



**NORTHRIDGE WELL #15,
PRODUCTION WELL DRILLING, DEVELOPMENT AND
TESTING**

Project No. C25WTNWRD

BID SET

PREPARED FOR

FAIR OAKS WATER DISTRICT



PREPARED BY

KASL CONSULTING ENGINEERS, INC.

JANUARY, 2025

FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BLVD
FAIR OAKS, CA 95628

**CONSTRUCTION SPECIFICATIONS FOR
NORTHRIDGE WELL #15, PRODUCTION WELL DRILLING,
DEVELOPMENT AND TESTING**

Project No. 25WTNWRD

Certifications and Seals

The specifications contained herein have been prepared by or under the direction of the following California registered professionals:



A handwritten signature in blue ink, appearing to read "Tom R. Gray", written below the seal.



S: 2-13-25

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INVITATION TO BID
NORTHRIDGE WELL #15
PRODUCTION WELL DRILLING, DEVELOPMENT AND TESTING

Sealed Bids for furnishing all plant, labor, equipment, materials and performing all work to construct one water supply well will be received and opened at the office of the **Fair Oaks Water District, 10326 Fair Oaks Boulevard, Fair Oaks, CA. 95628, Attn: Blake Chetcuti P.E., Engineer** (hereinafter called **District**), on March 12, 2025, at 2:00 p.m., local time. Immediately following the bid due date and time, bids will be publicly opened and read. Bidder's representative may use the following login information for teleconferencing the bid opening:

Phone (916) 844-3159, Conference ID: 208640

The work includes drilling pilot hole up to 500 feet, geophysical logging, reaming the pilot borehole, geophysical logging, installing well casings and screens, placing filter pack and annular seal, developing the well and production testing of the well. The work also includes existing well site demolition and abandonment of the existing Northridge Well #9. The work will be monitored by the **DISTRICT's REPRESENTATIVE**, KASL Consulting Engineers, Inc.

A non-mandatory pre-bid site walk will be held 2 weeks before bid date, on February 26, 2025, at 2:00 PM. Interested parties are encouraged to attend and shall first meet at the District's Office in Fair Oaks before proceeding to the Northridge Well #15 site.

A set of Contract Documents may be viewed at FOWD website <https://www.fowd.com/projects-and-bids> and purchased at <http://planroom.csdsinc.com>. Under Public Jobs search "NORTHRIDGE WELL #15 PRODUCTION WELL DRILLING, DEVELOPMENT AND TESTING". For additional information, contact the Planroom at Crisp Imaging (916) 344-6742. Only Complete sets of Contract Documents may be purchased. The Bidder's attention is directed to the Instruction to Bidders for complete instructions regarding submission of bid.

Board of Directors approval to award the bid is scheduled for March 17, 2025. Anticipating one month for completion of contractual documents, insurance, and other contractor submittals, the commencement of construction would likely be on or around April 15, 2025. The Work must be completed within 120 calendar days after the commencement date stated in the Notice to Proceed.

The **CONTRACTOR** shall have completed at least three projects within the last five years similar to the subject project and shall provide a minimum of three (3) references to the **DISTRICT**.

OWNER reserves its rights to waive any informality or deficiency in any Bid, to accept any Bid, to negotiate modifications of any Bid with any Bidder and accept any modified Bid, to reject any Bid, to reject all Bids, and to rebid the Project, all at the **OWNER's** sole discretion.

BID PROPOSAL

FROM: FAIR OAKS WATER DISTRICT

PROJECT NAME: NORTHRIDGE WELL #15 PRODUCTION WELL DRILLING, DEVELOPMENT AND TESTING

PROJECT NO: C25WTNWRD

1. Bids shall be completed on the attached Bid Schedule. All numbered bid items must be completed. Numbers shall be stated in figures and the form signed. Any corrections to entries made on bid forms shall be initialed by the person (s) signing the bid. Before submitting a bid, bidders shall carefully examine the project documents and inspect the site of the work, fully inform themselves as to all existing governmental agency conditions and limitations and shall include a total cost figure on the bid proposal form.
2. The undersigned, having familiarized themselves with the local conditions affecting the cost of the work, and with the Contract Documents, for the above named Project, do hereby propose to perform everything required to be performed, and to provide and furnish all labor, materials (except water meters), tools, expendable equipment, and all utility and transportation services necessary to complete work in the above named project, all in accordance with the prepared drawings, bidding documents and specifications.
3. The undersigned agrees, if awarded the contract, to start work within 20 calendar days after issuance of Notice to Proceed, and to complete same, ready for substantial and unobstructed use by DISTRICT within 120 calendar days of issuance of Notice to Proceed.
4. In submitting this bid, it is understood that the DISTRICT intends to award the Work advertised to the lowest responsive responsible Bidder, however, right is reserved by the DISTRICT to reject any and all bids or any portion thereof. It is agreed that this bid may not be withdrawn for a period of forty-five (45) days from the opening thereof.
5. The undersigned firm/individual holds California State Construction License Number _____ and Worker's Compensation Policy Number _____ issued by _____
6. The undersigned acknowledges receipt of the Contract Documents for the Project consisting of the Northridge Well #15 Production Well Drilling, Development and Testing Construction Specifications dated January 2025, together with all attached documents. The undersigned acknowledges that addenda numbers _____ through _____ have been received and examined as part of the Contract Documents.
7. The undersigned understands that if awarded bid, invoices and payments shall be for actual quantities of material installed at unit cost for each bid item.

FIRM NAME: _____

ADDRESS: _____

CITY & STATE: _____

TELEPHONE NO.: _____

BY: _____ TITLE: _____

TYPE OR PRINT NAME OF PERSON SIGNING BID PROPOSAL

BY: _____ DATE: _____ 2025

SIGNATURE

BIDS ARE TO BE RETURNED NO LATER THAN 2:00 P.M. LOCAL TIME, MARCH 12, 2025, AT FAIR OAKS WATER DISTRICT OFFICE. MARK THE PROJECT NAME ON THE BIDDING ENVELOPE SUBMIT BID TO BLAKE CHETCUTI.

RETURN TO: FAIR OAKS WATER DISTRICT
10326 FAIR OAKS BOULEVARD
FAIR OAKS, CA 95628

BID SCHEDULE

Project No.: C25WTNWRD

District: Fair Oaks Water District

Project Name: NORTHRIDGE WELL #15 PRODUCTION WELL DRILLING, DEVELOPMENT AND TESTING

Owner Name: Fair Oaks Water District

THIS PROJECT BIDS ON: _____.

Item	Description	Unit	Qty.	Unit Price, \$	Total Price, \$
1	Mobilization and Demobilization	LS	1		
2	All-Weather Pad and Site Access	LS	1		
3	Noise Abatement (Sound Wall)	LF	620		
4	Existing Well Site Demolition	LS	1		
5	Existing Well Abandonment (Destruction)	LS	1		
6	Furnish and Install 42-inch Conductor Casing (Including Sanitary Seal) in 52-inch Diameter Borehole	LF	75		
7	Drill Pilot Borehole to 225 feet	LF	150		
8	Geophysical Logging to 225 feet	EA	1		
9	Borehole X-Y Geometry (Deviation) Survey to 225 feet	EA	1		
10	Ream Pilot Hole to 38 inches from Bottom of Conductor Casing to 225 feet.	LF	225		
11	Caliper Survey to 225 feet	EA	1		
12	Furnish and Install 30-inch Intermediate Casing	LF	225		
13	Furnish/Install Sand Cement Annular Seal	LF	225		
14	Drill Pilot Borehole from 225 to 500 feet	LF	275		
15	Geophysical Logging, 225 to 500 feet	EA	1		
16	Borehole X-Y Geometry (Deviation) Survey, 225 to 500 feet	EA	1		
17	Ream Pilot Hole to 28 inches from 225 feet to Target Depth (500 Feet)	LF	275		

BID PROPOSAL BREAKDOWN (CONT'D)					
Item	Description	Unit	Qty.	Unit Price, \$	Total Price, \$
18	Caliper Survey, 225 to 500 feet	EA	1		
19	Furnish / Install 18-inch Stainless Steel Casing	LF	372		
20	Furnish/Install 18-inch Stainless Steel Louvered Full-Flow Pattern Screen	LF	130		
21	Furnish/Install 3-inch Black Steel Filter Feed Pipe	LF	240		
22	Furnish/Install 2-inch Stainless Steel Sounding Tube and Gilbert Box	LF	352		
23	Furnish/Install Filter Pack (Silicon Bead)	LF	265		
24	Furnish/Install Transition Sand	LF	5		
25	Furnish/Install Annular Seal	LF	225		
26	Well Development with Rig	HR	40		
27	Install/Remove Test Pump and Ancillary Equipment	LS	1		
28	Well Development with Test Pump	HR	16		
29	Step-Drawdown Pumping Test	HR	4		
30	Constant-Discharge Pumping Test	HR	24		
31	Plumbness and Alignment Test, Video Log.	LS	1		
32	Disinfection	LS	1		
33	Mud/Cuttings Disposal	LS	1		

Subtotal Base Bid Proposal (Items 1- 33) _____

Contingency Bid Item

34	Standby Time	HR	EA		
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DESIGNATION OF SUBCONTRACTORS

The following are the names and locations of places of business of all subcontractors who will perform work or labor or render service to the bidder in or about the work, or improvement according to the specifications, in an amount in excess of one-half of one percent (0.5%) of the total bid.

PORTION OF WORK	SUBCONTRACTOR	PLACE OF BUSINESS

CERTIFICATION OF BIDDER’S EXPERIENCE AND QUALIFICATIONS

This certification and the responses presented herein shall assist the DISTRICT in determining the lowest responsive responsible Bidder. The undersigned Bidder represents that it is competent, knowledgeable and has the special skills on the nature, extent and inherent conditions of the Work to be performed on this project. The undersigned Bidder represents that it has been in the contracting business, under the present business name for five (5) years and has experience in work of a nature similar to this project which extends over a period of five (5) years.

Bidder also certifies that Bidder self-performed at least fifty percent (50%) of the Work on each of the projects listed below. The DISTRICT considers this level of past self-performance demonstrates a benefit to a Project in terms of better control of cost, schedule and safety.

Project Names / Location	Owner	Construction Cost	Time / Date of Construction	Owner’s Representative Name / Telephone No. / Email Address
1.				
2.				
3.				
4.				
5.				

The undersigned hereby certifies that the above representations regarding the Bidder’s Experience and Qualifications are correct and true.

Signed this _____ day of _____, 2025.

Bidder’s Name

_____ Date

Title of Signator

FAIR OAKS WATER DISTRICT CONSTRUCTION AGREEMENT

This CONSTRUCTION AGREEMENT (Agreement) is made at Fair Oaks, California, between the FAIR OAKS WATER DISTRICT ("DISTRICT") and _____ ("CONTRACTOR"), who agree as follows:

GENERAL TERMS & CONDITIONS - The General Terms & Conditions set forth in Exhibit "A" are part of this Agreement. In the event of any inconsistency between said General Terms & Conditions and any other terms or conditions of this Agreement, the General Terms & Conditions shall prevail.

SCOPE OF WORK - Subject to the terms and conditions set forth in this Agreement, CONTRACTOR shall provide construction services to the DISTRICT in accordance with the General Terms & Conditions (EXHIBIT "A"), Invitation to Bid and Bid Proposal (EXHIBIT "B") at rates provided in submitted bid, a total cost of \$_____, Technical Specifications (EXHIBIT "C"), and Improvement Plans (EXHIBIT "D").

CONTRACTOR shall complete all work as specified or indicated in the Agreement. The work includes but it is not limited to:

- Obtain all necessary permits
- Move on and off site
- Install conductor casing and sanitary seal to a depth of approximately 75 feet
- Drill a 38-inch diameter borehole to 225 feet
- Furnish and install 30-inch diameter intermediate casing to 225 feet and seal annulus
- Drill a 28-inch diameter borehole below intermediate casing to 500 feet
- Construct 18-inch diameter production well, install filter pack and annular seal
- Develop the well
- Test pump the well
- Acquire borehole geophysical logs
- Conduct Caliper Survey, X-Y Borehole Geometry Surveys, Plumbness Test, Alignment Test
- Remove existing well improvements and abandon existing well

ENTIRE AGREEMENT - This Agreement, all exhibits (Exhibits "A-D") attached hereto, all other terms or provisions incorporated herein by reference, constitute the entire agreement and understanding between the DISTRICT and the CONTRACTOR as to the subject matter contained herein.

CONTRACT COMMITMENT - This Agreement shall be in effect starting the date of signing until complete per satisfaction of FOWD. Maintenance bond and guarantee letter shall be provided prior to final acceptance of project at completion.

CONTRACT TIME AND LIQUIDATED DAMAGES - The work will be completed and ready for final payment within 120 calendar days from the commencement stated in the Notice to Proceed. The work will be considered completed upon completion of the aquifer testing.

The DISTRICT and the CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), the CONTRACTOR shall pay the DISTRICT \$250 for each day that expires after the time specified above.

CONTRACTOR'S REPRESENTATIONS

CONTRACTOR makes the following representations:

- a. CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, Contract Times, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or finishing of the Work.
- b. CONTRACTOR familiarized itself with available lands, subsurface and physical conditions and associated responsibilities as described in the General Conditions.
- c. CONTRACTOR has given DISTRICT written notice of all conflicts, errors or discrepancies that they have discovered in the Contract Documents and the written resolution thereof by DISTRICT is acceptable to CONTRACTOR.

DISTRICT and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements, and obligations contained in the Contract Documents.

Drug-Free Workplace Certification of Compliance:

By signing this Agreement, Contractor or its sub-contractors hereby certify, under penalty of perjury under the laws of the State of California, compliance with the requirements of the Drug-Free Workplace Act of 1990 (Government Code 8350 *et seq.*), that they have received and read a copy of the District's Drug-Free Awareness Program, as required by Government Code Section 8355(b) and have or will provide a drug-free workplace by notifying employees and sub-contractors that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees or sub-contractors for violations, as required by Government Code Section 8355(a).

INSTRUCTIONS

Sign and return one original with a copy of requested insurance certificates, payment and performance bonds. Upon acceptance by DISTRICT, contracted work can be scheduled.

DISTRICT:

FAIR OAKS WATER DISTRICT

10326 Fair Oaks Blvd.
Fair Oaks, CA 95628
Attn: Tom R. Gray
Title: General Manager
(916) 967-5723

(Signature)

Tom R. Gray
General Manager

Date: _____

Other authorized representative(s):

Shawn Huckaby, Operations Manager

CONTRACTOR:

COMPANY NAME

Address
City, State Zip Code
Attn: _____
Title: _____
(xxx) xxx-xxxx

(Signature)

Print Name: _____
Print Title: _____

Date: _____

Other authorized representative(s):

License No.: _____

EXHIBIT "A"
GENERAL TERMS & CONDITIONS

CONTRACT FORMATION

Contractor's quotation or proposal is deemed a firm offer and the final signing of this contract by all parties constitutes invocation of all items within the contract and is legally binding.

Section 1 – RESPONSIBLE PARTIES/DEFINITIONS

District: Whenever the word "District" or alternatively, "FOWD" is used in these General Conditions, it shall be understood to mean the Fair Oaks Water District and acting by and through its Authorized FOWD Representative.

Contractor shall not accept direction or orders from any person other than the General Manager or the person(s) whose name(s) is (are) inserted on the CONTRACT as "other authorized representative(s)."

Contractor: The word "Contractor" shall be understood to mean a Contractor (the contracting company) who has a current California State Contractor's License of appropriate class to do the work for which it is contracted to do as defined in the *California Contractor's License Law and Reference Book*; has, when applicable, a current business licenses to perform the work from the local jurisdiction where the work is to be performed; has been approved by the District; and is employed through the District's General Contract documents to complete the scope of work contained therein in accordance with the District's "STANDARD SPECIFICATIONS & STANDARD DRAWINGS" and "EQUIVALENT MATERIALS LIST" for construction work, the Contractor shall have a Class A or C34 California Contractor's License.

