DEPARTMENT OF PUBLIC WORKS

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REQUEST FOR PROPOSALS

FOR
ENGINEERING SERVICES
FOR

Return Flow Pump Station and Advanced Phosphorus Treatment with Facilities Enhancement
for Clean Water Plant

Proposals must be submitted no later than
3:00 p.m. local time on September 28, 2018

For further information regarding this RFP,
contact Jeff Harenda, Plant Manager at (262) 524-3629, jharenda@waukesha.wi.gov
or Jon Schapekahm at (262)-524-3584, jschapekahm@waukesha-wi.gov

Late proposals will be rejected.

Issued: August 30, 2018

GENERAL

The City of Waukesha Department of Public Works is soliciting proposals for the design and construction services for a Lake Michigan Return Flow Pump Station and an Advanced Low Level Phosphorus Treatment system along with other Facility Plan enhancements for the Clean Water Plant. The City of Waukesha will be receiving drinking water from Lake Michigan which then must be treated at the City's Clean Water Plant and returned to Lake Michigan via a pump station discharging to the Root River. Volume and flow rates required have been determined through the City's Great Water Alliance Program. The phosphorus concentrations have been developed through the WPDES permit process and the allowable levels for the Root River are proposed to be lower than for the Fox River, (0.060 mg/L vs. 0.075 mg/L respectively). Infrastructure beyond the Clean Water Plant is being designed and constructed separately through the City's Great Water Alliance Program. The 20-year Facility Plan prepared in 2011 was broken out into four phases. This project would include phase two improvements which included phosphorus upgrades.

BACKGROUND INFORMATION

The Department of Public Works recently completed a major renovation as part of the Plant 20-year facility plan. The first phase included the updating of mechanical and process equipment throughout the facility with major upgrades to the solids processing including the addition of a new "egg" shaped anaerobic digester. In preparation for the next phase of improvements an Operational Evaluation Report and a Compliance Alternatives Plan were completed for the proposed low level phosphorus requirements as part of a compliance schedule in the current permit. That schedule was to coincide with the change of drinking water supply for the City which has since shifted out two years due to the time it has taken for Great Lakes Compact Council approval. That approval process was completed and the City embarked on an overall "program" branded the Great Water Alliance (GWA). The Department of Public Works has been working cooperatively within this overall program regarding the WPDES permit for the Root River discharge and Fox River renewal. Additionally, the GWA program developed a 30% preliminary design and report for the Return Flow Pump Station so that an amended Facilities Plan could be submitted to WI DNR. The GWA program has set the head and flow conditions for the required Return Flow Pump Station to be certain of compliance with the Great Lakes Compact Council approval, and coordination with the program throughout must be maintained.

ANTICIPATED SCOPE OF THE SERVICES TO BE PROVIDED BY DESIGN FIRM

The requested work includes the following:

1. Provide at a minimum the following meetings with the City of Waukesha:
    a. Initial kickoff coordination meeting
    b. One utility coordination meeting
    c. Bi-weekly conference calls through project design phase
    d. 30% Preliminary Design Report review of pump station prepared by others
    e. 30% plan review meeting/workshop for phosphorus and facility upgrades.
    f. One 60% plan review meeting for pump station, and one for phosphorus and facility upgrades.
    g. One 90% plan review meeting for pump station, phosphorus and facility upgrades.
    h. Pre-bid meeting
    i. Pre-Construction meeting
    j. Weekly construction meetings

2. Phosphorus Treatment:

Prepare a preliminary design report which evaluates the cost-effectiveness of individual unit process modifications proposed in the Phosphorus Compliance Alternatives Plan. Additionally, include an evaluation of any applicable new low level technology. Final recommendations for equipment and process selections shall be a component. Include an equipment pre-purchase

selection/negotiation process to base the rest of the design on, and incorporate equipment pricing into bid documents for construction. The preliminary design report shall include engineering and design of up to 30% of the total project and revised construction cost estimates for the complete upgrade project.

The final design must consider:

a. Existing head and flow conditions
b. Energy efficiency
c. Maintainability
d. Heating, ventilating, air conditioning and fire protection design criteria
e. Define electrical, standby power, and lighting design criteria
f. Structural and foundation design criteria
g. Instrumentation and control requirements
h. Accessibility
i. Other necessary and relevant considerations

3. Return Flow Pump Station:

A Preliminary Design Report (PDR) for the return flow pump station has been prepared for the City of Waukesha as part of the Great Lakes Water Supply program. The prepared design differs somewhat from a previous design prepared with the plant UV upgrade. The current design from PDR was prepared based on an updated flow analysis that set the minimum, average, and maximum flow rates for the pumps to reflect the final return flow system design. These flow conditions may still change as the Diversion Permit is finalized.

