

PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS

AGENDA ITEM SUMMARY

Meeting Date: October 5, 2010

Consent

Regular

Workshop

Public Hearing

Department

Submitted By: Environmental Resources Management

Submitted For: Environmental Resources Management

I. EXECUTIVE BRIEF

Motion and Title: Staff recommends motion to approve: Task Order No. 1297-01 to a continuing Contract (R2010-1297) with Olsen Associates, Inc. (Olsen) in the amount of \$185,092.18 for Phase I planning, design, and permitting of the third nourishment of the Ocean Ridge Shore Protection Project.

Summary: The Contract with Olsen, a Jacksonville, Florida company, was approved on August 17, 2010 (R2010-1297). This Task Order 1297-01 authorizes Olsen to conduct planning, borrow area development, preliminary engineering and design of the beach fill project, a preliminary feasibility investigation into groin field modifications, and permit application, with a completion date of April 5, 2011. The Task Order is funded by tourist development taxes. State and Federal funding agreements are also anticipated. No ad valorem support is required. There is 27.9% Small Business Enterprise and Minority/Woman Business Enterprise (SBE-M/WBE) sub-consultant participation on the Task Order. Olsen committed to an overall 38% SBE-M/WBE participation in the Contract. Olsen has achieved 27.9% cumulative SBE-M/WBE participation on the Contract including this Task Order. District 4 (JM)

Background and Justification: The beach at Ocean Ridge was nourished in 1998 and 2005. The federally estimated nourishment interval is six (6) years. Since the rock groin field was installed in 1997 at the north end of the project, only 1.1 miles out of the original 1.42 total project miles have required sand fill since 1998. Cost-sharing of approximately 50% Federal and 25% State is anticipated for this nourishment project. State funding for the groin field modification is being requested.

Attachments:

1. Task Order No. 1297-01 with Contract History
2. Contract (pages 1, 19, Exhibit B Fee Schedule)

Recommended by:

Richard E. Walby
Department Director

9/13/10
Date

Approved by:

[Signature]
County Administrator

9/20/10
Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2011	2012	2013	2014	2015
Capital Expenditures	_____	_____	_____	_____	_____
Operating Costs	\$185,092	_____	_____	_____	_____
External Revenues	_____	_____	_____	_____	_____
Program Income (County)	_____	_____	_____	_____	_____
In-Kind Match (County)	_____	_____	_____	_____	_____
NET FISCAL IMPACT	\$185,092	_____	_____	_____	_____
# ADDITIONAL FTE POSITIONS (Cumulative)	_____	_____	_____	_____	_____

Is Item Included in Current Budget? Yes No _____
 Budget Account No.: Fund 3652 Department 381 Unit M015 Object 3120
 Program _____

B. Recommended Sources of Funds/Summary of Fiscal Impact:

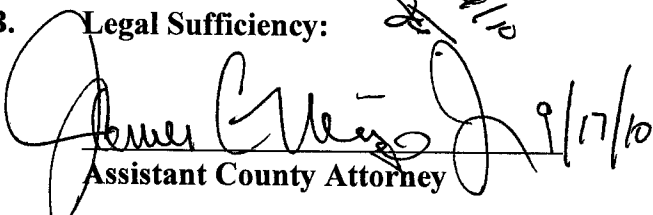
Tourist development taxes.

C. Department Fiscal Review: *JP*

III. REVIEW COMMENTS

A. OFMB Fiscal and /or Contract Dev. and Control Comments:

 _____ OFMB <i>JB 9/14/10</i>	 _____ Contract Development and Control <i>E. Jones 9/17/10</i>
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B. Legal Sufficiency: *JL 9/17/10*


 Assistant County Attorney

This item complies with current County policies.

C. Other Department Review:

 Department Director

Attachment 1

TASK ORDER

TASK ORDER: 1297-01 CONSULTANT: Olsen Associates, Inc.

ACCOUNT: 3652-381-M015-3120 CONTRACT: R2010-1297

[Fiscal approval of Budget Availability: By Funding]

PROJECT MANAGER: Tracy Logue PHONE: 561-233-2491

CONTRACT MANAGER: Juan Cueto PHONE: 561-233-2431

PROJECT NAME: Ocean Ridge Shore Protection Project 3 – Phase I

LOCATION/DISTRICT #: Ocean Ridge / District 4

TASK DESCRIPTION (use additional pages if necessary): The Consultant shall provide professional services for the implementation of the Ocean Ridge Shore Protection Project 3, as described in the attached proposal dated September 8, 2010.

DELIVERABLES: See scope of work dated 9/8/2010.

TASK ORDER TYPE: FIXED PRICE \$182,169.02 DUE DATE: 4/5/2011
NOT-TO-EXCEED \$2,923.16 (Travel)

TOTAL AMOUNT \$ 185,092.18 See attached proposal dated 9/8/2010

(Check where appropriate)
for Contract and Subcontract Amounts:

	Black	Hispanic	Women	Other (specify)	White Male
M/WBE (State) <input checked="" type="checkbox"/>	\$ _____	\$ _____	\$ <u>23,292.52</u>	\$ _____	
SBE-M/WBE* <input type="checkbox"/>	\$ _____	\$ _____	\$ _____	\$ _____	
SBE <input checked="" type="checkbox"/>	\$ _____	\$ _____	\$ _____	\$ _____	\$ <u>28,380.00</u>

*certified as both an SBE and a State MBE

TOTAL SBE-M/WBE PARTICIPATION: \$ 51,672.52

CONSULTANT REP: [Signature] DATE: 9 Sept 10

DIVISION DIRECTOR: Paul Davis for DB DATE: 9/13/10

APPROVED AS TO TERMS AND CONDITIONS:

ERM DIRECTOR: Richard E. Walsby DATE: 9/13/10

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

ASSISTANT COUNTY ATTORNEY: _____ DATE: _____

BOARD OF COUNTY COMMISSIONERS: _____ DATE: _____

Burt Aaronson, Chair

September 8, 2010

Richard E. Walesky, Director
Palm Beach County
Dept. of Environmental Resources Management
2300 North Jog Road, 4th Floor
West Palm Beach, FL 33411-2734



Re: Ocean Ridge Shore Protection Project 3 – Revised Task Order 1 – Phase 1 Proposal (Ver. 3)

Mr. Walesky,

In response to September 3, 2010 comments from PBC-ERM on our Phase 1 of Task Order 1 (Ocean Ridge Shore Protection Project 3) proposal, please find attached our revised proposal and supporting documentation. The information provided herein includes the original scope of work (Attachment A), revised cost details for Olsen Associates, Inc. (CONSULTANT) (Attachment B), revised proposal for SEA, Inc. dated September 3, 2010 (Attachment C) and unrevised proposal for Sea Diversified, Inc. (Attachment D).

The cost for the revised Task Order 1 (Phase I) proposal is a lump sum amount of \$182,169.02 plus a not-to-exceed travel allowance of \$2,923.16. Of this amount, \$51,672.52 is allocated to SBE and M/WBE certified firms.

Please contact us with questions regarding this revised submittal.

Sincerely yours,

Christopher G. Creed, P.E.
Sr. Engineer / Vice President

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Attachment A
Scope of Consultant Services for the
OCEAN RIDGE SHORE PROTECTION PROJECT 3
PHASE I: Planning, Borrow Area Development, and Preliminary Design

PHASE I

1. Planning

- 1.1. **Study Planning/Coordination.** The CONSULTANT shall work with Palm Beach County ERM staff to develop a phased scope of work to progressively study, design, permit, and implement the Ocean Ridge Shore Protection Project 3.
- 1.2. **Coordination with USACE-Jacksonville District.** The CONSULTANT shall work with Palm Beach County ERM staff to determine the planning tasks that will ultimately be required by the USACE-Jacksonville District to implement the Ocean Ridge Shore Protection Project 3. This effort shall include coordination with the USACE and Federal Resource Agencies to determine the scope of a required Limited Reevaluation Report (LRR) and the NEPA documentation. It is not known at this time if implementation of the project will require the application of the Beach-*fx* storm damage benefits model or if the project will require an Environmental Assessment (EA) or a Supplement to the Environmental Impact Statement (EIS) for the Shore Protection Project, Palm Beach County, Florida. Due to the recent listing of *Acropora cervicornis* and *Acropora palmata* and associated Critical Habitat designation for these coral species, modification of the EIS may be necessary. The CONSULTANT shall also support Palm Beach County ERM staff in the preparation for and participation in meeting, monthly conference calls, follow-up, and other necessary project related activities with the USACE-Jacksonville District.

