

**SUBMITTAL TO THE BOARD OF SUPERVISORS
COUNTY OF RIVERSIDE, STATE OF CALIFORNIA**



626

FORM APPROVED COUNTY COUNSEL
DATE 5/5/16
BY: GREGORY P. PRIAMOS

FROM: Riverside County Department of Waste Resources

SUBMITTAL DATE:
April 28, 2016

SUBJECT: Approval of Contract Documents for OMW-5 and OMW-6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill for Fiscal Year 2016/2017. District 4; [\$0 – Waste Resources Enterprise Funds], CEQA Exempt.

RECOMMENDED MOTION: That the Board of Supervisors:

1. Find that the Project is exempt from the California Environmental Quality Act (CEQA) pursuant to State CEQA Guidelines Sections 15061(b)(3) (General Rule for Exemption), and categorically exempt pursuant to Section 15301 (Existing Facilities) and Section 15304 (Minor Alterations of Land); and
2. Approve the Contract Documents for OMW-5 and OMW-6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill for Fiscal Year 2016/2017; and
3. Authorize the General Manager–Chief Engineer of the Riverside County Department of Waste Resources (Department) to advertise for bids.

BACKGROUND:

Summary
(continued)

Hans Kernkamp
General Manager-Chief Engineer

FINANCIAL DATA	Current Fiscal Year:	Next Fiscal Year:	Total Cost:	Ongoing Cost:	POLICY/CONSENT (per Exec. Office)
COST	\$ 0	\$ 0	\$ 0	\$ 0	Consent <input type="checkbox"/> Policy <input type="checkbox"/>
NET COUNTY COST	\$ 0	\$ 0	\$ 0	\$ 0	

SOURCE OF FUNDS: Waste Resource Enterprise Funds	Budget Adjustment: No
	For Fiscal Year: 2016/2017

C.E.O. RECOMMENDATION:

APPROVE

BY: Steven C. Horn

County Executive Office Signature

MINUTES OF THE BOARD OF SUPERVISORS

On motion of Supervisor Jeffries, seconded by Supervisor Ashley and duly carried by unanimous vote, IT WAS ORDERED that the above matter is approved as recommended.

Ayes: Jeffries, Tavaglione, Washington, Benoit and Ashley
Nays: None
Absent: None
Date: May 17, 2016
xc: Waste

Kecia Harper-Ihem
Clerk **COUNTY** Clerk
By:
Deputy

- Positions Added
- Change Order
- A-30
- 4/5 Vote

Prev. Agn. Ref.: | **District:** 4 | **Agenda Number:**

12-3

**SUBMITTAL TO THE BOARD OF SUPERVISORS, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA
FORM 11: Contract Documents for OMW-5 and OMW-6 Groundwater Monitoring Well Construction
at the Oasis Sanitary Landfill for Fiscal Year 2016/2017. District 4 [\$0 – Waste Resources
Enterprise Funds], CEQA Exempt.**

DATE: April 28, 2016

PAGE: 2 of 2

BACKGROUND:

Summary (continued)

The Department is required by the California Regional Water Quality Control Board – Colorado Region (CRWQCB) to monitor groundwater at the Oasis Sanitary Landfill. Groundwater elevations have decreased at the site. Existing groundwater monitoring wells are currently dry and the Department is not able to monitor groundwater as required by the California Code of Regulations (CCR Title 27, §20415). To maintain compliance the Department needs to construct two new groundwater monitoring wells at depths that are greater than the existing dry groundwater monitoring wells were constructed to. A C-57 California Contractor's License, which the Department does not have, is required to install groundwater monitoring wells.

California Environmental Quality Act (CEQA) Findings

The Project is exempt from CEQA pursuant to the State CEQA Guidelines Section 15061(b)(3) (General Rule for Exemption), and categorically exempt from CEQA pursuant to Section 15301 Existing Facilities and Section 15304 Minor Alterations of Land. The Project contemplated in this Form 11 involves approval of contract documents identifying the proposed construction of two groundwater monitoring wells at the Oasis Landfill. The Contract Documents including Specifications will be advertised, and ultimately, a contractor will be selected to complete the work (under a separate Board action). The work identified in the Contract Documents including Specifications involves the construction of two ground water monitoring wells, as required by the CRWQCB to monitor groundwater at the Oasis Sanitary Landfill. The two monitoring wells will be located within the landfill property in proximity to existing monitoring wells. The Project involves no expansion of approved uses. This work would not have a direct, indirect, or cumulatively significant effect on the environment. A Notice of Exemption (NOE) to this effect will be filed by the Department with the County Clerk upon Project approval.

Impact on Citizens and Businesses

The contract ensures that the subject landfill maintain compliance with environmental regulations enforced by the CRWQCB.

Additional Fiscal Information

The project contemplated in this Form-11 merely approves contract documents identifying proposed work at the Oasis Sanitary Landfill, as well as authorizes the Department to advertise said contract documents. No expenses will be incurred in FY 16/17 as a result of this action.

Price Reasonableness

The Engineer's estimate for this project is \$75,000 and the action today, if approved, will authorize the Department to pursue competitive bids through the California Public Works Contract process. The Department will then return to the Board of Supervisors to seek approval to award the Contract to the lowest responsible bidder.

CONTRACT DOCUMENTS

OMW-5 and 6 Groundwater Monitoring Well Construction

At the

Oasis Sanitary Landfill

Riverside County, California

Prepared By:



14310 Frederick Street
Moreno Valley, CA 92553

April 2016

FORM APPROVED COUNTY COUNSEL

BY: *Neal R. Kipnis*
NEAL R. KIPNIS

5/3/16
DATE

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Figure 1 – Pre-Bid Meeting Location at the Oasis Sanitary Landfill

Figure 2 – OMW-5 and OMW-6 Groundwater Well Details

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Appendix A – Oasis Sanitary Landfill Groundwater Boring Logs

NOTICE TO CONTRACTORS

The Riverside County Department of Waste Resources, hereinafter called "County," invites sealed bids for the

OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill

Contract Documents may be examined at the County's office at 14310 Frederick Street, Moreno Valley, California, and may be obtained upon payment to the County of \$25 per set, received at the County's office and \$35 per set if mailed by U.S. mail (\$10 mailing cost does not apply when using recipient's mailing account number). No refunds will be made.

Contract Documents are available in a compact disc (CD) in PDF format. The compact disc may be obtained upon payment to the County of \$10 per CD, received at the County office. This digital data is to be used at the Contractor's own discretion. The County is not responsible for the manner in which the Contractor chooses to use the digital data. The County is not responsible for how this digital data might be converted by the Contractor to another format. The Contractor is solely responsible for its use of this digital data. No refunds will be made.

Each proposal must be accompanied by a certified check, cashier's check or bid bond equal to ten percent (10%) of the amount bid, payable to the County of Riverside, as a guarantee that the Contractor will, if awarded the contract, execute a satisfactory contract and furnish the required bonds and provide the required certificates of insurance.

Proposals must be in accordance with these Contract Documents. Proposals must be submitted to the County by 11:00 am on May 31, 2016 at 14310 Frederick Street in Moreno Valley which time and place are fixed for the public opening of bids.

The contract work is to be completed at:

- Oasis Sanitary Landfill, located at 84-505 84th Avenue, Oasis, California.

Refer to Figure 1 for Oasis Sanitary Landfill Vicinity Map. **A mandatory pre-bid meeting will be conducted at the Oasis Sanitary Landfill on June 7, 2016 at 10:00 am.** The meeting location for the pre-bid meeting will be near the main site entrance, as shown on Figure 1.

General prevailing rate of per diem wages and general prevailing rate of per diem wages for holiday and overtime work, including employer payments for health and welfare, pension, vacation, apprentices and similar purposes for each craft, classification or type of workman needed for execution of contracts under the jurisdiction of the County have been obtained by the County from the Director of Industrial Relations of the State of California for the area where the work is to be done. These are on file at the County's office, and will be made available to any interested person upon request.

Contractors submitting proposals for this project shall have a C57 Contractor's license from the State of California and be registered as a well driller with the Riverside County Department of Environmental Health in order to be considered eligible for the contract award.

Dated: _____

RIVERSIDE COUNTY DEPARTMENT
OF WASTE RESOURCES



Hans W. Kernkamp, General Manager - Chief Engineer

INSTRUCTIONS TO BIDDERS

QUANTITIES: The amount of work to be done or materials to be furnished under the Contract as noted in the proposal are but estimates and are not to be taken as an expressed or implied statement that the actual amount of work or materials will correspond to the estimate. The County reserves the right to increase or decrease or to entirely eliminate certain items from the work or materials if found desirable or expedient. The Contractor will be allowed no claims for anticipated profits, loss of profits or for any damages of any sort because of any difference between the estimated and the actual amounts of work done, or materials furnished or used in the completed project. The Contractor is cautioned against unbalancing of his bid by including his overhead into one or two items only when there are a number of items on the schedule. The overhead and indirect charges should be prorated on all items in the schedule.

DISCREPANCIES AND OMISSIONS: Discrepancies, omissions, ambiguities, or requirements likely to cause disputes shall be immediately brought to the attention of the County. When appropriate, Addenda will be issued by the County. No communication by anyone as to such matters except by an Addendum affects the meaning or requirements of the Contract Documents. If at any time (before or after submittal of its bid) the Contractor is of the opinion that there is or may be a discrepancy or inconsistency in the plans, drawings, specifications or other Contract Documents, it shall immediately report this in writing to the County and shall not proceed with any related work until ordered so to do.

WITHDRAWAL OF PROPOSALS: Any proposal may be withdrawn at any time prior to the hour fixed in the Notice to Contractors for the opening of proposals, provided that a request in writing, executed by the bidder or his duly authorized representative, for the withdrawal of such proposal, is filed with the County. The withdrawal of a proposal shall not prejudice the right of a bidder to file a new proposal.

AGREEMENT OF FIGURES: If the unit prices and the total amounts named by the bidder in the proposal do not agree, the unit prices alone will be considered as representing the bidder's intention.

INVALID PROPOSALS: Proposals submitted by fax or telegraph and those which fail to reach the place fixed for opening of proposals prior to the date and hour set for opening will not be considered.

INSPECTION OF SITE AND UNDERSTANDING OF CONTRACT PROVISIONS: Prior to submission of a bid, bidders must have examined the site and fully acquainted themselves with all conditions affecting the work. Information derived from maps, plans or specifications, or from the County, will not relieve the successful bidder from properly carrying out all the terms of the written contract. By the submittal of a proposal, the bidder will be held to have personally examined the site and the drawings, to have carefully read all of the specifications and other Contract Documents, and to have satisfied himself as to his ability to meet all the difficulties attending the execution of the work. The bidder agrees that if he is awarded the contract he will make no claim against the County based on ignorance or misunderstanding of the contract provisions; and that the bidder fully understands the payment method for the work.

QUALIFICATIONS OF BIDDERS: No proposal will be accepted from a Contractor who is not licensed under laws of California, as evidenced by the submittal of the Statement of Licensure. No award will be made to any bidder who cannot give satisfactory assurance to the County as

to his ability to carry out the contract, both from his financial standing and by reason of his previous experience as a Contractor on work of the nature contemplated in the contract.

The bidders shall include a listing of three references attached to the Contractor's Proposal that document prior work, similar to this contract, within the last five years. Each reference shall have an associated project name, work description, contact person, and contact phone number. The County may disqualify a bidder that does not provide references or whose references cannot substantiate the bidder's qualifications. By submission of a bid, the bidders agree to be bound by the County's determination as to whether a bidder is qualified to do the work.

VENDOR REGISTRATION: Contractors must be registered with the County in order to be considered eligible for the Contract award. To register, Contractors may utilize "Vendor Self-Registration" web site at <http://www.purchasing.co.riverside.ca.us>

Information needed in order to register:

1. User name (This person will be responsible for original registration and any future change.)
2. User Password
3. Company information including:
 - a. All Addresses (Corporate, Remit to, Sales, etc)
 - b. Company type (Corporation, partnership, sole proprietorship, etc)
 - c. Tax Identification Number (or social security number for individuals)
 - d. Status (women, minority, Disabled Veteran owned, etc)
 - e. Qualification as a local Riverside County business
 - f. Banking Information for future electronic payment processes
4. Contact Information including:
 - a. Names
 - b. Titles/Positions
 - c. Contact Numbers (Phone, Fax, Cell phone, etc)
 - d. E-Mail address for future correspondences
5. List of items/services you wish to provide to the County.

PROPOSAL FORMS: Attention of all bidders is called to the proposal affidavit forms attached hereto and bidders are cautioned that all proposals submitted must be accompanied by the proper affidavit, properly executed. Proposals must be made on the form furnished by the County.

REJECTION OF PROPOSALS CONTAINING ALTERATIONS, ERASURES OR IRREGULARITIES: Proposals may be rejected if they show any alterations of form, additions not called for, conditional proposals, incomplete proposals, erasures, or irregularities of any kind. Erasures or interlineations in the proposal must be explained or noted over the signature of the bidder.

