment finer than the No. 230 sieve (4.0 phi) the ASTM Standard Test Method, Designation D 1140-00 will be followed. Weights retained on each sieve will be recorded cumulatively. Grain size results will be entered into the gINT® software program, which computes the mean and median grain size, sorting, and silt/clay percentages for each sample using the moment method.

Samples will also be tested for carbonate content. Carbonate content will be determined by percent weight using the acid leaching methodology described in "Methods of Study of Sediments" (Twenhofel and Tyler, 1941).

A compatibility analysis will be conducted to match the borrow area(s) and beach for optimum project performance and to satisfy the Technical Standards for Beach Fill Projects (15A NCAC 07H.0312). Composite values for mean grain size, percent silt, percent gravel, and percent carbonate will be calculated for the sediment contained in each borrow area. These composite values for the borrow areas will be compared to composite values for the same sediment characteristics calculated from the native beach sampling that occurred in preparation for the 2017 project. The results of the analysis of both borrow area and native beach samples will be included along with the results of the compatibility analysis as part of the final geotechnical report.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

A preliminary draft geotechnical report will be prepared and submitted to the TOWN in digital format for review and comment. This report will include project results, including bathymetric and isopach (sediment thickness) maps, sub-bottom (seismic) survey profiles, vibracore logs, vibracore photographs, granulometric reports, and grain size distribution curves. The TOWN will identify any revisions that may be necessary and provide recommendations for the final draft report. The final draft report will be submitted to state and federal resource agencies. In the event that comments are provided by the resource agencies, CPE-NC will amend the draft report to address those comments. Addressing comments does not include the collection of additional field data. In the event that additional field data is required, CPE-NC will submit a separate proposal for the work.

A final report summarizing the results of the geotechnical investigation will be prepared and submitted to the TOWN as well as to state and federal resource agencies as an addendum to the Final EA.

Task 4: Baseline Survey to Quantify 3-Inch Clasts on Native Beach

Leading up to the permitting of the 2017 project, CPE-NC conducted a survey to quantify the number of clasts on the project beach, greater than 3-inches in diameter, in accordance with the Technical Standards for Beach Fill Projects (15A NCAC 07H.0312) (Standards). The State is currently considering re-adoption of the Standards with several changes including changes to section (1) (h), which deals with quantifying the number of sediments and shell material greater than or equal to 3 inches in diameter. In consultation with NC DCM staff, CPE-NC is under the impression that the proposed 2022 project will have to adhere to the new Standards. Therefore, it is necessary to re-survey the beach using the updated Standards. Please note that NC DCM staff is currently in discussions regarding the potential to reimburse communities that are required to re-survey their beaches because of this change to the Standards.

Under Task 4, a survey will be performed of the project area to quantify the number of clasts > 3 inches in diameter present within the survey area. This survey will serve as a baseline and will be duplicated upon completion of the beach nourishment project (under a separate work assignment). This proposal includes the baseline survey to quantify clasts > 3 inches in diameter and does not include any post-construction surveys.

The survey will be conducted along each of the five (5) profiles that were sampled to establish native beach sediment characteristics in 2014, namely baseline station 209+74, 235+00, 260+17, 289+99, and 320+05. At each location, the linear distance between the toe of dune and MLW contour will be determined. Based on this linear distance, an area of approximately 10,000 ft² will be established and centered along the profile. All clasts greater than 3 inches in diameter within this area will be counted. The sum of all clasts counted within the areas surveyed at each of the five (5) profiles will be determined and this number will serve as the baseline value for the Standards.

EXHIBIT A:
SCOPE OF PROFESSIONAL SERVICES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

CAVEATS

CPE-NC proposes to perform the marine sand search to the industry standard of care and will coordinate the investigations with state and federal regulatory agencies as required. While the regulatory agencies may agree with the scope of the investigations, it is possible that beach compatible sand may not be located, regulatory agencies may not approve the sand source(s) that are located, or regulatory agencies may impose a sand placement QA/QC requirement that would be difficult to meet with the identified sand sources. If any of these situations arise, it may be necessary to locate additional beach compatible sand sources at additional cost. CPE-NC will also make reasonable attempts to determine if other entities are exploring the same sand sources or have authorization (permit or BOEM lease) to use the same sand we intend to investigate. Despite these efforts, it is possible that others may claim the sand that we find, and negotiations and/or further exploration may be required if that occurs. Lastly, during the investigations, cultural and/or environmental resources may be found to exist in or near the investigated borrow area that would limit or preclude a portion or all of its use.

CPE-NC will attempt to avoid these issues, but there may be unavoidable circumstances that are beyond the control of CPE-NC and may result in the need for additional services. The TOWN herein recognizes the above referenced risks and agrees to work with CPE-NC to complete the work, which may include contracting for additional services for sand investigations as needed.

EXHIBIT B:
BREAKDOWN OF COSTS
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

Table 1. Breakdown of the total cost of the Design and Environmental Permitting Services for the proposed 2022 Beach Nourishment Project.

