



STATEMENT OF WORK

PROJECT: KB 1509 PORT AND MARINE SERVICES TO SUPPORT THE KEY WEST BIGHT (TURTLE KRAALS) SEAWALL IMPROVEMENTS

Key West, FL

This proposal has been prepared in accordance with executed General Environmental Engineering Services Agreement between the City of Key West and Tetra Tech, Inc. dated January 13, 2015. The work described herein will be performed on a Time & Expense basis in accordance with the fee schedule established in this agreement. Fees shall be not-to-exceed unless approved in writing by the City of Key West.

Prepared by: TETRA TECH, Inc.
November 21, 2016

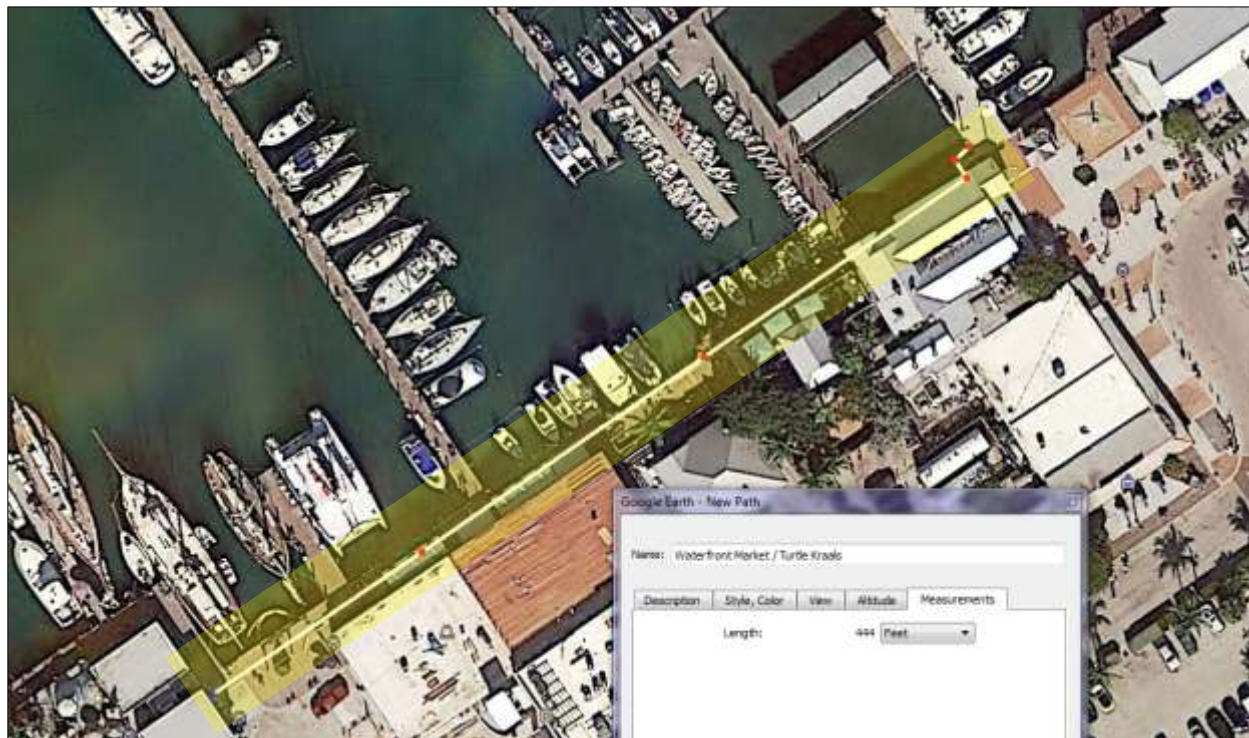




PROPOSAL / STATEMENT OF WORK

Tetra Tech will work with the City of Key West Port and Marine Services (City) to collect survey and benthic resource data, prepare an engineering assessment, and prepare and process the permit applications for the (444 FT) segment of gravity-type seawall located adjacent to the Waterfront Market and Turtle Kraals Restaurant, Key West, Florida.

