STATE OF CALIFORNIA - CALIFORNIA STATE TRANSPORTATION AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION

DIVISION OF MAINTENANCE
STRUCTURE MAINTENANCE & INVESTIGATIONS
100 South Main Street, 3rd Floor
LOS ANGELES, CA 90012
PHONE (213) 897-2004
FAX (213) 897-2033

copy to Nardy FYI Action
Jeff E
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Making Conservation a California Way of Life.

March 23, 2018

Mr. Shane Silsby
Director of Public Works
County of Orange
P O Box 4048
Santa Ana, CA 92702-4048

Dear Mr. Silsby:

In accordance with Title 23 of the Code of Federal Regulations (Federal Highway Act) and the National Bridge Inspection Standards (NBIS), Caltrans Structure Maintenance and Investigations performed an inspection of 3 bridges under your jurisdiction. The type of inspection is indicated on the bridge report transmittal sheet. The bridges have been rated to indicate their deficiencies, structural adequacy, safe load carrying capacity and overall general condition.

Enclosed are copies of the Bridge Inspection Reports for the structures noted on the attached transmittal sheet. These reports contain descriptions of physical changes to the structures since the last inspection, recommendations for work to be done, and additional information not recorded in the previous Bridge Reports.

Your attention is directed to the requirements of Title 23, Part 650 of the Code of Federal Regulations, where newly completed structures or any modification of existing structures shall be entered in the inventory within 90 days. Please notify this office of any newly constructed bridge or culvert within your jurisdiction, more than 20 feet measured along the center of the roadway and carrying public vehicular traffic or over a public roadway, in order that it may be entered in the inventory of bridge structures in compliance with Federal requirements.

Should you have any questions regarding the enclosed Bridge Inspection Reports, please contact Bing Wu @ (213) 897-0874.

Sincerely,

CHING CHAO
Office Chief
Structure Maintenance & Investigations - (Investigations-South)

Enclosures

DEPARTMENT OF TRANSPORTATION
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Bridge Report Transmittal Sheet

Batch 40274

County of Orange

Bridge #	Bridge Name	Location	Inspection Date	Inspection Type	Outstanding Work	Cost
55C0008	TRABUCO CREEK	1.4 mi n/o Snta Margarita	09/07/2017	Routine	Y	$
55C0065	LIMESTONE CANYON	4.4 mi se/o JAMBOREE RD.	09/13/2017	Routine	Y	$
55C0168	HANDY CREEK	0.2 MI E/O ORANGE PK BLVD	09/07/2017	Routine	Y	$

3 Bridge(s) in this Transmittal

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WEB SITES:
The National Bridge Inspection Standards (NBIS) Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges, Element Level Inspection, Structure Maintenance and Investigations Manuals, Local Assistance Program Guidelines and other related information are posted on Division of Maintenance, Structure Maintenance and Investigations; Division of Local Assistance, Local Highway Bridge Program (HBP) and FHWA websites.
The websites can be accessed at:
1. "Caltrans Structure Maintenance and Investigations" http://www.dot.ca.gov/hq/structur/strmaint/
2. "Caltrans Division of Local Assistance"
http/www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm
3. "FHWA" http/www.fhwa.dot.gov/BRIDGE/mtguide.pdf

Inspection Type Definitions

Routine Inspection:
Routine Inspections consist of both the initial Inventory Inspection (the first inspection of the bridge that places it in the bridge inventory or when there has been a change in the configuration of the structure) and subsequent regularly scheduled inspections. The initial inspection provides all the Structural Inventory & Appraisal (SI&A) data required by federal and state regulations, determines the baseline structural conditions, lists any existing problems, and establishes the load capacity of the structure. Subsequent inspections consist of observations, measurements needed to determine the physical and functional condition of the bridge, to identify any changes from the previously recorded conditions, and verification of its load capacity. These inspections are generally conducted from the deck, ground and/or water level, and from permanent work platforms and walkways, if present. Inspection of underwater portions of the substructure is limited to observations during low-flow periods and/or probing for signs of undermining. Special equipment should be utilized in circumstances where its use provides the only practical access to areas of the structure.

