

CONSULTING SERVICE AUTHORIZATION

DATE: _____

CONSULTANT: CB&I Environmental & Infrastructure, Inc.

SERVICE AUTHORIZATION FOR CONSULTING SERVICES, No. 2

CITY P.O. NO. _____

CITY EXPENSE CODE 332-4164-572-31.30

CITY PROJECT NO. 12-070

CONSULTANT PROJECT NO. _____

TITLE: 2016 Delray Beach, Beach Renourishment Project, Third Year Post Construction Monitoring

This Service Authorization, when executed, shall be incorporated in and shall become an integral part of the contract between **CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.** and the **CITY OF DELRAY BEACH** dated August 26, 2015.

SCOPE OF SERVICES:

The following tasks are included in this scope of services:

1. **Program Administration:** Program administration includes State and Federal agency coordination and reporting, City meetings as required, project planning, budget projections, funding acquisition assistance and other associated administrative tasks.
2. **Third Year Post-Construction Physical Monitoring Survey:** In compliance with the Physical Monitoring Plan of the Florida Department of Environmental Protection (FDEP) permit for the project, topographic (onshore) and bathymetric (offshore) surveys of the beach and offshore in Delray Beach will be conducted during the summer of 2016. The monitoring data will be used to assess, with quantitative measurements, the performance of the beach replenishments projects. The monitoring data will provide the City and the FDEP information necessary to plan for the next renourishment project, evaluate the beach performance and optimize the design of the next beach renourishment project.

The third year post-construction monitoring event will consist of topographic and bathymetric surveys of the beach to include both the 2013 and 2014 beach replenishment areas, and to approximately one mile north and south of the combined project limits, as required by the FDEP permit.

a. **Topographic & Bathymetric Surveys (Beach Offshore Profile Surveys):**

The third year post-construction topographic and bathymetric profile surveys of the beach and offshore will be conducted in the summer of 2016, as required by the FDEP project permit. The monitoring surveys will include published FDEP beach profiles lines (reference monuments) within the Delray Beach fill area and will include twenty-two (22) FDEP profile lines from R-171 to R192. All profile surveys will extend offshore a minimum of 3,000 ft. or to the -30 ft. (NAVD) contour.

All work activities and deliverables shall be conducted in accordance with the March 2014 BBCS Monitoring Standards for Beach Erosion Control Projects, Sections 01000 and 01100.

3. Third Year Post-Construction Engineering Performance Evaluation and Report: We will develop and submit the post-construction engineering report to the FDEP within 90 days following completion of the third year post-construction survey, as required by the permit. The engineering report will address the 2016 physical monitoring results and will summarize and discuss the project performance since completion of the beach renourishment projects and will be a useful tool for project planning.

BUDGET:

The fee to provide the service contained in this proposal is \$78,483.00 as set forth in Exhibit "A" attached hereto.

COMPLETION DATE: November 2016

CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

**OPINION AND CERTIFICATE OF THE CORPORATE SECRETARY
OF CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.
REGARDING CONTRACTING AUTHORITY**

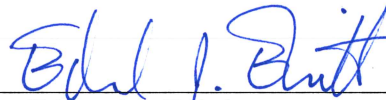
I, **EDWARD J. EVERITT**, do hereby declare and certify that I am duly elected, qualified and acting Corporate Secretary of CB&I Environmental & Infrastructure, Inc., formerly known as Shaw Environmental, Inc. (the "Company"), a corporation duly organized and validly existing under the laws of the State of Louisiana, and that in such capacity, I do hereby declare and certify the following:

In accordance with the authority granted by the Company's Board of Directors and governing documents (and associated approved delegations thereof), **Thomas P. Pierro** has the authority to and is empowered to act for and on behalf of the Company in executing in the name of the Company, any and all types of proposals, bids, contracts, agreements, documents and instruments of whatever nature or kind necessary (not to exceed cumulative fixed price contract value of \$250,000.00 or cost reimbursable/time & materials contract value of \$2,000,000.00) pertaining to the Company's Agreement with the City of Delray Beach for Coastal Engineering Consulting Services dated August 26, 2015.

