4/21/2023

To: All Potential Respondents
From: Construction Procurement
Subject: RFQ934300-01 ASP Well #3 Pump Replacement

Request for Quote

The State of Iowa is conducting a Request for Quote for a contractor to replace the existing well #3 pump and all associated accessories excluding electrical. See Exhibit B for additional detail.

All work must be done on-site at Anamosa State Penitentiary and all personnel must pass a background check. Information required for the background check includes full name, birthdate, state driver's license # or State id#, and social security number.

The pump replacement shall be completed no later than 6/30/2023.

The Project is located at Anamosa State Penitentiary, 406 North High Street, Anamosa, Iowa 52205.

Please email your quote using the Exhibit A pricing form to construction.procurement@iowa.gov prior to Friday, May 5, 2023 at 2:00 pm (CT).

All questions regarding this solicitation must be received by email by 10:00 am (CT) ON Tuesday, May 2, 2023.

Contract Terms and Conditions

This procurement will result in a Consensus 802 Agreement. By submitting a quote, respondent agrees to the contract terms and conditions available at:
https://das.iowa.gov/sites/default/files/procurement/pdf/ConsensusDoc802.pdf

Performance Bond

Respondent must provide Performance and Payment Bonds in accordance with Section 10.8 of Consensus 802 Agreement.

Insurance Requirements:

Prior to the start of the work, the respondent shall procure and maintain in force Workers Compensation/ Employers' Liability Insurance, Business Automobile Liability Insurance, and Commercial General Liability Insurance (CGL). The CGL policy shall include coverage for liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, contractual liability, and broad form property damage. The respondent's liability policies shall be written on an occurrence basis with at least the following limits of liability:

- Workers' Compensation – amount required by the laws of Iowa
- Employers' Liability Insurance - $500,000 or an amount required by Iowa law, whichever is greater.
- Business Automobile Liability Insurance - $1,000,000 Each Accident
- Commercial General Liability Insurance:
    - $1,000,000 Each Occurrence
    - $2,000,000 General Aggregate
    - $1,000,000 Products/Completed Operations Aggregate
    - $1,000,000 Personal and Advertising Injury Limit

The respondent must also carry and maintain Excess or Umbrella Liability coverage for the policies above in the amount of $2,000,000.

The respondent shall be required to purchase and maintain liability coverage, primary to the Owner's coverage. The additional liability coverage required of the respondent shall be:

1. Owner shall be named as an additional insured on respondent's Commercial General Liability Insurance specified for operations and completed operations, but only with respect to liability for bodily injury, property damage or personal and advertising injury to the extent caused by the negligent acts or omissions of respondent, or those acting on respondent's behalf, in the performance of respondent's Work.
2. Respondent shall provide an Owners' and Contractors' Protective Liability Insurance (OCP) policy with limits equal to the limits on Commercial General Liability Insurance specified or limits as otherwise required by Owner.

See sample Certificate of Insurance attached as Exhibit D for required limits, additional insured requirements and waiver of subrogation.

Exhibit A Pricing Form
ASP Well #3 Pump Replacement
Anamosa State Penitentiary
Request for Quote RFQ934300-01

Due Friday, May 5 at 2:00 pm (CT)

Please submit this completed form with your Quote to:
Attention: Jeff Just
Iowa Department of Administrative Services - Central Procurement
construction.procurement@iowa.gov

This form is to be completed in ink or typewritten.
Only pricing on this form or an exact copy of this form will be accepted.
Pricing Form shall be signed by an officer of the firm with authority to bind Respondent to Contract.

Respondent acknowledges receipt of the following Addenda (if issued) which are part of the RFQ documents:

Addendum No. _____Date_____

Addendum No._____ Date _____

Freight Terms: FOB Destination, Freight Pre-Paid

The State reserves the right to reject any or all quotes without penalty and to waive minor deficiencies and informalities if, in the judgement of the State, it's best interests will be served.

Respondents must submit pricing for all scope of work items indicated per the attached Exhibit B. The State reserves the right to evaluate pricing. The State intends to make one Award for this project.

Pump Replacement (Labor and Material(s)) Total $_____

Alternate #1: ADD 304 Stainless Steel (Labor and Material(s)) Total $_____

Please note all pricing is to be delivered price. That is why we are stating FOB Destination, Freight Pre-Paid.

Signature _____

Name (Print) _____

Title _____

Company _____

Address _____

City, St., Zip _____

Phone #_____ **Fax #**_____

E-mail _____

Contract Signatory_____

Safety Manager_____

Exhibit B Scope of Work

ASP Well #3 Pump Replacement
Anamosa State Penitentiary
Request for Quote RFQ934300-01

Due Friday, May 5 at 2:00 pm (CT)

A. **Bid Package #01** – Well #3 Pump Replacement: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
   1. Include drawing sheets T000 and M200 titled Iowa Department of Administrative Services Anamosa State Penitentiary Well #3 Pump Replacement Iowa DAS #9343.00 dated 4/21/2023.
   2. Includes specifications titled Anamosa State Penitentiary Well #3 Pump Replacement Repairs dated 4/21/2023.
   3. Clarification: All electrical will be completed by others.

B. **Alternate #01** – 304 Stainless Steel: Trade Contractor shall include all of the following, but not limited to, as part of the contract:
   1. Include 304 stainless steel for piping material as described in the S1 exhibit in place of the base bid galvanized carbon steel piping material.

Exhibit C Facility Work Requirements

ASP Well #3 Pump Replacement
Anamosa State Penitentiary
Request for Quote RFQ934300-01

Due Friday, May 5 at 2:00 pm (CT)

Bid Scope Summary

A. Contractors shall have a copy of their own Company Safety Manual onsite and submit and electronic copy to the Construction Manager.
B. If not included in the Company Safety manual, Contractors shall submit their OSHA-required Silica Control Policy/Plan along with documentation identifying who the onsite Component Silica Control person(s) are, prior to beginning work onsite.
C. Refer to Section 01 4000-3.04 regarding inspection and testing responsibilities.
D. Each person working onsite (excluding delivery drivers) shall attend a 15-minute Penitentiary/Story safety and PREA orientation prior to site entry. The Contractor shall provide notice a minimum of one business day prior to needing orientation.
E. Coordinate with ASP and Story Construction about road closures. Notice to ASP and Story Construction is needed a minimum of 48 hours in advance.

Rules For Construction Workers

A. Contractor shall wear clothing of a different color, pattern, fashion, etc. as to distinguish themselves from inmates. It is expected that normal work clothes in good repair be worn. Shorts and red shirts are NOT permitted.
B. PREA: It is a Federal low that anyone who has sex with an Inmate will be changed with a felony. ASP has a zero-tolerance policy for any sexual abuse or sexual harassment against inmates. If an inmate tells you that he has been sexually abused or harassed, you must report this to Penitentiary staff immediately. All construction personnel must attend PREA training on the first day in which each individual begins working on this project.
C. Inmate contact: Inmates cannot be given anything, including cigarettes, candy, pop, etc. Talking to inmates permitted only if they are working on the project with you. Conversations with other inmates are not allowed.
D. Disturbances: In the event there is a disturbance or other emergency, workers will be given instructions. It is expected those instructions will be followed immediately. Work will be delayed until control is restored.
E. Compliance with IOSHA is expected at all times. The ASP safety officer shall make periodic inspections to check for violations.
F. All persons are prohibited from using products containing tobacco and/or nicotine on site. Vaping products are also prohibited.
G. Scaffolding is prohibited inside of walls. To work at heights contractor must use an aerial lift. Aerial lifts cannot be unattended at any time and need to be removed from inside of the walls every day.
H. Job trailers only allowed on the outside of the facility.
I. Vehicles can only enter during morning count at 6:30 am and must be removed during afternoon count at 3:00 pm.
J. Cell phones are not allowed inside the prison walls. A phone could be kept at the vehicle entrance bay if needed while the crew is working inside.

