Inspection Type: Special

BRIDGE NO. 00032

73070 - STAMFORD

I-95 & I-95 RAMPS

over

MNRR & LOCAL ROADS

Special Inspection

11/05/2018

Inspected by: AI Engineers

TABLE OF CONTENTS

Bridge No. 00032

I-95 & I-95 Ramps

over

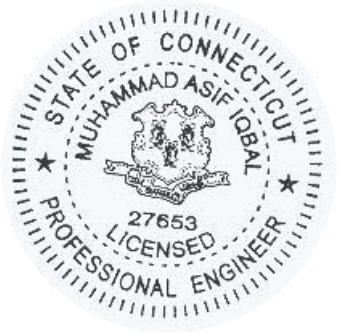
MNRR & Local Roads

Stamford

Inspected By:

AI Engineers, Inc.

Date: 11/05/2018



Personal Certification: I hereby certify that this report, including all of its contents, has been approved by me, and that I am a duly licensed professional engineer under the laws of the State of Connecticut.

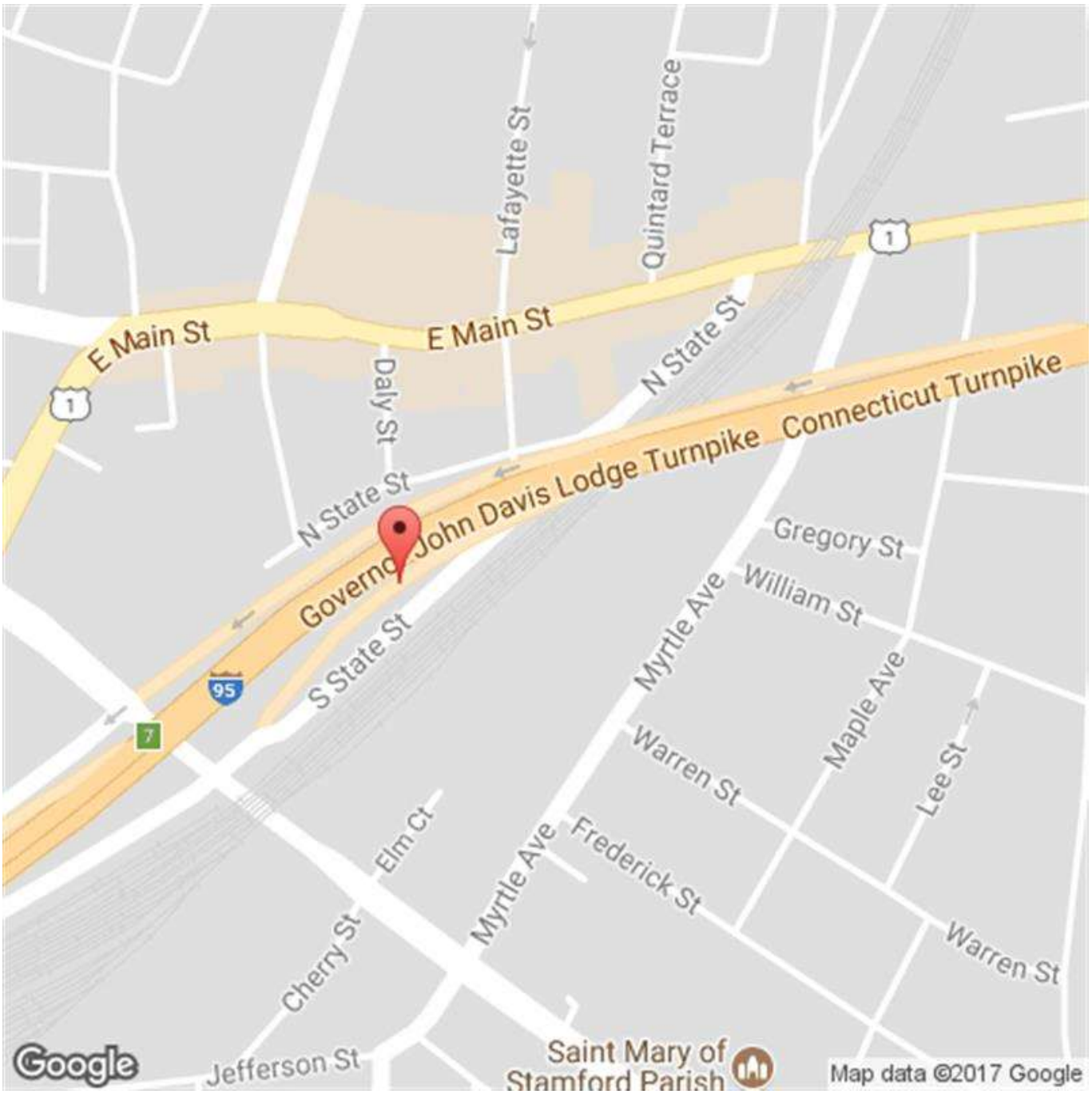
Signature: _____

License No.: 27653 Date: 06/19/2019

Form: Location
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS



Location Map # 1

Form: BRI-19, Rev. 2/15
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

STRUCTURE INVENTORY & APPRAISAL

INSPECTION

Structurally Deficient Y **Functionally Obsolete** N

Sufficiency Rating 65.0

(90) Inspection Date **(91) Frequency** 24

Indepth Insp No **Proposed next Indepth Year**

Deck Survey Date 1/1/1900 **Class** 03

Access 24 - Over 50 ft.reach required **Flagman** 1

	Frequency	Date	Type
Fracture	24		D Two Girder System, riveted / bolted plate girders
Underwater			
Special		11/05/2018	

IDENTIFICATION

Bridge Name 00032

Town Code - Name 73070 - STAMFORD

(5) Inventory Route

(A) Record Type 1: Route carried "on" the structure

(B) Signing Prefix 1 - INTERSTATE HIGHWAY

(C) Level of Service 1 - MAINLINE

(D) Route Number. 00095

(E) Dir Suffix 0 - NOT APPLICABLE

(6A) Featured Intersected MNRR & LOCAL ROADS

(6B) Critical Facility Indicator

(7) Facility Carried I-95 & I-95 RAMPS

(9) Location 0.2 MI EAST OF EXIT 8 NB

(11) Mile Post 8.4 Miles

(16) Latitude 41 Deg. 3 Min. 12 Sec.

(17) Longitude -73 Deg. 31 Min. 42 Sec.

(98) Border Bridge

(A) State Code (B) Percent Responsibility %

(C) Border Town Name

(99) Border Bridge Structure No.

STRUCTURE TYPE & MATERIALS

(43) Structure Type, Main

A) Material 3 - Steel

B) Design Type 03 - Girder and Floorbeam System

(44) Structure Type, Approach

A) Material 3 - Steel

B) Design Type 02 - Stringer/Multi-beam or Girder

(45) Number of Spans, Main Unit 001

(46) Number of Approach Spans 0016

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

(108) Wearing Surface/Protection Systems

A) Type of Wearing Surface 6 - Bituminous

B) Type of Membrane 2 - Preformed Fabric

C) Type of Deck Protection 0 - None

Substructure

A) Material 2 - CONCRETE

B) Design Type 5 - OTHER

Paint

Type 1 - Lead Paint

Year 1958

Comment Original girders cleaned and painted for 10 FT long at ends only in 1993 rehab with original paint at midspan. New girders for widened sections have new paint full length. Thru girders were painted above deck and on outside faces at same time.

GEOMETRIC DATA

(48) Length of Maximum Span 199 ft.

(49) Structure Length 1065 ft.

(50) Curb or Sidewalk Widths

A) Left 1 ft. 6 in. B) Right 1 ft. 6 in.

(51) Bridge Roadway Width Curb to Curb 95 ft. 10 in.

(52) Deck Width, Out to Out 101 ft. 10 in.

(32) Approach Roadway Width 82 ft.

Form: BRI-19, Rev. 2/15
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Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

(33) Bridge Median: 3 - Closed median with non-mountable barriers

Deck Area: 139163 sq. ft.

(34) Skew Angle: 99 deg.

(35) Structure Flared: 1 - Yes, flared

(10) Inv. Rte. Min. Vert. Clearance: 99 ft. 99 in.

(47) Inv. Rte. Total Horiz. Clr.: 54 ft. 5 in.

Log Inv. Rte. Total Horiz. Clr.: 54 ft. 5 in.

RLog Inv. Rte. Total Horiz. Clr.: 41 ft. 5 in.

(53) Min. Vert. Clearence Over Bridge: 21 ft. 4 in.

(54) Log-Min. Vert. Underclearance: R ref. 29 ft. 0 in.

(55) Min. Lat Underclearance on Right: H ref. 2 ft. 7 in.

(56) Min. Lat Underclearance on Left: 6 ft. 0 in.

AGE AND SERVICE

Year Built: 1958 (106) Year Reconstructed: 1993

(42) Type of Service

A) On: 1 - Highway

B) Under: 4 - Highway - railroad

(28) Number of Lanes

A) On: 07 B) Under: 05

(29) Average Daily Traffic: 127300

Is Above Half ADT?: No

(109) Precent Truck: 13 %

(30) Years of ADT: 2015

(19) Bypass, Detour Length: 1 Miles

CONDITION

(58) Deck: 4

(59) Superstructure: 5

(60) Substructure: 5

(61) Channel & Channel Protections: N

(62) Culverts: N

(36) Traffic Safety Features

A) Bridge Railings: 0

B) Transitions: 1

C) Approach Guardrail: 1

D) Approach Guardrail Ends: 1

APPRAISALS

(67) Structural Evaluation: 5

(68) Deck Geometry: 4

(69) Underclearances, Vert. & Horiz.: 3

(71) Waterway Adequacy: N

(72) Approach Roadway Alignment: 6

(113) Scour Critical: N

COMMENTS

Project No. 0135-0292 (2008): Repair / Strengthening of Pier Nos 6 and 7.
This structure crosses the following local roads: Myrtle Avenue, North State Street & Lafayette Street. -Item #48 taken from cl to cl of bearings. Item #36 and Item #50 safety walk still exists in spans 1 through 3 on I-95 NB. Item #51 and Item #52 measurements were taken in span 7 (most restrictive). Deck area varies in width & length of spans. Item 29 is max. ADT.
SUMMER-WINTER JOINT MEASUREMENT LIST (KMR 3/1/10).
- Item109 (% Trucks) from 2015 traffic data. RDJ 9/18/15

Project #0135-0301; FDP:09/24/14; ADV:12/03/14; Award:02/27/15 - (AG 05/20/14)Project No. 0135-0301 REMOVED - Rehab work for this structure removed from this project, per Bob B. (02-23-15 AG)

Form: BRI-19, Rev. 2/15
Inspection type: Special
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:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

WATERWAY

Drainage Basin Waterway	
(38) Navigation Control	N - Not applicable, no waterway
(39) Navigation Vertical Clearance	0 ft.
(40) Navigation Horiz. Clr.	0 ft.
(111) Pier/Abutment Navigation	
(116) Vert-Lift Brg Nav Min	ft. In.

CLASSIFICATION

(112) NBIS Bridge Length	Yes
(104) Highway System	1 - Structure/Route is on NHS
(26) Functional Class	11 - Urban - Principal Arterial - Interstate
(100) Defense Highway	1 - Is on an Interstate STRAHNET route
(101) Parallel Structure	N - No parallel structure
(102) Direction of Traffic	2 - 2-way traffic

Form: BRI-19, Rev. 2/15
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Town: STAMFORD
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Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

(103) Temporary Structure	
(110) Designated National Network	1 - Inventory route on National Truck Network
(20) Toll	3 - On Free Road
(21) Maintain	01 - State Highway Agency
(22) Owner	01 - State Highway Agency
Report Class	S - STATE
(37) Historical Significance	5 - Not eligible for National Register

POSTED SIGNS

Other Posted Sign 1	3 - Directional & Route information signs
Other Posted Sign 2	0 - Blank

	Actual	Recomended	
Posted Load Single Unit Truck			tons
Posted Load Semi-Trailer Truck			tons
Posted Load 4 Axle Truck			tons
Posted Load 3S2 Truck			tons
All Vehicles			tons
Posted Vert. Clearance on Bridge		ft.	in.
Posted Vert. Underclearance		ft.	in.
Posted Speed Limit on Bridge		m.p.h.	

OTHER FEATURES

Fence Required	No
Fence Present	Yes
Fence Type	5 - Other
Fence Height	8.4
Fence Material	4 - Other
Fence Top Type	1 - Vertical
Barrel Ladders	No
Stand Pipes	No
Catwalks	No
Moveable Inspection System	No
Haunches Present over Roadway	YES
Utilities	U | Unknown Duct F | Fiber Optics

PROPOSED IMPROVEMENTS

(75A) Type of Work Proposed	35 - Rehabilitation - Deterioration
(75B) Work Done By	1 - Work to be done by contract
(76) Length of Structure Improvement	ft.
(94) Bridge Improvement Cost	$
(95) Roadway Improvement Cost	$
(96) Total Project Cost	$ 20000
(97) Year of Improvement Estimate	2015
(114) Future ADT	189155
(115) Year of Future ADT	2035
DOT Bridge Program List No	20
Project No	0135-0334
Advertised Date	07/10/2019

LOAD RATING & POSTING

(31) Design Load	5 - HS 20
(63) Operating Rating Type	1 - Load Factor (LF)
(64) Operating Rating	90.9
(65) Inventory Rating Type	1 - Load Factor (LF)
(66) Inventory Rating	54.5
Evaluation Code	L - Load Factor
Year of Evaluation	2001
(70) Bridge Posting	5 - Equal to or above legal loads
(41) Structure Status	A - Open

Form: BRI-19, Rev. 2/15
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Form: BRI-19, Rev. 2/15
Inspection type: Special
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Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

INSPECTOR'S SIGNATURES:

1) Date: 06/12/2019

2) Date: 06/12/2019

3) Date: 06/12/2019

4) CHRISTOPHER CHUCK Date: 06/12/2019

P.E. SIGNATURE: 27653 Date: 06/19/2019

P.E. # 0027653

Reviewed By: Parviz Mirzaee Date: 06/26/2019

Form: BRI-18, Rev. 1/14
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

FIELD INSPECTION REPORT

Location:	0.2 MI EAST OF EXIT 8 NB	Year Built:	1958	Snooper Required:	☐
Main Material:	3 - Steel	Year Rebuilt	1993	Snooper Used:	☐
Main Design:	03 - Girder and Floorbeam				

Inspectors:

Lead Inspector:	Ethan Cote
Inspector:	Task:
Afzal, Hassan	BSE - Inspector
Aziz, Ali	BSE - Inspector
Biegler, Sean	BSE - Inspector
Cote, Ethan	BSE - Inspector
Elmakky, Hesham	BSE - Inspector
Pruzinsky, Caleb	BSE - Inspector

Visits:

Visit Date:	Temp:	Start Time:	End Time:
11/05/2018	48	10:00 PM	04:00 AM
11/11/2018	32	10:00 PM	05:00 AM
11/25/2018	39	10:00 PM	05:00 AM
12/12/2019	37	08:30 AM	03:00 PM
05/29/2019	60	08:30 AM	02:00 PM

58. DECK:

Underside of reinforced concrete deck with bituminous concrete overlay and waterproofing membrane.

