City of Grand Island

Tuesday, May 14, 2013

Council Session

Item I-5

#2013-149 - Consideration of Approving Amendment No. 7 to the Agreement for Professional Engineering Services entitled "Wastewater Treatment Plant and Collection System Rehabilitation" with Black & Veatch

Staff Contact: John Collins, P.E. - Public Works Director

Council Agenda Memo

From: Marvin Strong PE, Wastewater Treatment Plant Engineer

Meeting: May 14, 2013

Subject: Approving Amendment No. 7 to the Agreement for Professional Engineering Services entitled "Wastewater Treatment Plant and Collection System Rehabilitation" with Black & Veatch

Item #'s: I-5

Presenter(s): Terry Brown PE, Manager of Engineering Services

Background

On October 11, 2011 City Council approved, by Resolution No. 2011-307 in the amount of $1,121,160.00, the initial agreement with Black & Veatch for project management, collection system master planning and conceptual designs for the Northeast Interceptor sewer, Collection System rehabilitation and Wastewater Treatment rehabilitation.

On April 24, 2012 City Council approved, by Resolution No. 2012-111 Amendment No. l, in the amount of $1,910,075.00, to this agreement in continued design effort to finalize design and prepare bidding documents. Bidding documents in Amendment No. 1 included; Lift Station No. 7 Improvements, 4th to 5th Eddy to Vine, Northeast Interceptor Phase 1A, and 1B, South and West Collection System rehabilitation, and Wastewater Treatment Rehabilitation.

On August 28, 2012 City Council meeting Resolution No. 2012-229 was approved for Amendment No. 2, in the amount of $53,000.00, to this agreement. This amendment added Community Development Block Grant (CDBG) guideline provisions, as well as provided for construction engineering services for the Lift Station No. 7 Improvements and 4th Street to 5th Street; Eddy Street to Vine Street rehabilitation.

On November 13, 2012 City Council meeting Resolution No. 2012-329 was approved for Amendment No. 3, in the amount of $265,754.00, to this agreement. This amendment added construction engineering services and resident inspection during construction for the 5th Street Sanitary Sewer Improvements, as well as for the South & West Sewer Interceptor Improvements with the consulting firm Black & Veatch of Kansas City, Missouri.

On February 12, 2013 City Council meeting Resolution No. 2013-34 was approved for Amendment No. 4 in the amount of $30,000 to this agreement. This amendment updated the Report on Revenue Requirements, Cost of Service and Rates for Wastewater completed in March 2011.

On February 12, 2013 City Council meeting Resolution No. 2013-35 was approved for Amendment No. 5 in the amount of $451,896 to this agreement. This amendment provides preliminary design engineering services in Phase II of the North Interceptor Sewer planning, and final biding documents for Phase II-B North Interceptor Sewer.

On May 14, 2013 City Council meeting Resolution No. 2013-148 was approved for Amendment No. 6 in the amount of $719,617 to this agreement. This amendment allowed fee compensation for engineering services that were not specifically identified in the original design agreement. Consulting Engineering Construction Phase Services, and Resident Inspection During Construction for Phase I; North Interceptor Sewer Construction with the consulting firm Black & Veatch of Kansas City, Missouri.

Discussion

With the approval of Amendment No. 7 to the Agreement for Professional Engineering Services entitled "Wastewater Treatment Plant and Collection System Rehabilitation", City staff in conjunction with consulting engineer; Black & Veatch, and sub-consultant; Olsson Associates; will conduct administrative, and field services in oversight to the conditions of the contract, Headworks Improvements; Project WWTP-2013-1 as identified in specifications and plans.

Amendment No. 7 incorporates fee compensation for engineering services that were not specifically identified in the original design agreement. Consulting Engineering Construction Phase Services, Resident Inspection during Construction and Integration Services for Headworks Improvement Construction with the consulting firm Black & Veatch of Kansas City, Missouri.

Task Summary Table

	Task / Description		
1.	Dewatering Impacts to Nearby Lakes	$	6,321
2.	Pipe Bid Alternatives	$	3,416
3.	JBS Flow Meter / Sampler Building	$	29,885
4.	Filtrate & Drain Discharge Options	$	1,339
5.	Septage Receiving Area	$	16,515
6.	Add Basement in Electrical Building	$	5,347
7.	Wetwell Walkways and Guardrail	$	6,608

8.	Editing City Attorney comments design documents	$	2,819
9.	Construction Phase Services	$	1,125,800
10.	Resident Inspection During Construction	$	559,600
11.	SCADA Integration Services	$	120,800
	Total for Amendment No. 7, Engineering Services	$	1,878,450

The Headworks Improvement project construction will expand over the next twenty four (24) months. City staff, consulting, and resident services are estimated consuming 9,000 hours to administer, coordinate, and witness quality control in the construction.

The cost increase for Amendment No. 7 is $1,878,450, resulting in a revised agreement of $6,429,952.

Alternatives

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

1. Move to approve the Mayor of the City of Grand Island, Nebraska authorized on behalf of the City of Grand Island to execute the Amendment No. 7 with Black & Veatch of Kansas City, Missouri for Professional Engineering Services entitled "Wastewater Treatment Plant and Collection System Rehabilitation".
2. Refer the issue to a Committee.
3. Postpone the issue to future date.
4. Take no action on the issue.

Recommendation

City Administration recommends that the Council approve by resolution the authorization to execute the Amendment No. 7 with Black & Veatch of Kansas City, Missouri for Professional Engineering Services entitled "Wastewater Treatment Plant and Collection System Rehabilitation".

Sample Motion

Move to approve the Mayor of the City of Grand Island, Nebraska authorized on behalf of the City of Grand Island to execute Amendment No. 7 with Black & Veatch of Kansas City, Missouri for Professional Engineering Services entitled "Wastewater Treatment Plant and Collection System Rehabilitation".

AMENDMENT NO. 7

TO AGREEMENT BETWEEN

CITY OF GRAND ISLAND

AND

BLACK & VEATCH CORPORATION

FOR PROFESSIONAL SERVICES

FOR

Consulting Engineering Services for the WWTP and Collection System Rehabilitation

THIS IS AN AMENDMENT made as of _____, 2013 to the agreement between City of Grand Island (OWNER) and Black & Veatch Corporation (ENGINEER) dated October 17, 2011, and entitled Consulting Engineering Services for the WWTP and Collection System Rehabilitation. OWNER and ENGINEER agree to amend such Agreement as follows:

ARTICLE 3 – SERVICES TO BE PERFORMED BY ENGINEER
The scope of services for this amendment includes the following:

1. **Task 5.2 - WWTP Headworks Improvements** – Detailed Design Trends
2. **Task 5.3 - WWTP Headworks Improvements** – Bidding Phase Services (No changes from Amendment No. 1)
3. **Task 5.4 - WWTP Headworks Improvements** – Construction Phase Office and Field Support Services
4. **Task 5.5 - WWTP Headworks Improvements** - Resident Project Representative and Testing Services
5. **Task 5.6 - WWTP Headworks Improvements** - SCADA System Integration Services

The Scope of Services as described in Attachment A – Scope of Services shall be amended to include the following:

Task 5.2 – WWTP Headworks Improvements – Detailed Design Trends

The detailed design scope and fee for the WWTP Headworks Improvements was included in Amendment No. 1 and was based on the project elements defined in the Design Memorandum (Technical Memorandum #10). During detailed design, OWNER and ENGINEER agreed to modify the scope and include additional elements in the Contract Documents. The changes or designtrends include the following:

1. D.1 - Dewatering Impacts to Nearby Lakes. Due to the flow rate and duration required to dewater the pump station area, nearby lakes will be impacted. Of most concern are the residential lakes located east of the plant. At the OWNER's request, a dewatering impact report was prepared to determine the approximate lake drawdown elevations, a survey of the existing lake elevations was performed, and which lakes had existing wells. The

information was used to develop an action plan which included, requiring the Contractor to divert a portion of the flow from the dewatering efforts to Greer lake. If other lakes are impacted, OWNER pay utility costs for operating existing wells and drill new wells.

