

SIXTH AMENDMENT to AGREEMENT

Between

BROWARD COUNTY

and

OLSEN ASSOCIATES, INC.

for

CONSULTANT SERVICES FOR

PORT EVERGLADES INLET SAND MANAGEMENT FEASIBILITY AND
ENGINEERING AND DESIGN

RLI # 022100-RB

SIXTH AMENDMENT to AGREEMENT

Between

BROWARD COUNTY

and

OLSEN ASSOCIATES, INC.

for

CONSULTANT SERVICES FOR

PORT EVERGLADES INLET SAND MANAGEMENT FEASIBILITY AND
ENGINEERING AND DESIGN STUDY

RLI # 022100-RB

This is a Sixth Amendment to the Agreement between BROWARD COUNTY and OLSEN ASSOCIATES, INC., hereinafter referred to as CONSULTANT.

WHEREAS, on January 8, 2002, Item No. 18, the Board of County Commissioners approved an Agreement for services related to preparation of a Port Everglades Sand Bypassing Feasibility, Engineering, and Design Study, hereinafter referred to as "Agreement"; and

WHEREAS, on July 8, 2003, Item No. 49, the Board of County Commissioners approved the First Amendment to the Agreement to add to the Scope of Services, amount of compensation, and time for performance; and

WHEREAS, on August 19, 2005, the Broward County Director of Purchasing approved the Second Amendment to the Agreement to extend the term of the Agreement in order to allow for review time by the State of Florida and to develop a Scope of Work for the next phase of services; and

WHEREAS, on June 20, 2006, Item 53, the Board of County Commissioners approved the Third Amendment to the Agreement in order to incorporate services related to selection of a preferred sand bypassing plan, design development, NEPA documentation, permit submittal and response to agency comments, and agency coordination and liaison; and

WHEREAS, on November 13, 2008, Item 12, the Board of County Commissioners approved the Fourth Amendment to the Agreement in order to provide, at no additional cost, a ten-month extension to the expiration date of the agreement, from December 29, 2008 until October 29, 2009, in order to complete Phase II of the work; and

WHEREAS, on October 27, 2009, Item 53, the Board of County Commissioners approved the Fifth Amendment to the Agreement in order to provide, at no additional cost, a twelve-month extension to the expiration date of the agreement, from October 29, 2009 to October 29, 2010, in order to provide additional technical information to agencies and stakeholders and to complete Phase II of work; and

WHEREAS, Paragraph 6.1 of the Agreement provides for the COUNTY to enter into negotiations with the CONSULTANT to perform the engineering and design work to implement the project and request changes that would increase, decrease, or otherwise modify the Scope of Services to be provided under this Agreement; NOW, THEREFORE,

IN CONSIDERATION of the promises, mutual covenants, and obligations hereinafter stated, the parties hereto agree as follows:

1. Section 1.9 of the Agreement is amended to read as follows:

1.9 County Business Enterprise or "CBE": A small business located in Broward County, Florida, which meets the criteria and eligibility requirements of Broward County's CBE Program and must be certified by Broward County's Office of Economic and Small Business Development.

2. Section 3.1 of the Agreement is amended to read as follows:

3.1 CONSULTANT's services shall consist of the tasks set forth in Exhibit "A-3" and "A-4", attached hereto and made a part hereof. CONSULTANT shall provide all services as set forth in Exhibit "A-3" and "A-4" including all necessary, incidental and related activities and services required by the Scope of Services and contemplated in CONSULTANT's level of effort.

3. Section 3.4 is created to read as follows:

3.4 CONSULTANT shall pay its subconsultants, subcontractors, and suppliers, including its CBE subconsultants, subcontractors, and suppliers, within thirty (30) days following receipt of payment from the COUNTY for such subcontracted work or supplies. CONSULTANT agrees that if it withholds an amount as retainage from such subconsultants, subcontractors or suppliers, that it will release such retainage and pay same within thirty (30) days following receipt of payment of retained amounts from COUNTY.

4. Sections 4.1 and 4.2 of the Agreement are amended to read as follows:

4.1 CONSULTANT shall perform the services described in Exhibit "A-3" within the time periods specified in the Project Schedule included in Exhibit "A-4"; said time periods shall commence from the date of the Notice to Proceed for each task. Tasks 8 and 9 may be withheld if construction of the Port Everglades sand by-passing is not pursued by COUNTY, based on the results of Tasks 1 through 7.

4.2 Prior to beginning the performance of any services under this agreement, CONSULTANT must receive a Notice to Proceed. CONSULTANT must receive a separate Notice to Proceed from the Contract Administrator prior to beginning the performance of services in any subsequent tasks or phases of this Agreement. Prior to granting approval for CONSULTANT to proceed to a subsequent task or phase, the Contract Administrator may, at his or her sole option, require CONSULTANT to submit the itemized deliverables/documents identified in Exhibit "A-3" and "A-4" for the Contract Administrator's review.

5. Section 5.1 of the Agreement is amended to read as follows:

5.1 AMOUNT AND METHOD OF COMPENSATION. COUNTY agrees to pay CONSULTANT as compensation for performance of all services as related to Exhibit "A-3" required under the terms of this Agreement a Lump Sum of Two Million, One Hundred Forty Three Thousand, Nine Hundred Thirty Eight and 00/100 Dollars (\$2,143,938.00). It is understood that the method of compensation is that of Lump Sum which means that CONSULTANT shall perform all services set forth for a total compensation in the amount stated above. Lump sum compensation amounts include expenses incurred by CONSULTANT. No reimbursement of CONSULTANT expenses is authorized by this agreement.

6. Section 5.2 of the Agreement is amended to read as follows:

5.2 METHOD OF BILLING. CONSULTANT shall submit billings which are identified by the specific project number on a monthly basis in a timely manner. These billings shall identify the nature of the work performed, the phase of work, and the estimated percent of work accomplished. Billings for each phase shall not exceed the amounts allocated to said phase. Billings shall also indicate the cumulative amount of CBE participation to date by completing page 2 of Exhibit "B-3," CBE Performance Report. The statement shall show a summary of fees with accrual of the total and credits for portions paid previously. When requested, CONSULTANT shall provide backup for past and current invoices that record hours, salary costs, and expense costs on a task basis, so that total hours and costs by task may be determined.

7. Section 5.7 of the Agreement is renumbered and amended to read as follows:

5.4 Payment will be made to CONSULTANT at:

Olsen Associates, Inc.
2618 Herschel St.
Jacksonville, Florida 32204

8. Section 6.3 is created to read as follows:

6.3 As provided in Section 8.5.1, each proposed contract modification request that, by itself or aggregated with previous modification requests, increases the

contract value by ten percent (10%) or more of the initial contract value, or Fifty Thousand Dollars (\$50,000.00), whichever is less, shall be reviewed by COUNTY for opportunities to include or increase CBE participation. CONSULTANT shall demonstrate good faith efforts to include CBE participation in change order work and shall report such efforts to the Office of Economic and Small Business Development.

9. Section 8.2 is amended to read as follows:

8.2 TERMINATION

8.2.1 This Agreement or any Work Authorization issued under this Agreement may be terminated for cause by the aggrieved party if the party in breach has not corrected the breach within ten (10) days after written notice from the aggrieved party identifying the breach. This Agreement may also be terminated for convenience by the Board. Termination for convenience by the Board shall be effective on the termination date stated in written notice provided by the COUNTY, which termination date shall be not less than thirty (30) days after the date of such written notice. If this Agreement or Work Authorization was entered into on behalf of COUNTY by someone other than the Board, termination by COUNTY may be by action of the County Administrator or the COUNTY representative (including his or her successor) who entered in this Agreement on behalf of COUNTY. This Agreement may also be terminated by the County Administrator upon such notice as the County Administrator deems appropriate under the circumstances in the event the County Administrator determines that termination is necessary to protect the public health or safety. The parties agree that if the COUNTY erroneously, improperly or unjustifiably terminates for cause, such termination shall be deemed a termination for convenience, which shall be effective thirty (30) days after such notice of termination for cause, is provided.