IN WITNESS WHEREOF, I have herewith signed my name and affixed the seal of CB&I Environmental & Infrastructure, Inc. on this 25TH day of February, 2016.

CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

By: _____



Edward J. Everitt
Corporate Secretary

Corporate Seal:



ATTEST:

Tara Brenner

Print Name: Tara Brenner

CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

By: Thomas P. Pierro

Thomas P. Pierro, P.E., D.C.E.
Vice President
CB&I Environmental & Infrastructure, Inc.

STATE OF FLORIDA

COUNTY OF Palm Beach

The foregoing instrument was acknowledged before me this 9 day of February, 2016, by Thomas P. Pierro (name of officer or agent, title of officer or agent) of CB&I Environmental & Infrastructure, Inc. (name of Corporation acknowledging), a State (state or place of incorporation) corporation, on behalf of the corporation. He/She is personally known to me or has produce _____ (type of identification) as identification and did (did not) take an oath.

Witness my hand and seal in the County and State aforesaid this 9 day of February, 2016.



Tracie H. McCauley
Notary Public
State of Florida

My Commission Expires: 8/19/2018

ATTEST:

City Clerk

CITY OF DELRAY BEACH, FLORIDA

By: _____
Cary D. Glickstein, Mayor

Approved as to Legal Sufficiency

City Attorney



CB&I Environmental & Infrastructure, Inc.
2481 NW Boca Raton Blvd.
Boca Raton, FL 33431
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Fax: +1 561 391 9116
www.CBI.com

February 1, 2016

Mr. Bob Diaz
Construction Manager
City of Delray Beach
434 S. Swinton Avenue
Delray Beach, FL 33444

RE: City of Delray Beach, Fifth Beach Renourishment & FCCE Projects; Services for Project Administration, Three Year Post-Construction Physical Monitoring, Evaluation and Reporting

Dear Mr. Diaz:

Please accept this proposal for beach renourishment project administration, physical monitoring and engineering evaluation/reporting for the City of Delray Beach, Fifth Beach Renourishment Project and recently completed storm damage repair beach project.

The City of Delray has one of the most successful beach maintenance and preservation programs in the United States. Prior to 1973, beach erosion was so severe that portions of State Road A1A had collapsed into the Atlantic Ocean. In 1973, the City embarked on a program, supplemented by Federal, State and County funding, to renourish and maintain the eroded beach. Since 1973, the beach has been successfully maintained by the City.

The City completed its fifth beach renourishment project in 2013, and a Hurricane Sandy storm repair beach renourishment project was completed in 2014 for the north end of the City, outside of the 2013 project area. The State of Florida project permit requires that a comprehensive post-construction physical beach monitoring study be conducted as a permit condition, including an engineering evaluation of the monitoring results with a report. We will assist the City with post-construction requirements related to project administration and post-construction performance evaluation. This scope of services provides the required engineering services for the post-construction phase of the project and this proposal contemplates that services will be performed under the terms and conditions of the existing Agreement for Coastal Engineering Consulting Services between the City and CB&I Environmental & Infrastructure, Inc. (CB&I) dated August 26, 2015. The scope of services of this proposal includes the following general services:

1. Project Administration: Project administration includes State and Federal agency coordination and reporting, City meetings as required, and other associated administrative tasks.
2. Three Years Post-Construction Physical Monitoring Survey: In compliance with the Physical Monitoring Plan of the Florida Department of Environmental Protection (FDEP) permit for the project, topographic (onshore) and bathymetric (offshore) surveys of the beach and offshore in Delray Beach will be conducted during the summer of 2016. The monitoring data will be used to assess, with quantitative measurements, the performance of the beach replenishment projects. The monitoring data will provide the City and the FDEP information necessary to plan for the next renourishment project, evaluate the beach performance and optimize the design of the next beach renourishment project.

The three-year post-construction monitoring event will consist of topographic and bathymetric



surveys of the beach to include both the 2013 and 2014 beach replenishment areas, and to approximately one mile north and south of the combined project limits, as required by the FDEP permit.

a. Topographic & Bathymetric Surveys (Beach Offshore Profile Surveys):

The three-year post-construction topographic and bathymetric profile surveys of the beach and offshore will be conducted in the summer of 2016, as required by the FDEP project permit. The monitoring surveys will include published FDEP beach profile lines (reference monuments) within the Delray Beach fill area and will include twenty-two (22) FDEP profile lines from R-171 to R-192. All profile surveys will extend offshore a minimum of 3,000 ft. or to the -30 ft. (NAVD) contour.

