TECHNICAL PLANS AND SPECIFICATIONS

For

OXNARD UNION HIGH SCHOOL DISTRICT
RIO MESA HIGH SCHOOL WELL NO. 2
REHABILITATION PROJECT

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TECHNICAL SPECIFICATIONS

SECTION 1 – PROJECT SCOPE OF WORK

The intent of these Contract Documents and Specifications is to rehabilitate and restore production to the Oxnard Union High School District (District) municipal water supply well designated as Rio Mesa High School Well No. 2 (Well No. 2) utilizing the materials and methods as herein specified.

All work shall conform to these Specifications, Department of Water Resources Bulletin 74-81, Water Well Standards: State of California, and Standard Specifications for Public Works Construction, 2018 Edition ("Green Book"). The Contractor shall attend the mandatory pre-bid meeting prior to submittal of his bid. Submittal of this bid indicates the Contractor has visited the site and acknowledges that site access and work areas are restricted.

All work conducted for this project shall be conducted by staff that is properly health and safety trained to handle the hazardous chemicals required to conduct the work. All work shall be completed in strict accordance with these specifications. No exceptions or proposed equals to the specifications shall be allowed.

SECTION 2 – PROJECT LOCATION

The project location is shown on Plate 1 – Project Location Map. The project is located on the Rio Mesa High School in Ventura County, California. The area immediately adjacent the well location consists of a public high school and agricultural land uses.

SECTION 3 – PROJECT SCHEDULE

The Contractor shall conduct well rehabilitation operations on a daily basis during routine work hours as permitted by the District. It is anticipated that well rehabilitation work will begin in January 2021 and be completed before the end of March 2021.

SECTION 4 – WATER QUALITY

Water quality data from 2018 indicates the well produces a fair quality water with a total dissolved solids (TDS) concentration in the range of 1,260 milligrams per liter (mg/l) and a total hardness of 765 mg/l. A summary of water quality data is provided in Attachment A – Water Quality Test Results and show a typical range of concentrations for major anion and cation constituents. The data sets indicate the groundwater has a calcium-sodium-

magnesium-sulfate chemical character and has been contributing to the formation of similar type mineral deposits.

SECTION 5 – PROJECT OVERVIEW

Well No. 2 was drilled in 1997 using the direct circulation rotary drilling method and constructed to a depth of 620 feet as shown on Plate 3 – Well No. 2 Construction Record Drawing. The design production rate of the well at the time of construction was 650 gallons per minute (gpm). At that rate, the well had a specific capacity on the order of 7.8 gpm per foot of drawdown (gpm/ft). In 2017, the well production rate had declined from approximately 650 gpm to 310 gpm with a specific capacity decrease from 7.8 to 3.3 gpm/ft. Two video surveys were conducted in January 2018 to assess the well's apparent physical condition. These videos showed several holes between the depths of 252 and 261 feet below the top of well casing (toc), and indicated up to nine (9) possible holes in the blank casing and well screen sections of the well below the depth of 262 feet toc. The videos also showed that the well has filled up to a depth of approximately 585 feet below toc. During the 2018 well work, the Contractor bailed several small rocks off the bottom of the well. Copies of the video surveys summary sheets are included in Attachment B – Video Survey Summary Reports.

The work for this well rehabilitation project includes the furnishing of all materials, labor, equipment, fuel, tools, transportation, and services for the successful repair, redevelopment, rehabilitation, and sterilization of Well No. 2 as described in these specifications.

The general work required for the rehabilitation of Well No. 2 includes:

1. Obtain a well modification permit and install a stainless steel well liner with gravel pack and sanitary seal in existing Well No. 2 in strict accordance with procedures described in these specifications.

2. Mobilize equipment and materials specified for well lining and cleaning of the Well No. 2 well screen, gravel pack, and surrounding aquifer formation materials.

3. Disassemble the surface plumbing, and remove existing submersible pump assembly.

4. Conduct video surveys as requested.

5. Install a coarse sand/gravel and bentonite plug from approximately 585 feet to a depth of 485 feet.

6. Install an 8-inch-diameter by a 6-inch-diameter stainless steel well casing and screen liner assembly as specified.

7. Install coarse sand/gravel in the well liner annulus from approximately 485 feet up to a depth of 195 feet and a cement grout seal from 195 feet to ground surface (toc).

8. Conduct post liner installation well video survey of the well to verify the depths of the well liner placement and inspect liner to total depth.

9. High pressure jet the well liner screen interval between the depths of 350 to 480 feet with WellJet® (US Patent No. 8,312,930) in strict accordance with procedures described in these specifications.

10. Conduct dual swab airlift cleanout of the well screen section to prepare for acid treatment.

11. Treat the well screen interval with chemicals (acid solution) in strict accordance with procedures described in these specifications.

12. Develop the well by mechanical surging with a dual-swab assembly, and conduct simultaneous airlift pumping with dual-swab assembly after chemical treatment.

13. Neutralize fluids produced from the well and discharge to the point of irrigation reuse area as approved by the District (see Plate 2).

14. Conduct well disinfection with a concentrated chlorine mixture.

15. Conduct video survey of the well to verify the structural integrity of the well casing and screen intervals and provide a baseline for future reference.

16. Install the permanent pump equipment and pump well to waste to allow District to sample for bacteriological testing.

17. Reassemble the surface plumbing to the system with new equipment and return well site to pre-rehabilitation condition.

18. Furnish logs, daily records, and other items requested by the District.

All work shall be conducted in accordance with these specifications.

SECTION 6 – PROJECT TERMINATION

The District reserves the right to terminate the work on the well at any time. In such an event, the Contractor shall be paid for work completed at that time on the basis of the unit bid prices.

SECTION 7 – WELL PRODUCTION CHARACTERISTICS

Well production has declined since the time of well construction. Well No. 2 was measured in 2017 to be producing at a rate of approximately 310 gpm with a specific capacity value of approximately 3.3 gpm/ft. This rehabilitation effort is designed to redevelop the well with the goal of restoring the specific capacity of the well to greater than 5 gpm/ft at an operational discharge rate of 260 gpm or greater.

SECTION 8 – WORK SITE SAFETY AND OTHER REQUIREMENTS

Other work to be done by the Contractor shall include applying for a Ventura County well modification permit.

The Contractor shall be responsible for work site safety and shall comply with all State and local regulations regarding safety during all aspects of the project. The Contractor shall provide any traffic control measures necessary to safely move all equipment and materials on and off the work site. As necessary, the perimeter of the work site shall be secured by the Contractor in a manner that will prevent access by non-authorized pedestrians during the course of work. The well shall always be covered and secured during all aspects of the work when active downhole work is not being conducted.

Other work to be conducted by the Contractor shall include keeping daily records of field activities, documenting the type, quantity, and concentration of chemicals used during rehabilitation, proper cleaning and maintenance of the work site during performance of work, and doing all things necessary for completion of the work called for under these specifications.

The Contractor shall employ on a full-time basis only sober, competent workers for the execution of the work. All workers on this project shall be paid in strict accordance with the State Prevailing Wage laws. Weekly certified payrolls shall be submitted to the District documenting the labor rates paid. The work shall be performed under the direct supervision of an experienced Project Manager satisfactory to the District. The work shall also be performed by a C-57 licensed contractor.

Contractor's chemical treatment project supervisor and work crew that will be at the site during chemical treatment operations shall have completed OSHA 40-hour environmental

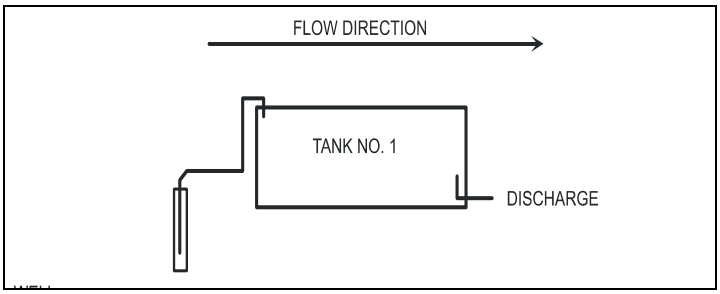
training per OSHA Publication 29CFR-Section 1910.120 with an 8-hour annual update. Prior to mobilization to conduct work, the Contractor shall supply a list of employees meeting the above training requirements. Each employee on the site at the time of chemical treatment operations shall possess proof of health and safety training.

SECTION 9 – WELL WATER DISCHARGE

Neutralized water produced from the well during well redevelopment (airlift operations and pumping) can be discharged to the specified location approximately 800 feet from the well site (see Plate 2). It will be the Contractor's responsibility to connect to the Baker tank and/or the existing wellhead plumbing and pump the water to the point of discharge and spray irrigate the field in a manner as to not cause any runoff to neighboring properties nor interfere with onsite school uses.

Clarified and neutralized water produced from the well during well redevelopment (airlift operations, etc.) can be discharged to an area designated for irrigation reuse and located approximately 1,000 feet away from the well site. Discharged water shall be conveyed and conditioned in a minimum 500-gallon neutralizing/settling tank. (See Figure 1 – Conceptual Fluid Settling System). The airlift discharge piping to the tank shall be fitted with a readily available and usable sample port for use by the Farm. Discharged fluids shall be clear and neutralized to pH levels between 6.5 and 7.5 prior to discharge.

Figure 1 – Conceptual Fluid Settling System



Discharged water containing chemicals shall be conveyed to an onsite tank for conditioning prior to spray irrigation. The airlift discharge assembly shall be fitted with a readily available and usable sample port for safe use by the District. Discharged fluids shall be neutralized to a pH between 6.5 and 7.5 prior to discharge. Once well discharge fluids have been conditioned to meet District discharge requirements, the water shall be discharged (pumped) to the water reuse area and disposed through spray irrigation. The Contractor shall notify the District 5-days prior to the start of discharge so they can coordinate with/inform onsite activities.

SECTION 10 – MOBILIZATION/DEMOBILIZATION (BID ITEM NO. 1)

Scope

Mobilization/Demobilization shall include the purchase of insurance, permits, labor; performance bond; transportation of personnel, equipment, and operating supplies to and from the site; establishment of offices, buildings, portable sanitary facilities, temporary construction water meter and backflow device, minimum 4-inch-diameter discharge piping to water reuse area, site security, and other necessary facilities at the site; other preparatory work at the site, and mobilization for work required by the Contractor. It also includes all costs to mobilize, demobilize, per diem, and other related costs to the project, which may not have a line item on the bid sheet. Contractor shall submit prior to mobilization a copy of any registrations required by U.S. Department of Transportation described in 49CFR Part 107, Subpart G.

Mobilization of Materials and Equipment

The Contractor shall provide one complete crane and/or pump rig unit; all tools, accessories, power, fuel, air compressors, materials, supplies, lighting, water, Baker/Adler/Rain for Rent tanks and other equipment, site security, and experienced personnel necessary to conduct efficient well rehabilitation operations in the manner specified. The pump installation rig shall be in good condition and have a minimum capacity of 40,000 pounds for the mast and subbase and be sufficient to conduct all downhole work and install and remove the pump equipment and install the proposed well liner. The Contractor shall provide fluid containment and neutralization tank(s) to accommodate the volume of water anticipated for removal from the well during airlift operations. The Contractor shall provide all equipment and personnel to protect the existing wellhead equipment and well site from damage (i.e., support pads under outriggers to protect asphalt, etc.). Any damage shall be restored by the Contractor to the satisfaction of the District at the Contractor's expense.

Measurement and Payment

Payment for this bid item will be made in two (2) instalments as the work proceeds. Half of the unit price bid for Bid Item No. 1 shall be paid after the Contractor mobilizes to the site and initiates work. The second half of the unit price bid for Mobilization /Demobilization shall be paid upon completion of all work required by these specifications.

Total payment for Mobilization/Demobilization will be at the lump sum unit price bid for Bid Item No. 1, regardless of actual cost to the Contractor. The unit price bid for this item shall not exceed 20 percent of the total amount of the Contractor's bid. If the cost for Mobilization/Demobilization exceeds 20 percent of the total cost bid, it shall be considered grounds for rejection of the entire bid as nonresponsive.

Payment will not be made under this item for the purchase of items or costs of materials having a residual value, the purchase costs of materials to be incorporated in the project, or the purchase costs of operating supplies. Payment for Mobilization/Demobilization will constitute full compensation for all labor, materials, equipment, and all other items necessary and incidental to completion of the Mobilization/Demobilization work, removal and replacement of fencing, gates, doors, pump building, roof hatch, discharge piping, electrical appurtenances, and other obstructions.

SECTION 11 - MOTOR AND PUMP ASSEMBLY REMOVAL (BID ITEM NO. 2)

Scope

This item shall consist of; a) removing the existing well pump equipment, b) flushing the well to prepare it for a video survey to inspect the well's physical condition. The current pump assembly is reportedly set at a depth of approximately 320 feet bgs.

Pump Removal Method

Initially, the pump equipment shall be removed from the well. The current pump assembly is reportedly a Gould's Model 320L submersible pump with 6-inch-diameter drop pipe. This item includes disconnecting the electrical wiring, airline tubing, discharge piping and surface seal apparatus. The Contractor shall be responsible to ensure no damage is done to any of the well facility equipment at the time of removal and during all phases of well rehabilitation. Any damage shall be repaired at the cost of the Contractor. The old pump assembly, drop pipe, etc., shall be removed from the site and properly disposed by the Contractor.

Measurement and Payment

Payment for well pump and motor assembly removal and disposal will be made on a lump sum basis for the unit price bid for Bid Item No. 2. Such payment shall be considered as full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

SECTION 12 – VIDEO LOGGING (BID ITEM NO. 3)

Scope

This item shall consist of clarifying the well water column and performing a professional video survey of the well at the discretion of the District to inspect the structural integrity of the well prior to performing well modification and aggressive rehabilitation work. The District may elect to delay further rehabilitation work until a successful video survey is conducted to fully assess the well's apparent structural integrity. Video logging shall be optional and may be conducted at any time during the project as directed by the District including but not limited to after; 1) pump equipment removal, 2) well liner installation, 3) high pressure jetting, and 4) after chemical cleaning and airlift removal phases of the project, and 5) prior to installation of the permanent pump.

Well Video Logging Method

Following pump removal, the Contractor shall conduct a professional color video camera survey(s) to the full depth of the well. The survey shall be conducted after any rehabilitation task is complete to allow inspection of the well's structural integrity. At the completion of well rehabilitation activities, a video survey will be conducted to record the post-rehabilitation conditions. The surveys shall be performed in the presence of the District and shall result in a complete record of the well with a downhole view that is complemented by side-scan details at various points of interest.

The color video camera shall have a vertical downhole viewing lens with appropriate lighting extended to an appropriate length in front of the camera to allow a clear picture of the well casing and screen within the field of view. The camera shall be equipped with a horizontal side-scan viewing lens and have the capability to alternate between views. Horizontal side-scan viewing shall be controllable to allow viewing at any angle within a 360-degree rotation.