PORT & MARINE SERVICES FOR SEAWALL IMPROVEMENTS AT WATERFRONT MARKET/TURTLE KRAALS



Insert: Limits of Work

Task 10.1 – Survey

Tetra Tech proposes to work with a local surveyor (Avirom & Associates, Inc.) for this project and has received a proposal to collect the data. A copy of the Avirom proposal is attached. The survey will collect wall feature information and include water depths, locations and configuration of walkways, and utility locations. This survey is necessary for the preparation of the engineering assessment and will be used again for the preparation of the final permit-ready plans and project construction documents.

The survey is expected to take **four (4) weeks from notice to proceed (NTP)** to complete, and will include the following:

1. Horizontal and vertical control data for seawall & upland facilities at (15-feet) intervals
2. Horizontal and vertical control data from the seawall toe into the basin (5-feet)
3. Delineation of Mean High Water Line as a contour along the seawall.
4. Establish a minimum of four (4) benchmarks on the site in the National Geodetic Vertical Datum 1929 (NGVD29) and North American Datum (NAD27).
5. Utility Location: Location of utility lines affixed to the seawall.
6. Obtain finished floor elevations of walkways and seawall caps.

Survey Subtotal: \$ 14,970



Task 10.2 & 10.3 – (Diving) Benthic and Structural Assessment w/ Report

Once the survey has been completed and the exact configuration of the seawall, docks, walkways, roof support structures, and seawall-toe conditions are known; the benthic resource survey and underwater structure inspection will be performed. To reduce overall project costs, we propose combining the resource survey and the underwater inspection to eliminate one round of mobilization costs for our divers. It is expected that the underwater structure inspection will take approximately 2 days and the Benthic resource survey will take 2-3 days.

Tetra Tech will coordinate with the Florida Keys National Marine Sanctuary to perform the certified resource survey for the permitting process and prepare a written report cataloging the resources and showing their position and size along the face of the existing wall. *This resource surveys will be presented to NOAA for comment and will ultimately be used during the permitting process with FDEP and the ACOE.*

This cost includes the preparation of the benthic resource survey report with mitigation plan but does not include the physical coral relocation or mitigation. Our mitigation plan will need to be reviewed by NOAA before any mitigation can be performed.

(10.2) Inspections:	\$ 28,920
(10.3) Benthic Report:	\$ 6,450

Task 10.4 – Engineering Assessment with Pre-Permit Drawings w/ Opinion of Probable Cost

Tetra Tech will provide a written engineering assessment of the wall conditions observed during the site survey, benthic resource survey, underwater structure inspection and the surface inspection. Based on preliminary visual inspections of the wall conditions it is understood that not all wall segments may need repair at this time. The intent of this report is to ascertain the specific conditions of the wall segment to determine the exact locations, limits and extent of any repairs that will be required.

The deliverables in this report will include:

1. Engineering Assessment Report
2. Report Exhibits and Preliminary Permit Plans
 - a) Cover page with location and access
 - b) Existing conditions survey
 - c) Demolition/Facility Protection plan – seawall & docks
 - d) Natural Resources Protection Plan
 - e) Plan views that show:
 - i. Limits of construction
 - ii. Wall improvements and tie-ins to the existing walls
 - iii. Existing utility locations & conflict locations along face of seawall
 - iv. Conflict locations of previously made wall repairs
 - f) Cross sections views that show:
 - g) Wall improvements – one cross section approximately every 50-feet or as needed
 - h) Wall tie-ins to remaining undisturbed structures– one cross section on either end
 - i) Estimated embedment for toe of wall repairs
 - j) Typical – Concrete repairs
 - k) Typical – Construction details
3. Opinion of Probable Construction Cost

Subtotal: \$ 9,340



Task 10.5 – Prepare permit applications for ACOE and FDEP

Based on the City's review of the surveys and engineering assessment, Tetra Tech will prepare, submit and process the Joint Application for an Environmental Resource Permit for the proposed wall repairs. This fee includes a \$100 permit application fee (paid by Tetra Tech) at the time of submittal. This permit application task includes 2-days (16-hours) for the permitting lead (Stuart McGahee) to prepare the applications and 4-days (32-hours) for the engineering technician to assist.

