CCO CONCURRENCE MEMO

California Department of Transportation
SFOBB – SAS
Contract No. 04-0120F4

CCO No.: 191 Supplement No.: 2
Title: Add. Misc. Electrical Changes
Date: 9/26/2013

Requested By: William Shedd, Senior, Transportation Engineer
(PRINT NAME) (SIGNATURE) (DATE)

Description of Work:

Revise miscellaneous electrical items to resolve conflicts and adjust to as-built conditions, including:

1) Extend the grounding conductor on the East side of the Pier E2 cap. (1462R1, 3433)
2) Furnish Type 316L stainless steel wireways in lieu of Type 304 for installation on the Tower, cable, and Orthotropic Box Girder (OBG). (RFI 2511)
3) Provide credit for penetrations, pipe sleeves, and associated pull boxes, conduits, and wires for future light pipe conduit at Panel Points (PP) 118 and 120 that will not be installed. (RFI 3001R1)
4) Modify strong motion detection system sensor enclosure mounting details at PP 127.5. (RFI 3154)
5) Modify Utility Panel (UP) 210 rack and attached unistrut. (RFI 3155)
6) Revise slip joint for belvedere lighting. (RFI 3170 R0/R1)
7) Modify electrical at Hinge A. (RFI 3204 & 3341)
8) Revise conduit and conduit supports between Tower shafts and Tower structural elements. (RFI 3226)
9) Revise conduit size and conduit support for the ground system on the D face of the NW Tower quadrant. (RFI 3244)
10) Modify the electrical raceway at Pier E2 Cap Beam. (RFI 3351)
11) Provide a credit for 600V pull box A23 at Pier W2E. (RFI 3360)
12) Provide a credit to eliminate verification and testing for ground resistance on the Pier W2 existing ground system. (RFI 3429)
13) Modify cables for strong motion recorders. (RFI 3447)
14) Install additional barrier cover plate penetrations for the PP 119 light poles. (RFI 3452)
15) Revise Tower elevator telephone cable termination. (RFI 3460)
16) Furnish and install 30A receptacles and plugs in lieu of 20A for the traveler receptacles.

Reason for Change:

Contract Change Order (CCO) 191 S0 "Misc. Electrical Changes" and CCO 191 S1 "Additional Misc. Electrical Changes" resolved electrical conflicts that were identified through the RFI and submittal review process through December 2012. This change order supplement will continue to modify minor electrical items as conflicts are identified through August 2013.

1) CCO 329 "Pier E2 Shear Key Concrete" installed additional concrete for the Pier E2 shear keys saddle anchorage. Therefore the grounding conductor will be extended to the edge of the new concrete limits.
2) CCO 191 S0 changed NEMA Type 4x wireways to 316L stainless steel to provide better resistance for corrosion and compensated for the additional material cost for wireways installed on the service platforms. This change order will compensate for the additional material cost for 316L stainless steel wireways installed on the Tower, cable, and OBG.

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3) CCO 187 "MEP-Structural Interferences" added penetrations and pipe sleeves for future light pipe conduits at PP 118 and 120, however this change order will eliminate these items since a design or decision on light pipes for the bridge is not under development.

4) The sensor enclosure mount will be revised to resolve conflict with the OBG floorbeam web plate.

5) UP-210 mount will be revised to resolve conflict with the access door doubler plate at Tower elevation 53 M.

6) CCO 43 S1 "State Furnished Light Poles" eliminated furnishing of the belvedere light poles from the SAS contract so the Bay Area Toll Authority (BATA) could procure poles for the entire bridge from the same fabricator. Belvedere lighting details will be revised with as-built details of the poles fabricated under the BATA contract.

7) Conduit supports, cable tray supports, cable tray support hangers, and routing to cable trays will be revised at Hinge A to accommodate as-built conditions on the Skyway.

8) Conduits routing between the Tower shafts will be revised to ensure the conduit can endure seismic displacement.

9) The Contractor has requested conduit support for the ground system be a bolted connection in lieu of welded. There is no cost for this change.

10) CCO 329 installed additional concrete for the Pier E2 shear keys saddle anchorage which will need additional conduit, fittings, pull boxes, and struts for conduit support due to bends created by the concrete jacket wall.

11) CCO 191 S0 furnished and installed a bigger pull box at Pier W2E that will be eliminated and a credit will be provided.

12) The verification and testing requirement on the existing ground system that was added by CCO 75 "Electrical Grounding" is unnecessary since sufficient grounding electrodes (ground rods and bare copper conductors) have been installed under CCO 75 to provide grounding for conductors connected to it without needing the existing system capacity.

13) The Integrated Services Digital Network (ISDN) cables to the strong motion recorders are obsolete. The #2910-10 ISDN cable will be used to provide Plain Old Telephone Service (POTS) to the seismic recorder on service platform 5, while the seismic recorder on the Tower will be available as a spare and not hooked up to POTS.

14) Penetrations will be made for the conduit routing that was revised in CCO 191 S1.

15) The telephone cable will be terminated directly to the respective terminals where the conductors from the 50-pair cable are terminated in order to eliminate the need to install internal jumper wires.

16) The 20A traveler receptacles required by CCO 137 "Traveler Navigation Lights" are unsuitable for outdoor use therefore 30A receptacles and plugs will be used instead.

This change order work will be paid by supplemental funds.

Approvals Required By: ☒ Division of Construction, HQ ☐ TBPOC

Concurrence Required By:

☒ Design Consultant: PB/Saeed Shahmirzai	Date: 10/30/13	☒ Project Manager, Ken Terpstra	Date: will obtain
☐ Bridge Design Oversight: Wenyi Long	Date: N/A	Other:	Date: N/A
☒ District Design Oversight: Jing Z Chen	Date: 1/29/14	☒ CT Maintenance: Lina Ellis	Date: 1/20/14

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Estimated Cost: $725,000.00 (Cumulative Total of CCO 191 S0, S1, & S2 is $1,324,786.00)
Recommended Time Adjustment: None
Recommended Method of Payment:
☐ Contract Items ☐ Extra Work at Force Account ☒ Agreed Price (LS or UP) ☐ Other:

Concurrence/Prior Authorization:
☒ This represents Prior Authorization to proceed with the work.
☐ This represents an acknowledgement that the individuals below are in concurrence with this change order, which may require Division of Construction approval before proceeding with the work.

	9-26-13		9/27/13
William Casey, Supervising TE	Date	Rich Foley, HQ Const. Coord.	Date