

**J-U-B ENGINEERS, Inc.  
AGREEMENT FOR PROFESSIONAL SERVICES**

**Attachment 1 – Scope of Services, Basis of Fee, and Schedule**

**PROJECT NAME:** Phase 3 Upgrades – Design Phase Services

**CLIENT:** Santaquin City

**J-U-B PROJECT NUMBER:** 93-XX-XXX

**CLIENT PROJECT NUMBER:** Click or tap here to enter text.

**ATTACHMENT TO:**

**AGREEMENT DATED:** Click or tap to enter a date.; **or**

**AUTHORIZATION FOR CONTRACT AMENDMENT #X; DATED:** Click or tap to enter a date.

The referenced Agreement for Professional Services executed between J-U-B ENGINEERS, Inc. (J-U-B / CONSULTANT) and the CLIENT is amended and supplemented to include the following provisions regarding the Scope of Services, Basis of Fee, and/or Schedule:

**PART 1 - PROJECT UNDERSTANDING**

In May of 2023 a Master Plan and Capital Facilities Plan (the Plan) for Santaquin City’s Wastewater Collection and Reclamation Facilities (WRF) were completed by J-U-B. The Plan identified a series of improvements to the existing WRF that were necessary to increase capacity and maintain reliability of the treatment process over the next 20 years. Many of these projects were contemplated as future upgrades when the facility was originally designed but deferred until the capacity was needed. The main projects will fully outfit the existing WRF to its ultimate capacity by building out the MLE and MBR trains- nominally increasing AADF capacity from about 1.5 to 2.3 MGD.

The City has elected to begin design on both the near-term (2023/2024) and medium-term (2025-2030) projects. Depending on funding availability and the Guaranteed Maximum Price (GMP), not all projects may be constructed at this time.

It is understood that the City will employ the CM/GC (Construction Manager/General Contractor) construction method and that the City will lead the effort to select and manage the CM/GC team with support from J-U-B. J-U-B will also provide engineering services during construction mainly focused on office engineering tasks while the City will lead the field engineering efforts. As construction finishes, facility start up, commissioning and project closeout will be supported by J-U-B.

In accordance with the above project understanding, the following main tasks have been identified:

- Task 100 – Design-Phase Project Management
- Task 200 – Phase 3 Design
- Task 300 – Phase 3 Construction Phase Services (separate scope and fee)
- Task 400 – Regulatory Coordination / Effluent Disposal
- Task 500 – Management Reserve Fund

## **Project Assumptions and Limitations**

The following assumptions were made in the development of this Scope of Services:

- The project will be developed in phases that follow the progression of design. Progress will be measured through the development and delivery of milestone design packages. The following major Design Milestones are anticipated:
  - 30% Preliminary Design
  - 60% Design
  - 90% Design/Agency Review
  - Bid Set
- Front End Contract Documents will be based on Engineers Joint Contract Documents Committee (EJCDC) Construction Documents
- Technical Specifications will be developed around Construction Specifications Institute (CSI) Master Format List of Titles (2016 version).
- This scope assumes that selection of the CM/GC contractor will occur utilizing the CLIENT's existing CM/GC procurement documents from previous projects. J-U-B will support the CLIENT in review of the procurement documents and selection of the CM/GC.
- It is assumed project funding will be provided by the City. If needed, public financing support can be provided by J-U-B at city request under a separate scope and fee.
- SCADA development, programming, and integration is not included in this scope and fee and will be provided by others. SCADA programming guidance in the form of control strategies will be provided in the specifications for completion during construction. Design and specification of the SCADA system hardware will be coordinated with the SCADA provider. It is anticipated the SCADA provider will attend design review workshops to participate in coordinating Client standards for development of SCADA system hardware and software design documents. It is anticipated the SCADA provider will review Design Milestones and provide comments regarding the PIDs, control strategies, and SCADA system hardware and software.
- Consultant will develop a design drawing format for the project to establish consistency in the quality of deliverables.
- The standard hard copy drawing delivery format is 11"x 17". Full-size drawings, if requested, will be provided on standard Size D, 22"x 34" paper at the cost of printing and reproduction.
- Deliverables will be submitted in electronic PDF format for bidding. Up to three hard copies will be provided to Client at each milestone review.
- Consultant's Opinion of Probable Construction Costs (OPCC). Cost opinions will be prepared at the following major design milestones, 30%, 60%, and 90%. Cost opinions will be prepared in accordance with the cost estimate classes defined by the Association for the Advancement of Cost Engineering (AACE): 30% Design- Class 4 level estimate, 60% Design- Class 3 level estimate, 90% Design - Class 2 level estimate. CLIENT acknowledges that construction cost estimates, financial analysis and feasibility projections are subject to many influences including, but not limited to, price of labor and materials, unknown or latent conditions of existing equipment or structures, and time or quality of performance by third parties. CLIENT acknowledges that such influences may not be precisely forecasted and are beyond the control of Consultant and that actual costs incurred may vary substantially from the estimates prepared by Consultant. Consultant does not warrant or guarantee the accuracy of construction cost estimates.
- The City has indicated their preference to utilize the existing Geotechnical Engineering Report (*Santaquin Water Reclamation Facility Project Geotechnical Investigation, RB&G Engineering, Inc., May 2010*) for design of the new facilities. At City's request, a new/updated Geotech report is not included in this scope of work and the City acknowledges the risks associated with using the prior report. If additional geotechnical evaluation is considered necessary by the City and/or CM/GC, or is recommended by J-U-B during the course of design and approved by City, such work shall be completed as an additional services.
- CM/GC GMP – it is anticipated the final GMP by the CM/GC will be provided at the 100% Design Milestone.

## **Task 100: Design-Phase Project Management**

1. Subtask 110: Project Management
  - a. Set up project into J-U-B's financial and record keeping systems for document retention and project controls.
  - b. Conduct project planning and risk assessment.
  - c. Coordinate quality assurance / quality control (QA/QC) processes.
  - d. Communicate and coordinate J-U-B team activities with kickoff and progress meetings as required.
  - e. Communicate and coordinate subconsultant activities under J-U-B, as necessary.
  - f. Regularly monitor project status, budget, and schedule.
  - g. During periods of project activity, provide a regular report to CLIENT on project status, budget, and schedule.
  - h. Provide a monthly invoice including budget status.
  - i. Provide ongoing document handling and filing.
2. Subtask 120: Design Meetings
  - a. Conduct regular meetings with the design team to coordinate and facilitate the design effort.
  - b. Project Kick-off meeting with CLIENT
  - c. 30% Design Review meeting with CLIENT
  - d. 60% Design Review meeting with CLIENT
  - 90% Design Review meeting with CLIENT
3. Subtask 130: CM/GC Procurement and CM/GC Coordination During Design
  - a. It is understood the City will initially prepare the procurement documents but J-U-B will assist the procurement effort by reviewing the documents and providing input, suggesting minimum qualifications, providing a project summary, and reviewing the scoring criteria. At City request, J-U-B can facilitate the pre-proposal conference and sit in on potential interviews. J-U-B will also be available to assist the City in the technical aspects of the proposal evaluation.
  - b. CM/GC Meetings and Workshops: participate in the following meetings with City and CM/GC during the course of design.
    - i. Kick-off Workshop
    - ii. Cost Reconciliation Workshops (60% and 90%)
    - iii. Value Engineering/Constructability Workshop
  - c. J-U-B will conduct two Cost Reconciliation Workshops at the 60% and 90% Design Milestones with the City and CM/GC to identify and attempt to resolve significant deviations between the Engineer's OPCC and the CM/GC GMP.
  - d. J-U-B will conduct one Value Engineering / Constructability Workshop at the 60% Design Milestone with the City and CM/GC to review concepts that may improve the overall design and its constructability with respect to schedule, cost, and risk.
  - e. CM/GC Additional Services
    - i. J-U-B's scope shall be amended if additional CM/GC coordination efforts are requested, such as routine/recurring project meetings with the CM/GC.
    - ii. The development of separate bid packages for early-out packages to expedite the overall project schedule is not included in this scope of work.
    - iii. Design changes requested by CM/GC and approved by Owner
4. Subtask 140: Utah Division of Water Quality Coordination
  - a. This task includes coordination activities with DWQ to facilitate WRF design and Agency Review.
    - i. Attend a pre-design meeting at the 30% design milestone with DWQ to familiarize them with the proposed WRF design and discuss any regulatory concerns prior to submitting Agency Review documents.
    - ii. Submit stamped Agency Review (90% Design Milestone) package to DWQ for their review, including Basis of Design technical memorandum

- iii. Address DWQ review comments for the 100%/Construction Set.
  - iv. Submit final design documents to DWQ.
5. Subtask 150: Design-Phase Project Closeout
- a. Archive paper and electronic files and records.
  - b. Communicate the project completion to CLIENT and other affected agencies and stakeholders, as required.
  - c. Close financial billing and accounting records in J-U-B's financial and record-keeping systems.
7. Subtask 190 – Subconsultant Services
- a. This task includes Project Management Services from the following Subconsultant, please see attached scope and fee.
    - i. SKM, Inc – Electrical and Instrumentation

## **B. Task 200- Phase 3 Design**

The Phase 3 Design task will focus on the engineering design of six near term improvements. The design will progress through four major design milestones- 30%, 60%, 90% and Construction Set- established to track work progress. At each milestone, deliverables (as appropriate for each successive deliverable) will be provided to the City, CM/GC, and/or regulatory agency (as necessary) for review and comment. Each milestone signifies an advancement in the design's progress and will include further progression of the design information and details with the ultimate goal of producing a set of contract documents suitable for construction. The general content and design effort expected at each design milestone is described in the following paragraphs.

General: Design milestones are generally defined as follows. Each design subtask presented below will be developed as necessary to achieve the general requirements of these milestones.

