Addendum No. 01



Date: July 11, 2024

Project Name: Storm Lake Production Well No. 22

Project location: Storm Lake, IA 50588

Project Number: 27926

The following items shall be appended to and become a part of the plans and specification for the above reference project and shall supersede any conflicting provisions of these documents.

CLARIFICATIONS

1. Petersen Aluminum Corporation (<u>www.pac-clad.com/#sle</u>) is an acceptable manufacturer for both the metal wall panels and metal roof panels.

REFER TO PROJECT MANUAL

- 1. Refer to revised Notice to Bidders
 - a. Section 3 language has been added.
- 2. Refer to revised Section 33 1113 Water Supply Wells
 - a. 2.02B.3 Joints shall be coupled.

REFER TO PLAN SHEETS

- 1. Refer to revised Plan Sheet C2-10 Existing Site & Removals
 - a. Dimension corrected.
- 2. Refer to revised Plan Sheet C3-10 Well Site Plan
 - a. Callout added for gate valve.
- 3. Refer to revised Plan Sheet C3-20 Well Section & Notes
 - a. Casing pipe, pitless unit, and screen changed to 18".

APPROVED EQUALS

- 1. Section 26 3213 Engine Generators
 - a. Kohler 300REOZJ AND KCC Series ATS are approved equals.

ATTACHMENTS

- 1. Revised Notice to Bidders
- 2. Revised Section 33 1113
- 3. Revised Plan Sheet C2-10
- 4. Revised Plan Sheet C3-10

ADDENDUM NO. 1

- 5. Revised Plan Sheet C3-20
- 6. Planholders List

End of Addendum No. 01

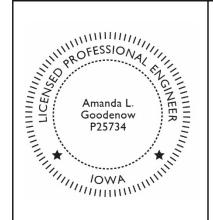
CERTIFICATIONS PAGE

FOR

CITY OF STORM LAKE PRODUCTION WELL NO. 22 CITY OF STORM LAKE

STORM LAKE, IA

PROJECT NO. 22-27926



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.

Amanda I. Goodenow

7/11/2024

Date

License Number: 25734

My License Renewal Date is 12/31/2024

Pages or sheets covered by this seal: Addendum No. 1

ISG 1725 N LAKE AVE STORM LAKE, IA 50588

END OF CERTIFICATION PAGE

NOTICE TO BIDDERS

FOR THE CONSTRUCTION OF CITY OF STORM LAKE PRODUCTION WELL NO. 22 FOR STORM LAKE, IOWA

Sealed bids will be received by the City of Storm Lake, Iowa at 620 Erie Street, Storm Lake, Iowa before 10:00 a.m. on the 30th day of July, 2024, for the construction of the City of Storm Lake Production Well No. 22 project in Storm Lake, Iowa. At the above time and place all bids received by the City will be opened and publicly read with the results being reported to the Council at their meeting on August 5, 2024, at 5:00 p.m., at 620 Erie Street, Storm Lake, Iowa, at which time and place the City may take action on the proposals submitted or at such time as may then be fixed.

The general description of types of construction and their limits for which bids will be received shall be as follows:

Base Bid

Construction of water well with stainless steel production casing, water main, well house and associated components, minor grading and seeding and all other miscellaneous components necessary to complete the project per plans and specifications.

A more detailed description of the kinds and approximate quantities of materials and types of construction for which bids will be received are set forth in the Bid Form included in the specifications prepared by I+S Group, Inc. (ISG) of Storm Lake, Iowa, which, together with the proposed form of contract, have heretofore been approved by the City, and are now on file for public examination in the office of the City Clerk and are by this reference made part hereof as though fully set out and incorporated herein.

All proposals shall be made on official proposal forms furnished by the Engineer and must be enclosed in a separate sealed envelope and plainly identified and addressed to the City of Storm Lake.

Each proposal shall be accompanied by a cashier's check or certified check drawn on a state-chartered or federally chartered bank, or a certified share draft drawn on a state-chartered or federally chartered credit union, or a bidder's bond with corporate surety satisfactory to the City in an amount equal to Ten percent (10%) of the total amount of the proposal. If bid bond is submitted, it must be in the form provided in these specifications. Said check or share draft may be cashed, or the bid bond forfeited as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within ten (10) days of issuance of a Notice of Award and post bond satisfactory to the City insuring the faithful fulfillment of the contract and maintenance of said improvements as required by law. The bid bond should be executed by a corporation authorized to contract as a surety in the State of lowa, and must not contain any conditions either in the body or as an endorsement thereon.

The successful bidder will be required to furnish a corporate surety bond in an amount equal to one hundred per cent (100%) of the contract price, said bond to be issued by a responsible surety approved by the City, and shall guarantee the faithful performance of the contract and the terms and conditions therein contained, the payment for materials used in the project and the maintenance of said improvements in good repair for not less than **two** (2) years from the time of acceptance of said improvements by the City.

The City reserves the right to defer acceptance of any proposal for a period not to exceed sixty (60) calendar days from the date of receipt of bids. The City reserves the right to reject any or all bids and to waive informalities.

Payment of the cost of said project will be made from such cash funds of the City as may be legally used for said purpose at the discretion of the City, including but not limited to, net revenues of the water department, the proceeds from the sale of Revenue or General Obligation Bonds, and/or the proceeds from the sale of warrants, as authorized by Section 384.57 of the Code of Iowa, made payable from any or all of the above-mentioned sources. This project is funded through the State Revolving Fund (SRF) Program and IEDA's Community Development Block Grant Program (CDBG).

The Contractor will be paid ninety-five per cent (95%) of the Engineer's estimate of the value of acceptable work completed at the end of the preceding month. Final payment will be made not less than thirty-one (31) days after completion of the work and acceptance by the City, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa.

No such final payment will be due until the Contractor certifies to the City that the materials, labor, and services involved in the final estimate have been paid for in accordance with the requirements stated in the specifications.

The City of Storm Lake is exempt from paying Sales and Use Tax and will supply Contractor with an "lowa Sales Tax Exemption Certificate" and an authorization letter to allow the Contractor to buy equipment and material for the project tax free.

The work on this project shall commence within ten (10) days after receipt by the contractor of a written notice to proceed. Subject to any changes in the contract period as provided for in these specifications, parts of the work must be substantially completed on or before the following milestones:

Milestone 1: June 1, 2025 – Well completed and site setup to allow owner to run well manually. The contractor shall supply all intermediate connections necessary for running well without the remainder of the site being completed.

Milestone 2: November 1, 2025 – Substantial completion of entire project. If equipment delays (such as generator or VFD) result in the contractor not being able to meet this date, the contractor shall provide all temporary equipment necessary to run well at no cost to the owner.

Work shall be completed and ready for final payment within thirty-one (31) calendar days after the completion of Milestone 2 and acceptance by the owner.

Liquidated damages in the amount of **\$500** per calendar day will be assessed for each day that the work shall remain uncompleted after the **above referenced completion date** with due allowance for extensions of the contract period due to conditions beyond control of the Contractor.

By virtue of statutory authority, a preference will be given to products and provisions grown and coal produced within the State of Iowa.