The deck is in poor condition.

AI Engineers, Inc. performed a special inspection for the portion of the bridge located over Metro North Railroad (span 7). Isolated minor deficiencies found at the underside of deck in span7 did not effect the rating noted below. AI Engineers, Inc. did not inspect any of the elements at the top of deck. All information noted below was noted previously during the Routine Inspection with no changes made to the comments and only the photo and sheet references removed from the BRI-18.

Overall Rating: 4

Rating

Overlay:	7	Bituminous concrete overlay: - Isolated longitudinal and transverse cracks open up to 1/16" wide, numerous sealed cracks and minor rutting in wheel lines. - Previously sealed cracks have re-opened up to 1/8" wide and there are concrete patches. - Previously sealed joint at abutment 1A is re-cracking up to 1/8" wide.
Deck - Str. Condition:	4	Underside of reinforced concrete deck: - The deck end in span 15 on both sides of girder G11 at pier 15 is pumping ±1/8" under live load. - Random hairline transverse cracks and map cracking with efflorescence. - Areas of moderate scale, honeycombing up to 10' long x 2' wide with exposed rebar (span 9 in bay 5) and spalls up to 1' diameter x 4" deep (span 4, bay 6 near pier 3) with exposed and debonded rebar with section loss to the rebar up to 10% (bay 6 of span 17). - There are hollow areas up to 12' long x 4' wide (bay 6 of span 17) and hollow areas over the roadway and sidewalk up to 2.5' x 1.5' (bay 2 of span 16). - Areas of dampness and rust stains. - Random hollow sounding concrete patches with edge chipping. AI Engineers, Inc.: Span 7: Underside of reinforced concrete deck: See photo 2. - Random transverse and hairline map cracks with and without efflorescence. Random areas of dampness, light scale, and honeycombing throughout. - Epoxy coated spalls up to 1.5' diameter x 4" deep (bay 32 at girder G2) with and without exposed rebar. Isolated areas of exposed rebar exhibit de-bonded rebar or rebar with section loss up to 1/4" deep. See photos 3-4. Random spalls were still covered with wood forms. Isolated longitudinal haunches exhibit

		spalls up to 2' diameter x 4" deep. See photo 5. - Random concrete patches with epoxy coated spalls with exposed rebar. - There are hollow areas up to 4' wide x 2' long (max in bay 3) with and without edge spalls at the following locations (all verified intact): Bays 3, 6, 8, 9, 11, 18 (2 hollow haunches), 21, 25, 27 and 28.
Curbs:	N	Concrete curbs are monolithic with parapets in all spans except in Spans 1A to 3 of the Northbound roadway which have curbs monolithic with the safetywalk. Both Northbound and Southbound roadways in Span 7 have concrete curbs that are monolithic with safety walks. The curbs have: - Chipped edges, scrapes and cracks. - There is a 2' long section of broken curb along the west fascia at pier 7. The average curb reveals at the east curb is 6" in spans 1A-7 and 2-12" in spans 8-17. The west curb reveal is 6" in span 7 and 2-3/4" in the remaining spans. Also see items "Sidewalks" and "Parapets" below.
Median:	6	Reinforced concrete median: - Scrapes from collision at random locations. - Vertical cracks open up to 1/8" wide with efflorescence and areas of hairline map cracks up to 12' long x full height. - Spalls with exposed rebar up to 8' long x 6" high x 1" deep. - The longitudinal joint seal is missing and/or deteriorated at random locations with areas of active leakage noted below.
Sidewalks:	5	There are concrete safetywalks along the Northbound roadway in Spans 1A-3 and along both fascias in Span 7. The safetywalk edges have: - Areas of chipping and scrapes throughout. - Spalls with exposed rebar up to 6' long x full height x 3" deep and longitudinal cracks up to 50' long x 1/4" wide.
Parapet:	7	Reinforced concrete parapets: - Random vertical hairline cracks up to full height with efflorescence. - Areas of hairline map cracks and impact scrapes.
Railing:	4	Railings: - Peeling paint and areas of heavy rust with 100% section loss at the post connections. - Loose sections at random locations and missing railings.
Paint:	N	
Fence:	7	The 18" high fence on top of the through girders: - Random areas of peeling paint and light rust throughout. - There is up to 1" thick pack rust at the bottom of the fences.
Drains:	5	- The scuppers on the bridge are partially or fully clogged, however some have been cleared since the previous inspection. - Some deck weep pipes are draining on to the abutment seats. - There are weep pipes that are missing extensions and may drain on the superstructure and substructure. - There are random weeps along the median that are disconnected from the bottom flange supports.
Lighting Standard:	5	- The light standards have dents, missing anchor bolts, missing handhole cover screws and a missing handhole cover with exposed wires at the east parapet in span 1A. - The junction box covers in the parapets have missing screws but are secure.

Overall Utility Condition Rating	6 - Fair

Utility Type/Size

U | Unknown Duct	Unknown 4" diameter utility conduit inside each through box girder (RDJ-

	9/21/15)]. Inside of through box girder 2, the 4" diameter conduit is vibrating under live load and rubs against the intermediate diaphragms at midspan (RDJ 9/21/15)]. The conduit is beginning to deteriorate (with groove) up to 1/8" deep. Conduits in both box girders have missing or broken junction box covers with exposed wires. RDJ 9/21/15)]
F | Fiber Optics	The bridge carries a 4" diameter conduit for fiber optic cable attached to the east parapet in Spans 1A-7 and along the underside of the bridge in Spans 8-17 near the east fascia. No deficiencies were noted.

Construction Joints:	N	
Expansion Joint:	5	Pourable seal deck joints: - Areas of separation and areas where the seal material is missing up to 1'-6" long with evidence of leakage below. - The joint header exhibits a spall 6" x 6" x 3" deep in the northbound on ramp at pier 1. - There is a cracked and depressed area in the joint header 1.5' long x full width x 1/2" deep in the southbound middle lane at pier 4. - There are areas of deck joint leakage on the substructure. - The median barrier deck joint steel plates have random missing/sheared off and loose connection bolts.

Haunches Present over travelway? YES

APPROACH CONDITION:

Bituminous concrete pavement.

The approaches are in good condition.

AI Engineers, Inc. performed a special inspection for the portion of the bridge located over Metro North Railroad (span 7). Isolated minor deficiencies found at the underside of deck in span7 did not effect the rating noted below. AI Engineers, Inc. did not inspect any of the elements at the top of deck or approach elements. All information noted below was noted previously during the Routine Inspection with no changes made to the comments and only the photo and sheet references removed from the BRI-18.

Overall Rating: 7

Rating

Approach Slab:	7	The approach slab is paved over. Rating is based on the condition of approach pavement.
Relief Joints:	N	
Approach Guide Rail:	6	The concrete barrier is continuous on both approaches along the Southbound roadway: - The barrier has minor scrapes, edge chipping and full height vertical hairline cracks at random locations. There is a metal beam guide rail at the northeast and southeast corners of the bridge, along the east side of the north approach ramp and along the east side of northbound roadway: - The metal beam guide rails have minor dents, scrapes with rust stains, detached post, missing spacer blocks, missing/bent anchor bolts and loose nuts. The cable for the impact attenuator between Bridge Nos. 00032 and 06584 in the north approach on the southbound side has a slight loss of tension and the reflective sign is fading.
Approach Pavement:	7	Bituminous approach pavements:

		- Isolated transverse cracks open up to full width x 1/4" wide and areas of minor wheel rutting.
Approach Embankment:	8	

Trafic Safety Features

Bridge Railings:	0	Solid concrete parapet along the South side in Spans 1A and 1 is less than 42" high on NHS.
Transitions:	1	
Approach Guardrails:	1	
Approach Guardrail Ends:	1	

59. SUPERSTRUCTURE:

Steel Multi-Girder (Spans 1A-6 & 8-17)
Girder-Floorbeam System (Span 7)

The following areas could not be accessed:
- Span 1A due to homeless activity.
- Span 10, west of girder 5 due to construction activity.
- Span 17 bearings at pier 16 due to aerial wires on Myrtle Ave.

The superstructure is in fair condition.

AI Engineers, Inc. performed a special inspection for the portion of the bridge located over Metro North Railroad (span 7). Isolated minor deficiencies found at the underside of deck in span 7 did not effect the rating noted below. All information noted below was noted previously during the Routine Inspection with no changes made to the comments and only the photo and sheet references removed from the BRI-18.

Overall Rating: 5

Rating

Bearing Devices:	4	Bearings: - Heavy laminated rust with impacted rust up to 3/4" thick between the plates and gaps up to 1" between the masonry plate and concrete pedestal. Some bearings pump up to 1/8" under live load. - Span 15 bearings are "floating" and have gaps up to 3/8" below the bearing. - Undermining of the bearing assembly up to 3" wide x 1/2" deep (girder G1 bearing in span 10 at pier 7) due spalls in the pedestals. - Missing/broken keeper plate bolts and cracked welds between the bottom flange and the bearing plate. - The fabric pad between the existing shim plate and masonry plate of girder G5 at the pier 5 to pier 6 intersection in span 5 is deteriorated full length x 3" wide on west and north sides and masonry plate. - Heavy accumulation of bituminous debris around the bearing area at random locations. - There are anchor bolts which are tilted or have backed off anchor bolt nuts. Isolated anchor bolts and nuts exhibit section loss up to 100% (worst at girder G18 at pier 1). AI Engineers, Inc.: Span 7: The floorbeam sliding expansion bearings at piers 6 and 7 were previously supplemented with elastomeric bearings at the pier cap extensions: - Pier 6 pads were in slight contraction mode at 32°F. Pier 7 pads were in neutral mode at 60°F. - Random gaps up to 3/8" between elastomeric pads and concrete pedestals with slight pumping under live load. See photo 6. - Isolated anchor bolts tilted. Girder rocker bearings: - Pack rust up to 1/4" thick, debris under the rocker and heavy surface rust. See photo 7. See BRI-15 Rocker Bearing Measurements.
Stringers:	N	
Girders:	5	Steel multi-girders in Spans 1A-6 and 8-17: The girders have: - Areas with section loss on the webs up to 8' long x 4" high x 1/8" deep in the bottom of the web on the east side, full height behind the bearing x 1/4" deep pitting on the west side and section loss to bearing

		stiffeners up to a full width x 1" high perforation (Girder G8 in span 2 at pier 2). This results in up to 8% web loss and up to 30% bearing loss. There is section loss in bottom flanges at beam ends up to full width x 1/4" deep pitting (non-critical location). - There is an isolated area of section loss to the web at span 16, girder G13 at pier 15, 11" long x 5" high x 5/16" deep section loss on the west side and 8" long x 4" high x 1/4" deep pitting on the east side. - Areas of peeling paint with moderate rust on up to 70% of the surface. End diaphragms have: - Scattered areas of heavy laminated rust with section loss up to 1/4" deep and perforations up to 13" long x 1" high in the web and 4" long x 3" wide in the bottom flange (bay 2 at pier 15 in span 16). - Areas that are bent or have tears and gouges. AI Engineers, Inc.: Span 7: - Box girders have moderate to heavy laminated rust, typically with up to 1/16" deep section loss on the webs and top and bottom flanges. See photo 8. - Box girder G2 at pier 7 exhibits laminated rust with areas of section loss at the bottom of the web and stiffeners up to 5/16" deep. See photos 9-10. There is active leakage into the girders with ponding water due to openings in the web with missing covers (19 total locations). See photo 11. - Shelf angle of girder G1 in span 7 at pier 6 has a 4' long section with heavy rust and a 8" long x 3" wide rust hole in the horizontal leg. See photo 12. Riveted two-girder system in span 7: - There is heavy laminated rust with up to 1/16" deep section loss on the top and bottom flanges on the interior of girder 1 in span 7 at the west side. - At the deck level the web and vertical stiffeners have laminated rust along the bottom 6" high with areas of section loss up to 5' long x 10" high x 5/16" deep. - The concrete end blocks, adjacent to access doors, have spalls with exposed rebar. - All access doors are broken/open except the south door for girder G2, which is bolted shut.
Floor Beams:	5	AI Engineers, Inc.: Span 7: - Floorbeam 19 has section loss up to 14" wide x 1-13/16" remaining (original 2-1/4") in the bottom flange near mid-span (9.7% section loss in tension zone) and up to 8" high x 3/16" deep section loss along the base of the web (6.7% section loss in web area). See photos 13-14. - End diaphragms have areas of laminated rust with efflorescence and rust holes up to 4" long x 3" wide in the bottom flange and 9" long x 1" high in the web (bay 2 at pier 15 in span 16). See photo 15.
Trusses - General:	N	
Trusses - Portals:	N	
Trusses - Bracing:	N	
Paint:	3	The girder ends are painted over with areas of spotty rust and paint holidays at random locations. The paint is deteriorated on approximately 75% of the steel framing. See items "Bearing Devices" and “Girders".
Rust:	5	See items "Bearing Devices", "Girders" and "Paint" above.
Machinery Movable Span:	N	
Rivets & Bolts:	6	
Welds - Cracks:	5	- The cover plate end welds were inspected 100% hands-on and have no significant deficiencies. - In span 15, the end diaphragm in bay 11 over pier 15 at the connection to the pier 14 end diaphragm has a 7" long crack in the web (previously 3-3/4" long). - The end diaphragm over pier 14 has a 9" long crack in the vertical weld at the connection to span 16 girder G13 bearing stiffener (previously 4" long). - In span 15, the end diaphragm in bay 5 over pier 15 at girder G5 has a 3-1/4" long crack in the vertical weld that extends 1" along the top (previously 2" long). - In span 15, the end diaphragm in bay 10 over pier 14 adjacent to the girder G11 bearing stiffener is cracked through the web and bottom flange, 11" high x 1/16" wide. The deck is pumping at this location. - There are several locations of cracked or sloppy welds at the diaphragm to web stiffener connections.

