

MORONGO
BAND OF
MISSION
INDIANS



A SOVEREIGN NATION

**Contract Documents and
Specifications for Drilling, Construction,
Development and Testing of
Domestic Well #7 and #8**

MORONGO BAND OF MISSION INDIANS

December 2023

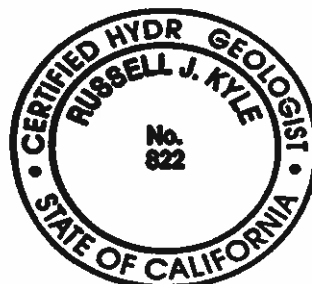
12700 Pumarra Rd, Banning CA 92220



Shane Bloomfield, P.E (C-77435)



Russ Kyle, PG, CHG



**INVITING BIDS FOR
DRILLING, CONSTRUCTION, DEVELOPMENT and
TESTING OF DOMESTIC WELL #7 AND #8
MORONGO BAND OF MISSION INDIANS**

NOTICE IS HEREBY GIVEN that the Morongo Band of Mission Indians [MBMI] as Owner, invites sealed bids for the above-stated project and will receive such bids at the MBMI Tribal Administration Bldg, up to the hour of **4:00 P.M. on the 29th day of January, 2024**. Bids shall be mailed to the MBMI Tribal Administration Bldg. located at: 12700 Pumarra Rd. Banning, CA 92220 clearly marked as follows:

SEALED PROPOSAL FOR

**MORONGO BAND OF MISSION INDIANS DRILLING, CONSTRUCTION, DEVELOPMENT
and TESTING OF DOMESTIC WELL #7 AND #8.**

DO NOT OPEN WITH REGULAR MAIL
MORONGO BAND OF MISSION INDIANS
ATT: Mr. John Covington—Water Department Manager
12700 Pumarra Rd, Banning CA 92220

One set of Contract Documents, and Technical Specifications are enclosed with this invitation. If additional copies or information is required, contact Albert A. Webb and Associates, the Owner's Engineer, at the following address:

Contact: Albert A. Webb and Associates
 Attention: Shane Bloomfield, PE Project Manager
 3788 McCray Street, Riverside CA, 93001
 or: shane.bloomfield@webbassociates.com (951-248-4293)

The work generally consists of the following:

The work to be performed under this Contract consists of furnishing all labor, equipment, materials, and forces necessary for the drilling, construction, development, and testing of two (2) new potable water supply wells, designated Domestic Water Supply Well Nos. 7 and 8, for the Morongo Band of Mission Indians.

Bids must be prepared in conformance with the Instructions to Bidders and submitted in a sealed envelope plainly marked on the outside as noted above. The bid must be accompanied by a Bid security made payable to Owner in an amount of 5% of Bidder's maximum Bid price in the form of a certified check or money order or a Bid bond as outlined in the General Conditions.

The successful bidder shall furnish to the Owner at the time of execution of the contract a Payment Bond approved by the Owner in an amount equal to one hundred percent (100%) of the contract price. The successful bidder shall also furnish to the Owner at the time of execution of the contract a Performance Bond approved by the Owner in an amount equal to one hundred percent (100%) of the contract price.

The Owner reserves the right to reject any or all bids, to waive any irregularity, and to take all bids under advisement for a period of forty-five days.

**DRILLING, CONSTRUCTION, DEVELOPMENT and TESTING OF
DOMESTIC WELL #7 AND #8
SPECIFICATIONS INDEX**

SECTION

NAME

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C-410.....	BID FORM FOR CONSTRUCTION CONTRACTS
C-430.....	BID BOND
C-450.....	NON-COLLUSION AFFIDAVIT
C-520.....	SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)
C-610.....	PERFORMANCE BOND
C-615.....	PAYMENT BOND
C-700.....	GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT
01300	TECHNICAL SPECIFICATIONS (Kyle Groundwater)

INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACTS

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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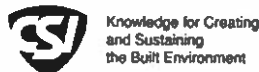
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AMERICAN SOCIETY OF CIVIL ENGINEERS

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The Associated General Contractors of America



Construction Specifications Institute

INSTRUCTIONS TO BIDDERS

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ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, contractor to include with Bid written evidence such as a statement of qualifications, financial data, previous relevant project experience, and present commitments.

A. Relevant Experience shall include contacts, telephone numbers, value of work, contract period and actual time to complete the work and value of Change Orders.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions* **THIS SECTION DOES NOT APPLY**

A. The following reports listed below identify:

♦ Intentionally Left Blank

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.01.A are available upon request. These reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified in 4.01A. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.02 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

4.03 *Hazardous Environmental Condition*

A. No Hazardous Environmental Condition has been identified at the Site.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in Paragraph 4.06 of the General Conditions.

4.05 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies at Bidder's expense. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.

4.06 Reference is made to Article 7 of the General Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.

A. Other Work being performed in the area of the Project is as follows:

1. None.

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addenda.

B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in 4.01 as provided in Paragraph 4.02 of the General Conditions.;

E. obtain and carefully study (or accept consequences of not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder; and

J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 A mandatory Pre-Bid conference will be held at 10:00 a.m. local time on **January 15, 2024**. The pre-bid will be held at 12700 Pumarra Rd. Banning Ca 92220 Morongo Tribal Administration Complex. 1st floor conference room. Please check in with the receptionist, for an ID badge. Representatives of Owner and Engineer will be present to discuss the Project in more detail. All contractors will have to check in at the Guard Kiosk when entering the Reservation. Photo ID is required. Destination will be the Tribal Administration Complex to meet with John Covington. Bidders are required to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents.

Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 - BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's maximum Bid price and in the form of a certified check or bank money order or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 Submit a project schedule indicating the number of days to completion (maximum 180 calendar days to complete both wells or less is highly desirable), or the dates by which, the Work is to be substantially completed and ready for final payment as set forth in the Agreement (Schedule and Milestones). Both wells may be drilled simultaneously if contractor has the ability to perform such services.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages: Contractor and Owner recognize that time is of the essence to complete the project and that Owner will suffer financial loss if the Work is not completed within the times specified in the Notice To Proceed , plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$500.00 for each day that expires after the time specified in the Notice To Proceed for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$1000.00 for each day that expires after the time specified for completion and readiness for final payment until the Work is completed and ready for final payment

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, or those substitute or "or-equal" materials and equipment approved by Engineer and identified by Addendum. The materials and equipment described in the Bidding Documents establish a standard of required type, function, and quality to be met by any proposed substitute or "or-equal" item. No item of material or equipment will be considered by Engineer as a substitute or "or-equal" unless written request for approval has been submitted by Bidder and has been received by Engineer at least 15 days prior to the date for receipt of Bids. Each such request shall conform to the requirements of Article 6.05 of the General Conditions. The burden of proof of the merit of the proposed item is upon Bidder. Engineer's decision of approval or disapproval of a proposed item will be final. If Engineer approves any proposed item, such approval will be set forth in an Addendum issued to all prospective Bidders. Bidders shall not rely upon approvals made in any other manner.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 Contractor shall submit along with Bid the identity of certain Subcontractors, Suppliers, individuals, or entities. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make the requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.

12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents. Additional copies may be obtained from Engineer.

13.02 All blanks on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid Form. The official address of the joint venture shall be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 Unit Proce

- A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule.
- B. The total of all estimated prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

ARTICLE 15 - SUBMITTAL OF BID

15.01 With each copy of the Bidding Documents, a Bidder is furnished one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security.

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the Advertisement or Invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to:

ATT: Mr. John Covington—Water Department Manager
12700 Pumarra Rd, Banning CA 92220

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 24 hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 - OPENING OF BIDS

17.01 The sealed bids will be publicly opened and announced at **10:00 AM on January 30th, 2024** at the Tribal Administration Building. Attendance is optional.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work.

19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project and is the lowest price.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 7 calendar days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within 7 calendar days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with appropriate identification.

ARTICLE 22 - SALES AND USE TAXES

22.01 Owner is exempt from California state sales and use taxes on materials and equipment to be incorporated in the Work. Said taxes shall not be included in the Bid. Refer to Paragraph 6.10 of the General Conditions for additional information.

ARTICLE 23 - RETAINAGE

23.01 Provisions concerning Contractor's rights to deposit securities in lieu of retainage are set forth in the Agreement.

ARTICLE 24 - WAGE REQUIREMENTS

24.01 Notice is hereby given that pursuant to the US Treasury Department, funding for this project requires all grant recipients [Morongo Band of Mission Indians] to be in compliance with 2 CFR, Part 200 § 317-327 of said statute. The Davis Bacon Act sets forth the procedures for making and applying such determination of prevailing wage rates and fringe benefits and any other Federal statute providing for determination of such wages by the Secretary of Labor in accordance with the provisions of the Davis Bacon Act. **This project is NOT subject to conform with the requirements of the Davis Bacon Act or any prevailing wage statute.**

24.02 Statutory Penalty for Unauthorized Overtime Work: In accordance with 1813 of the California Labor Code, the CONTRACTOR shall as a penalty to the State or political subdivision on whose behalf the Contract is made or awarded, forfeit twenty-five dollars (\$25.00) for each worker employed in the execution of the Contract by the CONTRACTOR or by any Subcontractor for each calendar day during which said worker is required or permitted to work more than eight hours in any one calendar day and forty hours in any one calendar week in violation of 1810-1815 of the California Labor Code.

24.03 Workers' Compensation Notice: As required by 1860 of the California Labor Code and in accordance with the provisions of 3700 of the Labor Code, every CONTRACTOR will be required to secure the payment of workers' compensation to its employees.

24.04 Workers' Compensation Certification by Contractor: In accordance with 1861 of the California Labor Code, the CONTRACTOR shall furnish the OWNER a notarized statement as follows: "I am aware of the provisions of 3700 of the Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract."

24.05 Apprenticeship Requirements: CONTRACTOR agrees to comply with 1777.5, 1777.6 and 1777.7 of the California Labor Code relating to the employment of apprentices. The responsibility for compliance with these provisions is fixed with the prime CONTRACTOR for all apprenticeship occupations. Under these sections of the law, CONTRACTORS and Subcontractors must employ apprentices in apprenticeship occupations, where journeymen in the craft are employed on the public work, in a ratio of not less than one apprentice hour for each five journeymen hours (unless an exemption is granted in accordance with 1777.5) and CONTRACTORS and Subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public work solely on the ground of race, religious creed, color, national origin, ancestry, sex, or age, except as provided in

3077 of the Labor Code. Only apprentices, as defined in 3077, which provides that an apprentice must be at least 16 years of age, who are in training under apprenticeship standards and who have signed written apprentice agreements will be employed on public works in apprenticeship occupations.

24.06 Payroll Records: CONTRACTOR shall keep accurate payroll records on forms provided by the Division of Labor Standards Enforcement, or alternatively, the CONTRACTOR shall keep accurate payroll records containing the same information. Said information shall include, but not be limited to, a record of the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and actual wages paid to each journeyman, apprentice, or worker employed by the CONTRACTOR. Such record shall be made available for inspection at all reasonable hours, and a copy shall be made available to employee or his authorized representative, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards in compliance with California Labor Code, Section 1776. Upon written notice from the OWNER or the Division of Labor Standards Enforcement, the CONTRACTOR shall, within ten (10) days, file with the OWNER a certified copy of the payroll records. The CONTRACTOR shall cause an identical clause to be included in every subcontract for the Work.

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BID FORM FOR CONSTRUCTION CONTRACTS

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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The Associated General Contractors of America



Knowledge for Creating
and Sustaining
the Built Environment

Construction Specifications Institute

BID FORM
DRILLING, CONSTRUCTION, DEVELOPMENT and TESTING of
DOMESTIC WELL #7 AND #8 for the Morongo Band of
Mission Indians

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Morongo Band of Mission Indians
c/o John Covington
12700 Pumarra Rd
Banning CA 92220

The sealed bids will be publicly opened and announced at 10:00 AM on January 30th, 2024 at the above mentioned Administration Building. Attendance is optional.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

<u>Addendum No.</u>	<u>Addendum Date</u>
---------------------	----------------------

_____	_____
_____	_____
_____	_____

1. The Bidders shall submit a price for all bid item numbers.
 2. Award, if made, will be all Bid Items combined and will be made to one bidder only. However, pursuant to Public Contract Code Section 20103.8, the lowest bid will be determined on the lowest total bid price for all Bid Items. In the event that the Owner deletes any of the Alternative Bid Items, the project completion time will not change.
- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site.
-

- E. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- K. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – FURTHER REPRESENTATIONS

4.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation;
 - B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
 - C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
 - D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.
-

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s).

A. Format for Lump Sum Bid:

\$ _____
(Dollars)

(Numerical)

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Article 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of a certified check or bank money order or bid bond
- B. List of Proposed Subcontractors
- C. List of Proposed Suppliers
- D. List of Project References
- E. Required Bidder Qualification Statement with Supporting Data
- F. Affidavit of Non-Collusion

ARTICLE 8 – NOTES TO USER (Left Intentionally Blank)

ARTICLE 9 – DEFINED TERMS

9.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders and the General Conditions.

ARTICLE 10 – BID SUBMITTAL

10.01 This Bid submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest: _____
(Signature of Corporate Secretary)

Date of Qualification to do business in: *Banning California, Riverside County.* _____

A Joint Venture

Name of Joint Venturer: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Bidder's Business address: _____

Phone: _____ Email: _____

Submitted on this _____ day of _____, 2024

State Contractor License No. _____. (If applicable)

BID SCHEDULE

DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING MORONGO BAND OF MISSION INDIANS WELL NOS. 7 AND 8

BIDDER NAME: _____

Item No.	Description	Est. Qty.	Unit	Unit Price in Words	Unit Price in Numbers	Extended Price
WELL NO. 7						
101	Mobilization, demobilization, site preparation, clean-up, and site restoration.	1	LS			
102	Compliance with discharge requirements, including settling tanks and conveyance.	1	LS			
103	Provide noise mitigation.	1	LS			
104	Testing and disposal of cuttings from borehole cleaning and enlargement.	1	LS			
105	Drill 54-inch diameter conductor borehole, install 42-inch OD conductor casing, cement into place (+0.5 to 50 feet).	50.5	FT			
106	Drill 17.5-inch diameter borehole (50 to 980 feet).	930	FT			
107	Conduct borehole geophysical surveys, as specified.	1	LS			
108	Install isolated aquifer zone tool, upper and lower seals, and gravel envelope. Provide initial development and demonstrate seal integrity.	4	EA			
109	Pump isolated aquifer zones (estimate 18 hours per zone).	72	HR			
110	Provide laboratory analyses for isolated aquifer zone testing.	4	EA			
111	Ream 17.5-inch borehole to 38-inch diameter (50 to 220 feet).	170	FT			
112	Ream 17.5-inch borehole to 30-inch diameter (220 to 980 feet).	760	FT			
113	Provide caliper survey of reamed borehole	1	LS			
114	Furnish and install 20-inch ID x 3/8-inch wall ASTM A606 Type 4 HSLA steel blank well casing (+2 to 220 feet).	222	FT			
115	Furnish and install 20-inch ID x 5/16-inch wall ASTM A606 Type 4 HSLA steel blank well casing (220 to 300 feet).	80	FT			

[illegible]

Item No.	Description	Est. Qty.	Unit	Unit Price in Words	Unit Price in Numbers	Extended Price
WELL NO. 8						
201	Mobilization, demobilization, site preparation, clean-up, and site restoration.	1	LS			
202	Compliance with discharge requirements, including settling tanks and conveyance.	1	LS			
203	Provide noise mitigation.	1	LS			
204	Testing and disposal of cuttings from borehole cleaning and enlargement.	1	LS			
205	Drill 54-inch diameter conductor borehole, install 42-inch OD conductor casing, cement into place (+0.5 to 50 feet).	50.5	FT			
206	Drill 17.5-inch diameter borehole (50 to 1,300 feet).	1,250	FT			
207	Conduct borehole geophysical surveys, as specified.	1	LS			
208	Install isolated aquifer zone tool, upper and lower seals, and gravel envelope. Provide initial development and demonstrate seal integrity.	4	EA			
209	Pump isolated aquifer zones (estimate 18 hours per zone).	72	HR			
210	Provide laboratory analyses for isolated aquifer zone testing.	4	EA			
211	Ream 17.5-inch borehole to 38-inch diameter (50 to 220 feet).	170	FT			
212	Ream 17.5-inch borehole to 30-inch diameter (220 to 1,300 feet).	1,080	FT			
213	Provide caliper survey of reamed borehole	1	LS			
214	Furnish and install 20-inch ID x 3/8-inch wall ASTM A606 Type 4 HSLA steel blank well casing (+2 to 220 feet).	222	FT			
215	Furnish and install 20-inch ID x 5/16-inch wall ASTM A606 Type 4 HSLA steel blank well casing (220 to 800 feet).	580	FT			
216	Furnish and install 20-inch ID x 5/16-inch wall ASTM A606 Type 4 HSLA steel Full louvered well screen with 0.080-inch slot (800 to 1,270 feet).	470	FT			
217	Furnish and install 20-inch ID x 5/16-inch wall ASTM A606 Type 4 HSLA steel blank well casing with end plate (1,270 to 1,280 feet).	10	FT			
218	Furnish and install 2-inch Sch. 40 mild steel sounding tube and 2-foot connection box (+1 to 798 feet).	799	FT			

Item No.	Description	Est. Qty.	Unit	Unit Price in Words	Unit Price in Numbers	Extended Price
219	Furnish and install two (2) 3-inch Sch. 40 mild steel gravel fill pipes (+1 to 210 feet).	422	FT			
220	Furnish and install specified gravel envelope material and transition sand.	1,100	FT			
221	Furnish and install annular cement seal.	200	FT			
222	Provide initial well development by focused intake pumping and swabbing.	144	HR			
223	Provide, install, and remove development test pump and motor.	1	LS			
224	Provide final well development by pumping and surging.	60	HR			
225	Provide aquifer pumping tests (8-hour step, 24-hour constant rate, 4-hour recovery).	36	HR			
226	Provide flowmeter spinner survey.	1	LS			
227	Provide Title 22 laboratory analyses.	1	LS			
228	Provide dual-cam downhole video survey.	1	LS			
229	Provide plumbness and alignment surveys.	1	LS			
230	Provide well disinfection.	1	LS			
231	Complete wellhead as designed.	1	LS			
TOTAL FOR BID ITEMS 201 TO 231 (WELL NO. 8):						

TOTAL BID PRICE ITEMS WELL NO. 7 AND 8: \$ _____

DOLLARS

(DOLLAR AMOUNT IN WRITTEN FORM)

* Prices include any amount payable by the Tribe for taxes by reason of the Contract.

BIDDER'S NAME

All specified cash allowances are included in the price(s) set forth above and have been computed in accordance with Article 11 of the General Conditions.

BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address): Morongo Band of Mission Indians, 12700 Pumarra Rd, Banning CA 92220

BID

Bid Due Date: _____

Project (Brief Description Including Location): Drilling, Construction, Development and Testing of Domestic Well #7 and #8 for the Morongo Band of Mission Indians, Banning, California 92220.

BOND

Bond Number: _____

Date (Not later than Bid due date): _____

Penal sum _____

(Words)

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER**SURETY**

(Seal)
Bidder's Name and Corporate Seal

(Seal)
Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

Note: Above addresses are to be used for giving required notice.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

PENAL SUM FORM

3. This obligation shall be null and void if:
- 31. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 32. All Bids are rejected by Owner, or
 - 33. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project, and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

**NON COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER
AND SUBMITTED WITH BID**
(Public Contract Code Section 7106)

State of California

County of _____

_____, being first duly sworn, deposes and says
that he or she is _____ of

_____, the party making the foregoing bid, that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

By _____

Subscribed and sworn to before me on _____
(date)

(Notary Public)

(seal)

**FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR
CONSTRUCTION CONTRACT (STIPULATED PRICE)**

THIS AGREEMENT FOR PROFESSIONAL SERVICES ("Agreement"), is made and entered into this XXX day of XXX 2024 ("Effective Date") by and between **MORONGO BAND OF MISSION INDIANS**, a federally recognized Indian tribe ("Client") and **XXXX Drilling and Pump Inc, a California Licensed Well Driller, Machinery, and Pump Company** ("Contractor"). Each of Client and Contractor are a "Party" and together referred to herein as "the Parties".

RECITALS

WHEREAS, Client desires to receive, and Contractor desires to provide Professional Services located on Client's property which is located on the Morongo Indian Reservation at the following: 12700 Pumarra Rd, Banning CA 92220 for the Drilling of Well 7 and 8 Project ("the Project").

WHEREAS, it is mutually understood between the Parties, that Contractor is qualified and licensed to perform the services and has a unique understanding of, and ability to carry out, the tasks related to such services in accordance with the terms of this Agreement. Contractor's license number XXXXX.

NOW, THEREFORE, in consideration of the foregoing recitals and the mutual covenants and conditions contained herein, the Parties agree as follows:

1. SCOPE OF SERVICES

Contractor promises and agrees to furnish to Client all labor, materials, tools, equipment, services, and incidental and customary work necessary to supply the professional services fully and adequately for the Project ("the Services"). The Services are more particularly described in Exhibit "A" attached hereto and incorporated herein by reference. All Services shall be subject to, and performed in accordance with this Agreement, the exhibits attached hereto and incorporated herein by reference, and all applicable local, state, and federal laws, rules, and regulations. No portion of the Services shall be deemed delivered until accepted by Client.

Exhibit List:

Exhibit A – Contractor's Proposal – Scope of Work
Exhibit B – Schedule and Milestones
Exhibit C - Compensation and Rates
Exhibit D – Contract Documents, Specifications and General Conditions

Should there be any conflict between the terms in this Agreement and Exhibit D, [Contract Documents and Specifications and General Conditions], the Contract Documents and Specifications and General Conditions shall take precedent over the terms in this Agreement.

2. SCHEDULE OF PERFORMANCE

Contractor shall perform all services within the timeframe and in accordance with the schedule and milestones set forth on Exhibit "B" attached. Time is of the essence and Contractor shall perform all Services in consultation with Client, and in such manner, sequence, and timing to best coordinate with Client's requirements for the Project. During the course of the Project, anticipated and unanticipated events may impact the Schedule and shall not give rise to an increase in the compensation to Contractor without prior written approval from Client.

3. TERM

The term of this Agreement shall be from the Effective Date through the date of completion of the Services, including any Additional Services (as defined below), unless terminated earlier as provided herein.

4. NOTICE TO PROCEED

Client shall provide Contractor with written notice reasonably in advance of the date at which the Services commence if such date is different than the date of the Agreement.

5. STANDARD OF CARE

Contractor represents and warrants that it has the technical and professional personnel to perform the Services. Contractor shall perform all Services under this Agreement in a skillful and competent manner, consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California. Contractor represents and maintains that it is skilled in the areas of expertise necessary to perform the Services. Finally, Contractor represents that it, its employees, and subcontractors have all licenses, permits, qualifications and approvals of whatever nature that are legally required to perform the Services, and that such licenses and approvals shall be maintained throughout the term of this Agreement. As provided for in the indemnification provisions of this Agreement, Contractor shall perform, at its own cost and expense and without reimbursement from Client, any services necessary to correct errors or omissions which are caused by Contractor for failure to comply with the standard of care provided in this Section 5.

6. ADDITIONAL SERVICES

Client may request and Contractor shall furnish, additional services in addition to the Services ("**Additional Services**"). As additional services are requested by Client, this Agreement may be modified upon the mutual consent of the Parties as evidenced by execution of a Change Order by authorized representatives of both Parties, setting forth the additional scope of services to be performed, the performance time schedule, and the compensation for such services. No additional services will be provided, authorized, or compensated unless approved in writing by both Parties.

7. STATUS OF CONTRACTOR AS INDEPENDENT CONTRACTOR

Client retains Contractor on an independent contractor basis and not as a partner or employee of Client. Contractor shall not act as an officer or agent of the Client and has no authority to act for or bind or obligate Client in any manner whatsoever. The Services shall be performed by Contractor or under its supervision. Contractor will determine the means, methods, and details of performing the Services subject to the requirements of this Agreement. Contractor shall pay all wages, salaries, taxes and other amounts due to their employees in connection with its performance of Services under this Agreement and as required by law. Contractor shall be responsible for all obligations but not limited to: social security taxes, income tax withholding, unemployment insurance, disability insurance, and workers' compensation insurance. Contractor retains the right to perform similar or different services for others during the term of this Agreement.

8. KEY PERSONNEL; REPRESENTATIVES

- a. **Key Personnel.** Contractor has represented to Client those certain key personnel who will perform and coordinate the Services under this Agreement. Should one or more of such key personnel become unavailable, Contractor may substitute other personnel of at least equal competence upon prior written approval of Client. If Client and Contractor cannot agree as to the substitution of key personnel, Client shall be entitled to terminate this Agreement for cause. As discussed below, any personnel who fail or refuse to perform the Services in a manner acceptable to Client, or who are determined by Client to be uncooperative, incompetent, a threat to the adequate or timely completion of the Project or a threat to the safety of persons or property, those such persons shall be promptly removed from the Project by Contractor at the request of Client. The key personnel for performance of this Agreement are as follows: XXXXXX—Project Manager.
- b. **Contractor Representative.** Contractor hereby designates XXXXXX or his or her designee, to act as its representative for the performance of this Agreement ("Contractor's Representative"). Contractor's Representative shall have full authority to represent and act on behalf of the Contractor for all purposes under this Agreement. The Contractor's Representative shall supervise and direct the Services, using his best skill and attention, and shall be responsible for all means, methods, techniques, sequences, and procedures and for the satisfactory coordination of all portions of the Services under this Agreement.
- c. **Client Representative.** Client hereby designates and affirms John L. Covington, Water Department Manager/Administrator, or his designee as the primary representative to facilitate the Project as specified under this Agreement.

9. COMPLIANCE WITH LAWS

Contractor shall comply with all Federal, tribal, state, and local laws, rules, codes, regulations, and ordinances applicable to the Services including Morongo tribal codes, policies, and procedures. Contractor shall defend and indemnify Client in any suit arising out of Contractor's negligent acts or omissions under this provision.

10. COMPENSATION

- a. **Payment for Services.** Contractor shall receive compensation in the amount set forth on Exhibit "C". The Services shall be performed on a fixed price basis and the total compensation shall not exceed the fixed price without prior written approval from Client.
- b. **Payment for Additional Services.** Provided that additional services are agreed upon and authorized by Client in accordance with the terms of this Agreement, Contractor shall be compensated for Additional Services at (i) an amount mutually agreed to by the Parties set forth in the Change Order for Additional Services, or (ii) in accordance with the rates set forth on Exhibit "C".
- c. **Reimbursable Expenses.** Except as otherwise provided in Exhibit "C", the compensation for Services shall be inclusive of all disbursements, costs and expenses to be incurred by Contractor and Client shall not be required to reimburse Contractor for any disbursements, costs and expenses so incurred.

Contractor must submit monthly statements as identified in Exhibit "C" for Services and Additional Services rendered in the prior month. It is intended that Client will make payments to Contractor within 30 days of receipt of invoice.

11. TERMINATION AND SUSPENSION

Termination shall be as set forth in Article 15 of the General Conditions in Exhibit E

12. OWNERSHIP AND USE OF PROJECT DOCUMENTS

All surveys, specifications, field data, test data, investigations, reviews and analysis, reports, documents, presentations, renderings (including those in electronic format) printouts, charts, plans, prints, drawings, molds (including without limitation, 3D models and CAD files), photographs, slides, graphics, video and audio recordings, models and notes relating to the Services (collectively, the "Project Documents") are and shall remain, together with all copyright privileges, the property of Client. Contractor shall be permitted to retain copies, including reproducible copies and intermediate drafts, and any original field data as required by law. Client shall have the unrestricted right, without the consent of Contractor, to use the Project Documents in connection with the Project. Client agrees that if any of the Project Documents are modified in connection with this Project or used by Client on a separate project, and Contractor has not authorized such modification or reuse or is not retained to provide services in connection with such modification or reuse, Client shall indemnify and hold Contractor harmless from and against any and all third party claims filed against Contractor arising out of (but only to the extent of) such modification or reuse.

13. INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Client, Morongo Band of Mission Indians, and each of their members, managers, partners, shareholders, lenders, and the employees of any of them (collectively, the "Indemnitees") from and against claims, demands, liabilities, liens, damages, losses and expenses, including but not limited to attorneys' fees (each a "Claim"),

arising out of or resulting from the Services. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 13. This indemnity shall not apply to the extent any Claim is caused by the sole negligence or the willful misconduct of a party indemnified hereunder. In claims against any person or entity indemnified under this Section 13 by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 13 shall not be limited by the insurance required by this Agreement or any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

14. INSURANCE REQUIREMENTS

Contractor shall maintain and shall cause its subcontractors to maintain, the insurance as listed in Article 20 of the General Conditions in Exhibit E.

15. BOND REQUIREMENTS

- a. If the Client requires the Contractor to obtain performance and labor and material payment bonds, then the Contractor shall obtain such bonds and the Contractor shall cause such bonds to meet all statutory requirements of the jurisdiction in which the Project is located, shall be in form and substance satisfactory to Client, and shall, at a minimum comply, with the following specific requirements:
 - i. each bond shall be executed by a responsible surety licensed in the jurisdiction in which the Project is located having policy holder ratings not lower than "A" and financing ratings not lower than "X" in Best's Insurance Guide;
 - ii. each bond shall remain in effect for a period of not less than one (1) year following the date of completion of the Project or the time required to resolve any items of incomplete work and the payment of any disputed amounts, whichever time period is longer;
 - iii. each bond shall each be in an amount equal to the amount of the Services under the Agreement;
 - iv. The Contractor shall require the attorney-in-fact who executes the bonds on behalf of the surety to affix thereto a certified and current copy of such person's power of attorney indicating the monetary limit of such power; and
- b. Each bond shall include the following:
 - i. the surety's bond number;
 - ii. a provision by which the surety consents to and waives notice of any addition, alteration, omission, change or other modification of the Agreement;
 - iii. a provision by which the surety agrees that any addition, alteration, omission, change, extension of time, or other modification of the Agreement shall not release the surety of its obligations under the bond, and that any notice requirement relating to such matters is hereby waived;
 - iv. a provision by which surety agrees that it is obligated under the bond to any successor, grantee, or assignee of the Client;

- v. a mailing address and responsible party for the surety and a provision by which the surety agrees to accept all notices in connection with such bond at such address addressed to such responsible party; and
- vi. with respect to the performance bond, a provision that provides for each financing party, either directly or through an agent, to be an obligee under such performance bond.

16. LIENS

The Contractor shall not permit any laborer's, materialmen's, mechanic's or other similar liens to be filed or otherwise imposed on any part of the Project or the property on which the Project is performed by Contractor, its subcontractors, sub-subcontractors, suppliers, laborers or materialmen. If any such laborer's, materialmen's, mechanic's, or other similar lien or claim is filed and if the Contractor does not cause such lien to be released or discharged (by payment, bonding or otherwise and as promptly as possible) within ten (10) days after written notice from the Client, then the Client shall have the right to pay all sums necessary to obtain such release or discharge and deduct all amounts so paid from the Contractor's compensation. The Contractor shall indemnify and hold harmless the Client from all claims, losses, demands, causes of action or suits of whatever nature arising out of such lien or that part of the Services covered thereby unless the Client has failed to pay the Contractor amounts that are due and owing under the Agreement for the portion of the Services that is the basis of such lien. In the event a lien of any type is filed against the Contractor or the Services pertaining to the Project, the Client has the unconditional right to investigate the reason for said lien. If the Client exercises such right, then the Contractor shall fully disclose the circumstances surrounding the lien, and the Contractor shall require all subcontractors, sub-subcontractors, suppliers, laborers and materialmen to comply with this requirement. The Contractor shall immediately notify any bonding company or other surety, as applicable, of any lien.