In accordance with lowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

Failure to submit a fully completed Bidder Status Form with the bid may result in the bid being deemed nonresponsive and rejected.

Plans and specifications governing the construction of the proposed improvements have been prepared by the Engineer. These plans and specifications, and the proceedings of the City referring to and defining said improvements, are hereby made a part of this Notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Copies of said plans and specifications and form of contract are now on file in the office of City Clerk of Storm Lake, IA, for examination by bidders. Copies may be obtained from ISG, 1725 North Lake Avenue, Storm Lake, IA 50588, (712) 732-7745 upon deposit of one hundred dollars (\$100.00) which shall be refunded upon return of the plans and specifications within fourteen days after award of the project. If the plans and specifications are not returned within fourteen days after award of the project and in a reusable condition, the deposit shall be forfeited. Plans and specifications may also be obtained by download from the ISG website at www.isginc.com.

Any bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Non-procurement Programs" will be prohibited from the bidding process. Anyone submitting a bid who is listed in this publication will be determined to be a non-responsive bidder in accordance with 40 CFR Part 31.

SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1965 (AS AMENDED).

A. The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted

projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

- B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 75, which implement Section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 75 regulations.
- C. The contractor agrees to post copies of a notice advising workers of the Contractor's commitments under Section 3 in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- D. The contractor agrees to provide written notice of employment and contracting opportunities to all known Section 3 Workers and Section 3 Businesses
- E. The contractor agrees to employ, to the greatest extent feasible, Section 3 workers or provide written justification to the recipient that is consistent with 24 CFR Part 75, describing why it was unable to meet minimum numerical Section 3 worker-hours goals, despite its efforts to comply with the provisions of this clause.
- F. The contractor agrees to maintain records documenting Section 3 Workers that were hired to work on previous Section 3 covered projects or activities that were retained by the contractor for subsequent Section 3 covered projects or activities.
- G. The contractor agrees to post contract and job opportunities to the Opportunity Portal and will check the Business Registry for businesses located in the project area.
- H. The contractor agrees to include compliance with Section 3 requirements in every subcontract for Section 3 projects as defined in 24 CFR part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 75. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 75.
- I. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 75 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 75.
- J. The contractor will certify that they have followed prioritization of effort in 24 CFR part 75.19 for all employment and training opportunities. The contractor will further certify that it meets or exceeds the applicable Section 3 benchmarks, defined in 24 CFR Part 75.23, and if not, shall describe in detail the qualitative efforts it has taken to pursue low- and very low-income persons for economic opportunities.
- K. Noncompliance with HUD's regulations in 24 CFR part 75 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

SECTION 3 BUSINESSES ARE ENCOURAGED TO RESPOND TO THIS PROPOSAL. A Section 3 business is one that satisfies one of the following requirements:

- 1. It is at least 51 percent owned and controlled by low- or very low-income persons.
- 2. Over 75 percent of the labor hours performed for the business over the prior three-month period are performed by Section 3 Workers,* or
- 3. It is a business at least 51 percent owned and controlled by current public housing residents or residents who currently live in Section 8-assisted housing.
- *A Section 3 Worker is defined as any worker who currently fits or when hired within the past five years fit at least one of the following categories, as documented:

- 1. The worker's income for the previous or annualized calendar year is below the applicable income limit established by HUD.
- 2. The worker is employed by a Section 3 business concern: or
- 3. The worker is a Youth Build participant.

Businesses that believe they meet the Section 3 criteria are encouraged to register as a Section 3 Business through HUD's website: https://hudapps.hud.gov/OpportunityPortal/

Published upon order of the City of Storm Lake, Iowa.

City of St	orm Lake	ATTEST:		
BY /s/	Mike Porsch	BY /s/	Keri Navratil	
	Mayor ——	City Manager		

SECTION 33 1113 WATER SUPPLY WELLS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Water Supply Well
- B. Well Pump
- C. Pitless Well Unit

1.02 RELATED REQUIREMENTS

A. Section 33 0110.58 - Disinfection and Bacterial Verification of Water Systems.

1.03 REFERENCE STANDARDS

- A. ASTM A53/A53M Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2020.
- B. ASTM A312/A312M Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes; 2021.
- C. ASTM C150/C150M Standard Specification for Portland Cement; 2021.
- D. AWWA A100 Water Wells; 2020.
- E. AWWA C200 Steel Water Pipe, 6 in. (150 mm) and Larger; 2023.
- F. AWWA C220 Stainless-Steel Pipe, 1/2 in. (13 MM) and Larger; 2017.
- G. AWWA C231 Field Welding of Stainless-Steel Water Pipe; 2017.
- H. AWWA E102 Submersible Vertical Turbine Pumps; 2017.
- I. NEMA MG 1 Motors and Generators; 2021.
- J. NSF/ANSI 61 Drinking Water System Components Health Effects; 2022.
- K. Ten State Standards Recommended Standards for Waterworks: Great Lakes Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers; 2018.
- L. Ten State Standards Recommended Standards for Waterworks: Great Lakes Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers; 2012.

1.04 SUBMITTALS

- A. See Section 01 3000 Administrative Requirements for submittal procedures.
- B. Schedule of Values
 - 1. Submit a schedule of values for Division 33 that includes the following breakdown:

Description	Unit of Measurement	Notes:
Well Water Pollution Prevention Plan (WWPPP)	Per Lump Sum	
Borehole & Casing	Per Vertical Foot	Each size and type shall be listed separately.
Borehole & Screen	Per Vertical Foot	Each size and type shall be listed separately.
Column Pipe	Per Vertical Foot	
Pitless Unit	Per Each	
Well Pump	Per Each	
Well Development	Per Hour	Submit plan to engineer outlining proposed development methods.
Well Inspection & Testing	Per Well	
Additional Chemical Treatment or Development	Per Well	If needed. Submit plan to engineer

outlining proposed treatment
and measurement method.

- C. Provide all permits, certificates, and licenses required by law for execution of work.
 - 1. Upon request, provide proof of state certification.
- D. Shop Drawings: Include data indicating well screen, gravel pack, pump, motor, column pipe, casing pipe, grout, check valve, and all special construction items.
- E. Well Design
 - Proposed diameter, length and depths of casing
 - 2. grouting mixture and placement details
- F. Well pump: dimensional data, descriptive data, performance data, pump curve data, electrical schematic diagrams, and manufacturer's installation instructions.
 - Pump curve data:
 - a. Capacity in gallons per minute
 - b. Net positive suction head (NPSH)
 - c. Total Dynamic Head in feet.
 - d. Efficiency.
 - e. Pumping horsepower
- G. Record and submit well log and sieve analysis of water bearing formation.
- H. Submit the following results to the Iowa Department of Natural Resources (Iowa DNR) and Engineer:
 - Test Pump Data
 - a. Test Pump capacity-head characteristics
 - b. Depth of test pump setting
 - c. Start and end times of each test cycle
 - d. Zone of influence for well
 - 2. A report including recordings and graphic evaluation of the following performed according to the 'Testing' section in Part 3:
 - a. Pumping rate
 - b. Water levels
 - c. Drawndown
 - d. Water recovery rate and levels
- Record all well formation data and samples in accordance with state geological agency requirements and standard procedures.
- J. Record production well information during construction:
 - 1. Record the lengths and depths of all casing and submit to the Engineer record drawings.
 - 2. Submit daily reports showing the work done during each day, the nature of the material encountered, and such other pertinent data as requested by the Engineer.
- K. Chemical Analysis
 - 1. Submit certified analysis to the Owner and Engineer.
 - 2. Information to include with the samples:
 - a. PWSID #: 1178097
 - b. Facility ID #: Request from Engineer at time of submittal
 - c. Sample Point: "New"
 - d. Sample Type: Request from Engineer at time of submittal
 - e. Local Well Name: 22
 - 3. Obtain one (1) water sample at each well site at conclusion of test pumping and provide complete chemical and radiological analysis in conformance with 567 Chapter 43 and for Chemicals and Radionuclides listed in 567 Chapter 41 of the Iowa Administrative Code including:
 - a. Inorganic Chemicals 567 Chapter 41.3
 - b. Organic Chemicals (Synthetic and Volatile) 567 Chapter 41.5
 - c. Radionuclides 567 Chapter 41.8
 - In addition, the chemical analysis shall include the following parameters.
 Ammonia pH¹