PUBLIC OPENING OF PROPOSALS: Proposals will be opened and read publicly at the time and place indicated in the Notice to Contractors. Bidders or their authorized agents are invited to be present.

DISQUALIFICATION OF BIDDERS: More than one proposal from an individual, a firm or partnership, a corporation or an association under the same or different names will not be considered. Reasonable ground for believing that any bidder is interested in more than one

proposal for the work contemplated will cause the rejection of all proposals in which such bidder is interested. If there is any reason for believing that collusion exists among the bidders, none of the participants in such collusion will be considered in awarding the contract. Proposals in which the prices appear to be unbalanced may be rejected.

ADDENDA: County reserves the right to issue Addenda to the Contract Documents at any time prior to the time set to open bids. Each potential bidder shall leave with the County its name, mailing address and email address for the purpose of receiving Addenda. To be considered, a Contractor's proposal must list and take into account all issued Addenda.

AWARD OF CONTRACT: The County reserves the right to reject any and all proposals or to waive technical defects as the best interests of the County may require. Prior to award of the contract, and if requested by County, the Contractor agrees to meet with the County to review the details and calculations of the Contractor's proposal and the Contractor's understanding of any aspect of the work. The award of the Contract, if it be awarded, will be to the lowest responsible and qualified bidder. The Contract award, if made, will be provided within approximately two (2) to four (4) weeks after the opening of the proposals.

BIDDER'S CHECK OR BOND: Each proposal must be accompanied by a certified or cashier's check, or by a bid bond only on the form supplied by the County, drawn in favor of the County in an amount not less than ten percent (10%) of the total bid. This check or bond shall be given as a guarantee that the bidder, if awarded the contract, will execute and deliver the Contract, the required Payment and Performance Bonds, and the required certificates of insurance in accordance with his bid accepted by the County. In default of execution of the Contract upon award and/or delivery of said Payment and Performance Bonds and certificates of insurance, such Bid Bond or check shall be held subject to payment to the County for the difference in money between the amount of the contract with another party to perform the work, together with the cost to the County of redrafting, redrawing and publishing documents and papers necessary to obtain new bids on said work. The check or bond shall, in addition, be held subject to all other actual damages suffered by the County. The check or bond will be returned upon the close of the period mentioned in these Instructions below and to the successful bidder upon execution of the Contract. **NO BONDS WILL BE ACCEPTED UNLESS SUBMITTED ON THE FORM SUPPLIED BY THE COUNTY.**

FORFEITURE FOR FAILURE TO POST SECURITY AND EXECUTE CONTRACT: In the event the bidder, to whom an award is made, fails or refuses to post the required bonds and provide the required certificates of insurance and fails to return executed copies of the Agreement within five (5) calendar days after the prescribed forms are presented to him for signature, the County may declare the bidder's bid deposit or bond forfeited as damages caused by the failure of the bidder to post such security and execute such copies of the Contract and may award the work to the next lowest responsible bidder, or may call for new bids.

RETURN OF PROPOSAL GUARANTEES: Within ten (10) business days after the award of the contract, the County will return the proposal guarantees (bidder's check or bond) accompanying those proposals that are not considered in making the award. All other proposal guarantees will be held until the Contract has been fully executed and the required bonds and certificates of insurance have been provided, after which they will be returned to the respective bidders whose proposal they accompany.

CONTRACT BONDS: The Contractor shall furnish two (2) surety bonds in duplicate, one as a security for the faithful performance of the contract in the amount equal to one hundred percent (100%) of the contract price, and one as security for the payment of all persons performing labor and furnishing materials in connection with the contract in an amount equal to one hundred percent (100%) of the contract price. All bonds must be submitted on forms provided by the County. Bonds submitted in any other form will not be accepted. Should any surety on the Payment Bond or Performance Bond be deemed unsatisfactory by the County, Contractor shall upon notice promptly substitute new bonds satisfactory to the County. All bonds must be issued by sureties which are licensed by the State of California to issue such bonds.

SUBLETTING AND SUBCONTRACTING: Bidders are required, pursuant to the Subletting and Subcontracting Fair Practices Act (commencing with Section 4100 of the Public Contract Code), to list in their proposal the name and location of place of business of each subcontractor who will perform work or labor or render services in or about the construction of the work or improvement or a subcontractor who specially fabricates and installs a portion of the work or improvement, in excess of one-half of one percent (0.5%) of the prime Contractor's total bid. Failure to list a subcontractor for a portion of the work means that the prime contractor will do that portion of the work.

"OR EQUAL": Pursuant to Division 2, Chapter 3, Article 5, commencing at Section 3400 of the Public Contract Code, all specifications shall be deemed to include the words "or equal," provided, however, that permissible exceptions shall be specifically noted in the specifications. Any "equal" proposed by the Contractor must be described in the Contractor's Proposal.

ANTI-DISCRIMINATION: It is the policy of the County, that in connection with all work performed under this Contract, there be no discrimination against any prospective or active employee engaged in the work because of race, color, ancestry, national origin, religious creed, sex, age, marital status, or sexual preference. The Contractor agrees to comply with applicable Federal and California laws including, but not limited to, the California Fair Employment Practice Act, beginning with Labor Code Section 1410, and Labor Code Section 1735. In addition, the Contractor agrees to require like compliance by any subcontractors employed on the work.

TIME OF COMPLETION AND LIQUIDATED DAMAGES: Please refer to Section 2.1.10 of the Special Provisions.

CONTRACTOR'S PROPOSAL

TO THE BOARD OF SUPERVISORS OF THE COUNTY OF RIVERSIDE:

The undersigned hereby declares:

- (a) That the only persons or parties interested in this proposal as principals are the following:

(If the Contractor is a corporation, give the name of the corporation and the name of its president, secretary, treasurer, and manager. If a co-partnership, give the name under which the co-partnership does business, and the names and addresses of all copartners. If an individual, state the name and address under which the contract is to be drawn.)

- (b) That this proposal is made without collusion with any other person, firm or corporation.
- (c) That he has carefully examined the location of the proposed work, and has familiarized himself with all of the physical, climatic or other conditions related to the work.
- (d) That he has carefully examined the attached specifications, plans, and other Contract Documents, and makes this proposal in accordance therewith.
- (e) That, if this proposal is accepted, he will enter into a written contract with the County of Riverside.
- (f) That he proposes to enter into such contract and to accept in full payment for the work actually done the prices shown in the attached schedule. It is understood that the quantities listed (except for those shown as "Final" or "Lump Sum") are but estimates only and final payment will be based on actual quantities whatever they may be, subject to such adjustments and alterations as elsewhere provided for in the Contract Documents.

Contractor bids as follows for OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill.

TOTAL BID AMOUNT: _____ Dollars
(\$ _____)

The itemized total bid amount is complete and attached as Exhibit A.

Accompanying this proposal is a certified check, cashier's check or bid bond payable to the order of the County of Riverside in the sum of _____ Dollars (\$ _____). This amount is not less than ten percent (10%) of the total bid amount.

Contractor acknowledges receipt of Addenda No(s) _____.

Name of Contractor: _____

Address: _____

Telephone: _____

Contractor's License No. and Classification: _____

DIR Registration Number: _____

Signature: _____

Name: _____

Title: _____

Dated: _____

THE REQUIRED REFERENCES AND OTHER DOCUMENTS MUST BE ATTACHED TO THIS PROPOSAL.

LIST OF SUBCONTRACTORS

The name and the location of the place of business of each subcontractor who will perform work or labor or render service to the Prime Contractor in or about the construction of the work or improvement, or a subcontractor who specially fabricates and installs a portion of the work or improvement, in an amount in excess of one-half of one percent (0.5%) of the Prime Contractor's total bid and the portion of the work which will be done by each such subcontractor is as follows:

Item No. (s): _____

Name of Subcontractor: _____

Address: _____

Telephone: _____

DIR Registration Number: _____

Item No. (s): _____

Name of Subcontractor: _____

Address: _____

Telephone: _____

DIR Registration Number: _____

Item No. (s): _____

Name of Subcontractor: _____

Address: _____

Telephone: _____

DIR Registration Number: _____

STATEMENT OF LICENSURE

Pursuant to California Public Contract Code (commencing with Section 3300), the undersigned does certify as follows:

1. That the pocket license/certificate of licensure I have presented to County as of this date is my own license, being State of California Contractors License No. _____;
2. That said Contractors License is current and valid; and
3. That said Contractors License is of a classification appropriate to the work to be undertaken for County, a Class _____ license.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____ Signature: _____

Name: _____

Title: _____

AFFIDAVIT FOR CORPORATE CONTRACTOR

STATE OF CALIFORNIA)

SS

COUNTY OF RIVERSIDE)

_____, being first duly sworn, deposes and says:

That he or she is

Of

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

Subscribe and sworn to before me

this ____ day of _____ 20_____.

Signature of officer administering oath

BID BOND

Recitals:

1. _____ (Contractor) has submitted its Contractor's Proposal to the County of Riverside, by and for the Department of Waste Resources, for the construction of the public works known as OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill, in accordance with a Notice to Contractors, dated **INSERT DATE, 2016**.
2. _____ a _____ corporation, hereafter called Surety, is the surety on this Bond.

Agreement: We, Contractor as principal and Surety as surety, jointly and severally agree and state as follows:

1. The amount of the obligation of this Bond is 10% of the amount of the Contractor's Proposal and inures to the benefit of County.
2. This Bond is exonerated by (1) County rejecting said Proposal or, in the alternate, (2) if said Proposal is accepted, Contractor executes the Agreement and furnishes the Bonds and certificates of insurance as agreed to in its Proposal, otherwise it remains in full force and effect for the recovery of loss, damage and expense of County resulting from failure of Contractor to act as agreed to in its Proposal.
3. Surety, for value received, stipulates and agrees that its obligations hereunder shall in no way be impaired or affected by any extension of time within which County may accept the Proposal and waives notice of any such extension.
4. This Bond is binding on our heirs, executors, administrators, successors and assigns.

Dated: _____

By: _____ By: _____
Title: _____ Title: _____
(Surety) (Contractor)

NOTE: This Bond must be executed by both parties with corporate seal affixed. All signatures must be acknowledge by a notary (attach acknowledgments).

AGREEMENT

THIS AGREEMENT is made as of _____ (date)
and is between the COUNTY OF RIVERSIDE (County) and _____
(Contractor).

IT IS AGREED BY THE PARTIES AS FOLLOWS:

1. The Work. Contractor shall furnish all tools, equipment, apparatus, facilities, labor and material necessary to perform the work for the project, OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill, in exact conformity with the Contract Documents, subject to such inspection as County deems appropriate.
2. Contract Documents. The Contract Documents for the project are:
 - (a) Notice to Contractors;
 - (b) Instructions To Bidders;
 - (c) Contractor's Proposal;
 - (d) Agreement;
 - (e) Bid Bond;
 - (f) Performance Bond;
 - (g) Payment Bond;
 - (h) General Provisions;
 - (i) Special Provisions;
 - (j) Appendixes;
 - (k) Standard Specifications for Public Works Construction, 2015 Edition, with Amendments;
 - (l) any other documents included in or incorporated into the Contract Documents;
 - (m) Addenda Nos. _____;
 - (n) Orders, instructions, drawings and plans issued by County during the course of the work in accordance with the provisions of the Contract Documents.
3. Each of the above-mentioned documents presently in existence are by this reference incorporated into this Agreement and each of these documents not now in existence are incorporated herein as of the time of their issuance.
4. Contract Price - Payment. Exhibit A is attached to and incorporated into this Agreement and states the basis for full payment to Contractor. Contractor represents that it fully understands the payment method for the work.

RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
14310 Frederick St.
Moreno Valley, CA 92553

By: _____
Hans W. Kernkamp
General Manager – Chief Engineer

COUNTY OF RIVERSIDE

By: _____
Chairman, Board of Supervisors

ATTEST:

Kecia Harper-Ihem, Clerk of the Board

By: _____
Deputy

(Seal)

Contractor

By: _____
(Signature)

Name: _____

Title: _____
(If corporation, attach corporate seal)

EXHIBIT A

Project: OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill

This exhibit is the basis for the total bid amount proposed by the Contractor for the above referenced project. It is understood that the quantities listed (except for those shown as "Final" or "Lump Sum") are estimates only and final payment will be based on actual quantities whatever they may be, subject to such adjustments and alterations as elsewhere provided in the Contract Documents.

Item No.	Description	OMW-5	OMW-6	Total Quantity	Unit	Unit Cost	Item Cost
		Qty	Qty				
1	Mobilization	1	0	1	LS		
2	Borehole Drilling and Sampling	174	174	348	LF		
3	Install well screen	50	50	100	LF		
4	Install well casing	115	115	230	LF		
5	Install filter pack	60	60	120	LF		
6	Install transition sand	5	5	10	LF		
7	Install pellet annular seal	5	5	10	LF		
8	Install grout annual seal	84	84	168	LF		
9	Install sanitary seal	20	20	40	LF		
10	Install above ground well head protection	1	1	2	EA		
11	Well development	8	8	16	HR		
12	Drill rig standby	2	2	4	HR		
13	Rock clause drilling	2	2	4	HR		
14	Demobilization	0	1	1	LS		
Total Cost							

PERFORMANCE BOND

Recitals:

1. _____
(Contractor) has entered into an Agreement dated _____ with the COUNTY OF RIVERSIDE (County) for construction of the public work known as OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill (Project).
2. _____, a corporation (Surety), is the surety under this Bond.