Exhibit D Sample Certification of Insurance

ASP Well #3 Pump Replacement
Anamosa State Penitentiary
Request for Quote RFQ934300-01

Due Friday, May 5 at 2:00 pm (CT)

SAMPLE

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): xx/xx/xxxx

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Agent's Information	
Agent's Name Agent's Address	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A: Company A (AM Best Rated A/VI or Better)	Admitted Carriers
INSURED Trade Contractor's Name Trade Contractor's Mailing Address	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS Minimum	
* A	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:	X	X	#TBD- CGL	3/1/17	3/1/18	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ $ $1,000,000 $2,000,000 $1,000,000
B	AUTOMOBILE LIABILITY [X] ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS	X	X	#TBD-AL	3/1/17	3/1/18	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	UMBRELLA LIAB [X] OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $	X	X	#TBD-UMB	3/1/17	3/1/18	EACH OCCURRENCE AGGREGATE	$ 2,000,000 $
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	X	#TBD-WC	3/1/17	3/1/18	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$500,000 $500,000 $500,000
* E	Owners Contrators Protective Liability			#TBD-OCP	3/1/17	3/1/18	*Limits equal to CGL (or) as required by owner (Note- Would be either CGL or OCP, not both)	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Additional Insured on a Primary & Non-Contributory basis (CGL;AL;UMB/Excess) in favor of : (Owner) Iowa Department of Administrative Services (DAS), Officers, Directors, Members, Consultants, Agents, and Employees.
Waiver of Subrogation (CGL;AL;WC/EL;UMB/Excess) in favor of: (Owner) Iowa Department of Administrative Services (DAS), Officers, Directors, Members, Consultants, Agents, and Employees.

Project XXXX.XX (Number varies by project)

CERTIFICATE HOLDER

Iowa Department of Administrative Services (DAS)
109 SE 13th Street
Des Moines, IA 50319

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Signature

SECTION 00 01 07
SEALS & SIGNATURES

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed **Professional Engineer** under the laws of the State of Iowa.

Signature Date

Printed or typed name Christopher J. Varo

Iowa license number 14866

My license renewal date is December 31, 2024

Pages or sheets covered by this seal:
Divisions 33

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed **Professional Engineer** under the laws of the State of Iowa.

Signature Date

Printed or typed name Brian K. Stich

Iowa license number 15620

My license renewal date is December 31, 2024

Pages or sheets covered by this seal:
Divisions 26

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TABLE OF CONTENTS

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SECTION 01 54 19
MOBILE CRANES AND DERRICKS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures and requirements related to use of mobile cranes and derricks in construction.

1.02 DEFINITIONS

A. Controlling Entity: Contractor with overall responsibility for the construction of the project.

B. Ground Safety Coordinator: Certified Safety Professional familiar with specific crane equipment, rigging and lift procedures. Coordinator shall be onsite in a supervisory role during lifting operations.

C. Critical Lift: all crane picks performed on this project shall be considered Critical Lifts.

D. Construction Work: Work for construction, alteration and/or repair, including painting and decorating.

1.03 REFERENCE STANDARDS

A. American Society of Civil Engineers; Policy Statement 424 - Crane Safety on Construction Sites.

B. OSHA Rule; 29CFR Part 1926 - Cranes and Derricks in Construction; 2010.

C. US Department of Labor; Mobile Crane Inspection Guidelines for OSHA Compliance Officers, Report written by Anthony D. Brown.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the use of mobile cranes in construction of the Work.

B. Preinstallation Meeting: Conduct a preinstallation meeting at least one week prior to the setup of mobile cranes and similar hoisting equipment; require attendance by all affected installers.

C. Project Conditions: Ensure that ground conditions are suitable for the safe operation of hoisting equipment.
   1. Review ASCE Policy Statement 424.
   2. Ensure ground conditions are sufficient to support crane equipment.
   3. Inform users and operators of the crane of hazards in the setup and operational areas.
   4. Attempt to identify potential hazards and conditions which may contribute to events leading to an accident.
   5. Install durable warning signs at the operator's station and outside of the crane.

1.05 SUBMITTALS

A. Crane Location Plan:
   1. Indicate equipment setup locations on site plan.
   2. Show safe operating areas including boom swings and rear cab and ballast radius.
   3. Show site features requiring minimum safe operating clearances.

B. Lift Plans: Prepare written lift plan for each lift; supplement with engineering submittals appropriate for critical lifts.

C. Load Charts: Indicate requirements for boom configuration and parts of line which establish crane capacity for the crane in use and the loads proposed for lifts.

D. Contractor's Policy Statement: Written statement regarding crane operation, rigging, and related safety procedures applicable to the project.

E. Operator's Qualification Statement, including written copy of NCCCO Certification.

F. Ground Safety Coordinator Qualification Statement.

G. Manufacturer's Instructions: Indicate procedures for crane assembly and disassembly, as needed.

H. Manufacturer's Check Lists: Crane inspections.

1.06 QUALITY ASSURANCE

A. Equipment Manufacturer Qualifications: Company specializing in manufacturing hoisting equipment proposed for use on this Project, with not less than ten years of documented experience.

B. Operator Qualifications: Individual certified by accredited testing organization as knowledgeable in the operation of equipment proposed for the work of this section with minimum five years of experience. Operator shall have OSHA approved NCCCO Mobile Crane Certification.

C. Copies of the appropriate Load Charts for the crane in use shall be maintained in the possession of the crane operator.

1.07 CRANE ASSEMBLY AND DISASSEMBLY

A. During crane setup, evaluate location for crane stability, physical obstructions to movement or operation, proximity to electrical power lines, and basic structural integrity of the crane components.

B. For each item of equipment and component for which the manufacturer provides a checklist (or assembly instructions or field checkout sheet), document compliance by submitting the completed checklist prior to operation, signed and dated by responsible entity. Verify that crane records of maintenance and inspection are available.

C. Submit completed checklists directly to the Controlling Entity.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Verify that necessary barricades and warning devices are properly located.

B. Verify equipment is in proper working condition.

3.02 PREPARATION

A. Locate crane within Potential Crane Location areas designated on Drawing T000.

B. Distribute weight of crane not to exceed limits regarding underground utilities.

C. Provide fall protection system (body harness and lanyards) for riggers and other employees exposed to serious or fatal injuries resulting from falls from a height of six feet or more. 100 percent tie-off (double lanyard) is required.

D. Accessible areas within the swing radius of a crane must be barricaded to prevent workers from being struck or crushed by crane.

3.03 CRANE OPERATIONS

A. Provide hoisting, rigging, and final placement of material and equipment required to construct the Work in accordance with the contract documents.

B. Comply with safety guidelines included in 29 CFR 1926.

C. Interface with Other Work:
   1. Prevent damage to existing building structure and surfaces during lifting operations.

END OF SECTION

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SECTION 26 00 00
GENERAL PROVISIONS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work included under Division 26 shall consist of furnishing labor and materials necessary for the complete installation of electrical systems shown on the Contract Drawings and Specifications. Work shall be complete and in operating condition at the completion of Contract.

B. Include minor items which are obviously and reasonably necessary to complete the installation and usually included in similar work even though not specifically mentioned in the Contract Documents.