Chloride Silica as SiO2
Copper Sodium

Iron Specific Conductance¹

Lead Sulfate

Manganese Total Hardness
Calcium Total Alkalinity

Magnesium Total Organic Carbon (TOC)
Total Kjeldahl Nitrogen (TKN) Total Dissolved Solids (TDS)

Potassium Temperature

Phosphate Zinc

Total suspended solids (TSS)

Temperature¹

¹Must be done onsite during collection

- L. Submit executed certification of well pump after performance testing.
- M. Manufacturer's Installation Instructions: Indicate rigging, assembly, and installation instructions.
- N. Operation and Maintenance Data: per Section 01 7800.

1.05 WELL DESIGN

- A. Scope of Work
 - 1. Furnish all labor, materials, transportation, tools, supplies, equipment, and appurtenances to construct, develop, disinfect, and test water supply well as indicated in the Drawings.
 - 2. New water wells shall comply with AWWA A100.
 - Perform aquifer pumping test per AWWA A100.
 - Materials coming into contact with potable water supply shall meet the requirements of NSF/ANSI 61.
 - 5. Submersible well pumps shall comply with AWWA E102.
 - 6. New well shall conform to Iowa Administrative Code and Ten State Standards.
 - 7. All materials provided shall be new and unused.
- B. Design Parameters
 - 1. Well Capacity: 1200 gpm
 - 2. Specific Capacity: 15 gpm/ft
 - 3. Casing Diameter: Indicated on Drawings
 - 4. Total Depth: Indicated on Drawings
 - 5. Screen Length: Indicated on Drawings
 - 6. Target Aquifer: Dakota Aquifer

1.06 QUALITY ASSURANCE

- Contractor shall notify the Engineer a minimum of 24 hours in advance of performing the following work.
 - 1. Stringing Casing
 - 2. Grouting
 - 3. Development
- B. Work shall not be performed without informing the Engineer.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals for additional warranty requirements.

PART 2 PRODUCTS

2.01 CASING PIPE

- A. Stainless Steel
 - Stainless steel casing pipe shall conform to ASTM A778/A778M and AWWA C220.
 - Wall thickness and Weights: Per Table 1 of Ten State Standards, or as indicated in the Drawings.
 - 3. Joints: welded per AWWA C231
 - a. Welded Joints: welds shall be full-depth, full penetration, full circumferential welds

2.02 COLUMN PIPE

- A. Pipe
 - 1. Size: Indicated on Drawings
 - 2. Material: Stainless steel, ASTM A312/A312M
 - 3. Joints: coupled
- B. Check Valve, Spring-Loaded
 - Size: matching column pipe size
 - 2. Material:
 - a. Body: 316 Stainless Steel
 - b. Poppet: 316 Stainless Steel
 - c. Seat Disc: Buna-N
 - d. Stem: 316 Stainless Steel
 - e. Spring: 304 Stainless Steel
 - f. Retaining Ring: 302 Stainless Steel
 - 3. Joints: coupled
 - 4. Rating: 200 psig at 160F
 - Rated for
 - 6. Install check valve on column piping within 25 feet of the pump below the draw down level of the water supply.
 - 7. Check valves shall be installed at a maximum separation of 200 feet of column pipe.
 - 8. Preapproved Manufacturers:
 - a. Flomatic
 - b. Engineer approved equal.

2.03 WELL CONSTRUCTION

A. General

- 1. Well construction shall consist of a commercial well screen and gravel pack design.
- 2. Detailed design shall be completed by the Contractor and approved by the Engineer. Drawings provide general design parameters.
- 3. Drilling Method: Dual-rotary, direct "mud" rotary, air rotary, and reverse-circulation rotary
- 4. Circulating drilling fluid shall meet the requirements of AWWA A100 and be only clear water or drilling mud as approved by the Engineer.

B. Centralizers/Spacers/Guides

- 1. Centralizer material shall match material type to which it is connected.
- 2. Centralizers shall be installed at a minimum of every 80' in casing section and every 40' in screen (if applicable).
- 3. Centralizers shall be provided to center column pipe and casing in well per Ten State Standards.

C. Well Screen

- 1. Design: Size screen length and slot opening size required to permit the entrance of the design flow of water at a velocity of 0.1 foot per second or less through the screen. Screen designed to produce the minimum drawdown between water bearing strata and well.
- 2. Type, diameter, and size of screen opening, spacing, location of screens with respect to the water bearing formations shall be designed by the Contractor and submitted to the Engineer prior to well construction.
- 3. Combinations of different screen slot sizes may be used as required by the well conditions and Contractor design.
- 4. Sections of screen may be separated throughout zones of fine grain material by sections of Casing Pipe.
- 5. Weld all sections and connections.
- 6. Bottom of well screen shall be sealed with a minimum 0.5 inch stainless steel plate.
- 7. Material: Stainless steel
- 8. Type: Continuous slot wire wound screen
- 9. Manufacturer: Johnson Screens, or Engineer approved equal.

D. Gravel Pack

1. Gravel pack design shall be submitted to the Engineer prior to installation.

- 2. Gravel pack shall follow Ten State Standards 3.2.6.2.
- 3. Gravel pack gradation design shall be based on sieve analysis of the water bearing formation.
- 4. Size of gravel pack shall be carefully selected with reference to the character and effective size of the water bearing formation to ensure the free flow of water into the well at a non-sand carrying velocity.
- 5. Material shall be washed, well rounded particle, granitic gravel free of foreign materials.
- 6. Gravel pack shall be disinfected per AWWA A100.
- 7. Uniformity coefficient: Less than 1.7.

E. Sealing Mixture

- 1. Mix design shall be submitted to the Engineer.
- 2. Design: ASTM C150/C150M, Type 1, Portland Cement and water with maximum water-cement ratio of 0.533.
- 3. Grout shall meet Ten State Standards Section 3.2.4.9.