Agreement: We, Contractor as principal, and Surety as surety, jointly and severally agree, state, and are bound unto County, as obligee, as follows:

1. The amount of the obligation of this Bond is 100 percent (100%) of the estimated contract price for the Project of \$_____ and inures to the benefit of County.
2. This Bond is exonerated by Contractor doing all things to be kept and performed by it in strict conformance with the Contract Documents for the Project, otherwise it remains in full force and effect for the recovery of loss, damage and expense of County resulting from failure of Contractor to so act. All of said Contract Documents are incorporated herein.
3. This obligation is binding on our successors and assigns.
4. For value received, Surety stipulates and agrees that no change, time extension, prepayment to Contractor, alteration or addition to the terms and requirements of the Contract Documents or the work to be performed there under shall affect its obligations hereunder and waives notice as to such matters, except the total contract price cannot be increased by more than 25% without approval of Surety. (If the total contract price is inadvertently increased by more than 25% without approval of Surety, this performance bond will remain in effect for that portion of the contract existent prior to the 25% exceedance).

THIS BOND is executed as of _____.

Dated: _____

SURETY

CONTRACTOR

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

NOTE: This Bond must be executed by both parties with corporate seal affixed. All signatures must be acknowledge by a notary (attach acknowledgments).

PAYMENT BOND

(Public Work - Civil Code, Section 3247 et seq.)

The makers of this Bond are _____ as Principal and Original Contractor and _____ a corporation, authorized to issue surety bonds in California, as Surety, and this bond is issued in conjunction with that certain public works contract dated _____, between Principal and the COUNTY OF RIVERSIDE (County), a public entity, for \$ _____, the total amount payable. THE AMOUNT OF THIS BOND IS 100 PERCENT OF SAID SUM. Said contract is for the public work known as OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill (Project). The beneficiaries of this Bond are as is stated in Section 3248 of the Civil Code and Sections 3248, 3249, 3250 and 3252 of said Code. Without notice, Surety consents to extension of time for performance, change in requirements, amount of compensation, or prepayment under said contract.

Dated: _____

SURETY

CONTRACTOR

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

NOTE: This Bond must be executed by both parties with corporate seal affixed. All signatures must be acknowledge by a notary (attach acknowledgments).

SPECIAL PROVISIONS

OMW-5 and 6 Groundwater Monitoring Well Construction

At the

Oasis Sanitary Landfill

Riverside County, California

Prepared By:



**14310 Frederick Street
Moreno Valley, CA 92553**

April 2016

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MAPS

Map 1 – Oasis Sanitary Landfill Vicinity Map

Map 2 –Groundwater Wells OMW-5 and OMW-6 Location Map

FIGURES

Figure 1 – Pre-Bid Meeting Location at the Oasis Sanitary Landfill

Figure 2 – OMW-5 and OMW-6 Groundwater Well Details

APPENDIX

Appendix A – Oasis Sanitary Landfill Groundwater Boring Logs

1. SCOPE OF WORK SUMMARY

1.1 GENERAL

The work to be performed under the provisions of these Special Provisions shall consist of furnishing all materials, equipment and tools, the performance of all necessary labor, for the subject public works construction project. The construction project is known as OMW-5 and 6 Groundwater Monitoring Well Construction at the Oasis Sanitary Landfill (hereinafter referred to as the "Project").

1.1.1 Site Information

The Oasis Sanitary Landfill is owned by the Riverside County Department of Waste Resources (County). The Oasis Sanitary Landfill is located at the northwest corner of Lincoln Street and 84th Avenue, in the Oasis area of unincorporated Riverside County, California, northwest of the Salton Sea. Refer to Map 1 – Oasis Sanitary Landfill Vicinity Map to view the landfill location with respect to major surrounding roads and freeways.

1.1.2 Site Conditions

The Oasis Sanitary Landfill can experience severe weather conditions, ranging from near freezing conditions to high temperatures in excess of 100°F. The CONTRACTOR shall be aware of these weather conditions and be prepared to work in these conditions.

1.2 EXECUTION

The work to be performed under these Special Provisions shall be conducted in a manner consistent with standard industry practices for such projects. No portion of this Contract shall relieve the CONTRACTOR from all applicable Federal, State, and local regulations pertaining to construction of this Project.

1.3 GENERAL SCOPE OF WORK

The Work to be performed and bid complete herein, shall be as shown and specified in the Contract Documents and is generally described as supplying all labor, equipment, materials and forces necessary to construct groundwater monitoring wells OMW-5 and OMW-6 at the Oasis Sanitary Landfill.

Each well borehole shall be drilled by a method chosen by the CONTRACTOR. Limitations and/or conditions for different drilling methods are specified in Section 0.

OMW-5 and OMW-6 shall be constructed on the Oasis Sanitary Landfill property. The proposed location for OMW-5 is along the northern portion of the site and OMW-6 is along the southern portion of the site. The proposed well depth for OMW-5 and OMW-6 is 174 feet below the ground surface (bgs). The well construction details are shown graphically on Figure 2 – OMW-5 and OMW-6 Groundwater Well Details.

The final depths and well screen intervals are subject to change based upon the subsurface conditions encountered during construction. The Engineer will provide the CONTRACTOR with final drilling depths during drilling, as subsurface field conditions are revealed, and well construction details upon completion of drilling.

The wells shall be constructed in compliance with the latest editions of State of California Water Well Standards, Bulletin No. 74-81, dated December 1981, and Bulletin No. 74-90, dated June 1991, and Sections 13800 through 13806 of the California Water Code.

All construction materials shall be new prior to delivery onsite. Construction and equipment substitutions require written notification at the time of bid and shall not be accepted anytime thereafter, unless by written authorization from the Engineer. The CONTRACTOR's scope of

work for this project will generally include, but not be limited to, the following. This list is an overview of the scope of work. The construction details, which the CONTRACTOR is responsible for, are described in these Special Provisions.

1. Meet all applicable Federal, State and local air, water and waste discharge requirements.
2. Drill boreholes to the approximate depth specified in Figure 2. Final drilling depths will be provided by the Engineer to the CONTRACTOR based on the subsurface field conditions encountered.
3. Drilling cuttings from OMW-5 and OMW-6 will be stockpiled adjacent to the well location. The County shall be responsible for the final handling, transportation and disposal of drilling cuttings.
4. Provide means and assist the Engineer in collecting representative subsurface samples at a minimum of 5-foot depth intervals and at lithologic changes during drilling.
5. Construct wells as shown on Figure 2. Final well design will be provided by the Engineer to the CONTRACTOR based on the subsurface field conditions encountered.
6. Furnish and install 4-inch diameter, Schedule 80, PVC casing and screen.
7. Furnish and install filter pack material, transition sand, and annular grout seals via a flush-threaded tremie (herein referred to as "tremie").
8. Furnish and install cement sanitary seal via tremie.
9. Provide well head protection for well casings.
10. Develop wells by flushing, bailing, and airlifting/pumping.
11. Arrange for temporary storage of all fluids resulting from well development operations.. The Engineer will direct the CONTRACTOR to discharge the development water or the Engineer will dispose of the development fluids.
12. Maintain drilling site areas during construction and perform final site cleanup and restoration to original condition.
13. Provide all records, as required herein.

END OF SECTION

2. CONDITIONS

2.1 GENERAL

2.1.1 Standard Specifications

The term Standard Specifications is a direct reference to the publication entitled "A Standard Specifications for Public Works Construction" (2003 edition) written and promulgated by the Joint Cooperative Committee of the Southern California Chapter American Public Works Association and Southern California Districts Associated General Contractors of California and all subsequent amendments, supplements, and additions. This publication is also known as the "Greenbook". The U.S. Standard Measures, also called the U.S. Customary System is the method of measurement to be used at all times.

2.1.2 Order of Precedence

In case of conflict between the Contract Documents, the following order of governing documents shall be followed:

1. Special Provisions
2. General Provisions
3. Project Drawings
4. Standard Specifications

2.1.3 Errors and Omissions in the Project Drawings

The written dimensions on the Project Drawings are presumed to be correct, but the CONTRACTOR shall be required to check carefully all dimensions before beginning work. If errors or omissions are discovered, the County immediately shall be so advised in writing and will make the proper corrections. No extra work shall be performed on this contract on account of errors and omissions without the express and written authorization by the County.

2.1.4 Material Substitutions

Reference is made to Section 4.2 of the General Provisions.

2.1.5 Abbreviations

AISC:	American Institute of Steel Construction
ANSI:	American National Standards Institute
AQMD:	Air Quality Management District
ASTM:	American Society for Testing and Materials
AWS:	American Welding Society
BGS:	Below Ground Surface
BOP:	Bottom Of Pipe
CL:	Center Line
CMP:	Corrugated Metal Pipe
COND:	Condensate
CS:	Carbon Steel

DIA:	Diameter
ELEV:	Elevation
GB:	Grade Break
LEL:	Lower Explosive Limit
LFG:	Landfill Gas
NFPA:	National Fire Protection Association
NIC:	Not in Contract
NMHC:	Non-Methane Hydrocarbons
NMOC:	Non-Methane Organic Compounds
NPT:	National Pipe Thread
NTS:	Not to Scale
O&M:	Operation and Maintenance
OSHA:	Occupational Safety and Health Administration
PPM:	Parts per Million
PVC:	Polyvinyl Chloride
RWQCB:	Regional Water Quality Control Board
SCAQMD:	South Coast Air Quality Management District
SCH:	Schedule
STL:	Steel
SWANA:	Solid Waste Association of North America
TYP:	Typical

2.1.6 Definitions

Whenever the following terms are used in these Special Provisions, the intent and meaning shall be interpreted as follows:

Calendar Days: Each day of the year.

Night Hours: Thirty minutes after sunset to 30 minutes prior to sunrise.

2.1.7 Contact

For information or technical questions, please contact the following. This contact, or his designated person, shall serve as the Engineer for the Project.

Todd D. Shibata, P.E., Senior Civil Engineer
Riverside County Department of Waste Resources
14310 Frederick Street
Moreno Valley, California 92553
(951) 486 - 3261
tshibata@rcwaste.org

2.1.8 Contractor Qualifications

The CONTRACTOR shall be, at the time of bidding, and throughout the period of the Contract, licensed by the State of California to do the type of work required under terms of these Contract Documents. The CONTRACTOR, or the CONTRACTOR's personnel, shall hold appropriate certificates, licenses, and permits necessary to perform the work.

2.1.9 Allowances

The CONTRACTOR shall provide allowances for unforeseen circumstances which may arise from conditions unknown at the time of bidding. These allowances shall be for the purpose of providing necessary time and expense involved in completing the work within the time and budget given in the Contract Documents.

2.1.10 Time of Completion

The CONTRACTOR shall diligently and continuously work to complete the entire project before the expiration of 28 calendar days. The first calendar day shall be considered the first calendar day following the CONTRACTOR's receipt of the BOS approved and executed contract. The working day shall be as set forth in Section 6.6 of the General Provisions. The length of each working day shall be from 7:00 AM to 4:00 PM, including one hour for lunch break, unless otherwise approved in writing by the County. The CONTRACTOR shall not be permitted to work on the following days designated by the County as holidays:

New Year's Day	January 1, 2016
Martin Luther King Jr. Day	January 18, 2016
Lincoln's Birthday	February 12, 2016
Presidents' Day	February 15, 2016
Memorial Day	May 30, 2016
July 4 th	July 4, 2016
Labor Day	September 5, 2016
Columbus Day	October 10, 2016
Thanksgiving	November 24 and 25, 2016
Christmas	December 26, 2016

In case all the work called for and all the conditions and requirements of the project are not completed within the number of calendar days specified above, liquidated damages of five hundred dollars (\$500.00) for each additional calendar day required to properly complete the project in excess of the allowed number of calendar days shall be paid by the CONTRACTOR to the County.

2.1.11 Payment Terms

Payment includes full compensation for all required labor, products, materials, tools, equipment, plant, transportation, sale taxes, services and incidentals, erection, application or installation of an item of the work, overhead and profit. This includes costs for preparation and delivery of all required submittals including, but not limited to, the following items: construction schedule, supplemental and required inspection reporting forms, health and safety plan, and certified payroll. Costs for these items are considered incidental and are to be included in the various items of work. Full compensation for all expenses shall be

considered as included in the unit prices paid for the line items of work specified in Exhibit A of the Contract Documents and no additional compensation will be allowed therefore.

The method of measurement and payment is for each line item of work that appears in the CONTRACTOR's Proposal. Payments for unit price items shall be made on the basis of measured quantity in place/constructed as determined by the County. Payment for lump-sum items shall be paid as a pro rata portion of the entire lump sum based upon an estimated percent completion of the item, as approved by the County.