The Contractor shall inject potable water into the well for a minimum period of 12 hours (7,200 gallons or more) and only use an NSF approved water clarifier if necessary, prior to the video survey to provide fluid clarity during the video survey. Fluid clarity is the sole responsibility of the Contractor. If the casing wall or well screen is not clearly visible with the downhole and side-scan view, the Contractor shall recondition the hole and perform another video survey at no additional cost to the District.

The Contractor shall provide the District with the original DVD upon completion of each survey. In addition, a minimum of four (4) still glossy photographs shall be taken and presented to the District with a written video review report. The areas to be photographed will be determined by the District. The photographs shall be 2" X 1-1/2" minimum size.

Measurement and Payment

Video logging of the well shall be paid on a per survey basis for the unit price bid for Bid Item No. 3. Payment shall be considered full compensation for all labor, tools, equipment and insurance for doing all the work necessary and incidental to completion of the task.

SECTION 13 – CALIPER SURVEY
(BID ITEM NO. 4)

Scope

This item shall consist of furnishing professional logging services for the caliper survey of the existing well casing and screen sections.

Construction Materials

The Contractor shall furnish services for a caliper log in the borehole. The caliper tool shall have the ability to measure diameters up to 24 inches. The Contractor is advised that many of the available caliper tools do not perform adequately. It will be the Contractor's responsibility to deliver a usable caliper log. A record copy of the caliper survey shall be delivered to the Engineering Geologist upon completion of the log. Upon completion of the caliper log, five (5) final quality copies of the caliper survey shall be provided to the Engineering Geologist along with an electronic copy of the data in LAS and PDF formats.

Measurement and Payment

Caliper surveying of the well casing and screen intervals shall be paid on a lump sum basis for the unit price bid for Bid Item No. 4. Payment shall be considered full compensation for all labor, tools, equipment, insurance, and conducting all work necessary and incidental to completion of the work.

SECTION 14 - GRAVEL BACKFILL AND BENTONITE SEAL
(BID ITEM NO. 5)

Scope

This item shall consist of providing and installing 90 feet of clean washed coarse-grained sand or fine gravel (pea gravel) in the lower portion of the well and a 10-foot bentonite seal, as specified herein and shown on Plate 4.

Construction Materials

All gravel/coarse-grained sand used to backfill the 10-inch-diameter well casing shall be hard and washed clean of silt and fine sand and free of organic materials and foreign matter.

The manufacturer shall be identified and a description of the gravel packing materials proposed for use shall be provided with the Contractor's bid package. Transportation and storage of gravel shall be conducted using super sacks. Bulk delivery will not be allowed.

The bentonite seal material shall be installed using coated premium sodium bentonite pellets of the type that is manufactured specifically for well sealing.

Construction Methods

Gravel/coarse sand fill shall be installed in the original well casing from an approximate depth of 585 to 495 feet bgs using a construction tremie pipe. The use of clean water and a gravel pump will be required. As the gravel settles, more shall be added. The gravel shall be sounded and topped off at the designated depth in preparation for bentonite seal placement.

Following gravel backfill placement, a 10-foot bentonite seal shall be installed from approximately 495 to 485 feet bgs. The bentonite seal shall be installed utilizing tremie pipe for installation. The tremie pipe shall be set at a depth of approximately 480 feet or lower.

Measurement and Payment

Payment for furnishing and installing the gravel fill and bentonite seal shall be made on a lump sum basis at the unit price bid for Bid Item No. 5. Payment shall be considered full compensation for furnishing all labor, materials, tools, and equipment necessary and incidental to completion of the work.

SECTION 15 – WELL CASING AND SCREEN
(BID ITEM NOS. 6 THROUGH 9)

Scope

This item shall consist of providing and installing a well casing and screen liner assembly with an end cap, as specified herein and shown on Plate 4. Prior to conducting any well modification work the Contractor shall obtain a well modification permit from the Ventura County Watershed Protection District (County).

Construction Materials

1. 8-Inch Nominal Diameter Stainless Steel Casing: The upper 8-inch nominal diameter casing shall be stainless steel manufactured in accordance with ASTM Standard A-312 or A-778 specifications having a minimum wall thickness of 1/4-inch (0.250 inches). The well liner casing sections shall be plain beveled ends to facilitate butt welding connections. The well liner casing sections shall be fitted with lifting lugs to facilitate installation.

2. 8-Inch To 6-Inch Liner Casing Reducer: The nominal 8-inch-diameter to 6-inch-diameter casing liner reducer shall be Type 304L stainless steel manufactured in accordance with ASTM Standard A-312 or A-778 specifications and have a minimum wall thickness of 0.25-inch. The final wall thickness used shall be adequate to protect against collapse during installation and subsequent production of the well. The well liner reducer shall be plain end construction with beveled ends for butt welding.

3. 6-Inch Nominal Diameter Stainless Steel Casing: The lower 6-inch nominal diameter casing shall be stainless steel manufactured in accordance with ASTM Standard A-139 Grade B or A-53 Grade B having a minimum wall thickness of 1/4-inch (0.25 inches). The well liner casing sections shall be plain beveled ends to facilitate butt welding connections. The well liner casing sections shall be fitted with lifting lugs. The lugs shall be of the same material as the well casing.

4. 6-Inch Nominal Diameter Stainless Steel Screen: The 6-inch nominal diameter well screen liner shall be Type 304L, stainless steel continuous wire wrap screen of the type manufactured by Roscoe Moss Company, Johnson Screens, or approved equal, with an 0.060-inch slot between the surface wires. The wrap wire shall have a minimum height (altitude) of 0.14 inch and a minimum width of 0.17 inch. The screen shall have a minimum of 32 vertical rods and the rods shall have a minimum diameter of 0.15 inch that provides a minimum cross-sectional area of 0.58 square inches. The well screen design shall provide a minimum collapse strength of 194 pound per square inch (psi) and a minimum safe hanging weight of 6,300 pounds. Screen sections shall be manufactured complete with stainless steel weld rings attached at each end having a minimum wall thickness of 0.25-inch. The weld rings shall be fitted with stainless

steel lifting lugs to facilitate centering and connection of each joint. The bottom of the screen section shall be fitted with a rounded end cap manufactured of Type 304L stainless steel material. **The Contractor shall submit the well screen manufacturer's specifications to the District with its bid.**

Construction Methods

Upon the completion of backfill placement and bentonite seal installation; the Contractor shall install the well liner assembly at the intervals indicated on Plate 4.

The 8-inch-diameter casing and screen assemblages shall be straight. All field joints shall be properly butt welded during installation with a minimum of two passes per circumference. During installation the lugs on the 6-inch-diameter casing shall be removed up to just above the liner reducer. Permanent liner lugs may be left in place from an approximate depth of 190 feet bgs up to ground surface.

The liner shall be suspended in tension from the surface by means of an appropriate hanger or clamp. The bottom of the casing shall be at a sufficient distance above the casing fill and seal to ensure that the well liner assemblage is not supported from the bottom.

All field-welding shall be performed in accordance with American Welding Society Standards. All welding rods shall be new and designed for stainless steel material.

A construction tremie shall be installed for gravel pack and cement seal placement and shall be a nominal 2-inch-diameter, flush threaded, steel or PVC tubing. The construction tremie shall be installed prior to or at the same time as the upper portion of the 8-inch-diameter nominal liner casing sections are installed, and be installed to an approximate depth of 190 feet bgs. The lifting lugs shall be placed in such a manner as to facilitate a 2.375-inch-outside-diameter construction tremie pipe to be installed along with the 8-inch-diameter blank liner casing. Lugs placed opposite the tremie guide lugs shall be sized as to not interfere with liner installation. Figure 2 – Tremie Guide Lugs shows a conceptual drawing of the type of protection intended.

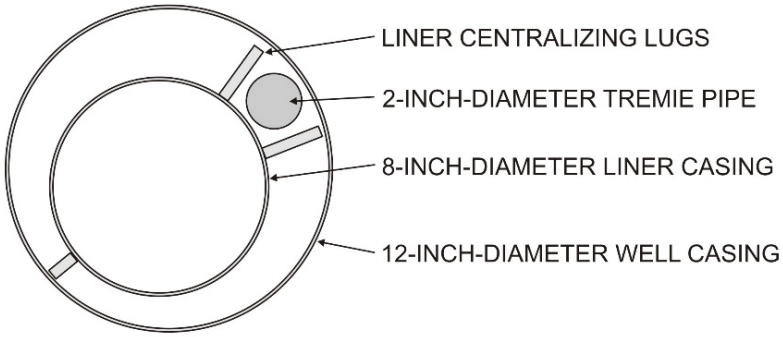


Figure 2 – Tremie Guide Lugs

The stainless steel well casing shall extend 18 inches above the existing concrete slab to facilitate the wellhead plumbing design shown on Plate 5 – Wellhead Design Drawing. Subsequently, the 12-inch-diameter low carbon steel casing shall be extended up 14 inches and fitted with a flange to accommodate the wellhead plumbing shown on Plate 5.

Measurement and Payment

1. 8-Inch Nominal Diameter Stainless Steel Casing: The 8-inch nominal diameter Type 304L stainless steel casing having a 0.250-inch wall thickness for the upper portion of the well liner will be paid for on a per linear foot basis in place at the unit price bid for Bid Item No. 6. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

2. 8-Inch-Diameter by 6-Inch-Diameter Stainless Steel Reducer: The nominal 8-inch-diameter by 6-inch-diameter Type 304L stainless steel reducer will be paid for on a lump sum basis in place at the unit price bid for Bid Item No. 7. Payment shall be considered full compensation for furnishing all labor, materials, tools, and equipment necessary and incidental to completion of the work.

3. 6-Inch Nominal Diameter Stainless Steel Casing: The 6-inch nominal diameter Type 304L stainless steel casing having a 0.25-inch wall thickness will be paid for on a per linear foot basis in place at the unit price bid for Bid Item No. 8. Payment shall be considered full compensation for furnishing all labor, materials, tools, and equipment necessary and incidental to completion of the work.

4. 6-Inch Nominal Diameter Stainless Steel Liner Screen: The 6-inch nominal diameter Type 304L stainless steel wire wrap screen with end cap will be paid for on a per linear foot basis in place at the unit price bid for Bid Item No. 9. Payment shall be considered full compensation for furnishing all labor, materials, tools, and equipment necessary and incidental to completion of the work.

SECTION 16 – GRAVEL PACK
(BID ITEM NO. 10)

Scope

This item shall consist of providing and installing a select gradation of a continuous coarse-grained sand with a gradation as specified below, adjacent to the well screen in the annulus between the liner and original well casing from approximately 485 to approximately 195 feet bgs.

Construction Materials

All coarse-grained sand used for the filter envelope shall be hard, water-worn and washed clean of silt, fine sand, organic materials and foreign matter (crushed gravel will not be accepted). It shall be well rounded, spherical, graded, with a high silica content. The gravel pack material shall be of the type manufactured by Cemex, SRI, or approved equal, and conform to the following gradation.

Percentages Passing Screen Numbers
(4 X 12)

No. 4	No. 6	No. 8	No. 10	No. 12
100%	70-90%	25-40%	5-15%	0-1%

A description and manufacturer's sieve analysis of gravel packing materials proposed for use shall be provided with the Contractor's bid package. A sample of the materials to be delivered to the site must be submitted for approval to the District prior to shipping and placement of the material in the well. Failure to meet gradation of the approved sample may be grounds for rejection. Transportation and storage of gravel shall be conducted using bags or super sacks. Bulk delivery will not be allowed.

Construction Methods

The Contractor shall also submit his written estimate of the volume of gravel to be placed. If a significant difference exists between the estimated and the final volume of gravel added, the discrepancy may be grounds for rejection of well by the District.

Gravel, as specified, shall be installed in the annular space between the original well screen and the well liner screen through a construction tremie pipe set to an approximate depth of 190 feet bgs. The use of clean water and a gravel pump will be required. During placement of gravel in the annulus, any displaced fluids pumped from the well casing shall be contained onsite.

The gravel pack shall be placed by pumping through a construction tremie pipe extending to approximately 190 feet of the well casing annulus. During gravel pack placement, swabbing with a packer assembly, the dual swab assembly, or an appropriately sized 4-inch-diameter bailer shall be conducted throughout the screen section to facilitate filter pack settlement. As the gravel settles, more shall be added. The gravel shall be sounded and topped off at the designated depth in preparation for sanitary seal placement. The swab assembly shall be equipped with sufficient weight to allow it to descend rapidly through the well screen interval. Gravel pack settlement within and above the well screen

shall be facilitated by vibrating the well liner using an impact wrench held against the casing at the surface.

Measurement and Payment

Payment for furnishing and installing the gravel pack shall be made on a linear foot basis in place from the bottom of the well liner casing and screen assemblage to the bottom of the sanitary seal depth at the unit price bid for Bid Item No. 10. Payment shall be considered full compensation for furnishing all labor, materials, tools, and equipment necessary and incidental to completion of the work.

SECTION 17 - CEMENT SEAL FOR WELL LINER
(BID ITEM NO. 11)

Scope

This item shall consist of providing and installing a cement grout sanitary seal from the top of the gravel pack up to surface.

Construction Materials

All cement grout used for the seal around the well casing shall be a ten and one half (10.5)-sack cement sand-slurry grout mixture. Cement used for sealing mixtures shall meet the requirements ASTM C150 “Standard Specification for Portland Cement,” Type III or Type IV. Materials used as additives for Portland cement mixtures in the field shall conform to ASTM C494 “Standard Specification for Chemical Admixtures for Concrete”. The Contractor may not use alternate concrete mixtures allowed by the well construction permit.

Construction Methods

Cement grouting shall seal the annular space between the original well casing and the well liner casing, from the approximate depth of 195 feet (top of the gravel pack) up to ground surface. Sealing material shall be applied from the bottom of the interval to be sealed to the top of the well. The well’s sanitary seal and placement shall be pumped in place using the positive displacement method with a pneumatic grout pump and construction tremie pipe. The tremie pipe may be gradually extracted as the seal material fills the annular space, however, the end of the pipe shall remain submerged in cement seal material throughout the installation.

Measurement and Payment

Payment for cement grout seal will be made on a linear foot basis in place at the unit price bid for Bid Item No. 11. Payment shall include full compensation for furnishing all labor, materials, tools, and equipment necessary and incidental to complete the installation.

SECTION 18 – HIGH PRESSURE JETTING
(BID ITEM NO. 12)

Scope

This item shall consist of subcontracting to WellJet of Camarillo, California and conducting high pressure jetting operations throughout the well screen interval.

