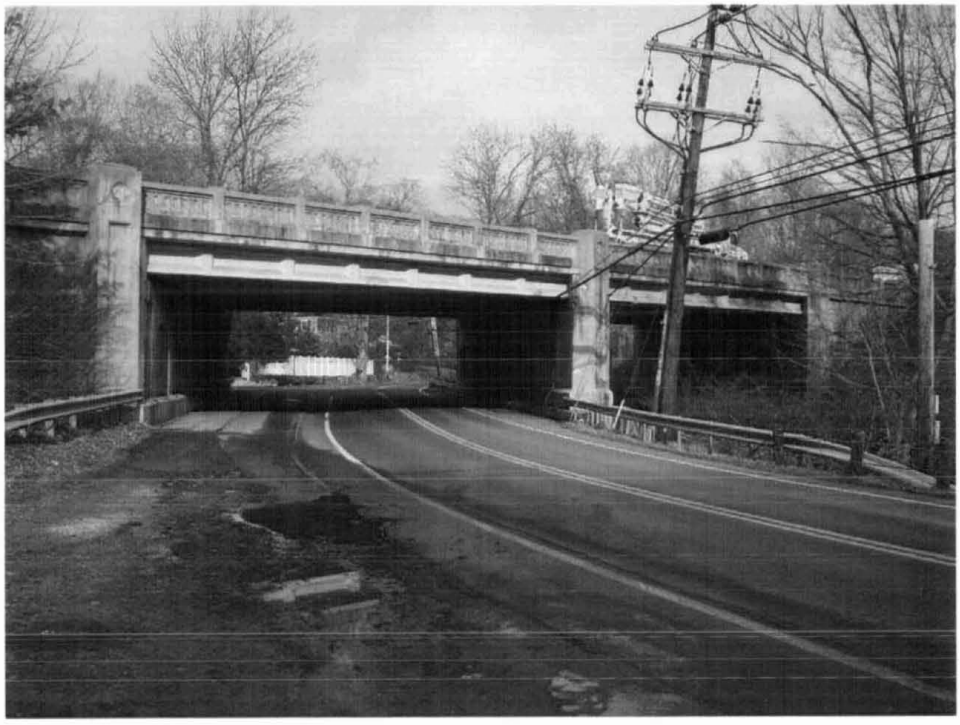
BRIDGE SAFETY INSPECTION
STATE PROJECT NO. 170 - 2729

BRIDGE NO. 05653

ROUTE 15
OVER
RIVERSVILLE ROAD & BYRAM RIVER

GREENWICH, CONNECTICUT



IN-DEPTH INSPECTION

Prepared by

FEB 2 3 2007
BRIDGE SAFETY & EVALUATION

HAKS
Middletown, CT 06457

STATE OF CONNECTICUT
MAHMOOD ALI MOHAMMED
No. 21483
LICENSED
PROFESSIONAL ENGINEER

January 4, 2007

Bridge Number **05653**

Inspected By: [signature] & [signature]
ERIK LAPACSO

Sufficiency Rating 51.56
Previous Inspection Date 12/12/05

BS&E Received ☐ Data Entry By: Bad
Copies Made ☐ Data Entry Date: 3/19/07

STATE OF CONNECTICUT
DEPARTMENT OF TI SPORTATION
BRIDGE SAFETY & EVALUATION

STRUCTURE EVALUATION

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

SHEET_____ OF_____ (INSP. REPORT)

90) Inspection Date	Inspection Team	91) Frequency	Class:
010407	25 25	24	02

Indepth Insp	Deck Survey	Access	Flagman
12/4/96 1/4/07		0	0

CRITICAL FEATURE INSPECTIONS

	Type	Frequency	Team	Date
Fracture:				
Uwater:				
Special:				

RED FLAG ☐

IDENTIFICATION

Bridge Name
Town Name GREENWICH Town Code 33620
5) Inventory Route:
A) Record Type 1 D) Route Number 00015
B) Signing Prefix 3 State Highway E) Directional Suffix 0 NA
C) Level of Service 1 Mainline
6) Feature Intersected RIVERSVILLE RD E BR BYRA
7) Facility Carried ROUTE 15
9) Location 1.8 MI EAST OF EXIT 27
11) Milepoint 1.78 Miles
16) Latitude 41 deg 3 min 54.00 sec deg min sec
17) Longitude 73 deg 40 min 30.00 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 6 Prestressed concret B) Design Type 2 Stringer/Multi-beam
44) Structure Type, Approach:
A) Material 0 Other B) Design Type 0 Other
45) Number of Spans, Main Unit 2
46) Number of Approach Spans 0
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 2 Preformed Fabric
C) Type of Deck Protection 1 Epoxy Coated Reinforcing

AGE AND SERVICE

27) Year Built 1988 106) Year Reconstructed 0000
42) Type of Service:
A) On 1 Highway B) Under 6 HIGHWAY-WATE
28) Number of Lanes:
A) On 4 B) Under 2
29) Average Daily Traffic 49600 Half ADT?: No N
109) Percent Truck 1 % 01
30) Year of ADT 2004 2005
19) Bypass, Detour Length 4 miles

GEOMETRIC DATA

48) Length of Max Span 63 ft
49) Structure Length 132 ft
50) Curb or Sidewalk Widths:
A) Left 0.0 ft B) Right 0.0 ft
51) Brg Rdwy width,curb-curb 71.9 ft
52) Deck Width, Out-Out 79.3 ft
32) Approach Roadway Width 72 ft
33) Bridge Median 3 Closed Median w/barrier
Deck Area 10467 sqft
34) Skew Angle 37 deg
35) Structure Flared 0
10)Inv. Rte. Min. Vert Clearance 99 ft 99 in
47) Log Inv. Rte. Total Horiz Clr.: 43.0 ft
47) RLog Inv. Rte. Total Horiz. Clr.: ft
53) Min Vert Clearance Over Bridge 99 ft 99 in
54) Min Vert Under Clearance H Ref 14 ft 7 in Ref
55) Min Lat Under Clearance on Right H Ref 6.7 ft H Ref 6.2 ft
56) Min Lat Under Clearance on Left 0.0 ft

BRIDGE COMMENTS

STRUCTURE EVALUATION

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

Bridge Number	05653	NBIS Length
Town Name	GREENWICH	Yes 132
Facility Carried	ROUTE 15	
Feature Crossed	RIVERSVILLE RD E BR BYRA	

SHEET_____ OF_____ (INSP. REPORT

Inspected By: _____ & _____

CLASSIFICATION

112) NBIS Brid ngth	Yes	
104) Highway System	1	On System
26) Functional Class	12	Urban Principal Arterial - Other
100) Defense Highway	1	Defense Highway
101) Parallel Structure	N	No parallel structure exists
102) Direction of Traffic	2	2-way traffic
103) Temporary Structure		
110) Designated National Network	0	Not on national network
20) Toll	3	On Free Road
21) Maintain	1	State Highway Agency
22) Owner	1	State Highway Agency
Report Class	S	STATE
37) Historical Significance	4	Historical significance not determinable

WATERWAY

DrainageBasinCode	7411	
38) Navigation Control	0	No navigation control on waterway
39) Navigation Vert Clr.	0	40) Navigation Horiz Clr. 0
116) Vert-Lift Brg Nav Min		
111) Pier Abutment Protection		

PROPOSED IMPROVEMENTS

75A) Type of Work Proposed		
75B) Work Done By		
76) Length of Struct. Improvement		ft
94) Bridge Improvement Cost	$	
95) Roadway Improvement Cost	$	
96) Total Project Cost	$	
97) Year of Improvement Cost Est.		
114) Future ADT		115) Year Future ADT
List No. 20	Project No.	Advertised

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-TrailerTruck	tons		Actual P.L. 3S2 Truck	tons	
Rec. P.L. Semi-TrailerTruck	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 UnderClearance	ft	in		ft	in
Posted Speed Limit	55 mph				mph
Utility					
Utility	3	Electric			
Utility	4	Telephone			

LOAD RATING AND POSTING

31) Design Load	5	Evaluation Code	L	
63) Operating Rating Type	1	Year of Evaluation	2000	
64) Operating Rating	66.0	70) Bridge Posting	5	
65) Inventory Rating Type	1	41) Structure Status	R	R
66) Inventory Rating	33.0	Posted for other load-capacity restriction		

CONDITION

		Rating	By
58) Deck	7	7	EL
59) Superstructure	6	6	EL
60) Substructure	4	4	EL
61) Channel & Chan. Protection	8	7	EL
62) Culverts	N	N	EL

APPRAISALS

		Rating	By
67) Structure Evaluation 4 pad	5	5	MAM
68) Deck Geometry	2	7	EL
69) Under Clear Vert & Horiz	4	3	EL
71) Waterway Adequacy	9	8	EL
72) Approach Rdwy Alignment	8	8	EL
113) Scour Critical	8		

Items 58 Thru 72 Checked By: J Dumas

36) Traffic Safety Features:

A) Bridge Railings	1	1
B) Transitions	1	0
C) Approach Guardrail	1	1
D) Approach Guardrail End	1	1

OTHER FEATURES

Fence Required	No		Barrel Ladder	No
Fence Present	No	N	Stand Pipes	No
Fence Height	0.0 ft	ft	Cat Walks	No
Fence Type	Solid Panel		Movable Inspection System	No
Fence Material	Aluminum		Loose Concrete Checked?	No Y
Fence Top Type	Vertical			

INSPECTION COMMENTS

Proposed Next Indepth Insp Year	2007
Senior	jantzenrd
Supervisor	kozlowskijc

2017

REVIEWED BY _____ Date 2/23/07

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 05653 | Agency ID: 05653 | Sufficiency Rating: 81.3

IDENTIFICATION

State 1: 09 Connecticut | Struc Num 8: 05653
Facility Carried 7: ROUTE 15 | Location 9: 1.8 MI EAST OF EXIT 27
Rte.(On/Under)5A: Route On Structure | Rte. Signing Prefix 5B: 3 State Hwy
Level of Service 5C: 1 Mainline | Rte. Number 5D: 00015
Directional Suffix 5E: 0 N/A (NBI) | % Responsibility : 0
SHD District 2: 03 | County Code 3: Fairfield
Place Code 4: GREENWICH | Mile Post 11: 1.780 mi
Feature Intersected 6: RIVERSVILLE RD BYRAM RV
Latitude 16: 41d 03' 36" | Longitude 17: 073d 40' 30"
Border Bridge Code 98: Unknown (P)
Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months | Inspection Date 90: 1/4/2007 | Next Inspection: 01/04/2009
FC Frequency 92A: NA | FC Inspection Date 93A: NA | Next FC Inspection: NA
UW Frequency 92B: NA | UW Inspection Date 93B: NA | Next UW Inspection: NA
SI Frequency 92C: NA | SI Date 93C: NA | Next SI: NA
Element Frequency: 24 months | Element Inspection Date: 01/04/2007 | Next Elem. Insp. Due: 01/04/2009

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: 12 Urban Fwy/Expwy
Historical Significance 37: 4 Hist sign not determin
Owner 22: 1 State Highway Agency
Custodian 21: 1 State Highway Agency

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 | Number of Spans Main Unit 45: 2
Main Span Material/Design 43A/B:
6 P/S Conc Continuous | 02 Stringer/Girder
Deck Type 107: 1 Concrete-Cast-in-Place
Wearing Surface 108A: 6 Bituminous
Membrane 108B: 2 Preformed Fabric
Deck Protection 108C: 1 Epoxy Coated Reinforci

CONDITION

Deck 58: 7 Good | Super 59: 6 Satisfactory | Sub 60: 4 Poor
Culvert 62: N N/A (NBI) | Channel/Channel Protection 61: 7 Minor Damage

LOAD RATING AND POSTING

Inventory Rating Method 65: 1 LF Load Factor | Operating Rating Method 63: 1 LF Load Factor
Inventory Rating 66: HS18.2 | Operating Rating 64: HS36.4
Design Load 31: 5 MS 18 (HS 20) | Posting 70: 5 At/Above Legal Loads
Posting status 41: R Posted for Non-Load

AGE AND SERVICE

Year Built 27: 1988 | Year Reconstructed 106: Unknown
Type of Service on 42A: 1 Highway
Type of Service under 42B: 6 Highway-waterway
Lanes on 28A: 4 | Lanes Under 28B: 2 | Detour Length 19: 3.7 mi
ADT 29: 49,700 | Truck ADT 109: 1 % | Year of ADT 30: 2005

APPRAISAL

Bridge Rail 36A: 1 Meets Standards | Approach Rail 36C: 1 Meets Standards
Transition 36B: 0 Substandard | Approach Rail Ends 36D: 1 Meets Standards
Str. Evaluation 67: 7 | Deck Geometry 68: 7 Above Min Criteria
Underclearance, Vertical and Horizontal 69: 3 Intolerable - Correct
Waterway Adequacy 71: 8 Equal Desirable | Approach Alignment 72: 8 Equal Desirable Crit
Scour Critical 113: 8 Stable Above Footing

GEOMETRIC DATA

Length Max Span 48: 63.0 ft | Structure Length 49: 131.9 ft
Curb/Sdwlk Wdth L 50A: 0.0 ft | Curb/Sidewalk Width R 50B: 0.0 ft
Width Curb to Curb 51: 71.9 ft | Width Out to Out 52: 79.4 ft
Approach Roadway Width 32: (w/ shoulders) 71.9 ft | Median 33: 3 Closed Med w/Barriers
Deck Area: 10,467. sq. ft
Skew 34: 37.00 ° | Structure Flared 35: 0 No flare
Minimum Vertical Clearance Over Bridge 53: 328.1 ft
Minimum Vertical Underclearance Reference 54A: H Hwy beneath struct
Minimum Vertical Underclearance 54B: 14.6 ft
Minimum Lateral Underclearance Reference R 55A: H Hwy beneath struct
Minimum Lateral Undrclearance R 55: 6.2 ft
Minimum Lateral Undrclearance L 56: 0.0 ft

PROPOSED IMPROVEMENTS

Bridge Cost 94: $ 1,000 | Type of Work 75: 38 Other Structural
Roadway Cost 95: $ 1,000 | Length of Improvment 76: 0.3 ft
Total Cost 96: $ 2,000 | Future ADT 114: 22,750
Year of Cost Estimate 97: 2000 | Year of Future ADT 115: 2019

NAVIGATION DATA

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

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
0	19/3	Concrete Deck - Prot	(SF)	10,463	100 %	10,463	0 %	0	0 %	0	0 %	0	0 %	0
0	109/3	P/S Conc Open Girder	(LF)	1,919	99 %	1,904	1 %	15	0 %	0	0 %	0	0 %	0
0	205/3	R/Conc Column	(EA)	6	0 %	0	100 %	6	0 %	0	0 %	0	0 %	0
0	210/3	R/Conc Pier Wall	(LF)	102	0 %	0	100 %	102	0 %	0	0 %	0	0 %	0
0	215/3	R/Conc Abutment	(LF)	207	0 %	0	83 %	171	17 %	36	0 %	0	0 %	0
0	234/3	R/Conc Cap	(LF)	102	0 %	0	100 %	102	0 %	0	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

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	305/3	Asphaltic Plug Joint	(LF)	180	33 %	60	19 %	34	48 %	86	0 %	0	0 %	0
0	310/3	Elastomeric Bearing	(EA)	60	98 %	59	2 %	1	0 %	0	0 %	0	0 %	0
0	331/3	Conc Bridge Railing	(LF)	397	90 %	358	10 %	39	0 %	0	0 %	0	0 %	0
0	359/3	Soffit Smart Flag	(EA)	1	0 %	0	0 %	0	100 %	1	0 %	0	0 %	0

BRIDGE SAFETY & EVALUATION

LIST 20 - BRIDGE 05653

Bridge No:	05653	***Town:***	GREENWICH	***Area:***	4	***Deck:***	7
Feature Carried:		ROUTE 15		***NBI?***	Yes	***Superstructure:***	6
Features Intersected:		RIVERSVILLE RD E BR BY		***Sufficiency Rating***	52.6	***Substructure:***	4
Year Built:	1988	***YearRebuilt:***	0000	***Main Material & Design:***	62	***Culverts:***	N
List #:	20					***Structural Evaluation:***	4
Submitted By:	JCK			***Project #:***		***Scour Rating:***	8
Date Submitted:	3/2/2006			***Advertising Date***			
Reviewed By:	JCK						
Date Submitted to Design:	10/3/2006						

Problems and General Condition:

The concrete substructure, which was repaired only during the 1988 rehabilitation, is severely scaled, mapcracked and shows indications of internal deterioration of the 1940's era concrete.

Other Related Projects:

Deck replaced in early 1970's - Project No 56-104. Superstructure replaced in 1988 - Project No 56-210 with only minimal patching of the substructure.

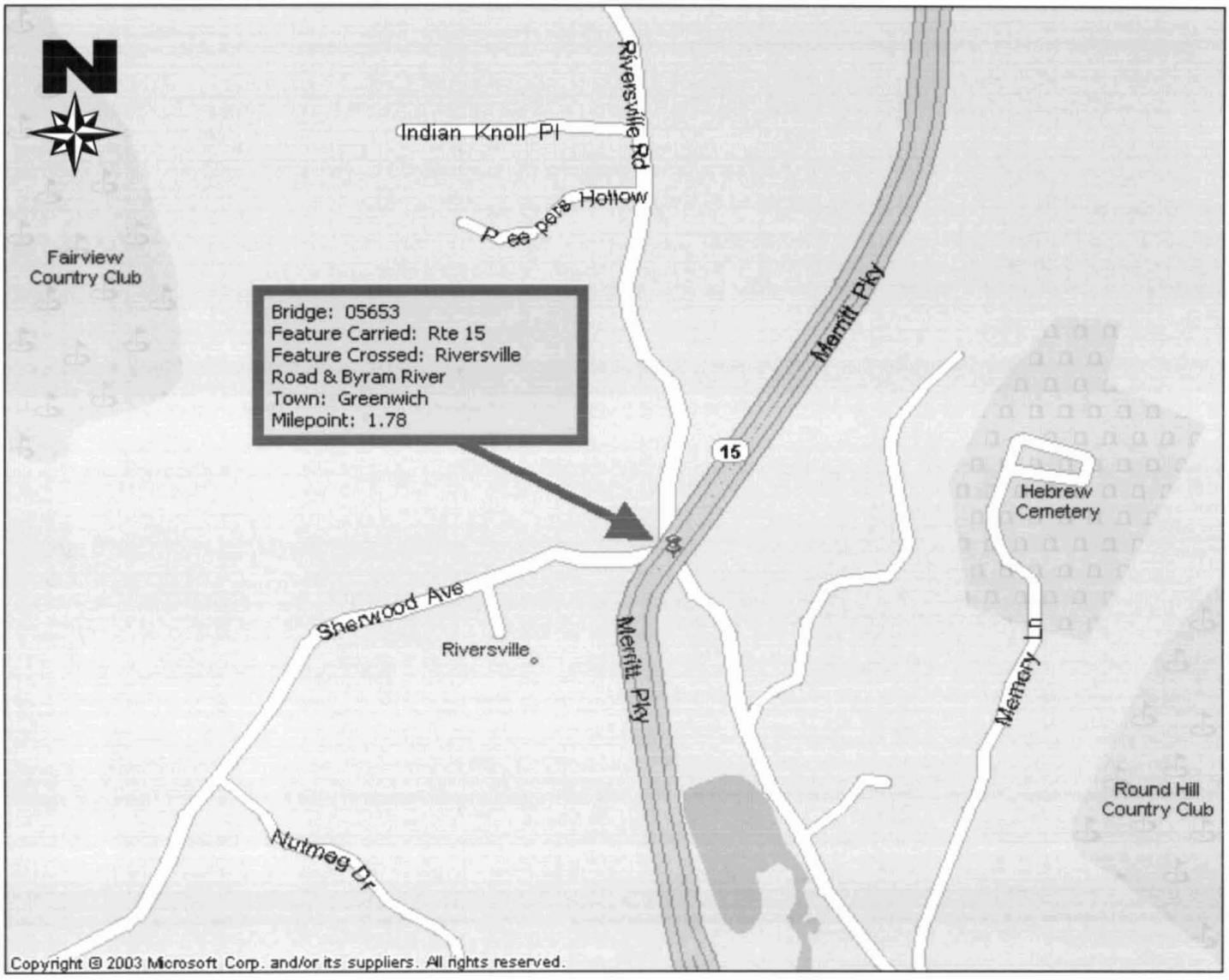
Recommendations:

Substructure Repair	The 1940's era concrete requires extensive rehabilitation.

HAKS

BRIDGE SAFETY INSPECTION
STATE PROJECT NO. 170-2729

LOCATION MAP



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

INSPECTION REPORT TRANSMITTAL FORM
FORM BRI-27, REV. 9/ 97

STRUCTURE NO. 05653 TOWN Greenwich

Inspectors EJL, PH, MJW Date 1/4/2007

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Flagging Memos	
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BRI - 12, Fracture Critical Inspection Data Sheet	
BRI - 19, HWY Bridge SI&A Form	2
BRI - 25, Under Entry SI&A Form	
PONTIS Element Data Collection Form	2
Plan Sheets 1988 Check here if already on file ☑	

Bound Report Pages	Sheet Numbers
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RECEIVED
FEB 23 2007
CONNECTICUT DOT
BRIDGE SAFETY & EVALUATION

PROJECT 170-2729 **BRIDGE #05653**

EXECUTIVE SUMMARY

Bridge No. 05653 was built in 1988. It carries Route 15 over Riversville Road and Byram River in Greenwich. The bridge is a two-span, simply supported, prestressed concrete I-beam, composite with a reinforced concrete deck supported by reinforced concrete abutments and pier. The curb-to-curb roadway width is 71.9 feet and the overall length of the bridge is 132 feet. As per information in the Connecticut Department of Transportation files, the Inventory Rating for an AASHTO HS20 loading is 33.0 Tons. During this in-depth inspection performed in January 2007, the bridge was found in fair condition.

Deck

The deck is in good condition. The bituminous overlay has random sealed cracks. The southbound overlay has short cracks, up to 1/8 inch wide. The underside of deck has random transverse cracks with and without efflorescence. There are also areas of honeycombing, up to 2 feet by 2 feet. The average underside of deck deterioration is 6.5% with a maximum of 10.8% in span 2. w/most of span 2 deterioration in the southbound side. pwd

The decorative parapets have vertical hairline cracks up to full height with and without efflorescence and a few minor scrapes and chips. There are under bridge luminaires in span 1 that are attached to the west abutment stem and the west face of the pier. The luminaires were not working at the time of inspection. There are asphaltic plug joints at the abutments with exposed aggregate and numerous adhesion cracks.

The following items have shown increased deterioration, have changed since last inspection, or are deficiencies not previously noted:

- The northbound overlay has minor heaved areas along the right shoulder, up to 1-½ inches high with cracks, up to ¼ inch wide.
- The underside of the deck has a few new hollow areas and transverse hairline cracks with efflorescence. Span 1 bay 2-5 deck ends at the west abutment have map cracking with rust stains and efflorescence. Also bay 5 deck end has a 3 foot long by 3 inch wide by 3-1/2 inch deep spall with exposed rebar.
- Two of three lights at the west abutment have broken lens covers and the third light is broken/destroyed with hanging wires and bulb.
- The sensor for the luminaires is mounted to the south face of the pier and the top cover is damaged, exposing the internal electrical components.
- The adhesion cracks in the abutment deck joints have increased in size.
- There is a pothole in the east abutment joint, southbound side, between the lanes that is 3 feet-6 inches long by 1 foot-8 inches wide by 2 inches deep. ConnDOT was notified on 1/4/07.
- There are potholes in the west abutment deck joint, southbound side, along the right lane, up to 16 inches long by 3 inches wide by 1-½ inches deep and an 8 inch diameter by 1 inch deep pothole in the left shoulder.
- There are numerous areas of active leakage from the deck joints along the full length of both abutments. At the west abutment, there was heavy active leakage noted between Girders G5 and G6 at the time of inspection.

Superstructure

The superstructure is in satisfactory condition. Span 1, Girder G14 bottom flange near midspan has a small spall on the south side due to collision damage. Over the piers there are cast in place concrete blocks between the girder ends with vertical cracks up to 2 feet long by 3/16 inch wide.

The following items have shown increased deterioration, have changed since last inspection, or are deficiencies not previously noted:

- Girder G2, G4, G5 and G10 bearings at the west abutment have minor areas of non-uniform contact with gaps, up to 1/8 inch wide, between the bottom flange and the top of the elastomeric pad.
- The following girder bottom flanges have vertical or diagonal hairline cracks up to 7 inches long beyond the bearing: Span 1, Girder G14 at the west abutment, south side; Span 2, Girder G5 at the east abutment, north side; and Span 2, Girder G14 at the east abutment, north side.
- Span 2, Girder G2 bottom flange at the east abutment, north side, has an 8 inch high by 4 inch wide by 2 inch deep corner spall with exposed rebar and two exposed strand ends.
- Span 2, Girder G13 bottom flange end at the east abutment, south side, has a 5 inch high x 2 inch wide hollow area with an adjacent 5 inch long vertical hairline crack beyond the bearing.
- Spans 1 and 2, Girder G15 webs over the pier have cracks at the ends beyond the bearings on the north side. Span 1 web end has a 14 inch long by 0.025 inch wide vertical crack. Span 2 web end has two vertical cracks: a 20 inch long by 0.020 inch wide crack and a 6 inch long hairline crack.

Substructure

The substructure is in poor condition. There are concrete repair patches with hairline map cracking and hollow areas throughout both abutments. The east abutment has numerous vertical hairline cracks, some with efflorescence, deteriorated/punky concrete. Pedestals have no notable deficiencies. The wingwalls have isolated hairline cracks with and without efflorescence and areas of light scale. The surface layer of the concrete at the northwest and southwest wingwalls is deteriorated and peeling along the lower half of the faces.

The pier has numerous patched areas with map cracking throughout and isolated vertical hairline cracks with and without efflorescence. Pedestals have isolated vertical hairline cracks. The column base along the roadway has areas of severe scale and the base at the water line has light to moderate scale.

The following item has shown increased deterioration since last inspection:

- The areas of deteriorated/punky concrete at the abutment stems have increased in size. The west abutment stem has widespread areas of map cracking with and without efflorescence and large areas of deteriorated/punky concrete, up to 6 feet by 5 feet by 4 inches deep with exposed wire mesh.

Channel & Channel Protection

The channel is in good condition. There is minor embankment erosion at the upstream side with exposed tree roots.

The following item has changed since last inspection:

- There is a build up of sand and small rocks at the upstream fascia along the pier, approximately 40 feet long by 3 feet wide by 6 inches high.

Approach Condition

The approach is in satisfactory condition. The approach guide rails have minor splitting. The approach pavement has random cracks, mostly sealed. The east approach, southbound side, has a 12 foot long by 1-½ inches wide transverse crack in the right shoulder and right lane.

The following items have shown increased deterioration, have changed since last inspection, or are deficiencies not previously noted:

- The timber rail at the southwest attachment (northbound side) has minor collision damage (5 feet long +/- with cracks and missing a small portion).
- There are two 1 foot diameter by 1 inch deep potholes in the left southbound lane, adjacent to the west abutment deck joint and shoulder line.
- Both northbound approaches, in the shoulders, have heaved areas, up to 1-½ inches high with cracks up to ¼ inch wide.

REPAIR RECOMMENDATIONS

Deck

1. Replace broken luminaire at the west abutment (1 EA).
2. Replace broken luminaire lens covers at the west abutment (2 EA).
3. Replace broken luminaire light sensor at the south end of the pier (1 EA).
4. Seal the cracks in the asphaltic plug joints (86 LF +/-).
5. Patch potholes in the west and east abutment deck joints (0.5 CY +/-).

Superstructure

1. Patch the edge spall at span 1, Girder G14 bottom flange at midspan and the corner spall at span 2, Girder G2 bottom flange end at the east abutment (<0.1 CF +/-).

Substructure

1. Repair/patch the spalled and delaminated areas on both abutment stems (7 CY +/-).
2. Remove the sand, debris and pigeon debris on both abutment seats (LS).

Channel & Channel Protection

1. Remove the tree branches from the channel (LS).

Approaches

1. Patch the potholes in the left southbound lane adjacent to the west abutment deck joint (0.25 CY +/-).

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 05653 **INSPECTION DATE:** 1/4/2007

INSPECTION TYPE: Indepth **PREVIOUS INSPECTION DATE:** 12/12/2005 **SNOOPER REQUIRED:** Yes
INSPECTION PERFORMED BY: HAKS **SNOOPER USED:** Yes

TOWN: GREENWICH **FEATURE CARRIED:** ROUTE 15 **YEAR BUILT:** 1988
LOCATION: 1.8 MI EAST OF EXIT 27 **FEATURE INTERSECTED** RIVERSVILLE RD E BR BYRA **YEAR REBUILT:** 0
MAIN MATERIAL: Prestressed concrete co **MAIN DESIGN:** Stringer/Multi-beam or Gird

INSPECTION VISITS:

Inspection Date:	1/4/2007	Start Time:	8:15 AM
Temperature:	55 °F	End Time:	3:15 PM
Inspection Date:	1/5/2007	Start Time:	8:15 AM
Temperature:	55 °F	End Time:	2:15 PM

INSPECTORS:

Inspector:	E. Laakso	Task:	Team Leader
Inspector:	P. Holmes	Task:	Team Member
Inspector:	M. Waite	Task:	Team Member

58. DECK

REINFORCED CONCRETE DECK.
BITUMINOUS CONCRETE OVERLAY WITH MEMBRANE.

OVERALL RATING 7

	RATING	
OVERLAY	6	Bituminous overlay with membrane. There are random sealed cracks throughout. The southbound overlay has scattered short longitudinal and transverse cracks, up to 1/8" wide. The northbound overlay has minor heaved areas along the right shoulder, up to 1-1/2" +/- high with cracks up to 1/4" wide +/-. See sheet 17 and photos 8-10.
DECK STR. CONDITION	7	Underside of deck has random transverse hairline cracks, some with efflorescence, and areas of hairline mapcracking with and without efflorescence. In span 1 there are a few honeycomb areas, up to 2' x 2'. Span 1 bays 2-5 deck ends at the west abutment have map cracking with rust stains and efflorescence. Also bay 5 deck end has a 3' long x 3" wide x 3-1/2" deep spall with exposed rebar. Span 2 bay 6 has four hollow areas, up to 28" x 21" and a timber form. The average underside of deck deterioration is 6.5% with a maximum of 10.8% in span 2. See sheets 18, 21 & 24 and photos 11-14.
CURBS	7	Granite curbs. There are random scrape marks, minor chips and rust stains. The average curb reveal is 2 3/4" at the north curb and 2 1/2" at the south curb. See sheet 17.
MEDIAN	7	Merritt Parkway concrete median barrier. There are random full height vertical hairline cracks with efflorescence and scrape marks. See sheet 17.
SIDEWALKS	N	
PARAPET	6	Decorative concrete parapets. There are random locations of minor impact damage, scrapes and chips. Also there are a few vertical hairline cracks with efflorescence. Span 1 south parapet outside face at the pier has a 16" high x 22" wide x 4" deep spall/removed concrete. See sheets 17 & 18.
RAILING	N	
PAINT	N	
FENCE	N	
DRAINS	8	PVC weep pipes. See photo 15.
LIGHTING STANDARD	4	Span 1 underbridge luminaires are attached to the west abutment stem and pier. Galvanized underbridge luminaire conduits are mounted to the west side of the pier cap and the west abutment stem. Luminaires were not working at the time of inspection. The light sensor for the

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BRIDGE #: 05653 **INSPECTION DATE:** 1/4/2007

58. DECK REINFORCED CONCRETE DECK. BITUMINOUS CONCRETE OVERLAY WITH MEMBRANE. **OVERALL RATING** 7

luminaires is mounted to the south face of the pier and the top cover is damaged, exposing the internal electrical components.

Both end luminaires mounted to the west abutment stem have broken lens covers. The middle luminaire was broken/destroyed and has hanging wires and a hanging bulb. The west abutment conduit has light to moderate rust throughout.

The pier luminaires had no notable deficiencies.

See sheets 25, 26 & 32 and photos 16-18, 24, 38 & 44.

UTILITIES TYPE/SIZE 8

Cable TV and telephone wires attached to the girders along the west and east pier faces.

See photos 44 & 45.

CONSTRUCTION JOINTS N

EXPANSION JOINTS 5

Asphaltic plug joints at both abutments. There is no deck joint at the pier. Joint material has exposed aggregate and numerous adhesion cracks, up to 29' long x up to 1" wide.

There is a pothole in the east abutment joint (southbound side) at the center of the roadway, 3'-6" long x 1'-8" wide x 2" deep. ConnDOT was notified on 1/4/07.

There are also minor potholes in the west abutment joint (southbound side), along the right lane, up to 16" long x 3" wide x 1 1/2" deep and one 8" diameter x 1" deep pothole in the left shoulder.

At the time of inspection, the west abutment had areas of active leakage along the full length of the stem with one area of heavy active leakage between Girders G5 & G6 and the east abutment had areas of active leakage from the deck joint at numerous locations.

See sheet 17 and photos 19-25.

