

CONSULTING SERVICE AUTHORIZATION

DATE: May 3, 2017

SERVICE AUTHORIZATION NO. 3

CITY P.O. NO. _____ CITY EXPENSE CODE 332-4164-572-31.30

TITLE: **2017 City of Delray Beach, Fifth Beach Renourishment & FCCE Projects, Services for Project Administration, Four Year Post-Construction Physical Monitoring, Evaluation and Reporting**

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.

CB&I Environmental & Infrastructure, Inc. (CB&I) will provide the required engineering services for the post-construction phase of the project and 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. dated August 26, 2015.

SCOPE OF SERVICES:

The following tasks are included in this scope of services:

1. **Project Administration:** Project administration includes State and Federal agency coordination and reporting, City meetings as required, and other associated assistance specific to the project.
2. **Four Year Post-Construction Physical Monitoring Survey:** In accordance with BBCS Monitoring Standards for Beach Erosion Control Projects, topographic (onshore) and bathymetric (offshore) surveys of the beach and offshore in Delray Beach will be conducted during the summer of 2017. 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 Florida Department of Environmental Protection information necessary to plan for the next renourishment project, evaluate the beach performance and optimize the design of the next beach renourishment project.

The four-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.

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

The four-year post construction topographic and bathymetric profile surveys of the beach and offshore will be conducted in the summer of 2017, for consistency with historic data. The monitoring surveys will include published FDEP beach profile lines (referenced 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 feet or to the -30ft (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. **Four 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 four year post-construction survey. The engineering report will address the 2017 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.

BUDGET:

The fee to provide the service contained in this proposal is \$78,482.60 as set forth in Exhibit “A” attached hereto.

COMPLETION DATE: December 2017

ATTEST:

Tara Brenner
Tara Brenner, P.G., P.E.

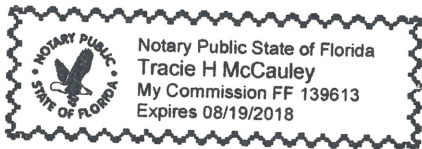
CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

By: Thomas P. Pierro
Thomas P. Pierro, P.E. Vice President

STATE OF FLORIDA

COUNTY OF Palm Beach

The foregoing instrument was acknowledged before me this 3 day of May, 2017, by Thomas Pierro Vice President (name of officer or agent, title of officer or agent) of CB&I Environmental Infrastructure (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 produced _____ (type of identification) as identification and did (did not) take an oath.



Tracie H. McCauley
Signature of Notary Public - State
of Florida

ATTEST:

Kimberly Wynn, Acting City Clerk

CITY OF DELRAY BEACH, FLORIDA

By: _____
Cary D. Glickstein, Mayor

Approved as to Form and
Legal Sufficiency:

R. Max Loman, City Attorney

CITY OF DELRAY BEACH, FL

FEE PROPOSAL FOR

**2017 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, FOUR YEAR POST-CONSTRUCTION PHYSICAL MONITORING
ENGINEERING EVALUATION AND REPORT**

March 10, 2017

PREPARED BY:

CB&I ENVIRONMENTAL & INFRASTRUCTURE, INC.

CITY OF DELRAY BEACH, FL
FEE PROPOSAL FOR
2017 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, FOUR 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	\$21,372.00	\$0.00	\$21,372.00
2	Four Year Post-Construction Monitoring Survey (Beach Profile Surveys R-171 to R-192)	\$22,844.00	\$4,338.60	\$27,182.60
3	Four Year Post-Construction Engineering Evaluation and Report	\$29,928.00	\$0.00	\$29,928.00
	SUBTOTALS	\$74,144.00	\$4,338.60	
			TOTAL	\$78,482.60

**CITY OF DELRAY BEACH
2017 BEACH RENOURISHMENT ENGINEERING SERVICES
FEE PROPOSAL FOR**

**PROGRAM ADMINISTRATION, FOURYEAR 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

2017 BEACH RENOURISHMENT ENGINEERING SERVICES

PROGRAM ADMINISTRATION, FOUR 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. Four 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. Four 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
Cost =		\$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 =		\$74,144.00											
TOTAL EQUIPMENT COSTS =		\$4,338.60											
TOTAL LUMP SUM COST =		\$78,482.60											

CITY OF DELRAY BEACH, FL
FEE PROPOSAL FOR

2017 BEACH RENOURISHMENT ENGINEERING SERVICES
PROGRAM ADMINISTRATION, FOUR 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. Four Year Post-Construction Monitoring Survey (Beach Profile Surveys R-171 to R-192)	2	40	2	2	2	2	2	2	2
3. Four Year Post-Construction Engineering Evaluation and Report									
Total =	2	40	2	2	2	2	2	2	2
Rate =	\$790	\$0.565	\$495	\$165	\$215	\$105	\$63	\$65	\$260
Cost =	\$1,580	\$22.60	\$990	\$330	\$430	\$210	\$126	\$130	\$520
TOTAL EQUIPMENT COSTS = \$4,338.60									
TOTAL LABOR COSTS = \$74,144.00									
TOTAL COSTS = \$78,482.60									