High Pressure Jetting Operations

WellJet shall mobilize to the site and deploy a high pressure jetting tool and conduct two (2) high pressure jetting passes within the 6-inch-diameter well screen interval starting from the bottom at a depth of approximately 480 feet and proceed up hole to a depth of 350 feet bgs at an up hole extraction rate of 1 foot per minute for 130 minutes per run (4.3 hours total) of active pressure jetting. For the purpose of these specifications, the term active shall be regarded as actively moving the jetting tool assembly up through the screen section while injecting water at the operational pressures specified. The jetting shall not stop or remain stationary in the well screen during high pressure jetting operations. The Contractor shall provide the necessary equipment plumbing, valving, hose and fittings, and/or pipe to convey water to the site and supply the required water for jetting operations.

The jetting tool shall have a minimum of 4 jetting tips placed at 90 degrees from one another and be mounted on a rotating head. The operational pressure at the tips of the jetting tool shall range between 16,000 to 20,000 psi. The pressure drop from the pump to the tips downhole shall not exceed 1,250 psi. The flow rate from the tips shall range between 30 to 35 gpm. The head shall have a rotational range from 25 to 75 rpm. The laminar flow from the tips shall be a minimum of 10 inches and have a velocity between 1,700 to 2,000 feet per second. The jetting tool shall be fitted with a centralizing apparatus positioned above the tips and be a diameter that is slightly larger than the outside radius of the tips and provides sufficient protection. The centralizing apparatus shall not prevent the jetting tool from freely spinning within the well during jetting operations. During active jetting operations the tool shall not remain stationary in the well screen section.

For the purpose of this bid item, the term “active” shall be regarded as actively pumping fluids into the well under high pressure while moving the jetting nozzle up the hole at 1-foot per minute. Set up time and running the jetting tool in and out of the hole is not

included as active, and shall be included as necessary in the bid price to conduct the active work in the well.

Upon completion of jetting operations, the total depth of the well shall be sounded. All fill material shall be removed to a depth of 480 feet by the contractor with either a suction type bailer or open-ended airlift operation.

Measurement and Payment

High pressure jetting and bottom clean-out of the well shall be paid on a lump sum basis at the unit price bid for Bid Item No. 12. Payment shall be considered full compensation for all labor, tools, equipment, and materials necessary for doing all the work necessary and incidental to completion of the task.

SECTION 19- DUAL SWAB AIRLIFT

BID ITEM NO. 13

Scope

This item shall consist of conducting a dual-swab airlift pumping procedure to clear the well screen section of all debris and prepare it for chemical treatment.

Dual Swab Airlift Pumping Operations

At the completion of high pressure jetting and clean-out activities, the well will be actively airlifted to evacuate debris from the well screen and surrounding formation materials that were loosened by the high-pressure jetting operations. The airlift is designed to produce a minimum flow rate of 100 gpm and shall include utilization of the dual swab assembly as shown on Plates 6 and 7 – Dual Swab Assembly Drawing – Side View, and Top View, respectively, to be constructed by the contractor. Airlifting will proceed from the top of the well screen interval at a depth of approximately 350 feet and proceed downward. Each 20-foot-section of screen shall be actively airlifted by moving the swab up and down through the well screen interval for a 1-hour-period or as directed by the District representative. A total of 390 minutes or 6.5 hours of total active airlifting is proposed based on the 130 feet of perforations within the well screen liner. The airlifted fluids shall be transferred to settling tanks and then pumped to the discharge location after clarifying. Upon reaching the final depth of 480 feet, the airline shall be removed and the site prepared for chemical injection that will be initiated on the following Monday.

The airlift design shall use a 1-inch-diameter air injection pipe (or larger) set to an initial depth of approximately 340 feet inside a 4-inch-diameter eductor pipe. The airlift design (tubing size and airline injection depth setting) is intended to produce at a minimum flow rate of approximately 100 gpm or greater which will require a minimum air compressor

delivery rate of 470 cubic feet per minute (cfm) or greater. The Contractor shall provide an air compressor unit capable of delivering 470 cfm or greater at a minimum pressure of 165 psi. As more pipe is added an additional section of airline shall also be added down to a depth of approximately 400 feet where the airline shall remain throughout the rest of the airlift operations. The airlifted fluids shall be transferred to settling tanks and clarified and then transferred to the discharge reuse area.

For the purpose of this bid item, the term "active" shall be regarded as the time when the process is actively airlift pumping fluids out of the well while moving the dual swab assembly up and down within the well screen interval. Set up time and running pipe in and out of the hole is not included as active and shall be included as necessary in the bid price to conduct the active work specified.

Measurement and Payment

Active dual swab airlift operations shall be paid on an hourly basis at the unit price bid for Bid Item No. 13. Payment shall be considered full compensation for all labor, tools, equipment, and materials necessary for doing all the work necessary and incidental to completion of the task.

SECTION 20 - CHEMICAL WELL DEVELOPMENT

BID ITEM NOS. 14, 15, AND 16

Scope

This item shall consist of mixing onsite and injecting an acid solution into the wellbore to dissolve encrustation build-up in the well screen, gravel pack, and surrounding aquifer materials in order to restore well performance.

Schedule

Chemical Treatment shall be conducted over a one-week period and shall be scheduled as follows;

Monday – mix and inject chemicals and swab from the bottom up,
Tuesday – swab down through the well screen then back up to the top,
Wednesday – swab down and up through the well screen and prepare for airlift removal,
Thursday and Friday – initiate and finalize dual swab airlift removal of chemicals and debris from well screen interval.

Chemical Cleaning Materials

The Contractor shall notify the District 1 week prior to starting the acid treatment. The Contractor shall schedule to begin chemical treatment on a Monday to ensure installation and removal is completed by Friday of the same week. This will require that site preparation and setup, chemical delivery, and injection pipe installation be conducted by the previous Friday.

The Contractor shall maintain a copy of the health and safety plan and MSDS sheets at the job site. The Contractor shall ensure that employees working at the site during acid treatment are qualified to work with the chemicals used and shall have 40 hours of HAZMAT training (certified per OSHA 29, CPR Section 1910.120). The Contractor shall ensure that all necessary safety equipment is onsite. Such equipment shall include proper respirators, latex gloves, rubber boots, chemical resistant Tyvex coveralls, goggles, and pressurized eyewash and shower.

Personnel involved in the chemical well development shall demonstrate proper knowledge of the work required, shall have been certified in the equipment utilized, shall have successfully treated at least 20 wells in Southern California with the chemical process, shall have first aid and CPR certification, and shall have 40 hours of HAZMAT training (certified per OSHA 29, CPR Section 1910.120). In addition, site workers shall wear protective clothing as necessary to perform the work in a safe manner. Contractor shall provide proof verifying compliance with the training and experience requirements of this specification.

The chemicals used for the entire well screen treatment shall be as specified in the table below.

CHEMICAL	QUANTITY
75-percent Phosphoric Acid	150 gallons
Johnson Screen's NW-310	20 gallons
Potable Water	1,130 gallons

The Contractor shall utilize a phosphoric acid of 75 percent strength. The acid shall be of a high technical quality or food grade quality. The Contractor shall provide a Certificate of Analyses (COA) for verification at the time of delivery to the well site.

The Contractor shall utilize Johnson Screen's NW-310. All chemicals shall be delivered to the site of the work in original closed containers bearing the original label indicating the percentage of available compounds (no premixed bulk chemical deliveries will be allowed). Substitutions or proposed equals of chemicals shall not be allowed or considered.

Chemical Injection Method

Chemical emplacement activities shall be scheduled for a Monday morning start time. All Chemicals shall be delivered to the site by Friday the week before the work is to be performed and stored in the designated area at the maintenance yard. This schedule is to allow for sufficient time to effectively emplace, provide contact time with agitation, and completely remove chemicals within a continuous 5-day-period. The mixing tank, pumps, valving and piping, shall be installed and the dual swab assembly shall be set at a depth of 480 feet in order to prepare for an early morning start time on the following Monday morning.

On Monday, the acid solution of mixed chemicals with the proportional amounts specified above shall be swabbed into the well screen interval of the well. All chemicals emplaced in the well shall be pre-mixed in a 1,000-gallon clean poly-tank before being injected into the well. At a minimum, a batch shall be premixed (circulated) utilizing a 300 gpm circulation pump and pumping/circulating approximately 2 tank volumes prior to injecting into the well. The Contractor shall provide a suitable mixing tank, transfer pumps, and an agitator/circulation pump necessary to accurately prepare and inject the chemicals.

All chemicals emplaced in the well are to be injected through the 4-inch-diameter tremie pipe. Attached to the bottom of the tremie pipe shall be a 1-foot section of 2-inch-diameter perforated pipe that is equipped with two tight fitting stiff rubber swabs at each end in accordance with the design on Plates 6 and 7. The swabs shall have an outside diameter not less than 1/2-inch smaller than the I.D. of the well screen.

The chemical solution shall be injected into the well screen and subsequently, continuously surged over a 20-foot screened interval, starting at the bottom of the well screen and moving upward. The volume of chemicals injected into each 20-foot screened section shall be proportional (approximately 200 gallons) with the volume of solution to be injected over the entire screened interval (approximately 1,300 gallons). During injection, the chemical solution shall be emplaced throughout the interval and then continuously/actively surged over the 20-foot interval for a 30-minute-period before moving to the next section. The injection and surging of the acid solution shall be performed in a continuous operation until its completion on Monday.

For the purpose of these specifications, the term “active” shall be regarded as actively moving the swab assembly up or down through the screen section to agitate the chemical mixture.

On Tuesday, the well shall be actively swabbed from the top of the well screen interval (350 feet) to the bottom of the well screen interval for a period of 60 minutes per 20-foot section of well screen (390 minutes [6.5 hours]).

On Wednesday, active swabbing shall be initiated from the bottom of the well screen (480 feet) and continue up to the top of the well screen interval for a period of 30 minutes of active swabbing per 20-foot section of well screen (195 minutes [3.25 hours]).

After the completion of chemical swabbing conducted on Wednesday, the swab assembly shall be set at 350 feet and approximately 340 feet of 1-inch airline shall be installed. Wellhead piping and hoses and a neutralization tank shall be installed on Wednesday in preparation for a full day (minimum 8-hour-workday) of chemical removal (airlifting) on Thursday and Friday (if necessary).

Chemical Removal

At the completion of chemical emplacement and agitation activities, the well will be actively airlifted to remove the acid solution and evacuate debris loosened by the dual swab surging. The airlift design shall be the same as described in Section 18 and shall include the use of the dual swab assembly as shown on Plates 6 and 7. Airlifting will proceed from the top of the well screen interval to a depth of 480 feet and is anticipated to require approximately 1-hour of active airlifting per 20 foot section of screen or as directed by the District. A total of 6.5 hours of total active airlift pumping is proposed based on the 130 feet of perforations within the well screen.

For the purpose of these specifications, the term “active” shall be regarded as actively moving the swab assembly up or down through the screen section, while actively airlift pumping fluids from the well. Set up time and running pipe in and out of the hole is not included as active, and shall be included as necessary in the line item bid to conduct the active work specified in the screen section.

The airlift discharge shall be neutralized and containerized onsite. Upon neutralizing and clarifying the airlift fluids, the well water can be disposed at the designated discharge location.

Measurement and Payment

Chemical mixing, injection, and initial swabbing into the well screen section shall be paid on a lump sum basis for the unit price bid for Bid Item No. 14. Active chemical surging of the well screen section by active swabbing shall be paid on an hourly basis at the unit price bid for Bid Item No. 15. Active chemical removal by airlift pumping with the dual swab assembly shall be on an hourly basis at the unit price bid for Bid Item No. 16. Payment shall be considered full compensation for all labor, tools, equipment, and materials for doing all the work necessary and incidental to completion of each task.

SECTION 21 – DISINFECTION OF WELL
(BID ITEM NO. 17)

Scope

This item shall consist of disinfecting the well against well plugging bacteria.

Disinfectants

The disinfectant shall be delivered to the site of the work in original closed containers bearing the original label indicating the percentage of available chlorine. The disinfectant shall be recently purchased liquid sodium hypochlorite solution. Storage of liquid compounds shall not be exposed to the atmosphere or to direct sunlight. The sodium hypochlorite shall not be more than 2 weeks old.

The quantity of sodium hypochlorite added to the well shall be sufficient to produce a minimum of 500 parts per million (ppm) available chlorine. The total volume of the mixture is calculated to be approximately three times the volume of fluid in the well casing and gravel pack. The Contractor shall prepare the disinfectant by mixing a concentrated solution of sodium hypochlorite, an acidic additive for pH reduction, and water in a suitable mixing tank.

The chemicals used for well disinfecting treatment shall be as specified in the table below.

Sodium Hypochlorite (12.5% active)	8 gallons
NuWell 410 (Chlorine Enhancer)	3 gallons
Potable Water (approximately)	2,000 gallons

Disinfection Preparation: The Contractor shall provide for well disinfection following completion of the post acid treatment video logging and coordinate disinfection with well pump installation**.** All chemicals emplaced in the well shall be pre-mixed in a 1,000-gallon clean poly-tank before being injected into the well. The total volume of chlorine solution shall be approximately 2,000 gallons of fresh water with 8 gallons of 12.5% sodium hypochlorite and 3 gallons of NuWell 410 chlorine enhancer pre-mixed above ground with potable water. The pH of the disinfectant mixture shall be lowered by adding NuWell 410 to adjust the pH value to below 7.0 prior to introducing the disinfectant solution into the well. Should additional pH adjustment be required, the Contractor shall utilize a sufficient amount of hydrochloric acid or NuWell 410 to further lower the pH below 7.

The uniformly mixed sodium hypochlorite solution shall be pumped into the well using the dual swab assembly and adding approximately 310 gallons per 20-foot section of well screen. Disinfectant solution injection shall be initiated starting at the bottom of the well screen at 480 feet and proceed upward to the top. After adding the disinfectant, each 20-foot section of screen shall be actively swabbed for 30 minutes. Following a 16-hour

contact time the well shall be purged into an onsite mixing tank and neutralized of residual chlorine prior to discharge to the water reuse area.

Active air lift pumping to remove the residual chlorine solution shall be conducted as outlined above in Section 20 with the exception that active airlifting of each 20-foot screen section shall be conducted for 30 minutes (3.25 hours total) or until the chlorine residual is gone. It is anticipated that approximately 3,000 gallons of fluid shall be removed from each 20-foot section of well screen. Airlifted fluids shall be first discharged into an onsite mixing tank and neutralized and subsequently spread at the water reuse area.

Measurement and Payment

Payment for disinfection and airlifting of the well will be made on a lump sum basis at the unit price bid for Bid Item No. 17. Such payment shall be considered full compensation for furnishing all labor, materials, tools and equipment and doing all the work necessary and incidental to complete this task.

SECTION 22 – PUMP EQUIPMENT
(BID ITEM NO. 18 THROUGH 26)

Scope

This item shall consist of providing and installing a new submersible pump assembly and 20 horsepower (hp) motor, new drop pipe, electrical cable, check valves, discharge head and all appurtenances necessary to make the well fully operational. The pump assembly will be set to a depth of approximately 320 feet bgs. A copy of the pump design curve is included in Attachment C – Pump Curve and Design Data. The pump shall be designed to produce 260 gpm with a total dynamic head (TDH) of 250 feet. This item also includes installing 320 feet ¼-inch-diameter stainless steel airline.

