

Inspection Report with SI&A Data

Structure Description: 2107.94 Foot - Single Span Steel Arch - Thru

2 District: 01 **3 County:** Marshall **16 Latitude:** 37°01'34.00" **7 Longitude:** 88°17'10.00"

7 Facility Carried: 24 NON CARDINAL

Milepoint: 29.240

6A Feature Intersected: TENNESSEE RIVER

9 Location: WBL OVER TENNESSEE RIVER

NBI	X
Element	X
Fracture Critical	X
Underwater	
Special	

NBI CONDITION RATINGS			
58 Deck:	6	61 Channel:	6
59 Superstructure:	6	62 Culvert:	N
60 Substructure:	6	Sufficiency Rating:	93

GEOMETRIC DATA		
48 Max Length Span:		534.121 ft
49 Structure Length:		2,107.940 ft
32 Approach Roadway:		40.026 ft
33 Median:		(0) No Median
34 Skew:		0°
35 Flare:		No Flare
50A Curb/Sidewalk Width L:		0.656 ft
50B Curb/Sidewalk Width R:		0.656 ft
47 Horiz. Clearance:		39.042 ft
51 Width Curb to Curb:		39.042 ft
52 Width Out to Out:		42.323 ft

DESIGN	
Substandard:	No
Fracture Critical:	Yes
43A Main Span Material:	(3) Steel
43B Main Span Design:	(12) Arch-Thru
45 Number of Spans Main:	1
44A Approach Span Material:	(4) Steel Continuous
44B Approach Span Design:	(03) Girder-Floorbeam
46 Number of Approach Spans:	8
107 Deck Type:	(1) Concrete-Cast-in-Place
108A Wearing Surface:	(4) Low Slump Concrete
108B Membrane:	(0) None
108C Deck Protection:	(0) None
Overlay Y/N:	Yes
Overlay Type:	PCC
Overlay Thickness:	1.000 in
Overlay Date:	1971

ADMINISTRATIVE		
27 Year Built:		1974
106 Year Reconstructed:		0
42A Type of Service On:		(1) Highway
42B Type of Service Under:		(5) Waterway
37 Historical Significance:		(5) Not Eligible
21 Maintenance Responsibility:		(01) State Hwy Agency
22 Owner:		(01) State Hwy Agency
101 Parallel Structure:		(R) Right of II Structure

APPRAISAL		
36A Bridge Railings:		(0) Substandard
36B Transitions:		(1) Meets Standards
36C Approach Guardrail:		(1) Meets Standards
36D Approach Guardrail Ends:		(1) Meets Standards
71 Waterway Adequacy:		(9) Above Desirable
72 Approach Alignment:		(8) Equal Desirable Crit
113 Scour Critical:		(5) Stable w/in footing
Recommended Scour Critical:		(5) Stable w/in footing

CLEARANCES		
10 Vert. Clearance:		19.019 ft
53 Min. Vert. Clearance Over:		19.019 ft
54A Vert. Under Reference:		(N) Feature not hwy or RR
54B Min. Vert. Underclearance:		0.000 ft
55A Lateral Under Reference:		(N) Feature not hwy or RR
55B Min. Lat. Underclearance R:		0.000 ft
56 Min. Lat. Underclearance L:		0.000 ft

LOAD RATINGS		
63 Operating Type:		(2) Allowable Stress (AS)
64 Operating Rating:		36.0 tons
65 Inventory Type:		(2) Allowable Stress (AS)
66 Inventory Rating:		36.0 tons
Truck Capacity Type I:		tons
Truck Capacity Type II:		tons
Truck Capacity Type III:		tons
Truck Capacity Type IV:		tons

POSTINGS		
41 Posting Status:		(A) Open, No Restriction
Signs Posted Cardinal:		No
Signs Posted Non-Cardinal:		No
Field Postings Gross:		tons
Field Postings Type I:		tons
Field Postings Type II:		tons
Field Postings Type III:		tons
Field Postings Type IV:		tons

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12: Re Concrete Deck									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
SQ.FT	89,213.98	0	0%	89,213.98	100%	0	0%	0	0%
Minor wear, random popouts and cracking.									

510: Wearing Surfaces									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
SQ.FT	82,303.55	0	0%	82,303.55	100%	0	0%	0	0%
Rigid Overlay.									

107: Steel Opn Girder/Beam									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	3,146	3,146	100%	0	0%	0	0%	0	0%
Minor areas of rust/surface rust throughout East and West approach sections.									

515: Steel Protective Coating									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	25,248.11	25,187.15	100%	60.96	0%	0	0%	0	0%
Minor areas of surface rust throughout East and West approach sections.									

113: Steel Stringer									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	7,351.02	7,251.02	99%	100	1%	0	0%	0	0%
Minor to moderate rust, some minor section loss to stringer ends at Pier 4,5,T3,T7,T11 and End Bent 2. Missing and loose bolts for stringer to floor beam connection noted throughout arch span.									

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515: Steel Protective Coating									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	13,443.51	13,321.59	99%	0	0%	121.92	1%	0	0%

141: Stl Arch									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	1,068.4	0	0%	1,068.4	100%	0	0%	0	0%

Areas of paint distress, fading .. areas of light rust. Bolt in top plate at approx R7 upstream side.

