

## Inspection Report with SI&A Data

**Structure Description:** 390.09 Foot - 3 Span Steel continuous Stringer/Multi-beam or Girder

**2 District:** 09      **3 County:** Bath      **16 Latitude:** 38°07'25.00"      **7 Longitude:** 83°46'17.00"

**7 Facility Carried:** I-64-10 NC

**Milepoint:** 120.020

**6A Feature Intersected:** KENDALL SPRNGS RD&SLTE C

**9 Location:** WBL 1.0 MI W OF KY 36 NTR

NBI	X
Element	X
Fracture Critical	
Underwater	
Special	

NBI CONDITION RATINGS			
<b>58 Deck:</b>	7	<b>61 Channel:</b>	7
<b>59 Superstructure:</b>	5	<b>62 Culvert:</b>	N
<b>60 Substructure:</b>	6	<b>Sufficiency Rating:</b>	69

GEOMETRIC DATA		
<b>48 Max Length Span:</b>		140.092 ft
<b>49 Structure Length:</b>		390.092 ft
<b>32 Approach Roadway:</b>		37.073 ft
<b>33 Median:</b>		(0) No Median
<b>34 Skew:</b>		16°
<b>35 Flare:</b>		No Flare
<b>50A Curb/Sidewalk Width L:</b>		0.000 ft
<b>50B Curb/Sidewalk Width R:</b>		0.000 ft
<b>47 Horiz. Clearance:</b>		30.184 ft
<b>51 Width Curb to Curb:</b>		30.184 ft
<b>52 Width Out to Out:</b>		34.449 ft

DESIGN	
<b>Substandard:</b>	No
<b>Fracture Critical:</b>	No
<b>43A Main Span Material:</b>	(4) Steel Continuous
<b>43B Main Span Design:</b>	(02) Stringer / Girder
<b>45 Number of Spans Main:</b>	3
<b>44A Approach Span Material:</b>	(1) Concrete
<b>44B Approach Span Design:</b>	(02) Stringer / Girder
<b>46 Number of Approach Spans:</b>	1
<b>107 Deck Type:</b>	(1) Concrete-Cast-in-Place
<b>108A Wearing Surface:</b>	(3) Latex Concrete/Similar
<b>108B Membrane:</b>	(0) None
<b>108C Deck Protection:</b>	(0) None
<b>Overlay Y/N:</b>	Yes
<b>Overlay Type:</b>	Latex
<b>Overlay Thickness:</b>	1.000 in
<b>Overlay Date:</b>	

ADMINISTRATIVE		
<b>27 Year Built:</b>		1967
<b>106 Year Reconstructed:</b>		-4
<b>42A Type of Service On:</b>		(1) Highway
<b>42B Type of Service Under:</b>		(6) Hyw - Waterway
<b>37 Historical Significance:</b>		(5) Not Eligible
<b>21 Custodian:</b>		(01) State Hwy Agency
<b>22 Owner:</b>		(01) State Hwy Agency
<b>101 Parallel Structure:</b>		(L) Left Of II Structure

APPRAISAL		
<b>36A Bridge Railings:</b>	(1) Meets Standards	
<b>36B Transitions:</b>	(1) Meets Standards	
<b>36C Approach Guardrail:</b>	(1) Meets Standards	
<b>36D Approach Guardrail Ends:</b>	(1) Meets Standards	
<b>71 Waterway Adequacy:</b>	(8) Equal Desirable	
<b>72 Approach Alignment:</b>	(8) Equal Desirable Crit	
<b>113 Scour Critical:</b>	(8) Stable above footing	
<b>Recommended Scour Critical:</b>	(8) Stable above footing	

CLEARANCES		
<b>10 Vert. Clearance:</b>		99.999 ft
<b>53 Min. Vert. Clearance Over:</b>		99.999 ft
<b>54A Vert. Under Reference:</b>		(H) Hwy beneath struct.
<b>54B Min. Vert. Underclearance:</b>		31.421 ft
<b>55A Lateral Under Reference:</b>		(H) Hwy beneath struct.
<b>55B Min. Lat. Underclearance R:</b>		9.186 ft
<b>56 Min. Lat. Underclearance L:</b>		0.000 ft

LOAD RATINGS		
<b>63 Operating Type:</b>	(1) Load Factor (LF)	
<b>64 Operating Rating:</b>	63.1 tons	
<b>65 Inventory Type:</b>	(1) Load Factor (LF)	
<b>66 Inventory Rating:</b>	37.0 tons	
<b>Truck Capacity Type I:</b>	48 tons	
<b>Truck Capacity Type II:</b>	49 tons	
<b>Truck Capacity Type III:</b>	51 tons	
<b>Truck Capacity Type IV:</b>	57 tons	

POSTINGS		
<b>41 Posting Status:</b>		(A) Open, No Restriction
<b>Signs Posted Cardinal:</b>		No
<b>Signs Posted Non-Cardinal:</b>		No
<b>Field Postings Gross:</b>		tons
<b>Field Postings Type I:</b>		tons
<b>Field Postings Type II:</b>		tons
<b>Field Postings Type III:</b>		tons
<b>Field Postings Type IV:</b>		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	13,438.2	12,631.91	94%	806.29	6%	0	0%	0	0%

In the spring of 2013 this bridge received a latex overlay. At the time of this inspection, the overlay was in good condition. The deck underside has areas with transverse cracking and effloresce, areas that appear to be holding moisture and some areas with exposed reinforcing steel. See photos.

### 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	11,779.81	11,779.81	100%	0	0%	0	0%	0	0%

The deck has recently been overlaid and currently in good condition.

### 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	1,360	1,212	89%	146	11%	2	0%	0	0%

At one time extra vertical stiffeners have been added to the beam ends at abutment 5. Beam 1 and beam 3 from upstream have 3 vertical stiffeners at the beam ends. The upstream exterior beam has heavy corrosion on its beam end. The web on the beam end near the lower flange has a 2 in.x6 in. rust through area starting on the end of the beam. The last vertical stiffener (3 total) on the exterior face directly over the bearing pad has a 2 in.x2 in. rust through area near the bottom of the stiffener. The lower flange has approximately ~15% section loss for the width of the flange along the bottom near the bearing plate. The downstream exterior beam at abutment 5 has a very small rust through area in the web near the lower flange. The web has approximately ~80% section loss for 6 in. starting on the end of the beam with a small area of rust though within this 80%. The first vertical stiffener located at abutment 5 of the exterior face of beam 1 has a 6 inch long crack (taking into account the corrosion hole area) starting from the corrosion located on the exterior edge of the stiffener extending towards the beam web (this crack in the stiffener is located near the bottom of the stiffener near the bottom flange). Notes continued under the Inspection Notes section.

### 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	8,839.2	5,303.52	60%	1,325.88	15%	1,325.88	15%	883.92	10%

Total Paint Area obtained from central office.

### Inspection Report with SI&A Data

**110: Re Conc 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	200	199	100%	1	1%	0	0%	0	0%

The concrete beams are in good condition overall. The beams have areas of minor vertical cracking throughout the beams. See photos.

**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	6	6	100%	0	0%	0	0%	0	0%

From what can be seen, the piers are in good condition at this time.

**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	161	126	78%	5	3%	30	19%	0	0%

Abutment 5 has heavy spalling with exposed steel in the breast wall for the width of the abutment. Abutment 1 is in good condition at this time. See photos.

**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	102	72	71%	20	20%	10	10%	0	0%

This bridge has three concrete pier caps. Pier caps 3 & 4 are in good condition. Pier 2 is directly under a joint in the deck and its very evident that the joint has had heavy leakage in the past. The majority of the pier cap has heavy spalling with exposed steel on the pier cap underside. Otherwise, the cap has areas of minor cracking and spalling with exposed steel. It must be noted, this is from what can be seen from the ground. See photos.

### Inspection Report with SI&A Data

300: Strip Seal Exp 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	36	36	100%	0	0%	0	0%	0	0%
<p>During the latex overlay in the spring of 2013, the joint over pier 2 were replaced. It appears to be in good condition at this time. The joint over pier 2 was debris filled. See photos.</p>									

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	36	36	100%	0	0%	0	0%	0	0%
<p>During the latex overlay in 2013, the joint at abutment 5 was replaced. It appears to be in good condition at this time. See photos.</p>									

310: Elastomeric 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	8	8	100%	0	0%	0	0%	0	0%
<p>Pier 2 and abutment 5 has elastomeric bearings. At this time, the bearings on abutment 5 appear to be in good condition. The bearings on pier 2 cannot be seen from the ground.</p>									

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	4	4	100%	0	0%	0	0%	0	0%
<p>From what can be seen from the ground, the bearings appear to be in good condition.</p>									

## Inspection Report with SI&A Data

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	2.23	2.04	92%	0.19	8%	0	0%	0	0%
See element 311 for notes.									

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	4	4	100%	0	0%	0	0%	0	0%
From what can be seen from the ground, the bearings appear to be in good condition.									

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	2.23	2.04	92%	0.19	8%	0	0%	0	0%
See element 313 for notes.									

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	828	813	98%	15	2%	0	0%	0	0%
Barrier walls are in good condition at this time with only areas of minor scraping and scaling of the masonry coating. Damage from the previous inspection has been repaired. See photos.									

### Inspection Report with SI&A Data

**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	0	0%	0	0%	0	0%	1	100%

Vegetation around the piers needs to be sprayed. See photos.

