



Agenda Date: 2/3/2021
Agenda Placement: 7D

Napa Sanitation District Board Agenda Letter

TO: Honorable Board of Directors
FROM: Timothy Healy - General Manager
NS-Technical Services/Engineer
REPORT BY: Karl Ono, Associate Engineer - (707) 258-6013
SUBJECT: Accept Completion of the Primary Clarifier and DAF Clarifier Rehabilitation Project (CIP 16712)

RECOMMENDATION

Adopt Resolution accepting completion and authorize the General Manager to file the Notice of Completion at the Napa County Office of the Recorder for the Primary Clarifier and DAF Clarifier Rehabilitation Project (CIP 16712).

EXECUTIVE SUMMARY

On February 4, 2020, NapaSan entered into a contract with Farr Construction Corporation dba Resources Development Company to furnish all labor, materials, equipment, and services required for the construction of the Primary Clarifier and DAF Clarifier Rehabilitation Project (CIP 16712). On January 26, 2021, the General Manager submitted his Certificate of Completion to the Board Secretary certifying that the Project was completed to his satisfaction. The total approved contract amount for this project is \$1,377,050. Currently 5% or \$68,852.50 is being held as retention on this project. The full retention amount will be released to the Contractor 35-days after filing of the Notice of Completion with the Recorder and NapaSan receives confirmation that all vendors and subcontractors have been paid in full.

The original contract was awarded for \$968,800.00. Total change orders for the project increased the contract amount by \$408,250 which is 42.1% of the original contract amount. There were three change orders that accounted for unexpected site conditions that could not be anticipated during design of the project and one change order that accounted for owner-initiated changes that added to the scope of the project. The engineer's estimate of probable construction cost was \$1,200,000.

FISCAL & STRATEGIC PLAN IMPACT

Is there a Fiscal Impact? No

ENVIRONMENTAL IMPACT

None.

BACKGROUND AND DISCUSSION

The primary clarifiers were converted to their current use in 1998 as part of the Phase II Soscol Water Recycling Facility Upgrade Project. The structures were originally constructed as flocculating clarifiers in 1977. The primary clarifiers receive wastewater from the headworks that has been screened and aerated to remove large solids and grit. The primary clarifiers allow suspended solids to settle and collect as sludge, which is then conveyed to the digester, treated, thickened, dewatered, and land-applied for disposal. Wastewater passing through the primary clarifiers continues through the treatment process.

Prior to this project, equipment and coatings in the primary clarifiers had been in service for approximately 20 years and are subject to a corrosive environment typical of the wastewater treatment process. Protective coatings had reached the end of their useful life, which led to visible deterioration of some components. A condition assessment revealed that some mechanical components were in need of repair or replacement and recommended that protective coatings throughout the clarifier be replaced to prevent further deterioration.

The dissolved air floatation (DAF) clarifier was constructed in 2016 as part of the Phase I Recycled Water Expansion Project. During peak recycled water production periods (currently July through September), the DAF clarifier receives water that has been treated in the ponds and removes algae before it is disinfected, filtered, and distributed for reuse as recycled water. Prior to this project, the protective coatings on the majority of the carbon steel components were beginning to deteriorate, leaving portions directly exposed. The mechanical components in the DAF clarifier are exposed to sun and wind when the DAF is not in service and exposed to treated wastewater containing algae when the DAF is in service. NapaSan staff believes that the existing protective coatings were failing prematurely, and that inadequate environmental controls (dust, moisture, and temperature) associated with field coating during original construction may have led to the premature failure.

The primary clarifier rehabilitation project was initially identified in a 2015 condition assessment study. Operations staff had also observed similar conditions of protective coatings in the nearby DAF clarifier process area. Because of the similar nature of work required in each process area, rehabilitation of the primary clarifiers and DAF clarifier were completed under one project.

During construction, it was discovered that additional mechanical and structural components in the primary clarifiers had deteriorated further than what was identified during the condition assessment. These additional components were replaced under change orders as part of this project prior to applying the new protective coatings.

During preparatory work for construction, HDR's inspector and the contractor observed that aluminum brackets supporting the clarifier scum baffles were severely corroded and structurally unsound. The surface preparation required for epoxy based repair composites (coatings) could have further promoted section loss and could have rendered the support brackets ineffective. HDR's design engineer's recommendation was to replace the scum baffles and brackets with a new prefabricated FRP system. NapaSan negotiated a price with the Contractor to perform the baffle and bracket replacement work. The price included material costs of \$41,856 and installation costs of \$157,744. The General Manager executed a change order authorizing procurement of materials in

advance a subsequent change order to cover installation work, in order to reduce impacts to the project schedule.

As the contractor continued to sandblast accumulated material from the mechanical and structural components within the primary clarifier, the project inspector identified additional components that needed to be replaced, which consisted of the scum boxes and bridge supports in both of the primary clarifiers. These components needed to be replaced before protective coatings could be applied. NapaSan negotiated pricing with the Contractor to repair the scum box and bridge supports in both of the primary clarifiers. The total change order price was \$205,891 for these items.

In addition to change orders related to differing site conditions, an owner-initiated change order was added to the project to correct deficiencies in the nearby Headworks building. After construction of the Headworks Equipment Replacement Project (CIP 17726), a ventilation issue was identified and found to be due to a design issue. As HDR was the design engineer for both projects, they developed a plan to modify ductwork within the facility which would correct the ventilation issue. NapaSan negotiated pricing with the contractor to perform the ductwork modification, testing, and balancing. The total change order price for this item was \$33,261.

SUPPORTING DOCUMENTS

- A . Certificate of Completion - CIP 16712
- B . Completion Resolution - CIP 16712

Napa Sanitation District: Approve

Reviewed By: Timothy Healy