

CONTRACT NO. 2012000050
AGREEMENT BETWEEN CHARLOTTE COUNTY
and
COASTAL ENGINEERING CONSULTANTS, INC.
for
STUMP PASS TEN-YEAR MANAGEMENT PLAN

THIS AGREEMENT, hereinafter referred to as the "Agreement", is made and entered into this 16th day of April 2012 by and between CHARLOTTE COUNTY, a political subdivision of the State of Florida, 18500 Murdock Circle, Port Charlotte, Florida 33948-1094, hereinafter referred to as the "County," and COASTAL ENGINEERING CONSULTANTS, 3106 South Horseshoe Drive, Naples, Florida 34104-6137, hereinafter referred to as the "Consultant."

WITNESSETH

WHEREAS, the County has determined that it is necessary to retain a Consultant to provide a ten year beach and inlet management plan to include, but not be limited to, an alternative analysis, design, permitting, construction support, and monitoring; and

WHEREAS, the Consultant has reviewed RFP No. 2012000050 and Addendum No. 1 required pursuant to this Agreement and is qualified, willing and able to provide and perform all such services in accordance with its terms.

WHEREAS, the County, through a selection process conducted in accordance with the requirements of law and County policy, has determined that it would be in the best interest of the County to award a contract to Consultant for the rendering of those services described in the Scope of Services.

NOW, THEREFORE, the County and the Consultant, in consideration of the mutual covenants contained herein, do agree as follows:

ARTICLE 1.
INCORPORATION OF DOCUMENTS

1.1. RFP No. 2012000050, consisting of pages 1 through and including 18 issued by County on October 28, 2011, as well as the provisions of Addendum No. 1 issued by County on November 16, 2011, and the Proposal submitted by Consultant dated November 29, 2011, all filed with the Clerk of the Circuit Court of Charlotte County, Minutes Division, as RFP No. 2012000050, are hereby specifically made part of this Agreement as if same had been set forth at length herein.

1.2. In the event of any conflict between the documents constituting this Agreement, the documents shall be given precedence in the following order:

- 1) This Agreement;
- 2) The Scope of Work attached hereto;
- 3) RFP No. 2012000050 and Addenda No. 1;
- 4) The Proposal submitted by Consultant dated November 28, 2011.

ARTICLE 2.
CONSULTANT'S SCOPE OF SERVICES

2.1. Consultant agrees to perform all the services and provide all the materials requested by RFP No. 2012000050 and described in the Scope of Work which is attached hereto as Exhibit A and incorporated herein by this reference, which are hereinafter collectively referred to as the "Scope of Services."

2.2. Consultant agrees to provide its services and materials in the times allowed for performance contained in the Scope of Services. The Consultant shall make no claims for additional compensation or damages owing to suspensions, delays, or hindrances which arise during the performance of this Agreement. Such suspensions, delays or hindrances may only be compensated for by an extension of time as the County may decide. However, such extension shall not operate as a waiver of any other rights of the County.

2.3. In the event that County desires Consultant to perform any additional services related to the Projects not specifically contained in the Scope of Services, the parties shall enter into an addendum to this Agreement to provide for the provision of such additional services by Consultant and payment therefore by County, based on the costs contained in Exhibit B.

2.4. If results of the Plan Formulation or the Preliminary Design Tasks indicate the scope and character of the Project need to be revised and/or adjusted, Consultant shall prepare scope modification requests in coordination with the County and Florida Department of Environmental Protection.

ARTICLE 3.
COMPENSATION AND PAYMENT OF CONSULTANT'S SERVICES

3.1. County shall pay Consultant for those tasks listed in the Scope of Services actually performed by Consultant. The total payment to Consultant shall not exceed One Million Two Hundred Forty Two Thousand Eight Hundred Eighty Two Dollars (\$1,242,882.00) for Consultant's services under this Agreement, performed in accordance with the Scope of Services and this Agreement.

3.2. Payment for services rendered by Consultant shall be made on a monthly basis in proportion to the percentage completed of those tasks listed in the Scope of Services. Percentage of services completed shall be subject to review and approval by the County Director of Community Development or his designee.

3.3. Consultant shall submit all billings for payment of services rendered on a monthly basis to the County Purchasing Division for processing. Billings shall be detailed as to the nature of the services performed and shall refer to the specific tasks listed in the Scope of Services that were actually performed by Consultant. Billings shall include a summary of any amounts previously billed and any credits for amounts previously paid.

3.4. Consultant acknowledges that each billing must be reviewed and approved by the County Director of Community Development or his designee. Should the County Director of Community Development or his designee, determine that the billing is not commensurate with services performed, work accomplished or hours

expended, Consultant shall adjust billing accordingly. However, Consultant shall be entitled to payment of any portion of a billing not in dispute.

3.5. County shall pay Consultant's monthly billings in accordance with Sections 218.70 through 218.80 Florida Statutes, the Local Government Prompt Payment Act.

3.6. It is expressly understood by the County and the Consultant that funding for any successive fiscal years is contingent upon appropriation of monies by the Board of County Commissioners. In the event that funds are not available or not appropriated, the County reserves the right to terminate the Contract. The County will be responsible for any outstanding invoices for work performed prior to the termination.

ARTICLE 4.

CONSULTANT'S RESPONSIBILITIES

4.1. Consultant shall perform or furnish consulting and related services to a level of technical skill, ability, and diligence customarily provided by an experienced professional in his or her field of expertise when rendering the same services, and in accordance with sound principles and practices generally acknowledged by professionals in his or her field of expertise, as represented to the County, both orally and in writing, to be possessed by Consultant, all in accordance with the standards contained elsewhere in this Agreement and in accordance with generally accepted standards of professional consulting practice and with the laws, statutes, ordinances, codes, rules and regulations governing Consultant's profession. The same standards of care shall be required of any subconsultant or subcontractor engaged by Consultant.

4.2. Consultant shall, without additional compensation, correct and revise any errors, omissions, or other deficiencies in its work product, services, or materials arising from the negligent act, error or omission of Consultant or any subconsultant or subcontractor engaged by Consultant for one year after the completion of Consultant's services under this Agreement. The foregoing shall be construed as an independent duty to correct rather than a waiver of County's rights under any applicable statute of limitations. County review of, approval of, acceptance of, or payment for any of Consultant's work product, services, or materials shall not be construed to operate as a waiver of any of County's rights under this Agreement, or cause of action County may have arising out of the performance of this Agreement.

ARTICLE 5.

OWNERSHIP AND USE OF DOCUMENTS

5.1. All documents, data, studies, surveys, analyses, sketches, tracings, specifications, plans, designs, design calculations, details, computations, drawings, maps, models, photographs, reports, and other documents and plans resulting from Consultant's services under this Agreement shall become the property of and shall be delivered to County without restriction or limitation as to use regardless of the format of the document (paper or electronic). However, any use subsequent to or other than for the specific project for which such items were created, shall be at sole risk of County.

5.2. Consultant agrees that any software, computer systems and databases used for providing the documents necessary to this Agreement shall be compatible with existing COUNTY software and systems. It is anticipated that the software utilized will be run on windows based PC's and will consist of AutoCAD release 2007, ICPR,

Microsoft Word 2010, Microsoft Excel 2010, Microsoft Project 2010, Microsoft PowerPoint 2010, and Adobe Reader 8.

ARTICLE 6.

COUNTY'S RESPONSIBILITIES

6.1. County shall perform the responsibilities contained in this Article 6 in a timely manner so as not to delay the services of Consultant.

6.2. County shall furnish to Consultant, upon request of Consultant and at County expense, all existing studies, reports and other available data pertinent to the services to be performed under this Agreement which are within the County's possession. However, Consultant shall be required to evaluate all materials furnished hereunder using reasonable professional judgment before relying on such materials.

6.3. County shall provide reasonable access and entry to all public property required by Consultant to perform the services described in this Agreement. All such access and entry shall be provided at County expense. County shall also use reasonable efforts to obtain permission for reasonable access and entry to any private property required by Consultant to perform the services described in this Agreement.

6.4. County shall provide the following:

- Storage of Vibracores
- Shorebird mitigation area vegetation clearing
- Lighting Surveys
- Fees associated with all permits
- Charrette advertisements
- Agent authorization letter
- Categorization and Maintenance of public access, signage, and parking
- Beach tilling
- Sea turtle monitoring and annual reporting
- Shorebird monitoring annual report
- Public notices
- Consistency with Local Comprehensive Plan
- Funding support data

ARTICLE 7.

TERM / TERMINATION

7.1.1. The term of this Agreement shall begin on the date and year first written above and shall be completed in accordance with the schedule attached hereto as Exhibit C (the "Schedule"). Consultant's services shall be deemed complete when Consultant provides all products contained in the Scope of Services and required under this Agreement, and County accepts such services and products as satisfactory, unless otherwise terminated in accordance herewith.

7.1.2. The Consultant shall be responsible for notifying the County promptly whenever a delay is anticipated or experienced, including a delay in approval by any governmental agency having jurisdiction over the Project. The County shall allow the

Consultant to extend the Schedule for valid, documented delays. The County shall be the sole determiner of the validity of the delays.

7.2. The County shall have the right at any time upon thirty (30) calendar days written notice to the Consultant to terminate the services of the Consultant and, in that event, the Consultant shall cease work and shall deliver to the County all documents, (including reports, designs, specifications, and all other data) prepared or obtained by the Consultant in connection with its services. The County shall, upon receipt of the aforesaid documents, pay to the Consultant, and the Consultant shall accept as full payment for its services, fees for all tasks completed in accordance with Scopes of Services.

7.3. In the event that the Consultant has abandoned performance under this Agreement, then the County may terminate this Agreement upon three (3) calendar day's written notice to the Consultant indicating its intention to terminate. The written notice shall state the evidence indicating the Consultant's abandonment. Payment for services performed prior to the Consultant's abandonment shall be as stated Section 3 above.

ARTICLE 8.

NOTICES

8.1. Any notice required or permitted to be sent hereunder shall be sent by certified mail, return receipt requested, to the parties at the addresses listed below:

CONSULTANT:

Coastal Engineering Consultants, Inc.
Name: Michael T. Poff, P.E.
Address: 3106 South Horseshoe Drive
Naples, FL 34104

COUNTY:

Purchasing Division
Name: Kimberly A. Corbett, Sr. Division Mgr.
Address: 18500 Murdock Circle, Ste. 344
Port Charlotte, FL 33948

8.2. Contractor shall immediately notify County of any changes in address.

ARTICLE 9.

NO CONTINGENT FEES

9.1. Consultant certifies that it has not employed or retained any company or person, other than a bona fide employee working solely for Consultant to solicit or secure this Agreement and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for Consultant any fee, commission, percentage, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For the breach or violation of this provision, County shall have the right to terminate the Agreement without liability at its discretion, to deduct from the contract price, or otherwise recover, the full amount of such fee, commission, percentage, gift or consideration.