2. Sand Borrow Area Development

- 2.1. **Geotechnical Investigation.** The CONSULTANT shall characterize the sand resources within an extended area of the Ocean Ridge sand borrow area and verify compatibility with native beach sediments along Ocean Ridge Shore Protection Project shoreline. This effort shall include the collection of ten (10) vibracores, geotechnical laboratory analyses and reporting, an updated cultural resources investigation, and preliminary borrow area delineation and design. The purpose of this effort shall be to assemble information required by the permitting agencies to allow beach quality sand within the Ocean Ridge borrow area to be excavated and placed as beach renourishment material along the Ocean Ridge shoreline.
 - 2.1.1. **Permitting.** The CONSULTANT shall apply for and work to acquire a De Minimis Exemption to allow for the collection of vibracores and other geotechnical data in the Ocean Ridge sand borrow area and along the Ocean Ridge project shoreline.
 - 2.1.2. **Core Borings.** The CONSULTANT through a qualified subconsultant shall collect ten (10) core borings offshore of Ocean Ridge. The cores shall be collected using equipment based on a model 271 B Alpine Pneumatic Vibracore

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configured to take 3-inch (min.) diameter cores up to 20 feet in length. The model 271 B is a self-contained, freestanding pneumatic vibracore unit.

2.1.3. Core Logs. Each core boring shall be visually inspected, and logged in detail according to ASTM D2488, the standard practice for visual descriptions of the stratigraphic soil layers. Results of the logging procedure shall be coded into the gINT™ software customized for the Florida Department of Environmental Protection (FDEP) ROSS database. The gINT™ software includes Engineering Form 1836 commonly used by the U.S. Army Corps of Engineers for core log presentation. During the logging procedure, particular attention shall be paid to lithology, texture, silt and clay content, shell content, and Munsell color. Samples for grain-size analysis shall be taken at intervals warranted by changes in lithology. A composite sample of each core shall also be taken to represent the interval that best corresponds to beach quality sand. Results of the grain-size analysis procedure described below shall be compared with the core logs to insure consistency between the soil classification listed on the core logs and the classification of individual samples.

2.1.4. Sample Analysis (Borrow Area). Each core boring sample shall be split into two sub-samples. One of the two sub-samples shall be used to perform the various analyses and the second sub-sample shall be archived. Grain size analysis shall be conducted according to ASTM Standard D-422 for mechanical particle size analysis of the soils. Samples shall be mechanically sieved using a set of nested screens that divide sediments at phi intervals from -4 to +3.5 phi and will include the +3.75 phi (#200 mesh screen) required by the FDEP. Weight retained on each sieve shall be used to compute grain-size distribution in terms of weight percent of sample in each size class. For bulk fine (silt and clay fraction) and coarse content, the ASTM D1140 (ASTM, 2008) and the Wentworth (1929) procedures of determining percent fine fraction shall be followed. The percent fine sediment retained on #230 and #200 sieves shall also be reported.

Grain size distribution of samples processed in accordance with the above procedures shall be analyzed using the method of moments and graphic methods as described by Folk (1974). Tabular summaries of each sample shall be generated for sieve size, phi size, and mesh opening size in millimeters, weight of sediment retained in grams, cumulative percent retained, and cumulative percent passing. Sample statistics (e.g., mean, standard deviation, skewness, and kurtosis) are displayed in the summary tables.

The carbonate content of each discrete and composite sample shall also be determined using a high temperature burn and included in the reporting.

2.1.5. Sample Analysis (Native Beach). Sediment samples will be collected by the COUNTY along the Ocean Ridge project shoreline following guidelines

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included in USACE Coastal Engineering Technical Note CETN-II-29 (Dec 1991) and provided to the CONSULTANT. It is assumed that twenty-eight samples will be collected, seven samples along four R-monument transects. The CONSULTANT shall perform the same analyses on the native beach samples as those performed for the core boring samples and described in Task 2.1.4.

2.1.6. Final Report. The CONSULTANT through the geotechnical subconsultant shall prepare a final report that describes the goals, methods, and results of the geotechnical investigation. The report shall include a series of appendices that list the core logs, grain size analysis of the discrete and composite samples, and grain size analysis of the borrow area and native beach samples. Additional products shall include the data set presented in the various database formats required by the FDEP. Among these products are the ACCESS Database file exported from the gINT™ software and the GIS layers depicting the location of the core borings.

2.2. Cultural Resources Investigation. The CONSULTANT through a qualified subconsultant shall perform a cultural resources investigation of two (2) potential borrow sites off the coast of Ocean Ridge in Palm Beach County, Florida. The two (2) borrow sites extend north and south of the 1998 and 2005 borrow sites in water depths ranging from approximately 30 to 40 feet. The cultural resource remote sensing survey tasks described herein are intended to conform to the requirements of the Florida Division of Historical Resources (FDHR) pursuant to Chapters 1A-32 and 1A-46, Florida Administrative Code (F.A.C.) in coordination with the State Historic Preservation Officer (SHPO) and the US Army Corps of Engineers, Jacksonville District (USACE). It is understood that the USACE Jacksonville District has not reviewed or approved this scope of work. Modifications to the scope of work and budget may be required following review and comment by the Jacksonville District.

The surveys shall be conducted under the direction of Tidewater Atlantic Research, Inc. (TAR), a qualified Marine Archaeological firm that specializes in cultural resource investigations. The TAR effort shall include archival research, an underwater remote sensing survey combined with bathymetric data collection to identify and map submerged features of potential prehistoric or historic significance, diver groundtruthing, if necessary, and reporting. The underwater remote sensing survey shall include bathymetric, magnetometer, side scan sonar and sub-bottom profiler data collection.

2.2.1. General Surveying. All positioning and hydrographic surveying shall be conducted under the responsible charge of a Professional Surveyor and Mapper registered in the State of Florida. All work shall meet or exceed the Minimal Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61G17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes. Additionally, all work shall be conducted in

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accordance with the BBBS Monitoring Standards for Beach Erosion Control Projects and the U.S. Army Corps of Engineers Manual for Hydrographic Surveying.

Horizontal and Vertical Data:

Horizontal Data: Feet, relative to the Florida State Plane Coordinate System, East Zone, North American Datum (NAD), 83/90.

Vertical Datum: Feet, relative to the North American Vertical Datum, (NAVD) of 1988.

- 2.2.2. *Bathymetry.* Bathymetric data shall be collected using a single-beam sounder along transects spaced at intervals of no greater than fifteen (15) meters. The survey shall be conducted using an automated hydrographic system comprised of a survey launch, marine grade sounder, Differential Global Positioning System (DGPS) and computer-based navigation / data collection system. The sounder shall be calibrated via bar checks at the beginning of each survey day. Soundings shall be corrected for tidal fluctuations using an integrated Real-Time Kinematic GPS. A tide gauge shall also be established and monitored in proximity to the project area as a redundant means of recording tides during the course of data collection. A motion sensor shall also be employed as necessary to reduce the effects of vessel heave, pitch and roll during the course of data collection.

Sounding / positioning data shall be collected and recorded continuously throughout the survey on computer internal hard-drives. Daily backups of all raw digital data to CD ROM shall be performed as required. Upon completion of field survey activities, data shall be edited and reduced to the project datum and formatted as required for bathymetric modeling and chart preparation. Final data, reduced to an X,Y,Z, ASCII format shall be imported to a CADD environment and subsequently translated to Digital Terrain Model (DTM) for generating contour charts and profile plots.

- 2.2.3. *Side Scan Sonar.* Side scan sonar data shall be collected using a digital, high resolution (100 / 500 kHz) side scan sonar data acquisition system. Alternatively, an ultra-high resolution (400 / 900 kHz) side scan sonar system that utilizes full spectrum CHIRP technology may be employed if required by TAR. Positioning and heading shall be provided via integrated dual-antenna DGPS with heading accuracy of 0.5 degrees. The survey may be conducted either independent of or simultaneous with the bathymetric survey. Side scan sonar data shall be collected along transect intervals and range settings set to achieve 100% coverage of the proposed survey area. In order to maximize the ability to classify objects or features detected during the survey, 50% minimum overlap of data between adjacent lines shall be maintained. Data shall be

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captured in a georeferenced, digital environment allowing the operator to interpret and classify objects real-time during the course of the survey.

Upon completion of the field data collection, digital mosaics shall be developed and overlaid with the bathymetric contour charts. Objects or features detected during the survey or as part of post-processing shall be specifically annotated on the survey charts along with their apparent classification. This shall include hardbottom features, exposed rock outcrops, changes in apparent surface sediment type, manmade objects / debris, exposed cable / pipeline crossings and shipwrecks. Such objects or features shall be additionally tabulated noting the location (x,y coordinate) and apparent classification. Objects of unknown classification shall be set as targets for subsequent magnetometer survey operations. The targets shall also be used to position divers during the groundtruthing phase of field investigations, if necessary.

