

# SCDOT BRIDGE INSPECTION FORM

9 of 43

(008) BRIDGE ID: 0720002100200  
(005) ROUTE: BEAUFORT US 21  
(006) CROSSING: HARBOR RIVER

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

*E. J. Jones*

## GENERAL BRIDGE DATA

	EXISTING	REVISED		EXISTING SUP-SUB	REVISED SUP-SUB
(027) YEAR BUILT	1939		TYPE STRUCTURE		
(106) YEAR RECON	0		(043) MAIN ORIGINAL (A)	3 17 1	
(031) DESIGN LOAD	2		MAIN RECONST (B)		
(032) APPR RDWAY	38		(044) APPR ORIGINAL (A)	4 02 1	
(033) BRIDGE MEDIAN	0		APPR RECONST (B)		
(034) SKEW	0		(107) DECK STRUCT	1	
(035) FLARED	0		(108) WEAR SURF	1 8 8	
(36A) RAILINGS	0		(045) # MAIN SPANS	1	
(36B) TRANSITIONS	0		(046) # APPR SPANS	67	
(36C) APPR GUARD	1		(048) MAX SPAN LGTH	172	
(36D) APPR GUARD END	0		(308) APPR SPAN LGTH	40	
(041) TRAFFIC STATUS	A		(049) STRUCT LENGTH	2851	
			(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		(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	
(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				
(55C) LAT CLEAR LEFT	0				

## CONDITION RATINGS

	EXISTING	REVISED		EXISTING	REVISED
(063) OPERATING RATING METHOD	2		(58) DECK	6	5
(064) OPERATING RATING	21		(59) SUPER STR	5	
(065) INVENTORY RATING METHOD	2		(60) SUB STR	6	5
(066) INVENTORY RATING	21		(061) CHANNEL	8	7
(319) LAST PAINT DATE	2000		(062) CULV RET	N	

## CRITICAL INSPECTION DATA

	EXISTING	REVISED		EXISTING	REVISED
(090) INSP DATE	11/2008	12/2010	(067) STRUCTURE	5	GEN
(091) INSP FREQ	24		(068) DECK GEOM	2	GEN
(113) SCOUR CRITICAL	8		(069) UNDERCLEAR	N	GEN
			(070) BRIDGE POST	1	GEN
			(071) WATER ADEQ	8	
(93A) FRACTURE	Y24 11/2008	Y 24/2/10 2010	(072) APPR RDWAY	8	
(93B) UNDERWATER	Y48 02/2006		(411) LOAD RATING ID	0	
(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	
(072) APPR RDWAY	8	
(411) LOAD RATING ID	0	

13/925

**072002100200**  
**Inspection Notes**  
**10/28/2010**

1. Underside of the deck has Moderate spalling with rebar exposed in the following spans (All exposed rebar has 100% section loss): Spans 1-15, 17, 19-22, 25, 28-33, 36-38, 42-47, 55, 57, and 61
2. All cracks except fine cracks have rust staining
3. All exposed rebar has 100% Section loss
4. Some anchor bolts are missing on some bearings
5. Bt.2 cap has large spall w/ exposed rebar(15') w/100% sec. loss, pile 4 wide vert. Crack, 6' horizontal crack in Bt.2 cap
6. Bt.3 cap has large spall w/ exposed rebar(8') and 6' horizontal crack, piles 3, 4 have wide vert. crack
7. Bt.4 cap has large spall w/ 6' of exposed rebar with 100% section loss in the rebar(see picture). Bt.4 Piles 2, 4 have vert. cracking
8. Bt. 5 piles 1,3, & 4 has wide vert. crack from water line up 7' and horizontal crack in cap.
9. Bt.6 pile 4 has wide vert. crack from water line up 7'
10. Span 6 has 2' by 2' spall w/ rebar exposed on under side of deck between beams 3 and 4
11. Bt.7 pile 4 has vertical crack
12. Bt.9 pile 1 has large spall at top of pile, pile4 has vert. cracks from water line up 12', cap has fine vert. and moderate hori. cracking,

