DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0172
Facility Carried: MODJESKA CANYON RD
Location : 0.1 MI N/O MODJESKA GR R
City :
Inspection Date : 07/07/2013
Inspection Type
Routine FC Underwater Special Other
X

Bridge Inspection Report

STRUCTURE NAME: SANTIAGO CREEK

CONSTRUCTION INFORMATION

Year Built : 1935
Year Widened: N/A
Length (m) : 19.5
Skew (degrees): 68
No. of Joints : 0
No. of Hinges : 0

Structure Description: CIP/RC deck on riveted steel floor beams (5) on simply supported riveted steel through girders (2) on RC pedestals on RC closed end backfilled cantilever abutments on spread footings.

Span Configuration : (S) 1 @ 18.3 m (N) c/c

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: M-13.5 OR H-15
Inventory Rating: 17.2 metric tons Calculation Method: ALLOWABLE STRESS
Operating Rating: 25.4 metric tons Calculation Method: ALLOWABLE STRESS
Permit Rating : GGGGG
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (W) Steel plate girder, 0.7 m cu, 2 @ 3.0 m, 0.7 m cu, steel plate girder (E)

Total Width: 7.3 m Net Width: 6.1 m No. of Lanes: 2 Speed: 25 mph
Min. Vertical Clearance: Unimpaired

Rail Code: 0000 Rail Description: Steel plate girder

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal.

INSPECTION COMMENTARY

SCOPE AND ACCESS

There is 2 ft deep water with 5ft wide in the middle of the span, the water in the channel was stagnant. However all the substructure elements were inspected.

REVISIONS

Element 107 (Painted Steel Beams): The quantities were modified as follows: from [St. 3 = 40] to [St. 2 = 20, St. 3 = 20].

Element 152 (Steel Floor Beams): The quantities were modified as follows: from [St. 3 = 40] to [St. 2 = 25, St. 3 = 31].

MISCELLANEOUS

Photos underside and superstructure of this structure were taken and is included with this report.

Caltrans currently does not have a set of AS-Built plans for this structure. The county should provide As-Built Plans.

INSPECTION COMMENTARY

It is steel through girders so item 36a is "0" but the element is included under girder. A phone conversation was made to the County of Orange Senior Engineer to update him of the bearing seat condition.S

DECK AND ROADWAY

The concrete deck surface is exhibit 90% light scaling due to weather and age.

SUPERSTRUCTURE

There are two longitudinal cracks throughout the soffit 0.04 inch wide.

There is (3/4 in) thick pack rust was found between the bottom flange of the floor beam and the bottom flange of the girder, the most heavy rust was found at floor beam #1 to girders 3 and 5; and at floor beam #2 to girder #2.

SUBSTRUCTURE

There is a vertical crack at each abutment walls 0.04 inch wide.

SAFE LOAD CAPACITY

The load rating for this structure is being reviewed by SMI Ratings Branch. An updated Load Rating Summary will be archived when this review is complete.

FRACTURE CRITICAL INVESTIGATION

A fracture critical inspection was performed on 07/25/2012 by Jeff Yang from the Office of Specialty Investigations and Bridge Management. The structure was accessed from the ground below. Lane closures and traffic control were not needed. The investigation was conducted in accordance with the Fracture Critical Member Inspection Plan, dated 05/21/2008.

A hands-on visual inspection was performed on the steel girders in Span 1. No fractures or cracks were found.

During the 05/21/2008 fracture critical inspection, up to 19 mm (3/4 in) thick pack rust was found between the bottom flange of the floor beam and the bottom flange of the girder at the following locations:
- Floor Beam 5 to Girder 1 connection
- Floor Beam 2 to Girder 2 connection
- Floor Beam 3 to Girder 1 connection (previously recorded as Girder 2 in error)
- Floor Beam 4 to Girder 2 connection

No increase in corrosion has occurred at these locations. These areas will continue to be monitored for any significant increase in corrosion during the next fracture critical inspection.

ELEMENT INSPECTION RATINGS

Elem No.	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4	St. 5

Elem No.	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4	St. 5
12	Concrete Deck - Bare	2	110	sq.m.	110	0	0	0	0
107	Painted Steel Open Girder/Beam	2	40	m.	0	20	20	0	0
152	Painted Steel Floor Beam	2	56	m.	0	25	31	0	0
215	Reinforced Conc Abutment	2	30	m.	30	0	0	0	0
311	Moveable Bearing (roller, sliding, etc.)	2	2	ea.	2	0	0	0	0
313	Fixed Bearing	2	2	ea.	2	0	0	0	0
357	Pack Rust	2	1	ea.	0	1	0	0	0

WORK RECOMMENDATIONS

RecDate: 07/07/2013
Action : Paint-Spot Prep/Pain
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Clean all pack rust and paint it.