Prior to moving towards 60% design, a review and verification of the flow conditions shall be completed in conjunction with the Waukesha Water Utility. A Constructability Tech Memo Review document shall be prepared which outlines the most suitable design. The review shall include estimate of probable cost, complexity and interdependency to recommended alternatives.

The final design must consider:

a. Hydraulic Model for return flow system (designed by others)
b. Alignment with the return flow pipeline (designed by others)
c. Coordination on transient analysis for system (pumps and pipeline)
d. Energy efficiency
e. Maintainability
f. Redundancy
g. Pumps operated by the Clean Water Plant SCADA system
h. Pump removal system with truck access for the removal of the pumps
i. Heating, ventilating, air conditioning and fire protection design criteria
j. Define electrical, standby power, and lighting design criteria
k. Structural and foundation design criteria
l. Instrumentation and control requirements
m. Protective coating for the concrete to provide longevity
n. Communication of pumping volumes to Waukesha Water Utility
o. Coordination with the Waukesha Water Utility
p. Startup coordination for pump station and pipeline with GWA program

4. Facility Plan 5-10 Year Upgrades:

In addition to the phosphorus treatment, the scope of work for this project will also consist of several additional equipment replacements identified and phased in from the 20-year Facility

Plan. The general tasks to be included for each of these would be the design and specification for each item listed below following the same schedule as the phosphorus improvements.

a. Replacement of the pvc aeration piping and rubber diffusers in three of the activated sludge aeration bays.
b. Replacement of the five Bldg. 110 Primary Influent pumps and associated cabling.
c. Replacement of the five Bldg. 140 Primary Effluent pumps and associated cabling.
d. Replacement of Miscellaneous electrical equipment (Bldgs. 110, 140, 150 MCC's)
e. Miscellaneous door replacements.
f. Miscellaneous painting, (structures 230, 240, 400).
g. Miscellaneous slide gate repair/replace.

The final design must consider:

a. Existing head and flow conditions
b. Energy efficiency
c. Maintainability
d. Integration with existing controls, instrumentation, and scada

The aeration piping is the original as installed in 1991. The original stone diffusers had been replaced with the rubber type, and there was a recent change to the overall number of diffusers. The primary influent and effluent pumps are the originals as installed in 1991 although they have all had two major rebuilds performed over their life. The MCC's were also installed in 1991 and need to be updated to the current standard. The plug valves and check valves associated with the primary effluent pumps were recently rebuilt. All wet well level controls are also new. The individual starters for all the pumps were rebuilt recently, and VFD's replaced recently as well. The new pumps will have to work with the current SCADA controls.

5. Submit 60% draft construction plans and technical specifications for City review. Provide any revised construction cost estimates for the complete upgrade project. Upon City review of the 60% design, refine the design as necessary to produce 90% complete plans and technical specifications.

6. Preparation of Final Plans and Specifications:
Based upon the conclusions and recommendations identified thus far, the consultant will prepare the final contract documents including detailed plans and specifications for the additions and alterations to the Clean Water Plant. Contract document review will occur at 50 and 90 percent of their development and incorporate the standard contract documents of the City of Waukesha. This part of the project shall include the development of a preliminary operations manual describing how the proposed additions and alterations will operate and interact with existing Clean Water Plant components. It shall include a review of the proposed new SCADA system and its interaction with new and existing components of the Clean Water Plant and Waukesha Water Utility. Assistance to the City's Financial Department in completing and assembling the information required by Wisconsin's Clean Water Fund Low Interest Loan Program will be necessary for the application and closing process. An evaluation of alternate funding sources is to be included. This portion of the project includes assisting the City with bidding this project and making a recommendation concerning award of the bids.