ARTICLE 10.
TRUTH-IN-NEGOTIATION CERTIFICATE

10.1. In accordance with Section 287.055 Florida Statutes and Charlotte County Resolution 2003-059, signature of this Agreement by Consultant shall act as the execution of a truth-in-negotiation certificate stating that wage rates and other factual unit costs supporting the compensation of this Agreement are accurate, complete, and current at the time of contracting. The original contract price and any additions thereto shall be adjusted to exclude any significant sums by which County determines the contract price was increased due to inaccurate, incomplete, or noncurrent wage rates and other factual unit costs. All such contract adjustments shall be made within one (1) year following the end of this Agreement.

ARTICLE 11.
ASSIGNMENT

11.1. This Agreement, or any interest herein, shall not be assigned, transferred or otherwise encumbered, under any circumstances by Consultant without the prior written consent of County. Further, no portion of this Agreement may be performed by subcontractors or subconsultants without written notice to and approval of such action by County.

ARTICLE 12.
EXTENT OF AGREEMENT / SEVERABILITY / MODIFICATION

12.1. This Agreement represents the entire and integrated agreement between the County and Consultant and supersedes all prior negotiations, representations or agreement, either written or oral.

12.2. In the event any provision of this Agreement shall be held invalid and unenforceable, the remaining provisions shall be valid and binding upon the parties. One or more waivers by either party of any breach of any provision, term, condition or covenant shall not be construed by the other party as a waiver of any subsequent breach.

12.3. No modification, amendment or alteration in the terms or conditions contained herein shall be effective unless contained in a written document executed by both parties.

12.4. This is a nonexclusive contract. The County has the right to enter into contracts with other consultants for the providing of engineering services.

ARTICLE 13.
GOVERNING LAW / VENUE

13.1. This Agreement shall be governed and construed in accordance with Florida law. In the event any litigation arises between the parties in connection with this Agreement, venue for such litigation shall lie exclusively in Charlotte County, Florida.

ARTICLE 14.
INDEPENDENT CONTRACTOR STATUS

14.1. Consultant is an independent contractor and is not an employee, servant, agent, partner or joint venturer of the County.

Neither the County nor any of its employees shall have any control over the conduct of Consultant or any of Consultant's employees, except as herein set forth, and Consultant expressly warrants not to represent at any time or in any manner that Consultant or any of Consultant's agents, servants or employees are in any manner agents, servants or employees of the County. It is understood and agreed that Consultant is, and shall at all times remain as to the County, a wholly independent contractor and that Consultant's obligations to the County are solely as prescribed by this Agreement.

ARTICLE 15.
AUDIT AND RECORDS REQUIREMENTS

15.1. Consultant shall maintain books, records, documents, and other evidence directly pertaining to or connected with the services under this Agreement which shall be available and accessible at Consultant's local offices for the purpose of inspection, audit, and copying during normal business hours by the County, or any of its authorized representatives. Such records shall be retained for a minimum of five (5) years after completion of the services. Prior to destruction of any records, the Consultant shall notify the County and deliver to the County any records the County requests. Consultant shall require all subcontractors to comply with the provisions of this paragraph by insertion of the requirements hereof in a written contract agreement between Consultant and the subcontractor.

15.2 If the records are unavailable locally, it shall be the Consultant's responsibility to insure that all required records are provided at the Consultant's expense including payment of travel and maintenance costs incurred by the County's authorized representatives or designees in accessing records maintained out of the county. The direct costs of copying records, excluding any overhead cost, shall be at the County's expense.

15.3. Consultant shall fully cooperate with all public records requests by providing the necessary records to the County promptly upon notice unless the records are exempt from Section 24 (a) of Article I of the State Constitution and Chapter 119, Florida Statutes. Failure by Consultant to promptly respond to notices requesting records constitutes grounds for unilateral cancellation by the County at any time, with no recourse available to Consultant. Records may be provided in the form or format in which they are kept including electronic files. Consultant's right to claim an exemption from disclosure shall not be deemed failure to comply with this article.

ARTICLE 16.
INDEMNIFICATION

16.1. For ten dollars (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, Consultant shall indemnify and hold harmless County and its officers and employees, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the

negligence, recklessness, or intentionally wrongful conduct of Consultant and other persons employed or utilized by Consultant in the performance of this Agreement.

ARTICLE 17.
EMPLOYEE RESTRICTIONS

17.1. Charlotte County will not intentionally award publicly-funded contracts to any Consultant who knowingly employs unauthorized alien workers, constituting a violation of the employment provisions contained in 8 U.S.C. Section 1324a(e) [Section 274A(e) of the Immigration and Nationality Act ("INA")]. The County shall consider employment by any Consultant or subconsultant or subcontractor of unauthorized aliens a violation of Section 274A(e) of the INA. Such violation by the Consultant of the employment provisions contained in Section 274A(e) of the INA shall be grounds for termination of this Agreement by the County.

17.2. If an owner (except a stockholder in a publicly traded corporation) or an employee of the Consultant has been convicted of any offenses requiring registration as a sexual offender or sexual predator, regardless of the location of conviction, the Contractor shall ensure that the offender's or predator's work on the project is consistent with the terms of his probation and registry requirements.

17.3. The Consultant shall incorporate the terms of paragraphs 17.1 and 17.2 into all contracts with any subconsultants or subcontractors.

(The remainder of this page has been intentionally left blank)

IN WITNESS WHEREOF, the parties hereto have caused the execution of these premises as of the date and year first above written.

COASTAL ENGINEERING
CONSULTANTS, INC.

WITNESSES:

Signed By: Karen Taylor

Print Name: Karen Taylor

Date: 4-23-12

Signed By: Sarah Bunn

Print Name: Sarah Bunn

Date: 4-23-12

ATTEST:

Barbara T. Scott, Clerk of Circuit
Court and Ex-officio Clerk to the
Board of County Commissioners

By: Anne L. Pfahler
Deputy Clerk

Signed by: Michael T. Port

Print Name: MICHAEL T. PORT

Title: VICE-PRESIDENT

Date: 4-23-12

BOARD OF COUNTY COMMISSIONERS
OF CHARLOTTE COUNTY, FLORIDA

By: Christopher G. Constance
Christopher G. Constance, Chairman

Date: 4/16/12

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

By: Janette S. Knowlton
Janette S. Knowlton, County Attorney
LR 12-1763

Exhibit List:

- Exhibit A - Scope of Services
- Exhibit B - Contract pricing
- Exhibit C - Schedule

Charlotte County 10-Year Beach and Inlet Management Plan Plan Formulation, Design, and Permitting Scope of Services

CEC File No. 11.144

March 14, 2012

Introduction: In July 2003, Charlotte County (County) completed construction of their first Erosion Control Project, restoring three critically eroding beach segments along Manasota Key, Knight Island and Don Pedro Island, using sand dredged to restore the Stump Pass 1980 channel alignment and from the ebb shoal borrow area. In 2006 and 2011, the County completed maintenance of the project to offset the erosion losses from storms and hurricanes and as well as background erosion. The County is embarking on the next 10-Year Management Plan (Plan) for Stump Pass and the adjacent beaches. The following scope of services is proposed to assist the County complete the formulation, design, and permitting of the Plan.

SCOPE OF SERVICES

TASK 1 – PLAN FORMULATION:

Task 1A – 10-Year Management Plan Design Criteria: Prior discussions with the FDEP indicate that prior to FDEP approval of any subsequent channel design/alignment, the County shall compile and assess monitoring results of the original and subsequent construction projects to identify opportunities for design refinements and/or cost saving efficiencies. CEC shall provide a characterization of Project elements to include: (1) assessment of past performances, (2) design refinements that may be warranted, and (3) feasible additions to enhance Project performance. Based on the measured erosion rates and performance review, CEC shall project the 10-year beach nourishment needs for Stump Pass and the adjacent beaches within the zone of inlet influence extending from R-12 to R-40 as defined in the 2001 Stump Pass Inlet Management Study prepared by CEC. If required, CEC shall request a time extension for the previously issued 10-year Joint Coastal Permit (JCP) FDEP No. 0194790-012-JN and related public easements. Currently the existing JCP expires on March 5, 2013.

Task 1B – Structural Desktop Analysis: Building upon the project performance to date, and relying upon our historical perspective of the Project goals, objectives, permit issues, and design standards, CEC shall conduct an evaluation of fiscal, environmental, and institutional parameters to screen the following alternatives, or combination of alternatives, for inclusion in the Plan.

- Continue / Modify Maintenance dredging,
- Continue / Modify Beach Nourishment,
- Terminal groin,
- Jetties,
- Groin field including permeable or non-permeable and with or without T-heads,
- Revetments,
- Seawall(s),
- Breakwater(s), and
- Alternative Technologies (up to three such as the underwater catch basin and breakwater pyramids).

The analysis shall include input from a workshop to be held in conjunction with one Beaches and Shores Committee Meeting. Participants expected to attend include residents, boaters, FL State Park staff, and County staff. The environmental analysis shall include a qualitative

EXHIBIT A

Charlotte County 10-Year Beach and Inlet Management Plan
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characterization of potential environmental impacts and potential regulatory issues associated with the structural alternatives. The fiscal analysis shall include development of order of magnitude construction budgets for the structural alternatives based on industry available cost data from similar projects.

Based upon the analysis, CEC shall rank the structural alternatives and recommend to the County the three (3) most favorable alternatives for a subsequent detailed analysis including the Modeling Task. The recommendation shall include the justification for carrying the selected alternatives forward along with the rationale for eliminating the other alternatives. The purpose of the structural assessment is to enhance Project performance, extend Project life, and increase the interval between maintenance dredging events.

Task 1C – Offshore Borrow Area Literature Review and Survey Plans: Utilizing the native beach sediment characteristics developed in the 2003 Joint Sarasota-Charlotte County Beach Erosion Study (Joint Study), CEC shall establish the specifications for beach-compatible sediment suitable for use in the Project. The specifications shall include silt content, visual shell content, carbonate content, gravel content, moist Munsell color, sorting, and grain size distribution.

CEC shall conduct a desktop study of maps, charts, the FDEP's ROSS/OSSI database, and available literature sources concerning the Project area to update the Offshore Sand Source Desktop Analysis completed in the Joint Study. These materials provide information on the regional geomorphology and geology, help to identify features that may contain potential sand, and suggest a logical sequence and boundaries for the investigation. Based upon the Joint Study, there are multiple potential target areas containing beach compatible sand in state waters. Offshore sites shall be chosen based upon this update for the reconnaissance level field investigation.

CEC shall perform an archaeological sensitivity assessment consisting of archival background research only for the potential target areas. The purpose of the sensitivity assessment will be to develop area-specific general environmental and cultural contexts, document any previous archaeological investigations within these areas, and inventory the locations and types of archaeological deposits or areas of archaeological sensitivity identified therein. Research performed for the archaeological sensitivity assessment will entail a review of available and relevant literature on the areas' environmental and cultural histories. CEC shall consult with the State Historic Preservation Office (SHPO) and request they review and provide a concurrence letter which identifies there are no cultural resources occurring within the potential target areas.