13. Span 9 beams 3, 4 above Bt.9 and 10 has pack rust w/ 100% loss of section on bottom flange above cap (2' total length)
14. Bt. 10 cap has moderate horizontal cracking, pile 3 has moderate vert. cracking
15. Bt.11 cap has large 3' by 2' spall with exposed rebar w/ up to 30% sec. loss, pile 4 has vert. cracking
16. Bt. 12 cap has moderate hori. cracking that extends whole width of cap
17. Bt.13 piles 4, 7 has wide vert. crack from water line up 15' and vert. Cracking in
- 
18. Bt. 15 pile 4 has wide vert. crack from water line up 10', cap has fine vertical cracking.
19. Bt.16 pile 4 has vert. crack
20. Bt. 19 Pile 4 has moderate vert. cracking & 1'x1' spall w/no exposed rebar
21. Span 19 beam 2 above Bt. 20 has a 2" dia. Area w/ 100% section loss in bottom flange.
22. Bt. 21 pile 3 has wide vert. crack from water line up 20'
23. Bt. 22 pile 8 has moderate vert. cracking
24. Bt. 23 cap has fine moderate map cracking thru-out
25. Bt. 24 cap has fine moderate map cracking thru-out
26. Span 24 beams 3 and 4 above Bt. 25 has a 3" x 6" area w/ 100% section loss.
27. Bt. 25 cap has moderate map cracking throughout
28. Span 25 Stringers 1 and 7 has 10" x 4" w/100% section loss.
29. Span 25 beams 3 and 4 above Bt. 26 has 2" x 4" area w/ 100% section loss
30. Bt.26 pile 4 has wide vert. crack from water line up 15'

- 31. Verticals above Bt. 26 has 3"x3" w/100% section loss.
- 32. Span 26 beams 3 and 4 above Bt.27 has 3"x5" area w/100% section loss
- 33. Span 28 above Bt.29 beams 3 and 4 have 5"x3" area w/100% section loss on bottom flange.
- 34. Bt.30 pile 7 has wide vert. crack from water line up 15', cap has moderate hori.

#### Cracking

- 35. Bt. 32 cap has 5' hori. Crack above pile 3 w/rust staining
- 36. Bt.34 pile 4 has vert. crack
- 37. Bt. 36 pile 7 has vertical crack
- 38. Bt. 37 piles 6 and 7 has wide vert. cracks from water line up 20'
- 39. Bt.39 cap has wide hori. crack in middle 20' over pile 2 & 3, pile 4 has moderate vert. Cracking w/exposed rebar
- 40. Bt. 40 pile 4 has vertical crack
- 41. Span 40 beams 2 & 3 have 100% loss on bottom flange at Bt. 41
- 42. Bt. 41 cap has horizontal crack w/exposed rebar.
- 43. Bt.43 pile 4 has vert. Crack, cap has horizontal crack above piles 2 and 3
- 44. Bt. 44 cap has wide hori. Crack extending entire length 4" from bot. of cap
- 45. Bt. 46 cap has wide hori. Crack 8' over pile 2 and 3
- 46. Span 46 beams 2 and 4 has 75% loss at bot. flange for 1' at Bt. 45
- 47. Bt.48 pile 7 has wide vert. crack from mud line up 12'
- 48. Bt. 49 pile 5 has wide vert. crack from mud line up 15', cap has 5' horizontal crack above piles 3 and 4 (see picture)
- 49. Bt. 50 cap has 3' horizontal crack in cap, Bt. 50 pile 2 has vertical crack

50. Bt. 51 pile 4 has wide vert. crack from mud line up 10'
51. Bt.52 pile 4 has wide vert. crack from mud line up 5'
52. Bt. 53 cap has wide hori. Crack extending entire length, Bt.53 pile 4 has vertical crack from waterline up 5'
53. Bt. 54 pile 4 has wide vert. crack from mud line up 8', cap has wide hori. crack extending the entire length.
54. Bt. 55 cap has large spall across entire face 1-2' high w/ rebar exposed w/ up to 90% loss on one exposed rebar, pile 4 has moderate vertical cracking.(see picture)
55. Bt.56 cap has wide hori. Crack extending entire length and fine horizontal cracking, pile 4 has vert. crack
56. Bt. 57 cap has wide hori. Crack extending entire length, piles 1,2,3,6, and 7 has moderate vert. cracking, piles 3 and 6 crack extends from top of pile almost to waterline
57. Bt. 58 piles 1,3,4, and 7 has vert. crack from mud line up 8'
58. Bt. 59 cap has moderate horizontal cracking extending over piles 2 and 3
59. Span 59 beams 2 & 3 bot. flange has up to 100% loss of edges at mid span, cap has moderate hori. cracking, piles 1,2, and 4 has moderate vertical cracking
60. Bt. 60 cap has fine to moderate hori. cracking across entire section, piles 1,2, and 4 have vert. cracking
61. Bt. 61 cap fine horizontal crack between piles 3 and 4, piles 1 and 4 have vertical cracking
62. Bt. 62 cap moderate horizontal cracking extending entire length of cap, pile 1 has vertical crack extending from top of cap to waterline

