



**SAN ANTONIO WATER SYSTEM
REGIONAL CARRIZO PROGRAM
BUCKHORN WELLFIELD ACCESS ROADS AND WELL
CONSTRUCTION PROJECT
SAWS JOB NO. 03-8518-207
SOLICITATION NO. B-11-024-MF**

**ADDENDUM NO. 4
JUNE 13, 2011**

TO BIDDER OF RECORD:

The following changes, additions, and/or deletions are hereby made a part of the Contract Documents for the construction of the Buckhorn Wellfield Access Roads and Well Construction Project, for the San Antonio Water System, San Antonio, Texas, dated May 2011, as fully and completely as if the same were full set forth therein.

PART 1 - BIDDING AND CONTRACT REQUIREMENTS

1. BID PROPOSAL: REPLACE this section in its entirety with the attached section.
2. SUPPLEMENTAL CONDITIONS: REPLACE this section in its entirety with the attached section.
3. SPECIAL CONDITIONS: REPLACE this section in its entirety with the attached section.

PART 2 - TECHNICAL SPECIFICATIONS

1. SECTION 01270 MEASUREMENT AND BASIS OF PAYMENT: REPLACE this section in its entirety with the attached section.
2. Section 01110 SUMMARY OF WORK, Paragraph 1.04 Subsurface Conditions: ADD the following sentence "The maximum artesian head is expected to be present at the planned location of WG15. The head is estimated to be approximately 77 feet above ground surface. The Contractor shall maintain control of all wells at all times including but not limited to during drilling and during and prior to performing pumping tests. Methods of maintaining control shall be approved by the Consultant prior to implementation."
3. Section 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS:
 - a. Paragraph 1.03.A: DELETE "...included at the end of this section." and REPLACE with "...included in SAWS Specifications for Water and Sanitary Sewer Construction, latest revision."
 - b. Paragraph 3.04 SUPPLEMENTS: DELETE this paragraph in its entirety.

- c. ACKNOWLEDGEMENT OF POLLUTION ABATEMENT COMPLIANCE: DELETE this attachment in its entirety.
- d. ADD 1.07.E.5." The Contractor shall obtain approval from SAWS and the Consultant prior to removing any equipment from existing wells. The Contractor shall coordinate all water supply pumping activities with the Consultant to minimize adverse effects to planned well pumping tests."
- 4. SECTION 02215 GEOGRID REINFORCEMENT: REPLACE this section in its entirety with the attached section.
- 5. SECTION 02633 WELL DRILLING AND TESTING
 - a. Paragraph 3.01.4.b: DELETE "Some vegetative restoration will be required within the permanent easements shown on the Drawings". Refer to Section 02910 Site Restoration for requirements.
 - b. Paragraph 2.03.B.10: ADD "The Contractor may excavate and utilize earthen pits as approved by the Engineer and in accordance with all applicable laws and regulations. The Contractor shall obtain any required clearances and verify absence of underground obstacles for the pits prior to mobilizing to the site. The Contractor shall maintain mud quality as specified as a condition of utilizing the earthen pits. All material shall be removed from the pits and properly disposed of prior to demobilizing from the site and the pit shall be filled in and restored to conditions equivalent to those prior to performing the work."
 - c. Paragraph 1.05.B: ADD "22. Well Screen Design: The Contractor shall submit details of well screen design created by the well screen manufacturer including required rod diameter, rod spacing, assumed screen slot sizes, and other details required to demonstrate the screen is suitable for installation at planned depths."
 - d. Paragraph 2.03.C.1: ADD "For reverse circulation rotary drilling, a pilot hole bit size of up to a nominal 12-inch diameter will be allowed. The hole shall be free of significant washout intervals for acceptance. The Contractor shall submit certification from the approved geophysical logging company that the selected borehole diameter will not adversely affect log quality".
 - e. Paragraph 3.18.K: ADD the following water quality analysis to the table "Carbon Dioxide." The method shall be as described in Standard Methods for the Examination of Water and Wastewater, most recent edition, "Nomographic Determination of Free Carbon Dioxide and the Three Forms of Alkalinity, Titrimetric Method for Free Carbon Dioxide, and Carbon Dioxide and Forms of Alkalinity by Calculation" or as approved by the Consultant. The Contractor shall submit requirements for sampling provided by approved Laboratory and provide qualified staff to perform field testing and to collect representative samples."
- 6. SECTION 02633S-1 Supplement to Section 02633 Borehole Geophysical Logging – Field Print Formats
 - a. under Required Logs, ADD "5. Nuclear Magnetic Resonance"
 - b. DELETE heading "Additional Logs (upon Request)"
 - c. DELETE "Induced Gamma Ray Spectroscopy (Elemental Capture Spectrometry™)."

PART 3 - DRAWINGS

1. SHEET 3 of 25, PROJECT LAYOUT KEYMAP: REPLACE this drawing in its entirety with the attached sheet.
2. SHEET 4 of 25, PRODUCTION WELL SECTION/DETAILS: REPLACE this drawing in its entirety with the attached sheet.
3. SHEET 2 of 25, SHEET INDEX AND GENERAL NOTES: ADD the following note "The Contractor is responsible for maintaining flows in these areas for the duration of the construction activities".

ALL BIDDERS SHALL ACKNOWLEDGE RECEIPT OF ADDENDUM NO. 4 IN THE BID FORM AND BY HIS/HER SIGNATURE AFFIXED HERETO AND TO FILE SAME AS AN ATTACHMENT TO HIS/HER BID. BID FORMS SUBMITTED WITHOUT THIS ACKNOWLEDGEMENT WILL BE CONSIDERED INFORMAL.

CH2M HILL

TBPE Firm No. 2297



Kenneth Nichols, P.E.



ACKNOWLEDGEMENT BY BIDDER

THE UNDERSIGNED ACKNOWLEDGES RECEIPT OF THIS ADDENDUM NO. 4 AND THE BID SUBMITTED HERewith IS IN ACCORDANCE WITH THE INFORMATION AND STIPULATION SET FORTH.

Date

Signature of Bidder

Appended hereto and part of Addendum No. 4 are:

1. BID PROPOSAL
2. SUPPLEMENTAL CONDITIONS
3. SPECIAL CONDITIONS
4. SECTION 01270 MEASUREMENT AND BASIS OF PAYMENT
5. SECTION 02215 GEOGRID REINFORCEMENT
6. SHEET 3 OF 25, PROJECT LAYOUT KEYMAP

7. SHEET 4 OF 25, PRODUCTION WELL SECTION/DETAILS
8. Agenda from the Pre-Bid Meeting held 5/31/2011
9. Contractor Questions and Clarifications

4.	Ream Upper Pilot Borehole to 24-inch Diameter	11,670	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
5.	Gyroscopic Alignment Survey of Reamed 24-inch Borehole	9	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____
6.	Furnish and Install 18-Inch Stainless Steel Casing	1,907	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
7.	Furnish and Install 18-Inch Dielectric Coupling	9	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____
8.	Furnish and Install 18-Inch Steel Casing	9,790	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
9.	Furnish and Emplace Cement	11,670	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
10.	Gyroscopic Alignment Survey of 18-Inch Casing for Plumbness and Alignment Acceptance	9	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____

11.	Ream Lower Pilot Borehole	6,790	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
12.	Furnish and Install 10-Inch Steel Casing	5,080	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
13.	Furnish and Install Standard Well Screen	2,250	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
14.	Furnish and Install 10-Inch Dielectric Coupling	54	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____
15.	Furnish and Emplace Filter Pack	7,420	LF		
				Dollars	
	and			Cents	\$ _____ \$ _____
16.	Well Development	9	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____
17.	Furnish, Install and Remove Pump System and Temporary Piping for Well Development and Pumping Tests	9	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____
18.	Constant-Discharge Production Well Pumping Test (72-hour)	9	EA		
				Dollars	
	and			Cents	\$ _____ \$ _____

19.	Water Quality Sampling and Analyses	9	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
20.	Well Disinfection and Completion	9	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
21.	Final Well Color Video Log	9	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
22.	Drill Rig Standby Time at the Direction of the Consultant	72	HR		
				Dollars	
	and _____	Cents		\$ _____	\$ _____

PART 2: Roadway Construction

1.	Furnish and Install Geogrid Fabric Underlayment for Access Roads	38,059	LF		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
2.	Construct 6-Inch Concrete Overflow Section	270	LF		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
3.	Construct 6-Inch Flexible Base Access Roads	38,059	LF		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
4.	Construct 10-Inch Flexible Base Access Roads	900	LF		
				Dollars	
	and _____	Cents		\$ _____	\$ _____

5.	Construct 6-Inch Flexible Base Driveway	3	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
6.	Furnish and Install 24-Inch Corrugated Metal Pipe	60	LF		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
7.	Apply Safety End Treatment to 24-Inch Corrugated Metal Pipe	2	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
8.	Furnish and Install Permanent Cattle Guard	12	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
9.	Replace 4-Foot Height 5-Strand Barbed Wire Fencing	1,000	LF		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
10.	Furnish and Install 4-Foot Height, 16-Foot Width Swing Gate with Latch and Side Flare Ranch Fencing at Wellfield Entrance	10	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
11.	Barricades, Signs and Traffic Handling	12	MO		
				Dollars	
	and _____	Cents		\$ _____	\$ _____
12.	Temporary Erosion, Sedimentation, and Environmental Controls	1	EA		
				Dollars	
	and _____	Cents		\$ _____	\$ _____

PART 3: Management of Contaminated Soil and Water

1. Management of Contaminated Soil 10 CY
_____ Dollars
and _____ Cents \$ _____ \$ _____
2. Management of Contaminated Water 1,000 GAL
_____ Dollars
and _____ Cents \$ _____ \$ _____

Bid Summary

SUBTOTAL SAWS JOB NO. 03-8518-207 (PART 1): \$ _____
SUBTOTAL SAWS JOB NO. 03-8518-207 (PART 2): \$ _____
SUBTOTAL SAWS JOB NO. 03-8518-207 (PART 3): \$ _____
LINE ITEM "A"
SUBTOTAL BASE BID (PARTS 1, 2, and 3) \$ _____

Job No. 03-8518-207
Regional Carrizo Program
Access Roads and Well Construction Project
SOLICITATION NO. B-11-024-MF

PART 4: Mobilization/Demobilization

LUMP SUM-Percent of the Line Item "A"

Sub total Base Bid written in words

_____ Percent \$ _____

(Maximum of 10% of the Line Item "A"
Sub-total Base Bid amount)

Mobilization/Demobilization lump sum bid shall be limited to a maximum 10% of the Line Item "A" Sub-total Base Bid amount. The Line Item "A" Sub total base bid is defined as all bid items EXCLUDING Mobilization/Demobilization. In the event of a discrepancy between the written percentage and dollar amount shown for Mobilization/Demobilization bid items the written percentage will govern. If the percentage written exceeds the allowable maximum stated for mobilization, SAWS reserves the right to cap the amount at the percentages shown and adjust the extensions of the bid items accordingly.

