REQUEST AUTHORIZATION FOR MAYOR AND FINANCE DIRECTOR TO SIGN PROFESSIONAL SERVICES AGREEMENT OR AMENDMENT

Project Name & Number: Elk Vale Reservoir Water Level Investigation, Project No. 19-2511

CIP #: 51238

Project Description: The City of Rapid City has determined the need to procure professional services for an investigation and report regarding the water level fluctuations at the Elk Vale Reservoir. The reservoir has had difficulties maintaining desired water level during peak water demands. This is an investigative project consisting of plan development, field work and summary reporting.

Consultant: FMG Engineering, Inc

Original Contract Amount: $41,254

Original Contract Date: May 21, 2019

Original Completion Date: December 31, 2019

Addendum No: 3

Amendment Description: This amendment requests a schedule change the completion date to allow for additional Summer 2021 peak demand system data collection and requests additional fee and 2021 billing rate change for subsequent analyses of the collected data needed to re-evaluate water system trends.

Current Contract Amount: $41,254.00

Change Requested: $13,745.00

New Contract Amount: $54,999.00

Current Completion Date: June 30, 2021

New Completion Date: November 30, 2021

Funding Source This Request:

<table>
<thead>
<tr>
<th>Amount</th>
<th>Dept.</th>
<th>Line Item</th>
<th>Fund</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>$13,745.00</td>
<td>933.90</td>
<td>4223</td>
<td>602</td>
<td>Water Replacement/Improvements</td>
</tr>
</tbody>
</table>

Total $13,745.00

Agreement Review & Approvals

Project Manager: Signature 7/1/2021 Date 7/1/2021

Division Manager: Signature 7/1/2021 Date 7/1/2021

Department Director: Signature 7/1/2021 Date 7/1/2021

City Attorney: Signature 7/1/2021 Date 7/1/2021

FINANCE OFFICE USE ONLY

(Appropriation 7/1/2021 Initials Y N Y N)

Routing Instructions:
Route two originals of the Agreement for review and signatures.
Finance Office - Retain one original
Project Manager - Retain second original for delivery to Consultant
Public Works Engineering Project Manager

109A Authorization for Mayor & Finance Officer to Sign
Rev. 03/2009
AMENDMENT NO. 3 TO AGREEMENT

Project: Elk Vale Reservoir Water Level Investigation, Project No. 19-2511/CIP No. 51238

Background Data: Effective Date of Agreement: May 21, 2019
Owner: City of Rapid City
Engineer: FMG Engineering

Nature of Amendment:
This amendment requests a schedule change the completion date to allow for additional Summer 2021 peak demand system data collection and requests additional fee and 2021 billing rate change for subsequent analyses of the collected data needed to re-evaluate water system trends. This work is necessary due to finding two closed system valves thought to be open during Spring 2021 field testing. The changed valve conditions invalidated some of the previous analyses completed as part of the project causes investigation.

Current Contract Amount: $41,254.00

Change Requested: $13,745.00

New Contract Amount: $54,999.00

Completion Date changed to: November 30, 2021

Exhibit C Updated Sheet: The updated Exhibit C will be used from the date of this contract approval date moving forward.

Owner and Engineer hereby agree to modify the above referenced Agreement as set forth in this Amendment. All provisions of the Agreement not modified by this or previous Amendments remain in effect. The effective date of this Amendment is:

CITY OF RAPID CITY: Engineer:

By: ________________________ By: ________________________
Steve Allender, Mayor

Date Signed: ____________________ Date Signed: ____________________

ATTEST:

By: ________________________
Pauline Sumption, Finance Director

Date Signed: ____________________

[Stamp]
EXHIBIT A

FMG ENGINEERING

AMENDMENT NO. 3 TO AGREEMENT FOR SCOPE OF SERVICES

FOR

ELK VALE RESERVOIR
WATER LEVEL INVESTIGATION
PROJECT NO. 19-2511 / CIP 51238

BACKGROUND

The original project scope investigated potential causes of the difficulty in maintaining water level in the Elk Vale Reservoir as compared to other low level reservoirs with the same overflow elevation. There were four potential causes that were investigated.

