United States
Department of
Agriculture

Forest Service

Black Hills
National Forest

March 2026

Tepee Work Center

Well Pump Replacement

Specifications

Construction Documents

SECTION 001500
LIST OF DRAWINGS AND SPECIFICATIONS

PART 1 – GENERAL

1.1 DESCRIPTION

A. List of Contract Specifications
   1. Index of Specifications

DIVISION 1 – GENERAL REQUIREMENTS
Section 001500 List of Drawings and Specifications
Section 010150 General Requirements
Section 010250 Definition of Contract Items and Measurements and Payments

DIVISION 26 – ELECTRICAL
Section 260050 Electrical Materials and Methods

DIVISION 33 – UTILITIES
Section 331113 Potable Water Supply Wells

END OF SECTION 001500

SECTION 010150
GENERAL REQUIREMENTS

PART 1 – SUMMARY OF WORK

1.1 DESCRIPTION

A. Work for this project requires the Contractor to be responsible for supplying all labor, materials, equipment, miscellaneous items, freight, and delivery for the following:

1. Remove existing submersible well pump. Perform diagnostics.
2. Provide and install new 5HP submersible pump and controls. Connect to existing pumphouse.

B. This work shall be performed by a South Dakota licensed well driller or well pump installer in accordance with South Dakota 46-6-9.2.

C. The work is identified in Division 1, Section 010250: Definition of Contract Items and Measurement and Payment.

1.2 LOCATION

A. This project is located at the Black Hills National Forest Tepee Work Center located 19 miles west of Custer, SD on US16 at 10623 Tepee Work Center Loop, Edgemont, SD 57735

1.3 GENERAL BUILDING INFORMATION

A. The Tepee Work Center Pumphouse

1. The Tepee Work Center Pumphouse is a 100 gross square foot (gsf) single level building constructed in 1992.

1.4 EXISTING WELL AND PUMP INFORMATION

A. Tepee WC well is located immediately behind the pumphouse. The well pump is currently set at 921 feet.
Manufacturer: Grundfos 10S50-48DS
Pump Motor: 5 HP 230V 3 wire
Control Box – 5 HP 230V
Installed 9/21/2020

1.5 SITE CONDITIONS AND WEATHER

A. The elevation of the site is approximately 5,138 feet above mean sea level.

B. The site generally experiences moderate snowfalls beginning in October and November and ending in March or April. The average temperature is 70 °F in July and 25° F in February. The site is accessible year-round.

1.6 USE OF PREMISES

A. Normal Working Hours: The Contractor shall observe the following schedule which determines normal and after normal working hours. Any work which falls outside the definition provided below shall be considered after normal working hours and approval by the CO shall be required.

1. Normal operating hours are 7:00 am to 5:00 pm Monday through Friday.

B. Use of Site: Confine constructions operations to immediate area of work. Do not disturb portions of Project site beyond areas in which the Work is indicated.

C. Full Government Occupancy: Except as defined in "Work Restrictions" in this section, the government will occupy the site and buildings during entire construction period. Cooperate with Government during construction operations to minimize conflicts and facilitate Government usage. Perform the Work so as not to interfere with Government access to the site and buildings or with Government's day-to-day operations.

D. Driveways and Entrances: Keep driveways, parking areas, loading areas and entrances serving premises clear and available to Government, Government's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Government.

1. Schedule deliveries to minimize use of driveways and entrances.
2. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 WORK RESTRICTIONS

A. Nonsmoking Buildings: Smoking is not permitted within the buildings or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes.

B. Do not schedule work during holidays, weekends, or between 6:00 PM to 7:00 AM without written approval from the Contracting Officer (CO).

C. Project Scheduling: Schedule work to minimize impacts to Government.

D. The CO will designate areas on the site for material storage. Confine storage of materials to areas as approved by the CO.

1.8 CONTRACTOR'S RESPONSIBILITIES

A. Provide adequate signing and take necessary safety measures to protect the public during all construction operations. Minimize disturbance of all undisturbed areas.

B. Protect trees and vegetation within project area from damage.

C. Damage to areas adjacent to and/or within the project area that are not included as an element of the project, including lawns and landscape features, shall be repaired by the Contractor at no additional cost to the Government.

D. Coordination of Trades: Coordinate construction operations included in the various sections of the Specifications to provide an efficient and orderly installation of each part of the Work. Coordinate construction operations included under different sections of the Specifications that depend on each other for proper installation, connection or operation.