17. MISCELLANEOUS TERMS

- a. **Governing Law and Dispute Resolution.** This Agreement shall be governed by (and thus interpreted in accordance with) applicable Federal, tribal, and the laws of the State of California law, in that order, without regard to conflict of law principles.
- b. **Attorneys' Fees.** In the event of litigation to enforce arbitration in accordance with Section 16.01 of the General Conditions in Exhibit E, the prevailing party shall be entitled to an award of reasonable attorney's fees in addition to such other relief as may be granted.
- c. **Confidentiality.** Contractor shall treat all information, discussions, work papers, drawings, records, recordings, notices, plans, specifications, designs, memoranda, and all materials relating to the Project (whether developed or prepared by or on behalf of Client, Contractor or its subcontractors (of any tier) and all information supplied to Contractor by Client as strictly confidential and proprietary information of Client ("Confidential Information"). Contractor shall not permit the release of Confidential Information to other parties or make any public announcement or publicity releases without Client's prior written authorization, and such Confidential Information shall not be used or discussed by Contractor (except as required to complete the Project) without Client's prior written approval. Contractor shall also require its subcontractors (of every tier) to comply with this requirement. Contractor agrees not to make, copy or place any Confidential Information in documentary or other written or representational form without properly marking same with the "PROPERTY OF MORONGO BAND OF MISSION INDIANS - CONFIDENTIAL, NOT TO BE

DISCLOSED". Contractor agrees to take any and all action appropriate by instructions, agreement or otherwise to and with all of its employees, representatives or others to whom any Confidential Information may be disclosed in accordance with the terms of this Agreement and agrees to take such protective measures as may be necessary to preserve the confidentiality of the Confidential Information. Upon expiration or termination of this Agreement or upon the request of Client, Contractor shall promptly return to Client all Confidential Information in the possession or control of Contractor or its representatives or subcontractors (of any tier) including without limitation, any materials or documentation created by them, containing, referencing or using in any manner or form whatsoever any Confidential Information. Contractor shall not retain any copies of such Confidential Information.

- d. **Assignment.** Contractor shall not, voluntarily or involuntarily, or by operation of law, assign all, or any part, of this Agreement, nor any Services, nor any payments due or to become due hereunder, without first obtaining Client's written consent, which consent may be withheld in Client's sole and absolute discretion. Client shall have the right to assign its interest in this Agreement at any time without the prior consent of Contractor and upon such assignment, this Agreement shall inure to the benefit of such successor or assign, and Client shall be deemed released of all liabilities and obligations arising out of this Agreement (except for any compensation due Contractor for Services performed prior to the date of the assignment). Contractor agrees to consent in writing to any assignment by Client of this Agreement or Client's rights and obligations hereunder, in whole or in part. In connection with any financing obtained by Client, Contractor shall execute and deliver any and all instruments required by Client or its lender. Subject to the foregoing, this Agreement shall be binding upon and shall inure to the benefit of the respective heirs, successors, administrators and assigns of the respective Parties.
- e. **Notice.** Except as otherwise provided herein, all notices or other communications required or permitted hereunder shall be in writing, and shall be delivered or sent, by any of the following methods: (i) personal delivery; (ii) overnight commercial carrier or delivery service; or (iii) registered or certified mail (with postage prepaid and return receipt requested) or regular first-class mail with postage prepaid.
- f. **Interpretation.** The titles used in this agreement are for general reference only and are not a part of the Agreement. This Agreement shall be interpreted as though prepared by both Parties.
- g. **No Waiver.** The failure of either Party to insist upon strict performance of any provision(s) of this Agreement or the granting of any extension of time for performance shall not be deemed a waiver of any deadline or any rights or remedies in the event of a subsequent failure to perform in timely fashion or in strict accordance with the terms of this Agreement, nor shall it be deemed to be a waiver of any other provision hereof.
- h. **Severability.** In the event any provision or part of this Agreement shall be determined to be invalid, illegal, void or unenforceable, such provision or part shall be deemed severable from the remaining provisions and parts of this Agreement, which shall remain in full force and effect.

- i. **Entire Agreement.** This Agreement is the entire integrated agreement of the Parties with respect to the subject matter hereof and contains all of the rights, privileges and obligations of the Parties and shall replace and supersede all prior negotiations, proposals, understandings, agreements, whether verbal, written or otherwise, if any, including letters of intent and proposals for services between Client and Contractor concerning the Project.
- j. **Authority to Execute.** Contractor has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each Party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective Party.
- k. **Counterparts.** This Agreement may be signed in one or more counterparts, each of which shall be deemed an original and all of which constitute one and the same document.

IN WITNESS WHEREOF, the Parties hereto have made and executed this Agreement the day and year first above written.

Morongo Band of Mission Indians

By:

Signature and Title

Date

Print

CONTRACTOR

By:

Signature and Title

Date

Print

EXHIBIT A

[Attached Proposal]

EXHIBIT B

[Attached Schedule and Milestones]

EXHIBIT C

[Compensation and Rates]

1. Compensation for Services:

The Compensation for the Services shall not exceed [WRITTEN DOLLAR AMOUNT] (NUMERICAL DOLLAR AMOUNT).

2. Application for Payments:

The schedule of values established as provided will serve as the basis for progress payments and will be incorporated into a form for payment acceptable to the Client. Progress payments will be based unit price work on completion of items listed in the scope of work-fee schedule. At least 20 days before each progress payment is due (but not more often than once a month), Contractor shall submit to Client for review payment covering the work completed and accompanied by such supporting documentation. If payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at the site or at another location agreed to in writing, the payment request shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Client has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Client's interest therein, all of which must be satisfactory to Client.

Client may refuse whole or any part of any payment because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Client's opinion to protect Client from loss because of the following, however not all-inclusive:

- a) the work is defective, or completed work has been damaged, requiring correction or replacement.
- b) the contract price has been reduced by change orders.
- c) Client has been required to correct defective work
- d) Contractor has failed to complete work as identified in Contractor's proposal.
- e) Claims have been made against Client on account of Contractors performance or finishing of said work.
- f) Lien (s) have been filed in connection with the work, except where Contractor has delivered a specific bond satisfactory to Client to secure the satisfaction and discharge of such lien (s).

If Client refuses to make payment of the full amount, Client will give Contractor immediate written notice stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Client shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Client and Contractor, when Contractor remedies the reasons for such action. Client shall not unreasonably withhold payments to Contractor in accordance with this Agreement.

Contractor's warranty of title: Contractor warrants and guarantees that title to all work, materials, and equipment covered by any request for payment, whether incorporated in the Project or not, will pass to Client no later than the time of payment free and clear of all Lien.

EXHIBIT D
Contract Documents, Specifications and General Conditions

[See Attachment]

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Morongo Band of Mission Indians
11581 Potrero Road
Banning, CA 92220

CONTRACT

Date:

Amount:

Description (Name and Location):

Drilling, Construction, Development and Testing of Domestic Well #7 and #8 for the Morongo Band of Mission Indians, Banning, California.

BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

(Space is provided below for signatures of additional parties, if required.)

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____
Signature and Title
(Attach Power of Attorney)

Attest: _____
Signature and Title:

EJCDC No. C-610 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 31. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
 32. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
 33. Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract;
 2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
 41. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
 42. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 43. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
 44. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
 61. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
 62. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
 63. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker
Owner's Representative (engineer or other party)

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

Morongo Band of Mission Indians
11581 Potrero Road
Banning, CA 92220

CONTRACT

Date:

Amount:

Description (Name and Location):

Drilling, Construction, Development and Testing of Domestic Well #7 and #8 for the Morongo Band of Mission Indians,
Banning, California 92220

BOND:

Bond Number:

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: _____

Signature and Title

CONTRACTOR AS PRINCIPAL

Company:

Signature: _____ (Seal)

Name and Title:

SURETY

(Seal)

Surety's Name and Corporate Seal

By: _____

Signature and Title

(Attach Power of Attorney)

Attest: _____

Signature and Title:

EJCDC No. C-615 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2. Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and

2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and

3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2. Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and

all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone

Surety Agency or Broker:

Owner's Representative (engineer or other party):

GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

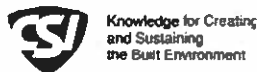
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This document has been approved and endorsed by



The Associated General Contractors of America



Construction Specifications Institute

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract

Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but

which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction, including Morongo Band of Mission Indians.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the condition's precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor, Owner or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

48. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*--Work to be paid for on the basis of unit prices.

50. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

1. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

2. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

3. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

4. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
- c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

5. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

6. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 Starting the Work

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 Before Starting Construction

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review the following:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

A. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

B. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

C. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent

figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

- a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 Reuse of Documents

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 Electronic Data

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies shall govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no

representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Owner shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Instructions to Bidders identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

Then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the

existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 Reference Points

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Hazardous Environmental Condition at Site

A. *Reports and Drawings:* No Hazardous Environmental Condition has been identified at the Site.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings (when applicable), but such reports and drawings are not Contract Documents. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stop-

page or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence or willful misconduct.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence or willful misconduct.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured, certificates of insurance (and

other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 Contractor's Liability Insurance

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds. The following individuals or entities are to be included on the indicated policies as additional insureds: Morongo Band of Mission Indians and its duly-elected Tribal Council, Albert A. Webb, Kyle Groundwater, its agents, officers, and employees; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby.

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 5.04.A.1 and A.2 of the General Conditions:

a. State: Statutory

b. Applicable Federal (e.g., Longshoreman's): Statutory

c. Employer's Liability: \$1,000,000

2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

a. General Aggregate \$5,000,000

b. Products - Completed Operations Aggregate \$5,000,000

c. Personal and Advertising Injury (per person/organization) \$1,000,000

d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000

e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.

f. Excess or Umbrella Liability

1) General Aggregate \$1,000,000

2) Each Occurrence \$1,000,000

3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:

a. Bodily Injury:
Each person \$ _____
Each Accident \$ _____

b. Property Damage:
Each Accident \$ _____

c. Combined Single

Limit of \$ _____

4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts:

a. Bodily Injury:
Each Accident \$ _____
Annual Aggregate \$ _____

b. Property Damage:
Each Accident \$ _____
Annual Aggregate \$ _____

5.05 Owner's Liability Insurance

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 Property Insurance

A. Unless otherwise provided, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the General Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 Waiver of Rights

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or

Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 Receipt and Application of Insurance Proceeds

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 Acceptance of Bonds and Insurance; Option to Replace

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 Partial Utilization, Acknowledgment of Property

Insurer

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 Supervision and Superintendence

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 Labor; Working Hours

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written

consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

1. Owner will provide water for the project, but only from the Owner's water system. All water used will be metered by the Owner. Coordination of the connection to the existing water system will be through the Engineer

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times (or Milestones) Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will not change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by

using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, performance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. "Or-Equal" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to

determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. The Instructions to Bidders and the General Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner with the bid and if Contractor has submitted a list thereof in accordance with the Instructions to Bidders and the General Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or

furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against

all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 Permits

A. Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections to provide permanent service to the Work.

B. Owner will reimburse Contractor for the cost of all Permits. Contractor shall submit to Owner Copies of all Permits, including government calculations for fees.

6.09 Laws and Regulations

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 Taxes

A. OWNER is not subject to California State and local sales or use taxes and other taxes related to purchases for materials, supplies, and equipment required for the project. All such materials, supplies and equipment must be delivered directly to the Morongo Indian Reservation with title passing to OWNER upon receipt at the Morongo Indian Reservation.

B. The foregoing notwithstanding, OWNER acknowledges and agrees that CONTRACTOR will procure certain tangible property and/or fixtures from its subsidiaries and affiliates on a tax-exempt basis. In the event the State of California imposes sales or use tax liability on said purchases, OWNER reserves the right to contest the imposition of any such liability on these and any other purchases. In the event that such taxes are ultimately determined to be due, OWNER will reimburse CONTRACTOR for any such taxes ultimately determined to be due at cost without application of overhead or profits. CONTRACTOR shall notify OWNER within 15 days of CONTRACTOR's receipt of notification of tax liability.

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. Removal of Debris During Performance of the Work: During the progress of the Work, Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents, safety training, and the maintenance and supervision of safety precautions and programs.

6.15 Hazard Communication Programs

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 Shop Drawings and Samples

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. Samples: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to

review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. coordination and review of each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing or Sample; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information

given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Samples. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing subsequent submittals of Shop Drawings, submittals or other items requiring approval and Contractor shall reimburse Owner for Engineer's charges for such time.

G. In the event that Contractor requests a substitution for a previously approved item, Contractor shall reimburse Owner for Engineer's charges for such time unless the need for such substitution is beyond the control of Contractor.

6.18 Continuing the Work

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or

disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent or intentional act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause

such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, (the Instructions to Bidders list Related Work that meets this requirement) then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and
2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of

materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 Coordination

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Owner shall have sole authority and responsibility for such coordination.

7.03 Legal Relationships

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

7.04 Claims Between Contractors

A. Should Contractor cause damage to the work or property of any other contractor at the Site, or should any claim arising out of Contractor's performance of the Work at the Site be made by any other contractor against Contractor, Owner, Engineer, or the construction coordinator, Contractor shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law.

B. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, the construction coordinator and the officers, directors, partners, employees, agents and other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages (including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any other contractor against Owner, Engineer, Engineer's Consultants, or the construction coordinator to the extent said claim is based on or arises out of Contractor's performance of the Work. Should another contractor cause damage to the Work or property of Contractor or should the performance of work by any other contractor at the Site give rise to any other Claim, Contractor shall not institute any action, legal or equitable, against Owner, Engineer, or the construction coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from Owner, Engineer, or the construction coordinator on account of any such damage or Claim.

C. If Contractor is delayed at any time in performing or furnishing Work by any act or neglect of another contractor, and Owner and Contractor are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, Contractor may make a Claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be Contractor's exclusive remedy with respect to Owner, Engineer, and construction coordinator for any delay, disruption, interference, or hindrance caused by any other contractor. This paragraph does not prevent recovery from Owner, Engineer, or construction coordinator for activities that are their respective responsibilities.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will

not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 Project Representative

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the writing.

9.04 Authorized Variations in Work

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 Rejecting Defective Work

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 Shop Drawings, Change Orders and Payments

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 Determinations for Unit Price Work

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 Decisions on Requirements of Contract Documents and Acceptability of Work

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 Limitations on Engineer's Authority and

Responsibilities

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 Authorized Changes in the Work

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 Unauthorized Changes in the Work

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 Execution of Change Orders

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

A. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

B. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

C. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 Notification to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 Claims

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;
2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated

by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment

wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work

covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the Bid price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price and the variation in the quantity of that particular item of Unit Price Work performed by Contractor differs by more than 15 percent from the estimated quantity of such item indicated in the Agreement.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. Contractor's Fee: The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 Change of Contract Times

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 Delays

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
2. for costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body, including Morongo Band of Mission Indians, having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 Uncovering Work

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction

(including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 Owner May Stop the Work

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 Correction Period

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work

is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer)

prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 Owner May Correct Defective Work

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract

Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor

Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use, Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work

substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, warranties, and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its

intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 Final Inspection

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 Final Payment

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's

recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 Final Completion Delayed

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

A. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

B. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such

suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 Owner May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order.

When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 Owner May Terminate For Convenience

A. Upon seven days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 Contractor May Stop Work or Terminate

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 Methods and Procedures

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 Cumulative Remedies

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in

connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 Survival of Obligations

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 Controlling Law

- A. This contract is to be governed by the law of the state in which the Project is located.

17.06 Headings

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of the General Conditions.

TECHNICAL SPECIFICATIONS 1300



TECHNICAL SPECIFICATIONS

Drilling, Construction, Development, and Testing Morongo Band of Mission Indians Domestic Water Supply Well Nos. 7 and 8

Final

December 19, 2023

Prepared by:



Drilling, Construction, Development, and Testing

Morongo Band of Mission Indians

Domestic Water Supply Well Nos. 7 and 8

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SECTION 1 GENERAL INFORMATION

PART 1 - GENERAL

1.01 Project Description

- A. The work to be performed under this Contract consists of furnishing all labor, equipment, materials, and forces necessary for the drilling, construction, development, and testing of two (2) new potable water supply wells, designated Domestic Water Supply Well Nos. 7 and 8, for the Morongo Band of Mission Indians.
- B. The scope of work related to well construction shall include but not be limited to site preparation, borehole drilling, geophysical logging, isolated aquifer zone testing, borehole reaming, casing installation, gravel envelope installation, annular seal installation, well development, completion of the well head, and/or any other work as necessary to complete well installation as described.
- C. Both wells shall be drilled using the fluid reverse circulation rotary drilling method in two (2) separate drilling passes. The sequence of construction shall be continuous and consecutive. All work is to be complete, and in strict accordance with these technical specifications unless otherwise modified by the OWNER's representative.

1.02 Project Location

- A. Well No. 7 is to be situated adjacent to Garcia Road, directly north of Robertson's Rock and Sand Mine, approximately 1.6 miles north of Interstate 10 (see Drawings 1 and 2).
- B. Well No. 8 is to be situated approximately 1,900 feet north of Interstate 10 and 1,300 feet west of Malki Road (see Drawings 1 and 2).

1.03 Definitions

- A. OWNER: Morongo Band of Mission Indians, 12700 Pumarra Road, Banning, CA 92220; Contact: Mr. John Covington; Tel: 951-755-5270.
- B. ENGINEER: Albert A. Webb Associates, 3788 McCray Street, Riverside, CA 92506; Contact: Mr. Shane Bloomfield; Tel: 951-686-1070.
- C. HYDROGEOLOGIST: KYLE Groundwater, Inc., 2377 W. Foothill Blvd., Suite 7, Upland, CA 91786; Contact: Mr. Russell Kyle; Tel: 626-379-7569.
- D. ANALYTICAL LABORATORY: Clinical Laboratories of San Bernardino, Inc., 21881 Barton Road, Grand Terrace, CA 92313; Contact: Mr. Stuart Styles; Tel: 909-825-7693.

1.04 Work Sequence

- A. The sequence of work for installation of Well Nos. 7 and 8 is anticipated to include, but not be limited to, the following.
- (1) Performing site preparation, including as needed clearing and grubbing.
 - (2) Installing a 42-inch OD conductor casing to a depth of 50 feet below ground surface (bgs) within a 54-inch diameter borehole.
 - (3) Mobilizing a reverse circulation rotary drilling rig and associated equipment, including fluid containment reservoirs.
 - (4) Drilling a 17.5-inch diameter pilot borehole to a depth of 980 feet bgs (Well No. 7) and 1,300 feet bgs (Well No. 8).
 - (5) Conducting borehole geophysical surveys to the total depth of the pilot borehole.
 - (6) Performing isolated aquifer zone testing on four (4) zone intervals.
 - (7) Reaming each 17.5-inch diameter pilot borehole to 36-inch diameter from 50 feet bgs to 220 feet bgs.
 - (8) Reaming each 17.5-inch diameter pilot borehole to 30-inch diameter from 220 feet bgs to 980 feet bgs (Well No. 7), and from 220 feet bgs to 1,300 feet bgs (Well No. 8).
 - (9) Conducting borehole caliper surveys less than six (6) hours prior to initiating well construction.
 - (10) Installing 222 feet of 20-inch inside diameter (ID) by 3/8-inch wall thickness ASTM A606 Type 4 High-Strength Low-Alloy (HSLA) blank well casing.
 - (11) Installing 80 feet of 20-inch ID by 5/16-inch wall thickness ASTM A606 Type 4 HSLA steel blank well casing (Well No. 7), and 580 feet of 20-inch ID by 5/16-inch wall thickness ASTM A606 Type 4 HSLA steel blank well casing (Well No. 8).
 - (12) Installing 650 feet of ASTM A606 Type 4 HSLA steel louvered well screen (Well No. 7), and 470 feet of ASTM A606 Type 4 HSLA steel louvered well screen (Well No. 8).
 - (13) Installing 10 feet of 20-inch ID by 5/16-inch wall thickness ASTM A606 Type 4 HSLA steel blank well casing with end plate.
 - (14) Installing 299 feet of 2-inch Sch. 40 mild steel sounding tube to a depth of 298 feet bgs (Well No. 7), and 799 feet of 2-inch Sch. 40 mild steel sounding tube to a depth of 798 feet bgs (Well No. 8).

- (15) Installing two (2) 211-foot long 3-inch Sch. 40 mild steel gravel tubes to depths of 210 feet bgs (Well Nos. 7 and 8).
- (16) Installing a custom graded gravel envelope and 3-foot transition sand layer from 980 to 200 feet bgs (Well No. 7), and from 1,300 to 200 feet bgs (Well No. 8).
- (17) Installing a 10.3-sack sand-cement annular seal from 200 feet bgs to ground surface.
- (18) Performing initial well development by focused intake pumping and swabbing.
- (19) Demobilizing the drilling rig and associated equipment.
- (20) Mobilizing and installing a test pump and motor, temporary discharge conveyance, energy dissipation devices, and support equipment.
- (21) Performing final well development by pumping and surging.
- (22) Performing aquifer pumping tests, including step drawdown, constant rate drawdown, and recovery tests.
- (23) Accommodating collection of water quality samples near the end of the constant rate drawdown test.
- (24) Performing a flowmeter survey near the end of the constant rate drawdown test.
- (25) Demobilizing the test pump, motor, and associated equipment.
- (26) Bailing of sediment that has accumulated within each well during the development and testing phases.
- (27) Performing plumbness and alignment testing of each well.
- (28) Performing a dual-cam downhole video survey of each well.
- (29) Disinfecting each well using a sodium hypochlorite solution.
- (30) Finishing and securing each well head, as specified.
- (31) Demobilizing all equipment, conducting site cleanup, and restoring each site.

1.05 Conformance with Codes and Standards

- A. All work and materials shall comply with the following standard specifications and/or requirements:
 - (1) California Department of Water Resources' California Water Well Standards Bulletin 74-81, its supplement Bulletin 74-90.
 - (2) American Water Works Association (AWWA) Wells Standards, AWWA A100-20 or latest revision.

(3) Applicable federal, state, and local laws, ordinances, codes, and regulations.

1.06 Project Conditions

- A. The CONTRACTOR shall carefully review all pertinent documentation regarding the work as specified herein, and shall visit the site such that the CONTRACTOR is familiar with existing conditions and has a clear understanding of the requirements of the Contract and the furnishing of all necessary materials, labor, and equipment.
- B. The submittal of a bid by the CONTRACTOR will be considered evidence that the CONTRACTOR has fully investigated existing conditions and requirements associated with the work and has informed himself or herself of any conditions that may influence the cost of performing the work, and has incorporated such costs into his or her bid.

1.07 Pre-Bid Meeting

- A. A mandatory pre-bid meeting and site walk will be held at the time and date specified in the Notice Inviting Bids. The purpose of the pre-bid meeting is to allow prospective bidders to examine the well site, observe access conditions/restrictions, and review critical conditions that may affect submittal of a bid, and pose questions to the OWNER.

1.08 Pre-Construction Meeting

- A. A mandatory pre-construction meeting shall be held at the project site within 10 working days following issuance of Notice to Award to the CONTRACTOR.
- B. The CONTRACTOR shall arrange for his or her project manager, site superintendent, and other critical personnel to attend the pre-construction meeting.

1.09 Quantities of Work

- A. The OWNER reserves the right to increase or decrease unit quantities as specified by the Bid Schedule, and/or omit any portion of the work as is deemed necessary by the OWNER or HYDROGEOLOGIST.
- B. At any time, the OWNER reserves the right to cancel any or all of the work under this Contract through written notice to the CONTRACTOR.
- C. The CONTRACTOR will be paid for work performed prior to receipt of written notice to cancel work, unless otherwise authorized by the OWNER in writing. The CONTRACTOR will not be paid for work that is not performed under this Contract.

1.10 Hours of Work

- A. Work shall be continuous (seven days per week, 24 hours per day) from the start of borehole drilling through well construction and initial development other than the design phase following isolated aquifer zone testing.
- B. No work shall be performed on major holidays unless other arrangements are made and approved by the OWNER and/or HYDROGEOLOGIST at least 48 hours in advance. If any holiday falls on a Saturday, Saturday and the preceding Friday shall be considered legal holidays. If any holiday falls on a Sunday, Sunday and the following Monday shall be considered legal holidays. Major holidays include:
 - (1) New Year's Day
 - (2) Martin Luther King Jr. Day
 - (3) President's Birthday
 - (4) Memorial Day
 - (5) Juneteenth
 - (6) Independence Day
 - (7) Labor Day
 - (8) Veterans Day
 - (9) Thanksgiving Holiday
 - (10) Christmas Day

1.11 Competent Workmen

- A. The CONTRACTOR shall employ only sober, competent, and qualified workmen for the execution of the work.
- B. The CONTRACTOR shall provide a competent and experienced site supervisor and assistants, as necessary, who will be responsible for coordinating the work, and for ensuring compliance with all laws, orders, rules, regulations, and ordinances pertaining to the work and the safety of workers and other persons.
- C. The site supervisor shall be available at all times and shall, at a minimum, visit the site daily during the prosecution of the work.
- D. The CONTRACTOR shall cooperate fully with all utilities, regulatory agencies, adjacent landowners, the OWNER, HYDROGEOLOGIST, ENGINEER, and their officers, officials, employees, agents, and volunteers.

- E. During periods of standby or waiting, the CONTRACTOR must provide trained and experienced personnel, approved by the HYDROGEOLOGIST, to monitor and maintain the fluid levels in the borehole.
- F. No changes in personnel will be permitted without prior approval of the HYDROGEOLOGIST, and provided the qualifications and experience of the replacement personnel are equivalent.

1.12 Communication

- A. The CONTRACTOR shall provide a means of communicating (i.e., cellular phones) between all workers at the site 24 hours per day. A comprehensive contact list shall be provided by the CONTRACTOR to the OWNER and HYDROGEOLOGIST at the time of the pre-construction meeting.

1.13 Lost Boreholes

- A. Any borehole that the CONTRACTOR is unable to complete to the specified depth due to defective workmanship, faulty equipment, application of lost circulation materials, introduction of contaminants, excessive borehole caving, or severe misalignment may be considered a "lost" borehole.
- B. The CONTRACTOR will not receive payment for lost boreholes. A borehole deemed to be lost shall be re-drilled to the specified depth at the CONTRACTOR's expense at a location to be specified by the OWNER. No additional payment will be made to the CONTRACTOR for moving between sites, installation of a conductor casing, re-drilling and/or reaming of the borehole, additional work hours or rig time resulting from the loss of the borehole, or any other work necessary to relocate and re-drill the borehole.
- C. The criteria by which a borehole can be considered lost may include, but is not limited to the following conditions.
 - (1) Addition of excessive amounts of low-permeability drilling fluid additives.
 - (2) Inappropriate addition of lost circulation materials (e.g., Magma-Fiber[®]).
 - (3) Severe misalignment of the borehole.
 - (4) Loss of tooling within the borehole that cannot be recovered.
- D. The final decision that a borehole is considered lost shall be made by consensus between the OWNER, ENGINEER, and HYDROGEOLOGIST, and as applicable, the CONTRACTOR's certified mud engineer.

- E. Lost boreholes shall be properly destroyed in accordance with appropriate industry standard practice, regulations, and requirements. No additional payment will be made to the CONTRACTOR for destruction of lost boreholes.

1.14 Submittal Review Process

- A. The CONTRACTOR shall provide submittals to the HYDROGEOLOGIST no less than five (5) working days in advance of any phase for which the submittal pertains.
- B. The HYDROGEOLOGIST shall review and approve or reject submittals within five (5) working days. The CONTRACTOR shall notify the HYDROGEOLOGIST should expedited review be required.
- C. The CONTRACTOR shall not begin work on any phase of the project until all of the required submittals have been reviewed and approved by the HYDROGEOLOGIST.

PART 2 – MATERIALS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 2 LOCAL CONDITIONS AND GEOLOGY

PART 1 – GENERAL

2.01 Local Geology

- A. Based on available well records for nearby wells, the geology underlying the project area is anticipated to consist of sand, gravel, silt, and clay in varying proportions. The effective base of productive aquifers is anticipated to occur at a depth of approximately 980 feet bgs (Well No. 7) and 1,300 feet bgs (Well No. 8), although actual depths may vary, particularly in the vicinity of Well No. 7 (see Drawings 3 and 4, and Appendix A).
- B. Based on available information, groundwater in the vicinity of Well No. 7 is anticipated to occur at depths ranging from 135 to 195 feet bgs. Groundwater at Well No. 8 is expected to occur at depths ranging from 635 to 690 feet bgs.
- C. The CONTRACTOR shall make himself aware of local drilling conditions and shall review available records and data identifying the potential for difficult drilling conditions. The OWNER does not guarantee the accuracy of lithologic descriptions and/or geophysical surveys from prior drilling activities. This information, where provided, is for reference only and does not relieve the CONTRACTOR from his responsibility to review additional information or to perform the work.
- D. The CONTRACTOR shall incorporate all costs associated with difficult drilling conditions into his bid and shall receive no additional compensation.

2.02 Unusual Site Conditions

The CONTRACTOR shall notify the OWNER immediately if the CONTRACTOR encounters hazardous waste material or material that the CONTRACTOR believes may be hazardous in nature, and/or conditions that differ materially from those indicated in the Contract documents or from those generally recognized as inherent in the type of work being performed.

PART 2 – MATERIALS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 3 SITE REQUIREMENTS

PART 1 – GENERAL

3.01 Boundary of Work

- A. The OWNER will provide land or rights-of-way to the CONTRACTOR for the performance of work under this Contract and will make provisions for ingress and egress. Any further modifications required by the CONTRACTOR to provide access shall be the responsibility of the CONTRACTOR and subject to approval by the OWNER.
- B. Other contractors and employees or agents of the OWNER may for any purpose enter upon the project site used by the CONTRACTOR.
- C. The CONTRACTOR shall confine all construction activities to the area provided and delineated, as determined by the OWNER.
- D. The CONTRACTOR shall not encroach onto any other area without the prior approval by the OWNER.
- E. The CONTRACTOR's use of the project site shall be limited to activities associated with performing work under this Contract.
- F. The CONTRACTOR shall take into consideration any existing underground utilities that traverse the site.

3.02 Dust Control

- A. The CONTRACTOR shall prevent tracking of materials off the site by vehicular traffic, and restore roadways to original condition at the conclusion of the project, including repairing any damage caused during the project.
- B. The CONTRACTOR shall take whatever steps, procedures or means that are required to prevent adverse dust conditions from being caused by its execution of the work, or on any unpaved road which the CONTRACTOR or any of its subcontractors are using.
- C. Mitigation measures for tracking of materials off site may include application of water to heavily affected or trafficked areas, use of gravel and/or rumble ramps at the site entrance, washing of vehicle wheels before leaving the site, and street sweeping, as deemed necessary by the HYDROGEOLOGIST and/or OWNER.

