

**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 #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007058**Date Inspected:** 03-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Japan Steel Works**Location:** Muroran, Japan

<b>CWI Name:</b>	Chung Fu Kuan		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No	
<b>Rod Oven in Use:</b>	Yes	No	N/A
<b>Weld Procedures Followed:</b>	Yes	No	N/A
<b>Verified Joint Fit-up:</b>	Yes	No	N/A
<b>Approved WPS:</b>	Yes	No	N/A
<b>Delayed / Cancelled:</b>	Yes	No	N/A

**Bridge No:** 34-0006**Component:** Tower, Jacking, and Deviation Saddles**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

**Machine Shop #4:**

Machining Operation on Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the interior of the south cable trough is being milled to final dimensions on the tower saddle segment.

**Fabrication Shop #4:**

Grinding Operation of Saddle: Tower Saddle Segment T1-2 (steel section being welded to steel section)

The QA Inspector observed JSW personnel performing the grinding operation around the radius of the cope holes (weld access) after the partial-joint penetration (PJP) and complete-joint penetration (CJP) double bevel groove tee-joint weld operation was completed on one side of the rib plate to base plate and stem plate to base plate tower saddle segment T1-2. The QA Inspector observed that the grinding operation was in process around the radius of the cope holes at the end of the QA Inspectors' shift.

NDT Operation on Saddle: Tower Saddle Segment T1-3 (cast section welded to steel section)

The QA Inspector observed Nikko Inspection Services (NIS) Quality Control (QC) NDT Inspector Mr. R. Kumagai performing the magnetic particle test (MPT) inspection (dry method) on the completed partial-joint

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penetration and complete-joint penetration groove weld joints on the rib (cast section) to rib plate (steel section) and the stem (cast section) to stem plate (steel section) of tower saddle segment T1-3. The MPT inspection is being performed prior to the intermediate post weld stress relief heat treatment operation and the inspection is in accordance with AWS D1.5-2002 Section 6.7.6.2 and to the acceptance criteria outlined in Figure 6.9. The QA Inspector observed that the MPT inspection was in process on tower saddle segment T1-3 at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-E1 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 is located in Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E1.

Storage of Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E2.

Grinding and NDT Operation on Saddle: West Deviation Saddle Segment W2-E3 (cast section welded to steel section)

The QA Inspector observed Nikko Inspection Services (NIS) Quality Control (QC) NDT Inspector Mr. K. Kobayashi (#141) performing the magnetic particle test (MPT) inspection (dry method) on the excavated area after the removal of the (2) longitudinal cracks and (2) transverse cracks that were previously located on the stem (cast section) to stem plate (steel section) partial-joint penetration (PJP) double bevel groove butt-joint weld no. E3S-2U between rib 3-16 and rib 3-17 of west deviation saddle segment W2-E3. The excavated area was being prepared for welding by the grinding operation and an additional (50) mm of weld was ground out from each end of the longitudinal cracks and afterwards, Mr. Kobayashi verified by the MPT inspection that all of the longitudinal and transverse cracks were completely removed. The depth of the excavation was recorded at (10) mm; the width of the excavation was recorded at (24) mm; and the length of the excavation was recorded at approximately (200 to 210) mm. The JSW Representative Mr. Kazunori Sato informed the QA Inspector that Mr. Kobayashi will prepare the excavation weld repair map and JSW will prepare the engineering communication sheet (ECS) and submit to American Bridge Fluor (ABF) for written approval from the Caltrans Engineer to proceed with the repair weld operation on weld joint no. E3S-2U of west deviation saddle segment W2-E3.

Grinding Operation on Saddle: West Deviation Saddle Segment W2-W1 (cast section being welded to steel section)

The QA Inspector observed that the JSW personnel completed the grinding operation around the radius of the cope holes- (weld access) after the partial-joint penetration (PJP) groove weld operation was completed on the rib plate (steel section) to rib (cast section) and stem plate (steel section) to stem (cast section) of west deviation saddle segment W2-W1. The QA Inspector also observed that the JSW personnel completed the grinding operation on the cover passes of the PJP groove welds to a visual acceptable profile prior to Quality Control (QC) Inspector Mr. Chung Fu Kuan performing a visual inspection for acceptance in accordance with the approved shop drawings and AWS D1.5-2002 Section 3.6. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W1.

Machine Shop #2

Layout Operation of Saddle: West Deviation Saddle Segment W2-W2 (steel section)

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The QA Inspector observed that west deviation saddle segment W2-W2 (steel section) is located in Machine Shop #2. The JSW personnel are in preparation to perform dimensional inspection of the rib and stem sections of the west deviation saddle segment to verify the location and dimensions of the ribs and stem against the approved dimensional drawings and assembly control lines. The dimensional verification inspection is being performed prior to the fit-up operation of west deviation saddle segment W2-W2 (cast section). On this date, the QA Inspector observed that no inspection was being performed on west deviation saddle segment W2-W2 (steel section).