C. Deviations due to particular manufacturer's requirements shall be provided at no additional cost.

D. Arrange with appropriate utility companies to provide temporary and permanent utility services as required and coordinate their installation with construction progress of this project. Coordinate requirements with each utility and provide components necessary for a complete and proper installation.

E. Where material quantities are shown, they are for convenience of Contractor only. Contractor shall be responsible to verify quantities.

F. Coordinate removal and/or replacement of low voltage systems with project phasing.

1.02 REFERENCE STANDARDS

A. Material and workmanship to comply with applicable codes. As a minimum include State and Federal laws, local ordinances, Utility Company regulations and requirements and interpretations of the following by the local authority having jurisdiction:
   1. State Building Codes.
   2. State Fire Codes.
   3. National Electrical Code.
   4. State Electric Codes.
   5. OSHA Regulations.

B. If drawings and specifications are in conflict with these codes, notify Engineer prior to rough-in.

C. The following is list of organizations and their abbreviations where referred to in the specifications as standards of construction:
   1. ANSI - American National Standards Institute
   2. ASHRAE – American Society of Heating, Refrigeration and Air Conditioning Engineers
   3. ADA – Americans with Disabilities Act
   4. ASTM – American Society for Testing and Materials
   5. FM – Factory Mutual
   6. IRI – Industrial Risk Institute
   7. IEEE – Institute of Electrical and Electronic Engineers
   8. NBFU – National Board of Fire Underwriters
   9. NBS – National Bureau of Standards
   10. NEC – National Electrical Code
   11. NEMA – National electrical Manufacturers Association

12. NFPA – National Fire Protection Agency
13. OSHA – Occupational Safety and Health Administration
14. UL – Underwriters' Laboratories, Inc.
15. Uniform Federal Accessibility Standards
16. State Board of Health

1.03 DEFINITIONS

A. Terms listed below are defined as follows:
   1. Furnish: Obtain, coordinate, deliver to the job site and guarantee.
   2. Install: Furnished by others, receive on site, unload, store, set in place, connect, place in operation and guarantee workmanship of installation.
   3. Provide: Furnish and install.
   4. Connect: Bring service to the equipment and make final attachments, including necessary disconnect switches, control switches, outlets, etc.
   5. Conduit: In addition to conduit includes fittings, hangers, pullboxes, supports, etc. as required for a complete and proper installation.
   6. Concealed: Hidden from sight in walls, ceilings or floors.
   7. Exposed: Surface mounted, not hidden from site.
   8. Building Structure: Columns, beams, joists, walls. Metal decking, joist bridging shall not be used for supporting electrical equipment.
   9. Relocate: Existing equipment to be relocated to new location and existing conduit and branch circuiting (conductors) to be extended to new location and reconnected.

1.04 FIELD CONDITIONS

A. Inspection of Site: Before submitting a proposal on the Work, the Contractor and Subcontractors shall examine the site of the proposed work and thoroughly familiarize themselves with existing conditions and limitations affecting the performance of their Work. No extra compensation will be allowed because of a misunderstanding as to the amount of Work involved or lack of knowledge of existing conditions which could have been discovered or reasonable anticipated prior to bidding.

1.05 WARRANTY

A. Provide guarantee and maintain the stability of workmanship and materials and keep same in good operating condition for a period of one (1) year after substantial completion of the work as evidenced by issuance of the final certificate by the Engineer.

B. Correct defects immediately and at contractors expense those defects due to faulty workmanship or materials that arise during the above-mentioned period and make corrections to the satisfaction of the Engineer. Such reconstruction and repairs shall include damages to the finish or the building resulting from the original defect.

C. Guarantee shall not apply where other guarantees for different lengths of time are specifically called for.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 ROUGH-IN

A. Verify locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

B. Consult the Contract Documents (Drawings and Specifications) of other Divisions and other trades for correlating information and layout work so that it will not interfere with other trades. Verify dimensions and conditions; i.e., finished ceiling heights, wall elevations, sections, footing and foundation elevations, beam depths, ductwork and piping, etc. with architectural, mechanical and structural drawings. If conflicts occur such that resolution is not possible by the affected trades on the job, notify the Architect and Engineer so a resolution can be worked out. Where work must be replaced due to failure to verify conditions existing on the job, such replacement shall be accomplished at no extra cost to the Owner. This shall apply to shop fabricated Work as well as work fabricated in place.

3.02 INSTALLATION

A. Arrange for chases, slots, and openings in other building components during progress of construction to allow for electrical installation.

B. Install material and equipment in accordance with manufacturers' recommendations, instructions and current NECA and UL standards.

C. Install equipment and materials to provide required access for servicing and maintenance. Coordinate equipment location with required access panels and doors. Allow ample space for removal of parts that require replacement or servicing.

D. Coordinate the installation of required supporting devices and sleeves with structural components.

E. Coordinate with other trades before installing equipment so that conflicts will be adjusted before installation. In general, large mechanical equipment shall be given priority. Maintain, wherever practical, a minimum separation of 3" from water and waste piping and 12" from hot water and steam piping.

F. Electrical equipment, outlet boxes, etc shall not be attached or otherwise fastened to ductwork or other mechanical equipment unless noted otherwise.

G. Cutting and patching shall be performed in accordance with the provisions of the General Conditions.

H. Install systems, materials and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed in finished areas unless noted otherwise.

3.03 PROTECTION

A. Contractor shall be responsible for damage of electrical equipment or materials and shall keep clean the materials installed by him until final acceptance of the entire building by the Owner. Contractor shall touch-up equipment with chips or scratch marks.

B. When a portion of the building is to be occupied by the Owner prior to Substantial Completion of the entire Project, arrangements will be made to transfer responsibility for protection and housekeeping tasks from the Contractor to the Owner.

C. There shall be no interruptions of building systems during occupied times without prior arrangement.

3.04 CLEANING

A. Keep the premises free from the accumulations of waste materials or rubbish caused by execution of the Work. At the completion of the Work, remove rubbish, tools, scaffolding and surplus materials from and about the premises. The premises shall be “broom-cleaned” or its equivalent, unless more exactly specified. In case of dispute, the Owner may remove the rubbish and charge the cost to the Contractor as the Engineer shall determine to be just.

3.05 PAINTING

A. Refinish electrical equipment damaged during shipping or installation to its original condition. Remove rust, prime and paint per manufacturer’s recommendations for finish equal to original. Do not paint nameplates, labels, tags, stainless steel or items such as shafts, levels, handles, trim or terminal strips.

END OF SECTION

SECTION 26 05 13
COMMON MOTOR REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes general requirements for single-phase and polyphase, general-purpose, horizontal, small and medium, squirrel-cage induction motors for use on ac power systems up to 600 V and installed at equipment manufacturer's factory or shipped separately by equipment manufacturer for field installation.

1.03 COORDINATION

A. Coordinate features of motors, installed units, and accessory devices to be compatible with the following:
   1. Motor controllers.
   2. Torque, speed, and horsepower requirements of the load.
   3. Ratings and characteristics of supply circuit and required control sequence.
   4. Ambient and environmental conditions of installation location.

PART 2 PRODUCTS

2.01 GENERAL MOTOR REQUIREMENTS

A. Comply with requirements in this Section except when stricter requirements are specified in HVAC equipment schedules or Sections.

B. Comply with NEMA MG 1 unless otherwise indicated.

C. Comply with IEEE 841 for severe-duty motors.

2.02 MOTOR CHARACTERISTICS

A. Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet (1000 m) above sea level.

B. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.