3.03 Traffic Control

- A. The CONTRACTOR shall implement a traffic control program for areas adjacent to the project site where traffic may be affected by the CONTRACTOR's activities and such that safe and continuous passage is maintained at all times for pedestrian and vehicular traffic.

- B. At a minimum, the traffic control program implemented by the CONTRACTOR shall include installation of traffic cones around any equipment parked on adjacent roadways and at the site entrance. Construction area signs and traffic cones shall be furnished, installed, maintained, and removed when no longer required.
- C. The CONTRACTOR shall furnish, install, construct, maintain, and remove signs, barricades, fences, miscellaneous traffic devices, flagmen, drainage facilities, paving, and such other items and services as are necessary to adequately safeguard the public from hazard and inconvenience.
- D. Signs shall include reflectors when used during hours of darkness. Barricades shall be equipped with flashers if in place during hours of darkness. Batteries supplying power to barricade flashers shall be checked and replaced as necessary throughout the work.
- E. The CONTRACTOR shall cooperate with the OWNER relative to handling of traffic through the area and shall make its own arrangements relative to keeping the working area clear of parked vehicles to allow for site access.
- F. As necessary, the CONTRACTOR shall coordinate with other construction activities in the area during the course of the work.

3.04 Best Management Practices

- A. The CONTRACTOR shall implement, industry standard Best Management Practices (BMPs) as necessary to prevent spillage and/or mobilization of hazardous and non-hazardous construction materials, and to minimize erosion and the transport of sediments on or off the property, and/or to adjacent roadways, and/or drainage systems.
- B. Project-specific BMPs shall be incorporated into a Spill Prevention Plan (SPP) that shall be provided to the HYDROGEOLOGIST prior to starting work.
- C. The CONTRACTOR shall manage any equipment and/or materials brought to the project site in accordance with the following procedures:
 - (1) Plastic sheeting with berms, or drip pans, will be used to catch leaks and residual material in hoses and spigots under all stationary equipment. Plastic sheeting and/or drip pans will be inspected daily by the CONTRACTOR and emptied or replaced as needed by reusing or properly disposing of it at the CONTRACTOR's expense.
 - (2) Spilled hazardous materials shall be immediately contained using sand, dirt, and/or absorbent materials. Such spills will be cleaned promptly along with the contaminant material and will be disposed of properly at the CONTRACTOR's expense.

- (3) Outdoor storage of all oils, solvents, cleaners and other liquid materials shall be within secondary containment and shall be covered, as necessary, to prevent accumulation of rainwater within said containment.
 - (4) Dry and/or powered materials shall be stored on pallets out of the path of any natural drainage and shall be covered and protected, as necessary, to prevent contamination of the product and/or contamination of the project site.
 - (5) Chemicals, bagged material, or drums shall be stored on pallets within secondary containment.
- D. Waste products generated during the well construction work must be managed in accordance with the following procedures:
- (1) Containerized waste will not be allowed to overflow. Any waste that requires storage in containers shall be removed from the project area on a regular basis and disposed of at an approved facility at the CONTRACTOR's expense.
 - (2) Cleaning of the drilling rig, tremie pipe and any other equipment, as necessary, shall be conducted within a fully contained area within the well drilling pad work area only. Any deviation from this location must be approved by the HYDROGEOLOGIST.
 - (3) Waste bentonite or cement must be removed from the project area prior to completion of the work and acceptance of the project by the OWNER.
- E. The use and maintenance of drilling rigs, support vehicles, and other equipment shall be in accordance with the following procedures:
- (1) On-site fueling of vehicles or equipment shall not be allowed for any vehicles that can be refueled at a commercial fueling station.
 - (2) On-site refueling of vehicles or equipment shall be conducted with use of drip pans and/or plastic sheeting to contain leaks.
 - (3) Cleaning and maintenance of vehicles, as necessary shall be performed within designated areas to be approved identified by and approved by the OWNER. Drip pans and/or plastic sheeting will be used during these activities. All waste water generated from cleaning equipment must be containerized and disposed of at the CONTRACTOR's expense. Any soap used during cleaning must be phosphate-free and biodegradable.
 - (4) Daily inspections of the drilling rig, support vehicles, and equipment will be made to check for leaks. Any leaks detected shall be reported to the HYDROGEOLOGIST and repaired immediately.

- (5) The CONTRACTOR and subcontractors shall be educated in the proper handling and storage of construction materials used during the project.
- (6) All spills shall be immediately soaked up using absorbent materials and disposed of properly at the CONTRACTOR's expense. Any spill, no matter how small, is to be reported to the HYDROGEOLOGIST.

3.05 Health and Safety

- A. The CONTRACTOR shall be solely responsible for conditions of the job site, including the health and safety of all persons entering the work site, including employees, subcontractors, vendors, site visitors, and the OWNER and OWNER's representatives.
- B. The CONTRACTOR shall submit a project-specific Health and Safety Plan to the HYDROGEOLOGIST prior to any work being performed at the site.
- C. Health and safety provisions shall conform to applicable Federal, State, County, and local regulatory requirements. Where any safety requirement is in conflict, the more stringent requirement shall be followed by the CONTRACTOR.

3.06 Staking

- A. The OWNER and/or ENGINEER will stake or otherwise mark the well location center point and delineate the designated construction area prior to mobilization. The CONTRACTOR shall carefully preserve all stakes and marks, and guard against movement or destruction of stakes or marks.

3.07 Existing Utilities and Infrastructure

- A. The approximate location of existing utilities and infrastructure will be provided to the CONTRACTOR by the OWNER. Additional utilities may exist that are unknown to the OWNER, and as such, the OWNER warrants neither the accuracy nor the extent of the location of existing utilities provided. The CONTRACTOR shall confirm the location of, and protect, all existing utilities and infrastructure.
- B. The CONTRACTOR shall contact Underground Service Alert (USA) of Southern California at (800) 227-2600 at least two (2) working days, but no more than 14 working days, prior to excavation at the site. The CONTRACTOR shall be responsible for clearly marking the location of any planned excavations prior to contacting USA.
- C. The CONTRACTOR shall not begin any excavation greater than 18 inches below ground surface until the location of underground utilities and/or infrastructure have been marked by USA. The CONTRACTOR shall hand dig by means of hand auger or air-knife to confirm the presence of underground utilities prior to full-scale excavation.

- D. In the event that the CONTRACTOR discovers underground infrastructure not identified in these plans, the CONTRACTOR shall immediately notify the OWNER.
- E. Any damages, disconnection, or relocation of underground utilities and/or infrastructure by the CONTRACTOR shall, at the CONTRACTOR's expense, be restored to original condition as specified by the OWNER of said utility and/or infrastructure.

3.08 Site Security

- A. The CONTRACTOR shall make provisions to protect the work area and all equipment, materials, and work against theft, damage, trespass, vandalism, or tampering by unauthorized persons.
- B. The CONTRACTOR shall bear full responsibility for every aspect of security of the work area, including protection of all equipment and materials, including temporary discharge conveyance piping.
- C. Site security measures shall, at a minimum, include temporary security fencing, and/or guard service, or any other measures necessary to secure the site when the CONTRACTOR is not working.
- D. Equipment, materials, and/or work lost due to activities by unauthorized persons will be the responsibility of the CONTRACTOR.

3.09 Materials Storage

- A. All on-site materials shall be stored in accordance with requirements and recommendations of the manufacturer's Safety Data Sheet (SDS) and be subject to the approval of the OWNER and/or HYDROGEOLOGIST. It shall be the CONTRACTOR's responsibility to investigate these requirements.

3.10 Temporary Power and Lighting

- A. The CONTRACTOR shall assume that there is no electric power at the work site and shall provide, at his own expense, power required for drilling, construction, development, testing, lighting, and any other power needs required for prosecution of the project.
- B. The CONTRACTOR shall be responsible for the cost of all labor, materials, tools, fuel, and equipment required to obtain and distribute power.
- C. Temporary power distribution infrastructure used by the CONTRACTOR shall meet and conform to applicable codes and regulations.

- D. The CONTRACTOR shall provide temporary lighting facilities sufficient to maintain safe lighting levels during working hours. Lighting shall be situated in such a way as to not disturb or adversely impact adjacent property owners.

3.11 Construction Water

- A. The designated source of construction water for Well No. 7 shall be the OWNER's existing fire hydrant fed by an existing 12-inch potable water distribution system (see Drawing 5). At Well No. 8, the OWNER will provide a construction water source tied to the existing 16-inch water pipeline (see Drawing 6). The CONTRACTOR shall assume this source will be located within 75 feet of the designated drilling location.
- B. It shall be the CONTRACTOR's responsibility to provide all personnel and equipment necessary to convey construction water from the designated sources to the point of use, including all water supply connections, hoses, piping, valves, and other required equipment. Before final acceptance of the project, all temporary equipment associated with the provision of construction water shall be removed by the CONTRACTOR.
- C. The OWNER will provide for and pay for all water utilized from the OWNER's water distribution system as recorded by the OWNER's water meter.
- D. The CONTRACTOR must meter all water used for construction and shall make all effort to carefully conserve water. The OWNER will provide and install a water meter for any construction water taken from the OWNER's water distribution system. The CONTRACTOR must request installation of the water meter at least 72 hours prior to the anticipated date of use. No deposit is required. The OWNER will provide a backflow prevention device (BFP) connected in-line at the water source.

3.12 Sanitary Facilities

- A. The CONTRACTOR shall provide all necessary sanitary facilities at the project site for the use of the CONTRACTOR, OWNER, and HYDROGEOLOGIST. These facilities shall be maintained and cleaned a minimum of twice per week and kept in a sanitary condition and well stocked with an adequate supply of toilet paper and alcohol-based hand sanitizer.
- B. The CONTRACTOR shall provide an adequate supply of clean, potable drinking water for use by on site personnel.
- C. The CONTRACTOR shall obey and enforce applicable sanitary regulations as may be prescribed by applicable regulatory bodies and any other entities having jurisdiction.

- D. At the completion of work, the CONTRACTOR shall remove all refuse, excess materials, temporary structures, and equipment from each site and shall leave the sites in a neat and presentable condition as approved by the OWNER and HYDROGEOLOGIST.

3.13 Fluids Drainage

- A. The CONTRACTOR shall ensure that drilling activities prevent the introduction of waste water and/or pollutants to the ground surface or off site drainages unless otherwise allowed for herein.
- B. The CONTRACTOR shall not interfere with nor prevent rainwater from entering any storm drain or other drainage facility.
- C. The CONTRACTOR shall ensure that the CONTRACTOR's activities do not result in fluids moving from the work area to surrounding properties or rights-of-way.

3.14 Noise Abatement

- A. The CONTRACTOR shall review existing site conditions and local requirements and shall satisfy himself as to the required level of noise mitigation and noise attenuating structures.
- B. All costs for noise attenuation shall be included in the lump sum unit price set forth within the bid schedule for noise abatement.
- C. Prior to mobilization, the CONTRACTOR shall provide the HYDROGEOLOGIST with a noise abatement plan. The plan shall demonstrate that the proposed noise mitigation measures will adequately reduce noise levels while meeting applicable building codes, including wind load and seismic stability requirements, as necessary.
- D. Noise-producing equipment shall be shielded from areas of human occupancy and sensitive noise receptors by erecting 24-foot high noise attenuating structures. At an absolute minimum, noise mitigating structures shall be erected as shown on Drawings 2 and 3, although additional measures may be necessary.
- E. Noise attenuating structures shall be STC-32 rated per ASTM E413-16 and shall meet all applicable California building codes, including wind load and seismic stability, as determined by a Registered Structural Engineer in the State of California.
- F. Internal combustion engines shall be equipped with residential mufflers of a type recommended by the manufacturer as a minimum for noise abatement. No internal combustion engine shall be operated without said muffler.
- G. The CONTRACTOR's equipment shall be located in positions which will direct the greatest noise emissions away from sensitive noise receptors.

- H. The work shall be conducted in a manner that will minimize noise generation, particularly during nighttime hours while still allowing for effective prosecution of the work being performed under the Contract.
- I. In the event of a noise complaint, the CONTRACTOR may be required to implement immediate corrective action to reduce noise levels prior to resuming work. Additional noise mitigation shall be implemented at no additional cost to the OWNER.

PART 2 – MATERIALS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 4 DISPOSAL OF MATERIALS

PART 1 – GENERAL

4.01 General Requirements

- A. The CONTRACTOR shall be responsible for handling, temporary storage, testing, transportation, and disposal of all waste materials generated during the execution of the work. All materials generated by the CONTRACTOR shall become the property of the CONTRACTOR and shall be disposed of by the CONTRACTOR in accordance with all applicable regulatory requirements.

4.02 Drill Cuttings

- A. The CONTRACTOR shall be responsible for testing and disposal of drill cuttings and fluids generated during borehole drilling. These materials shall be temporarily stored within the immediate vicinity of the borehole.
- B. Prior to off-site disposal, the CONTRACTOR shall collect samples of drill cuttings and fluids taken from the conductor and pilot boreholes and submit them to a California State-certified laboratory for analysis of the following constituents.
 - (1) Volatile Organic Compounds (VOCs) by EPA Method 8260.
 - (2) Total Recoverable Petroleum Hydrocarbons (TPH) by EPA Method 8015.
 - (3) Total Threshold Limit Concentration (TTLC) metals by EPA Method 6010.
 - (4) Any additional testing required by the CONTRACTOR's waste disposal facility.
- C. Drill cuttings and fluids found to be non-hazardous shall be disposed of off-site at a facility approved by the OWNER unless other arrangements are made with the OWNER. The CONTRACTOR shall provide the HYDROGEOLOGIST and OWNER with a copy of all laboratory reports and receiving manifests provided by the disposal facility. All costs incurred during testing and disposal of drill cuttings and fluids deemed non-hazardous shall be borne by the CONTRACTOR.
- D. Should drill cuttings and/or fluids generated during drilling show evidence of contamination, the CONTRACTOR shall store them in ANSI-approved 55-gallon steel drums until laboratory analysis can be obtained to verify the nature and concentration of contamination. The CONTRACTOR shall notify the OWNER immediately upon discovery of potentially contaminated soils and may be required to cease work to allow additional laboratory testing. All costs incurred during testing and disposal of drill cuttings and fluids generated during drilling that are found to be hazardous in nature shall be borne by the OWNER.

- E. The CONTRACTOR, at his own expense, shall clean, remove, and properly dispose of any hazardous materials generated during the course of work due to negligence. Any materials suspected of contamination due to the CONTRACTOR negligence shall be sampled by the CONTRACTOR and analyzed by a California State-certified laboratory at the CONTRACTOR's expense. The OWNER shall reserve the right to request additional testing if the methods requested by the CONTRACTOR are insufficient to determine the types of potentially hazardous materials that may be present. Samples must be submitted to a laboratory within 24 working hours following notification that there is suspected contamination. During this time any and all suspected contaminated materials must be contained by the CONTRACTOR in ANSI-approved 55-gallon steel drums. Any sample that contains levels of contaminants in excess of applicable disposal standards shall be properly disposed of by the CONTRACTOR in accordance with applicable regulations. This CONTRACTOR shall prepare and provide an initial hazardous materials disposal manifest and submit it to the OWNER prior to removal of said materials from the site. A final manifest received at the disposal site shall also be provided to the OWNER by the CONTRACTOR. The CONTRACTOR shall be listed on all manifests as the generator of any hazardous waste that has occurred as a result of CONTRACTOR's negligence.

4.03 Drilling Fluids

- A. The CONTRACTOR shall contain drilling fluids on site at all times and shall in no event allow drilling fluids to become a nuisance or to run off the site.
- B. The CONTRACTOR shall legally dispose of drilling fluids at an approved facility when no longer in use and shall conform to all applicable regulatory requirements in connection with such disposal.

4.04 Displaced Fluids

- A. The CONTRACTOR shall contain and properly dispose of fluids displaced from the borehole(s) during isolated aquifer zone testing and/or well construction activities.

4.05 Development and Testing Water

- A. Discharges of waste water generated during isolated aquifer zone testing, well development, and testing shall be to the designated discharge points identified by the OWNER and in the contract plans (see Drawings 6 and 7). The CONTRACTOR shall be responsible for any and all costs associated with construction and maintenance of temporary conveyance pipelines and energy dissipation devices.
- (1) Well No. 7 – Waste water shall be conveyed through aboveground piping to a location approximately 200 feet northeast of the well, where it will be allowed to

sheet flow to the east and percolate into the ground surface. The end of the discharge point shall be equipped with an energy dissipation device suitable for achieving laminar flow and preventing scouring or erosion of the ground surface.

- (2) Well No. 8 – Waste water shall be conveyed through aboveground piping to a location approximately 200 feet west of the well, where it will be allowed to sheet flow to the west where it will enter an existing natural drainage feature and percolate into the ground surface. The end of the discharge point shall be equipped with an energy dissipation device suitable for achieving laminar flow and preventing scouring or erosion of the ground surface.
- B. Prior to discharging waste water to the designated discharge point, the CONTRACTOR shall supply temporary storage tanks of sufficient number and capacity to effectively settle suspended solids from within the discharge.
- C. The CONTRACTOR shall furnish and install temporary conveyance piping, valves, flowmeters, energy dissipation devices, ramps, and any other necessary facilities to convey discharged waste water from the well locations to the designated discharge points (see Drawings 6 and 7).
- D. The CONTRACTOR shall utilize appropriate BMPs such that the discharge of waste water does not result in creation of nuisance water and/or flooding of the project area.
- E. The CONTRACTOR shall secure all temporary piping at the outlet and in other areas, as necessary, so as to prevent a hazard, and such that damage to the surrounding area will not occur should the discharge piping shift during pumping.
- F. The CONTRACTOR's pumping equipment shall consider and overcome any frictional head losses imparted by the discharge pipeline while still meeting the instantaneous flow rates as specified herein.
- G. The CONTRACTOR shall become familiar with the requirements and conditions of any applicable permits, laws, rules, and regulations regarding discharge of waste water to the designated discharge point, and shall facilitate any necessary discharge monitoring required by the OWNER and/or HYDROGEOLOGIST. The CONTRACTOR shall be responsible for all discharged waste water meeting all applicable requirements.

4.06 Nuisance Water

- A. The CONTRACTOR shall employ appropriate BMPs and properly dispose of nuisance water at the project site, including water generated due to construction, rainfall, runoff, and any other nuisance water that may impact the work area.

- B. The CONTRACTOR shall protect the work area from damage by nuisance waters and take all measures necessary to prevent said waters from causing delays in the progress of work, and/or damage to the work area or surrounding properties.

PART 2 – MATERIALS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 5 PERMITS AND LICENSES

PART 1 – GENERAL

5.01 General Requirements

- A. The CONTRACTOR shall be responsible for identifying and acquiring any and all permits required to execute the work unless otherwise identified herein.
- B. The CONTRACTOR shall be responsible for all application and/or filing fees for any permits and licenses required for the work unless otherwise identified herein.
- C. The CONTRACTOR shall comply with all federal, state, and local laws, ordinances, and regulations as pertains to the work.

5.02 Contractor's License

- A. The CONTRACTOR shall be licensed in good standing with the State of California as a C-57 Well Drilling Contractor per California Code of Regulations.

5.03 Well Drilling Permit

(Not Used)

5.04 Discharge Permit

(Not Used)

5.05 Records

- A. The Contractor shall provide the HYDROGEOLOGIST and OWNER with the following records at the completion of the project.
 - (1) California DWR Well Completion Report.
 - (2) Daily driller's reports.
 - (3) Tallies of all materials installed.
 - (4) Delivery tickets for all materials installed.
 - (5) Geophysical survey logs.
 - (6) Zone testing records.
 - (7) Well development records.
 - (8) Aquifer testing records.
 - (9) Flowmeter spinner survey logs and interpretation package.

- (10) Downhole video survey DVDs and reports.
- (11) Plumbness and alignment survey logs and records.
- (12) Analytical laboratory reports.

PART 2 – MATERIALS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 6 MOBILIZATION, DEMOBILIZATION, AND SITE CLEANUP

PART 1 - GENERAL

6.01 Description

- A. This bid item shall include mobilization and demobilization of labor, equipment, and materials to the project site, obtaining and complying with all applicable permits, preparing submittals, providing for disposal of materials, attending meetings, providing temporary facilities, providing site security, wellhead completion, site cleanup, and any other labor, equipment, and materials necessary with fulfilling requirements as specified herein and not specifically identified within other bid items.

6.02 Measurement and Payment

- A. Payment for fully and completely providing for mobilization, demobilization, and site cleanup will be based on the lump sum unit price set forth within the bid schedule.
- B. No more than 65% of this bid item will be paid for obtaining permits, preparing submittals, providing, and mobilizing personnel, equipment, and materials to the project site, and completing any other work necessary for mobilization.
- C. The remaining 35% of this bid item will be paid following completion of demobilization and site cleanup.

PART 2 – MATERIALS

6.03 General

- A. The CONTRACTOR shall provide, mobilize to the project site, install, maintain in good working condition, and demobilize from the project site all materials and equipment necessary to execute and complete the work as specified herein.
- B. All materials and equipment used by the CONTRACTOR in the execution of the work as specified herein shall be free of foreign contamination and debris such that the introduction of these materials to the borehole and/or completed well does not occur.
- C. At no time during drilling and construction shall the CONTRACTOR use lubricants, adhesives, or any other heavy metal-, solvent- or organic-based substances that could introduce contaminants to the borehole and/or well in such a manner as to be detectable in water quality collected during isolated aquifer zone testing, waste water discharge events, and/or completed well water quality testing.

PART 3 - EXECUTION

6.04 Mobilization

- A. The CONTRACTOR shall notify the HYDROGEOLOGIST a minimum of ten (10) calendar days in advance of the anticipated date of mobilization and shall make all drilling and accessory equipment available for inspection by the HYDROGEOLOGIST.
- B. The CONTRACTOR shall mobilize, set up, operate, and maintain all necessary equipment, materials, operating supplies, and labor required for successful completion of the project as specified herein.
- C. The CONTRACTOR shall provide all necessary pre-mobilization submittals to the HYDROGEOLOGIST as described herein.
- D. The CONTRACTOR shall set up equipment and facilities, and store necessary materials in a neat and orderly manner within the designated project area. The CONTRACTOR shall confine operations to the designated work area
- E. The removal and replacement of minor obstructions such as electrical conduits, water piping, waste piping, and similar items shall be anticipated and accomplished, even if not shown or specifically mentioned herein.
- F. The CONTRACTOR shall submit the following items prior to mobilization for review, and approval or rejection by the HYDROGEOLOGIST.
 - (1) Construction schedule.
 - (2) Noise Abatement Plan
 - (3) Emergency Plan.
 - (4) Site Plan.
 - (5) Spill Prevention Plan.
 - (6) Equipment site layout, including location of BMPs.
 - (7) Shop drawing of proposed energy dissipation device.
 - (8) Daily report form.
 - (9) Emergency contact information.
 - (10) Safety Data Sheets (SDS) for materials to be used in conjunction with the project.
 - (11) Certification of all flowmeter devices to use during construction.
 - (12) USA ticket number.

6.05 Noise Abatement Plan

- A. The CONTRACTOR shall prepare a Noise Abatement Plan prior to mobilization that includes a description of the measures to be undertaken by the CONTRACTOR to mitigate excessive noise during construction.

6.06 Health and Safety Plan

- A. The CONTRACTOR shall prepare and submit a site-specific Health and Safety Plan outlining procedures and protocol to be following by on-site personnel in the event of an emergency. Work shall not begin until the HYDROGEOLOGIST has received and approved a copy of the Health and Safety Plan.
- B. The plan shall include the name, address, and phone number of the closest emergency medical facility, and a map showing a clear and comprehensible route from the project site to the designated emergency medical facility.
- C. The plan shall include phone numbers for the local police department, fire department, and poison control center.
- D. The CONTRACTOR's personnel shall review and be familiar with the Health and Safety Plan prior to mobilization and initiation of work at the project site and shall conduct daily safety meetings at the work.

6.07 Site Cleanup and Restoration

- A. Upon completion of the work as specified herein, the CONTRACTOR shall demobilize and remove all equipment, unused materials, operating supplies, debris, refuse, waste materials, facilities, fencing, noise abatement structures, and all other miscellaneous items resulting from or used during execution of the work as specified herein.
- B. The CONTRACTOR shall restore the areas surrounding each designated discharge point to as close as possible to original condition, and to the satisfaction of the OWNER.
- C. The CONTRACTOR shall restore all areas impacted by construction activities to as near as possible to original condition to the satisfaction of the OWNER.
- D. Any facilities removed, temporarily relocated, or damaged, shall be repaired and/or restored to original condition upon completion of the work described in these specifications, unless otherwise indicated by the OWNER.
- E. The CONTRACTOR shall notify the OWNER and HYDROGEOLOGIST upon completion of site cleanup and restoration such that a post-construction site inspection meeting can be conducted by the OWNER.

- F. The CONTRACTOR's site supervisor shall meet with the OWNER and HYDROGEOLOGIST to inspect the condition of the site and prepare a punch list of outstanding work items to be completed prior to acceptance of the site by the OWNER. The HYDROGEOLOGIST will provide written documentation of outstanding work items and will coordinate with the CONTRACTOR to expedite completion of these items.
- G. The CONTRACTOR shall complete any remaining tasks and demonstrate that site-cleanup and restoration has been completed to the satisfaction of the OWNER and HYDROGEOLOGIST.

END OF SECTION

SECTION 7 CONDUCTOR CASING AND SANITARY SEAL

PART 1 - GENERAL

7.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for drilling of a 54-inch diameter borehole to 50 feet bgs, installation of 42-inch OD by 3/8-inch wall thickness mild steel conductor casing to a depth of 50 feet bgs, and installation of a sanitary cement seal to 50 feet bgs.

7.02 Measurement and Payment

- A. Payment for the following bid items will be based on the nearest number of linear vertical feet of conductor casing and sanitary cement seal successfully installed as specified herein. To qualify for payment, the conductor casing must be installed to the total depth and diameter as specified herein.

PART 2 – MATERIALS

7.03 General

- A. The CONTRACTOR shall provide all necessary equipment for drilling and installation of the conductor casing well, including tools, accessories, pumps, power plant, fuel, materials, supplies, water, and other equipment, and the experienced personnel necessary to conduct safe and efficient operations.

7.04 Drilling Rig

- A. The CONTRACTOR shall provide a drilling rig and all associated equipment necessary for drilling a conductor borehole to the depths and diameters specified herein.

7.05 Conductor Casing

- A. The conductor casing shall consist of newly manufactured mild steel conforming to the physical properties of ASTM Specification A139 Grade B using the spiral well process, by the Roscoe Moss Company or an approved equal.
- B. The conductor casing shall extend from 0.5 feet above ground surface (ags) to 50 feet bgs and shall consist of 36-inch OD by 3/8-inch wall thickness steel (see Drawings 4 and 5). The conductor casing shall have a collapse strength of 36 psi, 83 feet of water, or 40 feet of cement, when assuming a casing eccentricity of 0.01.
- C. Each section of conductor casing shall be a minimum of 20 feet in length unless otherwise approved by the HYDROGEOLOGIST.

- D. Section ends shall be machined perpendicular to the main axis of the conductor casing and shall not vary by more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.
- E. Should casing collars be used they shall have a minimum height of 5 inches, rolled to fit the outside diameter of the conductor casing, and welded to each section of the conductor casing. The inside edge of the collars shall be ground or sufficiently scarfed as to remove sharp edges or burrs. Each collar shall have a minimum of three (3) 3/8-inch diameter alignment (i.e., siting) holes to ensure proper matching of adjacent casing sections.

7.06 Centralizers

- A. Centralizers shall consist of steel straps measuring approximately 1/4-inch thick by 2.5 inches wide, and approximately 20 inches in length and shall be positioned a minimum of 4 inches from the surface of the conductor casing.
- B. Centralizers shall be manufactured from steel with the same physical and chemical properties as the well casing and screen to which they are attached.

7.07 Cement Seal

- A. The sanitary cement seal shall be a 10.3-sack grout mix consisting of 968 lbs. of cement conforming to ASTM C150 Type II, and 1,936 lbs. of washed sand (i.e., 2 parts sand to 1 part cement by weight) to create a volume of one (1) cubic yard of material. No other cement mix will be accepted without prior approval by all applicable regulatory agencies.
- B. Approximately 60 gallons of water per cubic yard shall be added to the mix with a maximum of 63 gallons per cubic yard allowed, as necessary to create conditions more conducive to pumping. Care must be taken to avoid segregation of the mix by the addition of excessive quantities of water.
- C. All water added to the mix, whether at the plant or on site, shall be clean, potable, and free of contamination and/or suspended material.
- D. The weight of the mixture shall be approximately 128-lbs/cu ft. A maximum of 2% by weight of calcium chloride, may be added, upon approval by the HYDROGEOLOGIST, to condition the slurry for a fluid mix, and to accelerate setting time.
- E. The grout mixture shall be well mixed, hydrated, and free of clumps, as witnessed by the HYDROGEOLOGIST during pumping.
- F. In no case shall more than two hours elapse from the time that water is added to the mix at the plant, to the time that the mix is installed, as demonstrated by information contained upon the cement delivery tickets. The HYDROGEOLOGIST may reject individual deliveries of grout based upon violation of this requirement.

7.08 Cement Pump

- A. The cement pump shall be capable of pumping the specified grout mixture under pressure to the specified depth and by the specified means.
- B. A grate shall be placed over the pump hopper through which the grout mixture will be pumped. The purpose of the grate is to prevent gravel and large clumps of grout from entering the well during placement.
- C. The cement pump shall be equipped with a pressure gauge to allow monitoring of the forces being exerted by the cement pump.

PART 3 - EXECUTION

7.01 Notifications

- A. The CONTRACTOR shall notify the HYDROGEOLOGIST a minimum of 48 hours prior to placement of the sanitary cement seal, and shall facilitate inspections, as required.

7.02 Submittals

- A. The CONTRACTOR shall submit mill certificates (with matching heat numbers) and delivery tickets for the conductor casing to the HYDROGEOLOGIST a minimum of 72 hours prior to conductor borehole drilling.
- B. The CONTRACTOR shall submit current qualification test records from an industry authorized test facility for all welders to be utilized. The qualifications shall pertain to the type of steel to be welded.
- C. The CONTRACTOR shall measure, record, and submit accurate up-to-the-minute tallies of all tubular material during installation of the conductor casing and sanitary seal, including conductor casing and tremie pipe. The tallies shall include accurate lengths for each individual joints of tubing along with a total cumulative length.
- D. The CONTRACTOR shall provide the manufacturer name, plant location, volume, and details regarding the cement mix at least 72 hours prior to installation of the sanitary seal.
- E. The CONTRACTOR shall submit cement delivery tickets for each load of cement materials delivered to the site, including the date and time of the mix at the plant, and time of delivery to the site.
- F. The CONTRACTOR shall collect samples of the cement as it is being pumped, and shall place it in the drilling fluid reservoirs or bucket of drilling fluid to simulate downhole conditions and to verify that each lift of cement is sufficiently set before proceeding with subsequent lifts.

7.03 Conductor Borehole Drilling

- A. The CONTRACTOR shall drill a 54-inch diameter borehole to a depth of 50 feet bgs using a bucket and/or flight auger.
- B. The quality of the conductor borehole shall be such that the conductor casing can be installed in a plumb orientation while maintaining a minimum 4-inch annular space between the conductor casing and the borehole wall.

