COUNCIL AGENDA: 11/29/22
FILE:
ITEM:

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Kerrie Romanow
Matt Cano

SUBJECT: SEE BELOW

DATE: November 1, 2022

Approved Jennifer S. Maguire

Date 11-1-22

SUBJECT: CONSTRUCTION CONTINGENCY INCREASE FOR THE 7731 – NITRIFICATION CLARIFIER REHABILITATION - PHASE 1 PROJECT AT THE SAN JOSE-SANTA CLARA REGIONAL WASTEWATER FACILITY

RECOMMENDATION

Approve a $5,200,000 increase to the original construction contingency amount of $5,237,000 for a revised total contingency amount of $10,437,000, increasing the not-to-exceed amount of the contract from $31,421,000 to a total revised contract amount not-to-exceed of $36,621,000, and a 218 workday time extension to the project substantial completion date for the 7731 - Nitrification Clarifier Rehabilitation - Phase 1 Project.

OUTCOME

Approval of the recommended construction contingency increase will provide funding for the construction changes, delay time, and time-related overheads encountered to date and sufficient funding to cover future changes due to unforeseen and differing site conditions for the proper completion of the 7731 – Nitrification Clarifier Rehabilitation – Phase 1 Project (Project) at the San José-Santa Clara Regional Wastewater Facility (RWF) by summer 2023.

BACKGROUND

On October 22, 2019, City Council awarded a construction contract for the Project to C. Overaa & Co. (Contractor) in the amount of $26,184,000 and approved a 20% contingency in the amount of $5,237,000. Construction started in November 2019 with anticipated substantial completion in September 2022.

The RWF has 26 clarifiers associated with the secondary aeration basins and 16 clarifiers associated with the nitrification aeration basins. These clarifiers, together with the aeration basins, form the

biological treatment process and function to remove organics from the wastewater. The 16 nitrification clarifiers are divided into two groups, namely Batteries A and B. Each battery has eight clarifiers, which are circular reinforced tanks measuring 140 feet in diameter and approximately 16 feet deep and were constructed in the 1970s and 1980s.

Key Project construction elements include the replacement of clarifier mechanisms and appurtenances for eight clarifiers, repair of concrete clarifier walls and slabs, replacement of drain valves and return activated sludge valves serving Batteries A and B clarifiers, rehabilitation of clarifier basin groundwater pressure relief valves for the 16 clarifiers, rehabilitation of up to eight return activated sludge pipelines, and replacement of electrical and instrumentation and control equipment for all 16 clarifiers.

Construction activities are constrained by the annual scheduled RWF shutdown during the dry season (low flow period) from May 15 to October 15 during which time only one of the two batteries can be shut down. The work in the battery must be completed and the respective battery must be operational by October 15 to allow RWF staff to prepare for wet weather season (high flow period).

ANALYSIS

During the early planning phase of the Project in 2016, a condition assessment was performed to evaluate clarifier structure and equipment deficiencies and identify necessary improvements to ensure continued clarifier operation for the next 30 years. The assessment included visual observation of the condition of the eight Battery B clarifiers (structures, mechanisms, groundwater relief valves, scum collection systems, influent valve boxes and four return activated sludge pipelines) and the electrical systems for all 16 clarifiers. However, the effort was limited to only the Battery B clarifiers and accessible utilities as the Battery A clarifiers were required to remain in service to maintain continuous operations at the RWF. The interior surfaces of the piping in the influent valve boxes, underground electrical conduits on both batteries, and the eight Battery A clarifiers were not assessed. As Battery A and B clarifiers were constructed at the same time, it was considered reasonable to assume that the Battery A clarifiers were in a similar condition to the Battery B clarifiers and the underground electrical conduits could be reused.

The original project scope was developed in 2017, based on the findings of the Battery B condition assessment and the assumption that the Battery A condition was similar. While staff made their best effort to conduct a condition assessment of the clarifiers, staff recognized the limitations of the condition assessment could lead to additional unanticipated conditions and, this, combined with the lack of as-built records for some of the past construction, resulted in staff recommending a 20% ($5,237,000) construction contingency, 5% higher than the usual 15% contingency for rehabilitation projects. However, the overall number of changes associated with actual conditions, including utility conflicts, have been much greater than anticipated. Furthermore, staff did not anticipate the impact of the COVID-19 pandemic on construction which resulted in additional cost and delay. The combined impact from unforeseen conditions and COVID-19 is substantial,

significantly exceeding the original 20% construction contingency. Major challenges encountered to date are detailed in the following sections.

Construction Challenges on Battery B

During the 2020-2022 construction of Battery B, the Contractor encountered many unforeseen conditions including various non-documented underground electrical conduit conflicts and influent/scum pipe damage due to severe corrosion. The conflicts and damages were extensive and the high cost for reroute of conduits, construction of new concrete slabs for motor control centers, and influent/scum pipe and coating repairs were beyond what was anticipated during the design.

