



# SOLICITATION AMENDMENT

**Materials Management Procurement**  
 9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
 Peoria, Arizona 85345-6560  
 Telephone: (623) 773-7115  
 Fax: (623) 773-7118

Solicitation No: P14-0038  
 Description: Lake Pleasant Parkway/Loop 303 Well - Construction  
 Amendment No: One (1)  
 Solicitation Due Date: December 4, 2013  
 Solicitation Due Time: 2:00 P.M. Arizona Time

**Buyer: Christine Finney**

**A signed copy of this Amendment shall be received by the City of Peoria, Materials Management no later than the Solicitation Due Date and Time.**

The solicitation is hereby amended as follows:

**A. Technical Specifications, Page TS-53, Section 10.3.14 is amended as shown below:**

**10.3.14 Item 14 – Rig Hourly Rate (Allowance Item)**

Item 14 consists of the cost of maintaining equipment with and without personnel if a work stoppage occurs at the well, which is not due to any fault of the CONTRACTOR or SUBCONTRACTORS. ~~An 8 hour standby period is allotted to accommodate costs associated with the geophysical logging in accordance with Section 7.3.2.~~ Payment for any hourly time is subject to approval by the CONSULTANT and OWNER. The hourly rate with crew is also applicable to Lost Circulation Conditions as described in Section 6.4 and Low Penetration Rate Conditions as described in Section 6.5 assuming all conditions of each clause are met in full. Payment will be made on an hourly basis.

**B. Bid Schedule, Page 26 of 34, Item 14(A), Rig Hourly Rate (With Crew) is amended to change the quantity from eight (8) to zero (0). Bidders shall utilize the attached Revised (Amd#1) Bid Schedule when submitting their bid.**

**C. The pre-bid sign-in sheet and Power Point Demonstration are also included in this amendment.**

*All other provisions of this Solicitation shall remain in their entirety.*

Vendor hereby acknowledges receipt and agreement with the amendment.

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Typed Name and Title

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
City State Zip

The above referenced Solicitation Amendment is hereby Executed

November 21, 2013

at Peoria, Arizona by:







**UT00117 – Wells – New Construction  
Lake Pleasant Parkway/Loop 303 Well**

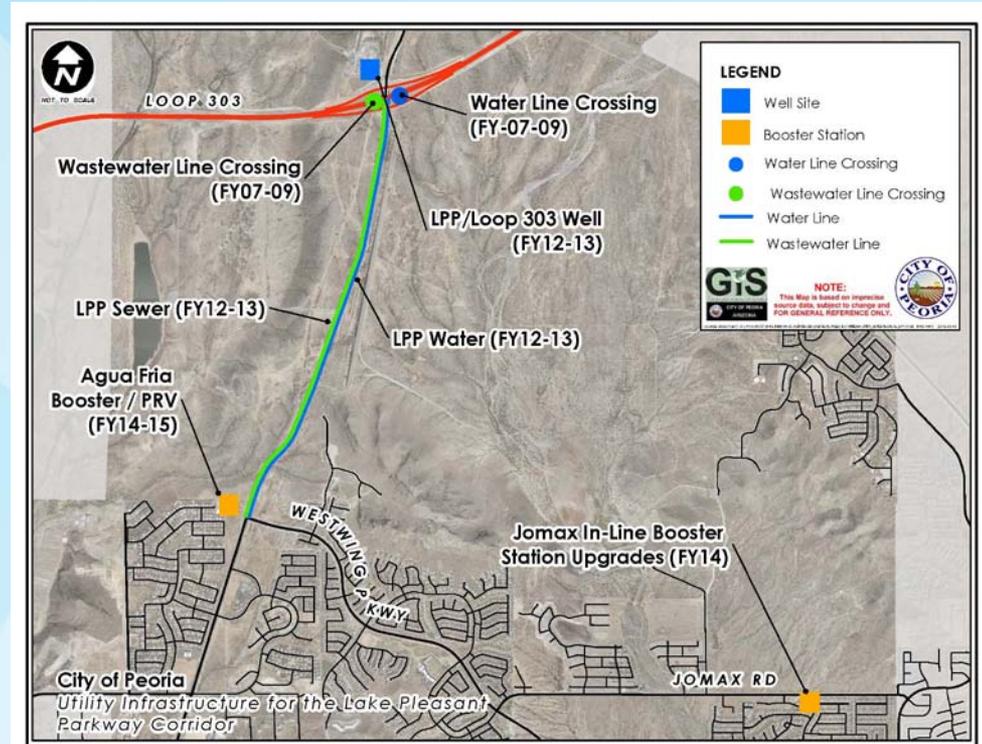
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# Project Background

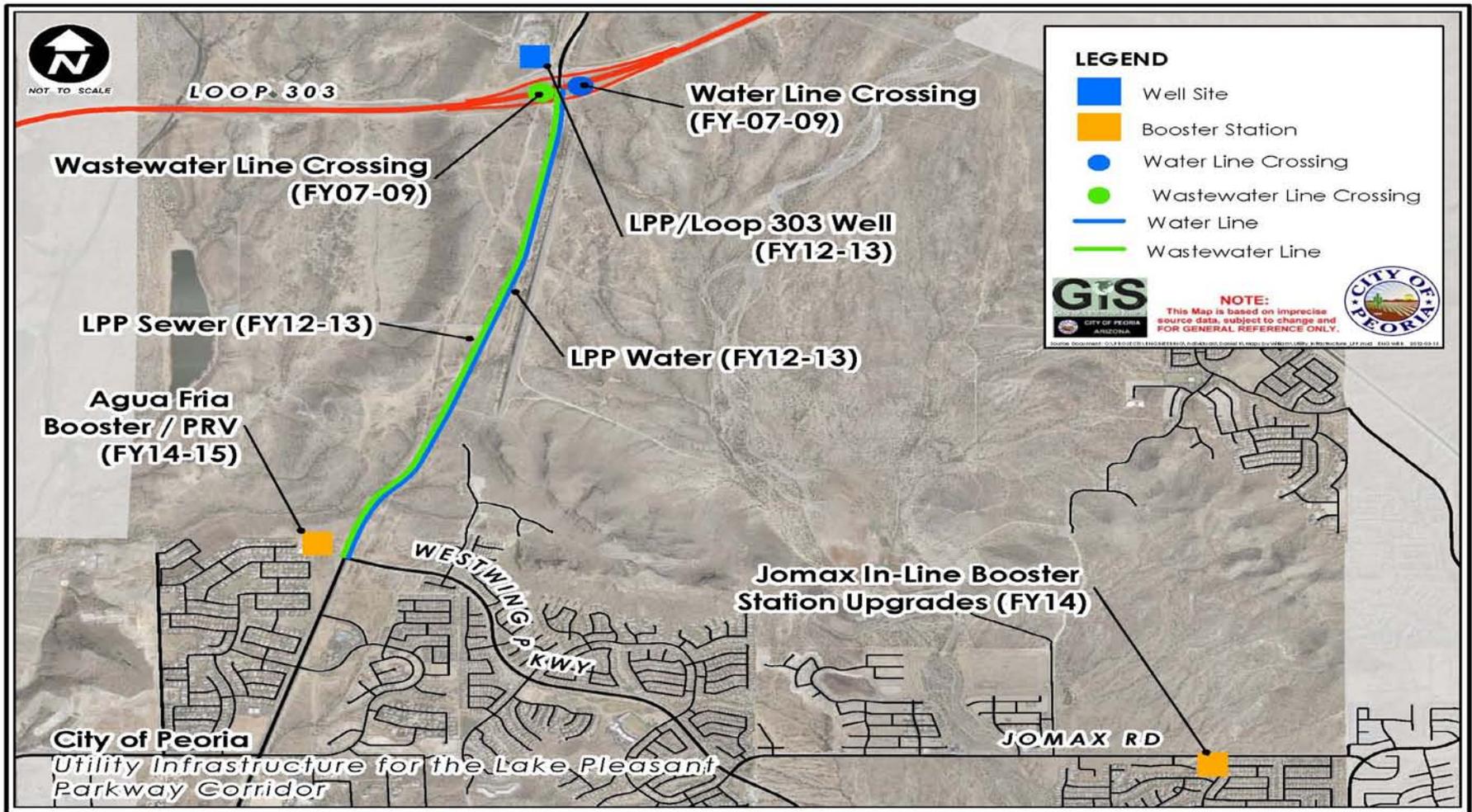
# Project Background

## Proposed Site Location

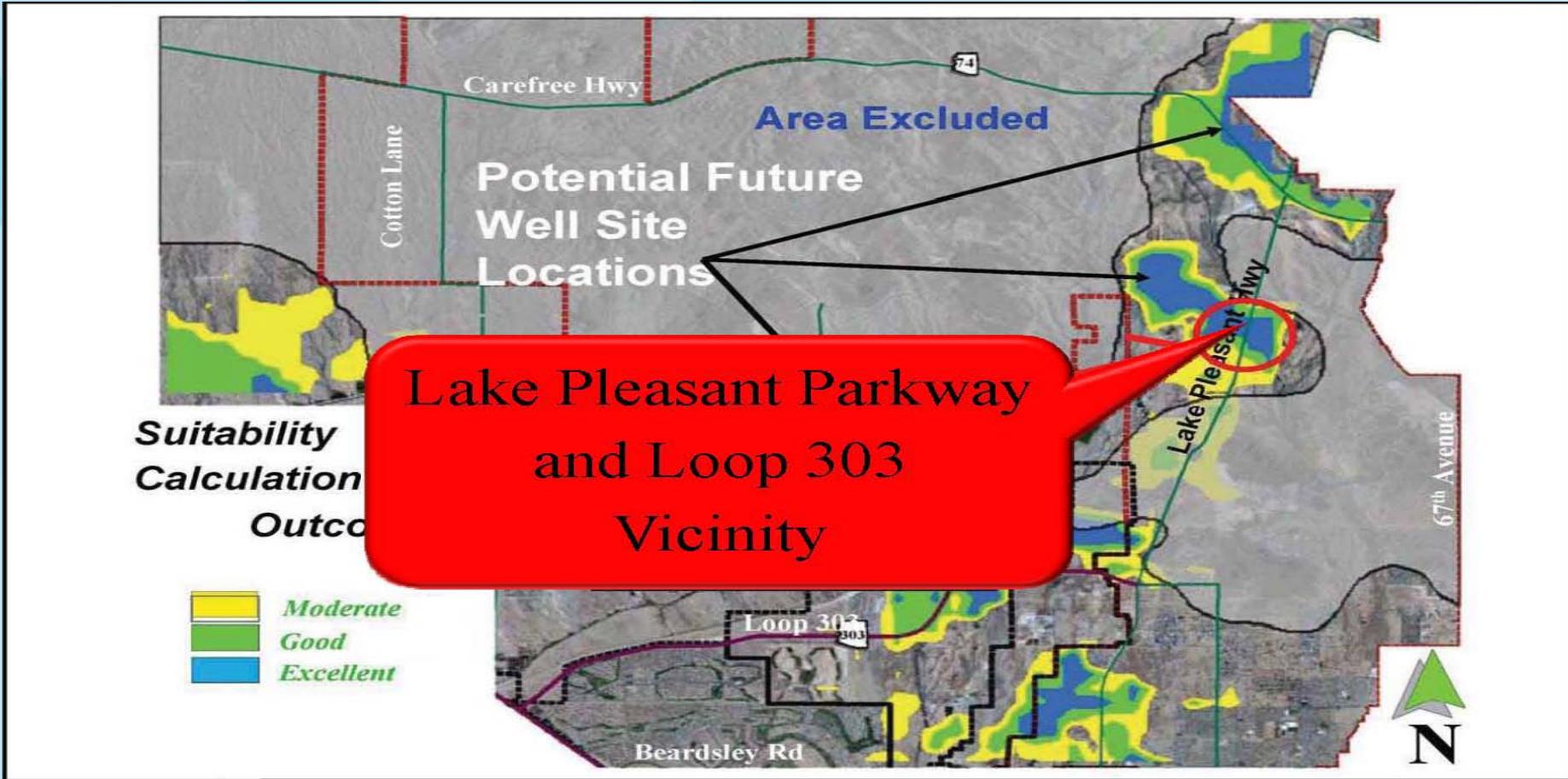
- Well to connect to new 24-inch water main being constructed in 2013.
- Proposed location on the NW corner of Loop 303 and Lake Pleasant Parkway interchange.
- City staff currently working with ASLD to acquire the land.
- Area looks promising for water, yet no existing wells are nearby.



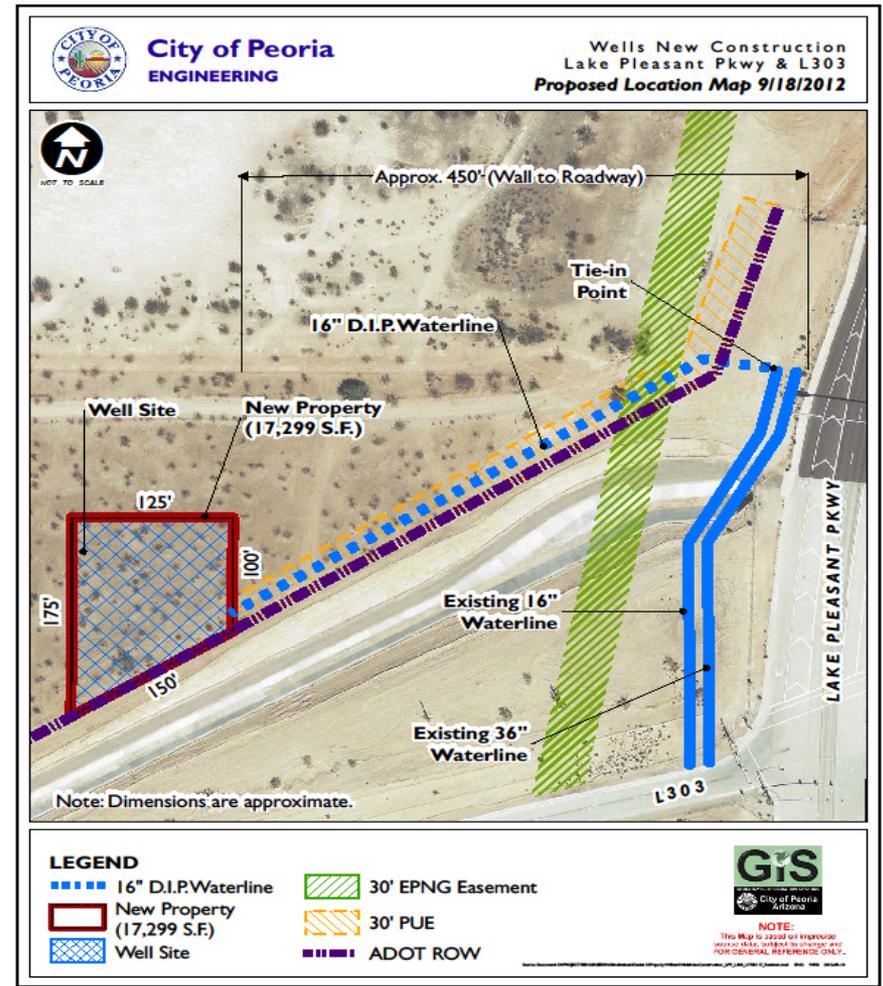
## Project Background



## Project Background



# Project Background



# Contractor Expectations

## Contractor Expectations

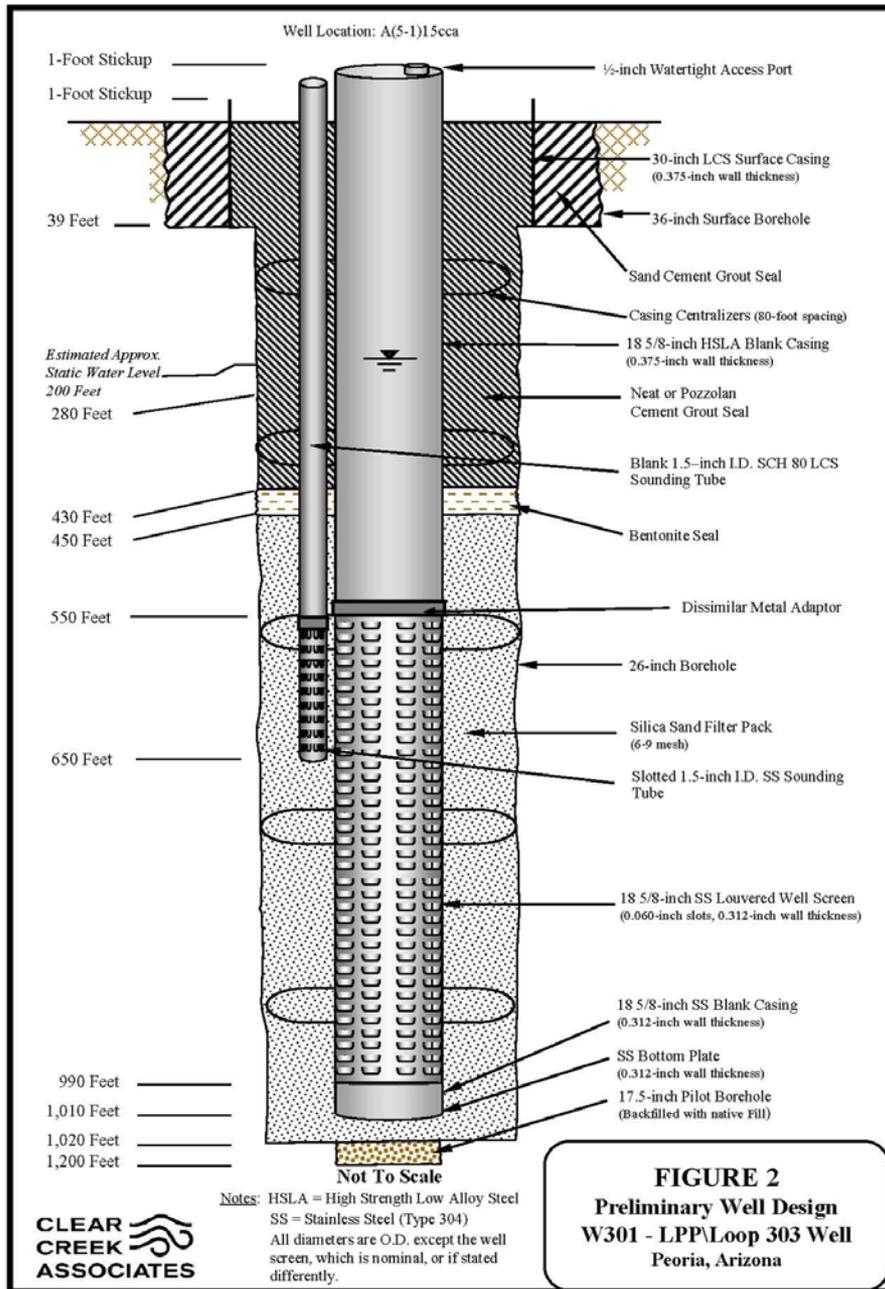
### Scope of Work Clarifications

- Plan for two mobilizations
- Pilot Well Drilling
- Production Well Drilling

### Proposed Schedule

- Pilot Well Drilling – January 2014
- Evaluation of Results – March/April 2014
- Land Auction Process – May thru November 2014
- Production Well Drilling – December 2014





**FIGURE 2**  
**Preliminary Well Design**  
**W301 - LPP\Loop 303 Well**  
**Peoria, Arizona**

1954

**Questions?**



## INVITATION FOR BID

CONSTRUCTION PROJECT

### MATERIALS MANAGEMENT

#### Procurement

9875 N. 85<sup>th</sup> Ave, 2<sup>nd</sup> Fl  
Peoria, Arizona 85345-6560

Telephone: (623) 773-7115  
Fax: (623) 773-7118

## City of Peoria Plans and Bid Documents

Solicitation Number: **P14-0038**

Solicitation Description: **Lake Pleasant Parkway/Loop 303 Well**

Prospective Bidders' Conference: November 19, 2013 8:00 a.m., AZ time

Due Date: December 4, 2013 2:00 p.m., AZ Time

### Bid Documents and Technical Specifications may be picked up at:

MATERIALS MANAGEMENT - PROCUREMENT  
9875 N. 85th Avenue, 2nd Floor  
Peoria, Arizona 85345-6560

or downloaded via:

<http://www.peoriaaz.gov/NewSecondary.aspx?id=51225>

### Technical Specifications may also be accessed via the following FTP website:

<https://cityftps.peoriaaz.gov> or <ftp://cityftps.peoriaaz.gov>

User ID: ftpsolicitation

Password: AEC91&!v

(Note: password is case sensitive)

**Disclaimer:** The City of Peoria provides current and complete solicitation information, updates and amendments to registered Plan Holders only. To register as a Plan Holder, solicitations must be obtained from the City of Peoria Materials Management Division or viewed or downloaded online at <http://www.peoriaaz.gov/NewSecondary.aspx?id=51225>. In order to obtain or download a bid solicitation package, a valid e-mail address is required. Bidders will then be automatically notified when amendments to the bid are released. The City assumes no liability or duty to so update or to send any update to persons who are not Plan Holders. Any person who acquires solicitation documents from any source other than the City of Peoria website or directly from the Materials Management Division, has no assurance that the solicitation is valid. No person may amend any solicitation, nor may any person publish it without this disclaimer.

Technical Specifications prepared by:

**Clear Creek Associates, PLC**  
6155 East Indian School Rd. Ste 200  
Scottsdale, AZ 85251



# City of Peoria, Arizona



## Notice of Invitation for Bid

Invitation for Bid No: **P14-0038** Bid Due Date: **December 4, 2013**  
 Materials and/or Services: **Lake Pleasant Parkway/Loop 303 Well** Time: 2:00 P.M. AZ time  
 Project No: **UT00117** City of Peoria, Materials Management Contact: **Christine Finney**  
 Mailing Address: **9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl., Peoria, AZ 85345** Phone: **(623) 773-7115**

In accordance with City of Peoria Procurement Code competitive sealed bids for the material or services specified will be received by the City of Peoria Materials Management at the specified location until the date and time cited above. Bids received by the correct date and time shall be publicly opened and the bid price read. Bids shall be in the actual possession of the City of Peoria Materials Management on or prior to the exact date and time indicated above. Late bids will not be considered, except as provided in the City of Peoria Procurement Code. **Bids shall be submitted in a sealed envelope with the Invitation for Bid number and the bidder's name and address clearly indicated on the front of the envelope.** All bids shall be completed in ink or typewritten. Bidders are strongly encouraged to carefully read the *entire* Invitation for Bid Package.

### OFFER

To the City of Peoria: The undersigned hereby offers and agrees to furnish materials and/or services in compliance with all terms, conditions, specifications and amendments in the Notice of Invitation for Bid except for any written exceptions in the offer. The signature below also certifies his or her understanding and compliance with paragraph one of The City of Peoria Standard Terms and Conditions (COP Form 202).

For clarification of this offer contact: Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Name: \_\_\_\_\_ Email: \_\_\_\_\_

Company Name	Authorized Signature for Offer
Address	Printed Name
City State Zip Code	Title

### ACCEPTANCE OF OFFER AND CONTRACT AWARD (For City of Peoria Use Only)

Your offer is hereby accepted. The Contractor is now bound to sell the materials and/or services listed by the attached award notice based upon the solicitation, including all terms conditions, specifications, amendments, etc., and the Contractor's offer as accepted by the City. The Contractor is hereby cautioned not to commence any billable work or provide any material, service or construction under this contract until Contractor receives an executed **Purchase Order**.

Attested by:  _____ Rhonda Geriminsky, City Clerk  _____ CC  _____ Contract Number  _____ Official File	City of Peoria, Arizona. Eff. Date: _____  Approved as to form:  _____ Stephen M. Kemp, City Attorney  Awarded on _____, _____  _____ Dan Zenko, Materials Manager
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# City of Peoria, Arizona

## Notice of Invitation for Bid



### 1. PREPARATION OF BID:

- a. All bids shall be submitted on the forms provided in this *Invitation to Bid* package. It is permissible to copy these forms if required. Telegraphic (facsimile), electronic or mailgram bids will not be considered.
- b. The Offer and Contract Award document shall be submitted with an original ink signature by a person authorized to sign the offer.
- c. Erasures, interlineations, or other modifications in the bid shall be initialed in original ink by the authorized person signing the Offer.
- d. If price is a consideration and in case of error in the extension of prices in the bid, the unit price shall govern. No bid shall be altered, amended, or withdrawn after the specified bid due date and time.
- e. Periods of time, stated as a number of days, shall be calendar days.
- f. Bid due date and time is stated as local Arizona time.
- g. It is the responsibility of all Offerors to examine the entire *Invitation For Bid* package and seek clarification of any item or requirement that may not be clear and to check all responses for accuracy before submitting a bid. Negligence in preparing a Bid confers no right of withdrawal after bid due date and time.

2. **INQUIRIES:** Any question related to the *Invitation For Bid* shall be directed to the Buyer whose name appears as the contact on the IFB. The Offeror shall not contact or ask questions of the department for which the requirement is being procured. Questions should be submitted in writing when time permits. The Buyer may require any and all questions be submitted in writing at the Buyer's sole discretion. Any correspondence related to an *Invitation For Bid* should refer to the appropriate *Invitation For Bid* number, page, and paragraph number. Offeror shall identify the envelope as containing questions since such an envelope may be identified as a sealed bid and may not be opened until after the official *Invitation For Bid* due date and time.

3. **PROSPECTIVE OFFERORS CONFERENCE:** A prospective offerors conference may be held. If scheduled, the date and time of this conference will be indicated on the cover page of this document. The purpose of this conference will be to clarify the contents of this *Invitation For Bid* in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this *Invitation For Bid* or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine if any action is necessary and may issue a written amendment to the *Invitation For Bid*. Oral statements or instructions will not constitute an amendment to this *Invitation For Bid*.

4. **LATE BIDS:** Late Bids will not be considered, except as provided by the **City of Peoria Procurement Code**. A vendor submitting a late bid shall be so notified.

5. **WITHDRAWAL OF BID:** At any time prior to the specified bid due date and time, a Vendor (or designated representative) may withdraw the bid.

6. **AMENDMENT OF BID:** Receipt of a Solicitation Amendment shall be acknowledged by signing and returning the document with the offer at the specified bid due date and time.

7. **PAYMENT:** The City will make every effort to process payment for the purchase of construction services within fourteen (14) calendar days after an approved pay request is received with a correct notice of amount due, unless a good faith dispute exists as to any obligation to pay all or a portion of the account.

8. **VENDOR REGISTRATION:** After the award of a contract, the successful Vendor shall complete a Vendor Registration Application and submit it to the City of Peoria Materials Management Division.

### 9. AWARD OF CONTRACT:

- a. Unless the Offeror states otherwise, or unless provided within this *Invitation For Bid*, the City reserves the right to award by individual line item, by group of line items, or as a total, whichever is determined by the Materials Manager to be most advantageous to the City.
- b. Notwithstanding any other provision of this *Invitation For Bid*, The City expressly reserves the right to:
  - i. Waive any immaterial defect or informality; or
  - ii. Reject any or all bids, or portions thereof, or
  - iii. Reissue a *Invitation For Bid*.
- c. A response to a *Invitation For Bid* is an offer to contract with the City based upon the terms, conditions and specifications contained in the City's *Invitation For Bid* and the written amendments thereto, if any. Bids do not become contracts unless and until they are accepted and executed by the **City Council or Materials Manager**. A contract is formed when written notice of award(s) is provided to the successful Offeror(s). The contract has its inception in the award document, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the procurement contract are contained in the *Invitation For Bid*; unless modified by an Amendment.



## STANDARD TERMS AND CONDITIONS

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**THE FOLLOWING TERMS AND CONDITIONS ARE AN EXPLICIT PART OF THE SOLICITATION AND ANY RESULTANT CONTRACT.**

1. **CERTIFICATION:** By signature in the Offer section of the Offer and Contract Award page the Contractor certifies:
  - a. The submission of the offer did not involve collusion or other anti-competitive practices.
  - b. The Contractor shall not discriminate against any employee or applicant for employment.
  - c. The Contractor has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip favor, or service to a public servant in connection with the submitted offer. Failure to sign the offer, or signing it with a false statement, shall void the submitted offer or any resulting contracts, and the vendor may be debarred.
2. **BRIBES AND KICK-BACKS:** The General Contractor shall not by any means:
  - a. Induce any person or entity employed in the construction of the Project to give up any part of the compensation to which that person or entity is entitled;
  - b. Confer on any governmental, public or quasi-public official having any authority or influence over the Project, any payment, loan subscription, advance, deposit of money, services or anything of value, present or promised;
  - c. Offer nor accept any bribes or kick-backs in connection with the Project from or to any individual or entity, including any of its trade contractors, subcontractors, consultants, suppliers or manufacturers of Project goods and materials; or,
  - d. Without the express written permission of the Owner, call for or by exclusion require or recommend the use of any subcontractor, consultant, product, material, equipment, system, process or procedure in which the General Contractor has a direct or indirect proprietary or other pecuniary interest.
3. **APPLICABLE LAW:** In the performance of this agreement, contractors shall abide by and conform to any and all laws of the United States, State of Arizona and City of Peoria including but not limited to federal and state executive orders providing for equal employment and procurement opportunities, the Federal Occupational Safety and Health Act and any other federal or state laws applicable to this agreement.

Contractor specifically understands and acknowledges the applicability to it of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986, and the Drug Free Workplace Act of 1989. In addition, if this agreement pertains to construction, Contractor must also comply with A.R.S. § 34-301, as amended (Employment of Aliens on Public Works Prohibited) and A.R.S. § 34-302, as amended (Residence Requirements for Employees).

Under the provisions of A.R.S. § 41-4401, Contractor hereby warrants to the City that Contractor and each of its subcontractors ("Subcontractors") will comply with, and are contractually obligated to comply with, all Federal immigration laws and regulations that relate to their employees and A.R.S. § 23-214(A) (hereinafter, "Contractor Immigration Warranty").

A breach of the Contractor Immigration Warranty shall constitute a material breach of this agreement and shall subject Contractor to penalties up to and including termination of this agreement at the sole discretion of the City. The City may, at its sole discretion, conduct random verification of the employment records of Contractor and any Subcontractors to ensure compliance with the Contractor Immigration Warranty. Contractor agrees to assist the City in regard to any random verifications performed.

Neither Contractor nor any Subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if Contractor or the Subcontractor establishes that it has complied with the employment verification provisions prescribed by §§ 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. §23-214(A).

The provisions of this Paragraph must be included in any contract Contractor enters into with any Subcontractors who provide services under this agreement or any subcontract. "Services" is defined as furnishing labor, time or effort in the



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State of Arizona by a contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

Contractor warrants, for the term of this agreement and for six months thereafter, that it has fully complied with the requirements of the Immigration Reform and Control Act of 1986 and all related or similar legal authorities.

This contract shall be governed by the City and Contractor shall have all remedies afforded each by the Uniform Commercial Code, as adopted in the State of Arizona, except as otherwise provided in this contract or in statutes pertaining specifically to the City. This contract shall be governed by the laws of the State of Arizona and suit pertaining to this contract may be brought only in courts in the State of Arizona.

This contract is subject to the provisions of ARS §38-511; the City may cancel this contract without penalty or further obligations by the City or any of its departments or agencies if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the City or any of its departments or agencies, is at any time while the contract or any extension of the contract is in effect, an employee of any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract.

4. **LEGAL REMEDIES:** All claims and controversies shall be subject to resolution according to the terms of the City of Peoria Procurement Code.
5. **CONTRACT:** The contract between the City and the Contractor shall consist of (1) the Solicitation, including instructions, all terms and conditions, specifications, scopes of work, attachments, price sheet(s) and any amendments thereto, and (2) the offer submitted by the Contractor in response to the solicitation. In the event of a conflict in language between the Solicitation and the Offer, the provisions and requirements in the Solicitation shall govern. However, the City reserves the right to clarify, in writing, any contractual terms with the concurrence of the Contractor, and such written contract shall govern in case of conflict with the applicable requirements stated in the Solicitation or the Vendor's offer. The Solicitation shall govern in all other matters not affected by the written contract.
6. **CONTRACT AMENDMENTS:** This contract may be modified only by a written Contract Amendment signed by persons duly authorized to enter into contracts on behalf of the City and the Contractor.
7. **CONTRACT APPLICABILITY:** The Offeror shall substantially conform to the terms, conditions, specifications and other requirements found within the text of this Solicitation. All previous agreements, contracts, or other documents, which have been executed between the Offeror and the City are not applicable to this Solicitation or any resultant contract.
8. **PROVISIONS REQUIRED BY LAW:** Each and every provision of law and any clause required by law to be in the contract will be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract will forthwith be physically amended to make such insertion or correction.
9. **SEVERABILITY:** The provisions of this contract are severable to the extent that any provision or application held to be invalid shall not affect any other provision or application of the contract which may remain in effect without the invalid provision or application.
10. **RELATIONSHIP TO PARTIES:** It is clearly understood that each party will act in its individual capacity and not as an agent, employee, partner, joint venturer, or associate of the other. An employee or agent of one party shall not be deemed or construed to be the employee or agent of the other for any purpose whatsoever. The Contractor is advised that taxes or Social Security payments will not be withheld from any City payments issued hereunder and that the Contractor should make arrangements to directly pay such expenses, if any.
11. **INTERPRETATION-PAROL EVIDENCE:** This contract represents the entire agreement of the Parties with respect to its subject matter, and all previous agreements, whether oral or written, entered into prior to this contract are hereby revoked and superseded by this contract. No representations, warranties, inducements or oral agreements have been made by any of the Parties except as expressly set forth herein, or in any other contemporaneous written agreement executed for the purposes of carrying out the provisions of this contract. This contract may not be changed, modified or rescinded except as



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provided for herein, absent a written agreement signed by both Parties. Any attempt at oral modification of this contract shall be void and of no effect.

12. **NO DELEGATION OR ASSIGNMENT:** Contractor shall not delegate any duty under this Contract, and no right or interest in this Contract shall be assigned by Contractor to any successor entity or third party, including but not limited to an affiliated successor or purchaser of Contractor or its assets, without prior written permission of the City. The City, at its option, may cancel this Contract in the event Contractor undertakes a delegation or assignment without first obtaining the City's written approval. Contractor agrees and acknowledges that it would not be unreasonable for the City to decline to approve a delegation or assignment that results in a material change to the services provided under this Contract or an increased cost to the City.
13. **SUBCONTRACTOR / SUPPLIER CONTRACTS:** The Contractor shall enter into written contracts with its subcontractor(s) and supplier(s), if any, and those written contracts shall be consistent with this Contract for Construction. It is the intent of the Owner and the Contractor that the obligations of the Contractor's subcontractor(s) and supplier(s), if any, inure to the benefit of the Owner and the Contractor, and that the Owner be a third-party beneficiary of the Contractor's agreements with its subcontractor(s) and supplier(s).
- The Contractor shall make available to each subcontractor and supplier, if any, prior to the execution of written contracts with any of them, a copy of the pertinent portions of this Contract for Construction, including those portions of the Construction documents to which the subcontractor or supplier will be bound, and shall require that each subcontractor and supplier shall similarly make copies of applicable parts of such documents available to its respective subcontractor(s) and supplier(s).
  - The Contractor shall engage each of its subcontractor(s) and supplier(s) with written contracts which preserve and protect the rights of the Owner and include the acknowledgment and agreement of each subcontractor or supplier that the Owner is a third-party beneficiary of the contract. The Contractor's agreements with its subcontractor(s) and supplier(s) shall require that in the event of default under, or termination of, this Contract for Construction, and upon request of the Owner, the Contractor's subcontractor(s) and supplier(s) will perform services for the Owner.
  - The Contractor shall include in its agreements with its subcontractor(s) and supplier(s) a provision which contains the acknowledgment and agreement of the subcontractor or supplier that it has received and reviewed the applicable terms, conditions and requirements of this Contract for Construction that are included by reference in its written contract with the Contractor, and that it will abide by those terms, conditions and requirements.
14. **RIGHTS AND REMEDIES:** No provision in this document or in the vendor's offer shall be construed, expressly or by implication, as waiver by the City of any existing or future right and/or remedy available by law in the event of any claim of default or breach of contract. The failure of the City to insist upon the strict performance of any term or condition of the contract or to exercise or delay the exercise of any right or remedy provided in the contract, or by law, or the City's acceptance of and payment for materials or services, shall not release the Contractor from any responsibilities or obligations imposed by this contract or by law, and shall not be deemed a waiver of any right of the City to insist upon the strict performance of the Contract.
15. **INDEMNIFICATION:** To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work or services of the Contractor, its employees, agents, or any tier of subcontractors in the performance of this Contract. Contractor's duty to defend, hold harmless and indemnify the City, its agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work or services in the performance of this Contract including any employee of the Contractor or any tier of subcontractor or any other person for whose acts, errors, mistakes, omissions, work or services the Contractor may be legally liable.



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The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

16. **OVERCHARGES BY ANTITRUST VIOLATIONS:** The City maintains that, in practice, overcharges resulting from antitrust violations are borne by the purchaser. Therefore, to the extent permitted by law, the Contractor hereby assigns to the City any and all claims for such overcharges as to the goods and services used to fulfill the Contract.
17. **FORCE MAJEURE:** Except for payment for sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this Contract is prevented by reason of force Majeure. The term "*force majeure*" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Without limiting the foregoing, force majeure includes acts of God: acts of the public enemy; war; acts of terror, hate crimes affecting public order; riots; strikes; mobilization; labor disputes; civil disorders; fire; floods; lockouts, injunctions-intervention-acts, or failures or refusals to act by government authority; events or obstacles resulting from a governmental authority's response to the foregoing; and other similar occurrences beyond the control of the party declaring force majeure which such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring force majeure notifies the other party of the existence of the force majeure and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with this Contract.

Force majeure shall not include the following occurrences:

- a. Late delivery of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies, or similar occurrences.
- b. Late performance by a subcontractor unless the delay arises out of a force majeure occurrence in accordance with this Force Majeure term and Condition.

Any delay or failure in performance by either party hereto shall not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if, and to the extent that such delay or failure is caused by force majeure. If either party is delayed at any time in the progress of the work by force majeure, then the delayed party shall notify the other party in writing of such delay within forty-eight (48) hours commencement thereof and shall specify the causes of such delay in such notice. Such notice shall be hand delivered or mailed *Certified-Return Receipt* and shall make a specific reference to this article, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing. The time of completion shall be extended by contract modification for a period of time equal to the time that the results or effects of such delay prevent the delayed party from performing in accordance with this contract.

18. **RIGHT TO ASSURANCE:** Whenever one party to this contract in good faith has reason to question the other party's intent to perform he may demand that the other party give a written assurance of this intent to perform. In the event that a demand is made and no written assurance is given within five (5) days, the demanding party may treat this failure as an anticipatory repudiation of the Contract.
19. **RIGHT TO AUDIT RECORDS:** The City may, at reasonable times and places, audit the books and records of any Contractor as related to any contract held with the City. This right to audit also empowers the City to inspect the papers of any Contractor or Subcontractor employee who works on this contract to ensure that the Contractor or Subcontractor is complying with the Contractor Immigration Warranty made pursuant to Paragraph 3 above..
20. **WARRANTIES:** Contractor warrants that all material, service or construction delivered under this contract shall conform to the specifications of this contract. Unless otherwise stated in Contractor's response, the City is responsible for selecting items, their use, and the results obtained from any other items used with the items furnished under this contract. Mere receipt of shipment of the material/service specified and any inspection incidental thereto by the City shall not alter or affect the obligations of the Contractor or the rights of the City under the foregoing warranties. Additional warranty requirements may be set forth in the solicitation.
21. **INSPECTION:** All material and/or services are subject to inspection and acceptance by the City. Materials and/or services failing to conform to the specifications of this Contract will be held at Contractor's risk and may be returned to the



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Contractor. If so returned, all costs are the responsibility of the Contractor. The City may elect to do any or all of the following:

- a. Waive the non-conformance.
- b. Stop the work immediately.
- c. Bring material into compliance.

This shall be accomplished by a written determination from the City.

22. **TITLE AND RISK OF LOSS:** The title and risk of loss of material and/or service shall not pass to the City until the City actually receives the material or service at the point of delivery, unless otherwise provided within this Contract.
23. **NO REPLACEMENT OF DEFECTIVE TENDER:** Every tender of materials shall fully comply with all provisions of the Contract. If a tender is made which does not fully conform, this shall constitute a breach of the Contract as a whole.
24. **DEFAULT IN ONE INSTALLMENT TO CONSTITUTE TOTAL BREACH:** Contractor shall deliver conforming materials in each installment of lot of this Contract and may not substitute nonconforming materials. Delivery of nonconforming materials or a default of any nature, at the option of the City, shall constitute a breach of the Contract as a whole.
25. **SHIPMENT UNDER RESERVATION PROHIBITED:** Contractor is not authorized to ship materials under reservation and no tender of a bill of lading will operate as a tender of the materials.
26. **LIENS:** All materials, service or construction shall be free of all liens, and if the City requests, a formal release of all liens shall be delivered to the City.
27. **LICENSES:** Contractor shall have at the time of bid submittal, and shall maintain in current status, all Federal, State and Local licenses and permits required for the operation of the business conducted by the Contractor as applicable to this Contract. The conclusion of the issuing authority in each case is to be deemed conclusive for the purposes of complying with this provision. By submitting a bid for this public contract, you agree that, with respect to the contract, substantial compliance does not meet the minimum requirements of this or any provision hereof, or of any applicable law or other authority, and that strict compliance alone is adequate to meet those requirements, unless the City consents to such substantial compliance in writing at the time of bid submittal. The determination shall be made by the City.
28. **PATENTS AND COPYRIGHTS:** All services, information, computer program elements, reports and other deliverables, which may be patented or copyrighted and created under this contract are the property of the City and shall not be used or released by the Contractor or any other person except with the prior written permission of the City.
29. **PREPARATION OF SPECIFICATIONS BY PERSONS OTHER THAN CITY PERSONNEL:** All specifications shall seek to promote overall economy for the purposes intended and encourage competition and not be unduly restrictive in satisfying the City's needs. No person preparing specifications shall receive any direct or indirect benefit from the utilization of specifications, other than fees paid for the preparation of specifications.
30. **COST OF BID/PROPOSAL PREPARATION:** The City shall not reimburse the cost of developing presenting or providing any response to this solicitation. Offers submitted for consideration should be prepared simply and economically, providing adequate information in a straightforward and concise manner.
31. **PUBLIC RECORD:** All offers submitted in response to this solicitation shall become the property of the City and shall become a matter of public record available for review, subsequent to the award notification, in accordance with the City's Procurement Code. However, subsequent to the award of the contract, any information and documents obtained by the City during the course of an audit conducted in accordance with Paragraph 20 above for the purpose of determining compliance by Contractor or a Subcontractor with the Contractor Immigration Warranty mandated by Paragraph 3 above shall remain confidential and shall not be made available for public review or produced in response to a public records request, unless the City is ordered or otherwise directed to do so by a court of competent jurisdiction.
32. **ADVERTISING:** Contractor shall not advertise or publish information concerning this Contract, without prior written consent of the City.



## STANDARD TERMS AND CONDITIONS

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33. **DELIVERY ORDERS:** The City shall issue a Purchase Order for the material and/or services covered by this contract. All such documents shall reference the contract number as indicated on the Offer and Contract Award
34. **FUNDING:** Any contract entered into by the City of Peoria is subject to funding availability. Fiscal years for the City of Peoria are July 1 to June 30. The City Council approves all budget requests. If a specific funding request is not approved, the contract shall be terminated.
35. **PAYMENT:** A separate invoice shall be issued for each shipment of material or service performed, and no payment will be issued prior to receipt of material and/or services and correct invoice.
36. **PROHIBITED LOBBYING ACTIVITIES:** The Offeror, his/her agent or representative shall not contact, orally or in any written form any City elected official or any City employee other than the Materials Management Division, the procuring department, City Manager, Deputy City Manager or City Attorney's office (for legal issues only) regarding the contents of this solicitation or the solicitation process commencing from receipt of a copy of this request for proposals and ending upon submission of a staff report for placement on a City Council agenda. The Materials Manager shall disqualify an Offeror's proposal for violation of this provision. This provision shall not prohibit an Offeror from petitioning an elected official after submission of a staff report for placement on a City Council agenda or engaging in any other protected first amendment activity after submission of a staff report for placement on a City Council agenda.
37. **PROHIBITED POLITICAL CONTRIBUTIONS:** Consultant during the term of this Agreement shall not make a contribution reportable under Title 16, Chapter 6, Article 1, Arizona Revised Statutes to a candidate or candidate committee for any city elective office during the term of this Agreement. The City reserves the right to terminate the Agreement without penalty for any violation of this provision.



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1. **DEFINITIONS:** The terms, as used in or pertaining to the contract, are defined as follows:
  - CITY:** The word “City” shall refer to the City of Peoria, Arizona.
  - CONTRACTOR:** The word “Contractor” is defined as the person, firm or corporation with whom the contract is made by the City.
  - CONTRACT:** The word “Contract” will include the Invitation to Bid Notice, Instructions to Bidders, Bid, Bid Bond, Performance Bond, Payment Bond, Notice of Award, Notice to Proceed, Change Order, Certificate of Insurance & Schedule A, Certificate of Completion, Contractor’s Affidavit Regarding Settlement of Claims, Contractor’s Affidavit Certifying Non-Collusion in Bidding, Standard Terms & Conditions, General Terms & Conditions, Special Terms & Conditions, Technical Provisions, Performance Provisions, Plans and Addenda thereto.
  - ENGINEER:** The word “Engineer” is defined as the person, firm or corporation duly authorized by the City to act as agent in providing professional services including studies, planning, engineering design and construction administration services, inspecting materials and construction, and interpreting plans and specifications.
  - MATERIALS:** The word “Materials” will include, in addition to materials incorporated in the project, equipment and other material used and/or consumed in the performance of the work.
  - SUBCONTRACTOR:** The word “Subcontractor” is defined as those persons or groups of persons having a direct contract with the contractor and those who furnish material worked to a special design according to the plans and/or specifications for this work, and includes those who merely furnish materials not so worked.
  - WORK:** The word “Work” shall include all labor necessary to accomplish the construction required by the Contract and all materials and equipment incorporated or to be incorporated in said construction.
2. **REFERENCE STANDARDS:**
  - 2.1. The “Uniform Standard Specifications for Public Works Construction” and the “Uniform Standard Details for Public Works Construction” which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the “MAG Specifications,” are hereby adopted as part of these contract documents.
  - 2.2. July 15, 1997 by Section 23-50a of Ordinance 97-38, the City of Peoria adopted the “Uniform Standard Details for Public Works Construction from the Maricopa County Association of Governments by reference with certain exceptions.  
  
A copy of these documents is kept on file at the Office of the City Clerk at the City of Peoria.
  - 2.3. If any contradiction exists between “MAG Specifications” and this solicitation document, the solicitation language shall prevail.
3. **LAWS AND REGULATIONS:** The Contractor shall keep himself fully informed of all existing and future City and County ordinances and regulations and state and federal laws and Occupational Safety and Health Standards (OSHA) in any manner affecting the work herein specified. He shall at all times observe and protect and indemnify the City of Peoria, Arizona, and its officers and agents against any claim or liability arising from or based on the violation of any such ordinances, regulations or laws. It is the responsibility of the Contractor to obtain any and all information regarding the laws and regulations which may be referenced in the Specifications.
4. **RIGHTS OF WAY:** The City will provide Rights-of-Way and easements for all work specified in this contract, and the Contractor shall not enter or occupy with men, tools, equipment or materials any private ground outside the property of the City of Peoria, Maricopa County, Arizona, without the consent of the owner.  
  
The Contractor, at his own expense, is responsible for the acquisition of any additional easements or rights-of-way that he may desire to complete the work of this contract.
5. **PROPOSAL QUANTITIES:** It is expressly understood and agreed by the parties hereto that the quantities of the various classes of work to be done and the material to be furnished under this Contract, which have been estimated as stated in the Bids, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the bids offered for



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the work under this Contract. The Contractor further agrees that the City of Peoria will not be held responsible if any of the quantities shall be found incorrect; and the Contractor will not make any claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done. If any error, omission, or misstatement is found to occur in the estimated quantities, the same shall not invalidate this Contract or the whole or any part of the work in accordance with the Specifications and Plans herein mentioned, and for the prices herein agreed upon and fixed therefore, or excuse him from any of the obligations or liabilities hereunder, or entitle him to any damage or compensation except as may be provided in this contract.

6. **FEDERAL FUNDING:** It is the responsibility of the Contractor to determine on any project if federal wage rates apply. It is also the responsibility of the Contractor to incorporate any necessary amounts in the bid to accommodate for required federal record keeping and necessary pay structures. The Contractor should contact the City of Peoria regarding any applicable Davis Bacon wage rates.

7. **PAYMENTS TO CONTRACTOR:** Payments will be made on the basis of itemized statements provided by the Contractor in accordance with these Specifications. Three (3) copies of an itemized statement should be submitted to the Office of the City Engineer. After verification, payments will be processed by the Management Services Department. Payments will be mailed by the Engineering Division. The City will make a partial payment to the Contractor on the basis of an estimate prepared by the Contractor, and approved by the City Engineer, for work completed through the last day of preceding pay period. The City will retain ten percent (10%) of each such estimate until acceptance of the project. The City will accept Securities in lieu of retention provided the Financial Institution is approved by the City. When required by the City Engineer or his authorized representative for the purposes of determining the equitableness of the Contractor's payment request, the Contractor shall furnish evidence satisfactory to the City Engineer or his authorized representative, of the sums paid by the Contractor for materials, supplies and other items of expense (i.e., lien releases).

8. **LOSSES AND DAMAGES:** All loss or damage arising out of the nature of the work to be done or from the action of the elements or from any unforeseen circumstances in the prosecution of the same, or from any unusual obstructions or difficulties which may be encountered in and/or during the prosecution of the work, or from any casualty whatsoever of every description, shall be sustained and borne by the Contractor at his own cost and expense.

9. **CHARACTER AND STATUS OF WORKMEN:** Only skilled foremen and workmen shall be employed on work requiring special qualifications.

When required by the City Engineer, the Contractor shall discharge any person who is, in the opinion of the Engineer, disorderly, dangerous, insubordinate, incompetent, or otherwise objectionable. The Contractor shall keep the City harmless from damages or claims for compensation that may occur in the enforcement of this section.

The Contractor shall be responsible for assuring the legal working status of its employees and its subContractor's employees.

10. **WORK METHODS:** The methods, equipment and appliances used on the work shall be such as will produce a satisfactory quality of work, and shall be adequate to complete the contract within the time limit specified.

Except as is otherwise specified, the Contractor's procedure and methods of construction may, in general, be of his own choosing, provided they follow best general practice and are calculated to secure results which will satisfy the requirements of the specifications and the supervision of the work.

The work covered by this Contract shall be carefully laid out in advance and performed in a manner to minimize interference with normal operation and utilization of the roads. The Contractor shall exercise caution during the course of this construction work to avoid damage to all known existing or possible unknown existing underground utilities. He shall conduct his construction operations in such a manner as to avoid injury to his personnel and to avoid damage to all utilities. Any damage done will be repaired without delay and at the expense of the Contractor.

11. **PRE-CONSTRUCTION CONFERENCE:** Within 30 days of the issuance of the Notice of Award, the Contractor is required to attend a Pre-construction Conference. The city will contact the Contractor to schedule a specific date, time and location for the Pre-construction conference. The purpose of the meeting is to outline specific construction items and procedures and to address items which require special attention on the part of the Contractor. The Contractor may also



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present proposed variations in procedures which the Contractor believes may improve constructability of the project, reduce cost, or will reduce inconvenience to the public. Any necessary coordination and procedures for Construction inspection and staking will be addressed during the Pre-construction Conference. The Contractor will be required to provide the following information at the Pre-construction Conference:

- 11.1. Names and emergency telephone numbers of key personnel involved in the project.
- 11.2. Names and telephone numbers of all subcontractors proposed for use on the project.
- 11.3. A construction progress schedule showing the estimated time for start and completion of the major items of work.
- 11.4. A payment schedule showing the estimated dollar volume of work for each calendar month during the life of the project.
- 11.5. A written proposal outlining the intended plans for maintaining continuous access to residences and businesses along the construction site, and traffic control.
- 11.6. An itemized list of all required shop drawings, material and equipment submittals and a schedule indicating the dates each of these items will be transmitted to the City for review.

Each of the above items is subject to the review and approval by the City.

12. **NOTICE TO PROCEED:** Within 45 days of the issuance of the Notice of Award the City may issue a written Notice to Proceed. The Notice to Proceed shall stipulate the actual contract start date, the contract duration and the contract completion date. The time required for the Contractor to obtain permits, licenses and easements shall be included in the contract duration and shall not be justification for a delay claim by the Contractor. The time required for the Contractor to prepare, transmit and obtain approval of applicable submittals shall be included in the contract duration and shall not be justification for a delay claim by the Contractor.

No work shall be started until after all required permits, licenses, and easements have been obtained.

No work shall be started until all applicable submittals have been submitted and returned approved by the Owner's Representative.

The Contractor shall notify the City of Peoria's project manager or engineer at least seventy-two (72) hours before the following events:

- 12.1. The start of construction in order to arrange for inspection.
- 12.2. Shutdown of City water, sewer, drainage, irrigation and traffic control facility.
- 12.3. Shutdown of existing water wells and booster pumps. Shutdown shall not exceed seventy-two (72) hours for any installation. Only one installation may be shutdown at anytime.
- 12.4. Coordination of all draining and filling of water lines and irrigation laterals and all operations of existing valves or gages with the project manager.
- 12.5. Start-up or testing of any water well or booster pump to be connected to any part of the existing City water system. This includes operation of existing valves necessary to accommodate the water.

13. **TRAFFIC REGULATIONS:** All traffic affected by this construction shall be regulated in accordance with the *City of Phoenix -Traffic Barricade Manual*, latest edition and the City of Phoenix in the Traffic Barricade Manual shall be referred to as the City of Peoria City Engineer for interpretation.

At the time of the pre-construction conference, the Contractor shall designate an employee who is well qualified and experienced in construction traffic control and safety to be responsible for implementing, monitoring and altering traffic control measure, as necessary. At the same time the City will designate a representative who will be responsible to see that all traffic control and any alterations are implemented and monitored to the extent that traffic is carried through the work area in an effective manner and that motorists, pedestrians, bicyclists and workers are protected from hazard and accidents.



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- 13.1. The following shall be considered major streets: All major Parkway, mile (section line), arterial and collector (mid-section line and quarter section line) streets so classified by the City of Peoria.
- 13.2. All traffic control devices required for this project shall be the responsibility of the Contractor. The Contractor shall place advance warnings; **REDUCE SPEED, LOOSE GRAVEL, 25 MPH SPEED LIMIT** and **DO NOT PASS** signs in accordance with the Traffic Barricade Manual.
- 13.3. The Contractor shall provide, erect and maintain all necessary flashing arrow boards, barricades, suitable and sufficient warning lights, signals and signs, and shall take all necessary precautions for the protection of the work and safety of the public. The Contractor shall provide, erect and maintain acceptable and adequate detour signs at all closures and along detour routes.
- 13.4. All barricades and obstructions shall be illuminated at night, and all safety lights shall be kept burning from sunset until sunrise. All barricades and signs used by the Contractor shall conform to the standard design, generally accepted for such purposes, and payment for all such services and materials shall be considered as included in the other pay items of the Contract.
- 13.5. The Contractor shall insure that all existing traffic signs are erect, clean and in full view of the intended traffic at all times. Street name signs at major street intersections shall be maintained erect at all times. If these signs should interfere with construction, the Contractor shall notify the Inspector at least forty eight (48) hours in advance for City personnel to temporarily relocate said signs. The City Engineer will re-set all traffic and street name signs to permanent locations when notified by the Engineer that construction is complete unless otherwise stated in the specifications Payment for this item shall be made at the contract lump sum price for TRAFFIC CONTROL.
- 13.6. When construction activities or traffic hazards at the construction site require the use of flagmen, it shall be the Contractor's responsibility to provide adequate personnel including flagmen to direct traffic safely.
- 13.7. Manual traffic control shall be in conformity with the Traffic Barricade Manual. A traffic control plan shall be submitted to the Peoria Police Department indicating whether a need for traffic control exists during the project. The traffic control plan shall be submitted electronically and the liaison officer shall be contacted at the Peoria Police Department at telephone number (623) 773-7062 or [offduty@peoriaaz.gov](mailto:offduty@peoriaaz.gov).
- 13.8. The Police Department shall determine if traffic hazards at construction projects warrant the use of Police Assistants or AZ Post Certified Peace Officers to provide traffic control services. All City of Peoria projects shall use only City of Peoria Police Assistants or City of Peoria AZ Post Certified Officers, unless the Police Chief or their designee has determined that no such assistants or officers are available. Arrangements for Police Assistant or Police Officer services should be made with the liaison officer at the Peoria Police Department at telephone number (623) 773-7062.
- 13.9. The assembly and turnarounds of the Contractor's equipment shall be accomplished using adjacent local streets when possible.
- 13.10. Equipment used and/or directed by the Contractor shall travel with traffic at all times. Supply trucks shall travel with traffic except when being spotted. Provide a flagman or officer to assist with this operation.
- 13.11. During construction, it may be necessary to alter traffic control. Alterations shall be in accordance with the Traffic Barricade Manual.
- 13.12. No street within this project may be closed to through traffic or to local emergency traffic without prior written approval of the City Engineer of the City of Peoria. Written approval may be given if sufficient time exists to allow for notification of the public at least two (2) days in advance of such closing. Partial closure of streets within the project shall be done in strict conformity with written directions to be obtained from the City Engineer.
- 13.13. Caution should be used when excavating near intersections with traffic signal underground cable. Notify the City Engineer twenty four (24) hours in advance of any work at such intersections. The Contractor shall install and maintain temporary overhead traffic signal cable as specified by the City Engineer when underground conduit is to be severed by excavations at intersections. The Contractor shall provide an off-duty uniformed police officer to



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direct traffic while the traffic signal is turned off and the wiring is transferred. All damaged or modified traffic signal overhead and underground items shall be repaired and restored to the City Engineer's satisfaction. Magnetic detector loops shall under no circumstances be spliced.

13.14. The Contractor shall address how local access to adjacent properties will be handled in accordance with the specification herein.

13.15. Where crossings of existing pavements occur, no open trenches shall be permitted overnight, but plating may be permitted if conditions allow as determined by the City Engineer or his authorized representative. If plates cannot be used, crossings shall be back-filled or the Contractor shall provide a detour.

14. **OUTDOOR CONSTRUCTION RESTRICTIONS:** Peoria Ordinance No. 98-11 restricts outdoor construction as listed in the following table:

	Construction Type	April 2 – September 29	September 30 – April 1
A	Concrete Work	5:00 a.m. to 7:00 p.m.	6:00 a.m. to 7:00 p.m.
B	Other Construction (within 500 feet of residential area)	6:00 a.m. to 7:00 p.m.	7:00 a.m. to 7:00 p.m.
C	Construction Work (more than 500 feet of residential area)	5:00 a.m. to 7:00 p.m.	5:00 a.m. to 7:00 p.m.

### 14.A. WORK HOURS IN THE PUBLIC RIGHT-OF-WAY

No interference with the traffic flow on arterial streets shall be permitted during the hours of 6:00 a.m. to 8:30 a.m. or from 4:00 p.m. to 7:00 p.m. unless prior authorization is obtained in writing by the City of Peoria Traffic Engineer or their assignee. Specific work hours may be stipulated by the City of Peoria on the projects' barricade plan.

During off peak hours, the minimum number of lanes shall be two lanes (one in each direction) on streets with four lanes or less and four lanes (two in each direction) on streets with five or more lanes.

Night work must have prior authorization from the City. In addition, certain areas of the City may have seasonal or special event restrictions for construction work as designated by the City on a case by case basis.

15. **SURVEY CONTROL POINTS:** Existing survey markers (either brass caps or iron pipes) shall be protected by the Contractor or removed and replaced under direct supervision of the City Engineer or his authorized representatives. Survey monuments shall be constructed to the requirements of MAG Specifications, Section 405, and Standard Details. Lot corners shall not be disturbed without knowledge and consent of the property owner.

The Contractor shall replace benchmarks, monuments, or lot corners moved or destroyed during construction at no expense to the Owner. Contractor and his sureties shall be liable for correct replacement of disturbed survey benchmarks except where the Owner elects to replace survey benchmarks using his own forces.

16. **PROTECTION OF FINISHED OR PARTIALLY FINISHED WORK:** The Contractor shall properly guard and protect all finished or partially finished work, and shall be responsible for the same until the entire contract is completed and accepted by the City Engineer. The Contractor shall turn over the entire work in full accordance with these Specifications before final settlement shall be made.

17. **STOCKPILE OF MATERIALS:**

a. The Contractor may, if approved by the City Engineer, place or stockpile materials in the public right-of-way provided they **do not** prevent access to adjacent properties or prevent compliance with traffic regulations.

b. Traffic shall not be required to travel over stockpiled materials, and proper dust control shall be maintained.

18. **EXCESS MATERIALS:** When excavations are made, resultant loose earth shall be utilized for filling by compacting in place or disposed of off the site.

Excess or unsuitable material, broken asphaltic concrete and broken portland cement concrete excavated from the right-of-way shall be removed from the project and disposed of by the Contractor. Disposal of material within the Peoria City Limits or Planning Area must be approved by the City Engineer or his authorized representative.



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Waste material shall not be placed on private property without express permission of the property owner.

The Contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove all equipment, tools and surplus materials, and shall completely clean the premises, removing and disposing of all debris and rubbish, and cleaning all stains, spots, marks, dirt, smears, etc. When work premises are turned over to the City, they shall be thoroughly clean and ready for immediate use.

Clean-up shall include removal of all excess pointing mortar materials within pipes and removal of oversized rocks and boulders left after finish grading. The Contractor shall provide for the legal disposal of all waste products debris, etc., and shall make necessary arrangements for such disposal.

19. **DUST CONTROL AND WATER:** The dust control measures shall be in accordance with the requirements of the "Maricopa County Health Department Air Pollution Control Regulations," namely Regulation II, Rule 21, subparagraph C and Regulation III, Rule 310 shall be rigidly observed and enforced. Water or other approved dust palliative in sufficient quantities shall be applied during all phases of construction involving open earthwork to prevent unnecessary discharge of dust and dirt into the air. The Contractor shall be responsible for compliance with these regulations. A Notice to Proceed will not be issued until the City of Peoria has received a copy of the Contractor's Dust Control Permit and Plan.

The Contractor shall be required to obtain the necessary permit and all pertinent information from the Maricopa County Air Pollution Control Bureau, 2406 S. 24th Street #E-214, Phoenix, Arizona, (602) 506-6700 extension 372.

The Contractor shall keep suitable equipment on hand at the job site for maintaining dust control on the project streets, and shall employ sufficient labor, materials and equipment for that purpose at all times during the project to the satisfaction of the City Engineer.

Watering shall conform to the provisions of Section 225 of the MAG Standard Specifications. The cost of watering will be included in the price bid for the construction operation to which such watering is incidental or appurtenant.

Installation and removal of fire hydrant meters should be scheduled at least forty-eight (48) hours in advance through the City of Peoria Utilities Division at (623) 773-7160. A \$1,000 deposit is required for each meter. An additional \$28.00 service fee is also required. The cost of the water is at the prevailing rate.

20. **TEMPORARY SANITARY FACILITIES:** The Contractor shall provide ample toilet facilities with proper enclosures for the use of workmen employed on the work site. Toilet facilities shall be installed and maintained in conformity with all applicable state and local laws, codes, regulations and ordinances. They shall be properly lit and ventilated, and kept clean at all times.

Adequate and satisfactory drinking water shall be provided at all times and under no circumstances and under no conditions will the use of common cups be permitted. The Contractor must supply sanitary drinking cups for the benefit of all employees.

21. **ELECTRIC POWER, WATER AND TELEPHONE:** Unless otherwise specified, the Contractor shall make his own arrangements for electric power, water and telephone. Subject to the convenience of the utility, he may be permitted to connect to existing facilities where available, but he shall meter and bear the cost of such power or water, and installation and disconnect of such power, water and telephone services.

22. **ENERGIZED AERIAL ELECTRICAL POWER LINES:** The utility company may maintain energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working in proximity to these lines are exposed to an extreme hazard from electrical shock. Contractors, their employees and all other construction personnel working on this project must be warned of the danger and instructed to take adequate protective measure, including maintaining a minimum ten (10) feet clearance between the lines and all construction equipment and personnel. (see: OSHA Std. 1926.550 (a) 15).

As an additional safety precaution, Contractors should also be instructed to call the utility company to arrange, if possible, to have these lines de-energized or relocated when the work reaches their immediate vicinity. The cost of such temporary arrangements shall be borne by the contractor. The utility company can often respond to such request if two (2) days advance notice is given, but some situations may require up to sixty (60) days lead time for relocation or other arrangements.



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Electrical utility companies may maintain energized underground electrical power lines in the immediate vicinity of this project. These power lines represent an extreme hazard of electrical shock to any construction personnel or equipment coming in contact with them. Arizona law requires all parties planning excavations in public rights-of-way to contact all utility firms for locations of their underground facilities. Contractors, their employees, and all other personnel working near any underground power lines must be warned to take adequate protective measure. (see: OSHA Std. 1926-651 (A)).

23. **SOLID WASTE DISPOSAL:** The contractor and/or subcontractor shall be required to use the City of Peoria Solid Waste Division's services for commercial collection of Solid Waste. This requirement is not intended to preclude other methods or means for hauling debris or excess material from the project site such as trucking large volumes of material, including soil, building demolition, or hazardous and special wastes. The intent is to use City of Peoria Solid Waste service where standard waste disposal is needed. Specifically, all roll-off and front-load containers used on a City of Peoria construction site shall be contracted for through the City of Peoria Solid Waste Division at the prevailing rate. It is the contractor's responsibility to contact and make all necessary arrangements with the City of Peoria Solid Waste Division for these services. Any and all charges for these services are the responsibility of the contractor. The City Solid Waste Division may, at its option, decline to provide service for business reasons at any time during the contract. Any exceptions to this requirement will be at the sole discretion of the City Solid Waste Division. Please contact the Solid Waste Customer Service Representatives at 623-773-7160.
24. **RULES, REGULATIONS, TRAINING AND STANDARDS:** The Contractor and any subcontractors under the direction, control and/or contract of the contractor shall be required to implement, follow and adhere to all existing City and County ordinances and regulations, state and federal laws, and Occupational Safety and Health Standards (OSHA) in any manner affecting the work herein specified. It is the responsibility of the Contractor to ensure that any person or persons entering the job site are provided with all necessary and required training and personal protection equipment while at that site. If a contractor is delayed, postponed or given a stop work notice because of any non-compliance to any required rules, regulations, training or standards then there will be no contract time extension allowed because of that non-compliance.
25. **IMMIGRATION ACT:** Contractor understands and acknowledges the applicability to Contractor of the Immigration Reform and Control Act of 1986 (IRCA). Contractor agrees to comply with the IRCA in performing under this contract and to permit City inspection of personnel records to verify such compliance.



## SPECIAL TERMS AND CONDITIONS

Solicitation Number: P14-0038

### Materials Management Procurement

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
Peoria, Arizona 85345-6560  
Phone: (623) 773-7115  
Fax: (623) 773-7118

1. **Purpose:** Pursuant to provisions of the City Procurement Code, the City of Peoria, Materials Management Division intends to establish a contract for **Lake Pleasant Parkway/Loop 303 Well (construction)**.
2. **Authority:** This Solicitation as well as any resultant contract is issued under the authority of the City. No alteration of any resultant contract may be made without the express written approval of the City Materials Manager in the form of an official contract amendment. Any attempt to alter any contract without such approval is a violation of the contract and the City Procurement Code. Any such action is subject to the legal and contractual remedies available to the City inclusive of, but not limited to, contract cancellation, suspension and/or debarment of the contractor.
3. **Prospective Bidders Conference:** Prospective bidders are invited to attend a conference to be held at the City of Peoria Municipal Offices:

**ADDRESS:** 8401 W. Monroe Street, 1<sup>st</sup> floor  
Peoria, Arizona 85345  
Pine Conference Room

**DATE:** November 19, 2013

**TIME:** 8:00 a.m., Arizona Time

The purpose of this conference will be to clarify the contents of this Invitation For Bid in order to prevent any misunderstanding of the City's position. Any doubt as to the requirements of this Invitation For Bid or any apparent omission or discrepancy should be presented to the City at this conference. The City will then determine the appropriate action necessary, if any, and issue a written amendment to the Invitation For Bid. Oral statements or instructions shall not constitute an amendment to the Invitation For Bid.

4. **Offer Acceptance Period:** In order to allow for an adequate evaluation, the City requires an offer in response to this Solicitation to be valid and irrevocable for sixty (60) days after the opening time and date.
5. **Evaluation:** In accordance with the City of Peoria Procurement Code, awards shall be made to the lowest responsible and responsive bidder whose bid conforms in all material respects to the Invitation For Bid.
6. **Eligible Agencies:** Any contract resulting from this Solicitation shall be for the exclusive use of the City of Peoria.
7. **Contract Type:** Fixed Price
8. **Term of Contract:** The term of any resultant contract shall commence on the date of award and shall continue until the work is completed to the satisfaction of the City.
9. **Interpretation of Plans, Specifications and Drawings:** If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the Plans, Specifications or other proposed Contract Documents, or finds discrepancies in, or omissions from the Drawings or Specifications, he may, no later than five (5) days prior to the representative bid opening, submit to the City Engineer or his authorized representative a written request for an interpretation or correction thereof. Any interpretations or corrections of the proposed documents will be made only by Amendment duly issued and a copy of each such will be mailed or delivered to each person receiving a set of such documents. The City of Peoria will not be responsible for any other explanations or interpretations of the proposed documents.
10. **Conditions of Work:** Each Bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve the Contractor of his obligation to furnish all material and labor necessary to carry out the provisions of this Contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.
11. **Time of Completion:** The Contractor shall commence work under this project upon the City's issuance of a "Notice to Proceed" and shall fully complete all work under the project within specified number of calendar days. The Contractor shall, at all times, during the continuance of the Contract, prosecute the work with such force and equipment as is sufficient to complete all work within the time specified.



## SPECIAL TERMS AND CONDITIONS

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12. **Affirmative Action:** It is the policy of the City of Peoria that suppliers of goods or services to the City adhere to a policy of equal employment opportunity and demonstrate an affirmative effort to recruit, hire, and promote regardless of race, color, religion, gender, national origin, age or disability. The City of Peoria encourages diverse suppliers to respond to solicitations for products or services.
13. **Plans and Specifications to Successful Bidder:** The successful Bidder may obtain electronic files on CD-ROM of the Plans and Specifications for this project from the City of Peoria at no cost.
14. **Approval of Substitutions:** The materials, products, and equipment described in the Documents and Addenda establish a standard or required function, dimension, appearance, and quality to be met by any proposed substitution. **No substitute will be considered unless written request for approval has been received by the City or its representative at least ten (10) days prior to the scheduled closing time for receipt of bids.** Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including any drawings, cuts, performance, and test data and any other information necessary for evaluation of the substitute. If a substitute is approved, the approval shall be acknowledged in writing. Bidder shall not consider approvals made in any other manner. All requests for approval of substitutions must be submitted by Prime Contractor.
15. **Use of Equals:** When the specifications for materials, articles, products, and equipment state "*or equal*", Contractor may bid upon, and use materials, articles, products, and equipment which will perform equally the duties imposed by the general design. The City Engineering Division will have the final approval of all materials, articles, products, and equipment proposed to be used as an "equal." It shall not be purchased or installed without prior written approval from the City or its representative. All requests for approval of equals must be submitted by Prime Contractor.  

Approvals for "equals," before bid opening, may be requested in writing to the City Engineering Division for approval. **Requests must be received at least ten (10) days prior to the date set for opening of the Bid.** The request shall state the name of the material, article, product, or equipment for which the item is sought to be considered and equal and a complete description of the proposed equal including any drawings, cuts, performance specifications, test data and any other information necessary for approval of the equal. All approvals will be issued in writing. All requests for approval of equals must be submitted by Prime Contractor.
16. **City of Peoria Off-Site Permit:** The Contractor shall obtain an off-site permit, however, it will be limited to a \$25.00 charge. The Contractor will be responsible for any required Maricopa County permits or other agency permits.
17. **Independent Contractor:**
  - a. General
    - i. The Contractor acknowledges that all services provided under this Agreement are being provided by him as an independent contractor, not as an employee or agent of the City of Peoria.
    - ii. Both parties agree that this Agreement is nonexclusive and that Contractor is not prohibited from entering into other contracts nor prohibited from practicing his profession elsewhere.
  - b. Liability
    - i. The City of Peoria shall not be liable for any acts of Contractor outside the scope of authority granted under this Agreement or as the result of Contractor's acts, errors, misconduct, negligence, omissions and intentional acts.
    - ii. To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work or services of the Contractor, its employees, agents, or any tier of subcontractors in the performance of this Contract. Contractor's duty to defend, hold harmless and indemnify the City, its agents, representatives, officers, directors, officials and employees shall arise in connection with any claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work or services in the performance of this Contract



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including any employee of the Contractor or any tier of subcontractor or any other person for whose acts, errors, mistakes, omissions, work or services the Contractor may be legally liable.

The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

c. Other Benefits

The Contractor is an independent contractor, therefore, the City will not provide the Contractor with health insurance, life insurance, workmen's compensation, sick leave, vacation leave, or any other fringe benefits. Further, Contractor acknowledges that he is exempt from coverage of the Comprehensive Benefit and Retirement Act (COBRA). Any such fringe benefits shall be the sole responsibility of Contractor.

18. **Key Personnel:** It is essential that the Contractor provide adequate experienced personnel, capable of and devoted to the successful accomplishment of work to be performed under this contract. The Contractor must agree to assign specific individuals to the key positions.

- a. The Contractor agrees that, once assigned to work under this contract, key personnel shall not be removed or replaced without written notice to the City.
- b. If key personnel are not available for work under this contract for a continuous period exceeding 30 calendar days, or are expected to devote substantially less effort to the work than initially anticipated, the Contractor shall immediately notify the City, and shall, subject to the concurrence of the City, replace such personnel with personnel of substantially equal ability and qualifications.

19. **Liquidated Damages:** Liquidated Damages shall be assessed for each calendar day of delay. Liquidated damages shall be in the amount of **per MAG Specs., Section 108.9**.

- a. If the contract is not terminated, the contractor shall continue performance and be liable to the City for the liquidated damages until the products are delivered or services performed.
- b. In the event the City exercises its right of termination, the contractor shall be liable to the City for any excess costs, and in addition, for liquidated damages until such time the City may reasonably obtain delivery or performance of similar supplies or services.

20. **Warranty:** Each offer shall provide a one year warranty/guarantee against defects in materials, faulty workmanship and/or performance for all items required of the specifications.

21. **Insurance Requirements:** The Contractor, at Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. Rating of A-, or approved unlicensed to do business in the State of Arizona with policies and forms satisfactory to the City.

All required herein shall be maintained in full force and effect until all work required to be performed under the terms of the Contract is satisfactorily completed and formally accepted; failure to do so may, at the sole direction of the City, constitute a material breach of this Contract.

The Contractor's insurance shall be primary insurance, and any insurance or self insurance maintained by the City shall not contribute to it.

Any failure to comply with the claim reporting provisions of the policies or any breach of an insurance policy warranty shall not affect coverage afforded under the policy to protect the City.

The insurance policies, except Workers' Compensation, shall contain a waiver of transfer rights of recovery (subrogation) against the City, its agents, representatives, directors, officers, and employees for any claims arising out of the Contractor's work or service.

The insurance policies may provide coverage which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to the City under such policies. The Contractor shall be solely responsible for deductible and/or self-insured retention and the City, at its option, may require the



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Contractor to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.

The City reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and endorsements. The City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of the City's right to insist on, strict fulfillment of Contractor's obligations under this Contract.

The insurance policies, except Workers' Compensation, required by this Contract shall name the City, its agents, representatives, officers, directors, officials and employees as Additional Insureds.

#### 22. Required Insurance Coverage:

##### a. General Liability

Contractor shall maintain Commercial General Liability insurance with a limit of not less than \$1,000,000 for each occurrence with a \$2,000,000 Products and Completed Operations Aggregate and \$2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products/completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this Contract, which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00011207 or any replacement thereof. The coverage shall not exclude X, C, U.

Such policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, nor any provision which would serve to limit third party action over claims.

The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.'s, Additional Insured, Form B, CG 20370704, and shall include coverage for Contractor's operations and products and completed operations.

Any Contractor subcontracting any part of the work, services or operations awarded to the Contractor shall purchase and maintain, at all times during prosecution of the work, services or operations under this Contract, an Owner's and Contractor's Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the Work or Contractor's operations under this Contract. Coverage shall be on an occurrence basis with a limit not less than \$1,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor's Commercial General Liability insurance.

##### b. Automobile Liability

Contractor shall maintain Commercial/Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence with respect to the Contractor's any owned, hired, and non-owned vehicles assigned to or used in performance of the Contractor's work. Coverage will be at least as broad as coverage code 1, "any auto", (Insurance Service Office, Inc. Policy Form CA 00010306, or any replacements thereof). Such insurance shall include coverage for loading and off loading hazards. If hazardous substances, materials or wastes are to be transported, MCS 90 endorsement shall be included and \$5,000,000 per accident limits for bodily injury and property damage shall apply.

##### c. Workers' Compensation

The Contractor shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor's employees engaged in the performance of the work; and, Employer's Liability insurance of not less than \$100,000 for each accident, \$100,000 disease for each employee, and \$500,000 disease policy limit.

In case any work is subcontracted, the Contractor will require the Subcontractor to provide Workers' Compensation and Employer's Liability to at least the same extent as required of the Contractor.

#### 23. Certificates of Insurance: Prior to commencing Services under this Contract, Contractor shall furnish the City with Certificates of Insurance (naming the City as additionally insured), and formal endorsements as required by the Contract,



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issued by Contractor's insurer(s), as evidence that policies providing the required coverages, conditions and limits required by this Contract are in full force and effect.

In the event any insurance policy(ies) required by this contract is(are) written on a "claims made" basis, coverage shall extend for two years past completion and acceptance of the Contractor's work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of the contract, a renewal certificate must be sent to the City fifteen (15) days prior to the expiration date.

All Certificates of Insurance required by this Contract shall be identified with a bid serial number and title. A \$25.00 administrative fee shall be assessed for all Certificates received without the appropriate bid serial number and title.

24. **Cancellation and Expiration Notice:** Insurance required herein shall not expire, be canceled, or materially changed without fifteen (15) days prior written notice to the City.
25. **City of Peoria Business License:** Peoria City Code requires that all persons conducting business in the City of Peoria must first obtain a license. This includes businesses within the Peoria city limits, or those outside the limits who conduct business or perform services within Peoria. For business license questions or to obtain a license, please contact the City of Peoria Sales Tax & License Division at (623) 773-7160 or via email at [salestax@peoriaAZ.gov](mailto:salestax@peoriaAZ.gov).
26. **Bid Bond:** Non-revocable bid security payable to the City of Peoria in the amount of 10% of the total bid price is required. This security shall be in the form of a bid bond, certified check or cashier's check and must be in the possession of the City of Peoria, Materials Management Division by the due date and time cited for this solicitation.

The City will hold all bid security during the evaluation process. As soon as is practicable after the completion of the evaluation, the City will:

- a. Issue a contract award notice for those offers accepted by the City;
- b. Return all checks to those who have not been issued a contract award notice.

All bid security from contractors who have been issued an award notice shall be held until the successful execution of all required contractual documents and bonds (performance bond, insurance, etc.). If the contractor fails to execute the required contractual documents and bonds within the time specified, or ten (10) days after notice of award if no period is specified, the contractor may be found to be in default and the contract terminated by the City. In case of default, the City reserves all rights inclusive of, but not limited to, the right to purchase material and/or to complete the required work in accordance with the City of Peoria Procurement Code and to recover any actual excess costs from the contractor. Collection against the bid security shall be one of the measures available toward the recovery of any excess costs.

All bid bonds shall be executed on the Bid Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Arizona, by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

27. **Performance Bond:** The contractor shall be required to furnish non-revocable security binding the contractor to provide faithful performance of the contract in the amount of 100% of the total contract price payable to the City of Peoria.

Performance security shall be in the form of a performance bond, certified check or cashier's check. This security must be in the possession of the City of Peoria, Materials Management Division within the time specified or ten (10) days after notice of award if no period is specified. If the contractor fails to execute the security document as required, the contractor may be found in default and the contract terminated by the City. In case of default the City reserves all rights.

All performance bonds shall be executed on the Performance Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of



# SPECIAL TERMS AND CONDITIONS

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Authority to transact surety business in the State of Arizona, by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

28. **Payment Bond:** The contractor shall be required to furnish non-revocable security for the protection of all persons supplying labor and material to the contractor or any subcontractor for the performance of any work related to the contract. Payment security shall be in the amount of 100% of the total contract price and be payable to the City of Peoria.

Payment security shall be in the form of a payment bond, certified check or cashier's check.

All payment bonds shall be executed on the Payment Bond form included in the Bid Document, duly executed by the Bidder as Principal and having as Surety thereon a Surety company approved by the owner and holding a Certificate of Authority to transact surety business in the State of Arizona, by the Arizona Department of Insurance. Individual sureties are unacceptable. All Insurers and Sureties shall have at the time of submission of the proposal and A.M. Best's Key Rating Guide of "A-" or better as currently listed in the most recent Best Key Guide, published by the A.M. Best Company, payable without condition to the Owner.

29. **Tax Formula:** Each bidder shall use the following tax formula for construction projects within the City of Peoria.

- a. Multiply subtotal of bid (including all materials, labor and profit) by 65%.

Example:  $\$1,000.00 \times .65 = \$650.00$

- b. Multiply this result times the Peoria tax rate of 8.10%.

Example:  $\$650.00 \times .0810 = \$52.65$

for this example: \$52.65 is the applicable tax to be applied to your subtotal in order to obtain the total cost of the bid.

30. **Contract Default:** The City, by written notice of default to the contractor, may terminate the whole or any part of this contract in any one of the following circumstances:

- a. If the contractor fails to make delivery of the materials/supplies or to perform the services within elements of the project schedule or the time specified; or  
b. If the contractor fails to perform any of the other provisions of this contract; and fails to remedy the situation within a period of ten (10) days after receipt of notice.

31. **Identity Theft Prevention:** The Contractor shall establish and maintain Identity Theft policies, procedures and controls for the purpose of assuring that "personal identifying information," as defined by A.R.S. § 13-2001(10), as amended, contained in its records or obtained from the City or from others in carrying out its responsibilities under the Contract, is protected at all times and shall not be used by or disclosed to unauthorized persons. Persons requesting such information should be referred to the City. Contractor also agrees that any "personal identifying information" shall not be disclosed other than to employees or officers of Contractor as needed for the performance of duties under the Contract. Contractor agrees to maintain reasonable policies and procedures designed to detect, prevent and mitigate the risk of identity theft. Contractor is required under this contract to review the City of Peoria's Identity Theft Program and to report to the Program Administrator any Red Flags as defined within that program. At a minimum, the contractor will have the following Identity Theft procedures in place:

- a. Solicit and retain only the "personal identifying information" minimally necessary for business purposes related to performance of the Contract.  
b. Ensure that any website used in the performance of the contract is secure. If a website that is not secure is to be used, the City shall be notified in advance before any information is posted. The City reserves the right to restrict the use of any non-secure websites under this contract.  
c. Ensure complete and secure destruction of any and all paper documents and computer files at the end of the contracts retention requirements.



**SPECIAL  
TERMS AND CONDITIONS**

Solicitation Number: P14-0038

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- d. Ensure that office computers are password protected and that computer screens lock after a set period of time.
- e. Ensure that offices and workspaces containing customer information are secure.
- f. Ensure that computer virus protection is up to date.



# SPECIAL PROVISIONS

## Materials Management Procurement

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**CITY OF PEORIA, ARIZONA  
Lake Pleasant Parkway/Loop 303 Well  
City of Peoria Project #UT00117**

### WELL DRILLING AND INSTALLATION

#### SCOPE OF WORK

#### I. BACKGROUND:

This project will drill, test, and install a new potable water well in the vicinity of Lake Pleasant Parkway and the Loop 303. The City of Peoria (City) is currently working with the Arizona State Land Department (ASLD) to purchase the land needed for the site. The City seeks an experienced drilling contractor to drill and install this new well in accordance with the provided Technical Specifications prepared by Clear Creek and Associates.

The City envisions a two-phase process for completion of this project.

- 1) Pilot Well Drilling – Driller will need to work with the City’s selected consultant (Clear Creek and Associates) to ascertain physical availability and water quality. See bid items 1-4.
- 2) Production Well – Conversion of the pilot well to a production well. See bid items 5-14.

Because the well site property cannot be purchased from ASLD until a public auction occurs, there will be a significant time gap between drilling of the pilot well and final well installation (approx. 9-12 months). Because of this, the bidder must plan for two separate mobilizations.

Should results from the pilot well indicate that this location is not suitable for a viable well, the City will not proceed with the second phase of the project.

#### II. TECHNICAL SPECIFICATIONS:

Technical Specifications are incorporated in this document and may also be accessed on the City’s FTP website.

#### FTP Site Access Directions:

Using your Web Browser, enter the following address:  
<https://cityftps.peoriaaz.gov> or <ftp://cityftps.peoriaaz.gov>

You will be prompted for a User ID and Password.

User ID: ftpsolicitation

Password: AEC91&!v

(password is case sensitive)

You should then see the available files and folders.\* The file name for this project is **P14-0038 – Lake Pleasant Parkway-Loop 303 Well - Construction**. You can copy or download to your computer or server the files there. Download speed will depend on the internet connection speeds on both sides.

*\*Should you have trouble moving beyond the prompt for user id and password, it is likely your network or pc’s firewall and/or anti-virus software is blocking access. Temporarily turning off your firewall and/or anti-virus software should allow you to continue with access.*



**Revised (Amd#1)**  
**BID SCHEDULE<sup>(a)</sup>**

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Company Name:

Item	Description of material and/or services	Unit	Number of Units <sup>(b)</sup>	Unit Price	Extended Price
1.	Mobilization and Demobilization - Pilot Hole	LS	1	\$ _____	\$ _____
2.	Sound Barricades (Optional)	LF	200	\$ _____	\$ _____
3.	Surface Casing Construction	LF	40	\$ _____	\$ _____
4.	Pilot Borehole Drilling and Sampling				
	A. Drill 17 <sup>1</sup> / <sub>2</sub> -inch Pilot Hole to 1,200 feet bls	LF	1,200	\$ _____	\$ _____
	B. Geophysical Logging and Standby	LS	1	\$ _____	\$ _____
	C. Furnish, Install and Remove Zonal Sampling Tool	EACH	10	\$ _____	\$ _____
	D. Purging for Zonal Sampling	Hourly	120	\$ _____	\$ _____
	E. Standby During Falling Head Test	Hourly	20	\$ _____	\$ _____
	F. Stabilizing and Securing Pilot Hole	LS	1	\$ _____	\$ _____
5.	Mobilization and Demobilization - Well Installation	LS	1	\$ _____	\$ _____
6.	Borehole Reaming				
	A. Ream Pilot Boring to 26 inches	LF	1,020	\$ _____	\$ _____
7.	Casing and Screen Material				
	A. 18 <sup>5</sup> / <sub>8</sub> -inch O.D. HSLA Blank Well Casing	LF	554	\$ _____	\$ _____
	B. 18 <sup>5</sup> / <sub>8</sub> -inch O.D. SS Blank Well Casing	LF	20	\$ _____	\$ _____
	C. Dissimilar Metal Connector (well casing)	LS	1	\$ _____	\$ _____
	D. 18 <sup>5</sup> / <sub>8</sub> -inch O.D. SS Louvered Screen (0.060-slot)	LF	440	\$ _____	\$ _____
	E. 1.5-inch I.D. LCS Sounding Tube	LF	553	\$ _____	\$ _____
	F. 1.5-inch I.D. SS Sounding Tube	LF	100	\$ _____	\$ _____
	G. Dissimilar Metal Connector (sounding tube)	LS	1	\$ _____	\$ _____
8.	Casing and Screen Installation	LF	1,011	\$ _____	\$ _____
9.	Sounding Tube Installation	LF	651	\$ _____	\$ _____
10.	Annular Material and Installation <sup>(c)</sup>				
	A. Silica Sand Filter Pack (6-9)	Ton	67	\$ _____	\$ _____
	B. Bentonite Seal	CF	46	\$ _____	\$ _____
11.	Cement Grout Material and Installation <sup>(c)</sup>				



**Revised (Amd#1)**  
**BID SCHEDULE<sup>(a)</sup>**

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Company Name: \_\_\_\_\_

Item	Description of material and/or services	Unit	Number of Units <sup>(b)</sup>	Unit Price	Extended Price
12.	A. Neat or Pozzolan Cement Grout	CY	39	\$ _____	\$ _____
	Well Development and Completion				
	A. Air Lift Development	Hourly	55	\$ _____	\$ _____
	B. Pump and Surge Development	Hourly	12	\$ _____	\$ _____
13.	C. Plumbness and Alignment Test	LS	1	\$ _____	\$ _____
	D. Final Well Video	LS	1	\$ _____	\$ _____
	Well Testing				
	A. Furnish, Install and Remove Test Pump and Equipment	LS	1	\$ _____	\$ _____
14.	B. Pumping Tests	Hourly	58	\$ _____	\$ _____
	Rig Hourly Rate <sup>(d)</sup>				
	A. With Crew	Hourly	<del>8</del> 0	\$ _____	\$ _____
	B. Without Crew	Hourly	0	\$ _____	\$ _____
<b>Subtotal:</b>					\$ _____
<b>Tax Rate (5.265%)Taxes:</b>					\$ _____
<b>Total:</b>					\$ _____

**Grand Total in Written Words:** \_\_\_\_\_

- a. The Contractor's Total Bid is based upon unit prices and allowances. If there is an error in the Total Bid or other computed totals by the bidder, it shall be changed and the unit price amounts shall govern. The written word amounts shall take precedence over the figure amounts. Bid amounts shall include all costs for the required labor, equipment, and materials, and bid amounts shall also include all applicable Federal, State, County and local taxes.
- b. Quantities are not guaranteed. Final payment will be based on actual quantities installed. If the required quantities of the items listed above are increased or decreased by Change Order, the unit prices set forth above shall apply to such increased or decreased quantities unless the change is greater than 20 percent, at which point the prices may be renegotiated.
- c. The filter pack, bentonite, formation stabilizer, and cement grout volume estimates are based on 30 percent over the calculated annular volume.
- d. An 8-hour period of rig time is provided for standby during geophysical logging. Any hourly time is subject to the approval of the DESIGN PROFESSIONAL and OWNER.



# QUESTIONNAIRE

## Materials Management Procurement

Solicitation Number: P14-0038

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
Peoria, Arizona 85345-6560  
Phone: (623) 773-7115  
Fax: (623) 773-7118

**Please list a minimum of three (3) owner references from projects of similar size and scope whom the Materials Management Division may contact:**

1. Company: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Contact E-Mail: \_\_\_\_\_

Address: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Description: \_\_\_\_\_

Project Cost: \_\_\_\_\_

2. Company: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Contact E-Mail: \_\_\_\_\_

Address: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Description: \_\_\_\_\_

Project Cost: \_\_\_\_\_

3. Company: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Contact E-Mail: \_\_\_\_\_

Address: \_\_\_\_\_

Project Name: \_\_\_\_\_

Project Description: \_\_\_\_\_

Project Cost: \_\_\_\_\_



## QUESTIONNAIRE

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### Materials Management Procurement

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
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Fax: (623) 773-7118

**Bidders are to indicate below any exceptions they have taken to the Terms, Conditions, or Specifications:**

- No Exceptions.**
- Bidder takes the following Exceptions:**



## QUESTIONNAIRE

Solicitation Number: P14-0038

### Materials Management Procurement

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Phone: (623) 773-7115  
Fax: (623) 773-7118

- Attach a copy of your Contractor's License to your bid submittal.**



## QUESTIONNAIRE

Solicitation Number: P14-0038

### Materials Management Procurement

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
Peoria, Arizona 85345-6560  
Phone: (623) 773-7115  
Fax: (623) 773-7118

Has your firm been certified by any jurisdiction in Arizona as a minority or woman owned business enterprise? Yes \_\_\_\_\_, No \_\_\_\_\_.

If yes, please provide details and documentation of the certification.



**BID BOND**

Solicitation Number: P14-0038

**Materials Management  
Procurement**

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
Peoria, Arizona 85345-6560  
Phone: (623) 773-7115  
Fax: (623) 773-7118

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, \_\_\_\_\_  
(hereinafter called Principal), as Principal, and \_\_\_\_\_  
\_\_\_\_\_, a corporation organized and existing under the laws of the  
State of \_\_\_\_\_ with its principal office in the City of  
\_\_\_\_\_, (hereinafter called the Surety), as Surety, are held  
and firmly bound unto the City of Peoria, (hereinafter called the Obligee) in the penal sum of Ten Percent (10%) of  
Bid Amount, \_\_\_\_\_ (Dollars) (\$\_\_\_\_\_) lawful money of the United  
States of America, to be paid to the order of the City of Peoria, for the payment whereof, the said Principal and  
Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally,  
firmly by these presents and in conformance with A.R.S. Section 34-201.

WHEREAS, the Principal has submitted a bid/proposal for:

NOW THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter into  
a contract with the Obligee in accordance with the terms of the proposal and give the Bonds and Certificates of  
Insurance as specified in the Standard Specifications with good and sufficient surety for the faithful performance of  
the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the  
event of the failure of the Principal to enter into the contract and give the Bonds and Certificates of Insurance, if the  
Principal pays to the Obligee the difference not to exceed the penalty of the Bond, between the amount specified in  
the bid/proposal and such larger amount for which the Obligee may in good faith contract with another party to  
perform the work covered by the bid/proposal, then this obligation is void. Otherwise it remains in full force and effect  
provided, however, that this Bond is executed pursuant to the provisions of Section 34-201, Arizona Revised  
Statutes, and all liabilities on this Bond shall be determined in accordance with the provisions of the section to the  
extent as if it were copied at length herein.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

\_\_\_\_\_  
Principal Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Surety Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Agency of Record



**PERFORMANCE BOND**

Solicitation Number: P14-0038

**Materials Management  
Procurement**

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
Peoria, Arizona 85345-6560  
Phone: (623) 773-7115  
Fax: (623) 773-7118

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, \_\_\_\_\_  
(hereinafter called Principal), as Principal, and \_\_\_\_\_,  
a corporation organized and existing under the laws of  
the State Of \_\_\_\_\_, with its principal office in the City of,  
\_\_\_\_\_ (hereinafter called the Surety),  
as Surety, are held and firmly bound unto the City of Peoria (hereinafter called the Obligee) in the amount of  
\_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), for the payment  
whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors  
and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_, for the material, service or  
construction described as \_\_\_\_\_  
\_\_\_\_\_ is  
hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall  
faithfully perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract  
during the original term of said contract and any extension thereof, with or without notice to the Surety and during  
the life of any guaranty required under the contract, and shall also perform and fulfill all the undertakings,  
covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that  
may hereafter be made, notice of which modifications to the surety being hereby waived; then the above  
obligations shall be void. Otherwise it remains in full force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article  
2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions  
of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this  
agreement.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable  
attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

\_\_\_\_\_  
Principal Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Surety Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Agency of Record PERFORMANCE BOND



**PAYMENT BOND**

**Materials Management  
Procurement**

Solicitation Number: P14-0038

9875 N. 85<sup>th</sup> Ave., 2<sup>nd</sup> Fl.  
Peoria, Arizona 85345-6560  
Phone: (623) 773-7115  
Fax: (623) 773-7118

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, \_\_\_\_\_  
(hereinafter called Principal), as Principal, and \_\_\_\_\_  
\_\_\_\_\_, a corporation organized and existing under the laws  
of the State Of \_\_\_\_\_, with its principal office in the City of,  
\_\_\_\_\_ (hereinafter called the Surety), as Surety, are  
held and firmly bound unto the City of Peoria (hereinafter called the Obligee) in the amount of  
\_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), for the payment  
whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors  
and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, for the material, service or  
construction described as \_\_\_\_\_  
\_\_\_\_\_ which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length  
herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall  
promptly pay all monies due to all persons supplying labor or materials to him or his subcontractors in the  
prosecution of the work provided for in said contract, then this obligation shall be void. Otherwise it remains in full  
force and effect.

PROVIDED, however, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article  
2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions  
of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this  
agreement.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable  
attorneys' fees as may be fixed by a judge of the Court.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

\_\_\_\_\_  
Principal Seal

BY: \_\_\_\_\_

\_\_\_\_\_  
Surety Seal

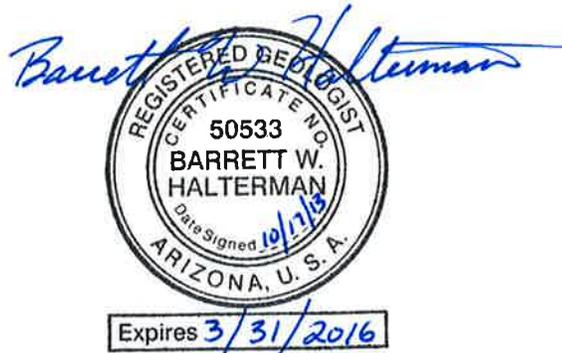
BY: \_\_\_\_\_

\_\_\_\_\_  
Agency of Record PAYMENT BOND

# TECHNICAL SPECIFICATIONS

**DRILLING AND INSTALLATION OF THE  
W301 – LPP/LOOP 303 WELL  
31700 N. Lake Pleasant Parkway  
PEORIA, ARIZONA**

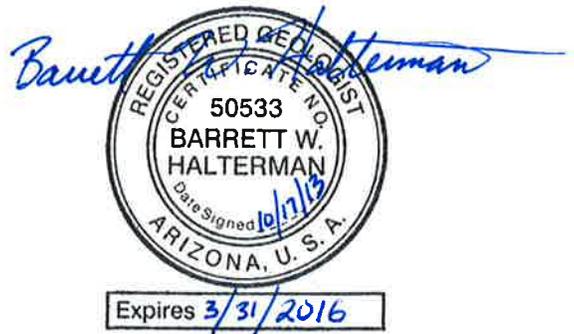
**City of Peoria  
Project Number UT00117**



**Prepared for:**  
City of Peoria  
8401 W. Monroe St.  
Peoria, Arizona 85345

**Prepared By:**  
Clear Creek Associates, PLC  
6155 East Indian School Road, Suite 200  
Scottsdale, Arizona 85251

**October 17, 2013**



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Figure 1 – Well Location Map

Figure 2 – Preliminary Well Design

Figure 3 – Generalized Dissimilar Metal Connector Design

## **LIST OF APPENDICES**

Appendix A – Cement Mix Design Examples

## 1.0 GENERAL

### 1.1 LOCATION

The work to be accomplished under the following specifications consists of the drilling and completion of one public supply well for the City of Peoria. The proposed well, designated W301 – LPP/Loop 303 Well (W301), will be located northwest of the intersection of Lake Pleasant Parkway, and the Loop 303 Freeway, in Peoria, Arizona (Figure 1). The legal location of W301 is the NE ¼ (10-acre) of the SW ¼ (40-acre) of the SW ¼ (160-acre) of section 15, in Township 5 N, Range 1 E, of the Lake Pleasant sub-basin of the Phoenix Active Management Area, also referenced as A(5-1)15cca.

### 1.2 DEFINITIONS

Throughout this specification, the term “OWNER” shall be understood to represent the City of Peoria, and the term “CONSULTANT” shall be understood to represent Clear Creek Associates, PLC. The CONTRACTOR shall be the person, firm, or corporation with whom the OWNER will execute an agreement setting forth the terms and conditions for the work to be performed, as specified herein. The term “SUBCONTRACTOR” will apply to any person, firm, or corporation with whom the CONTRACTOR executes a secondary agreement for a portion of the scope of work.

### 1.3 SCOPE OF WORK

The scope of work covered by these technical specifications consists of two phases:

Phase 1: An initial mobilization to the well site; installing surface casing in accordance with Arizona Department of Water Resources (ADWR) requirements; drilling a pilot borehole to the specified depth using the reverse circulation rotary drilling method and collecting cuttings samples from the borehole as specified; geophysical logging and depth-specific (zonal) groundwater sampling of the pilot borehole; and stabilizing and securing the pilot borehole for future reaming and well completion.

Phase 2: A second mobilization to the well site; reaming of the pilot borehole to the specified diameter; installation of the well casing, screen, and annular materials; well development; plumbness and alignment testing and well video survey; and aquifer testing.

It is the responsibility of the CONTRACTOR to familiarize itself with the drilling conditions that may be encountered at the site, both surface and subsurface, prior to the bid submittal. It is the responsibility of the bidder to examine the drilling areas and site access in order to become acquainted with local conditions. No allowance will be made after the bid has been accepted for any errors or omissions made by the CONTRACTOR. The CONTRACTOR will install the well pursuant to the final well design, which will be developed by the CONSULTANT and approved by the OWNER. The preliminary well design for W301 is presented on Figure 2. The scope of work presented herein includes aquifer testing (step-rate discharge test and constant-rate aquifer test) after the well installation and development is complete. The CONSULTANT reserves the right to drill beyond the depths specified, or to stop at lesser depths, depending on subsurface conditions.

## **1.4 PERFORMANCE OF WORK**

### **1.4.1 Contractor Qualifications**

The CONTRACTOR shall have no less than five (5) years of local (within the Basin and Range geologic province of Arizona) experience using flood reverse circulation rotary drilling. In addition, the CONTRACTOR must have successfully completed no less than five (5) separate well installation projects in the Phoenix metropolitan area within the past two (2) years, using flood reverse circulation rotary drilling, and involving installation of potable water production wells with similar casing dimensions and well depths as specified herein.

- The CONTRACTOR shall provide with its bid, a list of no less than five separate well installation projects with client references for well installations within the past two years.

- The CONTRACTOR shall also provide with its bid, a list and details of all liens or lawsuits that the CONTRACTOR has been involved with, which are associated with well construction projects within the past five years.

At the discretion of the OWNER, the CONTRACTOR bid may be rejected as non-responsible on the basis of previous or ongoing liens or lawsuits.

The CONTRACTOR shall hold: (1) a valid ADWR Well Driller's License in the reverse circulation category; (2) an Arizona Registrar of Contractor License type A, A-4, A-16 or L-53; and (3) all other licenses required by Federal, State, County, or Municipal rules and regulations. SUBCONTRACTORS may also hold a valid Arizona Well Driller's License in addition to that of the CONTRACTOR, but not in lieu of the CONTRACTOR'S ADWR Well Driller's License. In addition, the CONTRACTOR shall be named as "Principal" on the Performance Bond and Payment Bond. The CONTRACTOR shall provide a copy of their Arizona Well Driller's License and a copy of their Arizona Registrar of Contractor License with the bid submittal.

## **1.4.2 Operations**

The CONTRACTOR shall employ only competent employees for the execution of work. During installation or removal of drill tools or casing, the CONTRACTOR shall provide and utilize a drill tool "laydown line" (i.e., a stabilizing cable connected to the tail end of drill pipe, casing or drill collar, which will allow the pipe to be safely handled during its installation into or removal from the borehole). If such a laydown line is unavailable, the CONTRACTOR shall maintain no less than three (3) workers on site throughout the well drill tool or casing installation/removal operations (including tripping into or out of the well, making connections, and installation of the well casing or well screen). The laydown line system must be approved by the CONSULTANT, and be in compliance with OSHA requirements.

All operations shall be performed under the direct and personal supervision of an Arizona-licensed well driller. The CONTRACTOR shall assign a foreman (tool pusher) who has been approved by the CONSULTANT to oversee all work required by this specification. After

selection, the CONTRACTOR foreman shall provide to the CONSULTANT a written certification that he has read and fully understands this technical specification prior to mobilization to the well site.

The CONTRACTOR shall construct the public supply well in accordance with the Rules and Regulations of the ADWR, Article 8, Well Construction and Licensing of Well Drillers. The well construction shall also comply with the guidelines of the Arizona Department of Health Services Engineering Bulletin No. 10, and all other applicable Federal, State, County, and local regulations. Rejection of any materials, work, or equipment by the CONSULTANT shall be at the CONTRACTOR'S expense, and at no cost to the OWNER. Replacement materials, work, or equipment that is in accordance with these specifications and approved by the CONSULTANT will be paid for by the OWNER in accordance with the Bid Schedule.

### **1.4.3 Contractor Responsibilities**

Should the well be lost due to any negligent action on the part of the CONTRACTOR (as determined by the CONSULTANT), the well shall be abandoned at no cost to the OWNER, in accordance with ADWR Article 8, Rule R12-15-816, and a replacement well shall be constructed in the immediate area. The replacement well location will be selected by the CONSULTANT or OWNER. The replacement well shall be completed in accordance with all the terms and conditions stated herein. The CONTRACTOR shall credit the OWNER for any and all costs associated with the lost well, and this credit shall be applied against any additional CONTRACTOR charges associated with the drilling and completion of the replacement well.

If the loss of the well was not due to any negligent action of the CONTRACTOR, the CONSULTANT or OWNER may designate a replacement well location and the OWNER shall provide reimbursement for the replacement well on the basis of the unit costs presented in the CONTRACTOR'S Bid Schedule.

If a work delay, deficiency of work performance and/or a material's deficiency is caused by the CONTRACTOR failing to comply with any item of these specifications, the CONTRACTOR

shall bear the burden of additional expenses, including any additional CONSULTANT charges assessed to the OWNER as a direct result of the delay or deficiency. This includes delays due to equipment failure, if the CONSULTANT determines that the equipment failure could have been prevented through proper maintenance.

## **1.5 CONFIDENTIALITY**

The CONTRACTOR shall not disclose any information relating to this project or the well site to anyone other than the OWNER or CONSULTANT without written permission from the OWNER, except as may be required by law. At all times during the performance of the CONTRACTOR'S services, the CONTRACTOR and its employees, SUBCONTRACTORS, and agents shall treat the work conducted by the CONTRACTOR and its SUBCONTRACTORS and the results thereof as confidential and proprietary to the OWNER.

Any questions regarding the purpose or scope of work that are directed to the CONTRACTOR from individuals or entities other than representatives of the OWNER or CONSULTANT while work is being conducted for this project, should be directed by the CONTRACTOR to the CONSULTANT or OWNER.

The CONTRACTOR shall inform its employees of this confidentiality requirement, and shall obtain non-disclosure agreements from all SUBCONTRACTORS who will have involvement in the performance of any of the work and provide CONSULTANT with copies of the executed non-disclosure agreements. This provision shall survive the termination of contracted work tasks.

## **1.6 METHODS OF DRILLING**

The well shall be drilled using the flood reverse circulation rotary drilling method. The CONTRACTOR shall transport drilling make-up water from a source approved by the CONSULTANT, and the CONTRACTOR shall provide the necessary pump(s), air compressor(s), and all other equipment required for its drilling operations. The CONTRACTOR is responsible for designing and controlling a drilling program that conforms to this specification.

## 1.7 SITE SAFETY PLAN

The CONTRACTOR must provide a Site Safety Plan for this project, in accordance with applicable Occupational Safety and Health Administration (OSHA) requirements. The CONTRACTOR is responsible for assuring that CONTRACTOR personnel and SUBCONTRACTORS are thoroughly familiar with the Site Safety Plan for the proposed work. CONTRACTOR personnel are required to have been trained in the use of personal safety equipment required by the Site Safety Plan. A copy of the Site Safety Plan must be kept at the well site, and shall be available to all CONTRACTOR personnel for review. The CONTRACTOR shall be responsible for having sufficient personal safety equipment at the work site for each of the CONTRACTOR personnel to comply with provisions of the Site Safety Plan. The CONTRACTOR shall meet the requirements of the Site Safety Plan at its own cost.

## 1.8 NOISE CONTROL (OPTIONAL)

It is the CONTRACTOR'S responsibility to meet all ordinances regarding noise and noise control during all drilling, testing, well installation, and development operations. Sound barricades may be required at the well site. If required, sound barricades shall be a minimum of 16 feet tall, and must be approved by the CONSULTANT. For bidding purposes, approximately 200 linear feet of sound barricades should be included. The requirement for sound barricades will be determined by the OWNER prior to commencement of work by the CONTRACTOR. If required, the noise control must be in accordance with the American Society for Testing and Materials (ASTM) Standard E 90-90, Maricopa County, and City rules and shall provide noise reduction as follows.

Center Band Frequency, Hz	125	250	500	1000	4000
Minimum acceptable calculated Silenced Sound Pressure Level (db) at 60 feet from site boundary	11	27	35	32	35

Support posts with sound barricades attached shall be constructed sufficiently rigid enough to withstand normal weather conditions and acts of nature. The location and depth of borings necessary for support posts shall be noted on the submitted site plan and require approval by the CONSULTANT and OWNER. The CONTRACTOR will be responsible for locating all underground utilities, removal of all concrete anchors, and proper backfilling and compaction of all excavations required by this task.

\*\*\*END OF SECTION\*\*\*

## 2.0 PROTECTION OF SITE

The CONTRACTOR will be responsible for any required clearing and grubbing of existing vegetation or debris within the work area. The CONTRACTOR shall take all necessary precautions to preserve the well site, as nearly as practical, in its present condition. The CONTRACTOR shall be responsible for replacing any damaged items. The CONTRACTOR shall provide, at its own cost, an adequate roll-off bin to contain all debris and trash collected at the site. All litter and debris will be cleaned up daily and placed in the roll-off bin for off-site disposal. The CONTRACTOR is responsible for the location and clearance of all underground utilities using Blue Stake, a private utility location service or both. The CONTRACTOR shall be responsible for any damage resulting from its failure to identify and avoid underground utilities.

The CONTRACTOR shall submit to the CONSULTANT or OWNER a site plan for approval depicting the location of equipment, materials, spoils, and fencing. The drawing shall note the location of excavations, borings, or any other significant surface disturbance necessary for the execution of the work. Water delivery methods, supply lines and water disposal methods must be identified on the drawing. This plan must be approved by the CONSULTANT or OWNER prior to mobilization.

A plastic tarp and berm shall be placed beneath the drilling rig during mobilization to protect the site against oil or hydraulic fluid spills or leaks, and will remain beneath the rig until demobilization. A plastic tarp and berm shall also be placed beneath other stationary equipment such as air compressors and fuel tanks. Compressed air introduced into the well during drilling, sampling, or well development must be treated by passage through a carbon or coalescing filter to remove organic contaminants (e.g., compressor lubrication oil).

The CONTRACTOR is responsible to apply water for dust control to work areas or access roads as required to meet State, County, or local dust control ordinances, or as requested by the CONSULTANT or OWNER. The CONTRACTOR shall meet the requirements for dust control at its own cost.

Circulation of drilling fluids will be conducted using above-ground mud tanks. During drilling, the mud tanks shall be emptied of cuttings at necessary intervals. Drilled cuttings shall be spread evenly in a thin layer at the well site, such that they do not pose a threat to the existing vegetation or drainage.

Due to the size and location of the well site, water and drilling fluids pumped from the well during drilling, sampling, and swab and airlift development operations cannot be disposed of at the well site. For bidding purposes, the CONTRACTOR should plan to temporarily contain all discarded drilling fluids, zonal sampling discharge, and swab and airlift development water onsite in above-ground portable storage tanks (Baker Tank or equivalent). The CONTRACTOR shall convey the fluids offsite to a location identified by the OWNER or CONSULTANT, where it will not cause damage to the property, contamination of other wells or waterways, or creation of a nuisance. Water produced during pump and surge operations as well as during aquifer testing will be conveyed to the nearby flood control drainage.

After completion of the work, the CONTRACTOR shall remove all debris, waste, oil-stained dirt, trash, and unused materials or supplies and shall obliterate all temporary construction facilities such as temporary work areas, temporary structures, stockpiles of excess or waste materials and shall restore the site, as nearly as possible, to its original condition. In addition, any residual mineral oil within the well casing (on the groundwater surface) resulting from the use of test pumping equipment shall be removed prior to final acceptance of the well. The CONSULTANT or OWNER must approve the cuttings disposal and site cleanup.

\*\*\*END OF SECTION\*\*\*

## **3.0 UTILITIES**

### **3.1 WATER**

Water for the drilling of W301 will be the responsibility of the CONTRACTOR. The CONSULTANT and OWNER will provide reasonable assistance with locating the nearest available potable water source, which may be greater than 1 mile from the well site. The CONTRACTOR will need to obtain a construction water meter and backflow prevention device for the water source from the OWNER. All costs associated with obtaining water should be included in the bid. The CONTRACTOR must meter the water used, and will be responsible for all piping, connections, ancillary equipment, storage tanks, and labor required to convey the water to the well site for use. The CONTRACTOR will be responsible for obtaining an adequate flow rate of construction water for all operations under this specification. The CONTRACTOR will also be responsible for any coordination, permits, and/or costs associated with traffic control and road crossings that may be required to convey water to the well site. The CONTRACTOR will be responsible for all costs associated with metering the water usage and transporting water to the well site. Alternately, the CONTRACTOR may choose to use Central Arizona Project (CAP) water. The CAP canal is located less than 1 mile to the north. The CONTRACTOR would be required to obtain any and all necessary permits to use CAP water and pay all fees associated with such use.

### **3.2 ELECTRICITY**

The CONTRACTOR shall provide, at its own cost, all power required for its operations under this specification.

### **3.3 RESTROOM FACILITIES**

The CONTRACTOR shall provide, at its own cost, a portable restroom facility at the well site during all operations of this project. The restroom shall be adequately maintained, and shall be made available to the CONSULTANT and OWNER personnel for reasonable use, at no cost.

### 3.4 SITE LIGHTING

The CONTRACTOR shall be responsible for providing all necessary lighting for night work. This is to include illuminating the drilling work area, the sampling work area, and any normal foot travel paths used by personnel during the execution of their tasks. Lighting shall provide a minimum illumination of five (5) foot candles at two (2) feet above ground and at work stations. Lighting shall be positioned in such a manner so all lighting is directed toward the work area and not towards the adjacent surroundings.

\*\*\*END OF SECTION\*\*\*

## 4.0 EQUIPMENT

The CONTRACTOR shall furnish and maintain in safe and efficient working condition all equipment necessary to perform the specified work, including a drilling rig or rigs capable of performing the specified operations to the specified depths; above-ground mud tanks used for circulation of drilling fluids and collection of drill cuttings; pumping, testing, sampling equipment; and auxiliary equipment as specified or required to complete the described tasks. The CONTRACTOR shall submit a statement with their bid indicating the drilling equipment to be used. The drilling rig used for the installation of well W301 shall have a mast capacity no less than 1½ times the string weight of the well casing and screen, and the well shall be installed without the use of a float plate. All equipment requirements specified in this Section shall be provided at the CONTRACTOR'S expense.

The equipment supplied by the CONTRACTOR shall include, but not be limited to:

- A wire line depth indicator capable of measuring depths equal to the total depth of the borehole, and equipped with a counter device which provides for a depth measurement accuracy of  $\pm 1$  foot;
- Specified devices for measurement of drilling mud viscosity and weight;
- An operating and accurate inclinometer tool;
- An operating and accurate penetration rate indicator (Geolograph or equal);
- An operating and accurate gauge that indicates the hook load (weight) of the drill string;
- Above-ground mud tanks capable of circulating drilling fluids and collecting drill cuttings;
- A first aid kit;
- A fully recharged and operable type ABC dry chemical fire extinguisher (minimum 25 pounds); and
- An operable mobile telephone located at the well site. The rig mobile phone will be made available to the CONSULTANT and OWNER personnel for reasonable use, at no charge.

The CONTRACTOR shall also maintain at the well site, or have the ability to rapidly fabricate, commonly used fishing tools (such as overshots, wall hooks, junk baskets, etc.) to accommodate the event that lost tools in the borehole require fishing operations.

In addition, the compressor used for air supply shall be capable of a minimum of 350 pounds per square inch (psi) and 750 cubic feet per minute (cfm). This requirement is for well development and zonal sampling. A smaller “air package” can be used during drilling. The drill pipe shall have a minimum 5½-inch inside diameter (ID), and the airline shall have a minimum 1¼-inch diameter to accommodate adequate air flow.

The drilling rig, pumping equipment and auxiliary equipment used for this project shall be well maintained, and shall meet the standards of the Occupational Safety and Health Administration (OSHA). The rig and above-ground mud tank(s) walkways and stairways shall be guarded with rails to prevent falls, and CONTRACTOR personnel shall utilize a safety harness at all times when ascending the rig derrick. All high-pressure hoses shall be equipped with a safety chain to protect site personnel in the event of hose failure.

Prior to bringing any equipment to the site, the CONTRACTOR shall decontaminate the drill rig and downhole tools by steam cleaning to remove any latent drilling chemicals, muds, contaminants, or non-native vegetation or seed. The method and extent of steam cleaning must be approved by the CONSULTANT. The CONTRACTOR will be required to provide a letter of certification of the decontamination of the CONTRACTOR’S equipment, prior to utilization. The CONTRACTOR may certify, in writing, the decontamination of critical (downhole) pieces of drilling equipment in lieu of actual steam cleaning, provided the downhole pieces of drilling equipment have not been in contact with any hazardous or toxic materials since the last decontamination. All necessary steam cleaning will be conducted at the CONTRACTOR'S expense.

\*\*\*END OF SECTION\*\*\*

## **5.0 REPORTS, LOGS, AND RECORDS**

### **5.1 GENERAL**

The CONTRACTOR shall keep an accurate and legible daily log and record of all drilling, testing, and construction, describing all geologic material encountered during drilling, the depths at which changes in formation occur, and all difficulties or unusual conditions encountered. The log and record shall also show the method of completing the well, including the lengths of the well casing and well screen installed and the volume of all annular fill and seal materials. The forms for penetration rate log, the daily driller's report, and the drilling fluid control log must be approved by the CONSULTANT.

### **5.2 PENETRATION RATE LOG**

During the drilling of the borehole, a time log shall be kept showing the actual penetration time required to drill each foot of the borehole. The types of bits used in each interval of the borehole shall be noted on this log and whether designed for soft, medium, or hard formations, including approximate weight on the bit and rotation speed (RPM) of the bit, and any other information that may be requested by the CONSULTANT. The log shall be available for review by the CONSULTANT throughout the drilling program and shall be delivered to the CONSULTANT upon completion of drilling.

### **5.3 DAILY DRILLER'S REPORT**

During the drilling of the borehole, a detailed driller's report shall be maintained and provided daily to the CONSULTANT at the well site. The daily driller's report shall be recorded on forms approved by the CONSULTANT. The report shall give a complete description of all formations encountered; number of feet drilled; number of hours on the job; shutdown due to breakdown; any occurrence of lost circulation conditions or hard drilling conditions (in accordance with Sections 6.4 and 6.5 of this specification); drilling fluid additives used; length and type of casing set; volumes of filter pack and annular seal installed, and such other pertinent data as may be

requested by the CONSULTANT. CONTRACTOR personnel will submit the report to the CONSULTANT daily.

#### **5.4 DRILLER'S LOG**

During the drilling of the borehole, the CONTRACTOR shall prepare a detailed driller's log in compliance with the requirements of the ADWR. The log shall include the reference point for all depth measurements, a generalized description of each formation encountered the depth at which each formation is encountered and the thickness of each formation. The lithologic log prepared by the CONSULTANT will be made available to assist the CONTRACTOR in the preparation of the driller's log. A copy of the driller's log shall be furnished to the CONSULTANT upon completion of drilling, prior to acceptance of the well.

#### **5.5 DRILLING FLUID RECORD**

During the drilling of the borehole, a log of drilling fluid properties shall be maintained by the CONTRACTOR. The drilling fluid record will be recorded on an American Petroleum Institute (API)-approved form, and shall document all items listed in Section 6.2. The drilling fluid record shall be available for review by the CONSULTANT and OWNER throughout the course of drilling, and the log shall be delivered to the CONSULTANT upon completion of each day's work activities.

#### **5.6 WELL DRILLER REPORT AND WELL LOG**

Upon completion of the well drilling and installation, the CONTRACTOR shall prepare a Well Driller Report and Well Log (ADWR Form 55-55) in accordance with ADWR requirements; this report shall be submitted to ADWR within 30 days of completing the drilling of the well. Information to be included in this report includes drilling firm, well registry and location, well design and construction details, a geologic log, and a well site plan. Final payment will not be made until proof of submittal of the Well Completion Report to ADWR is provided to the CONSULTANT/OWNER.

\*\*\*END OF SECTION\*\*\*

## **6.0 DRILLING FLUID CONTROL PROGRAM**

### **6.1 DRILLING FLUID CONTROL PLAN**

The CONTRACTOR shall provide a drilling fluid control plan to the CONSULTANT prior to the start of drilling. The plan will outline specific drilling fluid additives the CONTRACTOR plans to use, how anticipated changes in the drilling conditions will affect the drilling fluid control plan, fluid testing procedures, and equipment that will be used. The CONSULTANT must approve the drilling fluid control plan. All drilling fluid additives should be certified by the National Sanitation Foundation (NSF).

### **6.2 DRILLING FLUID TESTING**

The CONTRACTOR shall retain an experienced drilling fluid engineer as a SUBCONTRACTOR. The CONTRACTOR'S selection of a drilling fluid engineer will be subject to approval by the CONSULTANT. The drilling fluid engineer will be available within a 2-hour travel time of the site during all drilling and well construction operations. Drilling fluid tests will be required during periods when any drilling fluid additives (not only clear water) are being circulated in the borehole. Physical and chemical properties of the drilling fluid are to be measured in accordance with the procedures of the API Standard RP 13B, "Standard Procedures for Testing Drilling Fluids", and shall include at a minimum fluid weight, viscosity, sand content, filtrate loss, wall cake thickness, gel strength, pH, alkalinity, hardness, chloride ratio, and free chlorine. Samples tested are those collected at the rig discharge line, with care taken to assure a true and representative sample. Drilling fluid tests shall be conducted at a minimum of (1) every 24 circulating hours; (2) when significant changes to the drilling fluid are made; (3) whenever conditions appear to have changed or when problems arise; or (4) at the request of the CONSULTANT. A Marsh-type viscosity funnel and a mud scale will be available at the well site during all well construction operations and, upon request, will be made available to the CONSULTANT.

The CONTRACTOR shall maintain current records at the site at all times to show: (1) the time, depth, and results of all drilling fluid tests; (2) all materials added to the system, (including type, amount, time, and depth); (3) variances or modifications from the agreed upon fluid program such as time, depth, reason, and authorization.

### **6.3 GENERAL REQUIREMENTS**

During the drilling and reaming of the borehole, and the installation of the well, the CONTRACTOR will be responsible to minimize the chemical and biological disturbance of the vadose zone and saturated alluvial matrix. The use of certain organic drilling fluid materials (such as starch, guar, or cottonseed hulls) will not be accepted for drilling, although some organic polymer additives may be allowed. Material Data Safety Sheets (MSDSs) from the manufacturer for all drilling fluid additives must be provided to the CONSULTANT for review prior to their use. The CONSULTANT reserves the right to reject any and all proposed additives.

The CONTRACTOR shall be responsible for maintaining the quality of the drilling fluid to ensure:

1. Protection of water-bearing and potential water bearing formations exposed to the borehole;
2. Representative samples of the formation materials and groundwater;
3. Maximum development capacity and optimum potential yield of the completed well;
4. Inhibition of the formation and prevention of formation-caused drilling problems (e.g., heaving sands, swelling clays, lost circulation);
5. Protection of the integrity of the boring during drilling, zonal sampling, and well installation operations, and
6. Complete and accurate geophysical logging of the borehole.

The CONTRACTOR is responsible for maintaining an adequate supply of drilling fluid additives at the drilling site and for the removal of all drilling fluids and additives from the borehole

during development of the well. The above-ground mud tank(s) at the site shall have a minimum depth of 6 feet and a total volume no less than that of the reamed borehole (approximately 4,000 cubic feet or about 30,000 gallons, based on the preliminary well design). The above-ground mud tank(s) shall contain at least one baffle and sufficient solids control equipment, to assist with the separation of cuttings and suspended solids from the drilling fluid. Because the primary objective is solids control, alternate dimensions and/or design of the above-ground mud tank(s) may be proposed but all designs must be approved by the CONSULTANT.

#### **6.4 LOST CIRCULATION**

During drilling or reaming operations, if Lost Circulation Conditions occur, the OWNER will compensate the CONTRACTOR for the period of drilling under Lost Circulation Conditions at the CONTRACTOR'S hourly rate indicated in the Bid Schedule (Rig Hourly Rate with Crew), in lieu of footage compensation. The OWNER will also provide compensation at a rate of cost plus 10 percent markup to the CONTRACTOR for all drilling fluid materials and additives used during the period of Lost Circulation Conditions. If lost circulation is the result of the CONTRACTOR'S operations or activities (e.g., excessive fluid weight), all costs to regain circulation shall be borne by the CONTRACTOR.

“Lost Circulation Conditions” under this Section shall apply only when there is a loss of drilling fluid to the formation that exceeds the maximum available discharge rate of water into the borehole, to the extent that the fluid level in the annulus outside the drill pipe cannot be maintained to a level above the base of the surface casing for at least one (1) hour, due to no fault of the CONTRACTOR.

The CONTRACTOR is responsible to notify the CONSULTANT immediately upon the occurrence of Lost Circulation Conditions, and to document the times, quantities, and circumstances of Lost Circulation Conditions during each occurrence. Failure of the CONTRACTOR to promptly (within one (1) hour of each occurrence) notify the CONSULTANT of Lost Circulation Conditions will void the CONTRACTOR'S opportunity to

implement this clause, but will not affect the CONTRACTOR'S responsibility to maintain the integrity of the borehole, as required in Sections 1.4.3 and 6.3 of this Specification. The use of any drilling fluid additives by the CONTRACTOR with the intent to control lost circulation conditions must be approved by the CONSULTANT prior to use.

The conditions of this Section shall apply from the beginning of the period of lost circulation, and shall continue only until such time that the drilling fluid level can be maintained within the surface casing. After an initial Lost Circulation Conditions event has occurred, should circulation be lost again, the conditions of this paragraph will go into effect immediately, and continue until such time as drilling fluid circulation is regained, as described in this paragraph.

## **6.5 LOW PENETRATION RATE**

During drilling or reaming operations, if a formation is encountered that results in a penetration rate of less than 4.0 feet per hour for a period of at least two (2) continuous hours, while at least 1,500 pounds per diameter inch is applied to the drill bit, then the OWNER will compensate the CONTRACTOR for the period of Low Penetration Rate Conditions at the CONTRACTOR'S hourly rate indicated in the Bid Schedule (Rig Hourly Rate with Crew), in lieu of footage compensation. The OWNER will also provide compensation at a rate of cost plus 10 percent markup to the CONTRACTOR for all drilling bits used during Low Penetration Rate Conditions. During Low Penetration Rate Conditions, the CONTRACTOR will credit the prorated values of used drilling bits to the OWNER.

The CONTRACTOR is responsible to notify the CONSULTANT immediately (within one (1) hour) upon the occurrence of Low Penetration Rate Conditions, and to document the times, quantities, and circumstances of Low Penetration Rate Conditions during each occurrence. Failure of the CONTRACTOR to promptly (within one (1) hour of each occurrence) notify the CONSULTANT of Low Penetration Rate Conditions will void the CONTRACTOR'S opportunity to implement this clause. The conditions of this Section shall apply from the beginning of the time period of Low Penetration Rate Conditions (less than 4.0 feet per hour),

and shall continue only until such time as drilling is resumed at a rate of 4.0 feet per hour or greater.

Upon invocation of this Section, the CONTRACTOR will trip the drill string out of the hole for inspection of the drill bit by the CONSULTANT. The conditions of this Section shall apply only if the CONSULTANT'S inspection of the drill bit does not indicate excessive bit wear, or improper bit type, that would substantially decrease the penetration rate. In the event that the drill bit inspection indicates that this Section applies, the time expended for drill bit removal will be paid by the OWNER under the conditions of this Section. If the CONSULTANT is not notified during the initial 2-hour period of low penetration, or if bit inspection reveals excessive wear or improper type, the provisions of this clause will not be invoked.

\*\*\*END OF SECTION\*\*\*

## **7.0 WELL DRILLING AND INSTALLATION**

### **7.1 GENERAL DRILLING METHODS**

Drilling will be conducted by the flooded reverse circulation rotary drilling method. The CONTRACTOR is responsible for designing and controlling a drilling program that conforms to this specification.

### **7.2 SURFACE CASING INSTALLATION**

#### **7.2.1 Surface Borehole Drilling**

The surface casing installation for well W301 shall be conducted under the observation of the CONSULTANT. The surface casing borehole shall be drilled to a minimum 36-inch diameter, to a depth of 39 feet. The CONSULTANT reserves the right to direct the drilling of the surface casing borehole to a greater depth depending on geologic formations and other subsurface conditions. The surface casing boring may be drilled using a rotary drilling method as described in Section 1.6 and 7.1, or by use of the bucket auger (solid stem auger) drilling method.

During the drilling of the surface casing borehole, the CONTRACTOR shall collect and preserve for the CONSULTANT samples of the drilled cuttings collected at 10-foot intervals. The samples shall be placed in 4½-inch x 6-inch cloth sacks (HUBCO or equal) furnished by the CONTRACTOR. The samples shall also be placed in specially designed chip trays furnished by the CONSULTANT.

#### **7.2.2 Surface Casing Materials**

##### **7.2.2.1 Surface Casing**

The surface casing for well W301 (Figure 2) shall be new low carbon steel (LCS), and manufactured in accordance with American Society for Testing and Materials (ASTM) Specification A53 Grade B steel or ASTM Specification A139 Grade B steel. The surface casing

shall have a 30-inch outside diameter (O.D.) and have a minimum 0.375-inch wall thickness. The minimum length of the surface casing shall be 40 feet, to allow for a minimum 1-foot stickup above land surface.

Prior to casing installation, the CONTRACTOR shall submit a certified test report to the CONSULTANT to demonstrate compliance with the physical and chemical properties of the steel surface casing, as specified herein.

#### **7.2.2.2 Surface Casing Cement Grout Seal**

The surface casing cement grout seal material shall consist of cement slurry containing 5.2 to 6.0 gallons of water per 94-pound sack of Portland cement. The Portland cement shall conform to ASTM Standard C150, Type II. The cement grout weight shall be measured prior to installation, as an indicator of the cement-water ratio. The cement grout slurry shall not exceed 17.0 pounds per gallon (lb/gal) (approximately 127 pounds per cubic foot, lb/ft<sup>3</sup>). The cement grout slurry may contain sand, which shall not exceed 50 percent by volume of the cement. Bentonite may be used as an additive, and must be in powder form and shall not exceed 4 percent by volume of the cement, or cement and sand. Water added for bentonite shall not exceed 1.3 gallons per 1.88 pounds of bentonite (2 percent by weight in cement). Accelerator additives, such as calcium chloride, shall not be used unless approved by the CONSULTANT. For information purposes, an example of a sand cement mix design is presented in Appendix A. Water used for preparing the grout slurry shall be potable. The water source and specific constituents of the cement grout must be approved by the CONSULTANT.

If the cement grout is not mixed on site, the CONTRACTOR must provide the specific constituents of the cement grout to the CONSULTANT prior to placement of the grout. The cement grout slurry shall be mixed thoroughly and must be free of lumps to the satisfaction of the CONSULTANT. Cement grout that does not comply with this specification will be rejected.

### **7.2.3 Surface Casing Installation**

Details for the surface casing construction are shown on Figure 2. Surface casing, conforming to Section 7.2.2.1, shall be furnished and placed from 1 foot above the ground surface to at least 39 feet below the ground surface. The surface casing installation shall be conducted under the observation of the CONSULTANT.

### **7.2.4 Surface Casing Cement Grout Installation**

Cement grout slurry conforming to the specification in Section 7.2.2.2 shall be placed from the base of the surface casing to the ground surface. The CONTRACTOR shall be responsible to maintain an equalization of pressures to the extent necessary to prevent collapse of the surface casing during cement grout installation. The grout seal shall completely fill the annular space and form a continuous seal between the surface casing and the wall of the borehole. To accommodate the reverse circulation drilling method, the surface casing grout seal may be placed in two separate installations to completely extend from the base of the surface casing to the ground surface. The surface casing shall be maintained centered in the hole during and after cement grout installation. The CONSULTANT must approve the method of grout installation. A minimum curing time for the surface casing grout seal is 12 hours, with the cement grout obtaining a compressive strength of at least 500 pounds per square inch (psi).

## **7.3 PILOT BORING**

### **7.3.1 Pilot Boring Drilling**

The pilot borehole shall be drilled to a depth of approximately 1,200 feet below land surface (bls), and shall have a maximum 17½-inch diameter unless otherwise approved by the CONSULTANT. The pilot boring shall be drilled using the methods described in Sections 1.6 and 7.1, and in compliance with the drilling fluid control program described in Section 6.0. During the drilling of the pilot boring, all operations shall be conducted on a 24-hour per day, 7-day per week basis.

The CONTRACTOR shall take all diligent care to produce a plumb and straight boring. Single-shot deviation surveys will be required during the drilling of both pilot and reamed borings. Single-shot deviation surveys will be performed in the drill string a minimum of every 100 feet, from the base of the conductor casing to the total depth of the boring, unless otherwise designated by the CONSULTANT. Surveys will be recorded on a 3 degree target which will be replaced each time a survey is performed. The borehole alignment will be maintained at one-half (1/2) degree or less at all times. If at any single location the survey results indicate that the borehole alignment has exceeded the specified tolerance, the boring will be straightened by making multiple passes until a survey indicates alignment is within acceptable limits. All survey results will be recorded on the geolograph logs and the daily drilling forms. Repeat single-shot deviation surveys may be required to verify the accuracy and repeatability of the tool.

During the drilling of the pilot borehole, the CONTRACTOR shall collect and preserve for the CONSULTANT samples of the drill cuttings collected at 10-foot intervals. The CONTRACTOR shall provide an acceptable means of sampling the drilled cuttings at the discharge pipe. A sump-type or baffle-type sample catching device shall be provided by the CONTRACTOR. Each cutting sample shall be carefully collected from the sampling point, and the sample catching device shall be cleaned of all cuttings after each sample is taken. Prior to the start of drilling, the CONTRACTOR shall submit details of the proposed formation sampling method to the CONSULTANT, including the specific sampling equipment (e.g. sample collection box) to be used. The sampling program and equipment must be approved by the CONSULTANT.

The samples shall be placed in 4½-inch x 6-inch cloth sacks (HUBCO or equal) furnished by the CONTRACTOR, one sack per 10-foot interval. In addition, as an on-site visual record of the borehole stratigraphy, each sample shall be laid out in a sample storage area on a waterproof tarp or ground cloth for each sampled interval in descending order. The storage area and ground cloth must allow samples to be maintained in sequence and unmixed with surface material or other samples until they have been examined and logged by the CONSULTANT. The drilled cuttings from each 10-foot interval will be secured by the CONSULTANT in specially designed chip trays, and will be provided to the OWNER for archival purposes.

Selected sampled intervals (up to 10 samples) by the CONSULTANT will be utilized for sieve analysis (ASTM Method D422), which will be utilized for filter pack and slot-size design.

### **7.3.2 Geophysical Logging**

Geophysical logging from a depth of 39 feet to the total depth of the boring shall be conducted at the cessation of drilling of the pilot boring. After the pilot boring has been reamed to its final diameter, the final caliper log will also be conducted to confirm the borehole diameter. The geophysical logging company will be subcontracted by the CONTRACTOR for both the logging of the pilot boring and for the final caliper log of the reamed boring. The geophysical logging, including the pilot borehole logging and the final caliper log, shall be conducted under the observation of the CONSULTANT.

The geophysical logging suite will include the following logs:

1. Spontaneous Potential and Resistivity Logs (Electric Log);
2. Acoustic Log (Sonic Log);
3. Natural Gamma Ray Log;
4. 4-Arm Caliper Logs (2 surveys: pilot boring and reamed boring);
5. Focused Guard Log; and
6. Magnetic Deviation Surveys (2 surveys: pilot boring and reamed boring).

Geophysical logging shall be conducted in a continuous manner throughout the entire length of both the pilot and reamed borings. For the focused guard log, the tool shall be decentralized to maintain a minimum standoff distance of one and one-half (1-½) inches. A maximum standoff distance of two and one-half (2-½) inches must be available upon request by the CONSULTANT.

The CONTRACTOR shall keep the borehole full of drilling fluid at all times during geophysical logging, to stabilize the borehole and provide log integrity. The CONTRACTOR shall assist the geophysical logger in rigging of the geophysical survey equipment. The CONTRACTOR shall ensure that the logging tools can be run to the total depth of the pilot borehole and reamed boring without interference by obstructions or tight sections in the boring.

A minimum of five (5) field copies shall be provided to the CONSULTANT upon completion of logging. In addition, a total of twelve (12) final paper copies of all logs and an electronic copy of all logs in Windows metafile (\*.wmf) format, or other CONSULTANT-approved format, shall be provided to the CONSULTANT no later than 10 working days after completion of logging.

At the request of the CONSULTANT, the geophysical logging SUBCONTRACTOR shall conduct repeat sections in intervals of the borehole selected by the CONSULTANT. The repeat logging intervals will not exceed 50 feet per log. All costs associated with logging of repeat sections will be the sole responsibility of the CONTRACTOR.

### **7.3.3 Zonal Water Sample Collection and Falling Head Testing**

After the completion of geophysical logging, the CONTRACTOR shall collect zonal (depth-specific) groundwater samples at depths designated by the CONSULTANT. It is anticipated that up to (10) zonal samples will be collected from the well, although the CONSULTANT may add or omit samples based on subsurface conditions encountered. After each zonal sample is collected, the CONTRACTOR shall obtain a measurement of the static water level and then will stand by while the CONSULTANT performs a falling head test for that test interval. The falling head tests are anticipated to require approximately 2 hours per test interval. The required method of zonal water sample collection is outlined below:

1. The borehole below each sample interval will be filled with clean pea gravel or sand, which must be approved by the CONSULTANT. The portion of the borehole immediately beneath the interval to the sampled shall be sealed with no less than 5 feet of bentonite pellets or chips. The bentonite shall be installed to the appropriate depth, which shall be measured

(tagged) with a wire line or other measurement device that has been approved by the CONSULTANT.

2. A minimum 4-inch inside diameter (I.D.) steel eductor pipe shall be installed to the sample depth. The eductor pipe shall have a bottom cap and be perforated in the bottom 20 feet.
3. An envelope of clean pea gravel shall be installed around the eductor pipe, to the top of the interval to be sampled. The gravel envelope will be capped with another layer of bentonite pellets or chips (minimum 5 feet in thickness).
4. The sample interval of the borehole shall be purged by air lifting or pumping for an adequate period to evacuate the drilling fluid from the borehole to the extent that a representative zonal sample can be obtained. The equipment used during purging and sampling operations must be approved by the CONSULTANT, and shall be capable of providing a discharge of no less than 50 gallons per minute (gpm) of water from the sampling interval (subject to the limitations of the formation being sampled). The air compressor shall be capable of providing a minimum of 750 cfm at 350 psi, consistent with the requirements specified in Section 4.0. The bentonite seals must remain intact throughout the purging and sampling period for each zonal sample interval, to the satisfaction of the CONSULTANT. If it is determined that the bentonite seals were breached during purging, all time spent purging prior to the breach will be at the CONTRACTOR'S own expense. Additionally, if a zone is improperly set, the CONTRACTOR will be required to remove the sampling tool and clean out the borehole back down to sample interval at the CONTRACTOR'S own expense. The CONTRACTOR may also be required to reimburse additional CONSULTANT fees if additional expenses are incurred due to breached seals and/or improperly set zones.

It is anticipated that approximately 12 hours of airlifting and/or pumping will be required for each zonal sample. Each zone shall be purged until the temperature, pH, and electrical conductance of the discharge water stabilize, and the CONSULTANT is satisfied that the water is clear and free of colloidal material and drilling additives. After the interval to be sampled has been purged to the satisfaction of the CONSULTANT, the CONSULTANT will collect the water sample from the discharge line.

5. A measurement of the static water level shall be obtained by the CONTRACTOR for the test interval. The CONTRACTOR then will standby while the CONSULTANT performs a falling head test on the zone. This process will consist of installing an electronic pressure transducer below the water level, injecting a "slug" of water of known volume, and recording the change in water level until the water level has returned to static conditions. The source of the water to be injected must be approved by the CONSULTANT prior to installation. The estimated standby time for each falling head test is approximately 2 hours, totaling 20 hours for the anticipated 10 zonal sampling intervals.

6. After zonal sampling and testing has been completed for each interval, the CONTRACTOR shall raise the eductor pipe to the next interval, and the procedure shall be repeated for each sample location.

The specific zonal sampling procedure, the duration of pumping at each sample interval, and the point of discharge for purged water must be approved by the CONSULTANT. The zonal samples need not be free of sand grains, but must be reasonably clear.

#### **7.4 SECURING THE PILOT BOREHOLE DURING DATA ANALYSIS**

After the completion of zonal sampling operations, borehole reaming and well installation will not occur immediately. The borehole shall be stabilized and secured by the CONTRACTOR while the OWNER analyzes the collected data and secures ownership of the site. Subsequent to the completion of zonal sampling, the CONTRACTOR shall backfill the open interval of the pilot borehole to the bottom of the surface casing with clean pea gravel, which must be approved by the consultant. After the borehole has been stabilized with pea gravel, the borehole shall be temporarily capped with a LCS steel covering plate with the same composition and the same wall thickness as the surface casing. The covering plate will be secured to the top of the surface casing with a water-tight welded seam.

#### **7.5 PRODUCTION WELL INSTALLATION**

##### **7.5.1 Borehole Reaming**

Upon transfer of ownership of the site to the City of Peoria, it is anticipated that the borehole will be reamed to a depth of approximately 1,020 feet bls, as shown on Figure 2. The final reamed borehole for well W301 shall have a 26-inch diameter, unless otherwise approved by the CONSULTANT. The boring shall be reamed using the methods described in Sections 1.6 and 7.1, and be in compliance with the drilling fluid control program described in Section 6.0. A 3-arm caliper log shall be conducted by a geophysical logger after the boring has been reamed to its final diameter and depth. During the reaming of the well boring, all operations shall be conducted on a 24-hour per day, 7-day per week basis.

## 7.5.2 Materials

The materials to be installed in the reamed boring are described below. The CONTRACTOR shall be responsible for the timely delivery of the well casing, well screen and other materials to the drilling site, as determined by the CONSULTANT and as required to complete the well installation program. The well casing and well screen must be approved by the CONSULTANT prior to their installation.

The CONSULTANT will make a final determination of the well screen slot size, based on sieve analysis results and other lithologic data obtained from the pilot hole. The final length and location of the well casing and well screen will be determined by the CONSULTANT based on analysis of the geophysical logging data and zonal sampling data from the pilot hole. Depending on which day of the week that the final zonal sample is collected and submitted to the laboratory, the CONSULTANT anticipates a period of 48 to 96 hours after cessation of zonal sampling to prepare the final well design, based on the analytical results from the zonal samples.

Upon the completion of reaming the borehole to its final depth and diameter, as determined by the CONSULTANT, and upon completion of the final caliper log survey, the CONTRACTOR shall immediately commence well installation operations.

The CONSULTANT may, at its discretion, reject any materials that do not meet these specifications or tolerances thereof, as determined by the CONSULTANT. Any additional standby time or other costs incurred by the CONTRACTOR as a result of the rejection of any specified materials provided by the CONTRACTOR or its suppliers shall not be compensated by the OWNER and shall be the sole responsibility of the CONTRACTOR.

### 7.5.2.1 Well Casing Material

The blank well casing for W301 shall be new high strength low allow (HSLA) steel and stainless steel (Roscoe Moss or equivalent), manufactured from steel conforming to ASTM specification A606 Type 4 steel (for HSLA steel) and ASTM specification A778 Type 304L (for stainless

steel), respectively. The well casing shall have an 18<sup>5</sup>/<sub>8</sub>-inch outside diameter (O.D.) and a 0.312-inch wall thickness. The casing shall be new, and free of rust, pits, or other defects. The total length of the blank stainless steel well casing (including the 20-foot bottom sump, and excluding the 2-foot dissimilar metal connector) will be 20 feet and the total length of the blank HSLA steel well casing (including the 1-foot stickup) will be 551 feet (Figure 2).

The well casing shall be factory-assembled in not less than 40-foot long sections (except for the casing sections used for the bottom sump and casing stickup). The well casing sections shall contain one spiral seam along the casing axis, and shall contain no more than one circumferential seam per 10 linear feet, unless otherwise approved by the CONSULTANT. Ends of casing lengths shall be as described in Section 7.4.3.1.

The bottom sump shall consist of a 20-foot long section of blank stainless steel well casing as described in this Section, installed at the base of the screened interval. The bottom sump shall be capped with a bottom plate consisting of the same steel composition and same wall thickness as specified above.

Prior to casing installation, the CONTRACTOR shall submit certified test reports to the CONSULTANT to demonstrate compliance with the physical and chemical properties of the well casing steel that are specified herein.

#### **7.5.2.2 Dissimilar Metal Connector Material**

Because the blank casing and screen sections are different metals (HSLA steel and stainless steel), a dissimilar metal connector (Roscoe Moss or equivalent) shall be used to connect the blank HSLA casing and the blank stainless steel casing portions of the well to prevent galvanic corrosion (Figure 2). A generalized dissimilar metal connector design is presented on Figure 3 for reference. The CONTRACTOR shall provide written certification from the dissimilar metal connector manufacturer, that the connector will withstand the tensile stresses exerted on it during the installation and use of the production well. The specific design and materials to be used in the dissimilar metal connector must be approved by the CONSULTANT. For bidding purposes, the

depth of the dissimilar metal connector shall be considered to be approximately 548 feet to 550 feet bls (Figure 2).

### **7.5.2.3 Well Screen Material**

The well screen for W301 shall be new, stainless steel, Ful-Flo louvered screen (Roscoe Moss or equivalent, ASTM A778 Type 304L steel). The well screen shall have an 18<sup>5</sup>/<sub>8</sub>-inch nominal diameter and 0.312-inch wall thickness, with horizontal louvered openings. The horizontal louvered openings shall be factory-installed in the well screen with a minimum 2<sup>3</sup>/<sub>8</sub>-inch slot length, in rows that are spaced approximately 1 inch apart in the vertical direction. There shall be 14 perforations per circle to provide 168 openings per linear foot. The screen slot size shall be 0.060 inches, and the open area of the screen shall be no less than 22 square inches per foot. The openings in the screen shall be machine made, horizontal to the axis of the casing, and of a louver form with the aperture facing downward. Ends of the screen lengths shall be as described in Section 7.4.3.1. The anticipated length of the well screen shall be 440 feet (Figure 2).

The CONTRACTOR shall obtain from the well screen manufacturer the screen tensile strength (pounds), collapse strength (psi), screen weight (pounds per linear foot), and maximum recommended hang weight (pounds). This information shall be provided to the CONSULTANT prior to delivery of the well screen to the site.

Prior to each well screen installation, the CONTRACTOR shall submit certified test reports to the CONSULTANT to demonstrate compliance with the physical and chemical properties of the well screen, as specified herein.

### **7.5.2.4 Sounding Tube Material**

The well shall be equipped with an annular sounding tube to facilitate the collection of water levels from the well. The sounding tube shall be constructed of new 1.5-inch inside diameter (I.D.), schedule 80 LCS and schedule 40 stainless steel, with a dissimilar metal connector used to connect the blank LCS casing and the slotted stainless steel casing portions of the sounding tube to

prevent galvanic corrosion. The dissimilar metal connector shall be located at approximately 552 feet bls (Figure 2). Sections of the sounding tube shall be no less than 20 feet in length, and section joints shall have welded connections. The ends of the sounding tube shall be smooth and any shoulders shall be turned down at the factory. The sounding tube shall be installed in the well annulus on the outside of the casing, and shall terminate within the filter pack at a depth of approximately 650 feet bls. The tube shall be perforated with vertical 0.030-inch mill slots from 550 to 650 feet bls and shall have an end cap installed at the bottom of the tube. The slots shall be factory installed with a minimum 3-inch slot length, in rows that are spaced approximately 3 inches apart in the vertical direction. There shall be 4 slots per circle to provide 8 openings per linear foot. The total length of the sounding tube shall be approximately 651 feet, assuming a distance of 650 feet from land surface to the bottom of the tube, and a 1-foot stickup above land surface (see Figure 2).

The CONTRACTOR is responsible for the installation of the sounding tube without crimps, obstructions, or other damage. After its installation, the CONTRACTOR shall pass a 1.25-inch O.D. “rabbit” through the entire length of the sounding tube to ensure that it is open and the remove any burrs or obstructions that may be in the tube. The top of the sounding tube shall be equipped with a watertight threaded cap.

#### **7.5.2.5 Filter Pack Sand and Disinfectant Material**

The filter pack shall be Colorado Silica Sand or approved equal, consisting of clean, well-rounded grains that are smooth and uniform. The filter pack shall be siliceous with a limit of 2 percent by weight, calcareous material. The filter pack material shall be obtained from a source that has been approved by the CONSULTANT, and shall consist of well-rounded particles with an average density of not less than 2.5 grams per cubic centimeter, and have a uniformity coefficient no greater than 1.5. Not more than 1 percent, by weight, of the material shall have a density of 2.25 grams per cubic centimeter or less. The filter pack shall contain no more than 2 percent by weight, thin, flat, or elongated pieces (pieces in which the largest dimension exceeds three times the smallest dimension) determined by hand-packing. The filter

pack material shall be free of shale, mica, clay, dirt, loam, organic impurities of any kind, and shall not contain iron or manganese in a form or quantity that will adversely affect the water quality. The filter pack grain size will be retained by a 9 mesh U.S. Standard sieve and pass through a 6 mesh U.S. Standard sieve.

Samples of the filter pack sand and a sieve analysis (percent retained through U.S. Standard sieve numbers 4, 8, 10, 16, 30, 40, 50, 100, and 200) of the filter pack material shall be submitted to the CONSULTANT for approval, a minimum of 3 days prior to delivery of the filter pack to the well site. The filter pack material shall be contained in a temporary storage area at the well site in such a manner as to prevent contamination. The filter pack material shall be bagged in approximately 3,000-pound (about one cubic yard) “super sacks”. Each bag must be labeled by the supplier with its actual weight. Any filter pack material delivered unbagged or unlabeled will be rejected.

During installation of the filter pack, an NSF 60-approved granular calcium hypochlorite or similar disinfectant shall be added to the filter pack sand at the rate of ½ pound per cubic yard of filter pack material, based on 70 percent chlorine content. If a lesser strength hypochlorite or other chlorine product is used, the quantity shall be adjusted accordingly. A liquid sodium hypochlorite solution containing approximately 5-percent to 15-percent available chlorine may be used in accordance with American Water Works Association (AWWA) Standard C654 for disinfection of wells, in such a way that will produce a chlorine concentration of not less than 50 milligrams per liter (mg/L) in the entire volume of fluid within the well. If a liquid hypochlorite solution is used, it shall be flushed into the well through a closed system that will prevent workers from exposure to chlorine vapors. The specific hypochlorite concentration and installation method must be approved by the CONSULTANT.

#### **7.5.2.6 Bentonite Seal Material**

The bentonite seal material shall consist of sodium bentonite pellets or bentonite chips. The bentonite seal material shall contain no hazardous materials or gypsum. For bidding purposes, a

20-foot bentonite seal shall be installed below the annular cement grout seal (Figure 2). A sample of the bentonite material shall be provided to the CONSULTANT for approval no less than 24 hours prior to installation.

#### **7.5.2.7 Cement Grout Material**

The cement grout seal material for the annular cement seal shall consist of a neat cement slurry containing 5.2 to 6.0 gallons of water per 94-pound sack of Portland cement. The Portland cement shall conform to ASTM Standard C150, Type II. The cement grout slurry may contain pozzolanic material (fly ash) as an additive, which complies with ASTM Standard C618, and which shall not exceed 50 percent by volume of the cement. No non-pozzolanic aggregate or sand may be added to the cement grout. Bentonite may be used as an additive, and must be in powder form and shall not exceed 4 percent by volume of the cement, or cement and sand. Water added for bentonite shall not exceed 1.3 gallons per 1.88 pounds of bentonite (2 percent by weight in cement). An example of a pozzolan cement mix design is presented in Appendix A. The cement grout weight shall be measured prior to installation as an indicator of the cement-water mix ratio. The cement grout slurry shall not exceed 15.6 lb/gal (117 lb/ft<sup>3</sup>). Accelerator additives shall not be used unless approved by the CONSULTANT. Water used for preparing the grout slurry shall be potable. The specific constituents of the cement grout must be approved by the CONSULTANT. Water used for preparing the grout slurry shall be potable. The water source and specific constituents of the cement grout must be approved by the CONSULTANT.

The CONTRACTOR must provide a cement mix design, the mix water source, and the specific constituents of the cement grout to the CONSULTANT prior to the start of cementing operations. If the cement grout is not mixed on site, the CONTRACTOR must provide the specific constituents of the cement grout to the CONSULTANT prior to placement of the grout. The cement grout slurry must be mixed thoroughly and be free of lumps, to the satisfaction of the CONSULTANT. Cement grout that does not meet the requirements of this specification, or is not adequately mixed will be rejected.

### **7.5.3 Casing and Screen Installation**

During the installation of the well casing and screen (including the dissimilar metal connector), the boring shall be kept full of drilling fluid of the type specified in Section 6.0 and be free from any obstructions detrimental to completing the casing installation. The well casing and screen shall be set centered in the hole so as not to interfere in any way with the grout seal, filter pack, well installation, or maximum efficient operation of pumping equipment within the well casing or screen. The CONTRACTOR will be required to work continuously, on a 24-hour per day, 7-day week basis, while installing and completing the well.

The well casing and well screen shall be set by the CONTRACTOR at the depth intervals specified by the CONSULTANT. HSLA casing centralizers that have been approved by the CONSULTANT shall be secured to the well casing at intervals of not greater than 80 feet in the bentonite and cement grout seal locations, from 40 feet to 550 feet bls (Figure 2). Stainless steel centralizers shall be secured to the well screen at intervals of not greater than 80 feet in the screened interval of the well, from 550 feet to 990 feet bls (Figure 2). Centralizers shall be constructed of the same material and thickness as the corresponding casing and screen, supported with a center post, and welded to the casing and screen collars and welding rings. Centralizers will be durable and shall not bend, flex, or collapse during installation of the casing and screen. The casing shall be hung in suspension until the filter pack and cement grout seal have been installed.

#### **7.5.3.1 Joints in the Well Casing**

Joints in the steel well casing and well screen shall be field welded in accordance with applicable provisions of the AWWA Standard C206 for welded joints. A welding sequence will be followed that will avoid excessive distortion. All well casing joints or overlaps shall be made watertight to prevent the degradation of the water supply by the migration of poor quality water. All welding shall be performed by an experienced welder. An affidavit of compliance with the welding provisions of this section shall be provided to the CONSULTANT prior to the acceptance of the

production well. The affidavit of compliance will certify that all welding conducted during this project was performed in accordance with all applicable provisions of this Section of this specification.

If the casing or screen sections are butt-welded without the use of welding rings, the ends of the casing lengths shall be factory cut with ends beveled at the factory. The ends of each casing section shall not vary more than 0.010 inch at any point from a true plane at right angles to the axis of the casing. Each casing and screen end shall be beveled at one end to allow complete penetration of the welds.

If the casing or screen sections are joined with welding rings, the ends of the casing lengths shall be ground, or sufficiently scarfed, to remove sharp edges or burrs. One end of each casing section shall be furnished with a welding collar of the same wall thickness and have the same physical and chemical properties as the corresponding casing sections. The welding collars shall have a minimum 5-inch length, and shall fit the outside diameter of the well casing within 0.0625-inch diametrical clearance. The welding collars shall be delivered to the well site connected to the casing sections at one end with factory-welded connections. The inside edge of the welding collars shall be ground or sufficiently scarfed to remove sharp edges or burrs. Three alignment holes shall be provided in each welding collar (spaced at 120°), to ensure proper abutment of the casing sections. The alignment holes shall be no larger than 1 inch in diameter, and shall be completely filled with fillet welding. The ends of each casing section shall not vary more than 0.010 inch at any point from a true plane at right angles to the axis of the casing.

### **7.5.3.2 Dissimilar Metal Connector Installation**

The dissimilar metal connector, conforming to the specifications of Section 7.4.2.2, shall be installed in the blank well casing from 548 feet to 550 feet bls (where the dissimilar metals are in contact with each other), during installation of the well casing and screen. The section shall be factory assembled and shall be welded in accordance with applicable provisions of the AWWA Standard C206 for welded joints (see Section 7.4.3.1) and manufacturer recommendations.

## **7.5.4 Sounding Tube Installation**

The sounding tube, conforming to the specifications of Section 7.4.2.4, shall be installed in the well annulus outside of the well casing to 650 feet bls. The sounding tube will be installed before the installation of the well casing and screen string to ensure installation to the total depth of the borehole. The dissimilar metal connector, conforming to the specifications of Section 7.4.2.4, shall be installed in the sounding tube at 550 feet bls (where the dissimilar metals are in contact with each other), during installation of the sounding tube. The sounding tube sections shall be welded in accordance with applicable provisions of the AWWA Standard C206 for welded joints (see Section 7.4.3.1).

## **7.5.5 Annular Materials Installation**

### **7.5.5.1 Filter Pack and Disinfectant Installation**

Filter pack sand, conforming to the specifications of Section 7.4.2.5, shall be placed to completely fill the annulus from 450 feet to 1,020 feet bls (Figure 2). During the time of placement, fluid circulation shall be maintained through a CONSULTANT-approved swab block located no less than 40 feet below the fill depth of the filter pack sand. The swab block shall be periodically reciprocated to remove fine-grained material, prevent bridging, and aid in settling the filter pack in the borehole. Drilling fluid shall be maintained throughout the full depth of the well to the land surface and the well casing and screen shall be maintained in tension, until the filter material placement has been completed to the specified level. Care shall be taken to avoid bridging during installation of the sand.

In accordance with applicable provisions of the AWWA Standard A100 for water wells, before the introduction of filter pack into the well annulus, the drilling fluid shall be reconditioned until it has the following properties:

- Weight – no greater than 9.1 lb/gal (68 lb/ft<sup>3</sup>);
- Viscosity – no greater than 30 seconds per quart; and

- Sand content – no greater than 1 percent by volume.

At the discretion of the CONSULTANT, the above standards may be exceeded in cases where different drilling fluid properties are required to protect or stabilize the well due to unstable borehole conditions, or other site-specific circumstances. The CONTRACTOR shall adhere to the standards listed above, unless otherwise approved by the CONSULTANT.

The filter pack shall be installed by use of a tremie pipe. At no time shall the bottom of the tremie pipe be located at a distance of greater than 30 feet above the interval being filled during filter pack placement. The level of the filter pack shall be measured periodically during placement with a wire line sounder, as required by the CONSULTANT. Placement of the filter pack will be continuous, except when additional precautions are necessary to prevent bridging, or while a measurement of the filter pack level is being conducted.

The quantity of filter pack material placed in the annulus shall not be less than that of the calculated volume. Upon completion of the filter pack placement, excess filter pack material will be judged an indication of voids in the sand envelope and corrective measures shall be undertaken at the CONTRACTOR'S expense. The specific method of filter pack placement and the filter pack material must be approved by the CONSULTANT.

During installation, the filter pack shall be disinfected using NSF 60-approved hypochlorite or similar agent constituent with the specifications in Section 7.4.2.5. The CONTRACTOR is responsible for the uniform application of the disinfecting agent throughout the filter pack interval, without relying on subsequent mechanical surging action for dispersing the disinfectant. The specific method used to disinfect the filter pack must be approved by the CONSULTANT.

### **7.5.5.2 Bentonite Seal Installation**

A 20-foot bentonite seal complying with Section 7.4.2.6 shall be installed in the well annulus immediately above the top of the filter pack interval, from 390 feet to 400 feet bls (Figure 2). The bentonite seal shall be installed simultaneous with the reverse circulation of drilling fluid

down the annulus, until such time that the annulus has been sealed and circulation can no longer be maintained.

### **7.5.5.3 Cement Grout Seal Installation**

The lower well casing grout seal shall consist of a neat cement or pozzolan cement slurry conforming to the specification in Section 7.4.2.7. The cement grout shall be placed to completely fill the annular space between the well casing and the wall of the borehole, from the top of the bentonite seal at approximately 430 feet bls, up to land surface (Figure 2).

The cement grout shall be placed by pumping through a tremie pipe. Prior to pumping, the cement grout shall be passed through a ½-inch slotted bar strainer to remove any unmixed lumps. During the cement grout installation, the discharge end of the tremie pipe shall be continuously submerged in the grout until the zone to be grouted is completely filled. During cement seal installation operations the CONTRACTOR is responsible to maintain cement slurry hydraulic pressures and pumping pressures that will not reach excessive levels and cause casing collapse.

The well casing shall be hung in tension throughout the grouting operation, until the cement grout has cured sufficiently. The grout seal shall be placed in one continuous operation from the bottom to the top of the interval to be grouted, forming a continuous seal. The minimum curing time for the lower cement grout seal shall be 12 hours or the cement grout obtaining a minimum compressive strength of 500 psi. The specific method of cement grout installation must be approved by the CONSULTANT.

## **7.6 WELL DEVELOPMENT**

Well development shall be accomplished by simultaneously swabbing and airlift pumping. The diameter of the swab apparatus shall not be more than ¼-inch greater or ⅛-inch less than the casing I.D. It is the sole responsibility of the CONTRACTOR to develop the well in accordance with this Section, without damage to the well screen or well casing. The swabbing tool used for well development may be a double or triple flanged closed-end tool and must be approved by the

CONSULTANT. No single flange or open ended swab tools will be allowed. The well development shall include an initial quick pass downward, after which the well development shall proceed from the bottom of the screen to the top of the screen, at an average rate of no less than 7.5 minutes per linear foot of screen, unless otherwise directed by the CONSULTANT. During swab and air-lift development, a discharge rate of no less than 50 gpm must be maintained (unless limited by aquifer characteristics). Prior to the start of development operations, a non-phosphoric dispersant (such as the Johnson Screen product NW-220 or equal) shall be added to the well bore in accordance with the manufacturers recommendations. The CONTRACTOR shall provide the CONSULTANT with an MSDS for all chemical additives used for well development at least 3 days prior to their use. The CONSULTANT must approve the specific type and placement method of all chemical additives prior to their use. Development water shall be contained and/or disposed of by the CONTRACTOR as specified in Section 2.0. Re-use of discharge water will not be allowed. The specific methods, chemical additives, and equipment used for well development must be approved by the CONSULTANT prior to commencement of development operations.

Payment for well development by swabbing and airlift pumping will be based on the unit price per hour shown on the bid schedule and shall apply only to those hours that the development tools are being operated for swabbing and airlifting and will not apply to other time such as trip time. The unit price per hour shall also include costs for chemical additives. After swabbing is complete, all rock, sand, and foreign material shall be removed from the bottom of the production well. The CONTRACTOR shall provide the necessary equipment and air compressor capable of performing the required swabbing and airlifting without artificially raising the water level in the well boring.

After swabbing and airlift development, the well shall be further developed by pumping and surging. The specific pump-and-surge development method must be approved by the CONSULTANT. The pump-and-surge development program is anticipated to have 12 hour duration, with pumping rates ranging from 500 to 1,500 gpm.

## 7.7 PLUMBNESS AND ALIGNMENT

Tests for plumbness and alignment shall be made by the CONTRACTOR during the drilling of the pilot borehole, and after the construction of the well is complete. All plumbness and alignment tests will be conducted at the CONTRACTOR'S expense. If the well fails the final plumbness and alignment test, the CONTRACTOR must correct the plumbness and alignment to the satisfaction and approval of the CONSULTANT and OWNER. Plumbness and alignment correction costs will be borne by the CONTRACTOR.

In accordance with applicable sections of the AWWA Specification document A100, the maximum allowable horizontal deviation (drift) from vertical shall not exceed two-thirds of the smallest inside diameter of the casing per 100-feet of depth. Based on the preliminary well design (Figure 2), the maximum allowable drift for W301 is 12 inches per 100 feet of depth. The CONTRACTOR shall guarantee that when completed, the well shall be sufficiently straight and plumb to permit the free installation and operation of a 30-foot long vertical turbine pump with a 16-inch diameter, set at approximately 10 feet above the total depth of the well. To demonstrate compliance with this requirement, the CONTRACTOR shall furnish all labor, equipment, and materials to conduct plumbness and alignment tests to the satisfaction of the CONSULTANT. Tests for plumbness and alignment must be approved by the CONSULTANT and the OWNER.

During the drilling of the borehole, plumbness and alignment tests shall be performed by the CONTRACTOR using an inclinometer (TOTCO tool or equal) at a minimum of 100-foot intervals as specified in Section 7.3.1. A 3-degree unit shall be used with the inclinometer.

Following the completion of the pilot borehole, a geophysical borehole alignment survey will be completed. The tool shall be capable of measuring drift angle and direction, along with dog-leg deviation severity and direction, on a north-south and east-west coordinate system. The accuracy of the measurements shall be one (1) degree for inclination (drift angle) and two (2) degrees for azimuth (drift direction). The CONSULTANT must be present when this survey is made. A written report containing a drawing of the horizontal projection of the well and the tabulated

survey data must be submitted to the CONSULTANT. The report shall contain the 1) depth of measurements, 2) course length, 3) drift angle, 4) vertical depth, 5) true vertical depth, 6) drift direction, 7) north-south and east-west coordinate differences, 8) north-south and east-west rectangular coordinates, 9) degree of dog-leg per one hundred (100) feet, and 10) degree of dog-leg per twenty (20) foot course length. If the CONSULTANT determines that the borehole does not meet the alignment criteria, the CONTRACTOR must submit to the CONSULTANT a written plan of corrective action. After completing any necessary corrective action, the CONTRACTOR must retest the borehole for plumbness and alignment at CONTRACTOR cost to demonstrate correction of plumbness and alignment problems. The CONTRACTOR will be responsible for time, materials, water use, and additional gravel and grout usage associated with borehole alignment corrections.

After completion of well construction, the CONTRACTOR shall conduct a final plumbness and alignment test by use of a gyroscopic survey. The gyroscopic survey shall be conducted under the observation of the CONSULTANT. The final plumbness and alignment test must indicate compliance with the plumbness and alignment requirements of AWWA Standard A100, and must be approved by the CONSULTANT in order to be acceptable. The gyroscopic survey logging company SUBCONTRACTOR and the specific gyroscopic logging tool to be used must be approved by the CONSULTANT. The gyroscopic survey tool shall be centralized in the well, and the geophysical logger SUBCONTRACTOR shall conduct a 50-foot repeat section to demonstrate accuracy and repeatability of the gyroscopic data. The repeat section shall be conducted at no additional cost to the OWNER. The gyroscopic survey logging company SUBCONTRACTOR shall provide five (5) field copies of the gyroscopic survey to the CONSULTANT at the site, immediately following the completion of gyroscopic survey. Within 10 working days following completion of the gyroscopic survey, 12 final copies of the gyroscopic survey shall be provided to the CONSULTANT, as well as an electronic original of the logging data in Windows metafile (\*.wmf) format, or other CONSULTANT-approved format. The written plumbness and alignment report shall include numerical values of the well deviation, and also graphical diagrams of the well alignment, from both a profile perspective (both Northing and Easting views), and a vertical

perspective. The quality and clarity of the gyroscopic logs must be approved by the CONSULTANT.

The OWNER may waive the requirements of plumbness and alignment if, as determined by the CONSULTANT: (1) the CONTRACTOR has exercised all possible care in constructing the well and the defect is due to circumstances beyond the CONTRACTOR'S control; or (2) the utility of the completed well will not be materially affected.

## **7.8 VIDEO SURVEY**

After completion and testing of the well, the CONTRACTOR shall provide a color video survey of the well. The video survey camera shall include both downward-looking and side-view capabilities, and the video survey shall be conducted under the observation of the CONSULTANT. Both the quality and clarity of the well video must be acceptable to the CONSULTANT. Prior to acceptance of the well, the CONTRACTOR shall provide two copies of the final well video (DVD format) to the CONSULTANT.

## **7.9 COVERING PLATE AND ACCESS PORT**

After completion of all testing and surveys, the well shall be temporarily capped with an LCS steel covering plate with the same composition and the same wall thickness as the well casing. The covering plate will be secured to the top of the well with a water-tight welded seam. Additionally, the covering plate will be equipped with a ½-inch diameter temporary access port with a watertight threaded cap, to allow for the measurement of water levels (Figure 2). Additionally, the 2-inch I.D. sounding tube shall be capped with a watertight threaded cap with the same composition as the sounding tube.

\*\*\*END OF SECTION\*\*\*

## 8.0 WELL TESTING

### 8.1 GENERAL

Aquifer tests to be performed at the well shall consist of a 10-hour step-rate discharge test and a 48-hour constant-rate aquifer test, which will be followed by a 24-hour water-level recovery period. The CONSULTANT reserves the right to extend or shorten the test duration.

The CONTRACTOR shall obtain and record water level measurements in half-hour intervals throughout the duration of the 48-hour constant rate aquifer test, or as directed by the CONSULTANT.

### 8.2 TEST EQUIPMENT

The CONTRACTOR shall furnish pumping equipment capable of pumping at a rate of up to 1,500 gpm (for the step-rate discharge and 48-hour constant-rate aquifer tests), with a pumping lift (not including pipe friction losses) of 525 feet bls. The pumping equipment shall include satisfactory throttling devices or valves such that the discharge can be adjusted to various rates, potentially below 500 gpm. The test pump setting shall be determined by the CONSULTANT, based on the final well design. The anticipated setting of the test pump inlet is 525 feet bls. The pumping unit shall be complete with an ample power source and shall be capable of being operated without interruption for a period of 48 hours.

The pump equipment shall not be removed from the well until after the completion of the water-level recovery test. The CONTRACTOR shall provide a magnetic induction-type flow meter with 4 to 20 milliamp signal output and calibrated orifice as specified in Section 8.3. A 4 to 20 mADC signal converter and data logger will be provided by the CONSULTANT. The CONSULTANT must approve the test pump, motor, metering equipment, and accessories.

### 8.3 PUMP DISCHARGE

The CONTRACTOR shall operate the test pump at the discharge rate(s) that have been directed by the CONSULTANT. Discharge from the pump shall be controlled by a gate valve and/or engine throttle. The discharge shall be controlled and maintained at the specific rate for the entire test duration with an accuracy of plus-or-minus 2 percent.

The pump discharge shall be measured with a magnetic inductive-type flow meter with a 4 to 20 mADC signal output, in addition to a calibrated orifice and manometer installed in the discharge pipe. The flow measurement devices must be approved by the CONSULTANT. The magnetic induction-type flow-meter shall be relatively new with a certified calibration within 1 year prior to use on the project. The flow metering devices shall be located in a straight portion of the discharge pipe without any bends, valves, or other obstructions that may interfere with the operation and/or accuracy of the meters for a distance of no less than 10 pipe diameters upstream, and for a distance of no less than 5 pipe diameters downstream (unless otherwise recommended by the manufacturer of the meter). At all times during pumping, the discharge pipe shall be oriented in such a manner as to ensure that the pipe remains full of water and under pressure at the location of the flow-meter.

The discharge pipe shall be equipped with a CONSULTANT-approved stainless steel valve or spigot for water quality sample collection. The CONTRACTOR shall also furnish equipment for measurement of sand production during pumping. The sand measurement device shall be a Rossum Sand Sampler, or equal, in accordance with AWWA Standard A100. The discharge flow measurement device(s) and sand measurement device must be approved by the CONSULTANT.

The discharge water from the well shall be directed to a point of discharge that has been approved by the CONSULTANT. The anticipated discharge point will be within 1,000 feet of the well site. The discharge piping shall be watertight and capable of conveying the specified flow rates for the specified pumping periods. The CONTRACTOR is responsible for providing adequate piping for the actual distance to the discharge point. The CONTRACTOR is

responsible for coordination of any required permits, traffic control, and other considerations that may be required to address potential flooding or pipeline roadway crossings that result from the discharged water.

\*\*\*END OF SECTION\*\*\*

## 9.0 VISITATION AND INSPECTION

The CONSULTANT and OWNER representatives shall, at any reasonable time during the term of work, be entitled to review the CONTRACTOR'S facilities, its program operation, and the records that pertain to the program.

The CONTRACTOR agrees that the CONSULTANT or OWNER, or any of their duly authorized representatives, shall have access to the CONTRACTOR'S facilities and have the right to examine books, documents, and records of the CONTRACTOR involving transactions related to these specifications.

The CONTRACTOR further agrees to include in all subcontracts hereunder, if any, a provision that the SUBCONTRACTOR agrees that the CONSULTANT or OWNER, or any of their duly authorized representatives, shall have access to the SUBCONTRACTOR'S facilities and have the right to examine any books, documents, and records of the SUBCONTRACTOR involving transactions related to the subcontract and these specifications.

\*\*\*END OF SECTION\*\*\*

## **10.0 MEASUREMENT AND PAYMENT**

### **10.1 GENERAL**

Payment for the lengths, areas, volumes, weights, or times shall be compensation in full for the furnishing of all overhead, labor, materials, tools, equipment, and appurtenances necessary to complete the work in a satisfactory manner as specified with all connections, testing and related work completed. Each item, fixture, piece of equipment, etc., shall be complete with all necessary connections and appurtenances for the satisfactory use of and/or operation of said item. No additional payment will be made for work related to each item unless specifically noted or specified.

### **10.2 BASIS OF MEASUREMENT AND PAYMENT**

Compensation for all work specified to be performed under this specification will be made under the payment items presented in this Section. The prices for the said payment items shall be full compensation for all costs in connection therewith. Principal features of the work to be included under the various payment items will be on a linear foot, hourly, per ton, per cubic foot, per cubic yard, per each, or lump sum basis, as designated. Measurement of completed work will be made in place, with no allowance for waste. Measurement of lengths, areas, volumes, weights, or time will be based on the dimensions indicated in this Section, unless altered by the CONSULTANT to accommodate field conditions.

### **10.3 BID SCHEDULE PAYMENT ITEMS**

The payment schedule for well construction, development, and testing of well W301 is presented in the Bid Schedule. A detailed description of each item of the payment schedule is presented below.

### **10.3.1 Item 1 – Mobilization and Demobilization – Pilot Hole**

Item 1 consists of moving and assembling all drilling, testing, and support equipment to the job site for the drilling and testing of the pilot hole, removing or transferring the equipment from the job site when the work is completed, and job site cleanup. Payment will be made on a lump sum basis. Up to 50% of the lump sum can be billed after mobilization to the site with the remaining 50% billed after demobilization and approval of the job site cleanup.

### **10.3.2 Item 2 – Noise Control (Optional)**

Item 2 includes all equipment, materials, and labor required to provide Noise Control as specified in Section 1.8. Payment will be made on a linear foot basis.

### **10.3.3 Item 3 – Surface Casing Construction**

Item 3 consists of all labor, equipment, material costs associated with drilling the surface boring, and placement of the surface casing and surface grout seal in accordance with Section 7.2. This item includes: drilling the surface borehole in accordance with Section 7.2.1; providing the materials specified in Sections 7.2.2.1 and 7.2.2.2; and installation of the surface casing in accordance with Sections 7.2.3 and 7.2.4. Payment will be made on a linear foot basis.

### **10.3.4 Item 4 – Pilot Borehole Drilling, Sampling, Stabilizing and Securing**

Item 4 consists of all labor, equipment, and material costs associated with drilling the 17½-inch diameter pilot hole, geophysical logging, zonal sampling, and standby time during geophysical logging and falling head testing, in accordance with Sections 7.3.1, 7.3.2, and 7.3.3. Payment will be made on a linear foot, lump sum (geophysical logging), per each (zonal sample), and hourly basis. This item also includes all labor, equipment, and material costs associated with stabilizing and securing the pilot borehole at the conclusion of zonal sampling, in accordance with Section 7.4.

### **10.3.5 Item 5 – Mobilization and Demobilization – Well Installation**

Item 5 consists of moving and assembling all drilling, testing, and support equipment to the job site for the reaming of the pilot hole, well construction, development, and testing. This task also includes removing or transferring the equipment from the job site when the work is completed, and job site cleanup. Payment will be made on a lump sum basis. Up to 50% of the lump sum can be billed after mobilization to the site with the remaining 50% billed after demobilization and approval of the job site cleanup.

### **10.3.6 Item 6 – Borehole Reaming**

Item 6 consists of all labor, equipment, material costs associated with reaming the pilot hole to its final diameter in accordance with Section 7.5.1. Payment will be made on a linear foot basis.

### **10.3.7 Item 7 – Casing and Screen Material**

Item 7 consists of the material cost of the well casing, well screen, sounding tube and dissimilar metal connectors, as specified in Sections 7.5.2.1, 7.5.2.2, 7.5.2.3, and 7.5.2.4. Item 7 also includes the bottom well plate as specified in Section 7.5.2.1. Payment will be made on a linear foot basis for the well casing, screen, and sounding tube for actual quantities used after placement is complete, and lump sum for the compression section and dissimilar metal connector.

### **10.3.8 Item 8 – Casing and Screen Installation**

Item 8 consists of all labor and equipment costs required for the installation of the well casing, compression section, dissimilar metal connector, and well screen, including welding requirements, logs, and records, as specified in Sections 5.0 and 7.5.3. Payment will be made on a linear foot basis.

### **10.3.9 Item 9 – Sounding Tube Installation**

Item 9 consists of all labor and equipment costs required for the installation of the sounding tube in the well annulus, including welding requirements, logs, and records, as specified in Sections 5.0 and 7.5.4. Payment will be made on a linear foot basis.

### **10.3.10 Item 10 – Annular Material and Installation**

Item 10 consists of all labor, equipment, and material costs to furnish and install the filter pack, disinfectant, and bentonite seal, in the well annulus, as specified in Sections 7.5.2.5, 7.5.2.6, 7.5.5.1, and 7.5.5.2. The Item 10 annular material volumes as indicated in the Bid Schedule are based on the calculated volume plus a 30 percent overage. Payment will be made on a per-ton and per cubic foot basis for actual quantities used.

### **10.3.11 Item 11 – Cement Grout Material and Installation**

Item 11 consists of all labor, equipment and material costs to furnish and install the cement grout seal in accordance with the requirements of Sections 7.5.2.7 and 7.5.5.3. The Item 11 cement grout material as indicated in the Bid Schedule is based on the calculated volume plus a 30 percent overage. Payment will be made on a per cubic yard basis for actual quantities used.

### **10.3.12 Item 12 – Well Development and Completion**

Item 12 consists of all labor, equipment, and material costs associated with well development by swabbing and air-lift pumping, as well as pump-and-surge development as specified in Section 7.6. Item 12 also consists of the testing for plumbness and alignment as described in Section 7.7, the final well video as described in Section 7.8, and the covering plate and temporary access port as described in Section 7.9. Payment will be made on an hourly and lump sum basis.

### 10.3.13 Item 13 – Well Testing

Item 13 consists of the cost of all labor, equipment, and materials associated with the well testing requirements as described in Sections 2.0 and 8.0. Payment will be made on a lump sum and hourly basis.

### 10.3.14 Item 14 – Rig Hourly Rate (Allowance Item)

Item 14 consists of the cost of maintaining equipment with and without personnel if a work stoppage occurs at the well, which is not due to any fault of the CONTRACTOR or SUBCONTRACTORS. ~~An 8-hour standby period is allotted to accommodate costs associated with the geophysical logging in accordance with Section 7.3.2.~~ Payment for any hourly time is subject to approval by the CONSULTANT and OWNER. The hourly rate with crew is also applicable to Lost Circulation Conditions as described in Section 6.4 and Low Penetration Rate Conditions as described in Section 6.5 assuming all conditions of each clause are met in full. Payment will be made on an hourly basis.

\*\*\*END OF SECTION\*\*\*

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## FIGURES



**CLEAR CREEK ASSOCIATES**

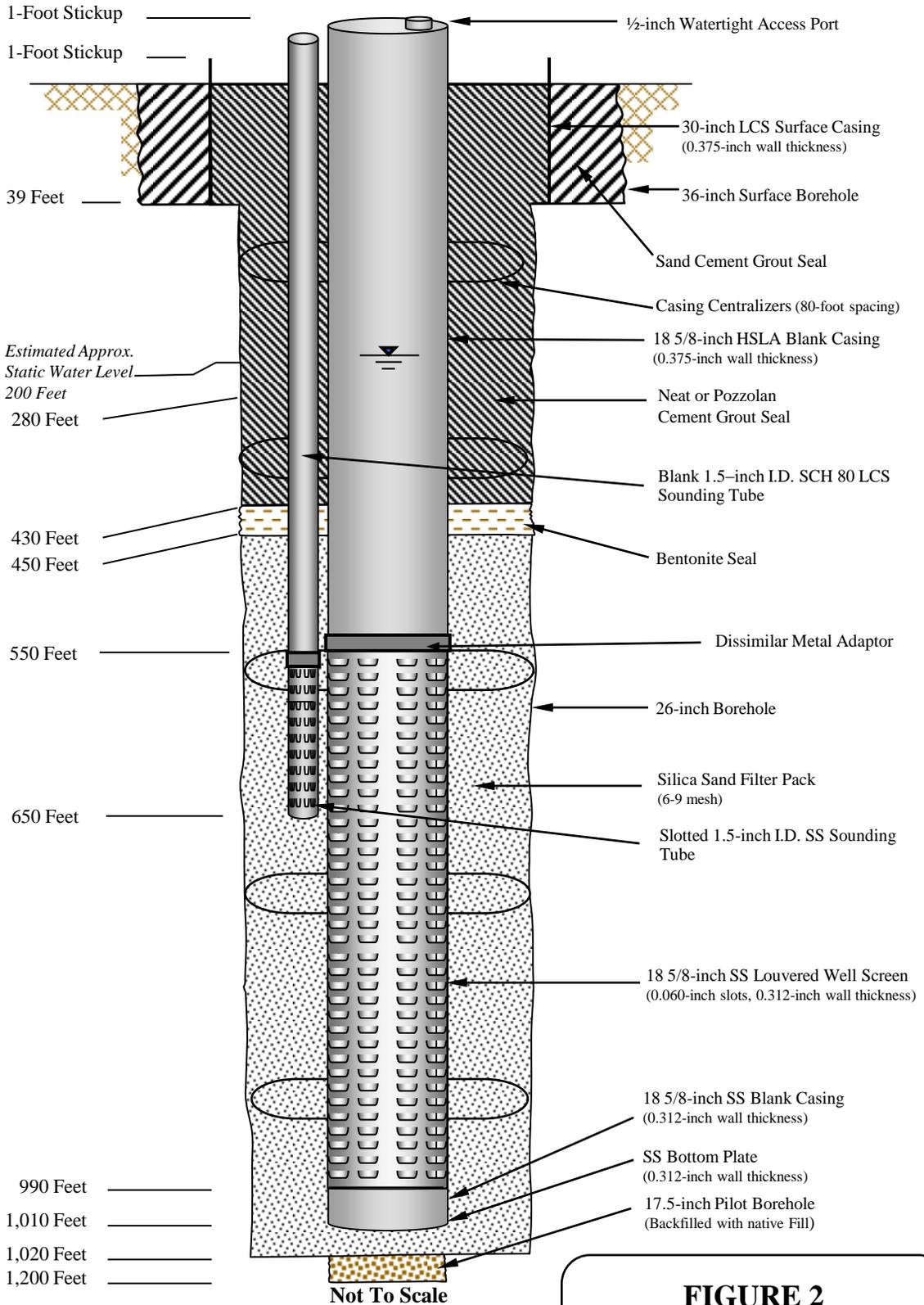
6155 East Indian School Road  
 Suite 200  
 Scottsdale, Arizona 85251  
 (480) 659-7131

**Legend**

★ Proposed Well Site Location

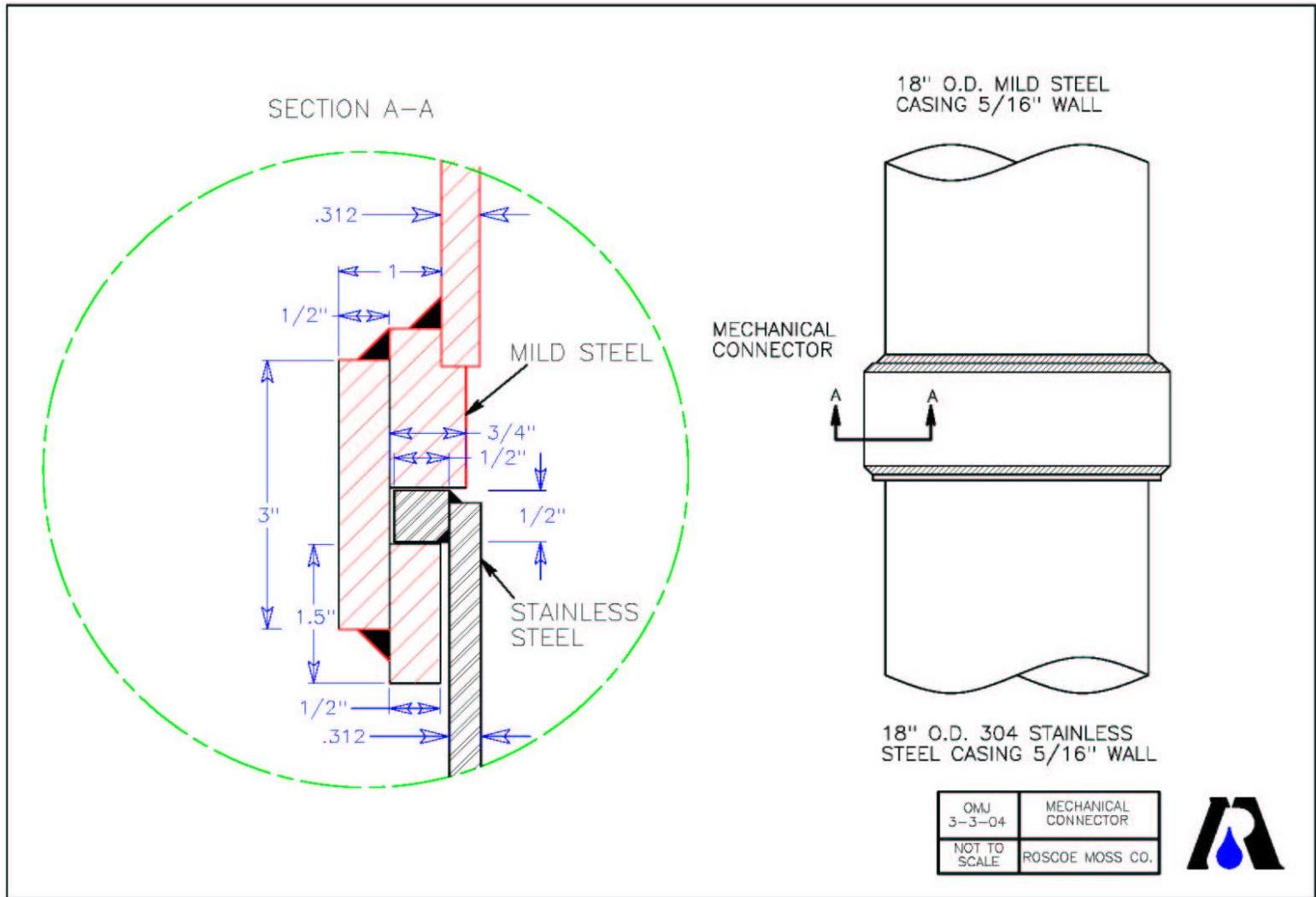
**Figure 1**  
**Proposed Location Map**  
**W301-LPP & Loop 303 Well**  
**Peoria, Arizona**

Well Location: A(5-1)15cca



Notes: HSLA = High Strength Low Alloy Steel  
SS = Stainless Steel (Type 304)  
All diameters are O.D. except the well screen, which is nominal, or if stated differently.

**FIGURE 2**  
**Preliminary Well Design**  
**W301 - LPP\Loop 303 Well**  
**Peoria, Arizona**



Source: Roscoe Moss Company

**FIGURE 3**  
**DISSIMILAR METAL COUPLING DIAGRAM**  
**W301 – LPP/Loop 303 Well**  
**Peoria, Arizona**

**APPENDIX A**  
**CEMENT MIX DESIGN EXAMPLES**

## SAND CEMENT MIX DESIGN EXAMPLE

$$\begin{aligned}
 1 \text{ sack of cement} &= 1 \text{ bulk ft}^3 * \\
 &= 94 \text{ lbs.} \\
 &= 3.6 \text{ absolute gallons}
 \end{aligned}$$

\*A sack of cement has a bulk volume of approximately 1 cubic foot, which is composed of 0.52 cubic feet of air and 0.48 cubic feet of solids (actual space occupied by the solids of one sack of cement when mixed with water to form a slurry).

Calculations are based on the specific gravity of cement equal to 3.15 gm/cm<sup>3</sup> and the specific gravity of sand aggregate equal to 2.65 gm/cm<sup>3</sup>.

Conversion: (specific gravity) (62.4) = lb/ft<sup>3</sup>

Materials	Pounds of Material	Factor (Absolute ft <sup>3</sup> /lb)	Absolute Volume (ft <sup>3</sup> )	Water Requirement (gallons)
Cement	94	.0051	0.48	6.0
Sand	80	.0060	0.48	
Water	50	.016	0.80	
<b>TOTAL</b>	<b>224</b>		<b>1.76</b>	<b>6.0</b>

$$\text{Slurry Wt.} = 224 \text{ lb} / 1.76 \text{ ft}^3 = 127 \text{ lb/ft}^3 \text{ (17 lb/gal)}$$

$$\text{Slurry Yield} = 1.76 \text{ ft}^3 / \text{sack cement}$$

$$\text{Slurry Yield} = 15.34 \text{ sack cement/yrd}^3$$

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For 1 yrd <sup>3</sup> :	Cement	1,447 lb	7.36 ft <sup>3</sup>
	Sand	1,217 lb	7.36 ft <sup>3</sup>
	Water	<u>766 lb</u>	<u>12.27 ft<sup>3</sup></u>
		3,430 lb	27 ft <sup>3</sup>

## POZZOLAN CEMENT MIX DESIGN EXAMPLE

$$\begin{aligned}
 1 \text{ sack of cement} &= 1 \text{ bulk ft}^3* \\
 &= 94 \text{ lbs.} \\
 &= 3.6 \text{ absolute gallons}
 \end{aligned}$$

\*A sack of cement has a bulk volume of approximately 1 cubic foot, which is composed of 0.52 cubic feet of air and 0.48 cubic feet of solids (actual space occupied by the solids of one sack of cement when mixed with water to form a slurry).

Calculations are based on the specific gravity of cement equal to 3.15 gm/cm<sup>3</sup> and the specific gravity of pozzolan equal to 2.46 gm/cm<sup>3</sup>.

Conversion: (specific gravity) (62.4) = lb/ ft<sup>3</sup>

Materials	Pounds of Material	Factor (Absolute ft <sup>3</sup> /lb)	Absolute Volume (ft <sup>3</sup> )	Water Requirement (gallons)
Cement	47	.0051	0.24	3.0
Pozzolan**	37	.0065	0.24	1.95
Water	41	.016	0.66	
<b>TOTAL</b>	<b>125</b>		<b>1.14</b>	<b>4.95</b>

Slurry Wt. = 125 lb/1.14 cu ft = 110 lb/ft<sup>3</sup> (14.7 lb/gal)

Slurry Yield = 1.14 cu ft/sack cement and pozzolan

Slurry Yield = 23.68 sack cement and pozzolan/yrd<sup>3</sup>

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For 1 yrd <sup>3</sup> :	Cement	1,114 lb	5.68 ft <sup>3</sup>
	Pozzolan	874 lb	5.68 ft <sup>3</sup>
	Water	<u>977 lb</u>	<u>15.63 ft<sup>3</sup></u>
		<b>2,965 lb</b>	<b>27 ft<sup>3</sup></b>

\*\* Added as 50% by volume of cement. Example is for Halliburton's Pozmix A. Water requirements will vary depending on composition and grind of pozzolan material.