Timber Decay:	N	
Concrete Cracking:	N	
Collision Damage:	5	AI Engineers Inc.: Span 7: Steel box through girders above the deck level have collision damage to the vertical stiffeners at random locations along the length of the girders.
Member Alignment:	6	See item "Bearing Devices" above.
Deflection Under Load:	E	(N)-Normal (E)-Excessive In Span 15, the deck along the end diaphragm is pumping under live load in Bays 4, 5, 10 and 11 over Pier 15 and along girders G5 and G11. Random bearings are pumping under live load up to 1/8". See items "Deck Structural Condition" and "Bearing Devices" above.
Vibration Under Load:	E	(N)-Normal (E)-Excessive See items "Deck Structural Condition" and "Bearing Devices" above.
Stand Pipes:	N	
Catwalks:	N	
Movable Inspection System:	N	
Barrel Ladders:	N	

Are Barrel Ladders OSHA Compliant? NA

60. SUBSTRUCTURE:

The following areas could not be accessed:
-Abutment 1A, wingwalls 1A and 1B, and pier 0 due to homeless activity.
-Pier 1, south elevation above the top of the cap, since the lift was blocked by the retaining wall that runs along the north side of pier 1.
-Pier 7, north elevation (west quarter) above the top of the crashwall due to construction activity.
-Pier 7, north elevation (west-center quarter) above the bottom of the cap due to construction activity.
-Pier 10, south elevation (west half) west of girder 5 due to construction activity.
-Pier 16, north elevation above the top of the cap due to aerial wires on Myrtle Ave.

AI Engineers, Inc. performed a special inspection for the portion of the bridge located over Metro North Railroad (span 7). Isolated minor deficiencies found at this inspection did not effect the rating noted below. All information noted below was noted previously during the Routine Inspection with no changes made to the comments and only the photo and sheet references removed from the BRI-18.

Overall Rating: 5

Rating

Abutments - Stem:	6	Reinforced concrete abutment stems: -Vertical hairline cracks and map cracks with efflorescence, spalls up to 1'-6" high x 5" wide x 5" deep, hollow areas up to 10" high x 8" wide, and accumulation of man-made debris around the bearings. Previously noted heavy graffiti has been painted over. - The abutment 1 vertical construction joint between girders 8 and 9 is open up to 2 1/2" and the joint filler is missing allowing backfill exfiltration. - The concrete pedestals have hairline cracks, spalls up to 10" long x 6" high x up to 6" deep with exposed rebar and hollow areas with cracks.
Abutments - Backwall:	7	Reinforced concrete backwalls: - Random vertical hairline cracks with efflorescence, spalls up to 3' long x 10" high x 2" deep and areas

		of deck joint leakage.
Abutments - Footings:	6	The abutment 1 footing at the west end is exposed 4' long x 3' wide x 1' high and has a spall 1' long x 1' wide x 3" deep.
Abutments - Settlement:	8	None noted.
Abutments - Wingwalls:	7	Reinforced concrete wingwalls: - Vertical, horizontal and map hairline cracks with efflorescence. There is heavy graffiti and light vegetation growth.
Piers/Bents - Caps:	5	-Several concrete pier caps have been patched. However the pier caps have areas of map cracking, vertical hairline cracks up to full height with efflorescence and rust staining, moderate scale, numerous hollow areas up to 3' wide x 2' high and spalling with exposed rebar up to 4'-4" long x 2'-6" high x 7" deep (pier 7 north elevation between G4-10 and G5-10). -The previously noted spalling with exposed rebar, hollow areas and cracking on the pier 3 cap have been repaired since the previous inspection. -The concrete pedestals have cracks, hollow areas and spalls with exposed rebar up to 1' long x full height x 5" deep, some of which undermine the bearings. -The steel pier cap at the east half of pier 4 has areas of peeling paint and light rust. AI Engineers Inc.: Span 7: Pier 6 North Elevation & Pier 7 South Elevation: - Pier caps have random areas of map cracking, vertical and horizontal cracks up to 6' long with efflorescence - Random hollow areas up to 10' wide x full height and spalls up to 3' long x 1' high x 2" deep with exposed rebar in the pier caps. See photo 17. - Random concrete patches have map cracks and hollow areas up to full height x full width of the patch.
Piers/Bents - Pile Bent:	N	
Piers/Bents - Columns:	5	The pier columns have hairline vertical, map cracks with efflorescence and rust staining, hollow areas, spalls up to 3' high x 2' wide x 3" deep with exposed rebar (pier 7 north elevation column below G3-9) and concrete patches. The top of the pier 3 column under girder 13 has a 6" wide x 51" deep void at the northeast corner. AI Engineers Inc.: Span 7: Pier 6 North Elevation & Pier 7 South Elevation: - Pier columns have hairline vertical, map cracks with efflorescence and rust staining, hollow areas up to 4' diameter, spalls up to 2' long x 1' high x 1/2" deep with exposed rebar, and concrete patches. - Bottom pier walls have hairline vertical, horizontal, map cracks with efflorescence, hollow areas up to 15' long x 3' high, and spalls up to 1' long x 1' high x 1-1/2" deep with exposed rebar.
Piers/Bents - Footings:	6	The east side of the Pier 6 footing is exposed at three locations up to 117' long x 2'-8" wide x 6" high. The exposed footing has areas of scaling along the edges.
Piers/Bents - Settlement:	8	None noted.
Erosion - Scour:	6	Erosion - Rating = 6. Pier 6, south gravel slope has a few areas of erosion with some areas have exposed the footing. The abutment 1 footing is exposed at the west end. Also, see item 'Piers - Footings' and 'Abutments - Footings' above. See the Pier and Abutment 1 sketches. Scour - N/A.
Concrete Crack - Spall:	5	See above items "Piers-Bents/Footings", "Piers/Bents – Column", "Piers/Bents – Caps", "Abutments – Wingwalls", "Abutments – Footings", "Abutments – Backwall" and "Abutments – Stem".
Steel Corrosion:	N	
Paint:	N	
Timber Decay:	N	

Collision Damage:	8	
Debris:	5	There is heavy accumulation of construction, joint and man-made debris on the abutment seats and top of the pier caps at random locations. There is also heavy debris on abutment 1A.

61. CHANNEL AND CHANNEL PROTECTION:

Overall Rating: N

	Rating	
Channel - Scour:	N	
Embankment - Erosion:	N	
Debris:	N	
Vegetation:	N	
Channel Change:	N	
Fender - System:	N	
Spur Dikes and Jetties:	N	
Rip Rap:	N	

62. CULVERTS AND RETAINING WALLS:

Overall Rating: N

	Rating	
Barrel:	N	
Concrete:	N	
Steel:	N	
Timber:	N	
Headwall:	N	
Cutoff Wall:	N	
Debris:	N	
Retaining Wall System:	N	
Footing:	N	

LOAD POSTING:

	Rating	
Single Unit (Tons):		
Semi Trailer (Tons):		
4 Axle (Tons):		
3S2 (Tons):		
All Vechicles:		
Advanced Warning:	None	
Warning At Bridge:	None	
Legibility:		
Visibility:		

VERTICAL CLEARANCE POSTING

Min. Vert Under Clearance:		Ft		In	All clearances above 25'-0".
Posted Clearence Under Bridge:		Ft		In	

Form: BRI-18, Rev. 1/14
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Posted Clearence On Bridge:		Ft	In	
Advanced Warning:	None			
Warning At Bridge:	None			
Legibility:				
Visibility:				

NOTES / COMMENTS:

Character of Traffic: Heavy volume with mixed weights.

Additional Notes:

- The bridge identification number is in good condition.
- The bridge is logged from south to north with Girder G1 at the west fascia which is consistent with the previous inspection.
- The underside of the bridge was inspected using hi-rails.
- There is a overhead sign structure no. 20287 (type 41T) over the southbound lanes in Span 3.

- AI Engineers, Inc. performed a special inspection for span 7 over Metro-North Railroad which were not inspected during the Routine Inspection due to no flagman. AI Engineers, Inc. is responsible for only pertinent information relevant to these portions of the bridge noted within this report.

Additional Comments:

See report table of contents.

National Bridge Elements
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12 - Reinforced Concrete Deck	Mod.	122883	sq. ft.	108422	12663	1798	0
1080 - Delamination/Spall/Patched Area		873		0	0	873	0
1090 - Exposed Rebar		108		0	99	9	0
1120 - Efflorescence/Rust Staining		916		0	0	916	0
1130 - Cracking (RC and Other)		12564		0	12564	0	0
510 - Wearing Surfaces		102240	sq. ft.	102080	160	0	0
3230 - Effectiveness (Wearing Surface)		160		0	160	0	0
102 - Steel Closed Web/Box Girder	Mod.	427	ft.	0	267	160	0
1000 - Corrosion		367		0	267	100	0
7000 - Damage		60		0	0	60	0
515 - Steel Protective Coating		29459	sq. ft.	8892	2892	17675	0
3440 - Effectiveness (Steel Protective Coatings)		20567		0	2892	17675	0
107 - Steel Open Girder/Beam	Mod.	13033	ft.	5203	7761	69	0
1000 - Corrosion		7823		0	7754	69	0
7000 - Damage		7		0	7	0	0
515 - Steel Protective Coating		182873	sq. ft.	38238	19949	124686	0
3440 - Effectiveness (Steel Protective Coatings)		144635		0	19949	124686	0
152 - Steel Floor Beam	Mod.	2198	ft.	2198	0	0	0
515 - Steel Protective Coating		34918	sq. ft.	27934	6984	20950	0
3440 - Effectiveness (Steel Protective Coatings)		27934		0	6984	20950	0
205 - Reinforced Concrete Column	Mod.	111	each	70	41	0	0
1080 - Delamination/Spall/Patched Area		12		0	12	0	0
1090 - Exposed Rebar		4		0	4	0	0
1120 - Efflorescence/Rust Staining		7		0	7	0	0
1130 - Cracking (RC and Other)		18		0	18	0	0
210 - Reinforced Concrete Pier Wall	Mod.	224	ft.	0	224	0	0
1080 - Delamination/Spall/Patched Area		85		0	85	0	0
1120 - Efflorescence/Rust Staining		5		0	5	0	0
1130 - Cracking (RC and Other)		54		0	54	0	0
6000 - Scour		80		0	80	0	0
215 - Reinforced Concrete Abutment	Mod.	300	ft.	235	52	13	0
1080 - Delamination/Spall/Patched Area		13		0	0	13	0
1090 - Exposed Rebar		3		0	3	0	0
1120 - Efflorescence/Rust Staining		11		0	11	0	0
1130 - Cracking (RC and Other)		34		0	34	0	0
6000 - Scour		4		0	4	0	0
220 - Reinforced Concrete Pile Cap/Footing	Mod.	181	ft.	180	0	1	0
1080 - Delamination/Spall/Patched Area		1		0	0	1	0
234 - Reinforced Concrete Pier Cap	Mod.	1896	ft.	780	722	394	0
1080 - Delamination/Spall/Patched Area		805		0	435	370	0
1090 - Exposed Rebar		35		0	15	20	0

National Bridge Elements
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

1120 - Efflorescence/Rust Staining		55		0	55	0	0
1130 - Cracking (RC and Other)		221		0	217	4	0
301 - Pourable Joint Seal	Mod.	2149	ft.	2134	11	4	0
2320 - Seal Adhesion		9		0	9	0	0
2330 - Seal Damage		3		0	0	3	0
2360 - Adjacent Deck or Header		3		0	2	1	0
310 - Elastomeric Bearing	Mod.	254	each	4	249	1	0
1000 - Corrosion		242		0	241	1	0
2230 - Bulging, Splitting, or Tearing		8		0	8	0	0
311 - Movable Bearing	Mod.	5	each	0	5	0	0
1000 - Corrosion		5		0	5	0	0
515 - Steel Protective Coating		5	sq. ft.	0	5	0	0
3440 - Effectiveness (Steel Protective Coatings)		5		0	5	0	0
313 - Fixed Bearing	Mod.	222	each	1	144	77	0
1000 - Corrosion		216		0	139	77	0
2240 - Loss Bearing Area		5		0	5	0	0
515 - Steel Protective Coating		222	sq. ft.	1	0	221	0
3440 - Effectiveness (Steel Protective Coatings)		221		0	0	221	0
330 - Metal Bridge Railing	Mod.	751	ft.	258	448	45	0
1000 - Corrosion		385		0	375	10	0
1020 - Connection		108		0	73	35	0
515 - Steel Protective Coating		1502	sq. ft.	752	750	0	0
331 - Reinforced Concrete Bridge Railing	Mod.	1807	ft.	1626	181	0	0
1120 - Efflorescence/Rust Staining		90		0	90	0	0
1130 - Cracking (RC and Other)		91		0	91	0	0

FIELD NOTES	BRIDGE NO: 00032	DATE: 11/11/18
	CREW: AAA, CP (AI)	SHEET:

ROCKER BEARING MEASUREMENTS

Form BRI-15, Rev. 9/97

Span No. = 7

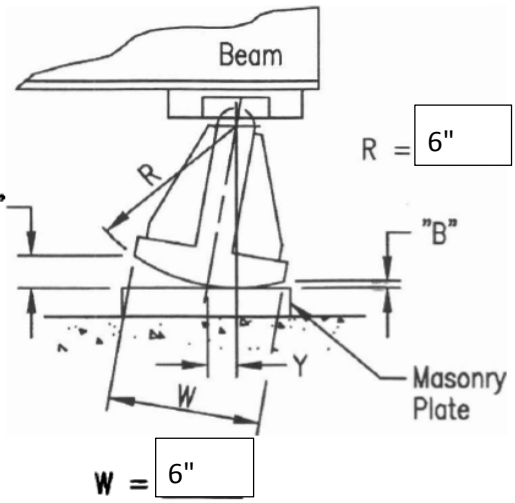
Substructure Unit = See Below

Temperature = Below °F

$\theta = \text{Sin}^{-1} (F-B) / W$

$Y = R \text{ TAN } \theta$

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



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.