The County will make monthly progress payments as the work progresses, in accordance with the General Provisions, and upon final completion of construction. The CONTRACTOR's invoice shall be similar in form to Exhibit A of the Contract Documents, shall specify the amount of units claimed completed (quantity) for each line item of Exhibit A for the period invoiced and for the total amount of units claimed completed for each line item of Exhibit A for all invoices. The CONTRACTOR may be requested by the County to prepare supporting documentation certifying work completed by the CONTRACTOR. Monthly progress payments shall be paid by the County, less 10 percent retention, which shall be calculated by the CONTRACTOR and shown on the monthly invoice. Final payment for retention shall be made by the County in accordance with the General Provisions.

Upon receipt of an invoice (payment request), the County shall review the request as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request and any payment request determined not to be a proper request suitable for payment shall be returned to the CONTRACTOR as soon as practicable, but not later than seven calendar days after receipt. The returned request for payment shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper. Any progress payment which is undisputed and properly submitted and remains unpaid for thirty (30) calendar days after receipt by County shall accrue interest to the CONTRACTOR equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the California Code of Civil Procedure. The number of days available to the County to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the County exceeds the seven day return requirement set forth above.

Failure or lack of cooperation by the CONTRACTOR to prepare or to submit reports, progress schedules, or plans for changes contemplated in the CONTRACTOR's operations, or to participate in preparation of same promptly, as required, shall be cause for withholding all or parts of the progress payment then pending until such time as the CONTRACTOR has met all requirements to the satisfaction of the County.

If any of the work is performed on a cost-reimbursable, unit price or hourly rate basis, the CONTRACTOR shall maintain, and require all Subcontractors and vendors to maintain, full and detailed accounts of actual quantities and hours on a form acceptable to the County. The CONTRACTOR's field representative shall obtain signature of approval by the County on the submitted form within one work day of performance of the work. Work paid for on a reimbursable or chargeable basis, the County will include, as part of the Contract, special terms and conditions setting forth all chargeable and non-chargeable cost items and procedures for the payment of costs and CONTRACTOR's fees related thereto.

All records of quantity computations or labor hours expended to perform the work against estimated (or non-estimated) material quantities or time shall be subject to audit by the County at any time during the Contract. The CONTRACTOR shall at all times cooperate with the County to amend or change any accounting procedure for cost plus work found to be unsatisfactory.

The CONTRACTOR shall agree to accept the Contract Price as full compensation for all work embraced in the Contract and for all losses or damages arising out of the nature of the work, the action of the elements, or from any unforeseen or unknown difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance, and for all risks of every description connected with the work.

2.1.12 Regulatory Requirements

The CONTRACTOR shall be familiar with and comply with all regulatory requirements associated with the work including, but not limited to, Cal OSHA, South Coast Air Quality Management District (SCAQMD), California State Water Resources Control Board, Regional Water Quality Control Board, Santa Ana Region (RWQCB-SAR), CalRecycle, and Riverside County Department of Environmental Health. All expenses incurred as a result of non-compliance with regulations shall be borne by the CONTRACTOR.

All work is subject to inspection by the governmental agencies that have jurisdiction over the work. The CONTRACTOR and all Subcontractors shall be responsible for complying with all of the requirements of the governmental agencies' permit(s).

2.1.13 Existing Conditions

The Project Drawings cover existing conditions in an approximate manner only. The CONTRACTOR shall be responsible for determining the existing site conditions prior to bid submission and at all times during execution of the work; and this shall be reflected in the CONTRACTOR's proposal.

2.1.14 Site Security

The work area used for material storage and drilling operations, including areas occupied by the construction equipment, engines and motors, shall be secured at the CONTRACTOR's discretion. The Engineer shall not be responsible for loss or damage of the CONTRACTOR's materials or equipment.

Damage to construction machinery and installation equipment by accident, vandalism, or acts of nature shall be borne by the CONTRACTOR. The CONTRACTOR shall be able to store the drill rig, support vehicle or equipment within the landfill site at night and on weekends during the duration of this Project. However, the County takes no responsibility for any damage, vandalism or theft that may occur to the CONTRACTOR's vehicles or equipment while parked at the Oasis Sanitary Landfill.

Damage or loss of materials, parts and components of the construction work, which occur before final acceptance by the County, shall be borne by the CONTRACTOR. The CONTRACTOR shall close access to the work area prior to performing other work and shall maintain the closure until construction in that area is complete. In order to ensure the effectiveness of the closure, CONTRACTOR shall provide, at the CONTRACTOR's expense, such means as are necessary, including but not limited to, fences, barricades, posting of signs, or any other means deemed prudent by the CONTRACTOR. The area where work is performed shall be protected daily to prevent access by unauthorized personnel.

2.1.15 Construction Site Maintenance

The CONTRACTOR shall keep all areas clear of debris, refuse or construction materials that render the construction area an eye-sore, odor source, or safety and health risk. Throughout the period of construction, the CONTRACTOR shall keep the work site clean of all rubbish and debris, and shall promptly remove from any portion of the site, or from property adjacent to the site of the work, all unused materials, and debris. Upon completion of the work, and

prior to final acceptance, the CONTRACTOR shall remove from the vicinity of the work all surplus material and equipment belonging to the CONTRACTOR or used under the CONTRACTOR's direction during construction, shall clean the site, and remove rubbish and debris to an appropriate permitted disposal facility.

2.1.16 Water

The Department has non-potable construction water available to the CONTRACTOR for this project. The daily maximum volume of water the CONTRACTOR may utilize is 2,000 gallons. The CONTRACTOR shall be responsible for providing equipment to store and transport the water to the boring locations. The CONTRACTOR shall be responsible for obtaining water from an offsite source if the CONTRACTOR's water requirements exceed that provided by the County.

END OF SECTION

3. WARRANTY OF WORK

3.1 GENERAL

The CONTRACTOR shall warrant and guarantee the performance of all work. The CONTRACTOR shall be responsible for the correction of all deficiencies of work, including detailed design and fabrication performed by the CONTRACTOR, all Subcontractors, vendors, and suppliers. The CONTRACTOR's warranty period shall be a minimum of two years from the date of final project acceptance by the County, except where longer warranty periods are specifically stated by the manufacturer of individual components or required in the Special Provisions. The CONTRACTOR shall assign all warranties and guarantees of equipment vendors which extend the minimum warranty to the County. Point of sale/purchase and date of purchase of equipment items shall be submitted. The CONTRACTOR shall guarantee all materials and workmanship suitable for the service intended and that said materials shall be free from all inherent defects in design and workmanship. All costs to correct defects shall be at the CONTRACTOR's expense.

The performance of guarantee and conditions specified in this section shall be secured by a surety bond per Section 5.14 of the General Provisions.

3.2 EXECUTION

All work which has been rejected or defects discovered after project close-out shall be remedied, or removed and replaced, by the CONTRACTOR at the CONTRACTOR's own expense, with work conforming to the Project Drawings and Special Provisions. Latent defects which become apparent after lapse of the warranty period shall be corrected by the CONTRACTOR at its sole cost and expense provided County notifies CONTRACTOR of such defect within two months after discovery thereof by County. Failure to inspect work at any stage shall not relieve the CONTRACTOR from an obligation to perform sound and reliable work as herein described.

The County will endeavor to locate errors or defective materials of workmanship and call them to the attention of the CONTRACTOR prior to subsequent work being performed. However, the County is under no obligation to do so, and neither the County shall be held liable because errors or defective material or workmanship by the CONTRACTOR are not discovered by the County prior to subsequent work. Any omission or failure on the part of the County to discover, or notify the CONTRACTOR of, or to condemn defective work or material at the time of construction shall not be deemed an acceptance, and the CONTRACTOR will be required to correct defective work or material.

During the warranty period, should the CONTRACTOR fail to remedy defective material or workmanship, or to make replacements within five working days after written notice by the County, it is agreed that the County may (but is not bound to) make such repairs and replacements and the actual cost of the required labor and materials shall be chargeable to and payable by the CONTRACTOR. In the event that immediate repairs are required by a regulatory agency due to system failure caused by or due to defective material or workmanship, repairs and/or replacements may be made by County if CONTRACTOR does not respond upon notification or cannot be contacted. The actual cost of the required labor and materials shall be chargeable to and payable by the CONTRACTOR.

The warranty provided herein shall not be in lieu of, but shall be in addition to any warranties or other obligations otherwise imposed by law. The remedies provided herein shall not be exclusive and the County shall be entitled to any and all remedies provided by law.

END OF SECTION

4. SAFETY

4.1 GENERAL

The CONTRACTOR shall comply with Provisions of Occupational Safety and Health Administration Regulations for Construction, 29 CFR, 1926/1910 and CFR 1910.120, the California Department of Industrial Relations, Division of Industrial Safety (Safety Orders), with the additional Safety Provisions in the CONTRACTOR's Safety Plan, and all other applicable Federal, State, County and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of this Contract. If any of these requirements are in conflict, the more stringent requirement shall apply. The CONTRACTOR's failure to be thoroughly familiarized with the aforementioned safety and health provisions shall not relieve the CONTRACTOR of responsibility for full compliance with the obligations and requirements set forth herein.

The CONTRACTOR shall have sole responsibility for the safety, efficiency, and adequacy of the CONTRACTOR's equipment and methods, and for any damage or injury resulting from their failure, or improper maintenance, use, or operation. The CONTRACTOR shall be solely and completely responsible for the conditions at the work area arising from the CONTRACTOR's execution of the work, including safety and health of all authorized persons and property involved in the performance of the work. This requirement shall apply continuously and not be limited to normal working hours. The County's review of the CONTRACTOR's performance does not relieve the CONTRACTOR of responsibility for compliance with applicable laws, regulations and requirements.

The CONTRACTOR shall observe and comply with all applicable laws, regulations for hazardous waste operations, employee safety and health requirements set forth in these Special Provisions or otherwise applicable to the work. Such information, interpretation, or representation of laws, regulations or ordinances referenced in the Contract Documents shall not take precedence over the laws, regulation or ordinance itself.

4.2 MATERIALS

Not Used.

4.3 EXECUTION

4.3.1 Health and Safety Plan (HASP)

The CONTRACTOR shall develop and maintain for the duration of work activities at the site, a written, site specific Health and Safety Plan (HASP). The HASP shall incorporate and implement all applicable requirements, with due consideration given to the known hazards posed by an active landfill. The HASP shall be prepared under the direction of an industrial hygienist, or equivalent, and shall be submitted by the CONTRACTOR to the County after receiving the Award of the Contract. The HASP shall assess all known and potential hazards and specify appropriate health and safety actions and measures to mitigate those hazards, including risk of occupational injuries and illnesses.

The County shall review the HASP and shall have the right to require the CONTRACTOR to amend it if necessary. The CONTRACTOR shall make the recommended corrections and resubmit to the County for review and final acceptance. The CONTRACTOR shall under no circumstances commence work prior to receipt of the County's final written acceptance of the HASP. Acceptance of the HASP by the County does not release the CONTRACTOR of liability in the event of an accident or injury, nor does it place any liability on the County. The CONTRACTOR is solely responsible for the HASP and its implementation. The

CONTRACTOR shall assume full responsibility to ensure that all employees and Subcontractors adhere to the HASP.

Should the County or an applicable regulatory agency determine that the HASP has not been implemented properly, or that deficiencies in the HASP exist during performance of the work, the CONTRACTOR shall immediately correct the identified issue(s). In the event the CONTRACTOR fails or refuses to promptly correct the identified issue(s), the County may issue an order to stop all or any part of the work. When compliance with the directive issue is accomplished, an order to resume work will be issued. The CONTRACTOR shall not be entitled to any extension of the time or any claim for damage to or any compensation for either the directive or the work suspension order. Failure of the County to order discontinuance of any or all of the CONTRACTOR's operations shall not relieve the CONTRACTOR of his sole responsibility for safety.

At a minimum, the HASP shall address the following items:

1. The CONTRACTOR shall provide appropriate gas detection monitoring equipment (e.g. flammable and/or explosive gas meters) during invasive construction activities. The use of the gas detection equipment (e.g. permissible threshold concentrations) shall be specified in the site specific HASP.
2. No smoking is permitted within 100 feet of the borehole.
3. The CONTRACTOR shall require of all personnel on the site to wear the appropriate field gear, which may include but is not limited to, steel toe boots, hard hats and visible safety clothing (e.g. orange safety vests).
4. The CONTRACTOR shall secure all work areas and close any open holes or excavations when not working by appropriately marking or delineating the area (e.g. with ribbons or cones), and posting signs indicating to the public or County personnel to stay away due to the existence of a deep open excavation.
5. The CONTRACTOR shall close access to the work area prior to performing other work and shall maintain the closure until construction in that area is complete. The CONTRACTOR shall provide such means as are necessary to ensure the effectiveness of the closure (e.g. fences, barricades, posting of signs).
6. The HASP shall have provisions for all aspects of protection against bodily injury from heavy construction equipment, tools and equipment required for the work.

END OF SECTION

5. MOBILIZATION, DEMOBILIZATION AND SITE CLEAN-UP

5.1 GENERAL

5.1.1 Description

This section includes the mobilization and demobilization of equipment, material and personnel to the well sites.

