EXHIBIT A
SCOPE OF SERVICES

WRF Lift Station and Odor Control Facilities Arc Flash Analysis
Project No. 19-2523 / CIP 51246

The City of Rapid City has requested professional services for the WRF Lift Station and Odor Control Facilities Arc Flash Analysis.

The proposed analysis consists of:

1. Professional engineering services related to performing individual arc flash risk assessments per the 2018 edition of the NFPA 70E Standard entitled “Standard for Electrical Safety in the Workplace” for the following individual facilities:
   a. Red Rocks Lift Station
   b. Red Rocks Meadows Lift Station
   c. Villagio Lift Station
   d. Plum Creek Lift Station
   e. Elks Club Lift Station
   f. Country Road Lift Station
   g. Elk Vale Lift Station
   h. WRF Odor Control Building

The City requested that Advanced Engineering and Environmental Services, Inc. (AE2S) submit a proposal for the proposed analysis.

AE2S will complete the following tasks:

TASK 1 - MEETINGS AND PROJECT MANAGEMENT:

Provide City and Project Team coordination consisting of:

1.1 Meetings – Prepare for, attend, take and distribute minutes for the following meetings:
   A. Kick-off Conference with City Staff*
   B. Pre-Final Arc Flash Risk Assessment Review Conference with City Staff**
   C. Final Arc Flash Risk Assessment, Overcurrent Device Coordination and Training Conference with City Staff*
   D. Individual site visits to install developed arc flash labels on equipment*
*It is anticipated that this conference will occur during the same visit that the electrical engineering team is on site to visit the sites to reduce overall costs to the City. The first visit is to include both the Kick-off Conference and Data Collection (Task 2). The second visit is to include both Tasks 1.1 C and D.

** Project Manager attending in person, other team members attending via conference call/screen share.

1.2 Project Management – Provide project team and client coordination to gather pertinent data to complete the analysis, implement QA-QC and keep project on budget and schedule.

**TASK 2 - DATA REVIEW AND SITE DATA COLLECTION:**

2.1 Data Review – Electrical engineering team will collect and review background information and existing project “as-built” site data as available and provided by the City, and any other resources as necessary to complete the analysis.

2.2 Site Data Collection – Electrical engineering team will visit the eight (8) project sites that comprise the project to gather pertinent “as-installed” field data and site photos to complete the analysis. Pertinent site information required will include, but is not limited to the following:

   A. Conductor lengths.
   B. Motor and transformer nameplate information.
   C. Power panel, disconnect switch and motor starter/VFD equipment nameplate information.
   D. Any additional and pertinent site information that may be required to complete the analysis.

Coordinate site visit and data collection with City staff. It is the City’s intention to have Operation’s Electricians accompany the consultant on all site visits as a training and education opportunity.

2.3 Electric Utility Company Coordination – Electrical engineering team will contact the serving electrical utility company for each site and will attempt to gather utility fault current data, transformer characteristics and related utility company information that will be required to be incorporated into the model for generating the arc flash risk assessment incident energy calculation. There may be three providers: BHE, Black Hills Electric Coop, and West River Electric.

**TASK 3 - ARC FLASH RISK ASSESSMENT ANALYSIS:**

3.1 Electrical engineering team will analyze the data, provided by the City and collected from each site, and will utilize “SKM Power Tools” software to create an electrical system model (one-line diagram) for each site that will be used to calculate the incident energy available at each piece of electrical equipment required to be included in the assessment at each site.

3.2 Electrical engineering team will provide circuit breaker setting recommendations for adjustable trip circuit breakers to help reduce trip times and improve clearing times where applicable, to reduce incident energy levels and Personal Protective Equipment (PPE) level requirements where possible and/or desired by the City. “Where possible” to be discussed
during the Kick-off Conference and include discussions with the City should the situation arise.

3.3 Electrical engineering team will review and document electrical overcurrent device coordination for each facility and will make recommendations where required to improve coordination between overcurrent devices.

**TASK 4 - EVALUATION AND RECOMMENDATIONS:**

4.1 The calculated results from Task 3 will be used to compile an overall Risk Assessment Report for delivery to the City (3 copies anticipated) that will include the following items:

A. 11” x 17” paper and electronic CAD and .PDF versions of the electrical model (one-line diagram for each facility) that was used to calculate the incident energies available throughout the electrical system at each site.

B. Tabulated data for each site.

C. Calculated incident energies and associated PPE recommendations for each site.

D. Arc Flash Incident Energy Labels for installation at the required equipment locations at each site.

4.2 Provide a “draft version” of the final assessment analysis to the City for review and comment prior to delivering the final assessment. The final assessment will incorporate City comments or provide rationale for not including prior to distribution of the final deliverable. See Task 1.1.B.

4.3 Present the final analysis assessment and training deliverable to City staff, will review the recommendations with staff, will provide basic training on how to interpret the results of the assessment. See Task 1.1.C

4.4 Visit each of the project sites to install the developed arc flash labels on required equipment. See Task 1.1.D.

**PROJECT TEAM AND DELIVERABLES**

A. Project team members:

- AE2S
  - Dustin Dale, P.E. – Project Manager
  - Damon M. Chmela, P.E. – Senior Electrical Engineer, QA/QC
  - Mark Ruda, P.E. – Electrical Engineer
  - Kody Patakay, E.I.T. – Electrical EIT
  - Ian Smith – Electrical Technician
- City Engineering Services staff
B. Deliverables include:

- Task 1 – Meetings and Project Management
  - Agendas and meeting minutes, as appropriate
  - Periodic project updates
- Task 2 – Data Review and Site Data Collection
  - N/A
- Task 3 – Arc Flash Risk Assessment Analysis
  - N/A
- Task 4 – Evaluation and Recommendations
  - Pre-Final “Draft” Assessment Report for City Review and Comment
  - Final Assessment Report and Training Presentation to City Staff
  - Field Installation of Arc Flash Labels at Each Project Site.

ANTICIPATED PROJECT SCHEDULE

Below are anticipated timeframes for each phase of work based on the Scope of Services dates. A more refined schedule will be provided for the Kick-off conference.

Final Rapid City Council Contract Approval ........ December 16, 2019
Kick-off conference and Site visits……………………..TBD
Preliminary “Draft” Analysis Report Delivered……. TBD
Preliminary Analysis Report Review Conference ..... TBD
Final Analysis Report Presentation....................... TBD
Site Visits to Install Arc Flash Labels..................... TBD
Project Completion/Closeout Date......................... April 30, 2020