TASK	DESCRIPTION	Cost
1	Environmental Documentation and Permitting	\$70,579.50
2	Engineering and Design	\$121,886.75
3	Borrow Area Investigations and Design	\$201,809.50
4	Survey to Quantify 3-Inch Clasts on Native Beach	\$5,958.00
TOTAL:		\$400,233.75

Some costs associated with Task 1, Task 2, and Task 3 are being cost shared between the Towns of Duck, Southern Shores, Kitty Hawk, and Kill Devil Hills. In the event that any of the Towns decide not to move forward with the design and permitting of the project, the other 3 Towns' costs would necessarily increase.

Costs associated with Task 4 are associated with the re-surveying of the beach due to proposed changes in the State Technical Standards for Beach Fill Projects. The changes have not yet been adopted by the NC Coastal Resources Commission but are expected to be adopted by the end of the year. In developing this proposal and consulting with NC Division of Coastal Management Staff, we have been led to believe that communities required to re-survey their beaches due to these rule changes may be eligible for reimbursement of the cost to conduct such surveys. Therefore, it may be possible for the Town to be reimbursed \$5,958 for the completion of this work.

**EXHIBIT C:
LIST OF DELIVERABLES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT**

The following items have been identified as deliverables for the completion of this scope of work.

- Monthly progress reports;
- Major CAMA Permit Application;
- Dept. of the Army Permit Application;
- BOEM Lease Request Packet
- Final Environmental Assessment;
- Final Supplemental Essential Fish Habitat Assessment;
- Engineering Report;
- Borrow Area Design Report

A detailed description and an individual schedule for each deliverable are provided below.

Monthly Progress Reports: CPE-NC will provide the Town with 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.

Major CAMA Permit Application: The Scope of Work includes the development and submittal of the complete Major CAMA permit application directly to the NC Division of Coastal Management. Barring any unforeseen circumstances, the Major CAMA Permit Application will be provided along with other final deliverables within 6 months following written authorization to proceed.

Dept. of the Army Permit Application: The Scope of Work includes the development and submittal of the Dept. of the Army Individual Permit Application directly to the U.S. Army Corps of Engineers. Barring any unforeseen circumstances, the Dept. of the Army Individual Permit Application will be provided along with other final deliverables within 6 months following written authorization to proceed.

BOEM Lease Request Packet: The Scope of Work includes the development and submittal of a request to BOEM for a new non-competitive negotiated lease agreement that will allow for the use of borrow material from within federal waters. Barring any unforeseen circumstances, the BOEM Lease Request Packet will be provided within 6 months following written authorization to proceed.

Final Environmental Assessment (EA): An EA under NEPA is a concise public document that provides sufficient evidence and analysis for determining whether the U. S. Army Corps of Engineers should issue a Finding of No Significant Environmental Impact (FONSI) or prepare an

EXHIBIT C:
LIST OF DELIVERABLES
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

Environmental Impact Statement (EIS). It is designed to help public officials make decisions that are based on an understanding of the human and physical environmental consequences of the proposed project and take actions, in the location and design of the project, that protect, restore and enhance the environment. Barring any unforeseen circumstances, the EA will be provided along with other final deliverables within 6 months following written authorization to proceed.

Final Essential Fish Habitat (EFH) Assessment: The EFH assessment is utilized by the National Marine Fisheries Service (NMFS) to ensure that the project will identify and protect important marine and estuarine fish habitat in accordance to the amended Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), which was enacted by the U.S. Congress to protect marine fish stocks and their habitat, prevent and stop overfishing and minimize bycatch. Congress defines Essential Fish Habitat (EFH) as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The MSFCMA requires that EFH be identified for all fish species federally managed by the Fishery Management Councils (FMCs) and the NMFS. This document will evaluate the potential impacts to the various essential fish habitats within the designated Permit Area. Barring any unforeseen circumstances, the EFH will be provided along with other final deliverables within 6 months following written authorization to proceed.

Engineering Report: An engineering report will be provided to the Town as an appendix to the Environmental documentation developed to support a permit decision. The engineering report will also serve as a record for the Town of the engineering analysis that were conducted to arrive at the recommended design. This document will be requested in the event the Town were to request FEMA funding for damage repairs. The Engineering Report shall include the results of the dune design analysis, the beach fill performance modeling, the advanced fill evaluation, the berm height analysis, record of plan formulation, and final description of the proposed beach design. Barring any unforeseen circumstances, the Engineering Report will be provided within 6 months following written authorization to proceed.

Borrow Area Design Report: A borrow area design report will be provided to the Town as an appendix to the Environmental documentation developed to support a permit decision. This report will include project results, including bathymetric and isopach (sediment thickness) maps, a description of the proposed borrow area sediments, maps showing the limits of the borrow areas, and volume contained within the designed borrow area. The report will also include the following as appendices: sub-bottom (seismic) survey profiles, vibracore logs, vibracore photographs, granulometric reports and grain size distribution curves. Barring any unforeseen circumstances, the borrow area design report will be provided within 9 months following written authorization to proceed.

EXHIBIT D:
MAP OF INVESTIGATION AREA FOR SAND RESOURCE INVESTIGATION
TOWN OF KILL DEVIL HILLS, NORTH CAROLINA
DESIGN AND ENVIRONMENTAL PERMITTING SERVICES
2022 BEACH NOURISHMENT

