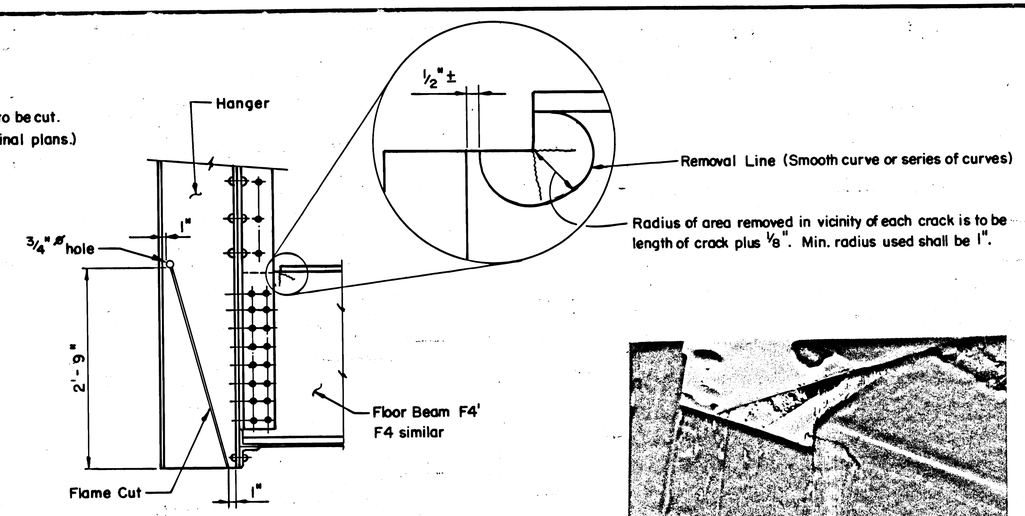
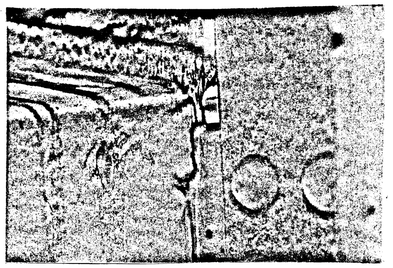
Note:
10 Hangers at Bents 3,4 and 5 to be cut.
(See sheets 2, 14 and 16 of original plans.)



HANGER & BEAM REPAIR DETAIL



TYPICAL CRACKING DETAILS

FLOOR BEAMS REPAIR PROCEDURE

1.- Contractor shall locate the tip of the cracks using nondestructive testing. (E.g. Dye penetrant, ultrasonic testing)

2.- The tip of the crack and area to be removed shall be verified by the UDOT Inspector.

3.- Remove area of cracking by flame cutting. This is to be done in such a manner that circular surface results.

4.- Flame cut surface is to be ground to a smooth surface

5.- After all grinding of the new surface is complete, that surface plus the adjacent original surface shall again be checked for cracks by Non – Destructive testing methods.

6.- If additional cracking is found by the Non-Destructive testing indicated in note # 5 additional material shall be removed and the surfaces again groud smooth.

7.- If cracking is found in areas other than those indicated by the plans, the Engineer shall determine further action.

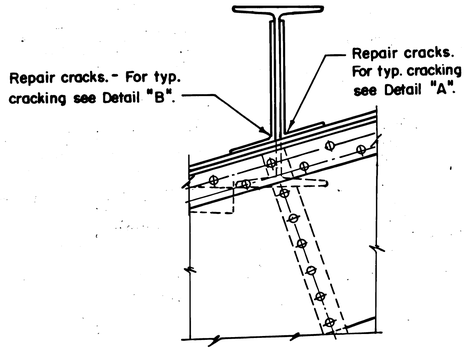
HANGER REPAIR PROCEDURE

1.- Hangers shall be cut through the web as shown.

2.- Flame cutting must be mechanized so that cuts will be straight and smooth.

3.- A 3/4" Ø hole shall be drilled at the end of the cut before starting the flame cut. All surfaces of the hole must be smooth after completion of flame cutting.

Note:
8 Plates at Bents 2 to be repaired.
(See sheets 2 and 14 of original plans.)



GUSSET PLATE REPAIR DETAIL

GUSSET PLATE REPAIR PROCEDURE

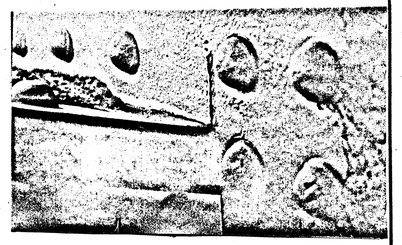
1.- Contractor shall locate tip of cracks using non-destructive testing procedures

2.- Cracks in the Gusset Plates shall be removed by hand grinding.

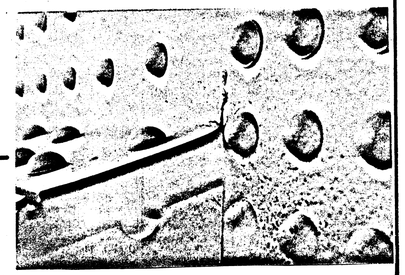
3.- Careful consideration must be given in not to damage web plate of the floor beam or flange of the arch girder while grinding.

4.- Ground - out area shall be inspected by Non - Destructive testing to insure that all of the crack has been removed.

5.- Excavated area shall be filled with a full penetration weld and the surface ground flush with surrounding surfaces.



DETAIL "A"



DETAIL "B"

QUANTITIES

ITEM	QUANTITIES	UNIT
Mobilization	•	Lump
Bridge Repair	•	Lump
Flagging	80	Hours
Construction Signs	500	Sq.Ft.Day
Vertical Panel	100	Device Day

NOTE:
Contractor shall restore the paint that was removed or damaged due to repair procedures.

MORE INFORMATION AND PHOTOGRAPHS OF AREAS TO BE REPAIRED ARE AVAILABLE AT THE STRUCTURES DIVISION OF UDOT.

NO	BY	DATE	REMARKS

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

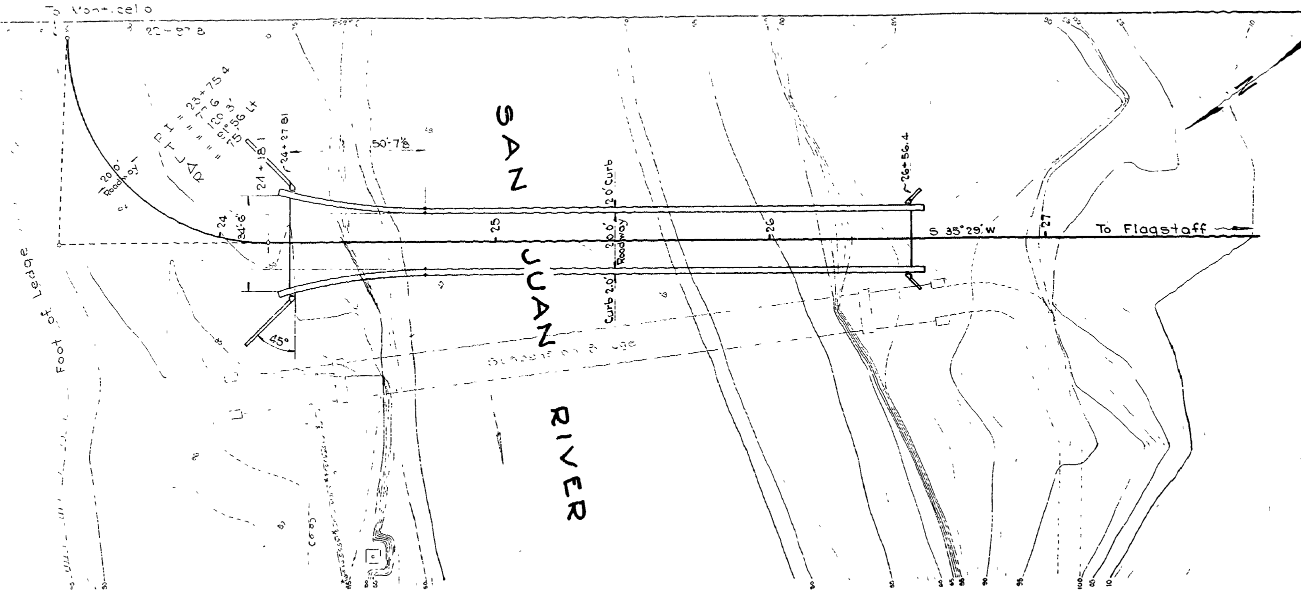
SR-163 AT MEXICAN HAT
SAN JUAN RIVER BRIDGE
REPAIR DETAIL

DESIGN	ABBY 3-88	CHECK	
DRAWN	M.U.S. 3-88	CHECK	R.L.R 3-88
QUANT	R.L.R. 3-88	CHECK	ABBY 3-88
APPROVAL RECOMM	4/12/88 DATE	GROUP LEADER	
APPROVED	4-12-88 DATE	DEPT STRUCTURES ENGR	

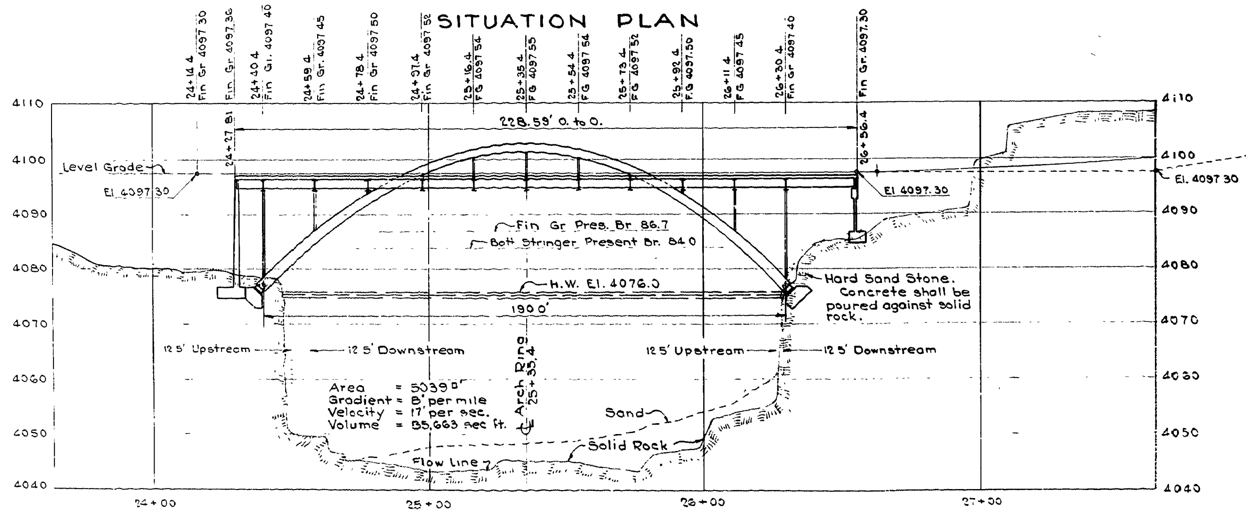
25+42.1 STATION
SAN JUAN COUNTY
DRG. NO. C-274 R1
SHT. 1 OF 1

NF-50(9)
PROJECT NUMBER

C-274R1



SITUATION PLAN



PROFILE ALONG ℄ ROAD

GENERAL NOTES

Materials, construction and workmanship shall be in accordance with the State Standard Specifications for Road and Bridge Construction, 1952 edition and supplements thereto which are in effect at date of request for bids.

All reinforcing steel shall be Standard A-305 Reinforcing Bars, Intermediate Grade.

Type II cement required.

DESIGN DATA

H-20 Loading in accordance with the A.A.S.H.O. Specifications of 1949.
fs = 20,000#/□", fc = 1050#/□", n = 10; fs = 18,000#/□" for Structural Steel.

QUANTITIES

Excav. for Structures Unclassified	~~260~~ 238	Cu. Yds
Concrete - Class "A"	~~367~~	" "
Reinforcing Steel	50,514 ~~50,279~~	Lbs
Structural Steel	367,000 ~~337,000~~ ~~333,370~~	"
Steel Handrail SR 3	449.5	Lin. Ft
Removal of Existing Structures	1	Each

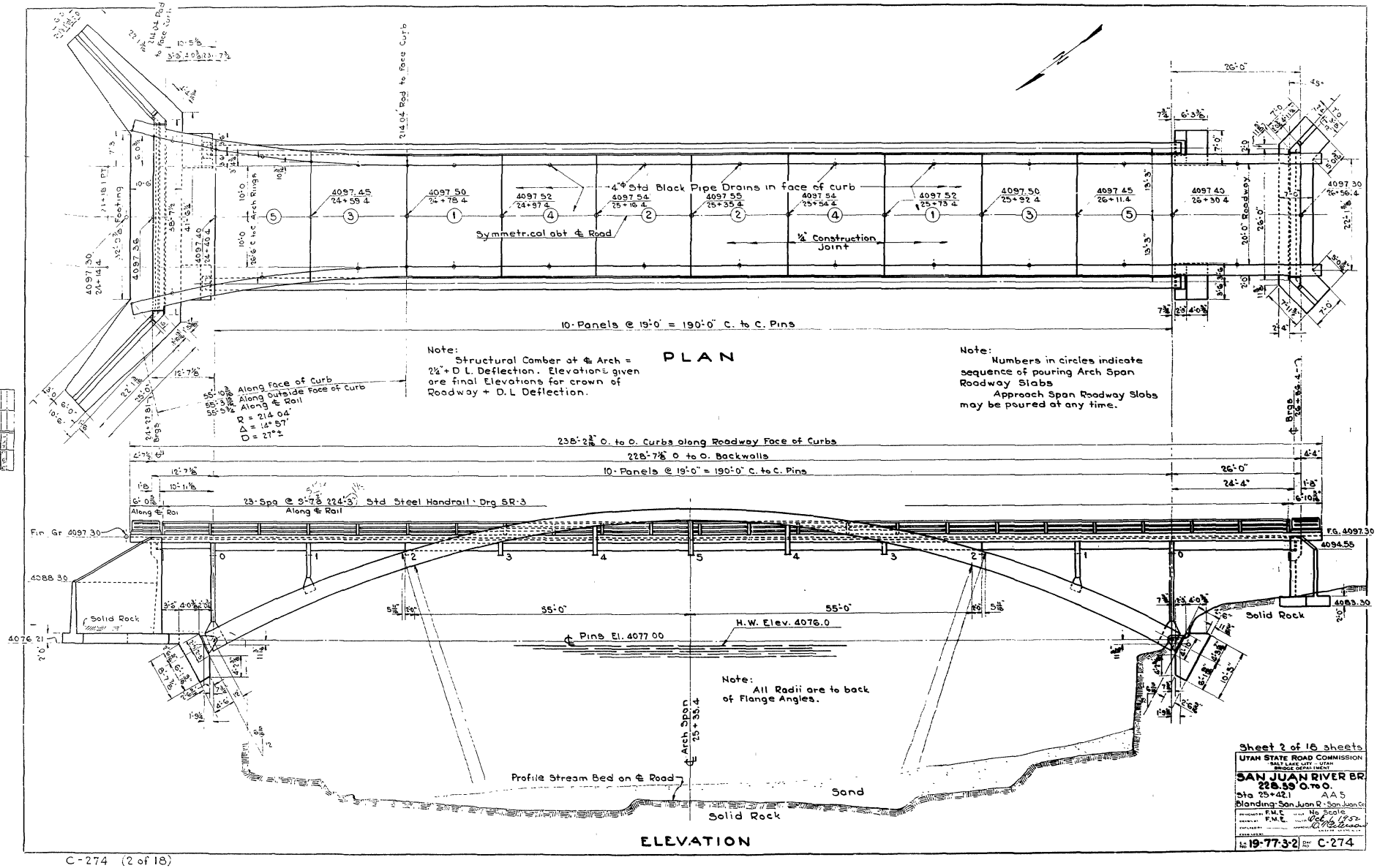
Sheet 1 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR
228.59' O. TO O.
Sta. 25+42.1 AAS
Blanding-San Juan R-San Juan Co.
F.M.E. No Scale
F.M.E. Oct. 1, 1952
O. T. Peterson

Br. No. 19-77-3-2 Dr. No. C-274

C-274 (1 of 18)



Sheet 2 of 18 sheets

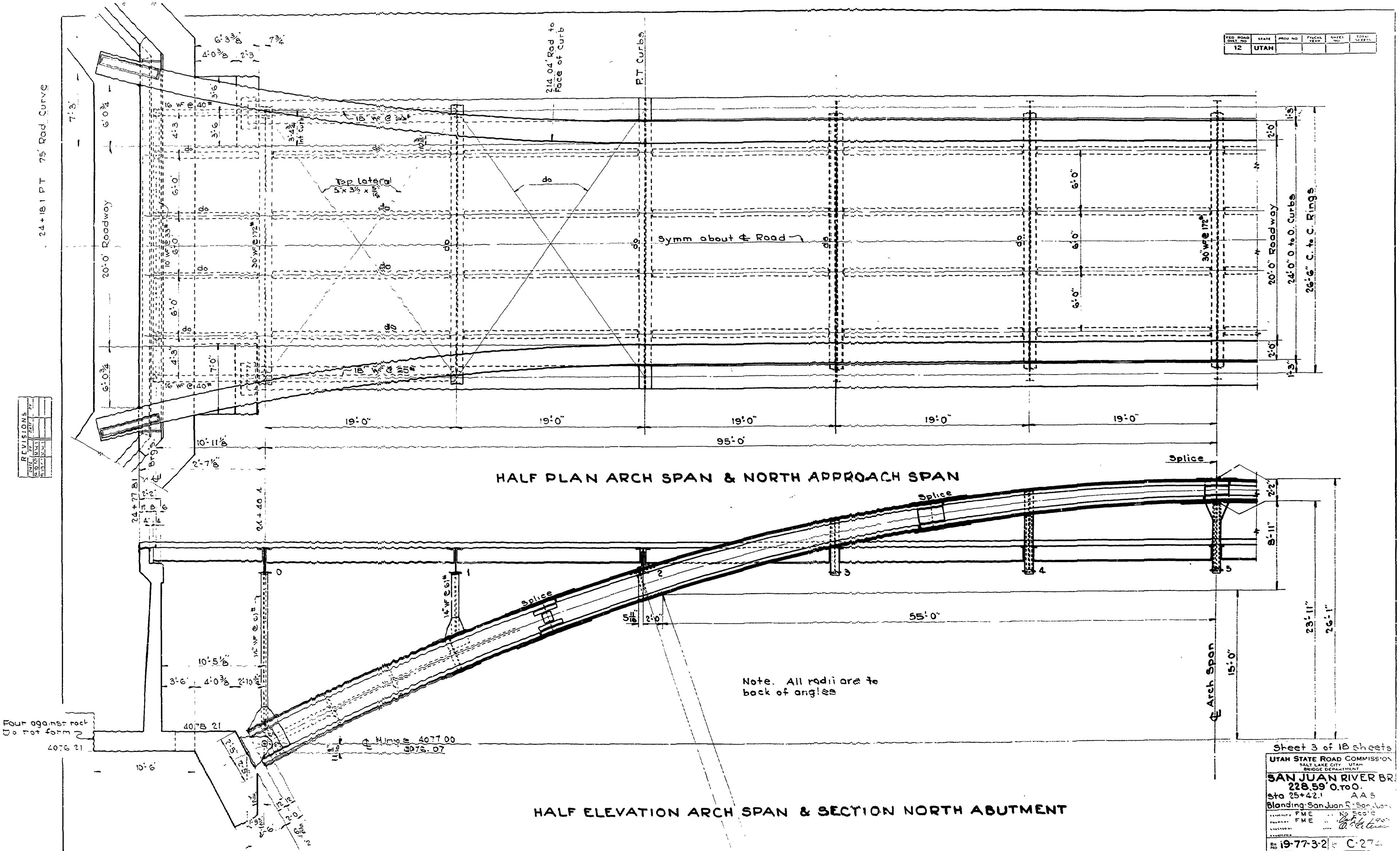
UTAH STATE ROAD COMMISSION
SALT LAKE CITY - UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.55' O. to O.
Sta 25+42.1 AA 5
Blanding - San Juan R. - San Juan Co.

