



# City of Sacramento City Council

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915 I Street, Sacramento, CA, 95814  
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**Meeting Date:** 4/21/2011

**Report Type:** Staff/Discussion

**Title: Supplemental Agreement: Water Treatment Plant Rehabilitation Project Phase 2 Design Project (Z14006000)**

**Report ID:** 2011-00246

**Location:** Districts 1, 3, 6

**Recommendation:** Adopt a Resolution authorizing the City Manager 1) to sign Supplemental Agreement No. 1 to the Professional Services Agreement with Carollo Engineers, Inc., to perform the Phase 2 Final Design services for the project, for an amount not to exceed \$7,400,000, and 2) to transfer \$1,500,000 from the Water Contingency fund to Water Treatment Plants Rehabilitation Project (Z14006000).

**Contact:** Bill Busath, Interim Engineering Manager, 808-1434; Dan Sherry, Supervising Engineer, 808-1419; Bill Zehnder, Senior Engineer, 808-1910, Department of Utilities

**Presenter:** Dan Sherry, Supervising Engineer, (916) 808-1419, Department of Utilities

**Department:** Department Of Utilities

**Division:** CIP Engineering

**Dept ID:** 14001321

**Attachments:**

- 
- 1-Description/Analysis
  - 2-Background
  - 3-Location map
  - 4-Resolution
  - 5-Unexecuted Agreement Cover
  - 6-Attachemnt 2 to Exhibit A - Supplemental Agreement No. 1

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### City Attorney Review

Approved as to Form  
Joe Robinson  
4/14/2011 9:22:51 AM

### City Treasurer Review

Prior Council Financial Policy Approval or  
Outside City Treasurer Scope  
Russell Fehr  
4/6/2011 12:16:23 PM

### Approvals/Acknowledgements

Department Director or Designee: Marty Hanneman - 4/11/2011 10:41:29 AM

Assistant City Manager: John Dangberg - 4/13/2011 6:41:15 PM

## Description/Analysis

**Issue:** The City's surface water treatment plants, the Sacramento River Water Treatment Plant (SRWTP) and the EA Fairbairn Water Treatment Plant (EAFWTP), were constructed in the 1920's and 1960's, respectively. Critical infrastructure and equipment at the SRWTP are over 90 years old and have exceeded their service life, and need to be replaced. Improvements also are needed at the EAFWTP to maintain reliable capacity. In order to provide a safe and reliable water supply today and in the future for the citizens of Sacramento, it is imperative that the treatment plants be rehabilitated.

On April 13, 2010, after Carollo Engineers, Inc. (Carollo) was selected through a Request for Qualifications process to provide engineering and design services for the rehabilitation project, the City Council approved a Professional Services Agreement with Carollo to complete the Phase 1 predesign work for the project, for a not to exceed amount of \$825,494. The Phase 1 work has been completed, and approval of Supplemental Agreement No. 1 would authorize performance of the Phase 2 final design work for an additional amount not to exceed \$7,400,000.

The current cost estimate for construction and related administration of the Water Treatment Plants Rehabilitation Project is approximately \$150 million. Based on analysis of possible funding options, it is DOU's recommendation to finance construction of the project through the sale of revenue bonds.

**Policy Considerations:** This project, which provides the infrastructure for a safe and reliable water supply, is consistent with the City Council focus areas of public safety, economic development, and sustainability and livability.

The estimated \$150 million bond to finance the Water Treatment Plants Rehabilitation Project would require an annual debt service obligation of approximately \$10 million to the Water Fund and would result in an 11% rate increase to finance the additional annual debt service.

**Environmental Considerations:** California Environmental Quality Act (CEQA) review will be conducted in conjunction with the design work and any environmental documentation required under CEQA will be completed prior to award of any construction contract(s). The fiscal actions requested do not constitute a "project" under CEQA (CEQA Guidelines § 15378(b)(4)).

**Sustainability:** This project is consistent with the City's Sustainability Master Plan by providing a safe and reliable water supply for the Sacramento Region. While the LEED certification process was not developed for the types of facilities proposed in this project, it is the intent of the DOU to incorporate LEED principles into the facilities to the maximum extent that it is feasible.

**Commission/Committee Action:** Not applicable

**Rationale for Recommendation:** Approval of Supplemental Agreement No. 1 will

authorize DOU to proceed with final design of the needed repairs and improvements to its treatment plant facilities, so it can provide a safe and reliable water supply to City customers today and into the future. It is anticipated that the final design will be completed in the fall of 2012.

**Financial Considerations:** Supplemental Agreement No. 1 is for an amount not to exceed \$7,400,000. As of March 14, 2011, there is an unobligated amount of \$6,080,712 in CIP Z14006000. In order to fund the total project prior to FY 2011/12 budget, DOU is proposing to transfer \$1,500,000 from the water contingency reserve fund (6005) into Z14006000. There is sufficient funding available in the water contingency reserve fund.

**Emerging Small Business Development (ESBD):** Carollo is not an emerging or small business enterprise.

## BACKGROUND

Much of the existing infrastructure at the City's water treatment plants has exceeded its service life and is at risk of failing. The Sacramento River Water Treatment Plant (SRWTP) and E. A. Fairbairn Water Treatment Plant (EAFWTP) were constructed in 1923 and 1964 respectively. Plant expansions at both of these facilities were completed in 2005, but much of the existing infrastructure was not rehabilitated or replaced as part of the projects.

The plant expansion projects included:

- EAFWTP Intake Structure Modification Project (ZF47) completed in 2003. This project extended the existing intake to provide additional low lift pumping capacity.
- SRWTP Replacement Intake Project (ZF57) completed in 2004. This project constructed a new intake structure to replace the existing intake that was constructed in the early 1920's.
- SRWTP Plant Expansion Project (ZF52) completed in 2004. This project added treatment facilities that increased the treatment capacity by approximately 70 mgd.
- EAFWTP Plant Expansion Project (ZF43) completed in 2005. This project added treatment facilities that increased the treatment capacity by approximately 80 mgd.

In 2007 the Department of Utilities (DOU) conducted a study to evaluate the condition and performance of the City's surface water treatment facilities. The study assessed the existing facility conditions, conducted operational tests to evaluate plant performance, assessed the reliability of the facilities, and developed a capital improvement program for rehabilitation and/or replacement of existing facilities. The study was completed in February 2009 and concluded that both treatment facilities require substantial rehabilitation work in order to provide reliable water treatment facilities. The major components of work include:

- Replace or decommission SRWTP Sedimentation Basin 1
- Replace or rehabilitate SRWTP Sedimentation Basin 2
- Replace or decommission SRWTP Filters 1 thru 16
- Replace SRWTP High Service Pump Station
- Install Solids Handling Facilities at SRWTP and EAFWTP
- Install miscellaneous yard piping at SRWTP