Beam	"F"	"B"	Y	Cont. or Exp.	Comments
PIER 7 5-29-19 60°F					
G1	2 8/16	1 4/16	1 4/16	E	Heavy rust and debris under rocker.
PIER 6 11/11/18 32°F					
G2	1 12/16	1 14/16	2/16	C	Heavy rust and debris under rocker,
					up to 1/4" TH pack rust under rocker.

Form: BRI-12, Rev. 1/14
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

FRACTURE CRITICAL MEMBERS / FRACTURE PRONE DETAILS

Inspectors:

Lead Inspector:	Ethan Cote
Inspector:	Task:
Afzal, Hassan	BSE - Inspector
Aziz, Ali	BSE - Inspector
Biegler, Sean	BSE - Inspector
Cote, Ethan	BSE - Inspector
Elmakky, Hesham	BSE - Inspector
Pruzinsky, Caleb	BSE - Inspector

Visits:

Visit Date:	Temp:	Start Time:	End Time:
11/05/2018	48	10:00 PM	04:00 AM
11/11/2018	32	10:00 PM	05:00 AM
11/25/2018	39	10:00 PM	05:00 AM
12/12/2019	37	08:30 AM	03:00 PM
05/29/2019	60	08:30 AM	02:00 PM

Fracture Critical Inspection Frequency: 24 Months

Fracture Critical Type Code: D Two Girder System, riveted / bolted plate girders

Structure Type: Highway Bridges **Year Built:** 1958 **ADT:** 127300 **Year of ADT:** 2015 **% Truck:** 13

Access Equipment Needed: 80' Manlift and 45'/60' Hi-Rail.

Traffic Control Required: Left and Right Lane closures on I-95 NB & SB between Exits 7 & 9 and Right Lane closure on South State Street.

Reference to Plans: Project # 304-02

MEMBER/DETAIL TYPE # 1

Member/Details Type: A One or two steel girder systems **Fracture Critical:** Yes

Fatigue Category: D **Steel Type:** A-242 **Fatigue Prone:** No

Description: Two main riveted built-up through box girders in Span 7.

Inspection Procedure: 100% Hands-on.

Condition Comments: There is moderate to heavy laminated rust with up to 1/16" deep section loss on top and bottom of flanges at the west side of girder 2. There is up to 1/16" deep section loss on the web and flanges of girder 1 at pier 6 and a 4' long section of shelf angle on the south side with heavy to laminated rust and 8" long x 3" wide rust hole in the horizontal leg.

Procedure Followed This Inspection? No **If No please explain:** Span 7 was not in the scope of work for this inspection. It will be completed as a special inspection.

MEMBER/DETAIL TYPE # 2

Member/Details Type: O Super/sub integral framing details (floor beam/stringers) **Fracture Critical:** Yes

Fatigue Category: C **Steel Type:** A-373 **Fatigue Prone:** No

Description: Span 7 (39 Floorbeams).

Inspection Procedure: 100% Hands-on.

Condition Comments: Floorbeam 19 has section loss up to 14" wide x 1-13/16" remaining (original 2-1/4") in the bottom flange near mid-span (9.7% section loss in tension zone) and up to 8" high x 3/16" deep section loss along the base of the web (6.7% section loss in web area).

Procedure Followed This Inspection? No **If No please explain:** Span 7 was not in the scope of work for this inspection. It will be completed as a special inspection.

MEMBER/DETAIL TYPE # 3

Member/Details Type: M Partial length welded cover plates **Fracture Critical:** No

Fatigue Category: E' **Steel Type:** A-373 **Fatigue Prone:** Yes

Description: Bottom flange partial length cover plate end welds with a flange thickness > 0.8 inches (Spans 1A-6 & 8-17).

Inspection Procedure: 100% Hands-on

Condition Comments: No significant deficiencies.

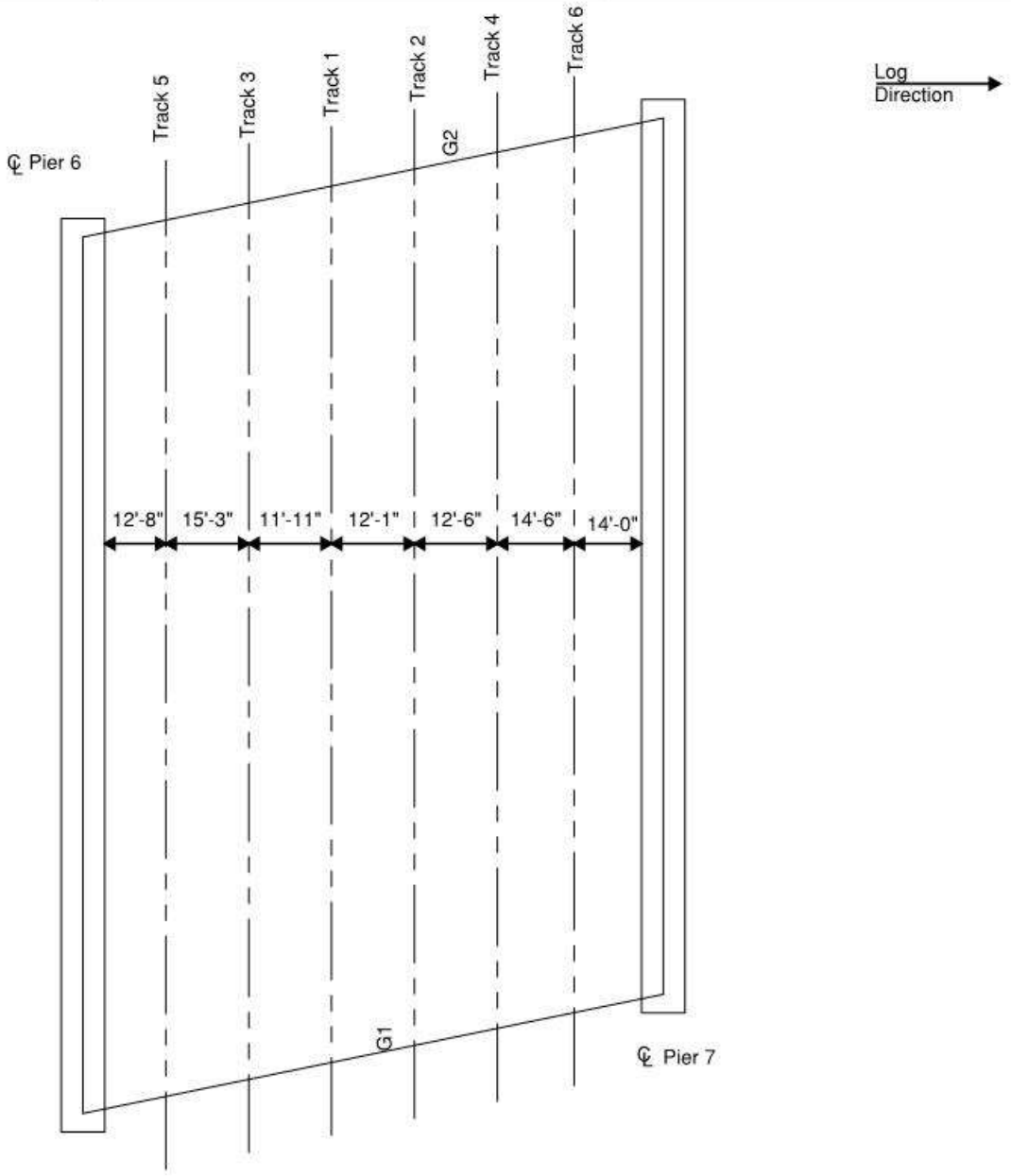
Procedure Followed This Inspection? Yes **If No please explain:**

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.: 00032



General Notes:
- All vertical clearances are over 25'

Clearance Diagram, Span 7

REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

CREW: JSM, AMP	DATE: 7/18/2017	BRIDGE NO.: 00032

General Notes:

- Spalls up to 1' x 5" x 2-1/2" deep in deck at floor beam ends on North side of G2
- All spalls in the underside of deck are coated in epoxy unless otherwise noted.
- Up to 20% section loss to rivet heads on bottom flange of G2
- Laminated rust at floor beam vertical connection to G2, North side web
- Active leakage from deck joints along piers at random locations and along joint over floor beam 19
- Random concrete patches in underside of deck, some with left in place forms, areas of dampness, and areas of light to moderate scaling
- G2, several stiffeners have rust through holes at safety walk and have impact damage at inside face.
- G2, typically up to 4" high laminated rust at safety walk at roadway side
- Bearings at pier 15 with laminated rust between plates
- Random keeper plates over pier 16 have moderate to heavy laminated rust with up to 1/16" section loss at random locations
- Both ends of G2 to G12 in span 16 painted ±8'L from end
- Less than 50% light rust on framing
- All hollow areas verified intact unless otherwise stated.

Framing Plans

REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

CREW: JJF, TE (TSC)	DATE: 11/30/2016	BRIDGE NO.: 00032

Span 7 Girders General Notes

Inside of Box Girders

- Top and bottom flanges have areas of moderate rust and debris build-up.
- Girder G1 has heavy laminated rust with up to 1/16" deep section loss on the top and bottom flanges on the interior.
- The girder 2 bottom flange and the bottom 6" high of the web at the north half (38' area off of Abut. 1, worst @ Abut. 1) have heavy laminated rust (w/ estimated 3/16"D SL & up to 50% SL to rivet heads) due to ponding water. There is active leakage and ponding water inside the girders due to openings in the web.
- Girder 2 at the 7th diaphragm from the south end has minor pack rust up to 1/16" thick between the bolted angle connection and the diaphragm plate.
- There are missing junction box covers on the interior with exposed wires at girder 1 at the 1/3 point from the south end and girder 2 at the 1/3 point form the north end.
- The utility conduit in girder 2 vibrates under live load at the top of the intermediate diaphragms at random locations. Utility wrap is beginning to rust and abrasion rust is forming.

Boxes Above Deck Level

- The top flange has random areas of heavy rust.
- The web and vertical stiffeners (up to 6" high above the deck level) have laminated rust and section loss up to 5' long x up to total 10" high (@ base & mid-height) x up to 5/16" deep.
- There are vertical stiffeners with impact damage at both girders, rusted through holes at the bottom up to full width x 4" high and up to 1/4" deep section loss.

Boxes Below Deck Level

- The girders in span 7 below the top of deck were inspected this special inspection.

Access to Boxes

- All access doors are broken/open, except the south door for girder 2 that is bolted shut. There are exposed wires at the base of all access doors.
- There are 10"Ø openings in the webs with missing covers (19 total).
- The concrete end blocks/doorways have spalls up to 2'-8" wide x 1'-6" high x 3" deep with exposed rebar with 75% section loss to the rebar (Girder 2 at the south end.

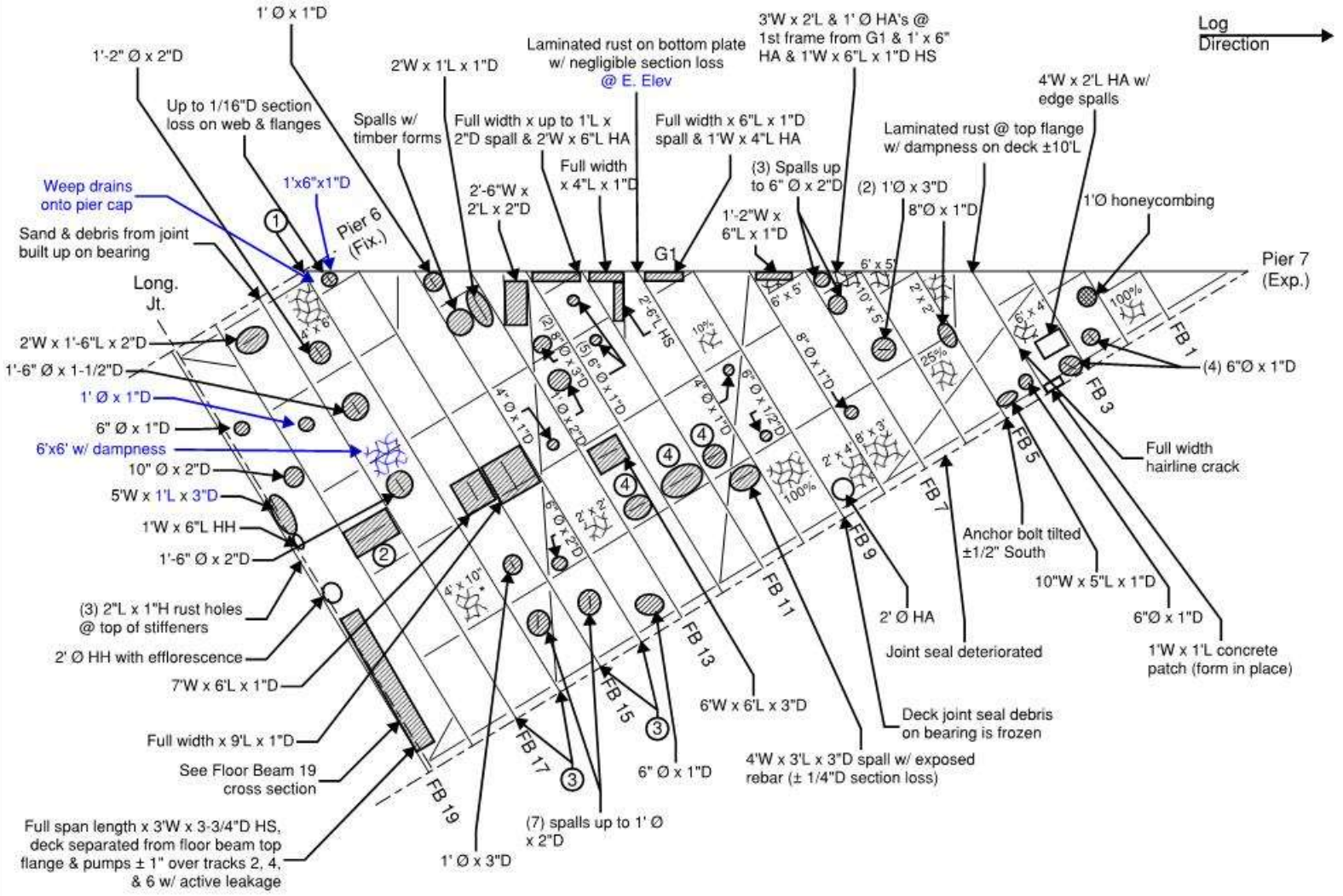
REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: JSM, AMP	DATE: 7/18/2017	BRIDGE NO.: 00032



Deterioration Notes:

① - 4' long section of shelf angle on the south side of G1 (below the deck) with heavy laminated rust and 8" x 3" rust hole in the horizontal leg.

