Item G14

#2010-248 - Approving Addendum Number 2 for Supervisory Control And Data Acquisition (SCADA) System

Staff Contact: Steven P. Riehle, Public Works Director
Council Agenda Memo

From: Steven P. Riehle, Public Works Director

Meeting: September 14, 2010

Subject: Approving Addendum Number 2 for Supervisory Control And Data Acquisition (Scada) System

Item #’s: G-14

Presenter(s): Steven P. Riehle, Public Works Director

Background

On June 24, 2008 the Wastewater Division of the Public Works Department for the City of Grand Island presented Resolution Number 2008-168 to the Grand Island City Council. This negotiated agreement with Huffman Engineering of Lincoln, Nebraska was for the professional services associated with Evaluation/Recommendation, Design, Installation/Integration, and replacement of components in the Supervisory Control Data Acquisition (SCADA) system. Work in the original agreement is to be performed at actual costs, with a maximum of $241,880.00.

On October 13, 2009 by Resolution Number 2009-269, the City Council of Grand Island approved Addendum Number 1. The addendum, for an additional $7,800.00, provided services described as "General Conditions of Contract" and defined the specific roles and responsibilities of each respective party of the SCADA construction contract.

Discussion

During the design of the project by Huffman Engineering and also during the installation of the SCADA equipment by IES Industrial, Inc. there were changes requested by the City to the design of the SCADA that required additional engineering work to be performed by Huffman Engineering. The additional engineering work is beyond the scope of services that was detailed in the original agreement and therefore an addendum is necessary. The additional engineering work is explained below and detailed on the attached Addendum Number 2 to the agreement. The addendum shows the actual hours accrued by the consultant, the estimated hours in the original agreement, and the negotiated compensation hours for Amendment Number 2. The negotiated amount of Amendment Number 2 is $37,800.00.
Original Agreement $ 241,880.00  
Addendum Number 1 $ 7,800.00  
Addendum Number 2 $ 37,800.00  
Revised Agreement Total $ 287,480.00  

### Item 1 - Concrete Panel Layouts
The panel layouts were built as part of the 1995 Wastewater Plant expansion project. Bentec of Minnesota was the subcontractor that built the RTU (Remote Termination Unit) panels. At project closeout time, Bentec's business was closed after a raid by the IRS. The City was unable to obtain as-built drawings that reflected changes that were made to the panels during construction.

The consultant had to rework the drawings and spend considerable time studying and testing inputs and outputs to prepare a full set of plans to be used by the contractor to put together a firm bid for the work. The end result for bids and after construction was a well documented set of as-built drawings. The original agreement included a total of 414 hours for the work. Since there were no as-built drawings, the consultant accrued a total of 1,109 actual hours (overrun of 695 hours) to perform the work. Wastewater staff negotiated with the consultant and agreed to pay for an addition 164 hours using the same labor rates as the original agreement.

### Item 2 - Design & Specify Components for HMI System
The SCADA system has an HMI (Human Machine Interface) that uses software PC's and computer screens. The City had originally planned to acquire the software & computer hardware for the HMI. Since electrical contractors bidding on the SCADA project have a working relationship with software & hardware vendors, the contractor would be able to get a better price. The consultant developed alternatives for the components of the HMI system. Upon opening the bids, the City recommended awarding the alternatives resulting in substantial costs savings.

The original agreement included a total of 16 hours for the work. The consultant was asked to develop alternatives for the components of the HMI system that were outside of the scope of the original agreement. The consultant accrued a total of 152 hours to perform the work. Wastewater staff negotiated with the consultant and agreed to pay for an additional 40 hours using the same labor rates as the original agreement.

### Item 3 - Submittal Review/Responses in Specification Forms
There were numerous requests for information from the panel contractor to Huffman Engineering regarding questions on the installation. Since the request for information work performed was within the scope of the original Request for Proposals and the approved agreement, no hours are included in this addendum under this item.

### Item 4 - Witness Equipment & Panel Factory Acceptance Testing
The agreement was set up for the consultant to provide construction project management services with a Wastewater Division employee to perform daily on-site Resident Project Representative (RPR) services. Adverse weather conditions prevented the City from
making the trip to Omaha to perform Factory Acceptance Testing (FAT) in Omaha on December 14, 2009. Since Huffman Engineering has employees in Omaha and Interstate Industrial Instruments is located in Omaha, Huffman Engineering was able to perform the FAT services for the City. The original agreement didn't include any hours for this work as it was originally to be performed by City staff.

The original agreement had city employees providing inspection of factory acceptance testing in Omaha. The negotiated hours are actual time spent by the consultant on performing the testing in Omaha using the same labor rates as the original agreement.

**Item 5 - Modify Programming Timing Blocks**
The original agreement included re-writing the program code to match existing past practices & projects. During installation of the hardware & software, City staff asked for programming changes on the timing blocks and HMI operation that also changed the tagging of the pumps. Making the change allows the pumps to be coordinated and will make for more constant wasting for the Return Waste Activated Sludge (RWAS) and primary sludge (PS) pumps.

