



**SAWS Gonzales County Saturn Well Project
Solicitation Number: B-16-001-GC
Job No.: 15-0130**

**ADDENDUM 1
January 29, 2016**

To Respondent of Record:

This addendum, applicable to work referenced above, is an amendment to the bid proposal, plans and specifications and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the Addendum number and issue date on the space provided in submitted copies of the bid proposal.

MODIFICATIONS TO THE SPECIFICATIONS

1. In the TABLE OF CONTENTS, delete the reference to "Special Provisions to the Technical Specifications".
2. In the INVITATION TO BIDDERS, page IV-1, last paragraph, delete "CR-C145" and replace with "CR-C137".
3. Delete the Bid Proposal in its entirety and replace it with the Bid Proposal – Addendum 1 (Included).
4. Delete Specification 01270 Measurement and Payment in its entirety and replace it with Specification 01270 Measurement and Payment – Addendum 1 (Included)
5. Insert the Proposal Certification page (Included).
6. A Nuclear Magnetic Resonance Log will not be required for the Saturn Well Construction Project. In the Supplement to Specification 02634 Borehole Geophysical Logging, Additional Logs (Upon Request), delete the references to Nuclear Magnetic Resonance and the Induced Gamma Ray Spectroscopy (Elemental Capture Spectroscopy) logs in their entirety.

END OF MODIFICATIONS TO THE SPECIFICATIONS

RESPONSES TO QUESTIONS

1. **Question 1 - In GC 21. 8 – Is a Contract sign needed on site?**

Response

No project sign will be required for this job.

2. **Question 2 - In GC 22 (5.4) Is a full time Supervisor other than the Driller required on site?**

Response

Section 02633, Part 1, (1.01)(A) (1) and (A)(2) addresses the requirements for supervision during well construction. A separate supervisor over a TDLR licensed drillers meeting the requirements of Section 02633, Part 1, (A) (1) and (A)(2) is not required.

3. **Question 3 – In GC 35 - Is contractor required to provide surveying? How much?**

Response

No surveying is required for the Saturn Well Construction Job.

4. **Question 4 – In GC 36 (5.18) - Work hours 8:00 – 5:00, can we work 24/7? Are there inspection costs for working on Sunday?**

Response

The Contractor can work 24/7 and there are no inspection costs for working on Sunday.

5. Question 5 – In GC 49 (9.3) - Do we need to provide a 1 or 2 year warranty on Pump and Well?

Response

The Contractor is required to provide a two year warranty on the pump, well, and all construction. In Specification Section 11312, (3.0)(C)(1) in the first sentence, please delete “12 months” and replace with “24 months”. SAWS General Conditions Article 9 (9.3) requires a 24 month warranty period.

6. Question 5 - Section 0110 – 2 - Where can we get copies of the existing well logs?

Response

The well logs for nearby wells can be found on the SAWS website for this solicitation.

7. Question 7 - Section 01322 Are photos required monthly?

Response

Please delete Section 01322 (1.2) B through F in their entirety. Delete Section 01322 (2.1 through 2.2) in their entirety.

8. Question 8 - Will GCWSC install the driveway and 150’ x150’ drill pad?

Response

Gonzales County Water Supply Corporation (GCWSC) will install the driveway and culverts for the entrance to the property off Highway 97. GCWSC will provide corner marker stakes for the limits of the drilling pad. The Contractor shall level the drill pad and install any required limestone base for construction operations

9. Question 9 - Will GCWSC install a 2” water supply line near the drill site?

Response

Gonzales County Water Supply Corporation will provide a potable water source within approximately 50 feet of the entrance gate to the site.

10. Question 10 – Dill cuttings will be contained in steel tanks, hauled and dispose of at an approved site?

Response

Yes.

11. Question 11 - Does the city have a sanitary easement, with an exception for the road right of way?

Response

Gonzales County Water Supply Corporation will address the sanitary easement issue with TXDOT and TCEQ at a later date following well construction.

12. Question 12 - Is it possible to have a rig drill the pilot hole with less than a 250,000# hook load, and then come in with a crane and set casing with a crane rated to your satisfaction?

Response

A smaller drilling rig will be allowed to drill the pilot hole; however, SAWS will require a drill rig with a 250,000 lb. hook load for construction of the well.

13. Question 13 - Does the test pump have to be a turbine pump, or can we set a submersible with the same RPM Qualifications?

Response

Yes, the test pump will need to be a turbine pump.

- 14. Question 14 - After test pump is removed are y'all looking for a permanent submersible or turbine pump to put in the well? If submersible, will we have to supply a generator or alternative power to run the well?**

Response

A permanent submersible pump must be installed in the well as specified in Section 11312 along with the electrical control system specified in Section 16000. Gonzales County Water Supply Corporation with work with the local power provider to make the final electrical drop to the well.

