

December 10, 2018

Mr. Jon Haukaas
Director of Public Works
Engineering Department, City of Blaine
10801 Town Square Drive NE
Blaine, MN 55449

Re: Proposal for WTP1-3 HVAC upgrades

Dear Mr. Haukaas:

Barr Engineering Co. appreciates the opportunity to submit a proposal to provide continued engineering services within your water treatment facilities. This proposal provides for design of HVAC upgrades at Water Treatment Plants 1, 2, and 3 to address corrosion issues occurring at the sites.

Project understanding

Background

The three plants were constructed between 2005 and 2007 and all feature similar treatment processes and HVAC systems. The main plant areas at each site are heated by gas unit heaters and have no ventilation systems. The office and electrical rooms in WTP-1 and 2 have heating, ventilation and air conditioning provided by a rooftop unit. The office in WTP 3 has heating provided by an electric wall heater and has no ventilation system. The chemical rooms for WTP-1, 2, and 3 have heat provided by electric and/or gas unit heaters. Ventilation systems for each chemical room consist of intake louvers and exhaust fans that are interlocked to operate when the lights in the space are on. Corrosion is observed in all areas of the plant including the office and electrical rooms, and requires costly repairs and equipment replacement.

The following general observations were noted during a site visit conducted by Barr, KFI, and Magney Construction in spring 2018.

- A noticeable chlorine smell was present in all the plants, indicating chlorine off-gassing.
- Each plant had two locations where process water was open to the air; the sludge sump and the reclaim backwash sump.
- The air pressure in the sumps was observed to be positive in relation to the rest of the plant when water was flowing into the sump for the backwash cycle.
- Each sump has a solid steel cover, with the exception of the backwash reclaim sump in WTP-2 which has fiberglass grating.
- The office and electrical rooms in WTP-1 and 2 have independent ventilation systems. In both WTP 1 and 2, there seemed to be neutral pressurization between the office/electrical room and the main plant area.

- The office in WTP-3 does not have an independent ventilation system and there is not a separate electrical room in this plant.
- Significant corrosion was observed in the chemical rooms in all the plants, despite each chemical room having an intermittent ventilation system. The ventilation systems for all the chemical rooms were observed to be operational, with the exception of the ventilation system for the Fluoride Room in WTP-2, which did not operate.

Proposed scope of work

Details of the scope of work we will perform to meet the objectives listed above are included below.

Task 1: Kickoff meeting and site visits

Under Task 1, Barr and City staff will tour each plant to finalize scope of work associated with each plant. Following the site visits, a brief kickoff meeting will be held to confirm project expectations.

Task 1 meetings

- Kickoff meeting held at Blaine Public Works or City Hall, attended by three Barr/KFI staff.

Task 1 deliverables

- Meeting minutes and revised scope (if applicable)

Task 1 work by City

- City will provide access to the three water treatment plants, including chemical feed and electrical rooms.

Task 2: Design

This task includes design of the elements summarized below. These design elements are the proposed upgrades based on the Spring 2018 site visit. These items may be modified following the kickoff meeting and site visit.

1. Provide a ventilation system for the main plant area at each plant that consists of an exhaust fan that draws air directly from the two sump pits and a supply fan with electric duct heater to provide tempered outside air to the main plant area. Balance the supply and exhaust fans to maintain a slight negative pressure in the main plant areas relative to the office and electrical rooms.
2. At WTP-2, provide a solid steel cover for the backwash reclaim sump. Adding a solid cover to the sump minimizes the open area between the sump and the main plant.
3. Rebalance the rooftop air handling units serving the office and electrical rooms in WTP-1 and 2 to achieve a slight positive pressure in relation to the main plant area.

4. Provide a time clock to operate the ventilation systems in the chemical rooms for set amount of time, several times per day. The increase in ventilation may require additional heating capacity in some or all of the spaces.
5. Replace the non-functioning exhaust fan and motorized damper in the WTP-2 fluoride chemical room.
6. Provide electrical engineering design for electrical connections to new equipment.

Task 2 meetings

- 90-percent design review meeting.

Task 2 deliverables

- 90-percent design package (technical specifications and drawings)
- 100-percent design package (technical specifications and drawings)

Task 2 work by City

- Attend 90-percent design review meeting and provide input as requested
- Provide non-technical "request for quote" forms

Task 3: Assist obtaining quotes

Barr will provide assistance during the quote period by answering bidder's questions and evaluating quote packages after they are received.

Task 3 meetings

- None for this task.

Task 3 deliverables

- None for this task.

Task 3 work by City

- Send quote packages to potential bidders
- Receive and evaluate quotes

Task 4: Construction assistance

During construction, Barr or its subconsultant will attend a pre-construction meeting, review submittals, and provide up to 16 hours onsite construction assistance.

Task 4 meetings

- Pre-construction meeting.
- Two construction meetings.

Task 4 deliverables

- Meeting minutes.
- Submittal review comments.

Project management

Project management will involve project updates and correspondence with City staff and the project team, at frequency requested by City staff.

Personnel availability

The Barr team committed to this project include staff with whom you are familiar, and will consist of:

- **Brian LeMon** — principal in charge and QA/QC
- **Julia Macejkovic** — project manager
- **Tom Wentz and Zack Thompson (KFI)** – mechanical engineering
- **Zach Nesler** – electrical engineering

Project schedule

The proposed project schedule for the HVAC upgrades is provided in the following table. This work is intended to be incorporated prior to the SCADA improvements at each WTP site, which should begin in Fall 2019.

Work task	Deliverable date	Task Duration
Kickoff meeting and WTP 1-3 site visits	By January 11, 2019	n/a
90% draft design package	February 1, 2019	3 weeks
Final design package	February 15, 2019	2 weeks
Assistance obtaining quotes	March 1, 2019	2 weeks
Construction complete	May 15, 2019	10 weeks

Fee estimate

We propose to perform this work on a time and materials basis. The estimated fees for each of the work tasks described above are provided in the table below. If during the execution of the work it appears that more effort or materials are needed we will notify you in advance before exceeding the amount shown below. The fee for each task can also be negotiated based on the final work scope.

Work task	Fee estimate
Task 1: Kickoff meeting	\$25,000
Task 2: 90% design documents	
Task 3: 100% design documents	
Quote assistance	\$1,000
Construction assistance	\$7,000
Total	\$33,000

In conclusion

Thank you for the opportunity to propose on this project. If you have questions about our team's proposal scope or budget, feel free contact Julie Macejkovic (952-832-2693 or jmacejkovic@barr.com) or Brian LeMon (952-832-2774 or blemon@barr.com).

This scope of work will be performed according to the terms of the master service agreement between Barr and the City. If the terms of this proposal are acceptable to the City of Blaine, please date and sign in the space provided below. Keep one copy for your records and return the other to Barr Engineering Co.

Sincerely,



By: Brian LeMon, PE
Its: Vice President, Principal in Charge



Julia Macejkovic, P.E.
Project Manager

Accepted this ___ day of _____, 2018

CITY OF BLAINE

By _____

Its _____