

Federal

CONNECTICUT LOCAL BRIDGE PROGRAM

Fiscal Year 2008

PRELIMINARY APPLICATION

**BAILIWICK ROAD over
MIANUS RIVER**

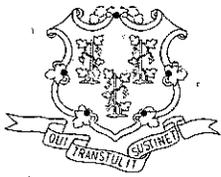
Greenwich, CT

ConnDOT Bridge No. 05491 ✓

Prepared for the
Connecticut Department of Transportation
Federal Local Bridge Program
Newington, Connecticut

Prepared by
Town of Greenwich
Engineering Division
101 Field Point Road
Greenwich, Connecticut

May 2007



CONNECTICUT DEPARTMENT OF TRANSPORTATION

The Honorable Ralph J. Carpenter, Commissioner



PRELIMINARY APPLICATION FOR THE LOCAL BRIDGE PROGRAM

Preliminary application is hereby made by the Town/City/Borough of **Greenwich** for possible inclusion in the Local Bridge Program for Fiscal Year **2008** for the following structure:

Bailiwick Road over Byram River

Bridge Location: **Over Byram River**

Bridge Number: **05491**

Length of Span: **33 feet**

Sufficiency Rating: **32**

Priority Rating: **26.74**

Evaluation & Rating Performed by: X State Forces Others

If Others, Name of Professional Engineer: _____

Connecticut Professional Engineers License Number: _____

Engineering Firm: _____

Engineer's Address: _____

Description of Existing Condition of Structure: *(attach description)*

Description of Project Scope: *(note repair code; attach narrative/preliminary plans & specifications).*

Name of Municipal Official to Contact *(name & title)*: **David P. Thompson, P.E., L.S., Chief Engineer**

Mailing Address: **Town of Greenwich, 101 Field Point Road, Greenwich, CT 06836-2540**

Telephone: **(203) 622-7769**

FAX: **(203) 622-7747**

E-mail: **DThompson@greenwichct.org**

Preliminary Cost Figures:

Preliminary Engineering Fees (Include Breakdown of Fees) <i>(Not to Exceed 15% of Construction Costs)</i>	\$ <u> 315,000 </u>
Rights-of-Way Cost (If Applicable)	\$ <u> N/A </u>
Municipally Owned Utility Relocation Cost	\$ <u> N/A </u>
Estimated Construction Costs (Include Detailed Estimate)	\$ <u> 2,100,000 </u>
Construction Engineering (Inspection, Materials Testing) <i>(Not to Exceed 15% of Construction Cost)</i>	\$ <u> 315,000 </u>
Contingencies <i>(10% of Construction Costs Only)</i>	\$ <u> 210,000 </u>
Total Estimated Project Cost	\$ <u> 2,940,000 </u>

Financial Aid Data:

Federal Reimbursement: *(Limited to qualifying bridges – See Appendix1)*

Total Estimated Project Cost multiplied by 80%:

Project Reimbursement Request \$ 2,352,000

State Local Bridge Project Grant: *(Cannot be combined with Federal reimbursement)*

Allowable Grant Percentage _____% of Total Cost.

Project Grant Request \$ _____

State Local Bridge Project Loan: *(Maximum 50% of total project cost)*

Project Loan Request \$ _____

Schedule: (Anticipated Dates)

Public Hearing Conducted: **Spring 2008**
Design Completion: **Winter 2008/9**
Property Acquisition Completion: **Spring 2009**
Utilities Coordination Completion: **Winter 2008**
Construction Advertising: **Spring 2009**
Supplemental Application Submission: **Spring 2009**
Start of Construction: **Spring 2009**
Completion of Construction: **Fall 2009**

I hereby certify that the above is accurate and true, to the best of my knowledge and belief.

