



# Bridge Inspection Report

056B00186N

Inspector: Luke Adkins

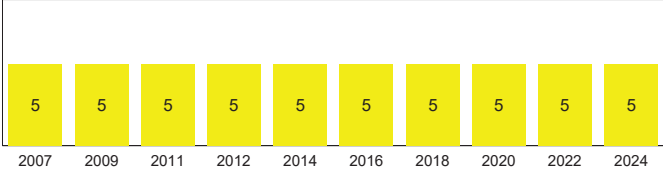
Entered by: LADKINSCON

12/09/2024

Standard (24 months)

<u>IDENTIFICATION</u>			
Structure Num (8):	056B00186N		
NBI Number	056B00186N		
Structure Name:			
Location (9):	0.8 MI S OF US 150		
Carries (7):	I-65		
Type of Service (42A):	1 Highway		
Feature Crossed (6):	E OAK ST		
Type of Service (42B):	1 Highway		
Placecode (4):	Not Applicable		
County (3):	Jefferson (056)		
State (1):	21 Kentucky		
Admin Area:	Inventory		
District:	District 5		
Latitude (16):	38° 14' 3"		
Longitude (17):	85° 45' 4"		
Owner (22):	State Highway Agency		
Maint. Resp. (21):	State Highway Agency		
Year Built (27):	1960	Border State (98A):	Not Applicable (P)
Year Recon (106):	1982	Border Number (99):	
		% Responsibility (98B):	

<b>Fair</b>		Heath Index:	85.57
SubStd: No		SubStd Reason:	Not Sub-Standa
Inspection Type	Freq (92)	Last Insp (93)	Next Insp
Routine	24	12/9/2024	12/9/2026
Element	24	12/9/2024	12/9/2026
Fracture Critical (A)		1/1/1901	1/1/1901
Underwater (B)		1/1/1901	1/1/1901
Special Insp (C)		1/1/1901	1/1/1901
<u>LOAD RATING AND POSTING</u>			
Posting Status(41):		A Open, no restriction	
Posting (70):		5 At/Above Legal Loads	
Signs Posted Cardinal:		No	
Signs Posted Non-Cardinal:		No	
Recmd Date:		Posted Date:	
<u>Required Postings (Tons.)</u>		<u>Field Postings (Tons.)</u>	
Gross:		Gross:	
Truck Type 1:		Truck Type 1:	
Truck Type 2:		Truck Type 2:	
Truck Type 3:		Truck Type 3:	
Truck Type 4:		Truck Type 4:	
SUV 5:		SUV 5:	
SUV 6:		SUV 6:	
SUV 7:		SUV 7:	
EV Single Axle:		EV Single Axle:	
EV Tadem Axle:		EV Tadem Axle:	
EV Gross:		EV Gross:	

<u>DECK GEOMETRY</u>	
Deck Geometry (68):	9 Above Desirable Crit
Deck Area:	19,806.00 ft²
Deck Type (107):	1 Concrete-Cast-in-Place
Wearing Surface (108A):	6 Bituminous
Membrane (108B):	0 None
Deck Protection (108C):	1 Epoxy Coated Reinforci
Approach Roadway width (32):	119.00 ft.
Width Curb to Curb (51):	119.00 ft.
O. to O. Width (52):	124.80 ft.
Curb / Sidewalk Width L (50A):	0.00 ft.
Curb / Sidewalk Width R (50B):	0.00 ft.
Median (33):	3 Closed Med w/Barriers
	
<u>DECK CONDITION</u>	
Deck Rating (58):	5 Fair
Bridge Rail (36A):	0 Substandard
Transition (36B):	0 Substandard
Approach Rail (36C):	0 Substandard
Approach Rail Ends (36D):	0 Substandard



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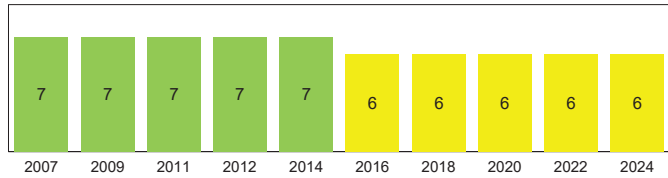
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## SUPERSTRUCTURE GEOMETRY

# of Main Spans (45): 3  
# of Approach Spans (46): 0  
Main Material (43 A): 4 Steel Continuous  
Main Design (43 B): 02 Stringer/Girder  
Max Span Length (48): 68.10 ft.  
Structure Length (49): 158.70 ft.  
NBIS Length (37): Long Enough  
Temp Structure (103): Not Applicable (P)  
Skew (34): 21°  
Structure Flared (35): 1 Yes, flared  
Parallel Structure (101): No || bridge exists  
Approach Alignment (72): 8 Equal Desirable Crit

