AMENDMENT NO. 1 TO AGREEMENT

Project: Rapid City Landfill Cell #16 Final Cover, Project Number: 18-2448, CIP No. 51202

Background Data: Effective Date of Agreement: June 17, 2019
Owner: City of Rapid City
Engineer: FMG Engineering, Inc.

Nature of Amendment: The Solid Waste/Landfill had previously determined the need to procure professional engineering services for the installation and placement of a final cover system and Gas Collection and Control System (GCCS) over the in-place municipal solid waste (MSW) in Cell 16

The City of Rapid City has determined the need to complete a study of the overall waste fill progression, cell development and landfill gas build-out for the remaining permitted cells at the Rapid City Landfill. A need has also been identified to complete a feasibility study for the development of Cell 15 as a municipal solid waste (MSW) cell. The original contract included analyzing a portion of the landfill gas system and the stormwater drainage in Cell 15 but did not include a detailed analysis of either system. The City has determined the need to take the analysis further than the original scope allowed. This amendment work will need to be coordinated with the upcoming Solid Waste Master Plan project, which is scheduled to begin in the spring of 2020 and be completed by the end of 2020.

Current Contract Amount: $269,977.00
Change Requested: $108,859.00
New Contract Amount: $378,836.00

Owner and Engineer hereby agree to modify the above referenced Agreement as set forth in this Amendment including Exhibits A, B, and C. All provisions of the Agreement not modified by this or previous Amendments remain in effect. The effective date of this Amendment is: February 20, 2020.

CITY OF RAPID CITY

By: _______________________________ Mayor, Steve Allender

Date Signed: ______________________

ATTEST:

By: _______________________________ Finance Officer, Pauline Sumption

Date Signed: ______________________

REVIEWED BY:

______________________________
Stacey Titus, Operations Project Manager

Page 1 of 1
EXHIBIT A
SCOPE OF SERVICES
Rapid City Landfill Cell 16 Final Cover
Project No. 18-2448 / CIP 51202
Contract Amendment No. 1

The City of Rapid City has determined the need to procure professional engineering services to complete a study of the overall waste fill progression, cell development and landfill gas build-out for the remaining permitted cells at the Rapid City Landfill. A need has also been identified to complete a feasibility study for the development of Cell 15 as a municipal solid waste (MSW) cell. The original contract included analyzing a portion of the landfill gas system and the stormwater drainage in Cell 15 but did not include a detailed analysis of either system. The City has determined the need to take the analysis further than the original scope allowed. This amendment modifies Task 1.04 – Determine Locations of Existing Infrastructure, Task 1.06 – Landfill Gas Collection and Control (GCCS) Expansion Design, and Task 1.08 – Stormwater Drainage and Erosion Control Evaluation and Preliminary Design. This amendment work will need to be coordinated with the upcoming Solid Waste Master Plan project, which is scheduled to begin in the spring of 2020 and be completed by the end of 2020.

The original scope of work for the GCCS design focused on the system within Cell 16 only. The scope did not include development of an overall Landfill Gas Build-Out Plan (LGBP) or the evaluation of any existing equipment or infrastructure currently in place. It has recently been determined that the existing GCCS is operating near its maximum capacity. Therefore, evaluation of the existing system in relation to future systems is critical. This analysis includes a LGBP considering the planned development of the remaining permitted and future cells. Cell development and waste fill progression plans for the remaining permitted cells as well as the possible future cells not yet permitted are required components of the LGBP. The purpose of this amendment is to quantify the engineering scope necessary and associated costs to complete a Gas Build-Out Plan and evaluate the capacity of the existing system or the need for system upgrades to allow increased capacity.

The original scope of work assumed that the Cell 15 area would remain in use as a stormwater detention area. A detailed stormwater analysis was required prior to completing Cell 16 final cover design to determine viable options for stormwater management, erosion control measures, and to provide adequate stormwater storage. This amendment provides a feasibility analysis to determine the viability of constructing a liner and leachate collection system in Cell 15 versus leaving it as a stormwater detention facility. Regulatory review drawings will be produced for South Dakota Department of Natural Resources (DENR) review. The direction the City determines for Cell 15 will be incorporated into the Cell 16 Final Cover design in order to maximize airspace and provide compatible designs.

This amendment shall modify the original Task 1.04 – Determine Locations of Existing Infrastructure by deleting Task 1.04 in its entirety and replacing with the following:

Task 1.04 - Determine Locations of Existing Infrastructure

A. A third-party locator may be required. If required, this work will be performed by the City or contracted by the City.