All work activities and deliverables shall be conducted in accordance with the *March 2014 BBCS Monitoring Standards for Beach Erosion Control Projects, Sections 01000 and 01100*.

3. Three Years Post-Construction Engineering Performance Evaluation and Report: We will develop and submit the post-construction engineering report to the FDEP within 90 days following completion of the three year post-construction survey, as required by the permit. The engineering report will address the 2016 physical monitoring results, will summarize and discuss the project performance since completion of the beach renourishment projects, and will be a useful tool for project planning.

Assumptions and Summary

It is assumed that the report will be submitted to the FDEP by December 2016. The cost to provide the described services is a lump sum of \$78,483. A detailed cost estimate spreadsheet for the services proposed is included with this proposal.

If you should have any questions, please call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Tara Brenner", is written over a horizontal line.

Tara Brenner, P.G., E.I.
Coastal Engineer
CB&I Environmental & Infrastructure, Inc.

cc: Thomas Pierro, P.E., CB&I
Michael Lowiec, PSM, CB&I

A handwritten signature in blue ink, appearing to read "Tom", is written over a horizontal line.

Authorized Corporate Signature

Thomas Pierro
Printed Name

Vice President
Title

Confidentiality Statement

The information contained in this proposal is confidential commercial information and shall not be disclosed, except for evaluation purposes, provided that if a contract is awarded to CB&I Environmental & Infrastructure, Inc. as a result of or in connection with the submission of this proposal, the requester shall have the right to use or disclose the data to the extent provided in the contract. This restriction does not limit the requestor's right to use or disclose any technical data obtained from another source without restriction.

CITY OF DELRAY BEACH, FL

FEE PROPOSAL FOR

**2016 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, THREE YEAR POST-CONSTRUCTION PHYSICAL MONITORING
ENGINEERING EVALUATION AND REPORT**

January 27, 2016

PREPARED BY:

CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

**CITY OF DELRAY BEACH, FL
FEE PROPOSAL FOR
2016 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, THREE YEAR POST-CONSTRUCTION PHYSICAL MONITORING ENGINEERING
EVALUATION AND REPORT**

**PROJECT PROPOSAL SUMMARY
PREPARED BY: CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.**

TASK	DESCRIPTION	LABOR COSTS	EQUIPMENT COSTS	TASK COST
1	Project Administration	\$21,372	\$0	\$21,372
2	Three Year Post-Construction Monitoring Survey (Beach Profile Surveys R-171 to R-192)	\$22,844	\$4,339	\$27,183
3	Three Year Post-Construction Engineering Evaluation and Report	\$29,928	\$0	\$29,928
	SUBTOTALS	\$74,144	\$4,339	
			TOTAL	\$78,483

**CITY OF DELRAY BEACH
2016 BEACH RENOURISHMENT ENGINEERING SERVICES
FEE PROPOSAL FOR
PROGRAM ADMINISTRATION, THREE YEAR POST-CONSTRUCTION
PHYSICAL MONITORING ENGINEERING EVALUATION AND REPORT**