Pump Materials

1. Submersible Pump Assembly: The new Grundfos Model 300S200-6B submersible pump bowls and new 20 hp motor shall be manufactured and designed to produce approximately 260 gpm with 250 feet TDH. The bowl assembly shall be pressure rated to shut off. The bowl impellors shall be constructed with stainless steel material. All bowls, discharges and motor brackets are to be assembled with type 300 stainless steel bolting. The electrical motor leads for the new pump assembly shall be long enough to ensure that it can be spliced to the submersible cable above the pump bowl assembly. The pump assembly shall be supplied with a check valve installed directly on top of the pump assembly. **The Contractor shall submit confirmation of the pump manufacturer's specifications and pump design curve to the District with its**

bid. The Contractor shall provide the pump specified in Attachment C. The well pump shall be installed with a 2-foot long galvanized pipe section to facilitate installation and removal.

2. 315 Feet of 3-Inch-Diameter Column Pipe: The 3-inch nominal diameter schedule 40 galvanized steel column pipe shall all be new material. The discharge pipe shall be tapered thread and be approximately 21-foot lengths. The collars shall be made of galvanized steel material and be of the heavy wall type.

3. 320-Feet Submersible Cable: The submersible pump cable shall be all new material and of one continuous length. The submersible cable shall be the flat jacketed type with neoprene coating, 3-conductor wires with ground and be a minimum size of 10 Gage (AWG) or sized to limit the voltage drop to no more than 5 percent and cable rated at 75 degrees C. It will be the Contractors responsibility to ensure that the submersible cable is of sufficient length to extend from the pump cable splice and reach the surface and connect to the above ground junction box without any splices.

4. Submersible Pump Check Valves: The check valves shall be new and constructed with an epoxy coated ductile iron valve body, poppet, and guide, and have a stainless steel valve stem and spring. The check valves shall be Flowmatic Model 80DI-VFD Series poppet type valves. No swing style/flapper valves will be allowed. **The Contractor shall submit the manufacturer's specifications to the District with its bid**.

5. Stainless Steel Airline with Surface Apparatus (320 feet): The ¼-Inch-diameter stainless steel airline shall consist of all new material. The airline shall be attached at the surface to the appropriate hanger and new stainless steel 160 psi air gage.

6. Motor Protection and Electrical Controls Upgrades: The above ground electrical motor protection (Coyote Pump Saver) shall be adjusted to the 20 hp motor and any new or additional electrical equipment to prevent the downhole motor from failure due to electrical surges and motor lead shorts shall be installed. This item includes retrofitting/installing as necessary electrical junction box and wiring to complete downhole electrical connections. **Contractor shall submit all their intended electrical motor protection and above ground electrical parts upgrades along with the manufacturer's specifications to the District with its bid.**

7. Dissimilar Metal Insulator and Cable Protector: The pump drop pipe shall be installed using PVC plastic insulators to protect the galvanized pipe from corrosion and facilitate protection of the electrical cable and airline during installation. The insulator units shall be constructed of a 1-foot long by 4-inch-diameter Schedule

80 PVC plastic pipe section glued into a Schedule 80 PVC coupling in accordance with the design shown on Plate 8 – Dissimilar Metal Insulator and Cable Protector.

8. Discharge Head and Surface Piping: The new 3-inch diameter fabricated steel discharge head shall be new material and constructed in accordance with the design shown on Plate 5 – Wellhead Design Drawing. The discharge head shall incorporate a long radius elbow welded to a 12-inch-diameter flange that is aligned with the companion flange welded to the top of the well casing. The discharge head assembly shall come equipped with a lifting eye(s) and shall be able to support the total weight of the motor, bowl assembly, discharge pipe, cable, and water column. The discharge head assembly shall have 2-inch-diameter access ports for the electrical cable (junction box) and casing vent, and a 1/2-inch-diameter port for the airline. The electrical access port shall be on the north side of the wellhead consistent with the existing arrangement. This item also includes providing, installing, and field fabricating the necessary piping to connect the new discharge head to the District's existing discharge piping. The discharge head shall be equipped with a 3-inch-diameter threaded coupling that is centered and welded on the bottom and fitted with a 2-foot-long galvanized pipe.

9. Pump Installation: Pump installation shall include all labor and materials to install the new submersible pump, submersible cable, column pipe, discharge head, and water level sounding equipment (airline) to a depth of 320 feet bgs. Pump installation also includes connecting well discharge piping and electrical to operating conditions and testing the new pump equipment and water level sounding apparatus.

Installation Method

Upon completion of all well modification and rehabilitation work specified, the new well pump equipment shall be installed in the well. Pump installation shall include all labor and materials to install the pump assembly to the depth specified. The pump equipment shall be installed with a pump rig or crane that has a lifting capacity rated at 20,000 pounds (more than double the hanging weight of the pump assembly) and is fully capable of safely installing the equipment to the specified depth. All pipe joints shall be properly and thoroughly lubricated (with NSF approved lubricant) and threaded to ensure that no cross threading has occurred. The dissimilar metal insulators shall be installed on each pipe section and slid up and over the 3-inch-diameter couplings to separate the coupling from the stainless steel casing. The insulators shall be secured in place to the 3-inch-diameter pipe using 10-mil tape on the bottom of the 4-inch-diameter insulator pipe section. Starting on the first full pipe above the pump, 14 insulators shall be installed. One will not be used on the top section below the wellhead discharge.

Deep set submersible pump check valves shall be placed at the top of the pump assembly and at approximately 100 feet below the top of the well (2 total). The pump assembly

electrical wiring shall be spliced above the pump assembly and be protected with a stainless steel cable guard that is securely strapped to the pump assembly and column pipe with stainless steel bands. All pump equipment that will be placed below the water table shall be sprayed with a 300 ppm chlorine solution for disinfection during installation.

The stainless steel airline shall be installed starting at the top of the pump bowls and continue to the surface. The submersible pump motor cable, and ¼-inch airline, shall be securely strapped with 10-mil tape to the column pipe and be installed on the same side within the slot located in the dissimilar metal insulator to prevent damage or pinching and provide protection during installation. The electrical cable and airline shall be taped both below and above the insulator unit to ensure it stays in the slot during installation.

Following downhole equipment installation, the Contractor shall install or modify the necessary above ground motor protection, junction box(s), fuses and controls, and wiring properly sized for the equipment. All above ground electrical work shall be done by a qualified/certified electrical technician.

Submittal of a bid indicates the Contractor has reviewed the specified materials and concurs that Contractor supplied equipment and design is competent for successful pump operations. Submittal of it's bid indicates the Contractor has reviewed the District's existing equipment to insure compatibility and complete installation and operation of the specified materials. All work shall be conducted to provide and ensure one-year manufacturer's warranty on the well pump assembly (bowls, impellers, shaft, etc.).

Upon completion of permanent pump equipment installation and confirmation testing, a temporary discharge connection will be made at the 3-inch-diameter diverter tee to enable the well to pump to the water reuse area. Pumping will be scheduled with the district and occur for approximately 4 hours to allow sampling for bacteriological testing. Following successful negative test results for coliform bacteria as required by the District, the well shall be operated through the permanent discharge piping to demonstrate successful operation. The Contractor shall conduct start-up operations into the system and collect operational parameters including pumping water level, wellhead pressure, and production rate to determine well pump performance. All work shall be conducted to provide and ensure one-year manufacturer's warranty on the well pump assembly (motor, bowls, impellers, shaft, etc.).

Measurement and Payment

1. Submersible Pump Assembly: The pump bowls and motor will be paid for on a lump sum basis in place at the unit price bid for Bid Item No. 18. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

2. 315 Feet of 3-Inch-Diameter Column Pipe: The 3-inch nominal diameter column pipe will be paid for on a per linear foot basis in place at the unit price bid for Bid Item No. 19. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

3. 320-Feet Submersible Cable: The submersible pump cable will be paid for on per linear foot basis in place at the unit price bid for Bid Item No. 20. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

4. Submersible Pump Check Valves: The Flowmatic Model 80DI-VFD Series poppet type check valves will be paid on a per item basis in place at the unit price bid for Bid Item No. 21. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

5. Stainless Steel Airline with Surface Gage Setup (320 feet): The new operational ¼-inch-diameter stainless steel airline will be paid for on a per linear foot basis in place at the unit price bid for Bid Item No. 22. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

6. Motor Protection and Electrical Controls Upgrade: The above ground electrical motor protection and discharge piping equipment shall be paid for on a lump sum basis in place at the unit price for Bid Item No. 23. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

7. Dissimilar Metal Insulator and Cable Protector: The dissimilar metal insulators shall be paid for on a per item basis in place at the unit price bid for Bid Item No. 24. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

8. Discharge Head and Surface Piping: The new 3-inch diameter fabricated steel discharge head with all wellhead appurtenances and the surface piping modifications shall be paid for on a lump sum basis in place at the unit price bid for Bid Item No. 25. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

9. Pump Installation: Pump Installation will be paid for on a lump sum basis in place at the unit price bid for Bid Item No. 26. Payment shall be considered full

compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

SECTION 23 – WELL FLUSHING AND BACTERIOLOGICAL TESTING
(BID ITEM NO. 27)

Scope

This item shall consist of preparing the well for flushing to ensure all well rehabilitation and disinfected products are purged from the well and allow the District to conduct bacteriological water quality testing (coliform) on the well water to ensure it meets state drinking water standards. The well shall be completely prepared for District staff operation and sampling until favourable test results are achieved.

Method

The Contractor shall connect a backflow preventor to the 3-inch-diameter diverter tee at the wellhead and direct the well discharge to the water reuse area for the purpose of well purging and obtaining additional water samples. Operation of the well over a 1-week period by District staff shall be conducted as necessary to flush the well and obtain water quality samples and have them tested for bacteriological presence and constituents of concern. It is anticipated that the well will be operated for an approximate 5-hour period prior to sampling and delivery to a laboratory for testing. This procedure may be repeated until water quality meets County and State standards.

Discharged water shall be conveyed from the pump assembly through the temporary discharge piping to the designated water reuse area. It is imperative to ensure that no damage by flooding or erosion is caused to natural drainage or the adjacent properties. The Contractor shall provide all piping, valves, check valve, and sample port to allow connection to the District discharge head and direct the well discharge to the designated discharge location.

Upon completion of successful laboratory test results, the Contractor shall disassemble the temporary plumbing and secure the wellhead plumbing for system operations and site clean up can be finalized.

Measurement and Payment

Payment for temporary plumbing and conveyance to allow District flushing and sampling will be paid for on a lump sum basis at the unit price bid for Bid Item No. 27. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work.

SECTION 24 - SITE CLEAN-UP
(BID ITEM NO. 28)

Scope

This item shall consist of maintaining the well site in a professional manner during all well rehabilitation and restoring the site to pre-rehabilitation conditions after all work is completed.

Clean-Up Method

The Contractor shall keep the premises free from accumulation of waste materials, rubbish, and other debris resulting from the work. At completion of the work, the Contractor shall remove any and all waste materials, rubbish and debris from and about the well site. The Contractor shall leave the site clean and ready for use by the District. The Contractor shall restore, to their original condition, all temporary work areas. The Contractor is responsible for any damage to the wellhead, well site, and adjacent properties that it causes during well rehabilitation activities. The Contractor shall cover and secure the wellhead at all times in a manner that fully protects public safety and the potable groundwater supply.

Measurement and Payment

Payment for site clean-up shall be made on a lump sum basis in accordance with the unit price bid for Bid Item No. 28. Payment shall be made after inspection by the District. Payment shall be considered full compensation for furnishing all labor, materials, tools, fuel, and equipment necessary and incidental to completion of the work. Final approval shall be made by the District for all work completed by the Contractor.