59. SUPERSTRUCTURE PRESTRESSED CONCRETE I-BEAMS. **OVERALL RATING** 6

RATING

BEARING DEVICES 7

Elastomeric Pads. Random pads have slight bulging. Girder G2, G4, G5 & G10 pads at the west abutment have minor areas of non-uniform contact with gaps, up to 1/8" wide x 3-3/4" long, between the bottom flange and the top of the pad. Span 1, Girder G15 at the west abutment overhangs the chamfer on the north and south sides, up to 3/4" +/-. There are random pads at the west abutment that are tilted east and Girder G13-G15 pads are tilted north. Span 2, Girder G3-G6 pads at the east abutment are tilted west.

See sheets 18 & 21 and photos 26-29.

STRINGERS N

GIRDERS 6

Prestressed Concrete I-Beams.
The following girder bottom flanges have hairline cracks, hollow area or a spall at the beam ends beyond the bearing area:
1. Span 1, Girder G14 at the west abutment, south side, has two vertical hairline cracks, 5-1/2" long and 5" long.
2. Span 2, Girder G2 at the east abutment, north side, has an 8" high x 4" wide x 2" deep corner spall with exposed rebar and two exposed strand ends.
3. Span 2, Girder G5 at the east abutment, north side, has a 4" long diagonal hairline crack in the bottom flange.
4. Span 2, Girder G13 at the east abutment, south side, has a 5" high x 2" wide hollow area with an adjacent 5" long vertical hairline crack.
5. Span 2, Girder G14 at the east abutment, north side, has a 7" long diagonal hairline crack.

The north side of span 1 and 2, Girder 15 webs over the pier have vertical cracks at the ends beyond the bearing. Span 1 web end has a 14" long x 0.025" wide crack. Span 2 web end has a 20" long x 0.020" wide crack and a 6" long hairline crack.

Span 2, Girder G11 has a 3' long x 1' wide honeycomb area. Also see "COLLISION DAMAGE" below.

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BRIDGE #: 05653 **INSPECTION DATE:** 1/4/2007

59. SUPERSTRUCTURE PRESTRESSED CONCRETE I-BEAMS. **OVERALL RATING** 6

Over the piers there are cast in place concrete blocks between the girders with vertical cracks, up to 2' long x 3/16" wide.

See sheets 18-23 and photos 11 & 30-37.

FLOOR BEAMS	N	
TRUSSES-GENERAL	N	
TRUSSES-PORTALS	N	
TRUSSES-BRACING	N	
PAINT	N	
RUST	N	
MACHINERY MOV SPAN	N	
RIVETS & BOLTS	N	
WELDS & CRACKS	N	
TIMBER DECAY	N	
CONCRETE CRACKING	6	See "GIRDERS" above.
COLLISION DAMAGE	6	Span 1, Girder G14 bottom flange near midspan has minor collision damage on the south side (7" long x 4" high x 1/2" deep). See sheets 18 & 19 and photo 37.
MEMBER ALIGNMENT	8	
DEFLECT. UNDER LOAD	N	
VIBR. UNDER LOAD	N	
STAND PIPES	N	
BARREL LADDERS	N	

ARE BARREL LADDERS OSHA COMPLIANT? NA

60. SUBSTRUCTURE REINFORCED CONCRETE. on list 20 **OVERALL RATING** 4

	RATING	
ABUTMENTS-STEM	4	The west abutment has widespread areas of map cracking with and without efflorescence and large areas of deteriorated/punky concrete, up to 6' x 5' x 4" deep with exposed wire mesh. There are concrete repair patches with hairline mapcracking and hollow areas and the stem surface coating is deteriorated and peeling at numerous locations. There are areas of active leakage along the full length of the stem with one area of heavy active leakage between Girders G5 & G6 at the time of inspection. The east abutment has numerous vertical hairline cracks, some with efflorescence, areas of deteriorated/punky concrete, up to 3' x 6" x 1" deep, and areas of active leakage from the deck joint at numerous locations. There are concrete repair patches with hairline mapcracking and hollow areas and the stem surface coating is deteriorated and peeling at numerous locations. Pedestals have no notable deficiencies. See sheets 25-28 and photos 38-42.
ABUTMENTS-BACKWALL	6	Both backwalls have random vertical hairline cracks, up to full height, with and without efflorescence and areas of active leakage from the deck joint.

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BRIDGE #: 05653 **INSPECTION DATE:** 1/4/2007

60. SUBSTRUCTURE REINFORCED CONCRETE. **OVERALL RATING** 4

See sheets 25-28.

ABUTMENTS-FOOTINGS	N	
ABUT.-SETTLEMENT	8	
ABUTMENTS-WINGWALLS	6	The northwest and southwest wingwalls have light scale and hairline map cracking along the bottom half of the face. Also the surface coating of the concrete is deteriorated and peeling along the lower half of the faces. There are also a few hairline cracks with efflorescence. The northeast and southeast wingwalls have isolated hairline cracks with and without efflorescence and areas of light scale. See sheets 29 & 30 and photo 43.
PIERS/BENTS-CAPS	6	There are numerous concrete patches with mapcracking throughout and random vertical hairline cracks with and without efflorescence. Pedestals: There are isolated vertical hairline cracks. See sheets 31-34 and photos 44 & 45.
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	6	There are numerous concrete patches with mapcracking throughout and a few hairline cracks with and without efflorescence. The column base on the west side along the interface with the roadway has areas of cracking and severe scale. The column base on the east side at the water level, there are areas of light to moderate scale, up to 6" high x full length x up to 3/4"+/- deep. See sheets 31-34 and photos 44 & 45.
PIERS/BENTS-FOOTINGS	N	
PIERS/BENTS-SETTLEMent	8	
EROSION-SCOUR	8	
CONCRETE CRACK-SPALL	4	See "ABUTMENTS-STEM, BACKWALL & WINGWALLS" and "PIERS/BENTS-CAPS & COLUMNS" above.
STEEL CORROSION	N	
PAINT	N	
TIMBER DECAY	N	
COLLISION DAMAGE	N	
DEBRIS	5	Moderate to heavy pigeon debris and some accumulation of sand on the abutment seats. A light accumulation of pigeon debris on the top of the pier. See photo 42.

61. CHANNEL & CHANNEL PROTECTION BYRAM RIVER. **OVERALL RATING** 7

	RATING	
CHANNEL SCOUR	7	There are areas of minor general scour in the river bed along the center of the channel. Also there is a build up of sand and small rocks at the upstream bridge fascia along the pier base, approximately 40' long x 3' wide x 6" high. See sheets 35-37 and photos 45-47.
EMBANKMENT EROSION	6	There is some minor embankment erosion with exposed tree roots at the upstream side, before the pier. See sheet 37and photos 46 & 47.
DEBRIS	7	There are a few small tree branches in the center of the channel at the upstream side.
VEGETATION	7	Large trees overhang the edges of the channel upstream and downstream.

Connecticut Department of Transportation

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BRIDGE #: 05653 **INSPECTION DATE:** 1/4/2007

61. CHANNEL & CHANNEL PROTECTION BYRAM RIVER. **OVERALL RATING** 7

CHANNEL CHANGE	8	
FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	7	The east abutment has rip rap slope protection. There is also small size rip rap along the east embankment.

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

APPROACH CONDITION BITUMINOUS CONCRETE PAVEMENT. **OVERALL RATING** 6

	RATING	
APPROACH SLAB	N	
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	7	Merritt Parkway Guide Rail at all approaches. Timber rails have minor checks and splits. At the southwest transition (northbound side) there is a 5' long area of minor collision damage to the timber rail (cracks and gouges). See sheet 17 and photo 48.
APPROACH PAVEMENT	6	Bitminous concrete pavement. There are random cracks; most are sealed. The left southbound lane at the sholuder line has two 1' diameter x 1-1/2" deep potholes adjacent to the west abutment deck joint. The right southbound lane and shoulder at the east approach has a 12' long x 1-1/2" wide transverse crack. Southwest and southeast right shoulders have heaved areas, up to 1-1/2" high, with cracks up to 1/4" wide. See sheet 17 and photos 49 & 50.
APPROACH EMBANKMENT	8	

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS	1	
TRANSITIONS	0	>3" of concrete parapet above rail.
APPROACH GUARDRAILS	1	Merritt Parkway Guide Rail.
APPR. GUARDRAIL ENDS	1	

LOAD POSTING

SINGLE UNIT (TONS)		
HS (TONS)		
4 AXLE (TONS)		
3S2 (TONS)		
ADVANCE WARNING Y/N		
LEGIBILITY		
VISIBILITY/LOCATION		

MISC.

MIN VERT. UNDERCLR.	14'	7"	
POSTED CLR. UNDER BRIDGE	'	"	
POSTED CLR. ON BRIDGE	'	"	

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

BRIDGE #: 05653 **INSPECTION DATE:** 1/4/2007

ADVANCE WARNING (Y/N) No

SPEED LIMIT (IF ANY) 55 MPH

CHARACTER OF TRAFFIC

ADDITIONAL NOTES

1. Bridge Identification Numbers are in satisfactory condition.
2. 35' lift with local traffic control on Riversville road for span 1 inspection. 60' snooper used for span 2 inspection.

ADDITIONAL COMMENTS:

Before the next inspection the trees will need to be trimmed back along the north side of the bridge for snooper access.

Inspectors' Signatures:

1) Date: 02/23/07

2) Paul Holmes Date: 2/23/07

3) Date: __/__/__

4) Date: __/__/__

P.E. Signature: Date: 02/23/07

P.E.#: 21463

Reviewed by: Sandra A Dumas **CDOT** Date: 3/8/07

RECEIVED
FEB 23 2007
CONNECTICUT - DOT
BRIDGE SAFETY & EVALUATION

HAKS	JOB NO. 170-2729	BRIDGE NO. 05653
SUPPLEMENTAL SHEET	DATE: (SEE BELOW)	SHEET 13 OF 73
DESCRIPTION: TIME LOG		

DATE:	1/4/2007		DESCRIPTION	TIME AT SITE		
WEATHER:	Sunny, 55°F	CREW:	EJL, PH, MJW	8:15AM	TO	3:15PM
EQUIP. LIST:	Van Lift	SNOOPER:	United Rentals 60'		TO	
	Cube	SHADOW TRUCK:	E-L	8:30AM	TO	3:30PM
		TROOPER:	Rogaloski #1292	8:30AM	TO	3:30PM
VISITORS:		R.R. FLAGMAN:			TO	

TC & NOTES Right lane closures on Route 15 NB & SB between exits 28 & 29.

Completed Span 2 superstructure and substructure. Top of deck

DATE:	1/5/2007		DESCRIPTION	TIME AT SITE		
WEATHER:	Cloudy, 55°F	CREW:	EJL, PH	8:15 AM	TO	2:15 PM
EQUIP. LIST:	35' Lift	SNOOPER:			TO	
	Insp. Van	SHADOW TRUCK:			TO	
		TROOPER:			TO	
VISITORS:		R.R. FLAGMAN:			TO	

TC & NOTES Shoulder closures on Riversville Road.

Completed span 1 superstructure, substructure and channel insp.

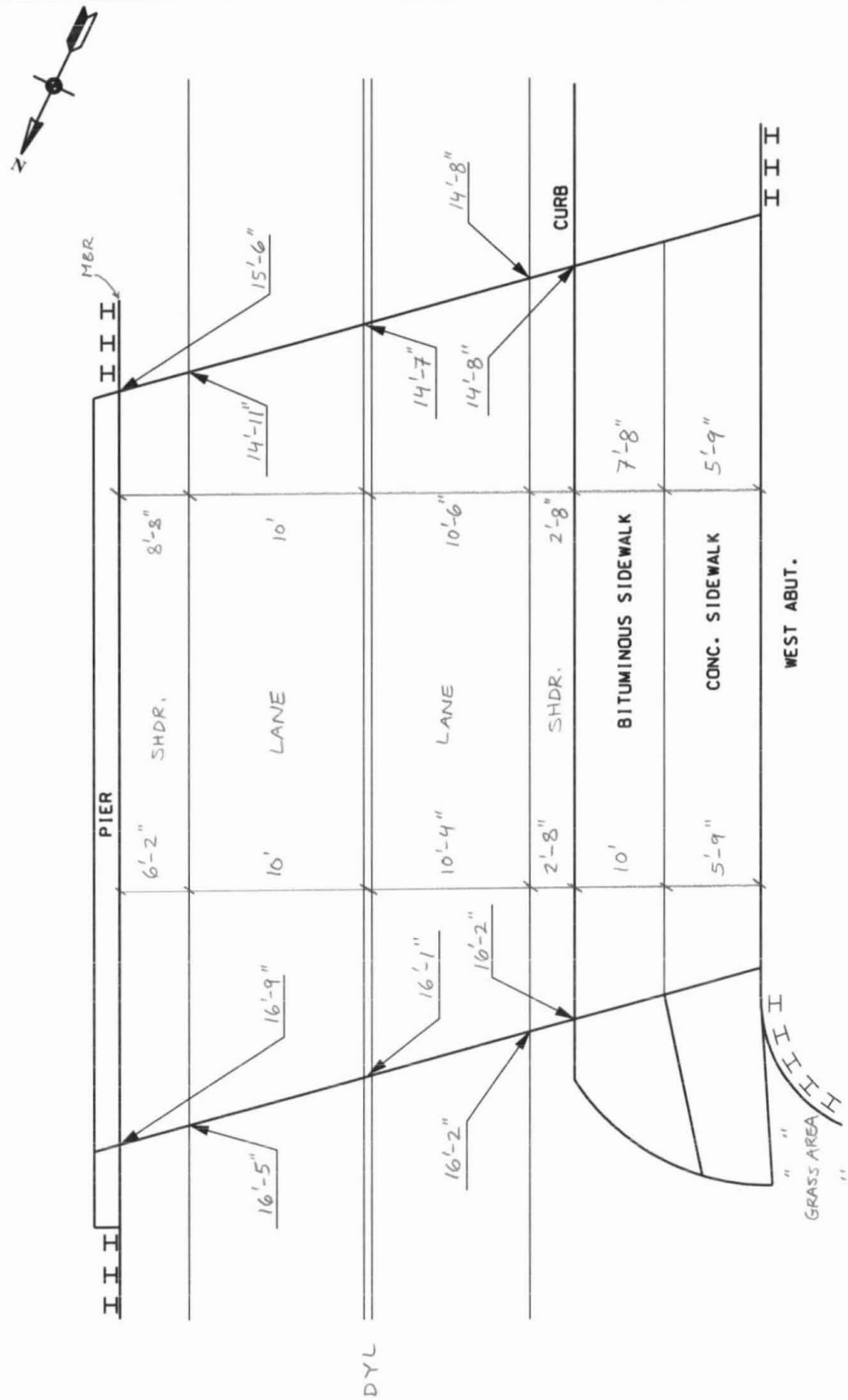
DATE:			DESCRIPTION	TIME AT SITE		
WEATHER:		CREW:			TO	
EQUIP. LIST:		SNOOPER:			TO	
		SHADOW TRUCK:			TO	
		TROOPER:			TO	
VISITORS:		R.R. FLAGMAN:			TO	

TC & NOTES:

DATE:			DESCRIPTION	TIME AT SITE		
WEATHER:		CREW:			TO	
EQUIP. LIST:		SNOOPER:			TO	
		SHADOW TRUCK:			TO	
		TROOPER:			TO	
VISITORS:		R.R. FLAGMAN:			TO	

TC & NOTES:

HAKS FIELD NOTES	JOB NO.170-2729	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET 14/73
	CREW: PH, EJL	



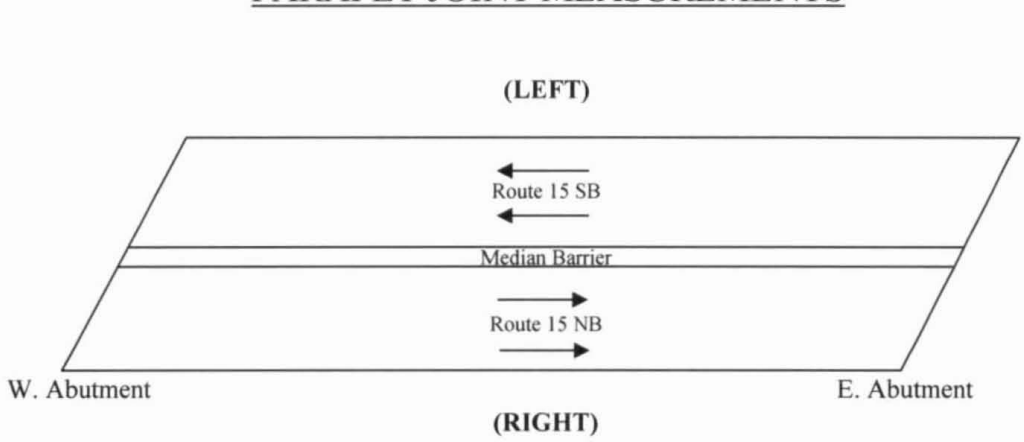
DYL = DOUBLE YELLOW LINE

CLEARANCE DIAGRAM
(N.T.S.)

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

HAKS	FIELD NOTES	JOB NO. 170-2729	DATE : 1/4/07
		BRIDGE NO. 05653	SHEET 15/73
		CREW : PH, EJL, MJW	

PARAPET JOINT MEASUREMENTS



LOCATION	WINTER MEASUREMENT < 50° F				SUMMER MEASUREMENT > 50° F				JOINT TYPE
	LEFT	RIGHT	TEMP	DATE	LEFT	RIGHT	TEMP	DATE	
W. Abutment	1 3/16	1 3/16	55°	1/4/07					Asphaltic Plug
E. Abutment	1	7/8	55°	1/4/07					Asphaltic Plug

GENERAL NOTES:

REGULAR INSPECTION ☑ Date: 8/24/06

SUMMER / WINTER JOINT MEASUREMENTS ☐ Summer Winter

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/03

Measurements Taken By: PH

Bridge No.: 05653 Route 15 Over Folly Brook Blvd. **Town:** Greenwich

Measurements Reviewed By: EJL

Deck Joint Location	Deck Joint Type[1]	Effect Span[2] (ft.)	Winter Measurements Temp °F	Winter Date: 1/4/2007 Left (in.)	Winter Right (in.)	Summer Measurements Temp °F	Summer Date: Left (in.)	Summer Right (in.)	Differential Movements Actual Left (in.)	Actual Right (in.)	by Formula	Comments	Difference Between Actual & Calc'd Mov't Left (in.)	Right (in.)
W. Abut.	Plug	63.0	55	1 3/16	1				-1 3/16	-1	0.270	Expansion	1 7/16	1 4/16
Pier	No Joint	0.0							0	0	0.000	Fixed	0	0
E. Abut.	Plug	63.0	55	1- 3/16	14/16				-1.188	-0.875	0.270	Expansion	1 7/16	1 2/16

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

Reviewer's Comments: _____

Summer / Winter Joint Measurements: (IF ADDING OR REMOVING, SEND A COPY OF THIS FORM TO SUPERVISOR FOR REVIEW/APPROVAL WITH REASONS FOR CHANGE INDICATED)

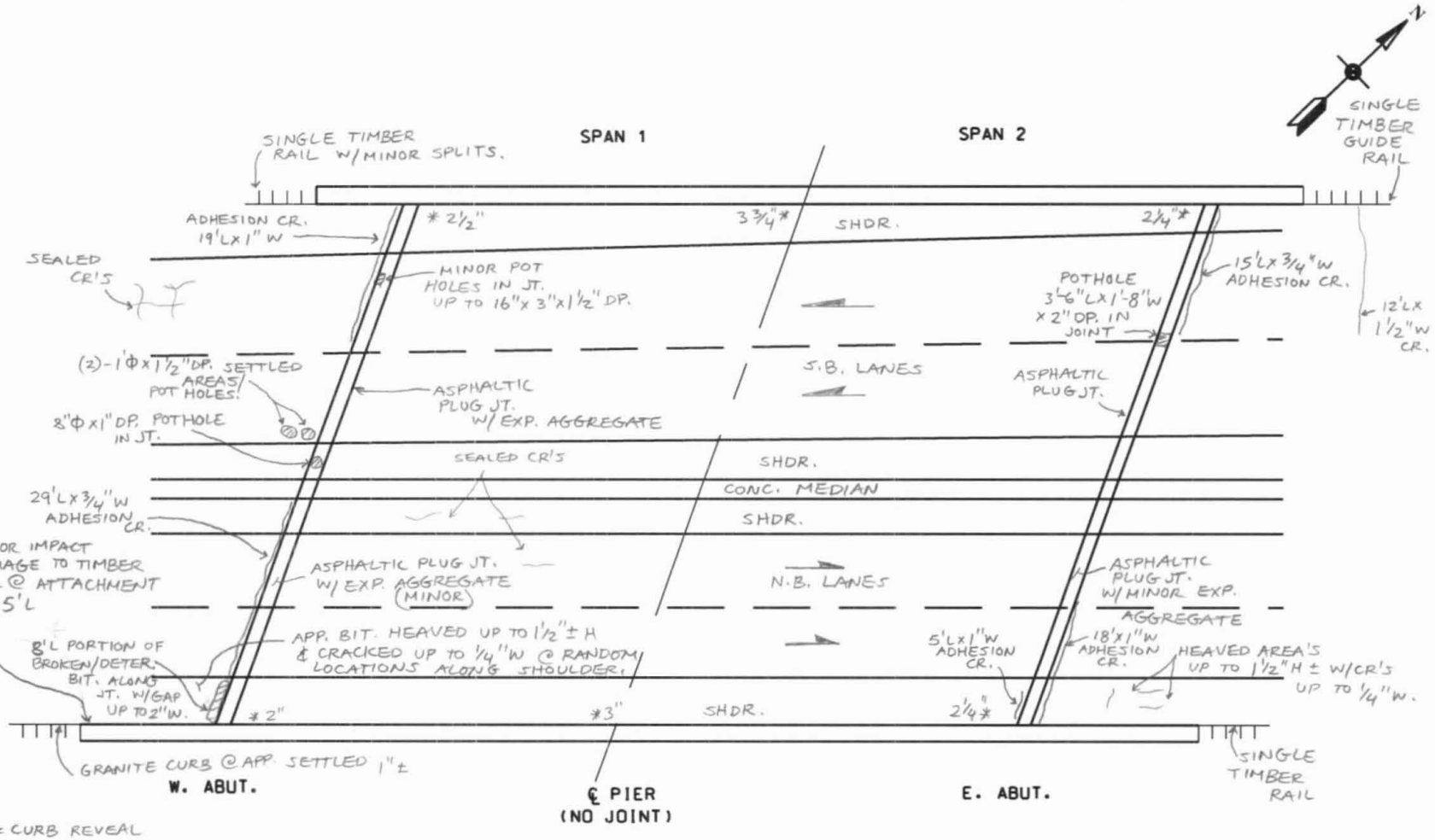
☐ **ADD** TO SUMMER/WINTER LIST

☐ **REMOVE** FROM SUMMER/WINTER LIST

SUPERVISOR APPROVAL: _____

MASTER LIST ENTRY: _____

16/73



*= CURB REVEAL

GENERAL NOTES:

- SOUTHBOUND OVERLAY W/ SHORT RANDOM CR'S ⅛"± W (MOSTLY SEALED).
- MINOR HEAVED AREAS IN BIT. ALONG RIGHT SHOULDER (N.B. SIDE ONLY) W/CRACKS UP TO ¼"W± (APPROX. 1½"± RAISED AREAS).
- PREVIOUSLY NOTED SEPARATION ALONG ℄ OF LANES (LONGIT.) HAS BEEN SEALED.
- PPT'S W/ MINOR SCRAPES, RUST STAINS.
- SLOPED GRANITE CURBS W/ CHIPS, SCRAPES & RUST.
- MEDIAN BARRIER W/F.H. VERT. HLCR'S W/E.

TOP OF DECK
(N.T.S.)

HAKS

FIELD NOTES

JOB NO. 170-2729

DATE: 1/4/07

CREW: MJW, EJL, PH

BRIDGE NO. 05653

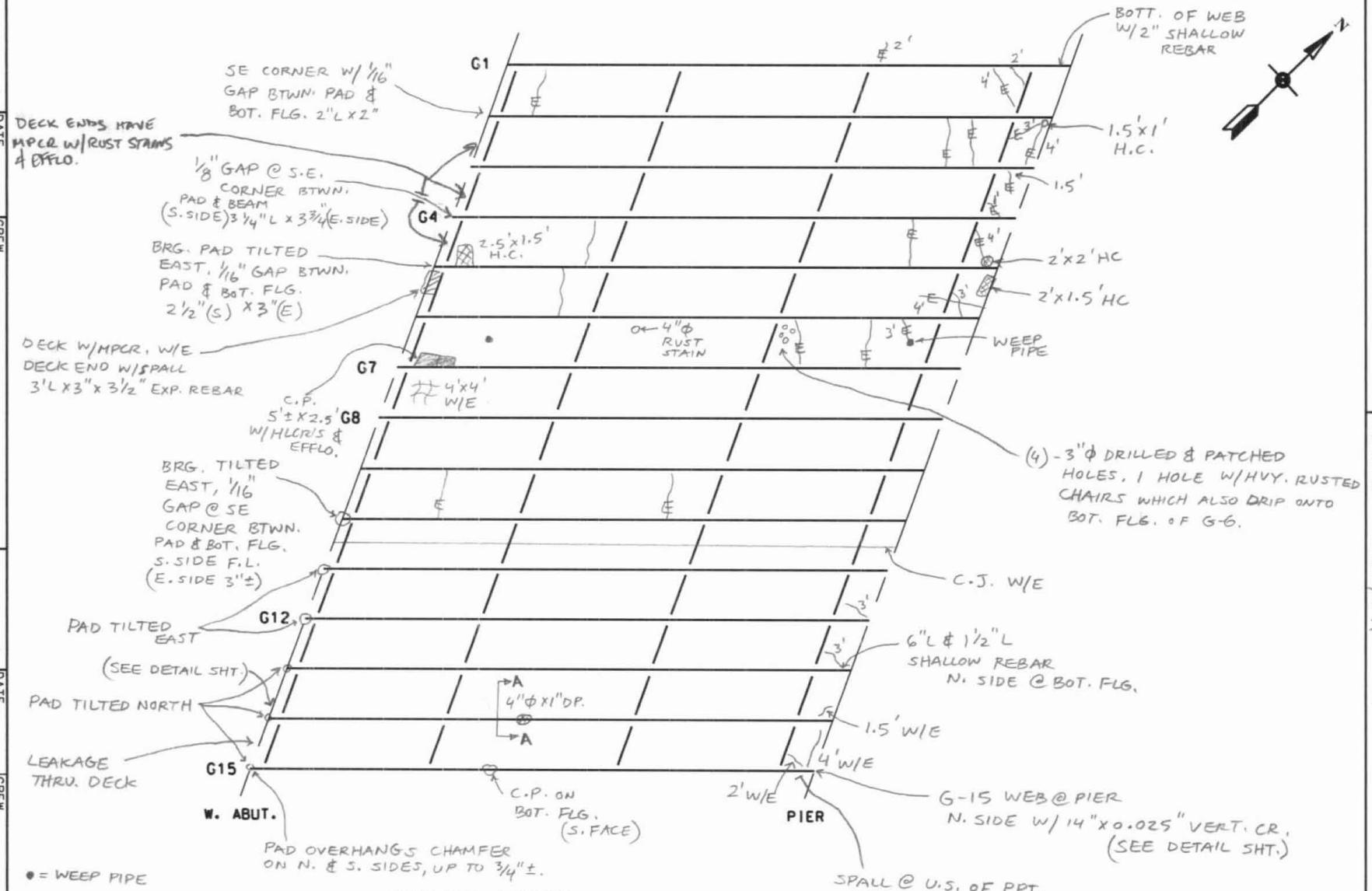
SHEET 17/73

REVISION 1 DATE CREW

REVISION 2 DATE CREW

REVISION 3 DATE CREW

REVISION 4 DATE CREW



● = WEEP PIPE

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:

- CONCRETE C.I.P. BLOCKS CONNECTING BEAMS OVER PIER W/ CR'S UP TO 2' H x UP TO 3/16" W (TYP. COND.).
- SLIGHT BULGING OF RANDOM PADS THROUGHOUT

FRAMING PLAN - SPAN 1

(N.T.S.)

REVISION	DATE	CREW
1		
2		
3		
4		

HAKS

FIELD NOTES

JOB NO. 170-2729

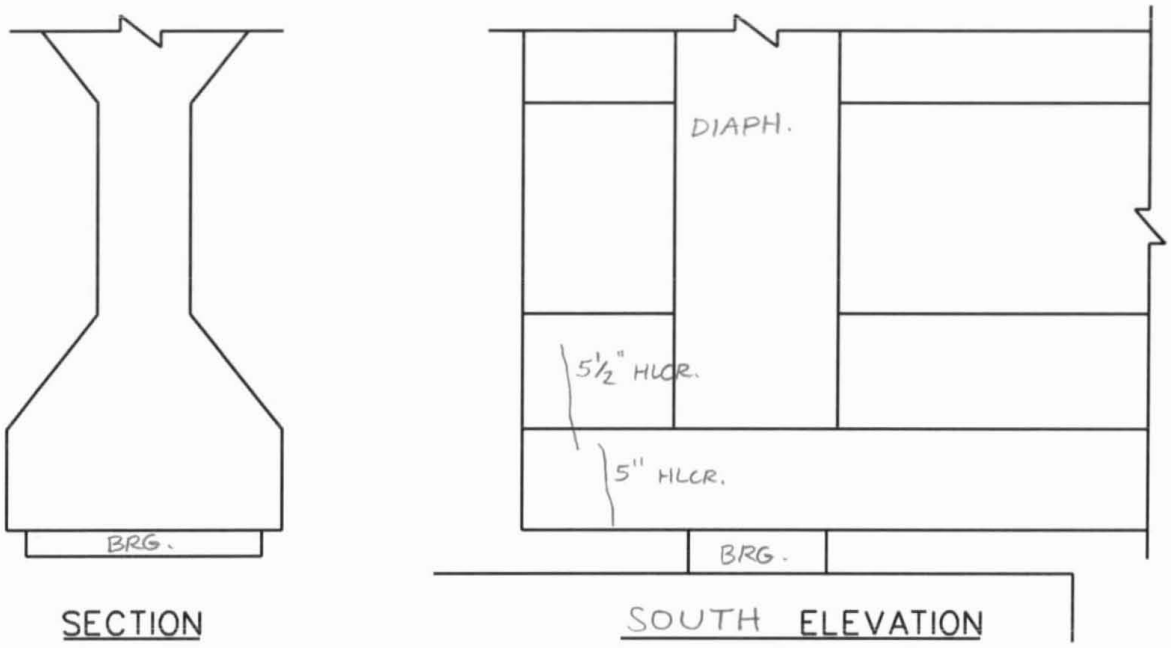
DATE: 1/5/07

CREW: EJL, PH

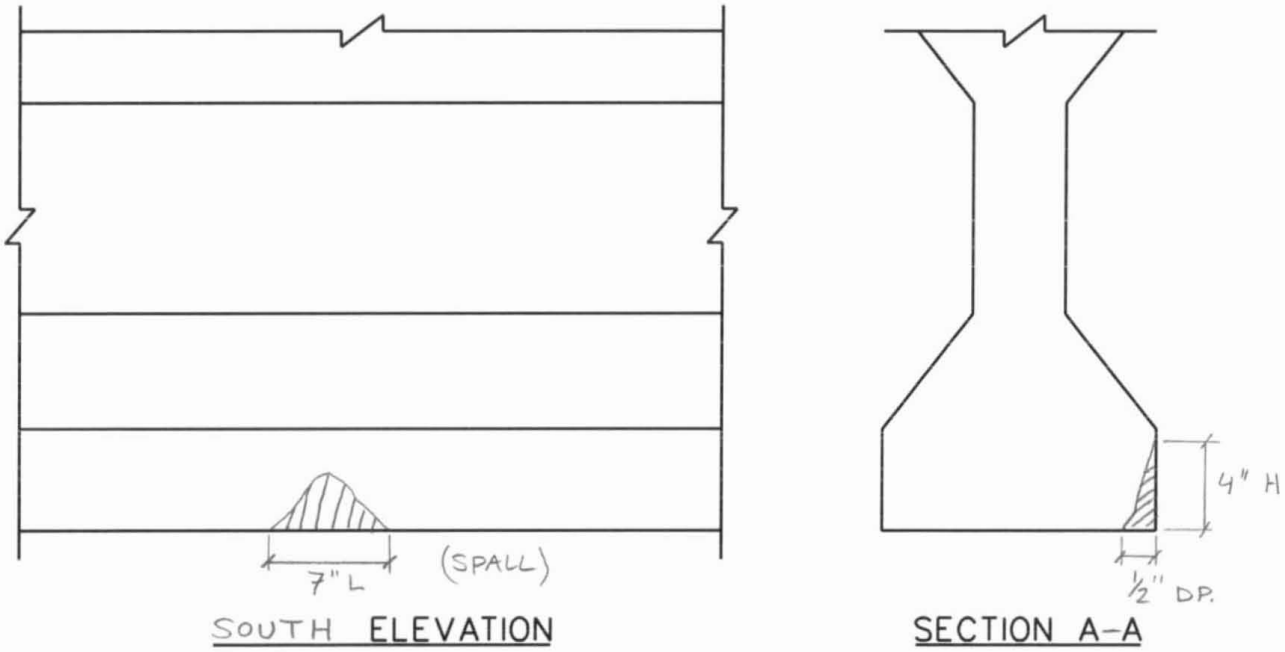
BRIDGE NO. 05653

SHEET 18/73

HAKS FIELD NOTES	JOB NO.170-2729	BRIDGE NO. 05653
	DATE: 1/4/07	SHEET 19/73
	CREW: EJL, MJW, PH	



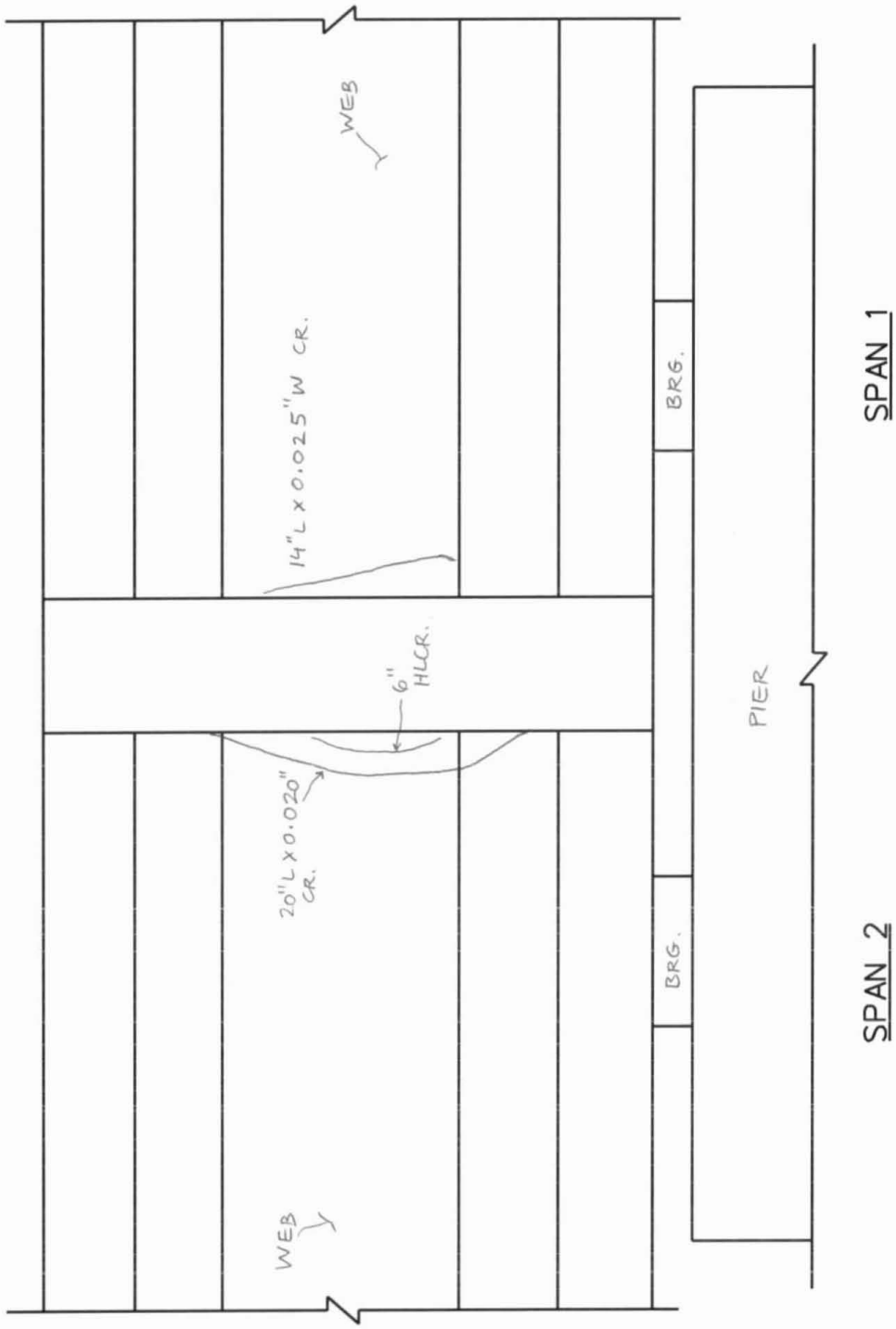
BEAM 14 END AT WEST ABUTMENT
(N.T.S.)



