

STRUCTURE NO. 03093

INTERSTATE 91
over
N FRONT ST & QUINN RIVER
New HAVEN

Routine Inspection
on
6/16/2014

Inspected by Baker - 23
for Area 7

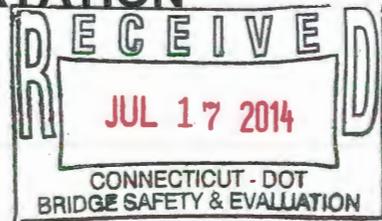
TEAM:	Forwarded to TE3 David Tassavor	Date	7/18/2014
TE3:	Reviewed by TE3 David Tassavor	Date	7/25/2014
	BMM Required	Yes	
	Town Bridge	No	
	Rating <= 5 (Items 58,59,60 or 62)	Yes	
	Rating Change 2 or More Values	No	
	Forwarded to Supervisor Ted Lapierre	Date	7/25/2014
	Forwarded to "To Be Copied Drawer" <input type="checkbox"/>	Date	
	Date BRI-19 Entered		7/25/2014
SUPERVISOR:	Reviewed by Supervisor	Date	
SUPPORT:	Date Copies Made 8/6/14	BMM N	14-553
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NBI: Yes

NHS: Yes

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**CONNECTICUT
DEPARTMENT OF TRANSPORTATION**



**STATE PROJECT NO. 170-3224
BRIDGE SAFETY INSPECTION**

**BRIDGE NO. 03093
INTERSTATE 91**

**OVER
NORTH FRONT STREET & QUINNIPIAC RIVER
NEW HAVEN, CONNECTICUT**

**ROUTINE INSPECTION
JUNE 16, 2014**

LAST DAY OF INSPECTION: JUNE 25, 2014



Prepared By:

Baker

Michael Baker Jr., Inc.

500 Enterprise Drive, Suite 2B
Rocky Hill, CT 06067

Structure No. 03093 Town New Haven

Inspectors Michael Baker Jr., Inc. (MJO, BH) Date June 16, 2014

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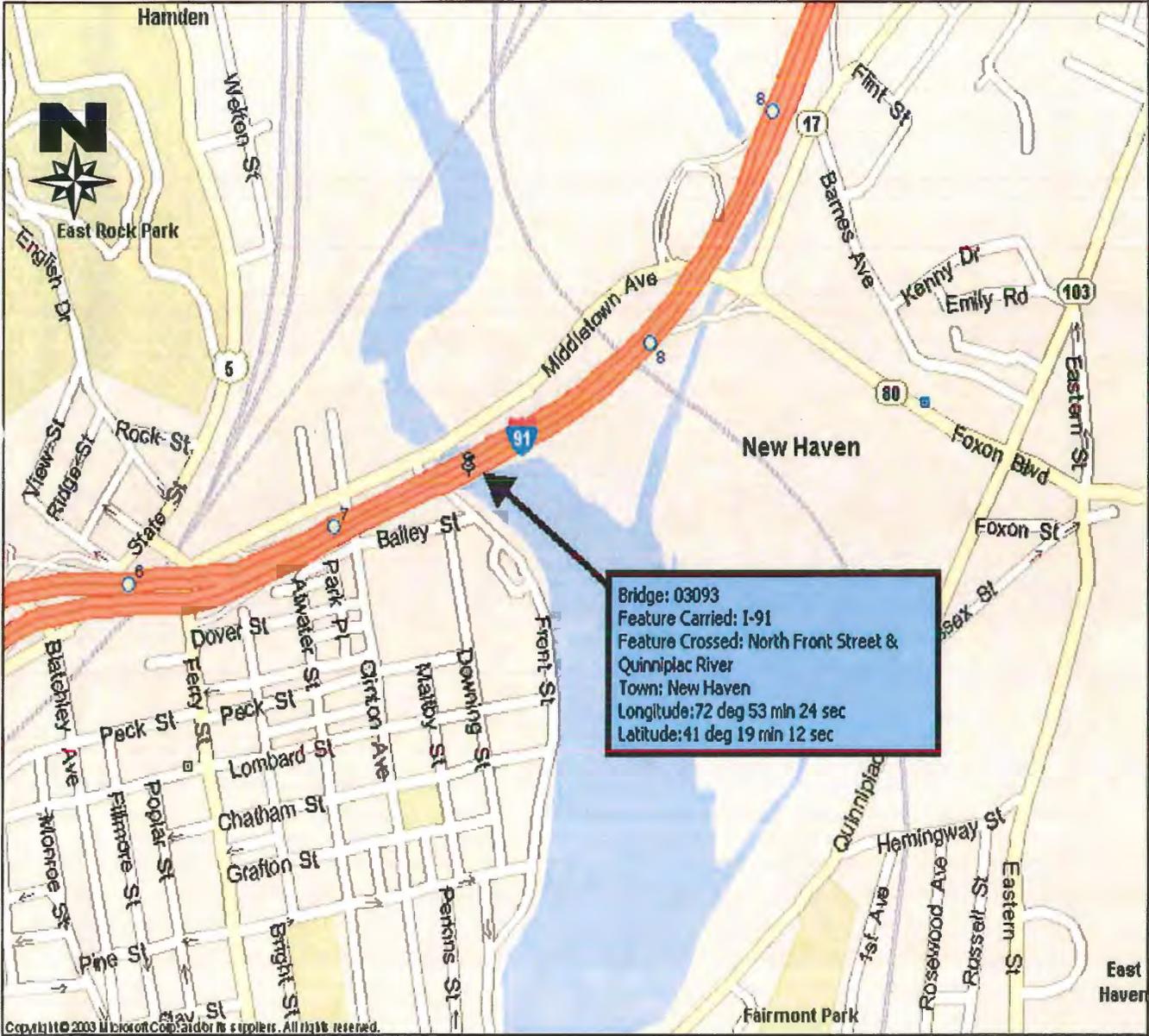
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BRIDGE SAFETY INSPECTION
STATE PROJECT NO. 170-3013

LOCATION MAP



EXECUTIVE SUMMARY

Bridge No. 03093 carries Interstate 91 over North Front Street and the Quinnipiac River in New Haven, Connecticut. This bridge consists of a four-span steel multi-girder superstructure with a reinforced concrete deck. Spans 2-4 are continuous plate girder spans with a hung span in the center that is suspended by a line of pin and hangers at the south end and a line of fixed hinges at the north end. The superstructure is supported by reinforced concrete abutments and concrete piers. The bridge has an overall length of 512 feet and a curb-to-curb measurement of 125.8 feet. It was constructed in 1964 and reconstructed in 1994. According to information on file with Connecticut Department of Transportation, the bridge has an inventory load rating capacity of 42 tons for an AASHTO HS vehicle. Section losses were found this inspection that warrant a re-analysis of the structure.

A routine inspection completed in June 2014 found the structure in poor condition (Overall Rating = 4).

The following major deficiencies were noted:

Deck: (Rated – 5)

- The bituminous overlay has heavy map cracking and large areas of breaking up bituminous. There are potholes and 6" wide raveling along the paving seams, up to 2" deep. Bituminous is hollow around the scuppers.
- The underside of deck has random large hollow areas and large spalls with exposed rebar, up to 6' x 3' x 4" deep. Active leakage was noted at a map cracked area in span 1. BS&E was notified via email on June 20, 2014 concerning hollow concrete adjacent to a spalled area in the span 1 underside over North Front Street.
- Two scuppers are clogged and four others are partially clogged. Approximately 15 missing or short weeps drain or may drain onto bridge elements below.
- There is a missing junction box with exposed wires in the span 1, east parapet. There is a missing hand-hole cover at the light standard at the east parapet in span 2.

Superstructure: (Rated – 4)

- All rocker bearings were replaced with elastomeric bearings since the last inspection.
- Stainless steel expansion pin and hangers in span 3 (south line) have up to 1/2" impacted rust at the wind locks. "V" measurements varied by more than 1/8" at numerous locations, up to 1-3/16". However, at all locations, it appears as though the "V" measurement +/- sign convention was incorrect at last few inspections. Also, beam ends were cleaned and painted along this line, possibly causing discrepancies in some measurements.
- Stainless steel fixed hinges in span 3 (north line) have moderate to heavy rust at the spacer plates and connection bolts/nuts. Wind locks are missing up to 4 of 8 connection bolts, possibly due to bolt hole interference/misalignment. Wind locks have laminated rust and rosebudding of the wind lock bolts. "V" measurements varied by as much as 3/16"-1/4" at 9 of 18 locations; all measurements indicate a rise of the hung span since the last inspection. Isolated "J" measurements varied by as much as 5/16" since the last inspection, but are within 1/8" of older inspections, most likely indicating errors in measurement.
- At pier 1, the span 1 and 2 girders and bolsters have painted over section loss, resulting in up to 35% web loss in bearing (<10% loss in shear, estimated). Random web and stiffener repairs have been made at pier 1 since the last inspection.
- Girder web bases and stiffener bases have painted-over heavy losses and rusted through holes near the pin and hangers (south line, span 3) with less than 10% loss in shear. Bottom flanges also have painted-over section loss in these areas, but these losses are typically confined to less critical zones.
- Fascia, median, and isolated interior girder bottom flanges have laminated rust with up to 19% section loss throughout the bridge.

- Welds between secondary member gusset plates and the girder bottom flanges are cracked, missing, or broken at random locations throughout. Isolated other diaphragm welds are missing. Girder longitudinal web stiffeners have cracked/ broken butt welds; no change (stop holes in place at adjacent girder webs).

Substructure: (Rated – 5)

- The pier caps, solid pier stems and columns have spalls with exposed rebar, hollow areas, and cracking up to 3/16" wide with rust and/or efflorescence. Abutment and pier bearing pedestal spalling does not affect bearings.

Channel: (Rated – 5)

- Per the 2013 underwater inspection report, scour in the channel has partially exposed the pier 2 and 3 footings up to 3.6' high. The pier 2 sheet piling is exposed up to 17' high along the north elevation, despite up to 15' of aggradation of the channel between the 2011 and 2013 underwater inspection. The underwater inspection report also states that the stability of the structure is not affected by scour.

Bridge Number **03093**

Inspected By: M. Orłowski & B. Howlett

Sufficiency Rating **56.00**
Previous Inspection Date **6/5/2012**

BS&E Received Data Entry By: D.T
Copies Made Data Entry Date: 7/25/14

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

SHEET _____ OF _____

90) Inspection Date 061614	Inspection Team 2323	91) Frequency 24	Class: 3
Indepth Insp 7/19/2010	Deck Survey 1/1/1900	Access 36	Flagman

CRITICAL FEATURE INSPECTIONS			
Type	Frequency	Team	Date
Fracture:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uwater:	24	51	3/15/2013
Special: A	A	24	20 23 6/5/2012 6/16/14

IDENTIFICATION

Bridge Name _____
Town Name **NEW HAVEN** Town Code **52070**

5) Inventory Route:
A) Record Type **1** D) Route Number **00091**
B) Signing Prefix **1** Interstate High E) Directional Suffix **0** NA
C) Level of Service **1** Mainline

6) Feature Intersected **N FRONT ST & QUINN RIVER**

7) Facility Carried: **INTERSTATE 91**

9) Location **2.3 MI N OF I-95**

11) Milepoint **2.30 Miles**

16) Latitude **41deg 19 min 13.00 sec** deg min sec
17) Longitude **72deg 53 min 26.00 sec** deg min 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 **4** Steel continuous B) Design Type **2** Stringer/Multi-beam o

44) Structure Type, Approach:
A) Material **3** Steel B) Design Type **2** Stringer/Multi-beam o

45) Number of Spans, Main Unit **4**

46) Number of Approach Spans **1**

107) Deck Structure Type **1** Concrete Cast-in-Place

108) Wearing Surface/Protective System:
A) Type of Wearing Surface **6** Bituminous
B) Type of Membrane **1** Built-up
C) Type of Deck Protection **0** None

AGE AND SERVICE

27) Year Built **1964** 106) Year Reconstructed **1994**

42) Type of Service:
A) On **1** Highway B) Under **6** HIGHWAY-WATER

28) Number of Lanes:
A) On **8** B) Under **2**

29) Average Daily Traffic **127400** **1301100** Half ADT?: **No** **N**

109) Percent Truck **9%** **09**

30) Year of ADT **2011** **20** **13**

19) Bypass, Detour Length **2** miles

GEOMETRIC DATA

48) Length of Max Span **220ft**

49) Structure Length **512ft**

50) Curb or Sidewalk Widths:
A) Left **0.0ft** B) Right **0.0ft**

51) Brg Rdwy width, curb-curb **125.8ft**

52) Deck Width, Out-Out **139.7ft**

32) Approach Roadway Width **126ft**

33) Bridge Median **3** Closed Median w/barrier

Deck Area **71459** sqft

34) Skew Angle **32deg**

35) Structure Flared **0**

10) Inv. Rte. Min. Vert Clearance **99ft** **99in**

47) Log Inv. Rte. Total Horiz Clr.: **62.9ft**

47) RLog Inv. Rte. Total Horiz. Clr.: **62.9ft**

53) Min Vert Clearance Over Bridge **99ft** **99in**

54) Min Vert Under Clearance **H** Ref **16ft** **0in** Ref

55) Min Lat Under Clearance on Right **H** Ref **9.3ft** Ref

56) Min Lat Under Clearance on Left **0.0ft**

BRIDGE COMMENTS

Interstate-91 - Inventory Route Log Direction North..
Access - "36" = > 40' w/14 + 40' Lift
Item 68: Per table 2c, 4 lanes & Item 47 (one direction ONLY)

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CLASSIFICATION

112) NBIS Bridge Length	Yes	
104) Highway System	1 On System	
26) Functional Class	11 Urban Principal Arterial - Interstate	
100) Defense Highway	1 Route is on a Interstate STRAHNET Route	
101) Parallel Structure	N No parallel structure exists	
102) Direction of Traffic	2 2-way traffic	
103) Temporary Structure		
110) Designated National Network	1 On national network	
20) Toll	3 On Free Road	
21) Maintain	1 State Highway Agency	
22) Owner	1 State Highway Agency	
Report Class	S STATE	
37) Historical Significance	5 Bridge is not eligible for National Register	

WATERWAY

DrainageBasinCode	5099	
38) Navigation Control	0 No navigation control on waterway	
39) Navigation Vert Clr.		
116) Vert-Lift Brg Nav Min		
111) Pier Abutment Protection		
40) Navigation Horiz Clr.		

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. 25	Project No.	Advised

POSTED SIGNS & UTILITIES

Other Posted Signs 1					
Other Posted Signs 2					
Actual P.L. Single Unit Truck	tons		Actual P.L. 4Axle Truck	tons	
Rec. P.L. Single Unit Truck	tons		Rec. P.L. 4Axle Truck	tons	
Actual P.L. Semi-Trailer Truck	tons		Actual P.L. 3S2 Truck	tons	
Rec. P.L. Semi-Trailer Truck	tons		Rec. P.L. 3S2 Truck	tons	
Rec. P.L. All Vehicles	tons		Actual P.L. All Vehicles	tons	
Posted Vert Clearance On Bridge	ft	in		ft	in
Posted Vert Under Clearance	ft	in		ft	in
Posted Speed Limit	55	mph			mph
Utility					
Utility	4	Telephone			
Utility	F	Fibre Optics			

STRUCTURE EVALUATION

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

SHEET ____ OF ____

Bridge Number	03093	NBIS Length	
Town Name	NEW HAVEN	Yes	512
Facility Carried	INTERSTATE 91		
Feature Crossed	N FRONT ST & QUINN RIVER		

Inspected By: M. Orlovsky & B. Houlett

LOAD RATING AND POSTING

31) Design Load	5		Evaluation Code	L	
63) Operating Rating Type	1		Year of Evaluation	1995	
64) Operating Rating	70.0		70) Bridge Posting	5	
65) Inventory Rating Type	1		41) Structure Status	A	A
66) Inventory Rating	42.0				

CONDITION

	Rating	By
58) Deck	5	5 MSO
59) Superstructure	4	4 MSO
60) Substructure	5	5 MSO
61) Channel & Chan. Protection	5	5 MSO
62) Culverts	N	N MSO

APPRAISALS

	Rating	By
67) Structure Evaluation	4	4 MSO
68) Deck Geometry	9	5 MSO
69) Under Clear Vert & Horiz	5	5 MSO
71) Waterway Adequacy	7	7 MSO
72) Approach Rdwy Alignment	8	8 MSO
113) Scour Critical		

Items 58 Thru 72 Checked By: _____

36) Traffic Safety Features:

A) Bridge Railings	1	1
B) Transitions	1	1
C) Approach Guardrail	1	1
D) Approach Guardrail End	1	1

OTHER FEATURES

Fence Required	No		Barrel Ladder	No	
Fence Present	No		Stand Pipes	No	
Fence Height	ft		Cat Walks	No	
Fence Type			Movable Inspection System	Yes	
Fence Material			Loose Concrete Checked?	Yes	Y
Fence Top Type					

INSPECTION COMMENTS

Proposed Next Indepth Insp Year 2020

Senior Supervisor David Pawlikows
Sandra Dumas

PE 20004 7/13/04

REVIEWED BY: _____ Date _____

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Connecticut Department of Transportation

Bridge Inspection Report BRI-18

Bridge #: 03093

Inspection Date: 06/16/2014

Inspection Type:	Routine	Previous Inspection Date:	6/5/2012	Snooper Required:	Yes
Inspection Performed By:	Baker Engineering	Feature Carried:	INTERSTATE 91	Snooper Used:	Yes
Town:	NEW HAVEN	Feature Intersected:	N FRONT ST & QUINN RIVER	Year Built:	1964
Location:	2.3 MI N OF I-95	Main Design:	Stringer/Multi-beam or Girder	Year Rebuilt:	1994
Main Material:	Steel continuous				

Visits

Inspectors:

Visit Date:	Temp:	Start Time:	End Time:	Inspector:	Task:
6/16/2014	75	8:30:00 AM	2:30:00 PM	B. Howlett	Inspector
6/25/2014	80	8:30:00 AM	2:15:00 PM	M. Orlowsky	Lead Inspector

DECK:

-

Overall Rating: 5

Rating

OVERLAY:	5	<p>The bituminous overlay has map cracking throughout, heavy at some locations with random areas of breaking up bituminous/potholes, worst in the southbound left lane of span 3 where there is approximately 200 square feet of breaking up bituminous with potholes up to 6" diameter x 1" deep. The paving seams have cracks up to 1/2" wide and are raveled up 6" wide x 1.5" deep (span 4, southbound). Along the joints, the bituminous is raveled up to 1" wide (south hanger line, span 3) and breaking up with random potholes up to 3' x 6" wide x 2" deep (north hanger line, span 3). In the left two lanes of span 4 southbound, there are random bituminous patches with potholes up to 1.5" deep. The bituminous adjacent the scuppers is dull sounding and has potholes up to 3' x 1' x 1" deep (span 3 southbound). There are random gouges in the shoulders from previous snooper outrigger wheels. See sheets 24-26 and photos 6-8 & 26.</p>
DECK-STR. CONDITION:	5	<p>The underside of deck has transverse hairline cracks and areas of map cracking, both with random efflorescence, dampness and isolated rust. Isolated active leakage was noted at a map cracked area in span 1, bay 10, panel 2. In span 3, bay 8 near midspan, lateral bracing members have laminated rust below a spalled area in the deck (no active leakage through the deck at this spall was noted this inspection). Map cracked areas have random dull/hollow areas and minor spalling. There is an isolated 1/16" wide transverse crack at the span 1 median underside (previously reported as 1/4" wide). There are large hollow and spalled areas with exposed rebar, up to 6' x 3' x 4" deep (span 1, bay 3, panel 2). Exposed rebar is rusting at some locations and has been coated at other locations. Rebar section loss is estimated to typically be less than 1/16" deep. There are random spalls along</p>

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		the edges of formwork left in place along the deck underside. In span 1, bay 2, panel 2, there is a 4' x 3' x 4" deep spalled area with exposed rebar and random adjacent dull/hollow concrete over North Front Street (BS&E notified via email on June 20, 2014). There are also large spalled and hollow areas along the girder haunches, worst along the median area in span 4 (none over travel lanes). Underside of deck deterioration is estimated to be 4.2% overall, up to a maximum of 5.9% in span 4. See sheets 41-67 and photos 5, 9-12 & 16.
CURBS:	6	The sloped concrete curbs have random scrape marks, flaking protective coating, light scaling, hairline cracks, and areas of hairline map cracking with efflorescence. There are also isolated spalls up to 1" deep (span 1, west curb) and isolated shallow rebars (span 4, west curb). The granite median curbs have no significant deficiencies. Concrete median curbs at the joints have spalls with exposed rebar up to 3' x 1' x 2" deep (south abutment joint) and hollow/broken areas up to 2.5' long x full height (north abutment joint). Average curb reveal was found to be 4" along the west curb and 3" along the east curb. See sheets 24-27 and photos 13-14
MEDIAN:	7	The concrete median along the bridge has vertical hairline cracks, light scaling, chipping, and scrape marks. There is minor edge spalling in the median adjacent to a broken section of approach median barrier at the north abutment joint (see "Approach Guide Rail" item for this spalled/broken area). See "Curbs" item for the deterioration to the median curbs. Rating increased from "6" to "7" since the most significant deterioration to the medians occurs at the approaches. See sheets 24-26 and photos 6, 13 & 14.
SIDEWALKS:	N	-
PARAPET:	7	The concrete parapets have vertical hairline cracks, light scaling, and scrape marks/gouges. See sheets 24-26 and photo 15.
RAILING:	N	-
PAINT:	N	-
FENCE:	N	-
DRAINS:	4	<p>Scuppers: There are a total of two clogged scuppers throughout the bridge (south end of span 3 in southbound left shoulder and span 3 near north hanger line in the right shoulder of northbound). In addition, approximately four other scupper in the right shoulders are up to 20% clogged, but the drain pipes are clear. See sheets 24-26 and photo 15.</p> <p>Weeps: There are random short weeps that do not drain onto bridge elements below. In addition, approximately 15 short or missing weeps drain or may drain onto bridge elements below (two each in span 3, bays 1 & 8, four in span 3, bay 10; three in span 4, bay 1; one in span 4, bay 8; one in span 4, bay 9; one in span 4, bay 10, and one in span 4, bay 17). See sheets 41-66 and photos 16-17.</p>
LIGHTING STANDARD:	5	<p>Light standards attached to parapets: Random anchor bolt covers are loose or missing. The light standards attached to the west parapet (southbound) have random dents from impact damage, up to 1.5' high x 9" wide x 1" deep. The light standard attached to the span 2, east parapet (northbound) has a missing hand-hole cover with exposed wires. Junction box covers have numerous missing screws, but are secure. There is a missing junction box cover with exposed wires at the east parapet in span 1 (northbound). The light standard conduit that runs along the west fascia is separated at the northwest wingwall, exposing wires. At the outside face of the span 3, west parapet, the conduit has an elbow with a missing access cover. See sheets 24-26, 49 & 76 and photos 18-21 & 76.</p> <p>Under-Bridge lights in span 1: Lights were not on during the daytime inspection, but exhibit no significant deficiencies. See sheets 41-42 and photo 5.</p>
UTILITIES	8	Four inch diameter fiber optic cable attached to the east parapet has no

TYPE/SIZE:		significant deficiencies
CONSTR JOINTS:	5	The construction joints in spans 2-4 have efflorescence throughout. There are also hollow and spalled areas along the joints, up to 5' x 2' x 2" deep with exposed rebar (span 4, bay 1). See sheets 41-66 and photo 16.
EXPANSION JOINTS:	5	<p>Asphaltic plug joints: The asphaltic plug joints have approximately 180 linear feet of adhesion and cohesion cracks, up to 3" wide widest at the shoulders). Northbound joints have some areas that have been repaired since the last inspection. Joints also have random heaved, depressed, and/or rutted areas up to 2" deep. Joint material has been "shoved" beyond the normal limits of the joints at some locations. The north abutment joint has two settled bituminous patches, up to 2' diameter x 2" deep. Note that one patch was placed during this inspection to cover/repair a pothole with an exposed joint plate (BS&E was informed about the exposed joint plate via email on June 17, 2014). Active joint leakage was noted at the time of inspection. See sheets 24-26 and photos 5, 8, 22-23, 59, 61, 62 & 64.</p> <p>Strip seal joint at the south hanger line in span 3: Strip seal joint extrusions have surface rust. The joint is filled with sand and debris. The top of the seal is up to 3" below the top surface of the joint headers, but the seal does not appear compromised. Headers have random hairline cracks and repaired areas (northbound left lanes). The curb plate is missing at the east parapet (northbound). See sheets 24-25 and photos 24-26.</p>

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59. SUPERSTRUCTURE:

Overall Rating: 4

Rating

BEARING DEVICES: 6

<p>BEARING DEVICES: 6</p>	<p>Fixed bearings: The span 1 fixed bearings at pier 1 were recently painted and have spotty light rust, heavy to severe anchor bolt nut section loss, and up to 3/16" impacted rust between the sole plates and masonry plates. This impacted rust has fallen out at some locations, leaving gaps between the bearing plates. Fixed bearings at other substructure units have areas of light to moderate surface rust, impacted rust below the washers, random backed off anchor bolt nuts, and varying degrees of section loss to the anchor bolt nuts. See sheets 41-66 and photos 27-29, 35 & 36.</p> <p>Elastomeric bearings: Elastomeric bearings were installed last inspection to replace the rocker bearings for spans 2 & 4. Elastomeric bearings are in good condition and were in expansion mode with temperatures in the between 70-80 degrees Fahrenheit. Random elastomeric bearings overhang the concrete pedestals at the south abutment up to 3/8" at the corners. Girder 17 bearing pad at the south abutment is undermined less than 1 square inch due to pedestal spall. See sheets 29-30 & 41 and photo 29.</p> <p>Expansion pin and hangers (span 3, south line). Stainless steel pin and hanger assemblies have welded bars for nut restraint. Note that there is no secondary support system for the pin and hangers. There is up to 1/2" impacted rust between the wind locks and the support span bottom flanges. Pin and hanger "V" measurements varied greatly at some locations, by up to 13/16" at girder 7, 1-3/16" at girder 8, and 3/4" at girder 9. At these locations, the "V" measurements were found to be negative this inspection and positive in the last inspection. Note that measurements at these locations were also found to be negative in the 2006 inspection. "V" measurements for girders 6, 12 & 13 varied by 1/4" with the last inspection; similarly, "V" measurement positive/negative conventions appear reversed. "V" measurements were double-checked this inspection. Isolated top and bottom measurements varied by up to 1/4" with the previous inspection. Note that cleaning and painting of the beam ends at the assemblies may cause some differences in measurements between this and the previous inspection. No distress was seen at the assemblies. See sheets 31-35 and photos 30-31.</p> <p>Fixed hinges (span 3, north line): Stainless steel fixed hinge assemblies have welded bars for nut restraint. Note that there is no secondary support system for the fixed hinges. Spacer plates and connection bolts/nuts have moderate to heavy rust. Wind locks typically have only 4 of 8 bolts installed, possibly due to bolt hole interference/misalignment. Wind locks also have laminated rust and rosebudding of the wind lock nuts (girder 10). "V" measurements varied by as much 3/16"-1/4" at nine of 18 locations (remaining locations were within 1/8"); all measurements indicating a rise in the hung span since last inspection. Girder 7 & 10 "J" measurements varied by 1/4"-5/16" with the last inspection, but are within 1/8" of older inspections, most likely indicating errors in measurement. No distress was seen at the assemblies. See sheets 36-40 and photos 32-34.</p> <p>Previous rating for the bearings was controlled by the rocker bearings, which have recently been replaced by elastomeric bearings; therefore, rating increased from "4" to "6".</p>
<p>STRINGERS: N</p>	<p>-</p>

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GIRDERS:	4	<p>General: Girder ends below the joints have been painted since the last inspection, except at the fixed hinge line in span 3 (north line). Web losses are noted below. Fascia and median girders have areas of heavy to laminated rust with section loss throughout, worst at the fascia girder flanges. Interior girders have light to moderate surface rust with isolated areas of laminated rust with section loss.</p> <p>Span 1 (welded fascia girders, rolled interior girders): The span 1, girder 1 web and bearing stiffeners at pier 1 have up to 3/16" deep section losses resulting in approximately 31% web loss in bearing (<5% web loss in shear). The span 1 interior girder bolsters at pier 1 have up to 5/16" deep section loss in the webs and stiffeners, resulting in up to 35% web loss in bearing at some locations. An isolated bolster web end has small perforations (span 1, girder 10 at pier 1) but there are recent welded repairs at this location. Note that other girder ends at pier 1 also have welded repair plates. See sheets 41, 42, 68 & 70 and photos 35-36.</p> <p>Spans 2-4: Continuous welded plate girders with hung span: Span 2 web ends and bearing stiffeners at pier 1 have up to 7/16" deep section losses and isolated pin-holes, resulting in a maximum of 22% web loss in bearing (<10% web loss in shear). Note that random repair plates have been added to the span 2 webs ends and stiffeners at pier 1 since the last inspection. Girder webs at the hinges and hangers have up to 3/16" section loss around the assemblies at both elevations of the webs at some locations. The bottom 6" of the girder webs have heavy section loss and rusted through holes up to 3' long x 6" high (span 3, girder 9) near the pin and hanger assemblies (south line). Note that web losses are widespread near the pin and hanger assemblies, and these areas have been cleaned and painted. Web losses in shear are estimated to be less than 10% at all webs at the hanger assemblies. Girder bottom flange legs have as little as 3/8" remaining near the pin and hanger assemblies (span 3, girder 1), but these losses are mostly in less critical zones. Fascia and median girder bottom flanges have areas of laminated rust throughout (worst at the fascia girders), with up to 7/16" deep average section loss (span 2, girder 18), resulting in more than 5% section loss at numerous locations in critical zones, up to a maximum of 19% (span 2, girder 18 and span 3, girder 1). See sheets 43-72 and photos 17, 37-45 & 47.</p> <p>Diaphragms and lateral bracing: Secondary members and connection plates below the joints have varying degrees of painted-over section loss. Lateral bracing members have isolated laminated rust with up to 1/16" deep section loss (span 3, bay 8 near midspan). The previously rusted-through lateral bracing member in bay 8 of span 3 has been replaced. There are gaps up to 7/8" between the girder bottom flanges and the secondary member lower horizontal member gusset plates. Some gaps appear construction related, while others are filled/or are due to impacted rust. Impacted rust has caused some of these plates to bend and welds to crack. See "Welds-Cracks" item below for deficient secondary member welds. See sheets 41-66 and photos 12, 46, 51 & 54.</p>
FLOOR BEAMS:	N	-
TRUSSES-GENERAL:	N	-
TRUSSES-PORTALS:	N	-
TRUSSES-BRACING:	N	-
PAINT:	5	Less than 50% of the painted surfaces are rusting. Also, see above items.
RUST:	4	See above items
MACHINERY MOV SPAN:	N	<p>Rolling platforms: The rubber has peeled/fallen off the east drive wheel on the west rolling inspection platform in span 3. Because of this, the platform will not roll past</p>

✓

✓

		certain points along the superstructure without the using the adjacent platform for propulsion (used rope to tie platforms together to help the west platform roll at these areas). See photo 48.
RIVETS & BOLTS:	6	Wind lock bolts have up to 4/8 missing bolts (see "Bearing Devices" item above). Hinge connection bolts have varying degrees of rust (see "Bearing Devices" item above). There is a partial height bolted splice at the lower 2/3 of span 3, girder 18. See sheets 41-66 and photos 32, 33 & 49.
WELDS - CRACKS:	4	<p>Plate girder bottom flange transitions were checked hands-on; no significant deficiencies were noted. Rolled beam bottom flange cover plate welds in span 1 (fatigue category E) welds were checked hands-on; no significant deficiencies were noted. Horizontal gusset plate welds to the girder bottom flanges (fatigue category E) have deficiencies noted below. Girder longitudinal web stiffeners have random cracked butt welds (stop holes in place at adjacent girder webs); see below. There are random plug welded erection bolt holes at diaphragm connection plates. Also, there are no welds between a diaphragm angle and lower gusset plate at the first intermediate diaphragm in span 3, bay 6 at the east elevation of girder 6.</p> <p>Lower horizontal gusset plate to girder bottom flange weld deficiencies at diaphragm locations:</p> <ul style="list-style-type: none"> • Span 2, girder 1, east elevation at first intermediate diaphragm (3" long missing weld). • Span 2, girder 14, west elevation at end diaphragm (4" long crack in weld has been repaired since the previous inspection). • Span 2, girder 16, east elevation at fourth intermediate diaphragm (missing weld at north side). • Span 3, girder 13, west elevation at 2nd intermediate diaphragm (5.75" long crack in weld). • Span 4, girder 1, east elevation at 1st intermediate diaphragm (missing weld for full length). • Span 4, girder 9, west elevation at 3rd intermediate diaphragm (1" long crack in weld). <p>Lower horizontal gusset plate to girder bottom flange weld deficiencies at lateral bracing locations:</p> <ul style="list-style-type: none"> • Span 3, girder 8, east elevation near 5th intermediate diaphragm (missing/broken weld). • Span 3, girder 9, west elevation between first intermediate diaphragm and pin & hanger assembly (missing welds with up to 7/8" bend due to impacted rust at gusset plate). • Span 3, girder 10, east elevation near pin & hanger assembly (4.5" long crack in weld). • Span 3, girder 11, west elevation near 5th intermediate diaphragm (7.5" long crack in weld). • Span 3, girder 14, west elevation near mid-span (no welds - abrasion rust present). <p>Butt weld deficiencies at girder longitudinal web stiffeners:</p> <ul style="list-style-type: none"> • Span 3, girder 1, west elevation near mid-span (4.5" long crack in weld; 3/8" diameter stop-hole in stiffener, 3/4" diameter stop-hole in web; no changes). • Span 3, girder 18, east elevation near mid-span (4.5" long crack in weld with multiple stop holes; no changes). <p>See sheets 41-66 and photos 50-56.</p>
TIMBER DECAY:	N	-
CONCRETE CRACKING:	N	-
COLLISION DAMAGE:	7	There are minor gouges to the span 2, girder 1 bottom flange; note that this span is over dirt. Girder 13 in span 3 has a 1" high bend in the west bottom flange leg, south of the fixed hinge (no change). See sheet 43 and photos 57-58.
MEMBER ALIGNMENT:	6	See "Bearing Devices" item above.

DEFLECT. UNDER LOAD:	N	Normal.
VIBRATION UNDER LOAD:	N	Normal.
STAND PIPES:	N	-
BARREL LADDERS:	N	-

ARE BARREL LADDERS OSHA COMPLIANT? N/A

60. SUBSTRUCTURE: Overall Rating:

Rating

ABUTMENTS-STEM:	6	The abutment stems have random vertical hairline cracks (up to full height), isolated short horizontal cracks up to 1/32" wide, random small popouts, areas of light to moderate scaling, areas of hairline map cracking, random hollow areas up to 2' x 1.5', and spalls with random exposed rebar up to 2' x 10" x 1" deep. At the south abutment under girder 5, there is a 20" x 56" x 4" deep area of previously removed concrete and exposed rebar (area prepared for repair, but repair not completed). The pedestals have random hairline cracks, map cracking, shallow rebars and spalls up to 1' x 4" x 1" deep with isolated minor undermining of bearings (Girder 17 pedestal at the south abutment – 1 square inch undermining). See sheets 73-74 and photos 59-61.
ABUTMENTS-BACKWALL:	6	The backwalls have random short hairline vertical cracks, isolated areas of map cracking, random shallow rebar, and spalls with random exposed rebar, up to 4.5' x 1.5' x 3" deep. There is silt staining from past joint leakage at both backwalls. See sheets 73-74 and photo 62.
ABUTMENTS-FOOTINGS:	7	The north abutment footing is intermittently exposed up to 6' long x 10" high with no significant deficiencies. The footing is founded on piles. Rip rap has been placed in front of the footing. See sheet 74 and photo 63.
ABUTMENTS-SETTLEMENT:	8	None noted.
ABUTMENTS-WINGWALLS:	7	The wingwalls have isolated hairline cracks, areas of light scale, areas of map cracking and isolated graffiti. There is up to heavy vegetation growth along the wingwalls. The joint material is missing/deteriorated along the wingwall joints. See sheets 75-76 and photo 21.
PIERS/BENTS-CAPS:	5	The concrete pier cap at pier 1 has random hollow areas up to 4' x 1', and the underside of the cap is 15% hollow between columns 9 & 10. There are random corner spalls with exposed rebar, up to 3" deep x up to 2.5' long x 8" high/wide. Concrete is hollow adjacent to random spalls. There is also moderate to heavy scaling and map cracking with random rust and efflorescence. Pier 1 pedestals have isolated spalled and hollow concrete that does not affect the bearings. Random previously reported deteriorated areas were not found or were repaired since the last inspection. Piers 2 & 3 are solid stem piers and are rated under the "Piers/Bent – Columns" item below. See sheets 77-80 and photos 64 & 66.
PIERS/BENTS-PILE BENT:	N	-
PIERS/BENTS-COLUMNS:	5	The concrete columns at pier 1 have random cracks up to +/-6' long, some open up to 3/16" wide with efflorescence and/or rust stains. The pier 1 columns also have random hollow areas up to 5' x 3' and spalls with random exposed rebar, up to 2.5' x 1.5' x up to 8" deep (corner spall). Piers 2 and 3 are solid stem concrete piers with stone masonry facing near/below the water line. The concrete has random shallow rebar and

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		vertical hairline cracks with random efflorescence. Isolated vertical cracks are up to 1/16" wide. Some cracks have been previously epoxy injected. Random pedestals have random shallow rebars, hollow areas, and spalls up to 2" deep with exposed rebar that do not affect the bearings. Per the March 15, 2013 underwater inspection report: Random cracks extend down and through the stone masonry portions of pier 2, up to 2' long x 1/32" wide. The stone masonry portions have moss growth, rust stains and light to moderate abrasion along the waterline. Below the water line there is up to 5% missing mortar with up to 1' deep penetration. See sheets 77-88 and photos 64, 65, 67 & 68.
PIERS/BENTS-FOOTING:	6	Per the March 15, 2013 underwater inspection report: The footing for piers 2 and 3 are partially exposed up to +/- 3.6' high and have moderate scale. There is moderate to heavy corrosion along the exposed sheet piling. The sheet piling at the north elevation of pier 2 is exposed up to 17' high. Per the underwater inspection, the stability of the bridge is not affected. Note that the bridge is founded on piles.
PIERS/BENTS-SETTLMT:	8	None noted.
EROSION-SCOUR:	5	There is minor erosion along wingwalls and north abutment. The north abutment footing is slightly exposed, but is founded on piles. Rip-rap has been placed in front of the footing. See sheets 73-88 and photo 63. Per the March 15, 2013 underwater inspection: The footings for piers 2 and 3 are partially exposed up to 3.6' high, and the sheet piling at pier 2 is exposed up to 17' high (see "Piers/Bents-Footings" item above), despite up to 15' of aggradation along the north elevation of pier 2 since the 2011 underwater inspection. Note that these piers are founded on piles.
CONCRETE CRACK-SPALL:	5	See above items.
STEEL CORROSION:	N	-
PAINT:	N	-
TIMBER DECAY:	N	-
COLLISION DAMAGE:	8	-
DEBRIS:	6	There are areas pigeon and concrete debris on the bridge seats. See sheets 73-88.

61. CHANNEL & CHANNEL PROTECTION:

Ratings are based on the underwater inspection dated March 15, 2013

Overall Rating: 5

Rating

CHANNEL SCOUR:	5	Despite up to 15' of aggradation since the 2011 underwater inspection, significant scour along the sheet piling along the north elevation of pier 2 exposes the sheet piling up to 17' high on the outside. However, the stability of the structure is not affected. See photos 69-70.
EMBANKMENT EROSION:	7	Run-off from I-91 has caused minor erosion along the north abutment and wingwall embankments. Rip-rap has been placed along the north abutment embankment.
DEBRIS:	6	There is heavy man-made debris in the channel.

VEGETATION:	8	-
CHANNEL CHANGE:	5	Constriction of the channel to the west (upstream) of the structure has caused impact flow and eddy current directed toward the north elevation of pier 2. See "Channel Scour" item above.
FENDER SYSTEM:	N	-
SPUR, DIKES & JETTIES:	N	-
RIP RAP:	6	Rip-rap up to 2' wide in diameter has been placed along the channel embankments.

62. CULVERTS & RETAINING WALL:	-	Overall Rating:	N
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65. APPROACH CONDITION	-	Overall Rating:	5
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Rating

APPROACH SLAB:	N	No approach slabs are indicated in the plans. Rating changed to "N".
RELIEF JOINTS:	6	There are transverse saw-cuts in the approaches with random depressed and cracked bituminous patches in these areas. See sheets 24 & 26 and photo 71.
APPROACH GUIDE RAIL:	5	The southbound approach guide rails have random twisted/slightly bent posts, random twisted block-outs, and random scrapes. The northwest approach rail also has a disconnected post and two of four anchor bolts are sheared/cut-off at the rub-rail connection to the parapet end. The northbound metal beam rails have random minor impact damage and one bolt is sheared off at the southeast guide rail transition. The concrete median has a 2.5' long x full height broken, hollow, and spalled area at the north abutment joint (southbound side). At approximately 100' north of the bridge, the approach median barrier has a 6' long x 2' high area of collision damage, southbound side; no change. See sheets 24 & 26 and photos 3, 4, 13, 14 & 72.
APPROACH PAVEMENT:	5	The approach pavements have map cracking up to 1" wide throughout. There are random depressed patches, up to 2" deep (adjacent to south abutment joint at southwest corner of the bridge). There are isolated potholes up to 1' diameter x 3" deep. The bituminous along the paving seams is breaking up and has depressed patches and raveling/potholes up to 8" wide (south approach) x up to 3" deep (north approach). There is varying general raveling/wear, up to moderate to heavy. The approach pavement is settled up to 1.75" deep x 10' long along the west end of the north abutment joint (southbound). See sheets 24 & 26 and photos 3, 4, 71, & 73-75.
APPROACH EMBANKMENT:	7	There is minor erosion along the embankments. Embankments are well vegetated. No change.

TRAFFIC SAFETY FEATURES

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Rating

BRIDGE RAILINGS:	Last Inspection: 1 Current: 1	Meet current standards for NHS bridges.
TRANSITIONS:	Last Inspection: 1 Current: 1	Leading edges meet R-B 350 standards. See photo 72.
APPROACH GUARDRAILS:	Last Inspection: 1 Current: 1	Leading edges meet R-B 350 standards within 100' of bridge.
APPR. GUARDRAIL ENDS:	Last Inspection: 1 Current: 1	Continuous with highway rails within 100' of bridge.