2.03 POLYPHASE MOTORS

A. Description: NEMA MG 1, Design B, medium induction motor.

B. Efficiency: Premium efficiency, as defined in NEMA MG 1.

C. Service Factor: 1.15.

D. Multispeed Motors: Variable torque.
   1. For motors with 2:1 speed ratio, consequent pole, single winding.
   2. For motors with other than 2:1 speed ratio, separate winding for each speed.

E. Multispeed Motors: Separate winding for each speed.

F. Rotor: Random-wound, squirrel cage.

G. Bearings: Regreasable, shielded, antifriction ball bearings suitable for radial and thrust loading.

H. Temperature Rise: Match insulation rating.

I. Insulation: Class F.

J. Code Letter Designation:
   1. Motors 15 HP and Larger: NEMA starting Code F or Code G.
   2. Motors Smaller than 15 HP: Manufacturer's standard starting characteristic.

K. Enclosure Material: Cast iron for motor frame sizes 324T and larger; rolled steel for motor frame sizes smaller than 324T.

2.04 POLYPHASE MOTORS WITH ADDITIONAL REQUIREMENTS

A. Motors Used with Reduced-Voltage and Multispeed Controllers: Match wiring connection requirements for controller with required motor leads. Provide terminals in motor terminal box, suited to control method.

B. Motors Used with Variable Frequency Controllers:
   1. Windings: Copper magnet wire with moisture-resistant insulation varnish, designed and tested to resist transient spikes, high frequencies, and short time rise pulses produced by pulse-width modulated inverters.
   2. Energy- and Premium-Efficient Motors: Class B temperature rise; Class F insulation.
   3. Inverter-Duty Motors: Class F temperature rise; Class H insulation.
   4. Thermal Protection: Comply with NEMA MG 1 requirements for thermally protected motors.

C. Severe-Duty Motors: Comply with IEEE 841, with 1.15 minimum service factor.

2.05 SINGLE-PHASE MOTORS

A. Motors larger than 1/20 hp shall be one of the following, to suit starting torque and requirements of specific motor application:
   1. Permanent-split capacitor.
   2. Split phase.
   3. Capacitor start, inductor run.
   4. Capacitor start, capacitor run.

B. Multispeed Motors: Variable-torque, permanent-split-capacitor type.

C. Bearings: Prelubricated, antifriction ball bearings or sleeve bearings suitable for radial and thrust loading.

D. Motors 1/20 HP and Smaller: Shaded-pole type.

E. Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device shall automatically reset when motor temperature returns to normal range.

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 26 05 19
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building wires and cables rated 600 V and less.

B. Connectors, splices, and terminations rated 600 V and less.

1.02 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.03 SUBMITTAL

A. Product Data: For each type of product indicated.

1.04 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 PRODUCTS

2.01 CONDUCTORS AND CABLES

A. Acceptable Manufacturers:
1. Alcan Products Corporation; Alcan Cable Division.
2. American Insulated Wire Corp.; a Leviton Company.
3. General Cable Corporation.
4. Senator Wire & Cable Company.
5. Southwire Company.
6. Engineer Preapproved Equal.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THW, THHN-THWN.

D. Multiconductor Cable: Comply with NEMA WC 70 for cable with ground wire.

2.02 CONNECTORS AND SPLICES

A. Acceptable Manufacturers:
1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Tyco Electronics Corp.
6. Engineer Preapproved Equal.

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 EXECUTION

3.01 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper for feeders smaller than No. 4 AWG; copper or aluminum for feeders No. 4 AWG and larger. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.02 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-THWN, single conductors in raceway.

B. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-THWN, single conductors in raceway.

C. Class 1 Control Circuits: Type THHN-THWN, in raceway.

D. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.03 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

3.04 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

END OF SECTION

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 WORK INCLUDES

A. Provide a completely grounded system. Electrical equipment, conduits, supports, cabinets and panels shall be grounded in accord with NEC and as shown on the drawings.

1.02 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL:
   1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 PRODUCTS

2.01 MATERIALS

A. Equipment:
   1. All grounding clamps and devices shall be of type approved by UL.
   2. Approved Manufacturers:
      a. Thomas & Betts Co.
      b. O.Z.
      c. Burndy
      d. Approved Equal.

PART 3 EXECUTION

3.01 INSTALLATION

A. Electrical System shall be grounded. Grounding shall be in accord with NEC 250 and NEC 680. By reference herein, NEC Sections 250 and 680 shall become a part of this specification and shall be adhered to strictly.

B. All conduit, raceways, equipment, enclosures, panel housings, fixture housings, bus ducts, shall be grounded back to the service equipment location utilizing the continuous metallic conduit system as the grounding means. Discontinuity of the metallic conduit grounding system will not be acceptable.

C. All connections to motors, receptacles and equipment shall contain a separate grounding conductor bonded to the panelboard grounding bus at one end and the motor frame, receptacles, or equipment at the other end.

D. Provide a ground wire for all 120V receptacle outlet circuits.

G. All ground wires shall be run in conduit except where otherwise indicated on Drawings.

H. Color code of ground wire shall be green.

END OF SECTION

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SECTION 33 05 00
COMMON WORK RESULTS FOR UTILITIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work to be performed shall include all labor, materials, equipment, transportation, construction plant and facilities necessary to provide a complete and satisfactory system ready to use. Examine all drawings and all sections of specifications to ascertain to what extent other contracts affect work.

1.02 QUALITY ASSURANCE

A. Qualifications of Contractor:
   1. Furnish materials and equipment promptly after authorization to proceed and proceed with work in progress with contractor on project.
   2. All materials and equipment shall be new.
   3. All work shall be executed with maximum speed consistent with current accepted trade practices.
   4. Perform all work included in contract in a manner that will not cause interferences or delays to, or interfere with, progress of Contractor.

B. Requirements of regulatory agencies:
   1. Permits: Arrange and pay for all permits, inspections and utility connections required.
   2. Referenced standards:
      a. Comply with specified codes and standards. If conflict exists between codes or standards and drawings, project manual or addenda requirements, request clarification from Engineer.
      b. Conform to installation rules and regulations of standards listed including all subsequently published amendments thereto issued prior to date of bidding documents.
      c. Conform to requirements of all local, state, and federal agencies, which have authority over this project. Include all items of labor and material required to meet such requirements regardless of failure to specify in project manual or indicate on drawings each individual item.
      d. All equipment, apparatus and systems shall be rated, tested, fabricated, and installed with applicable industry standards.
      e. Applicable portions of latest editions of following standards form a part of this project manual to same force and effect as if repeated herein.
         1) American Society for Testing Materials (ASTM)
         2) American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
         3) American Society of Mechanical Engineers (ASME)
         4) American Water Works Association (AWWA)
         5) National Electrical Code (NEC)
         6) National Electric Manufacturers Association (NEMA)
         7) National Fire Protection Association (NFPA)
         8) Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)
         9) Underwriters Laboratories, Inc. (UL)
         10) Environmental Protection Agency (EPA)
         11) Department of Public Health (DPH)

1.03 WARRANTY

A. Guarantee all work including labor, material, and equipment for this project for period of one (1) year from date of acceptance by Owner.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 EXISTING CONDITIONS

A. In order to become familiar with scope of work involved, visit existing site, before submitting bid, and carefully examine existing condition in order to have full knowledge and understanding of conditions and restrictions affecting performance of work required. Include in bid all work which is reasonably inferred by contract drawings and specifications, whether specifically shown or not, as a result of existing conditions, construction, irregularities and interferences which may affect work. No additional compensation will be considered for misunderstanding conditions to be met.