- 15. Question 15 - Does the experienced superintendent and water well driller have to be on location after drilling is completed for the pump setting stage of the contract?**

Response

A Texas Department of Licensing and Registration (TDLR) licensed pump installer must be on-site for the setting of the pumping equipment.

- 16. Question 16 - Is it possible to move the drilling rig off the hole after casing is set to bring a smaller unit in to set the test pump and production pump?**

Response

Based on SAWS experience, most contractors move the drilling rig off the well after partial well development has been accomplished and move a pump pulling unit in to set the test pump, complete development of the well, and set the permanent pump and column pipe.

- 17. Question 17 - Will you want jet the well after completion to clear of all drill mud and debris?**

Response

Yes, all mud and debris will need to be removed from the well. Refer to Specification 02634, (3.12) and (3.13) for development of the well.

- 18. Question 18 - Does the experience that the water well driller and superintendent has, have to be with drilling municipal water wells, or Carrizo wells in general?**

Response

SAWS requires that the driller be licensed by the Texas Department of Licensing and Registration (TDLR), have drilled at least five municipal wells of a depth of 2,400 feet of similar size and construction in the Carrizo – Wilcox Aquifer (or similar). Refer to Specification 02633, section 1.01 (A) for driller qualifications.

- 19. Question 19 - Will we have to build noise barriers to accommodate the surrounding residents?**

Response

No noise barriers will be required to be erected. All contractor equipment will need to have mufflers. Refer to Specification 02633, (1.01)(B) for additional information on Sound Proofing.

- 20. Question 20 - Do all drawings submitted have to be the work of an engineer?**

Response

An engineer may be needed for the electrical work and associated submittals.

- 21. Question 21 - Do videos of before and after of location and roadways have to be done by professional?**

Response

Based on SAWS past experience, some contractors elect to employ a firm that specializes in these types of pre/post construction videos and others have completed the video themselves. The pre-construction and post construction videos need to be detailed, clear, and complete to capture any damage to roadways or the drill site. The purpose of these videos is to protect the Contractor, SAWS, the Engineer, and Gonzales County Water Supply Corporations from claims.

22. **Question 22 - Should stainless steel airline and equipment be included with the well pump to be used for water level measurements?**

Response

The pump shall not be equipped with water level measuring airline.

23. **Question 23 - The spec states that water will be supplied to the contractor during construction by Gonzales Co WSC. Where will this tap/connection be located from the well site?**

Response

Gonzales County Water Supply Corporation will provide a water source within approximately 50 feet of the entrance gate to the site.

24. **Question 24 - Where will the water be discharged during development and testing of well? The bid documents reference a discharge point but does not explain where this is. Please clarify.**

Response

Gonzales County Water Supply Corporation has secured verbal authorization from the landowner to discharge development water and pump test water to a location approximately 200 feet to the north / northeast of the drill pad toward the bar ditch near Hwy 97 and natural drainage which will feed into an un-named Creek. The Contractor shall take the all necessary steps to prevent any damage to existing trees and minimize soil erosion.

25. **Question 25 - Section 01270-8 – Item 13 - Can we pump discharge water to the field within 200 feet from the well?**

Response

See response to question 24 above.

26. **Question 26 - Will HSLA (High Strength Low Alloy) be required for the 18" casing? Page 02633- ASTM A606-04 Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance**

Response

In Specification 02633 page 3, delete the reference to ASTM 606-04 High Strength Low Alloy steel in its entirety. HSLA casing will not be required for the Saturn Well.

27. **Question 27 - Will a Nuclear Magnetic Resonance Log be required?**

Response

Refer to modification number 6 above.

28. **Question 28 - PAGE 02634-5 -6 2.01 CASING, SCREENS, AND APPURTENANCES. D. Production Casing. 1 States - The blank casing intervals shall utilize AISI Type 304 stainless steel casing meeting the requirements of ASTM A 312. Question, Seamless ASTM A 312 Lead time usually much longer and availability could be more difficult than ERW 304 SST pipe. Can ERW pipe be an approved material?**

Response

ERW 304 Stainless Steel pipe is an acceptable material.

29. **Question 29 – In Section 0-1270, Item 1 – Is Payment based on logged hole or drilled hole?**

Response

Refer to section 01270-1, Item 1, paragraph 2. Payment will be based on the number of linear feet of pilot borehole logged (by a geophysical logging subcontractor).

30. Question 30 – Section 01270, Item 2 - Is Logging Tool Insurance required?

Response

Refer to section 01270-1, Item 2, paragraph 1. 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 tool in the well.

31. Does Question 31 - Does Contractor provide a site safety plan? Does the contractor need to supply the safe plan of action with the daily reports as referred to in the Quality control section 01451?

Response

Refer to specification 01330, Part 1, (1.09) (G). SAWS will require the contractor to submit an overall Safety Plan. The Contractor does not have to submit a safety plan with the daily report each day.

32. Question 32 – Section 01451–3 (1.07) – In Quality control section 01451, section 1.07 Testing Laboratory Services. What kind of testing is required?