DESIGNED F.M.E. No Scale
DRAWN F.M.E. Oct. 1952
CHECKED
APPROVED

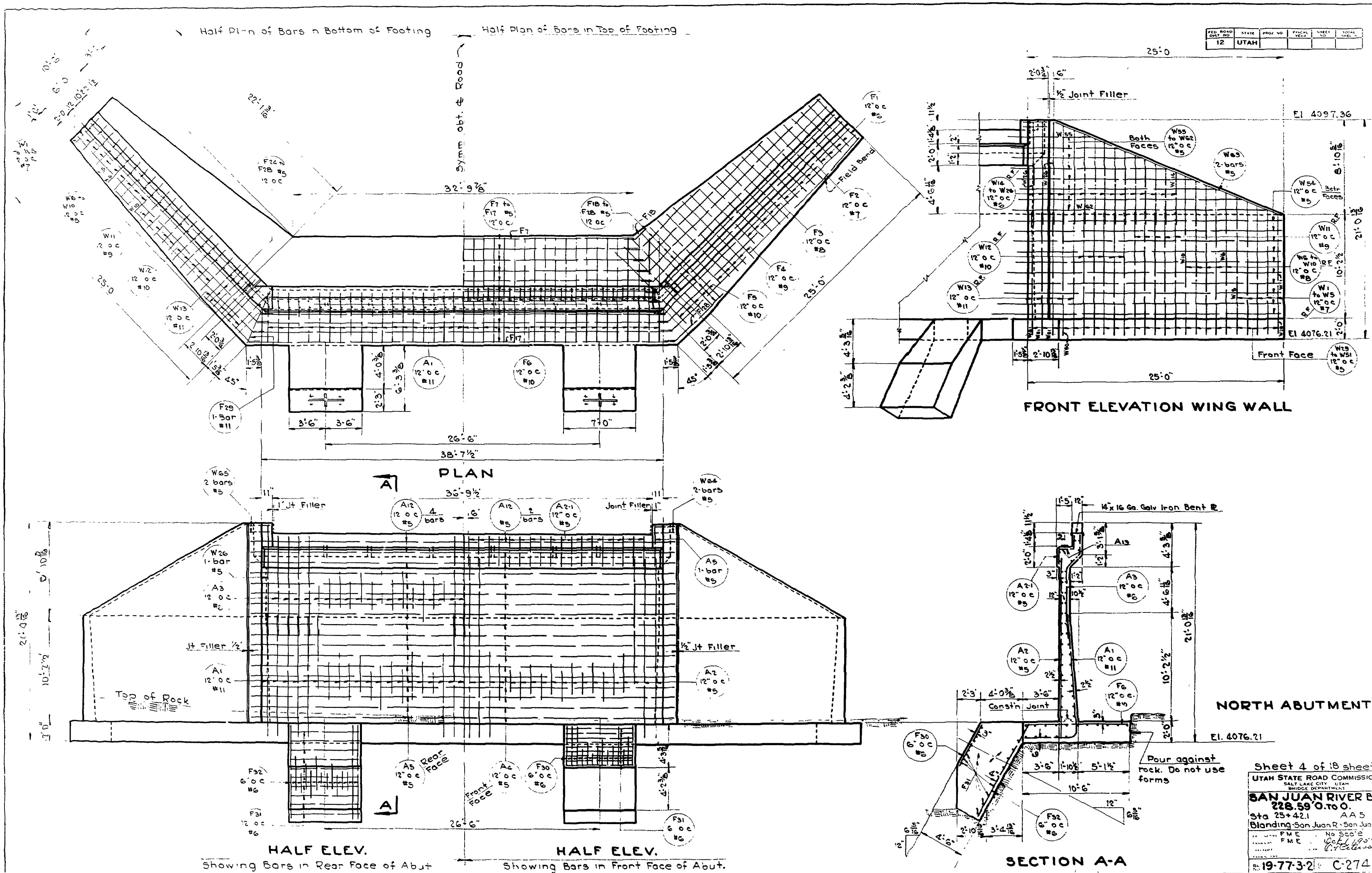
Job No. 19-77-3-2 Dwg. No. C-274

C-274 (2 of 18)

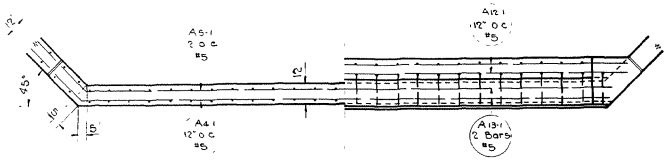


FED ROAD DIST NO | STATE | PROJ NO | FISCAL YEAR | SHEET NO | TOTAL SHEETS
12 | UTAH
HALF PLAN ARCH SPAN & NORTH APPROACH SPAN
HALF ELEVATION ARCH SPAN & SECTION NORTH ABUTMENT
214.04' Rad to Face of Curb
P.T. Curbs
24+18.1 P.T. 75' Rad Curve
20'-0" Roadway
Top lateral 5 x 3½ x 5/16
Symm about ℄ Road
30" WF @ 172#
16" WF @ 40#
18" WF @ 35#
20'-0" Roadway
24'-0" O. to O. Curbs
26'-6" C. to C. Rings
19'-0"
95'-0"
55'-0"
Splice
14" WF @ 61#
23'-11"
26'-1"
15'-0"
8'-11"
℄ Arch Span
Note. All radii are to back of angles
Pour against rock Do not form
4076.21
4078.21
℄ Hinge 4077.00
24+27.81
24+40.4
REVISIONS
Sheet 3 of 18 sheets
UTAH STATE ROAD COMMISSION
SALT LAKE CITY UTAH
BRIDGE DEPARTMENT
SAN JUAN RIVER BR.
228.59' O. to O.
Sta 25+42.1 AA 5
Blanding-San Juan R.-San Juan
FME
FME
No Scale
19-77-3-2
C-274

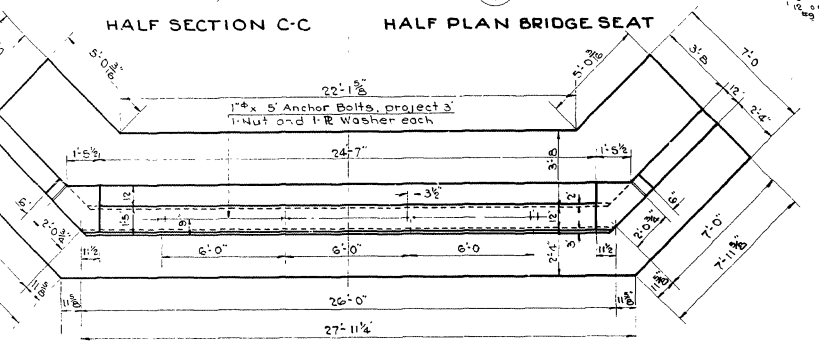
C-274 (3 of 18)


Half Plan of Bars in Bottom of Footing
Half Plan of Bars in Top of Footing
Sym. abt. ℄ Road
12 UTAH
PLAN
FRONT ELEVATION WING WALL
½" Joint Filler
El. 4097.36
El. 4076.21
Front Face
25'-0"
32'-9⅞"
26'-6"
38'-7½"
36'-9½"
1" Jt Filler
Joint Filler 1"
Jt Filler ½"
½" Jt Filler
Top of Rock
Rear Face
Front Face
Field Bend
HALF ELEV.
Showing Bars in Rear Face of Abut.
HALF ELEV.
Showing Bars in Front Face of Abut.
¼" x 16 Ga. Galv Iron Bent Pl.
Const'n Joint
Pour against rock. Do not use forms
El. 4076.21
SECTION A-A
NORTH ABUTMENT
REVISIONS
Sheet 4 of 18 sheets
UTAH STATE ROAD COMMISSION
SALT LAKE CITY UTAH
BRIDGE DEPARTMENT
SAN JUAN RIVER BR.
228.59' O. to O.
Sta 25+42.1 AA5
Blanding-San Juan R.-San Juan Co.
FME
FME
No Scale
19-77-3-2 C-274

C-274 (4 of 18)



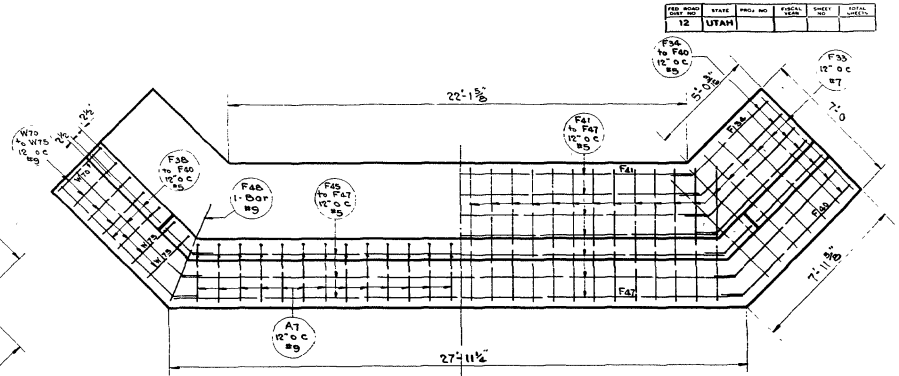
HALF SECTION C-C



HALF PLAN BRIDGE SEAT

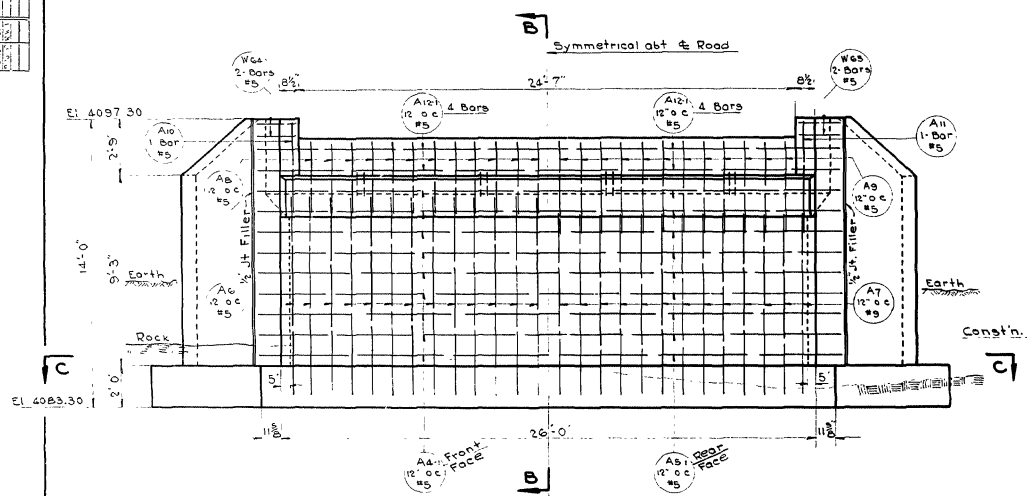
PLAN OF SOUTH ABUTMENT

(Bridge Seat same as North Abutment except as shown)



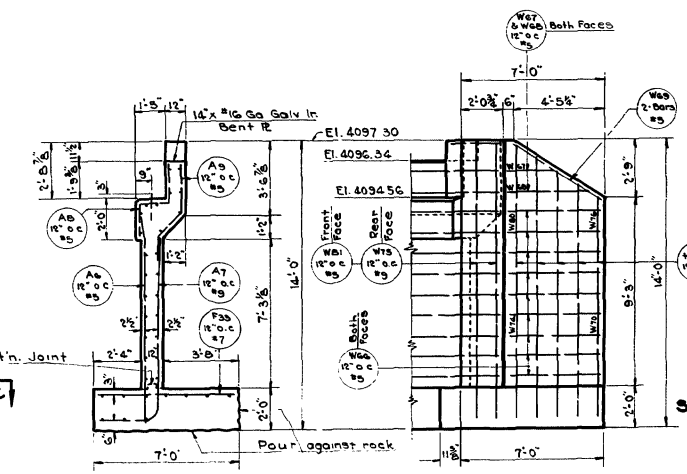
HALF SECTION C-C
Showing Bars in Bottom of Footing

HALF SECTION C-C
Showing Bars in Top of Footing



HALF ELEV.
Showing Bars in Front Face of Abut.

HALF ELEV.
Showing Bars in Rear Face of Abut.



SECTION B-B

FRONT ELEV. WING WALLS

SOUTH ABUTMENT

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
12	UTAH				

Sheet 5 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY — UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59' O. TO O.
Sta. 25+42.1
AA 5
Blanding-San Juan R.-San Juan Co.

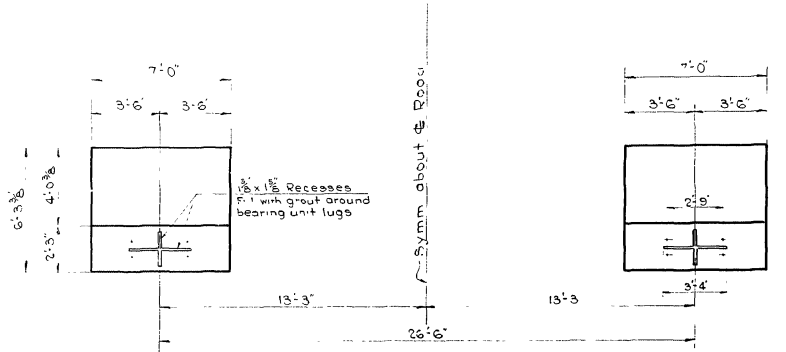
DESIGNED BY F.M.E. SCALE As Scale
DRAWN BY F.M.E.
CHECKED BY
APPROVED

No. 19-77-3-2 Dwg. No. C-274

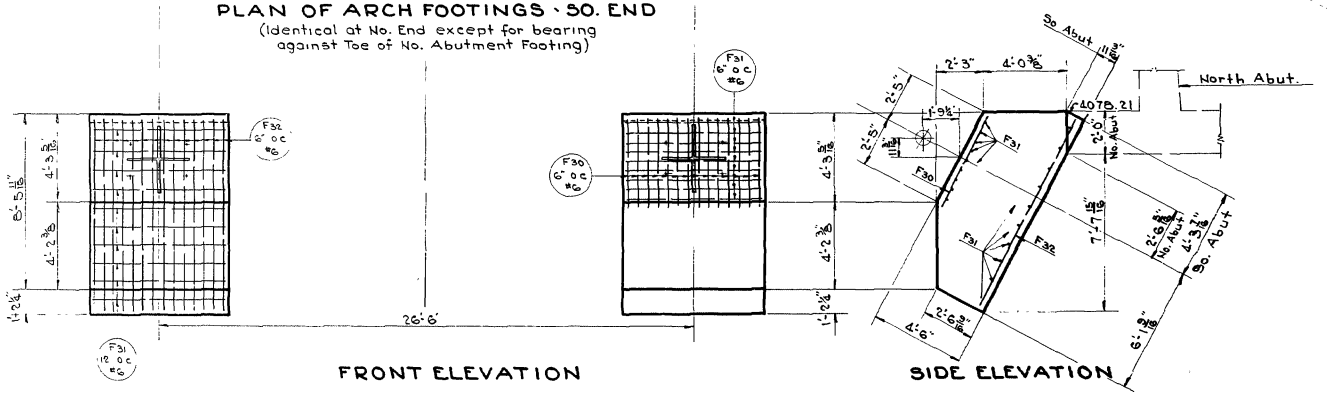
REVISIONS

C-274 (5 of 18)

FED. ROAD PROJ. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
12	UTAH				

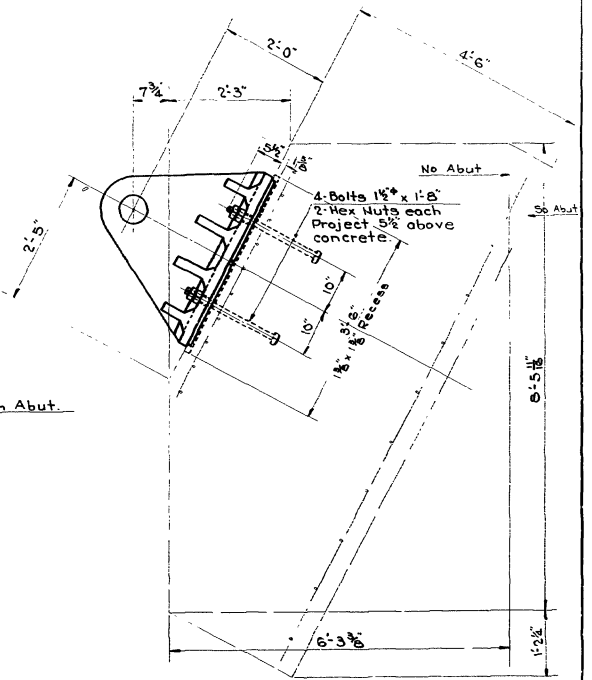


PLAN OF ARCH FOOTINGS - SO. END
(Identical at No. End except for bearing against Toe of No. Abutment Footing)



FRONT ELEVATION

SIDE ELEVATION



SECTION ARCH FOOTING
(Identical for footings both ends of Arch)
(Except as shown)

REVISIONS

NO.	BY	DATE

Sheet 6 of 18 sheets

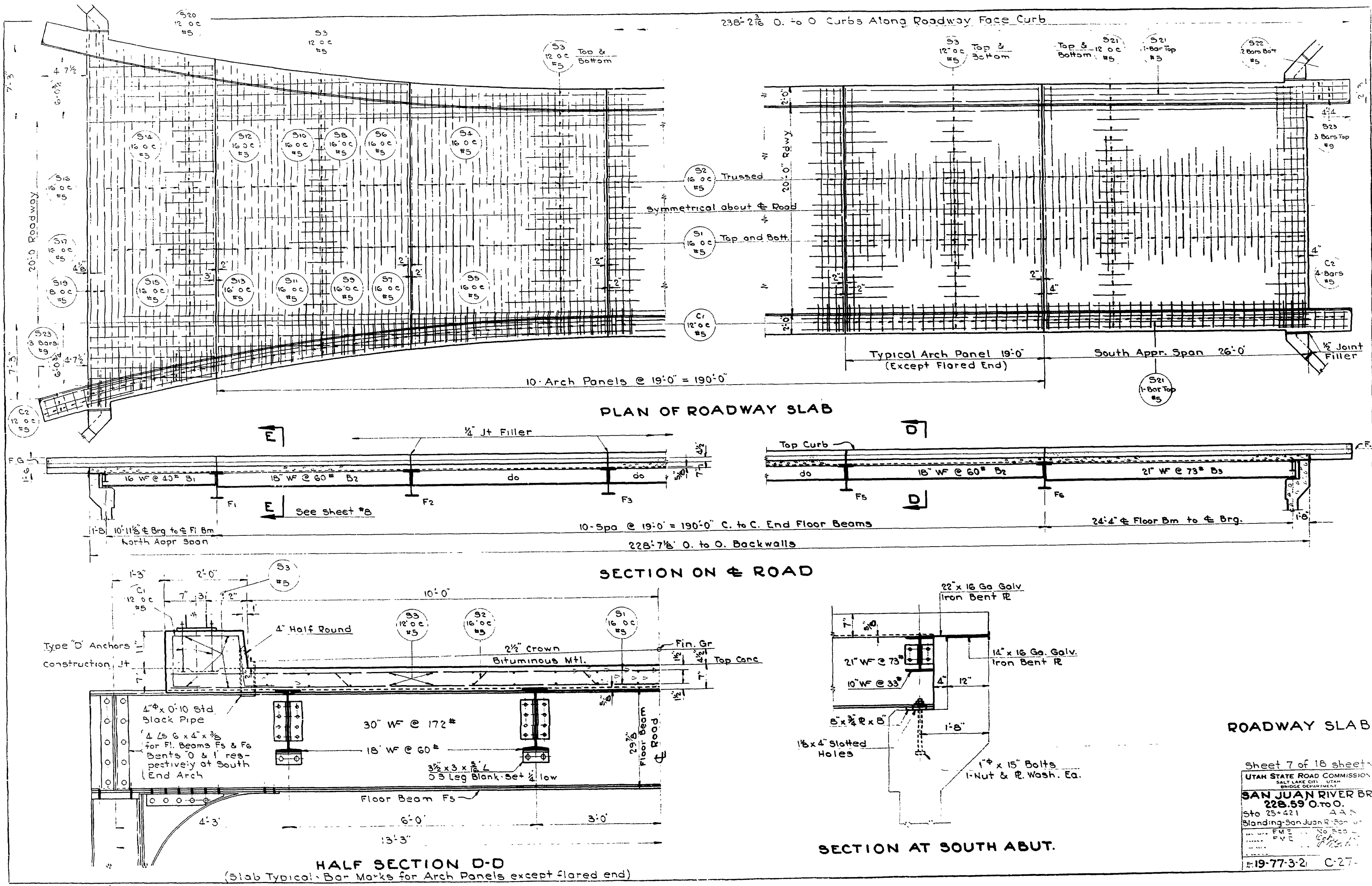
UTAH STATE ROAD COMMISSION
SALT LAKE CITY - UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
226.59'0.to O.
Sta. 25+42.1 AA 5
Blanding-San Juan R.-San Juan Co.

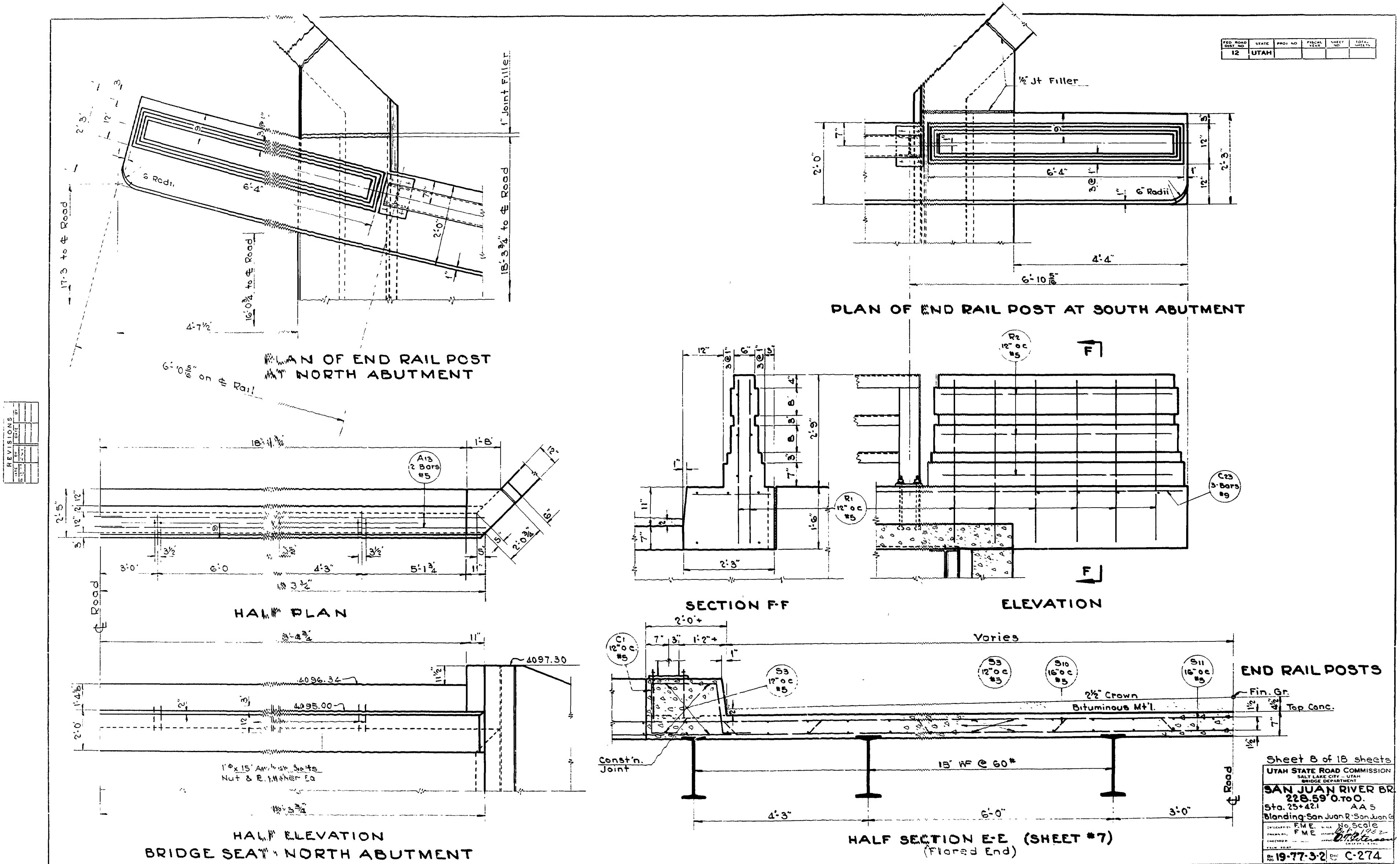
DESIGNED F.M.E. SCALE No Scale
DRAWN F.M.E. DATE 1952
CHECKED
APPROVED