② - Full width x 4' long x 3" deep epoxy coated spall with exposed rebar.

③ - Elastomeric bearing with up to 3/8" gap under the pad and the bearing is slightly pumping at most bearings.

④ - Previous hollow areas removed between tracks 4 and 6, and epoxy coated spalls up to full width x 4'L x 3"D.

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

Framing Plan (Span 7 WEST Half)

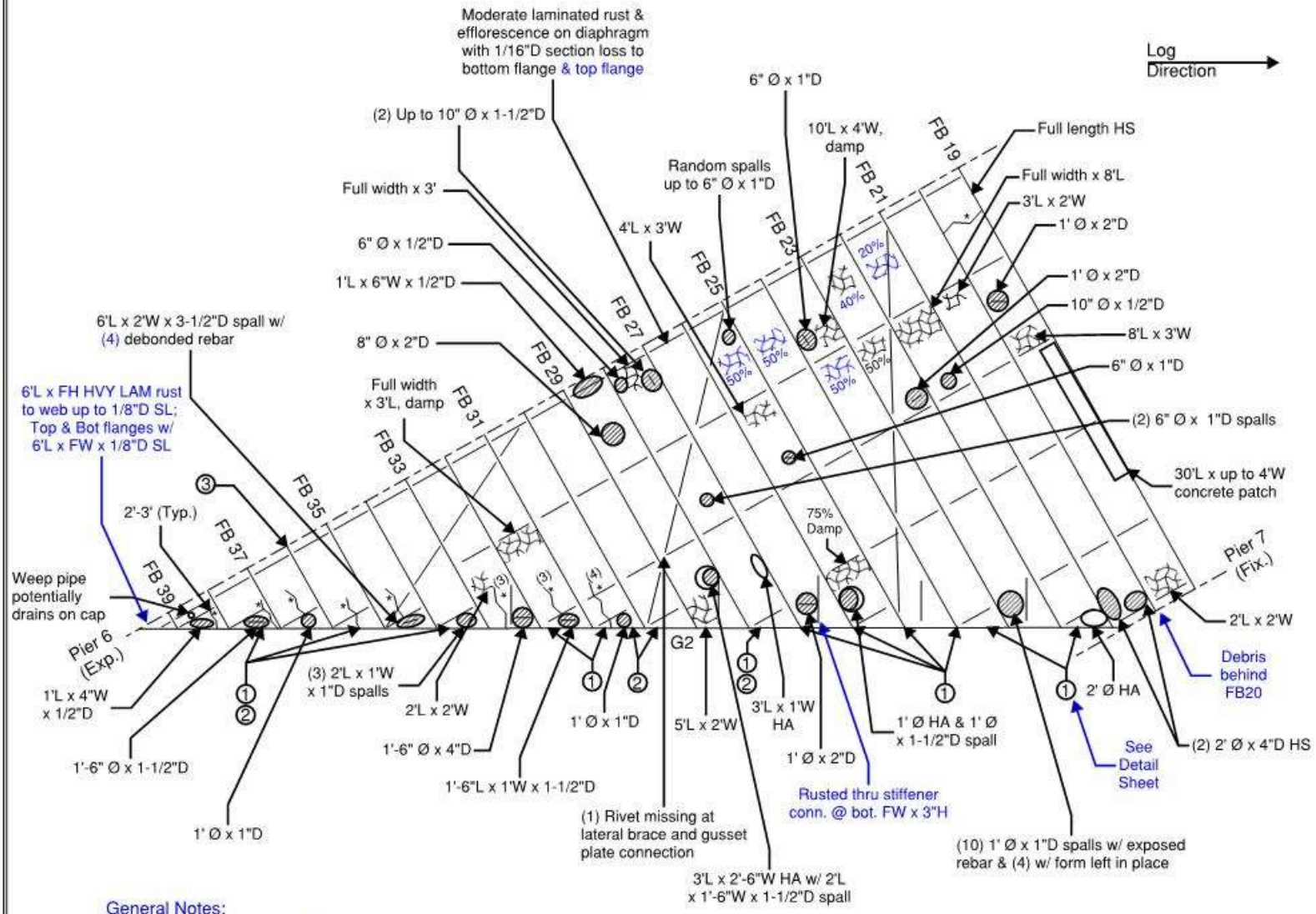
REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: JSM, AMP	DATE: 7/18/2017	BRIDGE NO.: 00032



General Notes:
- Wood forms covering spalls @ rand. locations.

Deterioration Notes:

① - Moderate to heavy laminated rust w/ up to 1/16"D section loss on top & bottom flanges of G2 at the west leg.

② - Up to 5" x 3" rust hole at top of stiffener at North side of G2.

③ - Elastomeric bearing with up to 3/8" gap under the pad and the bearing is slightly pumping.

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

Framing Plan (Span 7 EAST Half)

REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

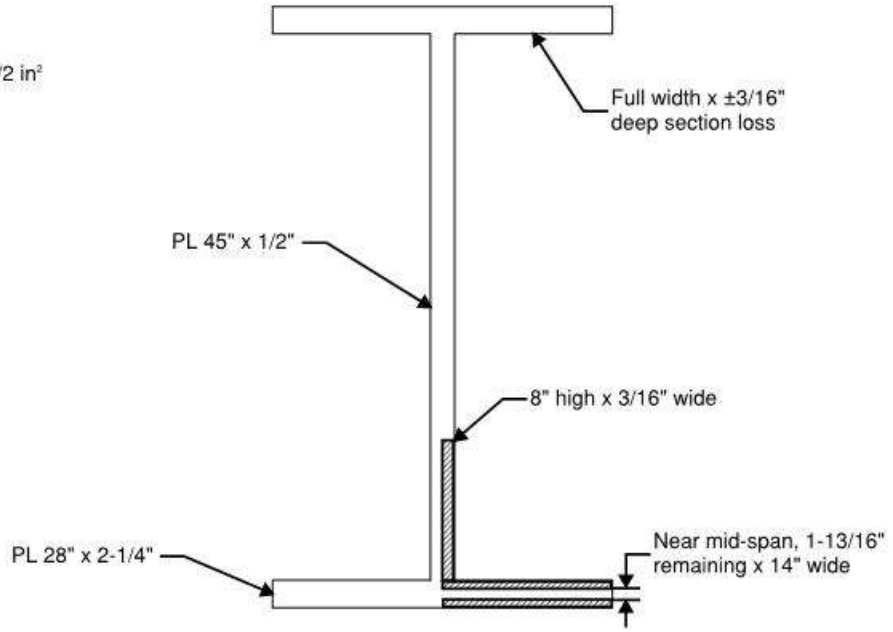
:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: JSM, AMP	DATE: 7/18/2017	BRIDGE NO.: 00032

Bottom Flange Section Loss:
Original Area: PL 28" x 2-1/4" = 63 in²
Remaining Area: (14" x 1-13/16") + (14" x 2-1/4") = 56-7/8 in²
Section Loss = 9.7%

Web Section Loss:
Original Area: PL 45" x 1/2" = 22-1/2 in²
Loss Area: 8" x 3/16" = 1-1/2 in²
Section Loss = 6.7%



General Notes:
Heavy laminated rust on top and bottom flanges with up to 1-13/16" remaining at bottom flange (original 2-1/4") and web with up to 8"H x up to 3/16" section loss. Due to water leakage from above x full length.

Floor Beam 19 - Cross Section (Looking South)

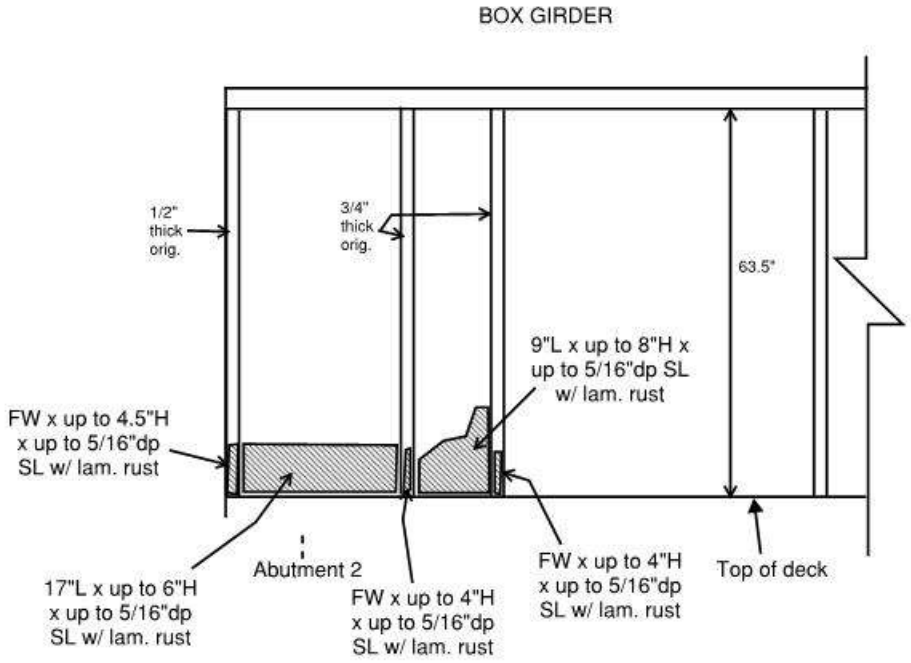
REVISION 1	DATE: 5/29/19	CREW: EJC, SB (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: CC, SB (AI)	DATE: 12/12/2018	BRIDGE NO.: 00032



WEST ELEVATION - WEST WEB - ABOVE DECK

GIRDER G2, SPAN 7, PIER 7

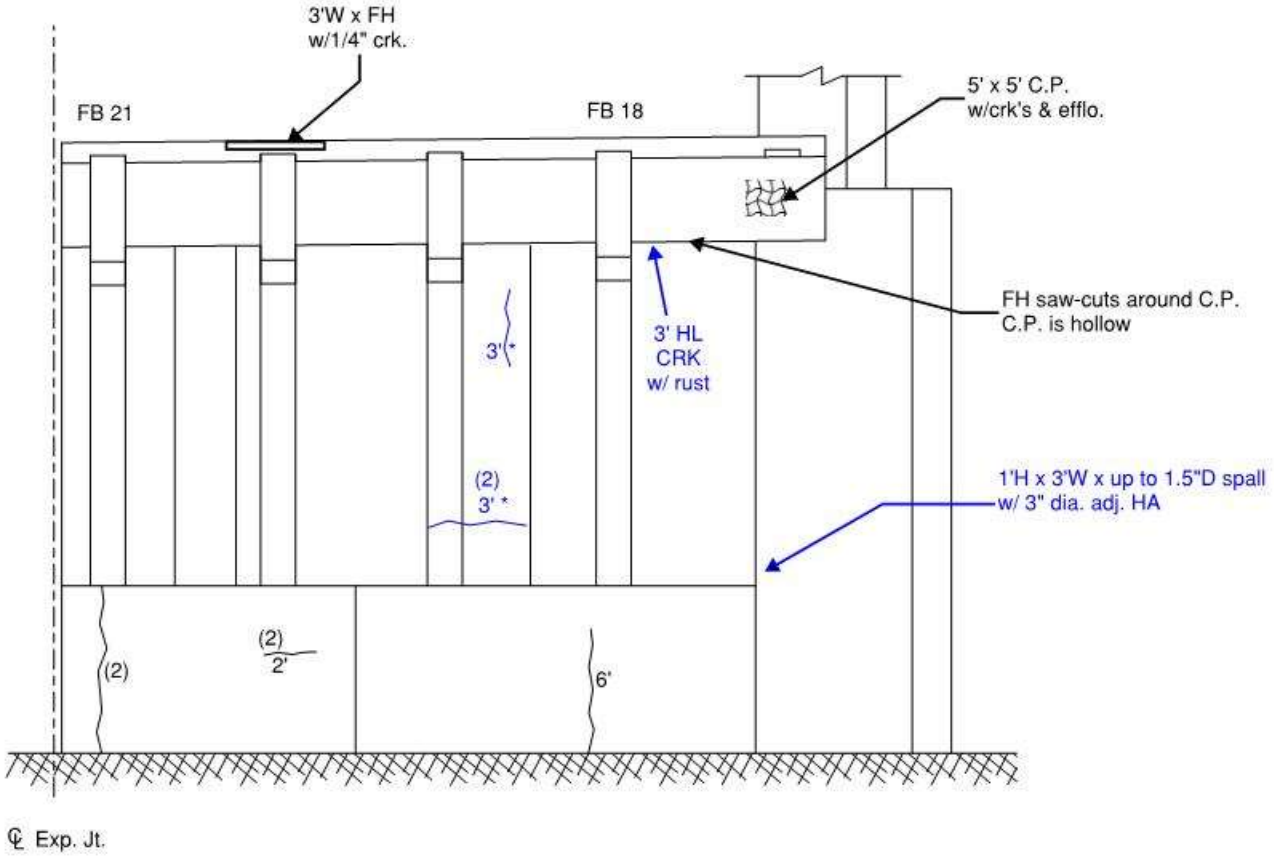
REVISION 1	DATE:	CREW:	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.:00032



General Notes:
- Pier caps and columns have concrete and shotcrete patches throughout.
- Moderate debris on the pier caps.
- Heavy graffiti throughout crash wall.
- Evid. of past leakage throughout pier cap.

