

2-DIST <b>05</b>	B.I.N. <b>437</b>	STRUCTURES INSPECTION FIELD REPORT	BR. DEPT. NO. <b>C-07-001</b>
<b>ROUTINE INSPECTION</b>			

CITY/TOWN <b>CHATHAM</b>	8-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	11-Kilo. POINT <b>000.322</b>	41-STATUS <b>A:OPEN</b>	90-ROUTINE INSP. DATE <b>OCT 5, 2010</b>
07-FACILITY CARRIED <b>HWY BRIDGE ST</b>	MEMORIAL NAME/LOCAL NAME	27-YR BUILT <b>1936</b>	106-YR REBUILT <b>1980</b>	YR REHAB'D (NON 106) <b>2007</b>
06-FEATURES INTERSECTED <b>WATER MITCHELL RIVER</b>	26-FUNCTIONAL CLASS <b>Urban Collector</b>	DIST. BRIDGE INSPECTION ENGINEER <b>D. A. Palmer</b> REVIEWED BY: <i>[Signature]</i>		
43-STRUCTURE TYPE <b>716 : Timber Movable - Bascule</b>	22-OWNER Town Agency	21-MAINTAINER Town Agency	TEAM LEADER <b>A. Amuzgar</b> PROJ MGR <b>HNTB Corporation</b> <i>[Signature]</i> <i>[Signature]</i>	
107-DECK TYPE <b>8 : Timber</b>	WEATHER <b>Rain</b>	TEMP. (air) <b>15°C</b>	TEAM MEMBERS <b>J. CLOGSTON, J. CLOGSTON</b>	

<b>ITEM 58</b>	<b>5</b>	DEF
<b>DECK</b>		
1.Wearing surface	5	M-P
2.Deck Condition	5	M-P
3.Stay in place forms	N	-
4.Curbs	5	M-P
5.Median	N	-
6.Sidewalks	6	M-P
7.Parapets	N	-
8.Railing	6	M-P
9.Anti Missile Fence	N	-
10.Drainage System	N	-
11.Lighting Standards	N	-
12.Utilities	5	M-P
13.Deck Joints	4	S-P
14.	N	-
15.	N	-
16.	N	-
CURB REVEAL (In millimeters)		S
N	330	330

<b>APPROACHES</b>			DEF
a. Appr. pavement condition	5	M-P	
b. Appr. Roadway Settlement	X	M-P	
c. Appr. Sidewalk Settlement	5	M-P	
d.	N	-	

<b>OVERHEAD SIGNS</b> (Attached to bridge) (Y/N)		<b>N</b>
DEF		
a. Condition of Welds	N	-
b. Condition of Bolts	N	-
c. Condition of Signs	N	-

<b>ITEM 59</b>	<b>6</b>	DEF
<b>SUPERSTRUCTURE</b>		
1.Stringers	6	M-P
2.Floorbeams	N	-
3.Floor System Bracing	N	-
4.Girders or Beams	7	-
5.Trusses - General	N	-
a. Upper Chords	N	-
b. Lower Chords	N	-
c. Web Members	N	-
d. Lateral Bracing	N	-
e. Sway Bracings	N	-
f. Portals	N	-
g. End Posts	N	-
6.Pin & Hangers	N	-
7.Conn Plt's, Gussets & Angles	N	-
8.Cover Plates	N	-
9.Bearing Devices	N	-
10.Diaphragms/Cross Frames	6	M-P
11.Rivets & Bolts	5	M-P
12.Welds	6	M-P
13.Member Alignment	6	M-P
14.Paint/Coating	5	M-P
16.King Posts	6	M-P
Year Painted	N	

**COLLISION DAMAGE:** *Please explain*  
None ( ) Minor ( X ) Moderate ( ) Severe ( )

**LOAD DEFLECTION:** *Please explain*  
None ( ) Minor ( X ) Moderate ( ) Severe ( )

**LOAD VIBRATION:** *Please explain*  
None ( ) Minor ( ) Moderate ( X ) Severe ( )

Any Fracture Critical Member: (Y/N) **N**

Any Cracks: (Y/N) **N**

<b>ITEM 60</b>	<b>4</b>	DEF		
<b>SUBSTRUCTURE</b>				
<b>1. Abutments</b>	Dive	Cur	5	DEF
a. Pedestals	N	N		-
b. Bridge Seats	N	7		-
c. Backwalls	N	6		M-P
d. Breastwalls	N	6		M-P
e. Wingwalls	N	6		M-P
f. Slope Paving/Rip-Rap	N	7		-
g. Pointing	N	N		-
h. Footings	N	5		M-P
i. Piles	N	H		-
j. Scour	N	N		-
k. Settlement	N	7		-
l.	N	N		-
m.	N	N		-
<b>2. Piers or Bents</b>			N	DEF
a. Pedestals	N	N		-
b. Caps	N	N		-
c. Columns	N	N		-
d. Stems/Webs/Pierwalls	N	N		-
e. Pointing	N	N		-
f. Footing	N	N		-
g. Piles	N	N		-
h. Scour	N	N		-
i. Settlement	N	N		-
j.	N	N		-
k.	N	N		-
<b>3. Pile Bents</b>			5	DEF
a. Pile Caps	N	6		M-P
b. Piles	4	5		S-P
c. Diagonal Bracing	4	4		S-A
d. Horizontal Bracing	4	4		S-A
e. Fasteners	3	4		S-P

UNDERMINING (Y/N) If YES please explain **N**

**COLLISION DAMAGE:**  
None ( X ) Minor ( ) Moderate ( ) Severe ( )

**SCOUR:** *Please explain*  
None ( X ) Minor ( ) Moderate ( ) Severe ( )

1-60 (Dive Report): **4** 1-60 (This Report): **5**

93B-U/W (DIVE) Insp **01/07/2010**

X=UNKNOWN N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE R=REMOVED

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	--	---------------------------------------

