DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0175
Facility Carried: SILVERADO CANYN RD
Location : 2.2 MI. E/O SANTIAGO ROA
City :
Inspection Date : 05/08/2019

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
[X]	[ ]	[ ]	[ ]	[ ]

STRUCTURE NAME: LADD CANYON

CONSTRUCTION INFORMATION

Year Built : 1947
Year Modified: N/A
Length (m) : 15.7
Skew (degrees): 60
No. of Joints : 0
No. of Hinges : 0

Structure Description: Simply supported single span steel girders (4 each) with RC closed end backfilled seat abutments, all supported upon spread footings.

Span Configuration : (W) 49.00 feet (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: M-13.5 OR H-15
Inventory Rating: RF= 0.69 Calculation Method: (LRFR) LD & RES FACT RATING
Operating Rating: RF= 0.89 Calculation Method: (LRFR) LD & RES FACT RATING
Permit Rating : GGGGG
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 1.50 feet br, 24.00 feet, 1.50 feet br (N)
Total Width: 8.2 m Net Width: 7.4 m No. of Lanes: 2 Speed: 25 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches
Rail Code: 0000

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal with a cobbled bottom.

NOTICE

The bridge inspection condition assessment used for this inspection is based on the American Association of State Highway and Transportation Officials (AASHTO) Bridge Element Inspection Manual 2013 as defined in Moving Ahead for Progress in the 21st Century (MAP-21) federal law. The new element inspection methodology may result in changes to related condition and appraisal ratings on the bridge without significant physical changes at the bridge.

The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

INSPECTION COMMENTARY

SCOPE AND ACCESS
A complete routine inspection was performed by walking on and around the bridge to inspect all visible elements of the bridge structure. Bridge deck was inspected by walking on shoulder. Soffit and all substructure were inspected by walking underneath the bridge with binoculars and rain boots due to 6.0 inches deep of water at the time of inspection.

There is no need for a special equipment to inspect this structure except rain boots if it is in raining season.

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INSPECTION COMMENTARY

This structure is on the list of bridge replacement program from the Orange County Department of Public Works according to Regina Hu, Senior Civil Engineer.

DECK AND ROADWAY
The bridge deck has been treated with Methacrylate.

AC roadway is at both the approach and departure lanes.

The deck has several sound patched spalls at (2.0 feet L X 1.5 feet W) on the deck. In addition, there is an unsound patched area at (2.0 feet L X 2.0 feet W) on eastbound lane about 10.0 feet from the west end and 2.0 feet south of the bridge centerline (2.0 feet south of double yellow lines).

There are random transverse soffit deck cracks approximately 4.0 feet long at the following locations:
There are numerous cracks with white efflorescence in bay #1, with brown efflorescence in bay #2; and also, there are four cracks with white efflorescence in bay #3.

There are several abrasion areas scattering throughout the bridge deck.

At the north rail, timber post #3 (counting from west) is split.

At the southerly rail, timber posts #3 and #4 have vertical checks at the exterior face.

SUPERSTRUCTURE
All steel girders are in good condition and the painting system is in good condition.

There is no notable distress observed at the time of inspection

SUBSTRUCTURE
At the time of inspection, there is water at 6.0 inches deep that has been running along the easterly abutment wall; and then, it changed the direction diagonally straight to the westerly abutment. Both of abutment walls were probed to check of scour but there is no sign of scour except the exposed footing at (6.0 to 8.0 inches high) at the southerly side, 20.0 feet of the westerly abutment as mentioned in the previous bridge inspection report.

SAFE LOAD CAPACITY
A Load Rating Summary Sheet is achieved on 09/08/2016 for this structure. The current rating has been assigned in accordance with SM & I procedures for this structure. Based on the field conditions and load history, the structure is adequate to carry legal loads.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
12		Deck-RC	2	128	sq.m	92	34	2	0
	1080	Delamination/Spall/Patched Area	2	6		0	5	1	0
	1120	Efflorescence/Rust Staining	2	10		0	9	1	0
	1190	Abrasion (PS Conc./RC)	2	20		0	20	0	0
	521	Concrete Coat.(Meth/Paint/Seal)	2	110	sq.m	110	0	0	0

(12)
Deck spalls, cracks and abrasion but it has been treated with Methacrylate.