1. Improper control valve position and/or closure speed.
2. High demand or leak in the system.
3. Closed distribution system valve.
4. No issue. System is reacting to normal conditions.

Items 1 and 2 were completed and an interim report was prepared. Item 3 was delayed due to other construction projects and weather limitations as documented in the previous Amendments that extended the contract times of this Agreement.

During field testing for Item 3, it was discovered that there were two locations where valves in the distribution system were closed. These valves were on the primary 16” mains that supply water to the Elk Vale Reservoir. The opening of the valves changes the water available to Elk Vale. Unfortunately, much of the work completed for Item 2 is no longer valid due to the system restrictions that were present with the closed valves.

The primary objective of this Amendment is to review the potential High Demand or Leak in the System with the new distribution system conditions.

There are also some related scope items added to this Amendment to review full closure of the control valves from Item 1 in support of the separate work being completed as part of the ongoing water utility system master plan being completed by Black & Veatch in order for this project to develop the control narrative’s for the operation of the valves.

There is also an additional anomaly in the distribution system that is causing low fire flows and pressures near Harmony Heights. The same field testing procedures from Item 3 will be employed to determine if there are any flow restrictions in the distribution system that are causing the low flows. This work was added due to FMG’s existing knowledge and experience with this field testing procedure.
EXHIBIT A

This specific Scope of the Amendment is detailed below.

TASK 1 - INVESTIGATIVE SERVICES (REVISED):

The task numbers presented below match the original scope. Some items are not repeated as the scope has not changed.

1.2 Collect and review Background information: Review of High Demand or Leak in the System. Additional analysis will be completed by reviewing SCADA data from this summer’s peak demand days now that the distribution system valves are open. There are sufficient monitoring stations to determine reservoir fill/empty rates and other high demand sources to look for system conditions that negatively impact the Elk Vale water level. The SCADA data review period is looking for system demands of 20 mgd or higher.

1.3 Field Investigation:
   A. Testing of Full Control Valve Closure. The intent of the original scope was to verify the position and closure speed of the control valves. A standard operating procedure for the valves was prepared based on review of the design report that installed the valves along with review of historical data at various valve positions, and input from City staff. The interim report did not recommend closing the control valves more than a position of 10% open/90% closed. Subsequent modeling by Black & Veatch for the Shepard Hills development recommended valve closures at or below 1-2% and possibly changing to a sleeve valve rather than a butterfly valve to accommodate the small opening recommendation. The additional scope for this item will review the 10% butterfly valve closure recommendation from the manufacturer to see if it can be closed further during normal operation and perform field testing of the full closure of the valves based on the new recommendations from Black & Veatch.

   B. Field Investigation of Harmony Heights Flows. The Fire Department noted a decline in system pressures and available fire flows during periodic monitoring at the upper end of the Harmony Heights development. Flow testing will be completed similar to the Closed Distribution System Valve testing to identify if there are any system restrictions. Time to review and operate the City’s water model to corroborate expected system flows with City staff is also included. A summary of the testing outcome will be presented under separate cover.

1.5 Third Party Modeling: Work associated with this scope item is expected to be reduced or eliminated. A portion of the fees from this item will be reduced and the remaining fee will be shifted to other tasks.

1.6 Investigative Summary Report. Portions of the report will be rewritten based on review of new SCADA data and additional field testing. The original requirements of this task will not change.

1.7 Attend additional submittal review meetings with City staff. Two interim meetings to discuss results of Harmony Heights and Full Control Valve Closure testing are included.