BEAM 14 AT MIDSPAN
(N.T.S.)

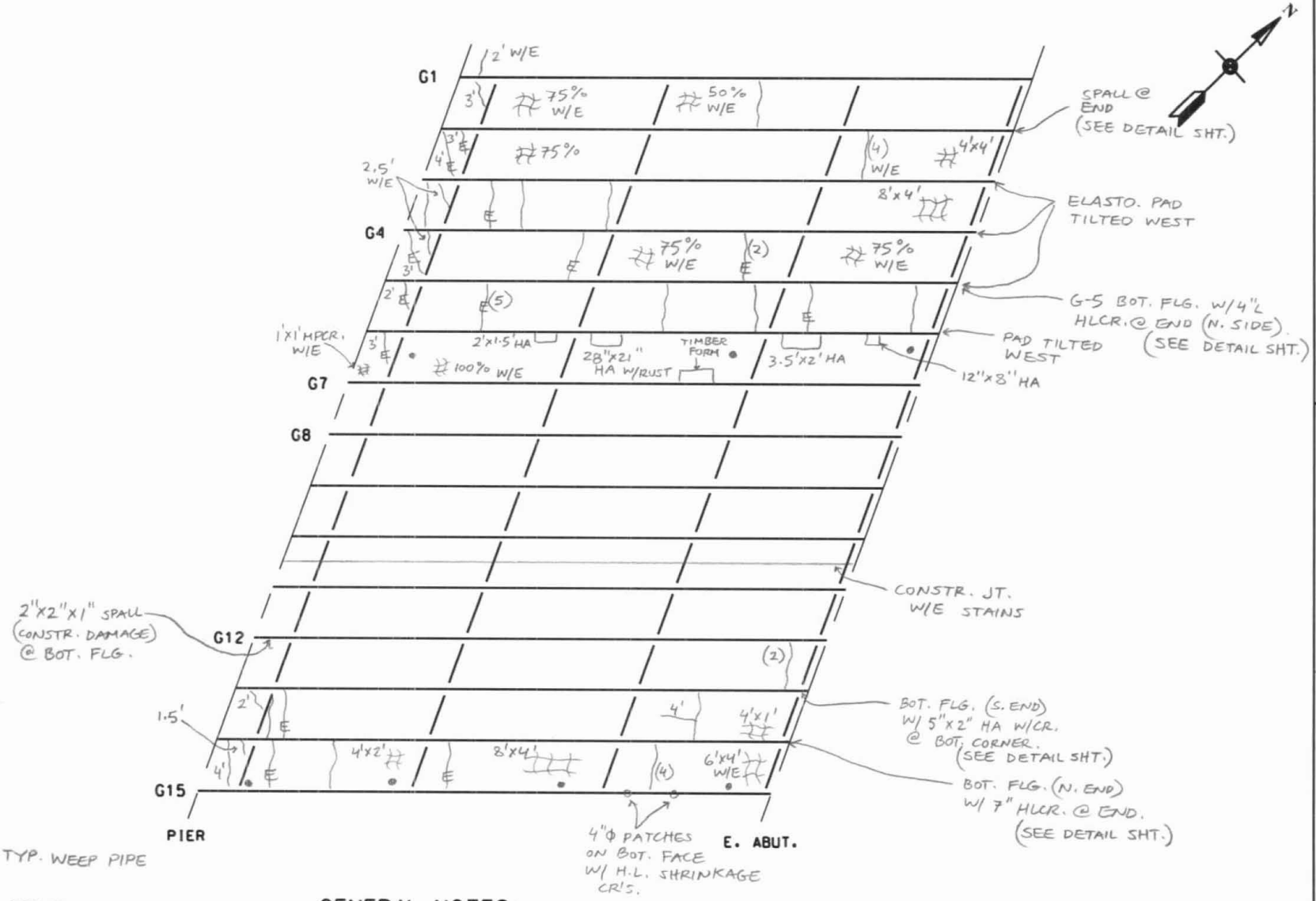
REVISION 1	DATE	CREW	REVISION 3	DATE	CREW
REVISION 2	DATE	CREW	REVISION 4	DATE	CREW

HAKS FIELD NOTES	JOB NO.170-2729	BRIDGE NO. 05653
	DATE: 1/4/07	SHEET 20/73
	CREW: EJL, MJW, PH	



NORTH ELEVATION, G-15 @ PIER
(N.T.S.)

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



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:

- UNDERSIDE OF DECK W/MINOR WATER STAINS FROM CONDENSATION.
- CAST-IN-PLACE CONC. BTWN. BEAM'S OVER PIER W/ CR'S UP TO 2'x1/8" (TYP. COND.).

FRAMING PLAN - SPAN 2

(N.T.S.)

HAKS

FIELD NOTES

JOB NO. 170-2729

DATE: 1/4/07

CREW: EJL, MJW, PH

BRIDGE NO. 05653

SHEET 21/73

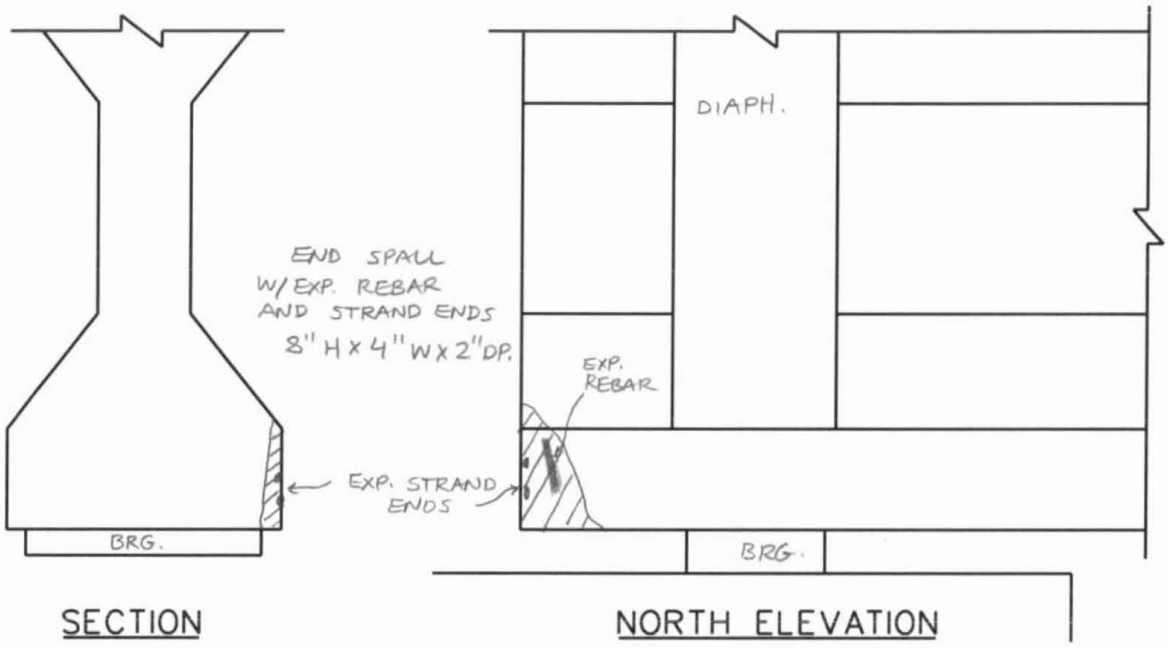
REVISION 1 DATE CREW

REVISION 2 DATE CREW

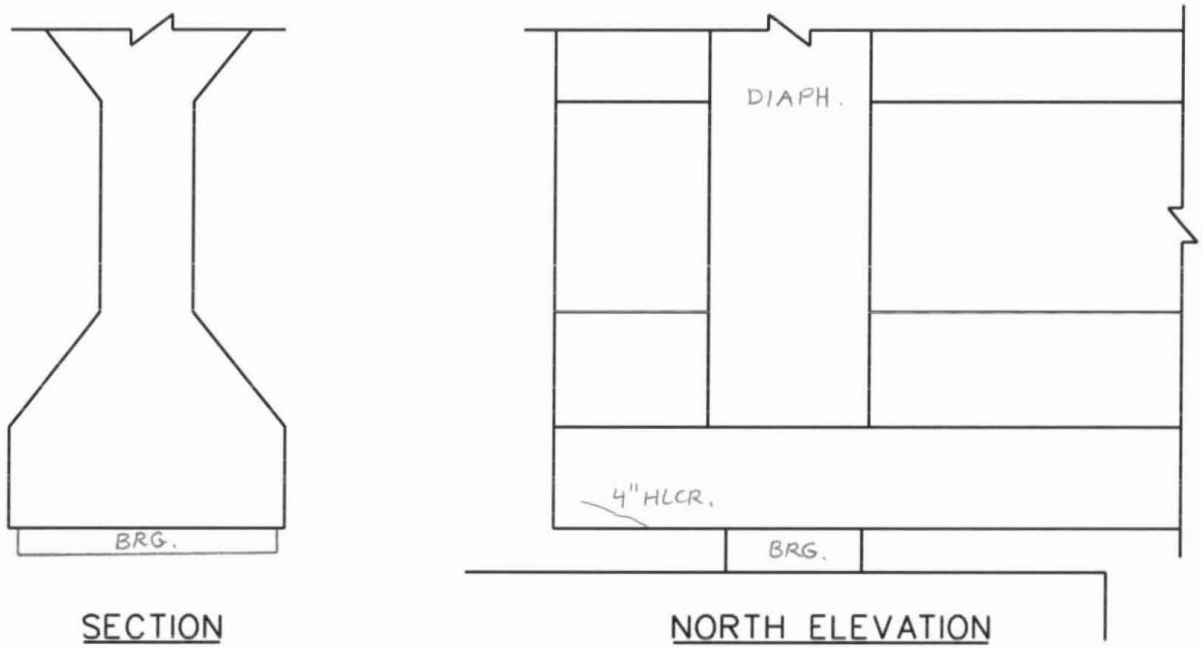
REVISION 3 DATE CREW

REVISION 4 DATE CREW

HAKS FIELD NOTES	JOB NO.170-2729	BRIDGE NO. 05653
	DATE: 1/4/07	SHEET 22/73
	CREW: EJL, MJW, PH	



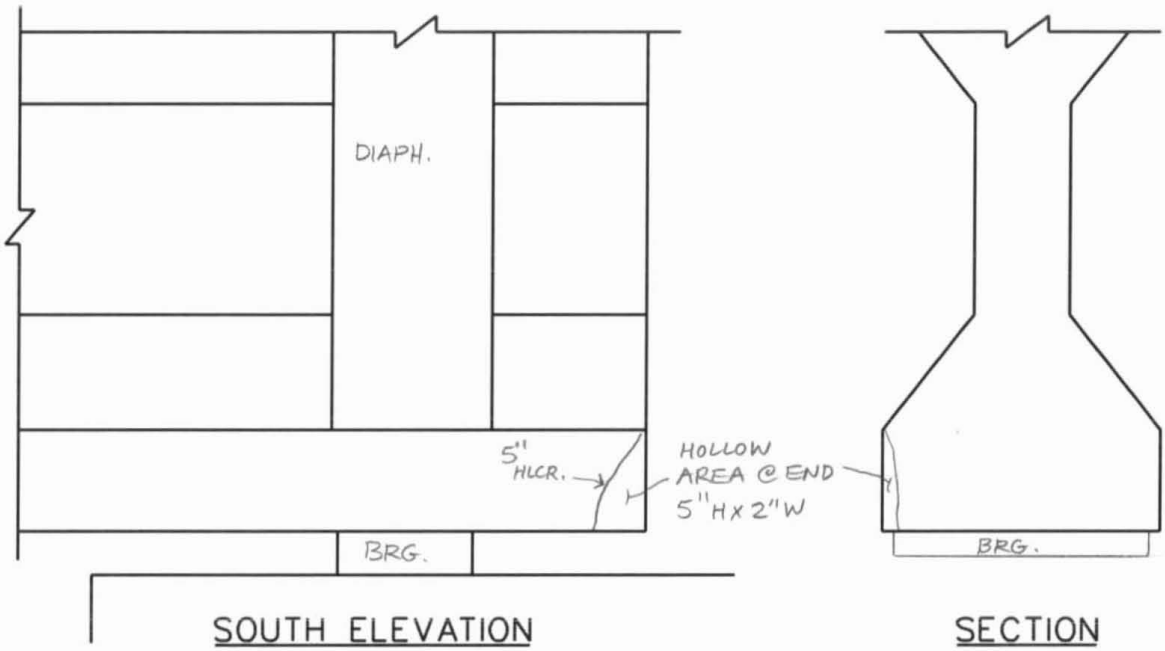
BEAM 2 END AT EAST ABUTMENT
(N.T.S.)



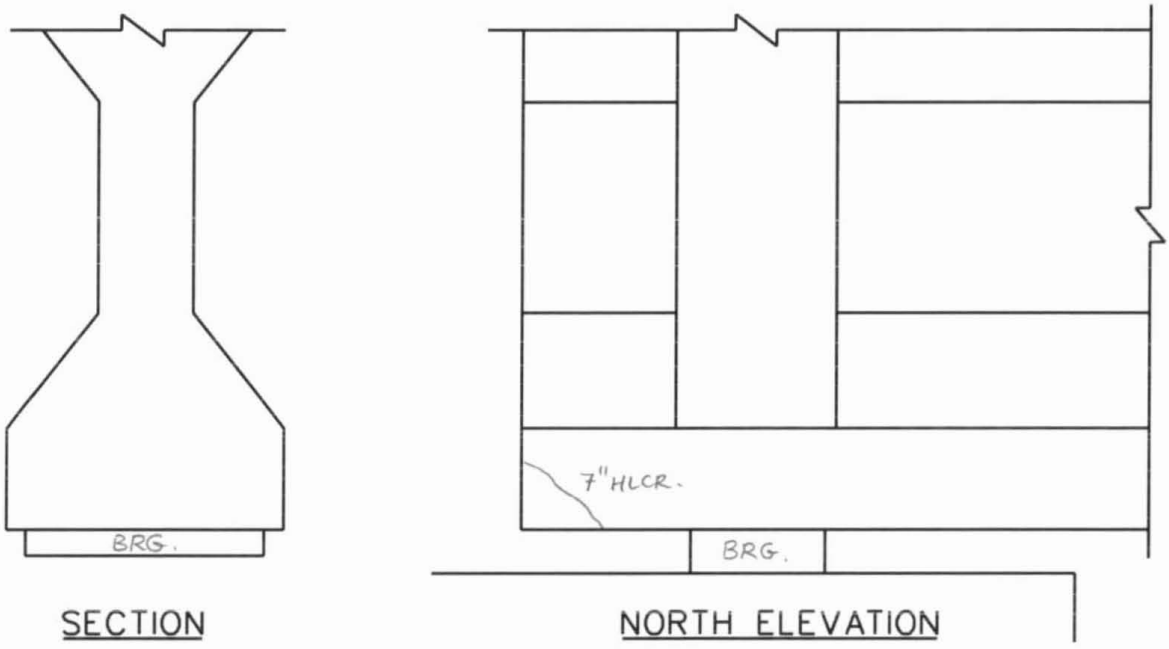
BEAM 5 END AT EAST ABUTMENT
(N.T.S.)

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

HAKS FIELD NOTES	JOB NO.170-2729	BRIDGE NO. 05653
	DATE:	SHEET 23/73
	CREW:	



BEAM 13 END AT EAST ABUTMENT
(N.T.S.)



BEAM 14 END AT EAST ABUTMENT
(N.T.S.)

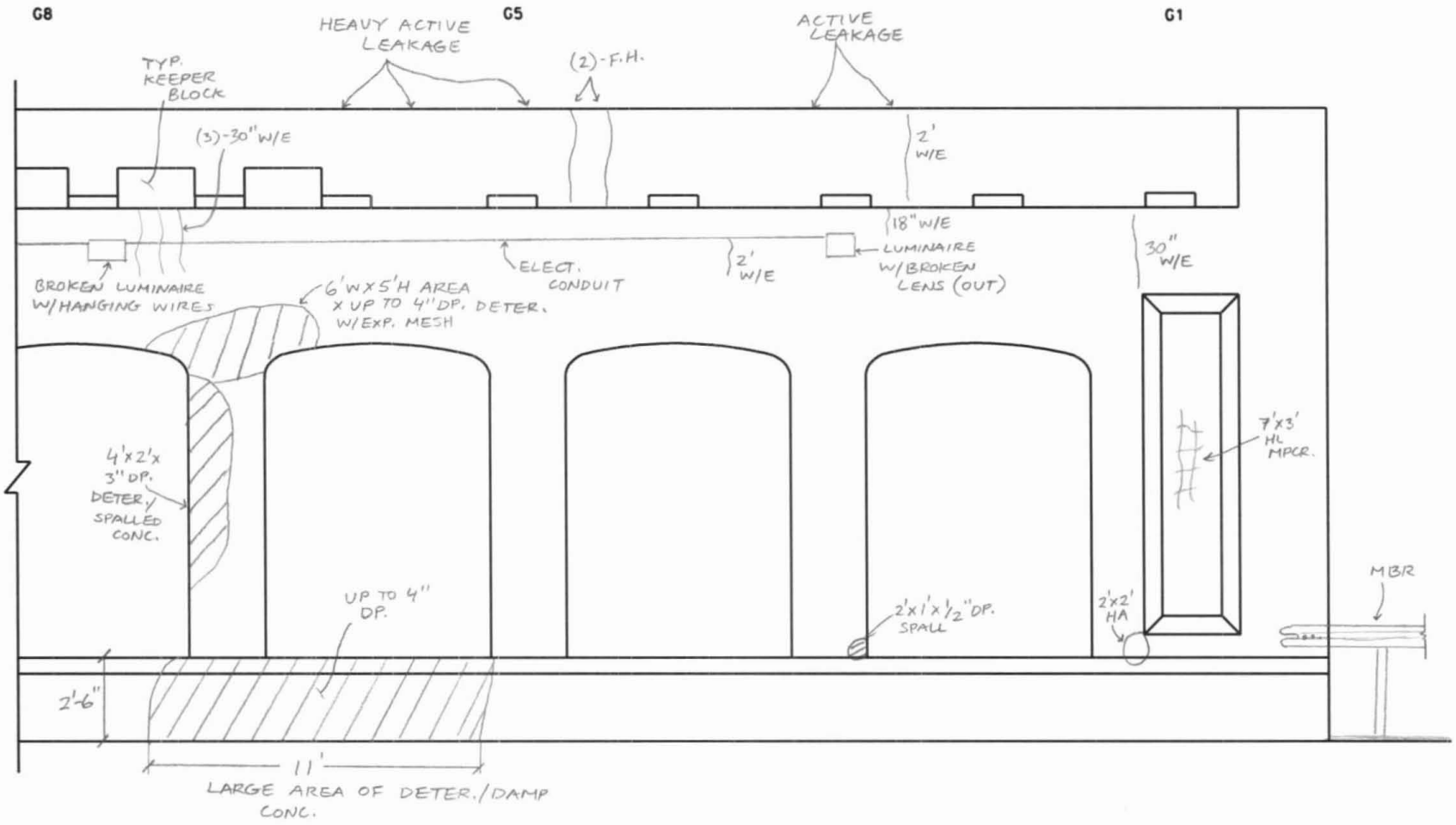
REVISION 1	DATE	CREW	REVISION 3	DATE	CREW
REVISION 2	DATE	CREW	REVISION 4	DATE	CREW

Bridge No.: 05653 Date: 1/26/2007 Prepared By: PH Checked By: EJL

HAKS CONCRETE DETERIORATION WORKSHEET

Form BRI - 10, 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	1	2	3	4	5	6	7	8	9	10	Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot: 3	Bot: 14.7	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 17.7
Scale (Moderated to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 0
Cracks: w/Efflorescence (use 6 in. width x length)	Bot: 38	Bot: 55.6	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 93.6
w/o Efflo. (use 3 in. width x length)	Bot: 5.4	Bot: 23	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 28.4
Map Cracking: w/Efflorescence (use full area)	Bot: 49.5	Bot: 394	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 443.5
w/o Efflo. (use 50% of area)	Bot:	Bot: 80	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 80
Honeycombed Areas (only areas more than 1 1/2 in deep)	Bot: 12	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 12
Total	107.9	567.3	0	0	0	0	0	0	0	0	**675.2**
Total Span Area (Square Feet)	5234	5234									10468
% Spalled and Delaminated on Top	0	0	0	0	0	0	0	0	0	0	0
% Deterioration on Bottom	2.1%	10.8%									6.5%



GENERAL NOTES:

- EVIDENCE OF LEAKAGE ALONG ENTIRE STEM.
- THIN LAYER OF CONC. (SURFACE) DETER. PEELING THROUGHOUT STEM.
- MPCR. THROUGHOUT W/LT. TO MOD. SCALE ON STEM.
- PAINTED OVER GRAFITTI ALONG LOWER HALF.
- NUMEROUS CONC. PATCHES ON STEM (SOME W/HA'S).
- LT. TO MOD. PIGEON DEBRIS ON SEAT.

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

WEST ABUTMENT - NORTH HALF

(N.T.S.)

HAKS

FIELD NOTES

JOB NO. 170-2729

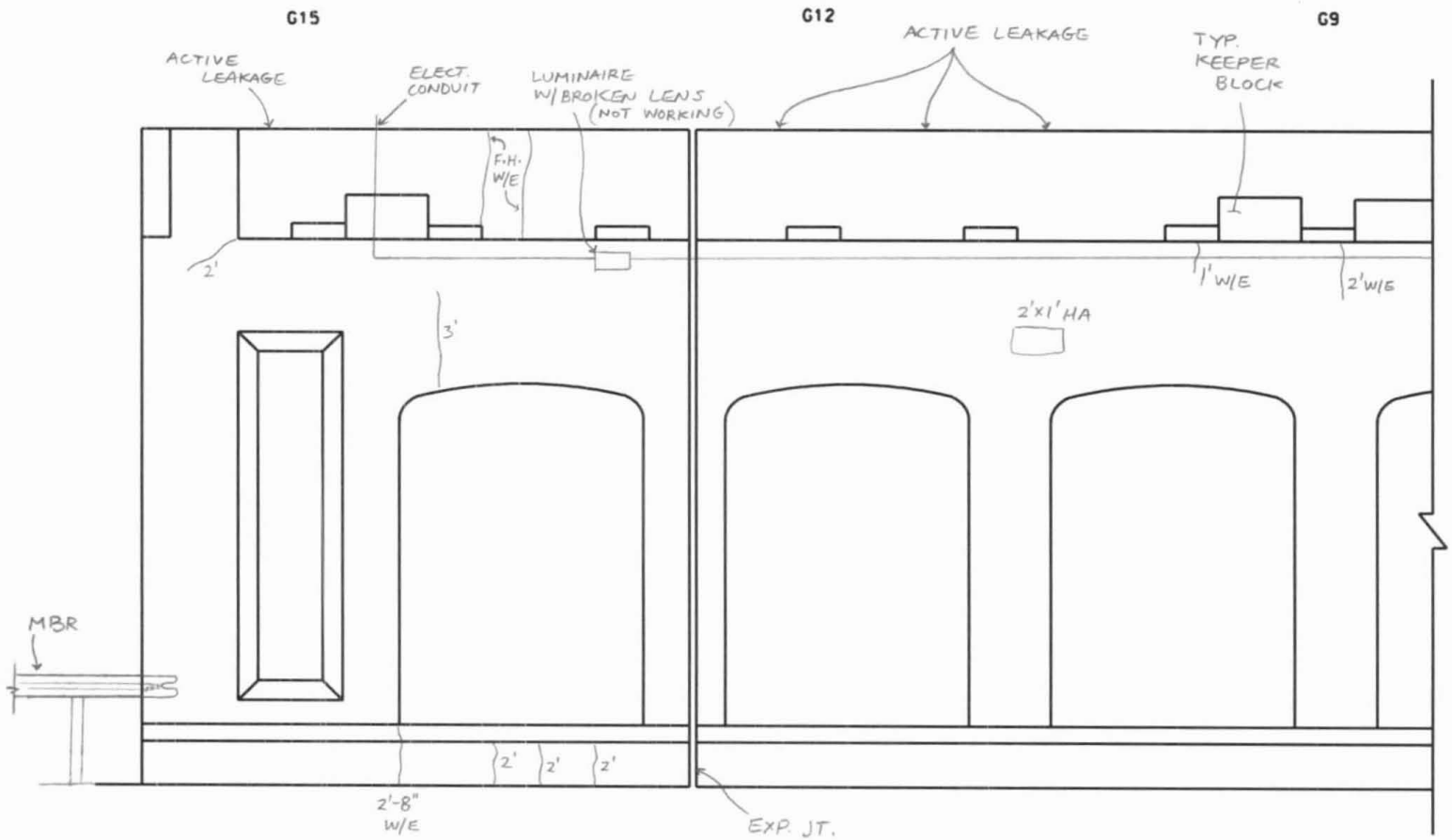
DATE: 1/5/07

CREW: PH, EJL

BRIDGE NO. 05653

SHEET 25/73

REVISION	DATE	CREW
1		
2		
3		
4		



GENERAL NOTES:

- EVIDENCE OF LEAKAGE ALONG ENTIRE STEM.
- THIN LAYER (SURFACE) CONC. PEELING THROUGHOUT.
- LT. TO MOD. SCALE THROUGHOUT & HL MPCR.
- NUMEROUS CONC. PATCHES ON STEM, SOME W/HA'S.
- LT. TO MOD. PIGEON DEBRIS ON SEAT.

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

WEST ABUTMENT - SOUTH HALF
(N.T.S.)

REVISION	DATE	CREW
1		
2		
3		
4		

HAKS

FIELD NOTES

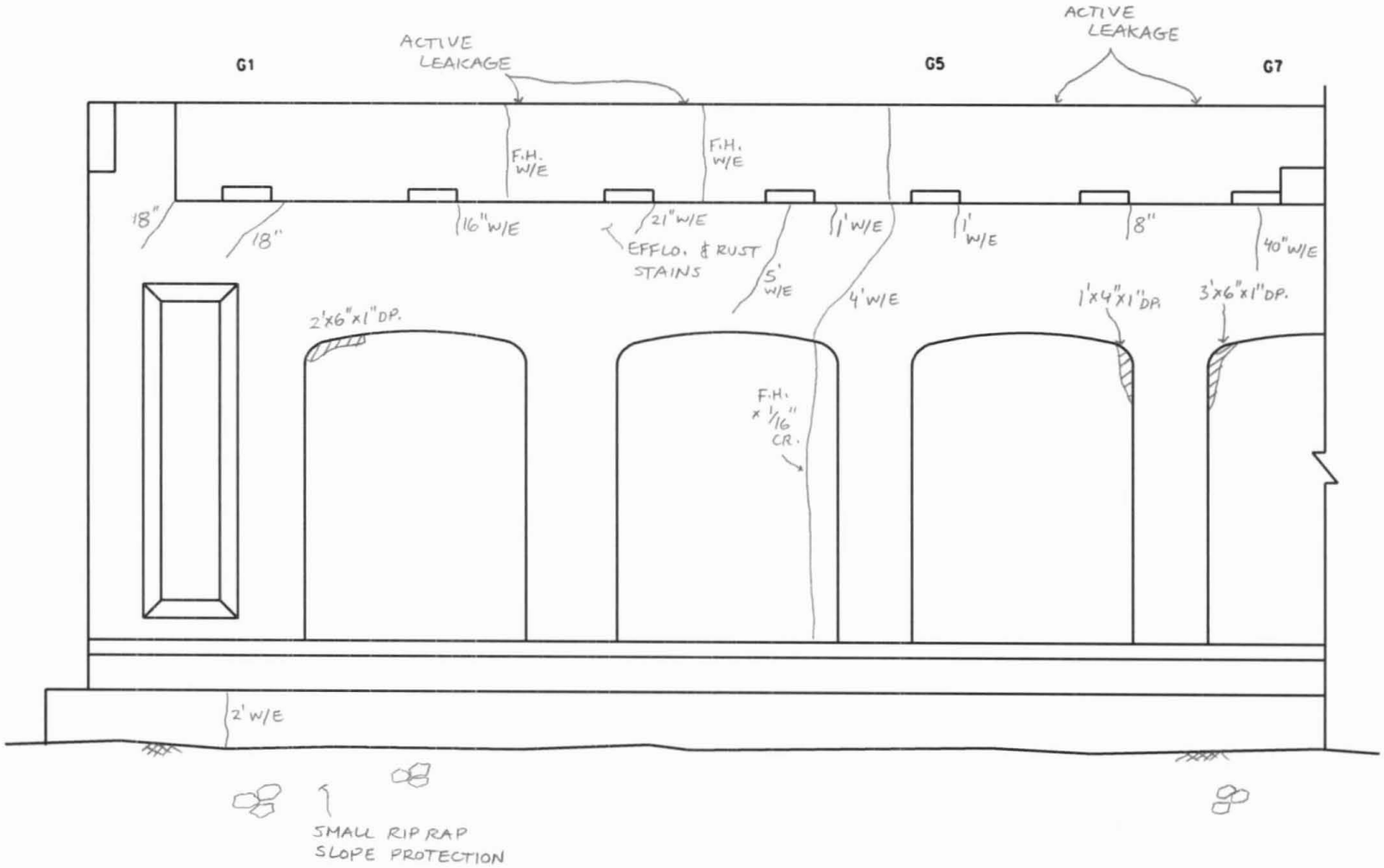
JOB NO. 170-2729

BRIDGE NO. 05653

DATE: 1/5/07

CREW: PH, EJL

SHEET #6/73



GENERAL NOTES:

- LT. TO MOD. PIGEON DEBRIS ON SEAT.
- EVIDENCE OF LEAKAGE ALONG F.L. OF STEM.
- THIN LAYER OF SURFACE CONC. DETER. & PEELING.
- NUMEROUS CONC. PATCHES, MPCR. & HA'S ON STEM.