Among the changes are two major owner-initiated design changes that were not anticipated but are necessary, including compliance with the updated automation requirements and modifications to the installation requirements of the new clarifier mechanisms. Automation requirements have been revised periodically to reflect lessons learned on other projects and critical changes to communication architecture or instrumentation. Clarifier mechanism changes were the result of improvements to allow adjustment of clarifier rake arms (versus fixed rake arms) and column base plate redesign to accommodate new mechanism weights and increased anchor embedment.

As construction progressed, staff identified the need to modify the equipment specifications of the groundwater relief valves and flow meters to meet the operational requirements of the RWF and to be more suitable for the encountered conditions.

To ensure adequate treatment capacity at the RWF, work could only be performed on one battery at a time, and most of the work on the batteries has to be performed during the dry season between May 15 and October 15. The contract further specified that work must proceed first on Battery B starting May 15, 2020 and returning Battery B to service by October 15, 2020. Battery A would then be made available to the Contractor for work starting May 15, 2021 and return to service no later than October 15, 2021. Only other items of work that were not critical to the operation of the clarifiers such as return activated sludge gallery supports and electrical preparation work could be performed during the wet seasons (between October and May).

Due to many changes encountered during the construction of Battery B, the work extended well beyond the October 15, 2020 operational date. Battery B was not made operational until April 2022 and the RWF could not release Battery A for work until this milestone was reached. Due to these delays, the Project's expected substantial completion date of September 2022 has been extended approximately one year to August 2023. This extension of time has a significant cost impact to the Contractor to maintain staffing, facilities, equipment, and other site related overhead costs. Such costs are allowed by the contract and are not included within the direct costs agreed with the Contractor for the specific changes.

The Contractor submitted several Time Impact Analysis claims requesting additional compensation for these time related costs in an amount exceeding $2.8 million. In addition, the Contractor also submitted claims for costs due to COVID-19 impacts which totaled $1.7 million. Following internal

review by staff and various discussions between the City and the Contractor, staff found that while part of the claim has some merits, some of the time delays are concurrent or can be attributed to the Contractor's own delays, and the COVID-19 claim contains cost information that is not acceptable to the City. Staff negotiated with the Contractor for a lump sum change of $2,050,500 contingent on City Council approval for the portion of Battery B work completed as of April 2022. This change order would resolve the Contractor's claims due to construction delays, additional costs due to COVID-19 impacts consistent with City policies and agreements with other contractors and reset the timeline to hand over Battery A on April 11, 2022. The change order would also extend the Project Substantial Completion by 218 workdays to August 2023 to allow the completion of the Battery A work in 2022 and the remaining work on Battery B including final electrical and controls improvements and new clarifier mechanism installation in 2023.

Construction Challenges on Battery A

Since the construction of Battery A commenced in April 2022, similar construction issues and changes related to unforeseen conditions and utility conflicts encountered on Battery B have been experienced on Battery A. However, the cost of making similar changes to Battery B has increased due to material escalation and supply chain delivery issues. In addition, new unforeseen conditions have recently been discovered. In late August 2022, the existing clarifier concrete floors were found to be delaminated and uneven, requiring removal and replacement of the existing floor grout to provide a level floor to ensure the proper and efficient operation of the new clarifier mechanisms.

Additionally, at around the same time, underground electrical conduits that were planned to be re-used were found to be damaged and unusable, requiring full replacement. These new issues were encountered in four of the eight Battery A clarifiers; therefore, additional contingency is needed to resolve these issues. These conditions may likely be found in Battery B when remaining work starts this winter, and this anticipated cost is included in the scope of this contingency increase request. Schedule impact is possible due to these changes. Another 60 workdays of potential delays are estimated for the additional conduit repairs/replacements and the added scope of clarifier concrete and grout repairs.

Contingency Increase Needed

As of September 2022, construction is 65% complete and a total of 39 Contract Change Orders have been issued, totaling $4,209,540. This represents approximately 80% of the approved contingency amount of $5,237,000.

The key work remaining includes the installation of clarifier mechanisms, completion of the rehabilitation of Battery A clarifiers, and installation of new electrical systems for both Batteries A and B. With 12 months and 35% work remaining to complete, staff believes that the remaining contingency of $1,027,460 is not sufficient to fund pending and forecasted change orders listed in the table below including the negotiated amount of $2,050,500 for time impact and COVID claim. As noted in the table below, anticipated pending and forecasted change orders to complete the project include underground electrical conduits changes due to damaged existing conduits,

unforeseen clarifier floor repairs to clarifiers A3, B3, B5, B6 and B7, material escalation due to project delays due to unforeseen work, minor design and miscellaneous unforeseen changes and the settlement of the previous Time Impact Analysis claims due to unforeseen work items and the COVID claim. Payment of the time impact and COVID negotiated settlement is contingent on City Council approval. It is also anticipated that primarily due to the clarifier floor repairs noted above, there will be potential additional project delays and associated time impacts to the project.