CEC shall develop survey plans for the reconnaissance level field investigation including laying out the survey tracklines to be followed by the survey vessel while collecting geophysical data and vibracores to be collected at a sufficient spacing to enable determination if the target area contains potentially beach compatible sediment. A dynamic vibracoring plan will be proposed to allow CEC to pursue the most compatible material while in the field and both primary and secondary locations for vibracores shall be identified in the sampling plan.

If required, CEC shall prepare and submit an Application for a de minimis permit exemption from FDEP and a Nationwide Permit Number 6 from the USACE for the geotechnical

Charlotte County 10-Year Beach and Inlet Management Plan
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investigations including a shapefile and State Plane Coordinates (NAD83) of the investigation area consistent with Chapter 161.144, F.S.

The previous 10-year beach nourishment needs were on the order of 1.7 to 1.8 million cubic yards. Thus the proposed scope of services and budget are based upon the goal of identifying up to 4 million cubic yards total within the target areas located in state waters. If upon completion of the update it is determined that additional sand is needed beyond this budget, or if the target area(s) are located in federal waters, CEC shall prepare and submit to the County a scope and budget for additional field work and / or to obtain the required federal authorizations for geophysical and geotechnical sampling of offshore borrow areas in federal waters from the Bureau of Ocean Energy Management.

Task 1D – Funding Scenarios: CEC shall identify potential federal, state, regional and local revenue sources which might be used for the future implementation of the Plan. For each of the potential revenue streams CEC shall:

- identify potential sources and funding levels from each source,
- assess the advantages and disadvantages of each funding source, and
- chart the process and likely time frames for obtaining funds.

Task 1E – Stakeholder Charrette No. 1: CEC shall assist the County staff with organizing and conducting a planning and design charrette for the Project stakeholders. Three (3) will be held, one (1) at a community center on Manasota Key and one(1) on Knight Island / Don Pedro Island, and one (1) will be held in Tallahassee with the FDEP and FL Park Service. The goals of the charrette are to:

- explain the purpose of the feasibility study, its schedule and expected products,
- present the results of Tasks 1A through 1D,
- provide an opportunity for public participation and open discussion,
- initiate discussions relative to the ability and willingness of the local community to financially contribute to implementation of the Plan, and
- present the criteria for beach management activities established in Chapter 161, F.S., with the objective to formulate a locally preferred project that is consistent with F.S.

The County will be responsible for publishing notices and advertising for each charrette. CEC shall prepare for and participate in the meetings, and will prepare a written summary of public and agency comments at the meetings.

Task 1F – Plan Formulation Report: CEC shall prepare and submit a Draft Plan Formulation Study Report to County for review. The report will provide details of the project performance, projected nourishment needs, stakeholder input, structural alternatives, offshore borrow area literature review, and funding scenarios. Following review and comment by County, CEC shall finalize the Report and submit a Final Plan Formulation Report. CEC shall present the Plan Formulation at one stakeholder meeting as selected by the County (e.g. Board of County Commissioners).

TASK 2 – DATA COLLECTION:

Task 2A – Supplemental Bathymetric and Topographic Survey: In conjunction with the 2012 annual monitoring survey to be performed by Coastal Technology Corporation under their

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current contract with the County (Addendum 23), CEC shall conduct a supplemental bathymetric and topographic survey of the beach (additional lines on the beaches immediately adjacent to the pass), interior channels connecting Stump Pass to Lemon Bay, and the flood shoal in Lemon Bay, for the purpose of model calibration and validation and for use in developing the preliminary design of the Project in subsequent tasks. The Task 2A survey will be conducted to coincide with initiation of the wave/tide/current data collection period (Task 2B).

Task 2B – Wave, Tide and Current Measurements: In conjunction with the 2012 annual monitoring survey to be performed by Coastal Technology Corporation under their current contract with the County (Addendum 23), CEC shall install tide gages and current meters (or combination units) to measure wave parameters, water levels and velocities at four (4) prescribed locations (offshore, inside Stump Pass, north of Stump Pass in Lemon Bay, and south of Stump Pass in Lemon Bay) to provide hydrodynamic input boundary conditions for the model program and hydrodynamic calibration/validation data. Additionally, two (2) wave gauges will be deployed, one offshore and one inside Stump Pass, to provide wave input boundary conditions for the model program and wave calibration/validation data. The instrumentation will be deployed for a period of 30 to 60 days depending on weather conditions to coincide with two surveys (Tasks 2A and 2C). The data will be recovered mid-period and again at the end of the period. Wave, water level and current velocity data will be downloaded, reviewed and processed to provide a record of conditions during the deployment. CEC shall then integrate the new information with similar data obtained from historical sources, noting any trends apparent in comparison to the historical information.

Task 2C – Complete Bathymetric and Topographic Survey: Approximately 60 days after completion of the supplemental survey described under Task 2A, CEC shall conduct a complete bathymetric and topographic survey that in addition to the survey lines from the physical monitoring plan will include supplemental survey lines completed under Task 2A, for the purpose of model calibration and validation and preliminary design in subsequent tasks. The Task 2C survey will be conducted to coincide with completion of the wave/tide/current data collection period (Task 2B).

Task 2D – Data Collection Contingencies: Because of the complex nature of the work involving marine surveying and instrument deployment, a contingency budget is included to accommodate complications with the data collection such as weather, unforeseen site conditions, and GPS/satellite issues that are beyond CEC's control.

Task 2E – Data Collection Report: CEC shall summarize details of the topographic and bathymetric surveys and instrument deployment along with a presentation of the wave/tide/current measurements. Using the existing literature and data related to the general wind, wave and sediment transport processes affecting the project area along with the measured data, CEC shall conduct a coastal processes analysis and develop a general understanding of the wave energy shaping the area's shorelines and characterize the geomorphic and littoral processes in the project area. CEC shall prepare tables summarizing the matrix of wave height, period, and direction conditions. CEC shall prepare and submit a Draft Data Collection Report to the County for review. The report will provide details of the topographic and bathymetric surveys and instrument deployment along with a presentation of the wave/tide/current measurements and a summary of the coastal processes analysis. Following review and comment by the County, CEC

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shall finalize the Report and submit a Final Data Collection Report.

TASK 3 – MODEL CALIBRATION AND VALIDATION:

Task 3A – Model Calibration and Validation: CEC shall review existing numerical models (e.g., Delft3D, Mike21, ADCIRC, CMS-Flow) and in collaboration with FDEP staff select one that is best suited for the Project and is in accord with its goals and objectives. CEC shall calibrate and validate the model using historical records such as bathymetric surveys, dredge and fill records, aerial photography, and collected field data. In concert with model set-up and development, CEC shall:

- analyze available wave, tide, sediment, and survey data to formulate the appropriate model domain, boundary forcing information, and model input;
- conduct an analytic assessment of sediment transport and morphological behavior of the inlet system to formulate appropriate parameters for model application and to identify a range of reasonable model results;
- apply numerical model including one or more of the following: wave, hydrodynamic and sediment transport modules;
- calibrate the model via qualitative comparisons with the data assimilated in the coastal processes analysis completed in Task 2E; and
- validate the model via qualitative comparisons with measured changes computed from the data collected in Tasks 2A through 2C, and via a sensitivity analysis.

The modeling program shall be performed following the guidelines established by FDEP. Deviations from the guidelines shall be reported to the County and FDEP as appropriate.

TASK 4 – ALTERNATIVES ANALYSIS:

Task 4A – Alternatives Modeling: Once the model has been calibrated and validated (Task 3), CEC shall model the No New Action alternative (baseline alternative) and the three selected alternatives developed under Task 1B. For each alternative, CEC shall predict sediment transport magnitude and directions, bathymetric changes, beach fill diffusion, shoal development and channel sedimentation rates. Based upon the model results, for each alternative, CEC shall:

- depict predicted changes in coastal processes;
- qualitatively depict the expected sediment budget;
- qualitatively assess the expected performance, advantages and disadvantages; and
- identify the preferred alternative.

Task 4B – Alternatives Environmental Assessment: Based on the results of Alternatives Modeling, CEC shall assess the likely issues or concerns of permitting agencies, permit requirements, and feasibility of obtaining permits for each alternative.

Task 4C –Construction Budgets: CEC shall prepare construction budgets for the four alternatives analyzed in Task 4A including order of magnitude construction budgets for project construction and operations and maintenance (O&M) for the 10-year Project life.

Task 4D – Stakeholder Charrette No. 2: CEC shall assist the County staff with organizing and conducting a charrette for the Project stakeholders. Two (2) will be held, one (1) at a community

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center on Manasota Key and one(1) on Knight Island / Don Pedro Island. The goals of the charrette are to:

- recap the feasibility study results,
- update the Project schedule,
- present the Modeling and Alternatives Analysis results,
- discuss the preferred alternative,
- provide an opportunity for public participation and open discussion, and
- continue discussions relative to the ability and willingness of the local community to financially contribute to implementation of the Plan.

The County will be responsible for publishing notices and advertising for each charrette. CEC shall prepare for and participate in the meetings, and will prepare a written summary of public comments at the meetings.

Task 4E – Agency Meetings: CEC shall arrange, prepare for, and attend one (1) meeting in Tallahassee with the FDEP, FFWCC, and FL Parks Service and one (1) meeting in Ft. Myers with the USACE and USFWS to review the results of the Modeling, Alternatives Analysis and Stakeholder input; and discuss the preferred alternative. CEC shall prepare for and participate in the meetings, and will prepare a written summary of agency comments at the meetings.

Task 4F – Alternatives Analysis Report: CEC shall prepare and submit a Draft Alternatives Analysis Report to the County for review. The report will provide details of the model calibration and validation; alternatives development; alternatives analysis including advantages and disadvantages of each alternative, environmental assessment, and construction budgets; stakeholder input; and recommended alternative. Following review and comment by the County, CEC shall finalize the Report and submit a Final Alternatives Analysis Report.

TASK 5 – RECONNAISSANCE LEVEL OFFSHORE SAND SOURCE SEARCH:

Task 5A – Recon Level Geophysical Survey: CEC shall conduct a reconnaissance level geophysical survey of the potential target areas defined in Task 1C. The budget is based on an estimated 70 nautical line miles. The approximate line spacing will be 1000 feet. Appropriate “tie-lines” will be conducted perpendicular to the primary lines. The combined survey will include bathymetry, side-scan sonar, seismic, and magnetometer equipment. An RTK GPS will be utilized during the survey to accurately record track-line position.

The bathymetric survey will consist of obtaining sounding data using a Trimble RTK GPS or a Trimble Real-time Differential GPS System, Innerspace Digital Fathometer, and Hypack Navigation Software. The survey will be performed using procedures acceptable to FDEP and meeting USACE standards. CEC shall analyze and interpret the data to prepare bathymetric charts with track lines superimposed. The data and data files will also be arranged according to the standard FDEP data file format and will include all of the information required by that format. Data files and two (2) copies of the charts will be provided to the County and FDEP. To ensure that survey control and accuracy standards shall be consistent with FDEP specifications, a report from the surveyor will be submitted certifying that the survey meets BBCS Technical Standards established in Part II.A of the *BBCS Monitoring Standard for Beach Erosion Control Projects* and minimum technical standards of Chapter 61G17-6, Florida Administrative Code.