8.2.2 This Agreement may be terminated for cause for reasons including, but not limited to, CONSULTANT's repeated (whether negligent or intentional) submission for payment of false or incorrect bills or invoices, failure to suitably perform the work; or failure to continuously perform the work in a manner calculated to meet or accomplish the objectives as set forth in this Agreement or Work Authorization. This Agreement or a Work Authorization may also be terminated by the Board:

8.2.2.1 Upon the disqualification of CONSULTANT as a CBE by COUNTY's Director of the Office of Economic and Small Business Development if CONSULTANT's status as a CBE was a factor in the award of this Agreement or the Work Authorization, and such status was misrepresented by CONSULTANT;

8.2.2.2 Upon the disqualification of CONSULTANT by COUNTY's Director of the Office of Economic and Small Business Development due to fraud, misrepresentation, or material misstatement by CONSULTANT in the course of obtaining this Agreement or the Work Authorization, or attempting to meet the CBE contractual obligations;

8.2.2.3 Upon the disqualification of one or more of CONSULTANT's CBE participants by COUNTY's Director of the Office of Economic and Small Business Development if any such participant's status as a CBE firm was a factor in the award of this Agreement or the Work Authorization, and such status was misrepresented by CONSULTANT or such participant;

8.2.2.4 Upon the disqualification of one or more of CONSULTANT's CBE participants by COUNTY's Director of the Office of Economic and Small Business Development if such CBE participant attempted to meet its CBE contractual obligations through fraud, misrepresentation, or material misstatement; or

8.2.2.5 If CONSULTANT is determined by COUNTY's Director of the Office of Economic and Small Business Development to have been knowingly involved in any fraud, misrepresentation, or material misstatement concerning the CBE status of its disqualified CBE participant.

8.2.3 Notice of termination shall be provided in accordance with the "NOTICES" section of this Agreement except that notice of termination by the County Administrator which the County Administrator deems necessary to protect the public health, safety, or welfare may be verbal notice that shall be promptly confirmed in writing in accordance with the "NOTICES" section of this Agreement.

8.2.4 In the event this Agreement or a Work Authorization issued under this Agreement is terminated for convenience, CONSULTANT shall be paid for any services properly performed under the Agreement or Work Authorization through the termination date specified in the written notice of termination. CONSULTANT acknowledges and agrees that it has received good, valuable and sufficient consideration from COUNTY, the receipt and adequacy of which are, hereby acknowledged by CONSULTANT, for COUNTY's right to terminate this Agreement for convenience.

8.2.5 In the event this Agreement or a Work Authorization is terminated, for any reason, any amounts due CONSULTANT shall be withheld by COUNTY until all documents are provided to COUNTY pursuant to Section 8.1 of Article 8.

10. Sections 8.4 through 8.5 are amended to read as follows:

8.4 NONDISCRIMINATION, EQUAL EMPLOYMENT OPPORTUNITY, AND AMERICANS WITH DISABILITIES ACT

CONSULTANT shall not unlawfully discriminate on the basis of race, color, national origin, sex, religion, age, marital status, political affiliation, familial status, disability, sexual orientation, pregnancy, or gender identity and expression in the performance of this Agreement, the solicitation for or purchase of goods or services relating to this Agreement, or in subcontracting work in the performance of this Agreement and shall not otherwise unlawfully discriminate in violation of the Broward County Code, Chapter 16½, as may be amended from time to time. CONSULTANT shall include the foregoing or similar language in its contracts with any subcontractors or subconsultants, except that any project assisted by the U.S. Department of Transportation funds shall comply with the non-discrimination requirements in 49 C.F.R. Parts 23 and 26, as amended. Failure to comply with the foregoing requirements is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as COUNTY deems appropriate.

CONSULTANT shall not unlawfully discriminate against any person in its operations and activities or in its use or expenditure of funds in fulfilling its obligations under this Agreement. CONSULTANT shall affirmatively comply with all applicable provisions of the Americans with Disabilities Act (ADA) in the course of providing any services funded by COUNTY, including Titles I and II of the ADA (regarding nondiscrimination on the basis of disability), and all applicable regulations, guidelines, and standards. In addition, CONSULTANT shall take affirmative steps to ensure nondiscrimination in employment against disabled persons.

By execution of this Agreement, CONSULTANT represents that it has not been placed on the discriminatory vendor list (as provided in Section 287.134, Florida Statutes, as may be amended from time to time). COUNTY hereby materially relies on such representation in entering into this Agreement. An untrue representation of the foregoing shall entitle COUNTY to terminate this Agreement and recover from CONSULTANT all monies paid by COUNTY pursuant to this Agreement, and may result in debarment from COUNTY's competitive procurement activities.

8.5 CBE COMPLIANCE

8.5.1 The CBE Program, which is implemented under the County Business Enterprise Act of 2009 (Broward County Ordinance No. 2009-40, as may be amended from time to time), referred to as the "Act," provides for the establishment and implementation of CBE participation goals, initiatives, and other opportunities for COUNTY contracts. In completing this Project, CONSULTANT agrees to and shall comply with all applicable requirements of the CBE Program in the award and administration of the Agreement. Failure by CONSULTANT to carry out any of the CBE

Program requirements shall constitute a material breach of this Agreement, which shall permit COUNTY to terminate this Agreement or to exercise any other remedy available under this Agreement, under the Broward County Administrative Code, under the Broward County Code of Ordinances, or under applicable law, all of which remedies being cumulative. CONSULTANT acknowledges that the Broward County Board of County Commissioners, acting by and through the Director of the Broward County Office of Equal Opportunity, may make minor administrative modifications to the CBE Program which shall become applicable to this Agreement if the administrative modifications are not unreasonable. Written notice of any such modification shall be provided to CONSULTANT and shall include a deadline for CONSULTANT to notify COUNTY if CONSULTANT concludes that the modification exceeds the authority of this section of this Agreement. Failure of CONSULTANT to timely notify COUNTY of its conclusion that the modification exceeds such authority shall be deemed acceptance of the modification by CONSULTANT.

The COUNTY, acting by and through its Office of Economic and Small Business Development, shall have the right to review each proposed amendment, extension, modification, or change order to this Agreement that, by itself or aggregated with previous amendments, extensions, modifications, or change orders increases the initial Agreement price by ten percent (10%) or Fifty Thousand Dollars (\$50,000) whichever is less, for opportunities to include or increase the participation of CBE firms already involved in this Agreement. CONSULTANT shall make a good faith effort to include CBE firms in work resulting from any such amendment, extension, modification, or change order and shall report such efforts, along with evidence thereof, to the Office of Economic and Small Business Development.

8.5.2 COUNTY and CONSULTANT agree that subcontract awards to CBE firms are crucial to the achievement of the Project's CBE participation goal. CONSULTANT understands that each CBE firm utilized on the Project to meet the participation goal must be certified by the Broward County Office of Economic and Small Business Development. In an effort to assist COUNTY in achieving its established goal for this Project, CONSULTANT agrees to meet the following CBE participation goal by utilizing the CBE firms for the work and dollar values described in Subsection 8.5.3:

Total CBE Goal	20%
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CONSULTANT may not terminate for convenience a certified CBE listed as a subcontractor in the CONSULTANT'S bid or offer without the County's prior written consent, which consent shall not be unreasonable withheld. CONSULTANT shall inform COUNTY immediately when a CBE firm is not able to perform or if CONSULTANT believes the CBE firm should be replaced for any other reason, so that the Office of Economic

and Small Business Development may review and verify the good faith efforts of CONSULTANT to substitute the CBE firm with another CBE firm. Whenever a certified CBE subcontractor is terminated for any reason, including for cause, CONSULTANT shall make good faith efforts to find another certified CBE firm to perform the work required of the original CBE firm.

8.5.3 In performing services for this Project, COUNTY and CONSULTANT hereby incorporate CONSULTANT's participating CBE firms, addresses, scope of work, and dollar value identified on the Schedule of CBE Participation into this Agreement (Exhibit "B-3"). Upon execution of this Agreement by COUNTY, CONSULTANT shall enter into a formal contract with the CBE firms CONSULTANT selected to fulfill the CBE participation goal for this Agreement and agrees to provide copies of its contracts with such firms to the Contract Administrator and the Broward County Office of Economic and Small Business Development. CONSULTANT shall not terminate a CBE firm listed on the Schedule of Participation without cause unless CONSULTANT has received COUNTY's prior written consent. CONSULTANT understands that each replacement CBE firm utilized on the Project to meet the participation goal must also be certified by the Broward County Office of Economic and Small Business Development.

8.5.4 CONSULTANT shall allow COUNTY to engage in on-site reviews to monitor CONSULTANT's progress in achieving and maintaining its contractual and CBE Program obligations. Such review and monitoring shall be by the Contract Administrator in conjunction with the Office of Economic and Small Business Development. COUNTY shall have access, without limitation, to CONSULTANT's books and records, including payroll records, tax returns and records, and books of account, on five (5) business day's notice, to allow COUNTY to determine CONSULTANT's compliance with its commitment to the CBE participation goal and the status of any CBE firm performing any portion of this Agreement.