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ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
			(12-1080)							
			The deck has several sound patched spalls at (2.0 feet L X 1.5 feet W) on the deck. In addition, there is an unsound patched area at (2.0 feet L X 2.0 feet W) on eastbound lane about 10.0 feet from the west end and 2.0 feet south of the bridge centerline (2.0 feet south of double yellow lines).							
			(12-1120)							
			There are random transverse soffit deck cracks approximately 4.0 feet long at the following locations:							
			There are numerous cracks with white efflorescence in bay #1, with brown efflorescence in bay #2; and also, there are four cracks with white efflorescence in bay #3.							
			(12-1190)							
			There are several abrasion areas scattering throughout the bridge deck.							
			(12-521)							
			There were no significant defects noted.							
107		**Girder/Beam-Steel**		2	62	m	62	0	0	0
	515	**Steel Coating-Paint**		2	138	sq.m	138	0	0	0
			(107)							
			There were no significant defects noted.							
			(107-515)							
			There were no significant defects noted.							
215		**Abutment-RC**		2	34	m	34	0	0	0
			(215)							
			There were no significant defects noted.							
220		**Pile Cap/Footing-RC**		2	6	m	0	6	0	0
	6000	**Scour**		2	6		0	6	0	0
			(220)							
			There were no significant defects noted.							
			(220-6000)							
			There is an exposed footing at (6.0 to 8.0 inches high) at the southerly side, 20.0 feet of the westerly abutment.							
333		**Railing-Other**		2	32	m	26	6	0	0
	1010	**Cracking**		2	6		0	6	0	0
			(333)							
			There were no significant defects noted.							
			(333-1010)							
			At the north rail, timber post #3 (counting from west) is split.							
			At the southerly rail, timber posts #3 and #4 have vertical checks at the exterior face.							

WORK RECOMMENDATIONS

RecDate: 12/15/2017
Action : Deck-Patch spalls
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Patch the deck that has an unsound patched area (2.0 feet L X 2.0 feet W) on eastbound lane approximately 10.0 feet from the west end and 2.0 feet south of the bridge centerline (2 feet south of

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WORK RECOMMENDATIONS

double yellow lines).

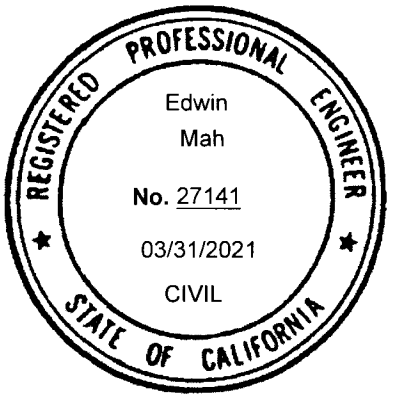
Team Leader : Edwin Mah

Report Author : Nelson N. Vo

Inspected By : NN.Vo/E.Mah

7/17/2019

Edwin Mah (Registered Civil Engineer) (Date)



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STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0175**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- LADD CANYON
(7) FACILITY CARRIED- SILVERADO CANYN RD
(9) LOCATION- 2.2 MI. E/O SANTIAGO ROAD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 44 MIN 53.2 SEC
(17) LONGITUDE 117 DEG 38 MIN 25.68 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- STEEL
TYPE- STRINGER/MULTI-BEAM OR GDR CODE 302
(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 1947
(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 2000
(30) YEAR OF ADT 2019 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 199 KM

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

(48) LENGTH OF MAXIMUM SPAN 15.2 M
(49) STRUCTURE LENGTH 15.7 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.4 M
(52) DECK WIDTH OUT TO OUT 8.2 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 6.7 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 60 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.4 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 = 47.7

PAINT CONDITION INDEX = 100.0

************* 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 5
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 7
(62) CULVERTS N

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

(31) DESIGN LOAD- M-13.5 OR H-15 2
(63) OPERATING RATING METHOD- (LRFR) LD & RES FA 8
(64) OPERATING RATING- RF= 0.89
(65) INVENTORY RATING METHOD- (LRFR) LD & RES FA 8
(66) INVENTORY RATING- RF= 0.69
(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 5
(68) DECK GEOMETRY 4
(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- CODE
(76) LENGTH OF STRUCTURE IMPROVEMENT M
(94) BRIDGE IMPROVEMENT COST
(95) ROADWAY IMPROVEMENT COST
(96) TOTAL PROJECT COST
(97) YEAR OF IMPROVEMENT COST ESTIMATE
(114) FUTURE ADT 4204
(115) YEAR OF FUTURE ADT 2037

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

(90) INSPECTION DATE 05/19 (91) FREQUENCY 24 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- NO MO A)
B) UNDERWATER INSP- NO MO B)
C) OTHER SPECIAL INSP- NO MO C)

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