DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0705
Facility Carried: ANTON BL, PARK CTR
Location : 0.12 MI E OF BRISTOL ST
City :
Inspection Date : 04/29/2018

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA DELHI CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1974
Year Modified: N/A
Length (m) : 22.9
Skew (degrees): 0
No. of Joints : 0
No. of Hinges : 0

Structure Description: Reinforced concrete box culvert with 5 cells (14 ft clear, normal x 14 ft x 1112 ft) under 3 feet of fill

Span Configuration : 5 @ 14.8 ft center of wall to center of wall

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=1.00 =>32.4 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Operating Rating: RF=1.67 =>54.1 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: None
Total Width: .0 m Net Width: .0 m No. of Lanes: 5 Speed: 35 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches
Rail Code: NNNN

DESCRIPTION UNDER STRUCTURE

Channel Description: Concrete lined channel with a straight alignment.

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 roadway above the culvert and walking inside all barrels of the culvert. Access to the channel was made through the locked chain link gate at the south end where Park Center Drive turns from north-south to east-west. There is a wall-mounted ladder near the southeasterly corner of the culvert with a locked chain linked gate on top. A key issued by the Orange County Flood Control District is required for the locked gates. There was 2 inches to 5 inches of water in all the barrels. There are openings (4 feet x 4 feet in size located 3 feet above the invert) between the interior walls which allow access from one barrel to another. The openings are located approximately 750 feet from the south end near the

INSPECTION COMMENTARY

intersection of Anton Boulevard and Park Center Drive.

HISTORY

Previously, the long continuous box culvert carrying multiple roadways plus a landscaped area had a single Bridge number 55C0328. Only the portions of the culvert which carry public roads need to be inspected. The portion which carries a landscaped area with no traffic over the mid-area of the culvert does not fall under NBI requirements for inspections.

The two sections of the box culvert which carry traffic will have two bridge numbers, 55C0328 and 55C0705:
Bridge 55C0328 on the north end of the culvert carries Sunflower Ave. and a northern section of Park Center Drive.
Bridge 55C0705 on the south end of the culvert carries Anton Blvd. and a southern section of Park Center Drive.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet dated 05/04/2018 is on file for this structure. The current rating has been assigned in accordance with SM&I procedures.

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
241		Culvert-RC	2	1695	m	1491	204	0	0
	1120	Efflorescence/Rust Staining	2	34		0	34	0	0
	1130	Cracking (RC and Other)	2	170		0	170	0	0

(241-1120)
There are white and gray efflorescence 1 foot around the construction joints spaced at 50 feet apart in all barrels. (0.02 x 1695 = 34 m CS2)

(241-1130)
All culvert walls in all barrels have vertical cracks, 0.03 inch wide at 10 feet average spacing. At an average of 30 feet these cracks runs transversely into the soffit of the top slab where there are white and gray efflorescence around the crack. See Photos 8 and 9. (0.10 CAF x 1695 m = 170 m CS2)

WORK RECOMMENDATIONS - NONE

Team Leader : Vinh-duc L. Dang

Report Author : Vinh-duc L. Dang

Inspected By : VL.Dang/P.Kazi

8-15-18

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

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0705**
(5) INVENTORY ROUTE(ON/UNDER)- ON 15600000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTA ANA DELHI CHANNEL
(7) FACILITY CARRIED- ANTON BL, PARK CTR
(9) LOCATION- 0.12 MI E OF BRISTOL ST
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 41 MIN 24.36 SEC
(17) LONGITUDE 117 DEG 53 MIN 00.27 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT
TYPE- CULVERT CODE 219
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 5
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- NOT APPLICABLE CODE N
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- NOT APPLICABLE CODE N
B) TYPE OF MEMBRANE- NOT APPLICABLE CODE N
C) TYPE OF DECK PROTECTION- NOT APPLICABLE CODE N

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

(27) YEAR BUILT 1974
(106) YEAR RECONSTRUCTED
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 05 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 20000
(30) YEAR OF ADT 2018 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 1 KM

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

(48) LENGTH OF MAXIMUM SPAN 4.5 M
(49) STRUCTURE LENGTH 22.9 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 0.0 M
(52) DECK WIDTH OUT TO OUT 0.0 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 24.0 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 24.0 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- 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

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SUFFICIENCY RATING = 83.9
STATUS
HEALTH INDEX 96.0
PAINT CONDITION INDEX = N/A

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

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- ROUTE ON NHS 1
(26) FUNCTIONAL CLASS- OTHER PRIN ART URBAN 14
(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 N
(59) SUPERSTRUCTURE N
(60) SUBSTRUCTURE N
(61) CHANNEL & CHANNEL PROTECTION 9
(62) CULVERTS 7

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

(31) DESIGN LOAD- UNKNOWN 0
(63) OPERATING RATING METHOD- FIELD EVAL/ENG JUD 0
(64) OPERATING RATING- 54.1
(65) INVENTORY RATING METHOD- FIELD EVAL/ENG JUD 0
(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 N
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES NNNN
(113) SCOUR CRITICAL BRIDGES 6

********** 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 27000
(115) YEAR OF FUTURE ADT 2036

********** 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 DELHI CHANNEL

0.12 MI E OF BRISTOL ST | 04/29/2018 [DSMI] | 55C0705

100 - PHOTO-Routine-Roadway View

Photo No. 1

Looking south standing at intersection of Anton Blvd and Park Center Dr.