8.5.5 CONSULTANT understands that it is the responsibility of the Contract Administrator and the Broward County Office of Economic and Small Business Development to monitor compliance with the CBE requirements. In that regard, CONSULTANT agrees to furnish monthly reports regarding compliance with its CBE obligations to the Contract Administrator with its partial pay requests under Article 5 of this Agreement, which report shall, as a minimum, include all expenditures made to achieve compliance with its assigned goal or other contractual conditions agreed to by CONSULTANT, the name and business address of each CBE firm participating in this Agreement; a description of the work performed and/or product or service supplied by each CBE firm; the date and amount of each expenditure; and any other information requested by COUNTY's representative which may assist COUNTY in determining CONSULTANT's compliance with its contractual obligations, or which may assist in the implementation and enforcement of the Act. The submission

of the report required by this subsection shall be a condition of payment to CONSULTANT. The monthly reports shall be submitted on a form which may be obtained at the Office of Economic and Small Business Development. The first report shall be due at the end of the first month of this Agreement.

8.5.6 In the event of CONSULTANT's noncompliance with its participation commitment to a CBE firm (including without limitation the unexcused reduction of the CBE firm's participation), the affected CBE firm shall have the right to the following remedies if the noncompliance is or was alleged to be due to no fault of the CBE firm, and alleged to be due to the willful action or omission of CONSULTANT:

8.5.6.1 The affected CBE firm shall be entitled to damages pursuant to its agreement with CONSULTANT.

8.5.6.2 If the CBE firm has the right to arbitrate and institutes arbitration proceedings claiming non-compliance with the Act by CONSULTANT, then in such event the CBE firm may submit the dispute to arbitration. However, arbitration shall not be available as to any dispute between CONSULTANT and COUNTY; nor shall COUNTY incur any cost, fee, or liability relative to any arbitration proceeding.

8.5.6.3 Nothing under this Subsection 8.5.6 shall be construed to limit the rights of and remedies available to COUNTY, including the right to seek its own damages pursuant to this Agreement.

8.5.7 CONSULTANT agrees that nonpayment of a CBE subconsultant, subcontractor or supplier as required by Section 3.4 of this Agreement shall be a material breach of this Agreement and that COUNTY's Contract Administrator may, at its option, increase allowable retainage or withhold progress payments unless and until CONSULTANT demonstrates timely payments of sums due to such subconsultant, subcontractors or suppliers. CONSULTANT agrees that the presence of a "pay when paid" provision in its contract with a CBE firm shall not preclude COUNTY or its representatives from inquiring into allegations of nonpayment. The foregoing remedies under this Subsection 8.5.7 shall not be employed when CONSULTANT demonstrates that failure to pay results from a bona fide dispute with its CBE subconsultant, subcontractor or supplier.

8.5.8 If CONSULTANT fails to comply with the requirements of this Agreement or the requirements of the County Business Enterprise Act of 2009, COUNTY shall have the right to exercise any administrative remedies provided by the Business Opportunity Act of 2004, or any other right or remedy provided in this Agreement or under applicable law, with all such rights and remedies being cumulative.

11. Section 8.10.4 is hereby amended to read as follows:

8.10.4 Business Automobile Liability Insurance with minimum limits of \$500,000 per occurrence combined single limit for Bodily Injury Liability and Property Damage Liability. Coverage must be afforded on a form no more restrictive than the latest edition of the Business Automobile Liability Policy, without restrictive endorsements, as filed by the Insurance Services Office and must include:

Owned vehicles.

12. Section 8.13 is amended to read as follows:

FOR BROWARD COUNTY:

Assistant Director
Environmental Protection and Growth Management Department
1 N. University Drive
Plantation, Florida 33324

FOR CONSULTANT:

Olsen Associates, Inc.
2618 Herschel Street
Jacksonville, Florida 32204

13. Section 8.20 is amended to read as follows:

8.20 THIRD PARTY BENEFICIARIES

Except as specifically provided for under Subsection 8.5.6, neither CONSULTANT nor COUNTY intends to directly or substantially benefit a third party by this Agreement. The parties expressly acknowledge that it is not their intent to create any rights or obligations in any third person or entity under this Agreement. Therefore, the parties agree that there are no third party beneficiaries to this Agreement and that no third party shall be entitled to assert a claim against either of them based upon this Agreement.

14. The Project Schedule is hereby amended as shown on Table 1 to Exhibit "A-3" in the Scope of Work.
15. Except to the extent amended herein, the Agreement shall remain in full force and effect. In the event of any conflict between the terms of the Sixth Amendment and the Agreement, the parties hereby agree that this document shall control.
16. Exhibits "B-1" and "B-2" of the Agreement are hereby deleted and replaced by Exhibit "B-3," comprised of the Schedule of CBE Participation, Schedule of Subconsultant Participation, and Monthly (CBE) Utilization Report, which are attached hereto and incorporated herein.

IN WITNESS WHEREOF, the parties hereto have made and executed this Sixth Amendment on the respective dates under each signature: BROWARD COUNTY through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Mayor or Vice-Mayor, authorized to execute same by Board action on the ____ day of _____, and OLSEN ASSOCIATES, INC., signing by and through its _____, duly authorized to execute same.

COUNTY

ATTEST:

BROWARD COUNTY, by and through its
BOARD OF COUNTY
COMMISSIONERS

Ex-officio Clerk of the Broward
County Board of County Commissioners

Broward County Administrator, as
By _____
MAYOR/VICE-MAYOR

____ day of _____, 20____.

Approved as to Insurance
Requirements by
RISK MANAGEMENT DIVISION

By _____

Approved as to form by
Office of the County Attorney
Broward County, Florida
JEFFREY J. NEWTON, County Attorney
Governmental Center, Suite 423
115 South Andrews Avenue
Fort Lauderdale, Florida 33301
Telephone: (954) 357-7600
Telecopier: (954) 357-7641

By _____
Senior Assistant County Attorney

SIXTH AMENDMENT BETWEEN BROWARD COUNTY AND OLSEN ASSOCIATES, INC., FOR CONSULTANT SERVICES FOR PORT EVERGLADES INLET SAND MANAGEMENT FEASIBILITY STUDY AND ENGINEERING DESIGN IN BROWARD COUNTY, FLORIDA

CONSULTANT

ATTEST:

OLSEN ASSOCIATES, INC.

Secretary

By _____
President

(Please Type Name of Secretary)

(Please type Name of President)

___ day of _____, 20 ___.

(CORPORATE SEAL)

EXHIBIT A-3
TABLE 1
PROJECT COST SUMMARY, SCHEDULE, AND DELIVERABLES
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, FINAL DESIGN, DESIGN DOCUMENTS, BIDDING, AND PRE-CONSTRUCTION SURVEYS

Task	Lump Sum Compensation	Task Schedule (Effective from Issuance of Notice-to-Proceed)	Compensation Running Total	Summary of Deliverables
1. Permitting	\$363,219	0 – 24 months	\$363,219	Permit Related Studies and Activities
2. Establish Erosion Control Line (ECL) North of Port Everglades Inlet	\$35,759	0 – 24 months	\$398,978	Work to Support Efforts to Establish an Erosion Control Line (ECL)
3. Easement Acquisition	\$33,127	0 – 24 months	\$432,105	Work to Support Efforts to Acquire Easements
4. Sand Trap Rock Removal Methods Study and Plan Development	\$696,009	0 – 12 months	\$1,128,114	Summary Report of Findings and Recommendations for Rock Removal Methods
5. Design Surveys	\$49,849	18 – 21 months	\$1,177,963	Survey Data and Report
6. Final Design Development	\$231,080	18 – 30 months	\$1,409,043	Final Project Design
7. Design Documents	\$264,934	21 – 33 months	\$1,673,977	Design Plans and Specifications
8. Bidding Assistance	\$84,346	33 - 36 months	\$1,758,323	Recommendation for Construction Contractor
9. Pre-Construction Field Work/Documentation	\$385,615	30 - 36 months	\$2,143,938	Field Data, Coral Relocation, Reporting, and Pre-Construction Database
Total Phase III	\$2,143,938			

EXHIBIT "B-3"

SCHEDULE OF CBE PARTICIPATION

Project No: RLI #022100-RB
Project Title: Port Everglades Inlet Sand Management
Facility Name: N/A

CBE/Firm	CBE Category	Description	Fees	% of Basic Service Fees
Coastal Eco-Group, Inc.	CBE/SBE	Environmental Consulting	\$400,275.00	18.7%
Total CBE Participation			\$400,275.00	18.7%

SCOPE OF CONSULTANT SERVICES for
 PORT EVERGLADES INLET SAND MANAGEMENT
 RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS



MONTHLY (CBE) UTILIZATION REPORT

Report No. _____

Contract #:	Contract Amount:	Date Form Submitted:	
Project Description:		Project Completion Date:	
Prime Contractor:		Period Ending:	Amt. Paid to Prime:
Contact Person:		Telephone#: ()	Fax#: ()

SUBCONTRACTING INFORMATION

TO BE SUBMITTED TO BROWARD COUNTY SMALL BUSINESS DEVELOPMENT DIVISION

CBE Subcontractor	Address	Description of Work	Original Agreed Price	Revised Agreed Price	% of work Completed to Date	Amount Paid This Period	Amount Paid To Date
Total Amount Paid to Subcontractors to Date:							

I certify that the information submitted in this report is in fact true and correct to the best of my knowledge

Signature:	Title:	Date:
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Note: The information provided herein is subject to verification by the small Business Development Division.