Response

Refer to Specification 02634, pages 22 & 23. (3.14) which outlines the laboratory tests required for water samples.

33. Question 33 - Section 01500-2 (E) - Is there any cost for the water supplied by Gonzales County Water Supply?

Response

No.

34. Question 34 – Section 02634 (3.13 (A) – How many hours of well development is included?

Response

The contractor should develop the well to a point where all mud and debris in the well has been removed, screens are clean, and the well meets or exceeds the required well efficiency (described Section 02634, Paragraph 3.13 (B)). In addition, the sand content specifications (described in Section 02634, Paragraph 3.12 (D)(4) must be met while producing clear water. SAWS has not designated a specific number of hours for well development.

35. Question 35 – Section 01500-3 - Site is less than 1 acre, is a TPPS plan required?

Response

Contractor shall disturb less than 1 acre; therefore, a TPPS is not required. The Contractor shall to adhere to SWPPP as shown on the construction plans.

36. Question 36 – Section 01451 – Is contractor required to provide a QA/QC plan?

Response

The contractor shall submit a Quality Control plan. Refer to Specification 01451 (1.02) (B).

37. Question 37 – Section 1500-2 - Is electric required on this job as there is no shop?

Response

The Contractor shall provide electricity for his construction operations. SAWS will not require additional power.

38. Question 38 - Section 01500-5 - Is barbwire fence acceptable? How many strands?

Response

A five strand barbwire fence with bracing at corners surrounding the drilling operation is acceptable.

39. Question 39 - Section 02634-24 - How many feet of discharge is to be painted?

Response

Refer to drawing 6 of 7 "Saturn Well Site – Misc. Details". All portions of the wellhead and discharge delineated on the drawing as the "SAWS Contract" shall be painted.

40. Question 40 – Section 02634 - Has TCEQ permit been received?

Response

TCEQ has authorized construction of the well following a plan review. The well was conditionally approved for construction on May 20, 2015 by TCEQ. Interim approval by the TCEQ to place the well in operation will not be issued until after the well has been constructed and the sanitary easement has been approved (task to be completed by Gonzales County Water Supply Corporation). In addition, the Gonzales County Underground Water Conservation District issued a drilling/production permit (number 15-10-02) on November 10, 2015 for the Saturn Well.

41. Question 41 – Bid Form - SWBE goal to high for amount of Subcontractor work available. Request it be lowered to 10%.

Response

SAWS SMWB goal is an aspirational goal. Please contact Marisol V. Robles, SMWB Manager, at 210-233-3420 for questions and/or clarifications.

42. Question 42 - Is Certified Payroll required?

Response

Yes, refer to the General Conditions (2.10) "Prevailing Wage Rate and Labor Standard Provision".

43. Question 43 - Section 11312, Manufacture will not provide certification of installation. This will come from the Contractor.

Response

Contractor will provide certification of installation.

44. Question 44 – Section 11312-3 B1 - Should Discharge line be 10 inch?

Response

Adhere to the plans, an 8 inch discharge shall be installed.

45. Question 45 - Section 11312-3 B1 - Recommend Well Screen to be 12 inch for 1000 gpm well.

Response

The well screen shall be 10 inch.

46. Question 46 - Section 11312-5 F3 - What type of testing on submersible motor? Motor 1800 or 3450 rpm?

Response

In-house testing is required per the manufacturer to ensure a good working motor.

47. Question 47 - Section 11312-5 F5 - How do we submit for an approved equal for Submersible motor?

Response

Submit three sets of technical data on well pump to Engineer. Recommend using acceptable motor manufacturers listed in question 49.

48. **Question 48 - The well pump spec (section 11312) doesn't include any specifications for the submersible motor cable. Please provide a specification for the submersible motor cable.**

Response

Well Pump motor cable shall be 1/0 wire, length as required.

49. **Question 49 - The well pump spec (section 11312) states Franklin motor or approved equal for the well motor. The pump specification also states that the submersible pump is to be 1800 RPM. Franklin does not manufacture 1800 RPM motor - only 3600 RPM motors. Please clarify if 3600 RPM is acceptable OR if other motor manufactures are acceptable for 1800 RPM (we would recommend SME motors as an approved 1800 RPM manufacture – see attached info).**

Response

The motor shall run at 3600 rpm speed and the manufactures that are acceptable are ITT CentriPro, Hitachi and Pleuger. Due to GCWSC experience, Franklin motors are not acceptable per this addendum.

50. **Question 50 - What is the expected temperature of the water and will a Special high Temperature Motor be required?**

Response

The water temperature is expected to be approximately 110 degrees F. No special pump or motor is required.

51. **Question 51 – Request that the contract time be changed to 240 days for completion.**

Response

The contract time shall be 150 days.

52. **Question 52 – Is a spill kit required on site?**

Response

A spill kit is not required to be on-site.

53. **Question 53 – Will the 8 inch column pipe be galvanized?**

Response

Column pipe material shall be galvanized.