E. The Contractor shall furnish all equipment, materials, and supplies to perform the tasks specified in this Contract.

F. All equipment used by the Contractor shall meet all safety requirements of this Contract.

G. The Contractor shall provide Safety Data Sheets on cleaners, fluids, etc., and these shall be kept on-site in a designated location determined by the CO.

1.9 FIELD VERIFICATION

A. Field verify all new and existing dimensions affecting the work of this contract before ordering products.

B. Contact "One-Call" at 811 prior to initiating excavation work to locate utility companies buried utilities. Additionally, obtain the services of a locating company to locate other buried utilizes including government owned utilities. Do not initiate any excavation work until utilities have been located and marked.

PART 2 – ACCIDENT PREVENTION

2.1 DESCRIPTION

A. This section consists of establishing an effective accident prevention plan and providing a safe environment for personnel and visitors. All work shall be performed in compliance with all applicable Federal, State, and Local Occupational Safety and Health regulations.

2.2 DELIVERABLE

A. Accident Prevention Plan: Before on-site work begins, submit a company approved accident prevention plan. This plan will be posted in the contract file. Design the plan to address Federal, State, and Local Occupational Safety and Health requirements that apply to this project. Notice to Proceed will not be made until the plan is received. As a minimum the plan shall include:

1. Name, position title and contact information of company executive responsible for approving the Accident Prevention Plan.
2. Name and contact information of supervisor responsible for carrying out the plan.
3. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to ensure property protection and safety of the public, government personnel, and the Contractor's employees. Identify the work included under each phase by reference to specification section or division numbers.
4. Contingency plans for emergency situations such as medical, fire, hazard material spills and other contract assessed hazard prevention and abatement requirement needs that apply to this project.

B. Certificates: Provide certificates from a mechanic that all mechanical equipment has been inspected and meets OSHA requirements.

C. Provide a copy of test reports, as required by OSHA, for personnel working with hazardous materials.

D. Upon request, provide proof of employees' qualifications to perform assigned duties in a safe manner.

2.3 ACCIDENT REPORTING

A. Accidents: Report accidents immediately to the CO and assist the CO and other officials as required in the investigation and documentation of the accident.

2.4 FIRST AID FACILITIES

A. Provide adequate facilities for the number of employees and the type of construction at the site.

2.5 PERSONNEL PROTECTIVE EQUIPMENT

A. Meet requirements of NIOSH and MSHA and ANSI, where applicable.

2.6 EMERGENCY INSTRUCTIONS

A. Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.

2.7 SAFETY MEETINGS

A. As a minimum, conduct weekly 15-minute "toolbox" safety meetings. These meetings shall be conducted by a foreman and attended by all construction personnel at the worksite.

2.8 PROTECTIVE EQUIPMENT

A. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair, as appropriate, personal items before reissuing.

B. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.

2.9 HARD HATS AND PROTECTIVE EQUIPMENT AREAS

A. Designate and post a hard hat area.

B. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary protective equipment at all times.

2.10 TRAINING

A. First Aid: Provide adequate training to ensure prompt and efficient first aid.

B. Hazardous Material: Train and instruct each employee exposed to hazardous material in safe and approved methods of handling and storage. Hazardous materials are defined as explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful substances that could cause death or injury.

PART 3 – REQUEST FOR ADDITIONAL INFORMATION

3.1 DESCRIPTION

A. This section includes administrative procedures required for contractor- provided information to be reviewed and approved by the CO.

B. This section also includes administrative procedures relating to contractor’s need for additional information

3.2 DEFINITIONS

A. Action Items: Written and graphic information that requires CO’s responsive action.

B. Informational Items: Written information that does not require CO's approval.

3.3 PROCEDURES

A. Processing Time: Allow enough time for review, including time for changes, as follows. Time for review shall commence on CO's receipt of action item. .

1. Initial Review: Allow 10 working days for initial review.
2. Allow 10 working days for processing each revision.
3. No extension of the Contract Time will be authorized because of failure to transmit requested information enough in advance of the Work to permit processing.

B. Identification: Stamp each action and information item submittal with the following information:

1. Project name.
2. Date.
3. Name and address of Contractor.
4. Name of manufacturer.
5. Unique identifier, including revision number.
6. Number and title of appropriate Specification Section.
7. Drawing number and detail references, as appropriate.
8. Other necessary identification.

C. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.

D. Additional Copies: Unless additional copies are required for final review, and unless CO observes noncompliance with provisions of the Contract Documents, initial review item may serve as final documentation.

E. Use for Construction: Use only final approved items with mark indicating action taken by CO in connection with construction.

3.4 REQUEST FOR INFORMATION (RFI)

A. Immediately on discovery of the need for additional information or interpretation of the Contract Documents, prepare and submit an RFI in electronic form.

1. RFI's submitted by entities other than the Contractor shall not be accepted.
2. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
    a. Project name and project number.
    b. Date.
    c. Name of Contractor.
    d. Name of Contracting Officer.
    e. RFI number, numbered sequentially.
    f. RFI subject.
    g. Specification Section number and title and related paragraphs, as appropriate.
    h. Drawing number and detail references, as appropriate.
    i. Field dimensions and conditions, as appropriate.
    j. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
    k. Contractor's signature.
    l. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
        1) Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
3. CO's Action: CO will review each RFI, determine action required, and respond. Allow seven (7) working days for CO's response for each RFI. RFIs received by CO after 1:00 p.m. will be considered as received the following working day.

a. CO's action may include a request for additional information, in which case CO's time for response will date from time of receipt of additional information.
b. CO's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Contracting Section "Contract Modification Procedures."
1) If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify CO in writing within 10 days of receipt of the RFI response.

4. On receipt of CO's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify CO within seven days if Contractor disagrees with response.
5. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
a. Project name.
b. Name and address of Contractor.
c. Name and address of Contracting Officer.
d. RFI number including RFIs that were dropped and not submitted.
e. RFI description.
f. Date the RFI was submitted.
g. Date CO's response was received.
h. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
i. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

B. Quality Control Documents;

1. Provide electronic Quality Control documents, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control data as required under other Sections of the Specifications.

2. Certifications: Where other Sections of the Specifications require certification that a product, material or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.

3. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in other Sections of the Specifications.

3.5 CONSTRUCTION SCHEDULE

A. General: This section includes preparation and submittal of Construction Schedules.

1. Provide two copies or one electronic pdf of each project schedule

B. Procedures:

1. Within ten calendar days after date of Notice to Proceed, submit a detailed schedule.
2. Prepare schedule to complete the Work within the contract time requirement.

C. Reviews: The government will review and return the initial Schedule and subsequent schedules with comments. If revisions are noted or required, make revisions based upon comments and return to CO for approval..

PART 4 – TEMPORARY FACILITIES AND CONTROLS

4.1 DESCRIPTION

A. This section consists of requirements for temporary facilities and controls, including utilities, support facilities, and security and protection facilities.

4.2 UTILITIES

A. Water Service: Use of Government existing water service facilities will be permitted without metering and without payment of use charges, as long as facilities are cleaned and maintained in a condition acceptable to CO. At Substantial Completion, restore these facilities to condition existing before initial use.

B. Sanitary Facilities: Use of Government sanitary facilities will not be permitted. Contractor shall provide sanitary facilities for Contractor’s employees as required by OSHA and other applicable regulations.

C. Electric Power and Lighting Service: Use of Government's existing electric power and lighting service will be permitted without metering and without payment of use charges, as long as equipment is maintained in a condition acceptable to CO.

D. Telephone Service: The Contractor is responsible for providing telephone service deemed necessary for the duration of the construction.

1. Cell phone service is generally available at the Site, however, may be limited at times. Contractor is responsible for providing appropriate telephone service.

4.3 CONSTRUCTION WASTE DISPOSAL

A. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

B. Cleanup construction debris at the completion of each day’s work. Do not use existing on-site trash receptacles for disposal or interim storage of construction debris.

C. Burning of construction debris is not allowed on lands administered by the Forest Service.

D. Dispose construction debris at an established Sanitary Landfill. Schedule disposal frequency to ensure waste containers are not overflowing.

4.4 STAGING AND SUPPORT FACILITIES

A. Staging: An area at the project site will be made available for use as a staging area. Coordinate size and location of staging area with CO prior to storing materials. Security and clean-up of staging and support facilities is the responsibility of the Contractor.

B. Storage: Confine storage of materials to storage areas. Coordinate on-site storage requirements with the CO.

C. Security: Security and clean-up of storage locations and temporary facilities is the responsibility of the Contractor.