5.1.2 Related Work Specified Elsewhere

Section 2.1.14 - Site Security

Section 4 - SAFETY

5.1.3 Submittals

1. Evidence of Insurance
2. Contract Bonds
3. Site Specific Health and Safety Plan
4. Construction Calendar

5.1.4 Measurement and Payment

1. Payment for mobilization shall be made at the lump sum bid price for Bid Item No 1.
2. Payment for demobilization and site cleanup shall be made at the lump sum bid price for Bid Item No.14. Payment will not be made until the Engineer has approved site restoration.

5.2 EXECUTION

5.2.1 Mobilization

CONTRACTOR shall submit the required evidence of insurance, contract bonds, a site-specific health and safety plan and a construction schedule to the County following receipt of the BOS approved and executed contract. Work will not be allowed to start until the County receives reviews and accepts the required submittals. The County shall issue the CONTRACTOR a Notice to Proceed following receipt, review and approval of the required submittals.

Mobilization shall also include the transportation of personnel, equipment, and operating supplies to and from the site; drinking water, and other necessary facilities at the site; and other preparatory work at the site, as well as all work at the site necessary to conduct drilling, construction and development operations. The mobilization phase will be deemed complete when all items necessary to conduct field operations are onsite and operable. The CONTRACTOR will notify the Engineer when the mobilization phase, in his terms, is complete. The Engineer, upon site inspection and approval, will then allow drilling to commence the following morning at 7:00 AM. If the Engineer does not approve the well site mobilization, drilling will not commence the following day and the CONTRACTOR will re-notify the Engineer for additional site inspections. No stand-by time will be allowed during the mobilization phase of the Contract.

5.2.2 Initial Site Report

The CONTRACTOR will prepare an initial site report which will include a written account of all alterations and preparations that must be made to the site to make the site accessible and suitable for drilling, and to restore the site to its previous condition. The initial site report shall specifically include out-of-ordinary costs.

The mobilization and demobilization bid items should take into account ordinary site restoration costs for the drilling locations, as visually observed during the pre-bid. Out-of-ordinary costs are those restoration items that are could not be visually recognized during the pre-bid meeting at site, and may be unforeseen prior to the commencement of mobilization. Out-of-ordinary items should be identified by the CONTRACTOR and brought to the attention of the Engineer.

The County shall pay a reasonable fee for out-of-ordinary costs. Where the CONTRACTOR utilizes a Subcontractor, the items invoiced for out-of-ordinary site restoration costs will be paid as specified in Section 7. of the General Provisions.. The County will not be responsible for payment of charges not specified in the initial site report and subsequently approved in writing by the County.

5.3 PROTECTION AND RESTORATION OF EXISTING FACILITIES

The CONTRACTOR will be responsible for the protection of public and private properties adjacent to the work and will exercise due caution to avoid damage to such properties. The CONTRACTOR will repair or replace all existing improvements that are damaged or removed as a result of his operations. Such improvements include curbs, gutters, sidewalks, pavement, utility installations, structures, lawns, etc. Repair and replacements will be at least equal to existing improvements and will match them in finish and dimension. All cuts in asphalt and concrete shall be repaired by saw cutting around the damaged area and replacing it with the appropriate patching material. Repair or replacement of asphalt, concrete, or other existing features damaged due to the CONTRACTOR shall be the sole responsibility of the CONTRACTOR. Damaged asphalt will be properly repaired as required by governing city or county agency.

5.3.1 Project Demobilization

Demobilization shall include removal of all equipment, materials, and temporary facilities installed during mobilization, well drilling, completion, and development phases of the work. Demobilization will also include restoration of the site to the original condition and will include those items specified in the initial site report.

5.3.2 General Site Clean-up

The CONTRACTOR shall provide all equipment and personnel to restore the site as required by the individual site conditions. Demobilization and site restoration will include, but not be limited to, grading, pavement restoration, re-fencing, etc. All restoration and resurfacing work will be deemed acceptable upon approval of the Engineer. Payment for site clean-up will not be made until the site restoration has been approved by the Engineer and the wellhead has been completely installed. If the site is not accepted, the CONTRACTOR will make the necessary adjustments to make the site acceptable.

5.3.3 Non-Hazardous Materials Site Clean-up

Cleanup of the site will include complete removal and disposal of all solids, liquids and substances either used or generated during mobilization, demobilization, drilling, completion, and development operations. All materials will be properly disposed by the CONTRACTOR.

Drilling cuttings and well development water are the only exceptions to the list of materials described above. Drilling cuttings and well development water shall be disposed as specified in Sections 0 and 12, respectively.

5.3.4 Hazardous Materials Site Clean-up

Any materials suspected by the Engineer of being contaminated due to ambient and/or existing conditions, which were not a result from the CONTRACTOR's equipment, materials or actions, will be analyzed by the Engineer for potential contaminants. Materials that contain levels of contaminants in excess of Federal and/or State disposal standards shall be properly disposed of by the Engineer.

CONTRACTOR shall perform necessary work to contain/control leaking equipment. Generation of hazardous materials by the CONTRACTOR during the course of work caused by his normal operational procedures or negligence (e.g., oil, and/or hydraulic spills or leaks) shall be cleaned, removed, and properly disposed of at the sole cost of the CONTRACTOR. Any materials suspected of contamination due to CONTRACTOR negligence will be submitted by the CONTRACTOR to a State-certified laboratory for analysis at the CONTRACTOR's sole expense. The sample shall be analyzed by approved Federal and/or State methods to determine if the sample contains hazardous materials. The County reserves the right to request additional testing if the methods requested by the CONTRACTOR are insufficient to determine the types of potentially hazardous materials. Tests must be run within 24 working hours of suspected contamination and must be requested at expedited turn-around times, as quick as possible considering the analytical method. The test results shall be provided to the Engineer as soon as available by the CONTRACTOR. The CONTRACTOR, in accordance with applicable Federal and State laws, shall properly dispose of any material that contains levels of contaminants in excess of Federal or State disposal standards within 48 working hours of receiving test results. This will include preparation of a hazardous materials disposal manifest by the CONTRACTOR, and the CONTRACTOR, not the County, shall be listed as the generator of the hazardous waste on all manifests. The CONTRACTOR shall provide the County with a copy of the initial manifest and the final manifest, which indicates waste receipt by the receiving disposal facility.

5.3.5 Final Inspection

The Engineer shall make an inspection of the site following completion of all site cleanup and restoration work by the CONTRACTOR, including setting of the above-ground well head. The CONTRACTOR shall also be present to acknowledge any items that require additional work to make the site acceptable to the Engineer.

Final payment for the Work shall not be granted until the site and contract work has been determined acceptable to the Engineer. Following the Engineer's acceptance of the work, a Notice of Completion will be filed and retention will be released to the CONTRACTOR.

END OF SECTION

BOREHOLE DRILLING AND SAMPLING

5.4 GENERAL

5.4.1 Description

This Section includes the drilling of a borehole. The purpose of the well borehole is to determine the thickness and nature of all formations penetrated, the location of water bearing strata, other hydrological and geological information, and for well construction.

The CONTRACTOR shall drill the well borehole with one pass to the depth specified in these Contract Documents, or as directed by the Engineer

5.4.2 Related Work Specified Elsewhere

None.

5.4.3 Submittals

1. Alternative drilling method description, if applicable.
2. Daily construction progress report.

5.4.4 Measurement and Payment

Payment for drilling and sampling of the well borehole shall be based on vertical feet drilled (first pass) measured from the ground surface. It shall include all materials, labor, tools, and equipment required to drill the borehole, collect formation samples, maintain circulation (depending on drilling method chosen) and protect the borehole from caving. No payment will be made for temporary casings installed at the CONTRACTOR's option.

Payment will only be made for the CONTRACTOR's first pass successful drilling method. If the CONTRACTOR chooses drilling method(s) that are unsuccessful, the County will not make additional payment for vertical feet drilled for second, third or any subsequent passes by the CONTRACTOR to obtain the required borehole depth. In addition, no payment will be made for borehole corrections that may be necessary to comply with these specifications. Payment for any borehole corrections will be included in the unit price for Bid Item No 2.

Payment for stand-by time will be at the unit price for Bid Item No 12.

Payment for rock clause drilling will be at the unit price for Bid Item No. 13.

5.5 MATERIALS

5.5.1 General

All equipment supplied by the CONTRACTOR shall be available for inspection by the Engineer prior to the beginning of drilling operations. If, in the opinion of the Engineer, any of the equipment is not suitable for drilling operations, either because of mechanical problems, excessive noise, deviation from the specifications, or the build-up of substances which could cause borehole contamination (i.e., from oil, diesel, hydraulic leaks or exhaust residue, etc.), the CONTRACTOR shall adjust, replace or decontaminate it with suitable equipment at the CONTRACTOR's expense.

5.5.2 Drilling Rig

The drilling rig and drilling type/method is at the CONTRACTOR's discretion. All associated drilling equipment shall be in good condition and have sufficient capacity to drill to the depths specified in these Contract Documents.

If the CONTRACTOR chooses to use a drilling method, other than auger drilling or air rotary drilling, the CONTRACTOR shall submit a written description of the proposed drilling method

to the Engineer, prior to drilling equipment mobilization. The Engineer shall review the written submittal and may amend the Contract Documents to account for the proposed drilling method. The scope of any amendments will be limited to specifications to ensure the environmental integrity of the borehole. The Engineer shall authorize the proposed drilling method in writing. Following the CONTRACTOR's receipt of written approval, the CONTRACTOR may mobilize drilling equipment.

The Engineer's approval of a CONTRACTOR's alternative drilling method does not relieve the CONTRACTOR of his responsibility to drill the boreholes to the depths specified in these Contract Documents, or to construct the monitoring well. The Engineer's authorization does not constitute approval or agreement that the alternative drilling method will allow the CONTRACTOR to successfully complete the project. As stated previously, **the drilling rig and drilling type/method is at the CONTRACTOR's discretion.**

The boreholes for OMW-5 and OMW-6 shall be drilled at the Oasis Sanitary Landfill. The table below summarizes the drilling method and total depth for each groundwater monitoring well installed previously at the Oasis Sanitary Landfill. Refer to Appendix A for a copy of the groundwater well boring logs and a site map showing where the groundwater wells are located at the site. Wells OMW-2A and OMW-3A are replacement wells for dry wells OMW-2 and OMW-3. OMW-2A and OMW-3A were installed near the original location of wells OMW-2 and OMW-3.

Well ID	Drilling Rig and Drilling Method	Total Depth of Borehole
OMW-1	F-10 Hollow Stem Auger	74 feet bgs
OMW-2	F-10 Hollow Stem Auger	70.5 feet bgs
OMW-2A	Speedstar Air Rotary	60 feet bgs
OMW-3	F-10 Hollow Stem Auger	65 feet bgs
OMW-3A	Speedstar Air Rotary	66 feet bgs
OMW-4	Speedstar Air Rotary	66 feet bgs

The CONTRACTOR shall provide all tools, accessories, air compressor, power, fuel, materials, supplies, lighting, and other equipment, and experienced personnel necessary to conduct safe and efficient drilling operations. A drilling superintendent (tool pusher) shall be available at all times at the request of the Engineer.

The mast and all running gear (hoists, cables, etc.) of the drill rig shall have a proven, sufficient and demonstrated capacity to lift three times the buoyant weight of the drill string.

5.5.3 Drill Pipe/Auger

If the CONTRACTOR chooses to use the drilling pipe/auger drilling method, the drilling pipe/auger shall be in good condition and shall be connected by standard tool joints. The CONTRACTOR shall not use drilling pipe equipped with external air lines. The drill pipe/auger shall be steam-cleaned prior to its arrival at the drilling site. Drill pipe/auger suspected of being contaminated shall be removed and steam-cleaned at the CONTRACTOR's expense prior to its use at the site. Pipe dope or other lubricating material such as "Gimmie the Green Stuff" or other environmentally safe material, as pre-approved by the Engineer, can be used on the threads of the drill pipe/auger and tremie.

5.5.4 Air Rotary Drilling Equipment

If the CONTRACTOR chooses to use the air rotary drilling method, the CONTRACTOR shall utilize an oil-less, filtered air compressor with the capability of properly drilling to the minimum depth proposed herein. The CONTRACTOR shall use an air cyclone or other acceptable method, pre-approved by the Engineer, for the collection of drill cuttings at the

point where air is returned to the surface (i.e., flow directed out of the discharge pipe). The air cyclone shall function to allow the Engineer to collect representative samples of the subsurface. If samples cannot be adequately collected, drilling will cease until the problem can be corrected to the satisfaction of the Engineer.

5.5.5 Conductor Casing

If the CONTRACTOR chooses to use a conductor casing with the air rotary drilling method, the conductor casing shall be in good condition and shall be connected by standard tool joints. The conductor casing shall be decontaminated prior to its arrival at the well site. Conductor casing suspected of being contaminated shall be decontaminated at the CONTRACTOR's expense prior to its use at the site. Pipe dope or other lubricating material such as "Gimmie the Green Stuff" or other environmentally safe material, as pre-approved by the Engineer, can be used on the threads of the conductor casing if necessary.

