

January 11, 2021

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

Re: City of Blaine Wellhouse Rehabilitation – Design Scope Updates, Booster Pump Station/Well 16 facility – Detailed Engineering Design

Dear Mr. Haukaas:

This letter is intended as our proposal for engineering services that Barr Engineering Co. (Barr) will provide to the City of Blaine (City) related to upgrades at the Booster Pump Station/Well 16 facility. The facility is located in the southwest part of the city west of Water Treatment Plant #1 and includes a 1,200 gpm well and well booster pump and two 5,000 gpm and one 2500 gpm high service booster pumps located in a building that is adjacent to a five-million-gallon ground storage reservoir. The well, booster pumps and reservoir operate together to provide water supply and fire protection for this part of the city. They were constructed in 1987 and are in need of upgrades, some of which have already been implemented and others related to the well and booster pump that are part of this project.

Project Understanding/Scope

In the spring/summer of 2020, Blaine constructed the following improvements to the Booster Pump Station/Well 16 facility:

- Upgraded SCADA panel to match the City's SCADA standards (per 2019 SCADA Improvement Project).
- Installed a variable frequency drive (VFD) for one of the 5,000 gpm booster pumps.
- Replaced the existing actuated butterfly valve on the 2,500 gpm booster pump discharge pipe, and on one of the 5,000 gpm booster pump discharge pipes (the one that received the VFD).
- Replaced the control valve on the reservoir fill pipeline.

Based on the previous evaluation that Barr provided to the City on the condition of the facility, it is our understanding that Blaine would like to proceed with the following additional improvements at the Booster Pump Station/Well 16 facility:

- Well 16 rehabilitation, including test pump well with existing equipment, removing and rebuilding existing pump and motor, video well, develop well by over-pumping to remove sand.
- Install VFDs on the 2,500 gpm booster pump and the other 5,000 gpm booster pump.
- Rebuild the piping/valves for 5,000 gpm booster pump that was not rebuilt in 2020.
- Replace VFDs for Well 16 pump and Well 16 booster pump

- Replace all electrical and controls systems, including new switchgear and motor control equipment (new SCADA panel designed to the City's SCADA Standard (per 2019 SCADA Improvements Project) was installed in 2020 and will remain).
- Remove existing generator from inside the building and provide new generator outside the building
- Build a separate chemical room in the space currently occupied by the generator to utilizing liquid chlorine
- Replace all other existing chemical feed equipment for continuity with other wellhouses
- Relocate booster pump 1 to allow more room for the new chemical room
- Replace all above-grade piping and appurtenances (booster pump valves and reservoir fill pipe control valve were replaced in 2020 and will remain, assume pipe supports will be reused)
- Remove the air tank associated with Well 16 and replace it with an air/vacuum release valve on the Well 16 discharge piping
- Remove the existing chiller cooling system and replace it with new system that meets code
- Installing canopy above exterior doors
- Perform structural assessment on building and design minor repairs
- Replace all lights and HVAC components

Work Tasks

Phase 1: Project kick-off, condition assessment, and pre-design

During this task we will meet with the city to agree on project definition. Barr staff will then perform a condition assessment similar in format to that performed for WTP 1-3 to determine the condition of the facility structure and functionality of valves, appurtenances, and electrical systems. We will again interface with your asset management staff so that the results of the assessment can be used in your PubWorks asset management software. Following this assessment, Barr will develop a basis of design document to be used to guide detailed design.

Phase 1 deliverables:

- Invitation to, agenda for and meeting notes from a kickoff meeting
- Basis of Design document, including updated building condition assessment

Phase 2: Detailed design

We will use the design basis report to guide design of booster station and well 16 upgrades. It is assumed that no soil borings will be drilled at this site to characterize subsurface conditions. The design will include:

- demolition plan as required for minimal facility features
- final building general arrangements
- minimal building structural repairs as determined during structural condition assessment
- design and detailing of an interior CMU chemical room within the existing building
- design and detailing of the new generator foundation
- architectural and structural design required for addition of canopy above entrance door
- piping and appurtenance replacement
- chemical feed system upgrades (liquid chlorine, fluoride, and phosphate)
- coatings

- HVAC replacement
- well rehabilitation (if needed)
- remove and discard existing generator and replace with new backup generator
- electrical and security upgrades (Note: for purposes of this proposal it is assumed that any SCADA system programming required to support the project will be provided separately under the City's professional services agreement with Automatic Systems Company)
- site restoration

