



LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT

MEMORANDUM

DATE: November 13, 2018

TO: BOARD OF DIRECTORS
Lake Arrowhead Community Services District

FROM: 
AIDA HERCULES DODARO, District Engineer


CATHERINE CERRI, General Manager

SUBJECT: RECOMMEND APPROVAL AND APPROPRIATION OF
ADDITIONAL FUNDS FOR NORTH BAY INTAKE PUMP
STATION REPLACEMENT PROJECT NO. 072

A. RECOMMENDATION

It is recommended that the Board of Directors approve and appropriate additional funds for the North Bay Intake Pump Station Replacement Project No. 072 ("Project") in the amount of \$57,950.58 which represents 1.4% over the 15% contingency originally authorized by the Board at the regularly scheduled Board meeting held on August 8, 2017.

B. REASON FOR RECOMMENDATION

On August 8, 2017, the Board authorized the General Manager to approve an amount not to exceed 15% of the original contract price for necessary change orders during the construction of the Project. The original contract amount is \$4,018,991.76 and the authorized 15% is \$602,848.76. As of today, the total amount in change orders including credits for reconciled quantities is \$660,799.34. This amount represents an increase of 1.4% over the 15% originally authorized by the Board. Board action is necessary because the total amount on change orders exceeds the 15% approved contingency. The reason for this action item is related to the cost associated with the change on the design of the electric building due to the District not being able to get the additional property for the original layout shown on the bid set. The property sold in between negotiations making it impossible for the District to meet the project schedule. The change order could not be worked out in advance as electric components and their installation were still been worked out during construction.

C. BACKGROUND INFORMATION

Attachment 1 contains a summary of all change orders approved by staff during the construction of the Project. Although change orders 8 and 9 do not show a formally

“approved” status under the “Status of CO” column, the amounts for these change orders have been reviewed, negotiated and approved by staff. A summary of all change orders with details is shown below:

Change Order 1 is related to the removal of 2 approximately 100 feet tall cedar trees, which were going to be negatively impacted by the excavation of the pipes between the pump station building and the intake structures in the lake. A professional arborist was contracted to determine if the removal of the trees was necessary. The arborist report stated that excavating on both sides of the trees would cause a negative impact and eventually would cause decay. The arborist recommendations, if it was decided to keep the trees, were extremely restrictive for the construction operations and after-construction maintenance by the Hamiltair Property Owners Association (POA). It was decided to remove the trees at a field meeting involving all parties.

Change Order 2 is related to the impacts that hurricane Harvey had in the State of Texas. The supplier’s facilities for the polyvinyl chloride (PVC) pipe located in Texas was directly impacted by the hurricane and the inventory was depleted without the possibility of additional production. Due to this weather event, many suppliers and contractors were impacted as well. Our contractor was unable to purchase the specified pipe dimensions and in some cases, he couldn’t even find the specified materials without sacrificing the project schedule. Change order 2 represents the changes on pipe material, PVC to high-density polyethylene (HDPE) pipe, and pipe sizes from 16 inches to 18 inches in diameter. Also included in this change order is the upgrade of equipment to work on the welding of the 18 inches HDPE pipe.

Change Order 3 is a direct result of change orders 4 and 5 depicted below. Originally, the bid documents included all equipment, labor, fees and other related costs associated with the installation of the underwater infrastructure. The bid documents also specified that anything related to fees, rent and operations of on-lake vessels needed to be negotiated with the Arrowhead Lake Association (ALA). During the bidding process, it became apparent that all plan holders were concerned about the ALA timing on finding a barge suitable for the specified equipment and generating the fees related to the rented barge, specially the main barge to be used for the 100-ton crane. The plan holders were also concerned about the impact on their bids due on July 25, 2017. On July 19, 2017, engineering staff issued an addendum instructing all prospective bidders to delete from their bids any cost related to fees, rent and operations of on-lake vessels. During the month of August and beginning of September 2017, District staff in cooperation with the contractor, took an active roll in coordinating with ALA for the task related to the research and rental of the main barge. By mid-September, a barge fitting the specifications needed for the work on the lake became available. Once the barge representative and the 100-ton crane operator met with our contractor at the ALA ramp to strategize the operations, the low water level and the steep slope of the ramp became a safety issue. Immediately, all parties involved started working on other possible ramps to accommodate an extra-large and deep barge for loading and unloading a 100-ton crane. The result was to construct a ramp by the Hamiltair POA beach area. This change order includes all labor, supervision, equipment and material to assemble, disassemble the ramp and restore the beach area. This change order needed to be approved in advance of the next 2 change orders. The ramp had to be in place before the main barge and the 100-ton crane arrived at the job site.