TOTAL BID AMOUNT (Line Item "A" and Mobilization)

\$ _____

_____ **DOLLARS AND**
_____ **CENTS**

BIDDER'S

SIGNATURE AND TITLE

FIRM'S

FIRM'S NAME

FIRM'S

ADDRESS

FIRM'S

PHONE NO. / FAX NO.

FIRM'S

EMAIL ADDRESS

The Contractor herein acknowledges receipt of the following:
Addendum Nos. _____

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project with **365** calendar days after the start date, as set forth in the Authorization to Proceed. **The bidder understands and accepts the provisions of the contract Documents relating to liquidated damages of the project if not completed on time.** Complete the additional requirements of the Proposal which are included on the following pages.

BIDDER’S EXPERIENCE

In order to make a responsive Bid, the Bidder must provide evidence of a minimum of three (3) successfully completed water well projects in the last five (5) years, meeting the criteria listed below:

- Water wells constructed for public water supply to AWWA Standard A100-97;
- Water wells constructed with a final casing diameter of 14 inches or greater;
- Water wells constructed with a minimum total depth of 1500 feet;
- Water wells constructed with filter pack and stainless steel, rod-based screens; and
- Water wells constructed in the Carrizo-Wilcox Aquifer or similar aquifer.

All questions on this form must be answered and data given must be clear and comprehensive. If necessary, questions may be answered on separately attached sheets.

Number of years in business under current name (Minimum of two [2] years required). Changes in company name during the experience period are acceptable if the continuity of the company structure can be demonstrated, attach documentation if applicable):

List firm construction experience for water well projects that meet the criteria described above.

Project Name/	Owner (Contact and Phone No.)/	Construction Cost/	Aquifer
1) _____	_____	_____	_____
2) _____	_____	_____	_____
3) _____	_____	_____	_____

PERSONNEL EXPERIENCE

Attach the resume for the Construction Superintendent who will be assigned to this project. The Construction Superintendent assigned to this project must be a licensed Water Well Driller by the TDLR and must have worked on at least three (3) water well projects during the last five (5) years, which meet the criteria below. The Construction Superintendent must also have worked for the Bidder for at least the last two (2) years.

Superintendent (name):

Job No. 03-8518-207
Regional Carrizo Program
Access Roads and Well Construction Project
SOLICITATION NO. B-11-024-MF

(CONTINUED)

Relevant Experience: Water wells constructed for public water supply in the Carrizo-Wilcox or similar aquifer, at least 1500 feet in depth, 14-inch minimum final casing diameter, filter pack, with stainless steel, rod-based screens.

Project Name/	Owner (Contact and Phone No.)/	Construction Cost/	Aquifer
1) _____	_____	_____	_____
2) _____	_____	_____	_____
3) _____	_____	_____	_____

SUPPLEMENTAL CONDITIONS

SCOPE. The Supplementary Conditions amend the General Conditions and the other provisions of the Contract Documents as indicated herein. All provisions which are not so amended or supplemented remain in full force and effect.

Article 1. CONTRACT DEFINITIONS. Add the following definitions to Article 1 of the General Conditions:

11. Consultant - Add the following sentence:

“For this project, the term Consultant shall specifically include the firms of CH2M HILL and all subconsultants.”

“54. Agents – Agents shall include any consultant, or professional hired by Owner to represent them in any way regarding this Construction Contract.”

Article 4. CONTRACT ADMINISTRATION

4.11 Protection of Private Property. After sub-paragraph .2 add the following new paragraphs:

“.3 No trees shall be removed outside the permanent easement, except where authorized by the Owner. Whenever practicable, Contractor shall tunnel beneath trees when on or near the line of trench, hand excavation shall be employed as necessary to prevent injury to trees. Trees left standing shall be adequately protected against damage from construction operations.”

“.4 Access Gates: The Contractor shall maintain the status of all internal and external gates at all times during the project. The Contractor shall be subject to financial penalty of \$1,000 per occurrence for violations of this condition.”

Article 5. CONTRACTOR RESPONSIBILITIES

5.2.1 a) Delete entire sentence.

5.2.3 Materials Testing. Delete Article 5.2.3 and sub-paragraphs in its entirety. Materials’ testing is defined in specification Section 01451 – Quality Control.

Add the following sub-paragraph:

“5.3.6 Staking. The Contractor will be responsible for all necessary staking.”

5.7 Contractor’s Insurance Requirements. Add the following paragraph at the end of the section:

“5.7.8. With respect to all insurance, Contractor shall include as additional insured and waive all rights and insurer shall waive all rights of subrogation

against Consultant(s) and their respective officers, directors, partners, employees, subconsultants and agents.”

5.16 Construction Stakes. Delete this section in its entirety. Project controls shall be provided as detailed in specification Section 01720 – Field Engineering. All construction staking shall be provided by the Contractor.

5.19 Working Hours. Replace with the following:

“The Contractor is authorized to work 24 hours per day for activities deemed critical to the proper construction of the well or for which 24 hour monitoring is required. These activities include but are not limited to drilling, well installation, development, and pump testing.

5.24 USE OF EXPLOSIVES. Delete this section in its entirety and replace with the following paragraph:

“5.24. USE OF EXPLOSIVES. The use of explosives of any kind for this project is strictly prohibited.”

Article 6. CONTRACT CHANGES

6.2.1 a) Add the following sentence to the end of this paragraph: “No bid items for this project will be considered Major Bid Items.”

Article 8. CONTRACT COMPLETION TIME

8.5 Liquidated Damages for Failure to Complete on Time. Delete schedule “Amount of Liquidated Damage” and insert the following;

1. Damages Per Day: \$2,000/day until Project Completion and Acceptance.

END OF SECTION

SPECIAL CONDITIONS

Article IV-Contract Administration

Section 4.6 of the general conditions shall be amended as follows:

CONTRACTORS – The Contractor shall perform the Work with its own organization on at least 40 percent of the total original contract price.

The term to “perform the Work with its own organization” is defined herein as utilizing only:

- Workers employed and paid directly by the Contractor or a wholly owned subsidiary of the contractor.
- Equipment owned by the contractor or its wholly owned subsidiary.
- Rented or leased equipment operated by the Contractor’s, or its wholly owned subsidiaries, employees.
- For purposes of determining the value of the Work self performed, the amount shall include all materials incorporated into the Work where the majority of the value of the Work involved in incorporating the material is performed by the Contractor’s own Organization, including wholly owned subsidiary; and
- Labor provided by staff leasing firms licensed under Chapter 91 of the Texas Labor code for non supervisory personnel if the contractor or wholly owned subsidiary maintains direct control over the labor.
- The remaining sections of Article IV shall remain the same.

Article V-Contract Responsibilities

Section 5.4 of the general conditions shall be amended as follows:

SUPERINTENDENTS - The Contractor shall keep on-site pursuant to this Project during its progress a competent full time Superintendent who is a direct employee of the prime contractor and any necessary assistants, all satisfactory to the Owner.

The appointment of a designee in lieu of a full time superintendent shall not be allowed as part of this provision, therefore any reference to “designee” shall not be applicable.

The remaining section of this section shall remain the same.

Additional Conditions

- 1) The Contractor shall maintain the status of all internal and external gates at all times during the project. The Contractor shall be subject to financial penalty of \$1,000 per occurrence for violations of this condition, to be withheld from the final payment to the Contractor.

- 2) The Contractor will coordinate all activities with the property owner, through the SAWS representative.
- 3) Section 5.7.1.1.8 of the San Antonio Water System General Conditions: Delete this section in its entirety.
- 4) Material testing requirements are defined in specification Section 01451, Quality Control.
- 5) Unless otherwise provided, Contractor shall obtain and pay for all construction permits, inspections, and any required licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids. Contractor shall pay all charges of utility owners for connections to the Work.
- 6) The Contractor is responsible for all health and safety precautions for Contractor Employees at all times. Neither the Consultant nor the Owner has any responsibility for safety precautions of Contractor Employees.
- 7) Shop drawing requirements are defined in specification Section 01330, Submittals.
- 8) Progress schedule requirements are defined in specification Section 01321, Progress Schedule.
- 9) Total bid price includes costs for furnishing all tools, equipment, materials, supplies and manufactured articles and furnishing all labor, transportation, and services, including fuel, power, water, and essential communication and performing all work, or other operations required for the Contract in strict accordance with the Contract Documents. Any item not specifically called out under each bid item shall be included under a bid item listed that is closely related to a missing item. Contractor is directed to the Measurement and Payment section of this document for a description of each bid item.

10) LS = Lump sum	HR = Hour	Sack = Sacks	SY = Square Yard
CY = Cubic yard	LF = Linear feet	CF = Cubic feet	EA = Each
MO = Month	GAL = Gallon		

END OF SECTION

**SECTION 01270
MEASUREMENT AND BASIS OF PAYMENT**

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. This section defines the method which will be used to determine the quantities of work performed, materials supplied, and establishes the basis upon which payment will be made. Descriptions included in items are provided as a general indication of work required on bid items. It shall be understood that the Contractor is required to complete the installation of the Project in accordance with contract documents, whether or not such work is listed herein.

1.02 ESTIMATED QUANTITIES

- A. The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The Owner/Consultant does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

1.03 WORK OUTSIDE AUTHORIZED LIMITS

- A. No payment will be made for work constructed outside the authorized limits of Work.

1.04 MEASUREMENT STANDARDS

- A. Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

1.05 AREA MEASUREMENTS

- A. In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the lines shown or designated.

1.06 LUMP SUM ITEMS

- A. Where payment for items is shown to be paid on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment.

1.07 UNIT PRICE ITEM

- A. Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.
- B. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the Owner until as-built (Record) Drawings have been submitted and approved by the Consultant.
 - 1. Shop Drawings, Working Drawings.
 - 2. Clearing, grubbing, and grading except as hereinafter specified.
 - 3. Replacement of unpaved roadways, and shrubbery plots.
 - 4. Cleanup and miscellaneous work.
 - 5. Maintaining or detouring of traffic.
 - 6. As-Built Record Drawings.