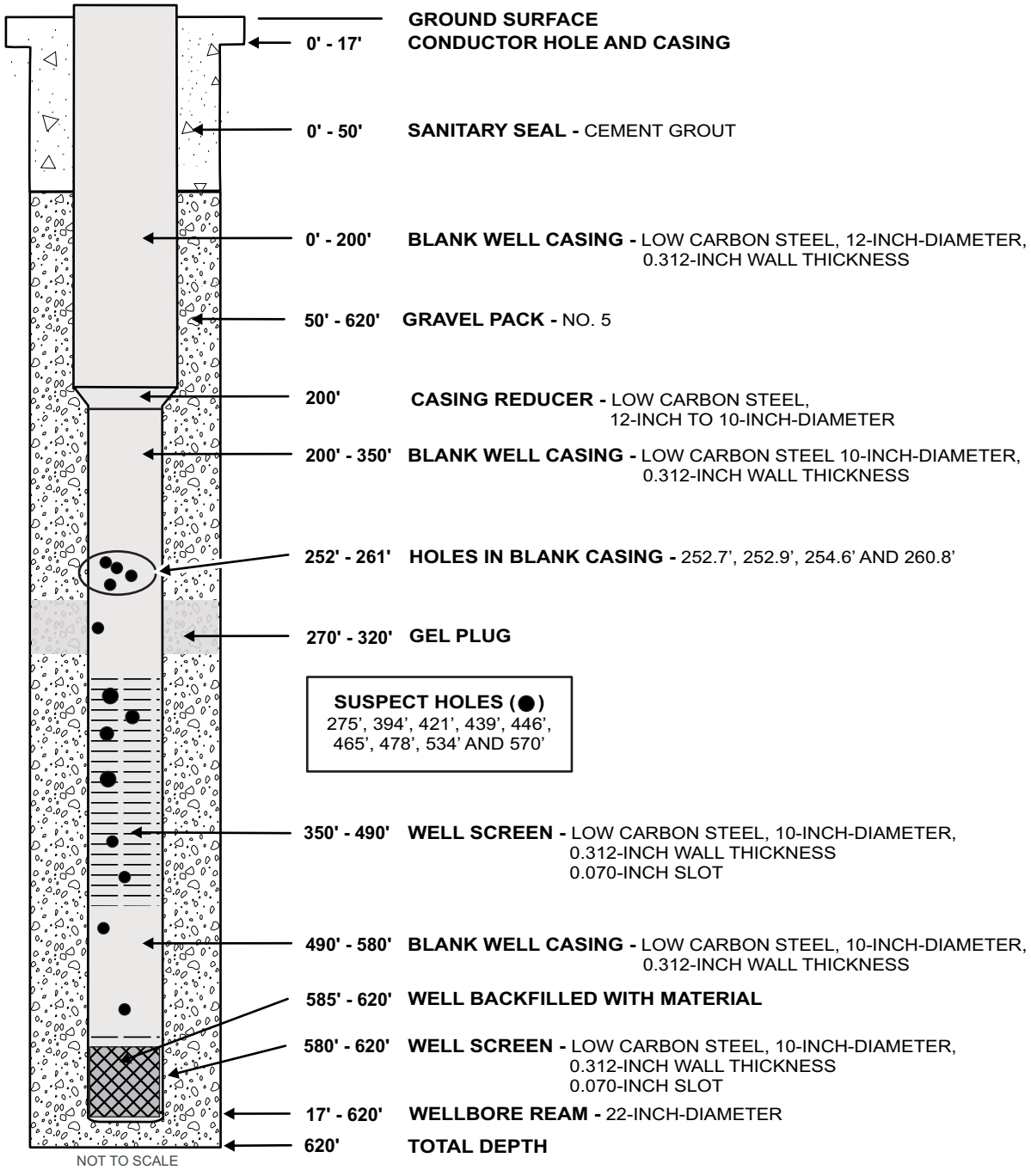
PLATES

PROJECT LOCATION MAP
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 1

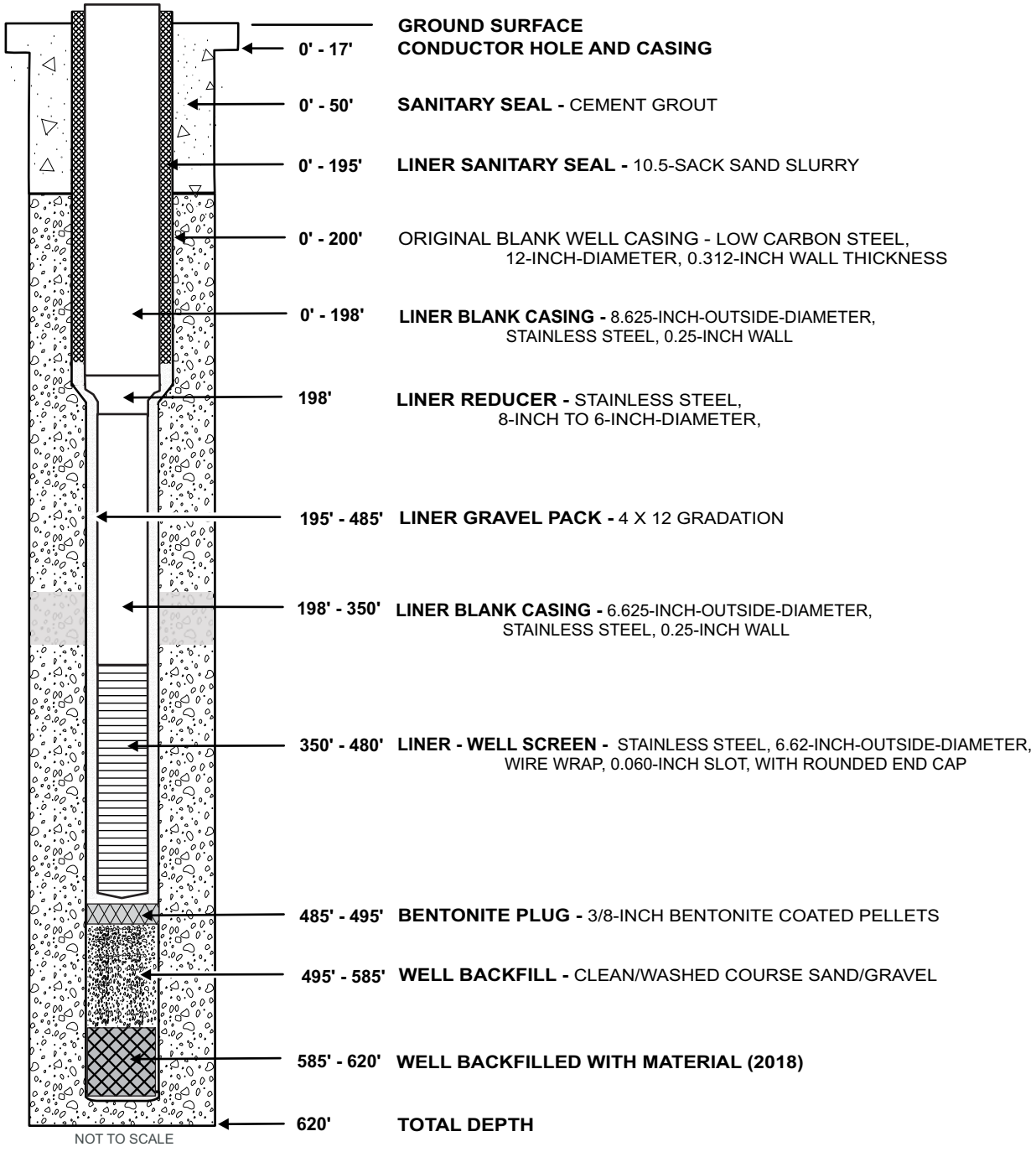
SITE LOCATION MAP
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 2



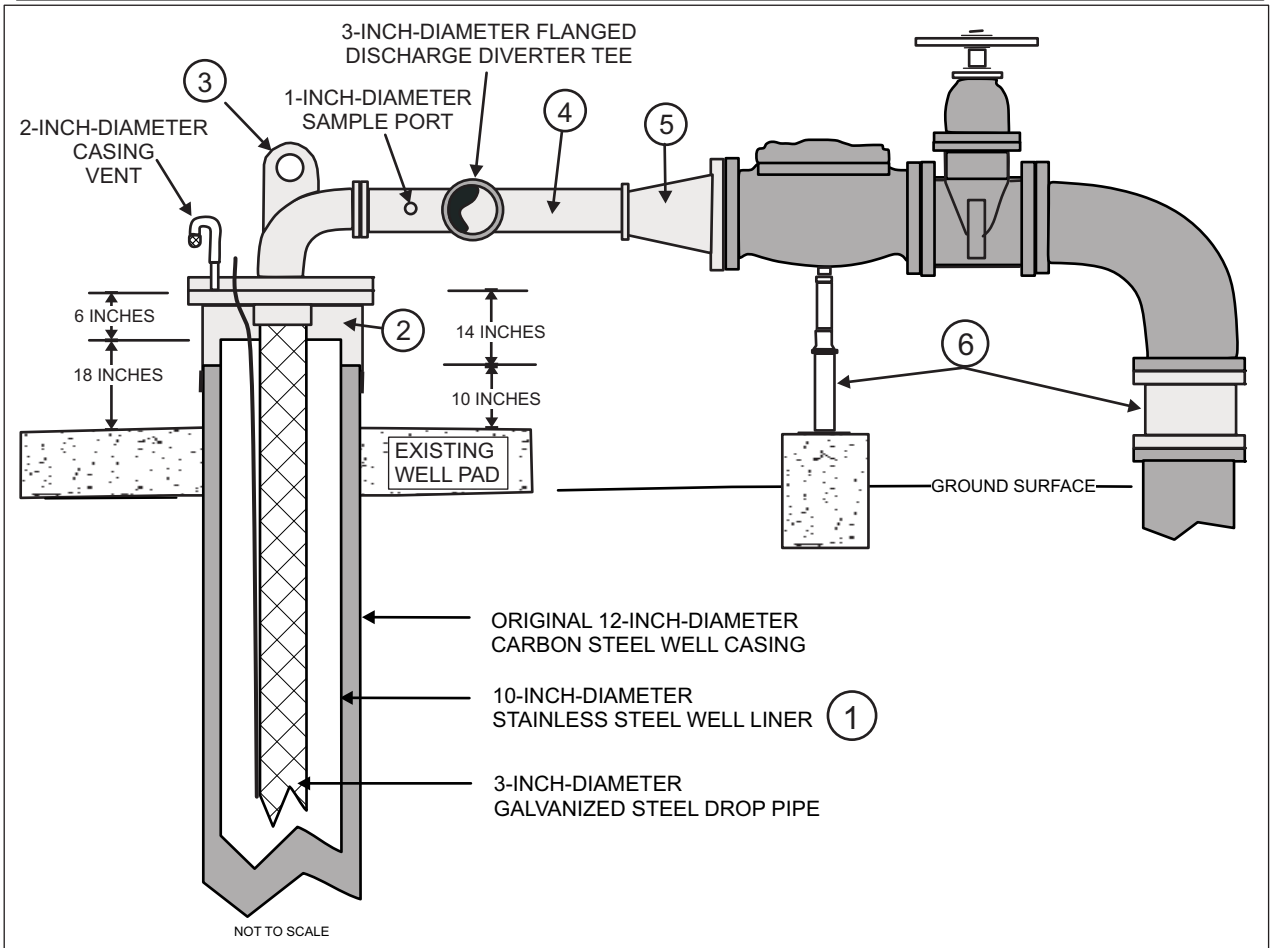
WELL NO. 2 CONSTRUCTION RECORD DRAWING
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 3



WELL NO. 2
LINER DESIGN DRAWING
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 4



1 - INSTALL 10-INCH-DIAMETER STAINLESS STEEL WELL LINER PER SPECIFICATIONS WITH 18-INCH STICKUP

2 - EXTEND EXISTING CASING 12 INCHES UP AND EQUIP WITH STEEL FLANGE (#150), LEAVING 24-INCH STICKUP ABOVE CONCRETE PAD

3 - FABRICATE 90 DEGREE DISCHARGE HEAD WITH LIFTING EYE, 3-INCH-DIAMETER x 12-INCH-DIAMETER FLANGED ENDS WITH 3 PASS THROUGH HOLES AND THREADED COUPLINGS WELDED ON 12-INCH FLANGE (2) 2-INCH-DIAMETER, (1) AND 1/2-INCH-DIAMETER

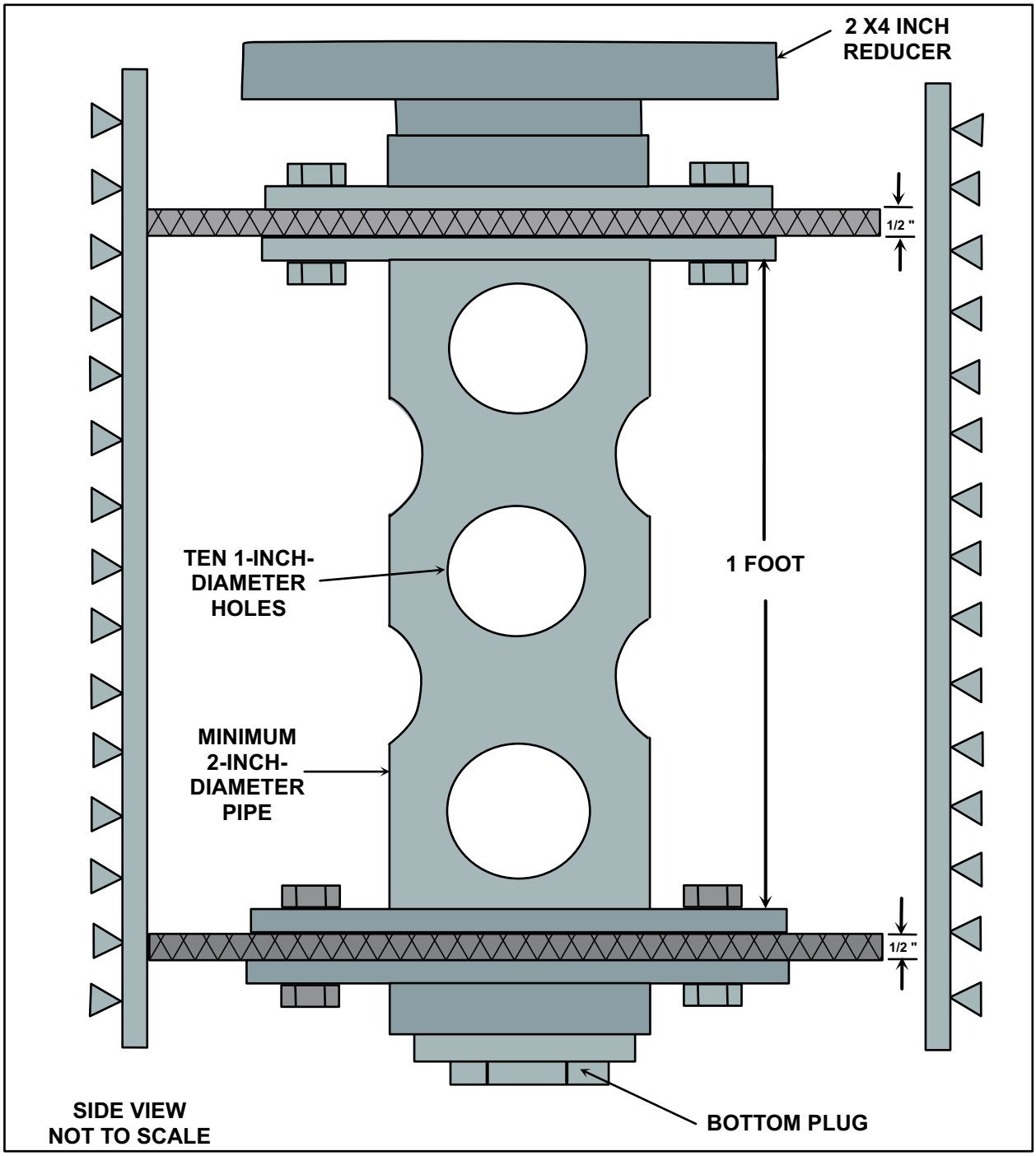
4 - FABRICATE 3-INCH-DIAMETER, FLANGE TO FLANGE (WITH 1-INCH-DIAMETER THREADED SAMPLE PORT VALVE AND 3 X 3-INCH CROSS TEE WITH BLIND FLANGE

