

STRUCTURE NO. 04433

NORTH SHORE ROAD
over
BUTTERNUT BROOK
LITCHFIELD

Indepth Inspection
on
8/6/2009

Inspected by Collins - 26
for Area 5

TEAM:	Forwarded to TE3	Sowatei Lomotey	Date	8/27/2009
TE3:	Reviewed by TE3	Leo Cain Jr.	Date	9/15/2009
	BMM Required		No	
	Town Bridge		Yes	
	Rating <= 5 (Items 58,59,60 or 62)		Yes	
	Forwarded to Supervisor	Ted Lapierre	Date	9/23/09
	Forwarded to "To Be Copied Drawer"	<input type="checkbox"/>	Date	
	Date BRI-19 Entered		8/28/2009	
SUPERVISOR:	Reviewed by Supervisor	TAL	Date	9/28/09
SUPPORT:	Date Copies Made	10/2/09	BMM No	town
	Scanned By:	8	Date Scanned	10/2/09
			PDF Box No	

NBI: Yes

Bridge Number 04433

STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

BRIDGE SAFETY & EVALUATION

STRUCTURE EVALUATION

SHEET 1 OF 2 FORM BRI-19 REV 10/00

Inspected By: S. PERRY & D. CHESTER

Sufficiency Rating 80.56
Previous Inspection Date 3/21/2007

BS&E Received Data Entry By: [Signature]
Copies Made Data Entry Date: 8/27

SHEET _____ OF _____

90) Inspection Date 080609 Inspection Team 26 147 Frequency 01
 Indepth Insp Deck Survey Access 000
 4/26/1999 8/6/02

CRITICAL FEATURE INSPECTIONS

Type	Frequency	Team	Date

Fracture:
 Uwater:
 Special:

IDENTIFICATION

Bridge Name LITCHFIELD
 Town Name LITCHFIELD Town Code 43370
 5) Inventory Route:
 A) Record Type 1
 B) Signing Prefix 5 City Street
 C) Level of Service 0 None of the bel
 6) Feature Intersected BUTTERNUT BROOK

7) Facility Carried: NORTH SHORE ROAD
 9) Location .5 MILE NORTH OF RTE. 202

11) Milepoint 1.22 Miles
 16) Latitude 41deg 43 min 54.00 sec
 17) Longitude 73deg 13 min 12.00 sec

98) Border Bridge:
 A) State Code
 C) Border Town Name
 99) Border Bridge Structure No

STRUCTURE TYPE AND MATERIAL

43) Structure Type, Main:
 A) Material 5 Prestressed concret B) Design Type 1 Slab
 44) Structure Type, Approach:
 A) Material 0 Other B) Design Type 0 Other
 45) Number of Spans, Main Unit 1
 46) Number of Approach Spans 0
 107) Deck Structure Type 9 Other
 108) Wearing Surface/Protective System:
 A) Type of Wearing Surface 6 Bituminous
 B) Type of Membrane 2 Preformed Fabric
 C) Type of Deck Protection 0 None

AGE AND SERVICE

27) Year Built 1956
 42) Type of Service:
 A) On 1 Highway
 28) Number of Lanes:
 A) On 2
 29) Average Daily Traffic 540
 109) Percent Truck 7%
 30) Year of ADT 2007
 19) Bypass, Detour Length 3miles

GEOMETRIC DATA

48) Length of Max Span 36ft
 49) Structure Length 39ft
 50) Curb or Sidewalk Widths:
 A) Left 0.0ft
 51) Brg Rdwy width, curb-curb 23.4ft
 52) Deck Width, Out-Out 24.0ft
 32) Approach Roadway Width 25ft
 33) Bridge Median 0 No Median 936 sqft Deck Area

BRIDGE COMMENTS

34) Skew Angle 0deg
 35) Structure Flared 0
 10) Inv. Rte. Min. Vert Clearance 99ft
 47) Log Inv. Rte. Total Horiz. Clr.: 23.4ft
 47) RLog Inv. Rte. Total Horiz. Clr.: ft
 53) Min Vert Clearance Over Bridge 99ft
 54) Min Vert Under Clearance N Ref 0in
 55) Min Lat Under Clearance on Right N Ref 99.9ft
 56) Min Lat Under Clearance on Left N Ref 0.0ft

RED FLAG

STRUCTURE EVALUATION

SHEET 2 OF 2 FORM BRI-19 REV 10/00

SHEET _____ OF _____

Bridge Number **04433** NBIS Length
 Town Name **LITCHFIELD** Yes 39
 Facility Carried **NORTH SHORE ROAD**
 Feature Crossed **BUTTERNUT BROOK**

Inspected By: C. Perry & D. C. Kestel

CLASSIFICATION

112) NBIS Bridge Length	Yes	
104) Highway System	0	Off System
26) Functional Class	9	Rural Local
100) Defense Highway	0	Not Defense Highway
101) Parallel Structure	N	No parallel structure exists
102) Direction of Traffic	2	2-way traffic
103) Temporary Structure		
110) Designated National Network	0	Not on national network
20) Toll	3	On Free Road
21) Maintain	3	Town or Township Highway Agency
22) Owner	3	Town or Township Highway Agency
Report Class	L	LOCAL
37) Historical Significance	5	Bridge is not eligible for National Register

WATERWAY

6704

38) Navigation Control	0	No navigation control on waterway
39) Navigation Vert Clr.	0	Navigation Horiz Clr. 0
116) Vert-Lift Brg Nav Min		
111) Pier Abutment Protection		

PROPOSED IMPROVEMENTS

75A) Type of Work Proposed	
75B) Work Done By	
76) Length of Struct. Improvement	
94) Bridge Improvement Cost	\$
95) Roadway Improvement Cost	\$
96) Total Project Cost	\$
97) Year of Improvement Cost Est.	
114) Future ADT	
115) Year Future ADT	
List No.	Project No.

POSTED SIGNS & UTILITIES

Other Posted Signs 1	2	Narrow Bridge
Other Posted Signs 2		
Actual P.L. Single Unit Truck	tons	
Rec. P.L. Single Unit Truck	tons	
Actual P.L. Semi-Trailer Truck	tons	
Rec. P.L. Semi-Trailer Truck	tons	
Actual P.L. All Vehicles	tons	
Rec. P.L. All Vehicles	tons	
Posted Vert Clearance On Bridge	ft	
Posted Vert Under Clearance	ft	
Posted Speed Limit	mph	
Utility		

LOAD RATING AND POSTING

31) Design Load	5
33) Operating Rating Type	5
64) Operating Rating	58.0
65) Inventory Rating Type	5
66) Inventory Rating	34.0

CONDITION

58) Deck	Rating By	7	CP
59) Superstructure	7	CP	
60) Substructure	6	SP	
61) Channel & Chan. Protection	7	CP	
62) Culverts	N	WCP	

APPRAISALS

67) Structure Evaluation	6	5	CP
68) Deck Geometry	4	4	CP
69) Under Clear Vert & Horiz	N	N	CP
71) Waterway Adequacy	4	4	CP
72) Approach Rdwy Alignment	7	7	CP
113) Scour Critical	3	3	CP

OTHER FEATURES

36) Traffic Safety Features:	0	0	0	0
A) Bridge Railings				
B) Transitions				
C) Approach Guardrail				
D) Approach Guardrail End				

INSPECTION COMMENTS

Proposed Next Indepth Insp Year: 2009
 Senior: Leo Cain Jr
 Supervisor: Theodore Lapierr

REVIEWED BY: J. M. M... Date: 8/25/09

INSPECTION COMMENTS

2009

2019

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 04433

Agency ID: 04433

Sufficiency Rating: 70.7

IDENTIFICATION

State 1: 09 Connecticut Struc Num 8: 04433
 Facility Carried 7: NORTH SHORE ROAD Location 9: OVER BUTTERNUT BROOK
 Rte.(On/Under)5A: Route On Structure Rte. Signing Prefix 5B: 5 City Street
 Level of Service 5C: 0 None of the below Rte. Number 5D: 00000
 Directional Suffix 5E: 0 N/A (NBI) % Responsibility : 0
 SHD District 2: 04 County Code 3: Litchfield
 Place Code 4: LITCHFIELD Mile Post 11: 1.220 mi
 Feature Intersected 6: BUTTERNUT BROOK
 Latitude 16: Missing Longitude 17: Missing
 Border Bridge Code 98: Unknown (P)
 Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months Inspection Date 90: 8/6/2009 Next Inspection: 08/06/2011
 FC Frequency 92A: NA FC Inspection Date 93A: NA Next FC Inspection: NA
 UW Frequency 92B: NA UW Inspection Date 93B: NA Next UW Inspection: NA
 SI Frequency 92C: NA SI Date 93C: NA Next SI: NA
 Element Frequency: 24 months Element Inspection Date: 08/06/2009 Next Elem. Insp. Due: 08/06/2011

CLASSIFICATION

Defense Highway 100: 0 Not a STRAHNET hwy Parallel Structure 101: No || bridge exists
 Direction of Traffic 102: 2 2-way traffic Temporary Structure 103: Unknown (NBI)
 Highway System 104: 0 Not on NHS NBIS Length 112: Long Enough
 Toll Facility 20: 3 On free road Functional Class 26: 09 Rural Local
 Historical Significance 37: 5 Not eligible for NRHP
 Owner 22: 3 Town/Township Hwy Agency
 Custodian 21: 3 Town/Township Hwy Agency

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 1
 Main Span Material/Design 43A/B:
 5 Prestressed Concrete 01 Slab
 Deck Type 107: 9 Other
 Wearing Surface 108A: 6 Bituminous
 Membrane 108B: 2 Prefomed Fabric
 Deck Protection 108C: None

CONDITION

Deck 58: 7 Good Super 59: 7 Good Sub 60: 5 Fair
 Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65: 4 Load Testing Operating Rating Method 63: 5 No rating
 Inventory Rating 66: HS18.9 Operating Rating 64: HS32.2
 Design Load 31: 5 MS 18 (HS 20) Posting 70: 5 At/Above Legal Loads
 Posting status 41: A Open, no restriction

AGE AND SERVICE

Year Built 27: 1956 Year Reconstructed 106: Unknown
 Type of Service on 42A: 1 Highway
 Type of Service under 42B: 5 Waterway
 Lanes on 28A: 2 Lanes Under 28B: 0 Detour Length 19: 3.0 mi
 ADT 29: 545 Truck ADT 109: 7 % Year of ADT 30: 2008

APPRAISAL

Bridge Rail 36A: 0 Substandard Approach Rail 36C: 0 Substandard
 Transition 36B: 0 Substandard Approach Rail Ends 36D: 0 Substandard
 Str. Evaluation 67: 5 Deck Geometry 68: 4 Tolerable
 Underclearance, Vertical and Horizontal 69: N Not applicable (NBI)
 Waterway Adequacy 71: 4 Tolerable Approach Alignment 72: 7 Above Min Criteria
 Scour Critical 113: 6 Calcs not made

GEOMETRIC DATA

Length Max Span 48: 36.0 ft Structure Length 49: 39.0 ft
 Curb/Sdwk Width L 50A: 0.0 ft Curb/Sidewalk Width R 50B: 0.0 ft
 Width Curb to Curb 51: 23.4 ft Width Out to Out 52: 24.0 ft
 Approach Roadway Width 32: 25.0 ft Median 33: 0 No median (w/ shoulders)
 Deck Area: 936.5 sq. ft
 Skew 34: 0.00 ° Structure Flared 35: 0 No flare
 Minimum Vertical Clearance Over Bridge 53: 328.1 ft
 Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR
 Minimum Vertical Underclearance 54B: 0.0 ft
 Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR
 Minimum Lateral Underclearance R 55: 99.9 ft
 Minimum Lateral Underclearance L 56: 0.0 ft