B. Layout shown on drawings is necessarily diagrammatic but shall be followed as closely as other work will permit. Changes from these drawings required to make this work conform to building construction shall be made only with prior written approval of Engineer. All proposed changes shall be shown on shop drawings. All measurements shall be verified by actual observation and all work shall fit in place meeting approval of Engineer.

C. Contractor shall provide openings required in new and existing construction that may be necessary for installation of mechanical work and all patching and workmen competent in trade required, at expense of contractor shall do repairing. Contractor shall be responsible for arranging work so that minimum cutting will be required. All rubbish and excess materials involved in such cutting shall be promptly removed from site and disposed of by contractor. Cutting through floor or roof systems or load bearing walls shall be done only with prior written approval of Engineer so as to avoid damaging structural system.

D. Sequencing and Scheduling:
   1. Confer with contractor regarding location and size of pipes, equipment, ducts, openings and special architectural treatments in order that there may be no interferences between installation or progress of work of contractor on project. Order of space preference shall be as listed above.
   2. In case of interconnection of work of two or more contractors, verify at site or on shop drawings all dimensions relating to such work. All errors due to failure to so verify any such dimensions shall be promptly rectified.
   3. All line voltage wiring and final connections to complete mechanical systems shall be provided. All electrical conduit, wire, and connections relating to mechanical equipment controls and all wiring associated with starter holding coils, shall be the responsibility of Contractor unless otherwise indicated on drawings. Contractor shall be responsible for magnetic motor starters where such starters are part of control package of equipment supplied. Contractor installing starters shall coordinate starter requirements with Division 26 of specifications.

4. Items of equipment may be specified in singular however, provide and install number of items of equipment as indicated on drawings and as required for a complete system.
5. Each contractor shall provide excavating, pumping, backfilling, and compacting required for installation of their respective work as shown on drawings.
6. Equipment and devices furnished and installed by mechanical contractors, which have factory prime coat, or final surface finish shall be replaced, repaired or refinished if defective or damaged during installation.
7. Arrange all work so a minimum period of interruption or outages will occur in temporary or permanent transfer of services as required for all mechanical revisions. Not less than 48 hours notification to Owner shall be required before approval will be granted for any disruption of gas, water, or sanitary services. Outage request shall include extent of work to be done, length of outage time required, and time at which outage is to begin. No allowance will be made for extra payment as a result of scheduling “overtime” work necessary to perform before or after normal or regular working hours to accomplish work intended.
8. Submit a “Sequence of Work Schedule” in respect to all temporary and permanent utility and service cutovers after final determination. This schedule shall be submitted for approval to Engineer. Submittal shall designate priority order, service or utility affected, date of cutover, and time of day to start and finish.

3.02 CLEANING

A. Upon completion of contract all remaining materials and rubbish shall be removed from building and premises and work areas shall be left clean and free from stains, mortar, paint spots, etc.

B. All switches, controls, and safety devices shall be clearly and permanently marked with embossed or printed plates as to purpose and as to operation and shall be tested in presence of Owner's designated representative to ensure that their function and purpose is understood.

C. Upon completion of work, put systems into service maintaining responsibility for equipment during all testing operations including lubricating and turning on and off of such apparatus.

END OF SECTION

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SECTION 33 11 36
SUBMERSIBLE WELL PUMP

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submersible well pump.

1.02 PERFORMANCE REQUIREMENTS

A. Capacity: 481 GPM @489 TDH, Minimum.

1.03 SUBMITTALS

A. Product Data: Submit the following:
   1. Pump outline drawings.
   2. Certified performance curves and rated capacities of well pumps.
   3. Furnished specialties and accessories.

B. Manufacturer's installation instructions including setting drawings, templates for anchor bolts, etc.

C. Operation and Maintenance Data.

D. Record Documents: Record the following data for the well pumps.
   1. Electronic Log: Televised recording of Well #3 casing pipe.
   2. Pumping Test: Static water level, maximum safe yield, and drawdown at maximum yield.
   3. Performance test data.
   4. Alignment: Certification that well is aligned and plumb within specified tolerances.

1.04 QUALITY ASSURANCE

A. Firm specializing and licensed for installation of well pump products specified in this section.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with AWWA A100 for water supply wells.

1.05 DELIVERY AND STORAGE

A. Deliver hollow metal door and frame with packaging to provide protection during transit and job storage as recommended by the manufacturer.

B. Door frames shall be provided with steel spreader angles, temporarily attached to the bottom of both jambs, one on each side of the opening to serve as a brace during shipping and handling.

C. Inspect hollow metal work upon delivery for damage.

D. Store on blocks in vertical position indoors and protect from damage.

E. Store in accordance with NAAMM HMMA 840.

1.06 WARRANTY

A. Manufacturer's Warranty: Warrant products to be free of defects in workmanship or material for a period of five years. Contractor will correct such defects by suitable repair or replacement at Contractor’s discretion.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. ITT – Goulds Pump model 7CSHC.

B. Engineer Approved Equal.

2.02 SUBMERSIBLE WELL PUMPS

A. Description: Submersible, vertical-turbine well pump complying with HI 2.1-2.2 and HI 2.3; with the following features:
   1. Impeller Material: Stainless Steel.
   2. Motor: Capable of continuous operation under water, with protected submersible power cable.
   3. Drop Pipe:
      a. Base Bid: Galvanized Steel. Refer to G1 Piping Specification in Exhibits.
      b. Alternate 1: 304 Stainless Steel. Refer to S1 Piping Specification in Exhibits.
      c. Ends: Threaded and Coupled (T&C) with XHY couplings.
   4. Fittings as necessary.

B. Capacities and Characteristics:
   1. Capacity: As scheduled.
   2. Discharge Head: As scheduled.
   3. Discharge Connection: 6”
   4. Motor Horsepower: 100 HP
   5. Motor Speed: 3,600 RPM
   6. Electrical: 480V, 3 PH, 60 Hz

2.03 MOTORS

A. General requirements for motors are specified in Section 26 05 13 - Common Motor Requirements.
   1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
   2. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in electrical Sections.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to replacement of Well #3 pump, televise and electronically record the existing condition of Well #3 casing pipe in its entirety for visual inspection and to identify potential issues.

3.02 INSTALLATION

A. Install submersible well pump according to HI 2.1-2.4.
   1. Before lowering permanent pump into well, start pump to verify correct rotation.
   2. Securely tighten discharge piping joints.
   3. Connect motor to submersible pump and locate near well bottom.
      a. Connect power cable while connection points are dry and undamaged.

b. Do not damage power cable during installation; use cable clamps that do not have sharp edges.
c. Install water-sealed surface plate that will support pump and piping.

3.03 CONNECTIONS

A. Connect piping between well pump, discharge elbow, and water piping.

B. Ground equipment according to Section 26 05 26 – Grounding and Bonding for Electrical Systems.

C. Connect wiring according to Section 26 05 19 – Low-Voltage Electrical Power Conductors and Cables.

3.04 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:
1. Plumbness and Alignment Testing: Comply with AWWA A100.
2. Performance Test Preparation: Start well pump and adjust controls and pressure setting. Replace damaged and malfunctioning controls and equipment.
3. Performance Testing: Conduct final pumping tests after wells have been constructed, cleaned, and tested for plumbness and alignment.
   a. Arrange to conduct tests, with seven days' advance notice, after test pump and auxiliary equipment have been installed. Note water-level elevations referred to for each assigned datum in wells.
   b. Provide discharge piping to conduct water to locations where disposal will not create a nuisance or endanger adjacent property. Comply with requirements of authorities having jurisdiction.
   c. Provide and maintain equipment of adequate size and type for measuring flow of water, such as weir box, orifice, or water meter.
   d. Measure elevation to water level in wells.
   e. Test Pump: Variable capacity test pump with capacity equal to maximum expected yields at pressure equal to drawdown in wells, plus losses in pump columns and discharge pipes.
   f. Start and adjust test pumps and equipment to required pumping rates.
   g. Record readings of water levels in wells and pumping rates at 30-minute maximum intervals throughout 24-hour minimum period.
   h. Record maximum yields when drawdown is 60-inches above top of suction screens after designated times.
      1) Operate pumping units continuously for 8-hours after maximum drawdown is reached.
   i. Record returning water levels in wells and plot curves of well recovery rates.
   j. Remove sand, stones, and other foreign materials that may become deposited in wells after completing final tests.