54. **Question 54 – Is a temporary field office required?**

Response

No.

55. **Question 55 – Section 11312 - Are non-witnessed factory tests required?**

Response

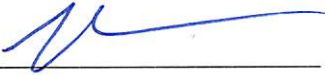
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56. **Question 56 - There are drawings and specifications for electrical but no bid item. Does this project include any electrical controls and equipment or just a well, pump and foundation?**

Response

The project does include electrical controls and equipment. Refer to the new issue of the Bid Proposal and Specification 01270 Measurements and Payments included in this addendum.

END OF RESPONSES TO QUESTIONS



Richard M. Gallegos
Gallegos Engineering, Inc.
TPBE No. F-003084



1/29/16

ACKNOWLEDGEMENT BY RESPONDENT

Each Respondent shall acknowledge receipt of this Addendum No. 1 by noting such and signing the Bid Proposal.

This undersigned acknowledges receipt of this Addendum No. 1 and the bid proposal submitted herewith is in accordance with the information and stipulations set forth.

Date

Signature of Respondent

END OF ADDENDUM

Job. No. 15-0130
 Gonzales County Saturn Well Construction
 B-16-001-GC

BID PROPOSAL

PROPOSAL OF _____ **- corporation,**
a partnership consisting of _____,
an individual doing business as _____,

THE SAN ANTONIO WATER SYSTEM:

Pursuant to Instructions and Invitations to Respondent, the undersigned proposes to furnish all labor and materials as specified and perform all work required for the construction of the well and Appurtenances, San Antonio Water system Job Number 15-0130 in accordance with the Plans and Specifications for the following prices to wit:

PRICE SCHEDULE – UNIT PRICE

Schedule of prices for CONSTRUCTION OF THE SATURN PRODUCTION WELL in accordance with the Contract Documents. Respondent must complete entire schedule.

Notes:

- Total price includes cost for furnishing all tools, equipment, materials, supplies and manufactured articles and furnishing all labor, transportation, and service, including fuel power, water and essential communication and performing all the work, or other operations required for the contract in strict accordance with the contract documents. Any item not specifically called out under each unit item shall be included under a unit 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 unit item.
- | | | | |
|------------------|-----------------|--------------|------------------|
| LS = Lump sum | HR = Hour | Sack = Sacks | CY = Cubic yard |
| LF = Linear feet | CF = Cubic feet | EA = Each | SY = Square yard |
| LB = Pound | GAL = Gallon | TON = Tons | ACRE = Acre |

Item No.	Description	Estimated Quantity	Unit	Unit Price	Extended Amount
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Part 1: Production Well Construction-----

1.	Drill Pilot Hole	2,400	LF	\$ _____	\$ _____
2.	Pilot Hole Geophysical Logging Suite	1	EA	\$ _____	\$ _____
3.	Abandonment of Pilot Borehole	150	FT	\$ _____	\$ _____

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Item No.	Description	Estimated Quantity	Unit	Unit Price	Extended Amount
4.	Ream Upper Pilot Hole to Minimum 24-inch Diameter	1,950	LF	\$ _____	\$ _____
5.	Continuous Alignment and Caliper Survey of 24-inch Reamed Borehole	1	EA	\$ _____	\$ _____
6.	Furnish and Install 18-Inch Nominal Diameter ASTM A53, Grade B Steel Casing	1,950	LF	\$ _____	\$ _____
7.	Furnish and Emplace API Class A Cement with Approved Additives	1,950	LF	\$ _____	\$ _____
8.	Underream Lower Pilot Hole to a Minimum Nominal 20-Inch Diameter	300	LF	\$ _____	\$ _____
9.	Caliper Survey of Underreamed Borehole	1	EA	\$ _____	\$ _____
10.	Furnish and Install 10-Inch Nominal Diameter, Continuous-Slot, Wire-Wrapped, Pipe-Based, Stainless Steel Screen	250	LF	\$ _____	\$ _____
11.	Furnish and Install 10-inch Nominal Diameter, AISI Type 304 Stainless Steel Blank Pipe	150	LF	\$ _____	\$ _____
12.	Furnish and Emplace Filter Pack	400	LF	\$ _____	\$ _____
13.	Furnish, Install, and Remove Temporary Piping, and Valves, to Convey Development and Pumping Test Water to Discharge Point	1	EA	\$ _____	\$ _____
14.	Well Development, Step Tests, Constant-Discharge Pumping Test, and Recovery	1	EA	\$ _____	\$ _____

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Item No.	Description	Estimated Quantity	Unit	Unit Price	Extended Amount
15	Water Quality Sampling and Analysis	1	EA	\$ _____	\$ _____
16.	Well Disinfection	1	EA	\$ _____	\$ _____
17.	Final Well Color Video	1	EA	\$ _____	\$ _____
18.	Standby Time at the Direction of the Engineer	36	HR	\$ _____	\$ _____
19.	Additional Hours of Pumping for Constant Discharge Pumping Test	24	HR	\$ _____	\$ _____
20.	Furnish and Install One Submersible Pump, 1,000 gpm, at 200 feet Total Dynamic Head, Bronze or Stainless Impellers with a 75 H.P. Motor	1	EA	\$ _____	\$ _____
21.	Furnish and Install all Wiring, Electrical Equipment, and Conduit to the incoming power, make operational	1	LS	\$ _____	\$ _____