**ITEM 61** 4  
**CHANNEL & CHANNEL PROTECTION**

	Dive	Cur	DEF
1.Channel Scour	7	H	-
2.Embankment Erosion	7	7	-
3.Debris	7	7	-
4.Vegetation	7	7	-
5.Utilities	7	H	-
6.Rip-Rap/Slope Protection	7	7	-
7.Aggradation	7	7	-
8.Fender System	3	3	S-A

**STREAM FLOW VELOCITY:**  
Tidal (  ) High ( ) Moderate ( ) Low ( ) None ( )

ITEM 61 (Dive Report): 4    ITEM 61 (This Report) 4

93b-U/W INSP. DATE: 01/07/2010

**ITEM 36 TRAFFIC SAFETY**

	36	COND	DEF
A. Bridge Railing	0	5	M-P
B. Transitions	0	0	-
C. Approach Guardrail	0	5	M-P
D. Approach Guardrail Ends	0	7	-

**WEIGHT POSTING**    Not Applicable  X

	H	3	3S2	Single
Actual Posting	N	N	N	N
Recommended Posting	N	N	N	N

Waived Date: 03/26/1997    EJDMT Date: 00/00/00

Signs In Place (Y=Yes, N=No, NR=Not Required) Legibility/Visibility

At bridge		Other Advance	
E	W	E	W
/	/	/	/

**CLEARANCE POSTING**    Not Applicable  X

	N		S		meter
	ft	in	ft	in	
Actual Field Measurement		0		0	
Posted Clearance		0		0	

Signs In Place (Y=Yes, N=No, NR=Not Required) Legibility/Visibility

At bridge		Advance	
N	S	N	S
/	/	/	/

**ACCESSIBILITY (Y/N/P)**

	Needec	Used
Lift Bucket	N	N
Ladder	N	N
Boat	Y	Y
Waders	N	N
Inspector 50	N	N
Rigging	N	N
Staging	Y	Y
Traffic Control	N	N
RR Flagger	N	N
Police	N	N
Other:		
	N	N

**TOTAL HOURS**    28

**PLANS (Y/N):**    Y

**(V.C.R.) (Y/N):**    N

**TAPE#:** \_\_\_\_\_

List of field tests performed:

**RATING**  
Rating Report (Y/N): Y  
Date: 02/01/1997  
Inspection data at time of existing rating  
1 58: 7    1 59: 7    1 60: 6    Date : 03/02/1994

**(To be filled out by DBIE)**  
Request for Rating or Rerating (Y/N): N    If YES please give priority:  
HIGH ( ) MEDIUM ( ) LOW ( )

**REASON:** \_\_\_\_\_

**CONDITION RATING GUIDE**    (For Items 58, 59, 60 and 61)

CODE	CONDITION	DEFECTS
N	NOT APPLICABLE	
G 9	EXCELLENT	Excellent condition.
G 8	VERY GOOD	No problem noted.
G 7	GOOD	Some minor problems.
F 6	SATISFACTORY	Structural elements show some minor deterioration.
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
P 4	POOR	Advance section loss, deterioration, spalling or scour.
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
C 2	CRITICAL	Advance deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.
0	FAILED	Out of service - beyond corrective action.

**DEFICIENCY REPORTING GUIDE**

**DEFICIENCY:**    A defect in a structure that requires corrective action.

**CATEGORIES OF DEFICIENCIES:**

**M= Minor Deficiency** - Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.

**S= Severe/Major Deficiency** - Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.

**C-S= Critical Structural Deficiency** - A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.

**C-H= Critical Hazard Deficiency** - A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.

**URGENCY OF REPAIR:**

**I = Immediate** - [Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].

**A = ASAP** - [Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].

**P = Prioritize** - [Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

## REMARKS

### **BRIDGE ORIENTATION**

Bridge C-07-001 (437) carries Bridge Street over the Mitchell River in the Town of Chatham. The bridge is oriented west/east with the Mitchell River oriented north/south.

The superstructure consists of eleven timber multi-stringer approach spans (spans 1-7 and 9-12) with a timber deck and one movable timber multi-stringer bascule span (span 8) with a timber deck. The timber stringers are numbered from south to north. In addition, there are two, partial width, cast-in-place concrete slab spans at each end of the bridge. These spans were integrated into north side of the existing abutments to accommodate the bridge widening to the north in 1949.

The substructure consists of concrete abutments and timber pile bents. The timber pile bents are numbered 1-6, 7A and 8-11 from west to east. There are smaller supplemental bents at bents 4 and 6 which are numbered 4A and 6A, respectively (see plan view within the Routine Underwater Inspection Report, dated 1/7/10).

### **ITEM 58 - DECK**

#### **Item 58.1 - Wearing surface**

The timber wearing surface has moderate wear, particularly in the wheel lines, with slight punkiness, splits and checks throughout. The knots in the wood and the nail heads generally protrude above the surface (**see photo 1**). Random wearing surface planks have been replaced throughout the deck. These replacement wearing surface planks do not sit flush with the remaining, worn planks. Isolated timber wearing surface planks are loose or have deteriorated to the point of failure.

The bituminous wearing surface over the abutment spans has random cracks up to 3/8" wide and minor wear, particularly in the wheel lines.

#### **Item 58.2 - Deck Condition**

The timber deck typically exhibits some random areas with slight punkiness on the underside. There is one isolated location where one deck timber has failed between stringers 10 and 11 (numbered from the south) in span 4 (**see photo 2**).

There is a 1'-0" diameter by 2" deep spall around a weep hole with heavy efflorescence on the underside of the cast-in-place concrete deck for the east abutment span. There is also a full depth core hole through the cast-in-place concrete deck for a soil boring that was not repaired.