PROJ. NO. 19-77-3-2 DWG. NO. C-274

C-274 (6 of 18)

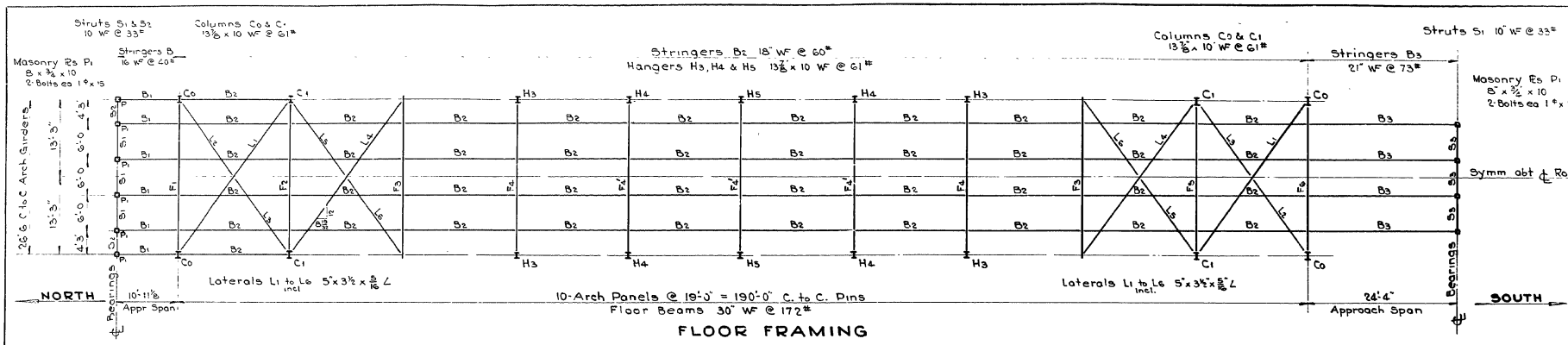

238'-2 3/16" O. to O. Curbs Along Roadway Face Curb
S20 12" o.c. #5
S3 12" o.c. #5
S3 12" o.c. #5 Top & Bottom
S3 12" o.c. #5 Top & Bottom
Top & Bottom S21 12" o.c. #5
S21 1-Bar Top #5
S22 2 Bars Bott #5
S14 16" o.c. #5
S12 16" o.c. #5
S10 16" o.c. #5
S8 16" o.c. #5
S6 16" o.c. #5
S4 16" o.c. #5
S16 16" o.c. #5
S17 16" o.c. #5
S19 8" o.c. #5
S23 3 Bars #9
C2 12" o.c. #5
S15 16" o.c. #5
S13 16" o.c. #5
S11 16" o.c. #5
S9 16" o.c. #5
S7 16" o.c. #5
S5 16" o.c. #5
20'-0" Roadway
S2 16" o.c. #5 Trussed
Symmetrical about ℄ Road
S1 16" o.c. #5 Top and Bott.
C1 12" o.c. #5
20'-0" Rdwy
S23 3 Bars Top #9
C2 4-Bars #5
Typical Arch Panel 19'-0" (Except Flared End)
South Appr. Span 26'-0"
1/2" Joint Filler
S21 1-Bar Top #5
10-Arch Panels @ 19'-0" = 190'-0"
PLAN OF ROADWAY SLAB
REVISIONS
E
1/4" Jt Filler
F.G.
16" WF @ 40# B1
18" WF @ 60# B2
do
F1
F2
F3
E See Sheet #8
D
Top Curb
18" WF @ 60# B2
21" WF @ 73# B3
F5
F6
1'-8"
10'-11 5/8" ℄ Brg to ℄ F1 Bm
North Appr Span
10-Spa @ 19'-0" = 190'-0" C. to C. End Floor Beams
24'-4" ℄ Floor Bm to ℄ Brg.
228'-7 1/8" O. to O. Backwalls
SECTION ON ℄ ROAD
1'-3"
2'-0"
C1 12" o.c. #5
S3 #5
10'-0"
S3 12" o.c. #5
S2 16" o.c. #5
S1 16" o.c. #5
4" Half Round
Type "D" Anchors
Construction Jt
2 1/2" Crown
Bituminous Mtl.
Fin. Gr
Top Conc
4" Φ x 0'-10 Std Black Pipe
4 Ls 6 x 4" x 3/8 for Fl. Beams F5 & F6 Bents 0 & 1 respectively at South End Arch
30" WF @ 172#
18" WF @ 60#
3 1/2 x 3 x 5/16 L 0.3 Leg Blank-Set 1/4" low
29 7/8" Floor Beam ℄ Road
Floor Beam F5
4'-3"
6'-0"
3'-0"
13'-3"
HALF SECTION D-D
(Slab Typical - Bar Marks for Arch Panels except flared end)
22" x 16 Ga Galv Iron Bent Pl
14" x 16 Ga. Galv. Iron Bent Pl
21" WF @ 73#
10" WF @ 33#
12"
8" x 3/4 Pl x 8"
1'-8"
1 1/8 x 4" Slotted Holes
1" Φ x 15" Bolts 1-Nut & Pl. Wash. Ea.
SECTION AT SOUTH ABUT.
ROADWAY SLAB
Sheet 7 of 18 sheets
UTAH STATE ROAD COMMISSION
SALT LAKE CITY UTAH
BRIDGE DEPARTMENT
SAN JUAN RIVER BR.
228.59' O. to O.
Sta 25+42.1
Blanding-San Juan R.
19-77-3-2
C-27

C-274 (7 of 18)

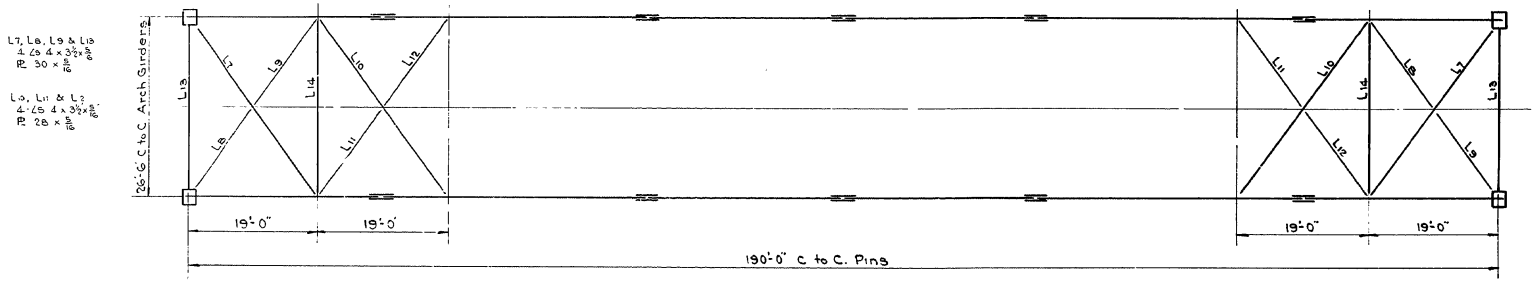


FED ROAD DIST NO | STATE | PROJ NO | FISCAL YEAR | SHEET NO | TOTAL SHEETS
12 | UTAH
PLAN OF END RAIL POST AT NORTH ABUTMENT
PLAN OF END RAIL POST AT SOUTH ABUTMENT
½" Jt Filler
1" Joint Filler
6" Radii
6'-4"
4'-4"
6'-10 5/16"
17'-3 to ℄ Road
18'-3¾" to ℄ Road
16'-0¾" to ℄ Road
4'-7½"
6'-0 5/16" on ℄ Rail
REVISIONS
HALF PLAN
A13 2 Bars #5
3'-0" 6'-0 4'-3" 5'-1¾" 11"
℄ Road
HALF ELEVATION
BRIDGE SEAT - NORTH ABUTMENT
4097.30
4096.34
4095.00
1"φ x 15" Anchor Bolts
Nut & R. Washer Ea
SECTION F-F
ELEVATION
R2 12" o.c. #5
R1 12" o.c. #5
C23 3-Bars #9
2'-3"
2'-9"
END RAIL POSTS
HALF SECTION E-E (SHEET #7)
(Flared End)
C1 12" o.c. #5
S3 12" o.c. #5
S10 16" o.c. #5
S11 16" o.c. #5
Varies
2½" Crown
Bituminous Mt'l.
Fin. Gr.
Top Conc.
Const'n. Joint
18" WF @ 60#
4'-3" 6'-0" 3'-0"
Sheet 8 of 18 sheets
UTAH STATE ROAD COMMISSION
SALT LAKE CITY - UTAH
BRIDGE DEPARTMENT
SAN JUAN RIVER BR.
228.59' O.TO O.
Sta. 25+42.1 AAS
Blanding-San Juan R.-San Juan Co.
F.M.E.
F.M.E.
No Scale
19-77-3-2
C-274

C-274 (8 of 18)

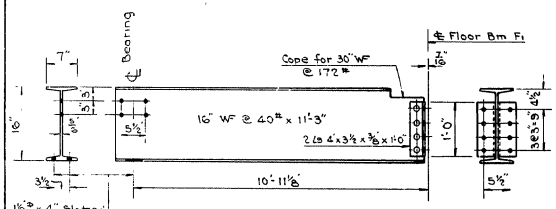


FLOOR FRAMING

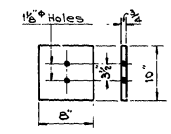


ARCH GIRDER FRAMING

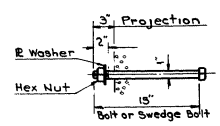
Note: All Rivets 7/8" & All Open Holes 15/16" unless shown otherwise.



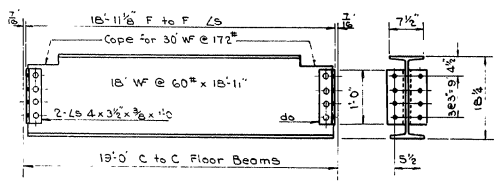
DETAIL BEAMS B1 MAKE 6 AS SHOWN



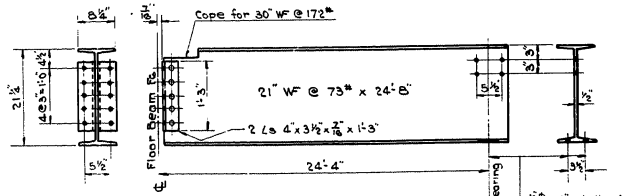
MASONRY Rs. P1
MAKE 10



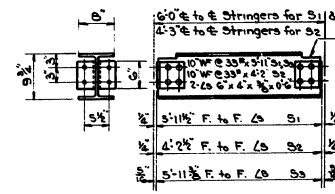
ANCHORS FOR P1
20-REQ'D.



DETAIL BEAMS B2 MAKE 42 AS SHOWN



DETAIL BEAMS B3 MAKE 4 AS SHOWN



FRAMING DIAGRAM

DETAIL END STRUTS

MAKE 3	MARK S1
MAKE 2	MARK S2
MAKE 3	MARK S3

REVISIONS

NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			
5			

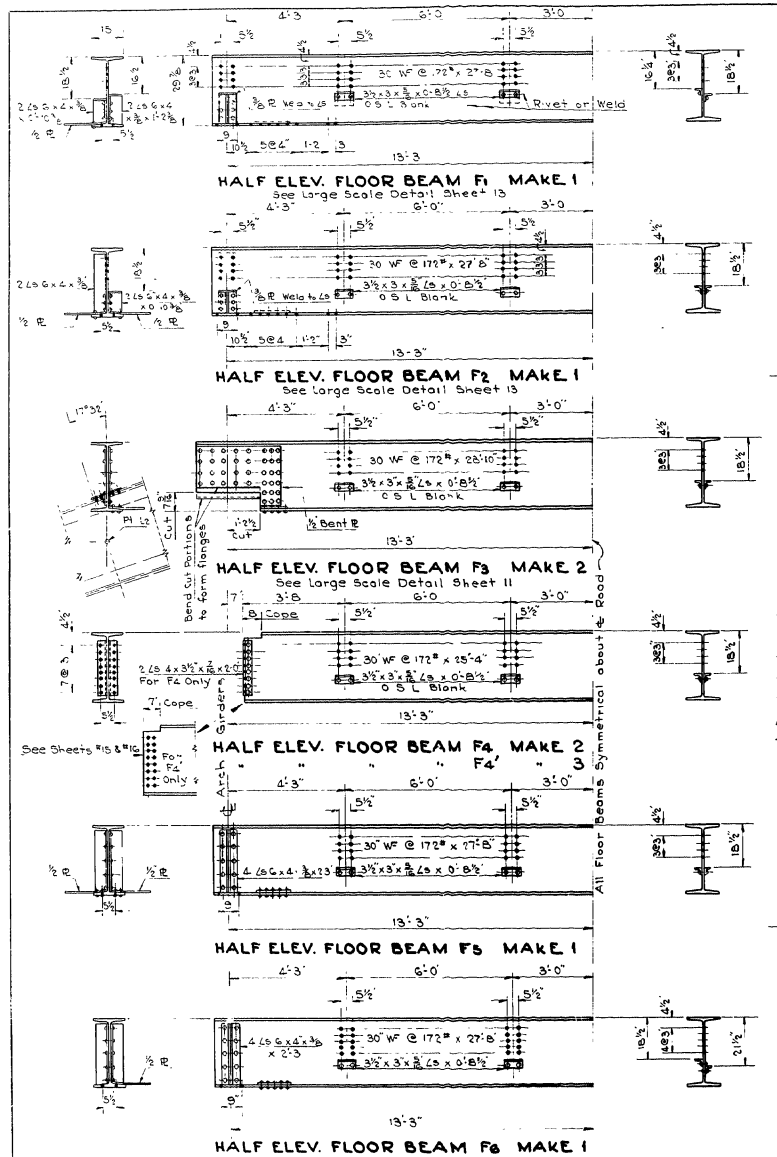
Sheet 9 of 18 sheets

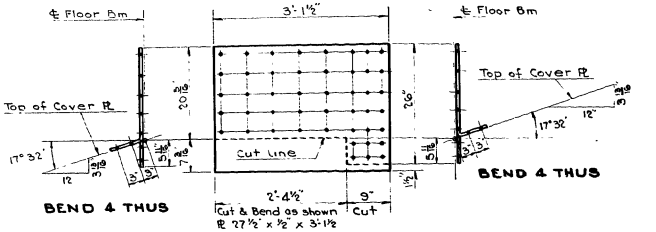
UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59 C. to C.
Sta. 25+42.1 AA 5
Blanding-San Juan R.-San Juan Co.

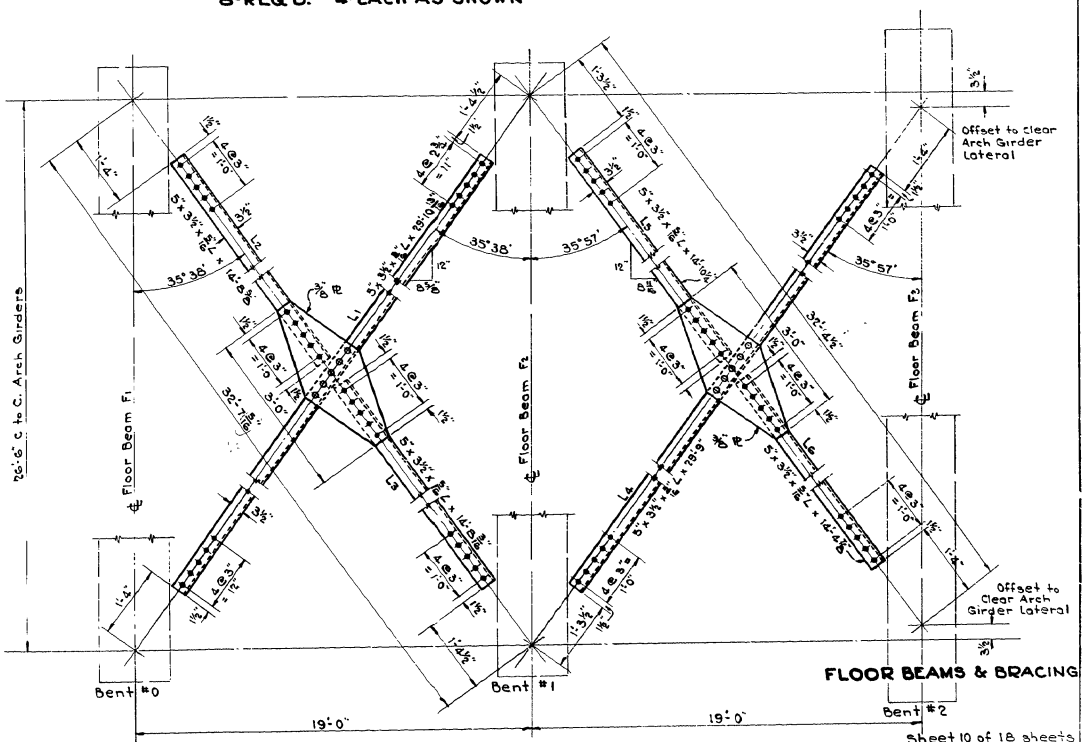
DESIGNED BY F.M.E. SCALE No Scale
DRAWN BY F.M.E. DATE
CHECKED BY DATE
APPROVED BY

No. 19-77-3-2 C-274





BENT PL. CLIP ∠s FOR FLOOR BEAMS F3
8-REQ'D. 4-EACH AS SHOWN



FLOOR BEAMS & BRACING

LATERAL BRACING AT TOP OF END BENTS NORTH END OF ARCH
" " " " " " " SOUTH " " " OPP. HAND

REVISIONS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TO. SHEETS
12	UTAH				

Sheet 10 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59 Q to O.
Sta 25+42.1 AA 5
Blanding-San Juan R.-San Juan Co.

DESIGNED	F.M.E.	No Scale
DRAWN	F.M.E.	
CHECKED		

19-77-32 C-274

C-274 (10 of 18)

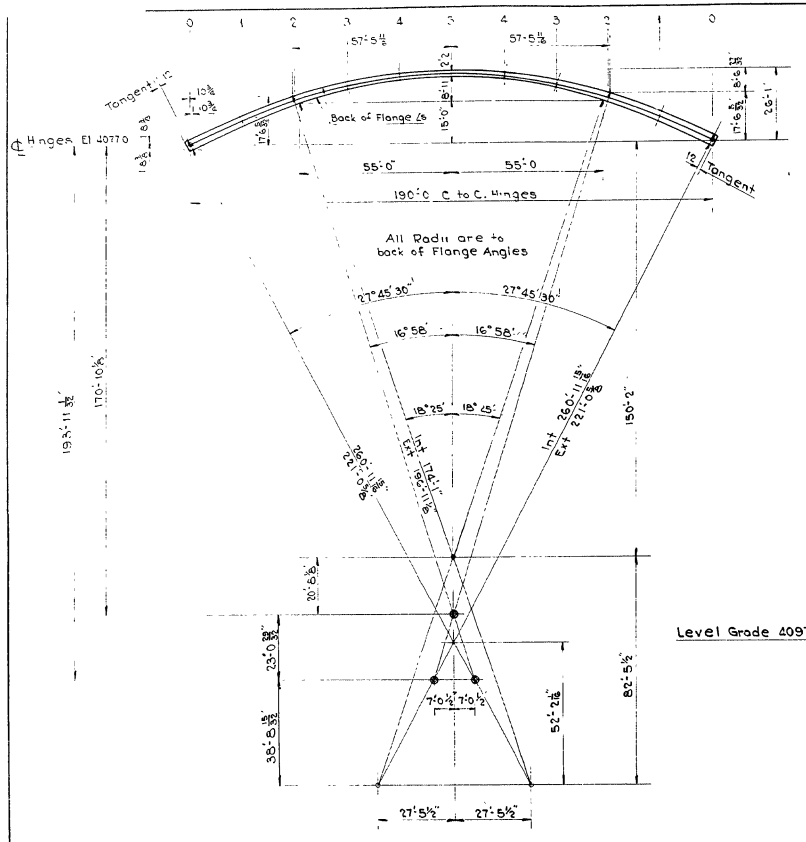
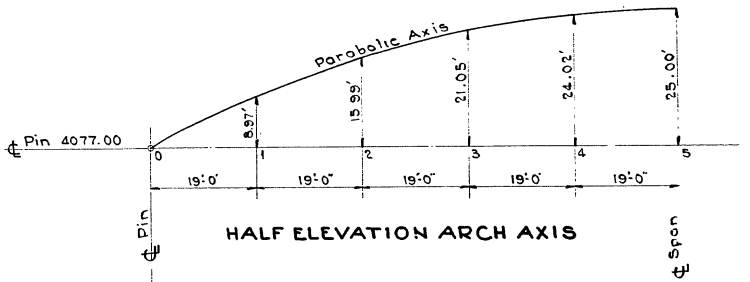


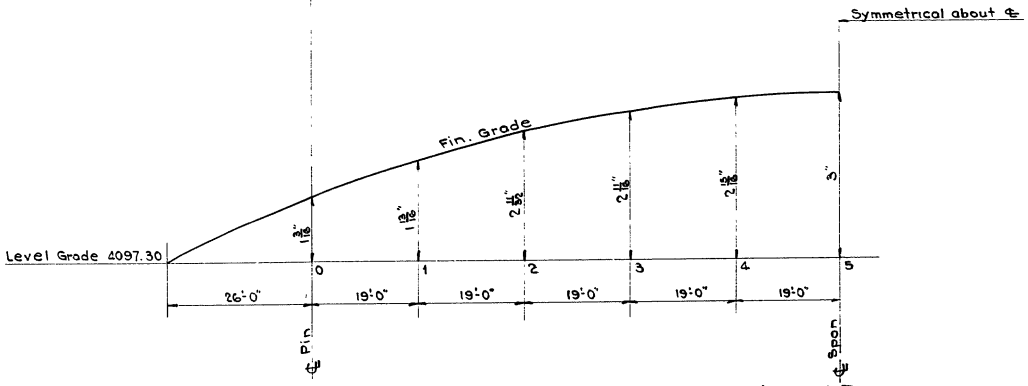
DIAGRAM SHOWING RADII TO BACK OF FLANGE ANGLES

o = Centers for Intrados Radii
@ = " " Extrados "

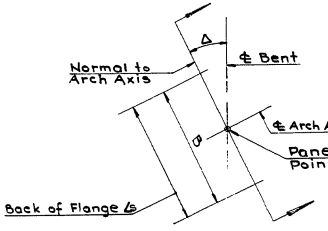
Note: See details of Arch Ring at each panel point for further information.