5 - 3 X 6-INCH-DIAMETER FLANGE TO FLANGE REDUCER

6 - RAISE EXISTING PLUMBING BY EXTENDING 6-INCH-DIAMETER DISCHARGE PIPING AND INSTALL PIPE SUPPORT

WELLHEAD DESIGN DRAWING
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

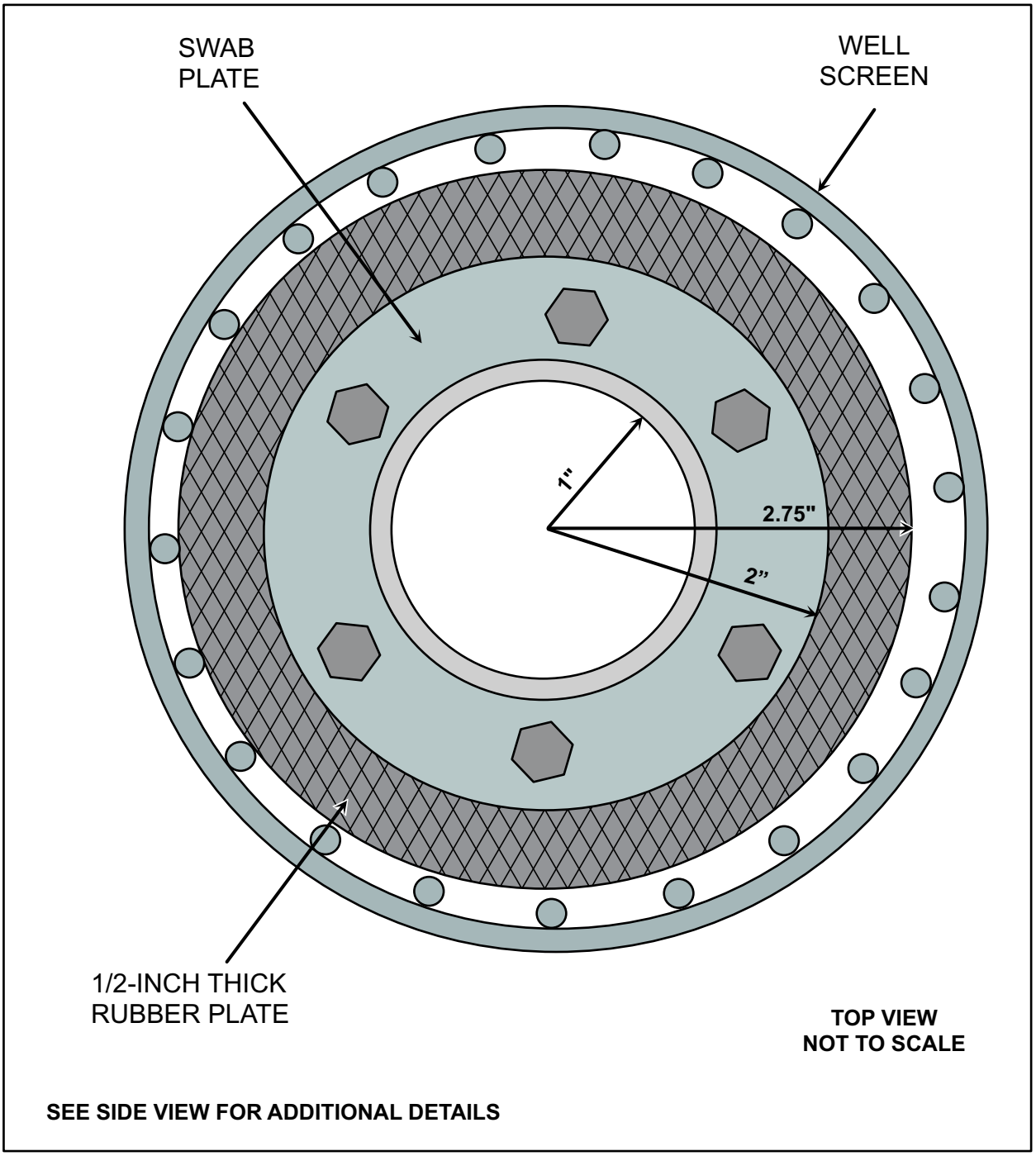
PLATE 5



SEE TOP VIEW FOR PLATE DIAMETERS

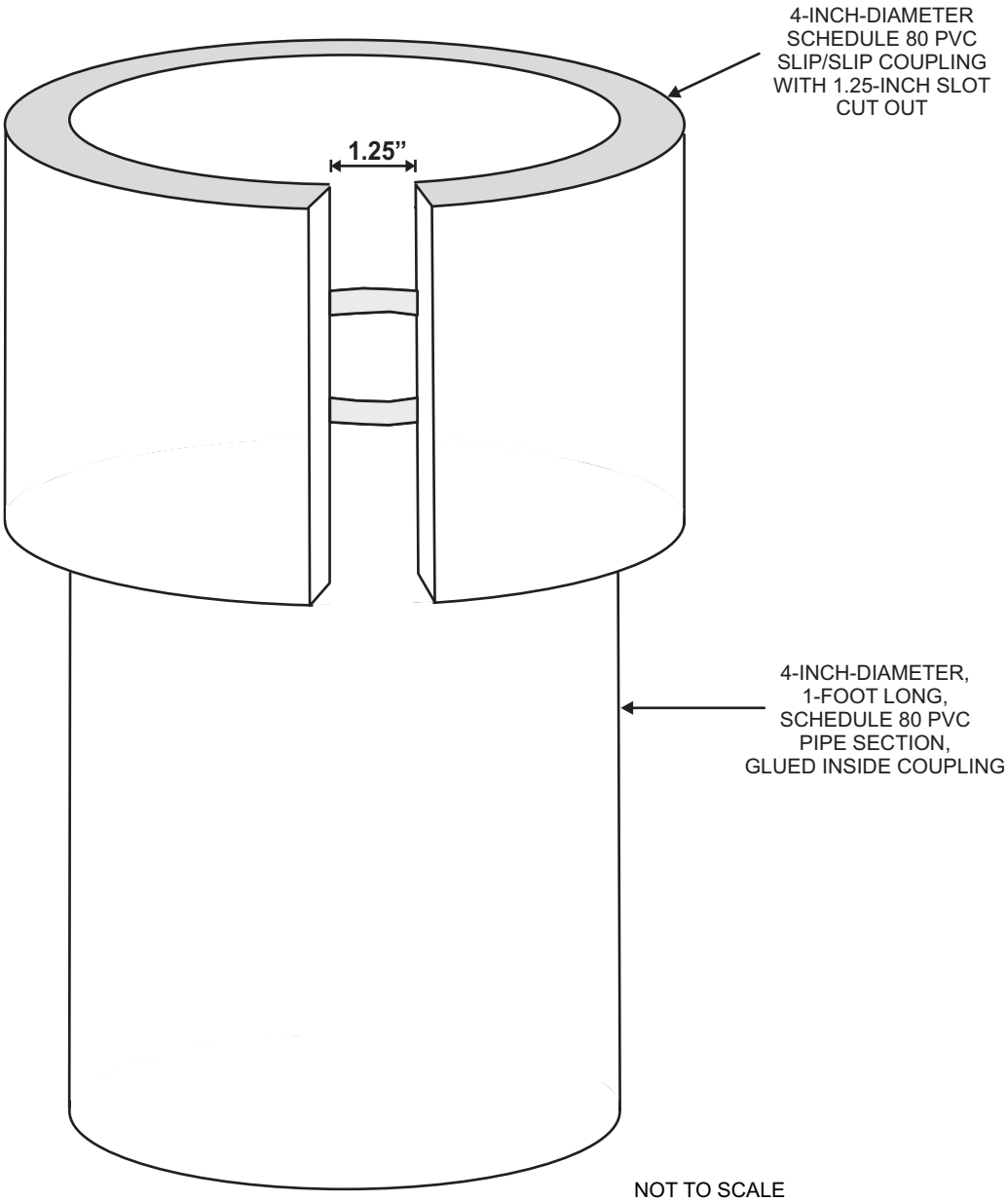
DUAL SWAB ASSEMBLY DRAWING - SIDE VIEW
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 6



DUAL SWAB ASSEMBLY DRAWING - TOP VIEW
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 7



DISSIMILAR METAL INSULATOR AND CABLE PROTECTOR
Rio Mesa High School
Well No. 2 Rehabilitation Project
Oxnard Union High School District
Oxnard, California

PLATE 8

ATTACHMENT A
WATER QUALITY TEST RESULTS

Well Number: 02N22W13N04
Well Name: RMHS WELL NO. 2
Date: 8/29/1997

Constituent	mg/l	meq/l	%	anion/cation%
Ca	130	6.49	23.8%	**48.6%**
Mg	38	3.13	11.5%	**23.4%**
Na	84	3.65	13.4%	**27.4%**
K	3	0.08	0.3%	**0.6%**
CO3+HCO3	250	4.10	15.0%	**29.4%**
SO4	410	8.54	31.3%	**61.2%**
Cl	46	1.30	4.8%	**9.3%**
NO3	0	0.01	0.0%	**0.0%**
EC	1,200			
TDS	990			
Total		27.28	100.0%	

Chemical Character
Calcium Sodium Magnesium Sulfate

Well Number: 02N22W13N04
Well Name: RMHS WELL NO. 2
Date: 4/25/2012

Constituent	mg/l	meq/l	%	anion/cation%
Ca	122	6.09	23.1%	**47.2%**
Mg	38	3.13	11.8%	**24.2%**
Na	82	3.57	13.5%	**27.6%**
K	5	0.13	0.5%	**1.0%**
CO3+HCO3	240	3.93	14.9%	**29.1%**
SO4	400	8.33	31.5%	**61.7%**
Cl	40	1.13	4.3%	**8.4%**
NO3	7	0.10	0.4%	**0.8%**
EC	1,150			
TDS	820			
Total		26.40	100.0%	

Chemical Character
Calcium Sodium Magnesium Sulfate

Well Number: 02N22W13N04
Well Name: RMHS WELL NO. 2
Date: 4/26/2018

Constituent	mg/l	meq/l	%	anion/cation%
Ca	196	9.78	25.2%	**49.0%**
Mg	67	5.51	14.2%	**27.6%**
Na	104	4.52	11.6%	**22.7%**
K	5	0.13	0.3%	**0.6%**
CO3+HCO3	270	4.42	11.4%	**23.4%**
SO4	594	12.37	31.8%	**65.3%**
Cl	73	2.06	5.3%	**10.9%**
NO3	5	0.08	0.2%	**0.4%**
EC	1,680			
TDS	1,260			
Total		38.88	100.0%	

Chemical Character
Calcium Sodium Magnesium Sulfate

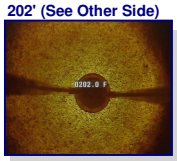
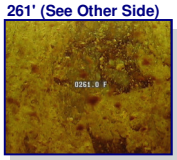
ATTACHMENT B
VIDEO SURVEY SUMMARY REPORTS

DOWNHOLE VIDEO SURVEY

Well Rehabilitation Services, Inc
Contractor License No.: CA. 983846
PO Box 80365 Bakersfield, CA. 93380
Phone: 661-587-0914 Fax: 661-587-0981 Web: Shelley@wellrehabservices.com

Client: Coast Pump, Inc
Address: 395 S Lewis Road
City: Camarillo State: CA Zip: 93012
Requested By: Carlos
Copy To:
Reason For Survey: General Inspection, Breaks Suction
Location: 545 Central Avenue, East side of water storage tanks, Oxnard
Field:
County: Ventura Country:
Perf Intervals:
1st Csg I.D.: 12 in. Csg Weight: From: 0 ft. To: 201 ft.
I.D Reference: Measured/Per Drawing Casing Buildup: Light, Increasing W/ Depth
Operator: Montoya Latitude: 34.252989° Longitude.: 119.142402°

Survey Date: January 2, 2018
Invoice: 23388 Run: 1
Well Name: #2
P.O.:
Well Owner: Rio Mesa High School
Camera: Aries BT9700 Color Camera
Zero Datum: Top Of Casing
Depth: 583 ft. Vehicle: VT2
Type Perfs: No Visible Perforations
2nd Csg I.D.: 10 in. Csg Weight: From: 201 ft. To: 583 ft.
S.W.L.: 154 ft. P.W.L.: Pump Depth: 235 ft.
Section: Range: Township:
Other Information:

WELLBORE SNAPSHOTS	DEPTHS (SideScan-Feet)	WELLBORE / CASING INFORMATION
		Downview 18" deeper than sideviews
0' (See Other Side)  0' (See Other Side) 	0.0 Ft.	Sideview-Zero Datum
	153.9 Ft.	**Sideview-Static water level, cloudy**
	170.0 Ft.	Sideview-Light scale buildup
153.9' (See Other Side)  170' (See Other Side) 	**200.8 Ft.**	**Sideview-10" reduction (Per customer)**
	202.0 Ft.	Downview-Poor visibility due to heavy falling debris
	235.0 Ft.	Downview-No visibility
	250.5 Ft.	Sideview-Moderate scale buildup
200.8' (See Other Side)  202' (See Other Side) 	**252.9 Ft.**	**Sideview-Small hole with water entry**
	254.8 Ft.	**Sideview-Hole**
	261.0 Ft.	**Sideview-Hole, water entry**
235' (See Other Side)  250.5' (See Other Side) 	**275.1 Ft.**	**Sideview-Possible hole**
252.9' (See Other Side)  254.8' (See Other Side) 		
261' (See Other Side)  275.1' (See Other Side) 		

Notes: **Sketch of well shows 10" reduction @ 200', Top of perfs 350' TD 620' Drilled by Midway Drilling 8/1997**

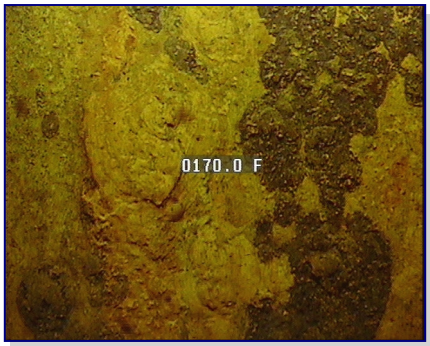
WELLBORE SNAPSHOT(S)