County: Whenever the word "County" is used in these General Conditions, it shall be understood to mean the County of Sacramento.

Section 2 - CONTRACT DOCUMENTS

Contract Defined: Wherever used herein, the term "Contract" shall mean the Fair Oaks Water District "General Contract", these General Conditions, the appropriate form of bid document, and any other documents incorporated into the Contract by reference. All of the forgoing documents shall together form the agreement between Contractor and the District, and a reference to any of them shall be deemed to include the entire Contract which shall be read as a whole.

The Contract, which may be supplemented from time to time with additional accepted bids and/or revised contract documents, represents the entire and integrated agreement of the parties and supersedes all prior negotiations, agreements and understandings.

Work called for in any one Contract Document and not mentioned in another is to be performed and executed as if mentioned in all Contract Documents. The titles and headings contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect or limit the interpretations of the provisions to which they refer.

Conflicts: In the event of a conflict between the terms and conditions as set forth in this Contract and the terms and conditions set forth in other Contract Documents, the terms and conditions set forth in this Contract shall prevail.

Plans and General Conditions: Where conflicts exist between the District Contract and the Plan, then the information in the Contract shall take precedence.

Change Orders: Any supplements or changes to the Contract Agreements or Construction issued plans, Individual Work Scope Agreements, Term Contracts or General Category Work Agreements and these General Conditions shall be in writing and presented in the form of a Change Order.

Addendum: Any supplements or changes to individual Task Orders or Contract shall be in writing and presented in the form of an addendum.

Consummation of Change Orders and Addenda: Such Change Orders and Addenda executed as described above shall be effective when thereafter signed by the Contractor's Authorized Representative and authorized representative of FOWD.

Section 3 – SEVERABILITY

The Contractor and the District agree that any provision of this contract that is found to be illegal or unenforceable, such term or provision shall be deemed stricken and the remainder of the contract shall remain in full force and effect. Either party having knowledge of such term or provision shall promptly inform the other of the presumed non-applicability of such provision.

Section 4 – RESPONSIBILITY FOR WORK

Until the completion and final acceptance by the District, of all the work under and implied by this Contract, the work shall be under the Contractor's responsible care and charge. The Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erections, and repairs occasioned or rendered necessary by causes of any nature whatsoever.

Section 5 – EXTRA WORK

The Contractor shall do no extra work except on the written authorization of the District. If the District does authorize extra work, the costs thereof will be added to the monthly invoice upon the completion of the extra work.

Section 6 – CONTRACT AMOUNT

The District agrees to pay, and the Contractor agrees to accept, in full payment for the above work, the sum computed in accordance with the actual amount of each item of work performed or material furnished and incorporated in the work, at the unit price which the Contractor bid for each such item in the Contractor's bid, said unit price to be determined as provided in the proposal.

Section 7 – PROGRESS AND FINAL PAYMENTS

1. On a monthly basis, or as presented in project request for proposal, the Contractor shall present to the District a statement showing the amount of labor and materials incorporated in the work during the preceding month, along with certified payroll documentation. The District personnel shall verify the statement. If accuracy of invoice is satisfactory, a payment will be made in an amount equal to ninety-five percent (95%) of the value to date, based on the contract price, less any previous payments for all work performed and materials actually used by the Contractor during said period. The remaining five percent (5%) of the value of the work completed under this contract, if unencumbered, shall be paid after final completion and acceptance of work by the District. Acceptance by the Contractor of said final payment shall constitute a waiver of all claims against the District arising under the Contract Document. The Contractor shall not be paid for any defective, unfinished, disputed, or improper work.
2. Undisputed invoices processing:

- a) For invoices less than \$25,000, the FOWD will pay the contractor 30 days from the date of invoice.
 - b) For invoices \$25,000 and greater depending on when the invoices are submitted and the timing of the FOWD's Board meeting, the check processing for expenses \$25,000 and greater can take up to 60 days.
3. Pursuant to Part 5, Section 22300 of the Public Contract Code, the Contractor will be permitted to substitute securities for any money withheld by the District to ensure performance under this contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the District, or with a State or Federally chartered bank in California as the escrow agent, who shall pay such monies to the Contractor upon satisfactory completion of the Contract. At the direction of the District, the securities shall be returned to the Contractor.
 4. Alternately, the Contractor may request that the owner shall make payment of retentions earned directly to the escrow agent at the expense of the Contractor. At the expense of the Contractor, Contractor may direct the investment of the payments into the investments upon the same terms provided for in this section for securities deposited by the Contractor. Upon satisfactory completion of the contract, Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the owner, pursuant to the terms of this section. The Contractor shall pay to each sub-contractor, not later than twenty (20) days following receipt of the payment, the respective amount of interest earned, net of costs attributed to retention withheld from each sub-contractor, on the amount of retention withheld to insure the performance of the Contractor.
 5. Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.
 6. The Contractor shall be the beneficial owner of any securities substituted for monies withheld and shall receive any interest thereon.
 7. Any escrow agreement entered into pursuant to this provision shall be substantially in the form set forth in Section 22300 (e) of the California Public Contract Code.

Section 8 – RETENTION OF SUMS CHARGED AGAINST CONTRACTOR

When, under the provisions of this contract, the District shall charge any sum of money against the Contractor, the District shall deduct and retain the amount of such charge from the amount of the next succeeding progress estimate, or from any other monies due or that may become due the Contractor from the District. If, on completion or termination of the Contract, sums due the Contractor are insufficient to pay the District's charges against the Contractor, the District shall have the right to recover the balance from the Contractor.

Right of the District to Withhold Payments: In accepting work with the District, the Contractor agrees the District may withhold or cancel the whole or any part of any partial payment or final payment to such an extent as may be reasonably necessary to protect the District from loss due to, but not limited to, any one of the following items or a combination of the items:

1. **Defective Work:** Defective work not remedied, regardless of when any such work may be found to be defective.

2. **Claims or Liens:** Claims or liens filed or reasonable evidence indicating probable filing of claims or liens.
3. **Failure of Contractor to Pay for Goods or Services:** Failure of the Contractor to make payments promptly for labor, material, equipment or other facilities, or to sub-contractors.
4. **Ability of Contractor to Complete for Unearned Balance:** A reasonable that work can be completed for the balance unearned.
5. **Damage to Other Work or Property:** Damage to other work or property which is caused either directly or indirectly by the Contractor.
6. **Pending Notice of Completion:** The District may have a "Notice of Completion" published and withhold final payment pending the outcome of the discovery period and subject to all other applicable provisions of these General Conditions.
7. **Settlement of Back Charges:** Settlement of back charges resulting from bonafide claims on totally unrelated work awarded to the Contractor using otherwise unencumbered funds available from current contracted work.
8. **Provision of Listing of Sub-contractors and Suppliers:** Payment may be withheld until Contractor has provided a list of all sub-contractors, suppliers or others, who have provided goods and services for work performed, including reasonable time for District to verify Contractor's payment to same.

Whenever the District shall, in accordance herewith, withhold any monies otherwise due to the Contractor, written notice of the amount withheld and the reasons thereof shall be given the Contractor. Once the Contractor has removed the grounds for such withholding, the District will promptly pay to the Contractor any amounts owed to Contractor from the amount withheld.

Section 9 – NOTICES AND INVOICES

All notices, invoices, and payments shall be made in writing and may be given by personal delivery, via email in pdf format, or by mail. Notices, invoices, and payments sent by United States mail shall be addressed to the designated FOWD and Contractor Authorized Representatives, as applicable, as indicated on the Construction Agreement. When so addressed, all such notices, invoices and payments shall be deemed given upon two days following deposit in the United States mail, all postage prepaid. In all other instances, notices, invoices, and payments shall be deemed given at the time of actual receipt. Any invoices emailed to FOWD must include FOWD project manager and ap@fowd.com.

Section 10 – NO WAIVER BY PAYMENT

Payment to the Contractor or occupation of the project by the District shall not relieve the Contractor of liability for defective materials or quality of the work used in the completion of the project or for failure to construct the project according to specifications. Acceptance by the Contractor of any payment provided for in this contract shall be a representation by the Contractor to the District that all work performed before the payment became due has been completed by Contractor in accordance with the terms of the contract and according to the specifications.

Section 11 – WAGE RATES

The Contractor acknowledges that the Contractor has examined the California State Prevailing Wage Determination made by the Director of the California Department of Industrial Relations (DIR) and

agrees to pay workers not less than the stipulated wage rates. Contractor shall provide the District with current DIR registration number and copies of the prevailing wage payroll with each payment request.

Section 12 – EIGHT HOUR DAY LIMITATION

Contractor agrees that 8 hours labor shall constitute a day's work, and no worker, in the employ of the Contractor, or any sub-contractor, doing or contracting to do any part of the Work under this Contract, shall be required or permitted to work more than 8 hours in any one calendar day and 40 hours in any one calendar week; provided that subject to California Labor Code section 1815, a worker may perform work in excess of 8 hours per day or 40 hours per week at not less than one and one-half times the basic rate of pay.

Section 13 – INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless and defend the District, its directors, officers, employees, consultants or authorized volunteers, and each of them from and against:

1. Any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities, in law or in equity, of every kind and nature whatsoever for, but not limited to, injury to or death of any person including the District and/or the Contractor, or any directors, officers, employees, or authorized volunteers of the District or the Contractor, and damages to or destruction of property of any person, including but not limited to, the District and/or the Contractor or their directors, officers, employees, or authorized volunteers, arising out of or in any manner directly or indirectly connected with the work to be performed under this agreement, however caused, regardless of any negligence of the District or its directors, officers, employees, or authorized volunteers, except the sole negligence or willful misconduct or gross negligence of the District or its directors, officers, employees, or authorized volunteers;
2. Any and all actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor;
3. Any and all losses, expenses, damages (including damages to the work itself), attorneys' fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the Contractor's obligations under the contract. Such costs, expenses, and damages shall include all costs, including attorneys' fees, incurred by the indemnified parties in any lawsuit to which they are a party.
4. The Contractor shall defend, at Contractor's own cost, expense and risk, any and all such aforesaid suits, actions or other legal proceedings of every kind that may be brought or instituted against the District or District's directors, officers, employees, or authorized volunteers arising out of or in any manner directly or indirectly connected with the work to be performed under this agreement.
5. The Contractor shall pay and satisfy any judgment, award or decree that may be rendered against the District or its directors, officers, employees, or authorized volunteers, in any such suit, action or other legal proceeding.

6. The Contractor shall reimburse the District or its directors, officers, employees, or authorized volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided.
7. The Contractor agrees to carry insurance for this purpose as set out in the specifications. Contractor's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the District, or its directors, officers, employees or authorized volunteers.

Section 14 – SAFETY

The Contractor shall execute and maintain the Contractor's work to avoid injury or damage to any person or property. The Contractor shall comply with the requirements of the specifications relating to safety measures applicable in particular operations or kinds of work.

1. In the performance of this contract the contractor shall comply with all applicable federal, state, and local statutory and regulatory requirements including, but not limited to California Department of Industrial Relations (Cal/OSHA) regulations; and the U.S. Department of Transportation Omnibus Transportation Employee Testing Act related to their scope of work and operations. In case of conflict in regulations, the most stringent shall apply. The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. Safety precautions shall include but shall not be limited to: adequate life protection and lifesaving equipment; adequate illumination; instructions in accident prevention for all employees, such as the use of machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space procedures, trenching and shoring, fall protection, and other safety devices; equipment and wearing apparel as are necessary or lawfully required to prevent accidents, injuries, or illnesses; and adequate facilities for the proper inspection and maintenance of all safety measures.
2. Contractor must obtain all applicable Division of Occupational Safety and Health (CAL-OSHA) permit(s) and others required by California Labor Code and California Government Code, prior to the initiation of any practices, work, method, operation, or process related to the work covered in the contract. Permits required by governmental authorities will be obtained and maintained at Contractor's expense.
3. It is a condition of this contract, and shall be made a condition of each sub-contract which the contractor enters into pursuant to this contract, that the contractor and any sub-contractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to the employees' health or safety, as determined under Cal/OSHA safety and health standards.
4. The Contractor shall be responsible for the safeguarding of all utilities. At least three working days before beginning work, the Contractor shall contact for an Underground Service Alert (USA) in order to determine the location of sub-structures. The Contractor shall immediately notify FOWD and the utility owner if they disturb, disconnect, or damage any utility.
5. In accordance with Section 6705 of the California Labor Code, the Contractor shall submit to Fair Oaks Water District specific plans to show details of provisions for worker protection from caving ground during excavations of trenches of five feet or more in depth. The excavation/trench safety plan shall be submitted to and accepted by Fair Oaks Water District prior to starting excavation. The trench safety plan shall have details showing the design

of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If such a plan varies from the shoring system standards established by the Construction Safety Orders of the California Department of Industrial Relations (Cal/OSHA), the plan shall be prepared by a California registered civil or structural engineer. As part of the plan, a note shall be included stating that the registered civil or structural engineer certifies that the plan complies with the Cal/OSHA Construction Safety Orders, or that the registered civil or structural engineer certifies that the plan is not less effective than the shoring, bracing, sloping or other provisions of the Safety Orders. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by said Construction Safety Orders. Submission of this plan in no way relieves the Contractor of the requirement to maintain safety in all areas. If excavations or trench work requiring a Cal/OSHA permit are to be undertaken, the Contractor shall submit his/her permit with the excavation/trench work safety plan to FOWD before work begins.

6. In the event of damage to any property or bodily injury to any person, the Contractor's Representative will provide immediate verbal notification (to be followed by a detailed written report) within forty-eight (48) hours to the District Inspector, or alternatively, to the Authorized District Representative named in the Contract Agreement, or alternatively, Task Order.
7. **Asbestos Pipe Work, Removal, Transportation, and Disposal Compliance** -The Contractor shall comply with all applicable state, and federal regulations, including those set forth by the Occupational Safety and Health Administration (OSHA), regarding the handling, removal, transportation, and disposal of asbestos-containing materials (ACM). This includes, but is not limited to, adherence to the regulations governing asbestos management, removal, containment, air monitoring, and waste disposal practices. The Contractor shall implement Best Management Practices (BMP) to prevent asbestos contamination and ensure the safety of all workers, the public, the environment in accordance with the requirements of the State of California, OSHA standards including 29 CFR 1926.1101, and all other applicable laws. The Contractor shall ensure that all asbestos-related work is performed by trained and certified personnel and that proper permits, notifications, and reporting requirements are met. The Contractor shall be responsible for the safe transportation, disposal, and final disposition of asbestos-containing materials in accordance with applicable regulations and guidelines.

Section 15 – INSURANCE

Minimum Insurance Requirements – Contractor shall procure and maintain for the duration of the contract, *and for 5 years thereafter*, insurance against claims for injuries or death to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the contractor, their agents, representatives, employees, or sub-contractor.