Change Order 4 includes all labor, material and fees related to the two barges rented from the ALA by our contractor and as described in Change Order 3. This change order also includes ramp fees, inspection fees for diving equipment, visual markers and solar power flashing beacons requested by the ALA for the barges and buoys.

Change Order 5 represents all costs related to the rental for two months of a large barge and the 100-ton crane to be used for the installation of the underwater infrastructure. These costs were separated from Change Order 4 and becoming part of a separate change order due to the liability involved with the operations associated with the main barge and 100-ton crane. This large barge required qualified personnel, which was not available through the ALA, to transport and maneuver the barge and heavy load to the project site. The costs related to the main barge include rent, transportation, assemble, disassemble and anchoring. The costs related to the 100-ton crane include rent, transportation and operator.

Change Order 6 represents all costs associated with the underwater shoring and slope stabilization done prior to the placement of the concrete vaults hosting the offshore pumps. The underwater walk done by the divers prior to the installation of the pipe revealed 2 rock outcrops conflicting with the proposed alignment of the pipe. A second underwater walk revealed two massive tree stumps on the revised alignment, then a third walk provided successful results for the final alignment. The final alignment resulted 40 feet southeast from the original location and at a steeper terrain. The changed conditions were assessed, and all parties involved worked together to resolve the situation promptly before late winter conditions and high winds hit the region making it unsafe for the crane to operate on the barge. The District pre-approved a daily rate based on the contractor and its subcontractor's contract rates. The work related to this change order was performed in 4 days and consisted of a retaining wall system comprised of four K-rails and three concrete anchors to stabilize the $\frac{3}{4}$ " rock used as a backfill for the vaults and the retaining wall system. A total of 100 additional cubic yards of $\frac{3}{4}$ " rock were used for the slope stabilization.

Change Order 7 is related to the change of the installation schedule for the offshore pumps. Originally, the contractor bid the job with the installation of the offshore pumps scheduled for November 2017. At that time, the installation was planned to be done by Trinity's crew with regular tools and while the vaults were onshore. The vaults with the pumps were going to be submerged right after submerging the pipe, then continuing with connecting the pumps, valves and related components to the intake pipe. All this work was scheduled while the main barge, crane and diving crew were onsite. While coordinating this work with the diving crew, we were informed that the pumps couldn't be installed without being exercised every 5 to 6 days or the warranty would be voided. At that time, the infrastructure for the electric power was unavailable as the power was turned off by Edison due to the construction activities. This change of schedule generated extra cost due to additional mobilization and demobilization for the diving crew, rental fees for the ALA barges and specialized tools to anchor the pumps to the concrete vault under water. This underwater work was completed in 7 days.

Change Order 8 represents the additional cost associated with the construction of the re-designed electric building and the relocation of the 20-inch raw waterline. The original electric building was designed with the concept of acquiring the needed property

through a lot line adjustment, which was being negotiated with the property owner immediately adjacent to the District's property. Already into a few months of construction activities, the property from which we were seeking the lot line adjustment was sold. Communications with the new owner were difficult due to traveling conflicts. District staff had to consider the project schedule and the need to have a structure ready for the electric work. Staff instructed the engineer to redesign the building keeping its footprint entirely within the District property. This new design generated additional costs for labor, material and electrical equipment as well. Due to the layout of the District's property, the electric building extension had to be rotated 90 degrees from the original designed footprint becoming an "L" shape. The new layout was also shortened a few feet, which generated changes on the distribution of the electric equipment to comply with current building codes for this type of building. An additional door was installed and the location of the electric equipment had to be modified. Originally, all the equipment was designed to be installed along two opposite walls with plenty of space between the electric panels, motor control centers (MCC), variable frequency drives (VFD) panels and SCE panel. With the new "L" shape layout, the electric components were re-arranged to be installed on all four walls, corner cabinets were ordered which also changed the cable type and system of installation. The roof was also impacted by the redesign. Originally, the contractor was able to salvage a portion of the existing roof and extend the new over the extended footprint; however, with the new "L" shape the entire roof was removed along with an additional wall.