Fracture Critical, Special Feature & Underwater Inspections:
Fracture Critical, Special Feature, and Underwater Inspections are up close, hands-on inspections of one or more members above or below the water level to identify any deficiencies not readily detectable using Routine Inspection procedures. These inspections generally require special equipment such as under-bridge inspection equipment, manlifts, boats, traffic control, and railroad flagging. Personnel with special skills such as divers or structural steel inspectors trained in non-destructive testing techniques may be required.

Other Inspections:
Other Inspections are conducted on damaged structures, structures that have developed specific problems, or structures suspected of developing problems. The scope of these investigations should be sufficient to determine the need for emergency load restrictions or closure of the structure, monitor a changing condition, and to assess the level of effort necessary to effect a repair.

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0008
Facility Carried: TRABUCO CANYON RD.
Location : 1.4 mi n/o Snta Margarit
City :
Inspection Date : 09/07/2017
Inspection Type

Bridge Inspection Report

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

STRUCTURE NAME: TRABUCO CREEK

CONSTRUCTION INFORMATION

Year Built : 1980
Year Modified: N/A
Length (m) : 22.3
Skew (degrees): 33
No. of Joints : 0
No. of Hinges : 0

Structure Description: Simply supported 6-span PC/PS concrete deck slab units (7 each) with RC pier walls and RC open end seat abutments with monolithic wingwalls, all supported upon spread footings.

Span Configuration : (W) 6 @ 10.80 ft (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20
Inventory Rating: RF=1.00 =>32.4 metric tons Calculation Method: ASSIGNED (LFD)
Operating Rating: RF=1.67 =>54.1 metric tons Calculation Method: ASSIGNED (LFD)
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 0.30 ft br, 23.40 ft, 0.30 ft br (N)
Total Width: 7.3 m Net Width: 7.1 m No. of Lanes: 2 Speed: 35 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 6.0 inches
Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
Miscellaneous	Right/Left	138	

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural cobbled earth trapezoidal with an RC invert through the site.

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 structure to inspect all visible elements on the existing structures. The creek was dry at the time of the inspection. A full visual inspection is performed for the visible substructure elements. Pedestrian access is from northwest corner.

INSPECTION COMMENTARY

MISCELLANEOUS

According to Caltrans Element Inspection Manual Definition of the Culvert, this bridge is a slab bridge not a culvert because this bridge doesn't encompass the entire primeter of the barrel.

Average AC overlay on top of the bridge deck is measure in the field and it was 6.0 inches. (see the attached photo no. 10)

WATERWAY

There is a high sediment up to 2 feet at the upstream side in front of the most spans.(see the attached photo no. 9)

The downstream grouted riprap is degraded at the south side, and there are holes at the bottom of riprap is exposed about 1 foot at the following spans:
Span 4 a hole is 13 feet X 5 feet. (see the attached photo no. 4)
Span 5 a hole is 10 feet X 4 feet.
Span 6 a hole is 7 feet X 4 feet.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet is included with this bridge inspection report. The current rating has been assigned in accordance with SM&I procedures.

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
39			**Slab-PS Conc.**	2	170	sq.m	164	2	4	0
	1080		**Delamination/Spall/Patched Area**	2	6		0	2	4	0
	510		**Deck Wearing Surface-Asphalt**	2	170	sq.m	120	10	40	0
		3220	**Cracking-AC (WS)**	2	50		0	10	40	0

(39-1080)
There are few spalls varied +/- 4 feet L X 10 inches W X 2 inches D at the south edge of the slab with corroded rebars, those spalls were mostly noticed at Spans 5 and 6; and scattered spalls +/- 12 inches L X 8 inches W X 1 inch at spans 1 to 4. (see the attached photos no. 5 & 6)

(39-510-3220)
There are longitudinal crack at the middle of the bridge almost full bridge length and up to 1.0 inch wide; and transverse cracks above the supports 20 feet long, up to 1.0 inches wide. (see the attached photos no. 2 & 3)

210			**Pier Wall-RC**	2	45	m	45	0	0	0

(210)
There were no significant defects noted.

215			**Abutment-RC**	2	34	m	34	0	0	0

(215)
Monolithic wingwalls are included in the total quantity.