2. D.2 - ADS Polypropylene Pipe (Bid Alternative). OWNER requested that polypropylene pipe manufactured by Advanced Drainage Systems, Inc. be included as a bid alternative for the interceptors. The pipe has only been used for approximately three (3) years for sanitary sewer applications, but no installations by ENGINEER-designed projects. Effort was expended confirming the pipe is suitable for this project, preparing a technical specification, and preparing bid alternative language.

3. D.3 - JBS Meter and Sampler Building. OWNER requested that a new vault be designed to house a meter and valves to divert pre-treated wastewater from JBS to the new South Interceptor and a new building to house sampler (provided by OWNER). ENGINEER's efforts also involved evaluation of installing a pre-fabricated concrete building or constructing a masonry building (similar to the other new buildings).

4. D.4 - Filtrate and Plant Drain Water Discharge Options (Round 2). Discharge locations for filtrate, plant drain and grit equipment overflow water were evaluated during preliminary design. OWNER approved that water from these sources will be directed to the new pump station via gravity lines. At the 60% design review meeting, OWNER wanted to re-visit discharge of the filtrate and plant drain waters to the new flow distribution structure. After additional review and discussion, OWNER confirmed the initial decision.

5. D.5 - Septage Receiving Area. The scope of the septage receiving area expanded from its preliminary design concept to include new two concrete entrances with automatic gates, concrete drives, intercom, and lighting.

6. D.6 – Electrical Building Basement. The preliminary design concept involved housing the screening and electrical equipment in the same masonry structure, but in separate rooms. It was agreed to construct a separate building to house the electrical equipment; however, OWNER requested that a basement be provided to access the equipment from below and allow the use of wire gutter with access hatch, ladder, and sump pump. The additional structural, electrical, and plumbing design effort associated with the basement was not originally anticipated.

7. D.7 – Wetwell Walkways. OWNER requested that hatches, concrete walkways, and guardrail be added to each wetwell to facilitate access and cleaning.

8. D.8 – OWNER Legal Comments on Technical Specifications (Divisions 2 – 16). OWNER legal comments on the technical specifications were editorial in nature, but were incorporated to be consistent with the OWNER legal comments that were incorporated in the front-end documents (Divisions 0 and 1).

Tasks 5.4, 5.5, and 5.6 – WWTP Headworks Improvements – Construction Phase Office and Field Support Services, Resident Project Representative and Testing Services, and SCADA System Integration Services

ENGINEER's services for these tasks are dependent on the construction Contractor's schedule and completion defined in the Contract Documents (City Project WWTP-2013-1). The scope of ENGINEER's work and compensation were developed based on the OWNER's intention to issue a Notice to Proceed to Contractor on or about June 10, 2013 followed by twenty four (24) months of construction. The following intermediate construction schedule milestone and Contract Times are anticipated:

1. All work is substantially complete for automatic operation through The new Raw Wastewater Pump Station, Grit Facility, and Flow Distribution Structure Intermediate Construction Milestone is complete by January 11, 2015 (580 calendar days)
2. All work is substantially complete for automatic operation through all new facilities, including demolition of the aerated grit basins to allow new piping connections to the primary clarifiers and electrical power and controls to the new Flow Distribution Structure, by March 12, 2015 (640 calendar days).
3. Final completion of all work by June 10, 2015 (730 calendar days).

Including three (3) months for completion of conformed construction documents and project closeout activities, ENGINEER will provide project management administration services over a twenty seven (27) month period. Any changes to this schedule may cause the OWNER or ENGINEER to request an adjustment to the compensation.

Neither ENGINEER's authority or responsibility under any provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by ENGINEER shall create, impose or give rise to any duty owed by ENGINEER to Contractor, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.

ENGINEER will not supervise, direct, control or have authority over or be responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws or Regulations applicable to the furnishing or performance of the Work. ENGINEER will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

ENGINEER shall not be responsible for the acts or omissions of any Contractor, Subcontractor or Supplier, or other individuals or entities performing or furnishing any of the Work, for safety or security at the Site, or for safety precautions and programs incident to Contractor's Work, during the Construction Phase or otherwise. ENGINEER shall not be responsible for the failure of the Contractor to perform or furnish the Work in accordance with the Contract Documents. If the ENGINEER determines the documents are incomplete, contain errors or omissions, or do not comply with the Contract Documents, it will notify the OWNER in writing of the deficiencies.

Through a subcontract to ENGINEER, Olsson Associates (hereinafter referred to as the ENGINEER's Consultant), will assist with office and field support services and be primarily responsible for providing resident project representative (RPR) services and testing services. In addition, ENGINEER's Consultant through a subcontract to Dakota Hogback Automation, Inc. (hereinafter referred to as the SCADA System Integrator) will provide Supervisory Control and Data Acquisition (SCADA) System programming and configuration services.

ENGINEER will consult with OWNER and act as OWNER's representative as provided in the Contract Documents. The extent and limitations of the duties, responsibilities, and authority of ENGINEER as assigned in the Contract Documents shall not be modified, except as ENGINEER may otherwise agree in writing. All of OWNER's instructions to Contractor will be issued through the RPR, which shall have authority to act on behalf of OWNER in dealings with Contractor to the extent provided in the Contract Documents, except as otherwise provided in writing.

Specific services to be performed by ENGINEER are described below.

Task 5.4 – WWTP Headworks Improvements – Construction Phase Office and Field Support Services

ENGINEER will have primary responsibility for the office and field support services and the ENGINEER's Consultant will assist where required or requested. The services are broken down into the following sub-tasks:

5.4.1. Administration Services. ENGINEER will provide project management administration services over a twenty seven (27) month period to successfully complete the WWTP Headworks Improvements project, including: project correspondence with the OWNER and consultation with OWNER's staff; supervision and coordination of its services; scheduling and assignment of personnel resources; continuous monitoring of work progress; monthly progress reporting with invoice for work performed, and; project closeout.

5.4.2. Attend Preconstruction Conference. ENGINEER will conduct a preconstruction conference with the OWNER and Contractor. ENGINEER will prepare an agenda, conduct the preconstruction conference and prepare and distribute meeting minutes. The conference will include a discussion of the Contractor's tentative schedules, procedures for transmittal and review of the Contractor's submittals, processing of payment applications, critical work sequencing and requirements, change orders, record documents, the Contractor's responsibilities for safety and first aid, and other administrative items.

5.4.3. Review Contractor's Construction Schedules. ENGINEER will conduct a preconstruction scheduling conference with the Contractor and OWNER to review the requirements for cost-loaded schedules and schedule configuration. ENGINEER will receive, review, and comment on the Contractor's initial proposed construction progress schedule and monthly updated schedules and advise OWNER as to their acceptability. ENGINEER's review will be for general conformity of the construction schedule to the requirements for scheduling defined in the Contract Documents, to determine if the Contractor's construction schedule, activity sequence, and construction procedures include construction sequencing and any special conditions specified in the Contract Documents. ENGINEER will summarize its review comments related to each schedule submittal and submit them to the OWNER for its consideration, input, and acceptance. Review comments acceptable to OWNER will be transmitted to Contractor by ENGINEER. To establish the basis for ENGINEER's compensation, up to two (2) initial schedule submittals and twenty three (23) monthly schedule updates are budgeted to be reviewed.