C. Water Analysis Testing:
1. Engage a qualified testing agency to make bacteriological, physical, and chemical analyses of water from each finished well and report the results. Make analyses according to requirements of authorities having jurisdiction.
2. Analyze water sample from each finished well for bacteriological, physical, and chemical quality and report the results. Make analyses according to requirements of authorities having jurisdiction.

3.05 CLEANING AND DISINFECTION

A. Prior to starting work, verify system is complete, flushed, and clean.

B. Disinfect water supply wells according to AWWA A100 and AWWA C654 before testing well pumps.

C. Follow water supply well disinfection procedures required by authorities having jurisdiction before testing well pumps.
   1. Ensure Ph of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
   2. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
   3. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
   4. Maintain disinfectant in system for 24 hours.
   5. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
   6. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

D. Take samples no sooner than 24 hours after final flushing, from 2 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

3.06 PROTECTION

A. Water Quality Protection: Prevent well contamination, including undesirable physical and chemical characteristics.

B. Provide casings, seals, sterilizing agents, and other materials to eliminate contamination; shut off contaminated water.

C. Exercise care to prevent breakdown or collapse of strata overlaying that from which water is to be drawn.

D. Protect water supply wells to prevent tampering and introducing foreign matter. Retain temporary well cap until installation is complete.

END OF SECTION

SECTION 33 56 17
PUMP STARTUP / CHECKOUT FORM

KFI Engineers
221 3rd Avenue SE, Suite 100
Cedar Rapids, IA 52401

Phone: 319-284-3005
Fax: 651-771-0878
E-Mail:

Project:	**ASP WELL #3 PUMP REPLACEMENT**	**Equipment ID:**	**WELL #3**
KFI Job #:	**23-0208**	**Estimated Age:**	**NEW**
Date:		**Area Served:**	**ASP**
Building:	**WELL #3**	**Equip. Location:**	**WELL #3 BUILDING**

SYSTEM	PUMP
MAKE	
MODEL NO.	
SERIAL NO.	
CAPACITY (GPM)	
MOTOR HP	
GEARBOX MODEL / SN	

ADDITIONAL EQUIPMENT INFORMATION:

THE FOLLOWING ARE MINIMUM REQUIREMENTS FOR UNIT START UP ONLY AND DO NOT RELIEVE THE CONTRACTOR OF ANY ADDITIONAL RESPONSIBILITIES OR REQUIREMENTS OF THE SPECIFICATIONS. UNIT START-UP DOES NOT MEAN THE UNIT IS READY TO BE PLACED INTO SERVICE.

REQUIREMENTS	COMPLETION DATE	CONTRACTOR & INITIALS		Cx AUTHORITY VERIFIED / DATE	
Motor rotation is verified and accurate					
Manual pressure and temperature indicators are installed and operational					
Drop piping and discharge piping are complete.					
Discharge piping are independently supported near the pump and properly aligned so no strain is transmitted to pump.					
Pipe pressure testing is complete	N/A				
VFD factory start-up is complete (if applicable) and start- up procedure documentation attached	N/A				
Piping system has been flushed, all strainers cleaned, and any start-up strainers installed					
Pump base plate is secure & grouting complete	N/A				
All air is purged from system (Piping, Pump Casing, and Mechanical Seal)					
All valve positions are correct					

The nominal motor power must not exceed the pump's allowed maximum capacity (compare rating plates of motor and pump)					
Check pump alignment					
Attach coupling projection	N/A				
Pump gear box filled to correct level	N/A				
Pump gear box vent plug removed (if necessary)	N/A				
Pump seal chamber filled to correct level	N/A				
Pump seal pot filled to correct level	N/A				
Motor or geared motor greased and oil checked	N/A				
Local disconnect and/or stop/start installed and accessible.					

PERFORMANCE READINGS	**SINGLE PUMP IN OPERATION**	**MULTIPLE PUMP IN OPERATION**
Pump Discharge Pressure		
Suction Header Pressure or Suction Tank Level	N/A	
Motor Operating Amps		
Motor Nameplate Full Load Amp		
Pumped Flow Rate (if available)		
Gearbox & Pump Housing Operating Temperature	N/A	

COMMENTS

NOTES
Throttling must not be done with the suction valve. – N/A
Never shut off the pump with the suction valve. – N/A
Pump must never run dry or steam blown through the pump.
Never deadhead the pump.
The pump motor unit must run vibration free.
Temperature of roller bearings must not exceed tolerated limit.

SCHEDULED DATE: _____ **ACTUAL START UP DATE:** _____

KFI TEST IS COMPLETE/ACCEPTABLE

NAME: _____

DATE: _____

OWNER TEST IS COMPLETE/ACCEPTABLE

NAME: _____

DATE: _____

KFI ENGINEERS

ANAMOSA STATE PENITENTIARY
WELL #3 PUMP REPLACEMENT
G1

EXHIBIT (BASE BID)

KFI Project No. 23-0208

APRIL 2023

PIPING SPECIFICATION FOR GALVANIZED CARBON STEEL	Class 150 FF Galvanized Carbon Steel	Service:
Maximum Pressure: 150 PSIG		See line service designation sheet.
Maximum Temperature: 200° F		Lines falling within the pressure and temperature conditions of this spec