Contractor will file with District, before beginning services, certificates of insurance (Acord Form 25 or equivalent) satisfactory to District evidencing:

- a) **Coverage** – Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:
 - i) Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 00 01)

- ii) Insurance Services Office (ISO) Business Auto Coverage (Form CA 00 01), covering Symbol 1 (any auto)
- b) **Limit – The Contractor shall maintain limits no less than the following:**
- i) General liability - coverage of not less than two million (\$2,000,000) per occurrence or the full per occurrence limits of the policies available, whichever is greater for bodily injury, personal injury, and property damage; (\$4,000,000 general and products-completed operations aggregate (if used)).
 - ii) Auto liability - One million dollars (\$1,000,000) for bodily injury and property damage each accident limit;
 - iii) As required by the State of California, Contractor shall provide workers' compensation (statutory limits) and employer's liability of no less than (\$1,000,000) per accident for bodily injury or disease. Waiver of Subrogation (also known as Transfer of Rights of Recovery Against Others to Us): The insurer(s) named above agree to waive all rights of subrogation against the Fair Oaks Water District, its elected or appointed officers, officials, agents, authorized volunteers and employees for losses paid under the terms of this policy which arise from work performed by the Named Insured for the Fair Oaks Water District; but this provision applies regardless of whether or not the Fair Oaks Water District has received a waiver of subrogation from the insurer.
 - iv) Builder's Risk – (Course of Construction) - insurance utilizing an "All Risk" (Special Perils) coverage form with limits equal to the completed value of the project and no coinsurance penalty provision.
- c) **Required Provisions**
- i) **Additional Insured Status:** The commercial general liability coverage shall give Fair Oaks Water District, its directors, officers, employees (collectively the District), and authorized volunteers insured status (via ISO endorsement at least as broad as CG 20 10 11 85 or **both** CG 20 10 10 01 and GC 20 37 10 01) specifically naming the Fair Oaks Water District, its directors, officers, employees, or authorized volunteers; or using the language that states "as required by written contract" with respect to liability arising out of activities performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations; premises owned, occupied or used by the Contractor, or automobiles owned, leased, hired or borrowed by the Contractor.
 - ii) **Primary Coverage:** For any claims related to this project, the Contractor's insurance coverage shall be primary. The general liability coverage is to state or be endorsed (with as broad as ISO endorsement CG 20 01 04 13) to state "such insurance shall be primary and any insurance, self-insurance or other coverage maintained by District, its directors, officers, employees, or authorized volunteers shall not contribute to it."
 - iii) Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the District, its directors, officers, employees, or authorized volunteers.
 - iv) Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
 - v) Each insurance policy required by this clause shall state or be endorsed to state that coverage shall not be canceled by either party, except after thirty (30) days (10 days for

non-payment of premium) prior written notice by U.S. mail has been given to the District.

- vi) Such liability insurance shall indemnify the Contractor and the sub-contractors against loss from liability imposed by law upon, or assumed under contract by, the Contractor or sub-contractors for damages on account of such bodily injury (including death), property damage, personal injury and completed operations and products liability.
 - vii) The general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, underground excavation and removal of lateral support.
 - viii) The automobile liability policy shall cover all owned, non-owned, and hired automobiles.
 - ix) Deductibles and Self-Insured Retentions: Insurance deductibles or self-insured retentions must be declared by the Contractor, and approved by the District. At the election of District the Contractor shall either cause the insurer to reduce or eliminate such self-insured retentions as respects the District, its directors, officers, employees, and authorized volunteers or the Contractor shall provide a financial guarantee satisfactory to the District guaranteeing payment of losses and related investigations, claim administration, and defense expenses. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or the District.
 - x) Coverage is to be placed with a carrier with an A.M. Best rating of no less than A :VII, or equivalent, or as otherwise approved by District.
 - xi) The coverage shall contain no special limitations on the scope of protection afforded to District, its directors, officers, employees, or authorized volunteers.
 - xii) In the event that the Contractor employs other Contractors (sub-contractors) as part of the work covered by this Agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above (via as broad as ISO CG 20 38 04 13). The Contractor shall, upon demand of District, deliver to District copies of such policy or policies of insurance and the receipts for payment of premiums thereon.
- d) If the Contractor maintains broader coverage and/or higher limits than the minimums shown above, the District requires and shall be entitled to the broader coverage and/or higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the District.
 - e) If any of the required coverages expire during the term of this Agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement to District at least ten (10) days prior to the expiration date.
 - f) The Contractor shall provide and maintain builder's risk (course of construction) or an installation floater (for materials and equipment) covering all risks of direct physical loss, damage or destruction to the work in the amount specified in the General Conditions, to insure against such losses until final acceptance of the work by the District. Such insurance shall insure at least against the perils of fire and extended coverage, theft, vandalism and malicious

mischievous, and collapse. The Policy shall be endorsed with District, its directors, officers, employees, and authorized volunteers named as loss payee, as their interest may appear. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for District or be construed as relieving the Contractor or his/her subcontractors of responsibility for loss from any direct physical loss, damage or destruction occurring prior to final acceptance of the work by the District.

Verification of Coverage – Evidence of Insurance

Contractor shall furnish the District with copies of certificates and amendatory endorsements effecting coverage required by this contract. All certificates and endorsements are to be received and approved by the District before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Contractor’s obligation to provide them. The District reserves the right to require complete, certified copies of all required insurance policies, including policy Declaration pages and Endorsement pages, required by these specifications, at any time. Failure to continually satisfy the Insurance requirements is a material breach of contract.

Continuation of Coverage

The Contractor shall, upon demand of Fair Oaks Water District, deliver evidence of coverage showing continuation of coverage for at least (5) years after completion of the project. Contractor further waives all rights of subrogation under this agreement when any of the required coverages expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement and evidence of waiver of rights of subrogation against Fair Oaks Water District (if builder's risk insurance is applicable) to Fair Oaks Water District at least ten (10) days prior to the expiration date.

Section 16 – BONDS

Performance Bond: The Contractor shall obtain at its sole cost and expense and provide to District a performance bond in the amount equal to 100% of this Contract for the faithful performance of the work to be done under the terms of this contract, with sureties as may be agreeable to the District.

Payment Bond: The Contractor shall obtain at its sole cost and expense and provide to District a payment bond in the amount equal to 100% of this Contract for the faithful performance of the work to be done under the terms of this contract, as provided for in Section 3247 of the California Civil Code with sureties as may be agreeable to the District.

Maintenance Bond: Prior to the District Preliminary Acceptance Letter issuance for the new water facilities constructed by the Contractor per project documents, the Contractor shall furnish an overall maintenance bond or corporate surety bond, payable to the District. This bond, which shall be executed by a duly licensed surety company authorized to do business in the State of California, shall protect the District against the results of any failure attributable to any cause, including, but not limited to, faulty material, poor workmanship, and defective equipment or damage of the work occurring within the Guarantee period under the provisions of the Guarantee.

The bond shall guarantee the Contractor’s responsibility as outlined above for a period of one (1) year or shall remain in effect for as long as the Guarantee remains in effect. The bond shall be provided on forms to be approved by the District and shall be in the sum of not less than one hundred percent (100%) of the awarded amount including any change orders issued during the project construction.

The bonds must comply with California Civil Code sections 3247 and 3248 and applicable provisions

of the California Bond and Undertaking Law (Cal. Code of Civil Procedure § 995.010 et seq.).

Section 17 – SUB-CONTRACTORS

None of this work may be delegated or sub-contracted without written consent of the District prior to work started. The successful bidder shall not assign its work or any of its rights hereunder to another contractor. The District may require written documentation of qualifications and references for any sub-contractor being considered for District approval to perform any part of any work under this Contract.

The General Contract shall bind Contractor's sub-contractors, successors and assigns, and that Contractor shall cause its employee, agents, and sub-contractors to comply with all requirements of the General Contract and these General Conditions.

If, at any time during the performance of this Contract, Contractor fails to maintain any item of the required insurance in full force and effect, Contractor shall immediately discontinue all work under the Contract and District will withhold all Contract payments due or that become due until notice is received by District that such insurance has been restored in full force and effect and that the premiums therefore have been paid for a period satisfactory to the District.

Section 18 – GUARANTEE

Excepting only items of routine maintenance, ordinary wear and tear and unusual abuse or neglect, Contractor guarantees all work executed by the Contractor and all supplies, materials and devices of whatsoever nature incorporated in, or attached to the work, or otherwise delivered to the District as a part of the work pursuant to the Contract, to be absolutely free of all defects in the quality of work and materials for a period of **one (1) year** after final acceptance by the District of work performed. The Contractor shall repair or replace any or all such work or material, together with all or any other work or material which may be displaced or damaged in so doing, that may prove defective in the quality of work or material within said one year guarantee period without expense or charge of any nature whatsoever to the District.

In the event that the Contractor shall fail to comply with the conditions of the foregoing guarantee within ten (10) days after being notified of the defect in writing, the District shall have the right, but shall not be obligated to repair or obtain the repair of the defect, and the Contractor shall pay to the District on demand all costs and expense of such repair. Notwithstanding anything herein to the contrary, in the event that any defect in the quality of work or material covered by the foregoing guarantee results in a condition which constitutes an immediate hazard to the health or safety, or any property interest, or any person, District shall have the right to immediately repair, or cause to be repaired, such defect, and the Contractor shall pay to District on demand all costs and expense of such repair, or District may elect to subtract cost from withheld retention. The foregoing statement relating to hazards to health, safety or property shall be deemed to include either temporary or permanent repairs, which may be required as determined in the sole discretion and judgment of District.

Section 19 – LAWS, REGULATIONS AND PERMITS

The Contractor shall give all notices required by law and comply with all laws, ordinances, rules and regulations pertaining to the conduct of the work. The Contractor shall be liable for all violations of the law in connection with work furnished by the Contractor. If the Contractor observes that the drawings or specifications are at variance with any law or ordinance, rule or regulation, the Contractor shall promptly notify the District in writing and any necessary changes shall be made by written instruction or change order. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules or regulations and without giving notice to the District appointed engineer, the Contractor shall bear all costs arising there from.

All necessary permits or similar authorizations required for this construction as per the "Construction Issued" Plans for such work will be obtained by the District unless otherwise stated. Copies of all permits will be furnished to the Contractor. Bonds that may be required to obtain the permits shall be furnished by the Contractor. Contractor shall maintain a copy of such permits with the Crew installing the work.

Section 20 – AUTHORIZED PERSONNEL

Contractor shall not accept direction or orders from any person other than the FOWD General Manager or the person(s) whose name(s) is listed as "other authorized representative(s)."

Section 21 – UNLAWFUL HARASSMENT

The District is committed to providing a work environment free of unlawful harassment. The Contractor and sub-contractors shall adhere to the District's policy prohibiting sexual harassment, and harassment based on pregnancy, childbirth, or related medical conditions, race, religious creed, color, national origin or ancestry, physical or mental disability, medical condition, marital status, age, sexual orientation or any other basis protected by federal, state or local law or ordinance or regulations. All such harassment is unlawful. District's anti-harassment policy applies to all persons, including but not limited to contractors and sub-contractors involved in the operation of the District and prohibits unlawful harassment by any employee of the District, including supervisors, coworkers, contractors and sub-contractors.

Section 22 – SCOPE OF WORK

The Contractor shall furnish all labor, materials, equipment, tools, facilities and transportation necessary to perform the work submitted in the bid proposal. Work must be performed and completed in accordance with District Standard and/or Project Specifications to the satisfaction of the District, and in the manner designated in, and in strict conformity with the Contract Documents.

Any change in the scope of the professional services to be done, method of performance, nature of materials or price thereof, or to any other matter materially affecting the performance or nature of the professional services will not be paid for or accepted unless such change, addition or deletion be approved in advance, in writing by a supplemental agreement by the Fair Oaks Water District. Contractor's "authorized representative(s)" has (have) the authority to execute such written change for Contractor.

Section 23 – DISTRICT'S RIGHT TO TERMINATE / RIGHT TO PROCEED

If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with such diligence as will insure its completion within the time specified in Contract, or any extension thereof, or fails to complete said work within such time, the District General Manager may, by written notice to the Contractor, terminate their right to proceed with the work or such part of the work as to which there has been delay. In such event, the District may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor shall be liable to the District for any excess cost occasioned the District thereby, until such reasonable time as may be required for the final completion of the work.

Section 24 – ASSIGNMENT BY CONTRACTOR

This contract is for the services of the Contractor in construction of the Project and the Contractor may not assign this contract, or delegate Contractor's duties under this contract to any other person or entity without the prior written consent of District.

1. **Proof of Financial Responsibility:** All suppliers and/or carriers hired or used by Contractor or District (including, without limitation, suppliers and/or carriers of hazardous materials) shall provide District with proof of financial responsibility in accordance with all applicable law, including, without limitation, the Federal Motor Carrier Act of 1980 (driver's insurance), as amended, the rules and regulations of the Federal Interstate Commerce Commission and applicable state law.
2. **Shutdowns and Shutdown Fees:** For all shutdowns, a forty-eight (48) hour minimum advance notice must be given by the Contractor to the District at the address indicated on the bid sheet. All shutdowns must be made by District personnel. The District will charge the Contractor a shutdown fee when the Contractor works overtime or on weekends for its own convenience. The District shutdown fee will be \$100 per day or actual time and material cost incurred by the District, whichever is greater. The Contractor must have prior approval for such shutdowns from the District's designee so named in writing.
3. **Traffic Control and Safety Regulations:** Contractor assumes the responsibility to observe all applicable federal, state and local laws, regulations and guidelines in the performance of its work, including without limitation the regulations established by O.S.H.A. and the Work Area Traffic Control Handbook, current edition (Los Angeles: Building News, Inc.) and to perform all work in a safe and prudent manner. Without in any way limiting that responsibility or assuming responsibility for safety, the District is particularly concerned that the following rules are strictly observed:

A supervisor shall be present at all times to ensure that all personnel at the job site perform in accordance with all applicable safety requirements; and

A Traffic Control Plan has been submitted and approved by the Sacramento County DOT; and

All personnel at the job site shall be properly equipped and attired, including an approved hard hat, protective eye wear, high visibility safety vest, appropriate breathing apparatus as may be required for protection from paint fumes and other Personal Protective Equipment (PPE) as necessary; and

Safety/Warning Signs shall be placed around the perimeter of the work area. Work performed in streets shall have safety devices in place in accordance with the Work Area Traffic Control Handbook and other applicable governmental rules and regulations.

4. **Damage to Property:** The Contractor shall assume the risk of all loss of or damage to property or materials during the progress of said work. The Contractor shall not disturb the facilities of other utilities or other underground structures, and it shall be liable for damages caused by its operations. Where such information is available, some effort has been made to designate the approximate location and kind of known substructures as shown on the plans, but this shall not relieve the Contractor of its responsibility to protect any and all utility lines, shown or not shown on the plan, during the performance of its work under this Contract. The Contractor shall provide a minimum of forty-eight (48) hours' notice of intent to start work to those agencies having substructures in or jurisdiction over the construction area including but not necessarily limited to Underground Service Alert.
5. **Coordination of Work:** The Contractor shall be responsible to plan and coordinate its work with other contractors working in the same project area. Loss or damage resulting from a failure to plan or coordinate shall be the Contractor's sole responsibility.

6. **Pre-Inspection of Site:** It shall be the Contractor's responsibility to ascertain the existence of any conditions affecting the work which would have been disclosed by reasonable examination of the site. The Contractor shall, upon discovering any conditions not indicated on the plans, immediately bring them to the attention of the District's assigned representative.
7. **Location of Connections:** The Contractor shall, unless instructed to the contrary by the District, excavate and expose existing District facilities at all locations where a connection (tie-in) is to be made, as shown on the plans, and shall verify that such conditions are as indicated on the plan **prior** to requesting a shutdown of existing mains.

The Contractor shall field locate points of connection or tie-in when not designated on the plan. Forty-eight (48) hours advance notification is required. Conditions differing from those indicate on the plan and requiring additional material, or material with different dimensions, shall be brought to the attention of the District's assigned representative immediately.

Any additional expenses incurred by the Contractor as a result of failure to verify existing conditions or utilities shall be considered its sole expense and will not be reimbursed by the District.

8. **Performance of Work:** Where conflicts or omissions arise involving performance of work by the Contractor under the District's Specifications, then the following priority shall be observed:
 - a. Fair Oaks Water District Construction documents.
 - b. Standards of the American Water Works Association.
 - c. Sacramento County Specifications.
 - d. Standard Specifications for Public Works Construction.
 - e. Requirements of federal, state, county and local law.