### Fabrication Shop #4

#### Buttering Weld Operation on Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed the weld surfacing (buttering operation / build-up of weld metal) on the interior of the trough on west deviation saddle segment W2-W2 (cast section). The buttering operation is being performed at specific locations where the temporary attachments (stay plates) will be located for dimensional and distortion control during the weld operation. The QA Inspector observed QC Inspector Mr. Chung Fu Kuan verify prior to the start and during the welding operation that the preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. R. Kito (08-5174) were in compliance with WPS SJ-3012-1-1 per the SMAW process in the horizontal and vertical positions using (4) mm diameter LB52A electrode. The QA Inspector observed that the buttering weld operation on the interior of the trough was in process at the end of the QA Inspectors' shift.

#### Weld Operation of Saddle: West Deviation Saddle Segment W2-W3 (steel section being welded to steel section)

The QA Inspector observed the partial-joint penetration groove tee-joint weld operation on the rib plate to base plate and rib plate to stem plate of west deviation saddle W2-W3. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. M. Matudate (08-5151) on weld joint no. W3Y-4L-2, Mr. T. Watanabe (08-5153) on weld joint no. W3Y-11V, and Mr. S. Watanabe (08-5159) on weld joint no. W3Y-12V were in compliance with WPS SJ-3011-2 and WPS SJ-3011-3 per the FCAW-G process in the (1G) flat position using (1.6) mm diameter TM95 electrode. The QA Inspector observed that the partial-joint penetration groove tee-joint weld operation was in process at the end of the QA Inspectors' shift.

#### Weld Operation on End Splay Cover Plate Assembly: East Saddle E2-W1

The QA Inspector observed the complete-joint penetration double bevel groove tee joint weld operation on the second side of cover plate stiffener no. (24-3) to base plate no. (24-1) on the end splay cover plate assembly for east saddle E2-W1. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 110 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. M. Yamashita (73-4195) on stiffener plate no. 24-3 to base plate no. 24-1 were in compliance with WPS SJ-3177-1 per the SMAW process in the (1G) flat position using (4.0) diameter LB52 electrode. The QA Inspector observed that the complete-joint penetration double bevel groove tee joint weld operation was in process at the end of the QA Inspectors' shift.

#### Tack-Weld Operation of Bearing Blocks to Rocker Bearing Plate Assembly: East Saddle E2-W1

The QA Inspector observed that the tack-weld operation was completed on the bearing blocks- (piece mark no. 21-4) to the rocker bearing plate- (piece mark no. 21-1) of the rocker bearing plate assembly that will be anchored

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to the east saddle grillage for east saddle E2-W1. The tack weld operation was performed by JSW welding personnel Mr. T. Ohta (08-2017) using WPS SJ-3177-4 per the SMAW process in the (2F) horizontal position using (4.0) mm diameter LB52A electrode. On this date, the QA Inspector observed that no other work was performed on the rocker bearing plate assembly.

### Foundry:

Storage of Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W3 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W3 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W3 (cast section).

Grinding Operation on Saddle: East Saddle E2-E1 (cast saddle)

The QA Inspector observed JSW personnel performing the grinding operation after the gouging operation- (air-carbon arc gouge method) to grind the excavated areas to bright metal prior to Nikko Inspection Services (NIS) QC NDT personnel performing the liquid penetrant test (PT) and magnetic particle test inspection to ensure the complete removal of the rejectable indications located on the exterior of the trough section, stem section, and rib section at various locations along its length on east saddle E2-E1 (cast saddle). The QA Inspector observed that the grinding operation was in process on the trough section of the east saddle at the end of the QA Inspectors' shift.

Weld Repair Operation pending on Saddle: East Saddle E2-W1 (cast saddle)

The QA Inspector observed that the JSW personnel have located the east saddle E2-W1 to an area for the start of the repair weld operation on the excavated areas on the exterior of the trough, stem and rib sections of east saddle E2-W1. The JSW Representative Mr. Hideaki Kon informed the QA Inspector that JSW has submitted the major repair weld excavation map along with the proposed repair procedure as an engineering communication sheet (ECS) to American Bridge Fluor (ABF) for approval by the Caltrans Engineer. Mr. Kon also informed the QA Inspector that JSW is in process on preparing the minor repair weld excavation map for east saddle E2-W1. On this date, the QA Inspector observed that no work was performed on east saddle E2-W1.

Shaping Operation on Saddle: West Jacking Saddle (cast saddle)

The QA Inspector observed that JSW personnel were performing the shaping (scarfing) operation- (removal of excess cast material on the rough casting) by the air-carbon arc gouge method on the exterior of the trough, stem and rib sections on the west jacking saddle to profile the trough, stem, and rib sections of the west jacking saddle to the proper shape, dimension and radius. The QA Inspector observed that the shaping operation was in process at the end of the QA Inspectors' shift.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with the applicable contract documents.

### Summary of Conversations:

No significant conversations were reported on this date.

### 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 Nina Choy, 510 385-5910, who represents the Office of Structural Materials for

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your project.

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<b>Inspected By:</b>	Peterson, Art	Quality Assurance Inspector
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<b>Reviewed By:</b>	Guest, Kittric	QA Reviewer
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