

February 14, 2018

Mr. Jon Haukaas
City of Blaine
10801 Town Square Drive Northeast
Blaine, MN 55449

Re: City of Blaine SCADA System Engineering Services

Dear Mr. Haukaas:

This letter is intended to serve as a proposal and definition of scope of engineering services that Barr Engineering Co. (Barr) will provide to the City of Blaine (City) for your municipal water and wastewater Supervisory Control and Data Acquisition (SCADA) system design. The project scope is described in Barr's February 14, 2018 technical memorandum. The services to be provided include preliminary design (pre-design), software integrator selection, preparation of construction plans and specifications (design), and bid administration for the Blaine SCADA system.

Construction phase scheduling will be developed cooperatively between the City and Barr during pre-design and finalized during the design phase. This proposal does not include construction phase services; a separate proposal for construction phase services will be prepared as the scope of the SCADA system is fully defined and construction scheduling is finalized.

This proposal letter includes the following sections:

- Project understanding and assumptions
- Description of project phases
 - Preliminary Design
 - Software Integrator Selection Process
 - Detailed Design
 - Bidding
- Assistance provided by the City
- Project team
- Fee estimate
- Project schedule

Project Understanding and Assumptions

Barr understands that the City is planning to install a new city-wide SCADA system, following the recommendations of Barr's technical memorandum, dated February 14, 2018.

The following assumptions were made when developing this proposal:

- Barr will base the work on the findings from the February 14, 2018 technical memorandum and related services previously completed. The design of the new SCADA system is intended to address the concerns and deficiencies identified by the study. Upgrades at each location will be discussed and agreed upon with the City in a collaborative manner.
- The selection and design of the SCADA radio equipment will be based on the recommendations provided in the radio system analysis report completed by Larson Data Communication.
- The City has multiple ongoing projects that require interfacing with the proposed SCADA work. Barr has included time for coordination of installation and construction scheduling with these projects in this proposal. Each site will be discussed with the City.
- Software programming for the SCADA system will be performed under a separate professional services agreement.
- As mentioned above, construction phase services are not included in this proposal.

The project will include the following engineering tasks:

- Complete design of the new SCADA system, including all hardware and components, with standardized criteria including radios, antennas, software, and the like.
- Consideration regarding prioritization and scheduling of new SCADA component installations
- Lift-station panel standardization design for new and future panels
- Preparation of a request for qualification/proposal to assist the City in selecting a Software Integrator (SI) for SCADA system software development under a professional services contract
- Preparation of contract documents (plans and specifications) for bidding and construction of the SCADA system hardware and installation, scheduled to bid in fall of 2018
- Development of recommended construction schedule criteria and sequencing
- Preparation of opinion of probable construction cost
- Attendance and support at approximately eight meetings over the course of the project
- Presentation at city council workshop, as requested by City staff

Project Phases

The project design services are proposed to be performed in the following phases:

Phase 1: Preliminary Design

To start the project, Barr will meet with City staff for a kick-off meeting to verify that we all agree on project objectives and goals and to outline the anticipated steps to the design process. After the kick-off meeting, the project will move to the pre-design phase. In addition to the kick-off meeting, pre-design will include the following tasks:

- Discuss prioritization and scheduling of the SCADA installations
- Develop standard design for new and future SCADA panels
- Develop standard design for new and future lift station panels
- Develop preliminary design plan, including design standards, site prioritization, and preliminary construction scheduling

Phase 1 deliverables

- Kick-off meeting minutes
- Draft design standardization concepts
- Preliminary prioritization and construction schedule
- Preliminary design plan and design intent documentation for each location and the overall system
- Preliminary design plan review meeting minutes

Phase 2: Software Integrator Selection Process

Barr will assist the City in selecting an SI as part of a professional services contract (PSC) to complete all of the software programming necessary to make the City's SCADA system operational. The work under the PSC will be performed under separate contracts from the hardware procurement and installation. The following tasks will be completed during this phase:

- Attend kick-off meeting with the City to finalize selection objectives and expectations
- Develop SI selection criteria
- Develop request for qualifications/proposal
- Attend SI candidate presentations and interviews
- Meet with City to select an SI

Phase 2 deliverables

- Request for qualifications/proposal
- Recommendation for the selection of the SI company

Phase 3: Design Phase

After the pre-design phase, Barr will use design-intent documentation to design the new SCADA system. The following tasks will be completed during this phase:

- Prepare 60-percent drawings for City review
 - Attend review meeting with City
- Prepare 90-percent drawings and specifications for City review
 - Attend final review meeting with City
- Prepare final bidding documents
- Attend City Council workshop for final bidding documents approval
- Prepare engineer's opinion of probable construction cost

- Coordinate with other water and sewer system capital projects, such as the wellhouse rehabilitations, Water Treatment Plant 4 (WTP4), and the lift station rehabilitation projects.

