

*California Department of Transportation
Division of Maintenance*

Structure Maintenance and Investigations

B_{RIDGE}

I_{NSPECTION}

R_{ECORDS}

I_{NFORMATION}

S_{YSTEM}

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DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 42 0323R
Facility Carried: SR 180 EB
Location : 06-FRE-180-R59-FRE
City : FRESNO
Inspection Date : 01/26/2010

Bridge Inspection Report

Inspection Type

Routine FC Underwater Special Other

STRUCTURE NAME: FIRST STREET UC

CONSTRUCTION INFORMATION

Year Built : 1999 Skew (degrees): 8
Year Widened: N/A No. of Joints : 2
Length (m) : 50.6 No. of Hinges : 0

Structure Description: Continuous 2-span cast-in-place pre-stressed concrete box girder (13 cell). Multi column (3) bent supported on 60" dia. CIDH piles (1 per column). The diaphragm type abutments founded on 16" dia. CIDH concrete piles (41).

Span Configuration : 2@25.3 m

LOAD CAPACITY AND RATINGS

Design Live Load: MS-18+MOD OR HS-20+MOD
Inventory Rating: 32.4 metric tonnes Calculation Method: NO RATING ANALYSIS
Operating Rating: 54.1 metric tonnes Calculation Method: NO RATING ANALYSIS
Permit Rating : P P P P P
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: 0.53 m br - 3.05 m sw - 18.3 m varies - 3.05 m sw - 0.53 m br.
Total Width: 25.3 m Net Width: 24.4 m No. of Lanes: 5
Rail Description: Concrete Barrier Type 25 Rail Code : 1111
Min. Vertical Clearance: Unimpaired

DESCRIPTION UNDER STRUCTURE

Facility Name	Func Class	Lanes	Horiz Clr (m)	Vert Clr (m)
FIRST STREET	14	4	10.40	5.52

Channel Description: Not applicable

CONDITION TEXT

REVISIONS

The routine roadway and elevation photos were updated (photos 1 and 2).

NBI Item No. 36, "Traffic Safety Features", was modified from "1111", to "1011", to reflect that there are no Thrie Beams at the transitions.

Element #104, P/S Concrete Closed Web/Box Girder, quantity - 25 meters, was downgraded to condition state 2 due to the cracks on the deck, the top flange flange of the Box girder.

Element #358, Deck Cracking Smart Flag, was downgraded to condition state 3 due to the diagonal and transverse cracks on the deck.

CONDITION OF STRUCTURE

Inspection Access:

This is an undercrossing with no access issues, all elements were inspected.

CONDITION TEXT**Deck and Rail:**

There are diagonal and transverse cracks on the deck. The diagonal cracks are located at Abutment 1 and 3, are 1/64" to 1/32" in width and 3 to 4 feet on centers, while the transverse cracks are 1/64" to 1/32" in width and 16" on centers (photos 3 to 5). Cracks are common for concrete structures and most of the time they do not effect the ultimate capacity of the bridge. However, cracks in concrete can affect the service life of a structure by providing a pathway for moisture to access the deck reinforcing steel and accelerate corrosion. Due to the deck cracks, the deck should be treated with methacrylate to prevent water from corroding the deck reinforcing.

Vertical cracks are present on the left concrete rail over Bent 2 (photo 6). This condition is common in the negative moment regions and is noted for future reference.

Superstructure:

There are transverse cracks with light efflorescence on the undersurface of the overhangs at Bent 2 (photo 7). Again, cracking in the negative moment regions of concrete structures is common and this condition is no a concern and noted for future reference.

Substructure:

No apparent defects were noted during the inspection.

SAFE LOAD CAPACITY

According to the plans this structure was designed for HS20-44 and Alternative Design Load. Due to the design loading, this structure was assigned a load capacity of 32.4 and 54 metric tons for the Inventory and Operating Rating.

<u>ELEMENT INSPECTION RATINGS</u>									
F#Elem	Element Description	Env	Total	Units	Qty in each Condition State				
					Qty	St. 1	St. 2	St. 3	St. 4
101 12	Concrete Deck - Bare	2	1280	sq.m.	1280	0	0	0	0
101 104	P/S Conc Closed Web/Box Girder	2	51	m.	26	25	0	0	
101 205	Reinforced Conc Column or Pile Extension	2	3	ea.	3	0	0	0	0
101 215	Reinforced Conc Abutment	2	51	m.	51	0	0	0	0
101 252	Cast-In-Drilled Hole Concrete Pile	2	44	ea.	44	0	0	0	0
101 256	Slope Protection	2	2	ea.	2	0	0	0	0
101 302	Compression Joint Seal	2	51	m.	51	0	0	0	0
101 321	Reinforced Conc Approach Slab w/ or w/o AC Ovly	2	2	ea.	2	0	0	0	0
101 331	Reinforced Conc Bridge Railing	2	113	m.	113	0	0	0	0
101 358	Deck Cracking	2	1	ea.	0	0	1	0	