Signature: *AT McCormick II, DPW-Admin. Coordinator*

(Chief Elected Official, Town Manager, or other Officer Duly Authorized)

Date: *18 May, 2007*

Return completed applications to: Mr. Stanley C. Juber

Administrator of the Local Bridge Program
Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, Connecticut 06131-7546

PROJECT SUMMARY

Bridge No. 05491
Bailiwick Road over Byram River
Greenwich, CT

Existing Condition

Refer to the attached Local Bridge Inspection Report dated April 30, 2007

<u>Item No.</u>	<u>Rating</u>
58 – Deck	N
59 – Superstructure	2
60 – Substructure	6
61 – Channel	6
65 – Approach	8
Overall Rating	0

Proposed Condition

The overall rating of 0 was given because the road is currently closed from flood damage that occurred from the April 15, 2007 storm. Because the bridge is hydraulically deficient it caused the Byram River to overtop Bailiwick Road, which then caused areas of the roadway to washout/buckle up to 20" deep. Also the northern stone parapet of the bridge was overturned for the entire length of the bridge. It is recommended that the existing bridge be replaced and not repaired because the repair of the bridge would still leave it hydraulically deficient and susceptible to damage. The proposed work will include the following:

1. Completely remove the existing bridge.
2. Install new 112 – foot Double Span Prestressed Concrete Bridge
3. Widen and deepen existing channel.

The change from the existing 39' x 8' concrete arch to a 112' Double Span Prestressed Concrete Bridge has been proposed to pass the 100-year design flow.

Estimated construction cost for the work is \$2,100,000. The estimated cost is based on an Engineering Report on Flood Control Improvements that was done by Gannett Flemming Corddry and Carpenter, Inc. The total proposed cost was \$516,200 in 1974 and has been inflated by 4% per year to provide an estimated cost of \$2,036,971.

3389

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

SP. 90
203-622-7747

CONNDOT BRIDGE NO. 05491

Bailwick Road
over
Byram River
Greenwich, CT

contacts
~~Scott Smarucci~~
Scott Smarucci
Town of Greenwich

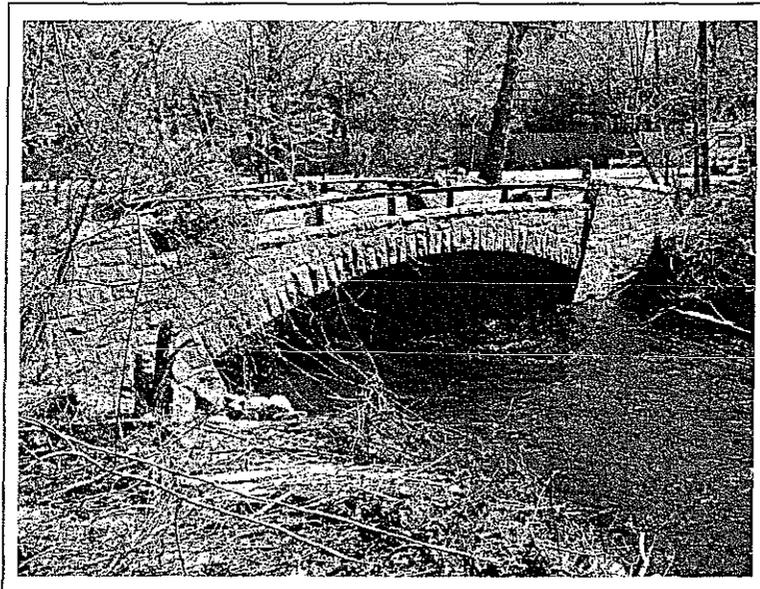
Bridge Type: Concrete Arch

Inspection Type: Routine

1- he is injured
2- road is closed

Inspection Date: April 30, 2007

3- not in program
on



Prepared By
Lichtenstein Consulting Engineers, Inc.
76 Westbury Park Road
Watertown, CT 06795



Lichtenstein
Consulting Engineers

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 05491

Agency ID: 05491

Sufficiency Rating: 96.0

IDENTIFICATION

State 1: 09 Connecticut Struc Num 8: 05491
 Facility Carried 7: BAILWICK ROAD Location 9: RIVERSVILLE & BAILWICK
 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 (NB) % Responsibility: 0
 SHD District 2: 03 County Code 3: Fairfield
 Place Code 4: GREENWICH Mile Post 11: 0.010 mi
 Feature Intersected 6: BYRAM RIVER
 Latitude 16: 41d 02' 00" Longitude 17: 073d 39' 48"
 Border Bridge Code 98: Unknown (P)
 Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months Inspection Date 90: 4/30/2007 Next Inspection: 04/30/2009
 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: 04/30/2007 Next Elem. Insp. Due: 04/30/2009