#### **Item 58.4 - Curbs**

The timber curbs, which also act as a traffic rail, have minor splits and checks throughout. The worst case is at the east end of the bascule span (span 8) south curb where a 3'-0" length of curb is heavily deteriorated (**see photo 3**). At several locations the curb/traffic rails are misaligned transversely up to 1 1/2" (**see photo 4**).

#### **Item 58.6 - Sidewalks**

The timber sidewalks have minor wear, splits and checks throughout with minor build-up of sand and debris along the curbs.

#### **Item 58.8 - Railing**

There are minor to moderate checks and splits in the timber pedestrian rails and posts.

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

### REMARKS

#### **Item 58.12 - Utilities**

There are several deteriorated, broken, loose or missing support brackets for the electrical conduit along the north side of the bridge in spans 9 through 12. At one location in span 11, the conduit has been temporarily fastened with rope. In addition, there are deteriorated, broken and loose electrical conduits with exposed wiring along the west side of bents 5 and 7A (**see photo 5**).

#### **Item 58.13 - Deck Joints**

The steel armor at both abutment deck joints exhibits minor scrapes and gouges, particularly at the east abutment. The timber joint at the east end of the bascule span (span 8) is extremely tight when the bridge is closed. There is 1 1/2" of lateral misalignment between the bascule span (span 8) and span 9 deck along the bent 8 deck joint at the toe end of the bascule span (**see photo 6**).

### **APPROACHES**

#### **Approaches a - Appr. pavement condition**

The bituminous pavement at both approaches exhibits longitudinal and transverse cracks up to 1" wide. Previously sealed cracks in the east approach have opened up. Minor pavement spalling is present along the deck joint at the west abutment.

#### **Approaches b - Appr. Roadway Settlement**

An 8'-0" wide by 16'-0" long bituminous patch in the westbound lane of the west approach has settled up to 1". A 3'-0" long by 1'-2" wide area of the east approach pavement has settled 1 3/4" along the south end of the east abutment deck joint.

#### **Approaches c - Appr. Sidewalk Settlement**

The northwest and southwest approach sidewalks have settled up to 2". The northeast approach sidewalk has a 2'-1" wide area with up to 4" of settlement along the curb.

### **ITEM 59 - SUPERSTRUCTURE**

#### **Item 59.1 - Stringers**

The timber stringers exhibit minor shakes and checks which are typically 1/8" wide with isolated stringers checked up to 5/16" wide (**see photo 7**). There is minor collision damage (scrapes and gouges) to the underside of the stringers in the bascule span (span 8) (**see photo 8**).

There is a 3'-0" long by 6" high spall with exposed and rusted rebar on the south side of the abutment span beam at the northeast corner of the bridge.

#### **Item 59.10 - Diaphragms/Cross Frames**

Many of the timber spacer blocks between the stringers are loose and/or have rotated (**see photo 9**). Random blocks exhibit minor shakes and checking. There is an isolated spacer block in span 12 which exhibits severe deterioration between the third and fourth stringers from the south.

#### **Item 59.11 - Rivets & Bolts**

There is minor corrosion of the bolts throughout the superstructure. The bascule span (span 8) counterweight steel shell connection bolts (located in span 7) exhibit moderate to heavy corrosion with some minor section loss.

#### **Item 59.12 - Welds**

The bascule span (span 8) counterweight steel shell welds (located in span 7) are generally in satisfactory condition with some minor rusting.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
CHATHAM	437	C-07-001	C07001-437-MUN-NBI	OCT 5, 2010
<b>REMARKS</b>				
<b>Item 59.13 - Member Alignment</b>				
The toe end of the bascule span (span 8) appears to have shifted 1 1/2" to the north, see Item 58.13 for additional comments.				
<b>Item 59.14 - Paint/Coating</b>				
The bascule span (span 8) counterweight steel shell galvanized coating (located in span 7) exhibits moderate to heavy corrosion with some minor section loss at its west end ( <b>see photo 10</b> ).				
<b>Item 59.15 - King Posts</b>				
The timber king posts exhibit checks up to 1/4" wide by 4'-0" long with a maximum depth of 3" throughout their entire height with the heaviest concentration on the north face of the south post.				
<b>SuperStructure Collision Notes</b>				
There is minor collision damage (scrapes and gouges) to the underside of the stringers in the bascule span (span 8) ( <b>see photo 8</b> ).				
<b>SuperStructure Load Deflection Notes</b>				
There is minor deflection under live load.				
<b>SuperStructure Load Vibration Notes</b>				
There is moderate vibration under live load.				
<b>ITEM 60 - SUBSTRUCTURE</b>				
<b>Item 60.1 - Abutments</b>				
<b>Item 60.1.c - Backwalls</b>				
There are several vertical and diagonal cracks in the east abutment backwall. There is a 12" wide by 9" high by 6" deep spall at the south end of the east abutment backwall, which also serves as a header for the sidewalk joint ( <b>see photo 11</b> ).				
<b>Item 60.1.d - Breastwalls</b>				
There is a 1/8" wide horizontal crack along the south half of the east abutment breastwall with a 4'-6" wide by up to 5" high by 2" deep spall along the crack ( <b>see photo 12</b> ). Both the east and west abutment breastwalls exhibit hairline cracks with efflorescence. The timber sill attached to the west abutment breastwall exhibits minor checking.				
<b>Item 60.1.e - Wingwalls</b>				
The southeast and southwest wingwalls are covered with a concrete skim coat which exhibits isolated cracks up to 1/16" wide with efflorescence. The southwest wingwall exhibits a full length horizontal crack, up to 1/8" wide, with several vertical hairline cracks and 1/8" wide by full height crack extending from the horizontal crack ( <b>see photo 13</b> ).				
<b>Item 60.1.h - Footings</b>				
A concrete fender wall is partially exposed through the rip-rap at the south end of both abutments. At the south end of the west abutment, the concrete fender wall exhibits wide cracks (up to 3" wide) through the full thickness of the fender ( <b>see photo 14</b> ).				

