

November 10, 2021

Ms. Roni Young Grant, PMP
South Orange County Wastewater Authority
34156 Del Obispo Street
Dana Point, CA 92629

Subject: South Orange County Wastewater Authority (SOCWA) J.B. Latham Treatment Plant
Facility Improvements Package B; Proposal for Amendment No. 2 to Engineering Services
During Construction (ESDC) Contract

Dear Ms. Grant:

Per your request, we have developed this letter proposal to request an amendment to our current engineering services during construction (ESDC) contract for the subject project. The intent of the ESDC is to provide overview of design intent, interpretation of the plans and specifications, and support of South Orange County Wastewater Authority's (SOCWA's) construction management and inspection staff. The effort includes office consulting services and limited field support services.

The reasons for this amendment include the following:

- The subject project schedule has extended past the original date for project completion due to construction delays.
- The rehabilitation nature of the project has yielded field conditions that were not apparent during design and has resulted in larger scopes and more senior staff involvement for the Requests for Information (RFIs) and potential change orders submitted. In particular, the following items took considerably more time and effort than expected or budgeted:
 - MCC-F1 relocation – The location for this motor control center (MCC) in the bid documents was revised during construction to allow for wider truck access along the road and to avoid conflict with duct banks found during potholing. The redesign of this MCC included multiple engineering disciplines and significant effort. In addition, once the cost for the proposed change was ultimately determined, several other options for conduit or duct bank routing were explored and developed sufficiently to assess feasibility and for the contractor to price the most-feasible option. Each option required analysis and some level of redesign by multiple disciplines, meetings with multiple team members, and responses to associated RFIs. Because the cost for the original change was finally determined and submitted after Carollo Engineers, Inc.'s (Carollo's) request for Amendment No. 1, all the subsequent associated effort was completed under that amendment. Because this significant effort was not expected during development of the amendment request, this work quickly drew down the amendment value.
 - Dissolved air flotation thickener (DAFT) tank assessment and rehabilitation design – Once DAFT 2 was taken down, cover removed, and internal tank blasted and inspected, spots of the tank wall were found to be in worse condition than expected during design. The assessment conducted during design was completed while one DAFT remained in service and the other remained covered and coated. The true condition of the tank was not apparent until it was completely blasted to remove existing coating. After this was done, it was determined that more extensive repairs or rehabilitation by "reskinning" the tank were required. Both options were evaluated and design details for the recommendations were developed. The evaluation

- and subsequent redesign required significant effort. Similar to the additional options evaluated for MCC-F1, this DAFT work was also completed after Carollo's request for Amendment No. 1 had been submitted. Because this significant effort was not expected during development of the amendment request, this work also quickly drew down the amendment value.
- During construction, operations staff determined that elements of the hot water system that had not been in the original design scope required replacement and modifications to address condition issues that had worsened during the intervening years. This necessitated new design work to replace the expansion tank and corroded makeup water piping within DCB 1.
 - Once equipment was delivered and the footprint for the Digester 1 and 2 hot water piping modifications was apparent to staff, it was felt that the remaining clear distance between the digesters was too narrow for comfortable access for some plant vehicles. Hence, the hot water piping modifications for both digesters had to be redesigned to increase the clearance distance. This necessitated significant design work that impacted multiple disciplines, including subsequent RFIs on the redesigned elements.
 - Once the contractor started submitting on elements of the boiler system, plant staff had questions on various elements that resulted in investigative effort and subsequent changes on the mechanical design.
 - Various field conditions for the Plant 1 and 2 Primary Sedimentation Basins resulted in numerous RFIs and subsequent effort. This ranged from the water intrusion and crack repair/coating to replacement of items found to be corroded once the tanks were drawn down and elements were visible. These items were not apparent during design or earlier condition assessment because the tanks were in service and full of wastewater at that time.
 - The original design of modifications in the Energy Recovery Building included a floor supported monorail system. During construction, different crane reach was desired, and several crane options were evaluated. A redesign was subsequently developed for the system. This effort involved multiple iterations, significant structural evaluation of the existing beams/floor, and meetings with several team members' involvement.
 - Below-grade obstructions necessitated revised design for the foul air duct rerouted around the new access platform near Aeration Basin No. 6. Several obstructions were found, which led to multiple RFIs and subsequent engineering to develop design modifications.
 - MCC-D1 was submitted and shipped to site before some of the elements powered by the MCC were submitted or approved (e.g., DAFT system motors). This lack of coordination between the MCC and submitted equipment resulted in design changes for MCC-D1.
 - During construction, it was determined that the existing lights at the DAFTs required replacement. Replacing the lights necessitated a new design during construction.
 - Supply chain issues led to delays in some materials and equipment. This resulted in requests to consider different types of materials or substitutions. These requests, like for the Digesters 1 and 2 roofing system, required investigation and outreach to manufacturers to assess suitability. Team members had to then formulate responses to the contractor's requests, including additional direction on items found during the investigations.
- Operating conditions for the plant related to flow from other plants and operational issues with existing systems have necessitated changes in the work and/or the schedule.

In the attached Exhibit A, we have estimated the effort remaining on the project. The estimate is based on the effort and the staff classes it has taken thus far to complete the ESDC services per the reasons listed above and the expected work remaining until project completion.

To Carollo's knowledge, the latest substantial completion date of the remaining work per the contractor's schedule is September 15, 2022, and the final completion date is October 21, 2022. It is assumed that most work requiring Carollo's services would be completed by September 30, 2022. The projected completion date that Amendment No. 1 was based on was November 30, 2021. For work continuing from November 30, 2021 to September 30, 2022, approximately 10 months remain until project completion. Hence, Carollo's estimated effort in Exhibit A is based on a 10-month schedule extension.