F. Level Indicator

- 1. Pressure Gage
 - a. Shall be brass construction, containing no lead, and suitable for water and air applications.
 - b. Rated for commercial wells and outdoor use

2.04 SUBMERSIBLE WELL PUMP

- A. General requirements
 - 1. All pumps shall be NSF/ANSI 61 certified
 - Complete pumping systems, including motor and drive, manual operator, automatic
 actuators (where indicated), piping, valves, conduit and wiring, supporting structures,
 electrical and process controls, overload protection, and alarms; capable of continuous
 operation without overheating and without excessive vibration, noise, or power
 consumption.
 - 3. Pumps shall be provided for the application indicated. Alternative pump selections are allowed. Increases in power requirements shall be coordinated with the Engineer. Contractor responsible for work associated with increasing power requirements including but not limited to VFD sizing, wiring, all appurtenant electrical work and piping.
 - 4. Each pump shall have a nameplate including manufacturer's name, address, catalog or model number, design head, and design flow rate permanently marked and readily visible.
 - 5. Pumps shall include lifting eyebolts or lugs for ease of removal and handling.

B. Pump Design Conditions

- 1. Pump Type: Vertical multistage, close coupled submersible motor
- 2. Design Conditions:
 - a. Design Flow: 1200 gallons per minute
 - b. Total Dynamic Head: 417 feet
 - c. Static Head: 373 feet
 - d. Minimum hydraulic efficiency: 75%
 - e. BEP: Design point shall be within 25% of best efficiency point
- 3. Pump Setting
 - a. Pump Setting Depth: Indicated on Drawings
 - b. Discharge Size: Indicated on Drawings
 - c. Column Pipe Size: Indicated on Drawings
 - d. Electrical cable shall be firmly attached according to Ten State Standard 3.2.7.2b.
- 4. Impeller Type: one-piece, enclosed type, statically and dynamically balanced.
- 5. Pump Control: control based on water plant calling for water.
- C. Pump Materials: Minimum acceptable requirements. Pump materials shall meet or exceed materials indicated.
 - 1. Bowl Assembly: 316 Stainless Steel.
 - 2. Impeller: 316 Stainless Steel
 - 3. Strainer: 316 Stainless Steel
 - 4. Pump Shaft: Single piece, 316 stainless steel
 - 5. Pump motor coupling: 416 Stainless steel

6. Design water passages with smooth surfaces.

D. Motor

- 1. Design: Motor shall be an integral part of the complete pumping unit. Designed to operate continuously without exceeding its horsepower rating, exclusive of its service factor for the entire range of the pump curve.
- 2. Motor Type: Totally enclosed submersible .
- 3. Electrical Characteristics: 460 volts ac, 3 phase, 60 Hz.
- 4. Service Factor: 1.15
- 5. NEMA Design B with normal starting torque. per NEMA MG 1
- 6. Motor insulation Class F for Class B heat rise.
- 7. Inverter duty operation to match anticipated flow ranges.
- 8. Premium efficient for use with variable speed drives.
- Thrust bearing with ample capacity to carry weight of all rotating parts plus hydraulic thrust.
- 10. Capable of continuous operation under water.

E. Manufacturers:

- 1. Goulds
- 2. Grundfos
- 3. Flowserve
- 4. Engineer approved equal

F. Basis of Design:

1.	Manufacturer:	
2.	Style/Model:	
3.	Impeller Size:	
4.	Rated Motor Horsepower:	

2.05 PITLESS WELL UNIT

- A. Unit shall be shop shop fabricated from point of connection to unit cover.
- B. Materials shall be compatible with well casing material.
- C. Casing vent shall be covered with #24 mesh corrosion resistant screen with a minimum 1-1/2 inch minimum diameter.
- D. Casing Vent shall discharge 2 feet above ground level.
- E. Unit shall be equipped with a contamination proof cover and electrical entrance connection.
- F. Unit shall be equipped with a capped passageway for inserting temporary level measurement or sampling tubes and lines.
- G. Minimum pressure rating: 100 psi
- H. Discharge connection size: Indicated on Drawings
- I. Discharge connection:
 - 1. according to Ten State Standards 3.2.7.4.
 - 2. lateral discharge shall be mechanical joint connection.
- Water level measuring equipment
 - 1. Polyethylene drawdown line attached securely every 20 feet
 - 2. Lower end at pump intake
 - 3. Altitude gage with 3-1/2 inch dial
 - 4. Calibration range: 0 feet to 380 feet of water
 - 5. Install with air pump connection
- K. Preapproved Manufacturers
 - Monitor by Baker Manufacturing Company
 - Engineer approved equal.

2.06 CATHODIC PROTECTION

- A. Install as indicated in the Drawings.
- B. Cathodic protection system shall be provided to prevent corrosion to the well and appurtenances.

- C. Cathodic protection: #17 magnesium anode pack with insulated copper leads
- D. Anodes shall be welded to the casing pipe.

PART 3 EXECUTION

3.01 SAMPLING AND RECORD KEEPING

- A. A qualitative record of approximate rate of penetration, taking into account wear on the bit, shall be kept by the driller.
- B. Provide and maintain a suitable area where samples will be stored in an orderly arrangement.
- C. Provide suitable containers for packing and shipping of all samples.
- D. Obtain cutting samples continuously at five feet intervals and at pronounced changes in geologic formation of water supply test holes.
 - 1. The lithologic sampling interval may be changed at the discretion of the Engineer.
 - 2. Lithologic sampling shall be as follows:
 - a. As each five-foot interval of formation and at pronounced changes in geologic formations that are penetrated, collect samples from the pipe discharging to the mud pit and not from the pit itself.
 - b. Bit may be stopped and the hole circulated clean of cuttings at the discretion of the Engineer.
 - c. Place cuttings in sample containers and label with hole number, depth of sample, job name
 - d. One set of samples for each well shall be sent to the Iowa Geological Survey.
 - e. Deliver lithologic samples designated by the Engineer to a laboratory for sieve analysis.

3.02 WELL DRILLING AND DEVELOPMENT

A. Installation

- 1. Install well per the approved method and final detailed plan by Contractor.
- Provide temporary surface or conductor casing as required to maintain the surface of the bore hole. At the completion of well construction fill the annulus between the well casing and conductor casing with grout or concrete.
- 3. Below surface casing, drill the well and ream throughout the entire thickness of water bearing material to the depths indicated in the detailed well design.
- 4. Install screen concentrically in bottom of drill hole.

B. Grouting and Sealing

- 1. Grout placement method: Tremie Method
- 2. Fill annular space from bottom of casing and ground surface with neat cement grout.
- 3. Install in one continuous operation.
- 4. Introduce grout at bottom of space to be grouted.
- 5. The circulation of water or any method equivalent to shall be used for the protection from the heat of hydration. Rise in temperature shall be monitored so that no damage to the casing due to the heat of hydration occurs. Contractor is completely responsible for proper placement and grouting of casing, considering temperature effects, grout pressure, grouting rate, and grout temperature.
- 6. No work which may damage the grout will be permitted in the well within 72 hours after grouting the casing.
- 7. Before the grout sets, check the casing for plumbness and correct if necessary.
- 8. Grout shall meet Ten State Standards Section 3.2.4.9.