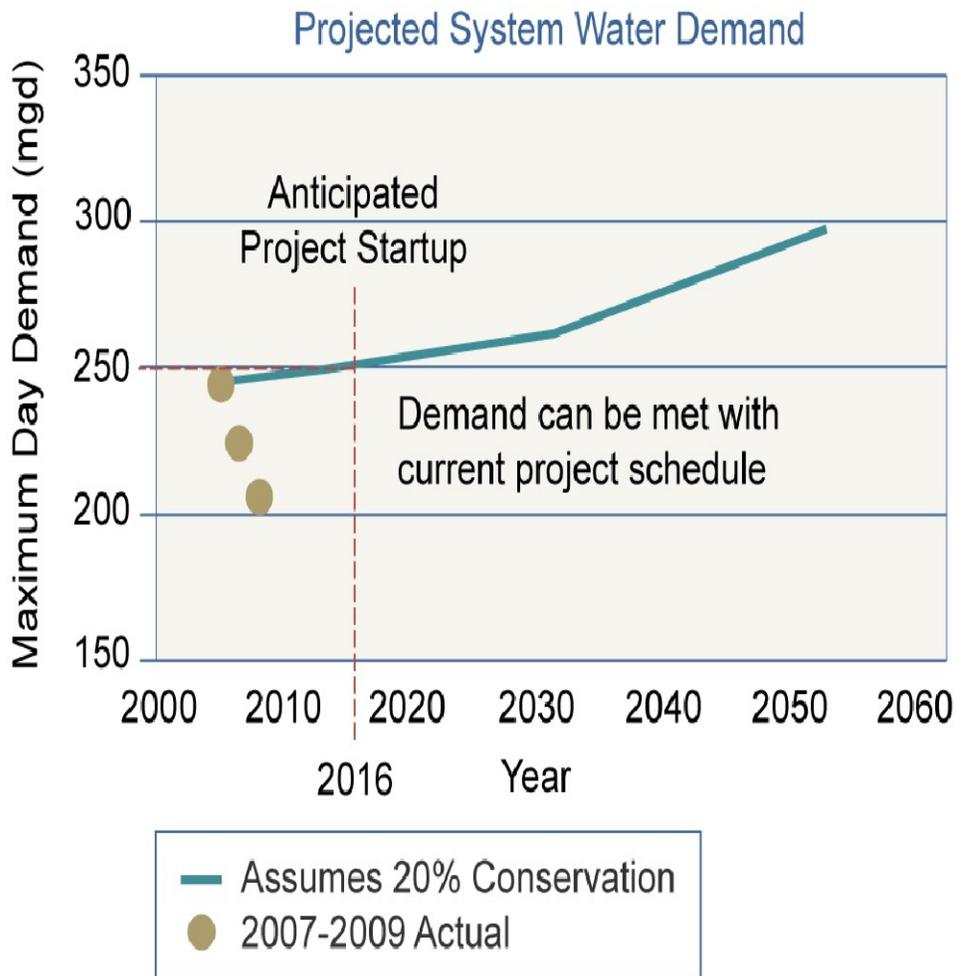
## PROJECT NEED

The table below (1) summarizes the City's current water supply capacities (design capacity, sustainable capacity and reliable capacity) as well as the reliable water supply capacities expected after construction of the proposed rehabilitation project, and (2) compares these capacities with the City's highest maximum day demand (which occurred in 2007). Design capacity is the maximum treatment capacity for which the City's current facilities are designed. Sustainable capacity is the treatment capacity that can be provided during the peak demand season and meeting all water quality goals. Reliable capacity takes into account the condition of the infrastructure and reduces the capacity based on removing dilapidated facilities that are beyond their service life.

<b>Water Supply Capacity vs Maximum Day Water Demand</b>				
<b>Facility</b>	<b>Design Capacity (mgd)</b>	<b>Sustainable Capacity (mgd)</b>	<b>Current Reliable Capacity (mgd)</b>	<b>Reliable Capacity after Rehabilitation Projects (mgd)</b>
SRWTP	160 <sup>1</sup>	135 <sup>2</sup>	60 <sup>3</sup>	160
EAFWTP	200 <sup>1</sup>	100 <sup>4</sup>	100 <sup>4</sup>	100 <sup>4</sup>
Groundwater Wells	25	15	5	20 <sup>5</sup>
<b>TOTAL</b>	<b>385</b>	<b>250</b>	<b>165</b>	<b>280</b>
<b>2007 Max Demand (mgd)</b>		<b>250</b>		
Notes: 1. The design capacities listed for the SRWTP and EAFWTP reflect design criteria established during the treatment plant expansion projects which were completed in 2004 and 2005 respectively, as described in the Environmental Impact Report for the City's Water Facilities Expansion Project certified by the Sacramento City Council on November 28, 2000 (Resolution NO. 2000-686). 2. Some facilities at SRWTP, including the river intake pump station, meet the 160 MGD design capacity, but the controlling factor that reduces the plant design capacity to the sustainable capacity shown is the restriction in the hydraulic grade between the old and new filters. 3. The SRWTP reliable capacity is based on the capacity of the treatment train constructed in the expansion project. 4. The City's Water Forum diversion restrictions limit EAFWTP diversions to 100 mgd when lower American River flows fall below the Hodge flow levels. 5. The groundwater wells reliable capacity assumes future well rehabilitation and improvements.				

The graph below represents the City's actual water demand for 2006 through 2010 and projected water demand for future years. As indicated by the graph, the City experienced its peak demand in 2007 of approximately 250 MGD. Since this time, the

City has experienced a decrease in water usage attributable in large part to dry year conservation and the poor economic environment. It is anticipated that the actual demand will again meet the projected demand, but because of uncertain economic times it is difficult to predict in exactly what near term year this will occur. The proposed rehabilitation project will allow the City to meet current customer demands and future demands projected out to year 2030.



The following tables list the existing facilities requiring rehabilitation or improvements as part of this project.

<b>Sacramento River WTP</b>		
<b>Existing Facility</b>	<b>Identified Need</b>	<b>Project Solution</b>
Sedimentation Basin 1	<ul style="list-style-type: none"> <li>• Constructed in 1920's, basin is past service life.</li> <li>• Severe deterioration of concrete and steel walls, columns, and roof.</li> <li>• Parts of the structure are falling off and deep cracks and holes have developed</li> <li>• Facility is unreliable</li> </ul>	<ul style="list-style-type: none"> <li>• Decommission basin and replace capacity with new basin.</li> </ul>
Sedimentation Basin 2	<ul style="list-style-type: none"> <li>• Constructed in the 1930's, basin is past service life</li> <li>• Water quality challenges meeting current regulations, including algae growth</li> </ul>	<ul style="list-style-type: none"> <li>• Demolish and replace with basin referenced under "Sedimentation Basin 1" solution</li> </ul>
High Service Pump Station	<ul style="list-style-type: none"> <li>• Constructed in 1920's, station is past service life.</li> <li>• Significant structural and mechanical issues including settling and leaking.</li> <li>• Walls are severely cracked.</li> <li>• Pumps are original to plant construction. Facility is unreliable due to age.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace with new Pump Station meeting current operating criteria, energy efficiency standards, and safety requirements.</li> </ul>
Original Filters	<ul style="list-style-type: none"> <li>• Constructed in 1920s and 1930s. Significant settling and cracking of walls and filter boxes is evident.</li> <li>• Manual operation is required, and is unreliable.</li> <li>• On-going repair is difficult and parts are hard to locate.</li> </ul>	<ul style="list-style-type: none"> <li>• Decommission and replace with expansion to 2003 filters meeting current design and automation standards.</li> </ul>
Solids Dewatering Facilities	<ul style="list-style-type: none"> <li>• Existing solar drying beds cannot support current and planned future production rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Add mechanical dewatering system to increase solids handling capacity.</li> <li>• Continue use of solar drying beds to reduce required size and cost of new mechanical facility.</li> </ul>
Main Electrical Switchgear	<ul style="list-style-type: none"> <li>• Existing gear is approaching end of service life.</li> <li>• Reliability and condition are not ideal.</li> <li>• Current location may be vulnerable to Homeland Security concerns.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace with new substation in safer location meeting current safety standards, increased efficiency, and improved reliability.</li> </ul>
Yard Piping	<ul style="list-style-type: none"> <li>• Much of the plant piping is original and at the end of its service life.</li> <li>• Additional support piping is needed to support the planned new facilities.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace and add yard piping to increase reliability, flexibility, and connect new facilities.</li> </ul>

<b>E.A. Fairbairn WTP</b>		
<b>Existing Facility</b>	<b>Identified Issues</b>	<b>Proposed Solution</b>
Solids Dewatering Facilities	<ul style="list-style-type: none"> <li>Existing solar drying beds cannot support current production rates.</li> <li>Contract dewatering is currently required multiple times each year and is not as cost effective as constructing a dewatering facility on plant site.</li> </ul>	<ul style="list-style-type: none"> <li>Add mechanical dewatering system to increase solids handling capacity.</li> <li>Continue use of solar drying beds to reduce required size and cost of new mechanical facility.</li> </ul>

The following table summarizes potential impacts of not performing the necessary rehabilitation project.

