

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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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-002970**Date Inspected:** 18-Jun-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Hu Wei Qing and Lvliqing**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:** OBG and SAS Tower Fabrication**Summary of Items Observed:**

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on sub-assembly Bays mentioned below;

**Bay 4: Tower Diaphragm**

This QA Inspector randomly observed one ZPMC welder ID number 053609 utilizing the FCAW Process in the 3G (Vertical Groove) Position with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly NSD1-SA276-3B. The QA Inspector randomly observed ZPMC CWI Zhao Chen Sun monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 209 amps, 25.5 volts with a travel speed of 115 millimeters (mm) per minute. The weld parameters appeared to comply with contract requirements.

This QA randomly observed heat straightening of two edge panel EP027(A)-001 weld numbers 001~004 and 007~012 and EP022(A)-001 weld numbers 001~004 and 007~012 due to welding distortion. Oxy-acetylene was used and less than 600 degree C thermal heat input was implemented following procedure HSR1(B)-1143 and HSR1(B)-1147 respectively.

**Bay 7: OBG - Floor Beam Sub Assembly:**

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The QA Inspector randomly observed ZPMC welder Quan Liu Zhio ID Number 050502, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-2221-B-L2c-S-1, to weld the fill pass on plate butt splice of floor beam FB028-001-122. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 515 amps, 29.0 volts with a travel speed of 427 mm per minute. Weld parameters appeared to comply with contract requirements.

QA Inspector J. Lizardo randomly observed two ZPMC qualified welder Liu Kai Ge ID #044830 and Liu Long Xian ID #044786 groove welding fill pass on (flange to web plate) tee joint. Mr. Liu and Liu were observed welding in the 2G (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic at floor beam FB012-004-043 and FB015-006-043 respectively. QA Inspector Lizardo observed the ZPMC QC CWI Inspector Huang Wen Pang verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS).

FCAW fillet welding (2F) was observed on stiffener to web plate on CSD4-PP028-016. In this stiffener, both ends has required CJP of 200mm long per shop drawing and according to ABF Inspector David Larue, some of the stiffeners ZPMC installed have no bevel thus he is issuing NCR against ZPMC. The QA Inspector randomly observed ZPMC welder Chen Chuan Zong, utilizing the Flux Cored Arc Welding (FCAW) Process in the 2G Position (Horizontal Groove) with ZPMC WPS WPS-B-T-2232-Tc-U4b-F, to weld the fill pass in stiffener to web plate joint CSD4-PP020-105. The QA Inspector randomly observed ZPMC CWI Huang Wen Pang monitoring weld parameters.

### Bay 8: Tower Diaphragms

The QA Inspector randomly observed ZPMC welder Xu Pei Pei ID Number 050323, utilizing the SAW Process in the 1G (Flat Groove) Position with ZPMC WPS WPS-B-T-3221-B-U3c-S-1, to weld the root and fill pass on plate butt splice of Tower Diaphragm WSD1-SA301A/B-11B/12B. The QA Inspector randomly observed ZPMC CWI Lvliqing, monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 570 amps, 30.5 volts with a travel speed of 470 mm per minute. Weld parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC welder ID number 045240 utilizing the FCAW Process in the 3G (Vertical Groove) Position with ZPMC WPS WPS-B-T-2233-B-U3-F, to weld fill pass on groove (bent heavy plate) splice butt joint on Tower Diaphragm Flange Sub-Assembly NSD1-SA326-6A & 4A. The QA Inspector randomly observed ZPMC CWI Lvliqing monitoring weld parameters.

This QA randomly observed heat straightening of 40mm thick plate marked P977(W) due to mill induce distortion. Natural gas was used and less than 650 degree C thermal heat input was implemented following procedure HSR1(T)-2403. Heat straightening was also observed on longitudinal shear plate LD003-006 weld joints 001 ~ 012 due to welding distortion. Oxy-acetylene gas was used and less than 650 degree C thermal heat input was implemented following procedure HST1(B)-1127.

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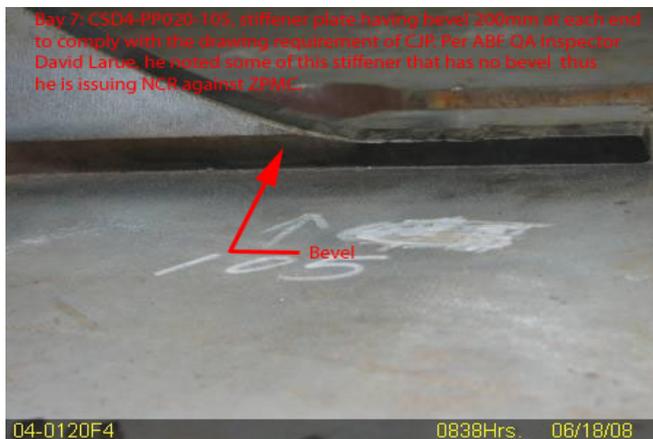
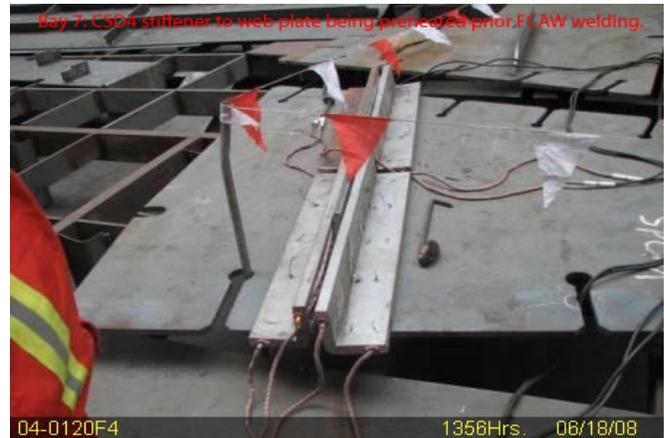
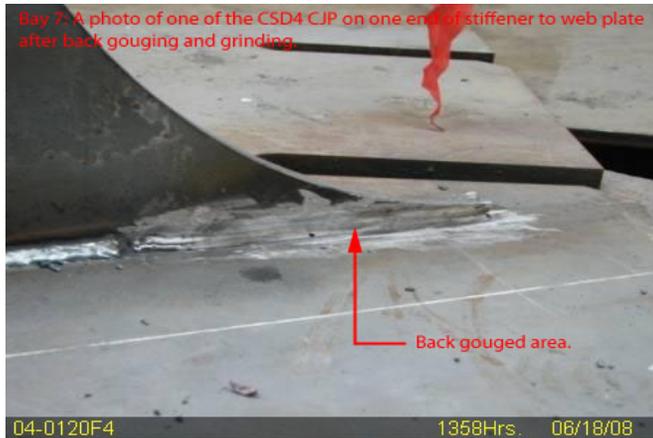
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## Summary of Conversations:

No significant conversation occurred today.

## 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 Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

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**Reviewed By:** Cuellar, Robert

QA Reviewer