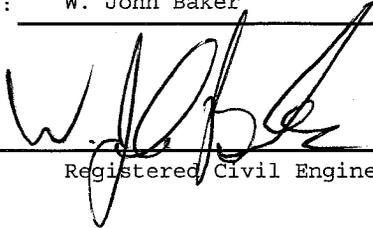
WORK RECOMMENDATIONS

RecDate: 01/26/2010	EstCost: \$16,640	There are diagonal and transverse cracks on the deck. The diagonal cracks are located at Abutment 1 and 3, are 1/64" to 1/32" in width and 3 to 4 feet on centers, while the transverse cracks are 1/64" to 1/32" in width and 16" on centers (photos 3 to 6). Cracks are common for concrete structures and most
Action : Deck-Methacrylate	StrTarget: 2 YEARS	
Work By: MAINT. CONTRACT	DistTarget:	
Status : PROPOSED	EA:	

WORK RECOMMENDATIONS

of the time they do not effect the ultimate capacity of the bridge. However, cracks in concrete can affect the service life of a structure by providing a pathway for moisture to access the deck reinforcing steel and accelerate corrosion. Due to the deck cracks, the deck should be treated with methacrylate to prevent water from corroding the deck reinforcing.

Inspected By : W. John Baker



Registered Civil Engineer



STRUCTURE INVENTORY AND APPRAISAL REPORT

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***** IDENTIFICATION *****
(1) STATE NAME- CALIFORNIA                069
(8) STRUCTURE NUMBER                      42 0323R
(5) INVENTORY ROUTE(ON/UNDER) - ON       131001800
(2) HIGHWAY AGENCY DISTRICT              06
(3) COUNTY CODE 019 (4) PLACE CODE 27000
(6) FEATURE INTERSECTED- FIRST STREET
(7) FACILITY CARRIED- SR 180 EB
(9) LOCATION- 06-FRE-180-R59-FRE
(11) MILEPOINT/KILOMETERPOINT           359
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE     000000180S01
(16) LATITUDE 36 DEG 45 MIN 16.5 SEC
(17) LONGITUDE 119 DEG 46 MIN 21 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

***** STRUCTURE TYPE AND MATERIAL *****
(43) STRUCTURE TYPE MAIN:MATERIAL- PRSTR CONC CONT
      TYPE- BOX BEAM OR GIRDER - MULTI CODE 605
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
      TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 2
(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- NOT APPLICABLE CODE N
***** AGE AND SERVICE *****
(27) YEAR BUILT 1999
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
      UNDER- HIGHWAY W/NO PEDESTF 1
(28) LANES:ON STRUCTURE 05 UNDER STRUCTURE 04
(29) AVERAGE DAILY TRAFFIC 68000
(30) YEAR OF ADT 2005 (109) TRUCK ADT 9 %
(19) BYPASS, DETOUR LENGTH 1 KM
***** GEOMETRIC DATA *****
(48) LENGTH OF MAXIMUM SPAN 25.3 M
(49) STRUCTURE LENGTH 50.6 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 24.4 M
(52) DECK WIDTH OUT TO OUT 25.3 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 24.4 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 8 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 24.4 M
(53) MIN VERT CLEAR OVER BRIDGE RDWY 99.90 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 = 95.8 *****
STATUS
HEALTH INDEX 95.8
PAINT CONDITION INDEX = N/A
***** CLASSIFICATION ***** CODE
(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- ROUTE ON NHS 1
(26) FUNCTIONAL CLASS- PRIN ART FWY/EXP URBAN 12
(100) DEFENSE HIGHWAY- NOT STRAHNET 0
(101) PARALLEL STRUCTURE- RIGHT STRUCTURE R
(102) DIRECTION OF TRAFFIC- 1 WAY 1
(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- STATE HIGHWAY AGENCY 01
(22) OWNER- STATE HIGHWAY AGENCY 01
(37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5
***** CONDITION ***** CODE
(58) DECK 5
(59) SUPERSTRUCTURE 6
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION N
(62) CULVERTS N
***** LOAD RATING AND POSTING ***** CODE
(31) DESIGN LOAD- MS-18+MOD OR HS-20+MOD 6
(63) OPERATING RATING METHOD- NO RATING ANALYSIS 5
(64) OPERATING RATING- 54.1
(65) INVENTORY RATING METHOD- NO RATING ANALYSIS 5
(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 6
(68) DECK GEOMETRY 6
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY N
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 1111
(113) SCOUR CRITICAL BRIDGES N
***** 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 92500
(115) YEAR OF FUTURE ADT 2025
***** INSPECTIONS *****
(90) INSPECTION DATE 01/10 (91) FREQUENCY 48 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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Photo No. 1
Roadway view looking upstation (east)



Photo No. 2
Elevation view looking right (north)



Photo No. 3
Deck cracking over the bent



Photo No. 4
Close up of deck cracking over the bent



Photo No. 5
Deck cracking near the abutment



Photo No. 6
Vertical cracks on the rail over the bent



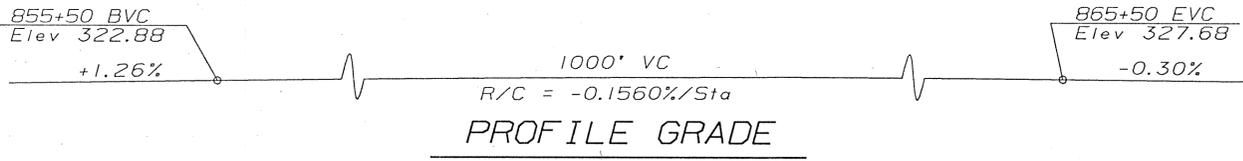
Photo No. 7
Transverse cracks on the overhang at Bent 2

CONTRACT NO. 06-25704

TRANSFER DATE: 01/02/2003
FIELD CORRECTION DATE: 04/15/1999

CORRECTIONS TRANSFERRED BY: C.F. Gosssett/J.S. Carr
FIELD CORRECTIONS BY: Rick Salinas

AS BUILT CORRECTIONS



STANDARD PLANS DATED JULY 1992

- A62-C EXCAVATION AND BACKFILL - BRIDGE
- B0-1 BRIDGE DETAILS
- B0-3 BRIDGE DETAILS
- B0-5 BRIDGE DETAILS
- B2-3 16" CAST-IN-DRILLED-HOLE CONCRETE PILE
- B6-21 JOINT SEAL (MAX MR = 2")
- B7-1 BOX GIRDER DETAILS
- B7-10 UTILITY OPENING - BOX GIRDER
- B11-53 CONCRETE BARRIER TYPE 25
- B14-5 WATER SUPPLY LINE (DETAILS) (PIPE LESS THAN 4" DIAMETER)