7.04 Formation Sample Collection

- A. The CONTRACTOR shall collect formation samples at intervals of 10 feet during conductor borehole drilling ,or at significant changes in formation.
- B. Each sample shall consist of one (1) gallon of drained, unwashed formation material placed inside one (1) gallon-sized plastic Ziploc® freezer bags provided by the CONTRACTOR. Each sample bag shall be labeled with the well name, date, time, and depth interval.
- C. The samples shall be stored and protected at the site to allow for classification and interpretation by the HYDROGEOLOGIST. Samples shall not be disposed of without approval of the HYDROGEOLOGIST.
- D. The Contractor shall prepare and maintain a log of the formation samples. The log shall include the depth interval and general description of each formation type.

7.05 Conductor Casing Installation

- A. During installation, the conductor casing shall be set at the bottom of the conductor borehole such that a seal is formed between the annular space and inside of the conductor casing. The CONTRACTOR may add additional materials to the inside of the conductor casing prior to cement installation to prevent invasion of cement into the well casing.
- B. The conductor casing shall be fitted with centering guides (i.e., centralizers) that center and hold the conductor casing in the proper position until installation of the sanitary seal has been completed.
- C. A minimum of two (2) sets of four (4) centralizers shall be attached to the conductor casing within five (5) feet of the top and bottom of the casing string, or as otherwise directed by the HYDROGEOLOGIST. Centralizers shall be welded at 90° intervals around the circumference of the casing, and shall have a clearance of approximately 4 inches from between the outer surface of the conductor casing and the borehole wall.
- D. The CONTRACTOR shall provide competent and experienced workers to perform all field welding using the ARC welding process using equipment and techniques specific to the chemical and physical properties of the material being welded.

- E. Welding shall be in accordance with the provisions of Section IX of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code or equivalent for water well applications.
- F. Each section of conductor casing shall be field welded with a minimum of two (2) passes per circumference. A root pass shall be made at the fillet between the welding collar and the upper casing or screen section. After removal of slag, additional filler passes shall be made on the fillet as required by the thickness of the casing and/or collar.
- G. The CONTRACTOR shall weld all alignment and/or lifting holes shut following completion of each fillet weld. All welded joints shall be watertight.

7.06 Sanitary Seal

- A. The CONTRACTOR shall provide personnel trained and experienced with the operation and application of equipment used to install the sanitary seal.
- B. Following placement of the conductor casing within the conductor borehole, the CONTRACTOR shall install the 10.3-sack sand-cement grout mixture within the annular space between the conductor casing and borehole wall.
- C. The grout mixture shall be pumped under pressure through a tremie pipe. The tremie pipe shall initially be placed within five (5) feet of the bottom of the conductor borehole and slowly withdrawn as the grout mixture is pumped. The end of the tremie pipe shall remain submerged within the grout at all times and no section of tremie pipe shall be removed until excessive pressures are exerted on the cement pump.
- D. The CONTRACTOR shall contain and properly dispose of fluids displaced from the annular space during installation of the sanitary seal.
- E. The well shall remain completely undisturbed for a period of 24 hours following installation of the sanitary seal in order to allow the grout to adequately cure. No standby time or additional payment will be made to the CONTRACTOR during this minimum 24-hour period. The conductor casing shall be adequately secured during this period.
- F. The CONTRACTOR shall be aware of and protect against hydrostatic forces acting on the conductor casing during installation of the sanitary seal, including but not limited to, backfill of the conductor casing to counteract external pressures.
- G. In the event of casing collapse, the CONTRACTOR shall take whatever steps are necessary to reinstall the conductor casing as specified. Remedial action shall be conducted at the CONTRACTOR's expense.
- H. The CONTRACTOR shall keep a record of the volume of grout installed within the well. The volume added shall not be less than the calculated volume of the annular space.

- I. The CONTRACTOR shall properly secure the conductor casing until such time as pilot borehole drilling is about to begin. This shall be accomplished by attaching a temporary cover to the top of the conductor casing.

END OF SECTION

SECTION 8 PILOT BOREHOLE DRILLING

PART 1 - GENERAL

8.01 Description

- A. This bid item shall include drilling a 17.5-inch diameter pilot borehole from the bottom of the conductor casing at 50 feet bgs to a depth of 980 feet bgs at Well No. 7.
- B. This bid item shall include drilling a 17.5-inch diameter pilot borehole from the bottom of the conductor casing at 50 feet bgs to a depth of 1,300 feet bgs at Well No. 8.

8.02 Measurement and Payment

- A. Payment for fully and completely drilling the 17.5-inch diameter pilot borehole will be based on the unit bid price for vertical feet of borehole drilled. To qualify for payment, the pilot borehole must be drilled to the depths and diameter as specified herein.

PART 2 – MATERIALS

8.03 General

- A. The CONTRACTOR shall provide all necessary equipment for drilling and construction of the well, including tools, accessories, pumps, air compressor, power plant, fuel, materials, supplies, lighting, water, and other equipment, and the experienced personnel necessary to conduct safe and efficient drilling operations. All equipment provided by the CONTRACTOR shall be made available for inspection by the HYDROGEOLOGIST prior to mobilization and initiation of drilling. The CONTRACTOR shall replace any equipment identified by the HYDROGEOLOGIST as being unsuitable for use, either due to mechanical problems or due to evidence of contamination.
- B. Prior to mobilization the CONTRACTOR shall submit a complete list of equipment to be used in performance of the work as specified herein.

8.04 Drilling Rig

- A. The CONTRACTOR shall provide a reverse circulation rotary drilling rig and all associated and necessary equipment. The drilling rig shall be in good working condition and have sufficient capacity to drill a borehole and construct a well to the depth and diameter specified herein, including all ancillary tubing. The mast and all running gear shall have a proven, sufficient and demonstrated capacity to lift three times the buoyant weight of either the drill string or the casing and screen assembly, whichever is greater.

- B. The drilling rig shall be equipped with a weight indicator, geolograph, and Totco drift indicator, or approved equal. The drift indicator shall include centralizers and targets specifically designed for use with the tool (i.e., a 3-degree tool will require 3-degree targets).

8.05 Drill Pipe

- A. The drill pipe shall be in good condition and shall be connected by standard tool joints. Utilization of drill pipe with flanged connections will not be permitted. The drill pipe shall be steam-cleaned prior to arrival at the work area. Drill pipe suspected of being contaminated shall be removed and replaced with clean drill pipe at the CONTRACTOR's expense. On-site cleaning of contaminated drill pipe will not be permitted. The type of pipe dope and any other lubricating material used on threaded joints will be subject to review and approval by the HYDROGEOLOGIST.

8.06 Drilling Fluids and Drilling Fluid Reservoirs

- A. The CONTRACTOR shall provide an air compressor with the capability of properly driving circulation of borehole fluids during drilling. The air compressor shall be equipped with proper filtering devices to prevent contamination of the borehole.
- B. The CONTRACTOR shall provide a filter press, balance, Marsh funnel, sand content set, and all equipment and materials necessary for measuring drilling fluid properties.
- C. The CONTRACTOR shall provide drilling fluid reservoirs with a minimum capacity equal to the total borehole volume, including the conductor casing (i.e., approximately 15,200 gallons at Well No. 7 and 19,200 gallons at Well No. 8). The fluid reservoirs shall be baffled or otherwise equipped to allow for effective settling of entrained drill cuttings from the drilling fluids prior to being recirculated downhole. Sediment shall be removed from the fluid reservoirs at an interval sufficient to maintain tank volume and drilling fluid properties, as specified herein. Use of excavated mud pits will not be allowed.
- D. The CONTRACTOR shall provide all necessary drilling fluid control equipment to control and maintain the drilling fluid properties specified herein, including, as necessary, a shear mixing system, shale shakers, and de-sanders and de-silters.
- E. The CONTRACTOR shall provide a sample collection box, or other device approved by the HYDROGEOLOGIST, for the collection of cuttings samples.

PART 3 - EXECUTION

8.07 Submittals

- A. The CONTRACTOR shall submit the following items prior to pilot borehole drilling for review, approval or rejection by the HYDROGEOLOGIST.

- (1) Drilling fluid control program.
- (2) Name and contact information for the CONTRACTOR's mud engineer.

8.08 Drilling Fluid Control Plan

- A. The CONTRACTOR shall prepare and submit to the HYDROGEOLOGIST, a Drilling Fluid Control Plan, the purpose of which is to serve as guidance with regard to controlling and maintaining drilling fluids while protecting water-bearing formations, providing for a stable borehole during drilling, and enabling efficient removal of drill cuttings and settleable material from the borehole.
- B. The plan shall include a detailed list and schematic of the drilling fluid control equipment that the CONTRACTOR plans to use for the project along with anticipated mix quantities and mix ratios. The CONTRACTOR shall provide a detailed list, along with descriptions and SDS sheets, for all drilling fluid additives that are anticipated to be utilized. The plan shall include a description of the methods to be utilized by the CONTRACTOR in the event of borehole instability, lost circulation, or other difficult drilling conditions.
- C. The CONTRACTOR will provide the services of an experienced drilling fluid engineer, at the CONTRACTOR's expense, if at any time the CONTRACTOR cannot maintain the specified drilling fluid parameters, should difficult drilling conditions arise, or at the request of the HYDROGEOLOGIST.

Drilling fluid properties shall be maintained within the following specified ranges unless otherwise indicated by the HYDROGEOLOGIST.

- (1) Weight: 8.5 – 9.0 pounds per gallon normal (9.5 pounds per gallons maximum).
- (2) Funnel Viscosity: 28 – 35 seconds normal (38 seconds maximum).
- (3) Sand Content: less than 2% by volume.
- (4) Filter Cake Thickness (30 minutes at 100 PSI): 2/32 inch maximum.
- (5) 30-minute Water Loss: less than or equal to 15 cubic centimeters.
- (6) pH: 7.0 to 9.0 units.

8.09 Record-Keeping

- A. The CONTRACTOR shall maintain an accurate and detailed log of operations upon standard American Petroleum Institute (API) forms, and shall make said records available to the HYDROGEOLOGIST on a daily basis, or upon request. Failure to provide adequate records within a reasonable time period shall be considered ground for stopping work. At a minimum, the log shall include the following information:

- (1) The names of all on-site personnel along with shift times.
- (2) A description of the type, character, depth, and thickness of formation materials.
- (3) A note of difficult or unusual drilling conditions, including time and depth.
- (4) A record of drilling penetration rate.
- (5) The time and depth of each drill pipe connection.
- (6) Drilling fluid properties.
- (7) Time, depth, quantity, and description of any additives to the drilling fluid.
- (8) Time and reason for any interruptions in borehole drilling.
- (9) An accurate up-to-the-minute tally of all on-site drill pipe, tubing, and well casing, either downhole, stored at the surface, or on the derrick.

8.10 Pilot Borehole Drilling

- A. The CONTRACTOR shall drill a 17.5-inch diameter borehole from the bottom of the conductor casing at 50 feet bgs to a total depth of 980 feet bgs (Well No. 7) and 1,300 feet bgs (Well No. 8) using the reverse circulation rotary drilling method.
- B. The completed borehole shall be sufficiently stable to allow for isolated aquifer zone testing as specified herein.
- C. The CONTRACTOR shall not drill below the specified depth unless for his own purposes and only upon approval by the HYDROGEOLOGIST. No additional payment will be made for drilling of the borehole below the specified depth unless otherwise approved of by the OWNER and HYDROGEOLOGIST.
- D. The CONTRACTOR shall conduct drilling operations in such a way as to maintain borehole plumbness and alignment.
- E. The CONTRACTOR shall conduct field measurements of borehole drift at 100 foot intervals during drilling, beginning at a depth of 150 feet bgs. Any drift measurement in excess of 1/2-degree shall be corrected by the CONTRACTOR during drilling.

8.11 Drilling Fluid Control

- A. The CONTRACTOR shall measure drilling fluid properties as specified herein at a minimum interval of four (4) hours during borehole drilling or circulation.
- B. The HYDROGEOLOGIST will periodically measure drilling fluid properties during borehole drilling and/or circulation as an independent verification of the

- CONTRACTOR's measurements. The CONTRACTOR shall accommodate the HYDROGEOLOGIST in measurement of drilling fluid properties.
- C. Should drilling fluid properties fail to meet the limits specified herein at any time during drilling and/or circulation, the CONTRACTOR shall immediately cease drilling and condition the drilling fluid until it meets specified limits.
 - D. Should the CONTRACTOR be unable to maintain drilling fluid properties within the limits specified herein, or should difficult drilling conditions arise, the CONTRACTOR shall immediately consult with the CONTRACTOR's drilling fluid engineer, at the CONTRACTOR's expense. The mud engineer will consult with the CONTRACTOR and HYDROGEOLOGIST, and assist the CONTRACTOR with bringing the drilling fluid into conformance with the specified limits, or shall provide justification to the HYDROGEOLOGIST should this not be possible.
 - E. All drilling fluid additives, including the use of lost-circulation materials, shall be approved by the HYDROGEOLOGIST prior to mobilization, and prior to use.
 - F. Drilling fluid additives must be NSF/ANSI Standard 60 certified, and must be used in accordance with the manufacturer's recommendations.
 - G. The CONTRACTOR shall use potable water to prepare drilling fluids.

8.12 Conditioning of Drilling Fluids

- A. Once the CONTRACTOR has drilled the pilot borehole to the specified depth, the CONTRACTOR shall circulate and condition the drilling fluid until the drilling fluid is in conformance with the following requirements.
 - (1) Weight: less than 8.9 pounds per gallon.
 - (2) Funnel Viscosity: less than 30 seconds.
 - (3) Sand Content: less than 0.5% by volume.
- B. Following conditioning of the drilling fluids, the CONTRACTOR shall continue to circulate drilling fluids for a minimum period of 60 minutes.

8.13 Inspections

- A. The CONTRACTOR shall notify the HYDROGEOLOGIST a minimum of five (5) days in advance of beginning pilot borehole drilling.
- B. The CONTRACTOR shall make all drilling equipment available for inspection by the HYDROGEOLOGIST prior to mobilization and initiation of drilling.

- C. Upon request, the CONTRACTOR shall make formation sample collection equipment, the sample storage area, and formation samples, available for inspection by the HYDROGEOLOGIST.
- D. During drilling, the CONTRACTOR shall provide daily drilling logs, mud log, lithologic log, tally sheets, materials tickets, casing schedule, drift measurement targets, and any other pertinent records to the HYDROGEOLOGIST upon request.
- E. During drilling, and upon request by the HYDROGEOLOGIST, the CONTRACTOR shall provide samples of drilling fluid and shall make available any and all equipment needed for independent analysis of drilling fluid properties.

END OF SECTION

SECTION 9 BOREHOLE GEOPHYSICAL SURVEYS

PART 1 - GENERAL

9.01 Description

- A. This bid item shall include provision of all labor and equipment necessary to complete borehole geophysical surveys of the pilot borehole to the total depth as specified herein. The geophysical survey shall be performed by a firm retained by the CONTRACTOR and approved of by the HYDROGEOLOGIST.
- B. The borehole geophysical surveys shall include the following:
 - (1) 16-inch and 64-inch normal resistivity.
 - (2) Spontaneous potential (SP).
 - (3) Focused resistivity (i.e., Laterolog 3 or guard log).
 - (4) Gamma-ray.
 - (5) Sonic velocity/variable density.
 - (6) Open-borehole deviation.

9.02 Measurement and Payment

- A. Payment for fully and completely providing for the geophysical surveys will be based on the lump sum unit price set forth within the bid schedule.
- B. Payment shall include full compensation for operation of the drilling rig and other equipment, furnishing and operating survey equipment as specified, and providing whatever assistance may be required to complete the surveys. There will be no additional payment for rig time or idle time while the surveys are being completed.

PART 2 - MATERIALS

9.03 Drawworks

- A. The drawworks utilized by the geophysical survey logging firm shall measure depth to the nearest vertical foot below ground surface.
- B. The accepted error in depth shall not exceed one (1) percent of the total depth of the survey log. The geophysical logging firm shall verify the accuracy of depth measurements upon request of the HYDROGEOLOGIST.

- C. A duplicate geophysical log may be run on a 20-foot section of the borehole, chosen at the discretion of the HYDROGEOLOGIST, to be used for purposes of comparison to the original geophysical log.

9.04 Electric Logging Tools

- A. The electric logging tools shall include equipment necessary to perform spontaneous potential, gamma ray and resistivity (16-inch normal, 64-inch normal, and focused resistivity) surveys.

9.05 Sonic Velocity/Variable Density Tool

- A. The sonic velocity/variable density tool must be centralized within the open borehole and shall include all equipment necessary to measure and record delta time, variable density, integrated transit time, and sonic porosity.

9.06 Open-Borehole Deviation Tool

- A. The deviation survey tool shall measure the direction and inclination of the pilot borehole by means of a magnetometer.

PART 3 - EXECUTION

9.07 Submittals

- A. The CONTRACTOR shall submit the name and qualifications of the firm proposed to conduct the borehole geophysical surveys to the HYDROGEOLOGIST a minimum of 72 hours prior to performance of the survey.
- B. The CONTRACTOR shall submit six (6) copies of each geophysical survey log to the HYDROGEOLOGIST immediately following completion of the survey, including electronic copies in ASCII (i.e., LAS) and portable document (i.e., PDF) formats.
- C. The vertical scale for all geophysical survey logs shall be 20 feet per inch and shall comply with API standards in both grid pattern and depth labeling.
- D. Electric Resistivity Surveys
 - (1) The horizontal scale for the 16-inch normal, 64-inch normal, and focused resistivity logs shall range from 20 to 40 ohmmeter²/meter (i.e., ohm-meters) per inch unless otherwise approved by the HYDROGEOLOGIST.
 - (2) The horizontal scale for the spontaneous potential survey log shall range from 5 to 20 millivolts per inch unless otherwise specified by the HYDROGEOLOGIST.

- (3) The electric resistivity survey logs shall have appended to them any information necessary for proper interpretation of the log, including the resistivity of the mud and mud filtrate, and surface and bottom hole fluid temperatures.
- (4) The geophysical survey logs shall represent the depth-specific geophysical properties of subsurface formation materials and be scaled appropriately to allow adequate definition and interpretation of subsurface materials, selection of isolated aquifer zone test intervals, and preparation of the final well design.

E. Sonic Velocity/Variable Density Survey

- (1) The electric sonic velocity/variable density survey logs shall have appended to them any information necessary for proper interpretation of the log.
- (2) The sonic velocity/variable density survey log shall include delta-time in $\mu\text{sec}/\text{foot}$, integrated transit time in msec, and a graphical representation of variable density.
- (3) The survey logs shall have gamma ray and focused resistivity logs superimposed onto the delta time and variable density plots for ease of correlation and interpretation.

F. Borehole Deviation Survey

- (1) The borehole deviation survey log shall include a tabulated list of station depths no greater than 10 vertical feet apart, including inclination, azimuth, true vertical depth, north-south departure, east-west departure, closure distance, and closure direction.
- (2) The borehole deviation survey log shall include graphical plots showing plan view and closure sections in the north-south and east-west directions.
- (3) Borehole deviation calculations shall be by the minimum curvature method.

9.08 Survey

- A. The CONTRACTOR shall provide assistance to the survey company, as necessary, in order to successfully complete the geophysical surveys.
- B. The vertical line speed for all surveys shall be 40 feet per minute, unless otherwise specified by the equipment manufacturer and approved by the HYDROGEOLOGIST.
- C. In the event that the geophysical surveys cannot be completed to the total specified depth, or should the borehole not conform to the depth specified herein, the CONTRACTOR may be required by the HYDROGEOLOGIST to clean and recondition the borehole and repeat the geophysical surveys at no additional cost to the OWNER.
- D. The CONTRACTOR shall allow up to 24 hours of idle time following completion of the borehole geophysical surveys for the HYDROGEOLOGIST to provide interpretation

and select recommended isolated aquifer zone test intervals. No additional payment will be provided to the CONTRACTOR during this time.

9.09 Inspections

- A. All borehole geophysical surveys shall be conducted in the presence of the HYDROGEOLOGIST.
- B. The CONTRACTOR shall notify the HYDROGEOLOGIST a minimum of 24 hours in advance of performing the borehole geophysical surveys. During this idle time, the CONTRACTOR shall circulate fluids within the borehole by means of tremie pipe.

END OF SECTION

SECTION 10 ISOLATED AQUIFER ZONE TESTING

PART 1 - GENERAL

10.01 Description

- A. Isolated aquifer zone testing consists of isolating individual 20-foot sections of aquifer for purposes of testing for depth-specific water quality and aquifer production potential. This bid item shall include the following:
- (1) Providing zone construction, airlifting, seal verification, pumping, and analytical laboratory services for four (4) aquifer zone test intervals.

10.02 Measurement and Payment

- A. Payment for fully and completely conducting isolated aquifer zone testing as specified herein shall be as follows:
- (1) Payment for Construction of each Aquifer Zone – Payment will be based on the lump sum unit price set forth within the bid schedule for construction of each zone, including a minimum of two (2) hours of airlifting. To qualify for payment, the annular seals shall be verified to be functioning as described herein.
 - (2) Payment for Pumping of each Aquifer Zone – Payment will be based on the unit price per hour set forth within the bid schedule for pumping of each aquifer zone. The duration of pumping will be recorded to the nearest 15 minutes from the time when the test pump is turned on to when the test pump is turned off. No payment will be made for delays resulting from stuck equipment, equipment breakdown, arranging for pumping or testing equipment, or failure to conduct operations in a diligent and workmanlike manner.
 - (3) Payment for Provision of Laboratory Analysis of Groundwater Samples – Payment will be based on the lump sum unit price set forth within the bid schedule for provision of laboratory analytical services for groundwater quality samples collected from each aquifer zone.

PART 2 - MATERIALS

10.03 Zone Tool

- A. The perforated tool used for isolated aquifer zone testing shall consist of 8-inch diameter pipe perforated across 20 feet of its length with vertical mill slots. The open area shall be sufficient to allow efficient transmission of water during airlifting and pumping of each isolated aquifer zone.

- B. The bottom of the perforated zone tool shall be fitted with a removable cap such that the zone tool can be thoroughly cleaned prior to construction of each zone.

10.04 Zone Gravel

- A. The gravel used for isolated aquifer zone testing shall be clean, washed, inert, durable, rounded, and free from elongated particles, and shall be free of impurities and fine material such as clay and silt. The use of crushed or otherwise angular rock shall not be permitted.
- B. The manufacturer and gradation of gravel used for zone testing shall be subject to review and approval of the HYDROGEOLOGIST.

10.05 Seal Material

- A. The upper and lower seals for each isolated aquifer zone shall consist of bentonite chips manufactured by Baroid® Industrial Drilling Products unless otherwise approved by the HYDROGEOLOGIST.
- B. The bentonite chips shall be 1/4-inch to 3/8-inch size and shall be pure and uncoated.

10.06 Tagging Tool

- A. The CONTRACTOR shall furnish a tool for accurately measuring the depth of the zone tool and backfill materials to the nearest foot during construction.
- B. The tagging tool shall be sufficiently weighted with an inert and non-hazardous material attached to a steel wireline of sufficient strength to support the tool during construction.
- C. The CONTRACTOR shall demonstrate the accuracy of the tagging tool to the HYDROGEOLOGIST upon request.

10.07 Airlifting Equipment

- A. The CONTRACTOR shall provide an air compressor capable of sufficient pressures and air flow to provide for airlifting of up to 300 gpm.
- B. The CONTRACTOR shall provide a means by which pressures can be slowly increased during airlifting such that there is minimal disturbance to the zone seals.
- C. The CONTRACTOR shall provide temporary discharge piping to convey airlifted fluids to the designated point of discharge without generating nuisance water at the project site.

10.08 Electric Water Level Sounder

- A. The CONTRACTOR shall provide an electric water level sounder for use during zone testing that is capable of water level measurements to the nearest 0.1 foot.

- B. The water level sounder shall be one continuous section of wire and shall not have been previously spliced, cut, or otherwise modified.
- C. The CONTRACTOR shall demonstrate the accuracy of the water level sounder upon request by the HYDROGEOLOGIST.

10.09 Submersible Pump

- A. The CONTRACTOR shall furnish a submersible pump capable of producing up to approximately 200 gpm against approximately 700 feet of lift.
- B. The CONTRACTOR shall provide a valve suitable for adjusting flow from each zone interval. The valve shall be located downstream of the flowmeter.
- C. The CONTRACTOR shall provide temporary discharge piping to convey pumped fluids to the designated point of discharge without generating nuisance water at the project site.

10.10 Flowmeter

- A. The CONTRACTOR shall provide a totalizer-equipped flowmeter capable of measuring the rate and volume of water produced during zone testing.
- B. The flowmeter shall be capable of measuring instantaneous flow rate in gpm and total volume produced to the nearest 10 gallons.

10.11 Sample Port

- A. The CONTRACTOR shall furnish and install a stainless steel sample port on the discharge line suitable for connecting 3/8-inch HDPE tubing.
- B. The sample port shall be designed and constructed such that laminar flow can be achieved and such that the flow rate can be readily adjusted.
- C. The sample port shall be located upstream of the flowmeter.
- D. No Teflon products will be allowed on any part of the discharge assembly.

10.12 Water Quality Meters

- A. The CONTRACTOR shall provide working water quality meters for measurement of pH, electrical conductivity, total dissolved solids, temperature, turbidity, and residual chlorine.
- B. Water quality meters shall be provided with appropriate reagents, as necessary, and be properly calibrated immediately prior to use. All reagents shall be within their indicated expiration dates. The CONTRACTOR shall demonstrate acceptable meter calibration upon request by the HYDROGEOLOGIST.

- C. Water quality meters shall be of sufficient accuracy and precision to meet all applicable requirements for field monitoring of discharged waste water.
- D. The CONTRACTOR shall provide personnel that are competent and properly educated as to the calibration and operation of the water quality meters.

PART 3 - EXECUTION

10.13 Submittals

- A. The CONTRACTOR shall submit a pump curve to the HYDROGEOLOGIST prior to the beginning zone construction.
- B. The CONTRACTOR shall submit a certificate of calibration for the flowmeter demonstrating that the flowmeter has been calibrated within the previous 12 months.
- C. The CONTRACTOR shall submit a shop drawing detailing the dimensions and specifications of the water quality sampling port to the HYDROGEOLOGIST within 72 hours of beginning final well development.

10.14 Zone Construction

- A. The perforated zone tool shall be thoroughly cleaned to the satisfaction of the HYDROGEOLOGIST prior to construction of each zone. The CONTRACTOR shall accommodate inspection of the zone tool by the HYDROGEOLOGIST prior to zone construction.
- B. The CONTRACTOR shall install the zone tool to the specified zone test interval with reasonable accuracy (i.e., within approximately one foot). The depth of the perforated zone tool shall be confirmed by using a weighted tagging tool inside the zone tool. The CONTRACTOR shall accommodate witness and approval of the zone tool tag by the HYDROGEOLOGIST prior to backfilling the annular space.
- C. The CONTRACTOR shall utilize tremie pipe for the introduction of all zone construction materials. Initially, the end of the tremie pipe shall be placed approximately 10 feet below the aquifer zone to be tested and shall be withdrawn as zone construction materials are emplaced. At no times shall the tremie pipe be allowed to be any greater than the nominal length of one joint of tremie pipe (i.e., 31 feet) above the top of material being added.
- D. Bulk gravel shall be used, as necessary, to backfill the portion of the borehole below approximately 20 feet below the zone to tested.
- E. The top of the lower bentonite seal shall be approximately 10 feet below the bottom of the perforated section of the zone tool and shall be a minimum of 10 feet in thickness.

- F. The gravel envelope shall be placed above the lower seal, extending approximately 10 feet above the top of the perforated section of the zone tool.
- G. The upper bentonite seal shall be placed above the gravel envelope and shall be a minimum of 10 feet in thickness. The CONTRACTOR may extend the thickness of the upper bentonite seal at his discretion and shall assume any additional risk imparted by extension of the upper bentonite seal.
- H. The CONTRACTOR shall measure the depths to the top and bottom of the gravel envelope and bentonite seals to the nearest foot below ground surface using a weighted tagging tool. The CONTRACTOR shall accommodate witness and approval of all annular material tags by the HYDROGEOLOGIST.
- I. The CONTRACTOR shall allow bentonite seal materials to hydrate for a minimum period of five (5) hours following emplacement. No work shall take place within the zone test or borehole during this period of time.

10.15 Seal Verification

- A. The CONTRACTOR may begin airlift development of the zone test interval once the required bentonite hydration period has been met.
- B. The purpose of airlift development is to remove drilling fluids and suspended solids from the zone interval to allow pump installation and to verify that the bentonite seals are functioning properly. During airlifting the CONTRACTOR shall hydraulically isolate the drilling fluid reservoir located directly adjacent to the conductor casing such that fluid levels in the borehole can be monitored independently from the effects of the discharge.
- C. The introduction of air for airlifting shall begin slowly and be ramped upwards to reduce the potential for damage to the bentonite seals from vibration.
- D. The aquifer zone interval shall be airlifted for a minimum of two (2) hours. Following two (2) hours of airlifting the CONTRACTOR shall cease airlifting and measure recovering water levels within the zone tool for a minimum period of one (1) hour.
- E. Properly functioning bentonite seals shall be demonstrated and verified by the HYDROGEOLOGIST as follows:
 - (1) Discharged fluids during the airlifting period show a marked reduction in turbidity and suspended solids.
 - (2) Fluid levels within isolated fluid reservoirs and conductor borehole remain relatively constant while taking into account natural water loss within the borehole.

- (3) Water levels as measured within the zone tool following cessation of airlifting recover and become asymptotic to a level below fluid levels within the circulation reservoirs and to the satisfaction of the HYDROGEOLOGIST.
- F. Upon seal verification by the HYDROGEOLOGIST, the CONTRACTOR may proceed with additional airlift development, at his discretion, or proceed with pump development.
- G. If at any time there is an indication that the bentonite seals are not functioning properly, the CONTRACTOR, at his expense, shall resolve the problem. This may include installation of additional seal materials, additional airlifting and/or pumping, or cleaning of the pilot borehole and reconstruction of the failed zone.

10.16 Pumping and Sampling of Aquifer Zones

- A. Upon completion of airlifting and seal verification, the CONTRACTOR shall install a submersible pump to a depth agreed upon through consultation with the HYDROGEOLOGIST.
- B. Pumping shall begin at low rates and shall be slowly ramped upwards over a period of approximately 30 minutes to reduce the potential for damage to bentonite seals from excessive differential pressures.
- C. The CONTRACTOR shall measure and record static water level within the zone tool to the nearest tenth of one foot below ground surface prior to pumping and one (1) hour following cessation of pumping, and shall provide said water levels to the HYDROGEOLOGIST.
- D. The CONTRACTOR shall measure the following parameters during pumping at a minimum interval of once per hour.
 - (1) The date and exact time of all measurements and recordings.
 - (2) Pumping water levels within the zone tool to the nearest tenth of one foot below ground surface.
 - (3) Instantaneous discharge rate in gpm and total volume pumped in gallons.
 - (4) Field water quality parameters, including:
 - a. Turbidity, in nephelometric turbidity units (NTU).
 - b. Electrical conductivity, in microsiemens per centimeter ($\mu\text{S}/\text{cm}$).
 - c. Total dissolved solids, in parts per million (ppm).
 - d. pH.
 - e. Temperature, in degrees Celsius (deg. C).