The new footprint encroached over the existing 20-inch raw waterline used to pump the raw water to the Bernina Water Treatment Plant. A portion of the pipe paralleling the original building had to be relocated away from the new building footprint and extended to a new connection point. To accomplish this new task within the project schedule, the pipe material was changed from Cement Mortar Lined and Coated (CML&C) steel pipe to PVC. A credit in the amount of \$10,150 is included in this change order along with an invoice for the replacement pipe in the amount of \$12,274.50. A portion of the excavation for the new alignment had to be done by hand due to the proximity of the trench to the SCE conduit connecting to the existing SCE transformer.

Change Order 9 represents a credit to the District due to a reconciliation of quantities and a no-cost time extension for 94 days. This time extension was granted due to weather days, delay on delivery from out of the country of electric components and, scheduling conflicts with SCE related to their labor to connect their vault and energize their meter.

D. FISCAL INFORMATION

The cost associated with the approval of this item is \$57,950.58. The total project budget of \$4 million was included in the 2016-17 and 2017-18 Budget. On August 8, 2017, the Board approved the construction contract for the North Bay Intake Pump Station Replacement Project No. 072 in the amount of \$4,018,991.70 plus 15% contingencies of \$602,848.76 for a total revised budget of \$4,621,840.46. The total final construction cost was \$4,679,791.10 and includes \$660,799.34 in change orders as presented in this item, which is \$57,950.58 over budget. Due to preliminary 2018-19 cashflow projections being higher than anticipated and additional funding being available in the Water Capital

Improvement Fund (fund 110), the additional required funding will be available for this additional request

E. ATTACHMENTS

Attachment 1: Change Order Summary List

CO Summary List

North Bay Intakes Pump Station Replacement Project No. 072

| CO Number | Subject | CO Date | Amount | % of Contract | Additional Calendar Days | Status of CO |
|-----------|---|------------|---------------------|---------------|--------------------------|--------------|
| 1 | Removal of 2 cedar trees | 9/5/2017 | \$10,518.95 | 0.3% | 4 | approved |
| 2 | HDPE pipe change | 9/22/2017 | \$14,368.77 | 0.4% | 1 | approved |
| 3 | Temporary Ramp @ HPOA beach area | 10/23/2017 | \$82,883.42 | 2.1% | | approved |
| 6 | Underwater slope stabilization | 2/12/2018 | \$93,733.06 | 2.3% | 4 | approved |
| 7 | Rescheduled underwater pumps installation | 6/21/2018 | \$89,422.19 | 2.2% | 10 | approved |
| 8 | Electrical building and 20" WL relocation | 6/21/2018 | \$84,541.00 | 2.1% | 20 | |
| 9 | Time Extension & reconciling quantities | 6/21/2018 | (\$9,696.32) | -0.2% | 94 | |
| | Subtotal Change Orders | | \$365,771.07 | 9.1% | | |
| 4* | ALA Barges and fees | 10/27/2017 | \$49,831.68 | 1.2% | | approved |
| 5* | Crane & barge related charges | 10/27/2017 | \$245,196.59 | 6.1% | | approved |
| | Change Orders deferred from bid | | \$295,028.27 | 7.3% | | |

Total COs = \$ **660,799.34** **16.4%**

Original Contract = 4,018,991.76

Board authorized 15% = 602,848.76

Additional funding = \$ 57,950.58 1.4%

*COs 4 & 5 were part of the original bid but were deferred due to delays in pricing. All other COs total 9.1%.