

**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 #: 74.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016120**Date Inspected:** 06-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Goodwin Steel, UK**Location:** Trentham, UK**CWI Name:****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:** Cable Band**Summary of Items Observed:**

The following report is based on METS observations at Goodwin International Machine shop in Trentham, England.

The QA inspector received a copy of the Goodwin Steel Castings "Weld Excavation Map" for casting GG31825-6, B14/SBB-6 revision 3. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This third repair cycle is a minor repair after machining and does not require post weld heat treatment. The QA inspector was informed by MR. Jason Cross that the repair excavations were not inspected by an independent Certified Welding Inspector and an internal non-conformance report was created for documentation. The QA inspector informed Mr. Chris Ryder that repairs could proceed. Caltrans Lot Number B228-001-10 was assigned for tracking purposes. This repair was started on this date see below for welding details.

The QA inspector observed Goodwin International welding personnel Dan McDanagh perform welding of excavations on Cable Band Casting B14/SBT-3, excavation numbers 4 through 10 and B14/SBB-6. Repair plan for B14/SBT-3 was approved by QA Randy Riegler on August 5, 2010. Repair plan for B14/SBB-6 was approved on this date as noted above. The repair welding utilized the Tungsten Inert Gas (TIG) process per the welding procedure specification WPS 271 Rev 1 in the 1G (flat) position. The filler metal utilized was identified as 2.4mm diameter CMW 1940. The minimum preheat temperature of 20 degrees Celsius was verified to meet the WPS requirements by the QA inspector utilizing a Tempilstik temperature indicator. The TIG welding average amperage of 160, voltage of 14.7 and travel speed of 120mm/min was verified to be within the WPS parameter range by the QA inspector. The work was completed on this date and appears to meet the minimum requirements

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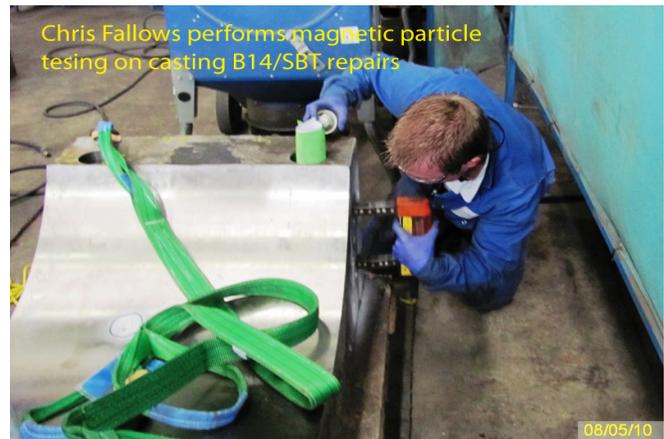
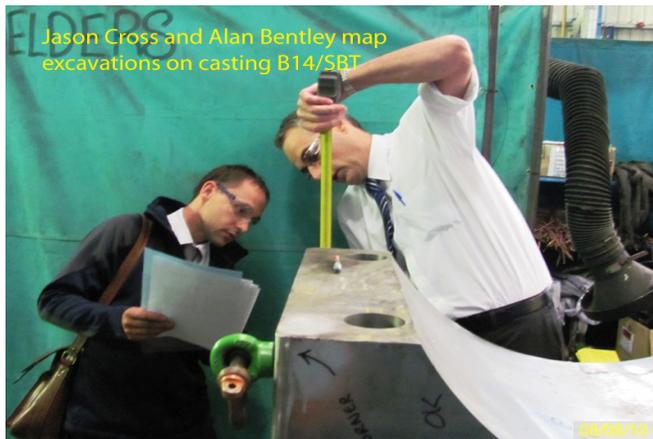
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of the welding procedure specification. See pictures below.

After weld repairs cooled to ambient temperature , Goodwin International NDT technician Mr. Chris Fallows performed Magnetic Particle Testing (MT) of casting B14/SBT-3 and B14/SBT-6 repairs on the exterior machined surfaces. The MT was performed in accordance with ASTM standard E709 and Goodwin Steel Castings Magnetic Particle Procedure for Cable Band Castings MT06-09-02 revision 1, using the yoke method. The testing was evaluated in accordance with ASTM E125 and Goodwin Steel Castings Magnetic Particle Procedure for Cable Band Castings MT06-09-02 revision 1. No relevant indications were reported by Mr. Fallows. The QA inspector concurred with the interpretation.

See the digital images below.



## Summary of Conversations:

During this visit, METS met with, Mr. Jason Cross, Quality Assurance Manager, of Goodwin Steel Castings, Ltd , Mr. Mr. Keith Salt, Purchasing Manager, Chris Ryder, Quality Assurance Manager, Mr. Nigel Brown, Works director and Mr. Darren Edwards, Shop Manager of Goodwin Steel International and QA inspector Mr. Randy Riegler. The following topics were discussed.

1) The unavailability of an approved Certified Welding Inspector to witness minor repairs on castings B14/SBT – 3 and B14/SBB – 6. Mr. Cross stated he would track the issue as a non-conformance and generate an internal report.

2) The Goodwin request to ship all remaining type 14 cable band castings to Scougal Rubber for further processing prior to submitting revised shop drawings. The QA inspector reported that lack of approved shop drawings would not delay shipping of the castings and the shop drawings should be submitted and approved prior to release of the casting assemblies to the job site.

## 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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**Inspected By:** Lanz, Joe

Quality Assurance Inspector

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**Reviewed By:** Edmondson, Fred

QA Reviewer