



City of League City, TX

300 West Walker
League City TX 77573

Text File

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Title

Consider and take action on a resolution authorizing a professional services agreement with CDM-Smith, Inc.(CDM) for design and construction services to replace three (3) aeration blowers at the Southwest Water Reclamation Facility (SWWRF), Project (WW1802), in an amount not to exceed \$84,700 (Director of Public Works)

..Background:

Approval of this proposed resolution will authorize an agreement with CDM to provide design and construction phase services to replace the failing aeration blowers at the City's SWWRF (wastewater treatment plant).

The Southwest Water Reclamation Facility was built to provide wastewater treatment and serve the current and future growth of the City's far west service area. The initial 4 million gallons per day (MGD) module went online in November of 2012, and began serving the Countryside, Westover Park, Magnolia Creek, and Westwood residential developments.

As part of the design process, electrical efficiency is always a priority consideration when implementing or improving a wastewater treatment facility, as these facilities are typically the single largest electrical load and cost to municipal utility infrastructure. Aeration is a critical portion of the treatment process and accounts for approximately 60-70 percent of a treatment facility's electrical load. Blower selection for SWWRF was the pinnacle of a 20-year effort to incrementally improve aeration efficiency, beginning in 1993 (coarse to fine bubble diffusion); 2000 (Aeration capacity re-rate); 2010 (multistage to single stage aeration with dissolved oxygen control); continuing in 2012 with the selection of advance technology air-bearing single stage blowers.

In December 2015, the three (3) Siemens SC-50 Turbo Blowers that were selected to serve SWWRF began progressively failing. All three machines experienced similar failures by Summer of 2017 (Blower #2 Nov 2015 @ 9,627 hours; Blower #3 Sept 2016 @ 11,625 hours; and Blower #1 May 2017 @ 11,812 hours of operation, respectively). General cause of failure was found to be air bearing failure from ingesting particulate matter from the effects of corrosion and/or metallurgy issues with the rotating assembly. A technical memo from CDM is attached to provide for a more in-depth detail of the issues encountered.

Siemens initially discounted repair of one of the Turbo Blowers, in the amount of \$71,209 (still in service), but the associated 9-month turn around for overseas repairs and the failure of the two remaining blowers, triggered concerns about continued repair cost and long-term commitment to Siemens' air bearing technology. In April 2014, Siemens' warranty obligations expired so the City began negotiations to find an alternative replacement. During this process Howden Roots LLC acquired Siemens' blower product lines, including the manufacturing rights to Siemens' 5SV-GK.200 single stage, integrally geared turbo blowers that have been providing the required aeration needs for the City's Dallas Salmon Wastewater

Treatment Plant (DSWWTP) since 2010. Soon after Howden Roots' acquisition of the Siemens blower lines, their leadership approached the City with a commitment to find an acceptable solution in an effort to retain the longstanding relationship with the City and their 5SV blower line. These negotiation efforts led to a proposed agreement with all parties to pursue the purchase of three Howden Roots 5SV single stage turbo blowers at a significantly reduced price.

3 x 5SV Turbo Blowers

Market Price-	\$ 652,340
Price Reduction-	\$ <u>201,773</u>
Purchase Price-	\$ 450,567

A proposal was solicited from CDM to provide the professional services required to complete the design and delivery of this project, in an amount not to exceed \$84,700. CDM's scope of services is described in the attached proposal. CDM selection was based on their longstanding involvement in the design process of the City's wastewater treatment system. CDM also reduced their initial proposal after Howden Roots agreed in a good faith gesture to include the following services and items at a significantly reduced rate:

1. Reduced voltage soft starters for each blower
2. Integration with the existing master control panel (previously provided by Siemens) to avoid the City having to pay a third-party integrator
3. A five-year extended warranty with annual service
4. Inclusion of previously quoted material upgrades to the blower impellers to avoid future corrosion issues

Estimated construction cost is \$1,012,902. Detailed breakdown is available in attached CDM-Smith Proposal.

Attachments:

1. Data Sheet
2. Proposed Resolution
3. Exhibit A - Proposed Agreement
4. CDM- Smith Updated Recommendation Memo
5. CDM-Smith Failure Evaluation Tech Memo
6. Siemens' Compressor Fact Finding Report
7. Siemens' Bearing Damage Analysis Letter
8. SWWRF Blower Intake- Hydrogen Sulfide (H2s) Study
9. Sole Source Letter - Howden

CONTRACT ORIGINATION: Professional services agreement with CDM-Smith, Inc and the City of League City reviewed and approved by City Attorney's office

FUNDING

{X} Funds are available from 2015 CO Fund 1335 with expenses charged to project expense string WW1802-PLAN DESIGN-DESIGN-2015CO W/WW

Resolution No. 2018-34