9. **Storm Drainage Discharge Best Management Practices Compliance** -The Contractor shall comply with all applicable local, county, and state laws, regulations, ordinances, and standards pertaining to storm drainage discharge and Best Management Practices (BMP) during the execution of the work. The Contractor is responsible for implementing and maintaining all necessary BMPs to minimize the impact of stormwater runoff and ensure compliance with applicable environmental laws and regulations. The Contractor shall promptly address and correct any violations or non-compliance issues as identified by the governing authorities.

Section 25 – NOTICE TO START WORK

1. **Pre-Construction Meeting:** When the cost of the jobs exceeds \$10,000, or otherwise when directed in writing by the District, the Contractor shall arrange for a pre-construction meeting to be held at the job site or other suitable location. It shall be the Contractor's responsibility to notify all utilities and agencies maintaining facilities or having jurisdiction within the area of work as well as the District's Inspector when assigned, or alternative, the assigned Authorized FOWD Representative.
2. **Scheduling of Work:** Prior to the start of any work, the Contractor shall upon request submit its proposed construction schedule in the form of a tabulation, chart, graph or as otherwise reasonably requested in sufficient detail to show the chronological relationship of all activities of the project, including the estimated number of working days for each phase when more than one phase is involved.

3. **Scheduled Start Date:** The Contractor, in accepting individual contracts, agrees to start the work within ten (10) working days after receipt of contract and written request from the Authorized FOWD Representative to start the work, or alternatively, on the date as indicated by the District as a condition of award in its original bid request and further included in its General Contract. Failure of Contractor to start the work in accordance with the provisions of this Article shall be grounds for termination.
4. **Change to Previously Scheduled Start Dates:** The District reserves the right to determine the sequence by which jobs are to be performed when the Contractor has been awarded more than one job with the District. In the event of scheduling conflicts where more than one District entity is involved, the District's Project Manager Support shall determine the priority. The District further reserves the right to adjust the order of priority for its convenience at no additional cost to the District where the Contractor has not yet commenced mobilization of a previously scheduled job.
5. **Supervision of Work:** The Contractor shall provide the Authorized FOWD Representative named in the District's Construction Agreement with the name and contact information of the supervisor responsible for the work. Such notification shall be provided a minimum of two (2) working days in advance of the scheduled start date. The Contractor shall assure that all work performed for the District is at all times supervised and staffed by qualified personnel thoroughly equipped and trained in the skills required to fulfill the work, and that such employees and agents will, at all times, comply with all applicable laws, ordinances and regulations (including, without limitation, all safety regulations, applicable to persons at a project site) that may in any manner apply to the performance of its work. The Contractor assumes all liability for loss, damage or injury to the person or property of itself and its owners, officers, agents, and employees.
6. **Protection of Work and Clean up:** Until the final completion of the work and acceptance thereof by the District, the Contractor shall care for and maintain all areas affected by its construction. The Contractor shall properly remove all debris, rubbish, and spoils from the site of the work after its completion and prior to acceptance thereof by the District.

The Contractor shall immediately remove any item posing a safety hazard and at the end of each working day remove or otherwise move from view all items presenting an untidy appearance. All landscaping must be restored to its original condition and to the satisfaction of the District. Potentially sensitive situations should be videotaped by Contractor prior to commencement of the work.

Dust control shall be maintained as specified in Section 7-8 of the "*Standard Specifications for Public Works Construction*", current edition.

7. **Inspection Fees:** The District will charge the Contractor an inspection fee only when the Contractor, for its own convenience, elects to work outside of the defined workday.

Inspection request for weekends and holidays must be received in writing by Authorized FOWD Representative named in the Contract Agreement, or alternatively Task Order.

8. The foregoing in no way limits the obligation of the Contractor to assume full responsibility for the observance of all applicable safety and occupational health rules and regulations.

Section 26 – TERMINATION OF CONTRACT AGREEMENTS

Termination Resulting from Delays by Contractor: If the District determines that the Contractor is not diligently pursuing the work, the District will so notify the Contractor in writing, specifying what steps need to be taken to correct the situation. The additional cost to the Contractor in rectifying the situation, if any, shall be its sole cost and responsibility. Failure by the Contractor to take the necessary steps to commence the work within fifteen (15) calendar days of notice to proceed or to diligently complete the work may result in cancellation of the remaining work. Any additional cost to the District due to such cancellation of work shall be the Contractor's responsibility, and no further payment if any will be made by the District until all cost are determined. Contractor will be given written notice of termination.

Termination Resulting From Default by Contractor: When, in the opinion of the District, the Contractor is not performing its obligations in accordance with the Contract, or has become insolvent, or has sub-contracted work without the written approval of the District, the Contract may be canceled. In the event of cancellation, the Contractor shall be paid for the actual amount of work completed less any damages or expense incurred by the District as a result of such cancellation. If the District's damages or expenses so incurred exceed amounts due to Contractor, Contractor shall pay the District the difference upon demand. Payment for actual work completed will be based on bid prices or fractions thereof and field evaluation of work completed. The District will not be held liable for damages to the Contractor resulting from cancellation for the reasons set forth above. The Contractor shall be notified in writing specifying the reasons for cancellation, and notice shall be served upon the Surety when appropriate. Contractor will be given written notice of termination.

Section 27 – ENTIRE AGREEMENT

Entire Understanding: These General Conditions and the provisions and specifications contained in the General Contract form; FOWD Construction Requisition; Individual Work Scope Agreements; Term Contracts, and General Category Work Agreements, including awarded Task Orders thereto, and including attachments incorporated in such agreements by reference; represent the entire understanding for such Contract Agreements between the District and Contractor and any negotiations, proposals or oral agreements are intended to be integrated in such agreements and to be superseded by such Contract Agreements. By executing the General Contract form, Contractor waives all provisions of any printed form of agreement supplied or prepared by it that might otherwise be incorporated into a Contract Agreement, to the extent any such document is inconsistent with these General Conditions, excepting as noted below.

Section 28 – ATTORNEYS' FEES

Should any litigation be commenced between the parties to this agreement concerning the project, any provisions of this contract, or the rights and obligations of either in relation thereto, the party prevailing in the litigation shall be entitled to a reasonable sum as and for the party's attorneys' fees in the litigation.

Section 29 – ARBITRATION

Basis for Settling Disputes and Disagreements: Any dispute or disagreement arising between Contractor and District in connection with a breach or alleged breach of the Contract Agreements, including Task Orders and/or these General Conditions governing such Contract Agreements, that is not resolved to the mutual satisfaction of the parties within thirty (30) days (or such longer period as may be mutually agreed upon) from the date that either party informs the other in writing that such dispute or disagreement exists, shall be solely and finally settled by a single arbitrator in accordance with the Commercial Arbitration Rules (the "Arbitration Rules") of the American Arbitration Association (the "AAA"), in effect on the date that such notice is given, with the following exception: The party that demands arbitration of the unresolved dispute or disagreement shall in writing specify the matter to be submitted to arbitration and at the same time choose and nominate a competent person to act as the

arbitrator. Within fourteen (14) days after receipt of such written notice, the other party shall indicate in writing its concurrence or non-concurrence in the arbitrator nominated by the other party. If the parties concur in the proposed arbitrator, that arbitrator shall promptly resolve the question in dispute or disagreement in accordance with the Arbitration Rules. If the parties fail to concur in the proposed arbitrator, then upon application by either party, the dispute or disagreement shall be referred for resolution by a single arbitrator appointed in accordance with the Arbitration Rules by the AAA.

1. **Performance of Work During Arbitration:** Notwithstanding this Section 25, during the pendency of any arbitration proceedings, unless otherwise requested by FOWD, Contractor shall proceed diligently with performance of the Contract Agreements and Contractor and FOWD shall continue to be bound thereby.
2. **Location for Arbitration Proceedings:** Any arbitration proceedings hereunder shall be conducted in Sacramento County, California.
3. **Arbitration Award:** The arbitration award shall be made final and binding upon the Contractor and District and judgment may be entered thereon, upon the application of either party, by any court having jurisdiction.
4. **Cost of Arbitration:** Each party shall bear the cost of preparing and presenting its case; but the cost of arbitration, including the fees and expenses of the arbitrator(s), will be paid solely by the losing party.
5. **Survival of Arbitration Rights Beyond Termination of Contract Agreements:** This Section 25 shall survive termination of any Contract Agreement, including any applicable Task Order and these General Conditions governing such agreements with respect to all claims pending at the time of termination.

By signing below, the parties have read and agreed to the General Terms & Conditions (Exhibit A).

DISTRICT:

CONTRACTOR:

(Signature)

(Signature)

Print: _____

Print: _____

Title: General Manager_____

Title: _____

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 SUMMARY

Section Includes: Description of bid items, measurement, and payment.

1.02 MEASUREMENT AND PAYMENT

All measurements will be based on completed work performed in strict accordance with the specifications. Payment will be made for bid items only. Bid item amounts shall include items such as site preparation, drilling, well construction, well development, materials, equipment and labor and all other materials, equipment and labor necessary to complete the Work. All quantities for materials placed in the well are measured from the ground surface.

1.03 BID ITEM DESCRIPTION

Bid Item No. 1 – Mobilization and Demobilization

Description: This item includes, but is not necessarily limited to, all work associated with the permitting, mud tank construction, site preparation and restoration per Section 01110, SUMMARY OF WORK. This work also includes planning for and adhering to Storm Water and Non-Storm Water Best Management Practices (BMPs).

Measurement: Shall be lump sum (LS) for the completed work described above and shall not exceed 10% of the Total Base Bid.

Payment: Based upon the LS amount, 50% after Notice to Proceed, 45% upon beginning construction and 5% retention upon demobilization and completion.

Bid Item No. 2 – All-Weather Pad and Site Access

Description: This item includes, but is not necessarily limited to, all work to install an all-weather pad, including site access to District property, complete, in place, and protective of surface water discharges.

Measurement: Shall be LS for the completed work described above.

Payment: Based upon the LS amount.

Bid Item No. 3 – Noise Abatement (Sound Wall)

Description: This item includes the installation of the sound wall between the drill rig, the residents and school adjacent to, and near the site, per sound requirement in Section 02671 WATER WELL.

Measurement: Shall be based on lineal footage (LF) measured by the District's Representative.

Payment: Based upon the unit price/LF of sound wall and certified by the District's Representative.

Bid Item No. 4 – Existing Well Site Demolition

Description: This item includes demolition and removal of the existing well pump, motor, well head and electrical panel; Removal of existing well discharge piping, removing and capping underground piping and conduits to 3 feet below existing site grade and removal of a portion of the existing fence. The existing well shall be capped during well site demolition.

Measurement: Shall be lump sum (LS) for the completed work described above.

Payment: Based upon the LS amount.

Bid Item No. 5 – Existing Well Abandonment (Destruction)

Description: This item includes but is not necessarily limited to, all work associated with the abandonment of the existing well per Section 02671, WATER WELL, in compliance with all State and County requirements..

Measurement: Shall be LS for the completed work described above.

Payment: Based on the LF amount certified by the District's Representative.

Bid Item No. 6 – Furnish/Install 42-inch Conductor Casing (Including Sanitary Seal) in 52-inch Borehole

Description: This item includes the conductor borehole drilling, casing, and sanitary seal for one well comprised of 42-inch nominal diameter x 0.375-inch wall steel casing with sand cement grout sanitary seal per Section 02671, WATER WELL.

Measurement: Shall be based on linear feet (LF) measured by the District's Representative from ground surface.

Payment: Based on the unit price/LF of conductor bore hole completed and certified in conformance by the District's Representative.

Bid Item No. 7 - Drill Pilot Borehole to 225 feet

Description: This item includes, but is not necessarily limited to, all work associated with the drilling of the pilot borehole from the bottom of the conductor casing to the target depth as designated by the District's Representative, estimated to be 225 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on the unit price per LF measured by the District's Representative from bottom of the conductor casing to a target depth of 225 ft.

Payment: Based on the unit price/LF of drill pilot borehole completed and certified in conformance by the District's Representative.

Bid Item No. 8 – Geophysical Logging to 225 feet

Description: This item includes but is not necessarily limited to all work associated with the geophysical logging of the completed pilot borehole from the bottom of the conductor casing to 225 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on completion of the downhole logging performed as directed by the District's Representative for the borehole.

Payment: Based upon per log (EA) amount.

Bid Item No. 9 – X-Y Borehole Geometry (Deviation) Survey to 225 feet

Description: This item includes, but is not limited to, all work associated with an X-Y borehole geometry survey of the pilot borehole drilled to 225 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on completion of the X-Y geometry survey performed as directed by the District's Representative for the pilot borehole.

Payment: Based upon the LS amount for the completed work.

Bid Item No. 10 – Ream Pilot Hole to 38-inches from Bottom of Conductor Casing to 225 feet

Description: This item includes, but is not necessarily limited to, all work associated with the reaming of the borehole from the bottom of the conductor casing to the target depth as designated by the District's Representative, estimated to be 225 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on the LF measured by the District's Representative from bottom of the conductor casing to the target depth, estimated to be 225 feet.

Payment: Based on the unit price/LF of reamed borehole completed and certified in conformance by the District's Representative.

Bid Item No. 11 - Caliper Survey to 225 feet

Description: This item includes but is not necessarily limited to all work associated with the caliper survey of the production borehole to 225 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on completion of the downhole logging performed as directed by the District's Representative for the borehole.

Payment: Based upon per survey (EA) amount.

Bid Item No. 12 - Furnish/Install 30-inch Intermediate Casing

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of steel intermediate casing, 30-inch nominal diameter by 0.375-inch wall steel casing with sand cement grout sanitary seal, per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from ground surface.

Payment: Based on the unit price/LF of casing installed and certified in conformance by the District's Representative.

Bid Item No. 13 – Furnish/install Sand Cement Annular Seal

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of sand cement grout slurry per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from bottom of the annular seal to the ground surface.

Payment: Based on the unit price/LF installed and certified in conformance by the District's Representative.

Bid Item No. 14 – Drill Pilot Borehole from 225 to 500 Feet

Description: This item includes, but is not necessarily limited to, all work associated with the drilling of the pilot borehole from the bottom of the intermediate casing to a depth of 500 feet per Section 02671, WATER WELL.

Measurement: Shall be based on LF of drill pilot borehole by the District's Representative from the ground surface.

Payment: Based on the unit price/LF of drill pilot borehole completed and certified in conformance by the District's Representative.

Bid Item No. 15 – Geophysical Logging, 225 to 500 feet

Description: This item includes, but is not necessarily limited to, all work associated with the geophysical logging of the completed pilot borehole from 225 to 500 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on completion of the downhole logging performed as directed by the District's Representative for the borehole.

Payment: Based on per log (EA) amount.

Bid Item No. 16 – X-Y Borehole Geometry (Deviation) Survey, 225 to 500 feet

Description: This item includes, but is not necessarily limited to, all work associated with an X-Y borehole geometry survey of the pilot borehole, extended from 225 to 500 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on completion of the X-Y geometry survey performed as directed by the District's Representative for the pilot borehole.

Payment: Based on the LS amount for the completed work.

Bid Item No. 17 – Ream Pilot Hole to 28-inches from 225 feet to Target Depth (500 ft)

Description: This item includes, but is not necessarily limited to, all work associated with the reaming of the borehole from the bottom of the intermediate casing to the target depth, estimated to be 500 ft, per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from bottom of the intermediate casing to the target depth estimated to be 500 feet.

