

**Jefferson County Environmental Services Department**

**Qualifications-Based Selection Program**

**REQUEST FOR QUALIFICATIONS STATEMENT**

TO: All eligible A/E Design Consultant firms in the “Small Scale Wastewater Facilities and Line Work”, “Large Scale Wastewater Facilities and Line Work”, “Sanitary Sewer Rehabilitation/Maintenance Work” and “Other Professional Services” project categories

FROM: Jefferson County Environmental Services Department

Daniel A. White, Deputy Director

DATE: May 22, 2015

RE: Request for Qualifications Statement

Your firm is invited to submit your Qualifications Statement to become eligible to compete for consulting engineering and construction management services relative to the following upcoming project:

**ENGINEERING CONSULTANTS FOR THE ASSESSMENT OF WASTEWATER PUMP STATIONS**

Attached to this memo you will find the following:

1. A list of materials and information that should be included with your Qualifications Statement.
2. A general definition of the Preliminary Scope of Work.
3. Project Specific Selection Criteria/Grading Sheet
4. A Schedule of Activities for the selection process.

Your Qualifications Statement materials should be forwarded to the following address to be received no later than **5:00 p.m. on July 1, 2015***.* Qualifications Statements should be mailed or hand delivered. Emails or Facsimiles will not be accepted. Consultants should submit at least **five (5)** copies of their Qualifications Statement. Qualifications Statements should be submitted to:

**Mr. Daniel A. White, P.E.**

**Deputy Director**

**Jefferson County Environmental Services Department**

**Suite A-300**

**716 Richard Arrington, Jr. Blvd. N.**

**Birmingham, Alabama 35203**

**Jefferson County Environmental Services Department**

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**REQUIREMENTS FOR QUALIFICATIONS STATEMENT**

**PROJECT NAME: ENGINEERING CONSULTANTS FOR THE ASSESSMENT OF WASTEWATER PUMP STATIONS**

Qualifications Statements should include the following information:

1. Name, address, and brief description of the firm.
2. Qualifications and availability of key personnel to be assigned to this project demonstrating relevant professional skills related to this project and experience on similar assignments. Clearly indicate individuals’ designated roles and responsibilities for this project team, addressing all applicable disciplines (e.g. site/civil, pumps/process, piping/valves/hydraulics, electrical, instrumentation/controls, structural, and HVAC/mechanical). Provide resumes (limited to 2-pages each) for key team members.
3. Statement regarding Firm’s particular abilities and qualifications related to this project. Demonstrate Firm’s reliability, quality of work (including quality assurance practices), and responsiveness. Present any special tools, innovative practices, or other differentiators that distinguish the Firm’s ability to perform the identified Engineering Services efficiently, accurately, and in a timely manner. A/E Design Consultant may offer input into the project approach and shall identify any exceptions taken to the preliminary scope of work.
4. Description of projects completed by the Firm that are pertinent to this project; please choose no more than five (5) projects to provide detailed information that evidence expertise and experience related to this project. Include current reference contact information for each project as follows: name / title / company / physical address / phone / email address.
5. If applicable, a summary of previous work performed for Jefferson County Commission.
6. Other information which you feel may be useful and applicable to this project.

Engineering Services:

1. Pump Station Inspection and Assessment
2. Arc Flash Analysis
3. Preliminary Pump Station Design

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**PRELIMINARY SCOPE OF WORK**

**PROJECT NAME: ENGINEERING CONSULTANTS FOR THE ASSESSMENT OF WASTEWATER PUMP STATIONS**

**Background and System Information:**

The Environmental Services Department (JCESD), under the direction of the Jefferson County Commission and the County Manager, has the responsibility to collect, transport and treat sanitary wastewater throughout Jefferson County and portions of neighboring counties.  The department maintains over 3,100 miles of sewer lines, 174 pump stations and nine wastewater treatment plants. The sewer system serves an estimated population of 480,000 residents of the County with the potential to treat 199 million gallons of wastewater per day. The County remains under a Consent Decree for five of the nine sewer basins.

**Project Description:**

Jefferson County has undertaken a project to enable effective management of its sanitary sewer collection system through an Asset Management Program (AMP). Jefferson County contracted with Hazen and Sawyer for the implementation and management of the AMP. The AMP consultant will oversee and coordinate the work of the selected consultant as directed by JCESD.