- 2.2.4. Magnetometry. Magnetometer data shall be collected to identify features lying on or buried within the sediments that may not be readily detectable from the side scan sonar survey. This shall be limited to objects of ferrous composition such as pipes / cables, submerged vessels or other isolated / scattered manmade debris. The survey shall be conducted using a cesium magnetometer with positioning and heading provided via integrated dual-antenna DGPS with heading accuracy of 0.5 degrees. Magnetometer data shall be collected along transects spaced at intervals of no greater than fifteen (15) meters. Additional lines shall be run as required to define the limits of anomaly clusters and/or to better describe scattered anomaly tracks.

Upon completion of the fieldwork, data shall be overlaid with the bathymetric contour and side scan sonar charts. Magnetic anomalies detected during the survey or as part of post-processing shall be specifically annotated on the survey charts along with such information as gamma intensity, duration and apparent association with other survey anomalies and / or side scan sonar targets. Data shall be presented in magnetic contour format with an overlay of survey track lines. Such anomalies shall be additionally tabulated noting the location (x,y coordinates), and potential significance. Detailed maps of significant anomalies shall be provided for subsequent diver groundtruthing, as applicable.

- 2.2.5. Sub-Bottom Profiling. Sub-bottom profile data shall be collected using a sub-bottom profile system operating at low frequency range (2-16 kHz) to maximize penetration into the surface sediments. The sub-bottom profile system shall be a portable system that uses a full spectrum CHIRP technology that minimizes multipath and noise effects while achieving high definition image slices of the sub-bottom material characteristics. Positioning and heading shall be provided via integrated dual-antenna DGPS with heading accuracy of 0.5 degrees. Data shall be captured in a georeferenced, digital environment allowing the operator to interpret and classify sediment stratifications real-time during the course of

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the survey. Data shall be collected along transects spaced at intervals of no greater than fifteen (15) meters. Tie lines shall be conducted as necessary to verify the primary profile data.

Upon completion of the fieldwork, data shall be processed to identify and map sub-bottom stratifications as discernable from the seismic data. Isolated objects or features buried below the seafloor shall be specifically noted as anomalies for subsequent investigations. Final deliverables shall include processed sub-bottom data reduced to a X, Y, delta-Z format. Sub-bottom isopach plots shall be provided, if requested along with a tabulation of buried objects of potential significance.

2.2.6. Report of Findings. The CONSULTANT shall prepare a cultural resources summary report that present results of the bathymetric and remote sensing surveys as well as discussion of the archeological review and interpretation of the data. Specifically the report shall will include the following:

- Raw survey data in electronic format
- Processed bathymetric survey data in ASCII X,Y,Z format
- Georeferenced side scan sonar mosaics in .tiff or .jpg format
- Processed magnetometer data and tabulation of anomalies (Excel, .xls format)
- Processed sub-bottom profile data in ASCII X,Y,Z format including tabulation of anomalies (Excel, .xls format)
- Electronic CADD files, as applicable
 - o Bathymetric contour charts
 - o Side scan sonar mosaic charts with digitized features or objects of interest
 - o Chart of magnetometer anomalies with tabulation of coordinates
 - o Sub-bottom isopach charts depicting buried objects of potential significance
- Discussion of archival research, survey methodologies, horizontal and vertical control, survey results, interpretation of remote sensing record and observed objects of potential significance, and recommendations for subsequent field investigations, as required.

2.2.7. Diver Groundtruthing. If recommended by the archeologist, a qualified marine archeologist shall conduct groundtruthing dives to observe and classify potentially significant objects or features of unknown characteristics. Divers may also be deployed to determine the apparent characteristics of the sub-bottom material stratifications or seismic reflectors encountered during the remote sensing operations. Divers shall be equipped with hydraulic jetting equipment and/or other sand displacement devices as necessary to expose buried objects of potential significance to the project. Underwater metal

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detectors may also be required to assist with locating anomalies encountered from the magnetometer survey.

Divers shall be positioned using DGPS over targets established as part of the remote sensing operations. At each target location, divers shall record the ambient bottom elevations and conditions along with horizontal / vertical extent of sand displacement in attempt to uncover buried objects or anomalies of interest. Items encountered during the dive efforts shall be described and classified in diver log sheets and photographed for subsequent reporting to TAR. Should no object or feature be encountered during the dive operations after a reasonable attempt to uncover, diver log sheets shall be noted accordingly.

Upon completion of the diver groundtruthing operations, diver log sheets shall be compiled and interpreted by TAR. A report of findings will also be prepared, as applicable, to describe the groundtruthing procedures and equipment utilized to expose buried targets. The report shall provide a summary of findings including a detailed description of any objects encountered as part of the dive operations.

2.3. **Preliminary Borrow Area Delineation.** The CONSULTANT shall apply data and results from surveys and analyses described herein to delineate the sand borrow areas(s) to be used for the construction of the Ocean Ridge Shore Protection Project 3. The effort shall include sediment compatibility analyses and estimates of available sand volumes from the borrow area.

2.4. **Report of Findings.** The CONSULTANT shall prepare a Borrow Area Summary Report that presents data, analyses, results of the geotechnical, cultural resources, and engineering investigation (see Task 3.0) and will propose recommended limits of the sand borrow area. The report shall also include a review of all reasonably available geotechnical data from the Ocean Ridge borrow site, an assessment of borrow area sediment compatibility with the native beach sediments and quantification of the potentially available volume of material within the borrow area. The report shall be formatted in a manner that can be incorporated into permit applications and Federal decision documents. The CONSULTANT shall provide the COUNTY with one draft, then with five (5) hardcopies and one (1) PDF copy of the final report.

3. Preliminary Engineering and Schematic Level Design – Beach Fill

The CONSULTANT shall perform an assessment of existing beach conditions, engineering analyses and perform schematic level design for the Ocean Ridge Shore Protection Project 3 beach fill.

3.1. **Beach Condition Assessment.** The CONSULTANT shall perform an evaluation of existing beach conditions and performance of the 2005 Ocean Ridge renourishment

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project based upon relevant monitoring data and beach profile surveys data available for the Ocean Ridge shoreline. The assessment shall evaluate shoreline and beach volume change rates that have occurred since the 2005 project. The CONSULTANT shall compare existing beach conditions, as represented by the most current available data, to the authorized design and construction templates for the Ocean Ridge Shore Protection Project, the project template that has been constructed twice in the past.

- 3.2. **Engineering and Schematic Level Beach Fill Design.** The CONSULTANT shall incorporate the findings from the borrow area investigation, sediment compatibility analyses, cultural resources investigation, past project performance evaluation, and beach condition assessment into schematic level beach fill and borrow area design analyses. The effort shall evaluate the possible need for modifications to beach volume and configuration to potentially improve future project performance -- as relevant.

Based upon the findings of the engineering effort, the CONSULTANT shall prepare schematic level drawings for the tentative configuration of the Ocean Ridge Shore Protection Project 3. The results of analyses and associated drawings shall be formatted such that they can be incorporated into permit application supporting documents.

It is noted that this level of design will not take into consideration the current conditions of nearshore hardbottom features. Surveys of those areas are not planned until implementation of Phase II of this scope of work. The CONSULTANT shall provide the COUNTY with one draft, then with five (5) hardcopies and one (1) PDF copy of the schematic level design plan and cross-section drawings.

4. Preliminary Feasibility Investigation of Potential Modifications to the Groin Field

- 4.1. **Existing Structure Assessment.** The CONSULTANT shall visit the project site and perform an assessment of the current condition of visible portions of the eight rock groins along the northern Ocean Ridge shoreline. The CONSULTANT shall also review 1998 as-built surveys and photographs of the groins for the purposes of approximating the condition of buried portions of the groins. The results of this task will be incorporated into the Summary Report (Task 4.3).
- 4.2. **Preliminary Feasibility Investigation.** The CONSULTANT shall perform a preliminary evaluation of the potential physical and economic effects of modifying portions of the existing Ocean Ridge rubble mound groin field. The preliminary analysis shall attempt to evaluate with available shoreline and beach profile data and aerial photography the potential effects (both beneficial and adverse) that groin modifications may have upon the groin field shoreline and the project shoreline southward thereof. This shall only be an analytical "desktop" analysis and will not include numerical wave, sediment transport, or shoreline change modeling at this time.

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The CONSULTANT shall also perform a cursory evaluation of the potential effects that groin field modification may have upon the economics and Federal cost-sharing for the Ocean Ridge Federal Shore Protection Project. If findings from this reconnaissance level evaluation suggest that groin field modifications may be beneficial, or at least not adverse, to the Federal project, a more detailed study of the potential effects groin field modification may have upon the Federal project economics and project cost sharing shall be included in the Limited Reevaluation Report (LRR) (see Phase II). The analyses and results of this effort will be discussed and summarized in the report prepared under Task 4.3.