SBDD Compliance Form 2009-MUR

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

1. PERMITTING

1.1 JCP RAI Processing

1.1.1 The CONSULTANT shall provide responses for up to three (3) separate requests for additional information (RAI) from the FDEP Bureau of Beaches and Coastal Systems and up to three (3) separate requests for additional information (RAI) from the US Army Corps of Engineers (USACE). These responses are in addition to those previously provided under Phase II of this Contract.

1.1.2 The CONSULTANT shall exercise due diligence in supplying the information necessary to satisfy the various agencies' criteria for a complete application. It is recognized by the COUNTY and CONSULTANT, however, that each agency may request additional information during the application review process not addressed by this Scope-of-Work.

1.1.3 Obtaining the information to answer the agencies' questions may entail additional research, numerical model studies, and/or fieldwork, CONSULTANT agrees to assist the COUNTY in responding to Requests for Additional Information (RAI's) from the agencies using existing data or data that is developed under this AGREEMENT. Additional studies, numerical modeling, or fieldwork over and above that developed under other provisions of this AGREEMENT will be considered additional work. The intent of this Task is to provide adequate information to the agencies for processing permits and to develop back-up data that will put the COUNTY in a position to respond to issues raised by agencies, environmental groups, and concerned citizens. This task specifically excludes testifying at Administrative or Court Hearings or related meetings for developing a Case with attorneys related to permit issuance or third party challenges.

1.2 Circulation/Turbidity Modeling

1.2.1 The CONSULTANT shall establish, calibrate, and verify a circulation model to simulate flow fields (purely tidal and combined with shelf currents of three different magnitudes and two different directions (i.e., seven (7) total flow condition scenarios) around Port Everglades Entrance and adjacent waters for input to a particle tracking model.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

- 1.2.2** The CONSULTANT shall simulate potential turbidity and sediment spreading, dispersion, and deposition conditions that may occur during excavation of the proposed sand trap and removal of the rubble spoil shoal. The sediment spreading, dispersion, and deposition spilled during the dredging operations will be simulated with a particle tracking model that simulates the transport and fate of suspended substances discharged in the simulated flow fields. For each flow field study, the sediment spill, spreading and deposition shall be computed during one or several dredging cycles occurring during the 15-day period covered by the hydrodynamics.
- 1.2.3** The CONSULTANT shall research information about dredging procedures responsible for turbidity production, including but not limited to position of the dredge as a function of time, mass of sediment spilled per unit time and elevation of bucket above bed/below water surface when spill occurs, sediment and water contents of the spill, duration of the dredging cycle, number of spill events per hour, etc. Dispersion coefficients, key elements of these types of simulations, will be defined on the basis of information available in the literature and/or from experienced gained by the CONSULTANT and dredging industry from similar projects.
- 1.2.4** The CONSULTANT shall evaluate three (3) dredging scenarios that will be considered for each of the seven flow conditions described in Task 1.2.1 above, yielding a total of up to twenty-one particle tracking simulations. These will include two scenarios at the sediment trap and one at the rubble shoal.
- 1.2.5** Deliverables shall include two-dimensional maps of potential suspended sediment concentration (instantaneous and average) and theoretical net sediment deposition (instantaneous and cumulative) for each of the twenty-one flow conditions simulated.

1.3 Section 103 Permit Processing

- 1.3.1** The CONSULTANT shall provide responses for up to three (3) separate requests for additional information (RAI) from the USACE and EPA in support of the Section 103 Permitting. The Section 103 permit will provide for specific authorization to allow disposal of non-beach compatible dredge materials in the Port Everglades Offshore Dredge

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

Material Disposal Site (ODMDS). These responses are in addition to those previously provided under Phase II of this Contract.

- 1.3.2** The CONSULTANT shall exercise due diligence in supplying the information necessary to satisfy the various agencies' criteria for a complete application. It is recognized by the COUNTY and CONSULTANT, however, that each agency may request additional information during the application review process not addressed by this Scope-of-Work.

1.4 MMPA Permit Application/Processing

- 1.4.1** The CONSULTANT shall prepare an application for an Incidental Harassment Authorization allowed under the Marine Mammal Protection Act of 1972. This permit will be required during project construction due to the potential for adverse impacts to marine mammals (e.g. dolphins) associated with confined underwater blasting.

- 1.4.2** The CONSULTANT shall exercise due diligence in supplying the information necessary to satisfy the various agencies' criteria for a complete MMPA Incidental Harassment Authorization. It is recognized by the COUNTY and CONSULTANT, however, that each agency may request additional information during the application review process.

1.5 Submittals/Activities Required by Permit

The CONSULTANT through a qualified SUBCONSULTANT shall develop and carry out a Biological Monitoring Plan detailing the biological monitoring activities to be performed during the pre-construction, construction, and post-construction project phases. The CONSULTANT through the SUBCONSULTANT shall obtain approval of the Biological Monitoring Plan by the FDEP and Federal regulatory and resource protection agencies. Monitoring activities shall include sedimentation and benthic community monitoring, coral relocation and baseline condition assessment, *Acropora cervicornis* monitoring, juvenile sea turtle assessment, and fish population monitoring.

- 1.5.1 Biological Monitoring Plan.** The FDEP and Federal regulatory agencies require submittal of a biological monitoring plan with the permit application in order to document potential project-related impacts to nearshore hardbottom communities and Essential Fish Habitat. The Plan shall establish the number/location of compliance and reference monitoring sites, methods for sediment depth measurements and sediment

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

accumulation on biota, frequency of sediment accumulation monitoring events, and methods for benthic community impact evaluation. The Plan shall also include long-term monitoring of benthic communities at sites adjacent to the sand trap and John U. Lloyd Beach State Park (JUL) beach fill site for the potential effects of trap dredging/fill placement due to sand movement after project construction. It is anticipated that the benthic habitat characterization sites within the secondary impact area will be utilized for the establishment of permanent long-term monitoring sites and that approximately 20 sample sites will be required.

The Plan shall establish the methods for the evaluation of potential impacts to fish populations and utilization of the re-exposed colonized pavement/rubble communities following sand trap construction.

The Plan shall establish protocol for the assessment of colony health and sedimentation/turbidity effects on *Acropora cervicornis* and locations/frequency of monitoring compliance and control sites.

The Plan shall include monitoring protocol to assess sea turtle utilization of the impacted nearshore colonized pavement/rubble communities and re-exposed colonized pavement/rubble communities following sand trap construction.

1.5.2 Coral Relocation Plan. Coral relocation is required by the State and Federal regulatory and resource protection agencies as a component of the avoidance/minimization measures for the project. Coral relocation prior to construction reduces the overall mitigation requirements associated with temporal lag in mitigation function. The CONSULTANT, through a qualified SUBCONSULTANT, shall prepare a plan to address coral colony search, removal, and transplantation prior to sand trap construction. Based upon consultation with FDEP, relocation of all scleractinian coral colonies greater than 10 cm in diameter and octocorals greater than 15 cm in height is expected. The benthic habitat characterization survey results indicate approximately 1,500 scleractinian corals greater than 10 cm in diameter and 100 octocorals greater than 15 cm in height are located within the direct impact area of the sand trap and will be relocated prior to construction. The Segment III mitigation reef is the proposed receiver site for transplanted corals.

1.5.3 Monitoring Plan for Transplanted Corals. Post-transplantation monitoring of the transplanted corals is required by the FDEP, FWC, and

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

Federal regulatory agencies to verify survivorship of the transplanted corals pursuant to the success criteria in the permit conditions. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop a monitoring plan to evaluate stony coral and octocoral transplantation success. Based on previous coordination with FDEP, monitoring of 25 percent of relocated corals for survivorship will be required.