66. LOAD POSTING

- Posted Loading -

SINGLE UNIT (TONS):	Last Inspection: - Current: -	-
SEMI TRAILER (TONS):	Last Inspection: - Current: -	-
4 AXLE (TONS):	Last Inspection: - Current: -	-
3S2 (TONS):	Last Inspection: - Current: -	-
ADVANCE WARNING (Y/N):	N	-
LEGIBILITY:	N	-
VISIBILITY/LOCATION:	N	-

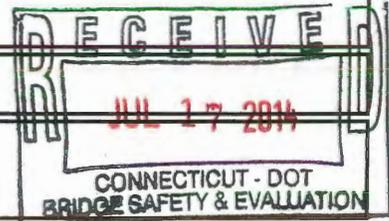
67. MISCELLANEOUS

Rating

MIN. VERT. UNDERCLEARANCE:	Last Inspection: 16' 0" Current: 16' 0"	See clearance diagram, sheet 23. 15'-11" to conduit for under-bridge lights.
POSTED CLR. UNDER BRIDGE:	Last Inspection: '-"	-

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	Current: 13' 8"	
POSTED CLR. ON BRIDGE:	Last Inspection: -	
	Current: -' -"	
ADVANCED WARNING (YES/NO):	No	
SPEED LIMIT (IF ANY):	Last Inspection: Not posted at the bridge.	
	Current: -	
CHARACTER OF TRAFFIC:	Heavy volume, mixed vehicles.	



ADDITIONAL NOTES:

Bridge ID is legible.
 Bridge is labeled from south to north with girder 1 at the west fascia, consistent with past reports.
 A 65' moog, 40' bucket truck, and inspection platforms were used for inspection access. Moveable inspection platforms are in working condition except as noted below.
 Safety boat was on site while working over water.
 State trooper and vendor single lane closures were used for I-91 closures.
 Local lane closures with New Haven police on North Front Street.

ADDITIONAL COMMENTS:

There is a BMM associated with this report.
 Also, note that the span 3, west rolling platform has a broken drive wheel (rubber has peeled/fallen off), causing the platform to get stuck at some locations within the span. The only way to move this platform when stuck is to tie the platform off to the adjacent platform. See photo 48.

Inspectors' Signatures:

1) [Signature] Date: 7/17/14
 2) [Signature] Date: 7/17/14
 3) _____ Date: ___/___/___
 4) _____ Date: ___/___/___

P.E. Signature:

[Signature] Date: 7/17/14

P.E. #:

20004 Date: ___/___/___

Reviewed by:

[Signature] Date: 7/17/14
 conndot

1-This bridge is going to be rehabed under project #92-668, a copy of report along with a copy of BMM was submitted to project engineer Dave Cutler and Andy Cardinali for adding to project work. DIT
<http://10.10.5.15/BridgeInventory/SISlite/BRI18Reports/BRI18Reports1.aspx> 7/17/2014

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CONNECTICUT DEPARTMENT OF TRANSPORTATION FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS INSPECTION DATA SHEET

Form BR112, Rev 9/97

Bridge No: Fracture Critical Inspection Date:

Year Built: FC Insp Freq: Months FC Type Code:

Town: ADT: Year of ADT: ²⁰¹³

Facility Carried: Structure Type: % Truck:

Feature Intersected:

Access Equipment Needed:

Traffic Control Required:

Reference to Plans:

MEMBER/DETAIL TYPE

Member/Detail Type: Fracture Critical

Fatigue Category: Steel Type: Fatigue Prone

Description:

Inspection Procedure:

MEMBER/DETAIL TYPE

Member/Detail Type: Fracture Critical

Fatigue Category: Steel Type: Fatigue Prone

Description:

Inspection Procedure:

¹

SUPPLEMENTAL SHEET

BRIDGE NO. 3093

DATE: SEE BELOW

FIELD ORIGINAL

TRANSCRIBED BY: _____

CREW: SEE BELOW

SHEET 20/132

DESCRIPTION: TIME LOG

DATE:	<u>6/16/14</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>SUNNY 20'S</u>	CREW:	<u>BH, MJO</u>	<u>8:30</u>	TO <u>2:30</u>
EQUIP. LIST:	<u>RAM PICKUP</u>	SNOOPER:	<u>Mc CLAIN M006</u>	<u>8:30</u>	TO <u>1:45</u>
		LIFT:	<u>—</u>		TO
		CRASH TRUCK:	<u>(2) Mc CLAIN</u>	<u>8:30</u>	TO <u>2:30</u>
ARROW HRS.	<u>TO</u>	TROOPER:	<u>RODDINONE</u>	<u>9:00</u>	TO <u>2:30</u>
VISITORS:		BOAT:	<u>NORTHEAST</u>	<u>9:00</u>	TO <u>2:30</u>
TC & NOTES:	<u>Mc CLAIN → SINGLE RT LN PATTERN S/B</u>				
	<u>PARTIAL SP#4+3 INSP</u>				

DATE:	<u>6/17/14</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>VARIABLE 80'S</u>	CREW:	<u>BH, MJO</u>	<u>8:30</u>	TO <u>3:30</u>
EQUIP. LIST:	<u>RAM PICK-UP</u>	SNOOPER:	<u>Mc CLAIN M006</u>	<u>8:30</u>	TO <u>2:30</u>
		LIFT:	<u>—</u>		TO
		CRASH TRUCK:	<u>(2) Mc CLAIN</u>	<u>8:30</u>	TO <u>3:30</u>
ARROW HRS.	<u>TO</u>	TROOPER:	<u>J. LUND #751</u>	<u>8:30</u>	TO <u>3:30</u>
VISITORS:		BOAT:	<u>NORTHEAST</u>	<u>8:30</u>	TO <u>2:30</u>
TC & NOTES:	<u>Mc CLAIN → SINGLE RT LN PATTERN (S/B)</u>				
	<u>PARTIAL INSP SP# 2+3 - TOP OF DOCK (PARTIAL)</u>				

DATE:	<u>6/18/14</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>SUNNY 80'S</u>	CREW:	<u>BH, MJO</u>	<u>8:30</u>	TO <u>3:30</u>
EQUIP. LIST:	<u>PICK-UP</u>	SNOOPER:	<u>—</u>		TO
		LIFT:	<u>BAKER 40'</u>	<u>8:30</u>	TO <u>3:30</u>
		CRASH TRUCK:	<u>—</u>		TO
ARROW HRS.	<u>TO</u>	TROOPER:	<u>—</u>		TO
VISITORS:		BOAT:	<u>NORTHEAST</u>	<u>8:30</u>	TO <u>1:30</u>
TC & NOTES:	<u>PARTIAL SP# 12-4 INSP. - NO TC → MOST SP#2, PARTIAL FOLLOWING</u>				
	<u>PATTERN INSP SP#4+3</u>				

DATE:	<u>6/19/14</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>cloudy 82°F</u>	CREW:	<u>MJO/SW</u>	<u>8:30</u>	TO <u>2:15</u>
EQUIP. LIST:	<u>BAKER CURB</u>	SNOOPER:	<u>—</u>		TO
		LIFT:	<u>BAKER 40'</u>	<u>8:30</u>	TO <u>2:15</u>
		CRASH TRUCK:	<u>—</u>		TO
ARROW HRS.	<u>TO</u>	TROOPER:	<u>—</u>		TO
VISITORS:		NEW HAVEN PD:	<u>PALMER 1362</u>	<u>8:30</u>	TO <u>1:00</u>
TC & NOTES:	<u>LANE SHIFTS ON N FRONT ST ;</u>				
	<u>INSP SP#1 (1002 + PART SP#2</u>				

SUPPLEMENTAL SHEET

BRIDGE NO. 3093

DATE: SEE BELOW

FIELD ORIGINAL

TRANSCRIBED BY: _____

CREW: SEE BELOW

SHEET 21/132

DESCRIPTION: TIME LOG

DATE:	<u>6/23/14</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>SUNNY, 70S + 80S</u>	CREW:	<u>MTO/BH</u>	8:30	TO 5:30
EQUIP. LIST:	<u>PICK-UP</u>	SNOOPER:	<u>M006 - AL CURTIN</u>	8:30	TO 2:45
		LIFT:	<u>-</u>		TO
		CRASH TRUCK:	<u>(2) McCLAIN (SINGLE LANE PATTERN)</u>	8:30	TO 3:30
ARROW HRS.	<u>TO</u>	TROOPER:	<u>PAZK</u>	9:30	TO 5:30
VISITORS:		BOAT:	<u>NORTHEAST</u>	8:30	TO 3:00
TC & NOTES:	<u>RT LP CLOSURE I-91 N/B</u>				
	<u>INSP PARTS SP# 203</u>				

DATE:	<u>6/24/2014</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>SUNNY 85°</u>	CREW:	<u>MRS, BH</u>	8:30AM	TO 3:00PM
EQUIP. LIST:	<u>PICKUP TRUCK (BAKER)</u>	SNOOPER:	<u>65 M009 (McCLAIN)</u>	8:30AM	TO 10:30AM
		LIFT:	<u>-</u>		TO
		CRASH TRUCK:	<u>SINGLE LANE CLOSURE PATTERN (McCLAIN)</u>	8:30AM	TO 3:00PM
ARROW HRS.	<u>TO</u>	TROOPER:	<u>C. MELANSON #779</u>	8:30AM	TO 3:00PM
VISITORS:		BOAT:	<u>SAFETY BOAT NORTHEAST SAFETY BOAT</u>	8:30AM	TO 11:00AM
TC & NOTES:	<u>RIGHT & LEFT LANE CLOSURE ON I-91 NB & LEFT LANE LANE ON I-91 SB.</u>				
	<u>INSPECTED PART OF SPAN 4 SUPERSTRUCTURE & SUBSTRUCTURE & TOP OF DECK.</u>				

DATE:	<u>6/25/14</u>	DESCRIPTION:		TIME AT SITE:	
WEATHER:	<u>CLOUDY 80</u>	CREW:	<u>MTO/BH</u>	8:30	TO 2:15
EQUIP. LIST:	<u>PICK-UP</u>	SNOOPER:	<u>-</u>		TO
		LIFT:	<u>-</u>		TO
		CRASH TRUCK:	<u>-</u>		TO
ARROW HRS.	<u>TO</u>	TROOPER:	<u>-</u>		TO
VISITORS:		BOAT:	<u>NORTHEAST</u>	8:30	TO 2:15
TC & NOTES:	<u>INSP PARTS SP# 2+3 FROM PLATFORMS; INSP COMPUTE</u>				

DATE:	_____	DESCRIPTION:		TIME AT SITE:	
WEATHER:	_____	CREW:	_____		TO _____
EQUIP. LIST:	_____	SNOOPER:	_____		TO _____
		LIFT:	_____		TO _____
		CRASH TRUCK:	_____		TO _____
ARROW HRS.	<u>TO</u>	TROOPER:	_____		TO _____
VISITORS:		BOAT:	_____		TO _____
TC & NOTES:	_____				

SUPPLEMENTAL SHEET

BRIDGE NO. 03093

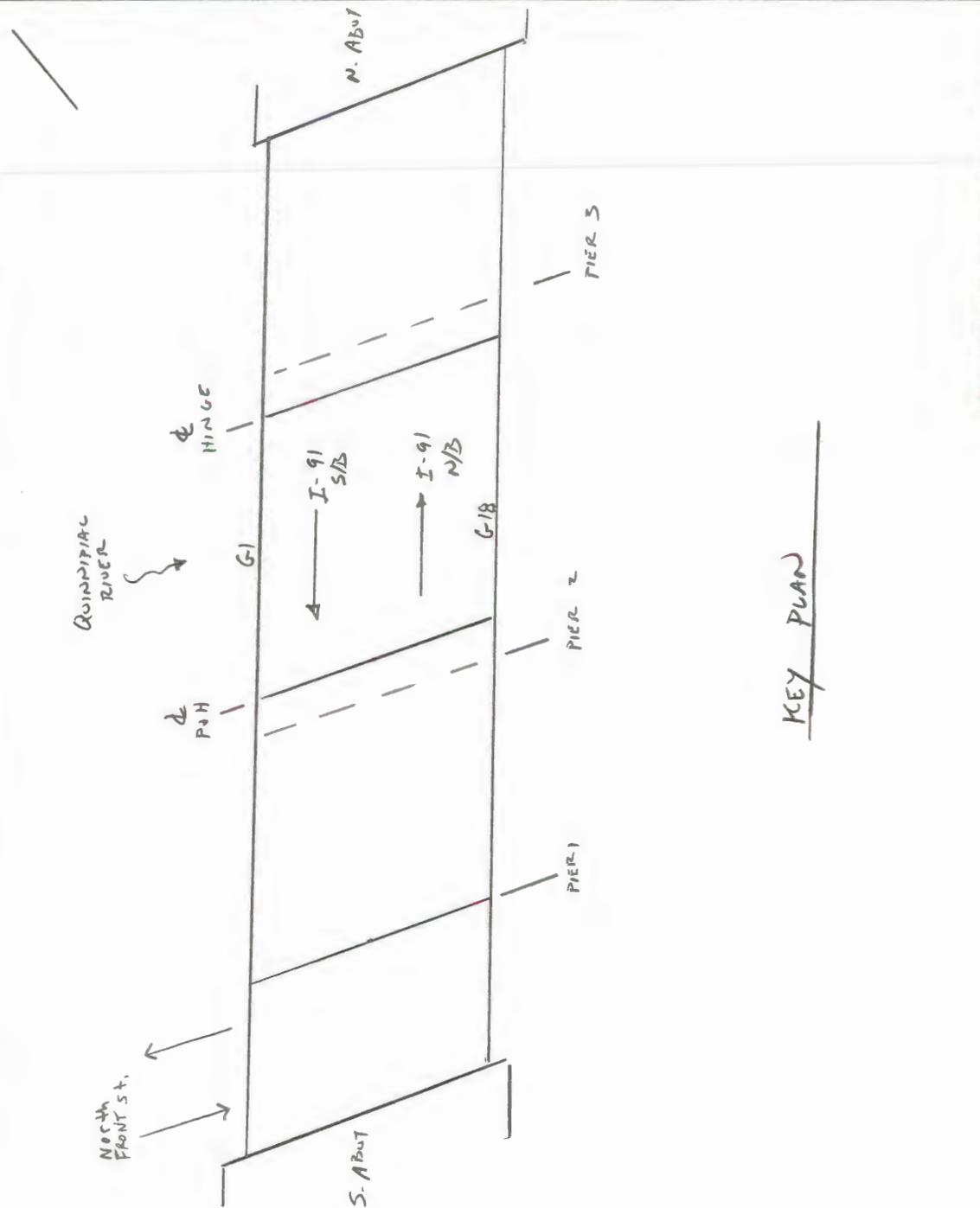
DATE: 6/16/14

FIELD ORIGINAL TRANSCRIBED BY: _____

CREW: MJU/BH

SHEET 22 OF 132

DESCRIPTION: KEY PLAN



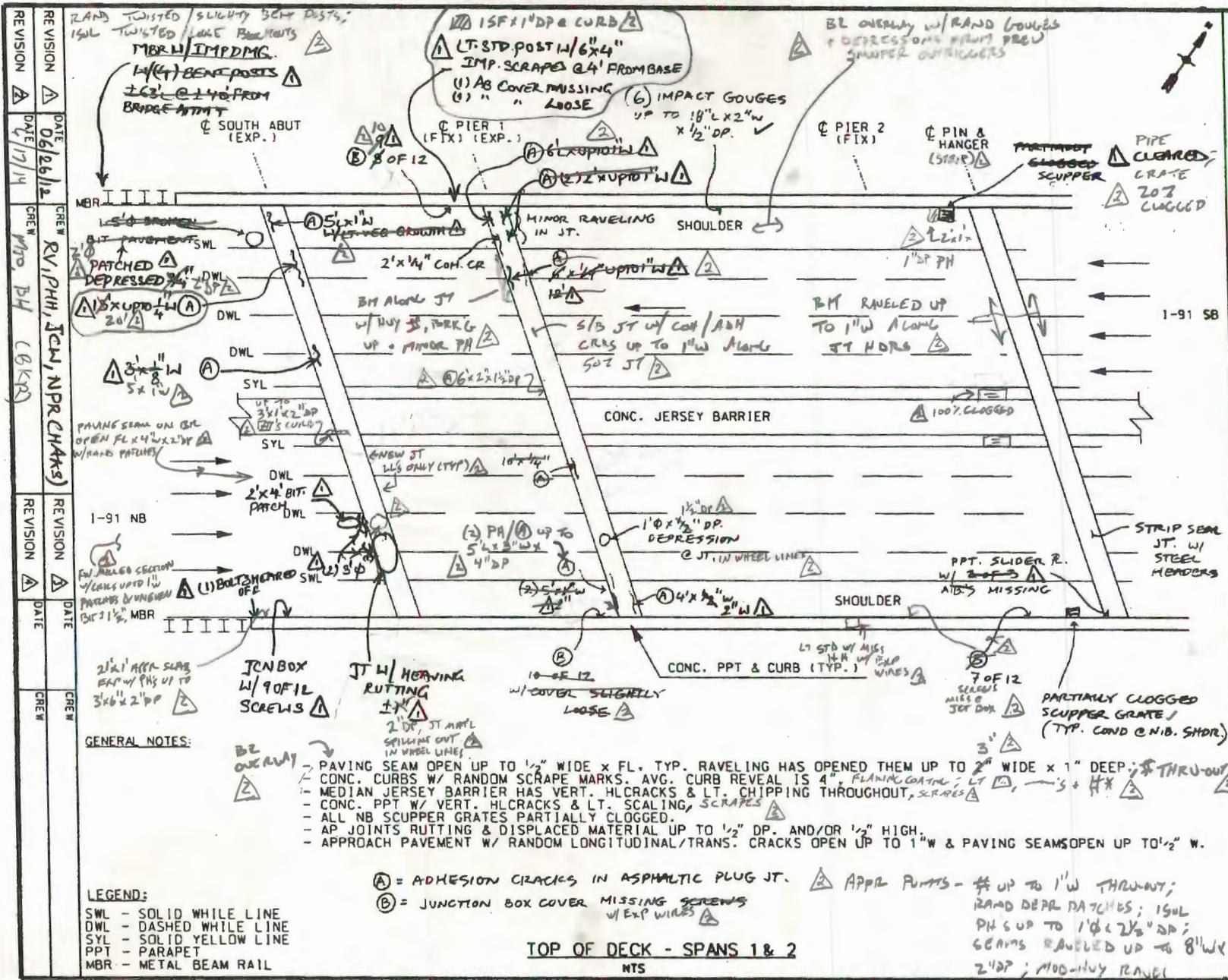
KEY PLAN

DATE	DATE	COMPANY	CREW
△			
△			
△			
△			

HAKS FIELD NOTES

DATE: 9/14/10
CREW: PHH, GM

JOB NO. 170-3013
BRIDGE NO. 03093
SHEET 22 OF 49



GENERAL NOTES:

- PAVING SEAM OPEN UP TO 1/2" WIDE x FL. TYP. RAVELING HAS OPENED THEM UP TO 2" WIDE x 1" DEEP; ~~THRU-OUT~~
- CONC. CURBS W/ RANDOM SCRAPE MARKS. AVG. CURB REVEAL IS 4". PLANING COATING; LT. ~~1~~ - 3' + HX ~~1~~
- MEDIAN JERSEY BARRIER HAS VERT. HLCRACKS & LT. CHIPPING THROUGHOUT, SCRAPES ~~1~~
- CONC. PPT W/ VERT. HLCRACKS & LT. SCALING, SCRAPES ~~1~~
- ALL NB SCUPPER GRATES PARTIALLY CLOGGED.
- AP JOINTS RUTTING & DISPLACED MATERIAL UP TO 1/2" DP. AND/OR 1/2" HIGH.
- APPROACH PAVEMENT W/ RANDOM LONGITUDINAL/TRANS. CRACKS OPEN UP TO 1"W & PAVING SEAMS OPEN UP TO 1/2" W.

LEGEND:

- SWL - SOLID WHITE LINE
- DWL - DASHED WHITE LINE
- SYL - SOLID YELLOW LINE
- PPT - PARAPET
- MBR - METAL BEAM RAIL

- (A) = ADHESION CRACKS IN ASPHALTIC PLUG JT. ~~1~~ APPR PUMPS - # UP TO 1' W THRU-OUT; RAND DEBR PATCHES; ISUL PIT 6 UP TO 1' x 2 1/2" DP; SEAMS RAVEL UP TO 8" W x 2" DP; 100-HUY RAVEL
- (B) = JUNCTION BOX COVER MISSING SCREWS W/ EXP WIRTS ~~1~~

TOP OF DECK - SPANS 1 & 2
NTS

24/132
10/10/10

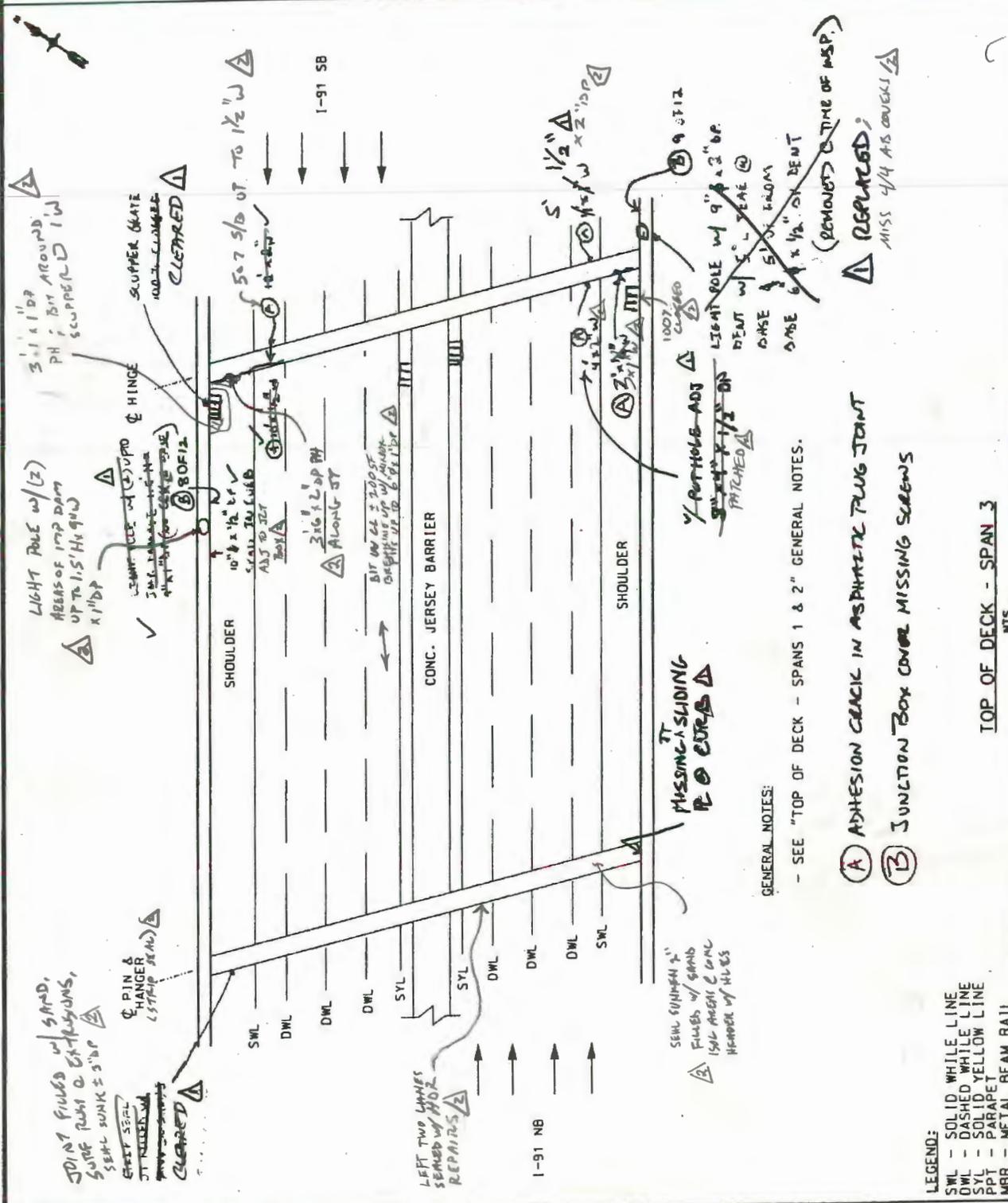
19/104
25/132



FIELD NOTES

JOB NO. 170-3013
DATE: 9/14/10
CREW: FHH, G71

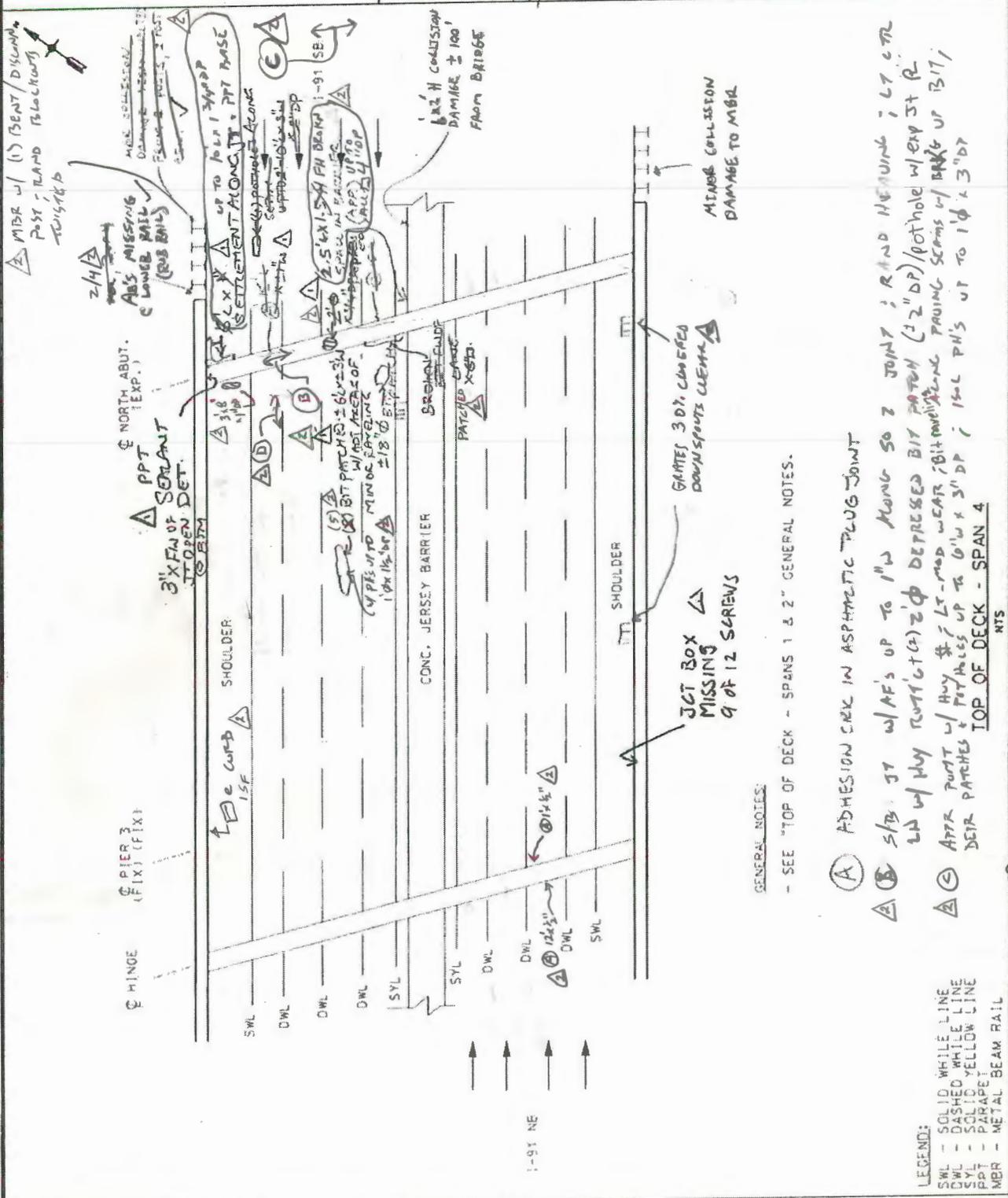
BRIDGE NO. 03093
SHEET 23 OF 49



REVISION	DATE	CREW	REVISION	DATE	CREW
△	6/26/12	RV, PHH, NPR (HAKS)	△		
△	6/17/14	MPO, TSH (BKR)	△		

26/132

	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 9/14/10	SHEET 24 OF 41
	CREW: PHH, GM	



GENERAL NOTES:
 - SEE "TOP OF DECK - SPANS 1 & 2" GENERAL NOTES.

- (A) ADHESION CRK IN ASPHALTIC PLUG JOINT
- (B) STRUT W/AF'S UP TO 1" W/ HUNG SO 2 JOINT; R AND HEAVING; LT CR
- (C) LN W/ HUY TUNING (G) 2" DECREASED BIT PATCH (1.2" DP) / POT HOLE W/ HUY ST R
- (D) ATTR PATCH W/ HUY #1 LT-MOD WEAR BIT MILDLY CONC TRAVING SCAMS W/ DARK UP BIT; DETR PATCHES UP TO 6" W X 3" DP; 1/2" PH'S UP TO 1' W X 3" DP

LEGEND:
 SWL - SOLID WHITE LINE
 DWL - DASHED WHITE LINE
 SYL - SOLID YELLOW LINE
 PPT - PARAPET
 MBR - METAL BEAM RAIL

REVISION	DATE	CREW	REVISION	DATE	CREW
△	6/26/12	RV, PHH, NPR (CHAKS)	△		
△	6/17/14	MTD/DH (BAKER)	△		

27/132

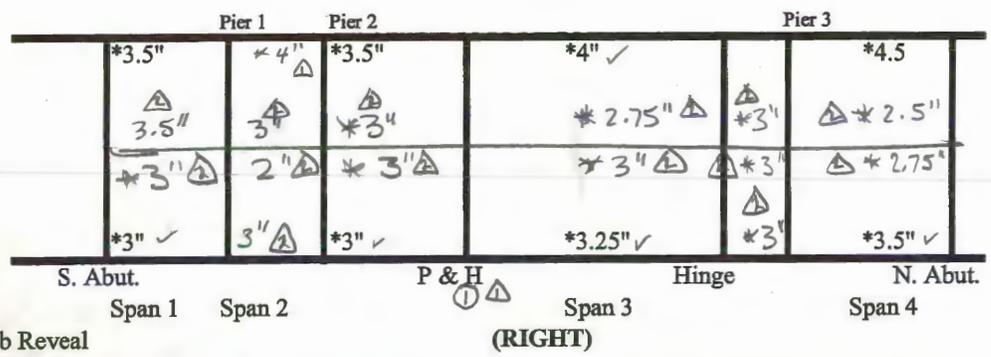
HAKS

FIELD NOTES

JOB NO. 170-3013 DATE : 06/26/12
 BRIDGE NO: 03093 SHEET: 20 OF 104
 CREW : RV, PHH

PARAPET JOINT MEASUREMENTS

(LEFT)



* = Curb Reveal

(RIGHT)

LOCATION	WINTER MEASUREMENT < 50° F				SUMMER MEASUREMENT > 50° F				JOINT TYPE
	LEFT	RIGHT	TEMP	DATE	LEFT	RIGHT	TEMP	DATE	
S. Abut.	2"	2"		A/B	1 15/16"	2"	70	9/14/2010	Asphaltic Plug
Pier 1	1 5/8"	3/4"		A/B	1 3/8"	3/4"	70	9/14/2010	Asphaltic Plug
P & H (Exp.)	2 7/16"	2 1/4"		A/B	2 3/8"	2 5/8"	70	9/14/2010	Strip Seal
Hinge (Fixed)	1 1/2"	2"		A/B	1 1/2"	2"	70	9/14/2010	Asphaltic Plug
North Abut.	13/16"	1 7/8"		A/B	3/4"	1 7/8"	70	9/14/2010	Asphaltic Plug
S. ABUT					2 1/2"	2 1/8"			LEFT - 80 RT - 75 LEFT - 6/17/14 RIGHT - 6/22/14 APT
PIER 1					1 3/8"	5/8"			APT
P&H (EXP)					2 1/4"	2 5/8"			STRIP SEAL
HINGE (FIX)					1 7/16"	2"			APT
N. ABUT					3/4"	1 13/16"			APT

GENERAL NOTES: Measurements taken 3" down from the top of the parapet at the fascia side (due to joint sealant).

A - Left Measurements were taken on 06/26/12 at 71°F.

B - Right Measurements were taken on 06/28/12 at 80°F.

6/17/14 BH, USD (SKK)

① NO SEAL AT JOINT



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HAKS FIELD NOTES

BRIDGE NO.	03093	DATE :	7/27/2012
CREW :	PHH, JFE	SHEET	21 OF 104

ROCKER BEARING MEASUREMENTS

Form BRI - 15, Rev 9/97

△ 6/10/14 → 1750/BH CBRP

Span No. = 2

Substructure Unit = Pier 1

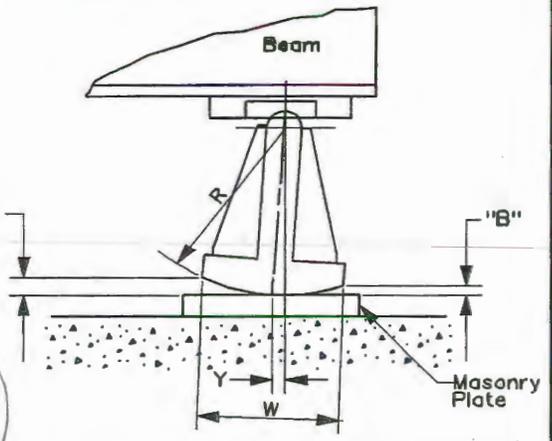
Temperature = 79 °F

$\theta = \sin^{-1} (F-B)/W$
 $Y = R \tan \theta$

NOTE:
 "F" & "B" should be measured at the left side corners of the rocker or on the side closest to the front face of the substructure on skewed bridges.

The "Front" of the bearing is the side facing the fixed bearing.

REPLACED w/
 ELAST BOLLS,
 EXP @ 80°F
 2



R = 13 inch
 W = 10 inch

Beam	" F "	" B "	Y	Cont or Exp.	Comments
G1	1	13/16	4/16	E	Pack rust between bearing pin and sole plate lifting girder. Up to 1/4" pack rust under rocker. Active leakage onto bearing.
G2	1 2/16	1	3/16	E	1/2" pack rust and crushed rust under rocker lifting bearing.
G3	1 2/16	1	3/16	E	3/8" pack rust under rocker lifting bearing. Also pack rust between pin and sole plate.
G4	1 6/16	1 3/16	4/16	E	3/8" pack rust under rocker lifting bearing.
G5	1 7/16	1	9/16	E	1/2" pack rust under rocker lifting bearing.
G6	1 6/16	1 2/16	5/16	E	1/2" pack rust under rocker lifting bearing.
G7	1 7/16	1 2/16	7/16	E	1/2" pack rust under rocker lifting bearing.
G8	1 7/16	15/16	10/16	E	1/2" pack rust under rocker lifting bearing.
G9	1 2/16	13/16	7/16	E	Laminated rust on rocker, up to 1/4" pack rust under rocker lifting it.
G10	1 6/16	1 3/16	4/16	E	Laminated rust on rocker, up to 1/4" pack rust under rocker. Also active leakage onto bearing.
G11	1 3/16	15/16	5/16	E	Up to 3/8" pack rust below rocker.
G12	1 1/16	1	1/16	E	3/16" pack rust below rocker.
G13	1	14/16	3/16	E	1/8" pack rust below rocker.
G14	11/16	12/16	- 1/16	C	Crushed rust below rocker.
G15	15/16	12/16	4/16	E	Crushed rust below rocker.
G16	15/16	1 2/16	- 4/16	C	Pack rust under rocker at front and back ±1/8".
G17	14/16	1 4/16	- 8/16	C	1/8" pack rust below rocker.
G18	1	1	0	N	10% section loss on west pin nut. Up to 1/4" pack rust under rocker lifting it.

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HAKSFIELD NOTES

BRIDGE NO. 03093
 CREW: RV, MJW

DATE: 6/6/2012
 SHEET 23 OF 104

ROCKER BEARING MEASUREMENTS

Form BRI - 15, Rev 9/97

6/16/14 - MTD/BH (AKD)

Span No. = 4

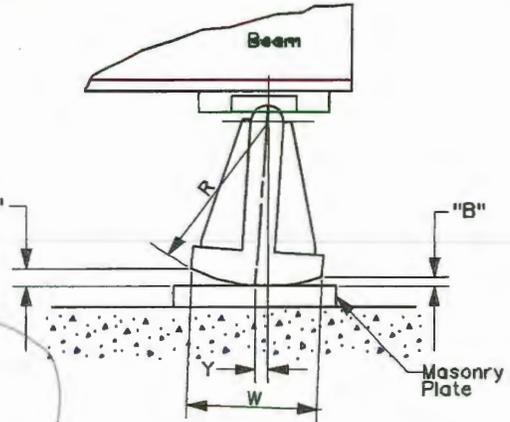
Substructure
 Unit = North Abutment

Temperature = 64 °F

$\theta = \sin^{-1} (F-B)/W$
 $Y = R \tan \theta$

NOTE:
 "F" & "B" should be measured at the left side corners of the rocker or on the side closest to the front face of the substructure on skewed bridges.

The "Front" of the bearing is the side facing the fixed bearing.



REPLACED w/
 ELAST BAGS,
 EXP MODE C
 70°F

R = 13 inch
 W = 10 inch

Beam	" F "	" B "	Y	Cont or Exp.	Comments
G1	1 12/16	15/16	1 1/16	E	Light rust. 1/2" pack rust under rocker lifting bearing.
G2	1 12/16	13/16	1 4/16	E	Abrasion rust at pin. Up to 1/2" pack rust under bearing.
G3	1 13/16	1	1 1/16	E	7/16" pack rust under bearing.
G4	1 10/16	5/16	1 12/16	E	Abrasion rust at pin. 1/4" pack rust under bearing on West side
G5	1 6/16	11/16	14/16	E	Up to 3/16" pack rust on West side
G6	1 12/16	8/16	1 10/16	E	Abrasion rust at sole plate to pin up to 3/16" pack rust on West side.
G7	1 4/16	14/16	8/16	E	Pack rust up to 1/2" under bearing (West side).
G8	1 2/16	1	3/16	E	West anchor bolt rusted off. Bearing on West side lifted up to 13/16".
G9	1 12/16	1 1/16	14/16	E	3/4" pack rust under rocker lifting bearing. Abrasion rust at West side of pin.
G10	1 12/16	1 3/16	12/16	E	7/8" pack rust under rocker lifting bearing. 50% loss of bearing area.
G11	1 8/16	13/16	14/16	E	3/4" pack rust under rocker lifting bearing.
G12	1 10/16	14/16	1	E	1/2" pack rust under rocker lifting bearing.
G13	1	1	0	N	1/2" pack rust. Bearing slightly pumps vertically under L.L.
G14	1 10/16	1 6/16	5/16	E	1/2" pack rust under rocker lifting bearing. Abrasion rust at East side pin
G15	1 10/16	1 1/16	12/16	E	3/8" pack rust under rocker lifting bearing, with gaps & up to 50% loss of brg. area.
G16	1 8/16	1 6/16	3/16	E	1/2" pack rust under rocker lifting bearing.
G17	1 5/16	1 3/16	3/16	E	1/4" pack rust under rocker lifting bearing.
G18	6/16	1 2/16	-1	C	Moderate to heavy laminated rust. 1/4" pack rust under rocker lifting bearing.

PIN & HANGER DATA SHEET

Form BRI-29, Rev. 6/99

Measurements Taken By: BH

Date: 6/17/14
6/25/14

Bridge No.: 3093

I-91 / Q. RIVER + N. FRONT ST Town: NEW HAVEN

Hanger Location: SP#3, SOUTH KING (EXT)

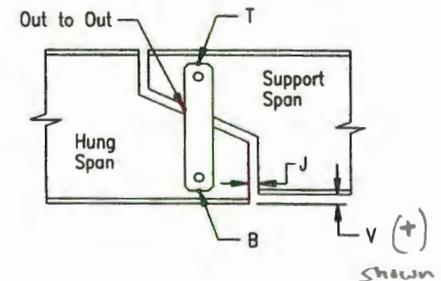
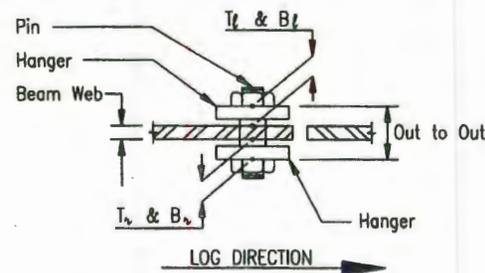
Effective span for Movement: 220 (ft)

Page: MPO of

Beam No.	V (in)	J (in)	Tr (in)	Br (in)	T/ (in)	B/ (in)	Out to Out (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Temp	Comments
1	(-) 1/16	2 7/16"	3 3/8"	3 5/16"	3 5/16"	3 3/8"	10 1/4"	NONE	N/A	WELDED BAR	72	WINDLOCK
2	(-) 1/8"	2 1/2"	3 1/4"	3 7/16"	3 5/16"	3 3/8"	10 3/16"					
3	0"	3 1/2"	3 1/4"	3 3/8"	3 5/16"	3 5/16"	10 1/8"					BF w/ MINOR BEND & V MEAS, VARIES DEPENDING ON MEAS LOC IN
4	+ 1/8"	3 1/2"	3 3/16"	3 1/4"	3 5/16"	3 3/16"	10 1/4"					
5	(-) 5/16"	2 7/8"	3 5/16"	3 1/4"	3 3/8"	3 1/2"	10 3/16"					
6	+ 1/8"	4 1/8"	3 1/4"	3 5/16"	3 3/8"	3 1/8"	10 5/16"					
7	(-) 7/16"	2 3/4"	3 5/16"	3 5/16"	3 1/4"	3 1/4"	10 3/16"					6/17/14
8	(-) 5/8"	3 1/8"	3 3/16"	3 1/4"	3 7/16"	3 3/16"	10 3/16"				80°	6/25/14
9	(-) 3/8"	2 3/4"	3 5/16"	3 1/4"	3 1/8"	3 1/4"	10 1/4"					WIND LOCK → 7/16" ID B/W SUPPORT BF & WINDLOCK
10	1/4"	4 1/16"	3 3/16"	3 1/4"	3 3/16"	3 3/16"	10 1/4"					TR (1/2") B/W WINDLOCK & SUPPORT BF

Notes:

- For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
 - Out to Out** : The out-to-out of hangers taken at the leading edge, based on log direction.
- Use a permanent marker to indicate locations of field measurements.