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
220			**Pile Cap/Footing-RC**	2	8	m	2	3	3	0
	1090		**Exposed Rebar (PS Conc./RC)**	2	6		0	3	3	0

(220)
There were no significant defects noted.

(220-1090)
The spread footing which invert slab is exposed and has an eroded concrete area with exposed and rusted rebars. In Span 5, the eroded area is 17 feet X 8 feet at the middle, and in Span 6 the eroded area is 2 feet X 1 foot at the south end. (see the attached photo no. 7)

312			**Bearing-Enclosed**	2	7	each	7	0	0	0

(312)
There were no significant defects noted.

333			**Railing-Other**	2	45	m	30	15	0	0
	1020		**Connection**	2	10		0	10	0	0
	1130		**Cracking (RC and Other)**	2	5		0	5	0	0

(333-1020)
Some of the timber posts have loose nuts at the connection with the concrete slab. (see the attached photo no. 8)

(333-1130)
Some of the timber posts has vertical checks, up to 50% penetration.

WORK RECOMMENDATIONS

RecDate: 09/07/2017
Action : Deck-Repair Potholes
Work By: LOCAL AGENCY
Status : PROPOSED
EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:
Seal all AC overlay cracks, that are up to 1 inch wide on the bridge deck.

RecDate: 09/07/2017
Action : Sub-Fix Scour Crit.
Work By: LOCAL AGENCY
Status : PROPOSED
EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:
Fill the riprap holes with proper material to prevent more damage to the riprap at the downstream side.

RecDate: 05/21/2009
Action : Sub-Patch spalls
Work By: LOCAL AGENCY
Status : PROPOSED
EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:
Repair the eroded concrete at the spread footing at Spans 5 & 6 with exposed rebars of an area 17 feet X 8 feet in the middle of the spans.

RecDate: 05/01/2007
Action : Deck-Patch spalls
Work By: LOCAL AGENCY
Status : PROPOSED
EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:
Repair the two spalls 4 feet L X 10 inches H X 3 inches D with exposed rebars at the south edge of the deck in spans #5 and #6.

Team Leader : Ashraf Shenouda

Report Author : Ashraf Shenouda

Inspected By : A.Shenouda/KD.Henderson

3/16/18

Ashraf Shenouda (Registered Civil Engineer) (Date)

CC:

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0008**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- TRABUCO CREEK
(7) FACILITY CARRIED- TRABUCO CANYON RD.
(9) LOCATION- 1.4 mi n/o Snta Margarita
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 39 MIN 33.72 SEC
(17) LONGITUDE 117 DEG 35 MIN 11.76 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- PRESTRESS CONC
TYPE- SLAB CODE 501
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 6
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- PRECAST CONC. PA CODE 2
(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 1980
(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 3000
(30) YEAR OF ADT 2009 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 10 KM

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

(48) LENGTH OF MAXIMUM SPAN 3.4 M
(49) STRUCTURE LENGTH 22.3 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.1 M
(52) DECK WIDTH OUT TO OUT 7.3 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 7.3 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 33 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.1 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 = 72.1
STATUS
HEALTH INDEX 97.5
PAINT CONDITION INDEX = N/A

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

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- COLLECTOR URBAN 17
(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 7
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

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

(31) DESIGN LOAD- MS-18 OR HS-20 5
(63) OPERATING RATING METHOD- ASSIGNED (LFD) A
(64) OPERATING RATING- 54.1
(65) INVENTORY RATING METHOD- ASSIGNED (LFD) A
(66) INVENTORY RATING- 32.4
(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 7
(68) DECK GEOMETRY 2
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 4
(72) APPROACH ROADWAY ALIGNMENT 4
(36) TRAFFIC SAFETY FEATURES 0000
(113) SCOUR CRITICAL BRIDGES 7

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

(75) TYPE OF WORK- SUP/SUB REHAB CODE 35
(76) LENGTH OF STRUCTURE IMPROVEMENT 22.3 M
(94) BRIDGE IMPROVEMENT COST $163,000
(95) ROADWAY IMPROVEMENT COST $32,600
(96) TOTAL PROJECT COST $273,840
(97) YEAR OF IMPROVEMENT COST ESTIMATE 2017
(114) FUTURE ADT 8437
(115) YEAR OF FUTURE ADT 2035