- a. 30% Design:
  - (a) Consists of establishing preliminary design criteria for major equipment and systems (including sizes, units in operation, reliability needs, code requirements); qualitative assessment of existing and new infrastructure; initial discussions with vendors to identify preliminary budgetary equipment costs; establishing overall design criteria and interconnections of facility components; developing a detailed process schematic; developing a preliminary hydraulic profile; and developing exhibits to illustrate the general nature of the project.
  - (b) Deliverables: Progress print of the plans and draft of major equipment technical specifications, (unstamped) design memoranda, workshop notes, AACE Class 4 Cost Opinion.
- b. 60% Design:
  - (a) Site Civil / Yard Piping: development of horizontal and vertical alignments with plan views and critical sections as necessary.
  - (b) Structural: Development of plan view, major sections, and minor sections as appropriate. Preliminary details.
  - (c) Architectural: Development of plan view, elevations, major sections, minor sections, roof plans as appropriate, preliminary schedules, code compliance review.
  - (d) Process Mechanical: Development of plans views, major sections, minor sections as appropriate, and some details; development of preliminary pipe, valve, gate, and instrument schedules; pipe routing (>4 inches); draft of major equipment specifications.
  - (e) Mechanical: Development of plan view and major sections

- (f) Electrical: Development of site electrical plan, process plans, Process, and Instrumentation Diagrams (P&IDs), preliminary schedules.
    - (g) Deliverables: Progress print of the plans and technical specifications, AACE Class 3 Cost Opinion.
  - c. Agency Review (90% Design)
    - (a) All disciplines: Development of Plans and Specifications, including bidding and agreement forms, for Agency Review.
    - (b) Deliverables: Review plans and specifications (stamped for review, not for bidding), this deliverable will be submitted to DWQ for Agency Review. AACE Class 2 Cost Opinion.
  - d. Bidding Documents
    - (a) Incorporation of CLIENT and Utah DWQ comments and issuance of final Plans and Specifications for Construction.
    - (b) Deliverables: Bidding Documents (stamped for bidding)
- 2. Subtask 200: Survey and Base Topographical Map
  - a. WWTP: Conduct a topographic survey in the vicinity of the proposed projects. Detailed topographic survey will be collected for the following: fence line, surface features such as drainages, roads, fences, structures, valves, building corners, utility poles, equipment, signs, hydraulic control elements, existing water surface elevations, and underground utilities marked in the field by CLIENT.
  - b. Existing utilities identified and located by others (CLIENT and/or Blue Stakes) will be surveyed as marked and available; utilities identified in record drawings will be included in the project base map in an approximate way only.
  - c. If needed, preparation of documents for new right-of-way or permanent easements will be performed upon approval by CLIENT as an Additional Service.
- 2. Subtask 205 – General Sheet Development
  - a. Prepare general (G-sheets) drawings for inclusion in project plan sets at the 30, 60, 90 and Bid Set milestones. Development of the general sheets will progress along with the design and will be updated or added with each milestone. General sheets will ultimately include cover, sheet index, legends, design criteria, process flow diagram, hydraulic profile and schedules for piping, equipment, valves and gates.
- 3. Subtask 210 – Site Civil and Yard Piping
  - a. The primary site civil work to be performed will include the following:
    - (a) Site grading and drainage including stormwater management
    - (b) Site access/egress, site roadway design
    - (c) Produce complete site drawings for site grading, drainage, and roadways.
  - b. The primary yard piping work to be performed will include the following:
    - (a) Design of piping required to interconnect the unit processes and integrate the facility.
    - (b) Develop a hydraulic model of the yard piping and determine hydraulic profile through process.
    - (c) Confirm and finalize sizing and locations of major yard piping. Establish plan and profile of key pipelines and produce details for congested areas of potential conflict.
    - (d) Produce complete site drawings showing yard piping plans and profiles.
      - 1. Yard piping is considered to be any piping that extends beyond 5 ft from any structure or process.
  - c. Site Civil and Yard Piping will be modeled using AutoCAD Civil3D. Site will be divided into cells with one cell per sheet to provide ample resolution and lend clarity and organization to the drawings.
- 4. Subtask 215 – Center Street Lift Station and Force Main (T-05)

- a. J-U-B will design upgrades to the existing lift station and force main to expand the capacity of this pumping system to 20-year peak hour flow rates. The design will convert the station to a triplex system. Replacement pumps will be selected and their retrofit into the existing wet well/station will be designed. J-U-B will develop the hydraulic design for the pumping system and coordinate that with the pump characteristics to select and specify appropriate pumps. Pump manufacturers will be consulted to refine and confirm the selection of pumps and to coordinate their specification and design.

Upgrades to associated piping and valves around the lift station are also anticipated to accommodate the additional pumping capacity. The capacity of existing equipment will be assessed with respect to the expanded capacity and upgrades will be determined. The design of upgrades to the existing valve vault and flow metering system are anticipated as these are expected to be too small for the design flowrates, thereby causing excessive headloss.

With the addition of larger pumps, it is expected that major upgrades to the station's electrical components will be required. The design of the new pump station electrical components is included in this scope and fee, please see attached scope from SKM, Inc. Per City request, a new building will be designed to house the lift station control panels.

To realize additional pump station capacity, the force main from the station to the headworks building will be upsized in conjunction with the pumps. According to the 2023 "Santaquin Reach" 95% design drawings from CUWCD, a portion of the existing 10" line will be upsized to 18" from the lift station to the Union Pacific Railroad (UPRR) crossing under a separate Central Utah Project (CUP) project. J-U-B will design the piping/force main upgrades from the points of connection on both sides of this force main. It is assumed the point of connection at the lift station will be immediately adjacent to the existing station and the point of connection at the downstream end will be at the UPRR crossing/ casings. The design of a parallel force main is planned from the UPRR crossing, where a second casing already exists, to the headworks. This second casing will be employed for the parallel force main and it is assumed this casing is ready for service.

J-U-B will prepare a hydraulic model of the new force main system to determine its operational characteristics over the expected range of flows. This model will be employed in the sizing and selection of force main components. J-U-B will work with the pump manufacturer representatives to refine and confirm pump selection, design, and specifications. Plan and profile sheets of the new force main will be prepared in support of the design along with technical specifications for the pipeline construction.

As this lift station is critical to maintaining service and WRF operation, an outage schedule and concept bypass pumping schematics will be developed with the CM/GC to allow the CM/GC to better understand the risks and issues associated with this work allowing them to accurately scope/price the work.

The work will also include the development of demolition plans and specifications for the existing lift station. Since much of the station will remain in use, the demolition plans will focus on the preservation of certain items/equipment and what items should be considered for salvage.

- b. Assumptions:

- i. It is understood that the lift station wet well was designed to accommodate a third pump and significant retrofit of the wet well will not be required
  - ii. It is expected that a similar submersible pump to those existing (Flygt) will be selected
  - iii. Coating the wet well is not anticipated
  - iv. It is assumed that existing easements are adequate and new easements are not required.
  - v. It is anticipated the existing casing beneath the railroad tracks extends outside of the UPRR Right-of-Way. UPRR coordination is not anticipated and is not included in this scope and fee.
  - vi. It is assumed the Central Utah Project design for installation of the 18" force main will be completed in advance of this design, and pdf record drawings and specifications for this project will be provided to J-U-B.
5. Subtask 220: Biological/Process Train 3 Conversion (T-02)
- a. The existing plant includes three parallel activated sludge process trains, one of which has been used as a sludge holding tank since facility startup. This subtask includes the design elements required to convert this train to serve as a third biological treatment process train to provide additional treatment capacity and redundancy.

The design will first involve some demolition and removal of equipment utilized for its function as a sludge holding tank. Within the tank the coarse bubble aeration and decant pumping systems will be removed and outside the tank the sludge feed pumps and associated piping will need to be removed. Plans for the demolition or removal of these systems and their associated piping will be prepared.

A series of upgrades will need to be made to convert train 3 for service as a biological process train. It is assumed that the design of these upgrades will replicate equipment and layout that exists in the other two trains - considerable deviations or modifications are not anticipated. The design of a fine bubble aeration system for the three aerobic basins will be provided. J-U-B, in coordination with a diffuser manufacturer, will design the layout of fine bubble aeration grids for each basin along with associated piping and instrumentation. As part of this system, a blower will also be selected and designed to be added in the existing blower room where space is reserved for this purpose. The blower will be tied into the existing intake plenum and the discharge piping will be extended to the third train as part of this design. Existing infrastructure (such as the sizing of the intake plenum) will be evaluated regarding usability with the expanded capacity. It is expected that the blower will be the same make and type (Aerzen, rotary lobe type) as those already installed.

Submersible mixers for the two anoxic basins will be selected and designed using the existing mixer installation as the basis of design. Two mixers will be required and J-U-B will work with the mixer manufacturer for the selection and specification of these mixers.

An internal recycle pumping system will be designed to serve the third train. The new pumps will be installed in the kiva where the sludge feed pumps are currently located and will need to be removed. Intake piping from the process basin to the pumps will be designed incorporating the wall spools/encased pipe that are already in place. Hydraulic design of the pumping system will be prepared and used to inform the pump selection and associated piping design. Coordination with pump vendors will be provided to assist in the selection, design and specification of pumps. It is assumed the selected pumps will be of the same make and type as the existing recycle pumps.

The discharge piping, which will include a flow meter, will be designed to connect to the MBR influent channel just above the kiva. The piping connection to the elevated channel

will be a focus of this design. The inlet piping and gate for train 3 are understood to already be installed and are ready to be commissioned/ready for service.

Instrumentation for the third process train will be selected and designed and will follow that employed in the other two trains.

- b. Assumptions:
  - i. The third train will be outfitted with equipment the same or similar to that in the other two trains.
  - ii. The existing MCC has been designed to accommodate these additional loads and the existing buckets will be employed.
  - iii. No design work is anticipated on existing Trains 1 and 2.
  
- 6. Subtask 225 – Membrane Train 5 (T-04)
  - a. The fifth membrane train will be outfitted with membrane modules and ancillary equipment to bring this train online. J-U-B will support this conversion by assisting the City with the procurement and purchase order for the membrane system and preparing the design for outfitting this membrane train. It is assumed that the City will pursue a sole-source declaration using the existing membrane equipment manufacturer, Veolia (the successor to the original GE/Zenon). It is expected that the membrane system will first be procured by the City and then the contract will be assigned to the CM/GC contractor. It also is understood that the MBR system will be provided as a package from Veolia and J-U-B will work with Veolia to establish the design parameters for the system. J-U-B will also support the City with the development and review of contract documents for the procurement of membranes and vendor's special services associated with installation and start-up. Since the membrane equipment will be directly procured, it is assumed that the vendor's standard offerings will be submitted unless CLIENT establishes specific vendors/models for incorporation into the design; incorporating specific vendors/model will be completed as an additional service. J-U-B will provide submittal review for the membrane system and work with Veolia to coordinate design issues through the submittal process, with the goal of reaching an approved submittal prior to contract assignment to the CM/GC. As this is a long lead-time item, membrane procurement will precede much of the other Phase 3 design work and J-U-B will work with Veolia and the Contractor to coordinate the schedule for delivery, installation, and startup of the membrane system in conjunction with the other Phase 3 projects.

