CITY OF MARTINEZ **CITY COUNCIL AGENDA**
October 2, 2013

TO: Mayor and City Council

FROM: Tim Tucker, City Engineer

SUBJECT: 2013 Water Treatment Plant Seismic and Structural Upgrade

DATE: September 13, 2013

RECOMMENDATION:

Adopt a resolution authorizing the City Manager to execute an agreement for consultant services in an amount of $319,400 with Carollo Engineers to provide design and bid phase services for the 2013 Water Treatment Plant (WTP) Seismic and Structural Upgrade Project.

BACKGROUND:

The City Council approved the WTP Master Plan in February of 2012. The plan identified six seismic and structural projects to be completed over an estimated fifteen-year period. It is proposed that five of the six seismic and structural projects be implemented in 2013 in accordance with the WTP Master Plan. It is further proposed that the work associated with the Reclaimed Water Pump Pad project be included due to its urgent need, as well as other structural improvements to accommodate the WTP Electrical Upgrade project that is currently under design. The remaining recommended seismic and structural project, namely the Reinforced Concrete Pipe Replacement with Steel Pipe project, is not building related and is scheduled to be implemented in 2015. The estimated cost for the proposed improvements is $1,200,000.

The plant was constructed in 1948 and was upgraded and expanded in 1967. The addition of ozone was added in 1990. The plant was not designed seismic loads and poses a high risk associated with failure to safety and reliability.

Staff recommends hiring Carollo Engineers complete the analysis and design. They are most knowledgeable of the seismic and structural requirements having prepared the WTP Master Plan. They were also selected through a competitive process for On-call Water Engineering Services. The Council has authorized the City Manager to execute contracts through the previously approved On-call agreement, however, due to the importance of the project and size of the contract staff felt it best to bring the approval of the contract to the Council. Attached is a proposal from Carollo Engineers that includes a scope of work to complete the design and bid phase services in an amount not to exceed $319,400.

FISCAL IMPACT:

The project was included in the recently adopted 2013/14 and 2014/15 biennial budget. The project is budgeted under Account No. C7042 and is funded with $1,200,000 of Water System funds.

ACTION:

Adopt a resolution authorizing the City Manager to execute an agreement for consultant services in an amount of $319,400 with Carollo Engineers to provide design and bid phase services for the 2013 Water Treatment Plant (WTP) Seismic and Structural Upgrade Project.

Attachments:
Resolution
Proposal for Services

APPROVED BY: 
City Manager

RESOLUTION NO. -13

AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT FOR CONSULTANT SERVICES IN AN AMOUNT OF $319,400 WITH CAROLLO ENGINEERS TO PROVIDE DESIGN AND BID PHASE SERVICES FOR THE 2013 WATER TREATMENT PLANT SEISMIC AND STRUCTURAL UPGRADE PROJECT

WHEREAS, on February 15, 2012 the City Council by motion approved the 2012 Water Treatment Plant Master Plan (Plan); and

WHEREAS, the Plan identified certain seismic and structural improvements having a high priority; and

WHEREAS, the City of Martinez determined that Carollo Engineers of Walnut Creek, California is best qualified to provide engineering services for this work; and

WHEREAS, Carollo Engineers has performed tasks for the City in the past on budget and in a timely and professional manner; and

WHEREAS, the scope and proposal provided by Carollo Engineers has been determined fair and equitable; and

WHEREAS, the project was included in 2013/14 and 2014/15 biennial budget under Account No. C7042.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Martinez, that the City Manager is authorized to execute an agreement for consultant services in an amount of $319,400 with Carollo Engineers to provide the design and bid phase services of the 2013 Water Treatment Plant Seismic and Structural Upgrade Project, subject to review of the agreement by the City Attorney.

* * * * * *

I HEREBY CERTIFY that the foregoing is a true and correct copy of a resolution duly adopted by the City Council of the City of Martinez at an Adjourned Regular Meeting of said Council held on the 2nd day of October, 2013, by the following vote:

AYES:

NOES:

ABSENT:

RICHARD G. HERNANDEZ, CITY CLERK
CITY OF MARTINEZ

City of Martinez, California

Water Treatment Plant

Seismic and Structural Upgrade Project

INTRODUCTION

The Water Treatment Plant Master Plan (Carollo, January 2012) included a Tier 1 seismic assessment of the buildings and the non-building structures at the Water Treatment Plant (WTP). This assessment identified areas for which seismic concern was highest, and prioritized retrofit projects to address these seismic deficiencies based on calculated risk for each area. The Master Plan also identified a condition-driven issue with the Reclaimed Water Pump concrete pad that requires immediate attention. In response to the City's request to initiate a retrofit project for those areas with highest identified risk, Carollo has prepared the following scope of services.