5.6 EXECUTION

5.6.1 Borehole Drilling

1. The CONTRACTOR shall not start drilling without the Engineer onsite to confirm the location of the borehole.
2. The CONTRACTOR shall prepare to drill the borehole to the total depth specified in the Contract Documents. The borehole diameter shall be a minimum of 8-inches. The Engineer will be onsite during the drilling process to specify the exact depth of the borehole to be drilled based on drilling cuttings, the geologic log and the depth to groundwater encountered during drilling. The exact depth specified by the Engineer may be more or less than the total depth specified in the Contract Documents
3. The CONTRACTOR shall take all measures necessary to protect the borehole from caving or raveling during drilling operations.
4. Drilling cuttings from OMW-5 and OMW-6 will be stockpiled adjacent the well drilling location. Soil drilling cuttings shall be placed on plastic sheeting, that has a minimum 10-mil thickness. At the end of each drilling work day, the drilling cutting stockpile shall be securely covered with plastic sheeting, that has a minimum 10-mil thickness. The County shall be responsible for the final handling, transportation and disposal of drilling cuttings, following the CONTRACTOR's demobilization from the site.
5. When drilling is completed, as determined by the Engineer, the CONTRACTOR shall take all measures necessary to protect the borehole from caving or raveling.
6. Upon completion of drilling a specific borehole to the depth specified in these Contract Documents or as directed by the Engineer, the Engineer will provide, within 24 hours, the CONTRACTOR with well construction details or request that the CONTRACTOR drill deeper.
7. The CONTRACTOR shall be paid for stand-by time for each working hour beyond the 24 hour assessment period that the Engineer does not provide the CONTRACTOR with well construction details or the request to drill deeper.
8. The CONTRACTOR may discharge minor volumes of nuisance groundwater generated during drilling directly to the ground surface adjacent to the well site, as permitted by the State Water Resources Control Board Water Quality Order No. 97-03-DWQ. The CONTRACTOR shall implement appropriate best management practices (BMPs) to mitigate the discharge of sediment laden

groundwater. Where necessary, BMPs shall also be implemented to mitigate groundwater discharge related erosion. The discharge of groundwater shall also be controlled to prevent contact with significant materials or equipment, including those of the CONTRACTOR and County.

5.6.2 Rock Clause

The Rock Clause shall go into effect ONLY after notification of the Engineer by the CONTRACTOR that the drilling advancement rate is less than 5 feet per hour. A recording device such as a "geograph" shall be required to document Rock Clause time. The decrease in the drilling rate shall be due to natural causes such as hard formations caused by gravel and boulders. Borehole caving problems and decreased penetration rates due to improper air flow rates or choice of drilling bits are not acceptable causes to invoke the Rock Clause. The CONTRACTOR is cautioned to practice proper drilling techniques for gravel alluvium drilling environments. Reduction in drilling rate due to worn bits will not be grounds for invoking the Rock Clause.

5.6.3 Subsurface Formation Sampling

The CONTRACTOR shall, at each change of formation, at five foot intervals between changes in formation, and at intervals requested by the Engineer, collect a representative sample of the interval or new formation. Each sample shall be given to the Engineer for proper logging and storage.

If the CONTRACTOR chooses to drill with hollow stem auger, the CONTRACTOR shall collect relatively undisturbed soil samples with a Standard Penetration Test split spoon sampler.

If the CONTRACTOR chooses to drill with a form of air rotary, the CONTRACTOR shall provide an acceptable means to the Engineer whereby the CONTRACTOR can safely obtain representative samples of formation cuttings from the air stream. The ground surface around the sampling area shall be kept graded and free from stockpiled drilling cuttings and shall be kept free of trash, equipment and other debris. If samples cannot be adequately collected, drilling will cease until the problem is corrected to the satisfaction of the Engineer.

5.6.4 Cleanup

Any waste that is generated by the CONTRACTOR, which is incidental to the drilling activities, shall be collected and properly disposed by the CONTRACTOR. The procedure for collecting and handling soil drilling cuttings is specified in 5.6.1, above.

5.6.5 Daily Construction Progress Report

The driller shall prepare a daily record of drilling activities completed each working day that drilling is completed. The Daily Construction Progress Report shall identify the first pass vertical footage drilled, approved Rock Clause hours, and approved stand-by time hours. The report shall be provided to the Engineer for review and approval at the conclusion of each working day.

END OF SECTION

6. WELL CASING AND SCREEN

6.1 GENERAL

6.1.1 Description

This Section describes the supply and installation of the blank well casing and screen. All materials installed under this Contract, unless specified, shall be furnished by the CONTRACTOR. These materials shall be new and conform to these Specifications, except as specified otherwise.

The CONTRACTOR shall use good practice during installation, backfilling and well development to ensure the integrity of the screen and casing is maintained.

The proposed well casing and screen lengths are specified in the Contract Documents. These lengths are subject to change, as specified by the Engineer, based on the subsurface conditions encountered during drilling.

6.1.2 Related Work Specified Elsewhere

Section 5.6.1. – Borehole Drilling

6.1.3 Submittals

Daily construction progress report.

6.1.4 Measurement and Payment

1. Payment for well screen installation shall be based on measurement of vertical feet of well screen installed, exclusive of well casing, complete and in place at the unit price for Bid Item No. 3.
2. Payment for blank casing installation shall be based on measurement of vertical feet of blank well casing installed, complete and in place, which includes furnishing and installing centralizers and end caps, at the unit price for Bid Item No. 4.

6.2 MATERIALS

6.2.1 General

The well casings shall be nominal 4-inch diameter, schedule 80, ASTM D1785 (latest edition) PVC. Well screens shall be nominal 4-inch diameter, schedule 80, ASTM D1785 (latest edition) PVC with a machined 0.020-inch slot (20-slot).

A typical well design will consist of a 20 to 30-foot long interval of well screen with approximately five feet of blank casing below (silt trap) and the remainder of the blank casing located above the screen and extending to the ground surface. The lengths and intervals of each casing type shall be determined by the Engineer at the completion of drilling and is generally estimated as described in these Contract Documents

6.2.2 Blank Casing

1. The blank casing shall be nominal 4-inch inner diameter, schedule 80, PVC as specified in ASTM D1785 (latest edition), equipped with threaded joints at the ends of the blank casing section. The blank casings shall be factory-assembled.
2. Threaded joints shall be machined with beveled/interference compression fit shoulder seals to increase compressional strength.

3. O-ring seals shall be provided within the threaded joints to mitigate leakage and contaminants from entering at the threaded joint.
4. In all cases, the blank casing used in conjunction with the screen shall have the same inner diameter as the screen to ensure that the inside diameter of the blank casing matches the inside diameter of the screen.
5. The bottom of each well casing shall be fitted with a threaded end cap. The end cap shall be of the same chemical and physical properties as the PVC screen.
6. All casing material shall be new.

6.2.3 Slotted Well Screen

1. Slotted well screens shall be nominal 4-inch diameter, schedule 80, PVC as specified in ASTM D1785 (latest edition), equipped with threaded joints at the ends of the slotted well screen section. The screen shall be factory-assembled.
2. The slotted well screen shall be machined 0.020-inch slot (20-slot).
3. Threaded joints shall be machined with beveled/interference compression fit shoulder seals to increase compressional strength.
4. O-ring seals shall be provided within the threaded joints to mitigate leakage and contaminants from entering at the threaded joint.
5. In all cases, the blank casing used in conjunction with the screen shall have the same inner diameter as the screen to ensure that the inside diameter of the blank casing matches the inside diameter of the screen.
6. The bottom of each well casing shall be fitted with a threaded end cap. The end cap shall be of the same chemical and physical properties as the PVC screen.
7. All screen casing material shall be new.

6.3 EXECUTION

6.3.1 General

The Engineer will submit the final well design depths/lengths to the CONTRACTOR within 24 hours after the Engineer directs the CONTRACTOR to terminate drilling at a specific well location. While the well design is being completed, no additional payment for stand-by time shall be made, except where specified in Section 0 BOREHOLE DRILLING AND SAMPLING. The final well design will specify where the casing and screen intervals, filter pack intervals, seal intervals and sanitary seal will be placed in the borehole.

The CONTRACTOR is cautioned to properly secure/stabilize the borehole during all phases of construction. Improper or poor security/stabilization of the borehole may lead to borehole collapse and delays prior to or during backfilling. Such collapse or delays will be the responsibility of the CONTRACTOR and the Engineer shall not pay any costs associated with such. During casing installation the CONTRACTOR shall measure and record the lengths of the casing and screen as it is being installed into the borehole.

6.3.2 Joints

All field joints, where blank casings and/or screen casing are joined together, shall be connected via the machine threaded ends.

6.3.3 Installation of Casing and Screen

1. The CONTRACTOR shall ensure that the tremie and well casing are sufficiently aligned to prevent binding while raising the tremie during annular fill material installation.
2. The well casing string shall be suspended at all times in tension from the surface by means of a clamp, landing plate, or equivalent method. The bottom of the casing string shall be at a sufficient distance above the bottom of the borehole to ensure that it is not supported by the bottom of the borehole.
3. The CONTRACTOR will measure and record the lengths of the casing as it is being installed into the borehole. The casing lengths will be such that the screens are placed per the design interval and the total installed length of the casing is as specified in the design.
4. Two centralizers shall be installed around the screen section, one near the bottom and one approximately mid-height. One centralizer shall be installed around the blank casing, at approximately mid-height.
5. Prior to backfilling the annular space around the casing string, the CONTRACTOR shall measure the bottom of each casing to verify its total depth. If for any reason the casing cannot be placed in the correct position, or at a depth acceptable to the Engineer, the CONTRACTOR shall take whatever measures are necessary to properly construct the well at his own expense, including abandoning the borehole.
6. If any of the casings should collapse or break prior to well completion, they shall be withdrawn and replaced at the CONTRACTOR's expense.
7. All work required to be repeated because of the CONTRACTOR, and all additional materials, labor, and equipment required, shall be furnished at the expense of the CONTRACTOR and no claim for additional compensation shall be made or be allowed therefore, except as specifically provided herein.
8. The well casing shall be completed at ground surface. Extra casing length should be added to allow for landing of the casing at the depth/heights specified in Section 11. Following completion of backfilling and development, the casing stick-up will be modified as specified in Section 11.

6.3.4 Well Capping

Upon completion of all work in connection with well construction and development, the well shall be capped by placing a lockable J-plug on the top of the casing.

END OF SECTION

7. FILTER PACK AND TRANSITION SAND

7.1 GENERAL

7.1.1 Description

This Section covers the supply and installation of the filter pack to the depths and intervals specified by the Engineer.

7.1.2 Submittal

A description and recent certified sieve analysis of filter pack to be used must be submitted and approved by the Engineer prior to the anticipated date of shipment from the supplier.

7.1.3 Measurement and Payment

1. The payment for filter pack will be based on measurement of vertical feet of filter pack installed from the bottom to the top of each specified interval at the unit price for Bid Item No. 5.
2. The payment for transition sand will be based on measurement of vertical feet of transition sand installed from the bottom to the top of each specified interval at the unit price for Bid Item No. 6.

7.1.4 Related Work Specified Elsewhere

None.

7.2 MATERIALS

7.2.1 Filter Pack

All sand/gravel to be used for the filter pack shall be hard, water or air worn gravels, and washed clean of silt, sand, dirt and foreign matter. Crushed gravel will not be accepted. It shall be well rounded, graded, and shall have a coefficient of uniformity less than 2.5. All gravel is subject to approval by the Engineer prior to use in the packing process. Gravel shall be of the type provided by Oglebay Norton Industrial Sands, Inc. (formerly known as Colorado Silica Sand, Inc.), or approved equal. For bidding purposes, a non-mixed (i.e., pure silica) #3 gradation blend of Oglebay Norton Industrial Sands, Inc. is proposed at this time. The #3 gradation blend shall meet the sieve analyses parameters specified below.

Sieve #	Sieve Opening (mm)	Cumulative Percent Passing
½-Inch	12.5	100
4	4.75	100
6	3.35	100
8	2.36	100-98
12	1.7	89-55
16	1.18	46-10
20	0.85	13-1
30	0.60	5-0

7.2.2 Transition Sand

All sand used for the transition sand layer shall be hard, water or air worn gravels, and washed clean of silt, dirt and foreign matter. Crushed gravel will not be accepted. All sand is subject to approval by the Engineer prior to use in the transition sand layer. Sand shall be a non-mixed (i.e., pure silica) #60 gradation blend. The transition sand shall be of the type

provided by Oglebay Norton Industrial Sands, Inc. or approved equal. The #60 gradation blend shall meet the sieve analyses parameters specified below.

Sieve #	Sieve Opening (mm)	Cumulative Percent Passing
20	0.85	100
30	0.60	100
40	0.425	100-94
50	0.30	60-25
70	0.212	15-5
100	0.15	4-0

7.3 EXECUTION

7.3.1 General

Once drilling is completed, the bottom of the borehole is stabilized, if necessary, and the casing string is installed within the borehole, the installation of the filter pack can proceed. A general schematic diagram of the well construction, including location of annual seals, is provided in Figure 2 – OMW-5 and OMW-6 Groundwater Well Details.

7.3.2 Installation of Filter Pack

1. The gravel/sand, if stockpiled onsite, shall be kept free of all foreign matter. Gravel/sand suspected of being contaminated with dust, oil or other contaminants will not be accepted and shall be removed at the CONTRACTOR's expense prior to the arrival of new gravel/sand onsite.
2. Each gravel/sand filter pack shall be pumped into the annulus of the well through a tremie. The gravel/sand shall not be allowed to freefall more than 20 feet from the bottom of the tremie to the top of the gravel/sand. The gravel/sand filter pack shall be installed from the bottom of the borehole to approximately five feet above the top of screen.
3. A device approved by the Engineer shall be used to measure the level of the gravel throughout the backfilling process. Backfilling shall not begin until the measurement method is proved to be accurate by an acceptable method. Upon completion of installation of each filter pack, or portion thereof, no additional work will be performed until the depth to the top of that filter pack has been determined by use of proven, accurate equipment.
4. Throughout the backfilling process, the CONTRACTOR shall complete calculations to determine the amount of material necessary to backfill the specified interval. The CONTRACTOR shall record all calculations and volumes of material used to backfill the specified interval, as well as measurements obtained after each gravel/sand placement and verify those calculations with the Engineer.
5. Prior to installing the transition sand materials, the CONTRACTOR shall consolidate the filter pack by gently surging the well screen with a tight-fitting surge block. CONTRACTOR shall then re-measure the top of the filter pack and install additional gravel/sand to achieve the design depth.
6. Following the installation of the filter pack, the CONTRACTOR shall install an approximate 5-foot thick layer of transition sand.

7.3.3 Installation of Transition Sand

1. The transition sand, if stockpiled onsite, shall be kept free of all foreign matter. Transition sand suspected of being contaminated with dust, oil or other contaminants will not be accepted and shall be removed at the CONTRACTOR's expense prior to the arrival of new transition sand material onsite.
2. The transition sand shall be pumped into the annulus of the well through a tremie. The transition sand shall not be allowed to freefall more than 20 feet from the bottom of the tremie to the top of the transition sand. The transition sand layer shall be installed from the top of the filter pack to a thickness of five feet.
3. A device approved by the Engineer shall be used to measure the level of the transition sand throughout the backfilling process. Backfilling shall not begin until the measurement method is proved to be accurate by an acceptable method. Upon completion of installation of the transition sand layer, or portion thereof, no additional work will be performed until the depth to the top of that transition sand layer has been determined by use of proven, accurate equipment.
4. Throughout the backfilling process, the CONTRACTOR shall complete calculations to determine the amount of material necessary to backfill the specified interval. The CONTRACTOR shall record all calculations and volumes of material used to backfill the specified interval, as well as measurements obtained after placement of the transition sand layer and verify those calculations with the Engineer.
5. Following the installation of the transition sand, the CONTRACTOR shall install an approximate 5-foot thick pellet annular seal.

END OF SECTION

8. PELLET ANNULAR SEAL

8.1 GENERAL

8.1.1 Description

This Section includes the installation of the annular seal, which seal the annular space between the borehole wall and the well casing. The seal shall be composed of medium-sized bentonite pellets and be installed in the annulus of the well to hydraulically separate the aquifer penetrated by the well casings.

8.1.2 Measurement and Payment

Payment for annular seal materials will be based on measurement of vertical feet of seal installed from the bottom to top of the specified interval, at the unit price for Bid Item No 7.

8.1.3 Related Work Specified Elsewhere

None.

8.2 MATERIALS

8.2.1 Annular Seals

An approximate five-foot thick seal consisting of dry non-coated medium-sized bentonite chips or tablets shall be installed above the screened interval, or as otherwise specified. Coated bentonite pellets, chips or tablets shall not be used to construct these seals. The bentonite chips or tablets shall be certified NSF/ANSI Standard 60, Drinking Water Treatment Chemicals - Health Effects.

8.3 EXECUTION

8.3.1 General

Once the filter pack or transition sand, depending on the specific well being constructed, is installed above the screened well casing, the annular seal can be installed. A general schematic diagram of the well construction, including location of the annual seal, is provided in Figure 2 – OMW-5 and OMW-6 Groundwater Well Details.

8.3.2 Annual Seal Installation

1. An approximate five foot thick seal, consisting of bentonite chips or tablets, shall be installed by gravity via a tremie above the filter pack or transition sand.
2. Seal materials not be allowed to freefall more than 20 feet from the bottom of the tremie to the depth established from previous measurement. The seal or portion thereof shall be placed from the bottom of each interval to the top, in a continuous operation.
3. The CONTRACTOR shall measure the depth of the top of the seal after each load of seal mixture has been installed. Upon complete installation of the annular seal, or portion thereof, no additional work will be performed until the depth to the top of that seal has been accurately measured.
4. The CONTRACTOR shall calculate the amount of seal material necessary to backfill a specified interval. The CONTRACTOR shall record all calculations and volumes of seal mixture used, and the measurements obtained after the seal placement and verify those calculations with the Engineer.

END OF SECTION

9. TRANSITION SEAL

9.1 GENERAL

9.1.1 Description

This Section includes the completion of the transition grout annular seal, sealing the annular space between the borehole and the well casing in the upper portion of the borehole.

9.1.2 Measurement and Payment

Payment for the transition grout annular seal will be based on measurement of vertical feet of seal installed at the unit price for Bid Item No. 8. No stand-by time will be paid for any down-time between the placement of the transition grout annular seal and the sanitary seal.

9.1.3 Related Work Specified Elsewhere

None.

9.2 MATERIALS

9.2.1 Transition Grout Annular Seal

1. The transition grout shall be composed of a bentonite-cement mixture.
2. Cement used for the transition grout seal shall be a Type II Portland cement conforming to ASTM C150 (latest edition).
3. Bentonite used in the grout shall be pulverized (powder or granular) and shall be certified NSF/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects.
4. Water used for the cement mix shall be clean and of potable quality. Available onsite construction water is suitable for use.
5. The transition grout shall be composed of 1 gallon of water to 1 - 1¼ pounds of bentonite powder. Cement shall be added to the bentonite grout at a ratio of 1 – 2 pounds of cement to 1 gallon of water.

9.3 EXECUTION

9.3.1 General

After placement of the casings, screens, filter pack, transition sand, and pellet seal, the transition grout annular seal shall be installed. A general schematic diagram of the well construction, including the location of the transition grout annular seal, is provided in Figure 2 – OMW-5 and OMW-6 Groundwater Well Details.

9.3.2 Transition Grout Mixture

1. Bentonite and water shall be mixed first, prior to the addition of cement.
2. Bentonite, water and cement shall be mixed in the ratios specified in Section 9.2.1.
3. The final mixture of transition grout shall be thoroughly blended before pumping. Bentonite and cement shall be completely incorporated into the grout, no unmixed lumps of material shall exist in the grout.

9.3.3 Transition Grout Installation

1. The tremie pipe shall extend from the ground surface to the bottom of the zone to be grouted. Cement grout shall be placed from bottom to top, in a continuous

operation. The tremie pipe shall be slowly raised as the grout is placed, but the discharge end of the grout pipe must be submerged in the emplaced grout at all times until grouting is completed.

2. The CONTRACTOR shall take whatever precautions are necessary to prevent borehole and/or casing collapse during placement of the transition grout. In the event any borehole and/or casing collapses prior to completion of the transition grout, the CONTRACTOR shall take whatever steps are necessary to reopen the borehole, replace the casing and place the seal as specified. Any such remedial action shall be conducted at the CONTRACTOR's expense.
3. The CONTRACTOR shall calculate the amount of transition grout necessary to complete the annular seal. The volume placed shall not be less than the calculated volume of the annular space between the borehole and the well casing. The CONTRACTOR shall record all calculations and volumes used, and measurements obtained after each interval is pumped. The CONTRACTOR shall provide the calculations and volumes to the Engineer for his review and approval.
4. No activity shall occur directly adjacent to the well site, nor will stand-by time be granted, during a minimum 1-hour period immediately following the placement of the transition grout. The casing shall be adequately secured such that no damage or contamination will occur during this period.

END OF SECTION

10. SANITARY SEAL

10.1 GENERAL

10.1.1 Description

This Section includes the completion of the sanitary seal, sealing the annular space between the borehole and the well casing in the upper portion of the borehole.

10.1.2 Submittals

Delivery receipts and certified cement mix design receipts for cement placed for sanitary seal, if applicable.

10.1.3 Measurement and Payment

Payment for the sanitary seal will be based on measurement of vertical feet of sanitary seal installed at the unit price for Bid Item No. 9. No stand-by time will be paid for any down-time between the placement of the final annular seal and the installation of the sanitary seal, or during the 24 hours the sanitary seal is curing.

10.1.4 Related Work Specified Elsewhere

None.

10.2 MATERIALS

10.2.1 Sanitary Seal

1. Cement used for the sanitary seal shall be a Type II Portland cement conforming to ASTM C150 (latest edition).
2. The cement mix used for the sanitary seal shall be a 10.5-sack sand-cement grout. There shall be not more than two parts by weight of sand to one part by weight of cement. The water-cement ratio shall be 7 gallons per sack of cement (94 pounds).
3. Water used for the cement mix shall be clean and of potable quality. Available onsite construction water is suitable for use.
4. Materials used as additives for Portland cement mixtures in the field shall meet the requirements of ASTM C494 (latest edition), "Standard Specifications for Chemical Admixtures for Concrete."
5. Special quick-setting cement, retardants to setting, and other additives, including hydrated lime to make the mix fluid (up to 10 percent of the volume of cement) may be used.

10.3 EXECUTION

10.3.1 General

After placement of the casings, screens, filter pack, transition sand, pellet seal and transition seal, the sanitary seal shall be installed. The annular space between the well casing and the borehole shall be grouted by tremie with sanitary seal material from the top of the annular seal to the ground surface. A general schematic diagram of the well construction, including the location of sanitary seal, is provided in Figure 2 – OMW-5 and OMW-6 Groundwater Well Details.

10.3.2 Sanitary Seal Mixture

1. Water, sand and cement shall be mixed in the ratios specified in Section 10.2.1.
2. The final mixture of sanitary seal shall be thoroughly blended before pumping. Cement and sand shall be completely incorporated into the mixture, no unmixed lumps of material shall exist in the mixture.

10.3.3 Sanitary Seal Installation

5. The tremie pipe shall extend from the ground surface to the bottom of the zone to be grouted. Grout shall be placed from bottom to top, in a continuous operation. The tremie pipe shall be slowly raised as the grout is placed, but the discharge end of the grout pipe must be submerged in the emplaced grout at all times until grouting is completed.
6. The CONTRACTOR shall take whatever precautions are necessary to prevent borehole and/or casing collapse during placement of the sanitary seal. In the event any borehole and/or casing collapses prior to completion of the sanitary seal, the CONTRACTOR shall take whatever steps are necessary to reopen the borehole, replace the casing and place the seal as specified. Any such remedial action shall be conducted at the CONTRACTOR's expense.
7. The CONTRACTOR shall calculate the amount of grout necessary to complete the sanitary seal. The volume placed shall not be less than the calculated volume of the annular space between the borehole and the well casing. The CONTRACTOR shall record all calculations and volumes used, and measurements obtained after each interval is pumped. The CONTRACTOR shall provide the calculations and volumes to the Engineer for his review and approval.
8. No activity shall occur directly adjacent to the well site, nor will stand-by time be granted, during a minimum 24-hour period immediately following the placement of the sanitary seal. The casings shall be adequately secured such that no damage or contamination will occur during this period.

END OF SECTION

11. WELL HEAD COMPLETION

11.1 GENERAL

11.1.1 Description

This Section includes the completion of the well head by installing a monument above-ground surrounded by cement-filled bollards.

11.1.2 Measurement and Payment

Payment of the well completion shall be made at the unit price for Bid Item No. 11.

11.1.3 Related Work Specified Elsewhere

Section 6 WELL CASING AND SCREEN

11.2 MATERIALS

11.2.1 Above-Ground Installation

1. The above-ground monument installed to protect the wellhead shall be an EMCO Wheaton A0728-006, or approved equal.
2. Four protective bollards comprised of mild steel piping measuring 4 inches in diameter and 7 feet in length, shall be used for each well site.
3. Structural concrete to backfill the holes that will hold the bollards in place and completely fill the interiors of the bollards.
4. Yellow reflecting paint and taping to increase the visibility of the bollards.