PROPOSED IMPROVEMENTS

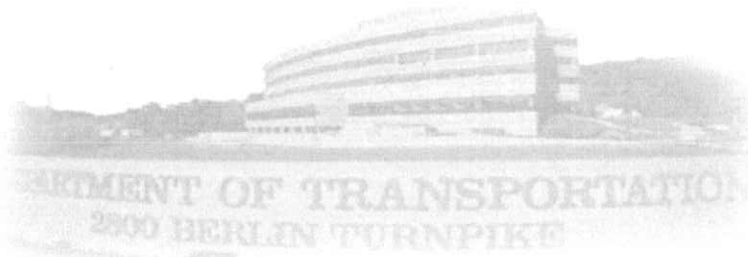
Bridge Cost 94: \$ 1,000 Type of Work 75: 38 Other Structural
 Roadway Cost 95: \$ 1,000 Length of Improvement 76: 20.0 ft
 Total Cost 96: \$ 2,000 Future ADT 114: 600
 Year of Cost Estimate 97: 1999 Year of Future ADT 115: 2020

NAVIGATION DATA

Navigation Control 38: 0 Permit Not Required
 Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft
 Pier Protection 111: Unknown (NBI) Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

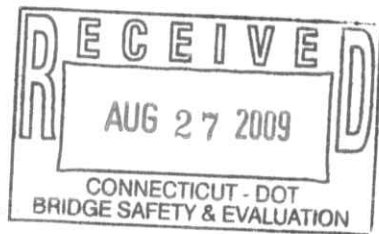
Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
UNIT0	40/3	P Conc Slab/AC Ovly	(SF)	936	100 %	936	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	104/3	P/S Conc Box Girder	(LF)	312	100 %	312	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	217/3	Other Mtl Abutment	(LF)	49	39 %	19	10 %	5	35 %	17	16 %	8	0 %	0
UNIT0	234/3	R/Conc Cap	(LF)	49	100 %	49	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	310/3	Elastomeric Bearing	(EA)	16	0 %	0	100 %	16	0 %	0	0 %	0	0 %	0
UNIT0	330/3	Metal Rail Uncoated	(LF)	79	0 %	0	100 %	79	0 %	0	0 %	0	0 %	0



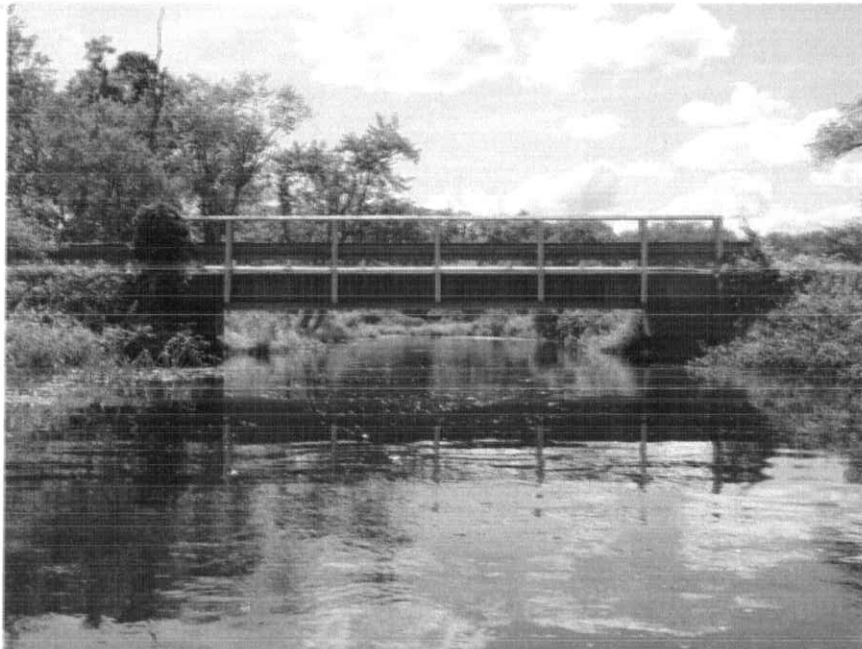
**CONNECTICUT
DEPARTMENT OF TRANSPORTATION**

**STATE PROJECT NO. 170-2729
BRIDGE SAFETY INSPECTION**

**BRIDGE NO. 04433
NORTH SHORE ROAD
OVER
BUTTERNUT BROOK
LITCHFIELD, CONNECTICUT**



**IN-DEPTH INSPECTION
AUGUST 6, 2009**



Prepared By:
**COLLINS
ENGINEERS INC.**
101 HAMMER MILL ROAD
ROCKY HILL, CT 06067



Structure No.	04433	Town	LITCHFIELD
Inspection Date	8/6/2009	Inspectors	Collins Engineers

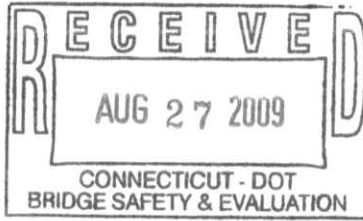
TABLE OF CONTENTS

Loose Forms (not bound in report)

	Number of Sheets Enclosed
Maintenance Memo	<input type="text" value="0"/>
Flagging Memos	<input type="text" value="0"/>
PONTIS Element Data Collection Form	<input type="text" value="1"/>
Plan Sheets	<input type="text" value="0"/>
Already on file <input checked="" type="checkbox"/>	

Bound Report Pages

Title Cover Sheet	<input type="text" value="1"/>
Table of Contents	<input type="text" value="1"/>
Executive Summary	<input type="text" value="2"/>
Field Notes	<input type="text" value="8"/>
Calculations:	
Load Rating Evaluation	<input type="text" value="0"/>
Quantities & Cost Estimate	<input type="text" value="0"/>
Photo Sheets	<input type="text" value="11"/>
Photo Images	<input type="text" value="3"/>



Forms

BRI-13, Photo Log	<input type="text" value="2"/>
BRI-18, Bridge Inspection Form	<input type="text" value="5"/>
BRI-19, Highway Bridge Inventory Form	<input type="text" value="2"/>

Comments:

EXECUTIVE SUMMARY
8/06/2009

Bridge No. 04433 carries North Shore Road over Butternut Brook in Litchfield, Connecticut. This single-span bridge consists of prestressed concrete deck units with a bituminous concrete overlay. It is supported by stone masonry abutments with reinforced concrete caps. The overall length of the bridge is 39 feet with a 23.4-foot curb-to-curb width. It was constructed in 1956. According to information on file with Connecticut Department of Transportation, the Inventory Rating for an AASHTO HS20 loading is 34 tons which is based on judgment.

An in-depth inspection completed in August 2009 found the structure in fair condition (Overall Rating = 5). The deficiencies found and the recommendations for repairs are as follows:

Deck

1. The bituminous overlay has a 2' x 1' x up to 2" deep depression in the bituminous at the north end of the bridge in the southbound travel lane. No repairs at this time.

Superstructure

1. The premolded elastomeric bearing material between the deck units and the cap section of the abutments has squeezed out up to 4" longitudinally. No repairs at this time.
2. The joints between prestressed concrete deck units are open up to 5/8" with missing joint material. There is up to 1/2" vertical misalignment between adjacent deck units likely due to construction. There is evidence of leakage through the joints between the deck units with random areas of light debris in the joints likely due to past high water. No repairs at this time.

Substructure

1. The stone masonry abutment stems have areas of missing mortar with a maximum of 8" penetration between stones. ✓ Near the upstream end of the south abutment, there is 18" long x 10" high x 6" deep stone/mortar void. ✓ Repoint the mortar joints at the north and south abutments (\pm 50 SF) and repair void in the south abutment stem (< 1 CF).
2. At the downstream (west) end of the north and south abutment stems, the stems have failed with voids due to missing stones and loss of the unconsolidated fill material behind the stem. ✓ At the north abutment, the void is 4' long x 2' high and extends up to 13" underneath the concrete cap section of the abutment. At the south abutment, the void is 3'-8" long x 2' high and extends up to 30" underneath the abutment cap section. Previous bituminous patch material from the south approach pavement above the void has sloughed through the void. Stabilize the fill behind the abutment stems and repair voids.

Channel

1. There is some rip rap within the voids in the abutment stems in a past attempt to stabilize the fill behind the abutment stems. A majority of the rip rap at the south abutment has washed out. See Substructure Item No. 2 above.

Approach Condition

1. The approach guiderails on timber posts are carried across the bridge attached to the bridge railing. The leading ends of the guide rail are buried. The timber posts are tipped/loose with moderate splits. The guiderail has terminal trailing ends which are damaged due to collision. Replace the approach guiderails (100 LF).
2. The approach pavements have minor raveling and random sealed cracks. At the south approach at the abutment, there is a slightly settled 5' x 2' bituminous patch to repair the pavement that has sloughed through the void in the abutment stem beneath. No repairs at this time.

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

5/30

BRIDGE #: 04433

INSPECTION DATE: 8/6/2009

INSPECTION TYPE: Indepth **PREVIOUS INSPECTION DATE:** 3/21/2007 **SNOOPER REQUIRED:** No

INSPECTION PERFORMED BY: Collins Engineers **SNOOPER USED:** No

TOWN: LITCHFIELD **FEATURE CARRIED:** NORTH SHORE ROAD **YEAR BUILT:** 1956

LOCATION: .5 MILE NORTH OF RTE.202 **FEATURE INTERSECTED:** BUTTERNUT BROOK **YEAR REBUILT:** 0

MAIN MATERIAL: Prestressed concrete **MAIN DESIGN:** Slab

INSPECTION VISITS:

Inspection Date: 4/13/2005 **Start Time:** 2:00 PM
Temperature: 80 °F **End Time:** 4:00 PM

INSPECTORS:

Inspector: C. Perry **Task:** Team Leader
Inspector: D. Chester **Task:** Assistant Team Leader

58. DECK

Deck is integral with the superstructure (prestressed deck units), therefore the rating shall be rated based on the condition of the riding surface. Bituminous overlay with waterproofing membrane.

OVERALL RATING 7

RATING

OVERLAY	7	The bituminous overlay has minor raveling throughout. Near the north end of the bridge in the southbound travel lane, there is a 2' x 1' x up to 2" deep depression on the bituminous. At the bridge ends, there are full width sealed cracks up to 1/4" wide. See sheet 10 & photo 6.
DECK STR. CONDITION	7	Deck is integral with the superstructure, rating based on the condition of the "Girders".
CURBS	N	
MEDIAN	N	
SIDEWALKS	N	
PARAPET	N	
RAILING	6	Steel bridge railing with I-beam posts and top rail angle which is bolted into the concrete bridge fascia. The approach guiderails are carried across the bridge and attached to the bridge railings. The bridge railings typically have light to moderate rust on the posts and hardware at the post connection to the bridge fascia. At the west side of the bridge, there are a few bent/damaged bridge rail posts due to collision damage. The guiderail in front of the bridge rail has some minor scrapes. The guiderail has terminal trailing ends which are damaged due to collision. See sheet 10 and photos 7 & 8.
PAIN'T	N	
FENCE	N	
DRAINS	N	
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	N	No deck joints in place, rating revised to "N".

