



SAS Superstructure

Location: 04-SF-80-13.2 / 13.9

Client Name: CalTrans

Run date 21-Nov-14

Time 10:06 AM

Daily Diary Report by Bid Item

Contract No.: 04-0120F4

Diary #: 051 Const Calendar Day: 190 Date: 17-Mar-2010 Wednesday

Inspector Name: Brignano, Bob Title: Transportation Engineer

Inspection Type:

Shift Hours: Break: Over Time:

Federal ID:

Location:

Reviewer: Schmitt, Alex Approved Date: Status: Submit

04-0120F4
04-SF-80-13.2/13.9
Self-Anchored
Suspension Bridge

Weather

Temperature	7 AM	12 PM	4PM
Precipitation			Condition

Working Day If no, explain:

Diary:

Dispute

General Comments

ITEM 56 ERECT STRUCTURAL STEEL (BRIDGE)(BOX GIRDER):
OBG CROSSBEAM BOLTING:



Approximately 0930, I have conversations with ABF Engineer Daniel Hester about bolt lengths at the OBG crossbeams. For some of the connections, ABF is using M24x100 bolts with washers under both the head and nut because of the requirement for washers covering oversized bolt holes (crossbeams have oversized bolt holes). These bolts are with a flush nut (no bolt stickout beyond the nut). ABF is concerned about some bolts in the future not even having a flush nut. ABF cannot use slightly longer bolts with increased length to 105mm with 5mm stickout because that length is not made - bolts come in 5mm increments under 100mm long per ANSI requirements, but they come in 10mm increments over 100mm long per ANSI requirements. If ABF uses 110mm long bolts the stickout will be 10mm and they cannot correct that down below the 6mm maximum stickout per spec with additional washers because they already are using the maximum allowed single washer under both the head and nut. I tell Daniel that using 110mm long bolts with 10mm stickout is acceptable, because the bolts will still have 3 threads under the nut - for bolts that are more than 100mm long, the threaded length is increased per ANSI requirements.

ITEM 55 FURNISH STRUCTURAL STEEL (BRIDGE)(BOX GIRDER);
HIGH STRENGTH FASTENER ASSEMBLY PRE-INSTALLATION TESTING:

At Pier 7 Warehouse, test rotational capacity, minimum tension verification, and inspection torque for high strength bolts. These bolts are for OBG field bolting. Caltrans witnessing of testing is by Bob Brignano.

Between 1330 and 1600, testing is completed on 3 rocap lots. Testing is interrupted and delayed several times for ABF engineer Chris Bausone to find and prep to send to the field various different bolts for the cross beam bolting currently ongoing.

Between 1700 and 1800 (then to 1830 with discussion), one previously tested rocap lot (M24x100, DHGM240055) is tested by turning the bolt head to establish the inspection torque for turning by the bolt head. This testing is for one splice of the crossbeams where the bolt head on the upper flange horizontal splice plate is being turned due to access issues inside the crossbeam. The tested assemblies have high torques because they do not include the lubricated nut (trying to turn the un-lubricated head against the washer). For the first 2 assemblies tested, the movement during testing on the Skidmore is between machined plates used by the Skidmore - these are not valid tests because the friction between these 2 surfaces does not represent anything in the field bolted splice. For the next 2 assemblies tested, the



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movement during testing on the Skidmore is between a machined plate used by the Skidmore and the washer - these are not valid tests because the friction between these 2 surfaces does not represent anything in the field bolted splice, unless the machined plate represents the steel splice plate and the washer turns against this surface rather than against the bolt head when tightened in the field. For the last assembly tested, the turning is between the bolt head and the washer. The torque for this last test is very high and does not pass rocap requirements for maximum torque. The torque values from today's testing by turning the bolt head are highly variable, increase from test to test, and are from turning between elements that do not represent anything in the field splice.

Chris and I discuss the problems with the testing by turning the bolt head. We discuss that rocap torque requirements and minimum tension requirements may only be appropriate for turning by the nut, not turning by the bolt head - testing by turning from the bolt head is only to establish the inspection torque for use in the field for QC/QA testing. We discuss that the inspection torque must be established with the appropriate elements turning - testing performed today where Skidmore plates turned does not represent any field conditions where the inspection torque will be used. We discuss ways to introduce painted plates into the testing to represent the friction between the field splice plates and the washers. We plan to discuss the issue some more tomorrow and try additional testing with other methods that will be representative of field conditions.

Testing is in the afternoon from 1330 and 1600 and 1700 to 1830 for 4 hours.

Equipment = Bolt Testing Conex ABF ID 002079 (4 hrs) and Skidmore Model HT 4000 ABF ID 000612 (3 hrs).

For ABF, engineer Chris Bausone is present for testing.

See the attached Bolt Test Form for details of the testing.