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 (NB)
 Highway System 104: 0 Not on NHS NBIS Length 112: Long Enough
 Toll Facility 20: 3 On free road Functional Class 26: 19 Urban Local
 Historical Significance 37: 5 Not eligible for NRHP
 Owner 22: 03 03
 Custodian 21: 03 03

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 1
 Main Span Material/Design 43A/B:
 1 Concrete 11 Arch-Deck

Deck Type 107: N N/A (NB)
 Wearing Surface 108A: N N/A (no deck (NB))
 Membrane 108B: N N/A (no deck (NB))
 Deck Protection 108C: N N/A (no deck (NB))

CONDITION

Deck 58: N N/A (NB) Super 59: 2 Critical Sub 60: 6 Satisfactory
 Culvert 62: N N/A (NB) Channel/Channel Protection 61: 6 Bank Slumping

LOAD RATING AND POSTING

Inventory Rating Method 65: 5 No rating Operating Rating Method 63: 5 No rating
 Inventory Rating 66: HS16.7 Operating Rating 64: HS32.0
 Design Load 31: Unknown (NB) Posting 70: 5 At/Above Legal Loads
 Posting status 41: K Closed to all traffic

AGE AND SERVICE

Year Built 27: 1970 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: 0.0 mi
 ADT 29: 200 Truck ADT 109: 2 % Year of ADT 30: 1999

APPRAISAL

Bridge Rail 35A: 0 Substandard Approach Rail 36C: 0 Substandard
 Transition 36B: 0 Substandard Approach Rail Ends 36D: 0 Substandard
 Str. Evaluation 67: 6 Deck Geometry 68: 5 Above Tolerable
 Underclearance, Vertical and Horizontal 69: N Not applicable (NB)
 Waterway Adequacy 71: 9 Above Desirable Approach Alignment 72: 6 Equal Min Criteria
 Scour Critical 113: 6 Calcs not made

GEOMETRIC DATA

Length Max Span 48: 33.1 ft Structure Length 49: 33.1 ft
 Curb/Sdwk Width L 50A: 0.0 ft Curb/Sidewalk Width R 50B: 0.0 ft
 Width Curb to Curb 51: 26.2 ft Width Out to Out 52: 36.4 ft
 Approach Roadway Width 32: 23.0 ft Median 33: 0 No median (w/ shoulders)
 Deck Area: 1,270.1 sq. ft
 Skew 34: 24.00 ° 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: 327.8 ft
 Minimum Lateral Underclearance L 58: 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: 0.3 ft
 Total Cost 96: \$ 2,000 Future ADT 114: 100
 Year of Cost Estimate 97: 2000 Year of Future ADT 115: 2021

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 (NB) Lift Bridge Vertical Clearance 116: 0.0 ft

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	144/3	R/Conc Arch	(LF)	33	61 %	20	30 %	10	9 %	3	0 %	0	0 %	0
UNIT0	215/3	R/Conc Abutment	(LF)	89	86 %	75	14 %	13	0 %	0	0 %	0	0 %	0
UNIT0	330/3	Metal Rail Uncoated	(LF)	79	50 %	40	0 %	0	0 %	0	50 %	39	0 %	0

Bridge Number 05491

Inspected by: D. LOCKE & C. PERRY

Sufficiency Rating 95.21
Previous Inspection Date 4/13/2005

BS&E Received Data Entry By: _____
Copies Made Data Entry Date: _____

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFE . . & EVALUATION
STRUCTURE EVALUATION
SHEET 1 OF 2 FORM BRI-19 REV 10/00

90) Inspection Date 043007
Inspection Team 2121
91) Frequency Class: 01
Indepth Insp 4/13/2005
Deck Survey
Acc: 000
Flagman 000

CRITICAL FEATURE INSPECTIONS				
Type	Frequency	Team	Date	
Fracture:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uwater:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RED FLAG

IDENTIFICATION

Bridge Name _____
Town Name GREENWICH Town Code 33620
5) Inventory Route:
A) Record Type 1 B) Signing Prefix 5 City Street
C) Level of Service 0 None of the bel D) Route Number 00000
E) Directional Suffix 0 NA
6) Feature Intersected BYRAM RIVER
7) Facility Carried BAILWICK ROAD
9) Location RIVERSVILLE & BAILWICK
11) Milepoint 0.01 Miles
16) Latitude 41deg 2 min 36.00 sec
17) Longitude 73deg 39 min 48.00 sec
98) Border Bridge:
A) State Code _____ B) Percent Responsibility _____ %
C) Border Town Name _____
99) Border Bridge Structure No _____