11.3 EXECUTION

11.3.1 Above-Ground Monument Installation

5. Upon completion of well development, the CONTRACTOR shall excavate around the well casing to approximately 2.5 feet below ground surface, to a sufficient width, to facilitate the installation of the monument.
6. CONTRACTOR shall cut off the well casing such that the casing extends approximately 24 inches above the top of surrounding ground surface. The cut edges shall be regular in appearance and CONTRACTOR shall file the edges to remove all burrs and sharp corners from the edge. CONTRACTOR shall equip each cut well casing with a fitted J-plug.
7. CONTRACTOR shall install an approximate six-inch thick layer of crushed rock base in the base area between the well casing and the excavation walls to support the monument. The rock base shall be compacted and leveled to provide a supportive surface.
8. CONTRACTOR shall install the monument on top of the crushed rock base such that the elevation of the top of the monument is approximately three-feet above the surrounding ground surface.
9. CONTRACTOR shall install an additional approximate six-inch layer of crushed rock base in the space between the monument and the well casing, and in the space between the monument and the surrounding excavation walls, to provide lateral stability to the vault. The rock base shall be compacted and leveled within the vault to provide a supportive surface free of trip hazards.

10. CONTRACTOR shall install concrete between the monument and the excavation walls, from the top of the rock base to an elevation matching the surrounding grade.
11. CONTRACTOR shall install a concrete pad measuring four feet by four feet by four-inches in thickness, centered on the monument. The concrete pad shall consist of structural concrete installed in a single pour at the same time the concrete is placed surrounding the monument.
12. CONTRACTOR shall install four bollards around the well monument to protect the well casing from vehicular traffic, such that they are positioned no more than six (6) inches from the corners of the concrete pad and spaced no more than five (5) feet along the concrete pad sides, as determined by the Engineer. Each bollard shall be free of burrs and sharp corners. Each bollard shall be installed within 12-inch diameter holes excavated to a sufficient depth to set the bollard such that it extends approximately three (3) feet below grade and four (4) feet above grade. CONTRACTOR shall set each bollard within structural concrete and completely fill its interior such that it has a rounded top.
13. CONTRACTOR shall paint the monument and each bollard with yellow reflecting paint and affix a band of reflecting tape completely around the circumference bollard, two inches from the top of the bollard.

END OF SECTION

12. WELL DEVELOPMENT

12.1 GENERAL

12.1.1 Description

This Section specifies the initial development of the well by employing flushing, bailing, airlifting and pumping. The actual well development procedure may vary from well to well dependent upon actual characteristics of the formations encountered during drilling. The following is a typical procedure to be utilized for well development.

12.1.2 Measurement and Payment

9. Payment for well development will be made at the unit price bid per hour for Bid Item No. 12.
10. The time required for well development will be recorded by the hour with 15-minute intervals as the smallest unit of recorded time. The time recorded for payment shall commence when the equipment installed in the well is placed in operation and shall end when development has stopped at the direction of the Engineer.
11. No payment will be made for delays resulting from:
 - a. equipment stuck in the well casing;
 - b. equipment breakdown;
 - c. arranging major drilling, pumping or testing apparatus;
 - d. failure to conduct the operations in a diligent and workmanlike manner by which the desired results could ordinarily be expected;
 - e. additional development that is required as a result of damaged well casing or screen, voids in the gravel envelope, or any construction related defect resulting in additional well development.

12.1.3 Submittals

1. If the Contractor utilizes a holding tank that previously contained other liquids (i.e. a tank that is not new), laboratory test results of the holding tank rinsate shall be provided to the Engineer, prior to the delivery of the subject holding tank to the site. The tank rinsate shall be tested for volatile organic compounds by EPA Test Method 8260B, volatile fuel hydrocarbons by EPA Test Method 8015M and extractable fuel hydrocarbons by EPA Test Method 8015M, by a laboratory certified by the State Water Resources Control Board, Environmental Laboratory Accreditation Program. None of the subject compounds shall be detected above the laboratory method detection limit.
2. Daily well development reports recording time and procedures completed during each shift, as well as total chargeable hours for each day and total gallons generated, shall be submitted to the Engineer on a daily basis.
3. Daily well development records recording flow rates, EC, TDS, nephelometric turbidity units (NTU), pH, airline length, and all other information as required by the Engineer for the period of well development shall be submitted on a daily basis.

12.1.4 Related Work Specified Elsewhere

None.

12.2 MATERIALS

12.2.1 Bailer

A suction bailer shall be provided with the appropriate fittings to allow for the removal of debris, which might accumulate in the bottom of each well casing.

12.2.2 Air Compressor, Airline, and Eductor Pipe

An air compressor with airline, eductor pipe and appropriate fittings shall be onsite during the initial airlifting phase of the well development. The air compressor shall be of ample size for maximum airlifting capabilities. The air compressor shall have an effective external air-oil separator. Eductor pipe used in the development of the monitoring wells shall be a maximum 4-inch pipe size (i.e., well casing diameter). The size of the airline shall be a maximum 3/4-inch inner diameter to ensure good flow rates through the eductor pipe (i.e., well casing), and shall be fitted with a dump valve capable of discharging "downhole" air to the atmosphere.

Additional materials necessary to complete secondary development shall include a flow meter, pH and EC/TDS meters, and a water level tape. The flow meter shall be capable of measuring a maximum of 20 cfm of air, such as Dwyer Instruments Inc., Series RM Rate-Master Flow meter Model No. RMC-10-inch scale, or approved equal. The flow meter shall be mounted on the airline leading from the air compressor to the well in conjunction with a pressure gauge capable of measuring maximum air pressure on the airline, and fittings for a dump valve to discharge air to the atmosphere.

12.2.3 Submersible Pump

A submersible pump compatible with the well casing size shall be used to pump each well as a final step in the well development process.

12.2.4 Holding Tanks

The CONTRACTOR shall use a drum(s) or tank(s) to store water generated during well development activities. It is anticipated that flow rates shall be five-gallons per minute (gpm) while performing well development. The CONTRACTOR shall anticipate/provide adequate containment volume (e.g., number of drums) to maintain efficient operations.

The well development water shall be temporarily stored at the Oasis Sanitary landfill.

12.2.5 Discharge Piping

The CONTRACTOR shall provide the temporary discharge piping required to convey well development water to the appropriate holding tank(s).

12.2.6 Screen Brush

The CONTRACTOR shall provide a nylon brush to remove fine grained materials from the screened interval for each well.

12.3 EXECUTION

12.3.1 Development Procedures

1. The CONTRACTOR shall commence initial development no sooner than 24 hours after completion of the sanitary seal.

2. The CONTRACTOR will place a tremie down to the bottom of each casing open-ended, flush the well casing with at least two casing volumes of fresh water, at the discretion of the Engineer, and then airlift until clean. Once airlifting is complete the CONTRACTOR shall remove the tremie, unless bailing is necessary, as directed by the Engineer.
3. Each casing shall be bailed of sediment, as required, to clean the casing to the bottom. If the sediment thickness is greater than five feet, then the CONTRACTOR may be asked to utilize eductor pipe to airlift the sediment.
4. Following bailing, the CONTRACTOR shall measure and record the static water level in the casing and prepare for airlifting. The CONTRACTOR will be required to fabricate an airlift discharge head to accommodate return flow and airline. An airline submergence of at least 60 percent and 80 percent maximum is recommended. The CONTRACTOR shall airlift and surge each well casing and record water quality parameters and purging data. Data shall be recorded at 15-minute intervals until development of a well casing is deemed complete and/or as directed by the Engineer. The well casing shall be surged at 15-minute intervals or as directed by the Engineer. During development the CONTRACTOR shall keep development records. This procedure will be repeated for each of the well casings.
5. Should airlifting not be feasible due to the depth to groundwater or low specific capacity, a submersible pump may be used in-lieu of airlifting. The submersible pump inlet shall be set as close to the screened interval as possible.
6. Once all well casings have been developed by airlifting, the CONTRACTOR shall sound the bottom of each well. If the level of sediment is within or above the perforation interval then the CONTRACTOR shall bail the well until the perforations are clear of sediment.
7. Well development shall continue until the turbidity is similar to existing groundwater wells at the site. The target turbidity for well development is 85 NTU.
8. The CONTRACTOR shall continue well development activities until the Engineer directs the CONTRACTOR to stop.

12.3.2 Well Development Water

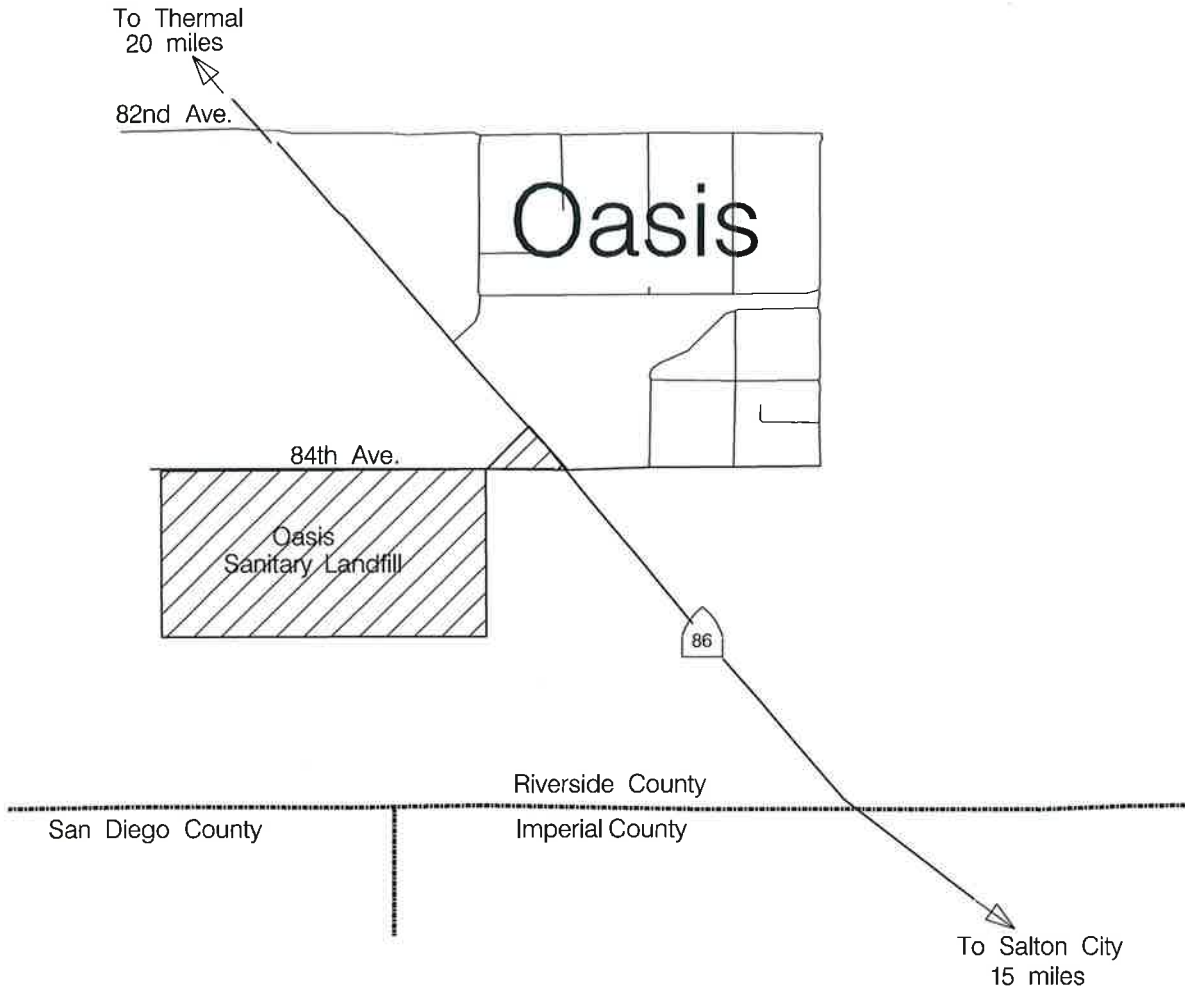
1. All fluids generated during well development shall be temporarily contained by the CONTRACTOR in holding tank(s) provided by the CONTRACTOR.
2. The County shall be responsible for the final disposal of the development water.
3. If the CONTRACTOR chooses to retrieve the holding tank(s) that were used to temporarily store the development water, the County shall empty the holding tank(s) within 7 working days following completion of well development activities. The County shall dispose of the development water only. The County shall not clean or decontaminate the holding tank(s).

END OF SECTION

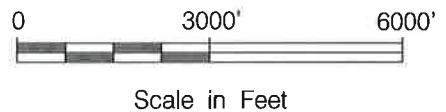
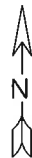
Map 1 – Oasis Sanitary Landfill Vicinity Map

Oasis Sanitary Landfill Vicinity Map

Por. Secs. 29 & 31 T8S R9E S.B.B.M.



Legend	
Paved Access Roads	
Other Roads	
Sanitary Landfill	



Oasis Sanitary Landfill
Vicinity Map

Date: November 2015





Map 1

File Directory: /eviron/sites/oasis/water/vicinitymap.dgn

Map 2 –Groundwater Wells OMW-5 and OMW-6 Location Map



LEGEND

-  Groundwater Well Location
-  Landfill Footprint
-  Property Line
-  Proposed Groundwater Monitoring Well



Oasis Sanitary Landfill

Proposed Location of Groundwater Monitoring Wells OMW-5 and OMW-6

Photo Date : January 2014	Scale : Bar Scale	Map 2
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