HALF ELEVATION ARCH AXIS

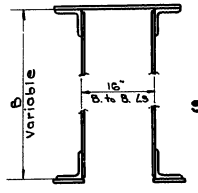


HALF CAMBER DIAGRAM FOR FIN. GRADE AT ℄ ROAD



POINT	B	Δ
0	3'-10"	27°45'30"
1	3'-7 3/4"	22°50'
2	3'-2 3/8"	17°32'
3	2'-7 3/4"	11°54'
4	2'-3 3/4"	5°01'
5	2'-2"	0°00'

DETAIL AT PANEL POINTS



SECTION

1- Cover Pl. 28"x 3/4"
2- Bottom Pls. 7"x 3/4"
2- Web Pls. 1/2"
4- Flange Angles 6"x6"x 3/4"

SUPPLEMENTARY DIAGRAMS

Sheet 11 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59' O. TO O.
Sta 25+42.1 AA 5
Blanding San Juan R. - San Juan Co

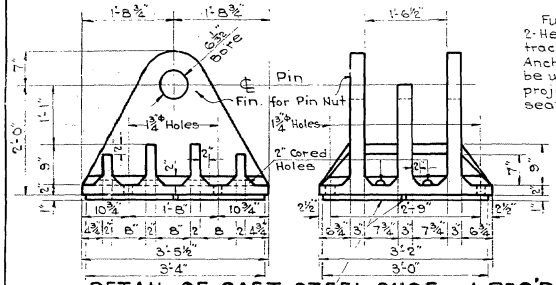
PREPARED BY F.M.E. No Scale
DRAWN BY F.M.E.
CHECKED BY
APPROVED

No. 19-77-32 C-274

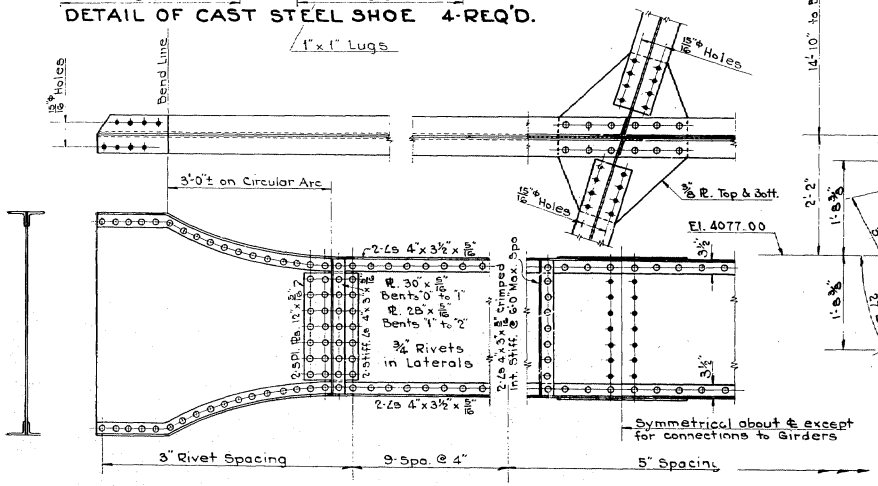
REVISIONS

ANCHOR BOLTS

Furnish 16 Bolts 1⅛"ø x 1'-8", 2-Hex. Nuts per Bolt. If contractor desires to drill in Anchors, Swedge Bolts shall be used. Anchor Bolts to project 5½" above finished seat.

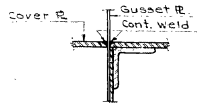


DETAIL OF CAST STEEL SHOE 4-REQ'D.

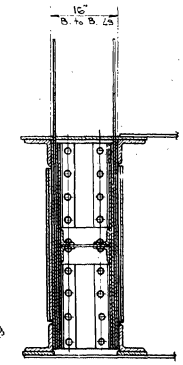


DETAIL OF BOTTOM LATERAL BETWEEN BENTS "0" AND "1"

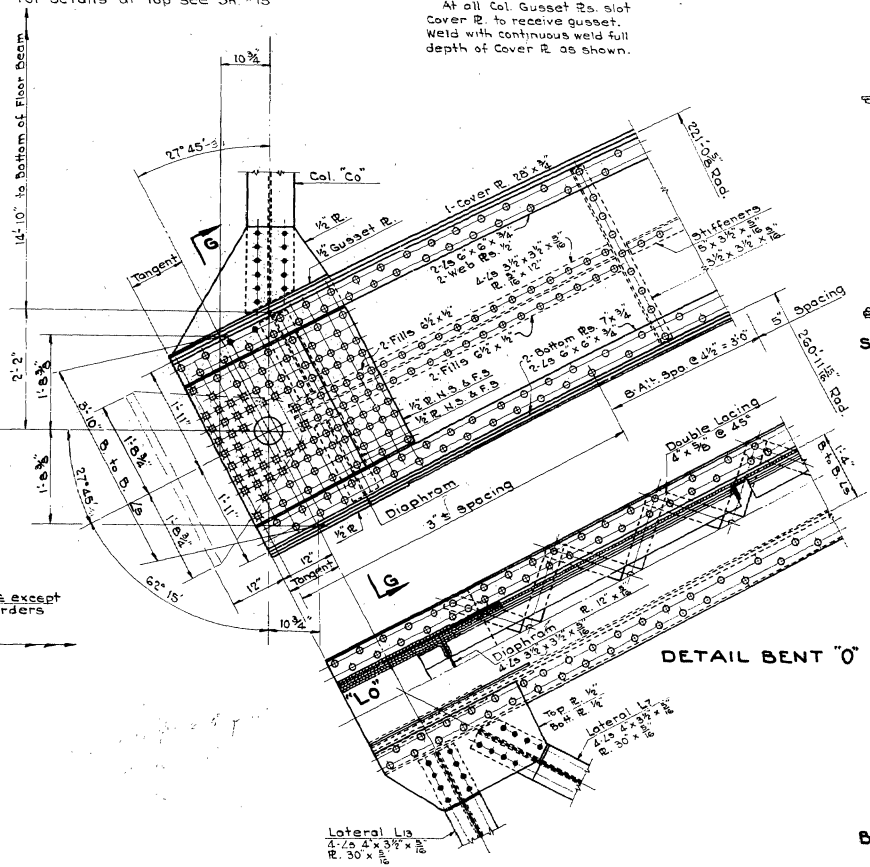
Remaining Laterals are Similar except for Sections and Field Rivet Holes which are shown on Bent Details.



At all Col. Gusset PLs. slot Cover PL to receive gusset. Weld with continuous weld full depth of Cover PL as shown.



SECTION G-G



DETAIL BENT "0"

BENT "0"

REVISIONS			
NO.	DATE	BY	APPROVED

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
12	UTAH				

Sheet 12 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY - UTAH
BRIDGE DEPARTMENT

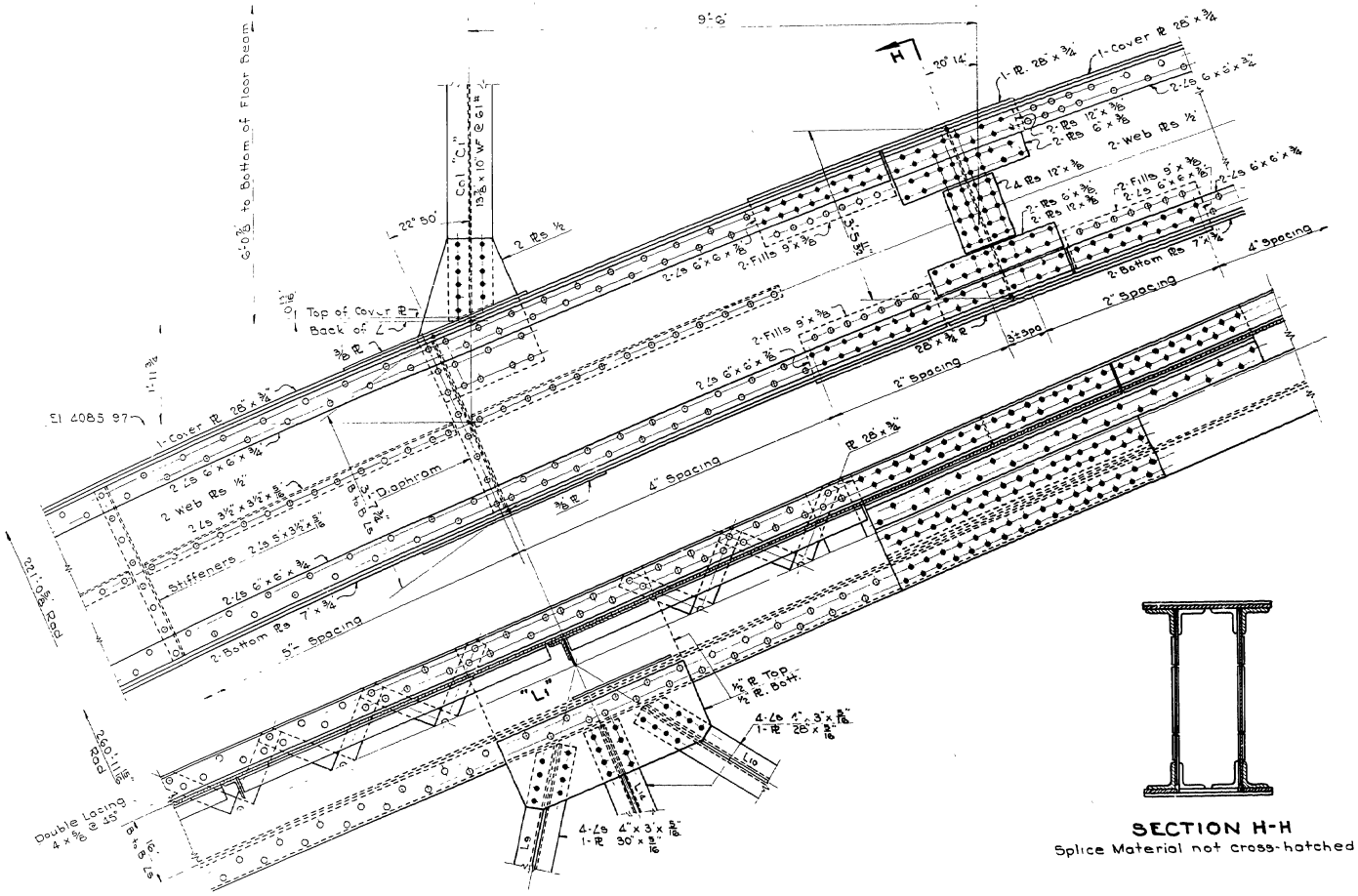
SAN JUAN RIVER BR.
228.59' O. TO O.
Sta. 25+42.1 AA 5
Blanding-San Juan R.-San Juan Co.

DETAILED: F.M.E. SCALE: No Scale
CHECKED BY: F.M.E. APPROVED: [signature]
CHIEF ENGINEER
ENGINEER OF BRIDGES

PROJECT NO. 19-77-3-2 DRG. NO. C-274

For details at top see Sh #15

FED. ROAD CONT. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	NO. OF SHEETS
12	UTAH				



DETAIL BENT "1"

SECTION H-H
Splice Material not cross-hatched

BENT "1"

REVISIONS

Sheet 13 of 18 sheets

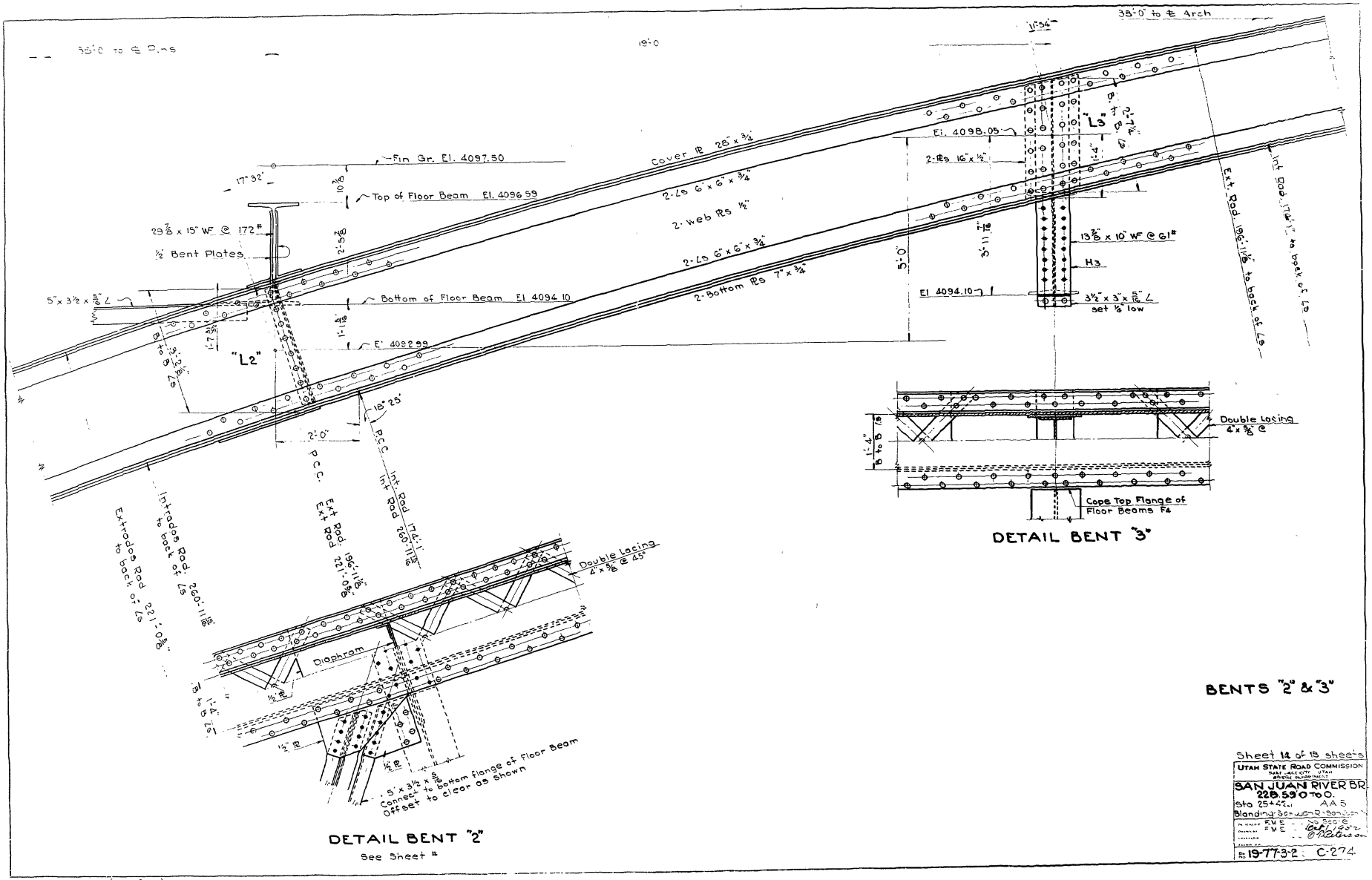
UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59 O.TO O.
Sta. 25+42.1 AA 5
Blanding-San Juan R-San Juan Co.

DESIGNED F.M.E. No Scale
DRAWN F.M.E.
CHECKED
COMPARED BY

PROJECT NO. 19-77-32 SHEET NO. C-274

C-274 (13 of 18)



DETAIL BENT "2"

See Sheet #

DETAIL BENT "3"

BENTS "2" & "3"

REVISIONS

DATE	BY	

Sheet 14 of 18 sheets

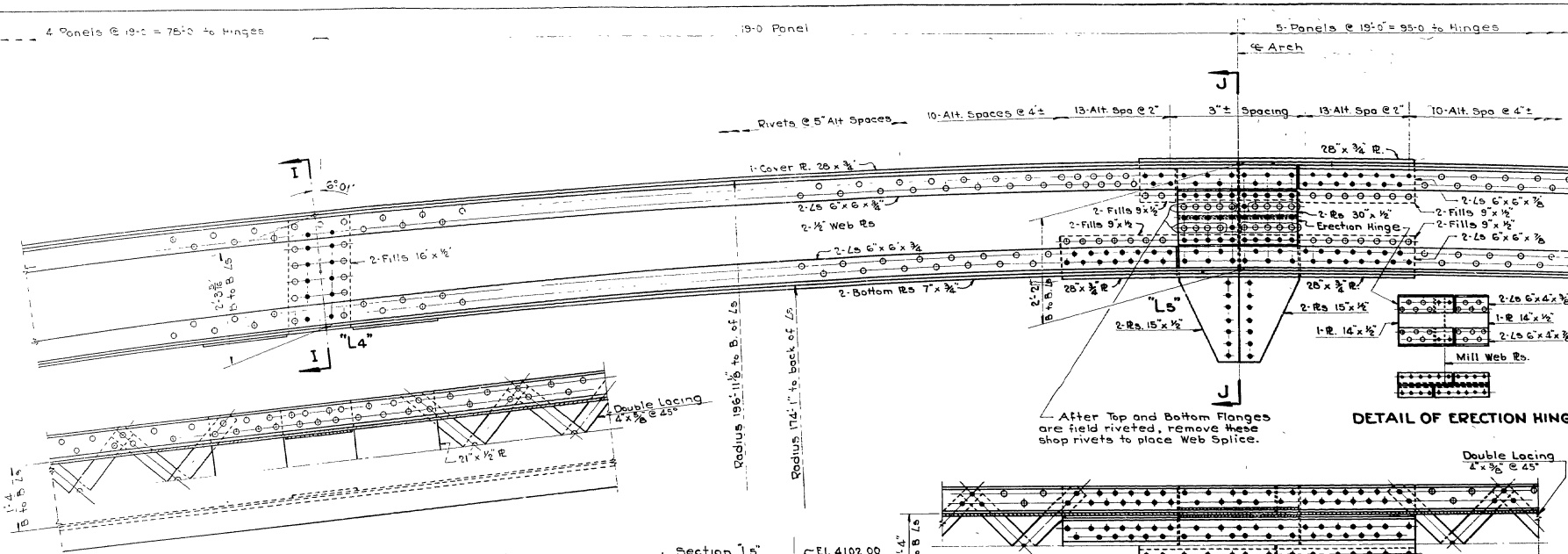
UTAH STATE ROAD COMMISSION
SALT LAKE CITY, UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR
228.59'0 TO O.
Sta 25+47.1 AA 5
Blanding Sec 10 T 30 S R 23 E

DESIGNED BY	F.M.E.	Sec 6
DRAWN BY	F.M.E.	
CHECKED		
TRACED BY		

No. 19-77-3-2 C-274

C-274 (14 of 18)



REVISIONS

Sheet 15 of 18 sheets

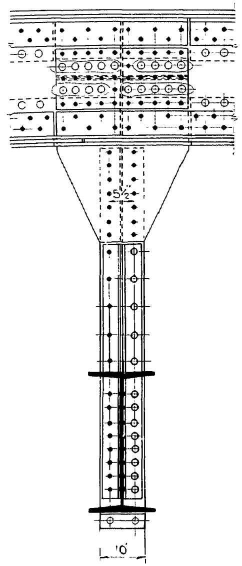
UTAH STATE ROAD COMMISSION
SALT LAKE CITY — UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59' O. TO O.
Sta. 25+42.1 AA 5
Blanding-San Juan R.-San Juan Co.

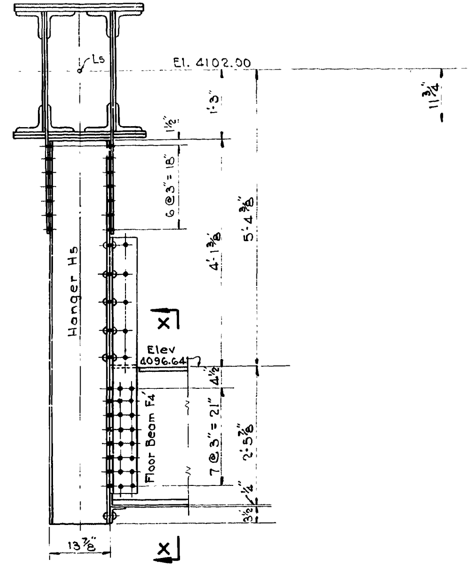
DESIGNED BY F.M.E. ... No Scale
DRAWN F.M.E. ... Oct. 1952
TRACED ... E. Morgan
CHECKED ...

