

APPENDIX A TECHNICAL SPECIFICATIONS

069-18 – Engineering Services for the Twin Creeks RW Storage Tank and Booster Pump Station

DESCRIPTION OF SCOPE OF SERVICES

GENERAL

The Twin Creeks project include the design for two (2) reclaimed water storage tanks and booster pump station to store reclaimed water during off-peak hours and repump to the Twin Creeks development during peak demand periods. This project is located in St. Johns County at the existing Twin Creeks master pump station.

Consultant agrees to provide Engineering Services for the above project as outlined herein.

SCOPE OF SERVICES

The Scope of Work for this project consists of preliminary design, final detailed design, bid phase assistance, engineering support services during construction, and acceptance testing.

TASK PLAN

A. General tasks that are to be included in this project:

1. Ground Storage Tank – Size and design two (2) 1.5 Mgal (usable volume) new ground storage tanks to fulfill peak water demands with design to include a need for a supplemental water supply. Economic decisions may be made to only provide one tank at this time but, the design intent is to design this project for two ground storage tanks. The tanks can only be filled during off-peak hours.
2. Booster Pumps
 - a. Design three (3) pumps, at a minimum of 1,500 gpm each with consideration for a future buildout capacity of 7,000 gpm with a downstream pressure of 70 psi.
3. Booster Pump Building(s) – Design new building to house booster pumps, electrical gear, SCADA equipment, backup power generator, and restroom. Building shall be designed with HVAC, lighting and include all safety and security requirements in the JEA Standards. Building shall include a lift system (crane, hoist, monorail, etc.). Landscaping for the site shall coordinate with the JEA standards. The building shall be sized for current and future needs, considering future pumps and electrical.
4. Controls – Develop control logic for pumps, tanks, and off-site reclaimed water system valves in consideration of the total reclaimed water delivery system with built in flexibility for future modifications.
5. Piping and Valves – Design new piping and valves for current and future needs. A 20-inch reclaimed water main will be installed under a separate contract to serve reclaimed water to this site from the east. A future project is planned to bring a 20-inch reclaimed water pipe from the west also. Coordination with JEA and the Twin Creeks development engineer will be required to determine the location of external reclaimed water connections to the site.
6. Backup power generator(s) – Size and design new generator and fuel systems, in accordance with JEA Standards, for booster pumps on both Twin Creeks site.
7. Access road – Design a stabilized access road to provide for site access needs at Twin Creeks site.
8. Permitting – design and prepare permitting requirements, if any for proposed work.
9. Site improvements- design site improvements including landscaping and security coordinated with JEA requirements. It is the responsibility of the project engineer to determine the most cost effective orientation of the site and internal structures. This shall include: two (2) 1.5 Mgal storage tanks, a pump enclosure, additional land area for access, parking, stormwater requirements, etc.
10. A final boundary survey is required prior to starting design.
11. Deed restrictions applicable to this property regarding structure height, landscape buffer and landscaping shall be reviewed and included in the scope of the project.
12. All planned improvements should be coordinated with the St. Johns County Development Review committee and any other authority requiring review.

13. Project Engineer is responsible for determining the overall site dimensions based on a phased construction approach. The orientation of the pumps, piping and tanks must be configured to optimize maintenance and future site needs.

B. Design Kickoff Meeting

Attend the design kickoff meeting at the date and time established by JEA. Take meeting minutes and submit to JEA.

C. Design Criteria

Comply with the latest JEA Water & Sewer Standard Specifications; JEA Water, Sewer and Reclaimed Water Design Guidelines requirements; JEA Rules and Regulations for Water, Sewer & Reclaimed Water Services for water pipeline design. The JEA Water & Sewer Standard Specifications are located at the following link on jea.com:

https://www.jea.com/engineering_and_construction/water_and_wastewater_standards/

Additional requirements may include standards and requirements of the DEP, SJRWMD and St. Johns County.

