

**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-006761**Date Inspected:** 14-May-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
<b>Component:</b>	Tower, Jacking, and Deviation Saddles		

**Bridge No:** 34-0006**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 of 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 inside of the north cable trough is being milled to final dimensions on the tower saddle segment.

**Fabrication Shop #4:**

Fit-up Operation of Saddle: Tower Saddle Segment T1-2 (steel section)

The QA Inspector observed JSW personnel were in preparation of fitting up the base plate to the rib plates and stem plates of tower saddle segment T1-2 (steel section). The QA Inspector observed JSW personnel removing the loose mill scale on the surface of the base plate with a grinder and also JSW personnel were leveling the base plate with the aid of shims by first taking survey measurements at different points from the base plate and placing the shims under the steel platform on which the base plate was placed upon. The QA Inspector observed that the grinding operation and the leveling of the base plate was in process at the end of the QA Inspectors' shift.

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

The QA Inspector observed JSW personnel grinding the finished welds that were completed on one side of the

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partial-joint penetration double bevel groove weld joint on the rib (cast section) to rib plate (steel section) on tower saddle T1-3. The JSW personnel were grinding the welds to an acceptable profile in accordance with the approved shop drawings and AWS D1.5-2002 section 3.6 (weld profiles). The QA Inspector observed the grinding operation being performed on weld joint no's. 9Y-12U-1, 9Y-12U-2, and 9Y-12U-3. The QA Inspector observed that the grinding operation on the finished welds were in process at the end of the QA Inspectors' shift.

Tapping Operation on 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 JSW personnel were tapping the holes drilled into the edge of the rib (cast section) and rib plate (steel section). The QA Inspector observed that the tapping of holes were in process at the end of the QA Inspectors' shift.

Machine Shop #2:

Machining Operation on 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 Machine Shop #2. On this date, the QA Inspector observed that no machining was performed on west deviation saddle segment W2-E2.

Fabrication Shop #4:

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) Non-Destructive Testing (NDT) Inspector Mr. R. Kumagai (#132) performing the magnetic particle testing (MPT) inspection (dry method) on the partial-joint penetration groove welds of the stem (cast section) to stem plate (steel section) and of the rib (cast section) to rib plate (steel section) on west deviation saddle W2-E3. The QA Inspector observed that the MPT inspection was performed in accordance with ASTM E709 by the yoke method (AC) and to the acceptance criteria in Section 6.26.2.2 and Figure 6.9 - weld requirements for discontinuities occurring in compression welds (limitations of porosity or fusion type discontinuities). The QA Inspector observed that the MPT inspection was in process at the end of the QA Inspectors' shift.

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

The QA Inspector observed the partial-joint penetration groove (fill pass) weld operation on the rib plate (steel section) to rib (cast section) of west deviation saddle segment W2-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 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. M. Matudate (08-5151) on weld joint no. W1Y-4U-1, Mr. T. Watanabe (08-5153) on weld joint no. W1Y-8U, and Mr. K. Nakasato (91-2247) on weld joint no. W1Y-13U were in compliance with WPS SJ-3011-7 per the FCAW process in the (1G) flat position using (1.6) mm diameter TM95 electrode. The QA Inspector observed that the partial-joint penetration groove (fill pass) weld operation was in process at the end of the QA Inspectors' shift.

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

The QA Inspector observed that JSW personnel were performing the grinding operation around the radius of the cope holes after the completion of the partial-joint penetration groove weld operation on the rib plate to stem plate and rib plate to base plate of west deviation saddle segment W2-W2. The QA Inspector also observed that JSW personnel were grinding the finished welds to an acceptable profile prior to Quality Control (QC) Inspector Mr.

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Chung Fu Kuan performing a visual inspection in accordance with the approved shop drawings and AWS D1.5-2002 section 3.6 (weld profiles). The QA Inspector observed that the grinding operation around the cope holes and on the finished welds were in process at the end of the QA Inspectors' shift.

**Weld Operation of Temporary Attachments on Saddle: West Deviation Saddle Segment W2-W3 (steel section)**

The QA Inspector observed JSW welding personnel Mr. R. Kito (08-5174) welding temporary attachments per the FCAW process in the (3F) vertical position to the edge of the base plate and to the edge of the fixture of west deviation saddle segment W2-W3. The purpose of welding the temporary attachments to the edge of the base plate and to the edge of the fixture is to hold the base plate into position when JSW welding personnel start the welding operation. The Quality Control Inspector Mr. Chung Fu Kuan informed the QA Inspector that JSW uses their in-house weld procedure specifications to perform the welding of the temporary attachments at specific locations to the edge of the base plate. These specific locations have excess base metal material which will subsequently be machined off. The QA Inspector observed that the welding of the temporary attachments to the base plate of west deviation saddle segment W2-W3 was in process at the end of the QA Inspectors' shift.

**Foundry Shop:**

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

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W2 (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-W2 (cast section).

**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 that JSW personnel were performing the grinding operation on the shaped areas on the outside of the trough section and on the rib sections where previously JSW personnel removed the excess cast material by the scarfing operation- (air-carbon-arc method) on the rough casting of east saddle E2-E1 (cast saddle). The purpose of the grinding operation is to profile the areas to a smooth finish and subsequently for the NDT operation. The QA Inspector observed that the grinding operation was in process on east saddle E2-E1 (cast saddle) at the end of the QA Inspectors shift.

**NDT Operation on Saddle: East Saddle E2-W1 (cast saddle)**

The QA Inspector observed NIS QC NDT Personnel Mr. H. Kohama (#86) performing the liquid penetrant test (PT) and magnetic particle test (MPT) inspection on the ground out excavated areas to ensure the complete removal of defects at various locations on the outside of the trough section and rib sections on east saddle E2-W1 (cast saddle). The PT and MPT inspection were performed on the excavated areas prior to the start of the repair weld operation. The QA Inspector observed that Mr. Kohama observed indications on some of the excavated areas during the PT inspection and the grinding operation will be required on the excavated areas to ensure complete removal of the indications observed. The QA Inspector observed that Mr. Kohama was in process on verifying that

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the excavated areas have no indications present at the end of the QA Inspectors' shift.

Machine Shop #2:

Re-location of Saddle: West Jacking Saddle (cast saddle)

The QA Inspector observed that the west jacking saddle is located in Machine Shop #2. The QA Inspector observed that JSW personnel were preparing to move the west jacking saddle to the Foundry Shop.

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 your project.

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