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

Pier 6 - North Elevation (West Quarter)

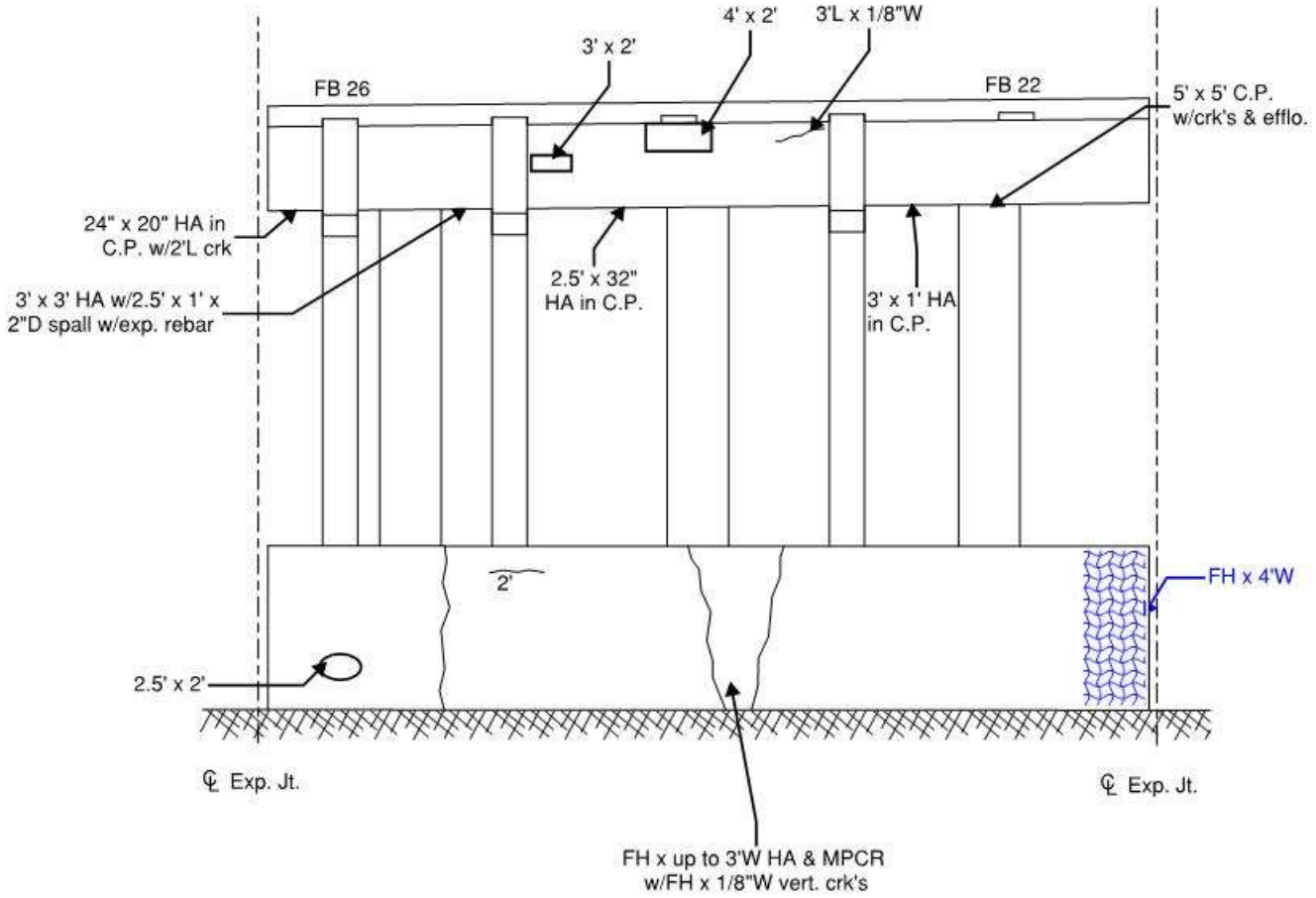
REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.:00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes

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

Pier 6 - North Elevation (West Center Quarter)

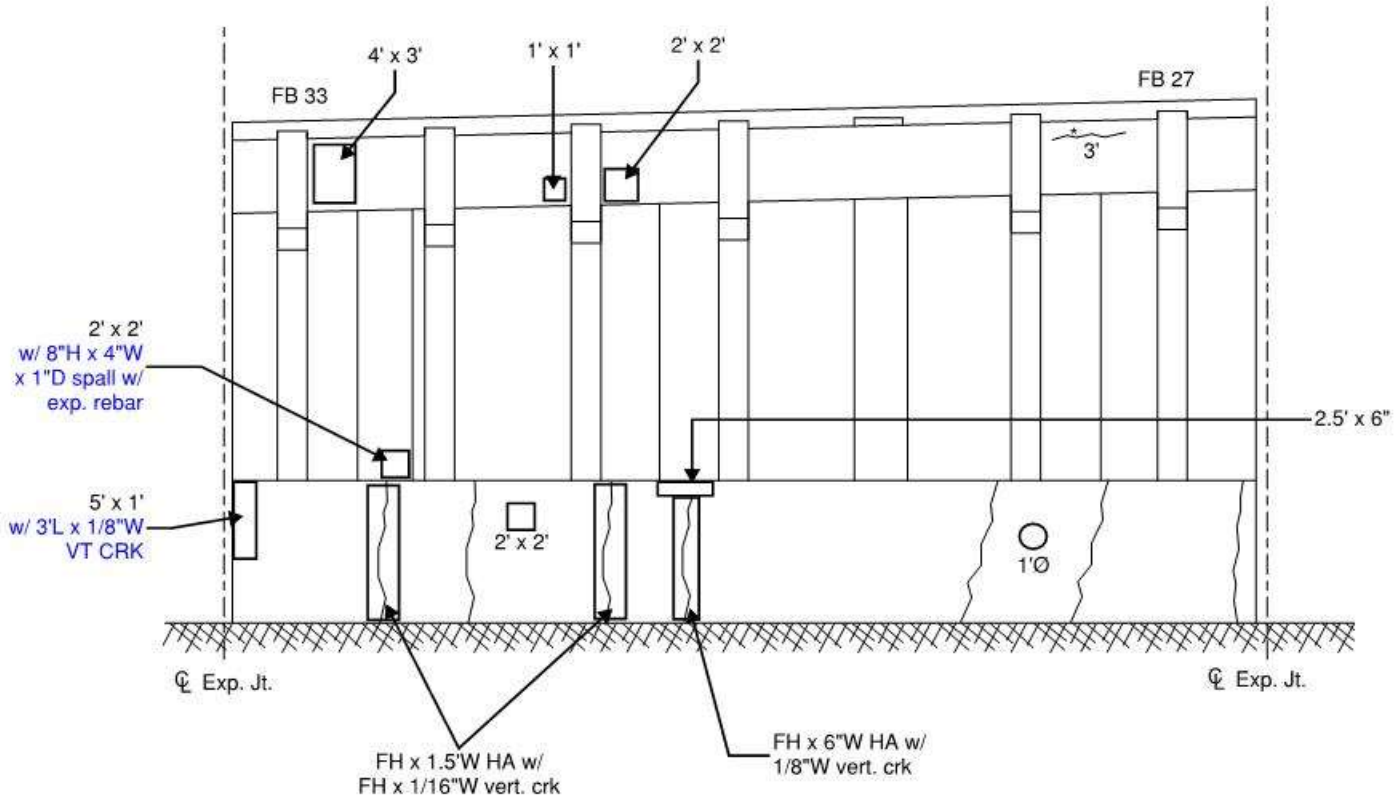
REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.: 00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes

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

Pier 6 - North Elevation (East Center Quarter)

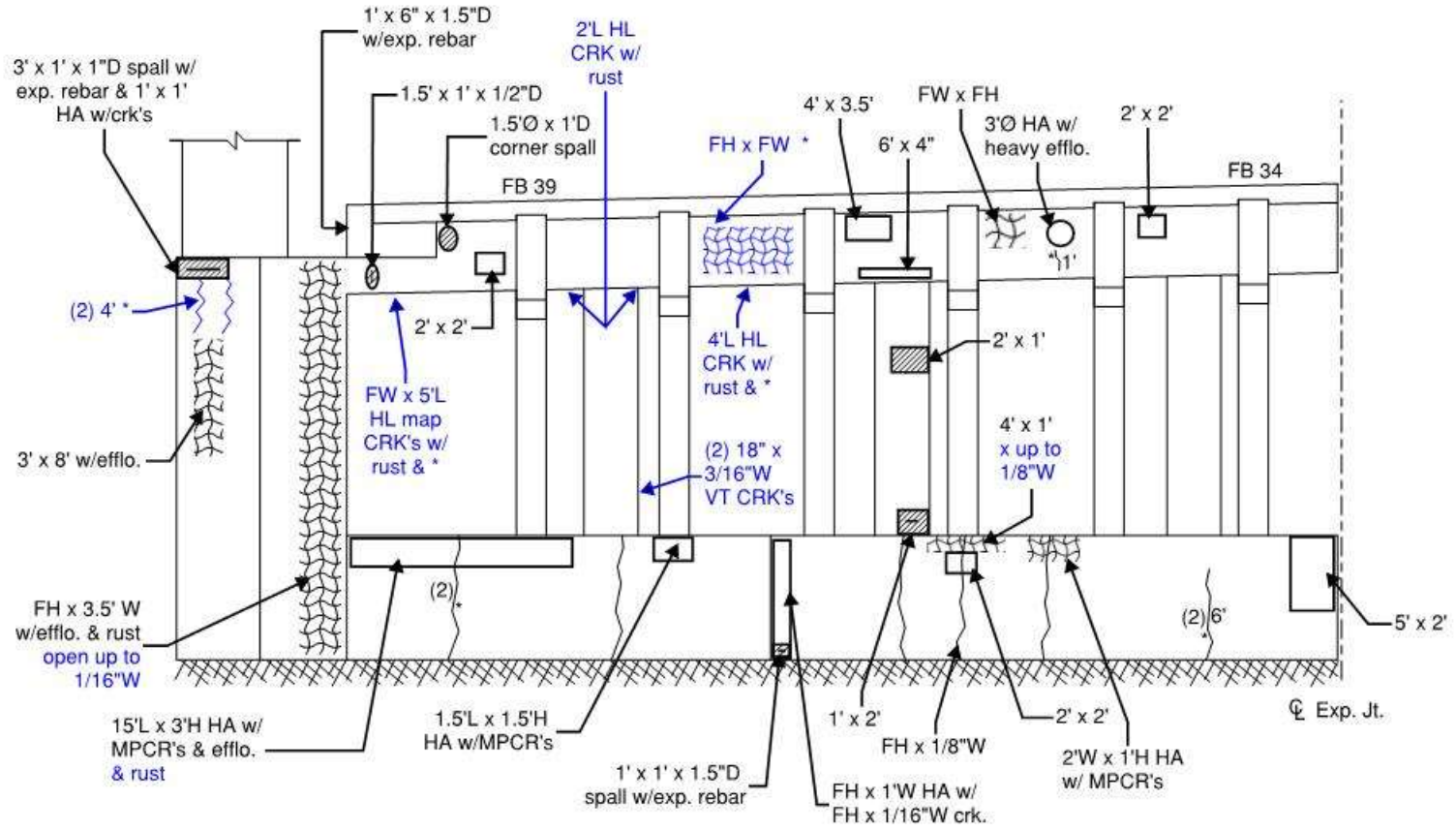
REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.:00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes
- There are hollow concrete patches on top of pier base up to 7'W x 3'L

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

Pier 6 - North Elevation (East Quarter)

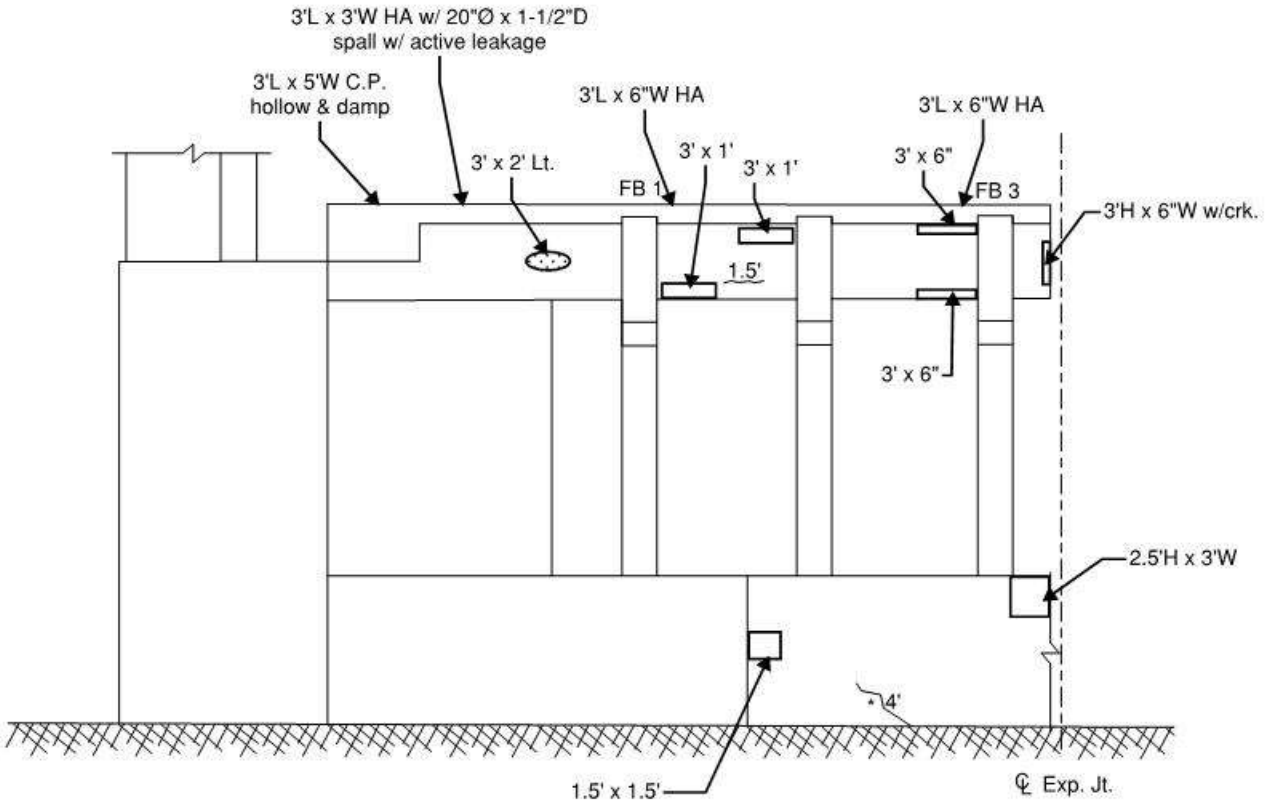
REVISION 1	DATE: 11/5/18	CREW: HE, HA (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.:00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes.
- There are hollow concrete patches on top of pier base up to 3' x 5' and hollow areas up to 3' x 3' w/20"Ø x 1.5"D & evid. of past leakage.

