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**CITY OF HALLANDALE BEACH
FY 2013-2014-006 Continuing Professional Services
Discipline: Mechanical/Civil Engineering**

**HAZEN AND SAWYER
WORK AUTHORIZATION M2015-003**

Water Treatment Plant High Service Pump Station Replacement

In accordance with Resolution #2014-138, RFP #FY 2013-2014-006 Continuing Professional Services, the following scope of services is provided by Hazen and Sawyer (CONSULTANT) as requested by the City of Hallandale Beach (CITY).

BACKGROUND

The CITY has successfully maintained the water treatment plant's high service pumps (HSPs). However, this equipment is now nearing the end of useful life. The CITY previously retained CONSULTANT to complete the conceptual evaluation of the replacement of the HSPs. The CITY has decided to install three of the four pumps identified in the TM with appurtenances constructed to facilitate the future installation of the fourth pump. At the CITY request, CONSULTANT has prepared this work authorization to address the design of the upgrades that are recommended in the TM.

The Scope of Work to be performed includes design through construction oversight assistance services. The design shall include the following major elements:

- Demolition of existing HSPs and appurtenances;
- Demolition of existing diesel generator in pump room;
- Installation of three HSPs (4,500 gpm at 175 ft total dynamic head) with associated appurtenances;
- Defined slot (tees with blind flanges) for the fourth HSP to be added in the future;
- Installation of pumps discharge piping and valves;
- Instrumentation and controls for remote monitoring and control including the PLC/local control panel;
- Electrical improvements including new Switchgear MF-2, motor control center (MCC) to house variable frequency drives for the new pumps, miscellaneous improvements to existing lime plant MCC-1, required duct banks and conductors and other miscellaneous electrical components;
- Replacement of existing checker plate and frames with grating and frames on pipe trenches; and
- Minor building and HVAC improvements to convert and existing HSPs building area into a new electrical room to house the MCC and variable frequency drives.

The CITY has requested CONSULTANT provide these services as detailed in the following scope of work.

SCOPE OF SERVICES

TASK 1 – DESIGN

CONSULTANT shall prepare detailed design drawings and technical specifications that detail the character and extent of the project. The design will be based on removing all of the high service pumps from the building and installing proposed pumps while the City maintains high service pumping from the existing diesel pump and additional rented high service pumping equipment. Design of the required additional interim high service pumping is not included in this project.

60% Design

The 60% design milestone submittal shall consist of technical specifications, design criteria, and design drawings. Drawings shall include plan views and schematic diagrams. Drawings shall be 11-inch by 17-inch. Design criteria shall be in the form of a spreadsheet that lists key information for the sizing of the equipment.

CONSULTANT shall provide CITY with three hard copies and one electronic copy (PDF format) of 50% design documents (drawings and technical specifications). CONSULTANT shall meet with CITY to receive and discuss CITY's review comments. CONSULTANT shall incorporate into the design documents the review comments of CITY as required. Meeting notes shall be prepared by CONSULTANT and distributed electronically to attendees.

100% Design

CONSULTANT shall provide CITY with 100% design documents (technical specifications, design criteria, and design drawings) that incorporate comments received from CITY during the design review meeting.

CONSULTANT shall provide CITY with three hard copies (additional copies will be provided if needed) and one electronic copy (PDF format) of 100% design documents. Hard copy drawings shall be 22-inch by 34-inch. Drawings will be signed and sealed for use in the City's "dry run" review with the Building Department.

CITY will provide the 100% design documents to the Building Department for a "dry run" review.

CONSULTANT shall update the construction cost estimate and submit it with the 100% design documents.

Task 1 Deliverables:

1. 60% Design Submittal: CONSULTANT shall provide CITY with three hard copies and one electronic copy (PDF format) of 50% design documents (drawings and technical specifications).
2. 60% Review Meeting and Meeting Notes: CONSULTANT shall meet with CITY to receive and discuss CITY's review comments. CONSULTANT shall incorporate into the design documents the review comments of CITY as required. Meeting notes shall be prepared by CONSULTANT and distributed electronically to attendees.
3. 100% Design Submittal: CONSULTANT shall provide CITY with three hard copies (additional copies will be provided if needed) and one electronic copy (PDF format) of 100% design documents. Hard copy drawings shall be 22-inch by 34-inch. Drawings will be signed and sealed for use in the City's "dry run" review.
4. Construction Cost Estimate: CONSULTANT will submit a construction cost estimate with the 60% design submittal.
5. Construction Cost Estimate Update: CONSULTANT shall update the construction cost estimate and

submit it with the 100% design documents.