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

(90) INSPECTION DATE 09/17 (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)

TRABUCO CREEK

1.4 mi n/o Snta Margarita 09/07/2017 [AAAK] 55C0008

104 - PHOTO-Deck-Unusual Conditions

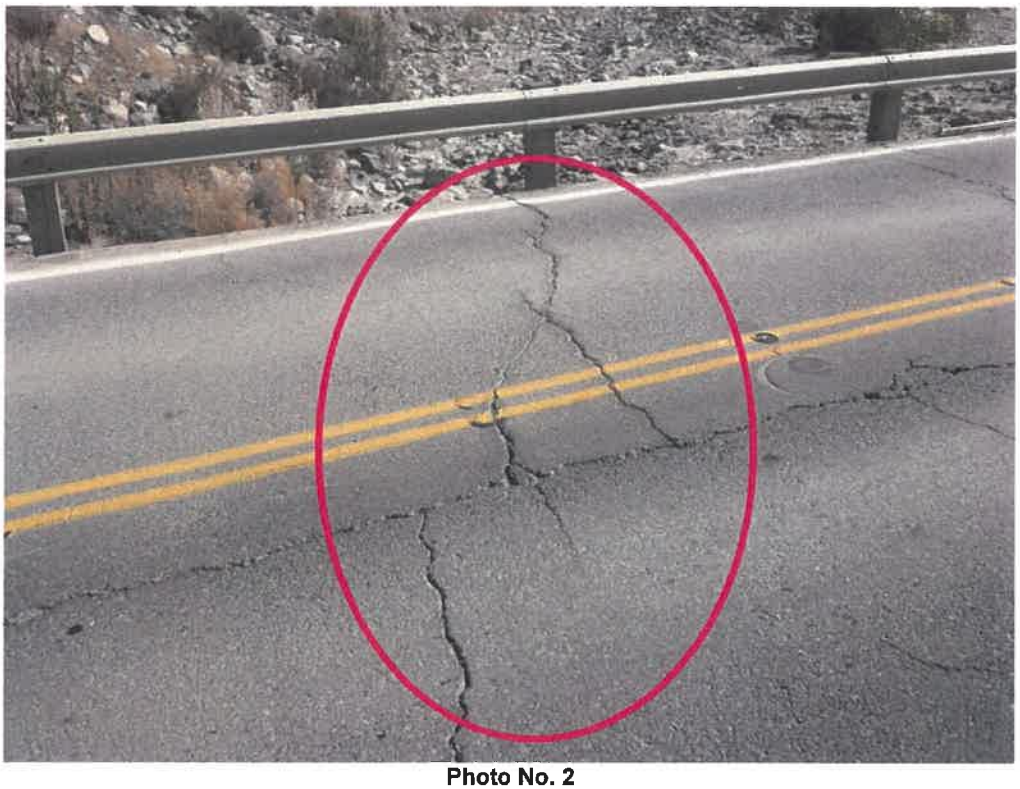

Photo No. 2

Ac overlay transverse and longitudinal cracks up to 1 inch wide.