The design conditions for the MBR process will be developed with the five-train operation to confirm membrane design conditions. Design drawings will be prepared to support the installation of the new membrane system. The design for the incorporation of ancillary systems, such as permeate pumping, aeration scour, inlet gates/flow control, chemical feed, and tank drain for the fifth train will be prepared.

Included as part of this work will be the design and specification of a coating system for the 5<sup>th</sup> membrane tank and the associated flow channel. The coating system will be the same or similar to that applied in the existing tanks.

- b. Assumptions:



- (a) This scope of work assumes that the capacity of existing systems is adequate, and expansion is not required, specifically for chemical feed systems. Calculations will be prepared by Veolia to confirm adequate capacity exists and to document design conditions with the additional train in operation.
- (b) The design assumes that the permeate pumps will have already been upgraded by the City to support additional capacity from each train.
- (c) No improvements to Trains 1 through 4 are necessary, including the membrane control infrastructure / network.

7. Subtask 230 – Reuse Pump #4 (T-03)

- a. This subtask involves the design of a fourth reclaimed water pump to increase the system's pumping capacity. The station was designed to accommodate a fourth pump and a spare slot for the pump already exists and will be utilized. An existing floor sleeve will be used, and a concrete pump pedestal will be designed for the selected pump. The work will include the selection and design of a fourth vertical turbine pump similar to those existing. The design operating conditions of the pump will be determined through hydraulic analysis of the pumping system. J-U-B will consult with the City to determine future hydraulic considerations for the system with expected force main changes. We will coordinate with pump manufacturer representatives to coordinate and confirm pump selection, design, and specifications. The design will include the discharge piping and valves from the pump to the connection with the existing piping along with any associated instrumentation.
- b. Assumptions
  - (a) The 4<sup>th</sup> pump will be of the same type and style as those existing.
  - (b) The existing MCC in the reclaimed pump station has capacity and space to accept a new VFD for the fourth pump. Design or retrofit of the MCC is not planned.
  - (c) The existing floor sleeve can be used for the selected pump.
  - (d) This scope assumes the new pump will be similarly sized to the others. If a much larger pump is desired, structural analysis of the existing floor slab may be required as an additional service.

8. Subtask 240- Sludge Holding and Pumping (T-02)

- a. A new sludge holding tank and pumping system will be designed since the conversion of train three will eliminate the existing system. The basis of design for the sludge holding tank will be a covered tank. The tank will be designed to keep the waste activated sludge aerobic while it is held prior to dewatering- similar to the existing operation. It is not intended to serve as a digester or provide any measurable sludge stabilization.

Preliminarily the tank's volume is expected to be between 400,000 to 500,000 gallons and have a typical SWD of roughly 16-18 ft, criteria that will be refined through the design process. The tank is expected to be partially buried with roughly half below grade and half above, but the tank's elevation will largely be decided based on hydraulics. A circular cast-in-place concrete tank is envisioned; however, the tank's dimensions will need to work within existing site constraints. It is anticipated that the new tank will be located east of the existing Process Building. J-U-B will provide structural and process engineering design for the tank. The City has determined that the prior geotechnical evaluation (completed by RB&G in 2010 for the original facility construction) is adequate for this project and has directed J-U-B not to complete another geotechnical evaluation.

Site/civil design is anticipated in support of the tank overall design package and will be provided by J-U-B (separate subtask). We'll work with the City to determine the preferred site improvements associated with the new holding tank and then prepare plans and specifications accordingly.

For budgetary purposes, it is assumed that a new WAS pumping system is needed to convey WAS from the three process trains to the new holding tank, and the design of such is included under this subtask. It is assumed that the existing WAS system, which uses gravity flow, if extended to the proposed location would place the tank too low/buried and is not practical.

Hydraulic design and the selection and design of a WAS pumping system will be provided. A duplex pumping system that employs positive displacement type solids handling/sludge pumps is an assumed design basis. A location for the pump station has not been predetermined and locating this will be part of the initial design process. We expect the pumping system will be located in or near the existing process building to avoid extending sludge feed/inlet piping. The design of inlet piping to the pumps and a force main to the new holding tank will be included in the work. It is not anticipated that the existing sludge feed pumps will be salvaged and repurposed for this service.

A support building is planned to house new sludge feed pumps and blowers that will serve the new sludge holding tank. The sizing, selection and design of the blowers and associated air distribution and diffusers will be prepared. The aeration system design is premised on a duplex (duty/standby) arrangement of positive displacement/rotary lobe type blowers- similar to those already used at the plant. Coarse bubble aeration is the design basis for aeration system since this is preferred for sludge applications. It has been assumed the existing diffusers will not be salvaged/reused. It is also assumed that the existing blowers will not be salvaged/reused as the design constraints will be different and the existing blowers are aging.

A new sludge feed pumping system will also be designed to pump sludge from the new holding tank to the existing screw presses. This scope has been developed based around the use of positive displacement rotary lobe type pumps, similar to existing. The hydraulic conditions for the pumping system will be developed to allow sizing, selection and design of the pumps and ancillary systems. A force main across the yard that will tie into the existing feed piping will also be included in this design. It is assumed the existing pumps will not be repurposed.

The support building is envisioned as a single-story slab on grade CMU building, having an approximate footprint of 1,000 sf or less. The building will include HVAC systems to control building temperatures with conditioned air. The architectural design of the building will reflect that of the existing buildings, and we envision its appearance will be similar to the Reclaimed Water Pump Station building. The location of the building is expected to be adjacent to the new holding tank to minimize piping lengths. J-U-B will work with the City to determine the preferred building location and configuration.

Early on in design, an Alternatives Review Workshop will be conducted with City staff to review concepts and discuss all aspects and options for the solids handling facilities. It is assumed the city will provide clear direction at this workshop to determine a recommended path forward for continued design.

b. Assumptions:

- (a) Odor control systems are not included in the design scope at this time. If the city elects to include these as part of this project or to make provisions for their future installation, J-U-B's scope shall be amended as appropriate.
- (b) The blower/feed pump building will be a support building and will not include an operations desk, computer, toilet, sink, etc.
- (c) A dedicated WAS pump building is not anticipated. The WAS pumps will either be located in the existing building or in the sludge holding tank support building.
- (d) Existing geotechnical information from the WRF and Public Works building will be employed for the design.

9. Subtask 245 – Solids Loadout (T-06)

- a. J-U-B will prepare the design of a new sludge loadout facility using a conveyor to move the sludge outside the existing building to a new loadout location. The design envisions the use of a common shaftless screw conveyor system serving both presses and a distributing conveyor to evenly load the dumpster. The location for loadout is anticipated on the south side of the building and a fully enclosed building expansion will cover the loadout area. Work will include the detailed design of these conveyor and loadout facilities, as well as structural and architectural design of loadout area building expansion.

As part of the design the access and circulation of trucks to the new loadout location will be evaluated to confirm adequate vehicular access and support the design of driveway modifications. Site/civil design for the driveway changes, revised grading and related landscape improvements will be provided in the design (under Subtask 210). The pavement design will be prepared using the anticipated truck/roll off loading for the new loadout facility.

Design of a gravity drainage system from the loadout area will be provided to prevent runoff from this area. It is expected that the drainage piping will be tied into the existing headworks building floor drain system- a separate pumping system or extended gravity drainage is not included. An extension of the existing storm drain system is anticipated to capture runoff from other areas.

- b. Assumptions:
  - (a) No odor control has been scoped

10. Subtask 250 - UV System Upgrade

- a. The UV Disinfection system will be expanded to completely outfit the existing channel. This work will involve the design for additional bulb racks in the channel by removal of the existing baffle. We will work with the existing system manufacturer (Trojan) to coordinate the design with the projected flows and desired water quality.

Hydraulic design through the UV system/channels will be reviewed since the design flows will be higher due to the additional permeate pumping capacity. A practical maximum hydraulic capacity will be determined based on vendor headloss criteria. J-U-B will also work with the City and Trojan to assess updates to the existing system to improve its function and performance, such as control / dosing algorithms, with advancements since the original installation. No improvements to the existing UV equipment is included in this scope.

11. Subtask 260 – Lagoon Retrofit to Winter Storage Ponds

- a. The City would like to convert its former treatment lagoons to winter storage ponds for treated effluent and the design of this conversion will be provided for this subtask. There are three lagoons and all three will be updated for this design. The total storage capacity of the lagoon retrofit will be approximately 36 million gallons. It is assumed an HDPE liner

will be installed. The selected liner and design specifics will be coordinated with Utah DWQ to satisfy R-317 rules.

Existing lagoon appurtenances such as transfer piping and vaults will be retained, and the design will account for this. New piping needed to transfer reuse water to and from the ponds will be designed. The hydraulic conditions will be evaluated and inform the piping design and alignment. It is anticipated a new structure will be constructed to convey water from the repurposed treatment cells to the smaller winter storage pond.

- b. Assumptions
    - (a) Existing lagoon infrastructure (piping, vaults, etc.) will remain as is for the conversion and no retrofit or demolition work is planned. Existing features will remain.
    - (b) Site improvements (roads, fences, site grading, lighting, etc.) are not required.
    - (c) All gravity conveyance is assumed, and no pumping or force main/pressure pipes design is planned.
    - (d) Coordination with Dam Safety is not anticipated
10. Subtask 270 – Contract Documents and Technical Specifications
- a. Develop proposed bidding, agreement, general conditions, and related documents (e.g. Front Ends) using EJCDC documents.
  - b. Incorporate Client standard specifications and requirements to General Conditions as “Owner’s Supplemental Conditions”.
  - c. Incorporate and update specifications based on financing agency requirements and inserts. For the purposes of scoping, it is assumed that project financing through federal sources is not being used on this project.
  - d. Provide review documents at the following milestones:
    - i. 60% Design- Progress print of major equipment specifications
    - ii. 90%/Agency Review- All specifications at near completion.
    - iii. Bid Set- Complete specifications
  - e. Assumptions:
    - (a) It is assumed that the standard EJCDC contract documents will be utilized. If requested by the City, coordinating conditions in the Prime CLIENT – CM/GC contract with the EJCDC General Conditions can be provided as an additional service.
11. Subtask 275 – QA/QC Review
- a. Quality Assurance / Quality Control Reviews
    - i. Deliverable reviews will be performed at each milestone for internal quality assurance and control. Subject matter specialists will be employed to perform the internal reviews followed by CLIENT reviews.
    - ii. Review comments will be logged and assigned to appropriate design team members to be addressed and resolved.
    - iii. Reviews at the following design milestones are planned:
      - (a) 30% Preliminary Design
      - (b) 60% Design
      - (c) 90%/Agency Review
12. Subtask 280 – Deliverables Production
- a. Deliverables Production

- ii. Project deliverables will entail large documents or plan sets that will be coordinated, formatted, edited, compiled, produced and distributed. The work required for this effort is included under this subtask. This effort does not include design work.
- iii. Deliverable production and distribution are anticipated as follows:
  1. 30% Preliminary Design Plans (City- 3 hardcopies and PDF, UDWQ- 1 hardcopy)
  2. 60% Design Plans and Specifications (City – 3 Hard Copies and PDF)
  3. 90% Design Plans and Specifications (City – 3 Hard Copies and PDF, UDWQ- 1 hardcopy and PDF)
  4. 100% Plans and Specifications (City – 3 Hard Copies and PDF, UDWQ – 1 hardcopy and PDF)

**13. Subtask 285 – Bid Phase Services and GMP Review**

- a. This task includes responding to questions during the bidding process including issuing addenda to the CM/GC as required. The CM/GC will maintain the planholders list and will oversee and manage addenda distribution. The CM/GC will be responsible to coordinate bid openings but J-U-B and the CLIENT will review the selected bids and provide feedback.
- b. The intent of the Bid Phase Services is to provide engineering support to the CLIENT to review CM/GC and subcontractor bid summaries. Consultant will assist the CLIENT in technical aspects of bidding and award through the CM/GC process. This scope assumes that the CLIENT will accept the GMP prepared by the CM/GC contractor. If the CLIENT does not accept the CM/GC' Contractors GMP and open bidding of design package is desired by CLIENT, Consultant shall negotiate Additional Services with the CLIENT to support the open bidding process to general contractors.
- c. Consultant shall assist the CLIENT in review of CM/GC GMP package for the WRF Construction. The CM/GC will prepare one complete and comprehensive GMP bid package for review by CLIENT. The GMP review will be provided at 100% design completion. The GMP package will be reviewed in a single review cycle. Multiple GMP submissions and review cycles requires additional effort and shall be authorized in writing as Additional Services

**14. Subtask 290 – Subconsultant Services**

- a. This task includes Design-Phase Services from the following Subconsultants, please see attached scopes and fees.
  - i. SKM, Inc – Electrical and Instrumentation
  - ii. Fred Thalmann, Architect – Architectural
  - iii. Olsen & Peterson – HVAC and Plumbing

**C. Task 300 – Phase 3 Construction Phase Services**

The City may not have funding available to construct all of the upgrades that are designed. Due to uncertainties related to the scope and timing of these upgrades (some of which could occur several years in the future), J-U-B proposes to scope for this task at a later date.

**D. Task 400 – Agency Coordination / Effluent Disposal**

This task includes time to coordinate with Utah Division of Water Quality (DWQ) staff regarding effluent disposal alternatives including rapid infiltration basins, UPDES discharge permit, indirect potable reuse, and direct potable reuse. Coordination and continued negotiations with DWQ may defer or eliminate future winter storage capacity expansions. For example, DWQ has indicated they

may be amenable to the installation of rapid infiltration basins if a groundwater study is completed and the basins are located downstream of culinary water wells.

Another option could be obtaining a UPDES discharge permit, which is likely the lowest cost option for effluent disposal. It is preliminarily understood that the Strawberry Highline Canal Company is resistant to allowing discharge into the canal. Continued engagement and negotiation with the canal company is recommended. Perhaps they would be more amenable to receiving Type 1 effluent if they understood that discharge would not occur during the growing season. Alternatively, other locations for effluent discharge could be investigated including Summit Creek Reservoir Number 2 or an irrigation ditch located near the winter storage ponds.

As part of this task, J-U-B would work together with the city to investigate potentially feasible discharge options and select a path forward for future negotiations (under a separate scope and fee). For example, preliminary discussions with Ken Hoffman at Utah DWQ indicated they can provide a Waste Load Allocation (WLA) for the selected site which will inform the potential UPDES permit limits. The WLA would be based on the location of discharge, time of year, and volume of discharge. If possible, the City should attempt to obtain an UPDES permit prior to finalization of the Utah Lake Total Maximum Daily Load (TMDL) study so the city has a load allocation and a “seat at the table”. In addition, ongoing drought conditions may result in the regulatory agencies being more amenable to a new discharge to Utah Lake (which ultimately flows into the Great Salt Lake).

- a. Assumptions
  - (a) The proposed T&M fee for this task is intended to identify potential paths forward by facilitating meetings with DWQ, Strawberry Highline Canal, downstream water users, and other potential stakeholders.
  - (b) Specific projects stemming from these negotiations, such as producing a detailed groundwater study to determine feasibility of RI basins or submitting a UPDES permit application, would be produced under a separate scope and fee.

#### **E. Task 500: Management Reserve Fund**

1. The Management Reserve Fund establishes a pre-authorized budget for additional tasks that may be requested by the CLIENT's Authorized Representative and performed by J-U-B upon mutual agreement of scope, budget, and schedule.
2. J-U-B will not exceed the pre-authorized amount without CLIENT approval.
3. Items that may be wholly or partially funded with the management reserve fund include, but are not limited to:
  - a. Unforeseen conditions requiring extensive monitoring, coordinating, or design changes.
  - b. Contract change orders that result in additional effort and coordination with subconsultants, contractors, equipment suppliers, and/or City personnel.
  - c. Assistance in connection with bid protests, rebidding, or renegotiating the Construction Agreement.
  - d. Early-out packages for the CM/GC, including bidding work prior to completion of the Final Bidding Documents.
  - e. Preparing to serve or serving as a consultant or witness for CLIENT in any litigation, arbitration, or other legal or administrative proceeding involving the Project to which J-U-B has not been made a party.
  - f. Additional Services in connection with the Work, including Services which are to be furnished by CLIENT and Services not otherwise provided for in this Agreement.
  - g. Public involvement services
  - h. Groundwater study for RI Basins for effluent discharge
  - i. UPDES permit application and Waste Load Allocation coordination with DWQ
  - j. Construction Administration Services

## **PART 2 - CLIENT-PROVIDED WORK AND ADDITIONAL SERVICES**

- A. CLIENT-Provided Work - CLIENT is responsible for completing, or authorizing others to complete, all tasks not specifically included above in PART 2 that may be required for the project including, but not limited to:
1. Provide, as may be required for the Project, such legal services as CLIENT may require or J-U-B may reasonably request with regard to legal issues pertaining to the Project, including any that may be raised by contractor.
  2. Give prompt written notice to J-U-B whenever CLIENT observes or otherwise becomes aware of any development that affects the scope or time of performance or furnishing of J-U-B's Services, or any defect or nonconformance in J-U-B's Services or in the Work of any contractor.

## **PART 3 - BASIS OF FEE AND SCHEDULE OF SERVICES**

- A. CLIENT shall pay J-U-B for the identified Services in PART 1 as follows:
1. For Lump Sum fees:
    - a. The portion of the Lump Sum amount billed for J-U-B's services will be based upon J-U-B's estimate of the percentage of the total services actually completed during the billing period.
  2. For Time and Materials fees:
    - a. For all services performed on the project, Client shall pay J-U-B an amount equal to the cumulative hours charged to the Project by each class of J-U-B's personnel times J-U-B's standard billing rates.
    - b. Client shall pay J-U-B for J-U-B's Consultants' charges times a multiplier of 1.1.
  3. J-U-B may alter the distribution of compensation between individual tasks to be consistent with services actually rendered while not exceeding the total project amount.
- B. **Period of Services**
1. If the planned period of service for the Tasks identified above extend more than one year, J-U-B's billing rates and/or fees for remaining Tasks may be increased to account for direct labor cost, rate table adjustments, or other inflationary increases. If that occurs, an adjustment to the billing rates and/or Fee will be computed based on remaining scope amount times the specific rate increase.
  2. If the period of service for the Tasks identified above is extended beyond 6 months or if the Project has stop/start iterations, the compensation amount for J-U-B's services may be appropriately adjusted to account for salary adjustments, extended duration of project management and administrative services, and/or costs related to stop/start cycles including necessary monitoring and communication efforts during inactive periods.
- C. CLIENT acknowledges that J-U-B will not be responsible for impacts to the schedule by actions of others over which J-U-B has no control.
- D. The following table summarizes the fees and anticipated schedule for the services identified in PART 2. The fee breakdown by consultant is summarized as follows:
- J-U-B Engineers, Inc. - \$906,500
- SKM, Inc. (Electrical and Instrumentation) - \$180,800
- Fred Thalmann (Architect) - \$47,300
- Olsen & Peterson (HVAC and Plumbing) - \$11,300
- TOTAL DESIGN-PHASE PROJECT FEE - \$1,145,900**