STRUCTURE TYPE AND MATERIAL

43) Structure Type, Main:
A) Material 1 Concrete B) Design Type 11 Arch - Deck
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 N Not Applicable
108) Wearing Surface/Protective System:
A) Type of Wearing Surface N Not Applicable
B) Type of Membrane N Not Applicable
C) Type of Deck Protection N Not Applicable

AGE AND SERVICE

27) Year Built 1970 106) Year Reconstructed 0000
42) Type of Service:
A) On 1 Highway B) Under 5 WATERWAY
28) Number of Lanes:
A) On 2 B) Under 0
29) Average Daily Traffic 215 Half ADT?: No
109) Percent Truck 2%
30) Year of ADT 2006
19) Bypass, Detour Length 0 miles

GEOMETRIC DATA

48) Length of Max Span 33 ft
49) Structure Length 33 ft
50) Curb or Sidewalk Widths:
A) Left 0.0 ft B) Right 0.0 ft
51) Brg Rdwy width, curb-curb 26.1 ft
52) Deck Width, Out-Out 38.4 ft
32) Approach Roadway Width 23 ft
33) Bridge Median 0 No Median
Deck Area 1267 sqft
34) Skew Angle 24 deg
35) Structure Flared 0
10) Inv. Rte. Min. Vert Clearance 99 ft 99 in
47) Log Inv. Rte. Total Horiz Clr.: 26.1 ft
47) RLog Inv. Rte. Total Horiz. Clr.: ft
53) Min Vert Clearance Over Bridge 99 ft 99 in
54) Min Vert Under Clearance N Ref 0 ft 0 in
55) Min Lat Under Clearance on Right N Ref 99.9 ft
56) Min Lat Under Clearance on Left 0.0 ft

BRIDGE COMMENTS

* ADT BASED ON ANNUAL INCREASE OF 1%.
- Bridge closed to traffic at time of inspection due to storm damage.

CLASSIFICATION

112) NB Bridge Length Yes

104) Highway System 0 Off System

26) Functional Class 19 Urban 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

DrainageBasinCode 7411

38) Navigation Control 0 No navigation control on waterway

39) Navigation Vert Clr. 0 40) 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 ft

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. Advertised

POSTED SIGNS & UTILITIES

Other Posted Signs 1 0

Other Posted Signs 2 0

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

Posted Vert Clearance On Bridge ft in

Posted Vert Under Clearance ft in

Posted Speed Limit mph

Utility

Actual P.L. 4Axle Truck tons

Rec. P.L. 4Axle Truck tons

Actual P.L. 3S2 Truck tons

Rec. P.L. 3S2 Truck tons

Actual P.L. All Vehicles tons

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

Bridge Number **05491** NBIS Length

Town Name **GREENWICH** Yes **33**

Facility Carried **BAILWICK ROAD**

Feature Crossed **BYRAM RIVER**

SHEET _____ OF _____ (INSP. REPORT)

Inspected By: *David C. Locke* & *Chris Perry pm*

LOAD RATING AND POSTING

31) Design Load 0 Evaluation Code C

63) Operating Rating Type 5 Year of Evaluation 2000

64) Operating Rating 58.0 70) Bridge Posting 5

65) Inventory Rating Type 5 41) Structure Status A **K**

66) Inventory Rating 34.0

Open no restriction
BRIDGE CLOSED TO ALL TRAFFIC.