Payment: Based on the unit price/LF of reamed borehole completed and certified in conformance by the District's Representative

Bid Item No. 18 – Caliper Survey, 225 to 500 feet

Description: This item includes, but is not necessarily limited to, all work associated with the caliper survey of the production borehole completed to 500 feet, per Section 02671, WATER WELL.

Measurement: Shall be based on the completion of the downhole logging performed as directed by the District's Representative for the borehole.

Payment: Based upon per survey (EA) amount.

Bid Item No. 19 - Furnish/Install 18-inch Stainless Steel Casing

Description: This item includes, but is not limited to, all work and material associated with the installation of stainless steel well casing, per Section 02671, WATER WELL.

Measurement: shall be based on LF measured by the District's Representative from ground surface.

Payment: Based on the unit price/LF of casing installed and certified in conformance by the District's Representative.

Bid Item No. 20 - Furnish/Install 18-inch Stainless Steel Louvered Ful-Flow Pattern Screen

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of 18-inch stainless louvered Ful-Flow pattern well screen per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative.

Payment: Based on the unit price/LF of casing installed and certified in conformance by the District's Representative

Bid Item No. 21 - Furnish/Install 3-inch Black Steel Filter Pipe

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of a filter pipe per section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from ground surface.

Payment: Based on the unit price/LF installed and certified in conformance by the District's Representative.

Bid Item No. 22 - Furnish/Install 2-inch Stainless Steel Sounding Tube and Termination Box

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of sounding tube and termination (Gilbert) box entry into casing per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from ground surface.

Payment: Based on the unit price/LF installed and certified in conformance by the District's Representative.

Bid Item No. 23 – Furnish/Install Filter Pack (Silicon Bead)

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of filter pack per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from ground surface.

Payment: Based on the unit price/LF installed and certified in conformance by the District's Representative.

Bid Item No. 24 – Furnish/Install Transition Sand

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of transition sand per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative.

Payment: Based on the unit price/LF installed and certified in conformance by the District's Representative.

Bid Item No. 25 – Furnish/Install Annular Seal

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of sand cement grout slurry per Section 02671, WATER WELL.

Measurement: Shall be based on LF measured by the District's Representative from bottom of the annular seal to the ground surface.

Payment: Based on the unit price/LF installed and certified in conformance by the District's Representative.

Bid Item No. 26 – Well Development with Rig

Description: This item includes, but is not necessarily limited to, all work and material associated with swabbing, jetting, and airlift pumping the well per Section 02671, WATER WELL.

Measurement: Shall be based on the hours (HR) of development completed.

Payment: Based on the unit price/HR at well development work certified by the District's Representative.

Bid Item No. 27 – Install/Remove Test Pump and Ancillary Equipment

Description: This item includes, but is not necessarily limited to, all work and material associated with the installation of an engine-driven, deep well turbine pump and appurtenant equipment including but not limited to discharge piping, valves and meters, per Section 02671, WATER WELL.

Measurement: Shall be LS for the completed work described above.

Payment: Based upon the LS amount.

Bid Item No. 28 – Well Development with Test Pump

Description: This item includes, but is not necessarily limited to, all work associated with the well development work with the pump as described in Section 02671, WATER WELL.

Measurement: Shall be based on hours (HR) of development completed as certified by the District's Representative.

Payment: Based on the unit price/HR of well development work and certified in compliance by the District's Representative.

Bid Item No. 29 – Step Drawdown Test Pumping

Description: This item includes, but is not necessarily limited to, all work associated with step drawdown test pumping per Section 02671, WATER WELL.

Measurement: Shall be based on hours of step drawdown test pumping performed as directed by the District's Representative.

Payment: Based on the hours (HR) of step drawdown pump testing completed and certified by the District's Representative.

Bid Item No. 30 – Constant-Discharge Pumping Test

Description: This item includes, but is not necessarily limited to, all work associated with continuous test pumping per Section 02671, WATER WELL.

Measurement: Shall be based on hours (HR) of continuous test pumping performed as directed by District's Representative.

Payment: Based on the unit price/HR of continuous test pumping completed certified by the District's Representative.

Bid Item No. 31 - Plumbness Test, Alignment Test, and Video Log

Description: This item includes, but is not limited to, all work associated and with a plumbness and alignment test and a video survey of the completed well, per Section 02671, WATER WELL.

Measurement: Shall be based on completion of the downhole plumbness test, alignment test, and video log, performed as directed by the District's Representative for the completed well.

Payment: Based upon the LS amount for the completed work.

Bid Item No. 32 – Disinfection

Description: This item includes, but is not necessarily limited to, all work associated with the disinfection work per Section 02671, WATER WELL.

Measurement: Shall be LS for the completed work described above.

Payment: Based on the LS amount certified by the District's Representative.

Bid Item No. 33 - Mud/Cuttings Disposal

Description: This item includes, but is not necessarily limited to, all work associated with the disposal of drilling fluids per Section 02671, WATER WELL.

Measurement: Shall be LS for the completed work described above.

Payment: Based upon the LS amount certified by the District's Representative.

CONTINGENCY BID ITEM

Contingency Bid Item No. 34 – Standby Time

Description: This item includes the time charged by the Contractor in the event work is suspended at the request of the District's Representative. The time that Contractor suspends operations while waiting on equipment, personnel and materials is expressly not to be charged as Standby.

Measurement: Shall be based on the hours (HR) of standby time when work is suspended at the request of the District's Representative.

Payment: Based on the unit price/HR of standby time as certified by the District's Representative.

****END OF SECTION****

SECTION 01110

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. **Scope of Work:** This contract work includes the abandonment of existing Northridge Well #9, the drilling, construction, development and test pumping of a new municipal water-supply well, Northridge Well #15, to replace the existing Northridge Well (Well #9) in Fair Oaks, California for the Fair Oaks Water District (District or Owner). The preliminary well design is based on the existing well but final design will be based on the results obtained through drilling, sampling and logging of the pilot hole. The work also includes removal of the pump and motor from the existing well, abandonment (destruction) of the existing well and removal of well equipment as shown on the Plans.
- B. The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies, and manufactured articles, and for furnishing all transportation and services, including fuel, power, water and essential communications, and for the performance of all labor, work, or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. Quality Assurance and referenced standards are detailed in each specification. The Contractor certifies that the Contractor is experienced and qualified to anticipate and meet the requirements of this Project.
- C. The work shall be complete and include all labor, materials, and services not expressly shown or called for in the Contract Documents which may be necessary for the complete and proper construction. Work in good faith shall be completed and performed, furnished, and installed by the Contractor as specified or shown, at no increase in cost to the District.
- D. **Work sequence and items per Contract Documents:** The work required for the construction of one water well will include, but not be limited to, the following items:
 - 1. Mobilize to, provide temporary facilities for, and demobilize from the well site. These include sound barriers and temporary fencing as specified.
 - 2. Remove and dispose of existing site equipment as shown on the plans and as specified.
 - 3. Existing well site demolition including removal of the existing Northridge Well #9 pump and motor, well head, electric panel, discharge piping and associated underground piping and conduits. The existing Northridge Well #9 shall be capped and protected during demolition of the existing well site.
 - 4. Obtain required well destruction and well drilling permits. Abandon (destroy) existing Northridge Well #9 in accordance with State and County regulations.

5. Drill a minimum 52-inch diameter borehole and install a 42-inch diameter surface conductor casing to a depth of 75 feet and place sanitary sealing material in the annulus from the bottom of the borehole to the land surface.
6. Drill a nominal 16-inch diameter pilot borehole from the bottom of the conductor casing to a depth of 225 feet. Collect the drill cuttings at 10-foot intervals and when changes in formation type are detected during drilling of the pilot hole.
7. Perform pilot borehole geophysical logging surveys, including a deviation survey.
8. Ream the pilot hole from the bottom of the conductor casing to a diameter of 38 inches from the bottom of the conductor casing to a depth of 225 feet, perform Caliper survey. Install 30-inch diameter intermediate casing and seal the annulus from the bottom of the borehole to the ground surface.
9. Drill a nominal 16-inch diameter pilot borehole from the bottom of the intermediate casing to a depth of 500 feet. Collect the drill cuttings at 10-foot intervals and when changes in formation type are detected during drilling of the pilot hole.
10. Perform pilot borehole geophysical logging surveys, including a deviation survey.
11. Final well design, including production casing schedule, screen aperture slot size and filter pack size/gradation will be provided by the District's Representative based on formation samples and geophysical logs.
12. Ream pilot hole to a diameter of 28 inches from the bottom of the intermediate casing to a depth of 500 feet.
13. Perform caliper and deviation surveys of the final borehole
14. Furnish and install 18-inch diameter stainless steel casing according to the final well design.
15. Furnish and install 18-inch diameter stainless steel Ful-Flo louver well screen according to the final well design.
16. Furnish and install sounding tube and gravel pipe to the depth specified in the plans.
17. Furnish and install filter pack in the annular space to depths as described in the specifications and plans.
18. Install annular seal, including separate transition sand between the sand cement grout seal and filter pack.
19. Develop the well using swabbing and air-lift pumping.

20. Furnish and install deep-well turbine test pump capable of pumping at rates from 750 to 3,000 gpm. Test equipment to include discharge piping and ancillary equipment as specified.
 21. Develop well with test pump.
 22. Complete step-drawdown pumping test and constant-discharge pumping test as specified.
 23. Coordinate collection of samples and water quality testing by the District.
 24. Perform tests for plumbness and alignment, and complete video logs to document well construction details.
 25. Disinfect the completed well.
 26. Return site to pre-drilling conditions. Drilling fluid tanks shall be emptied of drilling fluid and the fluid disposed according to local regulations and the tanks removed from the site. Drill cuttings are to be disposed at a site designated by the District. The site area must be cleaned up including repairing any pavement damage on Kaula Avenue.
- E. Site Location: The Existing Well Site, Well Site Easement and Temporary Construction Easement consists of approximately one-third (1/3) acre with dimensions of approximately 50 feet by 260 feet located at 8251 Kaula Drive, Fair Oaks, California.

1.02 PRECONSTRUCTION MEETING

The Contractor shall submit the following at or before the preconstruction meeting.

- A. Construction schedule consistent with the contract time of completion and anticipated sequence of work.
- B. Proposition 50 labor compliance methodology.
- C. Methods of access to the construction site.
- D. Noise abatement procedure; estimated decibel measurements to surrounding residences.
- E. District's Representative's approved drilling fluid program.
- F. Methods for disposal of drilling fluid (mud) from drilling and water from development.
- G. Methods of sample collection.
- H. Temporary facilities to be established.

- I. Well Drilling and Well Destruction permits.
- J. Product data sheets for proposed drilling fluid additives, if any.
- K. Physical and chemical properties of products, casing, screens, and sealing material.
- L. Sample of proposed filter pack.
- M. A work schedule and hours of operation.
- N. Plan for storm water and non-storm water Best Management Practices (BMPs) for erosion and run-off control.
- O. Worksite Safety Plan

1.03 PERMITS

- A. The Contractor shall obtain all permits in accordance to the laws and regulations governing the work. Refer to the District's NPDES permit and waivers for discharge of development and testing water.

1.04 DRILLING FLUID, WATER DISPOSAL, AND DRAINAGE

- A. The effluent produced by the drilling, developing, and testing shall be discharged only as directed by the District's Representative and shall not be discharged into local drainage inlets or streets.
- B. Applicable County and State guidelines related to permitting the discharge of drilling muds and development water must be followed by the Contractor.

1.05 SITE ACCESS AND FENCING

The existing Northridge Well #9 is located on District-owned property which includes an existing well that will be destroyed and above-ground facilities removed. The Northridge Well #15 Site is located in an easement obtained by the District from the San Juan Unified School District for this work. The District has also acquired a temporary construction easement from the San Juan Unified School District to enlarge the work area and serve as a lay-down yard and equipment and materials storage area. Sound barriers shall be installed surrounding the job site as directed by the District's Representative and fencing and gates shall be installed to secure the site when there is no activity. All work activities shall be confined to the District owned property, the District's Well Site Easement and Temporary Construction Easement. Because the site is located in a residential neighborhood and adjacent to Northridge Elementary School, Contractor shall take additional precautions when traveling to and from the site.

Contractor shall remove and salvage to the San Juan Unified School District the existing ornamental iron fence located along the well site easement frontage. The Contractor shall remove irrigation sprinklers and remove and cap irrigation pipelines located within the well site easement. The Contractor shall locate and temporarily cap existing irrigation sprinklers located within the temporary construction easement.

1.06 SITE RESTORATION

At Project completion, the Contractor shall restore the Temporary Construction Easement Area to original condition. Restoration activities shall include, but not necessarily be limited to, the following:

- A. The mud tanks used to circulate drill mud onsite shall be removed. Subsequent to removal, the site will be cleaned to the satisfaction of the District.
- B. Cuttings shall be removed from the site.
- C. Restore areas disturbed by drilling activities to pre-work conditions.
- D. Remove rubbish, unused materials, and other unlike materials belonging to Contractor or used under Contractor's direction during construction.
- E. Restore irrigation facilities.

1.07 HEALTH AND SAFETY GUIDELINES

The Contractor shall comply with Safety and Health Regulation for Construction, promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standard Acts as set forth in Title 29, Code of Federal Regulations (CFR). The Contractor shall also comply with the provisions of the Federal and State of California Occupational Safety and Health Act (OSHA).

****END OF SECTION****

SECTION 02671

WATER WELL

PART 1 - GENERAL

1.01 SCOPE

This Section includes construction of a municipal water-supply well, as shown on the plans and in accordance with these Specifications. The work also includes removal of existing above-ground facilities and destruction of the existing well located at the site. Work shall conform to AWWA Standards for Water Wells, A100 (latest edition) and California Well Standards, latest edition. In case of conflict between the requirements of this Section and those of the AWWA Standards, the requirements of this Section shall prevail.

District's Representative, as used in this Section, shall refer to either the District's Engineer or District's Hydrogeologist, as appropriate.

The District's Representative will select screen locations, slot size and filter-pack size and gradation to be used in the production well based upon data and information obtained from the drilling of the pilot hole. Initial intervals to be completed with well screen have tentatively been identified on the basis of the well log for the existing well at the site which was constructed in 1993. The Contractor will be given a one (1) day period beginning after the District's Representative's selections to review the pilot hole data and the District's Representative's selections. If the Contractor believes that this design impairs the Contractor's ability to achieve the required guarantees, the Contractor shall notify the District's Representative in writing within two (2) days. Notification shall include the Contractor's recommendations for a production well construction meeting these Specifications and the required guarantees, and shall include an estimate of well yield, type and grading of filter-pack material, settings and size of the screen openings. The District's Representative reserves the right to accept or modify the production well design based upon review of the Contractor's recommendations.

General work required for the production well includes drilling and installation of casing and well screens, filter-pack installation, sealing, developing, testing, disinfecting, and capping the well. The work shall include the construction of an all-weather drilling pad which will allow the drilling work to proceed during any type of weather conditions and, as referenced, must be protective of potential discharges to surface water. Cost for the drilling pad shall be bid as a separate line item and shall not be included in mobilization costs. The well shall have design capacities as specified in Paragraph 3.02, Production Well Construction.

1.02 PERSONNEL AND EQUIPMENT

The production well shall be constructed using the reverse-circulation drilling method, although the upper-most portion of the borehole for the conductor casing may be drilled utilizing a bucket auger. Drilling equipment shall be in good condition and of sufficient equipment capacity to perform the work required by these Specifications. All drilling equipment, including mast and draw works, air compressors, drilling fluid pumps, drill pipe, etc., must be of the size, capacity, and condition to drill and set casing to the required depth. The Contractor shall furnish documentation regarding capacity of various components of the drilling equipment. Rigs shall be equipped with a weight indicator. Drill rigs shall have the ability to lift and land anticipated casing loads without the use of float plugs or similar devices.