1.08 CONTRACT PAYMENTS

- A. Payment for stored items will be allowed for major equipment and materials. Equipment and material cost shall be based on the actual manufacturer's invoice. A maximum payment of 85 percent will be allowed for stored items, the remaining 15 percent will be paid upon delivery of the approved O&M manuals. Equipment and materials shall not be installed or put into place before O&M manuals have been received.
- B. Payment for installed equipment shall not be more than 85 percent of the installed cost until the training materials have been submitted and training has been completed to the satisfaction of Owner.
- C. The 5 percent retainage for major projects will not be released until record drawing have been submitted and accepted.

1.09 MEASUREMENT AND PAYMENT

- A. Part 1: Production Well Construction:
 - 1. Item No. 1 – Drill Pilot Borehole:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to drill the pilot borehole.
 - b. Measurement: Measurement of the item “Drill Pilot Borehole” will be based on the number of linear feet of pilot borehole logged (by geophysical logging subcontractor), tested, and accepted, all in accordance with the Contract Documents.

- c. Payment: Payment for drilling the pilot borehole as specified shall be at the unit price per linear foot logged (by the geophysical subcontractor) indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, sieve analyses, etc. necessary to have the pilot borehole drilled, plumbness tested, accepted, and ready for use as its intended purpose.
- 2. Item No. 2 – Pilot Borehole Geophysical Logging Suite:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to conduct geophysical logging. The Contractor will be required to purchase “tool insurance” from the geophysical subcontractor to limit liability in the case of an accidental loss of a geophysical logging sonde in the pilot borehole. This item includes post-processing required to create final logs.
 - b. Measurement: Measurement of the item “Geophysical Logging” in the pilot borehole will be based on logging suites completed and accepted all in accordance with the Contract Documents.
 - c. Payment: Payment for geophysical logging in the pilot borehole shall be at the unit price indicated in The Bid Schedule, which price shall constitute full compensation for the completed work all in accordance with Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have geophysical logging, completed and accepted. Contractor will not receive extra compensation for rig time or stand-by time while the geophysical logging is conducted.
- 3. Item No. 3 – Abandonment of Pilot Borehole:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to abandon the pilot borehole. This item shall be used at the direction of the Consultant and will be used in the event that geological data from the pilot borehole indicates that the well site is unsuitable for completion of a well. Additionally, this item may be used to abandon portions of the pilot borehole below the production zone that were drilled for the purposes of borehole geophysical logging at the direction of the Consultant.
 - b. Measurement: Measurement of the item “Abandonment of Pilot Borehole” will be based on the number of linear feet of pilot borehole abandoned, tested, and accepted, all in accordance with the Contract Documents.

- c. Payment: Payment for abandonment of the pilot borehole shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the pilot borehole abandoned and accepted.
- 4. Item No. 4 – Ream Upper Pilot Borehole to 24-inch Diameter:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary ream the pilot borehole to a minimum nominal 24-inch diameter. The cost of running a caliper log, including equipment, materials, and labor, and providing all reports and calculations required for final well construction as required by these Specifications shall be included in this item.
 - b. Measurement: Measurement of the item “Ream Pilot Borehole to 24-inch Diameter” will be based on the number of linear feet of pilot borehole logged (by caliper survey) and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for reaming the pilot borehole to a minimum nominal 24 inches in diameter shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the pilot borehole reamed, tested, accepted, and ready for use as its intended purpose.
- 5. Item No. 5 – Gyroscopic Alignment Survey of Reamed 24-Inch Borehole:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to perform a gyroscopic alignment of reamed 24-inch upper borehole.
 - b. Measurement: Measurement of the item “Gyroscopic Alignment Survey” shall be based on the number of gyroscopic alignment surveys completed and accepted, all in accordance with the Contract Documents.
 - c. Payment: This item will be paid for at the contract unit price for a gyroscopic alignment survey of the reamed borehole.
- 6. Item No. 6 – Furnish and Install 18-Inch Stainless Steel Casing:
 - a. Description: This item includes all work associated with furnishing and installing 18-inch stainless steel casing. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in-place.

- b. Measurement: Measurement of the item “Furnish and Install 18-Inch Stainless steel Casing” will be based on the number of linear feet of casing (including 3 feet above ground) installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for the item “Furnish and Install 18-Inch Stainless Steel Casing” shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the “Furnish and Install 18-Inch Stainless Steel Casing” installed, tested, accepted, and ready for use as its intended purpose. Payment will not be made prior to receipt and acceptance (by the Consultant) of the results of the gyroscopic alignment survey.
 - d. Reduction in Payment for Casing Not Meeting Minimum Acceptance Criteria: Full Payment for the item “Furnish and Install 18-Inch Stainless steel Casing” will be contingent upon the results of the gyroscopic alignment survey as described in Section 02633, Well Drilling and Testing. Full payment will be made if the effective inner diameter of the casing is 10 inches or greater to a depth of 400 feet below surface. No payment will be made for an effective inner casing diameter of 0 inches or less to a depth of 400 feet below surface. Full payment will be reduced by 10 percent for each 1-inch reduction (less than 10 inches) in effective inner casing diameter to a depth of 400 feet below surface.
7. Item No. 7 – Furnish and Install 18-Inch Dielectric Coupling:
- a. Description: This item includes all work associated with furnishing and installing 18-inch dielectric couplings. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place.
 - b. Measurement: Measurement of the item “Furnish and Install 18-inch Dielectric Coupling” will be based on the number of 18-inch dielectric couplings installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for the item “Furnish and Install 18-Inch Dielectric Coupling” shall be at the unit price each indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the “Furnish and Install 18-Inch Dielectric Coupling” installed, tested, accepted, and ready for use as its intended purpose. Payment will not be

- made prior to receipt and acceptance (by the Consultant) of the results of the gyroscopic alignment survey.
- d. Reduction in Payment for Casing Not Meeting Minimum Acceptance Criteria: Full Payment for the item “Furnish and Install 18-Inch Dielectric Coupling” will be contingent upon the results of the gyroscopic alignment survey as described in Section 02633, Well Drilling and Testing. Full payment will be made if the effective inner diameter of the casing is 10 inches or greater to a depth of 400 feet below surface. No payment will be made for an effective inner casing diameter of 0 inches or less to a depth of 400 feet below surface. Full payment will be reduced by 10 percent for each 1-inch reduction (less than 10 inches) in effective inner casing diameter to a depth of 400 feet below surface.
8. Item No. 8 – Furnish and Install 18-Inch Steel Casing:
- a. Description: This item includes all work associated with furnishing and installing 18-inch steel casing. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in-place.
 - b. Measurement: Measurement of the item “Furnish and Install 18-Inch Steel Casing” will be based on the number of linear feet of steel casing installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for the item “Furnish and Install 18-Inch Steel Casing” shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the 18-inch steel casing installed, tested, accepted, and ready for use as its intended purpose. Payment will not be made prior to receipt and acceptance (by the Consultant) of the results of the gyroscopic alignment survey.
 - d. Reduction in Payment for Casing Not Meeting Minimum Acceptance Criteria: Full Payment for the item “Furnish and Install 18-Inch Steel Casing” will be contingent upon the results of the gyroscopic alignment survey as described in Section 02633, Well Drilling and Testing. Full payment will be made if the effective inner diameter of the casing is 10 inches or greater to a depth of 400 feet below surface. No payment will be made for an effective inner casing diameter of 0 inches or less to a depth of 400 feet below surface. Full payment will be reduced by 10 percent for each 1-inch reduction (less than 10 inches) in effective inner casing diameter to a depth of 400 feet below surface.

9. Item No. 9 – Furnish and Emplace Cement:
 - a. Description: This item shall govern the furnishing and emplacing of cement with approved additives for Production Wells.
 - b. Measurement: Measurement of the item “Furnish and Emplace Cement” will be based on the number of linear feet installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for furnishing and emplacing of the cement with approved additives shall be at the unit price per linear foot installed indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, grout shoes, plugs, or tremie pipe, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the cement installed, tested, and accepted.
10. Item No. 10 – Gyroscopic Alignment Survey of 18-Inch Casing for Plumbness and Alignment Acceptance:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to perform a gyroscopic deviation survey of 18-inch casing.
 - b. Measurement: Measurement of the item “Gyroscopic Alignment Survey of 18-Inch Casing” shall be based on the number of gyroscopic alignment surveys completed and accepted, all in accordance with the Contract Documents.
 - c. Payment: This item will be paid for at the contract unit price for a gyroscopic deviation survey of casing.
11. Item No. 11 – Ream Lower Pilot Borehole:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary ream the pilot borehole as specified. The cost of running a caliper log, including equipment, materials, and labor, and providing all reports and calculations required for final well construction as required by these Specifications shall be included in this item.
 - b. Measurement: Measurement of the item “Ream Lower Pilot Borehole” will be based on the final design length of blank casing and screen below the upper casing, in accordance with the Contract Documents. Additional drilling is done at the Contractor’s expense.
 - c. Payment: Payment for reaming the pilot borehole shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the pilot borehole reamed, caliper logged, tested, accepted, and ready for use as its intended purpose.

12. Item No. 12 – Furnish and Install 10-Inch Steel Casing:
 - a. Description: This item includes all work associated with furnishing and installing 10-inch steel casing. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place.
 - b. Measurement: Measurement of the item “Furnish and Install 10-Inch Steel Casing” will be based on the number of linear feet of steel casing installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for the item “Furnish and Install 10-Inch Steel Casing” shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the 10-inch steel casing furnished, installed, tested, accepted, and ready for use as its intended purpose.
13. Item No. 13 – Furnish and Install Well Screen:
 - a. Description: This item includes all work associated with furnishing and installing standard well screen. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work.
 - b. Measurement: Measurement of the item “Furnish and Install Standard Well Screen” will be based on the number of linear feet of screen installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for furnishing and installing standard well screen shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the standard well screen installed, tested, accepted, and ready for use as its intended purpose. Payment will not be made until the Contractor provides a full record of all well screen installed in the well as described in Section 02633, Well Drilling and Testing.
 - d. Reduction in Payment for Failure to Meet Minimum Well Efficiency Criteria: Full payment will be made for wells meeting the minimum efficiency (75 percent) described in Section 02633, Well Drilling and Testing. No payment will be made if the well efficiency is 65 percent or less. Payment will be reduced by the amount of 10 percent for each well efficiency percentage point below 75 percent.