- E. The CONTRACTOR shall notify the HYDROGEOLOGIST when the turbidity of water discharged from the zone measures 10 NTU or less. At this time, the CONTRACTOR shall continue to pump the aquifer zone for a period of time determined by the HYDROGEOLOGIST, but in no case less than three (3) hours.
- F. Following pumping at low turbidity, the HYDROGEOLOGIST, at his discretion, will collect water quality samples from the sampling port and submit the samples to the State-certified analytical laboratory identified herein for those constituents listed in Table 1. The CONTRACTOR shall continue to pump the zone and measure field parameters as specified herein until water quality sampling is completed.
- G. The CONTRACTOR will be responsible for all laboratory fees associated with isolated aquifer zone testing (see Table 1).
- H. Following completion of water quality sampling, the CONTRACTOR shall cease pumping and measure recovering water levels for one (1) hour, as specified herein.
- I. Following the required water level monitoring period, or as otherwise indicated by the HYDROGEOLOGIST, the CONTRACTOR shall remove the submersible pump, drill pipe, and zone tool entirely from the borehole, and shall thoroughly clean the perforated zone tool. There shall be no material within the perforated openings of the zone tool and no fill or sediment contained within the body of the tool. Once the tool has been cleaned to the satisfaction of the HYDROGEOLOGIST, the CONTRACTOR may repeat the zone testing process for subsequent zones until all zones have been completed.
- J. Following isolated aquifer zone testing the CONTRACTOR will suspend operations at the work site for a period of 14 calendar days to allow preparation of the final well design.

END OF SECTION

SECTION 11 BOREHOLE REAMING

PART 1 - GENERAL

11.01 Description

- A. This bid item shall include reaming of the 17.5-inch diameter pilot borehole to 36-inch diameter from the bottom of the conductor casing at 50 feet bgs to a depth of 220 feet bgs.
- B. This bid item shall include reaming of the 17.5-inch diameter pilot borehole to 30-inch diameter from 220 to 980 feet bgs (Well No. 7) and 220 to 1,300 feet bgs (Well No. 8).

11.02 Measurement and Payment

- A. Payment for fully and completely reaming the 17.5-inch diameter pilot borehole to 36-inch and 30-inch diameter will be based on the unit bid price for vertical feet of borehole reamed. To qualify for payment, the pilot borehole must be reamed to the depths and diameters as specified herein.

PART 2 - MATERIALS

11.03 Materials and Equipment

- A. The CONTRACTOR shall provide all necessary equipment and personnel for safe and efficient reaming of the pilot borehole to the depths and diameter specified herein. All equipment provided by the CONTRACTOR shall be made available for inspection by the HYDROGEOLOGIST prior to initiation of borehole reaming. The CONTRACTOR shall replace any equipment identified by the HYDROGEOLOGIST as being unsuitable for use, either due to mechanical problems or due to evidence of contamination.
- B. Equipment utilized for borehole reaming shall be identified by the CONTRACTOR prior to mobilization.

11.04 Drilling Rig

- A. The CONTRACTOR shall provide a reverse circulation rotary drilling rig and all associated equipment necessary for reaming of the pilot borehole to the depths and diameters specified herein, and in accordance with Section 8 – Pilot Borehole Drilling.
- B. The CONTRACTOR shall provide reamer assemblies, including a pilot bit, capable of reaming the pilot borehole to the depths and diameters specified herein without compromising the verticality of the existing borehole.

PART 3 - EXECUTION

11.05 Drilling Fluid Control

- A. Drilling fluid control shall adhere to the requirements of the CONTRACTOR's Drilling Fluid Control Plan and the limits specified in Section 8 – Pilot Borehole Drilling.

11.06 Record-Keeping

- A. The CONTRACTOR shall keep and maintain records in accordance with the requirements specified in Section 8 – Pilot Borehole Drilling.

11.07 Borehole Reaming

- A. The CONTRACTOR shall not begin a reaming pass prior to receipt of an approved final well design from the HYDROGEOLOGIST.
- B. The CONTRACTOR shall ream the existing 17.5-inch diameter borehole to 36 inches in diameter from the bottom of the existing conductor casing at 50 feet bgs to a depth of 220 feet bgs using the reverse circulation rotary drilling method (see Drawings 4 and 5).
- C. The CONTRACTOR shall ream the existing 17.5-inch diameter borehole to 30 inches in diameter from 220 feet bgs to a total depth of 980 feet bgs (Well No.7) and 1,300 feet bgs (Well No. 8) using the reverse circulation rotary drilling method (see Drawings 4 and 5).
- D. The CONTRACTOR shall not drill below the specified depth unless for his own purposes and only upon approval by the HYDROGEOLOGIST. No additional payment will be made for drilling of the borehole below the specified depth.
- E. The CONTRACTOR shall use a pilot bit as part of all reamer assemblies.
- F. The completed borehole shall be sufficiently stable to allow for well construction to take place as specified herein. The completed borehole must be of sufficient diameter and verticality such that the verticality requirement for the well is met, and such that a minimum of two (2) inches of annular space is maintained around all tubular well components, including well casing, screen, and ancillary tubing.
- G. The CONTRACTOR shall conduct periodic field measurements of borehole drift at the direction of the HYDROGEOLOGIST. Any drift measurement in excess of ½-degree shall be corrected by the CONTRACTOR during reaming.
- H. In the event that a borehole caliper survey cannot be completed to the total specified depth, or should the borehole not conform to the depths and diameters specified herein, the CONTRACTOR may be required by the HYDROGEOLOGIST to re-ream the borehole and repeat the borehole caliper survey at no additional cost to the OWNER.

11.08 Conditioning of Drilling Fluids

- A. Once the CONTRACTOR has reamed the pilot borehole to the depths and diameters specified herein, the CONTRACTOR shall circulate and condition the drilling fluid until the drilling fluid is in conformance with the following requirements. Conditioning of drilling fluids shall take place prior to conducting the borehole caliper survey and initiation of well construction.
 - (1) Weight: less than 8.5 pounds per gallon.
 - (2) Funnel Viscosity: less than 29 seconds.
 - (3) Sand Content: less than 0.5% by volume.
- B. Following conditioning of the drilling fluids, the CONTRACTOR shall continue to circulate drilling fluids for a minimum period of 60 minutes and immediately prior to performance of the borehole caliper survey (see Section 12 – Borehole Caliper Survey).

11.09 Inspections

- A. The CONTRACTOR shall notify the HYDROGEOLOGIST a minimum of 72 hours in advance of beginning borehole reaming.
- B. The CONTRACTOR shall make all drilling equipment available for inspection by the HYDROGEOLOGIST prior to mobilization and initiation of drilling.
- C. During borehole reaming, the CONTRACTOR shall provide daily drilling logs, mud log, lithologic log, tally sheets, materials tickets, casing schedule, drift measurement targets, and any other pertinent records to the HYDROGEOLOGIST upon request.
- D. During drilling, and upon request by the HYDROGEOLOGIST, the CONTRACTOR shall provide samples of drilling fluid and shall make available any and all equipment needed for independent analysis of drilling fluid properties.

END OF SECTION

SECTION 12 CALIPER SURVEY

PART 1 - GENERAL

12.01 Description

- A. This bid item shall include provision of all labor and equipment necessary to complete a caliper survey of the final borehole to the total depth as specified herein. The caliper survey shall be performed prior to well construction by a firm retained by the CONTRACTOR and approved of by the HYDROGEOLOGIST.

12.02 Measurement and Payment

- A. Payment for fully and completely providing for the caliper survey will be based on the lump sum unit price set forth within the bid schedule.
- B. Payment shall include full compensation for operation of the drilling rig and other equipment, furnishing and operating caliper survey equipment as specified, and providing whatever assistance may be required to accomplish the caliper survey. There will be no additional payment for rig time or idle time while the survey is being completed.

PART 2 - MATERIALS

12.03 Caliper Survey Tool

- A. The caliper survey tool shall have a minimum of three arms and be capable of measuring borehole diameters of up to 60 inches.
- B. The depth of the caliper survey tool shall be measured to the nearest foot and be accurate to within one percent of actual depth.
- C. The caliper survey tool shall be calibrated prior to and following completion of the survey.

PART 3 - EXECUTION

12.04 Submittals

- A. The CONTRACTOR shall submit the name and qualifications of the firm proposed to conduct the caliper survey to the HYDROGEOLOGIST a minimum of 72 hours prior to performance of the survey.
- B. The CONTRACTOR shall submit six (6) copies of the caliper survey log to the HYDROGEOLOGIST immediately following completion of the survey, including electronic copies in ASCII (i.e., LAS) and portable document (i.e., PDF) formats.
- C. The horizontal scale for the caliper survey plot shall be four (4) inches diameter per inch.

- D. The vertical scale for all logs shall be 20 feet per inch.
- E. The caliper survey log shall provide total borehole volume and annular borehole volume in cubic feet, accounting for the well casing, screen, and ancillary tubing.
- F. All volumes shall be presented in cumulative cubic feet from the bottom of the borehole to the ground surface.

12.05 Survey

- A. The borehole caliper survey shall be performed no more than eight (8) hours prior to the initiation of well construction.
- B. The logging speed for the caliper survey shall be no greater than 40 feet per minute, unless otherwise approved by the HYDROGEOLOGIST.
- C. The CONTRACTOR shall provide assistance to the survey company, as necessary, in order to successfully complete the caliper survey.
- D. In the event that a borehole caliper survey cannot be completed to the total specified depth, or should the borehole not conform to the depths and diameters specified herein, the CONTRACTOR may be required by the HYDROGEOLOGIST to re-ream the borehole and repeat the borehole caliper survey at no additional cost to the OWNER.

12.06 Inspections

- A. The CONTRACTOR shall notify the HYDROGEOLOGIST a minimum of 24 hours in advance of performing the borehole caliper survey.

END OF SECTION

SECTION 13 WELL CASING AND SCREEN

PART 1 - GENERAL

13.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for well construction, including blank well casing, well screen, and ancillary tubing.

13.02 Measurement and Payment

- A. Payment for the following bid items will be based on the nearest number of linear vertical feet successfully installed as specified herein.
 - (1) 20-inch ID by 3/8-inch wall thickness blank well casing.
 - (2) 20-inch ID by 5/16-inch wall thickness blank well casing.
 - (3) 20-inch ID by 5/16-inch wall thickness louvered well screen.
 - (4) 20-inch ID by 5/16-inch wall thickness blank well casing with end plate.
 - (5) 3-inch Sch. 40 gravel feed tubes.
 - (6) 2-inch Sch. 40 sounding tube.

PART 2 - MATERIALS

13.03 Blank Well Casing

- A. All blank well casing shall consist of newly manufactured HSLA steel conforming to the physical properties of ASTM A606 Type 4 using the spiral weld process, by Roscoe Moss Company or an approved equal.
- B. The blank well casing extending from +2 to 220 feet bgs shall consist of 20-inch ID by 3/8-inch wall thickness steel (see Drawing 4 and 5). The 3/8-inch wall blank well casing shall have a collapse strength of 287 psi or 664 feet of water.
- C. The blank well casing extending from 220 to 300 feet bgs (Well No 7) and 220 to 800 feet bgs (Well No. 8) shall consist of 20-inch ID by 5/16-inch wall thickness steel (see Drawings 4 and 5). The 5/16-inch wall blank well casing shall have a collapse strength of 179 psi or 413 feet of water.
- D. The lowermost section of blank well casing extending from 950 to 960 feet bgs (Well No. 7) and from 1,270 to 1,280 feet bgs (Well No. 8) shall be equipped with an end cap of the same physical and chemical properties as that of the well casing and screen.

13.04 Well Screen

- A. All well screen shall consist of newly manufactured HSLA steel conforming to the physical properties of ASTM Specification A606 Type 4 using the spiral weld process, by Roscoe Moss Company or an approved equal (see Drawings 4 and 5)
- B. The well screen extending from 300 to 950 feet bgs (Well No. 7) and 800 to 1,280 feet bgs (Well No. 8) shall consist of 20-inch ID by 5/16-inch wall thickness steel (see Drawings 4 and 5). The 5/16-inch wall well screen shall have a collapse strength of 243 psi or 561 feet of water.
- C. The louvered slot size shall be 0.080-inches with a variance of ± 0.0070 inches.

13.05 Well Casing and Screen Collars

- A. To facilitate a more accurate field welding process, the top end of each section of well casing and screen shall be furnished with collars of the same physical and chemical properties of the corresponding well casing and/or screen sections.
- B. The collars shall have a minimum height of 5 inches, rolled to fit the outside diameter of the casing and screen, and welded to each section of well casing and screen. The inside edge of the collars shall be ground or sufficiently scarfed as to remove sharp edges or burrs.
- C. Section ends shall be machined perpendicular to the main axis of the well casing and screen and shall not vary by more than 0.010 inches at any point from a true plane at right angles to the axis of the casing.
- D. Each collar shall have a minimum of three (3) 3/8-inch diameter alignment (i.e., siting) holes to ensure proper matching of adjacent casing sections. These alignment holes shall be equally spaced approximately 120° around the circumference of each collar.

13.06 Centralizers

- A. Centralizers shall consist of straps measuring approximately 1/4-inch thick by 2.5 inches wide, and approximately 20 inches in length. The length of centralizers attached to the well screen section shall be of a length that does not result in welding of centralizers directly to the well screen louvers.
- B. Centralizers shall be manufactured from steel with the same physical and chemical properties as the well casing and screen to which they are attached.

13.07 Gravel Feed Tubes

- A. The gravel tubes shall consist of newly manufactured 3-inch diameter Sch. 40 mild steel pipe extending from one (1) feet ags to 210 feet bgs (see Drawings 4 and 5).

13.08 Sounding Tube

- A. The sounding tube shall consist of newly manufactured 2-inch diameter Sch. 40 mild steel pipe extending from one (1) feet ags to 298 feet bgs (Well No. 7; see Drawing 4) and to 798 feet bgs (Well No. 8; see Drawing 5).

13.09 Sounding Tube Connection Box

- A. The sounding tube shall transition into the well casing through 3-inch by 3-inch by 2-foot long sounding tube connection box as shown on Drawing 8.
- B. The sounding tube connection box shall be manufactured of steel with the same physical and chemical properties as the well casing and screen and shall be manufactured and attached to the well casing by Roscoe Moss Company, or approved equal.
- C. The connection box shall be free of sharp edges, burrs, and/or obstructions that would hinder the passage of equipment from the sounding tube to the well.
- D. The bottom plate of the sounding tube connection box shall be placed at a 60° angle to the vertical axis of the well casing to allow for a smooth transition from the sounding tube to the inside of the well casing.

PART 3 - EXECUTION

13.10 Submittals

- A. The CONTRACTOR shall submit mill certificates (with matching heat numbers), a casing schedule, and delivery tickets for the well casing, screen, and ancillary tubing to the HYDROGEOLOGIST a minimum of 72 hours prior to initiation of well construction.
- B. The CONTRACTOR shall submit a drawing to the HYDROGEOLOGIST detailing the dimensions and orientation of the sounding tube connection box.
- C. The orientation of ancillary tubing at the ground surface shall be as shown on Drawings 9 and 10 or as otherwise indicated by the HYDROGEOLOGIST in the final well design.
- D. The CONTRACTOR shall submit current qualification test records from an industry authorized test facility for all welders to be utilized. The qualifications shall pertain to the type of steel to be welded.

- E. The CONTRACTOR shall measure, record, and submit accurate up-to-the-minute tallies of all tubular material during all phases of well construction, including well casing, screen, gravel fill tube, sounding tube, and tremie pipe. All tallies shall include accurate lengths for each individual joints of tubing along with a total cumulative length.

13.11 Conditioning of Drilling Fluids

- A. Prior to well construction, the CONTRACTOR shall condition the drilling fluids as specified in Section 11 – Borehole Reaming.

13.12 Welding

- A. The CONTRACTOR shall provide competent and experienced workers to perform all field welding using the ARC welding process using equipment and techniques specific to the chemical and physical properties of the material being welded.
- B. Welding shall be in accordance with the provisions of Section IX of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code or equivalent for water well applications.
- C. After each new casing or screen section has been seated and determined to be vertical, the casing joint shall be field welded with a minimum of two (2) passes per circumference. A root pass shall be made at the fillet between the welding collar and the upper casing or screen section. After removal of slag, additional filler passes shall be made on the fillet as required by the thickness of the casing and collar.
- D. The CONTRACTOR shall weld all alignment and/or lifting holes shut following completion of each fillet weld. All welded joints shall be watertight.

13.13 Well Casing and Screen Assembly

- A. Following completion of the caliper survey and confirmation of appropriate borehole diameters and depths, the CONTRACTOR shall install flush-threaded tremie pipe within the reamed borehole to a depth not more than the nominal length of one tremie pipe (i.e., 31 feet) above the bottom of the borehole.
- B. During installation, the well casing and screen shall be suspended above the bottom of the borehole such that the casing remains under tension and unsupported by the bottom of the borehole prior to installation of the gravel envelope.
- C. Should it become evident during installation that the well casing and screen is no longer completely under suspension, and/or there are difficulties lowering the well casing and screen within the borehole, it may be necessary to remove the casing string and re-ream

- the borehole. Well casing and screen that has been removed from the borehole shall be inspected by the manufacturer and shall not be reinstalled without prior approval.
- D. The well casing and screen shall be fitted with centering guides (i.e., centralizers) that center and hold the well casing and screen in the proper position until installation of the annular materials (i.e., gravel envelope and annular cement seal) has been completed.
 - E. Centralizers shall be attached to the well casing and screen at intervals of no greater than 120 feet, or as otherwise directed by the HYDROGEOLOGIST.
 - F. Centralizers shall be welded at 90° intervals around the circumference of the casing, and shall have a clearance of approximately 1-inch from between the outer surface of each centralizer and the borehole wall.
 - G. Lifting lugs installed by the casing manufacturer shall not be removed by the CONTRACTOR and shall remain in place during construction.

13.14 Ancillary Tubing

- A. The CONTRACTOR shall install the gravel tubes prior to installation of the well casing and screen assembly. All gravel fill pipe joints shall be butt-welded and watertight.
- B. The CONTRACTOR shall install all ancillary tubing prior to or concurrent with installation of the well casing and screen assembly. All ancillary tubing joints shall be butt-welded and watertight.
- C. Ancillary tubing shall be centralized such that a 2-inch annular space is maintained around each tube in accordance with regulatory requirements. Differing steel types shall be installed such that they are electrically isolated from one other, and such that conditions which may promote galvanic corrosion can be avoided.
- D. The CONTRACTOR shall demonstrate that each gravel tube is functioning correctly before acceptance of the work by the OWNER. This shall be accomplished by adding water to the tube at a rate of 5 gpm for a minimum period of one (1) hour without causing overflowing conditions.
- E. The CONTRACTOR shall orient the ancillary tubing at the surface according to the plan provided to the CONTRACTOR by the HYDROGEOLOGIST (see Drawings 8 and 9).
- F. The top of all ancillary tubing shall be sealed and secured by welding mild steel covers circumferentially to each tube.

13.15 Securing the Well

- A. During and following well construction, the CONTRACTOR shall take adequate precautions to secure the well against tampering, entrance of foreign objects, and for safety

reasons. This shall be accomplished through either the presence of the CONTRACTOR's on-site personnel, or through use of temporary covers attached to the casing and ancillary tubing when personnel are not present.

END OF SECTION

SECTION 14 GRAVEL ENVELOPE

PART 1 - GENERAL

14.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for installation of the gravel envelope and transition sand within the annular space between the outer surface of the well casing and screen and the borehole wall.

14.02 Measurement and Payment

- A. Payment will be based on the nearest number of linear vertical feet of gravel envelope and transition sand successfully installed as specified herein.

PART 2 - MATERIALS

14.03 Gravel Envelope

- A. The gravel envelope material shall be a Tacna Sand & Gravel 4 x 16 engineered gravel blend, or approved equal, unless otherwise indicated by the HYDROGEOLOGIST.
- B. The gravel envelope material shall conform to the design gradation as determined by the HYDROGEOLOGIST through mechanical grading analysis of selected samples of the gravel envelope material collected at the time of delivery to the site.
- C. The gravel envelope material shall be naturally-sourced, durable, well-rounded, washed, and free of organic materials and flat or elongated particles (i.e., particles with a length to width ratio of greater than 3:1). The gravel envelope shall be free of carbonate minerals, mica, and fine-grained materials such as silt and clay. No more than 5% of the gravel envelope material shall be soluble in hydrochloric acid.
- D. The gravel envelope material shall be delivered to the site in closed approximately one (1) cubic yard super sacks and labeled with the manufacturer's name, gradation, date of delivery, and load number. The use of gravel material that has come in direct contact with the ground, or shows evidence of contamination, shall not be used.

14.04 Transition Sand

- A. The transition sand shall consist of a #60 mesh fine- to medium-grained construction sand of relatively uniform gradation. The transition sand shall be clean, washed, and free from contamination.

14.05 Sodium Hypochlorite

- A. The disinfectant used during gravel envelope installation shall consist of newly purchased 12.5% liquid sodium hypochlorite solution. The use of granular and/or calcium-based disinfection materials shall not be allowed.
- B. The sodium hypochlorite solution shall be delivered in sealed containers from the original manufacturer, and bearing the original manufacturer's product labelling indicating the percentage of available free chlorine.
- C. The sodium hypochlorite solution shall comply with NSF/ANSI Standard 60 certification.

14.06 Tagging Tool

- A. The CONTRACTOR shall furnish a tool for accurately measuring the depth of the zone tool and backfill materials to the nearest foot during construction.
- B. The tagging tool shall be sufficiently weighted with an inert material attached to a steel wireline of sufficient strength to support the tool during construction.
- C. The CONTRACTOR shall demonstrate to the HYDROGEOLOGIST, upon request, the accuracy and repeatability of measurements made with the tagging tool. The tagging tool shall be replaced should the CONTRACTOR be unable to demonstrate sufficient accuracy and repeatability.

PART 3 - EXECUTION

14.07 Submittals

- A. The CONTRACTOR shall submit the manufacturer's most recent mechanical grading analysis of the specified gravel envelope material to the HYDROGEOLOGIST prior to initiation of borehole reaming.
- B. The CONTRACTOR shall submit a 500 gram physical sample of specified gravel envelope material to the HYDROGEOLOGIST prior to initiation of borehole reaming.
- C. The CONTRACTOR shall provide an estimate of the volume of gravel required to construct the well as specified and as based on the caliper survey of the reamed borehole, including contingencies.
- D. The CONTRACTOR shall provide an adequate contingency of additional gravel material in the event that a greater volume of material is needed. Use of bulk gravel or any other gravel in place of the specified material shall not be allowed.
- E. The CONTRACTOR shall submit the manufacturer, gradation, and anticipated volume of transition sand to the HYDROGEOLOGIST prior to initiation of borehole reaming.

- F. The CONTRACTOR shall submit a 100 gram sample of the transition sand to the HYDROGEOLOGIST prior to initiation of borehole reaming.
- G. The CONTRACTOR shall submit a shop drawing showing the dimensions and configuration of the wireline swabbing tool to be used for gravel envelope consolidation.

14.08 Gravel Envelope Installation

- A. Immediately following installation of the well casing, screen, and ancillary tubing, the CONTRACTOR shall begin installation of the gravel envelope material
- B. The gravel envelope material shall be placed within the annular space between the borehole wall and the well casing and screen assembly by pumping through a tremie pipe with conditioned drilling fluids, the end of which shall be placed no greater than the nominal length of one joint of tremie pipe (i.e., 31 feet) from the bottom of the reamed borehole.
- C. The tremie pipe shall be withdrawn as the gravel is placed but at no time shall the end of the tremie pipe be greater than the nominal length of one joint of tremie pipe from the top of the gravel envelope during installation.
- D. The depth to the top of the gravel envelope shall be measured by the CONTRACTOR with a calibrated tagging tool as directed by the HYDROGEOLOGIST, but in no case less frequently than upon removal of each joint of tremie pipe.
- E. The gravel envelope material shall be disinfected during installation by adding 1 to 2 gallons of 12.5% liquid sodium hypochlorite solution for each cubic yard of gravel material installed.
- F. The quantity of gravel envelope material installed within the annular space shall be frequently compared to the calculated volume of the annulus as indicated by the borehole caliper survey log. In the event that the volume of filter pack placed is less than the calculated volume of the annular space, the CONTRACTOR may be required to swab the well screen with a single-swab tool attached to a wireline until the total amount of gravel added is acceptable to the HYDROGEOLOGIST.
- G. All ancillary tubing (i.e., gravel and sounding tubes) shall be continuously flushed with fresh potable water throughout the gravel envelope installation process.
- H. The CONTRACTOR shall ensure that fluid circulation within the borehole is continuous from the time of conditioning of the drilling fluids until the time that installation of the gravel envelope is completed.

14.09 Installation of Transition Sand

- A. Prior to installation of the transition sand, the CONTRACTOR shall consolidate the gravel envelope by swabbing the well screen using an approved single-swab tool attached to a wireline. Consolidation shall continue for a minimum of one hour or until there is no further measurable settling of the gravel envelope.
- B. A transition sand, as specified herein, shall be placed on top of the consolidated gravel envelope via tremie pipe.
- C. The transition sand shall be allowed to settle for a period of one hour before proceeding with installation of the annular cement seal.

END OF SECTION

SECTION 15 ANNULAR SEAL

PART 1 - GENERAL

15.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for installation of the annular cement seal above the gravel envelope and within the annular space between the outer surface of the upper well casing and the borehole wall, including a 24-hour period of inactivity to allow for proper curing of the cement.

15.02 Measurement and Payment

- A. Payment will be based on the nearest number of linear vertical feet of annular cement seal successfully installed as specified herein.

PART 2 - MATERIALS

15.03 Sand-Cement Grout

- A. The annular seal mix be a 10.3-sack grout mix consisting of 968 lbs. of cement conforming to ASTM C150 Type II, and 1,936 lbs. of washed sand (i.e., 2 parts sand to 1 part cement by weight) to create a volume of one (1) cubic yard of material. No other cement mix will be accepted without prior approval by all applicable regulatory agencies.
- B. Approximately 60 gallons of water per cubic yard shall be added to the mix with a maximum of 63 gallons per cubic yard allowed, as necessary to create conditions more conducive to pumping. Care must be taken to avoid segregation of the mix by the addition of excessive quantities of water.
- C. All water added to the mix, whether at the plant or on site, shall be clean, potable, and free of contamination and/or suspended material.
- D. The weight of the mixture shall be approximately 128-lbs/cu ft. A maximum of 2% by weight of calcium chloride, may be added, upon approval by the HYDROGEOLOGIST, to condition the slurry for a fluid mix, and to accelerate setting time.
- E. The grout mixture shall be well mixed, hydrated, and free of clumps, as witnessed by the HYDROGEOLOGIST during pumping.
- F. In no case shall more than two hours elapse from the time that water is added to the mix at the plant, to the time that the mix is installed in the well, as demonstrated by information contained upon the cement delivery tickets. The HYDROGEOLOGIST may reject individual deliveries of grout based upon violation of this requirement.

15.04 Cement Pump

- A. The cement pump shall be capable of pumping the specified grout mixture under pressure to the specified depth and by the specified means.
- B. A grate shall be placed over the pump hopper through which the grout mixture will be pumped. The purpose of the grate is to prevent gravel and large clumps of grout from entering the well during placement.
- C. The cement pump shall be equipped with a pressure gauge to allow monitoring of the forces being exerted by the cement pump.

PART 3 - EXECUTION

15.05 Submittals

- A. The CONTRACTOR shall provide the manufacturer name, plant location, volume, and details regarding the cement mix at least 72 hours prior to installation of the annular seal.
- B. The CONTRACTOR shall submit cement delivery tickets for each load of cement materials delivered to the site, including mix details, the date and time of the mix at the plant, and time of delivery to the site.
- C. The CONTRACTOR shall collect samples of the cement as it is being pumped, and shall place it in the drilling fluid reservoirs or bucket of drilling fluid to simulate downhole conditions and to verify that each lift of cement is sufficiently set before proceeding with subsequent lifts.

15.06 Annular Seal

- A. The CONTRACTOR shall provide personnel trained and experienced with the operation and application of equipment used to install the annular cement seal.
- B. Following placement of the gravel envelope and transition sand, and upon direction by the HYDROGEOLOGIST, the CONTRACTOR shall install the 10.3-sack sand-cement grout mixture within the annular space between the borehole wall and well casing from the top of the gravel envelop and transition sand, as specified herein.
- C. The grout mixture shall be pumped under pressure through the same tremie pipe utilized for installation of the gravel envelope and transition sand. The tremie pipe shall initially be placed within five (5) feet of the top of the transition sand and then slowly withdrawn as the grout mixture is pumped. Other than the first five (5) feet of grout pumped, the end of the tremie pipe shall remain submerged within the grout at all times.

- D. The CONTRACTOR shall contain and properly dispose of fluids displaced from the well during installation of the annular seal.
- E. The well shall remain completely undisturbed for a period of 24 hours following installation of the annular seal in order to allow the grout to adequately cure. No standby time or additional payment will be made to the CONTRACTOR during this minimum 24-hour period. The well casing shall be adequately secured during this period.
- F. The CONTRACTOR shall be aware of and protect against hydrostatic forces acting on the well casing during installation of the annular seal, and if necessary, conduct the grouting operation in staged lifts, allowing sufficient time following installation of each interval for the grout mixture to settle and adequately cure. In the event of casing collapse, the CONTRACTOR shall take whatever steps are necessary to reopen the well and place the seal as specified. Remedial action shall be conducted at the CONTRACTOR's expense.
- G. The height of each grouting lift and minimum time between lifts shall be determined by the CONTRACTOR through consultation with the casing manufacturer and shall be subject to approval by the HYDROGEOLOGIST. However, in no case should any single lift be greater than 212 feet for this well, assuming a safety factor of 150%.
- H. The CONTRACTOR shall keep a record of the volume of grout installed within the well. The volume added shall not be less than the calculated volume of the annular space.
- I. The CONTRACTOR shall take whatever precautions are necessary to prevent casing collapse during placement of the cement seal.

END OF SECTION

SECTION 16 INITIAL WELL DEVELOPMENT

PART 1 - GENERAL

16.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for initial well development by focused intake pumping and swabbing.

16.02 Measurement and Payment

- A. Payment for initial well development will be based on the unit bid price per hour of initial well development completed, with 15-minute intervals being the smallest unit of recorded time. The time measured and recorded shall begin upon initiation of pumping and swabbing and stop upon cessation of pumping and swabbing. No payment will be made for installation, removal, or setup of equipment.

PART 2 - MATERIALS

16.03 Focused Intake Pumping and Swabbing Tool

- A. The CONTRACTOR shall provide a swab tool that shall consist of two (2) rubber disks spaced 10 feet apart at either end of a perforated section of pipe with sufficient open area to allow effective pumping to take place. The diameter of the rubber disks shall be no greater than 1/2-inch smaller than the inside diameter of the well casing and screen.
- B. The swab tool shall be deployed within the well upon pipe within the screened section(s) of the well, and shall be designed such that initial development by simultaneous swabbing and pumping can occur.
- C. The focused intake pump shall achieve a constant instantaneous minimum pumping rate of up to 500 gpm. Flow rates shall be controlled using a variable frequency drive (VFD) tailored to meet anticipated pumping dynamics.
- D. The focused intake pump shall be sealed within a pump chamber in-line with the swab tool and discharge pipe, and shall be fitted with a check valve above the pump to prevent backflow of material into the swab tool upon cessation of pumping.
- E. The CONTRACTOR shall provide aboveground support equipment that shall be of sufficient size and strength to allow suspension of the entire focused intake pump, swab, and discharge assembly, and allow swabbing to occur over 30-foot sections of well screen while simultaneously pumping.
- F. The CONTRACTOR shall provide a generator of sufficient output to drive the pump at the desired flow rate and under the anticipated pumping conditions.