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

EAST ABUTMENT - NORTH HALF
(N.T.S.)

HAKS

FIELD NOTES

JOB NO. 170-2729

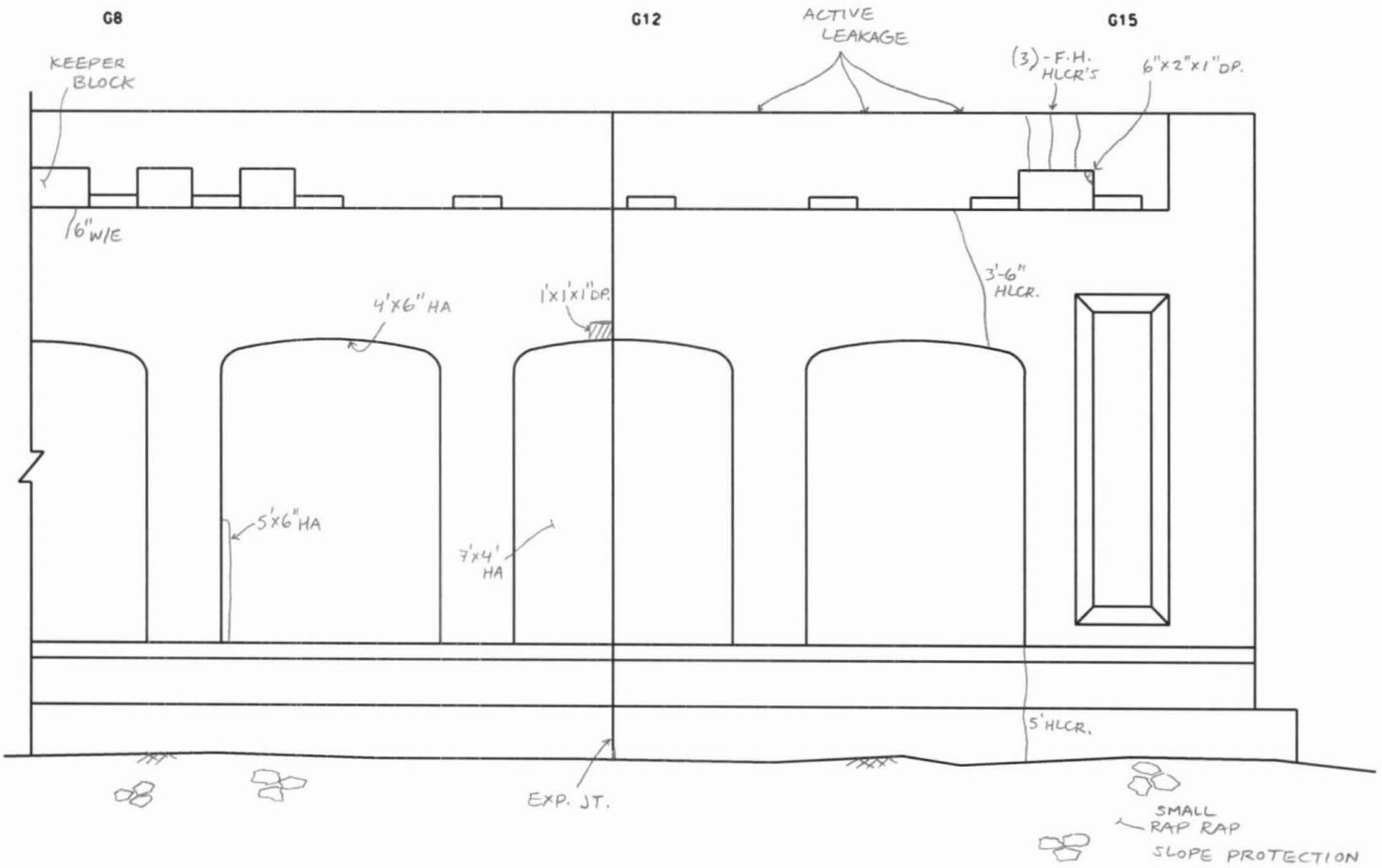
DATE: 1/4/07

CREW: PH, EJL, MJW

BRIDGE NO. 05653

SHEET 27/73

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



GENERAL NOTES:

- LT. TO MOD. PIGEON DEBRIS ON SEAT.
- EVIDENCE OF LEAKAGE ALONG F.L. OF STEM.
- THIN LAYER OF SURFACE CONC. DETER. & PEELING.
- NUMEROUS CONC. PATCHES & MPCR. ON STEM, ALSO RANDOM HOLLOW AREAS.

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

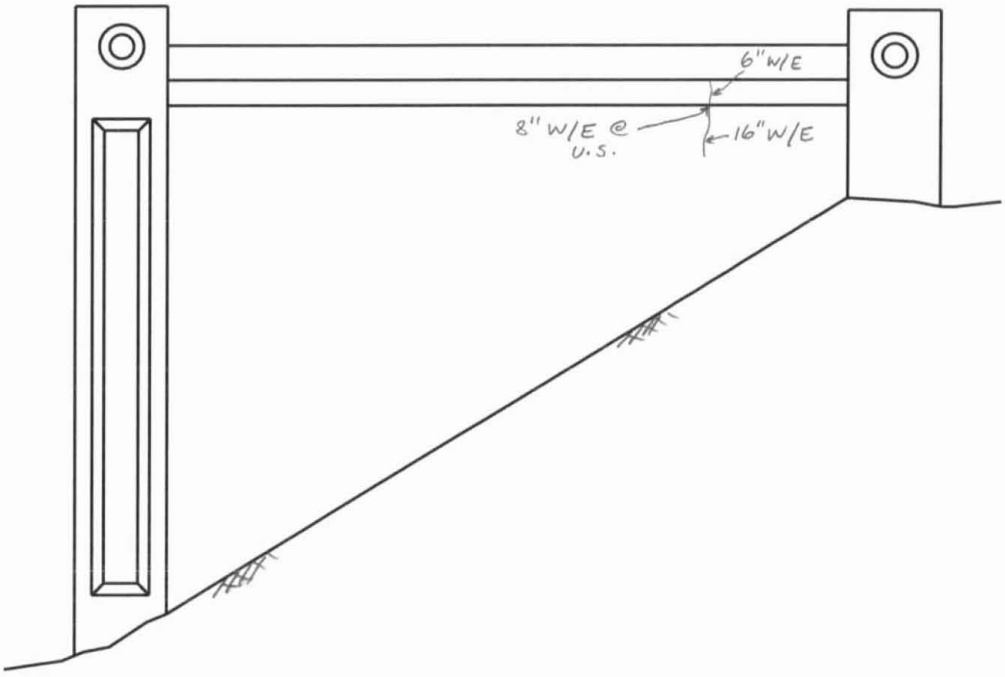
EAST ABUTMENT - SOUTH HALF
(N.T.S.)

HAKS FIELD NOTES

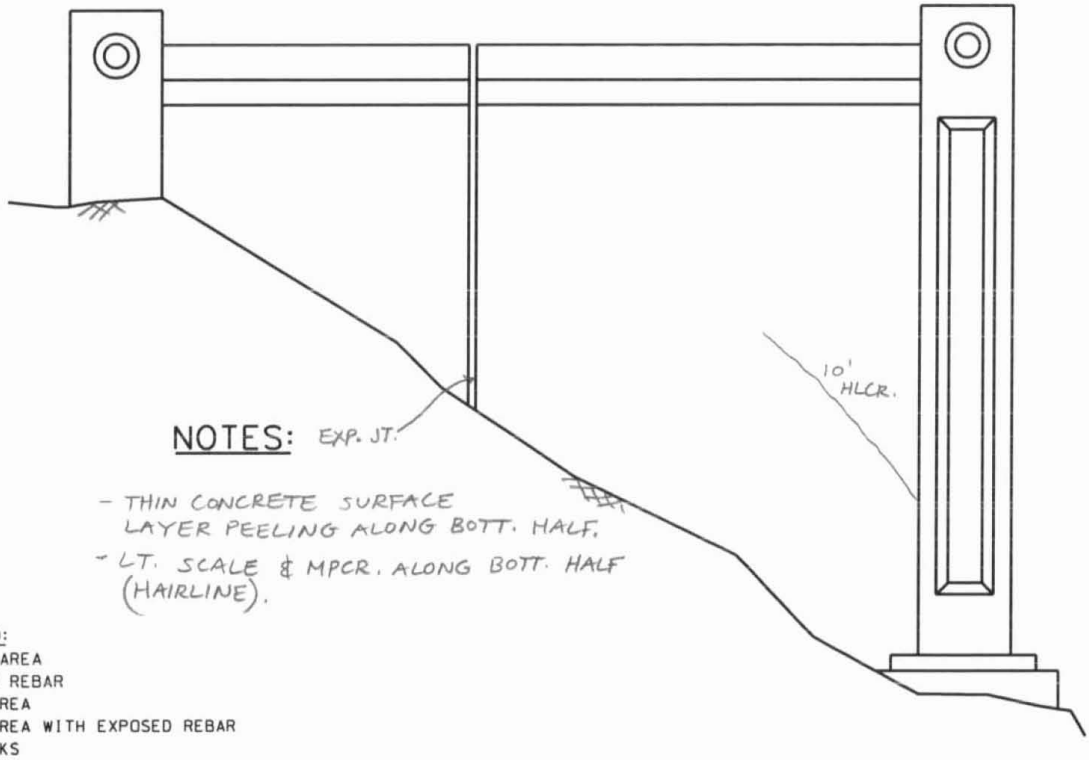
JOB NO. 170-2729
DATE: 1/4/07
CREW: PH, EJL, MJW
BRIDGE NO. 05653
SHEET 28/73

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

HAKS FIELD NOTES	JOB NO.170-2357	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET 29/73
	CREW: PH, EJL	



NORTHWEST WINGWALL
(N.T.S.)



NOTES:

- THIN CONCRETE SURFACE LAYER PEELING ALONG BOTT. HALF.
- LT. SCALE & MPCR. ALONG BOTT. HALF (HAIRLINE).

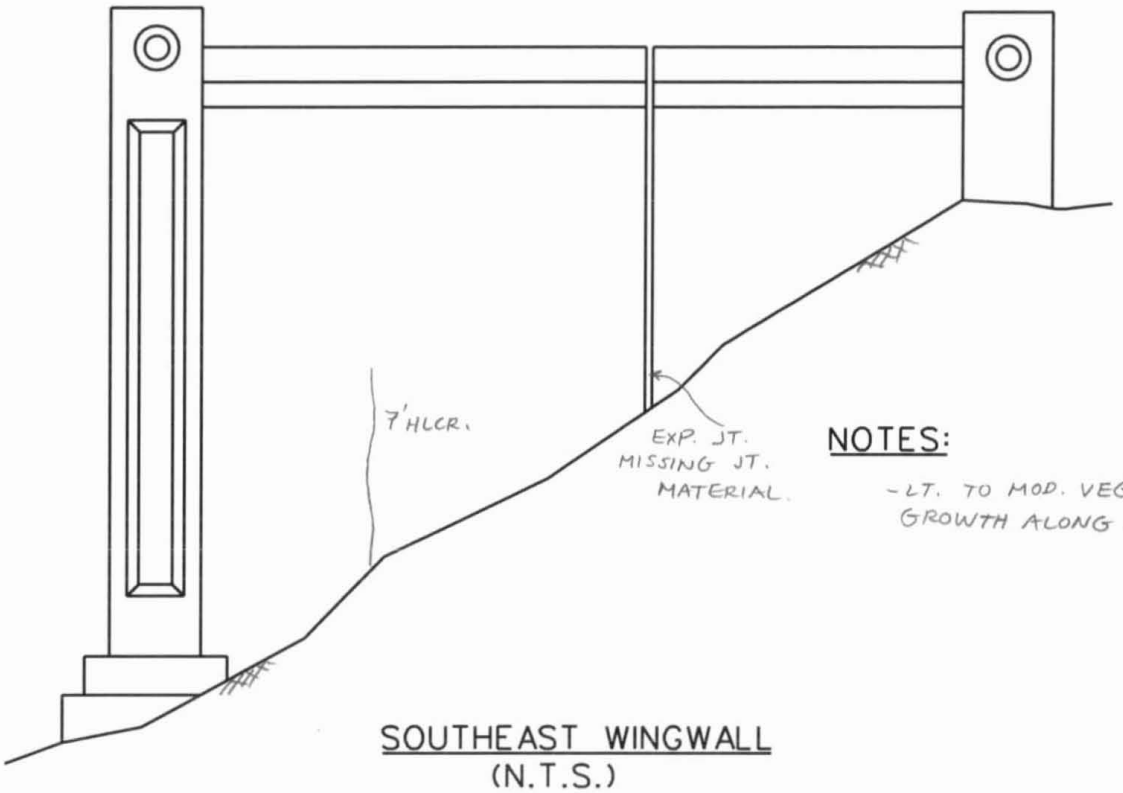
LEGEND:

- 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

SOUTHWEST WINGWALL
(N.T.S.)

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

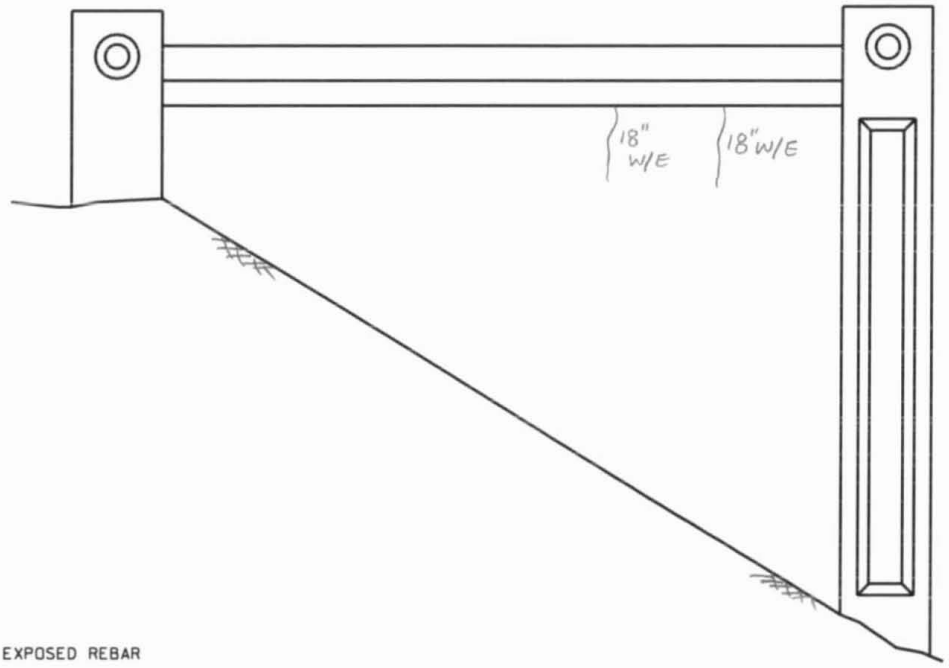
HAKS FIELD NOTES	JOB NO. 170-2729	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET 30/73
	CREW: PH, EJL	



NOTES:

- LT. TO MOD. VEGETATION GROWTH ALONG FACE.

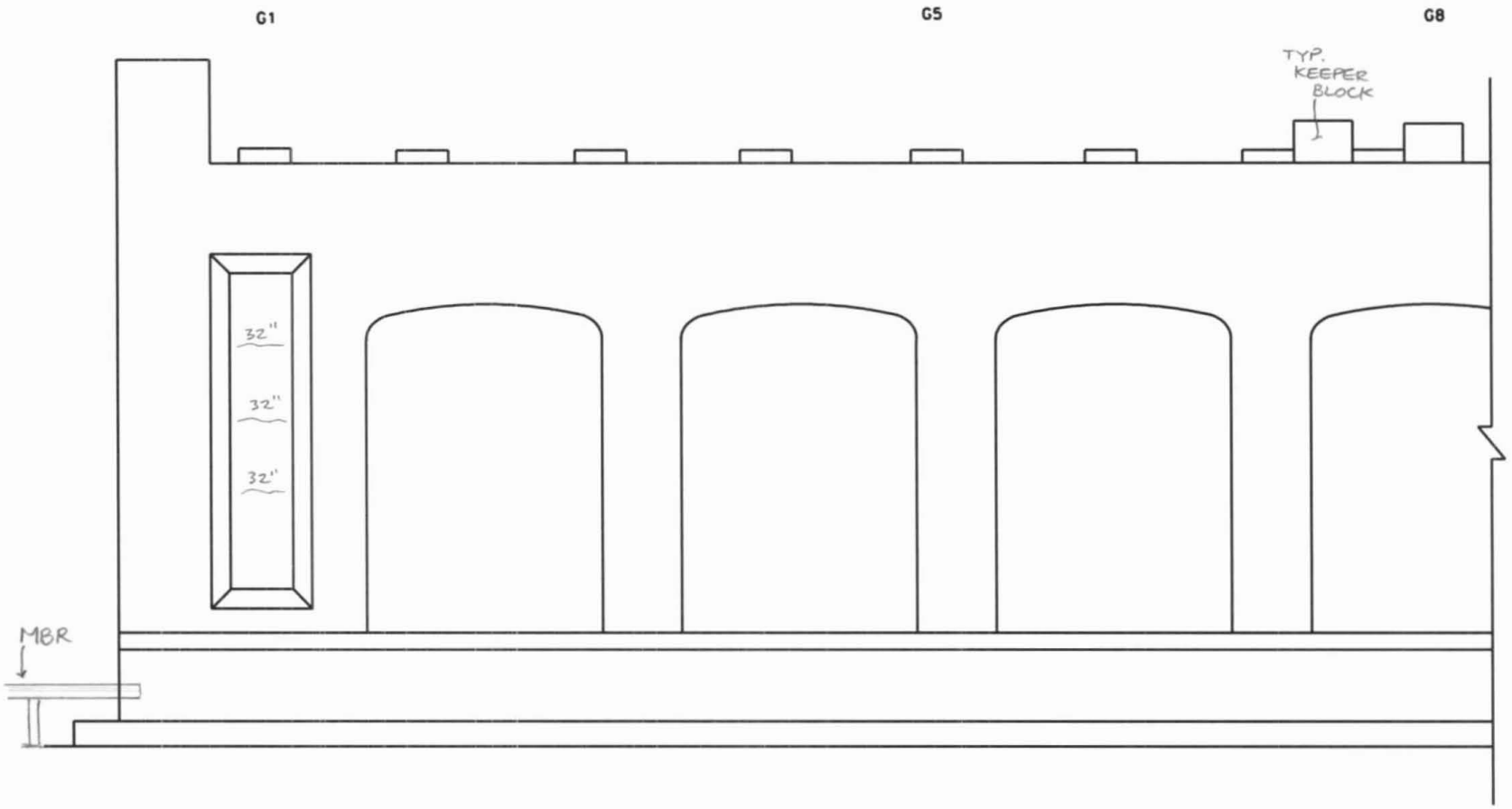
SOUTHEAST WINGWALL
(N.T.S.)



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

NORTHEAST WINGWALL
(N.T.S.)

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



GENERAL NOTES:

- NUMEROUS CONC. PATCHES W/MPCR. THROUGHOUT.
- PIER BASE ALONG PAVEMENT INTERFACE WITH SEVERE SCALE & CRACKING.

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 - WEST ELEVATION, NORTH HALF
(N.T.S.)

HAKS

FIELD NOTES

JOB NO. 170-2729

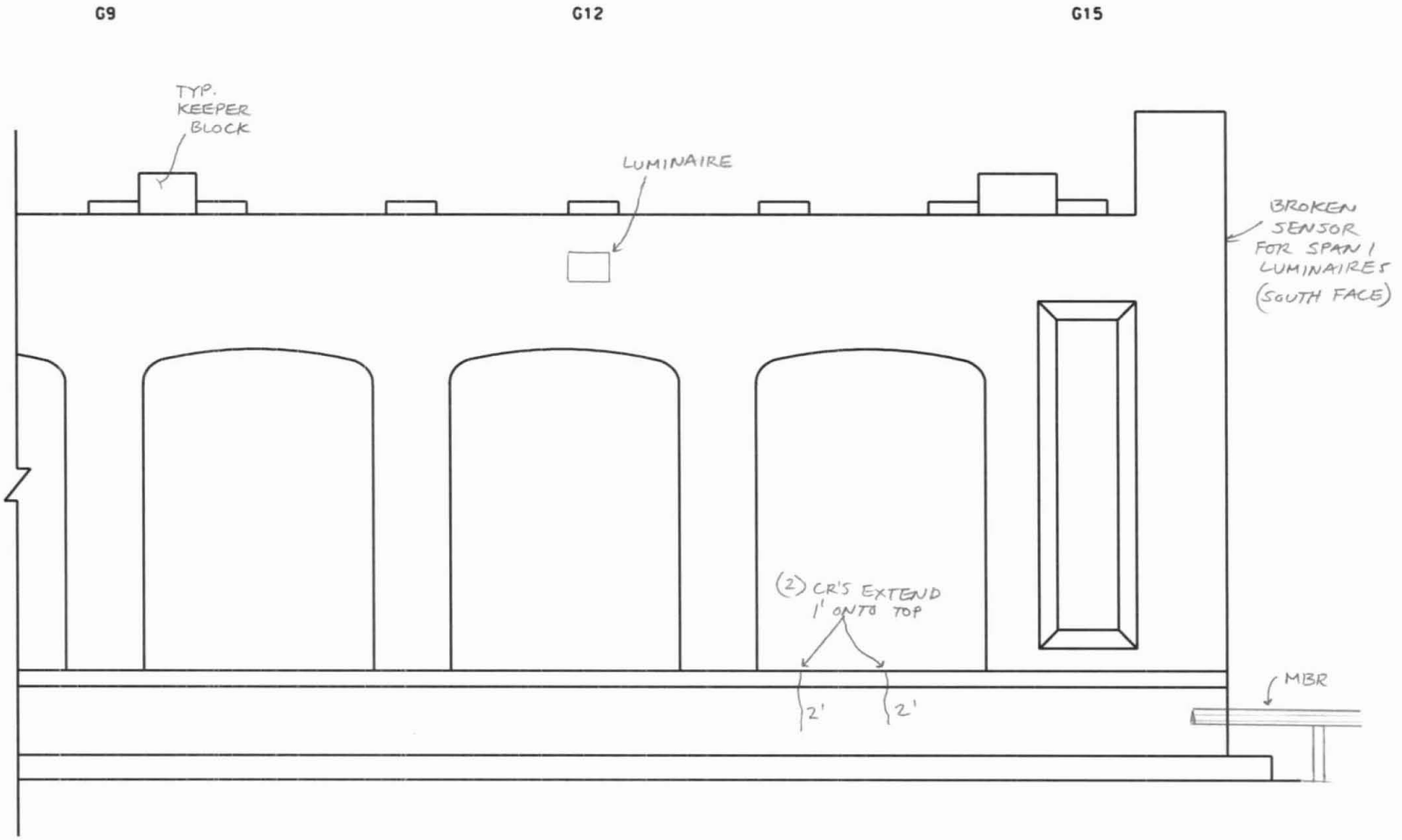
DATE: 1/4/07

CREW: EJL, MJW, PH

BRIDGE NO. 05653

SHEET 31/73

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



GENERAL NOTES:

- NUMEROUS CONC. PATCHES W/MPCR. THROUGHOUT.
- PIER BASE ALONG PAVEMENT INTERFACE WITH SEVERE SCALE & CRACKING.

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 - WEST ELEVATION, SOUTH HALF
(N.T.S.)

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

HAKS

FIELD NOTES

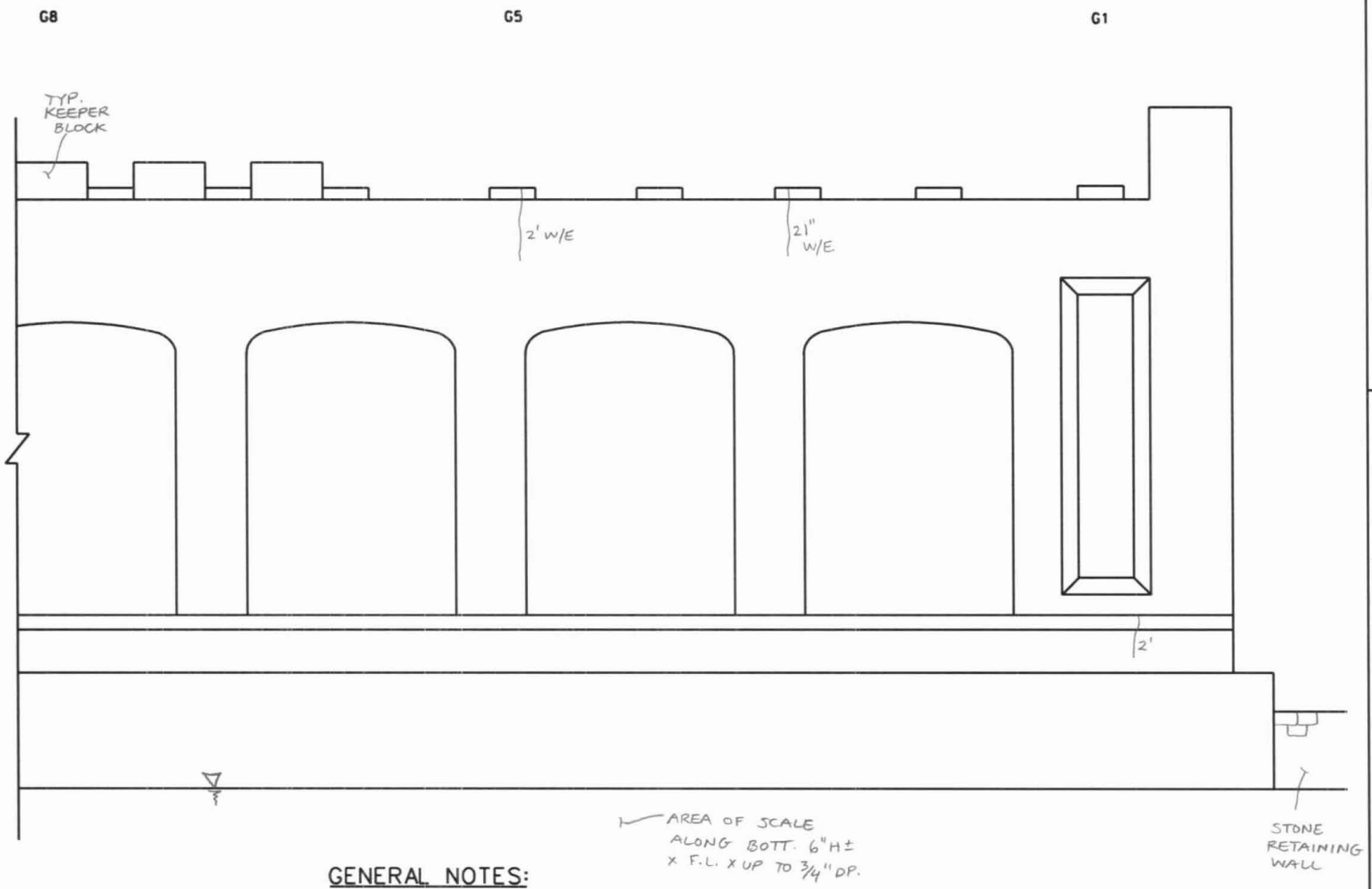
JOB NO. 170-2729

DATE: 1/4/07

CREW: EJL, MJW, PH

BRIDGE NO. 05653

SHEET 32/73



GENERAL NOTES:

- NUMEROUS CONC. PATCHES W/ MPCR. THROUGHOUT.

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 - EAST ELEVATION, NORTH HALF
(N.T.S.)

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

HAKS

FIELD NOTES

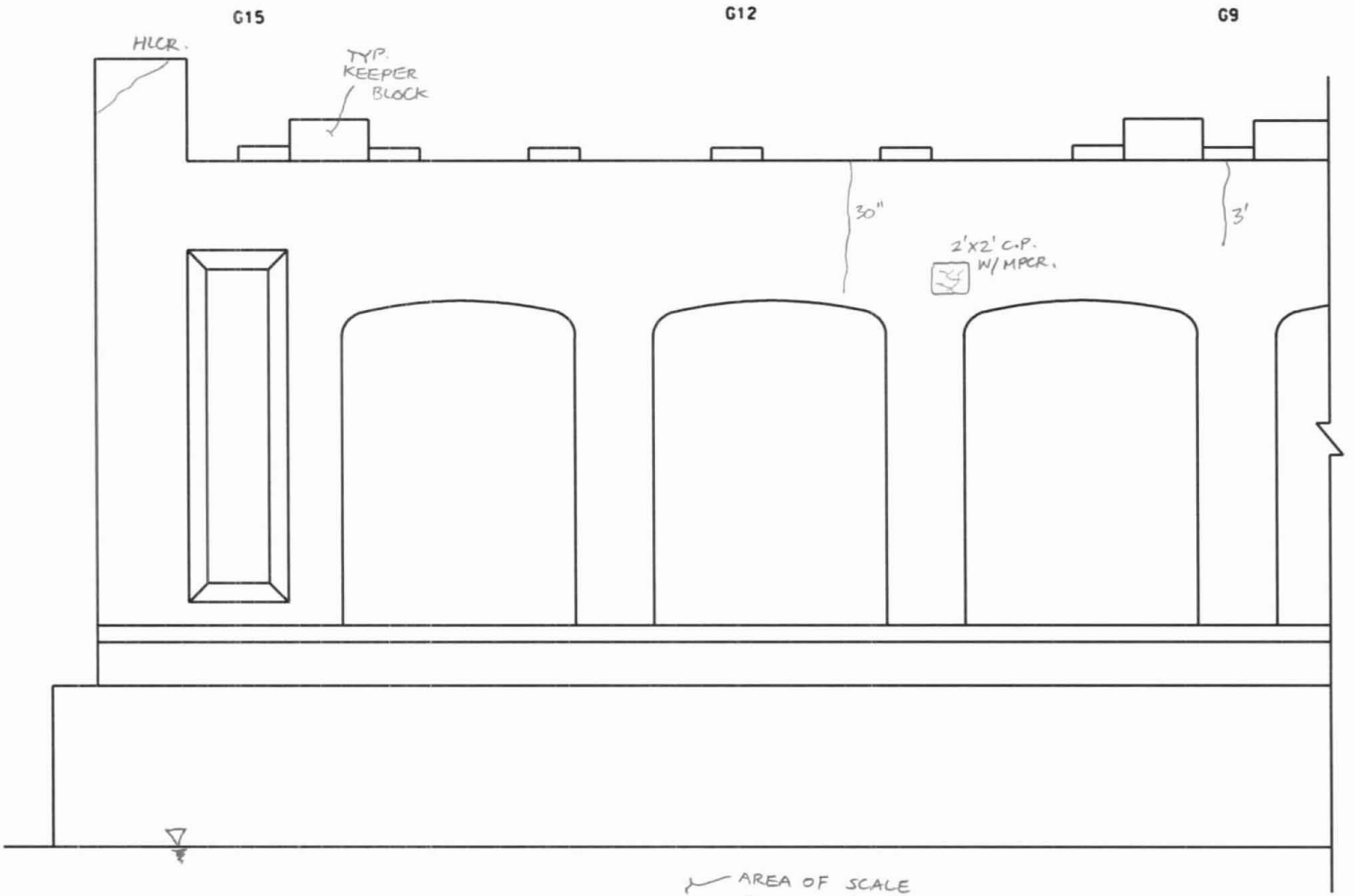
JOB NO. 170-2729

BRIDGE NO. 05653

DATE: 1/4/07

CREW: EJL, MJW, PH

SHEET 33/73



GENERAL NOTES:

- NUMEROUS CONC. PATCHES W/MPCR. THROUGHOUT.

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 - EAST ELEVATION, SOUTH HALF
(N.T.S.)

REVISION	DATE	CREW	REVISION	DATE	CREW
1			3		
2			4		

HAKS

FIELD NOTES

JOB NO. 170-2729

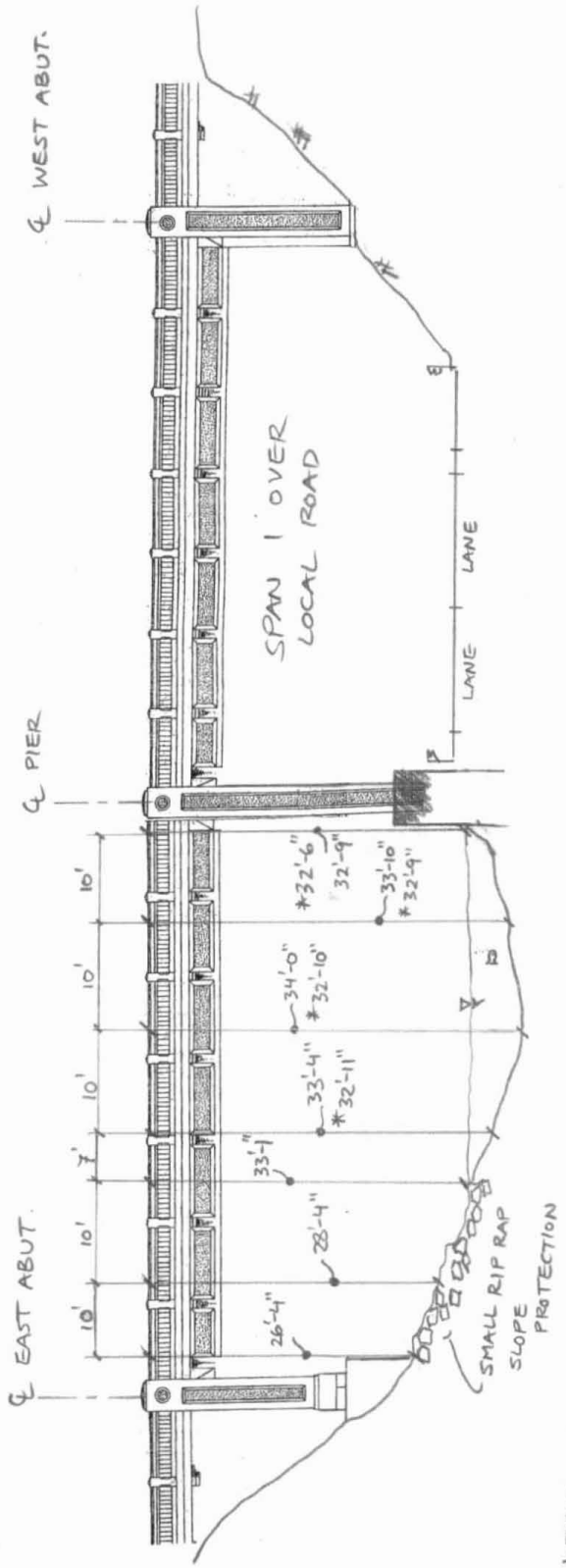
BRIDGE NO. 05653

DATE: 1/4/07

CREW: EJL, MJW, PH

SHEET 34/73

HAKS FIELD NOTES	JOB NO. 170-2729	BRIDGE NO. 05653
	DATE: 1/4/07	SHEET 35/73
	CREW: PH, EJL, MJW	



NORTH ELEVATION, UPSTREAM FASCIA

SPAN 2, N.T.S.

NOTES:

- ALL VERTICAL MEASUREMENTS TAKEN FROM TOP OF PARAPET @ 10' INCREMENTS, UNLESS NOTED OTHERWISE.
- * = MEASUREMENTS TAKEN TO TOP OF WATER.
- CHANNEL WIDTH = 37'±
- MAX. WATER DEPTH = 1'-2"± ALONG FASCIA.

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

HAKS

FIELD NOTES

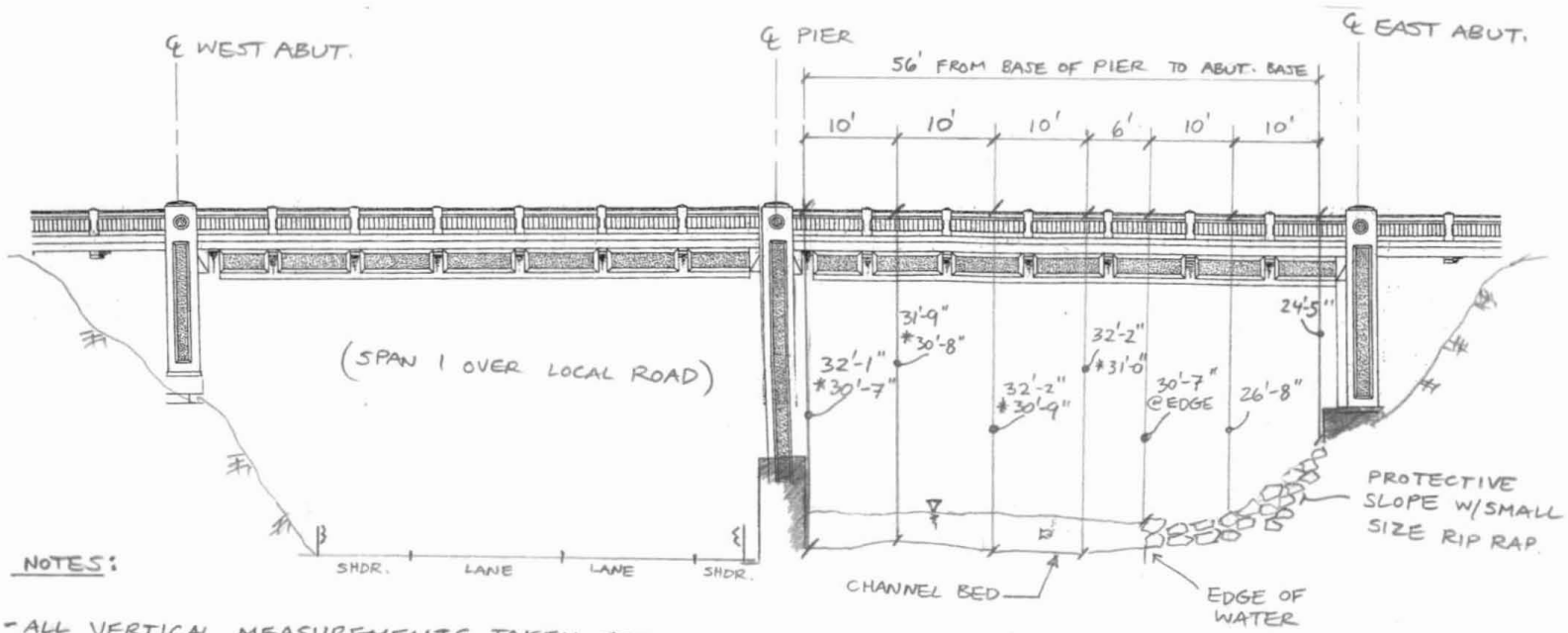
JOB NO. 170-2729

BRIDGE NO. 05653

DATE: 1/4/07

SHEET 36/73

CREW: PH, EJL, MJW



NOTES:

- ALL VERTICAL MEASUREMENTS TAKEN FROM TOP OF PARAPET @ 10' INCREMENTS, UNLESS NOTED OTHERWISE.

* = MEASUREMENT TAKEN TO TOP OF WATER.

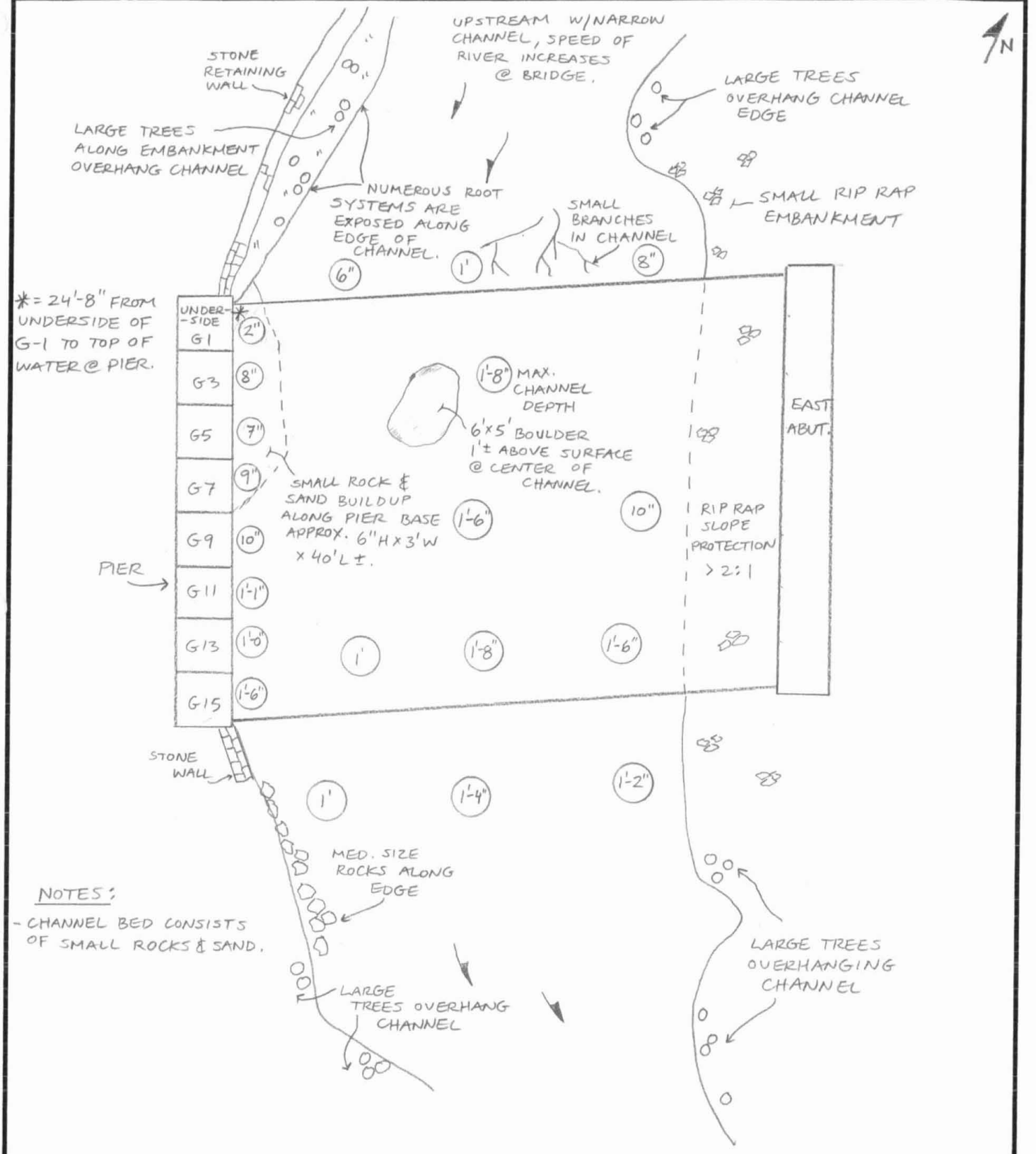
- CHANNEL WIDTH = 36'±
- MAX. WATER DEPTH @ FASCIA = 1'-6"±

SPAN 2, (NTS)

SOUTH ELEVATION, DOWNSTREAM FASCIA

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

HAKS FIELD NOTES	JOB NO. 170-2729	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET 37/73
	CREW: PH, EJL	



NOTES:

- CHANNEL BED CONSISTS OF SMALL ROCKS & SAND.

(#) = WATER DEPTH

CHANNEL PLAN

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

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 05653 Date 1/4/07

Town: GREENWICH Photographer: EJL

Carried / Crossed: RT. 15 OVER RIVERSVILLE RD. & BYRAM RIVER

Film Frame #	Image Description
1,2	BIN
3	SW APPROACH GUIDE RAIL – MINOR IMPACT DAMAGE @ TRANSITION
4	W. ELEVATION OF PIER – TYP. CONFIGURATION
5	SOUTH ELEVATION
6	NORTH ELEVATION
7	WEST ABUTMENT ELEVATION
8	SP 1 TYP. UNDERSIDE OF DECK (LOOKING WEST)
9	UPSTREAM CHANNEL
10	DOWNSTREAM CHANNEL
11	E. ABUTMENT ELEVATION
12	SPAN 2 S. ELEVATION
13	W. ABUT. MIDDLE UNDER BRIDGE LUMINAIRE – DESTROYED
14	PIER W. SIDE @ S. END – TYP. UNDERBRIDGE LUMINAIRE, NOT WORKING @ TIME OF INSP.
15	SP 2 BAY 14 – TYP. WEEP PIPES
16	SP 2 G13 E. ABUT BRG – TYP. GLASS MERIC BRG
17,18	SP 2 G14 @ E. ABUT (N. SIDE) – HLC @ BOT FLG @ END
19	SP 2 G13 @ E. ABUT (S. SIDE) – HOLLOW AREA W/VERT CRK
20	E ABUT BTWN G6 – G10 – AREAS OF ACTIVE LEAKAGE
21	E. APPROACH FROM BRIDGE
22	BRIDGE FROM W. APPROACH
23	W. APPROACH FROM BRIDGE
24	SP 2 G2 BRG @ E. ABUT – PAD TILTED WEST NOTE G3 SIMILAR
25,26	SP 2 G2 (N. SIDE) @ E. ABUT – BOT FLG NE CORNER W/SPALL EXPOSING REBAR & STRANDS
27	SP 2 BAY 6 @ E SIDE OF 1ST INT. DIAPH FROM E. ABUT – HA W/RUST STAINS @ G6

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 05653 Date 1/5/07

Town: GREENWICH Photographer: EJL

Carried / Crossed: RTE 15 (MERRITT PKWY) / BYRAM RIVER, RIVERSVILLE RD

Film Frame #	Image Description
28	W. ABUT SEAT BTWN G2&G3 – ACCUM. OF SAND, DEBRIS, BIRD DEBRIS
29, 30	G2 BRG @ W. ABUT – SE CORNER W/ GAP BTWN BOT FLG & PAD
31	G1 BRG @ W. ABUT – BULGING OF FLASTO. PAD
32	G4 BRG @ W. ABUT – SE CORNER W/ GAP BTWN BOT FLG & PAD
33, 34	G5 BRG @ W. ABUT – SE CORNER W/ GAP BTWN BOT FLG & PAD, PAD TILTED @ 55° E CAST
35, 36	BAY 5 @ W. ABUT – DECK END W/ SPALL W/ EXP. REBAR @ G5, MPCR W/ E
37	BAY 4 @ W. ABUT – DECK END W/ MPCR W/ EFFLO & RUST STAINS
38	BAY 12 @ W. ABUT – ACTIVE LEAKAGE FROM JT.
39	SP 1 G14 (S. SIDE) OVER SB LANE – SPALL @ EDGE OF BOT FLG
40, 41	SP 1 G15 BRG @ W. ABUT – PAD OVERHANGS PED. CHAMFER ON N. & S. SIDES, PAD TILTED NORTH
42	SP 1 G14 @ W. ABUT – BOT FLG S. SIDE @ END W/ 2 HRC'S (VERT)
43	SP 1 G15 @ PIER (N. SIDE) – VERT CRK IN WEB @ END
44	SP 2 G15 @ PIER (N. SIDE) – VERT CRKS IN WEB @ END
45	G14 @ PIER – CONC. CIP BLOCKS W/ VERT & HORIZ CRKS BTWN SPANS (N. SIDE)
46	UNDERBRIDGE LUMINAIRE PHOTO CELL (LIGHT SENSOR) BROKEN @ S. END OF PIER
47	SP 1 S. PARAPET @ PIER – SPALL
48	BAY 5 UNDERSIDE OVER PIER – HONEYCOMB AREA @ G5
49	SP 2 BAY 6 UNDERSIDE @ G6 NEAR E. ABUT – 3½' x 2' HOLLOW AREA W/ RUST & EFFLO STAINS
50	NW WINGWALL
51	SW WINGWALL
52	PIER, W. SIDE @ N. END – BASE ALONG ROADWAY INTERFACE W/ SPALLS

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 05653 Date 1/4/06

Town: GREENWICH Photographer: MJW/PH.

Carried / Crossed: RT. 15 OVER RIVERSVILL RD. & BYRAM RIVER.

Film Frame #	Image Description
53	E. ABUT. ASPH. PLUG. JT. (RT. 15 NB SIDE) LKG NORTH.
54	E. APPR. PVM'T cond. From RT. 15 NB. SIDE.)
55	SAME LOC. AS PHOTO # 2. (Heaving OF PVM'T IN SHLD)
56	TYP. PVM'T cond. IN SPAN 2 (NB. SIDE.)
57	TYP. " " " " 1 (" ")
58	W. ABUT ASPH. PLUG JT. (RT. 15 NB. SIDE.)
59	" " " " " " " (NOTE: CLOSE-UP OF SPALL IN RT. SHLD.)
60	W. APPRO. PVM'T cond. (NB. SIDE.)
61	" " " (HEAVED AREAS IN RT SHLD NEAR JT.)
62	BR. ID - PAINTED.
63	TYP. Merritt Parkway WOODEN Genius Rail (Rail RT SW. Appr. Shown)
64	(Relief JT.?) AT W. APPR (NB. SIDE.) W/ Trans. crk
65	conc. median BARRIER (NB. SIDE.) W/ Imp. DAMAGE. (Scrapes)
66	TYP. PDT. & CURB configuration (S. SIDE PPT. Shown.)
67	Rand. Heaved. AREAS OF THE ASPH. IN the RT. SHLD. OF
	(RT. 15 NB.)
68	WEST ABUT A. PLUG JT. (S.B. SIDE) W/ MINOR POTHOLES & ADHESION CRS
69	WEST APP. OVERLAY @ LEFT SHDR. (S.B SIDE) NOTE
	POTHOLES & SETTLED PATCH
70	COND. OF OVERLAY SPAN 1 (S.B. SIDE). NOTE
	SHORT RANDOM CR'S 1/8"± W & SEALED CR'S
71.	WEST APP. OVERLAY (S.B. SIDE) W/ SEALED CR'S
72	EAST ABUT A. PLUG JT. (S.B. SIDE) W/ POTHOLE
73	POT HOLE IN E. ABUT. A. PLUG JT. 3'6"L x 1'-8"W x 2" DP. ±

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 05653 Date 1/4/07

Town: GREENWICH Photographer: PH

Carried / Crossed: RT. 15 / RIVERSVILLE RD. & BYRAM RIVER

Film Frame #	Image Description
74	EAST APP. OVERLAY W/ LONGITUDINAL CR'S 3/16"W + &
	SEALED CR'S
75.	S.E. TIMBER GUIDE RAIL ATTACHMENT
76	E. APPRO. From Br. (15 SB. Side)
77	Br. From E. APPRO. (15 SB. SIDE)
78	Br. From W. APPRO. (15 SB. SIDE)
79	W. APPRO. From Br. (15 SB. SIDE)
80	LARGE AREAS OF DETER. & DAMP CONC. W/ EXP. WIRE MESH @ W. ABUT STEM
	& BASE UNDER G6 & G7.
81	SAME LOC. AS ABOVE PIC
82	TYP. ACTIVE LEAKAGE ALONG WEST ABUT.
83	EAST ELEVATION OF PIER
84	HEAVY ACTIVE LEAKAGE BTWN. G5 & 6 @ W. ABUT.

Bridge No.	05653	**Inspected by:**	Erik Laakso
Town:	Greenwich	**Inspected by:**	Paul Holmes
Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

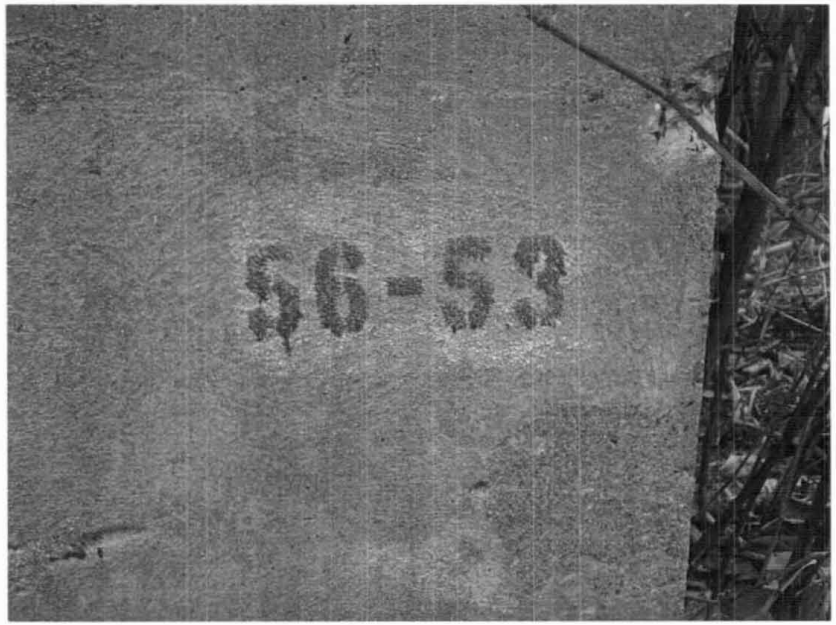


Photo # 1: Bridge ID.

Photo # 2: Bridge from west approach.

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Bridge No.	05653	**Inspected by:**	Erik Laakso
Town:	Greenwich	**Inspected by:**	Paul Holmes
Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

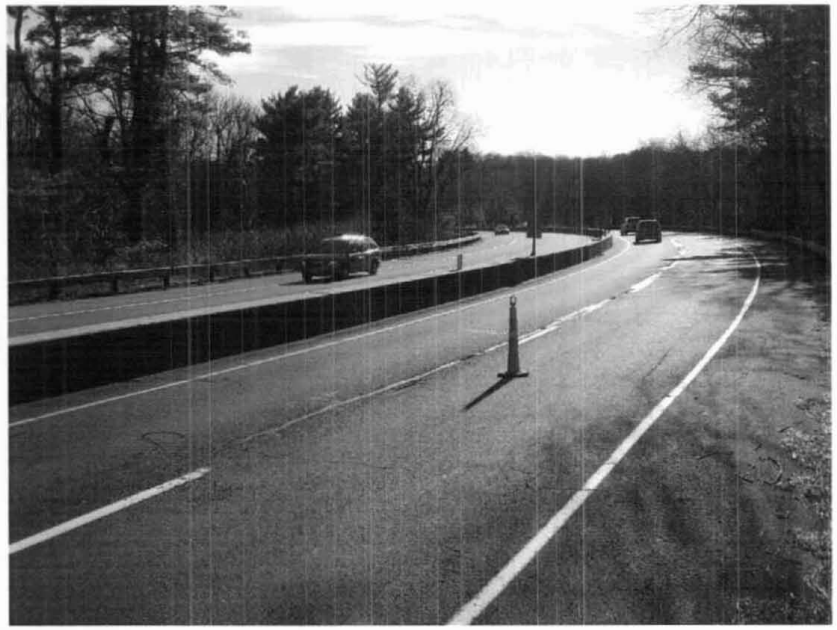

Photo # 3: West approach from bridge.

Photo # 4: Bridge from east approach, southbound side.

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Bridge No.	05653	**Inspected by:**	Erik Laakso
Town:	Greenwich	**Inspected by:**	Paul Holmes
Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

Photo # 5: East approach from bridge, southbound side.

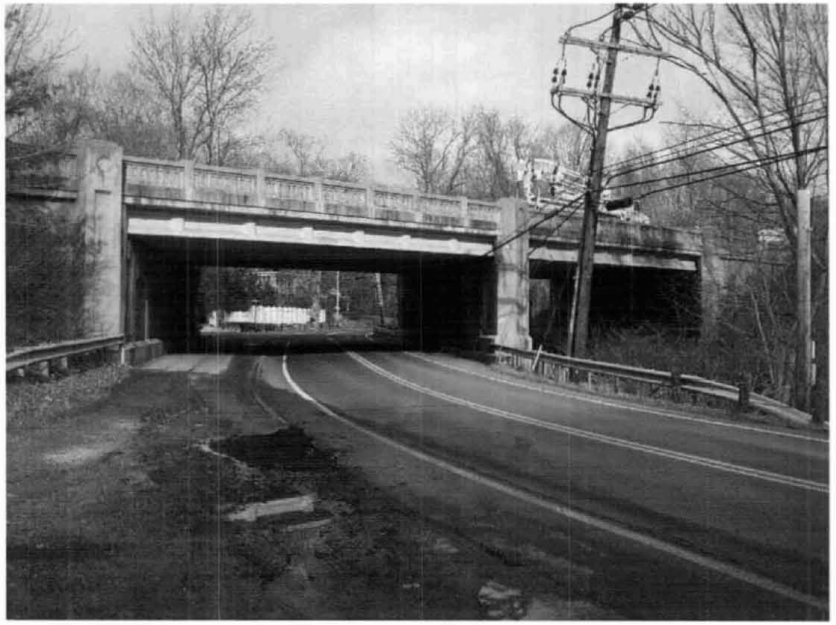

Photo # 6: South elevation.

44/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
Town:	Greenwich	**Inspected by:**	Paul Holmes
Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

Photo # 7: North elevation.

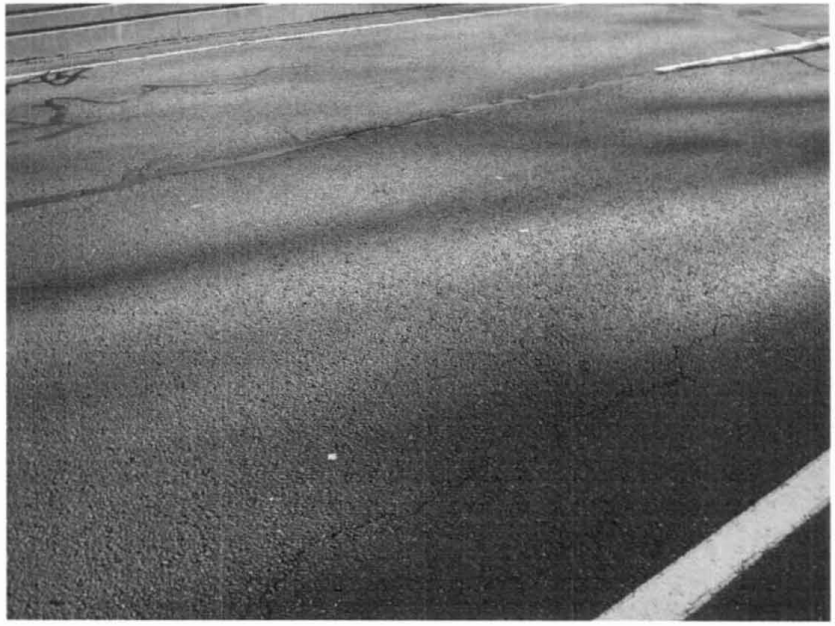

Photo # 8: Span 1, southbound lanes. Typical condition of bituminous concrete overlay. There are random longitudinal and transverse cracks, some are sealed.

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Bridge No.	05653	**Inspected by:**	Erik Laakso
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Photo # 9: Span 2, northbound lanes. Typical condition of bituminous concrete overlay. There are random sealed cracks.

Photo # 10: Span 1, northbound right shoulder. Bituminous concrete overlay has heaved areas up to 1 ½" +/- high and cracks up to ¼" wide +/-.

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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

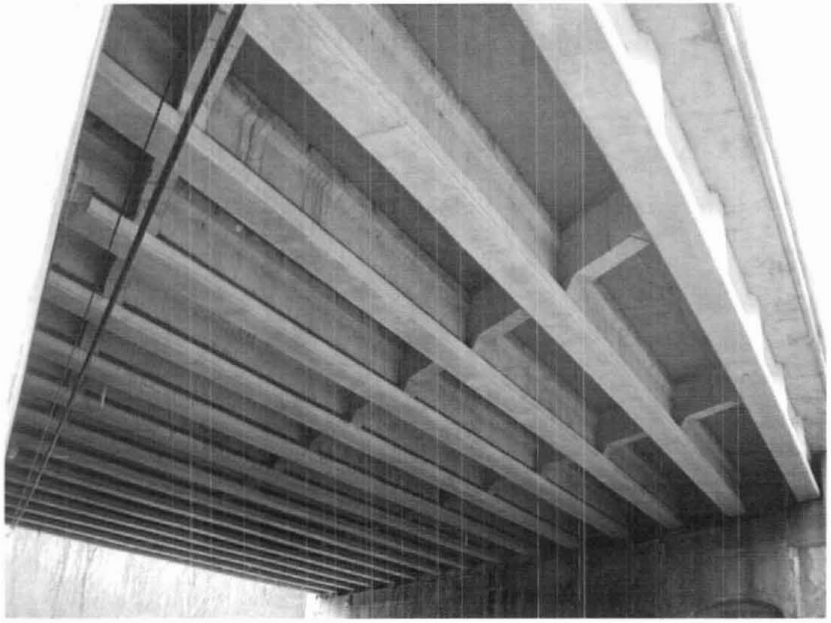

Photo # 11: Span 1. Typical underside of deck, looking west.

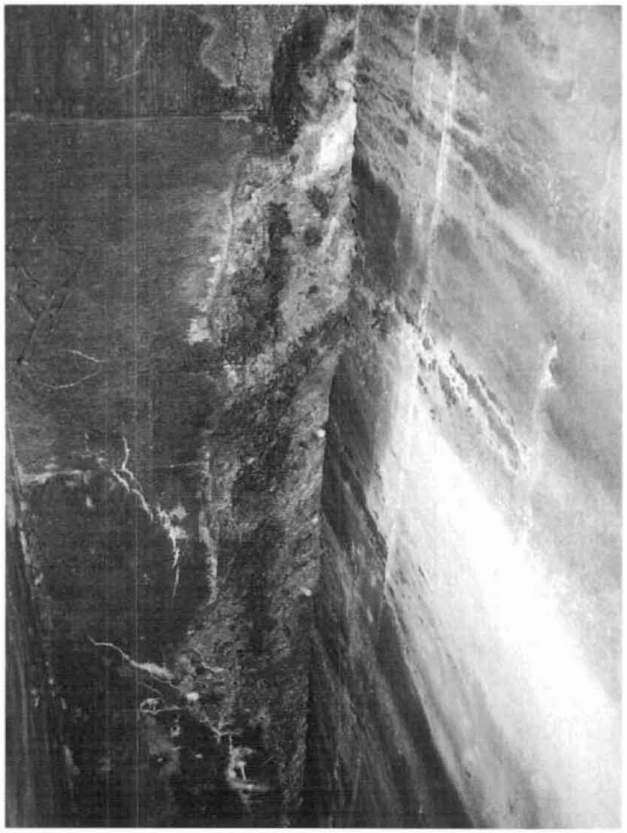

Photo # 12: Span 1, bay 5 underside of deck at the west abutment. Deck end has a spall with exposed rebar and map cracking with efflorescence and rust stains.

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Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

Photo # 13: Bay 5, underside of deck at the pier. Honeycomb area with efflorescence stains.

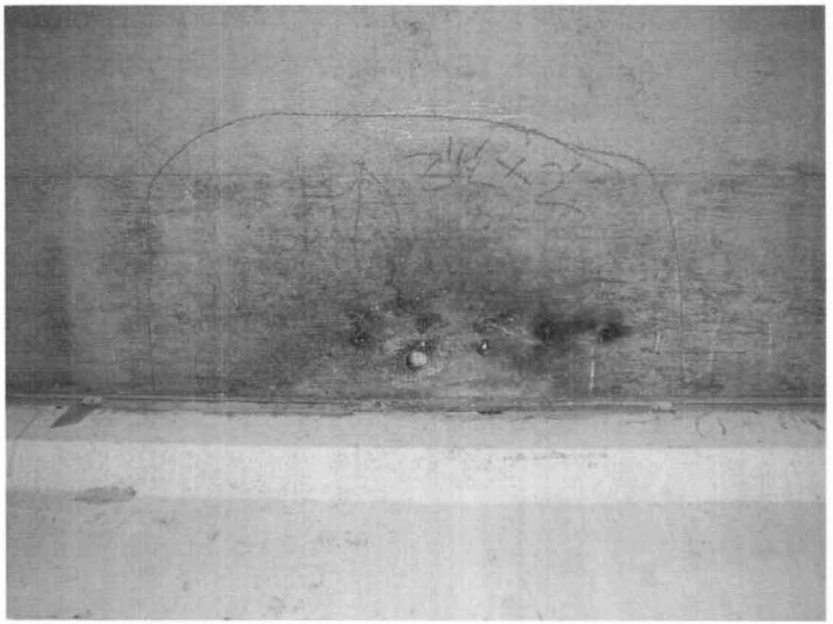

Photo # 14: Span 2, bay 6 underside of deck at Girder G6. There is a hollow area with rust and efflorescence stains.

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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

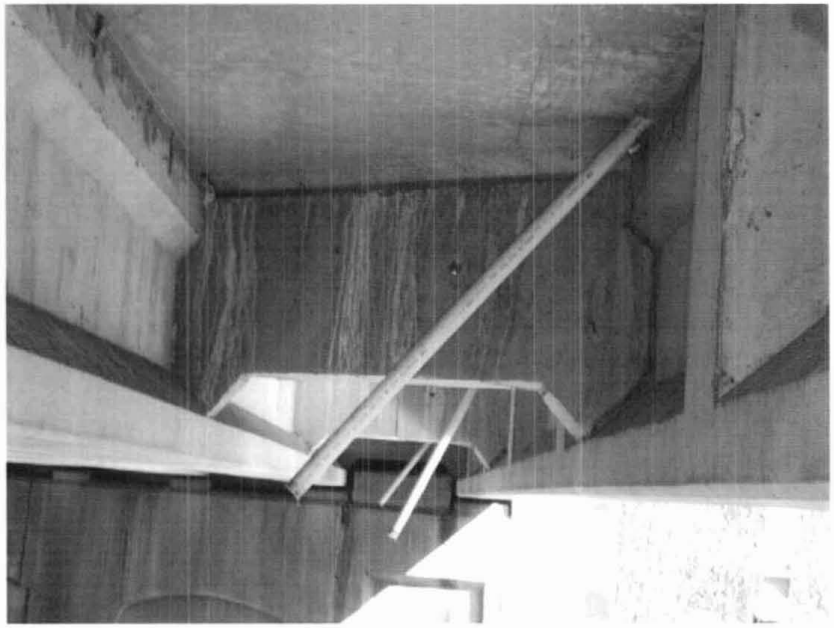

Photo # 15: Span 2, bay 14. Typical weep pipe configuration.