59. SUPERSTRUCTURE

Eight prestressed concrete deck units

OVERALL RATING 7

RATING

BEARING DEVICES	7	Premolded elastomeric bearing material between the deck units and the cap section of the abutments. The bearing material has squeezed out up to 4" longitudinally. See sheet 12 and photos 11 & 12.
STRINGERS	7	The prestressed concrete deck units are generally in good condition. The joints between deck units are open between 1/4" and 5/8" with missing joint material. There is up to 1/2" vertical misalignment between adjacent deck units likely due to construction. There is evidence of leakage through the joints between the deck units with random areas of light debris in the joints likely due to past high water. See photos 9 & 10. The reinforced concrete fascias have light scaling and edge spalling at the interface of the steel

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

6/30

BRIDGE #: 04433

INSPECTION DATE: 8/6/2009

59. SUPERSTRUCTURE	Eight prestressed concrete deck units	OVERALL RATING 7
	angles dams up to 2" wide x 1/2" deep for up to 50% of the length of the bridge. See photo 8. Also, see sheets 11 & 12.	
GIRDERS	N	
FLOOR BEAMS	N	
TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	N	
RUST	N	
MACHINERY MOV SPAN	N	
RIVETS & BOLTS	N	
WELDS & CRACKS	N	
TIMBER DECAY	N	
CONCRETE CRACKING	7	See "Girders" item above.
COLLISION DAMAGE	8	
MEMBER ALIGNMENT	7	There is up to 1/2" vertical misalignment between adjacent deck units likely due to construction.
DEFLECT. UNDER LOAD	N	Normal.
VIBR. UNDER LOAD	N	Normal.
STAND PIPES	N	
BARREL LADDERS	N	
ARE BARREL LADDERS OSHA COMPLIANT?		NA

60. SUBSTRUCTURE	Stone masonry abutment stems with reinforced concrete cap sections.	OVERALL RATING 5
	RATING	
ABUTMENTS-STEM	5	<p>The reinforced concrete cap sections of the abutments have areas of light scaling and areas of minor honeycombing.</p> <p>North abutment: The stone masonry stem has approximately 50% missing mortar overall, mostly at the upstream and downstream ends. At the upstream end (12' length), there is 90% missing mortar with up to 8" penetration between stones. At the downstream end (6' length), there is approximately 50% missing mortar with up to 6" penetration between stones. The remainder of the stem has less than 5% missing mortar with up to 3" penetration. At the downstream (west) end, the stem has failed with a 4' long x 2' high void due to missing stones and loss of the unconsolidated fill material behind the stem. The total penetration underneath the cap section is 13". See photos 13, 15 & 16.</p> <p>South abutment: The masonry stem typically has less than 5% missing mortar above the water surface with up to 3" penetration between stones. From the water surface to the channel bottom, there is approximately 50% missing mortar with penetrations up to 6" between stones. At the upstream quarter point (6' from the end of the stem), there is a 18" long x 10" high x 6" deep stone/mortar void. At the downstream (west) end, the stem has failed with a 3'-8" long x 2' high void due to missing stone work and loss of the unconsolidated fill material behind the stem. The void extends up to 30" underneath the cap section. Previous bituminous patch material from the approach pavement above the void has sloughed through the void. See photos 14, 17 & 18. Also, see sheets 13 & 14.</p>
ABUTMENTS-BACKWALL	N	Not visible.

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

7/30

BRIDGE #: 04433

INSPECTION DATE: 8/6/2009

60. SUBSTRUCTURE	Stone masonry abutment stems with reinforced concrete cap sections.	OVERALL RATING 5
ABUTMENTS-FOOTINGS	N Not visible.	
ABUT.-SETTLEMENT	8	
ABUTMENTS-WINGWALLS	N	
PIERS/BENTS-CAPS	N	
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	N	
PIERS/BENTS-FOOTINGS	N	
PIERS/BENTS-SETTLEMENT	N	
EROSION-SCOUR	5 The voids in the stone masonry stems of the north and south abutments at the downstream (west) ends has caused to the unconsolidated fill material behind the stems to slough through. At the south abutment, bituminous patch material from the approach pavement has sloughed through the void. See photos 16-18.	
CONCRETE CRACK-SPALL	5 See above items.	
STEEL CORROSION	N	
PAIN	N	
TIMBER DECAY	N	
COLLISION DAMAGE	N	
DEBRIS	N	

61. CHANNEL PROTECTION		OVERALL RATING 7
	RATING	
CHANNEL SCOUR	7 The channel bottom consists of silty sand with approximately 50% rocks and cobbles. The maximum penetration into the channel bottom is 6". There is no significant scour to the channel noted during this inspection. See sheets 16 & 17 and photos 21 & 22.	
EMBANKMENT EROSION	8 The channel banks appear to be stable.	
DEBRIS	7 There is scattered light accumulation of timber debris in the channel near the upstream end.	
VEGETATION	7 The channel banks are well vegetated with aquatic plants.	
CHANNEL CHANGE	8 The channel orientation is relatively straight with no notable change since the previous inspection. See photos 21 & 22.	
FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	6 There is some rip rap within the voids in the abutment stems in a past attempt to stabilize the fill behind the abutment stems. A majority of the rip rap at the south abutment has washed out.	

62. CULVERTS & RETAINING WALL **OVERALL RATING** N

APPROACH CONDITION		OVERALL RATING 6
	RATING	
APPROACH SLAB	N	
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	6 The approach guiderails on timber posts are carried across the bridge attached to the bridge railing. The leading ends of the guide rail are buried. The timber posts are tipped/loose with moderate splits. The guiderail has terminal trailing ends which are damaged due to collision.	

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

8/30

BRIDGE #: 04433

INSPECTION DATE:

8/6/2009

APPROACH CONDITION

OVERALL RATING 6

The guiderail on the bridge has areas of minor scrapes. See sheet 10.

APPROACH PAVEMENT 6

The approach pavements have minor raveling and random sealed cracks. At the south approach at the abutment, there is a slightly settled 5' x 2' bituminous patch to repair the pavement that has sloughed through the void in the abutment stem beneath. See sheet 10 and photo 19.

APPROACH EMBANKMENT 6

There is minor erosion along the approach embankments. See photo 20.

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS 0

TRANSITIONS 0

APPROACH GUARDRAILS 0

APPR. GUARDRAIL ENDS 0

LOAD POSTING

SINGLE UNIT (TONS)

HS (TONS)

4 AXLE (TONS)

3S2 (TONS)

ADVANCE WARNING Y/N N

LEGIBILITY N

VISIBILITY/LOCATION N

MISC.

MIN VERT. UNDERCLR. ' "

POSTED CLR. UNDER BRIDGE ' "

POSTED CLR. ON BRIDGE ' "

ADVANCE WARNING (Y/N) No

SPEED LIMIT (IF ANY) MPH

CHARACTER OF TRAFFIC

Light local traffic.

ADDITIONAL NOTES

There is no bridge ID located on the bridge.
The bridge is logged from south to north with deck units labeled from west to east which is consistent with the previous report.
Waders and wetsuits were used to complete the inspection.

ADDITIONAL COMMENTS:

8A/30

Connecticut Department of Transportation Bridge Inspection Report BRI-18

BRIDGE #: **04433**

INSPECTION DATE: **8/6/2009**

Inspectors' Signatures:

1) [Signature] Date: 08/25/09

2) Donald White Date: 08/26/09

3) _____ Date: --/--/--

4) _____ Date: --/--/--

P.E. Signature: [Signature] Date: 08/25/09
P.E.#: 19023

Reviewed by: Leo Cain Jr. CDOT Date: 7/15/09

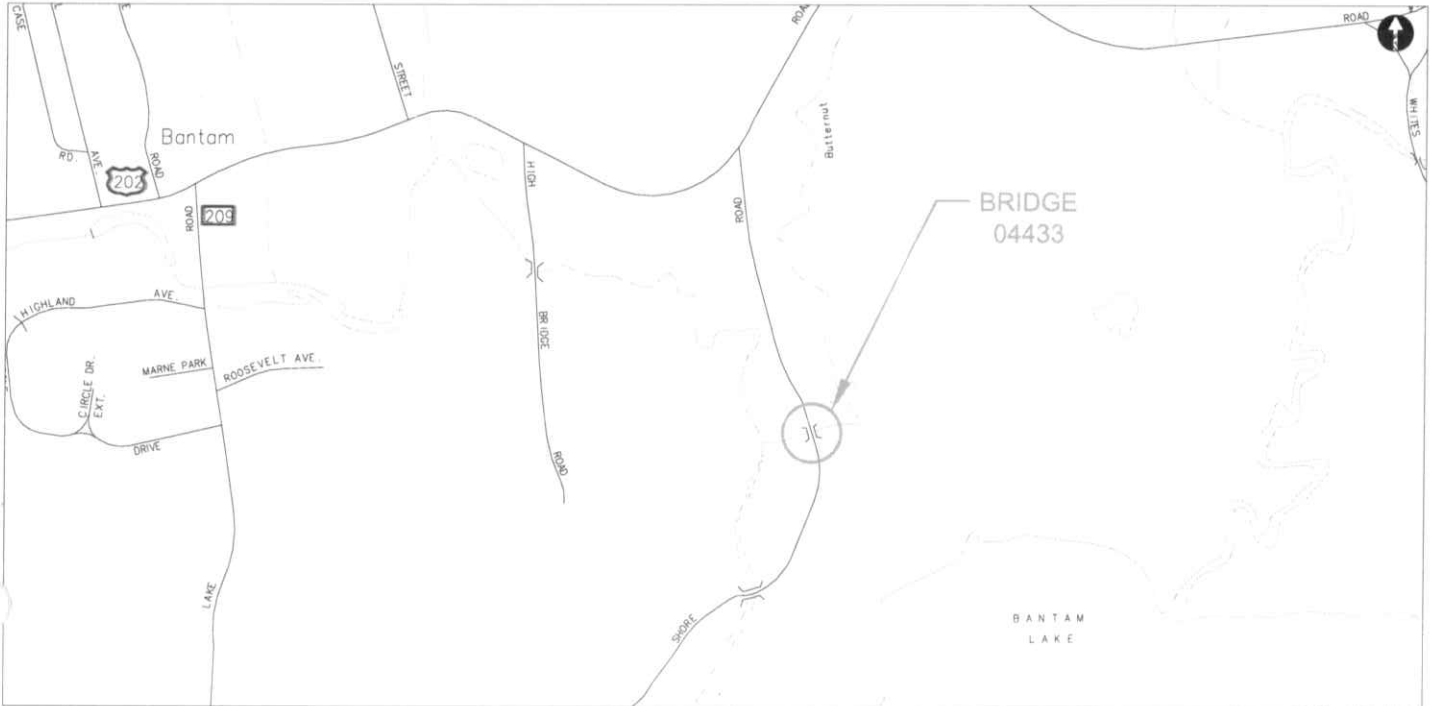
9/30



COLLINS ENGINEERS INC.