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The seismic survey shall consist of collecting sub-bottom profile data and analyzing it for acoustic reflectors and anomalies that can indicate the presence and quantities of potential fill resources. Sub-bottom Profiler data will be collected using an EdgeTech Model 512i Full Spectrum Chirp Towfish driven by an X-Star Topside using Discover Sub-bottom software. The seismic imagery will be geo-encoded using the towfish position supplied by the Hypack Navigation computer and stored in the EdgeTech native .jsf format on the hard drive. Hard copy profiles will be recorded to thermal plastic film using an EPC Labs HSP-100 high speed Thermal Recorder. Data will be collected at a frequency range selected during the setup of the system at each borrow site. Available frequencies of the Model 512i span 500Hz to 12Khz. The data sampling rate of the Model 512i for this application is typically 8 to 12 samples per second. Stored electronic data will be processed into HTML / Jpeg files (HTMLs). HTMLs open in generic web browser software and display the velocity corrected profiles with an active local grid (FL State Plane) and geographic coordinates (Lat. Lon.) matched to the cursor position.

The side-scan sonar survey shall consist of collecting sonar imagery and analyzing it for surficial bottom features that can indicate the presence of hard bottom, shipwrecks, debris, pipelines and other bottom features that may interfere with the permitting or dredging process. Side-scan data will be collected using the Edge Tech Model 4200-FS digital chirp system. The side-scan imagery will be geo-encoded using the tow-fish position supplied by the Hypack Navigation Computer and stored in the Edge Tech native – jstar (JSF) format on the side-scan system hard drive. Dual frequency (300 KHz and 600 KHz) data will be collected for the entirety of the survey area. The range scale to be shall be set at 100 meters per-side for a total swath of 200 meters. Stored electronic data will be processed into HTML/Jpeg files (HTMLs). HTMLs open in generic browser software and display the sonar imagery with active local grid (FL State Plane) and geographic coordinates (Lat. Lon.) matched to the cursor position.

The magnetometer data shall be collected using the Geometrics Model G-882 Digital Cesium System with a built in depth sensor and altimeter. The G-882 samples the earth's magnetic field at the rate of 10 samples per second. The magnetometer total field, depth and altitude data will be displayed by the Hypack Navigation Computer. The Hypack software will be configured to track the magnetometer tow-fish position with each incoming magnetometer reading. Each reading, combined with position, depth and altitude is stored in the navigation computer hard-drive. Stored magnetometer data will be processed and analyzed for anomalies in the earth's magnetic field that are generated by ferrous objects such as shipwrecks, pipelines, cables and debris. These anomalies can affect the earth's field whether exposed on the surface or buried in the sediment. Detected anomalies will be compared to sonar and seismic data for correlation.

Task 5B – Recon Level Vibracores: The number of vibracores proposed under the reconnaissance level survey is based upon the assumption that each target area will contain a surficial sand layer averaging 10 feet in thickness. The budget includes sixteen (16) 10-foot long vibracores. The locations shall be established upon review and analysis of the geophysical data. Vibracore locations will be determined in the field by a Real-Time Kinematic (RTK) GPS system. To ensure that survey control and accuracy standards shall be consistent with FDEP specifications, a report from the surveyor will be submitted certifying that the survey meets BBCS Technical Standards established in Part II.A of the *BBCS Monitoring Standard for Beach Erosion Control Projects* and minimum technical standards of Chapter 61G17-6, Florida administrative Code. Vibracore operations shall include a fully founded crew, vibracore

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technicians, a pneumatically operated vibracore rig (and ancillary equipment) with 4 inch pipe fitted with clear plastic liners of 3 5/8" OD x 3 1/2" ID. Core penetration depth and rate will be monitored and recorded continuously. In the event full penetration cannot be achieved, penetration to 80 percent of the desired core depth at each core location will be considered adequate to satisfy the requirements of the contract, provided that the recovery is at least 80 percent of the penetrated depth. In the event that refusal is encountered prior to achieving the desired depth, a hydraulic jetting technique will be used to compliment a second run and to optimize the probability of achieving core penetration to the desired depth. In any event, three attempts will be considered to have completed the core at a given site. The cores, each contained in a clear plastic liner, will then be removed from the 4" diameter drill pipe. Each encased core will be labeled, cut into five-foot sections, and retained on board until the vibracoring component of the work is successfully completed and the vessel returns to port.

Task 5C – Data Collection Contingencies: Because of the complex nature of the work involving marine surveying and instrument deployment, a contingency budget is included to accommodate complications with the data collection such as weather, unforeseen site conditions, and GPS/satellite issues that are beyond CEC's control.

Task 5D – Core Logs & Sediment Analysis: CEC shall log the cores, obtain sediment samples, provide color photographs of split cores, characterize the color of each major sediment horizon, box and store the cores for 60 days following acceptance of the final report, and deliver representative cores to the County for storage. CEC shall conduct gradation analysis of sediment samples. For planning purposes it is assumed that each 10 foot core will be sampled three times, resulting in 48 samples for laboratory analysis. The sampling may be spaced differently but a minimum of 48 shall be provided.

Gradation analysis of those sediment samples will be conducted by sieving and the results plotted using gradation curve USACE ENG Form 2087. The sieve analysis shall be conducted in a minimum of 1/2 ϕ intervals ranging in size from -4.25 ϕ to 4 ϕ . This shall include the following 20 sieves given in phi sizes: 4 ϕ , 3.75 ϕ , 3.5 ϕ , 3 ϕ , 2.5 ϕ , 2 ϕ , 1.5 ϕ , 1 ϕ , 0.5 ϕ , 0 ϕ , -0.5 ϕ , -1 ϕ , -1.5 ϕ , -2 ϕ , -2.25 ϕ , -2.5 ϕ , -3 ϕ , -3.5 ϕ , -4 ϕ , -4.25 ϕ . The gradation plot shall also include a USC description. If a sample contains fines greater than 12% passing the #200 sieve, the description will be based upon the visual observations of a qualified technician. These data will be compiled using FDEP gINT protocol.

Sediment composition, based upon analysis of a bulk sample split, shall be quantified for each vibracore sample using the Loss On Ignition (LOI) method. This method determines the weight percent total organic, carbonate, and non-combustible (~siliciclastic) material. In collaboration/consultation with FDEP staff, a representative number of beach-compatible samples will be selected for processing with acid digestion and re-sieved to demonstrate the size of the carbonate material. Munsell color will be determined for samples in both their moist and dry states. These data will be incorporated into the gINT data sheets following FDEP protocol.

All sedimentologic data will be transferred to FDEP, in gINT format where applicable, for incorporation in the ROSS database. Through gINT, incorporating the FDEP ROSS Library, granulometric tables and frequency distribution curves will be produced for each sediment sample analyzed. The granulometric tables shall include the 1) sieve number, 2) sieve diameter

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in mm, 3) sieve diameter in phi units, 4) weight retained on each sieve, 5) weight percent retained per sieve, 6) cumulative weight retained per sieve, and 7) cumulative weight percent retained per sieve. All weights will be recorded to the nearest 0.01g. Descriptive statistics including mean (in phi and mm), median, sorting, skewness and kurtosis will be calculated using the Moment method and included in the table. Additional characteristics such as Munsell color, USC Classification, percent fines, and percent organic and carbonate content will also be included in the table.

Task 5E – Borrow Area Delineation & Compatibility Analysis: Based upon the geophysical and geotechnical data acquired and analyzed in Tasks 5A through 5D, CEC shall develop the potential borrow area boundaries. This delineation will be based upon the methodologies and results described below.

All sedimentologic and stratigraphic data will be summarized using templates known to be acceptable to FDEP staff. The summary spreadsheet(s) will contain the following information:

- Core identification number & Sediment sample elevations,
- Weight percent – (a) gravel, sand, fines (mm & phi), and (b) organic matter, carbonate, & siliciclastic, and
- Descriptive statistics using the Moment method (i.e., mean, median, standard deviation), USC classification and Munsell color.

Using this data, CEC shall prepare stratigraphic (a.k.a “geologic”) cross sections using vibracore logs obtained from sites targeted in each potential borrow area. The cross-sections will include reference to surface bathymetry, maximum depth of cut and lateral extent of significant (>0.5 ft thick) beach compatible sand layers. Plan view maps of prospective borrow area will be prepared in *Arc GIS* and include the location of each core, bathymetry, proposed horizontal boundaries of each borrow area, and fill thickness (a.k.a., isopach map). All associated shapefiles will be provided to the FDEP for inclusion in the ROSS database. The tabular summary described above shall be amended to distinguish between compatible and non-compatible sediment. A compatibility analysis will be performed whereby beach-quality sediment identified in the vibracores will be compared with existing beach samples with respect to sediment texture, composition, and color. CEC shall utilize appropriate techniques to estimate textural compatibility, where by composite sample means and sorting are calculated for the native beach and proposed borrow area, the overfill ratio and renourishment factor are estimated, and a reference range of native beach sediments compared to range of borrow area sediments are developed. The compatibility of potential borrow area sediment will also be qualitatively assessed using the visual observations of a Registered Professional Geologist. This compatibility assessment will include a comparison of sediment texture, as well as composition, and color.

Task 5F – Offshore Borrow Area Reconnaissance Level Report: CEC shall prepare and submit a Draft Reconnaissance Level Report to the County for review. The report will provide details of the survey, geophysical survey results, vibracore data, borrow area delineations, and compatibility analysis. Following review and comment by the County, CEC shall edit the Report and submit a second Draft Reconnaissance Level Report to the FDEP. Following review and comment by the FDEP, CEC shall finalize and submit the Final Report.

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TASK 6 – PRELIMINARY DESIGN:

Task 6A – Preliminary Design: CEC shall prepare preliminary design drawings in the form of 8 ½” x 11” permit drawings. Utilizing the recon level borrow area data, marine surveys, and environmental surveys collected in Task 5, CEC shall determine the design borrow area cuts to yield the fill volume requirements and identify potential pipeline corridors and marine vessel transport corridors from the selected borrow areas to the beach fill. Utilizing the topographic and bathymetric survey data collected in Task 2C, CEC shall prepare the beach fill plans. CEC shall prepare the preliminary design of the preferred structural alternative.

The preliminary plans shall include location map; vicinity map; plan views depicting beach fill, borrow areas, coastal structures, construction access and staging areas, potential pipeline corridors and transport corridors; cross sections depicting dredge templates and beach fill templates; coastal structure sections and details; survey control; dune plantings; and environmental protection measures. The preliminary plans shall serve as the permit drawings for the JCP Application. Based on the preliminary design documents, CEC shall prepare a Preliminary Opinion of Probable Construction Cost including a 25% contingency. CEC shall meet with County to review the preliminary design. CEC shall finalize the preliminary design plans and Opinion of Cost based on County review and comments.