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

Pier 7 - South Elevation (West Quarter)

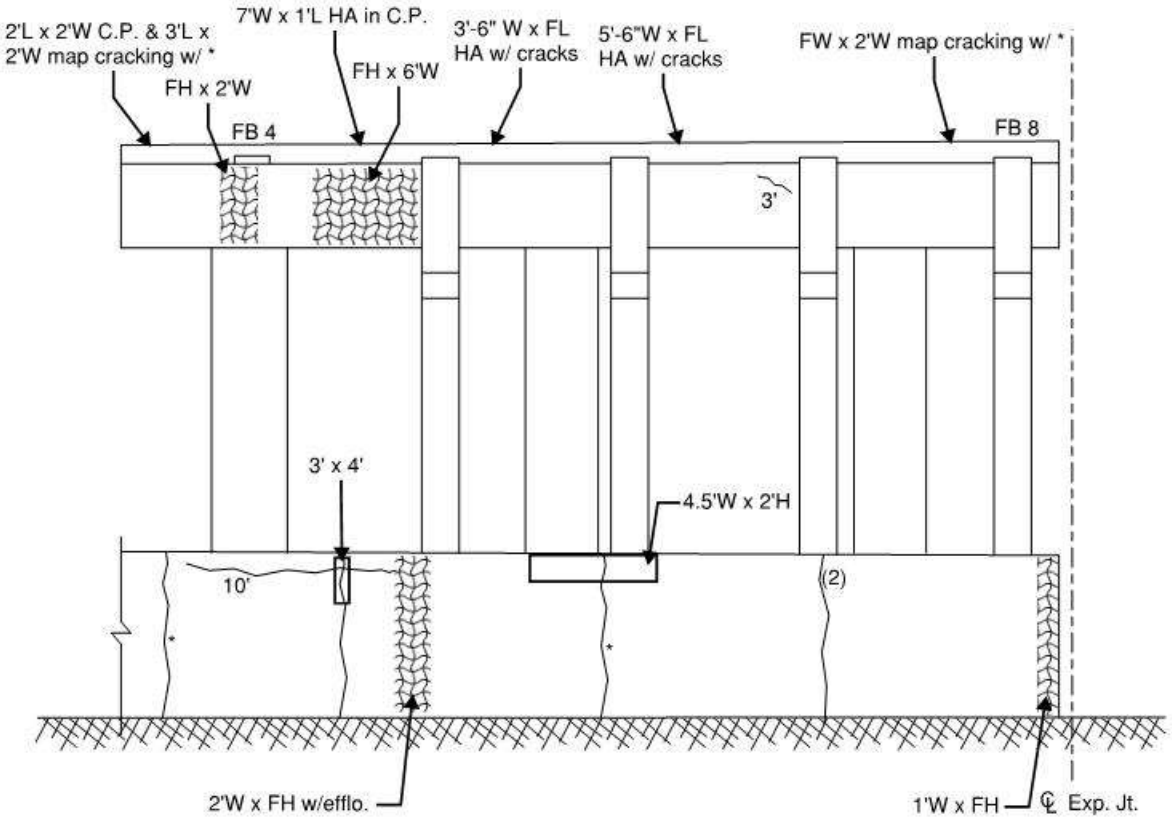
REVISION 1	DATE: 5/29/19	CREW: EJC, SB (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.: 00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes.
- There are hollow concrete patches on top of pier base up to 7'W x 1'L, hollow areas up to 3.5'W x FL w/cracks & areas of map cracks up to FH x 2'W w/efflo.
- Evid. of past leakage at random locations.

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

Pier 7 - South Elevation (West Center Quarter)

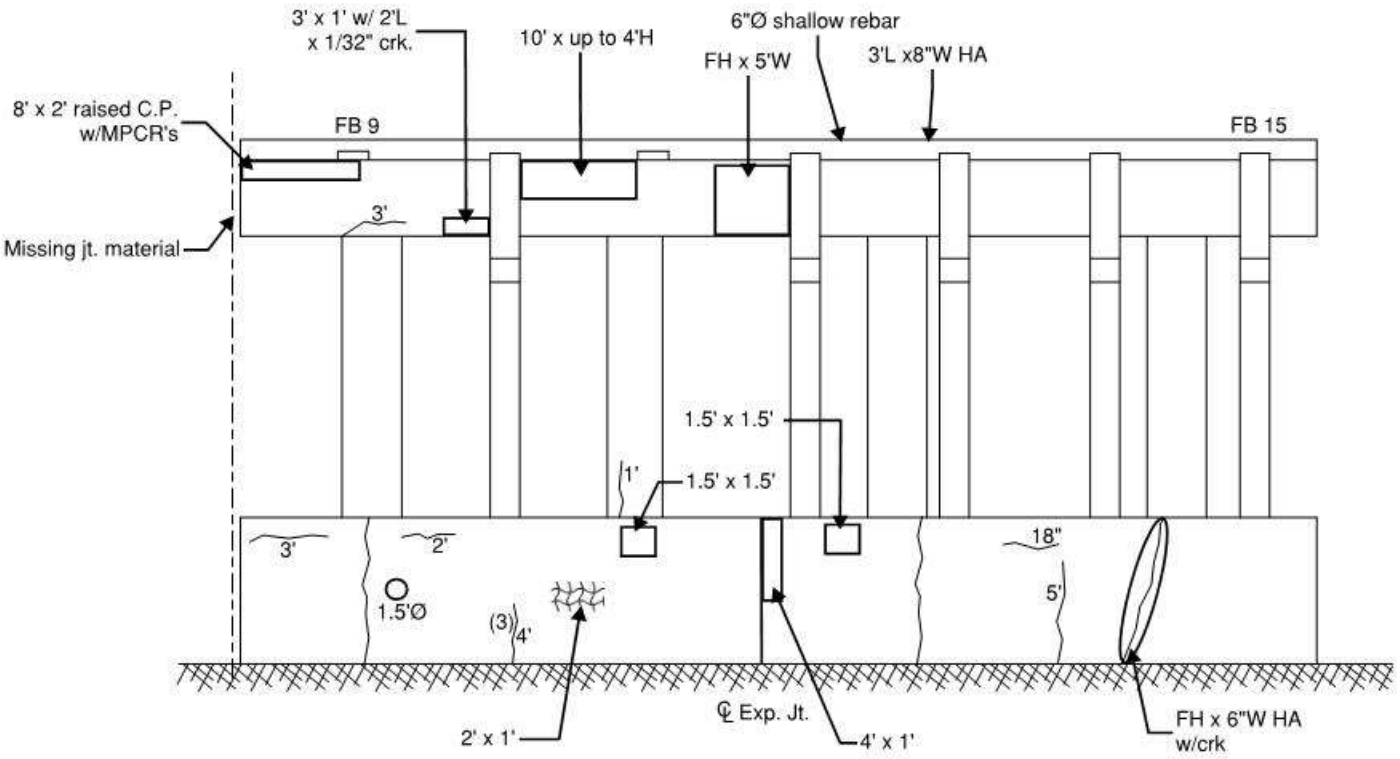
REVISION 1	DATE: 5/29/19	CREW: EJC, SB (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.:00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes
- There are hollow areas and shallow rebars on top of pier base

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

Pier 7 - South Elevation (East Center Quarter)

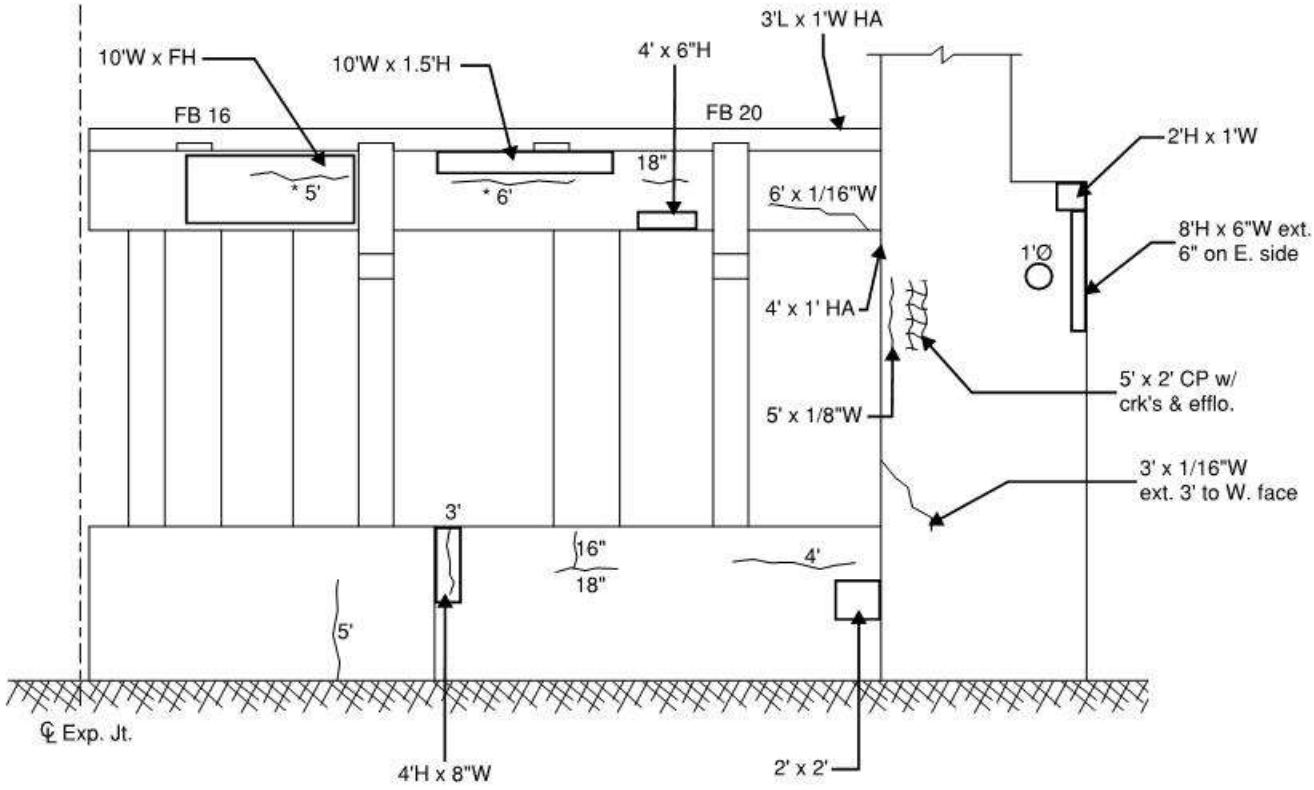
REVISION 1	DATE: 5/29/19	CREW: EJC, SB (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Sketches
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

CREW: AMP, JSM (TSC)	DATE: 7/18/17	BRIDGE NO.: 00032



General Notes:
- See Pier 6 - North Elevation (W. Quarter) General Notes

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

Pier 7 - South Elevation (East Quarter)

REVISION 1	DATE: 5/29/19	CREW: EJC, SB (AI Engineers)	REVISION 3	DATE:	CREW:
REVISION 2	DATE:	CREW:	REVISION 4	DATE:	CREW:

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Photo Number: 1 Photo Taken: 11/05/2018

East elevation of bridge.

Photo Number: 2 Photo Taken: 11/05/2018

Underside of reinforced concrete deck and steel framing in span 7.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

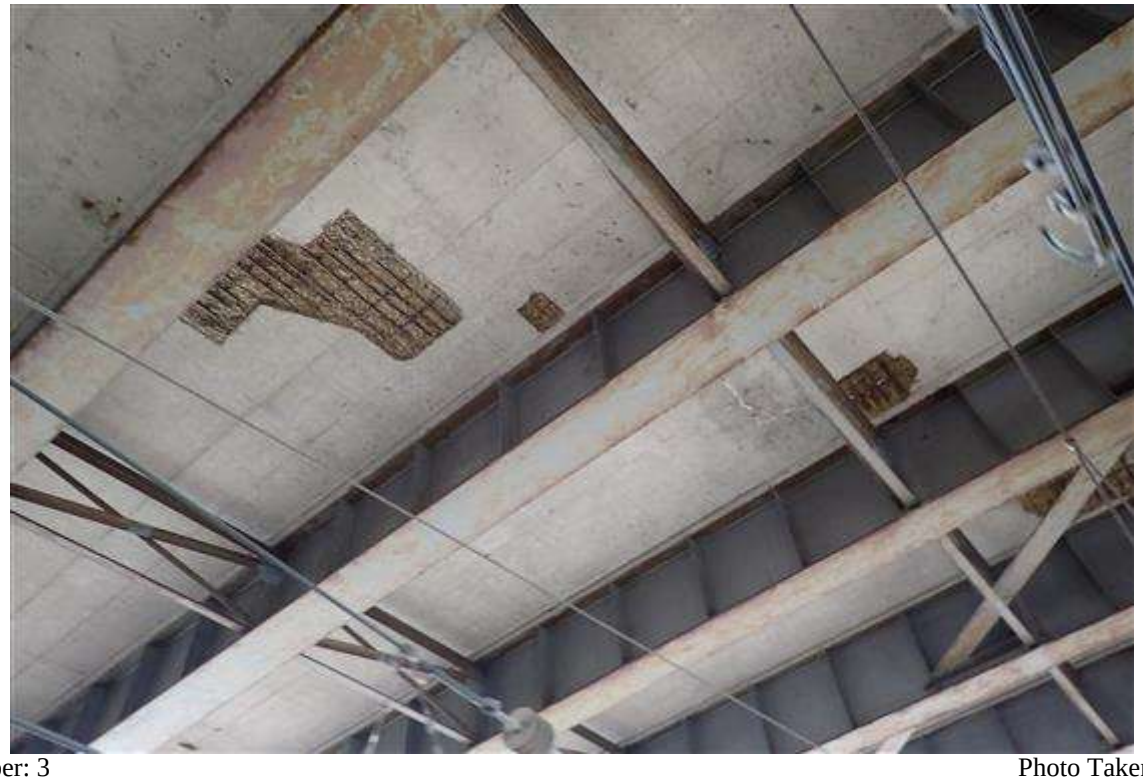


Photo Number: 3 Photo Taken: 11/05/2018

Span 7, bays 10-12 near pier 7, underside of deck exhibits spalls with exposed rebar with section loss to the rebar.