JCESD desires to conduct investigations at its pump stations for the purposes of CIP planning and budgeting for improvements to increase reliability and bring the pump stations to their required design capacity. Also, Hazen and Sawyer desires to gather pertinent data from each pump station as required for accurate model development and calibration. Thus, the County intends to pre-select through a Qualifications-Based Selection (QBS) process up to three qualified Consultants to provide the engineering services outlined herein. The County may choose to extend the scope of this project to include other work at pump stations.

**Consultant’s Scope of Work:**

It is anticipated that Hazen and Sawyer, as AMP manager, will identify the pump stations for inspection and assessment as well as which pump stations will have preliminary designs completed. Each selected A/E Design Consultant will provide required planning, design and related services through a Contract with JCESD. Each A/E Design Consultant will meet monthly with Hazen and Sawyer and the County to review progress and status of work activities. Each A/E Design Consultant will be responsible to develop and maintain a progress schedule of its activities in an approved format designated by Hazen and Sawyer. Each A/E Consultant will be required to develop an approved Quality Assurance Plan for this project and to perform appropriate quality control reviews of all deliverables.

Pump Station Inspection and Assessment

Selected A/E Consultant will conduct inspections and perform detailed condition assessment investigations at pump stations slated for inspection/assessment. As part of the AMP, Hazen and Sawyer has developed an inspection and assessment protocol along with standard forms (to be completed electronically). The developed protocols and forms shall be used by the A/E Consultant for the inspections/assessments. The A/E Consultant will be provided available drawings, and other relevant information. Where needed to adequately prepare for the field inspections, Consultant may be required to research additional information, such as manufacturer-specific information regarding installed equipment. Consultant should not assume information is available such as preliminary design reports, original design plans and specifications, asbuilts, etc.

The purpose of the inspections are to obtain adequate data to fully develop and calibrate the model and to effectively evaluate the need to rehabilitate or replace each pump station to meet its current service area needs. The information obtained will allow for development of a phased program for rehabilitation/replacement, including both short-term and long-term needs. Maintaining consistency of the collected information will facilitate prioritization of improvements system-wide and provide a solid baseline regarding condition of the County’s pump stations.

Hazen and Sawyer will provide level of service (LOS) goals for each pump station. Example LOS goals may include a requirement that all pump stations pump peak flow at firm capacity during a power outage and/or that all pump stations meet “Ten States Standards” for new pump stations. LOS goals will be refined as the model is updated with data from the field inspections, and Consultant will subsequently update improvement recommendations as required.

It is anticipated that a mechanical process engineer, an electrical engineer, and a structural engineer will typically visit each pump station as required and visually evaluate the physical condition of the station’s systems. Hazen and Sawyer, at its discretion, may choose to accompany Consultant and be present on any or all pump station assessments. It is assumed that at least one JCESD operator will be on site during the inspections and will provide access to all facilities as needed. Consultant will coordinate with both JCESD and Hazen and Sawyer to schedule inspections, arrange for any required assistance, equipment, etc. Except for the pump drawdown testing, the inspections will be based on visual inspection and dimensional measurements only.

*Data Collection and Management*

Hazen and Sawyer has developed an electronic assessment database tool and standard inspection forms for use in these inspections. Standard forms provided by Hazen and Sawyer will be utilized to perform the inspections/assessments. The inspection forms will be in electronic format and stored in a database tool that will house all inspection-based information. Consultant will review the database tool and inspection forms and provide input to best facilitate the inspections. All information and data collected by Consultant will be input electronically in the field. The data will include a condition rating system that will be based on a score of 1-5 for each portion of the facility and will include photos to document each component, which will be linked to the assessment database tool. In general, the completed forms will indicate the following:

1. Site Conditions – General condition of site assets such as the driveway access gate, driveway, site fencing, site pad, site lighting, surrounding grade and soil stability, security measures, and site utilities.
2. Building Envelope Conditions – General condition of exterior walls, roof, entry doors, interior walls, ceiling, lighting system, coating systems, and ventilation systems.
3. Pump Station Dimensions – Wet well shape and dimensions; influent pipe elevations/depths; high alarm levels; overflow location and elevation/depth (if at or nearby pump station site); station piping sizes, material, configuration, and dimensions; etc.
4. Meter Readings – Current pump hour meter readings, flow meter totalizer readings, etc.
5. Pump Operation / Controls – Pump on/off levels, method of control and settings for variable speed pumps, min/max speeds for variable speed pumps, etc.
6. Well/Storage Tank Conditions – General condition of the wet well and accessories with emphasis on corrosive effects of hydrogen sulfide gas on concrete and steel.
7. Dry Pit/Vault Conditions – Inspection of the structure, as well as, the top slab, hatches, interior walls, lighting, and ventilation (if applicable).
8. Pump and motor information – Identification of installed pumps and motors, including (if available) manufacturer, model number, serial number, impeller trim, rated capacity, rated speed, motor hp, service factor, and other available/accessible nameplate information. Identification of each pump’s numbering within the station (i.e. indicate which is Pump 1, 2, 3, etc.).
9. Mechanical Equipment Conditions – General condition of the pumps and piping systems, as well as, results of drawdown testing. It is assumed that JCESD staff will be made available to assist Consultant in determining any necessary field data including control settings, discharge pressures, and drawdown results as needed.
10. Miscellaneous Auxiliary Equipment Conditions – General condition of odor control systems, chemical feed systems, containment areas, hoisting systems, and backup generators.
11. Electrical Equipment Conditions – General condition of control panels, wiring, conduits, and electrical gear. Note that evaluations will not include a complete code evaluation, but obvious code issues will be noted. Data for arc flash study requirements will also be gathered.