TASK 7 – JOINT COASTAL PERMIT APPLICATION & SUBMITTAL:

Task 7A – Pre-Application Conferences: CEC shall prepare a PowerPoint presentation for the agency meetings. CEC shall arrange, attend, and chair a total of two pre-application conferences including County staff if desired with: (1) FDEP regulatory and project management staff, and (2) USACE regulatory staff as described below.

- **FDEP/FFWCC Pre-Application Conference:** CEC shall arrange, attend, and chair a pre-application telephone conference (e.g., “WebEx”) call with the County, FDEP Bureau of Beaches and Coastal Systems, FL Parks Staff, and FFWCC staff. The purpose of the pre-application conference will be to:
 - present the Project Preliminary Design,
 - confirm or revise the scope of subsequent tasks,
 - identify Project issues and means to address these issues, and
 - identify requirements for obtainment of a permit.
- **Federal Agency Pre-Application Conference:** CEC shall arrange, attend, and chair a pre-application conference with the USACE along with invited staff from the National Marine Fisheries Service (NMFS), Environmental Protection Agency (EPA) and U.S. Fish & Wildlife Service (USFWS) at the USACE’s office in Ft. Myers. The purpose of the federal coordination meeting is to:
 - present the Project Preliminary Design,
 - confirm that a USACE Statement of Findings Environmental Assessment will be sufficient for compliance with the National Environmental Policy Act (NEPA),
 - confirm species to be addressed in the Biological Opinion and information required for USFWS initiation of the Biological Opinion,

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- identify expected conservation measures to avoid incidental take of sea turtles, and
- identify the requirements and agencies expected schedule for issuance of NMFS Conservation Recommendations, USFWS Biological Opinion, and subsequent USACE permit.

Task 7B – Supporting Documents: CEC shall prepare and submit to the County the following supporting documentation necessary for the permitting process. The necessary supporting documentation will likely include:

- Physical Monitoring Plan,
- Biological Monitoring Plan,
- Threatened and Endangered Species Monitoring Plans & Protection Plans,
- Sediment Quality Control/Quality Assurance Plan,
- Turbidity Monitoring Plan, and
- Justification for a mixing zone variance request.

Task 7C – JCP Application: CEC shall prepare and submit a draft “*Application for Joint Coastal Permitting, Authorization to Use Sovereign Submerged Lands, and Federal Dredge and Fill Permit*”. The application shall include the supporting documentation listed in Task 7B and the following information: (a) response to each JCP application item, (b) permit sketches (preliminary design drawings) prepared under Task 6A, (c) pre-application conference reports developed under Task 7A; (d) concurrence letters from SHPO which identifies no cultural resources occurring within the borrow area obtained under Task 1C, (f) letter from the County indicating that the proposed Project is consistent with the state approved Local Comprehensive Plan; (g) borrow area survey and legal description; (h) fill area bathymetric survey (hard copy and CD); (i) recent aerial with limits of the Project fill area superimposed; (j) required final geotechnical report for the borrow area (including core sample data, shape files and metadata, and sediment composite spread sheets) developed under Task 5, (k) available sea turtle nesting and shorebird summary reports; (l) copy of County Sea Turtle Lighting Ordinance and description of lighting enforcement actions; (m) Coastal Systems Assessment; (n) NMFS Checklist; and (o) Alternatives Analysis prepared under Task 4F. CEC shall request that the final construction plans and specifications and turbidity monitor qualifications be submitted to the FDEP prior to FDEP issuance of the Notice to Proceed as a condition of the permit. CEC shall review the draft JCP application with the County, incorporate revisions to finalize it, and then submit the JCP application to the FDEP and USACE.

TASK 8 – JCP PERMIT PROCESSING

Task 8A – Permit Processing: Subsequent to submittal of the JCP application, CEC shall serve as the County’s agent for the permit process. CEC shall compile, clarify, and provide existing information as may be requested by the agencies. CEC shall verify the JCP application processing fee amount and notify the County when payment is due to FDEP. CEC shall seek to negotiate permit condition(s) for the Project that are acceptable to the County. The County will pay all required public noticing fees.

FDEP RAIs & Meetings: It is expected for budget purposes that FDEP will make three (3) requests for additional information (RAI) and that two (2) meetings will be required with FDEP

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staff in Tallahassee to favorably conclude the JCP application. It is assumed that existing information (including design details/analysis) will be sufficient to meet permit application requirements with minor adjustments, clarifications, or analysis. If FDEP mandates additional surveys, reports, modeling analysis or and studies beyond those identified herein, CEC shall undertake these additional tasks under separate authorization, if directed by the County.

USACE Permit Processing: It is expected that the USACE will make two (2) requests for additional information (RAI). CEC shall make informal contact with the USACE to address staff questions and expedite issuance of the USACE permit and will also respond to RAIs from the federal commenting agencies. If deemed acceptable by USACE staff, CEC shall:

- provide a draft of the required USACE Public Notice,
- assist the USACE with initiation of formal consultation with federal commenting agencies including NMFS, USFWS and EPA, and
- draft the USACE Environmental Assessment Statement of Findings.

USFWS Biological Opinion: Following USFWS concurrence that all required Project information has been received, to facilitate preparation of the USFWS Biological Opinion, CEC shall prepare a summary of detailed Project information including:

- Project description including equipment, vehicles, methodology; access corridors, (width, physical description, vegetation present, acreage of upland habitat to be impacted),
- a biological summary of available historical nesting areas and data,
- Project specifics including identification of hours of construction, schedule for completion of the Project,
- nighttime monitoring requirements,
- proposed profile (slope, height, width),
- summary of past nourishment projects, volumes and sand placement projects
- dune planting component of the Project and corresponding monitoring plan,
- discussion of turbidity control and monitoring,
- direct or indirect affects of the proposed fill,
- description of shore parallel dike used to confine and accommodate beach material from the pipelines (location, size),
- discussion regarding the County lighting ordinance,
- status of FDEP and USACE permits,
- proposed mitigation and corresponding monitoring.

CEC shall confer with the USFWS to address USFWS staff questions, and upon concurrence of USFWS staff, initiate USFWS preparation of the required Biological Opinion by preparing a preliminary draft Biological Opinion based upon a template prescribed by the USFWS.

TASK 9 – DETAILED LEVEL OFFSHORE SAND SOURCE SEARCH:

Task 9A – Combined Geophysical and Cultural Resources Borrow Area Survey: CEC shall prepare, submit and coordinate a 1A-32 permit from SHPO prior to any cultural resource remote sensing survey. CEC shall generally locate and identify any archaeological resources within the borrow areas and develop a historic context for the interpretation of those resources. Archival research will be carried out prior to field work to aid in the identification and interpretation of any potential cultural resources.

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CEC shall conduct a detailed level combined geophysical and cultural resources survey of the selected borrow areas defined in Task 5. The budget is based on an estimated 72 nautical line miles. The approximate line spacing will be 30 meters (~100 feet). Appropriate “tie-lines” will be conducted perpendicular to the primary lines. The combined survey will include bathymetry, side-scan sonar, seismic, and magnetometer equipment. An RTK GPS will be utilized during the survey to accurately record track-line position.

The bathymetric survey will consist of obtaining sounding data using a Trimble RTK GPS or a Trimble Real-time Differential GPS System, Innerspace Digital Fathometer, and Hypack Navigation Software. The survey will be performed using procedures acceptable to FDEP and meeting USACE standards. CEC shall analyze and interpret the data to prepare bathymetric charts with track lines superimposed. The data and data files will also be arranged according to the standard FDEP data file format and will include all of the information required by that format. Data files and two (2) copies of the charts will be provided to the County and FDEP. To ensure that survey control and accuracy standards shall be consistent with FDEP specifications, a report from the surveyor will be submitted certifying that the survey meets BBCS Technical Standards established in Part II.A of the *BBCS Monitoring Standard for Beach Erosion Control Projects* and minimum technical standards of Chapter 61G17-6, Florida Administrative Code.

The seismic survey shall consist of collecting sub-bottom profile data and analyzing it for acoustic reflectors and anomalies that can indicate the presence and quantities of potential fill resources. Sub-bottom Profiler data will be collected using an EdgeTech Model 512i Full Spectrum Chirp Towfish driven by an X-Star Topside using Discover Sub-bottom. The seismic imagery will be geo-encoded using the towfish position supplied by the Hypack Navigation computer and stored in the EdgeTech native .jsf format on the hard drive. Hard copy profiles will be recorded to thermal plastic film using an EPC Labs HSP-100 high speed Thermal Recorder. Data will be collected at a frequency range selected during the setup of the system at each borrow site. Available frequencies of the Model 512i span 500Hz to 12Khz. The data sampling rate of the Model 512i for this application is typically 8 to 12 samples per second. Stored electronic data will be processed into HTML / Jpeg files (HTMLs). HTMLs open in generic web browser software and display the velocity corrected profiles with an active local grid (FL State Plane) and geographic coordinates (Lat. Lon.) matched to the cursor position. Seismic reflectors will be interpreted, digitized and displayed on a set of annotated HTMLs. The digitized reflectors will be combined and extracted as a sediment thickness (isopach) XYZ file for use in contour and imaging software.

The side-scan sonar survey shall consist of collecting sonar imagery and analyzing it for surficial bottom features that can indicate the presence of hard bottom, shipwrecks, debris, pipelines and other bottom features that may interfere with the permitting or dredging process. Side-scan data will be collected using the Edge Tech Model 4200-FS digital chirp system. The side-scan imagery will be geo-encoded using the tow-fish position supplied by the Hypack Navigation Computer and stored in the Edge Tech native – jstar (JSF) format on the side-scan system hard drive. Dual frequency (300 KHz and 600 KHz) data will be collected for the entirety of the survey area. The range scale to be shall be set at 100 meters per-side for a total swath of 200 meters. Stored electronic data will be processed into HTML/Jpeg files (HTMLs). HTMLs open in generic browser software and display the sonar imagery with active local grid (FL State Plane) and geographic coordinates (Lat. Lon.) matched to the cursor position. A digital sonar mosaic

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shall be constructed and provided as a Geo-Tiff file for importation to GIS. A CAD drawing of digitized bottom features will be provided for overlaying the mosaic.

The magnetometer data shall be collected using the Geometrics Model G-882 Digital Cesium System with a built in depth sensor and altimeter. The G-882 samples the earth's magnetic field at the rate of 10 samples per second. The magnetometer total field, depth and altitude data will be displayed by the Hypack Navigation Computer. The Hypack software will be configured to track the magnetometer tow-fish position with each incoming magnetometer reading. Each reading, combined with position, depth and altitude is stored in the navigation computer hard-drive. Stored magnetometer data will be processed and analyzed for anomalies in the earth's magnetic field that are generated by ferrous objects such as shipwrecks, pipelines, cables and debris. These anomalies can affect the earth's field whether exposed on the surface or buried in the sediment. Detected anomalies will be compared to sonar and seismic data for correlation. A magnetic contour map will be produced for analysis of potential alignment of anomalies as cultural or hazardous features.