Task Number	Subtask Number	Task/Subtask Name	Total Compensation	
<b>100</b>		<b>Project Management</b>	<b>\$153,700</b>	<b>(0 to 12 months from Notice to Proceed)</b>
100	110	Project Administration	\$15,400	Lump Sum
100	120	Design Meetings	\$42,300	Lump Sum
100	130	CMGC Procurement and CMGC Coordination During Design	\$26,000	Time and Materials (Estimated Amount)
100	140	UDWQ Coordination	\$19,300	Lump Sum
100	150	Project Closeout	\$2,500	Lump Sum
100	190	Subconsultant Services	\$48,200	Lump Sum
<b>200</b>		<b>Phase 3 Design</b>	<b>\$976,900</b>	<b>(0 to 12 months from Notice to Proceed)</b>
200	200	Survey and Base Topographical Map	\$11,400	Lump Sum
200	205	General Sheet Development	\$55,000	Lump Sum
200	210	Site Civil and Yard Piping	\$68,200	Lump Sum
200	215	Center St Lift Station and Force Main	\$72,500	Lump Sum
200	220	Biological Process / Train 3 Conversion	\$79,700	Lump Sum
200	225	Membrane Train 5	\$65,000	Lump Sum
200	230	Reuse Pump #4	\$25,700	Lump Sum
200	240	Sludge Holding and Pumping	\$143,800	Lump Sum
200	245	Solids Loadout	\$44,300	Lump Sum
200	250	UV System Upgrade	\$20,400	Lump Sum
200	260	Lagoon to Winter Storage Conversion	\$70,300	Lump Sum
200	270	Contract Documents and Technical Specifications	\$66,500	Lump Sum
200	275	QA/QC Review	\$22,300	Lump Sum
200	280	Deliverables Production	\$14,800	Lump Sum
200	285	Bid Phase Services	\$25,800	Time and Materials (Estimated Amount)
200	290	Subconsultant Services	\$191,200	Lump Sum
<b>300</b>		<b>Construction Phase Services - Phase 3 - Not Scoped at this Time</b>		
<b>400</b>		<b>Agency Coordination / Effluent Disposal</b>	<b>\$15,300</b>	<b>(0 to 4 months from Notice to Proceed)</b>
400	410	Stakeholder Meetings and Coordination	\$15,400	Time and Materials (Estimated Amount)
<b>TOTAL PHASE 3 DESIGN FEE</b>			<b>\$1,145,900</b>	
<b>500</b>		<b>Management Reserve Fund</b>	<b>\$100,000</b>	<b>(Requires Written Authorization from Client)</b>
<b>TOTAL DESIGN FEE INCLUDING MANAGEMENT RESERVE</b>			<b>\$1,245,900</b>	

E. Electronic deliverables provided to the CLIENT as part of the work described within this Attachment are subject to the provisions of J-U-B's "electronic document/data limited license" found at [edocs.jub.com](http://edocs.jub.com)

**Exhibit(s):**

- Exhibit 1-A: Proposals from subconsultants

*For internal J-U-B use only:*

PROJECT LOCATION (STATE): Utah

TYPE OF WORK: City

R&D: Yes

GROUP: Wastewater Treatment Group

PROJECT DESCRIPTION(S):

1. Wastewater Treatment (S04-T)
2. Sewer/Wastewater Collection/Disposal (S04)





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(801)677-0011 www.skmeng.com

*Santaquin Water Reclamation Facility  
December 15, 2023*

## Santaquin WRF EIC Design, Integration, CM, & SCADA

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### Revision 1

SKM is pleased to provide this proposal to provide engineering and project management services for the electrical, instrumentation and controls designs for the upgrades occurring at Santaquin WRF. The proposal is broken down into the sub sections listed below.

- Introduction and Project Goals.....pg 01
- Project Understanding.....pg 02
- Assumptions and limitations.....pg 02
  
- Task 100 Project Management.....pg 04
- Task 200 Design Scope of Services.....pg 04
- Task 300 Construction Scope of Services.....pg 09
  
- Task 800 SCADA System Integration.....pg 10
  
- Cost Breakdown.....pg 14

## Introduction & Project Goals

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### Introduction

The City of Santaquin (hereafter City) will require Design Engineering and SCADA Integration Services for the Electrical, Instrumentation and Controls Systems for the WRF Expansion Project. This document summarizes the scope of work associated with these services.

SKM recently performed a walkthrough of the Santaquin Wastewater (WW) plant hosted by Santaquin staff and JUB Engineers. Following an internal review of the available design, as-built documentation, visual inspection, and correspondence with the design team, the city has requested that SKM submit a proposal which outlines the scope and fee for the following tasks.

With the growth of Santaquin City, the sewer infrastructure needs an upgrade to increase capacity. The expansion of the existing plant will require updating existing facilities as well as the inclusion of new processes and equipment. The expansion will include design elements for areas including the headworks,

membrane trains, sludge storage and processing tanks, recirculation pumping systems, UV, and dewatering processes. These changes include the following:

- Update Center Street Lift Station and Force Main
- Upgrade and convert the biological process sludge train
- Addition of Membrane Train 5
- Inclusion of additional reclaimed water pump
- New sludge holding and pumping system
- Solids conveyors and removal systems
- Update and Improvements to UV system

### **Goals**

This Scope of Work has been developed to achieve the following goals:

- Increase the plant MGD capacity by producing electrical and controls designs for the necessary and proper equipment.
- Produce quality engineering associated with new equipment and infrastructure. Understand existing equipment and infrastructure to produce a design that integrates new equipment seamlessly and efficiently.
- Improve and update the controls systems, networking, and SCADA to monitor, control and visualize new infrastructure. Develop control strategies such that the new systems will function automatically, safely, and effectively.

## **Project Understanding**

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During an expansion such as this project, SKM will need to develop an electrical, instrumentation and controls design that seamlessly integrates with existing infrastructure. We will develop an electrical and controls strategy that accommodates the proposed modifications to the plant while maintaining existing sewage demands. This includes maintaining existing instrumentation, pumps, motors, valves, and necessary processes to the facility. Where available and appropriate, SKM will utilize existing equipment, conduit, breakers, instruments, and controls to support new infrastructure. SKM must understand the existing electrical requirements of the plant as well as existing conditions of equipment to integrate new infrastructure and provide a successful design. We will spend some time at the plant to investigate existing conditions and to coordinate new tie ins to existing equipment. We will coordinate with JUB and vendors during design the electrical, instrumentation, and controls requirements for the project.

## **Assumptions and Limitations**

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### **Assumptions**

The following assumptions were made in the development of this Scope of Services:

- Record drawings, as-builts, and any equipment manuals/O&M documents for existing equipment associated with the affected systems will be provided by the Owner or JUB Engineers.

- Access to the site and operating staff on hand for in-person site visits as well as availability for follow-up meetings and conversations will be allowed and scheduled with SKM engineers.
- The project will be developed in phases that follow the progression of design. Progress will be measured through the development and delivery of milestone design packages. The following major design milestones are anticipated:
  - 30% Preliminary Design
  - 60% Design
  - 90% Design
  - 100% Construction Set
  - Technical Specifications development prior to bid and construction services
- We are basing this proposal based upon discussions with Jim Goodley and Jason Callaway. Here is a summary of the items discussed:
  - It is assumed that JUB will provide Revit files or AutoCAD background files to be used for electrical site plans.
  - It is assumed that any HVAC design work would be by others.
  - It is assumed that specifications for valves, piping, concrete, actuators, motors, pumps will be by JUB.
  - It is assumed that SKM will provide Division 26 Electrical and 40 Instrumentation specifications.
  - Consultant will develop a design drawing format for the project to establish consistency in the quality of deliverables.
  - The standard hard copy drawing delivery format is 11"x 17". Full-size drawings, if requested, will be provided on standard Size D, 22"x 34" paper at the cost of printing and reproduction.
  - Written deliverables will be submitted in electronic PDF format for CM/GC.
  - It is assumed that evaluation and design of new harmonic filtering to replace the failed existing active harmonic filter will be paid as a separate contract direct with the city. Any additional hardware or equipment that pertains to this design will be outlined in a proposal from SKM.

### **Limitations**

Additional or supplemental services beyond the above Scope of Work shall be performed only upon mutual agreement in writing between the JUB and SKM. These services include additional work resulting from changes in the extent of the scope including, but not limited to, changes in Project size, complexity, schedule, character, or reviewing additional processes/facilities beyond those listed in the Scope of Work. Specifically, we note the following clarifications and exclusions to our Scope of Services:

1. SKM assumes that the generators at the plant and lift station are sized large enough to handle the additional loads included in this project. If we determine the generators are undersized correspondence with JUB and the City will be required, and additional scope will be added.
2. Verification of existing loads, wires, conduit, breakers, and unmodified equipment will not be reviewed by SKM. We assume that existing equipment is functioning properly without error or hazard.
3. Instrumentation functional analysis of existing equipment will not be performed by SKM. SKM will work with the city to specify new equipment as a part of this project that is similar to existing. If existing instruments need to be replaced additional scope will be required as the scope and fee detailed below does not include design effort for this.
4. Engineering design beyond preliminary recommendations noted in the above scope.

5. Other engineering, design, or technical services beyond those specifically listed in the Scope of Work below.

## **Task 100 Project Management**

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SKM will develop, maintain, and monitor overall project scope, budget, and schedule throughout the duration of the Project. SKM will collaborate to ensure project decisions are made in the best interest of the overall goals to maximize the benefit allowed within the project budget. Periodic coordination calls will take place as needed.

- SKM will provide necessary project management and coordination as well as quality review of all deliverables.
- SKM will attend review meetings at 30, 60 and 90% milestones.
- SKM will coordinate with JUB and/or the city to provide regular updates and reports as required.
- Provide drawing review/feedback of mechanical, electrical, instrumentation and control drawings to ensure all information is depicted correctly.
- SKM will set up this project in our internal directory and maintain record keeping and financial documentation related to the project.
- SKM will perform internal reviews, meetings, and workshops to ensure quality product and delivery of task items. At specific milestones, after SKM internal review, JUB and the client will be given the opportunity to review deliverables at design phases.
- Design coordination between CM/GC, JUB and applicable vendors will occur to minimize error and limit revisions to designs. This includes bidding aid to the contractor, where clarification is required.
- Provide specifications review/feedback of mechanical, electrical, instrumentation and control specifications to ensure conflicts are identified and resolved as quickly as possible.

An SKM Principal will be involved in the Project and will be responsible for providing overall quality assurance / quality control and ensuring that deliverables meet the highest of standards to meet the goals of the Project. SKM will visit the site and inspect the installation with operators to identify key equipment, instrumentation, and other appurtenances related to the affected wastewater facilities. SKM will review available record drawings and equipment information to confirm the extents and capacities of the existing system in relation to the system. Two site visits are recommended, one for preliminary review, and a second follow-up visit to address any missing information or details that were not identified during the preliminary inspection.

## **Task 200 Design Scope of Services**

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The subtasks mentioned below will summarize the effort provided by SKM for this task. SKM will deliver design packages to the CM/GC, client, and engineer for all of listed sub-tasks. Each milestone deliverable will build upon the previous such that the design approaches completion at the specified date. Each design milestone will include the following.

1. Instrumentation Drawings – Develop instrument legend, symbols, schedule, installation details and process & instrumentation diagram (P&ID).
2. Electrical Drawings – Develop electrical legend, single line diagram, site plan, schematics, conduit development, conduit schedule, electrical calculations, lighting schedule and details. Incorporate provisions in the design for SCADA system panel and communication cabling.
3. Division 26 & 40 specifications for electrical and instrumentation equipment and installation.
4. Cost opinions requested by JUB or the client will be provided by SKM.