Contractor's equipment shall not exceed local standards and regulations for noise. To address noise concerns, sound barriers shall be installed and surround the site except for points of ingress and egress. Access point(s) shall be secured with lockable gates. The Contractor may, at his/her discretion employ equipment powered by electric motors supplied by an on-site, intrinsically quiet, portable generator. This option does not require modification of any of the following Sections.

The Contractor shall employ competent workers for Project execution. The Contractor shall designate one person, who shall have full decision-making authority, to be the Contractor's Representative on the jobsite on a daily basis. This person shall serve as Drilling Superintendent and their phone number shall be given to the District's Representative for emergency notification.

1.03 PERFORMANCE OF WORK

Should a borehole be lost due to fault of the Contractor, that borehole shall be abandoned (per Paragraph 3.09 B, Abandonment of Hole) and another borehole constructed in the immediate area. New drilling sites shall be approved by the District's Representative prior to drill rig setup. Cost of extending substitute boreholes to the depth and status of the lost borehole will not be considered for payment.

1.04 PROTECTION OF WORK

The Contractor shall provide means of protecting the well bore and casing assemblies, when installed, from entrance of foreign objects.

1.05 PERMITS, CERTIFICATES, LAWS, AND ORDINANCES

The Contractor shall, as part of the Contractor's bid, procure all permits, certificates, and licenses required by law for execution of the work. Contractor shall comply with all State and local laws, ordinances, and rules and regulations relating to performance of work and shall file all reports as required by State and local agencies in connection with well drilling. A copy of all required reports or permits shall be submitted to the District's Representative.

1.06 DISPOSAL

The Contractor shall dispose all of cuttings, drilling fluid, and development water per Paragraph 3.10, Environmental Control. Trash and other unsuitable material resulting from the Contractor's operation shall be disposed of offsite at the Contractor's expense.

1.07 SUBMITTALS

The Contractor shall submit information to substantiate compliance with these Specifications. In addition, the following specific information shall be required:

- a. Conductor casing, intermediate well casing, production casing and well screen: materials, dimensions, details, appurtenances, and mill certificates.
- b. Filter Pack (supply descriptive literature, source, 3 lb. sample, analysis of sample).
- c. Sealing material – including, transition sand, bentonite pellets and cement.
- d. Drilling fluid program (per Paragraph 2.02, Drilling Fluid Program).
- e. Test hole procedures and methodology.
- f. Geophysical electric log format.
- g. Caliper log methodology and results.
- h. X-Y borehole geometry (deviation) survey methodology and results.
- i. Test results for plumbness and alignment.
- j. Test pump and ancillary equipment.
- k. Procedures and equipment for well development.
- l. Water, cuttings, and drilling fluid disposal plan (per Paragraph 3.10, Environmental Control).
- m. Complete driller's log report.
- n. Noise control plan.
- o. Temporary facilities plan for all-weather pad and construction site access, storage, disposal, and security.
- p. Disinfection product and method of use for circulating water additive to be used during filter packing (per Paragraph 2.05, Filter Pack and Transition Sand).
- q. Storm water and non-storm water Best Management Practices (BMPs) plan.
- r. Procedures and equipment for abandonment (destruction) of existing well.

PART 2 – PRODUCTS

2.01 GENERAL

Materials shall be furnished by an established, experienced manufacturer or supplier. Materials shall be new, of first-class ingredients, and guaranteed to perform required service. Use of rejected, substandard, or previously used materials will not be permitted.

All chemicals and products that will be added to or come in contact with drinking water shall be certified to meet NSF International (NSF) Standard 60 for direct additives or NSF Standard 61 for indirect additives.

2.02 DRILLING FLUID PROGRAM

Drilling fluid shall comply with a drilling fluid program designed by a qualified drilling mud engineer for use in reverse-circulation drilling. The program shall include specifications for fluid viscosity (as measured with a Marsh funnel), weight, solids content and wall-cake thickness. These shall be recorded every 50 feet of depth drilled or every two hours, whichever is more frequent.

The program shall include recommendations for the volume, number and layout of drilling fluid tank(s) necessary to facilitate settling of drill cuttings and to minimize recirculation of suspended solids. Specifications for shaker screens, desilters and desanders are to be provided if such equipment is proposed by the Contractor.

The static water level in the aquifer is estimated to be approximately 220 feet below land surface. The drilling fluid program shall be designed to minimize loss of fluid into the aquifer and provide options for the Contractor to address fluid loss. Options may include, but not be limited to, use of acid soluble mineral fiber in the case of lost circulation.

Alternatively, the Contractor may choose not to maintain the fluid level in the borehole at the land surface as is customary when drilling by the reverse-circulation method when drilling below the intermediate casing, designed to be installed to a depth of 225 feet. If this option is exercised the Contractor will be responsible for maintaining sufficient hydrostatic head in the borehole to maintain the integrity of the borehole. This approach is facilitated by the installation of intermediate casing to a depth of 225 feet.

The program shall be approved by the District's Representative prior to commencement of drilling. Any additives not specified in the drilling fluid program may not be used.

2.03 CASING MATERIALS

A. Conductor Casing

Conductor (surface) casing shall be 42-inch nominal diameter, with a minimum wall thickness of 3/8 inch, fabricated from steel plate with welded collars, or approved equal. Steel plate shall meet requirements of ASTM A53. Casing materials shall be new.

B. Intermediate Well Casing

Intermediate casing shall be 30-inch inside diameter (I.D.) with a wall thickness of 3/8 inch, fabricated from steel plate with welded collars. Steel plate shall meet requirements of ASTM A53. Casing shall be fabricated by the spiral process utilizing double, submerged arc-welding welding that meets the requirements of ASTM A211.

Ends of casing sections shall be furnished with collars. Collars shall have the same thickness, physical and chemical properties as the casings. Collars shall be 5 inches minimum in width, rolled to fit the casing outside diameter, and welded to the casing sections. Inside edges of the collars shall be ground or sufficiently scarfed to remove sharp edges, burrs and welds. Male ends of the casing sections shall be ground to remove excess welding bead within 4 inches of the ends to permit the casing section to enter collars without binding. Four alignment holes shall be provided in each collar to insure proper matching of the casing sections.

End piece of casing assembly shall be suspended by landing clamps with a design capacity in excess of the weight of the casing string.

C. Blank Stainless Steel Well Casing

Blank casing shall be fabricated from Type 304 stainless steel with a thickness of 5/16 inch with an inside diameter of 18-inches. Casing shall be as fabricated by the spiral process utilizing double, submerged arc-welding that meets the requirements of ASTM A 778.

Ends of casing sections shall be furnished with collars. Collars shall have the same thickness, physical and chemical properties as the casings. Collars shall be 5 inches minimum in width, rolled to fit the casing outside diameter, and welded to the casing sections. Inside edges of the collars shall be ground or sufficiently scarfed to remove sharp edges, burrs and welds. Male ends of the casing sections shall be ground to remove excess welding bead within 4 inches of the ends to permit the casing section to enter collars without binding. Four alignment holes shall be provided in each collar to insure proper matching of the casing sections.

End piece of casing assembly shall be suspended landing clamps with a design capacity in excess of the weight of the casing string.

All welders shall be prequalified under the American Welding Society (AWS) Standard Qualification Procedure for the type of work being performed.

Casings stored at the jobsite shall be elevated and not in contact with the ground surface.

D. Stainless Steel Louver Perforated Well Screen

Screens shall be nominal 18 inches inside diameter with a wall thickness of 5/16 inch and fabricated from Type 304 Stainless Steel. For bidding purposes, screen aperture width shall be 0.075 inch. The final design will be based on borehole geology and selected filter pack material.

Well screen shall be manufactured in accordance with the blank stainless steel casing requirement specified above. The openings in the screen shall be machine-

made horizontal to the axis of the screen and of a louver form with the opening facing downward forming what is generally referred to as a Full-Flo™ pattern. For bidding purposes, assume the aperture width is 3/32-inch. The final aperture width and the placement of the perforations will be determined upon analysis of formation samples collected through drilling of the pilot borehole.

Ends of sections shall be furnished with collars. Collars shall have the same thickness, physical and chemical properties as the casings. Collars shall be 5 inches minimum in width, rolled to fit the casing outside diameter, and welded to the casing sections. Inside edges of the collars shall be ground or scarfed to remove sharp edges, burrs and welds. Male ends of the casing sections shall be ground to remove excess welding bead within 4 inches of the ends to permit the casing section to enter collars without binding. Alignment holes shall be provided in each collar to insure proper matching of the sections.

Screens stored at the jobsite shall be elevated and not in contact with the ground surface.

E. Casing Alignment

Casing section ends shall be machined flat and perpendicular to the casing axis. Longitudinal welds shall be ground flush. Inside collar and outside of the casing sections shall be de-burred and fitted prior to assembly. Joints shall be not greater than 0.06 inch out of round and section ends shall not vary more than 0.015 inch from perpendicular to the casing.

2.04 SEALING MATERIAL

Sealing material in this section refers to the surface sanitary seal, annular seal, and any intermediate seal that may be required.

Sealing material shall conform to American Petroleum Institute (API) Class A cement and shall be ANSI/NSF 61 certified. Cement seal shall be composed of sand cement grout slurry. Slurry shall be composed of not more than 2 parts by weight of sand to 1 part cement to 7 gallons of clean water per sack of Type I or Type II Portland cement (10.3 sack mix). The Contractor may use quick-setting cement, retardants to setting, and other additives including hydrated lime (up to 10% of the volume of the cement) to make the mix more fluid. Bentonite, at a rate not to exceed 5% of the cement volume, may be used to make the mix more fluid and reduce shrinkage.

2.05 FILTER PACK AND TRANSITION SAND

A. Silica Bead Filter Pack Material

Filter pack shall be glass Silibeads manufactured by Sigmund Linder, or approved equal, and fabricated from soda lime glass with a roundness coefficient greater than

0.93, hardness equal to or greater than 6 on the Moh hardness scale, and a uniformity coefficient of 1.1 to 1.45. Final filter pack gradation shall be determined on the basis of size and gradation of formation samples obtained from the pilot hole. For bidding purposes, assume the Sigmund Linder 45 1011R product, 0.098 to 0.138 inches in diameter.

B. Transition Sand

A transition sand well be placed between the filter pack and cement seals. The transition sand will consist of a 30-mesh sand. Transition sand shall be kept free of all foreign matter. Sand shall be as produced by Lone Star, Silica Resources, or other approved sources.

2.06 SOUNDING TUBE

Sounding tube shall be 2-inch diameter type 304 stainless steel Schedule 40 pipe in uniform or random lengths and joined by welding or threaded couplings. Sounding tube shall include a threaded cap. The sounding tube shall be threaded to a termination box, commonly referred to as a Gilbert Box, fabricated by the casing manufacturer of stainless steel, that is welded to the well casing and forms the entry to the well casing.

2.07 FILTER FEED PIPE

Pipe shall be 3-inch standard wall black steel, Schedule 40, ASTM A53 pipe. Pipe shall be joined by welding or with threads and couplings, in uniform or random lengths. Pipe to include a threaded cap and centralizers.

2.08 WATER FOR DRILLING

An existing fire hydrant on Kaula Drive, located opposite the well site, may be used for water during construction. The District will issue the Contractor with a meter to measure the water used for drilling. Contractor will be assessed charges for the water used in conformance with current District rates.

PART 3 – EXECUTION

3.01 EXISTING WELL SITE DEMOLITION

Existing well site features are to be removed from the site as shown on the plans. These features include the well pump, motor, and well head; well discharge piping, the electrical panel, including the concrete pad, all underground conduits to three feet below grade, and a portion of the fence as shown on the plans.

The existing well shall be capped with a blind flange or temporary 1/4 inch steel cap, continuously welded, to the top of casing after the well head has been removed. Capping shall protect the existing well during the site demolition.

3.02 PRODUCTION WELL CONSTRUCTION

The location of well screen, louvered well screen aperture width, and the size and gradation of filter pack are preliminary guidelines to assist Contractor in preparing a bid. Final dimensions and specifications shall be determined by the District's Representative following evaluation of pilot hole drilling and sampling.

The Contractor shall construct and develop a filter packed water production well with general dimensions and characteristics as follows:

Item	Value
Design capacity, gpm	Approx. 2000
Conductor casing borehole diameter, in.	52
Conductor casing diameter, in.	42
Conductor casing length w/sanitary seal, ft.	75
Pilot borehole diameter, in.	16
Pilot borehole depth, ft.	500
Borehole diameter for intermediate casing, in.	38
Depth of borehole for intermediate casing, ft.	225
Intermediate casing diameter, in.	30
Borehole diameter below intermediate casing, in.	28
Target depth for well, ft.	500
Well Borehole depth, below intermediate casing	275
Blank casing diameter, in.	18
Blank casing length (total), ft.	372
Screen diameter, in.	18
Louver Screen length (total), ft.	120
Casing and screen length (total), ft.	492
Filter Pack, ft	200
Transition Sand, ft	5
Annular seal, ft.	225
Average sand content (not to exceed), ppm	5
Turbidity (not to exceed), silica scale	5
X-Y borehole geometry (deviation) survey	per Paragraph 3.02D
Plumbness and alignment	per Paragraph 3.06

The production well shall be constructed in the following manner and sequence:

A. Drilling Conductor Bore and Installing Conductor Casing

The borehole for the conductor casing shall be advanced by using a bucket auger, or approved method. The borehole shall have a nominal diameter of 52-inches, to a depth shown on the plans

The Project is located in a residential neighborhood and borders an elementary-school playing field.

The conductor casing shall be securely welded in accordance with AWS Standards. All peep holes or alignment holes shall be filled by welding. The casing shall be centered in borehole with guides consisting of four welding straps centered on the casing.

The first set of guides shall be placed 10 feet above the bottom of the casing string. Second (and third, if required) set of guides will be placed at 40 foot intervals above the first set of guides.

Cement grout (sealing material) shall be injected between casing and borehole by means of a tremie pipe. Grout shall extend throughout the bore. Cement grout material shall be placed by a positive displacement method using pumping equipment. Use vibration tools, if required, to achieve uniform density of cement grout material placed.

Grout tremie pipe may be slowly raised as grout is placed, but the discharge end must be submerged in the grout until grouting is completed. Grout tremie pipe shall be maintained full until completion of the grouting. No work shall be performed in the well for a minimum of 24 hours after completion of the grouting.

B. Pilot Borehole Drilling to 225 Feet

Drill a nominal pilot borehole by the reverse-rotary method to a depth of approximately 500 feet below ground surface (bgs). Diameter of the pilot borehole shall be 16 inches. The pilot hole will be drilled in two stages. The first stage entails drilling from the bottom of the conductor casing to a depth of 225 feet followed by reaming the borehole to accommodate installation and sealing of intermediate casing. The second stage entails drilling from the bottom of the intermediate casing to the target depth of 500 feet.

C. Geophysical Logging to 225 Feet

Borehole geophysical logs shall be acquired at two stages of operations. The first series of logs shall be acquired upon the pilot borehole reaching a depth of 225 feet. Logs shall include natural gamma radiation; spontaneous potential; point, short- and long-normal guarded resistivity; and lateral resistivity. A deviation survey shall also be performed.

The second series of geophysical logs shall be acquired after the pilot borehole has been drilled below the intermediate casing to the target depth of 500 feet. A deviation survey shall also be performed.

The geophysical logging company shall use digital logging equipment recording both in real time and on analog paper during the actual logging. The digital information is to be stored on a USB Flash Drive in Log ASCII Standard (LAS) format. The API standards will be followed for calibration of equipment and report format headings including, but not limited to, proof of last equipment calibration date and applicable temperatures or other pertinent equipment and borehole data. Prior to logging, the logging Contractor must evaluate conditions of the borehole prior to implementing the logging survey.