- 4.3. **Summary Report with Recommendations.** The CONSULTANT shall prepare a brief summary report that details the findings of the structure assessment and preliminary groin field modification feasibility investigation. The report shall include schematic level drawings of various groin field modification plan(s) considered. Each drawing shall include a general description of recommended groin modifications and an assessment of the amount of rock material that may be produced through armor stone removal. These drawings will be included in the summary report. The CONSULTANT shall provide the COUNTY with one draft, then with five (5) hardcopies and one (1) PDF copy of the final report.

Attachment B
Palm Beach County, Florida
OCEAN RIDGE SHORE PROTECTION PROJECT 3: Phase I

TOTAL SUMMARY
Olsen Associates, Inc. Costs

Task	Labor	ODC's	Outside SVS/Cntrctrs	Total
TASK 1: PLANNING				
1.1 Study Planning/Coordination	\$8,730.00	\$50.00	\$0.00	\$8,780.00
1.2 Coordination with USACE - Jacksonville District	\$6,768.00	\$50.00	\$0.00	\$6,818.00
<i>Subtotal</i>	\$15,498.00	\$100.00	\$0.00	\$15,598.00
TASK 2: SAND BORROW AREA DEVELOPMENT				
2.1 Geotechnical Investigation	\$3,798.00	\$50.00	\$54,292.52	\$58,140.52
2.2 Cultural Resources Investigation (Phase I only, no diver verification)	\$3,798.00	\$50.00	\$40,847.66	\$44,695.66
2.3 Preliminary Borrow Area Delineation	\$7,496.00	\$50.00	\$0.00	\$7,546.00
2.4 Report of Findings	\$9,678.00	\$300.00	\$0.00	\$9,978.00
<i>Subtotal</i>	\$24,770.00	\$450.00	\$95,140.18	\$120,360.18
TASK 3: PRELIMINARY ENGINEERING and SCHEMATIC LEVEL DESIGN - BEACH FILL				
3.1 Beach Condition Assessment	\$10,150.00	\$50.00	\$0.00	\$10,200.00
3.2 Engineering and Schematic Level Beach Fill Design	\$12,414.00	\$50.00	\$0.00	\$12,464.00
<i>Subtotal</i>	\$22,564.00	\$100.00	\$0.00	\$22,664.00
TASK 4: PRELIMINARY FEASIBILITY INVESTIGATION of POTENTIAL MODIFICATIONS TO THE GROIN FIELD				
4.1 Existing Structure Assessment	\$4,320.00	\$0.00	\$0.00	\$4,320.00
4.2 Preliminary Feasibility Investigation	\$14,998.00	\$0.00	\$0.00	\$14,998.00
4.3 Summary Report with Recommendations	\$6,852.00	\$300.00	\$0.00	\$7,152.00
<i>Subtotal</i>	\$26,170.00	\$300.00	\$0.00	\$26,470.00
TOTAL	\$89,002.00	\$950.00	\$95,140.18	\$185,092.18

Attachment B
Palm Beach County, Florida
OCEAN RIDGE SHORE PROTECTION PROJECT 3: Phase I

TASK 1.0: PLANNING
SUBTASK DIRECT LABOR BREAKDOWN

Sub Task 1.1 - Study Planning/Coordination													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
DIRECT LABOR													ITEM	TOTAL	SERVICE	COST	
LABOR CATEGORY	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	PLANNING/ LIASON	TRAVEL	REVIEW& COMMENT	TOTAL HOURS	RATE	COST						
Principal	8					2			10	\$210	\$2,100		IN-HOUSE SERVICES				
Principal II									0	\$178	\$0		TRAVEL				
Sr Engineer						40			40	\$150	\$6,000		PER DIEM				
Coastal Engr I									0	\$114	\$0		REPRODUCTION	\$50			
Coastal Engr II									0	\$95	\$0		LD TEL/FAX				
Coastal Engr III									0	\$78	\$0		FED EX				
CAD									0	\$59	\$0		POSTAGE				
Adm. Asst. Clerical	8					2			10	\$63	\$630		MISC				
SUBTOTAL DIRECT LABOR											\$8,730		subtotal	\$50	subtotal	\$0	\$8,780
Sub Task 1.2 - Coordination with USACE - Jacksonville District													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
DIRECT LABOR													ITEM	TOTAL	SERVICE	COST	
LABOR CATEGORY	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	LIASON	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST						
Principal	2					2			4	\$210	\$840		IN-HOUSE SERVICES				
Principal II									0	\$178	\$0		TRAVEL				
Sr Engineer						24			24	\$150	\$3,600		PER DIEM				
Coastal Engr I						16			16	\$114	\$1,824		REPRODUCTION	\$50			
Coastal Engr II									0	\$95	\$0		LD TEL/FAX				
Coastal Engr III									0	\$78	\$0		FED EX				
CAD									0	\$59	\$0		POSTAGE				
Adm. Asst. Clerical	4					4			8	\$63	\$504		MISC				
SUBTOTAL DIRECT LABOR											\$6,768		subtotal	\$50	subtotal	\$0	\$6,818

Attachment B
Palm Beach County, Florida
OCEAN RIDGE SHORE PROTECTION PROJECT 3: Phase I

TASK 2.0: SAND BORROW AREA DEVELOPMENT
SUBTASK DIRECT LABOR BREAKDOWN

Sub Task 2.1 - Geotechnical Investigation													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	QA/QC	Corres-pondence	TRAVEL	Report Prep/Review	TOTAL HOURS	RATE	COST	ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL	
												ITEM	TOTAL	SERVICE	COST		
Principal	2								2	\$210	\$420	IN-HOUSE SERVICES		SEA, Inc. (M/WBE)	\$23,292.52		
Principal II									0	\$178	\$0	TRAVEL		AVS (Sub to SEA, Inc.)	\$31,000.00		
Sr Engineer					12			8	20	\$150	\$3,000	PER DIEM					
Coastal Engr I									0	\$114	\$0	REPRODUCTION	\$50				
Coastal Engr II									0	\$95	\$0	LD TEL/FAX					
Coastal Engr III									0	\$78	\$0	FED EX					
CAD									0	\$59	\$0	POSTAGE					
Adm. Asst. Clerical	2				2			2	6	\$63	\$378	MISC					
SUBTOTAL DIRECT LABOR												\$3,798	MISC subtotal	\$50	subtotal	\$54,292.52	\$58,140.52
Sub Task 2.2 - Cultural Resources Investigation (Phase I only, no diver verification)													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	QA/QC	Corres-pondence	TRAVEL	Report Prep/Review	TOTAL HOURS	RATE	COST	ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL	
												ITEM	TOTAL	SERVICE	COST		
Principal	2								2	\$210	\$420	IN-HOUSE SERVICES		Sea Diversified (SBE)	\$28,380.00		
Principal II									0	\$178	\$0	TRAVEL		TAR (Sub to Sea Diversified)	\$12,467.66		
Sr Engineer					12			8	20	\$150	\$3,000	PER DIEM					
Coastal Engr I									0	\$114	\$0	REPRODUCTION	\$50				
Coastal Engr II									0	\$95	\$0	LD TEL/FAX					
Coastal Engr III									0	\$78	\$0	FED EX					
CAD									0	\$59	\$0	POSTAGE					
Adm. Asst. Clerical	2				2			2	6	\$63	\$378	MISC					
SUBTOTAL DIRECT LABOR												\$3,798	MISC subtotal	\$50	subtotal	\$40,847.66	\$44,695.66
Sub Task 2.3 - Preliminary Borrow Area Delineation													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	QA/QC	Corres-pondence	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST	ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL	
												ITEM	TOTAL	SERVICE	COST		
Principal	2								2	\$210	\$420	IN-HOUSE SERVICES					
Principal II									0	\$178	\$0	TRAVEL					
Sr Engineer					8				8	\$150	\$1,200	PER DIEM					
Coastal Engr I		8	8						16	\$114	\$1,824	REPRODUCTION	\$50				
Coastal Engr II			40						40	\$95	\$3,800	LD TEL/FAX					
Coastal Engr III									0	\$78	\$0	FED EX					
CAD									0	\$59	\$0	POSTAGE					
Adm. Asst. Clerical	2		2						4	\$63	\$252	MISC					
SUBTOTAL DIRECT LABOR												\$7,496	MISC subtotal	\$50	subtotal	\$0.00	\$7,546.00
Sub Task 2.4 - Report of Findings													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	QA/QC	Corres-pondence	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST	ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL	
												ITEM	TOTAL	SERVICE	COST		
Principal	2				2				4	\$210	\$840	IN-HOUSE SERVICES					
Principal II									0	\$178	\$0	TRAVEL					
Sr Engineer									16	\$150	\$2,400	PER DIEM					
Coastal Engr I									40	\$114	\$4,560	REPRODUCTION	\$250				
Coastal Engr II									0	\$95	\$0	LD TEL/FAX					
Coastal Engr III									16	\$78	\$1,248	FED EX					
CAD									0	\$59	\$0	POSTAGE	\$50				
Adm. Asst. Clerical	2							8	10	\$63	\$630	MISC					
SUBTOTAL DIRECT LABOR												\$9,578	MISC subtotal	\$300	subtotal	\$0.00	\$9,978.00