LABOR, EQUIPMENT & DIRECT COST RATES

PREPARED BY: CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

LABOR RATES (HOURLY)	
Principal Engineer	\$230
Expert Witness (Testimony)	\$230
Senior Project Manager	\$215
Senior Coastal Engineer	\$185
Program Manager	\$165
Coastal Engineer III	\$150
Coastal Engineer II	\$125
Coastal Engineer I	\$110
Coastal Modeler II	\$130
Coastal Modeler I	\$110
Professional Surveyor & Mapper	\$130
Hydrographer	\$125
Surveyor	\$95
Survey Technician	\$80
Senior Marine Biologist	\$140
Marine Biologist II	\$95
Marine Biologist I	\$72
Professional Geologist	\$130
Geologist IV	\$150
Geologist III	\$130
Geologist II	\$95
Geologist I	\$80
Senior CAD Operator	\$150
CAD Operator	\$110
GIS Operator	\$110
Boat Captain	\$80
Bookkeeper	\$80
Clerical	\$72
Technician	\$57
EQUIPMENT RATES (DAILY)	
Survey Boat 24'	\$790
Truck (Road Use per mile)	\$0.565
Trimble RTK GPS	\$495
GPS Integrated Underwater Video Camera	\$435
SCUBA Tanks (Nitrox)	\$19
Dive Equipment and Insurance per diver per day in addition to normal hourly rates for personnel	\$75
Heave, Pitch & Roll Compensator	\$215
Speed of Sound Velocity Meter	\$63
Hypack/DredgePack Navigation System	\$260
Odom Hydrotrack Sounder	\$165
X-Star Chirp 512i Seismic Profiling System	\$1,150
Seismic Profiler Thermal Printer	\$130
Edgetech 4200 FS Sidescan Sonar System	\$695
Geometric G-881 Magnetometer	\$215
Enclosed 18' Trailer	\$78
Nikon Level/Tripod/Rod	\$65
Digital Camera	\$10
All Terrain Vehicle	\$105
Sonar Wizard Map Seismic Data Processing Package	\$155
DIRECT COSTS - Actual Cost plus 10%	
Actual Cost plus 10%	1.10

CITY OF DELRAY BEACH, FL

FEE PROPOSAL FOR

2016 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, THREE YEAR POST-COSTRUCTION PHYSICAL MONITORING ENGINEERING EVALUATION AND REPORT

PREPARED BY: CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC

		LABOR COSTS											
Total Labor Cost Per Task		Principal Engineer	Program Manager	Coastal Engineer II	Professional Surveyor and Mapper	Surveyor	Survey Technician	Senior CAD Operator	CAD Operator	GIS Operator	Boat Captain	Bookkeeper	Clerical
(Miles)		(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)	(Hours)
1. Project Administration	\$21,372	\$8	60	40				4	18	14		1	6
2. Three Year Post-Construction Monitoring Survey (Beach Profile Surveys R-171 to R-192)	\$22,844	2	16	8	16	100	24	2		24	26	1	2
3. Three Year Post-Construction Engineering Evaluation and Report	\$29,928	8	80	96				8	12			1	4
Total Hours =		18	156	144	16	100	24	14	30	38	26	3	12
Rate =		\$230	\$165	\$125	\$130	\$95	\$80	\$150	\$110	\$110	\$80	\$80	\$72
		\$4,140	\$25,740	\$18,000	\$2,080	\$9,500	\$1,920	\$2,100	\$3,300	\$4,180	\$2,080	\$240	\$864
TOTAL LABOR COSTS =		\$74,144											
TOTAL EQUIPMENT COSTS =		\$4,339											
TOTAL COSTS =		\$78,483											

CITY OF DELRAY BEACH, FL
FEE PROPOSAL FOR

2016 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, THREE YEAR POST-COSTRUCTION PHYSICAL MONITORING ENGINEERING EVALUATION AND REPORT

PREPARED BY: CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

		EQUIPMENT COSTS								
		Survey Boat 24'	Truck (Road Use per mile)	Trimble RTK GPS	Odom Hydrotrack Sounder	Heave, Pitch & Roll Compensator	All Terrain Vehicle	Speed of Sound Velocity Meter	Nikon Level/Tripod/ Rod	Hypack/DredgePack Navigation System
		(Days)	(Miles)	(Days)	(Days)	(Days)	(Days)	(Days)	(Days)	(Days)
1. Project Administration										
2. Three Year Post-Construction Monitoring Survey (Beach Profile Surveys R-171 to R-192)		2	40	2	2	2	2	2	2	2
3. Three Year Post-Construction Engineering Evaluation and Report										
Total Hours =		2	40	2	2	2	2	2	2	2
Rate =		\$790	\$0.565	\$495	\$165	\$215	\$105	\$63	\$65	\$260
Cost =		\$1,580	\$23	\$990	\$330	\$430	\$210	\$126	\$130	\$520
TOTAL EQUIPMENT COSTS =		\$4,339								
TOTAL LABOR COSTS =		\$74,144								
TOTAL COSTS =		\$78,483								