CEC shall provide a historic cultural resource report prepared by a professional archeologist and submit the report to SHPO for concurrence. CEC shall contact SHPO to determine the status of SHPO review. The budget includes a response to one RAI from SHPO. The report will contain the coordinates for "mag hits". If a "mag hit" is determined to be a potential significant submerged cultural resource eligible under National Register Of Historic Places criteria, buffer zones will be superimposed on the borrow area drawing by CEC to facilitate the avoidance of these features during dredging operations.

Task 9B – Detailed Level Vibracores: The number of vibracores proposed under the detailed level survey is based upon the assumption that each borrow area will contain a surficial sand layer averaging 10 feet in thickness. The budget includes fourteen (14) 10-foot long vibracores. The locations shall be established upon review and analysis of the geophysical data. Vibracore locations will be determined in the field by a Real-Time Kinematic (RTK) GPS system. To ensure that survey control and accuracy standards shall be consistent with FDEP specifications, a report from the surveyor will be submitted certifying that the survey meets BBCS Technical Standards established in Part II.A of the *BBCS Monitoring Standard for Beach Erosion Control Projects* and minimum technical standards of Chapter 61G17-6, Florida administrative Code. Vibracore operations shall include a fully founded crew, vibracore technicians, a pneumatically operated vibracore rig (and ancillary equipment) with 4 inch pipe fitted with clear plastic liners of 3 5/8" OD x 3 1/2" ID. Core penetration depth and rate will be monitored and recorded continuously. In the event full penetration cannot be achieved, penetration to 80 percent of the desired core depth at each core location will be considered adequate to satisfy the requirements of the contract, provided that the recovery is at least 80 percent of the penetrated depth. In the event that refusal is encountered prior to achieving the desired depth, a hydraulic jetting technique will be used to compliment a second run and to optimize the probability of achieving core penetration to the desired depth. In any event, three attempts will be considered to have completed the core at a given site. The cores, each contained in a clear plastic liner, will then be removed from the 4" diameter drill pipe. Each encased core will be labeled, cut into five-foot sections, and retained on board until the vibracoring component of the work is successfully completed and the vessel returns to port.

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Task 9C – Combined Geophysical and Cultural Resources Pipeline Corridor Survey: CEC shall prepare, submit and coordinate a 1A-32 permit from SHPO prior to any cultural resource remote sensing survey of the pipeline corridor extending from the offshore borrow area to the beach fill. CEC shall generally locate and identify any archaeological resources within the pipeline corridor and develop a historic context for the interpretation of those resources. Archival research will be carried out prior to field work to aid in the identification and interpretation of any potential cultural resources.

CEC shall conduct a detailed level combined geophysical and cultural resources survey of the pipeline corridor defined in Task 6. The budget is based on an estimated 30 nautical line miles. The approximate line spacing will be 30 meters (~100 feet). The combined survey will include side-scan sonar, seismic, and magnetometer equipment. A DGPS will be utilized during the survey to accurately record track-line position. The side-scan sonar, seismic, and magnetometer survey methods shall follow the detailed descriptions in Task 9A with one exception; the seismic survey will utilize the EdgeTech SB-424 System (4 kHz to 24kHz).

CEC shall provide a historic cultural resource report prepared by a professional archeologist and submit the report to SHPO for concurrence. CEC shall contact SHPO to determine the status of SHPO review. The budget includes a response to one RAI from SHPO. The report will contain the coordinates for “mag hits”. If a “mag hit” is determined to be a potential significant submerged cultural resource eligible under National Register Of Historic Places criteria, buffer zones will be superimposed on the pipeline corridor drawing by CEC to facilitate the avoidance of these features during dredging operations.

Task 9D – Data Collection Contingencies: Because of the complex nature of the work involving marine surveying and instrument deployment, a contingency budget is included to accommodate complications with the data collection such as weather, unforeseen site conditions, and GPS/satellite issues that are beyond CEC’s control. Further, contingencies are included in the event hard bottom or other environmental sensitive area is encountered in the pipeline corridor necessitating a realignment of the corridor.

Task 9E – Core Logs & Sediment Analysis: CEC shall log the cores, obtain sediment samples, provide color photographs of split cores, characterize the color of each major sediment horizon, box and store the cores for 60 days following acceptance of the final report, and deliver representative cores to the County for storage. CEC shall conduct gradation analysis of sediment samples. For planning purposes it is assumed that each 10 foot core will be sampled three times, resulting in 42 samples for laboratory analysis. The sampling may be spaced differently but a minimum of 42 shall be provided.

Gradation analysis of those sediment samples will be conducted by sieving and the results plotted using gradation curve USACE ENG Form 2087. The sieve analysis shall be conducted in a minimum of 1/2 ϕ intervals ranging in size from -4.25 ϕ to 4 ϕ . This shall include the following 20 sieves given in phi sizes: 4 ϕ , 3.75 ϕ , 3.5 ϕ , 3 ϕ , 2.5 ϕ , 2 ϕ , 1.5 ϕ , 1 ϕ , 0.5 ϕ , 0 ϕ , -0.5 ϕ , -1 ϕ , -1.5 ϕ , -2 ϕ , -2.25 ϕ , -2.5 ϕ , -3 ϕ , -3.5 ϕ , -4 ϕ , -4.25 ϕ . The gradation plot shall also include a USC description. If a sample contains fines greater than 12% passing the #200 sieve, the description will be based upon the visual observations of a qualified technician. These data will be compiled using FDEP gINT protocol.

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Sediment composition, based upon analysis of a bulk sample split, shall be quantified for each vibracore sample using the LOI method. This method determines the weight percent total organic, carbonate, and non-combustible (~siliciclastic) material. In collaboration/consultation with FDEP staff, a representative number of beach-compatible samples will be selected for processing with acid digestion and re-sieved to demonstrate the size of the carbonate material. Munsell color will be determined for samples in both their moist and dry states. These data will be incorporated into the gINT data sheets following FDEP protocol.

All sedimentologic data will be transferred to FDEP, in gINT format where applicable, for incorporation in the ROSS database. Through gINT, incorporating the FDEP ROSS Library, granulometric tables and frequency distribution curves will be produced for each sediment sample analyzed. The granulometric tables shall include the 1) sieve number, 2) sieve diameter in mm, 3) sieve diameter in phi units, 4) weight retained on each sieve, 5) weight percent retained per sieve, 6) cumulative weight retained per sieve, and 7) cumulative weight percent retained per sieve. All weights will be recorded to the nearest 0.01g. Descriptive statistics including mean (in phi and mm), median, sorting, skewness and kurtosis will be calculated using the Moment method and included in the table. Additional characteristics such as Munsell color, USC Classification, percent fines, and percent organic and carbonate content will also be included in the table.

Task 9F – Borrow Area Final Design: Based upon the geophysical and geotechnical data acquired and analyzed in Tasks 9A through 9E, CEC shall complete the final design of the borrow areas. All sedimentologic and stratigraphic data will be summarized using templates known to be acceptable to FDEP staff. The summary spreadsheet(s) will contain the following information:

- Core identification number & Sediment sample elevations,
- Weight percent – (a) gravel, sand, fines (mm & phi), and (b) organic matter, carbonate, & siliciclastic, and
- Descriptive statistics using the Moment method (i.e., mean, median, standard deviation), USC classification and Munsell color.

Using this data, CEC shall prepare stratigraphic (a.k.a “geologic”) cross sections using the vibracore logs. The cross-sections will include reference to surface bathymetry, maximum depth of cut and lateral extent of significant (>0.5 ft thick) beach compatible sand layers. Plan view maps of the borrow areas will be prepared in *Arc GIS* and include the location of each core, bathymetry, proposed horizontal boundaries of each borrow area, and fill thickness (a.k.a., isopach map). All associated shapefiles will be provided to the FDEP for inclusion in the ROSS database. The tabular summary described above shall be amended to distinguish between compatible and non-compatible sediment. A *compatibility analysis* will be performed whereby beach-quality sediment identified in the vibracores will be compared with existing beach samples with respect to sediment texture, composition, and color. CEC shall utilize appropriate techniques to estimate textural compatibility, where by composite sample means and sorting are calculated for the native beach and proposed borrow area, the overfill ratio and renourishment factor are estimated, and a reference range of native beach sediments compared to range of borrow area sediments are developed. The compatibility of potential borrow area sediment will also be qualitatively assessed using the visual observations of a Registered Professional

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Geologist. This compatibility assessment will include a comparison of sediment texture, as well as composition, and color.

Task 9G – Offshore Borrow Area Final Design Report: CEC shall prepare and submit a Draft Offshore Borrow Area Final Design Report to the County for review. The report will provide details of the survey, geophysical survey results, vibracore data, borrow area delineations, and compatibility analysis. Following review and comment by the County, CEC shall finalize and submit the Offshore Borrow Area Final Design Report.

TASK 10 – FINAL DESIGN:

Task 10A – Construction Plans and Specifications: Based on the permit processing results under Task 8 including comments received from the agencies, preliminary design documents approved by the County and reviewed by FDEP, and utilizing the detailed borrow area design completed in Task 9 and the topographic and bathymetric surveys collected in Task 13, CEC shall prepare final design drawings in the form of 11" x 17" construction plans. The construction plans shall include location map; vicinity map; plan views depicting beach fill, borrow areas, coastal structures, construction access and staging areas, pipeline corridors and transport corridors; cross sections depicting dredge templates and beach fill templates; coastal structure sections and details; survey control; dune plantings; and environmental protection measures.

CEC shall prepare detailed construction specifications including description of work, special terms and conditions, quantity estimates, bid schedules, and technical specifications. The technical specifications shall include order of work; construction standards for dredging, excavation, fill transport, fill placement, vegetative plantings; and environmental protection. CEC shall review for consistency the County's standard bid documents including general terms and conditions.

Based on the final design documents, CEC shall prepare a Final Opinion of Probable Construction Cost including a 15% contingency. Construction costs shall be broken down by Project feature. CEC shall use construction contractor interviews to answer questions and reduce the risk and uncertainty. A list of assumptions shall be provided.

CEC shall meet with County to review the final design. CEC shall finalize the construction plans, construction specifications, and Opinion of Cost based on County review and comments.

Task 10B – Stakeholder Charrette No. 3: CEC shall assist the County staff with organizing and conducting a planning and design charrette for the Project stakeholders. Three (3) will be held, one (1) at a community center on Manasota Key and one(1) on Knight Island / Don Pedro Island, and one (1) will be held in Tallahassee with the FDEP and FL Park Service. The goals of the charrette are to:

- review the results of the permitting,
- present changes implemented from Preliminary Design to Final Design,
- present the recommended Plan,
- provide an opportunity for public participation and open discussion, and
- continue discussions relative to the ability and willingness of the local community to financially contribute to implementation of the Plan, and

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The County will be responsible for publishing notices and advertising for each charrette. CEC shall prepare for and participate in the meetings, and will prepare a written summary of public and agency comments at the meetings.

TASK 11 – PROJECT COORDINATION, STAKEHOLDER MEETINGS, AND FUNDING STRATEGIES:

Throughout the work, CEC shall meet with the County on a bi-monthly basis to review the progress of the work, provide information for County for County to update the Project Schedule, and verify details of subsequent work.