LITCHFIELD, CT
BRIDGE 04433

LOCATION MAP



Source: CTDOT TRU MAPS

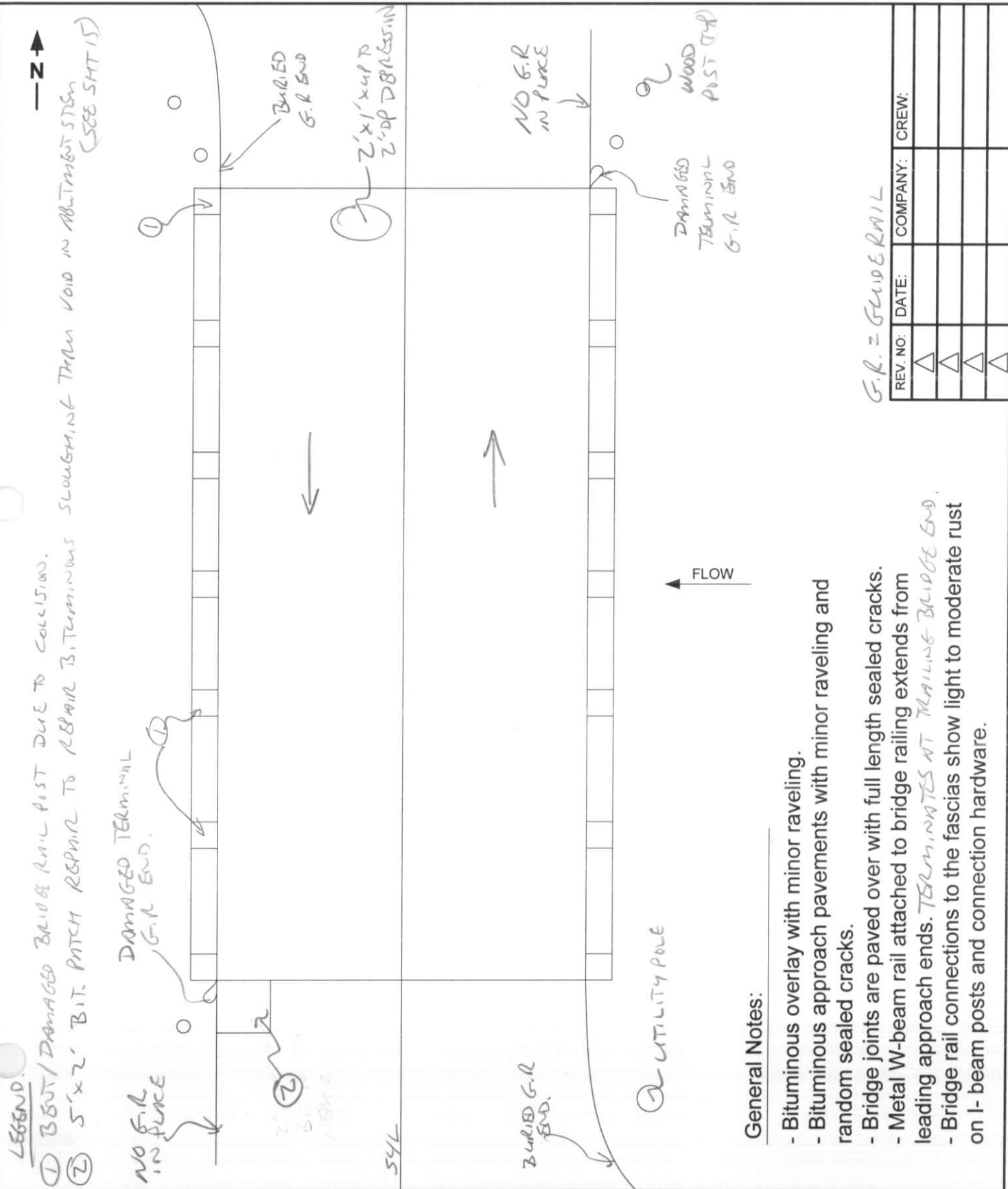
AERIAL VIEW



Source: BING MAPS



DESCRIPTION: Top of Deck





COLLINS
ENGINEERS INC.

BRIDGE NO: 04433

DATE: 8 / 6 / 2009

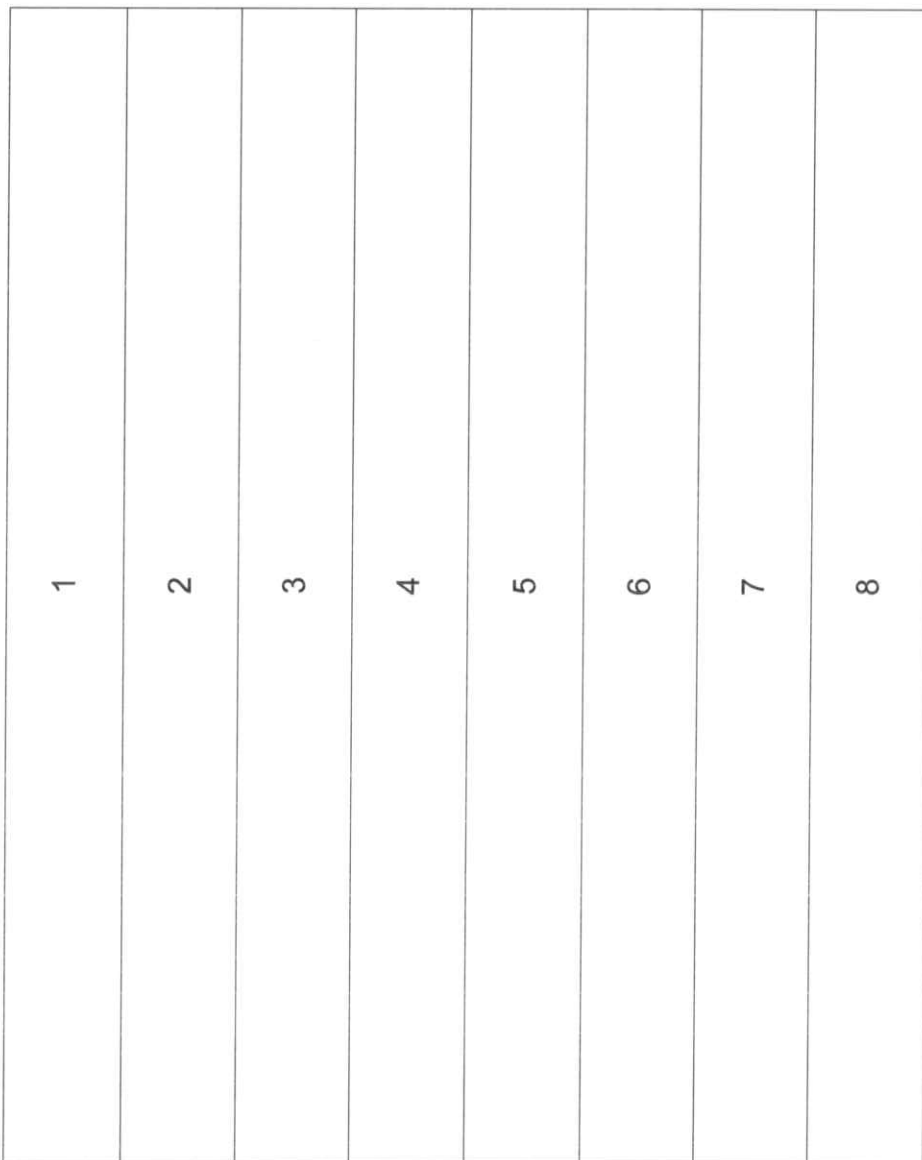
CREW: CP, DC

SHEET 11 of 36

DESCRIPTION: Framing Plan



North Abutment



South Abutment

REV. NO:	DATE:	COMPANY:	CREW:
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General Notes:

See sheet 12 for superstructure general notes.



DESCRIPTION: Superstructure General Notes

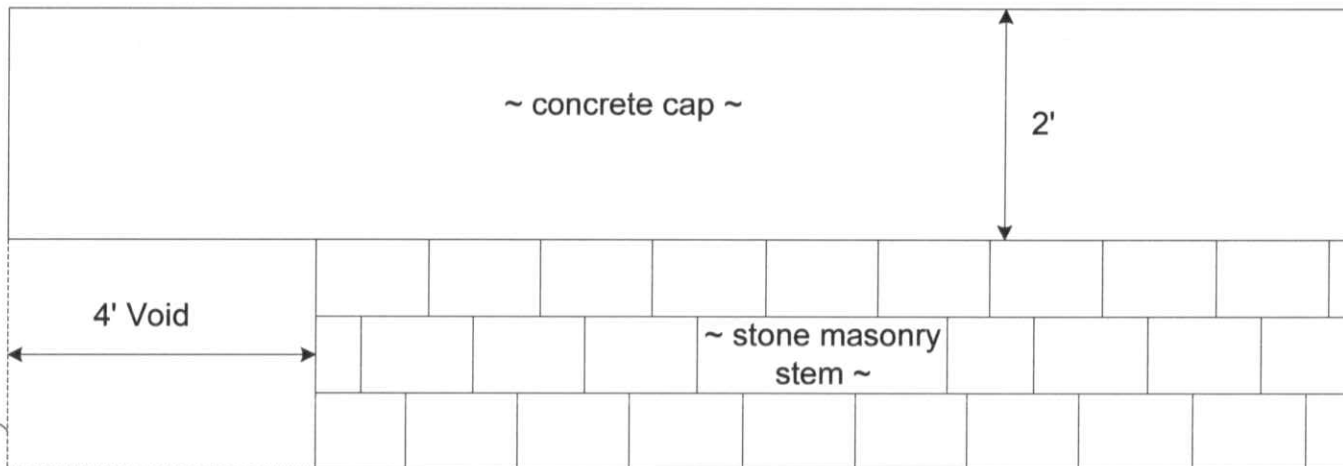
General Notes – Superstructure

1. Superstructure consists of eight prestressed deck units.
2. There is up to 1/2" vertical misalignment between deck units which appears to be construction related.
3. Joints between the deck units are open between 1/4" to 5/8". All joint material is missing between the deck units.
4. There is evidence of leakage between the deck units.
5. There are random areas of light debris in the joints between the deck units likely due to past high water.
6. The elastomeric bearing material between the deck units and the abutment cap section. The material is squeezed out up to 4" longitudinally. There are random gaps up to 1/16" between deck units and the abutment cap section.
8. The interface between the deck units and the reinforced concrete fascia appear to be in good condition.
9. At the reinforced concrete fascias, there is light scaling throughout with edge spalling at the interface with the steel curbing material, up to 2" x 1/2" deep for up to 50% of the span length.

