

**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-001160**Date Inspected:** 01-Jan-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:** See Below**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 Fabrication**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

Orthotropic Box Girder (OBG) and Tower Mock Up:

CWI Inspector: Wu Ming Kai, Yi Ru

Bay 3:

The QA Inspector observed ZPMC personnel perform heat straightening of OBG side plate SP076B as directed by HSR1(B)-134. The QA inspector observed Quality Control Inspector Mr. Duan Yabing monitoring the heat temperature using a laser indicating device and the maximum temperature that Mr. Yabing had recorded is 531°C. No weights were placed on this plate during this flame straightening. This work is taking place on an elevated platform approximately six feet above the adjacent floor. Items observed appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Zhang Feng stencil 49769 is using welding procedure WPS-B-P-2312-TC-P4 using the shielded metal arc welding process to make fillet tack welds on OBG PL63B, side plate SP001 weld SP001-01-003. The QA Inspector observed E7018 4.0 mm diameter electrodes, a welding

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current of approximately 180 amps and a minimum base material preheat temperature of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

QA Inspector observed ZPMC welder Mr. Li Menqian stencil 54460 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG PL097C stiffener welds SP056-01-013 and SP056-01-014. The QA Inspector observed a welding current of approximately 280 amps, 27.7 volts and the base material has a minimum preheat temperature of 100° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Sun Tiyu stencil 54459 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG PL107A side plate SP073 stiffener welds SP073-01-019 and SP073-01-020. The QA Inspector observed a welding current of approximately 280 amps 28.6 volts and the base material has a minimum preheat of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Wei Dashuai stencil 51246 is using welding procedure specification WPS-B-T-2132-2 using the flux cored welding process for fillet tack welds on OBG side plate SP050 stiffener welds SP050-01-024 and SP050-01-025. The QA Inspector observed 1.4 mm diameter E71T-1 welding electrode with a welding current of approximately 280 amps, 28.5 volts and the base material has a minimum preheat of 60° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Li Schuliang stencil 48801 is using welding procedure specification WPS-345-FCAW-1G(1F)-Repair using the flux cored welding process to make a repair of the weld gouge on the end of OBG side plate SP075 at the east end of stiffener plate SP075-01-018. The QA Inspector observed Mr. Schuliang using 1.4 mm diameter E71T-1 welding electrode with a welding current of approximately 280 amps, 28.0 volts and the base material has a minimum preheat of 160° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector performed random magnetic particle inspections of portions of OBG side plate SP075 stiffener plate completed fillet welds SP075-01-003, SP075-01-005, SP075-01-010 and SP075-01-012. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector performed random visual inspections of portions of stiffener plate welds on OBG side plate SP075. The QA Inspector observed the east end of the bottom toe of the fillet weld on stiffener plate SP075-01-018 has an area that has been ground to a depth of approximately 1mm below flush. This grind area had previously been identified and marked with a triangle by Caltrans QA Personnel and no repairs have been made to this location. The QA Inspector asked ZPMC QC Inspector Mr. Wu Ming Kai if he had observed the ground area and after Mr. Kai measured the grind area he informed the QA Inspector that this area will need to be weld repaired. See the photograph below for additional information.

BAY 7:

The QA Inspector observed ZPMC welder Mr. Wang Min stencil 48296 is using welding procedure specification WPS-B-T-2221-B-L2C-S-1 using the submerged arc welding process for groove weld on OBG floor beam FB018

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weld FB018-02-101. The QA Inspector observed a welding current of approximately 550 amps, 32.0 volts, a travel speed of 435 mm per minute, and the base material had been preheated to a minimum of 40° C. Items observed by the QA Inspector appear to comply with project specifications.

The QA Inspector observed ZPMC welder Mr. Huang Xin Lan stencil 44780 is using welding procedure specification WPS-B-T-2221-B-L2C-S-1 using the submerged arc welding process for a groove weld on OBG floor beam FB018 weld FB018-02-079. The QA Inspector observed a welding current of approximately 530 amps, 31.0 volts, a travel speed of 425 mm per minute, and the base material had been preheated to a minimum of 40° C. Items observed by the QA Inspector appear to comply with project specifications.



## Summary of Conversations:

See above for summary of conversations.

## 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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<b>Inspected By:</b>	Dawson,Paul	Quality Assurance Inspector
<b>Reviewed By:</b>	Cochran,Jim	QA Reviewer

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