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

Making Conservation a California Way of Life.

September 13, 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 1 bridge 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 Report, please contact Bing Wu @ (213) 897-0874.

Sincerely,

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

Enclosures

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Bridge Report Transmittal Sheet

Batch 41415

County of Orange

Bridge #	Bridge Name	Location	Inspection Date	Inspection Type	Outstanding Work	Outstanding Cost
56C0636	SANTA ANA RIVER (GREEN RIVER GOLF CLUB DR)	0.1 MI W/O GREEN RIVER RD	04/28/2018	Routine	N	$

1 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 : 56C0636
Facility Carried: GREEN RIVER DRIVE
Location : 0.1 MI W/O GREEN RIVER R
City :
Inspection Date : 04/28/2018

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER (GREEN RIVER GOLF CLUB DR)

CONSTRUCTION INFORMATION

Year Built : 2012
Year Modified: N/A
Length (m) : 39.6
Skew (degrees): 0
No. of Joints : 2
No. of Hinges : 0

Structure Description: Single span CIP/PS concrete box girder (2 boxes, 2 cells each) on seat-type abutments on CIDH concrete piles.

Span Configuration : (W) 1 @ 127.5 ft (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: HL 93
Inventory Rating: RF= 1.00 Calculation Method: ASSIGNED (LRFD)
Operating Rating: RF= 1.30 Calculation Method: ASSIGNED (LRFD)
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (N) 2.0 ft br, 36.0 ft, 2.0 ft br (S)
Total Width: 12.2 m Net Width: 11.0 m No. of Lanes: 2 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches
Rail Code: 1111

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural meandering channel with trapezoidal section. Slope protection at the bridge. Channel beyond bridge has vegetation on the sides, sandy soil on the 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 the deck surface and walking on the abutment slopes.

HISTORY

The land, located downstream of Prado Dam, was purchased in 2006 by the Orange County Flood Control District as part of a larger channel improvement project to mitigate

INSPECTION COMMENTARY

flooding.

In approximately 2008, the U.S. Army Corps of Engineers began construction of flood protection improvements along the Santa Ana River as part of the Santa Ana River Mainstem Project (SAR Project) to provide protection to housing and State Route 91 from future floodwater releases from the raised Prado Dam.

The bridge was constructed in approximately 2012 as part of the larger channel improvement project by the U.S. Army Corps of Engineers and Orange County Flood Control District to mitigate flooding.

MISCELLANEOUS

The Bridge Number, 56C0636, is based on its location in Riverside County. The bridge is owned and maintained by Orange County.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet dated 05/04/2018 is included with this bridge inspection report. The current rating has been assigned in accordance with SM&I procedures.

WATERWAY

The channel has water approximately 5 feet to 6 feet deep under midspan across a width of approximately 60 feet. The channel cross section was taken at the upstream side (north side) from the top of the steel rail (excluding the handrail and 4.0 feet above the deck surface) using a weighted tape. There are no signs of scour observed during this inspection.

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
16			**Top Flange-RC**	2	483	sq.m	435	48	0	0
	1130		**Cracking (RC and Other)**	2	48		0	48	0	0
(16-1130) The deck surface has longitudinal cracks (0.03 inch wide) at 12 inches spacing covering approximately 10 percent of entire deck area. Cracks are concentrated at the easterly 40 feet of the bridge. (48 sq. meters CS2)										
104			**Box Girder-PS Conc.**	2	79	m	79	0	0	0
(104) There are no significant defects noted.										
215			**Abutment-RC**	2	24	m	24	0	0	0
(215) There are no significant defects noted.										
252			**Pile-CIDH**	2	1	ea.	1	0	0	0
(252) The pile element is included to indicate the presence of piles on this structure. The piles are not exposed for visual inspection. No indication of pile distress is noted in any substructure element.										
256			**Slope Protection**	2	2	ea.	2	0	0	0
(256)										