Reason for Change Orders	**Approved Change Orders**	**Pending Change Orders**	**Forecasted Change Orders**	**Totals**
1. Unforeseen Site Conditions				
1a. Underground Electrical Conflicts/Damages	$22,649	-	$1,200,000	$1,222,649
1b. Pipe Corrosion	$931,462	-	-	$931,462
1c. Floor Damage	$90,664	-	$1,250,000	$1,340,664
1d. Miscellaneous Items	$329,305	$200,000	$500,000	$1,029,305
2. Material Escalation	-	-	$300,000	$300,000
3. Design Changes	$1,494,655	$150,000	$200,000	$1,844,655
4. Equipment Changes	$1,340,805	-	-	$1,340,805
5. *TIAs 1-3, COVID Claim Settlement	-	$2,050,500	-	$2,050,500
6. Estimate of Potential Delays (60 Workdays) for Work Remaining	-	-	$300,000	$300,000
7. Totals	**$4,209,540**	**$2,400,500**	**$3,750,000**	**$10,360,040**
8. Current Authorized Contingency				$5,237,000
9. Total Estimated Contingency Increase Required				**$5,123,040**

*TIAs (Time Impact Analysis claims)

The contingency increase request shown above is considered reasonable; actual amounts may vary depending on the actual conditions encountered. Based on the current available information, these changes are necessary to complete the Project.

CONCLUSION

Staff recommends proceeding with the negotiated 218 workday time extension to the project substantial completion date with associated time impacts and COVID claim for $2,050,500 and other items described above in the $5,200,000 contingency increase request. City Council approval

of this request will allow the Project to proceed to final completion and long-term reliable operation.

EVALUATION AND FOLLOW-UP

A progress report on this and other RWF capital projects is presented on an annual basis to the Transportation and Environment Committee, most recently on March 7, 2022. Quarterly progress reports of the RWF Capital Improvement Program are submitted to the Treatment Plant Advisory Committee and posted on the City's website.

CLIMATE SMART SAN JOSE

The recommendation in this memorandum has no effect on Climate Smart San José energy, water, or mobility goals.

PUBLIC OUTREACH

This memorandum will be posted on the City's Agenda website for the November 10, 2022 Treatment Plant Advisory Committee meeting and November 29, 2022, City Council meeting.

COORDINATION

This Project and memorandum have been coordinated with the Finance Department, the City Attorney's Office, and the City Manager's Budget Office.

COMMISSION RECOMMENDATION/INPUT

This memorandum is scheduled to be heard at the November 10, 2022, Treatment Plant Advisory Committee meeting.

FISCAL/POLICY ALIGNMENT

This Project is consistent with City Council-approved focus on improving wastewater treatment efficiency, protecting vital core services, and meeting air permit discharge requirements.

COST SUMMARY/IMPLICATIONS

1.	AMOUNT OF RECOMMENDATION:	$5,200,000
2.	COST OF CONTRACT	
	Original Construction Contract Amount	$26,184,000
	Original Contingency (20%)	$5,237,000
	Contingency Increase	$5,200,000
	Total Contract Amount	**$36,621,000**
	Current Project Delivery	$15,270,609
	Total Project Costs	**$51,891,609**
	Prior Year Expenditures	$44,575,051
	Remaining Project Costs	**$7,316,558**

3. SOURCE FUNDING: 512 - San José-Santa Clara Treatment Plant Capital Fund.

4. PROJECT COST ALLOCATION: In accordance with the recommendations set forth in the Capital Project Cost Allocations Technical Memorandum (Carollo Engineers, March 2016), this project is allocated 40% for flow and 60% for biochemical oxygen demand.

BUDGET REFERENCE

The table below identifies the fund and appropriations to fund the contract recommended as part of this memorandum and remaining project costs, including project delivery, construction, and contingency costs.

Fund #	Appn #	Appn. Name	Total Appn	Amt. for Contract	2022-2023 Proposed Capital Budget Page*	Last Budget Action (Date, Ord. No.)
512	7074	Nitrification Clarifier Rehabilitation	$8,664,000	$5,200,000	239	06/21/2022 Ord. No. 30790

*The 2022-2023 Adopted Capital Budget was approved on June 14, 2022 and adopted on June 21, 2022 by the City Council.

CEQA

Exempt, File No. PP17-049, CEQA Guidelines Section 15301, Existing Facilities.

/s/
KERRIE ROMANOW
Director, Environmental Services Department

/s/
MATT CANO
Director of Public Works

For questions, please contact Mathew Nguyen, Deputy Director, Public Works Department at 408-535-8384.