7. Complete final Construction Documents:

The plan set at a minimum shall include, but not be limited to, the following:

- Title page
- General notes
- Standard details and special details
- Erosion control plan
- Grading plan

- Electrical one-line plans
- Location of existing utilities

a. Determine how dewatering will be addressed during construction. Provide appropriate specifications, details, and standards within the design.

b. Prepare a proposed schedule for the entire project, from Notice-to-Proceed to the completion of construction.

c. Prepare digital files with AutoCAD.

d. Provide a detailed cost estimate for the final design prior to bidding. Submit an electronic copy in Microsoft Excel format.

e. Furnish an electronic copy of the final sealed design plans in Adobe Acrobat "PDF" format (11x17 size) to the City. Distribution of the plans and project bidding will be conducted directly by the City.

f. Electronic copies of all plans shall also be supplied in the latest version of AutoCAD. Include any special files required to view and/or print the plans.

g. Provide six (6) hard copy sets of the final sealed design plans to the City.

h. Prepare schedule of prices for the project. Assemble using City's standard format. Furnish electronic copies of the final schedule to the City in Microsoft Excel and Adobe Acrobat formats. **The schedule of prices for the Return Flow Pump Station shall be separate from the rest of project for accounting related to funding.**

i. Prepare technical specifications for the project. Assemble using City's standard format. Furnish electronic copies of the final specifications to the City in Microsoft Word and Adobe Acrobat formats.

8. Bid Services:
Provide miscellaneous services prior to and during bidding, including; assisting the City in identifying appropriate contractors, contractor pre-qualification reviews, clarification and response of bidder questions, prepare pre-bid conference, preparation of addenda if needed, review bids and review the qualifications of apparent lowest bidder, provide a bid tabulation spreadsheet of all bids, make a recommendation for award of the bid, recommendation letter to funding agency

9. Construction Management:
The consultant will provide the construction-related services necessary to ensure that this project is built in a quality fashion and completed in a timely manner.

The construction-related activities will include traditional activities such as construction inspection, shop drawing review and approval, requests for information, requests for proposals, material and equipment testing, preparation of record drawings, etc. This part of the project will include overall construction management responsibility, review and approval of contractor pay and change order requests (separate for pump station), start-up (coordinated with Water Utility) and training services, and inclusion of all project documents in an electronic operation and maintenance manual. The O&M manual will incorporate a complete update of the current manual. All existing drawings will be updated and will be incorporated into a single master set of drawings. Three hard copies of the O&M manual will also be provided to the City. The City will be the final authority on all financial changes to the project and provide some project oversight

through the project management reports. The consultant shall be responsible for all onsite inspection including the presence of a resident engineer and construction inspector.

The proposal should include an estimate of level of effort for post design services and construction inspection. A final scope and fee will be determined by the consultant and City near the end of the design phase.

10. Project Administration: Invoicing for engineering work done during the project will need clear separation for pump station related work versus phosphorus and facility upgrades due to different funding sources.

SCHEDULE

For the Return Flow Pump Station:

- 60% design documents must be completed by June 30, 2019. The Water Utility shall have 3 weeks to comment.
- 90% design documents must be completed by October 15, 2019. The Water Utility shall have 3 weeks to comment. Upon completion of comment period the design documents shall be submitted to WI DNR for review.
- 100% design documents must be completed by February 15, 2020. The Water Utility shall have 3 weeks to comment before incorporating into bid documents.

For the Advanced Low Level Phosphorus system:

- 30% design documents must be completed by March 30, 2019.
- 60% design documents must be completed by June 30, 2019.
- 90% design documents must be completed by October 15, 2019. Upon completion of comment period for the pump station, all design documents shall be submitted to WI DNR for review.
- 100% design documents must be completed by February 15, 2020.

Bidding documents:

- Bid documents should be prepared as soon as final pump station comments are complete, but no later than March 30, 2020. Three months shall be allowed for bidding with the start date of construction anticipated to be no later than July 30, 2020 and the final completion date February 28, 2022.

ITEMS AVAILABLE FROM THE CITY INCLUDE THE FOLLOWING:

1. City's current plant plan drawings.
2. Specifications for current equipment.
3. Current operating parameters.
4. Preliminary design pump station drawings from UV upgrade.
5. Preliminary Design Report with drawings prepared by Great Water Alliance.
6. Facility Plan Amendment for Return Flow Pump Station.
7. Phosphorus OER and Feasibility Study.
8. Co-Mag pilot study report.
9. Return Flow Pipe connection drawings and specifications.