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DESCRIPTION: North Abutment



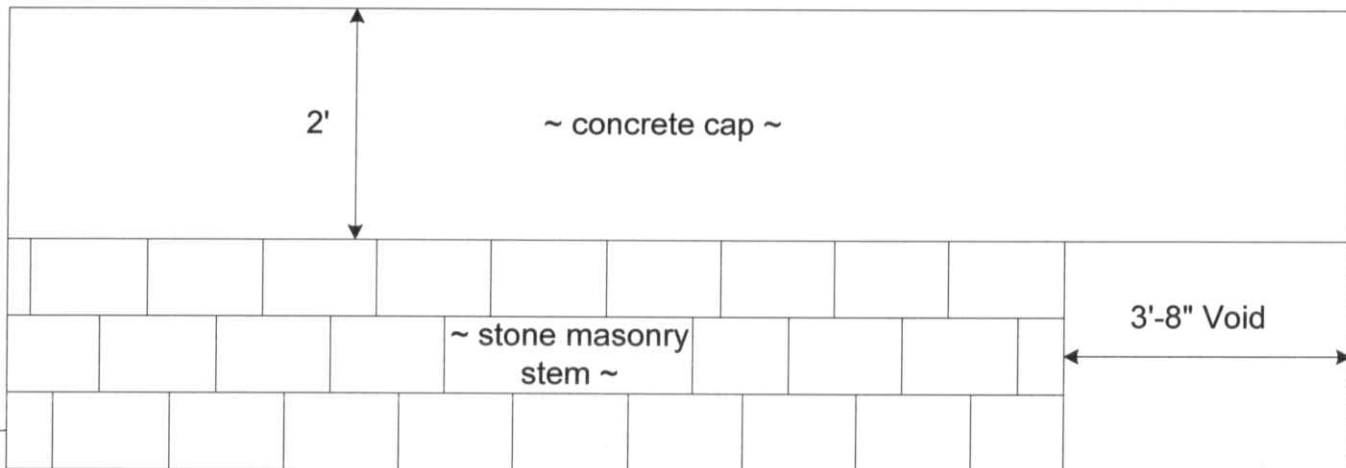
Notes:

- 1) The concrete cap has areas of light scaling and minor honeycombing.
- 2) The stone masonry abutment stem has 50% of the overall mortar missing, heaviest at the upstream and downstream ends.
 - a) The downstream end (west) has a 4' long x 2' high void due to missing stones and fill material. The penetration under the cap section is up to 13".
 - b) The upstream half (12' long +/-) of the stem has 90% missing mortar and penetrations up to 8" deep between stones.
 - c) From the midpoint of the stem to +/-6' from the downstream end the mortar is in good condition with less than 5% missing (up to 3" penetration between stones).
 - d) The downstream end (6' long +/-) has up to 50% missing mortar with up to 6" penetration between stones.
 - e) The abutment footing is not visible.

REV. NO:	DATE:	COMPANY:	CREW:
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DESCRIPTION: South Abutment



Notes:

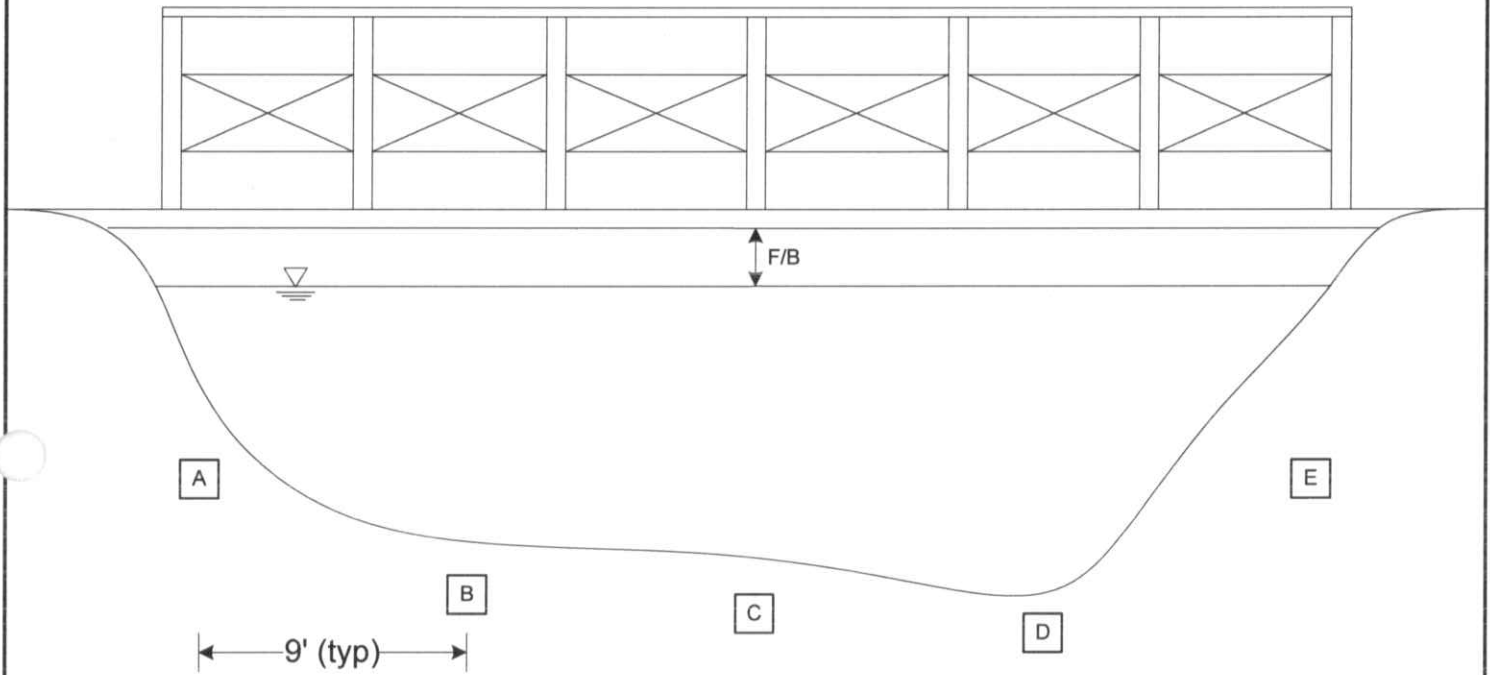
- 1) The concrete cap has areas of light scaling and minor honeycombing.
- 2) The stone masonry abutment stem has areas of mortar missing mostly below the water surface.
 - a) The downstream end (west) has a 3'-8" long x 2' high area void due to missing stone and fill material. The penetration under the cap section is up to 30". The bituminous patch in the approach pavement above this area has sloughed through the void below.
 - b) At the upstream quarter (+/- 6' from end) of the stem has a stone/mortar void measuring 18" long x 10" high x 6" deep.
 - c) Mortar from the waterline up is in good condition with less than 5% missing mortar (up to 3" maximum penetration between stones).
 - d) From the waterline down to the channel bottom, 50% of the mortar is missing with penetrations up to 6" deep between the stones.
 - e) The footing is not visible.

REV. NO:	DATE:	COMPANY:	CREW:
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DESCRIPTION: Channel Droplines at Upstream End (East)

East Elevation



Date	Water Depths					Freeboard
	A	B	C	D	E	
8/6/09	1'-0"	3'-11"	3'-11"	4'-10"	1'-3"	3'-8"

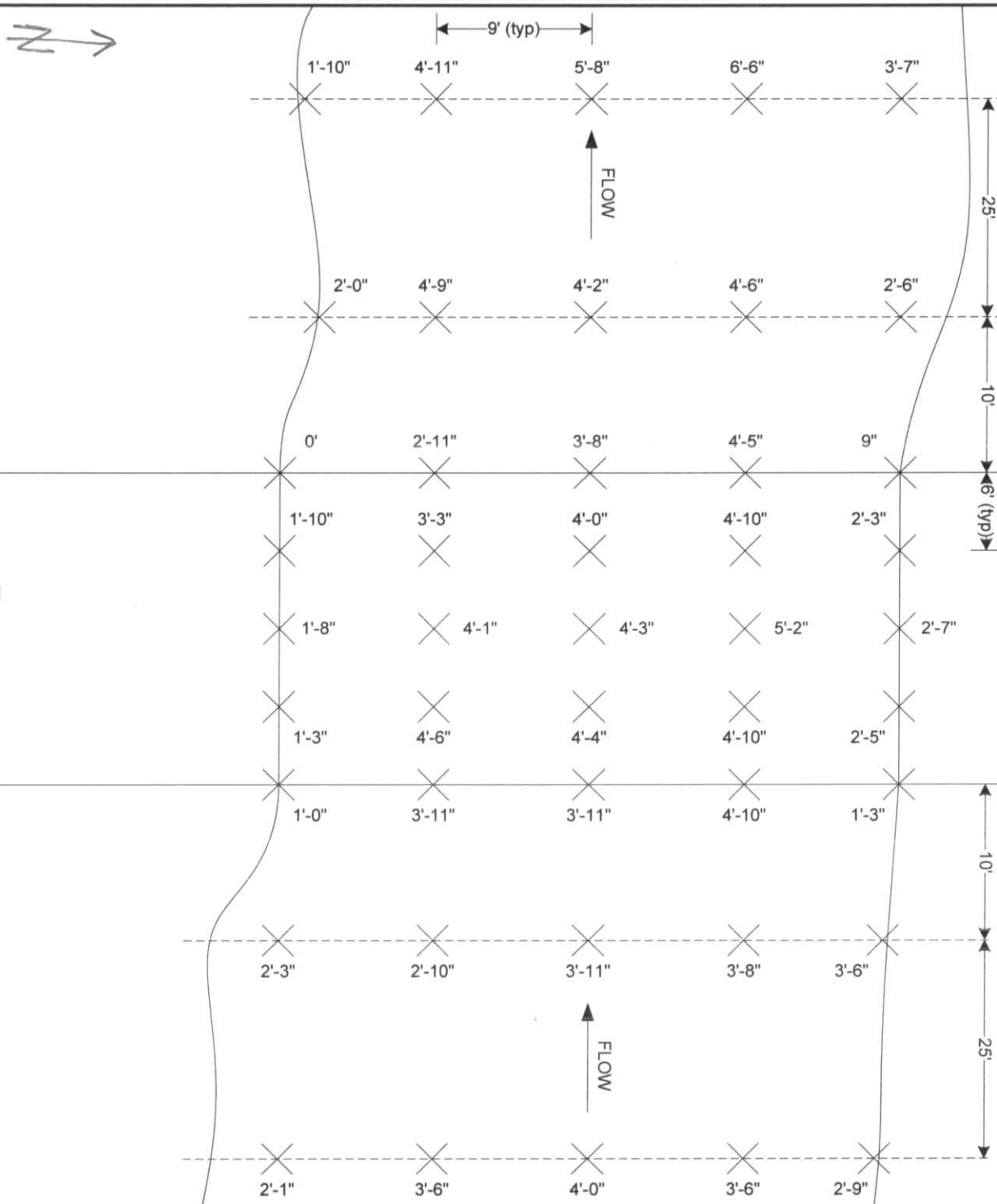
Notes:

- 1) Datum elevation 0.0' taken from midspan at upstream fascia.
- 2) Water surface elevation is 3'-8" (freeboard). All channel measurements are from water surface to channel bottom.

REV. NO:	DATE:	COMPANY:	CREW:
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DESCRIPTION: Channel Diagram and Soundings


Notes:

- 1) Datum elevation 0.0' taken from midspan at upstream fascia.
- 2) Water surface elevation is 3'-8" (freeboard). All channel measurements are from water surface to channel bottom.
- 3) Channel bottom is silty sand with 50% small rocks and cobbles. Penetrations into the channel bottom are up to 6".
- 4) Embankments are heavily vegetated with aquatic grass.