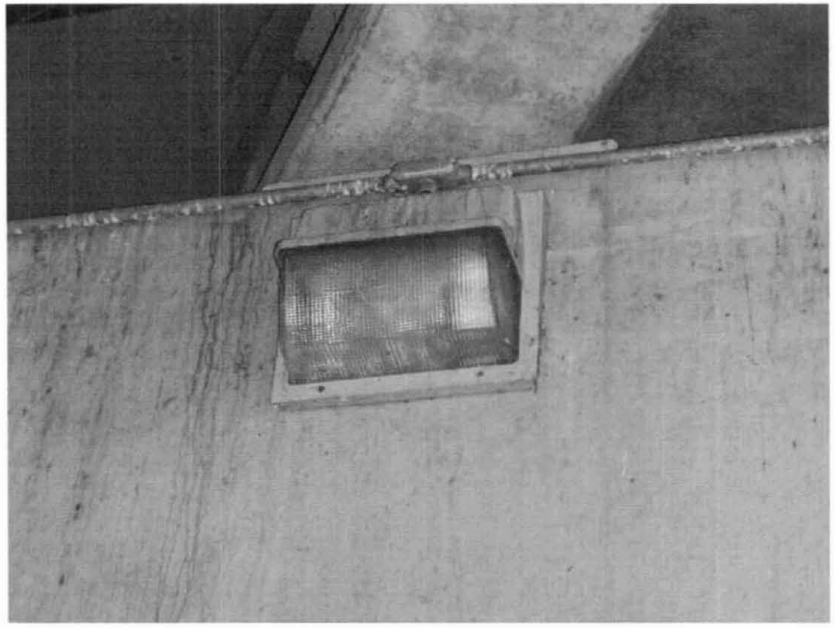

Photo # 16: Pier cap, west side at Girder G13. Typical under bridge luminaire. Note: Luminaires were not working at the time of inspection.

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Bridge No.	05653	**Inspected by:**	Erik Laakso
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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

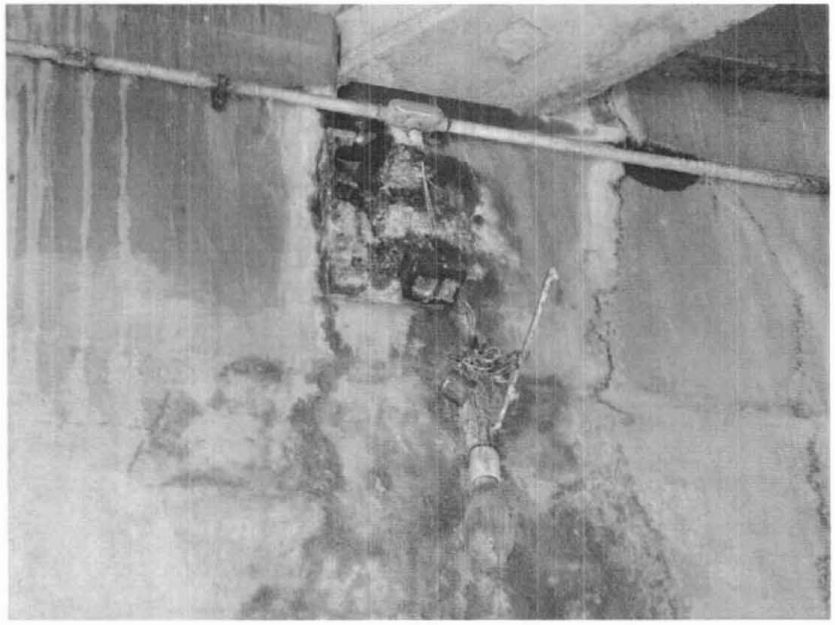

Photo # 17: West abutment stem at Girder G8. Under bridge luminaire is broken/destroyed.

Photo # 18: Pier at south end. Sensor for the span 1 under bridge luminaires is broken.

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Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

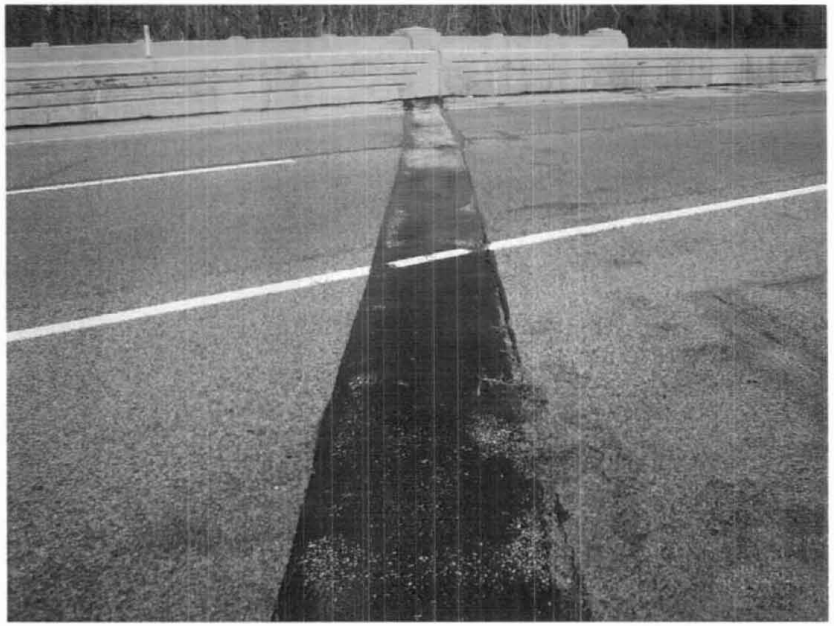

Photo # 19: East abutment asphaltic plug joint, northbound side. There are adhesion cracks.

Photo # 20: West abutment asphaltic plug joint, southbound side. There are minor potholes and adhesion cracks.

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Bridge No.	05653	**Inspected by:**	Erik Laakso
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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

Photo # 21: East abutment asphaltic plug joint, southbound side. There are adhesion cracks and a pothole at the centerline of the roadway.

Photo # 22: Close-up of 2" deep pothole in previous photo.

52/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
Town:	Greenwich	**Inspected by:**	Paul Holmes
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Photo # 23: West abutment asphaltic plug joint, northbound side. There are adhesion cracks and the approach pavement is cracked/deteriorated along the joint edge.

Photo # 24: West abutment stem. Typical active leakage from the deck joint for the full length. Note: Galvanized electrical conduit at the top of the stem for the under bridge luminaires has light to moderate rust.

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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

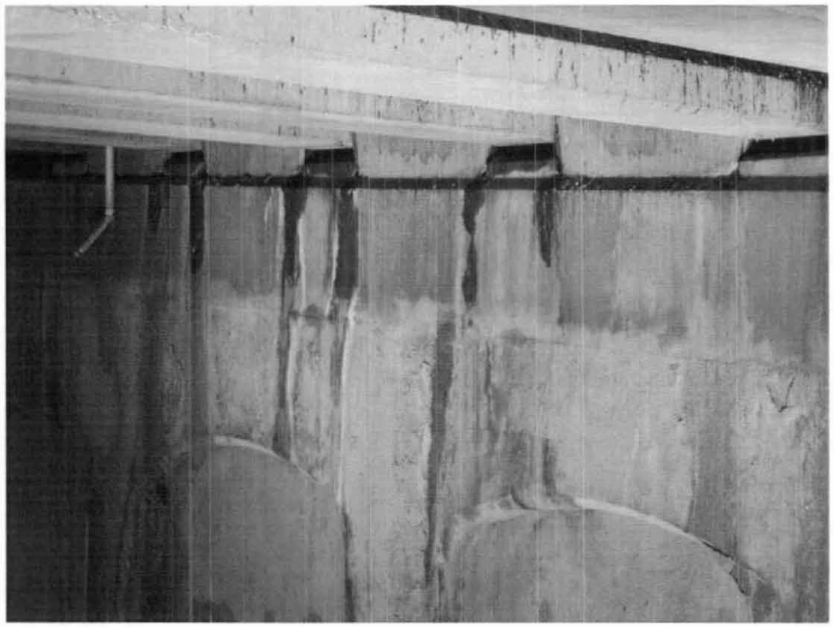

Photo # 25: East abutment between Girders G6-G10. There are areas of active leakage from the deck joint.

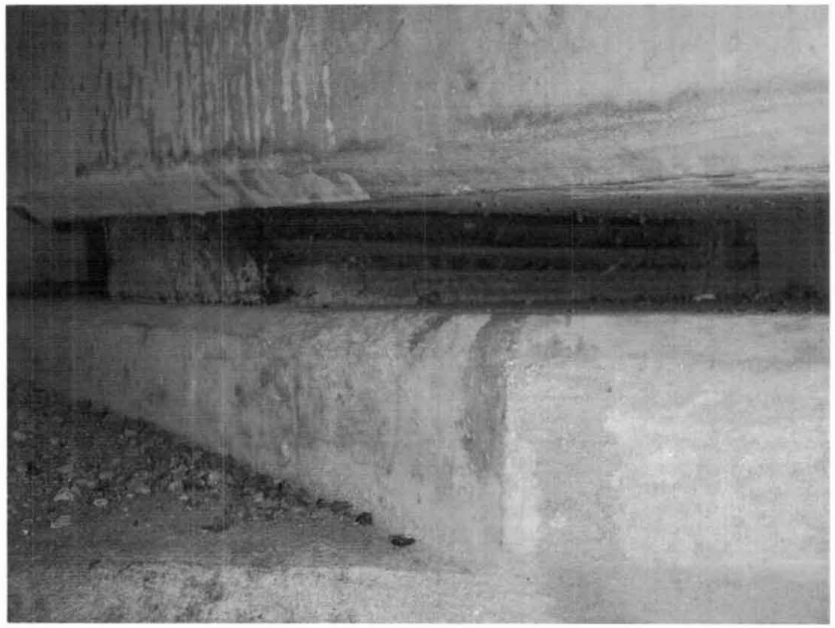

Photo # 26: Span 2, Girder G13 bearing at the east abutment. Typical elastomeric bearing.

54/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
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Photo # 27: Span 2, Girder G2 bearing at the east abutment. Elastomeric pad is tilted west. Girder G3 is similar.

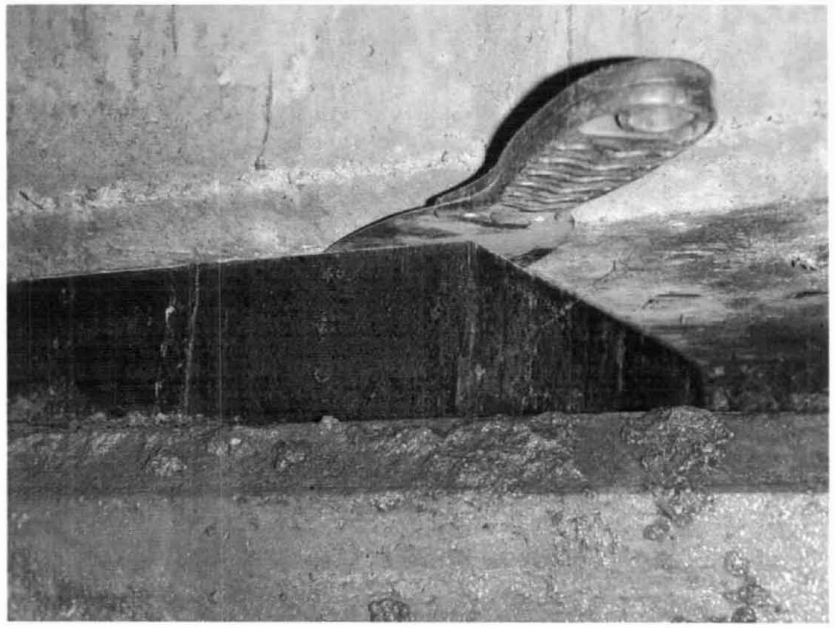

Photo # 28: Span 1, Girder G5 bearing at the west abutment, south side. There is a gap at the southeast corner between the bottom flange and bearing pad. Note: Girder G2, G4 & G10 bearings are similar.

55/73

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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

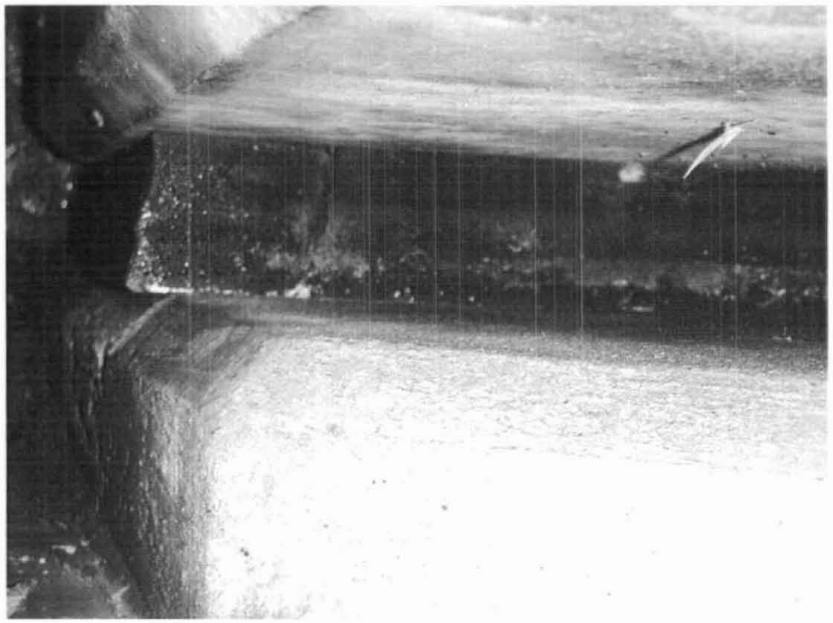

Photo # 29: Span 1, Girder G15 bearing at the west abutment. Elastomeric pad overhangs the pedestal, up to 3/4" +/- at the north and south sides. Also elastomeric pad is tilted north (Girders G13 & G14 are similar).

Photo # 30: Span 1, Girder G14 at the west abutment, south side. Bottom flange at end has two vertical hairline cracks.

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Photo # 31: Span 2, Girder G2 at the east abutment, north side. Bottom flange has a spall at the end with exposed rebar and two exposed strand ends.

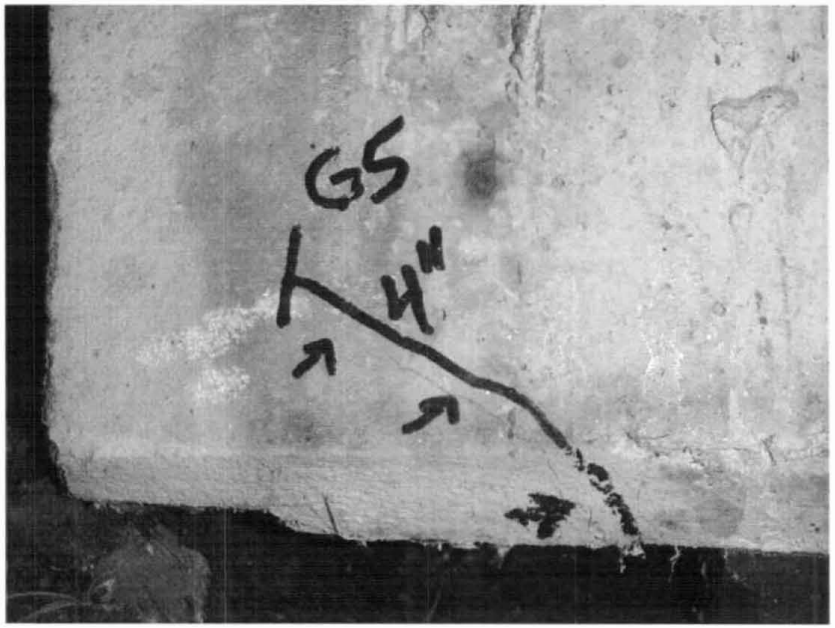

Photo # 32: Span 2, Girder G5 at the east abutment, north side. Bottom flange has a hairline crack at the end.

57/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
Town:	Greenwich	**Inspected by:**	Paul Holmes
Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

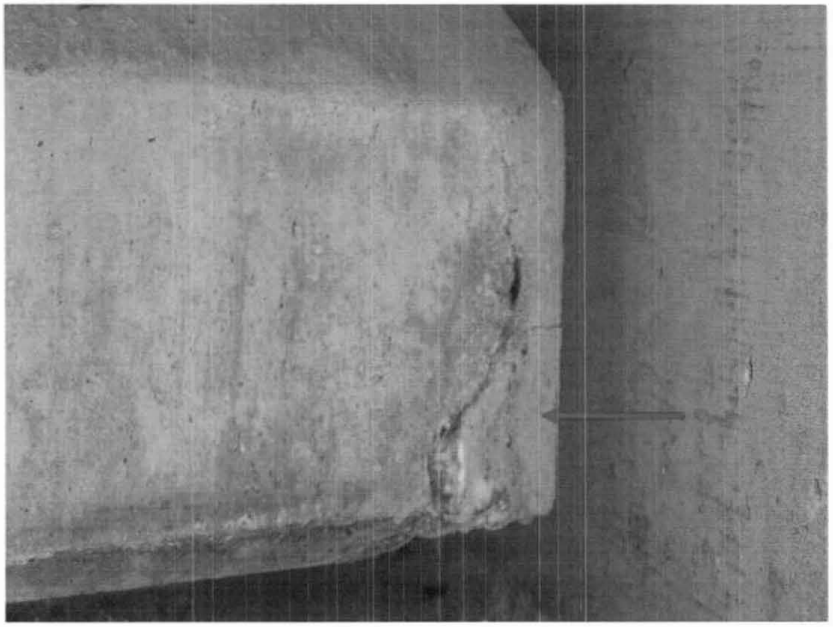

Photo # 33: Span 2, Girder G13 at the east abutment, south side. Bottom flange has a vertical crack and a hollow area at the end.

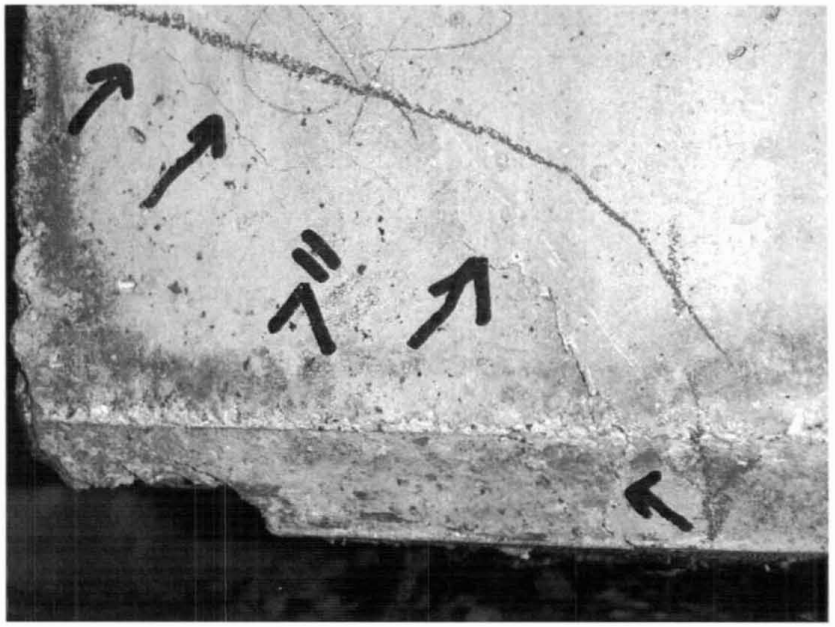

Photo # 34: Span 2, Girder G14 at the east abutment, north side. Bottom flange has a diagonal hairline crack at the end.

Bridge No.	05653	**Inspected by:**	Erik Laakso
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Photo # 35: Span 1, Girder G15 web at the pier, north side. End of girder web has a vertical crack.

Photo # 36: Span 2, Girder G15 web at the pier, north side. End of girder web has two vertical cracks.

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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

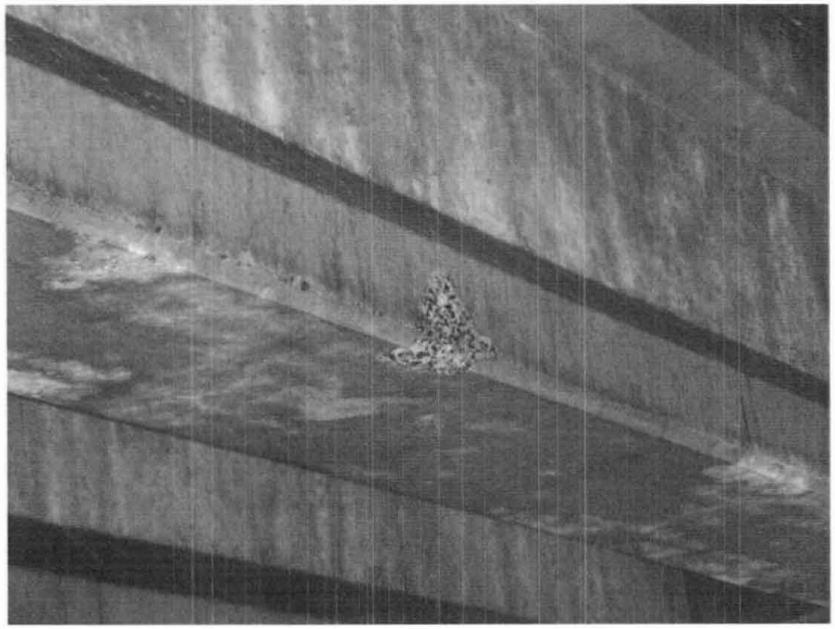

Photo # 37: Span 1, Girder G14, south side. Bottom flange near mid-span has a small area of collision damage.

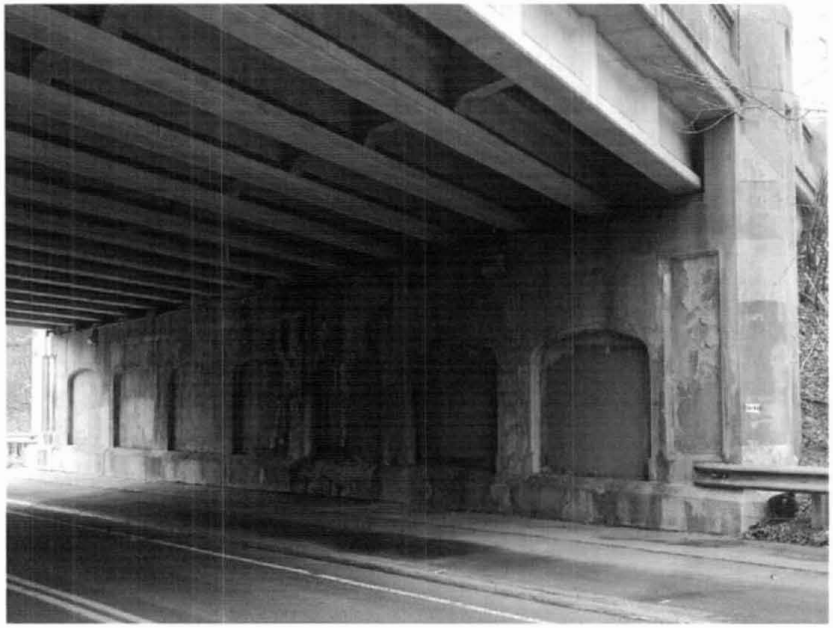

Photo # 38: West abutment elevation.

60/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
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Photo # 39: East abutment elevation. Note: Embankment has rip-rap protection.

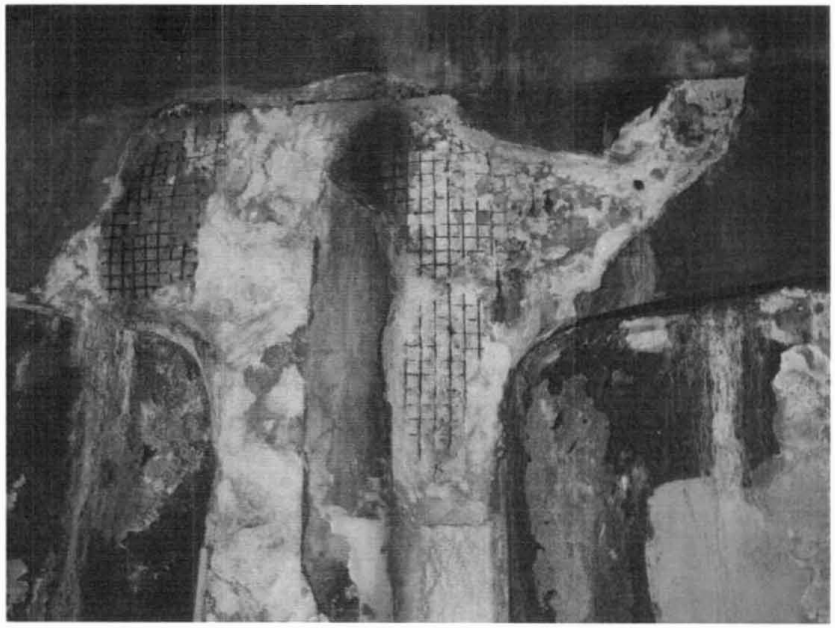

Photo # 40: West abutment stem below Girders G6 & G7. There is a large area that has spalls with punky concrete. The spalls are up to 4" deep and have exposed a layer of wire mesh.

61/73

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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

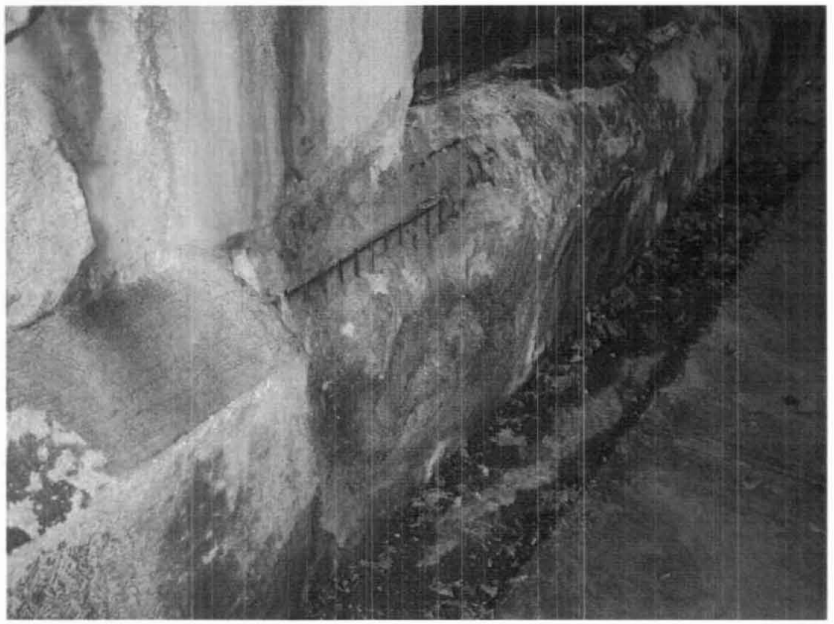

Photo # 41: West abutment stem below Girders G5-G7. There is a large area of deteriorated concrete with spalls up to 4" deep exposing some wire mesh.

Photo # 42: West abutment seat between Girders G2 & G3. There is an accumulation of sand and pigeon debris. Note: Typical for both abutment seats.

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Photo # 43: Southwest wingwall. Typical wingwall configuration.

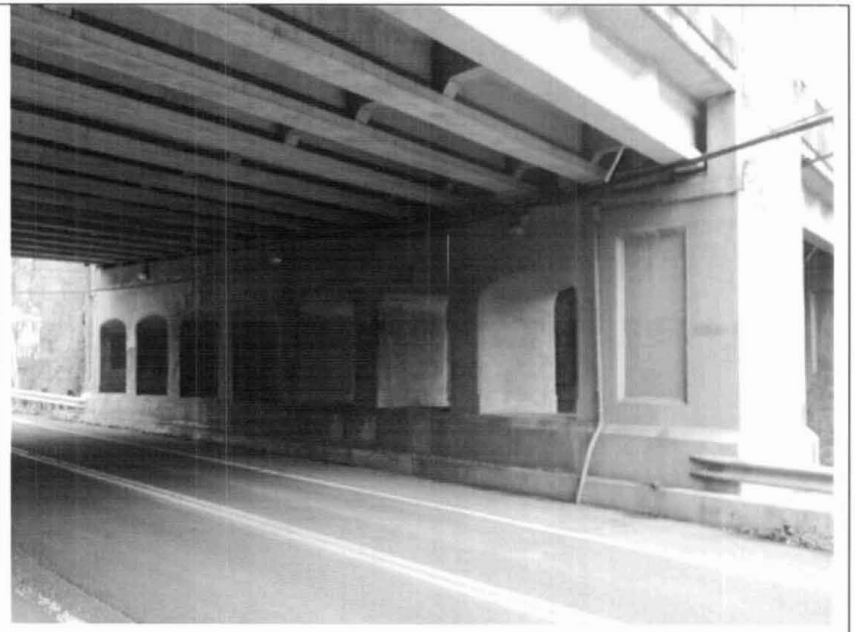

Photo # 44: Pier, west elevation. Column base acts as a curbline and it has areas of cracking and scale along the roadway interface.

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Photo #45: Pier, east elevation. River channel runs along the column base.

Photo # 46: Upstream view of channel.

64/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
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Photo # 47: Downstream view of channel.

Photo # 48: Southwest guide rail. Typical configuration of Merritt Parkway guide rail. Timber rails have checks and splits and areas of minor impact damage with scrape marks and gouges.

65/73

Bridge No.	05653	**Inspected by:**	Erik Laakso
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Feature Carried:	Route 15	**Date Inspected:**	1/4/07
Feature Crossed:	Riversville Road & Byram River	**Project No.:**	170-2729

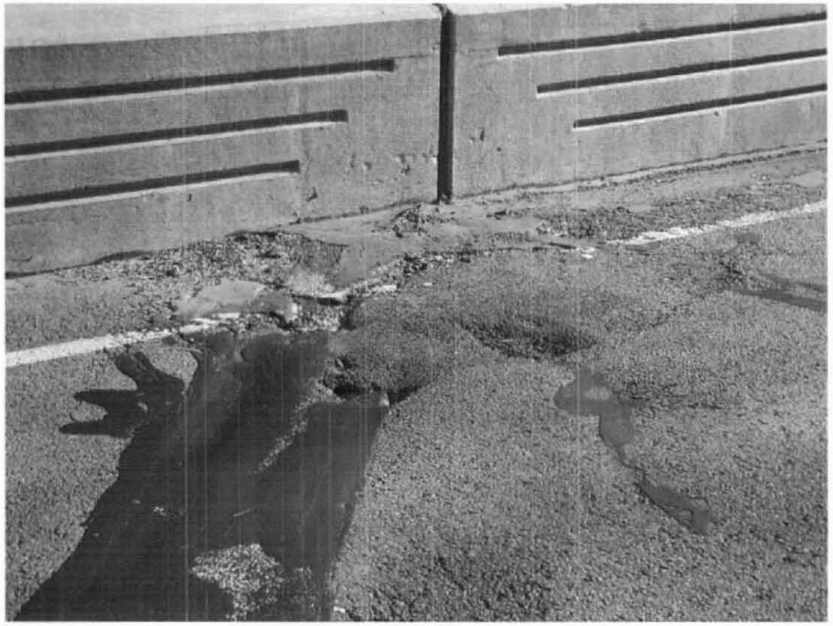

Photo # 49: West approach pavement at the west abutment, southbound side in the left lane and shoulder. There are potholes, patched potholes and sealed cracks.

Photo # 50: West approach pavement, northbound side in the right shoulder. There are heaved areas with cracks up to ¼" wide. Note: Similar condition at the east approach pavement in the right shoulder.