C. Well Development

- 1. Develop using approved methods necessary to give the maximum yield of water per foot of drawdown and extract from the water-bearing formation the maximum practical quantity of such sands as may, during the life of the well, be drawn when the well is pumped under maximum conditions of drawdown.
- 2. Submit proposed methods of development to the Engineer for approval before they are used in the development of the well.
- 3. Furnish all chemical additives, such as polyphosphates, required at no additional cost to Owner.

- 4. Final stages of the development of the well shall consist of pumping from a level determined by the Engineer. The development of the well will not be accepted if the water discharged contains more than 1 ppm of sand by volume.
- Base Bid 48 assumes hours of development. Contractor shall notify engineer immediately if additional development is needed and prior to performing additional work.

3.03 WELL PUMP INSTALLATION

- A. Install pump in well per manufacturer's instructions.
- B. Dust control with calcium hypochlorite is required.
- C. Attach to designated drop pipe.
- D. Provide services of a competent manufacturer's representative to check equipment, place it into operation, and instruct Owner in operation and maintenance.
- E. Run equipment, check for and correct any shaft misalignment and excessive vibrations.
- F. Test and adjust control system and auxiliary equipment under actual operating conditions.

3.04 DISINFECTION AND PROTECTION

- A. Disinfection
 - Disinfect well per AWWA A100, AWWA C654, and Specification Section 33 0110.58 -Disinfection and Bacterial Verification of Water Systems.

B. Top Well Seal

- After all well construction and testing is completed, seal well casing with a 1/4 inch steel cover
- 2. The top of the completed well casing and top seal shall be a minimum of 18 inches above ground level.
- 3. Pitless unit with 18 inches above ground design may be used in place of this temporary welded plate.

C. Water Quality Protection

- Perform necessary work to eliminate contamination. Re-disinfect due to neglect after well completion.
- 2. Protect well from tampering or entrance of foreign material during progress of work.
- 3. Provide welded cap until pitless unit is installed.

3.05 TESTING

A. Plumbness and Alignment

- 1. Test plumbness and alignment of the water supply well by lowering into the well a section of pipe or dummy 40 feet long which shall have an outside diameter 1/2 inch smaller than the inside diameter of the casing.
- 2. Should the pipe or dummy fail to move freely throughout the length of the casing, or should the well vary from vertical in excess of one (1) degree, or 0.0067 x smallest diameter of casing per foot whichever is less, correct the plumbness or alignment.
- 3. Contractor shall provide graph and diagram illustrating the results of the plumbness & alignment tests for engineer's review. Refer to AWWA A100 Section D.5 for items to be provided by contractor.

B. Pump Testing General

- 1. Notify Engineer of readiness for pumping tests.
- 2. Furnish necessary equipment to include but not limited to following:
 - a. Pump capable of 24 hour operation at uniform rate.
 - b. Pump capable of discharging 1.5 times design pumping rate with throttling devices to reduce discharge to 10% of test pump rate.
 - c. Discharge pipe of sufficient size and length to conduct water to specified discharge point.
 - d. Equipment to accurately measure flow of water.
 - e. Necessary devices to measure water levels during pumping test including a water level sounding pipe extending from the surface to near the pump bowls.
 - f. During the pumping tests and recovery time specified, monitor the water level in the pumping well and at nearby wells (Well #15 and Well #14 and Well #20, as available, coordinate with owner). Record when surrounding Dakota aquifer wells are pumping.

Measurements shall be by approved methods consisting of electric tapes.

- 3. Calibrate test pump and flow meter prior to initiation of test.
- 4. Aquifer tests shall consist of a step-drawdown test and a constant-rate test. Tests shall be conducted after water has been allowed to stabilize after development of the well.
 - a. The constant-rate test shall be performed at a rate of 150% of the design flow required from the well. Contractor may use other rates upon approval by engineer.
 - b. The step-drawdown test shall be performed at the following rates:
 - 1) 50% of design flow
 - 2) 100% of design flow
 - 3) 150% of design flow
 - 4) If 150% is not feasible, discuss with engineer and go to maximum sustainable well yield.
 - c. Water level measurements shall be collected at one (1) hour into the continuous test, at intervals of 1/4, 1/2, and 3/4 of the total test time, and at the end of the test.

C. Step-Drawdown Test

- 1. Before commencing the tests, monitor the water level until it is essentially stable.
- 2. Each step shall be for a period of 30 minutes or until water levels have stabilized (allowing dissipation of wellbore storage effects), providing the pumping rate is properly adjusted in the first five minutes of the test. Each step shall be of equal duration. Tests in which the pumping rate is not properly adjusted in the first five minutes shall be discontinued and shall commence again after the water level in the well has stabilized.
- 3. At the end of the test, monitor and record water levels until water has stabilized.

D. Constant-Rate Pumping Test

- 1. Before commencing the constant rate pumping test, monitor water level until it is essentially stable.
- 2. Pumping rate shall be approved by Engineer.
- 3. Measure water levels in the pumping wells.
- 4. After monitoring water levels in the well to be pumped for a minimum of two hours, start the pump, measure, and record water levels in the pumped well at the following time intervals: one minute, two minutes, three minutes, five minutes, seven minutes, ten minutes, twenty minutes, fifty minutes, seventy minutes, 100 minutes, and at one-hour intervals thereafter.
- 5. Take water level measurements at the same time intervals for two hours after the pump is stopped.
- 6. Do not remove test pump until two hours after the pump is stopped.
- 7. Engineer reserves the right to continue monitoring water levels in the pumped well for up to 48 hours after the test.
- 8. Remove by bailing, sand pumping, or other methods, any sand, stones, or other foreign material that may have been deposited in the well during the test.
- 9. The Engineer reserves the right to perform other tests simultaneously with the pumping tests which aid in the design of other wells, such as flow meter tests. The Contractor will assist the Engineer in preparation and performance of the tests.

E. Minimum Well Efficiency

- 1. Wells with efficiencies of less that 70 percent as determined by a pumping test after 24 hours will not be acceptable.
- 2. If the well efficiency as calculated at the end of 24 hours is less than 70 percent, the Engineer shall have the option of terminating the pumping test and requiring additional development and testing.

3.06 CHEMICAL TREATMENT

- A. It may be determined that chemical treatment is an acceptable and necessary method of development. The procedure for chemical treatment of the well shall be the responsibility of the Contractor. The following are suggested methods. Method and proposed chemicals shall be approved by the Engineer.
 - 1. Liquid Polymers
 - a. Chemicals suitable for the formation may include:
 - 1) NuWell 220 polymer dispersant
 - 2) Agu-Clear PFD polymer dispersant

- 3) Engineer Approved Equal
- b. Any sediment that has accumulated in the bottom of the well shall be removed per approved methods.