Depth: 0 Feet

Depth: 0 Feet

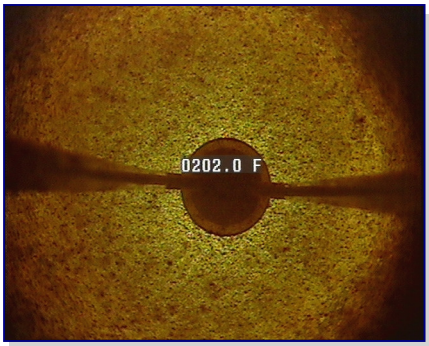
Depth: 153.9 Feet

Depth: 170 Feet

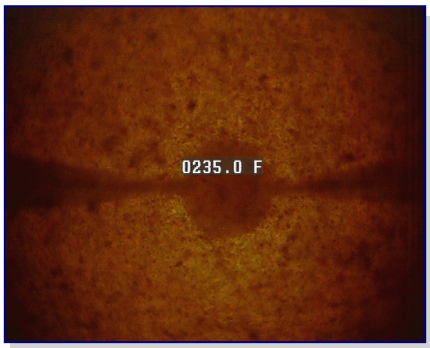


Depth: 200.8 Feet

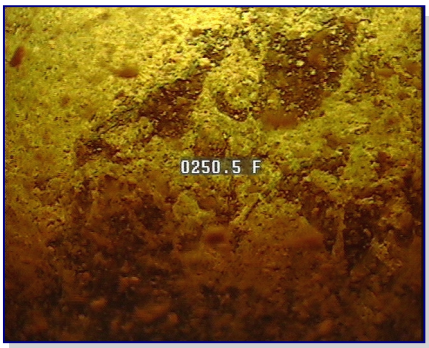
Depth: 202 Feet



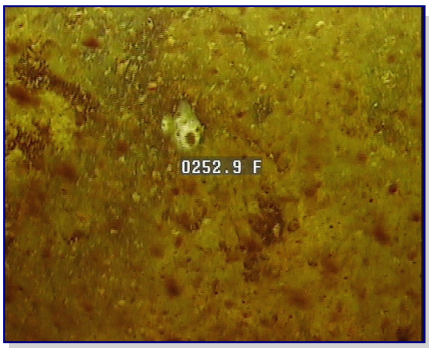
Depth: 235 Feet



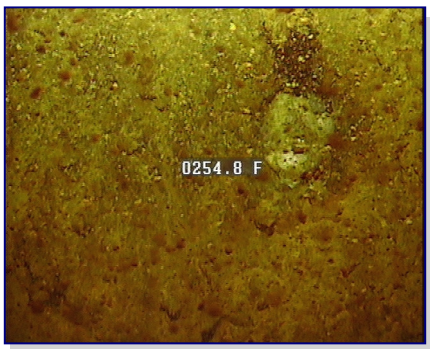
Depth: 250.5 Feet



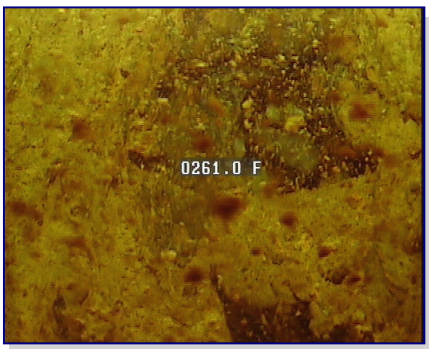
Depth: 252.9 Feet



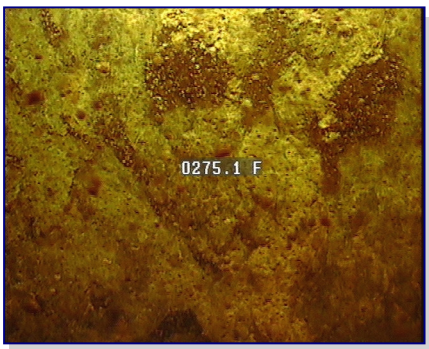
Depth: 254.8 Feet



Depth: 261 Feet



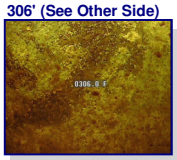
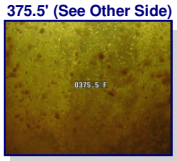
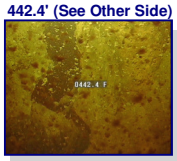
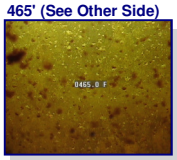
Depth: 275.1 Feet



DOWNHOLE VIDEO SURVEY

Well Rehabilitation Services, Inc
Contractor License No.: CA. 983846
PO Box 80365 Bakersfield, CA. 93380
Phone: 661-587-0914 Fax: 661-587-0981 Web: Shelley@wellrehabservices.com

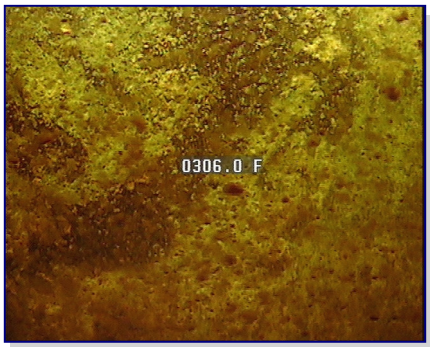
Survey Date: **January 2, 2018**
Client: **Coast Pump, Inc**
Well Name: **#2**
Depth: **583 ft.**
1st Csg I.D.: **12 in.** From: **0 ft.** To: **201 ft.**
2nd Csg I.D.: **10 in.** From: **201 ft.** To: **583 ft.**
S.W.L.: **154 ft.** P.W.L.: _____ Pump Depth: **235 ft.**
Type Perfs: **No Visible Perforations**
Perf Intervals: _____

WELLBORE SNAPSHOTS	DEPTHS (SideScan-Feet)	WELLBORE / CASING INFORMATION
306' (See Other Side)  320' (See Other Side) 	306.0 Ft.	Sideview-Moderate buildup
	320.0 Ft.	Downview-No visibility
375.5' (See Other Side)  394.3' (See Other Side) 	375.5 Ft.	Sideview-Moderate buildup
	394.3 Ft.	Sideview-Moderate buildup
409.3' (See Other Side)  419.7' (See Other Side) 	409.3 Ft.	Sideview-Possible hole
	419.7 Ft.	Sideview-Possible hole
432.3' (See Other Side)  442.4' (See Other Side) 	432.3 Ft.	Sideview-Possible hole
	442.4 Ft.	Sideview-Possible hole
465' (See Other Side)  500' (See Other Side) 	465.0 Ft.	Sideview-Poor visibility
	500.0 Ft.	Sideview-No visible perforations
581.7' (See Other Side) 	**581.7 Ft.**	**Sideview-Bottom fill, soft @ 583'**
		End of survey

Notes: **Sketch of well shows 10" reduction @ 200', Top of perfs 350' TD 620' Drilled by Midway Drilling 8/1997**

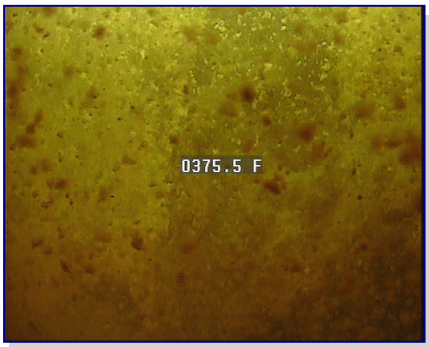
WELLBORE SNAPSHOT(S)

Depth: 306 Feet

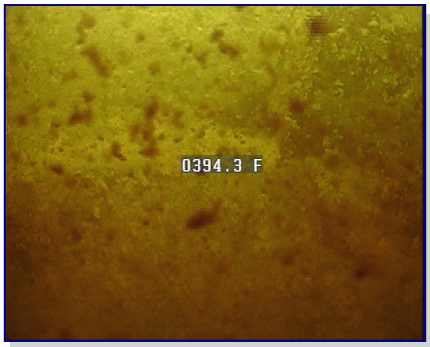


Depth: 320 Feet

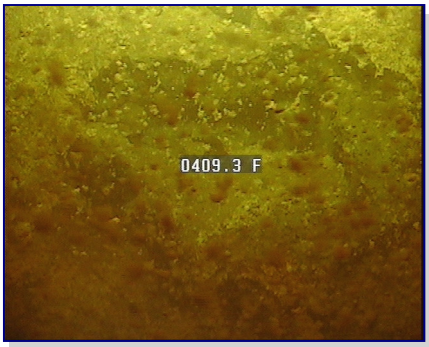
Depth: 375.5 Feet



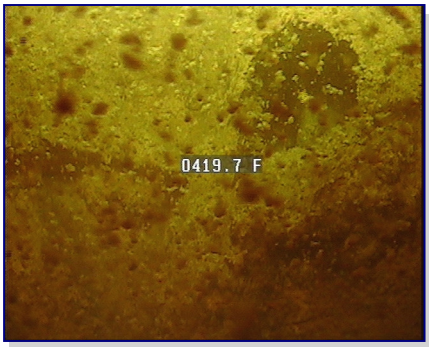
Depth: 394.3 Feet



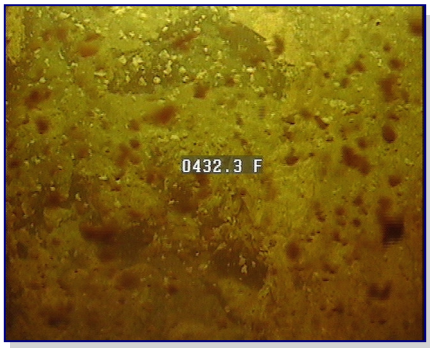
Depth: 409.3 Feet



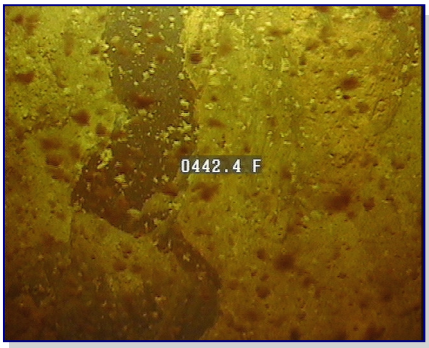
Depth: 419.7 Feet



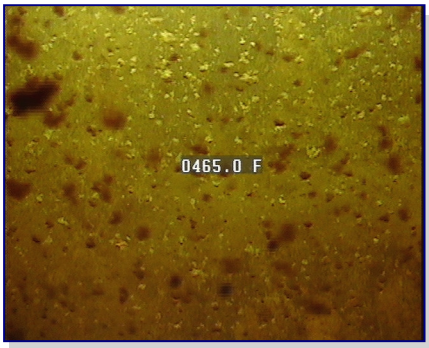
Depth: 432.3 Feet



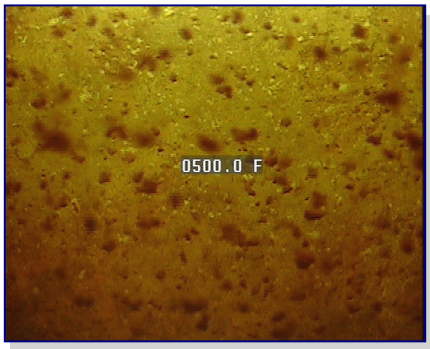
Depth: 442.4 Feet



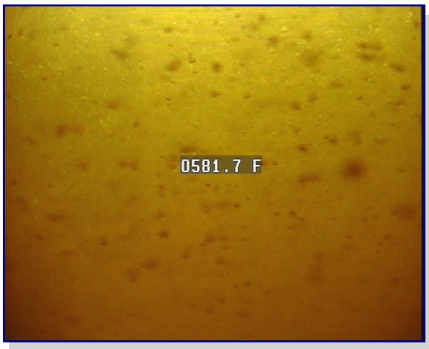
Depth: 465 Feet



Depth: 500 Feet



Depth: 581.7 Feet

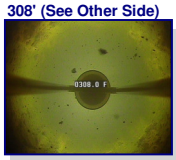


DOWNHOLE VIDEO SURVEY

Well Rehabilitation Services, Inc

Contractor License No.: CA. 983846
PO Box 80365 Bakersfield, CA. 93380
Phone: 661-587-0914 Fax: 661-587-0981 Web: Shelley@wellrehabservices.com

Client: **Coast Pump, Inc** | Survey Date: **January 8, 2018**
Address: **395 S Lewis Road** | Invoice: **23395** | Run: **2**
City: **Camarillo** | State: **CA** | Zip: **93012** | Well Name: **#2**
Requested By: **Carlos Camacho** | P.O.: | Well Owner: **Rio Mesa High School**
Copy To: | Camera: **Aries BT9700 Color Camera**
Reason For Survey: **Post Brush/Bail** | Zero Datum: **Top Of Casing**
Location: **545 Central Avenue, East of water storage tank, Oxnard**
Field: | Depth: **585 ft.** | Vehicle: **VT1**
County: | Country: | Type Perfs: **Horizontal Slots/Mill Slot**
Perf Intervals: **393-512 ft. 513-533 ft.**
1st Csg I.D.: **12 in.** | Csg Weight: | From: **0 ft.** | To: **201 ft.** | 2nd Csg I.D.: **10 in.** | Csg Weight: | From: **201 ft.** | To: **585 ft.**
I.D Reference: **Measured/DWR Records** | Casing Buildup: **Light** | S.W.L.: **154 ft.** | P.W.L.: | Pump Depth: **235 ft.**
Operator: **Montoya** | Latitude: **34.252989°** | Longitude.: **119.142402°** | Section: | Range: | Township:
Other Information:

WELLBORE SNAPSHOTS	DEPTHS (SideScan-Feet)	WELLBORE / CASING INFORMATION
		Downviews 18" deeper than sideviews
0' (See Other Side)  0' (See Other Side) 		Sideview-Zero Datum
	154.4 Ft.	Sideview-Static water level
154.4' (See Other Side)  181' (See Other Side) 	181.0 Ft.	Sideview-Light scale buildup
	200.7 Ft.	Sideview-Top of 10" tapered reduction
	252.7 Ft.	Sideview-Small hole
	252.9 Ft.	Sideview-Small hole
	254.6 Ft.	Sideview-Hole with gravel pack visible
200.7' (See Other Side)  252.7' (See Other Side) 	255.4 Ft.	Sideview-Small hole
	260.8 Ft.	Sideview-Hole
	306.0 Ft.	Sideview-Light scale buildup
252.9' (See Other Side)  254.6' (See Other Side) 	308.0 Ft.	Downview-Visibility cloudy
255.4' (See Other Side)  260.8' (See Other Side) 		
306' (See Other Side)  308' (See Other Side) 		

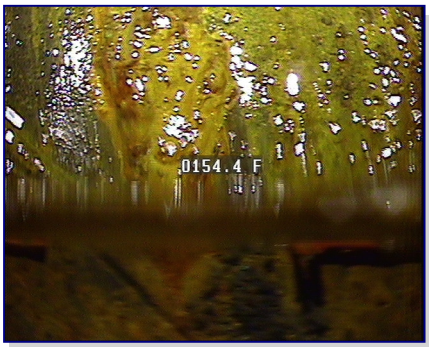
Notes: **DWR shows 10' reduction @ 200', top of perfs 350' TD 620' Drilled by Midway Drilling 8/1997**

WELLBORE SNAPSHOT(S)

Depth: 0 Feet

Depth: 0 Feet

Depth: 154.4 Feet



Depth: 181 Feet

Depth: 200.7 Feet

Depth: 252.7 Feet

Depth: 252.9 Feet

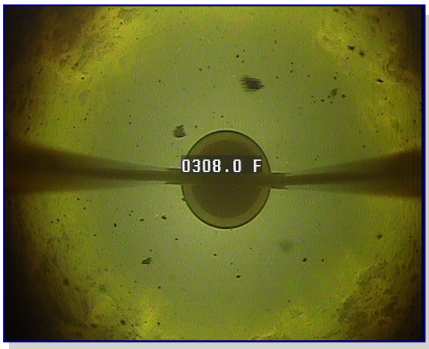
Depth: 254.6 Feet

Depth: 255.4 Feet

Depth: 260.8 Feet

Depth: 306 Feet

Depth: 308 Feet



DOWNHOLE VIDEO SURVEY

Well Rehabilitation Services, Inc
Contractor License No.: CA. 983846
PO Box 80365 Bakersfield, CA. 93380
Phone: 661-587-0914 Fax: 661-587-0981 Web: Shelley@wellrehabservices.com

Survey Date: **January 8, 2018**
Client: **Coast Pump, Inc**
Well Name: **#2**
Depth: **585 ft.**
1st Csg I.D.: **12 in.** From: **0 ft.** To: **201 ft.**
2nd Csg I.D.: **10 in.** From: **201 ft.** To: **585 ft.**
S.W.L.: **154 ft.** P.W.L.: Pump Depth: **235 ft.**
Type Perfs: **Horizontal Slots/Mill Slot**
Perf Intervals: **393-512 ft.** **513-533 ft.**