Attachment B
Palm Beach County, Florida
OCEAN RIDGE SHORE PROTECTION PROJECT 3: Phase I

TASK 3.0: Preliminary Engineering and Schematic Level Design – Beach Fill
SUBTASK DIRECT LABOR BREAKDOWN

Sub Task 3.1 - Beach Condition Assessment												ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL	
LABOR CATEGORY	DIRECT LABOR											ITEM	TOTAL	SERVICE	COST	TOTAL	
	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	LIASON	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST						
Principal	2		2						4	\$210	\$840	IN-HOUSE SERVICES					
Principal II									0	\$178	\$0	TRAVEL					
Sr Engineer			16						16	\$150	\$2,400	PER DIEM					
Coastal Engr I			40						40	\$114	\$4,560	REPRODUCTION	\$50				
Coastal Engr II									0	\$95	\$0	LD TEL/FAX					
Coastal Engr III			16						16	\$78	\$1,248	FED EX					
CAD			8						8	\$59	\$472	POSTAGE					
Adm. Asst. Clerical	2							8	10	\$63	\$630	MISC					
SUBTOTAL DIRECT LABOR																	
											MISC subtotal	\$50	subtotal	\$0		\$10,200	
Sub Task 3.2 - Engineering and Schematic Level Beach Fill Design												ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL	
LABOR CATEGORY	DIRECT LABOR											ITEM	TOTAL	SERVICE	COST	TOTAL	
	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	QA/QC	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST						
Principal	2								2	\$210	\$420	IN-HOUSE SERVICES					
Principal II									0	\$178	\$0	TRAVEL					
Sr Engineer		4				12			16	\$150	\$2,400	PER DIEM					
Coastal Engr I			24					8	32	\$114	\$3,648	REPRODUCTION	\$50				
Coastal Engr II		16						8	24	\$95	\$2,280	LD TEL/FAX					
Coastal Engr III		24							24	\$78	\$1,872	FED EX					
CAD		24							24	\$59	\$1,416	POSTAGE					
Adm. Asst. Clerical	2							4	6	\$63	\$378	MISC					
SUBTOTAL DIRECT LABOR																	
											MISC subtotal	\$50	subtotal	\$0		\$12,464	

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Attachment B
Palm Beach County, Florida
OCEAN RIDGE SHORE PROTECTION PROJECT 3: Phase I

TASK 4.0: Preliminary Feasibility Investigation of Potential Modifications to the Groin Field
SUBTASK DIRECT LABOR BREAKDOWN

Sub Task 4.1 - Existing Structure Assessment													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	DIRECT LABOR											ITEM	COST	SERVICE	COST	COST	
	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	LIASON	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST						
Principal	2							2	\$210	\$420							
Principal II								0	\$178	\$0							
Sr Engineer			8		5			13	\$150	\$1,950							
Coastal Engr I			16					16	\$114	\$1,824							
Coastal Engr II								0	\$95	\$0							
Coastal Engr III								0	\$78	\$0							
CAD								0	\$59	\$0							
Adm. Asst. Clerical	2							2	\$63	\$126							
SUBTOTAL DIRECT LABOR												\$4,320					
Sub Task 4.2 - Preliminary Feasibility Investigation													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	DIRECT LABOR											ITEM	COST	SERVICE	COST	COST	
	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	LIASON	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST						
Principal	2							4	\$210	\$1,260							
Principal II								0	\$178	\$0							
Sr Engineer			8					8	\$150	\$1,200							
Coastal Engr I			40					40	\$114	\$4,560							
Coastal Engr II			80					80	\$95	\$7,600							
Coastal Engr III								0	\$78	\$0							
CAD								0	\$59	\$0							
Adm. Asst. Clerical	2							4	\$63	\$378							
SUBTOTAL DIRECT LABOR												\$14,998					
Sub Task 4.3 - Summary Report with Recommendations													ODC's		OUTSIDE SVS/SUB-CONTRACTORS		TOTAL
LABOR CATEGORY	DIRECT LABOR											ITEM	COST	SERVICE	COST	COST	
	ADMIN/ MGMT	DESIGN	ANALYSES	MODELING	FIELD WORK	LIASON	TRAVEL	REPORT PREP	TOTAL HOURS	RATE	COST						
Principal								4	\$210	\$840							
Principal II								0	\$178	\$0							
Sr Engineer								8	\$150	\$1,200							
Coastal Engr I								40	\$114	\$4,560							
Coastal Engr II								0	\$95	\$0							
Coastal Engr III								0	\$78	\$0							
CAD								0	\$59	\$0							
Adm. Asst. Clerical								4	\$63	\$252							
SUBTOTAL DIRECT LABOR												\$6,852					

Attachment C

Scientific Environmental Applications, Inc. (S.E.A.)

5575 Willoughby Dr.
Melbourne, FL 32934
email seapp1@aol.com
Telephone/fax 321.254.2708
www.seappinc.com

September 3, 2010

Chris Creed, P.E.
Olsen Associates, Inc.
2618 Herschel Street
Jacksonville, FL 32204

Re: Revised Palm Beach County Ocean Ridge Sand Source Evaluation Budget

Dear Mr. Creed:

The attached budget for Ocean Ridge Sand Source Evaluation Project is a breakout of the costs associated with Scientific Environmental Applications, Inc. (S.E.A.) and American Vibracore Services, Inc. (AVS). Cost increases per sample unit as allowed per S.E.A.'s current contract with Palm Beach County (10/22/09-10/22/10) and next year's contract (10/22/10-10/21/11) are shown as samples may be processed in either contract year. The lump sum total is \$54,292.52 = \$23,292.52 (SEA) + \$31,000 (AVS) for Ocean Ridge Sand Source Evaluation Project and processing all samples during 10/22/10-10/21/11. If you have any questions, I may be reached at 321.254.2708.

Sincerely,



Ms. Kim Zarillo
President

Ocean Ridge Sand Source Evaluation Budget Revised September 3, 2010

Tasks	Hours/units	Rate	Subtotals	
American Vibracore Services, Inc. (AVS) Task 1 Core Borings				
Ten core borings Mob/Demob	1	\$ 11,000.00	\$ 11,000.00	
Ten core borings	10	\$ 2,000.00	\$ 20,000.00	
American Vibracore Services, Inc. (AVS) Total			\$ 31,000.00	\$31,000.00
S.E.A. Core Sampling				
	Hours/units	Contract Unit Price 10/22/2009-10/21/2010	Subtotals	Contract Price increase 1.1% for 10/22/2010-10/21/2011
Gary Zarillo, Planning and supervision	65	\$ 92.00	\$ 5,980.00	\$ 5,980.00
S.E.A. Task 2. Core and Sample Processing				
	Hours/units	Contract Unit Price 10/22/2009-10/21/2010	Subtotals	Contract Price increase 1.1% for 10/22/2010-10/21/2011
Core logs in FDEP format, Photographic Record	10	\$ 130.00	\$ 1,300.00	\$ 1,300.00
Sample processing for grain size to FDEP specs.	60	\$ 47.45	\$ 2,847.00	\$ 2,878.32
Percent carbonate testing on discrete and composite samples	60	\$ 12.94	\$ 776.40	\$ 784.94
Percent Organic testing on discrete and composite samples	60	\$ 12.94	\$ 776.40	\$ 784.94
Wet sieving on discrete and composite samples	60	\$ 12.94	\$ 776.40	\$ 784.94
Color code according to Munsell	60	\$ 12.94	\$ 776.40	\$ 784.94
S.E.A. Subtotal for Task 2. Core and Sample Processing			\$ 7,252.60	\$ 7,318.08
S.E.A. Task 3. Final Products				
Final Report including all FDEP products and 3D model of sand resource	65	\$ 92.00	\$ 5,980.00	\$ 5,980.00
S.E.A. Field and Sample Archive Expenses				
Core transport	1	\$ 200.00	\$ 200.00	\$ 200.00
Mileage	400	\$ 0.45	\$ 178.00	\$ 178.00
Lodging (Field Event)	4	\$ 125.00	\$ 500.00	\$ 500.00
Meals (Field Event)	4	\$ 36.00	\$ 144.00	\$ 144.00
S.E.A. Subtotal Additional Expenses			\$ 1,022.00	\$ 1,022.00
S.E.A. Subtotal Coring, Sample Processing, and Additional Expenses			\$ 20,234.60	\$ 20,300.08
S.E.A. Additional- Native Beach Sample Processing				
	Hours/units	Contract Unit Price 10/22/2009-10/21/2010	Subtotals	Contract Price increase 1.1% for 10/22/2010-10/21/2011
Sample processing for grain size to FDEP specs.	28	\$ 47.45	\$1,328.60	\$1,343.21
Percent carbonate testing on discrete and composite samples	28	\$ 12.94	362.32	\$366.31
Percent Organic testing on discrete and composite samples	28	\$ 12.94	362.32	\$366.31
Wet sieving on discrete and composite samples	28	\$ 12.94	362.32	\$366.31
Color code according to Munsell	28	\$ 12.94	362.32	\$366.31
Report -2 hrs	2		\$92.00	\$184.00
S.E.A. Subtotal Native Beach Sample Processing			\$2,869.88	\$2,992.44