In addition to the meetings prescribed within the specific tasks identified above, CEC shall attend and serve as the County's representative for up to fourteen (16) stakeholder meetings including but not limited to the Beaches and Shores Committee, Board of County Commissioners, Marine Advisory Committee, and Parks and Recreation Committee. CEC shall provide technical support services for the County specific to stakeholder coordination.

CEC shall provide technical support to the County with respect to funding the long-term management plan. Based on the preliminary design documents and final design document, CEC shall update funding scenarios developed under Task 1D. CEC shall assist the County prepare and submit the 2013-2014 and 2014-2015 annual funding request to the State of Florida for inclusion in the Beach Erosion Control Program. CEC shall assist the County prepare and submit the quarterly monitoring reports for FY 2012-2013 and FY 2013-2014.

TASK 12 – 2012 BIOLOGICAL MONITORING:

Task 12A – Seagrass Survey: CEC shall conduct the October 2012 seagrass survey and report during the second annual monitoring period in accordance with the Post-Construction Phase section of the FDEP-approved Seagrass Monitoring Plan (SMP) dated April 29, 2010.

Task 12B – Sea Turtle Monitoring: The County will:

- retain the local marine turtle permit holders (Turtle Consultant) to fulfill Sections 6 and 13 of the FDEP-approved Sea Turtle Protection Plan (STPP) dated February 1, 2010,
- conduct monthly artificial lighting surveys from May 2012 through October 2012 as required by Special Condition 17 of the FDEP permit and Sections 8 and 9 of the STPP,
- Submit a summary report of each survey, including property owner documentation, to FFWCC by the first of each month following each survey, and
- Submit a final summary report to FFWCC by December 15, for a total of 6 reports.

Using the GPS coordinates of sea turtle nests from R1 to R57, provided by the County, CEC shall prepare maps illustrating the location of the nests overlaid on aerial photographs to be submitted to the agencies with the Turtle Consultant's final summary report for the 2012 monitoring season.

Task 12C – Shorebird Monitoring: CEC shall retain Shorebird Consultants from April 2012 through August 2012 to fulfill the requirements for the monitoring of shorebirds in accordance with the agency-approved Shorebird Protection Plan (SBPP) dated February 1, 2010. Shorebird

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Consultants will prepare monthly reports for FFWCC and FDEP summarizing daily observations of shorebirds and their activity (e.g., foraging, resting, nesting, courtship behavior). CEC shall:

- provide technical support services for the County by reviewing and commenting on the Shorebird Consultants' implementation of the agency-approved SBPP as reflected in the reports,
- arrange and attend up to three (3) meetings with the County and Shorebird Consultants,
- will prepare graphics showing nesting locations and similar information derived from Shorebird Consultants reports.

Per Special Condition 25b of the FDEP permit, the County will then submit the monthly reports to FDEP for the 2012 monitoring season.

Task 12D – Environmental Monitoring: CEC shall assist the County conduct the permit required environmental monitoring. CEC shall provide technical support to the County. CEC shall provide specific tasks for the dune vegetation mitigation required by Special Condition 10 and the mangrove transplanting mitigation required by Special Condition 4 of the FDEP permit. CEC shall visit the site and count the number of surviving dune plants to provide a basis to identify the percentage survival of each planted species of the dune mitigation area to demonstrate compliance with Special Condition 10. CEC shall visit the transplanted mangrove mitigation area near R-26, measure the percentage of plant cover, qualitatively assess plant health, photo document conditions, and submit a summary report to FDEP within 30 days for their review of the success criteria identified within Special Condition 4.

TASK 13 – 2013 PHYSICAL MONITORING:

Task 13A – R-Monument Beach Profiles, R8 to R47: CEC shall conduct the 2013 profile surveys of the beaches from reference monument R8 to R47 and prepare deliverables in accordance with Paragraph A of the approved Physical Monitoring Plan (PMP) dated February 1, 2010. CEC shall locate Mean High Water (MHW) adjacent to Stump Pass.

Task 13B – Borrow Areas: CEC shall conduct the 2013 bathymetric surveys of the borrow area and prepare deliverables in accordance with Paragraph B of the approved PMP.

Task 13C – Aerial Photographs: CEC shall solicit proposals from a minimum of 3 contractors and retain the lowest, responsive bid aerial subcontractor to collect scale-rectified aerial photographs as close as possible to the timeframe in Tasks 3a and 3b above, and prepare deliverables in accordance with Paragraph C of the approved PMP.

Task 13D – Hydraulic Monitoring: CEC shall conduct the hydraulic monitoring surveys, and analyses as close as possible to the timeframe in Tasks 3a and 3b above, and prepare deliverables in accordance with Paragraph D of the approved PMP dated February 1, 2010.

Task 13E – Monitoring Report: CEC shall prepare and submit the 2013 annual monitoring engineering report summarizing and discussing the data collected in Tasks 3a through 3d above in accordance with the approved PMP dated February 1, 2010. The report will include:

- the performance of the beach fill project – with a comparative review of project performance to performance expectations and identification of adverse impacts attributable to the project,

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- erosion and accretion patterns within the monitored area,
- appendices including plots of survey profiles and graphical representations of volumetric and shoreline position changes for the monitoring area,
- an analysis of monitoring results - analyzed for patterns, trends, or changes between annual surveys and cumulatively since project construction.

CEC shall submit the engineering report and accompanying monitoring data to FDEP within 90 days following completion of monitoring tasks above.

TASK 14 – 2013 BIOLOGICAL MONITORING:

Task 14A – Seagrass Survey: CEC shall conduct the April 2013 and October 2013 seagrass surveys and reports during the third annual monitoring period in accordance with the Post-Construction Phase section of the FDEP-approved Seagrass Monitoring Plan (SMP) dated April 29, 2010.

Task 14B – Sea Turtle Monitoring: The County will:

- retain the local marine turtle permit holders (Turtle Consultant) to fulfill Sections 6 and 13 of the FDEP-approved Sea Turtle Protection Plan (STPP) dated February 1, 2010,
- conduct monthly artificial lighting surveys from May 2013 through October 2013 as required by Special Condition 17 of the FDEP permit and Sections 8 and 9 of the STPP,
- Submit a summary report of each survey, including property owner documentation, to FFWCC by the first of each month following each survey, and
- Submit a final summary report to FFWCC by December 15, for a total of 6 reports.

Using the GPS coordinates of sea turtle nests from R1 to R57, provided by the County, CEC shall prepare maps illustrating the location of the nests overlaid on aerial photographs to be submitted to the agencies with the Turtle Consultant's final summary report for the 2013 monitoring season.

Task 14C – Shorebird Monitoring: CEC shall retain Shorebird Consultants from February 2013 through August 2013 to fulfill the requirements for the monitoring of shorebirds in accordance with the agency-approved Shorebird Protection Plan (SBPP) dated February 1, 2010. Shorebird Consultants will prepare monthly reports for FFWCC and FDEP summarizing daily observations of shorebirds and their activity (e.g., foraging, resting, nesting, courtship behavior). CEC shall:

- provide technical support services for the County by reviewing and commenting on the Shorebird Consultants' implementation of the agency-approved SBPP as reflected in the reports,
- arrange and attend up to three (3) meetings with the County and Shorebird Consultants,
- will prepare graphics showing nesting locations and similar information derived from Shorebird Consultants reports.

Per Special Condition 25b of the FDEP permit, the County will then submit the monthly reports to FDEP for the 2013 monitoring season.

Task 14D – Beach Tilling: CEC shall assist the County to conduct a one-time bid process by preparing Technical Specifications, a Bid Schedule, reviewing bids and recommending a Contractor to conduct the beach tilling prior to nesting season for 2013 in accordance with the requirement of Special Condition 15 of the FDEP permit. CEC shall also perform cone

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penetrometer tests to check compaction of the beach after the County-retained Contractor completes the beach tilling. Penetrometer tests will be performed at 3 cross-shore stations along each of the FDEP survey monuments within the permitted fill areas (up to 22 transects); this data will be used to assess the effects of tilling.

Task 14E – Environmental Monitoring: CEC shall assist the County conduct the permit required environmental monitoring. CEC shall provide technical support to the County. CEC shall provide specific tasks for the dune vegetation mitigation required by Special Condition 10 and the mangrove transplanting mitigation required by Special Condition 4 of the FDEP permit. CEC shall visit the site and count the number of surviving dune plants to provide a basis to identify the percentage survival of each planted species of the dune mitigation area to demonstrate compliance with Special Condition 10. CEC shall visit the transplanted mangrove mitigation area near R-26, measure the percentage of plant cover, qualitatively assess plant health, photo document conditions, and submit a summary report to FDEP within 30 days for their review of the success criteria identified within Special Condition 4.

TASK 15 – PROJECT CONTINGENCIES:

It is recognized that additional work components may be necessary throughout the project, including but not limited to additional meetings, pay surveys, monitoring surveys, construction observations, and sea turtle protection issues. Upon request from the County, CEC shall prepare a work plan, fee estimate, and schedule for contingency tasks and upon authorization to proceed from the County, will conduct the authorized work.

DELIVERABLES

For all specified deliverables, CEC shall prepare and submit to the County a draft deliverable in electronic format (e.g. pdf file). CEC shall review the draft deliverable with the County, make one-round of revisions as may be identified by the County, and submit three (3) hard copies and one (1) digital copy in the appropriate formats (e.g. Word, Excel, PowerPoint, CADD, shape file, etc.) of all deliverables to the County. The following is a list of deliverables to be provided.

Task 1A

- Project Performance Technical Memorandum
- 10-Year Beach Nourishment Volume Projections
- Time Extension Request

Task 1B

- Stakeholder Workshop Presentation
- Stakeholder Workshop Agenda and Meeting Minutes
- Structural Desktop Analysis Technical Memorandum

Task 1C

- Native Beach Specifications
- Summary of Potential Target Areas
- Archaeological Sensitivity Assessment Technical Memorandum
- Concurrence Letter from SHPO
- Reconnaissance Level Geophysical Survey Plans

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- Reconnaissance Level Geotechnical Sampling Plans
- JCP Application for De Minimis Permit Exemption for Geotechnical Investigations

Task 1D

- Summary of Funding Sources Technical Memorandum

Task 1E

- Charrette No. 1 Presentation
- Meeting Agenda and Minutes

Task 1F

- Plan Formulation Report

Task 2A

- Supplemental Survey Data Files
- Supplemental Survey Report

Task 2B

- Wave, Tide and Current Measurement Data Files

Task 2C

- Complete Survey Data Files
- Complete Survey Report

Task 2D

- To be Determined

Task 2E

- Data Collection Report

Task 3A

- Model Calibration & Validation Technical Memorandum

Task 4A

- Alternatives Modeling Technical Memorandum

Task 4B

- Environmental Assessment Technical Memorandum

Task 4C

- Construction Budgets

Task 4D

- Charrette No. 2 Presentation
- Meeting Agenda and Minutes

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Task 4E

- Agency Workshop Presentation
- Meeting Agenda and Minutes

Task 4F

- Alternatives Analysis Report

Task 5A

- Bathymetric files in appropriate FDEP format
- Bathymetric chart(s) of each potential borrow area
- Surveyor's Report
- HTML files of the seismic data, and an Arc GIS shapefile of seismic tracklines
- HTML files of the side-scan data, and an Arc GIS shapefile of side-scan tracklines
- Side-scan anomalies correlated with seismic and magnetometer results
- Map of digitized features such as hard bottom
- Magnetometer anomalies correlated with seismic and side-scan results

Task 5B

- Archive sections of the vibracores acquired for storage at County location

Task 5C

- To be Determined

Task 5D

- Vibracore photographs
- gINT-generated vibracore logs
- gINT-generated granulometric curves and tables for all vibracore samples acquired in pdf format

Task 5E

- Maps depicting potential borrow area boundaries, "mag hits", cross-section locations and vibracore locations
- Compatibility Analysis Technical Memorandum

Task 5F

- Offshore Borrow Area Reconnaissance Level Report
- Additional files suitable for inclusion in the ROSS database, including core photograph jpegs, seismic line jpegs including timestamp annotations and coordinates, and seismic trackline jpegs.