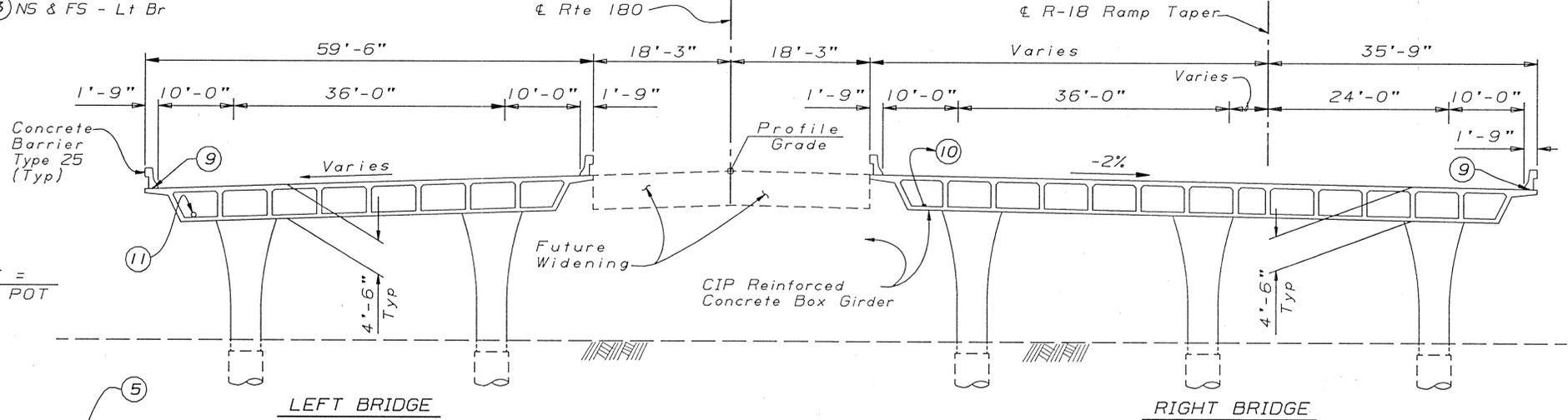
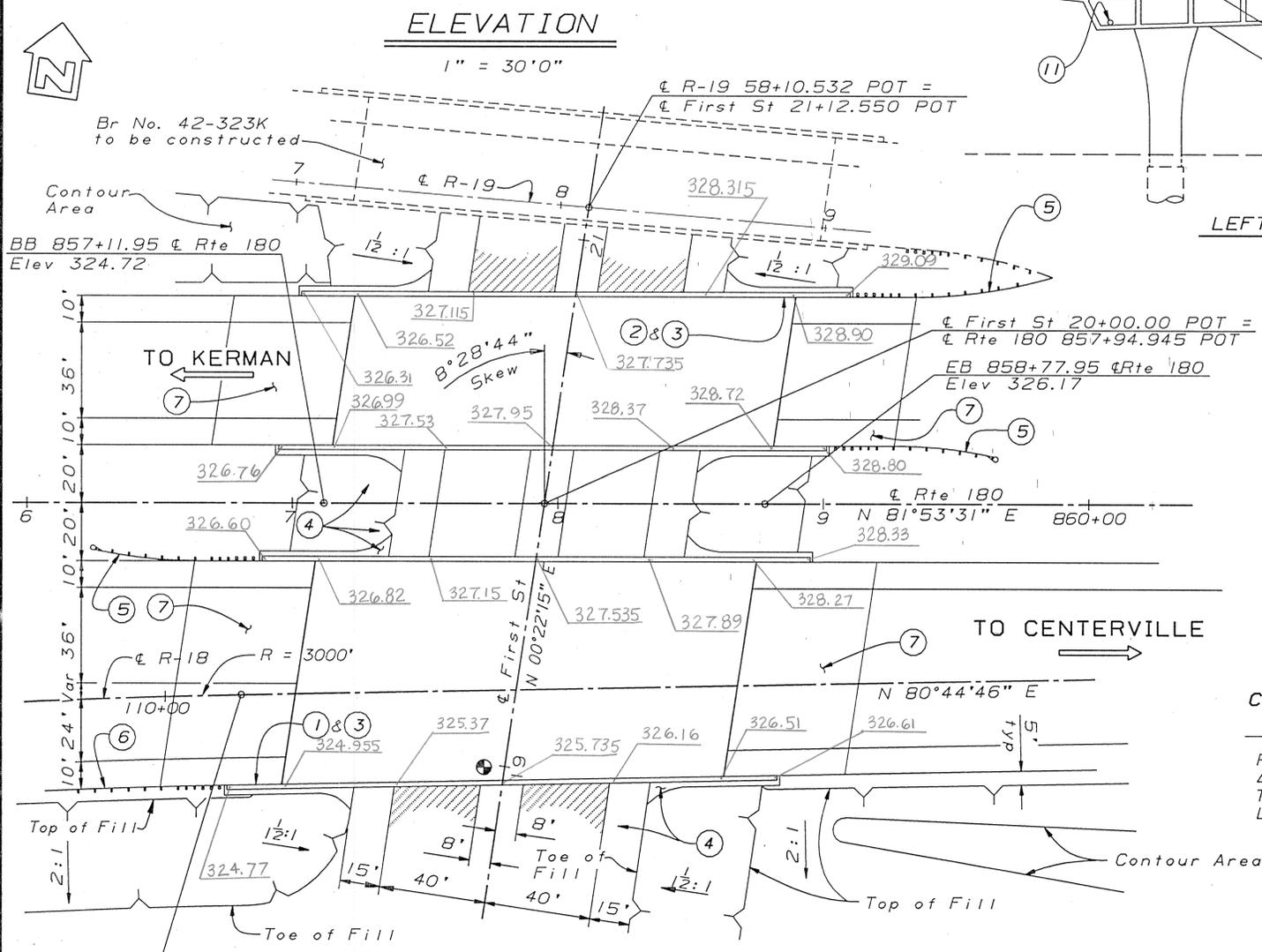
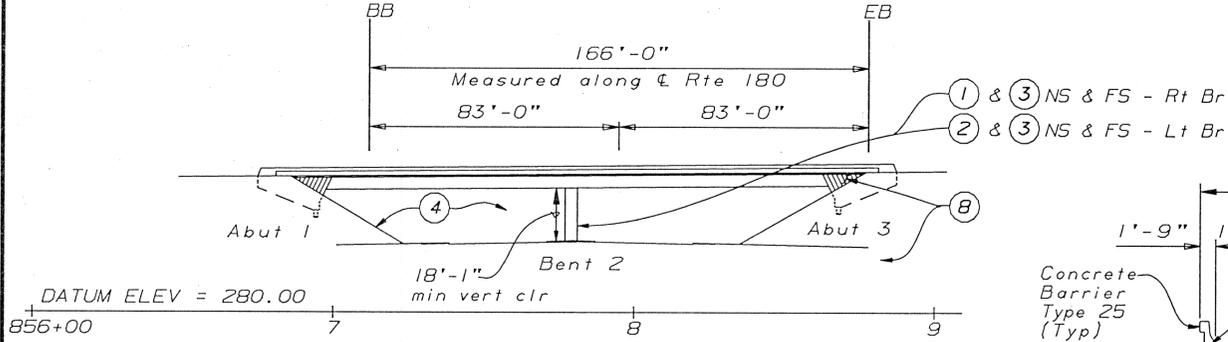
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	180, 168, 41	Var	823	1169