SCOPE OF SERVICES

Task 1 – Project Management

The Consultant's Project Manager will make staffing assignments, review work progress, and communicate progress to the City. The Project Manager will also manage the budget, schedule, and invoicing. This task also includes a Project Kickoff Meeting at the Martinez WTP, and design review meetings. The Project Kickoff Meeting will serve to kickoff the design effort; allow the introduction of the design team to the City staff, and facilitate the collection of preliminary project-specific details. Design review meetings will also be held following the release of the 50% and 90% designs, as discussed herein.

Task 2 – Tier 2 Analysis of 1967 Structure

As described in the WTP Master Plan, the glass and metal superstructure in the 1967 Filter Basins did not pass the supplemental screening when evaluated as a steel-braced frame structure as part of a Tier 1 analysis. As such, a more detailed Tier 2 analysis will be conducted (as defined under ASCE 31: Seismic Evaluation of Existing Buildings) to further evaluate the potential deficiencies identified during the Tier 1 evaluation. Should the results of the Tier 2 evaluations indicate that potential structural deficiencies still exist, rehabilitation measures or a full building detailed structural analysis will be recommended. A Tier 2 Evaluation review workshop will be conducted at the City's facilities to discuss the preliminary findings of the analysis, and to collect feedback from the City staff. Following the workshop, a final 1967 Building Tier 2 Evaluation Technical Memorandum (TM) will be prepared summarizing the results of the analyses and feedback from the City.

This scope of services does not include design for seismic retrofit needs identified as a result of the Tier 2 analysis for this structure. If desired, Consultant will provide a separate proposal for these services.

Task 3 – Detailed Design of Seismic and Structural Upgrades

The scope and fee estimate is based on our understanding that the construction of the final design will be accomplished by procurement through a standalone, publically bid contract and will utilize the front ends developed for the Chemical Containment Project (currently in construction at the WTP).

This Scope of Services and associated fee estimate is based on some of the WTP seismic retrofit needs and a critical condition-driven need discussed in the Water Treatment Plant Master Plan, and includes engineering services associated with the design, coordination, and bid phase support services for the project.

Design of the following improvements (which are specifically defined within the Master Plan) is included:

- **1948 Building Seismic Retrofit** (Master Plan project S1) – to address seismic deficiencies identified in the WTP Master Plan.
- **Backwash Water Tank Seismic Retrofit** (Master Plan project S3) – to improve the seismic stability of the structure.
- **Clearwell Seismic Retrofit** (Master Plan project S4) – to alleviate discontinuities in the foundation in order to increase shear transfer.
- **Filter Gallery Pipe Supports** (Master Plan project S5) – to provide adequate seismic support for piping and valves in the Filter Gallery.
- **Reclaimed Water Pump Pad** (Master Plan project C6) – deletion of improvements to the reclaimed water pump pad and addition of pump guide rails, lift system and piping connections.

Other work needed to accommodate the Electrical Power Distribution System Upgrade project at the WTP is also included. This work is described below.

- **Structural Evaluation and Design Details for Improvements to the Old Chlorine Room.** A detailed structural evaluation and design details are needed for improvements to the Old Chlorine Room (located on the operating level of the 1948 Building) to accommodate the relocation of MCC-G and the switchgear. This work will include:
    - Detailed structural and seismic evaluation to determine if retrofits are needed to support the additional loading expected by the new electrical gear.
    - Demolition/rehabilitation detailing for the old chlorine room; including (a) deletion of the overhead crane, chlorine scales, and other equipment and appurtenances currently anchored in the room, (b) blast and re-coating of the walls and floor, and (c) new overhead lighting.
    - Coordination of switchgear placement to meet National Electric Code (NEC) clear space requirements. A preliminary analysis indicates that there are two options. The first includes the design an elevated platform and/or extended concrete slab to increase the overall width of the room. This will require deletion and replacement of the existing accordion-style metal door, and implementation of secondary egress from this the east side of the room. This approach would allow the replacement of the switchboard with a standard draw out switchgear as originally envisioned. An alternative to the option to extend the room is the specification of a sole-source front access only switchgear. Carollo will work with the City to

determine the most feasible option, and include the needed changes into the current design.