1.8 Reimbursables including, Printing, Supplies, Mileage, Expendables for Investigative Services.
SCHEDULE:
Harmony Heights Field Testing  June 2021
Control Valve Field Testing    July 2021
High Demand SCADA Review     August-September 2021 (Demand Dependent)
Draft Investigative Report Submittal October 2021
Final Investigative Report Submittal November 2021

END OF AMENDMENT NO. 3
<table>
<thead>
<tr>
<th>TASK 1 - INVESTIGATIVE SERVICES (REVISED)</th>
<th>Increase (Decrease) from Original</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 Collect &amp; Review Background Info</td>
<td>$5,960.00</td>
</tr>
<tr>
<td>1.3 Field Investigation</td>
<td>$4,380.00</td>
</tr>
<tr>
<td>1.5 Third Party Modeling</td>
<td>$(2,100.00)</td>
</tr>
<tr>
<td>1.6 Investigative Summary Report</td>
<td>$4,560.00</td>
</tr>
<tr>
<td>1.7 Attend Submittal Review &amp; Other Meetings with City Staff</td>
<td>$870.00</td>
</tr>
<tr>
<td>1.8 Reimbursables, Printing, Mileage, Expendables</td>
<td>$75.00</td>
</tr>
<tr>
<td>TOTAL CHANGE FOR TASK 1 - INVESTIGATIVE SERVICES</td>
<td>$13,745.00</td>
</tr>
</tbody>
</table>
FMG ENGINEERING
AMENDMENT NO. 3
RATE SCHEDULE
for
ELK VALE RESERVOIR
WATER LEVEL INVESTIGATION
PROJECT NO. 19-2511 / CIP 51238

<table>
<thead>
<tr>
<th>PERSONNEL</th>
<th>RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Engineer II</td>
<td>$186.00/hr</td>
</tr>
<tr>
<td>Principal Engineer I</td>
<td>$160.00/hr</td>
</tr>
<tr>
<td>Senior Engineer</td>
<td>$145.00/hr</td>
</tr>
<tr>
<td>Engineer III – PE</td>
<td>$125.00/hr</td>
</tr>
<tr>
<td>Engineer II – PE</td>
<td>$115.00/hr</td>
</tr>
<tr>
<td>Engineer I – PE</td>
<td>$105.00/hr</td>
</tr>
<tr>
<td>Geospatial Analyst</td>
<td>$105.00/hr</td>
</tr>
<tr>
<td>Graduate Engineer II – EIT</td>
<td>$100.00/hr</td>
</tr>
<tr>
<td>Graduate Engineer I – EIT</td>
<td>$90.00/hr</td>
</tr>
<tr>
<td>CADD Technician II</td>
<td>$95.00/hr</td>
</tr>
<tr>
<td>CADD Technician I</td>
<td>$85.00/hr</td>
</tr>
<tr>
<td>Geologist - PG</td>
<td>$90.00/hr</td>
</tr>
<tr>
<td>Environmental Scientist</td>
<td>$85.00/hr</td>
</tr>
<tr>
<td>Land Surveyor - RLS</td>
<td>$105.00/hr</td>
</tr>
<tr>
<td>Land Surveyor – LSIT</td>
<td>$92.00/hr</td>
</tr>
<tr>
<td>Survey Technician II</td>
<td>$87.00/hr</td>
</tr>
<tr>
<td>Survey Technician I</td>
<td>$77.00/hr</td>
</tr>
<tr>
<td>Engineering Technician III</td>
<td>$82.00/hr</td>
</tr>
<tr>
<td>Engineering Technician II</td>
<td>$77.00/hr</td>
</tr>
<tr>
<td>Engineering Technician I</td>
<td>$74.00/hr</td>
</tr>
<tr>
<td>Administrative Assistant</td>
<td>$75.00/hr</td>
</tr>
</tbody>
</table>

VEHICLES & EXPENSES

- Mobilization (Support Vehicle) $0.70/mile
- Mobilization (Drill Rig) $2.00/mile
- ATV $100/day
- Travel Costs - air, lodging, transport, meals, etc. cost