Bridge No.	04433	Inspected by:	C. Perry
Town:	Litchfield	Inspected by:	D. Chester
Feature Carried:	North Shore Road	Date Inspected:	08/06/2009
Feature Crossed:	Butternut Brook	Project No.:	170-2729

04433

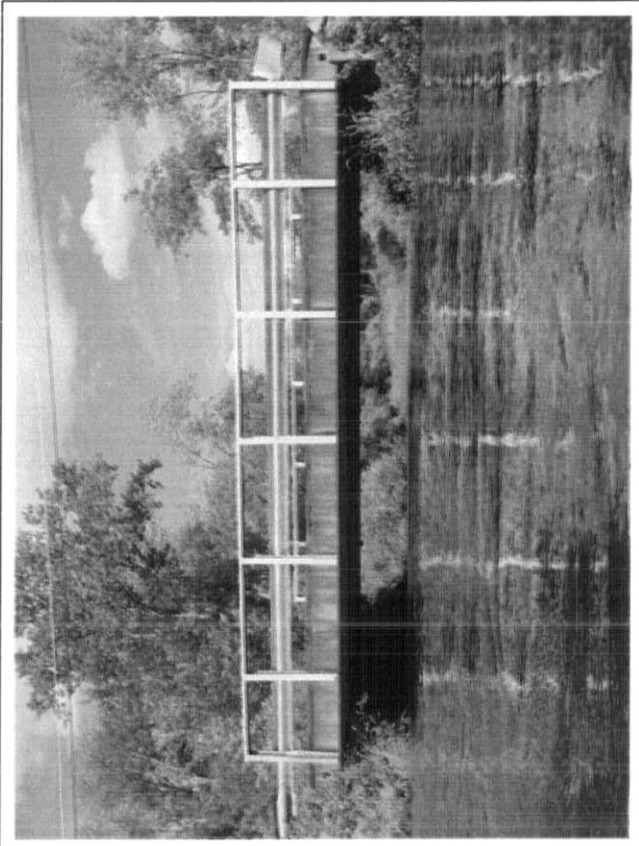


Photo # 2: West elevation

Photo # 1: Bridge ID Number

Note: No Bridge ID located on structure.

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Feature Crossed:	Butternut Brook	Project No.:	170-2729

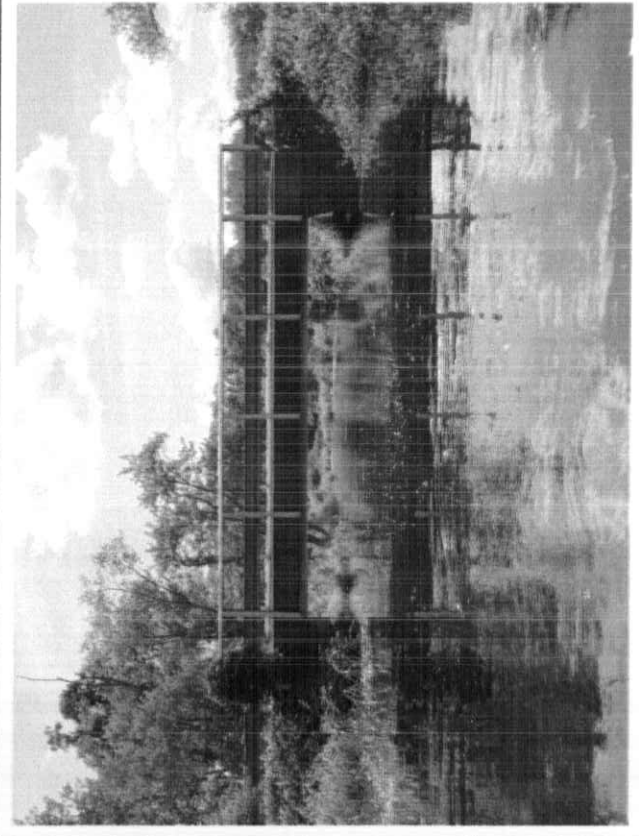


Photo # 3: East elevation

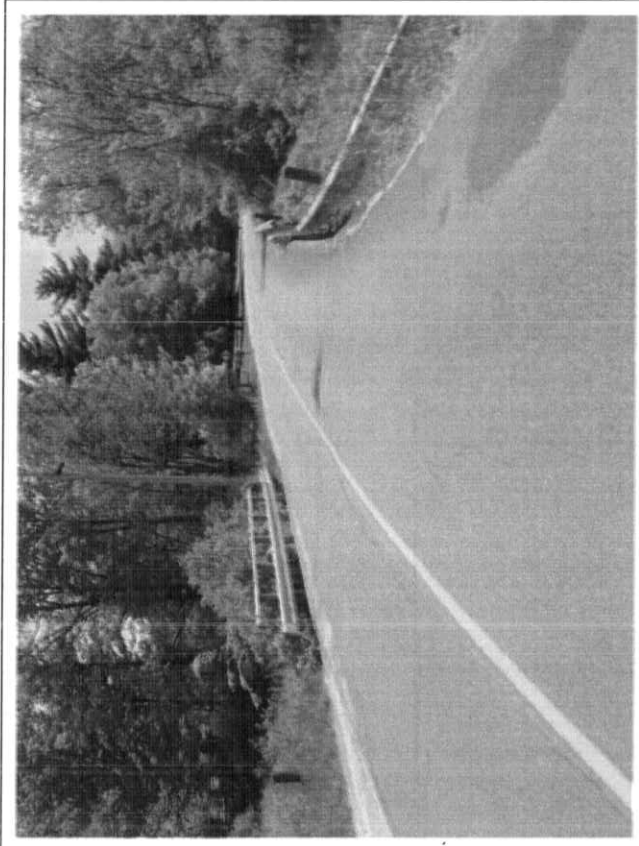


Photo # 4: Bridge from north approach

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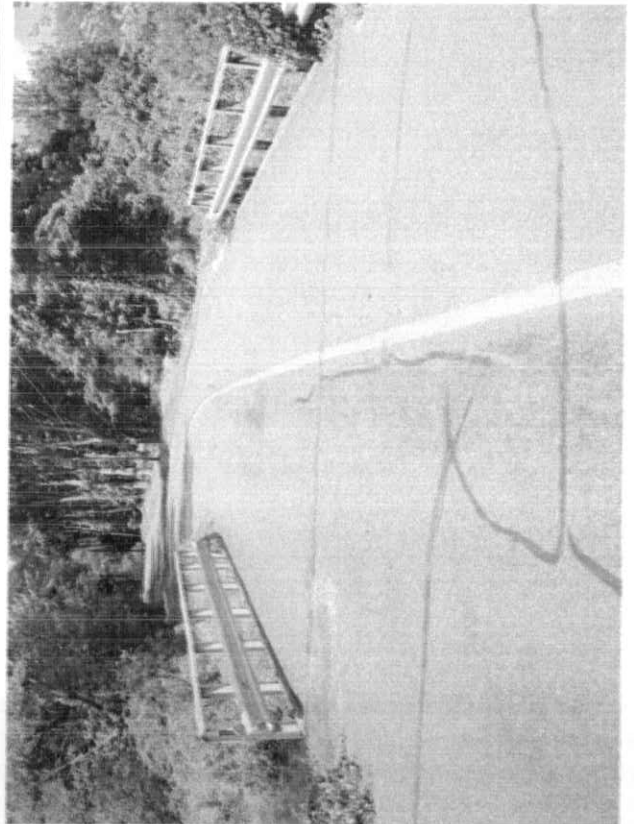


Photo # 5: Bridge from south approach

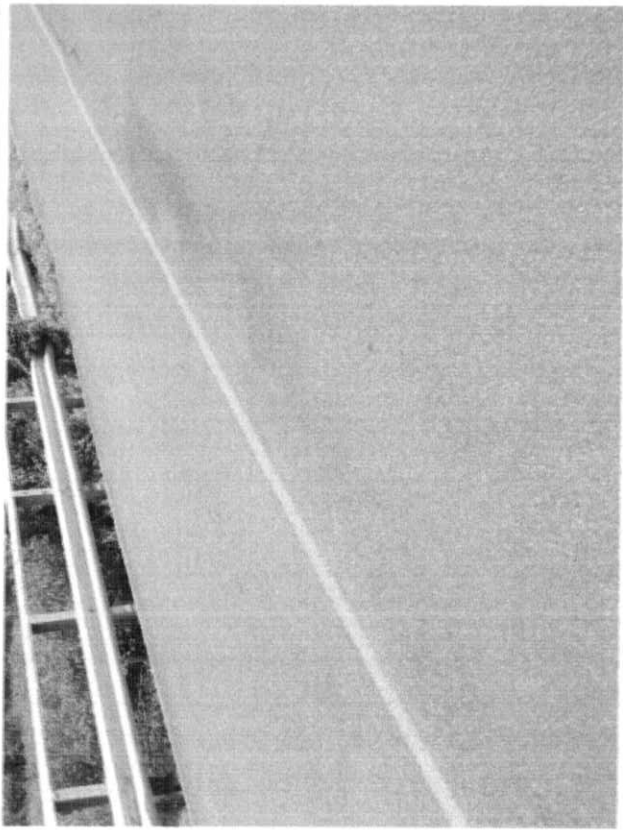


Photo # 6: Bituminous concrete overlay

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Photo # 7: Trailing edge bridge guide rail with terminal end (southwest corner shown)



Photo # 8: Condition of west fascia concrete with edge spalling

Note: light to moderate rust on the bridge rail post connections to the fascia

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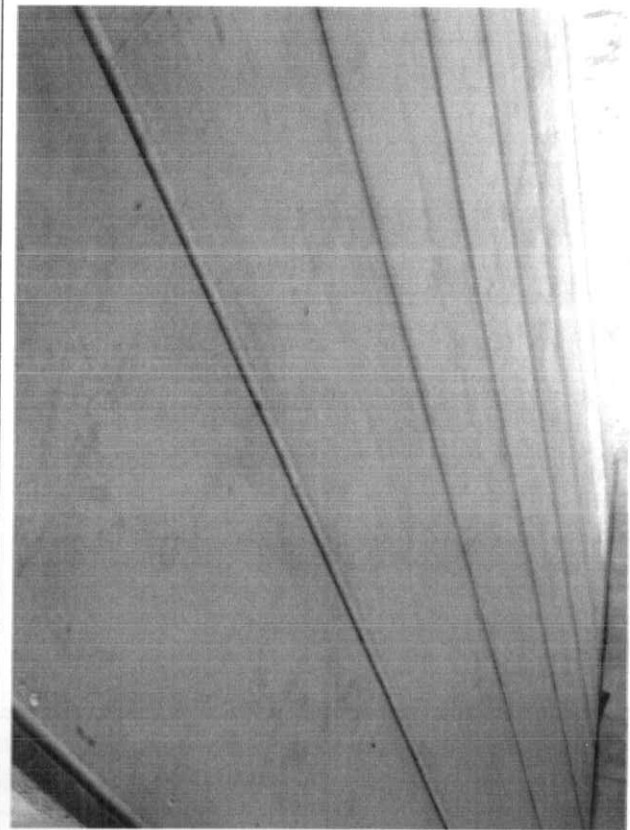