14. Item No. 14 – Furnish and Install 10-Inch Dielectric Coupling:
 - a. Description: This item includes all work associated with furnishing and installing 10-inch dielectric couplings. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in-place.
 - b. Measurement: Measurement of the item “Furnish and Install 10-Inch Dielectric Coupling” will be based on the number of 10-inch dielectric couplings installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for the item “Furnish and Install 10-Inch Dielectric Coupling” shall be at the unit price each indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the “Furnish and Install 10-Inch Dielectric Coupling” installed, tested, accepted, and ready for use as its intended purpose.
15. Item No. 15 – Furnish and Emplace Filter Pack:
 - a. Description: This item shall govern the furnishing and emplacing filter pack.
 - b. Measurement: Measurement of the item “Furnish and Emplace Filter Pack” will be based on the linear feet of filter pack installed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for furnishing and emplacing of the filter pack shall be at the unit price per linear foot indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc., necessary to have the filter pack installed, tested, and accepted.
16. Item No. 16 – Well Development:
 - a. Description: This item shall include all work associated with well development.
 - b. Measurement: Measurement of the item, “Well Development” will be based on the number of wells developed, tested, and accepted, all in accordance with the Contract Documents.
 - c. Payment: This item will be paid for at the contract unit price for well development. Only 75 percent (partial) payment will be made upon acceptance of this item prior to demobilization from this site. Upon completion and acceptance of demobilization from the well site, the remaining 25 percent of payment will be made.

17. Item No. 17 – Furnish, Install, and Remove Pump System and Temporary Piping for Well Development and Pump Tests:
 - a. Description: This item shall include all work-associated furnishing, installing, and removing the pump system and associated facilities for well development and pump tests.
 - b. Measurement: Measurement of the item, “Furnish, Install, and Remove Pump System for Well Development and Pump Tests” will be based on the number of pump systems installed and accepted in accordance with the Contract Documents.
 - c. Payment: This item will be paid for at the contract unit price for furnishing, installing, and removing the pump system for well development and pump tests. Only 75 percent (partial) payment will be made upon acceptance of this item prior to demobilization from this site. Upon completion and acceptance of demobilization from the well site, the remaining 25 percent of payment will be made.

18. Item No. 18 – Constant-Discharge Production Well Pumping Test (72-hour):
 - a. Description: This item shall consist of the work required to conduct a 72-hour, constant-discharge pumping test of the production well. The Contractor will receive no additional compensation for pre-testing.
 - b. Measurement: Measurement of the item “Constant-Discharge Production Well Pumping Test” will be based on the number of “Constant Discharge Production Well Pumping Tests” completed and accepted in accordance with the Contract Documents.
 - c. Payment: Payment shall be at the contract unit price for constant rate production well pump testing, as indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to constant rate test the well, complete, tested and accepted all in accordance with the Contract Documents. Payment shall be based upon the well achieving a 75 percent efficiency rating as described in Section 02633, Well Drilling and Testing.
 - d. Reduction in Payment for Failure to Meet Minimum Well Efficiency Criteria: Full payment will be made for wells meeting the minimum efficiency (75 percent) described herein. No payment will be made if the well efficiency is 65 percent or less. Payment will be reduced by the amount of 10 percent for each well efficiency percentage point below 75 percent.
 - e. Only 75 percent (partial) payment will be made upon acceptance of this item prior to demobilization from this site. Upon completion and acceptance of demobilization from the well site, the remaining 25 percent of payment will be made.

19. Item No. 19 – Water Quality Sampling and Analyses:
- a. Description: The Contractor shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to complete water quality sampling and analyses.
 - b. Measurement: Measurement of the item “Water Quality Sampling and Analyses” will be based on sampling and analyses completed and accepted all in accordance with the Contract Documents. The Contractor will provide a printed record of the water quality results.
 - c. Payment: Payment for water quality sampling and analyses shall be at the unit price indicated in the Bid Schedule, which price shall constitute full compensation for the completed work all in accordance with Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary for water quality sampling and analyses completed and accepted. Contractor will not receive extra compensation for rig time or stand by time while the water quality sampling and analyses are conducted. Payment is contingent upon the Contractor submitting a provide a printed record of the water quality results for each well. Only 75 percent (partial) payment will be made upon acceptance of this item prior to demobilization from this site. Upon completion and acceptance of demobilization from the well site, the remaining 25 percent of payment will be made.
20. Item No. 20 – Well Disinfection and Completion:
- a. Description: The Contractor shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to complete well disinfection and completion.
 - b. Measurement: Measurement of the item “Well Disinfection and Completion” will be based on disinfection and completion completed and accepted all in accordance with the Contract Documents. The Contractor will provide a printed record of the water quality results.
 - c. Payment: Payment for well disinfection and completion shall be at the unit price indicated in the Bid Schedule, which price shall constitute full compensation for the completed work all in accordance with Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary for well disinfection and completion completed and accepted. Contractor will not receive extra compensation for rig time or stand by time while the well disinfection and completion is conducted. Payment is contingent upon the Contractor submitting a provide a printed record of the water quality results for each well. Only 75 percent (partial) payment will be made upon acceptance of this item prior to demobilization from this site.

Upon completion and acceptance of demobilization from the well site, the remaining 25 percent of payment will be made.

21. Item No. 21 – Final Well Color Video Log:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to complete final well color video log.
 - b. Measurement: Measurement of the item “Final Well Color Video Log” will be based on video logs completed and accepted all in accordance with the Contract Documents. The Contractor will provide a borehole video record of the completed well from the base of the sump to the top of the casing at surface.
 - c. Payment: Payment for final well color video log shall be at the unit price indicated in the Bid Schedule, which price shall constitute full compensation for the completed work all in accordance with Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary for final well color video log completed and accepted. Contractor will not receive extra compensation for rig time or stand by time while the final well color video log is conducted. Payment is contingent upon the Contractor submitting a complete video record of all well screen and casing from the base of the sump to top of the casing at surface. Only 75 percent (partial) payment will be made upon acceptance of this item prior to demobilization from this site. Upon completion and acceptance of demobilization from the well site, the remaining 25 percent of payment will be made.
22. Item No. 22 – Drill Rig Standby Time at the Direction of the Consultant:
 - a. Description: This item shall consist of drill rig standby time at the direction of the Consultant.
 - b. Measurement: Measurement of the item “Drill Rig Standby Time at the Direction of the Consultant” will be based on the number of hours actually spent on standby at the direction of the Consultant in accordance with the Contract Documents.
 - c. Payment: Payment for drill rig standby time at the direction of the Consultant shall be at the unit price per hour indicated in the Bid Schedule, which price shall constitute full compensation for the completed Work all in accordance with the contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to remain on standby in accordance with the Contract Documents.

B. Part 2: Roadway Construction:

1. Item No. 1 – Furnish and Install Geogrid Fabric Underlayment for Access Roads:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to install the geogrid fabric underlayment across 12-foot width of flex base roadway.
 - b. Measurement: Measurement of the item “Furnish and Install Geogrid Fabric Underlayment for Access Roads” will be by the linear foot of geogrid fabric underlayment installed across 12-foot width of base material in accordance with the Contract Documents.
 - c. Payment: Payment for installing the geogrid fabric underlayment as specified shall be at the unit price per linear foot indicated in the Bid Proposal, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the geogrid fabric underlayment ready for use as its intended purpose. Any areas damaged during construction must be replaced by the contractor before project completion at no additional cost.
2. Item No. 2 – Construct 6-Inch Concrete Overflow Section:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to construct concrete overflow sections in accordance with the Specifications and Drawings.
 - b. Measurement: Measurement of the “Item 6 Inch Concrete Overflow” section will be by the linear foot of the concrete section measured in the longitudinal direction in its final position in accordance with the Contract Documents.
 - c. Payment: Payment for constructing the concrete overflow sections as specified shall be at the unit price per linear foot indicated in the Bid Proposal, which price shall be full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials inclusive of concrete, reinforcing, aggregate base, stone riprap, and erosion matting, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc., necessary to have the concrete overflow sections ready for use as its intended purpose. Preparation of subgrade will not be paid for directly but will be subsidiary to this item, unless otherwise shown on the Drawings. Any areas damaged during construction must be replaced by the contractor before project completion at no additional cost.
3. Item No. 3 – Construct 6-Inch Flexible Base Access Roads:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to construct the 6-inch

- flexible base access roads, necessary ditches, and placement of any fill and backfill.
- b. Measurement: Measurement of the item “Construct 6-Inch Flexible Base Access Roads” will be by the linear foot in its final position in accordance with Contract Documents.
 - c. Payment: Payment for constructing the flexible base access road as specified shall be at the unit price per linear foot indicated in the Bid Proposal, which price shall be full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all authorized excavation, drying, undercutting subgrade and reworking or repairing the undercut material in rock cuts, hauling, disposal of material not used elsewhere on the Project, scarification, compaction, furnishing embankment, placing, compaction, flexible base, removal and disposal of waste or excess material, all materials, tools, labor, equipment, supplies, permits, etc. necessary to have the flexible base access road ready for use as its intended purpose. All sprinkling and rolling will not be paid for directly but will be subsidiary to this item, unless otherwise shown on the Drawings. Payment for establishing permanent vegetation, including, but not limited to, topsoil, seeding and watering, as shown in the roadway typical sections, shall be subsidiary to this item, unless specified otherwise. Any areas damaged during construction must be replaced by the contractor before project completion at no additional cost.
4. Item No. 4 – Construct 10-Inch Flexible Base Access Roads:
- a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to construct the 10-inch flexible base access roads, necessary ditches, and placement of any fill and backfill.
 - b. Measurement: Measurement of the item “Construct 10-Inch Flexible Base Access Roads” will be by the linear foot in its final position in accordance with Contract Documents.
 - c. Payment: Payment for constructing the flexible base access road as specified shall be at the unit price per linear foot indicated in the Bid Proposal, which price shall be full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all authorized excavation, drying, undercutting subgrade and reworking or repairing the undercut material in rock cuts, hauling, disposal of material not used elsewhere on the Project, scarification, compaction, furnishing embankment, placing, compaction, flexible base, removal and disposal of waste or excess material, all materials, tools, labor, equipment, supplies, permits, etc. necessary to have the flexible base access road ready for use as its intended purpose. All sprinkling and rolling will not be paid for directly but will be subsidiary to this item, unless otherwise shown on the Drawings.

Payment for establishing permanent vegetation, including, but not limited to, topsoil, seeding and watering, as shown in the roadway typical sections, shall be subsidiary to this item, unless specified otherwise. Any areas damaged during construction must be replaced by the contractor before project completion at no additional cost.