5.4.4. Review Shop Drawings and Data Submittals. ENGINEER will review electronic submittals of shop drawings and data posted to the Project website by the Contractor. ENGINEER's review will only be to determine if the items covered by the submittals will, after installation or incorporation into the Work, conform to the information given in the Contract Documents and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER's review will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto.

ENGINEER's review of shop drawings or samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called ENGINEER's attention to each such variation at the time of submission as required by the Contract Documents and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated into or accompanying the shop drawing or sample approval; nor will any approval by ENGINEER relieve Contractor from responsibility for complying with the requirements of the Contract Documents.

ENGINEER will establish the Project website and provide instructions for posting and retrieving submittals after award of the Contract. ENGINEER will post its review comments on the Project website and Contractor will be responsible for downloading the comments and producing hard copies of the comments and submittals for distribution to OWNER, ENGINEER, and the RPR as specified in the Contract Documents. ENGINEER will prepare and maintain a submittals log.

As part of this task, ENGINEER will prepare a schedule of finishes that includes the colors and finishes selected for both manufactured products and for surfaces to be field painted or finished. ENGINEER will coordinate colors and finishes with OWNER. ENGINEER will furnish the schedule to Contractor within thirty (30) days after the date of acceptance of the last color or finish sample.

To establish basis for ENGINEER's compensation, up to two hundred and ten (210) shop drawings and data submittals are budgeted to be reviewed. OWNER will seek reimbursement from Contractor for additional submittal reviews performed by ENGINEER as outlined in the Contract Documents.

5.4.5. Review Equipment Manufacturer Operation and Maintenance Manuals. ENGINEER will review electronic and final operation and maintenance (O&M) manuals developed by equipment manufacturers. Contractor will post electronic versions of the preliminary manuals on the Project website. ENGINEER's review will be for general conformance to the O&M manual development requirements specified (including the items noted below) and for applicability to the equipment items actually installed.

- Equipment function, normal operating characteristics, and limiting conditions.
- Assembly, installation, alignment, adjustment, and checking instructions.
- Operating instructions for startup, routine and normal operation, regulation and control, shutdown, and emergency conditions.
- Lubrication and maintenance instructions.
- Guide to troubleshooting.
- Parts list and predicted life of parts subject to wear.
- Outline, cross-sections, assembly drawings, engineering data, and wiring diagrams.
- Test data and performance curves, where applicable.
- Completed equipment record forms.
- Indexing and labeling.
- Electronic files comply with the requirements in the Contract Documents.

ENGINEER will post its review comments on the Project website. Contractor will be responsible for downloading the comments and producing final electronic copies on CD-ROM and final hard copies in three-ring binders for distribution to OWNER and ENGINEER as specified in the Contract Documents.

To establish basis for ENGINEER's compensation, a combined total of up to fifty five (55) electronic and final O&M manuals are budgeted to be reviewed.

5.4.6. Attend Monthly Progress Meetings. ENGINEER, ENGINEER's Consultant, and RPR will attend monthly progress meetings. The Contractor will be responsible for developing and distributing the meeting minutes. Items such as schedule slippage, coordination problems, quality of work, pending change orders, outstanding shop drawings, utility coordination, and progress schedules will be discussed. To establish basis for ENGINEER's compensation, up to twenty three (23) progress meetings are budgeted with the OWNER and Contractor on-site. This includes two (2) personnel from ENGINEER's Kansas City office and one (1) person from ENGINEER's Consultant's Grand Island office for all meetings and up to fifteen (15) meetings for the ENGINEER's Consultant's Electrical Engineer and up to six (6) meetings for the ENGINEER's Consultant's Instrumentation & Controls Engineer based in Lincoln.

5.4.7. Review Contractor's Monthly Applications for Payment. ENGINEER and RPR will receive and review the Contractor's monthly payment requests by observing the work completed in compliance with the Contract Documents and stored materials on-site each month. ENGINEER's review will be for the purpose of verifying the quantities of work completed and amount of stored materials which are the basis of the payment requests and perform a math check. RPR will examine Contractor's construction record drawing markups as a condition of payment. ENGINEER will forward comments and recommendations for payment of items on the monthly payment request to the OWNER's Project Manager noting particularly their relation to the cost-loaded schedule values, work completed, and material and equipment delivered at the site, but applications.

5.4.8. Conduct Periodic Site Visits. ENGINEER and ENGINEER's Consultant's personnel based in Kansas City, Lincoln and Grand Island with areas of responsibility including civil/sitework, mechanical building, mechanical process, electrical, instrumentation and control will make periodic site visits to attend coordination meetings, review construction issues and to observe the progress and quality of the work to determine if the completed work is in compliance with the Contract Documents. ENGINEER will report to OWNER's Project Manager any work that is known to be defective, or which fails any required inspections, tests, or approvals, or has been damaged prior to final payment. ENGINEER will advise OWNER whether any portion of the work should be corrected or rejected, should be uncovered for observation, or requires special testing, inspection, or approval. To establish basis for ENGINEER's compensation, up to twenty two (22) one-day visits to the plant by the individual engineering disciplines are budgeted as follows:

Discipline	No. of Trips
Lead Civil Engineer	Four (4)
Lead Mechanical Engineers, Building or Process	Three (3)
Lead Structural Engineer	One (1)
Lead Electrical Engineer	Eight (8)
Lead Instrumentation & Controls Engineer	Six (6)

The above engineering personnel are located in the Kansas City and Lincoln offices. Up to fifty (50) two-hour site visits for civil/sitework engineers in the Grand Island office are budgeted. Additional visits by instrumentation & control engineers for the SCADA System Integration may be required as outlined in Task 5.6.

5.4.9. Interpret Contract Documents. When requested by OWNER or Contractor, ENGINEER will interpret the Contract Documents. ENGINEER's responses to requests for clarification, interpretation, or information from the Contractor will be distributed by ENGINEER to OWNER and Contractor. ENGINEER will prepare and maintain a log of requests for clarifications, interpretations, and information. To establish basis for ENGINEER's compensation, up to sixty (60) requests for clarifications, interpretations, or information are budgeted to be reviewed and returned with a written response.

5.4.10. Substitutions and Or Equals. ENGINEER will review and recommend the acceptance, or rejection, of material or equipment items submitted by Contractor for substitution or equal to a named item specified in the contract documents to the OWNER. To establish basis for ENGINEER's compensation, up to four (4) requests for substitutions and up to eight (8) requests for equivalent materials or equipment are budgeted to be reviewed.

5.4.11. Prepare Field Orders and Change Order Requests. ENGINEER will assist OWNER in developing field orders and change order requests to describe additions, deletions, or revisions in the Work ordered by OWNER. Change order requests will be used to respond to differing or unforeseen subsurface or physical conditions under which the work is to be performed, or to emergencies. ENGINEER will assist with determining a fair price for each change and evaluating the potential impact of each change on the Contractor's construction schedule. ENGINEER will prepare and maintain a change order log. Each change request will be incorporated into a subsequently issued change order following negotiation by ENGINEER on OWNER's behalf with Contractor as to each change's effect, if any, on the Contract Price or Contract Times, for approval of the OWNER. To establish basis for ENGINEER's compensation up to sixteen (16) field orders and twenty (20) change order requests are budgeted to be developed and reviewed with Contractor. ENGINEER will prepare and recommend change orders covering changes in the work and changes in the Contract Price or Contract Times.