D. Opinion of Costs

Consultant will prepare opinions of construction cost, including a one-page summary of major components, at all stages of deliverables in accordance with the Association for the Advancement of Cost Engineering International, Inc. (AACE) for the purpose of assisting JEA in preparing budget funding request, evaluating design options. Expected accuracy will be as follows: Class 4 estimate for 10% design deliverable, Class 3 estimate for 30% design deliverable and system study, Class 2 estimate for 60% design deliverable, and Class 1 estimate for 90% and 100% design deliverable. In addition, with each opinion of cost, Consultant will show variances, in percentage and dollar amounts, in estimates of major components of the project. JEA will provide a template for the Consultant to use.

E. System Modeling

Consultant will evaluate operating conditions (head, maximum and minimum flow rates, submergence, and or NPSH) through construction of hydraulic model. JEA will supply GIS grid layers including pipe information, and other reclaimed main system data as needed. JEA will supply copy of its InfoWorks WS hydraulic model of the force main system. JEA may export data forms based on the Consultant's software.

Consultant to confirm existing modeling parameters including but not limited to:

- Existing flow conditions
- Verify future flow conditions (20-year projected flows) based on planned growth within basin boundary
- Identify upstream and downstream pump stations
- Identify field data (reclaimed main pressures, pump tests) to be performed, and any existing documentation necessary to adequately represent the system in the model; JEA may provide daily runtime data from the SCADA system
- Selection of proposed station pumps and equipment
- System hydraulic schematic which includes all flow conditions (ADF, PF, PHF)
- Tabulate head conditions for the Reclaimed Water Booster Pump Station
- Identify any system deficiencies (reclaimed main sizing, transient pressure areas of concern, stations that cannot pump against new conditions, etc.)
- Determine system overflow points upstream of the station in event of booster pump failure, and holding time availability in the system

Consultant will take full responsibility for the accuracy of the hydraulic calculations. Consultant will be responsible for signing/sealing the head conditions on the selected pumps. Consultant will develop a signed & sealed Technical Memorandum describing the modeling runs performed and the result obtained.

Technical Memorandum shall include:

- o Description of design effort including gathering of input data, model setup, calibration efforts, describe modeling runs, detail results obtained
- o Provide performance verification runs
- o List existing and future flow conditions
- o Identify affected pump stations and detail specific improvements required to correct deficiencies (include opinion of probable cost for each improvement)
- o Identify other network deficiencies such as reclaimed main size, transients, etc. and detail specific improvements required to correct deficiencies (include opinion of probable cost for each improvement)
- o Map location of overflow points and list available holding times
- o Pump station design including:
 - Cross section view of station showing station piping, fittings, and wet well elevations
 - Pump information including model, impeller diameter, horsepower, motor speed, operating voltage, control panel
 - Detail operating points based on pumping configuration
 - Incorporate station expansion considerations in the design including empty pump slots, etc.
 - Overpressure protection

F. Permitting Assistance

Provide assistance to JEA in filing and obtaining all necessary permits from local agencies that may include but are not limited to:

- St. Johns County Development Review
- St. Johns River Water Management District
- Florida Department of Environmental Protection
- FDEP Generic Permit for Groundwater Discharge
- An Environmental Resources Permit (ERP) for storm water management. ERP will be submitted to SJRWMD and/or Army Corps of Engineers (ACOE) if required
- EPA NPDES General Permit for Construction Activities including Notice of Intent and Notice of Termination forms **if required**
- Review with Environmental Quality Division (EQD) for determination of wastewater collection system construction permit requirement in accordance with the Florida Administrative Code (FAC) Rule 62-604, the Department of Environmental Protection (DEP) program guidance memorandum DOM-97-01 and the Environmental Protection Board (EPB) Rule 3, and submit a wastewater collection system construction permit **if required**.

Assistance will include:

- a. (Pre)Meetings with permit authorities as needed to insure necessary approvals.
- b. Preparation of applications, exhibits, drawings, and specifications as needed for execution and submittal.
- c. Furnishing additional information about the project design as required for permit approval.
- d. Submittal of applications to the permitting authorities.
- e. JEA will provide payment for necessary permits.