Part 2: Site Work-----

Item No.	Description	Estimated Quantity	Unit	Unit Price	Extended Amount
1.	Erosion Control	1	EA	\$ _____	\$ _____
2.	Temporary Sediment Control Fence	1	EA	\$ _____	\$ _____

Part 3: Mobilization-----

1.	Mobilization/Demobilization for Parts 1 and 2 (see NOTE on page 3)	1	EA	\$ _____	\$ _____
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NOTE: The sum of Part 3 shall not exceed ten percent (10%) of the Total Price (Part 1 and Part 2). **In the event of a discrepancy between the written percentage and dollar amount shown for Project Mobilization / Demobilization, the written percentage will govern. If the percentage written exceeds the allowable maximum stated for**

PROPOSAL CERTIFICATION

Accompanying this proposal is a Bid Bond or Certified or Cashier's Check payable to the Order of the San Antonio Water System for _____ dollars (\$ _____), which amount represents five percent (5%) of the total bid price. Said bond or check is to be returned to the bidder unless the proposal is accepted and the bidder fails to execute and file a contract within **10** calendar days after the award of the Contract, in which case the check shall become the property of said San Antonio Water System, and shall be considered as payment for damages due to delay and other inconveniences suffered by said San Antonio Water System due to the failure of the bidder to execute the contract. The San Antonio Water System reserves the right to reject any and all bids.

It is anticipated that the Owner will act on this proposal within **60** calendar days after the bid opening. Upon acceptance and award of the contract to the undersigned by the Owner, the undersigned shall execute standard San Antonio Water System Contract Documents and make Performance and Payment Bonds for the full amount of the contract within **10** calendar days after the award of the Contract to secure proper compliance with the terms and provisions of the contract, to insure and guarantee the work until final completion and acceptance, and the guarantee period stipulated, and to guarantee payment of all lawful claims for labor performed and materials furnished in the fulfillment of the contract.

It is anticipated that the Owner will provide written Authorization to Proceed immediately after the bid opening.

The work called for in this Contract shall commence on the date indicated in the SAWS written Authorization to Proceed. Under no circumstances shall the work commence prior to the date provided for in the SAWS issued, written Authorization to Proceed. Work shall be completed in full within ____ consecutive calendar days.

The undersigned certifies that the bid prices contained in the proposal have been carefully checked and are submitted as correct and final.

The undersigned further acknowledges compliance with "Wage and Labor Standard Provisions" of this contract and the use of the Blue Book rental rates for establishment of equipment rental rates whether owned or leased during the course of this Contract.

In completing the work contained in this proposal the undersigned certifies that bidder's practices and policies do not discriminate on the grounds of race, color, religion, sex or national origin and that the bidder will affirmatively cooperate in the implementation of these policies and practices.

Signed: _____
Company Representative

Company Name

Address

Please return bidder's check to:

Company Name

Address

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SECTION 01270

MEASUREMENT AND BASIS OF PAYMENT

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

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.

1.2 ESTIMATED QUANTITIES

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. SAWS and the ENGINEER do 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 quantities of each item.

1.3 WORK OUTSIDE AUTHORIZED LIMITS

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

1.4 MEASUREMENT STANDARDS

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

1.5 AREA MEASUREMENTS

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 neat lines shown or designated.

1.6 LUMP SUM ITEMS

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.

1.7 UNIT PRICE ITEM

Separate payment will be made for the items of work described herein and listed on the Bid Proposal. 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.

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 ENGINEER until as-built (record) drawings have been submitted and approved by the ENGINEER.

Shop Drawings, Working Drawings.
Clearing, grubbing, and grading except as hereinafter specified.
Replacement of unpaved roadways, and shrubbery plots. Cleanup and miscellaneous work.
Maintaining or detouring of traffic.
As-Built Record Drawings.

1.8 MEASUREMENT AND PAYMENT

Part 1: Production Well Construction

Item No. 1 – Drill Pilot Hole

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to drill the pilot borehole.
2. Measurement - Measurement of the item “Drill Pilot Hole” 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.
3. 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, tested, accepted, and ready for use as its intended purpose.

Item No. 2 - Pilot Hole Geophysical Logging Suite

1. 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 tool in the pilot borehole.

2. Measurement - Measurement of the item “Pilot Hole Geophysical Logging Suite” in the pilot borehole will be based on logging suites completed and accepted all in accordance with the Contract Documents.
3. 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.

Item No. 3 - Abandonment of Pilot Borehole

1. 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 ENGINEER 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 production 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 ENGINEER.
2. 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.
3. 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 for its intended purpose.

