

Agenda

Special Meeting of the Board of Directors of Yuima Municipal Water District

Wednesday, April 19, 2023 8:00 A.M.
34928 Valley Center Road, Pauma Valley, California

Roland Simpson, President
Don Broomell, Secretary / Treasurer
Bruce Knox, Director

Steve Wehr, Vice President
Laurie Kariya, Director

1. **Roll Call** - Determination of Quorum Broomell
 2. **Pledge of Allegiance**
 3. **Approval of Agenda** – At its option, the Board may approve the agenda, delete an item, reorder items and add an item to the agenda per the provisions of Government Code §54954.2. Simpson
 4. **Public Comment** – This is an opportunity for members of the public to address the Board on matters of interest within the Board’s jurisdiction that are not listed on the agenda. The Brown Act does not allow any discussion by the Board or staff on matters raised during public comment except; 1) to briefly respond to statements made or questions posed; 2) ask questions for clarification; 3) receive and file the matter; 4) if it is within staff’s authority, refer it to them for a reply; or 5) direct that it be placed on a future board agenda for a report or action. Inquiries pertaining to an item on the agenda will be received during deliberation on that agenda item. No action can be taken unless specifically listed on the agenda (Government Code §54954.3) Simpson
- I. **ACTION DISCUSSION**
1. Proposed Resolution of the Board of Directors of Yuima Municipal Water District Making California Environmental Quality Act Findings for Pauma Ridge Customer Service Line Relocation and Ordering a Notice of Exemption Filed with the San Diego County Clerk. Simpson

Background: Due to the continued reduction of local water and the District's operational configuration it is necessary to relocate part of the the District's mainline to continue to provide service of water to all District customers.

Recommendation: Staff recommends approval to file the Notice of Exemption for the project with the County Clerk for posting per CEQA guidelines.
 2. Proposed Resolution of the Board of Directors of Yuima Municipal Water District Making California Environmental Quality Act Findings for Well Pipeline Course and Ordering a Notice of Exemption Filed with the San Diego County Clerk. Simpson

Background: In anticipation of entering into an Agreement Concerning Water Use and Production of Local Water and Providing Pipeline Easement and in order to meet the deadlines associated with this anticipated agreement the District has prepared the necessary CEQA documentation so that it may be filed in timely manner that helps meet the deadline.

Simpson

Recommendation: Staff recommends approval to file the Notice of Exemption for the project with the County Clerk for posting per CEQA guidelines.

3. Proposed Resolution of the Board of Directors of Yuima Municipal Water District Approving Design, Determining Wage Scale and Approving Plans and Specification and other Contract Documents for, and Authorizing the Advertisement of Invitation for Bids for the Upper San Luis Rey Nesting Monitoring Well Project.

Simpson

Background: In 2017 Yuima, as lead agency for the Groundwater Sustainability agency entered into a grant award agreement for funds to perform data collection to aid in the development of a Groundwater Sustainability Plan. Not all of those grant funds were expended during the process and Yuima's grant amendment to extend the grant until June 2023 and install a monitoring well with the remaining funds was approved. The plans and specs are for construction of the monitoring well in accordance with the grant agreement.

Recommendation: That, should the Board agree, they approve the resolution as presented.

II. ADJOURNMENT

NOTE: In compliance with the Americans with Disabilities Act, if special assistance is needed to participate in the Board meeting, please contact the General Manager at (760) 742-3704 at least 48 hours before the meeting to enable the District to make reasonable accommodations. The meeting begins at 2:00 p.m. The time listed for individual agenda items is an estimate only. Any writings or documents provided to a majority of the members of the Yuima Municipal Water District Board of Directors regarding any item on this agenda will be made available for public inspection during normal business hours in the office of the General Manager located at 34928 Valley Center Road, Pauma Valley.

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk

County of: San Diego

1600 Pacific Highway, Suite 260 (MS A-33)

San Diego, CA 92101-2400

From: (Public Agency): Amy Reeh, General Manager

Yuima Municipal Water District

P.O. Box 177, Pauma Valley, CA 92061

(Address)

Project Title: Pauma Ridge Service Line Project

Project Applicant: Yuima Municipal Water District

Project Location - Specific:

The pipeline will be located within an existing disturbed site dedicated for mobile home and RV park uses (Assessor Parcel Number:130-040-16-00). See Attachment A for further discussion.

Project Location - City: Pauma Valley, CA

Project Location - County: San Diego

Description of Nature, Purpose and Beneficiaries of Project:

The pipeline will replace and relocate an existing pipeline. See Attachment A for further discussion.

Name of Public Agency Approving Project: Yuima Municipal Water District

Name of Person or Agency Carrying Out Project: Yuima Municipal Water District

Exempt Status: (check one):

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- Categorical Exemption. State type and section number: Class 2 (Guidelines Section 15302)
- Statutory Exemptions. State code number: _____

Reasons why project is exempt:

The pipeline will replace an existing pipeline where the purpose and capacity of the existing pipeline remain consistent. See Attachment A for further discussion.

Lead Agency

Contact Person: Amy Reeh, General Manager Area Code/Telephone/Extension: (760) 742-3704

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: _____ Date: April 10, 2023 Title: General Manager

Signed by Lead Agency Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

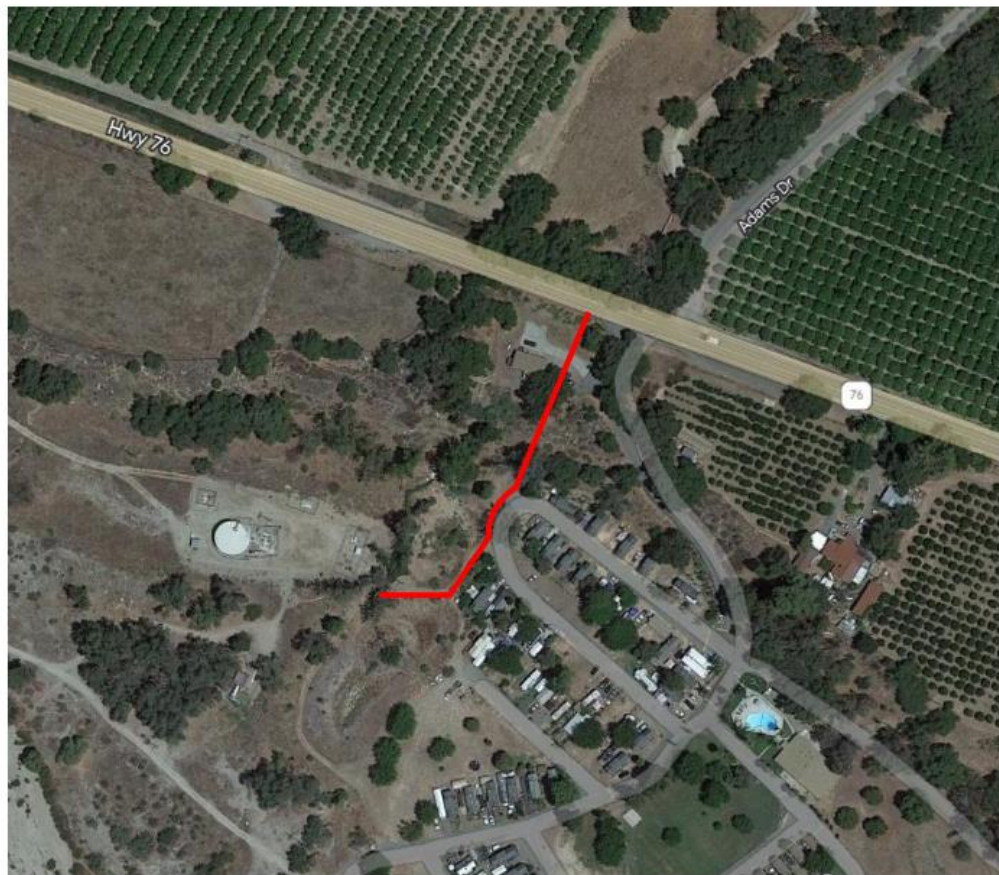
Date Received for filing at OPR: _____

Attachment A

The Yuima Municipal Water District (District) finds that the Pauma Ridge Service Line Project (Project) is categorically exempt from the California Environmental Quality Act (CEQA), and therefore finds that filing this Notice of Exemption (NOE) is appropriate pursuant to CEQA, for the reasons set forth below.

Project Description

Figure 1 depicts the location of the proposed pipeline, which will be located within an existing site dedicated for mobile home and RV park uses, the Rancho Corrido Mobile Home and RV Park (Assessor Parcel Number: 130-040-16-00). The pipeline will replace an existing pipeline where the purpose and capacity of the existing pipeline remain consistent. This pipeline will connect an existing customer to the District's mainline. The relocated pipeline will run through an existing disturbed site. The pipeline replaces an existing eight-inch cement mortar steel pipe.



— Pauma Ridge Service Line Project

Figure 1 – Pipeline Location

Notice of Exemption
Pauma Ridge Service Line Project
Yuima Municipal Water District

Project Details

The pipeline construction activities will be a daylight operation over a 5-day work week for critical tasks (i.e. pipeline construction and development). Initial and final pipeline development will be during daylight hours only to minimize impact to surrounding properties. Additional Project details are available upon request at the District office.

Reasons Why the Project is Exempt

The pipeline will be located on existing disturbed areas. The pipeline would not affect any known sensitive environmental resources. Recreation uses would not be significantly impacted (local landowner approvals will be obtained prior to construction). The Project does not meet any of the exception criteria as set forth in CEQA Guidelines Section 15300.2, as discussed further below:

Location – the Project is not located within any of the noted sensitive geographic areas.

Cumulative Impact – the Project is small scale and is not anticipated to have any individual or cumulatively considerable significant environmental impacts.

Significant Effect – the Project does not involve any unusual circumstances known to the District.

Scenic Highways – the Project would not damage any scenic resources including trees, historic landmarks or rock outcroppings as no such features exist at the Project site. The site is adjacent from State Route 76 (SR-76), which is designated by Caltrans as eligible for State Scenic Highway listing.¹ However, given the small section of pipeline involved, short duration of construction and existing vegetation that screens views from SR-76, no significant impacts are anticipated. This pipeline will replace a similar pipeline. Following construction, the pipeline would either be below-ground (not visible), or above-ground on a short section of slope which is screened by existing vegetation.

Hazardous Waste Sites – the Project site is not on any list compiled pursuant to Government Code Section 65962.5.²

Historical Resources – this site is a disturbed dedicated for mobile home and RV park uses, absent of any historical resources.

¹ <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways> (accessed April 10, 2023).

² <https://calepa.ca.gov/sitecleanup/cortese/section-65962-5a/> (accessed on April 10, 2023).

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk

County of: San Diego

1600 Pacific Highway, Suite 260 (MS A-33)

San Diego, CA 92101-2400

From: (Public Agency): Amy Reeh, General Manager
Yuima Municipal Water District
P.O. Box 177, Pauma Valley, CA 92061

(Address)

Project Title: TY Well 1 Pipeline Project

Project Applicant: Yuima Municipal Water District

Project Location - Specific:

The pipeline will be located within an existing disturbed site dedicated for nursery uses (Assessor Parcel Number: 130-060-16-00). See Attachment A for further discussion.

Project Location - City: Pauma Valley, CA Project Location - County: San Diego

Description of Nature, Purpose and Beneficiaries of Project:

The pipeline will be laid to connect from the existing well site to the mainline that runs through an existing disturbed site dedicated for nursery uses. See Attachment A for further discussion.

Name of Public Agency Approving Project: Yuima Municipal Water District

Name of Person or Agency Carrying Out Project: Yuima Municipal Water District

Exempt Status: (check one):

- Ministerial (Sec. 21080(b)(1); 15268);
- Declared Emergency (Sec. 21080(b)(3); 15269(a));
- Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- Categorical Exemption. State type and section number: Guidelines Sections 15302 and 150161(b)(3)
- Statutory Exemptions. State code number: _____

Reasons why project is exempt:

The pipeline will replace three existing and under-performing wells where the size and production of the pipeline will result in additional production of better quality water. See Attachment A for further discussion.

Lead Agency

Contact Person: Amy Reeh, General Manager Area Code/Telephone/Extension: (760) 742-3704

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: _____ Date: April 13, 2023 Title: General Manager

Signed by Lead Agency Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

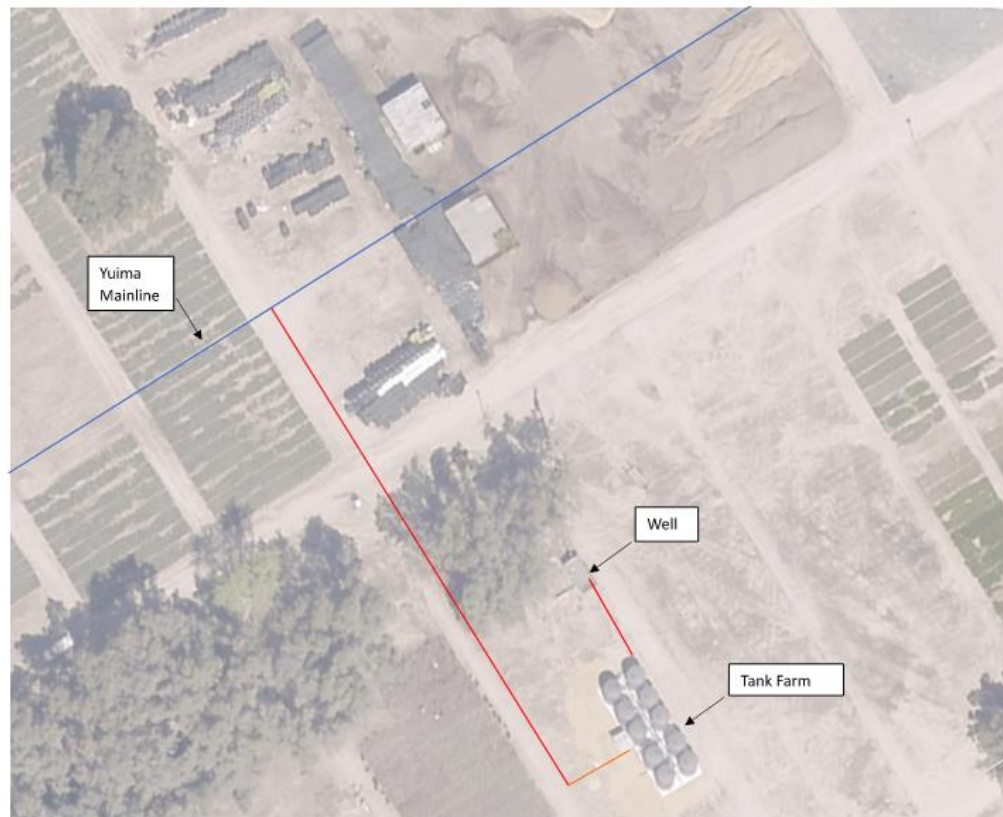
Date Received for filing at OPR: _____

Attachment A

The Yuima Municipal Water District (District) finds that the TY Well 1 Pipeline Project (Project) is categorically exempt from the California Environmental Quality Act (CEQA), and therefore finds that filing this Notice of Exemption (NOE) is appropriate pursuant to CEQA, for the reasons set forth below.

Project Description

Figure 1 depicts the location of the proposed pipeline, which will be located within an existing disturbed site dedicated for nursery uses (Assessor Parcel Number: 130-060-00). This pipeline will be laid to connect from the existing nursery well to the District's mainline that runs through an existing disturbed site. The pipeline will be about 440 feet of eight inch cement mortar lines and cement mortar coated steel pipe. The pipeline will replace three existing under-performing wells where the size and production of the pipeline will result in better water quality.



Legend

- Yuma Mainline
- TY Well 1 Pipeline Project

Figure 1 - Pipeline Location

Notice of Exemption
TY Well 1 Pipeline Project
Yuima Municipal Water District

Project Details

Pipeline construction activities will be a daylight operation over a 5-day work week for critical tasks (i.e. pipeline construction and development). Initial and final pipeline development will be during daylight hours only to minimize impact to surrounding properties. Additional Project details are available upon request at the District office.

Reasons Why the Project is Exempt

The Project is exempt pursuant to CEQA Guidelines 15302 (Class 2- Replacement or Reconstruction of an existing facility). The pipeline is also exempt under the common-sense exemption set forth in CEQA Guidelines Section 15016(b)(3), as follows:

“(b) A project is exempt from CEQA if:

- (1) The project is exempt by statute (see, e.g. Article 18, commencing with Section 15260).
- (2) The project is exempt pursuant to a categorical exemption (see Article 19, commencing with Section 15300) and the application of that categorical exemption is not barred by one of the exceptions set forth in Section 15300.2.
- (3) The activity is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.”

As set forth below, the pipeline Project is a replacement project qualifying under the Class 2 exemption, and also qualifies under the “common sense” exemption contained in CEQA Guidelines Section 15061(b)(3), as the Project will clearly have not have significant impacts on the environment.

The pipeline will be located on an existing disturbed site dedicated for nursery uses. The pipeline will replace three existing and under-performing wells where the size and production of the pipeline will result in additional production of better quality water and more efficient groundwater usage.

The pipeline construction and operation would not affect any sensitive environmental resources. Agricultural operations would not be significantly impacted (local landowner approvals will be obtained prior to construction). The Project does not meet any of the exception criteria as set forth in CEQA Guidelines Section 15300.2, as discussed further below:

Location – the Project is not located within any of the noted sensitive geographic areas.

Cumulative Impact – the Project is small scale and is not anticipated to have any individual or cumulatively considerable significant environmental impacts.

Significant Effect – the Project does not involve any unusual circumstances known to the District.

Scenic Highways – the Project would not damage any scenic resources including trees, historic landmarks or rock outcroppings as no such features exist at the Project site. The pipeline more than 2,000 feet from

Notice of Exemption
TY Well 1 Pipeline Project
Yuima Municipal Water District

State Route 76 (SR-76), which is designated by Caltrans as eligible for State Scenic Highway listing.¹ Given the distance from SR-76 and considering that the pipeline will be below ground with no above-ground structures to impair views, the pipeline would not impact views to or from SR-76.

Hazardous Waste Sites – the Project site is not on any list compiled pursuant to Government Code Section 65962.5.²

Historical Resources – the site is a vacant and disturbed for nursery purposes, absent of any historical resources.

¹ <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways> (accessed April 10, 2023).

² <https://calepa.ca.gov/sitecleanup/corteselist/section-65962-5a/> (accessed on April 10, 2023).

RESOLUTION NO. _____

**RESOLUTION OF THE BOARD OF DIRECTORS OF
YUIMA MUNICIPAL WATER DISTRICT
APPROVING DESIGN, DETERMINING WAGE SCALE AND APPROVING
PLANS AND SPECIFICATIONS, AND OTHER CONTRACT DOCUMENTS
FOR, AND AUTHORIZING THE ADVERTISEMENT OF INVITATION FOR
BIDS FOR THE UPPER SAN LUIS REY NESTING MONITORING WELL IN
ACCORDANCE WITH THE GROUNDWATER SUSTAINABILITY PLAN**

A. WHEREAS, in August 2014, the California Legislature passed, and in September 2014 the Governor signed, legislation creating the Sustainable Groundwater Management Act ("SGMA") "to provide local groundwater sustainability agencies with the authority and technical and financial assistance necessary to sustainably manage groundwater" (Wat. Code, § 10720, (d)); and

B. WHEREAS, SGMA requires sustainable management through the development of groundwater sustainability plans ("GSPs"), which can be a single plan developed by one or more groundwater sustainability agency ("GSA") or multiple coordinated plans within a basin or subbasin (Wat. Code, § 10727); and

C. WHEREAS, SGMA requires that a GSA, created via a memorandum of understanding, joint powers agreement, or other legally enforceable agreement, manage groundwater in all basins designated by the Department of Water Resources ("DWR") as a medium or high priority, including the medium priority Upper San Luis Rey Groundwater Subbasin (designated basin number 9-007.01); and

D. WHEREAS, Upper San Luis Rey Groundwater Management Authority was formed for the purposes of sustainably managing groundwater in the Upper San Luis Rey Groundwater Subbasin, within its jurisdictional boundaries, pursuant to the requirements of SGMA; and

E. WHEREAS, Upper San Luis Rey Groundwater Management Authority, through Yuima Municipal Water District as the lead agency for the GSA, has the authority to draft, adopt, and implement a GSP for the entire Subbasin upon the recommendation of the Upper San Luis Rey Groundwater Management Authority Executive Team. (Wat. Code, § 10725 et seq.); and

F. WHEREAS, the Upper San Luis Rey Groundwater Management Authority has coordinated with stakeholders and beneficial users in the Upper San Luis Rey Groundwater Subbasin through public GSA meetings, the GSA's stakeholder outreach plan, and stakeholder outreach meetings and has provided notice to the County of San Diego per the requirements of SGMA; and

G. WHEREAS, the Upper San Luis Rey Groundwater Management Authority developed the draft of the Upper San Luis Rey GSP and adopted the GSP on January 21, 2022

H. WHEREAS, the Executive Team of the Upper San Luis Rey Groundwater management Authority is tasked with reviewing all major decisions related to development, approval and implementation of a GSP prior to recommending approval to the Yuima Municipal Water District, the agency tasked by the amended MOU with administration of the GSP; and

I. WHEREAS, the GSP Management Actions contains a directive to expand the monitoring network of the subbasin; and

J. WHEREAS, Yuima Municipal Water District is the Local Project Sponsor in the Proposition 1 DAC Involvement Grant Agreement No.: 1-DACI-4-80057; and

K. WHEREAS, the DACI Grant funds will be used for the implementation of the Monitoring Well in accordance with the GSP and the Grant agreement; and

L. WHEREAS, the Executive Team of the Upper San Luis Rey has reviewed the plans and specifications of the well project and have, by resolution, recommended to the Board of Directors of the Yuima Municipal Water District the Approval Design, Determining Wage Scale and Approving Plans And Specifications, and Other Contract Documents For, and Authorizing the Advertisement Of Invitation For Bids for The Upper San Luis Rey Nesting Monitoring Well In Accordance With The Groundwater Sustainability Plan; and

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Yuima Municipal Water District finds as follows:

1. The plans and specifications and contract documents for the Upper San Luis Rey Nesting Monitoring Well are hereby approved.
2. The Board of Directors determines that the wages and holiday and overtime pay set forth in the latest adopted schedule presently on file in the office of the District are for the locality in which the work is to be performed, the current prevailing rate of per diem wages and current general prevailing rate for holiday and overtime pay for each craft, classification and type of workmen needed to perform the work; and
3. That the General Manager of this District be, and he is hereby, authorized and directed to give and publish appropriate notice of an invitation for bids upon the works contemplated within the foregoing plan of improvements and the plans and specifications thereof.

PASSED, APPROVED, AND ADOPTED this 19th day of April, 2023 by the following vote:

AYES:

NAYS:

ABSTAIN:

ABSENT:

Roland Simpson, President

ATTEST:

Don Broomell, Secretary / Treasurer

YUIMA MUNICIPAL WATER DISTRICT
PAUMA VALLEY, CALIFORNIA



PLANS, SPECIFICATIONS,
AND CONTRACT DOCUMENTS
FOR CONSTRUCTION
OF
UPPER SAN LUIS REY GROUNDWATER
SUBBASIN MONITORING WELL

YUIMA MUNICIPAL WATER DISTRICT
34928 VALLEY CENTER ROAD
PO BOX 0177
PAUMA VALLEY, CA 92061-0177
TELEPHONE: (760) 742-3704
FACSIMILE: (760) 742-2069

Date: April 25, 2023

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YUIMA MUNICIPAL WATER DISTRICT

NOTICE INVITING BIDS

**FOR
CONSTRUCTION OF**

UPPER SAN LUIS REY GROUNDWATER SUBBASIN MONITORING WELL

The Yuima Municipal Water District (“District”) will receive sealed bids for the construction of:

Upper San Luis Rey (USLR) MW-1D (Deep) and MW-1S (Shallow) (MW-1).

The Bids will be received in the office of Yuima Municipal Water District no later than **1:00 p.m. local time on Friday, May 12, 2023** and then publicly opened and read aloud. Said bids will thereafter be referred to the Board of Directors for consideration. Bids received after this time will not be accepted. Bids shall be valid for 60 calendar days after the bid opening date.

Bids should be marked on the outside of the sealed envelope:

RE: “Contract Documents and Specifications for Project: USLR Nested Monitoring Well

Mailed or dropped off sealed bids shall be delivered to:

Yuima Municipal Water District
34928 Valley Center Road,
Pauma Valley, CA 92061-0177

It is the responsibility of each prospective bidder to purchase (at location specified herein, below) all Bid Documents for review and to verify the completeness of Bid Documents before submitting a bid.

Any addenda will be emailed to prospective Bidders. A prospective bidder shall provide their email at the time of purchase of the Bid Documents. It is the responsibility of each prospective bidder to check on a daily basis through the close of bids for any applicable addenda or updates that have been emailed. The District does not assume any liability or responsibility based on any defective or incomplete copying, excerpting, scanning, faxing, downloading, or printing of the Bid Documents.

Bids must be accompanied by cash, a certified or cashier’s check, or a Bid Bond in favor of the District in an amount not less than ten percent (10%) of the submitted Total Bid Price. This must be provided to the District at the District’s headquarters at 34928 Valley Center Road, Pauma Valley California, 92091 prior to the deadline for receipt of Bids.

NON-MANDATORY Pre-Bid **Meeting/Job Walk** will be held at the District’s Headquarters located at 34928 Valley Center Road, Pauma Valley, CA 92061-0177 on Tuesday, **May 1, 2023 at 10 a.m.** Each and every Bidder SHOULD attend the Pre-Bid Conference. Prospective

bidders MAY NOT visit the Project Site without making arrangements through the District. Note: Bids will be accepted from bidders regardless of whether or not they attended the NON-MANDATORY Pre-Bid Meeting / Job Walk.

Each bid shall be accompanied by the security referred to in the Contract Documents, the non-collusion declaration, the list of proposed subcontractors, the public works contractor registration certification, and all additional documentation required by the Instructions to Bidders.

The successful bidder will be required to furnish the District with a Performance Bond equal to 100% of the successful bid, and a Payment Bond equal to 100% of the successful bid, prior to execution of the Contract. All bonds are to be secured from a surety that meets all of the State of California bonding requirements, as defined in Code of Civil Procedure section 995.120, and is admitted by the State of California.

Pursuant to Public Contract Code section 22300, the successful bidder may substitute certain securities for funds withheld by District to ensure his performance under the Contract.

The Director of Industrial Relations has determined the general prevailing rate of per diem wages in the locality in which this work is to be performed for each craft or type of worker needed to execute the Contract that will be awarded to the successful bidder, copies of which are on file and will be made available to any interested party upon request at the office of the General Manager of the District located at 34928 Valley Center Road, Pauma Valley California 92061, or online at <https://www.dir.ca.gov/OPRL/dprevagedetermination.htm>. A copy of these rates shall be posted by the successful bidder at the job site. The successful bidder, and all subcontractor(s) under him, shall comply with all applicable Labor Code provisions, which include, but are not limited to, the payment of not less than the required prevailing rates to all workers employed by them in the execution of the Contract, the employment of apprentices, the hours of labor, and the debarment of contractors and subcontractors.

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. No bid will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work. If awarded a Contract, the Bidder and its subcontractors, of any tier, shall maintain active registration with the Department of Industrial Relations for the duration of the Project.

This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. In bidding on this Project, it shall be the Bidder's sole responsibility to evaluate and include the cost of complying with all labor compliance requirements under this contract and applicable law in its Bid.

Each bidder shall be a licensed contractor pursuant to the Business and Professions Code and shall be licensed in the following appropriate classification(s) of contractor's license(s), for the work bid upon, and must maintain the license(s) throughout the duration of the Contract:

Class C-57 –Well Drilling Contractors License

Award of Contract: The District shall award the Contract for the Project to the lowest responsible

bidder, as determined from the base bid alone by the District. The District reserves the right to reject any or all bids or to waive any irregularities or informalities in any bids or in the bidding process. If two or more bids are submitted with the same lowest bid amount, District may award the Contract to the bidder it chooses.

For further information, contact the General Manager of the District located at 34928 Valley Center Road, Pauma Valley California 92061, (760) 742-3704.

Contract Documents (electronic and/or hard copy) shall be obtained from Geoscience Support Services 160 Via Verde, Suite 150, San Dimas, CA 91773, Phone: (909) 451-6650, email LWicks@geoscience-water.com. Contract Documents will be mailed upon payment of a fifteen dollar (\$15.00) non-refundable fee. MAKE ALL CHECKS PAYABLE TO "Geoscience Support Services".