#### 30% Design:

Consists of establishing preliminary design criteria for major electrical and controls systems. Review of existing infrastructure, documenting sizes, condition, code assessments, and any other operational concerns. Design drawings produced in this stage aid the engineer and client in better understanding the necessary modifications as a part of this project and the impact they will have on existing infrastructure.

- Process and Instrumentation Notes and Symbols
- Process and Instrumentation Diagrams for affected areas of plant
- Electrical Notes and Symbols
- Existing and Preliminary Design Calculations
- Existing One Line Diagrams
- Existing Site Layout Drawings

#### 60% Design:

Consists of progressing design from 30% with more detail and improved process understanding.

- Improved Process and Instrumentation Diagrams
- Instrumentation Schedules
- Updated Calculations
- Improved One Line Diagrams with new equipment and MCC elevations.
- Detailed Site Layout Drawings
- Demo Drawings
- Control schematics
- Conduit Development and Schedule draft
- Details

#### Agency Review (90% Design):

Consists of complete design pending engineer and client review. Any new information presented to SKM at this time should be nominal and require little design modifications. Specifications will be developed at this stage and delivered to the engineer for review. Specifications will be developed by SKM to match the standard and formatting provided by JUB.

- Finalized P&ID drawings
- Finalized Instrumentation Schedules

- Finalized Demo drawings
- Finalized layout drawings
- Finalized Calculations
- Finalized one lines and elevations
- Finalized Motor starter control schematics
- Finalized conduit routing developments and schedules
- Finalized details

100% Design:

Final package prepared in format desired by client. Sent to CM/GC for review questions and bidding purposes.

#### **Subtask 210 – Center Street Lift Station and Force Main (T-05)**

SKM will design the electrical and controls system to accommodate JUB’s decision on the pumping system. SKM is under the assumption that this lift station will include three pumps and the design will include provisions for such equipment. This will include new wire, conduit, breakers, and motor controls. We assume a new building will be constructed for the electrical equipment and instrumentation will be replaced. The existing PLC panel is new and will be reused. New motor controls will be designed by SKM for the new pumping system and integrated into SCADA. We assume fiber will be installed between the plant and the lift station for communications. If fiber is not installed, SKM will support alternative methods of communication to be designed and discussed with the client. The following points are additional design considerations for this phase:

- Verify and design the station such that the new layout is to code. Emphasis on the design drawings, the NEMA ratings, classified areas, utilization of seal offs, and protection against harmful vapors.
- Investigate the existing electrical service and standby generator to see if it will support new loads at the lift station. Coordinate if increased capacity is required.
- Process and Instrumentation design drawings will show new instrumentation. Coordinate with JUB and the City the level and flow instruments to be utilized and their locations.
- Design new power distribution equipment to accommodate the pumps and motors.
- Designs will require demolition of existing infrastructure. Demolition drawing(s) will be developed to show this. Sequencing of the work will be coordinated.
- Develop an updated network design for the facility. Work with Rocky Mountain Tech to develop separation between SCADA, I/O, and business networks.

#### **Subtask 220: Biological/Process Train 3 Conversion (T-02)**

The conversion of the sludge holding tank to an activated sludge train will require additional new instrumentation, conduits, control wire and PLC hardware. With the conversion of the sludge holding system to a new process train, SKM will replicate the instruments and equipment in the existing process trains. Similarly, SKM will design PLC control panel modifications to accommodate the new IO from the new process train. SKMs design will include electrical power distribution and controls requirements of the blower. The following points are additional design considerations for this phase:

- The accommodation of a new blower for the third process train will require conduit development for new power and control wire to the blower. SKM assumes the new blower will be in the blower room adjacent to the existing electrical room. JUB will coordinate with SKM on the size and type of the new blower such that SKM can incorporate it into our design.
- The blower will be fed from the existing MCC. Further investigation will be performed during initial design. Evaluation of space for a new VFD will be completed as a part of this task.
- Submersible mixers for the two anoxic basins will be needed in this process train conversion and will be designed around existing mixer specifications. Power supply and motor controller location and sizing will be included in the design.
- SKM will perform an evaluation on the new pumps involved in this subtask. Pumps will be provided with the power and controls necessary for this upgraded process. Conduit and wire will be included in the design to accommodate this new recirculation pump system. JUB to provide specifications to SKM on recycle pumps which will be like the existing pumps.
- A new flowmeter and level instruments will be included in the design.
- Motorized valves, DO and level instrumentation provided by others will be included as a part of the electrical design. Locations will be provided by JUB and power distribution to these valves will be engineered by SKM.

#### **Subtask 230 – Membrane Train 5 (T-04)**

Membrane Train 5 is the western most train and associated equipment to utilize this train will be included in the design provided by SKM. The train functions in a similar manner to trains 1-4 and will require similar equipment. JUB will provide specifications for the new train pump and blower if needed such that SKM can design the power and controls system accordingly. SKM will perform an in-depth review of the existing membrane trains to match the existing equipment and utilize existing conduits in our design. The following points are additional design considerations for this phase:

- We assume another blower will be required for this new train. The new blower will be in the existing blower room and powered from the main MCC. SKM assumes the new blower will be like the existing blowers.
- SKM will perform a review of existing infrastructure and SCADA such as instruments, pumps, blowers and controls to better understand the design and provide a clear concept to the contractor.
- Each of the existing membrane trains includes its own control panel and the design will include a similar panel for train 5.
- Power feeders for the new train will be fed through existing conduits in the nearby electrical room.
- Conduits that lead to the electrical room will also be utilized for instruments and controls to the main PLC.
- Coordination with vendors, reviews of E&IC submittals, and other design requirements associated with the blowers, pumps or equipment will occur in this subtask.

#### **Subtask 240 – Reuse Pump #4 (T-03)**

SKM will design the VFD, electrical and controls systems required for use of the fourth reclaimed water pump. Existing conduits and MCC bucket provisioned for this pump will be used in the design. The following points are additional design considerations for this phase:

- SKM will investigate the existing VFDs, motors, pumps, conduits sleeves and MCC buckets. Through this investigation SKM will develop the power and controls design for the fourth reclaim pump, like the existing three.
- This reclaim pumphouse utilizes a controls cabinet with remote IO. SKM will evaluate if the remote PLC can or requires additional IO modules for the fourth pump.
- JUB will provide information and specifications of the new motor.
- SKM assumes the new pump will be of the same type and manufacture of the existing pumps.

### **Subtask 250- Sludge Holding and Pumping (T-02)**

A new sludge pumping and tank system will be designed as part of this phase. The new sludge pumps and holding tank will be designed by JUB. The pumps will be in a new building to the east of the membrane building and the new tank being located just outside. JUB will share the building design such that SKM can utilize building layouts for electrical infrastructure. New pumps will require power, monitoring and control to pump WAS from the trains to the holding tank. New instruments for the tank, such as level, dissolved oxygen, and new instruments for the pump system, such as pressure and flow instruments will be included in the design. SKM will develop an electrical and controls design for the new building and pump system which includes all the necessary infrastructure for power distribution, monitoring, visual operation, controls, network, lighting, and safety systems. New blowers may be required for this holding system, and with that additional power and control requirements may be necessary. The location of the new blowers will be determined and provided by JUB such that SKM can design accordingly. The following points are additional design considerations for this phase:

- The new building will be adjacent to the new holding tank, located on the east side of the membrane building.
- Power will need to be routed from the existing electrical room. A new feeder breaker will be required in the existing MCC.
- Pumps, motors, and HVAC loads will be designed by JUB. Specifications will be provided to SKM for calculations and power demands for the new building.
- A new PLC will be included for this location. All required IO will terminate in this new PLC. A fiber optic cable will be installed between the electrical room and the new PLC panel for connecting the system to the network.
- New instrumentation and controls associated with WAS pumping system and sludge holding tanks will be provisioned for and included in SKM design drawings.
- Classification requirements will be followed such that explosion proof equipment and appropriate NEMA ratings are used.
- The design will include the electrical and controls for the new sludge feed pumps that pump sludge from the new holding tank to the existing screw presses.

### **Subtask 260 – Solids Loadout (T-06)**



A new conveyor system will be included in the design prepared by JUB. Power will be fed from the existing 480V panelboard to a new conveyor control panel. Power and control wiring will be required from the panel to each conveyor and to the existing screw press control panels. The following points are additional design considerations for this phase:

- SKM will evaluate existing power distribution equipment in the Headworks. JUB will provide vendor supplied specifications for new conveying equipment such that SKM can design required power and controls.
- A new vendor control panel will be provided with the conveyor system that will receive a single 480V power feed and will have hardwired controls to the screw press control panels.
- The conveyor system will be monitored by the SCADA system.
- An expansion of the building will be designed by JUB. SKM scope will include electrical designs for this extension.

### **Subtask 270 - UV System Upgrade**

UV upgrades will be included in the design and require additional power and controls equipment for each new UV module. We will coordinate with Trojan for design specifications on the new UV equipment and for any modifications to the existing equipment.

- SKM will investigate and become familiarized with Trojan UV systems to anticipate power and controls requirements.
- Any new instrumentation will be incorporated into SCADA in a similar manner to the existing.
- Conduits will be evaluated during preliminary stages of the design. We assume that the existing conduits are adequate for the new equipment.

## **Task 300 Construction Phase Scope of Services**

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SKM will provide Construction Management (CM) services as part of the scope of services for this design. See the subtasks below that outline this task.

### **Subtask 310- Office Engineering**

- Pre-construction conferences with the client, CM/GC, engineer, and any subcontractors will be included in this phase to review and plan critical design decisions or scheduling coordination.
- Develop contract bid documents stamped by a PE for the state of Utah for the electrical and instrumentation portion of the work.
- Answer questions from the CM/GC as needed.
- This scope and fee do not cover the entire Construction Management activities for this project. It is assumed that Santaquin WRF and JUB will be performing Construction Management that includes complete services which includes but is not limited to 1) overall construction management; 2) construction contract administration; 3) non-EI&C inspections; 4) project startup; 5) project closeout and 6) materials testing.
- SKM will answer questions and provide design clarifications regarding RFI/RFCs submitted by the contractor.