Item No. 4 - Ream Pilot Hole to a Minimum Nominal 24-Inch Diameter

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to ream the pilot borehole to a minimum nominal 24-inch diameter.
2. Measurement - Measurement of the item “Ream Pilot Hole to a Minimum Nominal 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.

3. 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.

Item No. 5 - Continuous Alignment Survey and Caliper Survey of 24 – inch Reamed Borehole

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to perform a continuous alignment survey and caliper survey (w/ total borehole volume indicator) of reamed borehole prior to setting surface casing.
2. Measurement - Measurement of the item “Continuous Alignment Survey and Caliper Survey of 24-inch Reamed Borehole” shall be based on the number of Continuous Alignment and Caliper Surveys completed and accepted, all in accordance with the Contract Documents.
3. Payment - This item will be paid for at the contract unit price for a Continuous Alignment Survey and Caliper survey of the reamed borehole prior to setting surface casing.

Item No. 6 - Furnish and Install 18-Inch Nominal Diameter ASTM A53, Grade B Steel Casing

1. Description - This item includes all work associated with furnishing and installing 18-inch nominal diameter high-strength, 0.5-inch wall thickness, (ASTM A53) Grade B steel casing (above the well screen), and casing vent. 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.
2. Measurement - Measurement of the item “Furnish and Install 18-Inch nominal diameter (ASTM A53, Grade B) Steel Casing” will be based on the number of linear feet of casing (including 3feet above ground) installed, tested, and accepted, all in accordance with the Contract Documents.
3. Payment - Payment for furnishing and installing 18-inch nominal diameter. (ASTM A53, Grade B) 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 nominal diameter (ASTM A53, Grade B) steel casing installed, tested, accepted, and ready for use as its intended purpose. Payment for this item will not be made until the results of the continuous alignment survey and casing pressure testing are received and accepted by the ENGINEER.

Item No. 7 - Furnish and Emplace API Class A Cement with Approved Additives

1. Description - This item shall govern the furnishing and emplacing of API Class A neat cement with approved additives.
2. Measurement - Measurement of the item "Furnish and Emplace API Class A Cement with Approved Additives" will be based on the number of linear feet installed, tested, and accepted, all in accordance with the Contract Documents.
3. Payment - Payment for furnishing and emplacing of the API Class A 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, equipment, supplies, permits, removal and disposal of waste or excess materials, etc. necessary to have the cement installed, tested, and accepted.

Item No. 8 - Underream Lower Pilot Hole to a Minimum Nominal 20-Inch Diameter

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to ream and underream the lower pilot borehole to a minimum nominal 20-inch diameter.
2. Measurement - Measurement of the item "Underream Lower Pilot Hole to a Minimum Nominal 20-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.
3. Payment - Payment for reaming and underreaming the lower pilot borehole to a minimum nominal 20 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, underreamed, tested, accepted, and ready for use as its intended purpose.

Item No. 9 – Caliper Survey of Underreamed Borehole

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to perform a continuous caliper survey (w/ total borehole volume indicator) of underreamed borehole.
2. Measurement - Measurement of the item “Caliper Survey of Underreamed Borehole” shall be based on the number of Caliper Surveys completed and accepted, all in accordance with the Contract Documents.
3. Payment - This item will be paid for at the contract unit price for a Caliper survey of the underreamed borehole.

Item No. 10- Furnish and Install 10-Inch Nominal Diameter, Continuous-Slot, Wire-Wound, Pipe-Based, Stainless Steel, Screen wrapped on AISI Type 304 Stainless Pipe.

1. Description - This item includes all work associated with furnishing and installing 10-inch nominal diameter pipe-based, continuous-slot, wire-wound screen wrapped on AISI Type 304 Stainless Pipe and blank casing (between sections of well screen) and sump. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work.
2. Measurement - Measurement of the item “Furnish and Install 10-Inch Nominal Diameter, Continuous-Slot, Wire-Wound, Pipe-Based, Stainless Steel, Screen wrapped on AISI Type 304 stainless steel Pipe” will be based on the number of linear feet of screen assembly installed, tested, and accepted, all in accordance with the Contract Documents.
3. Payment - Payment for furnishing and installing 10-inch nominal diameter pipe-based, continuous-slot, wire-wound screen, casing blanks between screens, and sump 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 nominal diameter screen installed, tested, accepted, and ready for use as its intended purpose.
4. Reduction in Payment for failure to meet minimum well efficiency criteria - Full payment will be made for Item No. 14 for wells meeting the minimum efficiency (75%) described Section 02634, Paragraph 3.13 (B). No payment for Item No. 14 will be made if the well efficiency is 60 % or less. Payment

for Item No. 14 will be reduced by the amount of 6% for each well efficiency percentage point below 75%.