Lump Sum Total

\$

54,292.52

Attachment D



SEA Diversified, Inc.
1200 NW 17th Avenue, Suite 3
Delray Beach, Florida 33445
Phone: 561-243-4920
Facsimile: 561-243-4957

4640 Lipscomb Street, Suite 10
Palm City, Florida 32905
Phone: 321-984-7268
Facsimile: 321-984-7270

August 13, 2010

Christopher G. Creed, P.E.
Senior Engineer / Vice-President
Olsen Associates, Inc.
2618 Herschel Street
Jacksonville, Florida 32204

**RE: Proposal for Professional Services - Revised
Cultural Resources Investigation
Ocean Ridge Potential Borrow Sites
Sea Diversified P.N. 10-1686**

Dear Mr. Creed:

Pursuant to your request, **Sea Diversified, Inc. (SDI)** is pleased to provide the following revised Statement of Work (SOW) and associated cost pertaining to a proposed cultural resources investigation of two (2) potential borrow sites off the coast of Ocean Ridge in Palm Beach County, Florida. The two (2) borrow sites extend north and south of the 1998 and 2005 borrow sites in water depths ranging from approximately 30 to 40 feet. This SOW pertains to the required remote sensing surveys as conforming to the requirements of the Florida Division of Historical Resources (FDHR) pursuant to Chapters 1A-32 and 1A-46, *Florida Administrative Code (F.A.C.)* in coordination with the State Historic Preservation Officer (SHPO). The surveys shall be conducted under the direction of Tidewater Atlantic Research, Inc. (TAR), a qualified Marine Archaeological firm that specializes in cultural resource investigations associated with offshore sand borrow sites.

Upon the completion of the archival research component of the investigation by TAR, an underwater remote sensing survey combined with bathymetric data collection shall be conducted to identify and map submerged features of potential prehistoric or historic significance. The first phase of the field survey efforts will include bathymetric, magnetometer, side scan sonar and sub-bottom profiler data collection. The second phase of the field investigation will include diver groundtruthing, as required to classify objects or anomalies of unknown characteristics that were detected from the remote sensing operations. Diver operations may include hydraulic jetting or other sand displacement efforts to uncover and expose buried items of potential cultural significance. The field surveys and subsequent groundtruthing operations (if required) will be conducted by trained and experienced technicians under the responsible charge of a Professional Surveyor and Mapper licensed in the State of Florida. A brief description of these services is as follows:

General:

SDI shall provide supervision, field / office support staff and equipment to perform the scope of work described, herewith. All work shall be conducted to the highest level of industry standards and under the responsible charge of a Professional Surveyor and Mapper registered in the State of Florida. All work shall meet or exceed the Minimal Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61G17-6, Florida Administrative Code, pursuant to Section 472.027, Florida Statutes. Additionally, all work shall be conducted in accordance with the BBCS Monitoring Standards for Beach Erosion Control Projects and the U.S. Army Corps of Engineers Manual for Hydrographic Surveying.

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**Proposal for Professional Services - Revised
Cultural Resources Investigation
Ocean Ridge Potential Borrow Sites
Sea Diversified P.N. 10-1686
August 13, 2010
Page 2 of 4**

Horizontal and Vertical Data:

Horizontal Data: Feet, relative to the Florida State Plane Coordinate System, East Zone, North American Datum (NAD), 83/90
Vertical Datum: Feet, relative to the North American Vertical Datum, (NAVD) of 1988.

Phase One: Field Data Collection and Report of Findings

Bathymetry

Bathymetric data shall be collected using a single-beam sounder along transects spaced at intervals of no greater than fifteen (15) meters. The survey shall be conducted using an automated hydrographic system comprised of a survey launch equipped with a Odom marine grade sounder, Trimble Differential Global Positioning System (DGPS) and computer-based navigation / data collection system. The sounder shall be calibrated via bar checks at the beginning of each survey day. Soundings will be corrected for tidal fluctuations using an integrated Real-Time Kinematic GPS. A tide gauge will also be established and monitored in proximity to the project area as a redundant means of recording tides during the course of data collection. A motion sensor will be employed as necessary to reduce the effects of vessel heave, pitch and roll during the course of data collection.

Sounding / positioning data will be collected and recorded continuously throughout the survey on computer internal hard-drives. Daily backups of all raw digital data to CD ROM will be performed as required. Upon completion of field survey activities, data will be edited and reduced to the project datum and formatted as required for bathymetric modeling and chart preparation. Final data, reduced to an X,Y,Z, ASCII format will be imported to a CADD environment and subsequently translated to Digital Terrain Model (DTM) for generating contour charts and profile plots.

Side Scan Sonar

Side scan sonar data will be collected using an Edgetech fully digital, high resolution (100 / 500 kHz) side scan sonar data acquisition system. Alternatively, an ultra-high resolution (400 / 900 kHz) side scan sonar system that utilizes full spectrum CHIRP technology will be employed at the discretion of TAR. Positioning and heading shall be provided via integrated dual-antenna DGPS with heading accuracy of 0.5 degrees. The survey will be conducted either independent or simultaneous with the bathymetric survey. Data shall be collected along transect intervals and range settings set to achieve 100% coverage of the proposed survey area. In order to maximize the ability to classify objects or features detected during the survey, 50% minimum overlap of data between adjacent lines will be maintained. Data will be captured in a georeferenced, digital environment allowing the operator to interpret and classify objects real-time during the course of the survey.

Upon completion of the field data collection, digital mosaics will be developed and overlaid with the bathymetric contour charts. Objects or features detected during the survey or as part of post-processing will be specifically annotated on the survey charts along with their apparent classification. This will include hardbottom features, exposed rock outcrops, changes in apparent surface sediment type, manmade objects / debris, exposed cable / pipeline crossings and shipwrecks. Such objects or features will be additionally tabulated noting the location (x,y coordinate) and apparent classification. Objects of unknown classification will be set as targets for subsequent magnetometer survey operations. The targets will also be used to position divers during the groundtruthing phase of field investigations.

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**Proposal for Professional Services - Revised
Cultural Resources Investigation
Ocean Ridge Potential Borrow Sites
Sea Diversified P.N. 10-1686
August 13, 2010
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Magnetometry

Magnetometer data will be collected to identify features lying on or buried within the sediments that may not be readily detectable from the side scan sonar survey. This will be limited to objects of ferrous composition such as pipes / cables, submerged vessels or other isolated / scattered manmade debris. Of specific interest will be submerged objects of potential cultural importance. The survey shall be conducted using a cesium magnetometer with positioning and heading provided via integrated dual-antenna DGPS with heading accuracy of 0.5 degrees. Magnetometer data shall be collected along transects spaced at intervals of no greater than fifteen (15) meters. Additional lines shall be run as required to define the limits of anomaly clusters and/or to better describe scattered anomaly tracks.

Upon completion of the fieldwork, data will be overlaid with the bathymetric contour and side scan sonar charts. Magnetic anomalies detected during the survey or as part of post-processing will be specifically annotated on the survey charts along with such information as gamma intensity, duration and apparent association with other survey anomalies and / or side scan sonar targets. Data shall be presented in magnetic contour format with and overlay of survey track lines. Such anomalies will be additionally tabulated noting the location (x,y coordinate), and potential significance. Detailed maps of significant anomalies will be provided for subsequent diver groundtruthing, as applicable.