Completed forms will also indicate known startup dates for key assets, estimated useful life of key assets, remaining estimated useful life estimates, preliminary recommended improvements, ranking of improvement importance, and photographic documentation for future assessment comparison purposes. All available pump performance curves, including factory test curves when available, will also be linked to the assessment database. For pump stations where manufacturers’ pump curves are not already available or provided during the assessments, Consultant will contact pump suppliers and/or perform other research as needed to obtain manufacturers’ performance curves wherever practicable. All relevant pump station information and data collected, including the complete pump station assessment database, will be turned over to Hazen and Sawyer, combined with data from other Consultants, and subsequently given to JCESD.

*Improvement Ranking Categories*

Each recommended improvement identified during the condition assessments will be classified based on a risk score for prioritization. The proposed rating criteria/scoring for each category are presented below.

* Condition Grade 5 - Represents assets in severely degraded condition with the most critical need for improvement. Grade 5 scores are reserved for assets which are essentially unserviceable and are necessary to avoid a potential failure or eliminate a significant safety concern.
* Condition Grade 4 - Represents improvements that are critical to avoid an asset failure or major safety concern. These improvements are for assets which are still serviceable and have useful life remaining. The purpose of the recommended improvement is to bring the asset back to full service and/or minimize the risk to avoid a significant reduction in remaining useful life.
* Condition Grade 3 - Represents assets which are still functioning properly, but require significant maintenance to prevent further degradation. The improvements identified under Grade 3 are necessary to maintain the functionality of an asset.
* Condition Grade 2 - Represents assets which are in good condition with only minor defects and minimal need for improvements. Improvements identified as Grade 2 are necessary but do not require immediate attention. These types of improvements are intended to help extend the useful life of the asset and minimize future more-expensive repair costs.
* Condition Grade 1 - Represents assets which are in very good condition or have only minor deficiencies, which do not impact the overall performance of the pump station. These conditions are more cosmetic in nature or create a nuisance for operators. These types of improvements are not expected to impact the useful life of the asset.

*Pump Drawdown Testing*

As part of each pump station assessment, Consultant will conduct drawdown tests for each pump and combination of pumps to identify pump operating points, develop system curve(s) for each pump station, and develop field performance curves for each pump. For pump stations that share a manifolded force main with one or more other pump stations, additional testing may be required to ascertain operating conditions under various scenarios. Hazen and Sawyer will provide procedures to be followed for the pump drawdown testing.

For this task, it is assumed that JCESD will provide the necessary calibrated pressure gauges to use for measuring pressures and calculating total system head. Also, it is assumed that one or more JCESD field operator(s) will be available as needed to perform the physical pump and valve operations for the test, including temporarily shutting off pumps at upstream and manifolded pump stations.

At the beginning of each test, pumps will be allowed to pump down as far as possible to observe potential blow-by at the pump connection to the riser pipe (for submersible pumps). Also, evidence of poorly-seated (i.e. leaking) check valves will be assessed. Possible poor hydraulic conditions will also be evaluated such as vortexing and possible NPSHA issues. All such issues shall be noted on the inspection forms and considered when reviewing test results. During each pump test, voltage and Amp draw measurements will be made on each phase of each pump, wherever such measurements can be safely obtained. Consultant will compare the pump test data, including power data, to available pump performance data to determine if pumps are performing according to their stated performance. Measured wet well levels, pressure readings, and other information obtained shall be used to estimate pumping rates and total system head, which shall subsequently be used to calculate an equivalent pipe roughness for the force main and to determine if capacity constraints might be caused by potential force main blockage issues (e.g. air binding, grease, sediment, pipe collapse, etc.).