**STRUCTURE NOTES**

-186.6

**INSPECTION NOTES**

Continued from element 107 notes:  
 Beam 1 at abutment 5 (upstream to downstream) has a crack 6 5/8 inch long crack in the web taking into account the area noted for the corrosion hole near the bottom flange extending from the beam end towards the 1st vertical stiffener this crack appears to have initiated from the above noted corrosion hole. Beam 4 has a 5 1/4 inch long crack in the web of beam 4 taking into account the area noted for the corrosion hole at abutment 5 near the bottom flange extending from the end of the beam towards the 1st vertical stiffener; it appears this crack initiated from a corrosion hole noted above. It appears that the web of beams 1 and 5 are bowing slightly; isolated to the web area past the bearings of abutment

The inspection of this bridge consist of what could visibly be seen from the ground. Bridge inspection by B. Jones.

**WORK**

Action: -



End view from the west departure.



Elevation view from downstream and the west abutment.





Elevation view of the west face of pier 2 (#s start at the west abutment and account for both piers and abutments). Note the vegetation growth and horizontal cracking in the pier cap and diaphragm. The cracking in the diaphragm is under beams 2, 3 and 4.



Looking towards pier 2 at the underside of the deck between beams 2 & 3 of span 1. Note the minor pop-outs and spalls with no reinforcing exposed throughout the deck underside in span 1.





Looking at the west abutment (abutment 1) between beams 2 & 3.



Looking at the embankment in-front of the west abutment. Note the minor erosion.



Looking up at the underside of the pier cap of pier 1. Note the heavily rusted and corroding (w/ section loss) exposed reinforcing steel. There is a deck joint directly above this pier (between the steel girder span and reinforced concrete girder span). The plans called for 2 rows of 6 #11Bar.



Elevation view of the east face of pier 2. Note the exposed rusting/corroding reinforcing steel in the pier and heavy rust staining on the pier cap see above photo for more info. Note 1 area with exposed rusting/corroding exposed vertical reinforcing steel in the east face of the cap. Some reinforcing steel is exposed in the deck underside in span 2 near pier 2. This pier cap needs to be cleaned and patched.





Looking up at beam 4 (#s from upstream to downstream). Note the vertical cracking @ the beam back-face and vertical crack in the exterior face of the pier cap under the bearing of beam 4.



Looking up at the underside of span 2. Note the transverse cracks with efflorescence on the deck underside throughout the span; these cracks are more dominant near mid-span; there is evidence of water staining near midspan on the deck underside. **5/16**



Elevation view of the west face of pier 3. Note the heavy vegetation growth.



Looking down at the typical condition of the deck/driving surface. Note the deck has recently been overlaid. Note the scaling of the masonry coating on the face of the barrier wall (this is typical along many locations of the wall).





View of the joint over pier 2. Note the joint was recently replaced; only minor amounts of debris are trapped in the joint at this time.



View of the upstream barrier wall. Note minor vertical cracking in the face of the barrier wall along the entire length of wall and many areas of scaling of the masonry coating on the face of the barrier wall.





Endview from the east approach.



Bridge stamp of the deck replacement in 1999.





Elevation view of the east abutment (abutment 5). Note the heavy rust staining, horizontal cracking, efflorescence and spalling/delimitation along the abutment seat with rusting/active corrosion of the reinforcing steel. The joint has recently been replaced at this abutment and the abutment needs to be patched.



Looking at the upstream face of beam 1 @ abutment 5. Note the 6 5/8" long crack in the web near the bottom flange extending from the beam end towards the 1st vertical stiffener; this crack initiated from a corrosion hole. Note the bottom flange is heavily corroded and thinner @ the bearing location (up to 1/8" section loss).





Looking at the upstream face of beam 1 @ abutment 5. Note the 6" in 1st vertical stiffener @ the bearing; it is believed that this crack initiated from a 1.5" dia. corrosion hole in the stiffener. It appears that the beam web past the bearing is bowing slightly towards downstream.



Close up of above noted crack; see above photo for notes.





Downstream face of beam 4 @ abutment 5.



5 1/4" long crack in the web of beam 4 @ abutment 5 near the bottom flange extending from the end of the beam towards the 1st vertical stiffener. It appears this crack initiated from a corrosion hole. It appears that the web of the beam in this location is bowing slightly. **11/16**





Elevation view of the east face of pier 4. Note the vegetation growth.



View of the east abutment (abutment 5) between 2 & 3. See notes above for abutment notes.





view of the underside of the superstructure in span 4.



Looking up between beams 3 & 4 in span 4. Note the spalls with exposed reinforcing along the top flange of beam 4.



Looking up @ the underside of span 3.



Looking up @ the underside of the superstructure in span 3. Note the transverse cracking with efflorescence on the underside of the downstream overhang.





Elevation view of the east face of pier 3. Note water staining on the pier columns and heavy vegetation grown.



Upstream view.





Downstream view.



View of the east face of pier 3. Note the water staining and light wearing of the concrete surface from the normal stream level.