

May 10, 2017

Mr. Bob Therres
Public Services Manager
City of Blaine
10801 Town Square Drive NE
Blaine, MN 55449

**Re: Blaine, MN SCADA System
Proposal for Radio/Network Design Development and Site Audits**

Dear Mr. Therres:

This letter follows up on our April 10, 2017 meeting with City of Blaine staff and April 20, 2017 Council workshop regarding Barr's review of the water/wastewater SCADA system. Barr's recommendations from the SCADA Assistance final report dated April 13, 2017 include three upcoming tasks:

- **Task 1: High-Priority Interim Improvements – Revise to Distributed Control of Wells at WTP1, WTP2 and WTP3**
- **Task 2: Perform Field Radio Study and Design New Communication Network(s)**
- **Task 3: Audit SCADA Sites to Determine Specific Hardware Upgrades**

Barr Engineering Company and In Control, Inc. have provided the City with separate proposals for work associated with Task 1, and the City has authorized those proposals.

This letter addresses Barr's proposed scope of services and proposed fees for Tasks 2 and 3. Please note that these tasks include the involvement of other companies that will work directly for the City. Barr has developed project scopes and has requested that the other companies prepare proposals for the City's review, as follows:

- In Control, Inc. – For general input on system integration issues related to Tasks 2 and 3.
- Larson Data Communications – For radio path study and network design assistance under Task 3.

Project Descriptions and Barr's Proposed Scope of Services:

Task 2: Perform Field Radio Study and Design New Communication Network(s) (Recommendation 5.2)

Barr's recommendations include utilizing the services of a qualified radio and network design organization to review radio communication paths, perform field study and signal strength

1. Site reviews – gather information and photographs at each existing site (approximately 48 sites).
2. cursory review of existing panel documentation against existing conditions, to gauge the status of record drawings.

3. Assess the field information, develop recommendations for panel improvements.
4. Develop project priorities based on system reliability objectives.
5. Prepare construction cost estimates.
6. Lead project meetings at Blaine's offices. Two project review meetings are anticipated.
7. The project deliverable will be a technical memo outlining a summary of the existing site conditions, recommended prioritized upgrades, and a cost estimate for the work.

Proposed Schedule:

The proposed project schedule will follow detailed schedule estimates provided in the SCADA Assistance final report dated April 13, 2017, which are summarized below:

Work task	Project Duration
<u>Task 2:</u> Perform Field Radio Study and Design New Communication Network(s)	90 days
<u>Task 3:</u> Audit SCADA Sites to Determine Specific Hardware Upgrades	50 days

Proposed Fees:

Barr Engineering Company proposes to provide the described services on an hourly basis at standard rates, plus outside expenses. The fee estimate for the Barr work tasks described above are provided in the table below.

As noted above, the projects will include work by other companies that will work directly for the City. The table below includes pricing information supplied by the other companies under separate proposals.

Work task	Barr Engineering Fees	In Control, Inc. (Separate Proposal)	Larson Data Communications (Separate Proposal)
<u>Task 2:</u> Perform Field Radio Study and Design New Communication Network(s)	\$7,000	*(See note below)	\$48,900 (Separate proposal attached)
<u>Task 3:</u> Audit SCADA Sites to Determine Specific Hardware Upgrades	\$28,000	*(See note below)	N/A
TOTALS	\$35,000	*(See note below)	\$48,900

- * Note: In Control, Inc. has indicated that their general assistance and meeting attendance can be provided as miscellaneous services under their existing professional services contract with the City of Blaine.