Sub-Bottom Profiling

Sub-bottom profile data shall be collected using an Edgetech Sub-Bottom Profile system operating at low frequency range (2-16 kHz) to maximize penetration into the surface sediments. The sub-bottom profile system will be a portable system that uses a full spectrum CHIRP technology that minimizes multipath and noise effects while achieving high definition image slices of the sub-bottom material characteristics. Positioning and heading shall be provided via integrated dual-antenna DGPS with heading accuracy of 0.5 degrees. Data will be captured in a georeferenced, digital environment allowing the operator to interpret and classify sediment stratifications real-time during the course of the survey. Data will be collected along transects spaced at intervals of no greater than fifteen (15) meters. Tie lines will be conducted as necessary to verify the primary profile data.

Upon completion of the fieldwork, data will be processed to identify and map sub-bottom stratifications as discernable from the seismic data. Isolated objects or features buried below the seafloor will be specifically noted as anomalies for subsequent investigations. Final deliverables shall include processed sub-bottom data reduced to a X, Y, delta-Z format. Sub-bottom isopach plots will be provided, if requested along with a tabulation of buried objects of potential significance.

Report of Findings

The results of the bathymetric and remote sensing surveys will be compiled and submitted to TAR for review and interpretation. Specifically this will include the following:

- Raw survey data in electronic format
- Processed bathymetric survey data in ASCII X,Y,Z format
- Georeferenced side scan sonar mosaics in .tiff or .jpg format
- Magnetometer data
- Sub-bottom profile data
- Bathymetric contour charts

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**Proposal for Professional Services - Revised
Cultural Resources Investigation
Ocean Ridge Potential Borrow Sites
Sea Diversified P.N. 10-1686
August 13, 2010
Page 4 of 4**

- Final survey report including description of methodologies, horizontal and vertical control, survey results and recommendations for subsequent field investigations

Total lump sum fee for Phase One shall be as follows:

Sea Diversified, Inc.:	
▪ Project Planning:	\$ 3,500.00
▪ Field Data Collection:	\$19,600.00
▪ Charts and Deliverables:	\$ 5280.00 (includes coordination with TAR)
Total Sea Diversified, Inc.:	\$28,380.00
Tidewater Atlantic Research, Inc.:	\$12,467.66
Total Cost:	\$40,847.66

Phase Two: Diver Groundtruthing

At the direction of TAR, groundtruthing operations, via divers, will be conducted to observe and classify objects or features of unknown characteristics. Divers may also be deployed to determine the apparent characteristics of the sub-bottom material stratifications or seismic reflectors encountered during the remote sensing operations. Divers will be equipped with hydraulic jetting equipment and/or other sand displacement devices as necessary to expose buried objects of potential significance to the project. Underwater metal detectors will also be used to assist with locating anomalies encountered from the magnetometer survey.

Divers will be positioned using DGPS over targets established as part of the remote sensing operations. At each target location, divers will record the ambient bottom elevations and conditions along with horizontal / vertical extent of sand displacement in attempt to uncover buried objects or anomalies of interest. Items encountered during the dive efforts will be described and classified in diver log sheets and photographed for subsequent reporting to TAR. Should no object or feature be encountered during the dive operations after a reasonable attempt to uncover, diver log sheets will be noted accordingly.

Upon completion of the diver groundtruthing operations, diver log sheets will be compiled and provided to TAR. A report of findings will also be prepared, as applicable, to describe the groundtruthing procedures and equipment utilized to expose buried targets. The report will provide a summary of findings including a detailed description of any objects encountered as part of the dive operations.

Total fee for Phase Two, Diver Groundtruthing to be determined after completion of Phase One

Should you have questions or require additional information, please do not hesitate to contact us at your convenience. After your review of this SOW, please let us know if you require any changes or modifications to the scope of survey. Thank you for your consideration and we look forward to hearing from you shortly.

Best regards,

William T. Sadler Jr., P.E., P.S.M.
President

WTS/dq

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Attachment D
 Cost Breakdown
 Sea Diversified, Inc.
 Cultural Resources Investigation
 Ocean Ridge Potential Borrow Sites
 SDI P.N. 10-1686
 August 11, 2010

Project Planning

Description	Reg Hours	Reg Rate	OT Hours	OT Rate	Unit	Total
Computer / CADD Operator	8	\$90.00		\$135.00	PH	\$720.00
Survey Manager	16	\$95.00		\$142.50	PH	\$1,520.00
Professional Surveyor and Mapper	8	\$120.00		\$180.00	PH	\$960.00
Project Manager	2	\$150.00		\$225.00	PH	\$300.00
Total Cost:						\$3,500.00

Field Data Collection

Description	Reg Hours	Reg Rate	OT Hours	OT Rate	Unit	Total
2-Person GPS Survey Crew	4	\$160.00		\$240.00	CH	\$640.00
3-Person Hydrographic Survey Crew	40	\$250.00		\$375.00	CH	\$10,000.00
3-Person GPS Survey Crew	0	\$215.00		\$322.50	CH	\$0.00
Survey Manager	32	\$95.00		\$142.50	PH	\$3,040.00
Professional Surveyor and Mapper	16	\$120.00		\$180.00	PH	\$1,920.00
Project Manager	8	\$150.00		\$225.00	PH	\$1,200.00
Side Scan Sonar System	1	\$750.00				\$750.00
Magnetometer System	1	\$350.00				\$350.00
Sub-Bottom Profile System	2	\$850.00				\$1,700.00
Total Cost:						\$19,600.00

Charts and Deliverables

Description	Reg Hours	Reg Rate	OT Hours	OT Rate	Unit	Total
Computer / CADD Operator	32	\$90.00		\$135.00	PH	\$2,880.00
Survey Manager	12	\$95.00		\$142.50	PH	\$1,140.00
Professional Surveyor and Mapper	8	\$120.00		\$180.00	PH	\$960.00
Project Manager	2	\$150.00		\$225.00	PH	\$300.00
Total Cost:						\$5,280.00

Summary

Project Planning	\$3,500.00
Field Data Collection	\$19,600.00
Charts and Deliverables	\$5,280.00
Subtotal	\$28,380.00
Tidewater Atlantic Research	\$12,467.66
Total Cost	\$40,847.66

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Tracy Logue

From: Chris Creed [ccreed@olsen-associates.com]
Sent: Tuesday, August 24, 2010 10:59 AM
To: Tracy Logue
Subject: FW: Ocean Ridge

-----Original Message-----

From: Gordon Watts [mailto:iimr@coastalnet.com]
Sent: Tuesday, August 24, 2010 9:25 AM
To: Chris Creed
Subject: Ocean Ridge

Chris,

In response to the comments concerning our cost proposal for the Ocean Ridge project, I would like to define our role and budget calculations. That role is dictated by the requirements of the Florida Bureau of Archaeology (FBAR) and the United States Army Corps of Engineers, Jacksonville District (USACE-JAX).

Our first objective would be to obtain a 1A-32 Permit from FBAR. That requires filling out the 1A-32 permit application, producing and submitting a research methodology and providing a map illustrating the survey area. Obtaining the permit commits Tidewater Atlantic Research, Inc. (TAR) to providing a final report document that addresses FBAR and USACE-JAX comments and meets their report document requirements. Prior to the survey a meeting with USACE-JAX personnel will be attended to address survey and report requirements of the USACE-JAX archaeological staff.

During the survey TAR will provide the archaeologist/principal investigator required by FBAR and USACEJAX. Dr. Watts will serve as archaeological principal investigator. As such he will supervise the collection of remote sensing data to ensure that magnetic and acoustic records will provide sufficient information to support identification and assessment of submerged cultural resources in the project area. Dr.

Watts education and experience more than meets the standards identified by the Secretary of the United States Department of Interior. He has carried out projects in Florida for over 35 years and has worked for both the FBAR and USACE-JAX.

Upon completion of the survey, Dr. Watts and TAR personnel will analyze the remote sensing data. Data assessment will include developing a magnetic contour map of the survey area, examining each line of magnetometer records to identify and evaluate each anomaly. Each anomaly will be assessed in terms of a potential association with historically significant submerged cultural resources and National Register of Historic Places eligibility. Acoustic records will be examined for bottom surface material associated with magnetic anomalies and relict landforms that have been demonstrated to have a potential association with prehistoric habitation sites.

In order to provide a background context for assessing the remote sensing data, TAR will conduct a program of historical research. That research will include investigations in local repositories, libraries and historical societies as required by the USACE-JAX archaeological staff and FBAR personnel. Analysis of the data will be detailed in an illustrated report produced by and under the direction of the archaeological principal investigator as per the requirements of both FBAR and USACE-JAX. Comments on the draft report will be addressed in a final report document that will be submitted to Olsen Associates, FBAR and USACE-JAX.