B. Coordination with the flare manufacturer, American Engineering and Testing (AET), and South Dakota Department of Natural Resources (DENR) to schedule performance testing of the GCCS flare will be required. AET will establish test protocol and criteria to be used during testing.
Deliverables would include a test schedule, test criteria, and a performance test protocol to establish a higher operating value for the enclosed flare. The test results would be provided by AET and reviewed by Franklin Engineering and Consulting (FE&C) and FMG. FMG would then include these results into the final deliverables for this amendment.

C. AET will perform flare testing and be added to the contract as a subconsultant to FMG. The flare testing work will be billed as a lump sum item.

This amendment shall alter original Task 1.06 – Landfill GCCS Expansion Design. Insert the following subsections C and D below Item B in the original contract.

Task 1.06 – Landfill GCCS Expansion Design

C. Cell Development and Waste Fill Progression

C.1 Background information and the existing landfill permit conditions will be reviewed. Preliminary cell development and waste fill progression drawings showing preliminary cell grading and waste placement grading for remaining permitted Cells 15, 16, 18, and 19 will be completed. Conceptual level drawings will be created for possible future expansion areas that have not yet been permitted but are on City property.

C.2 Cell development and waste progression calculations will be completed identifying waste volumes and timing of cell development and summarized in a technical memorandum for City review and comment.

C.3 City comments will be incorporated into the memorandum and drawings, and the final memorandum and drawings will be submitted as deliverables.

D. Landfill Gas Buildout Plans

D.1 Conceptual GCCS pipe network design for Cells 15, 16, 18, and 19 that can transport and combust the LFG generated from these landfill cells will be developed. Conceptual level drawings will be created for possible future expansion areas that have not yet been permitted. Cell development and fill progression drawings and report will be the basis for conceptual design. The analysis will ensure the pipe network is adequately sized based on the pressure drop and counter-current flow velocities.

D.2 An analysis of the existing GCCS capacity will be completed. Deliverables for this task will include a conceptual/permit level drawing set and the associated design report.

D.3 The LBOP will be established based on preliminary cell development and waste fill progression drawings for the remaining permitted Cells 15, 16, 18, and 19.

Waste placement and/or cell completion dates will be evaluated to ascertain the future/existing areas that will require additional GCCS coverage to comply with the existing New Source Performance Standards (NSPS) Subpart WWW regulations, as well as, the new Emissions Guidelines (EG) Regulations. The GCCS build-out plan for planned future expansion areas will be completed using the cell development and waste progression report, Task 1.06 C above.
The complete LBOP will include a plan that displays engineering level site plans that will be prepared to cover annual, 10-year, and 20-year time frames.

Deliverables will include annual, 10-year, and 20-year engineering level GCCS Design drawings.

E. Short-Term and Long-Term Permit Modification Application Preparation

The short-term Title V Permit Modification Application will include preparation of a modification that will allow the landfill to operate the existing GCCS - flare at a higher LFG combustion/flow rate, (i.e. to take the flare from 600 scfm (standard cubic feet per minute) to a higher flow rate of 850 scfm). This higher rate will be verified via flare performance testing. The long-term Title V Permit Modification Application will include preparation of a modification that will allow for the installation of a larger candlestick flare that can combust the LFG that may be generated from future cells. Coordination with DENR Air Quality Division staff will be required to help ensure approval of both the long-term and short-term modifications and confirm compliance with NSPS WWW and EG requirements.

Deliverables for this task will include a Short-Term Title V Permit Modification Application and a Long-Term Title V Permit Modification Application.

F. Prepare Detailed Specifications

Detailed specifications will be prepared that can be inserted in City standard contract documents and be provided to candlestick flare manufacturers for estimating purposes.

Deliverables for the project will include Candlestick Flare Detailed Specifications and will be provided to the Solid Waste Master Plan consultant for incorporation into the Master Plan as necessary. Timing of deliverables will be coordinated with the Master Plan consultant.

G. Project Meetings

For this task, it is assumed one initial project kick-off meeting and up to nine additional local progress meetings may be required. This task assumes local meetings will take place via teleconference or at local consultant or City offices. It is possible that meetings held in Pierre with DENR may be required and would be billed under this task. If required, meetings in Pierre would reduce the time available for local meetings. The consultant shall take and distribute meeting minutes.