Its _____



INDUSTRIAL WIRELESS & NETWORKED DATA SYSTEMS

To: City of Blaine
Attn: Mr. Bob Therres, Public Services Manager
Phone: (763) 784-6700
Fax: (763) 785-6139

Address: 10801 Town Square Drive NE
Blaine, MN 55449

Larson Data Communications

P.O. Box 96, 220 South Kimball Street
Mitchell, SD 57301
Tel: (605) 996-5521
Fax: (605) 996-5642

Sales Rep: Becky Dean/Mike Larson/Aaron Gerfen

Date: 5/10/2017

Estimate: LD-PE-17075a

Ref: On-Site Wireless Data Communications System
Analysis and Viability Survey

Destination: Blaine, Minnesota

The information contained in this quote is considered privileged and confidential and is intended for the sole use of the individual(s) or entity named above. Any disclosure, copying, distribution, or other use of the contents of this form is prohibited.

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Item	Description	Qty	P/N	Unit \$	Extended \$	Site 1	
1	<p>Larson Data Communications Project Support</p> <p>On-Site Wireless Data Communications Systems Analysis and Viability Survey services to include:</p> <ul style="list-style-type: none">* Computer assisted analysis of proposed wireless network using 3-dimensional terrain model of not more than 10 meter resolution.* Temporary installation of system appropriate radio, transmission line, and antenna equipment as needed to confirm optimal radio system performance.* Site suitability evaluation for electromagnetic communication and physical attachment of antenna systems & transmission lines.* Site measurement of electromagnetic noise floor and potential interference levels in the intended frequency band(s).* Site evaluation of actual radio signal strength (RSS) from/to the master/repeater site(s) while operating within and in accordance with FCC regulations applicable to the tested and/or proposed equipment suites and associated frequency(ies).* Site specific recommendation for antenna system(s), cable type(s), and mounting locations.* Site installation concerns and/or suggestions if/where/as applicable.* Man lift equipment, beyond that available from the City, to be coordinated separately and by exception.* Price quoted assumes system sites to be tested are readily and safely accessible, electrical power is available, and that no special structural, tower, or other support equipment other than as listed below will be required for temporary antenna placement. <p>Wireless Data Communications Systems Analysis and Viability Survey to include:</p> <ul style="list-style-type: none">* Computer model and on-site analysis results for each wireless link tested.* Summary and Documentation of all above listed test results, analysis, and recommendations in editable electronic format. Specifically, this report will include a recommended network topology, radio platform & configuration, antenna types, heights, and mounting position for each site, any significant associated mounting hardware, and other details that may assist Barr Engineering and the City of Blaine in preparing the proposed communications system for construction and placement into service.* Reliability estimate of proposed wireless network if constructed as recommended. <p>For this analysis, Larson Data Communications will provide:</p> <ul style="list-style-type: none">* MDS Certified Networking Products crew of (4) Engineers/Technicians.* All required radio; antenna; cabling and test measurement and diagnostic equipment (TMDE) for the conduct of this study.* Price includes crew travel and expenses for up to (5) days [(1 ½) days of travel and up to (4) days of on-site analysis.]* For this project, the quoted price also includes Larson Data Communications Staff attendance at (2) on-site project planning meetings. Attendance at additional on-site meetings to be coordinated as may be desired by the Barr and City staffs and separately billable.	1	LD-SPT-OSSV-3	\$ 48,900.00	\$48,900.00	1	

Total U.S. \$48,900.00

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Various Sites	Spares
Site 1	

Item	Description	Qty	P/N	Unit \$	Extended \$	Site 1
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Notes:

- 1. This quote does not necessarily include all miscellaneous hardware for the installation of the quoted system(s).
- 2. Unless specifically listed above; path testing, system integration, and on-site technical support is not included.
- 3. Orders must include actual operating frequencies and req'd input voltages for all equipment items (if applicable).
- 4. This quote is valid for 30 days after which either a confirmation of item pricing or a new quote will be necessary.

Terms & Conditions

Unless otherwise noted, payment terms are NET 30; other Terms and Conditions of Sale may apply.
Prices include packing for domestic overland or air shipment but not transportation charges.

Availability

Normal availability for MDS products varies with product line. Delivery date is determined after receipt of order & frequencies (if applicable).