5. Item No. 5 – Construct 6-Inch Flexible Base Driveway:
 - a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to construct the flexible base driveway in accordance with specifications.
 - b. Measurement: Measurement of the item “Construct 6-Inch Flexible Base Driveway” will be for each in its final position in accordance with Contract Documents.
 - c. Payment: Payment for constructing the flexible base driveway as specified shall be at the unit price for each indicated in the Bid Proposal, which price shall be full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, flexible base, rolling, compacting, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the flexible base driveway ready for use as its intended purpose. Sprinkling, rolling, and proof rolling will not be paid for directly but will be subsidiary to this item, unless otherwise shown on the Drawings. Any areas damaged during construction must be replaced by the contractor before project completion at no additional cost.
6. Item No. 6 – Furnish and Install 24-Inch Corrugated Metal Pipe:
 - a. Description: Furnish and install corrugated metal pipes, materials for constructing corrugated metal pipe culverts.
 - b. Measurement: Measurement of this item will be by the linear foot in its final position in accordance with Contract Documents.
 - c. Payment: The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price bid for “Furnish and Install 24-Inch Corrugated Metal Pipe” at locations specified in the Drawings. This price is full compensation for furnishing, hauling, placing, and joining of pipes; furnishing, hauling; furnishing concrete, reinforcing steel and pipe runners; riprap, nuts, bolts, plates, angels, jointing materials; all connections to new or existing structures; breaking back, removing and disposing of portions of the existing structure; cutting pipe ends on skew or slope; and equipment, labor, tools, and incidentals.
7. Item No. 7 – Apply Safety End Treatment to 24-Inch Corrugated Metal Pipe:
 - a. Description: Apply safety end treatments to 24-inch corrugated pipe.

- b. Measurement: Measurement of this item will be by each end treatment completed in accordance with Contract Documents.
 - c. Payment: The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price bid for “Apply Safety End Treatment to 24-Inch Corrugated Metal Pipe” at locations specified in the Drawings. This price is full compensation for applying safety end treatments; and equipment, labor, tools, and incidentals.
8. Item No. 8 – Furnish and Install Permanent Cattle Guard:
- a. Description: Furnish and install permanent steel cattle guard and materials for constructing. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in-place and restore the Site to its original condition.
 - b. Measurement: Measurement of this item “will be by each structure completed in its final position and accepted in accordance with Contract Documents.
 - c. Payment: The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price bid for “Furnish and Install Permanent Cattle Guard” at locations specified in Drawings. This price is full compensation for furnishing, hauling, placing and equipment, labor, tools, and incidentals necessary to have the guard installed, accepted, and ready for use as its intended purpose.
9. Item No. 9 – Replace 4-Foot Height 5-Strand Barbed Wire Fencing:
- a. Description: This item includes all work associated with replacing 4-foot height 5-strand barbed wire fencing. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in-place and restore the Site to its original condition.
 - b. Measurement: Measurement of the item “Replace 4-Foot Height 5-Strand Barbed Wire Fencing” will be based on the number of linear feet of fencing replaced and accepted, all in accordance with the Contract Documents.
 - c. Payment: Payment for replacing the fencing shall be at the unit price per linear foot of fence indicated in the Bid Proposal, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the fencing replaced, accepted, and ready for use as its intended purpose.
10. Item No. 10 – Furnish and Install 4-Foot Height, 16-Foot Width Swing Gate with Latch and Side Flare Ranch Fencing at Wellfield Entrance:
- a. Description: The Contractor shall provide all labor, supervision, tools, equipment, and materials necessary to install the gate.

- b. Measurement: Measurement of the item “Furnish and Install 4-Foot Height, 16-Foot Width Swing Gate with Latch and Side Flare Ranch Fencing at Wellfield Entrance” will be based on the number of gates installed in accordance with the Contract Documents.
 - c. Payment: Payment for installing the gate shall be at the unit price per each gate indicated in the Bid Proposal, which price shall constitute full compensation for the completed Work all in accordance with the Contract Documents. This includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the gate ready for use as its intended purpose.
11. Item No. 11 – Barricades, Signs and Traffic Handling:
- a. Description: Provide, install, move, replace, maintain, clean, and remove upon completion of work all barricades, signs, cones, lights, and other traffic control devices used for traffic handling as indicated on the Drawings and as directed.
 - b. Measurement: Measurement of the item “Barricades, Signs and Traffic Handling” will be based on the number of months used, all in accordance with the Contract Documents.
 - c. Payment: The work performed and materials furnished in accordance with this item and measured as provided under “Measurement” will be paid for at the unit price bid for “Barricades, Sign and Traffic Handling”. This price is full compensation for installation, maintenance, adjustments, replacements, removal, materials, equipment, labor, tools, and incidentals.
 - 1) Initiation of Payment: Payment for this item will begin on the first estimate after barricades, signs, and traffic handling devices have been installed in accordance with the TCP and construction has begun. Installation of the Project limit advance warning signs along is not considered the beginning of construction.
 - 2) Paid Months: Monthly payment will be made each succeeding month for this item provided the barricades, signs, and traffic handling devices have been installed and maintained in accordance with the TCP until the Contract amount has been paid. If within the time frame established by the Consultant, the Contractor fails to provide or properly maintain signs and barricades in compliance with the Contract requirements, as determined by the Consultant, the Contractor will be considered in noncompliance with this item. No payment will be made for the months in question, and the total final payment quantity will be reduced by the number of months the Contractor was in noncompliance.
 - 3) Total Payment Quantity: The quantity paid under this item will not exceed the total quantity shown in the Drawings except as modified by change order and as adjusted by

“Paid Months” section above. An overrun of the bid quantities will not be allowed for approving designs; testing; material shortages; closed construction seasons; curing periods; establishment, performance test and maintenance periods; failure to complete the work in the number of months allotted; nor delays caused directly or indirectly by requirement of the Contract.

- 4) Law Enforcement: Law enforcement required for work done within TxDOT right-of-way will not be paid for separately, but will be considered subsidiary to this pay item.
12. Item No. 12: Temporary Erosion, Sedimentation, and Environmental Controls:
- a. Description: This item shall govern all aspects of erosion, sedimentation, and other environmental controls. The Contractor shall install, maintain, and remove erosion, sedimentation, and environmental control devices and shall remove accumulated sediment and debris as necessary. The Contractor shall be responsible for all construction phase Storm Water Pollution Prevention Plan development, design, permitting, implementation, maintenance, and removal as acceptable to the Owner and Consultant.
 - b. Measurement: Measurement of the item “Temporary Erosion, Sedimentation, and Environmental Controls” will be by lump sum as the work progresses.
 - c. Payment: Partial payments of the lump sum bid for Temporary Erosion, Sedimentation, and Environmental Controls will be as follows:
 - 1) When 1 percent of the adjusted contract amount for construction items (which is defined as the total contract amount less the lump sum bid for mobilization/demobilization) is earned, 25 percent of the Temporary Erosion, Sedimentation, and Environmental Controls lump sum bid will be paid.
 - 2) When 25 percent of the adjusted contract amount for construction items is earned, an additional 25 percent of the Temporary Erosion, Sedimentation, and Environmental Controls lump sum bid will be paid.
 - 3) When 50 percent of the adjusted contract amount for construction items is earned, an additional 25 percent of the Temporary Erosion, Sedimentation, and Environmental Controls lump sum bid will be paid.
 - 4) Upon completion of all work, demobilization, and acceptance thereof under this contract, payment for the remainder of the lump sum bid for Temporary Erosion, Sedimentation, and Environmental Controls will be made.

C. Part 3: Management of Contaminated Soil and Water:

1. Item No. 1: Management of Contaminated Soil:

- a. Description: This item shall govern all aspects of management of contaminated soil. The Contractor shall be responsible for screening, sampling, testing, removal, segregation, transportation and ultimate disposal of contaminated soil encountered at the site.
 - b. Measurement: This item shall be measured by the cubic yard (CY) of soil managed as approved by the Consultant.
 - c. Payment: This item shall be paid for at the unit price indicated in the bid schedule.
- 2. Item No. 2: Management of Contaminated Water:
 - a. Description: This item shall govern all aspects of management of contaminated water. The Contractor shall be responsible for screening, sampling, testing, removal, segregation, transportation and ultimate disposal of contaminated water encountered at the site.
 - b. Measurement: This item shall be measured by the gallon (GAL) of water managed as approved by the Consultant.
 - c. Payment: This item shall be paid for at the unit price indicated in the bid schedule.
- D. Part 4: Project Mobilization/Demobilization:
- 1. Item No. 1 – Mobilization/Demobilization:
 - a. Description: This item shall govern the mobilization of personnel, equipment, and supplies to the Project Site in preparation for the beginning work on contract items and the acquisition of insurance, bonds, owner indemnification, and permits. Mobilization shall include, but not be limited to, pre-construction video survey of roadways, installation and maintenance of temporary crossings, the movement of equipment, personnel, material, supplies, etc. to the staging area and the establishment of temporary offices, preparation of work plans and general submittals, security, temporary fencing and gates for the staging area, and establishment of other facilities necessary to the start of the work. This item shall also govern the mobilization of personnel, equipment, and supplies to each well site, drilling rig and equipment setup, installation of conductor casing, implementation of site security, and other work as specified. This item shall also include complete demobilization from the Project. Demobilization shall include, but not be limited to, the removal of equipment, personnel, material, supplies, temporary offices, temporary fences and gates, etc. from all work areas and restoration of areas and temporary crossings to a condition that is acceptable to the Owner and Consultant.

- b. Measurement: Measurement of the item “Mobilization/ Demobilization” will be by lump sum as the work progresses.
- c. Payment: Partial payments of the lump sum bid for mobilization/ demobilization will be as follows:
 - 1) When 1 percent of the adjusted contract amount for construction items (which is defined as the total contract amount less the lump sum bid for mobilization/ demobilization) is earned, 25 percent of the mobilization lump sum bid will be paid.
 - 2) When 25 percent of the adjusted contract amount for construction items is earned, an additional 25 percent of the mobilization/demobilization lump sum bid will be paid.
 - 3) When 50 percent of the adjusted contract amount for construction items is earned, an additional 25 percent of the mobilization/demobilization lump sum bid will be paid.
 - 4) Upon completion of all work, demobilization, and acceptance thereof under this contract, payment for the remainder of the lump sum bid for mobilization/ demobilization will be made.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

**SECTION 02215
GEOGRID REINFORCEMENT**

PART 1 GENERAL

1.01 DESCRIPTION

- A. This section shall govern the furnishing and constructing of geogrid reinforcement as specified hereinafter, shown on the Drawings or directed by the Consultant. Geogrid shall be used for subgrade strengthening below flexible base roadway.
- B. The Work shall include placement of the geogrid in general conformance to the line and grade shown on the Drawings and shall include the furnishing of the materials, and other incidentals necessary to maintain the geogrid in its required position until the completion of any other associated work items.