101 - PHOTO-Routine-Elevation View

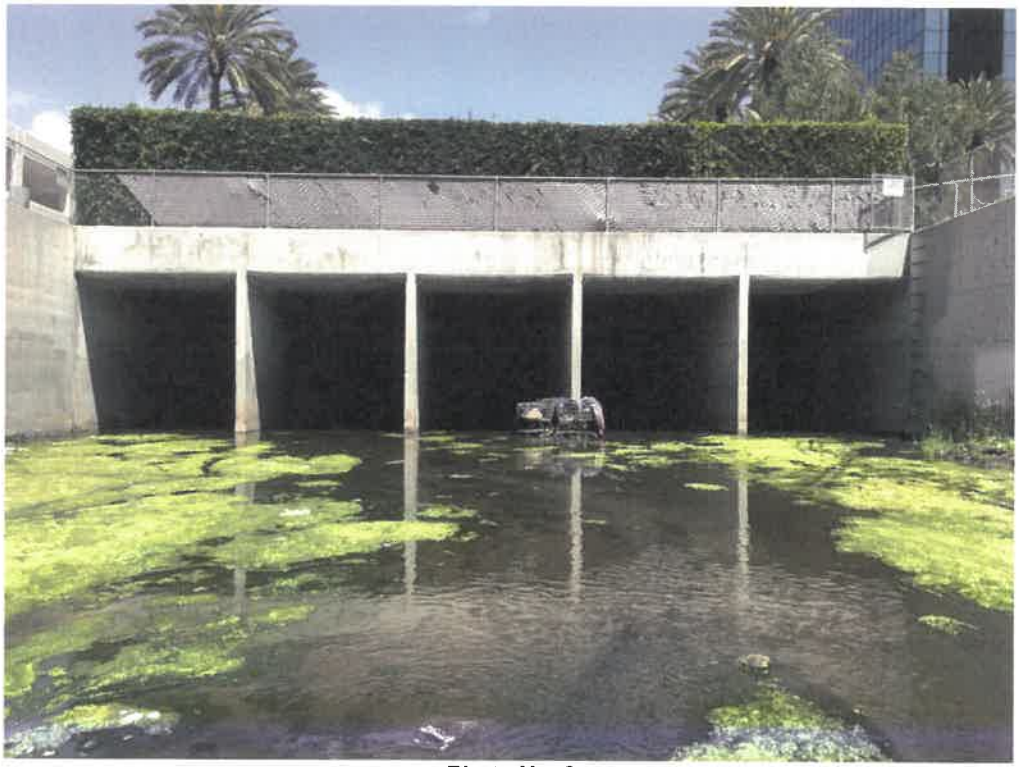

Photo No. 2

Looking north standing south of the culvert.

SANTA ANA DELHI CHANNEL

0.12 MI E OF BRISTOL ST | 04/29/2018 [DSMI] | 55C0705

135 - PHOTO-Routine-Underside View

Photo No. 3

Looking north through Barrel 1 standing at the south end.

135 - PHOTO-Routine-Underside View

Photo No. 4

Looking north through Barrel 2 standing at the south end.

SANTA ANA DELHI CHANNEL

0.12 MI E OF BRISTOL ST 04/29/2018 [DSMI] 55C0705

135 - PHOTO-Routine-Underside View

Photo No. 5

Looking north through Barrel 3 standing at the south end.

135 - PHOTO-Routine-Underside View

Photo No. 6

Looking north through Barrel 4 standing at the south end.