63. Bt.63 cap has horizontal cracking extending entire length of cap, pile 4 has vertical cracking in cap from mudline up 5'
64. Bt.64 cap has 8' spall w/exposed rebar in cap between piles 1 and 2 w/ app. 50% section loss to rebar, pile 4 has vertical cracking in pile 5' from mudline up
65. Bt. 65 cap has fine horizontal cracking in cap, Pile 4 has vertical crack extending 3' up from mudline
66. Bt. 68 cap has fine horizontal cracking

## **Bridge Element Group Textual Data**

**Bridge ID:** 07-2-00021-0-02-00

28 Oct-2010

### **Abutments and/or Headwalls:**

HEAVY RUST WITH MINOR SECTION LOSS ON SEVERAL GUSSET PLATE CONNECTIONS. HEAVY RUST WITH 100% SECTION LOSS ON TOP CHORD AT VERTICAL POSTS 2 AND 6 RIGHT SIDE. HEAVY RUST WITH MINOR METAL LOSS ON FLOORBEAMS AND STRINGERS ON TRUSS WITH MODERATE SECTION LOSS ON STRINGERS 1 AND 4 AT TURN TABLE

### **Bents and/or Piers:**

[5]FAIR-4 RC PILES WITH R.C. CAPS, SOME BENT HAVE 7 PILES, AND BENTS 23 AND 25 HAVE 12 R.C. PILES  
SEE ATTACHED SHEETS FOR PILE AND CAP DEFICIENCIES

### **Bearings:**

[4]POOR-STEEL EXPANSION SEVERE RUST AND PACK RUST THRU-OUT  
W/SECTION LOSS

### **Girders/Floor Beams/Stringers and/or Beams:**

[5]FAIR-4 24" STEEL "I" BEAMS -- BENT 27 ALL BEAMS 100% SECTION LOSS ON FLANGES EXTENDING 2 1/2" TOWARDS WEB, ALL BEAMS ENDS AND FLANGES HAVE SEVERE SECTION LOSS THRU-OUT

### **Truss Members:**

[6]SAT- 172' STEEL SWING SPAN IN GOOD MECHANICAL CONDITION;  
COLLISION DAMAGE ABOVE SOUTH AND NORTH BOUND LANES;1"X7" HOLE  
IN UPSTREAM LEFT BOTTOM CHORD ON NORTH BOUND END BOTTOM  
CORD;1"X2" HOLE IN BOTTOM CHORD ON DOWNSTREAM SIDE.  
(CONTINUED IN ABUTMENTS)

**Expansion Joints:**

[5]FAIR-HOT POURED ASPHALT JOINT FILLER; MOST JOINTS ARE CRACKED AND LEAKING THRU-OUT STRUCTURE AND SOME JOINTS ARE COMPLETELY OPEN

**Decks and/or Slabs:**

[5]FAIR-R.C. DECK;MODERATE TRANSVERSE AND MAP CRACKING THRU-OUT TOP;SPAN 4 HAS 1'x1'x1" SPALL W/NO EXPOSED REBAR; MODERATE SPALLING W/ REBAR EXPOSED THROUGHOUT UNDERSIDE OF THE DECK ON ALL SPANS

SEE ATTACHED NOTES

**Curbs:**

[7]GOOD-8" R.C. CURB

**Bridge Railing/Parapets and/or Median Barriers:**

[7]GOOD-R.C. BRIDGE RAILING-MINOR CRACKING THRU-OUT;SPAN 36 HAS MINOR COLLISION DAMAGE ON LEFT SIDE

**Paint System(s):**

[4]POOR-PAINT ON ALL STEEL;ALL STEEL BEAMS HAVE RUST FORMING THROUGHOUT

[4]POOR-STEEL THROUGH TRUSS; MOD. TO HEAVY RUSTING IN SPOTS



**Waterway and Scour:**

[8]VERY GOOD  
NONE

**Fender System:**

[8]VERY GOOD-T.T. PILING AND STRAKES;(NEWLY BUILT IN 2008)