1.02 QUALITY ASSURANCE

- A. **Manufacturer's Qualifications:** Manufacturer shall have a minimum of 5 years of experience in the production and installation of substantially similar projects to Consultant's satisfaction.
- B. **Reference Standards:** Comply with TxDOT Special Specification 2009 Geogrid Reinforcement for Embankments, unless otherwise shown or specified.

1.03 SUBMITTALS

- A. **Samples:** Submit samples of materials in accordance with Section 01330, Submittals, as specified and as otherwise requested by Consultant, including names, sources and descriptions.
- B. **Performance Data:** Submit results of full-scale laboratory testing of flexible pavement structures reinforced with geogrids or in-ground testing of flexible pavement structures reinforced with geogrids which quantifies the structural contribution of the geogrid to the pavement structure.
- C. **Shop Drawings:** Submit for approval the following:
 - 1. Manufacturer's specifications with application and installation instructions.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. All shipments of geogrid shall be accompanied by a mill certificate or affidavit, signed by a legally authorized official of the manufacturer certifying that the material meets all stated chemical, physical, and manufacturing requirements.

PART 2 PRODUCTS

2.01 MATERIALS

A. General:

1. The biaxial geogrid shall be a regular grid structure formed by biaxially Drawing a single continuous sheet of select mechanical interlock with the material being reinforced.
2. The geogrid shall have high flexural rigidity and high tensile modulus in relation to the material being reinforced and shall also have high continuity of tensile strength through all ribs and junctions of the grid structure.
3. The geogrid shall maintain its reinforcement and interlock capabilities under repeated dynamic loads while in service and shall also be resistant to ultraviolet degradation, to damage under construction practices and to all forms of biological or chemical degradation normally encountered in the material being reinforced.

B. Substitutions:

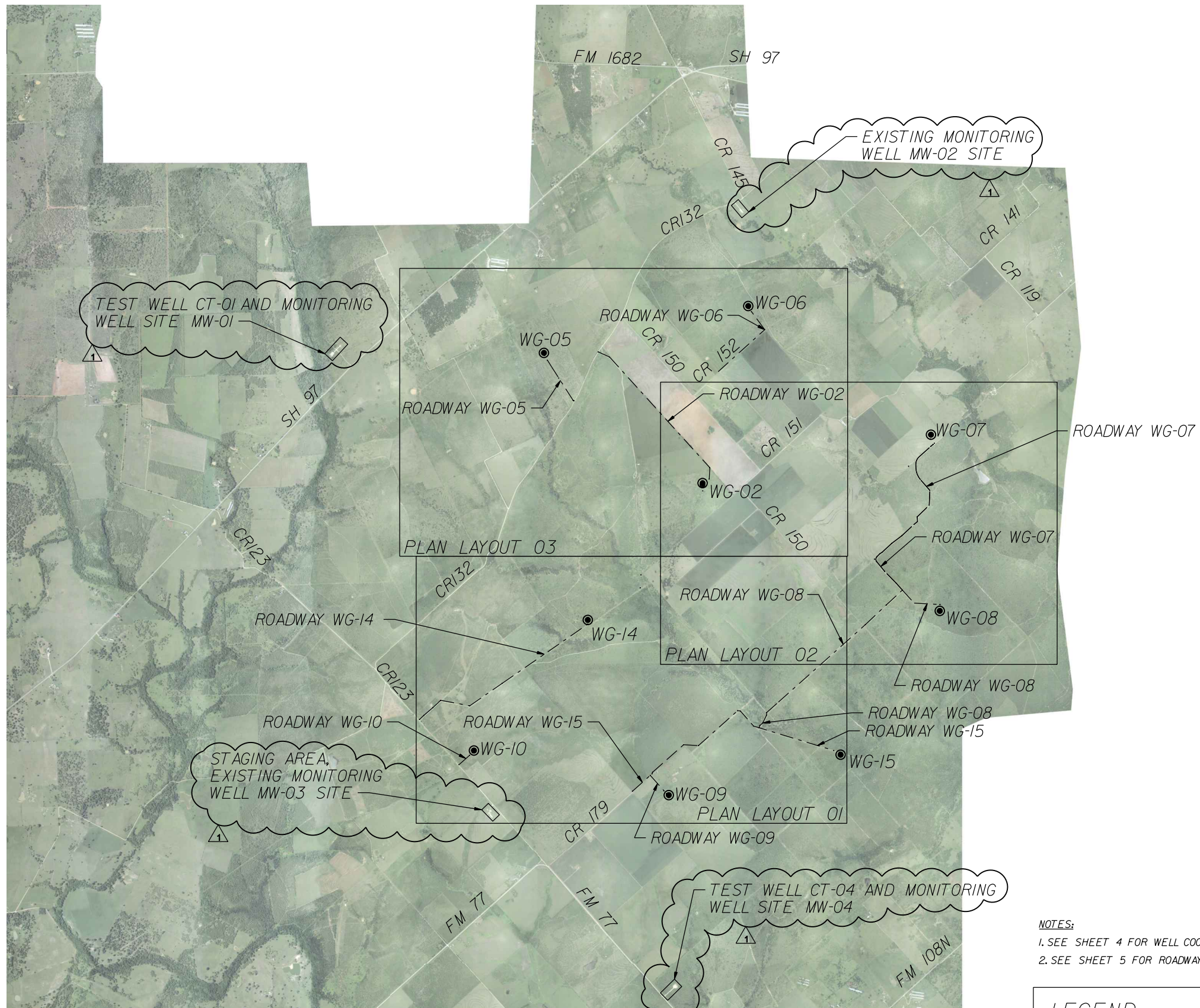
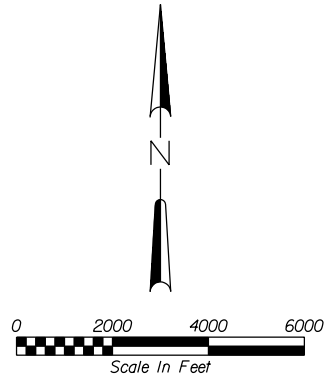
1. Geogrids not meeting the physical properties of this Specification may not be installed without prior approval of the Consultant.
2. Material substitutions for geogrids not conforming to the physical requirements of this Specification must be submitted with an alternative design proposal to the Consultant.
3. Alternate design proposals must be accompanied by the test data from an independent laboratory verifying design and index properties in accordance with the test methods of this Specification. Performance data, which quantifies the structural contribution of the geogrid to the pavement structure, shall be substituted to the Consultant.

PART 3 EXECUTION

3.01 CONSTRUCTION METHODS

- A. Pre-Installation Inspection:
 - 1. The geogrid shall be rejected if it has defects, tears, punctures, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.
 - 2. If approved by the Consultant, damaged sections may be repaired by patching in accordance with the manufacturer's recommendations.
- B. Subgrade Preparation: Subgrade shall be prepared as indicated on the Drawings and specifications, or as directed by the Consultant.
- C. Installation: Installation shall be in conformance with TxDOT Special Specification 2009.4 Construction.
- D. Acceptance of the Work: The Contractor shall be required to replace, at his expense, sections of the geogrid which are damaged during construction and prior to acceptance of the Work by Owner.

END OF SECTION



NOTES:
 1. SEE SHEET 4 FOR WELL COORDINATES
 2. SEE SHEET 5 FOR ROADWAY COORDINATES.

<u>LEGEND</u>	
●	NEW BUCKHORN WELLS
---	ROAD IMPROVEMENT

6/13/11	Date	Revisions	ADDENDUM NO. 4
1	No.		

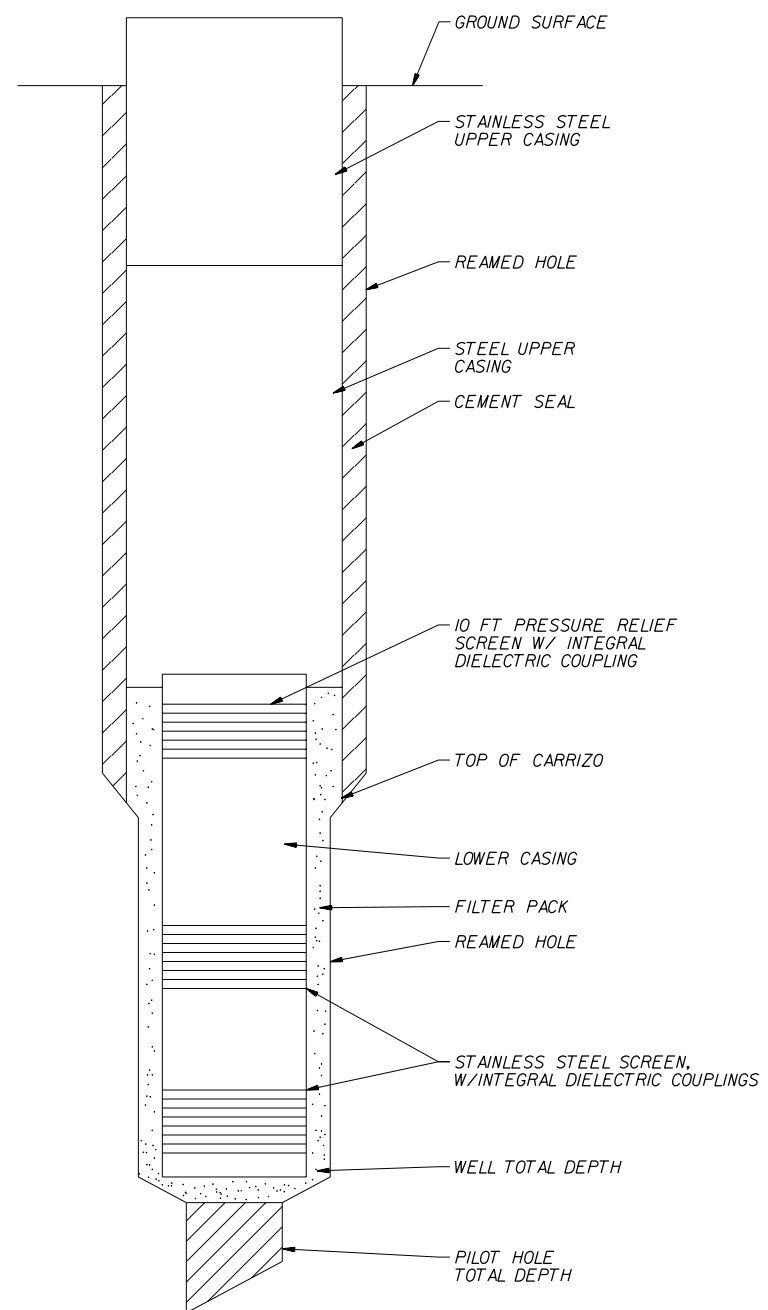
THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY THE BOARD OF ENGINEERING EXAMINERS ON MAY 13, 2011. ALTERATION OF A SEAL WITHOUT PROPER NOTIFICATION TO THE BOARD OF ENGINEERING EXAMINERS IS AN OFFENSE UNDER THE PRACTICE ACT.