The original agreement didn't include any hours for this work. Wastewater staff negotiated with the consultant and agreed to pay for 40 hours using the same labor rates as the original agreement.

**Item 6 - Human Machine Interface Modifications**
The original agreement included rewriting the computer programming code for the existing HMI (Human Machine Interface). The colors, fonts, and layout, etc. for the work station screens was set up working with operators and supervisors. Upon installation in the control room, the lighting in the room, shadows, ergonomics, and layouts needed changed. The new SCADA screen outlook is much more customizable and further improvements and changes to the programming will be easier to make.

The work was in addition to the hours and scope that was included in the original agreement. Wastewater staff negotiated with the consultant and agreed to pay for 48 hours using the same labor rates as the original agreement.

**Item 7 - Document Programming Logic Control Bases**
The original agreement included PLC (Programming Logic Control) for the existing Wastewater Treatment Plant and known future projects such as Aerated Static Pile Composting and Aeration Basins. Changes to the PLC were needed to accommodate new or future projects such as Primary Clarifiers and Main Pump Station improvements.

The consultant added connection points in the PLC bases and added them to the final drawings. The number of cards was increased and the chassis size was also increased.

The work was in addition to the hours and scope that was in the original agreement. Wastewater staff negotiated with the consultant and agreed to pay for 32 hours of time
for drafting and documentation on the drawing sets using the same labor rates as the original agreement.

**Item 8 - Review & Incorporate Network Internet Protocol in Standards**
The original agreement included standard Internet Protocol (IP) addressing. The IP addressing was re-allocated to government IP addressing standards for security and internal navigation of the subcomponents within the system.

The work was in addition to the hours and scope that was in the original agreement. Wastewater staff negotiated with the consultant and agreed to pay for 16 hours for the work.

**Item 9 - Revise Subconsultants Contract on Interface**
The original agreement included hours for Dakota Hogback as a subconsultant to Huffman Engineering. The City requested additional programming work be performed by Dakota Hogback on the SCADA work related to the interface between the current projects and the future projects at the Wastewater Treatment Plant.

The work was in addition to the hours and scope that was in the agreement (see Item Number 7). Wastewater staff negotiated with the consultant and agreed to pay for 16 hours of time for the additional work using the same labor rates as the original agreement.

**Alternatives**

It appears that the Council has the following alternatives concerning the issue at hand. The Council may:

1. Move to approve
2. Refer the issue to a Committee
3. Postpone the issue to future date
4. Take no action on the issue

**Recommendation**

Public Works Administration recommends that the Council approve Addendum Number 2 with Huffman Engineering of Lincoln, Nebraska.

**Sample Motion**

Move to approve Addendum number 2 with Huffman Engineering of Lincoln, Nebraska.
ADDENDUM NUMBER 2 TO AGREEMENT FOR PROFESSIONAL SERVICES FOR THE EVALUATION AND RECOMMENDATION, DESIGN, INSTALLATION AND INTERGRATION OF A SUPERVISORY CONTROL DATA ACQUISITION (SCADA) SYSTEM

General Provisions

A. This Document Controlling. To the extent that there are conflicting provisions between this document and the agreement between The City of Grand Island and Huffman Engineering Inc, this document controls.

B. Modifications and Deletions. The following provisions are deleted or modified from original agreement for Professional Services for the Evaluation and Recommendation, Design, Installation and Integration of a Supervisory Control Data Acquisition (SCADA) System; Dated June 24, 2008 as follows:

(i) Technical Qualifications; Task 11 – Scope of Work – Variation of Hours; Page 15 of 18; Add new paragraph and title; as stated:

Task 11 Scope of Work – Variation of Hours

The ENGINEER shall complete the services described as “Scope of Work – Variation of Hours”, which document shall provide to the CITY the incorporated work produced into final drawing set documentation, project planning integration and Human Machine Interface (HMI) protocol.

The ENGINEER shall complete the services described as “Scope of Work – Variation of Hours” in contract management of said services outlined;

(ii) Technical Qualifications; Table – Level of Effort by Services Provided; Page 16 of 18; Insert new table, named as; Task 11; “Scope of Work –Variation of Hours”:

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Create panel layouts. Terminal block layouts &amp; schematics for each individual base site. Additional on-site time to drawing unavailability &amp; imprecision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset</td>
<td>Actual Task Hours</td>
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<tr>
<td>Technician</td>
<td>589</td>
</tr>
<tr>
<td>Drafting</td>
<td>520</td>
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ADDITIONAL COMPENSATION FOR ITEM 1 $ 14,520.00
**Item 2**
Design and specify components for HMI system – computer system layout alternatives and equipment evaluations per City request. Incorporate accepted add alternate components of the bidding documents.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Actual Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
<th>Rate</th>
<th>Total</th>
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<tbody>
<tr>
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<td>16</td>
<td>(120)</td>
<td>24</td>
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<td>$3,240.00</td>
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<td>Drafting</td>
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<td>16</td>
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<td>$960.00</td>
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**ADDITIONAL COMPENSATION FOR ITEM 2**

$4,200.00

**Item 3**
Submittal Review/Responses in specification form. Submittals and questions to Owner, Contractor and Subcontractor.