Dated: April 25, 2023

YUIMA MUNICIPALWATER DISTRICT

Authorization Date

BY: _____

Amy Reeh
General Manager

END OF NOTICE INVITING BIDS

YUIMA MUNICIPAL WATER DISTRICT
INSTRUCTIONS TO BIDDERS

FOR
CONSTRUCTION OF

UPPER SAN LUIS REY GROUNDWATER SUBBASIN MONITORING WELL

AVAILABILITY OF CONTRACT DOCUMENTS

Bids must be submitted to the District on the Bid Forms, which are a part of the Bid Package for the Project. Prospective bidders are encouraged to telephone in advance to determine the availability of Contract Documents. Any applicable charges for the Contract Documents are outlined in the Notice Inviting Bids.

The District may also make the Contract Documents available for review at Office of **Geoscience Support Services**, 160 Via Verde, Suite 150, San Dimas, CA 91773, as indicated in the Notice Inviting Bids. Note: Prospective bidders who choose to review the Contract Documents Geoscience Support Services Office are still required to obtain Contract Documents, as described in the Notice Inviting Bids, if they decide to submit a bid for the Project.

EXAMINATION OF CONTRACT DOCUMENTS

The District has made copies of the Contract Documents available, as indicated above. Bidders shall be solely responsible for examining the Project Site and the Contract Documents, including any Addenda issued during the bidding period, and for informing itself with respect to local labor availability, means of transportation, necessity for security, laws and codes, local permit requirements, wage scales, local tax structure, contractors' licensing requirements, availability of required insurance, and other factors that could affect the Work. Bidders are responsible for consulting the standards referenced in the Contract. Failure of Bidder to so examine and inform itself shall be at its sole risk, and no relief for error or omission will be given except as required under state law.

INTERPRETATION OF CONTRACT DOCUMENTS

Discrepancies in and/or omissions from the Plans, Specifications, or other Contract Documents or questions as to their meaning shall be immediately brought to the attention of the District by submission of a written request for an interpretation or correction to the District. Such submission, if any, must be submitted electronically via Email LWicks@geoscience-water.com.

Any interpretation of the Contract Documents will be made only by written addenda. Any addenda will be emailed to prospective bidders. The District will not be responsible for any explanations or interpretations provided in any other manner. No person is authorized to make any oral interpretation of any provision in the Contract Documents to any bidder, and no bidder should rely on any such oral interpretation.

Bids shall include complete compensation for all items that are noted in the Contract Documents as the responsibility of the Contractor.

SCOPE OF WORK

The Work involves performing all work and furnishing all labor, materials, and equipment, as provided by the Contract Documents, for a completed Work of Improvement, as follows:

Drilling, Construction, Development, and Testing of One (1) Dual Completion Nested Groundwater Monitoring Well. Detailed technical specifications and project plan sheets are included herein.

SITE OF WORK

The site of the Work is described as follows:

Well installation and testing, consists of drilling, construction, and development of the nested monitoring well (deep and shallow completions). The nested wells shall be located in Pauma Valley, California (see Sheet 1 and 3 the Project Plan Sheets). The nested monitoring well will be constructed on Rancho Estate's right of way access.

INSPECTION OF SITE; PRE-BID CONFERENCE AND SITE WALK

Each prospective bidder is responsible for fully acquainting itself with the conditions of the site of Work (which may include more than one site), as well as those relating to the construction and labor of the Project, to fully understand the facilities, difficulties, and restrictions that may impact the cost or effort required to complete the Project. To this end, a Pre-Bid Conference and Site Walk will be held on the date(s) and time(s) indicated in the Notice Inviting Bids.

ADDENDA

The District reserves the right to revise the Contract Documents prior to the bid opening date. Revisions, if any, shall be made by written addenda. All addenda issued by the District shall be included in the bid and made part of the Contract Documents. Pursuant to Public Contract Code section 4104.5, if the District issues an addendum less than 72 hours prior to the deadline for submission of bids, which includes material changes to the Project, the District will extend the deadline for submission of bids. The District may determine, in its sole discretion, whether an addendum warrants postponement of the bid submission date. Any addenda will be email to each prospective Bidders. Please note: Bidders are responsible for ensuring that they have received any and all addenda. The Bidder shall acknowledge the addenda via email prior to bidding. Failure to acknowledge any and all addenda may be sufficient cause for rejecting the Bid.

COMPLETION OF BID FORMS

Bids shall only be prepared using copies of the Bid Forms that are included in the Contract Documents. The use of substitute bid forms will not be permitted. Bids shall be executed by an authorized signatory, as described in these Instructions to Bidders. In addition, Bidders shall fill in all blank spaces (including inserting "N/A" where applicable) and initial all interlineations, alterations, or erasures to the Bid Forms. Bidders shall neither delete, modify, nor supplement the printed matter on the Bid Forms, nor make substitutions thereon. **USE OF BLACK OR BLUE INK, INDELIBLE PENCIL OR A TYPEWRITER IS REQUIRED.** Deviations in the Bid Form may result in the bid being deemed non-responsive.

MODIFICATIONS OF BIDS

Each Bidder shall submit its Bid in strict conformity with the requirements of the Contract Documents. Unauthorized additions, modifications, revisions, conditions, limitations, exclusions, or provisions attached to a Bid may render it non-responsive and may cause its rejection. Bidders shall neither delete, modify, nor supplement the printed matter on the Bid Forms, nor make substitutions thereon. Oral, telephonic, and electronic modifications will not be considered, unless the Notice Inviting Bids authorizes the submission of electronic bids and modifications thereto and such modifications are made in accordance with the Notice Inviting Bids.

DESIGNATION OF SUBCONTRACTORS

Pursuant to state law, the Bidders must designate the name and location of each subcontractor who will perform work or render services for the Bidder in an amount that exceeds one-half of one percent (1/2%) of the Bidder's Total Bid Price, as well as the portion of work each such subcontractor will perform on the form provided herein by the District. No additional time will be provided to bidders to submit any of the requested information in the List of Subcontractors Form.

LICENSING REQUIREMENTS

Pursuant to section 7028.15 of the Business and Professions Code and section 3300 of the Public Contract Code, all bidders must possess proper licenses for performance of this Contract. Subcontractors must possess the appropriate licenses for each specialty subcontracted. Pursuant to section 7028.5 of the Business and Professions Code, the District shall consider any bid submitted by a contractor not currently licensed in accordance with state law and pursuant to the requirements found in the Contract Documents to be non-responsive, and the District shall reject the Bid. The District shall have the right to request, and Bidders shall provide within five (5) calendar days, evidence satisfactory to the District of all valid license(s) currently held by that Bidder and each of the Bidder's subcontractors, before awarding the Contract.

SIGNING OF BIDS

All Bids submitted shall be executed by the Bidder or its authorized representative. Bidders may be asked to provide evidence in the form of an authenticated resolution of its Board of Directors or a Power of Attorney evidencing the capacity of the person signing the Bid to bind the Bidder to each Bid and to any Contract arising therefrom.

If a Bidder is a joint venture or partnership, it may be asked to submit an authenticated Power of Attorney executed by each joint venturer or partner appointing and designating one of the joint venturers or partners as a management sponsor to execute the Bid on behalf of Bidder. Only that joint venturer or partner shall execute the Bid. The Power of Attorney shall also: (1) authorizes

that particular joint venturer or partner to act for and bind Bidder in all matters relating to the Bid; and (2) provide that each venturer or partner shall be jointly and severally liable for any and all of the duties and obligations of Bidder assumed under the Bid and under any Contract arising therefrom. The Bid shall be executed by the designated joint venturer or partner on behalf of the joint venture or partnership in its legal name.

BID GUARANTEE (BOND)

Each bid shall be accompanied by: (a) cash; (b) a certified check made payable to the District; (c) a cashier's check made payable to the District; or (d) a bid bond payable to the District executed by the bidder as principal and surety as obligor in an amount not less than 10% of the maximum amount of the bid. Personal sureties and unregistered surety companies are unacceptable. The surety insurer shall be a California admitted surety insurer, as defined in Code of Civil Procedure section 995.120. The cash, check, or bid bond shall be given as a guarantee that the bidder shall execute the Contract if it be awarded to the bidder. The bidder shall provide the payment and performance bonds and insurance certificates and endorsements, as required herein, within ten (10) calendar days after notification of the award of the Contract to the bidder. Failure to provide the required documents may result in forfeiture of the bidder's bid deposit or bond to the District and the District may award the Contract to the next lowest responsible bidder, or may call for new bids.

DELIVERY OF SEALED BIDS

Once the Bid and supporting documents have been completed and signed as set forth herein, they shall be delivered to the District, along with all other required materials, before the time and day set for the receipt of bids. The Bids, shall be submitted in an envelope, sealed, addressed, and mailed with postage prepaid or hand-delivered to the General Manager of Yuima Municipal Water District at its office at 34928 Valley Center Road, Post Office Box 0177, Pauma Valley California 92061- 0177. The envelope shall also contain the following in the lower left-hand corner thereof: **Bid Guarantee of (Bidder's Name) for the USLR Nested Monitoring Well, to be opened 1:00 p.m. local time on Friday, May 12, 2023.**

No oral or telephonic bids will be considered. No forms transmitted via the internet, e-mail, facsimile, or any other electronic means will be considered.

OPENING OF BIDS

All bid proposals shall be publicly opened and read at the time and place set forth in the Notice Inviting Bids herein. Bidders and their authorized representatives are invited to be present. The award, if made, will be made within 30 days of the opening.

WITHDRAWAL OF BID

Any bid may be withdrawn, incurring no penalty, at any time prior to the scheduled closing time for receipt of bids. Requests to withdraw bids shall be worded so as not to reveal the amount of the original bid. Withdrawn bids may be resubmitted until the time and day set for the receipt of bids, provided that resubmitted bids are in conformance with the instructions herein.

Bids may be withdrawn after bid opening only by providing written notice to District within five (5) working days of the bid opening and in compliance with Public Contract Code section 5100 *et. seq.*, or as otherwise may be allowed with the consent of the District.

BASIS OF AWARD; BALANCED BIDS

The District shall award the Contract to the lowest responsible Bidder submitting a responsive Bid. The District may reject any Bid that, in its opinion when compared to other bids received or to the District's internal estimates, does not accurately reflect the cost to perform the Work. The District may reject as non-responsive any bid that unevenly weights or allocates costs including, but not limited to, overhead and profit to one or more particular bid items.

DISQUALIFICATION OF BIDDERS; INTEREST IN MORE THAN ONE BID

No bidder shall be allowed to make, submit, or be interested in more than one bid. However, a person, firm, corporation, or other entity that has submitted a subproposal to a bidder, or that has quoted prices of materials to a bidder, is not thereby disqualified from submitting a subproposal or quoting prices to other bidders submitting a bid to the District. No person, firm, corporation, or other entity may submit a subproposal to a bidder, or quote prices of materials to a bidder, when also submitting a prime bid on the same Project.

QUESTIONS

Questions regarding the Notice Inviting Bids may be submitted through LWicks@geoscience-water.com. No other members of the District's staff or Governing Board should be contacted about this procurement during the bidding process. Any and all inquiries and comments regarding this Bid must be communicated in writing, unless otherwise instructed by the District. The District may, in its sole discretion, disqualify any Bidder who engages in any prohibited communications.

INSURANCE REQUIREMENTS

The successful bidder shall procure the insurance in the form and in the amount specified in the Contract Documents.

AWARD PROCESS

Once all Bids are opened and reviewed to determine the lowest responsive and responsible Bidder, the District may award the contract. The apparent successful Bidder should begin to prepare the following documents: (1) the Performance Bond; (2) the Payment Bond; and (3) the required insurance certificates and endorsements. Once the District notifies the Bidder of the award, the Bidder will have ten (10) consecutive calendar days from the date of this notification to execute the Contract and supply the District with all of the required documents and certifications. Regardless whether the Bidder supplies the required documents and certifications in a timely manner, the Contract time will begin to run ten (10) calendar days from the date of the notification. Once the District receives all of the properly drafted and executed documents and certifications from the Bidder, the District shall issue a Notice to Proceed to that Bidder.

FILING OF BID PROTESTS

Bidders may file a "protest" of a Bid with the District's General Manager. In order for a Bidder's protest to be considered valid, the protest must comply with the following:

- A. Be filed in writing within five (5) calendar days after the bid opening date.
- B. Clearly identify the specific irregularity or accusation.

- C. Clearly identify the specific District staff determination or recommendation being protested.
- D. Specify, in detail, the grounds of the protest and the facts supporting the protest.
- E. Include all relevant, supporting documentation with the protest at time of filing.

If the protest does not comply with each of these requirements, it will be rejected as invalid.

If the protest is valid, the District's General Manager shall review the basis of the protest and all relevant information and provide a written decision to the protestor.

WORKERS' COMPENSATION

Each bidder shall submit the Contractor's Certificate Regarding Workers' Compensation form.

PUBLIC WORKS CONTRACTOR REGISTRATION CERTIFICATION

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. No bids will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the

Department of Industrial Relations to perform public work. If awarded a Contract, the Bidder and its subcontractors, of any tier, shall maintain active registration with the Department of Industrial Relations for the duration of the Project. To this end, Bidder shall sign and submit with its Bid the Public Works Contractor Registration Certification on the form provided, attesting to the facts contained therein. Failure to submit this form may render the Bid non-responsive. In addition, each Bidder shall provide the registration number for each listed subcontractor in the space provided in the List of Subcontractors Form.

SUBSTITUTION OF SECURITY

The Contract Documents call for monthly progress payments based upon the percentage of the work completed. The District will retain five percent (5%) of each progress payment, as provided by the Contract Documents. At the request and expense of the successful Bidder, the District will substitute securities for the amount so retained, in accordance with Public Contract Code section 22300.

PREVAILING WAGES

The District has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages in the locality in which this work is to be performed for each craft or type of worker needed to execute the Contract. These rates may be obtained online at <https://www.dir.ca.gov/OPRL/dprevagedetermination.htm>. Bidders are advised that a copy of these rates must be posted by the successful Bidder at the job site(s).

DEBARMENT OF CONTRACTORS AND SUBCONTRACTORS

In accordance with the provisions of the Labor Code, contractors or subcontractors may not

perform work on a public works project with a subcontractor who is ineligible to perform work on a public project pursuant to section 1777.1 or section 1777.7 of the Labor Code. Any contract on a public works project entered into between a contractor and a debarred subcontractor is void as a matter of law. A debarred subcontractor may not receive any public money for performing work as a subcontractor on a public works contract. Any public money that is paid to a debarred subcontractor by the Contractor for the Project shall be returned to the District. The Contractor shall be responsible for the payment of wages to workers of a debarred subcontractor who has been allowed to work on the Project.

PERFORMANCE BOND AND PAYMENT BOND REQUIREMENTS

Within the time specified in the Contract Documents, the Bidder to whom a Contract is awarded shall deliver to the District two identical counterparts of the Performance Bond and Payment Bond in the form supplied by the District and included in the Contract Documents. Failure to do so may, in the sole discretion of District, result in the forfeiture of the Bid Guarantee. The surety supplying the bond must be an admitted surety insurer, as defined in Code of Civil Procedure section 995.120, authorized to do business as such in the state of California and satisfactory to the District. The Performance Bond and the Payment Bond shall each be for one hundred percent (100%) of the Total Bid Price.

REQUEST FOR SUBSTITUTIONS

The successful bidder shall comply with the substitution request provisions set forth in the General Provisions, including any deadlines for substitution requests **that may occur prior to the bid opening date**.

SALES AND OTHER APPLICABLE TAXES, PERMITS, LICENSES, AND FEES

Contractor and its subcontractors performing work under this Contract will be required to pay California sales tax and other applicable taxes, and to pay for permits, licenses, and fees required by the agencies with authority in the jurisdiction in which the work will be located, unless otherwise expressly provided by the Contract Documents.

EXECUTION OF CONTRACT

As required herein, the Bidder to whom an award is made shall execute the Contract in the amount determined by the Contract Documents. The District may require appropriate evidence that the persons executing the Contract are duly empowered to do so.

PROGRESS PAYMENTS

The Contract Documents call for monthly progress payments based upon the percentage of the Work completed. Contractor shall submit with each payment request the Contractor's conditional waiver of lien for the entire amount covered by such payment request, as well as a valid unconditional waiver of lien from the Contractor and all subcontractors and materialmen for all work and materials included in any prior invoices. Waivers of lien shall be in the forms prescribed by California Civil Code section 8132. The District will retain five percent (5%) of each progress payment as security for completion of the Work. At the request and expense of the successful Bidder, the District will pay the amount so retained, in compliance with the requirements of Public Contract Code section 22300.

END OF INSTRUCTIONS TO BIDDERS

BID FORM

BY

(Firm)

**FOR
CONSTRUCTION OF**

USLR NESTING MONITORING WELL

Yuima Municipal Water District
34928 Valley Center Road
Post Office Box 0177 Pauma
Valley CA 92061-0177

Attention: **Amy Reeh**
General Manager

The undersigned declares, as Bidder, that he has carefully examined the locations of the proposed Work and that he has examined the Contract Documents, Plans, and Specifications and hereby proposes and agrees to furnish all labor, materials, equipment, tools, transportation, and services necessary to do all work required to construct:

USLR NESTING MONITORING WELL

and all appurtenances therefor, in strict conformance with the Contract Documents and the Plans and Specifications prepared by the Engineer/Architect, for the price(s) as delivered to the District. The total price for each Bid Schedule stated in this Proposal for all Bid Items is based on the estimated quantities indicated in the Plans and Specifications, and shall include all items necessary to complete the Work.

BID SCHEDULE

**FOR
CONSTRUCTION OF
UPPER SAN LUIS REY MESTING MONITORING WELL**

Item No.	Description	Qty	Unit	Unit Price	Total Item Price
1	Mobilization and demobilization of all equipment to project area staging location, including site preparation, drilling permits as required, cleanup, and restoration of each site.	1	ls	lump sum	
2	Containment and proper disposal of all drill cuttings, drilling fluid, and groundwater waste, as specified.	1	wells	per well	
3	Drill nominal 6 inch diameter dual-tube reverse air rotary borehole, collect formation samples at 5 ft intervals.	305	ft	per foot	
4	Condition borehole with mud or water prior to performing geophysical logs; provide geophysical borehole logs as specified.	1	sets	per set	
5	Ream 6 inch dual-wall borehole to 17.5 inch diameter using mud rotary drilling method, as specified.	305	ft	per foot	
6	Furnish and install 4 in. diameter sch 80 PVC casing and screen as nested-completion monitoring well, as specified.	369	ft	per foot	
7	Furnish and install filter pack and annular seals, as specified.	305	ft	per foot	
8	Perform initial development of 4 in. sch 80 diameter monitoring wells by swabbing and airlifting, as specified.	40	hr	per hour	
9	Perform final development of 4 in. sch 80 diameter monitoring wells by pumping and surging, as specified.	48	hr	per hour	
10	Collect water quality samples from each well following development	2	sets	per set	
11	Furnish and install monument style protective well covers as wellhead completions, as specified.	1	wells	per well	
TOTAL PRICE (Items 1 - 11):					

The costs for any Work shown or required in the Contract Documents, but not specifically identified as a line item are to be included in the related line items and no additional compensation shall be due to Contractor for the performance of the Work.

The estimated quantities for Unit Price items are for purposes of comparing Bids only and the District makes no representation that the actual quantities of work performed will not vary from the estimates. Final payment shall be determined by the Engineer from measured quantities of work performed based upon the Unit Price.

TOTAL BASE BID PRICE:

\$ _____
Total Base Bid Price in Numbers

Total Base Bid Price in Written Form

In case of discrepancy between the written price and the numerical price, the written price as submitted shall prevail.

The undersigned agrees that this Bid Form constitutes a firm offer to the District that cannot be withdrawn for the number of calendar days indicated in the Notice Inviting Bids, or until a Contract for the Work is fully executed by the District and a third party, whichever is earlier.

The Contract duration shall commence on the date stated in the District's Notice to Proceed, and

shall be completed by the Contractor in the time specified in the Contract Documents. In no case shall the Contractor commence construction prior to the date stated in the District's Notice to Proceed.

Bidder certifies that it is licensed in accordance with the law providing for the registration of Contractors, License No. _____ ; Expiration Date _____ ; class of license. If the bidder is a joint venture, each member of the joint venture must include the above information.

The undersigned acknowledges receipt, understanding, and full consideration of the following addenda to the Contract Documents:

Addenda No. _____

Addenda No. _____

Addenda No. _____

1. Attached is the required bid security in the amount of not less than 10% of the Total Bid Price.
2. Attached is the fully-executed Non-Collusion Declaration form.
3. Attached is the completed List of Subcontractors form.
4. Attached is the completed Contractor Information and Experience form.
5. Attached is the completed Contractor's Certificate Regarding Workers' Compensation form.
6. Attached is the completed Public Works Contractor Registration Certification form.

I hereby certify under penalty of perjury under the laws of the state of California that all of the information submitted in connection with this Bid and all of the representations made herein are true and correct.

Name of Bidder _____

Signature _____

Name _____

Title _____

Dated _____

END OF BID FORM

NOTE: Attach "California All-Purpose Acknowledgment"

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

Personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

Signature _____ (Seal)

NOTE: This acknowledgment is to be completed for Contractor/Principal.

CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION

I am aware of the provisions of section 3700 of the Labor Code, which require 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.

Name of Bidder _____

Signature _____

Name _____

Title _____

Dated _____

END OF CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION

PUBLIC WORKS CONTRACTOR REGISTRATION CERTIFICATION

Pursuant to Labor Code sections 1725.5 and 1771.1, all contractors and subcontractors that wish to bid on, be listed in a bid proposal, or enter into a contract to perform public work must be registered with the Department of Industrial Relations. See <http://www.dir.ca.gov/Public-Works/PublicWorks.html> for additional information.

No bid will be accepted nor any contract entered into without proof of the contractor's and subcontractors' current registration with the Department of Industrial Relations to perform public work.

Bidder hereby certifies that it is aware of the registration requirements set forth in Labor Code sections 1725.5 and 1771.1 and is currently registered as a contractor with the Department of Industrial Relations.

Name of Bidder: _____

DIR Registration Number: _____

Bidder further acknowledges:

1. Bidder shall maintain a current DIR registration for the duration of the project.
2. Bidder shall include the requirements of Labor Code sections 1725.5 and 1771.1 in its contract with subcontractors and ensure that all subcontractors are registered at the time of bid opening and maintain registration status for the duration of the project.
3. Failure to submit this form or comply with any of the above requirements may result in a finding that the bid is non-responsive.

Name of Bidder _____

Signature _____

Name _____

Title _____

Dated _____

END OF PUBLIC WORKS CONTRACTOR REGISTRATION CERTIFICATION

BID BOND

The makers of this bond are, _____, as Principal, and _____, as Surety and are held and firmly bound unto the Yuima Municipal Water District, hereinafter called the District, in the penal sum of TEN PERCENT (10%) OF THE TOTAL BID PRICE of the Principal submitted to DISTRICT for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted the accompanying bid dated _____, 20 , for UPPER SAN LUIS REY NESTING MONITORING WELL.

If the Principal does not withdraw its bid within the time specified in the Contract Documents; and if the Principal is awarded the Contract and provides all documents to the District as required by the Contract Documents; then this obligation shall be null and void. Otherwise, this bond will remain in full force and effect.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract Documents shall in affect its obligation under this bond, and Surety does hereby waive notice of any such changes.

In the event a lawsuit is brought upon this bond by the District and judgment is recovered, the Surety shall pay all litigation expenses incurred by the District in such suit, including reasonable attorneys' fees, court costs, expert witness fees, and expenses.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals this _____ day of _____, 20 , the name and corporate seal of each corporation.

(Corporate Seal)

Contractor/Principal

By: _____

Title: _____

(Corporate Seal)

Surety

By: Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title: _____

The rate of premium on this bond is _____ per thousand.

The total amount of premium charges, \$ _____ .

(The above must be filled in by corporate attorney)

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

Personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

(Seal)

Signature _____

NOTE: This acknowledgment is to be completed for Contractor/Principal.

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

Personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

(Seal)

Signature _____

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF BID BOND

**NON-COLLUSION DECLARATION
(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)**

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. 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 to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the state of California that the foregoing is true and correct and that this declaration is executed on _____ [date], at _____ [City], _____ [State].

Name of Bidder _____

Signature _____

Name _____

Title _____

Dated _____

END OF NON-COLLUSION DECLARATION

CONTRACTOR INFORMATION AND EXPERIENCE FORM

A. INFORMATION ABOUT BIDDER

[**Indicate not applicable (“N/A”) where appropriate**]

NOTE: Where Bidder is a joint venture, pages shall be duplicated and information provided for all parties to the joint venture.

1.0 Name of Bidder: _____

2.0 Type, if Entity: _____

3.0 Bidder Address: _____

Facsimile Number Telephone Number Email Address

4.0 How many years has Bidder’s organization been in business as a Contractor?

5.0 How many years has Bidder’s organization been in business under its present name? _____

5.1 Under what other or former names has Bidder’s organization operated? _____

6.0 If Bidder’s organization is a corporation, answer the following:

6.1 Date of Incorporation:

6.2 State of Incorporation:

6.3 President’s Name:

6.4 Vice-President’s Name(s):

6.5 Secretary’s Name: _____

6.6 Treasurer’s Name: _____

7.0 If an individual or a partnership, answer the following:

7.1 Date of Organization: _____

7.2 Name and address of all partners (state whether general or limited partnership):

8.0 If other than a corporation or partnership, describe organization and name principals:

9.0 List other states in which Bidder's organization is legally qualified to do business.

10.0 What type of work does the Bidder normally perform with its own forces?

11.0 Has Bidder ever failed to complete any work awarded to it? If so, note when, where, and why:

12.0 Within the last five years, has any officer or partner of Bidder's organization ever been an officer or partner of another organization when it failed to complete a contract? If so, attach a separate sheet of explanation:

13.0 List References:

Name of Agency: _____

Agency Address and Telephone: _____

Contact Person: _____

Type of
Construction Project: _____

.....
Name of
Agency:

Agency Address and Telephone: _____

Contact Person: _____

Type of
Construction Project: _____

.....
Name of Agency: _____

Agency Address and Telephone: _____

Contact Person: _____

Type of
Construction Project: _____

.....
Name of
Agency:

Agency Address and Telephone: _____

Contact Person: _____

Type of
Construction Project: _____

.....

14.0 List Bank References (Bank and Branch Address):

15.0 Name of Bonding Company and Name and Address of Agent:

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D. EXPERIENCE AND TECHNICAL QUALIFICATIONS QUESTIONNAIRE

Personnel:

The Bidder shall identify the key personnel to be assigned to this project in a management, construction supervision, or engineering capacity.

1. List each person's job title, name, and percent of time to be allocated to this project:

2. Summarize each person's specialized education:

3. List each person's years of construction experience relevant to the project:

4. Summarize such experience:

Bidder agrees that personnel named in this Bid will remain on this Project until completion of all relevant Work, unless substituted by personnel of equivalent experience and qualifications approved in advance by the District.

Additional Bidder's Statements:

If the Bidder feels that there is additional information that has not been included in the questionnaire above, and which would contribute to the qualification review, it may add that information in a statement here or on an attached sheet, appropriately marked:

E. VERIFICATION AND EXECUTION

These Bid Forms shall be executed only by a duly authorized official of the Bidder:

I declare under penalty of perjury under the laws of the state of California that the foregoing information is true and correct:

Name of Bidder _____

Signature _____

Name _____

Title _____

Dated _____

END OF CONTRACTOR INFORMATION AND EXPERIENCE FORM

LIST OF SUBCONTRACTORS FORM

In compliance with the Subletting and Subcontracting Fair Practices Act of the Public Contract Code of the state of California, each bidder shall set forth below: (a) the name and the location of the place of business and (b) the portion of the Work that will be done by each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the Work in an amount in excess of one-half of one percent (1/2%) of the Contractor's Total Bid Price. Notwithstanding the foregoing, if the Work involves streets and highways, then the Contractor shall list each subcontractor who will perform work or labor or render service to Contractor in or about the Work in an amount in excess of one-half of one percent (1/2%) of the Contractor's Total Bid Price or \$10,000, whichever is greater. No additional time shall be granted to provide the below-requested information.

If no subcontractor is specified, for a portion of the Work, or if more than one subcontractor is specified for the same portion of Work, to be performed under the Contract in excess of one-half of one percent (1/2%) of the Contractor's Total Bid Price or \$10,000, whichever is greater if the work involves streets or highways, then the Contractor shall be deemed to have agreed that it is fully qualified to perform that Work, and that it shall perform that portion itself.