104 - PHOTO-Deck-Unusual Conditions

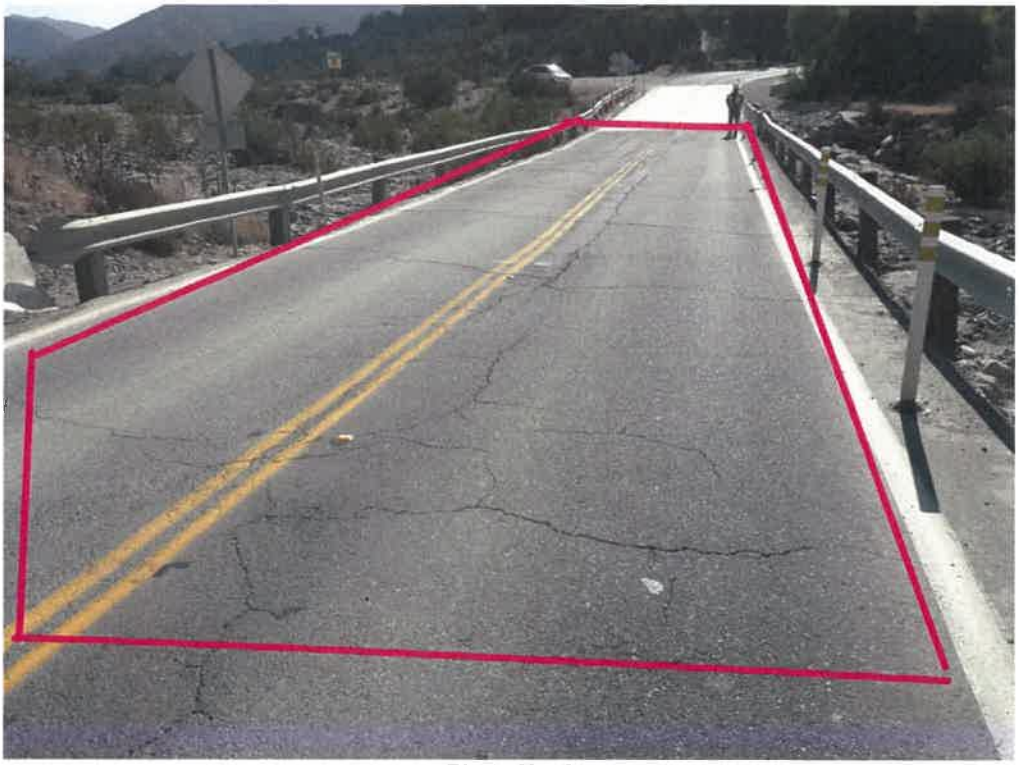

Photo No. 3

Ac overlay transverse and longitudinal cracks up to 1 inch wide.

TRABUCO CREEK

1.4 mi n/o Snta Margarita | 09/07/2017 [AAAK] | 55C0008

130 - PHOTO-Hydraulic-Unusual Conditions

Photo No. 4

A hole 13 ft X 5 ft at the downstream side (south) of span 4.

102 - PHOTO-Deck-Damage/Deterioration

Photo No. 5

Slab has large spalls at the south side at Spans 5 and 6.

TRABUCO CREEK

1.4 mi n/o Snta Margarita | 09/07/2017 [AAAK] | 55C0008

102 - PHOTO-Deck-Damage/Deterioration

Photo No. 6

Slab has large spalls at the south side at Spans 5 and 6.