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
CHATHAM	437	C-07-001	C07001-437-MUN-NBI	OCT 5, 2010
<b>REMARKS</b>				
<p><b>Item 60.3 - Pile Bents</b></p> <p><b>Item 60.3.a - Pile Caps</b></p> <p>The timber pile caps typically have up to 1/16" wide checks on all surfaces. Isolated timber caps have 1/8" to 1/4" wide checks which measure up to 3'-0" long. The south end of the pile caps at bents 3 and 4 exhibit full height splits that extend to the first pile (<b>see photo 15</b>).</p> <p><b>Item 60.3.b - Piles</b></p> <p>The timber piles typically have heavy marine growth with minor to moderate brooming and section loss in the tidal zone. Isolated piles exhibit heavy brooming and advanced section loss in the tidal zone, with up to 1 1/2" deep by full circumference areas of soft, punky timber (<b>see photo 16</b>). Above the tidal zone, the piles have vertical checks up to 1/8" wide at random locations. Random piles throughout have had a section removed from the upper portion of the pile, typically 3" deep by 2'-6" high.</p> <p>At the 5th pile from south, bent 2, there is a 3/4" gap between the top of pile and the underside of the pile cap (<b>see photo 17</b>). Additionally, the 6th pile from south at bent 2 has a 4" wide by 4" deep by 5" high area of 100% loss on its north side, an 8" wide by 2 1/2" deep by 24" high area of 100% loss on its south face and a full depth 1/8" wide vertical split (<b>see photo 18</b>). Isolated piles throughout the structure exhibit full depth by up to full height splits extending down from the top of the pile (<b>see photo 19</b>).</p> <p>There is little to no protective creosote coating remaining on the piles. Protective sleeves have been placed around several piles (12 total) at bents 1, 2, 3 and 4. See the attached Routine Underwater Inspection Report, dated 1/7/10, for more information.</p> <p><b>Item 60.3.c - Diagonal Bracing</b></p> <p>(DEF=S/A) The diagonal timber bracing for each individual pile bent generally exhibits moderate to heavy deterioration and section loss in the tidal zone. <b>The worst cases are at the north end of bent 5 and the south end of bent 3 where there are 5'-0" sections of the bracing which have completely deteriorated (see photo 20).</b></p> <p><b>Item 60.3.d - Horizontal Bracing</b></p> <p>(DEF=S/A) The timber bracing between pile bents generally exhibits moderate to heavy deterioration and section loss in the tidal zone. <b>The worst case is at the south end of bent 8 where there is a 4'-0" section of the bracing which has completely deteriorated (see photo 21).</b></p> <p><b>Item 60.3.e - Fasteners</b></p> <p>The fasteners that attach the bracing members generally exhibit moderate to heavy corrosion with moderate to heavy section loss in the tidal zone (<b>see photo 22</b>). See the Underwater Inspection Report, dated 1/7/10, for more information.</p> <p><b>ITEM 61 - CHANNEL AND CHANNEL PROTECTION</b></p> <p><b>Item 61.8 - Fender System</b></p> <p>(DEF=S/A) The vertical and horizontal timber members generally exhibit moderate splitting and checking above the tidal zone. <b>In the tidal zone, these members exhibit heavy marine growth with moderate to heavy deterioration and advanced section loss (up to 100%) (see photo 23).</b> The east fender exhibits impact damage at its north and south ends with several vertical timber members leaning/rotated (<b>see photo 24</b>).</p> <p>The fasteners have heavy surface rust and are deteriorated within the tidal zone. See the attached Routine Underwater Inspection Report, dated 1/7/10, for more information.</p>				

