



Agenda Item No. (3)

To: Building and Operating Committee/Committee of the Whole  
Meeting of April 23, 2020

From: John R. Eberle, Deputy District Engineer  
Ewa Z. Bauer-Furbush, District Engineer  
Denis J. Mulligan, General Manager

Subject: **APPROVE CONTRACT CHANGE ORDER NO. 20 TO CONTRACT NO. 2016-B-1, GOLDEN GATE BRIDGE PHYSICAL SUICIDE DETERRENT SYSTEM AND WIND RETROFIT PROJECT**

### **Recommendation**

The Building and Operating Committee recommends that the Board of Directors approve Contract Change Order (CCO) No. 20 to Contract No. 2016-B-1, *Golden Gate Bridge Suicide Deterrent System and Wind Retrofit Project*, in the amount of \$428,332, for modifications to the North Approach Viaduct Floor Beam Strengthening details, with the understanding that sufficient funds are available in the Contract No. 2016-B-1 construction contingency to finance this CCO.

This matter will be presented to the Board of Directors at its April 24, 2020, meeting for appropriate action.

### **Summary**

At its December 16, 2016 meeting, the Board of Directors, by Resolution No. 2016-087, authorized the award of construction Contract No. 2016-B-1, *Golden Gate Bridge Physical Suicide Deterrent System and Wind Retrofit Projects* (Projects #1526 and #1528), in the amount of \$142,051,868, to Shimmick Construction Company, Inc./Danny's Construction Company LLC, a Joint Venture (Contractor), and approved a construction contingency of \$22,405,213 for Project #1526 and \$948,756 for Project #1528.

Contract No. 2016-B-1 involves construction of a horizontal stainless steel net supported by cantilevered steel brackets along the west and east sides of four Golden Gate Bridge structures: the South Approach Viaduct, the Fort Point Arch, the Suspension Bridge, and the North Approach Viaduct; and construction of a tall vertical railing at the North Anchorage Housing. The net and cantilevered steel brackets will be located approximately twenty feet below the sidewalk and extend out about twenty feet.

On the east side of the North Approach Viaduct (NAV), the suicide deterrent system net support arms will connect to the viaduct truss and to the cantilevered sidewalk floor beam brackets that

extend between 25 feet to 45 feet outside of the viaduct truss. During the design phase of the project, it was determined that most of the cantilevered floor beam brackets did not have sufficient capacity to support the suicide deterrent net system.

To mitigate the insufficient capacity, the design included provisions for strengthening of the forty-five east side floor beam brackets prior to the installation of the suicide deterrent net system. The strengthening consists of pre-stressing the tops of the floor beam brackets. At each floor beam, the work involves installation of a steel weldment (weldment B) near the eastern end of the floor beam bracket and another steel weldment (weldment A) on the top of the floor beam at a location inside the truss under the roadway, installation of two high strength rods on the sides of each floor beam between the two steel weldments, tensioning of steel rods, and cleaning and painting steel surfaces.

The Contractor, in its bid under Contract Item No. 41, Floor Beam Strengthening (Sidewalk), provided a unit price of \$25,000/floor beam for the total price of \$1,125,000 for strengthening of the 45 floor beams. The unit price includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in the floor beam strengthening, including preparing and submitting working drawings; field drilling bolt holes; removing and replacing existing fasteners; spot blast cleaning and painting areas of connections to existing steel including drilled and reamed holes; furnishing and installing the high strength steel rods, tension rod brackets and bearing plates and fasteners (weldments); tensioning the high strength steel bars; and cleaning and painting all new structural steel, complete in place.

The Contract provisions require the Contractor to perform field measurements and verification of the existing conditions of the bridge structures prior to the fabrication of any steel elements, and to determine whether there are any conflicts between the design details and the existing bridge dimensions and conditions that may necessitate adjustment of the design details. During field investigations related to the NAV floor beam strengthening, the Contractor found conflicts at thirty-seven (37) floor beams that necessitated revisions to the strengthening details. The conflicts include:

1. An interference between the new high strength rods and the existing top lateral bracing angles that frame into the floor beam top flanges.
2. An interference between the new high strength rods and the existing floor beam pedestals that sit on the floor beam top flanges.
3. Warping of the floor beam top flange, which prevents weldment A from seating with full bearing on the top flange.
4. Existing air and electrical conduits that connect onto the floor beam top flange and interfere with the new high strength rods.