Item	Size	Ends	ASTM Mat'l	Grade	Sch. or Rating	ANSI MSS	Description
Pipe	4" & smaller	T&C	A53	B	40	B36.10	Hot Dipped Galvinized Type F Furnace Buttwelded pipe
	6" & larger	T&C	A53	B	STD	B36.10	Hot Dipped Galvinized Type E Elec. Res. Welded pipe
	NOTES: 1. Field-threaded pipe shall be cleaned of all cutting oil, cutting debri, and all bare metal shall be coated with Zinc-rich cold galvanizing coating, Galvax or equal. 2. All welded pre-fabricated piping shall be hot-dipped galvanized.						
Fittings	4" & smaller	SCRD	A197		300	B16.3	Malleable Iron, Hot Dipped Galvanized, for Temperatures Below 90° F
	4" & smaller	SCRD	A126	B	250	B16.4	Cast Iron, Galvanized, for Temperatures Above 90° F
	6" & larger	Flanged	A47	32510	300	C606	Malleable Iron, Hot Dipped Galvinized, Victaulic or approved equal
Flanges	1/2" & larger	SCRD	A105	II	150	B16.5	FF, Forged Steel
	NOTE: Grooved end flanges may be submitted for engineer's approval. Victaulic or equal.						
Unions	2" & smaller	SCRD	A197		300	B16.39	Malleable Iron, Galvanized, Ground Joint, Iron to Brass Seat
	6" & larger	Grooved	A536	65-45-12	300		Coupling, Galvinized Victaulic Style 77 or approved equal
	NOTES: 1. Use BUTYL-H Rubber Seat Gasket 2. Dielectric Unions or Flange Kits Shall be Installed Where Dissimilar Metals are Joined						
Valve Components							
Ball	2" & smaller	SCRD	B62	CA-836	150	B2.1	Apollo 82LF-104-01 or approved equal, bronze body, 316SS trim
	2 1/2" & larger	Flanged	A126	B	175	B16.10	Cast Semi-Steel, Jamesbury 6150-11-2136-IT
	NOTE: Furnish wrench for Sizes 3" and smaller, Furnish Gear Operator for Sizes 4" and larger.						
Globe	2" & smaller	SCRD	B62	C83600	150	MSS-SP-80	Crane 7-TF or approved equal, bronze body, bronze trim
	2 1/2" & larger	Flanged	A126	B	125	B16.10	FF, Crane 351 or approved equal, Cast Iron Body, bronze trim
Check	2" & smaller	SCRD	B62	C83600	150	MSS-SP-80	Swing Check, Crane 137 or approved equal, bronze body, bronze trim
	2 1/2" & larger	Flanged	A126	B	125	B16.10	FF, Swing Check, Crane 373 or approved equal, Cast Iron Body, bronze trim
Valve Trim	Reference valve figure number described for specific valve type.						
Valve Packing	Reference valve figure number described for specific valve type.						
Instrument Piping Connections	Thermowell				3/4" Threadolet		
	Pressure Gauge				1/2", with valve		
	Pressure Connection w/diaphragm seal				1" for PI/PT w/diaphragm seal		
Plugs	Forged round head plug, Class 3000, NPT, ASTM A105 Gr II, ANSI B16.11, galvinized						
Gaskets	1/2" & larger	Class 150 Garlock Gylon® Style 3545 or equal, 1/8" thick, FF, w/pre-punched bolt holes.					
Bolts	Stud Bolt, ASTM A-193 Gr B7 w/2 Hvy Hex nuts ASTM A-194 Gr 2H; Lugged Butterfly valve bolts: Machine Bolt, zinc plated ASTM A325 Type 1, w/1 zinc plated Hex Nut ASTM A563 Gr C (or approved equals)						
General Notes	1. For specialty valves, such as ball valves, plug valves, hi-performance butterfly valves and orbit valves, see KFI engineering dept.						
	2. All vents, drains, and taps shall be valved. Outboard end on non-flanged valves shall be screwed (female NPT) for use of screwed plug or instrument connection.						

P = Plain, SCRD = Screwed, SMLS = Seamless, ERW = Electric Resistance Weld, B = Beveled, F = Flanged, SW = Socket Weld, SOL = Sockolet, WOL = Weldolet, TOL = Threadolet, RF = Raise Face, FF = Full Face, WN = Weldneck, SO = Slip-on, SWxSCRD = Socketweld x Screwed, T&C = Threaded & Coupled, FS = Forged Steel, PI = Pressure Indicator, PT = Pressure Transmitter

KFI ENGINEERS

ANAMOSA STATE PENITENTIARY
WELL #3 PUMP REPLACEMENT
G1

EXHIBIT
(BASE BID)

KFI Project No. 23-0208

APRIL 2023

PIPING SPECIFICATION FOR GALVANIZED CARBON STEEL	Class 150 FF Galvanized Carbon Steel	Service:
Maximum Pressure: 150 PSIG		See line service designation sheet.
Maximum Temperature: 200° F		Lines falling within the pressure and temperature conditions of this spec

Item	Size	Ends	ASTM Mat'l	Grade	Sch. or Rating	ANSI MSS	Description

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KFI ENGINEERS

WELL #3 PUMP REPLACEMENT
S1

EXHIBIT (ALTERNATE 1)

KFI Project No. 23-0208 **APRIL 2023**

PIPING SPECIFICATION FOR **304 STAINLESS STEEL** .030" Corrosion Allow Maximum Pressure: 150 PSIG Maximum Temperature: 425 F	**Class 150 RF 304L Stainless Steel**	**Service:** See line service designation sheet for services falling within the conditions of this specification.

Item	Size	Ends	ASTM Mat'l	Grade	Sch. or Rating	ANSI MSS	Description
Pipe	1/2" to 2"	Plain	A312	TP304L	40S	B36.19	SMLS and Welded
	2 1/2" to 36"	T&C	A312	TP304L	10S	B36.19	SMLS and Welded
Fittings	1 1/4" & smaller	SW or SCRD	A182	F304L	3000	B16.11	Forged, SW is preferred connection.
	1 1/2" to 2"	Beveled or SW	A403	WP304L	40S	B16.9	SW: Class 3000, Beveled: Sch 40S SMLS, or Welded
	2 1/2" to 36"	Beveled	A403	WP304L	10S	B16.9	SMLS, or Welded
Flanges	1/2" to 2"	SW, Blind	A182	F304L	150	B16.5	RF
	2 1/2" to 24"	Weldneck, Slip-on, Lap Joint, Blind	A105	II	150	B16.5	Cabon steel flange to be used with 304L stainless lap joint stub end fitting
	26" to 36"	Weldneck, Slip-on, Lap Joint, Blind	A105	II	150	B16.47	Cabon steel flange to be used with 304L stainless lap joint stub end fitting
	NOTES: 1. When attaching to equipment mating pipe connection shall match equipment. RF to RF, FF to FF, SCRD to SCRD, etc. Required gasket to match flange connection. 2. When flange connection is at beveled fitting use weldneck or lap joint flange. (tee, reducer, elbow, weldolet, etc.) 3. Flange bore is to match adjoining pipe schedule. 4. Threaded flanges only to be used with engineering approval for 3" and smaller 5. Slip-on flanges to be double welded. Weld flange on ID at flange face and on OD of pipe on backside of flange.							
Unions	1 1/2" & smaller	SW	A182	F304L	3000	B16.11	Forged, with integral seat
	2" & larger						Not Accepted
Orifice Flanges	1 1/2" to 36"	Weldneck	A182	F304L	300	B36.16	RF, weldneck flange bore to match adjoining pipe - taps 1/2" SW or SCRD
Branch Connections	1 1/4" & smaller	Sockolet or Threadolet	A182	F304L	3000	SP-97	Socketweld is preferred, Bonney Forge or equal
	1 1/2" to 2"	Weldolet or Sockolet	A182	F304L	40S / 3000	SP-97	Bonney Forge or equal
	2 1/2" to 36"	Weldolet	A182	F304L	10S	SP-97	Bonney Forge or equal
	NOTES: 1. Use tee when branch connection is same size as header. Use reducing tee or line size tee with reducer for branch connection when branch is one size smaller header. When branch connection is two sizes smaller or less use WOL or SOL as size requires. Welded connections preferred. Minimum branch connection 3/4" (does not apply to instrument connections). 2. Saddle welding branch connections smaller than main is acceptable, per ASME B31.3 req's, with KFI Engineering Approval						
Nipples	1" & smaller	Plain and Screwed	A312	TP304L	40S	B36.19	SMLS, Welded connection preferred.
	NOTE: Screwed connections when required for connection to threaded equipment, valves, instrumentation, etc. All other connection welded.						
Swages	1/2" to 2"	Plain	A312	TP304L	40S	B36.19	SMLS, match ends to pipe schedule
	1/2" to 1 1/2"	Screwed	A312	TP304L	40S	B36.19	SMLS, match ends to pipe schedule
	NOTE: Screwed connections when required for connection to threaded equipment, valves, instrumentation, etc. All other connection welded.						