1.5.4 Coral Nursery Site Selection. Mitigation for direct impacts to nearshore hardbottom during project construction involves construction, implementation and maintenance of a coral nursery program. The existing County coral nursery site is at maximum capacity; therefore, a new site must be located for the placement of additional hardbottom substrate. The CONSULTANT, through coordination with a qualified SUBCONSULTANT and the COUNTY, shall locate an appropriate site(s) for placement of the limestone boulder coral nursery. This task shall involve evaluation of remote sensing data and field verification of selected sites.

1.5.5 Coral Nursery Plan. The draft mitigation plan for the project has been conceptually approved by the State and Federal agencies. A final coral nursery plan is required prior to permit issuance as a component of the overall mitigation program for project-related impacts. The CONSULTANT, through coordination with a qualified SUBCONSULTANT and the COUNTY, shall develop and obtain State and Federal regulatory and resource agency approval of the coral nursery mitigation plan. Based on coordination with FDEP and Federal resource protection agencies and submittal of the draft mitigation plan, the plan components shall include:

- number of corals/year for search and reattachment not to exceed 3,000 corals for the life of the nursery. Based on the UMAM evaluations for the project, 3,000 corals are needed to repopulate the natural hardbottom areas in Broward County at the existing mean density of 1 colony/m².
- timing of construction and relocation of corals
- post-storm collections to identify and collect newly dislodged corals
- annual monitoring/maintenance of coral nursery

1.5.6 Mitigation Success Monitoring Plan. The second component of the draft mitigation plan to offset direct impacts to hardbottom communities is re-

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

exposure of consolidated hardbottom from partial removal of the rubble shoal and crest. The benthic habitat landscape will be substantially improved with the removal of rubble, and the habitat should return to re-exposed colonized pavement with a minor rubble component. As required by the project permits and to validate the predictions for re-exposure of natural hardbottom in the UMAM analysis, the CONSULTANT through the qualified SUBCONSULTANT shall develop a monitoring plan to evaluate mitigation success of re-exposure of rubble/colonized pavement following sand trap construction. The plan shall include methods to verify amount of exposure by habitat type, persistence of exposure/benthic communities, and evaluation of habitat similarity between pre-impact rubble/colonized impact benthic community and re-exposed colonized pavement/rubble benthic community.

- 1.5.7 Physical Monitoring Plan.** The CONSULTANT shall develop a monitoring plan to evaluate the physical performance and effects of the sand bypass project. The monitoring shall specifically evaluate project related effects to the beaches immediately north and south of Port Everglades Inlet, the inlet channel, sand trap, interior shorelines and waterways, and the adjacent nearshore area. The physical monitoring plan will also include requirements for monitoring of the available sand volume in the sand trap and the condition and potential periodic need for sand along the downdrift JUL shoreline (i.e., the beach disposal site).
- 1.5.8 Marine Species Protection Plan.** The CONSULTANT, through a qualified SUBCONSULTANT, shall development a marine species protection plan for submittal to and approval by the COUNTY and other appropriate regulatory agencies. The Marine Species Protection Plan shall have two components: 1) Watch Plan (observation and monitoring of marine species in the blasting zone, and in safety and watch zones around the immediate blasting area); and 2) Mitigation Plan to lessen the potential impacts of rock removal techniques on marine species by utilization of special blast design techniques to ensure the appropriate sizes of the safety and watch zones. The plan shall be formulated and provided in accordance with agency requirements.
- 1.5.9 Marine Watch Plan for Listed Species and Fish.** The CONSULTANT, through a qualified SUBCONSULTANT, shall develop a Marine Watch Plan for listed species and fish for implementation during construction if blasting is used. The watch plan shall include observation and monitoring

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

of marine mammal and fish species in identified safety and watch zones around the immediate project area. The plan shall be formulated in coordination with the FWC and USFWS. The CONSULTANT, through the qualified SUBCONSULTANT, shall obtain final approval of the plan by the state and federal regulatory and resource protection agencies.

1.6 Meetings

The CONSULTANT and appropriate SUBCONSULTANTS shall attend up to six meetings in Tallahassee, Broward County, West Palm Beach, and/or Jacksonville with regulatory and resource agencies during the permit application review process to answer or address questions or matters regarding the project.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

**2. ESTABLISH EROSION CONTROL LINE (ECL) NORTH of PORT
EVERGLADES INLET**

2.1 Establish Erosion Control Line

Chapter 161.141, Florida Statutes, requires that an Erosion Control Line (ECL) be established in a beach nourishment area as the permanent delineation of the boundary of State-owned submerged lands and lands owned by others. An ECL has previously been established along most of the John U. Lloyd Beach State Park shoreline; however an ECL must be established along areas north of the inlet where an ECL does not presently exist and some limited sand placement is planned to occur during initial construction of the project.

2.2 CONSULTANT shall coordinate with the FDEP in implementing the procedures for setting the ECL. CONSULTANT shall locate positions of the mean high water (MHW) line at approximately 100 feet on center along the project beach. The CONSULTANT shall contract with a Professional Land Surveyor, licensed in the State of Florida, to prepare a plat of the ECL and a legal description, and will submit same to FDEP for review and approval. In areas where seawalls or similar structures are located seaward of the MHW line, the ECL will, subject to FDEP approval, be located on the seaward face of the structure so that the structure remains in the ownership of the upland property owner. CONSULTANT will prepare a list of beachfront property owners with their addresses as shown on the County tax records. COUNTY will send a Public Notice to each owner as required by State law. CONSULTANT will prepare for and assist the COUNTY in conducting a Public Hearing. Upon approval by the State of the ECL, COUNTY will record the platted line in the Official Records of Broward County, and pay all appropriate recording fees.

2.3 In addition to the meetings specified in Task 1.6, the CONSULTANT shall also attend up to two (2) meetings and one (1) Public Hearing in Broward County in support of adoption of the Erosion Control Line.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

3. EASEMENT IDENTIFICATION and ACQUISITION ASSISTANCE

3.1 Easement Identification

The CONSULTANT shall work to identify all areas of the shorefront, upland, and submerged lands for which temporary access, consent-of-use agreements and/or other easements may be required for the implementation of the sand bypass project. This effort may include travel to Broward County and Tallahassee for meetings with COUNTY, State, USACE, and local interests. The CONSULTANT shall attend up to three (3) in either Broward County or Tallahassee in support of this task.

3.2 Acquisition Assistance

The CONSULTANT shall assist the COUNTY in securing easements and consent-of-use agreements required to implement the project. Support shall include the formulation of draft easement documents, supporting graphics, and legal descriptions of easement areas. This task does not include field surveys of properties upon which easements may be required. In addition to meetings referenced in previous tasks, the CONSULTANT shall attend up to three (3) meetings in Broward County in support of this task.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

4. SAND TRAP ROCK REMOVAL METHODS STUDY and PLAN DEVELOPMENT

To address concerns related to the proposed rock removal methods and potential effects to adjacent buildings and infrastructure associated with construction of the proposed Port Everglades sand Bypass Project sand trap, the CONSULTANT in cooperation with qualified SUBCONSULTANTS shall collect additional data and perform additional detailed analyses to evaluate/verify feasible rock removal methods, verify the need for controlled underwater blasting, and develop criteria for the rock removal program to protect adjacent buildings, infrastructure, and the environment.

4.1 Field Data Collection and Testing

4.1.1 Geotechnical Data. Additional geotechnical data collection is required to more accurately evaluate subsurface rock conditions in the proposed sand trap, rock removal alternatives, and the vibration climate in the project area. The additional information will assist in developing a more accurate rock removal plan design and improved vibration control plan. It will also provide more accurate information to potential bidding dredging contractors.

4.1.1.1 Field Exploration. The CONSULTANT, through a qualified SUBCONSULTANT, shall collect up to ten (10) core borings within the proposed sand bypass sediment trap. The cores will extend to an average elevation of -55 feet Mean Low Water (MLW). The cores will be drilled to within 10 to 15 feet of the pre-specified locations using a hand-held GPS unit. The work will be performed with a jack-up barge-mounted drill rig using rotary wash techniques. Since the primary zone of interest is the limestone and sandstone rocks at the site, the cores will be advanced through the near-surface sand layers without obtaining samples. Upon encountering rock, continuous core samples will be recovered using a core barrel having a minimum inside diameter of 3.5 inches and lined with a split inner barrel to improve the core recovery. Coring will be performed in accordance with ASTM D2113. Percent recovery and Rock Quality Designation (RQD) will be measured and recorded for each core run. The core samples will be labeled, photographed, and stored in wooden core boxes.