Yong P. Kim
REGISTERED ENGINEER - CIVIL

YONG PIL KIM
No. 48365
Exp. 6-30-96
CIVIL
STATE OF CALIFORNIA

4-15-96
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



CURVE DATA
R-18

R = 3000'
Δ = 03°11'29"
T = 83.57'
L = 167.10'

NOTE: For General Notes & Pile Data, see "DECK CONTOURS" sheet.
For Quantities, see "DECK CONTOURS" sheet.

- NOTES:**
- ① Paint "Br No. 42-323 R"
 - ② Paint "Br No. 42-323 L"
 - ③ Paint "First St UC"
 - ④ Full Slope Paving
 - ⑤ MBGR (Flared), see "Road Plans"
 - ⑥ MBGR (Continuous), see "Road Plans"
 - ⑦ Structure Approach Type N(45D)
 - ⑧ Architectural Treatment
 - ⑨ 2"Ø Lighting Conduit, see "Road Plans"
 - ⑩ 3"Ø Water Supply & 2"Ø Sprinkler Control Conduit
 - ⑪ 4"Ø Communication Conduit, see "Road Plans"
 - ⊕ Point of Min Vertical Clearance

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN
2.	DECK CONTOURS
3.	FOUNDATION PLAN
4.	ABUTMENT LAYOUT - LEFT BRIDGE
5.	ABUTMENT LAYOUT - RIGHT BRIDGE
6.	ABUTMENT DETAILS
7.	BENT DETAILS NO. 1 - LEFT BRIDGE
8.	BENT DETAILS NO. 2 - LEFT BRIDGE
9.	BENT DETAILS NO. 1 - RIGHT BRIDGE
10.	BENT DETAILS NO. 2 - RIGHT BRIDGE
11.	TYPICAL SECTION - LEFT BRIDGE
12.	TYPICAL SECTION - RIGHT BRIDGE
13.	GIRDER LAYOUT - LEFT BRIDGE
14.	GIRDER LAYOUT - RIGHT BRIDGE
15.	GIRDER REINFORCEMENT DETAILS NO. 1 - LEFT BRIDGE
16.	GIRDER REINFORCEMENT DETAILS NO. 2 - LEFT BRIDGE
17.	GIRDER REINFORCEMENT DETAILS NO. 1 - RIGHT BRIDGE
18.	GIRDER REINFORCEMENT DETAILS NO. 2 - RIGHT BRIDGE
19.	STRUCTURE APPROACH TYPE N(45D) DETAILS NO. 1
20.	STRUCTURE APPROACH TYPE N(45D) DETAILS NO. 2
21.	STRUCTURE APPROACH DRAINAGE DETAILS
22.	SLOPE PAVING - FULL SLOPE
23.	LOG OF TEST BORINGS

DESIGN ENGINEER <i>Guin Mori</i>	DESIGN BY David Romero 2-94 CHECKED A.L. Hough 7-95	LOAD FACTOR DESIGN BY A.L. Hough 7-95	LIVE LOADING: HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES STRUCTURE DESIGN 8	BRIDGE NO. 42-323R/L POST MILE R58.9	FIRST STREET UNDERCROSSING GENERAL PLAN
DESIGNER	DETAILS BY Roberta Lim 3-94 CHECKED A.L. Hough 7-95	LAYOUT BY Yong Pil Kim 11-93 CHECKED David Romero 2-94	PLANS AND SPECS COMPARED BY J. Dempsey	CU 06255 EA 0257U1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 1 OF 23