<b>Proposed Rehabilitation Work</b>	<b>Impact of Not Performing the Work</b>
<ul style="list-style-type: none"> <li>Replace the SRWTP facilities that are at the end of their service life.</li> </ul>	<ul style="list-style-type: none"> <li>Failure of the treatment facility would result in pressure reduction throughout the City for months or years. <ol style="list-style-type: none"> <li>Water system doesn't meet fire protection code.</li> <li>May cause unsafe drinking water, require boiling treated water.</li> </ol> </li> <li>Reduce pressure may trigger emergency water conservation measures.</li> <li>Restrict development.</li> </ul>
<ul style="list-style-type: none"> <li>Add solids handling systems at both WTPs to reduce long-term solids handling costs and improve reliability.</li> </ul>	<ul style="list-style-type: none"> <li>Continue payments to contractors removing solids at higher overall cost and lower reliability.</li> </ul>

## **PROJECT DESIGN PROCESS**

On April 13, 2010, after Carollo was selected through a Request for Qualifications process, the City Council approved the Professional Service Agreement with Carollo that provides for three phases of engineering services for the replacement of the aged facilities at the treatment plants. The three phases of the agreement includes, Phase 1 – Preliminary Design, Phase 2 – Final Design and Phase 3 – Engineering Support During Bidding and Construction.

Phase 1 was authorized when the Professional Services Agreement was approved and was completed in March 2011. The Phase 1 services analyzed facility options and prepared preliminary design drawings and cost estimates for all facilities needing

replacement, as identified in the prior Condition Assessment Study.

The work performed for the preliminary design phase included performing cost benefit analysis on facility types and options, incorporating experience of other water producers and industry standards, complying with existing regulations, analyzing impacts of potential future regulations, locating facilities on site to allow for potential future plant expansion, developing constructability and sequencing of proposed improvements to ensure a reliable operation of plant during construction, and striving for effective long term operation and sustainability of the facilities.

The project cost estimate developed during Phase 1 Preliminary Design established an estimated project cost of \$157,400,000, including final design, administration and construction of the rehabilitation project.

Phase 2 - Final Design of the Professional Service Agreement will take approximately 15 months to perform. This work entails preparing the detailed design culminating in the bid documents used to bid and construct the proposed Water Treatment Plants Rehabilitation Project. A scope of work has been developed for Carollo and its subconsultants to perform this phase of work for a not to exceed amount of \$7,400,000.

## **PROJECT FUNDING**

The current cost estimate for construction and related administration of the treatment plant rehabilitation project is approximately \$150 million. Based on analysis of possible funding options, it is DOU's recommendation to finance construction of the project through the sale of revenue bonds.

Relying on revenue from water rate increases alone to finance major capital projects, such as the rehabilitation of the water treatment plants, may not be feasible due to the immediate and significant rate increases needed to raise the \$150 million to construct the project. While issuing bonds (debt) will increase the long-term cost of the project, issuing bonds in the near term will mitigate the impact on water rates and more equitably spread the benefits and costs of the project to utility customers over a longer term. DOU has worked closely with the City's Treasurer's Office and estimates that issuing a 30-year, \$150 million bond to finance the treatment plant rehabilitation project would require an annual debt service obligation of approximately \$10 million to the water fund; which DOU estimates would result in an 11% rate increase to finance the additional annual debt service.

The project cost breakdown is as follows:

SRWTP Construction Costs:	\$119.5 M
EAFWTP Construction Costs:	<u>\$13.6 M</u>
Subtotal:	\$133.1 M
Engineering and Administration:	\$ 24.3 M
Total Project Cost:	\$ 157.4 M
Less Cost for Final Design	<u>-\$ 7.4M</u>
Total Project Cost to be funded by selling bonds	\$ 150 M

Staff will refine the estimate during final design as details become more developed.

### **PROJECT SCHEDULE**

Proposed key project milestone dates are shown below:

1. Start of final design: May 2011
2. Resolution of Intent to Sell Bonds: August 2011
3. Completion of Final Design: August 2012
4. Advertise Project: December 2012
5. Issue Bonds: February 2013
6. Start Construction: March 2013
7. Complete Construction: September 2016





## **RESOLUTION NO. 2011-**

Adopted by the Sacramento City Council

### **AUTHORIZING SUPPLEMENTAL AGREEMENT NO. 1 WITH CAROLLO ENGINEERS, INC.**

#### **BACKGROUND**

- A. The Sacramento River Water Treatment Plant (SRWTP) was constructed in the 1920's and the E.A. Fairbairn Water Treatment Plant (EAFWTP) was constructed in the early 1960's. Many of the older structures at these facilities have reached the end of their service life and need to be rehabilitated or replaced.
- B. The Department of Utilities performed a condition assessment study that was completed in 2009 that identified infrastructure at the treatment plants requiring replacement or rehabilitation.
- C. On April 13, 2010, the City Council approved a Professional Services Agreement with Carollo Engineers, Inc. (Carollo) to perform the first of three phases of design consultant services for the Treatment Plants Rehabilitation Project, for an amount not to exceed \$825,494. Carollo was selected to provide all three phases of project design services through a Request for Qualifications process.
- D. In March 2011, Phase 1 (Preliminary Design) was completed. The Phase 1 services included cost benefit analyses of facility rehabilitation options, preparation of preliminary design drawings for the selected options and cost estimates for all facilities needing replacement as identified in the condition assessment study for the Water Treatment Plants Rehabilitation Project.
- E. Staff is recommending that the City Council approve Supplemental Agreement No. 1 to authorize performance of the Phase 2 final design work by Carollo and its subconsultants, for the amount not to exceed \$7,400,000, bringing the total not to exceed amount for this Professional Services Agreement to \$8,225,494.

#### **BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:**

- Section 1. The City Manager is authorized to sign Supplemental Agreement No. 1 to the Professional Services Agreement with Carollo Engineers, Inc., to perform the Phase 2 Final Design services for the Water Treatment Plants Rehabilitation Project (Z14006000), for an amount not to exceed \$7,400,000.

Section 2. The City Manager is authorized to transfer \$1,500,000 from the Water Contingency fund to the Water Treatment Plants Rehabilitation Project (Z14006000).

Section 3. Exhibit A is made a part of this Resolution.

Exhibit A - Supplemental Agreement No. 1



## Unexecuted Contract/Agreements

- The Unexecuted Contract/Agreement is signed by the other party, is attached as an exhibit to the resolution, and is approved as to form by the City Attorney.
  
- The Unexecuted Contract/Agreement (Public Project) is NOT signed by the other party, is attached as an exhibit to the resolution, and is approved as to form by the City Attorney.
  
- The Unexecuted Contract is NOT included as an exhibit to the Resolution because the Agreement(s) is with other another governmental agency and it is not feasible to obtain the other agency's signature prior to Council action (be they denominated Agreements, MOUs, MOAs, etc.); however, the City Attorney approves the forwarding of the report to Council even though the signed agreement is not in hand yet.
  
- The Unexecuted Contract is NOT included as an exhibit to the resolution because, due to special circumstances, and the City Attorney confirms in writing that it is okay to proceed with Council action even though the signed agreement is not in hand yet.

