

SCDOT BRIDGE INSPECTION FORM

(008) BRIDGE ID: **072002100200**
(005) ROUTE: BEAUFORT US 21
(006) CROSSING: HARBOR RIVER

(009) LOCATION: 12.5 MI SE BEAUFORT
(026) FUNCTIONAL CLASS: 03

Michael R. Roberts

GENERAL BRIDGE DATA

	EXISTING	REVISED		EXISTING SUP-SUB	REVISED SUP-SUB
(027) YEAR BUILT	1939		(043) MAIN ORIGINAL (A)	3 17 1	
(106) YEAR RECON	0		MAIN RECONST (B)		
(031) DESIGN LOAD	2		(044) APPR ORIGINAL (A)	4 02 1	3 02 1
(032) APPR RDWAY	38	30	APPR RECONST (B)		
(033) BRIDGE MEDIAN	0		(107) DECK STRUCT	1	
(034) SKEW	0		(108) WEAR SURF	1 8 8	
(035) FLARED	0		(045) # MAIN SPANS	1	
(36A) RAILINGS	0		(046) # APPR SPANS	67	
(36B) TRANSITIONS	0	1	(048) MAX SPAN LGTH	172	
(36C) APPR GUARD	1		(308) APPR SPAN LGTH	40	
(36D) APPR GUARD END	0		(049) STRUCT LENGTH	2851	
(041) TRAFFIC STATUS	A	B	(037) HISTORY	4	

GEOMETRIC DATA

	EXISTING	REVISED		EXISTING	REVISED
(038) NAVIGATION CONT	1		(042) TYPE SERV; (A)-(B)	1 5	
(039) NAV VERT CLEAR	15		(028) LANES; ON(A) UND(B)	2 0	
(040) NAV HORZ CLEAR	60		(47A) HORZ CLEAR RIGHT	20	
(111) NAV PIER PROT	2	3	(47B) HORZ CLEAR LEFT	0	
(10A) GREAT MIN OVER	FT IN	FT IN	(47UA) HORZ CLEAR RIGHT	0	
UNDERCLEARANCES	15 0		(47UB) HORZ CLEAR LEFT	0	
(10B) GREAT MIN RIGHT	99 99		(50B) SIDEWALK RIGHT	0	
(10C) GREAT MIN LEFT	99 99		(50A) SIDEWALK LEFT	0	0.7
(54A) VERT CLEAR REF	N		(051) CURB TO CURB	20	
(54B) VERT CLEAR RIGHT	0 0		(052) DECK OUT-OUT	21	
(54C) VERT CLEAR LEFT	0 0		(053) VERT CLEARANCE	FT IN	FT IN
(55A) LAT CLEAR REF	N		ABOVE DECK	15 0	
(55B) LAT CLEAR RIGHT	99.9	0			
(55C) LAT CLEAR LEFT	0				

CONDITION RATINGS

	EXISTING	REVISED		EXISTING	REVISED
(063) OPERATING RATING METHOD	2		(58) DECK	5	
(064) OPERATING RATING	21	26	(59) SUPER STR	5	
(065) INVENTORY RATING METHOD	2		(60) SUB STR	5	4
(066) INVENTORY RATING	21	26	(061) CHANNEL	7	
(319) LAST PAINT DATE	2000		(062) CULV RET	N	

CRITICAL INSPECTION DATA

	EXISTING	REVISED
(090) INSP DATE	10/2012	11/2014
(091) INSP FREQ	24	
(113) SCOUR CRITICAL	8	
INTERVAL MTH YR		
(93A) FRACTURE	Y24 10/2012	Y 24 11/2014
(93B) UNDERWATER	Y60 11/2010	
(93C) SPECIAL	N	

APPRAISAL RATINGS

	EXISTING	REVISED
(067) STRUCTURE	5	GEN
(068) DECK GEOM	2	GEN
(069) UNDERCLEAR	N	GEN
(070) BRIDGE POST	1	GEN
(071) WATER ADEQ	8	6
(072) APPR RDWAY	8	
(411) LOAD RATING ID	0	

11/2014

10/2016

Bridge Element Group Textual Data

Bridge ID: 072002100200

14

OCT - 2016

Abutments and/or Headwalls:

[4] POOR – The northwest corner of Abutment 1, adjacent to the wingwall, exhibits an 8 ft. x 8 ft. x 5 ft. undermined and washed out area extending under the westbound lane of US-21. Refer to Photo 1.

Bents and/or Piers:

[4] POOR – Many piles exhibit delaminations and spalls some with exposed steel, and cracks with corrosion bleed out throughout the structure. Refer to Photo 2.

Numerous pier caps exhibit delaminations, and spalls with exposed steel, and cracks with corrosion bleed out throughout the structure. Refer to Photo 3.

Bearings:

[4] POOR – Bearings are generally highly corroded and indistinguishable from the bottom flange. The connecting hardware of a few bearings exhibits section loss to 100%. Refer to Photo 4.

The bearings exhibit heavy corrosion, section loss, and efflorescence. Refer to Photo 5.

Girders/Floor Beams/Stringers and/or Beams:

[4] POOR – The beams of the approach spans exhibit heavy corrosion, knife edging, section loss, resulting in reduced section near the ends of the beams throughout. Refer to Photos 6, 7, and 8.

The stringers and floorbeams of the main span appear to have been repaired and painted since the 2014 inspection. Refer to Photos 9 and 10.

Truss Members:

[5] FAIR – The top and bottom cords of both trusses exhibit isolated areas of minor surface corrosion. There were repairs made to the stringers noted in the 2014 report. Refer to Photos 10 and 19.

Expansion Joints:

[4] POOR – Pourable joint sealant exhibits significant adhesion loss and missing sections of joint sealant at all bents. Refer to Photo 11.

Decks and/or Slabs:

[5] FAIR – Spans 9 and 31 exhibit failed patches and spalls some with exposed steel to 1 ft. dia. x 2 in. deep in Eastbound Lane. Refer to Photo 12.

The deck underside exhibits delaminations and spalls some with exposed rebar throughout the approach spans. Refer to Photo 13.

Curbs:

[7] GOOD

Bridge Railing/Parapets and/or Median Barriers:

[6] SAT – Most bridge railings and rail posts exhibit spalls with exposed steel primarily at the base. The bridge railing exhibits isolated areas of impact damage and spalls with exposed steel. Refer to Photo 14.

Paint System(s):

[4] POOR – The beams of the approach spans exhibit heavy corrosion throughout. Refer to Photo 15.

Waterway and Scour:

[7] GOOD

Fender System:

[4] POOR – There are missing wales throughout, heavy corrosion on connecting hardware, overall loose connections, resulting in the west and east fenders being extremely unstable. Several wales were lost during Hurricane Matthew. Refer to Photo 16.

Roadway Alignment:

[7] GOOD

Traffic Signs:

Traffic signs and load posting signs were damaged during Hurricane Matthew. See Photos 17 & 18.

Encroachments:

There is a 6 in. diameter abandoned waterline located on the left fascia, and an active 10 in. diameter waterline located on the right fascia.

Miscellaneous Notes:

The right approach guardrail, west side, approaching Abutment 1 is improperly attached to the first post and the second post is not attached to the rail.

There is an open section of safety walk with no railing located at L5 of the South Truss presenting a safety concern. Refer to Photo 20.

The navigation signage on the North side of the bridge was damaged during Hurricane Matthew. Refer to Photo 21.

The navigation lighting was damaged during Hurricane Matthew and not functioning at the time of inspection. Refer to Photo 22.

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Initial Findings



Abutments and/or Headwalls- Photo 1

The northwest corner of Abutment 1, adjacent to the wingwall, exhibits an 8 ft. x 8 ft. x 5 ft. undermined and washed out area.

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Bents and/or Piers- Photo 2

Many piles exhibit delaminations and spalls some with exposed steel, and cracks with corrosion bleed out throughout the structure (Pile 22-2, 2.5 ft. x 12 in. x 4 in. spall, delamination with exposed steel shown).

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Initial Findings



Bents and/or Piers- Photo 3

Numerous pier caps exhibit delaminations, and spalls with exposed steel, and cracks with corrosion bleed out throughout the structure (Bent 66 between Piles 1 and 2, 6 ft. x 2 ft. x 4 in. spall with exposed steel shown).

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Bearings- Photo 4

Bearings are generally highly corroded and indistinguishable from the bottom flange. The connecting hardware of a few bearings exhibits section loss to 100% (Bearing 64-1 at Bent 63 shown).

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Bearings- Photo 5

The bearings exhibit heavy corrosion, section loss, and efflorescence (Bearing 42-1 at Bent 42 shown).

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Girders/Floor Beams/Stringers and/or Beams- Photo 6

Typical of heavy corrosion in the bottom flange and web of the approach span beams (Span 10 shown).

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Girders/Floor Beams/Stringers and/or Beams- Photo 7

Typical of heavy corrosion in the web and both flanges of the approach span beams (Beam 24-2 shown).

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Girders/Floor Beams/Stringers and/or Beams- Photo 8

The beams of the approach spans exhibit heavy corrosion, knife edging, section loss, resulting in reduced section near the ends of the beams throughout (Beam 26-2 at Bent 25 shown).

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Girders/Floor Beams/Stringers and/or Beams- Photo 9

The stringers and floorbeams of the main span appear to have been repaired and painted since the 2014 inspection. (Span 47 East, looking West).

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Girders/Floor Beams/Stringers and/or Beams- Photo 10

The stringer of the main span previously reported to exhibit heavy corrosion and section loss resulting in reduced section near the beam ends has been repaired. (Bottom flange of Stringer 46-9 at Floor Beam 46-2 shown).

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Initial Findings



Expansion Joints- Photo 11

Pourable joint sealant exhibits significant adhesion loss and missing sections of joint sealant at all bents (Bent 30 shown).

This report contains information relating to the physical security of a structure and depictions of the structure. This information is confidential and exempt from public inspection pursuant to sections 119.071(3)(a) and 119.071(3)(b), Florida Statutes. Only the cover page of this report may be inspected and copied.

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Decks and/or Slabs- Photo 12

Spans 9 and 31 exhibit failed patches and spalls some with exposed steel to 1 ft. dia. x 2 in. deep in Eastbound Lane (Span 31 shown).

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Decks and/or Slabs- Photo 13

The deck underside exhibits delaminations and spalls some with exposed rebar throughout the approach spans (Bay 21-3, 4 ft. long x 3 ft. wide x 2 in. deep with exposed steel near mid-span shown).

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Bridge Railing/Parapets and/or Median Barriers- Photo 14

Most bridge railings and rail posts exhibit spalls with exposed steel primarily at the base. The bridge railing exhibits isolated areas of impact damage and spalls with exposed steel. (Rail 31 right shown, 2 ft. east of Bent 31 shown).

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Paint Systems- Photo 15

Typical condition of the paint system of the approach spans steel beams (Span 21 shown).

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Fender System- Photo 16

There are missing wales throughout, heavy corrosion on connecting hardware, overall loose connections, resulting in the west and east fenders being extremely unstable (west fender shown). Several wales were lost during Hurricane Matthew and the navigation lights were damaged.

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Traffic Signs - Photo 17

Load posting signs were damaged during Hurricane Matthew. (East approach shown)

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Traffic Signs - Photo 18

Traffic signs were damaged during Hurricane Matthew. (West approach shown)

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Truss Members - Photo 19

The top and bottom cords of both trusses exhibit isolated areas of minor surface corrosion. (North Truss, U6 shown).

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Miscellaneous (Safety Walk) - Photo 20

There is an open section of safety walk with no railing located at L5 of the South Truss presenting a safety concern.

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Miscellaneous (Navigation Signage) - Photo 21

The navigation signage on the North side of the bridge was damaged during Hurricane Matthew.

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Miscellaneous (Navigation Signage) - Photo 22

The navigation lighting was damaged during Hurricane Matthew and not functioning at the time of inspection. (West side of the Pivot Pier Shown)