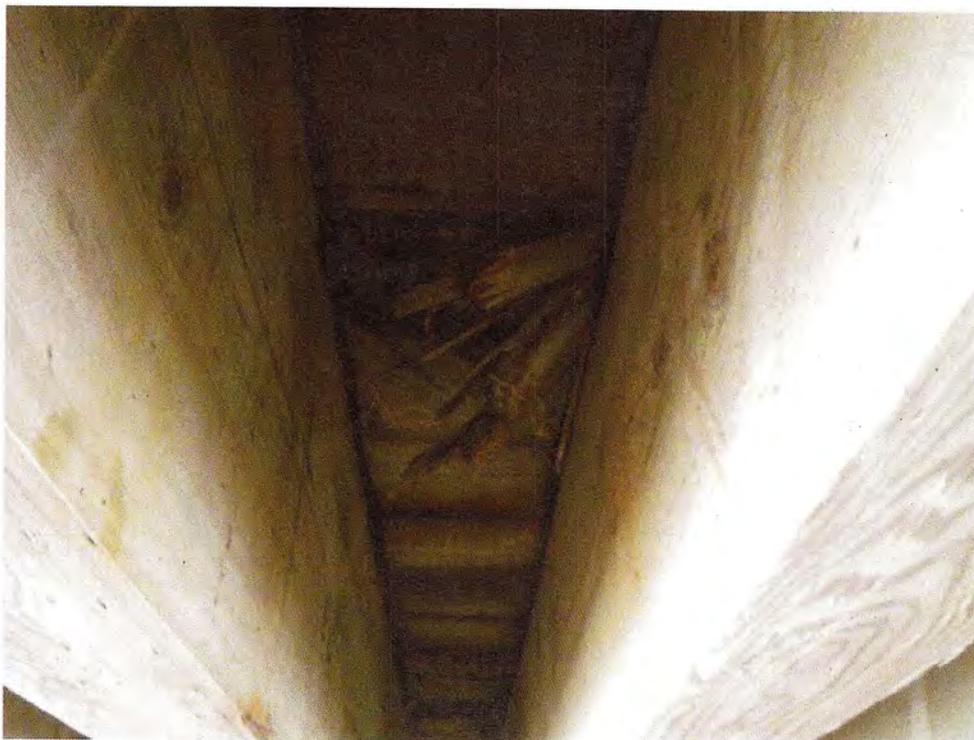
CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
CHATHAM	437	C-07-001	C07001-437-MUN-NBI	OCT 5, 2010
<b>REMARKS</b>				
<b><u>TRAFFIC SAFETY</u></b>				
<b><u>Item 36a - Bridge Railing</u></b>				
The timber curbs, which are non-mountable, act as a traffic rail and do not conform to the current standards. See Item 58.4 for comments.				
<b><u>Item 36b - Transitions</u></b>				
There are no transitions between the timber pedestrian rail and the approach thrie beam guardrails at all four corners of the bridge (see photo 25).				
<b><u>Item 36c - Approach Guardrail</u></b>				
The southeast guardrail has five posts that are not up tight against the abutment wingwall due to loose anchor bolts with up to a 1 1/2" gap between the post and wingwall (see photos 26 and 27). There is minor impact damage to the northeast approach guardrail. The guardrails consist of multiple types (thrie beam and w-beam) which are not continuous for their entire length and do not conform to the current standards (see photo 28).				
<b><u>Item 36d - Approach Guardrail Ends</u></b>				
The buried end sections of the approach guardrails do not conform to the current standards.				
<b><u>Photo Log</u></b>				
Photo 1 : Typical worn wearing surface with protruding knots and nail heads. Also note the replacement plank not sitting flush with worn planks.				
Photo 2 : Failed deck timber between stringers 10 and 11 in span 4.				
Photo 3 : Deterioration of the south curb/traffic rail at the east end of the bascule span (span 8).				
Photo 4 : Typical misalignment of up to 1 1/2" of curb/traffic rails (north curb shown).				
Photo 5 : Deteriorated, broken and loose electrical conduits with exposed wiring along the west side of bent 7A.				
Photo 6 : 1 1/2" of misalignment of bascule span toe towards the north.				
Photo 7 : Up to 5/16" checks in timber south fascia stringer in span 4.				
Photo 8 : Collision damage to the underside of the bascule span (span 8) stringers.				
Photo 9 : Typical loose and rotated spacer block in span 8.				
Photo 10 : Failed galvanized coating at the east end of the counterweight steel shell.				
Photo 11 : 12" wide by 9" high by 6" deep spall at the south end of the east abutment backwall.				
Photo 12 : 1/8" wide crack with 4'-6" wide by 5" high by 2" deep spall at east abutment breastwall.				
Photo 13 : Up to 1/8" wide horizontal and vertical cracks at the east end of the southwest wingwall.				
Photo 14 : Major 3" wide crack/split in concrete fender wall at south end of west abutment.				
Photo 15 : Full height diagonal split at south end of bent 3 pile cap.				
Photo 16 : Heavy brooming and advanced section loss to the northernmost pile at bent 1.				
Photo 17 : 3/4" gap between top of 5th pile from south and pile cap at bent 2.				
Photo 18 : Section loss and full depth vertical split at 6th pile from south end of bent 2.				
Photo 19 : Full depth by full height split on third pile from south end of bent 1.				
Photo 20 : 100% loss to diagonal bracing at south end of bent 3.				
Photo 21 : 100% loss to horizontal bracing between bents 8 and 9 at the south end of bent 8.				
Photo 22 : Heavy rust and losses to substructure connection bolt at bent 9.				
Photo 23 : Heavy marine growth with up to 100% section loss to vertical bracing members at bent 7a fender.				
Photo 24 : Collision damage at the south end of the bent 8 fender.				
Photo 25 : Lack of transition between bridge rail and approach rail at southwest corner of bridge.				
Photo 26 : 1 1/2" gap between the southeast approach guardrail posts and the face of the wingwall.				
Photo 27 : Outward rotation of southeast approach guardrail posts due to loose anchor bolts.				

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
CHATHAM	437	C-07-001	C07001-437-MUN-NBI	OCT 5, 2010
<b>REMARKS</b>				
<p><b>Photo Log (Cont'd)</b></p> <p>Photo 28 : Multiple non-standard guardrail types at northeast approach.</p>				