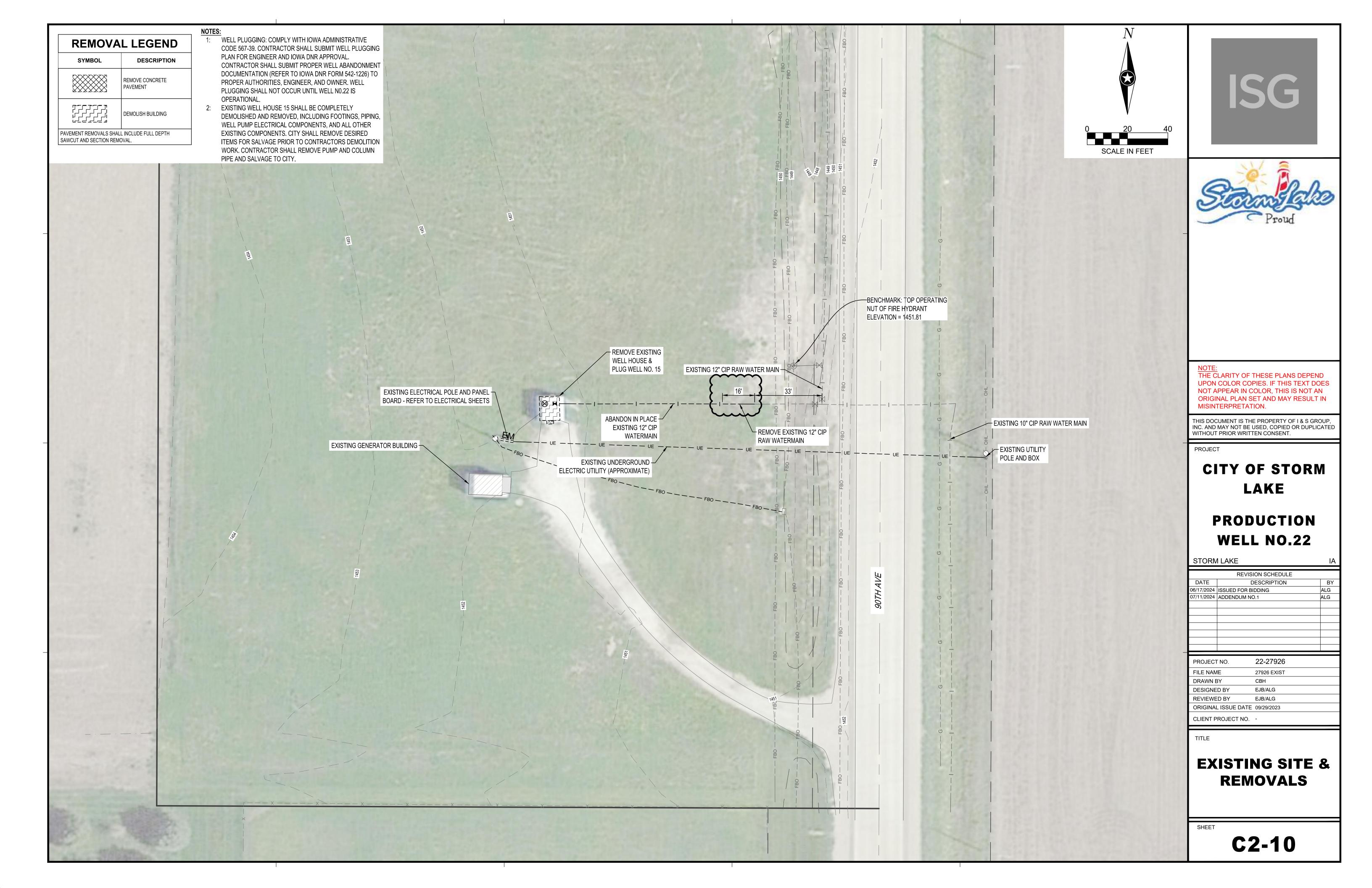
3.07 WELL ABANDONMENT

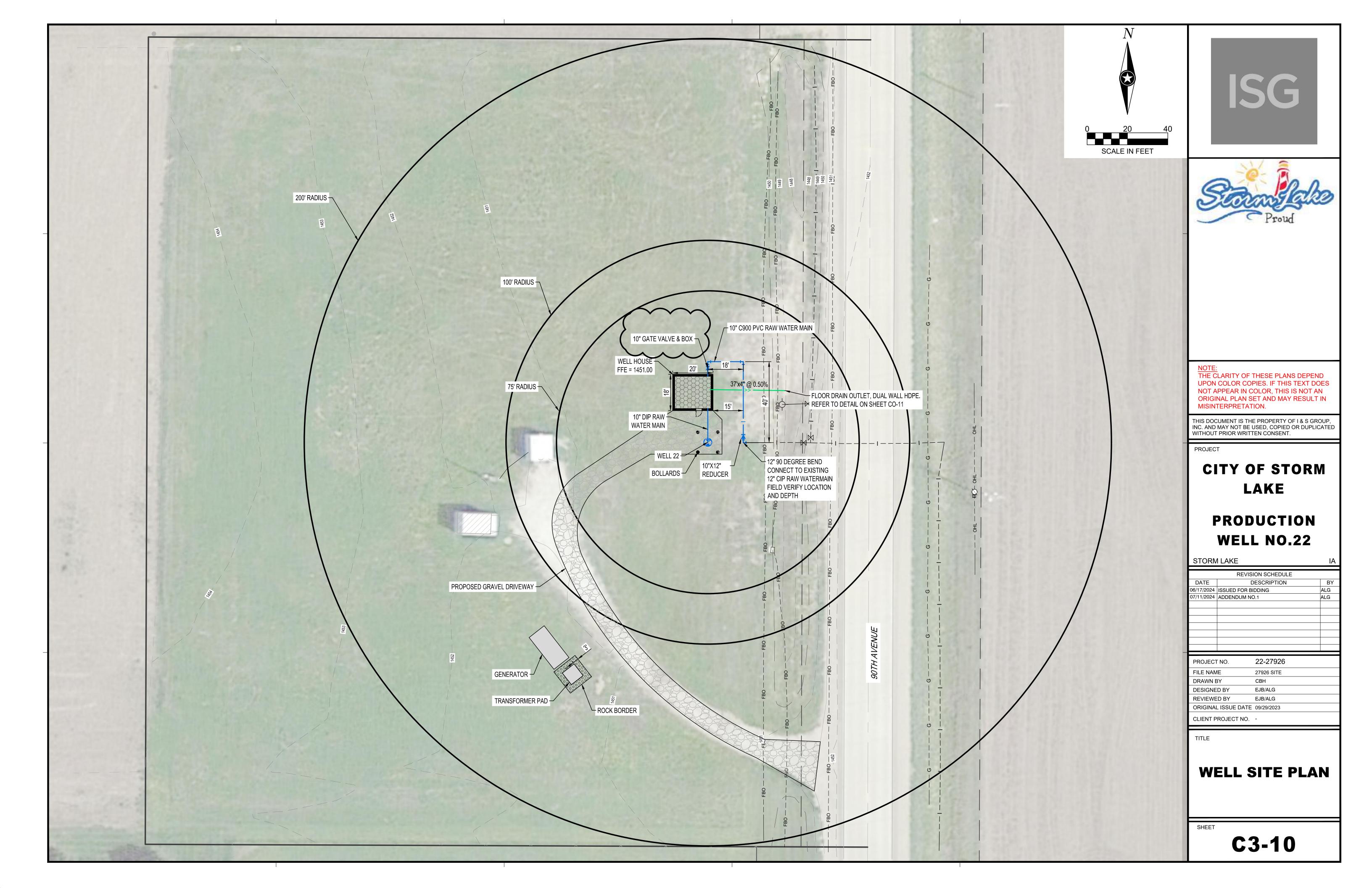
- A. Comply with AWWA A100, A1-13, 567 IAC Chapter 39, and State of Iowa Regulations.
- B. Abandon well for the following reasons:
 - Not constructed plumb and true.
 - 2. Lost drilling tools or apparatus in well bore.
 - 3. Improper drilling methods and/or development procedures.
- C. Drill new well at no additional cost to the Owner.