5.4.12. Assist in Evaluating Change Order Requests. ENGINEER will assist OWNER in evaluating change order requests submitted by the Contractor. ENGINEER will evaluate the construction cost and schedule impact of each change order request. ENGINEER will assist with determining a fair price for the work and evaluating the potential impact of each change order request on the Contractor's construction schedule. ENGINEER will review change order requests and cost proposals prepared by the Contractor for the contemplated work. The ENGINEER will prepare a written recommendation stating the reason for each change order request and recommended action by OWNER. The ENGINEER will negotiate change order requests with Contractor on OWNER's behalf for approval of the OWNER prior to Contractor's start of work defined in each change order request. If the OWNER determines that Contractor must competitively bid certain subcontractor work covered under a change order request, ENGINEER will review bids of the Contractor and provide a written recommendation of those bids to the OWNER. To establish basis for ENGINEER's compensation, up to ten (10) change order requests are budgeted to be evaluated. ENGINEER will prepare and recommend change orders covering changes in the work and changes in the Contract price or Contract Times.

5.4.13. Assist in Evaluating Claims. When requested by OWNER, ENGINEER will assist in evaluating claims relating to the acceptability of the construction or the interpretation of the requirements of the construction contract documents. To establish basis for ENGINEER's compensation a total of up to three (3) claims are budgeted to be evaluated by ENGINEER. Services related to unusually complex or unusually numerous claims will be provided as a Supplemental Service.

5.4.14. Assist with Inspections at the Intermediate Construction Milestone. Upon Contractor's written notification to OWNER of substantial completion of the new Raw Wastewater Pump Station, Grit Facility, and Flow Distribution Structure Intermediate Milestone, ENGINEER and OWNER will inspect the work to determine its status. ENGINEER will provide the results of the inspection to OWNER and Contractor in the form of a written punch list of items to be completed or corrected by Contractor. RPR will be responsible for observing and verifying the completion of the Work on the punch list by Contractor. ENGINEER will prepare and deliver to OWNER, a Certificate of Substantial Completion when it determines this specific part of the work to be substantially complete and ready for its intended use by OWNER.

5.4.15. Assist with Inspection at Substantial Completion. When Contractor considers the work to be substantially complete, ENGINEER and OWNER will inspect the work to determine the status of completion. ENGINEER will provide the results of the inspection to OWNER and Contractor in the form of a written punch list of the items to be completed or corrected by Contractor before final payment. The RPR will be responsible for observing and verifying the completion of the Work on the punch list by Contractor. ENGINEER will prepare and deliver to OWNER, a Certificate of Substantial Completion when it determines the Work to be substantially complete.

5.4.16. Assist with Inspection at Final Completion. Upon completion and/or correction of the items of work on the punch list by the Contractor, ENGINEER, OWNER, and Contractor will conduct a single final inspection to determine if the work is completed. ENGINEER will provide recommendations concerning final payment to OWNER, including a list of work items, if any, to be completed by Contractor prior to making such payment. ENGINEER will review the Final Application for Payment submitted by Contractor and accompanying documentation as required by the Contract Documents and provide comments to the OWNER.

5.4.17. Prepare Facility Operations Manual. ENGINEER and its operations specialists will prepare an Operations Manual, in a format similar to the OWNER's current manual, for each of the new systems: influent screening, influent pumping, grit removal, flow distribution, odor control, non-potable water system, and engine-generator. The following topics will be included in the Operations Manual for each of these systems:

- System Description. Operator-centric description of the system or process with the objective of 'connecting' the upstream & downstream processes specific to the system. This section will include a description of the 'normal operating mode' as provided by the design memorandum and/or design instrumentation and controls descriptions.
- Process Control Description. Operator-centric descriptions of the process control variables for the system, including key performance indicators and normal valve operating positions A table and/or figures defining the 'normal' flow path will be provided.
- Control Description. Equipment controls discussion for the operator.
- Design Criteria. Tables of design criteria for the system components.
- Normal Operation. A listing of the system's normal operation procedures with block diagrams of normal start-up and shutdown procedures.
- Alternate Operation. Discussion of alternate operation, if applicable to the system.

ENGINEER will provide two (2) preliminary copies of the Operations Manual to OWNER for review. ENGINEER will update the preliminary manual after the commissioning and operational acceptance testing and submit two (2) electronic copies in Word format and two (2) hard copies to OWNER.

5.4.18. Provide Startup and Commissioning Assistance. ENGINEER will work with OWNER and Contractor during startup, commissioning, and operations acceptance testing of the new systems. ENGINEER will provide a Lead Operations Specialist and/or Lead Civil Engineer to facilitate the activities and work directly with the OWNER's O&M staff and Contractor's

Startup Manager. To establish basis for ENGINEER's compensation, up to ten (10) days of commissioning services will be provided on-site. As part of the on-site activities, the Lead Civil Engineer or the Lead Operations Specialist will verify the functional acceptance testing of the equipment components and systems to confirm the equipment's capacity for sustained commissioning.

As part of the shop drawings review task, ENGINEER will review the startup and commissioning schedules and plans required by the Startup Requirements section of the Contract Documents.

5.4.19. Provide Training Sessions. ENGINEER and the Lead Operations Specialist will develop and conduct system training sessions for the OWNER's O&M staff. The training sessions will focus on the system design and control concepts for influent screening, pumping, grit removal, flow distribution, and odor control. These sessions will supplement the equipment manufacturer's training required by the Contract Documents. Utilizing the AURA method (Awareness, Understanding, Retention and Application), training material will include, but not be limited to, the following:

- Session hand-outs.
- Large blow-ups defining concepts, laminated for continual usage by the O&M staff.
- PowerPoint presentation on CDs, for continual usage by the O&M staff.

Training will be performed in two separate trips with one or more topics per trip. The topics for each trip will be coordinated with the needs of the OWNER's O&M staff.

5.4.20. Contractor's Completion Documents. ENGINEER will receive, review, and transmit to OWNER final operation and maintenance manuals, as-built construction schedule, guarantees, warranties, bonds, consent of the surety for final payment, affidavits or lien waivers, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests, approvals, shop drawings, samples, annotated record documents, and other data provided above, or which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment.

5.4.21. Construction Record Drawings. Upon substantial completion of the project and the Contractor's submittal of record drawing markups to the OWNER, ENGINEER will revise the construction contract drawings to conform to the construction records provided by Contractor and the ENGINEER's RPR. ENGINEER will submit to the OWNER two (2) sets of full-size record construction drawings, and three (3) sets of half-size prints of the construction record drawings. In addition, the record drawings will be provided on a CD as PDF images and in AutoCAD format.

5.4.22. Project Closeout. ENGINEER will review and file applicable documents required by the OWNER pertaining to the project and turn over required documents from the ENGINEER's RPR to the OWNER. ENGINEER will gather and consolidate its project files for long-term record storage.

5.4.23. Assist with Correction Period Inspections. Conduct an inspection during the correction period (two years, if bid alternative is selected by OWNER) to identify defects of the work that need to be addressed or corrected before the correction period expires. As necessary, ENGINEER will forward a formal request to the Contractor requesting corrective action. To establish a basis for compensation, one (1) one-day site visit for two (2) engineers from the Kansas City office, two (2) engineers from the Lincoln office, and one (1) engineer from the Grand Island office is budgeted. In addition, eighty (80) hours of engineering time is included to answer questions by OWNER during the correction period.