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

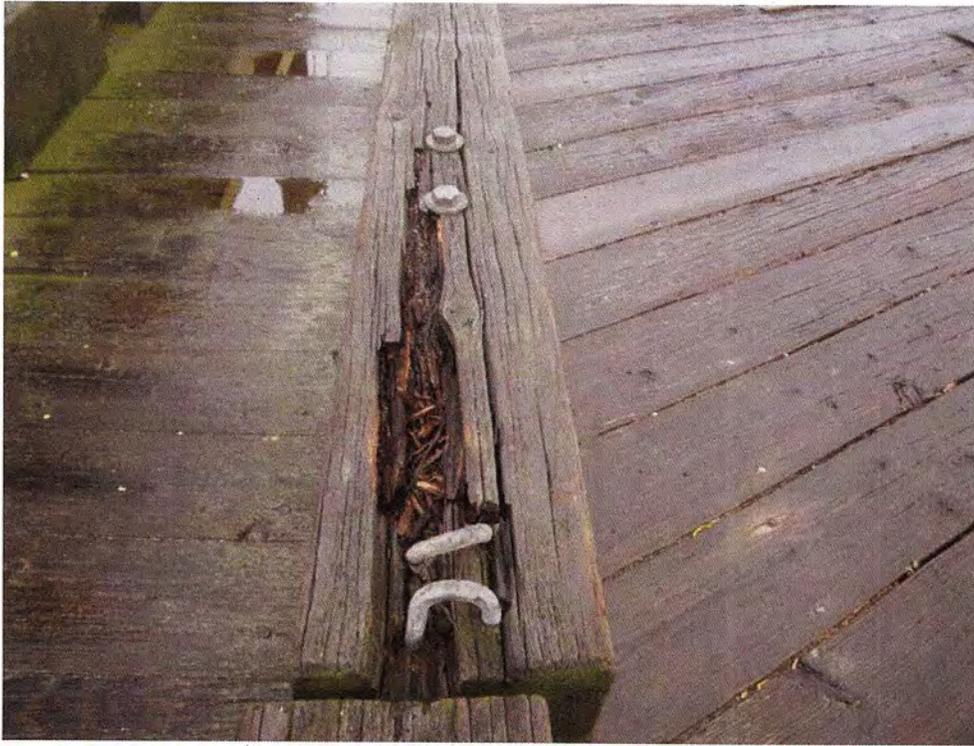
**PHOTOS**

**Photo 1:** Typical worn wearing surface with protruding knots and nail heads. Also note the replacement plank not sitting flush with worn planks.



**Photo 2:** Failed deck timber between stringers 10 and 11 in span 4.

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

**PHOTOS**

**Photo 3: Deterioration of the south curb/traffic rail at the east end of the bascule span (span 8).**



**Photo 4: Typical misalignment of up to 1 1/2" of curb/traffic rails (north curb shown).**

CITY/TOWN  
**CHATHAM**B.I.N.  
**437**BR. DEPT. NO.  
**C-07-001**8.-STRUCTURE NO.  
**C07001-437-MUN-NBI**INSPECTION DATE  
**OCT 5, 2010****PHOTOS**