CONDITION

58) Deck Rating By N **ADAL**

59) Superstructure 6 **ZDAL**

60) Substructure 6 **GDAL**

61) Channel & Chan. Protection 6 **GDAL**

62) Culverts N **ADAL**

APPRAISALS

Rating By

67) Structure Evaluation 6 **OEAD**

68) Deck Geometry 5 **ODAD**

69) Under Clear Vert & Horiz N **W**

71) Waterway Adequacy 7 **ODAD**

72) Approach Rdwy Alignment 8 **ODAD**

113) Scour Critical 8

Items 58 Thru 72 Checked By: **ITEMS RATED "0" DUE TO BRIDGE CLOSED DUE TO FLOOD DAMAGE**

36) Traffic Safety Features:

A) Bridge Railings 0 **0**

B) Transitions 0 **0**

C) Approach Guardrail 0 **0**

D) Approach Guardrail End 0 **0**

OTHER FEATURES

Fence Required No

Fence Present No **W**

Fence Height 0.0 ft

Fence Type

Fence Material

Fence Top Type

Barrel Ladder No

Stand Pipes No

Cat Walks No

Movable Inspection System No

Loose Concrete Checked? No

INSPECTION COMMENTS

Proposed Next Indepth Insp Year 2015

Senior jantzenrd

Supervisor kozlowskijc

REVIEWED BY *E. Allen Randall* Date **5/11/07**

Bridge Closed Due to Flood Damage at time of inspection

BRIDGE SUMMARY

4/30/07

Bridge No. 05491 carries Bailwick Road over the Byram River in Greenwich, Connecticut. The bridge consists of a single span concrete arch deck. The bridge has an overall length of 33 feet and a curb-to-curb measurement of 26.1 feet. The structure was built in 1970. According to information on file at the Connecticut Department of Transportation, the bridge has a load rating capacity of 34 tons based on a judgement rating for an AASHTO HS loading using the load factor design method. Consideration should be given to performing a load rating analysis for this structure.

A routine inspection completed in April 2007, determined the general condition of the bridge to be out of service (Overall Rating = 0). It should be noted that the structure is currently closed to all service due to washout and buckling of the pavement and the washed out north fascia and parapet. The deficiencies found on the bridge and the recommendations for repairs are as follows:

Deck

1. Flooding and bridge overtopping has caused areas of roadway washout/buckling up to 20" deep. Also, the gravel fill material on the south end of the roadway has been completely washed out exposing the top of the arch. Repair pavement subbase and repave roadway as required and replace gravel fill (± 7 CY).
2. The stone masonry parapet and metal bridge rail at the north fascia have been washed out and overturned over the full length of the bridge. Replace masonry parapet and bridge rail (33 LF).

Superstructure

1. Arch underside has longitudinal, transverse, and diagonal cracking open up to 1/32" typically with efflorescence and a 1' diameter x 1/2" deep honeycomb area near the northeast corner of the bridge. There has been no significant change in this condition since the last inspection. No repairs at this time.
2. The stone fascias exhibit deteriorated/missing mortar up to 10' long with efflorescence. There is an 8" diameter x 1" deep spall in the stone underside at the northeast corner of the bridge. The north fascia has missing/washed out stonework over the full bridge length up to 4.5' high due to flooding. Repoint mortar joints (± 30 LF) and replace masonry along north fascia.

Substructure

1. There are previously noted random vertical cracks extended down from the underside of the concrete arch with efflorescence to the arch legs. Also, there are spalls up to 22" x 18" x 4" deep at the northwest, southwest, and southeast corners of the bridge at the waterline on the arch legs. Repair spalled concrete ($< 1/2$ CY).

Substructure (cont'd)

2. There are also voids at the base of arch legs up to 1.5' x 3" x 8" deep at the northwest and southeast corner and scaling up to 1" high x 6" deep on the west leg due to previously noted scour. The structure appears to be founded on ledge rock, therefore undermining was not found as noted during the previous inspection. Repair spalls, voids and scaling in the concrete (< 1 CY) and place riprap along arch legs (\pm 1.5 CY).

Channel

See "Substructure" item 2 above.

Approaches

See "Deck" item 1 above.