The budget prepared and submitted by TAR is based on those project requirements. I have calculated for airfare for a trip to Jacksonville to meet with USACE-JAX personnel and a trip to West Palm Beach to participate in the remote sensing survey. Because I could not provide dates for those trips and the schedules will depend on variables such as USACE-JAX personnel availability and weather, I used a rate from US Airways that was sufficient to accommodate last minute travel arrangements. Fuel, in the budget is for the rental car while milage and parking are for getting to and from an airport and leaving a car if necessary. As far as the cost of hotel accommodations in Ocean Ridge, I checked on rates for several motels but could not get a firm quote without a date for travel. If the rate quoted ERM is firm we will be happy to use that in our firm fixed cost proposal. We will increase the milage rate to .445 to correspond to Florida state rates if necessary. The different rates for the PI reflect an 8 hour day in the office and a 10+ hour day in the field.

Finally, I have not seen the budget proposal prepared by SEA, Inc. and cannot comment on any duplication of costs for analysis of the data. In order to prepare our report for submerged cultural resources, we must conduct our own analysis of the magnetic and acoustic data.

Gordon P. Watts, Jr., Ph.D., RPA
Director
Tidewater Atlantic Research, Inc.
P.O. Box 2494
5290 River Road
Washington, North Carolina 27889
252-975-6659 (phone)
252-975-2828 (fax)

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Attachment D

Tidewater Atlantic Research, Inc.
P.O. Box 2494, Washington, North Carolina 27889
(252) 975-6659

11-Aug-10

Fixed Cost Proposal
Ocean Ridge Borrow Areas
FBAR Permitting, USACE Coordination & Archaeological Remote Sensing Survey Participation
Palm Beach County, Florida

	<u>Units (days)</u>	<u>Unit Cost</u>	<u>Total</u>
Personnel			
Principal Investigator	8	\$300	\$2,400.00
Field Director	0	\$250	\$0.00
Senior Archaeologist	0	\$225	\$0.00
Archaeologist	0	\$200	\$0.00
Archaeological Assistant	0	\$150	\$0.00
Administrative Support	0	\$125	\$0.00
Overhead		0.78	\$1,872.00
		<u>Sub total</u>	<u>\$4,272.00</u>
Travel			
Lodging	7	\$125.00	\$875.00
Per diem	8	\$35.00	\$280.00
Airfare	2	\$550.00	\$1,100.00
Car Rental	8	\$65.00	\$520.00
Fuel & Parking		\$100.00	\$100.00
Mileage	112	\$0.43	\$48.16
		<u>Sub total</u>	<u>\$2,923.16</u>
		Total	<u>\$7,195.16</u>

Historical Research, Data Analysis, Report Preparation and Revision

	<u>Units (days)</u>	<u>Unit Cost</u>	<u>Total</u>
Personnel			
Principal Investigator	3	\$250.00	\$750.00
Senior Archaeologist	3	\$225.00	\$675.00
Historian	4	\$200.00	\$800.00
Computer Graphics Technician	3	\$175.00	\$525.00
Administrative & Clerical	1	\$125.00	\$125.00
Overhead		0.78	\$2,242.50
		<u>Sub total</u>	<u>\$5,117.50</u>
Publishing			
Printing & Binding Cost	1	\$75.00	\$75.00
Graphics	1	\$50.00	\$50.00
Supplies	1	\$30.00	\$30.00
		<u>Sub total</u>	<u>\$155.00</u>
		Total	<u>\$5,272.50</u>
Proposed Project Budget		<u>Total</u>	<u>\$12,467.66</u>

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Olsen Associates, Inc.
Continuing Contract for Coastal and Marine Engineering

Contract R2010-1297 dated August 17, 2010 for period of two years expires on August 16, 2012.
 SBE-M/WBE Goal 38.0% (10% SBE/Woman; 8% SBE/White; 6% SBE/Asian; 14% MBE/Woman)

Task order summary:

TASK NUMBER	TOTAL/SBE and/or MWBE AMOUNT	TASK DUE DATE	TASK DESCRIPTION	APPROVED BY/DATE
1297-01	185,092.18 51,672.52	4/5/2011	Ocean Ridge Shore Protection Project 3 - Phase I	BCC

Total: 185,092.18
 SBE-MBE: 51,672.52
 SBE-MBE Participation: 27.9%
 Report Date & Filename: 09/08/10

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JC

R 2010 - 12 97

**CONTRACT FOR PROFESSIONAL CONSULTANT SERVICES
BETWEEN PALM BEACH COUNTY AND
OLSEN ASSOCIATES, INC.**

This Contract is made as of AUG 17 2010, by and between Palm Beach County, a Political Subdivision of the State of Florida, by and through its Board of County Commissioners, hereinafter referred to as the COUNTY, and Olsen Associates, Inc., 2618 Herschel Street, Jacksonville, FL 32204, an engineering firm, a corporation, authorized to do business in the State of Florida, hereinafter referred to as the CONSULTANT, whose Federal I.D. Number is 59-2223174.

In consideration of the mutual promises contained herein, the COUNTY and the CONSULTANT agree as follows:

ARTICLE 1 - SERVICES

The CONSULTANT's responsibility under this Contract is to provide professional coastal and marine engineering services and incidental services as more specifically set forth in the Scope of Work attached hereto as Exhibit "A". In the event services are required to be performed that are not described in Exhibit "A", but are within the general scope of services, the COUNTY and the CONSULTANT hereby reserve the right to negotiate task orders covering the desired services.

The CONSULTANT shall conduct professional services in accordance with Chapters 471 and 472, Florida Statutes and other applicable local, state and federal standards. The CONSULTANT shall conduct topographic and hydrographic survey work in compliance with the most current U.S. Army Corps of Engineers "Technical Requirements for Surveying, Mapping and Photogrammetric Services", the most current U.S. Army Corps of Engineers "Engineering Design: Hydrographic Surveying," EM 1110-2-1003, and the most current Florida Department of Environmental Protection specifications for topographic (section 02000) and bathymetric (section 02100) surveying.

ARTICLE 2 - PERIODS OF SERVICE AND SCHEDULES

This Contract commences on the day and year first written above and ends two years later. At the option of the COUNTY, the Contract can be renewed for an additional one-year period.

Reports and other work items shall be delivered or completed according to schedules established in each task order.

ARTICLE 3 - ASSIGNMENT OF WORK

The CONSULTANT shall provide professional services on a task order basis. A copy of the Task Order form and Task Change Order form are attached hereto as Exhibit "C" and Exhibit "D". The COUNTY reserves the right to modify these forms during the term of the Contract. The

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IN WITNESS WHEREOF, the Board of County Commissioners of Palm Beach County, Florida has made and executed this Contract on behalf of the COUNTY and CONSULTANT has hereunto set its hand the day and year above written.

R 2010-1297

AUG 17 2010

ATTEST:

Sharon R. Bock, Clerk & Comptroller

By: [Signature]
Deputy Clerk



PALM BEACH COUNTY
BOARD OF COUNTY COMMISSIONERS:

By: [Signature]
Burt Aaronson, Chair
Steven L. Abrams

WITNESS:

[Signature]
Signature

CHRISTOPHER G. CREED, P.E.
Name (type or print)

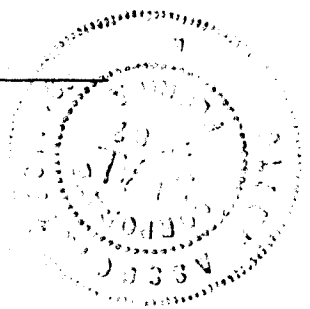
Olsen Associates, Inc.
Company Name

[Signature]
Signature

Erik J. Olsen, P.E.
Typed Name

President
Title

(corporate seal)



APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

By: [Signature]
Assistant County Attorney

APPROVED AS TO TERMS
AND CONDITIONS

By: [Signature]
Richard E. Walesky, Director
Dept. of Environmental Resources Mgmt.

Palm Beach County
Coastal Engineering Services Contract

EXHIBIT B

CATEGORY	SALARY PER HOUR	BURDENED RATE ¹	
Principal	\$77.21	\$210	Certified as of 20 April 2010
Principal II	\$65.44	\$178	
Sr. Engineer	\$55.15	\$150	
Coastal Eng. I	\$41.81	\$114	Source: W-2 (2009) +3%
Coastal Eng. II	\$34.98	\$95	
Coastal Eng. III	\$28.85	\$78	
CAD	\$21.62	\$59	
Adm. Asst. Clerical	\$23.12	\$63	

¹ Multiplier of 2.72

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