*All unexecuted contracts/agreements which are signed by the other parties are in the Office of the City Clerk before agenda publication.*



# SUPPLEMENTAL AGREEMENT

Project Title and Job Number: Water Treatment Plants Rehabilitation / Z14006000  
Phase Order #: 0000010129

Date: \_\_\_\_\_  
Supplemental Agreement No.: 1

The City of Sacramento ("City") and Carollo Engineers, Inc. ("Contractor"), as parties to that certain Professional Services Agreement designated as Agreement Number 2010-0266, including any and all prior supplemental agreements modifying said agreement (said 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:

**This supplemental agreement adds the Phase 2 Final Design Services to the Agreement. Contractor shall perform the work and services specified in "Attachment 2 to Exhibit A", which is attached hereto and incorporated herein by this reference.**

2. The Contractor's billable rates for performance of the Phase 2 work and services described in section 1, above, are set forth in "Attachment 2 to Exhibit B", and the total estimated costs for such work and services are set forth in "Attachment 3 to Exhibit B," both of which are attached hereto and incorporated herein by this reference.

3. 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 \$7,400,000, and said maximum not-to-exceed amount is amended as follows:

Agreement's original not-to-exceed amount:	<u>\$825,494</u>
Net change by previous supplemental agreements:	<u>\$ 0</u>
Not-to-exceed amount prior to this supplemental agreement:	<u>\$825,494</u>
<b>Increase</b> by this supplemental agreement:	<u>\$7,400,000</u>
New not-to exceed amount including all supplemental agreements:	<u>\$8,225,494</u>

4. Contractor agrees that the amount of increase or decrease in the not-to-exceed amount specified in section 3, 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.

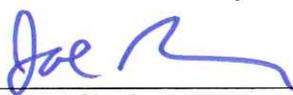
5. Contractor warrants and represents that the person or persons executing this supplemental agreement on behalf of Contractor has or have been duly authorized by Contractor to sign this supplemental agreement and bind Contractor to the terms hereof.

6. 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.

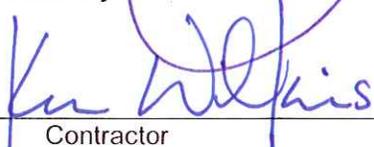
Approval Recommended By:

  
\_\_\_\_\_  
Project Manager

Approved As To Form By:

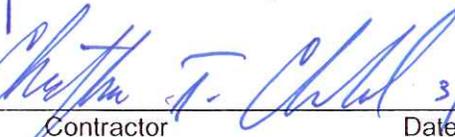
  
\_\_\_\_\_  
City Attorney

Approved By:

 3/30/11  
\_\_\_\_\_  
Contractor Date

Approved By:

\_\_\_\_\_  
City of Sacramento

 3/31/11  
\_\_\_\_\_  
Contractor Date

Attest:

\_\_\_\_\_  
City Clerk

**ATTACHMENT 2 TO EXHIBIT A**

**FINAL DESIGN SERVICES  
SRWTP AND EAFWTP IMPROVEMENTS PROJECT (PROJECT)  
CITY OF SACRAMENTO**

**GENERAL**

The City of Sacramento (CITY) has completed conceptual design of improvements to the Sacramento River Water Treatment Plant (SRWTP) and the E.A. Fairbairn Water Treatment Plant (EAFWTP) and will now implement final project design for the planned improvements at both plants. Some existing facilities at the SRWTP have reached the end of their service life increasing the risk of maintaining a reliable drinking water supply for CITY customers. Phase I of the design developed a concept for replacing many of the aging facilities to provide the current nameplate capacity of 160 mgd while allowing future potential expansion projects at the site.

Solids handling methods at the SRTWP and EAFWTP have also grown increasingly challenging with current solids production, lagoon operations, sludge drying, permitting, and disposal. Currently the CITY is using contract dewatering as an interim measure. The previous project evaluated and recommended new solids handling facilities at both WTPs.

For this project (PROJECT), Carollo Engineers, Inc. (CONTRACTOR) and CONTRACTOR's subconsultants will provide final design of the improvements to and/or replacements of end-of-life facilities at SRWTP and solids handling improvements at SRWTP and EAFWTP.

The Preliminary Design Report (PDR), developed as part of Phase I, defines the areas of each WTP that will be demolished, modified, or added. These areas are as follows:

<b>FAC. No.</b>	<b>FACILITY NAME</b>
<b>SRWTP</b>	
12	INTAKE
30	FLOW SPLIT STRUCTURE
43	FLOCCULATION/SEDIMENTATION BASIN 1
42	FLOCCULATION/SEDIMENTATION BASIN 2
41	FLOCCULATION/SEDIMENTATION BASIN 3
44	FLOCCULATION/SEDIMENTATION BASIN 4
52	OLD FILTERS 1-16
51	2003 FILTERS 1-8 & NEW FILTERS 9-16
61	CT/CLEARWELL
62	9.5 MG RESERVOIR
63	5 MG RESERVOIR
70	TREATED WATER PUMP STATION
71	HIGH SERVICE PUMP STATION
92	PLANT ELECTRICAL SUBSTATION
15	FILTER WASHWATER BASINS

15	SLUDGE LAGOONS
71	SOLIDS THICKENERS AND PS
72	DEWATERING BUILDING
15	THICKENED SLUDGE DRYING BED
<b>EAFWTP</b>	
16	FILTER WASHWATER BASINS
16	SLUDGE LAGOONS
73	SOLIDS THICKENERS AND PS
74	DEWATERING BUILDING

The following scope of work, design schedule, and budget information describes the work activities and requirements for conducting the Phase II final design. The scope of work details each task and related activities and design products for final design of the PROJECT. Final design includes geotechnical investigations, plant surveying, and preparation of contract documents consisting of drawings and specifications.

### SCOPE OF WORK

This scope of work describes the final design of the PROJECT. The objective, work activities, and task products are described below.

#### Task 1.0 - Project Management

**Objective:** To establish and execute a management plan for coordination of work activities for the duration of final design and bidding services for the PROJECT.

Project management plan shall consist of: 1) budget and schedule monitoring; 2) product preparation and submittal; 3) project coordination between engineering design disciplines; 4) project coordination between engineering and drafting, and 5) overall project coordination between CONTRACTOR and CITY.

T1.01 Prepare project management plan including: 1) project schedule and listing of coordination meetings and activities; 2) list of drawings; 3) project communications plan; 4) quality assurance/quality control plan; 5) project team assignments; 6) documentation procedures for design engineering and design calculations, and 7) develop and maintain CAD drafting manual with drafting standards for the project.

Create and setup "ProjectWise" for sharing of design drawings, specifications, equipment data sheets, etc., between Design Team disciplines.

T1.02 Design Coordination/ Project Management. Conduct final design kick-off meetings with CITY and design team (two meetings). Provide overall project management for all disciplines, drafting staff, and subconsultants throughout the project. Maintain project budget and schedule. Plan and allocate resources to meet project staffing requirements throughout the project.

T1.03 CONTRACTOR's project manager will attend bi-weekly project managers meeting to review progress and coordinate work with CITY. It is understood that CITY's project manager will be the primary point of contact for all communication between CONTRACTOR and CITY staff. A maximum of one two-hour meeting biweekly with the CITY has been assumed for communication regarding project management of the project.

T1.04 Prepare monthly invoices and project progress reports.

**Products:**

P1.01 Project management plan (pdf copy).

P1.02 Monthly invoices and progress reports (1 copy).

**Task 2.0 - Final Design Documents**

**Objective:** Prepare final design drawings, specifications, and contract requirements.

The CONTRACTOR will prepare final design drawings and contract specifications for the WTPs Improvements Project. A Preliminary List of Drawings for all disciplines is provided as Attachment 1 to Exhibit A. The number of drawings by discipline is summarized below. Drawings and specifications will be prepared in accordance with the Project Design Standards prepared as part of Task 1.