Bridge Inspection Report BRI-18

BRIDGE #: 05491

INSPECTION DATE: 4/30/2007

INSPECTION TYPE: Routine PREVIOUS INSPECTION DATE: 4/13/2005 SNOOPER REQUIRED: No
 INSPECTION PERFORMED BY: Lichtenstein SNOOPER USED: No

TOWN: GREENWICH FEATURE CARRIED: BAILWICK ROAD YEAR BUILT: 1970
 LOCATION: RIVERSVILLE & BAILWICK FEATURE INTERSECTED: BYRAM RIVER YEAR REBUILT: 0
 MAIN MATERIAL: Concrete MAIN DESIGN: Arch - Deck

INSPECTION VISITS: INSPECTORS:
 Inspection Date: 4/30/2007 Start Time: 9:30 AM Inspector: D. Locke Task: Team Leader
 Temperature: 70 °F End Time: 12:00 PM Inspector: C. Perry Task: Assistant Team Leader

58. DECK OVERALL RATING **P**

	RATING	
OVERLAY	2	The overlay is carried across the width of the bridge up to 6' from each parapet. The unpaved portions have gravel fill with large boulders acting as barriers (also see "railing" item). The fill at the south end is 100% washed out exposing the top of the arch (arch with no deficiencies noted). The paved overlay has random cracking up to 1/4" wide (40% of surface). The flooding and bridge overtopping has caused areas of roadway washout/buckling up to 20" deep. At the north edge of the roadway, there is a 20' long x 3' wide area that is washed out/buckled. There is also a 32' long x 3.5' wide area of roadway washout/buckling that extends from the approach at the southeast corner. See sheet 1 and photos 6 & 7.
DECK STR. CONDITION	N	
CURBS	N	
MEDIAN	N	
SIDEWALKS	N	
PARAPET	2	Stone parapets exhibit random areas of deteriorated/missing mortar and efflorescence. The north parapet has been washed out and overturned over the full length of the bridge due to flooding and bridge overtopping of the structure. See sheet 1 and photos 8 & 9.
RAILING	2	Tubular steel bridge rail at the north fascia has been washed out along with the north parapet. There are large boulders in place between the parapets and roadway acting as barrier to low railing (spaced up to 7' apart). See sheet 1.
PAINT	N	
FENCE	N	
DRAINS	N	
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	N	
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	N	There are no defined deck joints on the structure.

59. SUPERSTRUCTURE OVERALL RATING **2**

	RATING	
BEARING DEVICES	N	
STRINGERS	N	
GIRDERS	2	Reinforced concrete arch: Rating = 6 Arch underside has random longitudinal, transverse, and diagonal cracking open up to 1/32" typically with efflorescence. There is also a 1' diameter x 1/2" deep honeycomb area near the northeast corner of the bridge. See sheet 2 & 3 and photo 3.

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: **05491**

INSPECTION DATE: **4/30/2007**

59. SUPERSTRUCTURE

OVERALL RATING **2**

Stone fascias: Rating = 2
 The fascias typically have deteriorated/missing mortar up to 10' long with efflorescence. There is typically efflorescence along the interface of the masonry fascia and concrete arch. There is an 8" diameter x 1" deep spall in the stone underside at the northeast corner of the bridge. The north fascia has missing/washed out stonework over its the full length ranging from 1.5' to 4.5' high due to river flooding and overtopping. See sheets 2 & 3 and photos 10 & 13.

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	N	
DEFLECT. UNDER LOAD	N	
VIBR. UNDER LOAD	N	
STAND PIPES	N	
BARREL LADDERS	N	

ARE BARREL LADDERS OSHA COMPLIANT? **NA**

60. SUBSTRUCTURE

OVERALL RATING **6**

	RATING	
ABUTMENTS-STEM	6	There are previously noted random vertical cracks extended down from underside with efflorescence on the arch legs. There are also a few spalls up to 22"x18"x4" deep at the northwest, southwest, and southeast corners of the bridge at the waterline. At the northwest corner, there is a 1' x 4" x 4" deep void at the base of the leg and at the southeast, there is a 1.5' x 3" x 8" deep void. Along the base of the west leg, there are areas of scaling and voids up to 1" high x up to 6" deep along 50% of its length due to scour. No undermining was noted. See sheet 3 & 5 and photos 11-13.
ABUTMENTS-BACKWALL	N	
ABUTMENTS-FOOTINGS	N	The structure appears to be founded on ledge rock.
ABUT.-SETTLEMENT	N	
ABUTMENTS-WINGWALLS	7	The masonry wingwalls have random deteriorated/missing mortar with efflorescence throughout. At the northeast wingwall, there is a 14" x 9" x 8" missing stone. See sheet 4.
PIERS/BENTS-CAPS	N	
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	N	

