



MEMORANDUM

Date: February 22, 2022

To: Water Utility Board

From: Joe Grande, Water Quality Manager
Kelly Miess, Design Engineer

Subject: Recommendation to Hire Consultant for Design
Services for Unit Well 19 Treatment System Addition

Recommendation

Staff recommends hiring Short Elliott Hendrickson Inc. (SEH) for Professional Design Services for the Unit Well 19 Treatment Addition project.

Background

Madison Water Utility (MWU) advertised for proposals from interested, qualified firms to provide professional engineering services for the design and construction management of an iron, manganese and radium treatment system addition to Unit Well 19. Well 19 is a critical supply point for the University of Wisconsin, MWU's largest customer, and a major contributor to the Zone 6-West water supply.

Unit Well 19 has long been known to have water quality issues. The 2005 Infrastructure Management Plan assessment found the facility in good working condition but noted an issue with poor water quality. More recently, levels of iron, manganese and radium have been consistently just below their respective Secondary Maximum Contaminant Levels (SMCL) for iron and manganese and the Maximum Contaminant Level (MCL) for radium.

Per Madison Water Utility Board procedural guidelines for water quality treatment, when a contaminant consistently exceeds 80% of either the federal Maximum Contaminant Level (MCL) or the Secondary Maximum Contaminant Level (SMCL), action to reduce the contaminant level is recommended. Currently, iron is at 67% and manganese at 90% of their respective SMCLs. Combined radium levels, based on the running average of quarterly samples, is at 82% of its MCL. This project's objective is to correct these water quality deficiencies and bring the levels of these contaminants to well below their respective MCLs and SMCLs.

Based on Water Board policy, the Utility has set the following water quality goals:

- Lower iron levels from 0.2 mg/L to well below the MWU water quality goal of 0.1 mg/L
- Lower manganese levels from 45 µg/L to well below the MWU water quality goal of 20 µg/L.
- Lower combined, running quarterly average radium (radium-226 and radium-228) from 4.1 pCi/L to 2.5 pCi/, well below the combined radium MCL of 5.0 pCi/L.

In 2017 Madison Water Utility hired Strand Associates to conduct the initial pilot testing and conceptual design phase of the project. In 2018 Strand conducted pilot tests on two types of filtration systems, one using pyrolusite filter media and the other with anthracite media. Though both systems met water quality goals, Strand recommended the pyrolusite system for two reasons. First, the Utility's three other filtrations systems (at Wells 7, 29 and 31) have performed successfully for years and staff has developed expertise in operating and maintaining these systems. Secondly, the pyrolusite filters were able to sustain higher filtration rates, thus allowing the Utility to minimize the number of filters required to keep the well at full capacity and at a lower cost with a smaller building addition. In 2019 Strand delivered their final pilot test report and conceptual design report outlining their recommendation for a 16-filter pyrolusite filtration system.

Current Status

In 2018 the decision was made to indefinitely delay the originally planned 2019 construction of the treatment system addition. In 2021 the project was ranked as the most critical of several pending projects and management decided to move forward with the project. The Utility's 2022 capital budget includes \$891,000 for the project's planning and design, with \$6,691,000 and \$81,000 planned for construction in 2023 and 2024. At the November 23, 2021 Water Utility Board meeting the Board granted its approval for Utility staff to advertise for qualified engineering design consultants for the project.

Consultant Scope of Work

The major consultant tasks and responsibilities include:

- Alternative Development and Preliminary Design: based on the results of the pilot study, using the recommended treatment system, to develop a minimum of three project alternatives for preliminary design. To develop alternative designs, and operating and capital cost estimates in sufficient detail to allow evaluation of the feasibility of each alternative.
- Final Design: to incorporate the approved components of the preliminary design into the final design drawings and specifications suitable for public bidding and construction.
- Cost Estimating and Project Cost Control: to keep the total project cost within the approved budget.
- Project Scheduling: to keep the project on schedule throughout all phases of design and construction.
- Permitting: to obtain all required approvals and permits for the work.

- Public Outreach: to assist Madison Water Utility in public outreach including preparation for and attendance at public information meetings.
- Bidding Services: to competitively bid the project and engage a qualified contractor at an equitable price with minimal change orders.
- Construction Administration Services: to assist Madison Water Utility in monitoring, recording, and administering construction activities.
- Testing, Startup and Commissioning: to test and document that the treatment system meets or exceeds all hydraulic and water quality goals.

Request for Proposal (RFP) and Advertising

Following the Board's approval to advertise, MWU staff began drafting a Request for Proposals (RFP) for professional engineering design services. MWU staff worked through City Purchasing with Purchasing Agent Andy Hargianto to prepare, finalize and advertise for qualified applicants to submit proposals to execute the above project components for the proposed treatment system.