16.04 Imhoff Cone

- A. The CONTRACTOR shall provide at least two (2) Imhoff cones for use by the HYDROGEOLOGIST in determining the character and concentration of entrained material generated during initial well development.
- B. The Imhoff cones shall be newly purchase, clean, and in working order.
- C. The Imhoff cones used shall be of a type that have 0.1-mL resolution between the zero and 0.5 mL measurement interval.

16.05 Water Quality Meters

- A. The CONTRACTOR shall provide working water quality meters for measurement of pH, electrical conductivity, total dissolved solids, temperature, turbidity, and residual chlorine.
- B. Water quality meters shall be provided with appropriate reagents, as necessary, and be properly calibrated immediately prior to use. All reagents shall be within their indicated expiration dates.
- C. Water quality meters shall be of sufficient accuracy and precision to meet all applicable requirements for field monitoring of discharged waste water.
- D. The CONTRACTOR shall provide personnel that are competent and properly educated as to the calibration and operation of the water quality meters.

PART 3 - EXECUTION

16.06 Submittals

- A. The CONTRACTOR shall provide the HYDROGEOLOGIST with a shop drawing detailing the dimensions of and materials used to construct the focused intake pump and swab tool at least 72 hours prior to the onset of initial well development.
- B. The CONTRACTOR shall submit initial development data to the HYDROGEOLOGIST at the end of each working day, or upon request.

16.07 Focused Intake Pumping and Swabbing

- A. Initial development of the well shall begin with removal of material from the bottom of the well within 48 hours of installation of the annular seal. The purpose of this task is to facilitate removal of gravel, sand, and heavy drilling fluids from the bottom of the well before beginning swabbing of the well screen.
- B. Cleaning of the well sump shall continue until there are no further foreign materials removed from the well sump or in no case less than a period of four (4) hours.

- C. Following cleaning of the well sump, the CONTRACTOR shall begin swabbing and pumping of the well screen interval(s). This process shall begin at the bottom of the lowermost well screen interval and work in the upwards direction in 10-foot intervals across the entire length of well screen(s).
- D. The swabbing tool shall be moved vigorously across each 10-foot interval of screen, while simultaneously pumping at rates of up to 500 gpm, until the gravel envelope is thoroughly consolidated and as free of suspended and settleable solids as is considered practical.
- E. A continuous stream of clean, potable water shall be added to each gravel feed tube during initial development. Additional gravel shall be added to the gravel tubes as necessary during well development.
- F. The time allotted for focused intake pumping and swabbing each interval of well screen shall be directed by the HYDROGEOLOGIST.
- G. Upon completion of initial well development, the CONTRACTOR shall tag the bottom of the well. As necessary, and at the discretion of the HYDROGEOLOGIST, the CONTRACTOR shall repeat cleaning of the well sump to remove any sediment generated during initial development prior to beginning final development by pumping and surging.

16.08 Record Keeping

- A. The CONTRACTOR shall measure and record the following parameters during initial well development at 20-minute intervals or as directed by the HYDROGEOLOGIST.
 - (1) Day and date.
 - (2) Interval swabbed, measured to the nearest foot.
 - (3) Beginning and end time of swabbing, to the nearest minute.
 - (4) Approximate pumping flow rate, to the nearest 20 gpm.
 - (5) Amount of entrained material within the pumped fluids at the beginning and end of each 20-minute swabbing interval, to the nearest 0.1 ml/L.
 - (6) Observations of any unusual conditions within the pumped fluids.
- B. The CONTRACTOR shall measure and record any changes to the depth of the gravel envelope as measured within the gravel tubes at the beginning and end of each work day.

END OF SECTION

SECTION 17 TEST PUMP INSTALLATION

PART 1 - GENERAL

17.01 Description

- A. This bid item shall include furnishing, installation, and removal of a vertical turbine test pump, motor, discharge head and piping, and any other materials necessary to complete final well development and aquifer testing as specified herein.

17.02 Measurement and Payment

- A. Payment for fully and completely providing for test pump installation and removal will be based on the lump sum unit price set forth within the bid schedule.
- B. No more than 70% of this bid item will be furnishing, transporting, and setting up the test pump, motor, discharge head and piping, and other equipment.
- C. The remaining 30% of this bid item will be paid following demobilization of the test pump, motor, discharge head and piping, and other equipment from the site.

PART 2 - MATERIALS

17.03 Vertical Turbine Test Pump and Motor

- A. The vertical turbine test pumps shall be set at a depth of 400 feet bgs (Well No. 7) and 900 feet bgs (Well No. 8). The CONTRACTOR shall coordinate with the HYDROGEOLOGIST regarding the depth of the test pump intake setting at least three (3) days prior to test pump installation.
- B. When set within the well screen, the pump intake shall be fitted with a minimum 30-foot section of perforated suction pipe to reduce high-velocity flow through the well screen.
- C. The vertical turbine test pump and motor shall have a minimum production capacity of 3,500 gpm from a depth of approximately 380 feet bgs (Well No. 7), and 880 feet bgs (Well No. 8), not including frictional head losses imparted by the temporary conveyance pipeline. The CONTRACTOR shall recognize that these values may vary and should accommodate contingencies of up to 10% variability in pumping rate, pump setting, and head requirements.
- D. The prime mover shall be variable speed.

17.04 Flowmeter

- A. The CONTRACTOR shall include a mechanical flowmeter, valves, and/or other approved devices necessary to accurately measure and control the rate of discharge.

- B. The flowmeter shall include a totalizer. Acceptable measurement units for volume discharged shall include gallons, acre-feet, or cubic feet. The flowmeter shall include instantaneous discharge rate readings in gallons per minute.
- C. The HYDROGEOLOGIST may require verification of instantaneous flow rate through independent measurement of flow by means other than the flowmeter. This may include discharge into a receptacle of known volume over a specific period of time.

17.05 Rossum Centrifugal Sand Tester

- A. The CONTRACTOR shall install a Rossum centrifugal sand tester on the discharge line such that entrained sand concentrations can be measured during final well development and aquifer testing. The CONTRACTOR shall consult with the manufacturer of the Rossum sand tester to determine an acceptable location and configuration.

17.06 Sample Port

- A. The CONTRACTOR shall furnish and install a stainless steel sample port on the discharge line suitable for connecting 3/8-inch HDPE tubing.
- B. The sample port shall be designed and constructed such that laminar flow can be achieved and such that the flow rate can be readily adjusted.
- C. The sample port shall be located upstream of the flowmeter.
- D. The sampling port shall be located upstream of the Rossum centrifugal sand tester, flow control valving, and mechanical flowmeter. The use of Teflon sealing materials shall not be allowed at any point upstream of the sampling port.

PART 3 - EXECUTION

17.07 Submittals

- A. The CONTRACTOR shall submit the proposed test pump curve, depth of pump intake, and minimum and maximum capacity of the test pump and motor to the HYDROGEOLOGIST at least 72 hours prior to installation of the test pump.
- B. The CONTRACTOR shall submit a map showing the proposed route of the temporary conveyance pipeline, and all BMPs and energy dissipation measures to be used during final development and testing. The map shall be submitted to the HYDROGEOLOGIST at least 72 hours prior to installation of the test pump.
- C. The CONTRACTOR shall demonstrate that the flowmeter device used on the discharge piping has been calibrated within the past twelve months by submitting a calibration

- certificate to the HYDROGEOLOGIST within 72 hours of beginning final well development.
- D. The CONTRACTOR shall submit a shop drawing detailing the dimensions and specifications of the water quality sampling port to the HYDROGEOLOGIST within 72 hours of beginning final well development.
- E. The CONTRACTOR shall submit a shop drawing detailing the proposed location and position of the Rossum centrifugal sand tester upon the discharge assembly to the HYDROGEOLOGIST within 72 hours of beginning final well development.

END OF SECTION

SECTION 18 FINAL WELL DEVELOPMENT

PART 1 - GENERAL

18.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for final well development by pumping and surging.

18.02 Measurement and Payment

- A. Payment for final well development will be based on the unit bid price per hour of development completed, with 15-minute intervals being the smallest unit of recorded time. The time measured and recorded shall begin upon initiation of pumping and stop upon cessation of pumping, and shall include all time spent surging the well.

PART 2 - MATERIALS

18.03 Test Pump, Motor, and Accessory Equipment

- A. The test pump, motor, discharge head and piping, and other accessory equipment necessary for final development shall adhere to the requirements of Section 17 – Test Pump Installation.

18.04 Electric Water Level Sounder

- A. The CONTRACTOR shall provide an electric water level sounder for use during zone testing that is capable of water level measurements to the nearest 0.1 foot.
- B. The water level sounder shall be one continuous section of wire and shall not have been previously spliced, cut, or otherwise modified.
- C. The CONTRACTOR shall demonstrate the accuracy of the water level sounder upon request by the HYDROGEOLOGIST.

18.05 Water Quality Meters

- A. The CONTRACTOR shall provide working water quality meters for measurement of pH, electrical conductivity, total dissolved solids, temperature, turbidity, and residual chlorine.
- B. Water quality meters shall be provided with appropriate reagents, as necessary, and be properly calibrated immediately prior to use. All reagents shall be within their indicated expiration dates. The CONTRACTOR shall demonstrate acceptable meter calibration upon request by the HYDROGEOLOGIST.

- C. Water quality meters shall be of sufficient accuracy and precision to meet all applicable requirements for field monitoring of discharged waste water.
- D. The CONTRACTOR shall provide personnel that are competent and properly educated as to the calibration and operation of the water quality meters.

PART 3 - EXECUTION

18.06 Record Keeping

- A. The CONTRACTOR shall measure and record the following parameters at the beginning of each day of development and prior to pumping.
 - (1) Day and date.
 - (2) Time of readings, measured to the nearest minute.
 - (3) Beginning reading on the flowmeter totalizer reading.
 - (4) Static water level, measured to the nearest 0.01 foot.
- B. The CONTRACTOR shall measure and record the following parameters during final well development at 5-minute intervals or as directed by the HYDROGEOLOGIST.
 - (1) Time of readings, measured to the nearest minute.
 - (2) Instantaneous flow rate, to the nearest 10 gpm.
 - (3) Flowmeter totalizer reading, measured to the smallest possible unit.
 - (4) Pumping water level, measured to the nearest 0.01 foot.
 - (5) Number of surges.
 - (6) Sand production at intervals of 5 and 20 minutes during each pumping cycle, to the nearest 0.01 milliliter (ml).
 - (7) Turbidity, measured to the nearest NTU.
 - (8) Observations of any unusual conditions within the discharge.
- C. The CONTRACTOR shall measure and record any changes to the depth of the gravel envelope as measured within the gravel tubes at the beginning and end of each work day.

18.07 Pumping and Surging

- A. Final development by pumping and surging shall begin within five (5) days of cessation of initial development by swabbing and airlifting.

- B. The initial stages of final development pumping shall begin at approximately 25% of the anticipated design capacity, and shall gradually increase to 150% of the anticipated design capacity with no surging, unless otherwise directed by the HYDROGEOLOGIST.
- C. The pump shall be periodically stopped at the direction of the HYDROGEOLOGIST to allow water within the pump column to surge back through the pump and into the well.
- D. This cycle of pumping and surging shall continue, becoming increasingly aggressive, until the HYDROGEOLOGIST has determined the following conditions to be met.
 - (1) The discharged water is clear and free of sand, silt, and drilling fluid additives.
 - (2) There is no significant increase in specific capacity.
 - (3) Sand production during the first 20 minutes of pumping at the anticipated design rate does not exceed 5 mg/L.
 - (4) Sand production following 20 minutes of pumping at the anticipated design rate does not exceed trace amounts.
 - (5) There is no further settlement of the gravel envelope within the gravel fill tubes.
 - (6) Field water quality parameters are stable to within 5% of prior readings.
- E. A continuous stream of clean, potable water shall be added to each gravel feed tube during final development. The CONTRACTOR shall add additional gravel to the gravel tubes as necessary during well development.

END OF SECTION

SECTION 19 AQUIFER TESTING

PART 1 - GENERAL

19.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for aquifer testing. This bid item shall include the following:
- (1) Aquifer testing, including:
 - a. Step drawdown test.
 - b. Constant rate drawdown test.
 - c. Recovery test.
 - (2) Flowmeter spinner survey.
 - (3) Laboratory services.

19.02 Measurement and Payment

- A. Payment for fully and completely conducting aquifer testing as specified herein shall be as follows:
- (1) Payment for Aquifer Testing – Payment will be based on the unit bid price per hour of aquifer testing completed to the nearest 15-minute interval. The time measured and recorded shall begin upon initiation of pumping and stop upon cessation of pumping, with the exception of recovery testing.
 - (2) Payment for Provision of a Flowmeter Spinner Survey – Payment will be based on the lump sum unit price set forth within the bid schedule for provision of a flowmeter spinner survey during the constant rate drawdown test.
 - (3) Payment for Provision of Laboratory Analysis of Groundwater Samples – Payment will be based on the lump sum unit price set forth within the bid schedule for provision of laboratory analytical services for groundwater quality samples collected during the constant rate drawdown test.

PART 2 - MATERIALS

19.03 Equipment

- A. The CONTRACTOR shall provide equipment and materials as specified in Section 17 – Test Pump Installation and Section 18 – Final Well Development.

PART 3 - EXECUTION

19.04 Submittals

- A. The CONTRACTOR shall submit six (6) copies of the flowmeter spinner survey log to the HYDROGEOLOGIST immediately following completion of the survey, including electronic copies in ASCII (i.e., LAS) and portable document (i.e., PDF) formats. The CONTRACTOR shall submit six (6) copies of the flowmeter spinner survey interpretation package to the HYDROGEOLOGIST within 10 business days following completion of the survey, including electronic copies in LAS and PDF formats.
- B. The CONTRACTOR shall submit the name and qualifications of the firm proposed to conduct the flowmeter survey to the HYDROGEOLOGIST a minimum of 72 hours prior to performance of the survey.

19.05 General Requirements

- A. The CONTRACTOR shall begin aquifer testing within 72 hours of the completion of final well development and at the direction of the HYDROGEOLOGIST, but in no case sooner than 24 hours following cessation of final well development.
- B. Any significant interruption in pumping during testing due to failure of the CONTRACTOR's equipment or any other factor within the CONTRACTOR's control shall result in determination of a failed test.
- C. The CONTRACTOR shall control the instantaneous pumping rate during testing to within 5% of the target flow rate specified by the HYDROGEOLOGIST. Failure to meet this requirement may result in determination of a failed test.
- D. No payment will be made to the CONTRACTOR for a failed test and the test shall be repeated at the CONTRACTOR's expense. The HYDROGEOLOGIST will determine the parameters of a failed test.

19.06 Record Keeping

- A. The CONTRACTOR shall measure and record the following parameters at the beginning of the day prior to beginning aquifer testing.
 - (1) Day and date.
 - (2) Time of readings, measured to the nearest minute.
 - (3) Beginning reading on the flowmeter totalizer reading.
 - (4) Static water level measured every five (5) minutes for 30 minutes immediately prior to beginning each aquifer test, measured to the nearest 0.01 foot.

- B. The CONTRACTOR shall measure and record the following parameters during aquifer testing, or as otherwise directed by the HYDROGEOLOGIST.
- (1) Time of readings, measured to the nearest minute.
 - (2) Instantaneous flow rate, to the nearest 10 gpm.
 - (3) Flowmeter totalizer reading, measured to the smallest possible unit.
 - (4) Pumping water level, measured to the nearest 0.01 foot.
 - (5) Drawdown, measured to the nearest 0.01 foot.
 - (6) Specific capacity, measured to the nearest 0.1 gpm/foot.
 - (7) Sand production, measured to the nearest 0.01 ml.
 - (8) Turbidity, measured to the nearest NTU.
 - (9) Observations of any unusual conditions within the discharge.
 - (10) The time and nature of any adjustments to flow rate, unplanned interruptions in pumping, and any other conditions that may affect the outcome of the testing.

19.07 Measurement Schedule

- A. The CONTRACTOR shall measure and record all aquifer test parameters, as specified herein, according to the following measurement schedule.

Elapsed Time Since Pumping Started or Stopped [minutes]	Time Interval between Measurements [minutes]
0 – 10	2
10 – 30	5
30 – 60	10
60 – 120	15
120 – 720	30
>720	60

19.08 Step Drawdown Test

- A. The step drawdown test will consist of pumping at four (4) discrete pumping rates, each of two (2) hours in duration, suitable to determine specific capacity and well efficiency relationships. The total duration of the test shall be not greater than 8 hours unless otherwise directed by the HYDROGEOLOGIST.
- B. The range of discharge rates is anticipated to occur within the maximum required flow rate of the test pump and motor.

- C. The HYDROGEOLOGIST will determine the instantaneous flow rates to be used during testing and will provide them to the CONTRACTOR within 24 hours of testing.

19.09 Constant Rate Drawdown Test

- A. The CONTRACTOR shall allow up to 48 hours of recovery from the step drawdown test before conducting the constant rate test.
- B. The constant rate drawdown test will consist of a pumping the well at a constant rate for a period of 24 hours.
- C. The discharge rate is anticipated to occur within the maximum required flow rate of the test pump and motor.
- D. The HYDROGEOLOGIST will determine the instantaneous flow rate to be used during testing and will provide it to the CONTRACTOR within 24 hours of testing.

19.10 Recovery Test

- A. Upon completion of constant rate testing, the CONTRACTOR shall measure and record recovering water levels for a period of four (4) hours or as otherwise directed by the HYDROGEOLOGIST.

19.11 Water Quality Sampling

- A. The CONTRACTOR will accommodate water quality sampling of the well toward the latter one quarter of the constant rate pumping test.
- B. The HYDROGEOLOGIST, at his discretion, will collect water quality samples from the sampling port and submit the samples to the State-certified analytical laboratory identified herein for those constituents listed in Table 2.
- C. The CONTRACTOR will be responsible for all laboratory fees associated with water quality sampling from the completed well (see Table 2).

19.12 Flowmeter Spinner Survey

- A. The CONTRACTOR will accommodate a flowmeter spinner survey during the latter one quarter of the constant rate pumping test and following collection of water quality samples. The CONTRACTOR shall be required to provide whatever assistance or accommodations that may be necessary to conduct the flowmeter survey, including, but not limited to, installation of temporary access tubing with the test pump.
- B. The spinner survey shall consist of at least three dynamic tests conducted throughout the screened portions of the well at differing line speeds (in feet per second), unless otherwise

approved by the HYDROGEOLOGIST. The record for each test shall indicate either meter speed or percentage of total meter speed with depth.

- C. There shall be no additional payment to the CONTRACTOR for extended aquifer testing time due to delays imparted by the firm conducting the flowmeter survey.

19.13 Well Bailing

- A. Upon completion of aquifer testing, the CONTRACTOR shall tag the bottom of the well. As necessary, and at the discretion of the HYDROGEOLOGIST, the CONTRACTOR shall bail the well sump to remove any sediment generated during aquifer testing.

END OF SECTION

SECTION 20 PLUMBNESS AND ALIGNMENT TESTING

PART 1 - GENERAL

20.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary to provide plumbness and alignment testing of the well.

20.02 Measurement and Payment

- A. Payment for fully and completely conducting plumbness and alignment testing as specified herein will be based on the lump sum unit price set forth within the bid schedule.

PART 2 - MATERIALS

20.03 Gyroscopic Survey Tool

- A. The survey tool shall consist of a digital gyroscopic deviation device that accurately measures inclination, azimuth, true vertical depth, departures, and plane of closure.
- B. The survey tool shall be tightly and properly centered within the well casing through use of centralizers placed at both ends of the tool.

20.04 Alignment Tool

- A. The alignment tool shall consist of a rigid 12-inch diameter spindle fitted with three (3) rings at the top, center, and bottom of the spindle. The rings shall be 12 inches tall, and made of a rigid material that will not scratch or otherwise harm the interior of the well. The outside diameter of the dummy shall be 1/2-inch smaller than the smallest inside diameter of the well casing and screen being tested.

PART 3 - EXECUTION

20.05 Submittals

- A. The CONTRACTOR shall submit six (6) copies of the gyroscopic alignment survey log to the HYDROGEOLOGIST immediately following completion of the survey, including electronic copies in LAS and PDF formats.
- B. The CONTRACTOR shall submit the name and qualifications of the firm proposed to conduct the gyroscopic alignment survey to the HYDROGEOLOGIST a minimum of 72 hours prior to performance of the survey.

- C. The CONTRACTOR shall submit a shop drawing detailing the alignment tool, including the dimensions, configuration, and materials to be used for construction.

20.06 Plumbness Testing

- A. The gyroscopic alignment tool shall survey the well from ground surface to total depth in both the upwards and downwards direction. Survey measurements shall include the following.
 - (1) Measurement depth.
 - (2) Inclination.
 - (3) Azimuth.
 - (4) True vertical depth.
 - (5) Departure.
 - (6) Plane of departure.
 - (7) Closure distance.
 - (8) Closure direction.
- B. The well shall be sufficiently straight and plumb such that the horizontal deviation of the well from vertical shall not exceed 0.0067 times the smallest inside diameter of the well casing per foot of depth for the entire length of the well casing and screen in accordance with AWWA A100-20, Section 4.7.9.2.

20.07 Alignment Testing

- A. The maximum permissible misalignment is one that will allow the alignment tool, constructed per AWWA A100-20, Section 4.7.9.3, to pass freely from the ground surface to the lowest anticipated depth of the permanent pump as indicated by the HYDROGEOLOGIST.
- B. The alternate-alignment tolerance method as described in AWWA A100-20 Section 4.7.9.4 may also be considered as verification as to the alignment condition of the well. This method states that the well shall be sufficiently aligned such that the maximum allowable horizontal distance between the actual well centerline and a straight line representing the proposed pump centerline shall not exceed one-half of the difference between the inside diameter of the casing in that part of the well being tested and the desired maximum outside diameter of the proposed pump to be installed.

END OF SECTION

SECTION 21 VIDEO SURVEY

PART 1 - GENERAL

21.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary to complete a downhole video survey of the post-construction condition of the well.

21.02 Measurement and Payment

- A. Payment for the downhole video camera survey as specified herein will be based on the lump sum unit price set forth within the bid schedule.

PART 2 - MATERIALS

21.03 Video Camera Survey Tool

- A. The video survey tool shall produce a closed-circuit color image and shall be equipped with both downhole and side-scan cameras capable of independent focus.
- B. Real-time monitoring equipment shall be utilized that records a superimposed image of the camera depth upon the video image.

PART 3 - EXECUTION

21.04 Submittals

- A. The CONTRACTOR shall submit the name and qualifications of the firm proposed to conduct the video survey to the HYDROGEOLOGIST a minimum of 72 hours prior to performance of the survey.
- B. The CONTRACTOR shall provide the HYDROGEOLOGIST with three (3) copies of the video survey on DVD, three (3) printed copies of the video survey summary report, and a PDF of the video survey report.

21.05 Downhole Video Survey

- A. The CONTRACTOR shall introduce clean potable water into the well for a period of 24 hours prior to conducting the video survey as a means of improving downhole visibility.
- B. The downhole video survey shall be conducted throughout the entire length of the well casing and screen at the direction of the HYDROGEOLOGIST.
- C. At a minimum, the video survey shall record the depth of water within the well, the presence of and thickness of any oil on the water surface, each casing connection,

sounding and/or camera port locations, the depths of the top and bottom of well screen intervals, and the presence and character of sediment and/or debris within the well sump.

- D. Poor visibility that obscures an effective survey of the well shall be ground for repeating the survey at the CONTRACTOR's expense.

END OF SECTION

SECTION 22 WELL DISINFECTION

PART 1 - GENERAL

22.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary to complete well disinfection.

22.02 Measurement and Payment

- A. Payment for well disinfection as specified herein will be based on the lump sum unit price set forth within the bid schedule.

PART 2 - MATERIALS

22.03 Sodium Hypochlorite

- A. The disinfectant used shall consist of newly purchased 12.5% liquid sodium hypochlorite solution in compliance with NSF/ANSI Standard 60 certification. The use of granular and/or calcium-based disinfection materials will not be permitted.
- B. The sodium hypochlorite solution shall be delivered in sealed containers from the original manufacturer, and bearing the original manufacturer's product labelling indicating the percentage of available free chlorine.

22.04 Chlorine Enhancer

- A. The hydrochloric acid used for chlorine enhancement shall be newly purchased, contain no additives, and shall be NSF Standard 60 certified.
- B. The chlorine enhancer shall consist of Nu-Well 410 manufactured by Johnson Screens, shall be newly purchased, delivered in sealed containers bearing the original manufacturer's product labeling, and in compliance with NSF/ANSI Standard 60 certification.

22.05 Water Quality Meters

- A. The CONTRACTOR shall provide working water quality meters for precise and accurate measurement of pH and available chlorine.
- B. Water quality meters shall be provided with appropriate reagents, as necessary, and be properly calibrated immediately prior to use. All reagents shall be within their indicated expiration dates.
- C. The CONTRACTOR shall provide personnel that are competent and properly educated as to the calibration and operation of the water quality meters.

PART 3 - EXECUTION

22.06 Submittals

- A. The CONTRACTOR shall provide the HYDROGEOLOGIST with a proposed plan for well disinfection at least 72 hours prior to conducting the work. The plan should provide details regarding chemical type, volume, storage, and procedures for mixing, application, and distribution within the well.

22.07 Disinfection

- A. Prior to well disinfection the CONTRACTOR shall remove sediment and debris from the bottom of the well and any oil that may be present on the water surface.
- B. The CONTRACTOR shall begin the disinfection process by adjusting the pH of the water in the well to approximately 5.5 to 6.0 pH units using Nu-Well 410, or approved equal. The purpose of this chemical is to control pH and enhance the effectiveness of the chlorine disinfectant.
- C. Liquid sodium hypochlorite shall be diluted and mixed with potable water at the surface and injected into the well via tremie pipe to provide a minimum concentration of 100 ppm of available chlorine within the well.
- D. Under no circumstances shall the CONTRACTOR add hypochlorite solution to water adjusted to a pH of less than 5.0 units as hazardous chlorine gas may be produced.
- E. Under no circumstances shall chemical solutions be added to the well by pouring from the ground surface and/or through ancillary tubing.
- F. The CONTRACTOR shall distribute the disinfecting solution throughout the entire length of the well using an appropriate downhole mixing procedure such as wireline swabbing or movement of a large-diameter bailer or nylon brush throughout the entire length of the wetted portion of the well.
- G. The CONTRACTOR shall demonstrate that the required 5.5 to 6.0 pH units has been achieved by testing a sample of well water at the surface.
- H. The CONTRACTOR shall demonstrate that the required 100 ppm available chlorine concentration has been achieved by testing a sample of well water at the surface.

END OF SECTION

SECTION 23 COMPLETION OF WELLHEAD

PART 1 - GENERAL

23.01 Description

- A. This bid item shall include the provision of all labor, equipment, and materials necessary for completion of the wellhead as specified herein.

23.02 Measurement and Payment

- A. Payment for fully and completely conducting well head completion at the lump sum unit price set forth within the bid schedule.

PART 2 - MATERIALS

23.03 Well Cover

- A. During the execution of the work and when there is no work being performed within the well, the CONTRACTOR shall provide a temporary lockable cover to secure the wellhead from tampering, introduction of foreign objects, and for safety purposes.
- B. The CONTRACTOR shall furnish a steel plate of like physical and chemical properties as to that of the well casing with which to secure the well at the completion of the project.

23.04 Ancillary Tubing

- A. The CONTRACTOR shall furnish steel plates of like physical and chemical properties as to that of the well casing with which to secure the ancillary tubing at the completion of the project.

PART 3 - EXECUTION

23.05 Wellhead Completion

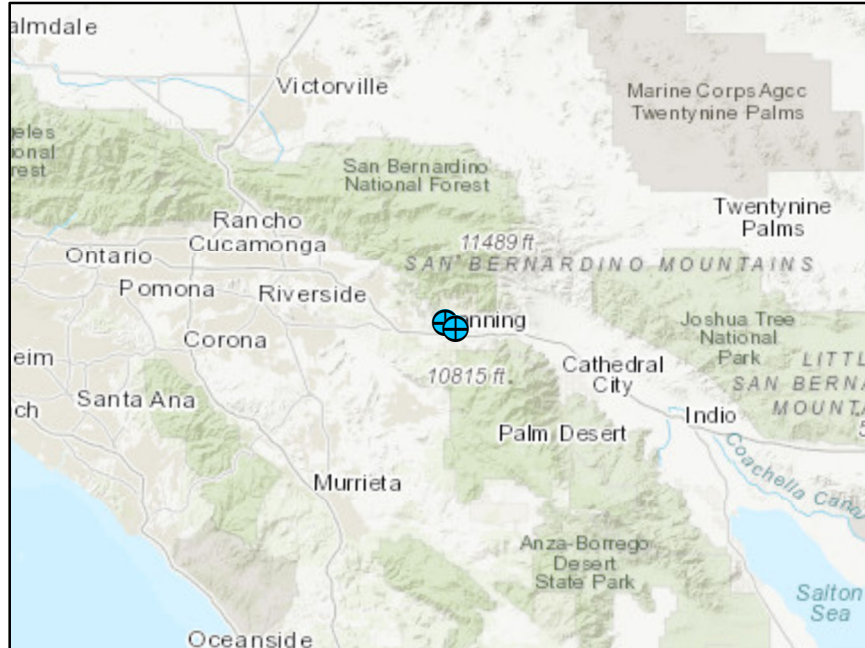
- A. Upon completion of work the CONTRACTOR shall finish the wellhead at a height of 2 feet ags and shall weld a circular piece of like steel to the top of the well casing with a solid and continuous bead around the entire circumference.
- B. Upon completion of work the CONTRACTOR shall finish each ancillary tube at a height of 1 feet ags and shall weld a circular piece of like steel to the top of each tube with a solid and continuous bead around the entire circumference.