*Arc Flash Analysis*

During each assessment, Consultant will also conduct an arc flash analysis at each pump station. Applicable data will be gathered for arc flash study purposes for each pump station. The following arc flash related data is anticipated:

* Electrical utility service configuration and ratings (i.e. fault current, X/R ration, etc.)
* Power distribution system configuration and ratings.
* Ratings and settings for all protective devices
* Ratings configuration for all power distribution equipment
* Protective relay settings
* Motor data
* Cable length and sizes
* Standby power generator ratings and operation configurations
* Historical operational data
* Historical loads.

The information collected will be entered into SKM Power Tools software to perform the Arc Flash Evaluation. The results of the study will yield the following information:

* Arc Flash Boundaries
* Arc Flash Incident Energy (measured in cal/cm2)
* Hazard/Risk Category as defined in NFPA 70E
* Available Fault Current.

The results of the Arc Flash analysis will be evaluated to identify the areas where the Arc Flash incident energy is excessively high (above 8 cal/cm2). The power distribution system will be analyzed to determine if any system protective device setting modifications can be made to reduce the arc flash incident energy for these high energy areas of the power distribution system. Arc Flash mitigation measures that require additional engineering will be coordinated with JCESD on a case-by-case basis.

An Arc Flash Hazard Analysis report will be prepared and submitted to JCESD. The report will contain the following:

* Single line diagrams showing Arc Flash information.
* Recommended modifications to reduce Arc Flash energy for the areas of the power distribution system where the Arc Flash incident energy is excessively high.
* Revised relay settings for generator protective relays.
* Information from NFPA 70E pertaining to Hazard/Risk Categories and PPE requirement for each Hazard/Risk Category.
* Arc Flash hazard equipment labels for all equipment included in the Arc Flash studies. The Arc Flash label format will be coordinated with the JCESD so that the label format matches the format of exiting Arc Flash labels currently installed at other JCESD facilities. Arc Flash labels will be printed on durable weather resistant film.
* Written general Arc Flash safety standard operating procedure (SOP) for working on or near live parts.
* Recommendations on development of energized work permitting procedures.
* A list of protective device ratings and settings for all protective devices included in the study.

Preliminary Pump Station Design

Selected A/E Consultant will perform alternatives evaluations, prepare cost estimates, perform life-cycle cost analyses, and/or complete preliminary design of selected improvements for pump stations included in the Pump Station Inspection and Assessment task. Specific pump stations and scope of work will be as directed by Hazen and Sawyer. Consultant will utilize information and recommendations from the pump stations assessment database prepared under the Pump Station Inspection and Assessment task and other provided information in the performance of the work. Consultant may be asked to develop improvement alternatives, refine previously-identified improvements, evaluate improvement alternatives, prepare preliminary sketches or drawings, prepare preliminary engineering reports, develop cost estimates, and/or other related planning and preliminary design work.

*Rehabilitation Planning*

The results of the Pump Station Inspection and Assessment task together with the Preliminary Design work will be used to identify and prioritize needed improvements to the pump stations and to allow JCESD to allocate the necessary resources efficiently in the management and maintenance of the wastewater pump station system. This will provide JCESD with a phased list of initial needs and recommended improvements at the respective pump stations for preparing capital improvement and maintenance budgets for the next several years. In addition, estimates of the remaining useful life of key assets will be made and recommended long-term improvements for capital planning purposes will be identified. Preliminary designs will be used in the development of RFPs for design services and will inform and help direct subsequent design efforts.

*Preliminary Engineering Report*

Consultant will assist Hazen and Sawyer with developing a series of phased prioritized improvements for each pump station including cost estimates. Consultant will prepare a draft preliminary engineering report that summarizes the rehabilitation plan or replacement according to the following general outline for each pump station:

* 1. **Summary**
* Outline the deficiencies and problems found, risk of failure, and proposed resolution/mitigation
  1. **Existing Conditions**
* General including GIS site map and service area
* Field inspections forms
* Electrical service amperage test
* Sanitary sewer overflows (if applicable)
* Pump curves and capacity results
* Photographic documentation
  1. **Improvement Recommendations for Each Pump Station**
* Pump station building (if applicable) access, roof, floor, etc.
* Pump station structures (including wet well and valve vault)
* Pump station pumps
* Pump station piping and valves
* Pump station mechanical systems such as ventilation
* Pump station electrical, instrumentation and controls
* Pump station auxiliary systems such as chemical feed systems, odor control, and back-up power
* Site access and security
* Estimated costs to implement recommendations, ranking of importance, and recommended schedule to implement
  1. **Conclusions and Recommendations**
* Conclusions and total costs of pump station improvements
* Prioritized ranking of pump station improvements
* Proposed schedule to implement improvements
* Listing of near-term immediate needs and estimated costs
* Long-term asset management monitoring plan/schedule
* Capital improvements plan
  1. **Appendices**

The appendices will include all relevant pump station data collected and will include the pump station assessment database.