Name of Subcontractor	Location of Business	Work to be done by Subcontractor	CSLB License Number	DIR Registration Number	% of the Work

Name of Subcontractor	Location of Business	Work to be done by Subcontractor	CSLB License Number	DIR Registration Number	% of the Work

Name of Bidder _____

Signature _____

Name _____

Title _____

Date _____

END OF LIST OF SUBCONTRACTORS FORM

CONTRACT

THIS CONTRACT is made this ____ day of _____, 2023, in the County of San Diego, State of California, by and between the Yuima Municipal Water District, hereinafter called District, and _____, hereinafter called Contractor. The District and the Contractor for the considerations stated herein agree as follows:

ARTICLE 1. SCOPE OF WORK. The Contractor shall perform all Work within the time stipulated in the Contract and shall provide all labor, materials, equipment, tools, utility services, and transportation to complete all of the Work required in strict compliance with the Contract Documents, as specified in Article 5 below for the following Project:

UPPER SAN LUIS REY NESTING MONITORING WELL

The Contractor and its surety shall be liable to the District for any damages arising as a result of the Contractor's failure to comply with this obligation.

ARTICLE 2. TIME FOR COMPLETION. The Work shall be commenced on the date stated in the District's Notice to Proceed. The Contractor shall complete all Work required by the Contract Documents as follow:

1. Final Completion and Final Invoice submitted by June 30, 2023.

By its signature hereunder, Contractor agrees the time for completion set forth above is adequate and reasonable to complete the Work.

ARTICLE 3. CONTRACT PRICE. The District shall pay to the Contractor as full compensation for the performance of the Contract, subject to any additions or deductions as provided in the Contract Documents, and including all applicable taxes and costs, the sum of _____ Dollars (\$ _____).

Payment shall be made as set forth in the General Provisions.

ARTICLE 4. LIQUIDATED DAMAGES. In accordance with Government Code section 53069.85, it is agreed that the Contractor will pay the District the sum of **\$ 100** for each and every calendar day of delay beyond the times prescribed in the Contract Documents for Substantial Completion, as Liquidated Damages and not as a penalty or forfeiture. In the event this is not paid, the Contractor agrees the District may deduct that amount from any money due or that may become due the Contractor under the Contract. This Article does not exclude recovery of other damages specified in the Contract Documents.

ARTICLE 5. COMPONENT PARTS OF THE CONTRACT. The “Contract Documents” include the following:

- Notice Inviting Bids
- Instructions to Bidders
- Bid Form/Bid Schedule
- Contractor’s Certificate Regarding Workers’ Compensation
- Public Works Contractor Registration Certification
- Bid Bond
- Non-Collusion Declaration Form
- Contractor Information and Experience
- List of Subcontractors Form
- Contract
- Performance Bond
- Payment Bond
- General Provisions
- Technical Specifications
- Addenda
- Plans and Drawings
- Approved and fully executed change orders
- Any other documents contained in or incorporated into the Contract

The Contactor shall complete the Work in strict accordance with all of the Contract Documents.

All of the Contract Documents are intended to be complementary. Work required by one of the Contract Documents and not by others shall be done as if required by all. This Contract shall supersede any prior agreement of the parties.

ARTICLE 6. PROVISIONS REQUIRED BY LAW. Each and every provision of law required to be included in these Contract Documents shall be deemed to be included in these Contract Documents. The Contractor shall comply with all requirements of the California Labor Code applicable to this Project.

ARTICLE 7. INDEMNIFICATION. Contractor shall provide indemnification, as set forth in the General Provisions.

ARTICLE 8. PREVAILING WAGES. Contractor shall be required to pay the prevailing rate of wages in accordance with the Labor Code which such rates may be obtained online at <http://www.dir.ca.gov/dlsr>. and which must be posted at the job site.

IN WITNESS WHEREOF, this Contract has been duly executed by the above-named parties, on the day and year above written.

YUIMA MUNICIPAL WATER DISTRICT

Signature: _____
Amy Reeh
General Manager

Dated: _____

By: _____
(Authorized Representative of Contractor)

Dated: _____

Printed Name: _____

Title: _____
(Attach Acknowledgment for Authorized
Representative of Contractor)

License No.: _____

Dated: _____

END OF CONTRACT

BOND NO. _____

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the Yuima Municipal Water District (hereinafter referred to as "District") has awarded to _____ (hereinafter referred to as the "Contractor") an agreement for _____ (hereinafter referred to as the "Project").

WHEREAS, the work to be performed by the Contractor is more particularly set forth in the Contract Documents for the Project dated _____, (hereinafter referred to as "Contract Documents"), the terms and conditions of which are expressly incorporated herein by reference; and

WHEREAS, the Contractor is required by said Contract Documents to perform the terms thereof and to furnish a bond for the faithful performance of said Contract Documents.

NOW, THEREFORE, we, _____, the undersigned Contractor and _____ as Surety, a corporation organized and duly authorized to transact business under the laws of the State of California, are held and firmly bound unto the District in the sum of _____ DOLLARS, (\$), said sum being not less than one hundred percent (100%) of the total amount of the Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract Documents and any alteration thereof made as therein provided, on its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill all obligations including the one-year guarantee of all materials and workmanship; and shall indemnify and save harmless the District, its officers and agents, as stipulated in said Contract Documents, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees incurred by District in enforcing such obligation.

As a condition precedent to the satisfactory completion of the Contract Documents, unless otherwise provided for in the Contract Documents, the above obligation shall hold good for a period of one (1) year after the acceptance of the work by District, during which time if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the

District from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the District's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

Whenever Contractor shall be, and is declared by the District to be, in default under the Contract Documents, the Surety shall remedy the default pursuant to the Contract Documents, or shall promptly, at the District's option:

- (1) Take over and complete the Project in accordance with all terms and conditions in the Contract Documents; or
- (2) Obtain a bid or bids for completing the Project in accordance with all terms and conditions in the Contract Documents and upon determination by Surety of the lowest responsive and responsible bidder, arrange for a Contract between such bidder, the Surety, and the District, and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by the District under the Contract and any modification thereto, less any amount previously paid by the District to the Contractor and any other set offs pursuant to the Contract Documents.
- (3) Permit the District to complete the Project in any manner consistent with California law and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by the District under the Contract and any modification thereto, less any amount previously paid by the District to the Contractor and any other set offs pursuant to the Contract Documents.

Surety expressly agrees that the District may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Contractor.

Surety shall not utilize Contractor in completing the Project nor shall Surety accept a bid from Contractor for completion of the Project if the District, when declaring the Contractor in default, notifies Surety of the District's objection to Contractor's further participation in the completion of the Project.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract Documents or to the Project to be performed thereunder shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract Documents or to the Project.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20 .

(Corporate Seal)

Contractor/Principal

By: _____

Title: _____

(Corporate Seal)

Surety

By: Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title: _____

The rate of premium on this bond is _____ per thousand.
The total amount of premium charges, \$

(The above must be filled in by corporate attorney)

THIS IS A REQUIRED FORM

Any claims under this bond may be addressed to:

(Name and Address of Surety)

(Name and Address of Agent or Representative for service of process in California, if different from above)

(Telephone number of Surety and Agent or Representative for service of process in California)

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

Personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

(Seal)

Signature _____

NOTE: This acknowledgment is to be completed for Contractor/Principal.

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

Personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

(Seal)

Signature _____

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF PERFORMANCE BOND

BOND NO. _____

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, the Yuima Municipal Water District (hereinafter designated as the “District”), by action taken or a resolution passed , 20_____, has awarded to (hereinafter designated as the “Principal”), a contract for the work described as follows: (the “Project”); and

WHEREAS, said Principal is required to furnish a bond in connection with said contract; providing that if said Principal or any of its Subcontractors shall fail to pay for any materials, provisions, provender, equipment, or other supplies used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Code or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of said Principal and its Subcontractors with respect to such work or labor the Surety on this bond will pay for the same to the extent hereinafter set forth.

NOW THEREFORE, we, the Principal and _____ as Surety, are held and firmly bound unto the District in the penal sum of _____ Dollars (\$ _____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if said Principal, his or its subcontractors, heirs, executors, administrators, successors, or assigns, shall fail to pay any of the persons named in section 9100 of the Civil Code, fail to pay for any materials, provisions, or other supplies, used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department or Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to section 18663 of the Revenue and Taxation Code, with respect to such work and labor the Surety or Sureties will pay for the same, in an amount not exceeding the sum herein above specified, and also, in case suit is brought upon this bond, all litigation expenses incurred by the District in such suit, including reasonable attorneys’ fees, court costs, expert witness fees, and investigation expenses.

This bond shall inure to the benefit of any of the persons named in section 9100 of the Civil Code so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the Surety on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition, alteration, or modification in, to, or of any contract, plans, specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described, or pertaining or relating to the furnishing of labor, materials, or equipment therefore, nor by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to any scheme or work of improvement herein above described, nor by any rescission or attempted rescission of the contract, agreement, or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given, and under no circumstances shall Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the owner or District and original contractor or on the part of any obligee named in such bond, but the sole conditions of recovery shall be that claimant is a person described in section 9100 of the Civil Code, and has not been paid the full amount of his claim and that Surety does hereby waive notice of any such change, extension of time, addition, alteration, or modification herein mentioned.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20 .

(Corporate Seal)

Contractor/Principal

By: _____

Title: _____

(Corporate Seal)

Surety

By: Attorney-in-Fact

(Attach Attorney-in-Fact Certificate)

Title: _____

The rate of premium on this bond is _____ per thousand.

The total amount of premium charges, \$

(The above must be filled in by corporate attorney)

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

Personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

(Seal)

Signature _____

NOTE: This acknowledgment is to be completed for Contractor/Principal.

ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of _____)

On _____ before me, _____
(insert name and title of the officer)

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who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is /are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing Paragraph is true and correct.

Witness my hand and official seal

(Seal)

Signature _____

NOTE: This acknowledgment is to be completed for the Attorney-in-Fact. The Power-of-Attorney to local representatives of the bonding company must also be attached.

END OF PAYMENT BOND

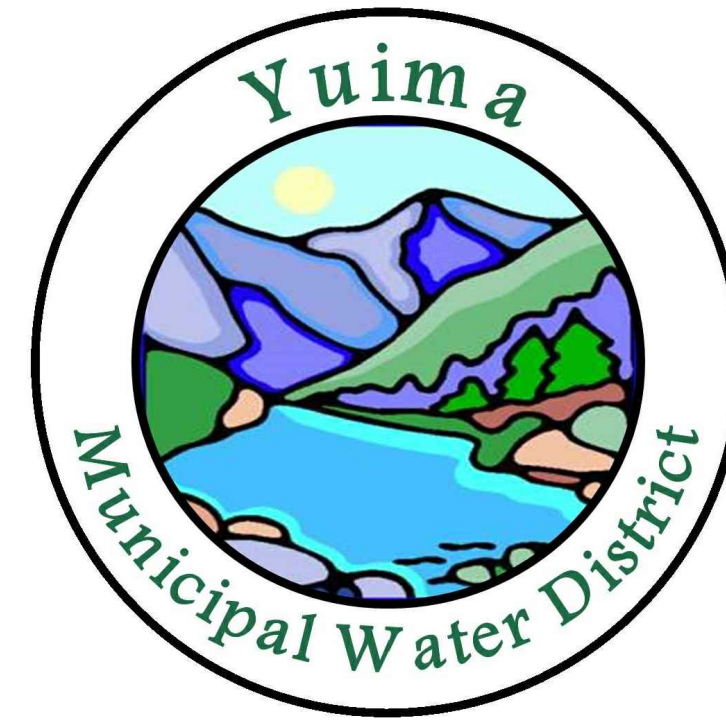
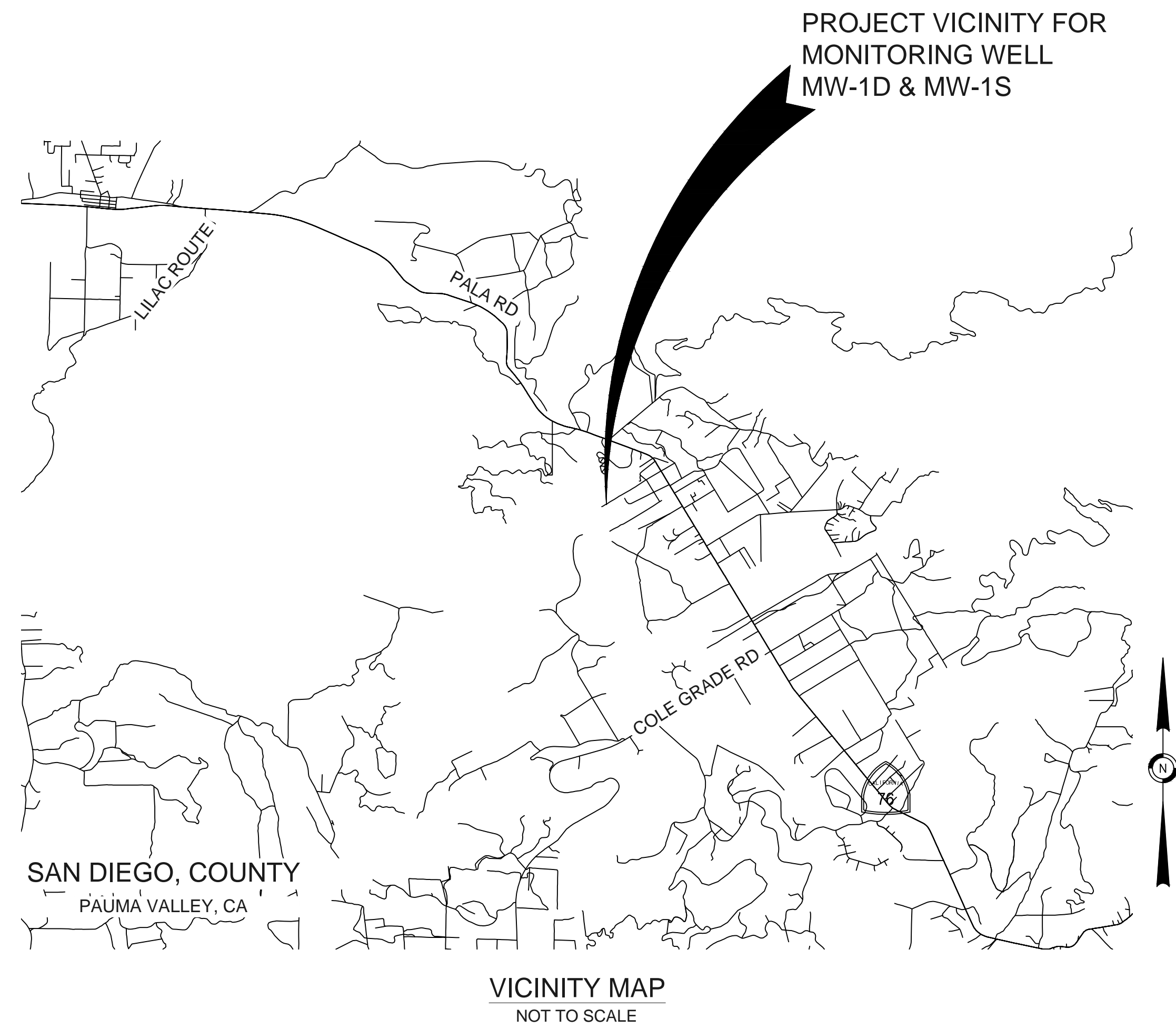
YUIMA MUNICIPAL WATER DISTRICT

PLANS FOR DRILLING, CONSTRUCTION, DEVELOPMENT AND TESTING UPPER SAN LUIS REY (USLR) MONITORING WELL MW-1D (DEEP) & MW-1S (SHALLOW)

SHEET NO.	TITLE
1	PROJECT LOCATION MAP/SHEET INDEX
2	GENERAL NOTES
3	SITE PLAN - MW-1D (DEEP) AND MW-1S (SHALLOW)
4	WELL PROFILE AND CONSTRUCTION DETAILS
5	WELL CONSTRUCTION DETAILS

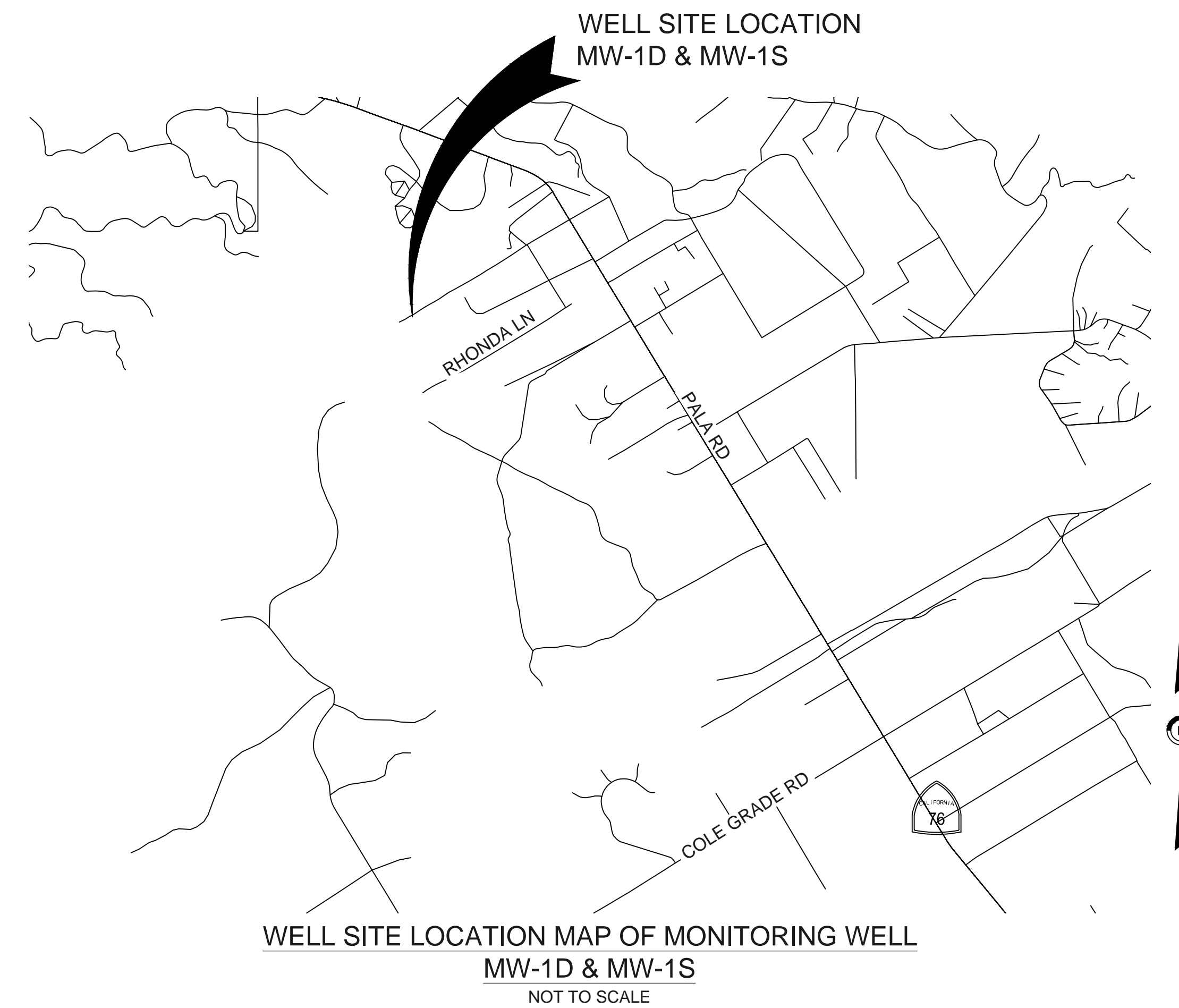
APRIL 2023

DRAFT



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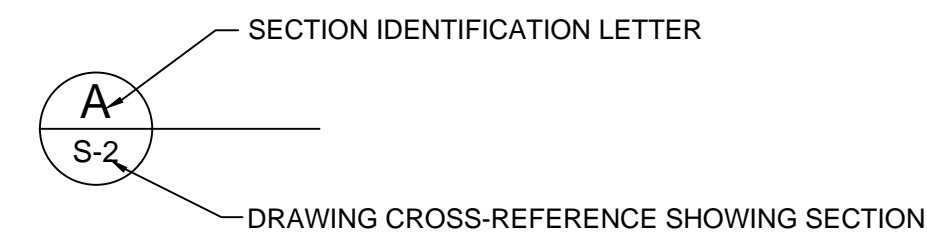


GENERAL NOTES

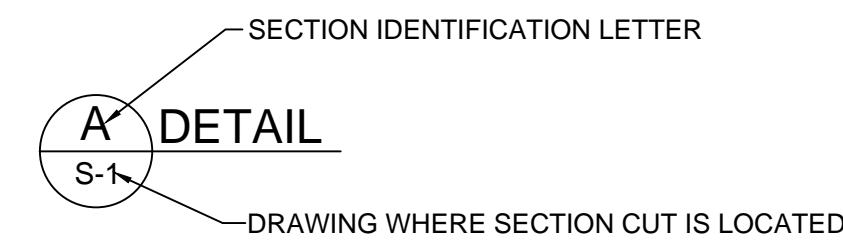
- ALL WORK SHALL BE IN ACCORDANCE WITH: (i) THE PROJECT CONTRACT DOCUMENTS; (ii) THE STANDARD DRAWINGS AND TECHNICAL PROVISIONS OF IMPERIAL IRRIGATION DISTRICT (THE OWNER); (iii) THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION; (iv) ALL APPLICABLE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARDS FOR MONITORING WELLS, PIPELINES, AND OTHER PERTINENT FACILITIES; (v) THE CALIFORNIA DEPARTMENT OF WATER RESOURCES WELL STANDARDS (BULLETIN 74-90 AND 74-81); (vi) ALL APPLICABLE REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH. IN THE EVENT OF A DISCREPANCY, THE MOST STRINGENT REQUIREMENT SHALL PREVAIL.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST SEVEN (7) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- THE CONTRACTOR SHALL HAVE COPIES OF THE PLANS, SPECIFICATIONS AND PERMITS FOR THIS PROJECT ON SITE AT ALL TIMES. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL APPLICABLE STANDARDS, SPECIFICATIONS, AND PERMITS.
- THE ACTUAL FIELD CONDITIONS MAY VARY FROM THOSE SHOWN ON PLAN AND PROFILE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ACTUAL ABOVE GROUND AND UNDERGROUND CONDITIONS PRIOR TO THE START OF CONSTRUCTION.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY RESPECTIVE UTILITIES AND UNDERGROUND SERVICE ALERT TO DETERMINE THE EXACT FIELD LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT AT LEAST 48 HOURS IN ADVANCE OF ANY DIGGING. UNDERGROUND SERVICE ALERT NO. IS 1-800-227-2600.
- THE OWNER DOES NOT WARRANT THAT ALL UTILITIES ARE SHOWN, THAT UTILITIES SHOWN EXIST, OR THAT UTILITIES SHOWN ARE IN THE LOCATIONS INDICATED. THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES, PIPES, AND STRUCTURES SHOWN ON PLANS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORDS. APPROVAL OF THE PLANS BY THE OWNER OR THE GEOHYDROLOGIST DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY, COMPLETENESS, OR EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES.
- THE CONTRACTOR SHALL PERFORM A UTILITY SEARCH FOR THE PROJECT AREA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE TRUE LOCATION AND DEPTH OF ALL UTILITIES AND SERVICE CONNECTIONS. THE CONTRACTOR SHALL ALSO DETERMINE THE TYPE OF MATERIAL AND CONDITION OF ANY UTILITY, WHICH MAY BE EFFECTED BY THE WORK.
- THE CONTRACTOR SHALL USE EXTREME CAUTION SO AS NOT TO DISTURB EXISTING UTILITIES AND PIPELINES OR UNNECESSARILY DAMAGE SURROUNDING VEGETATION. CONTRACTOR SHALL REROUTE, REPLACE OR EXTEND OR OTHERWISE ALTER EXISTING UNDERGROUND UTILITIES AND CONDUITS, WHICH ARE DISTURBED AS PART OF THIS WORK TO THE ULTIMATE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST UNLESS APPROVED OTHERWISE IN ADVANCE.
- WORK SHOWN OR INDICATED ON THESE PLANS, OR CALLED FOR IN THE SPECIFICATIONS, BUT NOT INCLUDED AS PAY QUANTITY ITEMS, SHALL BE CONSIDERED INCIDENTAL WORK. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S BID FOR PAY QUANTITY ITEMS.
- ALL EXCESS EXCAVATED SOIL AND MATERIALS SHALL BE DISPOSED OF IN A PROPER AND LEGAL MANNER BY THE CONTRACTOR. ALL DISTURBED SURFACE AREAS SHALL BE SHAPED TO FACILITATE DRAINAGE AND AVOID PONDING AND SHALL BE RESTORED TO NEAR NATURAL OR PRE-CONSTRUCTION CONDITIONS..
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES, PAVEMENT, CURBS, TREES, LANDSCAPING, AND IRRIGATION SYSTEMS AND WILL BE REQUIRED TO REPAIR OR REPLACE ANY DAMAGE CAUSED FROM CONSTRUCTION ACTIVITIES TO THE SATISFACTION OF THE OWNER OR RESPONSIBLE UTILITY, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
- THE WORK SITE AND EXTERIOR SHALL BE MAINTAINED IN A NEAT, CLEAN, HAZARD FREE, ORDERLY STATE DURING CONSTRUCTION. THE SITE SHALL BE CLEANED UPON REQUEST BY THE OWNER.
- THE CONTRACTOR SHALL MAINTAIN SANITARY FACILITIES FOR WORKERS ON SITE.
- CONTRACTOR AGREES TO ASSUME RESPONSIBILITY FOR SITE CONDITIONS, TO ENSURE THE SAFETY OF ALL PERSONS AND PROPERTY AFFECTED BY THEIR WORK, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- CONTRACTOR AGREES TO ENSURE THAT ALL WORK IS PERFORMED IN A MANNER, WHICH MINIMIZES DISTURBANCE TO THE OWNER'S ONGOING ACTIVITIES AT THE SITE. CONTRACTOR SHALL ENFORCE STRICT DISCIPLINE AND GOOD ORDER AMONG ITS EMPLOYEES AT ALL TIMES. CONTRACTOR SHALL NOT EMPLOY ANY PERSON UNFIT OR UNSKILLED IN A PROJECT ASSIGNED TO HIM/HER.
- THE CONTRACTOR SHALL MINIMIZE NOISE (PER THE REQUIREMENTS OF APPLICABLE NOISE STUDIES) AS A RESULT OF CONSTRUCTION ACTIVITIES INCLUDING LOADING AND UNLOADING OPERATIONS AND NOT DROP HEAVY OBJECTS.
- CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICES (BMPs) FOR CONTAINING WATER. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN UNANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS DURING DRILLING, CONSTRUCTION, AND DEVELOPMENT TO ENSURE THAT THERE ARE NO ADVERSE RISKS TO PEOPLE OR ANIMALS IN ADJACENT AREAS.
- THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BY OR UNDER THE DIRECTION OF A DESIGN PROFESSIONAL LICENSED BY THE STATE OF CALIFORNIA AND ARE BASED ON THE MOST RECENT AVAILABLE INFORMATION REGARDING SITE CONDITIONS, DRILLING AND DEVELOPMENT METHODS, AND MATERIALS TO BE USED. HOWEVER, SHOULD THE CONTRACTOR TAKE EXCEPTION TO ANY PART OF THESE SPECIFICATIONS OR WELL DESIGN, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING PRIOR TO CONTINUING THE WORK.