Photo # 9: Prestressed concrete deck unit superstructure

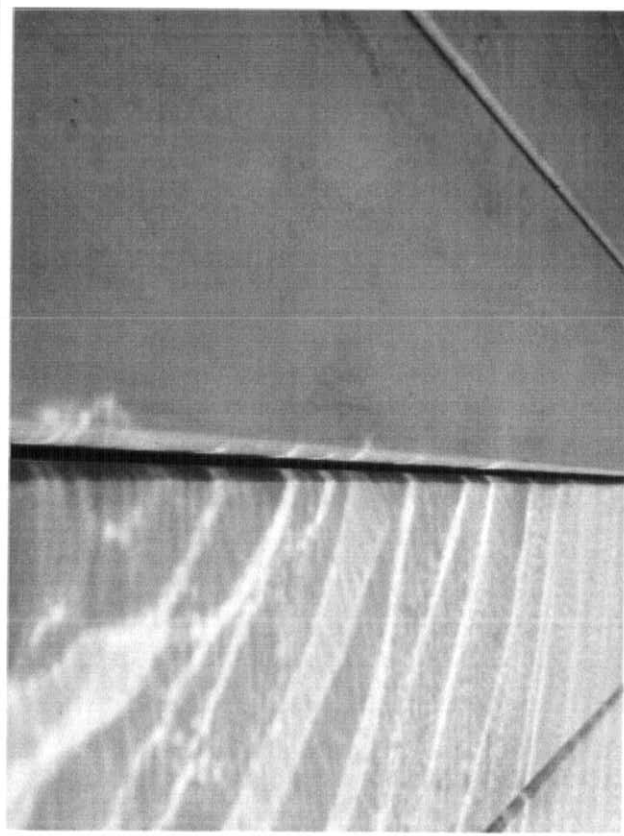


Photo # 10: Joints between deck units open up to 5/8" with missing joint material

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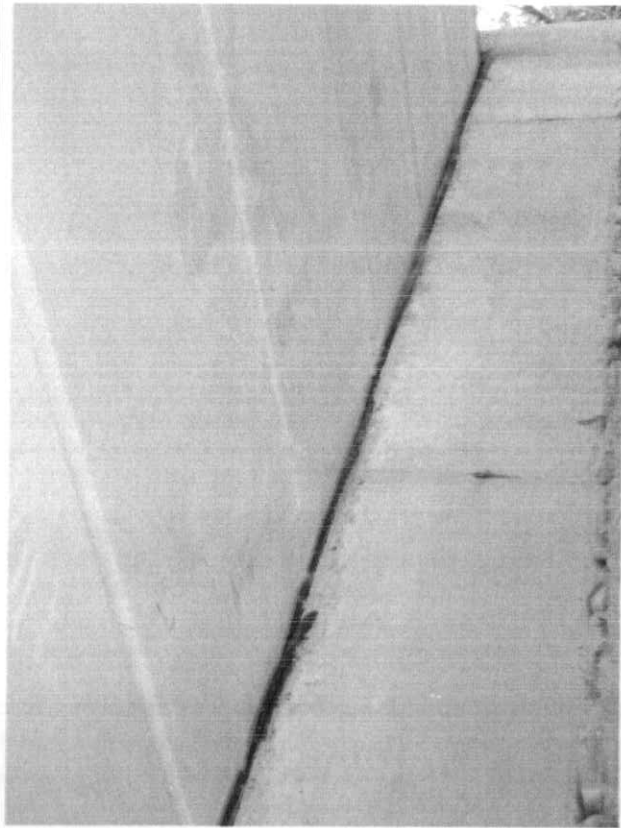


Photo # 11: Bearing material between deck units and the north abutment cap squeezing out

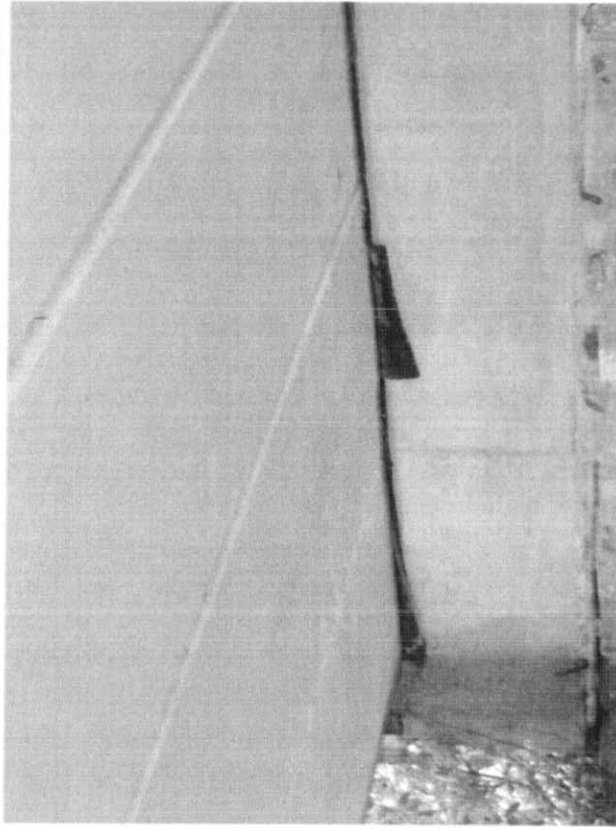


Photo # 12: Bearing material between deck units and the south abutment cap squeezing out

Bridge No.	04433	Inspected by:	C. Perry
Town:	Litchfield	Inspected by:	D. Chester
Feature Carried:	North Shore Road	Date Inspected:	08/06/2009
Feature Crossed:	Butternut Brook	Project No.:	170-2729

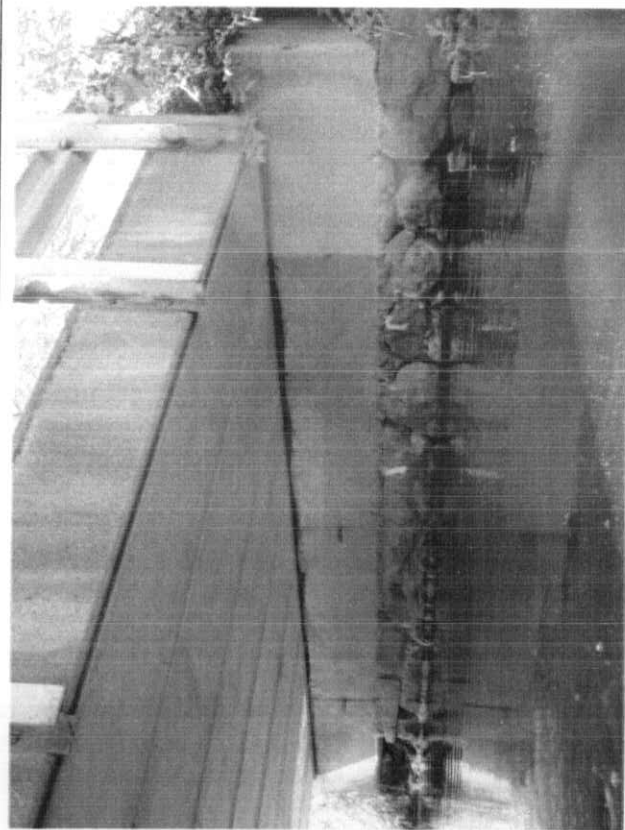


Photo # 13: North abutment elevation



Photo # 14: South abutment elevation

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Feature Carried:	North Shore Road	Date Inspected:	08/06/2009
Feature Crossed:	Butternut Brook	Project No.:	170-2729

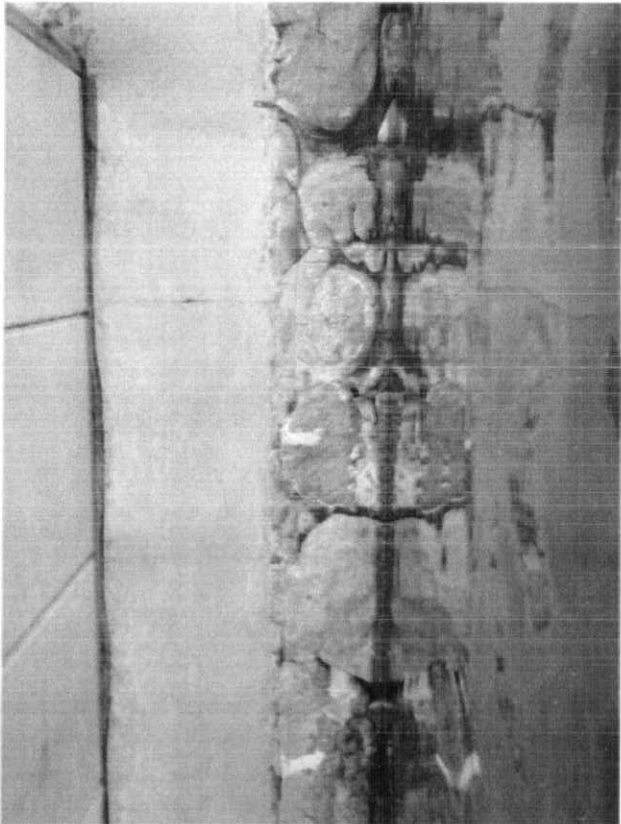


Photo # 15: Upstream (east) end of north abutment stem with stone and mortar voids above the water surface



Photo # 16: Downstream (west) end of north abutment stem with showing 3'-8" long x 2' high void with 30" penetration underneath the cap and unconsolidated fill material ✓

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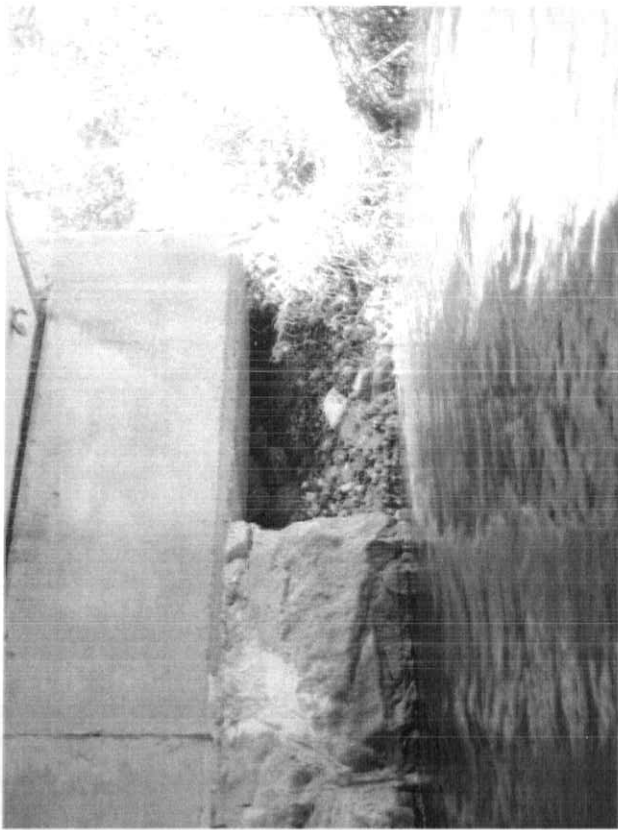


Photo # 17: Downstream (west) end of south abutment stem with 4' long x 2' high void with 13" penetration underneath the cap and unconsolidated fill material ✓