**Connecticut Department of Transportation
Bridge Inspection Report BRI-18**

BRIDGE #: 05491

INSPECTION DATE: 4/30/2007

60. SUBSTRUCTURE OVERALL RATING **6**

PIERS/BENTS-FOOTINGS	N	
PIERS/BENTS-SETTLEMENT	N	
EROSION-SCOUR	6	At the northwest corner, there is a previously noted 1' x 4" x 4" deep void at the base of the leg and at the southeast, there is a 1.5' x 3" x 8" deep void. Along the base of the west leg, there are areas of scaling and voids up to 1" high x up to 6" deep along 50% of its length due to local scour (no undermining). The structure appears to be founded on ledge rock, therefore undermining was not found as noted during the previous inspection. See sheet 5 & 6.
CONCRETE CRACK-SPALL	6	See "abutments-stem" item above.
STEEL CORROSION	N	
PAINT	N	
TIMBER DECAY	N	
COLLISION DAMAGE	N	
DEBRIS	N	

61. CHANNEL PROTECTION OVERALL RATING **6**

<small>RATING</small>		
CHANNEL SCOUR	6	At the northwest corner, there is a 1' x 4" x 4" deep void at the base of the leg and at the southeast, there is a 1.5' x 3" x 8" deep void. Along the base of the west leg, there are areas of scaling and voids up to 1" high x up to 6" deep along 50% of its length due to local scour. The structure appears to be founded on ledge rock, therefore undermining was not found as noted during the previous inspection. See sheets 5 & 6 and photos 14 & 15.
EMBANKMENT EROSION	7	There are stone wall embankments at outside corners of river bends at the northeast and southwest corners. There are areas of light to moderate erosion and undercutting of the northwest and southeast channel banks. See sheet 6 and photos 14 & 15.
DEBRIS	7	There are random areas of heavy debris in and along the channel and on the bridge from previous flooding. See sheet 6.
VEGETATION	7	Light to moderate vegetation along all the embankments.
CHANNEL CHANGE	7	The channel bed under of the structure appears to be predominately ledge rock with only minor aggradation or scour of the channel. See sheet 7.
FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	7	Rip rap along the embankments and wingwalls.

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

APPROACH CONDITION OVERALL RATING **2**

<small>RATING</small>		
APPROACH SLAB	N	
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	N	There is no guiderail system in place.
APPROACH PAVEMENT	2	The approaches have random cracking in the approach pavement up to 1/8" wide. The east approach has extensive washout and buckling of the roadway measuring 32' long x 10' x up to 20" deep and a 38' x 3' area of washed out/missing pavement. There is also a 32' long x 3.5' wide x up to 20" deep area of washout/buckling that extends from the approach over the bridge at the southeast corner. There is a 4' long x 3" high x 2" deep area where the roadway is undermined due to erosion at the northwest corner. See sheet 1 and photos 6, 7 & 16.

Connecticut Department of Transportation

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BRIDGE #: 05491

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APPROACH CONDITION **OVERALL RATING** 2

APPROACH EMBANKMENT 5 Erosion from roadway runoff exists at all four corners of the bridge up to 15' x 2' x 2' deep. Erosion at the northwest corner is undermining the roadway up to 4' L x 3" H x 2" deep. At the northeast corner, there is erosion around the parapet end block up to 32' x 10' x 1.5' deep that exposes roots of ±2' diameter tree. There are also bituminous drainage swales at the northeast and southwest embankments. See sheet 1.

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 Bridge closed to all service at the time of inspection.

ADDITIONAL NOTES

- There is no Bridge ID located on the structure.
- The structure is logged from west to east, which is consistent with the previous inspection.
- Waders used for inspection access.

ADDITIONAL COMMENTS:

It should be noted that the structure is closed to all service due to flood damage since the previous inspection. The pavement has areas of washout/buckling and the north fascia and parapet has been washed out and overturned.

Bridge Inspection Report BRI-18

BRIDGE #: 05491

INSPECTION DATE: 4/30/2007

Inspectors' Signatures:

1) David P. Locke Date: 05/15/07

2) Chris Perry jrn Date: 05/16/07

3) _____ Date: __/__/__

4) _____ Date: __/__/__

P.E. Signature: E. Allen Randall PE Date: 5/16/07
P.E.#: 14551

Reviewed by: _____ CDOT Date: __/__/__