**Photo 5: Deteriorated, broken and loose electrical conduits with exposed wiring along the west side of bent 7A.**

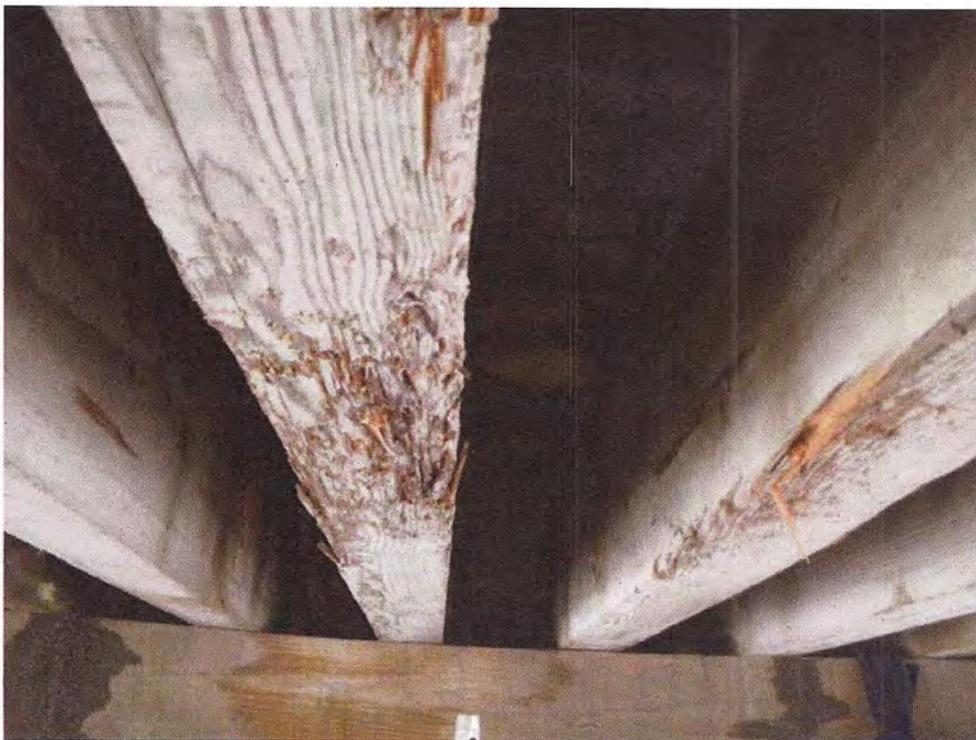


**Photo 6: 1 1/2" of misalignment of bascule span toe towards the north.**

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

**PHOTOS**

**Photo 7:** Up to 5/16" checks in timber south fascia stringer in span 4.

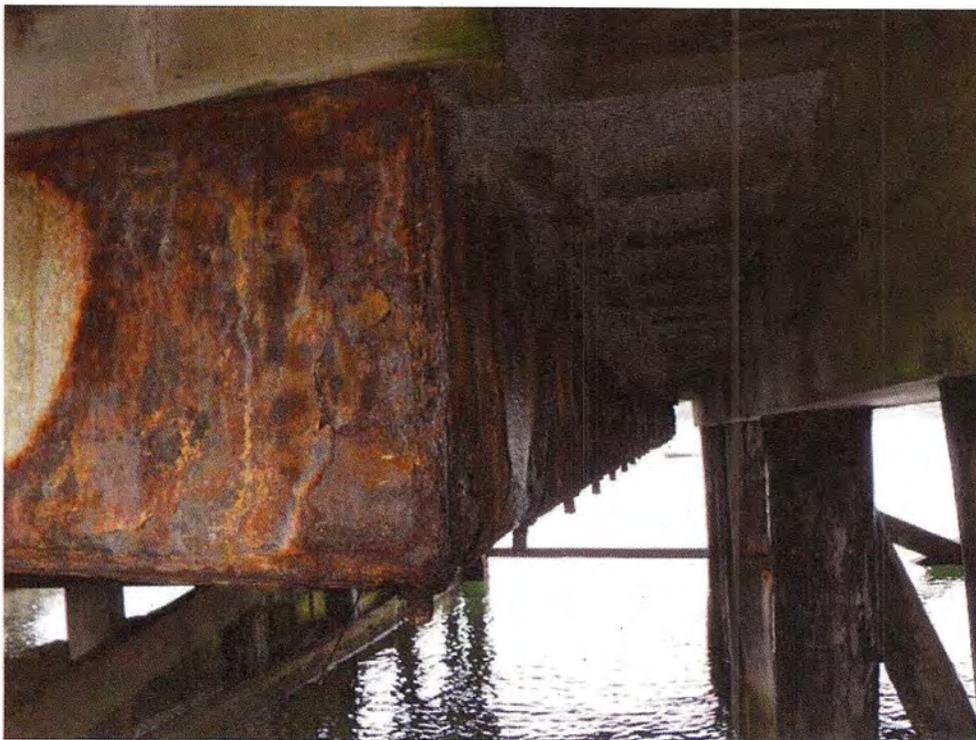


**Photo 8:** Collision damage to the underside of the bascule span (span 8) stringers.

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

**PHOTOS**

**Photo 9:** Typical loose and rotated spacer block in span 8.



**Photo 10:** Failed galvanized coating at the east end of the counterweight steel shell.

CITY/TOWN CHATHAM	B.I.N. 437	BR. DEPT. NO. C-07-001	8.-STRUCTURE NO. C07001-437-MUN-NBI	INSPECTION DATE OCT 5, 2010
----------------------	---------------	---------------------------	--	--------------------------------

## PHOTOS

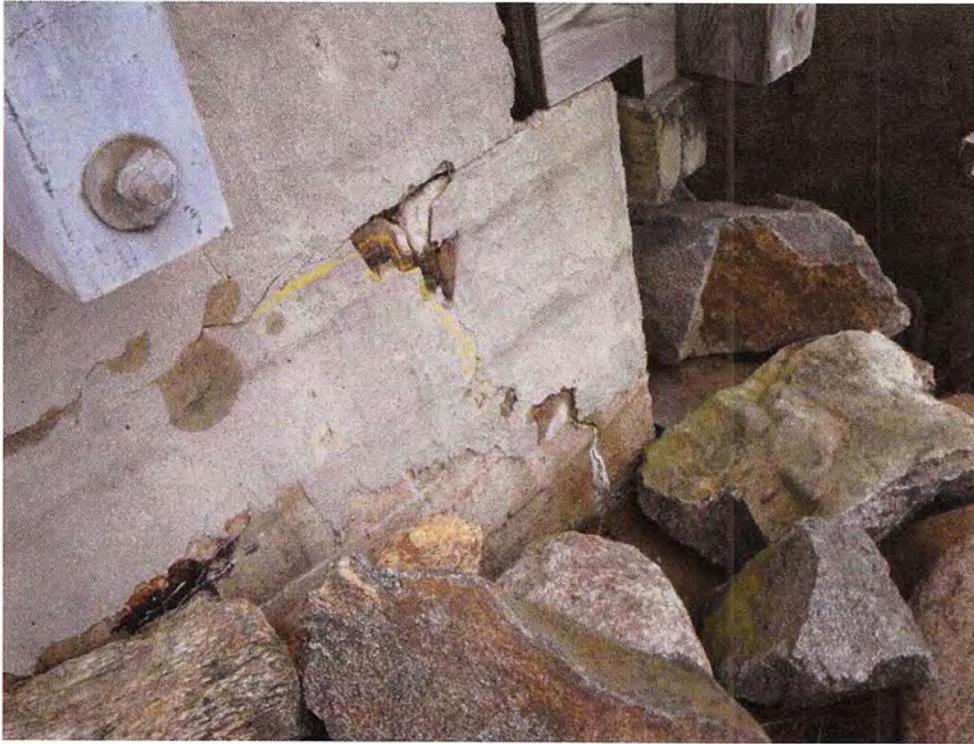


Photo 11: 12" wide by 9" high by 6" deep spall at the south end of the east abutment backwall.



Photo 12: 1/8" wide crack with 4'-6" wide by 5" high by 2" deep spall at east abutment breastwall.

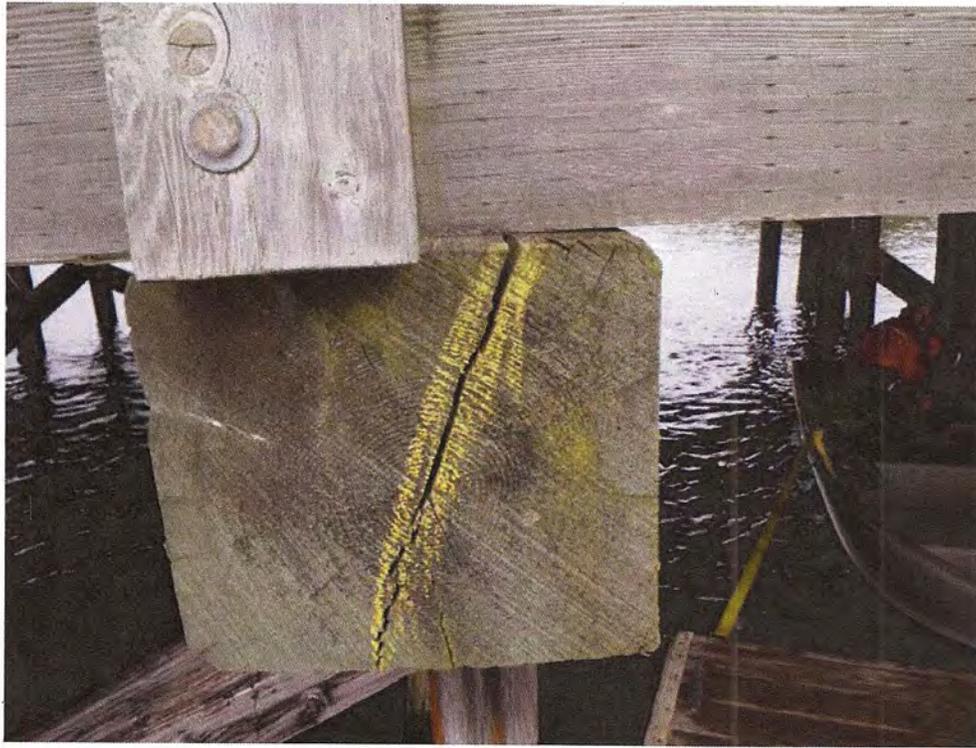
CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