No. 19-77-3-2 | No. C-274

C-274 (15 of 18)

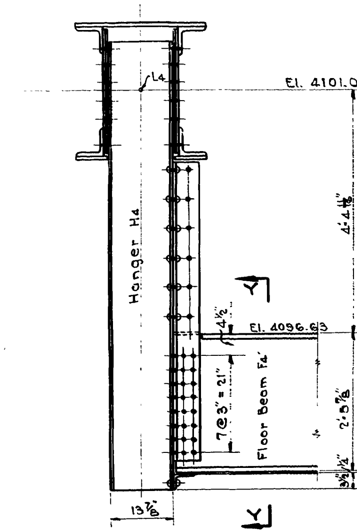


SECTION X-X



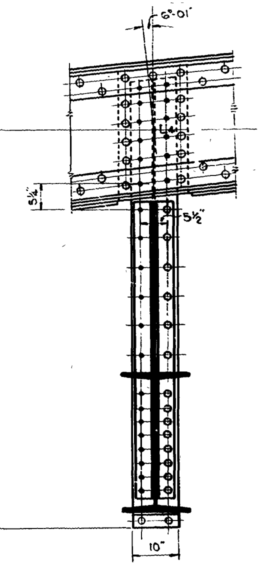
ASSEMBLY AT BENT #5 (Crown)

Showing Bracket Br. 5

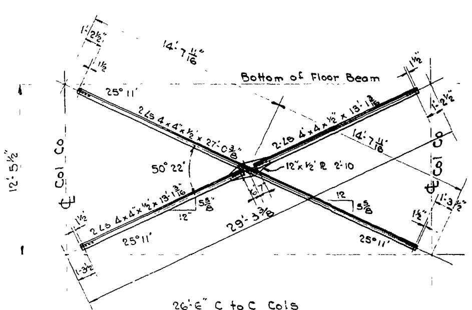


ASSEMBLY AT BENTS #4

Showing Brackets Br. 4



SECTION Y-Y



DETAIL OF SWAY BRACING END BENTS (BENTS "O")

KNEE BRACE BRACKETS
BENTS #4 & #5

SHEET 16 OF 18 SHEETS

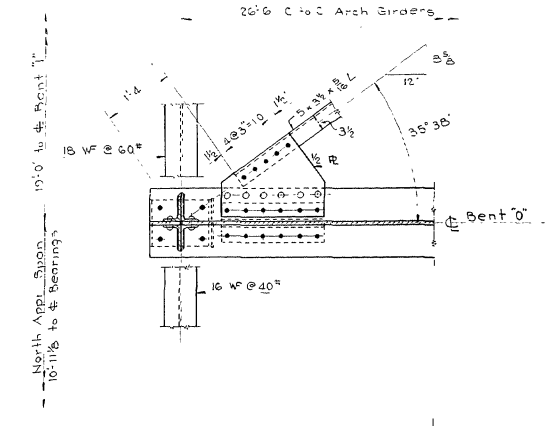
UTAH STATE ROAD COMMISSION
SALT LAKE CITY UTAH
BRIDGE DEPARTMENT

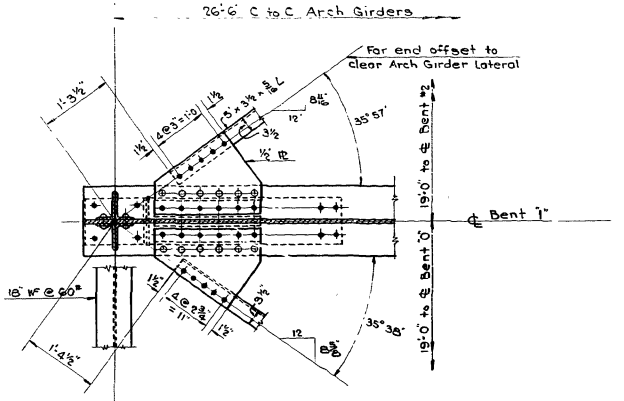
SAN JUAN RIVER BR.
228.59' O. TO O.
Sta 25+42.1 AA5
Blanding - San Juan R. - San Juan Co.

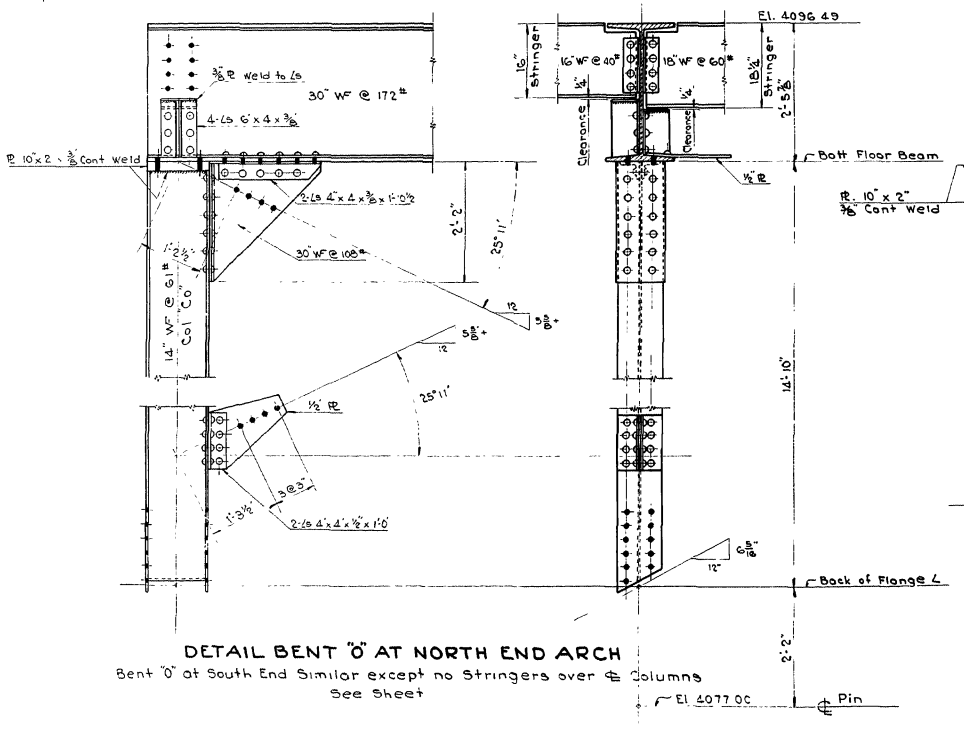
Designed by E.M.E.
Drawn by F.M.E.
Traced by R.W.I.
Oct. 1, 1952

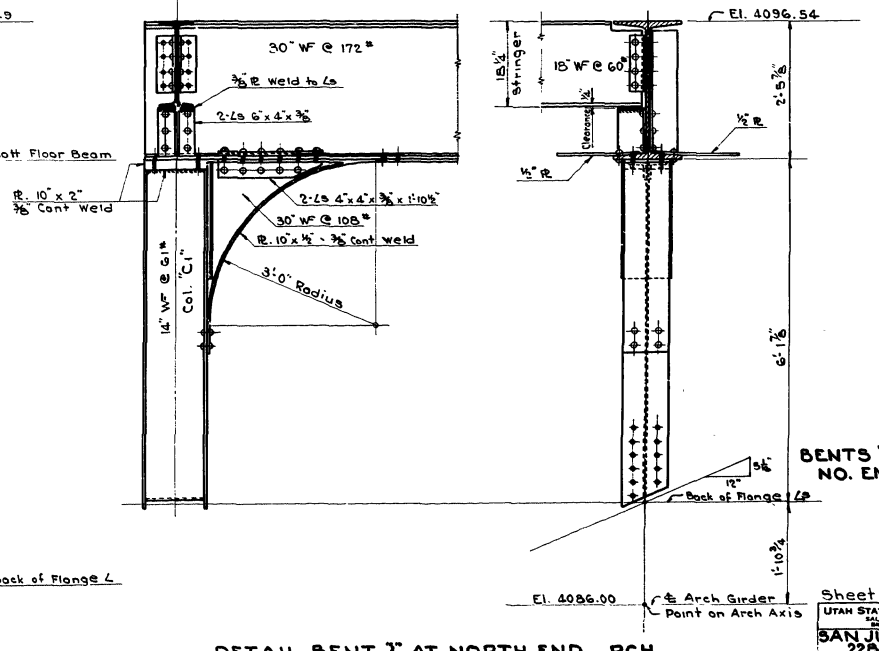
19-77-3-2 C-274

C-274 (16 of 18)









DETAIL BENT "0" AT NORTH END ARCH

Bent "0" at South End Similar except no Stringers over ℄ Columns

See Sheet

DETAIL BENT "1" AT NORTH END ARCH

Bent "1" at South End Similar except no Stringers over ℄ Columns

See Sheet

BENTS "0" & "1" AT NO. END ARCH

FED ROAD DEM. NO.	STATE	PROJ. NO	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
12	UTAH				

REVISIONS

NO.	DATE	BY

Sheet 17 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY — UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR.
228.59' O. to O.
Sta 25+42.1 AA 5
Blanding-San Juan R.-San Juan Co.

DESIGNED BY F.M.E. SCALE No Scale
DRAWN BY F.M.E.
CHECKED BY
APPROVED

ES. NO. 19-77-3-2 PROJ. NO. C-274

C-274 (17 of 18)

REVISIONS

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	SKETCH
A1	No Abut - Rear Face	#11	6-9	39	653'-3	Batter 1 1/32 ; 12, R = 6", Δ = 85°06', 11'-6", 8 5/16, 4'-6"
A2	No Abut - Front Face	#5	17'-6	39	682'-6	
A3	No Abut - Splice with A1	#6	9'-9'	39	380'-3	1'-2, 1'-7 3/8, 6'-3', 1'-2, 1'-10
A21	No Abut Bridge Seat	#5	4'-4'	39	169'-0'	1'-5", 1'-7", 1'-4'
A4	No Abut - Front Face	#5	21'-5'	34	728'-2	1'-10, 45°, A = 19'-7'
A41	So Abut - Front Face	#5	15'-4'	18	276'-0'	A = 13'-6
A5	No Abut - Rear Face	#5	20-7"	32	658'-8'	1'-3, 45°, 19'-4"
A51	So Abut - Rear Face	#5	14'-10"	18	267'-0	1'-7, 45°, 13'-3"
A6	So Abut - Front Face	#5	9'-9"	26	253'-6	
A7	So Abut - Rear Face	#9	11'-6'	26	299'-0	Δ = 90°, R = 6", 2'-5', 9 3/8", 8'-4'
A8	So Abut - Br Seat	#5	4'-9"	24	114'-0'	1'-5', 1'-7", A = 1'-9'
A10	So Abut - Br Seat	#5	5'-9"	2	11'-6	A = 2'-9'
A9	So Abut - Br Seat	#5	5'-1'	24	122'-0"	1'-7 3/16", 1'-2", 1'-1', 1'-2, A = 2'-4'
A11	So Abut - Br Seat	#5	6'-0'	2	12'-0	A = 3'-3"
A12	No Abut - Br Seat	#5	20'-6'	6	123'-0"	
A121	So " "	#5	14'-6	8	116'-0"	
A13	No " " "	#5	20'-0'	4	80'-0	
A131	So " " "	#5	26'-0'	2	52'-0'	
C1	Curbs	#5	4'-3	478	2031'-6"	1'-8", 1'-3", 8", 8"
C2	Curbs	#5	2'-0	18	36'-0"	
F1	Ftg - No Abut Wings	#6	5'-6'	10	55'-0	
F2	" " "	#7	6'-7'	10	65-10"	
F3	" " "	#8	7'-8	10	76'-8"	

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	SKETCH
F4	Ftg. - No Abut Wings	#9	8'-9'	10	87'-6'	
F5	" " "	#10	9'-10	10	98'-4"	
F6	Footing - No Abut	#10	10'-0'	39	390'-0'	
F7	" "	#5	17'-0	2	34'-0'	
F8	" " "	#5	17-5	2	34'-10	
F9	" " "	#5	17'-10	2	35'-8	
F10	" " "	#5	18'-3"	2	36'-6'	
F11	" " "	#5	18'-8'	2	37'-4"	
F12	" "	#5	19'-1"	2	38'-2	
F13	" " "	#5	19'-6"	2	39'-0"	
F14	" " "	#5	19'-11'	2	39'-10'	
F15	" " "	#5	20'-4"	2	40'-8	
F16	" " "	#5	20'-9"	2	41'-6"	
F17	" " "	#5	21'-2	2	42'-4	
F18	Ftg - No Abut Wings	#5	3'-1"	2	6'-2"	1'-1", 45°, 2'-0'
F19	" " " "	#5	9'-9"	2	19'-6'	8'-8"
F20	" " " "	#5	17'-7'	2	35'-2'	16'-6"
F21	" " " "	#5	24'-5'	2	48'-10'	23'-4"
F22	" " " "	#5	24'-10'	2	49'-8'	23'-9"
F23	" " " "	#5	25'-3"	2	50'-6'	24'-2"
F24	" " " "	#5	25'-8'	~~2~~ 4	~~51'-4"~~ 102'-8	24'-7"
F25	" " " "	#5	26'-1"	~~2~~ 4	~~52'-2"~~ 104'-4	25'-0"
F26	" " " "	#5	26'-6	~~2~~ 4	~~53'-0~~ 106'-0	25'-5'
F27	" " " "	#5	26'-11"	~~2~~ 4	~~53'-10~~ 107'-8"	25'-10
F28	" " " "	#5	7'-5"	~~2~~ 4	~~14'-10~~ 29'-8'	6'-4"
F29	Footing - No Abut	#11	6'-0"	2	12'-0"	
F30	Arch Footings	#6	5'-0"	56	280'-0	
F31	" "	#6	6'-6"	76	494'-0"	
F32	" "	#6	10'-4"	56	578'-8'	
F33	Footing - So Abut	#7	6'-6"	36	234'-0"	
F34	Ftg - So Abut Wings	#5	6'-2"	2	12'-4	1'-1", 45°, 5'-1"
F35	" " " "	#5	6'-7'	2	13'-2'	5'-6"
F36	" " " "	#5	7'-0'	2	14'-0	5'-11'
F37	" " " "	#5	7'-5"	2	14'-10'	6'-4'
F38	" " " "	#5	7'-10"	4	31'-4"	6-9
F39	" " " "	#5	8'-3"	4	33'-0'	7'-2"
F40	" " "	#5	8'-8"	4	34'-8'	7'-7'
F41	" " "	#5	22'-8"	1	22'-8	
F42	" " "	#5	23'-6'	1	23'-6"	
F43	" " "	#5	24'-4'	1	24'-4"	
F44	" " "	#5	25-2'	1	25'-2'	
F45	" " "	#5	26'-0'	2	52'-0'	
F46	" " "	#5	26'-10	2	53'-8'	
F47	" " "	#5	27'-8"	2	55'-4"	
F48	" " "	#9	5'-0"	2	10'-0"	
R1	End Rail Posts	#5	4'-0"	48	192'-0'	
R2	" " "	#5	5'-8'	24	136'-0'	
S1	Roadway Slab	#5	23-8'	300	7100'-0"	
S3	" "	#5	8'-8	486	9072'-0'	
S5	" " Flare	#5	24'-8	12	296'-0'	
S7	" " "	#5	25'-8	8	205'-4'	
S9	" " "	#5	26'-10	8	214'-8	
S11	" " "	#5	28'-4"	8	226'-8"	
S13	" " "	#5	30'-0	8	240'-0'	
S15	" " "	#5	31'-10'	6	191'-0'	
S17	" "	#5	33'-4'	6	200'-0"	
S19	" " "	#5	36-5"	6	218'-6'	
S21	" " South Abut	#5	25'-8'	50	1283'-4'	
S22	Cantilever Curbs	#5	7'-6"	12	90'-0	
S23	" "	#5	7'-6"	8	60'-0'	

Sketch (S2, S4, S6): B; 5 5/8'; 4"; A, 4, 3'-0, 4', 2'-4", 4', 3'-0", 4', 2'-4, 3'-0, A

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	A	B
S2	Roadway Slab	#5	24'-6'	141	3454'-6'	4'-0"	23'-8"
S4	" " Flare No 20st	#5	25'-6"	4	102'-0	4'-6'	24'-8"
S6	" " "	#5	26'-6'	4	106'-0"	5'-0"	25'-8'

Sketch (S8–S16): B; 7"; 5 5/8; 4"; ℄ Rd; A, 4", 2'-3", 4, 1'-10", 4', 3'-0", 4, 2'-4", 4', 2'-1"

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	A	B
S8	Roadway Slab Flare	#5	14'-8'	8	117'-4	0'-10"	13'-5'
S10	" "	#5	15'-5"	8	123'-4'	1'-7'	14'-2"
S12	" " "	#5	16'-3'	8	130'-0	2'-5'	15'-0"
S14	" " "	#5	17'-2'	8	137'-4'	3'-4"	15'-11"
S16	" " "	#5	17'-11"	6	107'-6"	4'-1"	16'-8
S18	Not Used						
S20	Roadway Slab No Abut	#5	12'-3"	62	759'-6"		

Sketch (W1–W13): Δ = 85°06', R = 6", B, 8 5/16, A

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	A	B
W1	No Abut Wing Walls	#7	14'-11"	2	29'-10"	3'-0"	11'-2'
W2	" " " "	#7	15'-4"	2	30'-8"	3'-0'	11'-7'
W3	" " " "	#7	15'-10'	2	31'-8'	3'-1"	12'-0"
W4	" " " "	#7	16'-3"	2	32'-6"	3'-1"	12'-5"
W5	" " " "	#7	16'-9"	2	33'-6"	3'-2"	12'-10"
W6	" " " "	#8	17'-2"	2	34'-4"	3'-2"	13'-3"
W7	" " " "	#8	17'-8"	2	35'-4'	3'-3"	13'-8"
W8	" " " "	#8	18'-2"	2	36'-4"	3'-4"	14'-1"
W9	" " " "	#8	18'-8"	2	37'-4"	3'-5"	14'-6"
W10	" " " "	#8	19'-2"	2	38'-4"	3'-6"	14'-11"
W11	" " " "	#9	15'-11"	10	159'-2"	3'-8"	11'-6"
W12	" " " "	#10	16'-3"	10	162'-6"	4'-0"	11'-6"
W13	" " " "	#11	16'-9"	10	167'-6"	4'-6"	11'-6"

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	SKETCH
W14	" " " "	#6	5'-2"	2	10'-4"	
W15	" " " "	#5	5'-7"	2	11'-2"	
W16	" " " "	#5	6'-0"	2	12'-0"	
W17	" " " "	#5	6'-5"	2	12'-10"	
W18	" " " "	#5	6'-9"	2	13'-6"	
W19	" " " "	#5	7'-2"	2	14'-4"	
W20	" " " "	#5	7'-7"	2	15'-2"	
W21	" " " "	#5	8'-0	2	16'-0"	
W22	" " " "	#5	8'-4"	2	16'-8"	
W23	" " " "	#5	8'-9"	2	17'-6"	
W24	" " " "	#5	9'-2"	2	18'-4"	
W25	" " " "	#5	9'-6"	2	19'-0"	
W26	" " " "	#5	10'-0"	6	60'-0"	
W27	Not Used					
W28	" "					
W29	No Abut Wing Walls	#5	11'-8"	2	23'-4"	
W30	" " " "	#5	12'-1"	2	24'-2"	
W31	" " " "	#5	12'-6"	2	25'-0	
W32	" " " "	#5	12'-10"	2	25'-8	
W33	" " " "	#5	13'-3"	2	26'-6"	
W34	" " " "	#5	13'-8"	2	27'-4"	
W35	" " " "	#5	14'-1"	2	28'-2"	
W36	" " " "	#5	14'-6"	2	29'-0"	
W37	" " " "	#5	14'-10'	2	29'-8"	
W38	" " " "	#5	15'-3"	2	30'-6"	
W39	" " " "	#5	15'-8"	2	31'-4"	
W40	" " " "	#5	16'-1"	2	32'-2'	
W41	" " " "	#5	16'-6"	2	33'-0'	
W42	" " " "	#5	16'-10'	2	33'-8"	
W43	" " " "	#5	17'-3"	2	34'-6'	
W44	" " " "	#5	17'-8"	2	35'-4"	
W45	" " " "	#5	18'-1"	2	36'-2"	
W46	" " " "	#5	18'-6"	2	37'-0"	
W47	" " " "	#5	18'-11'	2	37'-10	
W48	" " " "	#5	19'-3"	2	38'-6'	
W49	" " " "	#5	19'-8"	2	39'-4"	
W50	" " " "	#5	20'-1"	2	40'-2'	
W51	" " " "	#5	20'-6'	6	123'-0"	
W52	Not Used					
W53	" "					

MARK	LOCATION	SIZE	LGTH	NO BARS	TOTAL LENGTH	SKETCH
W54	No. Abut. Wing Walls	#5	22'-8'	40	906'-8'	
W55	" " " "	#5	4'-2'	4	16'-8"	
W56	" " " "	#5	6'-8'	4	26'-8	
W57	" " " "	#5	9'-1"	4	36'-4"	
W58	" " " "	#5	11'-7"	4	46-4	
W59	" " " "	#5	14'-1"	4	56'-4'	
W60	" " " "	#5	16'-6'	4	66'-0	
W61	" " " "	#5	19'-0"	4	76'-0	
W62	" " " "	#5	21'-6"	4	86'-0	
W63	" " " "	#5	24'-0'	4	96'-0"	
W64	Abuts - Top Corners	#5	2'-7"	8	20'-8'	A 0'-9" / B 1'-10" (A, B, 45°)
W65	" "	#5	1'-11"	8	15'-4'	A 0'-6" / B 1'-5"
W66	So. Abut Wing Walls	#5	4'-7"	36	165'-0'	
W67	" " " "	#5	1'-7"	4	6'-4"	
W68	" " " "	#5	4'-1"	4	16'-4"	
W69	" " " "	#5	5'-3"	4	21'-0"	
W70	So. Abut. Wing Walls	#9	13'-3'	2	26'-6"	2'-4", 6" R., 8 15/16", 10'-2"
W71	So. Abut. Wing Walls	#9	13'-11"	2	27'-10"	10'-10'
W72	" " " "	#9	14'-6"	2	29'-0"	11'-5"
W73	" " " "	#9	15'-1"	2	30'-2"	12'-0'
W74	" " " "	#9	15'-9"	2	31'-6"	12'-8"
W75	" " " "	#9	15'-11"	4	63'-8"	12'-10"
W76	" " " "	#5	10'-8"	2	21'-4"	
W77	" " " "	#5	11'-4"	2	22'-8"	
W78	" " " "	#5	11'-11"	2	23'-10"	
W79	" " " "	#5	12'-6"	2	25'-0"	
W80	" " " "	#5	13'-2"	2	26'-4"	
W81	" " " "	#5	13'-4"	4	53'-4"	

34,863'-10" (~~34,638'-8"~~) of #5 bars @ 1.043#/' = 36,363.0 (~~36,128.1~~)
1,798'-3" of #6 " @ 1.502#/' = 2,701.0
458'-0" of #7 " @ 2.044#/' = 936.2
258'-4" of #8 " @ 2.670#/' = 689.7
764'-4" of #9 " @ 3.400#/' = 2598.7
650'-10" of #10 " @ 4.303#/' = 2800.5
832'-9" of #11 " @ 5.313#/' = 4424.4

Total = ~~50,278.6~~ 50,513.5

Sheet 18 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY UTAH
BRIDGE DEPARTMENT

SAN JUAN RIVER BR
228.59 O. to O.
Sta 25+42.1 AAS
Blanding-San Juan R-San Juan

F.M.E
F.M.E
No Scale

19-77-3-2 C-274

DESK REVIEW AUDIT — Bridge Issues

	Yes	No
This report identifies deficiencies requiring urgent corrective action.	☐	☑
Details:		
This bridge is scour critical:	☐	☑
This bridge contains fracture critical components:	☑	☐
This bridge needs a new load rating:	☑	☐
This bridge requires special inspection:	☑	☐

Recommended Frequency: 6 Months

Report Contents

☑ Pre-Desk Audit	☐ Critical Findings Report
☐ Condition Ratings Report	☐ Vertical Underclearance Report
☑ Element Level Inspection Report	☐ Cross Section Report
☑ Bridge Photographs	☑ Other: Defect Sketch/Table

Type of Inspection

NBI	Element	Fracture Critical	Underwater	Complex	Other Special
☐	☑	☐	☐	☑	☑

Inspectors	Name	Date	P.E. Seal and Signature
Inspector of Record	Travis Jones	09/28/2016	
Field Checked	Becky Nix	09/28/2016	
Checked	REVIEWED By Chad Cornia at 9:55 am, Dec 14, 2016		
Back Checked			
Corrected	REVIEWED By Travis W. Jones at 12:01 pm, Dec 19, 2016		
Verified	APPROVED By Chad Cornia at 7:00 am, Dec 20, 2016		
Independent Field QC Review			
QA Review			

DESK REVIEW AUDIT

Desk Review By:	Travis Jones
Date:	September 26, 2016
Reason for Desk Review:	Other Special

Special Attention Items:	Notes:
Other	Bridge is on a 6-month special inspection cycle due to superstructure NBI rating of 4 and also containing fracture critical members. A defect plan was created from the defects found at the previous special inspection. Tables showing defects by element were also created. Verify the defects indicated on the plan and tables. Mark the end of the cracks with a sharpie pen and/or a steel punch and indicate the date with a sharpie pen. UDOT materials will be on-site to provide NDT of the known cracks to check for crack propagation. If time permits, check stringer to floor beam connections for cracks using mag-particle testing. For purposes of orientation, proper picture labeling and defect locating, label each floor beam in accordance with the naming shown on the defect plan. Consider also labeling the east and west ends of each floor beam to help with proper orientation.
Bridge Access	Flaggers provided by UDOT for crane access.

