



THE CITY OF KEY WEST

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MEMORANDUM

EXECUTIVE SUMMARY

TO: Bogdan Vitas, City Manager
E. David Fernandez, Asst. City Manager - Operations

FROM: Jay Gewin, Utilities Manager

DATE: May 14, 2013

RE: **Approval of a Task Order 2-13-SWR from CH2M Hill in the Amount of \$206,192 for Engineering Services for the Design, Permitting, and Bid Phase Services for the Pump Variable Frequency Drive (VFD) Upgrades to Sewer Pump Stations A, B, C, D, and DA.**

ACTION STATEMENT:

This resolution will approve task order 2-13-SWR from CH2M Hill in the amount of \$206,192 for engineering services for the design, permitting, and bid phase services for the VFD upgrades to City Sewer Pump Stations A,B,C,D, and DA.

The agreement will be executed pursuant to F.S. 287.055 (CCNA), City Code 2-841, and the City's contract with CH2M Hill approved by Resolution # 12-280.

BACKGROUND:

The City of Key West sewer collection system routes our wastewater through a series of pump stations around the City before eventually entering the wastewater treatment plant on Fleming Key. The five lift stations that transport the most wastewater in the system are Pump Stations A, B, C, D, and DA.

As part of the Pump Station F design project, CH2M Hill analyzed the pump performance at the City's nine busiest sewer pump stations. What it found is that several of these pumps are operating inefficiently in a way that consumes extra electricity, and burns out pump parts (such as impellers) prematurely.

Key to the Caribbean – Average yearly temperature 77° F.

The cause, oddly enough, is likely the major sewer improvements including the replacement of much of the island's sewer collection system between 1999 and 2001. Prior to the repairs, a large amount of groundwater was entering our sewer system through leaks. This is called inflow and infiltration (I & I).

Because there was previously a greater amount of wastewater in the collection system due to the I & I, the pumps at the busiest pump stations were required to operate on a more frequent basis. After the repairs to the collection system, the pumps continue to operate at the prior frequency and speed despite less wastewater present to pump. This results in increased equipment wear and tear and higher electricity costs.

PURPOSE AND JUSTIFICATION:

Installing a new variable frequency drive (VFD) system on the busiest sewer pump stations will alleviate this problem. These systems will allow the pumps to operate more efficiently by enabling them to run at a lower speed during times of less wastewater flow. The VFD systems allow pumps a new flexibility to increase and decrease operation as needed, rather than running at only maximum frequency more often than necessary.

This green-friendly project will result in both energy and pump parts savings for the City. The VFD systems will be enclosed in small building structures located at Sewer Pump Stations at the following locations:

1. Pump Station A – 250 Amelia St.
2. Pump Station B – 613 Greene St.
3. Pump Station C – 699 Palm Ave.
4. Pump Station D – 1329 Seminary St.
5. Pump Station DA – 1391 Atlantic Blvd.

CH2M Hill has successfully designed several projects at both the City's wastewater treatment plant, and our sewer collection system. They have excellent knowledge of the City's sewer system, and of the unique construction environment in Key West.

This task order includes the following components:

- a) Field Survey and Geotechnical Investigation
- b) Detailed Design Documents for Bid
- c) Permitting for the Project
- d) Bid Phase Services

The City does not have the staff available with the time and technical expertise required to perform this design work independently. Staff has reviewed this task order and found it consistent with the hourly rates established in the City's contract with CH2M Hill.

Further, City staff does not feel that the hours that will be billed under this task order are disproportionately allotted to higher-wage management staff. In fact, the Principal Project Manager and Sr. Project Manager positions combined account for approximately 10.4% of

the hours allotted in this task order.

OPTIONS / ADVANTAGES / DISADVANTAGES:

1. The City Commission can award the task order to CH2M Hill and proceed with the sewer pump station VFD project on a timely basis. This firm has successful experience working with the City on other projects of a similar technical nature, and has very capable staff to ensure successful project completion. This option is recommended by City Staff, as the neither City nor OMI have the personnel available with the ability to perform the scope of work included in this task order.
2. The City Commission can decline the task order from CH2M Hill. This option is not recommended by Staff, as the City will not be able to utilize the engineering services that are essential in completing the project. City Staff believes that CH2M Hill is the firm that can best design the VFD Project of the engineering firms we have under contract. Without hiring a design firm, the City will not be able to obtain the energy and equipment savings from this green project.

FINANCIAL IMPACT:

The City Commission has budgeted \$250,000 for FY2013 for the design of the VFD project, therefore the design costs will come in below budget. The task order will be funded by budget line item 401-3503-535-65/SE 1301.

RECOMMENDATION:

Staff recommends that the City Commission select option 1, approving task order 2-12-STM from CH2M Hill in the amount of \$206,192 for engineering services for the design, permitting, and bid phase services for the VFD upgrades to City Sewer Pump Stations A, B, C, D, and DA.