This amendment shall delete the original Task 1.08 - Stormwater Drainage and Erosion Control Evaluation and Preliminary Design in its entirety and replace with the following work items:

Task 1.08 - Cell 15 Liner Analysis and Preliminary Design

A. Background Information Review and Existing Permit Assessment

The City’s current DENR Solid Waste Permit, DENR and EPA regulations will be reviewed to assess requirements and restrictions for design of Cell 15 as a lined MSW cell as it relates to the closure or partial closure of Cell 16. Construction drawings of Cell 16 and Cell 15 stormwater pond and additional background information will also be reviewed,
B. Review of City’s Current Landfill Operations and Phasing Plan

The City’s current landfill operations plan will be evaluated to determine the progression and schedule of waste placement and the financial assurance implications of activating Cell 15 will be evaluated.

A draft update to the Cell Phasing and Financial Assurance Calculations portions of the Operations Plan will be produced and included in the final deliverable for this task.

C. Cell 15 Liner and Leachate Collection Feasibility Study and Regulatory Review Drawings

C.1 The Feasibility Study shall include evaluation of Cell 15 grading design in relation to Cell 16 closure and fill progression. The grading of Cell 15 should be evaluated to maximum airspace to the extent possible. The Study will evaluate grading configurations to ensure operations and access are maintained. The Study will present options for City comment and then incorporate into the final deliverables for this task.

C.2 Analysis of cell liner options will be completed, and recommendations provided for liner materials, configuration, and location.

C.3 The Feasibility Study shall include review of record drawings for Cell 16 liner and leachate collection system and existing sanitary sewer system to evaluate tie-in with proposed Cell 15 system. Capacity of current system will be evaluated. Anticipated leachate generation based on preliminary Cell 15 grading analysis will be estimated using HELP (Hydrologic Evaluation of Landfill Performance) Modeling.

C.4 A financial analysis of design and construction costs associated with activation of Cell 15, analysis of available airspace and tipping fee revenues, and comparison to stormwater improvement and maintenance costs associated with leaving Cell 15 for stormwater detention will be completed.

The Feasibility Study will also include preliminary analysis sufficient for the preparation of preliminary cost estimates for both design and construction. The Study will be conducted using existing topographic information. No additional survey will be conducted. The analysis will utilize the existing permitted final cover contours. No revisions to the final cover contours of Cell 15 will be evaluated under this scope. The preliminary study will utilize the existing permitted Landfill boundaries. The analysis will include evaluation of operations and public access roads throughout cell progression. No analysis of property outside the permitted area will be conducted under this scope. This task shall include evaluation of possible increases to permitted ceiling height and coordination with DENR regarding permit modifications. Results of the analysis will be incorporated into the final Study.

The Feasibility Study shall be supplied to the Master Plan Consultant and coincide with the Master Plan schedule.

Deliverables shall include a Feasibility Study and regulatory review drawings for DENR review and approval.
D. Project Meetings.

For this task, it is assumed one initial project kick-off meeting and up to nine additional local progress meetings may be required. This task assumes local meetings will take place via teleconference or at local consultant or City offices. It is possible that meetings held in Pierre with DENR may be required and would be billed under this task. If required, meetings in Pierre would reduce the time available for local meetings. The consultant shall take and distribute meeting minutes.

This modification replaces the original Task 1.08, therefore a reduction of the contract fee of $7,184.00 will be indicated on Exhibit B – Estimated Fees.

**SCHEDULE MILESTONE DATES**

This amendment will establish additional milestone dates for amendment documents that were not included in the original scope. *This amendment’s effective date shall be February 20th.*

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<tr>
<td>City Council Meeting</td>
<td>March 2, 2020</td>
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<tr>
<td>Preliminary Amendment Submittals</td>
<td>June 30, 2020</td>
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<td>Final Amendment Submittals</td>
<td>September 30, 2020</td>
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*For coordination with Solid Waste Master Plan Project:*

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<tr>
<td>Solid Waste Master Plan Begins</td>
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<td>Solid Waste Master Plan Preliminary Submittal</td>
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Project No. 18-2448 / CIP 51202
AMENDMENT NO. 1
Cell Development and GCCS Build-Out Plans, and Cell 15 Feasibility Study

### TASK 1.04 REVISED (NEW SUBTASK 1.04 B)

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<th>Sub Task</th>
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<td>1.04 B</td>
<td>Flare Performance Testing Coordination</td>
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<td>1.04 C</td>
<td>Flare Performance Testing and Reporting</td>
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### TASK 1.06 REVISED (NEW SUBTASKS)

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### TASK 1.08 CELL 15 FEASIBILITY STUDY (REPLACES ORIGINAL TASK 1.08)

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**$108,859.00**

NOTES: Although dollar values have been provided for each task FMG retains the right to reallocate monies to other tasks, subject to the maximum limiting fee, per the contract or as discussed in Exhibit A of this amendment.