CEP
BM ENDS PAINTED NEAR P+H

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PIN & HANGER DATA SHEET

Form BRI-29, Rev. 6/99

Measurements Taken By: BH/MSO

Date: 6/23/14
6/25/14

Bridge No.: 3093

I-91 / Q. RIVER + N. FRONT ST Town: NEW HAVEN

Hanger Location: SP#3 SOUTH LINE

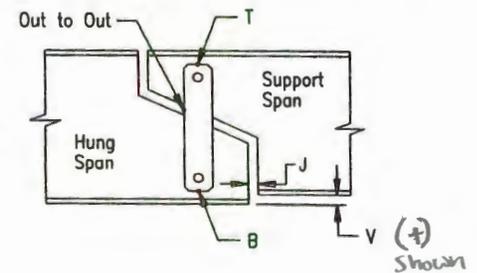
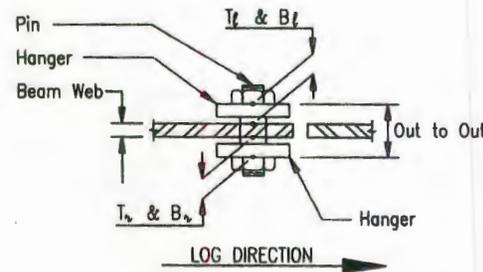
Effective span for Movement: 220 (ft)

Page: _____ of _____

Beam No.	V (in)	J (in)	Tr (in)	Br (in)	T/ (in)	B/ (in)	Out to Out (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Temp	Comments
11	-1/8"	4 3/16"	3 1/16"	3 5/16"	3 1/8"	3 3/16"	10 3/16"	NONE	N/A	WELDED BAR	80°	
12	+1/16"	3 3/4"	3 1/4"	3 1/4"	3 3/16"	3 1/4"	10 1/4"	NONE	N/A		80°	"J" - MEAS VARIES DUE TO SL 6/25/14 ↑
13	1/8"	3 7/8"	3 1/4"	3 5/16"	3 3/8"	3 1/4"	10 1/4"	NONE	N/A		75°F	6/23/14 ↓
14	1/4"	3 9/16"	3 7/16"	3 3/8"	3 1/2"	3 1/4"	10 1/4"	NONE	N/A		75°F	
15	3/16"	3 7/8"	3 7/16"	3 5/16"	3 3/16"	3 5/16"	10 3/16"	NONE	N/A		75°F	
16	-3/16"	3 1/8"	3 5/16"	3 3/8"	3 3/8"	3 3/8"	10 3/16"	NONE	N/A		75°F	
17	-3/16"	3 1/8"	3 7/16"	3 3/8"	3 1/4"	3 5/16"	10 1/8"	NONE	N/A		75°F	WIND LOCK
18	3/8"	3 1/4"	3 1/4"	3 3/8"	3 3/8"	3 5/16"	10 3/8"	NONE	N/A		75°F	

Notes:

- 1) For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- 2) All measurements are taken in reference to log direction.
 - V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
 - Out to Out** : The out-to-out of hangers taken at the leading edge, based on log direction.
- 3) Use a permanent marker to indicate locations of field measurements.



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PIN & HANGER DATA SHEET

Form BRI-29, Rev. 9/97

Measurements Taken By: BH/MJO Date: 6/17/2014

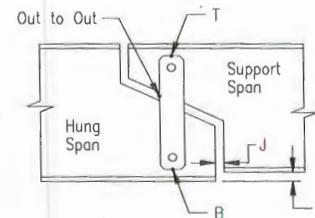
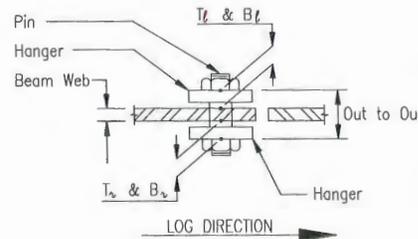
Bridge No.: 03093 I-91 over Quinnipiac River & North Front Street Town: New Haven Measurements Reviewed By: WMK Date: 7/15/2014

Hanger Location: Span 3, South Line (Expansion) Effective span for Movement: 220 Page: of

Beam No.	V (in)	J (in)	T _w (in)	B _w (in)	T _l (in)	B _l (in)	Out to Out (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Temp Deg. F.	Comments (2014 Measurements)
1	- 1/16	2 7/16	3 1/8	3 5/16	3 5/16	3 3/8	10 1/4	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
2	- 1/8	2 1/2	3 1/4	3 7/16	3 5/16	3 3/8	10 3/16	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
3	0	3 1/2	3 1/4	3 3/8	3 5/16	3 5/16	10 1/8	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
4	1/8	3 1/2	3 3/16	3 1/4	3 5/16	3 3/16	10 1/4	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
5	- 5/16	2 7/8	3 5/16	3 1/4	3 3/8	3 1/2	10 3/16	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
6	1/8	4 1/8	3 1/4	3 5/16	3 3/8	3 1/8	10 5/16	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
7	- 7/16	2 3/4	3 5/16	3 5/16	3 1/4	3 1/4	10 3/16	None	N/A	Welded Bar	72	See 2014 field sheets for comments.
8	- 5/8	3 7/8	3 3/16	3 1/4	3 7/16	3 7/16	10 3/16	None	N/A	Welded Bar	80	See 2014 field sheets for comments.
9	- 3/8	2 3/4	3 5/16	3 1/4	3 1/8	3 1/4	10 1/4	None	N/A	Welded Bar	80	See 2014 field sheets for comments.
10	1/4	4 1/16	3 3/16	3 1/4	3 3/16	3 3/16	10 1/4	None	N/A	Welded Bar	80	See 2014 field sheets for comments.
11	- 1/8	4 3/16	3 1/16	3 5/16	3 1/8	3 3/16	10 3/16	None	N/A	Welded Bar	80	See 2014 field sheets for comments.
12	1/16	3 3/4	3 1/4	3 1/4	3 3/16	3 1/4	10 1/4	None	N/A	Welded Bar	80	See 2014 field sheets for comments.
13	1/8	3 7/8	3 1/4	3 5/16	3 3/8	3 1/4	10 1/4	None	N/A	Welded Bar	75	See 2014 field sheets for comments.
14	1/4	3 9/16	3 7/16	3 3/8	3 1/2	3 1/4	10 1/4	None	N/A	Welded Bar	75	See 2014 field sheets for comments.
15	3/16	3 7/8	3 7/16	3 5/16	3 3/16	3 5/16	10 3/16	None	N/A	Welded Bar	75	See 2014 field sheets for comments.
16	- 3/16	3 1/8	3 5/16	3 3/8	3 3/8	3 3/8	10 3/16	None	N/A	Welded Bar	75	See 2014 field sheets for comments.
17	- 3/16	3 1/8	3 7/16	3 3/8	3 1/4	3 5/16	10 1/8	None	N/A	Welded Bar	75	See 2014 field sheets for comments.
18	3/8	3 1/4	3 1/4	3 3/8	3 3/8	3 5/16	10 3/8	None	N/A	Welded Bar	75	See 2014 field sheets for comments.

Notes:

- For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
 - Out to Out** : The out-to-out of hangers taken at the leading edge, based on log direction.
- Use a permanent marker to indicate locations of field measurements.
- Beam ends painted at pin & hangers.



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PIN & HANGER DATA SHEET

Form BRI-29, Rev. 9/97

Measurements Taken By: PHH Date: 6/5/2012

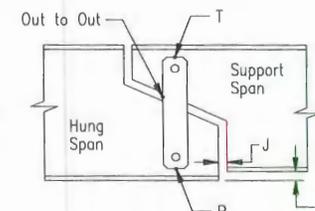
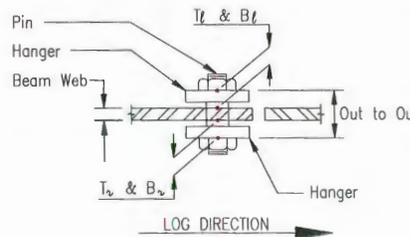
Bridge No.: 03093 I-91 over Quinnipiac River & North Front Street Town: New Haven Measurements Reviewed By: MJW Date: 6/5/2012

Hanger Location: Span 3, South Line (Expansion) Effective span for Movement: 220 Page: of

Beam No.	V (in)	J (in)	T _v (in)	B _v (in)	T _l (in)	B _l (in)	Out to Out (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Temp of	Comments (2012 Measurements)
1	- 1/16	2 7/16	3 1/8	3 1/4	3 5/16	3 3/8	10 5/16	None	N/A	Welded Bar	75	See 2012 report for comments.
2	- 3/16	2 9/16	3 1/4	3 7/16	3 3/8	3 3/8	10 1/8	None	N/A	Welded Bar	75	See 2012 report for comments.
3	- 1/8	3 1/2	3 1/4	3 3/8	3 1/4	3 5/16	10 1/16	None	N/A	Welded Bar	75	See 2012 report for comments.
4	0	3 1/2	3 3/16	3 1/4	3 1/4	3 1/4	10 3/16	None	N/A	Welded Bar	75	See 2012 report for comments.
5	- 7/16	2 15/16	3 1/4	3 3/16	3 5/16	3 1/2	10 1/4	None	N/A	Welded Bar	75	See 2012 report for comments.
6	- 1/8	4 1/8	3 1/4	3 5/16	3 3/8	3 1/8	10 5/16	None	N/A	Welded Bar	75	See 2012 report for comments.
7	3/8	2 13/16	3 1/4	3 5/16	3 3/16	3 3/16	10 3/16	None	N/A	Welded Bar	63	See 2012 report for comments.
8	9/16	4 1/8	3 3/16	3 5/16	3 3/8	3 3/8	10 1/8	None	N/A	Welded Bar	63	See 2012 report for comments.
9	3/8	2 3/4	3 1/4	3 1/4	3 1/4	3 3/16	10 1/4	None	N/A	Welded Bar	63	See 2012 report for comments.
10	1/8	4	3 1/4	3 1/4	3 3/16	3 3/16	10 1/4	None	N/A	Welded Bar	66	See 2012 report for comments.
11	- 3/16	4 11/16	3 3/16	3 1/8	3 1/4	3 1/4	10 1/4	None	N/A	Welded Bar	66	See 2012 report for comments.
12	- 3/16	3 9/16	3 1/4	3 1/4	3 3/16	3 3/8	10 1/8	None	N/A	Welded Bar	66	See 2012 report for comments.
13	- 1/8	3 15/16	3 1/4	3 3/8	3 1/4	3 1/4	10 3/16	None	N/A	Welded Bar	77	See 2012 report for comments.
14	3/16	3 11/16	3 1/4	3 1/4	3 1/4	3 1/4	10 3/16	None	N/A	Welded Bar	77	See 2012 report for comments.
15	1/16	3 7/8	3 3/8	3 1/4	3 3/16	3 1/4	10 3/16	None	N/A	Welded Bar	77	See 2012 report for comments.
16	- 1/4	3 1/16	3 5/16	3 3/8	3 3/8	3 3/8	10 1/16	None	N/A	Welded Bar	77	See 2012 report for comments.
17	- 3/16	3 1/16	3 3/8	3 3/8	3 1/4	3 5/16	10 1/4	None	N/A	Welded Bar	77	See 2012 report for comments.
18	5/16	3 1/8	3 3/16	3 7/16	3 3/8	3 3/8	10 7/16	None	N/A	Welded Bar	77	See 2012 report for comments.

Notes:

- For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
 - Out to Out** : The out-to-out of hangers taken at the leading edge, based on log direction.
- Use a permanent marker to indicate locations of field measurements.



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PIN & HANGER ANALYSIS SHEET

Form BRI-29, Rev. 9/97

Measurements Taken By: ---

Date: ---

Bridge No.: 03093

I-91 over Quinnipiac River & North Front Street

Town: New Haven

Measurements Reviewed By: WMK

Date: 7/15/2014

Hanger Location: Span 3, South Line (Expansion)

Effective span for Movement: 220

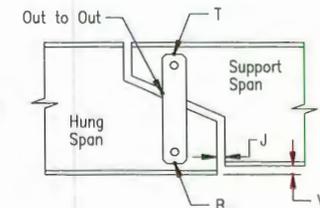
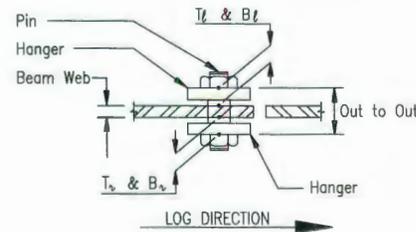
Page: ---

of ---

Beam No.	V (in)	J (in)	Calc'd J (in)	Calc'd Diff. in J's (in)	T _z (in)	B _z (in)	T _ℓ (in)	B _ℓ (in)	Out to Out (in)	Reviewer's Comments (Comparison Sheet)
1	0	0	0.051	1/16	0	1/16	0	0	- 1/16	
2	1/16	- 1/16	-0.051	0	0	0	- 1/16	0	1/16	
3	1/8	0	0.051	1/16	0	0	1/16	0	1/16	
4	1/8	0	0.051	1/16	0	0	1/16	- 1/16	1/16	
5	1/8	- 1/16	0.051	2/16	1/16	1/16	1/16	0	- 1/16	
6	1/4	0	0.051	1/16	0	0	0	0	0	"V" = 2014: 1/8; 2012: (-)1/8; 2010: (-)1/8; 2008: (-)1/8; 2006: (-)3/16. Indicates 1/4" drop of hung span.
7	- 13/16	- 1/16	-0.154	1/16	1/16	0	1/16	1/16	0	"V" = 2014: (-)7/16; 2012: 6/16; 2010: 6/16; 2008: 11/16; 2006: (-)8/16. Indicates 13/16" rise of hung span.
8	-1 3/16	- 1/4	-0.292	1/16	0	- 1/16	1/16	1/16	1/16	"V" = 2014: (-)10/16; 2012: 9/16; 2010: 9/16; 2008: 15/16; 2006: (-)12/16. Indicates 1 3/16" rise of hung span.
9	- 3/4	0	-0.292	5/16	1/16	0	- 1/8	1/16	0	"V" = 2014: (-)6/16; 2012: 6/16; 2010: 6/16; 2008: 10/16; 2006: (-)7/16. Indicates 3/4" rise of hung span.
10	1/8	1/16	-0.240	5/16	- 1/16	0	0	0	0	
11	1/16	- 1/2	-0.240	4/16	- 1/8	3/16	- 1/8	- 1/16	- 1/16	"Br" = 2014: 3 5/16; 2012: 3 2/16; 2010: 3 5/16; 2008: 3 5/16; 2006: 3 5/16
12	1/4	3/16	-0.240	7/16	0	0	0	- 1/8	1/8	"V" = 2014: 1/16; 2012: (-)3/16; 2010: (-)3/16; 2008: (-)3/16; 2006: 4/16. Indicates 1/4" drop of hung span.
13	1/4	- 1/16	0.034	2/16	0	- 1/16	1/8	0	1/16	"V" = 2014: 2/16; 2012: (-)2/16; 2010: (-)3/16; 2008: (-)3/16; 2006: (-)4/16. Indicates 1/4" drop of hung span.
14	1/16	- 1/8	0.034	3/16	3/16	1/8	1/4	0	1/16	"T _ℓ " = 2014: 3 7/16; 2012: 3 4/16; 2010: 3 4/16; 2008: 3 3/16; 2006: 3 4/16. "T _z " = 2014: 3 8/16; 2012: 3 4/16; 2010: 3 4/16; 2008: 3 6/16; 2006: 3 6/16.
15	1/8	0	0.034	1/16	1/16	1/16	0	1/16	0	
16	1/16	1/16	0.034	0	0	0	0	0	1/8	
17	0	1/16	0.034	0	1/16	0	0	0	- 1/8	
18	1/16	1/8	0.034	1/16	1/16	- 1/16	0	- 1/16	- 1/16	
										Differences greater than 1/8" are highlighted and were double checked in the field, except at "J" and "Calculated J", which are temperature dependant.

Additional Review Comments:

- No signs of distress.
- Girder ends painted since last inspection.



HINGE DATA SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: MTL/BH Date: 6/16/14
6/18/14

Bridge No.: 3093 I-91/Q RIVER L N FRONT ST.

Town: NEW HAVEN

Hinge Located: SP#3 N. LINE (FIXED)

Effective span for Movement: 0 (ft)

Date: _____

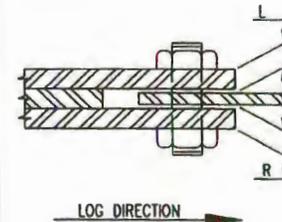
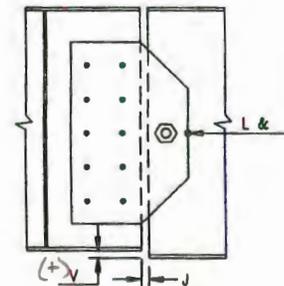
Page: _____ of _____

Beam No.	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Comments
1	$1/8''$	$2^{13}/16''$	$3^{3}/8''$	$3^{3}/10''$	N/A	N/A	WELDER BAR	(H) BOLTS MISSING AT WINDLOCK (POSSIBLE INTERFERENCE → MISSING BOLT LINE UP & AT 3RD SET WINDLOCK PLATES)
2	$(-)$ $1/2''$	$3^{11}/16''$	$3^{7}/16''$	$3^{1}/8''$	"	"	"	
3	$-1/16''$	$3^{7}/16''$	$3^{1}/2''$	$3^{1}/8''$	"	"	"	
4	$(-)$ $9/16''$	$3^{5}/16''$	$3^{1}/4''$	$3^{1}/4''$	"	"	"	
5	$(-)$ $1/4''$	$3^{3}/8''$	$3^{3}/4''$	$3''$	"	"	"	
6	$(-)$ $9/16''$	$3^{1}/8''$	$3^{3}/4''$	$2^{3}/4''$	"	"	"	
7	$3/16''$	$4^{3}/16''$	$3^{3}/4''$	$2^{7}/8''$	"	"	"	$3^{15}/16''$ @ BOT OF BOT PL'S FOR '5'
8	$(-)$ $1/4''$	$3^{1}/2''$	$3^{5}/8''$	$3^{1}/8''$	"	"	"	
9	$(-)$ $7/16''$	$3^{5}/8''$	$3^{1}/2''$	$2^{13}/16''$	"	"	"	RIGHT RENT PL W/ HUY RUST (HANGER PL); windlock
10	$(-)$ $5/16''$	$3^{1}/2''$	$3^{1}/2''$	$3^{3}/8''$	"	"	"	WIND LOCK W/ LR + RUST BUDDING & NUTS; 2ND HANGER PL NUTS W/ HUY RUST

Notes:

- For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
- Use a permanent marker to indicate locations of field measurements.

(+) IF HINGE SPAN LOWER



- GEN
- LT. MOD RUST & HANGER BOLTS & SUPPORT SIDE
 - SEE SUPERSTRUCT DATA FOR ANY SL ADJ TO ASSEMBLIES
 - NO WINDLOCK UNLESS NOTED

HINGE DATA SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: MJ/BH (GIL) Date: 6/18/14

Bridge No.: 3093

I-91 / G RIVER + N. FRONT ST

Town: NEW HAVEN

MJ/BH (GIL) Date: 6/23/14

Hinge Located: SP#3 N. LINE

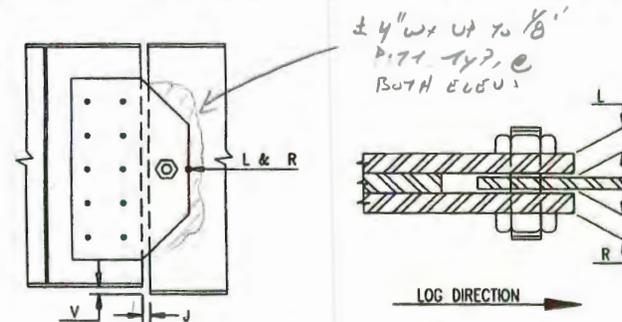
Effective span for Movement: 0 (ft)

Page: of

Beam No.	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Comments
11	0	3 3/8"	3 7/16"	2 5/16"	NONE	N/A	Welded Bar	6/18/80°
12	-3/16"	3 7/16"	3 7/8"	2 3/4"				LT-MOD RUST & NUTS/BOLTS 6/18/80°
13	(-) 1/4" ✓	3 7/16"	3 1/2" ✓	2 3/4"				LT RUST & BOLTS/ NUTS J 6/23/14 75°
14	3/16" ✓	3 5/16"	3 7/16"	3 3/16"				" " "
15	(-) 1/16" ✓	3 1/2" ✓	3 7/16"	3 1/16" ✓				" " "
16	(-) 1/16" ✓	3 7/16"	3 7/16"	3 1/16"				" " "
17	(-) 1/4" ✓	2 5/16" ✓	3 1/2" ✓	3 1/16" ✓				" " "
18	(-) 3/8"	3 1/2" ✓	4 3/16"	2 5/8"				MOD-HVY RUST & BOLTS/NUTS + WIPOLISH ; WIPADLOCK w/ ONLY 4 BOLTS LT RUST & NUTS
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Notes:

- For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
- Use a permanent marker to indicate locations of field measurements.



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HINGE DATA SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: MJO/BH Date: 6/16/2014

Bridge No.: 03093 I-91 over Quinnipiac River & North Front Street Town: New Haven Measurements Reviewed By: WMK Date: 7/15/2014

Hinge Located: Span 3, North Line (Fixed) Effective span for Movement: 0 Page: of

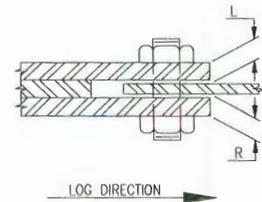
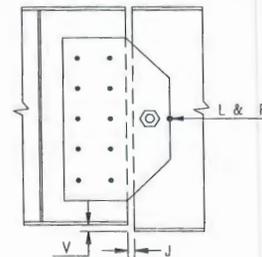
Beam No.	V (IN)	J (IN)	R (IN)	L (IN)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Comments (2014 Measurements)
1	2/16	2 13/16	3 3/8	3 3/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
2	- 8/16	3 11/16	3 7/16	3 1/8	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
3	1/16	3 7/16	3 1/2	3 1/8	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
4	- 9/16	3 5/16	3 1/4	3 1/4	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
5	- 4/16	3 3/8	3 3/4	3	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
6	- 9/16	3 1/8	3 3/4	2 3/4	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
7	3/16	4 3/16	3 3/4	2 7/8	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
8	- 1/4	3 1/2	3 5/8	3 1/8	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
9	- 7/16	3 5/8	3 1/2	2 13/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
10	- 5/16	3 1/2	3 1/2	3 3/8	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
11	0	3 3/8	3 13/16	2 15/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
12	- 3/16	3 7/16	3 7/8	2 3/4	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
13	- 1/4	3 7/16	3 1/2	3 1/4	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
14	3/16	3 5/16	3 7/16	3 3/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
15	- 1/16	3 1/2	3 7/16	3 1/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
16	- 1/16	3 7/16	3 7/16	3 1/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
17	- 1/4	2 15/16	3 1/2	3 1/16	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.
18	- 3/8	3 1/2	4 3/16	2 5/8	Welded Bar	N/A	Welded Bar	See 2014 field sheets for comments.

Notes:

- For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
V : Vertical misalignment of girders @ left edge of girder's bottom flange.
J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
- Use a permanent marker to indicate locations of field measurements.

Gen. Notes:

Light to moderate rust at hanger bolts at support side.
 See superstructure sheets for any section loss adjacent to assemblies.
 No windlock unless noted.



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HINGE DATA SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: PHH Date: 6/5/2012

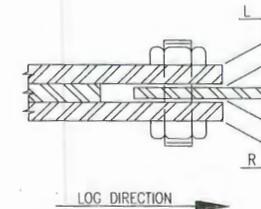
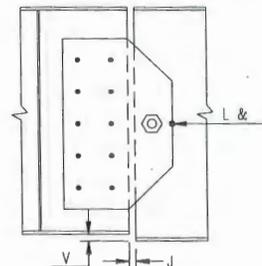
Bridge No.: 03093 I-91 over Quinnipiac River & North Front Street Town: New Haven Measurements Reviewed By: MJW Date: 6/5/2012

Hanger Location: Span 3, North Line (Fixed) Effective span for Movement: 0 Page: of

Beam No.	V (in)	J (in)	R (in)	L (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Comments (2012 Measurements)
1	4/16	2 13/16	3 6/16	3 2/16	None	N/A	Welded Bar	See 2012 report for comments.
2	- 4/16	3 11/16	3 7/16	3 1/16	None	N/A	Welded Bar	See 2012 report for comments.
3	2/16	3 7/16	3 7/16	3 2/16	None	N/A	Welded Bar	See 2012 report for comments.
4	- 8/16	3 5/16	3 4/16	3 3/16	None	N/A	Welded Bar	See 2012 report for comments.
5	- 2/16	3 5/16	3 13/16	3 1/16	None	N/A	Welded Bar	See 2012 report for comments.
6	- 6/16	3 2/16	3 13/16	2 13/16	None	N/A	Welded Bar	See 2012 report for comments.
7	7/16	3 15/16	3 11/16	2 14/16	None	N/A	Welded Bar	See 2012 report for comments.
8	- 1/8	3 1/2	3 1/2	3 1/8	None	N/A	Welded Bar	See 2012 report for comments.
9	- 1/4	3 9/16	3 1/2	2 7/8	None	N/A	Welded Bar	See 2012 report for comments.
10	- 1/8	3 13/16	3 9/16	3 3/8	None	N/A	Welded Bar	See 2012 report for comments.
11	1/16	3 7/16	3 3/4	2 15/16	None	N/A	Welded Bar	See 2012 report for comments.
12	0	3 3/8	3 7/8	2 13/16	None	N/A	Welded Bar	See 2012 report for comments.
13	- 1/16	3 7/16	3 7/16	3 1/4	None	N/A	Welded Bar	See 2012 report for comments.
14	3/8	3 5/16	3 7/16	3 3/16	None	N/A	Welded Bar	See 2012 report for comments.
15	1/8	3 7/16	3 7/16	3	None	N/A	Welded Bar	See 2012 report for comments.
16	- 1/16	3 7/16	3 7/16	3 1/16	None	N/A	Welded Bar	See 2012 report for comments.
17	- 1/8	2 7/8	3 1/2	3 1/16	None	N/A	Welded Bar	See 2012 report for comments.
18	- 3/8	3 7/16	4 3/16	2 5/8	None	N/A	Welded Bar	See 2012 report for comments.

Notes:

- For Hinge assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V** : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J** : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
- Use a permanent marker to indicate locations of field measurements.



HINGE ANALYSIS SHEET

Form BRI-30, Rev. 9/97

Measurements Taken By: MJO/BH Date: 6/16/2014

Bridge No.: 03093

I-91 over Quinnipiac River & North Front Street

Town: New Haven

Measurements Reviewed By: WMK

Date: 7/15/2014

Hanger Location: _____

Span 3, North Line (Fixed)

Effective span for Movement: 0

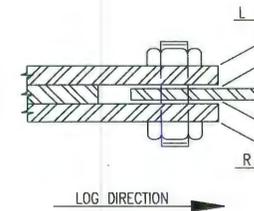
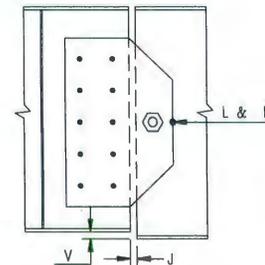
Page: _____

of _____

Beam No.	V (mm)	J (mm)	R (mm)	L (mm)	Reviewer's Comments (Comparison sheet)
1	- 2/16	0	0	1/16	
2	- 4/16	0	0	1/16	"V" = 2014: (-)1/2; 2012: (-)1/4; 2010: (-)1/4; 2008: (-)1/4; 2006: (-)1/4. Indicates 1/4" rise in hung span.
3	- 1/16	0	1/16	0	
4	- 1/16	0	0	1/16	
5	- 2/16	1/16	- 1/16	- 1/16	
6	- 3/16	0	- 1/16	- 1/16	"V" = 2014: (-)9/16; 2012: (-)6/16; 2010: (-)5/16; 2008: (-)6/16; 2006: (-)7/16. Indicates 3/16" rise in hung span.
7	- 4/16	4/16	1/16	0	"V" = 2014: 3/16; 2012: 7/16; 2010: 8/16; 2008: 5/16; 2006: 5/16. Indicates 1/4" rise in hung span. "J" = 2014: 4 3/16; 2012: 3 15/16; 2010: 4 2/16; 2008: 3 14/16; 2006: 4.
8	- 2/16	0	2/16	0	
9	- 3/16	1/16	0	- 1/16	"V" = 2014: (-)7/16; 2012: (-)4/16; 2010: (-)5/16; 2008: (-)3/16; 2006: (-)5/16. Indicates 3/16" rise in hung span.
10	- 3/16	- 5/16	- 1/16	0	"V" = 2014: (-)5/16; 2012: (-)2/16; 2010: (-)3/16; 2008: (-)2/16; 2006: 5/16. Indicates 3/16" rise in hung span. "J" = 2014: 3 8/16; 2012: 3 13/16; 2010: 3 11/16; 2008: 3 10/16; 2006: 3 5/8.
11	- 1/16	- 1/16	1/16	0	
12	- 3/16	1/16	0	- 1/16	"V" = 2014: (-)3/16; 2012: 0; 2010: 0; 2008: 0; 2006: 0. Indicates 3/16" rise in hung span.
13	- 3/16	0	1/16	0	"V" = 2014: (-)4/16; 2012: (-)1/16; 2010: (-)1/16; 2008: (-)1/16; 2006: (-)1/8. Indicates 3/16" rise in hung span.
14	- 3/16	0	0	0	"V" = 2014: 3/16; 2012: 6/16; 2010: 6/16; 2008: 6/16; 2006: 1/4. Indicates 3/16" rise in hung span.
15	- 3/16	1/16	0	1/16	"V" = 2014: (-)1/16; 2012: 2/16; 2010: 2/16; 2008: 2/16; 2006: 1/8. Indicates 3/16" rise in hung span.
16	0	0	0	0	
17	- 2/16	1/16	0	0	
18	0	1/16	0	0	
General: Differences greater than 1/8" are shaded and were double checked in the field.					

Additional Review Comments:

- NO SIGNS OF DISTRESS NOTED

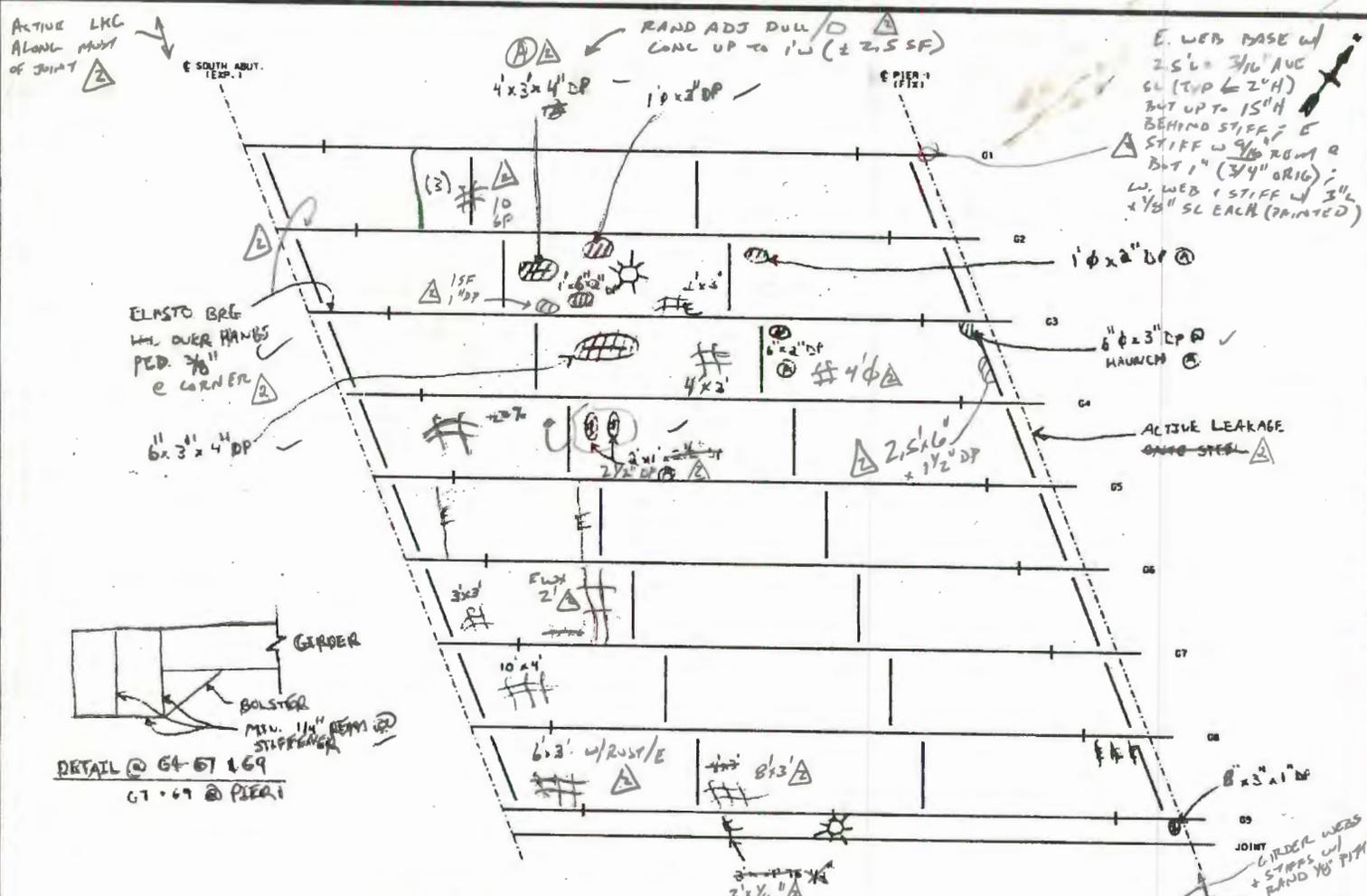


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HAKS FIELD NOTES

JOB NO. 170-3013
 DATE: 7/23/10
 CREW: PHH, GM
 BRIDGE NO. 03093
 SHEET 22 OF 49

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/19/11	PHH, JFE (HAKS)	Δ		
Δ	7/21/10	PHH, JFE (HAKS)	Δ		



- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA
 - WEEP HOLE
 - BTM. FLANGE TRANSITION

GENERAL NOTES:

- TOP OF BTM. FLANGES WITH LT. TO MOD. PIGEON DEBRIS.
- Δ - FIXED BRGS W/ RAND NYL - SEVERE PAINTED SL TO AB NUTS INT BM FIXED BRGS W/ UP TO 3/16" SR (PAINTED) B/W SOLE + MAS R'S → RUST FALLEN OUT AT SOME LGS LEAVING GAPS. D/W R'S

Ⓐ REBAR IS EPOXY COATED

~~UNDER BRIDGE LIGHT~~

FRAMING PLAN - SPAN 1 (WEST HALF)
 NTS

W/132
 8/1/10

32/189

43/132

HAKS FIELD NOTES

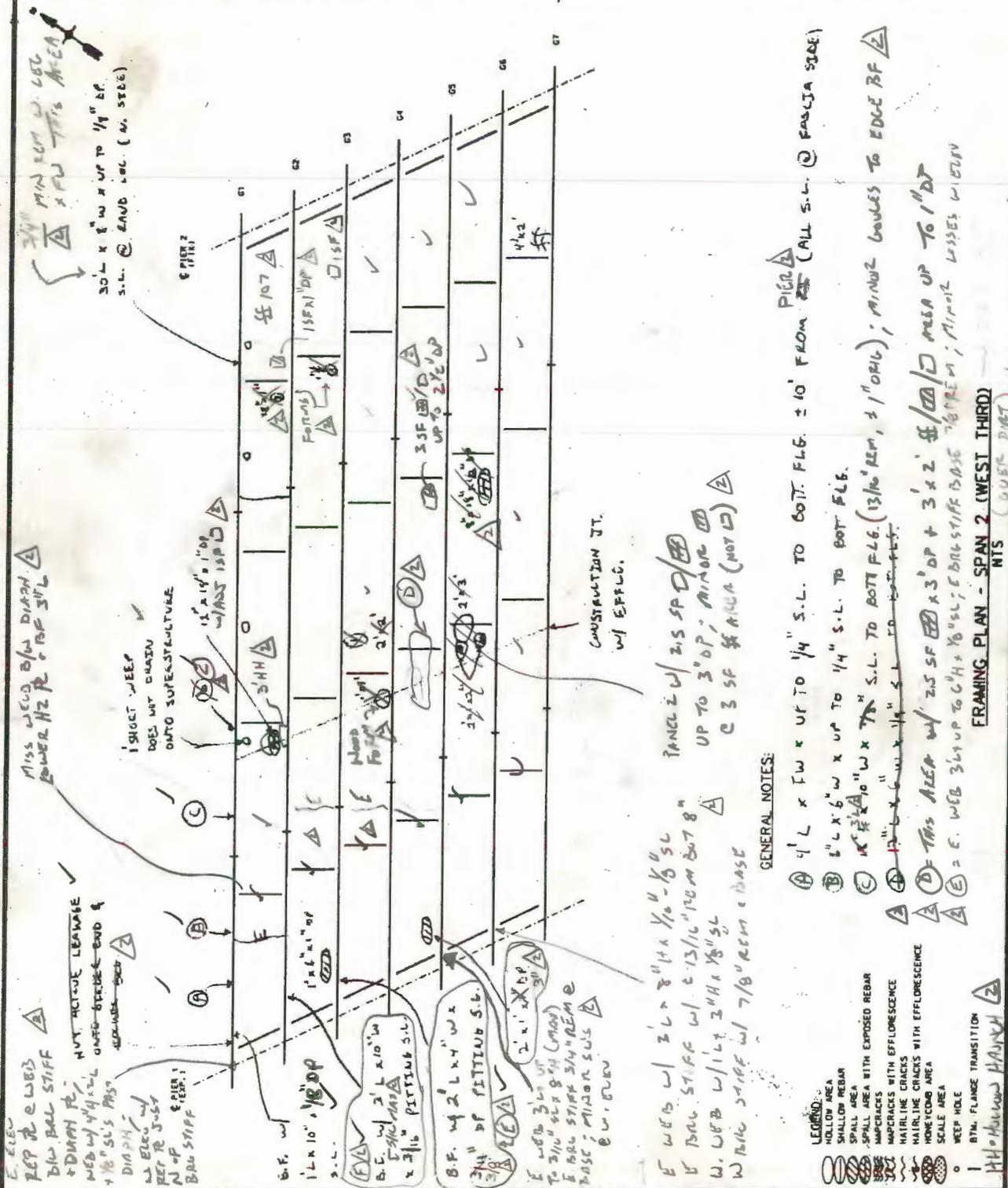
JOB NO. 170-3013

BRIDGE NO. 03093

DATE: 7/20/10

SHEET 37 OF 49

CREW: PHH, BM



REVISION	DATE	CREW	REVISION	DATE	CREW
1	6/27/12	PHH, NPR (HAKS)	1		
2	6/19/14	MTJ, SW (PKL)	2		

- GENERAL NOTES:**
- A 4" L x 1/4" x 1/4" UP TO 1/4" S.L. TO BOT. F.L.G. ± 10' FROM PIER (CALL S.L. @ FASCIA EDGE)
 - B 8" L x 6" W x UP TO 1/4" S.L. TO BOT. F.L.G.
 - C 1/4" x 10" W x 7/8" S.L. TO BOT. F.L.G. (13/16" REM, 3" OHG); MINOR BOLDS TO EDGE BF
 - D THIS AREA W/ 2.5 SF 3" DP + 3' x 2' 1/2" MESA UP TO 1" DP
 - E = E. WEB 3/4" UP TO 3/4" x 1/8" S.L.; E. BRG STIFF BASE 7/8" REM; MINOR LOSSES W/ 1/2" W
 - F W. WEB W/ 1/4" 3" H x 1/8" S.L. TO BOT. F.L.G.

- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - IMPROVEMENTS
 - IMPROVEMENTS WITH EFFLORESCENCE
 - HAIR-LINE CRACKS
 - HAIR-LINE CRACKS WITH EFFLORESCENCE
 - NON-CODING AREA
 - SCALE AREA
 - KEEP HOLE
 - BTM. FLANGE TRANSITION

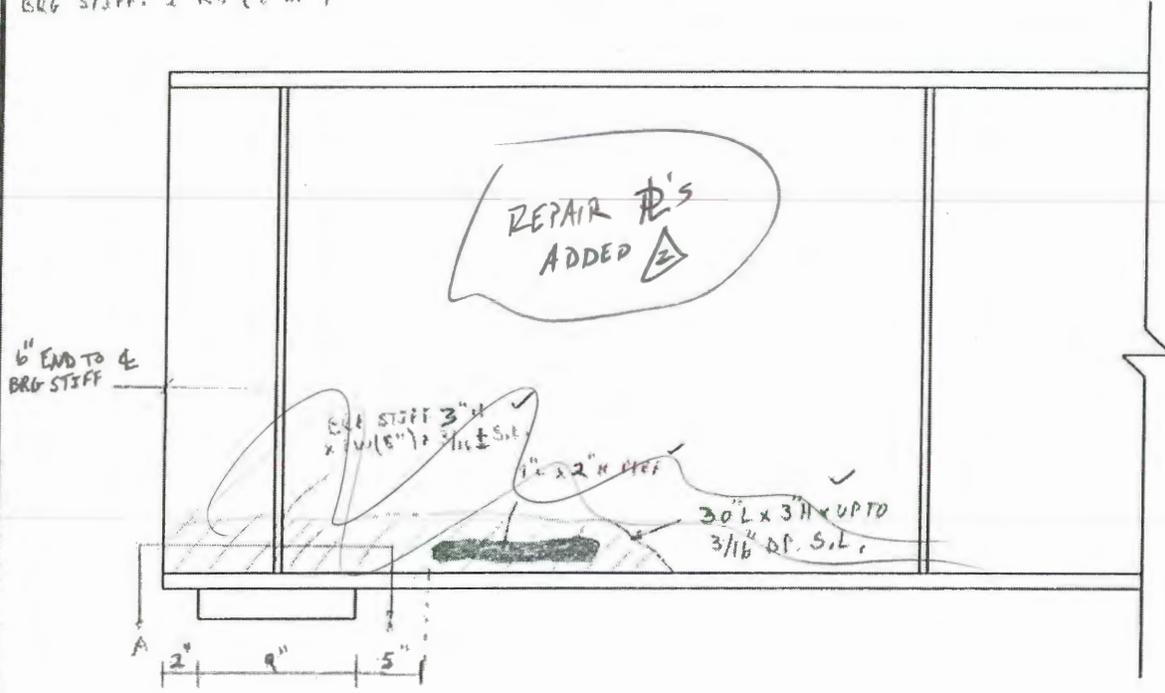
FRAMING PLAN - SPAN 2 (WEST THIRD)
N/S (OVER PIER)

MISS WELD B/W DIAPH. LOWER HZ R OF RE 3/4" S.L.
1 SHORT WELD DOES NOT GO INTO ONTO SUPERSTRUCTURE
15" x 1/4" x 1" DP W/ 1/2" ISPD
CONSTRUCTION JT. W/ EFFLG.
RANGE W/ 2.5 SF UP TO 3" DP, MINOR C 3 SF 3" ANGA (NOT D)
E WEB W/ 3/4" 1/4" x 1/8" S.L.
F BRG STIFF W/ 1/4" 1/8" REM BUT 8"
W. WEB W/ 1/4" 3" H x 1/8" S.L.
W. WEB STIFF W/ 7/8" REM CHASE

36/104
45/132

 HAKS FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 9/24/10	SHEET 45 OF 47
	CREW: PHH, BM	

WEB PL. (62" x 3/8")
BRG STIFF. 2 PL'S (8" x 1")

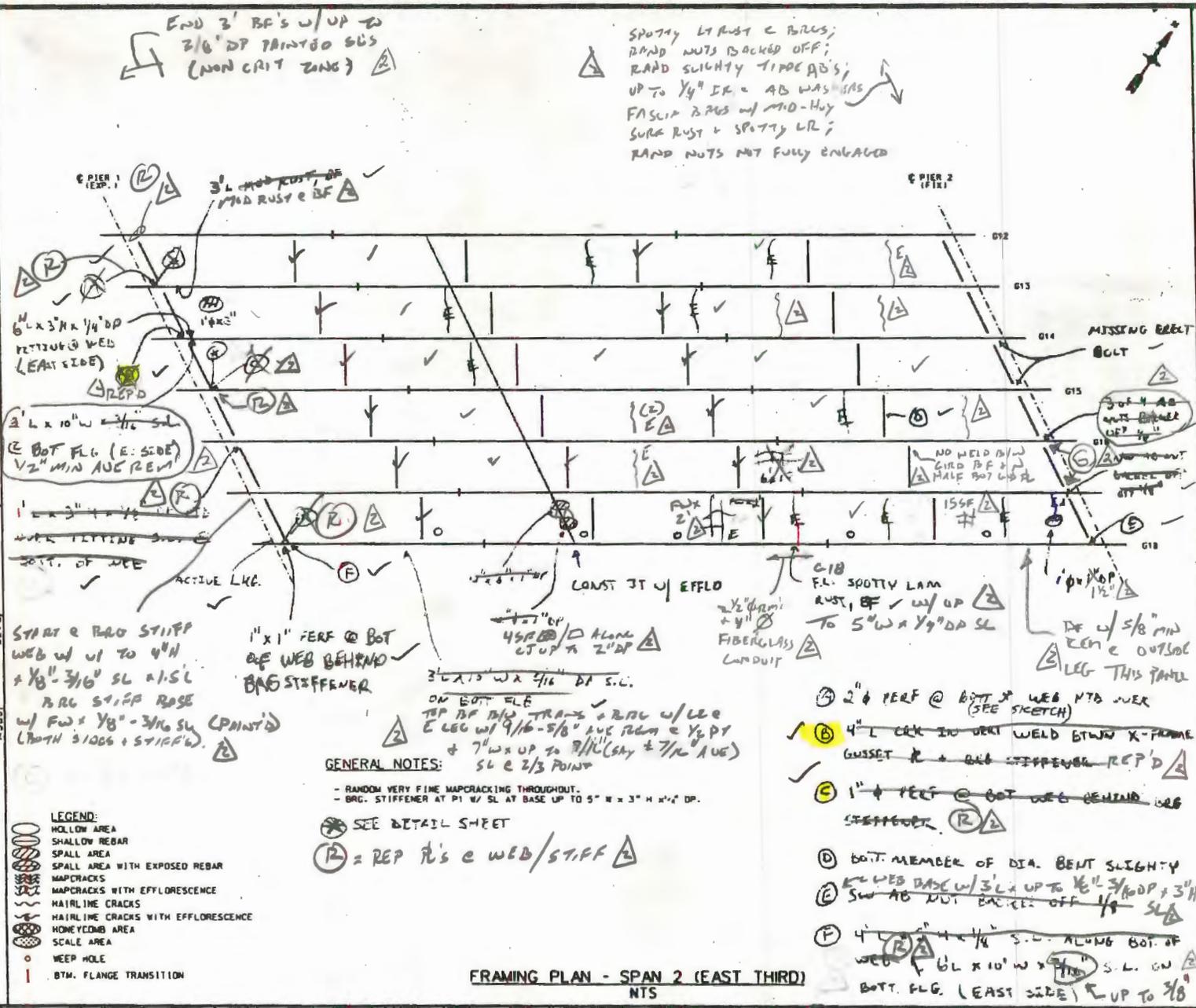


~~WEB LOSS FOR SHEAR: < 5%
 WEB LOSS FOR BENDING: A7A
 EFF WEB LENGTH = 18' x 3/8" = 6.75"
 (AASHTO 12.24.4)
 ORIG BRG AREA = (6.75" x 3/8") + (2 x 9" x 1") = 14.531 in²
 S. LOSS AREA = (6.75" x 3/16") + (8" x 3/16") = 2.77 in²
 % S. LOSS = $\frac{2.77}{14.53} \times 100 = 19\%$~~

SPAN 2, GIRDER G10 AT PIER 1, EAST ELEVATION
NTS

REVISION	△	DATE	7/27/12	CREW	PHH, JEE (HAKS)	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/18/14	CREW	PHH/BH/BKR	REVISION	△	DATE		CREW	

REVISION	DATE	CREW
Δ	6/28/12	PMA, NPL
Δ	6/19/14	PMA, NPL, DARC
REVISION	DATE	CREW
Δ		



- ⓐ 2" PERF @ BOT OF WEB MTS OVER (SEE SKETCH)
- ⓑ 4" L CRK IN VERT WELD BTWN X-FRAME GUSSET R + BRG STIFFENER REP'D
- ⓒ 1" FERF @ BOT WEB BEHIND BRG STIFFENER
- ⓓ BOT. MEMBER OF DIA. BENT SLIGHTY
- ⓔ SW AB NUT. BACKED OFF 1/4" SL
- ⓕ 4" L CRK W/ 1/4" S.L. ALONG BOT. OF WEB + 6" L X 10" W 4" S.L. ON BOT. FLG. (EAST SIDE) UP TO 3/8"
- ⓖ UP TO 3/4 AB NUTS BACKED OFF

3/1/13
 3/1/10

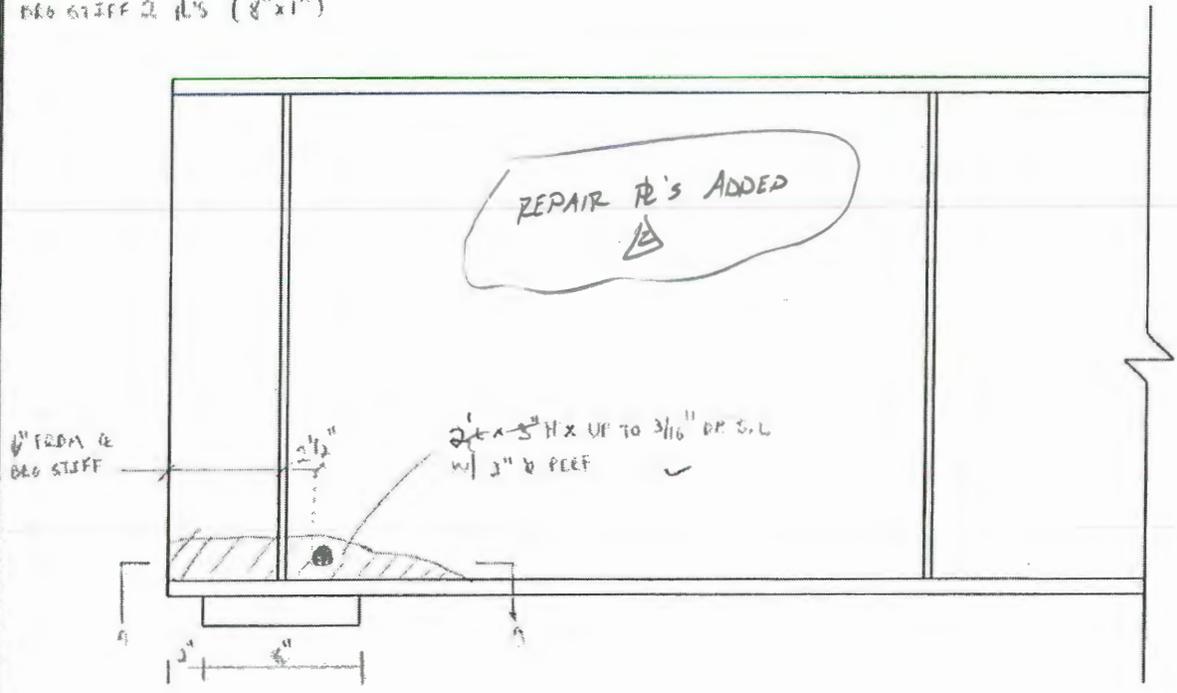
36/104
47/132

HAKS FIELD NOTES

JOB NO. 170-3013
DATE: 9/28/10
CREW: JTH, GM

BRIDGE NO. 03093
SHEET 11 OF 19

WEB R (62" x 3/8")
ORB STIFF 2 PL'S (8" x 1")



WEB LOSS FOR SHEAR ; $< 5\%$

WEB LOSS FOR BRG : A-A

EFF WEB LENGTH = $18 \times 3/8 = 6.75$

(995170 10.34.6)

ORIG BRG AREA = $(6.75 \times 3/8) \times 2(8 \times 1) = 18.531 \text{ in}^2$

S. LOSS AREA = $(2 \times 3/8) \times (4.75 \times 3/16) = 1.64 \text{ in}^2$

% S. LOSS = $\frac{1.64}{18.531} \times 100 = 8.9\%$

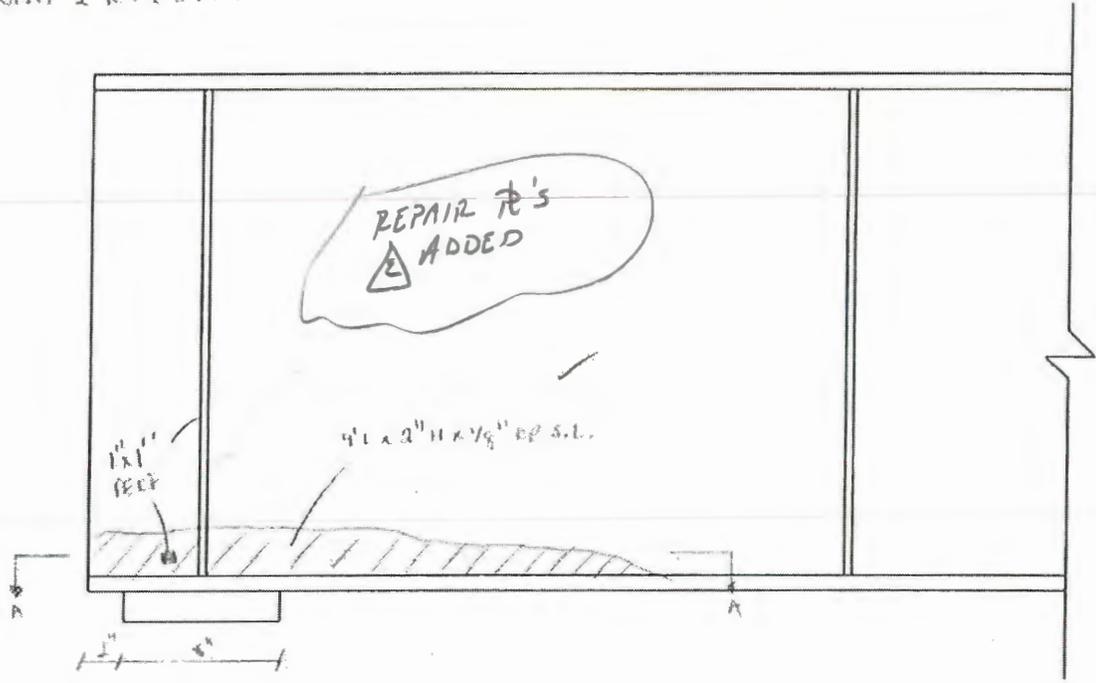
SPAN 2, GIRDER G13 AT PIER 1, EAST ELEVATION
NIS

REVISION	△	DATE	7/27/12	CREW	PHU, JFE (HAKE)	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/18/14	CREW	MRJ/BH (DKR)	REVISION	△	DATE		CREW	

3/27/04
48/132

 HAKS FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 9/28/10	SHEET 52 OF 119
	CREW: PHH, GM	

WEB R. (62" x 3/8")
DEB STIFF 2 R'S (8" x 1")



NOTE: WEST SIDE OF WEB HAS 3" x 3/16" DP. S.L. AROUND PERF. ✓

WEB LOSS FOR SHEAR: 2.5%

WEB LOSS FOR BFG: A-A

EFF LENGTH = 18 x 3/8" = 6.75"

(AASHTO 10.34.8)

GAGE BRG. ACFA = (6.75" x 3/8") + 2(8" x 1") = 18.531 in²

S. LOSS AREA = (1" x 3/8") + (2" x 0.1875") + (5.75" x 1/8") = 1.47 in²

% S. LOSS = $\frac{1.47}{18.531} \times 100 = 7.9\%$

SPAN 2, GIRDER G18 AT PIER 1, EAST ELEVATION
NTS

REVISION	△	DATE	7/27/12	CREW	PHH, JFE (HAKS)	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/18/14	CREW	MJC/DH (BKR)	REVISION	△	DATE		CREW	

HAKS FIELD NOTES

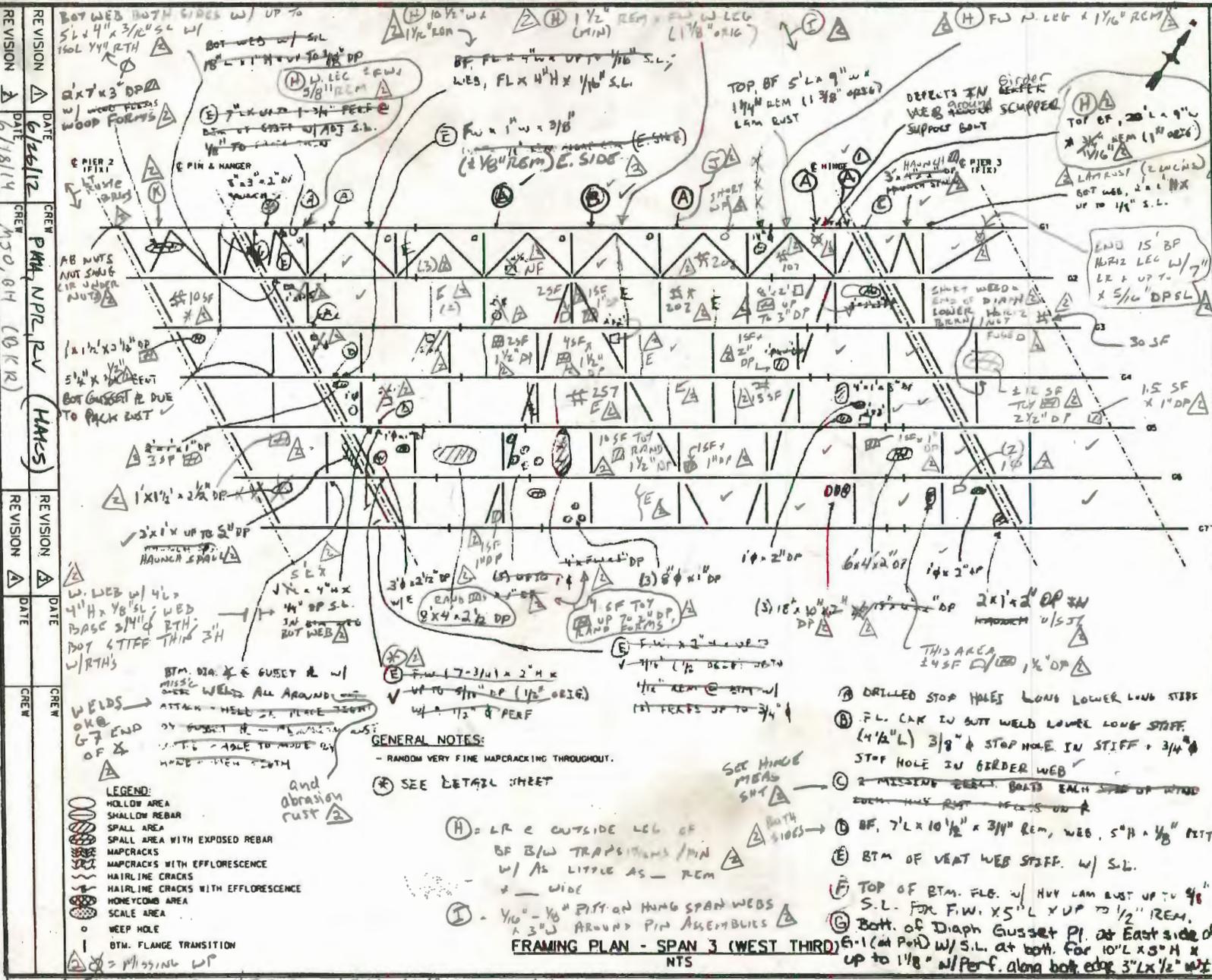
JOB NO. 170-3013

BRIDGE NO. 03093

DATE: 1/20/10

SHEET 48 OF 149

CREW: M.J.W. AS, P.M.H. CM



REVISION	DATE	CREW
Δ	6/26/12	P.M.H. N.P.R. R.V. (H.M.S.)
Δ	6/18/14	M.J.O. B.H. (O.K.R.)

WELDS
 OK G7 END OF X
 LEGEND:
 HOLLOW AREA
 SHALLOW REBAR
 SPALL AREA
 SPALL AREA WITH EXPOSED REBAR
 MAPCRACKS
 MAPCRACKS WITH EFFLORESCENCE
 HAIRLINE CRACKS
 HAIRLINE CRACKS WITH EFFLORESCENCE
 HONEYCOMB AREA
 SCALE AREA
 WEEP HOLE
 BTM. FLANGE TRANSITION

GENERAL NOTES:
 - RANDOM VERY FINE MAPCRACKING THROUGHOUT.
 (X) SEE DETAIL SHEET
 (H) = LR C OUTSIDE LEG OF BF B/W TRANSITIONS / MIN W/ AS LITTLE AS - REM
 (I) = 1/16" - 1/8" PITS ON HINGE SPAN WEBS
 (J) = 3" D AROUND PIN ASSEMBLIES
 (K) = UTILITY ELBOW SET FOR W/ MISS COUPLER
 (L) = U. LEG 9" W x 13/16" REM W/ 190L F.W. - REM

(A) DRILLED STOP HOLES LONG LOWER LONG STIFF
 (B) FL. CAP IN BUTT WELD LOWER LONG STIFF (4 1/2" L) 3/8" Ø STOP HOLE IN STIFF + 3/4" Ø STOP HOLE IN GIRDER WEB
 (C) 2 MISSING BOLT BOLTS EACH SIDE OF WIND EACH HINGE JOINT
 (D) BF, 7'L x 10 1/2" x 3/4" REM, WEB, 5" H x 1/8" PFT
 (E) BTM OF VERT WEB STIFF. W/ S.L.
 (F) TOP OF BTM. FLG. W/ HVY LAM RUST UP TO 4" S.L. FOR F.W. X 5" L X UP TO 1/2" REM.
 (G) Bott. of Diaph Gusset Pl. at East side of E-1 (at POF) W/ S.L. at both. For 10" L x 3" H x up to 1/8" w/ perf. along both edge 3" L x 1/2" W

FRAMING PLAN - SPAN 3 (WEST THIRD) NTS

1/9/13
 2/1/10

SUPPLEMENTAL SHEET

BRIDGE NO. 03093

DATE: 6/17/14

FIELD ORIGINAL

TRANSCRIBED BY: _____

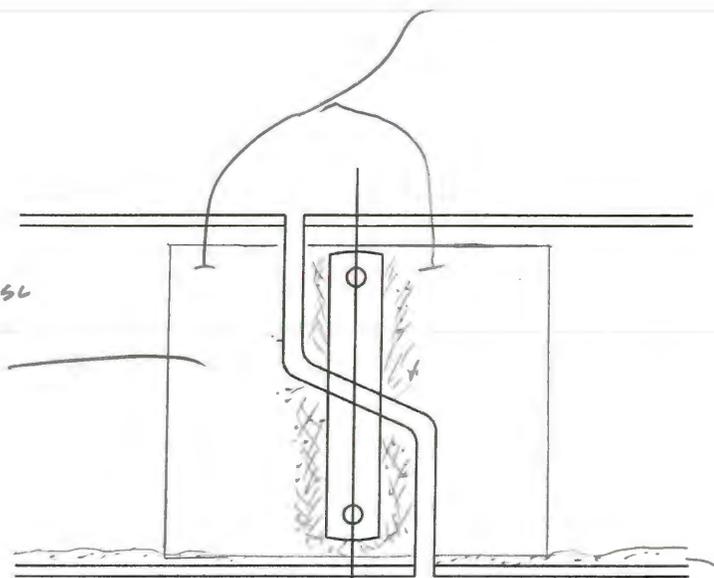
CREW: WTD/BH

SHEET 50/132

DESCRIPTION: Framing Notes

THICKENED WEB
 $\pm 3/8$ ORIC \rightarrow TAPERS
 TO $\pm 1/2$ & TOP/207

TYP UP TO $3/16$ " DP SL
 UP TO 1' FROM
 HANGER PL



HUNG SPAN BF
 LEGS w/ AS LITTLE
 AS $3/4$ " REM & END 8'
 ($\pm 1 - 3/8$ ORIC); SUSPEND SPAN
 SIMILAR, BUT TYP $\pm 3/2$

WEB BASES w/ $4 - 6$ " SL'S
 $\pm 1/8$ " & NON THICKENED WEBS
 + UP TO $3/16$ " DP & THICKENED WEBS
 ADJ TO BF LOSS;
 RAMP STIFF BASES
 w/ UP TO 50% LOSS
 THESE AREAS

TYP ORDER SL'S & PIN + HANGERS (sp#3)

- * LOSSES BOTH SIDES, TYP; LOSSES PAINTED
- * DIAPH CONN PL'S, DIAPH GUE PL'S + STIFF BASES NEAR P+H'S w/ HUY PAINTED SL'S

UPDATE	DATE	COMPANY	CREW
△			
△			
△			
△			

SUPPLEMENTAL SHEET

BRIDGE NO. 03093

DATE: 6/23/14

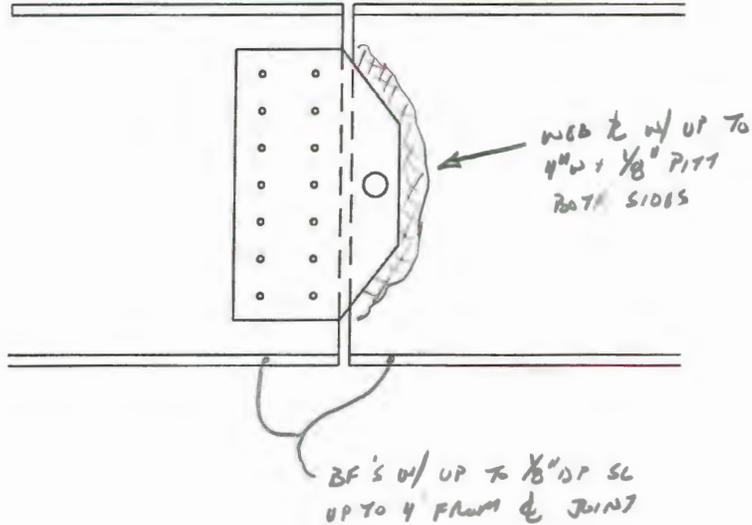
FIELD ORIGINAL

TRANSCRIBED BY: _____

CREW: MJO, BH

SHEET 51/132

DESCRIPTION: SL'S AT FIXED HINGES, TYP

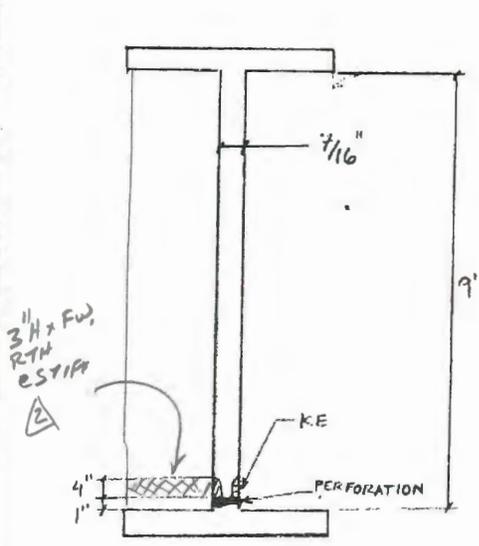
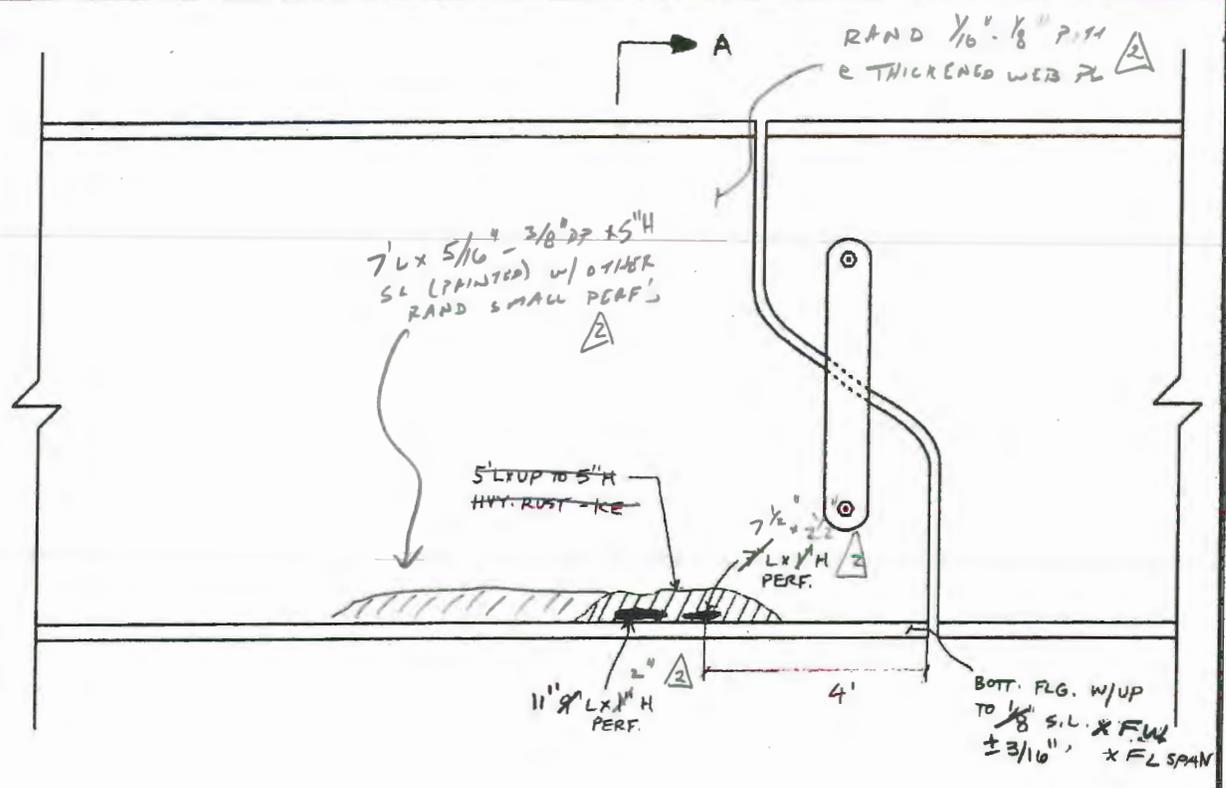


TYP LOSSES AT HINGES (SP#3)

UPDATE NO.	DATE	COMPANY	CREW
△			
△			
△			
△			

4/1/04
52/132

 HAKS FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 7/20/10	SHEET 46 OF 149
	CREW: PHH, GM	



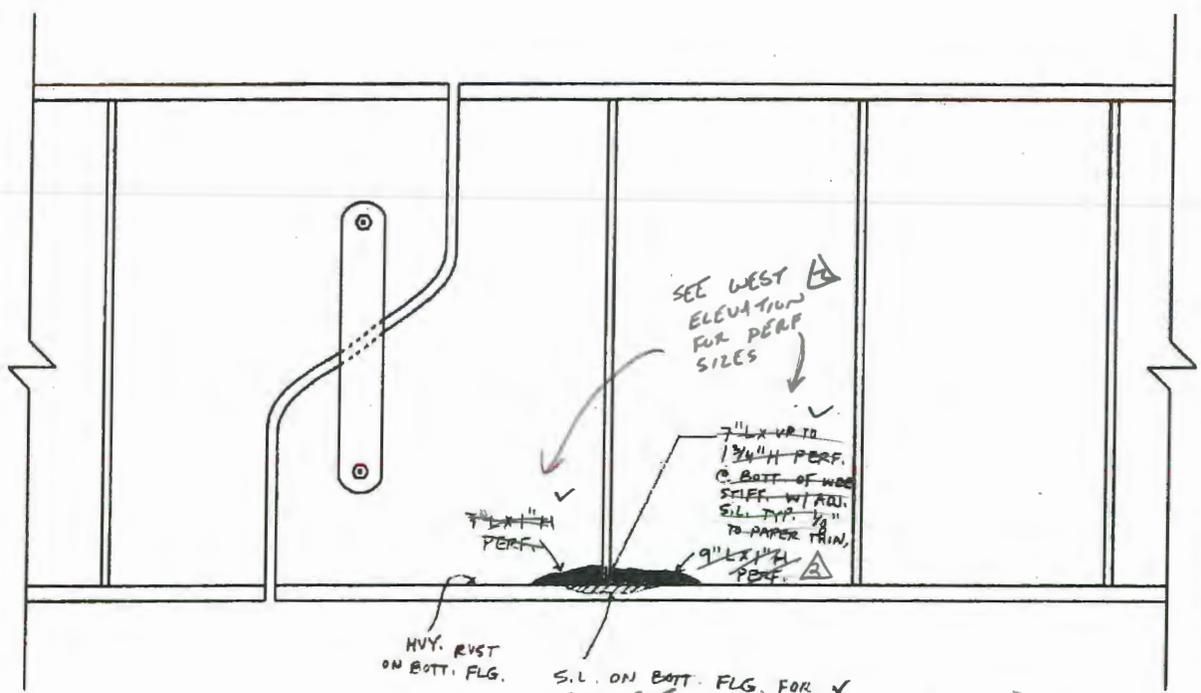
SPAN 3, GIRDER G1, WEST ELEVATION
NTS

KE = KNIFE EDGE

REVISION	△	DATE	6/27/12	CREW	PHH, NPR, RV (HAKS)	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/17/14	CREW	MD/BA (D&P)	REVISION	△	DATE		CREW	

42/104
53/132

 HAKS FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 7/20/10	SHEET 46 A OF 147
	CREW: PHH, GM	



SEE WEST ELEVATION FOR PERF SIZES

7" x 1/4" V.R. TO 1/4" PERF.
C. BOTT. OF WOOD SLEEP. W/ 1/4" SILL TYP. 1/4" TO PAPER THIN.

7" x 1/4" PERF.

HVY. RUST ON BOTT. FLG.

S.L. ON BOTT. FLG. FOR V.F.W. x 5/16" x UP TO 1/2" REM. (3/16" MIN) (ORIG. 15/16")

4' x F.W. x 3/8" MIN AVE REM

SPAN 3, GIRDER G1, EAST ELEVATION
NTS

REVISION	DATE	CREW	REVISION	DATE	CREW
△	6/23/12	PHH, NPR, RV (HAKS)	△		
△	6/17/14	PHH/BH (BKR)	△		

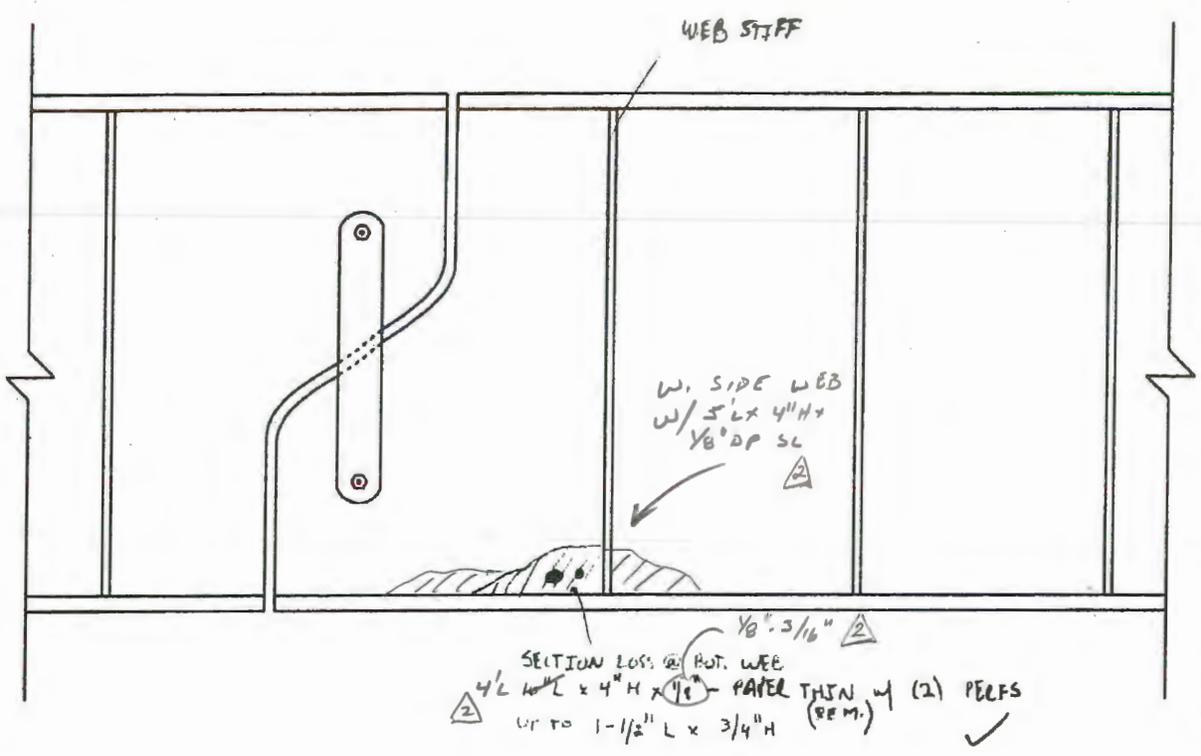
48/104

54/132

HAKS FIELD NOTES

JOB NO. 170-3013
DATE: 7/20/10
CREW: MTW, NPR, RV, BKR

BRIDGE NO. 03093
SHEET 47 OF 49



1/2 WEB LOSS = < 5%

SPAN 3, GIRDER G3, EAST ELEVATION
NTS

REVISION	△	DATE	CREW	REVISION	△	DATE	CREW
		6/27/12	PWH, NPR, RV (HAKS)				
REVISION	△	DATE	CREW	REVISION	△	DATE	CREW
		6/17/14	MTW/BK (BKR)				

SUPPLEMENTAL SHEET

BRIDGE NO. 03093

DATE: 6/17/14

FIELD ORIGINAL

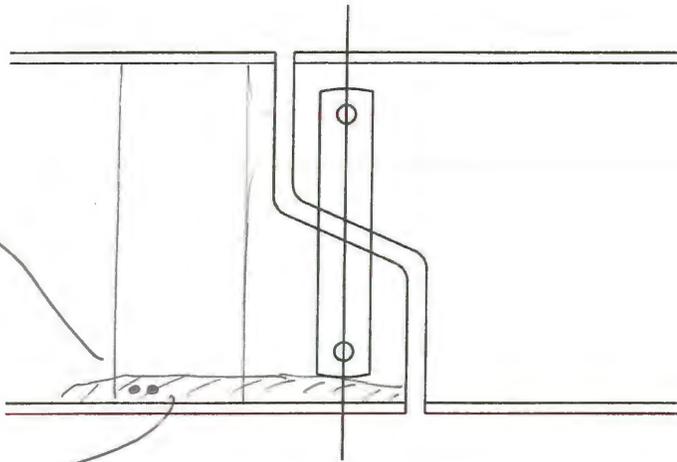
TRANSCRIBED BY: _____

CREW: MSO/BH

SHEET 55/132

DESCRIPTION: Framing Notes

STIFF BASE @
EAST w/ Hvy SL
@ BOT 2" w/
SMALL RTH'S



W. ELEV w/ 5" Hx 5" L x 3/16" - 1/4" DP
S.L w/ 2 1/2" THIN AREA w/ RTH'S;
SIMILAR @ E. ELEV

SP# 3 66, W. ELEV

UPDATE NO.	DATE	COMPANY	CREW
△			
△			
△			
△			

SUPPLEMENTAL SHEET

BRIDGE NO. 03093

DATE: 6/17/13

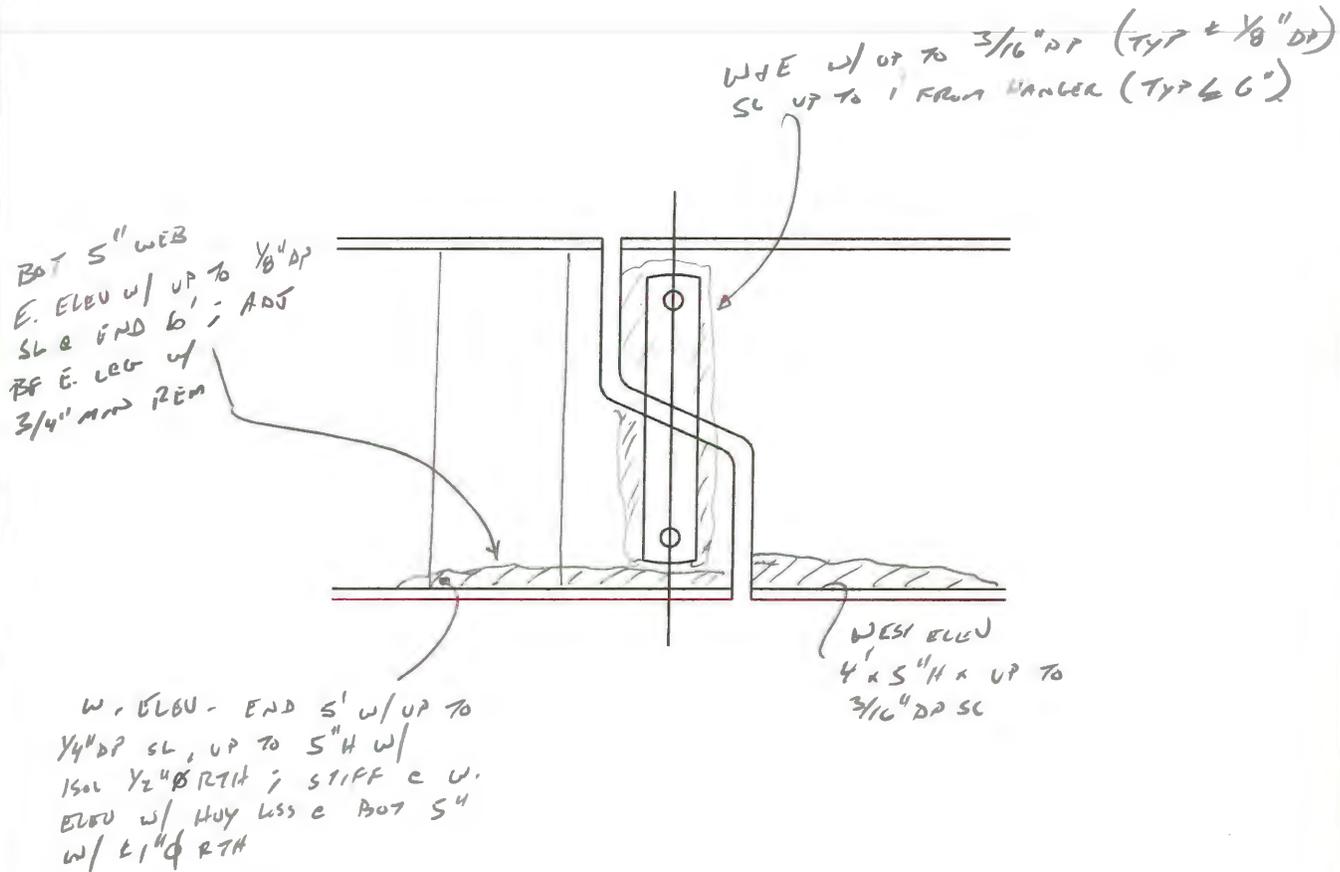
FIELD ORIGINAL

TRANSCRIBED BY: _____

CREW: MRO/DH

SHEET 56/132

DESCRIPTION: Framing Notes



SP^L 3, 67, WEST ELEVATION

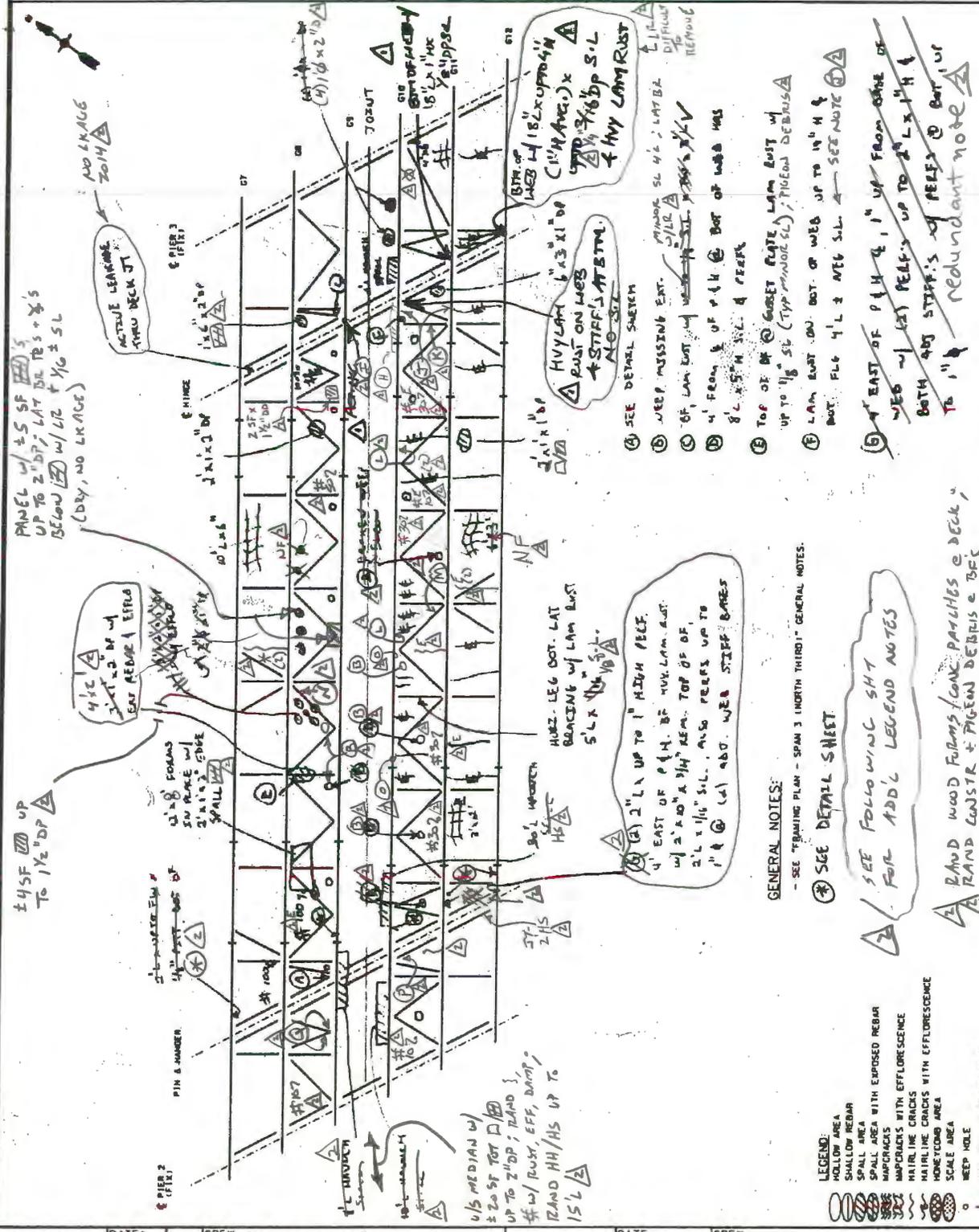
UPDATE NO.	DATE	COMPANY	CREW
△			
△			
△			
△			