Task 5.5 – WWTP Headworks Improvements – Resident Project Representative and Testing Services

ENGINEER's Consultant will have primary responsibility for these services. The services are broken down into the following sub-tasks:

- Task 5.5.1. Resident Project Representative (RPR) services during construction, including: site observation and liaison with OWNER and Contractor; outside liaison for public or other agencies visiting the site, and; meeting attendance, report preparation, and document review and maintenance.
- Task 5.5.2. Geotechnical observation of the construction within the former sludge lagoon area as recommended in the final Report of Geotechnical Exploration dated November 21, 2012.
- Task 5.5.3. Field and laboratory materials testing to be provided by OWNER as outlined in the Contract Documents.
- Task 5.5.4. Special inspections of certain work elements as required by the International Building Code.

RPR shall not have the responsibility for the superintendence of construction site conditions, safety, safe practices or unsafe practices or conditions, operation, equipment, or personnel other than employees of the ENGINEER. This service will in no way relieve the Contractor of complete supervision and inspection of the work or the Contractor's obligation for complete compliance with the drawings and specifications. Contractor shall have the sole responsibility for safety and for maintaining safe practices and avoiding unsafe practices or conditions.

To supplement field observation and inspections by RPR:

- ENGINEER assistance and oversight of RPR will be provided prior to and during critical construction activities and electrical work. A resident specializing in electrical inspection from ENGINEER will assist the RPR. A senior resident from ENGINEER will also be utilized to provide periodic "onsite training" and guidance to RPR for concrete reinforcing and placement, mass concrete, process equipment installation, mechanical building and process systems, and other areas of need.
- Qualified personnel to perform the structural special inspections required by the International Building Code (IBC) for soils and foundations, concrete construction, masonry construction, and welding/steel construction (refer to Task 5.5.4 for additional information).
- Periodic site visits will be conducted by lead discipline engineers (see Task 5.4.8).

- A materials testing coordinator from ENGINEER's Consultant to oversee the laboratory testing program and review reports.
- An assistant RPR will be assigned when the primary RPR is not available due to vacation, training, or other reason.
- RPR or his assistant to be onsite full-time when the Contractor or a subcontractor is performing work.

To facilitate communications between RPR, OWNER, and Contractor, weekly meetings will be encouraged to coordinate and discuss upcoming work and testing activities, critical issues/resolutions, action items from previous week, delivery schedules, inspection issues, and planned equipment startup and training schedules. In addition, coordination or pre-construction meetings will be held with Contractor, subcontractor personnel and manufacturer field representatives, required by the Contract Documents and when deemed necessary by ENGINEER or RPR, to review detailed requirements, proposed methods, and related items (e.g., lining system).

Following approval of this amendment, an inspections and quality assurance plan will be prepared and reviewed with OWNER. Elements of the plan will include:

- RPR responsibilities
- Roles & responsibilities of designated inspectors
- Onsite communication procedures
- Pre-construction/coordination meetings required
- Forms and reports to be used
- Inspection procedures
- Pre-startup and equipment startup inspections required
- Quality assurance plan

As outlined in the Contract Documents, Contractor will provide a suitable field office at the site for use by the RPR. Contractor will pay all electricity and heating bills and will provide voice and data services. RPR will furnish his own laptop computer and printer/scanner/copier.

The sub-tasks are described in more detail below.

5.5.1. Resident Project Representative (RPR) Services During Construction. ENGINEER's Consultant will furnish a full-time RPR from Notice to Proceed to Substantial Completion (21 months) and a part-time RPR from Substantial Completion to Final Completion (3 months) for a cumulative total of 4,266 hours. The hours are based on an average of 45 hours per week for 92 weeks of full-time observation and 24 hours per week for 12 weeks of part-time observation. Additional budget is provided for the following:

- Second part-time RPR when needed during peak construction and critical work activities. A budget of 513 hours is included for a second RPR to be provided by ENGINEER. The hours are based on an average of 45 hours per week for 12 weeks.
- Preparation of daily reports, photograph documentation, punch lists, and other paperwork; documentation of unit price work, and; additional work hours for equipment tests, systems startups and testing, piping tie-ins, bypass pumping, and

other activities required by the work. A budget of 736 hours is included for the RPR or technician from the ENGINEER's Consultant. The hours are based on an average of 8 hours per week for 92 weeks.

The above hours have been discounted for holidays and anticipated non-work days, but not for weather days.

Specific services to be performed by the RPR are as follows:

1. Site Observations and Liaison with OWNER and Contractor.
   a. Conduct onsite observations of the general progress of the work to assist ENGINEER in determining if the work is proceeding in accordance with the Contract Documents.
   b. Serve as ENGINEER's liaison with the Contractor, working principally through the Contractor's superintendent, and assist ENGINEER in providing interpretation of the Contract Documents. Transmit ENGINEER's clarifications and interpretations of the Contract Documents to the Contractor.
   c. Assist ENGINEER in serving as OWNER's liaison with the Contractor when the Contractor's operations affect OWNER's on-site operation.
   d. As requested by ENGINEER, assist in obtaining from OWNER additional details or information when required at the site for proper execution of the work.
   e. Report to ENGINEER, giving opinions and suggestions based on RPR observations regarding defects or deficiencies in the Contractor's work and relating to compliance with drawings, specifications, and design concepts. Advise ENGINEER and the Contractor or its superintendent immediately of the commencement of any work requiring a shop drawing or sample submission if the submission has not been reviewed and approved by ENGINEER.
   f. Monitor changes of apparent integrity of the site (such as differing subsurface and physical conditions, existing structures, and site-related utilities when such utilities are exposed) resulting from construction-related activities.
   g. Observe pertinent site conditions when the Contractor maintains that differing subsurface and physical conditions have been encountered, and document actual site conditions. Review and analysis of the Contractor's claims for differing subsurface and physical conditions will be performed as Supplemental Services.
   h. Visually inspect materials, equipment, and supplies delivered to the work site. Reject materials, equipment, and supplies that do not conform to the construction contract documents.
   i. Schedule and coordinate field materials testing services (Task 5.5.3).
   j. Observe field tests of equipment, structures, and piping performed by Contractor or its subcontractors and review the resulting reports, commenting to ENGINEER as appropriate.
2. Outside Liaison. When requested by OWNER, accompany visiting inspectors representing public or other agencies having jurisdiction over the project. Record the names of the inspectors, and the results of the inspections, and report to ENGINEER and OWNER.