Contract specifications will include: 1) Division 00 - Bidding Requirements, Contract Forms, General Conditions, and Supplemental Conditions; 2) Division 01 - General Requirements; and 3) Divisions 02 through 17 - Technical Specifications. Division 00 Sections of the contract documents will consist of the City's Standard Legal Specifications.

Within the CONTRACTOR's team, there are several firms that will be performing the work. Carollo Engineers, Inc. (CONTRACTOR) will serve as the prime consultant. CONTRACTOR will be responsible for overall execution of the work. CONTRACTOR will also be responsible for all process, mechanical, civil, demolition, HVAC, and plumbing on the project except as noted below. MWH will be responsible for all structural and instrumentation & control design on the project. MWH will also be responsible for the process/mechanical design of the High Service Pump Station. Electrical design will be performed by J Calton Engineering and CONTRACTOR. CONTRACTOR will design the electrical substation with the remaining facilities designed by J Calton Engineering. All drafting will be performed by CONTRACTOR. Mechanical and process design of the solids handling systems and facilities will be performed by Environmental Engineering and Technology (EE&T) and CONTRACTOR. Architectural design of the SRWTP HSPS and the Dewatering Buildings and Sludge Pump Station Buildings at both WTPs will be performed by Lionakis. CONTRACTOR will be responsible for miscellaneous architectural design of the remaining structures and facilities throughout the WTPs. Landscape design will be performed by Callander Associates.

Notwithstanding any other provisions hereof, the designations of responsibility specified herein are provided solely to indicate which firms will be performing which services, and such designations do not affect or limit in any way CONTRACTOR's contractual responsibility for the performance and completion of all work and services described herein, whether such work and

services are designated to be performed by CONTRACTOR or by any subconsultant retained by CONTRACTOR.

<b>SUMMARY OF DRAWINGS</b>			
<b>Design Discipline</b>	<b>Responsible Firm(s)</b>	<b>Number of Drawings</b>	
		<b>SRWTP</b>	<b>EAFWTP</b>
General	CONTRACTOR	37	15
Civil/Demolition	CONTRACTOR	84	21
Landscaping	Callander Associates	8	5
Architectural	Lionakis/ CONTRACTOR	58	15
Structural	MWH	131	27
Process Mechanical	CONTRACTOR /MWH/EET	135	46
HVAC Mech/Plumbing	CONTRACTOR	28	8
Electrical	J Calton Engineering/ CONTRACTOR	169	55
Instrumentation	MWH	78	34
<b>SUBTOTAL</b>		<b>735</b>	<b>226</b>
<b>TOTAL</b>		<b>961</b>	

**Activities:**

T2.01 Refine conceptual design elements as required to meet final design objectives, local codes, geotechnical issues, survey results, and potholing, if performed. Specific items under this subtask include:

- Confirm existing facility elevations for hydraulic grade line design and new facility elevations to meet current flood design requirements.
- Changes to property acquisition assumptions
- Confirmation of inclusion of VFDs at SRWTP intake
- Create and setup "ProjectWise" for sharing of design drawings, specifications, equipment data sheets, etc., between Design Team disciplines
- Incorporate any California Department of Public Health comments on the PDR.
- Confirm the design concept for the flocc/sed basin and the filters is to match exactly the existing 2003 expansion facilities.
- Confirm the architectural concept for major new structures is to match the 2003 expansion concept of a Spanish mission style.
- Identify all applicable codes and their current versions that apply to the project. This includes the most recent versions of the California Code of Regulations (CCR) Title 24, applicable as of January 1, 2011. Significant updates to existing Parts and new Parts are applicable to this project and must be followed. Other applicable rules, regulations, and guidelines will be identified from other primacy agencies such as the Central Valley Regional Water Quality Control Board (CVRWQCB) and the California Air Resources Board as applicable.

CONTRACTOR will prepare a technical memorandum to capture any identified updates from the PDR determined as part of this subtask. The current scope of work for tasks described below are based on the assumptions currently described in the Preliminary Design Report and those stated above. If the scope of work for design changes in any way during this task the CITY and CONTRACTOR will review the impact to this scope and associated design budget.

2.01.1 Geotechnical Investigations. Under this subtask, CONTRACTOR's subconsultant AGS will perform geotechnical investigations to provide design information for civil and structural design efforts at both WTPs.

- 1. Review of Available Data. AGS will review the available published geotechnical, geologic, and seismologic data and the existing data in existing files pertinent to the proposed construction and the site.
- 2. Field Exploration Program. AGS will conduct a field exploration program consisting of drilling three borings extending to a depth of about 100 feet at SRWTP and two borings at EAFWTP to a depth of 50 feet. AGS will drill the borings at the locations of the proposed structuring where subsurface information does not exist. AGS will obtain Standard Penetration Test (SPT), Shelby tube, modified California, and bulk samples of the soils, as appropriate for various soils encountered. AGS will contact the water treatment plant personnel to identify underground utility locations and verify clearance before initiation of the field exploration program. The field exploration program will be performed under technical supervision of a qualified engineer/geologist who has extensive experience on the soil conditions in the area. AGS's engineer/geologist will record a log of each boring drilled and the conditions

encountered at the site. AGS will backfill the borings with the cement grout. AGS will dispose of the cuttings generated from the drilling operations and restore the ground surface to the original condition to the extent possible.

- 3. Geotechnical Laboratory Testing Program. AGS will perform a laboratory testing program on samples of earth materials obtained during the field exploration program. The laboratory tests will include moisture content, dry density, Atterberg limits, sieve analyses, consolidation, unconfined compression, direct shear, triaxial shear, and compaction tests, as appropriate for various soils encountered.
- 4. Engineering Analyses and Report Preparation. AGS will perform engineering analyses using the field and laboratory data to develop site-specific geotechnical conclusions and recommendations for design and construction of the project. AGS's geotechnical findings, conclusions, and recommendations along with the supporting field and laboratory data will be presented in an engineering report.
- 5. Analyze impact of placing piles in same location as existing piles within the existing Basin 2 area. Recommend fate of existing piles and new pile layout.
- 6. Meetings and Consultation. AGS will meet and consult with the design team, as required during the design phase of the project. Two meetings have been included during the design phase of the study.
- 7. Review of Specifications and Design Drawings. AGS will review specifications and design drawings to verify that they are prepared in accordance with geotechnical conclusions and recommendations at both treatment plants.

2.01.2 Surveying. Under this subtask CONTRACTOR's subconsultant, CTA, will perform a survey of the SRWTP and EAFWTP. The purpose of this subtask is to provide an accurate background from which to perform design activities, including identification of existing grades, surface treatments, structures, and utilities that can be identified without potholing. Geotechnical borings will also be located on the survey map.

#### **Sacramento River WTP**

1. Provide field surveys to establish project control and six (6) aerial mapping ground control points for the area within the project boundary plus a 50' boundary. This includes all necessary research and data preparation. The horizontal datum will be based upon the California Coordinate System, Zone II, NAD 83 from localized control or NGS monuments. The vertical datum will be based upon City of Sacramento benchmarks. Two permanent control points will be set on site and tied to the project control for future use.
2. Retain the services of Radman Aerial Surveys to provide the aerial photography, analytical aerotriangulation and digital mapping for this project. The area will be photographed at a scale of 1"=250' using calibrated precision mapping cameras, with all compiled data being collected to meet a 1"=20' map scale with 1' contours. Deliverables to CONTRACTOR will include ink-on-paper check plots and digital mapping files in AutoCAD format on CD's.
3. The need for additional ground surveys to confirm critical design elements, locating utilities and the identification of improvements or structures that may not be apparent on the aerial photography is anticipated. Therefore, this budget includes 16 hours of a field survey crew and 8 hours of a land surveyor to field walk the site and add the additional data to the aerial mapping.