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
There are no significant defects noted.										
302			**Joint-Compression Seal**	2	24	m	24	0	0	0
(302) There are no significant defects noted. Both joints are filled with sands but do not impact superstructure movement. The sands were partially removed at two locations of each joint and no defects were noted.										
312			**Bearing-Enclosed**	2	4	each	4	0	0	0
(312) There are no significant defects noted.										
321			**Approach Slab-RC**	2	74	sq.m	64	10	0	0
	1130		**Cracking (RC and Other)**	2	10		0	10	0	0
(321-1130) Both approach slabs has longitudinal cracks along length, 0.03 inch wide. The westerly slab has eight cracks and the easterly slab has two cracks. (10 cracks x 10 feet = 100 square feet, 10 sq. meters CS2)										
330			**Railing-Metal**	2	80	m	80	0	0	0
(330) There are no significant defects noted.										

WORK RECOMMENDATIONS - NONE

CHANNEL X-SECTION

Side : Upstream
Measured From : Top of steel rail
X-Section Date: 04/28/2018

Location	Horiz(m)	Vert(m)	Comments
Abut 1 face (RSP)	0.00	5.79	measurements are 4.0 feet above deck
Edge of water (RSP)	11.00	8.84	which exclude the top handrail.
Thalweg	19.20	10.67	
Edge of water (RSP)	28.10	9.14	
Abut 2 face (RSP)	38.10	5.49	

Team Leader : Vinh-duc L. Dang

Report Author : Vinh-duc L. Dang

Inspected By : VL.Dang/P.Kazi

9-6-18

Vinh-duc L. Dang (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **56C0636**
(5) INVENTORY ROUTE(ON/UNDER)- ON 15000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTA ANA RIVER
(7) FACILITY CARRIED- GREEN RIVER DRIVE
(9) LOCATION- 0.1 MI W/O GREEN RIVER RD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 52 MIN 19.93 SEC
(17) LONGITUDE 117 DEG 40 MIN 08.44 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- PRESTRESS CONC
TYPE- BOX BEAM OR GIRDER - MULTI CODE 505
(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 2012
(106) YEAR RECONSTRUCTED
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 1100
(30) YEAR OF ADT 2017 (109) TRUCK ADT 2 %
(19) BYPASS, DETOUR LENGTH 3 KM

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

(48) LENGTH OF MAXIMUM SPAN 38.9 M
(49) STRUCTURE LENGTH 39.6 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 11.0 M
(52) DECK WIDTH OUT TO OUT 12.2 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 11.0 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 0 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 11.0 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- NO CONTROL CODE 0
(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 = 99.8
STATUS
HEALTH INDEX 97.7
PAINT CONDITION INDEX = N/A

********** 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 7
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

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

(31) DESIGN LOAD- HL 93 A
(63) OPERATING RATING METHOD- ASSIGNED (LRFD) F
(64) OPERATING RATING- RF= 1.30
(65) INVENTORY RATING METHOD- ASSIGNED (LRFD) F
(66) INVENTORY RATING- RF= 1.00
(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 6
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 1111
(113) SCOUR CRITICAL BRIDGES 5

********** 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 1500
(115) YEAR OF FUTURE ADT 2039

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

(90) INSPECTION DATE 04/18 (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)

SANTA ANA RIVER (GREEN RIVER GOLF CLUB DR)

0.1 MI W/O GREEN RIVER RD 04/28/2018 [DSMI] 56C0636

100 - PHOTO-Routine-Roadway View

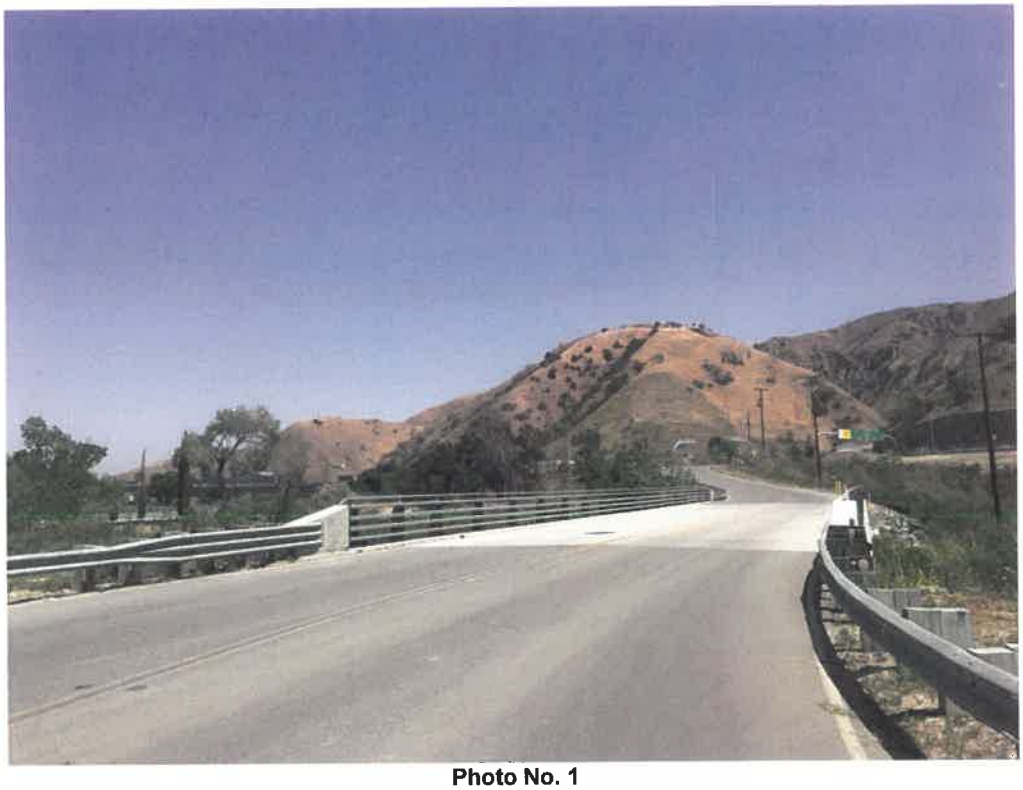

Photo No. 1

Looking easterly standing west of the bridge.

133 - PHOTO-Unclassified

Location of the Green River Golf Club Driveway Bridge

Photo No. 1

Structure Location Photo

SANTA ANA RIVER (GREEN RIVER GOLF CLUB DR)