Subtotal: \$ 7,140

Task 10.6 – Application processing for ACOE and FDEP

It is expected that the permit applications will be submitted directly to the Florida Department of Environmental Protection (FDEP) Marathon, FL office and distributed from there to the Army Corp of Engineers (ACOE). The ACOE will further distribute the results of our benthic assessment along with the coral impact (Section 7) application to the National Oceanic and Atmospheric Administration (NOAA) Florida Keys National Marine Sanctuary (FKNMS). At the FKNMS the application will be distributed to the Endangered Species division for additional processing. Tetra Tech cannot guarantee the permits will be issued or the length of the review process. It is expected that the permit processing could take over six months to complete.

This application processing task includes 48-hours for the permitting lead (Stuart McGahee) to process the applications and 16-hours for the engineering technician to assist with the preparation of any required requests for additional information (RFIs). The 48-hour line item is based on an assumption of 2-hours per week for 24-weeks.

Subtotal: \$ 14,760

PROJECT SUMMARY

This proposal does not include:

- Coral mitigation fees
- Coral relocation or reporting
- Preparation of construction documents
- Services during construction

Task	Description	Amount
10.1	Project Survey	\$ 14,970
10.2	Diving Inspection and Benthic Survey	\$ 28,920
10.3	Benthic Report	\$ 6,450
10.4	Engineering Assessment	\$ 9,340
10.5	Permit Applications	\$ 7,140
10.6	Permit Processing	\$ 14,760
TOTAL		\$ 81,580