DRAWING DETAIL AND SECTION CROSS-REFERENCE:

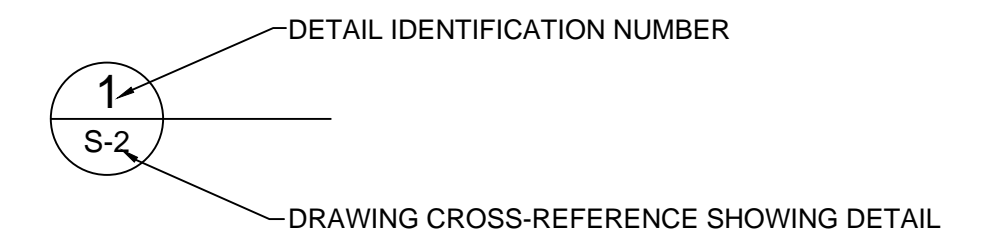
SECTION CUT DESIGNATION AT CROSS-REFERENCE



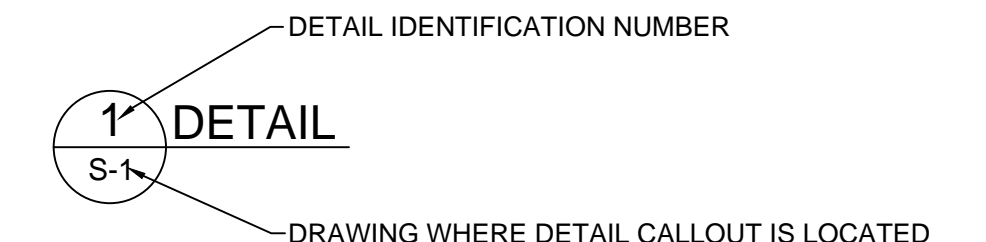
SECTION IDENTIFICATION



DETAIL CALLOUT AT CROSS-REFERENCE



DETAIL IDENTIFICATION

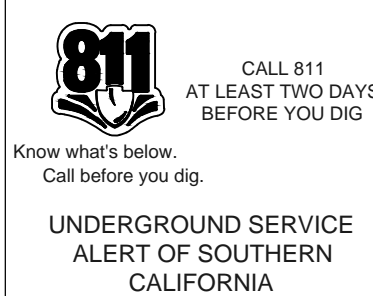


CIVIL LEGEND:

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(X)	C - COMMUNICATION MANHOLE D - STORM DRAIN MANHOLE E - ELECTRICAL MANHOLE G - NATURAL GAS MANHOLE S - SEWER MANHOLE T - TELEPHONE MANHOLE W - WATER MANHOLE	— — — — —	PROPERTY LINE INDICATOR
(F)	FIRE HYDRANT	— — — — —	EASEMENT LINE
(W)	UTILITY-WATER REGULATOR VALVE	— — — — —	SOUND PANELS
TM	PRECAST CONCRETE, MANHOLE, TRANSFORMER VAULT	— — — — —	MASONRY WALL
(Well symbol)	WELL	— — — — —	SURFACE DRAINAGE
(25 shield)	INTERSTATE ROUTE	— — — — —	EXISTING CONTOUR
(66 shield)	U.S. ROUTE	— — — — —	UNDISTURBED EARTH
(50 shield)	STATE ROUTE	— — — — —	SELECT COMPACT FILL
		— — — — —	FINE POROUS FILL
		— — — — —	TOP OF SLOPE
		— — — — —	TOE OF SLOPE
		— OH —	<u>SITE PIPING UTILITIES</u>
		— W —	OVERHEAD LINES
		— X —	WATER
		— CTV —	FENCE
		— E —	CABLE TV
			ELECTRICAL

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X:\Projects\CAD\Pre\Initial Design\Yuima Municipal Water District\MW-1 Drawings\MW-1 Drawings\YUIMD MW-1 Preliminary Design.dwg, 3/31/2023



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LINE IS 2 INCHES AT FULL SCALE (IF NOT 2" - SCALE ACCORDINGLY)

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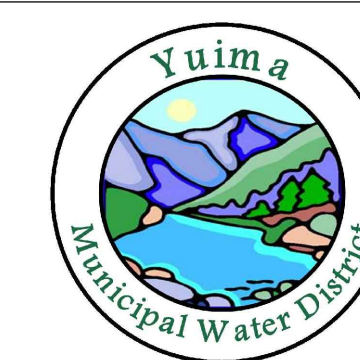
DATE: APR-23

CITY ENGINEER:
_____, P.E. DATE _____

R.C.E. NO. _____ EXP. DATE: _____
PREPARED UNDER THE SUPERVISION OF:

TERRY WATKINS 4/12/23
DATE

C.H.G. NO. 1038 EXP. DATE: 3/31/24



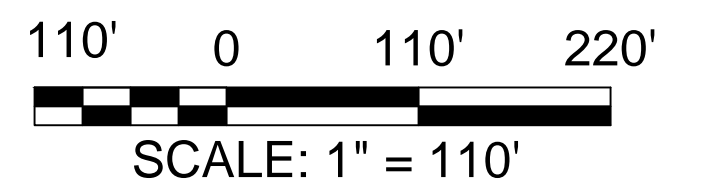
YUIMA MUNICIPAL WATER DISTRICT
PLANS FOR DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING
USLR MONITORING WELL
MW-1D (DEEP) & MW-1S (SHALLOW)

DRAWING NO.
2
SHEET NO.
2 OF 5

GENERAL NOTES



- DRAWING NOTES**
- APPROXIMATE LOCATION OF PROPOSED MONITORING WELL
 - FIRE HYDRANT
 - WORK SITE FOOTPRINT
 - ROAD CROSSING
 - ACCESS ROAD
 - (OPTIONAL) WATER CONVEYANCE LINE WITH (3) ROAD CROSSINGS.



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X:\Projects\CAD\Pre\Design\Yuma Municipal Water District\MW-1 Drawings\YUMD MW-1 Preliminary Design.dwg, 3/31/2023

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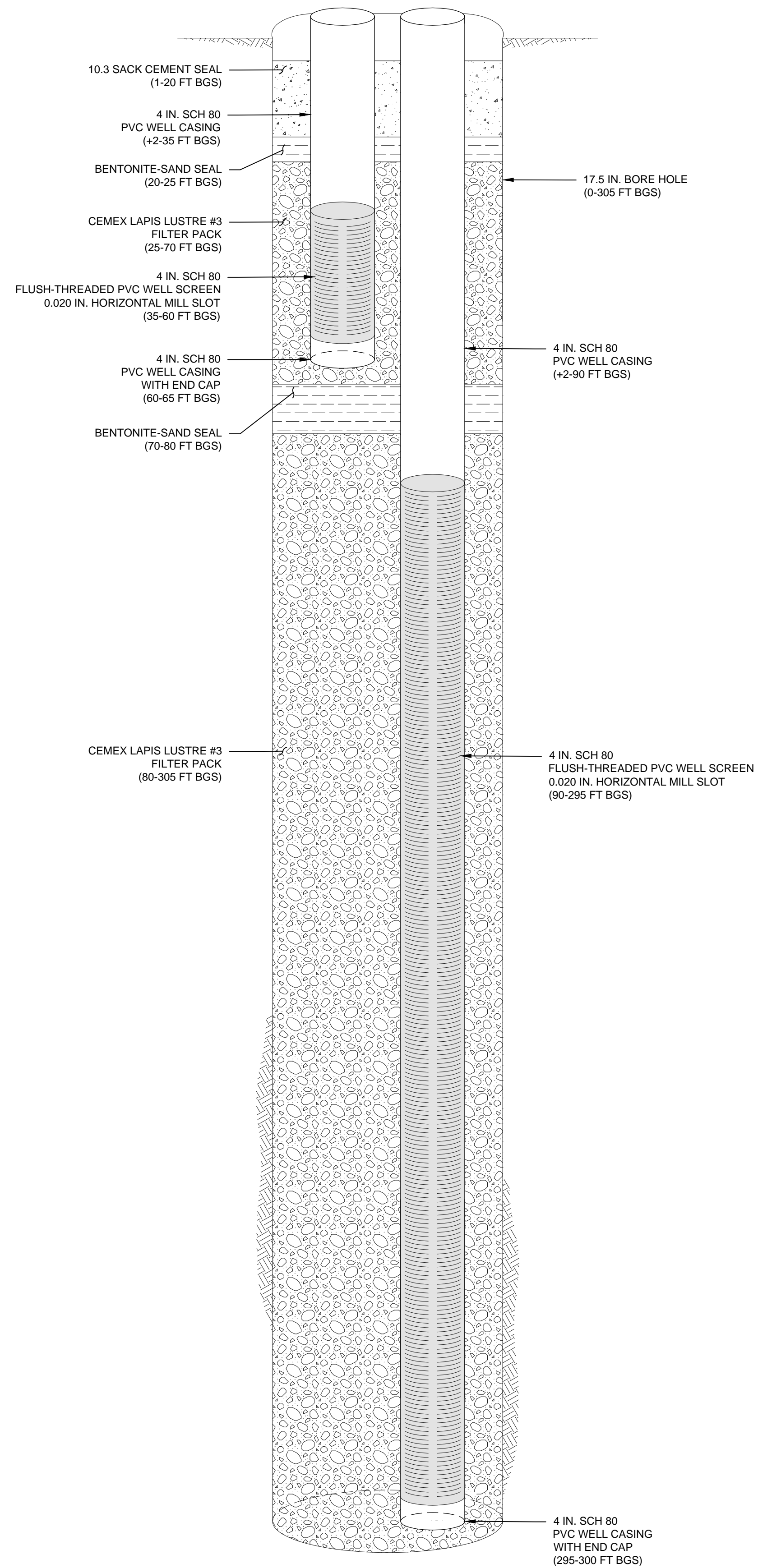
YUIMA MUNICIPAL WATER DISTRICT
PLANS FOR DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING USLR MONITORING WELL
MW-1D (DEEP) & MW-1S (SHALLOW)

SITE PLAN - MW-1D (DEEP) AND MW-1S (SHALLOW)

DRAWING NO.

3

SHEET NO. 3 OF 5



MONITORING WELL MW-1D (DEEP) & MW-1S (SHALLOW)

WELL INFORMATION				
OWNER	YUIMA MUNICIPAL WATER DISTRICT			
WELL NAME	USLR MW-1S (SHALLOW)	USLR MW-1D (DEEP)		
WELL LOCATION	APPROXIMATELY 2,400 FT WEST OF INTERSECTION HWY 76 AND DIRT ROAD NORTH OF PALA RD.			
LATITUDE (NAD83)	33.333957			
LONGITUDE (NAD83)	-117.013166			
LAND SURFACE ELEVATION (FT)	698			
WELL USE	MONITORING WELL			
CASING AND SCREEN SCHEDULE				
	CASING	SCREEN	CASING	SCREEN
MATERIAL	SCH. 80 PVC		SCH. 80 PVC	
NOMINAL DIAMETER (IN.)	4		4	
OUTSIDE DIAMETER (IN.)	4.50		4.50	
INSIDE DIAMETER (IN.)	3.826		3.826	
WALL THICKNESS (IN.)	0.337		0.337	
TOTAL INSTALLED LENGTH (FT)	42	25	97	205
INSTALLED INTERVALS (FT BGS) AND LENGTH (FT)				
INTERVAL 1	+2 - 35 FT BGS (37 FT TOTAL)	35 - 60 FT BGS (25 FT TOTAL)	+2 - 90 FT BGS (92 FT TOTAL)	90 - 295 FT BGS (205 FT TOTAL)
INTERVAL 2	60 - 65 FT BGS (5 FT TOTAL)	-	295 - 300 FT BGS (5 FT TOTAL)	-
SCREEN PERFORATION TYPE	-	HORIZONTAL MILL SLOT	-	HORIZONTAL MILL SLOT
PERFORATION OPENING (IN.)	-	0.020	-	0.020
CONNECTION TYPE	FLUSH THREADED		FLUSH THREADED	
CASING BOTTOM CAP	THREADED CAP	-	THREADED CAP	-
CENTRALIZER MATERIAL	STAINLESS STEEL			
CENTRALIZER ANGULAR SPACING	90°			
CENTRALIZER VERTICAL SPACING	ABOVE AND BELOW SCREEN			
BOREHOLE				
	PILOT BOREHOLE		FINAL BOREHOLE	
DRILL BIT TYPE	TRI-CONE			
DRILLING METHOD	DUAL TUBE		MUD ROTARY	
DRILLING FLUID COMPOSITION	AIR		BENTONITE	
DIAMETER (IN.)	6		17.5	
TOTAL DEPTH (FT BGS)	300			
GROUTING AND SEALING				
DEPTH (FT BGS)			MATERIAL	
1 - 20			10.3 SACK CEMENT	
20 - 25			BENTONITE-SAND	
70 - 80			BENTONITE-SAND	
FILTER PACK DESIGN				
MATERIAL	CEMEX LAPIS LUSTRE #3 SAND			
FLUID USED FOR FILTER PACK PLACEMENT	POTABLE WATER			
FILTER PACK INTERVAL FOR MW-1S (FT BGS)	25 - 70			
FILTER PACK INTERVAL FOR MW-1D (FT BGS)	80 - 305			

ABBREVIATIONS LIST:

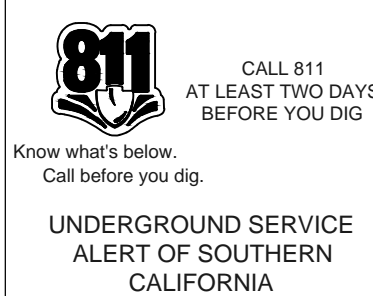
- AGS ABOVE GROUND SURFACE
- BGS BELOW GROUND SURFACE
- ID INSIDE DIAMETER
- OD OUTSIDE DIAMETER

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X:\Projects\CAD\Pre\Drawings\Yuma Municipal Water District\MW-1\Drawings\YUMWD MW-1_Preliminary Design.dwg, 3/31/2023



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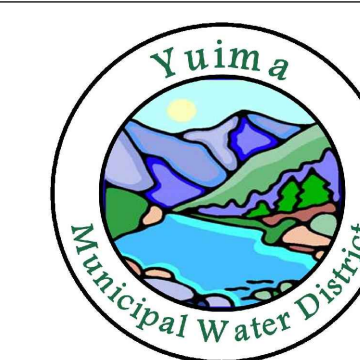
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R.C.E. NO. _____ EXP. DATE: _____
PREPARED UNDER THE SUPERVISION OF:

TERRY WATKINS DATE 4/12/23

C.H.G. NO. 1038 EXP. DATE: 3/31/24



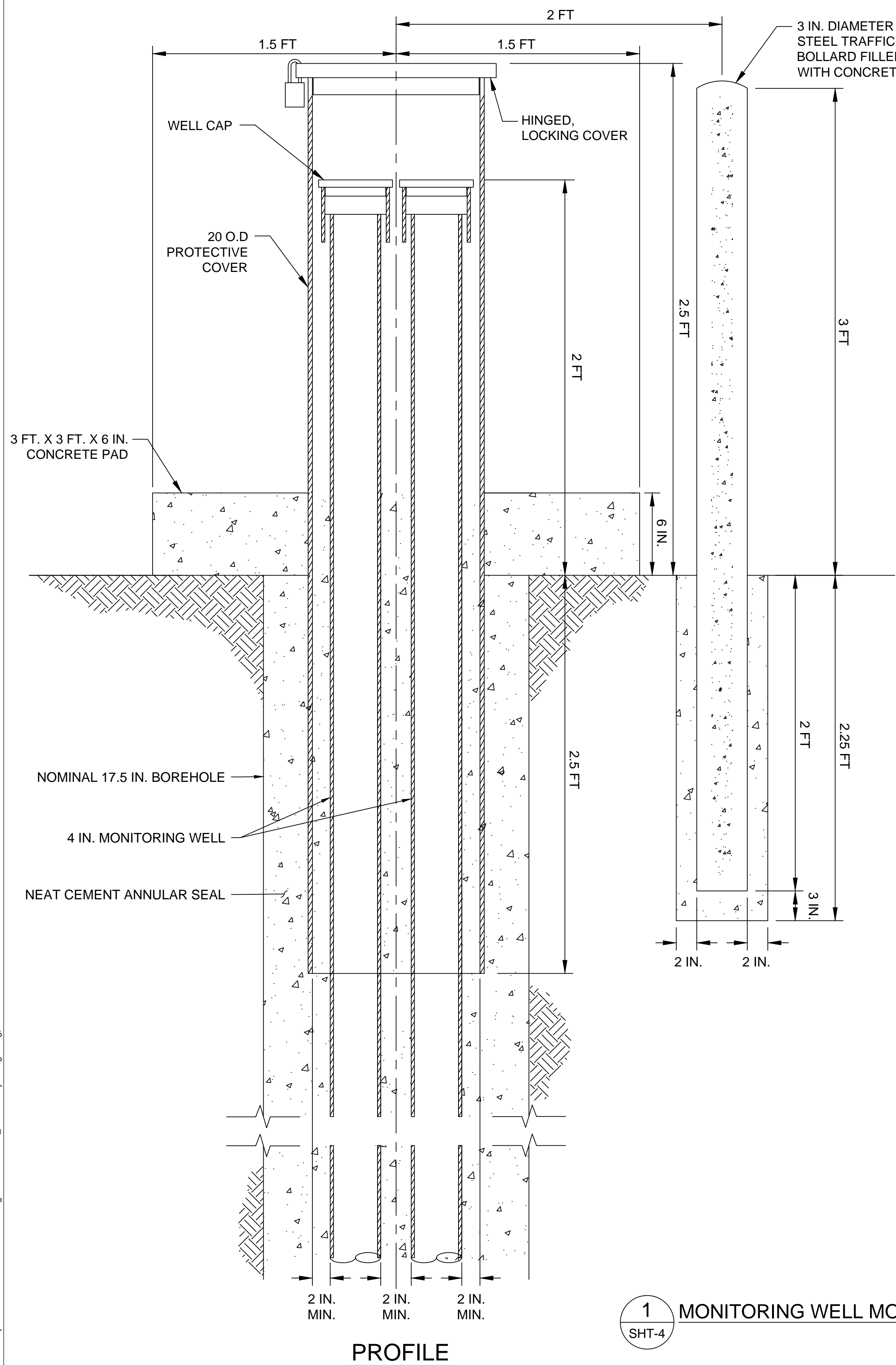
YUIMA MUNICIPAL WATER DISTRICT
PLANS FOR DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING
USLR MONITORING WELL
MW-1D (DEEP) & MW-1S (SHALLOW)

WELL PROFILE AND CONSTRUCTION DETAILS

DRAWING NO.

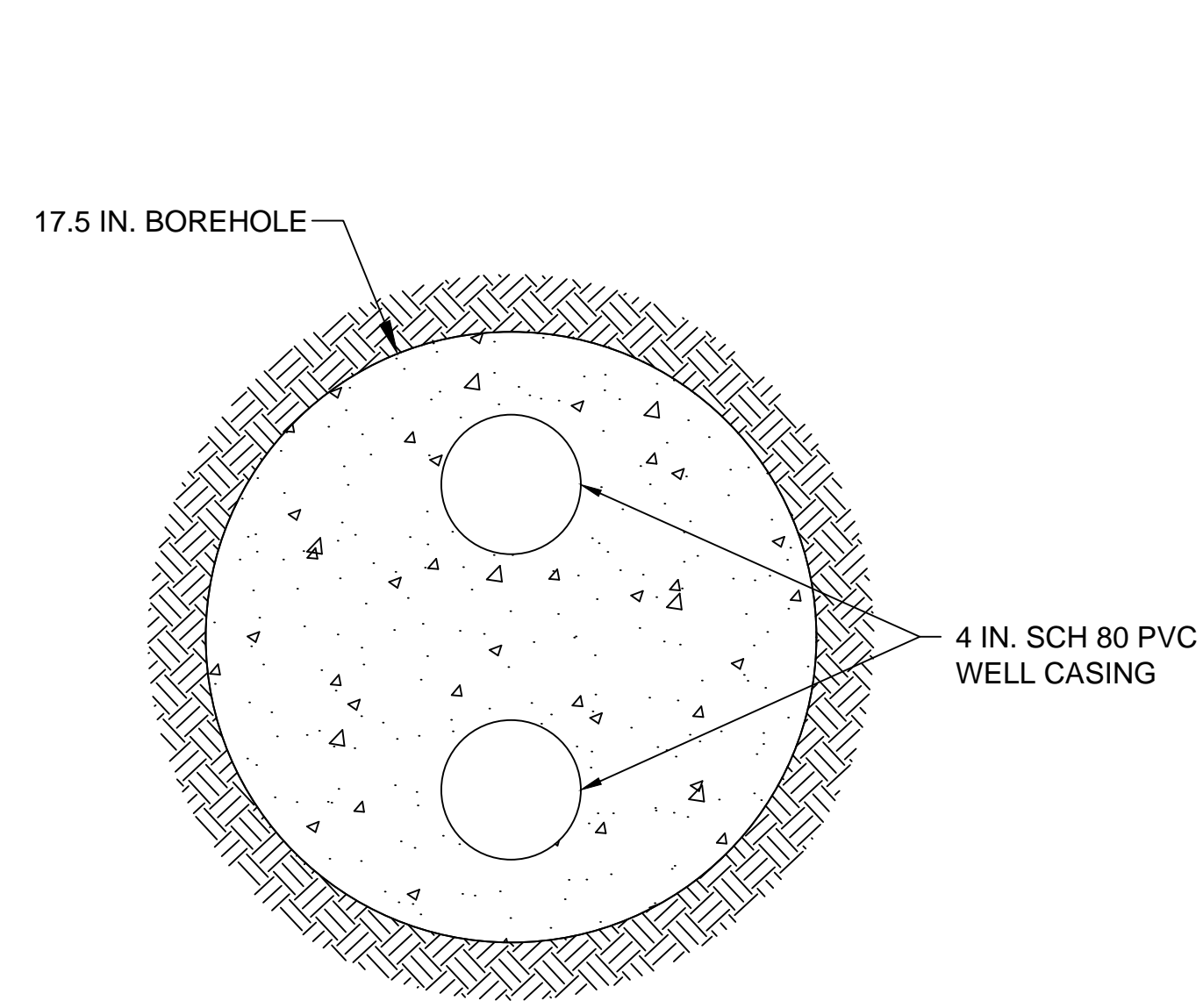
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SHEET NO. 4 OF 5

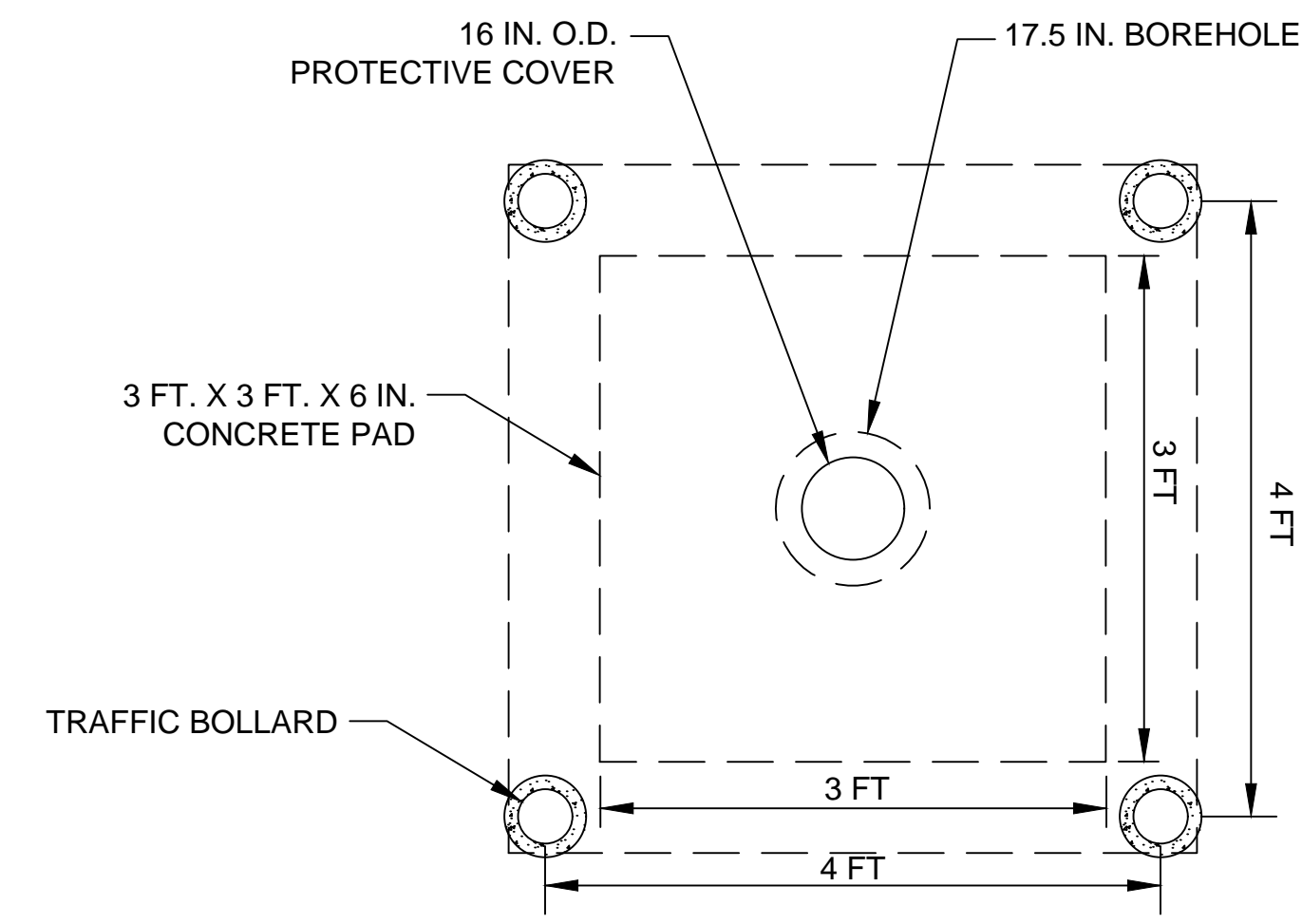


PROFILE

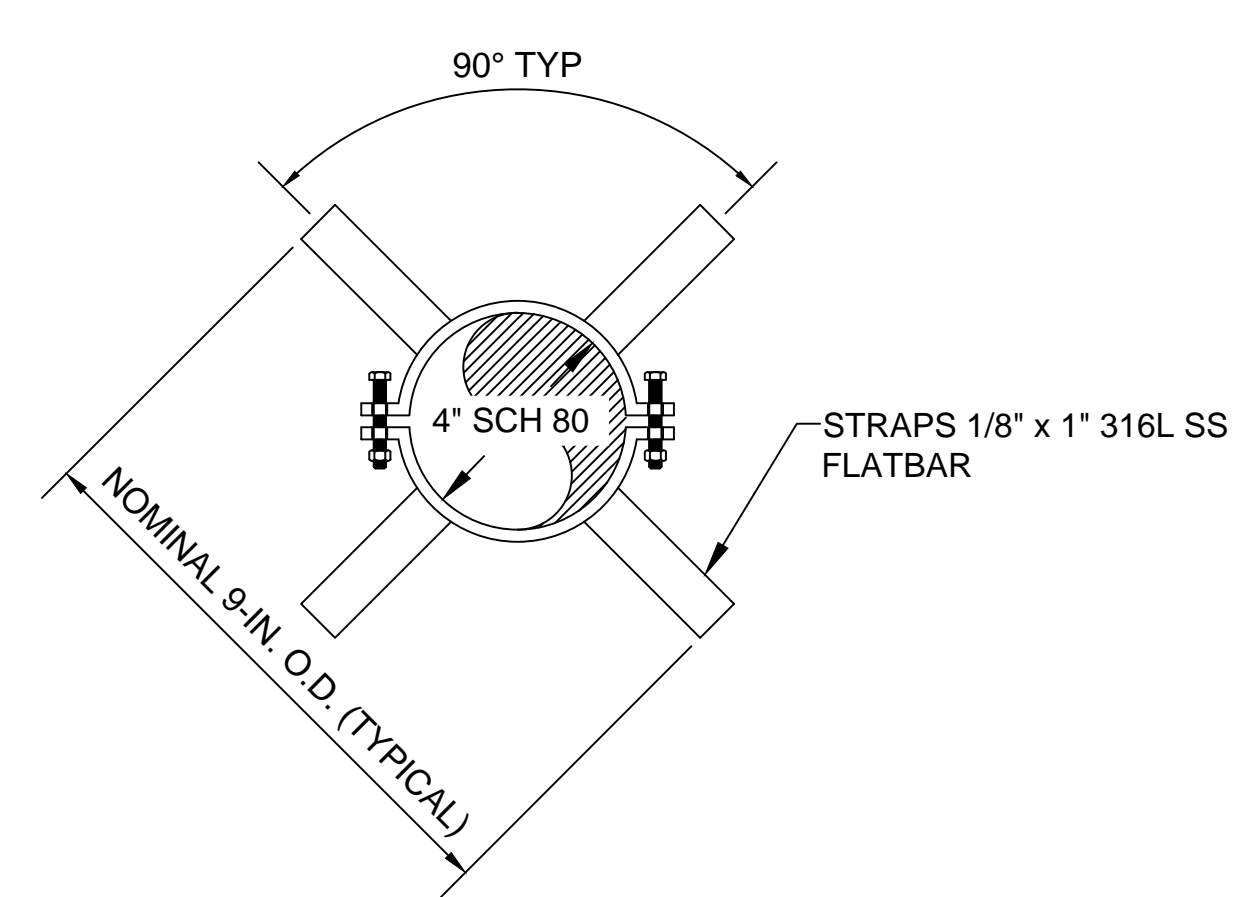
1 MONITORING WELL MONUMENT WELLHEAD DETAIL
SHT-4