3. Meetings, Reports, and Document Review and Maintenance.

   a. Attend monthly progress meetings, and other meetings with OWNER and the Contractor when necessary, to review and discuss construction procedures and progress scheduling, construction administration procedures, and other matters concerning the project.

   b. Submit to ENGINEER, with an e-mail copy to the OWNER's project manager, a daily report of events at the site, including the following information:

      i. Hours the Contractor worked on the jobsite.
      ii. Contractor and subcontractor personnel on the jobsite.
      iii. Construction equipment on the jobsite.
      iv. Observed delays and potential causes.
      v. Weather conditions.
      vi. Data relative to claims for extras or deductions.
      vii. Daily construction activities and condition of the work.
      viii. Daily sign-off of quantities of work completed for unit price items.
      ix. Observations pertaining to the progress of the work and materials received on the jobsite.
      x. Construction issues, and resolutions or proposed resolutions to issues.

   c. Conduct on-site observations of the work in progress to assist ENGINEER in determining if the work, in general, is proceeding in accordance with the Contract Documents, including but limited to, the following:

      i. Report to ENGINEER whenever RPR believes that any work is unsatisfactory, faulty, defective, or does not conform to the Contract Documents.

      ii. Report to ENGINEER whenever RPR believes that any workdoes not meet the requirements of any inspections, tests, or approval required to be made or has been damaged prior to final payment.

      iii. Advise ENGINEER when RPR believes work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.

   d. Verify that equipment tests, and systems startups and operations and maintenance instructions are conducted as required by the Contract Documents and in the presence of the required personnel, and that Contractor maintains adequate records thereof, observe, record, and report to ENGINEER appropriate details relative to the test procedures and startups.

   e. Review applications for payment with the Contractor for compliance with the established procedure for their submission, and forward them with recommendations to ENGINEER noting particularly their relation to the work completed, and materials and equipment delivered at the site but not incorporated into the work.

   f. Immediately notify ENGINEER and OWNER of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, or damage to property by fire or other causes.

g. Record date of samples that are furnished at the site by the Contractor, and notify ENGINEER of their availability for examination. Advise ENGINEER and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by ENGINEER.

h. During the course of the work, verify that specified certificates, operation and maintenance manuals, and other data required to be assembled and furnished by the Contractor are applicable to the items actually installed; and deliver this material to ENGINEER for his review and forwarding to OWNER prior to final acceptance of the work.

i. Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, to ENGINEER. Transmit to Contractor in writing decisions as issued by ENGINEER.

j. Maintain a marked set of drawings and specifications at the jobsite reflecting all changes resulting from: requests for clarification, interpretation, or information; field orders; change order requests; other changes in the field, and; data provided by Contractor. These changes will be combined with information maintained by Contractor, and construction record drawings will be produced by ENGINEER as outlined in Task 5.4.21.

k. Receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations or the Contract Documents submitted by the Contractor. RPR's review of such certificates will be for the purpose of determining that content complies with and the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Contract Documents. ENGINEER shall be entitled to rely on the results of such tests. This service is limited to a review of items submitted by the Contractor and does not extend to a determination of whether the Contractor has complied with legal requirements.

l. Maintain the following documents at the site.

    i. Correspondence files.
    ii. Reports of job-site conferences, meetings, and discussions among the ENGINEER, OWNER, and Contractor.
    iii. Approved shop drawing submittals and samples.
    iv. Reproductions of original construction contract documents.
    v. Addenda.
    vi. Executed field orders, change order authorizations, and change orders.
    vii. Additional drawings issued subsequent to execution of the Contract Documents.
    viii. Progress reports.
    ix. Names, addresses, and telephone numbers of contractors, subcontractors, and major suppliers of materials and equipment.
    x. Daily and unit price work quantity reports or force account documents.

m. Participate in observation of the work at the Intermediate Construction Milestone, assist in the determination of Milestone Completion, and the preparation of a list of

items to be completed or corrected by Contractor. Observe and verify the completion of the Work on the punch list.

n. Participate in observation of the work to determine Substantial Completion, assist in the determination of Substantial Completion, and the preparation of lists of items to be completed or corrected. Observe and verify the completion of the Work on the punch list.

o. Participate in a Final Completion inspection, in the company of ENGINEER, OWNER, and Contractor, and prepare a final list of items to be completed and deficiencies to be remedied.

p. Observe whether all items on the final punch list have been completed or corrected and make recommendations to ENGINEER concerning acceptance and issuance of the written notice of acceptability of the work.

5.5.2. Geotechnical Observation. Observe existing sub-grade conditions in areas of the existing sludge storage lagoon, identify potential sub-grade deficiencies, and provide recommendations to address the sub-grade deficiencies using the unit price items identified in the Contract Documents, or other means if necessary. This task includes up to three (3) site visits by ENGINEER's Consultant's geotechnical engineer. Additional site visits will be a Supplemental Service.

5.5.3. Materials Testing Services. Provide laboratory and field testing services to perform all inspections, tests, and acceptance of samples, materials, and equipment required by the Contract Documents, or to evaluate the performance of materials prior to their acceptance. Based on an estimate of the required number of tests, the following scope of testing services is anticipated:

Moisture-density or relative density	10 tests
Field density tests	1,070 tests
Concrete sets of cylinder casts and tests	130 sets and tests
Controlled low strength material (CLSM) sets of cylinders and tests	10 sets and tests
Mortar cube sets of casts and tests	45 sets and tests
Grout prism sets of casts and tests	45 sets and tests
Standard Proctor and Atterberg limit tests	32 tests
Sieves (pipe bedding material)	10 tests

Field testing of concrete, including air content, temperature, and slump, will also be performed. Field testing of CLSM, including flow of fill, unit weight and yield, and air content, will also be performed. All data will be reviewed and reports furnished to ENGINEER and OWNER. RPR will coordinate and schedule the testing services as part of Task 5.5.1 and technicians from the Grand Island office of the ENGINEER's Consultant will perform the testing. In addition, ENGINEER's Consultant will be responsible for tracking the concrete compressive strength results in an Excel spreadsheet.

5.5.4. Special Inspections and Structural Testing. Special inspections are those required by the International Building Code (IBC) in Chapter 17, in addition to inspections listed in Section 110 of the IBC. These inspections require special expertise to ensure independent, objective

compliance by Contractor responsible for the work inspected in accordance with the Contract Documents and referenced standards for the materials, installation, fabrication, erection, or placement of components and connections. ENGINEER will provide a Statement of Special Inspections for review by the building code official and to obtain approval of inspection staff. It will outline the type, extent, and frequency for each special inspection and structural test and the required qualifications of the special inspectors. The special inspections include:

- Soils and foundation construction.
- Cast-in-place concrete and precast concrete construction.
- Masonry construction.
- Structural steel construction and welding.

A final version of the document incorporating comments from the building code official will be provided with copy to OWNER. Based on preliminary discussions with the building code official, the RPR would be qualified to provide the concrete and masonry special inspections under the guidance of structural engineer provided by ENGINEER's Consultant. Certified welding inspectors employed by the ENGINEER's Consultant would also be utilized. Structural testing of soils, concrete cylinders, and masonry prisms are included in Task 5.5.3. ENGINEER's Consultant will maintain files of inspections and testing results and prepare, review, and seal reports of special inspections and furnish them to the building official with copies to ENGINEER and OWNER.

Task 5.6 – WWTP Headworks Improvements – SCADA System Integration Services

The SCADA System Integrator will have primary responsibility for this task and will include control system programming and configuration services as defined by the Contract Documents. The ENGINEER's Consultant will provide administration and oversight of the work to ensure the intent and requirements of the Contract Documents are achieved. The work will involve:

- Allen Bradley RSLogix PLC programming and FactoryTalk View SE Version 5.10.00 HMI Graphics to control the new Raw Wastewater Pump Station, new Grit Facility, new Flow Distribution Structure, and associated processes according to the control block descriptions listed in the Contract Documents for the WWTP Improvements Project. Program changes will also be made to decommission the old raw wastewater pump station and grit facility from PLC code and HMI graphics, alarming, trending, and reporting. Start-up and checkout services described herein shall apply to the above described configuration services.
- Integration of package control system graphics into Plant HMI graphics, alarming, and trending.
- Configuration of Contractor-supplied Ethernet Switches in RTU-16, RTU-17, RTU-01, and Septage Receiving Control Panel.

The services will include the following sub-tasks.

5.6.1. Programming.

1. Programming Kick-off Meeting. A kick-off meeting will be held to introduce project team members from the OWNER and ENGINEER's Consultant and to provide a clear

statement of project goals and critical success factors. The SCADA System Integrator will conduct the meeting, and prepare and distribute meeting minutes. The kick-off meeting will be one (1) half-day meeting. The following topics will be covered at the project kick-off meeting:

a. Basic Scope of Services

b. Schedule and Deliverables

c. Project Team Roles and Responsibilities

d. Communication and Contact Information

e. OWNER Review Periods for Intermediate Deliverables

f. Existing Documentation and Software Availability

g. Change of Scope Procedures

h. Configuration Items

   i. Existing RSView HMI Standards and Conventions
   ii. Existing PLC Standards and Conventions
   iii. Trends
   iv. Alarm Prioritizing and Area Assignments
   v. Reporting

2. Standards and Conventions Confirmation Meeting. The existing Plant Control System Standards and Conventions will be reviewed. Immediately following the kick-off meeting, a half-day meeting at the OWNER's facility will be held to review the existing standards and conventions including the following principal items:

   a. Tag Names. Tag Names for database points will be an alphanumeric format.

   b. Graphic Display Conventions. Methods for equipment operation and display will be standardized to ensure that Operator steps required to monitor and control equipment are consistent with the OWNER's current operation, including navigation buttons, control graphics, pop-up displays, and alarm summary. The type, color, and size of devices and flow lines and the presentation of other information on graphic displays will be reviewed to ensure similar appearance for similar applications. Colors for dynamic information, static information, trends, and Alarm/Event displays will also be reviewed to follow the OWNER's existing procedures.

   c. Control Standards. Methods for equipment operation will be standardized to ensure that Operator steps required to control equipment are consistent throughout the control system.

   d. Package systems. Integration of graphics, alarming, trending, and reporting.

   e. Report Formats. Existing report formatting will be reviewed to establish how new reports integrate into existing system.

   OWNER will provide any existing documentation, preferably in electronic format, to the SCADA System Integrator for inclusion in the final document. The SCADA System Integrator will conduct the meeting and prepare and distribute meeting minutes.

3. Develop 30% PLC & HMI Programming Documents. The SCADA System Integrator will develop the 30% programming documents based on the Control System Standards and

Conventions Confirmation Meeting, the equipment control descriptions and I/O list provided in the Contract Documents. The 30% programming documents will include the following:

a. PLC programming code with detailed programming information for:

   i. Typical modulating valve/gate
   ii. Typical open/close valve
   iii. Typical equipment start/stop

b. Operator Workstation overview graphic displays color printout.

c. Example control graphic displays color printout.

d. Navigation Menu color printout.

The SCADA System Integrator will provide the 30% programming documents to the OWNER for review. After approximately a two (2) week review period, the SCADA System Integrator will meet with the OWNER to review the 30% programming and obtain comments. One (1) one-day workshop will be conducted at the OWNER's facility allowing review and comment on the PLC programming and HMI graphics.

4. Develop 90% PLC Programs and HMI Graphics. After 30% programming has been developed and reviewed by OWNER, the SCADA System Integrator will proceed with 90% PLC programming and HMI graphics development according to the control block descriptions listed in the Contract Documents.

   One (1) one-day workshop will be conducted at the OWNER's facility allowing review and comment on the PLC programming and HMI graphics. During the workshop, the SCADA System Integrator will present the PLC code and HMI graphics and respond to OWNER comments.

5. Develop 100% Final PLC & HMI Programming. SCADA System Integrator will incorporate the necessary modifications and develop the 100% PLC programming and HMI graphics.

5.6.2. System Inspection and Testing.

1. SCADA Equipment Factory Acceptance Test (FAT) Witnessing. ENGINEER's Consultant and SCADA System Integrator will attend and witness the FAT of Raw Wastewater RTU-16 and Grit Facility RTU-17. ENGINEER's Consultant and SCADA System Integrator will verify and witness individual I/O testing and operation of control system communications and ability to transfer data. SCADA System Integrator will prepare a memorandum summarizing the results of the FAT. This task includes laborcosts for a two (2)-day site visit to the Contractor's facility for ENGINEER's Consultant and SCADA System Integrator. As specified in the Contract Documents, Contractor will furnish all air and ground transportation, lodging, miscellaneous travel expenses, and meals for one representative of the SCADA System Integrator, one representative of the ENGINEER's Consultant, and three representatives of the OWNER, five (5) total people. HMI Graphics cannot be simulated at the FAT test due to equipment and software being in service at the WWTP.

2. Pre-Site Acceptance Testing Verification. Prior to on-site Acceptance Testing or Configuration Debugging by Contractor, ENGINEER's Consultant and/or SCADA System Integrator will complete the following tasks to ensure Contractor's work is in compliance with the Contract Documents.

   a. Field Calibration Report Review. Prior to on-site system testing, review Contractor's instrument field calibration reports to ensure all calibration work is completed and coordinated with PLC programming. This task includes up to eight (8) hours of report review by ENGINEER's Consultant.

   b. Manufacturer Services Coordination. Verify with Contractor that all equipment installation and manufacturer startup services have been provided prior to testing and startup of the control system. This task includes up to eight (8) hours of coordination by ENGINEER's Consultant.

   c. Verify Control System Installation. After Contractor has completed fiber optic, Ethernet, and other control system communication installation and testing, verify control system equipment installation, networking, and communications are fully operational per the Contract Documents. SCADA System Integrator will prepare a statement of deficiency for Contractor for any control system installation problems or communication errors. This task includes up to sixteen (16) hours of on-site inspections for the verification of the control system by SCADA System Integrator.

   d. Equipment and Instrument Installation Verifications. Witness the Contractor perform instrumentation field inspections as described in Section 13500 of the Contract Documents. Testing will verify discrete and analog wiring and signal continuity from field equipment and instruments to the PLC memory addresses. This task includes up to one (1) four-day and one (1) two-day site trips for witnessing PLC loop checkout and wiring verification by SCADA System Integrator.

3. Functional and Operational Acceptance Test Witnessing. SCADA System Integrator will witness the Contractor's functional and operational acceptance tests in accordance with the Contract Documents. This task includes up to one (1) day for ENGINEER's Consultant and up to five (5) days for SCADA System Integrator at the OWNER's facility.

   As stated in the Contract Documents, Contractor is required to reimburse OWNER and ENGINEER for all expenses incurred in connection with attending repeated factory or site testing necessitated by system failure or inadequate preparation.

5.6.3. Commissioning.

1. Install and Debug PLC and HMI Programming. After Contractor has completed functional acceptance testing on-site and verified that all equipment operates satisfactorily in the local manual mode, SCADA System Integrator will install the PLC and HMI programming and debug the PLC and HMI programs. PLC/HMI programming will be tested in manual and auto mode. If signals from field equipment or other PLCs are not available, the signals will be simulated as required to verify proper operation of the PLC algorithm.

If deficiencies in the Contractor's work are found during the PLC I/O verification or PLC program debugging, SCADA System Integrator will provide a statement of deficiency to Contractor.

The total effort for debugging and startup of the PLC programs is dependent on the Contractor's satisfactory completion of work and schedule. The Install and Debug PLC Programming task includes up to two (2) five-day site visits for the SCADA System Integrator during normal business hours. ENGINEER will notify OWNER of significant changes in Contractor's schedule or completion of work that will adversely impact the anticipated amount of SCADA System Integrator's PLC programming startup efforts.