Design Firm Job No. 317470

Date: MAY 2011
 Designed by: CP
 Drawn by: WAB
 Checked by: BDH
 Scale: AS SHOWN



SAWS Job No. 03-8518-207
 REGIONAL CARRIZO PROGRAM
 BUCKHORN WELLFIELD ACCESS ROADS
 AND WELL CONSTRUCTION PROJECT
 PROJECT LAYOUT KEYMAP



STANDARD TELESCOPE DESIGN OPTION
NTS

WELL LOCATIONS AND ELEVATIONS			
WELL NUMBER	NORTHING	EASTING	LAND SURFACE ELEVATION (ft)
WG-02	N 13688951.11	E 2403384.33	341
WG-05	N 13693585.37	E 2397809.52	377
WG-06	N 13695233.85	E 2404992.69	376
WG-07	N 13690708.35	E 2411417.27	322
WG-08	N 13684509.70	E 2411727.00	325
WG-09	N 13678028.94	E 2402198.31	354
WG-10	N 13679597.82	E 2395347.89	382
WG-14	N 13684191.40	E 2399351.33	337
WG-15	N 13679451.00	E 2408239.82	283

ESTIMATED DEPTHS AND MATERIAL QUANTITIES						
WELL NUMBER	PILOT HOLE TOTAL DEPTH (ft bgs)	WELL TOTAL DEPTH (ft bgs)	UPPER CASING DEPTH (ft bgs)	SST CASING DEPTH (ft bgs)	LOWER CASING LENGTH INCLUDING SUMP (ft)	SCREEN LENGTH (ft)
WG-02	2,190	1,980	1,230	200	560	250
WG-05	2,000	1,780	1,060	240	530	250
WG-06	2,140	1,920	1,200	240	530	250
WG-07	2,330	2,120	1,370	190	560	250
WG-08	2,470	2,260	1,480	190	590	250
WG-09	2,400	2,190	1,410	220	590	250
WG-10	2,230	2,010	1,250	250	570	250
WG-14	2,190	1,970	1,220	200	560	250
WG-15	2,450	2,230	1,450	150	590	250

- NOTES:
- THE PROJECT COORDINATES ARE NAD 83, TEXAS STATE PLANE, SOUTH CENTRAL ZONE (4204), SURFACE COORDINATES. VERTICAL DATUM IS NORTH AMERICAN DATUM (NAVD 88).
 - ALL LENGTHS AND DEPTHS FOR PLANNING PURPOSES ONLY. FINAL DESIGNS WILL BE BASED ON DATA COLLECTED FROM PILOT HOLES.
 - bgs = BELOW GROUND SURFACE

Design Firm Job No. 317470

Revisions

06/13/11 APPENDUM NO. 4

Date

No.

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MEALS ON MAY 15, 2011 IN FULL FULFILLMENT OF A REQUIREMENT OF THE BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS OF THE STATE OF TEXAS. ANY REPRODUCTION OR ALTERATION OF THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF THE BOARD OF PROFESSIONAL ENGINEERS AND SURVEYORS OF THE STATE OF TEXAS IS A VIOLATION OF THE PROFESSIONAL ENGINEERING PRACTICE ACT.

Date: MAY 2011
 Designed by: KEN
 Drawn by: WAB
 Checked by: JCD
 Scale: NTS



SAWS Job No. 03-8518-207
 REGIONAL CARRIZO PROGRAM
 BUCKHORN WELLFIELD ACCESS ROADS
 AND WELL CONSTRUCTION PROJECT
 PRODUCTION WELL
 SECTION / DETAILS

San Antonio Water System Regional Carrizo Program

Buckhorn Wellfield Access Roads and Well Construction Project SAWS Job No. 03-8518-207 Solicitation No. B-11-024-MF

PRE-BID MEETING

SAWS Customer Service Building, CR 145
May 31, 2011, 2 PM

Agenda

NOTE: THE PRE-BID AGENDA IS PROVIDED FOR REFERENCE ONLY AND DOES NOT CHANGE ANY CONTRACT DOCUMENTS. THE PRE-BID AGENDA IS NOT A CONTRACT DOCUMENT.

1. This is the non-mandatory pre-bid meeting for the Regional Carrizo Program – Buckhorn Wellfield Access Roads and Well Construction Project, SAWS Job No. 03-8518-207 and Solicitation No. B-11-024-MF.
2. Sealed bids will be received by the Contract Administration Division, 2800 U.S. Hwy 281 North, Customer Center Building, Suite 171, San Antonio, TX 78212, until **2:00 PM (CST), June 15, 2011**. Bids will then be publicly opened and read aloud in Contract Administration, Suite 169, Customer Center Building. **(Bid opening date was changed to 2:00 PM (CST), June 22, 2011 per Addendum #2).**
3. All questions and answers verbally iterated at this meeting are not binding unless put in writing by addendum. Bidders must submit all questions in writing to Maria Franco at mfranco@saws.org or via fax at (210) 233-4622 for a written response. All questions must be received by **4:00 PM (CST) on June 2, 2011**. Responses are expected to post by **4:00 PM (CST) on June 7, 2011** as a separate document or included as part of an addendum. **(Bidders must submit all questions in writing to Maria Franco by 4:00 PM (CST) on June 8, 2011 per Addendum #2. Responses are expected to post as a separate document or included as part of an addendum by 4:00 PM (CST) on June 13, 2011 per Addendum #3).**
4. **INTRODUCTION**
 - A. Staff
 - B. Sign-In Sheet

5. BIDDING INFORMATION

- A. Bidding Process and Bid Submittals Required – Discussion by SAWS
- B. Bonding
5% of total Bid accompanied with each Bid
- C. Clarifications and Addenda:
Only written addenda can modify documents. No addenda have been issued to date. Addendum No. 1 anticipated after Pre-bid meeting.
- D. Bid Opening Date, Time, and Place: Sealed bids will be received by the Contract Administration Division, 2800 U.S. Hwy 281 North, Customer Center Building, Suite 171, San Antonio, TX 78212, until **2:00 PM (CST), June 15, 2011**. Bids will then be publicly opened and read aloud in Contract Administration, Suite 169, Customer Center Building. **(Bid opening date was changed to 2:00 PM (CST), June 22, 2011 per Addendum #2).**

6. GENERAL (DIVISION 1), SUPPLEMENTAL/SPECIAL CONDITIONS, AND BID FORM

- A. Period of performance – 365 calendar days
- B. Supplemental/Special Conditions

Supplemental/Special Conditions include but are not limited to the following requirements:

- 1. Working Hours – 24 hours a day, 7 days per week allowed for activities deemed critical to the proper construction of the well or for which 24 hour monitoring is required, including but not limited to drilling, well installation, development, and pump testing
- 2. Liquidated Damages - \$2,000 per day until Project Completion and Acceptance
- 3. Note Bidder/Construction Superintendent Qualifications
- 4. Prime contractor must perform at least 40% of work
- 5. Contractor responsible for obtaining all permits
- 6. Contractor responsible for construction staking
- 7. Contractor must maintain status of all internal and external gates; Financial penalty of \$1,000 per occurrence for each violation
- 8. Additional insurance requirements
- 9. Major changes – 20% instead of 5%

- C. Bid Form

Note: pay careful attention to the following items when preparing the bid:

1. Part 4, Mobilization and Demobilization, cannot exceed 10% of the base bid.
2. No alternate bid items.
3. Note requested information on bidder qualifications and personnel.

D. Section 01270, Measurement and Basis of Payment

Note: pay careful attention to the following items when preparing the bid:

1. Part 4, Mobilization and Demobilization, cannot exceed 10% of the base bid.
2. Note calculations for payment of Part 2, Item 12, Temporary Erosion, Sedimentation, and Environmental Controls, and Part 4, Item 1, Mobilization/Demobilization.
3. Note reduction in payment for casing not meeting minimum acceptance criteria (Part 1, Item 6; Part 1, Item 7; Part 1, Item 8; and reduced well efficiency (Part 1, Item 13; Part 1, Item 18).
4. Note that payment for Part 1, Items 16 through 21 will only be paid up to 75% until the contractor has satisfactorily demobilized from the drilling site.

E. Payment:

1. Once per month
2. 5% retainage
3. Retainage held until final contract settlement

F. Soil/Geotechnical, and Buried Utility Information:

1. Buried utilities are shown on the Drawings to the best of Owner's knowledge. Contractor is required to locate all buried utilities.
2. Geotechnical information is not included.

G. Permits, Fees, and Utilities:

- a. Contractor is required to secure all permits and licenses to construct facilities.
- b. Contractor provides all temporary utilities including electricity, ventilation, telephone, water, sanitary, and fire protection as necessary to perform the Work.

H. Performance and Payment Bond: Required with execution of contract.

I. MBE/WBE/SBE: SAWS highly encourages contractors to form joint ventures and/or provide subcontract opportunities to small, minority, and woman owned firms.