4.1.1.2 Laboratory Testing. The rock cores collected during the field investigation will be tested in the laboratory to evaluate the

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

strength and hardness characteristics. Tests to be performed include determination of specific gravity, unit weight, unconfined compressive, split tensile strength, and P-wave velocity. Laboratory testing will be performed in accordance with ASTM methods D792, D2938, and D3967. Samples that are not selected for laboratory testing will be retained by us for up to 60 days after the drilling, after which time the samples will be transferred to the COUNTY, or will be discarded.

4.1.1.3 Factual Data Geotechnical Report. Based on boring and laboratory data, the CONSULTANT, through a qualified SUBCONSULTANT, shall prepare a factual data report presenting the results of the field exploration and laboratory testing. The report shall contain a core location plan, core logs in electronic format with laboratory test results displayed on the logs. The laboratory test results will also be summarized in tabular form. The data from the boring logs will also be displayed graphically on idealized subsurface profiles.

4.1.2 Evaluation of Existing Utilities. The CONSULTANT, through a qualified SUBCONSULTANT, shall evaluate the location of utilities in close proximity to the proposed project area and assess their susceptibility to vibration. The results from this study will be incorporated in a vibration control plan. Location of utilities will be accomplished by using the State of Florida One Call System, performing a desktop review of available plans from utility owners, as well as performing on site interviews with maintenance personnel as feasible. This task does not include use of divers to verify conditions.

4.1.3 Evaluation of Point of Americas Air Conditioning Wells. The CONSULTANT, through a qualified SUBCONSULTANT, shall research the present condition and efficiency of the two air conditioning wells (AC) located on the south side of the Point of the Americas (POA) buildings and will assess the susceptibility of the wells to ground vibration that could be generated by rock removal activities. Recommendations from this study will be incorporated in the vibration control plan. The CONSULTANT assumes that POA data and information to the AC wells will be made available to the COUNTY and CONSULTANT. This task will also include interviews of POA maintenance personnel, as appropriate. This task specifically excludes the use of any geophysical

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

testing or physical examination of well condition other than can be observed from the ground surface.

4.2 Evaluation of Excavation Methods

4.2.1 Dredging Equipment Availability. US dredge industry equipment availability and capability changes continually. Accordingly, the CONSULTANT shall review the present state of the North American dredging market with respect to equipment availability and capabilities. The CONSULTANT shall interview representatives from appropriate US dredging companies in order to determine the availability and capabilities of dredging equipment presently available in the US market. The findings of this review will be used as a basis for determining/verifying the rock removal techniques which may be appropriate for rock excavation of the sand trap. The findings of this task shall be summarized with recommendations in a memorandum of findings.

4.2.2 Cost-Benefit Study of Rock Excavation Methods. The goal of this task will be to determine the relative costs versus overall benefits for available rock removal methods, including mechanical excavation alone, mechanical excavation with blasting, among others.

The CONSULTANT, through a qualified SUBCONSULTANT, shall review the methods available to excavate rock in marine environments and make an economic comparison of these methods. Dredging contractors and owners of other recent regional projects will be interviewed to refine the cost estimates of each method, identify potential risk factors and potential effects to the environment and constructability. The methods will be analyzed and compared to determine the relative time and cost to permit and implement each.

4.2.3 Verification of Blasting Option. The goal of this task will be to reconfirm that blasting should be an option for sand trap rock removal.

4.2.3.1 *Analysis of Geotechnical Data.* The CONSULTANT, through a qualified SUBCONSULTANT, shall review available geotechnical information for the project area to determine rock hardness characteristic and feasible rock removal methods including blasting and mechanical excavation.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

4.2.3.2 Review and Report on Blasting Option. The CONSULTANT, through a qualified SUBCONSULTANT, shall consider the review of available dredging equipment, the cost/benefit analysis of different rock removal techniques and the review of the additional geotechnical data collected, and determine whether blasting should be available to contractors as an optional tool for rock excavation. The CONSULTANT shall prepare a report that summarizes the excavation methods study and present recommendations regarding the excavation methods that should be available for construction. This is to specifically include a discussion regarding the potential pros and cons of blasting.

4.2.4 Report. The CONSULTANT, in cooperation with a qualified SUBCONSULTANT, shall prepare a report that summarizes the findings of the excavation method evaluation. The report shall specifically discuss the available excavation methods, given geotechnical conditions and equipment currently available in the US dredge fleet.

4.3 Technical Feasibility Study of Blasting as a Rock Removal Option. The CONSULTANT, through qualified SUBCONSULTANT, shall evaluate the technical feasibility of blasting within the proposed sand trap with specific attention to the potential effects upon adjacent buildings and infrastructure. The evaluation shall be based upon the development and application of vibration and structure response models.

4.3.1 Site Specific Vibration Attenuation Model. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop a ground vibration attenuation model using ‘signature-hole analysis’ to generate reduced-scale ground motion energy. This technique employs the generation of a ground vibration signal, with an array of close-in seismographs measuring the propagation of vibrations away from the point source. A minimum of three, single-hole tests will be performed to obtain statistically significant data for correlations. The single-hole attenuation model will be scaled up to production blast vibration data available in public literature for the same rock type and ground conditions for use in blast design and predicting ground vibrations. The purpose of this task will be to develop a ground vibration attenuation model that can be used to predict peak vibrations as a function of distance and explosive charge weight for use in predicting structure motions and for blast design.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

- 4.3.2 Comparable Structure Response Modeling.** Selected structures close to the proposed project area will be used as model structures to predict the effects of blasting on structure movements. Ground motion time histories for production-scale blasts from comparable sites will be used to form a series of response spectra from which structure displacements and resulting wall strains may be estimated. The goal of this task will be to describe “worst-case” or highest possible structure displacements and wall strains for structures comparable to those near the planned blast site for full-scale blasting based on vibration data from representative sites.
- 4.3.3 Site-Specific Structure Response Modeling.** In the event that blast-scale energy is available for single-hole tests either at the site or a representative site, selected structures will be instrumented with velocity transducers and crack displacement gages to assess structure motions in response to ground excitations. Instruments will be strategically placed on structures to monitor the effects of ‘signature-hole’ tests on wall motions and to compute global strains in comparison with motions from other environmental forces such as weather and human activities. Predictive models will be used to scale up ground vibrations resulting from a single blast hole to production blasts incorporating multiple blast holes, and to estimate structure motions. The results of this study will be incorporated into the vibration control plan and as criteria for blast design. The goal of this task will be to describe “worst-case” or highest probable displacements and wall strains for structures near the planned blast site based on direct measurements of representative structure motions during blast-scale excitations.
- 4.3.4 Report.** The CONSULTANT, in cooperation with a qualified SUBCONSULTANT, shall prepare a report that summarizes the findings of the blasting feasibility study. The report shall specifically include guidance, based upon the analyses described herein, related to the application of blasting and required methods to protect upland buildings and infrastructure and the environment.
- 4.4 Public Outreach and Education Program.** Negative connotations typically associated with blasting often arise from lack of knowledge of the blasting procedure and effects. Therefore the CONSULTANT, through a qualified SUBCONSULTANT, shall develop a program that can be used to coordinate with and educate COUNTY and other local municipality representatives, property owners, stakeholders and the general public as to the nature and effects of blasting

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

as a possible method to fracture the in-situ bedrock in preparation for mechanical excavation.

4.4.1 Outreach

4.4.1.1 Meetings with COUNTY and Stakeholders. The CONSULTANT in coordination with the qualified SUBCONSULTANT shall conduct meetings, over a 2 to 3 day visit to Broward County, with the COUNTY and other stakeholders to refine the project timeline, conduct an assessment of the potential impact on the community, and complete the planning for community meetings and dissemination of public information. A format for the community meetings will be established before this time.

4.4.1.2 "Zone of perceived impact". The CONSULTANT in coordination with a qualified SUBCONSULTANT shall define the "zone of perceived impact" or distance from the project site beyond which vibrations should no longer be readily detected by persons residing inside structures. By carefully selecting a distance from the project site beyond which property owners are not expected to perceive vibrations and possibly become worried about structure damages, a distance limit can be placed on the portion of the community within which structure condition surveys may be offered. This limit will be defined with the information available at the time and based on the results of our studies performed in earlier tasks.