The Contractor shall provide immediately upon completion, three (3) field copies of the log and copy on a USB Flash Drive to the District's Representative for interpretation upon completion of logging. The logging speed for all logs shall be approved by the District's Representative.

The Contractor is responsible for the integrity of the borehole to assure that the geophysical logging can be successfully accomplished. The Contractor shall maintain circulation in the borehole with tools on the bottom of the hole until the logging equipment is on location and prepared to conduct the survey. The logging service company shall obtain a sample of the circulating fluid for calibration of the logs prior to the securing of the mud circulating pump. Tools shall then be pulled by the Contractor and the logging services immediately commenced. If the logging probe fails to descend to the desired depth, the Contractor, at the Contractor's expense, shall rerun the drilling tools to recondition the hole.

The logging company shall be approved in advance by the District's Representative.

D. X-Y Borehole Geometry (Deviation) Survey to 225 Feet

Deviation surveys will be conducted in conjunction with the Geophysical Logging specified above.

The survey will be run in the presence of the District's Representative. The pilot borehole plumbness and alignment from the bottom of the conductor casing to the bottom of the pilot borehole shall be surveyed by the geophysics firm retained by the Contractor. The plumbness of the borehole shall conform to the AWWA A-100 Standard which is two thirds (2/3) of the smallest inside diameter of that part of the borehole being tested per 100-feet of depth. However, the Contractor shall adhere to a more stringent requirement of the District, which is a maximum of 6 (six) inches per 100 feet of depth. The borehole deviation survey does not supersede the final deviation survey of the production casing.

The Contractor shall provide immediately upon completion, three (3) field copies of the log and copy on a USB Flash Drive to the District's Representative for interpretation upon completion of logging. The logging speed for all logs shall be approved by the District's Representative.

Final well plumbness and alignment tests to be completed following the construction of the well. It is understood the final plumbness and alignment tests of the well may produce different results than the borehole surveys.

If the borehole is determined to be out of plumb by the District's Representative, the Contractor shall take necessary steps to straighten the borehole to achieve acceptable borehole geometry.

At the completion of straightening the hole, a second X-Y borehole geometry survey shall be conducted and the borehole evaluated again by the District Representative.

Borehole straightening shall be completed at no additional cost to the District and shall terminate when the borehole has been deemed either acceptable or permanently unacceptable to the District's Representative.

If, in the judgement of the District's Representative, and based on the geometry survey, a borehole is deemed permanently unacceptable, the Contractor, shall be required to drill a replacement boring at a new location on the site. The Contractor shall bear all additional costs for the proper abandonment of the permanently unacceptable borehole and the drilling and resurveying of the new borehole.

E. Standby Time

Standby Time shall only be charged when the District's Representative requests the Contractor suspend operations. Standby Time shall not be charged while work is suspended by the Contractor while waiting on delivery of materials, equipment, or personnel.

F. Reaming of the Pilot Borehole to 38 Inches from Bottom of Conductor Casing to 225 Feet

The borehole shall be reamed using the fluid reverse-rotary drilling method. Reaming of the pilot hole will be accomplished in two phases or stages. The first stage entails reaming the pilot borehole to a diameter of 38 inches from the bottom of the conductor casing to a depth of 225 feet to accommodate installation of the intermediate casing and sealing the annulus to the land surface. The second phase entails reaming the pilot borehole to a diameter of 28 inches from the bottom of the intermediate casing to the target depth of 500 feet. Reaming of either phase shall not be initiated until all materials are on site and have been approved by the District's Representative.

Drill pipe may be of the dual tube type or single wall with an internal air line. Drilling fluid composition shall not vary from the program defined and approved in accordance with Paragraph 2.02, Drilling Fluid Program.

The Contractor shall be responsible for maintaining the fluid level in the borehole sufficiently to maintain bore integrity throughout the drilling and construction process. While drilling below the intermediate casing, the Contractor may, at his/her option, drill with the fluid level below the land surface, yet maintain a fluid level sufficient to stabilize the borehole below the intermediate casing. This approach may minimize the loss of drilling fluid out into productive zones of the aquifer which was problematic during the drilling of the Owner's last well.

Maintaining an adequate supply of water from the available water source to the drilling fluid system is the Contractor's responsibility.

G. Caliper Survey to 225 Feet

When reaming of the borehole has reached the prescribed depths, the Contractor shall conduct a caliper survey to confirm actual diameter of the well. The caliper survey will be used to verify the quantity of seal and filter material required for production well construction. The District's Representative shall witness the logging and shall be given at least 24 hours prior written notice by the Contractor.

If a minimum filter pack thickness of 5 inches cannot be achieved throughout the intake or screened portions of the well, the borehole will be considered unacceptable. The Contractor shall re-ream the hole and conduct a second caliper survey at the Contractor's own expense. If the borehole remains unacceptable, the Contractor shall abandon the hole and re-drill the well at a new location. Costs for abandonment and new well construction shall be borne by the Contractor.

During caliper survey, the fluid level in the borehole shall be maintained to a level sufficient to ensure integrity of the borehole. Assuming acceptable tests are achieved in the required caliper survey, the Contractor will not be required to return to bottom with the drilling tools if casing installation immediately follows.

Upon completion of the caliper survey, the Contractor shall deliver to the District's Representative three field copies of the results, which shall be capable of reproduction and one copy of the survey results in digital form on a USB Flash Drive.

H. Installation of the Intermediate Casing

The Contractor shall insure that all cuttings have been removed from the well. Upon completion of drilling operations, the borehole shall be prepared for installation of the intermediate casing.

To allow for successful installation of the annular seal surrounding the intermediate casing, a tremie pipe having a minimum inside diameter of 2 inches shall be run into the borehole to the proposed intermediate casing depth. Fluid shall be circulated prior to installation of the annular seal.

With the tremie pipe remaining in the borehole, intermediate casing installation shall proceed in accordance with the final design.

During intermediate casing installation, all field joints shall be fillet-welded in accordance with American Welding Society Standards, with a minimum of two passes per circumference. Welding rods shall be suitable grade for material being welded. All peep holes or alignment holds shall be filled by welding Centralizers, three per set, placed at 120° intervals, shall be attached directly to the intermediate casing by welding at not more than 120 foot spacing. Centralizers shall be of the same material used for the intermediate casing.

Intermediate casing shall be seated firmly at the bottom of the borehole and be held in tension until the annular seal has set up. If the intermediate casing cannot be landed to the design depth, the Contractor shall remove the intermediate casing from the well and re-ream the well. Failure of the Contractor to install the intermediate casing to the design depth shall be grounds to reject the well.

I. Reaming of the Pilot Borehole to 28 inches from Bottom of Intermediate Casing to Target Depth of 500 Feet

The borehole shall be reamed using the fluid reverse-rotary drilling method. Reaming shall not be initiated until all materials are on site and have been approved by the District's Representative.

The Contractor shall be responsible for maintaining the fluid level in the borehole sufficiently to maintain bore integrity throughout the drilling and construction process. While drilling below the intermediate casing, the Contractor may, at his/her option, drill with the fluid level below the land surface, yet maintain a fluid level sufficient to stabilize the borehole below the intermediate casing. This approach may minimize the loss of drilling fluid out into productive zones of the aquifer which was problematic during the drilling of the Owner's last well.

J. Caliper Survey to 500 Feet

When reaming of the borehole below the intermediate casing has reached the prescribed depth, the Contractor shall conduct a caliper survey to confirm actual diameter of the well. The caliper survey will be used to verify the quantity of annular seal material required for production well construction. The District's Representative shall witness the logging and shall be given at least 24 hours prior written notice by the Contractor.

If a minimum annular seal thickness of 5 inches cannot be achieved throughout the intermediate casing interval, the borehole will be considered unacceptable. The Contractor shall re-ream the hole and conduct a second caliper survey at the Contractor's own expense. If the borehole remains unacceptable, the Contractor shall abandon the hole and re-drill the well at a new location. Costs for abandonment and new well construction shall be borne by the Contractor.

K. Installation of the Well Casing

The Contractor shall insure that all cuttings have been removed from the well. Upon completion of drilling operations, the borehole shall be prepared for well casing installation.

To allow for successful filter packing operations, a tremie pipe having a minimum inside diameter of 2 inches, shall be run into the borehole to the proposed casing installation depth. The pump to be used for filter packing shall circulate water from the sump with the same viscosity as that in the borehole. Circulation shall begin thirty minutes prior to casing installation and continue during the installation.

With the tremie pipe remaining in the borehole, well casing installation shall proceed in accordance with final design.

During installation, all field joints of the well casing shall be fillet-welded in accordance with American Welding Society Standards, with a minimum of two passes per circumference. Welding rods shall be suitable grade for material being welded. All peep holes or alignment holes shall be filled by welding.

Centralizers, three per set, placed at 120° intervals, shall be attached directly to the casing by welding at not more than 120 foot spacing. Centralizers shall center and hold the casing in proper position until filter pack material is in place. Centralizers shall be of the same material used for casing.

The sounding tube shall be installed concurrently with the well casing and secured to the casing by welding stainless-steel metal straps or guides with spacers at the depth specified on the plans. One-half inch spacers between the sounding tube and well casing shall be used. The top of the sounding tube shall be located adjacent to the conductor casing and extend at least two feet above the ground and shall be fitted with a standard threaded caps. Connection and entrance from the sounding tube to the production casing shall be as shown in the plans.

Well casing shall be suspended from the surface by means of an appropriate hanger or clamp. Float plugs to land and set casing will not be permitted. Casing shall terminate above the bottom of the reamed hole without any contact with the bottom of the hole. This requirement will be confirmed by observation of the weight indicator showing weight suspended from the drill rig.

If the well casing cannot be landed in the correct position or at a depth acceptable to the District's Representative, the Contractor shall remove the well casing from the well and re-ream the well. Contractor shall not attempt to drive or "spud" the casing and screen assembly. If problems arise which prevent the Contractor from completing the well, it will be considered rejected.

A permanent filter material feed pipe shall be installed separately after the casing and sounding tube have been landed in place. The filter feed pipe shall be installed to a depth as shown in the plans. The top of the filter feed pipe shall be provided with a standard threaded end screw cap as shown on the plans. Centralizers shall be used to address the 2-inch separation requirement between casings and the borehole to the depth of annular seal placement.

L. Filter Pack Installation

After the well casing has been installed in place in the well, the filter pack with disinfectant shall then be placed in the well using procedures to minimize segregation and bridging of the filter pack, all as herein specified.

The annular space between the well casing and the side wall of the borehole shall be filled to the depth shown on the plans with clean, washed, selected graded filter pack, as herein specified. The filter pack shall be pumped in place using a suitable positive displacement pump.

Prior to placing filter pack in the well, a granular hypochlorite or similar disinfectant with 70% available chlorine content shall be added at the rate of 1/2 lb. per cubic yard of filter pack material. If a lesser strength hypochlorite or other chlorine product is used, quantity shall be adjusted accordingly. Disinfectant content may be adjusted by the District's Representative to suit field conditions and filter packing method used by the Contract.

Tremie pipe shall be removed in 20- foot sections as the filter pack reaches the bottom of the pipe.

The filter pack shall be placed from the bottom to the top with suitable precautions to avoid the possibility of the pack bridging or clogging at any point. The filter packing of the well shall be properly coordinated with the surging and cleaning of the well. Filter packing and sealing shall continue uninterrupted until the filter pack material is brought to the level shown on the plans.

The screen sections shall be gently swabbed to facilitate the settlement of the filter pack material. After swabbing, filter material shall be added to bring the level back to the location shown on the plans.

A cement grout seal shall be placed from the top of the filter pack to the surface as shown on the plans. The cement seal shall be composed of a slurry of sand cement grout, as described in Paragraph 2.04, Sealing Material.

Cement grout shall be injected through a tremie pipe in the annular space between the casing and the borehole, from the bottom to the top of the specified interval, by a positive displacement method using pumping equipment. As shown on the plan, a five foot thick section of transition sand shall be placed between the cement grout seal and the filter pack.

The quantities of filter material placed in the annulus of the well shall not be less than the computed volume of the annulus as determined by the District's Representative. A quantity less than the computed value will be judged as an indication of voids, and corrective measures shall be taken by the Contractor. Significant differences between the estimated and final volume of filter material installed will be grounds for the rejection of the well by the District's Representative.

3.03 WELL DEVELOPMENT

A. Initial and Final Well Development

1. Initial Well Development

Upon installation of the filter pack, a non-phosphate drilling-fluid dispersant such as NuWell™ shall be installed in the well throughout the entire screened interval. The volume of dispersant shall be consistent with the manufacture's recommendations. Following installation, development will be suspended for a period of 24 hours. The cement annular seal above the filter pack may be installed at this time.

Initial development will proceed using a dual packer development tool. The tool shall comprise two packers separated by 10 feet of perforated pipe and attached to the bottom end of the reverse rotary drill pipe. Swabbing shall start at the bottom of the deepest well screen, working progressively upward.

2. Final Well Development

Upon completion of initial development, the line-shaft turbine test pump shall be installed and the well surged and pumped until the well is fully developed.

The Contractor shall continue development of the well until the discharged water is clear of sand, silt, and mud and the following conditions have been met:

1. The final total quantity of filter material placed in the annulus shall be at least as great as the calculated volume of the annulus.
2. There shall be no further settlement of the filter envelope.

3. Sand production shall not be more than the value specified in Paragraph 3.11, Well Performance Guarantees.
4. Turbidity shall be less than the value specified in Paragraph 3.11, Well Performance Guarantees.
5. Specific capacity shall have reached the value specified in Paragraph 3.11, Well Performance Guarantees, and there shall be no significant increase in specific capacity during at least twelve continuous hours of pumping and surging.

C. Pumping and Surging

Upon completion of swabbing, jetting, and airlift pumping operations, Contractor shall install a water-lubricated line-shaft turbine pump. Foot valves installed on the pump or drivers with non-reverse ratchets installed will not be allowed. The test engine shall be equipped with a muffler that limits noise to levels allowed under local regulations. Contractor shall furnish and install necessary discharge piping to transport pumped water to an approved discharge location.

Contractor shall furnish necessary valves, flow meters, sand testing equipment, and other equipment required to accurately measure flow rate, water levels, sand production, and time of pumping. Installation of flow meters shall be as recommended by the manufacturer for this installation and shall provide reliable test information. In addition to any orifice or flow meter, the discharge assembly shall be equipped with a 3/4-inch female coupling for installation of a sample tap.

The District's Representative will provide a pressure transducer to continuously monitor water levels during developmental pumping and subsequent test pumping.

Turbine pump used for development and testing shall be capable of producing 3,000 gpm from a pumping water level of approximately 340 feet below ground surface. The pump shall be installed with the intake placed at a depth of 350 feet below land surface. The test engine shall have a minimum continuous horsepower rating required for continuous pumping at the maximum desired flow rate and pumping level.

Development pumping shall commence at a low flowrate, approximately 500 to 750 gpm. The well shall be frequently surged for development purposes. Flow rates shall be increased until the well achieves a minimum of 125% of the design flow rate or as directed by the District's Representative.

Development pumping shall continue for a minimum of eight hours and until the conditions in Paragraph 3.11, Well Performance Guarantees, have been met.

The proposed test pump discharge is the existing storm drain manhole and storm

drain located, as shown on the Plans, in Kaula Drive. The Contractor shall submit a Traffic Control Plan to permit test pump discharge to this location and provide Traffic Control until test pumping is completed.

D. Records

Development records shall contain readings at half-hour maximum intervals showing production rate pumping level, drawdown, sand production, and all other pertinent information concerning well development.

E. Bailing

Contractor shall bail the well as needed to prevent accumulation of material above the lowest portion of the screen at all times and completely free of material prior to pumping and surging and after completion of test pumping.