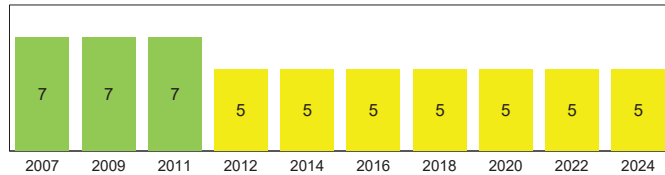


## SUPERSTRUCTURE CONDITION

Superstructure Rating (59): 6 Satisfactory  
Structure Evaluation (67): 5 Above Min Tolerable

## SUBSTRUCTURE GEOMETRY

Navigation Control (38): NA-no waterway  
Nav Vert Clearance (39): 0.00 ft.  
Nav Horiz Clearance (40): 0.00 ft.  
Pier Protection (111): Not Applicable (P)  
Lift Bridge Vertical Clearance (116):  
Scour Rating (113): N Not Over Waterway  
Waterway Adequacy (71): N Not applicable



## SUBSTRUCTURE CONDITION

Substructure Rating (60): 5 Fair  
Channel Rating (61): N N/A (NBI)

## KYTC FIELDS

Overlay:	Yes	Scour Observed:	N/A
Overlay Type:	L T Polymer Asph	Scour Risk :	N/A
Overlay Thickness:	2.25 in.	Scour Analysis/Assessment :	Not Required
Overlay Year:	2012	Scour POA :	Not Required
Cross Section:	Not Required	Scour POA Date :	
Cross Section Date:		Next Cross Section Due Date :	

## 1ST NON-CARD ROUTE ON: I-65 NC

ROADWAY LOCATION		ROADWAY CLASSIFICATION		CLEARANCES	
Pos Prefix (5A):	1st Non-Card Route	Func Class (26):	11 Urban Interstate	Vertical (10):	99.99 ft.
Kind of Hwy (5B):	1 Interstate Hwy	Level Service (5C):	1 Mainline	Min Vert Over (53):	99.99 ft.
Route Num (5D):	00065	NHS (104):	1 On the NHS	Vert Ref (54A):	H Hwy beneath struct
LRS Route (13A/B):	IO0065_000/00	Defense Hwy (100):	1 On Interstate STRAHNET	Undrclearance (54B):	14.67 ft.
Milepost (11):	134.44 mi	Toll Facility (20):	3 On free road	Horizontal (47):	49.75 ft.
Suffix (5E):	0 N/A (NBI)	ADT (29):	122,958 Cars/Day	Min Lat Left (56):	8.88 ft.
Lanes Under (28B):	6	Pct Trucks (109):	16.00%	Min Lat Right (55B):	8.92 ft.
Detour Length (19):	8.00 mi	ADT Year (30):	2024	Horiz Ref (55A):	H Hwy beneath struct
				Underclearance (69):	3 Intolerable - Correct



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## 2ND NON-CARD ROUTE ON: I-65 RAMP to E ST CATHERINE

ROADWAY LOCATION		ROADWAY CLASSIFICATION		CLEARANCES	
Pos Prefix (5A):	2nd Non-Card Route	Func Class (26):	11 Urban Interstate	Vertical (10):	99.99 ft.
Kind of Hwy (5B):	1 Interstate Hwy	Level Service (5C):	7 Ramp	Min Vert Over (53):	99.99 ft.
Route Num (5D):	00065	NHS (104):	1 On the NHS	Vert Ref (54A):	H Hwy beneath struct
LRS Route (13A/B):		Defense Hwy (100):	1 On Interstate STRAHNET	Undrclearnce (54B):	14.67 ft.
Milepost (11):	134.44 mi	Toll Facility (20):	3 On free road	Horizontal (47):	69.25 ft.
Suffix (5E):	0 N/A (NBI)	ADT (29):	122,958 Cars/Day	Min Lat Left (56):	8.88 ft.
Lanes Under (28B):	1	Pct Trucks (109):	16.00%	Min Lat Right (55B):	8.92 ft.
Detour Length (19):	8.00 mi	ADT Year (30):	2024	Horiz Ref (55A):	H Hwy beneath struct
				Underclearance (69):	3 Intolerable - Correct