**PHOTOS**

**Photo 13:** Up to 1/8" wide horizontal and vertical cracks at the east end of the southwest wingwall.



**Photo 14:** Major 3" wide crack/split in concrete fender wall at south end of west abutment.

CITY/TOWN  
**CHATHAM**B.I.N.  
**437**BR. DEPT. NO.  
**C-07-001**8.-STRUCTURE NO.  
**C07001-437-MUN-NBI**INSPECTION DATE  
**OCT 5, 2010****PHOTOS**

**Photo 15: Full height diagonal split at south end of bent 3 pile cap.**



**Photo 16: Heavy brooming and advanced section loss to the northernmost pile at bent 1.**

CITY/TOWN  
CHATHAMB.I.N.  
437BR. DEPT. NO.  
C-07-0018.-STRUCTURE NO.  
C07001-437-MUN-NBIINSPECTION DATE  
OCT 5, 2010

## PHOTOS



Photo 17: 3/4" gap between top of 5th pile from south and pile cap at bent 2.



Photo 18: Section loss and full depth vertical split at 6th pile from south end of bent 2.

CITY/TOWN  
CHATHAM

B.I.N.  
437

BR. DEPT. NO.  
C-07-001

8.-STRUCTURE NO.  
C07001-437-MUN-NBI

INSPECTION DATE  
OCT 5, 2010

PHOTOS



Photo 19: Full depth by full height split on third pile from south end of bent 1.



Photo 20: 100% loss to diagonal bracing at south end of bent 3.

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

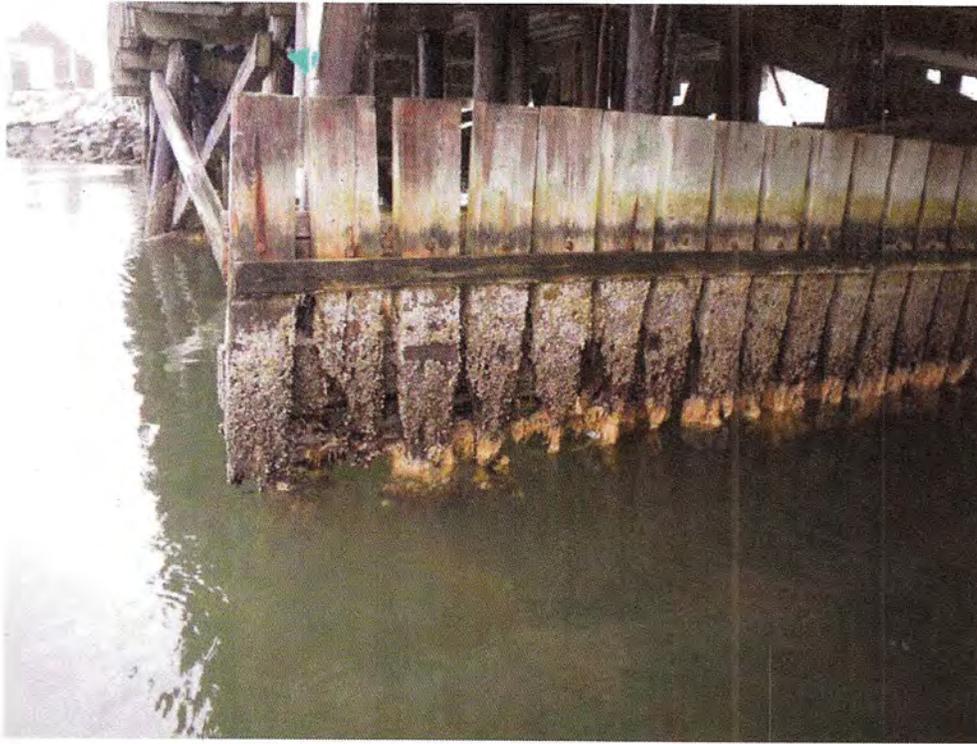
**PHOTOS**

**Photo 21:** 100% loss to horizontal bracing between bents 8 and 9 at the south end of bent 8.



**Photo 22:** Heavy rust and losses to substructure connection bolt at bent 9.

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8.-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	---	---------------------------------------

**PHOTOS**

**Photo 23:** Heavy marine growth with up to 100% section loss to vertical bracing members at bent 7a fender.



**Photo 24:** Collision damage at the south end of the bent 8 fender.

CITY/TOWN CHATHAM	B.I.N. 437	BR. DEPT. NO. C-07-001	8.-STRUCTURE NO. C07001-437-MUN-NBI	INSPECTION DATE OCT 5, 2010
----------------------	---------------	---------------------------	--	--------------------------------

## PHOTOS



**Photo 25:** Lack of transition between bridge rail and approach rail at southwest corner of bridge.



**Photo 26:** 1 1/2" gap between the southeast approach guardrail posts and the face of the wingwall.

CITY/TOWN <b>CHATHAM</b>	B.I.N. <b>437</b>	BR. DEPT. NO. <b>C-07-001</b>	8-STRUCTURE NO. <b>C07001-437-MUN-NBI</b>	INSPECTION DATE <b>OCT 5, 2010</b>
-----------------------------	----------------------	----------------------------------	--	---------------------------------------

**PHOTOS**

**Photo 27: Outward rotation of southeast approach guardrail posts due to loose anchor bolts.**



**Photo 28: Multiple non-standard guardrail types at northeast approach.**