<table>
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<th>Actual Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
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</thead>
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<td>(88)</td>
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**ADDITIONAL COMPENSATION FOR ITEM 3**

$0.00

**Item 4**
Witness equipment and panel Factory Acceptance Testing (FAT) in Omaha NE. Review, changes and recommendations. (Weather and road conditions inhibited city personnel from witness)

<table>
<thead>
<tr>
<th>Asset</th>
<th>Actual Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
<th>Rate</th>
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<tr>
<td>Technician</td>
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**ADDITIONAL COMPENSATION FOR ITEM 4**

$960.00

**Item 5**
Modify programming timing blocks and Human Machine Interface (HMI) operation and tagging of Return Activated Sludge (RAS) pumps.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Actual Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
<th>Rate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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**ADDITIONAL COMPENSATION FOR ITEM 5**

$5,400.00
### Item 6
Human Machine Interface (HMI) screen block and text modifications.

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<thead>
<tr>
<th>Asset</th>
<th>Actual Task Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
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**ADDITIONAL COMPENSATION FOR ITEM 6**

$6,480.00

### Item 7
Document current/near future component connection points in Programmable Logic Controller (PLC) bases in final drawings.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Actual Task Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
<th>Rate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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**ADDITIONAL COMPENSATION FOR ITEM 7**

$1,920.00

### Item 8
Review and incorporate Network Internet Protocol (IP) addressing throughout the Ethernet infrastructure in city network standards.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Actual Task Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
<th>Rate</th>
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<tr>
<td>Engineer</td>
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<td>0</td>
<td>(16)</td>
<td>16</td>
<td>$135.00</td>
<td>$2,160.00</td>
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</table>

**ADDITIONAL COMPENSATION FOR ITEM 8**

$2,160.00

### Item 9
Revise Sub consultant contracts per variations in scope of work.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Actual Task Hours</th>
<th>Hours in Original Agreement</th>
<th>Variation</th>
<th>Negotiated Compensation Hours</th>
<th>Rate</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>Management</td>
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<td>(16)</td>
<td>16</td>
<td>$135.00</td>
<td>$2,160.00</td>
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**ADDITIONAL COMPENSATION FOR ITEM 9**

$2,160.00

**ADDENDUM NUMBER 2 GRAND TOTAL**

$37,800.00

(iii) Agreement Form; Contract Agreement; Page CA-2; ARTICLE II; as stated:
ARTICLE II. That the City shall pay to the consultant for the performance of the work embraced in this agreement and the consultant will accept as full compensation therefore the sum (subject to; not to exceed line items limits as provided by the agreement) of Two hundred forty one thousand eight hundred eighty dollars & zero cents Dollars $ 241,880.00 Two hundred forty nine thousand six hundred eighty dollars & zero cents Dollars $ 249,680.00 Two hundred eighty seven thousand four hundred eighty dollars & zero cents Dollars $ 287,480.00 for all services, materials, and work covered by and included in the agreement award and designated in the foregoing Article I; payments thereof to be made in cash or its equivalent in the manner provided in the agreement.

IN WITNESS WHEREOF, owner and engineer have executed this Addendum Number 2.

City of Grand Island, Nebraska
OWNER

By: __________________________
Name: Margaret Hornady
Title: Mayor
Date: _________________________

Huffman Engineering
ENGINEER

By: __________________________
Name: Howard Huffman
Title: President
Date: _________________________

Attest:

___________________________
RaNae Edwards, City Clerk

Approved as to Form __________
September 14, 2010       City Attorney
WHEREAS, on June 24, 2008, by Resolution Number 2008-168, the City Council of the City of Grand Island approved an agreement with the consulting engineering firm, Huffman Engineering of Lincoln, Nebraska for the professional services associated to the Evaluation/Recommendation, Design, and Installation/integration of the replacement of components in the Supervisory Control Data Acquisition (SCADA) System; and

WHEREAS, on October 13, 2009, by Resolution Number 2009-269, the City Council of the City of Grand Island approved Addendum Number 1 for $7,800.00 with the consulting engineering firm, Huffman Engineering; and

WHEREAS, Addendum Number 2 for $37,800.00 was negotiated with the consulting engineering firm Huffman Engineering of Lincoln, Nebraska; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that Addendum Number 2 for $37,800.00 with the consulting engineering firm, Huffman Engineering of Lincoln, Nebraska, is hereby approved; and

BE IT FURTHER RESOLVED, that the Mayor is hereby authorized and directed to execute such addendum to the agreement on behalf of the City of Grand Island.

- - -

Adopted by the City Council of the City of Grand Island, Nebraska, September 14, 2010.

_______________________________________
Margaret Hornady, Mayor

Attest:

_______________________________________
RaNae Edwards, City Clerk