END OF SECTION

DRAWINGS



**WELL CONSTRUCTION AND TESTING
CONTRACT PLANS FOR
MORONGO BAND OF MISSION INDIANS
DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8
RIVERSIDE COUNTY, CA
NOVEMBER 2023**



DRAWING INDEX

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- 3 DETAILED PROJECT LOCATION - WELL NO. 8
- 4 CONCEPTUAL WELL DESIGN PROFILE - WELL NO. 7
- 5 CONCEPTUAL WELL DESIGN PROFILE - WELL NO. 8
- 6 CONSTRUCTION WATER SOURCE AND DISCHARGE CONVEYANCE - WELL NO. 7
- 7 CONSTRUCTION WATER SOURCE AND DISCHARGE CONVEYANCE - WELL NO. 8
- 8 DESIGN DETAILS - WELL NOS. 7 AND 8
- 9 SURFACE ORIENTATION OF ANCILLARY TUBING - WELL NOS. 7 AND 8



GENERAL PROJECT LOCATION

PLANS FOR

**MORONGO BAND OF MISSION INDIANS
DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8
WELL CONSTRUCTION AND TESTING**

RIVERSIDE COUNTY, CA

SITE ADDRESS: MBMI, Riverside County, CA

WELL LOCATION:

Well 7:	Well 8:
T: <u>02S</u>	T: <u>03S</u>
R: <u>01E</u>	R: <u>01E</u>
S: <u>35</u>	S: <u>01</u>

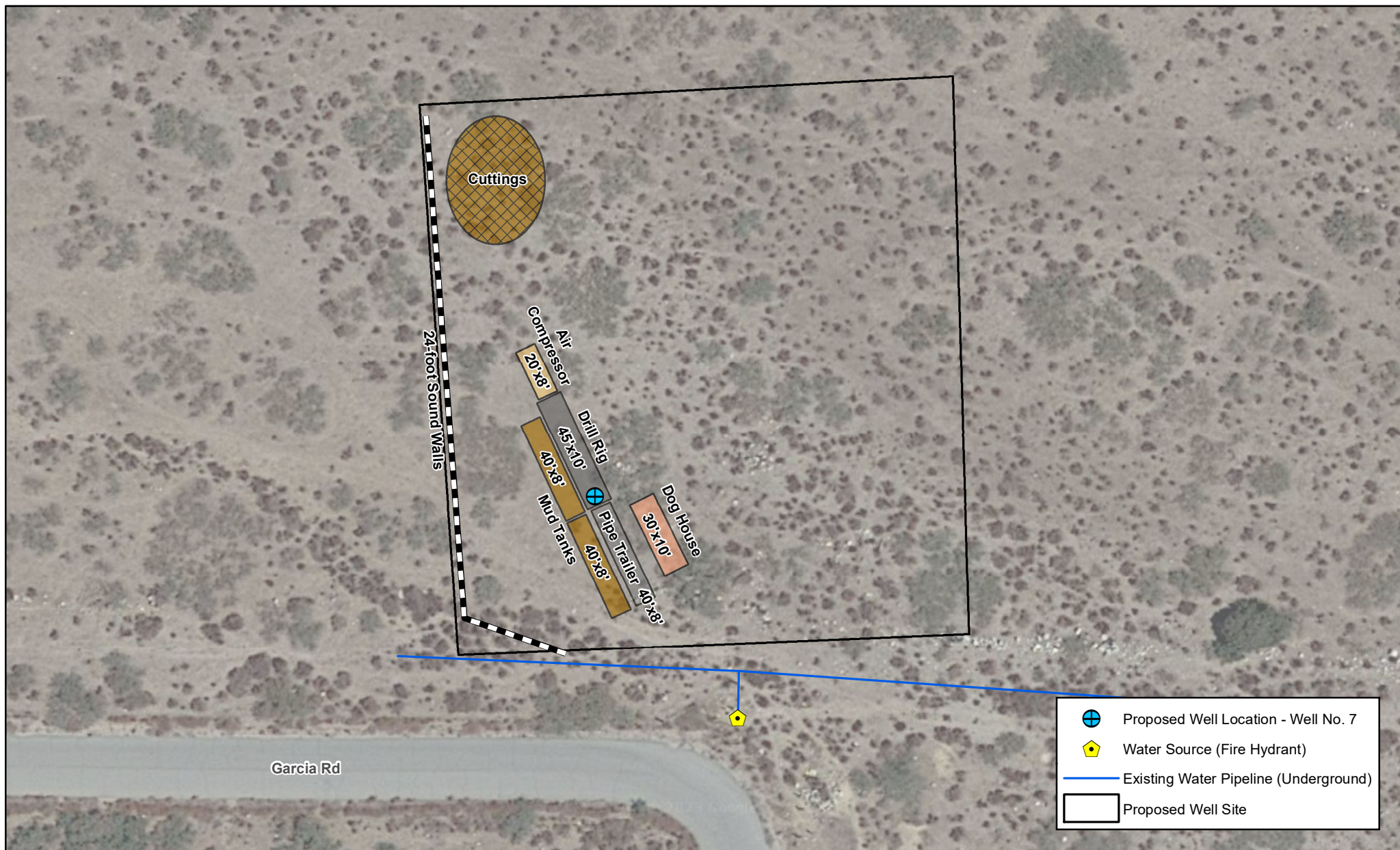
APN: Well 7: 531-140-017 Well 8: 532-080-007

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community




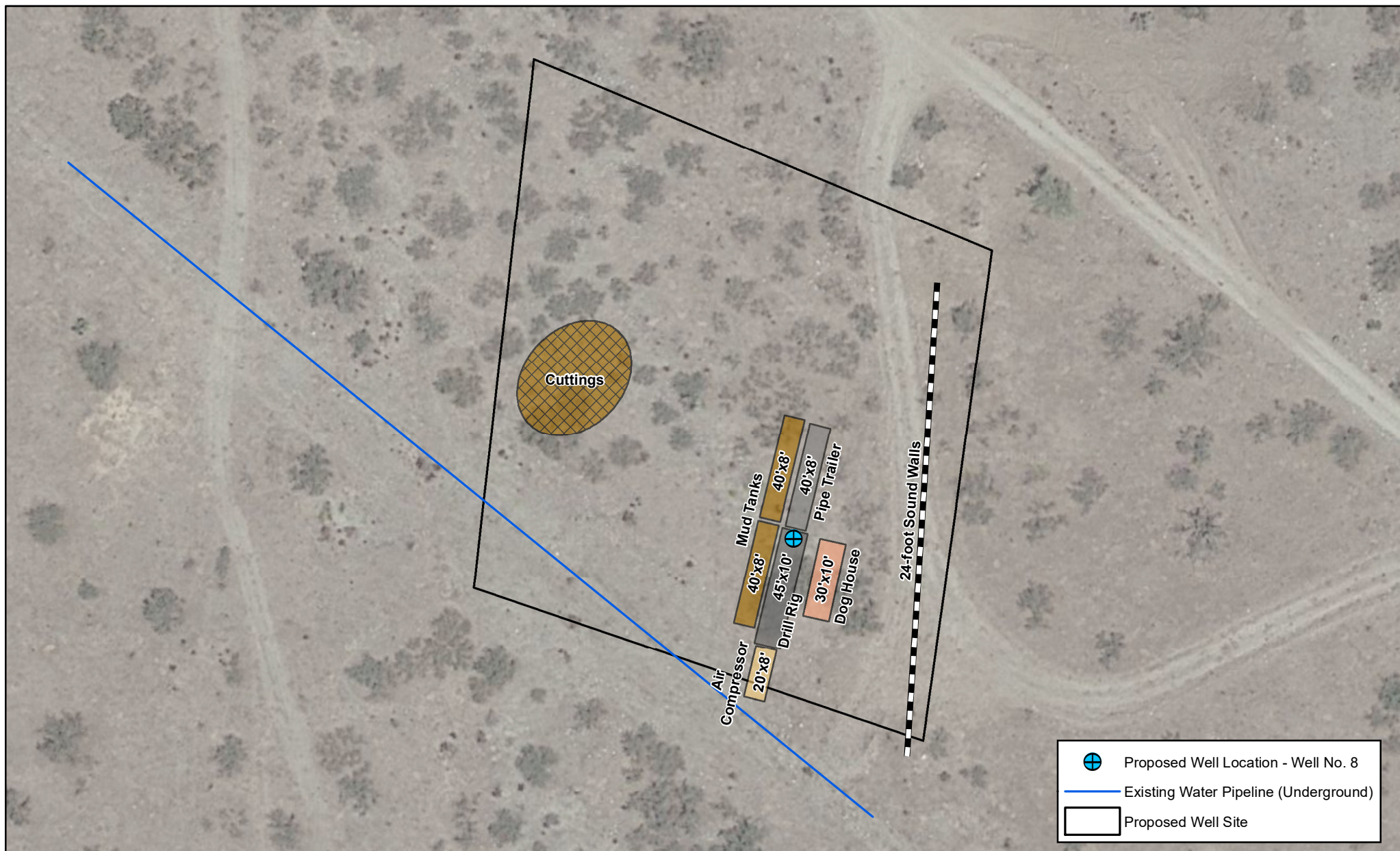
PROJECT NO.
3016.002

DRAWING
1 OF 9




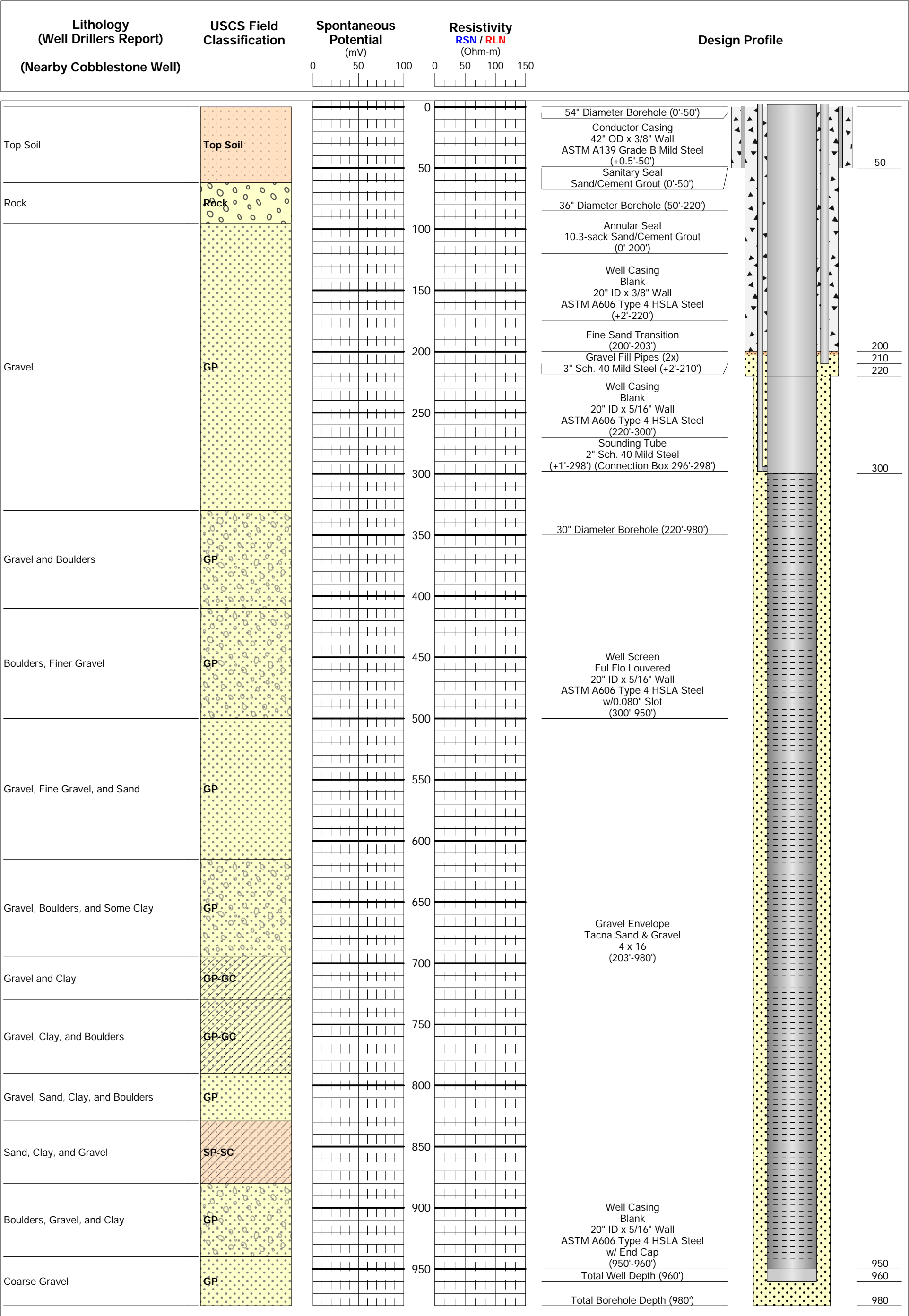
DETAILED PROJECT LOCATION - WELL NO. 7

<div>PLANS FOR</div> <div>MORONGO BAND OF MISSION INDIANS DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8 WELL CONSTRUCTION AND TESTING</div> <div>RIVERSIDE COUNTY, CA</div>	<div>SITE ADDRESS: MBMI, Riverside County, CA</div> <div>WELL LOCATION: <div>Well 7: T: <u>02S</u> R: <u>01E</u> S: <u>35</u></div><div>Well 8: T: <u>03S</u> R: <u>01E</u> S: <u>01</u></div></div> <div>APN: Well 7: 531-140-017 Well 8: 532-080-007</div>	<div><div>N</div><div><div>02550</div><div>Feet</div></div></div> <div></div>	<div><div></div><div><div>PROJECT NO. 3016.002</div><div>DRAWING 2 OF 9</div></div></div>	
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DETAILED PROJECT LOCATION - WELL NO. 8

<div>PLANS FOR</div> <div>MORONGO BAND OF MISSION INDIANS DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8 WELL CONSTRUCTION AND TESTING</div> <div>RIVERSIDE COUNTY, CA</div>	<div>SITE ADDRESS: MBMI, Riverside County, CA</div> <div>WELL LOCATION: <div><div>Well 7: T: <u>02S</u> R: <u>01E</u> S: <u>35</u></div><div>Well 8: T: <u>03S</u> R: <u>01E</u> S: <u>01</u></div></div></div> <div>APN: Well 7: 531-140-017 Well 8: 532-080-007</div>	<div><div>N</div><div><div>02550</div><div>Feet</div></div></div> <div></div>	<div><div></div><div><div>PROJECT NO. 3016.002</div><div>DRAWING 3 OF 9</div></div></div>
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CONCEPTUAL WELL DESIGN PROFILE - WELL NO. 7

DRILLING, CONSTRUCTION, DEVELOPMENT,
AND TESTING
MORONGO BAND OF MISSION INDIANS
DOMESTIC WATER SUPPLY WELL
NOS. 7 AND 8
NOVEMBER 2023

BOREHOLE DIAMETERS (in): 54; 36; 30

BOREHOLE DEPTHS (ft): 50; 220; 980


SCREEN INTERVALS (ft): 300-950

BLANK INTERVALS (ft): +2-300; 950-960

*Notes:

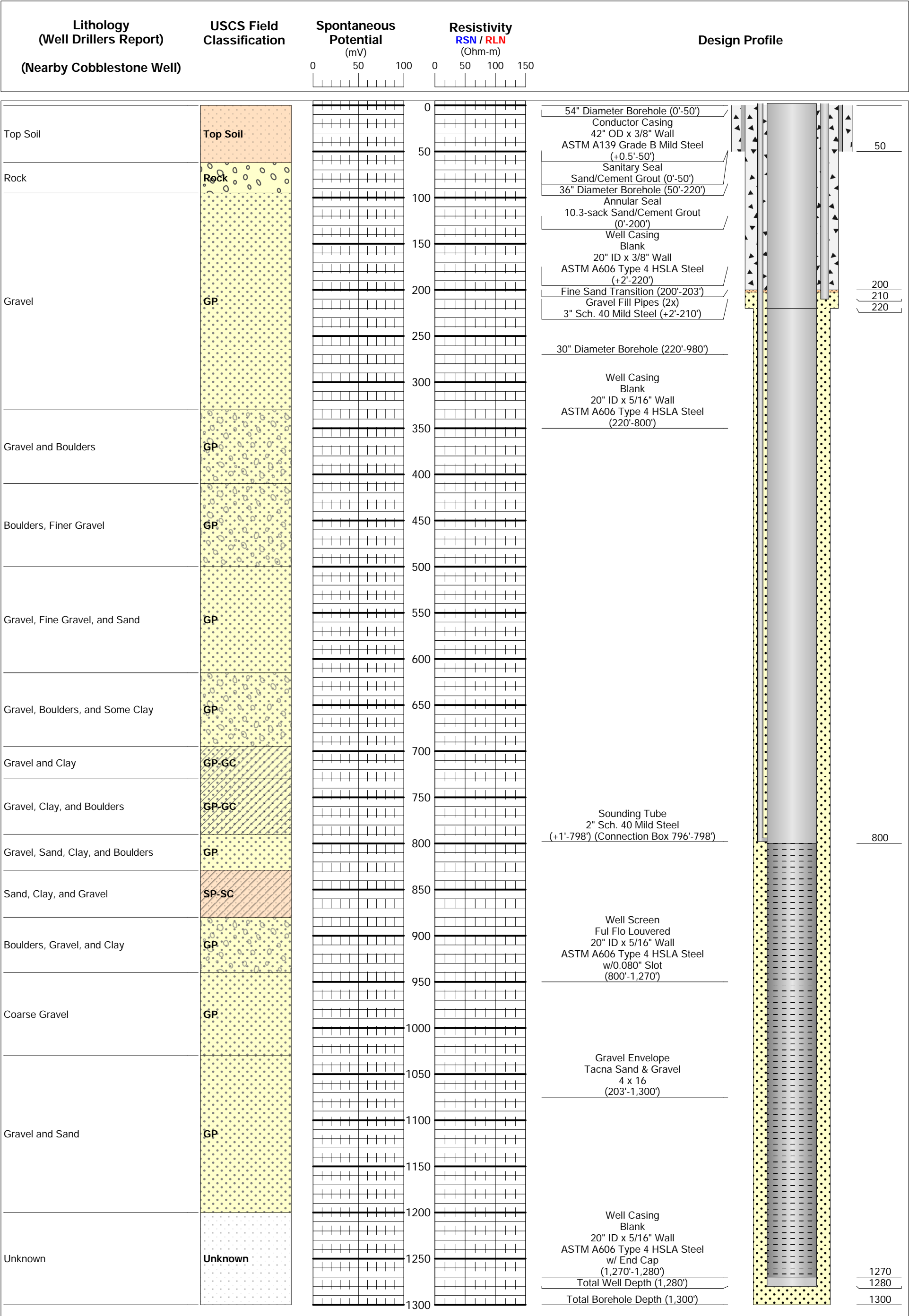
DRAWN BY: K.MAKAR

APPROVED BY: R.KYLE



PROJECT NO.
3016.002

DRAWING
4 OF 9



CONCEPTUAL WELL DESIGN PROFILE - WELL NO. 8

DRILLING, CONSTRUCTION, DEVELOPMENT,
AND TESTING
MORONGO BAND OF MISSION INDIANS
DOMESTIC WATER SUPPLY WELL
NOS. 7 AND 8
NOVEMBER 2023

BOREHOLE DIAMETERS (in): 54; 36; 30

BOREHOLE DEPTHS (ft): 50; 220; 1,300

SCREEN INTERVALS (ft): 800-1,270

BLANK INTERVALS (ft): +2-800; 1,270-1,280

*Notes:

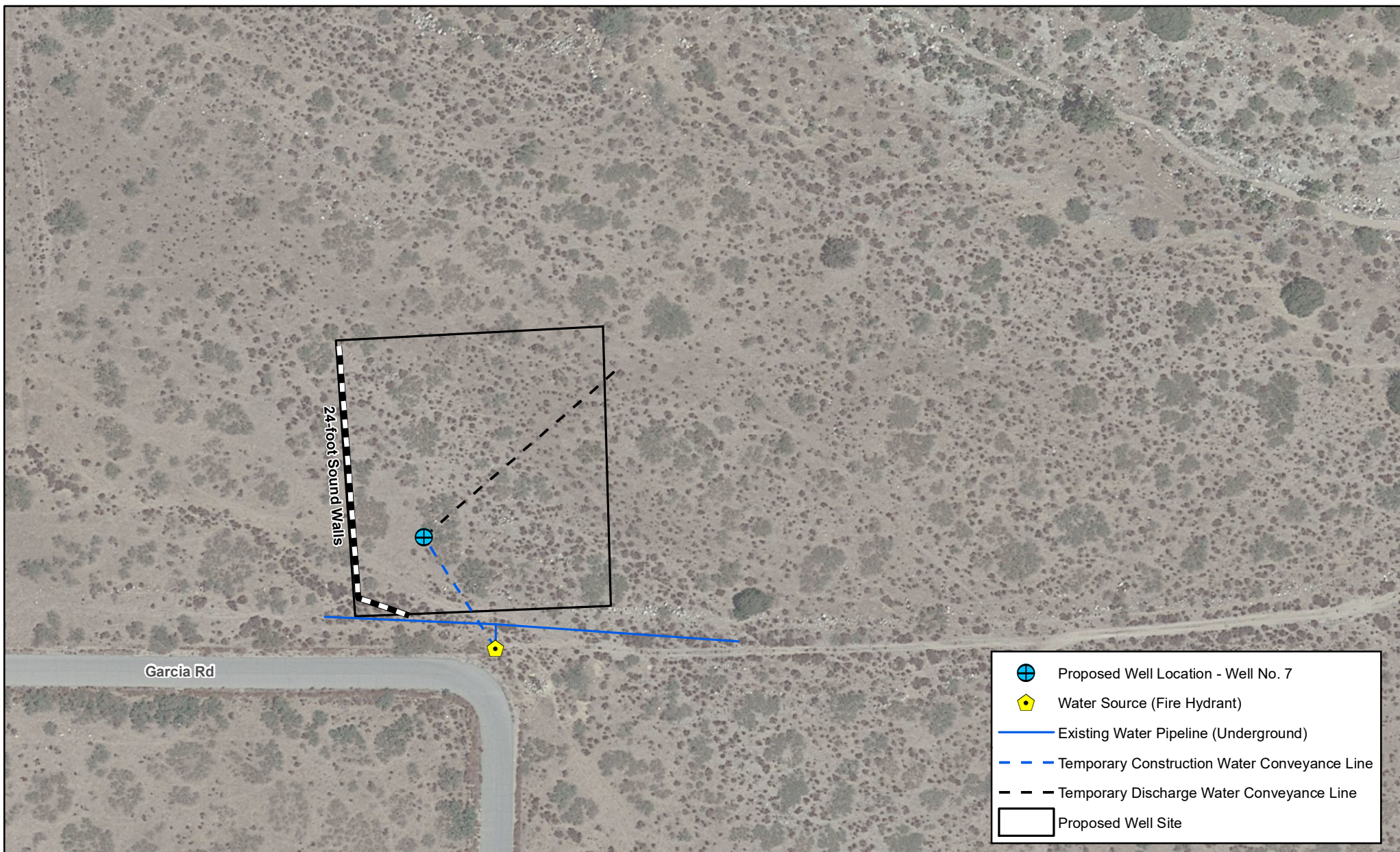
DRAWN BY: K.MAKAR

APPROVED BY: R.KYLE



PROJECT NO.
3016.002

DRAWING
5 OF 9



CONSTRUCTION WATER SOURCE AND DISCHARGE CONVEYANCE - WELL NO. 7

PLANS FOR

**MORONGO BAND OF MISSION INDIANS
DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8
WELL CONSTRUCTION AND TESTING**

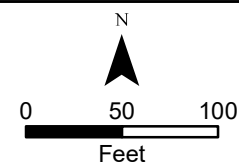
RIVERSIDE COUNTY, CA

SITE ADDRESS: MBMI, Riverside County, CA

WELL LOCATION:

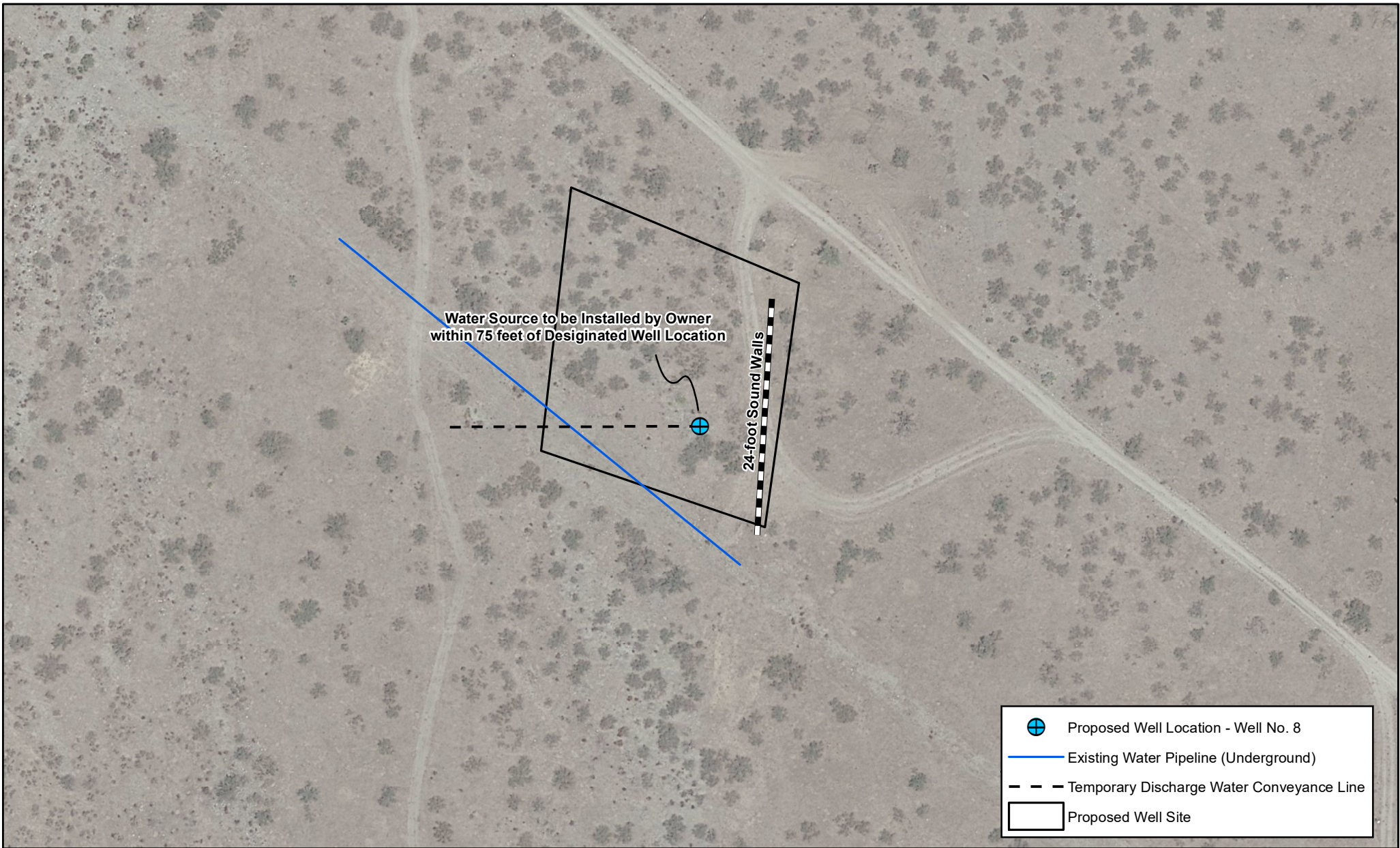
Well 7:	Well 8:
T: <u>02S</u>	T: <u>03S</u>
R: <u>01E</u>	R: <u>01E</u>
S: <u>35</u>	S: <u>01</u>

APN: Well 7: 531-140-017 Well 8: 532-080-007



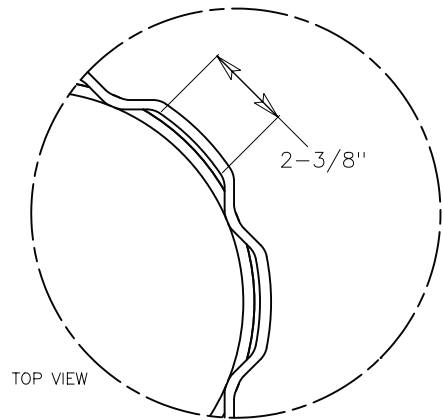
PROJECT NO.
3016.002

DRAWING
6 OF 9

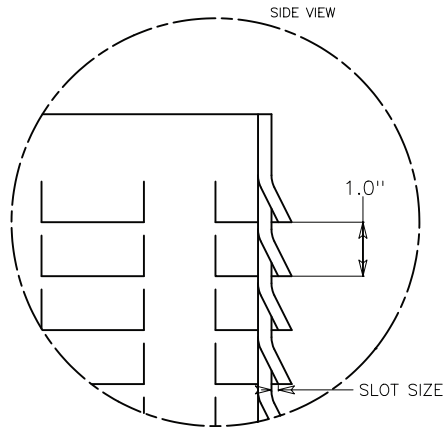


CONSTRUCTION WATER SOURCE AND DISCHARGE CONVEYANCE - WELL NO. 8

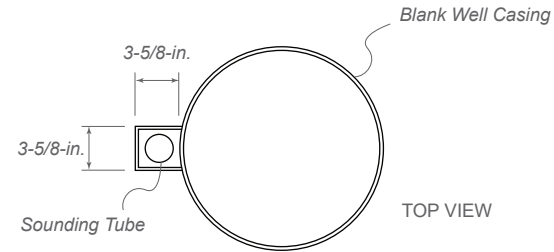
PLANS FOR MORONGO BAND OF MISSION INDIANS DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8 WELL CONSTRUCTION AND TESTING RIVERSIDE COUNTY, CA	SITE ADDRESS: MBMI, Riverside County, CA WELL LOCATION: Well 7: T: 02S R: 01E S: 35 Well 8: T: 03S R: 01E S: 01 APN: Well 7: 531-140-017 Well 8: 532-080-007	<div><div>N</div><div><div></div></div><div>050100</div><div>Feet</div></div>	KYLE Groundwater	
			PROJECT NO. 3016.002	DRAWING 7 OF 9



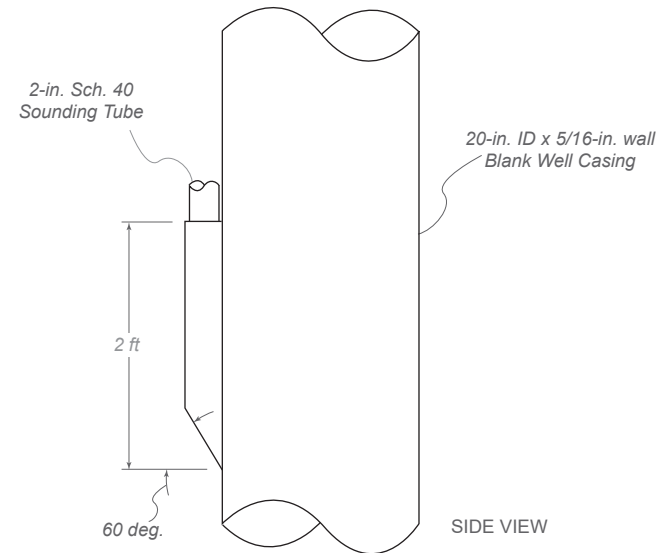
TOP VIEW



FUL-FLO LOUVERED
WELL SCREEN DETAIL
(NOT TO SCALE)