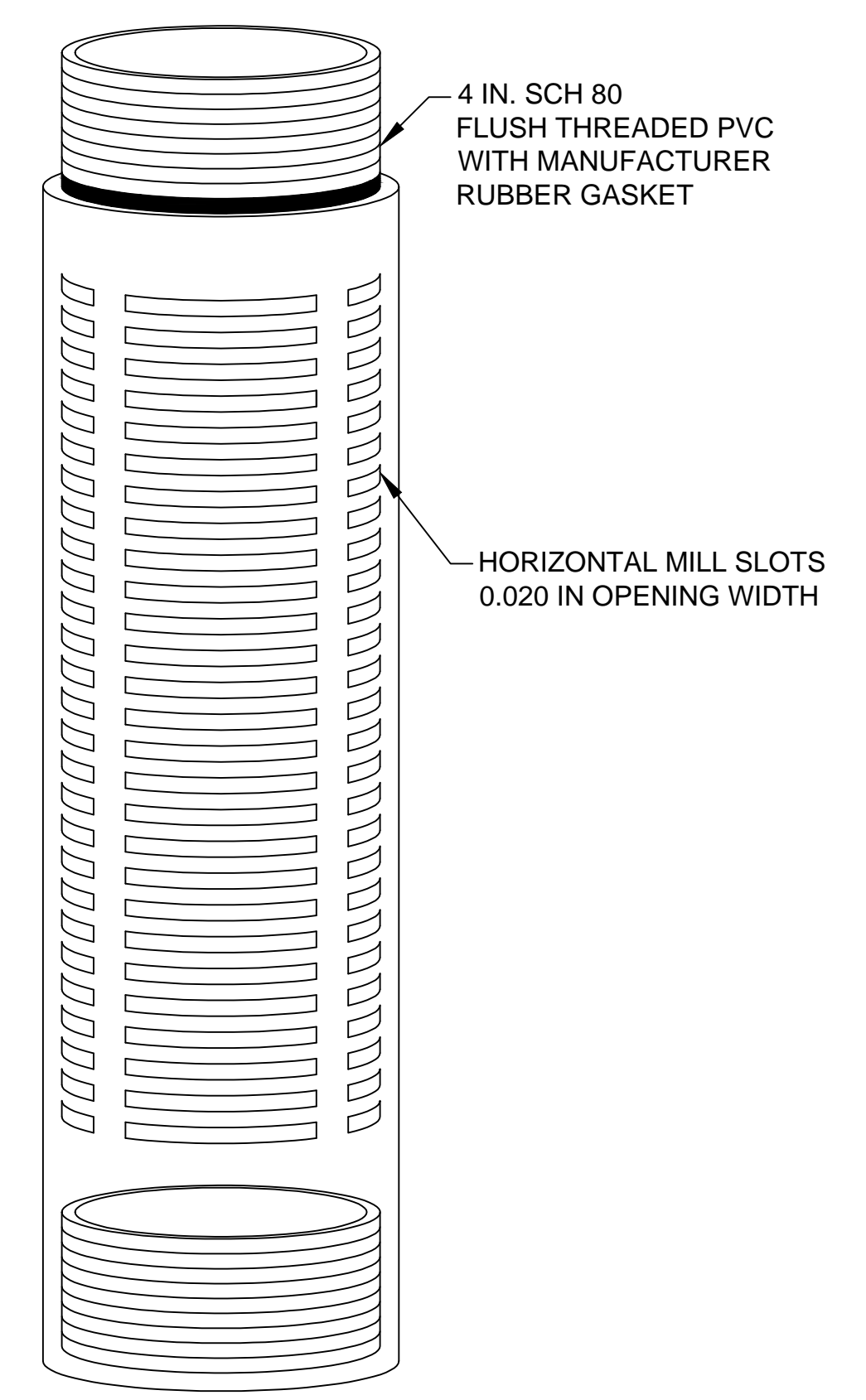
A SECTION: WELL CASING POSITIONS
SHT-4



PLAN



2 MONITORING WELL CENTRALIZER
SHT-4



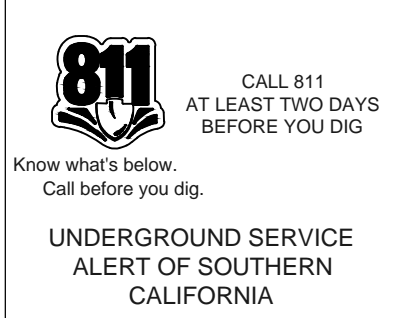
3 HORIZONTAL PVC SCREEN
SHT-4

ABBREVIATIONS LIST:

- AGS ABOVE GROUND SURFACE
- BGS BELOW GROUND SURFACE
- ID INSIDE DIAMETER
- OD OUTSIDE DIAMETER

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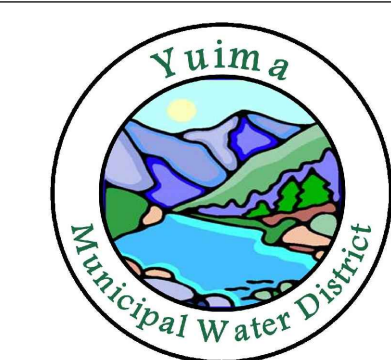
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YUMA MUNICIPAL WATER DISTRICT
PLANS FOR DRILLING, CONSTRUCTION, DEVELOPMENT, AND TESTING
USLR MONITORING WELL
MW-1D (DEEP) & MW-1S (SHALLOW)

DRAWING NO. **5**
SHEET NO. 5 OF 5

WELL CONSTRUCTION DETAILS

YUIMA MUNICIPAL WATER DISTRICT
NESTED MONITORING WELL
Design Documents

GENERAL PROJECT REQUIREMENTS AND
TECHNICAL SPECIFICATIONS
DRAFT

April 2023

THESE TECHNICAL SPECIFICATIONS HAVE BEEN PREPARED BY OR UNDER THE DIRECTION OF THE FOLLOWING DESIGN PROFESSIONAL LICENSED BY THE STATE OF CALIFORNIA AND ARE BASED ON THE MOST RECENT AVAILABLE INFORMATION REGARDING SITE CONDITIONS, DRILLING AND TESTING METHODS, AND MATERIALS TO BE USED. HOWEVER, SHOULD THE CONTRACTOR TAKE EXCEPTION TO ANY PART OF THESE SPECIFICATIONS OR WELL DESIGN, AND IS NOT PREPARED TO FOLLOW THE SPECIFICATIONS AS INCLUDED HEREIN, THE CONTRACTOR SHALL NOTIFY CITY OF OCEANSIDE (OWNER) OR OWNER'S REPRESENTATIVE IN WRITING BEFORE MOBILIZING TO THE SITE.

Lauren Wicks, PG
Project Geohydrologist

Terry A. Watkins, PG, CHG
Senior Geohydrologist

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**YUIMA MUNICIPAL WATER DISTRICT
NESTED MONITORING WELL**

GENERAL PROJECT REQUIREMENTS AND TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

GENERAL PROJECT REQUIREMENTS

DIVISION 1

No.	DESCRIPTION
01090	REFERENCE STANDARDS
01110	SUMMARY OF WORK
01380	PRE-CONSTRUCTION VIDEO RECORDING AND PHOTOGRAPHS
01500	TEMPORARY FACILITIES AND CONTROLS (MOBILIZATION)
01561	TEMPORARY NOISE BARRIERS
01562	TEMPORARY FENCING
01572	TRAFFIC CONTROL
01573	TEMPORARY EROSION AND SEDIMENT CONTROL
01574	CLEARING AND WASTE MANAGEMENT (DISPOSAL OF CUTTINGS)
01700	PROJECT CLOSEOUT
01710	CLEAN-UP

DIVISION 2

No.	DESCRIPTION
02520	NESTED MONITORING WELL

TABLES

No.	DESCRIPTION
1	WATER QUALITY ANALYSIS

APPENDICES

LTR.	DESCRIPTION
A	LITHOLOGIC BOREHOLE LOGS

PROJECT PLAN SHEETS

SHEET	DESCRIPTION
1	PROJECT LOCATION MAP/ SHEET INDEX
2	GENERAL NOTES
3	SITE PLAN - MW-1D (DEEP) AND MW-1S (SHALLOW)
4	WELL PROFILE AND CONSTRUCTION DETAILS
5	WELL CONSTRUCTION DETAILS

SECTION 01090 – REFERENCE STANDARDS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Applicable Publications: Whenever in these specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Project is advertised for bids shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the drawings shall be waived because of any provision of, or omission from, said standards or requirements. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The latest provisions of applicable standards shall apply to the work.
- B. Reference standards include, but are not necessarily limited to, the following:
1. American Association of State Highway and Transportation Officials (AASHTO)
 2. American Concrete Institute (ACI)
 3. American Institute of Steel Construction (AISC)
 4. American Iron and Steel Institute (AISI)
 5. American National Standards Institute (ANSI)
 6. American Society of Mechanical Engineers (ASME)
 7. American Society for Testing and Materials (ASTM)
 8. American Water Works Association (AWWA)
 9. American Welding Society (AWS)
 10. Concrete Reinforcing Steel Institute (CRSI)
 11. Institute of Electrical and Electronics Engineers (IEEE)
 12. National Electrical Manufacturer's Association (NEMA)
 13. National Fire Protection Association (NFPA)
 14. Occupational Safety and Health Administration (OSHA)
 15. Prestressed Concrete Institute (PCI)
 16. Standard Specifications for Public Works Construction (SSPWC or Greenbook)
 17. State of California, Department of Transportation Standard Specifications (Caltrans)
 18. All other applicable standards listed in the Specifications, and the standards of utility service companies, where applicable.

1.2 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of the specifications, all work specified herein shall conform to or exceed the requirements of all applicable codes and the applicable requirements of the following documents to the extent that the provisions of such documents are not in conflict with the requirements of these Specifications nor the applicable codes.

SECTION 01090 – REFERENCE STANDARDS

- B. References herein to "Building Code" or UBC shall mean the Uniform Building Code of the International Conference of Building Officials (ICBO). The latest edition of the code as approved and used by the local OWNER as of the date of award, as adopted by the OWNER having jurisdiction, shall apply to the work herein, including all addenda, modifications, amendments, or other lawful changes thereto.
- C. References herein to "SSPWC" or "Greenbook" shall mean the "Standard Specifications for Public Works Construction", Parts 2 and 3 only, unless other Parts are specifically listed in the Contract Documents, latest edition, including the County of San Diego Regional Amendments.
- D. References herein to "SDRSD" shall mean San Diego Regional Standard Drawings, latest edition.
- E. References herein to "Cal-OSHA" shall mean State of California, Department of Industrial Relations, Construction Safety Orders, as amended to date, and all changes and amendments thereto which are effective as of the date of construction.
- F. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- G. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.
- H. No provisions of any referenced standard specification, manual or code, whether or not specifically incorporated by reference in the Contract Documents, shall be effective to change the duties and responsibilities of the OWNER, Engineer, or CONTRACTOR from those set forth in the Contract Documents. Nor shall they be effective to assign to the Engineer any duty of authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of the Contract Documents.
- I. In case of conflict between codes, reference standards, drawings and the other Contract Documents, the most stringent requirements shall govern. All conflict shall be brought to the attention of the OWNER for clarification and directions prior to ordering or providing any materials or labor. The CONTRACTOR shall bid the most stringent requirements.
- J. Applicable Standard Specifications: The CONTRACTOR shall construct the work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed herein.

1.3 TRADE NAMES AND ALTERNATIVES

- A. For convenience in designation in the Contract Documents, materials to be incorporated in the work may be designated under a trade name or the name of a manufacturer and its catalog information. The use of alternative material which is equivalent in quality and of the required characteristics for the purpose intended will be permitted, subject to the following requirements:
 - 1. The CONTRACTOR shall submit a written request for substitution in accordance with the Front End Specifications.
 - 2. The burden of proof as to the quality and suitability of such alternative equipment, products, or other materials shall be upon the CONTRACTOR.

SECTION 01090 – REFERENCE STANDARDS

3. The OWNER will be the sole judge as to the comparative quality and suitability of such alternative equipment, products, or other materials and its decision shall be final.
- B. Wherever in the Contract Documents the name or the name and address of a manufacturer or distributor is given for a product or other material, or if any other source of a product or material is indicated therefor, such information is given for the convenience of the CONTRACTOR only, and no limit, restriction, or direction is indicated or intended thereby, nor is the accuracy or reliability of such information guaranteed. It shall be the responsibility of the CONTRACTOR to determine the accurate identity and location of any such manufacturer, distributor, or other source of any product or material called for in the Contract Documents.

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01110 - SUMMARY OF WORK

PART 1 - PROJECT INFORMATION

1.1 WORK OF THIS SECTION

- A. The purpose of this Section is to provide a summary of the general requirements of these technical specifications for the drilling, construction, development, and testing of a nested monitoring well for Yuima Municipal Water District (YMWD), hereafter referred to as the OWNER. The nested monitoring well shall be referred to as Upper San Luis Rey (USLR) MW-1D (Deep) and MW-1S (Shallow) (MW-1). MW-1 shall be located approximately 2,400 feet west of intersection Highway 76 and dirt road north of Pala Road within the unincorporated community of Pauma Valley, California (see Sheets 1 through 5 of the Project Plan Sheets). The nested monitoring well shall be constructed as specified herein. General construction and completion details of the nested monitoring well are shown on Sheets 4 and 5 of the Project Plan Sheets. Final designs may vary according to specific conditions encountered. The exact location of the well will be provided at the pre-construction meeting.
- B. A mandatory pre-bid meeting will be held at the time and date specified in the Notice Inviting Bids. The mandatory pre-bid meeting will allow potential bidders the opportunity to view the well site and to ask questions. The Scope of the Work encompassed by these specifications consists of furnishing all plant, labor, equipment, appliances, and materials in addition to performing all operations in connection with the drilling, sampling, construction, development, and testing of the nested monitoring well.
- C. The well shall be drilled using the dual tube reverse air rotary method with mud rotary capability. The sequence of construction shall be continuous and consecutive, with final development and testing to commence within 10 days of completion of initial development (by airlifting and swabbing).
- D. All work is to be complete, and in strict accordance with these specifications and the attached Project Plan Sheets unless otherwise modified by the OWNER or GEOHYDROLOGIST.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01090 - Reference Standards
- B. Section 01380 - Pre-Construction Video Recording and Photographs
- C. Section 01500 - Temporary Facilities and Controls (Mobilization)
- D. Section 01561 - Temporary Noise Barriers
- E. Section 01562 - Temporary Fencing
- F. Section 01572 - Traffic Control

SECTION 01110 - SUMMARY OF WORK

- G. Section 01573 - Temporary Erosion and Sediment Control
- H. Section 01574 - Clearing and Waste Management (Disposal of Cuttings)
- I. Section 01700 - Project Closeout
- J. Section 01710 - Clean-Up
- K. Section 02520 - Nested Monitoring Well

PART 2 - MATERIALS

2.1 MATERIALS (NOT USED)

PART 3 - EXECUTION

3.1 INTRODUCTION

- A. This nested monitoring well will be constructed as part of the ongoing efforts of YMWD to help fill data gaps within the basin – therefore increasing hydrogeologic understanding and providing important information on specific conditions for Groundwater Sustainability Plan monitoring and reporting.
- B. Construction of the monitoring well will occur as detailed in these technical specifications. The Project to be executed by the CONTRACTOR entails drilling, constructing, and developing the monitoring well. The drilling method that is specified herein is the dual tube reverse air rotary drilling with mud rotary capability.

3.2 DEFINITIONS

- A. OWNER: Yuima Municipal Water District
- B. County: San Diego
- C. GEOHYDROLOGIST: Geoscience Support Services, Inc.
- D. Certified Laboratory: Clinical Laboratory of San Bernardino, Inc.
- E. Standard Specifications:
 - 1. California Department of Water Resources (DWR) Water Well Standards: State of California (Bulletin 74-81) and California Well Standards (Bulletin 74 90), or latest revision.

SECTION 01110 - SUMMARY OF WORK

2. American Water Works Association (AWWA) Standard for Water Wells (AWWA A100-20), or latest revision.

3.3 CONTRACT COMPLETION AND CONSTRUCTION SCHEDULE

- A. All work associated with drilling, construction, and development of the nested monitoring well shall be complete with the final invoice submitted by June 31, 2023. The CONTRACTOR shall submit a detailed construction schedule within one week of Notice to Proceed, shall maintain the construction schedule throughout the course of the project, shall provide updated schedules on a monthly basis, and upon the request of the GEOHYDROLOGIST.

3.4 SITE PREPARATION

- A. The CONTRACTOR shall be responsible for all site preparations which may be required for drilling and construction of the well at the location specified by the OWNER. Site preparation may include, but is not limited to, installation of temporary fencing, provision of piping for construction water, provision of piping for water generated during aquifer testing, and disposal of waste fluids.

3.5 LOCATIONS, DEPTHS, AND WELL DIMENSIONS

- A. The Work is to be performed within Rancho Estates access road area or designated areas as shown on the Drawings and described in these specifications. All work shall be performed by CONTRACTOR within these boundaries. CONTRACTOR shall be responsible for determining the exact locations (i.e., utilities, site boundaries, site layouts, etc.).
- B. CONTRACTOR shall drill the nested monitoring well at the location indicated on the attached construction drawings (see Sheets 1 to 3 of the Project Plan Sheets). The exact location of the well shall be marked in the field by OWNER or owner's representative prior to mobilization of the drilling equipment.
- C. For the purpose of these specifications CONTRACTOR may assume a nested monitoring well consisting of one (1) shallow and one (1) deep completion. For bidding purposes, CONTRACTOR may assume an approximate total pilot borehole depth of 305 ft. However, it should be recognized that the boreholes may be drilled to greater or lesser depths as determined by the OWNER and GEOHYDROLOGIST upon review of actual conditions encountered. Details of the site layout and preliminary design details are shown on Sheets 3 to 5 of the Project Plan Sheets.

SECTION 01110 - SUMMARY OF WORK

- D. CONTRACTOR shall satisfy themselves by personal investigation of all local conditions affecting their work. If conditions exist that affect their work, CONTRACTOR shall either modify their operation accordingly, or shall supply in writing the conditions that cannot be modified. Neither information contained in these specifications, nor that derived from maps or plans, or from OWNER, its representatives or employees, shall relieve CONTRACTOR from any responsibility either specified herein, or from fulfilling any and all terms and requirements of its contract.
- E. The borehole shall be drilled using at least two separate drilling passes. The first (pilot) pass shall be drilled by the dual tube reverse air rotary method using a nominal 6-inch diameter drill bit. Once the drilling, sampling, and geophysical borehole logging are completed and the final monitoring construction details are finalized by GEOHYDROLOGIST and OWNER, the pilot borehole shall be enlarged (reamed by the direct mud rotary method) to the anticipated depth of 305 ft bgs. The reamed borehole shall be 17.5 inches in diameter to the total depth of the borehole. However, the final completion depth and borehole diameters shall be as specified by the GEOHYDROLOGIST based on the formation samples and geophysical logs.
- F. The general well dimensions and completion depths are as shown on the conceptual well profile and construction details (see Sheets 4 and 5 of the Project Plan Sheets) and shall be as specified herein. However, any of the various depths indicated herein may be increased or decreased by the GEOHYDROLOGIST, with the OWNER's approval, in accordance with formations encountered during drilling, and based upon the results of geophysical borehole logging. In the event that drilling is authorized or ordered to depths shallower or deeper than specified herein, a corresponding adjustment shall be made to the bid line item quantity and the total cost adjusted at the unit bid rate of the contract.

3.6 LOCAL CONDITIONS, HYDROGEOLOGY

- A. The proposed monitoring well is located within the Upper San Luis Rey Valley in the Pauma Subbasin of the San Luis Rey Groundwater Basin. The primary groundwater aquifer within the Upper San Luis Rey River Valley-Pauma Sub-basin is the unconsolidated alluvium which overlies bedrock formations. Alluvial sediments in valleys are generally thickest under the San Luis Rey River. In Pauma Valley, sediments may be up to 600 ft in localized areas of the northeast portion of the subbasin (Layne, 2010).
- B. In general, unconsolidated alluvial sediments encountered within the Pauma Sub-basin are typical of sediments associated with a meandering stream system such as the San Luis Rey River. The main geologic units found in the Upper San Luis Rey River Valley

SECTION 01110 - SUMMARY OF WORK

Groundwater Subbasin include (from oldest to youngest): bedrock, older alluvium, localized lakebed deposits, alluvial fan deposits, and younger alluvium.

- C. Well completion reports (Driller's Logs) for nearby wells are included in Appendix A. However, the CONTRACTOR shall be aware of drilling conditions in the area. The OWNER does not guarantee the accuracy of the lithologic logs, or guarantee that they are indicative of conditions to be encountered during drilling. The information contained in said logs shall not relieve the CONTRACTOR of their responsibility to perform the work.

3.7 PERMITS, CERTIFICATION, LICENSES, LAWS AND ORDINANCES

- A. CONTRACTOR shall, at their own expense, procure all necessary permits, certificates, and licenses required of them by law for the execution of the work, including San Diego County Department of Environmental Health Well Construction Permits.
- B. The CONTRACTOR shall comply with all federal, state, and local laws, ordinances, or rules and regulations relating to the performance of the work.
- C. The CONTRACTOR shall notify USA of Southern California at least two (2) working days prior to beginning work at the site. The CONTRACTOR shall coordinate all site activities with utility companies as necessary during the course of the work.
- D. The CONTRACTOR shall be required to abide by any and all necessary permits from regulatory and governmental agencies, including encroachment permits for conveyance of water to the site location, if necessary.
- E. All equipment used by the CONTRACTOR and his subcontractors during execution of the Work shall be appropriately permitted and/or registered with the California Air Resources Board (CARB) and Southern California Air Quality Management District (SCAQMD). Proof of these requirements shall be submitted to the GEOHYDROLOGIST and OWNER prior to mobilization.
- F. CONTRACTOR shall hold all other necessary certificates and licenses required by law for the execution of this work. CONTRACTOR shall comply with all federal, state and local laws, ordinances, or rules and regulations relating to the performance of the work and shall have a valid State of California C-57 Water Well Drilling CONTRACTOR License.

SECTION 01110 - SUMMARY OF WORK

- G. Upon completion of all work, a State of California Department of Water Resources (DWR) Well Report shall be completed and submitted to the required agencies for each monitoring well. A completed and signed copy of the Report shall be provided to OWNER and GEOHYDROLOGIST, in addition to DWR and the San Diego County Department of Environmental Health.

3.8 DISCHARGE REQUIREMENTS

- A. All waste fluids generated during drilling, construction, and well development shall be temporarily contained and hauled offsite to an approved disposal facility. It shall be the CONTRACTOR's responsibility to haul all waste fluids and deliver to a facility and to acquire any required encroachment or haul permits and/or right-of-entry to safely deliver the waste fluids to the disposal facility. Its also the responsibility of the CONTRACTOR to provide for and maintain all road and driveway crossings, and to provide traffic control to the satisfaction of the Pauma Valley, San Diego County or any other regulatory agency.
- B. Prior to disposal, wastewater shall be pumped into a series of covered and locked temporary holding tanks that have been placed on the site. Water pumped from these tanks shall be then hauled offsite to an approved facility and shall be disposed of in such a manner that no damage to property occurs or that there is no creation of a nuisance.

3.9 BOUNDARY OF WORK

- A. The OWNER will provide land or rights-of-way for the Work specified in this contract and will make suitable provisions for ingress and egress. The CONTRACTOR shall not enter on or occupy with personnel, tools, equipment, or material, any ground outside the specified area of the properties of Rancho Estates without the written consent of the owner of such ground. Other contractors and employees or agents of Rancho Estates may for any necessary purposes enter upon the work site and premises used by the CONTRACTOR.

3.10 PROTECTION OF THE SITE AND DISPOSAL OF WASTEWATER

- A. The CONTRACTOR shall provide a copy of his Spill Prevention Plan prior to the start of Work. Drilling activities shall be conducted in such a way as to prevent the introduction of pollutants to the ground surface or off-site drainages during construction. Accordingly, any equipment and/or materials brought to the project area must be managed in accordance with the following procedures:

SECTION 01110 - SUMMARY OF WORK

1. Plastic sheeting that is bermed or drip pans will be used to catch leaks and residual material in hoses and spigots under all stationary equipment. The plastic sheeting or drip pans will be checked daily and emptied or replaced as needed by reusing the substance or disposing of it properly at the CONTRACTOR's expense.
 2. Spilled hazardous materials will be contained immediately using sand, dirt, and/or absorbent materials. Such spills will be cleaned up promptly along with the contaminant material and will be disposed of properly at the CONTRACTOR's expense.
 3. Outdoor storage of all fuels, oils, solvents, cleaners and other liquid materials shall be within secondary containment. The areas should be covered, as necessary, to prevent storm water accumulation in the containment.
 4. Bentonite, cement, and any other powdered product shall be stored on pallets and away from any drainage path. The storage area should be covered and protected, if necessary, to prevent pollution runoff by wind or storm water.
 5. Chemicals, bagged material, or drums shall be stored on pallets within secondary containment.
- B. Waste products generated during the drilling/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 areas on a regular basis and disposed of at an approved facility at the CONTRACTOR's expense.
 2. Cleaning of the drilling rigs, tremie pipe and any other equipment shall be conducted within a fully contained area within the well drilling pad work area only. Any deviation from these locations must be approved by the GEOHYDROLOGIST.
 3. Waste bentonite or cement must be removed from the project areas prior to completion of the Work.
- C. The use and maintenance of drilling rigs and support vehicles shall be in accordance with the following procedures:
1. Vehicles or equipment that can be moved to a commercial fueling station must be fueled offsite.
 2. If the vehicles or equipment cannot be filled at a commercial fueling station, fueling will be performed on site at designated areas. During fueling operations, drip pans or bermed plastic sheeting will be used to catch leaks. "Topping off" of fuel tanks is not allowed.

SECTION 01110 - SUMMARY OF WORK

3. Maintenance of vehicles will be performed within designated areas to be approved by the OWNER. Drip pans will be used during maintenance activities to catch any leaks.
 4. Daily inspections of drilling rigs and support vehicles and equipment will be made to check for leaks. Any leaks detected shall be reported to the GEOHYDROLOGIST and fixed immediately.
 5. All CONTRACTOR employees and subcontractors shall be educated in the proper handling and storage of construction materials used during the project.
 6. All spills shall be soaked up using absorbent materials and disposed of properly at the CONTRACTOR's expense. Washing down or burial of spills is not allowed. Any spill, no matter how small, is to be reported to the GEOHYDROLOGIST.
 7. If required, steam cleaning of the drilling rigs and support equipment must be carried out within designated areas. The cleaning areas shall be bermed or otherwise contained to prevent runoff to storm drains. All wastewater 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.
- D. Except as otherwise provided herein, the CONTRACTOR shall protect all pipelines, trees and, as much as possible, shrubbery during the progress of the Work, and shall remove from the site all drilling debris and unused materials, and shall, upon completion of the Work, restore the site as near as possible to its original condition.
- E. Disposal of all waste water and drill cuttings shall be by such manner and to such locations that nuisance or damage to environment, structures, roads, or utilities or interference with other construction projects will be prevented. All costs incurred in the disposal of waste water and removal of drill cuttings shall be at the CONTRACTOR's expense.

3.11 SITE SECURITY

- A. The CONTRACTOR shall make adequate provision for the protection of the work areas and the boreholes/well against fire, theft, and vandalism, and for the protection of the public against exposure to injury. The CONTRACTOR shall bear the responsibility for protection of all equipment and material at the worksite.
- B. To prevent intrusion by unauthorized persons, temporary openings and gates in existing fences shall be protected. During those times when no work is being performed

SECTION 01110 - SUMMARY OF WORK

at the site, the CONTRACTOR may provide temporary closures and/or guard service to protect the site, for the CONTRACTOR's own benefit, and at his own expense. All openings in the enclosures shall be closed when not immediately in use.

3.12 WATER SOURCE

- A. The CONTRACTOR can tie into or fill up water tanks at a nearby hydrant for their water source. The CONTRACTOR shall supply the means to convey the water from the source to the project site.
- B. The cost for obtaining construction meters, including applicable deposits and fees shall be paid by the CONTRACTOR. The cost of water used during the project will be paid by the CONTRACTOR. Additionally, CONTRACTOR shall provide a backflow prevention device connected in line with the water source and has been certified within the past six months' time. Certification for these devices shall be submitted to GEOHYDROLOGIST prior to use.
- C. The CONTRACTOR shall pay for and construct all facilities necessary to furnish water for use during well construction activities. The water shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water. The CONTRACTOR shall install and maintain all necessary supply connections and piping, including road and driveway crossings, only at locations and in manners as approved by the OWNER. The CONTRACTOR shall procure any and all permits required of them to convey water from the source to the project site, including encroachment permits. All water shall be carefully conserved. Before final acceptance of the project, all temporary connections, hoses, and piping installed by the CONTRACTOR shall be removed.