**Roadway Alignment:**

[7]GOOD  
[7]GOOD

**Traffic Signs:**

ALL NECESSARY SIGNS ARE IN PLACE AND IN GOOD CONDITION

**Encroachments:**

WALKWAY AND WATER PIPE ON LEFT;METAL PIPE ON RIGHT

**Miscellaneous Notes:**

- 1C) CLEAN/PAINT ALL STEEL MEMBERS, EXPOSED REBAR, AND RUSTED AREAS ON TRUSS SECTION
- 2C) REPAIR ALL CRACKED AND OPEN EXPANSION JOINTS
- 3C) REPAIR DAMAGED TOP RIGHT CHORD ABOVE VERTICAL 2 AND 6



THE OFFICE OF  
BRIDGE MAINTENANCE

DISTRICT SIX  
BRIDGE INSPECTION TEAM

**BRIDGE INSPECTION  
STREAM / GROUND PROFILE**

COMMENTS: To TOP of Water(Upstream)=

Taken Midstream @ Bent=

WATER PROFILE TAKEN W/BOAT

BRIDGE NUMBER: 0720002100200

ROAD NUMBER: US-21

CROSSING: HARBOR RIVER

TOP OF WATER TO TOP OF PARAPET, CURB, DECK

HORIZONTAL BLOCKAGE (%) \_\_\_\_\_ TO \_\_\_\_\_

VERTICAL BLOCKAGE (%) \_\_\_\_\_

NORTH SOUTH / EAST / WEST  
LEFT ABUTMENT

UPSTREAM

DOWNSTREAM

2.0	BT.40	2.0
28.0	BT.35	28.0
32.0	BT.30	33.0
30.0	BT.26 MAIN CHANNEL	35.0
27.0	BT.25	29.0
35.0	BT.24 MAIN CHANNEL	31.0
29.0	BT.20	30.0
25.0	BT.15	27.0
4.0	BT.10	7.0
3.0	BT.5	3.0

RIGHT ABUTMENT  
NORTH / SOUTH / EAST / WEST

MD, EY, CE, SL  
MEASUREMENT BY

28 OCT - 2010  
DATE MEASURED

8:30  
TIME

PARAPET  
MEASUREMENTS ARE FROM TOP OF CURB TO GROUND LINE  
DECK



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**BRIDGE INSPECTION**

**STREAM / GROUND PROFILE**

COMMENTS: To TOP of Water(Upstream)=

Taken Midstream @ Bent=

WATER PROFILE TAKEN WITH  
BOAT

BRIDGE NUMBER: 0720002100200

ROAD NUMBER: US-21

CROSSING: Harbor River

TOP OF WATER TO TOP OF PARAPET, CURB, DECK

HORIZONTAL BLOCKAGE (%)      TO     

VERTICAL BLOCKAGE (%)     

NORTH / SOUTH / EAST / WEST  
LEFT ABUTMENT

UPSTREAM

DOWNSTREAM

MARSH	BT. 50	MARSH
MARSH	BT. 45	MARSH
MARSH	BT. 40	MARSH
28.0	BT. 35	36.0
29.0	BT. 30	29.0
28.0	BT. 25	36.0
32.0	BT. 20	30.0
29.0	BT. 15	29.0
25.0	BT. 10	26.0
12.0	BT. 5	12.0

RIGHT ABUTMENT

NORTH / SOUTH / EAST / WEST

RK, R.D. CF

MEASUREMENT BY

17 Nov - 2008

DATE MEASURED

12:45

TIME

PARAPET

MEASUREMENTS ARE FROM TOP OF CURB TO GROUND LINE  
DECK

## SCDOT PONTIS BMS ELEMENT DATA FORM

STRUCTURE NO.: 0720002100200

FACILITY CARRIED: US 21

CROSSING: HARBOR RIVER

CROSSING: HARBOR RIVER  
INSPECTION DATE: ~~17 Nov 2008~~

28 OCT-2010

DECK: 6      SUPERSTRUCTURE: 5      SUBSTRUCTURE: 6

CULVERT: N

[illegible]