4.5 SAFETY, FIRE PREVENTION, AND PROTECTION OF FACILITIES

A. Safety: All work performed by the Contractor shall be in compliance with OSHA regulations and other appropriate industry standards and guidelines.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

D. Fire Protection

1. Store combustible materials in containers in fire-safe locations.
2. Store all chemical in proper containers.
3. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
    a. If combustible materials cannot be removed, provide fire blankets to cover such materials.
4. All trash and waste shall be placed in dumpsters with closing lids.
5. Maintain unobstructed access to fire extinguishers, fire hydrants, fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
6. Supervise cutting and welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
7. Comply with all Red Flag Warnings issued by the National Weather Service.
8. Fire Control Devices: Provide and maintain fire extinguishers and rag buckets

for disposal of rags with combustible materials. Maintain each as suitable for the type of fire risk in each work

9. Ensure that personnel are trained in fire extinguisher use.

PART 5 – EXECUTION REQUIREMENTS

5.1 DESCRIPTION

A. This section consists of general procedural requirements governing execution of the Work.

5.2 EXAMINATION

A. Existing Conditions: Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

B. Acceptance of Conditions: Examine areas, and conditions, with Installer. Record observations.

1. Examine roughing-in for electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of substrates, surfaces and conditions.

5.3 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly.

B. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to CO. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

5.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb.
2. Make horizontal work level.
3. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
4. Conceal wiring in finished areas, unless otherwise indicated.
5. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by CO.

B. Comply with manufacturer's written instructions and recommendations for installing products.

C. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

5.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

D. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted. Legally dispose all waste off Government Lands.

5.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

5.7 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

1. Repair includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

PART 6 – OPERATIONS AND MAINTENANCE MANUALS

6.1 DESCRIPTION

A. This Section consists of administrative and procedural requirements for Operation and Maintenance (O&M) manual.

6.2 DELIVERABLES

A. Deliver two hard copy manuals and one electronic copy to CO prior to submission of final invoice.
   1. Final Invoice will not be approved for payment unless O&M Manual has been reviewed and approved by CO.

6.3 OPERATION AND MAINTENANCE MANUALS

A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

   1. Operation Data: Include emergency instructions and procedures, system and equipment descriptions, operating procedures, and sequence of operations.
   2. Maintenance Data: Include manufacturer's information, list of spare parts, maintenance procedures, maintenance and service schedules for preventive and routine maintenance, and copies of warranties and bonds.
   3. Content: Include operation and maintenance data required in individual Specification Sections and.
   4. Drawings and Diagrams:.
      a. Provide equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements
      b. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

B. Descriptions: Include the following:

   1. Product name and model number.
   2. Manufacturer's name.
   3. Equipment identification with serial number of each component.
   4. Equipment function.
   5. Operating characteristics.
   6. Well Pump performance curves.
   7. Engineering data and tests.
   8. Complete nomenclature and number of replacement parts.

C. Source Information: For each product, list name, address, and telephone number of Installer or supplier.

D. Operating Procedures: Include startup, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

E. Systems and Equipment Controls: Describe sequence of operation, and diagram controls as installed.

F. Maintenance Procedures: For each system, subsystem, and piece of equipment not part of a system, include manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, drawings and diagrams for maintenance, nomenclature of parts and components and recommended spare parts for each component part or piece of equipment.

G. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Warranty period, Commencing on Date of Substantial Completion
   a. 12 Months materials and workmanship
   b. 5 year manufacturer’s warranty

PART 7 – CLOSEOUT PROCEDURES

7.1 DESCRIPTION

A. This section consists of administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Project Record Documents.
3. Final cleaning.

7.2 SUBSTANTIAL COMPLETION

A. Definition of Substantial Completion: The Date certified by the CO when construction is sufficiently complete, in accordance with the Contract Documents, so the Government can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

B. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Submit specific warranties, workmanship bonds, final certifications, and similar
3. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and photographic negatives, and similar final record information. Deliver tools, spare parts, extra materials, and similar items to location designated by Government. Label with manufacturer's name and model number where applicable.
4. Complete startup testing of systems. Ensure full operability of well pump and associated

wiring and controls.
5. Complete final cleaning requirements, including touchup painting.
6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

C. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, CO will either proceed with inspection or notify Contractor of unfulfilled requirements. CO will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by CO, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

D. Instruction: Instruct Government personnel in operation, adjustment, and maintenance of products, equipment, and systems.

