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SCOTT FRONEK

Project Manager, Water Division
7760 FRANCE AVENUE SOUTH, SUITE 1200,
MINNEAPOLIS, MN 55435
(952) 896-0500 | FRONEKSD@BV.COM

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St. Paul Regional Water Services
McCarrons Water Treatment Plant
Switchgear & Electrical Equipment Replacement Project

Benjamin Feldman, P.E.
Project Engineer
SPRWS
1900 Rice Street
Saint Paul, MN 55113

Subject: Additional Effort

Dear Mr. Feldman:

In previous discussions with the City, we discussed some additional work elements for the McCarrons Electrical Improvements projects. Based on our understanding of the original project scope, we believe the following items represent additional elements of work for our design team:

1. Addition of Ductbank Alternative north of EMH-3. Through discussions with SPRWS, several ductbanks north of EMH-3 (to the Dewatering Building and to EMH-6) were added to the project as a bid alternative. These ductbanks were constructed in the late 1960s and are the same vintage as other ductbanks being replaced in the project, but were not originally anticipated to be replaced. Additional design effort has been required to deal with low-voltage circuits in the ductbanks and also with surface features affected by the removal and replacement of the ductbanks (pavement, sidewalks, handrail, retaining block, trees). Coordination is also required to facilitate an outage for the Sludge Thickening Building. An additional 80 hours was required for this effort at a cost of \$11,000.
2. Pump and Valve Control via PLCs. Existing control of pumps and valves is currently done solely via the GE and AC MCCs. Our plan was to utilize this approach for the new MCCs, recognizing that the option existed to connect some of this equipment to the PLC. Through discussions with SPRWS, all pumps and valves will now be connected to both a mimic panel and a PLC. Connecting the pumps and valves to each of these locations has required



additional coordination to design a mimic panel and replace both PLC D and PLC E. In addition, the replacement of PLC E replaces wiring for elements not included in the project (clearwell levels, low and high water system pressures, pump flows). We initially planned on 100 I/O points for the project; our current I/O points are close to 300. An additional 32 hours was required for this effort at a cost of \$4,000.

As we worked through the design phase, we attempted to accommodate these items within our original budget. However, at this stage, additional funds of \$15,000 are required to accommodate these elements.

Following the design and bidding of the project, the City decided to replace HSP-7 through a different project. The motor size of the new HSP-7 will be smaller than the existing motor, which will require modifications to the motor control center that serves HSP-7. Based on discussions with the City, the current starter size serving HSP-7 will remain unchanged with a smaller pump; instead, additional motor protection devices will be utilized. Additional effort will be required for us to coordinate details of the new HSP-7 with the City, City's consultant, Killmer Electric, and Allen-Bradley. We anticipate the following work items:

1. The City's consultant will develop proposed changes to the HSP-7 starter. We will provide a cursory review of those changes and will communicate those changes to Killmer Electric via a Work Change Directive.
2. Review the proposed changes in Allen-Bradley's shop drawing.
3. Update record drawings with all changes.

We will require 20 hours of effort to complete these items at a cost of \$3,000.

We appreciate the City's consideration of this request. Please contact me if you have any questions.

Sincerely,
BLACK & VEATCH

Scott D. Fronek, P.E.
Project Manager