4. It is also anticipated that geotechnical borings and utility pothole locations will need to be located within the project area. The assumption is that the borings and potholes will have reference points left by others and those points will be surveyed. Therefore, this budget includes 4 hours of field survey crew and 2 hours of a land surveyor to locate and add that information after the original field surveying has been completed.

#### **Fairbairn WTP**

1. Provide field surveys to establish project control and five (5) aerial mapping ground control points for the area within the project boundary plus a 50' boundary. This includes all necessary research and data preparation. The horizontal datum will be based upon the California Coordinate System, Zone II, NAD 83 from localized control or NGS monuments. The vertical datum will be based upon City of Sacramento benchmarks. Two permanent control points will be set on site and tied to the project control for future use.
2. Retain the services of Radman Aerial Surveys to provide the aerial photography, analytical aerotriangulation and digital mapping for this project. The area will be photographed at a scale of 1"=250' using calibrated precision mapping cameras, with all compiled data being collected to meet a 1"=20' map scale with 1' contours. Deliverables to CONTRACTOR will include ink-on-paper check plots and digital mapping files in AutoCAD format on CD's.
3. The need for additional ground surveys to confirm critical design elements, locating utilities and the identification of improvements or structures that may not be apparent on the aerial photography is anticipated. Therefore, this budget includes 16 hours of a field survey crew and 8 hours of a land surveyor to field walk the site and add the additional data to the aerial mapping.
4. It is also anticipated that geotechnical borings and utility pothole locations will need to be located within the project area. The assumption is that the borings and potholes will have reference points left by others and those points will be surveyed. Therefore, this budget includes 4 hours of field survey crew and 2 hours of a land surveyor to locate and add that information after the original field surveying has been completed.

2.01.3 Potholing. Under this subtask, CONTRACTOR will contract with a potholing contractor and direct potholing investigations at the SRWTP and EAFWTP sites to identify and/or confirm locations of key underground utilities. An allowance of \$10,000 has been assumed to cover these services throughout the design process.

2.01.4 As part of the project, the previous 411 Building will be demolished. It is unknown whether there are any hazardous materials to be handled with special procedures during demolition. CONTRACTOR will hire an environmental surveying firm to investigate the building for possible hazardous materials and generate a report detailing any issues found. Due to the age of the building, it is not anticipated that any issues will be identified..

T2.02 30% Review Meeting. CONTRACTOR's project manager will attend and facilitate a review meeting with CITY staff to review status of the project at approximately a 30% level of design completion. Facility design concepts will be reviewed including layout and sizing, as well as site layout and major yard piping completed at that time. Any items requiring CITY input will be identified and discussed. CONTRACTOR will take minutes to capture CITY input to the design concepts presented. CONTRACTOR will relay to the project team for incorporation into the design concepts.

Deliverables: - Meeting Minutes from the 30 percent review meeting

T2.03 Prepare and submit 50 percent plans and specifications. CONTRACTOR will prepare and submit 50 percent complete set of plans and major project technical specifications at a draft level.

When the submittal is delivered to the CITY, a review workshop will be held, to be attended by the CONTRACTOR's project manager and project engineer. The purpose of the workshop is to present a summary of the deliverable and identify any decision points or specific feedback that is requested from the CITY. Following submittal to the CITY and a review period, CONTRACTOR will meet with the CITY again to discuss design issues, make design decisions, and receive comments. CONTRACTOR will also hold an internal team and discipline coordination meeting to coordinate and review comments received from the CITY.

Deliverables: - One pdf copy of the 50 percent plans and outline specifications  
10 Half-size sets of plans and specifications  
- Meeting Minutes from the 50 percent review meeting

T2.04 Prepare and submit 90 percent plans and specifications. CONTRACTOR will prepare and submit 90 percent complete set of plans and project specifications, including CITY front-end specifications customized to the project at a draft level.

Deliverables: - One pdf copy of the 90 percent plans  
10 Half-size sets of plans and specifications

T2.05 Submit 90 percent documents for regulatory review. Following a review period CONTRACTOR will attend meeting with CITY and California Department of Public Health to receive review comments.

T2.06 When the submittal is delivered to the CITY a review workshop will be held, to be attended by the CONTRACTOR's project manager and project engineer. The purpose of the workshop is to present a summary of the deliverable and identify any decision points or specific feedback that is requested from the CITY. Following submittal to the CITY and a review period, CONTRACTOR will meet with the CITY again to discuss design issues, make design decisions, and receive comments. CONTRACTOR will also hold an internal team and discipline coordination meeting to coordinate and review comments received from the CITY.

Deliverables: - Meeting Minutes from the 90 percent review meeting

T2.07 CONTRACTOR will incorporate comments, conduct internal team coordination meetings and finalize plans and specifications.

T2.08 CONTRACTOR will prepare completed contract documents, ready for printing. It is assumed that a single set of construction documents will be prepared for the work included in this project at both WTPs.

- Deliverables: -- 10 Half-size sets of plans and specifications  
1 Full-size set of plans on bond
- Two CDs of electronic design files in AutoCAD 2007 and \*.pdf formats.
  - - Two CDs of specifications in \*.pdf format.

**FINAL DESIGN COMPLETION ROADMAP  
WATER TREATMENT PLANTS REHABILITATION PROJECT**

<b>Design Discipline</b>	<b>50% Complete</b>	<b>90% Complete</b>	<b>100% Complete</b>
<b>Civil/Landscaping</b>	Major Piping Plan Complete Pipeline Profiles Site Plan Complete Drainage Layout Complete	Changes from 50% Rvw Finalize Roadways Finalize Piping Plans Finalize Grading Plans Specifications 90% Planting & Irr. Plan	Changes from 90% Review Finalize Drawings Finalize Specifications
<b>Architectural</b>	Plans Complete Exterior Elevations Complete Interior Walls 50% Complete	Changes from 50% Review Final Detail Sheets / Callouts Specifications 90%	Changes from 90% Review Finalize Drawings Finalize Specifications
<b>Structural</b>	Plan Views Complete Sections Complete Structural Calculations at 75%	Changes from 50% Review Create Detail Sheets / Callouts Insert Rebar into Plans/Sections Complete Structural Calculations Specifications 90%	Changes from 90% Review Finalize Drawings Finalize Specifications
<b>Process Mechanical</b>	Plans Created Sections Shown Equipment Shown Equipment Data Sheets Complete Specifications at 50%	Changes from 50% Review Create Detail Sheets / Callouts Equipment Tags Complete Specifications 90%	Changes from 90% Review Finalize Drawings Finalize Specifications
<b>HVAC/Plumbing</b>	Plans Created Equipment List Complete Data Sheets Complete Loads Determined Duct Routings Shown	Changes from 50% Review Create Detail Sheets / Callouts Equipment Tags Complete Specifications 90%	Changes from 90% Review Finalize Drawings Finalize Specifications
<b>Electrical</b>	Power Plan Complete Single Lines Complete Loads Identified & Calculated MCC's Identified Electrical Rooms Laid Out Specifications Outlined	Changes from 50% Review Detail Sheets and Callouts Equipment Tagging Specifications 90% Drawings 90%	Changes from 90% Review Finalize Drawings Finalize Specifications
<b>Instrumentation</b>	P&IDs 95% Complete Loop/Control Descriptions Complete Tagging 95% Complete Control Diagram Done	Changes from 50% Rvw Create Detail Sheets / Callouts Finalize Equipment Tagging I/O Listings Specifications 90%	Changes from 90% Review Finalize Drawings Finalize Specifications

## T2.09 Quality Assurance/Quality Control

**Objective:** Provide quality control of final design products.

CONTRACTOR will conduct Quality Assurance/Quality Control measures to minimize conflicts within design disciplines and between design disciplines. Intermediate design checks will be conducted at the 50 percent and 90 percent completion stages. This program consists of discipline and inter-discipline checks as outlined in the Design Checklist Procedures as provided in the Project Management Plan of Task 1.0 above.