Consultant will submit the Draft Preliminary Engineering Report (PER) to JCESD and Hazen and Sawyer for review. Hazen and Sawyer and Consultant(s) will meet with JCESD in a review workshop(s) to present findings and receive review comments on the Draft PER. PER shall be finalized and submitted with a completed pump station assessment database within 30 days after receipt of final comments.

**Qualifications-Based Selection Program**

**SELECTION CRITERIA/GRADING SHEET**

**PROJECT NAME: ENGINEERING CONSULTANTS FOR THE ASSESSMENT OF WASTEWATER PUMP STATIONS**

Firm Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Criteria** | **Rating** | **x** | **Weight** | **=** | **Total** |
| **Firm’s Grasp of Project Requirements:**  Evaluate firm’s analysis, preparation, and understanding of the scope, complexity and requirements of this project. |  | x | **5** | = |  |
| **Firm’s Pertinent Experience and Capabilities regarding Pump Station Inspections and Assessments, Pump Station Alternatives Evaluation, Life-cycle Cost Analysis, and Preliminary Design:**  Evaluate firm’s technical capabilities and related experience on similar assignments and ability to perform work efficiently. Evaluate firm’s reliability, quality of work, and responsiveness. |  | x | **30** | = |  |
| **Key Personnel and Roles:**  Evaluate qualifications and professional skills of the individual team members designated for this project. Are roles and responsibilities clearly defined and consistent with qualifications? Is expertise demonstrated in all required disciplines? |  | x | **30** | = |  |
| **Key Personnel Availability:**  Evaluate availability of the designated team members. |  | x | **25** | = |  |
| **Previous Work for Jefferson County Commission:**  Evaluate extent of previous work performed by firm and designated team members for Jefferson County Commission, applicability to this project, and performance on that work. |  | x | **5** | = |  |
| **Other Relevant Issues:**  Evaluate importance of other issues presented by the firm. |  | x | **5** | = |  |
| **Total Score** |  |  |  |  |  |

**Instructions for Reviewers**:

Assign the consultant a rating for each category on a scale of one (1) to five (5), with five being the highest. Multiply the rating by the predetermined weight for each category and enter the total.

Reviewer Signature Date

**Jefferson County Environmental Services Department**

**Qualifications-Based Selection Program**

**ESD - SCHEDULE OF ACTIVITIES**

**PROJECT NAME: ENGINEERING CONSULTANTS FOR THE ASSESSMENT OF WASTEWATER PUMP STATIONS**

|  |  |
| --- | --- |
| **DATE** | **TASK** |
| May 22, 2015  May 29, 2015  June 5, 2015 | Dates to advertise project in Newspaper and on ESD web site. |
| June 5, 2015 | Date to end advertisement of project in Newspaper and on ESD web site. |
| June 12, 2015 | Deadline for consultants to submit their Consultant Eligibility Screening Applications to become eligible to compete for this particular project. |
| June 15, 2015 | ESD staff to review all new Consultant Eligibility Screening Applications in weekly staff meeting. |
| June 17, 2015 | Distribute Request for Qualifications Statements to all appropriately classified eligible consultants. |
| July 1, 2015 | Deadline for interested consultants to return Qualifications Statements to ESD (via ESD Contact). |
| July 6, 2015 | Distribute evaluation packages to ESD staff members who are participating in the review of the consultant’s Qualifications Statements. (Packages will consist of a copy of the consultant’s Qualifications Statement and a copy of the project-specific Selection Criteria/Grading Sheet.) |
| July 17, 2015 | ESD staff members participating in the review to complete evaluation of Qualifications Statements and come up with a short list of eligible consultants. |
| July 22, 2015 | Distribute notification to short-listed consultants advising them of the schedule and requirements for interviews. Notification will also be sent to consultants who are not short-listed. |
| August 5, 2015 | ESD staff members participating in the review along with David Denard and a staff member will conduct consultant interviews. Following the interviews, the consultants will be ranked and the top ranked consultant will be selected. |
| August 7, 2015 | Distribute notification to the short-listed consultants informing them of the selection. |