- SKM will timely review and respond to submittals and shop drawings submitted by the contractor and coordinate action to reduce the number of re-submittals. Submittals will be required to meet the design drawings and specifications submitted by the engineers. Any requests to modify equipment from the contractor will be in writing and provide a reasonable basis for the request.
- Day-to-day administrative support will be provided by SKM. Either the PM, engineer or office manager will correspond with the City, CM/GC, or engineer to coordinate financial, and or administrative efforts.

#### **Subtask 320- Field Engineering, Meetings/Site Visits**

- SKM will perform regular site visits and attend regular design or construction progress meetings. SKM will also include periodic site visits after construction milestones to ensure quality control and produce punch list.
- SKM assumes that remote construction meetings will be approximately every 2 weeks which we will join via teams or zoom.
- On-site meetings will be covered in this task for inspections, consultations, design coordination, testing, etc.

#### **Subtask 330 – Commissioning and Completion**

- SKM will coordinate the commissioning between the electrical contractor and the city. SKM will also be available for any questions or issues during commissioning.
- Once the project has been commissioned and approved by the Engineer and the City the electrical contractor may request substantial completion documentation.

#### **Subtask 340 – Project Closeout**

- Project closeout will occur after final construction, walkthroughs, commissioning, and punchlist items have been completed. A final walkthrough with the city will occur and SKM engineers will be present for any follow-up tasks, concerns, recommendations, or requests. SKM will perform a site evaluation for the electrical and controls design elements. This evaluation will indicate to the client how well the contractor upheld specifications and site conformance.
- Final administrative work will be completed, and final invoices will be sent. As-built engineered drawings and updated or new programs will be furnished by SKM for all locations in scope. Any redlines by the contractor will be addressed and modified by SKM prior to record set deliverables.
- O&M manuals shall be provided by the contractor, vendor or engineer for the supplied equipment. The O&Ms will be stored by the city in a fashion that supports the administration team’s requirements.

## **Task 800 SCADA System Integration**

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SKM will be the system integrator for the project and will produce a complete and operational supervisory control and data acquisition (SCADA) system. The system integration scope has been developed based on the following assumptions:

- Vendors will be providing control system hardware for their respective systems. Specifically, Veolia will provide hardware changes for the existing MBR PLC and will be providing iFix screen updates for the MBR process.
- SKM will utilize their programming standards for the project with which the city is already familiar with.
- Network and computer hardware not being provided by vendors will be provided by Rocky Mountain Tech, the City's IT consultant. Costs for Rocky Mountain Tech have not been accounted for in this proposal. It is assumed that the City will work with Rocky Mountain Tech in contracting them for this work.
- Our team will work with Rocky Mountain Tech to set up and configure network separation and security and to configure network equipment. It is assumed that SKM will be responsible for setting up the SCADA and I/O networks and Rocky Mountain Tech will be responsible for setting up firewalls and business networks. We will coordinate the configuration of the SCADA server and client computers with Rocky Mountain Tech. It is assumed these computers will be delivered to us ready for our software to be deployed on them.
- The existing main Process PLC will require an additional rack of I/O. After discussions with GE, we are recommending modifying all Ethernet I/O to be changed from GE's Ethernet Global Data (EGD) to Profinet. This will require the main PLC to have its processor upgraded and for all I/O racks to have their Ethernet adapters replaced. The main PLC will require additional I/O wiring down to terminal blocks where the Contractor will land field wiring. It is assumed that SKM will be providing all internal panel modifications to the main Process PLC.
- The new RIO panel for the solids holding tank and pumps will be provided by SKM to the Contractor for installation.
- It is assumed that the contractor will do all panel installations, raceway installations, field wiring, and terminations.
- SKM will obtain shop drawings and PLC/OIT/HMI programming files from all vendors providing PLC controlled equipment for the project. It is assumed that each vendor will also provide a recommended list of SCADA tags that should be developed in the HMI software.
- HMI and any other software licensing costs have not been included in this scope. It is assumed that these will be coordinated with the software vendor and the city as it gets closer to the time the licenses need to be updated.
- We assume that SKM will be developing loop drawings for non-vendor equipment.

## Project Goals

This Scope of Work has been developed to achieve the following goals:

- Using the programming standards that have been developed, program the new PLC's and associated control loops.
- Work with Rocky Mountain Tech to set up and configure the SCADA and I/O networks.
- Setup new HMI hardware and HMI software. Develop updated HMI screens for the plant per the new standards.
- Deliver a Control System Submittal that includes the PLC equipment information.
- Participate in Factory Acceptance Testing for the new PLC hardware.
- Provide Integration of Vendor Supplied controllers into the Control System.
- Participate in I/O and Loop Testing for each physical I/O point and each control loop.
- Participate in plant startup and commissioning activities.

- Provide training for the control system at each of the two substantial completion milestones.

### **System Integration**

In association with the design and installation of the plant upgrade, provide System Integration Services for the programming and commissioning of the Control System. Develop a detailed replacement plan and schedule for the modifications and additions to the existing PLC and I/O assemblies. Program each PLC/RIO assembly. Program the SCADA network. Upgrade the HMI equipment and upgrade the HMI Software. Program the HMI. Provide necessary programming and coordination to fully integrate vendor supplied systems.

### **Control System Submittal**

Prepare a Control System Submittal which includes the following:

- HMI Hardware and Software information, including bill of materials and equipment cut sheets.
- PLC Hardware, including bill of materials and equipment cut sheets.

### **PLC Programming**

This subtask includes the following:

- Based upon the P&ID's, PLC Panel Drawings and Loop Descriptions, program the PLCs for the plant according to the programming standards. Submit the programming to the Engineer & City for review. Implement any modifications to the programming based upon the review.
- Participate and play a role in the factory acceptance testing of each new PLC panel as it is assembled by the panel shop. Demonstrate that the programming has been completed prior to the delivery of the panel to the site.
- Coordinate PLC communications and logic that will be required for vendor PLC's.

### **HMI System Development and Configuration**

This subtask includes the following:

- Develop an HMI System Design that details the various hardware, software and networking components of the system. The design shall be based upon the design shown on the Plant Upgrade Contract Drawings.
- Work with Rocky Mountain Tech to deploy the new SCADA Server and SCADA Clients.
- Set up the new hardware and install and configure the software for a complete and functional HMI system.

### **HMI Programming**

This subtask includes the following:

- Utilizing the P&ID's, Loop Descriptions and PLC programs, upgrade the existing HMI database and screens with these modifications. Utilize programming standards.
- Test each database point and each screen for accuracy before implementation.

- Build alarming, historical and reporting additions for the modifications and additions of the Plant Expansion.

### **SCADA Network Programming**

This subtask includes the following:

- Work with Rocky Mountain Tech to program the SCADA and I/O networks.
- Work with Rocky Mountain Tech and the Contractor to make sure that all necessary components are provided and installed in accordance with the design documents.

### **Startup and Commissioning**

Following a successful FAT, the RIO panel will be delivered to the Contractor for installation. Once installed, it will be necessary to perform I/O tests, loop tests and to startup and commission the Control System.

#### **Panel Installation Assistance**

This subtask includes the following:

- Provide assistance and support to the Contractor for the installation of the RIO panel.
- Coordinate with the Contractor the implementation of the replacement plan.

#### **Network Cutover and Commissioning**

The existing SCADA radio network is being replaced by a new network with new Fiber Optic Cabling to Center Street Lift Station. This subtask includes the following:

- Provide assistance and support to the Contractor for the cutover of the SCADA network to the new network equipment and cable.
- Bring the new network online and repeat testing for proper functionality and redundancy.

#### **I/O and Loop Testing**

Based upon the PLC panel drawings, the Contractor will be responsible to install and terminate all field wiring and will be in charge of point-to-point testing, I/O testing and ultimately loop testing with the System Integrator's assistance. This subtask includes the following:

- Provide support to the Contractor for solving discrepancies that are found in the field that require modifications to the loop drawings. The Contractor shall markup the loop drawings and the System Integrator shall revise and re-issue the loop drawing on an as-needed basis.
- Following point-to-point tests and instrumentation commissioning/calibration which is to be performed by the Contractor, participate in I/O and Loop Testing. Provide I/O and Loop Testing forms to be signed off by the Contractor, Owner and System Integrator and witnessed by the CM team. Verify the proper display and control of each loop from the HMI.

- Following successful I/O and Loop Tests, submit the resulting forms as part of the O&M Manual.

### **Commissioning and Startup of the Controls System**

Following successful I/O and Loop Testing, components of the Control System may be started up and commissioned as required by the Plant Expansion Contract Documents. This subtask includes the following:

- The System Integrator shall be on site for commissioning activities and shall coordinate with the Contractor the scheduling of the activities.
- Following commissioning, the System Integrator shall be available to provide support if issues arise.

### **Control System Training**

To appropriately conclude the work, provide System Training for the Control System.

#### **System Training**

This subtask includes the following:

- Utilizing the O&M documents provided, provide 16 hours of training to the plant staff. The training shall be broken up into the following sessions as a minimum:
  - SCADA System Documentation –P&ID's, PLC Drawings, Loop Drawings and Loop Descriptions.
  - PLC System Hardware and Software –Hardware associated with the PLC Panels and their functions. The PLC programming software shall be demonstrated.
  - HMI System Hardware and Software –Hardware and software components of the HMI System.
  - SCADA System Maintenance –Maintaining the SCADA System over time.

## **Cost Breakdown**

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### **Compensation**

Based on the scope of service described, we have developed a fee of \$344,800. See below for a detailed breakdown of fees and associated tasks. SKM will submit progress invoices monthly.