TASK 2 – PERMITTING

CONSULTANT shall coordinate and attend meetings with the following regulatory agencies to discuss the requirements for acquiring pre-bid construction permits for this project:

- Broward County Environmental Protection and Growth Management (BCEPGMD)
- Broward County Health Department (BCHD)

CONSULTANT shall coordinate contact with these agencies. CONSULTANT shall prepare permit applications the BCEPGMD and the BCHD. Permit application submittal shall include submittal of signed and sealed drawings, specifications and completed application forms.

CONSULTANT shall prepare responses to the regulatory agencies request for additional information (RAI) regarding each permit application referenced above.

CONSULTANT shall meet with the City of Hallandale Beach Building Department to review the drawings and technical specifications. The City of Hallandale Beach Building Department will perform a “dry run” review of the 100% design documents.

CONSULTANT shall provide responses associated with meeting with the CITY’s Building Department and responding to its requests for additional information.

TASK 3 – BID SERVICES

CONSULTANT shall provide the following services during bidding:

- Attend pre-bid meeting with prospective bidders;
- Assist with preparation of and issue addenda as appropriate to interpret or clarify contract documents (limited to technical content only) ;
- Prepare six conformed sets of contract documents.

CITY’s responsibilities during bidding include the following:

- Reproduce and distribute bid documents to Contractors requesting documents;
- Maintain a list of plan holders;
- Issue addenda to plan holders; and
- Verify references for apparent low bidder and make a recommendation to Procurement Department

TASK 4 – CONSTRUCTION OVERSIGHT ASSISTANCE

The CITY will provide overall project management and coordination between the CITY, Contractor and CONSULTANT. The CITY will provide for continuous inspection services of the HSP and associated equipment installation. Services to be provided by CONSULTANT shall be limited to the technical review of submittals, technical assistance with requests for information (RFIs), site visits by discipline engineers of record, testing oversight assistance, preparation of record drawings and certifications to permitting agencies as detailed under this Task.

Subtask 4.1 – Construction Phase Coordination

CONSULTANT shall provide necessary services for the in-house management of the project during the construction phase. Such management activities shall include project coordination with the CITY, and Contractor, coordinating and scheduling meetings and site visits, and general correspondence with CITY, Contractor and subcontractors.

This scope assumes services at a level of approximately eight hours per month for a period of 12 months.

Subtask 4.2 – Contract Interpretations/Requests for Information

CONSULTANT shall review requests for information (RFIs) and prepare technical responses to RFIs on an as-requested basis from the CITY. Non-technical administrative interpretations will be issued by CITY and copied to CONSULTANT.

This scope assumes services at a level of approximately 16 RFIs to be reviewed technically at approximately 8 hours per RFI.

Subtask 4.3 – Change Orders

CONSULTANT shall prepare requests for proposal (RFPs) and review change orders (COs) on an as-requested basis from the CITY. CONSULTANT shall provide technical input for requests for routine project cost and/or schedule changes from the Contractor to the CITY. CONSULTANT analysis of the change request shall be forwarded to the CITY for processing.

CITY will evaluate the impact of the change request in terms of project cost and schedule. This scope assumes services at a level of approximately six RFPs plus two change orders at approximately 8 hours per RFP and 8 hours per change order.

Subtask 4.4 – Submittals

CITY will receive and log submittals from the Contractor. CITY will forward technical submittals for CONSULTANT's review. CONSULTANT shall review technical submittals and provide CITY the technical review electronically for return to the Contractor.

CITY will review other submittals that the Contractor is required to submit. This scope of services assumes up to 40 submittals will require CONSULTANT's technical review.

Subtask 4.5 – Discipline Observations

CONSULTANT shall furnish the periodic services of discipline engineers (mechanical, electrical, structural, and instrumentation engineers) during construction perform specialized inspections associated with work and compliance reporting in accordance with regulating requirements.

Discipline observation labor is based upon performing the observations associated with compliance with the Broward County Health Department and Building Department construction permit requirements.