## ROUTE UNDER STRUCTURE: E OAK ST

ROADWAY LOCATION		ROADWAY CLASSIFICATION		CLEARANCES	
Pos Prefix (5A):	One Route Under	Func Class (26):	16 Urban Minor Arterial	Vertical (10):	14.67 ft.
Kind of Hwy (5B):	5 City Street	Level Service (5C):	0 None of the below	Min Vert Over (53):	99.99 ft.
Route Num (5D):	01016	NHS (104):	0 Not on NHS	Vert Ref (54A):	H Hwy beneath struct
LRS Route (13A/B):		Defense Hwy (100):	0 Not a STRAHNET hwy	Undrclearnce (54B):	14.67 ft.
Milepost (11):	0.24 mi	Toll Facility (20):	3 On free road	Horizontal (47):	40.00 ft.
Suffix (5E):	0 N/A (NBI)	ADT (29):	7,645 Cars/Day	Min Lat Left (56):	8.88 ft.
Lanes Under (28B):	2	Pct Trucks (109):	0.00%	Min Lat Right (55B):	8.92 ft.
Detour Length (19):	0.00 mi	ADT Year (30):	2023	Horiz Ref (55A):	H Hwy beneath struct
				Underclearance (69):	3 Intolerable - Correct

## ROUTE ON STRUCTURE: I-65

ROADWAY LOCATION		ROADWAY CLASSIFICATION		CLEARANCES	
Pos Prefix (5A):	Route On Structure	Func Class (26):	11 Urban Interstate	Vertical (10):	99.99 ft.
Kind of Hwy (5B):	1 Interstate Hwy	Level Service (5C):	1 Mainline	Min Vert Over (53):	99.99 ft.
Route Num (5D):	00065	NHS (104):	1 On the NHS	Vert Ref (54A):	H Hwy beneath struct
LRS Route (13A/B):	IO0065_000/00	Defense Hwy (100):	1 On Interstate STRAHNET	Undrclearnce (54B):	14.67 ft.
Milepost (11):	134.44 mi	Toll Facility (20):	3 On free road	Horizontal (47):	69.25 ft.
Suffix (5E):	0 N/A (NBI)	ADT (29):	122,958 Cars/Day	Min Lat Left (56):	8.88 ft.
Lanes On (28A):	6	Pct Trucks (109):	16.00%	Min Lat Right (55B):	8.92 ft.
Detour Length (19):	8.00 mi	ADT Year (30):	2024	Horiz Ref (55A):	H Hwy beneath struct
				Underclearance (69):	3 Intolerable - Correct



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### STRUCTURE NOTES

-MINIMUM VERTICAL UNDER-CLEARANCE MEASURED AT 14'-8". SHOULD BE POSTED AT 14'-5".

-In 2023, AECOM used infrared thermography to identify and locate areas of concrete delamination and overlay debonding in the deck, plus they obtained core samples for testing to determine chloride ion levels in the concrete. See Media tab for results.

-2017 contract (CID 174301) included the following: Removal and replacement of the existing asphalt plug joints with an asphalt waterproofing mix and joint sealer.

-2012 contract (CID 121305) included the following: 1. The deck was overlaid with 2.25" of an asphalt waterproofing mix (low temp., a product by "Road Science" - not Rosphalt), 2. Asphalt plug joints were installed over all existing joints, 3. Rollers were cleaned and some reset (bearings 1, 7, 8, 10, 11, 13, 14, and 15 at A4), and abutment seats were cleared off.

-State forces performed an in-depth inspection in 1995, and a consultant performed one in 2007. From the 1995 inspection: Some rollers are rusting. Rollers are not centered on bearing plates at the south abutment. Rockers at P3 are slightly over expanded. Rollers at A4 are in an expanded position. Roller under G6 at the north abutment, SB, is not in bearing. Roller under G3 at the north abutment, NB, is not in bearing. The roller at G7 at the south abutment, SB, is not parallel to the bearing plate. This same condition applies to G1 at the north abutment, NB.

### INSPECTION NOTES

Standard 24-month element level inspection performed by Luke Adkins (QTL) and Blake Combs. Prime AE 12/9/2024 LA

-Substructure units are labeled from south to north (cardinal direction) and the beams are labeled from left to right while looking north.

-BRIDGE IS POSTED FOR 14'-5" AT THE WEST APPROACH (ONE-WAY).

-Added Element 853.

### SCOUR NOTES

### LOAD RATING NOTES

11/30/2021. Controlling member is an interior beam ( NB ) with PCC overlay plus 2.25 inch asphalt overlay. JCG

### COMPLIANCE NOTES



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ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
12	Re Concrete Deck	3	12/09/2024	20,662.00	sq.ft	15,500.00	5,060.00	102.00	0.00

Top of deck cannot be visually inspected due to overlay. Soffit has transverse cracks with efflorescence. There are local areas of full depth deterioration along the longitudinal joint and Bay 1 in all three spans, especially at the abutments. There are areas of spalling with exposed rebar at Abutment 1 in the west overhang and at the longitudinal joint.