In addition, the CONTRACTOR will hold internal design team coordination meetings after each submittal. These workshops will provide high quality design documents through efficient detailed coordination between all disciplines and team members.

## T2.10 Construction Cost Estimate and Constructability Reviews

**Objective:** Provide updated construction costs of the project and constructability reviews of project elements.

T2.10.1 CONTRACTOR and its subconsultants will review project at 50 percent completion, evaluate, and identify constructability issues and construction sequencing plan. At 90 percent completion develop detailed contractor sequencing, scheduling, and limitations to be incorporated into the final contract documents.

T2.10.2 Prepare construction cost estimate at 50 percent completion.

T2.10.3 Update construction cost estimate at 90 percent completion.

T2.10.4 Update construction cost estimate for Final Plans and Specifications.

### Products:

P2.10.1 Constructability review technical memorandum at 50% deliverable.

P2.10.3 Estimate at 50 percent design completion (electronic copy sent to City).

P2.10.4 Estimate at 90 percent design completion (electronic copy sent to City).

P2.10.5 Final construction cost estimate (electronic copy sent to City).

## Task 3.0 Architectural Design Committee Approval Process Support

**Objective:** To assist the CITY with the Architectural Design Committee approval process for new buildings to be constructed at EAFWTP and SRWTP as needed.

T3.01 CONTRACTOR and CONSTRUCTOR's subconsultant, Lionakis, will provide services and development of presentation materials to support the CITY during the review process, which is anticipated to be required as part of this project. An allowance of \$9,000 has been provided for this assistance, which will be further defined during the final design process.

#### **Task 4.0 LEED Checklist Compliance Assistance**

**Objective:** To assist the CITY with the goal of complying with LEED concepts to the extent reasonably possible given the types of facilities to be designed and constructed.

T4.01 All of the planned facilities to be constructed as part of this project are considered "unoccupied" spaces. Therefore, the ability of the project to qualify for LEED Silver certification is extremely difficult. Therefore the CITY will attempt to qualify for as many LEED Silver "points" as possible given the type of project, and the desire to meet the intent of LEED Silver certification. CONTRACTOR and our subconsultants will assist the CITY in evaluating project components, approaches, and documentation, to meet the LEED Silver concepts.

CONTRACTOR will coordinate with discipline engineers and architects to select equipment and materials, and design operating strategies to gain LEED qualifying points. Certain components will be compared to a baseline approach to determine improvements in sustainable design to determine qualifications in the various categories. At the end of the project, CONTRACTOR will compile a checklist identifying the sustainable concepts that were incorporated.

Any requirements for equipment, materials, or construction methods and documentation will be incorporated by the CONTRACTOR into the Contract Documents.

#### **FINAL DESIGN SCHEDULE**

Final design for the project will be conducted over a 15-month period beginning May 1, 2011 and finishing by August 1, 2012. A listing of key milestone dates is summarized below. It is critical that this schedule be maintained to maintain the project budget. Any significant delays in the project schedule, other than delays arising from any act or omission of the CONTRACTOR or any of its subconsultants, may result in costs that are not included in the current project budget and will be brought to the attention of the CITY, provided that CONTRACTOR understands and acknowledges that no additional compensation will be due unless approved by CITY in accordance with the provisions of Sections 1 and 2 of this Agreement.

<b>LISTING OF KEY MILESTONES</b>	
<b>Project Milestone</b>	<b>Scheduled Date</b>
Begin Final Design	May 1, 2011
30 Percent Review Meeting	October 15, 2011
50 Percent Submittal	February 15, 2012
Review Comments (50%)	March 7, 2012
90 Percent Submittal	June 1, 2012
Review Comments (90%)	June 21, 2012
Final Design Complete	August 1, 2012

ATTACHMENT 2 TO EXHIBIT B

CAROLLO ENGINEERS, INC.  
FEE SCHEDULE

As of March 1, 2011

	<u>Hourly Rate</u>
<b>Engineers/Scientists</b>	
Assistant Professional	\$134.00
Professional	165.00
Project Professional	197.00
Lead Project Professional	213.00
Senior Professional	234.00
Senior Process Specialist	315.00
<b>Technicians</b>	
Technicians	100.00
Senior Technicians	142.00
<b>Support Staff</b>	
Document Processing / Clerical	90.00
<b>Project Equipment Communication Expense (PECE) Per DL Hour</b>	<b>9.50</b>
<b>Other Direct Expenses</b>	
Travel and Subsistence	at cost
Mileage	IRS Reimbursement Rate
Subconsultant	cost + 10%
Other Direct Cost	cost + 10%
Expert Witness	Rate x 2.0

This fee schedule is subject to annual revisions due to labor adjustments.

MWH Schedule of Fees  
March 2011 to March 2012

CITY shall pay ENGINEER, as compensation for Services (“Compensation”), at the following hourly rates:

Labor Classification	Hourly Rate
Senior Technical Leaders	213
Senior Discipline Leaders	180
Senior Project Engineers	146
Project Engineers	120
Engineer/Senior Technicians	100
Designer/Technicians	90
Clerical	88

Non-salary expenses and outside services attributable to the Project shall include:

- Living and traveling expenses of employees when away from the home office on business connected with the Services;
- An associated project cost (“APC”) rate for telecommunications, postage, computers, word processors, incidental photocopying, and related equipment in the amount of \$9.50 per labor hour;
- The identifiable costs of reproduction, printing and binding applicable to the Project;
- A CAD rate in the amount of \$16.75 per computer aided design/drafting hour to cover the hardware, software and related expenses of CAD; and
- The actual cost of outside and subcontracted services identifiable to the Project.

Non-salary expenses and outside services will be charged at the above stated cost plus 10% markup to cover overhead, administration, other indirect costs and profit.

Charges for Services provided by CONSULTANT’s approved water quality laboratory will be in accordance with the published laboratory fee schedule in effect at the time the services are furnished.

## J Calton Engineering Schedule of Fees

March 2011

<b>Labor Classification</b>	<b>2011 Hourly Rate</b>	<b>2012-2013 Hourly Rate</b>
Engineer	\$135	\$145

This fee schedule is subject to annual revisions.