39/109
57/132

HAKS FIELD NOTES

JOB NO. 170-3013
DATE: 7/20/10
CREW: MTW, AS, PHH, GM

BRIDGE NO. 03093
SHEET 44 OF 49



REVISION	DATE	CREW
1	6/6/12	MTW, RV (CHAKS)
2	6/19/14	MTW/BH (DKB)

REVISION	DATE	CREW

- LEGEND:
- HOLLOW AREA
 - SULLY AREA
 - SPALL AREA
 - IMPROVEMENTS WITH EXPOSED REBAR
 - HAIRLINE CRACKS
 - HOLES/CRACKS WITH EFFLORESCENCE
 - SCALE AREA
 - KEEP HOLE
 - BTM. FLANGE TRANSITION
 - SHOT & WEEP
 - HSE HATCH
 - HH - HATCH

GENERAL NOTES:
- SEE 'FRAMING PLAN - SPAN 3 (NORTH THIRD)' - GENERAL NOTES.
* SEE DETAIL SHEET

SEE FOLLOWING SHIT FOR ADD'L LEGEND NOTES

RAWD WOOD FOLDS / CONC. PARTINGS @ DECK, RAND CONSTR & PIGEN DEBRIS @ TBS

FRAMING PLAN - SPAN 3 (CENTER THIRD) NTS

MANGL w/ ± 5 SF UP TO 2" DP; LAT DL RB'S ± 1/2 BELOW w/ L/R ± 1/6 ± SL (DRY, NO LRAGE)

NO LRAGE ZONE

ACTIVE LEAKAGE THRU DECK JT

2" x 2" x 1/2" HINGE

± 4 SF UP TO 1 1/2" DP

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO 1 1/2"

4 1/2" EAST END OF EAST RAMP & EFFLO

W/8 FOLDS IN NAME w/ 2" x 1/2" x 1/2" SMALL

PIN & HANGER

1/2" MEDIAN w/ ± 20 SF TOP UP TO 2" DP; RAND # w/ RUST, EFF, DAMP; RAND HH/HS UP TO

SUPPLEMENTAL SHEET

BRIDGE NO. 3093

DATE: 6/19/14

FIELD ORIGINAL

TRANSCRIBED BY: MJD

CREW: MJD/BH

SHEET 57A OF 132

DESCRIPTION: ADD LEGEND NOTES, SPAN 3 SUPERSTRUCTURE, CENTER THIRD

(H) = G10 HAUNCH w/ 4' LH + 25' ADJ HS

(I) = 4' NORTH OF G9 HINGE → GIRDER OUTSTANDING LEG OF BF w/ LR UP TO 4" WIDE ADJ TO STIFFENER w/ UP TO 1/8" DP SL

(J) = GIRDER 10/11 → SOUTH OF HINGE → BF B/W HINGE + 1ST TRANS w/ 10 1/2" WX 7" L, 7/8" REM. ADJ WEB w/ 2' L x 20" H x 3/16" DP SL AT G10

(K) = BAY 10 → INT DIAPH NEAR HINGE w/ 1/4" MIN REM C HORIZ LEG

(L) = G10 → BF E. LEG w/ UP TO FW x 1/8" DP SL

(M) = BAY 10 → WELD B/W W. SIDE LAT BRACE & GUS PL BROKEN (4 1/2" L), E. WELD + ERECTION BUILT OK

(N) = BAY 8 → S. HALF LAT BRACE HORIZ PL w/ MISSING/BROKEN WELD B/W PL + GIRD BF (HUY PIGEON DEBRIS + LR THIS AREA)

(O) = GIRDER 10, E. LEG BF w/ AREAS OF 2' L x 8" W x 3/16" DP SL

(P) = GIRDER 10 → BAY 10; CRK'D WELD B/W GIRD BF + GUS PL, 4 1/2" L

(Q) = GIRDER 9 → MISS WELD B/W LAT BRACE GUS PL + GIRDER BF w/ UP TO 7/8" BEND/IR c PL

UPDATE NO.	DATE	COMPANY	CREW
△			
△			
△			
△			

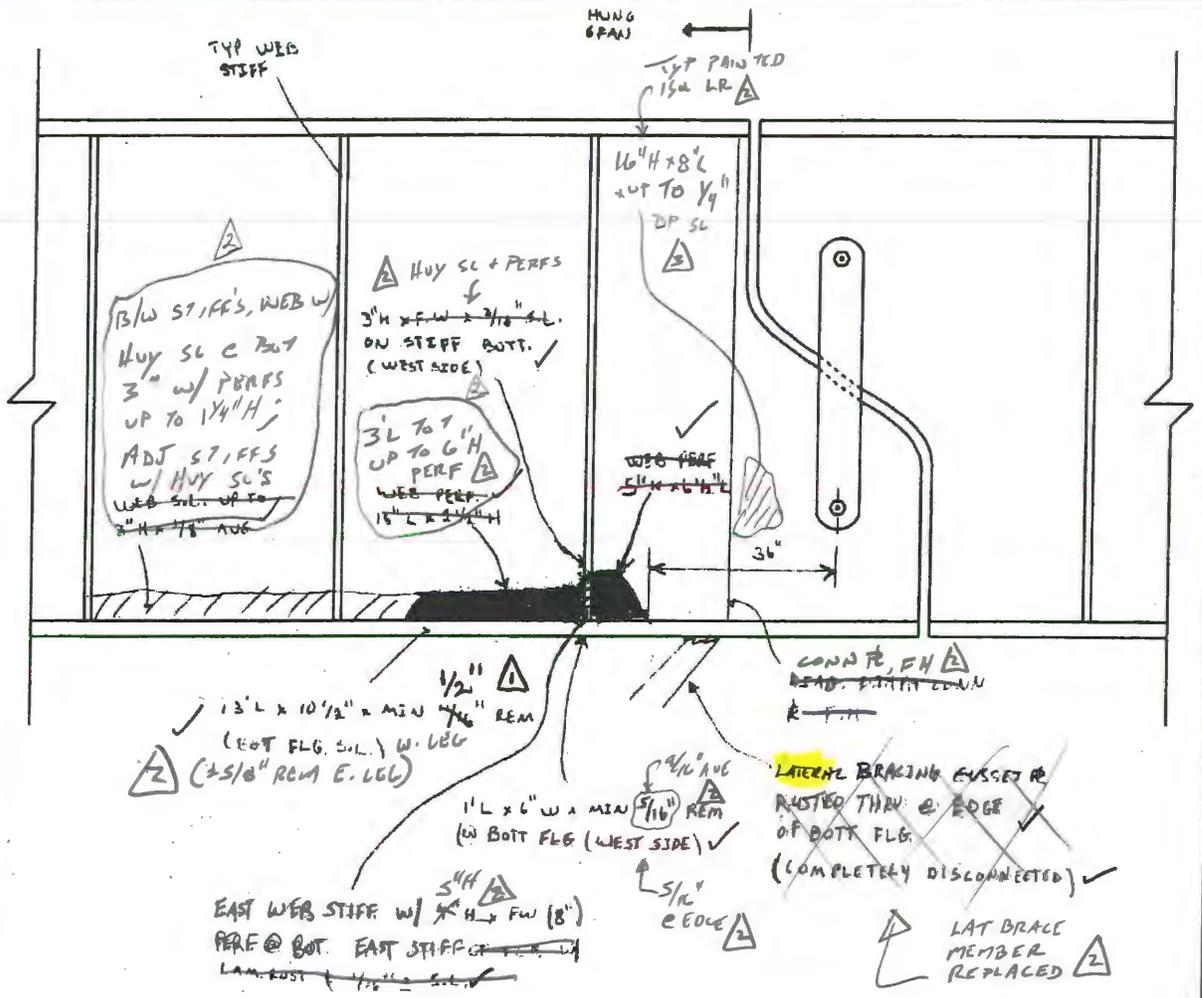
4/1/10

58/132

HAKS FIELD NOTES

JOB NO. 170-3013
DATE: 9/14/10
CREW: PHH, GAA

BRIDGE NO. 03093
SHEET 49 OF 49



% WEB LOSS @ PERF. = < 5%

SPAN 3 GIRDER G9 WEST ELEVATION (U.O.N.)
NTS

REVISION	DATE	CREW	REVISION	DATE	CREW
△	6/5/12	PHH, RV (HAKS)	△		
△	6/19/14	MSO/SH (L&E)	△		

SUPPLEMENTAL SHEET

BRIDGE NO. 3093

DATE: 6/25/14

FIELD ORIGINAL

TRANSCRIBED BY: MJD

CREW: MJD/BH

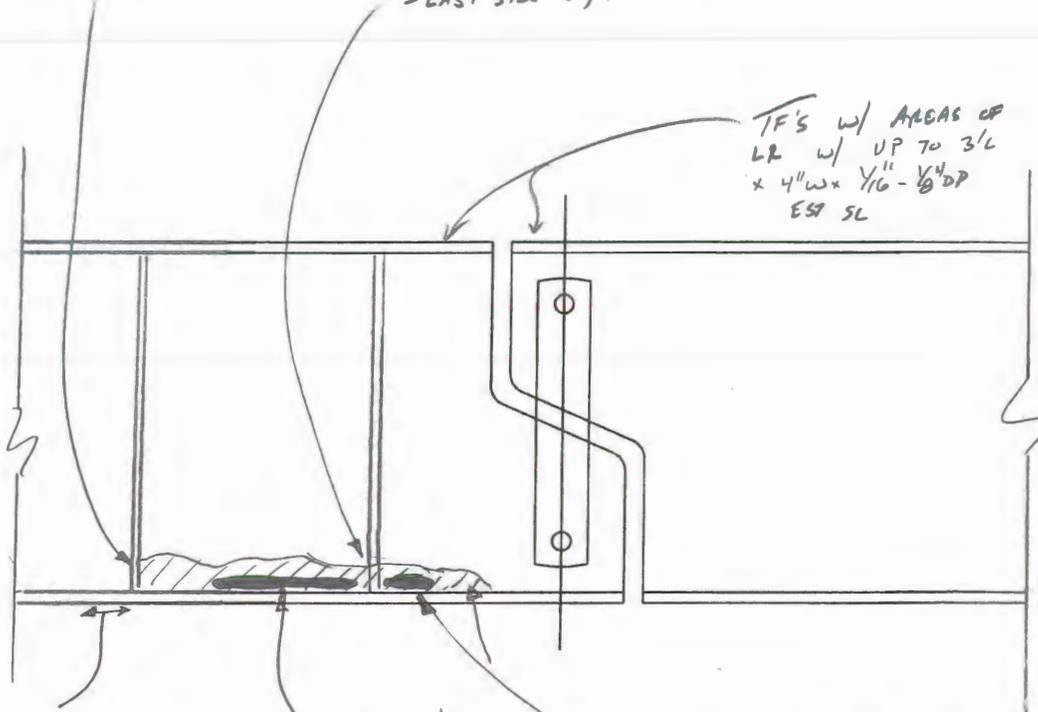
SHEET 59/132

DESCRIPTION: SP 3, G10 SL @ P&H

WEB STIFF BASES w/
UP TO 3"H x 3/16" DP SL,
DOWN TO KE AT RTH'S
UP TO 1 1/4" H AT BOTTOM.

STIFF BASE
- WEST SIDE w/ FWx UP TO 3" H PERF
- EAST SIDE w/ FWx UP TO 3" H PERF

TF'S w/ AREAS OF
LR w/ UP TO 3/4"
x 4" w x 1/16" - 1/8" DP
EST SL



BF w/ FITTING UP
TO 5/16" DP x 10' L
(W. LEG w/ 11/16" REM +
E. LEG w/ 5/8" REM
WITHIN 6' OF P&H)

W. E. ELEV'S w/ UP TO
4' L x UP TO 3" H x 1/8"
DP SL, DOWN TO KE
± 2" H ADS TO 35"
3" RTH

13" L x 2 1/2" WEB PERF w/
ADJ SL'S (± 1/4") x 10" L x 3" H
DOWN TO KE AROUND PERF

SPAN 3, GIRDER 10, W. ELEV

UPDATE	DATE	COMPANY	CREW
△			
△			
△			
△			

46/104

60/132



FIELD NOTES

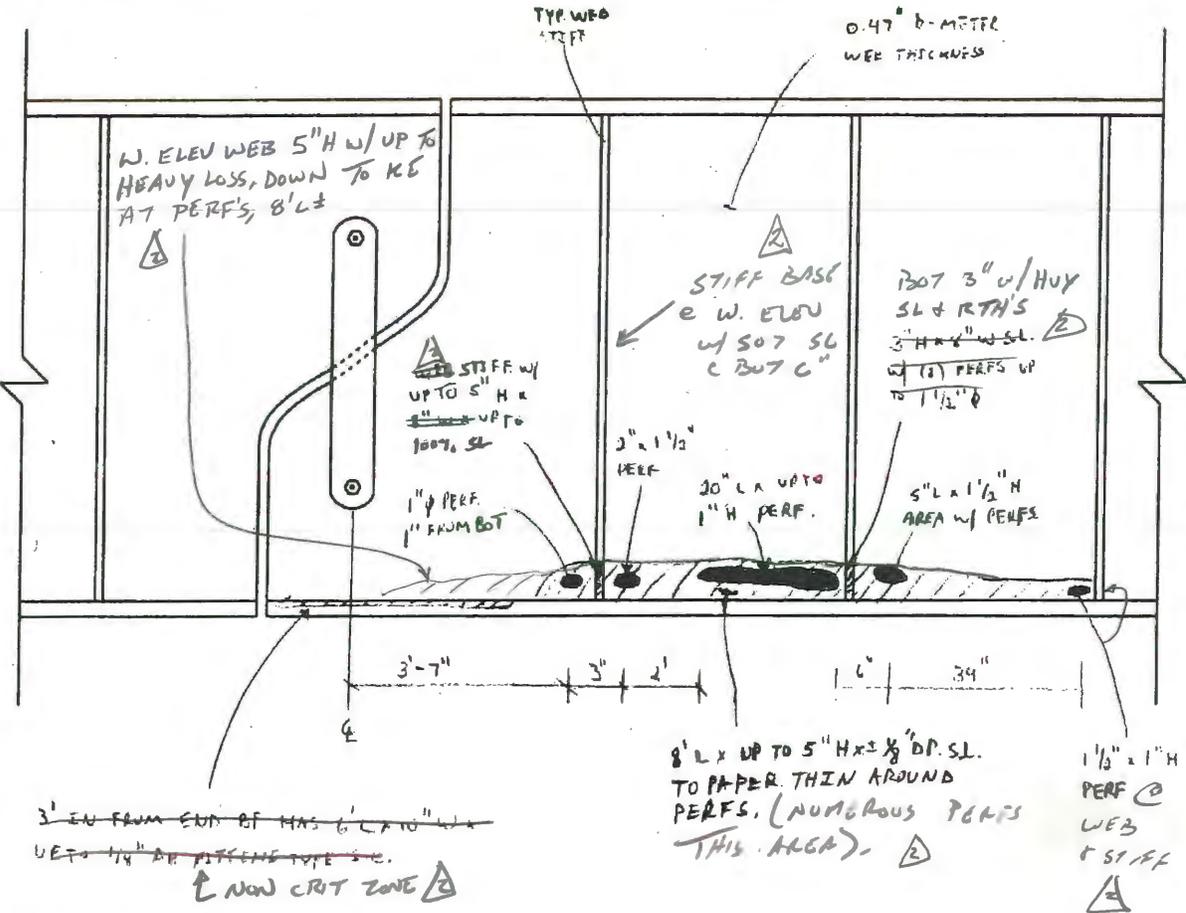
JOB NO. 170-3013

BRIDGE NO. 03093

DATE: 7/22/10

SHEET 50 OF 119

CREW: RSH, GAA



1/4" WEB LOSS = < 5%

△ NO CHANGE

SPAN 3 GIRDER G11 EAST ELEVATION
NTS

REVISION	△	DATE	6/16/12	CREW	MJN, RV (HAKS)	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/25/14	CREW	MJO, BH (BKR)	REVISION	△	DATE		CREW	

47/104
6/1/12



HAKS FIELD NOTES

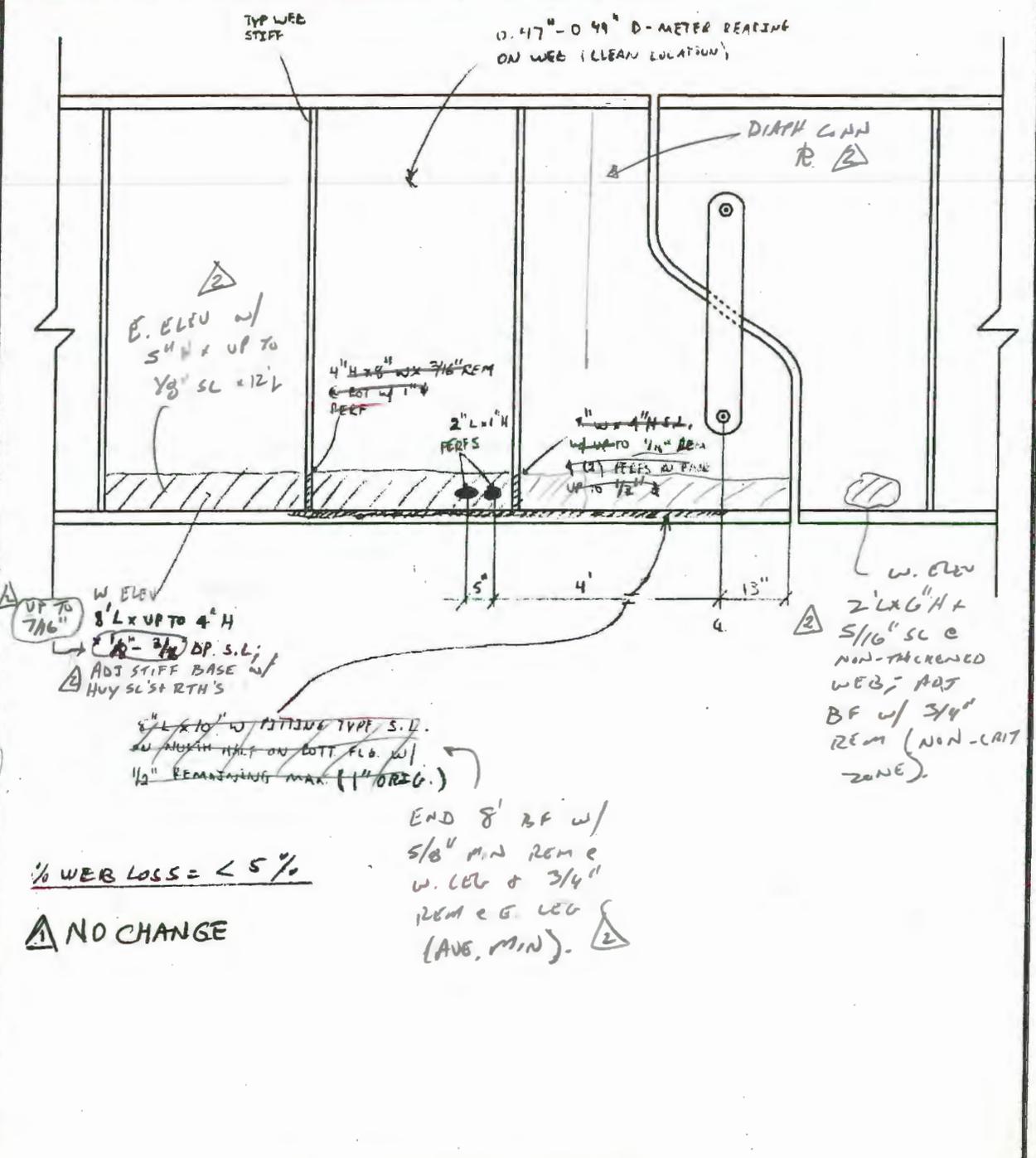
JOB NO. 170-3013

BRIDGE NO. 03093

DATE: 7/22/10

SHEET 51 OF 119

CREW: PHH, GM



1/2 WEB LOSS = < 5%

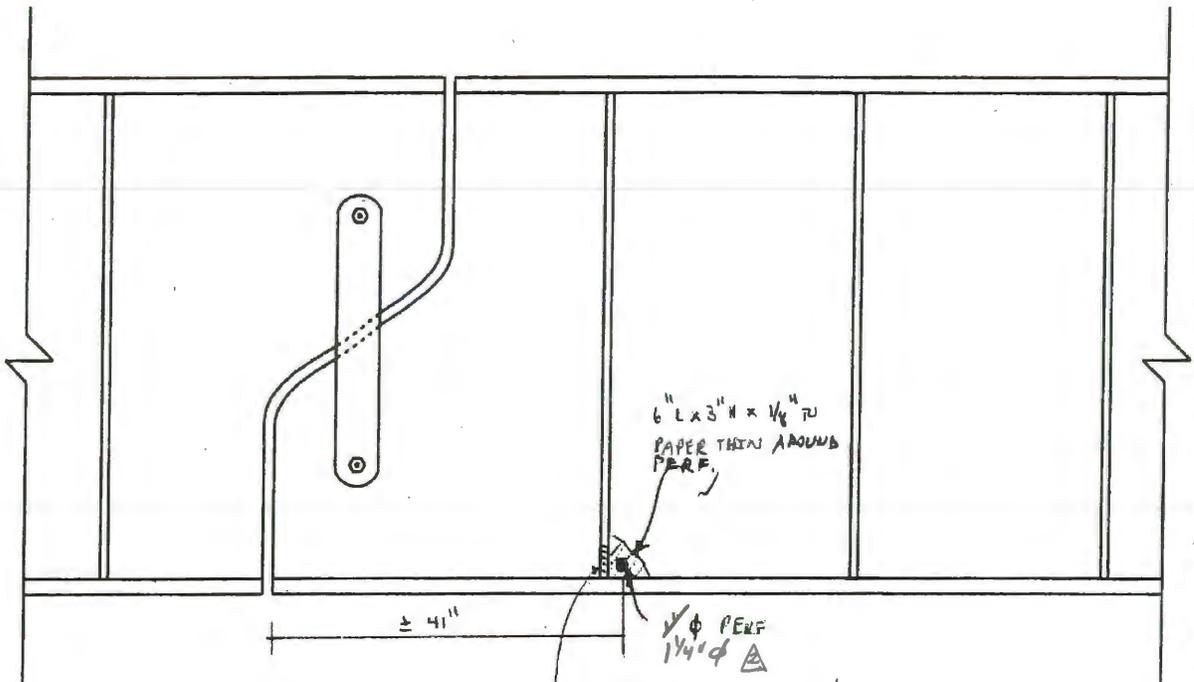
NO CHANGE

SPAN 3 GIRDER G12 WEST ELEVATION
NTS

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	8/6/12	MTW, RV CHAKS	Δ		
REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/13/10	MP/BSH (BICK)	Δ		

48/109
63/132

 HAKS FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 7/22/10	SHEET 52 OF 119
	CREW: PMA, BM	



6" L x 3" H x 1/4" TH
PAPER THIN AROUND
PERF.

1/4" PERF
1/4" Δ

WEB STIFF W/ FW X
2" H x UP TO 1/4" REM.
S.L. @ BOT.

Δ W/ 1" x 1/2" PERF e
STIFF

1/2 WEB LOSS = < 5%

Δ NO CHANGE

SPAN 3, GIRDER G15, EAST ELEVATION
NTS

REVISION Δ	DATE 6/28/12	CREW PMA, NPK (HAKS)	REVISION Δ	DATE	CREW
REVISION Δ	DATE 6/23/14	CREW MTO/BA (BKR)	REVISION Δ	DATE	CREW

44/804

09/132



HAKS FIELD NOTES

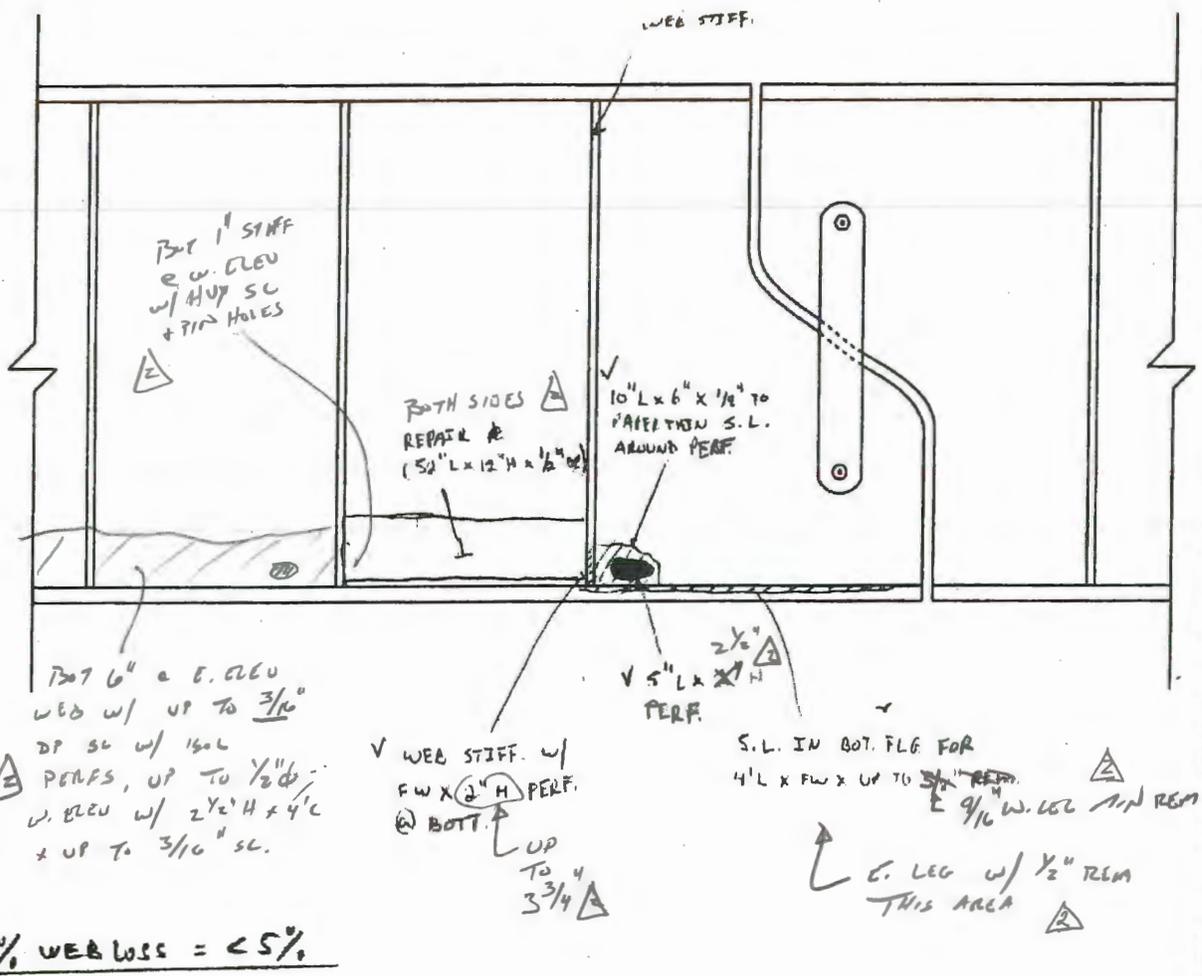
JOB NO. 170-3013

BRIDGE NO. 03093

DATE: 7/22/10

SHEET 53 OF 119

CREW: FWH, GM



NO CHANGE

SPAN 3. GIRDER G18. WEST ELEVATION

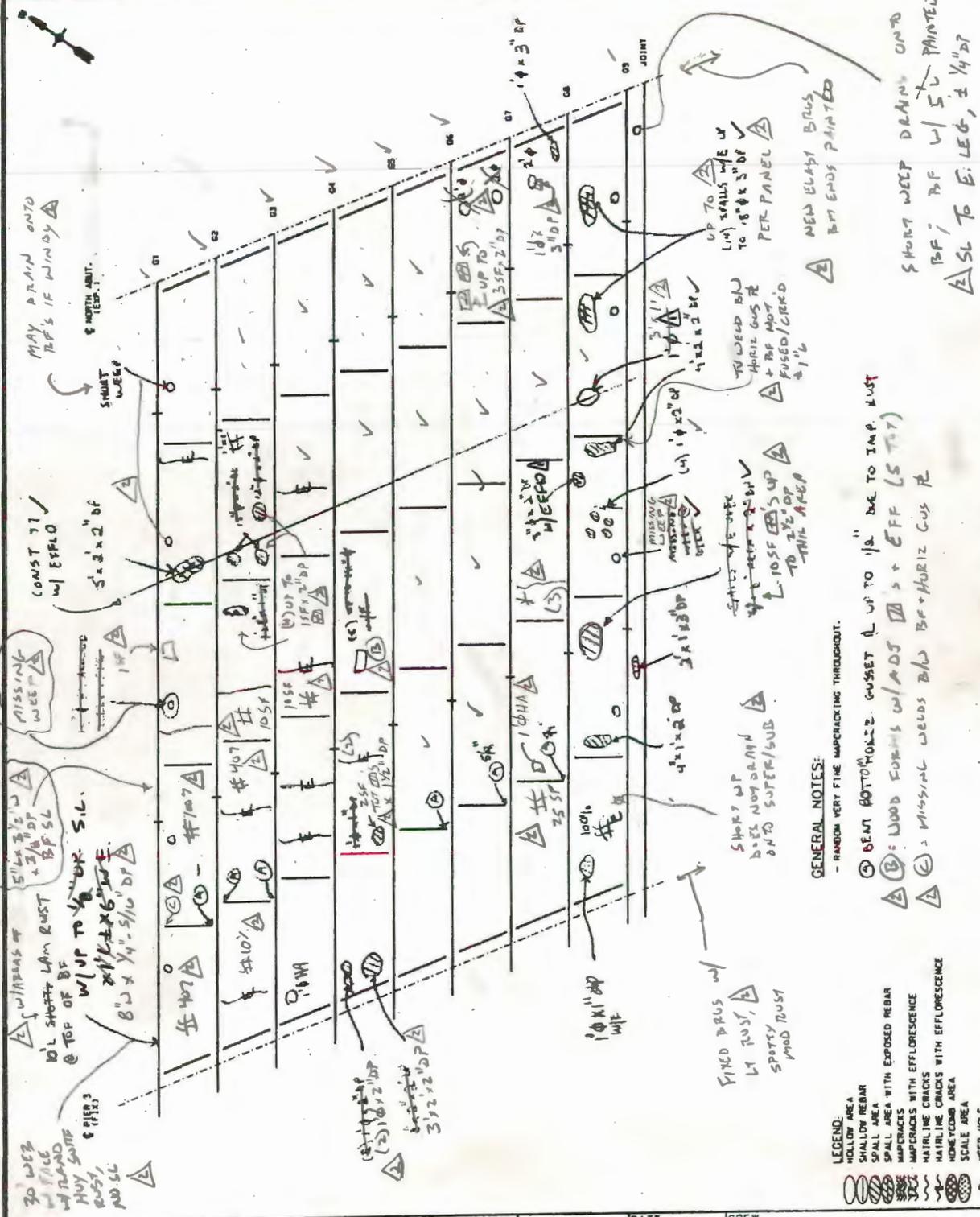
NTS

REVISION	△	DATE	6/28/12	CREW	PKA, NPR (HAKS)	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/23/14	CREW	MD/BN (BKR)	REVISION	△	DATE		CREW	

50/104
05/132

HAKS FIELD NOTES

JOB NO. 170-3013
 DATE: 7/19/10
 CREW: E.J.L., M.J.W., G.T.
 BRIDGE NO. 03093
 SHEET 54 OF 49



GENERAL NOTES:
 - RANDOM VERY FINE IMPACKING THROUGHOUT.

- ⊙ BENT BOTTOM HORIZ. GUSSET UP TO 1/2" BE TO IMP. DUST
- ⊙ GOOD FORMS W/ ADS 2" + EFF (S.T.)
- ⊙ MISSING WEAPS B/W BF + HORIZ. GUS. R

- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
 - SMALL AREA
 - SMALL AREA WITH EXPOSED REBAR
 - IMPACKING
 - IMPACKING WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA
 - WEAP HOLE
 - B/TM. FLANGE TRANSITION

FRAMING PLAN - SPAN 4 (WEST HALF)
 NTS

REVISION	DATE	CREW	REVISION	DATE	CREW
REVISION	DATE	CREW	REVISION	DATE	CREW
	06/05/12	PHH, RV (HAKS)			
	6/16/10	ATG/BA (OKK)			

CONCRETE DETERIORATION WORKSHEET

		Deterioration By Span - In Square Feet									
		Span Number									
Deterioration Type	X	1	2	3	4						Total
Spalled and Delaminated Areas	Top										0
	Bot.	42	82	285	151						560
Scale (Moderate to Severe Only)	Top										0
	Bot.										0
Cracks:with Efflorescence (Use 6" width x length)	Bot.	34	77	210	115						436
Cracks w/o Efflo.(Use 3" width x Length)	Top										0
	Bot.	0	10	42	28						80
Map Cracking: w/Efflorescence (Use full Area)	Bot.	24	9	497	364						894
Map Cracking w/o Efflo.(Use 50% of Area)	Top										
	Bot.	289	110	339	269						1007
Honeycombed Areas (only areas more than 1 1/2" deep)	Bot.										0
Total Deterioration	Bot.	389	288	1373	927						2977
Span Area		8914	15624	30690	15680						70908
% Spalled and Delaminated on top	Top	0.0%	0.0%	0.0%	0.0%						X
% Deterioration on Bottom	Bot.	4.4%	1.8%	4.5%	5.9%						4.2%

Note: Span and deterioration areas from previous report are assumed correct. Deterioration areas updated per 2014 field sheets. Hanch spalls and haunch hollow areas are considered to be 4" wide for area computation.

S.O. No. BR # 03693

Subject: SECTION LOSSES - SP #1

Baker

08/132

Sheet No. _____ of _____

Drawing No. _____

Computed by MJD Checked By BH Date JULY 2014

SP #1

- C10 PI (R GIRDER → SINGLE $4\frac{1}{2} \times \frac{3}{4}$ BRG STIFF ; $62 \times \frac{3}{8}$ WEB R)

$$A_{BRG} \rightarrow 2(4\frac{1}{2})(\frac{3}{4}) + \left[(2) \left[9(\frac{3}{8}) \right] + \frac{62 \times 3}{4} \right] \frac{3}{8} \Rightarrow \underline{9.56 \text{ in}^2}$$

LEFF

- LEFF = $7.5''$

$$SL = \underbrace{7.5''(\frac{3}{16})}_{B. WEB} + \underbrace{4\frac{1}{2}''(\frac{3}{16})}_{E. STIFF} + \underbrace{3''(\frac{1}{8})}_{W. WEB/STIFF} \times 2 \rightarrow 3.00 \text{ in}^2 / 9.56 \text{ in}^2$$

↳ 31% WEB LOSS IN BRG

- TOP BOLSTER SL'S → NOTE A BOT RT OF SP #1, W. HALF FIELD SHY

- BOLSTER WEB → $\frac{1}{2}''$; BRG STIFF → $5 \times \frac{3}{4}''$

$$A_{BRG} = (2)(5'')(\frac{3}{4}'') + \left[2(9) \left(\frac{1}{2}'' \right) + \frac{5 \times 3}{4} \right] \frac{1}{2}'' = 12.38 \text{ in}^2$$

LEFF

LEFF = $9.75''$ ($4.5''$ PAST BRG STIFF)

SL → WEB → BEHIND → $\frac{9}{32}''$ REM → $\frac{7}{32}''$ SH ($4.5''$) = 0.98 in^2
 → IN FRONT → $\frac{3}{16}''$ PITY + 2 → $(\frac{3}{32}'') \times (2) \times (4.5'') = 0.84 \text{ in}^2$
 → STIFF → UP TO $\frac{5}{16}''$ → SAY ± $\frac{1}{4}''$ AN → $(2)(\frac{1}{4}'')(5'') = 2.5 \text{ in}^2$

$4.32 \text{ in}^2 \Rightarrow$ 35% BOLSTER WEB LOSS IN BRG

- C10 PI → BOT STIFF'S REPS → NO CALL

Orig Web Area in Bearing (one set of bearing stiffeners at girder ends):

Stiffener bearing area:

No. Stiffeners:	2 (each)
Stiffener Thickness	1.000 (in)
Stiffener Width	8.000 (in)
Stiffener Area	16.000 in ²

Effective Length:

Stiffener Thickness	1.000 (in)
Web Thickness	0.375 (in)
9*tw	3.375 (in)
(2)9*tw	6.750 (in)
Effective Length	7.750 (in)

Effective Length Check:

Effective Length/2	3.875 (in)
Dist CL brg to web end	6.000 (in)

If 1/2 Effective Length above is greater than CL brg dist to web end:

Eff Length/2	N/A	(in)
Dist CL brg to web end:	N/A	(in)
Effective Length =	N/A	(in)

Effective Length = 7.750 (in)

Web area in bearing = 18.906 in²

Web loss in bearing - Span 2, girder 2 at pier 1:

	Length (in)	Depth (in)	Loss (in ²)
Stiff 1	8	7/16	3.500
Stiff 2	0	0	0.000
Web loss 1	3.375	3/16	0.633
Web loss 2	0	0	0.000
Web loss 3	0	0	0.000
Web loss 4	0	0	0.000
Total			4.133
% Web loss in bearing=			22%

Web loss in bearing - Span 2, girder 6 at pier 1:

	Length (in)	Depth (in)	Loss (in ²)
Stiff 1	8	3/16	1.500
Stiff 2	8	1/8	1.000
Web loss 1	6.75	3/32	0.633
Web loss 2	6.75	1/8	0.844
Web loss 3			0.000
Web loss 4			0.000
Total			3.977
% Web loss in bearing=			21%

Calc'd by: MJO
Checked by: BH

Orig Web Area in Bearing (one set of bearing stiffeners at girder ends):

Note - Calculations are only shown if bearing losses approach 20%.