### **Cost Breakdown**

This project will be performed on a time and materials basis in accordance with the scope of work described above for the associated tasks. Any additions or variations to the work are subject to additional costs. The cost breakdown is associated with the tasks described above and with the following rates:

Project Manager/Principal: \$215 per Hour  
 Electrical Engineer: \$175 per Hour  
 Controls Engineer: \$170 per Hour  
 Senior Designer/Drafter: \$135 per Hour  
 Clerical: \$95 per Hour

Description	Unit	Estimated Quantity	Estimated Total Cost
<b>Task 100 – Project Management</b>			
Project Manger	Hour	70	\$15,050
Electrical Engineer	Hour	120	\$21,000
Controls Engineer	Hour	-	\$
Senior Designer	Hour	-	\$
Clerical	Hour	40	\$3,800
Expenses	Lump Sum	-	\$4,000
Subtotal for Task 100 – Project Management			\$43,850
<b>Task 200 – Design Scope of Services</b>			
Project Manger	Hour	110	\$23,650
Electrical Engineer	Hour	200	\$35,000
Controls Engineer	Hour	50	\$8,500
Senior Designer	Hour	320	\$43,200
Clerical	Hour	60	\$5,700
Expenses	Lump Sum	-	\$4,500
Subtotal for Task 200 – Design Scope of Services			\$120,550
<b>Task 300 – Construction Phase Scope of Services</b>			
Project Manger	Hour	48	\$10,320
Electrical Engineer	Hour	64	\$11,200
Controls Engineer	Hour	24	\$4,080
Senior Designer	Hour	28	\$3,780
Clerical	Hour	16	\$1,520
Expenses	Lump Sum	-	\$2,000
Subtotal for Task 300 – Construction Phase Services			\$32,900
<b>Task 800 – SCADA System Integration</b>			
Project Manger	Hour	72	\$15,480
Electrical Engineer	Hour	80	\$14,000
Controls Engineer	Hour	296	\$50,320
Senior Designer	Hour	80	\$10,800
Clerical	Hour	20	\$1,900
Expenses	Lump Sum	-	\$55,000
Subtotal for Task 800 – SCADA System Integration			\$147,500
Estimated Total			\$344,800



**Fred L. Thalman, Architect Inc.**  
2 Pepperwood Pointe, Sandy, Utah 84092,  
Office: (801) 572-1997  
Cell: (801) 647-8043  
Email: [fltarch@xmission.com](mailto:fltarch@xmission.com)

Date: October 4, 2023

Gary Vance P.E.  
J-U-B ENGINEERS, Inc.  
392 East Winchester Street, Suite 300, Salt Lake City, UT 84107  
e [gvance@jub.com](mailto:gvance@jub.com) w [www.jub.com](http://www.jub.com)  
p 801 886 9052 c 801 750 4771

Re: Architectural Fee Proposal  
SANTAQUIN WRF EXPANSION  
1215 N Center Street  
Santaquin, Utah 84655

Dear Mr. Vance:

This letter is to serve as a proposal to provide architectural services for the above-mentioned project.

**Schedule for design:**

- Start January 2024
- Complete December 2024

**Project Scope of Services:**

1. Design meetings with engineering team as needed.
2. Provide architectural construction drawings (Revit BIM Model).
3. Provide architectural specifications (Master Spec 33 format).
4. Insurance: Professional Liability \$1,000,000. General Liability \$1,000,000
5. Stamp architectural drawings with Utah State Architectural License.
6. Bid Services- answer questions during bidding.
7. Construction services for subtask 270 Sludge Holding and Pumping building only.

**Assumptions:**

1. Building Code: IBC 2021
2. JUB shall provide Structural Revit model of new structures.
3. Stair and guard railing design layout by architecture and detailing by JUB structural engineers.
4. No onsite visits included.

**Subtask 270 Sludge Holding and Pumping Building:**

- Construction Type: II-B, Occupancy Group F-1
- 1,000 sf. TBD
- One story, slab on grade structure.
- 18 ft high CMU walls to match style and color of adjacent buildings.
- Appearance will be similar to the Reclaimed Water Pump Station building
- Sloped roof with standing seam metal to match style and color of adjacent buildings.
- 10'x14' overhead coiling door.





**Fred L. Thalman, Architect Inc.**  
2 Pepperwood Pointe, Sandy, Utah 84092,  
Office: (801) 572-1997  
Cell: (801) 647-8043  
Email: fltarch@xmission.com

- Construction services for subtask 270 Sludge Holding and Pumping building.
  - Submittal review.
  - RFI response.
  - Record drawings

**Solids Loadout Area**

**Subtask 320 - ~~Grit Removal~~, Headwork Building expansion:**

- Construction Type: II-B, Occupancy Group F-1
- 800 sf. TBD
- One story, slab on grade structure.
- 18 ft high CMU walls to match style and color of adjacent buildings.
- Appearance will be to match existing Headworks building
- Sloped roof with standing seam metal to match style and color of adjacent buildings.
- 10'x14' overhead coiling door.

**ARCHITECTURAL DESIGN SERVICES FIXED FEE BASED ON SHEET NUMBER**

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**PHASE 1**

Design Documents:

Bid Package 1: Task 270	Building drawings = 5 drawings x \$2,800/sheet =	\$14,000.00
	Details and schedules =5 drawings x \$1,500/sheet =	\$7,500.00

Bid Package 2: Task 320	Building drawings = 5 drawings x \$2,800 sheet =	\$14,000.00
	Details and schedules = 5 drawings x \$1,500/sheet =	\$7,500.00
	<b>SUB TOTAL FEE:</b>	<b>\$43,000.00</b>

**PHASE 2**

Construction services for task 270

Sludge Holding and Pumping building only: Hourly \$150/hour Not to exceed = \$4,000.00

Record Drawings for task 270	15 drawings x \$200/sheet =	\$3,000.00
	<b>SUB TOTAL FEE:</b>	<b>\$7,000.00</b>

<b>TOTAL FEE:</b>	<b>\$50,000.00</b>
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**ESTIMATED DRAWING LIST:**

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**Subtask 270 Sludge Holding and Pumping Building**

Schedules:

- A-SC- 1 Code data and egress plan
- A-SC-2 Finish, Door and Window Schedules

Details:

- GA-1 Details
- GA-2 Details
- GA-3 Details



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- A- SH-1 Floor Plan
- A- SH-2 Roof Plan
- A- SH-3 Exterior Elevation-1
- A- SH-4 Exterior Elevation-2
- A- SH-5 Building and Wall Sections

**Solids Loadout Area**

**Subtask 280 ~~Crit Removal~~ Headworks Building Expansion**

Schedules:

- A-SC- 1 Code data and egress plan
- A-SC-2 Finish, Door and Window Schedules

Details:

- GA-1 Details
- GA-2 Details
- GA-3 Details
- A- HW-1 Floor Plan
- A- HW-2 Roof Plan
- A- HW-3 Exterior Elevation-1
- A- HW-4 Exterior Elevation-2
- A- HW-5 Building and Wall Sections

I appreciate the opportunity of working with you on this project. Please let me know if there is any additional information you may need. Please feel free to call (801) 647-8043

Best Regards,

A handwritten signature in black ink, appearing to read 'Fred L. Thalman', written in a cursive style.

Fred L. Thalman, Architect

September 18, 2023

J-U-B Engineers, Inc.  
392 East Winchester Street, Suite 300  
Salt Lake City, UT 84107

Subject: Santaquin WRF Expansion – Santaquin, Utah

Attention: Gary Vance

Dear Gary:

Thank you for the opportunity to provide a proposal for the building mechanical engineering for the building HVAC design for the Santaquin WRF Expansion.

This fee proposal is based on our phone conversation and the email sent to our office. The project shall include two different buildings. The first shall be a sludge tank, pump and blower building about 30ft x 40ft requiring HVAC and some floor drains. The second shall be a small lift station building about 10ft x 10ft requiring ventilation for keeping control panels from overheating. Neither building will have any potable domestic water piped to it.

We propose to provide mechanical engineering services for the building mechanical HVAC and plumbing for a fixed fee of **\$3,600.00** (*Three-thousand six hundred dollars*).

Included in scope of work:

- Two (2) Design meetings
- HVAC design
- Plumbing design
- Drawings to be completed thru BIM360 and/or Revit
- Specifications to be Masterspec format.
- IECC energy code compliance forms
- Drawings and specifications delivered in electronic PDF format

Add \$2,400 for  
solids loadout  
building extension  
for a total of \$6,000

**Extra Services:**

- Additional or Extra Services, which may be added to this agreement by written request & after receiving approval by your office shall be charged at the following hourly rates:

Principal	\$200.00
Project Engineer	\$185.00
Designer	\$160.00
Draftsman	\$105.00
Secretary	\$80.00

### **Exclusions:**

- a. Preparation or presentation of variances with code agencies.
- b. Value engineering or changes resulting there from.
- c. Multiple copies of plans for construction use.
- d. Release of Revit files to owner or owner's agent.
- e. Detailed cost estimate.
- f. LEED design or certification.
- g. Building energy modeling.
- h. Fire protection
- i. Site Utilities
- j. Construction administration, RFI & submittal review, and record drawings.
- k. Changes in scope or significant design changes after design has begun.

### **Changes of Scope:**

- Substantial changes to the Description of the Project, or major revisions after acceptance of design development drawings, shall be subject to additional fees - either hourly rate or as negotiated.

### **Mediation:**

- All claims, counterclaims, disputes and other matters in question between the parties hereto arising out of or relating to this Agreement or breach thereof will be presented to non-binding mediation, subject to the parties agreeing to a mediator.

### **Limitation of Liability:**

- In recognition of the relative risks and benefits of the project to both the Client and the Consultant, the risks have been allocated such that the Client agrees, to the fullest extent permitted by law, to limit the liability of the Consultant to the Client for any and all claims, losses, costs, damages of any nature whatsoever or claims expenses from any cause or causes, including attorneys' fees and costs and expert witness fees and costs, so that the total aggregate liability of the Consultant to the Client shall not exceed \$3,600.00. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.

### **Standard of Care:**

- In providing services under this agreement, Olsen & Peterson Consulting Engineers shall perform with the degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality.

### **Warranty:**

- Olsen & Peterson Consulting Engineers makes no warranty, express or implied, as to its professional services rendered under this agreement.

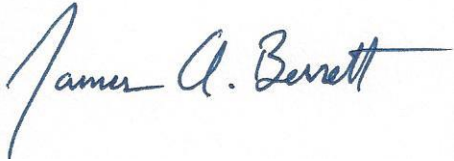
**Guarantee of Fee:**

- Olsen & Peterson Consulting Engineers guarantees this proposal for 90 days from date of proposal.

We look forward to working with you on this project. If this agreement is acceptable to you please return a signed copy to our office.

Sincerely,

Olsen & Peterson Consulting Engineers, Inc.

A handwritten signature in blue ink that reads "James A. Berrett". The signature is written in a cursive style and is positioned to the left of a vertical line that extends downwards from the end of the signature.

James A. Berrett, P.E.

ACCEPTED

By: \_\_\_\_\_ Title: \_\_\_\_\_  
*(Please Print)* *(Please Print)*

Signature: \_\_\_\_\_ Date: \_\_\_\_\_