City of Key West Turtle Kraals / Wall Segment			Task 10.1		Task 10.2		Task 10.3		Task 10.4		Task 10.5		Task 10.6		Task 10.7		Task 10.8		Task 10.9		Task 10.10		Task 10.11		Task 10.12		TOTAL	
			SURVEY Structural, Utility and Water Depths		DIVING (1) Structure Inspection and Benthic Resources		REPORT Coral & Benthic Resources		REPORT Engineering Assessment with Pre-Permit Drawings and OPCC		PERMIT APPLICATION ACOE & FDEP		PERMIT PROCESSING Coordination with FDEP, ACOE and NOAA		DIVING (2) Coral Relocation		REPORT Coral Relocation Summary		ENGINEERING Drawings, Specifications and OPCC		ITB Documents		CONSTRUCTION Services		TBD			
BILLING CLASS	NAME	UNIT RATE	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST
Tetra Tech Staff																												
Tech Prof II	S. Stotler-Hardy	\$ 115.00	2	\$230	2	\$230	2	\$230	2	\$230	-		2	\$230	-		-		-		-		-		-		10	\$1,150
Tech Prof I	R. Garland	\$ 95.00	4	\$380	4	\$380	2	\$190	4	\$380	4	\$380	4	\$380	-		-		-		-		-		-		22	\$2,090
Sr. Tech Prof II	T. Malone	\$ 158.00	6	\$948	2	\$316	2	\$316	2	\$316	-		2	\$316	-		-		-		-		-		-		14	\$2,212
Sr. Project Manager	S. McGahee	\$ 192.00	2	\$384	16	\$3,072	4	\$768	24	\$4,608	16	\$3,072	48	\$9,216	-		-		-		-		-		-		110	\$21,120
Tech Prof I	F. Martinez-Rivera	\$ 95.00	-		16	\$1,520	-		40	\$3,800	32	\$3,040	16	\$1,520	-		-		-		-		-		-		104	\$9,880
Sr. Tech Prof III	A. McDonald	\$ 179.00	2	\$358	-		-		-		-		-		-		-		-		-		-		-		2	\$358
Sr. Tech Prof II	P. Zuloaga	\$ 158.00	-		40	\$6,320	8	\$1,264	-		-		-		-		-		-		-		-		-		48	\$7,584
Tech Prof I	M. Mendoza	\$ 95.00	-		40	\$3,800	8	\$760	-		-		-		-		-		-		-		-		-		48	\$4,560
Sr. Tech Prof I	L. Canty	\$ 125.00	-		40	\$5,000	16	\$2,000	-		-		-		-		-		-		-		-		-		56	\$7,000
Sr. Tech Prof III	G. Vince	\$ 179.00	-		-		-		-		-		-		-		-		-		-		-		-		-	
Tech Prof I	K. Gracie	\$ 95.00	-		-		-		-		-		-		-		-		-		-		-		-		-	
TOTAL LABOR COST			16	\$2,300	160	\$20,638	42	\$5,528	72	\$9,334	52	\$6,492	72	\$11,662	-		-		-		-		-		-		414	\$55,954
INTERNAL SUBCONTRACTOR																												
TBD			-		-		-		-		-		-		-		-		-		-		-		-		-	
TOTAL INTERNAL SUBCONTRACTOR																												
EXTERNAL SUBCONTRACTOR																												
Environmental Subcontractor	\$ 100.00	-			-		-		-		-		-		-		-		-		-		-		-		-	
Laboratory Subcontractor	\$ 500.00	-			-		-		-		-		-		-		-		-		-		-		-		-	
SURVEYOR (Avirom)	\$ 12,000.00	1	\$12,000		-		-		-		-		-		-		-		-		-		-		-		1	\$12,000
STRUCTURAL (WGI)	\$ 1,750.00	-			-				-		-		-		-		-		-		-		-		-		-	
EQUIPMENT RENTAL				\$12,000																								\$12,000
TRAVEL																												
R/T Airfare	\$ 450.00	-			-		-		-		-		-		-		-		-		-		-		-		-	
Mileage/Gas	\$ 0.54	550	\$297	1,650	\$891	550	\$297	-		550	\$297	1,100	\$594	-		-		-		-		-		-		4,400	\$2,376	
Rental Car w/Fuel	\$ 75.00	1	\$75	-		-		-		-		-		-		-		-		-		-		-		1	\$75	
Misc Travel Costs	\$ 50.00	1	\$50	2	\$100	-		-		-		-		-		-		-		-		-		-		3	\$150	
Lodging	\$ 175.00	1	\$175	14	\$2,450	1	\$175	-		1	\$175	2	\$350	-		-		-		-		-		-		19	\$3,325	
Meals & IE	\$ 75.00	1	\$75	14	\$1,050	-		-		1	\$75	2	\$150	-		-		-		-		-		-		18	\$1,350	
TOTAL TRAVEL COSTS				\$672		\$4,491		\$472				\$547		\$1,094														\$7,276
OTHER DIRECT COSTS																												
Shipping/Postage	\$ 5.00	-			-		-		-		-		-		-		-		-		-		-		-		-	
Reproduction - B&W	\$ 0.08	-			-		-		-		-		-		-		-		-		-		-		-		-	
Misc. Equip & Supplies	\$ 150.00	-			-		3	\$450	-		-		-		-		-		-		-		-		-		3	\$450
Air fills	\$ 6.00	-			12	\$72	-		-		-		-		-		-		-		-		-		-		12	\$72
Dive Equipment	\$ 35.00	-			12	\$420	-		-		-		-		-		-		-		-		-		-		12	\$420
H/S Equipmnet	\$ 100.00	-			3	\$300	-		-		-		-		-		-		-		-		-		-		3	\$300
TetraTech Truck	\$ 100.00	-			10	\$1,000	-		-		-		-		-		-		-		-		-		-		10	\$1,000
Restoration materials	\$ 300.00	-			-		-		-		-		-		-		-		-		-		-		-		-	
Vessel	\$ 400.00	-			5	\$2,000	-		-		-		-		-		-		-		-		-		-		5	\$2,000
FDEP (ERP)	\$ 100.00	-			-		-		-		1	\$100	-		-		-		-		-		-		-		1	\$100
NOAA Mitigation Fee	\$ 1,000.00	-			-		-		-		-		2	\$2,000	-		-		-		-		-		-		2	\$2,000
TOTAL OTHER DIRECT COSTS						\$3,792		\$450				\$100		\$2,000														\$6,342
GRAND TOTAL				\$14,972		\$28,921		\$6,450		\$9,334		\$7,139		\$14,756														\$81,572



AVIROM & ASSOCIATES, INC.