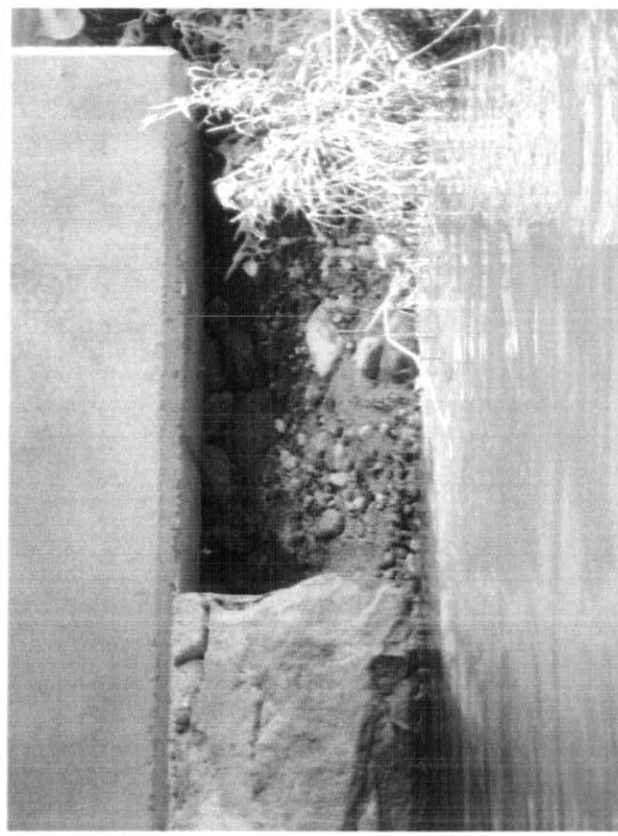


Photo # 18: Close-up of photo 17 showing bituminous patch material that has sloughed through ✓

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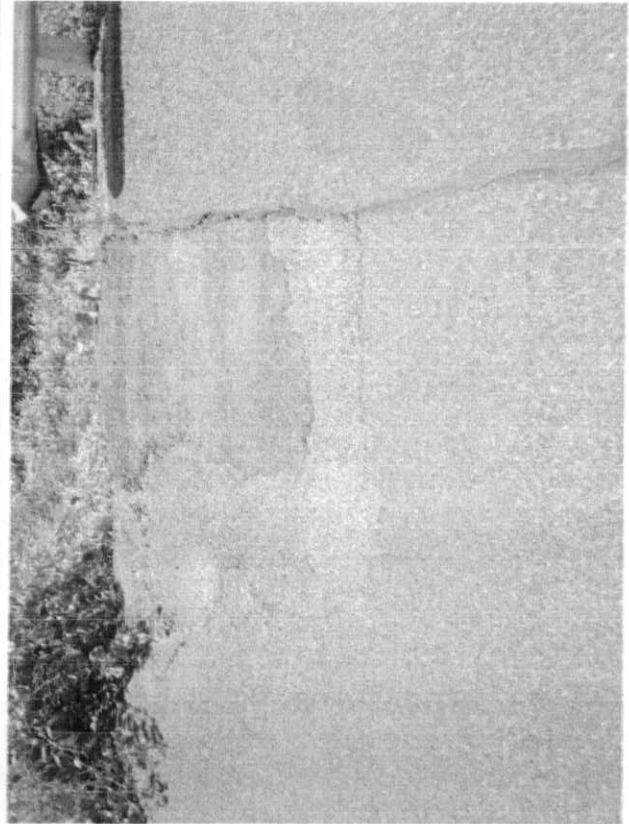


Photo # 19: Bituminous concrete patch repair in approach pavement over void in south abutment stem
Note: evidence of previous patching in same area due to bituminous material sloughing through void

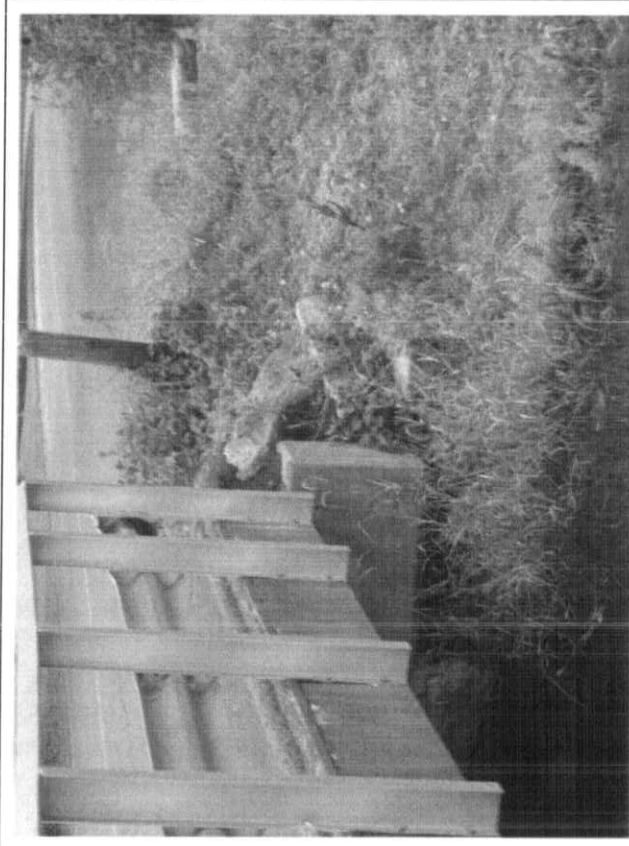


Photo # 20: Southwest approach embankment

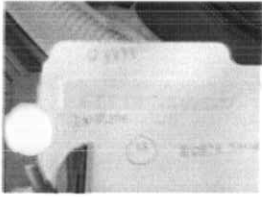
Bridge No.	04433	Inspected by:	C. Perry
Town:	Litchfield	Inspected by:	D. Chester
Feature Carried:	North Shore Road	Date Inspected:	08/06/2009
Feature Crossed:	Butternut Brook	Project No.:	170-2729



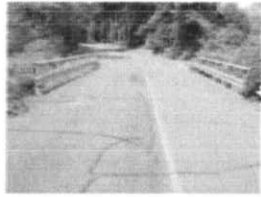
Photo # 21: Looking upstream from the bridge



Photo # 22: Looking downstream from the bridge



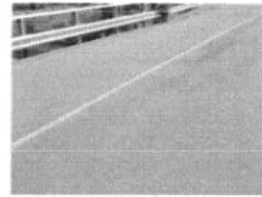
04433 - 01.JPG



04433 - 02.JPG



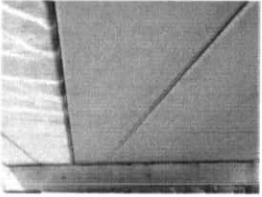
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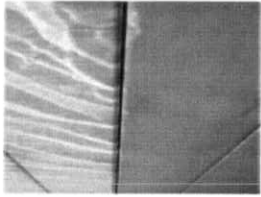
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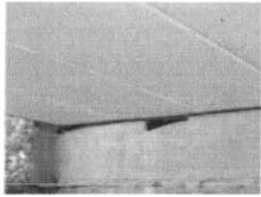
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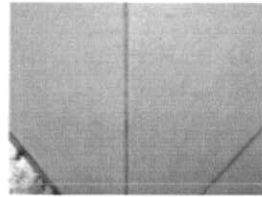
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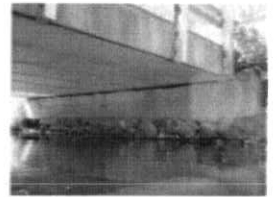
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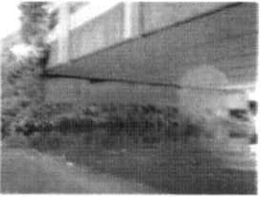
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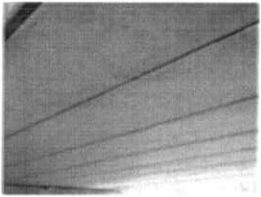
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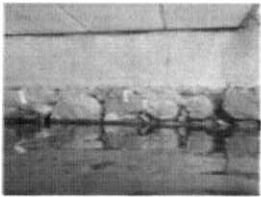
04433 - 10.JPG



04433 - 11.JPG



04433 - 12.JPG



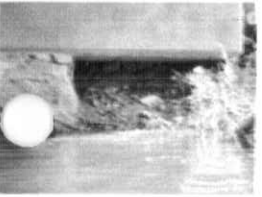
04433 - 13.JPG



04433 - 14.JPG



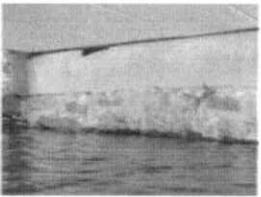
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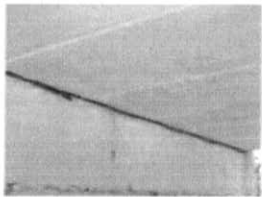
04433 - 16.JPG



04433 - 17.JPG



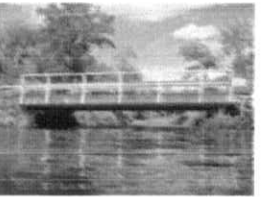
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04433 - 19.JPG



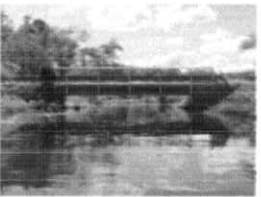
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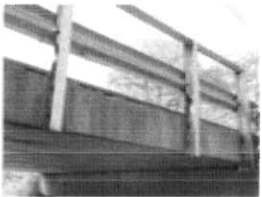
04433 - 21.JPG



04433 - 22.JPG



04433 - 23.JPG



04433 - 24.JPG



04433 - 25.JPG



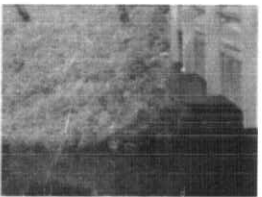
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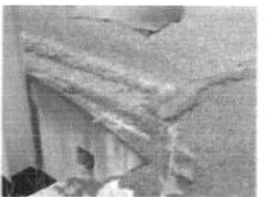
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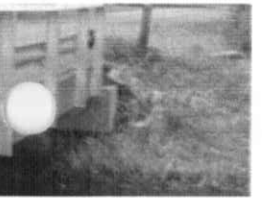
04433 - 28.JPG



04433 - 29.JPG



04433 - 30.JPG



04433 - 31.JPG

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 04433 Date 08/06/09

Town: LITCHFIELD Photographer: DC

Carried / Crossed: NORTH SHORE ROAD/BUTTERNUT BROOK

Film Frame #	Image Description
01	BRIDGE I.D.
02	BRIDGE FROM S. APPROACH
03	BRIDGE FROM N. APPROACH
04	OVERLAY
05	APPROACH PAVT AT SOUTHWEST
06	TYP. UNDERSIDE OF DECK UNITS
07	TYP. MISSING JOINT MATERIAL BETWEEN DECK UNITS
08	S. ABUT BEARING MAT'L SQUEEZING OUT
09	LIGHT DEBRIS AT JOINT BETWEEN DECK UNITS NOTE EVIDENCE OF LEAKAGE
10	N. ABUT. ELEV.
11	S. ABUT ELEV.
12	TYP. UNDERSIDE OF DECK
13	MISSING MORTAR + STONES E. END N. ABUT
14	VOID AT W. END N. ABUTMENT (WASHOUT)
15	do.
16-17	VOID AT W. END S. ABUTMENT
18	CONDITION OF MORTAR AT S. ABUTMENT
19	TYP. BEARING MAT'L SQUEEZING OUT N. ABUT.
20	DOWNSTREAM FROM WATER SURFACE
21	DOWNSTREAM ELEV.
22	LOOKING D/STREAM
23	EAST (UPSTREAM) ELEV
24	TYP. EDGE SPALLING @ EAST FASCIA
25	BENT END TREATMENT S.W. CORNER