Subtask 4.6 – Control System Field Testing

This task includes observation of the operational testing of the instruments, controls and modification of the existing control system. This task shall include the following:

- Participate in control system preliminary design meeting

- Confirm instrument calibration and obtain copies of Contractor calibration sheets
- Witness signal-loop checks
- Witness control strategies tests
- Witness proper functioning of operator work station HMI graphic displays, including: 1) activation of alarm set points; 2) historian data collection and automatic creation of charts for run time, cumulative flow and other key data; and 3) graphic displays match approved shop drawings and specified features are functional.
- Review function of daily, monthly, and other specified reports
- Miscellaneous re-checks

Subtask 4.7 – Meetings

CONSULTANT shall participate in up to 12 meetings with the Contractor and CITY. The purpose of the meeting is to review the progress of the work on a monthly basis. One representative of CONSULTANT shall attend the progress meetings. CITY will chair the meeting and prepare and issue meeting minutes.

Subtask 4.8 – Record Drawings

CONSULTANT shall update the design drawings to incorporate the Contractor's red line "record drawing" markups on the design drawings. The record drawings shall incorporate those changes made during the construction process, based on the marked-up prints, drawings and other data furnished by the construction Contractor to CONSULTANT.

Subtask 4.9 – Project Certifications

CONSULTANT shall provide signed and sealed completion certification statement/letters required by the Broward County Health Department to certify that the project has been completed in substantial accordance with the contract documents and request permission to place the facility into service.

ASSUMPTIONS

The following assumptions were made in preparation of the above scope:

1. The design of this project assumes that the entire HSP building can be taken out of service during construction. CITY will operate the existing diesel HSP and will procure additional temporary HSPs as needed to meet high service pumping requirements in the City throughout the duration of construction (approximately twelve months with approximately six months of active pumping).
2. Three 6 mgd HSPs will be provided under this design with a fourth HSP identified as a future installation.
3. Permitting comments from regulatory agencies will be incorporated in the design documents after the 100% design submittal and prior to bid.
4. CITY will provide the 100% design documents to the Building Department for a "dry run" review.
5. The Front End documents (Contract Requirements) will be prepared by CITY.
6. CITY will incorporate Front End documents to produce Bid Documents (CONSULTANT will provide a pdf version of the technical specifications for CITY's use).
7. The CITY will pay for all permitting fees.
8. Fifteen calendar days of review time for CITY have been provided for in CONSULTANT's time of performance.

9. A survey or a geotechnical report is assumed to not be required for permitting.
10. The design documents will be prepared as a single construction project.
11. Numbering of technical specification sections shall follow CONSULTANT's normal practice.
12. A construction field office for the Engineer's use is not required under this project.
13. The CITY will maintain a hard copy of all shop drawing submittals and schedules at the WTP for CONSULTANT's use during construction.
14. The design of this project assumes that existing building upgrades to meet current Building Codes, outside of major design elements noted, are not required.
15. The design of this project assumes that electrical upgrades are limited to the plant high service pumping facilities.
16. CITY will review and approve payment applications by Contractor.
17. CITY will provide daily routine inspections of project. CITY will send summary email with photos to CONSULTANT.

SCHEDULE OF COMPLETION

The Schedule for the major work tasks is summarized below.

Task	Description	Duration for task/subtask (days)	Calendar Days From Notice To Proceed
1	Design <ul style="list-style-type: none"> • 50% Design • City Review of 50% Design • 90% Design • City Review of 90% Design • 100% Design 	100 15 120 15 30	100 115 235 250 280
2	Permitting	60	340
3	Bid Services	120	460
4	Construction Oversight Assistance	365	825

COMPENSATION

Compensation shall be made to CONSULTANT as indicated in the table below.

Task	Description	Compensation Type	Estimated Fee
1	Design	Lump Sum	\$204,700
2	Permitting	Lump Sum	\$ 22,400
3	Bid Services	Lump Sum	\$ 15,400
4	Construction Oversight Assistance	Not to Exceed	\$148,900
099	Expenses	Not to Exceed	\$ 8,000
TOTAL			\$399,400

AUTHORIZATION - HAZEN AND SAWYER, P.C.

Accepted: Patrick A. Davis, P.E.
Vice President

2-18-16

Date: