

Meeting Date: 10/15/2013

Report Type: Consent

Report ID: 2013-00715

Title: Supplemental Agreement and Contract: Shasta Park Reservoir, Groundwater Well, and Booster Pump Station (Z14005400)

Location: District 8

Issue: Approve a supplemental agreement to the existing engineering services agreement with West Yost and Associates, for design of the project's electrical components; and award a contract for construction of a groundwater well to fill the future Shasta Park Reservoir.

Recommendation: Pass a Motion 1) authorizing the City Manager or the City Manager's designee to sign Supplemental Agreement #2 to City Agreement Number 2012-0790, with West Yost Associates, for additional design services for an amount not to exceed \$108,988, bringing the total agreement amount to \$430,388; and 2) approving the contract plans and specifications for the well drilling project and awarding the contract to Hydro Resources West, for an amount not to exceed \$573,411.

Contact: Bill Busath, Engineering Services Manager, (916) 808-1434; Dan Sherry, Supervising Engineer, (916) 808-1419, Department of Utilities

Presenter: None

Department: Department Of Utilities

Division: Cip Engineering

Dept ID: 14001321

Attachments:

- 1-Description/Analysis
- 2-Background
- 3-Location Map (Shasta Park)
- 4-Site Plan (Shasta Park)
- 5-Exhibit A-Supplemental Agreement (West Yost)
- 6-Exhibit B-Agreement-Well Construction
- 7-Exhibit C-Revised Groundwater Agreement

City Attorney Review

Approved as to Form
Joe Robinson
10/3/2013 3:23:20 PM

City Treasurer Review

Reviewed for Impact on Cash and Debt
John Colville
9/27/2013 9:20:43 AM

Approvals/Acknowledgements

Department Director or Designee: Mike Malone - 9/27/2013 1:04:54 PM

Description/Analysis:

Issue: Supplemental agreement #2 to Agreement No. 2012-0790 with West Yost Associates, for engineering services in support of the Shasta Park 4MG Reservoir and Pump Station project (Z14005400), is needed to perform the design for the project's electrical facilities. Award of the well construction contract to Hydro Resources West is the first phase of construction for the Shasta Park Water Facilities project to improve water service in the south portion of the city.

Policy Considerations: The project is consistent with both City and regional water planning efforts to provide a safe and reliable water supply.

Economic Impacts: The groundwater well construction project is expected to create 2.3 total jobs (1.3 direct jobs and 1.0 job through indirect and induced activities) and create \$354,044 in total economic output (\$223,157 of direct output and another \$130,887 of output through indirect and induced activities).

The indicated economic impacts are estimates calculated using a calculation tool developed by the Center for Strategic Economic Research (CSER). CSER utilized the IMPLAN input-output model (2009 coefficients) to quantify the economic impacts of a hypothetical \$1 million of spending in various construction categories within the City of Sacramento in an average one-year period. Actual impacts could differ significantly from the estimates and neither the City of Sacramento nor CSER shall be held responsible for consequences resulting from such differences.

Environmental Considerations: An Initial Study, Mitigated Negative Declaration, and a Mitigation Reporting Program were prepared for this project in accordance with the California Environmental Quality Act (CEQA). The City Council adopted the Mitigated Negative Declaration and Mitigation Reporting Program on May 22, 2012 (Resolution No. 2012-138). Since that action, the City has determined that the shallow aquifer would not supply water of adequate quality, and a well that accesses the deep aquifer (1,230 feet) will be constructed. The Groundwater Impacts and Water Supply Assessment-Shasta Park (September 20, 2013) report evaluates the potential impacts on groundwater that could be associated with the deeper well, and concludes that no new impacts would result (see Exhibit C). No additional environmental review is required.

Sustainability Considerations: The project has been reviewed for consistency with the goals, policies, and targets of the Sustainability Master

Plan and the 2030 General Plan. The project will advance these goals, policies, and targets by ensuring that the City continues to provide a safe, clean, and reliable water supply to its customers.

Committee/Commission Action: None.

Rationale for Recommendation: The current agreement with West Yost Associates did not include design of the project's electrical facilities, as City staff anticipated providing this service. Given limited staff availability, desire to meet project schedule, and the demonstrated qualifications of West Yost Associates and their sub-consultants in delivering products of this nature, staff recommends adding this component to the West Yost Associates agreement to avoid delay in delivery of the project.

Regarding the construction contract, the design of the groundwater well has been completed, and this portion of the project was formally advertised to solicit public bids. On August 21, 2013 four bids were received by the City Clerk. Staff recommends award of the contract for this portion of the project to Hydro Resources West, as the lowest responsive and responsible bidder.

Financial Considerations: The supplemental agreement with West Yost Associates (WYA) is for the amount not-to-exceed \$108,988. Approval of this agreement will bring the total WYA agreement amount to \$430,388.

The lowest responsive and responsible bidder for construction of the groundwater well was Hydro Resources West, Inc. with a bid amount of \$573,411.

There is sufficient water development fee funding available in the Shasta Park 4MG Reservoir and Pump Station project (Z14005400, Fund 6001) for the supplemental agreement with WYA; and the award of the well construction project to Hydro Resources West, Inc.

Emerging Small Business Development (ESBD): West Yost Associates is not an ESBE firm. The groundwater construction project included a participation requirement of 20% for emerging and small business enterprises (ESBEs). The lowest responsible bidder, Hydro Resources West, exceeded the ESBE participation requirement for the construction project with a participation level of 22.2%

Background

The 2005 Water Master Plan concluded that a finished water reservoir should be constructed in the southeast portion of Sacramento to help maintain service pressure through peak demand periods, and to provide additional emergency and fire suppression water supply.

The Shasta Park 4MG Reservoir and Pump Station (Project) includes the construction, operation and maintenance of an above-ground 4 million gallon (MG) water storage tank, 2 million gallons per day (MGD) groundwater well, 2 MGD ground water treatment system, and a 15 MGD pump station. The reservoir and buildings will be constructed of reinforced concrete and decorative block. Other site improvements will include a perimeter fence, landscaping, lighting, and security system.

Prior Council Items

On May 22, 2012, City Council approved the purchase of the Project site, a 5.31 acre vacant parcel (APN 117-0182-023), which is located at the terminal end of Imagination Parkway, immediately north of the Shasta Community Park (see Attachment 3). The property purchase price was \$580,000.

In January 2012, a Request for Qualifications was issued for design services for the Project, and twelve firms submitted Statements of Qualifications. Two firms were selected by a five-person panel, which included a reviewer independent of the City. The panel selected the firms most qualified to provide engineering design services: 1) Wood Rodgers was selected for design of the groundwater well, and 2) West Yost Associates was selected to evaluate the adequacy of the City's overall facility design.

The Wood Rodgers agreement (2012-0654) was approved July 12, 2012, for an amount not-to-exceed \$301,000. The scope of that design work included the below ground components of the well, such as identifying the proper well depth, determining water quality, and design of the gravel pack and casing. On June 25, 2013 the City Council approved supplemental agreement No. 1 to the Wood Rodgers agreement, to provide for the remaining design of the groundwater well components, which included designing the equipment to pump and treat the drinking water produced groundwater well. Supplemental No. 1 raised the total agreement amount to \$630,400.

Also on July 12, 2012, the City Council authorized the City Manager to enter into an agreement with the Regional Water Authority (RWA) to

provide for administration of the City's \$2,280,762 in grant funding from Proposition 84. A portion of this grant, \$988,199, is allocated to help fund the groundwater well at the Shasta Park Reservoir location.

On September 5, 2012, the City Manager approved an agreement (2012-0790) with West Yost Associates to provide for a quality control assessment of the City's design, for the amount not-to-exceed \$37,300. On March 5, 2013, the City Council approved supplemental agreement No. 1 to the West Yost Associates agreement, to provide for design of the overall facility, rather than the quality control assessment of the City's design. This raised the West Yost Associates agreement from \$37,300 to an amount not-to-exceed \$321,400.

Current Council Item

Item 1: Supplemental agreement No. 2 to the West Yost Associates contract will provide for design of the project's electrical components, and for minor refinement of site development alternatives not originally contained in the West Yost contract. These additional design services were originally anticipated to be performed by City staff, but due to limited availability of City staff to perform these services and the desire to meet the design and construction schedule, staff now recommends these services be added to the West Yost Associates contract. The electrical design will include all components requiring power on the site, such as lighting, security systems, instrumentation, treatment systems, and pumping systems.

Approval of the proposed supplemental agreement no. 2 will authorize performance of these additional facility design services for an amount not to exceed \$108,988, thereby bringing the total West Yost Associates agreement amount to \$430,388.

Item 2: On July 29, 2013, the design of the groundwater well was completed and the City solicited bids for construction. This work consists of furnishing all labor, materials and equipment for the construction, development and testing of one municipal water supply well, with a design capacity of 1,800 gpm. This work includes site preparation, borehole drilling, geophysical logging, temporary zone sampling and water quality sampling, casing installation, sanitary seal installation, gravel envelope placement, transition and annular seals, well development and testing, disinfection, and other work as necessary to complete the project as described in the Plans and Specifications.

The borehole depth is approximately 1,200 feet below ground surface.

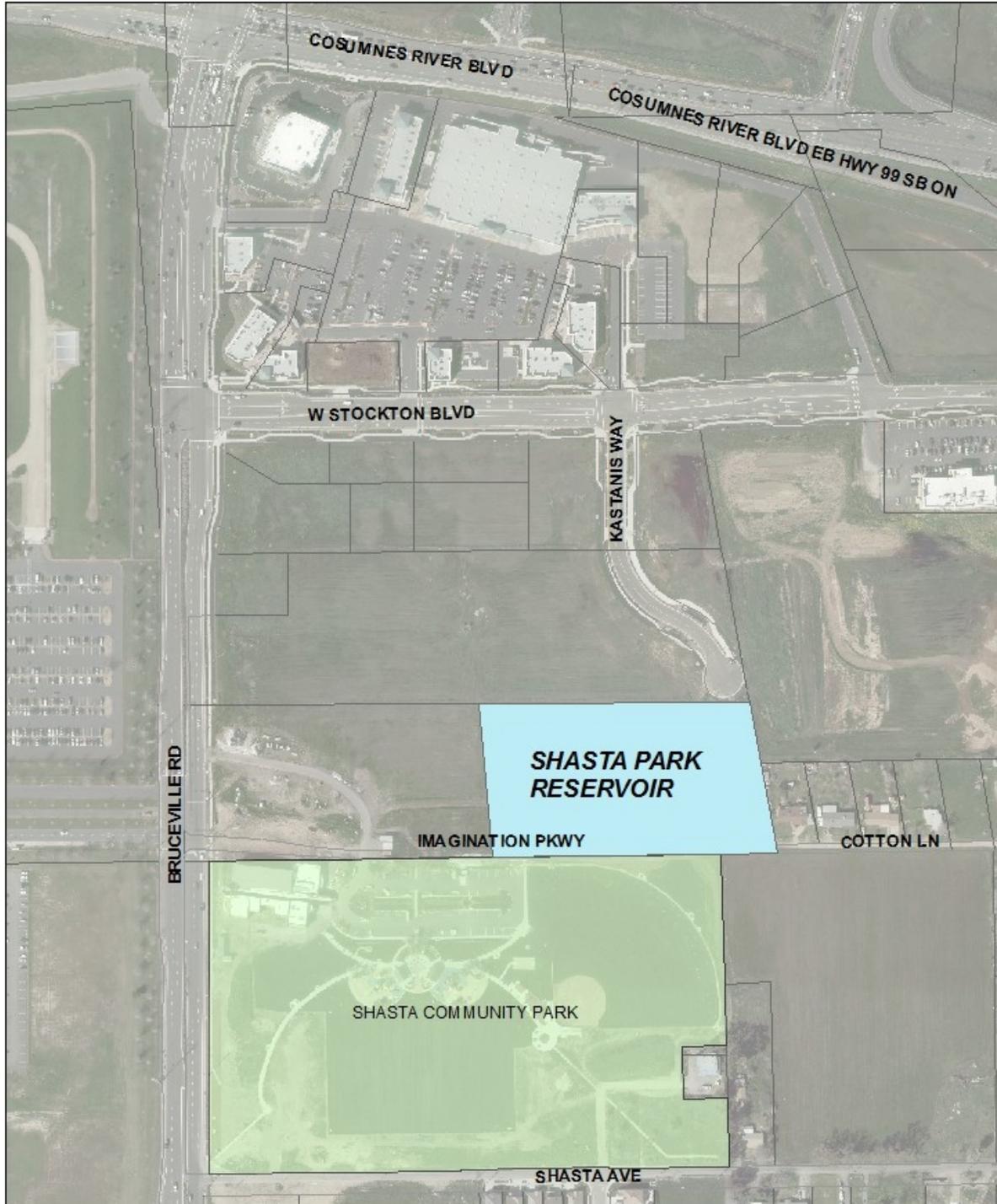
On August 21, 2013, the following four bids were received:

#	Bidder Name	Total Bid
1	Hydro Resources West, Inc.	\$573,411.00
2	Maggiora Bros Drilling	\$639,002.00
3	Zim Industries	\$677,222.00
4	NorCal Pump and Well Drilling	\$699,469.60

The lowest responsive and responsible bidder is Hydro Resources West, Inc. with a bid amount of \$573,411. Their ESBE participation level is 22.2%

The Engineer's construction estimate was \$599,412.

**LOCATION MAP
CITY OF SACRAMENTO
SHASTA PARK RESERVOIR-PROPOSED
Z14005400**



SHASTA PARK RESERVOIR PRELIMINARY SITE PLAN



Project Title and Job Number: Shasta Park Reservoir/Z14005400

Date: 09-13-2013

Purchase Order #: 0000018957

Supplemental Agreement No.: 2

The City of Sacramento ("City") and West Yost Associates ("Contractor"), as parties to that certain Professional Services Agreement designated as Agreement Number 2012-0790, including any and all prior supplemental agreements modifying the agreement (the agreement and supplemental agreements are hereafter collectively referred to as the "Agreement"), hereby supplement and modify the Agreement as follows:

1. The scope of Services specified in Exhibit A of the Agreement is amended as follows:

Contractor shall perform the additional services set forth in the Scope of Services attached hereto and incorporated herein by this reference..

2. In consideration of the additional and/or revised services described in section 1, above, the maximum not-to-exceed amount that is specified in Exhibit B of the Agreement for payment of Contractor's fees and expenses, is **increased** by \$108,988, and the Agreement's maximum not-to-exceed amount is amended as follows:

Agreement's original not-to-exceed amount:	<u>\$37,300</u>
Net change by previous supplemental agreements:	<u>\$284,100</u>
Not-to-exceed amount prior to this supplemental agreement:	<u>\$321,400</u>
Increase/decrease by this supplemental agreement:	<u>\$108,988</u>
New not-to exceed amount including all supplemental agreements:	<u>\$430,388</u>

3. Contractor agrees that the amount of increase or decrease in the not-to-exceed amount specified in section 2, above, shall constitute full compensation for the additional and/or revised services specified in section 1, above, and shall fully compensate Contractor for any and all direct and indirect costs that may be incurred by Contractor in connection with such additional and/or revised services, including costs associated with any changes and/or delays in work schedules or in the performance of other services or work by Contractor.

4. Contractor warrants and represents that the person or persons executing this supplemental agreement on behalf of Contractor has or have been duly authorized by Contractor to sign this supplemental agreement and bind Contractor to the terms hereof.

5. Except as specifically revised herein, all terms and conditions of the Agreement shall remain in full force and effect, and Contractor shall perform all of the services, duties, obligations, and conditions required under the Agreement, as supplemented and modified by this supplemental agreement.

Approval Recommended By:

Approved As To Form By:

Project Manager
Approved By:

City Attorney

Contractor
Approved By:

Attested To By:

City of Sacramento

City Clerk

SCOPE OF SERVICES

SHASTA PARK WATER FACILITIES

AMENDMENT NO 2

West Yost Associates (West Yost) will provide the following additional services to the City of Sacramento (City) for the Shasta Park Water Facilities Project (Project) final design. These services include electrical and instrumentation design services for the Project and additional design services for evaluating and preparing alternative site layout plans. A description of these services is presented below.

ELECTRICAL AND INSTRUMENTATION DESIGN

Provide electrical (E-Series) drawings for the Project. Provide process (P-Series) drawings for the water reservoir and booster pump station. Coordinate with work by others for production of the process drawings for the water wells and associated water treatment facilities. In addition, provide a written description of the proposed facilities for inclusion in the Basis of Design Report. See attached proposal by A TEEM Electrical Engineering dated September 11, 2013.

ALTERNATIVE SITE LAYOUT PLANS

Evaluate and prepare alternative site layout plans to accommodate 1) realignment of the future Kastanis Way extension, 2) stormwater detention facilities, and 3) stormwater water quality treatment measures.

Sizing of the stormwater detention facilities include developing a hydrologic model of the existing and post-project land use conditions to determine the maximum allowable stormwater discharge rate from the site. From the models and the discharge rate the necessary detention volume will be determined. The site layout and grading plan will be adjusted to accommodate the detention facilities.

COMPENSATION

The table below provides the estimated level of effort for additional engineering services for the City of Sacramento Shasta Park Water Facility. The compensation limit for services performed under this amendment shall not exceed \$108,988.

Project Task	Fee Estimate, \$
Electrical & Instrumentation	103,334
Site Layout Plans	5,654
Total Fee Estimate	108,988

PROPOSED BUDGET for CITY OF SACRAMENTO
PROJECT: SHASTA PARK WATER FACILITY
 9/12/2013

Estimated Staff Hours and Budget		Labor										Drafting			Costs		Sub. 1	
West Yost Associates		PVP	EM	PE/PS	SE/SS	AE/AS	ESII	D/CAD	ADMV	Hours	Fee	Hours	Fee	Sub. w/ markup	Other	Direct	Total	ATM
PROJECT: Shasta Park Water Facility		\$215	\$200	\$182	\$165	\$150	\$135	\$98	\$100					25				
Task 1.0 Electrical & Instrumentation																		
1.01	Electrical & Instrumentation	0	8						0	8	\$ 1,600			\$ 101,684	\$ 50		\$ 103,334	
	Subtotal, Task 1 (hours)	0	8	0	0	0	0	0	0	8		0						
	Subtotal, Task 1 (\$)	\$ -	\$ 1,600	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,600	\$ -	\$ -	\$ 101,684	\$ 50	\$ -	\$ 103,334	\$ 92,440
Task 2.0 Site Layout Plans																		
2.01	Site Layout Plans	0	4	0	8	16		8	0	36	\$ 5,304	8	\$ 200	\$ -	\$ 150		\$ 5,654	
	Subtotal, Task 2 (hours)	0	4	0	8	16	0	8	0	36		8						
	Subtotal, Task 2 (\$)	\$ -	\$ 800	\$ -	\$ 1,320	\$ 2,400	\$ -	\$ 784	\$ -	\$ -	\$ 5,304	\$ 200	\$ -	\$ -	\$ 150	\$ -	\$ 5,654	\$ -
	TOTAL (hours)	0	12	0	8	16	0	8	0	44		8						
	TOTAL (\$)	\$0	\$2,400	\$0	\$1,320	\$2,400	\$0	\$784	\$0	\$0	\$6,904	\$200	\$101,684	\$200	\$200	\$200	\$108,988	\$92,440





September 11, 2013

Mr. Dave Jones, P.E.
West Yost Associates
2020 Research Park Drive, Suite 100
Davis, CA 95618
E-mail: djones@westyost.com

Location: City of Sacramento
Subject: Electrical Design Quotation & Scope of Work - Revised
Project: Shasta Park Water Facilities

We are pleased to submit this revised proposal for electrical design services for the City of Sacramento Shasta Park Water Facilities. The design will include a manganese pressure filter, water well, booster pump station, water reservoir building and portable generator connection.

The following is a summary of *A T.E.E.M.* electrical and instrumentation design services for the project:

1. The attached spreadsheet contains the list of drawings to be prepared:
 - a. Electrical (E-Series) drawings (56 Total)
 - b. Process (P-Series) drawings (4 by ATEEM, 7 by Wood Rogers)

All drawings will be produced with AutoCAD computer aided drafting.

2. Provide schedules for the following:
 - a. Load calculations
 - b. Conduit & wire
 - c. Device Index
 - d. Panelboard

All spreadsheets will be produced with Microsoft Excel.

3. Provide specifications utilizing Microsoft Word.
4. Prepare electrical & instrumentation cost estimate.

A T.E.E.M. not-to-exceed Design Services proposed fees are listed on the attached spreadsheet.

Note: The following are not included as part of this scope of work:

1. “Construction Services” such as submittal review, startup/testing, construction inspection, etc.
2. Engineering and P&ID drawings for the filter system.
3. PLC programming or SCADA graphics configuration are not included.
4. Security will be limited to door intrusion switches, motion sensor lights and conduits for future camera system.

All prices include overhead, profit, insurance, and travel expenses for site visits to the jobsite. Currently *A T.E.E.M.* has \$2,000,000 general liability and \$2,000,000 professional liability insurance in force.

A T.E.E.M. is dedicated to meet your needs by providing specialized design, consultant and management services. Please give us a call if you have any questions or require further information.

Sincerely,

Sharon M. Kimizuka, P.E.
A T.E.E.M. Electrical Engineer

A T.E.E.M. Electrical Engineering
9/11/2013

Type of Service: Electrical Design Services - Revised
 Customer Name: West Yost Associates
 Location: City of Sacramento
 Project Name: Shasta Park Water Facilities

Project No.: _____ Work Order No.: _____ Task No.: _____

		Field Eng = FE Office Eng = OE Technical = TA					
		Hourly Rate:			\$170	\$150	\$110
Task	Description	FE	OE	TA			
Electrical Design Services							
1	E & I Drawings	32	184	216	=	56,800	
2	Division 16 Specifications	0	60	40	=	13,400	
3	Preparation of Schedules	0	64	48	=	14,880	
4	Attend Project Meeting	20	4	2	=	4,220	
5	Electrical & Instrumentation Cost Estimate	0	8	4	=	1,640	
6	Bid Assistance	4	4	2	=	1,500	
		56	324	312		\$92,440	

Total not to exceed cost: \$92,440

Notes: This Proposal does not include Construction Services, P&ID design for the filter system, PLC programming PLC programming or SCADA graphic configuration. Security will be limited to door intrusion switches, motion sensor lights and conduits for future camera system.

 Signature : Sharon M. Kimizuka, P.E. Date _____

Approval _____ Date _____
 Signature
 CHARGE NO.:

A T.E.E.M.
ELECTRICAL & INSTRUMENTATION DRAWING LIST - REVISED
CITY OF SACRAMENTO
SHASTA PARK WATER FACILITIES

DRAWING	DESCRIPTION
E1	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E2	ONE LINE DIAGRAM
E3	MMS ELEVATION
E4	MCC ELEVATION
E5	BOOSTER PUMP 1 ELEMENTARY DIAGRAM
E6	BOOSTER PUMP 2 ELEMENTARY DIAGRAM
E7	BOOSTER PUMP 3 ELEMENTARY DIAGRAM
E8	BOOSTER PUMP 4 ELEMENTARY DIAGRAM
E9	WELL 1 PUMP ELEMENTARY DIAGRAM
E10	WELL 1 BOOSTER PUMP ELEMENTARY DIAGRAM
E11	WELL 1 METHANE BLOWER ELEMENTARY DIAGRAM
E12	MISCELLANEOUS ELEMENTARY DIAGRAMS
E13	EXAMPLE INTERCONNECT DIAGRAM
E14	TYPICAL ELECTRICAL DETAILS NO. 1
E15	TYPICAL ELECTRICAL DETAILS NO. 2
E16	TYPICAL ELECTRICAL DETAILS NO. 3
E17	TYPICAL ELECTRICAL DETAILS NO. 4
E18	LIGHTING PANELBOARD, FIXTURE SCHEDULE & GENERAL NOTES
E19	ELECTRICAL OVERALL SITE PLAN
E20	WELL ELECTRICAL PLAN
E21	FILTER AND BACKWASH AREA ELECTRICAL PLAN
E22	BOOSTER PUMP AREA ELECTRICAL PLAN
E23	PUMP STATION BUILDING ELECTRICAL REFLECTIVE PLAN
E24	PUMP STATION BUILDING ELECTRICAL BASE PLAN
E25	PUMP STATION BUILDING ELECTRICAL POWER PLAN
E26	PUMP STATION BUILDING ELECTRICAL HVAC PLAN
E27	CONDUIT SCHEDULE
E28	PLC SYSTEM ELEVATION
E29	PLC AC/DC POWER DISTRUBUTION DIAGRAM
E30	PLC DIGITAL INPUT DIAGRAM 1A
E31	PLC DIGITAL INPUT DIAGRAM 1B
E32	PLC DIGITAL INPUT DIAGRAM 2A
E33	PLC DIGITAL INPUT DIAGRAM 2B
E34	PLC DIGITAL INPUT DIAGRAM 3A
E35	PLC DIGITAL INPUT DIAGRAM 3B
E36	PLC DIGITAL INPUT DIAGRAM 4A
E37	PLC DIGITAL INPUT DIAGRAM 4B
E38	PLC DIGITAL INPUT DIAGRAM 5A
E39	PLC DIGITAL INPUT DIAGRAM 5B
E40	PLC DIGITAL OUTPUT DIAGRAM 1A
E41	PLC DIGITAL OUTPUT DIAGRAM 1B

A T.E.E.M.
ELECTRICAL & INSTRUMENTATION DRAWING LIST - REVISED
CITY OF SACRAMENTO
SHASTA PARK WATER FACILITIES

DRAWING	DESCRIPTION
E42	PLC DIGITAL OUTPUT DIAGRAM 2A
E43	PLC DIGITAL OUTPUT DIAGRAM 2B
E44	PLC DIGITAL OUTPUT DIAGRAM 3A
E45	PLC DIGITAL OUTPUT DIAGRAM 3B
E46	PLC DIGITAL OUTPUT DIAGRAM 4A
E47	PLC DIGITAL OUTPUT DIAGRAM 4B
E48	PLC ANALOG INPUT DIAGRAM 1
E49	PLC ANALOG INPUT DIAGRAM 2
E50	PLC ANALOG INPUT DIAGRAM 3
E51	PLC ANALOG INPUT DIAGRAM 4
E52	PLC ANALOG INPUT DIAGRAM 5
E53	PLC ANALOG INPUT DIAGRAM 6
E54	PLC ANALOG OUTPUT DIAGRAM 1
E55	PLC ANALOG OUTPUT DIAGRAM 2
E56	COMMUNICATIONS DIAGRAM
P1	INSTRUMENTATION SYMBOLS & ABBREVIATIONS
P2*	PRODUCTION MODE PLC CONTROL
P3*	WELLS 1 AND FUTURE 2 P&ID
P4*	METHAND TREATMENT P&ID
P5*	MANGANESE FILTER 1 CELLS #1, 2, & 3 P&ID
P6*	FUTURE MANGANESE FILTER 1 CELLS #1, 2, & 3 P&ID
P7*	BACKWASH RECYCLE SYSTEM CHLORITE FEED SYSTEMS P&ID
P8*	CHEMICAL SYSTEM P&ID
P9	RESERVOIR P&ID
P10	PUMP STATION P&ID
P11	AUXILIARY SYSTEMS P&ID
*	Developed by Wood Rogers

ENGINEERING SERVICES DIVISION

CONTRACT SPECIFICATIONS
FOR
SHASTA PARK WELL PROJECT

PN: Z14005400
B14141321006
Engineer's Estimate: 599,412

Pre-Bid Site Visit: August 7, 2013 @ 10:00 AM
Pre-Bid Site Visit Location:
Terminal End of Kastanis Way Sacramento, CA 95758

For Pre-Bid Information Call:

Brett Ewart
Senior Engineer
(916) 808-1725

Separate Plans

Bid to be received before 2:00 PM
August 21, 2013
City Hall, Office of the City Clerk
915 I Street, 1st Floor, Room 1119
Sacramento, CA 95814

ESBE Program Goals

For information on meeting the City of Sacramento's Small Business Enterprise (SBE) and Emerging Business Enterprise (EBE) project goals, please contact Lorrie Lowry at (916) 808-5448, or visit the City of Sacramento's small business web site at: <http://www.cityofsacramento.org/econdev/business-open/small-business-certification.cfm>

SHASTA PARK WELL PROJECT

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ESBD INFORMATION

The City of Sacramento's Emerging and Small Business Development (ESBD) program establishes an annual emerging and small business enterprise (ESBE) participation goal for City contracts, and authorizes City departments to require minimum ESBE participation levels in individual contracts. Under City Code section 3.60.270, all bidding contractors must meet or exceed participation goals established for this project in order to qualify as a responsible bidder.

For information on meeting the City of Sacramento's Small Business Enterprise (SBE) and Emerging Business Enterprise (EBE) project goals, please contact Lorrie Lowry at (916) 808-5448, or visit the City of Sacramento's small business web site at:

<http://www.cityofsacramento.org/econdev/business-open/small-business-certification.cfm>

NOTICE TO CONTRACTORS

CITY OF SACRAMENTO

Sealed Proposals will be received by the City Clerk of the City of Sacramento at the Office of the City Clerk, City Hall, located at 915 I Street, 1st Floor, Room 1119, up to the hour of 2:00 p.m. on **August 21, 2013** and opened at 2:00 p.m. **August 21, 2013**, or as soon thereafter as business allows, in the Hearing Room, 2nd Floor Room, in Historic City Hall, for construction of:

SHASTA PARK WELL PROJECT
(PN: Z14005400) (B14141321006)

as set forth in the Construction Documents.

Proposals received and work performed thereunder shall comply with all applicable requirements of Chapter 3.64 of the Sacramento City Code. Each Bid Proposal shall be accompanied by bid security of at least 10% of the sum the Bid Proposal. The right to reject proposals or to waive any error or omission in any Bid Proposal received is reserved by the City. Signed proposals shall be submitted on the printed forms contained herein and enclosed in an envelope marked:

SEALED PROPOSAL FOR
SHASTA PARK WELL PROJECT
(PN: Z14005400) (B14141321006)

EBE AND SBE CERTIFICATION ARE DUE BY THE CLOSE OF BUSINESS TWO DAYS AFTER BID OPENING to:

Brett Ewart, Department of Utilities, Engineering Services Division
1395 35th Avenue, Sacramento, CA 95822

Phone: (916) 808-1725 / Fax: (916) 808-1497/ Email:BEwart@cityofsacramento.org

Failure to submit the required ESBE information may be grounds for finding the bid non-responsive.

You can view and download the plans and Contract Documents from:

PLANET BIDS

<http://www.planetbids.com/portal/portal.cfm?CompanyID=15300#>

Prevailing Wages; LCP tracker

The Contractor and subcontractors shall comply with the rates of wages currently established by the Director of Industrial Relations under provisions of Sections 1773 of the Labor Code of the State of California, a copy of which is on file in the office of the City Clerk. Because this Contract will be funded, in part, with State funds, performance of the Contract will be subject to all applicable requirements of the California Labor Code, which are hereby incorporated by reference into this Contract. The contractor and every lower-tier subcontractor will be required to use an electronic system for the submission of Labor Compliance Reports (LCP Tracker) to submit certified payrolls and labor compliance documentation electronically when and as required by the Regional Water Authority Labor Compliance Program.

Electronic submittal is via a web-based system, accessed on the World Wide Web by a web browser. Each contractor and subcontractor is given a Log On identification and password to access the LCP Tracker reporting system.

Use of the system may entail additional data entry of weekly payroll information including; employee identification, labor classification, total hours worked and hours worked on this project, wage and benefit rates paid, etc. The contractor's payroll and accounting software might be capable of generating a 'comma delimited file' that will interface with the software.

The Contractor shall disseminate these provisions to every lower-tier subcontractor and vendor required to provide labor compliance documentation.

All questions and communications regarding the Labor Compliance Program for this Contract should be directed to:

Regional Water Authority
Sacramento Groundwater Authority
5620 Birdcage Street, Suite 180
Citrus Heights, CA 95610
(916) 967-7692 Office
(916) 967-7322 Fax

Prevailing Wage Penalties; Wage Claims Prohibited

The Contractor shall comply with Labor Code section 1775, which is hereby incorporated by reference into this Contract, and shall forfeit a penalty to the City as provided in section 1775 for each calendar day or portion thereof for each worker (whether employed by the Contractor or subcontractor) paid less than the stipulated prevailing rates for any work done under the Contract in violation of the provisions of the California Labor Code and in particular, sections 1772 to 1780. In addition to the aforementioned penalty, each worker shall be paid the difference between the prevailing wage rate and the amount paid to each worker for each calendar day or portion thereof for which said worker was paid less than the prevailing wage.

The City will not recognize any claims for additional compensation because of the payment of the wages required under the Contract Documents. The possibility of wage increases is one of the elements to be considered by the Contractor in determining its Bid, and will not under any circumstances be considered as the basis of a claim against the City.

Labor Discrimination

Attention is directed to California Labor Code section 1735 which is applicable to the work under this Contract and which reads as follows: "A contractor shall not discriminate in the employment of persons upon public works on any basis listed in subdivision (a) of Section 12940 of the Government Code, as those bases are defined in Sections 12926 and 12926.1 of the Government Code, except as otherwise provided in Section 12940 of the Government Code. Every contractor for public works who violates this section is subject to all the penalties imposed for a violation of this chapter."

Eight-Hour Day Limitation; Certified Payroll Reports

In accordance with the provisions of the California Labor Code, and in particular, sections 1810 to 1815, eight hours labor shall constitute a day's work, and no worker, in the employ of the Contractor, or any subcontractor, doing or contracting to do any part of the work contemplated by this Contract, shall be required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of those provisions; provided that subject to Labor Code Section 1815, a worker may perform work in excess of either eight (8) hours per day or forty (40) hours during any one week upon compensation for all hours worked in excess of eight (8) hours per day or forty (40) hours during any one week at not less than one and one-half times the basic rate of pay. Except as just provided, the Contractor shall forfeit as a penalty to the City the sum of twenty-five dollars (\$25) for each worker employed in the performance of this Contract by it or by any subcontractor under it for each calendar day during which such worker is required or permitted to labor more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of sections 1810 through 1815.

The Contractor shall comply in all respects with the provisions of Labor Code section 1776, whose provisions are incorporated herein by this reference. In accordance with section 1776, the Contractor and each subcontractor shall keep an accurate record showing the names, addresses, social security numbers, work classifications, and straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by it in connection with the work specified therein, which record shall be open at all reasonable hours at the principal office of the Contractor to the inspection by City, Regional Water Authority, State, and Federal officers, agents, and representatives. Certified copies of the payroll records shall be furnished or made available for inspection to others as provided in section 1776. These payroll records shall be certified and shall be on forms provided by the State Division of Labor Standards Enforcement, or shall contain the same information as the forms provided by the Division. The Contractor shall file a certified copy of the payroll records with the entity that requested the records within 10 days after receipt of a written request. The Contractor shall inform the City of the location of the payroll records, including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address. The Contractor shall have 10 days in which to comply subsequent to receipt of written notice specifying in what respects the Contractor must comply with these provisions. In the event that the Contractor fails to comply with the 10-day period, he or she shall, as a penalty to the City, forfeit one hundred dollars (\$100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

Employment of Apprentices

The Contractor's attention is directed to California Labor Code sections 1777.5, 1777.6 and 1777.7 pertaining to employment of apprentices, which are hereby incorporated by reference into this Contract. As applicable, the Contractor or any subcontractor employed by it in the performance of the Contract work shall take such actions as necessary to comply with the provisions of sections 1777.5, 1777.6 and 1777.7.

Pursuant to Sacramento City Code Section 3.60.250, any Agreement awarded pursuant to this Invitation to Bid shall contain a provision permitting the substitution of securities for any monies withheld to ensure performance under the Agreement. The terms of such provisions shall be according to the requirements and the form required by the City.

Bid protests must be filled and maintained in accordance with the provisions of Sections 3.60.460 through 3.60.560 of the Sacramento City Code. Bid protests that do not comply with Sections 3.60.460 through 3.60.560 of the Sacramento City Code shall be invalid and shall not be considered. A bid protest fee of \$750.00 is required at the time of filing to be considered valid in accordance with City of Sacramento Resolution No. 2003-231 dated April 29, 2003. As used herein, the term "bid protest" includes any bid protest that (1) claims that one or more bidders on this contract should be disqualified or rejected for any reason, or (2) contests a City staff recommendation to award this contract to a particular bidder, or (3) contests a City staff recommendation to disqualify or reject one or more bidders on this contract. The Sacramento City Code is available online at <http://www.qcode.us/codes/sacramento/>. A copy of Sections 3.60.460 through 3.60.560 of the Sacramento City Code also may be obtained from the Project Manager, or from the City Clerk, located at 915 I Street, 1st Floor, Sacramento CA 95814.

THE FOLLOWING DOCUMENTS
ARE TO BE COMPLETED AND
SUBMITTED WITH THE BID PACKAGE

Contractor's Name: _____
(Please print)

CITY OF SACRAMENTO

SEALED PROPOSAL

(MUST BE SIGNED BY BIDDER)

The Sealed Proposal will be received not later than **August 21, 2013**, at the Office of the City Clerk, New City Hall, at 915 I Street, 1st Floor, Room 1119, Sacramento, California and opened at 2:00 PM, or as soon thereafter as business allows, on **August 21, 2013**, by the Office of the City Clerk, 915 I Street, City Hall, Room # CH1119, Sacramento, California.

TO THE HONORABLE CITY COUNCIL:

The undersigned hereby proposes and agrees to furnish any and all required labor, material, transportation, and services for

**SHASTA PARK WELL PROJECT
(PN: Z14005400) (B14141321006)**

in the City and County of Sacramento, California.

TOTAL BID: _____ (\$_____).

The work herein described is to be performed in strict conformity with the Plans, City of Sacramento Standard Specifications (Resolution No. 89-216) and these Special Provisions, all as on file in the Office of the City Clerk, at the following unit prices.

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS	\$_____	\$_____
2	Noise Control (Sound Walls)	140	LF	\$_____	\$_____
3	36" O.D. x 7/16" Wall Conductor Casing and Sanitary Seal	75	LS	\$_____	\$_____
4	30" Borehole Drilling	1128	LF	\$_____	\$_____
5	Temporary Zone Sampling	1	LS	\$_____	\$_____
6	Geophysical Surveys (E-Log, Caliper, and Deviation)	1	LS	\$_____	\$_____
7A	Blank Well Casing – 18.00" O.D. x 3/8" Wall Mild Steel	996	LF	\$_____	\$_____
7B	Blank Well Casing – 18.00" O.D. x 3/8" Wall Type 304 Stainless Steel	30	LF	\$_____	\$_____
7C	Blank Well Casing – 18.00" O.D. x 5/16" Wall Type 304 Stainless Steel	50	LF	\$_____	\$_____
8	Louvered Well Screen – 18.00" O.D. x 5/16" Wall Type 304 Stainless Steel	120	LF	\$_____	\$_____
9	2" Diameter Sounding Pipe, Sch. 40 BSP	558	LF	\$_____	\$_____
10	3" Diameter Gravel Fill Pipe, Sch. 40 BSP	1027	LF	\$_____	\$_____
11	Gravel Envelop & Transition Seal	195	LF	\$_____	\$_____
12	Annular Seal	1008	LF	\$_____	\$_____
13	Test Pump Installation	1	LS	\$_____	\$_____

Item No.	Description	Estimated Quantity	Unit	Unit Price	Total
14	Well Development	1	LS	\$ _____	\$ _____
15	Well & Aquifer Testing	24	HR	\$ _____	\$ _____
16	Plumbness & Alignment Testing	1	LS	\$ _____	\$ _____
17	Video Camera Survey	1	LS	\$ _____	\$ _____
18	Site Cleanup & Records	1	LS	\$ _____	\$ _____
19	Well Disinfection	1	LS	\$ _____	\$ _____
20	Standby Time	10	HR	\$ _____	\$ _____

TOTAL BID: \$ _____

If awarded the contract, the undersigned shall execute said contract and furnish the necessary bonds within ten (10) days after the notice of award of said contract and begin work within fifteen (15) days after the signing of the contract by the Contractor and the City or the Notice to Proceed has been prepared, whichever is applicable.

In determining the amount bid by each bidder, City shall disregard mathematical errors in addition, subtraction, multiplication and division that appear obvious on the face of the Proposal. When such a mathematical error appears on the Proposal, the City shall have the right to correct such error and to compute the total amount bid by said bidder on the basis of the corrected figure or figures.

When the unit price of an item is required to be set forth in the Proposal, and the total for the item set forth separately does not agree with a figure derived by multiplying the item unit price times the Engineer's estimate of the quantity of work to be performed for said item, the item unit price shall prevail over the sum set forth as the total for the item unless, in the sole discretion of the City, such a procedure would be inconsistent with the policy of the City's bidding procedures. The total paid for each such item of work shall be based upon the item unit price and not the total price.

Should the Proposal contain only a total price for an item and the item unit price is omitted, the City shall determine the item unit price by dividing the total price of the item by the Engineer's estimate of the quantity of work to be performed for the item of work.

If the Proposal contains neither the item price nor the total price for the item, then it shall be deemed incomplete and the Proposal shall be disregarded.

It is understood that this bid is based upon completion of the work within a period **of ninety (90) working days** commencing on the date specified in the Notice to Proceed.

The amount of liquidated damages to be paid by the Contractor for failure to complete the work by the completion date (as extended, if applicable) shall be **five hundred dollars (\$500.00) for each calendar day**, continuing to the time at which the work is completed. Such amount is the actual cash value agreed upon as the loss to the City resulting from the default of the Contractor.

The undersigned represents and warrants that he/she has examined the location of the proposed work and is familiar with the conditions at the place where the work is to be done. The undersigned further represents that he/she has reviewed and understands the Plans, Special Provisions, and other contract documents, and the undersigned is satisfied with all conditions for the performance of the work. **Additionally, the undersigned shall include written documentation with the Sealed Proposal of previous satisfactory experience in construction of municipal water wells, in accordance with the following:**

- The undersigned shall provide documentation for a minimum of four (4) projects of similar size and scope for the construction of drinking water wells performed by the undersigned for a municipality or other public agency within the last seven years. The table following this section shall be completed to establish documentation. The above documentation shall be included with the Sealed Proposal.
- A Sealed Proposal that does not include the above required documentation may be rejected as non-responsive.

Please note that information included in the above documentation and/or obtained from such other owner agency or municipality or from another source regarding the bidder's performance on another public project also may be used by the City in determining whether the bidder is a responsible bidder.

The undersigned has carefully checked all of the above figures and understands that the City of Sacramento will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

This proposal shall not be withdrawn for the time periods specified in Section 3-2 of the City of Sacramento Standard Specifications for award of contract to respective low bidders. This proposal is submitted in accordance with Chapter 3.60 of the Sacramento City Code and Sections 1, 2, and 3 of the City of Sacramento Standard Specifications.

In accordance with Standard Specification Section 3-2, the City shall award this contract to the lowest responsible bidder, if such award is made, within forty-five (45) working days after opening of the Proposals. The City reserves the right to reject any and all bids.

BID DEPOSIT ENCLOSED IN THE FOLLOWING FORM:

\$_____ not less than ten (10) percent of amount bid.

____ CERTIFIED CHECK

____ MONEY ORDER

____ CASHIERS'S CHECK

____ BID BOND

<u>FOR CITY USE ONLY</u>	
TYPE OF DEPOSIT	
<input type="checkbox"/>	Bid Bond
<input type="checkbox"/>	Cashier/Certified Check
<input type="checkbox"/>	Other _____
Reviewer's Initials: _____	

CONTRACTOR

Addendum No. 1 _____

Addendum No. 2 _____ By: _____
(Signature)

Addendum No. 3 _____ Title: _____

Addendum No. 4 _____ Address: _____
No PO Box – Physical Address ONLY

City STATE ZIIP Code

Telephone No. _____

Fax No. _____

Email _____

(Federal Tax ID # or Social Security #)
Under penalty of perjury, I certify that the Taxpayer Identification Number and
all other information provided here are correct.

Valid Contractor's License No. _____, Classification _____ is held by the bidder.

Expiration date _____. Representation made herein are true and correct under penalty or perjury

PN: Z14005400 (B14141321006)

1.01 Contractor Information

- A. Firm Name: _____
- B. Address: _____
- C. Telephone: _____
- D. Email Address: _____
- E. Contractor's License Number: _____
- F. Contractor's License Expiration Date: _____
- G. Contractor's License Classification: _____

1.02 Contractor's Qualifications

A. List four (4) clients for whom you have constructed projects of similar scope (depth and design capacity) within the last seven (7) years:

(1) Owner's Name, Address, and Phone Number: _____

Brief Project Description: _____

Date Furnished: _____

(2) Owner's Name, Address, and Phone Number: _____

Brief Project Description: _____

Date Furnished: _____

(3) Owner's Name, Address, and Phone Number: _____

Brief Project Description: _____

Date Furnished: _____

(4) Owner's Name, Address, and Phone Number: _____

Brief Project Description: _____

Date Furnished: _____

B. Personnel and Equipment

(1) List your Drillers names of and years of experience with similar projects:

(2) List equipment proposed to complete work specified herein:

a. Rig

(i) Make: _____

(ii) Model: _____

b. Mast

(i) Height: _____

(ii) Capacity: _____

(iii) Maximum Casing Length (feet): _____

c. Air Compressor

(i) Make: _____

(ii) Model: _____

(iii) Noise Rating; _____

(iv) Head (psi); _____

d. Drill Pipe

(i) Diameter and Length; _____

(ii) Weight Per Foot: _____

(iii) Connection Type: _____

e. Drill Collars

(i) Length per Section: _____

(ii) Weight per Foot: _____

(iii) Quantity: _____

1.03 Projects with Any Judgments Against Contractor Over the Past Seven (7) Years

A. Please provide details regarding judgments. Attach additional sheets if necessary.

(1) Owner's Name, Address, and Phone Number: _____

Brief Project and Judgment Description: _____

(2) Owner's Name, Address, and Phone Number: _____

Brief Project and Judgment Description: _____

1.04 Projects with Any Active Claims Against Contractor

A. Please provide details regarding active claims. Attach additional sheets if necessary.

(1) Owner's Name, Address, and Phone Number: _____

Brief Project and Claim Description: _____

(2) Owner's Name, Address, and Phone Number: _____

Brief Project and Claim Description: _____

KNOW ALL MEN BY THESE PRESENTS,

That we, _____

as Principal, and _____

a corporation duly organized under the laws of the State of _____ and duly licensed to become sole surety on bonds required or authorized by the State of California, as Surety, are held and firmly bound unto the City of Sacramento, hereinafter called the City, in the penal sum of ten percent (10%) of the (BASE OR LUMP SUM) Proposal of the Principal above named, or other amount as set forth in the Invitation to Bidders, submitted by said Principal to the City for the Work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH

That whereas the Principal has submitted the above mentioned proposal to the City, for which Proposals are to be opened in the Office of the City Clerk, City Hall, Closed Session Room #CH1104, 915 I Street, Sacramento, California, on **August 21, 2013**, for the Work specifically described as follows:

**SHASTA PARK WELL PROJECT
(PN: Z14005400) (B14141321006)**

NOW, THEREFORE, if the aforesaid Principal is award the Agreement and within the time and manner required under the Contract Documents, enters into a written Agreement, in the prescribed form, in accordance with the Proposal, and files two (2) bonds with the City, one to guarantee faithful performance and the other to guarantee payment for labor and materials, and files the required insurance policies with the City, all as required by the Contract Documents or by law, then the obligation shall be null and void; otherwise it shall be and remain in full force and effect.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court, which sums shall be additional to the principal amount of this bond.

IN WITNESS THEREOF, We have hereunto set our hands and seal this _____ day of _____, 2013.

PRINCIPAL Seal
By: _____

Title

SURETY Seal
By _____

Title

Agent Name and Address

Agent Phone #

Surety Phone #

California License #

DRUG-FREE WORKPLACE POLICY AND AFFIDAVIT

BID MAY BE DECLARED NONRESPONSIVE IF THIS FORM (COMPLETED) IS NOT ATTACHED.
Pursuant to City Council Resolution CC90-498 dated 6/26/90 the following is required.

The undersigned contractor certifies that it and all subcontractors performing under this contract will provide a drug-free workplace by:

1. Publishing a "Drug-Free Workplace" statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Establishing a Drug-Free Awareness Program to inform employees about:
 - a. The dangers of drug abuse in the workplace.
 - b. The contractor's policy of maintaining a drug-free workplace.
 - c. Any available drug counseling, rehabilitation, and employee assistance program.
 - d. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.
3. Notify employees that as a condition of employment under this contract, employees will be expected to:
 - a. Abide by the terms of the statement.
 - b. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace.
4. Making it a requirement that each employee to be engaged in the performance of the contract be given a copy on the "Drug-Free Workplace" statement.
5. Taking one of the following appropriate actions, within thirty (30) days of receiving notice from an employee or otherwise receiving such notice, that said employee has received a drug conviction for a violation occurring in the workplace:
 - a. Taking appropriate disciplinary action against such an employee, up to and including termination; or
 - b. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement or other appropriate agency.

* I certify that no person employed by this company, corporation, or business has been convicted of any criminal drug statute violation on any job site or project where this company, corporation, or business was performing work within three years of the date of my signature below.

EXCEPTION:

Date	Violation Type	Place of Occurrence
If additional space is required use back of this form.		

*The above statement will also be incorporated as a part of each subcontract agreement for any and all subcontractors selected for performance on this project.

IN THE EVENT THIS COMPANY, CORPORATION, OR BUSINESS IS AWARDED THIS CONSTRUCTION CONTRACT, AS A RESULT OF THIS BID; THE CONTRACTOR WITH HIS/HER SIGNATURE REPRESENTS TO THE CITY THAT THE INFORMATION DISCLOSED IN THIS DOCUMENT IS COMPLETE AND ACCURATE. IT IS UNDERSTOOD AND AGREED THAT FALSE CERTIFICATION IS SUBJECT TO IMMEDIATE TERMINATION BY THE CITY.

The Representations Made Herein On This Document Are Made Under Penalty Of Perjury.

CONTRACTOR'S NAME: _____

BY: _____ Date: _____
Signature Title

Effects of violations: a. Suspension of payments under this contract. b. Suspension or termination of the contract. c. Suspension or debarment of the contractor from receiving any contract from the City of Sacramento for a period not to exceed five years.
FM 681 7/10/9

MINIMUM QUALIFICATIONS QUESTIONNAIRE

Sacramento City Code Section 3.60.020 authorizes the Sacramento City Council to adopt standard minimum qualifications for bidders on competitively bid public works construction projects, and requires, among other provisions, that a bidder meet such minimum qualifications at the time of bid opening in order to bid. On July 31, 2007, the City Council adopted Resolution No. 2007-574 establishing these standard minimum qualifications. Pursuant to City Code section 3.60.020, a bidder failing to meet these minimum qualifications at the time of bid opening shall not be considered a responsible bidder for purposes of bidding on the subject project.

All bidders must demonstrate compliance with the minimum qualifications established by Resolution No. 2007-574 by completing all of the questions contained in this questionnaire. Bidder responses shall be limited to those operating business units, offices, branches and/or subsidiary divisions of the bidder that will be involved with the performance of any project work if awarded the contract. If a bidder answers "yes" to any single question, fails to submit a fully completed questionnaire, or submits false information, this will result in a determination that the minimum qualifications are not met, and the bidder shall not be considered a qualified bidder for purposes of bidding on this contract. If two or more entities submit a bid on a contract as a Joint Venture, each entity within the Joint Venture must separately meet these minimum qualifications for the Joint Venture to be considered a qualified bidder.

The City of Sacramento ("City") shall make its determination on the basis of the submitted questionnaire, as well as any relevant information that is obtained from others or as a result of investigation by the City. While it is the intent of this questionnaire to assist the City in determining whether bidders possess the minimum qualifications necessary to submit bids on the City's competitively bid public works construction contracts, the fact that a bidder submits a questionnaire demonstrating that it meets these minimum qualifications shall not in any way limit or affect the City's ability to: (1) review other information contained in the bid submitted by the bidder, and additional relevant information, and determine whether the contractor is a responsive and/or responsible bidder; or (2) establish pre-qualification requirements for a specific contract or contracts.

By submitting this questionnaire, the bidder consents to the disclosure of its questionnaire answers: (i) to third parties for purposes of verification and investigation; (ii) in connection with any protest, challenge or appeal of any action taken by the City; and (iii) as required by any law or regulation, including without limitation the California Public Records Act (Calif. Gov't Code sections 6250 et seq.). Each questionnaire must be signed under penalty of perjury in the manner designated at the end of the form, by an individual who has the legal authority to bind the bidder submitting the questionnaire. If any information provided by a bidder becomes inaccurate, the bidder shall immediately notify the City and provide updated accurate information in writing, under penalty of perjury.

QUESTIONNAIRE

NOTICE: For firms that maintain other operating business units, offices, branches and/or subsidiary divisions that will not be involved with the performance of any project work if the firm is awarded the contract, references hereafter to “your firm” shall mean only those operating business units, offices, branches and/or subsidiary divisions that will be involved with the performance of any project work.

All of the following questions regarding “your firm” refer to the firm (corporation, partnership or sole proprietor) submitting this questionnaire, as well as any firm(s) with which any of your firm’s owners, officers, or partners are or have been associated as an owner, officer, partner or similar position within the last five years

The firm submitting this questionnaire shall not be considered a responsible bidder if the answer to any of these questions is “yes”, or if the firm submits a questionnaire that is not fully completed or contains false information.

1. **Classification & Expiration Date(s) of California Contractor’s License Number(s)** held by firm:

2. Has a contractor's license held by your firm and/or any owner, officer or partner of your firm been revoked at anytime in the last five years?
 Yes No
3. Within the last five years, has a surety firm completed a contract on your firm’s behalf, or paid for completion of a contract to which your firm was a party, because your firm was considered to be in default or was terminated for cause by the project owner?
 Yes No
4. At the time of submitting this minimum qualifications questionnaire, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either California Labor Code section 1777.1 (prevailing wage violations) or Labor Code section 1777.7 (apprenticeship violations)?
 Yes No
5. At any time during the last five years, has your firm, or any of its owners, officers or partners been convicted of a crime involving the awarding of a contract for a government construction project, or the bidding or performance of a government contract?
 Yes No

6. Answer either subsection A or B, as applicable:

A. Your firm has completed three or more government construction contracts in Sacramento County within the last five years: Within those five years, has your firm been assessed liquidated damages on three or more government construction contracts in Sacramento County for failure to complete contract work on time?

NOTE: If there is a pending administrative or court action challenging the assessment of liquidated damages on a government contract within the last five years, you need not include that contract in responding to this question.

Yes No Not applicable

OR

B. Your firm has not completed at least three government construction contracts in Sacramento County within the last five years: Within the last three years, has your firm been assessed liquidated damages on three or more government construction contracts for failure to complete contract work on time?

NOTE: If there is a pending administrative or court action challenging an assessment of liquidated damages on a government contract within the last three years, you need not include that contract in responding to this question.

Yes No Not applicable

7. In the last three years has your firm been debarred from bidding on, or completing, any government agency or public works construction contract for any reason?

NOTE: If there is a pending administrative or court action challenging a debarment, you need not include that debarment in responding to this question.

Yes No

8. Has CAL OSHA assessed a total of three or more penalties against your firm for any "serious" or "willful" violation occurring on construction projects performed in Sacramento County at any time within the last three years?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

Yes No

9. Answer either subsection A or B, as preferred:

A. In the last three years has your firm had a three year average Workers' Compensation experience modification rate exceeding 1.1?

Yes No

OR

B. In the last three years has your firm had a three-year average incident rate for total lost workday cases exceeding 10?

NOTE: Incident rates represent the number of lost workday cases per 100 full-time workers and is to be calculated as: $(N/EH) \times 200,000$, where

N = number of lost workday cases (as defined by the U.S. Dept. of Labor, Bureau of Labor Statistics)
EH = total hours worked by all employees during the calendar year
200,000 = base for 100 equivalent full-time working (working 40 hours per week, 50 weeks per year)

Yes No

10. In the past three years, has the federal EPA, Region IX or a California Air Quality Management District or Regional Water Quality Control Board assessed penalties three or more times, either against your firm, or against the project owner for a violation resulting in whole or in part from any action or omission by your firm on a project on which your firm was a contractor in Sacramento County?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

Yes No

11. In the past three years, has the federal EPA, Region IX or a California Air Quality Management District or Regional Water Quality Control Board assessed a single penalty of \$100,000 or more, either against your firm, or against the project owner for a violation resulting in whole or in part from any action or omission by your firm on a project on which your firm was the contractor in Sacramento County?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

Yes No

12. In the past three years, have civil penalties been assessed against your firm pursuant to California Labor Code 1777.7 for violation of California public works apprenticeship requirements, three or more times?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

Yes No

13. In the past three years, has a public agency in California withheld contract payments or assessed penalties against your firm for violation of public works prevailing wage requirements, three or more times?

NOTE: If there is a pending administrative or court action appealing a withholding or penalty assessment, you need not include that withholding or penalty assessment in responding to this question.

Yes No

14. Has your firm been assessed penalties for violation of public works prevailing wage requirements in California, in an aggregate amount for the past three years of \$50,000 or more?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

Yes No

VERIFICATION AND SIGNATURE

I, the undersigned, certify and declare that I have read all the foregoing answers to this Minimum Qualifications Questionnaire, and know their contents. The matters stated in these Questionnaire answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Signed at _____, on _____.
(Location) (Date)

Signature: _____

Print name: _____

Title: _____

NOTE: If two or more entities submit a bid on a contract as a Joint Venture, each entity within the Joint Venture must submit a separate Minimum Qualifications Questionnaire.

REQUIREMENTS OF THE NON-DISCRIMINATION IN EMPLOYEE BENEFITS CODE

INTRODUCTION

The Sacramento Non-Discrimination In Employee Benefits Code (the "Ordinance"), codified as Sacramento City Code Chapter 3.54, prohibits City contractors from discriminating in the provision of employee benefits between employees with spouses and employees with domestic partners, and between the spouses and domestic partners of employees.

APPLICATION

The provisions of the Ordinance apply to any contract or agreement (as defined below), between a Contractor and the City of Sacramento, in an amount exceeding \$100,000.00. The Ordinance applies to that portion of a contractor's operations that occur: (i) within the City of Sacramento; (ii) on real property outside the City of Sacramento if the property is owned by the City or if the City has a right to occupy the property; or (iii) at any location where a significant amount of work related to a City contract is being performed.

The Ordinance does not apply: to subcontractors or subcontracts of any Contractor or contractors; to transactions entered into pursuant to cooperative purchasing agreements approved by the Sacramento City Council; to legal contracts of other governmental jurisdictions or public agencies without separate competitive bidding by the City; where the requirements of the ordinance will violate or are inconsistent with the terms or conditions of a grant, subvention or agreement with a public agency or the instructions of an authorized representative of any such agency with respect to any such grant, subvention or agreement; to permits for excavation or street construction; or to agreements for the use of City right-of-way where a contracting utility has the power of eminent domain.

DEFINITIONS

As set forth in the Ordinance, the following definitions apply:

"Contract" means an agreement for public works or improvements to be performed, or for goods or services to be purchased or grants to be provided, at the expense of the City or to be paid out of moneys deposited in the treasury or out of the trust money under the control or collected by the City. "Contract" also means a written agreement for the exclusive use ("exclusive use" means the right to use or occupy real property to the exclusion of others, other than the right reserved by the fee owner) or occupancy of real property for a term exceeding 29 days in any calendar year, whether by singular or cumulative instrument, (i) for the operation or use by others of real property owned or controlled by the City for the operation of a business, social, or other establishment or organization, including leases, concessions, franchises and easements, or (ii) for the City's use or occupancy of real property owned by others, including leases, concessions, franchises and easements.

"Contract" shall not include: a revocable at-will use or encroachment permit for the use of or encroachment on City property regardless of the ultimate duration of such permit; excavation, street construction or street use permits; agreements for the use of City right-of-way where a contracting utility has the power of eminent domain; or agreements governing the use of City property that constitute a public forum for activities that are primarily for the purpose of espousing or advocating causes or ideas and that are generally protected by the First Amendment to the United States Constitution or that are primarily recreational in nature.

“Contractor” means any person or persons, firm partnership or corporation, company, or combination thereof, that enters into a Contract with the City. “Contractor” does not include a public entity.

“Domestic Partner” means any person who has a currently registered domestic partnership with a governmental entity pursuant to state or local law authorizing the registration.

“Employee Benefits” means bereavement leave; disability, life, and other types of insurance; family medical leave; health benefits; membership or membership discounts; moving expenses; pension and retirement benefits; vacation; travel benefits; and any other benefit given to employees. “Employee benefits” shall not include benefits to the extent that the application of the requirements of this chapter to such benefits may be preempted by federal or state.

CONTRACTOR’S OBLIGATION TO PROVIDE THE CITY WITH DOCUMENTATION AND INFORMATION

Contractor shall provide the City with documentation and information verifying its compliance with the requirements of the Ordinance within ten (10) days of receipt of a request from the City. Contractors shall keep accurate payroll records, showing, for each City Contract, the employee’s name, address, Social Security number, work classification, straight time pay rate, overtime pay rate, overtime hours worked, status and exemptions, and benefits for each day and pay period that the employee works on the City Contract. Each request for payroll records shall be accompanied by an affidavit to be completed and returned by the Contractor, as stated, attesting that the information contained in the payroll records is true and correct, and that the Contractor has complied with the requirements of the Ordinance. A violation of the Ordinance or noncompliance with the requirements of the Ordinance shall constitute a breach of contract.

EMPLOYER COMPLIANCE CERTIFICATE AND NOTICE REQUIREMENTS

(a) All contractors seeking a Contract subject to the Ordinance shall submit a completed Declaration of Compliance Form (attachment “A”), signed by an authorized representative, with each proposal, bid or application. The Declaration of Compliance shall be made a part of the executed contract, and will be made available for public inspection and copying during regular business hours.

(b) The Contractor shall give each existing employee working directing on a City contract, and (at the time of hire), each new employee, a copy of the notification provided as attachment “B.”

(c) Contractor shall post, in a place visible to all employees, a copy of the notice provided as attachment “C.”

**DECLARATION OF COMPLIANCE
Equal Benefits Ordinance**

Name of Contractor

Address

The above named contractor ("Contractor") hereby declares and agrees as follows:

1. I have read and understand the Requirements of the Non-Discrimination In Employee Benefits Code (the "Requirements") provided to me by the City of Sacramento ("City") in connection with the City's request for proposals or other solicitations for the performance of services, or for the provision of commodities, under a City contract or agreement ("Contract").
2. As a condition of receiving the City Contract, I agree to fully comply with the Requirements, as well as any additional requirements that may be specified in the City's Non-Discrimination in Employee Benefits Code codified at Chapter 3.54 of the Sacramento City Code (the "Ordinance").
3. I understand, to the extent that such benefits are not preempted or prohibited by federal or state law, employee benefits covered by the Ordinance, are any of the following:
 - a. Bereavement Leave
 - b. Disability, life, and other types of insurance
 - c. Family medical leave
 - d. Health benefits
 - e. Membership or membership discounts
 - f. Moving expenses
 - g. Pension and retirement benefits
 - h. Vacation
 - i. Travel benefits
 - j. Any other benefit offered to employees

I agree that should I offer any of the above listed employee benefits, that I will offer those benefits, without discrimination between employees with spouses and employees with domestic partners, and without discrimination between the spouses and domestic partners of such employees.

4. I understand that I will not be considered to be discriminating in the provision or application of employee benefits under the following conditions or circumstances:
 - a. In the event that the actual cost of providing a benefit to a domestic partner or spouse, exceeds the cost of providing the same benefit to a spouse or domestic partner of an employee, I will not be required to provide the benefit, nor shall it be deemed discriminatory, if I require the employee to pay the monetary difference in order to provide the benefit to the domestic partner or to the spouse.
 - b. In the event I am unable to provide a certain benefit, despite taking reasonable measures to do so, if I provide the employee with a cash equivalent, I will not be deemed to be discriminating in the application of that benefit.
 - c. If I provide employee benefits neither to employee's spouses nor to employee's domestic partners.
 - d. If I provide employee benefits to employees on a basis unrelated to marital or domestic partner status.
 - e. If I submit, to the Program Coordinator, written evidence of making reasonable efforts to end discrimination in employee benefits by implementing policies which are to be enacted before the

first effective date after the first open enrollment process following the date the Contract is executed with the City.

I understand that any delay in the implementation of such policies may not exceed one (1) year from the date the Contract is executed with the City, and applies only to those employee benefits for which an open enrollment process is applicable.

- f. Until administrative steps can be taken to incorporate, in the infrastructure, nondiscrimination in employee benefits

The time allotted for these administrative steps will apply only to those employee benefits for which administrative steps are necessary and may not exceed three (3) months from the date the Contract is executed with the City.

- g. Until the expiration of a current collective bargaining agreement(s) where, in fact, employee benefits are governed by a collective bargaining agreement(s).
- h. I take all reasonable measures to end discrimination in employee benefits by either requesting the union(s) involved agree to reopen the agreement(s) in order for me to take whatever steps are necessary to end discrimination in employee benefits or by my ending discrimination in employee benefits without reopening the collective bargaining agreement(s).
- i. In the event I cannot end discrimination in employee benefits despite taking all reasonable measures to do so, I provide a cash equivalent to eligible employees for whom employee benefits (as listed previously), are not available.

Unless otherwise authorized in writing by the City Manager, I understand this cash equivalent must begin at the time the union(s) refuse to allow the collective bargaining agreement(s) to be reopened or no longer than three (3) months from the date the Contract is executed with the City.

- 5. I understand that failure to comply with the provisions of Section 4. (a) through 4. (i), above, will subject me to possible suspension and/or termination of this Contract for cause; repayment of any or all of the Contract amount disbursed by the City; debarment for future contracts until all penalties and restitution have been paid in full; deemed ineligible for future contracts for up to two (2) years; the imposition of a penalty, payable to the City, in the sum of \$50.00 for each employee, for each calendar day during which the employee was discriminated against in violation of the provisions of the Ordinance.
- 6. I understand and do hereby agree to provide each current employee and, within ten (10) days of hire, each new employee, of their rights under the Ordinance. I further agree to maintain a copy of each such letter provided, in an appropriate file for possible inspection by an authorized representative of the City. I also agree to prominently display a poster informing each employee of these rights.
- 7. I understand that I have the right to request an exemption to the benefit provisions of the Ordinance when such a request is submitted to the Procurement Services Division, in writing with sufficient justification for resolution, prior to contract award.

I further understand that the City may request a waiver or exemption to the provisions or requirements of the Ordinance, when only one contractor is available to enter into a contract or agreement to occupy and use City property on terms and conditions established by the City; when sole source conditions exist for goods, services, public project or improvements and related construction services; when there are no responsive bidders to the Ordinance requirements and the contract is for essential goods or services; when emergency conditions with public health and safety implications exist; or when the contract is for specialized legal services if in the best interest of the City.

8. In consideration of the foregoing, I shall defend, indemnify and hold harmless, the City, its officers and employees, against any claims, actions, damages, costs (including reasonable attorney fees), or other liabilities of any kind arising from any violation of the Requirements or of the Ordinance by me.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am authorized to bind the Contractor to the provisions of this Declaration.

Signature of Authorized Representative

Date

Print Name

Title



YOUR RIGHTS UNDER THE CITY OF SACRAMENTO'S

NON-DISCRIMINATION IN EMPLOYEE BENEFITS BY CITY CONTRACTORS ORDINANCE

On (date), your employer (the "Employer") entered into a contract with the City of Sacramento (the "City") for (contract details), and as a condition of that contract, agreed to abide by the requirements of the City's Non-Discrimination In Employee Benefits By City Contractors Ordinance (Sacramento City Code Section 3.54).

The Ordinance does not require the Employer to provide employee benefits. The Ordinance does require that if certain employee benefits are provided by the Employer, that those benefits be provided without discrimination between employees with spouses and employees with domestic partners, and without discrimination between the spouse or domestic partner of employees.

The Ordinance covers any employee working on the specific contract referenced above, but only for the period of time while those employees are actually working on this specific contract.

The included employee benefits are:

- Bereavement leave
- Disability, life and other types of insurance
- Family medical leave
- Health benefits
- Membership or membership discounts
- Moving expenses
- Pension and retirement benefits
- Vacation
- Travel benefits
- Any other benefits given to employees

(Employee Benefits does not include benefits that may be preempted by federal or state law.)

If you feel you have been discriminated or retaliated against by your employer in the terms and conditions of your application for employment, or in your employment, or in the application of these employee benefits, because of your status as an applicant or as an employee protected by the Ordinance, or because you reported a violation of the Ordinance, and after having exhausted all remedies with your employer,

You May . . .

- Submit a written complaint to the City of Sacramento, Contract Services Unit, containing the details of the alleged violation. The address is:

City of Sacramento
Contract Services Unit
915 I St., 2nd Floor
Sacramento, CA 95814

- Bring an action in the appropriate division of the Superior Court of the State of California against the Employer and obtain the following remedies:
 - Reinstatement, injunctive relief, compensatory damages and punitive damages
 - Reasonable attorney's fees and costs



YOUR RIGHTS UNDER THE CITY OF SACRAMENTO'S

NON-DISCRIMINATION IN EMPLOYEE BENEFITS BY CITY CONTRACTORS ORDINANCE

If your employer provides employee benefits, they must be provided to those employees working on a City of Sacramento contract without discriminating between employees with spouses and employees with domestic partners.

The included employee benefits are:

- Bereavement leave
- Disability, life and other types of insurance
- Family medical leave
- Health benefits
- Membership or membership discounts
- Moving expenses
- Pension and retirement benefits
- Vacation
- Travel benefits
- Any other benefits given to employees

If you feel you have been discriminated against by your employer . . .

You May . . .

- Submit a written complaint to the City of Sacramento, Contract Services Unit, containing the details of the alleged violation. The address is:

City of Sacramento
Contract Services Unit
915 I St., 2nd Floor
Sacramento, CA 95814
- Bring an action in the appropriate division of the Superior Court of the State of California against the employer and obtain reinstatement, injunctive relief, compensatory damages, punitive damages and reasonable attorney's fees and costs.

Discrimination and Retaliation Prohibited.

If you feel you have been discriminated or retaliated against by your employer in the terms and conditions of your application for employment, or in your employment, because of your status as an applicant or as an employee protected by the Ordinance, or because you reported a violation of this Ordinance . . .

You May Also . . .

Submit a written complaint to the City of Sacramento, Contract Services Unit, at the same address, containing the details of the alleged violation.

Construction and Demolition (C&D) Debris Recycling Requirements

As a condition of receiving this Contract, Contractor agrees to fully comply with the requirements specified herein for all demolition projects, as well as projects with a valuation of \$250,000 or more:

1. **Definitions.** For purposes of this section, the following terms, words and phrases shall have the following meanings:

“Certified C&D sorting facility” means a facility that receives C&D debris and/or processes C&D debris into its component material types for reuse, recycling, and disposal of residuals and possesses a valid certificate as a C&D sorting facility from the Sacramento Regional County Solid Waste Authority.

“Construction and demolition debris” or “C&D debris” means used or commonly discarded materials resulting from construction, repair, remodel or demolition operations on any pavement, house, building, or other structure, or from landscaping that are not hazardous as defined in California Health and Safety Code section 25100 et seq. Such materials include, but are not limited to, concrete, asphalt, wood, metal, brick, dirt, sand, rock, gravel, plaster, glass, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, masonry, plastic pipe, trees, and other vegetative matter resulting from land clearing and landscaping.

“Divert” or “diversion” means to use materials for any purpose other than disposal in a landfill or transformation facility. Methods to divert materials include on-site reuse of the materials, delivery of materials from the project site to a certified C&D sorting facility or a recycling facility, or other methods as approved in regulations promulgated by the City Department of Utilities.

“Franchised waste hauler” means a person who possesses a valid commercial solid waste collection franchise issued by the Sacramento Regional County Solid Waste Authority.

“Mixed C&D debris” means loads that include commingled recyclable and non-recyclable C&D debris generated at a project site.

“Recyclable C&D debris” means C&D debris required to be diverted from landfills as specified in the Waste Management Plan and returned to the economic mainstream in the form of raw material for new, reused or reconstituted products that meet the quality standards necessary to be used in the marketplace.

“Recycling facility” means a facility or operation that receives, processes, and transfers source-separated recyclable materials.

“Source-separated C&D debris” means recyclable C&D debris that is separately sorted and containerized at the site of generation by individual material type and segregated from mixed C&D debris prior to collection and transporting.

“Waste log” means a record detailing the management of C&D debris generated by the covered project, including the date and weight/volume of material by type that was salvaged, reused, recycled or disposed.

2. **Waste Management Plan.** A completed WMP (see **Attachment 1**) must be submitted to and approved by the City prior to commencing any work on the project. The WMP must specify the types of C&D debris that will be generated from the project; the manner in which C&D debris will be managed and/or stored on the project site; the manner in which recyclable C&D debris generated from the project will be recycled or reuse; the person who will haul, collect or transport the recyclable C&D debris from the project site; and the certified C&D sorting facility or recycling facility where recyclable C&D debris will be delivered. The WMP must be approved by the City prior to commencing any work on the project.

3. Contractor shall be solely responsible for diverting the recyclable C&D materials specified on the WMP. Mixed C&D debris shall be delivered to a SWA-certified C&D sorting facility only. Only the permit holder, the person who generates the waste, a franchised waste hauler, or the City of Sacramento can transport or haul mixed C&D debris. Source-separated C&D debris may be delivered by any person to any recycling facility that accepts such materials. (See **Attachment 2** for list of C&D Debris Haulers and Facilities).

4. During the course of the project, Contractor shall maintain a waste log (see **Attachment 3**), and keep all weight tickets or weight receipts, for all C&D debris hauled away from the project. At a minimum, the waste log shall specify the C&D debris generated by the project; the manner in which C&D debris was recycled or re-used; and the facility where the C&D debris was delivered.

5. Within 30 days after submitting the project completion report, Contractor shall submit to the City a completed waste log, along with copies of supporting weight tickets. Contractor shall maintain and keep accurate and complete records of all bills, weight receipts or weight tickets that were issued for the collection, transport or disposal of C&D debris for a period of one-year after submittal of the waste log. The records shall be made available for inspection, examination and audit by the City during the one-year retention period to validate the information provided in the WMP and in the waste log. If the City determines noncompliance by the Contractor after an audit has been conducted, Contractor shall reimburse the City for all costs incurred in performing the audit.

6. Failure by Contractor to comply with any provisions specified herein will subject Contractor to possible suspension and/or termination of this Contract for cause; repayment of any or all of the Contract amount disbursed by the City; imposition of a penalty, payable to the City (\$50-\$250 for first offense, \$251-\$500 for second offense, and \$501-\$1500 for subsequent offenses); and/or submission of a performance security deposit fee when submitting a permit application to the City for a project within one year of imposition of the penalty.

For questions or to obtain more information about the Recycling Requirements for C&D debris, contact the City of Sacramento, Solid Waste Services Division, 2812 Meadowview Road, Building 1, Sacramento, CA 95832, or telephone (916) 808-4833, or email C&D@cityofsacramento.org

C&D Debris Waste Management Plan

C&D Debris Waste Management Plan
City of Sacramento Solid Waste Services
2812 Meadowview Road, Building 1
Sacramento, CA 95832
Phone: (916) 808-4839 / Fax: (916) 808-4999
C&D@cityofsacramento.org

Form
submitted by:

Please attach a business card, or put your name with a phone number and/or an email address.

This Waste Management Plan (WMP) must be submitted and approved before work can begin. Only one WMP is required for each public construction project. The administration fee and, if applicable, a security deposit must be submitted with this form to be approved. Administration fee is 0.04% of project bid amount (min \$40, max \$800); security deposit, if applicable, is 1% of bid amount (max \$10,000). The accompanying Waste Log must be submitted within 30 days of the project completion report, or a penalty may be imposed.

A. Building Project Information:

Job Address: _____
Contractor: _____
Address: _____

Engineering
Estimate: _____
Phone: _____
Email: _____

B. Briefly describe the project:

C. Materials Required to be Recycled

50% of all debris must be recycled if generated during the course of your project. You can either **source-separate** them, which may be hauled by anyone, or mix them in one container and send the **mixed C&D debris** load to a **Certified Mixed C&D Sorting Facility**. Mixed C&D loads can only be hauled by a franchised hauler or self-hauled. Please see the Definitions section, on the next page, for more information.

50%
of all debris
must be recycled

D. Material Management.

1. How will C&D debris will be stored on the project site: _____ Mixed C&D _____ Source-Separated
2. Company to haul away debris: _____
3. Facilities to receive debris: _____

C&D Debris Waste Management Plan

C&D Debris Waste Management Plan
City of Sacramento Solid Waste Services
2812 Meadowview Road, Building 1
Sacramento, CA 95832
Phone: (916) 808-4839 / Fax: (916) 808-4999
C&D@cityofsacramento.org

E. Definitions.

Please read and understand these terms. Call Solid Waste at (916) 808-4833 if these terms are not clear to you. More information is also available online at <http://www.cityofsacramento.org/utilities/>.

1. **Self-haul or self-hauling:** This is when the general contractor or a subcontractor *who is doing work on the project* hauls their own waste materials for recycling or disposal. Note that a *jobsite cleanup crew is not doing other work on the project and is not self-hauling*. Jobsite cleanup crews need to be franchised in order to haul mixed C&D debris away.
2. **Franchised hauler:** Check the Department of Utilities (DOU) website for a list of these haulers. Only these companies and the City of Sacramento can collect and haul mixed C&D debris generated within the City for a fee.
3. **Source separation:** This means keeping wood, metal, cardboard, or other recyclables in separate containers, and sending the materials to an authorized recycler. A list of authorized recyclers can be found on the DOU web site. Source-separated materials may be hauled by anyone.
4. **Mixed C&D debris:** This means putting all recyclable debris into one container. Mixed materials must be sent to a certified mixed C&D sorting facility. Mixed materials may be either self-hauled or hauled by a franchised hauler. If your job site is crowded, this option saves the most space.
5. **Certified Mixed C&D Sorting Facility:** See the DOU web site for a list. These facilities have been certified by the Sacramento Regional Solid Waste Authority (SWA) to extract recyclable materials from mixed C&D debris.

F. Terms and Conditions

- Your approved Waste Management Plan and Waste Log must be kept on the job site for the duration of the project.
- City of Sacramento Solid Waste Services staff may enter the jobsite to inspect waste collection areas.
- **ALL Clean Wood Waste** (unpainted, untreated lumber, plywood and OSB), **Inert Materials** (concrete, asphalt paving, brick, block, and dirt), **Wooden Pallets**, **Scrap Metal**, and **Corrugated Cardboard** must be recycled.
- Only SWA-Certified Mixed C&D Sorting Facilities may be used to recycle these materials if mixed with other materials.
- Only the City of Sacramento, SWA-Franchised Haulers, or self-haulers (as defined above) may collect and transport mixed C&D material from the jobsite.
- C&D Debris may not be burned or dumped illegally.
- Your Waste Log must be completed and submitted, with supporting weight tickets, within 30 days of submitting your project completion report. All waste hauling and disposal or recycling activity must be entered on the Waste Log, including information from any subcontractors who self-hauled their own debris off-site.
- You must keep all receipts or weight-tickets from your project for a period of one year from the submittal of your waste log.
- Failure to comply with these terms and conditions may result in a fine and payment of a security deposit on future projects

C&D Debris Haulers & Facilities

C&D Debris Waste Management Plan
City of Sacramento Solid Waste Services
2812 Meadowview Road, Building 1
Sacramento, CA 95832
Phone: (916) 808-4833 / Fax: (916) 808-4999
C&D@cityofsacramento.org

Certified Mixed C&D Facilities

Allied Waste / Elder Creek Transfer and Recovery	(916) 387-8425
Florin-Perkins Public Disposal	(916) 443-5120
L&D Landfill	(916) 737-8640
Waste Management / K&M Recycle America	(916) 452-0142

Franchised Haulers

ACES Waste Services, Inc.	(866) 488-8837	Elk Grove Waste Management, LLC	(916) 689-4052
Allied Waste Services	(916) 631-0600	Mini Drops, Inc.	(916) 686-8785
All Waste Systems, Inc.	(916) 456-1555	Norcal Waste Services of Sacramento	(916) 381-5300
Atlas Disposal Industries, LLC	(916) 455-2800	North West Recyclers	(916) 686-8575
California Waste Recovery Systems	(916) 441-1985	Waste Management of Sacramento	(916) 387-1400
Central Valley Waste Services, Inc.	(209) 369-8274	Waste Removal & Recycling	(916) 453-1400
City of Sacramento Solid Waste	(916) 808-4839	Western Strategic Materials, Inc.	(916) 388-1076

Recyclers*

Recovery Stations & Landfills

Bell Marine	(916) 442-9089	Elder Creek Recovery & Transfer Station	(916) 387-8425
C & C Paper Recycling	(916) 920-2673	Kiefer Landfill	(916) 875-5555
EBI Aggregates	(916) 372-7580	L & D Landfill	(916) 383-9420
International Paper	(916) 371-4634	North Area Recovery Station	(916) 875-5555
Modern Waste Solutions	(916) 447-6800	Sacramento Recycling & Transfer Station	(916) 379-0500
PRIDE Industries, Inc.	(916) 640-1300	Waste Management Recycle America	(916) 452-0142
Recycling Industries, Inc.	(916) 452-3961		
Sacramento Local Conservation Corps	(916) 386-8394		
Smurfit-Stone Container Corporation	(916) 381-3340		
Southside Art Center	(916) 387-8080		
Spencer Building Maintenance, Inc.	(916) 922-1900		

More updated information can be found online at:
<http://www.cityofsacramento.org/utilities/>

* Please note that any facility may receive source-separated recyclable materials as long as it is authorized to do so by the State of California. This is not meant to be a complete list.

Voluntary Green Contracting Fleet Inventory List (On-Road Equipment)

In partnership with the City of Sacramento and the Sacramento Metropolitan Air Quality Management District

Green Contracting Survey (Voluntary)

The City of Sacramento and the Sacramento Metropolitan Air Quality District (SMAQMD) are conducting a joint pilot project to help meet Federal Clean Air Standards for the Sacramento region.

Attached is a Green Contracting Fleet Inventory Form. Please complete the form, remove it from the bid package and return it to SMAQMD in the postage paid envelope provided with the bid package. Please do not return the Green Contracting Fleet Inventory Form to the City of Sacramento with the bid documents or otherwise.

A limited amount of funds and other financial incentives may be available to qualified contractors participating in this joint project to assist qualified contractors with upgrading and/or replacing equipment and/or trucks.

Completing and returning the Green Contracting Fleet Inventory Form is strictly voluntary

Voluntary Green Contracting Fleet Inventory List (On-Road Equipment)

In partnership with the City of Sacramento and the Sacramento Metropolitan Air Quality Management District

Company Name:

Contact Name:

Company Address:

City, State, ZIP:

Company Phone:

City Bid Information	
Department	<input type="text"/>
Project #	<input type="text"/>
ESBE/SBE?	<input type="text"/>

Instructions:

- a) Please enter the vehicle / equipment information for each unit used in conjunction with your City of Sacramento Bid.
- b) All fields are required for both on-road heavy-duty vehicles and off-road construction equipment over 50 HP.
- c) Electronic version available at <http://www.airquality.org/ceqa/index.shtml>
For additional questions, please call (916) 874-4892
- d) 4892

Please Submit To:

Kristian Damkier, P.E.
 Sacramento Metropolitan AQMD
 777 12th St, 3rd Floor
 Sacramento, CA 95814-1908

#	VIN	License Plate	Vehicle Information			Engine Information				Annual Usage (miles)	Received Funding
			Make	Model	Year	Make	Model	Year	HP		
(ex)	1XP5AAC35RG339402	1T45678	Kenworth	T-300	2002	Cummins	ISB	2002	250	35,000	No

Voluntary Green Contracting Fleet Inventory List (On-Road Equipment)

In partnership with the City of Sacramento and the Sacramento Metropolitan Air Quality Management District

Company Name:

Contact Name:

Company Address:

City, State, ZIP:

Company Phone:

City Bid Information	
Department	<input type="text"/>
Project #	<input type="text"/>
ESBE/SBE?	<input type="text"/>

Instructions:

- a) Please enter the vehicle / equipment information for each unit used in conjunction with your City of Sacramento Bid.
- b) All fields are required for both on-road heavy-duty vehicles and off-road construction equipment over 50 HP.
Electronic version is available at <http://www.airquality.org/ceqa/index.shtml>
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For additional questions, please call (916) 874-4892
- d) 4892

Please Submit To:
Kristian Damkier, P.E. Sacramento Metropolitan AQMD 777 12th St, 3rd Floor Sacramento, CA 95814-1908

Equipment Serial Number	Equipment Information				Engine Information				Annual Usage (hours)
	Make	Model	Type	Year	Make	Model	Year	HP	
48W34456	Caterpillar	631G	Scraper	2003	Caterpillar	3408E	2003	485	1,600

ESBE REQUIREMENTS

(City Construction Contracts no Federal Funds Used)

I. ESBE PARTICIPATION REQUIREMENT

On February 9, 1999, the Sacramento City Council adopted an Emerging and Small Business Development (ESBD) program to provide enhanced opportunities for the participation of small business enterprises (SBEs) and emerging business enterprises (EBEs) in the City's contracting and procurement activities. The ESBD program establishes an annual emerging and small business enterprise (ESBE) participation goal for City contracts, and authorizes City departments to require minimum ESBE participation levels in individual contracts so that the annual ESBE participation goal can be met. Under City Code section 3.60.270, when the bid specifications for a City contract establish a minimum participation level for ESBEs, no bidder on the contract shall be considered a responsive bidder unless its bid meets the minimum ESBE participation level required by the bid specifications.

The City has established **a minimum 20% participation level for ESBEs on this contract**. Pursuant to City code Section 3.60.270, no bidder on this contract shall be considered a responsive bidder unless its bid meets or exceeds this minimum participation level.

Bidders shall submit copies of their Certification as a SBE or EBE, and the SBE or EBE Certifications for each subcontractor, supplier, or other SBE or EBE business entity listed in the bidder's sealed proposal, within two (2) working days after being requested to do so by City. Failure to submit the requested ESBE information within this time period will be grounds for finding the bid non-responsive.

II. ESBE CERTIFICATION

- A. A SBE designated in the bid must be certified as such by the State of California, Department of General Services, or by the City, prior to the time bids are received by the City.
- B. An EBE designated in the bid must be certified as such by the City prior to the time bids are received by the City.

III. DETERMINATION OF ESBE PARTICIPATION LEVEL

- A. ESBE Participation: The percent of ESBE participation shall be determined based on the dollar value of the work to be performed or supplies to be furnished by certified ESBEs designated in the bidder's Subcontractor and ESBE Participation Verification Form, relative to the total dollar amount of the bid.
- B. Participation Credit: To receive credit for participation:(1) an ESBE subcontractor must be responsible for the execution of a distinct element of the work, must possess any license or certification required for the work, and must carry its responsibility by actually performing, managing, or supervising the work without subcontracting or otherwise shifting any portion of the work to another subcontractor; and (2) an ESBE supplier must be furnishing materials, equipment,

or supplies that the supplier sells as a recurring, although not necessarily primary, part of its business, and that are necessary for performance of the work.

- C. ESBE Bidders: The dollar value listed for an ESBE bidder on the bidder's Subcontractor and ESBE Participation Verification Form shall include only the amount of work to be performed by the ESBE bidder, and shall not include any amount to be paid by the ESBE bidder for the cost of materials, equipment, or supplies.
- D. Suppliers: Credit for an ESBE supplier of materials, equipment, or supplies is counted as one hundred (100) percent of the amount paid to the supplier for the material, equipment, or supplies. To receive this credit, ESBE suppliers must be listed on the bidder's Subcontractor and ESBE Participation Verification Form.
- E. Subcontractors (including truckers): To receive credit for an ESBE subcontractor, the subcontractor must be listed on the bidder's Subcontractor and ESBE Participation Verification Form. The dollar value listed for a subcontractor on the bidder's Subcontractor and ESBE Participation Verification Form shall not include any amount to be paid to the subcontractor for the cost of materials, equipment, or supplies.
 - Truckers: Credit for an ESBE trucker is counted as one hundred (100) percent of the amount paid to the trucker for trucking services, not including any amount paid to the trucker for the cost of any materials, equipment, or supplies being transported by the trucker.

IV. ESBE REQUIREMENTS FOR CONTRACTOR

- A. ESBE Records: The Contractor shall maintain records of all subcontracts with certified ESBE subcontractors and records of materials purchased from certified ESBE suppliers for one (1) year after receiving final payment from the City. Such records shall show the name and business address of each ESBE subcontractor or supplier and the total dollar amount actually paid each ESBE subcontractor or supplier.

Not later than 30 days after completion of the work performed under the contract, a summary of these records shall be prepared, certified correct by the Contractor's authorized representative and furnished to the City. The Contractor shall provide such other information, records, reports, certifications or other documents as may be required by City, to determine compliance with any provision of the ESBD program or these specifications.

- B. Performance of ESBE Subcontractors and Suppliers: The ESBEs listed by the Contractor shall perform the work and supply the materials, equipment, and supplies for which they are listed unless the Contractor has received prior written authorization from the City to perform the work with other forces or to obtain the material, equipment, or supplies from other sources. Reasons for requesting such authorization would include:
 - 1. The listed ESBE fails to execute a written contract based upon the general terms, conditions, plans, and specifications for the project.

2. The listed ESBE becomes bankrupt or insolvent.
 3. The listed ESBE subcontractor fails to meet the bond requirements of the Contractor.
 4. The work performed or the materials/equipment/supplies provided by the listed ESBE are unsatisfactory or are not in accordance with the plans and specifications, or the listed ESBE fails to perform its contractual obligations.
 5. It would be in the best interest of the City.
- C. Subcontractor Substitution: No substitution of an ESBE subcontractor shall be made at any time without compliance with the Subletting and Subcontracting Fair Practices Act. If an ESBE subcontractor is unable to perform successfully and is to be replaced, the Contractor shall make reasonable efforts to replace the original ESBE subcontractor with another certified ESBE subcontractor. The new ESBE subcontractor must be certified at the time of substitution.
- D. Reporting and Utilization Requirements and Sanctions: Failure to provide specific information, records, reports, certifications, or any other documents required for compliance with these specifications, or failure to utilize one or more ESBEs in substantial compliance with the ESBE utilization indicated in the Contractor's bid (unless otherwise authorized by City as provided herein, or when such failure results from changes to the work approved by the City), shall be considered a breach of the contract, and a deduction may be made from the contract amount. The deduction shall be not more than ten (10) percent of the value of the work or materials/equipment/supplies that the subject ESBE(s) were listed to perform/provide in the Contractor's bid, and shall be deducted from any payment due to the Contractor. This is in addition to any deduction that may be made under any other provision of the contract, the Sacramento City Code, or State law.
- E. Hearing and Review of Division Manager Decision: Prior to making a deduction pursuant to Section IV(D), above, the City shall provide written notice of the proposed deduction to the Contractor, and the Contractor may, not later than five (5) working days after receiving such notice, provide a written request to City for a hearing to contest the proposed deduction. Upon receipt of a timely written request from the Contractor, the City shall schedule a hearing before the Division Manager (as defined in the City's Standard Specifications for Public Construction), and written notice of the date, time and location of the hearing shall be provided to the Contractor not less than five (5) working days prior to the date of the hearing. The hearing shall be conducted in the manner specified in Section 4-8 of the Standard Specifications, and the Division Manager shall prepare and forward to the Contractor a written decision as soon as practicable after the hearing. The Division Manager's decision shall be subject to review in accordance with the provisions of Section 4-9 of the Standard Specifications. Failure to request such review in compliance with the requirements set forth in Section 4-9 shall constitute acceptance of the Division Manager's decision by the Contractor.

The written notices and requests described above shall be provided by registered or certified mail (return receipt requested), by telecopy, by personal delivery, or by any

other method that provides reliable evidence of the date of receipt. Written notice provided by telecopy shall be deemed received on the date that it is transmitted and transmission is confirmed by the transmitting machine. Written notice provided by personal delivery shall be deemed received on the date of delivery.

V. DEFINITIONS

- A. Emerging Business Enterprise (EBE): The City shall certify EBEs utilizing the small business certification criteria and standards of the State of California, General Services Department, Office of Small Business and DVBE Services, that were in effect on December 1, 1998, provided that the size standard, industry by industry, shall be set at 50% of the State small business certification criteria and standards that were in effect on December 1, 1998.
- B. Small Business Enterprise (SBE): The City shall certify SBEs utilizing the current small business certification criteria and standards of the State of California, General Services Department, Office of Small Business and DVBE Services. The City will also accept State certified SBEs.
- C. The small business certification criteria and standards of the State of California, General Services Department, Office of Small Business and DVBE Services shall be used only for the purpose of determining whether a firm may receive certification as an EBE or SBE.
- D. Contractor: The sole proprietorship, partnership, limited liability company, corporation, or any other business entity entering into a contract with the City of Sacramento.
- E. Subcontractor: The sole proprietorship, partnership, limited liability company, corporation, or other business entity entering into a contract with the prime contractor to perform a portion of the work.
- F. Supplier: The sole proprietorship, partnership, limited liability company, corporation, or other business entity entering into a contract with the prime contractor to provide materials, equipment, or supplies necessary for performance of the work.

FOLLOWING FORMS TO BE FILLED OUT AND SIGNED

ONLY

IF AWARDED CONTRACT

WORKER'S COMPENSATION INSURANCE CERTIFICATION

TO THE CITY OF SACRAMENTO:

The undersigned does hereby certify that he is aware of the provisions of Section 3700 et seq. of the Labor Code which require every employer to be insured against liability for worker's compensation claims or to undertake self-insurance in accordance with the provisions of said Code, and that he/she will comply with such provisions before commencing the performance of the work on this contract.

Bidder

BY: _____

Title: _____

Address: _____

Date: _____

PLEASE READ CAREFULLY BEFORE SIGNING

To be signed by authorized corporate officer or partner or individual submitting the bid. If bidder is: (example)

1. An individual using a firm name, sign: "John Doe, and individual doing business as Blank Company".
2. An individual doing business under his own name, sign: Your name only.
3. A co-partnership, sign: "John Doe and Richard Doe, co-partners doing business as Blank Company, by, John Doe, Co-Partner".
4. A corporation, sign: "Blank Company, by John Doe, Secretary". (Or other title)

AGREEMENT
(Construction Contract Over \$25,000)

THIS AGREEMENT, dated for identification _____, 20___, is made and entered into between the CITY OF SACRAMENTO, a municipal corporation (“City”), and _____ (“Contractor”).

The City and Contractor hereby mutually agree as follows:

1. CONTRACT DOCUMENTS

The Contract Documents, sometimes also referred to as the “Contract,” consist of the following items, which are hereby incorporated by reference as if set forth in full in this Agreement:

- The Notice to Contractors
- The Proposal Form submitted by the Contractor
- The Instructions to Bidders
- The Emerging and Small Business Enterprise (ESBE) Requirements
- The Requirements for the Non-Discrimination in Employee Benefits by City Contractors Ordinance and the Declaration of Compliance
- The City’s Reference Guide for Construction Contracts
- The Addenda, if any
- This Agreement
- The Standard Specifications
- The Special Provisions
- The Plans and Technical Specifications
- The drawings and other data and all developments thereof prepared by City pursuant to the Contract
- Any modifications of any of the foregoing made or approved by City, including but not limited to duly authorized change orders.

Unless specifically noted otherwise, references to the “Standard Specifications” shall mean and refer to the Standard Specifications for Public Construction of the City of Sacramento approved by the Sacramento City Council on June 4, 2007 (Resolution No. 2007-350), and any subsequent amendments thereto approved by the Sacramento City Council or the Sacramento City Manager. Work called for in any one Contract Document and not mentioned in another is to be performed and executed as if mentioned in all Contract Documents. The table of contents, titles and headings contained in the Contract Documents are provided solely to facilitate reference to various provisions of the Contract Documents and in no way affect or limit the interpretation of the provisions to which they refer.

2. DEFINITIONS

Unless otherwise specifically provided herein, all words and phrases defined in the Standard Specifications shall have the same meaning and intent in this Agreement.

3. AGREEMENT CONTROLS

In the event of a conflict between any of the terms and conditions set forth in this Agreement and the terms and conditions set forth in other Contract Documents, the terms and conditions set forth in this Agreement shall prevail, except that the provisions of any duly authorized change order shall prevail over any conflicting provisions of this Agreement.

4. SCOPE OF CONTRACT

Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, material and transportation necessary to perform and complete in a good and workmanlike manner to the satisfaction of City, all the Work called for in the Contract Documents entitled:

SHASTA PARK WELL PROJECT (PN: Z14005400)

including the Work called for in the following alternative bid items described in the Proposal Form:

Contractor agrees to perform such Work in the manner designated in and in strict conformity with the Contract Documents.

5. CONTRACT AMOUNT AND PAYMENTS

City agrees to pay and Contractor agrees to accept, as complete payment for the above Work, in accordance with the schedule and procedures set forth in the Contract Documents and subject to deductions, withholdings and additions as specified in the Contract Documents, a total sum that shall not exceed the total bid amount set forth in Contractor's Proposal Form. In addition, subject to deductions, withholdings and additions as specified in the Contract Documents, payment for individual items of the Work shall be computed as follows:

(A) For items of the Work for which a lump sum price is specified in Contractor's Proposal Form, Contractor shall be paid the lump sum price(s) specified in Contractor's Proposal Form; and

(B) For items of the Work for which a unit price is specified in Contractor's Proposal Form, Contractor shall be paid the sum computed at such unit price, or computed at a different price if such different price is determined by City in accordance with the Standard Specifications, based on the actual amount of each such item performed and/or furnished and incorporated in the Work; provided that in no event shall the total sum for a unit price item exceed the total bid amount set forth for such item in the Contractor's Proposal Form, unless authorized by Change Order.

6. PROGRESS PAYMENTS

Subject to the terms and conditions of the Contract, City shall cause payments to be made upon demand of Contractor as follows:

(A) On or about the first of the month, the Engineer shall present to the Contractor a statement showing the amount of labor and materials incorporated in the Work through the twentieth (20) calendar day of the preceding month. After both Contractor and Engineer approve the statement in writing, and the City's labor compliance officer provides written approval, the City shall issue a certificate for ninety-five (95) percent of the amount it shall find to be due, subject to any deductions or withholdings authorized or required under the Contract or any applicable Laws or Regulations.

(B) No inaccuracy or error in said monthly estimates shall operate to release Contractor from damages arising from such Work or from enforcement of each and every provision of the Contract Documents, and City shall have the right subsequently to correct any error made in any estimate for payment.

(C) Contractor shall not be paid for any defective or improper Work.

(D) The remaining five (5) percent of the value of the Work performed under the Contract, if unencumbered and subject to any deductions or withholdings authorized or required under the Contract or any applicable Laws or Regulations, shall be released not later than sixty (60) days after completion and final acceptance of the Work by City. Acceptance by Contractor of the final

payment shall constitute a waiver of all claims against the City arising under the Contract Documents, except for disputed claims in stated amounts that the Contractor specifically reserves in writing, but only to the extent that the Contractor has complied with all procedures and requirements applicable to the presentation and processing of such claim(s) under the Contract Documents. Contractor shall be entitled to substitute securities for retention or to direct that payments of retention be made into escrow, as provided in Public Contract Code Section 22300, upon execution of the City's Escrow Agreement for Security Deposits in Lieu of Retention.

(E) The parties agree that, for purposes of the timely progress payment requirements specified in Public Contract Code Section 20104.50, the date that the City receives a statement jointly approved by the Contractor and the Engineer as provided above shall be deemed to constitute the date that City receives an undisputed and properly submitted payment request from the Contractor. Progress payments not made within 30 days after this date may be subject to payment of interest as provided in Public Contract Code Section 20104.50.

7. RETENTION OF SUMS CHARGED AGAINST CONTRACTOR

When, under the provisions of this Contract or any applicable Laws or Regulations, City is authorized or required to withhold, deduct or charge any sum of money against Contractor, City may deduct and retain the amount of such charge from the amount of the next succeeding progress estimate(s), or from any other moneys due or that may become due Contractor from City. If, on completion or termination of the Contract, sums due Contractor are insufficient to pay City's charges, City shall have the right to recover the balance from Contractor or its Sureties.

8. COMMENCEMENT AND PROSECUTION OF WORK

Contractor shall commence the Work not later than fifteen (15) working days after the date of the written Notice to Proceed from City to Contractor and shall diligently prosecute the Work to final completion. The phrase "commence the Work" means to engage in a continuous program on-site including, but not limited to, site clearance, grading, dredging, land filling and the fabrications, erection, or installation of the Work. The Notice to Proceed shall be issued within fifteen (15) calendar days following execution of the Agreement by the City and the filing by Contractor of the required Bonds and proof of insurance, provided that the Engineer may delay issuance of the Notice to Proceed if the Engineer determines in the Engineer's sole discretion that conditions on the site of the Work are unsuitable for commencement of the Work. After the Notice to Proceed is issued, the continuous prosecution of Work by Contractor shall be subject only to Excusable Delays as defined in this Agreement.

9. TIME OF COMPLETION

The entire Work shall be brought to completion in the manner provided for in the Contract Documents on or before ninety (90) working days from the date of the Notice to Proceed (hereinafter called the "Completion Date") unless extensions of time are granted in accordance with the Contract Documents.

Failure to complete the entire Work by the Completion Date and in the manner provided for in the Contract Documents shall subject Contractor to liquidated damages as provided in this Agreement. Time is and shall be of the essence in the performance of the Contract and the Work.

10. PAYMENTS DO NOT IMPLY ACCEPTANCE OF WORK

The payment of any progress payment, or the acceptance thereof by Contractor, shall not constitute acceptance of the Work or any portion thereof and shall in no way reduce the liability of Contractor to replace unsatisfactory work or material, whether or not the unsatisfactory character of such work or material was apparent or detected at the time such payment was made.

11. ACCEPTANCE NOT RELEASE

Contractor shall correct immediately any defective or imperfect work or materials that may be discovered before final acceptance of the entire Work, whether or not such defect or imperfection was previously noticed or identified by the City. The inspection of the Work, or any part thereof, shall not relieve Contractor of any of its obligations to perform satisfactory work as herein specified.

Failure or neglect on the part of City or any of its officers, employees or authorized agents to discover, identify, condemn or reject defective or imperfect work or materials shall not be construed to imply an acceptance of such work or materials, if such defect or imperfection becomes evident at any time prior to final acceptance of the entire Work, nor shall such failure or neglect be construed as barring City from enforcing Contractor's warranty(ies) or otherwise recovering damages or such a sum of money as may be required to repair or rebuild the defective or imperfect work or materials whenever City may discover the same, subject only to any statutes of limitation that may apply to any such claim.

12. CITY'S RIGHT TO TAKE POSSESSION OF THE WORK IN WHOLE OR IN PART

The City shall have the right at any time to enter upon the Work and perform work not covered by this Contract, or to occupy and use a portion of the Work, prior to the date of the final acceptance of the Work as a whole, without in any way relieving Contractor of any obligations under this Contract.

13. NO WAIVER OF REMEDIES

Neither the inspection by City, its officers, employees or agents, nor any certificate or other approval for the payment of money, nor any payment for, nor acceptance of the whole or any part of the Work by City, nor any extensions of time, nor any position taken by City, its officers, employees or its agents shall operate as a waiver of any provision of the Contract Documents nor of any power herein reserved to City or any right to damages herein provided, nor shall any waiver of any breach of this Agreement be held to be a waiver of any other or subsequent breach. All remedies provided in the Contract Documents shall be taken and construed as cumulative; in addition to each and every other remedy herein provided, the City shall have any and all equitable and legal remedies that it would in any case have.

14. WARRANTY

Except as otherwise expressly provided in the Contract Documents, and excepting only items of routine maintenance, ordinary wear and tear and unusual abuse or neglect by City, Contractor warrants and guarantees all Work executed and all supplies, materials and devices of whatsoever nature incorporated in or attached to the Work, or otherwise provided as a part of the Work pursuant to the Contract, to be absolutely free of all defects of workmanship and materials for a period of one year after final acceptance of the entire Work by the City. Contractor shall repair or replace all work or material, together with any other work or material that may be displaced or damaged in so doing, that may prove defective in workmanship or material within this one year warranty period without expense or charge of any nature whatsoever to City.

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

In addition to the above, the Contractor shall make a written assignment of all manufacturer's and other product warranties to the City, prior to completion and final acceptance of the Work by City.

The Contractor's Performance Bond shall secure the performance of the Contractor's obligations under this Section 14, and the Contractor and its Surety shall be jointly and severally liable for these obligations.

15. LIQUIDATED DAMAGES IF WORK NOT COMPLETED ON TIME

(A) The actual fact of the occurrence of damages and the actual amount of the damages that City would suffer if the entire Work, and/or any specified portion thereof, were not completed within the time(s) specified herein are dependent upon many circumstances and conditions that could prevail in various combinations, and for this reason, it is impracticable and extremely difficult to fix the actual damages. Damages that City would suffer in the event of such delay include: loss of the use of the project; expenses of prolonged assignment to the project of an architectural and/or engineering staff; prolonged costs of administration, inspection, and supervision; increased operational expenses and/or impaired operation of other facilities dependent upon completion of the project; and the loss and inconvenience suffered by the public within the City of Sacramento by reason of the delay in the completion of the project or portion thereof. Accordingly, the parties agree, and by execution of this Agreement, Contractor acknowledges that it understands and agrees, that the amount(s) set forth herein as liquidated damages reflect the parties' best efforts at the time of entering into the Contract to estimate the damages that may be incurred by City and the public due to the Contractor's delay in completion of the Work and/or any specified portion thereof, and shall be presumed to be the amount of damages sustained by the failure of Contractor to complete the entire Work and/or any specified portion thereof within the time(s) specified herein.

(B) Contractor shall pay liquidated damages to City for failure to complete the entire Work by the Completion Date (as extended in accordance with the Contract Documents, if applicable) in the amount of **five hundred dollars (\$500.00) for each calendar day** after the Completion Date (as extended in accordance with the Contract Documents, if applicable), continuing to the time at which the entire Work is completed. Such amount is the actual cash value agreed upon by the City and Contractor as the loss to City and the public resulting from Contractor's default.

The parties agree, and by execution of this Agreement, Contractor acknowledges that it understands and agrees, that the foregoing provisions provide for the imposition of liquidated damages from the Completion Date (as extended in accordance with the Contract Documents, if applicable) until the date of completion of the entire Work as determined by the Engineer in accordance with Section 8-4 of the Standard Specifications, whether or not the Work or any portion thereof is claimed or determined to be substantially complete prior to such date of completion.

(C) In the event Contractor shall become liable for liquidated damages, City, in addition to all other remedies provided by law, shall have the right to withhold any and all payments that otherwise would be or become due Contractor until the liability of Contractor under this section is finally determined. City shall have the right to use and apply such payments, in whole or in part, to reimburse City for all liquidated damages due or to become due to City. Any remaining balance of such payments shall be paid to Contractor only after discharge in full of all liability incurred by Contractor under this section or otherwise under any provision of the Contract Documents or any applicable Law or Regulation. If the sum so retained by City is not sufficient to discharge all such liabilities of Contractor, Contractor shall continue to remain liable to City until all such liabilities are satisfied in full. No failure by City to withhold any payment as specified above shall in any manner be construed to constitute a release of any such liabilities nor a waiver of the City's right to withhold payment for such liabilities.

16. INDEMNITY AND HOLD HARMLESS

(A) Contractor shall defend, hold harmless and indemnify the City, its officers, employees, and agents, and each and every one of them, from and against any and all actions, damages, costs, liabilities, claims, demands, losses, judgments, penalties, costs and expenses of every type and description, whether arising on or off the site of the Work, including, but not limited to, any fees and/or costs reasonably incurred by City's staff attorneys or outside attorneys and any fees and expenses incurred in enforcing this provision (hereafter collectively referred to as "Liabilities"), including but not limited to Liabilities arising from personal injury or death, damage to personal, real or intellectual property or the environment, contractual or other economic damages, or regulatory penalties, arising out of or in any way connected with performance of or failure to perform the Work by the Contractor, any subcontractor or agent, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, whether or not (i) such Liabilities are caused in part by a party indemnified hereunder, or (ii) such Liabilities are litigated, settled or reduced to judgment; provided that the foregoing indemnity does not apply to liability for damages for death or bodily injury to persons, injury to property, or other loss, damage or expense to the extent arising from (i) the sole negligence or willful misconduct of, or defects in design furnished by, City, its agents, servants, or independent contractors who are directly responsible to City, or (ii) the active negligence of City.

(B) The existence or acceptance by City of any of the insurance policies or coverages described in this Agreement shall not affect or limit any of City's rights under this Section 16, nor shall the limits of such insurance limit the liability of Contractor hereunder. The provisions of this Section 16 shall survive any expiration or termination of the Contract.

17. CONTRACTOR SHALL ASSUME RISKS

Until the completion and final acceptance by City of all Work under this Contract, the Work shall be under Contractor's responsible care and charge, and Contractor, at no cost to City, shall rebuild, repair, restore and make good all injuries, damages, re-erectations, and repairs occasioned or rendered necessary by accidental causes of any nature, to all or any portions of the Work.

18. GENERAL LIABILITY OF CONTRACTOR

Except as otherwise herein expressly stipulated, Contractor shall perform all the Work and furnish all the labor, materials, tools, equipment, apparatus, facilities, transportation, power and light, and appliances, necessary or proper for performing and completing the Work herein required in the manner and within the time herein specified. The mention of any specific duty or liability of Contractor shall not be construed as a limitation or restriction of any general liability or duty of Contractor, and any reference to any specific duty or liability shall be construed to be solely for the purpose of explanation.

19. INSURANCE

During the entire term of this Contract and until completion and final acceptance of the Work as provided in the Contract Documents, Contractor shall maintain in full force and effect the insurance coverage described in this section.

Full compensation for all premiums that Contractor is required to pay for the insurance coverage described herein shall be included in the compensation specified for performance of the Work under the Contract. No additional compensation will be provided for Contractor's insurance premiums.

It is understood and agreed by the Contractor that its liability to the City shall not in any way be limited to or affected by the amount of insurance coverage required of or carried by the Contractor.

(A) Minimum Scope and Limits of Insurance Coverage

(1) Commercial General Liability Insurance, providing coverage at least as broad as ISO CGL Form 00 01 on an occurrence basis for bodily injury, including death, of one or more persons, property damage and personal injury, with limits of not less than one million dollars (\$1,000,000) per occurrence. The policy shall provide contractual liability and products and completed operations coverage for the term of the policy.

(2) Automobile Liability Insurance providing coverage at least as broad as ISO Form CA 00 01 on an occurrence basis for bodily injury, including death, of one or more persons, property damage and personal injury, with limits of not less than one million dollars (\$1,000,000) per occurrence. The policy shall provide coverage for owned, non-owned and/or hired autos as appropriate to the operations of the Contractor.

(3) Workers' Compensation Insurance with statutory limits, and Employers' Liability Insurance with limits of not less than one million dollars (\$1,000,000). The Worker's Compensation policy shall include a waiver of subrogation.

(B) Additional Insured Coverage

(1) Commercial General Liability Insurance: The City, its officials, employees and volunteers shall be covered by policy terms or endorsement as additional insureds as respects general liability arising out of activities performed by or on behalf of Contractor, products and completed operations of Contractor, and premises owned, leased or used by Contractor. The general liability additional insured endorsement must be signed by an authorized representative of the insurance carrier.

If the policy includes a blanket additional insured endorsement or contractual additional insured coverage, the above signature requirement may be fulfilled by submitting that document with a signed declaration page referencing the blanket endorsement or policy form.

(2) Automobile Liability Insurance: The City, its officials, employees and volunteers shall be covered by policy terms or endorsement as additional insureds as respects auto liability.

(C) Other Insurance Provisions

The policies are to contain, or be endorsed to contain, the following provisions:

(1) Contractor's insurance coverage shall be primary insurance as respects City, its officials, employees and volunteers. Any insurance or self-insurance maintained by City, its officials, employees or volunteers shall be in excess of Contractor's insurance and shall not contribute with it.

(2) Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City, its officials, employees or volunteers.

(3) Coverage shall state that Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(4) City will be provided with thirty (30) days written notice of cancellation or material change in the policy language or terms.

(D) Acceptability of Insurance

Insurance shall be placed with insurers with a Bests' rating of not less than A:V. Self-insured retentions, policy terms or other variations that do not comply with the requirements of this Section 19 must be declared to and approved by the City Risk Management Division in writing prior to execution of this Agreement.

(E) Verification of Coverage

(1) Contractor shall furnish City with certificates and required endorsements evidencing the insurance required. The certificates and endorsements shall be forwarded to the City representative designated by City. Copies of policies shall be delivered to the City on demand. Certificates of insurance shall be signed by an authorized representative of the insurance carrier.

(2) The City may withdraw its offer of contract or cancel the Contract if the certificates of insurance and endorsements required have not been provided prior to execution of this Agreement. The City may withhold payments to Contractor and/or cancel the Contract if the insurance is canceled or Contractor otherwise ceases to be insured as required herein.

(F) Subcontractors

Contractor shall require and verify that all subcontractors maintain insurance coverage that meets the minimum scope and limits of insurance coverage specified in subsection A, above.

20. FAILURE TO MAINTAIN BONDS OR INSURANCE

If, at any time during the performance of this Contract, Contractor fails to maintain any item of the bonds and/or insurance required under the Contract in full force and effect, Contractor shall immediately suspend all work under the Contract and notify City in writing of such failure. After such notice is provided, or if City discovers such failure and notifies Contractor, the City thereafter may withhold all Contract payments due or that become due until notice is received by City that such bonds and/or insurance have been restored in full force and effect and that the premiums therefor have been paid for a period satisfactory to the Division of Risk Management. Contractor shall not resume work until notified by City to do so, and the City shall have no responsibility or liability for any costs incurred by Contractor as a result of such suspension of Work.

In addition to the foregoing, any failure to maintain any item of the required bonds and/or insurance at any time during the performance of this Contract will be sufficient cause for termination of the Contract by City.

The Contractor shall be solely responsible for, and shall defend, indemnify and hold harmless the City, its officers, employees and agents against and from, any and all damages, claims, losses, actions, costs or other expenses of any kind incurred by any party as a direct or indirect result of any suspension of Work or termination of the Contract under the provisions of this Section.

21. EXCUSABLE DELAYS

For the purpose of these Contract Documents, the term "Excusable Delay" shall mean, and is limited to, delay caused directly by: acts of God; acts of a public enemy; fires; inclement weather as determined by the Engineer; riots; insurrections; epidemics; quarantine restrictions; strikes; lockouts; sitdowns; acts of a governmental agency; priorities or privileges established for the manufacture, assemble, or allotment of materials necessary in the Work by order, decree or otherwise of the United States or by any department, bureau, commission, committee, agent, or administrator of any legally constituted public authority; changes in the Work ordered by City insofar as they necessarily require additional time in which to complete the Work; the prevention of Contractor from commencing or

prosecuting the Work because of the acts of others, excepting Contractor's subcontractors or suppliers; or the prevention of Contractor from commencing or prosecuting the Work because of a Citywide failure of public utility service.

The term "Excusable Delay" shall specifically not include: (i) any delay that could have been avoided by the exercise of care, prudence, foresight and diligence on the part of Contractor; (ii) any delay in the prosecution of any part of the Work that does not constitute a Controlling Operation, whether or not such delay is unavoidable; (iii) any reasonable delay resulting from time required by City for review of any Contractor submittals and for the making of surveys, measurements and inspection; and, (iv) any delay arising from an interruption in the prosecution of the Work on account of reasonable interference by other Contractors employed by City that does not necessarily prevent the completion of the entire Work within the time specified. Excusable Delays, if any, shall operate only to extend the Completion Date (not in excess of the period of such delay as determined by City) and shall not under any circumstances increase the amount City is required to pay Contractor except as otherwise provided in these Contract Documents.

22. CONTRACTOR TO SERVE NOTICE OF DELAYS

Whenever Contractor foresees any delay in the prosecution of the Work, and in any event as soon as possible (not to exceed a period of ten (10) calendar days) after the initial occurrence of any delay that Contractor regards as or may later claim to be an Excusable Delay, the Contractor shall notify the Engineer in writing of such delay and its cause, in order that the Engineer: (i) may take immediate steps to prevent if possible the occurrence or continuance of the delay; or (ii) if this cannot be done, may determine whether the delay is to be considered excusable, how long it continues, and to what extent the prosecution and completion of the Work are delayed thereby. Said written notice shall constitute an application for an extension of time only if the notice requests such an extension and sets forth the Contractor's estimate of the additional time required together with a full description of the cause of the delay relied upon.

After the completion of any part or whole of the Work, the Engineer, in estimating the amount due Contractor, will assume that any and all delays that may have occurred in its prosecution and completion were not Excusable Delays, except for such delays for which the Contractor has provided timely written notice as required herein, and that the Engineer has found to be excusable. Contractor shall not be entitled to claim Excusable Delay for any delay for which the Contractor failed to provide such timely written notice.

23. EXTENSION OF TIME

If the Contractor complies with Section 22, above, and the Engineer finds a delay claimed by the Contractor to be an Excusable Delay, the Contractor shall be allowed an extension of time to complete the Work that is proportional to the period of Excusable Delay determined by the Engineer, subject to the approval by City of a change order granting such time extension. During a duly authorized extension for an Excusable Delay, City shall not charge liquidated damages against the Contractor for such delay.

If the City extends the time to complete the Work as provided herein, such extension shall in no way release any warranty or guarantee given by Contractor pursuant to the provisions of the Contract Documents, nor shall such extension of time relieve or release the sureties of the Bonds provided pursuant to the Contract Documents. By executing such Bonds, the Sureties shall be deemed to have expressly agreed to any such extension of time. The granting of any extension of time as provided herein shall in no way operate as a waiver on the part of City of its rights under this Contract, excepting only extension of the Completion Date for such period of Excusable Delay as may be determined by the Engineer and approved by a duly authorized change order.

24. NO PAYMENT FOR DELAYS

No damages or compensation of any kind shall be paid to Contractor or any subcontractor because of delays in the progress of the Work whether or not such delays qualify for extension of time under this Agreement; except that this provision shall not preclude the recovery of damages for a delay caused by the City that is unreasonable under the circumstances and that is not within the contemplation of the parties, provided that the Contractor timely submits all such written notice(s) and fully complies with such other procedures as may be specified in the Contract Documents or any Laws or Regulations for Contractor to claim damages for such delay.

25. CHANGES IN THE WORK

Changes in the Work authorized or directed in accordance with the Contract Documents and extensions of time of completion made necessary by reason thereof shall not in any way release any warranty or guarantee given by Contractor pursuant to the provisions of the Contract Documents, nor shall such changes in the Work relieve or release the Sureties on Bonds provided pursuant to the Contract Documents. By executing such Bonds, the Sureties shall be deemed to have expressly agreed to any such change in Work and to any extension of time made by reason thereof.

26. TERMINATION AFTER COMPLETION DATE

In addition to any other rights City may have, if any services or work required under the Contract (including but not limited to punch list items) are not completed as of the Completion Date (as adjusted by any extensions of time for Excusable Delays granted pursuant to the Contract Documents), City may terminate the Contract at any time after the Completion Date (as adjusted by any extensions of time for Excusable Delays granted pursuant to the Contract Documents), by providing a written notice to Contractor specifying the date of termination. Such notice also may specify conditions or requirements that Contractor must meet to avoid termination of the Contract on such date. If Contractor fails to fulfill all such conditions and requirements by such termination date, or, if no such conditions or requirements are specified, Contractor shall cease rendering services and performing work on such termination date, and shall not be entitled to receive any compensation for services rendered or work performed after such termination date. In the event of such termination, Contractor shall remain liable to City for liquidated damages incurred for any period of time prior to the termination date.

In addition to any other charges, withholdings or deductions authorized under the Contract or any Laws or Regulations, if City terminates the Contract pursuant to this section, City may withhold and deduct from any payment and/or retention funds otherwise due Contractor any sum necessary to pay the City's cost of completing or correcting, or contracting for the completion or correction of, any services or work under the Contract that are not completed to the satisfaction of the City or that otherwise are deficient or require correction as of such termination date, including but not limited to incomplete punch list items. Such costs shall include all of the City's direct and indirect costs incurred to complete or correct such services or work, including the City's administrative and overhead costs. If the amount of payment(s) and/or retention funds otherwise due the Contractor are insufficient to pay such costs, City shall have the right to recover the balance of such costs from the Contractor and/or its Surety(ies).

27. TERMINATION FOR CONVENIENCE

Upon written notice to the Contractor, the City may at any time, without cause and without prejudice to any other right or remedy of the City, elect to terminate the Contract for the convenience of City. In such case, the Contractor shall be paid (without duplication of any items, and after deduction and/or withholding of any amounts authorized to be deducted or withheld by the Contract Documents or any Laws or Regulations):

(A) For Work executed in accordance with the Contract Documents prior to the effective date of termination and determined to be acceptable by the Engineer, including fair and reasonable sums for overhead and profit on such Work;

(B) For reasonable claims, costs, losses, and damages incurred in settlement of terminated contracts with subcontractors, suppliers, and others; and

(C) For reasonable expenses directly attributable to termination.

Contractor shall not be paid for any loss of anticipated profits or revenue for any Work not performed prior to termination, nor for any economic loss arising out of or resulting from such termination, except for the payments listed in this section. Contractor's warranty under Section 14 of this Agreement shall apply, and Contractor shall remain responsible for all obligations related to such warranty, with respect to all portions of the Work performed prior to the effective date of the termination for convenience pursuant to this section. The City shall be entitled to have any or all remaining Work performed by other contractors or by any other means at any time after the effective date of a termination for convenience pursuant to this section.

28. TERMINATION FOR BREACH OF CONTRACT

If Contractor abandons the Work under this Contract, or if the Contract or any portion of the Contract is sublet or assigned without the consent of the City, or if the Engineer determines in the Engineer's sole discretion that the conditions of the Contract in respect to the rate of progress of the Work are not being fulfilled or any part thereof is unnecessarily delayed, or if Contractor violates or breaches, or fails to execute in good faith, any of the terms or conditions of the Contract, or if Contractor refuses or fails to supply enough properly skilled labor or materials or refuses or fails to make prompt payment to subcontractors for material or labor, or if Contractor disregards any Laws or Regulations or proper instruction or orders of the Engineer, then, notwithstanding any provision to the contrary herein, the City may give Contractor and its Sureties written notification to immediately correct the situation or the Contract shall be terminated.

In the event that such notice is given, and, in the event such situation is not corrected, or arrangements for correction satisfactory to the City are not made, within ten (10) calendar days from the date of such notice or within such other period of time as may be specified by the City in the notice, the Contract shall upon the expiration of said period cease and terminate. In the event of any such termination, City may take over the Work and prosecute the Work to completion, or otherwise, and the Contractor and its Sureties shall be liable to City for any cost occasioned City thereby, as hereinafter set forth.

In the event City completes the Work, or causes the Work to be completed, no payment of any kind shall be made to Contractor until the Work is complete. The cost of completing the Work, including but not limited to, extra costs of project administration and management incurred by City, both direct or indirect, shall be deducted from any sum then due, or that becomes due, to Contractor from City. If sums due to Contractor from City are less than the cost of completing the Work, Contractor and its Sureties shall pay City a sum equal to this difference on demand. In the event City completes the Work, and there is a sum remaining due to Contractor after City deducts the costs of completing the Work, then City shall pay such sum to Contractor. The Contractor and Contractor's Sureties shall be jointly and severally liable for all obligations imposed on Contractor hereunder.

No act by City before the Work is finally accepted, including, but not limited to, exercise of other rights under the Contract, actions at law or in equity, extensions of time, payments, assessments of liquidated damages, occupation or acceptance of any part of the Work, waiver of any prior breach of the Contract or failure to take action pursuant to this section upon the happening of any prior default or breach of Contractor, shall be construed to be a waiver or estoppel of the City's right to act pursuant to this Section upon any subsequent event, occurrence or failure by Contractor to fulfill the terms and conditions of the Contract. The rights of City to terminate the Contract pursuant to this Section and pursuant to Sections 26 and 27 are cumulative and are in addition to all other rights of City pursuant to the Contract and at law or in equity.

29. CONTRACTOR BANKRUPT

If Contractor should commence any bankruptcy proceeding, or if Contractor is adjudged a bankrupt, or if Contractor makes any assignment for the benefit of creditors, or if a receiver is appointed on account of Contractor's insolvency, then the City may, without prejudice to any other right or remedy, terminate the Contract and complete the work by giving notice as provided in Section 28 above.

30. SURETIES' OBLIGATIONS UPON TERMINATION

If the City terminates the Contract pursuant to Section 28 or Section 29 above:

(A) The Surety under Contractor's performance bond shall be fully responsible for all of the Contractor's remaining obligations of performance under the Contract as if the Surety were a party to the Contract, including without limitation Contractor's obligations, as provided in the Contract Documents, to complete and provide a one-year warranty of the entire Work, pay liquidated damages and indemnify, defend and hold harmless City, up to the full amount of the performance bond.

(B) The Surety under Contractor's payment bond shall be fully responsible for the performance of all of the Contractor's remaining payment obligations for work, services, equipment or materials performed or provided in connection with the Work or any portion thereof, up to the full amount of the payment bond.

31. ACCOUNTING RECORDS OF CONTRACTOR

During performance of the Contract and for a period of three (3) years after completing the entire Work, Contractor shall maintain all accounting and financial records related to the Contract and performance of the Work in accordance with generally accepted accounting practices, and shall keep and make such records available for inspection and audit by representatives of the City upon reasonable written notice.

32. USE TAX REQUIREMENTS

During the performance of this Agreement, CONTRACTOR, for itself, its assignees and successors in interest, agrees as follows:

(A) Use Tax Direct Payment Permit: For all leases and purchases of materials, equipment, supplies, or other tangible personal property used to perform the Agreement and shipped from outside California, the Contractor and any subcontractors leasing or purchasing such materials, equipment, supplies or other tangible personal property shall obtain a Use Tax Direct Payment Permit from the California State Board of Equalization ("SBE") in accordance with the applicable SBE criteria and requirements.

(B) Sellers Permit: For any construction contract and any construction subcontract in the amount of \$5,000,000 or more, Contractor and the subcontractor(s) shall obtain sellers permits from the SBE and shall register the jobsite as the place of business for the purpose of allocating local sales and use tax to the City. Contractor and its subcontractors shall remit the self-accrued use tax to the SBE, and shall provide a copy of each remittance to the City.

(C) The above provisions shall apply in all instances unless prohibited by the funding source for the Agreement.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement on the date set for opposite their names.

CONTRACTOR

Under penalty of perjury, I certify that the taxpayer identification number and all other information provided here are correct.

DATE _____

BY _____

Print Name

Title

BY _____

Print Name

Title

Federal ID#

State ID#

City of Sacramento Business Operation Tax Certificate No. (City will not award contract until Certificate Number is obtained)

Type of Business Entity (*check one*):

- _____ Individual/Sole Proprietor
- _____ Partnership
- _____ Corporation
- _____ Limited Liability Company
- _____ Other (*please specify:* _____)

CITY OF SACRAMENTO
a municipal corporation

DATE _____

BY _____

For: John F. Shirey, City Manager

Original Approved As To Form:

Attest:

City Attorney

City Clerk

CITY OF SACRAMENTO
PERFORMANCE BOND
Department of Utilities

Bond #: _____
Premium: _____
Page 1 of 1

WHEREAS, the City of Sacramento, in the State of California, hereinafter called City has conditionally awarded to *(here insert full name and address of Contractor)*:

as principal, hereinafter called Contractor, an agreement for construction of:

SHASTA PARK WELL PROJECT
(PN: Z14005400) (B14141321006)

in accordance with the plans, specifications, drawings, conditions, and project manual prepared therefore, which agreement is by reference made a part hereof, and is hereinafter referred to as the Contract; and

WHEREAS, under the terms of the Contract, Contractor is required to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, we the Contractor and *(here insert full name and address of Surety)*:

_____, a corporation duly authorized and admitted to transact business and issue surety bonds in the State of California, hereinafter called Surety, are held and firmly bound unto the City, as obligee, in the sum of _____ DOLLARS \$ _____), for the payment of which sum well and truly to be made, we the Contractor and Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally. The condition of this obligation is such that, if the Contractor, Contractor's heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and fully perform all covenants, conditions and agreements required to be kept and performed by Contractor in the Contract and any changes, additions or alterations made thereto, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meanings, and shall indemnify and save harmless the City, its officers, employees and agents, as therein provided, then this obligation shall be null and void; otherwise shall be and remain in full force and effect. This obligation shall remain in full force and effect until (1) the date that the Contractor no longer has any remaining obligation of performance under the Contract, or (2) the date that is one year after the date that the work to be performed under the Contract is accepted as complete by the City, whichever occurs later.

As part of the obligation secured hereby and in addition to the sum specified above, there shall be included all costs, expenses and fees, including attorney's fees, reasonably incurred by City in successfully enforcing such obligation, all to be taxed as costs and included in any judgement rendered.

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

IN WITNESS WHEREOF, this instrument has been duly executed by authorized representatives of the Contractor and Surety.
SIGNED AND SEALED on _____, 2013.

(Contractor) (Seal)

By _____

Title _____

ORIGINAL APPROVED AS TO FORM:

City Attorney

(Surety) (Seal)

By _____

Title _____

Agent Name and Address _____

Agent Phone # _____

Surety Phone # _____

California License # _____

Surety Email: _____

CITY OF SACRAMENTO
PAYMENT BOND
Department of Utilities

Bond No: _____
Premium: _____

WHEREAS, the City of Sacramento, in the State of California, hereinafter called City, has conditionally awarded to:

hereinafter called Contractor, a contract for construction of:

SHASTA PARK WELL PROJECT
(PN: Z14005400) (B14141321006)

Which contract is by reference incorporated herein and made a part hereof, and is hereinafter referred to as the Contract; and

WHEREAS, under the terms of the Contract and pursuant to Chapter 5 of Title 3 of Part 6 of Division 4 of the California Civil Code (commencing with Civil Code Section 9550), Contractor is required to furnish a good and sufficient payment bond to secure payment of the claims to which reference is made in Civil Code Section 9554.

NOW, THEREFORE, we the Contractor and (*here insert full name and address of Surety*):

_____, a corporation a corporation duly authorized and admitted to transact business and issue surety bonds in the State of California, hereinafter called Surety, are held and firmly bound unto the City, and unto all persons or entities entitled to assert a claim against a payment bond under any of the aforesaid Civil Code provisions in the sum of _____ DOLLARS (\$_____), on the condition that if Contractor shall fail to pay for any materials or equipment furnished or used in performance of the Contract, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board or the Employment Development Department from the wages of employees of the Contractor and all subcontractors with respect to such work or labor, then the Surety shall pay the same in an amount not exceeding the sum specified above. If suit is brought upon this bond, Surety shall pay, in addition to the above sum, all costs, expenses and fees, including attorney's fees, reasonably incurred by any party in successfully enforcing the obligation secured hereby, all to be taxed as costs and included in any judgment rendered. Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect, and shall bind Contractor, Surety, their heirs, executors, administrators, successors and assigns, jointly and severally.

It is hereby stipulated and agreed that this bond shall inure to the benefit of all persons, companies, corporations, political subdivisions, State agencies and other entities entitled to assert a claim against a payment bond under any of the aforesaid Civil Code provisions, so as to give a right of action to them or their assigns in any suit brought upon this bond. The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by authorized representatives of the Contractor and Surety.
SIGNED AND SEALED on _____ 2013.

(Contractor) (Seal)
By _____
Title _____

(Surety) (Seal)
By _____
Title _____
Agent Name and Address _____

ORIGINAL APPROVED AS TO FORM:

City Attorney

Agent Phone # _____
Surety Phone # _____
California License # _____
Surety Email: _____

CALIFORNIA LABOR CODE RELATING TO APPRENTICES ON PUBLIC WORKS PROJECTS

See following links: www.dir.ca.gov and/or www.leginfo.ca.gov

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ <input type="checkbox"/> Other (see instructions) ▶ _____	
	<input type="checkbox"/> Exempt payee	
	Address (number, street, and apt. or suite no.)	Requestor's name and address (optional)
City, state, and ZIP code		
List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number										
				-			-			
Employer identification number										
				-						

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶	Date ▶

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

2013 Withholding Exemption Certificate**590**

This form can only be used to certify exemption from nonresident withholding under California Revenue and Taxation Code (R&TC) Section 18662. Do not use this form for exemption from wage withholding.

File this form with your withholding agent. (Please type or print)

Withholding agent's name _____

Payee's name _____

Payee's

SSN or ITIN

FEIN

CA corp. no.

CA SOS file no.

Address (number and street, PO Box, or PMB no.) _____

Apt. no./ Ste. no. _____

City _____

State _____

ZIP Code _____

Read the following carefully and check the box that applies to the payee.

I certify that for the reasons checked below, the payee named on this form is exempt from the California income tax withholding requirement on payment(s) made to the entity or individual.

Individuals — Certification of Residency:

I am a resident of California and I reside at the address shown above. If I become a nonresident at any time, I will promptly notify the withholding agent. See instructions for General Information D, Who is a Resident, for the definition of a resident.

Corporations:

The above-named corporation has a permanent place of business in California at the address shown above or is qualified through the California Secretary of State (SOS) to do business in California. The corporation will file a California tax return and withhold on payments of California source income to nonresidents when required. If this corporation ceases to have a permanent place of business in California or ceases to do any of the above, I will promptly notify the withholding agent. See instructions for General Information F, What is a Permanent Place of Business, for the definition of permanent place of business.

Partnerships or limited liability companies (LLC):

The above-named partnership or LLC has a permanent place of business in California at the address shown above or is registered with the California SOS, and is subject to the laws of California. The partnership or LLC will file a California tax return and will withhold on foreign and domestic nonresident partners or members when required. If the partnership or LLC ceases to do any of the above, I will promptly inform the withholding agent. For withholding purposes, a limited liability partnership (LLP) is treated like any other partnership.

Tax-Exempt Entities:

The above-named entity is exempt from tax under California Revenue and Taxation Code (R&TC) Section 23701 _____ (insert letter) or Internal Revenue Code Section 501(c) _____ (insert number). The tax-exempt entity will withhold on payments of California source income to nonresidents when required. If this entity ceases to be exempt from tax, I will promptly notify the withholding agent. Individuals cannot be tax-exempt entities.

Insurance Companies, Individual Retirement Arrangements (IRAs), or Qualified Pension/Profit Sharing Plans:

The above-named entity is an insurance company, IRA, or a federally qualified pension or profit-sharing plan.

California Trusts:

At least one trustee and one noncontingent beneficiary of the above-named trust is a California resident. The trust will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required. If the trustee becomes a nonresident at any time, I will promptly notify the withholding agent.

Estates — Certification of Residency of Deceased Person:

I am the executor of the above-named person's estate. The decedent was a California resident at the time of death. The estate will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required.

Nonmilitary Spouse of a Military Servicemember:

I am a nonmilitary spouse of a military servicemember and I meet the Military Spouse Residency Relief Act (MSRRA) requirements. See instructions for General Information E, MSRRA.

CERTIFICATE: Please complete and sign below.

Under penalties of perjury, I hereby certify that the information provided in this document is, to the best of my knowledge, true and correct. If conditions change, I will promptly notify the withholding agent.

Payee's name and title (type or print) _____ Daytime telephone no. _____

Payee's signature ► _____ Date _____

SPECIAL PROVISIONS

City of Sacramento



Plans and Specifications for:

Shasta Park Production Well

Prepared by:

WOOD RODGERS, Inc.

3301 C Street, Building 100-B
Sacramento, CA 95816
Tel. 916.341.7760
Fax. 916.341.7767

CERTIFICATIONS AND SEALS PAGE

These specifications and drawings contained herein have been prepared by or under the direction of the following Registered Hydrogeologist:

Project Design

Lawrence H. Ernst
Lawrence H. Ernst, PG, CEG, CHG
Principal Hydrogeologist
Wood Rodgers, Inc.
CHG No. 390

7/19/13

Date



Received by

[Signature]
City of Sacramento

7/19/13
Date

SECTION 1 GENERAL INFORMATION AND REQUIREMENTS

1.01 Summary of Work to be Performed

- A. The work to be performed under this Contract consists of furnishing all labor, materials and equipment for the construction, development and testing of **one (1) municipal water supply well, with a design capacity of 1,500 gpm**, including but not limited to site preparation, conductor casing and sanitary seal, borehole drilling, geophysical logging, temporary zone sampling and water quality sampling, casing installation, gravel envelope placement, transition and annular seals, well development and testing, disinfection, and/or other work as necessary to complete the project as described in the Plans and Specifications. The borehole depth is approximately 1,203 feet below ground surface.
- B. Contractor shall provide all work, materials, and services necessary for the complete and proper construction of the work in good faith, **including items not expressly shown or called for in the Contract documents**. The Contractor shall incorporate all costs associated with the complete and proper construction of the work in good faith into the Contractor's bid prices for the work. No additional compensation will be paid for the complete and proper construction of the work in good faith.

1.02 Fulfillment of Project Purpose

- A. The purpose of this project is to provide municipal water supply to the City of Sacramento.
- B. The completed project shall be suitable for the intended purpose(s).
- C. The completed project shall meet the performance requirements of the Contract.
- D. If at any time the Contractor believes that the project as designed will not fulfill the intended purpose, or will not meet the performance requirements, the Contractor shall notify the City in writing. Contractor shall include all relevant information and shall provide a detailed explanation of the Contractor's concerns and recommended alternatives to achieve project objectives and performance requirements.

1.03 Project Location

- A. The project is located approximately 200 feet southwest of Kastanis Way in Sacramento, California.
- B. Sheet 1 of the Plans show the location of the project site and proposed position of the well within the lot.

1.04 Interpretation of Contract Documents

- A. Questions from bidder's concerning the interpretation of any portion of the contract documents may be directed to Brett Ewart of the City of Sacramento, Department of Utilities, 1395 35th Ave, Sacramento, California, 95822, phone (916) 808-1725; Fax (916) 808-1497; Email bewart@cityofsacramento.org

- B. The Consulting Engineer for the project is Wood Rodgers, Inc.; 3301 C Street, Building 100-B; Sacramento, CA 95816; Contact: Larry Ernst; Phone: (916) 341-7447; Mobile: (916) 417-7687; Fax: (916) 341-7767. The Consulting Engineer will be providing specialized construction inspection for this project on behalf of the City.
- C. Interpretation, where necessary, will be made by the City in the form of an addendum to the contract documents and, when issued, will be sent as promptly as is practicable to all parties to whom the bid documents have been issued. All such addenda shall become part of the contract.
- D. It shall also be the bidder's responsibility to call to the attention of the Engineer any missing pages or drawings in the contract documents, including the addenda. These items shall be brought to the attention of the Engineer at least one (1) week prior to the bid opening date.

1.05 Conformance with Codes and Standards

- A. The work to be performed under this contract shall be done in accordance with the Special Provisions contained herein. In these Special Provisions, reference is made to the Standard Specifications of the City of Sacramento, adopted June 2007, referred to herein as "City Standard Specifications". Included in this reference are all issued addendums. Reference may also be made to the State of California, Department of Transportation, Standard Specifications referred herein as "State Standard Specifications".
- B. The general requirements of this contract shall be governed by these Special Provisions first, followed by Sections 1 through 8 of the City Standard Specifications. Other Standards or Specifications specified in these Special Provisions govern only the applicable technical specifications.
- C. All work and materials shall comply with the California Department of Water Resources' California Water Well Standards Bulletin 74-84, and its supplement Bulletin 74-90.
- D. All work and materials shall comply with applicable federal, state, and local codes, laws, and regulations.
- E. Should the Contractor discover any discrepancies between these Plans and Specifications and applicable codes, laws, and regulations, the Contractor shall bring them to the attention of the City immediately.

1.06 Governing Documents

- A. All work performed under this contract shall be in accordance with the following general requirements:
 - (1) Sealed Proposal
 - (2) Agreement
 - (3) City Standard Specifications - Sections 1 through 8
- B. All work performed under this contract shall be in accordance with the following provisions:

- (1) Special Provisions
 - (2) Contract Plans
 - (3) City Standard Specifications - Sections 10 through 38
 - (4) California Labor Code - Chapter 4 of Division 3
- C. In the event of a conflict in the Contract Documents, the governing priorities, when appropriate, shall be in accordance with section 5-3 of the City Standard Specifications.

1.07 Payment for Compliance with Contract Requirements

- A. Direct payment shall only be made for the items listed in the Bid Schedule, in accordance with the specified measurement and payment of each item. No direct payment shall be made for items not listed in the Bid Schedule.
- B. All costs associated with fulfilling the requirements of this Contract, but not directly related to a specific bid item, shall be incorporated into the Contractor's Bid Price for "Bid Item No. 1 – Mobilization".

1.08 Right to Cancel Work

- A. At any time, the City may cancel part or all of the work under this Contract by written notice to the Contractor.
- B. Upon receipt of written notice to cancel work, the Contractor shall immediately cease all work on the project, unless otherwise authorized by the City in writing.
- C. The Contractor shall not be paid for work not performed. The Contractor shall be compensated for work performed prior to receipt of written notice to cancel work, unless otherwise authorized by the City in writing. Compensation for work performed shall be in accordance with this Contract.

1.09 Proof of Compliance with Contract

- A. In order that the Engineer may determine whether the Contractor has complied with the requirements of the contract documents not readily determinable through inspection and tests of plant, equipment, work, or materials, the Contractor shall at any time when requested, at the Contractor's expense, submit to the Engineer properly authenticated documents or other satisfactory proofs as to his compliance with such requirements.

1.10 Manufacturer's Instructions

- A. Contractor shall provide and comply with manufacturer's installation instructions and procedures in accordance with Section 5-16 of the City Standard Specifications.

1.11 Equipment to be Supplied

- A. All equipment, material and supplies called for on the Plans and Specifications shall be new and currently manufactured items, unless otherwise specified.

B. All equipment shall be complete and in operation to the satisfaction of the Engineer at the time of acceptance of the work.

1.12 Same Superintendent and Work Crew Required

A. In addition to Contractor's obligations to utilize competent and skilled workers and to remove unsatisfactory workers as specified in Section 7-6 of the Standard Specifications, Contractor shall maintain the same Superintendent and work crew on the job site throughout performance of the Contract, and Contractor shall not change Contractor's Superintendent and/or work crew prior to completion of the Work unless approved in writing by the Engineer prior to such change; provided that the Engineer's approval shall not be required for Contractor to replace employees terminated by Contractor.

1.13 City Ordinance Related to Construction Work

A. The City has adopted an ordinance amending Chapter 12.20 of the City Code that establishes additional minimum requirements and restrictions relating to construction activities within the City limits and establishes administrative penalties associated with non-compliance of these requirements. The ordinance includes the following general categories:

- (1) Working hours for the City's "Primary Streets"
- (2) Traffic control plan requirements
- (3) Access to private property
- (4) Maintenance of construction areas
- (5) Repair of traffic control systems
- (6) Care of existing known facilities
- (7) Public notification
- (8) Noise levels
- (9) Administrative Penalties

Copies of the ordinance are available from the City Clerk's Office, 915 I Street, Sacramento, CA 95814.

SITE CONDITIONS

1.14 Local Geology

- A. The geology beneath the well site is separated into three distinct units: Recent deposits (alluvium; possibly the Riverbank Formation); the Laguna Formation; and the Mehrten Formation. The alluvium deposits extend from ground surface to a depth of approximately 70 feet and consist of stream channel and floodplain basin deposits, including sand, gravel, silt, and clay. The Laguna Formation underlies the alluvium deposits and consists of interbedded layers of brown sand, gravel, silt, and clay. The Laguna/Mehrten transition zone occurs from approximately 250 to 800 feet. The Mehrten Formation consists of two distinct groups. The first group contains distinctive black sands interbedded with gravel and blue or brown clay. The second group is a cemented tan or gray mudstone or tuff-breccia. Static water level is expected to be approximately 70 feet below ground surface.

1.15 Difficult Drilling Conditions

- A. Known difficult drilling conditions in the project vicinity include:
 - (1) Gravel and large cobbles.
 - (2) Mudstone.
 - (3) Sloughing clay.
 - (4) Lahar flow deposits.
 - (5) Cemented sand.
- B. The Contractor shall be responsible for reviewing local records and identifying difficult drilling conditions that could be encountered in this area. The Contractor shall incorporate all costs associated with difficult drilling conditions into the bid price for “Bid Item No. 3 – Borehole Drilling”. No additional compensation will be paid for difficult drilling conditions.

1.16 Unusual Site Conditions

- A. The Contractor shall notify the City immediately if the Contractor suspects or detects that the site contains:
 - (1) Hazardous waste.
 - (2) Material the Contractor believes may be hazardous.
 - (3) Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract documents.
 - (4) Unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

SECTION 2 SITE REQUIREMENTS

2.01 Site Access

- A. The City has obtained the necessary legal right-of-way for the project.
- B. The City will provide the Contractor with access to the project site for the purpose of performing work under this Contract.
- C. Contractor's use of the project site shall be limited to activities associated with performing work under this Contract.

2.02 Area for Construction

- A. The Contractor shall confine all construction activities to the subject parcel, adjacent easements, and public right-of-way.
- B. The Contractor shall not encroach onto private property without the prior written permission of the property owner.

2.03 Health and Safety

- A. The Contractor shall be solely and completely responsible for conditions of the job site, including the health and safety of all persons (including employees, subcontractors, service personnel, and site visitors) and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.
- B. Health and safety provisions shall conform to U.S. Safety Orders, Title 8, U.S. Environmental Protection Agency Standard Operations Safety Guides; Safety Orders of the Division of the Industrial Safety of the State of California; OSHA Safety and Health Standards for Construction; and all other applicable federal, state, county, and local laws, ordinances, codes, and the contract requirements. Where any of these are in conflict, the more stringent requirement shall be followed.
- C. Failure of the Contractor to become familiar with the aforementioned safety provisions shall not relieve the Contractor from compliance with the obligations and penalties set forth herein.
- D. Appropriate first aid facilities and supplies shall be kept at the site. All personnel within the construction area shall be required to wear protective helmets. In addition, all employees of the Contractor, and of any subcontractors, shall be provided with, and required to use, personal protective and life saving equipment as set forth in Subpart E of the OSHA Safety and Health Standards for Construction. Also, the Contractor shall provide and maintain all measures required by the Construction Safety Orders of the State of California to all applicable requirements of the OSHA Safety and Health Standards for Construction, and to all applicable requirements of the California Safety and Health Act of 1973.

2.04 Hazardous Materials

- A. Use of Potentially Hazardous Materials

- (1) The Contractor shall implement the following hazardous materials management, spill prevention, and spill response/cleanup measures at the well site:
 - a. The Contractor shall prepare and maintain a construction site plan, including delineation of hazardous material and hazardous waste storage areas, access and egress routes, drainage paths, emergency assemble areas, and temporary hazardous waste storage areas;
 - b. The Contractor shall keep at the site copies of Materials Safety Data Sheets for all chemicals used and stored at the well site;
 - c. The Contractor shall undertake spill control and countermeasures, including employee spill prevention/response training;
 - d. The Contractor shall maintain an inventory list of emergency equipment;
 - e. The Contractor shall implement off-loading, safety and handling, procedures for each chemical; and
 - f. The Contractor shall implement notification and documentation procedures.

B. Disturbance of Contaminated Soils or Groundwater

- (1) The following procedures shall be implemented, in the event that, noxious odors, discolored soil or other indications of gross contamination are identified:
 - a. The Contractor shall stop work in areas of contact. If necessary, call responsible agencies. (Typically, the Sacramento County Environmental Management Department would be the responsible agency; the Regional Water Quality Control Board could be involved if the groundwater or surface water is contaminated, and the California Department of Toxic Substances Control could become involved if soils are contaminated.)
 - b. The Contractor shall fence off areas of contamination.
 - c. The Contractor shall perform appropriate clean-up procedures.
 - d. The Contractor shall segregate, profile, and dispose of appropriately off-site, all contaminated soils. (Required disposal method will depend on the types and concentrations of chemicals identified in the soil. Any site investigations or remediation will be performed in accordance with applicable laws.)
- (2) The costs incurred by the Contractor in addressing contamination encountered at the project site shall be paid as a negotiated contract change order.

2.05 Staking

- A. The City will stake or mark property corners and the well location.
- B. The Contractor shall carefully preserve all stakes and marks, and shall pay for any re-staking or re-marking required because of the Contractor's careless or unnecessary destruction or removal of stakes or marks.

2.06 Existing Utilities and Facilities

- A. The approximate location of existing utilities and other facilities are shown on the Contract Plans; their exact location is unknown. Additional utilities may exist that are unknown to the City and the Contractor. The City warrants neither the accuracy nor the extent of existing utilities as shown on the Contract Plans.
- B. The Contractor shall confirm the location of, and protect, all existing utilities and other facilities.
- C. The Contractor shall contact Underground Service Alert (USA) at (800) 227-2600 at least two (2) working days, but no more than 28 working days, before any underground excavation at the site. For the purpose of this requirement, excavation shall be defined as any operations that take place 18 inches or more below the existing ground surface. Before contacting USA, the Contractor shall clearly mark the location of planned excavation. The Contractor shall not begin any underground excavation until the location of underground utilities has been identified. If necessary, the Contractor shall hand dig to expose any underground utilities that may conflict with planned excavation.
- D. In the event that the Contractor discovers utilities not identified in the Contract Plans and/or Specifications, the Contractor shall immediately notify the City and the utility owner by the most expeditious method reasonably available and later confirm in writing.
- E. If the Contractor damages, disconnects, or relocates any existing facilities or utilities, the Contractor shall, at Contractor's own expense, restore them to the original condition as specified by the owner of the facility or utility. This work shall be performed in accordance with Section 13-1 of the City Standard Specifications.

2.07 Permanent Survey Monuments

- A. Contractor is responsible for verifying that the arrangements have been made for preserving and/or perpetuating all permanent survey monuments that will be affected by the work in accordance with Section 5-6 of the City Standard Specifications.

2.08 Site Security and Public Safety

- A. The Contractor shall provide and be fully responsible for site security and protection of public safety at the site.
- B. The Contractor shall properly safeguard all equipment, materials, and work against loss, damage, malicious mischief or tampering by unauthorized persons until acceptance of the work by the City. Such safeguards shall include protecting the borehole, well, and accessory pipes from introduction of foreign materials.
- C. The Contractor shall employ all means necessary to provide for site security and public safety.
- D. The Contractor shall provide, at Contractor's expense, secured storage consisting at a minimum of a locking six-foot high chain link security fence with concrete footings, or continuous surveillance by a watchman, as necessary to accomplish these objectives.

2.09 Storage

- A. Contractor's storage of materials and equipment at the project site is subject to approval by the City.
- B. All materials shall be stored in accordance with the manufacturer's Material Safety Data Sheet.
- C. Materials and equipment shall be stored in accordance with Section 5-15 of the City Standard Specifications.
- D. Material Stockpiling Limits
 - (1) Materials and equipment for the project shall be stockpiled within the subject parcel only, and shall not be stockpiled within the public street right-of-way.
 - (2) Stockpiles within the public right-of-way shall be no higher than 6 ft in height, and shall not impede traffic, nor access to residences.
 - (3) Should stockpiling of materials within the public right-of-way prove to be a nuisance to the adjacent residents, the materials and/or equipment shall be moved within two (2) working days following direction by the Engineer.
- E. Materials and equipment stored at the site shall not interfere with work at the site and shall not create a hazard.

2.10 Temporary Facilities

- A. The Contractor shall incorporate all costs associated with temporary facilities into the bid price for "Bid Item No. 1 – Mobilization". No additional compensation will be paid for temporary facilities.
- B. The Contractor shall provide and pay for all electric power required to perform all work under this Contract.
- C. The Contractor shall provide and pay for lighting to allow for safe work at the site, and in compliance with Cal/OSHA standards.
- D. Construction Water
 - (1) Construction water is available from a fire hydrant located approximately 400 feet north of the well site.
 - (2) The Contractor will need to contact the City of Sacramento Department of Utilities to obtain a water supply permit for this project.
- E. Toilet Facilities
 - (1) The Contractor shall provide, pay for, and maintain in sanitary condition for the duration of the work, toilet facilities at the work site.
 - (2) In the event of a spill or leakage, Contractor shall provide and pay for disinfection.

2.11 Drainage

- A. Contractor shall ensure that Contractor's activities do not result in fluids other than rain water entering any storm drain or other drainage facility.
- B. Contractor shall ensure that Contractor's activities do not degrade the quality of rain water runoff into any storm drain or other drainage facility. Any tracking of soil or mud shall be cleaned immediately by vacuuming or sweeping.
- C. These provisions apply to both on- and off-site facilities, unless Contractor obtains written permission from the owner or operator of the facility.
- D. The Contractor shall be responsible for the control, removal, and disposal of any groundwater in accordance with Section 27-3 of the City Standard Specifications.

2.12 Dust Control

- A. The Contractor shall be responsible for the control of dust within the limits of the project at all times in accordance with Section 16-2 of the City Standard Specifications.
- B. The Contractor shall keep all streets and alleys as well as all grounds adjacent to the project site clean and free of dust, mud, and debris resulting from the Contractor's operations in accordance with Section 16-3 of the City Standard Specifications.
- C. Spillage of earth, gravel, concrete, asphalt, or other materials resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor in accordance with Section 16-3 and section 6-2 of the City Standard Specifications.

2.13 Cooperation

- A. The Contractor shall cooperate fully with all utilities, regulatory agencies, adjacent landowners, the City and its officers, officials, employees, agents, and volunteers.
- B. At all times during the performance of work on this project, the Contractor shall practice good neighborhood relations.
- C. The Contractor shall make every effort to be considerate of the impact of Contractor's activities on neighbors, and to minimize those impacts.

2.14 Air Emissions

- A. The Contractor shall acquire all relevant permits from Sacramento Metropolitan Air Quality Management District (SMAQMD) and the California Air Resources Board (CARB) as necessary for the operation of portable generators if portable engines do not include a SMAQMD permit or are not registered under the CARB Portable Equipment Registration Program.

2.15 Cultural Resources

- A. During earthwork activities at the project site, the Contractor will be notified of, and will be required to monitor for, signs of potential undiscovered paleontological, archaeological, ethnic, or religious resources. In the event undiscovered paleontological, archaeological, ethnic, or religious resources are encountered during

construction, ground-disturbing work will be halted at the site until a qualified archaeologist evaluates the situation and recommends an appropriate course of action. Prehistoric materials might include obsidian and chert flaked-stone tools (projectile points, knives, scraping implements) or tool-making debris; culturally darkened soil ("midden") containing heat-altered rock, shellfish remains, and cultural materials; and stone milling equipment (mortars, pestles, handstones, and milling stones). Historical materials might include stone footings or walls; building materials or other remains with square nails; and backfilled wells, privies, or other deposits of historic-period metal, glass, and/or ceramic refuse.

- B. The possibility of encountering archaeological resources and human remains cannot be discounted. Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial. If human burials are encountered, the Contractor shall halt work in the vicinity of the remains and, as required by law, notify the County Coroner immediately. At the same time, the Contractor shall notify the City so that an archaeologist should be contacted to evaluate the situation.

2.16 Project Signs

- A. Prior to beginning any onsite work the contractor shall install a total of 2 project signs. The signs shall be supplied by the City and are approximately 30 inches by 54 inches. Signs will be installed in the following locations or as directed by the City:
 - Terminal end of Kastanis Way on the City of Sacramento property
 - Terminal end of Imagination Pkwy on the City of Sacramento Property
- B. Height of sign installation shall be as directed by the Engineer. In general, the signs shall be affixed to a 4"x4" post and installed a minimum of 7 feet and maximum of 10 feet above surrounding grade. If acceptable to the Engineer an existing sign post may be used, otherwise, the Contractor shall be required to install a new post. The sign and post installed by the Contractor shall be removed at the end of the project and the sign returned to the City.

2.17 Notification to Property Owners

- A. The Engineer shall be responsible for notifying property owners and residents for the following situations:
 - Commencement of mobilization- Notify seven days
 - Commencement and cessation of 24 hour operations-Notify seven days and 24 hours.
- B. Notifications shall include the Contractors name, a contact person and phone number, a brief summary of the work, and the estimated duration of the work. Notifications shall be as shown in Appendix A.
- C. The Contractor will be responsible for keeping the Engineer updated with the scheduled milestones for the notification requirements.

- D. At minimum, the following geographic area shall define the affected owners and residents
- (1) All properties along Cotton Lane
 - (2) The Valley High Library
 - (3) All businesses or resident along W. Stockton Bl. between Bruceville Rd and Cotton Lane.

DISPOSAL OF MATERIALS

2.18 General Requirements

- A. All materials generated by and/or removed from the work shall become the property of the Contractor. The Contractor shall dispose of these materials in accordance with all applicable federal, state and local regulations.
- B. Except as otherwise described, the Contractor shall incorporate all costs associated with materials disposal into the price for “Bid Item No. 3 – Borehole Drilling”. No additional compensation will be paid for materials disposal.

2.19 Water Quality Control

- A. Water Quality Control measures shall be at a minimum in accordance with Section 16 of the City Standard Specifications. The Contractor shall prepare and submit a site specific erosion, sediment and pollution control plan (ESC Plan) that indentifies all construction activities that could impact water quality and provide all the necessary mitigation BMP measures that will eliminate the discharge of any pollutants to the city’s drainage system or waterways. The ESC Plan shall be submitted a minimum of 48 hours prior to start of the work. The Contractor shall not begin work until an accepted ESC Plan is on file with the Engineer.

2.20 Nuisance Water

- A. Contractor shall dispose of nuisance water at the project site, including construction water, rainfall, groundwater, surface water runoff, and any other nuisance water as necessary to protect the work from damage.
- B. Contractor’s method of disposing of nuisance water shall not damage the project site or any other property.

2.21 Drill Cuttings

- A. The Contractor shall stockpile drill cuttings at the project site. At the end of the project, Contractor shall spread drill cuttings across the project site to facilitate drying.

2.22 Drilling Fluids and Initial Development Water

- A. Drilling fluids shall consist of all fluids circulated in the borehole that have a Marsh Funnel viscosity greater than 26 seconds per quart, *or* a density greater than 8.4 pounds per gallon, *or* an average turbidity greater than 500 NTU.
- B. Initial development water shall consist of all water produced during well development that has an average turbidity greater than 30 NTU.
- C. The Contractor shall discharge drilling fluids and initial development water on the project site. The Contractor may be required to excavate and/or berm the area where drilling fluids and initial development water are discharged. In no event shall drilling fluids or initial development water be allowed to run off of the project site.

2.23 Final Development and Testing Water

- A. Final development water shall consist of all water produced during well development after the average turbidity of the water becomes less than 30 NTU.
- B. Testing water shall consist of all water produced during well and aquifer testing.
- C. The Contractor shall discharge final development and testing water in the storm drain located to the northeast on Kastanis Way.
- D. The Contractor shall provide 300 feet of discharge pipe to move water from the well site to the specified discharge location.
- E. Contractor shall provide erosion control at the discharge point, including as necessary: plastic sheeting, energy dissipating devices, rip-rap, and other control materials. Erosion control shall be adequate to prevent damage to the discharge point.

2.24 Chlorinated Water

- A. Any fluids that contain residual chlorine may require treatment for de-chlorination prior to discharge.

PERMITS AND LICENSES

2.25 Contractor Responsibility

- A. The Contractor shall identify and obtain all licenses and permits in accordance with the laws and regulations governing the work. Any information about specific licenses or permits provided in these Specifications is for informational purposes and does not relieve the Contractor of this obligation.
- B. Contractor shall pay for all permits and licenses required for the work and shall pay all taxes properly assessed against the Contractor's equipment or property used in connection with the work.

2.26 Contractor's License

- A. The Contractor shall hold an active contractor's license in the C-57 (Water Well Drilling) classification. The license shall be in good standing.

2.27 Well Construction Permit

A. The Contractor shall obtain a Well Construction Permit from the Sacramento County Environmental Management Department – Environmental Compliance Division; 10590 Armstrong Avenue, Suite A, Mather, CA 95655; Phone: (916) 875-8400. Well Inspection Hotline; Phone: (916) 875-8524. The County must inspect sanitary seal placement, and requires 24 hours advance notification.

2.28 Water Supply Permit

A. The Contractor will need to contact the City of Sacramento Department of Utilities to obtain a water supply permit for this project.

2.29 Encroachment Permit.

A. The City shall obtain an Encroachment Permit for any activities that impact the public rights-of-way adjacent to, or as a result of the project.

SECTION 3 SUBMITTALS

3.01 Submittal Review Process

- A. Contractor shall provide pre-mobilization submittals to the City five (5) working days in advance of planned mobilization date. Contractor shall provide pre-borehole drilling submittals to the City five (5) working days in advance of planned borehole drilling start date.
- B. When possible, the City shall review and approve or reject Contractor's submittals on an expedited basis. Contractor shall inform the City of specific submittals that may warrant expedited review.
- C. Contractor shall not begin work on a project phase until all of the required submittals have been approved by the City.
- D. Contractor shall not be granted a Contract extension, nor paid stand-by time, for delays that are caused by the Contractor's failure to provide the required submittals in a timely fashion.

3.02 Required Submittals

- A. Contractor shall submit the following items, which shall be approved by the City prior to mobilization:
 - (1) Well Construction Permit.
 - (2) Construction Schedule.
 - (3) Emergency Plan.
 - (4) Site Plan.
 - (5) Daily Report Form.
 - (6) Contractor Contact Information.
 - (7) Manufacturer sieve samples of the gravel envelope material, including a minimum of 500 grams of gravel envelope material.
 - (8) Traffic Control Plan
 - (9) Noise Control Plan
 - (10) Erosion, Sediment, and Pollution Control Plan
- B. Contractor shall submit the following items, which shall be approved by the Engineer prior to installing conductor casing:
 - (1) Mill certification for conductor casing.
- C. Contractor shall submit the following items, which shall be approved by the Engineer prior to test hole drilling:
 - (1) Drilling Fluid Control Program.

- D. Contractor shall submit the following items, which shall be approved by the Engineer prior to borehole drilling:
- (1) Mill certifications for well casing and accessory pipes.
 - (2) Drilling Fluid Control Program.
 - (3) Gravel Envelope Installation Diagram.
 - (4) Well Development Diagram.
- E. Contractor shall submit the following items, which shall be approved by the Engineer prior to well construction:
- (1) An estimate of the volume of gravel required to construct the well as specified, based on the actual borehole diameter as measured during the caliper survey.

Submittal List		
Time of Submittal	Spec. Section	Submittal
Pre-Mobilization	2.27	Sacramento County Well Construction Permit
	6.01	Project Schedule
	8.04	Contractor Contact Information
	8.04	Daily Report Form
	8.04	Emergency Plan
	8.04	Site Plan
	11.04	MSDS for all drilling fluid materials used
	15.03	Manufacturer sieve samples of gravel envelope material, minimum of 500 grams
	8.04	Traffic Control Plan
	9.04	Noise Control Plan
	2.19	Erosion, Sediment, and Pollution Control Plan
Prior to Installation of Conductor Casing	10.03	Mill certification for conductor casing
	10.04	Formation samples
Pre-Borehole Drilling	11.04	Drilling Fluid Control Program
	14.03	Mill certification for well casing, well screen, and accessory pipes
		Shop drawing of sounding port
	14.04	Field welding procedures
	15.04	Gravel envelope installation diagram
17.04	Well development tool diagram	
Pre-Construction	11.04	Driller's Log
	11.04	Formation samples
	13.04	Estimate of the volume of gravel required to construct the well as specified, based on the actual borehole diameter as measured during the caliper survey
	13.04	Field copies of geophysical surveys

SECTION 4 INSPECTIONS AND MEETINGS

4.01 Pre-Bid Meeting

- A. A pre-bid meeting will be held on August 7th, 2013, at 10:00 AM local time, to discuss the site-specific project requirements.
- B. Attendance of the pre-bid meeting by prospective bidders is **optional**.
- C. This meeting will be held at the project location, at the terminal end of Kastanis Way, Sacramento, CA.

4.02 Pre-Construction Meeting

- A. A pre-construction meeting shall be held at the project site at a time agreed upon by the Contractor and the City.
- B. The pre-construction meeting shall be completed prior to, or (at the City's discretion) in conjunction with, mobilization.
- C. Attendance of the pre-construction meeting by the Contractor's project superintendent is **mandatory**.

4.03 Inspection Purpose and General Requirements

- A. The primary purpose of the Consulting Engineer's inspections is to confirm that the work is being performed in accordance with the Contract requirements.
- B. The secondary purpose of the Consulting Engineer's inspections is to evaluate conditions throughout construction, so the Engineer can provide the Contractor with interpretation and clarification of the Contract requirements as they apply to specific work items and conditions.
- C. The Consulting Engineer's observations and comments during inspections are intended to provide the Contractor with suggestions and guidance for completing the work in accordance with the Contract requirements. The Contractor is solely responsible for determining the appropriate course of action, for directing the work, and for fulfilling the Contract requirements. The Consulting Engineer's observations and comments shall not be considered to be direction of the work.
- D. The Contractor shall make a good faith effort to make the work available for inspection by the Consulting Engineer, to collect and provide samples for inspection by the Consulting Engineer, and to honestly represent the work to the Consulting Engineer.
- E. The Consulting Engineer shall make a good faith effort to accommodate the Contractor's construction schedule, to be available throughout construction to make inspections on short notice at the Contractor's request, and to provide interpretation and clarification of the Contract requirements.

4.04 Site Preparation

- A. Contractor shall provide City with access for inspection and approval of any site preparation to be performed as part of this Contract.

4.05 Mobilization

- A. The Contractor shall notify the City a minimum of five (5) working days in advance of the anticipated time of mobilization, and shall update the City with any changes in the schedule for mobilization.
- B. Contractor shall make drilling equipment and accessories, and sanitary facilities, available for inspection by the City.
- C. Contractor shall delineate with marking paint the proposed location of any excavations, for inspection by the City.

4.06 Construction Materials

- A. Contractor shall make drilling fluid additives, well casing, well screen, accessory pipes, gravel envelope materials, intermediate seal materials, and all other construction materials available for inspection by the City.

4.07 Conductor Casing

- A. Contractor shall notify City a minimum of 24 hours in advance of the anticipated time of the seal placement, and shall update the City with any changes in schedule, so the City may be on site to inspect the seal placement.
- B. Contractor shall provide a level and shall demonstrate to the City that the conductor casing is installed plumb prior to installation of the sanitary seal.
- C. Contractor shall provide City with a quart-sized sample of excavated material from the bottom of the conductor casing borehole.
- D. Contractor shall also notify the County Environmental Management Department as required for a well sanitary seal.

4.08 Noise Control

- A. Contractor shall provide City with access for inspection and approval of sound walls.
- B. Contractor shall provide City with access to monitor noise levels at the project site.

4.09 Borehole Drilling

- A. Contractor shall notify the City a minimum of 48 hours in advance of the actual drilling of the production well.
- B. Contractor shall notify City a minimum of 24 hours in advance of the anticipated time of geophysical logging, and shall update the City with any changes in schedule, so the City may be on site to inspect the geophysical logging.

- C. Contractor shall provide samples of drilling fluid to the City as requested for analysis by the City.
- D. City shall inspect final borehole depth and diameter as measured by the geophysical surveys.

4.10 Well Construction

- A. Contractor shall notify City a minimum of 24 hours in advance of the anticipated time of both well construction and seal placement, and shall update the City with any changes in schedule, so the City may be on site to inspect both the well construction and the seal placement
- B. Contractor shall make the following items available for inspection by the City: well casing and screen joint welds; centralizer placement and welds; gravel envelope material, equipment, and installation methods; sanitary seal grout and installation methods; and installation and positioning of accessory pipes.
- C. Contractor shall allow City to view weight indicator and shall demonstrate to the City that the well casing assembly is hanging freely prior to gravel installation.
- D. Contractor shall assist City with inspection by making other measurements requested by the City.

4.11 Well Development and Testing

- A. Contractor shall notify City a minimum of 24 hours in advance of the anticipated time of initial well development, final well development, and well testing. Contractor shall update the City with any changes in schedule, so the City may be on site to inspect initial well development, final well development, and well testing.
- B. Contractor shall make well development tools, pumping equipment, discharge assembly, sand testing equipment, plumbness and alignment testing equipment available for inspection by the City.
- C. All testing for well acceptance must be witnessed by the City. Testing not witnessed by the City shall not be considered valid for final acceptance unless otherwise approved by the City in writing.

4.12 Site Clean-up and Records

- A. Contractor shall notify City a minimum of 24 hours in advance of the anticipated time of both video inspection and backfilling and compaction, and shall update the City with any changes in schedule, so the City may be on site to witness both the video inspection and backfilling and compaction.
- B. Contractor shall make wellhead security, video inspection, backfilling and compaction of any excavations, and site clean-up available for inspection by the City.
- C. Video inspection for well acceptance must be witnessed by the City. Video inspection not witnessed by the City, or of insufficient clarity or detail for full inspection, shall not be considered valid for final acceptance unless otherwise approved by the City in writing.

D. Backfilling and compaction must be witnessed by the City. Backfilling and compaction not witnessed by the City, or improperly performed, shall not be considered valid for final acceptance unless otherwise approved by the City in writing.

4.13 Well Disinfection

A. Contractor shall notify City a minimum of 24 hours in advance of the anticipated time of well disinfection, and shall update the City with any changes in schedule, so the City may be on site to witness well disinfection.

B. Contractor shall make well disinfection available for inspection by the City.

SECTION 5 PERFORMANCE REQUIREMENTS

5.01 General

- A. These performance requirements are intended to objectively measure the suitability of the project for the intended purpose(s).
- B. The Contractor shall be solely responsible for meeting the performance requirements.
- C. The City shall conduct or witness, at the City's sole discretion, all tests to evaluate compliance with performance requirements. Tests made by the Contractor without the City present, or without the City's approval, shall not be valid for the purpose of determining compliance with performance requirements.
- D. No separate payment shall be made for meeting the performance requirements.
- E. If the completed project does not meet the performance requirements, the Contractor shall, at Contractor's own expense, do any and all work necessary to cause the project to meet the performance requirements. If, after such efforts, the completed project does not meet the performance requirements, the project may be rejected.

5.02 Sand Content Requirement

- A. Sand content of pumped water shall be measured at the design capacity of the well, unless otherwise determined by the City.
- B. Sand content of pumped water shall be measured with a centrifugal ("Rossum") sand sampler in accordance with ANSI/AWWA A100-97, Appendix C.
- C. The average sand content of water pumped over any five (5)-minute period shall not exceed five (5) parts per million over the first 30 minutes of pumping.
- D. The Contractor shall incorporate all costs associated with meeting the sand content requirement into the bid price for "Bid Item No. 14 – Well Development". No additional compensation will be paid for meeting the sand content requirement.

5.03 Turbidity Requirement

- A. Turbidity of pumped water shall be measured at the design capacity of the well, unless otherwise determined by the City. The well shall not be required to meet the turbidity requirement when operating at flow rates greater than the design capacity.
- B. The turbidity requirement shall not apply for the first 15 minutes after surging or start-up.
- C. The turbidity of pumped water shall not exceed five (5) NTU.
- D. The Contractor shall incorporate all costs associated with meeting the turbidity requirement into the bid price for "Bid Item No. 14 – Well Development". No additional compensation will be paid for meeting the turbidity requirement.

5.04 Well Efficiency Requirement

- A. The 24-hour specific capacity of the well (gallons per minute per foot of drawdown) shall have stabilized.
- B. As measured and calculated by the City, the well shall be at least 80 percent hydraulically efficient.
- C. The Contractor shall incorporate all costs associated with meeting the well efficiency requirement into the bid price for “Bid Item No. 14 – Well Development”. No additional compensation will be paid for meeting the well efficiency requirement.

5.05 Plumbness Requirement

- A. The plumbness of the well shall be measured as described in “Bid Item No. 16 – Plumbness and Alignment Testing”.
- B. The horizontal deviation of the well from vertical shall not exceed two-thirds (2/3) of the smallest inside diameter per one-hundred (100) feet of depth, for the entire depth of the well.
- C. The Contractor shall incorporate all costs associated with meeting the plumbness requirement into the various bid prices for well drilling and construction items. No additional compensation will be paid for meeting the plumbness requirement.

5.06 Alignment Requirement

- A. The alignment of the well shall be measured with a pipe or dummy as described in “Bid Item No. 16 – Plumbness and Alignment Testing”.
- B. The pipe or dummy must pass freely from the ground surface to the top of the first screened interval.
- C. The Contractor shall incorporate all costs associated with meeting the alignment requirement into the various bid prices for well drilling and construction items. No additional compensation will be paid for meeting the alignment requirement.

5.07 Video Survey Requirements

- A. The video survey shall be conducted as described in “Bid Item No. 17 – Video Camera Survey”.
- B. The total well depth, as measured by the video survey, shall be as specified.
- C. As measured by the video survey, no more than 20 percent of the length of the well sump shall contain fill material.
- D. The depth of well screens and the sounding port, as measured by the video survey, shall be as specified.
- E. As observed during the video survey, no voids shall be present in welded joints.
- F. All materials, as observed during the video survey, shall be undamaged and in suitable condition to allow the full use of the well for the intended purpose. All well screens, as observed during the video survey, shall be free of mud or other incrustation.

- G. The Contractor shall incorporate all costs associated with meeting the video survey requirements into the various bid prices for well drilling, construction, and development items. No additional compensation will be paid for meeting the video survey requirements.

SECTION 6 PROJECT SCHEDULE

6.01 Project Schedule

- A. The Contractor shall submit a detailed schedule in accordance with Section 7-2 of the Standard Specifications. No progress payments will be made for work completed prior to acceptance of the schedule.
- B. The activity time schedule shall indicate the chronological sequence in which the Contractor proposes to carry out each aspect of the work, the calendar dates on which the Contractor will begin the several salient elements of the work (procurement and delivery of materials, posting of “No Parking” signs, notification of property owners, scheduling of equipment, excavation of trenches, placement of pipe, etc), and the contemplated dates for completing said salient elements.
- C. The Contractor shall contact the City at least forty-eight (48) hours in advance of any change in the work schedule. If the Contractor desires to make a major change in his method or operations after commencing construction, or if the activity time schedule fails to reflect the actual progress of the work, the Contractor shall submit a revised schedule to the City in advance of beginning revised operations.
- D. Contractor shall notify the City at least five (5) working days before the anticipated date of mobilization.
- E. Contractor shall maintain a current project schedule and shall update the schedule weekly.
- F. Contractor shall immediately provide verbal updates of project schedule to City upon request. Contractor shall provide a written update of the project schedule within two (2) working days of City’s request.

6.02 Time of Completion

- A. Please refer to the Contract Agreement “Time of Completion” located in the front end documents.
- B. Work shall be considered substantially complete when all aquifer testing is completed. Work shall be considered finally complete when all bid items under this Contract have been completed.

6.03 Working Days and Hours

- A. Construction activities shall be limited to the daytime hours of 7:00 AM and 6:00 PM, Monday through Friday, and between 8:00 AM and 6:00 PM on Saturday or Sunday. Operation of test engines or compressors shall not occur before 8:00 AM Monday through Friday, and before 9:00 AM on Saturday and Sunday
- B. Operations may continue 24 hours per day from the time borehole drilling begins to the time the final seal is placed.

6.04 Contract Extensions

- A. If, at any time during the project, the Contractor believes that the work cannot be completed within the Contract time, the Contractor shall notify the Engineer in writing. The Contractor shall provide a full explanation of the reasons for the delay, and shall state the amount of additional time the Contractor requests to complete the work.
- B. No Contract extensions will be granted for delays caused by any of the following:
 - (1) Contractor's failure to provide, mobilize to the project site, set up, operate, maintain in good working condition, and demobilize from the project site, all equipment necessary for the successful completion of the project in a timely manner.
 - (2) Contractor's failure to provide the required submittals in a timely manner.
 - (3) Contractor's failure to devote the necessary resources and labor to make equipment repairs in a timely manner.
 - (4) In the event that the equipment repairs cannot be made in a timely manner, or repairs are not successful, Contractor's failure to replace the broken equipment.
 - (5) Contractor's failure to comply with the provisions of this Contract.
 - (6) Contractor's failure to make a good faith effort to complete the work within the Contract time.
- C. All other causes for delays will be evaluated by the Engineer on a case-by-case basis and Contract extensions, if any, will be granted only if the Engineer determines that the Contractor was not responsible for the delay.

6.05 Liquidated Damages

- A. Please refer to the Contract Agreement "Liquidated Damages" If Work Not Completed On Time" located in the front end documents.

SECTION 7 ACCEPTANCE OF WORK, REJECTION OF WORK, AND PROJECT CLOSEOUT

7.01 Rejection of Work

- A. Any work that is not performed as specified, does not meet the performance requirements, or is not suitable for the intended use, may be rejected by the City.
- B. Contractor may salvage materials from any rejected work. Salvaged materials shall not be used in corrections or replacement of work unless approved by the City in writing.
- C. The Contractor shall be required to properly destroy any rejected boreholes or wells in accordance with all applicable regulations.

7.02 Correction of Work

- A. The Contractor will be given two (2) opportunities to correct rejected work, unless otherwise approved by the City in writing.
- B. The Contractor must submit to the City a plan for correcting the work. The City must approve this plan before the Contractor proceeds with any corrections.
- C. If, in two (2) attempts, the Contractor does not correct the work so that it is as specified, meets the performance requirements, and is suitable for the intended use, the work will be rejected and the Contractor will be required to provide a replacement.

7.03 Replacement of Work

- A. All replacement work shall be performed in accordance with this Contract and as specified.

7.04 Acceptance of Incomplete or Inadequate Work

- A. At the City's sole discretion, the City may chose to accept incomplete or inadequate work.
- B. The City shall negotiate a reduced price, subject to the concurrence of the Contractor, for any incomplete or inadequate work that the City chooses to accept.
- C. If an agreement about a reduced price for incomplete or inadequate work cannot be reached, the work shall be considered rejected.

7.05 Payment for Corrections, Replacement Work, and Rejected Work

- A. No payment will be made for rejected work.
- B. The Contractor will only be paid for bid items that are completed as specified, meet the performance requirements, and are suitable for the intended use.
- C. No additional payment will be made for corrections or replacement work.

- D. No payment will be made for salvaged materials that are not accepted for reuse in corrections or replacement of work.
- E. No payment will be made for destruction of any rejected boreholes or wells.

7.06 Contract Time for Corrections and Replacement Work

- A. No extensions to the Contract time shall be granted for corrections or replacement of work if the City determines that the Contractor has not promptly and fully corrected or replaced all rejected work.
- B. Any Contract extensions or waivers of liquidated damages for corrections or replacement of work shall be at the City's sole discretion.

7.07 Record Drawings

- A. The Contractor shall maintain a neatly and accurately marked set of record drawings in accordance with Section 5-8 of the City Standard Specifications.
- B. The record drawings shall include any deviations to the plans.

7.08 Project Closeout

- A. The issuance of a punch list, final acceptance of the work, and the final payment shall be in accordance with Section 8-4 of the City Standard Specifications.
- B. When the contractor notifies the Engineer that the project has been completed the Engineer shall perform a walk through and develop a list of deficient work items. After the contractor completes correction of the deficiencies to the satisfaction of the Engineer, a final walk through will be scheduled with the City Operation and Maintenance personnel. At the final walk through a punch list will be developed and submitted to the Contractor. The Contractor shall notify the Engineer when punch list items have been completed. The Engineer will then inspect the punch list work. If the work is completed to the satisfaction of the Engineer, and if as-built drawings are completed and submitted, a completion report will be prepared.

SECTION 8 BID ITEM NO. 1 – MOBILIZATION

8.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Obtaining all permits.
 - (2) Complying with all applicable regulations.
 - (3) Preparing all submittals.
 - (4) Preparing an Emergency Plan.
 - (5) Preparing a Traffic Control Plan.
 - (6) Providing, installing, and maintaining sanitary and temporary facilities.
 - (7) Attending all meetings.
 - (8) Providing access for all inspections.
 - (9) Transporting personnel, equipment, and materials to the project site.
 - (10) Setting up equipment at the project site.
 - (11) Demobilizing from the project site.
- B. This bid item shall also include **provision of all labor, equipment, and materials associated with fulfilling the requirements of this Contract, but not directly related to a specific Bid Item.**

8.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 1 – Mobilization.
- C. This bid item will be paid according to the following schedule:
 - (1) 70 percent after obtaining permits, preparing submittals, providing temporary facilities, and transporting personnel, equipment, and materials to the project site.
 - (2) 30 percent after transporting personnel, equipment, and materials from the project site (demobilization).
- D. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

8.03 Materials and Equipment

- A. Reverse Circulation Drill Rig
 - (1) Reverse circulation drill rig shall include all associated equipment for reverse circulation drilling and for the satisfactory completion of the specified work.

- (2) Rig shall be capable of and equipped to support the weight of the complete well casing, well screen, and accessory pipe assembly without the use of float plugs.
- (3) Rig shall be equipped with a dial-reading weight indicator for weighing drilling string and casing loads.
- (4) Rig shall be equipped with a drilling rate recorder.
- (5) Drill pipe shall be a minimum of six (6) inches in diameter.

B. Air Compressor

- (1) Air compressor shall be capable of airlifting a minimum of 500 gallons per minute.

8.04 Methods

- A. Contractor shall provide, mobilize to the project site, set up, operate, maintain in good working condition, and demobilize from the project site, all of the equipment listed in this section.
- B. In addition to the equipment specifically listed in this section, Contractor shall provide, mobilize to the project site, set up, operate, maintain in good working condition, and demobilize from the project site, all other equipment necessary for the successful completion of the project, but not directly related to any other bid item.
- C. All equipment to be used below ground shall be cleaned and disinfected prior to use.
- D. The Contractor shall provide a site plan to the City that shows the planned configuration of equipment at the well site. The site plan shall include hazard materials provisions as described in Section 3.04.
- E. Contractor shall provide email and cellular phone contact information for their office project manager, field superintendent, and project drillers prior to mobilization.
- F. Contractor shall provide a copy of their Daily Report Form to the City prior to mobilization.
- G. Emergency Plan
 - (1) The intent of the Emergency Plan is to ensure that, in the event of an emergency at the project site, all workers know the procedure to follow and have all contact and location information necessary to quickly respond to an emergency at the project site.
 - (2) Contractor shall prepare an Emergency Plan that includes the following minimum components:
 - a. The name, address, and phone number of the nearest medical facility that accepts emergency patients.
 - b. A map and directions from the project site to the emergency facility.
 - c. Emergency phone numbers for the local police department, fire departments, and poison control center.

- d. A location map showing the project site, and a written description of the project site location that can be used to direct emergency vehicles to the project site.
 - e. The procedure to be followed in the event of an emergency.
- (3) The Contractor shall submit the Emergency Plan to the City a minimum of five (5) working days prior to mobilization.
 - (4) The Contractor shall review the Emergency Plan with all regular workers at the site. All regular workers at the site should know where the nearest emergency medical facility is, the route from the project site to that facility, and the procedure to be followed in the event of an emergency.

H. Traffic Control Plan

- (1) The Contractor shall prepare a Traffic Control Plan that is in accordance with Section 6-10 of the City Standard Specifications.

SECTION 9 BID ITEM NO. 2 - NOISE CONTROL

9.01 Scope of Work

- A. This bid item shall include the following:
- (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Transporting sound wall equipment and materials to the project site.
 - (3) Installing and removing sound walls and related equipment.
 - (4) Demobilizing sound wall equipment and materials from the project site.
 - (5) Undertaking necessary measures to comply with all local sound control and noise level rules, regulations, and ordinances.

9.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
- (1) Bid Item No. 2 – Noise Control.
- C. This bid item will be paid according to the following schedule:
- (1) 70 percent after transporting sound wall equipment and materials to the project site and installing the sound walls.
 - (2) 30 percent after removing the sound walls and related equipment and transporting sound wall equipment and materials from the project site (demobilization).
- D. Ten (10) percent of all payment for this bid item shall be withheld by the Owner until the completed project is approved.

9.03 Materials and Equipment

- A. General Requirements
- (1) Contractor shall provide, mobilize to the project site, install, maintain in good working condition, and demobilize from the project site all materials and equipment required for the sound walls.
 - (2) Contractor shall provide, mobilize to the project site, install, maintain in good working condition, and demobilize from the project site all other materials and equipment necessary to comply with all local sound control and noise level rules, regulations, and ordinances.
- B. Sound Walls
- (1) Sound walls shall be a solid barrier a minimum of 15 feet high.

- (2) Sound walls shall be constructed of materials that have a low surface burning characteristic.
- (3) Sound walls and components shall be constructed of materials with a minimum Sound Transmissivity Classification (STC) of 18.

9.04 Methods

A. General

- (1) In addition to installing the sound walls as specified, the Contractor shall undertake necessary measures to ensure that operations at the project site comply with applicable local sound control and noise level rules, regulations and ordinances. Such measures may include:
 - a. Reconfiguring equipment at the site to minimize the noise travelling off-site.
 - b. Limiting excessively noisy operations to daytime hours.
 - c. Providing additional sound blankets or barriers around noisy equipment.

B. Sound Walls

- (1) Sound walls shall be erected as shown on Sheet 2 of the plans.
- (2) Sound walls shall be supported in a manner to sustain all wind gusts.
- (3) Sound walls shall be installed before drilling with the reverse circulation drilling rig commences.

C. Noise Control Plan

- (1) The Contractor shall prepare a Noise Control Plan that includes the following minimum components:
 - a. A list of the applicable local sound control and noise level rules, regulations and ordinances
 - b. A description of the measures that the Contractor will take to comply with these rules, regulations and ordinances. Measure must meet or exceed the City of Sacramento requirements.

D. Mufflers and Insulation

- (1) Each internal combustion engine shall be equipped with residential approved mufflers of a type recommended by the manufacturer as a minimum noise control. No internal combustion engine shall be operated without a muffler.
- (2) Air compressors and generators shall be insulated to further reduce noise levels.

SECTION 10 BID ITEM NO. 3 – CONDUCTOR CASING AND SANITARY SEAL

10.01 Scope of Work

- A. This bid item shall include the following:
- (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Mill Certification and delivery ticket for conductor casing.
 - (3) Drilling the conductor casing borehole, installing the conductor casing, installing the sanitary seal between the borehole and the conductor casing, and allowing the sanitary seal to cure for 24 hours.

10.02 Measurement and Payment

- A. This bid item will be measured to the nearest unit as the number of linear feet successfully installed.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
- (1) Bid Item No. 3 – Conductor Casing and Sanitary Seal.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

10.03 Materials and Equipment

- A. Contractor shall submit mill certification and delivery ticket to the City of conductor casing material.
- B. Conductor Casing
- (1) Conductor casing shall be 36-inch outside diameter with a minimum thickness of 7/16 inch. Casing shall be round such that no measured diameter of the casing is more than 1/8 inch larger or smaller than the specified diameter.
 - (2) Conductor casing shall be new and shall be fabricated of steel plate that meets the requirements of ASTM A-139 or A-53 Grade B, or approved equal. No hydrostatic testing of the conductor casing is required. Mill certification shall be submitted to the City a minimum of five (5) working days prior to drilling the conductor casing borehole.
 - (3) The conductor casing sections shall be a minimum of 20 feet long, unless a shorter length is required to obtain the specified total length of conductor casing.
 - (4) Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inch at any point from a true plane at right angles to the axis of the casing.

- (5) For field assembly by welding, section ends shall have collars of the same thickness and physical properties as the corresponding casing section, or beveled machined ends. The inside edge of the collars and the outside edge of the adjacent casing section shall be ground or sufficiently scarfed to remove sharp edges and burrs. If collars are used, a minimum of three (3) peep holes shall be provided to ensure proper alignment of the casing during installation.

C. Centralizers

- (1) Centralizers shall be made of the same material as the adjacent casing section, and shall be welded directly to the casing.
- (2) Centralizers shall be nominally 5/16 inch thick, two (2) inches wide, 36 inches long, bent to have a minimum of one (1) linear foot of bearing surface parallel to and at least four (4) inches away from the casing.

D. Sand-Cement Grout

- (1) Sand-cement grout shall consist of a mixture of ASTM C150, Type II cement, sand, and water in the proportion of not more than 2 parts, by weight, of sand to 1 part of cement with about seven (7) gallons of water per 94-pound sack of cement. This is equivalent to a 10.3-sack mix.
- (2) The water used to prepare the sand-cement grout shall be of drinking water quality, compatible with Type II cement, and free of contamination and suspended matter.
- (3) The sand-cement grout shall be well mixed and free of clumps.

E. Cement Pump

- (1) The cement pump shall be capable of pumping the sand-cement grout under pressure to the specified depth.
- (2) The cement pump shall be equipped with a pressure gage to allow for assessment of the force being exerted by the cement pump.

10.04 Methods

A. Borehole Drilling

- (1) Contractor shall drill a 48-inch diameter borehole to a depth of 75 feet below ground surface.
- (2) The borehole shall be sufficiently plumb and of sufficient diameter that the conductor casing can be installed plumb with a minimum of four (4) inches of annular space between the conductor casing and the borehole at all points.
- (3) The bottom of the conductor casing is intended to be installed in competent clay. Contractor shall notify the City if the material at the bottom of the specified conductor casing borehole depth is not competent clay.

B. Formation Sample Collection

- (1) During borehole drilling, the Contractor shall collect formation samples every 10 feet **and** more frequently when significant changes in formation type occur.
- (2) Samples shall be laid out on filter fabric on a flat, well-drained area. The area shall be out of the way of construction activities, and shall not be adjacent to noisy equipment. The samples shall be laid out in a regular pattern so that the depth of each sample is clearly identifiable. The samples shall be adequately preserved at the site to allow for evaluation by the City.
- (3) Each sample shall consist of two components:
 - a. One (1) gallon of drained, unwashed formation material. This sample shall be laid directly on the filter fabric.
 - b. One (1) pint of drained, unwashed formation material. This sample shall be placed inside a quart-sized plastic Ziploc ® freezer bag. The Contractor shall provide the sample bag. The sample bag shall be labeled with the well name and the date, time, and depth interval of the sample.
- (4) The Contractor shall retain the formation samples at the site until they are accepted by the City. The Contractor shall not be required to retain the formation samples after the completion of all work under this Contract.
- (5) The Contractor shall prepare a “driller’s log” of the formation samples. The “driller’s log” shall include the depth interval and a description of each distinct formation type encountered in the borehole.

C. Conductor Casing Assembly and Installation

- (1) Contractor shall weld a minimum of two (2) sets of four (4) centralizers onto the conductor casing assembly. Each set of four (4) centralizers shall be spaced equally around the circumference of the conductor casing. One set of centralizers shall be installed within five (5) feet of each end of the conductor casing assembly.
- (2) Contractor shall lap-weld the conductor casing joints during installation, with a minimum of two (2) passes per circumference. All joints shall be watertight. All peep holes shall be welded closed. All welding shall be in accordance with the Welding Program as described in Section 15.04.
- (3) Contractor shall install the conductor casing plumb and centered in the conductor casing borehole.

D. Sanitary Seal

- (1) Sanitary seal shall be pumped under pressure via tremie pipe. The tremie pipe shall be installed within five (5) feet of the bottom of the conductor casing borehole before placement of the seal begins. Tremie pipe shall be withdrawn as the seal is placed to avoid creating excessive pressure. Tremie pipe shall remain submerged in sand-cement grout throughout the entire seal placement.
- (2) The Contractor shall place a grate or screen over the cement pump hopper to remove gravel and clumps from the sand-cement grout prior to placement.

- (3) The sand-cement grout shall be pumped until it reaches ground surface. Once the sand-cement grout reaches ground surface, the Contractor shall withdraw the tremie pipe.
- (4) The sanitary seal shall be allowed to cure undisturbed for a minimum of 24 hours.

SECTION 11 BID ITEM NO. 4 – BOREHOLE DRILLING

11.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Drilling the production borehole, collecting formation samples, and monitoring and maintaining drilling fluid properties.

11.02 Measurement and Payment

- A. This bid item will be measured to the nearest unit as the number of linear feet successfully completed.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 4 – Borehole Drilling.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

11.03 Materials and Equipment

- A. The Contractor shall provide a mud balance, Marsh funnel, sand content set, and all related equipment and materials for measuring drilling fluid properties. If the Contractor uses bentonite as a drilling fluid additive, the Contractor shall also provide a filter press and all related equipment and materials.
- B. The Contractor shall provide mud tanks with a minimum capacity equal to the maximum borehole volume, and a configuration that effectively settles out drill cuttings before fluids are recirculated.
- C. Drilling Fluid Control Equipment
 - (1) The Contractor shall provide any or all of the following equipment as necessary to maintain the specified drilling fluid properties:
 - a. A shear mixing system.
 - b. Shale shakers.
 - c. De-sanders and de-silters.
 - d. Any other equipment necessary to maintain the specified drilling fluid properties.
- D. Drilling Fluids
 - (1) Drilling fluid additives must meet API Standard 13-A (Drilling Fluid Materials) or NSF Standard 60 (Drinking Water Treatment Chemicals), must be standard materials used in the water well drilling industry, and must be used in accordance with the manufacturer's recommendations.

- (2) The Contractor shall use only potable water to prepare drilling fluids, and shall treat the water as necessary before use.
- (3) Drilling fluid properties shall be within the following ranges unless otherwise approved by the City:
 - a. For all drilling fluids, including bentonite drilling fluids:
 - (i) Mud Weight: 8.6 – 9.1 pounds per gallon.
 - (ii) Marsh Funnel Viscosity: 28 – 34 seconds per quart.
 - (iii) Sand Content: less than 2% by volume.
 - b. For bentonite drilling fluids:
 - (i) Filter Cake Thickness (30 minutes at 100 PSI): 1/32 to 2/32 inch.
 - (ii) Water Loss/Filtrate (30 minutes at 100 PSI): low enough to control water-sensitive clay formations.

11.04 Methods

A. Drilling Fluid Control Program

- (1) The purpose of the Drilling Fluid Control Program is to maintain a drilling fluid that facilitates removal of cuttings from the borehole, controls difficult drilling conditions, and protects the water-bearing formations.
- (2) The Contractor shall prepare a Drilling Fluid Control Program that includes:
 - a. A diagram of the configuration of drilling fluid control equipment that the Contractor plans to use for the project. The diagram shall be annotated with descriptions of each piece of equipment; alternately, the Contractor shall submit a separate list of equipment.
 - b. A written plan for maintaining the specified drilling fluid properties. The plan shall include:
 - (i) Water to be used in the drilling fluid, and any water treatment required.
 - (ii) A description of all drilling fluid additives that the Contractor anticipates using in borehole drilling, including the anticipated quantities and mix ratios.
 - (iii) Proposed development methods to remove drilling fluid additives from the completed well.
 - (iv) Methods that the Contractor intends to employ to control difficult drilling conditions such as lost circulations, water-sensitive clay formations, and any other difficult conditions the Contractor anticipates encountering during borehole drilling.
 - (v) Proposed maximum acceptable water loss that the Contractor will maintain throughout drilling to control water-sensitive clay formations.

- (vi) Proposed drilling fluid properties for any portions of the borehole where the Contractor wishes to deviate from the specified drilling fluid properties (only for portions of the borehole that will be sealed against). The Contractor shall provide justification of why different drilling fluid properties are warranted in these portions of the borehole.
 - c. Material Safety Data Sheets for all drilling fluid additives that the Contractor anticipates using during borehole drilling, including all drilling fluid additives that are stored at the project site.
- (3) The Contractor shall submit the Drilling Fluid Control Program to the City a minimum of five (5) working days prior to beginning borehole drilling.

B. Record-Keeping

- (1) The Contractor shall maintain detailed records during borehole drilling, and shall make records available to the City upon request.
- (2) The Contractor shall maintain the following records during borehole drilling:
 - a. Continuous record of drilling penetration rate.
 - b. All measurements of drilling fluid properties.
 - c. Time, depth, quantity, and description of any additives to the drilling fluid.
 - d. Any difficult or unusual drilling conditions.
 - e. Depth and description of formation samples.
 - f. Depth and description of any observable changes in formation color.
 - g. Time and reason for any interruptions in borehole drilling.

C. Borehole Drilling

- (1) Using the reverse rotary method, Contractor shall drill a 30-inch diameter borehole to a depth of 1,203 feet below ground surface.
 - a. The completed borehole must be of sufficient diameter and sufficient plumbness so that when the well casing and screen assembly is installed as specified and in compliance with the plumbness and alignment requirements, there is a minimum of five (5) inches of annular space between the well casing and screen assembly and the borehole at all points.
 - b. The Contractor shall not drill below the specified depth to avoid poorer water quality below that depth. Should the Contractor drill below the specified depth, the Contractor shall backfill the borehole to the specified depth by installing bentonite chips via tremie pipe, unless otherwise approved by the City. No payment shall be made for borehole drilling below the specified depth or for backfilling to the specified depth.
- (2) The Contractor may drill a smaller diameter pilot hole and ream the pilot hole to the specified diameter. If the Contractor chooses this option, all of the requirements for borehole drilling shall apply to the pilot borehole and the reaming operation. The Contractor shall use a pilot bit when reaming.

- (3) Contractor shall select a drilling assembly (including collar weight) and drilling speed that allows the Contractor to maintain the plumbness and alignment of the borehole within the specified parameters. Contractor is encouraged to make field checks of plumbness during drilling.

D. Drilling Fluid Control

- (1) Contractor shall measure drilling fluid properties (mud weight, viscosity, sand content, and water loss) a minimum of once every four (4) hours during borehole drilling.
- (2) The City will measure drilling fluid properties periodically during borehole drilling. These measurements are intended to independently verify and check the Contractor's measurements, and do not relieve the Contractor of the responsibility to measure drilling fluid properties.
- (3) If, at any time during borehole drilling, drilling fluid properties are not within the ranges specified above, the Contractor shall cease drilling and shall circulate and condition the drilling fluid until it falls within the specified ranges.
- (4) If the Contractor cannot maintain the specified drilling fluid properties, the Contractor shall employ, at Contractor's own expense, a qualified drilling fluid engineer. The drilling fluid engineer shall consult with the Contractor, measure drilling fluid properties, and assist the Contractor with adjusting the drilling fluid as necessary to achieve the specified drilling fluid properties.
- (5) All drilling fluid additives must be approved by the City prior to use.

E. Formation Sample Collection

- (1) During borehole drilling, the Contractor shall collect formation samples every 10 feet **and** more frequently when significant changes in formation type occur.
- (2) Samples shall be laid out on filter fabric on a flat, well-drained area. The area shall be out of the way of construction activities, and shall not be adjacent to noisy equipment. The samples shall be laid out in a regular pattern so that the depth of each sample is clearly identifiable. The samples shall be adequately preserved at the site to allow for evaluation by the City.
- (3) Each sample shall consist of two components:
 - a. One (1) gallon of drained, unwashed formation material. This sample shall be laid directly on the filter fabric.
 - b. One (1) pint of drained, unwashed formation material. This sample shall be placed inside a quart-sized plastic Ziploc ® freezer bag. The Contractor shall provide the sample bag. The sample bag shall be labeled with the well name and the date, time, and depth interval of the sample.
- (4) The Contractor shall retain the formation samples at the site until they are accepted by the Engineer. The Contractor shall not be required to retain the formation samples after the completion of all work under this Contract.

- (5) The Contractor shall prepare a “driller’s log” of the formation samples. The “driller’s log” shall include the depth interval and a description of each distinct formation type encountered in the borehole.

F. Final Conditioning of Drilling Fluids

- (1) Once the Contractor has drilled to the full specified well depth, the Contractor shall circulate and condition the drilling fluid until the drilling fluid properties are within the following ranges:
 - a. Mud Weight: less than 8.9 pounds per gallon.
 - b. Marsh Funnel Viscosity: less than 30 seconds per quart.
- (2) The Contractor shall continue to circulate drilling fluids, conditioning the fluids as necessary, until all of the following have occurred:
 - a. Fluid circulated out of the borehole does not contain drill cuttings.
 - b. Circulation has continued for a minimum of 60 minutes, or until two (2) borehole volumes have been circulated, whichever is longer.
 - c. Three (3) consecutive measurements of drilling fluid properties, made a minimum of 30 minutes apart, confirm that the specified drilling fluid properties have been obtained.

SECTION 12 BID ITEM NO. 5 – TEMPORARY ZONE SAMPLING

12.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Installing and conducting temporary zone sampling of two aquifer zones
 - (3) Conducting temporary well development and well pumping.

12.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 5 – Temporary Zone Sampling.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

12.03 Materials and Equipment

- A. Well Screen (temporary)
 - (1) Contractor shall construct a temporary well with ten (10) feet of mill slotted well screen with 0.050-inch slot size.
 - (2) The temporary well screen shall be placed at the end of the drill stem or steel pipe and shall be a minimum five (5)-inch diameter.
- B. Gravel Envelope (temporary)
 - (1) The temporary gravel envelope material shall be SRI #8.
- C. Bentonite Seal (temporary)
 - (1) Bentonite Chips for the temporary seal shall be graded to be between ¼- and 3/8-inch.
- D. Submersible Pump
 - (1) Submersible pump shall be capable of producing 50 gallons per minute, or greater.

12.04 Methods

- A. The Contractor shall drill to a depth of approximately 1,000 feet, with either a pilot borehole or the 30-inch diameter borehole, if borehole drilling is conducted in a single pass.
- B. The Contractor shall install the temporary well screen at the specified depth.
- C. Maintaining Drilling Fluid Circulation

- (1) Prior to beginning the installation of the temporary well casing and well screen, the Contractor shall circulate drilling fluids until all of the following have occurred:
 - a. Circulation has continued for a minimum of 30 minutes, or until one and one-half (1 1/2) borehole volumes have been circulated, whichever is longer.
 - b. Two (2) consecutive measurements of drilling fluid properties, made a minimum of 30 minutes apart, confirm that the specified drilling fluid properties have been obtained.

D. Temporary Well

- (1) The Contractor shall construct the first temporary well with the screen sections set from 955 feet to 965 feet.
- (2) Following water quality sampling of the first zone, the Contractor shall raise the casing and screen and construct the second temporary well with the screen set from 845 feet to 855 feet.

E. Gravel Envelope (temporary)

- (1) Gravel envelope material shall be placed in the annular space between the borehole and the temporary well, from the bottom of the borehole to fifteen (15) feet over the top of the temporary well screen.

F. Bentonite Seal (temporary)

- (1) Temporary bentonite seals shall be placed in the annular space between the borehole and the temporary well.
- (2) Ten (10) feet of bentonite chip material shall be placed through a tremie pipe on top of the temporary gravel pack. Bentonite chip material shall be placed slowly to avoid plugging the tremie pipe.

G. Development Pumping

- (1) Development pumping shall be conducted by air-lifting for six hours followed by development with the submersible pump. During both processes, the Contractor shall conduct pumping and surging until pumping and surging produces visibly clear water.
- (2) Development pumping shall continue for eight (8) hours.

H. Final Zone Pumping

- (1) The Contractor shall pump the temporary well at a constant flow rate for six (6) hours, or until a representative aquifer sample is obtained.
- (2) The City will collect water samples for analysis at the end of the constant rate pumping.

SECTION 13 BID ITEM NO. 6 – GEOPHYSICAL SURVEYS

13.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Providing caliper, deviation, spontaneous potential, gamma ray and resistivity (single-point, 16-inch normal, and 64-inch normal) surveys and up to four (4) hours of idle time for the Engineer to interpret the geophysical surveys and modify the well design if necessary.

13.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 6 – Geophysical Surveys.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

13.03 Materials and Equipment

- A. Drawworks for Running Geophysical Surveys
 - (1) The drawworks shall measure the depth of the measurement tool to the nearest foot.
 - (2) The drawworks shall be calibrated such that the error in depth measurement does not exceed one (1) percent.
 - (3) The Contractor shall verify calibration of the drawworks upon request. Calibration shall be to within 0.25 percent.
- B. Caliper Logging Tool
 - (1) The caliper logging tool shall be equipped with two sets of measurement arms that are perpendicular to each other. Each set of measurement arms shall operate independently, and shall consist of two arms separated by 180 degrees.
 - (2) The caliper logging tool shall be equipped with a deviation measurement device.
- C. Electric Logging Tool
 - (1) The electric logging tool shall include equipment to perform spontaneous potential and resistivity (single-point, 16-inch normal, 64-inch normal) surveys.
- D. Geophysical Survey Subcontractors
 - (1) Geophysical survey subcontractors must be approved by the City.

13.04 Methods

- A. Geophysical surveys shall be run to the full depth of the production well and shall include caliper, gamma, spontaneous potential, and resistivity (single-point, 16-inch normal, and 64-inch normal) surveys.
- B. The spontaneous potential and resistivity portions of the geophysical surveys may be run in the pilot borehole (if used) or in the full-diameter borehole. The caliper survey must be run in the full-diameter borehole.
- C. Geophysical surveys shall be run at a maximum rate of 40 feet per minute.
- D. The scale of the geophysical surveys shall be as follows:
 - (1) The vertical scale shall be 20 feet per inch.
 - (2) The horizontal scale is estimated to be 20 millivolts per inch for spontaneous potential, and 40 ohmmeter²/meter per inch for the 16-inch normal and 64-inch normal resistivity.
- E. The geophysical surveys shall measure the intended geophysical properties, and shall be presented in a manner that allows the City to fully evaluate the geophysical properties of the borehole for the purpose of finalizing the well design.
- F. Upon completion of the geophysical surveys, the Contractor shall provide the City with eight (8) field hard copies and one (1) electronic copy of the geophysical surveys. Within one (1) week of completion of the geophysical surveys, the Contractor shall provide the City with six (6) final hard copies, and one (1) ASCII-format file of the geophysical surveys.
- G. The Contractor shall provide the Engineer with an estimate of the volume of gravel required to construct the well as specified and shown in Drawing W-3 based on the actual borehole diameter as measured during the caliper survey.
- H. Immediately upon completion of the geophysical surveys, the Contractor shall run tremie pipe to the full well depth and begin to circulate drilling fluids. Alternately, if the Contractor is not prepared to begin well construction, the Contractor may make a wiper pass of the borehole.
- I. The Contractor shall allow for a maximum of four (4) hours of idle time after the completion of the final geophysical surveys to allow the City to interpret the geophysical surveys and modify the well design if necessary. No stand-by time shall be paid for the first four (4) hours of idle time.

SECTION 14 BID ITEMS NOS. 7 THROUGH 10 – WELL CASING, WELL SCREEN, GRAVEL FILL PIPE, AND SOUNDING PIPES

14.01 Scope of Work

A. This bid item shall include the following:

- (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
- (2) Mill Certifications and delivery tickets for well casing, well screen, and accessory pipes.
- (3) Installing well casing, well screen, and accessory pipes.

14.02 Measurement and Payment

A. These bid items will be measured to the nearest unit as the number of linear feet successfully installed.

B. These bid items, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:

- (1) Bid Item No. 7A – Blank Well Casing (18.00-inch O.D. x 3/8-inch Wall A-53 Grade B Steel Casing).
- (2) Bid Item No. 7B – Blank Well Casing (18.00-inch O.X. x 3/8-inch Wall ASTM A-778 Type 304 Stainless Steel Casing).
- (3) Bid Item No. 7C – Blank Well Casing (18.00-inch O.D. x 5/16-inch Wall ASTM A-778 Type 304 Stainless Steel Casing).
- (4) Bid Item No. 8 – Well Screen (18.00-inch O.D. x 5/16-inch Louvered Type 304 Stainless Steel Screen).
- (5) Bid Item No. 9 – Sounding Pipe (2-inch Schedule 40 Mild Steel Pipe).
- (6) Bid Item No. 10 – Gravel Fill Pipe (3-inch Schedule 40 Mild Steel Pipe).

C. Ten (10) percent of all payment for these bid items shall be withheld by the City until the completed project is accepted.

14.03 Materials and Equipment

A. Steel Blank Well Casing

- (1) Steel blank well casing shall be 18.00-inch outside diameter with a wall thickness of 3/8 inch. Casing shall be round such that no measured diameter of the casing is more than 1/8 inch larger or smaller than the specified diameter.
- (2) Steel blank well casing shall be new and shall be manufactured in accordance with ASTM A-53 Grade B Steel or ASTM A-139 Steel
- (3) Mill certification shall be submitted to the City a minimum of five (5) working days prior to borehole drilling.

- (4) The casing sections shall be a minimum of 40 feet long, unless a shorter length is required to obtain the specified lengths of well casing.
- (5) Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inch at any point from a true plane at right angles to the axis of the casing.

B. Stainless Steel Blank Well Casing

- (1) Stainless steel blank well casing shall be 18.00-inch outside diameter with a wall thickness of 3/8 inch and 5/16 inch, as indicated on the drawings. Casing shall be round such that no measured diameter of the casing is more than 1/8 inch larger or smaller than the specified diameter.
- (2) Blank well casing shall be new and shall be manufactured in accordance with ASTM A-778 Type 304 Stainless Steel.
- (3) Mill certification shall be submitted to the City a minimum of five (5) working days prior to borehole drilling.
- (4) The casing sections shall be a minimum of 40 feet long, unless a shorter length is required to obtain the specified lengths of well casing.
- (5) Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inch at any point from a true plane at right angles to the axis of the casing.
- (6) The bottommost section of the well casing shall be equipped with an SE-type end cap that is fabricated of the same thickness and physical properties of the corresponding casing section.

C. Louvered Well Screen

- (1) Well screen shall be louvered with a "Ful-Flo" perforation pattern.
- (2) Well screen shall be 18.00-inch outside diameter and 5/16-inch thick, with slot size of 0.060-inches.
- (3) Well screen shall be new and shall be manufactured from ASTM A-778 Type 304 stainless steel.
- (4) Mill certification shall be submitted to the City a minimum of five (5) working days prior to borehole drilling.
- (5) The screen sections shall be 40 feet long, unless a shorter length is required to obtain the specified lengths of well screen.
- (6) Section ends shall be machined flat perpendicular to the axis of the casing and shall not vary more than 0.010 inch at any point from a true plane at right angles to the axis of the casing.

D. Well Casing and Screen Collars

- (1) For field assembly by welding, well casing and screen section ends shall have collars of the same thickness and physical properties as the corresponding casing

or screen section. Collars shall be a minimum of five (5) inches wide for blank well casing and four (4) inches wide for well screen.

- (2) Clearance between the well casing or screen outside diameter and the adjacent collar inside diameter shall be between 1/32 inch and 3/32 inch.
- (3) The inside edge of the collars and the outside edge of the adjacent casing section shall be ground or sufficiently scarfed to remove sharp edges, burrs, and welding to allow for proper assembly of adjacent casing and screen sections.
- (4) Collars shall have three (3) peep holes to allow for proper alignment of adjacent casing sections. The peep holes shall be equally spaced around the circumference of the collar.

E. Gravel Fill Pipe

- (1) Gravel fill pipe shall be three (3)-inch diameter Schedule 40 black steel pipe.
- (2) Mill certification shall be submitted to the City a minimum of five (5) working days prior to borehole drilling.
- (3) For field assembly by welding, section ends shall be beveled for butt welding or have collars of the same thickness and physical properties as the corresponding casing section. If used, the collars and the outside edge of the adjacent casing section shall be ground or sufficiently scarfed to remove sharp edges and burrs.

F. Sounding Pipes

- (1) The sounding pipes shall be two (2)-inch diameter Schedule 40 black steel pipe.
- (2) Mill certification shall be submitted to the City a minimum of five (5) working days prior to borehole drilling.
- (3) For field assembly by welding, section ends shall have collars of the same thickness and physical properties as the corresponding casing section. The inside edge of the collars and the outside edge of the adjacent casing section shall be ground or sufficiently scarfed to remove sharp edges and burrs.
- (4) The Contractor shall provide "U"-shaped brackets, fabricated of the same material as the sounding pipe, to secure the sounding pipe to the well casing assembly during installation.

G. Sounding Ports

- (1) The Contractor shall provide two (2) sounding ports to serve as an inlet structure from the sounding pipes into the well casing.
- (2) The sounding ports shall have the same thickness and physical properties as the corresponding well casing section.
- (3) The sounding ports shall have no sharp edges or other obstructions that would cause damage to equipment, or otherwise impede the use of the sounding port to lower equipment into the well.
- (4) The sounding port dimensions shall be as shown in Drawing W-4 of the Plans.

- (5) The Contractor shall submit a Shop Drawing of the sounding ports to the City a minimum of five (5) working days prior to borehole drilling.

H. Centralizers

- (1) Centralizers shall be made of the same material as the adjacent casing section, and shall be welded directly to the casing.
- (2) Centralizers shall be nominally 3/8 inch thick, two (2) inches wide, 36 inches long, bent to have a minimum of one (1) linear foot of bearing surface parallel to and at least four (4) inches away from the casing.

14.04 Methods

A. Maintaining Drilling Fluid Circulation

- (1) Prior to beginning the installation of the well casing, well screen, and accessory pipes, the Contractor shall circulate drilling fluids until all of the following have occurred:
 - a. Circulation has continued for a minimum of 30 minutes, or until one and one-half (1 1/2) borehole volumes have been circulated, whichever is longer.
 - b. Two (2) consecutive measurements of drilling fluid properties, made a minimum of 30 minutes apart, confirm that the specified drilling fluid properties have been obtained.
- (2) The Contractor shall continue to circulate drilling fluid through the tremie pipe throughout the installation of the well casing, well screen, and accessory pipes. The tremie pipe shall extend to the total depth of the borehole.

B. Orientation of Accessory Pipes

- (1) The orientation of the accessory pipes will be provided to the Contractor at the pre-construction meeting.
- (2) The accessory pipes shall be clearly labeled.

C. Welding Program

- (1) All welding shall be performed by certified welders.
- (2) All welding rods and techniques shall be appropriate for the material(s) being welded.
- (3) The Contractor shall prepare a Welding Program that includes:
 - a. Documentation of welder certification.
 - b. The type of welding rod to be used to connect each material in the well casing and screen assembly, and the accessory pipes.
 - c. Specific techniques appropriate to the various material types and thicknesses to be welded.
- (4) The Welding Program shall be submitted to the City a minimum of five (5) working days prior to the beginning of borehole drilling.

D. Gravel Fill Pipe

- (1) The gravel fill pipe shall be installed to the specified depth before installation of the well casing and screen assembly.
- (2) The gravel fill pipe joints shall be welded and shall be watertight. All peep holes (if used) shall be welded closed.
- (3) Nothing shall be added to the gravel fill pipe during construction unless specifically authorized by the City.
- (4) The gravel fill pipe, when installed to the specified depth, shall extend two (2) feet above ground surface.

E. Well Casing and Screen Assembly

- (1) The well casing and screen assembly shall be suspended in tension from the surface throughout installation. The use of float plugs is prohibited. The Contractor shall not drive or “spud” the well casing and screen assembly.
- (2) The Contractor shall assemble the well casing and screen assembly as shown in the Plans, and shall install the well casing and screen assembly to the specified depth, so the screen sections are positioned at the depths shown in the Plans.
- (3) The Contractor shall install the sounding port as shown in the Plans, so the sounding port is positioned at the depth shown in the Plans. The joint between the sounding port and the well casing shall be watertight. All rough edges and burrs along the lower edge of the joint between the sounding port and the well casing shall be ground smooth.
- (4) Contractor shall lap-weld the well casing and screen joints during installation, with a minimum of two (2) passes per circumference. All joints shall be watertight. All peep holes shall be welded closed.
- (5) The well casing and screen assembly, when installed to the specified depth, shall extend three (3) feet above ground surface.

F. Centralizers

- (1) Contractor shall weld sets of four (4) centralizers onto the well casing and screen assembly during installation.
- (2) Centralizers shall only be welded to the well casing, or welding rings. Centralizers shall not be welded to the well screen.
- (3) Each set of four (4) centralizers shall be spaced equally around the circumference of the well casing and screen assembly and shall be oriented the same.
- (4) Sets of centralizers shall be installed above and below each well screen section and every 80 feet along the well casing and screen assembly.

G. Sounding Pipe Assembly

- (1) The sounding pipes shall be installed concurrently with the well casing and screen assembly.

- (2) Each sounding pipe shall be welded to its corresponding sounding port
- (3) The sounding pipe joints shall be welded and shall be watertight.
- (4) Each sounding pipe shall be attached to the well casing and screen assembly with “U”-shaped brackets that are welded to the well casing, retaining the sounding pipe parallel to the well casing and screen assembly but allowing for some vertical movement of the sounding pipe. The “U”-shaped brackets shall not be welded to the well screen. The “U”-shaped brackets shall be spaced no more than 80 vertical feet apart along the well casing and screen assembly, except where longer sections of well screen are present, in which case “U”-shaped brackets shall be placed above and below the screen sections. The sounding pipe shall not be welded to the “U”-shaped brackets or to the well casing and screen assembly.
- (5) The sounding pipe, when installed to the specified depth, shall extend two (2) feet above ground surface.
- (6) The sounding pipe shall not be retained against the well casing and screen assembly within 40 feet of ground surface. A spacer bar shall be welded between the well casing and the sounding pipe just below ground surface, so the sounding pipe rests against the conductor casing at ground surface.

SECTION 15 **BID ITEM NO. 11 – GRAVEL ENVELOPE & TRANSITION SEAL**

15.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Installing the gravel envelope between the borehole and the well casing and screen assembly, and performing initial consolidation of the gravel envelope.
 - (3) Installing the bentonite chip material between the borehole and the well casing and screen assemblies.

15.02 Measurement and Payment

- A. This bid item will be measured to the nearest unit as the number of linear feet successfully installed.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 11 – Gravel Envelope & Transition Seal.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

15.03 Materials and Equipment

- A. Gravel
 - (1) Gravel envelope material shall be CEMEX “Monterey Sand”.
 - (2) The gravel envelope shall have a gradation of 8 x 16.
 - (3) Gravel envelope material shall comply with the Manufacturer’s Specifications, as determined by the City through sieve analysis of selected samples of the gravel envelope material.
 - (4) Gravel envelope material shall be well-rounded, washed, and free of organic materials.
 - (5) Contractor shall submit a sieve analysis of a recent production run and 500 grams of gravel to the Engineer for approval prior to commencing with borehole drilling.
 - (6) Contractor shall submit a shop drawing illustrating how the gravel envelope will be installed.
- B. Fine Sand
 - (1) Fine sand shall be 30 mesh gradations and consist of sound, non-reactive material. Crushed aggregate will not be accepted. The sand shall be free of vegetative matter. A sample of the sand shall be submitted to the City prior to installation for approval.

C. Sodium Hypochlorite

- (1) Sodium hypochlorite shall be provided in a liquid solution. No powder or pellet products will be allowed.
- (2) “Regular” household bleach or liquid pool chlorine may be used. No fragranced products, “ultra” bleach, or other products with additives will be allowed.

D. Gravel Consolidation Tool

- (1) The Contractor shall provide a wire-line swab tool or bailer for initial consolidation of the gravel envelope. The selected wire-line tool shall be approved by the City prior to use.

15.04 Methods

A. General Requirements

- (1) The Contractor shall not add anything other than fresh water to the gravel fill pipe unless specifically authorized by the City.
- (2) Gravel envelope material shall be stored in a manner that prevents foreign material from being mixed with the gravel envelope material.
- (3) A minimum of five (5) working days prior to beginning borehole drilling, the Contractor shall provide the City with a diagram showing the planned gravel envelope installation equipment and method.
- (4) At the time of the geophysical surveys, the Contractor shall provide the City with a revised estimate of the volume of gravel required to construct the well as specified, based on the actual borehole diameter as measured during the caliper survey.

B. Gravel Installation

- (1) Gravel envelope material shall be placed in the annular space between the borehole and the well casing and screen assembly, from the bottom of the borehole to top of the gravel envelope, as specified in the Plans.
- (2) Gravel envelope material shall be placed through a tremie pipe. The tremie pipe shall be installed within 10 feet of the bottom of the borehole before gravel placement begins, and shall be withdrawn as the gravel is placed. The tremie pipe shall be no more than 40 feet above the top of the gravel during placement.
- (3) Gravel envelope material shall be placed with conditioned drilling fluid. No contaminated fluid or water shall be used to place gravel envelope material. The Contractor shall exercise care to avoid creating a density inversion during placement of the gravel envelope material.
- (4) Gravel envelope material shall be disinfected as it is installed by adding 1/2 gallon of 5.5% sodium hypochlorite solution to every 3,000 pound “super sack” of gravel. If a different concentration of sodium hypochlorite solution is used, this proportion shall be adjusted accordingly.

- (5) Once the gravel envelope has been placed as specified, the Contractor shall resume circulation of drilling fluid through the tremie pipe.

C. Fine Sand Transition

- (1) Fine sand shall be installed immediately above the gravel envelope.
- (2) Fine sand shall be placed in the annular space between the borehole and the well casing, as specified in the Plans.
- (3) Fine sand shall be placed through a tremie pipe. The tremie pipe shall be installed within five (5) feet of the top of the gravel envelope before placement of the fine sand material begins.

D. Initial Consolidation

- (1) The Contractor shall begin initial consolidation of the gravel envelope by working the selected wire-line gravel consolidation tool opposite the screen sections of the well. Initial consolidation shall continue for a minimum of 30 minutes, or until no measurable settling of the gravel envelope occurs with further initial consolidation.
- (2) The volume of gravel envelope material placed shall be equal to or greater than the calculated volume of the annular space being filled, based on the actual borehole diameter as measured in the caliper survey. If the volume of gravel envelope material placed is less than the calculated volume of the annular space being filled, it shall be considered an indication that voids are present in the gravel envelope, and the Contractor shall be required to perform additional consolidation of the gravel envelope, or other remedies. No such remedies shall be performed without the authorization of the City.

SECTION 16 BID ITEM NO. 12 – ANNULAR SEAL

16.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Installing the annular seal between the borehole/conductor casing and the well casing and screen assembly, and allowing the annular seal to cure for 24 hours.

16.02 Measurement and Payment

- A. This bid item will be measured to the nearest unit as the number of linear feet successfully installed.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 12 – Annular Seal.
- C. Ten (10) percent of all payment for these bid items shall be withheld by the City until the completed project is accepted.

16.03 Materials and Equipment

- A. Sand-Cement Grout
 - (1) Sand-cement grout shall consist of a mixture of ASTM C150, Type II cement, sand, and water in the proportion of not more than two (2) parts, by weight, of sand to one (1) part of cement with about seven (7) gallons of water per 94-pound sack of cement. This is equivalent to a 10.3-sack mix.
 - (2) The water used to prepare the sand-cement grout shall be of drinking water quality, compatible with Type II cement, and free of contamination and suspended matter.
 - (3) The sand-cement grout shall be well mixed and free of clumps.
- B. Cement Pump
 - (1) The cement pump shall be capable of pumping the sand-cement grout under pressure to the specified depth.
 - (2) The cement pump shall be equipped with a pressure gage to allow for assessment of the force being exerted by the cement pump.

16.04 Methods

- A. Annular Seal
 - (1) Annular seal shall be pumped under pressure via tremie pipe. The tremie pipe shall be installed within five (5) feet of the top of the fine sand transition before placement of the seal begins. Tremie pipe shall be withdrawn as the seal is

placed to avoid creating excessive pressure. Tremie pipe shall remain submerged in sand-cement grout throughout the entire seal placement.

- (2) The annular seal shall be placed in three lifts. The first lift shall extend from the top of the fine sand transition to 650 feet below ground surface. The second lift shall extend from 650 feet to 300 feet below ground surface. The third lift shall extend from 300 feet below ground surface to ground surface. The cement will be allowed to set for four (4) hours between each lift. The tremie pipe shall be installed within five (5) feet of the top of each lift before placement begins.
- (3) The Contractor shall place a grate or screen over the cement pump hopper to remove gravel and clumps from the sand-cement grout prior to placement.
- (4) The sand-cement grout shall be pumped until it reaches ground surface. Once the sand-cement grout reaches ground surface, the Contractor shall withdraw the tremie pipe.
- (5) The annular seal shall be allowed to cure undisturbed for a minimum of 24 hours.
- (6) No fluids shall be introduced inside the well casing during annular seal placement.

SECTION 17 BID ITEM NO. 13 – TEST PUMP INSTALLATION

17.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Transporting test pump personnel, equipment, and materials to the project site.
 - (3) Installing and removing the test pump and related equipment.
 - (4) Removing foreign material and sediment from the well before installing and after removing the test pump.
 - (5) Demobilizing test pump personnel, equipment and materials from the project site.

17.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 13 – Test Pump Installation.
- C. This bid item will be paid according to the following schedule:
 - (1) 70 percent after transporting test pump personnel, equipment, and materials to the project site and installing the test pump and related equipment.
 - (2) 30 percent after removing the test pump and related equipment and transporting test pump personnel, equipment, and materials from the project site (demobilization).
- D. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

17.03 Materials and Equipment

- A. General Requirements
 - (1) Contractor shall provide, mobilize to the project site, set up, operate, maintain in good working condition, and demobilize from the project site, all of the equipment listed in this section.
 - (2) The test pump and related equipment shall be capable of performing all development and test pumping as specified.
 - (3) All measurement devices are subject to approval by the City.
- B. Vertical Turbine Test Pump

- (1) Vertical turbine test pump shall be capable of producing, and shall be equipped to produce, between 25 percent and 200 percent of the design capacity from a depth of 360 feet below ground surface.
 - (2) No foot valve shall be installed on the column pipe.
- C. Test Pump Engine and Drive Shaft
- (1) Test pump engine and drive shaft assembly shall be capable of continuously operating as required to produce the specified minimum flow rate and discharge head.
 - (2) Test pump engine and drive shaft assembly shall be capable of pumping and surging, and shall not have a non-reverse ratchet installed.
- D. Water Level Measurement Device
- (1) Water level measurement device shall be capable of measuring water levels to the nearest 0.01 foot, with measurements repeated every minute.
- E. Stop Watch
- (1) Contractor must provide a stopwatch or other device for accurately measuring the elapsed time during development and test pumping to the nearest second.
- F. Discharge Assembly
- (1) Discharge assembly shall be of suitable size, length, and configuration to direct the discharge during development and test pumping to the specified location without generating nuisance water at the project site.
 - (2) Discharge assembly shall be equipped with a totalizer, flowmeter, and Rossum centrifugal sand tester. Equipment, as installed, shall be accurate for measuring instantaneous flow rate, total volume pumped, and sand content. Discharge assembly shall also be equipped with a tap for water quality sampling.
 - (3) Discharge assembly shall be equipped with a valve that can be adjusted to allow the totalizer and flowmeter function properly at flow rates between 25 percent and 200 percent of the design capacity.
 - (4) Contractor shall provide erosion control at the discharge point, including as necessary: plastic sheeting, energy dissipating devices, rip-rap, and other erosion control materials. Erosion control shall be adequate to prevent damage to the discharge point.
- G. Wire-Line Bailer
- (1) Contractor shall provide a wire-line bailer and all associated equipment to properly remove sediment from the well.

17.04 Methods

- A. Contractor shall provide, mobilize to the project site, set up, operate, maintain in good working condition, and demobilize from the project site, all of the equipment listed in this section.

- B. Before installing the test pump, the Contractor shall remove all sediment from the sump of the well using a wire-line bailer.
- C. After uninstalling the test pump, the Contractor shall remove all sediment from the sump of the well using a wire-line bailer. Contractor shall also remove any foreign material, including oil and grease, from the well.

SECTION 18 BID ITEM NO. 14 – WELL DEVELOPMENT

18.01 Scope of Work

- A. This bid item shall include the following:
- (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Developing the well by open-ended airlifting, swab-airlifting, and pumping for the minimum times specified, or until the well meets the turbidity, sand content, and efficiency requirements, whichever is longer.
 - (3) Providing and placing AQUA-CLEAR™ PFD, and allowing the well to remain idle for 12 to 24 hours.

18.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
- (1) Bid Item No. 14 – Well Development.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

18.03 Materials and Equipment

- A. Swab-Airlifting Tool
- (1) The swab-airlifting tool shall attach to the end of the drill pipe, and shall consist of two rubber flanges. The rubber flanges shall be spaced no more than 10 feet apart. The outside diameter of the rubber flanges shall be no more than 1/8 inch smaller than the inside diameter of the well screen.
- B. Sodium Hypochlorite
- (1) Sodium hypochlorite shall be provided in a liquid solution. No powder or pellet products will be allowed.
 - (2) Sodium hypochlorite shall contain no additives and shall be NSF Standard 60 certified.
 - (3) Sodium hypochlorite shall be provided in the original sealed container.
 - (4) Sodium hypochlorite shall be recently purchased and properly stored to ensure the concentration of the solution has not degraded.
- C. Dispersant Chemical
- (1) The only approved dispersant chemical is Baroid Industrial Drilling Products AQUA-CLEAR™ PFD. No other dispersant chemicals may be used without the pre-authorization of the City.

- (2) The Contractor shall provide and utilize ten (10) gallons of AQUA-CLEAR™ PFD.

18.04 Methods

- A. A minimum of five (5) working days prior to beginning borehole drilling, the Contractor shall provide the City with a diagram of the planned configuration of equipment and discharge piping to be used for well development.
- B. Record-Keeping
 - (1) The Contractor shall maintain detailed records during well development, and shall make records available to the City upon request.
 - (2) Static water level shall be recorded at the beginning of each day of well development, before any water has been moved.
 - (3) The following parameters shall be recorded at least every 30 minutes during well development:
 - a. Time, measured to the nearest minute.
 - b. Flow rate, measured to the nearest 100 gallons per minute.
 - c. Water level, measured to the nearest 0.1 foot.
 - d. Drawdown from static water level, calculated to the nearest foot.
 - e. Instantaneous specific capacity, calculated to the nearest whole number.
 - f. Sand production, to the nearest 0.01 cubic centimeters.
 - g. Any observations of unusual or changed conditions, including: odor, gas, color, or other conditions.
- C. Open-Ended Airlifting
 - (1) The Contractor shall begin open-ended airlifting through the drill pipe within 36 hours of the placement of the annular seal.
 - (2) The Contractor shall begin open-ended airlifting gradually to avoid creating differential pressures that could lead to well casing collapse.
 - (3) Open-ended airlifting shall continue for a minimum of six (6) hours, or until all of the following have occurred:
 - a. Drilling fluid is removed from the well.
 - b. No measurable settling of the gravel envelope occurs with further open-ended airlifting.
 - (4) The Contractor shall airlift sediment out of the well sump before beginning swab-airlifting.
- D. Swab-Airlifting
 - (1) The Contractor shall begin swab-airlifting immediately after open-ended airlifting.

- (2) Swab-airlifting shall begin at the bottommost screen section and work upward. Swab-airlifting shall be conducted by moving the swab-airlifting tool slowly and uniformly up and down over one length of drill pipe for the specified time before continuing upward.
- (3) Swab-airlifting shall be performed as follows:
 - a. Swab-airlift for a minimum of four (4) minutes per foot of screen.
 - b. Spot in one-half (1/2) gallon of 12-percent sodium hypochlorite evenly over every 10 feet of well screen and swab in for a minimum of five (5) minutes for every 10 feet of screen.
 - c. Allow sodium hypochlorite to remain idle in each screen section for 12 to 24 hours.
 - d. Swab-airlift for a minimum of six (6) minutes per foot of screen.
 - e. Swab in the specified amount of AQUA-CLEAR™ PFD evenly over the screens, diluting with 500 parts water to one (1) part AQUA-CLEAR™ PFD prior to placement.
 - f. Allow the AQUA-CLEAR™ PFD to remain idle in each screen section for 12 to 24 hours.
 - g. Swab-airlift for a minimum of eight (8) minutes per foot of screen.
- (4) The Contractor shall continue swab-airlifting beyond the minimum requirements until the Contractor is confident that the turbidity and sand production requirements will be met after development pumping. If the turbidity and sand production requirements cannot be met after development pumping, the Contractor will be required to perform additional swab-airlifting and development pumping.
- (5) The Contractor shall airlift sediment out of the well sump before beginning development pumping.

E. Development Pumping

- (1) Development pumping shall begin within five (5) days of swab-airlifting.
- (2) Development pumping shall be conducted by alternately pumping and surging at a specific flow rate, until pumping and surging at that flow rate produces visibly clear water.
- (3) Development pumping shall begin at approximately 25% of the design capacity, and shall gradually increase to 175% of the design capacity.
- (4) Development pumping shall continue for a minimum of 24 hours, or until all of the following have occurred:
 - a. The pumped water complies with the turbidity and sand content requirements.
 - b. The well complies with the well efficiency requirement.

- c. No movement of the gravel envelope has occurred during the last eight (8) hours of development pumping.
- (5) At the conclusion of development pumping, the Contractor shall determine the required settings to obtain the flow rates for well and aquifer testing, as determined by the City based on well development records.

SECTION 19 **BID ITEM NO. 15 – WELL AND AQUIFER TESTING**

19.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Performing well and aquifer testing.

19.02 Measurement and Payment

- A. This bid item will be measured to the nearest one-half unit as the number of hours satisfactorily performed.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 15 – Well and Aquifer Testing.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

19.03 Materials and Equipment

- A. The Equipment shall be the same as provided in Section 19.03 – Test Pump Installation.

19.04 Methods

- A. General Testing Requirements
 - (1) Well and aquifer testing shall begin within 12 to 60 hours of well development.
 - (2) The well shall not have been pumped within 12 hours of the beginning of any well and aquifer test.
 - (3) The flow rate shall be maintained within plus or minus five (5) percent of the specified flow rate for each test. If, at any time during the test, the flow rate does not fall within this range, the Contractor shall discontinue the test, allow for full water level recovery, and restart the test. No payment will be made for the discontinued test.
 - (4) If any interruptions in pumping occur that are longer than one (1) percent of the elapsed duration of the test, the Contractor shall discontinue the test, allow for full water level recovery, and restart the test. No payment will be made for the discontinued test.
- B. Record-Keeping
 - (1) The Contractor shall maintain detailed records during well and aquifer testing, and shall make records available to the City upon request.

- (2) The **actual time** when each measurement is made shall be recorded, even if it differs from the measurement schedule.
- (3) The following measurements shall be recorded at the beginning of each well and aquifer test, before any water has been pumped.
 - a. Static water level, measured to the nearest 0.01 foot.
 - b. Totalizer reading, measured to the smallest unit on the totalizer gauge.
- (4) The following measurements shall be recorded during well and aquifer testing:
 - a. Elapsed time, measured to the nearest 15 seconds.
 - b. Flow rate, measured to the nearest 100 gallons per minute.
 - c. Totalizer reading, measured to the smallest unit on the totalizer gauge.
 - d. Water level, measured to the nearest 0.01 foot.
 - e. Drawdown from static water level, calculated to the nearest 0.01 foot.
 - f. Sand production, to the nearest 0.01 cubic centimeters.
 - g. Any adjustments to the flow rate, interruptions in pumping, or other changes in testing conditions.

C. Measurement Schedule

- (1) The times specified in this section are elapsed times since the pump is started or stopped. Measurements shall continue for the specified duration of pumping and recovery.
- (2) Elapsed time and water level measurements shall be made according to the following schedule:
 - a. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 minutes.
 - b. 14, 16, 18, and 20 minutes.
 - c. 25, 30, 35, 40, 45, 50, 55, and 60 minutes.
 - d. 70, 80, 90, 100, 110, and 120 minutes.
 - e. 150, 180, 210, 240, 270, 300, 330, and 360 minutes.
 - f. Every 60 minutes for the remainder of the test.
- (3) Sand production measurements shall be made at least once every five (5) minutes for the first 30 minutes of pumping, and every one (1) hour for the duration of each test.
- (4) Flow rate and totalizer measurements shall be made during pumping at least once for every three (3) water level measurements, or once every hour, whichever is more frequent. A final measurement shall be made after the pump is turned off.
- (5) Drawdown shall be calculated for each water level measurement. Drawdown may be calculated after a test is finished.

D. Short-Term Tests

- (1) The short-term tests shall consist of three (3) consecutive tests that each include three (3) hours of pumping followed by ½ hour of recovery.
- (2) The flow rates for the short-term tests shall be determined by the City based on well development records.

E. Long-Term Test

- (1) The long-term test shall consist of 12 hours of pumping.
- (2) The flow rate for the long-term test shall be determined by the City based on well development records.
- (3) Water quality samples will be collected by the City during the long-term test.

SECTION 20 BID ITEM NO. 16 – PLUMBNESS AND ALIGNMENT TESTING

20.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Performing plumbness and alignment testing.

20.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 16 – Plumbness and Alignment Testing.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

20.03 Materials and Equipment

- A. Drawworks for Running Plumbness Tool
 - (1) The drawworks shall measure the depth of the measurement tool to the nearest foot.
 - (2) The drawworks shall be calibrated such that the error in depth measurement does not exceed one (1) percent.
 - (3) The Contractor shall verify calibration of the drawworks upon request. Calibration shall be to within 0.25 percent.
- B. Alignment Tool
 - (1) The alignment tool shall be 40 feet long, and shall be rigid.
 - (2) The outside diameter of the alignment testing tool shall be one (1) inch less than the inside diameter of the blank well casing.
 - (3) The alignment tool shall be one of the following configurations:
 - a. A length of pipe with the specified outside diameter.
 - b. A “dummy”, consisting of a length of base pipe with a minimum diameter of six (6) inches, with 12-inch long sections (“rings”) of pipe with the specified outside diameter. Three (3) rings shall be rigidly attached to the base pipe so the axis of the base pipe is in line with the axes of the rings. The rings shall be located at each end of the base pipe, and in the center of the base pipe. A drawing of an acceptable alignment “dummy” is shown in the Plans.
- C. Plumbness Tool and Data

- (1) The plumbness tool shall be a digital gyroscopic deviation device that accurately measures inclination, azimuth, true vertical depth, departures, and plane of closure (displacement).
- (2) The plumbness data shall be presented in full-color reports with plan, vertical, and three-dimensional views of the casing. Electronic data shall be viewable in the Drift-Pac ® Viewer Module or pre-approved equal.

20.04 Methods

- A. Plumbness and alignment testing may be performed at any time after the annular seal has cured and before the video survey is performed.
- B. The plumbness and alignment tests shall accurately measure the plumbness and alignment of the completed well, and shall be presented in a manner that allows the City to fully evaluate whether the well meets the plumbness and alignment requirements.
- C. Alignment Testing
 - (1) Alignment testing shall be performed by lowering the alignment tool into the well from the ground surface to the topmost well screen section. No part of the alignment tool shall be allowed to enter any section of well screen.
- D. Plumbness Testing
 - (1) Plumbness testing shall be performed by a City approved subcontractor.
 - (2) Plumbness testing shall be performed by lowering the plumbness tool into the well from the ground surface to the full well depth.
 - (3) Measurements shall include station depth, inclination, azimuth, true vertical depth, departures, and plane of closure (displacement). Measurements shall be made every 10 feet from ground surface to the topmost well screen section. Measurements shall be made every 50 feet from the topmost well screen section to the full well depth.
 - (4) Upon completion of the plumbness testing, the Contractor shall provide the City with two (2) field hard copy reports and one (1) electronic copy of the plumbness test. Within one (1) week of completion of the plumbness test, the Contractor shall provide the City with four (4) final hard copies, and one (1) compact disc of the plumbness test.

SECTION 21 BID ITEM NO. 17 – VIDEO CAMERA SURVEY

21.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Performing a video survey.

21.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 17 – Video Camera Survey.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

21.03 Materials and Equipment

- A. Video Survey Tool

21.04 Materials and Equipment

- A. Video Survey Tool
 - (1) Drawworks
 - a. The drawworks shall measure the depth of the measurement tool to the nearest 0.10 foot.
 - b. The drawworks shall be calibrated such that the error in depth measurement does not exceed one (1) percent.
 - c. The Contractor shall verify calibration of the drawworks upon request. Calibration shall be to within 0.25 percent.
 - (2) The video survey tool shall be equipped with centralizers, and shall include color cameras for the downhole and focusing side-scan views.
 - (3) The cameras shall be focused, and shall provide a clear view of the well casing with no blurs or other obstructions.

21.05 Methods

- A. Video Survey
 - (1) The video survey shall be complete and of adequate quality to allow for full inspection of the well structure so the City can determine if the well meets all of the Contract requirements.

- (2) Before running the video survey, the Contractor shall run sufficient potable water into the well to allow for clear viewing of the well structure.
- (3) The video survey shall be run at a maximum rate of 30 feet per minute.
- (4) The downward pass of the video survey shall cover the entire well, and shall be conducted entirely with the downhole view. The depth of any features or anomalies shall be noted for further inspection on the upward pass.
- (5) The upward pass of the video survey shall cover the entire well, and shall be conducted with the side-scan view. The camera shall rotate while moving upward, to provide complete inspection of all well screens. Each casing joint shall be fully inspected with a 360-degree rotation of the side-scan camera. Any features or anomalies (including the sounding port) shall be fully inspected with the side-scan camera.
- (6) Immediately upon completion of the video survey, the Contractor shall provide two (2) copies of the video survey in DVD format. Both copies shall show the full video survey with an accurate depth displayed to the nearest one (1) foot.

SECTION 22 BID ITEM NO. 18 – SITE CLEANUP AND RECORDS

22.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Performing site cleanup, providing complete well construction records, and securing the wellhead.

22.02 Measurement and Payment

- A. This bid item will be paid as a lump sum.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 18 – Site Cleanup and Records.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

22.03 Materials and Equipment

- A. Well Cover
 - (1) Contractor shall provide a lockable, removable well cover that secures the wellhead. The well cover shall be adequate to prevent tampering with the well or the introduction of foreign materials into the well, and to ensure that the well is not a hazard. The cover shall prevent rainwater from entering the well, but need not be watertight. The Contractor shall provide a lock and key for the well cover.
- B. Accessory Pipe Covers
 - (1) The Contractor shall provide screw-on caps for the gravel fill pipe and the sounding pipes.

22.04 Methods

- A. Site Cleanup
 - (1) Contractor shall remove all materials that result from the Contractor's activities, whether on or off the project site, including waste materials, rubbish, and debris.
 - (2) Contractor shall restore all areas where the Contractor has performed work to their approximate original condition.
 - (3) Contractor shall leave all areas where the Contractor has performed work clean and ready for use by the City.

- (4) Contractor shall muck out and backfill any excavations, including mud pits (if used). Backfill shall be engineered to obtain a relative compaction of 90% per ASTM D-1557, unless otherwise approved by the City.

B. Wellhead Security

- (1) Contractor shall install and lock the well cover and shall install the caps on the accessory pipes.
- (2) At the City's request, the Contractor shall tack-weld each of the covers in place to further secure them.
- (3) The Contractor shall provide the City with all keys to the well cover lock.

C. Labeling of Accessory Pipes

- (1) The Contractor shall clearly label the accessory pipes (not only on the cap).

D. Records

- (1) The Contractor shall provide the City with complete records and as-built construction information for the project.
 - a. California Department of Water Resources Well Completion Report.
 - b. All daily reports.
 - c. All records of drilling fluid measurements.
 - d. All mill certifications, cement tickets, and any other documentation of materials installed.
 - e. Contractor's tallies of materials installed.
 - f. All well development and testing records.

SECTION 23 BID ITEM NO. 19 – WELL DISINFECTION

23.01 Scope of Work

A. This bid item shall include the following:

- (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
- (2) Providing interim and final well disinfection.

23.02 Measurement and Payment

A. This bid item will be paid as a lump sum.

B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:

- (1) Bid Item No. 19 – Well Disinfection.

C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

23.03 Materials and Equipment

A. Sodium Hypochlorite

- (1) Sodium hypochlorite shall be provided in a liquid solution. No powder or pellet products will be allowed.
- (2) Sodium hypochlorite shall contain no additives and shall be NSF Standard 60 certified.
- (3) Sodium hypochlorite shall be provided in the original sealed container.
- (4) Sodium hypochlorite shall be recently purchased and properly stored to ensure the concentration of the solution has not degraded.

23.04 Methods

A. Final Disinfection

- (1) Final well disinfection shall be accomplished by running hose or tremie pipe to the full depth of the well and evenly placing diluted sodium hypochlorite in the well while raising the hose or tremie pipe.
- (2) Sodium hypochlorite shall be diluted with water to obtain a solution that, when placed in the well, will provide a minimum concentration of 200 parts per million of available chlorine for at least 24 hours.
- (3) After placing the diluted sodium hypochlorite in the well, the Contractor shall run approximately 500 gallons of potable water into the well.

- (4) All accessible portions of the well above the water level shall be kept damp for a period of at least 20 minutes with a solution containing at least 200 parts per million of available chlorine.
- B. Interim Disinfection
- (1) Contractor shall disinfect the well if it remains idle for more than three (3) days.
 - (2) Interim disinfection shall be the same as final disinfection, except that only 10 percent of the amount of sodium hypochlorite used in final disinfection shall be used in interim disinfection.
- C. Verification of Disinfection
- (1) At the City's request, Contractor shall verify that a minimum of two (2) parts per million of chlorine remain in the well after final disinfection.
- D. The Contractor shall not discharge any chlorinated water.
- E. After final disinfection, Contractor shall secure the wellhead with the locking well cover.

SECTION 24 BID ITEM NO. 20 – STANDBY TIME

24.01 Scope of Work

- A. This bid item shall include the following:
 - (1) Provision of all labor, equipment, and materials necessary for the successful completion of this bid item.
 - (2) Ceasing operations and remaining on standby at the project site upon request by the City or the Engineer.

24.02 Measurement and Payment

- A. This bid item will be measured to the nearest one-half unit as the number of hours satisfactorily performed.
- B. This bid item, satisfactorily completed, will be paid at the unit prices set forth in the Bid Schedule for:
 - (1) Bid Item No. 20 – Standby Time.
- C. Ten (10) percent of all payment for this bid item shall be withheld by the City until the completed project is accepted.

24.03 Materials and Equipment

- A. Not Used.

24.04 Methods

- A. Standby time must be pre-authorized by the City.
- B. No payment will be made for idle time specified under other bid items.
- C. During standby time, the Contractor shall remain at the project site and shall assist the City as requested.

APPENDIX A

Notification Letters

(CITY LETTER HEAD)

Dear Resident,

The City of Sacramento, Department of Utilities, awarded a construction contract to **Contractor** to construct a groundwater well in your neighborhood. All construction activities will be contained within a 5-acre parcel that is situated west of the terminal end of Cotton Ln, and south of the terminal end of Kastanis Way.

To the extent feasible, construction activities shall be limited to the daytime hours of 7:00 AM and 6:00 PM, Monday through Friday, and between 8:00 AM and 6:00 PM on Saturday or Sunday. During one phase of construction a drilling rig will be required to operate 24 hours a day. This should last for ___ to ___ days. Additional notification will be issued prior to any work requiring continuous 24-hour activities.

The Contractor is required to use sound attenuation techniques to maintain noise levels below the City's noise ordinance.

General public and construction crew safety is of primary concern to us and we encourage you to observe the construction signs. We realize this construction project may be a temporary inconvenience and we will strive to minimize the impacts to the residents.

If you have any questions or problems, please contact any one of the project representatives listed below:

Contractor Superintendent: Name: Phone Number

City Inspector: Name: Phone Number

City Project Manager: Name: Phone Number

Work is scheduled to begin in your neighborhood on _____.

The anticipated project completion date is _____.

Thank you for your cooperation on this very important project.



WOOD RODGERS

CITY OF SACRAMENTO
GROUNDWATER IMPACTS AND WATER
SUPPLY ASSESSMENT –
SHASTA PARK

SEPTEMBER 20, 2013

PREPARED BY
WOOD RODGERS, INC.
3301 C STREET, BUILDING 100-B
SACRAMENTO, CA 95816

Lawrence H. Ernst

Lawrence H. Ernst, PG, CEG, CHG
Principal Hydrogeologist

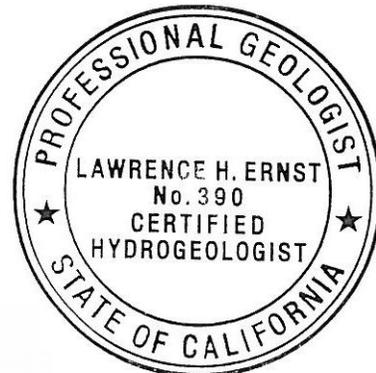


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APPENDIX

- Appendix A Groundwater Impact Analysis to Support the Shasta Park Water Reservoir Project Initial Study, Prepared by MWH (March 2011)

EXECUTIVE SUMMARY

Wood Rodgers, Inc. (Wood Rodgers) has prepared this Groundwater Impacts and Water Supply Assessment (WSA) to support the City of Sacramento's (City's) planned well site and water reservoir at the Shasta Park site (Site), located in the southeastern portion of the City (Figure 1). The City has stated that this project is part of an overall conjunctive use program for groundwater and surface water along with an opportunity to improve system pressure and fire flow capabilities in the southerly portion of their system. The major components of the project include: groundwater well(s), above grade storage, booster pump station, and treatment (if required). This report is an update to the Groundwater Impact Analysis to Support the Shasta Park Water Reservoir Project Initial Study, prepared by Montgomery Watson Harza (MWH) in March 2011. The 2011 report discusses the local and regional groundwater resources setting, groundwater quality, groundwater elevations, impacts to nearby wells, and the potential to develop long-term groundwater supply at this site, based on the initial production well design for completion in a shallow aquifer.

In 2012, Wood Rodgers conducted exploratory drilling at the Site and constructed shallow (225 feet) and deep (1,230 feet) monitoring wells to characterize depth-specific water quality. Results indicated that a well constructed in shallow aquifers would exceed the California Department of Public Health (CDPH) primary drinking water standard for arsenic. Water quality results from the deep monitoring well and from other deep wells in the area indicate that a well constructed in the deep aquifers will likely meet the CDPH primary drinking water standard for arsenic. Therefore, Wood Rodgers recommended that a groundwater well be completed in the deep aquifer at the Shasta Park site. The Wood Rodgers' production well design specifies a total completion depth of 1,203 feet and 16-inch diameter well screen from 1,063 to 1,183 feet below ground surface (bgs). The proposed well design has an expected design capacity of 1,500 to 2,200 gallons per minute (gpm). The City approved Wood Rodgers' deep production well design. This report includes hydrogeologic and groundwater quality conditions in the vicinity of Shasta Park, potential impacts to nearby production wells, and a water supply assessment.

1 - INTRODUCTION

City of Sacramento's Water System

The City's water system (Public Water System No. 3410020) serves a population of approximately 400,000 with a mix of surface water and groundwater. The City provides approximately 4,600 million gallons of water per year and has approximately 132,000 service connections. The City diverts surface water from the American and Sacramento Rivers. The City also maintains 27 groundwater wells for potable use. MWH reported that the City's 27 wells provide a total capacity of 20 million gallons per day (2011). Of these 27 wells, 25 wells are located in the North American Subbasin, while two active drinking water wells are located in the South American Subbasin within two miles of Shasta Park (Wells 83 and 107).

The City is signatory to the Water Forum Agreement (WFA) adopted by the region in 2000. The co-equal objectives of the WFA are: 1) to provide a reliable and safe water supply for the region's economic health and planned development to the year 2030; and 2) to preserve the fishery, wildlife, recreational, and aesthetic values of the Lower American River

(<http://www.waterforum.org>). Groundwater management is one of the seven elements of the WFA. Several recommendations were designed to protect groundwater resources in the Sacramento region, including recommendations on sustainable yields and groundwater management governance structures for the North American, Central, and South American Subbasins. The sustainable yields for the North America, Central, and South American Subbasin were determined to be 131,000 acre-feet per year, 273,000 acre-feet per year, and 115,000 acre-feet per year, respectively. Additionally, the 40 signatories to the WFA created the Water Forum Successor Effort as one of the seven elements to ensure implementation of the Agreement.

City of Sacramento 2030 General Plan

MWH included in the 2011 Initial Study the policies of the 2030 General Plan (adopted in March 2009) that are directly relevant to the proposed well project at Shasta Park. The relevant policies include:

UTILITIES (U)

Citywide Utilities

Goal U 1.1 High-Quality Infrastructure and Services. Provide and maintain efficient, high-quality public infrastructure facilities and services throughout the city.

Policies

U 1.1.1 Provision of Adequate Utilities. The City shall continue to provide and maintain adequate water, wastewater, and stormwater drainage utility services to areas in the city currently receiving these services upon funding and construction of the infrastructure necessary to provide these City services.

U 1.1.3 Sustainable Facilities and Services. The City shall continue to provide sustainable utility services and infrastructure in a cost-efficient manner.

U 1.1.12 Impacts to Environmentally Sensitive Lands. The city shall locate and design utilities to avoid or minimize impacts to environmentally sensitive areas and habitats.

Water Systems

Goal U 2.1 High-Quality and Reliable Water Supply. Provide water supply facilities to meet future growth within the City's Place of Use and assure a high-quality and reliable supply of water to existing and future residents.

Policies

U2.1.2 Optimize Capacity. The City shall optimize storage, treatment, and distribution capacity of its water system.

U2.1.3 Water Treatment Capacity and Infrastructure. The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projects water demands.

2 - REGIONAL AND LOCAL HYDROGEOLOGY

The City of Sacramento overlies the North American and South American Subbasins of the Sacramento Valley Groundwater Basin. The American River separates the two subbasins, with the North American Subbasin on the north and the South American Subbasin on the south. The Shasta Park proposed well site and two of the City's active wells are located in the South American Subbasin. The freshwater-bearing sediments underlying the City's southern service area consist of various shallow alluvial deposits, the Laguna Formation, and the Mehrten Formation.

The various shallow deposits in this area include valley alluvium, floodplain deposits, basin deposits, and the Victor Formation. These deposits outcrop at the ground surface in the vicinity of the City's well field and are generally less than 50 feet thick. The valley alluvium is present along current stream channels, and consists of sand, gravel, silt, and clay. The floodplain and basin deposits exist in the flood zones along streams and rivers and consist primarily of fine-grained materials such as silt and clay. Because of their shallow depth, these deposits are not a practical source for municipal groundwater development. The Victor Formation consists of a heterogeneous assemblage of silt, sand, gravel, and clay that were deposited during shifting of streams from the Sierra Nevada and Cascade Range (Olmsted and Davis 1961). The Victor Formation is generally found at depths shallower than 100 feet in the vicinity of the City's well field.

The Laguna Formation is a freshwater-bearing aquifer in the South American Subbasin and consists of interbedded layers of sand, gravel, silt, and clay. The thickness of the Laguna Formation can be upwards of up to approximately 650 feet thick near the axis of the Sacramento Valley. The California Department of Water Resources (DWR) indicates that specific yield is approximately 7 percent in these older alluvium deposits (2004).

In the South American Subbasin, the Mehrten Formation underlies the Laguna Formation and consists of two groups of materials. The first group contains distinctive black sands, interbedded with gravel and blue or brown clay and represents the primary water-bearing portion of the Mehrten Formation. Wells completed in the sand and gravel intervals can have high yields (DWR 2004). The second group is a cemented tan or gray tuff-breccia, which can have significant secondary porosity and water-bearing capability.

3 - GROUNDWATER CONDITIONS

This section provides an overview of historic and recent groundwater elevations and groundwater quality within the vicinity of Shasta Park.

Groundwater Elevation

Groundwater recharge for the aquifers under the City generally comes from the Sacramento River and American River, from deep percolation of precipitation and applied water, and from outcrops of the aquifers to the east near the foothills. Groundwater elevations have been recorded on a regular basis in Sacramento County by DWR since the early 1950s. For the City's 2010 Water Master Plan (WMP), Wood Rodgers analyzed groundwater elevation trends within Sacramento County based on groundwater elevation contour maps created by Sacramento

County Department of Water Resources and groundwater elevation data from DWR monitored wells.

The spring and fall 2007 groundwater elevation contour maps indicate that there are two groundwater pumping depressions located in the South American Subbasin near the towns of Elk Grove and Galt. Shasta Park is located near the northwestern flank of the groundwater depression that is centralized over Elk Grove, as illustrated by the fall 2007 contours of equal groundwater elevation in Figure 2. The groundwater contours indicate that the direction of groundwater flow near Shasta Park is primarily to the southeast towards the center of the nearby groundwater pumping depression. Data used to generate the contours of equal groundwater elevation are composite measurements of all groundwater elevation in the area and are not well depth-specific or representative of a unique aquifer. Groundwater elevation data for the deeper aquifers in the vicinity of Shasta Park is limited. In order to accurately generate a groundwater elevation contour map representative of the deep aquifers, more data would be required.

Historic groundwater level data from the DWR Water Data Library (WDL) and the California Statewide Groundwater Elevation Monitoring (CASGEM) program indicate that groundwater elevations decreased from the early 1960's until the early 1980's, as shown on the hydrographs in Figure 2. Groundwater elevations were relatively stable from 1982 to 1998 and then have rebounded to approximately 5 to 10 feet above the earliest available groundwater measurement recorded from each hydrograph, with the exception of DWR monitored well 7N/05E-26C1. This monitored well has experienced groundwater rebound since the early 1990s, but has current spring measurements that are approximately 25 feet lower than the earliest record in spring of 1963. Generally, groundwater levels seasonally fluctuate approximately 5 to 15 feet between spring and fall measurements within this portion of Sacramento County. Groundwater elevations in the southeastern corner of the City are currently between 50 to 60 feet mean sea level, or approximately 80 and 90 feet bgs. The static water level is expected to be approximately 70 feet bgs at Shasta Park.

Groundwater Quality

The quality of groundwater varies throughout the City not only with respect to depth, but also laterally within the various aquifers. Arsenic and manganese are the most widely spread naturally occurring contaminants of concern found in the City's groundwater. The City identified additional constituents for assessment including: chromium, hexavalent chromium, nitrates (as NO₃), specific conductance, iron, and radon.

In 2012, two monitoring wells were installed at the Shasta Park site. The shallow monitoring well was constructed in the Laguna/Mehrten transition to a total depth of 225 feet and has perforations from 205 to 215 feet bgs. Water quality results indicate that water produced from this portion of the shallow aquifer has an arsenic concentration of 38 micrograms per liter (µg/L), which exceeds the California Department of Public Health (CDPH) primary Maximum Contaminant Level (MCL) of 10 µg/L for arsenic. Additionally, water produced from this portion of the shallow aquifer exceeds the secondary MCL of 50 µg/L for manganese, with a concentration of 180 µg/L. These water quality results indicate that a production well completed in this shallow aquifer would require both arsenic and manganese removal treatment to meet all CDPH primary and secondary drinking water requirements.

The deep monitoring well was constructed in the Mehrten Formation to a depth of 1,201 feet and has perforations from 1,080 to 1,100 feet, 1,130 to 1,150 feet, and 1,160 to 1,180 feet bgs. Water quality results indicate that water produced from these zones meet all CDPH primary drinking water requirements with non-detectable levels of arsenic and hexavalent chromium (less than 1 µg/L). Additionally, water produced from these deep aquifers meet the secondary MCL for manganese, with a concentration of 15 µg/L. Methane gas was detected at 5.1 mg/L and may require treatment for removal.

4 – POTENTIAL PUMPING IMPACTS

Nearby Wells

There are several groundwater pumpers in the vicinity of Shasta Park, including California American Water Company (Cal Am) and the Sacramento County Water Agency (SCWA). The locations of known nearby active public supply wells are illustrated in Figure 1. To assess the significance of potential impacts from groundwater pumping at Shasta Park, the location of the nearest active wells were included in this groundwater impacts analysis. For the purposes of this study, wells completed at depths less than 500 feet are referred to as “shallow,” wells completed between 500 and 900 feet depth are considered to be “intermediate,” and wells completed deeper than 900 feet are categorized as “deep.” Wells completed in shallow unconfined aquifer zones were determined to be insusceptible to groundwater pumping impacts from pumping of intermediate and deep aquifers and were not included in this pumping impacts analysis.

Cal Am has a deep well located almost two miles to the east of Shasta Park. SCWA’s Big Horn well field (three deep wells) is located approximately 3.3 miles to the south of Shasta Park. SCWA’s deep well at Waterman Road (W-67) is located just over 3 miles east from Shasta Park and has well screen from approximately 980 to 1,080 feet depth.

Groundwater and Aquifer Characteristics

Geophysical data for the deep test hole at Shasta Park and known hydrogeology in the area suggests that intermediate aquifers of the Mehrten Formation have similar aquifer parameters as the deep aquifers of the Mehrten Formation, such as specific capacity, transmissivity, and storativity. A 10-hour constant rate pumping test conducted in 1995 after SCWA’s W-67 well was constructed indicates that the well has a specific capacity of approximately 35 gpm/ft of drawdown, with aquifer transmissivity of 52,000 gallons per day per foot (gpd/ft). For the purposes of this study, the aquifer parameters from SCWA’s W-67 were used for both the intermediate and deep aquifers of the Mehrten Formation to model expected groundwater level drawdown by distance from Shasta Park.

The Theis equation was used to quantify approximate drawdown that may occur in intermediate and deep aquifers from pumping of a new well at Shasta Park with the same aquifer properties as SCWA’s W-67. The model assumes that a new production well (whether intermediate or deep) will have a specific capacity of 35 gpm/ft of drawdown and the aquifer transmissivity is 52,000 gpd/ft and storativity (S) is 0.0005 (Table 1). The Theis equation also assumes that the aquifer is confined, uniform, and extends infinitely.

**Table 1
Aquifer Characteristics**

	Mehrten Formation (Intermediate)		Mehrten Formation (Deep)	
	Transmissivity (gpd/ft)	Storativity	Transmissivity (gpd/ft)	Storativity
Approximate Value	52,000	5 x 10 ⁻⁴	52,000	5 x 10 ⁻⁴

Aquifer Analysis and Pumping Impacts

The Theis Equation was used to model two scenarios to determine a range for “best case” and “worst case” estimates for drawdown. For the model in Table 2, Scenario 1 assumes that the proposed well will be pumping continuously at a rate of 1,500 gpm for half a year (primarily during spring and summer months). Scenario 2 assumes that the proposed well will be pumping continuously at a rate of 2,200 gpm for half a year (primarily during spring and summer months). The estimated drawdown (rounded to the nearest foot) that may be expected radially from Shasta Park is shown in Table 2 below.

In addition to seasonal groundwater fluctuations, drawdown will likely occur for the two SCWA deep wells located near Waterman Road, approximately 3.3 miles east of Shasta Park, as well as the SCWA’s Big Horn wells located approximately 3.3 miles to the south. The estimated drawdown will likely not have a significant impact to overall groundwater levels for deep wells located greater than three miles from Shasta Park (less than 15 feet).

**Table 2
Theis Equation: Projected Drawdown by Distance after a
Half Year of Continuous Pumping of Shasta Park Well**

Scenario	Gallons per Minute (GPM)	Pumping Well	Distance from Shasta Park Well				Projected Drawdown (ft)
			0.5 mi	1 mi	2 mi	3 mi	
1	1,500	74	22	18	13	10	
2	2,200	109	33	26	19	15	

In Table 3, Scenario 1 assumes that the proposed well will be pumping continuously at a rate of 1,500 gpm for one year. Scenario 2 assumes that the proposed well will be pumping continuously at a rate of 2,200 gpm for one year. The estimated drawdown (rounded to the nearest foot) that may be expected radially from Shasta Park is shown in Table 3 below.

Existing deep SCWA wells (as noted above) located 3.3 miles to the east and south of Shasta Park should not have a significant impact to overall groundwater levels (less than 19 feet of drawdown) as a result of one year of constant pumping of the Shasta Park well.

Table 3
Theis Equation: Projected Drawdown by Distance after
One Year of Continuous Pumping of Shasta Park Well

Scenario	Gallons per Minute (GPM)	Pumping Well	Distance from Shasta Park Well				Projected Drawdown (ft)
			0.5 mi	1 mi	2 mi	3 mi	
1	1,500	77	25	20	15	13	
2	2,200	112	36	29	22	19	

5 - SUMMARY

Wood Rodgers has prepared this Groundwater Impacts and Water Supply Assessment report to support the City of Sacramento’s planned well site and water reservoir at the Shasta Park site. The production well design and plans for above-grade storage and a booster pump station meet the goals and policies for Citywide Utilities as set forth in the 2030 General Plan, including providing adequate water supply from a high-quality and reliable water source. The findings from the 2012 exploratory drilling at Shasta Park indicate that a production well constructed in the deep portion of the Mehrten Formation aquifer will meet the City’s water supply objectives and the CDPH primary drinking water requirements. Aquifer analysis using the Theis Equation suggests that wells completed in deep aquifers (greater than 900 feet depth) that are located approximately three miles from Shasta Park could experience approximately 10 to 19 feet of additional drawdown. Because the intermediate aquifers appear to have similar aquifer parameters as the deep aquifers, these potential pumping impacts are also likely applicable for nearby wells completed in intermediate aquifers if an intermediate depth well was to be constructed at Shasta Park.

If the Shasta Park well were to continuously pump at 2,200 gallons per minute for one year, approximately 3,550 acre-feet of groundwater would be extracted from the well. This corresponds to approximately three percent of the sustainable yield for the South American Subbasin as determined by the Water Forum Agreement. However, with the City’s conjunctive use of groundwater and surface water, the Shasta Park well will likely only be pumping during critical dry years and summer months to meet peak demands. Groundwater levels in the Subbasin have slightly recovered since the early 1990s and will likely continue to do so with deliverance of more surface water to the Subbasin and with local water conservation practices.

REFERENCES

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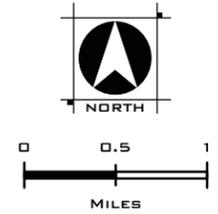
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CITY OF SACRAMENTO
 WATER SUPPLY ASSESSMENT
 SHASTA PARK WELL SITE
 SEPTEMBER 2013

PROJECT SITE AND WELL LOCATION MAP



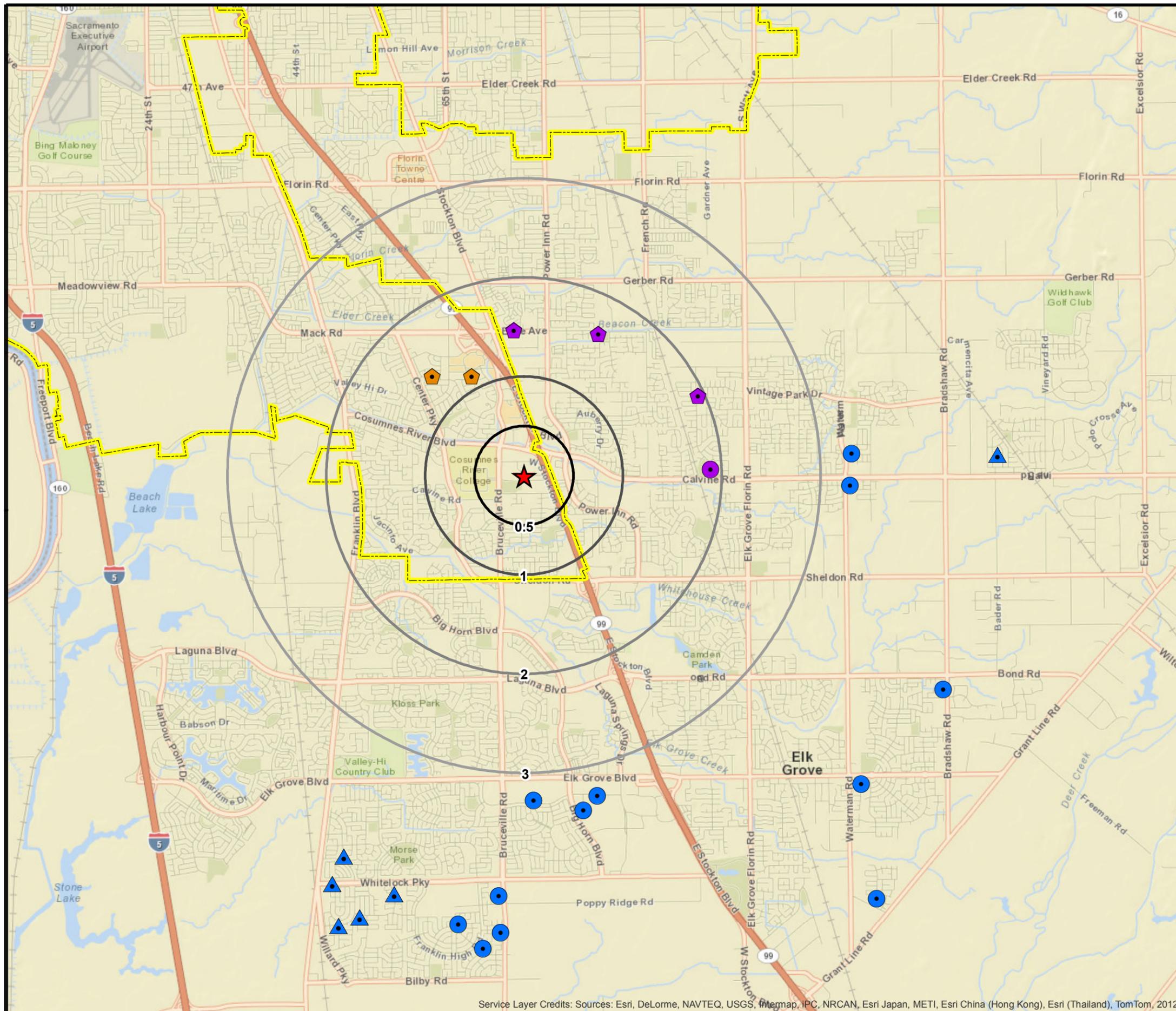
Legend

- Shasta Park Proposed Well Site
- 0.5 Mile Radius
- 1 Mile Radius
- 2 Mile Radius
- 3 Mile Radius
- SCWA Wells**
- Intermediate
- Deep
- City of Sacramento Wells**
- Shallow
- Cal Am Wells**
- Shallow
- Deep
- City of Sacramento Boundary

Well Depth Classification
 Shallow: ≤ 500 feet
 Intermediate: 500 - 900 feet
 Deep: ≥ 900 feet



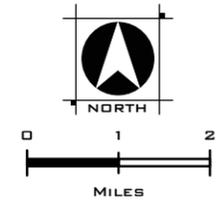
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 Sacramento, CA 95816 Fax: 916.341.7767



Service Layer Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

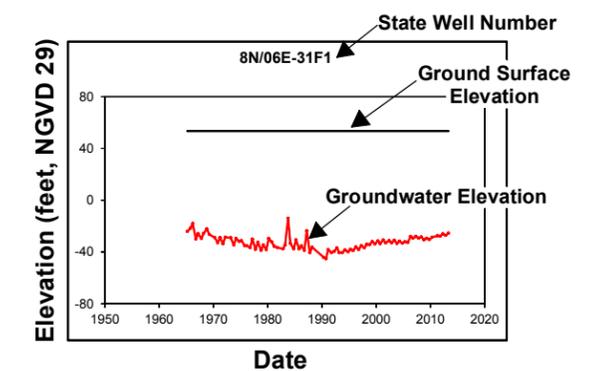
CITY OF SACRAMENTO
 WATER SUPPLY ASSESSMENT
 SHASTA PARK WELL SITE
 SEPTEMBER 2013

GROUNDWATER ELEVATION HYDROGRAPHS
 AND FALL 2007 CONTOURS OF EQUAL
 GROUNDWATER ELEVATION



Legend

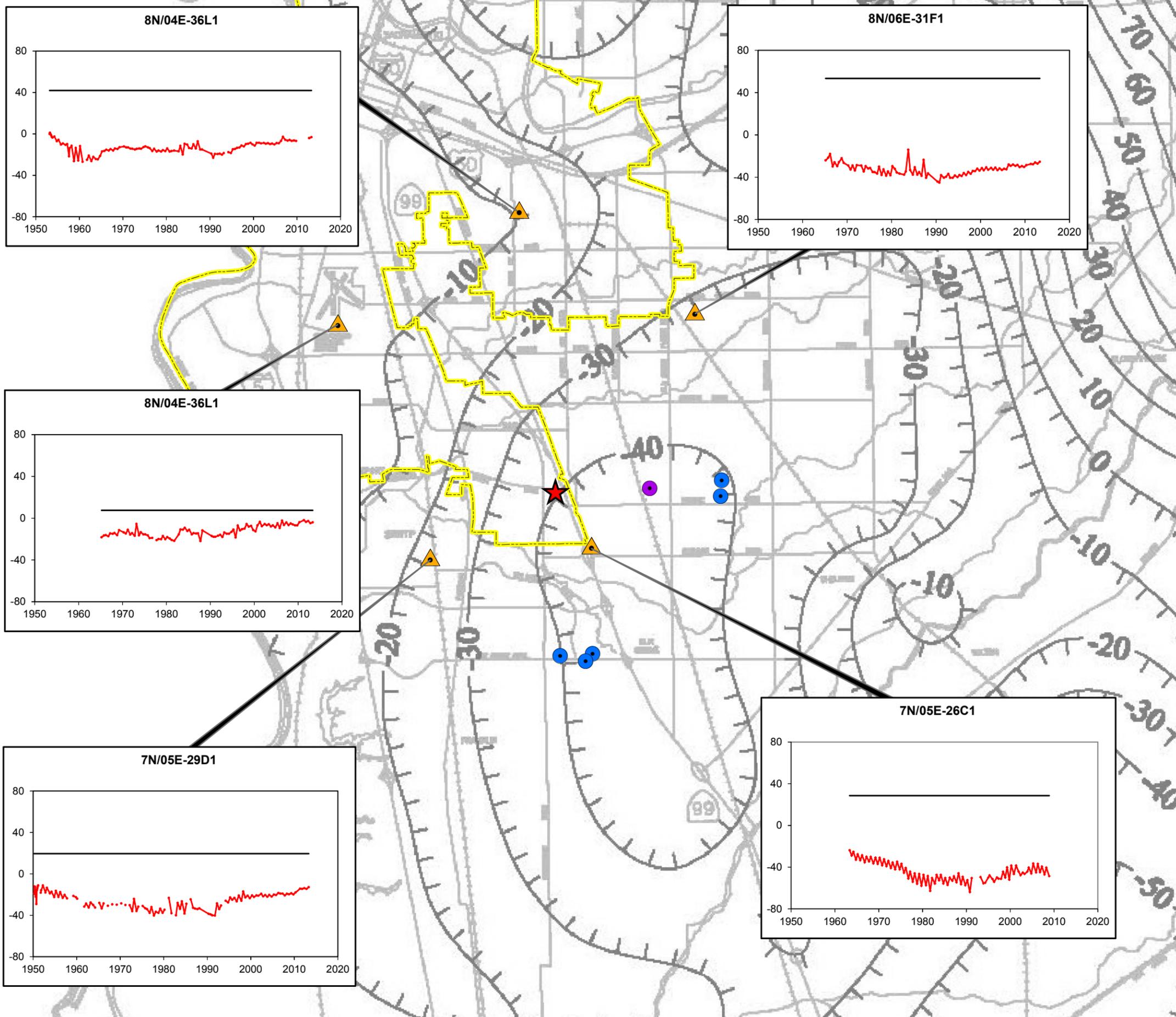
- Shasta Park Proposed Well Site
- Selected DWR Monitored Well
- Cal Am Deep Wells
- SCWA Deep Wells
- City of Sacramento Boundary
- Contour of Equal Groundwater Elevation
- Contour of Equal Groundwater Elevation with Flow Direction



Notes:
 Adapted from Sacramento County Fall 2007 Groundwater Elevation Contour Map;
 Contour interval is 10 feet, relative to Mean Sea Level
 Sources:
 City of Sacramento, Sac. County Department of Water Resources, and California Department
 of Water Resources



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APPENDIX A

Groundwater Impact Analysis to Support the Shasta Park Water Reservoir Project Initial Study

March 2011

Prepared by MWH

Groundwater Impact Analysis to Support the
Shasta Park Water Reservoir Project Initial Study

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Groundwater Impact Analysis to Support the
Shasta Park Water Reservoir Project Initial Study

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Affected Environment

Groundwater Hydrogeology

The City obtains the majority of its water supply from two surface water sources (the Sacramento and American rivers), with groundwater making up the balance of supply. Most of the City's water supply comes from surface water that is diverted pursuant to the City's surface water rights and entitlements. These consist of water rights established before 1914, water rights established after 1914, and a settlement contract the City has with Reclamation.

The groundwater basin underlying Sacramento County is divided into three subbasins: North American, Central, and South American. The North American Subbasin lies south of the Bear River, east of the Feather River, and north of the American River. The general direction of drainage in the sub-basin is west-southwest. The Central Basin lies south of the American River and is part of the South American Subbasin, which is bounded on the west by the Sacramento River, on the north by the American River, on the south by the Cosumnes and Mokelumne rivers, and on the east by the Sierra Nevada Range. These rivers act as major sources of recharge for the groundwater basins in the county.

Surface water and groundwater has been the subject of much ongoing discussion and planning in Sacramento County. The Water Forum, which began with discussions in 1993 and adoption of the Water Forum Agreement in 2000, was a consensus process that included agreements among the various stakeholders on water issues regarding water use and facilities. The Water Forum Agreement included planning for both surface water and groundwater supplies. The Water Forum documents, including the Water Forum Agreement and environmental impact report, are available online at <http://www.waterforum.org/documents.cfm>.

One of the seven elements in the Water Forum Agreement is groundwater management. Implementation of this element includes adherence to long-term average annual pumping limits that are tied to sustainable yields for each of the three basins: 131,000 acre-feet for the North American Subbasin, 273,000 acre-feet for the Central Basin, and 115,000 acre-feet for the South American Subbasin.

The Water Forum Agreement also included commitment to the Water Forum Successor Effort; the formation of two groundwater management agencies was a result. The Central Sacramento County Groundwater Management Plan was completed in 2006, and a joint powers authority was formed by the cities of Elk Grove, Folsom, Rancho Cordova, and Sacramento, and the County of Sacramento, to implement the plan. A Board of Directors meets monthly as part of the implementation process. (See <http://www.scgah2o.org/> for information regarding the plan.) The Water Forum also led to the establishment of the Sacramento Groundwater Authority (SGA), which adopted a groundwater management plan for the North American Subbasin. (See <http://www.sgah2o.org/sga/programs/groundwater/> for information regarding the implementation effort.)

The City maintains 27 wells for potable use; 25 wells in the North American Subbasin and 2 wells in the South American Subbasin. Total capacity of the

Groundwater Impact Analysis to Support the
Shasta Park Water Reservoir Project Initial Study

wells is 20 million gallons per day (mgd), or up to 22,400 acre-feet per year. The wells pump primarily from the North American Subbasin, with two active drinking water wells pumping from the South American Subbasin. As described in the project description, the Shasta Park Reservoir Project is located in the southern portion of the City of Sacramento, in the South American Subbasin. The Laguna Formation is one of the fresh-water-bearing aquifers in the region and consists of interbedded layers of sand, gravel, silt, and clay. DWR reported that the specific yield of older alluvium, such as the Laguna Formation, is approximately 7 percent. Previous reports indicate that alluvial fan sediments of the Laguna Formation have been the aquifer screened for nearby production wells.

Groundwater levels in the South American Subbasin generally experienced declines from the mid-1960s to about 1980 and from 1987 through 1995. Groundwater levels partially or fully recovered between these drought periods and generally recovered to higher levels by 2000 than after the prior drought period. The most recent groundwater elevation maps available through the County of Sacramento's Web site indicate that the groundwater elevations in the vicinity of the proposed location for the new production well ranged between 20 and 30 feet below mean sea level (msl) in spring 2007 and between 30 and 40 feet below msl in fall 2007. In a previous report, Sacramento County Water Agency (SCWA) wells screened in the Laguna Formation experienced groundwater elevations ranging between 30 feet to more than 70 feet below msl or depths to groundwater ranging from 78 to 108 feet below ground surface (Luhdorff and Scalmanini Consulting Engineers, 1998).

City of Sacramento 2030 General Plan

The 2030 General Plan was adopted in March 2009, and included the following policies directly relevant to the proposed project:

UTILITIES (U)

Citywide Utilities

Goal U 1.1 High-Quality Infrastructure and Services. Provide and maintain efficient, high-quality public infrastructure facilities and services throughout the city.

Policies

U 1.1.1 Provision of Adequate Utilities. The City shall continue to provide and maintain adequate water, wastewater, and stormwater drainage utility services to areas in the city currently receiving these services from the City, and shall provide and maintain adequate water, wastewater, and stormwater drainage utility services to areas in the City that do not currently receive these City services upon funding and construction of the infrastructure necessary to provide these City services.

U 1.1.3 Sustainable Facilities and Services. The City shall continue to provide sustainable utility services and infrastructure in a cost-efficient manner.

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- U 1.1.12 Impacts to Environmentally Sensitive Lands. The City shall locate and design utilities to avoid or minimize impacts to environmentally sensitive areas and habitats.

Water Systems

- Goal U 2.1 High-Quality and Reliable Water Supply. Provide water supply facilities to meet future growth within the City's Place of Use and assure a high-quality and reliable supply of water to existing and future residents.

Policies

- U 2.1.2 Optimize Capacity. The City shall optimize storage, treatment, and distribution capacity of its water system.
- U 2.1.3 Water Treatment Capacity and Infrastructure. The City shall plan, secure funding for, and procure sufficient water treatment capacity and infrastructure to meet projected water demands.

The City has historically constructed, expanded, and improved its water diversion, treatment, and transmission facilities, as needed, to accommodate increasing water supply demands. The City has planned for system improvements in the 2005 Water Distribution System Master Plan that would accommodate the City's peak hour demands. These improvements include construction of the proposed project.

Groundwater Quality

Previous reports indicate that groundwater quality in the vicinity of the new production well is potentially impaired with concentrations of arsenic and manganese increasing with depth. The Laguna and Riverbank formations have been described as the most widely targeted formations in the region because they are largely above the oxidized-reduced boundary, and generally avoid water quality problems associated with the iron and manganese at greater depths (Luhdorff and Scalmanini Consulting Engineers, 1998). In a more recent report, geologic cross-sections drawn through the vicinity of the new production well site indicate that arsenic concentrations were greatest at one of California American Water Company's Wells, approximately 1 to 1.5 miles northeast (Wood Rogers, 2010). The City's two production wells, located approximately one to one and a half miles to the northwest have acceptable concentrations of arsenic.

A previous report indicates that manganese concentrations in some wells in the western portion Sacramento County Water Agency's (SCWA) Laguna well field, more than 2 miles south of the City's new production well site, exceeded maximum contaminant levels for secondary drinking water standards (Luhdorff and Scalmanini Consulting Engineers, 1998). A geologic cross-section drawn through the vicinity of the new production well site indicates that manganese concentrations were acceptable in nearby production wells, approximately 1 mile from the new production well site, at depths less than approximately 250 to 300 feet below msl (Wood Rogers, 2010).

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Thresholds of Significance

For purposes of this Initial Study, impacts to hydrology and water quality may be considered significant if construction and/or implementation of the proposed project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan MEIR:

- Substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the Specific Plan or
- Substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

Answers to Checklist Questions

Question B

The potential for groundwater levels to be substantially depleted as a result of implementation of the project was evaluated using the Theis equation, by inputting assumptions about the aquifer characteristics in the vicinity of the new production well. Pumping a well causes a cone of depression, or drawdown, of the water table of an unconfined aquifer or of the piezometric surface for a confined aquifer. The Theis equation was developed to predict groundwater drawdown at any given radius from a well after a fixed period of pumping. The equation may be used alone on a well-by-well basis or in a numerical groundwater model to predict aquifer response to multiple wells, each operating independently. The Theis equation uses the flow yield, which is usually a result of pumping the well. The equation takes into account the transmissivity and storativity of the underlying formation. An assumption the model makes is that the well resides in a confined aquifer, that the aquifer is uniform, and that it extends infinitely. The Theis equation is most often applied to water wells.

Previous pump tests conducted at the two nearest City production wells (Well 83 and Well 107) approximately 1.5 miles northwest indicated that the specific capacities of these wells ranged between 60 and 127 gallons per minute per foot (gpm/ft). Previous reports indicated that the specific capacity of Sacramento County Water Agency (SCWA) wells (L46, L65, L41, L52, and L47) with total depths ranging between 238 and 295 feet, located approximately 2 to 3 miles south of the new production well, had specific capacities ranging between 17.6 and 26 gpm/ft (Luhdorff and Scalmanini Consulting Engineers, 1998). Although the Laguna Formation is reported to be an unconfined aquifer, a previous study reported that short-term aquifer tests indicated semiconfined or confined conditions (Luhdorff and Scalmanini Consulting Engineers, 1998). Therefore, because the new production well site has not been constructed or tested, aquifer properties, including storage coefficients and transmissivity values were estimated in the analysis based upon previous reports. For the purpose of the analysis, it was assumed that the proposed production well would be pumping continuously at a rate of 2,000 gallons per minute (gpm). The results of the analysis indicate that other production wells located within 1 mile of the proposed

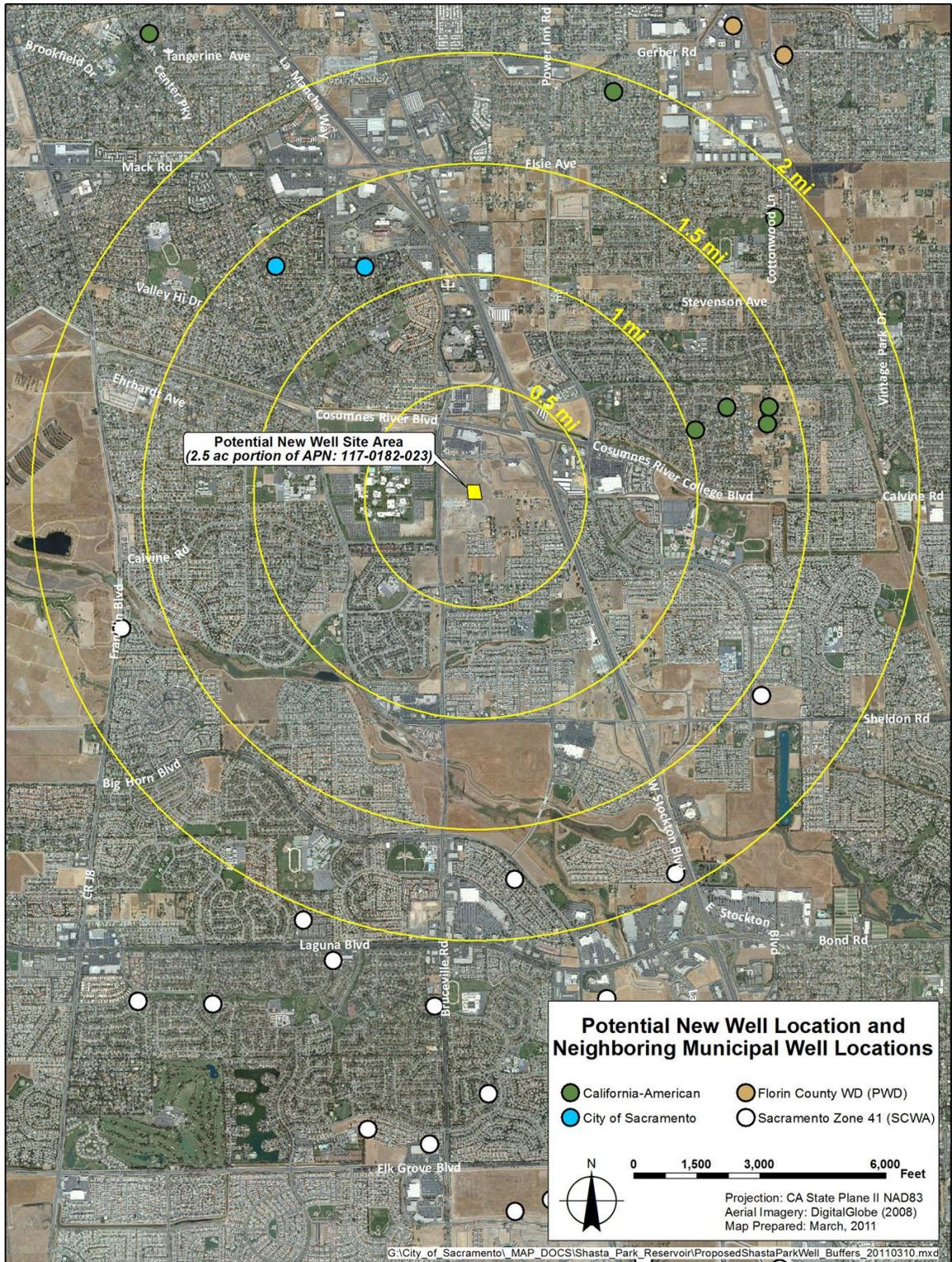
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production well, and screened in the same aquifer zone, could experience up to 9.7 feet of additional drawdown after 100 days of continuous pumping, which is considered a “worst case” scenario. This analysis considered water-level impacts up to 2 miles from the proposed production well, where production wells screened in the same aquifer zone could have approximately 7 feet of additional drawdown. The potential for drawdown could be minimized by increasing the screen length within the proposed production well to increase the portion of the aquifer being exercised. However, increasing the total screen length could require pumping from zones of the underlying aquifer with less desirable water quality, potentially resulting in the need for wellhead treatment at the new production well. The final screen length would be determined following drilling of exploratory borings and collection of groundwater samples from a monitoring well to be constructed at the new production well location. Figure 1 shows that the majority of other wells near the production well site are other City of Sacramento wells, and most of these are beyond 1 mile. Beyond 2 miles from the proposed production well, it is believed that the impact of pumping would be difficult to measure or quantify relative to other factors such as ongoing pumping from other wells, aquifer variability, and seasonal and long-term variability in hydrologic conditions.

Not included on the map are the locations of privately owned shallow domestic wells. Because these wells tend to be screened in the shallow unconfined aquifer zones, it is believed that pumping from the proposed production well in the deeper confined system would have negligible effects on groundwater levels in these wells.

The potential for poor groundwater quality would be one factor to consider when designing and constructing the new production well. As reported, the groundwater quality in the vicinity of the new production well generally appears to be acceptable for drinking water use at depths shallower than 250 to 300 feet. However, site-specific testing would need to be completed before determining if a treatment facility would be required at this site.

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**Figure 1.
Wells Within a 2-Mile Radius of the Proposed Production Well Site**

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Findings

The proposed project would not have any project-specific additional significant environmental effects for hydrology and water quality not previously examined in the Master EIR, and no new mitigation measures or alternatives are required.

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References

Luhdorff & Scalmanini Consulting Engineers, 1998. Groundwater Injection Feasibility Study. Prepared for Sacramento County Water Agency. June 1998.

Wood Rodgers, Inc. 2010. City of Sacramento Water Master Plan – Hydrogeologic Report. September 2010.

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