66/73

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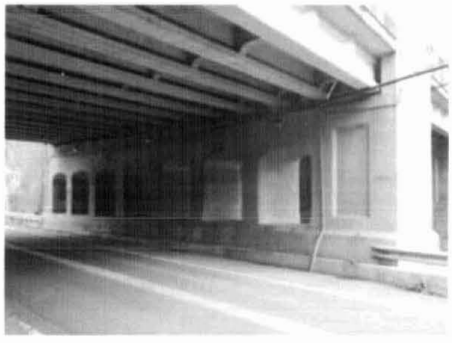
05653_002.JPG

05653_003.JPG



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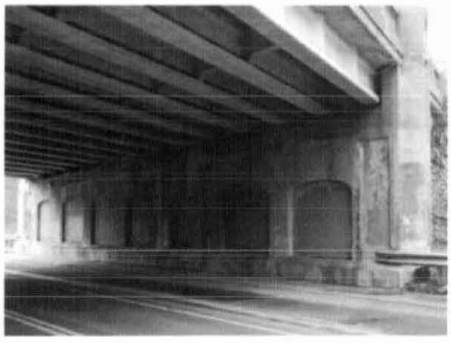

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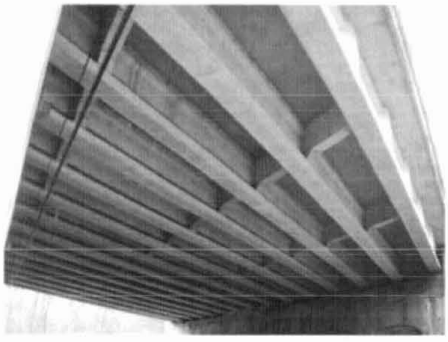

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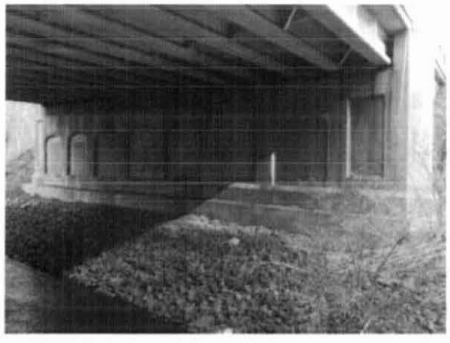

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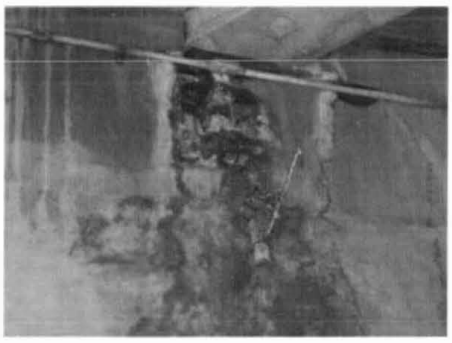

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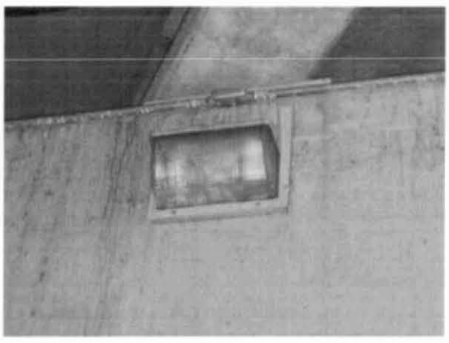

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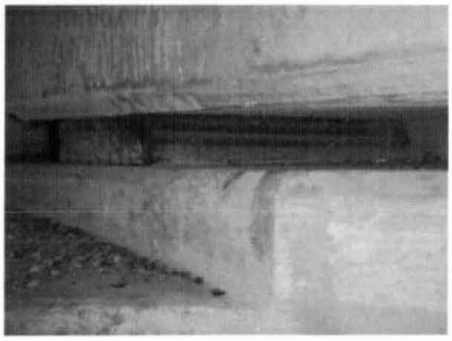

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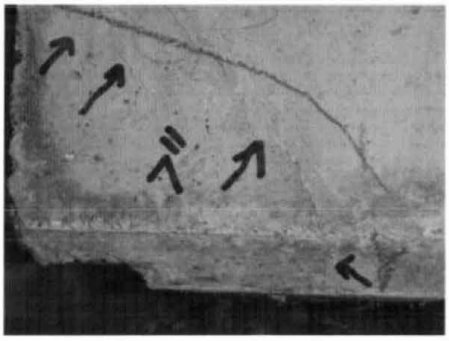

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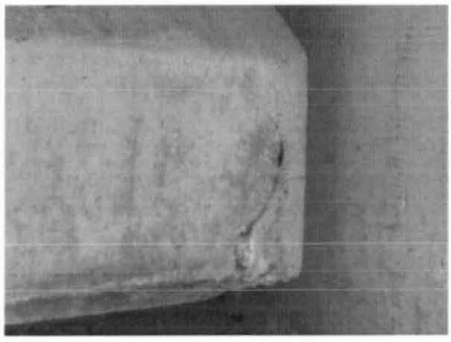

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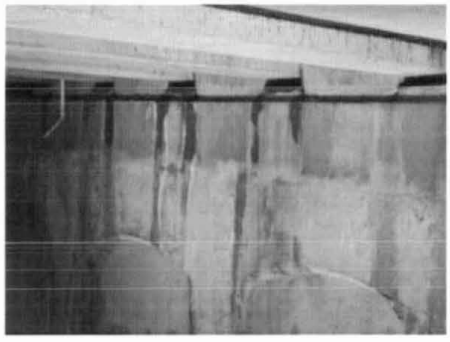

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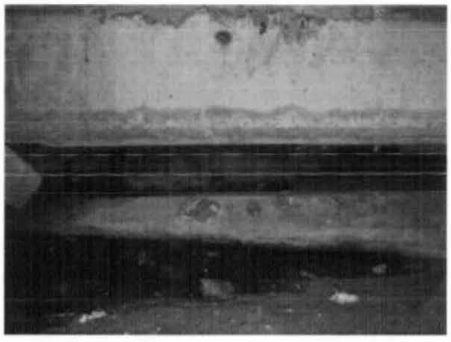

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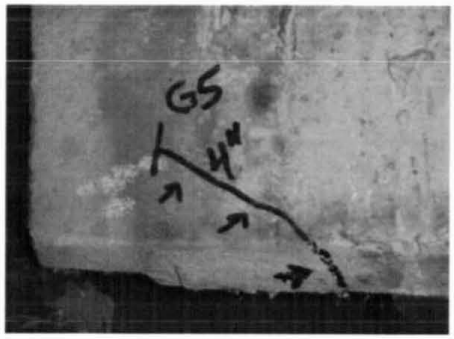

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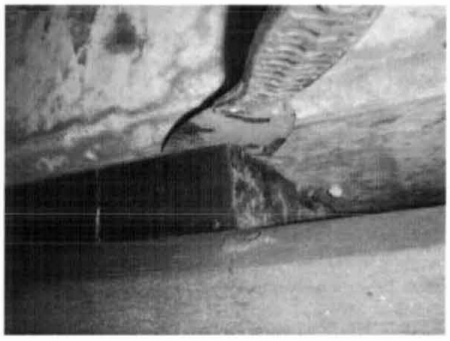

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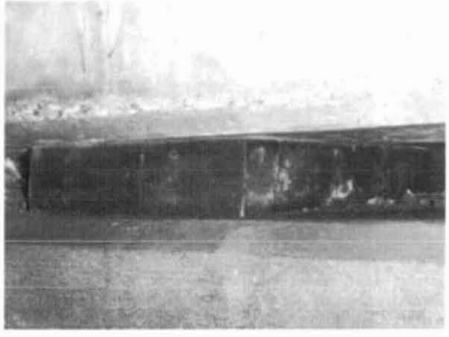

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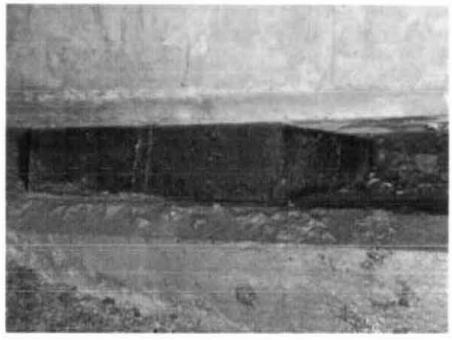

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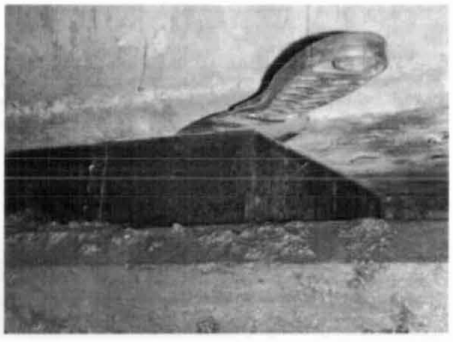

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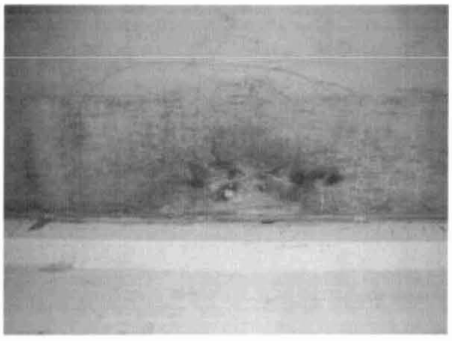

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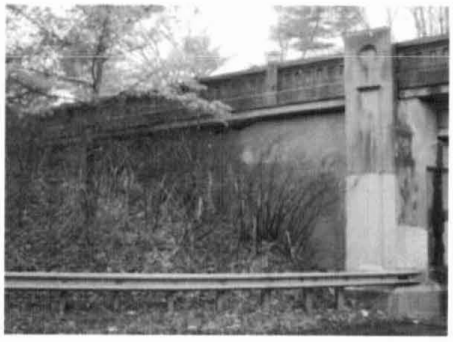

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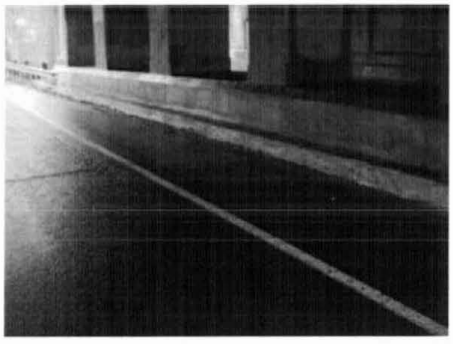

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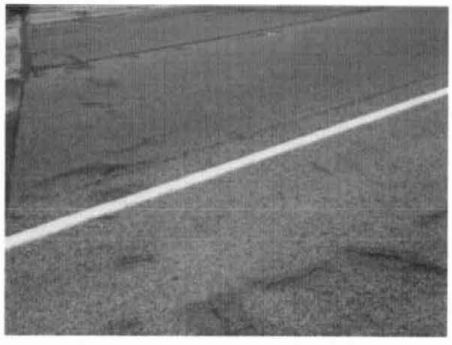

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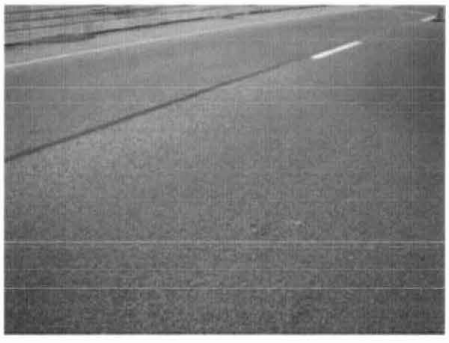

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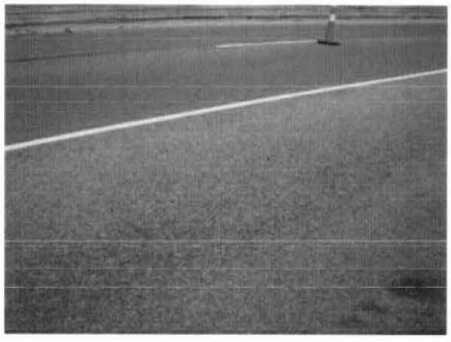

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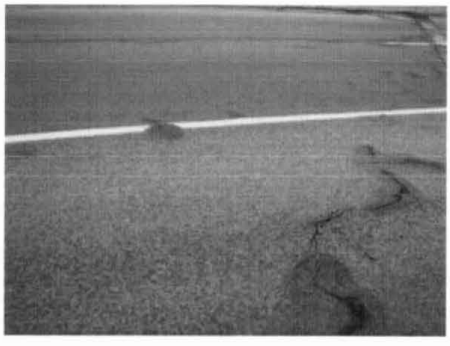

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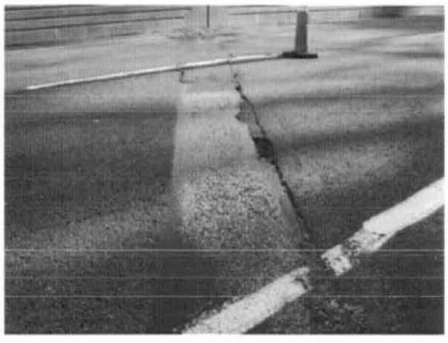

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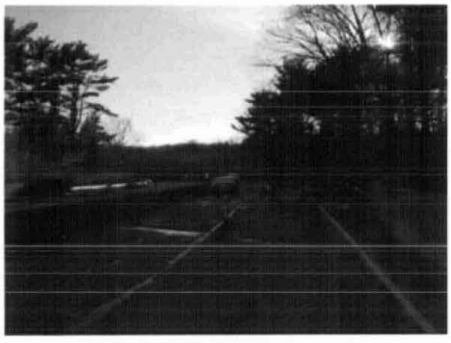

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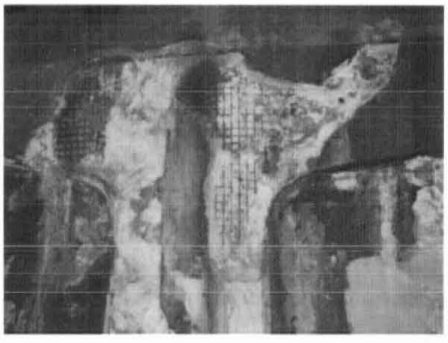

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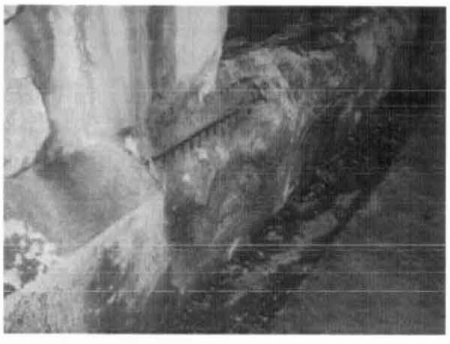

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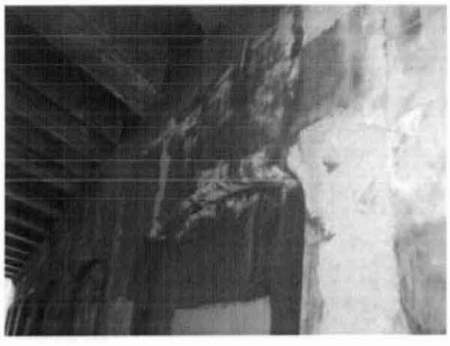

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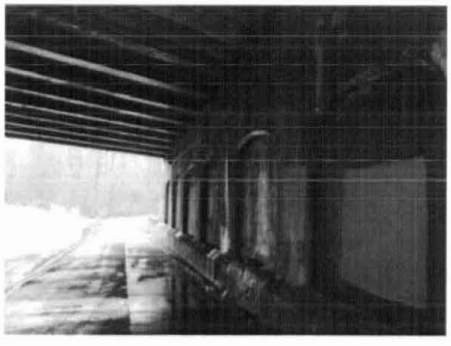
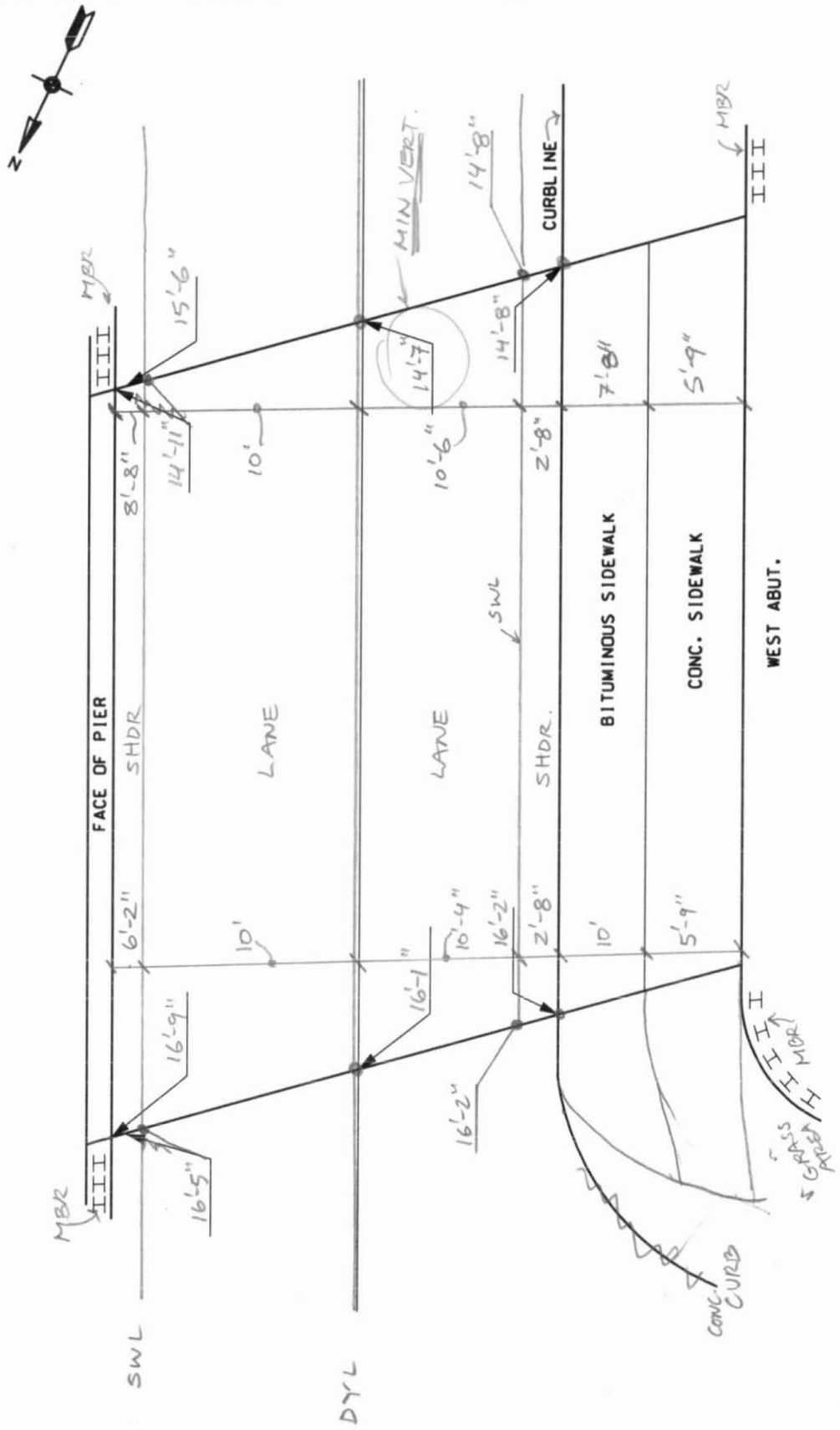


05653_084.JPG

HAKS
BACK UP MATERIAL

HAKS FIELD NOTES	JOB NO.170-2357	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET 2
	CREW: PH, EJL	



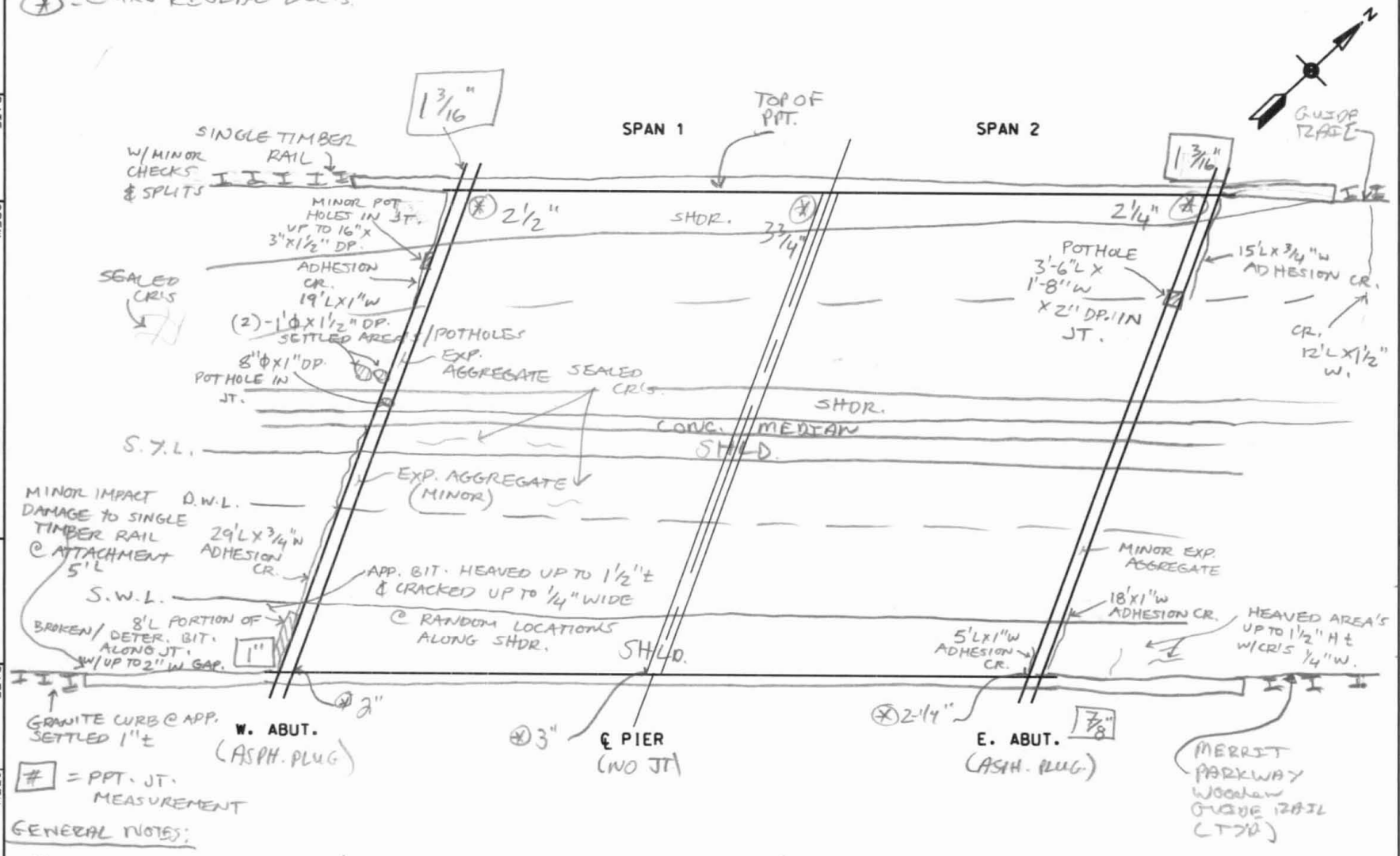
S.S.

CLEARANCE DIAGRAM
(N.T.S.)

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

ROGALOSKI #1292
8:30 - 3:30

(*) = CURB REVEAL LOC.'S



GENERAL NOTES:

- SLOPED GRANITE CURBS W/chip Along BTM. EDGES & Scrapes w/Rust (Yellow Scrapes) &
- PPT FACE (Road SIDE) W/RAND. LOC.'S OF IMP. DAMAGE (MINOR Scrapes w/Rust & Gouges/Chips) & A FEW VERT. HLCR'S W/E.
- MEDIAN BARRIER W/F.H. VERT. HLCR'S W/E.
- PREVIOUSLY NOTED SEPARATION ALONG ℄ OF LANES (LONGIT.) HAS BEEN SEALED.
- MINOR HEAVED AREA'S IN BIT. ALONG RT. SHDR. (N.B. SIDE ONLY) W/CRACKS UP TO 1/4" W ± (APPROX 1" H ± RAISED AREAS)
- S.B. OVERLAY W/SHORT RANDOM CR'S 1/8" ± W. (MOSTLY SEALED).

TOP OF DECK
~~CLEARANCE DIAGRAM~~
(N.T.S.)

REVISION 1 DATE CREW
REVISION 2 DATE CREW
REVISION 3 DATE CREW
REVISION 4 DATE CREW
5 4 6 3 2 1

HAKS

FIELD NOTES

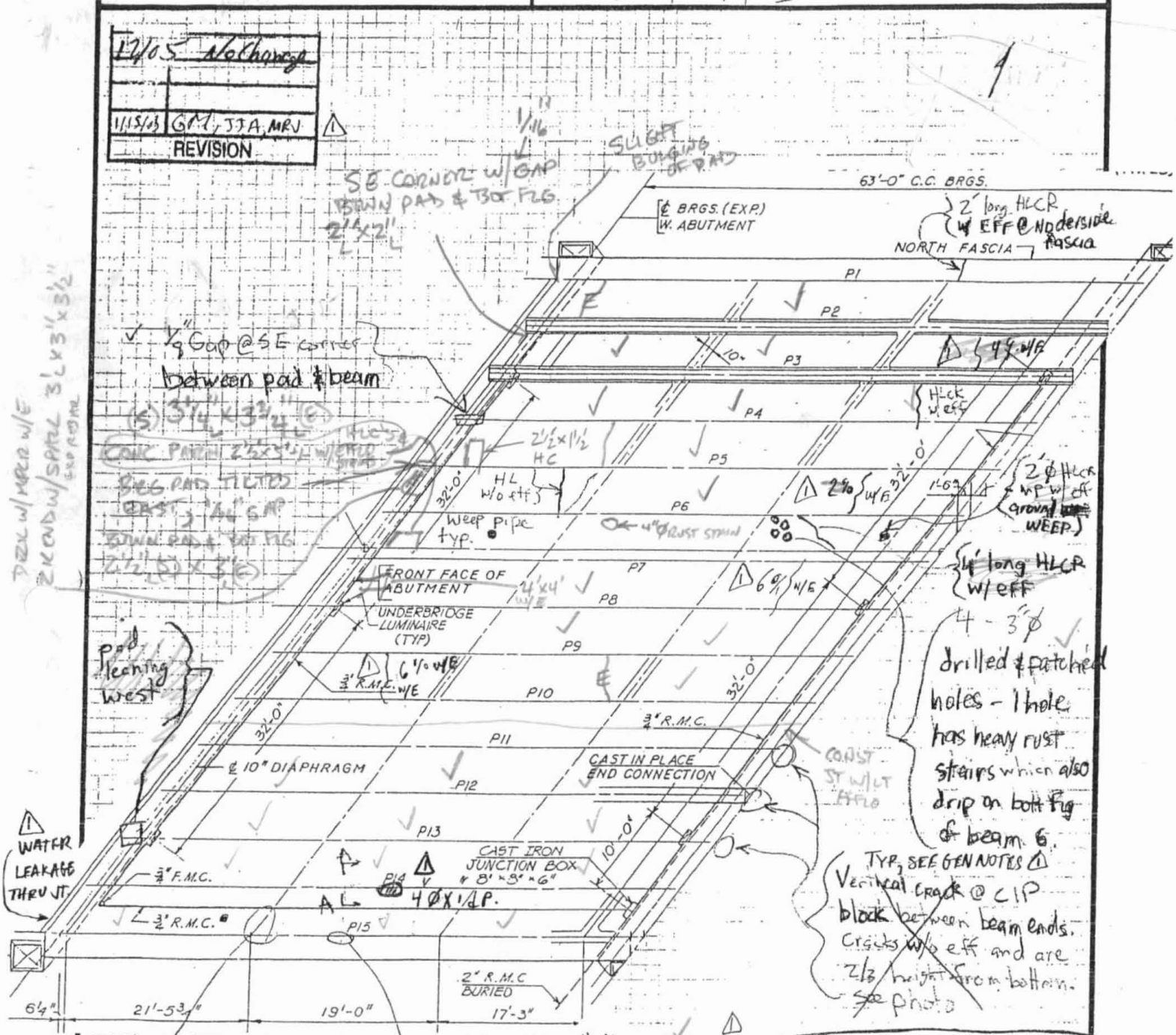
JOB NO. 170-2357
DATE: 1/4/07
CREW: MJW, EJL, PH

BRIDGE NO. 05653
SHEET 3

FIELD NOTES

PREPARED BY: Lichtenstein	JOB NO. 1919	BRIDGE NO. 5653
	DATE 12/26/96	SHEET ~~8~~ 10/23 (4)
	CREW DAL, MAC, CD	

12/05	No Change
1/15/03	GM, JJA, MRJ
REVISION	



HAKS

FIELD NOTES

JOB NO. 170-2357

BRIDGE NO. 05653

DATE:

CREW:

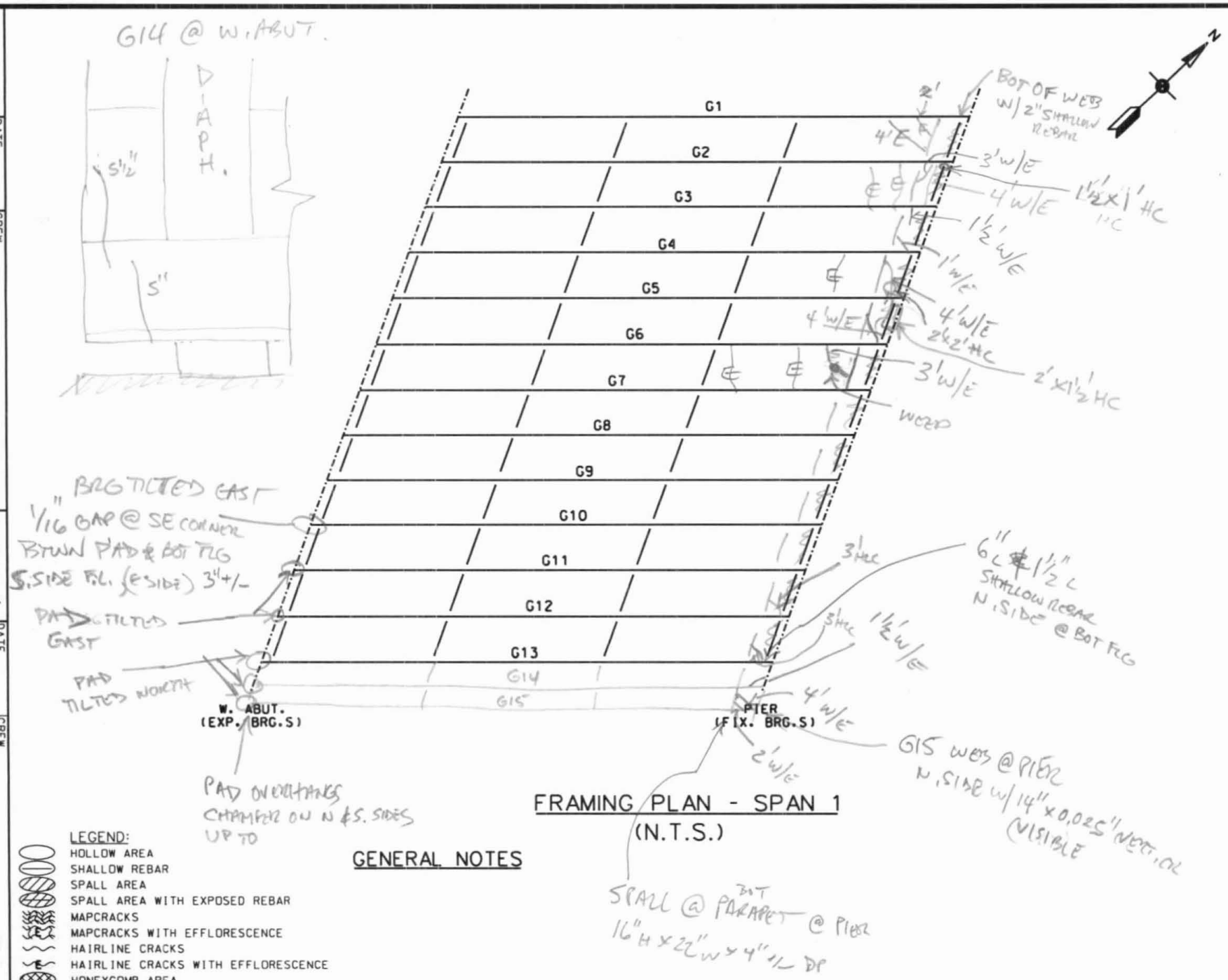
SHEET 5

REVISION 1 DATE CREW

REVISION 2 DATE CREW

REVISION 3 DATE CREW

REVISION 4 DATE CREW



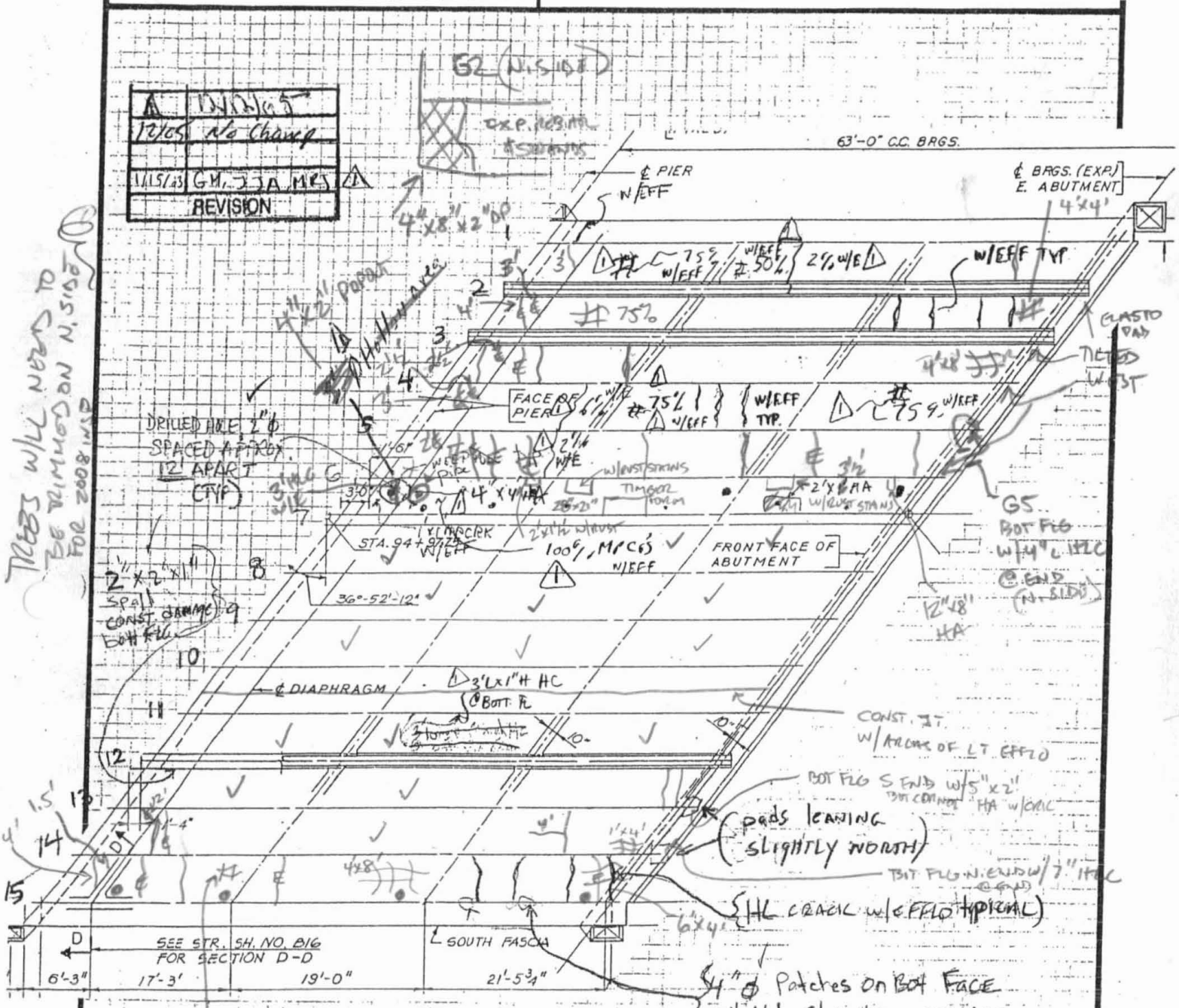
FRAMING PLAN - SPAN 1
(N.T.S.)