Note that during Special Inspections, only critical items will be inspected.

Elevation

Roadway

stringer6 at abut2-fb0n

abutment 2

arch1 at fb0s-1s

arch1 at fb1n-2n

arch1 at fb0n-1n

arch1-fb2n n_cxn plate

arch1-fb2n s_cxn plate

mag particle testing

arch1-fb2s n_cxn plate

arch1-fb2s s_cxn plate

arch 2 at fb0s-1s

arch2 at fb3n

arch2 at fb3s

arch2 at fb3s-2s

arch2-fb2x n_cxn plate

arch2-fb2n s_cxn plate

arch2-fb2s cxn plate tear

arch2-fb2s s_cxn plate

arch2 at fb2n-3n

bracing at fb1n-2n

bracing under fb1s

fb0n east side

fb0n mid-span

fb1n column1

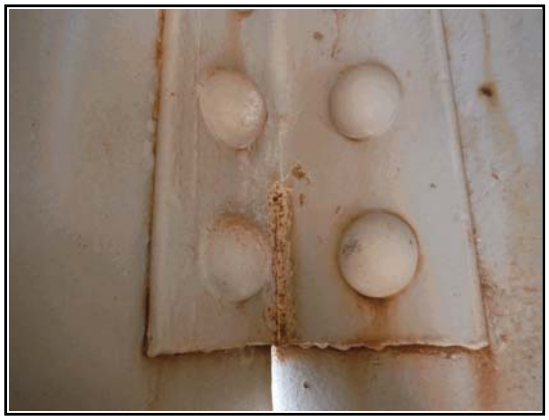
fb1n column2

fb1n column2 rust bubbles

fb1n east side

fb1n

stringer6 @ fb1n SE cxn plate



stringer6 @ fb1n SW cxn plate

fb2n west side

stringer1 @ fb2n-1n msg rivet

stringer1 @ fb2n-3n north side

stringer3 @ fb2s msg rivet

stringer4 @ fb3n-4n east face

fb3s at west side

stringer2 at fb3s-4s msg rivet

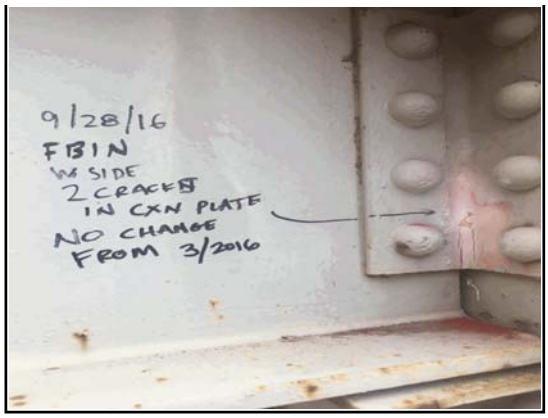
fb4n east side

fb4s column 1 msg rivet

fb5 east side

lateral bracing under fb1n

stringer1 @ fb2n msg rivet



stringer1 @ fb0n-1n SW cxn


stringer2 @ fb0s msg rivet


stringer4 @ fb2n msg rivet

stringer4 @ fb4n-3n


stringer6 @ fb0n-1n SE cxn


stringer6 @ fb0n-1n SW cxn

underside

Bridge Key:	0C 274	Agency ID:	0C 274	SR:	40.0	SD/FO:	FO

IDENTIFICATION

State 1:	49 Utah	Shed:	4450
Facility Carried 7:	SR-163	Location 9:	AT MEXICAN HAT
Rte.(On/Under) 5A:	Route On Structure	Rte. Signing Prefix 5B:	3 State Hwy
Level of Service 5C:	1 Mainline	Route Number 5D:	00163
Directional Suffix 5E:	0 N/A	% Responsibility:	
SHD District 2:	Region 4	County Code 3:	San Juan
Place Code 4:	Mexican Hat CDP	Mile Post 11:	20.910 mi
Feature Intersected 6:	SAN JUAN RIVER		
Latitude 16:	37.15100000	Longitude 17	-109.86780000
Border Bridge Code 98	Not Applicable (P)		
Border Bridge Number 99			

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46	2	Number of Spans Main Unit 45:	1
Main Span Material Design 43 A/B:			
3 Steel		12 Arch-Thru	
Deck Type 107:	1 Concrete-Cast-in-Place		
Wearing Surface 108A:	6 Bituminous		
Membrane 108B:	0 None		
Deck protection 108C:	None		

AGE AND SERVICE

Year Built 27:	1953	Year Reconstructed 106:			
Type of Service on 42A	1 Highway				
Type of Service under 42B	5 Waterway				
Lanes on 28A:	2	Lanes under 28B:		Detour Length 19:	123.7 mi
ADT 29:	875	Truck ADT 109:	27%	Year of ADT 30:	2014

GEOMETRIC DATA

Length Max Span 48:	190.00 ft	Structure Length 49:	228.53 ft
Curb/Sdwlk Width L 50A	0.00 ft	Curb/Sidewalk Width R 50B	0.00 ft
Width Curb to Curb 51:	20.00 ft	Width Out to Out 52:	24.00 ft
Approach Roadway width 32: (w/ shoulders)	20.00 ft	Median 33:	0 No median
Deck Area:	5,577.60 sq. ft		
Skew 34:	0.00°	Structure Flared 35	1 Yes, flared
Vertical Clearance 10	328.05 ft	Horizontal Clearance 47:	20.00 ft
Minimum Vertical Clearance Over Bridge 53:		99.02 ft	
Minimum Vertical Underclearance Reference 54A		N Feature not hwy or RR	
Minimum Vertical Underclearance 54B:		0.00 ft	
Minimum Lateral Underclearance Reference R 55A:		N Feature not hwy or RR	
Minimum Lateral Underclearance R 55:		0.00 ft	
Minimum Lateral Underclearance L 56:		0.00 ft	

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	8/11/2015	Next Inspection:	8/11/2017
FC Frequency 92A:	24 months	FC Inspection Date 93A:	8/11/2015	Next FC Inspection:	8/11/2017
UW Frequency 92B:		UW Inspection Date 93B:	NA	Next UW Inspection	NA
SI Frequency 92C:	6 months	SI Date 93C:	9/28/2016	Next SI:	3/28/2017
Element Frequency:	6 months	Element Insp. Date:	9/28/2016	Next Elem. Insp.:	5/17/2017

CLASSIFICATION

Defense Highway 100:	0 Not a STRAHNET hwy	Parallel Structure 101:	No || bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Not Applicable (P)
Highway System 104:	0 Not on NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	07 Rural Mjr Collector
Defense Hwy 110:	0 Not a STRAHNET hwy	Historical Significance 37	2 Br eligible for NRHP
Owner 22:	State Highway Agency		
Custodian 21:	01 State Highway Agency		

CONDITION

Deck 58:	6 Satisfactory	Super 59:	4 Poor	Sub 60:	6 Satisfactory
Culvert 62:	N N/A (NBI)	Channel/Channel Protection 61:		8 Protected	

LOAD RATING AND POSTING

Inventory Rating Method 65:	8 LRFR by RF	Operating Rating Method 63:	8 LRFR by RF
Inventory Rating 66:	0.46	Operating Rating 64:	0.63
Design Load 31:	6 MS18(HS20)+mod	Posting 70:	1 30.0-39.9%below
Posting Status 41:	B Posting Recommended	Date of Last Load Rating:	03/09/2015

APPRAISAL

Bridge Rail 36A:	0 Substandard	Approach Rail 36C:	0 Substandard
Transition 36B:	0 Substandard	Approach Rail Ends 36D:	0 Substandard
Str Evaluation 67:	5 Above Min Tolerable	Deck Geometry 68:	3 Intolerable - Correct
Underclearance, Vertical and Horizontal 69:		N Not applicable (NBI)	
Waterway Adequacy 71:	8 Equal Desirable	Approach Alignment 72:	3 Intolerable - Correct
Scour Critical 113:	8 Stable Above Footing		

PROPOSED IMPROVEMENTS

Bridge Cost 94:	$1	Type of Work 75:	Unknown (P)
Roadway Cost 95:	$1	Length of Improvement 76	-3.3 ft
Total Cost 96:	$1	Future ADT 114:	1,094
Year of Cost Estimate 9	Unknown	Year of Future ADT 115	2034

NAVIGATION DATA

Navigation Control 38	NA-no waterway		
Vertical Clearance 39	0.0 ft	Horizontal Clearance 40:	0.0 ft
Pier Protection 111:	Not Applicable (P)	Lift Bridge Vertical Clearance 116	0.0 ft

Bridge Key:	0C 274	Agency ID:	0C 274	SR:	40.00	SD/FO:	FO

DECK CONDITION

Deck Overlay Thickness:	3 Inches
Deck Fencing:	Not Applicable
Deck Sidewalk:	Not Applicable
Deck Curb:	Fair
Deck Median:	Not Applicable

SUPERSTRUCTURE CONDITION

Vibration:	Poor
Diaphragm Alignment:	Good
Diaphragm Attachment:	Good
Splice Plates:	Good
Welds:	Fair
Bolts / Rivets:	Good

SUBSTRUCTURE CONDITION

Collision Damage:	Not Applicable
Bearing Pedestals:	Good
Abutment Seat Debris:	Not Applicable
Bent Debris:	Not Applicable

CULVERT CONDITION

Fill Depth:	Feet
Barrel Alignment:	Not Applicable
Seam Joints:	Not Applicable
Invert Wear:	Not Applicable
Headwall:	Not Applicable
Outlet Condition:	Not Applicable

POSTING DATA

One Limit Legend:

Single:
Double:
Combo:

Sign Legibility:	Not Applicable
Sign Visible:	Not Applicable
Object Markers Required:	Yes
Object Markers Placed:	No
Approach Sign Legend:	None

BRIDGE DATA

Plans Available:	Full Plans
POA Needs Updating:	No
Funding Type:	ST_BR, STP
This Structure Replaces:	

CRANE INSPECTION

Crane Required:	Yes
Last Crane Inspection Date:	03/07/2016
Last UT Inspection Date:	08/11/2015

FOLLOW UP INSPECTIONS

Follow Up Required:	No
Reason for Follow Up:	UT the web delamination cracks
Date Follow Up Completed:	11/03/2015

CHANNEL CONDITION

Channel Alignment:	Good	Control Device:	None
Debris:	Good	Device Condition:	Not Applicable
Stream Bank Erosion:	Good	Channel Velocity:	Medium
Vegetation:	Good		

ROADWAY OVER: SR-163

Deck Drains:	Fair	Slope Joints:	N/A	Approach Settlement:	N/A
Approach Drains:	N/A	Slope Undermining:	N/A		0.00 Inches
Slope Protection:	N/A	Approach Fill Slopes:	Good	Ride Displacement:	Good
Slope Riprap:	N/A	Housekeeping:	Fair		0.00 Inches
				Approach Curbing:	N/A

12 / 3	Re Concrete Deck	Total: 5,578 sq.ft	CS1: 4,784 sq.ft (86%)	CS2: 790 sq.ft (14%)	CS3: 4 sq.ft (0%)	CS4: 0 sq.ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Underside of the deck is in good condition. Underside of the overhangs have spalling and delamination around most of the deck drains. No major transverse cracking or longitudinal cracking in the underside of the deck. Outside edges of the deck over all the floor beams have minor spalling the full width of the top flange and some exposed rebar and moderate efflorescence. Inside face of both curbs have some minor spalling in random locations. Sounding of the curbs are showing some minor delams on the inside face in random locations. Topside of the curbing is in good condition, only some minor scaling in a few locations. Topside of the deck is covered with asphalt overlay (looks more like a chip seal). Deck NBI was raised to a 6.

113 / 2	Steel Stringer	Total: 963 ft	CS1: 589 ft (61%)	CS2: 337 ft (35%)	CS3: 37 ft (4%)	CS4: 0 ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Topside of the lower flanges have moderate rusting in most of the outside stringers. Outside stringer at the NE corner under the deck drain has approx. 4 ft. of heavy pack rusting that has extended up in web. Some minor rusting in some of the top flanges near the floor beam. All stringer to floor beam connection angles are in good condition, no cracking or deformation.
03/07/2016	Travis Jones	At FB2S the floorbeam to stringer 1 connection has a crack (approx. 1 inch long). See photo. At FB1N the floorbeam to stringer 1 connection has two cracks (approx. 2 and 2.5 inches long). The ends of the crack have been marked with a punch. See photo At FB3S the bottom angle bracket under stringer 1 has a crack in the weld, 2 inches long 0.036 inches wide (see photo) Previous inspection (November 2015 follow-up) located cracks in the FB1N/stringer connections. Stringer 3 connection has a crack 2.5 inches long, stringer 4 connection has a crack approx. 6 inches long, and stringer 2 connection did not exhibit cracking. Topside of the lower flanges have moderate rusting in most of the outside stringers (stringers 1 and 4). Stringer 4 between FB0N and FB1N has approx. 4 ft. of heavy pack rusting that has extended up in web. Rusting in some of the top flanges near the floor beam.
09/28/2016	Travis Jones	See attached defects tables and figure of stringer defects. Six rivets were found to be missing from stringer connections. Several looked to be recent losses as the newly exposed surface was not yet rusted. Quantities of condition states are shown in the attached table of defects. Total defect quantities are as follows: CS2 = 337 feet CS3 = 37 feet

141 / 2	Stl Arch	Total: 380 ft	CS1: 73 ft (19%)	CS2: 272 ft (72%)	CS3: 35 ft (9%)	CS4: 0 ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Topside of both arches have freckle rusting. Outside faces of both arches have freckle rusting. Inside & underside face of the arch is in good condition with only minor areas of freckle rusting. Columns at the base of the arch are trapping water causing pack rust to accumulate. No deformation or major defects in the arch. 11/03/2015 FUI, inside face of the arch web at the SW side at the angle bracket connection has 60in X 20in area of pack rusting. This condition is also at the SE side of the arch 14in X 32in minor section loss in these locations.

03/07/2016	Travis Jones	On the eastern arch at the north side between FB0N and FB1N there is packrust beginning to form on the bottom flange of the arch. Rust freckling is beginning to form throughout the arches, and paint is beginning to flake and chip throughout the arches. Quantities of defects from previous inspection have not changed. Lateral bracing below FB1S has pack rust and section loss all along the bottom flange portion of the element. The section loss is most pronounced along the middle portion of the bracing (see photos).
09/28/2016	Travis Jones	See attached defects tables and figure of arch defects. Arch has localized areas beginning to show section loss/rust bubbling. Quantites of condition states are shown in the attached table of defects. Total condition state quantities are CS2=272 feet and CS3=35 feet.

152 / 2	Steel Floor Beam	Total: 297 ft	CS1: 0 ft (0%)	CS2: 205 ft (69%)	CS3: 92 ft (31%)	CS4: 0 ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Top flanges of all floor beam have heavy rusting due to the water seeping down through the deck cold joint over top of the floor beams. Topside of all the lower flanges of floor beams have heave rusting most the length of the beam. Floor beams at drill relieved hole has what appears to be a delamination of the web. This condition is at these locations east arch south side FB#4, east arch north side FB#4, west arch south side FB#4 and west arch north FB#4. Cracking in the floor beams has been captured on a spread sheet attached to the report. 11/03/2015 FUI Testing of cracking and delaminations has been laid out on PDF framing plane. Report attached and PDF placed on I drive.
03/07/2016	Travis Jones	Top flanges of all floor beam have heavy rusting due to water seepage down through the deck joints over top of the floor beams. Topside of the lower flanges of floor beams exhibit rusting. There are photos of the defects listed below. FB2N: on the east side there is a crack in the floorbeam to arch connection plate. On the west side there are two cracks in the floorbeam to arch connection plate (0.75in long 0.013in wide on the "up -hill" side of the arch, 0.5 in long 0.023 in wide on the "down-hill" side of the arch) FB3N: on the west side there are "delamination" cracks in the floorbeam coping. Also there is a crack in the weld at the floorbeam to column bracket (0.75 in long 0.016 in wide). FB4N: on the east and west sides there are "delamination" cracks in the floorbeam coping. On the east side of the floorbeam there is approx. 0.125 inches of section loss on the bottom flange of the floorbeam for a length of two feet. FB5: on the east and west sides there are "delamination" cracks in the floorbeam coping. On the west side there is a crack in the weld at the floorbeam to column bracket (2.75 in long 0.036 in wide). FB4S: on the east and west sides there are "delamination" cracks in the floorbeam coping. The column to floorbeam connection bracket has a crack in the weld on the east and west sides of the bridge (west side 2 in long 0.10 in wide, east side 2 in long 0.045 in wide). FB3S: on the east side there are "delamination" cracks in the floorbeam coping. FB2S: The floorbeam to arch connection plates are cracking. There are four cracks in the connection plate on the east side, and five cracks in the plate on the west side. FB0S: There is packrust on the bottom flange of the floorbeam towards the west side (see photo).

09/28/2016	Travis Jones	Floorbeam total quantity was incorrect. Old quantity was 336 feet. According to plans, there are 11 floorbeams, each 27 feet long, for a total length of 297 feet. Quantity was changed on 12/2/2016. See attached defects tables and figure of floorbeam defects. Total defect quantities are CS2=205 feet, and CS3=92 feet.

161 / 2	Stl Pin Pin/Han both	Total: 4 each	CS1: 4 each (100%)	CS2: 0 each (0%)	CS3: 0 each (0%)	CS4: 0 each (0%)

08/11/2015	Clint McCleery	08/11/15 CLM All Pins have been Ultrasonic tested by Clint McCleery. All pins test good. Pin brackets are in good condition.

202 / 2	Steel Column	Total: 18 each	CS1: 0 each (0%)	CS2: 4 each (22%)	CS3: 14 each (78%)	CS4: 0 each (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Columns are in good condition. Repairs to the columns are still in good condition no cracking around the drill hole. No cracking or defects at the saw cuts. Some minor chalking of the paint in the columns. Most of the columns have minor freckle rusting.
03/07/2016	Travis Jones	At FB3S on the east side of the bridge, the column is 0.25 inches out-of-plane with the floorbeam at the diagonal cut through the web (see photo). At this same location the angle bracket at the bottom of the column has completely corroded away and fallen off. It appears that these brackets were used for construction and do not bear load at this time. At the base of columns at FB0N, FB1N, FB1S, FB0S dirt is trapped which harbors moisture and is beginning to corrode the base of the columns. Quantities of defects remain the same as last inspection.
09/28/2016	Travis Jones	See attached defects tables for information of column defects. Most columns show evidence of section loss near the base. Total condition state quantities are C2=4, and CS3=14.

215 / 2	Re Conc Abutment	Total: 65 ft	CS1: 55 ft (85%)	CS2: 10 ft (15%)	CS3: 0 ft (0%)	CS4: 0 ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM North abutment has one 4 x 2 ft spall with light efflorescence and some minor scaling. One vertical crack in the center of the north abutment 11 ft. up from the bottom with 0.062 in. of separation in the cracking. Outside edges of both abutments have map cracking with separation of 0.032 in. in the cracking. Some minor scaling with exposed aggregate at the bottom of the NE corner.

333 / 2	Other Bridge Railing	Total: 476 ft	CS1: 117 ft (25%)	CS2: 350 ft (73%)	CS3: 0 ft (0%)	CS4: 9 ft (2%)

08/11/2015	Clint McCleery	08/11/15 CLM Bridge rail at NE corner is disconnected from the curbing due to traffic impact of the rail. Rail at the NW corner has three of the lower sections that have also been bent due to traffic impact. These sections of rail are still connected to the curbing properly. Other connection to the curbing have some minor surface rusting in random locations. Some minor freckle rusting in the topside of the upper rail, this condition extends full length of the bridge. Both concrete end treatments at the NW & NE corners of the structure have major spalls due to traffic impacts. This condition has exposed some rusted re-bar. Overall the railing is in good condition.

5104 / 3	Asphalt Overlay w/o Membrane	Total: 4,572 sq.ft	CS1: 0 sq.ft (0%)	CS2: 4,572 sq.ft (100%)	CS3: 0 sq.ft (0%)	CS4: 0 sq.ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Asphalt overlay has map cracking that has been sealed with crack sealant. Wearing surface also has transverse cracking over the tops of the floor beams that has been sealed with crack sealant.

5203 / 2	Steel Protective Coating (515)	Total: 12,278 sq.ft	CS1: 0 sq.ft (0%)	CS2: 4,604 sq.ft (37%)	CS3: 4,604 sq.ft (37%)	CS4: 3,070 sq.ft (25%)

08/11/2015	Clint McCleery	08/11/15 CLM Paint has failed in several location of the floor beams, stringers and the cross frames. Both arches have moderate freckle rusting. Some minor freckle rusting in the columns.