TOP VIEW

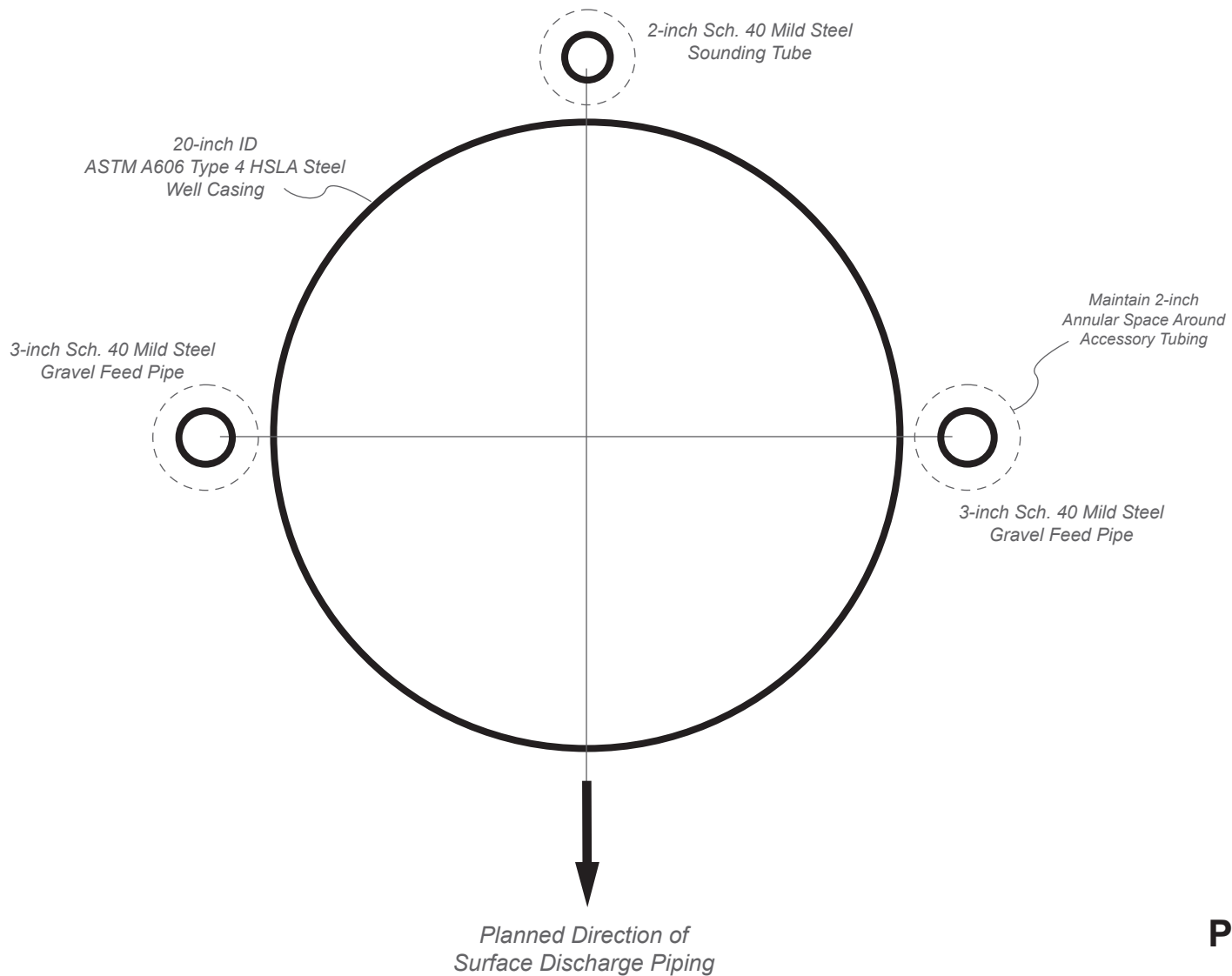


SIDE VIEW


SOUNDING TUBE
CONNECTION BOX DETAIL
(NOT TO SCALE)

DESIGN DETAILS - MBMI WELL NOS. 7 AND 8

<p>PLANS FOR</p> <p>MORONGO BAND OF MISSION INDIANS DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8 WELL CONSTRUCTION AND TESTING</p> <p>RIVERSIDE COUNTY, CA</p>	<p>SITE ADDRESS: MORONGO BAND OF MISSION INDIANS RIVERSIDE COUNTY, CABAZON, CA</p> <p>WELL LOCATION: WELL 7: T: 02S; R: 01E; S: 35 WELL 8: T: 03S; R: 01E; S: 01</p> <p>APN: WELL 7: 531-140-017 WELL 8: 532-080-007</p>		
		<p>PROJECT NO. 3016.002</p>	<p>DRAWING 8 of 9</p>



SURFACE ORIENTATION OF ANCILLARY TUBING - MBMI WELL NO. 7 AND 8

<p>PLANS FOR</p> <p>MORONGO BAND OF MISSION INDIANS DOMESTIC WATER SUPPLY WELL NOS. 7 AND 8 WELL CONSTRUCTION AND TESTING</p> <p>RIVERSIDE COUNTY, CA</p>	<p>SITE ADDRESS: MORONGO BAND OF MISSION INDIANS RIVERSIDE COUNTY, CABAZON, CA</p> <p>WELL LOCATION: WELL 7: T: 02S; R: 01E; S: 35 WELL 8: T: 03S; R: 01E; S: 01</p> <p>APN: WELL 7: 531-140-017 WELL 8: 532-080-007</p>		
		<p>PROJECT NO. 3016.002</p>	<p>DRAWING 9 of 9</p>

TABLES

Required Water Quality Analytical Suite
Isolated Aquifer Zone Testing
Morongo Band of Mission Indians Well Nos. 7 and 8

Constituent	Units	MRL
General Physical Properties		
Color	color unit	3
Odor	odor unit	1
Turbidity	NTU	0.02
General Chemical Analyses		
Aggressive Index	-	-
Alkalinity, Total (as CaCO ₃)	mg/L	3
Bicarbonate	mg/L	3
Carbonate	mg/L	3
Chloride	mg/L	1
Fluoride	mg/L	0.1
Hydroxide	mg/L	3
Langlier Index at Source Temperature	-	-
MBAS/Surfactants	mg/L	0.05
Nitrate (as N)	mg/L	0.2
Nitrite (as N)	mg/L	0.1
Perchlorate	µg/L	0.38
pH	pH unit	-
Specific Conductance	µmhos/cm	1
Sulfate	mg/L	0.5
Sulfide, Total	mg/L	0.25
Total Filterable Residue / Total Dissolved Solids	mg/L	20
Total Hardness	mg/L	3
Metals		
Aluminum	µg/L	50
Arsenic	µg/L	2
Boron	µg/L	100
Calcium	mg/L	1
Chromium, Total	µg/L	1
Chromium, Hexavalent	µg/L	0.02
Copper	µg/L	10
Fluoride	mg/L	0.1
Iron	µg/L	20
Magnesium	mg/L	1
Manganese	µg/L	10
Potassium	mg/L	1
Silica (Total)	mg/L	1
Sodium	mg/L	1
Vanadium	µg/L	3
Zinc	µg/L	10

Required Water Quality Analytical Suite
Isolated Aquifer Zone Testing
 Morongo Band of Mission Indians Well Nos. 7 and 8

Constituent	Units	MRL
Volatile and Semi-Volatile Organics		
1,4-dioxane (EPA 522)	µg/L	0.5
DBCP and EDB (EPA 504.1)	µg/L	varies
MTBE (EPA 524.2)	µg/L	0.5
Volatile Organic Compounds (EPA 524.2)	µg/L	varies
Additional Analyses		
1,2,3-Trichloropropane (1,2,3-TCP)	µg/L	0.005
Perfluorooctanesulfonic Acid (PFOS)	µg/L	0.0020
Perfluorooctanoic Acid (PFOA)	µg/L	0.0020

NTU: nephelometric turbidity units

mg/L: milligrams per liter

µg/L: micrograms per liter

µmhos/cm: micromhos per centimeter

Table 2

**Required Water Quality Analytical Suite
Completed Well Water Quality**

PRIMARY CONTAMINANTS REQUIRED FOR TESTING

INORGANIC CHEMICALS

Contaminant	MCL mg/l	EPA Approved Laboratory Methods	Standard Methods (18th Addition of "Standard Methods for Examination of Water and Wastewater)
Antimony	0.006	200.8, 200.9	3113B, 3120B
Arsenic	0.01	200.7, 200.8, 200.9	3113B, 3114B
Asbestos	7 MFL ¹	100.1, 100.2	
Barium	2.0	200.7, 200.8	3120B, 3111D, 3113B
Beryllium	0.004	200.7, 200.8, 200.9	3120B, 3113B
Cadmium	0.005	200.7, 200.8, 200.9	3113B
Copper	1.3 ² (A.L.)	200.7, 200.8, 200.9	3113B, 3111B, 3120B
Chromium	0.1	200.7, 200.8, 200.9	3113B
Cyanide	0.2	335.4	4500-CN-C, 4500-CN-G, 4500-CN-E, 4500-CN-F
Fluoride	4.0	300.0	4110B, 4500F-B,D, 4500F-C
Lead	.015 ³ (A.L.)	200.8, 200.9	3113B
Mercury	0.002	245.1, 245.2, 200.8	3112B
Nickel	0.1	200.7, 200.8, 200.9	3120B
Nitrate	10 (as N)	300.0, 353.2	4110B, 4500-NO3-F, 4500-NO3-D, 4500-NO3-E
Nitrite	1 (as N)	300.0, 353.2	4110B, 4500-NO3-F, 4500-NO3-E, 4500-NO2-B
Selenium	0.05	200.8, 200.9	3114B
Thallium	0.002	200.8, 200.9	
Sodium	NA	200.7	3111B

VOLATILE ORGANIC CHEMICALS (VOCs)

Contaminant	MCL (mg/l)	Common and Trade Names	Uses and Occurrences	EPA APPROVED LAB METHODS
Benzene	0.005	Benzol, Benzine, Bensolene, Carbon Oil, Coal Naphtha, Mineral Naphtha, Motor Benzol, Nitration Benzene, Phene, Phenylhydride, Pyrobenzol	-gasoline constituent -chemical intermediate in the synthesis of compounds such as styrene -synthetic rubber, phenol, detergent, nitrobenzene, cyclohexane - solvent and degreaser of metals	502.2, 524.2
Carbon tetrachloride	0.005	Tetrachloromethane, CCL ₄ , Carbona, Benzinoform, Faciolin, Flukoids, Tetraform, Tetrafinol, Tetrasol, Univerm, Vermoestricid	- production of chlorofluorocarbons - fumigant - solvent in metal cleaning - manufacture of paints and plastics - household cleaning fluid	502.2, 524.2, 551

¹Million fibres per liter > 10 um

²Action Level

³Action Level

1,2-Dichloroethane	0.005	Ethylene Dichloride, EDC, 1,2-DCE, Borer Sol, Borcide, Dichloromulsion, Dutchoil, Dutch Liquid, Glycol Dichloride	<ul style="list-style-type: none"> - chemical intermediate - fumigant for grains - oil extraction from seeds - coating, adhesive applications - textile cleaning - cleaning polyvinyl processing equipment - solvent for processing pharmaceutical products - solvent for processing animal fats - cleaning fluid for fats, oils, waxes, and resins 	502.2, 524.2,
1,1-Dichloroethylene	0.007	Vinylidene Chloride, Dichloroethene, Sconatex, 1,1-DCE	<ul style="list-style-type: none"> - intermediate in the production of vinylidene polymer plastics such as Saran and Velon - used in industry as a solvent to clean and degrease metals 	502.2, 524.2
para-Dichlorobenzene	0.075	PDB, Paracide, Paradichlorobenzene, Para-Zene, Paramoth, Di-chloricide	<ul style="list-style-type: none"> - insecticidal fumigant - deodorizers, moth balls, and pesticides 	502.2, 524.2,
1,1,1-Trichloroethane	0.20	Methylchloroform, 1,1,1-TCE, Chloroethene, Methyltrichloromethane, Inhibisol, Strobane, Solvent III, Tri-ethane	<ul style="list-style-type: none"> - cleaning and vapor degreasing of fabricated metal parts - synthesis of other organic chemicals - spot remover and film cleaner - additive in metal cutting oils - cleaner and degreasers of metals 	502.2, 524.2, 551
Trichloroethylene	0.005	TCE, trichloroethene	<ul style="list-style-type: none"> - solvent and metal degreaser - dry cleaning fluid 	502.2, 524.2, 551
Vinyl chloride	0.002	Monochloroethylene, chloroethene	<ul style="list-style-type: none"> - raw material in rubber, paper, glass, automotive industry - manufacture of electric wire, insulation, piping, medical supplies, food packaging material, building products - breakdown product of solvents used as cleaners and degreasers of metals 	502.2, 524.2
cis-1,2-Dichloroethylene	0.07	1,2-DCE, cis-1,2-DCE, 1,2-dichloroethene	<ul style="list-style-type: none"> - captive intermediate in the manufacture of other chlorinated solvents - mixture with the trans-1,2-isomer - solvent and intermediate in chemical production 	502.2, 524.2
1,2-Dichloropropane	0.005	Propylene Dichloride, 1,2-DCP, ENT 15,406	<ul style="list-style-type: none"> - oil and fat solvent - dry cleaning fluids - degreasing - insecticidal fumigant mixtures 	502.2, 524.2
Ethylbenzene	0.7	Phenyl Ethane, Ethylbenzol, EB	<ul style="list-style-type: none"> - styrene manufacture - acetophenone manufacture - solvent - asphalt constituent - naphtha constituent - gasoline constituent 	502.2, 524.2
Monochlorobenzene	0.1	Chlorobenzene, Benzene Chloride, MCB, Phenyl Chloride	<ul style="list-style-type: none"> - manufacture of phenol, aniline, DDT - solvent for paint - heat transfer medium 	502.2, 524.2
o-Dichlorobenzene	0.6	1,2-dichlorobenzene	<ul style="list-style-type: none"> - solvent for waxes, gums, resins, tars, rubbers, oils, asphalts - insecticide for termites - fumigant - degreaser for metals, leather, wool - metal polish - intermediate in the manufacture of dyes 	502.2, 524.2
Styrene	0.1	vinyl benzene, cinnamene, phenylethylene, ethenylbenzene	<ul style="list-style-type: none"> - make plastics - component of resins used for drinking water treatment 	502.2, 524.2
Tetrachloroethylene	0.005	PCE, perchloroethylene, 1,1,2,2-tetrachloroethylene	<ul style="list-style-type: none"> - solvent in dry cleaning process - metal degreaser - intermediate in the synthesis of fluorocarbons 	502.2, 524.2
Toluene	1.0	TCB, trichlorobenzene, Hostetex L-PEC, 1,2,4-trichlorobenzol, Trojchlorobenzen	<ul style="list-style-type: none"> - gasoline additive - chemical intermediate in the synthesis of compounds such as styrene, synthetic rubber, phenol, detergent, nitrobenzene, cyclohexane - dye carrier - precursor in herbicide manufacture 	502.2, 524.2, 551
Trans-1,2-Dichloroethylene	0.1	1,2-DCE, trans-1,2-DCE, 1,2-dichloroethene	<ul style="list-style-type: none"> - in a mixture with the cis-1,2-isomer, as a captive intermediates in the production of other chlorinated solvents - solvent and intermediate in chemical production 	502.2, 524.2

Xylenes (total)	10.0	xylols, dimethylbenzene	<ul style="list-style-type: none"> - solvent for paints, inks, pesticides, and adhesives - components of detergents - manufacture of gasoline for airplanes - cleaner and degreaser of metal 	502.2, 524.2
Dichloromethane	0.005	Methylene Chloride, Methylene Dichloride, DCM, Soloesthine	<ul style="list-style-type: none"> - solvent for insecticides, paints, paint removers, varnish - manufacture of paint remover - metal degreaser - aerosol propellant 	502.2, 524.2
1,2,4-Trichlorobenzene	0.07	TCB, trichlorobenzene, Hostetex L-PEC, 1,2,4-trichlorobenzol, Trojchlorobenzen	<ul style="list-style-type: none"> - gasoline additive - chemical intermediate in the synthesis of compounds such as styrene, synthetic rubber, phenol, detergent, nitrobenzene, cyclohexane - dye carrier - precursor in herbicide manufacture 	502.2, 524.2
1,1,2-Trichloroethane	0.005	vinyl trichloride, ethan trichloride	<ul style="list-style-type: none"> - solvent for fats, waxes, natural resins, alkaloids - intermediate in the production of 1,1-dichloroethylene 	502.2, 524.2

PESTICIDES, SYNTHETIC ORGANIC CHEMICALS, AND PCBs

Contaminant	MCL (mg/l)	Common and Trade Names	Uses and Occurrences	EPA LAB METHODS
Group 1 (analyzed by EPA Method 504)				
Dibromochloroprop-ane (DBCP)	0.0002	DBCP, OXY DBCP, Nemaflume, Nemasex, Nemasex, Nemagon, Fumazone, Nematocide	Soil fumigant - soybeans, cotton, pineapple, orchards Cancelled 1985	504.1, 551
Ethylene dibromide (EDB, Bromofume, Aquacide)	0.00005	Bromofume, Reglox, Dextrone, FB 2, Reglone, Aquacide, Shed-A-Leaf 'L', Weedkiller Conc. D., Weedtrined, Chlorax, Drop-Leaf, Fall Treflan, Tumbleaf	Fumigant - Soil and small grains - lead scavenger (gasoline additive) - Cancelled 1989	504.1, 551
Group 2 (analyzed by EPA Method 505)				
PCBs (polychlorinated biphenyls)	0.0005	(Associated with transformer and capacitor oil, other manufacturing processes)	Insulating material in transformers, capacitor oils; plasticizers Haz waste sites	505, 508, 508A
Toxaphene	0.003	Cristoxo, Crixtoxo 90, Estonox, Camphoclor, Motox, Phenacide, Phenatox, Toxakil, Strobane T-90	Pesticide - many food and non food crops (soybeans, cotton, others) Cancelled in 1990	505, 508, 525.2
Group 3 (by common EPA Method 531.1)				
Aldicarb (Temik)	0.003	Temik, UC-21149, OMS 771, ENT-27093, NCI-C08640	Insecticide- cotton, potatoes, others.	531.1
Aldicarb Sulfone	0.002	Aldoxycarb, Sulfocarb, Standak	-	531.1
Aldicarb Sulfoxide	0.004	(chemical substance formed in the presence of Aldicarb)	-	531.1
Carbaryl	—	Bug Master, Tercyl, Sevin, Tricarnam, Carbatox, Carbamine, Septene, Cekubaryl, Crunch	Insecticide variety of crops	531.1
Carbofuran (Furadan 4F)	0.04	Furadan, Crisfuran, Curaterr, Yaltox, Bay 70143, Pillafuran, Bay 70143, OMS 864,	Soil fumigant corn, cotton, others Insecticide corn, others	531.1, 6610
Methomyl	—	SD 14999, Lannate, Lanox 216, Methomex, Nu Bait II	Insecticide - broad spectrum - vegetables, soy, fruits, ornamentals	531.1, 6610
Oxamyl (Vidate)	0.2	Vydate, DPX-1410, Thioxamyl, Dioxamyl	Insecticide, nematocide - field crops, fruits, vegetables, (mostly insecticide apples, potatoes, tomatoes)	531.1, 6610
3-Hydroxycarbofuran	—	-		531.1
Group 4 (by common EPA Method 515.1)				
Dalapon	0.2	Dowpon, Radapon, Ded-Weed, Devipon, Gramavin, Revenge, Unipon, Dowpon M, Basfapon	Herbicide orchards, beans, lawn, roadside, irrigation ditches - Registrant cancelled	515.1, 552.1
Dicamba	—	Benvel, Mondak, Velsicol, Banex, Marksman, Brush Buster,, Weedmaster, Banlen	Herbicide - corn, lawns, right-of ways	515.1
Dinoseb	0.007	Dinitro,DNBP,Sevtox, Dynamite, Nitropon, Basamite, Subitex, UnicropDNBP, Sinox W, Caldon, Hel Fire,, Elgitol 318, Herbasol, Dow Selective, Chemox Selective, Butaphen, Premerge 3, Vertac General Weed Killer, Weed Killer 5, Kiloseb, Gebutox	Herbicide - selective control, crop and non crop - cancelled 1988	515.1,555,5 15.1
Picloram	0.5	Chloramp, Tordon 10K, Pecloram, Amdon, Borolin, K-Pin, Access	Herbicide - broadleaf and woody plants	515.1,555,5 15.1
2,4-D	0.07	Formula 40, Weedar 64, Weed Broom, 2,4 Dichlorophenoxy acetic acid, Acme Amin 4, Aquakleen, Banvel K, Basagran, Chloroxzone, Cropriider, Dinoxol, Doromone, Emulsamine BK, Estone, Fernesta, Femimine, Macondray, Pennamine D, Planotox, Plantgard, Tributon, Weed-B-Gone, DMA-4, Acme Brush Killer, Gordon's Vegemec Vegetation Killer, Lentemul, SEE	Herbicide - corn, wheat, rangeland, lawns, others	515.1,555,5 15.1
2,4,5-TP (Silvex)	0.05	2,4,5-trichlorophenoxy propionic acid, Silvex, Aqua Vex, Frutone T, Kurosai, Weed-B-Gone, Amchem 2,4,5-TP,	Herbicide - crops, fence rows, right of ways, golf courses Cancelled 1983	515.1,555,5 15.1
Group 5 (by common EPA method 525.1)				
Alachlor (Lasso)	0.002	Lasso, Pillarxo, Methcaclor, Alanex, Alatox 480, Alazine, Lariat, Nudor Extra, CP 50144	Herbicide on corn and soybeans	505, 525.2, 507, 508.1

Aldrin	-----	Alttox, Seedrin Liquid, Aldocrit, Aldrex, Comoun 118, Tipula, Kortofin, Octalene, Drinox, OMS 194	Insecticide, contact and fumigant, soil insects (cancelled)	505, 508, 525.1
Atrazine (Atranex, Crisazina)	0.003	Candex, Radazine, Strazine, Inakor, Zeazine, Hungazin, Aatram, Aatrex, Gesaprim, Zeaphos, Nudor Extra, Atramet Combi, Drexel, Rhino Farmco, Weedex, Primextra, Bicep, Oleogesaprim, Griffex, Fenatrol	Herbicide - used on corn, and non crop lands	505, 525.2, 507, 508.1
Benzo(a)pyrene	0.0002	(No trade name - a polyaromatic hydrocarbon - primarily associated with coal tar coatings:)	Constituent of Coal tar coatings, burned organic material, fossil fuels	525.2, 550, 550.1
Butachlor	-----	CP 53619, Lambast, Rasayanchlor		507, 525.1
Chlordane	0.002	DowChlor, Otho-Klor, Okaterr, Belt, Chlor Kill, Chlorotox, Corodane, Gold Crest C-100, Kilex,, Belt, Termided, ENT 25551 X, Kychlor,	Insecticide/termiteicide - soil, structural Cancelled in 1980	505, 525.2, 508, 508.1
Dieldrin	-----	Octalox, ENT 16225, HEOD	Insecticide - multiple crops Cancelled	505, 508, 525.1
Di(ethylhexyl)-adipate	0.4	DOA	Plasticizer - associated with plastic resins	525.2, 506
Di(ethylhexyl)-phthalate	0.006	DOP, DEHP, BEHP, Bisoflex, Eviplast, Octoil, Platimol, Sicol	Plasticizer - associated with plastic resins (PVC, others) organic pump fluids	525.2, 506
Endrin	0.002	Hexadrin, Endrex	Insecticide /pesticide - grains, rodents, birds Cancelled 1984	505, 525.2, 508, 508.1
Heptachlor	0.0004	H-34, Heptox, Termide, ENT 15152	Insecticide - termite control, crops, agricultural, homes Cancelled 1978	505, 525.2, 508, 508.1
Heptachlor Epoxide	0.0002	(Degradation product of Heptachlor)	-	505, 525.2, 508, 508.1
Hexachlorobenzene	0.001	Amatin, Bunt-cure, Sanocide, Perchlorobenzene, Anticarie, Ceku C.B., No Bun, Bute-no more	Pesticide production waste by product (fungicide /wheat)	505, 525.2, 508, 508.1
Hexachlorocyclopentadiene	0.05	HEX, C56, Graphlox, HRS 1655, NCI-C55607	Pesticide production intermediate	505, 525.2, 508, 508.1
Lindane	0.0002	Gamaphex, Forlin, Isotox, Gammex,, Lacco Hi, Novigan, Silvanol, Lindaterra, Lindamul, Lindagranox, Inexit	Insecticide - cattle, lumber, gardens, soil treatment, fruit and nut trees - most uses restricted 1983	505, 525.2, 508, 508.1

Methoxychlor	0.04	DMDT, Mariate, Chmform, Double- M, Alfatox, NCI-C00497, Enti, Dmethoxy-DDT, Methoxide	Insecticide - fruits, vegetables, alfalfa, trees, gardens, livestock, pets	505, 525.2, 508, 508.1
Metolachlor	-----	Cotoran Multi, Primextra, Codal, Dual, Bicep, CGA 24705, Primagram, Pennant, Ontrack 8E, Milocep,	Herbicide - used on soybeans	507, 525.1
Metribuzin	-----	Bay 94337, Lexone 4L, Lexone DF, Sencor 4, Salute, Turbo, Preview, Canopy	Herbicide - used on soybeans	507, 508, 525.1
Pentachlorophenol	0.001	Dowicide 7, Dowicide G, Penwar, Penchlorol, Weedone,	Wood preservative fungicide, bactericide	515.1, 525.1
Propachlor	-----	Bexton, CD 31393, Bexton 4L, Aatram, Niticide		507, 525
Simazine	0.004	Princep, Primaol S, Gesapun, G27692, Amizine	Herbicide - annual grasses, broad leaf weeds in corn, lawns	505, 525.1, 507
Other (no common EPA Method)				
2,3,7,8-TCDD (Dioxin)	0.00000003	Dioxin	Preservative - cutting oil, resin emulsions, paints, paper mill industry. Contaminant in other pesticide production	1613
Diquat	0.02	Weedtrine D, Reglox, Reglone, Aquacide, Dextrone,, Weedkiller Conc.D, Pathclear, Weedool, FB2,	Herbicide - aquatic weeds, non crop areas	549
Endothall	0.1	Aquathol, Ripenthol, Hydout, Hydrothol, Niagrathal	Herbicide - algae, aquatic weed desiccant alfalfa, clover	548
Glyphosate (Roundup)	0.7	Roundup, Rondo, Rodeo, Glycel, Herbolex, Glifonox	Herbicide - non selective - grasses, broadleaf weeds	547

Radiological CHEMICALS

Contaminant	MCL ug/l	EPA Approved Laboratory Methods	Standard Methods (18th Addition of "Standard Methods for Examination of Water and Wastewater)
Gross Alpha	- ¹	900.0	302, 7110B, 7110 B-00, 7110 C, 7110 C-00
Radium 226	- ²	903.1, 903.0	305, 7500-Ra C, 7500-Ra C-01, 304, 7500-Ra B, 7500-Ra B-01
Radium 228	- ²	904.0	7500-Ra D, 7500-Ra D-01
Uranium	30	908.0, 908.1, 200.8	7500-U B, 7500-U B-00, 7500-U C, 7500 U C-00

¹MCL is 15 pCi/L for adjusted alpha particle activity (including radium-226, but excluding radon and uranium)

²MCL is 5 pCi/L for combined radium-226 and radium-228.

Water Quality Parameters

Contaminant	EPA Approved Laboratory Methods	Standard Methods (18th Addition of "Standard Methods for Examination of Water and Wastewater)
pH*	150.1, 150.2, 150.3	4500-H* B
Water temperature*		2550
Alkalinity		2320B
Chloride	300.0, 300.1	4110B, 4500-Cl ⁻ D, 4500-Cl ⁻ B
Calcium	200.7	3111B, 3120B, 3500-Ca D, 3500-Ca B
Sulfate	300.0, 300.1, 375.2	4110B, 4500-SO ₄ ²⁻ F, 4500-SO ₄ ²⁻ C, D, 4500-SO ₄ ²⁻ E
Total Dissolved Solids		2540 C
Ammonia		

*sample must be analyzed in the field

APPENDIX A

Water Well Driller's Report – Cobblestone Well



ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES
WATER WELL DRILLERS REPORT

Do not fill in

No. 350753

State Well No. 03504

Other Well No.

Notice of Intent No. _____
Local Permit No. or Date 17213

(1) OWNE

Address _____

City _____

(2) LOCAT

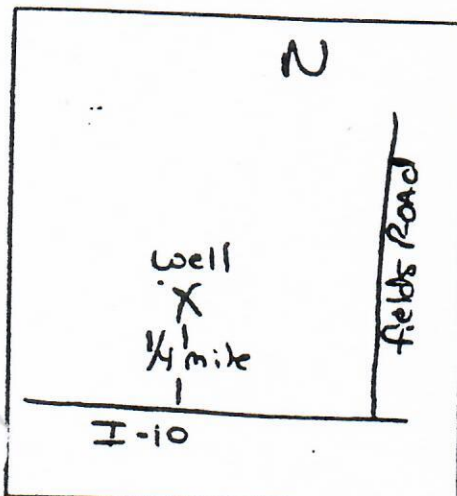
County _____

Owner's Well Number #2

Well address if different from above I-10 & Fields Road

Township 3S Range 1E Section 1

Distance from cities, roads, railroads, fences, etc. _____



WELL LOCATION SKETCH

(3) TYPE OF WORK:

New Well ☒ Deepening ☐

Reconstruction ☐

Reconditioning ☐

Horizontal Well ☐

Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:

Domestic ☒

Irrigation ☐

Industrial ☐

Test Well ☐

Municipal ☐

Other ☐

(Describe)

(5) EQUIPMENT:

Rotary ☒

Reverse ☐

Cable ☐

Air ☐

Other ☐

Bucket ☐

(6) GRAVEL PACK:

Yes ☐ No ☒

Diameter of bore 26"

Packed from 0 to 1150

(7) CASING INSTALLED:

Steel ☒

Plastic ☐

Concrete ☐

(8) PERFORATIONS:

Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Cage or Wall	From ft.	To ft.	Slot size

(9) WELL SEAL:

Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 50 ft

Were strata sealed against pollution? Yes ☐ No ☒ Interval _____ ft

Method of sealing 10.3 Sack Cement Slurry

(10) WATER LEVELS:

Depth of first water, if known 560 ft

Standing level after well completion 560 ft

(11) WELL TESTS:

Was well test made? Yes ☒ No ☐ If yes, by whom? McCalla

Type of test Pump ☒ Bailor ☐ Air lift ☐

Depth to water at start of test 560 ft At end of test 560 ft

Discharge 2000 gal/min after 24 hours Water temperature N/A

Chemical analysis made? Yes ☒ No ☐ If yes, by whom? Babcock

Was electric log made Yes ☒ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 1200 ft. Completed depth 1150 ft.
from ft. to ft. Formation (Describe by color, character, size or material)

0 - 62 Top Soil
62 - 95 Rock
95 - 330 Gravel
330 - 410 Gravel & Boulders
410 - 500 Boulders, Finer Gravel
500 - 615 Gravel, Fine Gravel & Sand
615 - 695 Gravel, Boulders & Some Clay
695 - 730 Gravel & Clay
730 - 790 Gravel, Clay & Boulders
790 - 829 Gravel, Sand, Blay & Boulders
829 - 880 Sand, Clay & Gravel
880 - 940 Boulders, Gravel & Clay
940 - 1030 Course Gravel
1030 - 1200 Gravel & Sand

PERF.

588' TO 1150'

16" X 3/12"

BLANK 0' - 626'

588' - 1150'

STD API LOG MESS

.090" LOGURE

Work started May 19 91 Completed June 19 91

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Signed *Alvin H. [Signature]*

NAME McCalla Div. of Layne-Western

(Person, firm, or corporation) (Typed or printed)

Address P.O. Box 13990

City Palm Desert, CA ZIP 92255-3990

License No. 510011 Date of this report 10-08-91