Item No. 11 - Furnish and Install 10-Inch Nominal Diameter, AISI Type 304 Stainless Steel Blank Pipe

1. Description - This item includes all work associated with furnishing and installing 10-inch nominal diameter, 0.365-inch wall thickness, AISI Type 304 stainless steel casing. 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.
2. Measurement - Measurement of the item “Furnish and Install 10-Inch Nominal Diameter, AISI Type 304 Stainless Steel Blank Pipe” will be based on the number of linear feet of casing installed, tested, and accepted, all in accordance with the Contract Documents.
3. Payment - Payment for furnishing and installing 10-inch nominal diameter, AISI Type 304 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 10-inch nominal diameter, stainless steel casing installed, tested, accepted, and ready for use as its intended purpose.

Item No. 12 - Furnish and Emplace Filter Pack

1. Description - This item shall govern the furnishing and emplacing filter pack.
2. 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.
3. 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.

Item No. 13 –Furnish, Install, and Remove Temporary Piping, and Valves to Convey Development and Pumping Test Waters to Discharge Point.

1. Description - This item shall include all work associated with the installation of temporary piping, and valves, and operation of system to convey development and pumping test waters to water discharge point. The temporary piping, and, shall be removed within 10 days of completion of the pumping tests of the well.
2. Measurement - Measurement of the item “Furnish, Install, and Remove Temporary Piping, and Valves, to Convey Development and Pumping Test Waters to Discharge Point” will be based on the number of temporary piping systems installed, accepted and removed in accordance with the Contract Documents.
3. Payment – This item will be paid for at the contract unit price for furnishing and installing temporary piping, to convey development and pumping test waters to the water discharge point. Only 90% (partial) payment for Item will be made upon acceptance of this item prior to demobilization from the site. Upon removal and acceptance of demobilization from the well site, the remaining 10% of payment for Item No. 13 will be made.

Item No. 14 - Well Development, Step Tests, Constant-Discharge Pumping Test and Recovery

1. Description - This item shall include all work associated with well development, step tests, constant-discharge pumping test and recovery.
2. Measurement - Measurement of the item, “Well Development, Step Tests, Constant-Discharge Pumping Test and Recovery” will be based on the number of wells furnished with pump systems, developed, tested, and accepted, and removal of pump systems all in accordance with the Contract Documents. This item shall consist of the work required to conduct step test for 24 hours, 24 hours of recovery, a 36-hour constant-discharge pumping test of the well and 24 hours of recovery. This item shall also include short-term pre-tests that are required in Section 02634, 3.13 (A). The CONTRACTOR will receive no additional compensation for pre-testing.
3. Payment - Payment shall be at the contract unit price for step tests, recoveries and constant rate 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%

efficiency rating as determined on the completion of the 36-hour constant-discharge pumping test using calculated transmissivity and storage values. The straight-line method presented by Cooper and Jacob (1946) will be used with data from the pumping well to compute the theoretical well drawdown. The ratio of the theoretical drawdown at the limits of the reamed hole to the measured drawdown in the pumped well will determine well efficiency. The selected discharge rate shall be maintained throughout the test within +5%. If the discharge rate is not maintained within 5% of the initial rate, the test will be repeated with no additional compensation to the CONTRACTOR. Additionally, the CONTRACTOR will be required to pay SAWS for ENGINEER standby time used during the execution of the failed pumping test.

4. 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 60 percent or less. Payment will be reduced by the amount of 6 percent for each well efficiency point below 75 percent.

Item No. 15 - Water Quality Sampling and Analyses

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to conduct water quality sampling and analyses.
2. Measurement - Measurement of the item "Water Quality Sampling and Analyses" will be based on water quality sampling completed and accepted all in accordance with the Contract Documents.
3. Payment - Payment for conducting 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 to have water quality sampling and analysis, 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.

Item No. 16 - Well Disinfection

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to complete well disinfection.
2. Measurement - Measurement of the item "Well Disinfection" will be

based on well disinfection completed and accepted all in accordance with the Contract Documents.

3. Payment - Payment for well disinfection 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 completed and accepted. CONTRACTOR will not receive extra compensation for rig time or stand by time while the well disinfection is conducted.

Item No. 17 - Final Well Color Video Log

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, tool insurance, and materials necessary to complete final well color video log.
2. 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 below the deepest screen to the top of the casing at surface. The CONTRACTOR will submit two DVD-format copies of the borehole video log to the ENGINEER.
3. 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.

Item No. 18 - Standby Time at the Direction of the ENGINEER

1. Description - This item shall consist of standby time at the direction of the ENGINEER.
2. Measurement - Measurement of the item "Standby Time at the Direction of the ENGINEER" will be based on the number of hours actually spent on

standby at the direction of the ENGINEER in accordance with the Contract Documents.

3. Payment - Payment for standby time at the direction of the ENGINEER 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.