SANTA ANA DELHI CHANNEL

0.12 MI E OF BRISTOL ST | 04/29/2018 [DSMI] | 55C0705

135 - PHOTO-Routine-Underside View

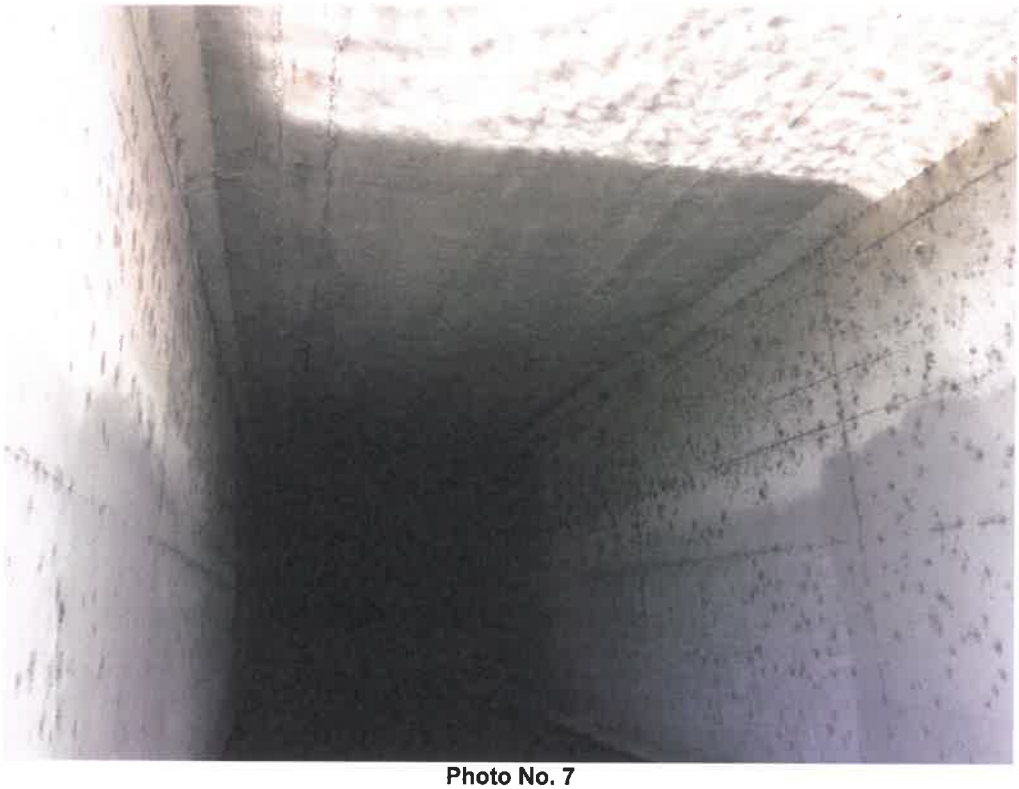

Photo No. 7

Looking north through Barrel 5 standing at the south end.

113 - PHOTO-Sub-Damage/Deterioration

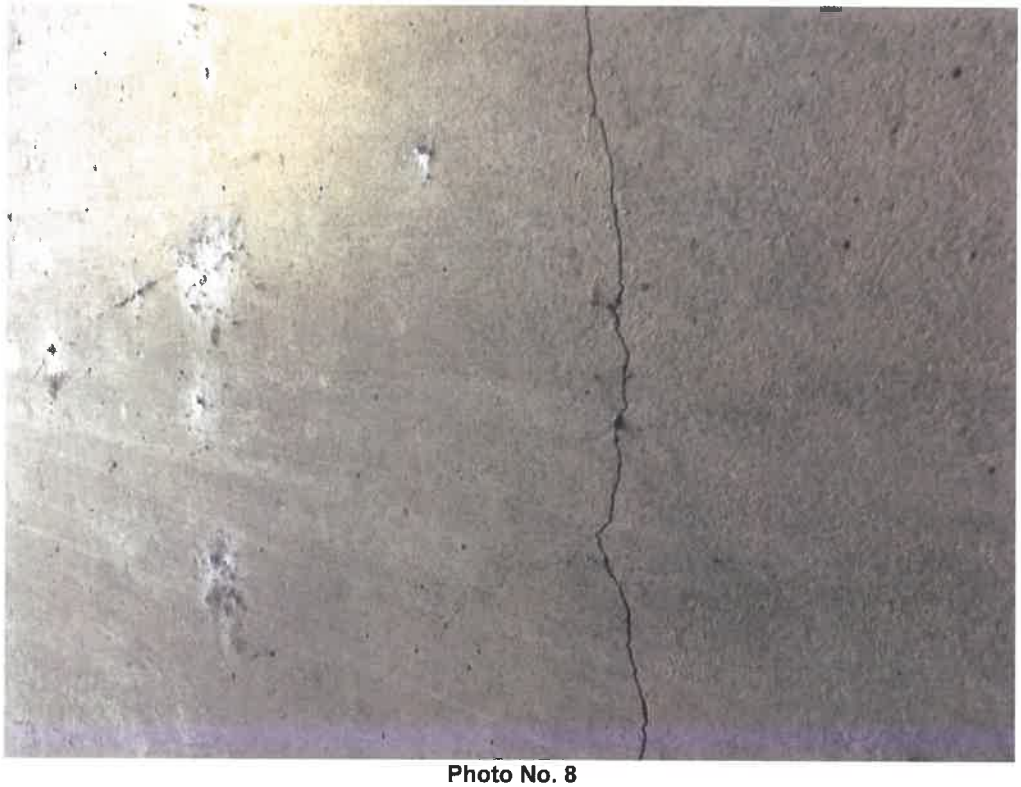

Photo No. 8

Typical crack on all walls spaced at 10 feet average.

SANTA ANA DELHI CHANNEL

0.12 MI E OF BRISTOL ST | 04/29/2018 [DSMI] | 55C0705

113 - PHOTO-Sub-Damage/Deterioration

Photo No. 9

Typical soffit and wall crack with white and gray efflorescence at 30 ft average spacing.