

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 #: 99.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-029970**Date Inspected:** 27-Aug-2013**Project Name:** SAS Superstructure**OSM Arrival Time:** 600**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Steward Machine Co.**Location:** Birmingham AL**CWI Name:** Fred Hudson**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:** E2 Shear Key Anchorages**Summary of Items Observed:**

Quality Assurance Inspector (QAI) Fritz Belford was present on the date and times noted above in order to observe the fabrication and Quality Control (QC) functions performed by Steward Machine Company for the E2 Shear Key Anchorages for the SFOBB project. Material Test Reports (MTRs) for all materials used have been reviewed and approved by others at the XKT shop in Vallejo California prior to shipping to Steward Machine Company. The following items were observed:

Steward Machine - Plant 1:

The QA performed a walkthrough at the shop to verify plates on site and to observe Steward Machine personnel at work machining and welding. Work performed at the Steward Machine shop as noted below:

Welder Jeff Hennington #476:

The welder was observed welding the S10B Upper Saddle Assembly (Plates a2 thru d1) root pass and interpass on the West End side of the assembly utilizing Welding Procedure Specification (WPS) P2-W126-B for Flux Core Arc Welding (FCAW-G) in the 1G position. Welding parameters were monitored by Certified Welding Inspector (CWI) Fred Hudson who was onsite with the WPS as required by contract documents. The welding parameters were measured to be 295Amps, 31Volts with E70T-1 Class 1/16" diameter wire with a pre heat of over 70 degrees Fahrenheit.

Assembly S10B as welded by welder #476 above includes plates S10B-d1, S10B-c1, S10B-b1, S10B-a1, S10B-b2, S10B-a2.

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Plate Milling:

CNC Machine #176 milling plate S3C-g3. (Milling inside radius)
CNC Machine #177 milling plate S4C-h4. (Milling inside radius)
CNC Machine #211 milling plate S4C-c4 (Milling inside radius troughs)
CNC Machine #225 milling plate S3C-c3. (Milling inside radius troughs)
CNC Machine #230 milling plate S10C-a1. (Milling inside radius troughs)
CNC Machine #240 milling plate S3C-b3. (Milling inside radius)
CNC Machine #245 milling plate S3B-g3. (Milling inside radius)

The following plates were noted staged throughout the shop in various stages of processing.

Bay 2 – Plates:

S3B-h3. Formed, stressed relieved and partially machined.
S4B-h4. Formed, stressed relieved and partially machined.
S3C-a3. Formed, stressed relieved and partially machined.

Bay 3 – Plates:

S4C-g4. Formed, stressed relieved and partially machined.
S4C-e4. Formed, stressed relieved and partially machined.
S4B-e4. Formed, stressed relieved and partially machined.
S3B-e3. Formed, stressed relieved and partially machined.
S3C-e3. Formed, stressed relieved and partially machined.

Bay 4 & 5– Plates:

S10C-d1. Formed, stressed relieved and partially machined.
S3B-f3. Formed, stressed relieved and partially machined.
S3C-f3. Formed, stressed relieved and partially machined.
S4B-f4. Formed, stressed relieved and partially machined.
S4C-f4. Formed, stressed relieved and partially machined.
S10B-d1. Formed, stressed relieved and partially machined.
S10B-c1. Formed, stressed relieved and partially machined.
S10B-a1. Formed, stressed relieved and partially machined.
S10B-b1. Formed, stressed relieved and partially machined.
S10B-a2. Formed, stressed relieved and partially machined.
S10B-b2. Formed, stressed relieved and partially machined.
S4C-d4. Formed, stressed relieved and partially machined.
S10C-c1. Formed, stressed relieved and partially machined.
S10C-b1. Formed, stressed relieved and partially machined.
S10C-b2. Formed, stressed relieved and partially machined.
S4B-c4. Formed, stressed relieved and partially machined.
S4B-d4. Formed, stressed relieved and partially machined.
S4B-g4. Formed, stressed relieved and partially machined.
S10C-a2. Formed, stressed relieved and partially machined.
S3B-b3. Formed, stressed relieved and partially machined.
S3C-h3. Formed, stressed relieved and partially machined.

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S3C-d3. Formed, stressed relieved and partially machined.
S4C-a4. Formed, stressed relieved and partially machined.
S3B-a3. Formed, stressed relieved and partially machined.
S3B-c3. Formed, stressed relieved and partially machined.
S4B-a4. Formed, stressed relieved and partially machined.
S4B-b4. Formed, stressed relieved and partially machined.

Steward Machine - Plant 2:

The QA performed a walkthrough at the shop to verify plates on site and to observe Steward Machine personnel at work cutting and welding. No welding or cutting on contract items at the plant on this day. Plant personnel are currently on other projects until the Lower Saddle Welding Jig is returned from Plant 1.

Hardie Tynes:

The QA performed a walkthrough at the shop to verify plates on site and to observe Hardie Tynes personnel at work machining the plates. The following plates were noted staged on the shop floor for further processing.

S3B-d3. Formed, stressed relieved and partially machined.
S4C-b4. Formed, stressed relieved and partially machined.

No machining of plates by Hardie Tynes on this day until completion of other projects currently mounted on the CNC machines.

Non-Destructive Testing (NDT)

The QA performed NDT on the following.

Assembly S10B Upper Saddle, West End Root Pass, at Steward Plant 1:

- Visual Testing (VT) Acceptable.
- Magnetic Particle Testing (MPT) Acceptable. (See report form TL-6028 for detailed information.)

Plate S10C-b2 at Steward Plant 1:

- VT & Random Dimensional Verifications readings. (Readings acceptable)

The Non Destructive Testing (NDT) listed above were observed performed and accepted by the QC Inspectors prior to the QA Inspector performing the tests. The QC Inspectors performed 100% NDT with the QA Inspector performing over 10% NDT.



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Summary of Conversations:

As required for scope of work. QC Inspector Dale Janiszewski relayed to the QA Inspector and the SMR onsite how his plans for verifying suitability of the Sikadur 35 for use on the assembly gaps as required by the contract drawings were cancelled by Zach Lauria. QC Dale also relayed how the 48 hour wait period for the weld before Magnetic Particle Testing (MPT) was waived. The QA Inspector informed QC Dale that the information presented will have to be verified by METS.

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 Gary Thomas (916) 764 - 6027, who represents the Office of Structural Materials for your project.

Inspected By:	Belford,Fritz	Quality Assurance Inspector
Reviewed By:	Foerder,Mike	QA Reviewer