AGENCY AND UTILITY INVOLVEMENT:

The Department of Public Works anticipates that the following organizations (but not limited to) will have some involvement in this project:

- City of Waukesha Department of Public Works
- City of Waukesha Board of Public Works
- City of Waukesha Common Council

- City of Waukesha Water Utility
- Wisconsin DNR
- WE Energies Gas and Electric
- Great Water Alliance (GWA)

PROPOSAL REQUIREMENTS

The City of Waukesha will use a qualification and cost based selection process to select a consultant for this project. You are asked to submit a written proposal addressing the following items:

- **Project Approach.** Summarize how you will carry out the work. Include your understanding of the project and identify any specific concerns that you may have.
- **Qualifications of Firm.** Summarize your firm's qualifications for this type of work. Note municipal projects of a similar nature (large pump stations, low level phosphorus improvements) completed by the individuals assigned to this project. Include a list of five (5) previous or current projects. Also include reference information detailing:
    - Contract duration, including dates
    - Services performed
    - Name, address, and telephone number of contracting agency that may be contacted for verification of data submitted.
- **Qualifications of Individuals Assigned.** Summarize the qualifications and experience of the specific individuals who will actually be carrying out the work. Attach resumes of proposed personnel as appropriate.
- **Ability to Meet Schedule.** Summarize your ability to meet the City's anticipated schedule. Provide tentative project schedule showing dates from project commencement to final design completion, and start of construction through completion including equipment start-up.
- **Pricing.**
    - **In a separate envelope**, provide the number of hours, by position and by task, for the proposed services outlined. This shall include a separate tabular breakdown showing labor rates by position, mark-up, overhead and profit, and a total lump sum price for the project. The lump sum price may be adjusted during contract development based upon a refinement of the level of effort and scope.
    - Pricing for effort required for the Return Flow Pump Station shall be broken out separately from the rest of project for accounting purposes related to funding.
    - Provide an estimate of level of effort for the construction management with a breakdown of the number of hours by position and by task, including all associated fees. A final scope and fee will be determined by the consultant and City near the end of the design phase.

EVALUATION CRITERIA

The criteria to be used for evaluating the Request for Proposals are stated below.

A. Credentials of Engineering and Design project team
B. Knowledge of project and experience
C. Experience with large pump stations with complex operating parameters.
D. Experience with low level phosphorus removal improvements.
E. Knowledge of split funded projects.
F. Price.

SELECTION AND AWARD PROCESS

The City will select a group of staff members and create an evaluation team. Firms will be ranked based on their written proposals. The City is looking for the most qualified engineering

and design team. After the Consultant has been recommended by the evaluation team, the following steps will be taken for approval:

- Department of Public Works recommendation to Board of Public Works
- Board of Public Works recommendation to the Common Council
- Common Council approval of Consultant
- A Contract will be prepared using the Standard City of Waukesha Contract.

SUBMISSION OF PROPOSAL

Seven complete copies of the proposal must be received by 3:00 p.m. local time on September 28, 2018, at the address below:

City of Waukesha Clean Water Plant
600 Sentry Drive
Waukesha, WI 53186

Packages containing the proposal should be sealed and clearly marked in the following manner, with the additional notation of "Cost Proposal" on the appropriate envelope:

Return Flow Pump Station and Advanced Phosphorus Treatment with Facilities Enhancement

Please also submit a copy of your proposal in Adobe Acrobat "PDF" format on CD or flash drive.

Emailed or facsimile transmittals will not be accepted.

The City of Waukesha reserves the right to make all decisions relative to the selection of a Consultant for this project that will be in the best interests of the City of Waukesha.

If you have any questions regarding this proposal, please contact Jeff Harenda, Plant Manager at (262) 524-3629, jharenda@waukesha-wi.gov or Jon Schapekahm at (262)-524-3584, jschapekahm@waukesha-wi.gov

Notice

Confidentiality of Proposals, Contracts, and Supporting Materials

Wisconsin's Open Records Law requires that all records kept by the City be available for inspection by the public, with only very limited exceptions. This includes bids, proposals, supporting materials such as plans and specifications, contracts, and other documents submitted in response to the City's Requests for Proposals.

Please be aware that the materials you submit in response to the City's RFP will be public record, and will be available to the public, including other bidders. Marking them "confidential" will have no effect. If you must submit materials that you feel are trade secrets and must be kept confidential, then you must obtain the City Attorney's written approval of the materials as confidential trade secrets before submission. That approval may be denied, according to the requirements of the Open Records Law.