Photo Number: 4 Photo Taken: 11/05/2018

Span 7, bay 10 near pier 7, underside of deck exhibits spall with exposed rebar with section loss to the rebar.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Photo Number: 5 Photo Taken: 11/05/2018

Span 7, bay 20 at pier 7, floorbeam FB 20 haunch exhibits spall.

Photo Number: 6 Photo Taken: 11/05/2018

Span 7, floorbeam 36 elastomeric bearing at pier 6. There is a gap under the pad and the bearing is pumping under live load.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Photo Number: 7 Photo Taken: 11/05/2018

Span 7, girder G1 expansion rocker bearing at pier 7 with heavy rust.

Photo Number: 8 Photo Taken: 11/05/2018

Girder G1 web exhibits laminated rust with section loss at floorbeam FB10.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

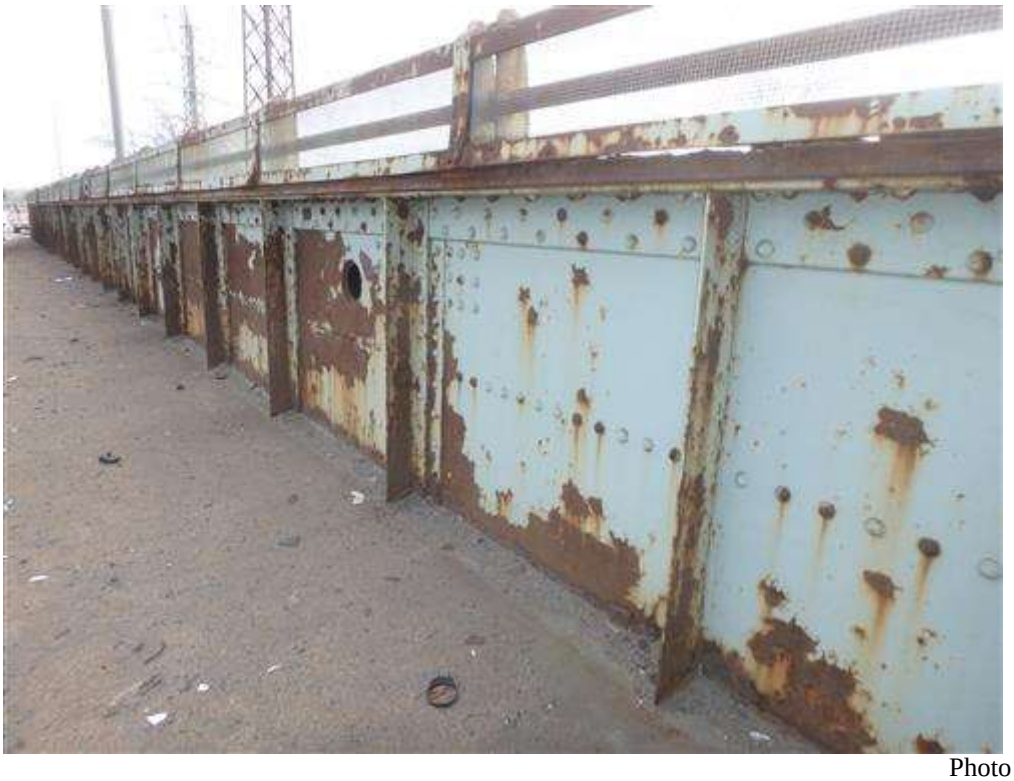


Photo Number: 9 Photo Taken: 11/05/2018

Girder G2 outside face above deck exhibits rust with section loss at web and stiffeners.

Photo Number: 10 Photo Taken: 11/05/2018

Girder G2, west elevation at abutment 2, exhibits rust and section loss at web and stiffeners.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Photo Number: 11 Photo Taken: 11/05/2018

Girder G2 box girder interior at abutment 1 exhibits ponding water and section loss.

Photo Number: 12 Photo Taken: 11/05/2018

Span 7, east side of girder G1, near pier 6 with areas of heavy rust and section loss in the shelf angle below the deck.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Photo Number: 13 Photo Taken: 11/05/2018

Span 7, floorbeam 19, north elevation, near midspan with heavy laminated rust and section loss to web and bottom flange. Note the spall with exposed rebar in the underside of deck.

Photo Number: 14 Photo Taken: 11/05/2018

Span 7, floorbeam 19, north elevation, near midspan with heavy laminated rust and section loss to bottom flange. Note the spall with exposed rebar in the underside of deck.

Photo Number: 15 Photo Taken: 11/05/2018

Span 7, bay 26 at pier 6, end diaphragm with laminated rust and efflorescence.

Photo Number: 16 Photo Taken: 11/05/2018

Pier 6, north elevation.

Form: Asset Photos
Inspection type: Special
Inspection Date: 11/05/2018
Inspected by: AI Engineers

:Bridge No 00032

Town: STAMFORD
Carried: I-95 & I-95 RAMPS
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Photo Number: 17 Photo Taken: 11/05/2018

Pier 6 cap under bay 25 exhibits spall with exposed rebar.

Form: Maintenance **Town:** STAMFORD

Carried: I-95 & I-95 RAMPS **:Bridge No 00032**

Crossed: MNRR & LOCAL ROADS **Inventory Route:** NHS

Status: Bridge Maintenance Garage **Assigned To:** District_3 Bridge **Work Item ID:** 00032-2018-0012

Date Issued: 01/04/2019 **Priority:** Priority Repair

Deficiency: Hollow Concrete

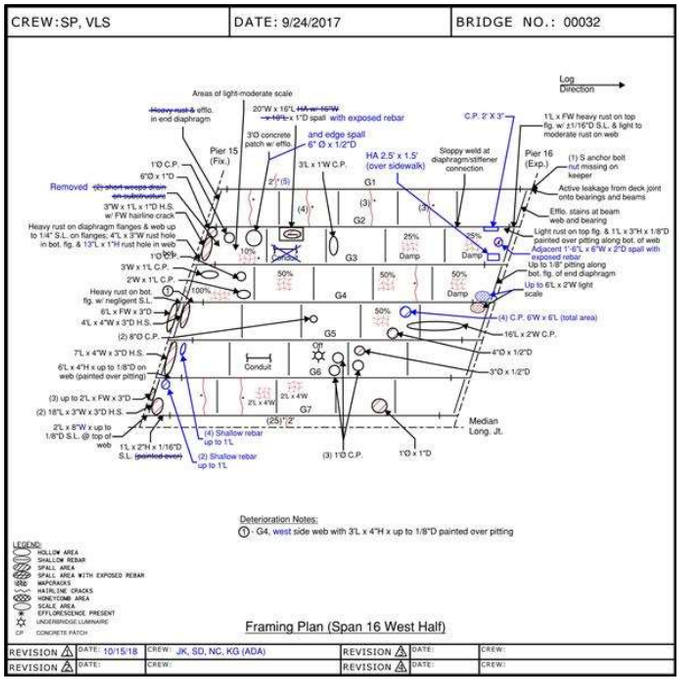
Structural Component: Deck

Comments: There are areas of hollow concrete to the deck in the following locations over the roadway and sidewalk.

-Span 3 in bay 13 at pier 2 with 1.5' long x 4" wide.
-(3) Span 4, bays 9 and 10, panels 1 and 2 over South State Street up to 1' diameter.
-Span 12, bay 11 panel 3 over the road has 2' long x 8" wide.
-(1) Span 16, bay 2, panel 5 over the north sidewalk of Myrtle Ave 2.5' x 1.5'.

The hollow areas are not loose and were secure at the time of inspection.

Date Completed: **Actual Quantity:**



Form: Maintenance

Town: STAMFORD

Carried: I-95 & I-95 RAMPS

:Bridge No 00032

Crossed: MNRR & LOCAL ROADS

Inventory Route: NHS

Status: Bridge Maintenance Garage

Assigned To: District_3 Bridge

Work Item ID: 00032-2018-0011

Date Issued: 11/27/2018

Priority: Routine Repair

Deficiency: Debris

Structural Component: N/A

Comments: There is a man-made homeless shelter in bay 1 in span 1A at abutment 1A. An email was sent on 10/22/2018 to notify ConnDOT of this condition.

Date Completed:

Actual Quantity:

West end of abutment 1A. The abutment could not be inspected due to the presence of homeless people.

Form: Maintenance **Town:** STAMFORD

Carried: I-95 & I-95 RAMPS **:Bridge No 00032**

Crossed: MNRR & LOCAL ROADS **Inventory Route:** NHS

Status: Open **Assigned To:** ATB ATB **Work Item ID:** 00032-2018-0009

Date Issued: 11/27/2018 **Priority:** Routine Repair

Deficiency: Deck Joint

Structural Component: N/A

Comments: The median longitudinal joint seal is separated in random locations of the bridge and leaks onto the superstructure and substructure.

Date Completed: **Actual Quantity:**

Short weeps in span 15, bay 7. Note the leakage from the median joint onto the superstructure and substructure.

Form: Maintenance
Town: STAMFORD
Carried: I-95 & I-95 RAMPS
:Bridge No 00032
Crossed: MNRR & LOCAL ROADS
Inventory Route: NHS

Status: Open
Assigned To: ATB ATB
Work Item ID: 00032-2018-0008
Date Issued: 11/27/2018
Priority: Routine Repair
Deficiency: Other
Structural Component: N/A
Comments: The access doors at the top of both through girders in span 7 are broken.

Date Completed:
Actual Quantity:

Girder 1 at the north end of span 7 with a broken access door.

Form: Maintenance

Town: STAMFORD

Carried: I-95 & I-95 RAMPS

:Bridge No 00032

Crossed: MNRR & LOCAL ROADS

Inventory Route: NHS

Status:	Bridge Maintenance Garage	**Assigned To:**	District_3 Bridge	**Work Item ID:**	00032-2018-0006
Date Issued:	01/01/2019	**Priority:**	Priority Repair		

Deficiency: Bridge Rail

Structural Component: N/A

Comments: There are missing sections of rail in multiple areas on the east parapet in spans 1A-3 and the west parapet in span 1A.

Date Completed:

Actual Quantity:

East parapet in span 1 with missing bottom rails.

Form: Maintenance

Town: STAMFORD

Carried: I-95 & I-95 RAMPS

:Bridge No 00032

Crossed: MNRR & LOCAL ROADS

Inventory Route: NHS

Status: Bridge Maintenance Garage

Assigned To: District_3 Bridge

Work Item ID: 00032-2018-0005

Date Issued: 01/01/2019

Priority: Priority Repair

Deficiency: Bearing

Structural Component: Superstructure

Comments: The expansion bearings for girders 10 and 11 at pier 14 and girder 11 at pier 15 have gaps up to 3/8" under the bearing and pump under live load. Shims have been placed but have become loose and may be preventing the girder from seating properly.

Date Completed:

Actual Quantity:

Girder 11 at pier 15 in span 15 with a gap under the bearing.

Form: Maintenance

Town: STAMFORD

Carried: I-95 & I-95 RAMPS

:Bridge No 00032

Crossed: MNRR & LOCAL ROADS

Inventory Route: NHS

Status: Bridge Maintenance Garage

Assigned To: District_3 Bridge

Work Item ID: 00032-2018-0004

Date Issued: 01/01/2019

Priority: Priority Repair

Deficiency: Bearing

Structural Component: Superstructure

Comments: The bearing for the end diaphragms at the pier 7 and 8 intersection in span 8 has a 9/16" gap under the bearing and the bearing pumps 1/8" under live load.

Date Completed:

Actual Quantity:

Tear in the end diaphragm web in span 8 at the intersection of piers 7 and 8 and there is a gap below the bearing plates.

Form: Maintenance **Town:** STAMFORD

Carried: I-95 & I-95 RAMPS **:Bridge No 00032**

Crossed: MNRR & LOCAL ROADS **Inventory Route:** NHS

Status: Open **Assigned To:** ATB ATB **Work Item ID:** 00032-2018-0003

Date Issued: 11/27/2018 **Priority:** Routine Repair

Deficiency: Deck Joint

Structural Component: N/A

Comments: There is water leakage onto both abutments and all piers from the deck joints. There are random holes in the joint seals up to 1'-6" long and random spalls/depressions in the joint headers.

Date Completed: **Actual Quantity:**

Pier 16 deck joint with missing joint material on the northbound side.

Form: Maintenance

Town: STAMFORD

Carried: I-95 & I-95 RAMPS

:Bridge No 00032

Crossed: MNRR & LOCAL ROADS

Inventory Route: NHS

Status: Bridge Maintenance Garage

Assigned To: District_3 Bridge

Work Item ID: 00032-2018-0002

Date Issued: 01/01/2019

Priority: Routine Repair

Deficiency: Drainage System

Structural Component: N/A

Comments: The scupper is partially or fully clogged in the northbound roadway, right shoulder in span 2; the northbound roadway left shoulder in spans 10 and 12 and southbound roadway left shoulder in spans 4, 10, 12 and 16.

Date Completed:

Actual Quantity:

Clogged drain at pier 1 in span 2 along the east parapet and spall in concrete header.

Form: Maintenance

Town: STAMFORD

Carried: I-95 & I-95 RAMPS

:Bridge No 00032

Crossed: MNRR & LOCAL ROADS

Inventory Route: NHS

Status:	Bridge Maintenance Garage	**Assigned To:**	District_3 Bridge	**Work Item ID:**	00032-2017-0001
Date Issued:	11/09/2017	**Priority:**	Routine Repair		

Deficiency: Weep Pipe

Structural Component: N/A

Comments: There are short weeps that drain on pier caps at the following locations:
- Span 7 between floorbeams 38 and 39 at pier 6.
- Two in span 16 in bay 2 at pier 15.

Date Completed:

Actual Quantity:

Span 16, bay 2 at pier 15 end diaphragm with areas of heavy rust and perforations in the bottom flange and web. Note the short weeps draining onto the pier cap.