Item No. 19 – Additional Hours of Pumping for Constant-Discharge Pumping Test

1. Description - This item shall consist of the work required for additional hours of pumping beyond the 36-hour constant-discharge pumping test.
2. Measurement - Measurement of the “Additional Hours of Pumping for Constant-Discharge Pumping Test” will be based on the number of additional hours of testing completed and accepted in accordance with the Contract Documents.
3. Payment - Payment shall be at the contract unit price for constant rate 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. The selected discharge rate shall be maintained throughout the test within $\pm 5\%$. If the discharge rate is not maintained within 5% of the initial rate, the test will be repeated with no additional compensation to the CONTRACTOR. Additionally, the CONTRACTOR will be required to pay SAWS for ENGINEER standby time used during the execution of the failed pumping test.

Item No. 20 – Furnish and Install One Submersible Well Pump and Electric Motor, 1,000 GPM at 200 Foot Total Dynamic Head, Column Pipe, and an 8 inch Discharge Head

1. Description - This item includes all work associated with furnishing and installing one submersible pump, column pipe, one electric motor and electrical connection to the junction box. The work includes providing all materials, labor, supervision, equipment, tools, and all other incidentals necessary to complete the work in place.
2. Measurement - Measurement of the item “Furnish and Install One

Submersible Well Pump and Electric Motor, 1,000 GPM at 200 Foot Total Dynamic Head, Column Pipe, and an 8 – inch Discharge Head” will be based on the number pump and motor installations installed and accepted, all in accordance with the Contract Documents.

3. Payment - Payment for furnishing and installing the pump and electric motor shall be at the unit price per installation 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, etc. necessary to have the pump and electric motor installed, accepted, and ready for use as its intended purpose

Item No. 21 – Furnish and Install all Electrical Equipment and Make Operational

1. Description - This item shall include all work associated with the furnishing and installation of all electrical equipment including all equipment, conduit, wiring and grounding not provided by the OWNER as specified in Section 16000 and as shown on DRAWINGS and making all the equipment operational.
2. Measurement - Measurement of the item, “Furnish and Install all Electrical Equipment and Make Operational” will be based on the complete installation of the electrical equipment, making operational and accepted in accordance with the Contract Documents.
3. Payment - This item will be paid for at the unit price for furnishing and installing the electrical equipment and making operational 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 have the electrical equipment installed, tested, accepted and ready for use as its intended purpose.

Part 2: Site Work

Item No. 1 - Erosion Control

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to install, maintain, and remove erosion controls. This work includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess material, etc. necessary to install controls, have them accepted, and ready for its intended purpose.

2. Measurement - Measurement for the item "Erosion Control" will be based on the number of locations accepted, all in accordance with the Contract Documents.
3. Payment - Payment for erosion control as specified shall be at the unit price indicated in Proposal, which price shall constitute full compensation for completed WORK all in accordance with the Contract Documents.

Item No. 2 – Temporary Sediment Control Fence

1. Description - The CONTRACTOR shall provide all labor, supervision, tools, equipment, and materials necessary to install, maintain, and remove sediment and erosion controls. This work includes, but is not limited to, all materials, tools, labor, equipment, supplies, permits, removal and disposal of waste or excess material, etc. necessary to install controls, have them accepted, and ready for its intended purpose.
2. Measurement - Measurement for the item "Temporary Sediment Control Fence" will be based on sediment control fence installed and accepted, all in accordance with the Contract Documents.
3. Payment - Payment for temporary sediment control fence as specified shall be at the unit price indicated in Proposal, which price shall constitute full compensation for completed WORK all in accordance with the Contract Documents.

Part 3: Project Mobilization/Demobilization

Item No. 1 - Mobilization/Demobilization for Parts 1, and 2

1. Description - This item shall govern the mobilization of personnel, equipment, and supplies to the project area 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 videotape of roadways, the movement of equipment, personnel, material, supplies, etc. to the project area and the establishment of optional temporary offices, preparation of work plans and general submittals, secured well area, temporary livestock fencing and gates for the project area, and establishment of other facilities necessary to the start of the work. This item shall also include complete demobilization from the project area. Demobilization shall include, but not be limited to, the removal of equipment, personnel, material, supplies, temporary offices, temporary fences and gates, etc. from the project area.
2. Measurement - Measurement of the item "Mobilization/Demobilization for Parts 1, and 2 will be by lump sum as the work progresses.

3. Payment - Partial payments of the lump sum bid for mobilization/demobilization will be as follows:

a. When 1% of the adjusted contract amount for construction items (which is defined as the total contract amount less the lump sum bid for mobilization) is earned, 50% of the mobilization lump sum bid or 5% of the total contract amount, whichever is less, will be paid.

b. When 5% of the adjusted contract amount for construction items is earned, 80% of the mobilization lump sum bid or 10% of the total contract amount, whichever is less will be paid.

c. Upon completion of all work, demobilization, and acceptance thereof under this contract, payment for the remainder of the lump sum bid for mobilization will be made.

PART 2 – PRODUCTS

Not applicable.

PART 3 – EXECUTION

Not applicable.

END OF SECTION