G. Construction Contract Documents

1. Prepare detailed dimensioned engineering drawings (to scale), specifications, and Bid Form for the proposed construction work and for materials and equipment required. The documents shall be prepared for selection of private construction contractors on a competitive bid price basis. The documents shall be prepared as one contract.
2. Update the opinion of probable construction cost for the proposed work covered by the contract documents and provide with final construction contract documents.

3. Review the contract documents for completeness and constructability.
4. JEA will provide Enterprise Asset Management Documentation and Schedule of Values form for inclusion in bid specifications.
5. Provide six (6) sets of contract documents and an electronic copy to JEA for review at 10 percent (10%), 30 percent (30%), 60 percent (60%), 90 percent (90%) and final construction drawings.
6. Provide a critical spare parts list to be included in the (proposal)
7. Following the review of the completed contract documents meet with JEA to discuss them and to resolve any questions. This item provides for four meetings with JEA personnel to discuss review comments.
8. Bidding Documents provided to JEA include drawings, Proposal form, specifications, geotechnical report, other documents as required, and text for inclusion into the JEA Special Conditions, if needed.
9. Provide one CD with electronic drawing files and six copies of the final construction drawings to JEA. Provide electronic files of specifications in PDF (.pdf) format and drawings in PDF (.pdf) and ACAD (.dwg) formats.

H. Proposal Phase Services

1. Attend the pre-bid conference at the date and time established by JEA.
2. Interpret construction contract documents with regard to Contractor questions. Support JEA with drawings and/or specification updates for addenda issuance. JEA will coordinate and issue all addenda.
3. JEA will conduct the bid opening. Designer is not required to attend the bid opening.
4. Provide Conformed drawings and specifications. JEA will be responsible for the coordination and distribution of conformed copies of the construction contract documents.

I. Construction Services

1. Attend and participate in the pre-construction meeting to answer technical questions. Review and approve shop drawings. The contract will include the time for two (2) reviews per drawing, if the second review is not approved, the submitting contractor will fund the additional reviews.
2. Attend monthly status meetings/site visits or as required by JEA.
3. Respond to Contractor RFIs. Responses that require additional corrections to plans or specifications will not be counted against this total.
4. Review Asset Management Information submittals, contractor submitted As-Builts, and completed work submitted as part of the monthly contractor's payment request application and invoice to ensure accuracy, completeness, and compliance with plans and specifications.
5. Prepare final testing and start up documentation.
6. Preparation of FDEP certification if required.
7. Substantial and Final Completion.
8. Review and approve final O&M manuals for the equipment.
9. Prepare and submit Record Drawings. As part of the contractor's monthly payment request application and invoice to ensure compliance with plans and specifications.

J. DELIVERABLES

Consultant shall provide the following deliverables to include but not limited to:

Ten percent (10%) Schematic Design Document

- Updated Project Description including (Reclaimed Water) System Summary
- Summary of design parameters
- Major Equipment List
- Process Flow Diagram
- Identification of Civil, Structural, Mechanical, Architectural, Electrical, and Instrumentation Design Parameters
- Preliminary hydraulic calculations

- Preliminary Process Calculations
- Preliminary Electrical One-Line Diagram
- Draft Piping and Instrumentation Diagram (P&IDs)
- Itemized Standards
- Plan Views
- Any proposed changes to site
- Process Design, Process Level, and Major Equipment Cost Estimate (+/- 30%)
- Preliminary Description of Construction Materials
- Final boundary survey is required prior to starting design

Thirty (30%) Conceptual Design Document

- Project System Design Description, which includes:
 - System Description, including the system identification, its function and general description.
 - Component Description, including designations and design descriptions and criteria. Within this section, design constraints and equipment sizing criteria are described. For example, design information such as system and pump curves, pump selection, pipe size and pressure class should be included.
 - Instrumentation and Controls (I&C), including process control, control loop descriptions, and I&C specifications that directly correspond to the P&ID.
 - System Operation, describing normal operations of the system.
- Finalized Reclaimed Water System Hydraulic Model Outputs
- Finalized civil, structural, mechanical, architectural, electrical, and instrumentation design parameters
- Finalized Process Flow Diagram
- Finalized and Locked P&ID
- Finalized Site Layout
- Plan Views and Major Elevations
- Electrical and I & C drawings
- List of Specifications
- Finalized Process Calculations
- Finalized Hydraulic Profile Calculations
- Class 3 thirty (30%) Conceptual Cost Estimate
- Survey and Geotechnical Report