7.3 FINAL COMPLETION

A. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, CO will either proceed with inspection or notify Contractor of unfulfilled requirements. CO will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate is issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

7.4 PROJECT RECORD DOCUMENTS

A. Record Drawings (As-Built Drawings): Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints (As-Builts) to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
   a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
   b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.

7.5 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

C. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
2. Remove tools, construction equipment, machinery, and surplus material from Project site.
3. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Government property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 010150

SECTION 010250
DEFINITION OF CONTRACT ITEMS
AND MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

A. The intent of this section is to explain, in general; what is and what is not included in a contract item; the limits or cut-off points where one item ends and another begins; and method of measurements and basis of payment for work items listed in the Schedule of Items.

B. Work: Furnishing all labor, materials, equipment, and other incidentals necessary to successfully complete the project or any portion of it and carrying out all duties and obligations imposed by the contract on the Contractor.

C. Payment: For each individual item listed here and in the Schedule of Items, payment shall be full compensation for all work related to the particular item in accordance with these specifications and as shown on the drawings.

D. Measurement and payment for contract work shall be made only for and under those pay items included in the Schedule of Items. All other work and materials shall be considered incidental or as included in the payment for items shown.

1.2 UNITS OF MEASUREMENT

A. Payment shall be by units defined and determined according to U.S. Standard measure and by the following:

B. Lump Sum: Do not measure directly. The bid amount is complete payment for all work described in the contract and necessary to complete the work for that item.

PART 2 - METHOD OF MEASUREMENT

2.1 GENERAL

A. One of the following methods of measurement for determining final payment is designated on the Schedule of Items for each pay item:

B. LUMP SUM QUANTITIES (LSQ)

1. These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job. They shall be measured complete and in-place.

PART 3 – DEFINITION OF CONTRACT ITEMS

3.1 SCHEDULE OF ITEMS

A. The project Schedule of Items includes several sections to organize the contract items into Base Items and Option Items. When a pay item is described as a Base Item, the description will be the same when that item or a similar item is included as an Option Item.

B. Provide item pricing for all items listed in the Schedule of Items.

C. Contract award will be made for all Base Items.

3.2 DEFINITION OF BASE ITEMS

A. Base Item No. 1 – Remove and Replace Well Pump

1. Description of Work: This Base Item includes, but is not limited to, all preparatory work and operations necessary for the movement of personnel, equipment, supplies, bonding and incidentals to the project site; all quality control testing and quality control plan; any other work and operations that must be incurred prior to the beginning of work; and demobilization at the completion of work. This Base Item includes, but is not limited to, design and all materials, equipment, labor, and incidentals to remove and provide and install a 5 HP submersible pump and controls. The existing pump is set at 921'.
2. This item also includes accident prevention and safety plan, protection of the public, submittals, O&M manuals and as-built drawings.
3. Measurement: This item is measured as a Lump Sum quantity.
4. Payment: The contract lump sum price shown in the Schedule of Items includes all materials, equipment, labor, and incidentals required for mobilization.

END OF SECTION 010250

SECTION 260050
ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes electrical requirements and materials for a complete electrical system including the following:

1. Raceways.
2. Building wire and connectors.
3. Circuit breakers.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to Division 26 Sections.

1.3 QUALITY ASSURANCE

A. Worker's Qualifications: All electrical work shall be performed by licensed electricians or under the direct supervision of an electrician licensed in the State of South Dakota.

B. Codes and Regulations:

1. All work shall meet requirements of governing codes and regulations, NFPA 70-2020 (NEC), and NESC.
2. The electrical installation shall meet the requirements of NECA Standard of Installation, except where otherwise specified. Advise the Contracting Officer of conflicting codes or conflicts between codes and drawings and specifications.
3. When the requirements of specifications or drawings are more stringent than the codes, regulations, or standards, the specifications or drawings shall prevail.

C. UL Listing:

1. All electrical materials and equipment shall meet requirements of the applicable standards of UL if UL standards exist for such materials and equipment.
2. The UL authorized listing mark is acceptable as evidence that the materials meet this requirement.
3. Install materials and equipment only for their intended operational purpose.