This proposal includes the following:

- prepare 30-percent drawings for Blaine review
 - attend review meeting with Blaine
- prepare 90-percent drawings and specifications for Blaine review
 - attend final review meeting with Blaine
- prepare final drawings and bidding documents
- attend one city council meeting for approval to go to bid
- apply for applicable permits
 - fees paid by city
 - Minnesota Department of Health wellhouse and chemical feed system review
 - construction National Pollutant Discharge Elimination System permit and stormwater pollution prevention plan, if required
- prepare engineer's estimate for construction cost
- provide bidding assistance
 - advertisement costs are paid by city
 - attend pre-bid meeting and provide bid recommendation

Phase 2 deliverables:

- draft drawings (30 percent)
- draft drawings and specifications (90 percent)
- invites to, agendas for and meeting minutes from 30-percent and 90-percent design review meetings
- electronic copy of bidding document for upload to QuestCDN online bidding service
- four hard copies of design drawings and specifications
- letter recommending award to the successful bidder
- slideshow presentation for council meeting/workshop
- electronic copies of all completed permit applications
- engineer's opinion of construction cost

Assumptions:

- No new foundations or equipment pads will be required other than the new generator foundation.
- No new pipe supports will be required.
- There are no major modifications that will require building code review or bringing the building up to the current building code requirements.

- Code items described by the Fire Marshal in his 2017 inspection report will be addressed (chemical storage, signage, ventilation, electrical systems, security, PPE, and spill control)
- Existing main load-resisting structural components are in good condition and will not require any modifications.
- Existing slab can carry any proposed equipment loads.
- Building envelope (roof, windows, doors, walls) is assumed to be in fair condition and will not require any major modifications or upgrades. If, upon detailed inspection, more significant structural or architectural design is required, Barr will work with the city on a scope and budget modification.

Phase 3: Construction assistance

After contract award, we will work with Blaine to organize and attend the pre-construction meeting. Other tasks we will perform include reviewing required shop drawings, answering contractor's requests for information, preparing pay applications, and preparing any necessary change orders.

The Barr team will provide on-site construction observation services at major milestones, or as requested by Blaine. Once the site has reached substantial completion, we will complete a final site inspection and prepare a punch list of any remaining items to be completed prior to final acceptance of the site.

At the conclusion of the project, the Barr team will prepare record drawings based on the available information from construction. As we will not be on site full time, drawing accuracy will be dependent on information collected by Blaine and the contractor during construction.

This proposal includes the following:

- attend pre-construction meeting
- perform site visits at major project milestones
- attend biweekly construction meetings assumed to be mostly virtual
- prepare final punch list for each site
- prepare record drawings

Phase 3 deliverables:

- meeting minutes from pre-construction meeting
- electronic copy of final punch list
- AutoCAD and PDF files of record drawings

Schedule

The proposed project schedule is shown below.

phase/task	duration	est. completion date
notice to proceed		January 22, 2021
phase 1: pre-design and condition assessment	4 weeks	February 19, 2021
phase 2: detailed design		
detailed design	12 weeks	May 14, 2021
bidding and contracting	4 weeks	June 11, 2021
notice of award to Contractor	1 week	June 18, 2021
phase 3: construction administration		
notice to proceed to Contractor		July 1, 2021
Construction	26 weeks	December 31, 2021

Budget

The tasks listed in this proposal will be performed on the basis of time and expense not to exceed without prior approval.

phase	est. hours	avg. hourly rate	expenses/ subs	total est. cost
1.0 pre-design	70	\$165	\$0	\$11,500
2.0 detailed design				
Task 2.1: detailed design	725	\$140	\$25,000	\$124,000
Task 2.2: bidding and contracting	30	\$165	\$0	\$5,000
3.0 construction administration	400	\$135	\$15,000	\$69,000
Total	1225		\$40,000	\$209,500

If you have any questions regarding the additional scope items, please don't hesitate to call me for further clarification. 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 is performed according to the terms of our master services agreement. Thank you for your continued work with Barr.

Sincerely,

A handwritten signature in black ink, appearing to read "B. LeMon", with a stylized, flowing script.

Brian LeMon, P.E.
Vice President

Accepted this ____ day of _____, 2020

CITY OF BLAINE

By_____

Its_____