113 - PHOTO-Sub-Damage/Deterioration

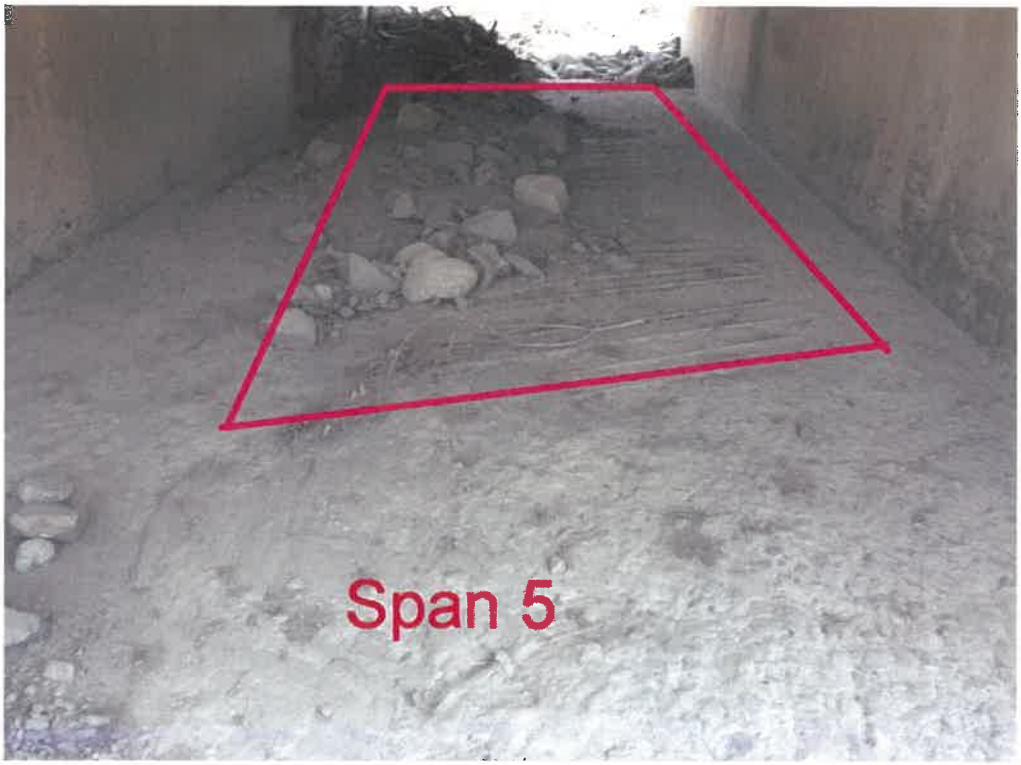

Photo No. 7

Eroded concrete with exposed rebar at the spread footing at Span 5.

TRABUCO CREEK

1.4 mi n/o Snta Margarita 09/07/2017 [AAAK] 55C0008

119 - PHOTO-Rail-Damage/Deterioration

Photo No. 8

Loose nuts at the timber posts.

130 - PHOTO-Hydraulic-Unusual Conditions

Photo No. 9

2 feet sediment at the upstream side in front of most spans.

TRABUCO CREEK

1.4 mi n/o Snta Margarita 09/07/2017 [AAAK] 55C0008

103 - PHOTO-Deck-Details

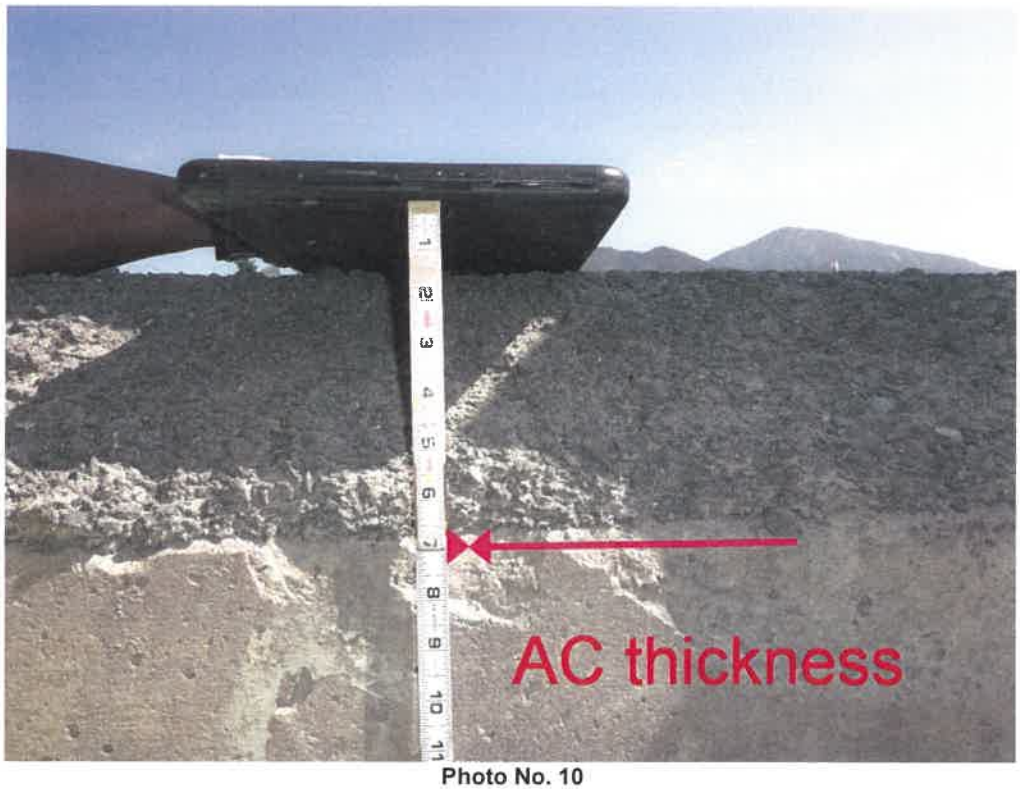

Photo No. 10

Ac Thickness at the south side.