3.13 NOISE CONTROL

- A. Operations shall be performed in a manner to minimize unnecessary noise generation and disturbance to persons living or working nearby, and to the general public.
- B. All noise control measures shall be included in the CONTRACTOR's bid price for noise mitigation, and shall include (but are not limited to):
 - 1. Locating equipment in positions which will direct the greatest noise emissions away from residential areas;
 - 2. Equipping all internal combustion engines with critical residential silencers (mufflers);
 - 3. Wrapping the mast with insulated sound blankets (which will additionally shield nearby residences from nighttime lighting);

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4. Conducting operations in the most effective manner that will minimize noise generation, while being consistent with the prosecution of the Contract in a timely and economic manner; and
5. CONTRACTOR shall comply with the San Diego County Noise Ordinance, which include but are not limited to the following:
 - a. Requires that between the hours of 7:00 a.m and 7:00 p.m, no construction noise should be in excess of 75 dBA when measured at the boundary line of the property where the noise source is located for an 8 hour average, or on any occupied property where the noise is being received.

3.14 DUST CONTROL

- A. In order to control dust at the well site, the CONTRACTOR shall take whatever steps are required to prevent abnormal dust conditions from being caused by its operations in connection with the execution of the work, or on any unpaved road which the CONTRACTOR or any of its subcontractors are using, excavation or fill areas, demolition operations or other activities. This may include agency notifications, monitoring, testing, reporting, and implementation of control measures.
- B. Dust control at the well site shall be accomplished by dampening with water, providing a cover of gravel (or other acceptable material) on the active working areas of the site, modification of operations, or any other means acceptable to agencies having jurisdiction.
- C. The CONTRACTOR shall place rumble ramps or apply gravel to surfaces in the work areas to prevent tracking dirt and mud onto paved roadways at or near the work site.

3.15 HOURS OF WORK

- A. Work shall be performed during daylight hours only in order to reduce disturbance to surrounding residences. No work shall be performed on holidays observed by the OWNER, unless other arrangements are made and approved at least 48 hours in advance by the GEOHYDROLOGIST. Major holidays include:
 1. Memorial Day;
 2. Independence Day;
 3. Labor Day;
 4. Veterans Day;
 5. Day of and day after Thanksgiving; and

SECTION 01110 - SUMMARY OF WORK

6. Time period from Christmas Eve to New Year's Day.

3.16 SITE COMMUNICATIONS

- A. At all times the CONTRACTOR shall have at the drilling location the means for communicating (i.e., cellular telephones) between all workers at the site, their office, the OWNER, and the GEOHYDROLOGIST. Two-way radios are not an acceptable form of communication. The telephone numbers of such devices shall be provided to the OWNER and GEOHYDROLOGIST before the start of Work so that the CONTRACTOR's personnel are available at all times for status updates. Telephones with a vibrating mode shall be made available to crew members so that the incoming calls may be detected above the noise at the work site.
- B. Emergency (24 hours/day) telephone numbers of all key CONTRACTOR personnel involved with the project shall be provided to the GEOHYDROLOGIST at the time of the pre-construction meeting.

3.17 COMPETENT WORKERS

- A. The CONTRACTOR shall employ only sober, competent workers for the execution of the Work, and all such work shall be performed under the direct supervision of experienced well drillers satisfactory to the GEOHYDROLOGIST. During periods of standby or waiting, the CONTRACTOR must provide trained and experienced staff, approved by the GEOHYDROLOGIST, to monitor and maintain the fluid levels in the borehole.
- B. No changes in personnel will be allowed without approval of the OWNER. Approval may be granted provided the qualifications and experience of the replacement worker are equivalent or better than the initial worker.

3.18 SUPERVISION BY CONTRACTOR

- A. The CONTRACTOR shall provide efficient supervision using its best skill and attention and shall provide and keep on the Work at all times during its progress a competent onsite supervisor and any necessary assistants, all of whom within reason shall be satisfactory to the GEOHYDROLOGIST. In accordance with generally accepted construction practices, the CONTRACTOR shall be solely and completely responsible for conditions of the jobsite, including safety of all persons and property during the performance of the work, and the CONTRACTOR shall fully comply with all Federal, State, and local laws, rules, regulations, orders, and ordinances relating to the safety

SECTION 01110 - SUMMARY OF WORK

of workers and others. The CONTRACTOR alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation.

3.19 "LOST" BOREHOLES AND BOREHOLE DESTRUCTION

- A. Boreholes that the CONTRACTOR is not able to complete prior to reaching design or specified depth, due to defective workmanship, unsuitable materials introduced to the borehole, excessive borehole caving, misaligned borehole, or faulty equipment, will be considered a "lost" borehole and will not be paid for by the OWNER. If a borehole is determined to be lost, the CONTRACTOR shall drill another borehole to the specified depth, near the lost borehole at the exact location to be specified by the OWNER. No payment will be made for subsequent moving, setting up, installation of conductor casing or re-drilling of the borehole. In addition, the CONTRACTOR will not be compensated for standby time, nor for extra hours incurred during ensuing discussions should this situation occur.
- B. All "lost" boreholes shall be destroyed by backfilling with either high-viscosity bentonite slurry, or a bentonite-cement mixture. Any casing shall be removed to a depth of at least 5 ft bgs, as per San Diego County Department of Public Health requirements. The site shall be cleaned and restored as directed by the OWNER. No payment will be made for the backfilling, removal of casing, site cleaning or restoration of lost boreholes.

3.20 SITE SANITATION FACILITIES

- A. The CONTRACTOR shall provide all necessary sanitary facilities (i.e., privy accommodations) for the use of employees prior to commencement of work at the site. These facilities shall be maintained and cleaned at least twice per week and kept in a sanitary condition (i.e., well-stocked with an adequate supply of toilet paper, etc.). The CONTRACTOR shall provide an alcohol-based hand sanitizer or a portable hand washing sink attached to a small holding tank for clean water and a soap dispenser. The CONTRACTOR shall provide for his employees an adequate supply of clean, potable drinking water, dispensed through approved sanitary facilities.
- B. The CONTRACTOR shall obey and enforce such sanitary regulations as may be prescribed by the California Department of Public Health and other government entities having jurisdiction.

SECTION 01110 - SUMMARY OF WORK

- C. At the completion of the Work at the site, the CONTRACTOR shall remove all rubbish, excess materials, temporary structures and equipment from the site and shall leave the site in a neat and presentable condition as approved by the OWNER.

3.21 CONSTRUCTION INSPECTION

- A. The CONTRACTOR will be required to contact the GEOHYDROLOGIST at various stages of construction for the purpose of job inspection. No work will be performed by the CONTRACTOR until such inspection has been made by the GEOHYDROLOGIST. A list of the required inspections is shown below. The CONTRACTOR will notify the GEOHYDROLOGIST at least twenty-four (24) hours prior to each of the required inspections to assure that a representative will be available to conduct the inspection. The following is a list of inspection items which may be required. Inspection and approval of each item by the GEOHYDROLOGIST is required before proceeding to subsequent stages.

<u>Description</u>	<u>Inspection Item</u>
1. Pre-Mobilization	Pre-Mobilization Submittals
2. Mobilization	Equipment (Drilling Equipment and Accessories)
3. Construction Materials	Sanitary Facilities Drilling Fluid Additives Casings and Screens Filter Pack Annular Seals
4. Pilot & Reamed Borehole Drilling	Mud Properties Geophysical Borehole Logs
5. Construction Process	Casing Assembly Installation Installation of Filter Pack and Sealing Materials
6. Well Development	Development Tools Pumping Equipment Discharge Assembly/Containment Airlifting and Swabbing Procedure

SECTION 01110 - SUMMARY OF WORK

7. Final
- Wellhead Construction
 - Site Clean Up
 - DWR Well Completion Report

3.22 REQUIREMENTS PRIOR TO MOBILIZATION

- A. The following are required to be submitted by the CONTRACTOR to the GEOHYDROLOGIST and approved prior to any site mobilization (including conductor casing installation).
1. Construction Schedule (to be submitted within one week of Notice to Proceed);
 2. Well Drilling Permit from San Diego County Department of Environmental Health;
 3. Noise Abatement Plan to be submitted to the GEOHYDROLOGIST and OWNER at least ten (10) days prior to mobilization;
 4. Proof of Dig Alert notification (i.e., ticket number);
 5. Proof of compliance with California Air Resources Board (CARB) and South Coast Air Quality Management District (SCAQMD) requirements for motorized equipment.
 6. Spill Prevention Plan to be submitted to the GEOHYDROLOGIST at least ten (10) days prior to mobilization;
 7. Site layouts showing proposed location and orientation of CONTRACTORs equipment;
 8. CONTRACTOR's proposed drilling program as detailed in Section 02520; and
 9. San Diego County excavation and/or truck route permit, if applicable.
 10. Certification of backflow prevention device (performed in-situ).
- B. The CONTRACTOR may only start mobilization to the well site once all the submittals relating to the site have been approved by both the OWNER and GEOHYDROLOGIST.

END OF SECTION

SECTION 01380 – PRE-CONSTRUCTION VIDEO RECORDING AND PHOTOGRAPHS

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. After survey and utility mark out, and prior to any construction, the CONTRACTOR shall photograph and video existing site conditions with audio included.
- B. The CONTRACTOR shall retain a professional photographer and/or videographer to perform the specified services or provide evidence to the OWNER of the staff's ability to perform some or all of the services specified. The OWNER shall have the final determination and discretion as to the suitability of the photographer/videographer.
- C. The CONTRACTOR shall obtain the OWNER's approval prior to taking the first series of photographs or videos of each specified type.
- D. The OWNER shall be present during photographing and video recording of pre-construction site conditions.

1.2 SUBMITTALS

- A. At the completion of the survey the CONTRACTOR shall present the OWNER with a report. The report shall include the following as a minimum:
 - 1. One copy of the digital video recordings.
 - 2. One copy of each digital photograph.
 - 3. Redlined plans showing areas of damaged paving or other damaged surface improvements.
 - 4. Written summary of potential "problem areas" and the CONTRACTOR's recommendations to address these problem areas.
- B. Documentation (including report) of existing conditions shall be completed and submitted to the OWNER within fifteen (15) days of the Notice to Proceed but after survey and mark out. The CONTRACTOR will not be allowed to begin construction activities until the final report has been submitted to and accepted by the OWNER.

PART 2 - MATERIALS

2.1 VIDEO RECORDING EQUIPMENT

- A. The CONTRACTOR's video capability, equipment, and operators shall conform to the following minimum criteria:

SECTION 01380 – PRE-CONSTRUCTION VIDEO RECORDING AND PHOTOGRAPHS

1. High resolution and clarity provided by 3CCD “high-definition” format.
2. Video shall include audio.
3. Video shall be automatically dated and timed.
4. The video camera shall be equipped with a zoom lens.
5. The system shall have cataloging and storage capacity.
6. The system shall have on- and off-road mobility.
7. The videographer subcontracted or provided by the CONTRACTOR shall have at least one (1) year of professional industrial televising experience.

2.2 PRE-CONSTRUCTION PHOTOGRAPHIC EQUIPMENT

- A. The CONTRACTOR’s photographic capability, equipment, and operators shall conform to the following minimum criteria:
1. The camera shall be a single lens reflex type and shall utilize digital media.
 2. The camera shall utilize an automatic focus, f-stop, and flash system with manual override to promote quality photography.
 3. The camera shall be capable of imprinting an inalterable date on the digital film.
 4. The camera shall have a minimum of 5.0-megapixel resolution.
 5. The photographer subcontracted or provided by the CONTRACTOR shall have at least one (1) year of professional industrial photographic experience.

PART 3 - EXECUTION

3.1 VIDEO RECORDING OF PRE-CONSTRUCTION CONDITIONS

- A. The CONTRACTOR shall video record all existing surface conditions in the Work area prior to the start of any construction activities. Important features that shall be video recorded include but are not limited to:
1. Existing and proposed site.
 2. Property lines.
 3. Right-of-way, easement, and temporary access area conditions.
 4. Utility markings.
 5. Survey conditions.
 6. Adjacent property conditions.
 7. Access road, sidewalk, median, curb, and gutter conditions.

SECTION 01380 – PRE-CONSTRUCTION VIDEO RECORDING AND PHOTOGRAPHS

8. Landscaping, planting, and irrigation conditions.
 9. Safety conditions.
 10. Other unusual conditions or equipment/facility installations.
 11. Signing and striping.
 12. Areas of existing damage or other potential “problem areas”.
- B. All video recordings of pre-construction surface conditions shall be performed in the presence of the OWNER.
- C. The CONTRACTOR shall make all arrangements for video recording, including coordination with the OWNER.
- D. Video records including documentation shall be submitted per section 1.2 of this Specification.
- E. The CONTRACTOR shall not be entitled to any additional working days due to video recording activities, including securing video recording services, taping, and editing activities, or submitting video records to and obtaining acceptance from the OWNER.

3.2 PRE-CONSTRUCTION PHOTOGRAPHS

- A. The CONTRACTOR shall take a sufficient number of pre-construction photographs (as directed by the OWNER) necessary to resolve any disputes that may arise regarding the considerations prior to and subsequent to construction. Photographs of the same general types of features as described under Video Recording of Pre-Construction Conditions shall be taken. All photographs shall be digitally imprinted with an unalterable date designation.
- B. If a dispute arises where no pre-construction photographs were taken, the disputed area shall be restored to the extent directed by the OWNER and to the satisfaction of the OWNER.
- C. The CONTRACTOR shall furnish one set of digital prints of the pre-construction photographs to the OWNER, and shall make other photographs available for review in settling any disputes that may arise.
- D. The OWNER may, at its option, take additional pre-construction photographs that may be used to settle disputes, but will not be required to make these photographs available to the CONTRACTOR.

SECTION 01380 – PRE-CONSTRUCTION VIDEO RECORDING AND PHOTOGRAPHS

- E. All photographs of pre-construction conditions shall be taken in the presence of the OWNER.
- F. The CONTRACTOR shall make all arrangements for pre-construction photographs including coordination with the OWNER.
- G. Pre-construction photographs including documentation shall be submitted per section 1.2 of this Specification.
- H. The CONTRACTOR shall not be entitled to any additional working days due to pre-construction photographing activities, including securing photographic services, or submitting pre-construction photographs to and obtaining acceptance from the OWNER.

END OF SECTION

**SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS
(MOBILIZATION)**

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. Mobilization and demobilization encompass payment and performance bonds and insurance, including all prerequisite preparation, specialized tooling, installation of all temporary facilities required to operate equipment and provide for personnel. The nested monitoring well location and associated construction drawings are shown on the Project Plan Sheets.
- B. Included under this item shall be compensation for providing sanitary and other facilities as set forth in these Technical Specifications, access and obtaining the required permits and licenses.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01090 - Reference Standards
- B. Section 01110 - Summary of Work
- C. Section 01380 - Pre-Construction Video Recording and Photographs
- D. Section 01561 - Temporary Noise Barriers
- E. Section 01562 - Temporary Fencing
- F. Section 01572 - Traffic Control
- G. Section 01573 - Temporary Erosion and Sedimentary Control
- H. Section 01574 - Clearing and Waste Management (Disposal of Cuttings)
- I. Section 01700 - Project Closeout
- J. Section 01710 - Clean-Up
- K. Section 02520 - Nested Monitoring Well

PART 2 - MATERIALS

2.1 GENERAL

- A. CONTRACTOR shall provide a dual tube reverse air rotary drilling unit with mud rotary capabilities complete with all tools, temporary drill pipe, accessories, power, lighting, water, and any other equipment necessary for the completion of the Work. The nested monitoring well shall be drilled in accordance with these technical specifications.

2.2 PERSONNEL AND EQUIPMENT

- A. CONTRACTOR shall provide experienced personnel necessary to conduct an efficient and safe drilling operation. Prior to mobilizing, all equipment supplied by CONTRACTOR shall be certified to be suitable for the specific drilling operation. The

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS (MOBILIZATION)

replacement of any equipment later found to be unsuitable shall be at CONTRACTOR expense.

2.3 INSPECTION

- A. All equipment intended for use in the drilling, construction, and development of the nested monitoring well shall be inspected by GEOHYDROLOGIST prior to mobilization to ensure that the equipment intended for use is adequate and acceptable for the Work.

2.4 MSDS SHEET

- A. All "pipe dope" used in the performance of the Work must comply with environmental standards and shall be inert. Material Safety Data Sheets (MSDS) for all controlled materials used in the performance of the Work shall be provided to GEOHYDROLOGIST prior to the start of the Work.

2.5 REQUIRED DRILLING METHOD

- A. The monitoring well shall be drilled using the dual tube reverse air rotary method with mud rotary capabilities. The wells shall be filter packed using the latest technology for drilling, construction, and development of monitoring wells.

PART 3 - EXECUTION

3.1 WATER SOURCE

- A. The CONTRACTOR can tie into or fill up water tanks at a nearby hydrant for their water source. The CONTRACTOR shall supply the means to convey the water from the source to the project site or store water.
- B. The CONTRACTOR shall obtain a construction meter and a backflow prevention device from the OWNER. The CONTRACTOR shall provide the receipt for the deposit for the construction meters. The CONTRACTOR shall be responsible for the cost of all water used during the Work.
- C. The CONTRACTOR shall pay for and construct all facilities necessary to furnish water for use during well construction activities. The water shall be kept free from contamination and shall conform to the requirements of the State and local authorities for potable water. The CONTRACTOR shall install and maintain all necessary supply connections and piping, including road and driveway crossings, only at locations and in manners as approved by the OWNER. The CONTRACTOR shall procure any and all permits required of them to convey water from the source to the project site, including encroachment permits. All water shall be carefully conserved. Before final

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS (MOBILIZATION)

acceptance of the project, all temporary connections, hoses, and piping installed by the CONTRACTOR shall be removed.

3.2 ELECTRICITY

- A. CONTRACTOR shall provide, at their cost, all temporary electrical power required for construction, general and security lighting, and all other purposes. CONTRACTOR shall provide all power required during well drilling, well construction, and well development.
- B. CONTRACTOR shall ensure that all noise ordinances and mitigation requirements are met when using generator-supplied power. CONTRACTOR shall provide adequate job site power generation facilities conforming to applicable noise ordinances, codes and safety regulations.

3.3 LIGHTING

- A. When necessary for nighttime work, CONTRACTOR shall provide temporary lighting in all work areas sufficient to maintain an adequate level of light during nighttime working hours. All nighttime lighting shall comply with any Pauma Valley and County regulations.

3.4 SITE SANITATION

- A. CONTRACTOR shall provide all necessary sanitary facilities (i.e., chemical toilets) for the use by employees during work at the site. Sanitary facilities shall be located as close as possible to the work site in order to minimize disturbance of roads, shall be maintained and cleaned at least twice per week, shall be kept in a clean condition and adequately supplied with chemicals and adequate supply of toilet paper, etc. CONTRACTOR shall provide an alcohol-based hand sanitizer, or a portable hand-washing sink attached to a small holding tank for clean water and a soap dispenser. CONTRACTOR shall provide for an adequate supply of clean, potable drinking water, dispensed through approved sanitary facilities.
- B. CONTRACTOR shall obey and enforce such sanitary regulations as may be prescribed by the State Department of Public Health and other government entities having jurisdiction.

3.5 TRAFFIC CONTROL

- A. When moving equipment on public roadways, CONTRACTOR shall provide a flagman at points of vehicular ingress and egress to control the movement of traffic near the site in a manner and to the extent required by applicable county and city ordinances, and/or regulations, and as acceptable to site owners. Flagman shall wear a brightly-colored

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS (MOBILIZATION)

reflective safety vest at all times when directing traffic. Traffic barricades shall be placed in accordance with the latest edition of the Work Area Traffic Control Handbook (2016 WATCH manual, 13th edition) that is approved and endorsed by the Institute of Transportation Engineers, American Public Works Association, and City Traffic Engineers.

3.6 NUISANCE WATER

- A. It is anticipated that nuisance water, such as drilling water, rainfall, irrigation water, perched groundwater or surface runoff may be encountered within the construction site during the period of construction under this Contract. The CONTRACTOR shall always protect the Work from damage by such waters and shall take all due measures to prevent delays in progress of work caused by such nuisance waters. CONTRACTOR shall dispose of nuisance water at their own expense and without adverse effects upon OWNER property or any other property. All discharges shall comply with the appropriate discharge requirements.

3.7 WATER DISPOSAL

- A. The effluent produced by drilling and development of the nested monitoring well shall not be discharged into the river, access roads, or near-by land. All waste fluids generated during drilling, construction, and well development shall be temporarily contained and hauled offsite to an approved disposal facility. It shall be the CONTRACTOR's responsibility to haul all waste fluids and deliver to a facility and to acquire any required encroachment or haul permits and/or right-of-entry to safely deliver the waste fluids to the disposal facility. It's also the responsibility of the CONTRACTOR to provide for and maintain all road and driveway crossings, and to provide traffic control to the satisfaction of the Pauma Valley, San Diego County or any other regulatory agency.
- B. Prior to disposal, wastewater shall be pumped into a series of covered and locked temporary holding tanks that have been placed on the site. Water pumped from these tanks shall be then hauled offsite to an approved facility and shall be disposed of in such a manner that no damage to property occurs or that there is no creation of a nuisance.

3.8 PROTECTION AND RESTORATION OF EXISTING FACILITIES

- A. CONTRACTOR shall be responsible for the protection of public and private properties at and adjacent to the Work and shall exercise due caution to avoid damage to such properties. CONTRACTOR shall repair or replace all existing improvements that are damaged or removed as a result of his operations. Such improvements include but are not limited to curbs, gutters, sidewalks, pavements, utility installations, structures,

**SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS
(MOBILIZATION)**

lawns, sprinkler systems, trees, and bushes. Repair and replacements shall be at least equal to existing improvements and shall match them in finish and dimension.

END OF SECTION

SECTION 01561 - TEMPORARY NOISE BARRIERS

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

1.2 DESCRIPTION

- A. Because of the proximity of the drilling sites to residential and agricultural areas, sound attenuation will be recommended to mitigate noise generated by the drilling equipment during well drilling.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 - Summary of Work
- B. Section 01500 - Temporary Facilities and Controls (Mobilization)
- C. Section 01700 - Project Closeout
- D. Section 01710 - Clean-Up
- E. Section 02520 - Nested Monitoring Well

PART 2 - MATERIALS

- A. Drilling activities shall be performed in a manner to minimize unnecessary noise generation and disturbance to nearby residents, and to the general public, while meeting local noise abatement ordinances.
- B. The cost of noise control measures shall be included in the bid. The measures to be used in suppression of noise shall include (but are not limited to):
 - 1. Equipping all internal combustion engines with critical hospital-quiet silencers (mufflers);
 - 2. Placing noise attenuating barriers or sound panels around the drilling rig power unit and the air compressor;
 - 3. Shielding noise-producing equipment from nearby sensitive areas by erecting sound barriers located adjacent to noise generating equipment, as necessary;
 - 4. Placing equipment in locations to direct the greatest noise emissions away from these areas;
 - 5. Wrapping the mast with insulated sound blankets; and
 - 6. Conducting operations in the most effective manner that will minimize noise generation, while being consistent with the prosecution of the Contract in a timely and economic manner.

SECTION 01561 - TEMPORARY NOISE BARRIERS

PART 3 - EXECUTION

- A. Impacts due to noise on the adjacent residents shall be kept to a minimum at all times, and noise level requirements shall be strictly enforced.
- B. Drilling activities shall be performed in a manner to minimize unnecessary noise generation and disturbance to nearby residents, and to the general public, while meeting local noise abatement ordinances.
- C. Base ambient noise, or background noise, is defined as the composite of sounds from sources both near and distant. CONTRACTOR shall measure ambient noise levels at the property line during both drilling and non-drilling activities.
- D. Section 36.408 of the San Diego County Noise Ordinance requires that between the hours of 7:00 a.m. and 7:00 p.m., no construction noise should be in excess of 75 dBA when measured at the boundary line of the property where the noise source is located for an 8 hour average, or on any occupied property where the noise is being received.
- E. In the event that unacceptable noise levels persist, GEOHYDROLOGIST shall direct CONTRACTOR to cease operations until CONTRACTOR implements appropriate mitigation measures and acceptable noise levels are obtained.
- F. Prior to commencing actual drilling, CONTRACTOR shall demonstrate onsite compliance by collecting actual noise level measurements during equipment operation. Noise level measurements shall be made using a hand-held noise level meter meeting ANSI Standard S1.4 1971 for Type 1 and Type 2 sound level meters or other instrument that will provide equivalent data. Measurements shall be made at 50 ft intervals along the work area perimeter, or as directed by the GEOHYDROLOGIST, and the measurements with the time and date will be noted on a drawing of the site layout.

END OF SECTION

SECTION 01562 - TEMPORARY FENCING

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

1.2 DESCRIPTION

- A. CONTRACTOR is required to enclose the drilling sites and equipment staging areas with temporary chain link construction fencing, including posting safety signs and other appropriate warnings throughout the work area.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 - Summary of Work
- B. Section 01500 - Temporary Facilities and Controls (Mobilization)
- C. Section 01700 - Project Closeout
- D. Section 01710 - Clean-Up
- E. Section 02520 - Monitoring Well

PART 2 - MATERIALS

2.2 MATERIALS

- A. CONTRACTOR shall enclose each work site and associated staging areas with a temporary 8-ft high (minimum) chain link construction fence with attached privacy panels. The area enclosed with temporary fencing shall include a 24 ft wide lockable gate.
- B. The location of the staging area shall be determined by the OWNER.
- C. Materials and components shall be first quality items specifically manufactured for the intended application.

PART 3 - EXECUTION

3.1 TEMPORARY FENCING

- A. CONTRACTOR shall bear the responsibility for protection of all equipment and material at the worksite.
- B. CONTRACTOR shall provide an 8-ft high temporary fence that surrounds the site for protection of the public and workers against exposure to injury.
- C. The chain link fence shall have green mesh privacy panels to reduce visibility of work occurring at the site. p

SECTION 01562 - TEMPORARY FENCING

- D. The temporary fencing shall have lockable gates and shall be installed in a manner acceptable to OWNER.
- E. The fences and gates shall be adequate to protect work areas and temporary facilities against acts of theft, trespass, violence or vandalism. In locations where the probability of such acts of theft and vandalism is reasonably expected, this fencing requirement shall be enforced to include the enclosure of all equipment, well construction materials, temporary offices and storage areas.
- F. CONTRACTOR shall bear the responsibility for protection of equipment and materials at the worksite.
- G. To prevent intrusion by unauthorized persons, temporary openings and gates in existing fences shall be kept locked during the times that CONTRACTOR's personnel are not on site.
- H. During times when no work is being performed at the site, CONTRACTOR shall provide temporary closures, signage, and/or guard services to protect the site.
- I. All openings in the enclosure shall be temporary and shall be kept closed when not immediately in use.

END OF SECTION

SECTION 01572 - TRAFFIC CONTROL

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

1.2 DESCRIPTION

- A. Because of the distance of the drilling site to roads and public areas, traffic control plans will not be required to mitigate traffic disturbance around the drilling equipment during well drilling. Traffic control may be necessary to convey water from the water source to the project area.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 - Summary of Work
- B. Section 01500 - Temporary Facilities and Controls (Mobilization)
- C. Section 01700 - Project Closeout
- D. Section 01710 - Clean-Up
- E. Section 02520 - Nested Monitoring Well

PART 1 - MATERIALS

- A. If necessary, the CONTRACTOR is required to submit, pay for, and obtain approved Traffic Control Plans and permits.

PART 2 - EXECUTION

- A. If necessary, the CONTRACTOR shall develop and provide a Traffic Control Plan for the project site. CONTRACTOR shall at all times maintain open lane(s) for traffic, maintain ingress/egress to the residential driveways and commercial driveways. Traffic control requirements may be modified by Pauma Valley or as conditions warrant. CONTRACTOR shall modify traffic control, as required by the Pauma Valley or by the OWNER, at no additional cost to OWNER.
- B. Throughout each work period, CONTRACTOR shall inspect traffic control (signs, barricades, arrow boards, and delineators) and shall maintain same in accordance with said permit. Street closures are not allowed.
- C. When moving equipment on public roadways, CONTRACTOR shall provide a flagman at points of vehicular ingress and egress to control the movement of traffic near the site in a manner and to the extent required by applicable county and city ordinances, and/or regulations, and as acceptable to site owners. Flagman shall wear a brightly-colored reflective safety vest at all times when directing traffic. Traffic barricades shall be placed in accordance with the latest edition of the Work Area Traffic Control Handbook (2016 WATCH manual, 13th edition, and all Pauma Valley requirements) that is approved and endorsed by the Institute of Transportation ENGINEERS, American Public Works Association, and City Traffic ENGINEERS.