D. Standard Products: Provide only new electrical equipment of current standard design.

E. Electrical Components, Devices, and Accessories: Listed and labeled under UL 467 as defined in NFPA 70.

F. UL Compliance: Applicable requirements of UL Standards Nos. 467, "Electrical Grounding and Bonding Equipment," and 869, "Electrical Service Equipment," pertaining to grounding and bonding of systems, circuits, and equipment. In addition, compliance with UL Standard 486A, "Wire Connectors."

G. IEEE Compliance: Applicable requirements and recommended installation practices of IEEE Standards pertaining to grounding and bonding of systems, circuits, and equipment.

1.4 INTENT OF CONSTRUCTION DRAWINGS

A. Electrical drawings do not attempt to show complete details of building construction that affect installation. Diagrams are schematic only and do not necessarily show physical arrangement of equipment. Refer to drawings of other trades for additional details that affect work.

B. Conduit, conductor and ground connections are shown diagrammatically only. Layout does not necessarily show total number of conduits or conductors for circuits required and should not be used for obtaining quantities for linear runs of conduits or wires. Provide additional conduits and wire wherever needed to complete installation of specific equipment furnished.

C. Changes such as offsetting conduit runs, moving outlets, or other minor changes necessary to facilitate installation shall be made at no additional expense to the Government.

1.5 SUBMITTALS

A. As specified in paragraph in Division 1 Section "General Requirements."

1. Product Data: Submit manufacturer's product literature for the following items:

a. Conduit, raceways, and fittings.
b. Wire and cable.
c. Circuit breakers.

PART 2 – PRODUCTS

2.1 RACEWAYS

A. EMT: Electrical metallic tubing; ANSI C80.3, zinc-coated steel.

1. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel compression type.

B. Bushings: Insulated type bushings designed to prevent abrasion of wires without impairing the continuity of the conduit grounding system comprised of rigid steel conduit. Provide locking type grounding bushings with a feed-through compression lug.

C. Sealing Fittings: Threaded, zinc or cadmium coated, cast or malleable iron type for steel conduits. Provide continuous drain type when fittings are used to prevent passage of water vapor.

2.1 BUILDING WIRE AND CABLE

A. Feeders and Branch Circuits: Copper, stranded conductor, 600 volt insulation, Type THW, THHN/THWN depending on application.

2.2 GROUNDING

A. Equipment Grounding Conductors: Copper, insulated with green-colored insulation. Use same type as other wires in the circuit.

B. Connectors: Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

2.3 CIRCUIT BREAKERS

A. Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents. Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Minimum interrupting rating of 10,000 amperes symmetrical at 240 volts.

2.4 ELECTRICAL IDENTIFICATION

A. Identification Device Colors: Use those prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick.

C. Tape Markers for Conductors: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Field verify circuiting arrangements and all existing conditions prior to beginning work. Beginning of removal means installer accepts existing conditions.

B. Verify that abandoned wiring and equipment serve only abandoned facilities. Maintain electrical continuity to remaining wiring and equipment.

C. Removal information is based on existing record documents. Report discrepancies to Contracting Officer before disturbing existing installation.

3.2 ELECTRICAL EQUIPMENT INSTALLATION

A. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom.

B. Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

D. Right of Way: Give to raceways and piping systems installed at a required slope.

3.3 RACEWAY APPLICATION

A. Minimum Conduit Size, unless otherwise shown or specified:

1. Homeruns: Minimum 1/2-inch.

B. Dry Locations: EMT.

3.4 RACEWAY INSTALLATION

A. Reuse existing raceways to the extent possible.

B. Install raceways in accordance with NECA “Standard of Installation” and manufacturer’s recommendations.

C. Route exposed raceways parallel and perpendicular to walls.

D. Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.

E. Run raceway plumb, level, and in a direct line, with long sweeping bends and offsets. Make changes in direction of raceway with symmetrical bends or metal fittings.

F. Keep legs of raceway bends in the same plane and keep straight legs of offsets parallel.

G. Maintain 12-inch clearance between conduit and surfaces with temperatures exceeding 104^0F.

H. Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes and cast boxes in damp and wet locations.

I. Install no more than equivalent of four 90-degree bends between boxes. Use conduit bodies to make sharp changes in direction.

3.5 WIRE AND CABLE METHODS

A. Conductor Size:

1. Meet requirements of NFPA 70 or the sizes shown on the drawings if larger. Use no wire smaller than No. 12 AWG for power and lighting circuits, and no smaller than No. 18 AWG for control wiring.
2. Use No. 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet.