2. System Testing. After verification of control system installation, ENGINEER's Consultant and SCADA System Integrator will test communication between the PLC, HMI hardware, and instrumentation. System testing will be undertaken for the various process systems verify functional requirements, including the automatic modes and PLC interlocks.

   ENGINEER's Consultant and SCADA System Integrator will conduct system testing on configuration as described in Section 13500 of the Contract Documents. The startup of the PLC & HMI programs required by the system test is dependent on the Contractor's start-up schedule and satisfactory completion of work. The System Testing task assumes system testing will be continuous and includes one (1) one-day site visit during normal business hours for ENGINEER's Consultant and one (1) five-day site visit during for SCADA System Integrator. ENGINEER will notify OWNER of significant changes in the Contractor's schedule or completion of work that will adversely impact the amount of amount of SCADA System Integrator's and ENGINEER's Consultant's system testing efforts.

3. Configuration Punch List. Contractor will monitor the control system during system testing and will keep a log of any problems that occur during the tests. Entries in the log will be categorized as items to be corrected by Contractor or programming items to be corrected by SCADA System Integrator. OWNER acceptance of the completed punch list, for items included in the configuration scope of work, will indicate final acceptance of the SCADA System Integration Services.

5.6.4. Final Documentation and Training.

1. Final Documentation. After the system is fully operational and accepted by OWNER, SCADA System Integrator will deliver final documentation. Electronic copies will be provided on CD/DVD media. The table below lists the quantities and type of documentation to be provided to the OWNER:

Documentation Type	Hard Copy	Electronic Copy
PLC Programs	None	Four (4) electronic copies will be provided for all data and included in Final Documentation three-ring binders.
HMI Software Database	None	
Graphic Displays	None	

2. Control System Training. SCADA System Integrator will provide training conducted in three (3) two-hour sessions for OWNER's operation staff. Each of the three (3) sessions

will be a duplicate training class intended to accommodate OWNER's staff schedules. Training outlines will be prepared and hands-on interaction with OWNER staff will be emphasized. The control system documentation will be utilized for training. Customized, detailed O&M manuals or Standard Operating Procedures (SOPs) are not included in this task, but may be provided as a Supplemental Service.

5.6.5 Correction Period Assistance and Integration Enhancement. Correct any programming, integration and configuration items identified by OWNER or ENGINEER during the correction period inspection. Modify or enhance the control system based on direction provided by the OWNER. To establish a basis for compensation, one (1) one-day site visit for SCADA System Integrator is assumed.

ARTICLE 4 – COMPENSATION

4.1 The total amount of payments for services and Reimbursable Expenses in accordance with Attachment B-1, Compensation shall be changed from $1,121,160 (per Council Resolution 2011-307 dated October 11, 2011) to $1,878,450 representing an increase of $1,878,450. The compensation by Task shall be as follows:

1. Task 5.2 – WWTP Headworks Improvements – Detailed Design Trends $72,250
2. Task 5.4 – WWTP Improvements - Construction Phase Office and Field Support Services $1,125,800
3. Task 5.5 – WWTP Improvements - Resident Project Representative and Testing Services $559,600
4. Task 5.6 – WWTP Improvements - SCADA System Integration $120,800

All other provisions of the Agreement shall remain the same.

IN WITNESS WHEREOF, the parties hereto have made and executed this Amendment as of the day and year first above written.

OWNER:	ENGINEER:
CITY OF GRAND ISLAND, NEBRASKA	BLACK & VEATCH CORPORATION
By: _____	By: _____
Title: Jay Vavricek, Mayor	Title: Associate Vice President
Date: _____	Date: _____
Attest: _____	Date: _____
RaNae Edwards, City Clerk	

The Amendment is in due form according to law and is hereby approved.

_____	Date: _____
Bob Sivick, City Attorney	

R E S O L U T I O N 2013-149

WHEREAS, on October 11, 2012 Grand Island City Council, by Resolution No. 2011-307, approved the consulting agreement with Black & Veatch of Kansas City, Missouri; for project management, collection system master planning and conceptual designs for the Northeast Interceptor sewer, Collection System rehabilitation and Wastewater Treatment rehabilitation in the amount of $1,121,160.00, and

WHEREAS, on April 24, 2012 Grand Island City Council, by Resolution No. 2012-111, approved Amendment No. 1 allowed for the continuation of the design effort to final design and bidding, in the amount of $1,910,075.00; and

WHEREAS, on August 28, 2012 Grand Island City Council, by Resolution No. 2012-229, approved Amendment No. 2 to add CDBG guideline provisions, and provided for construction engineering services for the Lift Station No. 7 Improvements and 4th Street to 5th Street; Eddy Street to Vine Street rehabilitation, in the amount of $53,000; and

WHEREAS, on November 13, 2012 Grand Island City Council, by Resolution No. 2012-329, approved Amendment No. 3 allowed for construction engineering services and resident inspection during construction for the 5th Street Sanitary Sewer Improvements, as well as for the South & West Sewer Interceptor Improvements with the consulting firm Black & Veatch of Kansas City, Missouri, in the amount of $265,754.00; and

WHEREAS, on February 12, 2013 Grand Island City Council, by Resolution No. 2013-34, approved Amendment No. 4 allowed for the review to the "Report on Revenue Requirements, Cost of Service and Rates for Wastewater", in the amount of $30,000; and

WHEREAS, on February 12, 2013 Grand Island City Council, by Resolution No. 2013-35, approved Amendment No. 5 allowed preliminary design engineering services in Phase II of the North Interceptor Sewer planning, and final biding documents for Phase II-B North Interceptor Sewer with the consulting firm Black & Veatch of Kansas City, Missouri in the amount of $451,896; and

WHEREAS, on May 14, 2013 Grand Island City Council, by Resolution No. 2013-147, approved Amendment No. 6 allowed fee compensation in engineering services that were not specifically identified in the original design agreement entitled "Wastewater Treatment Plant and Collection System Rehabilitation, in the amount of $66,324; and

WHEREAS, on May 14, 2013 Grand Island City Council, by Resolution No. 2013-147, approved Amendment No. 6 allowed Consulting Engineering Construction Phase Services, and Resident Inspection During Construction for Phase I; North Interceptor Sewer Construction with the consulting firm Black & Veatch of Kansas City, in the amount of $653,293; and

WHEREAS, Amendment No. 7 will provide fee compensation in engineering services that were not specifically identified in the original design agreement entitled

Approved as to Form ¤ _____
May 14, 2013 ¤ City Attorney

"Wastewater Treatment Plant and Collection System Rehabilitation"; and

WHEREAS, Amendment No. 7 will provide Consulting Engineering Construction Phase Services, Resident Inspection During Construction, and Integration Services for Headworks Improvements Construction with the consulting firm Black & Veatch of Kansas City, Missouri; and

WHEREAS, the agreement cost increase for Amendment No. 7 is $1,878,450, resulting in a revised agreement cost of $6,429,952; and

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that such Amendment No. 7 to the agreement with Black & Veatch of Kansas City, Missouri is hereby approved.

BE IT FURTHER RESOLVED, that the Mayor is hereby authorized and directed to execute such Amendment No. 7 on behalf of the City of Grand Island.

- - -

Adopted by the City Council of the City of Grand Island, Nebraska, May 14, 2013.

_____
Jay Vavricek, Mayor

Attest:

_____
RaNae Edwards, City Clerk