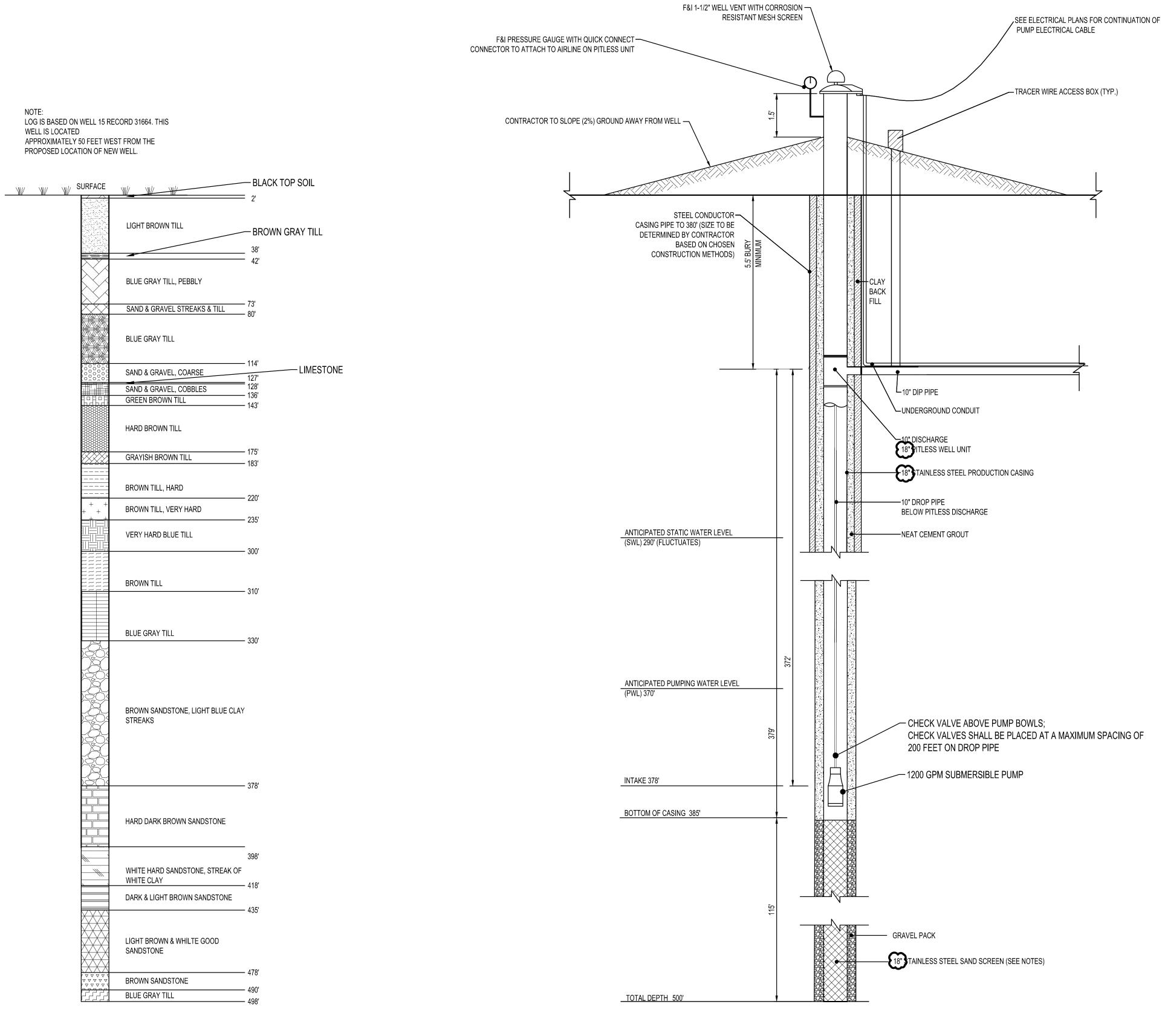
3.08 SITE RESTORATION

- A. Clean up site to acceptable condition.
- B. Replace all damaged site structures, plantings, etc. as determined by Engineer.
- C. Place fill material around Pitless Unit to form 2% minimum slope away from well in all directions.

END OF SECTION







NEW WELL - SECTION NOT TO SCALE





NOTE:

THE CLARITY OF THESE PLANS DEPEND UPON COLOR COPIES. IF THIS TEXT DOES NOT APPEAR IN COLOR, THIS IS NOT AN ORIGINAL PLAN SET AND MAY RESULT IN MISINTERPRETATION.

THIS DOCUMENT IS THE PROPERTY OF I & S GROUP, INC. AND MAY NOT BE USED, COPIED OR DUPLICATED WITHOUT PRIOR WRITTEN CONSENT.

PROJECT

CITY OF STORM LAKE

PRODUCTION WELL NO.22

STORM LAKE

	REVIS	ION SCHEDULE	
DATE		ESCRIPTION	BY
06/17/2024	ISSUED FOR B	DDING	ALG
07/11/2024	ADDENDUM NO	D.1	ALG
			<u>'</u>
PROJEC ⁻	ΓNO.	22-27926	
FILE NAME		27926 SITE	
DRAWN BY DESIGNED BY		СВН	
		EJB/ALG	
REVIEWE	D BY	EJB/ALG	
OPICINA	I ISSUE DATE	00/20/2023	

TITLE

CLIENT PROJECT NO. -

WELL SECTION & NOTES

SHEET

C3-20

WELL NOTES

- ALL PROPOSED MEASUREMENTS ARE ESTIMATES. CONTRACTOR IS TO VERIFY INSTALLATION DEPTHS WITH ENGINEER AND CONSTRUCT WELL TO PRODUCE REQUIRED FLOW RATE OF 1200 GPM.
- 2. SIEVE ANALYSIS TO BE CONDUCTED ON MATERIAL AT SCREEN DEPTH BY JOHNSON SCREENS. SCREEN SLOT SIZE AND GRAVEL PACK GRADATION TO BE RECOMMENDED BY JOHNSON SCREEN AND REVIEWED/APPROVED BY ENGINEER.
- 3. BORE HOLE DIAMETER SHALL BE DETERMINED BY CONTRACTOR BASED ON GEOLOGICAL FORMATION AND CHOSEN CONSTRUCTION METHODS. MINIMUM 1.5" GROUT MUST BE PLACED IN ANNULAR SPACE AROUND ALL CASING AND WELDS; ADJUST HOLE SIZE AS NEEDED BASED ON ACTUAL CASING AND WELDS.
- 4. CONTRACTOR TO POTHOLE TO VERIFY THE DEPTH OF EXISTING UTILITIES. RESTORATION OF THOSE POTHOLES IS CONTRACTOR'S RESPONSIBILITY.
- 5. CONTRACTOR TO PROTECT WELL FROM TAMPERING OR ENTRANCE OF FOREIGN MATERIAL DURING PROGRESS OF WORK WHEN NOT IN CONSTRUCTION.
- 6. WELL PUMP SETTING SHALL BE CONFIRMED BASED ON WELL TESTING RESULTS.