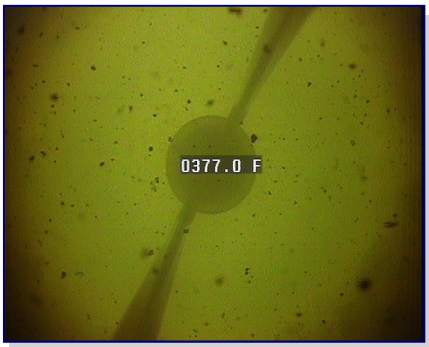
WELLBORE SNAPSHOTS	DEPTHS (SideScan-Feet)	WELLBORE / CASING INFORMATION
375.5' (See Other Side)  377' (See Other Side) 	375.5 Ft.	Sideview-Light buildup
	377.0 Ft.	Downview-No visibility
	393.4 Ft.	**Sideview-First visible horizontal slots**
	394.7 Ft.	**Sideview-Possible hole**
393.4' (See Other Side)  394.7' (See Other Side) 	410.1 Ft.	Sideview-Large nodules
	421.5 Ft.	**Sideview-Possible hole**
	439.6 Ft.	**Sideview-Possible hole**
	446.7 Ft.	**Sideview-Possible hole**
410.1' (See Other Side)  421.5' (See Other Side) 	**465.2 Ft.**	**Sideview-Possible hole**
	478.2 Ft.	**Sideview-Possible hole**
	513.8 Ft.	**Sideview-Top of mill slot perforations**
439.6' (See Other Side)  446.7' (See Other Side) 	528.2 Ft.	Sideview-Moderate buildup
465.2' (See Other Side)  478.2' (See Other Side) 		
513.8' (See Other Side)  528.2' (See Other Side) 		

Notes: **DWR shows 10' reduction @ 200', top of perfs 350' TD 620' Drilled by Midway Drilling 8/1997**

WELLBORE SNAPSHOT(S)

Depth: 375.5 Feet

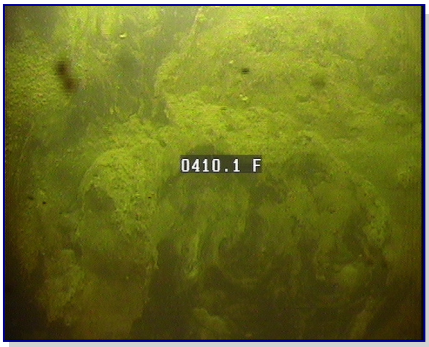
Depth: 377 Feet



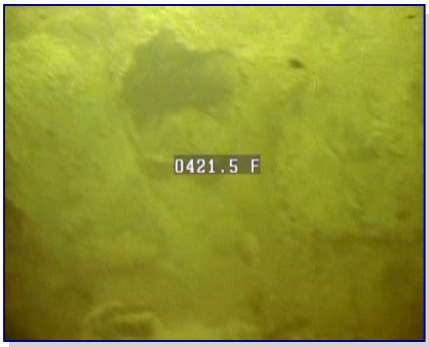
Depth: 393.4 Feet

Depth: 394.7 Feet

Depth: 410.1 Feet



Depth: 421.5 Feet



Depth: 439.6 Feet

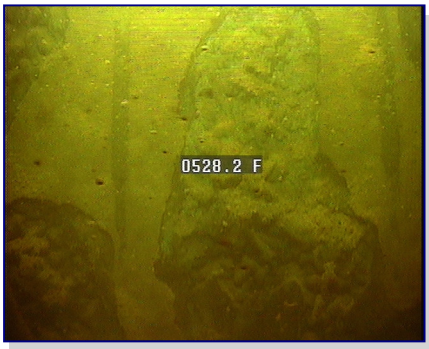
Depth: 446.7 Feet

Depth: 465.2 Feet

Depth: 478.2 Feet

Depth: 513.8 Feet

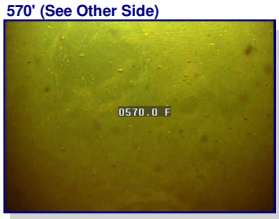
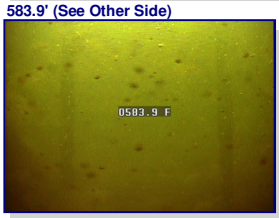
Depth: 528.2 Feet



DOWNHOLE VIDEO SURVEY

Well Rehabilitation Services, Inc
Contractor License No.: CA. 983846
PO Box 80365 Bakersfield, CA. 93380
Phone: 661-587-0914 Fax: 661-587-0981 Web: Shelley@wellrehabservices.com

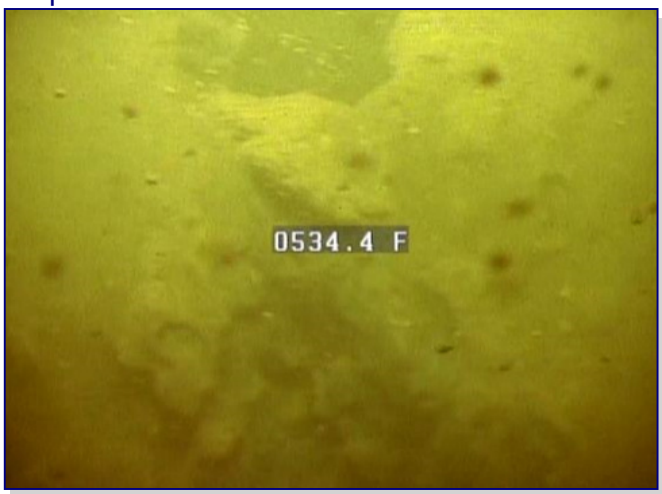
Survey Date: January 8, 2018
Client: Coast Pump, Inc
Well Name: #2
Depth: 585 ft.
1st Csg I.D.: 12 in. From: 0 ft. To: 201 ft.
2nd Csg I.D.: 10 in. From: 201 ft. To: 585 ft.
S.W.L.: 154 ft. P.W.L.: Pump Depth: 235 ft.
Type Perfs: Horizontal Slots/Mill Slot
Perf Intervals: 393-512 ft. 513-533 ft.

WELLBORE SNAPSHOTS	DEPTHS (SideScan-Feet)	WELLBORE / CASING INFORMATION
534.4' (See Other Side) 	534.4 Ft.	Sideview-Possible hole
563.2' (See Other Side) 	563.2 Ft.	Sideview-Poor visibility
570' (See Other Side) 	570.0 Ft.	Sideview-Possible hole
583.9' (See Other Side) 	583.9 Ft.	Sideview-Enlarged mill slot perforations
584.3' (See Other Side) 	584.3 Ft.	Sideview-Bottom fill, soft @ 585'
		End of survey

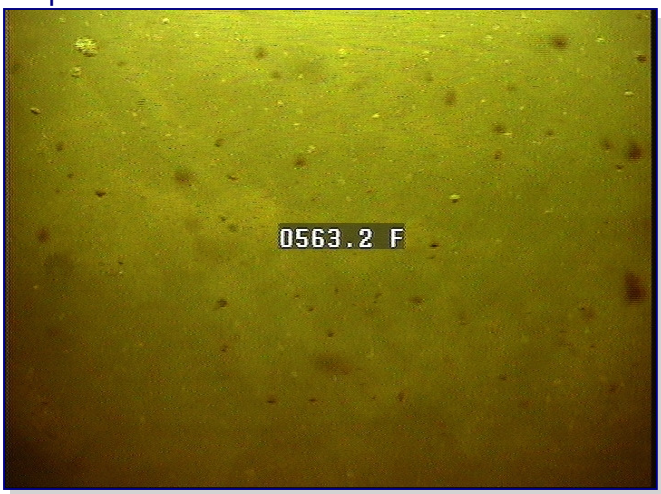
Notes: DWR shows 10' reduction @ 200', top of perfs 350' TD 620' Drilled by Midway Drilling 8/1997

WELLBORE SNAPSHOT(S)

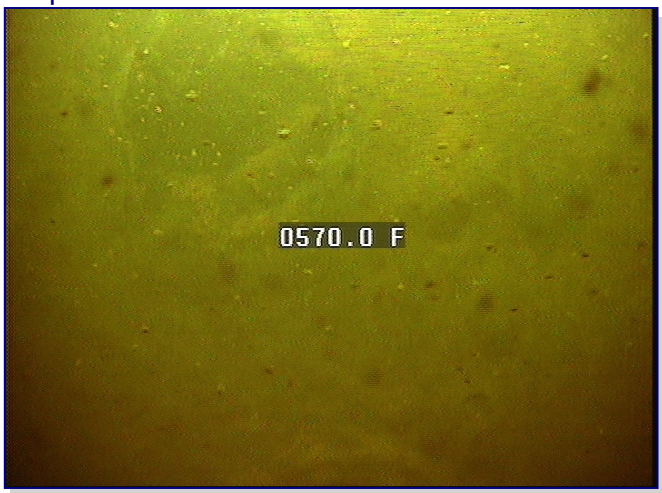
Depth: 534.4 Feet



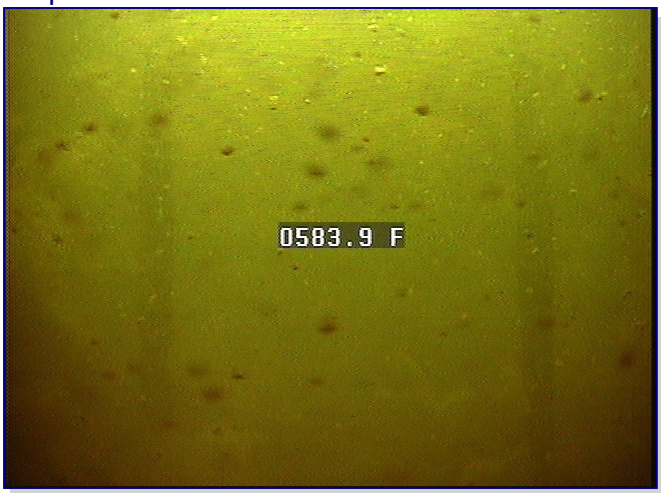
Depth: 563.2 Feet



Depth: 570 Feet



Depth: 583.9 Feet

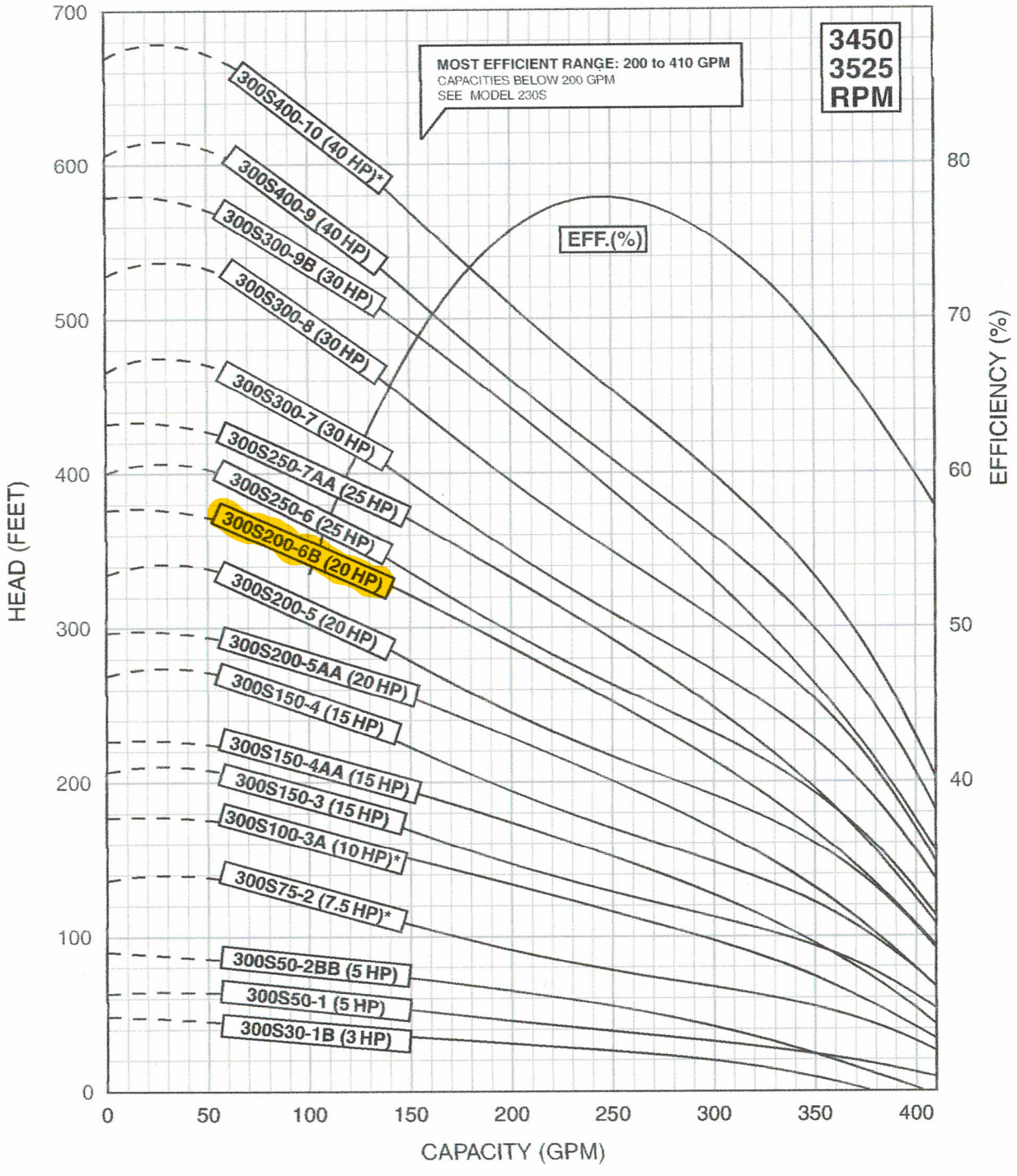


Depth: 584.3 Feet

ATTACHMENT C
WELL NO. 2 PUMP INFORMATION
AND DESIGN CURVE

PERFORMANCE CURVES 300 GPM MODEL 300S

FLOW RANGE: 60 -410 GPM **OUTLET SIZE: 3"& 4" NPT*** **NOMINAL DIA. 6"**



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.
4" MOTOR STANDARD, 7.5 HP/3450 RPM.
6" MOTOR STANDARD,15-60 HP/3450 RPM.
8" MOTOR STANDARD, 75 HP/3525 RPM.
* 3" NPT 2-6 STAGES, 4" NPT 7-18 STAGES.

Performance conforms to ISO 9906 Annex A
@ 8 ft. min. submergence.