813	AC Wearing Surf w/ Membrane	3	12/09/2024	19,745.00	sq.ft	19,733.00	12.00	0.00	0.00
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2012 asphalt waterproofing overlay has a few gouges in the right SB lane in Span 1, and two small cracks at the northeast corner in the NB off-ramp lane. Water ponds in the right SB shoulder.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
107	Steel Opn Girder/Beam	3	12/09/2024	2,544.00	ft	2,182.00	300.00	62.00	0.00

Beams have freckling rust scattered throughout the bottom flanges, and flaking corrosion with very minor section loss on the flanges below the joints, worst case being Beam 11 at Abutment 4. Beam 1 also has minor section loss in the web and bearing stiffener at both abutments. In Span 2, Beams 1, 2, and 3 bottom flanges are scraped due to vehicular impact, and the Beam 15 splice plate near Pier 2 has one missing bolt. The northeast corner of Beams 13 through 15 bottom flanges are bearing against the Abutment 4 backwall.

515	Steel Protective Coating	3	12/09/2024	21,630.00	sq.ft	15,736.00	5,408.00	300.00	186.00
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Protective coating has intermittent dulling; several areas of the fascia beam bottom flanges have limited effectiveness and local areas with no effectiveness where corrosion is heaviest near abutments.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
205	Re Conc Column	3	12/09/2024	20.00	each	14.00	5.00	1.00	0.00

The following columns have moderate cracking and/or small spalls: Pier 2-Columns 1, 2, and 4, and Pier 3-Column 2. Pier 2-Column 5 has a 3.5-foot tall by 2-foot wide by 2-inch deep spall with exposed rebar in the west face. Pier 3-Column 7 has a delamination.



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ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
215	Re Conc Abutment	3	12/09/2024	278.00	ft	164.00	46.00	68.00	0.00

Abutment backwalls have moderate to wide vertical cracks, diagonal cracks with rust staining at each end, and intermittent patching; some areas are unsound or spalling with exposed rebar, especially at the longitudinal joint. Worst deterioration is in the Abutment 1 backwall at the longitudinal joint, with spalling up to 13 inches deep and two layers of exposed rebar with section loss. Abutment 4 has horizontal cracking and scaling in the seat, with 14 feet of wide cracking at the west end. Abutment 4 seat also has spalls varying from 1 to 2 feet wide with exposed rebar below Bays 3, 4, and 12.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
234	Re Conc Pier Cap	3	12/09/2024	281.00	ft	254.00	25.00	2.00	0.00

Pier caps exhibit cracks, small spalls, and small patches. Both faces of the Pier 3 cap have shallow spalls under Beam 8. Inspections prior to 2022 noted cracking in some of the patches, but these cracks have since been painted over and are not visible.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
306	Other Joint	3	12/09/2024	268.00	ft	0.00	87.00	71.00	110.00

Asphalt plug joints were reconstructed in 2017. Asphalt joints have gapping, wide cracks, and spalls, some exposing the original joints and allowing moderate to free flow of water. Asphalt joints are also heaving in portions of the NB lanes. From below the deck, daylight is visible through the joints in the two left NB lanes over Abutment 4 and the two left SB lanes over Abutment 1.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
311	Moveable Bearing	3	12/09/2024	48.00	each	0.00	42.00	6.00	0.00

Roller bearings have been greased, but corrosion has reinitiated on the rollers and masonry plates and several have flaking corrosion. Many roller bearings are misaligned, movement is inconsistent with temperatures conditions, and some beam ends are bearing on the Abutment 4 backwall. Beam sole plates are floating (in contact with the roller only under live load) with vertical movement up to 1/8 inch at the following locations: Abutment 1-Beams 4, 6, and 7 and Abutment 4-Beams 10, 11, and 12. The following rollers were reset in 2012: 1, 7, 8, 10, 11, 13, 14 and 15 at Abutment 4.

Pier 3 rockers are slightly expanded at 55° (inconsistent with temperature), and Beam 1 rocker has surface rust.

515 Steel Protective Coating 3 12/09/2024 235.00 sq.ft 0.00 147.00 78.00 10.00

At the abutment bearings, protective coating is substantially effective with limited to no effectiveness on some rollers and most masonry plates. At the Pier 3 bearings, protective coating is substantially effective.