ANTICIPATED BORING LOG

Plan Holder Report as of 07/12/2024 10:03 AM CDT City of Storm Lake Production Well No. 22

Quest eBidDoc™ Number: 9190220

Closing Date: Tue, 07/30/2024 10:00 AM CDT Posting Type: Construction Project Owner Name: City of Storm Lake Solicitor Name: ISGInc - Provider Account Contact: Heather Flanigan Phone: 7127327745 Email: heather.flanigan@isginc.com

Company Name & Address	Contact Name/Email Address	Phone/Fax	Bus. Cert	Bus. Desig	Entry Date	Doc Type	Comments
Minnesota Builders Exchange 1123 Glenwood Ave, Minneapolis, MN-55405	David Siegel addenda@mbex.org	612-381-2625		Plan Room	06/20/2024	eBidDoc	
Mellen CBIA 3404 S. 11th Street, Council Bluffs, IA-51501	Eric Deters edeters@melleninc.com	712-322-9333		Supplier	06/20/2024	eBidDoc	
Plains Builders Exchange, Inc 220 N Kiwanis Ave, Sioux Falls, SD-57104	Andrea Pudwill info@plainsbuilders.com	605-334-8886 605-334-0112		Plan Room	06/20/2024	eBidDoc	
Sargent Drilling 846 S 13th St., Geneva, NE-68361	Doug Yantzie waterwells@sargentdrilling.com	402-759-3902 402-759-4960		Prime Bidder	06/20/2024	eBidDoc	
Thompson Solutions Group 2300 7th Street, Sioux City, IA-51105	Tom Hermann tom.hermann@thompsonsolutionsgroup.com	712-224-3800	TGB	Subcontractor	06/20/2024	eBidDoc	
Direct Companies 2320 W 54th ST NORTH, Sioux Falls, SD-57106	Michael Bailey CC@directcompanies.com	(866) 583-3377	WBE	Subcontractor	06/20/2024	eBidDoc	
Reding's Gravel & Excavating 2001 East Oak St, Algona, IA-50511	Joe Roach joe.roach@rgealgona.com	Algona (515) 295-366 1; Storm Lake (712) 7 32-4059 Algona (515) 295- 9422; Storm Lake (712) 732-2839		Unknown	06/20/2024	eBidDoc	
Master Builders Of Iowa 221 Park Street, Des Moines, IA-50309	Cindy Adams mbiplanroom-dsm@mbionline.com	515-288-7339 515-288-8718		Plan Room	06/20/2024	eBidDoc	
Gingerich Well & Pump Services 1331 Hwy 1, Kalona, IA- 52247	Klint Gingerich gingwell@gingerichwell.com	319-656-2664 319-656-2676		Prime Bidder	06/21/2024	eBidDoc	
Oldcastle Infrastructure 1601 E. 39th St. North, Sioux Falls, SD-57104	Douglas Schmidgall Douglas.Schmidgall@oldcastle.com	320-424-1638 none		Supplier	06/21/2024	eBidDoc	
Hydro Resources - Rocky Mountain, Inc. 13027 Weld County Road 18, Ft Lupton, CO- 80621	Amy Majors amajors@hydroresources.com	800-401-9092		Prime Bidder	06/21/2024	eBidDoc	
Superior Ind. Equip. 1609 Afton Road, Sycamore, IL-60178	Dalton Royer droyer@superiorpumps.com	515-815-8900 515-815-8898		Subcontractor	06/21/2024	eBidDoc	
Rieschick Drilling Co. 70656 649th Ave., Falls City, NE-68355	Roy Rieschick rdcwells@sentco.net	402-245-2015		Prime Bidder	06/21/2024	eBidDoc	
Ward Electric Company 3690 Stagecoach Rd , Longmont , CO-80504	Mark Ward office@wardelectriccompany.com	303-775-5886		Subcontractor	06/21/2024	eBidDoc	
ZipBonds 3737 Woodlawn Ave, WEST DES MOINES, IA- 50266	Tina Bockholt tbockholt@zipbonds.com	5154001318		Bonding/Surety	06/21/2024	eBidDoc	
Cahoy Pump Service 24568 150th Street, Sumner, IA-50674	Ashlee Webb ashlee@cahoypump.com	563-578-1130 563-578-1135		Subcontractor	06/21/2024	eBidDoc	
Shawver Well Company, Inc. 2700 Stanley Ave., Fredericksburg, IA-50630	Ron Cunningham rcunn@shawverwell.com	563-237-5341 563-237-5001		Subcontractor	06/24/2024	eBidDoc	
King Construction PO Box 369, Wall Lake, IA-51466	Marcus Stoltenberg info@kingconstruction.net	712-664-2918 712-664-2920		Prime Bidder	06/24/2024	eBidDoc	

Company Name & Address	Contact Name/Email Address	Phone/Fax	Bus. Cert	Bus. Desig	Entry Date	Doc Type	Comments
Zimmer & Francescon, Inc. 6200 65th Avenue, Moline, IL-61265	Gary Ganoe garyg@zfpump.com	800-621-1118 877-244-2508		Supplier	06/24/2024	eBidDoc	
Sioux City Construction League Plan Room 3900 Stadium Drive, Sioux City, IA-51106	Grant Thompson office@scaplanroom.com	712-255-9730 712-255-3915		Plan Room	06/25/2024	eBidDoc	
Sioux Falls Builders Exchange 1418 C Avenue, Sioux Falls, SD-57104	Brody Hansen info@sfbx.com	605-357-8687 605-357-8655	TGB	Plan Room	06/25/2024	eBidDoc	
605 Companies, Inc 700 E 65th St N, Sioux Falls, SD-57104	Zach Dinger estimating@605inc.com	605-231-2990		Prime Bidder	06/28/2024	eBidDoc	
THEIN WELL COMPANY, INC. 11355 HWY 71 NE, Spicer, MN-56288	Zack Thein zack@theinwell.com	320-796-2111 320-796-2114		Subcontractor	06/28/2024	eBidDoc	
Power Solutions, Inc. 105 E. First St., Alta, IA- 51002	Derek Wall psi@powersolutionsinc.net	712-200-4160		Subcontractor	07/01/2024	eBidDoc	
Lincoln Builders Bureau 5910 S 58th St, Lincoln, NE-68516	Michelle Gonzales info@buildersbureau.com	402-421-8332 402-421-8334		Plan Room	07/11/2024	eBidDoc	