  - Re-routing of electrical conduit to and from MCC-G and the switchgear.

- **Valve/Actuator Replacement for Finished Water Pumps No. 5 and 6.** Design details are needed to accommodate the replacement of valves and motor operators for Finished Water Pumps No. 5 and 6. This work will include design and coordination for new valving and actuators for both pumps, specification language for the additional equipment, design drawings detailing the change in mechanical detail and change in electrical function from the existing scheme (which consists of reversing starters housed in MCC-A that control motor operators on the valves). The level of effort included with this task assumes isolation of the piping to replace the valves is possible.

Construction documents will be prepared in compliance with applicable codes. Construction drawings will include applicable general, civil, structural/mechanical, electrical and demolition drawings.

Front End Contract Documents from the recent Chemical Containment Project will be used for this project. Consultant will provide technical specifications for project elements necessary to provide a complete bid package.

Consultant will prepare construction cost estimates for each project deliverable to the City. Estimates will be based on available quantity take-offs, manufacturer's quotes, and experience incorporating similar project elements at other treatment facilities, and will be escalated to the mid-point of construction. Estimates will be prepared to a level of accuracy consistent with the standards of the American Association of Cost Engineers.

In an effort to include City and WTP staff in the design process, Consultant will provide intermediate design submittals and conduct design review meetings at the 50% and 90% levels of completion.

3.1 – Preliminary Design

Consultant will facilitate preliminary investigations needed for final design of the project components. These investigations are as follows:

- **Survey.** Consultant will hire a subconsultant to perform a field survey of the site using the appropriate vertical and horizontal plant datum to produce a topographic mapping of the chosen site for use in the preparation of the bid drawings.
- **Geotechnical.** Consultant will hire a subconsultant to perform a geotechnical investigation of the project area. This work will include review of the existing geotechnical investigations, site reconnaissance to perform up to two soil borings for soil classification and testing for use in confirming that geotechnical parameters developed during the Chemical Containment Facility design are appropriate at the increased design depths required for this project. Additionally, subconsultant will develop additional recommendations for design parameters not addressed in the previous geotechnical study. A draft and final geotechnical update report will be prepared to summarize the findings and recommendations.

3.2 – Prepare 50% Design Documents

Based on our understanding of the project needs identified in the WTP Master Plan, and information gathered during the Project Kickoff Meeting, consultant will prepare 50% design documents to be submitted to City for review. The 50% design submittal will include applicable drawings, select draft specifications, and a preliminary cost estimate.

Following the City's review of the design documents, Consultant will organize a meeting to discuss the design submittal with City staff and receive feedback regarding the preliminary layout and design details. Consultant will present key elements of the design and will record feedback from the City regarding any requested modifications to the design.

3.3 – Prepare 90% Design Documents

Following receipt of feedback from the City on the 50% design layout, Consultant will prepare 90% design documents to be submitted to City for review. Consultant's internal quality management program will be initiated during the preparation of the 90% submittal. The 90% design submittal will include all drawings, specifications, and an updated cost estimate.

After City review of the 90% design documents, a final meeting will be arranged by the Consultant to present the final design to the City staff and to collect any final detail modifications requested by the City prior to the development of the final Bid Documents.

3.4 – Prepare Bid Documents

City comments on the 90% design submittal will be incorporated by Consultant, and a set of engineering documents suitable for public bidding will be prepared. Consultant's internal quality management program will be fully implemented during the preparation of the Bid Document submittal. The Bid Document submittal will include final design drawings, specifications, and associated cost estimate.

Task 4 – Bid Phase Support Services

4.1 – Attend Prebid Conference

Key members of the Consultant's project team will participate in the prebid conference and the prebid site visit, and will prepare conference notes for distribution to attendees by the City.

4.2 – Answer Bidder Questions

Consultant will answer questions from prospective bidders and suppliers during the bidding period. Questions received by telephone will be answered verbally and a log of the contacts will be maintained, delineating the date, time, origin, and nature of the query and the response provided. Written questions will be responded to within addenda if clarification is deemed necessary. All records of correspondence will be provided to the City at the completion of the bid period.