Task 6A

- Permit Drawings
- Preliminary Opinion of Probable Construction Cost.
- Preliminary Plans

Task 7A

- Pre-Application Meeting Presentation

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- Meeting Agenda and Minutes

Task 7B

- JCP Supporting Documents

Task 7C

- JCP Application

Task 8A

- FDEP RAI Response No. 1
- FDEP RAI Response No. 2
- USACE RAI Response No. 1
- USACE RAI Response No. 2
- Summary of Agency Correspondence, Meetings and Communications
- Draft USACE Public Notice
- Draft Consultation Letters to Federal Commenting Agencies
- Draft Environmental Assessment Statement of Findings

Task 9A

- 1A-32 Permit Application to SHPO
- Bathymetric files in appropriate FDEP format
- Bathymetric chart(s) of each potential borrow area
- Surveyor's Report
- Raw HTML files of the seismic data and an Arc GIS shapefile of seismic tracklines
- HTML files of the seismic data annotated with digitized reflectors and vibracores
- Isopach map of the seismic reflectors
- HTML files of the side-scan data, and an Arc GIS shapefile of side-scan tracklines
- Side-scan anomalies correlated with seismic and magnetometer results
- Map of digitized features
- Digital sonar mosaic in the form of a geo-tiff
- Magnetometer anomalies correlated with seismic and side-scan results
- XYZ files of magnetic data for contour mapping
- Magnetic contour chart
- Cultural Resources Report by the Principal Investigator (Archeologist)
- SHPO RAI Response

Task 9B

- Archive sections of the vibracores acquired for storage at County location

Task 9C

- 1A-32 Permit Application to SHPO
- Raw HTML files of the seismic data and an Arc GIS shapefile of seismic tracklines
- HTML files of the seismic data annotated with digitized reflectors and vibracores
- HTML files of the side-scan data, and an Arc GIS shapefile of side-scan tracklines
- Side-scan anomalies correlated with seismic and magnetometer results
- Map of digitized features
- Digital sonar mosaic in the form of a geo-tiff

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- Magnetometer anomalies correlated with seismic and side-scan results
- XYZ files of magnetic data for contour mapping
- Magnetic contour chart
- Cultural Resources Report by the Principal Investigator (Archeologist)
- SHPO RAI Response

Task 9D

- To be Determined

Task 9E

- Vibracore photographs
- gINT-generated vibracore logs
- gINT-generated granulometric curves and tables for all vibracore samples acquired in pdf format

Task 9F

- Maps depicting borrow area boundaries, “mag hits”, cross-section locations and vibracore locations
- Compatibility Analysis Technical Memorandum

Task 9G

- Offshore Borrow Area Detailed Design Report
- Additional files suitable for inclusion in the ROSS database, including core photograph jpegs, seismic line jpegs including timestamp annotations and coordinates, and seismic trackline jpegs.

Task 10A

- Construction Plans
- Construction Specifications
- Final Opinion of Probable Construction Costs

Task 10B

- Charrette No. 3 Presentation
- Meeting Agenda and Minutes

Task 11

- County and Stakeholder Meeting Agendas and Meeting Minutes
- Project Schedule and Updates
- Funding Strategies Technical Memorandums

Task 12A

- Fall 2012 Seagrass Monitoring Survey Report

Task 12B

- 2012 Sea Turtle Monitoring Nest Location Aerial Exhibits

Task 12C

- 2012 Shorebird Monitoring Data and Reporting of Results

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- Meeting Agendas and Minutes
- Technical Review of County prepared 2012 Annual Monitoring Report

Task 12D

- 2012 Dune Mitigation Monitoring Report
- 2012 Mangrove Mitigation Monitoring Report

Task 13A

- 2013 Beach Profile Survey Data Files
- Beach Profiles and MHW Shoreline Plots

Task 13B

- 2013 Borrow Area Survey Data Files
- Borrow Area Contour Map and Cross Sections

Task 13C

- 2013 Aerial Photographs and Survey Report

Task 13D

- 2013 Inlet Hydraulic Data

Task 13E

- 2013 Annual Monitoring Report

Task 14A

- Spring 2013 Seagrass Monitoring Survey Report
- Fall 2013 Seagrass Monitoring Survey Report

Task 14B

- 2013 Sea Turtle Monitoring Nest Location Aerial Exhibits

Task 14C

- 2013 Shorebird Monitoring Data and Reporting of Results
- Meeting Agendas and Minutes
- Technical Review of County prepared 2013 Annual Monitoring Report

Task 14D

- Beach Tilling Plan and Technical Specifications
- Beach Tilling Contractor Review and Recommendation
- Cone Penetrometer Testing Results

Task 14E

- 2013 Dune Mitigation Monitoring Report
- 2013 Mangrove Mitigation Monitoring Report

Task 15

- To be Determined

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EXCLUSIONS

The following tasks are specifically excluded from the scope of services:

- ◆ Offshore Sand Source Search in Federal Waters,
- ◆ Bid Services,
- ◆ Contract Procurement Services,
- ◆ Construction Administration Services,
- ◆ Water Quality Monitoring, and
- ◆ Sea Turtle Monitoring and Lighting Surveys.

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JEC File No. 11.144

March 19, 2012

Task Description	Total
TASKS	
TASK 1 PLAN FORMULATION	\$93,203
1A 10-Year Management Plan Design Criteria	\$12,106
1B Structural Desktop Analysis	\$20,368
1C Offshore Borrow Area Literature Review and Survey Plans	\$24,451
1D Funding Scenarios	\$6,368
1E Stakeholder Charrette No. 1	\$17,806
1F Plan Formulation Report	\$12,144
TASK 2 DATA COLLECTION	\$72,056
2A Supplemental Bathymetric and Topographic Survey	\$9,293
2B Wave, Tide and Current Measurements	\$20,698
2C Complete Bathymetric and Topographic Survey	\$22,817
2D Contingencies	\$12,641
2E Data Collection Report	\$7,308
TASK 3 MODEL CALIBRATION AND VALIDATION	\$34,593
3A Model Calibration and Validation	\$34,593
TASK 4 ALTERNATIVES ANALYSIS	\$73,276
4A Alternatives Modeling	\$27,604
4B Environmental Analysis	\$4,308
4C Construction Budgets	\$7,488
4D Stakeholder Charrette No. 2	\$9,681
4E Agency Meeting	\$10,630
4F Alternatives Analysis Report	\$13,686
TASK 5 RECON LEVEL OFFSHORE SAND SOURCE SEARCH	\$180,477
5A Recon Level Geophysical Survey	\$42,891
5B Recon Level Vibracores	\$65,274
5C Contingencies	\$18,435
5D Core Logs & Sediment Analysis	\$21,649
5E Borrow Area Delineation & Compatibility Analysis	\$18,968
5F Offshore Borrow Area Reconnaissance Level Report	\$13,280
TASK 6 PRELIMINARY DESIGN	\$54,554
6A Preliminary Design	\$54,554
TASK 7 JOINT COASTAL PERMIT APPLICATION & SUBMITTAL	\$63,525
7A Pre-Application Conferences	\$15,178
7B Supporting Documents	\$28,604
7C JCP Application	\$19,744
TASK 8 JCP PERMIT PROCESSING	\$67,452
8A Permit Processing	\$67,452
TASK 9 DETAILED LEVEL OFFSHORE SAND SOURCE SEARCH	\$216,225
9A Detailed Level Borrow Area Geophysics/CR Survey	\$56,423
9B Detailed Level Vibracores	\$58,125
9C Detailed Level Pipeline Corridor Geophysics / CR Survey	\$41,984
9D Contingencies	\$11,378
9E Core Logs & Sediment Analysis	\$20,275
9F Borrow Area Final Design	\$13,220
9G Offshore Borrow Area Final Design Report	\$14,820
TASK 10 FINAL DESIGN	\$42,628
10A Construction Plans and Specifications	\$30,204
10B Stakeholder Charrette No. 3	\$12,425
TASK 11 PRJCT CRDNTN, STKHLDR MTNGS, AND FNDNG STRTGS	\$83,611
Project Coordination	\$21,139
Stakeholder Meetings	\$23,736
Funding Strategies	\$18,736
TASK 12 – 2012 BIOLOGICAL MONITORING	\$57,872
12A Seagrass Survey	\$17,013
12B Sea Turtle Monitoring	\$9,028
12C Shorebird Monitoring	\$22,403
12D Environmental Monitoring	\$9,229
TASK 13 2013 PHYSICAL MONITORING	\$124,495
13A R-Monument Beach Profiles, R8 to R47	\$33,518
13B Borrow Areas	\$27,191
13C Aerial Photographs	\$29,726
13D Hydraulic Monitoring	\$15,921
13E Monitoring Report	\$18,130
TASK 14 – 2013 BIOLOGICAL MONITORING	\$89,888
14A Seagrass Survey	\$34,025
14B Sea Turtle Monitoring	\$9,872
14C Shorebird Monitoring	\$32,781
14D Beach Tilling	\$3,982
14E Environmental Monitoring	\$9,229
TASK 15 CONTINGENCIES	\$8,280
15A Contingencies	\$8,280
TOTALS	\$1,242,882

EXHIBIT B

Task Description	2012												2013												2014		
	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR				
TASKS																											
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12C Shorebird Monitoring																											
12D Environmental Monitoring																											
TASK 13 2013 PHYSICAL MONITORING																											
13A R-Monument Beach Profiles, R8 to R47																											
13B Borrow Areas																											
13C Aerial Photographs																											
13D Hydraulic Monitoring																											
13E Monitoring Report																											
TASK 14 – 2013 BIOLOGICAL MONITORING																											
14A Seagrass Survey																											
14B Sea Turtle Monitoring																											
14C Shorebird Monitoring																											
14D Beach Tiling																											
14E Environmental Monitoring																											