03/07/2016	Travis Jones	Paint has failed in several location of the floor beams, stringers and the cross frames. Both arches have moderate freckle rusting. Some minor freckle rusting in the columns (photo of base of column shows typical column freckle rusting). Quantities the same as inspection from Nov. 2015.
09/28/2016	Travis Jones	Due to rust freckling, rust bubbling, and surface rust throughout the bridge, it is estimated that 25% of the paint has failed (CS4). The remaining quantity was split between CS2 and CS3 due to surface dulling and limited effectiveness.

5300 / 2	Reinforced Concrete Wingwalls	Total: 66 ft	CS1: 49 ft (75%)	CS2: 16 ft (25%)	CS3: 0 ft (0%)	CS4: 0 ft (0%)

08/11/2015	Clint McCleery	08/11/15 CLM Topside of the SE wingwall has delamination full length of the wall.

5000 / 1	General Notes	Total: 1 each	CS1: 1 each (100%)	CS2: 0 each (0%)	CS3: 0 each (0%)	CS4: 0 each (0%)

08/11/2015	Clint McCleery	08/11/15 Clint McCleery, Travis Jones, Chad Cornia, Routine NBI & element level & fracture critical inspection. Inspection performed by Clint McCleery. More photos have been placed on I drive. Fracture critical procedures have been followed. Two of the cross frames on the south side have complete paint failure. Superstructure NBI was dropped to a 5. 11/03/2015 FUI, Clint McCleery, Chad Cornia, Dave Crawford, Josh Sletten & Nick Romero of UDOT Materials, Mag particle testing of floor beam connections at north end of structure FB #1. Ultrasonic testing of delaminations at drill relieved holes in floor beams. Structure has been put on a 12 month special inspection cycle. Superstructure NBI was dropped to 4. FUI, photos have been placed on the I drive. 2/24/16 JLI, Special Inspection date adjusted to match 12 Mo cycle as mentioned in notes above from 2018 date.
03/07/2016	Travis Jones	Special Inspection by Travis Jones, Becky Nix and Mike Ellis. This inspection was for superstructure elements only. Conditions were sunny and about 58 degrees. UDOT crew provided flagging for the inspection crane. Floorbeams are labeled according to framing plan, i.e. floor beam 5 (FB5) is in the center of the bridge and then they are numbered FB4S thru FB0S and FB4N thru FB0N for the south and north sides of the bridge, respectively. Stringers are numbered from left to right looking north. Attached to the report is a plan sheet showing defect locations and floorbeam numbering, and a table summarizing defects at the substructure elements.
09/28/2016	Travis Jones	Special inspection of superstructure by Travis Jones, Becky Nix, David Crawford (crane operator), and Nick Romero (materials division). Conditions were sunny with a temperature of approximately 75 degrees. Nick used magnetic particle testing to verify crack lengths and to look for additional cracking. Floor beams were labeled with black permanent marker to aid in orientation during this inspection and future inspections. Tables summarizing defects are part of this inspection's documentation. Figures showing defect locations for the stringers, floorbeams, and arches are also part of the documentation. There are also additional photos in the bridge file than those contained within the special inspection report.

5001 / 1	Roadway / Channel / Drainage	Total: 3 each	CS1: 3 each (100%)	CS2: 0 each (0%)	CS3: 0 each (0%)	CS4: 0 each (0%)

08/11/2015	Clint McCleery	08/10/15 CLM North approach RDWY is on a sharp curve coming in to the structure. No approach rail in place. Ride across the structure is good. River is flowing through the center of channel under the structure. No cross section was taken since the sub-structure is not within the channel and is well over 45 ft. above the water. Deck drains are all open but need to be extended below the superstructure.
09/28/2016	Travis Jones	A pavement overlay was constructed in early September 2016 north and south of the bridge. New asphalt had been placed on approximately 50 feet of the south part of the bridge. The remaining wearing surface is older but looks to have been freshly crack sealed.

Shed Maintenance Recommendations

Status	Priority	Action	Date Proposed	Notes
Inspector Recommended	High - Within 1 Year	Repair Parapets	01/01/2016	Repair loose bridge rail at the NE corner.
Inspector Recommended	Medium - 1 to 3 Years	Replace Object Markers	01/01/2016	Replace missing object markers.
Inspector Recommended	High - Within 1 Year	Power Wash Structural Elements	01/01/2016	Remove debris from both skew backs & skew back cross frames.

UDOT Structures Work Candidates

Status	Priority	Action	Date Proposed	Year Sch	Notes
Inspector Recommended	Medium - 1 to 3 Years	Update Barrier to Standards	01/01/2016	2016	Update approach rail to meet current standards. Repair cracked concrete bridge rail connections at deck to parapet connection.
Inspector Recommended	Low - 4+ Years	Wingwall Repair	01/01/2018	2018	Repair delams. in the wingwalls.
Inspector Recommended	Medium - 1 to 3 Years	———- Super ——	01/01/2018	2018	Replace broken floor beam to stringer connections. Replace cracked floor beam to arch connections. Drill arrest propagated floor beam cracks. Remove delaminated areas around floor beam drill propagations. Extend deck drains below the stringers.
Inspector Recommended	Medium - 1 to 3 Years	——— Deck ——	01/01/2018	2018	Seal deck cold joints between deck sections to stop water from leaking down on to the floor beams. Repair minor spalls in the deck curbing.
Inspector Recommended	Medium - 1 to 3 Years	Clean & Repait Struc. Steel	01/01/2018	2018	Remove pack rusting spot blast areas of rusting. Top coat superstructure
Inspector Recommended	Low - 4+ Years	Abutment Backwall Repair	01/01/2018	2018	Drill weep holes near the bottom of abutments. Seal cracking and repair scaling in the lower portions of abutments.

Change Notes (Prior to NBE's)

31-AUG-2005: 08/31/2005 Dale, Neal
24-OCT-2007: 10/24/2007 Jim Van Dien (HDR), Alex Lim (HDR) special fracture critical inspection. PSI performed UT inspection of the pins. Access to superstructure was via inspection crane.
03-SEP-2009: 09/03/2009 Teri Taylor Inspector- bucket operator, Clint McCleery Crane driver , Nick Romero UT pins/connection plates. Heavy truck taffic existed during inspection. ADT was increased.
24-AUG-2011: 08/24/2011 Dale, Ron
08-FEB-2012: 2/8/2012 MBE This bridge does not meet the 2012 requirements for a special inspection, therefore a routine inspection is all that is required and it will be back on a 24 month schedule.
00-OOO-0000: 08/2013 Inspection party consists of Dale Debenham as the team leader and Ron Rasmussen from HDR, who is the inspector of record. Fracture Critical, routine NBI and Element Level inspections were done. The Inspection crane was used for access.
20-AUG-2013: 08/20/13 RLR In order to document and keep track of the condition of the connection areas of the arches to the deck support system, Justin Jar has set up a method of recording the length of any crack or the lack thereof. This sheet is part of the report.

Deck Notes (Prior to NBE's)

10-DEC-1991: 12/10/91 ASPHALT WEARING NEEDS REPLACED, AND THE EXPANSION JOINTS LEAK.
21-SEP-1993: 9/21/93 NO CHANGES
28-NOV-1995: 11/28/95 The overall conditon of the overlay looks good except that the the ovlerlay is cracked over the joints in the pavement over the floor beams. There is some spot rusting of the steel bridge rail.
18-NOV-1997: 11/18/97 Conditions continue to get worse. There is some scaling around some of the deck drains on the bottom of the deck.
24-AUG-1999: 08/24/99 The asphalt wearing surface looks good at this time. The cracks have been sealed. The other conditions remain the same. The end of the concrete parapet at the NE corner has broken off with exposed rebar.
28-AUG-2001: 08/28/2001 There is spalling on the bottom of the deck with some exposed rebar at the drains. There is also some spalling on the bottom of the deck over the floor beams. The other conditions remain the same. The curbs have some spalling occuring.
23-SEP-2003: 09/23/2003 Raveling and cracking is occuring in the surface. Edge needs brooming. The expansion joints continue to leak.
31-AUG-2005: 08/31/2005 Asphalt wearing surface is in fair condition. Spalling in the bottom of the deck noted in previous inspections remain very minor. Some minor spalling and cracking in the curbing. Impact damage with exposed rebar in all of the end parpets.
24-OCT-2007: 10/24/2007 Asphalt wearing surface is in fair condition. Spalling and incipient spalling is evident at the deck edge at a majority of the joints above the floorbeam. Incipient spalling is present at the underside of deck at the deck drains.
24-OCT-2007: 10/24/2007 Impact damage with exposed rebar is present in all end parapets
03-SEP-2009: 09/03/2009 Riding surface is worn and showing distress where Floor beams are visiable, see pics. Curbs are delamed and showing steel. Barrier at all four corners are damaged. SF was added. Soffit looks good. Truck traffic was increast to 47%
24-AUG-2011: 08/24/2011 Asphalt wearing surface is in fair condition. Curbing has small spalls with exposed bar. Railing has areas of light rusting. Underside has tight random cracking with light staining. No advance cracks or spalls. No indication localized fatigue.
20-AUG-2013: 08/20/13 RLR Asphalt wearing surface appears to around 6 inches thick and has much cracking and some small amount of potholing along the cracking. Nothing major. Curbing has collision damage along the edges, but again, nothing major.
20-AUG-2013: 08/20/13 RLR Steel railings have spot rusting and connection areas with more general rusting and paint failure, but is generally in fair condition. Underside of deck is in good condition with no cracking or staining.
20-AUG-2013: 08/20/13 RLR The only deterioration of the underside areas of the deck concrete is adjacent to support areas, such as the floor beams and stringers. Here, there are small areas of scaling of the concrete

surface. No associated spalling or staining.

Approach Comments (Prior to NBE's)

28-NOV-1995: 11/28/95 guard rail only on one corner of the bridge.
18-NOV-1997: 11/18/97 There are barriers at the NW corner. There is no barriers or guardrail at any of the other corners of the bridge.
24-AUG-1999: 08/24/99 Same.
28-AUG-2001: 08/28/2001 There are approach barriers on the north end approach that are not connected properly.
23-SEP-2003: 09/23/2003 Barrier is needed to protect each the trailing and oncoming ends of the bridge. Object marker needed at the North end.
31-AUG-2005: 08/31/2005 Object markers are in place. Crash barriars have not been installed.
24-OCT-2007: 10/24/2007 Same.
03-SEP-2009: 09/03/2009 No safety features exist., All four corners of the bridge has been hit, according to the mainenance folks, and noctiable damage that is present. The west approach has setteled.
24-AUG-2011: 08/24/2011 Cracking in the north approach backwall.
20-AUG-2013: 08/20/13 RLR Approach pavement has much cracking and shoving of the surface by the many trucks that are breaking hard in order to make the curve at the end of the bridge. A single section of concrete barrier is in place at the NW corner that has damage.
20-AUG-2013: 08/20/13 RLR The remaining three ends of the railings have object markers in place, but nothing else. Ends of concrete railing end pieces all have collision damage. Ride onto bridge deck would be rough if traffic did not have to slow down.

Drainage Comments (Prior to NBE's)

28-NOV-1995: 11/28/95 much dirt sitting on the beam ends at the skew backs.
18-NOV-1997: 11/18/97 Condition remains the same.
24-AUG-1999: 08/24/99 Same.
28-AUG-2001: 08.28/2001 There is still settled dirt on the beams at the skew backs
23-SEP-2003: 09/23/2003 Sink hole and erosion is occuring at the NW corner.
31-AUG-2005: 08/31/2005 Erosion hole noted above has been repaired. No other problems exist at this time.
24-OCT-2007: 10/24/2007 No defects noted. However, superstructure deck drains should be extended to below the steel framing to limit the potential for deterioration of the deck and superstructure.
03-SEP-2009: 09/03/2009 Down drains have still not been extended and continue to drain onto the steel stringers and floor beams. see pics.
20-AUG-2013: 08/20/13 RLR All deck drains are open and continue to function. Splash areas are evident on the top of the arch from the water passing through these drains and this is reason for some of the rusting on the top surfaces of the arches.

Superstructure Comments (Prior to NBE's)

10-DEC-1991: 12/10/91 SOME RUSTING ON THE TOP AND BOTTOM FLANGES OF THE FLOOR BEAMS. HEAVY VIBRATION UNDER TRAFFIC. PINS AT THE SKEW BACKS WERE CHECKD WITH ULTASONIC EQUIPMENT.
21-SEP-1993: 9/21/93 CONDITION OF PAINT IS THE SAME, THE CONNECTION OF THE FLOOR BEAM TO THE ARH AT THE SECOND FLOOR BEAM FROM EACH END HAS SOME CRACKING AT THE AREA WHERE THE RIVITED PLATE IS ATTACHED TO THE ARCH IN THE COPE. IT APPERAS THAT THE CRACKING WAS FROM : THE TIME THE MEMBER WAS FABRACATED DUE TO THE EXREAME BENDING OF THE PLATE TO MATCH THE SLOPE OF THE ARCH. IT HAS BEEN BENT AT THE COPE APORX 120 DEGREES.
26-NOV-1995: 11/26/95 The Paint on the arch has areas of speckled rusting. The top of the floor beams has rusting from water leaking through the pavement joints above them. Some rusting on the top of the floor beam bottom flanges from water leakage. The copes
: that have been repaired still look good.

18-NOV-1997: 11/18/97 The rusting on the floor beams continues to get worse. There are areas of heavy rusting with moderate section loss on top of the bottom flanges on many of the floor beams. A magnetic particle inspection was performed on the cracks in the
: copes where the plate is attached to the arch. It does not appear that the cracks are any larger.
24-AUG-1999: 08/24/99 The rusting of the floor beams and bent caps continue to get worse. A magnet particle inspection was performed on the copes in the floor beams. A 5/16 inch long crack was found on the 2nd. beam from the north end on the east side. There were
: no cracks found in any of the other floor beams.
28-AUG-2001: 08/28/2001 Some of the stringers are rusting with some section loss under the deck drains. A magnet particle inspection was performed on some of the copes in the floor beams.
28-AUG-2001: 08/28/2001 The 5/16 inch long crack found in the floor beam the last inspection is still the same. There were no other cracks found.
23-SEP-2003: 09/23/2003 Mag particle randomly performed by Neal Pierce. UT of the pins was not preformed. Crack in the east floor beam still exists, but is not worse. Chalking and rusting continues to occur. Section loss previously noted still exists but is gradual.
31-AUG-2005: 08/31/2005 Crane was not used during this inspection. Paint on the superstructure is slowing failing. Small areas where the paint has chiped away leaving light to moderate rusting.
24-OCT-2007: 10/24/2007 Paint system is slowly failing as evidenced by chalking, peeling, and speckled rust throughout. Moderate delaminating corrosion is present on the bottom flange of the floorbeams at deck joint locations (no significant section loss).
24-OCT-2007: 10/24/2007 Moderate corrosion is present at edges of FB top flanges (no section loss). Moderate debris accumulation is present on top of bottom lateral brace gussets and at top of arch rib at spandrel columns.
24-OCT-2007: 10/24/2007 Failed rivets are present at the following locations 1) Stringer 2 at FB 1S 2) Stringer 2 at FB 4S 3) Lateral brace from FB 2N to FB 3N near the west arch rib.
24-OCT-2007: 10/24/2007 A cracked erection seat weld is present at Stringer 1 at FB 4S. No new growth was observed. A 5/16 inch long crack was observed in FB 3N adjacent to the east arch rib. No new growth was observed.
03-SEP-2009: 09/03/2009 Paint condition is in fair condition. Rusting is occuring at most connectiom plates. Very little pack rust exists. Rivets are still missing in locations earlier noted. Typical rusing in the web of all Floor beams from leaking occurring.
03-SEP-2009: 09/03/2009 Cont) around top flange.
1. FB4-N (East) No new growth. both plates.FB 4NWest both plates have 3/4 in. crack.
2. FB4-SE 1st So. plate has two crack parapell 1/2 in. crack longitudinal and a 5/8 in crack @ a 45 degree.No. plate 1/8 in. long
03-SEP-2009: 09/03/2009 (cont) FB 4SW South plate has 7/8 in. crack North plate has 1/2 in. crack.

All cracks were performed with Mag partical and UT-By Nick Romero, pictures were taken of all cracks.
03-SEP-2009: 09/03/2009 The plate as described in the 1993 inspection notes is now defined in this inspection as a knee bracket assembly as per plan, there is a total of 8ea. All eight are cracked, The worse is up to 1" this plate like mentioned probally cracked
03-SEP-2009: 09/03/2009 cond.. during erection. Pictures are in the folder, Disscussion was made about these cracks and they will continue to be monitored. It was determined, that this is not signincate at this time. Recommned to load rate this bridge.
24-AUG-2011: 08/24/2011 Crane was not used as a part of this inspection. What cracking could be seen from the ground and deck did not appear to be advancing. No deformation or other indication of further distress. Moderate rusting in many areas.
20-AUG-2013: 08/20/13 RLR Floor beams and stringers are in good condition with only minor areas of rusting on the stringers. Floor beams have heavier rusting in the areas where the end cracking that occurred many years ago, was cut out.

Substructure Comments (Prior to NBE's)

10-DEC-1991: 12/10/91 SOME SEPARATION OF THE WING WALLS FROM THE STRUCTURE.

21-SEP-1993: 9/21/93 SAME
28-NOV-1995: 11/28/95 conditons are the same,
18-NOV-1997: 11/18/97 Conditions remain the same.
24-AUG-1999: 08/24/99 Same.
28-AUG-2001: 08/28/2001 The concrete at the southeast wingwall is breaking up. The seperation of the wingwalls is no worse.
23-SEP-2003: 09/23/2003 Wingwalls tipping with horizontal cracking. Other mentioned conditions apply.
24-OCT-2007: 10/24/2007 No changes since last inspection.
03-SEP-2009: 09/03/2009 Dirt and debris still exists at the scew backs. Top of wingwall needs to be repaired at the SE corner.
24-AUG-2011: 08/24/2011 Some tight cracking in the backwalls. No spalls. SE wingwall is cracked and spalled along the top edge.
20-AUG-2013: 08/20/13 RLR All four skew backs and the abutments are all in good condition with no cracking or spalling. The pins that connect the arches to the skew backs were examined on the ends and found to have no signs of deterioration.
20-AUG-2013: 08/20/13 RLR The lower sections of the arches and cross bracing have areas of pack rusting that are largely the result of the debris that has collected against the columns, on the tops of the tipped lower flanges and in the corners of various connections.
20-AUG-2013: 08/20/13 RLR This debris then retains moisture and holds it against the steel. In the areas of this happening, there is some minor section loss on the surface. This is occurring at less than 1% of the surface area. Paint has much freckle type rusting.
20-AUG-2013: 08/20/13 RLR The work done to relieve the cracking in the ends of the floor beams caused by the stiff hanger beams appears to be working, with no additional cracking in the ends of the floor beams. One hanger beam (#FB4ES) has what appears to be cracking.
20-AUG-2013: 08/20/13 RLR At this location an apparent crack has spread upwards from the arrestor hole about 1 in.. Crack is very tight. The cracking in the connection plates from the floor beams to the arches at all of the #2 locations, remain the same.
20-AUG-2013: 08/20/13 RLR It was noted that the wingwalls at the north abutment are rotated backwards, away from the ends of the backwall, 1 to 2 inches. This movement does not appear to have happened, recently, and is resulting in no other problems.

Channel Comments (Prior to NBE's)

20-AUG-2013: 08/20/13 RLR Bridge is high enough above channel that the stream has no impact on the bridge, itself.