KFI ENGINEERS

WELL #3 PUMP REPLACEMENT
S1

EXHIBIT (ALTERNATE 1)

KFI Project No. 23-0208 **APRIL 2023**

PIPING SPECIFICATION FOR **304 STAINLESS STEEL** .030" Corrosion Allow Maximum Pressure: 150 PSIG Maximum Temperature: 425 F	**Class 150 RF 304L Stainless Steel**	**Service:** See line service designation sheet for services falling within the conditions of this specification.

Item	Size	Ends	ASTM Mat'l	Grade	Sch. or Rating	ANSI MSS	Description
Valve Components							
Ball	1 1/2", 1" & smaller	SW, SWxSCRD	A351	CF8M	1500	B16.34	304L SS, SW: Velan W-T1813-SSEA or approved equal, SWxSCRD: Velan C-K1813-SSEA or approved equal (Modified PTFE Seats & Fire Safe)
	1 1/4"	SW or SCRD	A351	CF8M	1000	B16.34	SW: Velan W-K1813-SSGA; SCRD: S-K1813-SSGA (Glass-Reinforced PTFE Seats, 316SS Trim) SW is preferred connection, Full port vlaves required.
	2" to 12"	Flanged, RF	A351	CF8M	150	B16.34	316 SS, Jamesbury 9150-31-3636XTZ or approved equal. (Fire-Tight)
	NOTES: 1. SWxSCRD valves intended use is drains, high point vents, instrument connection. 2. Provide gear operator ball valves 8" or larger.						
Gate	1 1/2" & smaller	SW, SWxSCRD	A351	CF3	600	B16.34	304L SS, SW: Velan W-2064C-12SY or approved equal, SWxSCRD: Velan C-2064C-12SY or approved equal (Packing: Teflon V-rings)
	2" to 24"	Flanged, RF	A351	CF8M	150	B16.34	316 SS, Crane 47L-8M or approved equal.
	NOTES: 1. SWxSCRD valves intended use is drains, high point vents, instrument connections only. 2. Provide gear operator on gate valves 12" and larger.						
Butterfly	3" to 24"	Lug, RF	A351	CF8M	150	B16.34	Jamesbury 815L-113600XZ or approved equal. 316 SS body & trim, Carbon-filled PTFE seat/seal (Extreme packing)
	NOTE: Provide gear operator on butterfly valves 8" and larger.						
Globe	1-1/4" & smaller	SW	A351	CF8M	800	B16.34	316 SS, Walworth 5528SW, full port or approved equal. 316/316L trim.
	1 1/2" to 12"	Flanged, RF	A351	CF3	150	B16.34	304L SS, Velan F-0074C-12MY or approved equal.
Check	1-1/4" & smaller	SW	A351	CF8M	800	B16.34	316 SS, SW Vogt SW718-F8M or approved equal. 316 SS trim
	1 1/2" to 12"	Flanged, RF	A351	CF8M	150	B16.34	316 SS, Velan F-0114C-13SX or approved equal., swing check, 316 trim
	14" to 36"	Wafer	A351	CF8M	150	B16.34	Ritepro Model SA40, 304SS seat, Viton O-Rings, external spring & Lever, or approved equal
Strainers	1-1/4" & smaller	SW	A351	CF8M	800	B16.34	316 SS, Titan YS80S-SS or approved equal, Y-type, 1/16" perferation screen
	1 1/2" to 3"	Flanged, RF	A351	CF8M	150	B16.34	Titan YS61-SS or approved equal, Y-type, Screen: 1/16" perforation
	4" to 12"	Flanged, RF	A351	CF8M	150	B16.34	Titan BS85-SS or approved equal, Basket Type, Screen: 1/8" perforation
	NOTE: 1. Nipple and valve with screwed plug sized to match strainer bottom blowdown tap shall be installed at all strainers.						
Knife Gate	2" to 24"	Flanged, RF	A351	CF8M	150	B16.34	Keckley 2KGV-34-PUM, 304 SS, gear operated, uni-directional or approved equal. Only to be used with KFI Engineering Department approval.

KFI ENGINEERS

WELL #3 PUMP REPLACEMENT
S1

EXHIBIT (ALTERNATE 1)

KFI Project No. 23-0208

APRIL 2023

PIPING SPECIFICATION FOR **304 STAINLESS STEEL** .030" Corrosion Allow Maximum Pressure: 150 PSIG Maximum Temperature: 425 F	**Class 150 RF 304L Stainless Steel**	**Service:** See line service designation sheet for services falling within the conditions of this specification.

Item	Size	Ends	ASTM Mat'l	Grade	Sch. or Rating	ANSI MSS	Description
Valve Trim	Reference valve figure number described for specific valve type for this specification.						
Valve Packing	Reference valve figure number described for specific valve type for this specification.						
Instrument Piping Connections	Thermowell				3/4" Threadolet		
	Pressure Gauge				1/2", Preferred connection SOL-plain nipple-SWxSCRD valve		
	Pressure Connection w/diaphragm seal				1" SW or SCRD for PI/PT w/diaphragm seal		
	Orifice Taps				1/2" SW or SCRD		
Plugs	Forged round head plug, Class 3000, NPT, ASTM A182 F304L, ANSI B16.11.						
Gaskets	36" & smaller	Class 150 Garlock Gylon® Style 3545 or equal, 1/8" thick, RF for chemical services; Class 150 spiral wound Type 304 w/ flexible graphite filler, 1/8" centering ring, Garlock Flexseal RW or equal.					
	Orifice Flanges	Class 300 Garlock Gylon® Style 3545 or equal, 1/8" thick, RF for chemical services; Class 300 spiral wound Type 304 w/ flexible graphite filler, 1/8" centering ring, Garlock Flexseal RW or equal.					
Bolts	Stud Bolt, ASTM A-193 Gr B7 w/2 Hvy Hex nuts ASTM A-194 Gr 2H; Lugged Butterfly valve bolts: ASTM A193 B7; Machine Bolt, ASTM A193 Gr B7, w/1 Hex Nut ASTM A194 Gr 2H (or approved equals)						
GENERAL NOTES	1. When attaching to equipment mating pipe connection shall match equipment. RF to RF, FF to FF, SCRD to SCRD, etc. Match gasket to flange connection. (When necessary to mate RF to FF use RF gasket.)						
	2. For specialty items see KFI engineering department.						
	3. All vents, drains, and taps should be valved with socket weld construction between the branch connection and the valve with SWxSCRD valves. Use SCRD outboard end to allow use of screwed round head plug or instrument (PI) connection.						

P = Plain, SCRD = Screwed, SMLS = Seamless, ERW = Electric Resistance Weld, B = Beveled, F = Flanged, SW = Socket Weld, SOL = Sockolet, WOL = Weldolet, TOL = Threadolet, RF = Raise Face, FF = Full Face, WN = Weldneck, SO = Slip-on, SWxSCRD = Socketweld x Screwed, T&C = Threaded & Coupled, FS = Forged Steel, PI = Pressure Indicator, PT = Pressure Transmitter

KFI ENGINEERS

WELL #3 PUMP REPLACEMENT
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EXHIBIT (ALTERNATE 1)

KFI Project No. 23-0208

APRIL 2023

PIPING SPECIFICATION FOR		**Service:**
304 STAINLESS STEEL .030" Corrosion Allow	**Class 150 RF 304L Stainless Steel**	See line service designation sheet for services falling within the conditions of this specification.
Maximum Pressure: 150 PSIG		
Maximum Temperature: 425 F		

Item	Size	Ends	ASTM Mat'l	Grade	Sch. or Rating	ANSI MSS	Description

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