J. Project Meetings:

1. Preconstruction conference
2. Regular progress meetings
3. Others as required

- K. Construction Schedule:
1. Refer to Section 01321 for progress schedule requirements
 2. Detailed baseline schedule is required prior to construction
 3. Monthly updates are required with pay estimates
- L. Construction photographs and video survey:
1. Refer to Section 01322 for requirements
 2. Preconstruction survey is required for existing sites and roads
 3. Construction progress photos are required
- M. Project Record Documents:
1. To be maintained at the Contractor's field office;
 2. Includes shop drawings, as-recorded drawings, contract changes, correspondence, etc.
 3. Reviewed monthly by Owner,
 4. Submittal required at end of project
- N. Submittals:
1. Refer to Section 01330 for requirements;
 2. Shop drawing register
 3. All submittals and RFIs uploaded by Contractor to SAWS web-based program management system (Portal)
- O. Quality Control:
1. Refer to Section 01451
 2. Contractor shall develop a job specific, detailed QC plan
 3. Contractor pays for all construction materials testing
 4. Contractor shall submit an owner approved independent testing agency to perform all testing
- P. Construction Facilities:
- a. Contractor shall provide a temporary field office
 - b. Contractor shall protect existing property
 - c. Contractor responsible for maintaining site access for existing landowners and security
 - d. Contractor responsible for housekeeping
 - e. Contractor responsible for protection of existing property
 - f. Staging area
 - g. Contractor responsible for development of SWPPP
 - h. Contractor shall abide by SWPPP and provide all notices as required
 - i. Acknowledgement of Pollution Abatement Compliance
- Q. Contaminated Soil and Water: None expected; requirements included if necessary
- R. Field engineering: Contractor responsible for all construction staking

7. PLANS AND TECHNICAL SPECIFICATIONS

A. General:

1. Project includes construction of 9 Carrizo production wells permitted for 800 gpm (1,200 gpm maximum)
2. Includes construction of approximately 39,000 feet of access road
3. Wellfield construction will be completed in a subsequent contract

A. Production wells

- a. Traditional telescope (pressure relief screen)
- b. Stainless steel upper casing
- c. Dielectric couplings
- d. Final Well Design
 - i. Driller submits lithologic samples to approved lab
 - ii. Driller receives results and recommends screen and gravel pack design including depths, slot sizes, and gradation
 - iii. Engineer reviews recommendation and issues final design

B. Drilling Highlights

- a. Sequence dictated in contract
- b. Deep wells
- c. Possible artesian conditions
- d. Disposal of drilling fluid
- e. Construction Water
 - i. Construction water is available from wells approved by SAWS
 - ii. Temporary rig supply wells may be drilled with approval from SAWS, Gonzales County Underground Water Conservation District, and any other agency with jurisdiction (exempt <25,000 gpd)

C. Well Construction Highlights

- a. Driller shall submit cementing plan prior to cementing each well
- b. Driller shall notify TCEQ of cementing operation 48 hours in advance
- c. Deep cemented casing
- d. Alignment Criteria
- e. Gravel pack sample sieve analysis prior to installation
- f. Casing and Screen Mill Certs/heat numbers
- g. Development and Pump Testing
 - i. Pump tests 72 hours
 - ii. Pumping rate up to 1500 gpm
 - iii. Control flow of water to minimize erosion
 - iv. Pumping well and 1-2 additional wells monitored
 - v. Min Well Efficiency = 75%

D. Roadway and Temporary Stream Crossings

- a. First phase of 2-phase construction

- b. Driveways
- c. Drainage and low water crossings
- d. Erosion and sedimentation control
- e. Stream crossings

E. Any material must be removed at end of project

8. QUESTIONS AND ANSWERS

CONTRACTOR QUESTIONS AND CLARIFICATIONS #2

1. **Question:** The well site details do not show any geogrid under the roads or the pads. Do they get geogrid on the sub grade?
Clarification: No. Geogrid is required under the access roads as shown on the Typical Access Road Section on Sheet 9 of 25, and is included in the quantities in the Bid Proposal. Please note that the roadway quantities do not include final roadway construction all the way to the well pad. Refer to the table included on Sheet 9 with the Typical Well Site Detail.
2. **Question:** Can a prefabricated cattle guard be submitted?
Clarification: Yes. The submittal will still need to meet the drawing details and specifications.
3. **Question:** Can more than one drilling rig be used? (That is, could 2 rigs be working on different well locations at the same time?) (Two sets of test pump equipment would also be supplied).
Clarification: Yes. More than one drilling rig may be used to complete the project.
4. **Question:** Would it be acceptable to drill the test holes larger than 8 3/4"?
Clarification: See change to Section 02633, Paragraph 2.03 C. 1. in Addendum #4.
5. **Question:** Can a 12 1/4" pilot hole be drilled? This size can be drilled by reverse circulation. Better formation samples.
Clarification: See change to Section 02633, Paragraph 2.03 C. 1. in Addendum #4.
6. **Question:** Can earthen pits be used? They will be cleaned out, backfilled and packed to original condition.
Clarification: See change to Section 02633, Paragraph 2.03 B. 10. in Addendum #4.
7. **Question:** Would you supply us with a map showing the following 1) Monitoring well locations 2) Test well locations 3) Staging area and field office location
Question: Can SAWS provide a map of the locations of the existing SAWS wells in the area that are available for water for construction use?
Clarification: The locations of SAWS well sites have been added to Sheet 3 included in Addendum #4.
8. **Question:** Can we install a small pump in the monitoring wells for a water supply in not in use for monitoring during test pumping?
Clarification: Yes. See change to Sheet 3 Project Layout Keymap provided in Addendum #4 which provides the locations of SAWS wells. Refer to Section 01500 Paragraph 1.07.E for requirements related to water supply. Also see Addendum #4 for a change in Paragraph 1.07.E.5.

9. **Question:** Date, time and meeting location of site visit?
Question: Please provide the date, time and location of the site walk through.
Question: Is there going to be a site visit for the Buckhorn Well Field? If so, can we have an extension on the deadline for questions?
Clarification: Details on the site visit were provided in Addendum #1. The time extension for questions was addressed in Addendum #2.
10. **Question:** When can the project start?
Clarification: The project will start after notice to proceed has been issued. This is expected to be in late July or early August.
11. **Question:** Please confirm the client prefers 10" Rod Based Screen as opposed to Pipe Based
Clarification: Yes. Refer to Section 02633, Paragraph 2.07 A. for requirements. Refer to changes to Paragraph 1.05.B in Addendum #4 for submittal requirements.
12. **Question:** We understand that the depths and material quantities on sheet 4 or 25 are estimated. However, please confirm that the upper casing depth includes the SST casing depth. For example: WG-02's upper casing will be approximately 1030' with 200' of SST casing for a total of 1230'.
Clarification: The Upper Casing Depths are given including the stainless steel portion of the casing. The planned depth of the upper casing is 1,230 feet for well WG02. The mild steel total length is 1,030 ft and the stainless steel total length is 200 feet for a total of 1,230 ft.
13. **Question:** Are there any final grading or reseeding requirements at the well sites?
Clarification: The Contractor is referred to Section 02633, Paragraph 3.01 M. 3 and 4.
14. **Question:** I spoke with you a few minutes ago regarding the above referenced project. As I mentioned to you in our conversation we are interested in bidding the project as a prime contractor. However, we are not a water well drilling contractor. We have a well driller that will more than meet the project requirements but doesn't wish to bid the project as a prime contractor. This is why he contacted our office and asked if we would be interested in bidding the project. Please let me know if the prime contractor must be a water well drilling contractor or if we could submit a bid with a well drilling contractor that meets the requirements of the well driller. The bid invitation states that answers to questions will be provided on June 7, 2011. This is only one week prior to the project bid date and will not be adequate time to put together a competitive bid for submission. Based on this, we respectfully request that a response to the above request be provided at your earliest convenience.
Question: Can the prime contractor be a company other than a water well driller as long as the driller meets all the job requirements?
Clarification: This question has been answered in Addendum #1.

15. **Question:** It is our understanding that CH2M Hill and Black & Veatch are the primary engineers on the above referenced project. Can you please tell me if they are using a subcontract Hydrologist on this drilling project, and who it might be?
- Clarification:** CH2M HILL will provide resident engineers and geologists for the project.
16. **Question:** Is the excavation, topsoil and seeding shown on the typical roadway section subsidiary to the road construction as NSPI?
- Clarification:** Yes. Payment for establishing permanent vegetation, including but not limited to topsoil, seeding and watering as shown in the roadway typical sections shall be subsidiary to this item unless otherwise specified. Refer to revisions to Section 01270 in Addendum #4.
17. **Question:** Is any ROW Prep required outside of the limits of the road construction through the easement or only what is necessary for the installation of the road?
- Clarification:** Right of way preparation is required for all work as specified and/or shown on the Drawings. Only the portion of the right-of-way that must be cleared to complete the work is necessary. The ROW preparation must remain within the easement limits. Refer to Section 02200.
18. **Question:** Are the concrete overflows (concrete riprap, stone riprap, base and erosion control matting) subsidiary to the road construction as NSPI?
- Clarification:** See contract Technical Specification Section 01270, Part 1, 1.09 Measurement and Payment, B. Part 2: Roadway Construction, 2. Item No 2 Construct 6-inch Concrete overflow section, b. Measurement and c. Payment.
19. **Question:** The typical section shows the roadway as 16' wide, but the typical section for the overflow structure call the road to be 12' wide. Which width is correct?
- Clarification:** The overflow section is 12 feet wide to accommodate the ultimate/final roadway width of 12 feet. 16 feet of construction of the interim roadway is necessary to accommodate the final 12 foot section. Both dimensions are correct as shown.
20. **Question:** With regard to Sheet 2, General Conditions Note 4 does the consultant or the contractor deem the appropriate means to maintain the continuous flow until the permanent structures are installed at the creek crossings? If it is the consultant, please provide some parameter for this work since it appears to be NSPI as well.
- Clarification:** The contractor is responsible for maintaining flows in these areas for the duration of the construction activities. Refer to changes included in Addendum #4.
21. **Question:** In the specification Borehole Geophysical Logging, page 026335-1, the following is listed:
"Additional Logs (upon request)

1. Nuclear-Magnetic Resonance; and
2. Induced Gamma Ray Spectroscopy (Elemental Capture Spectrometry TM)."

This is listed as a "upon request" item, but there is no bid item for these. Are we supposed to figure our bid without these, and, if they are requested, supply pricing at that time?

Clarification: Nuclear-Magnetic Resonance log shall be included in the base bid. The Induced Gamma Ray Spectroscopy (Elemental Capture Spectrometry™) should not be included. The Geophysical Log Supplement has been revised in Addendum #4.

22. **Question:** Would additional trailers be allowed at the staging area to house drilling crews?

Clarification: The Contractor shall make arrangements with SAWS and land owners near the staging area or other location for siting additional trailers for crew housing. The Contractor shall follow all requirements of the agreement. Additional information including but not limited to a site layout may be required for approval by SAWS.

23. **Question:** Section 01500 Construction Facilities and Temporary Controls Subsection C. Drilling Sites (p. 2) specifies that the site "will be restored to original grade." Is there any other requirement or specification for the completed well pad surface?

Clarification: The well site will be improved during the next phase. See Section 02633 Paragraph 3.01, M, 3 and 4.

24. **Question:** Is the fencing around the well pads to be left in place once the contract ends?

Clarification: No. Temporary is acceptable to keep livestock out and meet any security requirements in the specification.

25. **Question:** How many project signs will be required?

Clarification: Refer to Section 01500, Paragraph 1.03.A.

26. **Question:** Section 02215 Geogrid Reinforcement specifies geogrid material shall meet TxDOT DMS 6240. The newer state specification is DMS 6270. Will geogrid material meeting the 6270 specification be allowed as a substitute for material meeting the 6240 specification?

Clarification: See revised Section 02215 included in Addendum #4. Refer to 2.01B substitutions for additional requirements related to substitutions.