B. Wire and Cable Application: Use wiring and cabling methods specified below to the extent permitted by applicable codes.

1. Exposed Interior Locations: THHN-THWN single conductors in raceway.
2. Interior, Above Accessible Ceilings: THHN-THWN single conductors in raceway.

3.6 WIRE AND CABLE INSTALLATION

A. Taps and Splices:

1. Permitted only in junction or outlet boxes.
2. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

B. Place an equal number of conductors for each phase of a circuit in same raceway or cable. Pull all conductors into a raceway at the same time.

3.7 GROUNDING

A. Install equipment-grounding conductor in feeder and branch circuits. Route to switches, receptacles, equipment enclosures, equipment, and panels. Ground as required by NEC. Terminate each ground conductor to the bushing and ground lug.

3.8 IDENTIFICATION MATERIALS AND DEVICES

A. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.

C. Wire Markers: Install at each end of each wire interconnecting between such items as control panels, sensors, and control devices. Wire markers shall correspond to control wire numbers on schematic diagrams.

END OF SECTION 26005

SECTION 331113
POTABLE WATER SUPPLY WELLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Submersible well pumps.

1.2 ACTION SUBMITTALS

A. Product Data: For each type and size of well pump.

B. Shop Drawings: For well pumps.

1. Include diagrams for power, signal, and control wiring.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. 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.

B. Comply with AWWA A100 for water supply wells.

2.2 PERFORMANCE REQUIREMENTS

A. Minimum Tested Water Supply Well Performance Capacity: 8 gpm.

2.3 SUBMERSIBLE WELL PUMPS

A. Description: Submersible, vertical-turbine well pump.

B. Standards: HI 2.1-2.2 and HI 2.3.

C. Impeller Material: Stainless steel

D. Motor: Capable of continuous operation under water, with protected submersible power cable.

E. Column Pipe: ASTM A53/A53M, Schedule 40, galvanized-steel pipe with threaded ends and cast-iron or steel threaded couplings.

F. Discharge Piping: ASTM D2239, SIDR Numbers 5.3, 7, or 9 PE pipe; made with PE compound number required to give pressure rating not less than 160 psig. Include NSF listing mark "NSF pw."

1. Insert Fittings for PE Pipe: ASTM D2609, made of PA, PP, or PVC with serrated, male insert ends matching inside of pipe. Include bands or crimp rings.

G. Capacities and Characteristics:

1. Capacity: 8 gpm
2. Discharge Head: 870 psi.
3. Discharge Size: 1.25.
4. Speed: 3480 rpm
5. Motor Horsepower: 5 HP
6. Lift: 932.
7. Pressure Rating: 870 psi
8. Volts: 230 volts
9. Phases: 1
10. Hertz: 60
11. Full-Load Amperes: 24.
12. Minimum Circuit Ampacity: 30

2.4 MOTORS

A. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 220513 "Common Motor Requirements for Plumbing Equipment."

1. Motor Sizes: Minimum size as indicated. If not indicated, large enough 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

A. Install submersible well pumps according to HI 2.4 and provide access for periodic maintenance.

1. Before lowering permanent pump into well, lower a dummy pump that is slightly longer and wider than permanent pump to determine that permanent pump can be installed. Correct alignment problems.
2. Before lowering permanent pump into well, start pump to verify correct rotation.
3. Securely tighten discharge piping joints.
4. 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.

3.2 CONNECTIONS

A. Piping installation requirements are specified in Section 221113 "Facility Water Distribution Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

1. Connect piping between well pump and water piping.
2. Connect water distribution system in trench to well pipe at pitless adapter.
3. Connect building water distribution to well pipe inside well house.

B. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
C. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Test Preparation: Clean water supply wells of foreign substances. Swab casings using alkalis, if necessary, to remove foreign substances.

B. Perform the following tests and inspections:

1. Performance Test Preparation: Start pump and adjust controls and pressure setting. Replace controls and equipment.
2. 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. Perform two bailer or air-ejection tests to determine expected yield. Test at depths with sufficient quantity of water to satisfy desired yields.
    f. 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.
    g. Start and adjust test pumps and equipment to required pumping rates.

3.4 CLEANING

A. Follow water supply well disinfection procedures required by authorities having jurisdiction before testing well pumps.

3.5 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 331113