4.3 – Prepare Addenda

Consultant will prepare an addendum for distribution by City, as required. Consultant will prepare one original copy of the addendum to be provided to the City for reproduction. This task assumes one (2) addenda will be required.

4.4 – Prepare Conformed Documents

Upon issuance of the Notice of Award by City staff, Consultant will prepare Conformed Documents by incorporating all changes by addenda into the final documents for construction. Five (5) sets of half-size drawings and (5) copies of specifications will be provided to the City for its use and distribution to the Contractor. One (1) electronic copy of each document will be provided in PDF format.

Summary of Deliverables and Meetings

Meeting(s):
Project Kickoff Meeting
1967 Building Tier 2 Evaluation Review Workshop
50% Design Review Workshop
90% Design Review Workshop
Prebid Conference

Deliverable(s):
Draft Geotechnical Update Report
50% Design Drawings, Specifications & Cost Estimate
50% Design Meeting Minutes
90% Design Drawings, Specifications & Cost Estimate
1967 Building Tier 2 Evaluation Technical Memorandum
90% Design Meeting Minutes
Final Geotechnical Update Report
100% Design Drawings, Specifications & Cost Estimate
(all design submittals include 2 half size hard copies and 1 electronic .pdf copy)
Prebid Meeting Minutes
Written documentation of Bid Phase correspondence with bidders
Conformed Documents (five copies of half-size drawings and specifications)

ASSUMPTIONS AND EXCLUSIONS

The following assumptions were made in the preparation of this Scope of Services:

- The front-end documents from the Chemical Containment Project will be used.
- Consultant's standard technical specifications (Divisions 02 through 17) will be used.
- Carollo's standard CAD software, templates, and symbols will be used in the development of the drawings.
- Proposed effort assumes that the final bid document plan set will not exceed 40 drawing sheets and 40 technical specifications.
- The scope does not include services associated with potholing.

- City will complete any necessary environmental documentation and/or permit requirements for the implementation of this Project. Environmental documentation and/or permitting is specifically excluded from this Scope of Services.
- Existing as-built site plans and civil drawings accurately show all underground utilities.

PAYMENT

Consultant's compensation for the services described herein shall not exceed three hundred nineteen thousand four hundred dollars ($319,400) without prior authorization from the City. These costs are developed in the attached Exhibit B, utilizing Consultant's current Fee Schedule.

SCHEDULE

Consultant will manage the following schedule for completion of the tasks defined herein:

Event	**Approximate Date**
Receipt of Notice to Proceed from City	TBD
Initiate Design	Immediately following receipt of Notice to Proceed
Project Kickoff Meeting	Within 2 weeks of receipt of Notice to Proceed
Tier 2 Evaluation Workshop	Within 30 days of receipt of Notice to Proceed
Tier 2 TM for 1967 Structure	Within 45 days of receipt of Notice to Proceed
50% Design Submittal	Within 45 days of receipt of survey base files and draft geotechnical update report
50% Design Review Meeting	Within 2 weeks following submittal of 50% design
90% Design Submittal	Within 45 days of Receipt of City Comments on 50% Design
90% Design Review Meeting	Within 2 weeks following submittal of 90% design
Bid Document Submittal	Within 45 days of Receipt of City Comments on 90% Design
Advertise for Bid	Per City's project schedule
[*]Additional work associated with the relocation of MCC-G and switchgear, and the replacement of valves and actuators for Finished Water Pumps No. 5 and 6 will be expedited to accommodate the timely completion of the Electrical Power Distribution System Upgrade project currently in design.	