3.04 COMPLETED WELL TEST PUMPING

The completed production well shall be test pumped to determine efficiency and aquifer characteristics. Testing shall consist of a step-drawdown and constant-discharge tests.

Step test. The step test shall comprise four steps of one (1) hour duration each. The pumping rates for the steps are proposed at 1,000 gpm, 1,500 gpm, 2,000 gpm, and 2,500 gpm respectively. District's Representative reserves the right to change the pumping rates for the test based on the results of well development. At the conclusion of the step test, water levels in the well will be permitted to recover overnight.

Constant-discharge test. The anticipated pumping rate for the 24-hour constant-discharge test is 2,000 gpm. District's Representative may change the rate on the basis of the results of the step-drawdown test. Upon completion of pumping, water levels in the well shall be permitted to recover for a period of 24 hours before test equipment can be removed from the well.

During each test, pump discharge rate shall be measured with an accurate ultrasonic flow meter with digital output or pipe weir and orifice, as approved by the District's Representative. Propellor meters will not be approved. Pump discharge shall be maintained during the test within $5\% \pm$ of the pumping rate through a combination of engine or motor speed and a valve. Prior to start of the first test, the pump shall be adjusted to each of the prescribed pumping rates to determine appropriate engine speeds (rpm) and discharge valve positions to facilitate pump adjustment. The pump should then be turned off and static, or non-pumping, level determined. Static water level shall be considered attained when three successive water level measurements, spaced ten minutes apart, show no appreciable rise in water level. A transducer and data logger, provided by the District's Representative, shall be used to record the pumping water levels.

During pumping tests, depth to water level shall be measured by the Contractor and recorded at the following intervals (with start of test at t=0 minutes):

- a. Each minute, from t=1 min. to t=12 min.
- b. Each 2 minutes, from t=12 min. to t=20 min.
- c. Each 5 minutes, from t=20 min. to t=50 min.
- d. Each 10 minutes, from t=50 min. to t=100 min.
- e. At t=120 min., t=150 min., t=180 min., t=240 min., and t=300 min.
- f. Each 100 minutes after t=300 min.

Following the conclusion of pumping tests, measurement of water recovery levels will be made by the District's Representatives using a recording pressure transducer.

In case of pump failure for a period greater than 1% of elapsed pumping time from t=0 minutes, test shall be suspended until static water level has been attained. Should test be aborted as a result of a deficiency on the part of Contractor's equipment or personnel, time waiting for water level recovery and for rerunning pump test to the point where it was aborted shall be at no cost to the District (Owner).

Prior to completion of the pumping tests, the Contractor shall allow the District's Representative to obtain a water sample. The sample will be used for water quality testing as described in Paragraph 3.05 B, Water Analyses. The Contractor shall provide the District's Representative 24-hour notice to prepare for obtaining the water sample.

After test pumping has been completed, water level measurements shall be submitted to the District's Representative. Test pump shall not be removed from the well until the District's Representative has evaluated the data and authorized removal of the pump.

The Contractor shall maintain records of the pumping tests and furnish copies of all records to the District's Representative. Records shall also be available for inspection at any time during the test. Records shall also include physical data describing construction features such as well depth and diameter; complete screen description, length, and setting; a description of the measuring point and its measured height above land surface and/or mean sea level; and methods used in measuring water levels and pumping rates.

3.05 SAMPLING AND RECORDS

A. Logs and Samples

The Contractor shall furnish daily records or logs which will give depth, thickness, and nature of the strata penetrated, water level, and other information that may be requested by the State of California. Driller's report form shall be in the format

required by the State of California. Contractor shall also provide a copy of the log of drilling fluid properties consistent with the Drilling Fluid Plan.

The Contractor shall store samples of all strata penetrated in containers with the depth of strata and thickness noted on the containers as previously described. Samples shall be stored for a minimum of 20 days after submittal of the driller's report to the District's Representative for review. Following the minimum 20-day storage period and after acceptance of the well, at the written direction of the District's Representative, the samples shall either be delivered to the District's Representative or disposed of by the Contractor.

B. Water Analyses

The Contractor shall take precautionary measures at all times to prevent contamination of the well. Upon 24- hour advance notification from the Contractor. Contractor shall deliver water samples to the District's Representative. The District's Representative will collect the water samples and transport them to a State of California certified laboratory to test the samples for the Title 22 Laboratory Analyses as required by the California Department of Public Health.

The District will be responsible for ordering and paying for the water quality tests. The Contractor will be responsible for pumping the water to the surface.

3.06 TESTS FOR PLUMBNESS AND ALIGNMENT OF COMPLETED WELL

The completed well shall be tested for plumbness and alignment using a digital gyroscopic deviation survey. The logging firm shall provide station depth, inclination, azimuth, true vertical depth, departures and plane of closure calculations per methods approved by the American Petroleum Institute (API). Drift or deviation of the casing at each interval shall be calculated and plotted for each of the planes. Maximum allowable deviation (drift) per 100-foot section of the well under this standard shall not exceed two thirds of the smallest inside diameter of that part of the well being tested, or in this well 12 inches per 100 feet. The District, however, requires a more stringent maximum drift requirement allowance of 6 inches per 100 feet.

The Contractor shall guarantee that the well, when completed, shall be sufficiently aligned and plumb for the free installation and operation of a pump and comply with the District's alignment requirement. A well which fails to meet requirements for alignment or plumbness as specified herein will, at the District's Representative's option, be rejected or considered as having lesser value than a well meeting the requirements for plumbness and alignment. In the latter case, the effective diameter of the well will be calculated in accordance with Section C.6 of AWWA A100 (latest edition) to determine its usefulness and an appropriate reduction of payment will be negotiated.

Cost of alignment and plumbness tests shall be included in the Contractor's bid. These tests are not considered part of developing and testing time.

3.07 VIDEO LOG

After final cleanup of the well, and before welding a plate on the top of the casing, the Contractor shall conduct a television inspection of the entire casing and screen assembly. The record of survey shall be recorded on a USB Flash Drive. The survey shall be delivered to the District's Representative for review and storage.

A footage counter accurate to within two feet \pm in 1,000 feet shall be used to indicate on the monitor and video tape distance traveled. Also displayed on the monitor shall be date of inspection and a continuous forward and reverse readout of camera distance from the top of casing.

During inspection, the monitoring technician shall, in addition to audio and video record of conditions, log in writing the location of any defective joints, indication of leaks, cracks, collapsed sections, deposits, and other conditions or data pertinent to the physical condition of the well. Conditions and defects shall be located by footage counter and video clock reference.

3.08 DISINFECTION OF COMPLETED WELL

Well disinfection shall be in accordance with AWWA A100 (latest edition). In the event of conflict between this Section and the AWWA Standards, the requirements of this Section shall prevail.

The Contractor shall disinfect the well as soon as development procedures have been completed. The Contractor shall clean the jobsite immediately preceding disinfection where evidence indicates that construction and development work have not adequately cleaned the well. All oil, grease, soil, and other materials, which could harbor and protect bacteria from disinfectants, shall be removed from the well. Unless prior approval is obtained from District's Representative for employing chemicals or other cleaning method, cleaning shall be by pumping and swabbing. Where test pumping equipment is to be utilized, such equipment shall be installed prior to or during disinfection and shall be thoroughly hosed, scrubbed, or otherwise cleaned of foreign material then rinsed with a chlorine solution prior to installation. The Contractor is responsible for removing or mitigating the effects of all materials introduced into the well during the control of the site.

The chlorine solution used for disinfecting well shall be of such volume, strength, and application that a concentration of at least 100 ppm of chlorine is obtained in all parts of the well water; however, not less than 15 lbs. of 70% HTH, or its equivalent, shall be used. The chlorine solution shall be added while the test pump is still in place and the well surged to help distribute the chlorine solution into the well and surrounding strata. The chlorine solution shall remain in the well for at least four (4) hours.

3.09 COMPLETION AND CLEANUP

A. Capping Well

Except when drilling is in progress, the well shall be kept covered or capped in such a manner as to prevent either tampering with the well or entrance of foreign matter.

Upon completion of all work in connection with development and test pumping, the well shall be capped with a ½ - inch steel plate welded full circumference over the well casing. Temporary capping shall be provided whenever the well casing is otherwise exposed prior to completion of the work. Capping shall meet requirements of the State of California, Department of Industrial Safety, and the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor, and as directed by the District's Representative.

B. Abandonment of Hole

If the Contractor abandons a hole because of loss of tools or other causes which are the Contractor's responsibility, and that prevents completion of a well as specified, the hole shall be completely filled with clay or clay and concrete and the casing removed to a depth of at least 8 feet below ground surface. Abandoned well shall be treated in accordance with California Well Standards (Bulletin 74-90) and local ordinances. Sealing of the hole shall comply with all regulations or requirements of agencies with jurisdiction in this matter.

C. Cleanup

Following completion of work, the Contractor shall remove from jobsite all excess materials, tools, and equipment, and shall legally dispose of all debris resulting from the work.

3.10 ENVIRONMENTAL CONTROL

A. Drilling Fluid Containment

Drilling fluids shall be completely contained in watertight portable basins. Cuttings shall be removed regularly to assure that the fluid volume is sufficient to allow cuttings to settle and allow on drilling fluids that meet the requirement for suspended solids to be circulated down the well bore.

The drilling fluid shall become the property of the Contractor and shall be legally disposed of offsite at the Contractor's expense. The Contractor is responsible for obtaining all necessary easements, rights, and permits pertaining to such disposal.

The drilling fluid tank(s) shall have a volume of at least three times greater than the final well bore volume. The fluid tank(s) shall be located within the area outlined and labeled "Limits of Construction" on the plans.

B. Disposal of Development Water

The Contractor shall submit a water disposal plan for the District's Representative's approval seven (7) calendar days prior to initiation of development pumping. Water, including mud, sand, and debris pumped from the well during development and testing, shall be disposed of in such a manner as not to damage or interfere with work or property of others.

Development water shall be discharged to the existing storm drain manhole and storm drain located in Kaula Drive. Contractor shall submit a Traffic Control Plan as part of the water disposal plan for the District representative's approval.

Prior to discharge into drainage facilities, a temporary settling basin shall be provided that eliminates discharge of mud and/or sediment. Settling basins shall consist of a portable tank. Basins shall have a minimum 60-minute detention time at the design flowrate.

Provisions for energy dissipation of the pumped water shall be employed prior to entering the basins to assure quiescent settling conditions in the basins. Baffles or multiple cells in portable sumps may accomplish this function. Removal of settling basins and sediment shall be accomplished after well development by the Contractor.

The Contractor shall conform to all waste discharge requirements imposed on the District by the California Regional Water Quality Control Board and other governing agencies. All actions necessary to conform to these requirements shall be performed by the Contractor as part of this contract.

C. Cuttings and Drilling Fluid Disposal

All fluids and cuttings shall be removed from the site and legally disposed of at the Contractor's expense.

D. Spillage during Hauling

Spillage resulting from hauling operations along or across any public traveled way (pedestrian or vehicular) shall be removed immediately at the Contractor's expense.

E. Sound Control Requirements

The Contractor shall comply with all local sound control and noise level rules, regulations, and ordinances which apply to any work performed pursuant to the Contract.

Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the Project without said muffler.

The Contractor shall submit a plan for abatement of excessive noise at the well site during drilling operations. Noise level shall be sixty-five decibel maximum at the property line of the nearest homes.

To meet the noise level requirements, a sound wall surrounding the site shall be erected.

F. Storm Water and Non-Storm Water Best Management Practices

In order to protect surface water quality, the Contractor shall implement BMPs as shown on Sheet G5.0 of the Project Plans. Standard erosion and sediment control BMPs are detailed and shall be incorporated into the work to reduce storm water and non-storm water impacts to surface water quality.

3.11 WELL PERFORMANCE GUARANTEES

A. Specific Capacity Guarantee

The District's Representative will determine the 24-hour step and constant flow specific capacity of the well in gallons per minute per foot of drawdown and the transmissivity of the aquifer(s). The methods used by the District's Representative for determining the specific capacity and the transmissivity shall be methods normally used by professional groundwater hydrogeologists; but the specific methods, details of tests, and calculations shall be at the District Representative's option. The specific capacity will be determined for design capacity noted in Paragraph 3.02, Production Well Construction. If the District's Representative determines that the 24-hour specific capacity of the well at the selected pumping rate is not equal to or greater than 0.0004 times the transmissivity in gallons per day per foot, the Contractor shall resume development operations to improve the well specific capacity until it reaches or exceeds 0.0004 times the transmissivity. Well losses calculated from the step tests will be used to establish the well efficiency and verify the transmissivity assessment and need for redevelopment. The well efficiency should be greater than 75%.

All additional pumping tests required to check the well performance shall be at the Contractor's own expense, with no cost to the District. Failure of the Contractor to construct the well as specified so it will meet these guarantees shall be grounds for rejection of the well.

A well which fails to meet requirements for specific capacity as specified herein will, at the District Representative's option, be rejected or considered as having lesser value than a well meeting the requirements for specific capacity. In the latter case, the specific capacity of the well will be used to determine its safe design yield; and an appropriate reduction of payment will be negotiated.

B. Sand Content Guarantee

Rossum Centrifugal Sand Sampler (see Journal of the American Water Works Association, Volume 46, No. 2, February, 1954) shall be used for sand testing. Test shall be witnessed by the District's Representative upon notification by the Contractor, after completion of well development by pumping.

Sand content testing shall be conducted during a short constant rate discharge at the well design capacity. Sand content shall be measured on one minute intervals after the start of the sand content testing. Average sand content shall be 5 parts per million or less within five minutes of the start of the test. Pumping rate during sand content testing shall be at the design rate of the well or at a lower rate selected by the District's Representative.

If the average sand content exceeds 5 parts per million during the first five minutes of testing, the Contractor shall do necessary redevelopment work and repumping of the well until sand content is less than 5 parts per million. It is the Contractor's responsibility to meet this sand content requirement at the conclusion of development pumping. If the Contractor fails to meet these requirements after 48 hours of development pumping, the Contractor shall continue to redevelop the well until the desired sand content is achieved.

A well which fails to meet requirements for sand content as specified herein will, at the District's Representative's option, be rejected or considered as having lesser value than a well meeting the requirements for sand content. In the latter case, the production rate at which the well meets the sand content requirement will be determined by test pumping; and an appropriate reduction of payment will be negotiated.

All additional pumping tests required to check the well performance shall be at the Contractor's own expense, with no cost to the District.

C. Turbidity Guarantee

Turbidity shall be less than five Nephelometric Turbidity Units (NTU) as described in "Standard Methods for Examination of Water and Wastewater" (latest edition).

If the turbidity exceeds the specified value, the Contractor shall undertake necessary redevelopment work and repumping of the well until turbidity is less than specified value.

It is the Contractor's responsibility to meet this turbidity requirement at the conclusion of development pumping. If the Contractor fails to meet these requirements after 24 hours of development pumping, the Contractor shall continue to redevelop the well until the desired turbidity level is achieved.

A well which, following redevelopment, fails to meet requirements for turbidity as specified herein will, at the District Representative's option, be rejected or

considered as having lesser value than a well meeting the requirements for turbidity. In the latter case, the production rate at which the well meets the turbidity requirements will be determined by test pumping; and an appropriate reduction of payment will be negotiated.

All additional pumping tests required to check the well performance shall be at the Contractor's own expense, with no cost to the District.

3.12 EXISTING WELL ABANDONMENT

Abandonment (destruction) of the well shall be in accordance with California Well Standards (Bulletin 74-90) and Sacramento County Environmental Management Wells Program. Sealing of the hole shall comply with all standards and regulations or requirements of the Program. The Contractor shall be responsible for submitting a well-destruction plan to Sacramento County and to the District for approval.

****END OF SECTION****