END OF SECTION

SECTION 01573 - TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

1.2 DESCRIPTION

- A. Provide all work and take all measures necessary to control soil erosion resulting from construction operations; prevent flow of sediment or fluid from construction site; contain construction materials (including any excavation and backfill) within protected working areas; dispose of water generated during drilling and development; and comply with all applicable permit and any environmental mitigation requirements.
- B. Appropriate erosion control devices including plastic sheeting, sandbags, silt fencing and straw wattles shall be used to control run off of fluids during construction.
- C. Prior to any equipment being mobilized to the monitoring well drilling sites, a containment area will be constructed with a plastic liner and containment system to completely cover the active portion of the drilling location so that accidental spills are contained.
- D. Water generated during drilling and development shall be discharged to an adequately sized baffled storage tanks for temporary holding before being removed from the site to an approved disposal facility.
- E. CONTRACTOR shall conform to all provisions of these technical specifications.
- F. If necessary, the CONTRACTOR shall not damage any property to convey the hydrant water.
- G. CONTRACTOR shall furnish all necessary equipment to convey discharge to the approved disposal facility.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 – Summary of Work
- B. Section 02520 – Monitoring Well

SECTION 01573 - TEMPORARY EROSION AND SEDIMENT CONTROL

PART 2 - MATERIALS

2.2 MATERIALS

- A. Erosion control devices shall include K-rails, plastic sheeting, sandbags, and straw wattles, or any other device necessary to contain fluids generated at the site.
- B. Erosion control management shall include storage tanks, meters, and valves, to adequately control and divert flow as required to the vessel transporting wastewater to the approved disposal facility.

PART 3 - EXECUTION

3.1 EROSION CONTROL

- A. CONTRACTOR shall install erosion control measures and devices to prevent worksite storm runoff or fluids from leaving the site. Under no circumstances shall water from any source related to the Work or storm runoff be allowed to leave any site other than through proper disposal means. At the end of the Work, CONTRACTOR shall properly dispose of all erosion control devices in an acceptable location.

3.2 TRACKING OF MUD AND SOIL ONTO IMPROVED ROADWAYS

- A. Disturbance to natural surfaces shall be limited to the area strictly required for the project. If work activities occur in wet weather conditions, CONTRACTOR shall prevent tracking mud onto paved roadways when leaving the work site. If additional measures are necessary, CONTRACTOR shall be compensated at fixed cost-plus markup for delivery and materials.
- B. The utmost care shall be taken to avoid tracking mud from the work sites and onto paved roadways. Any mud or dirt that is tracked onto paved roadways shall be immediately cleaned up by CONTRACTOR using dry methods (such as sweeping using a broom, or by scraping using a shovel). Soil shall be prevented from entering the storm drain system. Under no circumstances shall water from any source related to the Work or storm runoff be allowed to leave either site other than by proper disposal methods.

3.3 CONTROL OF WASTE FLUIDS

- A. All waste fluids generated during the drilling, construction, and development process shall be hauled offsite and disposed of at an approved facility.
- B. Prior to hauling offsite, all fluids shall be initially conveyed to a storage tank. CONTRACTOR shall determine the actual number and configuration of tanks necessary to contain and adequately treat fluids generated at the site. The purpose for the tanks is to allow suspended sediment to separate from fluids prior to discharge to the discharge pipeline.

SECTION 01573 - TEMPORARY EROSION AND SEDIMENT CONTROL

- C. Sampling ports shall be made available at the point of discharge (to containment vessel) to allow for water quality sampling. All discharges shall be closely monitored for quantity and quality with all meter readings recorded on CONTRACTOR daily report for the site. Daily field reports and field measurements shall be submitted to GEOHYDROLOGIST daily.
- D. All costs incurred in the disposal of discharged water, including collection of water quality samples and their analysis for permit compliance purposes, as well as the delivery of the samples to a certified laboratory shall be at CONTRACTORS expense.
- E. Under no circumstances shall water from any source related to the Work or storm runoff be allowed to leave the site as surface runoff. If necessary, CONTRACTOR shall use sandbags, earthen berms, straw wattles, and other devices to form barriers for the prevention of runoff. The CONTRACTOR shall provide temporary percolation areas, basins, or devices within the construction impact area for the disposal of storm runoff.
- F. Rainwater collected from the plastic liner system will be considered to be wastewater and, prior to disposal, wastewater shall be pumped into a series of on-site temporary holding tanks or basins. Wastewater stored in these temporary holding tanks shall be hauled off-site for proper disposal at the CONTRACTOR's expense.
- G. Disposal of all wastewater and drill cuttings shall be in such manner and to such locations that nuisance or damage to environment, structures, roads, utilities, or interference with other construction projects will be prevented.
- H. CONTRACTOR shall be responsible for collection or analysis of water quality samples during discharge events.
- I. All field data collected by CONTRACTOR during each discharge event (to containment vessel) shall be recorded on CONTRACTOR daily reports, as well as on any specified OWNER forms.

END OF SECTION

**SECTION 01574 - CLEARING AND WASTE MANAGEMENT
(DISPOSAL OF CUTTINGS)**

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

1.2 DESCRIPTION

- A. All soil cuttings and fluids generated during the drilling process shall be fully contained prior to transport and disposal at an offsite facility.

1.3 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 – Summary of Work
- B. Section 02520 – Nested Monitoring Well

PART 2 - MATERIALS (NOT USED)

PART 3 - EXECUTION

3.1 DISPOSAL OF DRILL CUTTINGS

- A. Onsite storage of uncontained soil cuttings and fluids generated during the drilling process will not be allowed. Drill cuttings will be collected in lined bins, backhoe bucket, or approved equal. The cuttings will be transferred to lined “roll-off” bins for transport from the site and disposal. All soil cuttings and fluids shall be contained in the immediate area of the borehole, and shall be removed daily, or more frequently, as determined by the GEOHYDROLOGIST, such that a nuisance is not created. The drilling CONTRACTOR shall be responsible for any and all costs incurred in the disposal of soil cuttings and fluids.
- B. The Contractor shall be responsible for testing and disposal of drill cuttings generated during borehole drilling, as required by the disposal facility accepting the wastes. Disposal shall include the collection and laboratory analysis of soil samples. A minimum of one sample of the cuttings shall be collected from the pilot borehole. All soil samples shall be submitted to a State of California certified laboratory for volatile organic analysis by EPA Method 8260, total petroleum hydrocarbons by EPA Method 8015, and total threshold limit concentration (TTLC) metals by EPA Method 6010. Additional analyses may be required by the waste disposal facility. The Contractor shall submit the results of the analyses to the Geohydrologist prior to disposal of cuttings. Disposal of cuttings found to be non-hazardous and all related costs shall be the responsibility of the Contractor. Non-hazardous drill cuttings shall be disposed of offsite at a facility approved by the OWNER or GEOHYDROLOGIST. The contractor must submit dump tickets and copies of the results of any analyses required by the facility.

**SECTION 01574 - CLEARING AND WASTE MANAGEMENT
(DISPOSAL OF CUTTINGS)**

3.2 CONTAMINATED MATERIALS

- A. Although contaminated soils are not anticipated, in the case that soil cuttings show indications of contamination (including staining or odor), they shall be stored in ANSI-approved 55-gallon steel drums until lab analytical results verify the nature and concentration of the contamination. OWNER and GEOHYDROLOGIST must be notified immediately upon discovery of contaminated soils. CONTRACTOR will be required to stop work if so instructed by OWNER to wait on laboratory analysis of the potentially contaminated soils. CONTRACTOR shall not be responsible for disposal of contaminated soils that are not the result of his activity.

- B. Generation of hazardous materials by the CONTRACTOR during the course of Work caused by his negligence (e.g., oil, and/or hydraulic spills or leaks) shall be cleaned, removed, and properly disposed at the CONTRACTOR's expense. Any materials suspected of contamination due to CONTRACTOR negligence shall be submitted by the CONTRACTOR to a California State-certified laboratory for analysis at the CONTRACTOR 's expense. The sample shall be analyzed by approved state and/or federal methods to determine if the sample contains hazardous materials. The OWNER reserves the right to request additional testing if the methods requested by the CONTRACTOR are insufficient to determine the types of potentially hazardous materials present. Tests must be run within 24 working hours of suspected contamination. Test results must be available within five (5) working days. During this time any and all suspected contaminated materials must be contained separately at the site. Any sample which contains levels of contaminants in excess of state or federal disposal standards shall be properly disposed of by the CONTRACTOR in accordance with applicable regulations within 48 working hours of receiving test results. This shall include preparation of a hazardous materials disposal manifest by the CONTRACTOR. The CONTRACTOR, not the OWNER, shall be listed as the generator of the hazardous waste (i.e., as a result of CONTRACTOR negligence) on all manifests. The CONTRACTOR shall provide the OWNER with a copy of the initial manifest and the final manifest received at the disposal site.

3.3 NON-HAZARDOUS MATERIALS

- A. Disposal of cuttings found to be non-hazardous and all related costs shall be the responsibility of CONTRACTOR. Non-hazardous drill cuttings shall be disposed of offsite at a licensed disposal facility approved by the OWNER.

END OF SECTION

SECTION 01700 – PROJECT CLOSEOUT

PART 1 – GENERAL

1.1 DESCRIPTION

- A. The CONTRACTOR shall thoroughly clean the project site, as described in Section 01710, prior to final acceptance of the work by the OWNER.
- B. The CONTRACTOR shall conduct Performance Tests for each element of the work as described in the individual sections. Where no performance test is specified, the CONTRACTOR shall demonstrate satisfactory performance for a period of one week prior to final acceptance.
- C. The CONTRACTOR shall establish dates for equipment testing and acceptance periods. The times shall be within the Contract time.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 - Summary of Work
- B. Section 01380 - Pre-Construction Video Recording and Photographs
- C. Section 01574 - Clearing and Waste Management (Disposal of Cuttings)
- D. Section 01700 - Project Closeout
- E. Section 02520 - Nested Monitoring Well

1.3 WALKTHROUGH

- A. A walkthrough shall be performed by OWNER.

1.4 FINAL SUBMITTALS

- A. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the OWNER:
 - 1. Project completion Report
 - 2. Written guarantees, where required.
 - 3. Operating manuals, technical manuals, and instructions (six (6) sets of all documents). Manuals shall include at a minimum operations and maintenance manuals for each piece of equipment (or set of equipment).
 - 4. Maintenance stock items; spare parts, special tools.
 - 5. As built drawings.
 - 6. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.
 - 7. Monument survey showing record locations of monuments or benchmarks disturbed and reset by CONTRACTOR.

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01710 – CLEAN-UP

PART 1 – GENERAL

1.1 DESCRIPTION

- A. CONTRACTOR shall execute clean-up during progress of the work, at completion of the work in accordance with Section 01700 Project Closeout, and as required by General Provisions for the areas covered by Contract, adjacent properties, and public access roads.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01110 - Summary of Work
- B. Section 01380 - Pre-Construction Video Recording and Photographs
- C. Section 01574 - Clearing and Waste Management (Disposal of Cuttings)
- D. Section 01700 - Project Closeout
- E. Section 02520 - Nested Monitoring Well

1.3 CLEAN-UP

- A. Requirements of Regulatory Agencies:
 - 1. In addition to the requirements herein, the CONTRACTOR shall maintain the cleanliness of the work and surrounding premises within the work limits so as to comply with federal, state, and local fire and safety laws, ordinances, codes and regulations.
 - 2. The CONTRACTOR shall comply with all federal, state and local anti-pollution laws, ordinances, codes and regulations when disposing of waste materials, debris and rubbish.
- B. Scheduling of Cleaning and Disposal Operations:
 - 1. The CONTRACTOR shall schedule all clean-up and disposal operations so that dust, wash water or other contaminants generated during such operations do not damage or mar painted or finished surfaces.
 - 2. The CONTRACTOR shall prevent accumulation of dust, dirt, debris, rubbish and waste materials on or within the work or on the premises surrounding the work.
- C. Waste Disposal:
 - 1. The CONTRACTOR shall legally dispose of all waste materials, surplus materials, debris and rubbish off the site.
 - 2. The CONTRACTOR shall not burn or bury rubbish and waste materials on site.
 - 3. The CONTRACTOR shall not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 4. The CONTRACTOR shall not discharge wastes into streams or waterways.

SECTION 01710 – CLEAN-UP

D. Materials:

1. The CONTRACTOR shall use only cleaning materials recommended by manufacturer of surface to be cleaned.
2. The CONTRACTOR shall use each type of cleaning material on only those surfaces recommended by the cleaning material manufacturer.
3. The CONTRACTOR shall use only materials, which will not create hazards to health or property.

E. During Construction:

1. Clean up and Dust Control. Throughout all phases of construction, including suspension of work, and until final acceptance, the CONTRACTOR shall keep the site clean and free from rubbish and debris. The CONTRACTOR shall also abate dust nuisance by cleaning, sweeping and sprinkling with water, or other means as necessary. The use of water resulting in mud on public streets will not be permitted as a substitute for sweeping or other methods.
2. The CONTRACTOR shall furnish and operate a motorized vacuum sweeper with spray nozzles at least once each workday for the purposes of keeping paved areas acceptably clean wherever construction activity, including restoration, is incomplete.
3. The CONTRACTOR shall provide suitable containers for storage of waste materials, debris and rubbish until time of disposal.
4. The CONTRACTOR shall dispose of waste, debris and rubbish off site at legal disposal areas.

F. When Project is Completed:

1. The CONTRACTOR shall remove and dispose of all excess or waste materials, debris, rubbish, and temporary facilities from the site, structures and all facilities.
2. The CONTRACTOR shall repair pavement, roads, sod, and all other areas affected by construction operations and restore them to original condition or to minimum condition specified by the OWNER.
3. The CONTRACTOR shall remove splatter, grease, stains, fingerprints, dirt, dust, labels, tags, packing materials and other foreign items or substances from interior and exterior surfaces, equipment, signs and lettering.
4. The CONTRACTOR shall repair, patch and touch up chipped, scratched, dented or otherwise marred surfaces to match specified finish.
5. The CONTRACTOR shall remove paint, clean and restore all equipment and material nameplates, labels and other identification markings.
6. The CONTRACTOR shall clean all floors, slabs, pavements, and ground surfaces.
7. The CONTRACTOR shall maintain cleaning until acceptance and occupation by OWNER.

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 02520 – NESTED MONITORING WELL

PART 1 GENERAL

1.1 WORK OF THIS SECTION

- A. Summary of Work - The work to be performed shall be as shown and specified in the Technical Specifications and on the Project Plan Sheets and generally described as supplying all labor, equipment, materials and forces necessary to complete the Work.

- B. Well installation and testing, consists of drilling, construction, and development of the nested monitoring well (deep and shallow completions). The nested wells shall be located in Pauma Valley, California (see Sheet 1 and 3 the Project Plan Sheets). The nested monitoring well will be constructed on Rancho Estate's right of way access. Existing and required structures and equipment will present work area constraints, therefore, careful planning is necessary to complete the work within a reasonable timeframe.

- C. The nested monitoring well shall be drilled using the dual tube reverse air rotary method with mud rotary capabilities method to an estimated target depth of 305 feet below ground surface (bgs). Actual well depth and footages will vary, depending on observed field conditions. The wells shall be constructed using 4-inch diameter Schedule 80 PVC well casings, 4-inch diameter Schedule 80 PVC 0.020 in. horizontal mill slotted well screens. The borehole drilling and well construction activities will be a daylight operation over a 5-day work week for critical tasks (i.e. well drilling, well construction, and pump development). However, there may be instances where a work week is extended to 7 days to avoid open borehole collapse in the middle of well construction. Initial and final well development will be during daylight hours only to minimize impact to surrounding residences.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 01090 - Reference Standards
- B. Section 01380 - Pre-Construction Video Recording and Photographs
- C. Section 01500 - Temporary Facilities and Controls (Mobilization)
- D. Section 01561 - Temporary Noise Barriers
- E. Section 01562 - Temporary Fencing
- F. Section 01572 - Traffic Control
- G. Section 01573 - Temporary Erosion and Sedimentary Control
- H. Section 01574 - Clearing and Waste Management (Disposal of Cuttings)
- I. Section 01700 - Project Closeout
- J. Section 01710 - Clean-Up

SECTION 02520 – NESTED MONITORING WELL

PART 2 MATERIALS

2.1 MATERIALS

- A. The CONTRACTOR shall provide all necessary equipment, materials, and labor to complete specified work.
- B. The CONTRACTOR shall provide a dual tube reverse air rotary drilling unit with mud rotary capability, complete with all tools, accessories, power, lighting, water, and any other equipment necessary for the completion of the Work. The CONTRACTOR shall provide experienced personnel necessary to conduct efficient and safe drilling operations. Prior to the beginning of drilling operations, all equipment supplied by the CONTRACTOR shall be certified by the CONTRACTOR to be suitable for the specified drilling operation. The replacement of any equipment later found to be unsuitable shall be at the CONTRACTOR's expense.
- C. All equipment intended for use in the drilling, construction, and development, of the nested monitoring well shall be inspected by the GEOHYDROLOGIST prior to mobilization to ensure that the equipment intended for use is adequate and acceptable for the Work.
- D. All "pipe dope" used in the performance of the Work must comply with environmental standards and shall be inert. A Material Safety Data Sheet (MSDS) for all controlled materials used in the performance of the Work shall be provided to the GEOHYDROLOGIST prior to the start of the Work. In addition, any additives used in the drilling process shall conform to NSF/ANSI Standard 60, covering the health effects of the products and additives.

PART 3 EXECUTION

3.1 DUAL TUBE REVERSE AIR ROTARY METHOD

- A. The first pass shall be drilled using the dual tube reverse air rotary drilling method. Air and water mist shall be the only circulating medium utilized throughout the drilling process. In the event that the addition of a large quantity of water is required to continue drilling, the total amount of water used shall be tracked with an inline flow meter (such as from a fire hydrant meter) and documented for presentation to the GEOHYDROLOGIST at the completion of drilling. The water source shall be approved by the GEOHYDROLOGIST and OWNER prior to drilling.
- B. All soil cuttings and fluids generated during the drilling process shall be contained in the immediate area of the borehole. Although contaminated soils are not anticipated, if

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soil cuttings show indications of contamination (staining or odor), they shall be stored in ANSI-approved 55-gallon steel drums until lab analysis can be obtained to verify the nature and concentration of the contamination. At the completion of drilling, soil cuttings shall be removed from the drilling site.

3.2 DRILLING EQUIPMENT – DUAL TUBE REVERSE AIR ROTARY DRILLING METHOD

- A. The CONTRACTOR shall furnish with his bid a complete list of equipment which he proposes to use in the drilling of the boreholes. After award of the Contract, the Work shall not proceed until the GEOHYDROLOGIST approves the proposed construction method and is satisfied that the listed equipment is adequate for the Work and will be at the site when needed. All equipment must be in good working condition and approved by the GEOHYDROLOGIST.

The list of equipment accompanying the bid shall include the following:

1. Rated maximum safe mast, substructure and draw-works capacity¹.
2. Approximate mast height.
3. Total available rig horsepower.
4. Available rotary table horsepower.
5. Type and size of required cyclone.
6. Available air compressor specifications².

The CONTRACTOR shall also submit their proposed drilling program including:

1. Type(s) of drill bits.
2. Diameter, total length, and number of drill collars (including total weight).
3. Size and type of drill pipe (the use of flanged drill pipe will not be accepted).
4. Air compressor size.
5. Specifications for proposed drilling fluid compounds and/or additives, if necessary.

Work cannot begin with any item on the above list absent from the drill rig or not functioning according to specification. No delays or work stoppages will be tolerated. The CONTRACTOR shall be held responsible, and payment may be withheld for damages done to the well due to any cause of negligence or faulty operation.

¹ The minimum acceptable pull-back capacity of the draw-works shall be 50,000 lbs.

² The minimum acceptable capacity of the air compressor shall be 350 psi and 950 cubic feet per minute (cfm).

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3.3 DIRECT MUD ROTARY DRILLING METHOD

- A. The second pass shall for the nested monitoring well borehole shall be drilling using the direct mud rotary drilling method. Details regarding monitoring well construction are provided in Section 3.12.

3.4 DRILLING EQUIPMENT – DIRECT MUD ROTARY

- A. The CONTRACTOR shall furnish with his bid a complete list of equipment that they propose to use in the performance of the Work. After award of the Contract, the Work shall not proceed until the GEOHYDROLOGIST approves the proposed construction method and is satisfied that the listed equipment is adequate for the Work and will be at the site when needed. The CONTRACTOR must provide for continuous operations from the time drilling is commenced, to completion of development and final testing. All equipment must be in good working condition and approved by the GEOHYDROLOGIST.

In addition to the items listed in Section 3.2, the list of direct rotary drilling equipment accompanying the bid shall also include the following:

1. Size and type of mud pump(s).
2. Type and capacity of portable fluid reservoirs.
3. Type and size required shale shakers and desanding/desilting equipment.
4. Pump curve for the submersible test pump to be used for well develop.

The CONTRACTOR shall also submit their proposed drilling program including:

5. Type or types of drill bits.
6. Diameter, total length, and number of drill collars (including total weight).
7. Size and type of drill pipe (the use of flanged drill pipe will not be accepted).
8. Rotary speeds.
9. Fluid circulation rate.
10. Specification for proposed drilling fluid compounds and/or additives, if necessary.
11. Air compressor size to be used for initial development by airlifting and swabbing.
12. Specifications and drawings for tools to be used for initial development by airlifting and swabbing.

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The drilling rig shall be equipped with the following operating accessory equipment:

13. Weight indicator.
14. Approved equipment for measuring mud properties.
15. Sample collection box, or approved method of collecting formation samples.

No delays or work stoppages will be tolerated. The CONTRACTOR shall be held responsible, and payment may be withheld for damages done to the well due to any cause of negligence or faulty operation.

3.5 CIRCULATION RESERVOIRS – PORTABLE FLUID TANKS

- A. The CONTRACTOR shall provide adequate baffled or divided drilling fluid reservoirs with solids control equipment, in the form of shale shakers and desanders/desilters. Such equipment will allow the removal of drill cuttings from the fluid before recirculation to the borehole. The consistency of the drilling fluid shall be such that fine drill cuttings and sand will settle out in the reservoir. In addition to using a shaker table, desilters and desanders, the drilling fluid reservoir shall be cleaned continuously, to minimize the sand content of the return fluid. The use of in the ground pits will not be accepted. The CONTRACTOR shall provide a sample collection box, or other such approved device, for the collection of representative formation samples.

3.6 DRILLING FLUID

- A. Unless otherwise approved by the GEOHYDROLOGIST, water and bentonite gel alone shall be employed as the circulating medium. The drilling mud used shall be manufactured by Baroid®, or as otherwise approved by the GEOHYDROLOGIST.
- B. If “loss of circulation” or other drilling problems require the addition of other materials, such material may be added only with the prior approval of the GEOHYDROLOGIST. Procedure must be adopted to ensure the removal of all loss of circulation additives during the development process.
- C. The weight, viscosity, wall cake thickness, 30-minute water loss, and sand content of the drilling fluid shall be measured and recorded a minimum of every four hours during drilling or borehole circulation, whenever conditions appear to have changed, or if difficulties arise. Therefore, as a minimum, the CONTRACTOR shall have on site at all times a viscosity funnel, mud scale, sand content test kit, pH test strips, and filter press with compatible CO₂ cartridges or an air compressor capable of 100 psi, all of which is in proper working order. The CONTRACTOR shall remain vigilant regarding his mud control at all times. The sand content of the fluid returning to the borehole shall be maintained at 1% (by volume) or less at all times.

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- D. Drilling fluid additives, if approved for use, shall have such properties as to be adequate to form a thin but effective filter cake to coat the walls of the borehole, to prevent water loss, to support the borehole wall to prevent caving, and to permit the recovery of representative samples of drill cuttings (formation materials). If there is a conflict between adjusting the drilling fluid properties for the ease of drilling, or maintaining the proper drilling fluid properties for the protection of the aquifer, the protection of the aquifer shall prevail. The CONTRACTOR shall make every effort to prevent the penetration of mud filtrate into the potential aquifers to be screened.
- E. The circulating fluid for direct rotary drilling shall not exceed the following parameters at any time, however, lower mud properties (than those listed below) should be used whenever safely achievable:
1. Weight – 8.5 to 9.0 pounds per gallon normal range. 9.5 pounds per gallon, maximum
 2. Funnel Viscosity – 28 to 35 seconds normal range. 38 seconds, maximum.
 3. Sand Content of Fluid Entering Borehole – less than 1% by volume, maximum.
 4. pH – 7.0 to 9.0 units.
 5. 30 Minute Water Loss – 12 cubic centimeters. 15 cubic centimeters maximum.
 6. Filter Cake – 2/32 inches, maximum. The wall cake should be slick and non-gritty, and easily removed from the filter press paper.
- F. The drilling mud pit shall be contained, above the ground, and shall be equipped with appropriate desilter/desanding cones. The mud pit shall have a sufficient volume that is at least three times the theoretical volume of the final borehole. The use of in-the-ground pits will not be allowed.
- G. Depending on borehole conditions encountered during drilling, and if directed by the Geohydrologist, the drilling fluid shall be thinned and conditioned after the pilot borehole has been reamed, until the drilling fluids have the following properties:
7. Weight – 8.5 pounds per gallon, maximum.
 8. Funnel Viscosity – 29 seconds, maximum.
 9. Sand Content of Fluid Entering the Borehole – 1% by volume, maximum.
- H. The CONTRACTOR shall measure and record drilling fluid properties at a maximum of four-hour intervals, with approved on site equipment, to demonstrate compliance with drilling fluid requirements.

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- I. In the event that the CONTRACTOR cannot attain these properties during any phase of the drilling process or if the CONTRACTOR does not maintain proper drilling fluid control to the satisfaction of the GEOHYDROLOGIST during drilling, logging, casing, and filter packing, the CONTRACTOR shall, at his own expense, obtain the services of a qualified drilling fluid engineer to assist in performing all the necessary operations needed to bring the drilling fluid under proper control.

- J. In the event that the specified drilling fluid properties are violated within the formation to be screened, or if loss of circulation materials are used, the CONTRACTOR shall, at his own expense, obtain the services of a qualified drilling fluid engineer to develop a chemical treatment program (using dispersing agents) to be used in conjunction with the well development process to remove these materials from the aquifer.

3.7 DRILLING PROBLEMS

- A. If fluid loss is noticed during drilling or when conditioning monitoring wells (mud rotary method), immediate action should be taken. Maintaining a stable, open borehole during geophysical logging and testing may require carrying the filtrate loss at a level lower than would normally be required. Solids control equipment will be required to minimize the loss of circulation, stuck pipe, and slow penetration rates (e.g. shale shaker with desanders/desilters). In addition to the solids control equipment, adequate fluid reservoir volume is recommended to help control the build-up of solids.

- B. Regardless of the drilling method, the CONTRACTOR is required to make themselves aware of local drilling conditions, and is required to be prepared with the proper drilling bits and necessary associated equipment. The CONTRACTOR will not be compensated for lost holes, or lost time, due to “twisting off” or “hard rock” conditions encountered downhole.

3.8 “LOST” BOREHOLES AND BOREHOLE DESTRUCTION

- A. Boreholes (both pilot borehole and enlarged or reamed borehole) that the CONTRACTOR is not able to complete prior to reaching design or specified depth, due to defective workmanship, unsuitable materials introduced to the borehole, excessive borehole caving, misaligned borehole, or faulty equipment, will be considered a "lost" borehole and will not be paid for by the OWNER. Examples where "lost" boreholes apply include, but are not limited to, failure to achieve geophysical borehole logging, and failure to complete borehole enlargement to design depth (i.e., reaming pass) due to caving. If a borehole is determined to be lost, the CONTRACTOR shall drill another borehole to the specified depth, near the lost borehole at the exact location to be specified by the OWNER. No payment will be made for subsequent moving, setting up, installation of conductor casing or re-drilling of the borehole. In addition, the

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CONTRACTOR will not be compensated for standby time, nor for extra hours incurred during ensuing discussions should this situation occur.

- B. The criteria by which the GEOHYDROLOGIST determines that a borehole is lost (resulting in the need to abandon and destroy a borehole) could include situations where the near-well zone permeability has been compromised due to addition of excessive amounts of low permeability materials (e.g., bentonite gel³) introduced to the borehole for such purposes as to control borehole stability, or to control loss-of-circulation conditions (e.g., Magma-Fiber^{®4}). Additionally, the determination that a borehole is lost may be based on deviation from the mud property parameters defined in Section 3.6 of these technical specifications, and if this deviation has been determined to have caused irreversible damage to the near-well zone and aquifer. "Excessive amount" shall be defined by industry standards.
- C. The final decision that a borehole is considered lost shall be a consensus between the OWNER, GEOHYDROLOGIST, and a qualified and certified mud engineer that is agreed upon prior to that start of drilling and construction by both the GEOHYDROLOGIST and the CONTRACTOR.
- D. All "lost" boreholes shall be destroyed by backfilling with either high-viscosity bentonite slurry, or a bentonite-cement mixture. Any casing shall be removed to a depth of at least 5 ft bgs, as per San Diego County requirements. The site shall be cleaned and restored as directed by the OWNER. No payment will be made for the backfilling, removal of casing, site cleaning or restoration of lost boreholes.