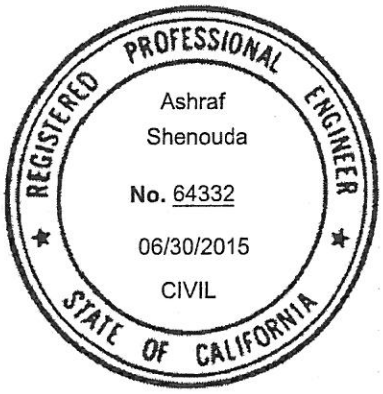
Team Leader : Ashraf Shenouda

Report Author : Ashraf Shenouda

Inspected By : A.Shenouda/NN.Vo

10/7/2013

Ashraf Shenouda (Registered Civil Engineer) (Date)



STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0172**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTIAGO CREEK
(7) FACILITY CARRIED- MODJESKA CANYON RD
(9) LOCATION- 0.1 MI N/O MODJESKA GR RD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 42 MIN 31.35 SEC
(17) LONGITUDE 117 DEG 38 MIN 10.62 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

******** STRUCTURE TYPE AND MATERIAL *********

(43) STRUCTURE TYPE MAIN:MATERIAL- STEEL
TYPE- GIRDER & FLOORBEAM SYSTEM CODE 303
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 1
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- NONE CODE 0
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

********** AGE AND SERVICE **********

(27) YEAR BUILT 1935
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 1000
(30) YEAR OF ADT 2009 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 2 KM

********** GEOMETRIC DATA **********

(48) LENGTH OF MAXIMUM SPAN 19.5 M
(49) STRUCTURE LENGTH 19.5 M
(50) CURB OR SIDEWALK: LEFT 0.7 M RIGHT 0.7 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 6.1 M
(52) DECK WIDTH OUT TO OUT 7.3 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 6.1 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 68 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 6.1 M
(53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M
(54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M
(55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M
(56) MIN LAT UNDERCLEAR LT 0.0 M

********** NAVIGATION DATA **********

(38) NAVIGATION CONTROL- NOT APPLICABLE CODE N
(111) PIER PROTECTION- CODE
(39) NAVIGATION VERTICAL CLEARANCE 0.0 M
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M
(40) NAVIGATION HORIZONTAL CLEARANCE 0.0 M

****

SUFFICIENCY RATING = 34.3
STATUS STRUCTURALLY DEFICIENT
HEALTH INDEX 78.1
PAINT CONDITION INDEX = 61.6

********** CLASSIFICATION ********** CODE

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- LOCAL RURAL 09
(100) DEFENSE HIGHWAY- NOT STRAHNET 0
(101) PARALLEL STRUCTURE- NONE EXISTS N
(102) DIRECTION OF TRAFFIC- 2 WAY 2
(103) TEMPORARY STRUCTURE-
(105) FED.LANDS HWY- NOT APPLICABLE 0
(110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0
(20) TOLL- ON FREE ROAD 3
(21) MAINTAIN- COUNTY HIGHWAY AGENCY 02
(22) OWNER- COUNTY HIGHWAY AGENCY 02
(37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

********** CONDITION ********** CODE

(58) DECK 7
(59) SUPERSTRUCTURE 4
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

********* LOAD RATING AND POSTING ********* CODE

(31) DESIGN LOAD- M-13.5 OR H-15 2
(63) OPERATING RATING METHOD- ALLOWABLE STRESS 2
(64) OPERATING RATING- 25.4
(65) INVENTORY RATING METHOD- ALLOWABLE STRESS 2
(66) INVENTORY RATING- 17.2
(70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5
(41) STRUCTURE OPEN, POSTED OR CLOSED- A
DESCRIPTION- OPEN, NO RESTRICTION

********** APPRAISAL ********** CODE

(67) STRUCTURAL EVALUATION 4
(68) DECK GEOMETRY 3
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 6
(36) TRAFFIC SAFETY FEATURES 0000
(113) SCOUR CRITICAL BRIDGES 8

********** PROPOSED IMPROVEMENTS **********

(75) TYPE OF WORK- REPLACE FOR DEFICIENC CODE 31
(76) LENGTH OF STRUCTURE IMPROVEMENT 19.5 M
(94) BRIDGE IMPROVEMENT COST $328,900
(95) ROADWAY IMPROVEMENT COST $65,780
(96) TOTAL PROJECT COST $552,552
(97) YEAR OF IMPROVEMENT COST ESTIMATE 2010
(114) FUTURE ADT 1031
(115) YEAR OF FUTURE ADT 2029

********** INSPECTIONS **********

(90) INSPECTION DATE 07/13 (91) FREQUENCY 24 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- YES 24 MO A) 07/12
B) UNDERWATER INSP- NO MO B)
C) OTHER SPECIAL INSP- NO MO C)