

TASK ORDER 4-15 SWR

ENGINEERING SERVICES FOR CONSTRUCTION PHASE SERVICES FOR VFD
UPGRADES TO WASTEWATER PUMP STATIONS A, B, C, D, AND DA

This TASK ORDER 4-15 SWR is issued under the terms and conditions of the MASTER AGREEMENT TO FURNISH GENERAL ENGINEERING SERVICES TO THE CITY OF KEY WEST ("AGREEMENT") between the City of Key West ("CITY") and CH2M HILL Engineers, Inc. ("CONSULTANT") executed on November 19, 2012, which is incorporated herein by this reference.

A. SCOPE OF SERVICES

Specific services which the CONSULTANT agrees to furnish are summarized on the attached statement entitled TASK ORDER NO. 4-15 SWR, "SCOPE OF SERVICES." The "Scope of Services" defines the work effort anticipated for the Task Order.

This Task Order, when executed, shall be incorporated in and shall become an integral part of the November 19, 2012, Master Agreement.

B. TIME OF COMPLETION

Work under this Task Order will begin immediately following acceptance and completed expeditiously subject to coordination with the City of Key West staff. Work may be performed at any time as requested by the CITY within 12 months after the date of execution of this Task Order, at which time the Task Order will expire.

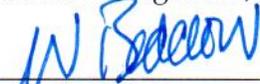
C. COMPENSATION

Compensation for the labor portions of Tasks A and all expenses will be on a Cost Reimbursable-Per Diem basis as stipulated in Article 5, Paragraph 5.1.2 of the AGREEMENT. The estimated compensation is shown on the attached statement entitled TASK ORDER NO. 4-15 SWR COMPENSATION.

D. ACCEPTANCE

By signature, the parties each accept the provisions of this TASK ORDER NO. 4-15 SWR, and authorize the CONSULTANT to proceed at the direction of the CITY's representative in accordance with the "SCOPE OF SERVICES." Start date for this project will be no later than ten (10) days after execution of this authorization.

For CH2M HILL Engineers, Inc.

By: 
William D. Beddow, P.E.
Vice President


Sean McCoy, P.E.
Key West Project Manager

For CITY OF KEY WEST

By: _____
Jim Scholl
City Manager

Dated the _____ day of _____, 20__

ATTEST: _____

TASK ORDER 4-15 SWR

ENGINEERING SERVICES FOR CONSTRUCTION PHASE SERVICES FOR VFD UPGRADES TO WASTEWATER PUMP STATIONS A, B, C, D, AND DA

SCOPE OF SERVICES

Project Description

The City of Key West and CH2M HILL Engineers, Inc., performed pump drawdown tests on nine pump stations ("A", "B", "C", "D", "DA", "F", "Q", "S", and Sigsbee) during the preliminary design of the Pump Station F Improvement project.

The results of the pump drawdown tests showed that many of the pumps were operating inefficiently. The pumps appear to be operating to the right of their curves (i.e., low pressures, and therefore, higher flows). Although higher flows are desirable, operating to the right of their curves indicates that the pumps are cavitating, which causes additional maintenance, such as the frequent replacement of impellers and motors. In addition, the pumps are frequently cycling on and off, which results in higher energy costs and shorter motor life.

The low pressures appear to be attributed to the pipe rehabilitation that occurred in the 1990s, which reduced infiltration and inflow into the wastewater collection system. Since 2001, the flows to the WWTP have been significantly reduced, decreasing from 8.2 million gallons per day (mgd) to approximately 4 mgd. The lower flow produces lower system pressures causing pumps to operate to the far right of their curves, and in some cases off the curve.

Cavitation causes excessive vibration, which has been observed at these pump stations. The effects of cavitation and the frequent cycling of the pumps have resulted in the replacement of motors, motor starters, and the rebuilding or replacement of impellers.

The CITY has designed Variable Frequency Drives (VFD) for the drive units at Pump Stations A, B, C, D and DA which will allow the pumps to operate more efficiently, minimize the number of start and stops, and decrease damage to the impellers and motors caused by cavitation and excessive vibration. The addition of the VFDs will allow the pumps to operate when the flows to the pump stations are minimal by operating at a lower speed and during large storm events the pumps will be able to ramp up to the maximum speed to accommodate higher flows. With the addition of the VFDs, the pumps will operate towards the center of their curves, where the pumps are most efficient.

This Task Order 4-15 SWR will allow the CONSULTANT to assist the City with the construction of the VFD drives for Pump Stations.

Purpose

The CITY has requested that the CONSULTANT provide engineering services for Construction Phase Services for the VFD Upgrades to Wastewater Pump Stations A, B, C, D, and DA. This Task Order describes the CONSULTANT's Scope of Services. Specific activities to be performed under this Task Order include:

- Construction Phase Services

Scope of Services

The following tasks describe the activities to be performed and the work products to be prepared by the CONSULTANT.