Exhibit B
CITY OF MARTINEZ
Seismic and Structural Upgrade Project

Task	Task Description	PIC Cleveland $256	PM Hann $181	SE Dadik $236	QM Caswell $236	Civil/ME Hook $181	PE Pham $181	Sr. CAD Technician $157	CAD Technician $110	WP WP $99	Total Hours	Labor Cost	PECE $11.70	Mileage/ Printing	Subconsultants Geotechnical	Subconsultants Survey	ODC Total	Total Cost
1.0	Project Management/Meetings																	
	1.1 Project Management	10	10	8	0	0	0	0	0	0	28	$6,258	$328	$ -	$ -	$ -	$328	$6,600
	1.2 Project Kickoff Meeting	0	4	6	0	0	6	0	0	2	18	$3,424	$211	$250	$ -	$ -	$461	$3,900
	1.3 50% Design Review Meeting	0	4	8	0	0	0	0	0	2	14	$2,810	$164	$250	$ -	$ -	$414	$3,200
	1.4 90% Design Review Meeting	0	4	8	0	0	0	0	0	2	14	$2,810	$164	$250	$ -	$ -	$414	$3,200
	Task Totals =	10	22	30	0	0	6	0	0	6	74	$15,302	$866	$750	$0	$0	$1,616	$16,900
2.0	Tier 2 Analysis for 1967 Building																	
	2.1 Conduct Preliminary Evaluation	0	4	24	0	0	70	0	8	6	112	$20,532	$1,310	$250	$ -	$ -	$1,560	$22,100
	2.2 Tier 2 Evaluation Workshop	0	4	8	0	0	8	0	0	0	20	$4,060	$234	$0	$ -	$ -	$234	$4,300
	Task Totals =	0	8	32	0	0	78	0	8	6	132	$24,592	$1,544	$250	$0	$0	$1,794	$26,400
3.0	Design																	
	3.0 Additional Work to Accommodate Electrical Power Distribution Project	4	32	24	8	6	42	44	40	10	210	$35,354	$2,457	$250	$ -	$ -	$2,707	$38,100
	3.1.A Preliminary Design - Survey	0	4	2	0	0	0	0	0	0	6	$1,196	$70	$0	$ -	$ 6,600	$6,670	$7,900
	3.1.B Preliminary Design - Geotechnical	0	2	4	0	0	4	0	0	0	10	$2,030	$117	$0	$ 11,000	$ -	$11,117	$13,100
	3.2 Prepare 50% Design Documents	0	20	30	20	30	230	90	90	16	526	$88,094	$6,154	$300	$ -	$ -	$6,454	$94,500
	3.3 Prepare 90% Design Documents	0	16	24	14	24	165	50	50	12	355	$60,611	$4,154	$500	$ -	$ -	$4,654	$65,300
	3.4 Prepare Bid Documents	0	8	11	6	8	70	30	30	4	167	$27,937	$1,952	$500	$ -	$ -	$2,452	$30,400
	Task Totals =	4	82	95	48	68	511	214	210	42	1,274	$215,222	$14,903	$1,550	$11,000	$6,600	$34,053	$249,300
4.0	Bid Phase Support Services																	
	4.1 Attend Prebid Conference	0	6	6	0	0	0	0	0	1	13	$2,601	$152	$100	$ -	$ -	$252	$2,900
	4.2 Answer Bidder Questions	0	16	4	0	2	8	0	0	0	30	$5,650	$351	$0	$ -	$ -	$351	$6,000
	4.3 Prepare Addenda	0	16	4	0	2	12	16	0	2	52	$9,084	$608	$150	$ -	$ -	$758	$9,800
	4.4 Prepare Conformed Documents	0	6	0	0	0	8	24	0	8	46	$7,094	$538	$500	$ -	$ -	$1,038	$8,100
		0	44	14	0	4	28	40	0	11	141	$24,429	$1,650	$750	$0	$0	$2,400	$26,800
	Project Totals =	**14**	**156**	**171**	**48**	**72**	**623**	**254**	**218**	**65**	**1,621**	**$ 279,545**	**$ 18,963**	**$ 3,300**	**$ 11,000**	**$ 6,600**	**$ 39,863**	**$ 319,400**

Legend:
PIC Principal in Charge
PM Project Manager
QM Quality Manager
PE Project Engineer
SE Structural Engineer
E/IC E Electrical/I&C Engineer
CAD Cadd Drafter/Graphics
WP Word Processor
PECE Project Equipment Communication Expense

CAROLLO ENGINEERS, INC.
FEE SCHEDULE

As of January 1, 2013
California

	Hourly Rate
Engineers/Scientists	
Assistant Professional	$148.00
Professional	181.00
Project Professional	215.00
Lead Project Professional	236.00
Senior Professional	256.00
Senior Process Specialist	345.00
Technicians	
Technicians	110.00
Senior Technicians	157.00
Support Staff	
Document Processing / Clerical	99.00
Project Equipment Communication Expense (PECE) Per DL Hour	**11.70**
Other Direct Expenses	
Travel and Subsistence	at cost
Mileage at IRS Reimbursement Rate Effective January 1, 2103:	$.565 per mile
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.