**FEE SCHEDULE**

**Effective January 1, 2010 – December 31, 2010**

<u>Classification</u>	<u>Hourly Rates</u>
Managing Principal .....	\$195.00
Principal.....	\$185.00
Associate Principal .....	\$170.00
Senior Associate/Director of Healthcare Planning.....	\$160.00
Associate .....	\$155.00
<b><u>Architectural Services</u></b>	
Senior Project Director .....	\$155.00
Project Director .....	\$140.00
Senior Project Manager .....	\$130.00
Specifications Writer.....	\$130.00
Architectural Rendering Specialist .....	\$125.00
Senior Architect.....	\$115.00
Project Manager.....	\$115.00
Project Architect.....	\$110.00
Senior Designer – Architecture .....	\$105.00
Staff Architect .....	\$100.00
Project Designer - Architecture .....	\$90.00
Staff Designer - Architecture.....	\$80.00
Senior Drafter - Architecture .....	\$75.00
Designer - Architecture .....	\$75.00
Specification Technician .....	\$75.00
Drafter – Architecture.....	\$65.00
<b><u>Interior Design Services</u></b>	
Project Director – Interiors .....	\$130.00
Project Manager – Interiors .....	\$115.00
Senior Designer – Interiors .....	\$105.00
Project Designer – Interiors .....	\$85.00
Staff Designer – Interiors .....	\$70.00
Designer – Interiors .....	\$60.00
<b><u>Planning Services</u></b>	
Senior Planner .....	\$110.00
Staff Planner .....	\$75.00
<b><u>Structural Engineering Services</u></b>	
Project Director .....	\$135.00
Senior Project Manager -Engineering .....	\$135.00
Senior Engineer .....	\$130.00
Project Engineer .....	\$125.00
Staff Engineer .....	\$110.00
Senior Designer – Engineering .....	\$105.00
Senior Drafter – Engineering .....	\$105.00
Project Designer – Engineering .....	\$100.00
Project Drafter – Engineering .....	\$90.00
Staff Designer – Engineering .....	\$95.00
Designer – Engineering .....	\$85.00
Staff Drafter – Engineering .....	\$80.00
Drafter – Engineering .....	\$65.00
<b><u>Project Support Services</u></b>	
Senior Graphic Designer .....	\$120.00
Graphic Designer .....	\$90.00
Senior Project Coordinator .....	\$70.00
Project Coordinator .....	\$60.00
Staff Technician .....	\$50.00
Office Assistant .....	\$45.00
Consultants .....	Direct Cost + 10%
Reimbursables .....	Direct Cost + 10%
<i>Blueprints, Photocopies, Shipping, Photography, Plotting, Renderings, Travel Expenses, Agency Fees, etc.</i>	
Auto Travel .....	\$ .50 per mile

**EE&T  
FEE SCHEDULE**

**As of March 1, 2011**

	<u>Hourly Rate</u>
<b>Engineers/Scientists</b>	
Engineer	115.00
Manager	140.00
Senior Manager	155.00
Technical Manager	175.00
<b>Technicians</b>	
Technicians	70.00
<b>Other Direct Expenses</b>	
Travel and Subsistence	at cost
Mileage	IRS Reimbursement Rate
Other Direct Cost	cost + 10%



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**FEE SCHEDULE**  
 [Effective 1/1/2010]

<u>PROFESSIONAL AND SUPPORT SERVICES</u>	<u>2010-2011</u> <u>HOURLY RATE</u>
Senior Principal A/E *	\$195
Principal A/E	\$170
Senior A/E	\$145
Project A/E	\$120
Senior Staff A/E	\$110
Staff A/E	\$100
CAD Drafter	\$ 95
Senior Field Technician ** ***	\$ 90
Field Technician ** ***	\$ 80
Project Administrator ***	\$ 70
Clerical Administrator ***	\$ 55

\* Architects, Engineers, Scientists, Geologists

\*\* Field technician services require a minimum of 4 consecutive hours per day followed by 2-hour increments. We require 24 hours advance notice for scheduling. Two hours will be charged for any cancellation within 24 hours.

\*\*\* Overtime rates for work in excess of 8 hours per day or 40 hours per week are 1.5 times the regular hourly rates for weekdays and Saturday and 2.0 times the regular hourly rates for Sunday and holidays. Overtime for professional services is billed at the regular hourly rate.

OTHER DIRECT COSTS [ODC]

Reimbursable for other direct costs are billed at cost plus 12 percent. These reimbursable costs include, but are not limited to:

1. Consultant and Subcontracted Services
2. Travel: Airfare, Auto Rental, Parking, Toll
3. Subsistence: Lodging, Meals and Incidentals
4. Auto Mileage: \$0.51 per mile
5. Field Vehicles: \$65 per day
6. Other Direct Expenses: Field Expenses, Equipment Rental, Special Fees, Permits, Printing, Reproduction, Express Mail, Delivery, etc.
7. Rates for health/safety and field instrumentation equipment rental will be furnished upon request.

The Fee Schedule is subject to revision periodically or at the end of each year. New rates will be used for all Fee Schedule contracts after each revision is made.



Callander Associates  
Landscape Architecture, Inc.

## Standard Schedule of Compensation 2011 RC (Rancho Cordova)

### General

The following list of fees and reimbursable expense items shall be used in providing service in the agreement. These amounts shall be adjusted in January, upon issuance of an updated Standard Schedule of Compensation:

### Hourly Rates

Senior Principal	\$201/hour	Construction Manager	\$120/hour
Principal	\$147/hour	Assistant 1	\$108/hour
Associate 1	\$142/hour	Assistant 2	\$100/hour
Associate 2	\$130/hour	Assistant 3	\$91/hour
Associate 3	\$117/hour	Assistant 4	\$85/hour
Project Manager 1	\$130/hour	Assistant 5	\$73/hour
Project Manager 2	\$117/hour	Assistant 6	\$68/hour
Project Manager 3	\$113/hour	Word Processor	\$85/hour
Project Manager 4	\$108/hour	Accounting	\$100/hour
Project Manager 5	\$100/hour		

### Reimbursable Expenses

All costs for photography, printing and plotting, special delivery, insurance certificate charges, charges for waivers of subrogation, local business licenses, sales taxes, assessments, fees, mileage, all CADD and visual simulation ancillary costs, such as data transfers, tapes and outside services, and all other costs directly related to the project will be billed as a reimbursable expense at our cost plus a fifteen percent (15%) administration charge. The cost of professional liability insurance and all costs associated with cell phones, electronic mail, faxes, long distance phone charges and related telecommunications shall be charged as a combined surcharge of 2.5% on the total fees.

### Payments

Payments are due within ten days after monthly billing with amounts more than thirty days past due subject to a 1.5% per month interest charge. Retainer amounts, if indicated, are due upon signing the agreement and shall be applied to the final invoice for the project.

FeeSchedule2011RC(letterhead).docx  
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Landscape Architecture  
Urban Design  
Land Planning  
Park and Recreation Planning  
Environmental Planning

Peter Callander, ASLA Principal  
Mark Slichter, ASLA, Principal  
Brian G. Fletcher, ASLA, Principal  
Erik Smith, ASLA, Principal  
Benjamin W. Woodside, ASLA, Principal



**HOURLY RATES & BILLING POLICY**

Effective February 1, 2009, the following hourly rates will be charged for services rendered:

OFFICE	RATE	FIELD	RATE
Principal	\$165.00	Licensed Surveyor	\$135.00
Project Manager	150.00	Field Supervisor	125.00
Licensed Surveyor	135.00	One Person Survey Crew	135.00
Project Engineer	125.00	Two Person Survey Crew	210.00
Planner	125.00		
Engineer 1	115.00	Three Person Survey Crew	285.00
Engineer 2	95.00		
Office Surveyor	115.00		
Survey Technician	95.00		
Cadd Operator 1	95.00		
Cadd Operator 2	85.00		
Project Assistant	85.00		
Clerical/Printing/Deliveries	45.00		

All outside and subcontracted services are billed at our cost plus ten percent (10%). All travel expenses such as lodging, meals and transportation will be charged at cost. Travel in company vehicles will be charged at \$.50 per mile beyond a 40 mile radius.

Cost of normal survey stakes and other field supplies are included in the above rates. Special type monuments will be charged at cost.

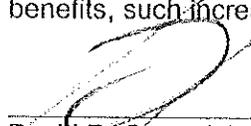
Reproduction expenses will be charged at our cost plus ten percent (10%).

Filing and checking fees and other outside charges are to be paid directly by the Client.

Billings will be monthly. Invoices are due and payable upon presentation. Interest at the rate of 1½% per month, commencing 30 days after invoice date, will be charged on delinquent accounts.

Cooper, Thorne & Associates, Inc., shall have the right to curtail any work on a project 30 days after invoices are due and payable, subject to five days written notice.

In the event of any increases in costs, due to the granting of wage increases and/or other employee benefits, such increases shall be adjusted proportionately to all hourly rates.

  
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 David R. Crosariol, President