Stiffener bearing area:

No. Stiffeners:	2 (each)
Stiffener Thickness	1.000 (in)
Stiffener Width	8.000 (in)
Stiffener Area	16.000 in ²

Effective Length:

Stiffener Thickness	1.000 (in)
Web Thickness	0.375 (in)
9*tw	3.375 (in)
(2)9*tw	6.750 (in)
Effective Length	7.750 (in)

Effective Length Check:

Effective Length/2	3.875 (in)
Dist CL brg to web end	6.000 (in)

If 1/2 Effective Length above is greater than CL brg dist to web end:

Eff Length/2	N/A	(in)
Dist CL brg to web end:	N/A	(in)
Effective Length =	N/A	(in)

Effective Length = 7.750 (in)

Web area in bearing = 18.906 in²

Web loss in bearing - Span 2, girder 2 at pier 1:

	Length (in)	Depth (in)	Loss (in ²)
Stiff 1	8	7/16	3.500
Stiff 2	0	0	0.000
Web loss 1	3.375	3/16	0.633
Web loss 2	0	0	0.000
Web loss 3	0	0	0.000
Web loss 4	0	0	0.000
Total			4.133
% Web loss in bearing=			22%

Web loss in bearing - Span 2, girder 6 at pier 1:

	Length (in)	Depth (in)	Loss (in ²)
Stiff 1	8	3/16	1.500
Stiff 2	8	1/8	1.000
Web loss 1	6.75	3/32	0.633
Web loss 2	6.75	1/8	0.844
Web loss 3			0.000
Web loss 4			0.000
Total			3.977
% Web loss in bearing=			21%

S.O. No. BR² 03093

Subject: BF SL'S (> 02 CLOSE TO 5%)

Baker

70/132

Sheet No. _____ of _____

Drawing No. _____

Computed by MJO Checked By BH Date July 2014

SPAN 1 - JOK

SPAN 2

- GIRDER 1- B/W PIER 1 + 1ST TRANS → (20' x 7/8" ORIG)
- NOTE (A) → ± MIDDLE THIS AREA → 10' x 1/4" SL → 14% BF SL
- " (B) → 6' x 1/4" SL → CLOSE TO TRANS → 9% BF SL
- GIRD 1 NEAR 2ND DIAPH (20' x 1" ORIG) → 10' x 3/16" SL → 9% BF SL
- GIRD 1 NEAR 4TH DIAPH (" ") → 1/4" FW SL W. LEG → 12% BF SL
- GIRD 1B B/W P1 + 1ST TRANS (20' x 7/8" ORIG)
- 19/32" REM E. LEG & HALF POINT → 16% BF SL
- 7" W x 7/16" AVE SL & 1/2 PT → 17% BF SL
- GIRD 1B
- MIDSPAN (20' x 1") → 5" x 1/4" DT SL → 6% BF SL
- PANEL NEAR P2 → 5/8" MIN REM OUTSIDE LEG → 19% BF SL

S.O. No. 03093

Subject: BF SL'S (> OR CLOSE TO SZ)

Baker

71/132

Sheet No. _____ of _____

Drawing No. _____

Computed by MD Checked By BK Date JULY 2014

SPAN 3

- GIRDER 1

- B/W PIER + P+H $\rightarrow 20' \times 1''$ ORIG $\rightarrow 15$ SL $5/8''$ REM FW W. LEG $\rightarrow 197$ BF SL
- B/W P+H + 1ST TRANS $\rightarrow 22'' \times 1''$ ORIG \rightarrow FW $\times 5/8''$ REM W. LEG $\rightarrow 197$ BF SL
- B/W WEST TWO TRANS ($22'' \times 1\frac{3}{8}''$ ORIG) $\rightarrow 10\frac{1}{2}'' \times 5/16''$ SL $\rightarrow 178$ BF SL
- MID-SPAN SECTION ($22'' \times 1\frac{7}{8}''$ ORIG) $\rightarrow 3/8$ SL W. LEG AUG $\rightarrow 102$ BF SL
- B/W EAST TWO TRANS ($22'' \times 1\frac{3}{8}''$ ORIG) $\rightarrow 5/16''$ SL W. LEG $\rightarrow 112$ BF SL
- B/W EAST TRANS + HINGE ($22'' \times 1''$) $\rightarrow 5/16''$ SL $\times 9''$ W $\rightarrow 132$ BF SL
- B/W HINGE + P3 $\rightarrow (20'' \times 1'') \rightarrow 5/16''$ DP SL $\times 7''$ W $\rightarrow 112$ BF SL

- GIRDER 10

- MIDSPAN SECTION ($24'' \times 2\frac{1}{4}''$ ORIG)

- NOTES (b) + (c) \rightarrow ALMOST SAME

\hookrightarrow NOTE (c) $\rightarrow 8''$ W $\times 3/16''$ DP SL $\rightarrow 32$ BF SL

- B/W HINGE + 1ST TRANSITION ($22'' \times 1''$) \rightarrow NOTE (d) $\rightarrow 10\frac{1}{2}'' \times 5/8''$ DP SL $\rightarrow 67$ BF SL (HUNG SPAN)

- GIRDER 11

- B/W HINGE 1ST TRANSITION (HUNG SPAN) \rightarrow SAME AS G10 $\rightarrow 67$ BF SL

- GIRDER 18

- B/W HINGE + 1ST TRANS (HUNG SPAN) - $3/4''$ REM W. LEG $\rightarrow 22'' \times 1''$ ORIG $\rightarrow 122$ BF SL

S.O. No. BR # 3093

Subject: BF SL'S (> OR CLOSE TO 53)

Baker

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Sheet No. _____ of _____

Drawing No. _____

Computed by MJD Checked By BR Date JULY 2014

SPAN 4

- GIRDER 1

- B/W P3 + 1st TRANS (20' x 1") → 8' x 9/32" SL = 112 BF SL

- NEAR MIDSPAN → (20' x 1") → 3 1/2' W x 3/8" SL = 68 BF SL

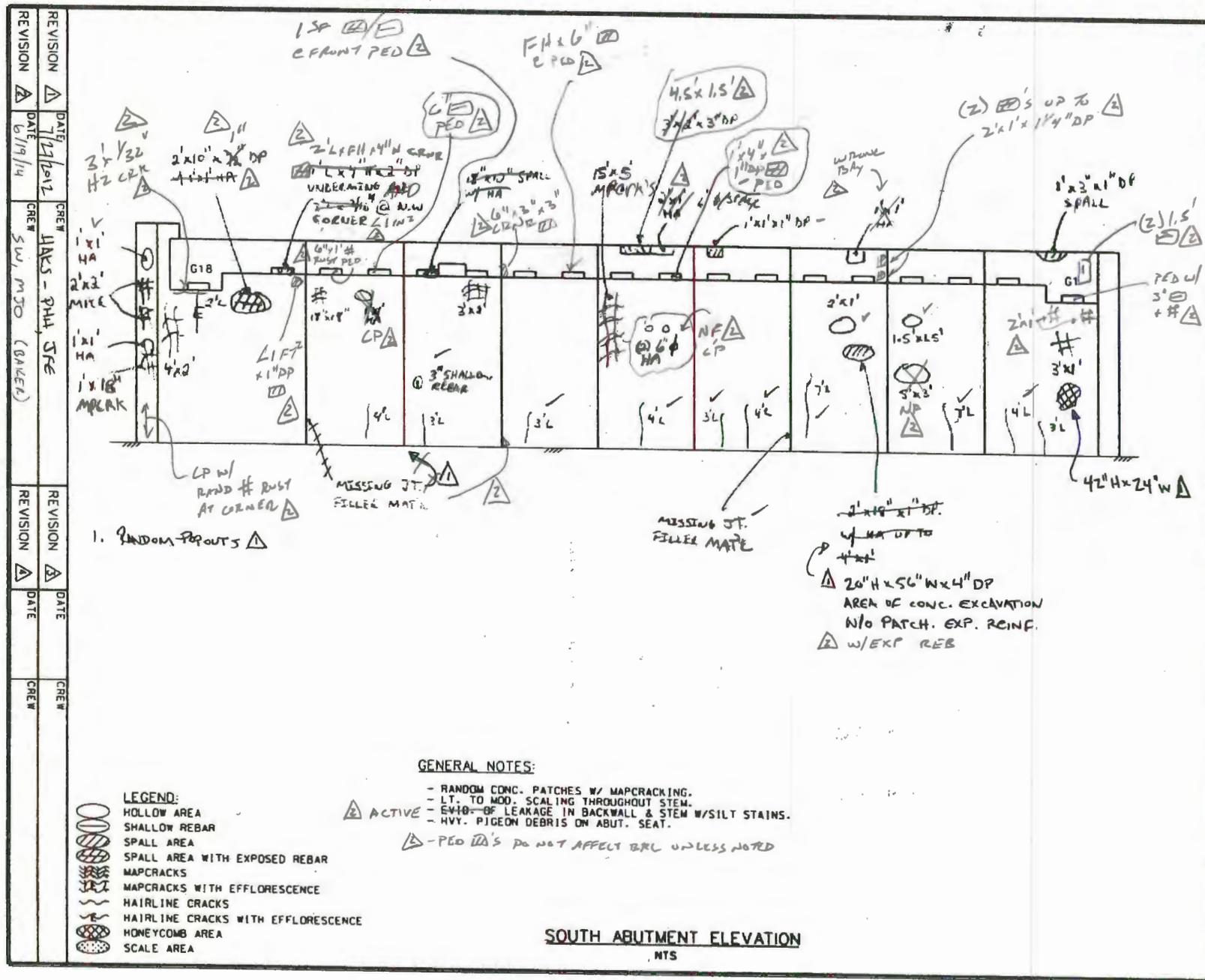
- GIRDER 9

- B/W WEIR + N. TRANS (20' x 1") → UP TO 1/4" SL E-LEG → 128 BF SL

HAKS FIELD NOTES

JOB NO. 170-3013
 DATE: 7/23/10
 CREW: PHH/GH1

BRIDGE NO. 03093
 SHEET 59 OF 119



GENERAL NOTES:

- RANDOM CONC. PATCHES W/ MAPCRACKING.
- LT. TO MOD. SCALING THROUGHOUT STEM.
- EVID. OF LEAKAGE IN BACKWALL & STEM W/SILT STAINS.
- HVY. PIGEON DEBRIS ON ABUT. SEAT.
- △ - PED ID'S DO NOT AFFECT BRL UNLESS NOTED
- △ ACTIVE

- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

SOUTH ABUTMENT ELEVATION
 MTS

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	7/21/2012	HAKS - PHH, JFE	Δ		
Δ	6/19/14	SW, MJO (BAKER)	Δ		

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 53/104



HAKS

FIELD NOTES

JOB NO. 170-3013

DATE: 2/23/10

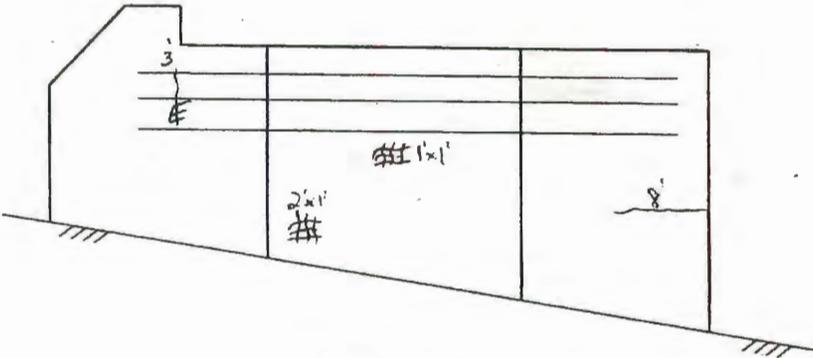
CREW: PHH, GM

BRIDGE NO. 003093

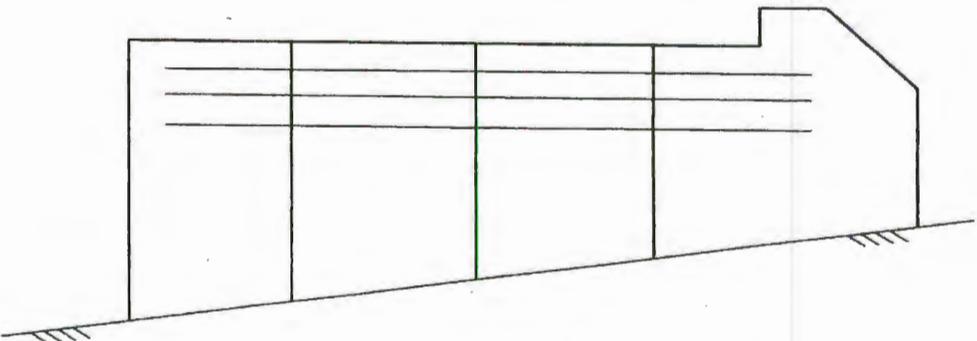
SHEET 59 OF 119

7/13/12

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S.E. WINGWALL



S.W. WINGWALL

GENERAL NOTES:

- EXPANSION JT MATERIAL MISSING/DETERIORATED AT ALL JOINTS.
- HVY. VEG. GROWTH ALONG WINGWALLS.
- LT. SCALE AT RANDOM LOCATIONS.
- LT. GRAFFITI ON S.E. WINGWALL.

△ NO CHANGE

S.E. & S.W. WINGWALLS

NTS

- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

REVISION	DATE	CREW	REVISION	DATE	CREW
△	7/17/10	HAKS - PHH, JFE	△		
△	6/19/14	SM, MJD (BAKER)	△		



HAKS

FIELD NOTES

JOB NO. 170-3013

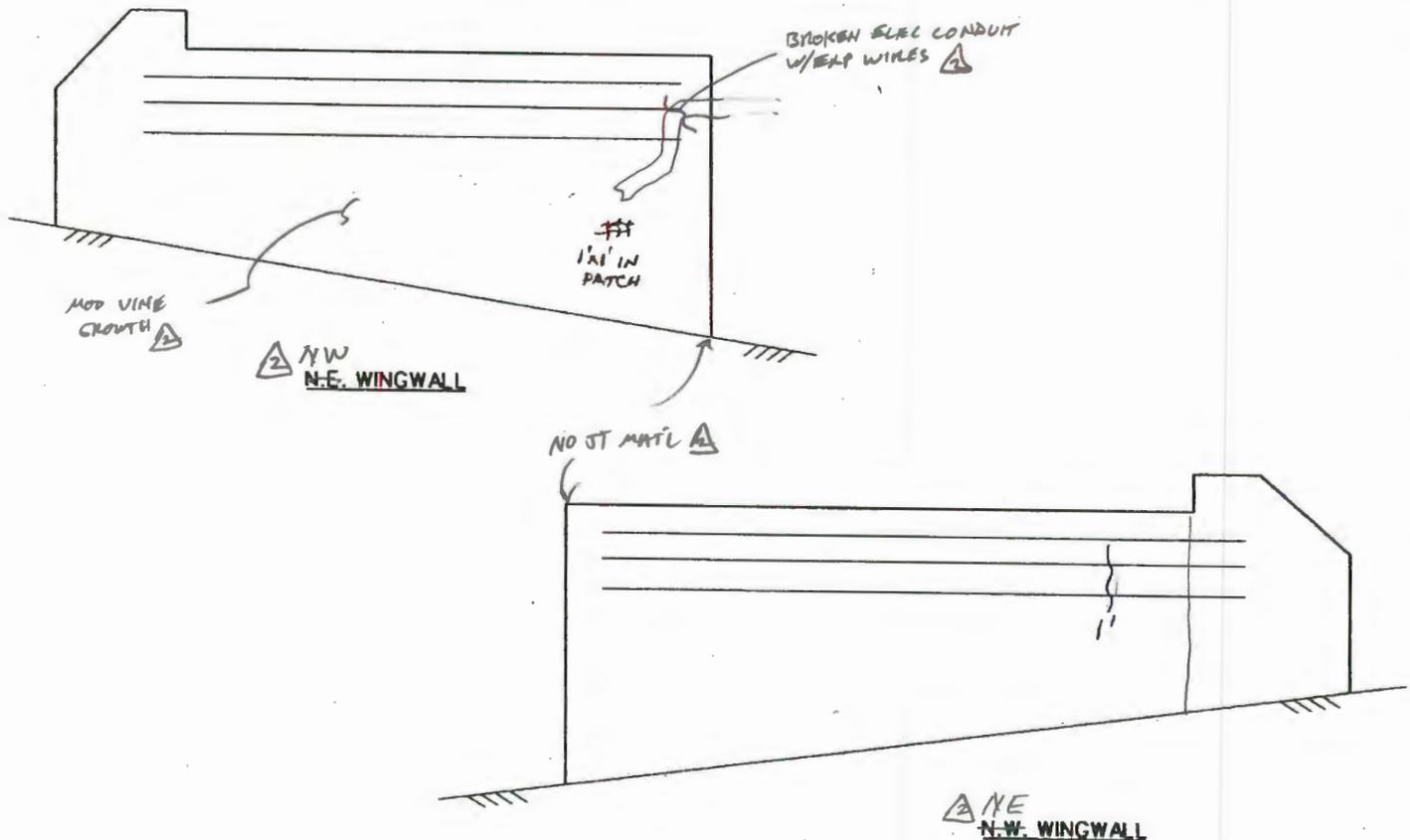
BRIDGE NO. 003093

DATE: 7/21/10

SHEET 60 OF 119

CREW: PHH, GHT

76/132
8/104



GENERAL NOTES:

MOD HVY HVY. VEG. GROWTH ALONG SW WINGWALL & V. VEG GROWTH ALONG NW. WINGWALL. W/ VINE IN JT.

N.E. & N.W. WINGWALLS
NTS

LEGEND:

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAPCRACKS
- MAPCRACKS WITH EFFLORESCENCE
- HAIRLINE CRACKS
- HAIRLINE CRACKS WITH EFFLORESCENCE
- HONEYCOMB AREA
- SCALE AREA

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/16/14	PHH, PHH, N, PR (HAKS)	Δ		
Δ		BH, ASD (BICK)	Δ		

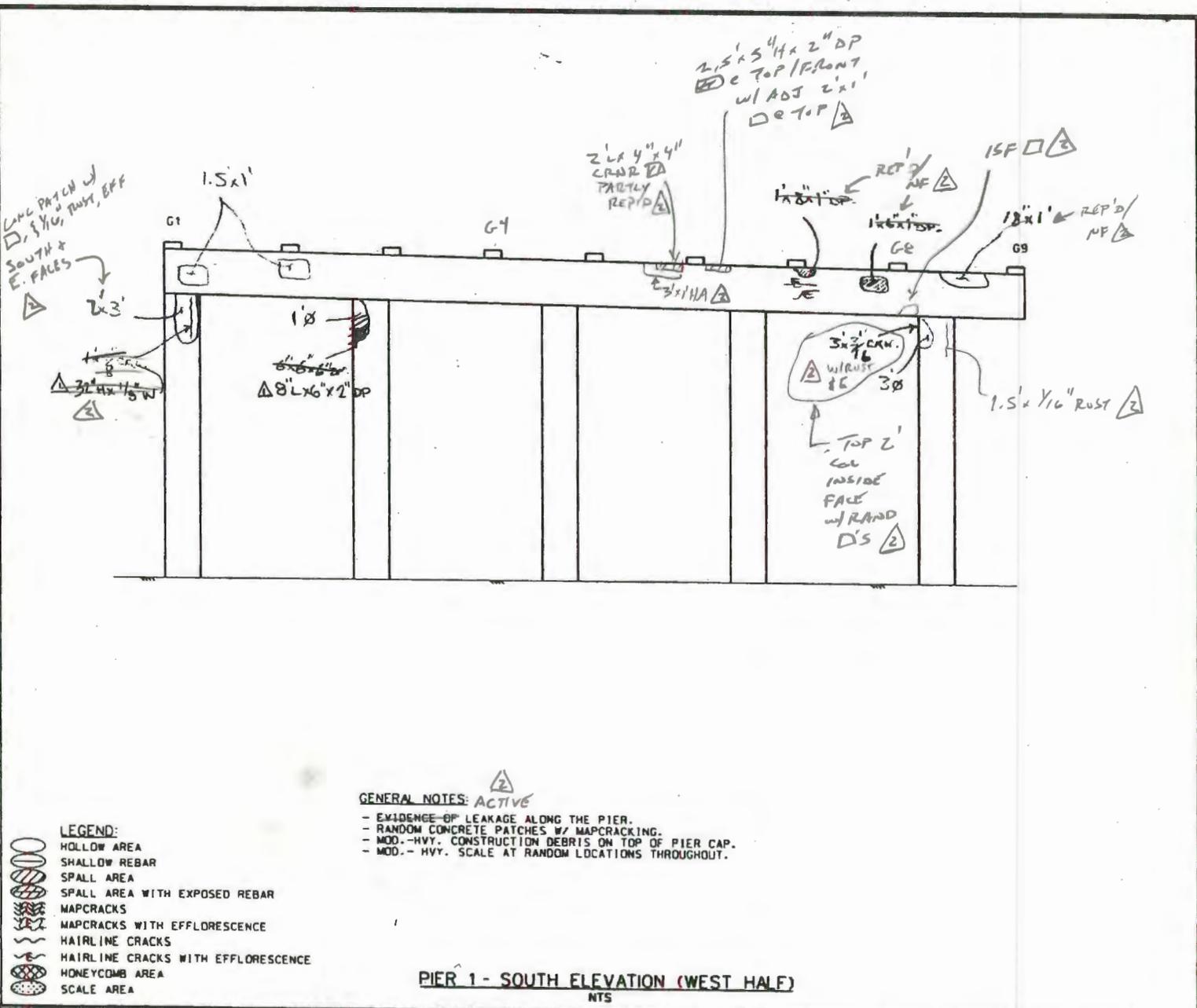
HAKS

FIELD NOTES

JOB NO. 170-3013
 DATE: 7/23/10
 CREW: PHH, GM

BRIDGE NO. 03093
 SHEET 51 OF 149

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	7/2/10	HAKS - PHH, SCE	Δ		
Δ	6/11/10	SW, M30 (CANKER)	Δ		



- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

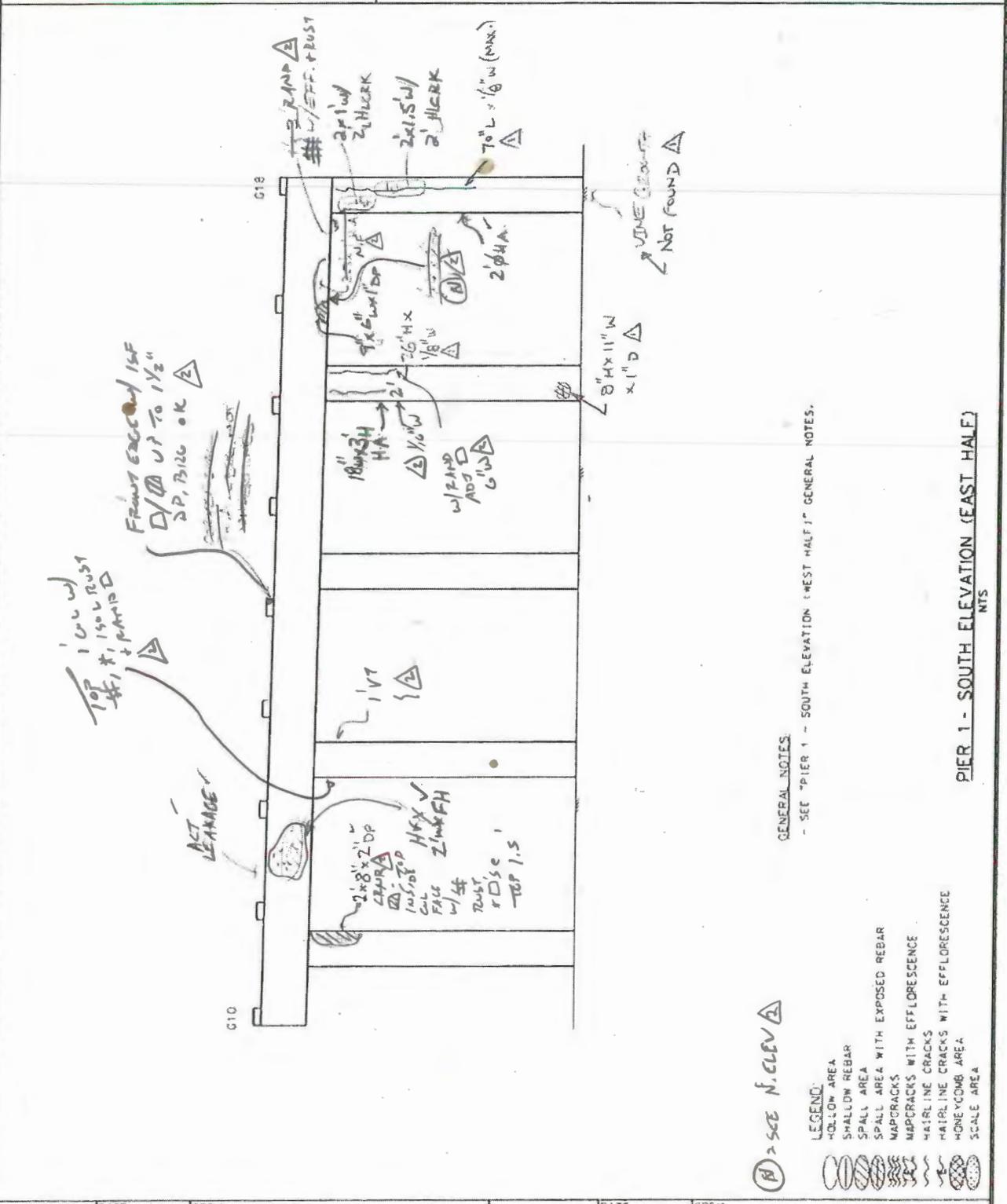
- GENERAL NOTES: ACTIVE**
- EVIDENCE OF LEAKAGE ALONG THE PIER.
 - RANDOM CONCRETE PATCHES w/ MAPCRACKING.
 - MOD.-HVY. CONSTRUCTION DEBRIS ON TOP OF PIER CAP.
 - MOD.-HVY. SCALE AT RANDOM LOCATIONS THROUGHOUT.

PIER 1 - SOUTH ELEVATION (WEST HALF)
 NTS

57/104
 7/1/12

28/404
78/132

	FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
		DATE: 7/27/10	SHEET 4 OF 11
		CREW: PHH, GM	

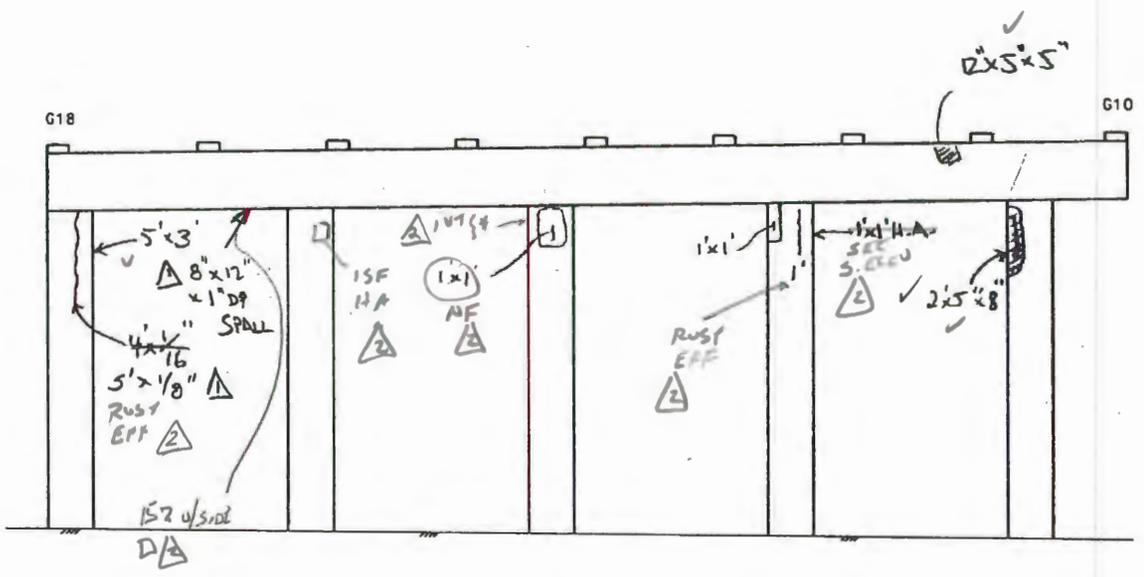


REVISION	DATE	CREW	REVISION	DATE	CREW
△	7/27/2012	HAKS - PHH, JFE	△		
△	6/19/14	SW, M50 (BAKER)	△		

GENERAL NOTES:
 - SEE "PIER 1 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.
 PIER 1 - SOUTH ELEVATION (EAST HALF)
 NTS

- ① - SEE N. ELEV. △
- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	7/21/12	HAKS - PHH, STE	Δ		
Δ	7/11/11	PHH, GJM (BTR)	Δ		



- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

GENERAL NOTES:
 - SEE "PIER 1 - NORTH ELEVATION (WEST HALF)" GENERAL NOTES.

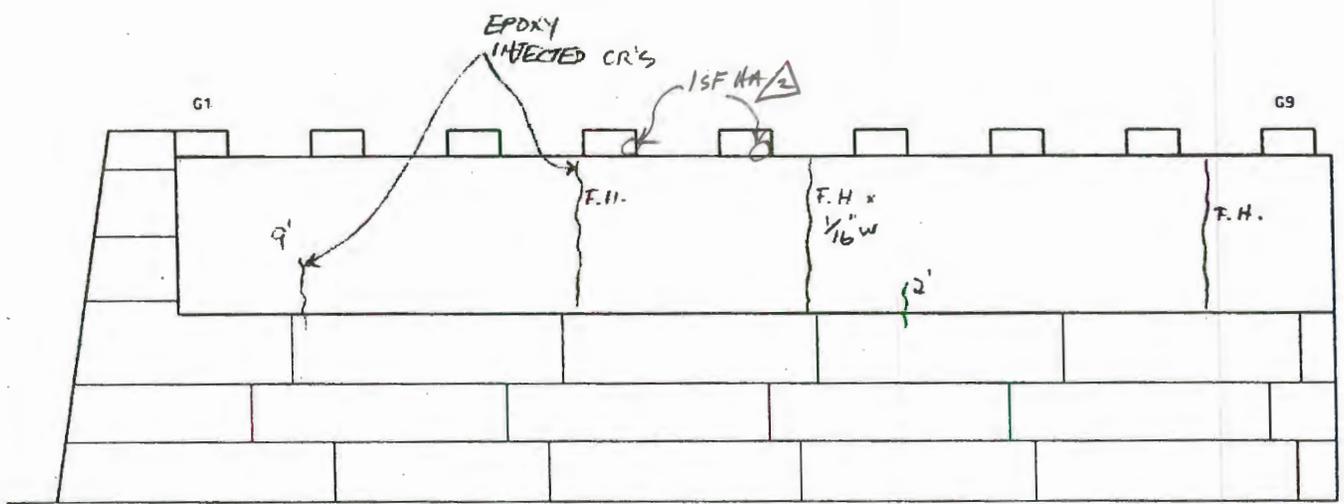
PIER 1 - NORTH ELEVATION (EAST HALF)
 NTS

6/10/14
 8/13/12

HAKKS

FIELD NOTES

JOB NO. 170-3013
 DATE: 7/14/10
 CREW: EDL, TZW, A5, GM,
 BRIDGE NO. 03093
 SHEET 65 OF 119



GENERAL NOTES:
 - LT. SCALE AT RANDOM LOCATIONS THROUGHOUT PIER.

- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

PIER 2 - SOUTH ELEVATION (WEST HALF)
 NTS

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/13/11	PHH, RV (HAKKS)	Δ		
Δ	6/17/14	DH, AND COBY	Δ		

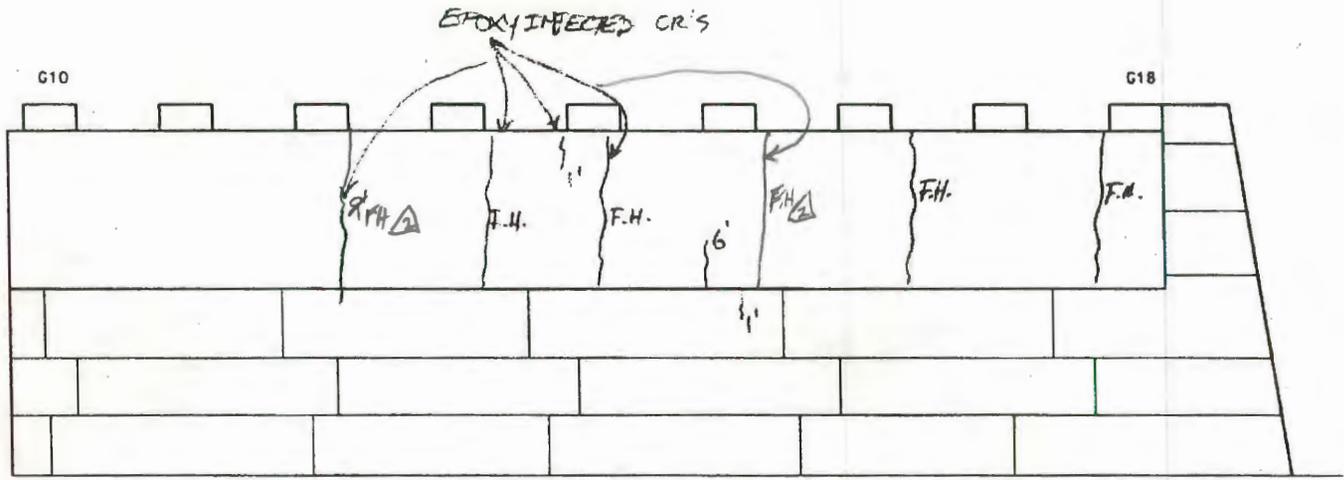
8/1/132
 6/1/104

HAKS FIELD NOTES

JOB NO. 170-3013
 DATE: 7/14/10
 CREW: EGL, MW, AS, CH

BRIDGE NO. 03093
 SHEET 68 OF 119

6/2/104
 6/2/132



GENERAL NOTES:
 - SEE "PIER 2 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.

- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

PIER 2 - SOUTH ELEVATION (EAST HALF)
 NTS

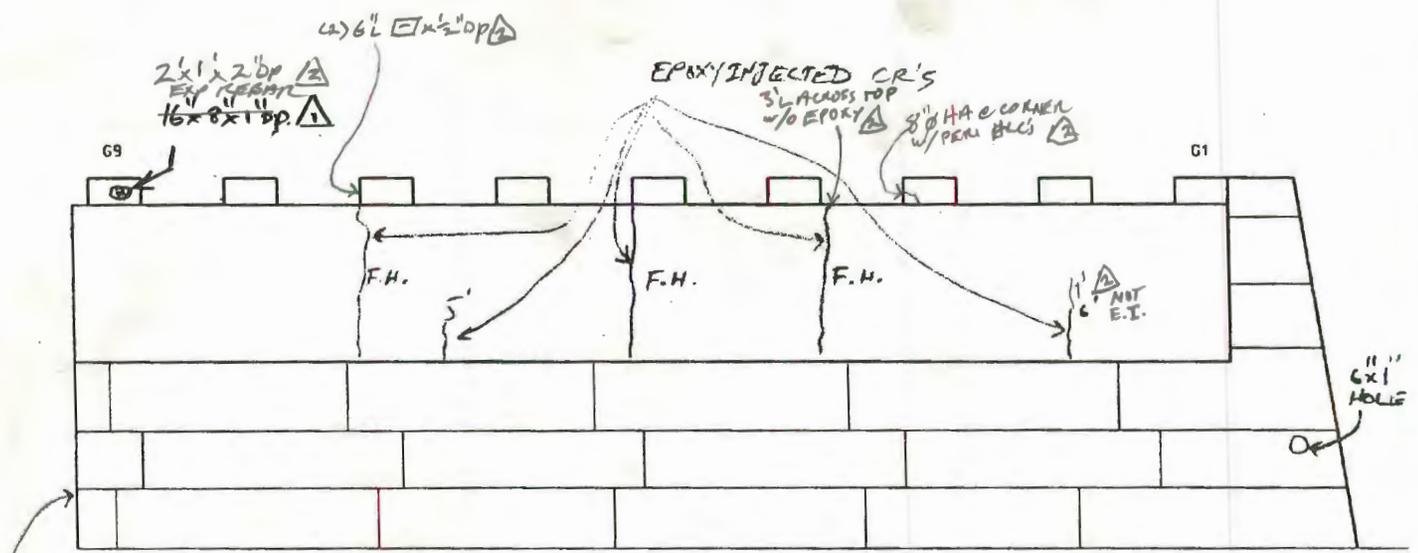
REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/5/12	PHI, RV (HAKS)	Δ		
Δ	6/23/11	BJ/mrd (OKR)	Δ		

HAKKS FIELD NOTES

JOB NO. 170-3013
 DATE: 7/14/10
 CREW: GCL, HOU, AEGH
 BRIDGE NO. 03093
 SHEET ~~64~~ OF 119

6/1/04
 83/132

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/15/12	PHARKY (CRKS)	Δ		
Δ	6/17/14	SH, ASD (CRK)	Δ		



MISSING FT. KILLER

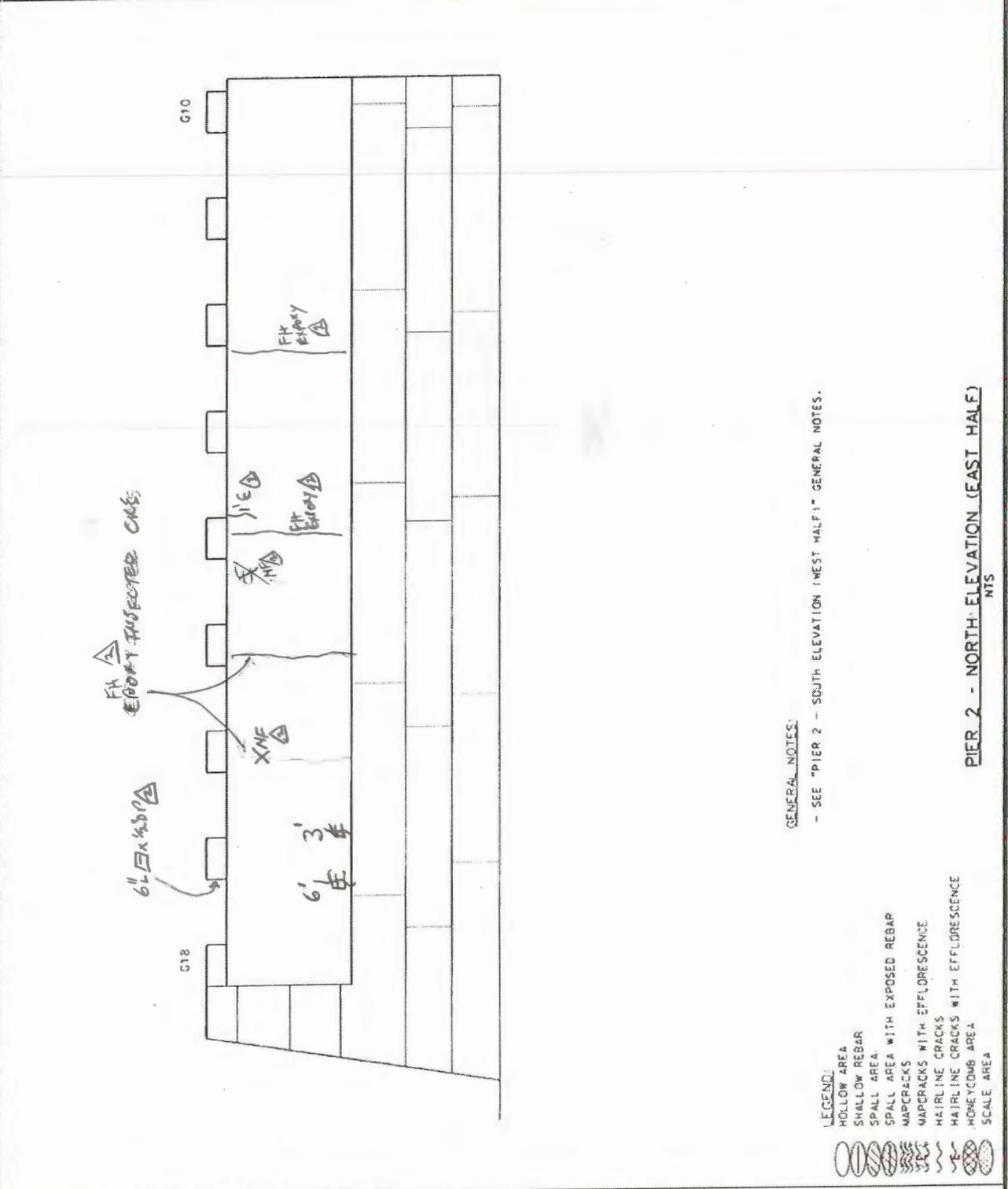
GENERAL NOTES:
 - SEE "PIER 2 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.

- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
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 - MAPCRACKS WITH EFFLORESCENCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

PIER 2 - NORTH ELEVATION (WEST HALF)
 NTS

6/1/04
8/13/2

	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 7/14/10	SHEET 11 OF 19
	CREW: ETL, HSW, AS, GM	



GENERAL NOTES:
- SEE "PIER 2 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.

- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCE
 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCE
 - HONEYCOMB AREA
 - SCALE AREA

PIER 2 - NORTH ELEVATION (EAST HALF)
NTS

REVISION	△	DATE	6/5/12	CREW	PHH, RV CHAKS J	REVISION	△	DATE		CREW	
REVISION	△	DATE	6/23/14	CREW	BM, MJD (PFA)	REVISION	△	DATE		CREW	

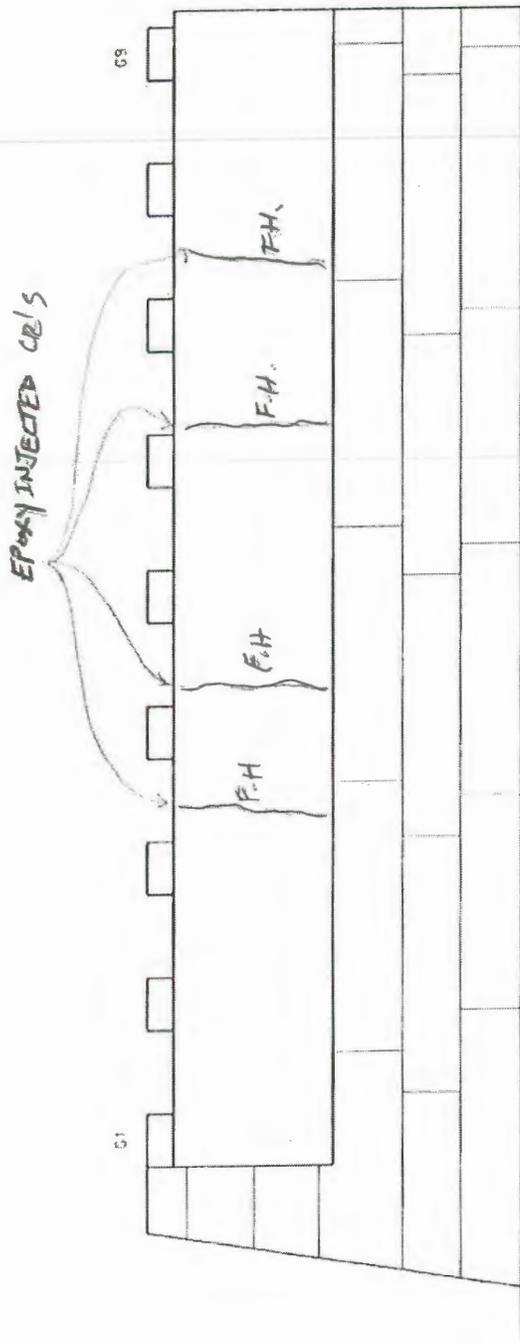
65/104
85/132



HAKS FIELD NOTES

JOB NO. 170-3013
DATE: 7/19/10
CREW: RW, AS

BRIDGE NO. 03093
SHEET 1 OF 11



GENERAL NOTES:
- LT. MOSS GROWTH & RUST STAINS AT STEM & MASONRY BASE AT WATERLINE.
- LT. TO MOD. ABRASION ALONG WATERLINE.
NO CHANGE

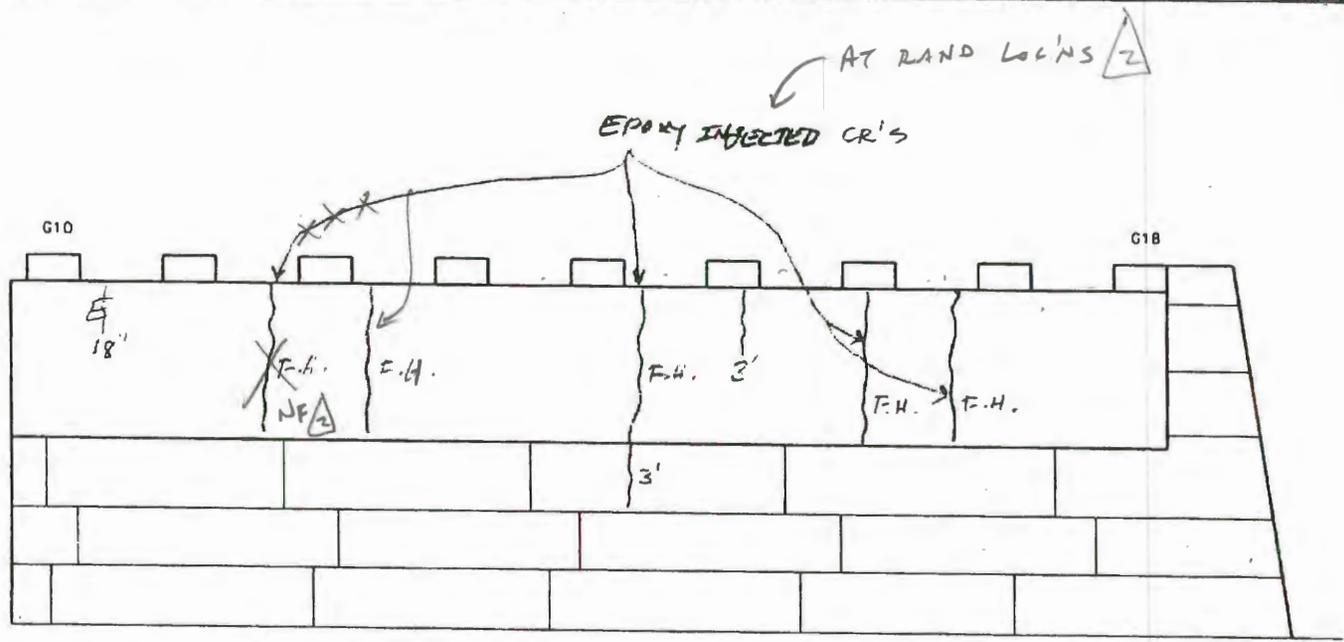
- LEGEND:
- HOLLOW AREA
 - SHALLOW REBAR
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 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
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 - HAIRLINE CRACKS WITH EFFLORESCENCE
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 - SCALE AREA

PIER 3 - SOUTH ELEVATION (WEST HALF)
NTS

REVISION	△	DATE	6/5/12	CREW	PHH, RV (HAKS)	REVISION	△	DATE		CREW
REVISION	△	DATE	6/16/14	CREW	BT, MSO (BICR)	REVISION	△	DATE		CREW

HAKS FIELD NOTES

JOB NO. 170-3013
 DATE: 2/11/12
 SHEET 20 OF 141
 CREW: PHH/RV/AS



GENERAL NOTES:
 - SEE "PIER 3 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.

- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
 - SPALL AREA
 - SPALL AREA WITH EXPOSED REBAR
 - MAPCRACKS
 - MAPCRACKS WITH EFFLORESCENCE
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 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

PIER 3 - SOUTH ELEVATION (EAST HALF)
 NTS

REVISION	REVISION	DATE	DATE	CREW	CREW
Δ	Δ	6/5/12		PHH, RV (HAKS)	
Δ	Δ	6/16/14		PHH/RV (HAKS)	

86/132
 6/1/14



HAKS

FIELD NOTES

JOB NO. 170-3013

DATE: 7/19/10

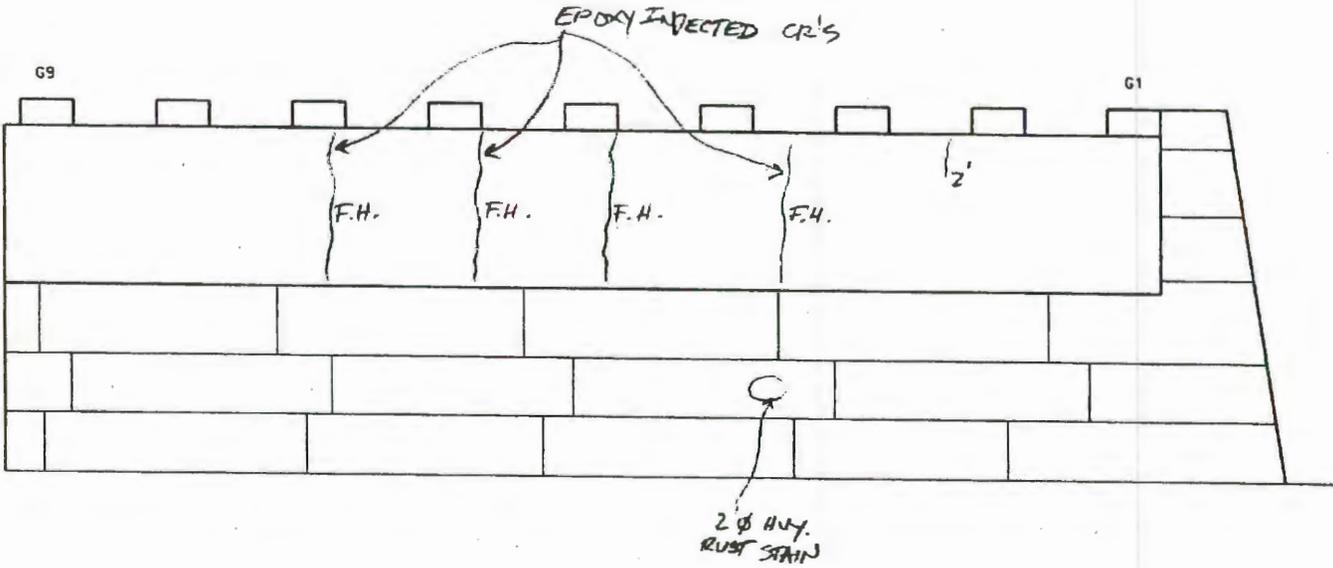
CREW: PHW/AS

BRIDGE NO. 03093

SHEET 71 OF 109

8/1/10
104

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	8/5/10	PHH/RV/CHARS	Δ		
REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/16/14	PHH/ASD/CKNS	Δ		



GENERAL NOTES:

- SEE "PIER 3 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.

Δ NO CHANGE

- LEGEND:**
- HOLLOW AREA
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 - SPALL AREA WITH EXPOSED REBAR
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 - MAPCRACKS WITH EFFLORESCENCE
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 - HAIRLINE CRACKS WITH EFFLORESCENCE
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 - SCALE AREA

PIER 3 - NORTH ELEVATION (WEST HALF)
NTS

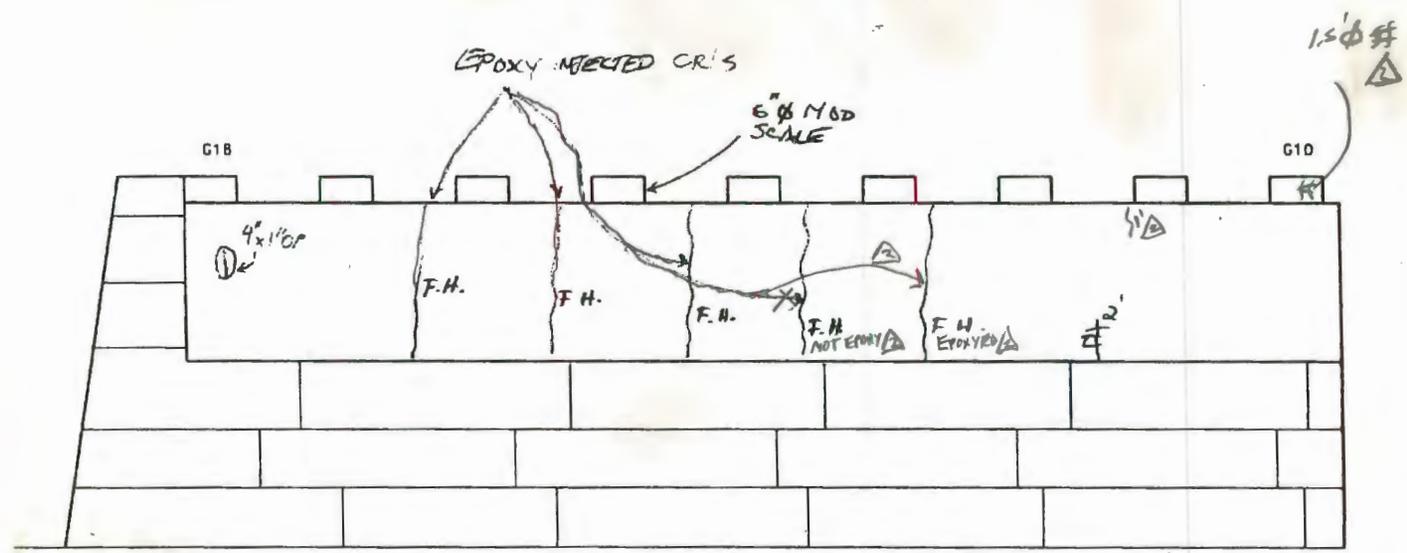
HAKS

FIELD NOTES

JOB NO. 170-3013
 DATE: 7/19/10
 CREW: HAW/AS

BRIDGE NO. 03093
 SHEET 7 OF 14

REVISION	DATE	CREW	REVISION	DATE	CREW
Δ	6/5/11	PHJ, RV (HAKS)	Δ		
Δ	6/18/14	BH, ASD (BRN)	Δ		



GENERAL NOTES:
 - SEE "PIER 3 - SOUTH ELEVATION (WEST HALF)" GENERAL NOTES.

- LEGEND:**
- HOLLOW AREA
 - SHALLOW REBAR
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 - SPALL AREA WITH EXPOSED REBAR
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 - HAIRLINE CRACKS
 - HAIRLINE CRACKS WITH EFFLORESCENCE
 - HONEYCOMB AREA
 - SCALE AREA

PIER 3 - NORTH ELEVATION (EAST HALF)
 NTS

8/8/13
 BH/AS

Bridge No.	03093	Inspected by:	M. Orlowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #1 :
Bridge ID.



Photo #2 :
West elevation.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlowsky
Town:	New Haven	Inspected by:	B. Howlett
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Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #3 :
Bridge from the south approach, southbound.



Photo #4 :
Bridge from the north approach, southbound. Note the cracking in the approach pavement.

Prepared by:

Baker

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Photo #5 :
 Typical underside, span 1, looking north. Note the active leakage at the pier 1 joint and the large spalls with exposed rebar in the deck underside. Under-bridge lights were not on during the daytime inspection.



Photo #6 :
 Typical top of deck, northbound, looking southwest from span 3.

Prepared by:

Baker

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Photo #7 :
Span 4, southbound: Heavy map cracking, raveling, bituminous patches and potholes in the bridge overlay.



Photo #8 :
Span 1, northbound right shoulder: Pothole in the bridge overlay adjacent to the pier 1 joint. Note the adhesion crack along the asphaltic plug joint.

Prepared by:

Baker

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Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #9 :
Span 1, bay 2, panel 2: Large spall with exposed (coated) rebar. Note the hollow concrete adjacent to the spall over North Front Street travel lanes.



Photo #10 :
Span 2, bay 8, panel 3: Large spall with exposed rebar, up to 3.5" deep.

Prepared by:

Baker

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Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #11 :
Span 1, bay 10, panel 2: Active leakage through the deck at a map cracked area.

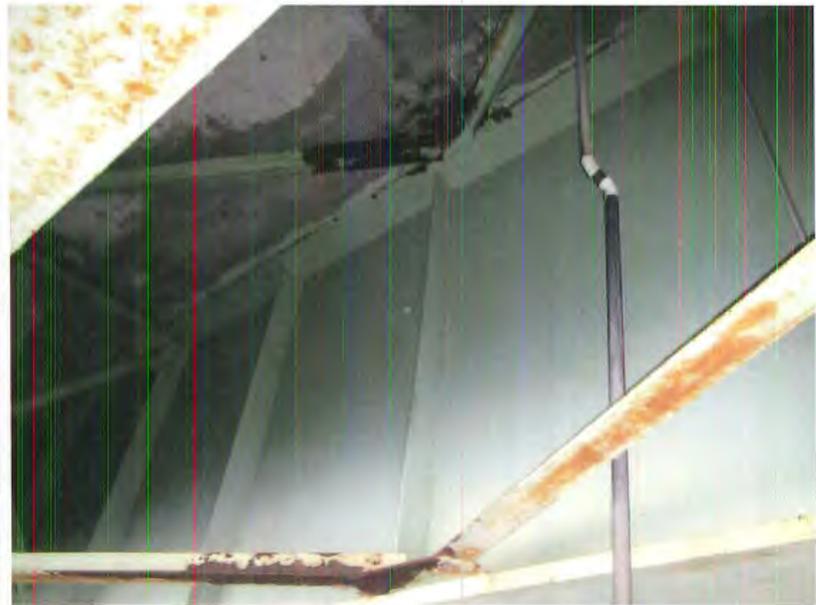


Photo #12 :
Span 3 near midspan, bay 8: Upper and lower lateral bracing with laminated rust and section loss below a spalled area in the deck underside (dry at time of inspection).

Prepared by:

Baker

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Photo #13 :
 Northbound median at the south abutment joint: Spalled and scaled concrete at the bridge and approach median, mostly in the curb area. Note the exposed rebar at the approach median curb (left side of photo).



Photo #14 :
 Southbound median parapet at the north abutment joint: Large, full height spalled and hollow area in the approach median. Bridge median/curb with adjacent spalling.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
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Photo #15 :
Span 3, northbound: Clogged scupper in the right (east) shoulder.



Photo #16 :
Span 4, bay 1, panel 4: Short weep may drain onto the girder bottom flange. Also note the large spall with exposed rebar and efflorescence along the construction joint.

Prepared by:

Baker

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #17 :
Span 4, girder 9, east elevation: Weep has a missing extension and drains onto the girder bottom flange. Note the painted over section losses along the girder bottom flange.



Photo #18 :
Span 3, southbound, west parapet: Light standard with impact damage.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
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Photo #19 :
Span 2, northbound, east parapet: Missing hand hole cover at the light standard base.



Photo #20 :
Span 3, west parapet, outside face: Conduit elbow with missing access cover.

Prepared by:

Baker

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Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #21 :
Northwest wingwall: Conduit for light standards is separated, exposing wires.

*this was reported
to utility CO for repair*



Photo #22 :
Asphaltic plug joint at pier 1, southbound: Cohesion and adhesion cracks along the joint.

Prepared by:

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Photo #23 :
Asphaltic plug joint at the north abutment joint, southbound:
Pothole with exposed joint plate in the left-center lane.



Photo #24 :
Strip seal joint at the span 3, south hanger line, southbound.
Note the debris in the joint.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #25 :
 Strip seal joint at the span 3, south hanger line, northbound:
 Missing curb plate at the east parapet.

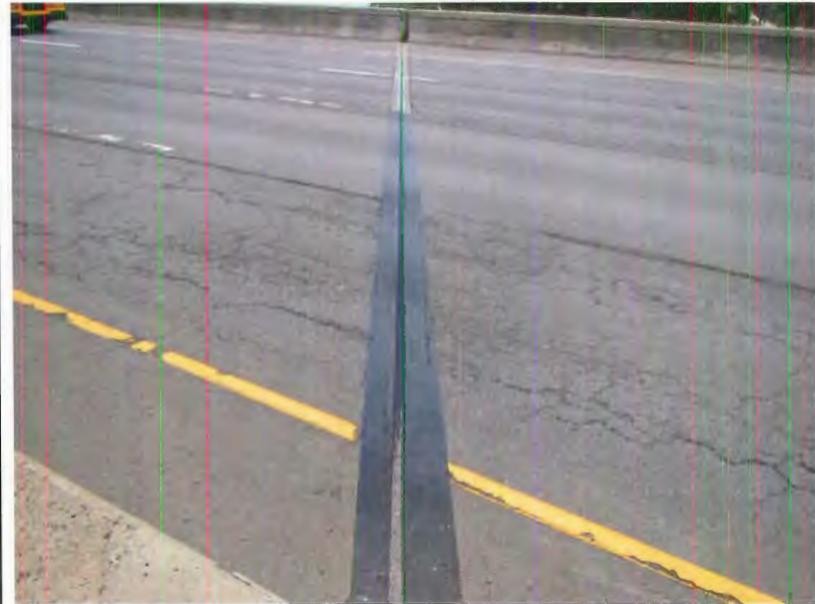


Photo #26 :
 Strip seal joint at the span 3, south hanger line, southbound:
 Repairs to the headers in the left and left-center lanes. Note
 the cracking in the bridge overlay.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #27 :
Span 1, girder 1 fixed bearing at pier 1: Painted-over impacted rust and gaps between the sole and masonry plates.



Photo #28 :
Girder 18 bearing at pier 3: Impacted rust under the washers, section loss to the anchor bolt nuts, and surface rust along bearing components.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #29 :
Girder 1 bearings at pier 1. Note that the previous span 2 rockers have been replaced with elastomeric bearings.



Photo #30 :
Span 3, girder 1 pin and hanger (south line) west elevation, typical. Note the painted over section loss and rusted through hole in the girder web base, just to the left of the thickened portion of the web at the left side of the photo.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
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Photo #31 :
Span 3, girder 7, south line "V" pin and hanger measurement: Note that the hung span (left side of photo) is higher, and therefore is a "negative" measurement for pin and hanger measurement sheet. Positive measurement last inspection indicates rise of hung span this inspection.



Photo #32 :
Span 3, girder 1 fixed hinge (north line), typical. Note the rust along the hinge nuts.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlosky
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Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #33 :
Span 3, girder 9 fixed hinge, east elevation: Heavy surface rust on the spacer plate. Also note the rust along the bolt heads.



Photo #34 :
Span 3, girder 10 "V" fixed hinge measurement. 3/16" difference in measurement versus last inspection, indicating a rise in the hung span this inspection.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
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Photo #35 :
Span 1, girder 10, east elevation at pier 1: Bolster bearing stiffener and adjacent stiffener have been repaired. Note the painted-over section losses along the bolster web, including the rusted through hole in the web behind the bearing stiffener.



Photo #36 :
Span 1, girder 1, west elevation at pier 1: Painted-over section losses along the bolster web and stiffener bases.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlowsky
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Photo #37 :
Span 2, girder 1, east elevation at pier 1: Repair plates at the girder web base and bearing stiffeners.



Photo #38 :
Span 2, girder 7, east elevation at pier 1: Web base and bearing stiffener with painted over section loss. Web has an isolated pin hole.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #39 :
Span 3, girder 9 hung span near pin & hanger (south line):
Web and stiffeners with rusted through holes and section loss. Note the section loss to the girder bottom flange.



Photo #40 :
Span 3, girder 10 hung span near pin & hanger (south line):
Web base and stiffener with section loss and rusted through holes. Note the section loss to the girder bottom flange.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #41 :
Span 3, girder 18 at the pin & hanger (south line, east elevation): Hung section of girder with repair plate and rusted through hole at the base of the web. Also note the typical pitting in the thickened portion of the web around the pin and hanger assemblies.



Photo #42 :
Span 2, girder 18: Up to 9/16" deep section loss to the outside leg of the girder bottom flange.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224

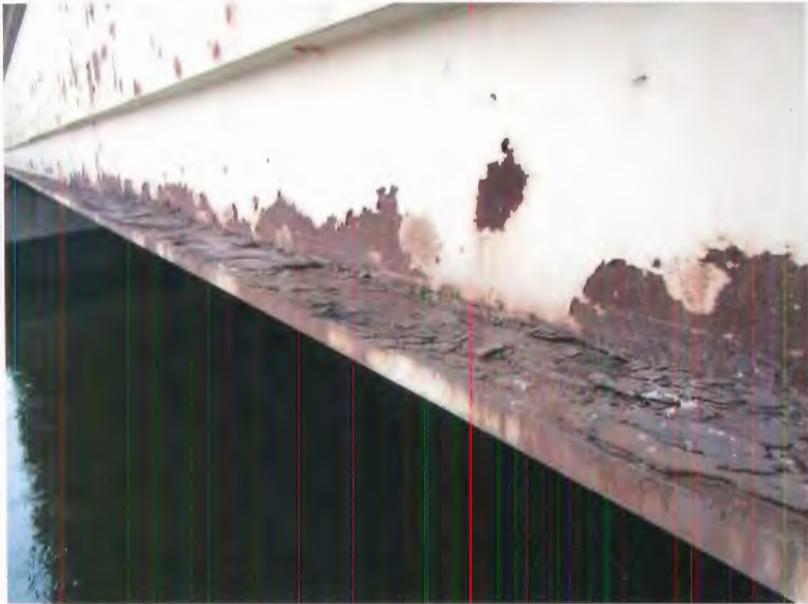


Photo #43 :
Span 3, girder 1 hung span: Laminated rust with section loss along the outside leg of the girder bottom flange near midspan.



Photo #44 :
Span 3, girder 1 hung span: Laminated with section loss along the outside leg of the girder 1 bottom flange between the pin and hanger (south line) and the first transition.

Prepared by:

Baker

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #45 :
Span 3, girder 10 hung span: Laminated rust and section loss to the base of the web and bottom flange between the fixed hinge (north line) and first transition at the east elevation of the girder.

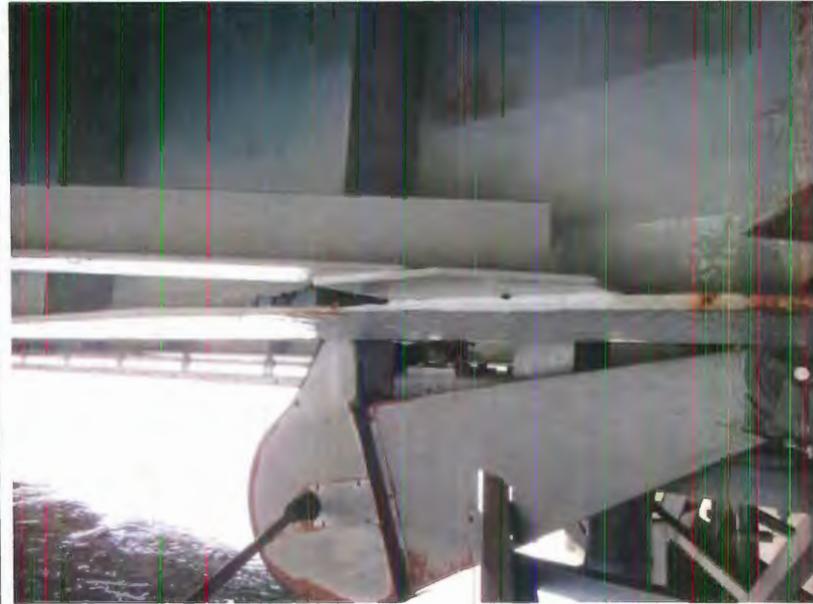


Photo #46 :
Span 3, bay 8, south end of hung span: New lateral bracing member has been installed since the last inspection.

Prepared by:

Baker

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224

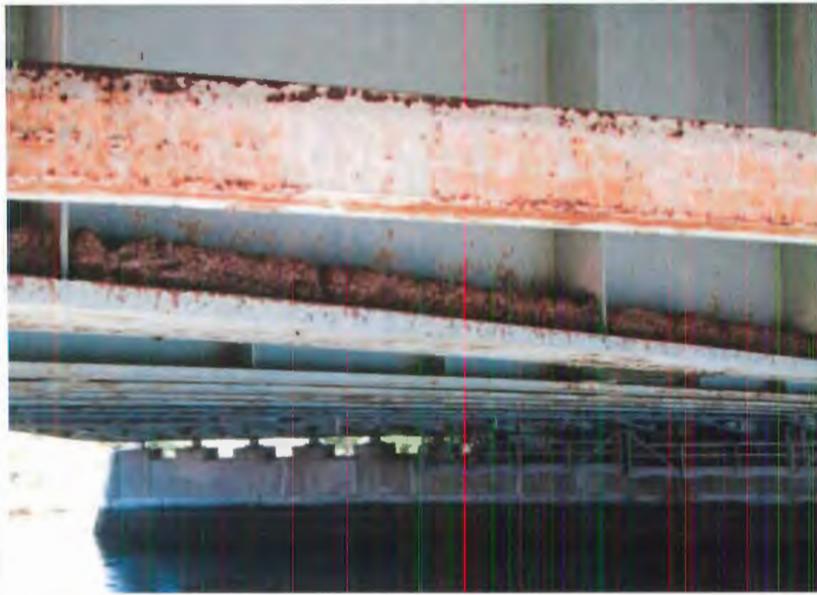


Photo #47 :
Span 3, girder 17: Heavy pigeon debris along the east leg of the girder bottom flange throughout.



Photo #48 :
West rolling platform, east drive wheel: Rubber has peeled/ fallen off the drive wheel.

Prepared by:

Baker

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224

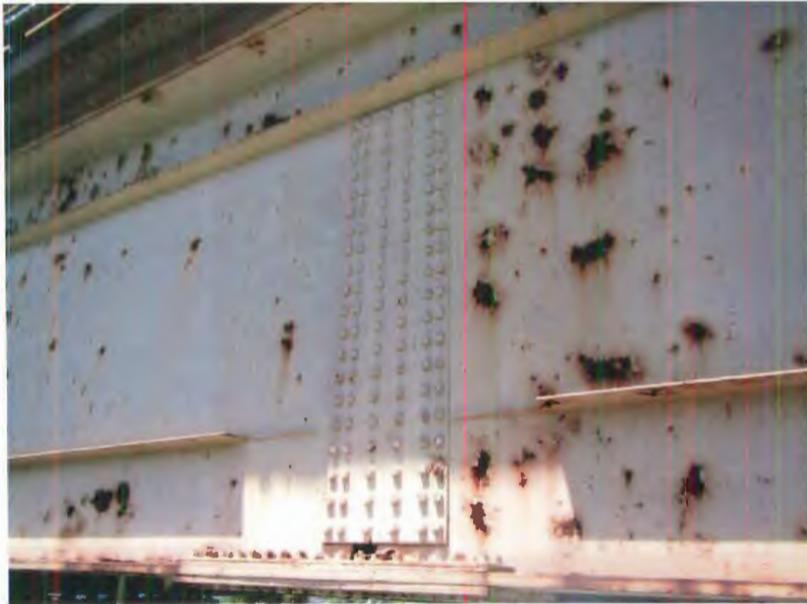


Photo #49 :
Span 3, girder 18, east elevation: Partial height bolted splice/repair along the web and bottom flange.



Photo #50 :
Span 3, girder 1 near mid-span: Cracked longitudinal stiffener butt weld. Note the stop hole drilled in the girder web, just below the stiffener butt weld.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
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Photo #51 :
Span 2, girder 16, east elevation near pier 2: Missing weld between the girder bottom flange and the diaphragm lower horizontal gusset plate.



Photo #52 :
Span 3, girder 13, west elevation: Cracked return weld between the girder bottom flange and the edge of the diaphragm horizontal gusset plate at the first intermediate diaphragm north of the south hanger line. Also note the plug welded bolt holes in the vertical connection plate.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #53 :
Span 4, girder 9, west elevation: Impacted rust/gap between the girder bottom flange and the horizontal gusset plate at second intermediate diaphragm from the north abutment. Note that the return weld between the plate and flange is not fused/broken.



Photo #54 :
Span 3, girder 9, west elevation: Missing weld and up to 7/8" impacted rust between the girder bottom flange and the lateral bracing horizontal gusset plate at the second lateral bracing connection from pier 2.

Prepared by:

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #55 :

Span 3, bay 6, first intermediate diaphragm: No welds between the diaphragm angle and the lower vertical gusset plate at the east elevation of girder 6. Note the abrasion rust and cut-off angle.



Photo #56 :

Span 3, girder 14, west elevation near midspan. No weld between the lateral bracing gusset plate and the girder bottom flange. Note the abrasion rust.

Prepared by:

Baker

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #57 :
Span 3, girder 13: Bent bottom flange leg near the north fixed hinge.

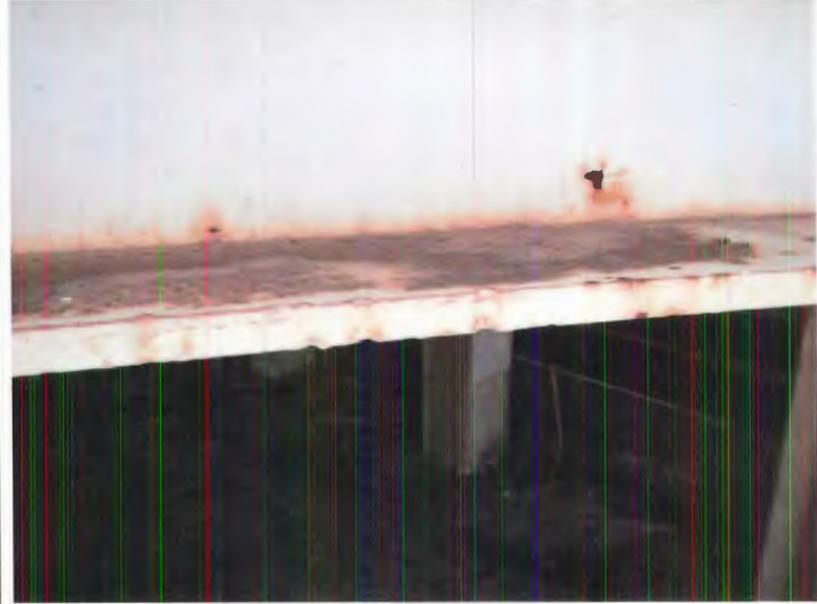


Photo #58 :
Gouges along the edges of the span 2, girder 1 bottom flange.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #59 :
 South abutment, typical. Note the area with the exposed rebar that was prepared for repair, but repair not completed. Also note the active joint leakage.



Photo #60 :
 South abutment stem, bay 3: Hollow area in the stem adjacent to a sidewalk.

Prepared by:

Baker

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Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #61 :
 South abutment: Spalls with exposed rebar in the stem and girder 17 pedestal. Also note the active joint leakage.



Photo #62 :
 South abutment backwall, bay 4 with spalls with exposed rebar. Note the active joint leakage.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #63 :
Exposed footing at the north abutment.



Photo #64 :
Pier 1, south elevation, typical. Note the active joint leakage.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #65 :
 Pier 3, north elevation, typical for piers 2-3. Note the platform attached to the pier stem below the center portion of the bridge.



Photo #66 :
 Pier 1, north elevation: Spall with exposed rusted rebar in the pier cap between girders 3 & 4.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #67 :
Pier 2, north elevation: Spall with exposed rebar in the girder 9 pedestal.



Photo #68 :
Pier 1, column 4, north elevation: Large spall with exposed rebar.

Prepared by:

Baker

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Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #69 :
Channel looking upstream (west).



Photo #70 :
Channel looking downstream (east).

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orlowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #71 :
 South approach, northbound: Milled area of pavement at the transverse saw cuts. Note the bituminous patches at the saw cuts.



Photo #72 :
 Southeast approach (northbound): Typical leading edge guide rail transition.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #73 :
North approach pavement, northbound: Heavy map cracking throughout and raveling along the paving seams.



Photo #74 :
North approach pavement, southbound: Map cracking throughout and raveling, potholes, and settled patches along the paving seams.

Prepared by:

Baker

Bridge No.	03093	Inspected by:	M. Orłowsky
Town:	New Haven	Inspected by:	B. Howlett
Feature Carried:	Interstate 91	Date Inspected:	June 16, 2014
Feature Crossed:	North Front Street & Quinnipiac River	Project No.:	170-3224



Photo #75 :
 South approach pavement, southbound: Settlement of a bituminous patch in the approach pavement adjacent to the asphaltic plug joint at the south abutment.



Photo #76 :
 Span 1, east parapet, northbound: Missing junction box cover with exposed wires.

Prepared by:

Baker

Your Agency Name

Your Office Name

Your Department Name

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 03093	Agency ID: 03093	SR: 56.0 SD/FO: SD
-------------------	------------------	--------------------

IDENTIFICATION

State 1:	09 Connecticut	Struc Num 8:	03093
Facility Carried 7:	INTERSTATE 91	Location 9:	2.3 MI N OF I-95
Rte.(On/Under) 5A:	Route On Structure	Rte. Signing Prefix 5B:	1 Interstate Hwy
Level of Service 5C:	1 Mainline	Route Number 5D:	00091
Directional Suffix 5E:	0 N/A (NBI)	% Responsibility:	0.00
SHD District 2:	03	County Code 3:	New Haven
Place Code 4:	NEW HAVEN	Mile Post 11:	2.300 mi
Feature Intersected 6:	N FRONT ST & QUINN RIVER		
Latitude 16:	41° 11' 13"	Longitude 17:	072° 53' 26"
Border Bridge Code 98:	Unknown (P)		
Border Bridge Number 99:	NA		

INSPECTION

Frequency 91:	24 months	Inspection Date 90:	6/16/2014	Next Inspection:	6/16/2016
FC Frequency 92A:	NA	FC Inspection Date 93A:	NA	Next FC Inspection:	NA
UW Frequency 92B:	24 months	UW Inspection Date 93B:	3/15/13 5/22/2013	Next UW Inspection:	3/15/15 3/22/2015
SI Frequency 92C:	24 months	SI Date 93C:	6/16/2014	Next SI:	6/16/2016
Element Frequency:	24 months	Element Insp. Date:	6/16/2014	Next Elem. Insp.:	6/16/2016

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46:	1	Number of Spans Main Unit 45:	4
Main Span Material Design 43 A/B:	4 Steel Continuous		
Approach Span Material Design 44 A/B:	3 Steel		
Deck Type 107:	1 Concrete-Cast-in-Place		
Wearing Surface 108A:	6 Bituminous		
Membrane 108B:	1 Built-up		
Deck protection 108C:	None		

CLASSIFICATION

Defense Highway 100:	1 STRAHNET hwy	Parallel Structure 101:	No bridge exists
Direction of Traffic 102:	2 2-way traffic	Temporary Structure 103:	Unknown (NBI)
Highway System 104:	1 On the NHS	NBIS Length 112:	Long Enough
Toll Facility 20:	3 On free road	Functional Class 26:	11 Urban Interstate
Defense Hwy 110:	1 STRAHNET hwy	Historical Significance 37:	5 Not eligible for NRHP
Owner 22:	01 State Highway Agency		
Custodian 21:	01 State Highway Agency		

AGE AND SERVICE

Year Built 27:	1964	Year Reconstructed 106:	1994		
Type of Service on 42A:	1 Highway				
Type of Service under 42B:	6 Highway-waterway				
Lanes on 28A:	8	Lanes under 28B:	2	Detour Length 19:	2.0 mi
ADT 29:	130,100	Truck ADT 109:	14%	Year of ADT 30:	2013

CONDITION

Deck 58:	5 Fair	Super 59:	4 Poor	Sub 60:	5 Fair
Culvert 62:	N/A (NBI)	Channel/Channel Protection 61:	5 Bank Prot Eroded		

LOAD RATING AND POSTING

Inventory Rating Method 65:	1 LF Load Factor	Operating Rating Method 63:	1 LF Load Factor
Inventory Rating 66:	HS23.3	Operating Rating 64:	HS38.8
Design Load 31:	5 MS 18 (HS 20)	Posting 70:	5 All/Above Legal Loads
Posting Status 41:	A Open, no restriction		

GEOMETRIC DATA

Length Max Span 48:	220.00 ft	Structure Length 49:	512.00 ft
Curb/Sdwk Width L 50A:	0.00 ft	Curb/Sidewalk Width R 50B:	0.00 ft
Width Curb to Curb 51:	125.80 ft	Width Out to Out 52:	139.70 ft
Approach Roadway width 32: (w/ shoulders)	126.00 ft	Median 33:	3 Closed Med
Deck Area:	71,459.00 sq. ft		
Skew 34:	32.00°	Structure Flared 35:	0 No flare
Vertical Clearance 10:	328.05 ft	Horizontal Clearance 47:	62.90 ft
Minimum Vertical Clearance Over Bridge 53:	328.05 ft		
Minimum Vertical Underclearance Reference 54A:	H Hwy beneath struct		
Minimum Vertical Underclearance 54B:	16.00 ft		
Minimum Lateral Underclearance Reference R 55A:	H Hwy beneath struct		
Minimum Lateral Underclearance R 55:	9.30 ft		
Minimum Lateral Underclearance L 56:	0.00 ft		

APPRAISAL

Bridge Rail 36A:	1 Meets Standards	Approach Rail 36C:	1 Meets Standards
Transition 36B:	1 Meets Standards	Approach Rail Ends 36D:	1 Meets Standards
Str Evaluation 67:	4 Minimum Tolerable	Deck Geometry 68:	3 Above Desirable-Crit 5
Underclearance, Vertical and Horizontal 69:	5 Above Tolerable		
Waterway Adequacy 71:	7 Above Minimum	Approach Alignment 72:	8 Equal Desirable Crit
Scour Critical 113:	8 Stable Above Footing		

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:	66,500
Year of Cost Estimate 97:	2000	Year of Future ADT 115:	2029

NAVIGATION DATA

Navigation Control 38:	Unknown (NBI)		
Vertical Clearance 39:	0.0 ft	Horizontal Clearance 40:	0.0 ft
Pier Protection 111:	Unknown (NBI)	Lift Bridge Vertical Clearance 116:	0.0 ft

Your Agency Name

Your Office Name

Your Department Name

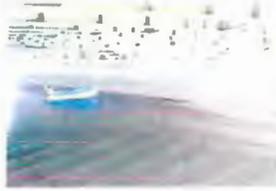
Structure Inventory and Appraisal Sheet (English Units)

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
0	14/3	P Conc Deck/AC Ovly	(SF)	71,459	0%	0	0%	0	100%	71,459	0%	0	0%	0
0	107/3	Paint Stl Opn Girder	(LF)	9,085	74%	6,687	11%	999	11%	999	2%	200	2%	200
0	160/3	Unprnt Stl Pln/Hanger	(EA)	36	58%	21	42%	15	0%	0	0%	0	0%	0
0	205/3	R/Conc Column	(EA)	10	10%	1	60%	6	30%	3	0%	0	0%	0
0	210/3	R/Conc Pier Wall	(LF)	341	88%	301	10%	35	2%	5	0%	0	0%	0
0	215/3	R/Conc Abutment	(LF)	331	84%	278	12%	41	4%	12	0%	0	0%	0
0	227/3	R/C Submerged Pile	(EA)	495	100%	495	0%	0	0%	0	0%	0	0%	0
0	234/3	R/Conc Cap	(LF)	164	79%	129	12%	20	6%	10	3%	5	0%	0
0	300/3	Strip Seal Exp Joint	(LF)	170	100%	170	0%	0	0%	0	0%	0	0%	0
0	305/3	Asphaltic Plug Joint	(LF)	510	65%	330	35%	180	0%	0	0%	0	0%	0
0	310/3	Elastomeric Bearing	(EA)	36	100%	36	0%	0	0%	0	0%	0	0%	0
0	313/3	Fixed Bearing	(EA)	54	63%	34	37%	20	0%	0	0%	0	0%	0
0	331/3	Conc Bridge Railing	(LF)	1,024	100%	1,022	0%	2	0%	0	0%	0	0%	0
0	356/3	Steel Fatigue SmFlag	(EA)	1	0%	0	100%	1	0%	0	0%	0	0%	0
0	357/3	Pack Rust Smart Flag	(EA)	1	0%	0	100%	1	0%	0	0%	0	0%	0
0	359/3	Soffit Smart Flag	(EA)	1	0%	0	0%	0	100%	1	0%	0	0%	0
0	361/3	Scour Smart Flag	(EA)	1	0%	0	100%	1	0%	0	0%	0	0%	0
0	363/3	Section Loss SmFlag	(EA)	1	0%	0	100%	1	0%	0	0%	0	0%	0
0	371/3	Free Fall Pipes, Scu	(EA)	10	70%	7	0%	0	30%	3	0%	0	0%	0



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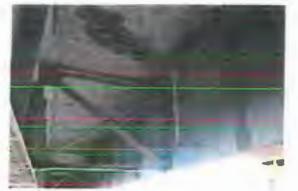
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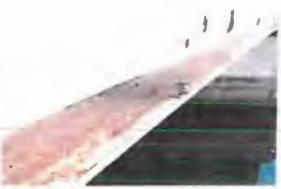
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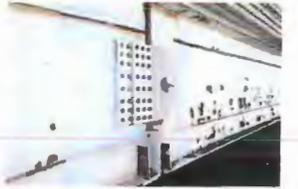
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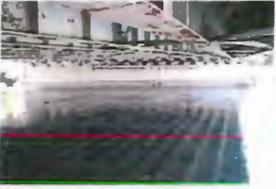
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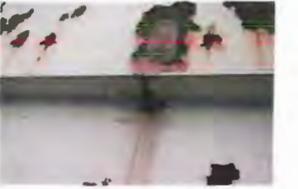
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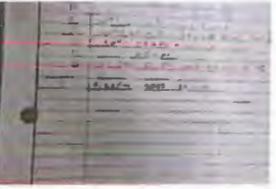
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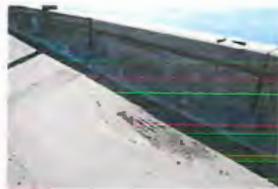
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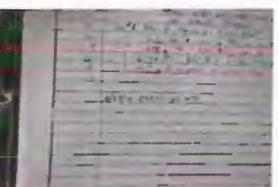
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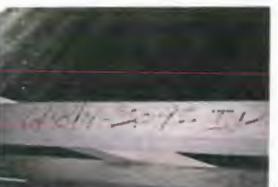
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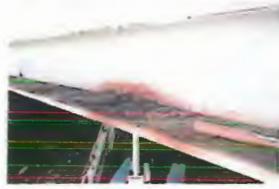
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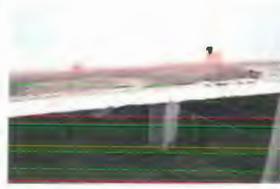
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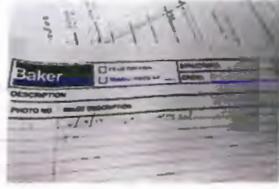
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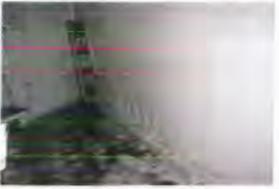
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MICHAEL BAKER JR., INC.

