

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/Ala Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007718**Date Inspected:** 17-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 700**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Zhen Bo**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower and OBG Components**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector George Goulet was present during the times noted above for observations relative to the work being performed.

Trial Assembly Area

This QA Inspector, George Goulet, randomly observed the following in the trial assembly area per ZPMC Bolting Inspection Notification Sheet #00032:

At the direction of ZPMC QC's Shen Jiang Bo, ZPMC workers performed the following:

Segment 3AE/BE, north side, side plates between panel points 20~22:

ZPMC workers performed final bolt tightening verification using ZPMC calibrated wrench XO2-584, set at 470N.M, per ZPMC's Bolt Test Log for SFOBB (RoCap list) listing the RoCap Set numbers and the N.M test result for tightening purposes. ZPMC QA Lei Tao informed this QA Inspector, George Goulet, that the bolt sets installed at this location came from RC Set No. DHGM220033, item number 74 on the list. Three rows of 18 to 19 lap plate to side plate T-stiffeners was tested. On each plate was installed 28 - M22-2.5 x 65 ASTM A325 bolt sets. Two of the 14 bolt sets on each side of the lap, chosen randomly by this QA Inspector, George Goulet, were tested and appeared to have been tightened to the wrench setting. It appeared to this QA Inspector, George Goulet, that all bolt sets tested had been tightened to the torque setting on the RoCap list.

Segments 3AE/3BE, south side, panel points 19~23, upper chevron connections:

ZPMC workers performed what appeared to be final tightening of the top two ASTM A325 bolt sets on the high

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side of the upper chevron connections of panel points 19 and 20 using a hydraulic bolt tightening wrench as follows: Hydra Electric Pump, Model MP582-2, Serial number PW090331002 and Hydra HY.Wrench, with unreadable model number and serial number. The pump pressure was set at 23MPa. ZPMC QA Lei Tao informed this QA Inspector, George Goulet, that 23 MPa setting was established and Caltrans-approved for tightening of bolt sets which were inaccessible with the calibrated wrench. The above noted bolt set nuts were positioned too close to the upper floor beam to allow the calibrated wrench and socket to be installed on the nut for final tightening. After those bolt sets were tightened, ZPMC workers then used the above noted calibrated wrench to tighten to 455N.M the next two bolt sets which had been removed to provide access for the hydraulic wrench. At panel points 21, 22, and 23 the hydraulic pump was replaced by Hydra Electric Pump, Model MP582-2, Serial number PW090331001. The four bolt sets on each chevron were identified by QC as M22-2.5 x 70 ASTM A325 - RC Set No. DHGM220004, item number 13 on the list. It appeared to this QA Inspector, George Goulet, that all bolt sets tested had been tightened to the torque setting on the RoCap list setting and the pump pressure respectively.

Segments 3AE/3BE, south side, panel points 19~23, outer lower chevron angle clip connections:
ZPMC workers performed final bolt tightening verification using ZPMC calibrated wrench XO2-584, set at 475N.M, per ZPMC's Bolt Test Log for SFOBB listing the RoCap Set numbers and the N.M test result for tightening purposes. ZPMC QA Lei Tao informed this QA Inspector, George Goulet, that the bolt sets installed at this location were identified as M22-2.5 x 75 ASTM A325 bolt sets - RC Set No. DHGM220005, item number 11 on the list. The four bolt sets at each panel point were tested tightened using the calibrated wrench to the torque setting on the RoCap list.

Segments 3AE/3BE, south side, panel points 19~23, inner lower chevron connections:
ZPMC workers performed final bolt tightening verification using ZPMC workers performed what appeared to be final tightening of the bolt sets using a hydraulic bolt tightening wrench as follows: Hydra Electric Pump, Model MP582-2, Serial number PW090331002 and Hydra HY.Wrench, with unreadable model number and serial number. The pump pressure was set at 23MPa. ZPMC QA Lei Tao informed this QA Inspector, George Goulet, that the bolt sets installed at this location came from RC Set No. DHGM220006. Three rows of 18 to 19 lap plate to side plate T-stiffeners was tested. On each connection was installed M22-2.5 x 80 ASTM A325 bolt sets. Two of the bolt sets on each side of the lap, chosen randomly by this QA Inspector, George Goulet, were tested and appeared to have been tightened to the MPa setting. It appeared to this QA Inspector, George Goulet, that all bolt sets tested had been tightened to the wrench setting.

Segment 3AE/4AW, between panel points 19/23, corner assemblies:
ZPMC workers performed final bolt tightening verification using ZPMC calibrated wrench XO2-584, set at 550N.M, per ZPMC's Bolt Test Log for SFOBB listing the RoCap Set numbers and the N.M test result for tightening purposes. ZPMC QA Lei Tao informed this QA Inspector, George Goulet, that the bolt sets installed at this location came from RC Set No's. DHGM220009, DHGM220044, DHGM220047, DHGM220011, DHGM220051, DHGM220051. Ten percent of the bolt sets were chosen randomly, with a minimum of one bolt set per connection, by this QA Inspector, George Goulet, were tested and appeared to have been tightened to the wrench setting.

Bay 11

This QA Inspector, George Goulet, randomly observed the following work in progress in Bay 11:

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SMAW fit and tack welding of weld joint WSD1-FBSA4-2A/C-30B located on PCMK west tower, lift 4, skin B. Welder was identified as 053316. ZPMC QC was identified as CWI Zhen Bo (QC1). Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector Zhao Mao Mao, who was not a CWI. The welding variables recorded by QC1 and QC1's assistant appeared to comply with WPS-B-P-2312.

SMAW fit and tack welding of weld joint WSD1-FBSA4-2A/C-37B located on PCMK west tower, lift 4, skin B. Welder was identified as 053310. ZPMC QC was identified as QC1. Assisting QC2 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector Zhao Mao Mao, who was not a CWI. The welding variables recorded by QC1 and QC1's assistant appeared to comply with WPS-B-P-2312.

SAW welding of weld joint WSD1-FCSA4-2A/C-4 located on PCMK west tower, lift 4, skin C. Welder was identified as 044560. ZPMC QC was identified as CWI QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector He Gen, who was not a CWI. The welding variables recorded by QC1 and QC1's assistant appeared to comply with WPS-B-T-2321-B-P3-S-2.

SAW welding of weld joints WSD1-FCSA4-2A/C-27B-1, 18, 7B located on PCMK west tower, lift 4, skin C. Welder was identified as 044550. ZPMC QC was identified as CWI QC1. Assisting QC1 at this location and appearing to be monitoring the welding and recording data was ZPMC QC Inspector He Gen, who was not a CWI. The welding variables recorded by QC1 and QC1's assistant appeared to comply with WPS-B-T-2321-B-P3-S-2 for the PJP welds and WPS-B-T-2221-B-U3c-S-2 for the CJP welds.

Unless otherwise noted, all work observed on this date appeared to generally comply with applicable contract documents.

Summary of Conversations:

As noted above, and this QA Inspector, George Goulet, asked each welding QC if all the welding variables observed by QC appeared to comply with the appropriate WPS, including the preheat requirements according to thickness of the thickest member being welded. Each welding QC showed this QA Inspector, George Goulet, that each welding QC was carrying the proper temperature sticks to monitor the minimum and maximum preheat and interpass temperatures and replied that all each welding QC observed did appear to comply.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Serge Sinevod, 134-8257-0045, who represents the Office of Structural Materials for your project.

Inspected By:	Goulet, George	Quality Assurance Inspector
Reviewed By:	Carreon, Albert	QA Reviewer