To mitigate these conflicts, the design consultant revised the weldment details at 30 floor beams by increasing weldment sizes to allow them to be connected to the floor beam sides instead of the floor beam top flanges, and added the notching of the vertical leg of the existing top lateral bracing angles at 24 floor beams to provide clearance for the new high strength tension rods. Also, after further analysis, the number of floor beams that require to be strengthen has been decreased from

45 to 42 because it was determined that, at the eliminated locations, such strengthening was not required to carry the loads imposed by the net system. In addition to the revised details, the scope of CCO No. 20 covers field measurements and verifications associated with confirming that the revised details clear all conflicts, and, provisions that allow the Contractor, for its convenience, the use of couplers to join two pieces of the high strength tension rod during installation, and the use of acid pickling, instead of abrasive blasting, for cleaning of the high strength tension rods prior to galvanizing.

The Contractor submitted a \$3,467,292 proposal for the change, which consists of \$3,319,877 for the revisions to the floor beam bracket strengthening weldments at the 30 floor beams (the unit price increase of \$110,663 or 443% per floor beam), and \$147,415 for the notching of the top lateral bracing angles at 24 floor beams. In addition, the Contractor requested an undefined at this time contract time extension and costs associated with the time extension. The Engineering staff and its consultant reviewed the Contractor's proposal and determined it to be unfair, not equitable and not compliant with the Contract requirements for development of cost proposals for changes to the work under the Contract (e.g., mark-up for indirect costs and profit).

The Engineering staff and its consultant performed a cost estimate of the change and determined that the revisions to the work result in a cost increase of \$428,332, which consists of \$75,000 credit for the elimination of floor beam strengthening at 3 floor beams (using the bid unit price of \$25,000 each); \$478,847 for the revisions to the floor beam bracket strengthening at the 30 floor beams (the unit price increase of \$15,962 or 63.8% per floor beam), and \$24,485 for the notching of the top lateral bracing angles at 24 floor beams. The staff and consultant developed this estimate based on the prices of furnishing, installing and cleaning and painting structural steel provided by the Contractor in its bid and reasonable cost adjustments for labor, equipment, additional management and engineering equitable with the increased scope. In addition, staff analyzed whether the change would impact the final completion of the work under the Contract and determined that the change does not warrant a Contract time extension.

The Contract states that, in the event that the parties cannot reach agreement concerning the compensation terms for the changed work, the Golden Gate Bridge, Highway and Transportation District (District) will make payment in such amount as the Engineer may determine to be fair and equitable. In such event, an approved CCO will be issued to reflect the amount to be paid by the District. Because of a large difference between the Contractor's cost proposal and the staff estimate of the reasonable and fair compensation for the change, including the determination of no extension of Contract time, staff recommends that approved CCO No. 20 be issued in the amount of \$428,332 for the labor, equipment, and material costs associated with the change and with no time extension. The District has discussed this change with the Federal Highway Administration (FHWA) and received its concurrence with proposed CCO No. 20.

At its February 24, 2017 meeting, the Board of Directors, by Resolution No. 2017-018, authorized the General Manager to approve construction contract change orders to Contract No. 2016-B-1, *Golden Gate Bridge Physical Suicide Deterrent System and Wind Retrofit Project*, within the financial limits of the contract budget, up to a maximum of \$350,000 for any individual change order, with contract change orders exceeding \$150,000 requiring the concurrence of the President of the Board and the Building and Operating Committee Chair. Because the CCO No. 20 price exceeds the General Manager's approval authority, staff seeks the Board's authorization to issue approved CCO No. 20.

Staff recommends that the Building and Operating Committee recommends that the Board of Directors authorize the approved of CCO No. 20 to Contract 2016-B-1 as described in this staff report.

**Fiscal Impact**

The *Golden Gate Bridge Physical Suicide Deterrent System Project* (Project #1526) is included in the FY 2019/20 Bridge Division Capital Budget at a total cost of \$192,779,868. The budget for Project #1526 includes a Contract 2016-B-1 contingency in the amount of \$22,405,213.

To date, 84 CCO numbers have been assigned to various already defined and resolution-pending changes that require or may require modifications to the Contract Plans and /or Special Provisions. Four of these CCOs have been closed after determination was made that the scope of change could be incorporated into another CCO. Amongst 80 CCOs with already defined scope, 21 have \$0 price, 9 CCOs have an agreed price, 28 CCOs await Contractor's cost proposals, 10 CCOs with the Contractor provided cost proposal but the costs have not been agreed to, and 12 CCOs are paid for on force account. The total estimated cost of the 80 CCOs is \$4,050,000.

Sufficient funds are available in the Contract contingency to finance the \$428,332 price of CCO No. 20 as well as the other change orders.