4.4.1.3 Community Relations Program. Based on prior tasks, the CONSULTANT, through a qualified SUBCONSULTANT, shall develop a community relations plan comprised of 1) date, time, location, and outline of presentations and 2) means of communication with community and association leaders prior to and during meetings.

4.4.2 Public Education and Communication

4.4.2.1 Public Awareness Documentation. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop appropriate and project-specific public awareness documentation that may include pamphlets, flyers, and posters suitable for dissemination to the general public for information.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

4.4.2.2 Website. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop a website dedicated to public awareness and education for the project. The website will answer questions and address concerns about rock excavation methods. This new website will be aligned with existing websites produced by the COUNTY and other stakeholders, to ensure consistent and reliable dissemination of project-specific information. Any website development shall be coordinated with the Broward County Office of Public Communications.

4.4.3 Community Meetings. The CONSULTANT, through a qualified SUBCONSULTANT, shall facilitate and conduct two community meetings and workshops to disseminate public information regarding the rock removal program. It is assumed that these meetings will be scheduled on two consecutive days.

4.4.4 Post-Meeting Assessment and Problem Resolution. The CONSULTANT, in coordination with a qualified SUBCONSULTANT, shall conduct an assessment of documented concerns and issues voiced by the COUNTY and stakeholders and attempt to address specific concerns identified for resolution.

4.5 Permitting of Rock Removal Program. The CONSULTANT, through a qualified SUBCONSULTANT, shall work to obtain applicable permits for the selected rock removal approach or approaches. Appropriate due diligence shall be used in applying for and facilitating the approval of the necessary permits for rock removal from the local, state, and federal authorities. This task is only related to the permit required to perform the act of rock removal and does not pertain to other required environmental permitting that may also be required for project.

4.6 Criteria for Construction Solicitation. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop the specific criteria to be utilized for solicitation of marine contractors to perform blasting operations.

4.6.1 Review advances in best practices from similar marine blasting programs. The CONSULTANT, through a qualified SUBCONSULTANT, shall review international marine blasting programs successfully completed in recent years and summarize advances in best practices from these programs. At least three blasting programs of similar size and complexity shall be incorporated in this review. Project Managers

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

and contractors/subcontractors on these projects shall be interviewed to disseminate the pertinent information on these projects.

4.6.2 Review project specifications of other recent marine blasting contracts in the USA. The CONSULTANT, through a qualified SUBCONSULTANT, shall review the project specifications and requirements for marine blasting projects conducted in the USA within the past 5 years and summarize the pertinent requirements pertaining to mitigation of the impact of blasting on the immediate environment to the project area.

4.6.3 Develop performance criteria for the controlled blasting program. The CONSULTANT through a qualified SUBCONSULTANT shall develop performance criteria for a controlled marine blasting program, based on the information gathered through efforts described in Tasks 4.2, 4.3 and 4.4.

4.7 Marine Drilling and Blasting Plan Formulation. The goal of this task will be to develop elements of a marine blasting program to be implemented during construction of the sand trap if blasting is used. The various elements of the drilling and blasting program will describe the terms and conditions under which the dredging constructor will be required to operate to maximize construction efficiency and minimize effects to the surrounding environment.

4.7.1 Blast Plan. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop a blast plan suitable for submittal to the COUNTY, stakeholders and the appropriate regulatory agencies for approval of blasting for the project. The plan document will incorporate all the elements for a test blast program and for production blasting. The blast plan will be in compliance with typical US Army Corps of Engineers, State of Florida, and local requirements for marine blasting programs. The plan will be delivered as two written copies and one compact disc (CD).

4.7.2 Vibration Control Plan. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop a vibration control plan and submit the plan to the COUNTY and the appropriate regulatory agencies for approval of blasting for the project. The plan will be provided in accordance with agency requirements.

4.7.3 Marine Species Protection and Underwater Overpressure Control Plan Support. The SUBCONSULTANT associated with development of

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

a blasting program shall develop and provide information related to the blasting program that will be used to formulate a marine species protection plan.

4.7.4 Engineering Cost Estimate for Drilling and Blasting. The CONSULTANT, through a qualified SUBCONSULTANT, shall develop an opinion of the probable cost to implement a marine blasting program. Based on the content developed in the sections above, the opinion of the probable cost shall consider the following items:

- Pre-Construction Survey of Structures & Utilities
- Test Blast Program
- Production Blasting
- Monitoring of Blast-Induced Ground Vibration and Air Overpressure
- Monitoring of Underwater Overpressure
- Marine Species Protection
- Post-Construction Survey of Structures & Utilities

This estimate will not include any other parts of the construction program and includes only the above elements of a typical controlled drilling and blasting program to fracture the in-situ bedrock in preparation for subsequent mechanical removal by the appropriate dredging equipment.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

5. DESIGN SURVEYS

5.1 Topographic/Hydrographic Survey

The CONSULTANT shall provide updated topographic/hydrographic survey data of the sand trap excavation area, north beach within 5,000 feet of the north jetty, the north jetty, rubble spoil shoal, and northside channel interior shoreline in support of final design efforts. The survey data shall be used along with the most recent LADS survey of the general area to describe existing conditions and update expected excavation quantities.

5.2 Jet Probes

The CONSULTANT shall collect up to twenty (20) jet probes in the vicinity of the Port Everglades Inlet north jetty in an attempt to better define the subsurface condition of the jetty foundation and extent of location of subterranean jetty rock. The information collected during this field data collection effort shall be incorporated in to the final project design plans.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

6. FINAL DESIGN DEVELOPMENT

6.1 Hardbottom Habitat Mitigation

6.1.1 The CONSULTANT shall develop a mitigation design suitable to meet the objectives of the proposed project mitigation approach and, if structural in nature, the physical, environmental, and stability criteria agreed upon/required by the State and Federal regulatory and resource agencies.

6.1.2 In support of mitigation structure design, if applicable, the CONSULTANT shall perform a hydraulic stability analysis of a nearshore mitigation structure. The analysis shall consider the location, water depth, and typical wave climate to which the mitigation structure might be exposed. The analysis shall also consider the material type and other physical characteristics of the material agreed upon with the agencies for use as the mitigation. Deliverables shall include an engineering report with a summary and recommendations suitable for submittal to the County, State, and Federal resources and regulatory agencies.

6.1.3 The CONSULTANT shall incorporate the most current information from preliminary design in order to formulate a final design for the Port Everglades Sand Bypass Project mitigation. Such information may include, as appropriate, the surveys, agencies' comments, permit conditions, and the latest available modeling results. The final design shall reflect the most current Federal and State requirements with respect to the Environmental Assessment (EA) and the applicable project permits.

6.2 Sand Trap/Jetty Extension/Shoal Removal

6.2.1 The CONSULTANT shall incorporate the most current information into the preliminary design in order to formulate a final design for the project. Such information may include, as appropriate, the latest surveys, agency comment and permit conditions, latest modeling results, blast plan, and quarry inspection results. The final design shall reflect the most current Federal and State requirements with respect to the preliminary design, the EA, and applicable permits.

6.3 JUL Offloading Infrastructure

6.3.1 The CONSULTANT shall coordinate with the Florida Division of Recreation and Parks and John U. Lloyd Beach State Park Staff to identify

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

the optimal location and configuration of permanent infrastructure in the Park to accommodate sand handling, transfer, and placement onto the beach within the Park limits. It is expected that some form of a permanent conduit/pipeline may be required to be located under the existing Park roadway to accommodate the transfer of sand during each sand bypassing event. The purpose of a permanent conduit/pipeline would be to minimize disruptions to Park operations and repeated impacts to the Park roadway.

- 6.3.2** The CONSULTANT shall prepare the necessary documents to secure required easements and use agreements from the State of Florida for sand offloading, sand transfer, beach placement and other sand bypass-related activities within the State Park.
- 6.3.3** The CONSULTANT shall research and map the location of existing utilities within the State Park in the area where sand bypass activities will occur within the Park. This information shall be used to guide planning and design for permanent infrastructure and construction activities.
- 6.3.4** Discussions with Florida Park Service staff indicate that required permanent infrastructure and modifications to the Park roadway could be performed by the Florida Division of Recreation and Parks during the development of a proposed boat launch facility on the north side of Whisky Creek. The CONSULTANT shall provide to the Division recommendations and technical guidance and information regarding the desired size, location, and configuration of any permanent infrastructure that may be required to accommodate future sand bypass operations within the Park.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

7. DESIGN DOCUMENTS

7.1 Hardbottom Habitat Mitigation

7.1.1 The CONSULTANT shall prepare construction plans for the mitigation structure, if a structure for mitigation is proposed and approved by the agencies. Construction plans shall include, but not be limited to, the project aerials, bathymetric charts, applicable geotechnical data, benthic survey data and other information required for complete plans. CONSULTANT shall provide COUNTY with reproducible electronic files (i.e., PDF format) of the final plans.