SURVEYING & MAPPING

October 31, 2016

Via E-Mail: Stuart.McGahee@TetraTech.com

Mr. Stuart McGahee, P.E.

Senior Project Engineer

Tetra Tech

759 South Federal Highway, Suite 314

Stuart, FL 34994

*RE: Turtle Kraals, End of Margaret Street, Key West, FL – Revised 1
Location and Spot Elevations along Retaining Sea Wall*

Dear Stuart:

In accord with your request, we are pleased to provide the following cost proposal for surveying services at the above referenced location.

Location:

The Turtle Kraals at Key West Harbour, commencing at Margaret Street to the north and terminating at William Street to the south, Key West, Monroe County, Florida.

Scope:

Project Limits:

The locations and spot elevations shall be along the sea wall at the above referenced location, comprised of approximately 435 linear feet as delineated in yellow on the attached Exhibit A below, incorporated herein for reference.

Spot Elevations

The spot elevations shall be taken at 15 foot intervals along the top of the sea wall, at the base of the seawall and 5 feet seaward from the base.

We shall delineate the Mean High Water Line as a contour line along the sea wall. This is not a boundary survey or mean high water line survey and should not be relied as such.

We shall establish a minimum of four (4) National Geodetic Vertical Datum of 1929 (NGVD 29) benchmarks at the site, referenced to a published Benchmark Network by the National Geodetic Survey (NGS). The benchmarks shall also be horizontally referenced to the North American Datum of 1927 (NAD 27), and tied to the National Geodetic Survey Geodetic Control Network.

All work shall be performed in accordance with the Standards of Practice as defined in Chapter 5J-17, Florida Administrative Code.

Utility Location

We shall locate the utility lines affixed to the seawall. There may be some areas where the lines are inaccessible and a direct measurement to the line cannot be made. In cases where a direct measurement cannot be made an estimate of the spatial position of the lines will be made with the location of the lines shown as dashed lines on our survey, together with a label identifying the uncertainty of the locating methodology.

Deliverables:

We shall provide four (4) signed and sealed hard copies of the survey, a digital PDF file of the hard copy and an AutoCAD 2014 or lower, file of the survey.

Schedule:

Upon notice to proceed, we will mobilize within one (1) week and have the work completed within four (4) weeks after mobilization.

Clarification:

- Client shall arrange all access and permission with the City of Key West to have our crew perform the survey along the sea wall. Delays encountered due to access at no fault of Avirom & Associates may incur additional costs, which will be billed at our current hourly rates (*see below*).
- The Mean High Water Line will be displayed for informational purposes only. This is not a Mean High Water Line survey according to Chapter 177, Part II Florida Statutes.
- To obtain the survey data it will be necessary to temporary remove some deck planks which will be replaced in place, immediately after we attain the survey information. The planks are affixed to the support with screws and we will replace the screws with new stainless steel screws. From past experience this is a very time consuming process in that the pedestrian traffic is constant and we generally have to wait for slow periods to remove the planks.
- At cantilevered decks overhanging the sea wall, a field determination will be made on whether to remove the deck planks, depending on the age and existing condition of the material. If a decision is made to avoid removal of the planks we will obtain information at the beginning and end of the deck and provide an underwater video of the sea wall under the cantilevered deck.

Cost:

The cost to provide the above services shall be a lump sum amount of \$12,000.00 with delays and the cost of materials factored in.

AVIROM & ASSOCIATES, INC.

Current Hourly Rates

P.L.S. Principal Coordination	\$150.00/Hour
P.L.S. Technical Coordination	\$100.00/Hour
Survey Crew	\$125.00/Hour
Computer Computations & Drafting	\$ 85.00/Hour

We thank you for the opportunity to submit this proposal and look forward to working with you on this project. Should you have any questions or comments, please do not hesitate to contact me.

Respectfully,



Keith M. Chee-A-Tow, P.L.S.
For the Firm

If this proposal is acceptable, please execute the signature below and return one (1) copy for our files.

THESE CONDITIONS ARE ACCEPTABLE, AND I HEREBY AUTHORIZE YOU TO PROCEED.

Mr. Stuart McGahee, P.E.
Tetra Tech

Date

EXHIBIT A