Phase 3 deliverables

- Draft drawings and proposed product data sheets (60 percent)
- Draft drawings and specifications (90 percent)
- Meeting minutes from 60-percent and 90-percent design review meetings
- Electronic copy of bidding documents for upload to QuestCDN online bidding service
- Four hard copies of design drawings and specifications
- Project presentation for council workshop
- Engineer's opinion of probable construction cost

Phase 4: Bidding Phase

Barr will provide bid administration services, including the following tasks:

- Submit bid documents to the City for QuestCDN electronic bidding website
- Attend pre-bid meeting
- Respond to bid questions
- Prepare and issue addenda, as required
- Attend bid opening

Phase 4 deliverables

- Issue project addenda
- Submit bid tabulation
- Provide bid recommendation
- Issue notice of award to successful bidder

Phase 5: Construction Phase (future work scope)

Construction services are not included in this proposal scope. Following the preparation of the construction schedule and during the design phase, Barr will submit a cost estimate for construction services, such as shop drawing review, onsite observation, startup assistance, and record drawings.

Assistance Provided by the City

This proposal is based on the assumption that the City will provide the following:

- The City has provided record drawings for the panels. City will provide additional drawings as they become available.
- Preferences on design standards, equipment, and instrumentation
- Access to sites, as needed
- Input during prioritization of the SCADA installations
- Administration of the ad for bid publishing and bidding documents publishing

- Bidding assistance and contract award of bid packages
- Assistance with utility locates and coordination with affected utilities
- Coordination with other projects and planned improvements to SCADA sites
- Coordination with future WTP4 design and construction

Project Team

Barr proposes to use staff members with whom you are familiar and who are acquainted with the design of SCADA systems. Primary team members dedicated to this project include:

- **Sheldon Sorensen, PE:** principal in charge
- **Mark Ziemer, PE:** project manager, electrical design engineer
- **Zach Nesler:** electrical design engineer
- **Chad Lakose:** engineering technician

Proposed Fees

Barr proposes to provide the described services on an hourly basis at standard rates, plus outside expenses such as automobile mileage. Total fees not to exceed the total amount listed below, without prior authorization. Services will be billed monthly. The fee estimates are provided in the table below.

Phase	Fee estimate
1.0 Preliminary Design	\$ 41,000
2.0 Software Integrator Selection Process	\$ 24,000
3.0 Design Phase	\$ 144,000
4.0 Bidding Phase	\$ 14,000
Total	\$ 223,000

Project Schedule

The proposed project schedule is shown below and assumes a notice to proceed by March 1, 2018. We intend to complete this project on an accelerated schedule. The schedule below assumes the City will provide requested information in a timely manner. A Gantt chart is also attached.

Phase	Duration	Start	End
1.0 Preliminary Design	3 months	March 1, 2018	June 1, 2018
2.0 Software Integrator Selection	3.5 months	March 15, 2018	June 30, 2018
3.0 Design Phase	5 months	June 4, 2018	October 31, 2018
4.0 Bidding Phase	1 month	November 1, 2018	December 1, 2018
5.0 Construction Phase (estimated, final construction schedule will be developed with the City during the design phase)	18-24 months	December 2018	Fall 2020

If you have any question or comments, please contact Sheldon Sorensen at 952-832-2970, Mark Ziemer at 952-832-2973, or Zach Nesler at 952-832-2839. If the terms of this proposal are acceptable, please sign the document in the appropriate places located below and return a copy to us for our records. The work will be performed according to the terms of our master services agreement. Thank you for working with Barr.

Sincerely,



Sheldon Sorensen, PE
Vice President



Mark Ziemer, PE
Project Manager, Engineer of Record



Zach Nesler
Electrical Engineer

Accepted this ____ day of _____, 2018

CITY OF BLAINE

By _____

Its Mayor _____

By _____

Its City Manager _____

Figure 1: Proposed Schedule