Task A – Construction Phase Services

The CONSULTANT will perform limited construction phase services listed in this Task Order for a construction period that is estimated to be 12 months. The CITY will be responsible for full-time resident observation.

The CONSULTANT will perform the following activities during this portion of the project.

- The CONSULTANT will coordinate and conduct one pre-construction meeting and distribute meeting minutes.
- At the request of the CITY, coordinate and conduct monthly progress meetings and prepare and distribute meeting minutes; attendance at up to twelve (12) meetings is assumed.
- At the request of the CITY, coordinate and conduct up to 5 additional meetings as required.
- At the request of the CITY, review up to sixty (60) shop drawings and other construction related submittals.
- At the request of the CITY, the CONSULTANT will provide up to 146 hours to assist in the technical interpretations of the drawings, specifications, and contract documents, and evaluate requested deviations from the approved design or specifications.
- Conduct up to four (4) specialty inspections at the construction site, by a Sr. Construction Inspector/Design Engineer.
- At the request of the CITY, perform a substantial completion inspection of the project and assist in the preparation of a punch-list.
- At the request of the CITY, perform a final completion inspection of the project.
- At the request of the CITY, provide on-site start-up assistance, one (3) three-day site visit by two CONSULTANT personnel assumed. *PM & electrical*
- Prepare record drawings based on mark-ups from the CONTRACTOR.

Deliverables

- One (1) electronic copy of pre-construction meeting minutes
- One (1) electronic copy of each progress meeting minutes
- One (1) electronic copy of each additional meeting minutes
- Two (2) copies each reviewed shop drawings
- Two (2) copies each Request for Information
- One (1) electronic copy of punch list(s)
- One (1) full size copy, two (2) 11" x 17" copies, and one (1) electronic copy of record drawings

Assumptions

The following assumptions were used in the development of this Task Order:

- The City will coordinate and implement all Public involvement.
- No permit(s) will be required for the upgrades to Pump Station A, B, C, D and DA by FDEP. CONTRACTOR will be required to apply for and obtain Building Permits from the CITY.
- Substantial Completion Inspections for all five (5) pump stations will be performed during a single two (2) day period.
- Startup Assistance for all five (5) pump stations will be performed during a single three (3) day period.
- Construction phase work will be completed by the end of 2016.
- Meetings will be held in Key West and attended by up to two (2) consultant's staff, additional consultant's staff may attend via conference call.
- Legal, easement, or plat surveys will not be required.
- The construction services will be provided for a single construction contract.
- Any labor and expenses required to address construction claims, unforeseen subsurface considerations or additional construction time requested by the CONTRACTOR or OWNER will be considered as "Additional Services".

Obligations of the CITY

To assist meeting schedule and budget estimates contained in this proposal, the CITY will provide the following:

- Facilitate access to any required facilities.
- Attendance of key personnel at meeting as requested.
- The CITY will be responsible for full-time resident observation.

Additional Services

The CONSULTANT will, as directed, provide additional services that are related to the project but not included within this Scope of Services. These and other services can be provided, if desired by the CITY, as an amendment to the Task Order. Work will begin for the Additional Services after receipt of a written notice to proceed from the CITY. Additional services may include, but are not limited to, the following:

- Additional permitting
- Resident observation, providing a full-time resident on-site during construction
- Additional construction phase service not included in this scope

Compensation

The estimated compensation for TASK ORDER NO 4-15 SWR, is shown on Attachment A entitled TASK ORDER NO. 4-15 SWR, COMPENSATION.

Attachment A

Compensation

COMPENSATION BREAKDOWN						
Task Order 4-15 SWR VFD Upgrades Services During Construction						
TASK NO.	TASK DESCRIPTION	HOURLY RATE	TOTAL HOURS	LABOR	EXPENSES	TOTAL COST
A	Preliminary Design					
	Sr. Technologist/Sr. Project Manager	\$ 170.00	80	\$13,600		\$13,600
	Project Manager, Engineering Specialist	\$ 157.00	599	\$94,043		\$94,043
	Project Engineer	\$ 135.00	292	\$39,420		\$39,420
	Technician 5	\$ 113.00	40	\$4,520		\$4,520
	Technician 3	\$ 82.00	130	\$10,660		\$10,660
	Senior Project Assistant	\$ 67.00	97	\$6,499		\$6,499
	Travel				\$9,000	\$9,000
	PRINTING/REPROGRAPHICS/PHONE				\$1,150	\$1,150
PROJECT TOTALS						
	TOTAL HOURS		1,238			
	TOTAL FEE ESTIMATE			\$168,742	\$10,150	\$178,892