515: Steel Protective Coating									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	3,845.05	0	0%	1,922.68	50%	1,922.37	50%	0	0%

Areas of paint distress, fading ... areas of light rust.

147: Stl Main Cables									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	6,193	0	0%	6,193	100%	0	0%	0	0%

Minor rust formation, minor outward movement noted in tops, various cable sleeves on top are slipping downward. Anchor on R6 out of line.

515: Steel Protective Coating									
Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	742.19	0	0%	559.31	75%	182.88	25%	0	0%

Rust showing in various cables, paint chipping.

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152: Steel Floor Beam

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	3,115.2	2,746.4	88%	368.8	12%	0	0%	0	0%

Moderate rust with minor section loss in top flanges at joint locations, Pier 4, Pier 5, T3, T7, T11. Floor Beams in arch section have been coped on ends. Cracks in corners of T0 and T15 have been drilled.

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	11,868.3	11,197.74	94%	0	0%	670.56	6%	0	0%

Moderate rust at joint locations . Piers' #4 and #5,T-3, T-7, T-11.

162: Stl Gus Plate

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	52	52	100%	0	0%	0	0%	0	0%

Areas of light rust, minor pitting in connection plates, nuts and blocks.

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	69.58	0	0%	69.58	100%	0	0%	0	0%

Areas of light rust, pitting in connection plates, nuts and blocks.

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205: Re Conc Column

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	16	0	0%	16	100%	0	0%	0	0%

Cracking with leaching.

215: Re Conc Abutment

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	84.8	0	0%	84.8	100%	0	0%	0	0%

Minor cracking and spalls with leaching.

220: Re Conc Pile Cap/Ftg

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	3.28	3.28	100%	0	0%	0	0%	0	0%

220...DUE TO SCOUR & EROSION FOOTER IS EXPOSED AT PIER 9

234: Re Conc Pier Cap

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	84.8	0	0%	84.8	100%	0	0%	0	0%

Minor cracking.

302: Compressn Joint Seal

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	212	84.8	40%	0	0%	0	0%	127.2	60%

Compression seals have failed in arch section, T3,T7,T11 joint locations.

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304: Open Expansion Joint

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	81.8	0	0%	81.8	100%	0	0%	0	0%

Finger dams, minor rust on underside of joint system, located at Pier 4 and Pier 5.

311: Moveable Bearing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	14	0	0%	10	71%	4	29%	0	0%

Rust formation and pack rust at End Bent 1 and 2 bearing. Minor surface rust all others.

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	44.22	0	0%	31.59	71%	12.63	29%	0	0%

Rust formation and pack rust at Endbent #1 and #2 bearings, minor surface rust on all others.

313: Fixed Bearing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	10	6	60%	4	40%	0	0%	0	0%

Minor surface rust Piers 4 and 5

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	30.94	18.58	60%	12.36	40%	0	0%	0	0%

Minor surface rust Piers' #4 and #5.

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331: Re Conc Bridge Railing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	4,216.01	0	0%	4,216.01	100%	0	0%	0	0%

Minor deterioration throughout, cracking and scrapes.

333: Other Bridge Railing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	4,216	4,216	100%	0	0%	0	0%	0	0%

Minor areas of scrapes and bends

803: Curb

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(LF)	4,216.01	0	0%	4,216.01	100%	0	0%	0	0%

Minor deterioration, cracking and scrapes throughout.

851: Transitions

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	1	100%	0	0%	0	0%	0	0%

< none >

852: Drains

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	0	0%	1	100%	0	0%	0	0%

Need to be cleaned and flushed, drain system pipe under finger dam at pier 5 needs new hanger. Drain systems under finger dams leaking and moderate deterioration.

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857: Embankment Erosion

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	0	0%	1	100%	0	0%	0	0%

Moderate amount of bank erosion up and downstream, has exposed footer at pier 8.

858: Channel Alignment

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	0	0%	1	100%	0	0%	0	0%

River widening, eroding banks.

6000: Scour

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	0	0%	1	100%	0	0%	0	0%

See media tab of 2014 Underwater Inspection for Underwater Inspection report.

859: Vegetation

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	1	100%	0	0%	0	0%	0	0%

Minor

860: Erosion Ctrl/Prt

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	1	100%	0	0%	0	0%	0	0%

Rip rap on slopes at End Bents.

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STRUCTURE NOTES

SI&A Recommended Rating:

60.8 ? Substructure (Piers and/or Bents) Rating: 7 ? Good Condition

113 ? Scour Critical Rating: 5 ? Scour Within Limits of Foundation

INSPECTION NOTES

Fracture Critical/Element inspection performed by District 1 inspectors Jim Redick, J.P. Tilley and Central Office Bridge staff members Josh Rogers, Rick Rogers, Evan Dick and Harry Greer. Snooper and lift used to access structure, climbers used on top chord.

Joint measurements : Abutment #1 compression ... 2 3/4" , Pier #4 finger dam ... 9" , T-3 compression ... 1 3/4" , T-7 compression ... 1 5/8" , T-11 compression ... 1 1/2" , Pier #5 finger dam ... 10" , Abutment #2 compression ... 2 1/2" . Temp. 42 degrees.

Noted : Several areas of loose/damaged bolts for catwalk to floor beam connections throughout arch span. 2015

WORK

Action: 1062 - Paint-Structural

Generated by user "jredick" on 3/26/2015. Clean and paint Arch section.