Sixty percent (60%) Design

- 60% Design Documents – Drawings and Specifications
- Updated Project System Design Description
- Mark up of Specifications
- PID finalized and locked
- Finalized hydraulic calculations
- Updated Plan Views and Major Elevations
- Updated Electrical Schematics
- Final Project Schedule
- Construction Sequence
- Class 2 sixty percent (60%) Cost Estimate and Variances

90% Design Document

- Ninety percent (90%) Engineering Drawings
- Ninety percent (90%) Written Specifications
- Updated Conceptual Design Documents
- Final Design Calculations
- Applicable Permits

- Enterprise Asset Management Documentation
- Class 1 ninety percent (90%) Definitive Cost Estimate and Variances

100% Design Document

- Final Project System Design Description
- Final Engineering Drawings-Detailed, dimensioned engineering drawings with equipment and piping laid out to scale
- Final Written Specifications
- Final Basis of Design Document
- Final QC performed
- Critical Spare Parts Review
- Schedule
- Survey
- Geotechnical Report
- Class 1 one hundred percent (100%) Final Cost Estimate and Variances
- Final Enterprise Asset Management (EAM) Documentation

Bid Documents

- Bid Set Engineering Drawings
- Bid Set Written Specifications
- Bid Form
- Related Bid Documents
- Proposal Summary and Tabulation
- Award Letter of Recommendation

Construction Documents

- Conformed Engineering Drawings
- Conformed Written Specifications

Progress Meetings

- Consultant should attend these meetings, take minutes and submit meeting minutes from the meetings

K. INFORMATION BY JEA

The following shall be provided by JEA for this RFP:

- Project Definition

L. SCHEDULE CONSTRAINTS

The design/permitting phase services shall not exceed 10 months. Preliminary design report through Final design/permitting phase shall be completed in accordance with the attached program schedule.

**APPENDIX B
PROPOSAL FORM**

069-18 Engineering Services for the Twin Creeks RW Storage Tank and Booster Pump Station

COMPANY INFORMATION:

COMPANY NAME: _____

BUSINESS ADDRESS: _____

CITY, STATE, ZIP CODE: _____

TELEPHONE: _____

FAX: _____

EMAIL OF CONTACT: _____

PROJECT MANAGER PROXIMITY

In order to receive points for this criterion, Company's office must be occupied and staffed with at least three (3) employees for a duration of six (6) months prior to the Proposal Due Date stated in the RFP.

Check the box to confirm Company meets criterion ☐ YES ☐ NO

____ (Initials) I have read and understood the Sunshine Law/Public Records clauses contained within this solicitation. I understand that in the absence of a redacted copy my proposal will be disclosed to the public "as-is".

The Company shall submit one (1) original Proposal, three (3) duplicates (hardcopies), and four (4) CDs or USB drives. If there is a discrepancy between the electronic copy and hard copy, the hard copy will prevail. JEA will not accept Proposals transmitted via email.

Company's Certification

By submitting this Proposal, the Proposer certifies that it has read and reviewed all of the documents pertaining to this RFP and agrees to abide by the terms and conditions set forth therein, that the person signing below is an authorized representative of the company, that the company is legally authorized to do business in the State of Florida, and that the company maintains in active status an appropriate license for the work. The company certifies that its recent, current, and projected workload will not interfere with the company's ability to Work in a professional, diligent and timely manner.

The Proposer certifies, under penalty of perjury, that it holds all licenses, permits, certifications, insurances, bonds, and other credentials required by law, contract or practice to perform the Work. The Proposer also certifies that, upon the prospect of any change in the status of applicable licenses, permits, certifications, insurances, bonds or other credentials, the Company shall immediately notify JEA of status change.

We have received addenda _____ through _____

Signature of Authorize Officer of Company or Agent

Date

Printed Name & Title

Phone Number