The scope of this amendment includes the following tasks. Associated assumptions are noted where appropriate. Estimates of remaining RFIs, shop drawings, change orders, or the associated effort per item were not approximated due to wide fluctuations in the type and effort for each item. These fluctuations, which are largely based on unknown conditions or changes necessitated by plant needs, make accurate estimates difficult. Rather, the average monthly effort required throughout the project thus far was used to estimate the remaining work for the extended schedule.

1. RFI Responses – Respond to Design Clarifications and RFIs. Contractor will submit all requests in writing to SOCWA. All responses will be submitted in writing to SOCWA. It is not expected that the level of effort or number of RFIs will decrease as the project approaches completion.
2. Shop Drawing Review – Review shop drawings and other submittals as required in the Contract Documents. Review procedures will be as specified in the Contract Documents and as directed by SOCWA. Carollo will review shop drawings for conformance with the design documents. The review does not relieve the Contractor from specification or contractual requirements. Contractor is expected to provide complete submittals. Carollo will provide two submittal reviews. Additional reviews of the same submittal will be considered an extra scope item. Carollo will track the budget expended for submittal review beyond two submittals for reimbursement by SOCWA and the Contractor. Unless additional time is requested, all submittals will be reviewed and returned within 15 workdays after Carollo has received the submittal. Some especially large or complex submittals may require additional time.
3. Vendor Test/Certifications/Report Review – Review submitted test reports, certifications, and reports for specific equipment and tasks.
4. Change Order Assistance – Review and analyze Change Order Requests to determine their merit relative to the Contract Documents and design intent. The review of change orders will only be upon the request of SOCWA. Carollo's review and analysis of Change Order Requests will include review of scope and pricing information submitted by the Contractor and/or SOCWA. It is not expected that the level of effort or number of Change Order Requests will decrease as the project approaches completion.
5. Start-Up Assistance – This includes engineering support and troubleshooting during start-up and review of the Contractor's start-up and testing plan.
6. Project Close-Out – This task includes review of construction during a site visit at substantial completion and preparation of a punch list of corrective actions.

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7. Record Drawing Preparation – Carollo will prepare record drawings from markups made by the Contractor and reviewed by SOCWA’s construction manager. Total number of drawings is 184, and record drawings will be submitted electronically, as PDF files in half- and full-size formats, and as two full-size hard copies, in Draft and Final.
8. Conformed Plans and Specifications – Prepare conformed plans and specifications, integrating bidding documents with issued addenda. This task has been completed, and no additional effort is required or included in this amendment request.
9. Digester Hatch Repair Design – This task has been completed, and no additional effort is required or included in this amendment request.
10. Meetings with construction manager and SOCWA.

Please contact me if you have questions or comments.

Sincerely,

CAROLLO ENGINEERS, INC.



Rashi Gupta, P.E.
Project Manager

RG:blm

Enclosures: Exhibit A: Estimated Labor Hours and Fee

cc: Jason Manning (SOCWA)
Doug Lanning (Carollo – OCO)
Jeff Weishaar (Carollo – SDO)

EXHIBIT A
ESTIMATED LABOR HOURS AND FEE
AMENDMENT 2

Task	Task Description	HOURS							COSTS				
		Principal/ Project Manager	Senior Engineer	Lead Engineer	Staff Engineer	Technicians and Aides	Support Staff	Total Labor Hours (Carollo)	Total Labor Cost (Carollo)	PECE	OTHER DIRECT COSTS	DIRECT COSTS	Total
JBLTP Package B ESDC													
1	RFI Responses	160	160	140	62	0	0	522	\$ 127,468	\$ 6,786	\$ -	\$ 6,786	\$ 134,254
2	Shop Drawing Review	72	120	60	42	0	0	294	\$ 70,884	\$ 3,822	\$ -	\$ 3,822	\$ 74,706
3	Vendor Tests/Certs/Report Review	8	12	10	28	0	0	58	\$ 11,856	\$ 754	\$ -	\$ 754	\$ 12,610
4	Change Order Assistance	84	142	40	40	0	0	306	\$ 75,332	\$ 3,978	\$ -	\$ 3,978	\$ 79,310
5	Start-Up Assistance	4	8	24	24	8	8	76	\$ 14,180	\$ 988	\$ -	\$ 988	\$ 15,168
6	Project Close-Out	0	4	16	20	0	0	40	\$ 7,536	\$ 520	\$ -	\$ 520	\$ 8,056
7	Record Drawings Preparation	4	10	41	100	110	0	265	\$ 43,898	\$ 3,445	\$ 3,218	\$ 6,663	\$ 50,561
8	Conformed Specs/Dwgs	0	0	0	0	0	0	0	\$ -	\$ -	\$ -	\$ -	\$ -
9	Digester Hatch Repair Design	0	0	0	0	0	0	0	\$ -	\$ -	\$ -	\$ -	\$ -
10	Meetings with CM/Client	32	6	6	2	0	0	46	\$ 12,640	\$ 598	\$ 518	\$ 1,116	\$ 13,756
TOTAL HOURS FOR PROJECT COMPLETION		364	462	337	318	118	8	1607					
RATE		\$ 298.00	\$ 250.00	\$216.00	\$154.00	\$145.00	\$118.45			\$ 13.00			
REQUESTED AMENDMENT AMOUNT		\$108,472	\$115,500	\$72,792	\$48,972	\$17,110	\$ 948		\$ 363,794	\$ 20,891	\$ 3,736	\$ 24,627	\$ 388,420