3.9 TESTING AND DISPOSAL OF DRILL CUTTINGS

- A. Onsite storage of uncontained soil cuttings and fluids generated during the drilling process will not be allowed. All soil cuttings and fluids shall be contained in the immediate area of the borehole, and shall be removed daily, or more frequently, as determined by the GEOHYDROLOGIST, such that a nuisance is not created. The drilling CONTRACTOR shall be responsible for any and all costs incurred in the disposal of soil cuttings and fluids.
- B. The CONTRACTOR shall be responsible for testing and disposal of drill cuttings generated during borehole drilling, as required by the disposal facility accepting the wastes. Disposal shall include the collection and laboratory analysis of soil samples. A minimum of one sample of the drilling fluid and cuttings shall be collected from the pilot borehole and from the conductor borehole. All soil samples shall be submitted to a

³ Bentonite gel refers to processed drilling fluid additives that are highly water retentive (high-yielding) sodium bentonite (i.e., montmorillonite) materials providing viscosity, fluid-loss control and gelling characteristics.

⁴ Magma Fiber is also known in the industry as acid wool or N-Seal.

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State of California certified laboratory for volatile organic analysis by EPA Method 8260, total petroleum hydrocarbons by EPA Method 8015, and total threshold limit concentration (TTL) metals by EPA Method 6010. Additional analyses may be required by the waste disposal facility. The CONTRACTOR shall submit the results of the analyses to the GEOHYDROLOGIST prior to disposal of cuttings. Disposal of cuttings found to be non-hazardous and all related costs shall be the responsibility of the CONTRACTOR. Non-hazardous drill cuttings shall be disposed of offsite at a facility approved by the OWNER or GEOHYDROLOGIST. The contractor must submit dump tickets and copies of the results of any analyses required by the facility.

- C. Although contaminated soils are not anticipated, if soil cuttings show indications of contamination (staining or odor), they shall be stored in ANSI approved 55-gallon steel drums until lab analysis can be obtained to verify the nature and concentration of the contamination. The OWNER and GEOHYDROLOGIST must be notified immediately upon discovery of potentially contaminated soils. The CONTRACTOR will be required to stop work if so, instructed by the OWNER or GEOHYDROLOGIST to accommodate laboratory analysis, if needed, of the potentially contaminated soils.

- D. Generation of hazardous materials by the CONTRACTOR during the course of Work caused by his negligence (e.g., oil, and/or hydraulic spills or leaks) shall be cleaned, removed, and properly disposed at the CONTRACTOR's expense. Any materials suspected of contamination due to CONTRACTOR negligence shall be submitted by the CONTRACTOR to a California State-certified laboratory for analysis at the CONTRACTOR's expense. The sample shall be analyzed by approved state and/or federal methods to determine if the sample contains hazardous materials. The OWNER reserves the right to request additional testing if the methods requested by the CONTRACTOR are insufficient to determine the types of potentially hazardous materials present. Tests must be run within 24 working hours of suspected contamination. Test results must be available within five (5) working days. During this time any and all suspected contaminated materials must be contained separately at the site. Any sample which contains levels of contaminants in excess of state or federal disposal standards shall be properly disposed of by the CONTRACTOR in accordance with applicable regulations within 48 working hours of receiving test results. This shall include preparation of a hazardous materials disposal manifest by the CONTRACTOR. The CONTRACTOR, not the OWNER, shall be listed as the generator of the hazardous waste (i.e., as a result of CONTRACTOR negligence) on all manifests. The

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CONTRACTOR shall provide the OWNER with a copy of the initial manifest and the final manifest received at the disposal site.

- E. All fluids that must be disposed of or destroyed must be disposed of at a facility approved by the OWNER or GEOHYDROLOGIST. The contractor must submit dump tickets and copies of the results of any analyses required by the facility.

3.10 SAMPLE COLLECTION

- A. Samples of drill cuttings will be obtained by the CONTRACTOR during the initial pilot borehole drilling by the dual tube reverse air rotary drilling method, and under the supervision of the GEOHYDROLOGIST, for each 5 ft interval of drilling. Grab samples will be collected from the cyclone and will be placed in large (gallon-size) heavy-duty plastic “zip-lock” bags (i.e., one-gallon freezer bags) and appropriately labeled with indelible black ink with the Owner’s name, well/boring number, and the top and bottom of the depth interval sampled. When the character of the drill cuttings indicates changes in formation, samples shall be taken at shorter intervals. The CONTRACTOR shall obtain formation samples from a formation sampling device approved by the GEOHYDROLOGIST. An accurate depth record and tally of all tubing, drill pipe, casing, and screen in the hole, stored on the pipe rack, or stacked in the derrick, shall be kept current at all times.

3.11 RECORDS – DRILLER’S LOG AND SAMPLES

- A. The CONTRACTOR shall keep an accurate (and legible) up-to-date log of his operations at all times on a standard American Petroleum Institute (API) form with fields for the activities performed and materials used during each shift of drilling, well construction, and development. In addition to the drilling rate, the CONTRACTOR shall record the type, character, and depth of materials encountered, thickness of strata, water level depths, and any additional information that may be helpful in interpreting the drilling log (e.g., fluid loss or gain). All measurements for depths shall be referenced to the existing ground surface at the well site. These daily logs shall be scanned and emailed to the OWNER and GEOHYDROLOGIST on a daily basis. Upon completion of drilling the well, copies of the driller's formation log and any other pertinent notes shall be furnished to the GEOHYDROLOGIST.

3.12 WELL CONSTRUCTION SEQUENCE

- A. The location of the center point of the nested monitoring well will be staked by the OWNER or OWNER’S Representative. It shall be the Contractor's responsibility to request survey staking at least five (5) working days in advance of the commencement of well drilling. No well drilling shall take place prior to staking of the center point of the

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well. The CONTRACTOR shall be responsible for preserving field stakes as set by the survey crew.

- B. The pilot borehole shall be drilled using the dual tube reverse air rotary drilling method. Upon reaching total depth of the pilot borehole (at approximately 305 ft bgs; see Sheet 4), the borehole shall be reamed using the direct rotary drilling method. Prior to the beginning of the drilling operation, all equipment supplied by the CONTRACTOR shall be inspected by the GEOHYDROLOGIST to be suitable for the specified drilling operation. The replacement of any equipment later found to be unsuitable shall be at the CONTRACTOR'S expense.
- C. The construction sequence of the nested monitoring well shall include, but shall not be limited to the following:
1. Mobilizing a dual tube reverse air rotary drilling rig and associated to the drilling site (including reservoirs for fluid containment and solids control equipment).
 2. Drilling a nominal 6-inch diameter dual tube borehole to approximate total depth of 305 ft bgs using the reverse circulation air rotary drilling rig. Soil samples will be collected at 5-ft intervals from the ground surface to the total depth of the borehole.
 3. Filling and conditioning the borehole with mud or water prior to performing geophysical logs.
 4. Performing geophysical logs of the pilot borehole as specified.
 5. Reaming the nominal 6-inch diameter pilot borehole to 17.5-inch diameter borehole using the direct rotary drilling method.
 6. Conditioning and cleaning the borehole, if necessary, prior to installing well casing, as specified.
 7. Installing 4-inch diameter schedule 80 PVC casing and horizontal slot well screen to the appropriate depths as directed by the GEOHYDROLOGIST.
 8. Installing the filter pack material and annular seals in the annular space between the screen or casing and borehole wall as directed by the GEOHYDROLOGIST.
 9. Installing a cement-bentonite grout in the annular space between the casing and borehole wall from 20 ft bgs to 1 ft bgs.
 10. Performing initial development by airlifting and swabbing from between packers.
 11. Performing final development by pumping.
 12. Complete each well at the surface with an above ground steel monument cover with lockable lid.

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13. Demobilizing the drilling rig and associated drilling equipment including all site clean-up.
- D. For bidding purposes, the construction and completion details for the monitoring wells are shown on the Project Plan Sheets 4 and 5.

3.13 NESTED MONITORING WELL DRILLING

- A. The pilot borehole for the installation of the nested monitoring well shall be drilled using the dual tube reverse air rotary method to a total depth of 305 ft bgs (see Sheet 4). Formation samples shall be collected at 5 ft intervals, or less, for classification of the geologic formations encountered. The diameter of the nested monitoring well pilot borehole shall be nominal 6-inch. The GEOHYDROLOGIST will be on site during the drilling process to log the drill cuttings and verify the depth of the borehole. The CONTRACTOR shall take all measures necessary to protect all portions of the monitoring well bore from caving or raveling. The CONTRACTOR shall protect the formation samples from being lost, destroyed or contaminated with foreign debris during construction of the well.
- B. During drilling of the nested monitoring well borehole, procedures for collecting formation samples and keeping records as previously specified shall be strictly followed. The CONTRACTOR shall provide a sampling device that will be approved by the GEOHYDROLOGIST to collect lithologic samples that are representative of both the fine- and coarse-grained fractions of the formation.
- C. At each change of formation and at 5 ft intervals between changes in formation, the CONTRACTOR shall collect a large, representative sample of the interval of new formation material from the sampling trough, label and preserve each sample in a clear, heavy-duty, freezer-type, one gallon “zip-lock” plastic bag. Each sample bag shall be clearly labeled, with indelible black ink, to indicate the depth interval of the collected sample, Owner’s name and well number, and shall be stored in a manner to prevent breakage, contamination or loss. All sample bags shall be furnished by the CONTRACTOR and become the property of the OWNER.
- D. Following completion of the pilot borehole drilling, the borehole shall be reamed to a diameter of 17.5-inches using the direct rotary drilling method.

3.14 GEOPHYSICAL BOREHOLE LOGS

- A. Upon completion of the pilot borehole, a suite of geophysical borehole logs shall be run on the entire depth of the pilot borehole by a company approved by the GEOHYDROLOGIST and OWNER, which is independently owned and separate from the CONTRACTOR. There will be no additional payment for either rig time or standby

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time while logging is being performed, or while the CONTRACTOR is waiting on any SUBCONTRACTOR.

- B. If the logging tools fail to descend to the desired depth, the CONTRACTOR, at their own expense, shall clean and condition the hole in order to permit the logging tools to descend to total depth. Standby time will not be paid for additional cleaning and conditioning of the borehole as necessary to enable logging operations to proceed.
- C. The geophysical borehole logs shall consist of the following:
 - 1. 16-inch short-normal and 64-inch long-normal resistivity;
 - 2. Spontaneous potential (SP);
 - 3. Laterlog 3 (focused resistivity - guard);
 - 4. Gamma-ray; and
 - 5. Acoustic (sonic) with variable density log (VDL) and sonic porosity;
- D. The aforementioned logs shall have appended to them such information as necessary for proper interpretation of the logs (e.g., resistivity of the mud and mud filtrate, surface and bottom hole temperatures, etc.). The logs shall be scaled appropriately to the formations logged to allow for adequate definition of the subsurface strata. The horizontal scale for the plot of the spontaneous potential log shall be capable of being displayed in the range from at least 5 to 20 millivolts per inch, as specified by the GEOHYDROLOGIST. The horizontal scale for the plot of each of the resistivity logs (16-inch and 64-inch normal or guard log) shall be capable of being displayed in the range from at least 25 to 50 ohm-meters per inch, as specified by the GEOHYDROLOGIST. A vertical scale of 20 feet per inch is specified.
- E. The geophysical logs shall become the property of the OWNER at the time that logging is completed. The logs shall be run in the presence of the GEOHYDROLOGIST. The logs shall be provided to the GEOHYDROLOGIST for interpretation immediately after completion. The CONTRACTOR shall provide the GEOHYDROLOGIST with nine (9) copies of each log at no additional cost to the OWNER. In addition, the CONTRACTOR shall provide the GEOHYDROLOGIST with electronic copies of each log, in a format suitable for inclusion into an AutoCAD drawing file (i.e., dxf or dwg file), in a format to be used in Microsoft Excel (i.e., las file), and in a portable document format (i.e., pdf).

3.15 FINAL DESIGN OF CASING, SCREEN, FILTER PACK AND ANNUAL SEAL

- A. The final design for the nested monitoring well, including depth of the borehole, casing and screen intervals, filter pack, and inter-annular and cement seal recommendations

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shall be provided by the GEOHYDROLOGIST following analysis of the geophysical logs.

- B. The final well design will supersede any conceptual design details provided in these technical specifications.

3.16 REAMING OF THE PILOT BOREHOLE

- A. At the instruction of the GEOHYDROLOGIST, the nominal 6-inch diameter pilot borehole shall be enlarged to its final diameter of 17.5-inches from ground surface to the total depth of the borehole, as determined by the GEOHYDROLOGIST. Reaming of the pilot borehole shall be performed using the mud rotary drilling method. During the reaming process, the drilling fluid properties as described in Section 3.6 Drilling Fluid, shall be strictly adhered to.
- B. The CONTRACTOR shall not begin a reaming pass prior to receipt of an approved well design from the GEOHYDROLOGIST. In the event that drilling is authorized or ordered to depths shallower or deeper than specified herein, a corresponding adjustment shall be made to the bid line-item quantity and the total cost adjusted at the unit bid rate of the contract.

3.17 BLANK WELL CASING

- A. The blank monitoring well casing used shall be fabricated from threaded 4-inch diameter schedule 80 PVC. The casing shall conform to the physical properties of the American Society for Testing Materials (ASTM) Specification F480.
- B. For bidding purposes, it is assumed that blank casing for the nested monitoring well will be installed from estimated depths of (see Sheet 4):
 - 1. +2 to 35 ft bgs in MW-1S (shallow) completion,
 - 2. +2 to 90 ft bgs in MW-1D (deep) completion,
- C. 5 ft of blank well casing with an end cap shall be placed below the screened interval of each monitoring well completion.
- D. Final monitoring well blank and perforated intervals shall be determined by the GEOHYDROLOGIST upon review of the lithologic and geophysical logs.

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3.18 WELL SCREEN

- A. The well screen used for each monitoring well shall be manufactured in accordance with the aforementioned casing requirements of ASTM Specification F480 and shall consist of threaded 4-inch diameter schedule 80 PVC casing material.
- B. The slot size of the screen is expected to be 0.020 inches with a variance of ± 0.005 inches. For bidding purposes, it is assumed that the screen will be installed at estimated depths of:
 - 1. 35 to 60 ft bgs in MW-1S (Shallow) completion,
 - 2. 90 to 295 ft bgs in MW-1D (Deep) completion,
- C. Final monitoring well blank and perforated intervals shall be determined by the GEOHYDROLOGIST upon review of the lithologic and geophysical logs.

3.19 CASING AND SCREEN INSTALLATION

- A. Monitoring well casing and screen installation shall be performed by such methods that will ensure no damage to the casing and screen during installation. Prior to installation of the casing and screen, a tremie pipe shall be set in the borehole not more than 30 ft above the bottom of the borehole.
- B. During installation, the casing shall be suspended above the bottom of the borehole a sufficient distance to ensure that the casing will not be supported by the bottom of the borehole prior to the start of the filter packing procedure.
- C. During installation, centering guides shall be installed at no greater than 100 ft intervals throughout the entire length of casing and screen, starting from the bottom of the screened interval. The centering guides shall consist of stainless steel material in a basket or cage type of configuration. These centering guides shall be tightly strapped to the casings.
- D. The conceptual casing and screen design for the proposed well is provided in the tables on the following page:

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**Conceptual Design of Well Casing and Screen
USLR MW-1S (Shallow)**

Interval [ft bgs]	Borehole Diameter [in.]	Casing Diameter [in.]	Wall Thickness [in.]	Screen Slot Size [in.]	Material Type
+2 – 35	17.5	4 ID	0.337	-	Blank Casing (Schedule 80 PVC)
35 - 60	17.5	4 ID	0.337	0.020	Horizontal Mill Slot Screen (Schedule 80 PVC)
60 - 65	17.5	4 ID	0.337	-	Blank Casing w/ End Cap (Schedule 80 PVC)

USLR MW-1D (Deep)

Interval [ft bgs]	Borehole Diameter [in.]	Casing Diameter [in.]	Wall Thickness [in.]	Screen Slot Size [in.]	Material Type
+2 – 90	17.5	4 ID	0.337	-	Blank Casing (Schedule 80 PVC)
90 - 295	17.5	4 ID	0.337	0.020	Horizontal Mill Slot Screen (Schedule 80 PVC)
295 - 300	17.5	4 ID	0.337	-	Blank Casing w/ End Cap (Schedule 80 PVC)

3.20 MONITORING WELL CASING AND SCREEN ALIGNMENT

- A. The monitoring well borehole shall be constructed, and all casing set sufficiently round, plumb and true so as to enable the free installation and operation of a submersible pump with the intake set at approximately 5 to 15 ft below the top of the screened interval. Should the well fail to meet these requirements for installation of a submersible pump to the required depth, the CONTRACTOR, at his expense, shall correct the deviation. If the alignment cannot be corrected, the well will be properly abandoned according to State of California and San Diego County standards, and shall be re-drilled, constructed, developed and tested, at the CONTRACTOR’s expense.

- B. A minimum of two inches shall be maintained between all casings and the borehole wall. Casing spacers shall be used to separate individual well casing strings from one another. The spacers shall be placed at intervals directed by the GEOHYDROLOGIST to ensure a minimum separation of two inches between casing strings.

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3.21 ARTIFICIAL FILTER PACK

- A. The annular space between the 17.5-inch diameter borehole and the screened portion of each monitoring well shall be filled with a suitable filter pack material as shown in Sheet 4. The gradation of the filter pack shall be CEMEX Lapis Lustre #3, or approved equal. The volume of the annular space between the casing and screen and the borehole wall shall be calculated prior to placing the filter pack material.

CEMEX Lapis Lustre #3 Gradation Filter Pack

U.S. Standard Sieve Size	Cumulative % Passing
No. 6	100
No. 8	99
No. 12	59
No. 16	9
No. 20	2
No. 30	1

- B. The filter pack shall be composed of sound, durable, well-rounded particles of natural sand and fine gravel, free from flat or elongated particles. The filter pack material shall be washed so that it is free from organic matter, shale, carbonates, mica, silt, clay, or other deleterious materials. It shall conform to the AWWA A100 Standard, Section 6.3.4 that stipulates that not more than 5% of the filter pack shall be soluble in hydrochloric acid.
- C. All filter pack material shall be delivered to the well site in 50 lb. bags or in one cubic yard sacks ("super sacks") prior to casing and screen installation, allowing for adequate time for inspection, testing and approval. All materials shall be protected from contamination until installed in the borehole.
- D. The filter pack material shall be tested and approved by the GEOHYDROLOGIST. It shall be well-graded and shall be within the limits (with minor variations) determined and approved by the GEOHYDROLOGIST upon completion of the drilling and testing. Under no circumstances shall crushed rock be installed in the well.
- E. After the assembled casing and screen is installed in the borehole, circulation shall be established in the annulus through the 2-inch diameter tremie pipe. Once circulation has been established and borehole fluids are balanced, filter pack shall be pumped from the surface into the annular space opposite the screened portions of the nested wells. Continuous circulation shall be maintained through the tremie while placing the filter pack material and the annular space shall remain full of fluid at all times during

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placement of the filter pack material. No more than one section of tremie pipe shall be removed at any one time during installation of the filter pack.

- F. The top of the filter pack material shall be tagged frequently to verify the level of the material in the annular space. At no time shall the CONTRACTOR allow the filter pack material to fall more than 30 ft below the bottom of the tremie. This method will ensure the proper placement of the filter pack material, while simultaneously washing sand, silt, and drilling mud from the filter pack material that is placed in the annulus.
- G. Prior to placement of the annular seal, the filter pack shall be briefly agitated, using a swab or similar device, to ensure that bridging of the filter pack material has not occurred.

3.22 PLACEMENT OF BENTONITE SAND LAYER

- A. Following placement of the filter pack material, a layer of fine sand and bentonite shall be placed. The bentonite sand layer shall consist of uniformly graded, fine to medium "construction" sand, or gravel of the same gradation as used for gravel packing. The dry mixture shall be composed of equal parts (i.e., 1:1 ratio) of granular bentonite and sand and shall be thoroughly dry mixed prior to emplacement in the borehole. The bentonite sand layer shall be placed on top of the filter pack material in the same fashion as the filter pack material. The bentonite seal shall be installed using a tremie pipe initially lowered to a depth not more than 20 feet above the top of the filter pack. The top of the bentonite sand layer shall be tagged and recorded one hour after placement and again immediately prior to pumping the initial load of 10.3 sack cement to verify its level.

3.23 SEALING OF UPPER ZONES BY CEMENT GROUTING

- A. After placement of the filter pack and bentonite-sand layer to the depths specified, the annular space between the borehole and well casing shall be filled with cement grout from the top of the bentonite sand layer to ground surface. The grout mixture shall consist of a 10.3 sack sand-cement grout.
- B. 10.3 sack sand-cement grout shall consist of 968 lbs of Type II cement (ASTM C150-95 Standard Specification for Portland Cement) and 1,936 lbs of washed sand to create a volume of one cubic yard of material. Approximately 60 gallons of water per cubic yard shall be added, with a maximum of 63 gallons per cubic yard allowed if necessary, to make the mixture more fluid for pumping. Care must be taken to avoid segregation of the grout mix by the addition of excessive quantities of water. The weight of the mixture shall be approximately 128-lbs/cu ft. A maximum of 2% by weight of calcium chloride, may be added to condition the slurry for a fluid mix, and to accelerate the set-up time for the cement.

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- C. In no case shall more than two hours elapse from the time of addition of water to the mixture at the ready-mix plant, to time of pumping the mixture down into the well. The CONTRACTOR shall provide the cement delivery ticket demonstrating the date and time that the cement was mixed at the ready-mix plant.
- D. Personnel thoroughly trained in the operation and application of their equipment shall operate all cementing equipment and specialized tools. The placing of the cement shall be done in a manner such that the casing is entirely sealed against infiltration by water. Each grouting event shall be accomplished in one continuous operation by pumping the cement mixture through a tremie pipe to force the cement slurry into the annular space. The end of the tremie pipe shall remain submerged in the wet cement slurry at all times while pumping each lift. The cement shall be placed to the depth directed by the GEOHYDROLOGIST. The CONTRACTOR should be aware of and protect against any large hydrostatic forces which may be involved, and if necessary (based on the collapse strength of the casing), conduct the cementing operation in stages, allowing sufficient time after each interval has been cemented for hydration and consolidation of the cement. The height of each lift and minimum time between lifts will be specified by the GEOHYDROLOGIST in the final well design letter. These instructions shall be strictly adhered to.
- E. The annular cement seal shall remain undisturbed for a minimum of 24 hours before further work is performed on the well. Should the top of the cement seal drop below 3 ft bgs, it shall be topped off with additional cement.

3.24 INITIAL AIRLIFT DEVELOPMENT

- A. Following monitoring well construction, and after allowing sufficient time for the cement to harden, the wells will be developed to clean and consolidate the filter pack and near-well zone. Proper development will ensure full communication within the screened interval with the aquifer. Development will also ensure that low turbidity samples are available for water quality analysis. The CONTRACTOR shall provide a combination swab/airlift tool with a double rubber packer assembly spaced 10 feet apart, designed to be run on drill pipe in the 4-inch diameter screened portion of the well. The tool shall be designed such that it will allow simultaneous pumping (by airlift) and swabbing to occur.
- B. Following the sealing of the well, initial development and cleaning of the filter pack and aquifer shall be accomplished by airlift pumping and swabbing in stages opposite the entire screened interval until the filter pack is clean and consolidated. Initial airlift development shall begin at the top of the screened interval and shall proceed downward.

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- C. The air compressor shall be capable of airlifting a minimum of 25 gpm during initial development. The swabbing and airlifting operations shall be conducted simultaneously, over no more than one length of drill pipe, until that section is adequately developed as directed by the GEOHYDROLOGIST.
- D. Drilling mud and groundwater generated during the airlift development process shall be contained in settling tanks prior to hauling off to dispose at an approved facility. Each well completion will be developed for approximately 20 hours, depending on the time required to produce clear water that is free of suspended sediment.
- E. During development by airlifting and swabbing, the CONTRACTOR shall keep an accurate account of the hours spent actively airlifting each well. The CONTRACTOR shall regularly measure and record sand production in his daily records. These records shall be provided on a daily basis to the GEOHYDROLOGIST. Other than time required to install and remove the airline, only time spent actively airlifting the well will be compensated.

3.25 DEVELOPMENT BY PUMPING

- A. Within 72 hours of completion of initial development by swabbing and airlifting, the CONTRACTOR shall furnish, install, operate and remove a submersible pump (having the check valve either removed or disabled) for final development of the well. A 3-inch stainless-steel submersible pump capable of producing a minimum of 40 gallons per minute (gpm) with 150 ft of lift shall be used for schedule 80 wells. The submersible test pump shall be installed using 1 ½-inch schedule 80 PVC pipe. It is important to begin pumping at a low rate of flow (by valving back on the discharge), before gradually opening the valve to increase the flow to the maximum amount.
- B. The CONTRACTOR shall furnish and install discharge piping of sufficient size and length for the pumping unit to conduct water to the storage tanks (later to be hauled offsite). The discharge piping shall include acceptable orifices, meters, valves, or approved devices, which will accurately measure and control the discharge rate. The metering device shall have an instantaneous reading in gallons per minute, and shall have a totalizer, which shall measure the pump discharge rate in gallons, acre-feet, or cubic feet. An airline, complete with a properly calibrated pressure gauge, with readings to 0.5 psi and suitable air supply, shall be provided to measure the depth of water in the well. In addition, a sampling port consisting of a ¾-inch hose bib shall be installed at an accessible location on the discharge line to facilitate collection of water quality samples.
- C. A “Rossum” centrifugal sand tester shall be installed in the discharge line to measure the sand concentration during final development.

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- D. The initial pumping rate shall be restricted and, as the water clears, it shall be increased gradually until the maximum rate is reached. The GEOHYDROLOGIST will determine the maximum pumping rate after the well's drawdown and discharge characteristics are known. At intervals, the pump shall be stopped and the water in the pump column shall be allowed to surge back through the pump bowls and into the perforated area.
- E. The cycle of pumping and surging shall be repeated until the discharged water is relatively clear and free of sand, silt, or mud and until there is no increase in the specific capacity.
- F. During pumping, the depth to water, instantaneous discharge rate (gpm), flow meter totalizer, turbidity, pH, ORP, DO, specific conductance, temperature, and exact time (hours and minutes) of each reading shall be recorded at 30-minute intervals or as directed by the GEOHYDROLOGIST.
- G. Specifically, the CONTRACTOR shall continue pump development until the discharged water has a turbidity measurement of less than 5 standard turbidity units (NTUs), or is acceptably clear and free of sediment as certified by the GEOHYDROLOGIST.
- H. Once the water is deemed acceptably clear and free of sediment, water quality samples shall be collected from the well by the GEOHYDROLOGIST, and shall be submitted by the GEOHYDROLOGIST to the Certified Laboratory (see Table 1 for a full list of analytes to be tested following the end of pumping development). The cost of these analyses is the responsibility of the CONTRACTOR. The CONTRACTOR shall provide a sample port along the discharge line for use in sample collection. Water quality samples shall be obtained in appropriate sterilized laboratory containers, provided by the laboratory. It is essential that the water samples collected have minimal turbidity, as many constituents have very low detection limits and even moderate turbidity in the sample will give erroneous lab results.
- I. Groundwater generated during pump development shall be contained in tanks before being hauled off to an approved facility. No groundwater discharge shall be made to any river, storm drain, channel, canal, or ground surface. Each well will be developed for approximately 24 hours, depending on the time required to produce clear water that is free of suspended sediment.

3.26 WELL HEAD COMPLETION

- A. The nested monitoring well shall be covered using an 16-inch OD x 5 ft long steel monument-style protective well cover that has a lockable lid (see Sheet 5). The protective well cover shall be cemented into place around the well, leaving approximately 2.5 ft of stick up above the finished surface of the well pad. A 3 ft by 3 ft by 6-inch thick concrete well pad shall be constructed around the base of the well cover.

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Ready mix concrete shall be used to pour the pad. Four (4) traffic bollards shall be placed in the corners of the concrete pad to protect the well casing and vault (see Sheet 5). The CONTRACTOR shall provide the OWNER with a lock and two (2) keys at the completion of the Work.

END OF SECTION