CLEARANCES

OVER STRUCTURE

	WB Lane 1,00	EB Lane 1
Max:	Not Applicable	Not Applicable
Min:	Not Applicable	Not Applicable

UNDER STRUCTURE

	Not Applicable	Not Applicable
Max:	Not Applicable	Not Applicable
Min:	Not Applicable	Not Applicable

CLEARANCE SIGNS

	Direction 1	Direction 2
Signs Placed:	No	No
Signs Correct:	Not Applicable	Not Applicable
Signs Legible:	Not Applicable	Not Applicable
Signs Standard:	Not Applicable	Not Applicable
Approach Signs Required:	Not Applicable	Not Applicable
Existing Legends:	None	None

NOTES

Pavement Type Under:

NBI COMPARISON

	Roadway (Item 10)	Appraisal (Item 53)
NBI Vertical Clearance for Route Over:		
NBI Vertical Clearance for Route Under:		

MEXICAN HAT ARCH, BRIDGE NO. 0C 274
SUPERSTRUCTURE ELEMENTS DEFECTS TABLES

Inspection Date: September 28, 2016

Steel Stringers

Location	Stringer 1	Stringer 2	Stringer 3	Stringer 4	Stringer 5	Stringer 6	Condition States / Quantities
Abutment 1 to FB0S	no defects observed	no defects observed	no defects observed	no defects observed	N/A	N/A	All stringers CS1 (24'X4=96')
FB0S to FB1S	no defects observed	missing rivet at SW connection	surface rust at south end (2 feet), section loss beginning at south end (1 foot) exhibited by rust bubbling	no defects observed	N/A	N/A	CS2=2'; CS3=2'
FB1S to FB2S	1-foot surface rust bottom flange at south end	2-feet surface rust bottom flange at south end	2-feet surface rust bottom flange at south end	2-feet surface rust bottom flange at south end	N/A	N/A	CS2=7'
FB2S to FB3S	2-feet surface rust bottom flange north end; at FB3S there is a crack in bottom angle bracket (bracket under the stringer, 2 in X 0.036 in)	2-feet surface rust bottom flange at north end	missing rivet south end east side	no defects observed	N/A	N/A	CS2=4'; CS3=2'
FB3S to FB4S	surface rust west side; 5-feet section loss/rust bubbling at mid-span bottom flange near drain; 4-feet section loss/rust bubbling bottom flange north end	2 missing rivet heads south end east side	3-feet surface rust bottom flange south end	2-feet surface rust bottom flange south end	N/A	N/A	CS2=15'; CS3=10'
FB4S to FB5	limited surface rust initiating	limited surface rust initiating	limited surface rust initiating	limited surface rust initiating	N/A	N/A	CS2=19'X4=76'
FB5 to FB4N	no defects observed	no defects observed	no defects observed	bottom flange surface rust full length; 4-foot section loss/rust bubbling bottom flange and web at drain	N/A	N/A	CS2=15'; CS3=4'
FB4N to FB3N	minor surface rust bottom flange full length; 1-foot minor section loss at south end on bottom flange	no defects observed	rusting at bottom flange at north end 1-foot	rusting at bottom flange at north end 1-foot; 4-feet of section loss at drain on top and bottom flanges and web on east face (approx 0.032-inch section loss)	N/A	N/A	CS2=20'; CS3=5'
FB3N to FB2N	2-feet section loss/rust bubbling at north end	2-feet section loss/rust bubbling at north end; sw connection missing rivet head	2-feet section loss/rust bubbling at north end	2-feet section loss/rust bubbling at north end	N/A	N/A	CS3=9'
FB2N to FB1N	missing rivet head on connection plate se end; surface rust top and bottom flange	surface rust top and bottom flange	surface rust top and bottom flange	surface rust top and bottom flange	N/A	N/A	CS2=95'; CS3=1'
FB1N to FB0N	rusting at top flange at deck connection; 2 cracks in se connection plate & 2 cracks in sw connection plate	rusting at top flange at deck connection	rusting at top flange at deck connection	rusting at top flange at deck connection	rusting at top flange at deck connection	pack rust in stiffeners (5/8" separation); rust at top and bottom flanges; crack in se & sw connection plates	CS2=94'; CS3=2'
FB0N to Abutment 2	no defects observed	no defects observed	no defects observed	no defects observed	no defects observed	rust at top and bottom flanges; 2-feet section loss/rust bubbling north end	CS2=9'; CS3=2'

NOTES:
CS2 total = 337 feet; CS3 total = 37 feet

MEXICAN HAT ARCH, BRIDGE NO. 0C 274
SUPERSTRUCTURE ELEMENTS DEFECTS TABLES

Inspection Date: September 28, 2016

Steel Arch

Location	Arch 1 (west arch)	Arch 2 (east arch)	Condition State(s) / Quantities
FB0S to FB1S	rust bubles at center bottom and top 3'	rust bubbles at center bottom and top 3'; surface rusting	CS2=19' X 2=38'
FB1S to FB2S	freckle rust top flange	freckle rust top flange	CS2=19' X 2=38'
FB2S to FB3S	freckle rust top flange & west web	freckle rust top flange & west web; web has areas of section loss/rust bubbles (measured in two areas as approx. 0.055-inch & 0.097-inch)	CS2=28'; CS3=10'
FB3S to FB4S	no defects observed	west web has section loss/rust bubbles	CS2=9'; CS3=10'
FB4S to FB5	no defects observed	freckle rust underside	CS2=19'
FB5 to FB4N	no defects observed	freckle rust underside	CS2=19'
FB4N to FB3N	3-feet pack rust at bottom connection plate; surface rust throughout	paint beginning to peel; minor freckle rust	CS2=35'; CS3=3'
FB3N to FB2N	3-feet rust bubbles in web at east side	freckle rust throughout; section loss/rust bubbles in arch web west side (section loss 0.045")	CS2=14'; CS3=8'
FB2N to FB1N	freckle rust throughout	freckle rust throughout	CS2=38'
FB1N to FB0N	freckle rust throughout	freck rust throughout; rust bubbles beginning to form on bottom flange	CS2=34'; CS3=4'

Steel Floorbeams

FB Number	West Side	East Side	Condition States / Quantities
FB0N	Top flange rust full length	Top flange rust full length; rust staining indicative of active leaking; section loss/rust bubbling 1-foot long on east end	CS2=26'; CS3=1'
FB1N	Rust on top and bottom flanges full length	Rust on top and bottom flanges full length	CS2=27'
FB2N	surface rust full length; 3 cracks in FB to arch connection north plate east side; 4 cracks in FB to arch connection south plate east side; 4-feet section loss/rust bubbling west end	surface rust full length; 1 crack in FB to arch connection south plate & 1 crack in FB to arch connection north plate; 6-feet section loss/rust bubbling at east end	CS2=15'; CS3=12'
FB3N	Rust on top and bottom flanges full length; delam. cracking in coping cut; crack in weld at FB to column bracket (0.75 in X 0.016 in)	Rust on top and bottom flanges full length	CS2=26'; CS3=1'
FB4N	delam. cracking in coping cut; full length bottom flange section loss/rust bubbling on south side of beam; section loss/rust bubbling at west end on north side of beam at bottom flange 2-feet long	top flange beginning section loss 4-feet long; delam. cracking in coping cut; full length bottom flange section loss/rust bubbling on south side of beam	CS3=27'
FB5	surface rust top flange full length; delam. cracking in coping cut; crack in weld at FB to column bracket (2.75 in x 0.036 in)	surface rust top flange full length; section loss/rust bubbling east end north face 4-feet long; delam. cracking in coping cut	CS2=21'; CS3=6'
FB4S	surface rust top flange full length; delam. cracking in coping cut; crack in weld at FB to column bracket (2 in x 0.010 in)	surface rust top flange full length; delam. cracking in coping cut; crack in weld at FB to column bracket (2 in x 0.045 in); section loss/rust bubbling at east side on bottom flange 8-feet long	CS2=18'; CS3=9'
FB3S	rust full length top flange; 2 cracks propagating from coping cut, approx 1/4-inch long X 0.006-inch wide (see photo)	rust full length top flange; delam. cracking in coping cut; bottom flange showing minor section loss with rust bubbling at east end	CS2=23'; CS3=4'
FB2S	bottom flange intermittent section loss full length; fatigue cracking in arch to floorbeam connection plates (1 crack on north plate, 4 cracks on south plate)	bottom flange intermittent section loss full length; fatigue cracking in arch to floorbeam connection plates (2 cracks on north side, 3 cracks on south side of plate)	CS3=27'
FB1S	surface rust throughout top flange; 1-foot long section loss/rust bubbling on bottom flange west end at north face	surface rust throughout top flange; 1-foot long section loss/rust bubbling under stringer 3 on north face	CS2=25'; CS3=2'
FB0S	Section loss on bottom flange approx. 2 ft long; section loss/rust bubbling under vertical stiffener & gusset plate; entire top flange is rusted; surface rust on bottom flange throughout	entire top flange is rusted; surface rust on bottom flange throughout	CS2=24'; CS3=3'

NOTES:
Arch CS2 = 272 feet, CS3 = 35 feet
Floorbeam CS2 = 205 feet, CS3 = 92 feet

MEXICAN HAT ARCH, BRIDGE NO. 0C 274
SUPERSTRUCTURE ELEMENTS DEFECTS TABLES

Inspection Date: September 28, 2016

Lateral Bracing

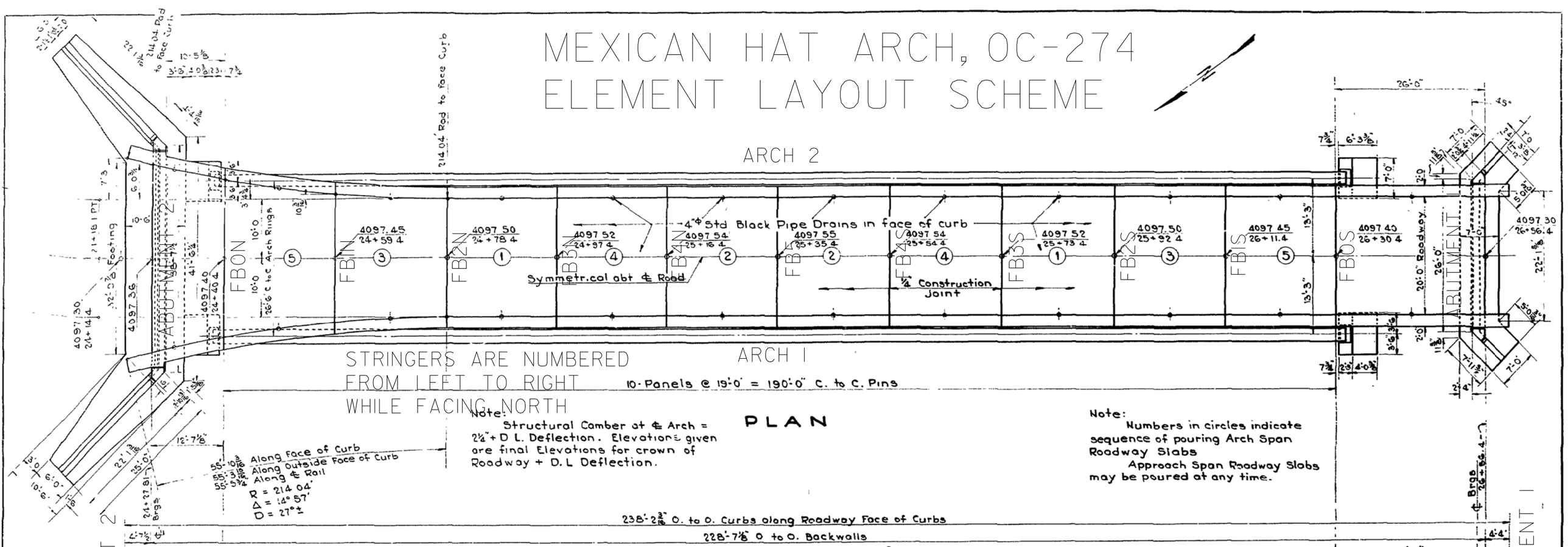
Location	West Side	East Side	
FB0S to FB1S	freckle rust throughout; minor impact damage north side north section bottom flange	freckle rust throughout	
Under FB1S	Pack rust and section loss along entire bottom flange	Pack rust and section loss along entire bottom flange	
FB1S to FB2S	minor surface and freckle rusting	minor surface and freckle rusting	
FB2N to FB1N	missing 3 rivet heads on north face of south brace bottom; minimal to no surface rust	missing 1 rivet head on north face of north brace bottom; minimal to no surface rust	
Under FB1N	minor surface rust throughout; minor section loss/rust bubbling on bottom flange full length	minor surface rust throughout; minor section loss/rust bubbling on bottom flange full length	
FB1N to FB0N	minor surface rust throughout	minor surface rust throughout	

Steel Columns

Location	Column 1 (West Side)	Column 2 (East Side)	Condition State(s) / Quantities
FB0N	1.5-feet section loss/rust bubbling at base; freckle rust full height; debris at base	1-feet section loss/rust bubbling at base; freckle rust full height; debris at base; 3-3inch diameter rust bubbles near top	Columns 1 & 2 are CS3
FB1N	minor freckle rust; section loss/rust bubbling at base 1-foot long	minor freckle rust; section loss/rust bubbling at base 1-foot long	Columns 1 & 2 are CS3
FB2N	**N/A**	**N/A**	
FB3N	surface rust at bottom 1-foot	section loss initiated at bottom 1-foot; column has been flame cut diaganolly at the bottom 2'-9" and the bottom of this cut shows out of plane bending 1/8-inch	Column 1 = CS2; Column 2 = CS3
FB4N	surface rust at bottom 1-foot	section loss initiated at bottom 1-foot; surface rust full height; column has been flame cut diaganolly at the bottom 2'-9" and the bottom of this cut shows out of plane bending 1/8-inch	Column 1 = CS2; Column 2 = CS3
FB5	surface rust throughout; bottom 1-foot has section loss/rust bubbling	minor surface rust throughout; bottom 1-foot has section loss	Columns 1 & 2 are CS3
FB4S	minimal surface rust throughout; bottom 1-foot has section loss/rust bubbling; missing rivet head on se side of column near top at arch	bottom 1-foot has section loss	Columns 1 & 2 are CS3
FB3S	column has been flame cut diaganolly at the bottom 2'-9" and the bottom of this cut shows out-of-plane bending 1/4-inch; Angle bracket below FB at column has corroded and fallen away	bottom 1-foot has section loss; column has been flame cut diaganolly at the bottom 2'-9" and the bottom of this cut shows out-of-plane bending 1/4-inch; Angle bracket below FB at column has corroded and fallen away	Column 1 = CS2; Column 2 = CS3
FB2S	**N/A**	**N/A**	
FB1S	1-foot minor section loss at base; minor surface rust throughout	minor surface rust throughout	Column 1 = CS3; Column 2 = CS2
FB0S	1-foot minor section loss at base	1-foot minor section loss at base	Columns 1 & 2 are CS3

NOTES:

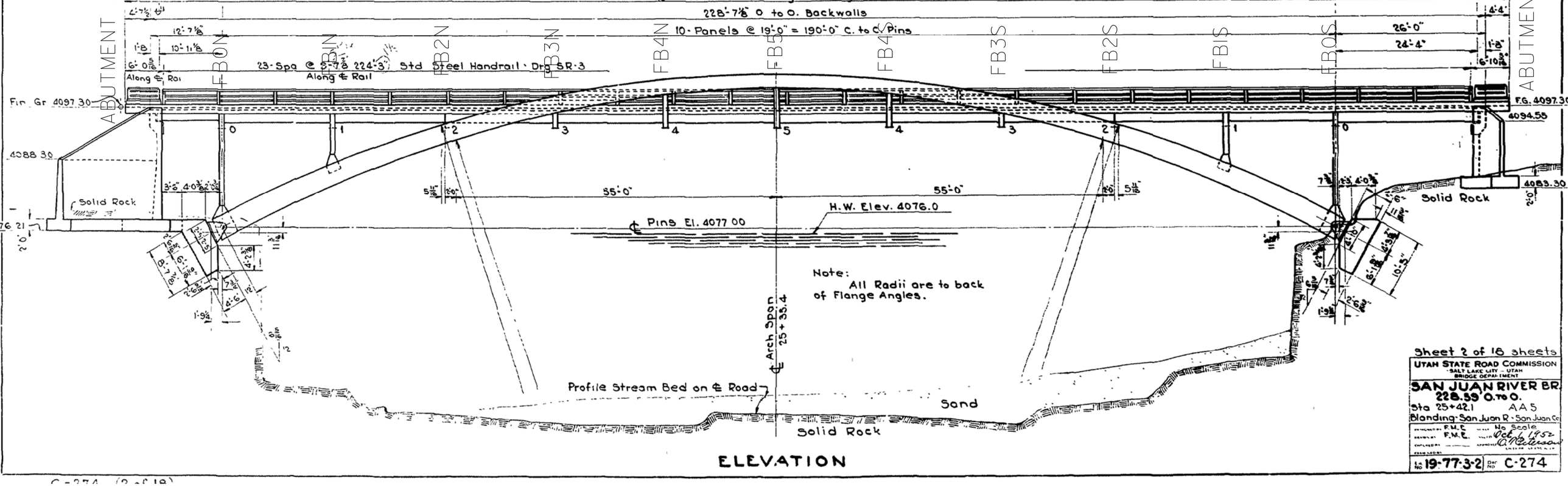
MEXICAN HAT ARCH, OC-274
ELEMENT LAYOUT SCHEME



PLAN

Note:
Structural Camber at ℄ Arch = 2¼" + D L. Deflection. Elevations given are final Elevations for crown of Roadway + D.L Deflection.

Note:
Numbers in circles indicate sequence of pouring Arch Span Roadway Slabs
Approach Span Roadway Slabs may be poured at any time.



ELEVATION

Note:
All Radii are to back of Flange Angles.

Sheet 2 of 18 sheets

UTAH STATE ROAD COMMISSION
SALT LAKE CITY - UTAH
BRIDGE DEPARTMENT

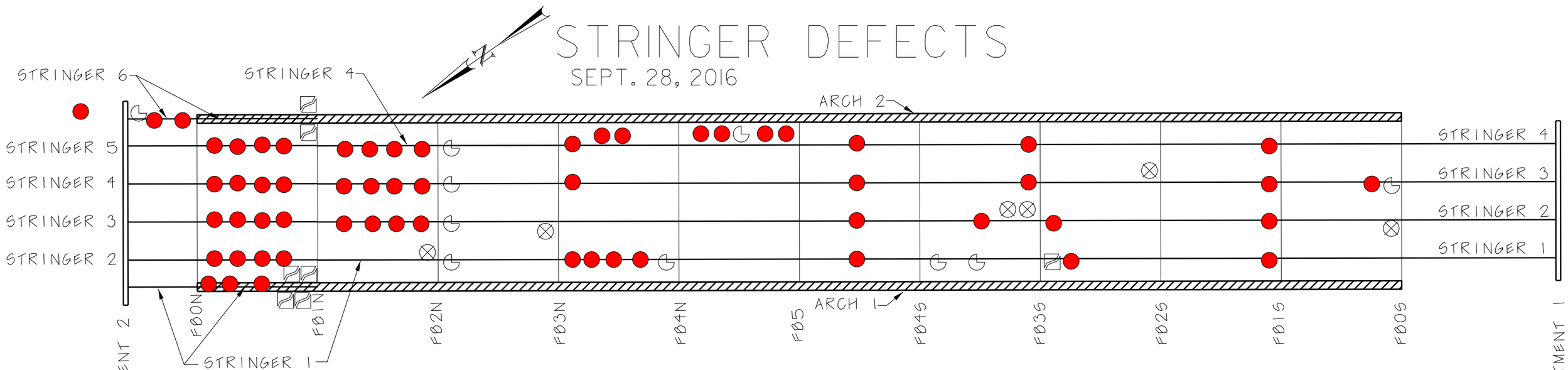
SAN JUAN RIVER BR.
228.59' O. TO O.
Sta 25+42.1 AA 5
Blanding: San Juan R - San Juan Co.

DESIGNED F.M.E. DRAWN F.M.E. CHECKED APPROVED
No Scale
Oct. 6 1952
A. Peterson
CHIEF ENGINEER

Job No. 19-77-3-2 Dwg No. C-274

STRINGER DEFECTS

SEPT. 28, 2016



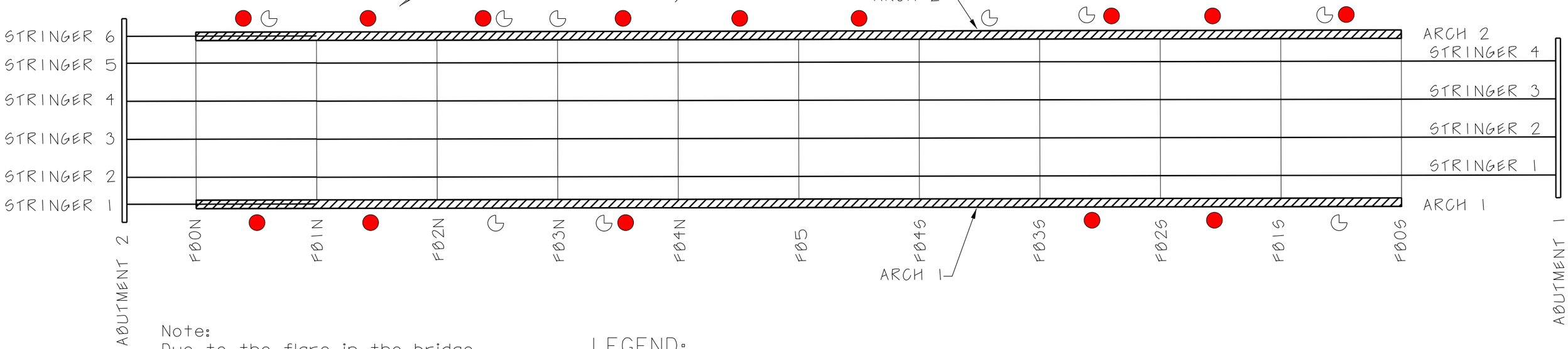
Note:
Due to the flare in the bridge at the north end, there are six stringers (not four) from fb1n to fb0n and fb0n to abutment2.

LEGEND:

- ▨ = CRACK IN CONNECTION PLATE
- ◔ = SECTION LOSS/RUST BUBBLING
- ● = SURFACE RUST/CORROSION
- ⊗ = MISSING RIVET

ARCH DEFECTS

SEPT. 28, 2016



Note:
Due to the flare in the bridge at the north end, there are six stringers (not four) from fb1n to fb0n and fb0n to abutment2.

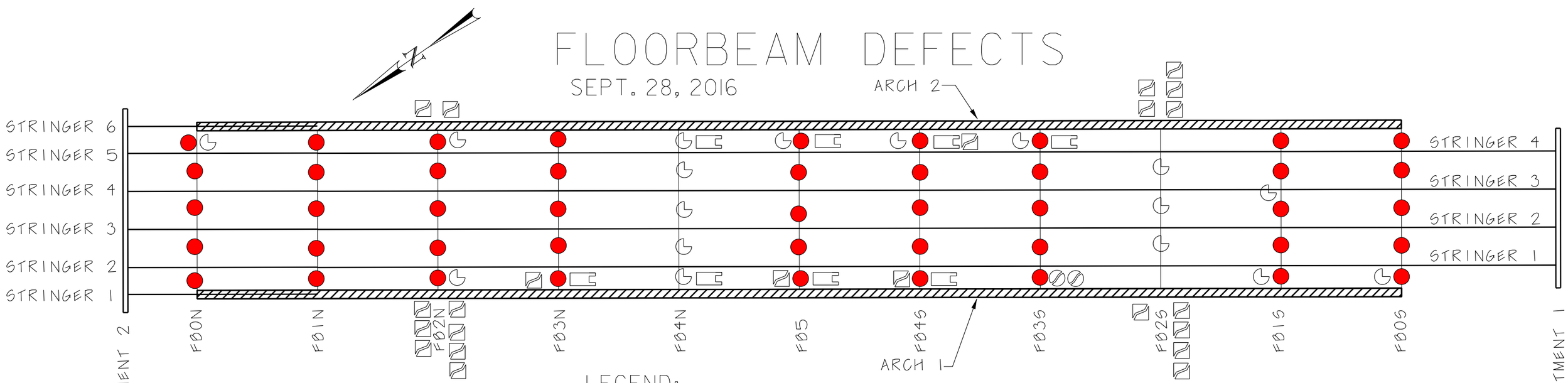
LEGEND:

◔ = SECTION LOSS/RUST BUBBLING/PACK RUST

● = SURFACE RUST/CORROSION

FLOORBEAM DEFECTS

SEPT. 28, 2016



Note:
Due to the flare in the bridge at the north end, there are six stringers (not four) from fb1n to fb0n and fb0n to abutment2.

LEGEND:

- = CRACK IN CONNECTION PLATE
- = CRACK IN FLOORBEAM
- = SECTION LOSS/RUST BUBBLING
- = SURFACE RUST/CORROSION
- = "DELAMINATION" CRACK(S) IN FLOORBEAM