7.1.2 The CONSULTANT shall prepare elements of the Project Manual that include the Bid Schedule, Supplemental General Conditions, Technical Provisions, and Environmental Protection Requirements for the mitigation.

7.1.3 The CONSULTANT shall provide up to three (3) revisions of the applicable portions of the plans and specifications that may be required by County, State and Federal reviews.

7.1.4 The CONSULTANT shall provide to the COUNTY an electronic version of the Bid Schedule, Supplemental General Conditions, Technical Provisions, and Environmental Protection Requirements for incorporation in to the COUNTY's final Project Manual document. The CONSULTANT shall be available to assist the COUNTY with final QA/QC review of the Project Manual prior to solicitation of bids or proposals.

7.2 Sand Trap, Jetty Structures, and Rubble Shoal Removal

7.2.1 The CONSULTANT shall prepare construction plans for the project improvements associated with establishment of a sand trap on the north side of Port Everglades Inlet. Construction plans shall include, but not be limited to the inclusion of the project aerials, bathymetric charts, applicable geotechnical data, and other information required for complete plans. CONSULTANT shall provide COUNTY with reproducible electronic files (i.e., PDF format) of the final plans.

7.2.2 The CONSULTANT shall prepare elements of the Project Manual that include the Bid Schedule, Supplemental General Conditions, Technical

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

Provisions, and Environmental Protection Requirements for the Port
Everglades Sand Bypass Project.

- 7.2.3** The CONSULTANT shall provide up to three (3) revisions of the
CONSULTANT's portion of plans and specifications that may be required
by County, State and Federal reviews.
- 7.2.4** The CONSULTANT shall provide to the COUNTY an electronic version
of the Bid Schedule, Supplemental General Conditions, Technical
Provisions, and Environmental Protection Requirements for incorporation
in to the COUNTY's final Project Manual document. The
CONSULTANT shall be available to assist the COUNTY with final
QA/QC review of the Project Manual prior to bid.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

8. BIDDING ASSISTANCE

8.1 Hardbottom Habitat Mitigation

- 8.1.1** Prior to the initiation of the bid process, CONSULTANT shall provide the COUNTY with a list of contractors and subcontractors which have the experience, qualifications, and expertise to carry out the various elements of the project.
- 8.1.2** CONSULTANT shall assist the COUNTY in conducting one (1) pre-bid conference and one (1) field visit to the project locations, at which CONSULTANT shall be available to answer technical and engineering questions related to the project. CONSULTANT shall prepare and distribute a technical summary of the project to each attendee at the pre-bid meeting and walk-through within three (3) work days of the event(s).
- 8.1.3** CONSULTANT shall provide timely responses to the inquiries of prospective bidders by using written addenda. The queries and responses shall be documented and a record of each shall be transmitted to Contract Administrator on a same day basis. CONSULTANT shall prepare and distribute necessary addenda as approved by the Broward County Purchasing Division and the Contract Administrator. CONSULTANT shall provide Contract Administrator with potential construction cost estimate and scheduling impacts for each addendum.
- 8.1.4** CONSULTANT shall reproduce and mail bid documents within three (3) days of receiving a request and payment for the documents from potential bidders or other parties and shall notify Contract Administrator promptly of each distribution.
- 8.1.5** Within seven (7) days of bid opening CONSULTANT shall provide to COUNTY an evaluation of the bids for technical completeness, full responsiveness to technical requirements, and price, including alternative prices and unit prices, and shall make a written recommendation to Contract Administrator with respect to award of the contract. Non-technical bid requirements shall be evaluated by the COUNTY.
- 8.1.6** CONSULTANT shall be available to appear before the Broward County Board of County Commissioners or other COUNTY body in order to answer questions regarding the capabilities and qualifications of the project bidders.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

8.2 Sand Trap, Jetty Structures, and Rubble Shoal Removal

- 8.2.1** Prior to the initiation of the bid process, CONSULTANT shall provide the COUNTY with a list of potential contractors and subcontractors which have the experience, qualifications, and expertise to carry out the various elements of the project. Note – the number of existing qualified contractors nationally capable of constructing the project dredging/excavation will be extremely limited.
- 8.2.2** CONSULTANT shall assist the COUNTY in conducting one (1) pre-bid conference and one (1) field visit to the project location, at which CONSULTANT shall be available to answer technical and engineering questions related to the project. CONSULTANT shall prepare and distribute a technical summary of the project to each attendee at the pre-bid meeting and walk-through within three (3) work days of the event(s).
- 8.2.3** CONSULTANT shall provide timely responses to the inquiries of prospective bidders by using written addenda. The queries and responses shall be documented and a record of each shall be transmitted to Contract Administrator on a same day basis. CONSULTANT shall prepare and distribute necessary addenda as approved by the Broward County Purchasing Division and the Contract Administrator. CONSULTANT shall provide Contract Administrator with potential construction cost estimate and scheduling impacts for each addendum.
- 8.2.4** CONSULTANT shall reproduce and mail bid documents within three (3) days of receiving a request and payment for the documents from potential bidders or other parties, and shall notify Contract Administrator promptly of each distribution. CONSULTANT may charge a reasonable fee to requestors of bid documents. CONSULTANT shall not charge COUNTY for reproduction and distribution of bid documents.
- 8.2.5** Within seven (7) days of bid opening CONSULTANT shall provide to COUNTY an evaluation of the bids for technical completeness, full responsiveness to technical requirements and price, including alternative prices and unit prices, and shall make a written recommendation to Contract Administrator with respect to award of the contract. Non-technical bid requirements shall be evaluated by the COUNTY.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

- 8.2.6** CONSULTANT shall be available to appear before the Broward County Commission or other COUNTY body in order to answer questions regarding the capabilities and qualifications of the project bidders.

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS

SCOPE-OF-WORK

10/6/2010

9. PRE-CONSTRUCTION FIELD WORK/DOCUMENTATION

9.1 Pre-Construction Environmental Surveys (Baseline Conditions)

The CONSULTANT, through a qualified SUBCONSULTANT, shall monitor the hardbottom communities within the direct and indirect impact areas prior to project commencement in accordance with the approved biological monitoring plan. Monitoring efforts shall include:

- A single pre-construction event to establish baseline conditions of the benthic community for the evaluation of sedimentation/ turbidity impacts related to sand trap construction.
- A single pre-construction event to establish baseline conditions for the long-term monitoring of benthic communities adjacent to the sand trap.
- A single pre-construction event to document and evaluate the condition of *Acropora cervicornis* colonies located within the indirect impact area and control sites

9.2 Coral Removal/Transplantation

The CONSULTANT, through a qualified SUBCONSULTANT, shall conduct a colony search, removal, and transplantation of octocoral and scleractinian coral colonies and conduct a baseline survey of the condition of the transplanted corals according to the approved monitoring plan. The CONSULTANT, through a qualified SUBCONSULTANT, shall prepare and submit a baseline report which documents the method of reattachment for scleractinian corals and octocorals, total number of transplanted scleractinian corals and octocorals, number of transplanted colonies of each species, number of colonies on mobile substrate (i.e. rubble) relocated, number of relocated colonies removed from consolidated hardbottom, DGPS coordinates of reattached colonies/groups within the transplantation receiver sites, and evaluation of tagged subset (25% each) of transplanted octocoral and scleractinian corals and controls for the long-term assessment of colony survivorship and health. Representative still photographs of the reattached corals shall be included to document the visual assessment of colony health.

9.3 Reporting

The CONSULTANT, through a qualified SUBCONSULTANT, shall prepare and submit a pre-construction baseline report within 90 days of completion of the pre-construction survey in accordance with the approved biological monitoring plan

SCOPE OF CONSULTANT SERVICES for
PORT EVERGLADES INLET SAND MANAGEMENT
RLI #022100-RB

**PHASE III: CONTINUED PERMITTING, ROCK REMOVAL STUDY, DESIGN, DESIGN
DOCUMENTS, BIDDING and PRE-CONSTRUCTION SURVEYS**

SCOPE-OF-WORK

10/6/2010

and State and Federal permit requirements. Five (5) hard copies and ten CD's or DVD's containing electronic copies of the pre-construction baseline report shall be prepared. All maps shall be provided in ESRI *.shp and associated file format, georeferenced to NAD83, Florida State Plane, US feet.