0.1 MI W/O GREEN RIVER RD 04/28/2018 [DSMI] 56C0636

101 - PHOTO-Routine-Elevation View

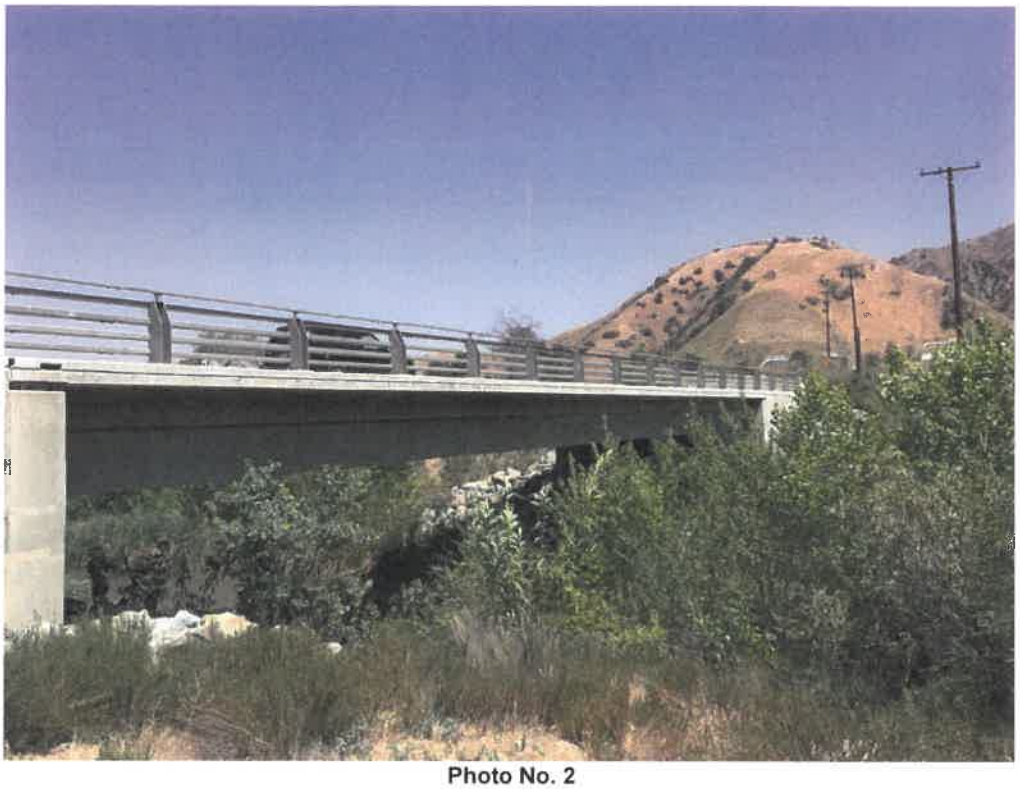

Photo No. 2

Looking northeasterly at south side standing southeast of Abutment 1.

135 - PHOTO-Routine-Underside View

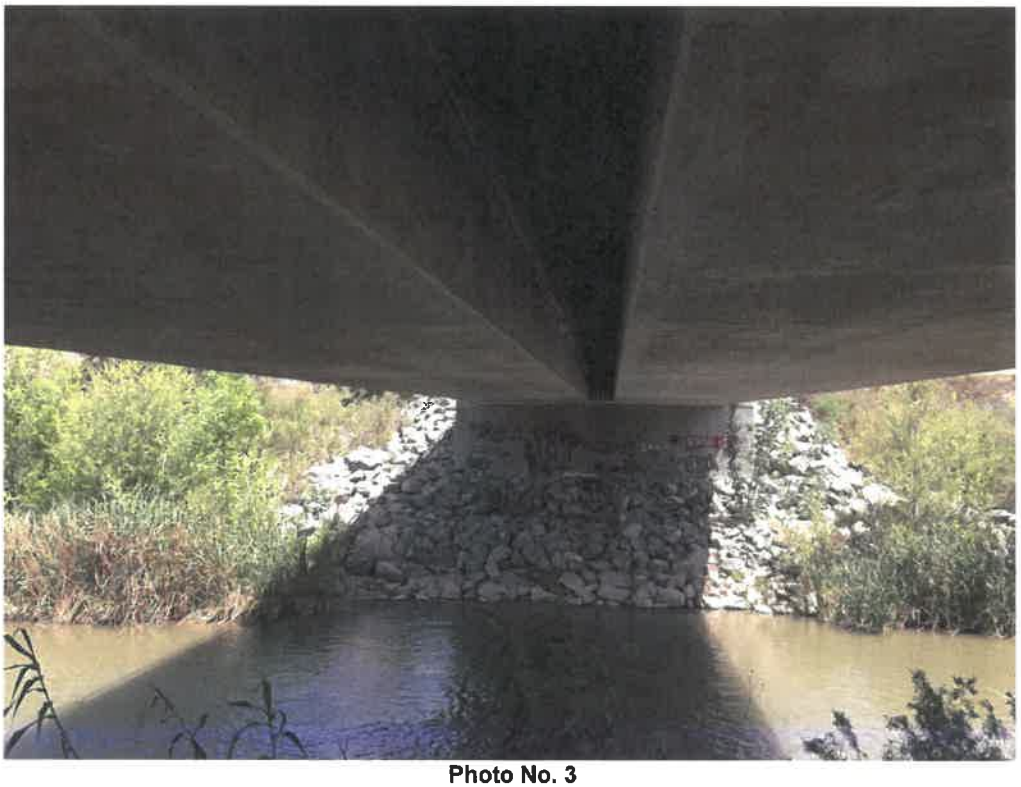

Photo No. 3

Looking easterly toward Abutment 2 standing in front of Abutment 1.