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ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
313	Fixed Bearing	3	12/09/2024	16.00	each	4.00	12.00	0.00	0.00

Some of the fixed bearings at Pier 2 have freckling rust, heavier on exterior beam bearings.

515	Steel Protective Coating	3	12/09/2024	45.00	sq.ft	0.00	11.00	22.00	12.00
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Protective coating on the fixed bearings is dulling throughout, with some surface rust indicating local areas of limited to no effectiveness.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
331	Re Conc Bridge Railing	3	12/09/2024	636.00	ft	438.00	168.00	30.00	0.00

Concrete railings have vertical and horizontal cracks. SB median barrier has moderate to heavy scaling for the south half of the bridge length. There is a 3'L spall with exposed rebar along the top of the approach median at Abutment 1 (not included in quantities). The approach guardrail and concrete rail at the NE corner along the exit ramp has impact damage (not included in quantities).

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
850	2nd Elem	1	12/09/2024	1.00	each	0.00	0.00	1.00	0.00

Shear keys at the abutments typically have map cracking and/or spalls greater than 6 inches wide.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
853	Utilities	3	12/09/2024	1.00	each	0.00	0.00	1.00	0.00

There are streetlights attached to the superstructure in Span 2, but they were not on (unclear if they are functioning). There is metal conduit attached to the full-length of Abutment 4 that has flaking corrosion and is broken at the east end.

ELEM NBR	ELEMENT NAME	ENV	INSP. DATE	QUANTITY	UNITS	QTY CS 1	QTY CS 2	QTY CS 3	QTY CS 4
860	Erosion Ctrl/Prt	3	12/09/2024	1.00	each	0.00	1.00	0.00	0.00

Abutment 1 slope wall has areas of undermining along the top, up to 1.5'D. There is a broken/cracked/settled section at the top below Beam 4.



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Looking north along I-65 SB



Deck looking north along I-65 SB



Joint over Abutment 1, SB lanes. There is a 3'L spall with exposed rebar along the top of the approach median at Abutment 1.



SB median barrier has moderate to heavy scaling for the south half of the bridge length





Joint over Abutment 4, SB lanes



Deck looking south along I-65 SB



Looking south along I-65 SB



Looking south along I-65 NB. The approaching guardrail at the NE corner along the exit ramp has impact damage.





The approach concrete rail at the NE corner along the exit ramp has impact damage



Deck looking south along I-65 NB





Joint over Abutment 4, NB lanes



Deck looking north along I-65 NB



Joint over Abutment 1, NB lanes



Looking north along I-65 NB





Span 2 looking north



Span 2 Beam 15 splice plate near Pier 2 has one missing bolt





South face of Pier 3



East profile



Looking east



Looking west





West profile. Note vertical clearance signs. There are also vertical clearance signs on each corner of the intersection at the west side of the bridge.



North face of Pier 2



Span 2 Beams 1, 2, and 3 bottom flanges are scraped due to vehicular impact



Soffit has transverse cracks with efflorescence



Pier 2 Column 5 has a 3.5-foot tall by 2-foot wide by 2-inch deep spall with exposed rebar in the west face



There are local areas of full depth deterioration along the longitudinal joint and Bay 1 in all three spans (Span 1 Bay 1 pictured)





Span 1 looking south



Abutment 1 backwall has wide diagonal cracking with rust staining at the west end



Flaking corrosion with very minor section loss on the bottom flange of Beam 1 at Abutment 1. Note flaking corrosion in the masonry plate.



spalling with exposed rebar at Abutment 1 in the west overhang





Abutment 1



Abutment 1 slope wall has areas of undermining along the top, up to 1.5'D. There is a broken/cracked/settled section at the top below Beam 4.





Soffit has spalling with exposed rebar at Abutment 1 at the longitudinal joint



Many roller bearings are misaligned, movement is inconsistent with temperatures conditions (Beam 8 at Abutment 1 pictured)



Typical vertical cracking in abutments



South face of Pier 2





Stamps at NW corner of railing



Paint stamp on Beam 1 at Abutment 4



Abutment 4



North face of Pier 3





Span 3 looking south



Abutment 4 has 14 feet of wide horizontal cracking at the west end



Spalling in Abutment 4 below Bay 3



Many roller bearings are misaligned, movement is inconsistent with temperatures conditions (Beam 10 at Abutment 4 pictured)





Beam 11 at Abutment 4 has flaking corrosion with very minor section loss on the bottom flange



There is metal conduit attached to the full-length of Abutment 4 that has flaking corrosion and is broken at the east end



The northeast corner of Beams 13 through 15 bottom flanges are in bearing against the  
Abutment 4 backwall