BRIDGE # 03093

ADDITIONAL FIELD NOTES

(BACK-UP MATERIAL)

DATE: JUNE 16, 2014

Baker FIELD ORIGINAL TRANSCRIBED BY: _____

STRUCTURE: 03093

DATE: VARIES

CREW: PH/MDD

SHEET:

DESCRIPTION:

PHOTO NO.	IMAGE DESCRIPTION
1	03093 6/16/14 BH, MSD
2	PIER 3, N. ELEV
3	N. ABUT
4	TYP U/S SP# 4.
5	SP# 4, BAY 1, PANEL 4 SHORT WEEP.
6	SP# 4, G1 BOT FE S.L.
7	SP# 4, 2 ND INT DIMPH, BAY 2 CORR TO G3 TYP BENT HEAD P
8	BORDER 1 @ P3 W. ELEV
9	G1 PIG @ P3
10	G1 FIX PIN SP# 3. W. ELEV
11	SP# 3, BAY 4 1 ST INT DIMPH FR P3, BROKEN WELD @ CORR TO G4 BOT FE
12	PIER 2 N. ELEV
13	SP# 3 BAY 2 HT ADS FIX PIN
1	03093 6/17/14 BH, MSD
2	W. CHANNEL
3	E. CHANNEL
4	SP# 3, W. FASCIA CONDUIT MISC COVER @ JOINT BAY
5	SP# 3, G1 W. ELEV NEAR MID-SP CORR IN LONG STIFF
6	SP# 3, G1 BOT FE MID-SPAN
7	SP# 3, G1 " " B/W P&H (SOUTH) & 1 ST TRANS (WELD)
8	SP# 3, G1 S. P&H V. ELEV
9	SP# 3, G1 S.L. HUNG SPAN, W. ELEV
10	" " " " " " E. ELEV
11	SP# 3, G3 S. P&H TYP S.L. W. ELEV
12	SP# 3, G6, E. ELEV S.L. @ S. P&H HUNG SPAN
13	SP# 3, G7, E. SIDE, S. P&H V. MEAS.
14	SP# 3, BAY 6, 1 ST INT DIMPH LOWER STRUT CORR TO G6 MISS WELD
15	G9 PIG @ PIER 2 NORTH
16	G10 DRG @ PIER 2
17	BL FR S. ← SB
18	S. APPR PUNT
19	S. ABUT ST U/P&H @ RIGHT SHOULDR. ↓
20	TYP F&D.
21	SP# 1, LT STD
22	PIER 1 ST
23	BL FR S. APPR
24	TYP BIT SP# 2
25	SP# 2 SCOPPER @ RIGHT SALDR
26	PIER 2 ST
27	SP# 3, LT STD INT DRG.
28	N. APPR
29	NW TRANS
30-32	N. ABUT ADS.
33	MEDIAN @ N. ABUT
34	DR FR NORTH
35	P&H @ RIGHT CORNER IN TOWER → SPAN
36	E. ELEV
37	W. ELEV

P&H →
SPAN →

Baker

 FIELD ORIGINAL TRANSCRIBED BY: _____

STRUCTURE: 3093

DATE: VADUW?

CREW: VADUW?

SHEET:

DESCRIPTION:

PHOTO NO.	IMAGE DESCRIPTION
1	6/18/14 - 1D
2	SP# 4 G-9, W. ELEV & 2 ND INT DIAPHR FROM N. ABUT - WELD & END OF GUSSET HE GUS NET FUSION/BROWN
3	SP# 3, N. P&H 610 V'NEAS
4	G 10 BRG & N. ABUT
5	EXP FTS & N. ABUT
6	SP# 4, GS SHORT WEEP PAINTED S.L.
7	NW WW BROKEN CONDUIT EXP WIRES
8	
9	SP# 2, G1 1 ST INT DIAPHR - MISS WELD ISW G1 BF + DIAPHR HORIZIT
10	" " - PANEL 2 BF OUT LEG - LR w/ 3/16" SL
11	" " BK GANGES PANEL 2
12	SP# 2, BAY 8, PANEL 3 - 4'x3'x3/8"
13	" G12 BF E. LEG - 9/16" SL TO G. LUG
14	" G12 & P1 - REP R'S, BF SL
15	" G14 & P1 - REP R'S & BRG STRIKE + DIAPHR WELD REP P
16	" G7 & P1 - WBR SL W/ PIA HOLE BLD BRG STRIKE + DIAPHR P
17	/
1	6/25/14 03093 BH, MSD
2	SP# 3, 610, JUST S. OF N. P&H, S.L. & WEA & BOT FE
3	SP# 3, BAY 8 NEAR MIPSPAN - W/SL & LAT BRZ R'S & S' BELOW 2 S
4	SP# 3, W. ELEV & 4 TH DIAPHR FROM P&H - WELD BLD LAT BRZ & R' BROWN
5	SP# 3, E. " " " " " " - MISS/BROWN WELD BLD BF + LAT BRZ
6	SP# 3, ROLL PLAT, WEST W/ BRONZE WHEEL
7	" " ROLL PLATFORMS & MED - BROWN & OR WHEEL
8-9	SP# 3, 610 & S. P&H. E. ELEV S.L. (9) - WEST
10	SP# 3, 610 S.L. & S. P&H E. ELEV.
11	" " NEW LAT BRACE & GP. & BAYS, 59 S. P&H
12	SP# 3 BAY 8 LAT GP CONN TO 68 BOT FE 2 ND FL P2 ISSENT UP DUE TO IR

Baker

 FIELD ORIGINAL TRANSCRIBED BY: _____

STRUCTURE: 3093

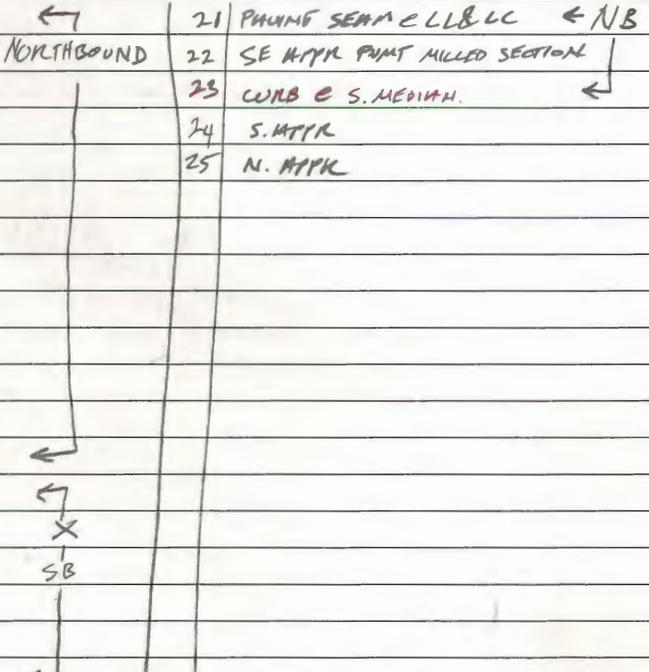
DATE: Various

CREW: Various

SHEET:

DESCRIPTION:

PHOTO NO.	IMAGE DESCRIPTION
1	6/19/14 - 3093 - MTU, SW
2	S. ABUT BAY 2 - 1.5' ϕ DECP
3	S. BKWALL BAY 4 - (A)
4	SP#1, BAY 2, PANEL 2 - 206/0 PRT TO (A)
5	S. ABUT G17 PED W/IDA - STON W/ (A)
6	SP#1 G10 e P1 - BRG STIFF L'CRP'D; RTU & BULSTOCK END
7	" BAY 10 - (A) e (A)
8	PI COL 4, N. ELEV (A)
9	PI CAP N. ELEV W/ CYCS - (A)
10	" " " G3 CY (A)
11	SP#2, G2 e P1 - CLE E. ELEV
12	SP#1, G2 e P1 - SA & CH BELOW SURF
13	SP#1 G4 e P1 - BULSTOCK LUSJCS
14	" G2 e P1
15	CI BRGS C P1 - NOTE SOU PTD SL TO SP#1, G1 FIXED 3/4" AB NUT
1	6/23/14 - 3093 - BH, MSP
2	SP#2, BAY 16, 4 th INT DIAPH CONN TO G16 BOT FE MIT WELD.
3	G18 FIXED BRG P2
4	SP#3, G18, E. ELEV S. PTH
5	SP#3, BAY 12, 1 st INT DIAPH FR S. PTH CONN TO G13 CIRC WELD
6	SP#3, G18 - BOLTED RE NEAR S. PTH
7	SP#3, G17 PILEUP DEBRIS ON E. ELEV
8	SP#3, G13, NEAR N. PTH DENT BOT FE
9	SP#3, NOTE (A)
1	6/24/14 - 3093 BH, MNS
2	E CHANNEL
3	G18 BRG e P3 S.L. TO AB NUTS
4	ED
5	SE TRANS
6	S. ABUT ST e MEANM
7	S. ABUT ST
8	SP#1, JLT BOX MISS W/ ENT WIRE
9	PIER 1 ST e E. PRT
10	SP#2, LT ST W/ MISS HH DEN WIRE
11	S. PTH ST e E. PRT
12	SP#3 SCUPPER e E PRT. 100% CLOSED
13	SP#4 LT STD MISS 4/4 AB COVERS
14	TOP TOB
15	BR FR S.
16	S. PTH ST e (NORTHBOUND ROAD)
17	BIT IN LL. SOUTHBOUND BRANKINS UP
18	DIT PATCHES IN SP#4 W/ PHC
19	N. ABUT ST
20	BR FR N. APRIL.



BMM

Michael Orlowsky

From: Lapierre, Theodore D <Theodore.Lapierre@ct.gov>
Sent: Friday, June 20, 2014 8:24 AM
To: William Kristoff; Wang, Baihai
Cc: Michael Jakiel; Michael Orlowsky; Brian Howlett; Paul McGuinness
Subject: RE: Bridge No. 03093 (I-91 over North Front Street and Q. River) - Hollow areas

Regular C sounds good.

From: William Kristoff [<mailto:wkristoff@mbakerintl.com>]
Sent: Thursday, June 19, 2014 5:24 PM
To: Lapierre, Theodore D; Wang, Baihai
Cc: Michael Jakiel; Michael Orlowsky; Brian Howlett; Paul McGuinness; William Kristoff
Subject: FW: Bridge No. 03093 (I-91 over North Front Street and Q. River) - Hollow areas

Guys,

FYI – see the below email and attached photos. MJO hit these areas really well and are all are intact. Thus, we will just put these on a regular C to be submitted with the report, unless you want an advanced C.

Thanks,

Bill

From: Michael Orlowsky
Sent: Thursday, June 19, 2014 3:30 PM
To: William Kristoff
Cc: Michael Orlowsky; Brian Howlett
Subject: Bridge No. 03093 (I-91 over North Front Street and Q. River) - Hollow areas

William,

In span 1, bay 2, panel 2, there is dull/hollow concrete adjacent to a large spall that was previously chipped out spall with exposed rebar. There is no loose concrete. It is tight, but dull/hollow around the edges.

Also, the south abutment has random hollow areas. All are tight. Note that there is a sidewalk directly adjacent to the abutment.

Thanks
MJO

Michael Orlowsky

From: William Kristoff
Sent: Tuesday, June 17, 2014 5:00 PM
To: Lapierre, Theodore D; Baihai.Wang@ct.gov
Cc: Michael Jakiel; Paul McGuinness; William Kristoff; Michael Orlowsky; Brian Howlett
Subject: FW: Bridge No. 03093 (I-91 over Q. River and North Front Street, New Haven)
Attachments: 6-17 31.JPG; 6-17 35.JPG

Guys,

See the below email and attached photos – FYI.

Thanks,

Bill

From: Michael Orlowsky
Sent: Tuesday, June 17, 2014 4:48 PM
To: William Kristoff
Cc: Michael Orlowsky; Brian Howlett
Subject: Bridge No. 03093 (I-91 over Q. River and North Front Street, New Haven)

William,

Per our conversation earlier, we inspected the southbound right lane on this bridge today and there are potholes in the overlay and approaches, up to 3" deep. Also, the north abutment joint has a large depressed patch (±3" deep) with a small pothole in the center with an exposed joint plate.

Shortly after pulling off the bridge, I received a call from DOT maintenance inquiring about our lane closures tomorrow on I-91 SB. I told him that we were done with southbound closures due to completion of what we could reach with the moog. The reason he called is because he is going to do pothole repairs, heading southbound on I-91 in the area, including for this bridge. I also mentioned the joint to him and he said that he'd be able to patch it while there. I'm not sure if it will be a bituminous patch or a proper asphaltic plug repair.

MJO

Br No	Rte	ALT	Features Intersected	Feature Carried	BMM#	BMM Date	Item Memo Date	Item Started	Priority Codes	Item Complete	Assigned	Work Description	Dist Comments
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	09-192-05	05/08/09	05/12/09		E	10/15/13	383	REPAIR / REWELD CRACK 2 3/4 LINEAR INCHES	
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	02-557-02	09/23/02	09/25/02		D		384	B. REPAIR THE PERFORATIONS	SCHEDULED APRIL 2003
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	05-197-03	04/13/05	04/18/05		D	05/08/09	384	C. INSTALL OR PROVIDE REPAIR PLATES ON BG	WILL BE ADDRESSED ON BMM 09-192-04
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	05-197-02	04/13/05	04/18/05		D		384	B. CLEAN JOINTS	SCHEDULED JUNE 2005
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	04-311-01	04/03/05	04/18/05	07/15/04	D	07/15/04	384	REPAIR TWO HOLLOW AREAS IN THE DECK SLAB	COMPLETED JUL 15, 2004 4-15-2005
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	07-080-01	03/04/07	03/05/07		C	06/06/00	3820	A. SEAL THE OVERLAY CRACKS (100 LF)	COMPLETED JUNE 6, 2000 7-3-2000
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	11-155-05	03/14/11	03/18/11		D		383	REMOVE SAND AND DEBRIS FROM STRIP SEAL JOINT.	SCHD SEPTEMBER 2011
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	04-284-15	10/24/94	10/26/94		C	10/01/94	3E1	C. REPL MISSING JUNCTION BOX COVERS	COMPLETED OCT 1994 11-28-95
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	09-192-01	05/08/09	05/12/09		D		383	CLEAR CLOGGED SCUPPERS 8 EA. REISSUE 11-155-03	COMPLETED JUNE 11, 2013
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	09-192-04	05/08/09	05/12/09		E	10/15/13	383	INSTALL REPAIR PLATES ON BOTH SIDES OF THE GIRDER WEBS 150 LBS	
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	09-231-12	05/17/90	05/25/90		C	05/18/93	385	C. REMV SAND & DEBRIS @ NUTS	COMPLETED MAY 18, 1993 05-24-93
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	09-192-02	05/08/09	05/12/09		D		383	SEAL ADHESION CRACKS REISSUE 11-155-04	SCHD NOV 2009
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	11-155-01	03/14/11	03/18/11		D	10/15/13	383	REPAIR / REWELD CRACK	
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	11-155-03	03/14/11	03/18/11		D	10/15/13	383	REPAIR GUSSET PLATE.	
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	11-155-05	03/14/11	03/18/11		D	06/11/13	385	CLEAN THE CLOGGED SCUPPER GRATES.	COMPLETED JUNE 11, 2013
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	11-155-04	03/14/11	03/18/11		D		383	SEAL THE CRACKS IN THE ASPHALTIC PLUG JOINTS.	SCHD SEPTEMBER 2011
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	02-557-01	09/23/02	09/25/02		D		384	A. PATCH THE SPALLS AND HOLLOW AREAS 2 CY	SCHEDULED APRIL 2003
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	09-192-03	05/08/09	05/12/09		E	10/15/13	FUNDING	CLEAN AND PAINT THE BEARINGS 36 EA AND THE BEAM ENDS AT THE EAST ABUTMENT 600 SF	
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	07-469-01	11/29/07	12/04/07		E	05/08/09	FUNDING	CLEAN AND PAINT THE BEARINGS AND THE BEAM ENDS AT THE EAST ABUTMENT (18 EA)	WILL BE ADDRESSED ON BMM 09-192-03
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	05-197-01	04/13/05	04/18/05		C	05/08/09	384	A. CLEAN & UNCLOG SCUPPER GRATES (2)	WILL BE ADDRESSED ON BMM 09-192-01
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	90-231-12	05/17/90	05/25/90		B	05/18/93	385	A. REPR CRCKS	COMPLETED MAY 18, 1993 05-24-93
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	90-231-12	05/17/90	05/25/90		B	05/18/93	385	B. TACK WLD NUTS	COMPLETED MAY 18, 1993 05-24-93
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	90-231-12	05/17/90	05/25/90		C	05/18/93	385	D. REMV SAND @ SCPPR SEL JNT	COMPLETED MAY 18, 1993 05-24-93
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	90-231-12	05/17/90	05/25/90		C	05/18/93	385	E. REPR CONC JNT HDRS	COMPLETED MAY 18, 1993 05-24-93
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	94-284-15	10/24/94	10/26/94		C	11/16/95	384	B. REPL MISSING SECTIONS OF RAILING	COMPLETED NOV 16, 1995 11-28-95
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	07-469-02	11/29/07	12/04/07		E	05/08/09	384	ATTACH THE GUSSET PLATE TO THE GIRDER BOTTOM FLANGE BY PROVIDING A BOLTED CONNECTION (1 LOCATION)	WILL BE ADDRESSED ON BMM 09-192-04
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	07-469-03	11/29/07	12/04/07		E	05/08/09	384	SEAL THE ADHESION CRACKS IN THE ASPHALTIC DECK JOINTS (103 LF)	WILL BE ADDRESSED ON BMM 09-192-02
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	07-469-04	11/29/07	12/04/07		E		384	REATTACH THE MBR TO POSTS (2), REPAIR THE BENT POST (1) AND INSTALL NEW ANCHOR BOLTS AT THE MBR ATTACHMENT TO PARAPET (2)	SCHEDULED DECEMBER 2009
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	07-089-06	03/04/97	03/05/97	06/06/97	C	07/09/97	383	F. EXR EXPOSED FOOTING & CORRECT DRS.	COMPLETED JUL 9, 1997 7-3-2000
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	97-089-05	03/04/97	03/05/97	09/16/97	E	09/17/97	383	E. REMOVE ADDITIONAL BOLTS	COMPLETED SEP 17, 1997 7-3-2000
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	99-018-07	01/13/99	01/20/99	04/22/02	E	05/06/02	384	B. EXTEND WEEP PIPES (8) BELOW FLANGE	COMPLETED MAY 6, 2002 5-29-2002
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	97-089-02	03/04/97	03/05/97	05/28/97	E	06/06/00	3820	B. CLEAN SCUPPERS & REPLACE DOWNSPOUTS	COMPLETED JUNE 6, 2000 7-3-2000
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	99-018-03	01/13/99	01/20/99	04/22/02	E	05/06/02	384	C. REMOVE ADDITIONAL BOLTS & SEAL HOLES	COMPLETED MAY 6, 2002 5-29-2002
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	97-089-04	03/04/97	03/05/97	07/14/97	C	07/15/97	383	D. EXTEND WEEPS BEYOND BOTTOM FLANGE	COMPLETED JUL 15, 1997 7-3-2000
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	97-089-03	03/04/97	03/05/97		C	02/17/98	3E1	C. REPL MISSING JUNCTION BOX COVERS	TO BE DONE UNDER DISTRICT LOG #2032
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	87-58-56	09/11/87	09/24/87		D	07/18/88		INSTALL PLNK BTWN GIRDERS	COMPLETED JUL 18, 1988 8-22-88
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	94-284-15	10/24/94	10/26/94	11/16/95	C	11/16/95	384	A. CLEAN ALL SCUPPERS	COMPLETED NOV 16, 1995 11-28-95
03093	00091		N FRONT ST & QUINN RIVER	INTERSTATE 91	99-018-01	01/13/99	01/20/99	06/22/99	E	06/24/99	384	A. CLN CLOGGED SCUPPERS (6) & REPL DOWNSPO	COMPLETED JUN 24, 1999 5-29-2002

OPEN ITEMS

- ① - DON'T HAVE BMM FROM 2002 → IGNORE
- ② - STRIP SEAL JOINTS → STILL FILLED W/ SAND → NO NEW ITEM SINCE OPEN ITEM
- ③ - ASPHALTIC PLUG JTS → STILL HAVE CRKS → " " " " "
- ④ - MBR REPAIRS & APRIL → TRAFFIC AB'S STILL BRK'N → NO NEW ITEM SINCE OPEN

NEW ITEMS

- DECK □ / ROAD -
- SCUPPERS -
- WEEPS -
- APPR MED e N. ASBUT
- JCT BOX + LT SID COVER -
- CONDUIT e SP 3 w POT + NW WIRE
- CLEAN + PAINT BSFB, RSP'S IF REQ'D
- SURFAC REPAIRS
- WELDS

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

subject: BMM No. 11-1565
Bridge No. 03093
I-91 over North Front Street and
Quinnipiac River
New Haven

MEMORANDUM

date: 3/14/11

to: Mr. Robert P. Mongillo
Transportation Maintenance Administrator
Bureau of Highway Operations

from: Sandra A. Dumas
Transportation Supervising Engineer
Bridge Safety and Evaluation
Bureau of Engineering and Construction

Attached are two copies of our most recent inspection report for the subject structure. The following deficiencies were found:

1. ~~Span 2, Girder G14 at Pier 1 has a 4 inch long crack in the vertical weld between the cross-frame gusset plate and the bearing stiffener. The crack has propagated since the last inspection. The 4th gusset plate from the expansion pin and hanger in Span 3 is not attached to the bottom flange of Girder G14 at the west side due to a missing weld.~~ *REP'D*
2. ~~Span 3, Bay 8 lateral bracing member at the pin and hanger has a rusted through gusset plate at the bottom flange connection to Girder G9.~~ *REP'D*
3. ~~The southbound roadway scupper grates are fully clogged in the west shoulder of Span 3 and partially clogged in the west shoulder of Span 2. All grates in the northbound roadway are partially clogged.~~ *NOT REP'D*
4. There are adhesion cracks in the asphaltic plug deck joints at Pier 1, north abutment and the joint over the hinge. Active leakage was noted below.
5. Span 3, the strip seal joint over the pin and hangers has an accumulation of sand and debris full length.

Please direct persons under your jurisdiction to:

1. Repair/reweld crack.
2. Repair gusset plate (~25 LBS).
3. Clean the clogged scupper grates (8 EA).
4. Seal the cracks in the asphaltic plug joints (~100 LF).
5. Remove sand and debris from strip seal joint (~125 LF).

These items should be considered Priority D. There may be other deficiencies which are considered routine maintenance and should be corrected.

NOTE: Other items that were included on BMM #09-102 have deteriorated further, but are not being reissued. The bearings are in poor condition with up to 1/2 inch pack rust below most rockers causing the bearings to lift upward. There is section losses up to 15% in the webs of girders in Spans 2

and 3 including perforations in the webs and stiffeners. This work should be added to future Bridge Preventative Maintenance Projects.

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

If you have any questions concerning this matter, please contact me at (860) 594-2072. Please notify this office when the work has been completed.

Attachments

Paul Holmes/sad

cc: Joseph J. Obara
Robert P. Zaffetti – Sandra A. Dumas – David Pawlikowski
HAKS Engineers
Team 9

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

subject: BMM No. 09-102
Bridge No. 03093
Interstate 91 over North Front Street and
Quinnipiac River
New Haven

MEMORANDUM

date: 5/8/09

to: Mr. Robert P. Mongillo
Transportation Maintenance Administrator
Bureau of Highway Operations

from: Sandra A. Dumas
Transportation Supervising Engineer
Bridge Safety and Evaluation
Bureau of Engineering and Construction

Attached are two copies of our most recent inspection report for the subject structure. The following deficiencies were found:

1. This item supersedes BMM No. 05-197 Item 1. The southbound roadway scupper grates are fully clogged in the north shoulder of span 3 and partially clogged in the north shoulder of span 2. All grates in the northbound roadway are partially clogged.
2. This item supersedes BMM No. 07-469 Item 3. There are adhesion cracks in the asphaltic plug deck joints at pier 1, east abutment and the joint over the hinge. Active leakage or evidence of leakage was noted below.
3. This item supersedes BMM No. 07-469 Item 1. Span 2, pier 1 and span 4 east abutment rocker bearings have up to 3/8" pack rust between the rocker and masonry plate and up to 1/4" pack rust between the bearing pin and sole plate.
4. This item supersedes BMM No. 05-197 Item 3. Girders have laminated rust on the bottom flanges and lower portions of webs. There are web perforations up to 8"x 2" noted at the following locations: Span 2, girders G10, G13, G15 and G18 at pier 1 and span 3, girders G1, G9, G10, G11, and G12 north of the pin and hanger.
5. Span 2, girder 14 at pier 1 has a 2-3/4 inch long crack in the vertical weld between the cross-frame gusset plate and the bearing stiffener.

Please direct persons under your jurisdiction to:

1. Clear clogged scuppers (8 EA).
2. Seal the adhesion cracks (103 LF).
3. Clean and paint the bearings (36 EA) and the beam ends at the east abutment (600 SF).
4. Install repair plates on both sides of the girder webs (150 LBS).
5. Repair/reweld crack (2 3/4 linear inches).

Items 1 and 2 should be considered Priority D, and items 3, 4, and 5 should be considered Priority E. There may be other deficiencies which are considered routine maintenance and should be corrected. **Items 3 and 4 should be considered to be added to project 173-401.**

The attached inspection report also notes that the following items were issued under a previous BMM and have not been addressed.

CARRISD
FORWARDED
TO 11-155

BMM No. 09-192
Bridge No. 03093
Page 2 of 2

<u>BMM No.</u>	<u>Item</u>
07-469	2. The 4 th gusset plate from the expansion pin & hanger in span 3 is not attached to the bottom flange of girder G14 at the north side due to a missing weld. Attach the gusset plate to the girder bottom flange by providing a bolted connection (1 EA). Priority E.
05-197	2. Strip seal joint is filled with sand debris full length. Clean as required. Priority D.

Bridge Safety and Evaluation believes that these repairs are structurally important and should be addressed.

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

If you have any questions concerning this matter, please contact me at (860) 594-2072. Please notify this office when the work has been completed.

Attachments

Paul D. Goodwin/cll/mam/tr

cc: Joseph J. Obara
Robert P. Zaffetti – Sandra A. Dumas – Rosmery Rodriguez
HAKS Engineers, P.C. – Garg Consulting Services, Inc.
Team 9
File

SUPPLEMENTAL SHEET

BRIDGE NO. 03093

DATE: 6/17/14

FIELD ORIGINAL

TRANSCRIBED BY: _____

CREW: VTD/BH

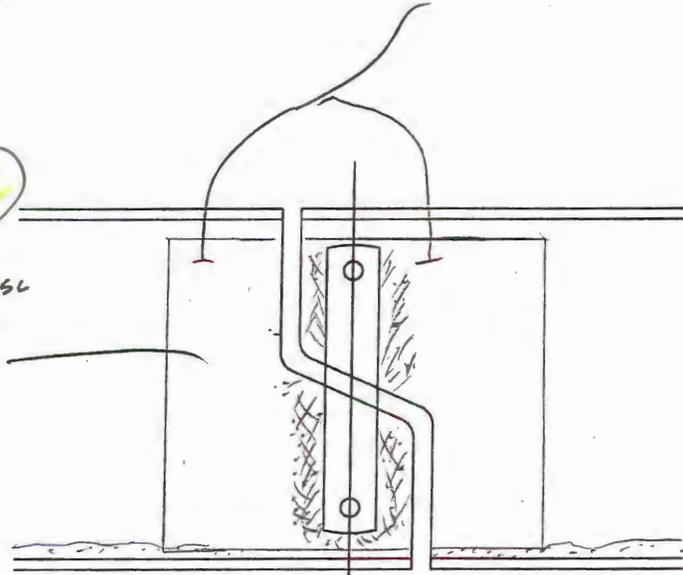
SHEET

DESCRIPTION:

ADD/UPDATE
OLIG & PREV
S 111

THICKENED WEB
± 3/8" ORIG → TAPERS
to ± 1/2" @ TOP/BOT

UP TO 3/16"
TYP W/ 3/16" DP SL
UP TO 1" FROM
HANGER PL



1/8" AT
NON-THICKENED

UP TO 3/16"
THICKENED
PORTION OF
WEB

HUNG SPAN BP
LEGS w/ AS LITTLE
AS 3/4" REM @ END 8'
(± 1" - 1/8" ORIG); SUSPEND SPAN
SIMILAR, BUT TYP ≤ 3/4"

WEB BASES 4"-6"
w/ 1/8"-1/4" LOSS
ADD TO BF LOSS;
RAND STIFF BASES
w/ UP TO 50% LOSS
THESE AREAS

TYP GIRDER SL'S & PIN & HANGERS

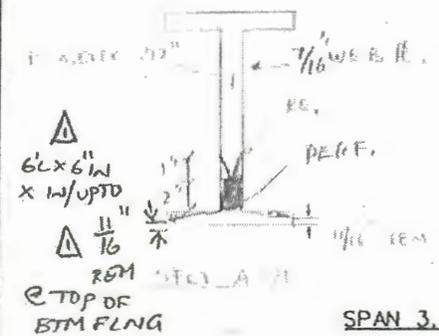
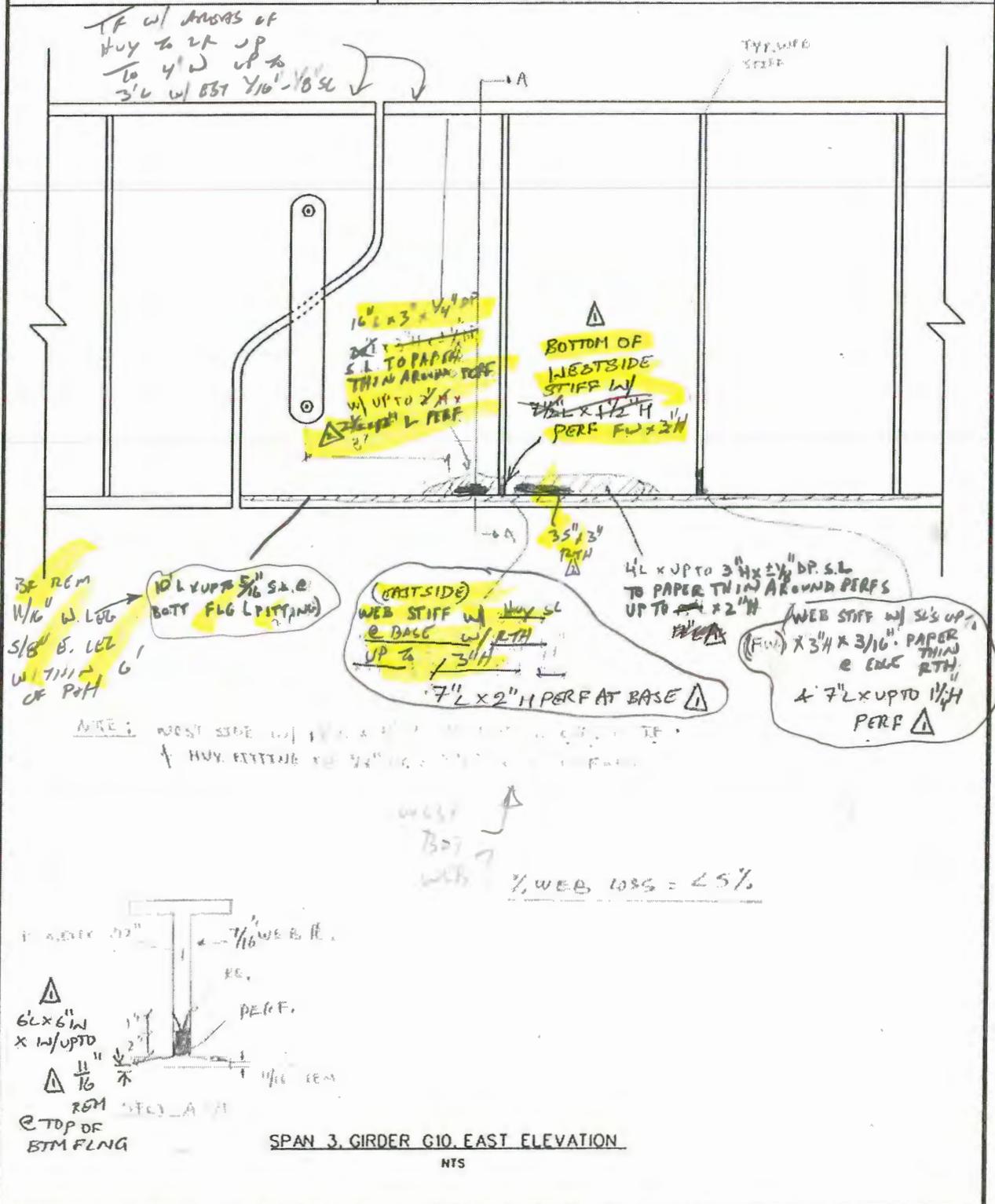
* LOSSES BOTH SIDES, TYP. LOSSES PAINTED

* DIAPH CONN. PL'S, DIAPH GUS PL'S, + STIFF BASES NEAR P.H.'S w/ HUY PAINTED SL'S

UPDATE NO.	DATE	COMPANY	CREW
△			
△			
△			
△			

45/104

 HAKS FIELD NOTES	JOB NO. 170-3013	BRIDGE NO. 03093
	DATE: 7-1-10	SHEET 41 OF 49
	CREW: [unclear]	



SPAN 3 GIRDER G10 EAST ELEVATION
NTS

REVISION △	DATE 6/6/12	CREW MIW, RV (HAKS)	REVISION △	DATE	CREW
REVISION △	DATE 6/25/11	CREW MD/BH	REVISION △	DATE	CREW

Tassavor, David R.

From: William Kristoff <wkristoff@mbakerintl.com>
Sent: Friday, July 25, 2014 2:35 PM
To: Lapierre, Theodore D; Wang, Baihai; Tassavor, David R.
Cc: Paul McGuinness; William Kristoff; Michael Orlowsky
Subject: Bridge 03093: I-91 over Quinnipiac River

Guys,

Just a FYI: I meant to send this email when submitting the report the previous report, but forgot. I know David is starting to review this report.

We had large differences in the pin and hanger measurements from last inspection, mainly the "V" measurements. Most of the differences were in the sign convention used for positive and negative V. We made sure we double checked these areas, and showed the past measurements in the comparison sheet for reference. In many cases, the hung span would have "risen" since the 2012 inspection. There are no signs of any distress going on, so maybe the only explanation is measurement error.

Any questions on this, please let us know.

Thanks,

Bill

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

subject: BMM No.
Bridge No. 03093
Interstate 91 over North Front Street and
Quinnipiac River
New Haven

MEMORANDUM

date:

to: Charles A. Drda
Transportation Maintenance Administrator
Bureau of Highway Operations

from: Theodore D. Lapierre
Transportation Supervising Engineer
Bridge Safety and Evaluation
Bureau of Engineering and Construction

Attached are two copies of our most recent inspection report for the subject structure which indicate the location of the following deficiencies:

1. In span 1, bay 2, panel 2, there is hollow concrete adjacent to a large spall with exposed rebar. This area is located over North Front Street. See report photo 9.
2. There are two clogged and two partially clogged scuppers along the structure. See report photo 15.
3. There are approximately fifteen missing or short weeps that drain or may drain onto bridge elements below in bays 1, 8 & 10 in span 3 and bays 1, 8, 9, 10 & 17 in span 4. See report photos 16-17.
4. A junction box cover is missing at the east parapet in span 1 (northbound side), exposing the wires. See report photo 76.
5. There is a missing hand-hole cover at a light standard base at the east parapet in span 2 (northbound side). See report photo 19.
6. There are several cracked and/or broken welds between the lower horizontal gusset plates and girder bottom flanges. See inspection report for locations. See report photos 52-53.
7. The girder bottom flanges have laminated rust and up to 23% section loss throughout in spans 2-4. Condition is most prevalent along the fascia girder and median girders, but also occurs at random intermediate girders. See report photos 42-45.
8. The south abutment stem has several hollow areas which are adjacent to a sidewalk. See report photos 59-60
9. The concrete approach median at the north abutment has a 2.5 feet long x full height cracked, broken and spalled area. See report photo 14.

Please direct persons under your jurisdiction to:

1. Remove the deteriorated concrete (<1/4 cubic yard).
2. Clean the clogged scuppers (4 each).
3. Repair the deteriorated weeps (± 80 linear feet).
4. Install a junction box cover (1 each).
5. Install a hand-hole cover (1 each)
6. Grind out deteriorated/cracked welds (± 3 linear feet).

*I submitted separate BMM for items
item No. 3 through 9
will be repaired through
project #92-668.*

*D.T.
7/19/14*

7. Clean and paint the girder bottom flanges (± 1000 square feet). Install repair plates, as required, after analysis.
8. Repair the deteriorated concrete ($< 1/2$ cubic yards).
9. Repair the concrete median ($< 1/4$ cubic yard).

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

Items Nos. 1-3 should be considered Priority C. Item 4-8 should be considered Priority D. Remaining items should be considered Priority E. There may be other deficiencies, which are considered routine maintenance and should be corrected.

If you have any questions concerning this matter, please contact me at (860) 594-3172. Please notify this office when the work has been completed.

M. Orlowsky/mjo

cc: Scott A. Hill - Robert P. Zaffetti - Theodore D. Lapierre – Baihai Wang
Michael Baker Jr., Inc.

Tassavor, David R.

From: Tassavor, David R.
Sent: Wednesday, July 30, 2014 10:58 AM
To: Cutler, David A; Cardinali, Andrew J
Subject: Bridge No. 03093--Project # 92-668--I-91/N front Street and Quinnipiac River New Haven
Attachments: 03093 - BMM (Priority D or E) Baker.doc

Gentlemen,

Bridge Safety consultant Baker Engineering just finished the inspection of the subject Structure and a scan copy of the report and a copy of the subject BMM are attached. If it is possible, consideration should be given toward adding the selected items of BMM to the subject project for repair. Please call me if you have any other questions.

For report see below site
O:\DESSER\BridgeSafety2008\BS&E3\Tassavor

Thanks

David Tassavor
EXT # 3170

PIN & HANGER DATA SHEET

Form BRI-29, Rev. 9/97

Measurements Taken By: PHH Date: 6/5/2012

Bridge No.: 03093 I-91 over Quinnipiac River & North Front Street Town: New Haven

Measurements Reviewed By: MJW Date: 6/5/2012

Hanger Location: Span 3, South line Effective span for Movement: 220

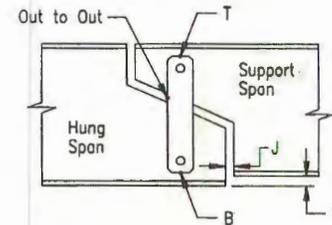
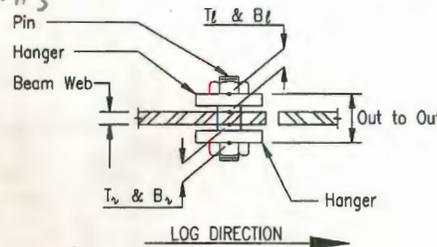
Page: _____ of _____

Beam No.	V (in)	J (in)	T _r (in)	B _r (in)	T _l (in)	B _l (in)	Out to Out (in)	Secondary System Type	Gap ¹ (Y/N)	Nut Restraint System	Temp of F	Comments
1	1/16	2 7/16	3 2/16	3 4/16	3 5/16	3 6/16	10 5/16	None	N/A	Bar Welded to Nut	75	
2	3/16	2 9/16	3 4/16	3 7/16	3 6/16	3 6/16	10 2/16	None	N/A	Bar Welded to Nut	75	
3	2/16	3 8/16	3 4/16	3 6/16	3 4/16	3 5/16	10 1/16	None	N/A	Bar Welded to Nut	75	✓ → VARIES → 0 → 1/8" MAX
4	0	3 8/16	3 3/16	3 4/16	3 4/16	3 4/16	10 3/16	None	N/A	Bar Welded to Nut	75	✓ → 1/8" → INDIC 1/8" P.P.P.
5	7/16	2 15/16	3 4/16	3 3/16	3 5/16	3 8/16	10 4/16	None	N/A	Bar Welded to Nut	75	Evidence of deck joint leakage onto hanger. -5/16" - UNUSUAL 1/8" P.P.P.
6	2/16	4 2/16	3 4/16	3 8/16	3 6/16	3 2/16	10 5/16	None	N/A	Bar Welded to Nut	75	✓ → 1/4" → P.P.P.
7	6/16	3 13/16	3 4/16	3 5/16	3 3/16	3 3/16	10 3/16	None	N/A	Bar Welded to Nut	63	Up to 3/16" pitting in web painted over at hanger. → 1 1/16" A-155
8	9/16	4 2/16	3 3/16	3 5/16	3 6/16	3 6/16	10 2/16	None	N/A	Bar Welded to Nut	63	Up to 3/16" pitting in web painted over at hanger.
9	6/16	2 12/16	3 4/16	3 4/16	3 4/16	3 3/16	10 4/16	None	N/A	Bar Welded to Nut	63	Evidence of deck joint leakage onto hanger, 1/8" lam. Rust at wind lock
10	2/16	3 1/16	3 4/16	3 4/16	3 3/16	3 3/16	10 4/16	None	N/A	Bar Welded to Nut	66	Windlock has 1/4" laminated rust.
11	3/16	3 1/16	3 3/16	3 2/16	3 2/16	3 4/16	10 4/16	None	N/A	Bar Welded to Nut	66	
12	3/16	3 9/16	3 4/16	3 4/16	3 3/16	3 6/16	10 2/16	None	N/A	Bar Welded to Nut	66	INDIC DATA
13	2/16	3 15/16	3 4/16	3 5/16	3 4/16	3 3/16	10 3/16	None	N/A	Bar Welded to Nut	77	Note 4. PROP 1/4" IS
14	2/16	3 11/16	3 4/16	3 4/16	3 4/16	3 4/16	10 3/16	None	N/A	Bar Welded to Nut	77	Note 4. Rust debris on pin. T _r - 1/4" OFF - NO SIGNS OF DISTRESS
15	2/16	3 14/16	3 5/16	3 4/16	3 3/16	3 4/16	10 3/16	None	N/A	Bar Welded to Nut	77	Note 4.
16	1/16	3 11/16	3 5/16	3 5/16	3 5/16	3 5/16	10 3/16	None	N/A	Bar Welded to Nut	77	Note 4. Evidence of leakage from joint. NO
17	3/16	3 12/16	3 6/16	3 5/16	3 4/16	3 5/16	10 4/16	None	N/A	Bar Welded to Nut	77	Note 4. Light pack rust at pin.
18	1/16	3 12/16	3 3/16	3 7/16	3 8/16	3 6/16	10 3/16	None	N/A	Bar Welded to Nut	77	Note 4. Note 5.

Notes:

- For Pin & Hanger assemblies with a redundant support system, indicate if there is a gap between the redundant system (bearing) and the bottom flange of the suspended girder.
- All measurements are taken in reference to log direction.
 - V : Vertical misalignment of girders @ left edge of girder's bottom flange.
 - J : Joint opening between webs, measured just above the bottom flange fillet, on the left face of the girder's web.
 - Out to Out : The out-to-out of hangers taken at the leading edge, based on log direction.
- Use a permanent marker to indicate locations of field measurements.
- +/- 1/4" pitting loss at girder web between pin & hanger, painted over.
- Heavy rust debris between web and plate on pin wind lock north edge touching support span bottom flange keeper.

GEN
- BM ENDS PAINTED - P.H.'S



24/104