The RFP was posted on VendorNet and DemandStar, the City's two internet bid distribution networks. It was also electronically distributed to an internally-maintained list of over 50 local and regional consulting engineers representing approximately 30 different companies. Advertising commenced on December 21, 2021. An open house site visit was held on January 6, 2022 to allow interested firms to tour the facility and question Water Utility staff. Proposals were due on February 1, 2022.

Outreach to Minority- and Woman-Owned Consulting Firms

Madison Water Utility is committed to diversity, equity and inclusion (DEI) and has a Department Equity Team (DET) actively engaged in promoting DEI at the Utility. Utility staff is not aware of any local or regional minority-owned or women-owned consulting firms qualified to design large, specialized projects such as the treatment system addition at UW19. Over the past decade or more, only four or five firms have responded to the Utility's RFPs for designing new or upgrading existing facilities.

City of Madison (City) policy requires all non-exempt vendors to submit an Affirmative Action (AA) Plan within 30 days from the effective date of a contract with the City, and prior to the release of payment by the City. To gain approval, the plan must document, for example, their company demographics, discrimination policy with regard to employment and subcontracting, and their goals, good faith efforts and timetable for achieving the City's affirmative action utilization goals. Staff has confirmed with the City's Department of Civil Rights that SEH, the firm that staff is recommending, does have an approved and active AA plan filed with the City.

Proposals

Two proposals were received; one each from Short Elliott Hendrickson Inc. (SEH) and Strand Associates (Strand). Both firms have successfully completed multiple projects for MWU over the last decade. The proposals were distributed to an evaluation committee of five Water Utility staff with expertise and knowledge of the project:

- Joe Demorett, Water Supply Manager
- Joe Grande, Water Quality Manager and project co-lead
- Kelly Miess, Design Engineer and project co-lead

- Dan Rodefeld, Operations and Maintenance Manager
- Adam Wiederhoeft, Interim Chief Engineer

Evaluation

The evaluation criteria and weightings were published in the RFP so consultants would understand how their proposal would be ranked:

- Project Understanding: 15%
- Proposed Project Team: 15%
- Team Experience/Qualifications: 20%
- Completeness and Overall Quality of Proposal: 10%
- Local Vendor Preference: 5%
- Cost Considerations: 35%

Each member of the Utility's evaluation committee independently reviewed and ranked each proposal on its technical merits (all criteria except the local vendor preference and cost considerations).

After individual scoring, the evaluation team met with the Purchasing Agent on February 8 to complete the scoring process. The technical scores were averaged and the team discussed and ranked the non-technical criteria to calculate the final total scores. Strand was awarded the full 10 points in the all-or-nothing local vendor preference criteria due to the fact that their corporate headquarters are located in Dane County. With regard to cost criteria, the team considered each proposal's submitted total number of hours, number of hours per task, cost per hour, as well as total cost. Both proposals were within budget, but SEH was given a higher cost score because their proposal allocated more hours per task at a lower dollar amount per hour. The combined criteria scores and weightings grant a maximum total score of 100 points. The final scores are displayed in the table below.

Criteria	Weight	RAW SCORES (1-10)		WEIGHTED SCORES	
		SEH	Strand	SEH	Strand
Project Understanding	15%	9.0	8.4	13.5	12.6
Proposed Project Team	15%	9.0	8.2	13.5	12.3
Team Experience/Qualification	20%	9.0	8.6	18.0	17.2
Completeness and Overall Quality of	10%	9.2	8.0	9.2	8.0
Local Vendor Preference	5%		10.0	0.0	5.0
Cost Considerations	35%	10.0	8.5	35.0	29.6
TOTAL SCORE:				89.2	84.7

Recommendation

Every member of the Utility's evaluation committee ranked SEH's technical proposal higher than Strand's technical proposal, though individual scores differed by criteria and totals. In discussing their scoring rationale, team members noted the SEH proposal most completely addressed each major project component and demonstrated more overall effort and insight including the most thorough discussion of design options and potential issues, site and permitting constraints, and demonstrated more forethought about public and University involvement and coordination.

Though both proposals were well done, some items made the SEH proposal stand out. The committee was impressed by SEH's inclusion of a local subcontracted construction estimator to accurately assess and control construction costs in an inflationary environment with global supply chain issues. SEH's team members had more experience with UW-Madison's review processes and requirements; the significance of this factor highlighted by the facility's location in the Lakeshore Nature Preserve making the project subject to its conservation zoning. Finally, the SEH team had longer duration and more recent experience with radium removal projects. The team felt this was significant given the fact that the project is primarily water quality-driven and is the Utility's first radium removal project.

For these reasons, staff recommends hiring Short Elliott Hendrickson Inc. (SEH) for Professional Design Services for the Unit Well 19 Treatment Addition project.