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

FIELD NOTES

JOB NO. 1919	BRIDGE NO. 5653	
DATE 12-4-96	SHEET 11/23 (6)	
PREPARED BY: Lichtenstein	CREW DAL, MAC, RAR	



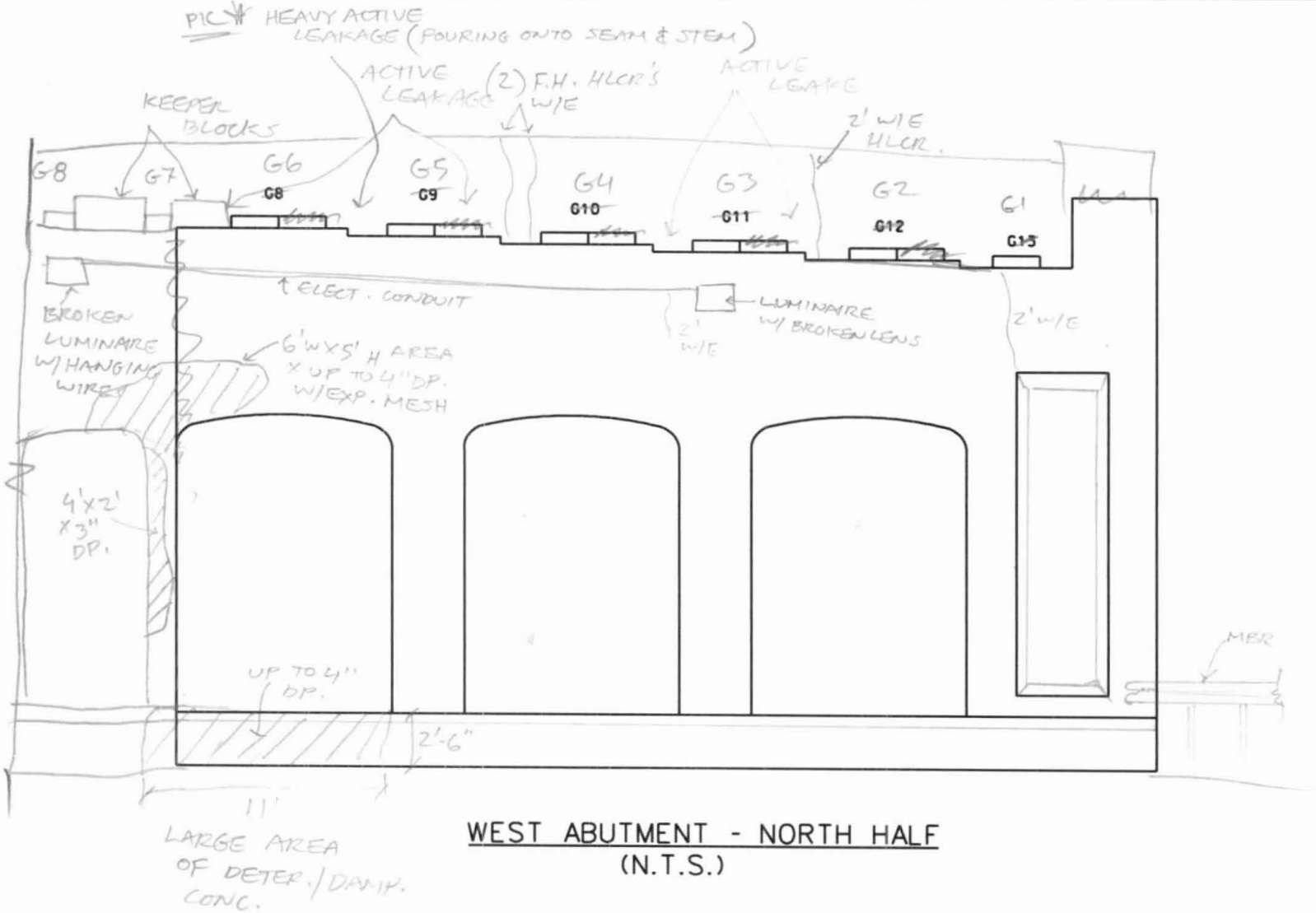
1	12/4/95
12/05	No Change
11/15/03	GM, JJA, MPS
REVISION	

Notes: Underside of deck with minor water stains from condensation.

Span 2
FRAMING PLAN

HC = Honeycomb concrete

1 Cast Conc. between BM over Pier typ. (Cr's up to 2' x 1/8" typ) (CONCRETE COMP. BLOCKS)



WEST ABUTMENT - NORTH HALF
(N.T.S.)

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:
- EVIDENCE OF LEAKAGE ALONG ENTIRE STEM.
- THIN SURFACE LAYER OF CONC. PEELING THROUGHOUT STEM.
- MPCR. THROUGHOUT W/LT. TO MOD. SCALE ON STEM.
- PAINTED OVER GRAFITTI ALONG LOWER HALF.
- NUMEROUS CONC. PATCHES ON STEM (SOME W/ HA'S)
- LT. TO MOD PIGEON DEBRIS ON SEAT.

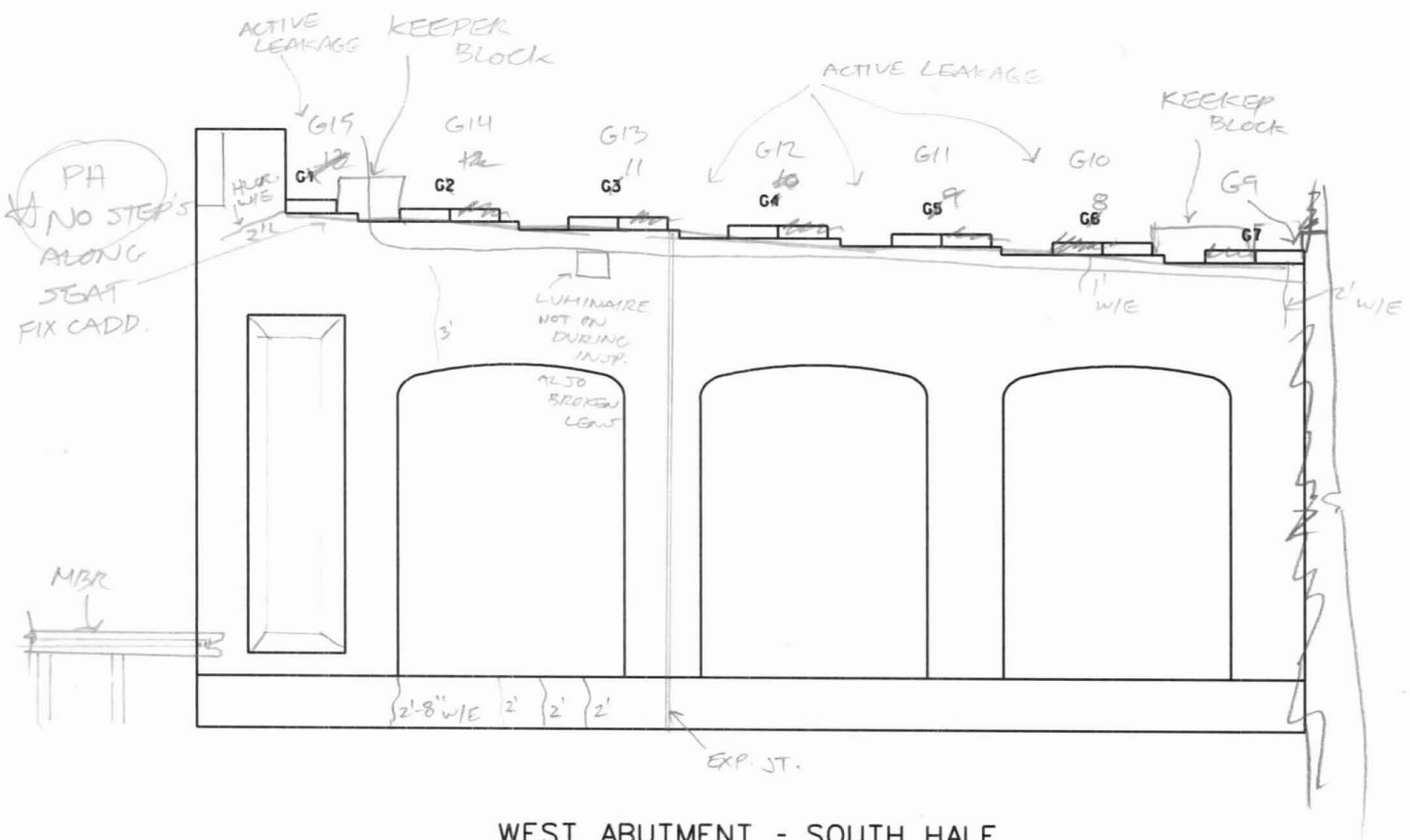
REVISION 1 DATE CREW
REVISION 2 DATE CREW
REVISION 3 DATE CREW
REVISION 4 DATE CREW

HAKS

FIELD NOTES

JOB NO. 170-2357
DATE: 1/5/07
CREW: PH, EJL

BRIDGE NO. 05653
SHEET 7



WEST ABUTMENT - SOUTH HALF
(N.T.S.)

GENERAL NOTES

- EVIDENCE OF LEAKAGE ALONG ENTIRE STEM
- THIN LAYER (SURFACE) CONC. PEELING THROUGHOUT.
- LT. TO MOD. SCALE THROUGHOUT & HL MPCR.
- NUMEROUS CONC. PATCHES ON STEM, (SOME W/HA'S)
- LT. TO MOD. PIGEON DEBRIS ON SEAT

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

HAKS

FIELD NOTES

JOB NO. 170-2357

BRIDGE NO. 05653

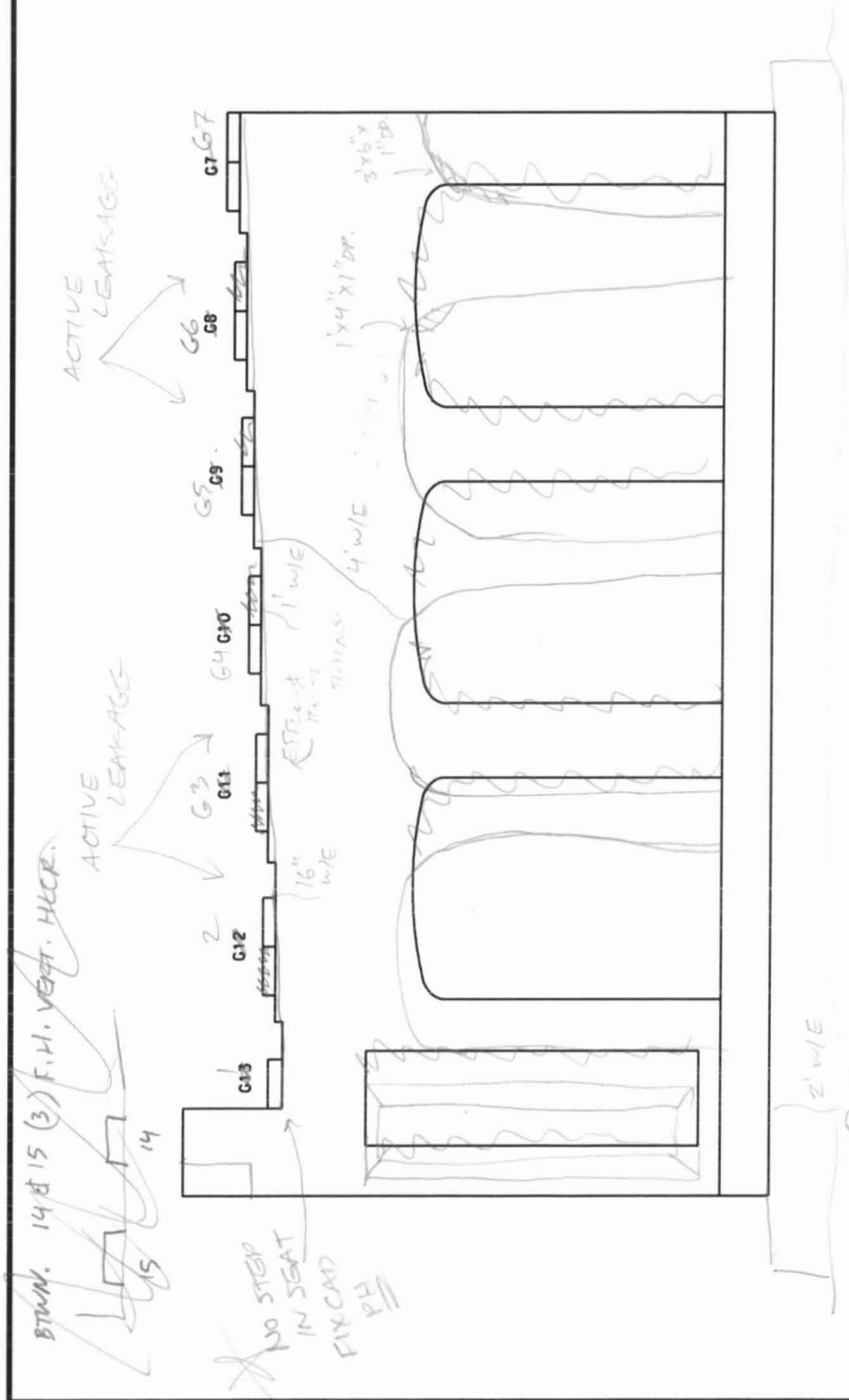
DATE: 1/5/07

SHEET 8

CREW: PH, EJL

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

HAKS FIELD NOTES	JOB NO.170-2357	BRIDGE NO. 05653
	DATE: 1/4/07	SHEET 9
	CREW: PH, EJL, MJW	



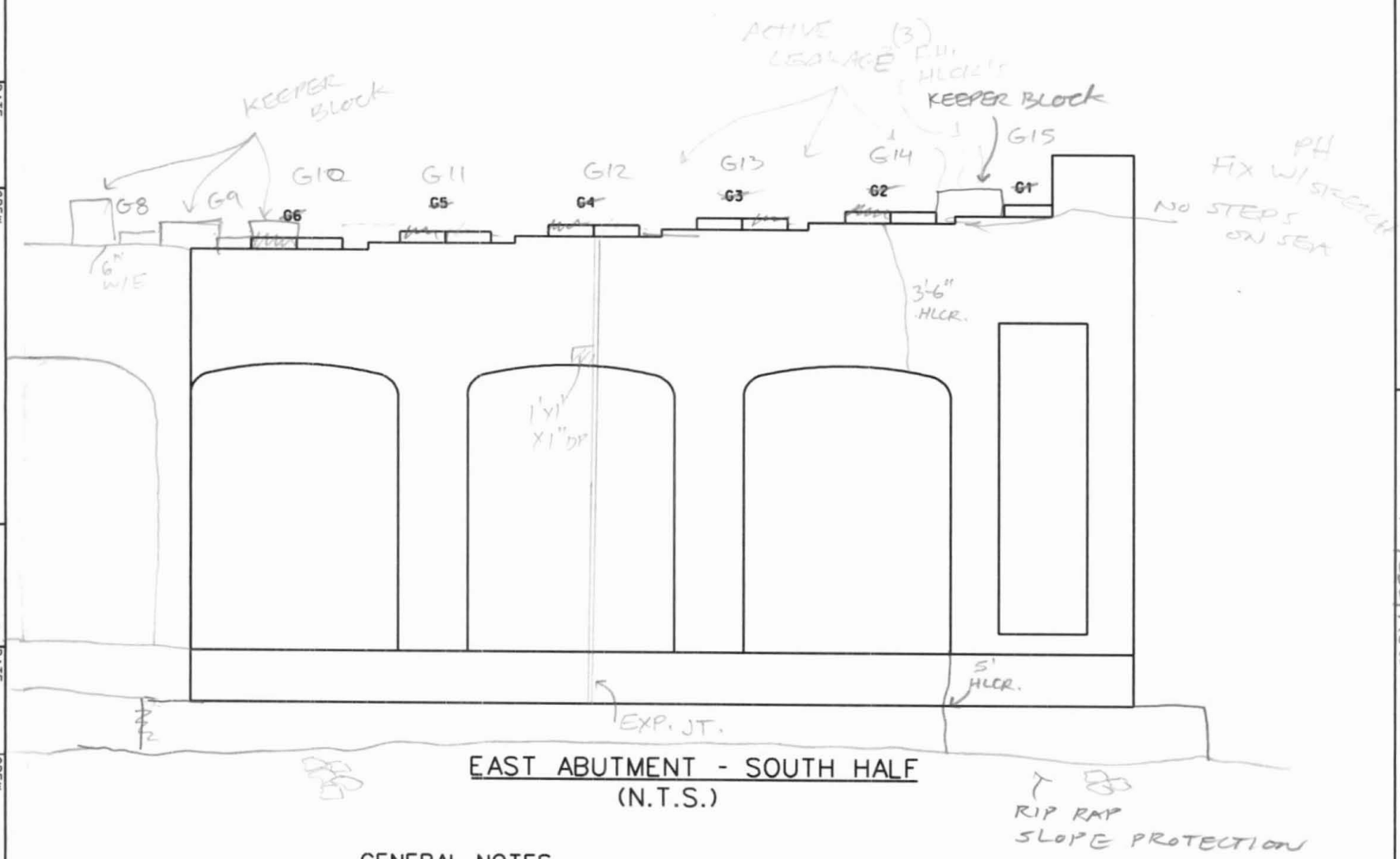
EAST ABUTMENT - NORTH HALF
(N.T.S.)

GENERAL NOTES

PH - COMY STUFF FROM SOUTH HALF

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



EAST ABUTMENT - SOUTH HALF
(N.T.S.)

GENERAL NOTES

- LT. TO MOD. PIGEON DEBRIS ON SEAT
- EVIDENCE OF LEAKAGE ALONG F.L. OF STEM
- THIN LAYER OF SURFACE CONC. DETER. & PEELING
- NUMEROUS C.P'S & MPCR. ON STEM

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

HAKS

FIELD NOTES

JOB NO. 170-2357

BRIDGE NO. 05653

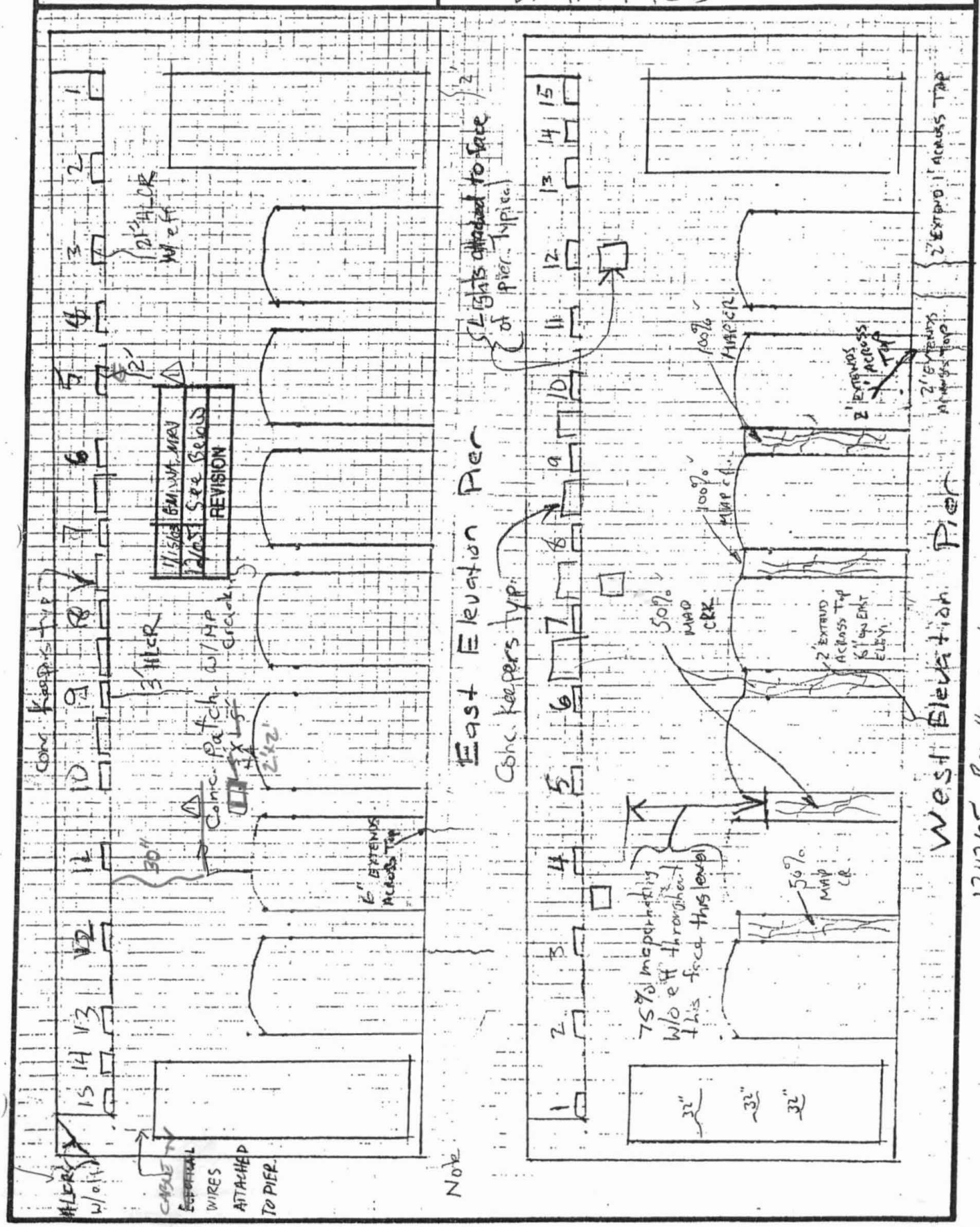
DATE: 1/4/07

SHEET 10

CREW: PH, EJL, MJW

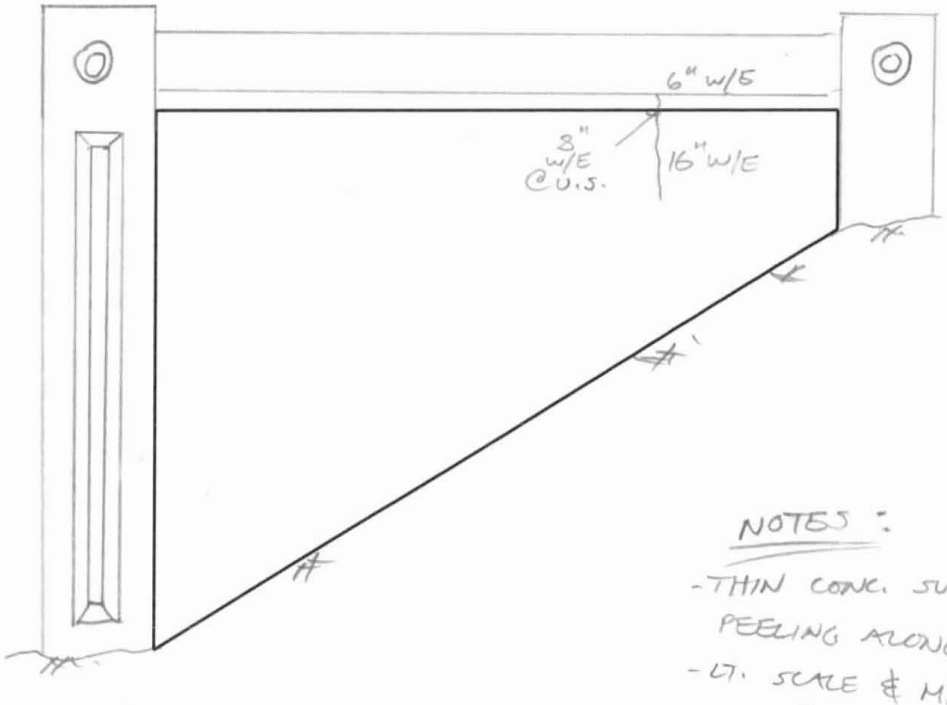
FIELD NOTES

	JOB NO. 1919	BRIDGE NO. 5653
	DATE 12/26/96	SHEET ~~12~~ 13A/23
PREPARED BY: Lichtenstein	CREW DAL, MAC, CD	(11)



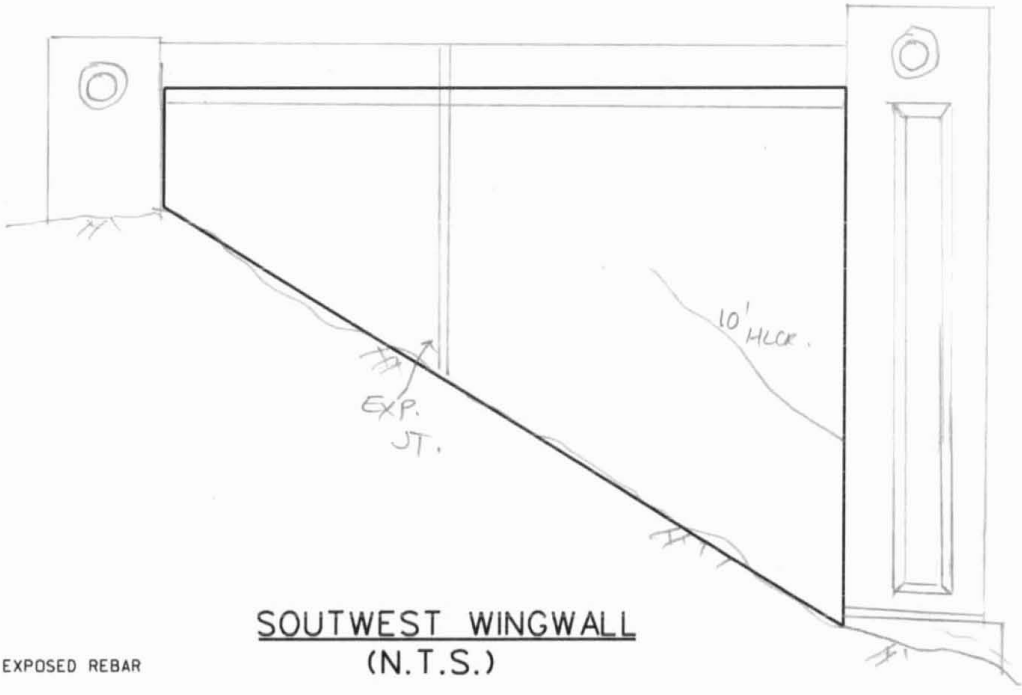
12/12/05 Basically no change, except a little more map cracking in repaired areas

HAKS FIELD NOTES	JOB NO.170-2357	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET (12)
	CREW: PH, EJL	



NOTES:
- THIN CONC. SURFACE LAYER PEELING ALONG BOTT. HALF
- LT. SCALE & MPCR. ALONG BOTT. HALF. (H.L.)

NORTHWEST WINGWALL
(N.T.S.)

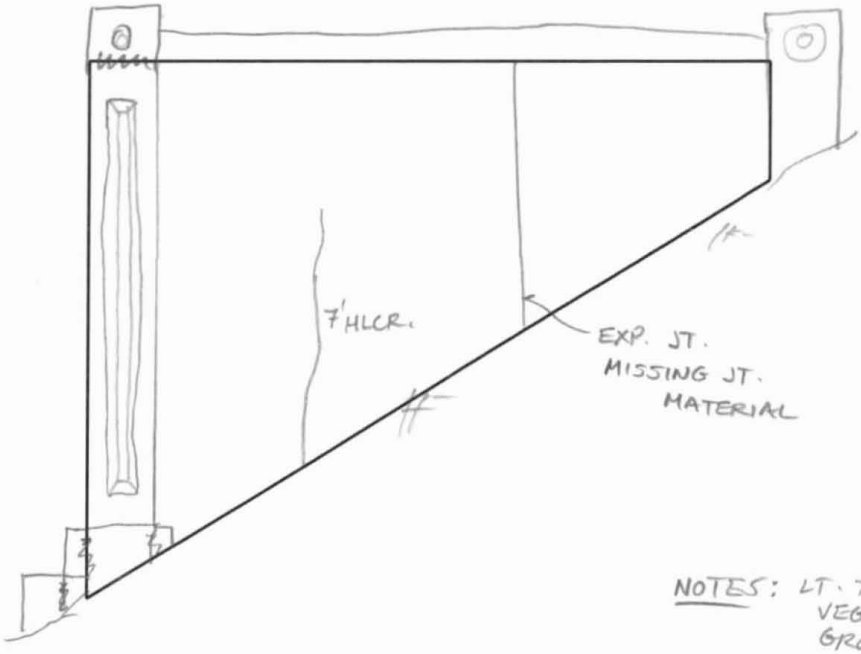


SOUTWEST WINGWALL
(N.T.S.)

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

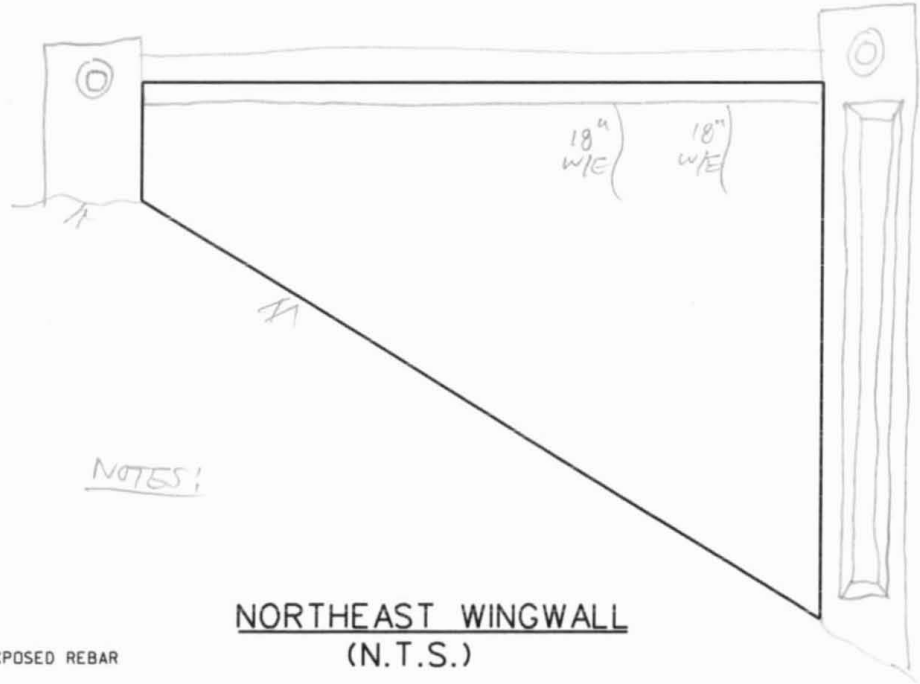
REVISION 1	DATE	CREW	REVISION 3	DATE	CREW
REVISION 2	DATE	CREW	REVISION 4	DATE	CREW

HAKS FIELD NOTES	JOB NO.170-2357	BRIDGE NO. 05653
	DATE:	SHEET (13)
	CREW:	



NOTES: LT. TO MOD. VEGETATION GROWTH ALONG FACE

SOUTHEAST WINGWALL
(N.T.S.)



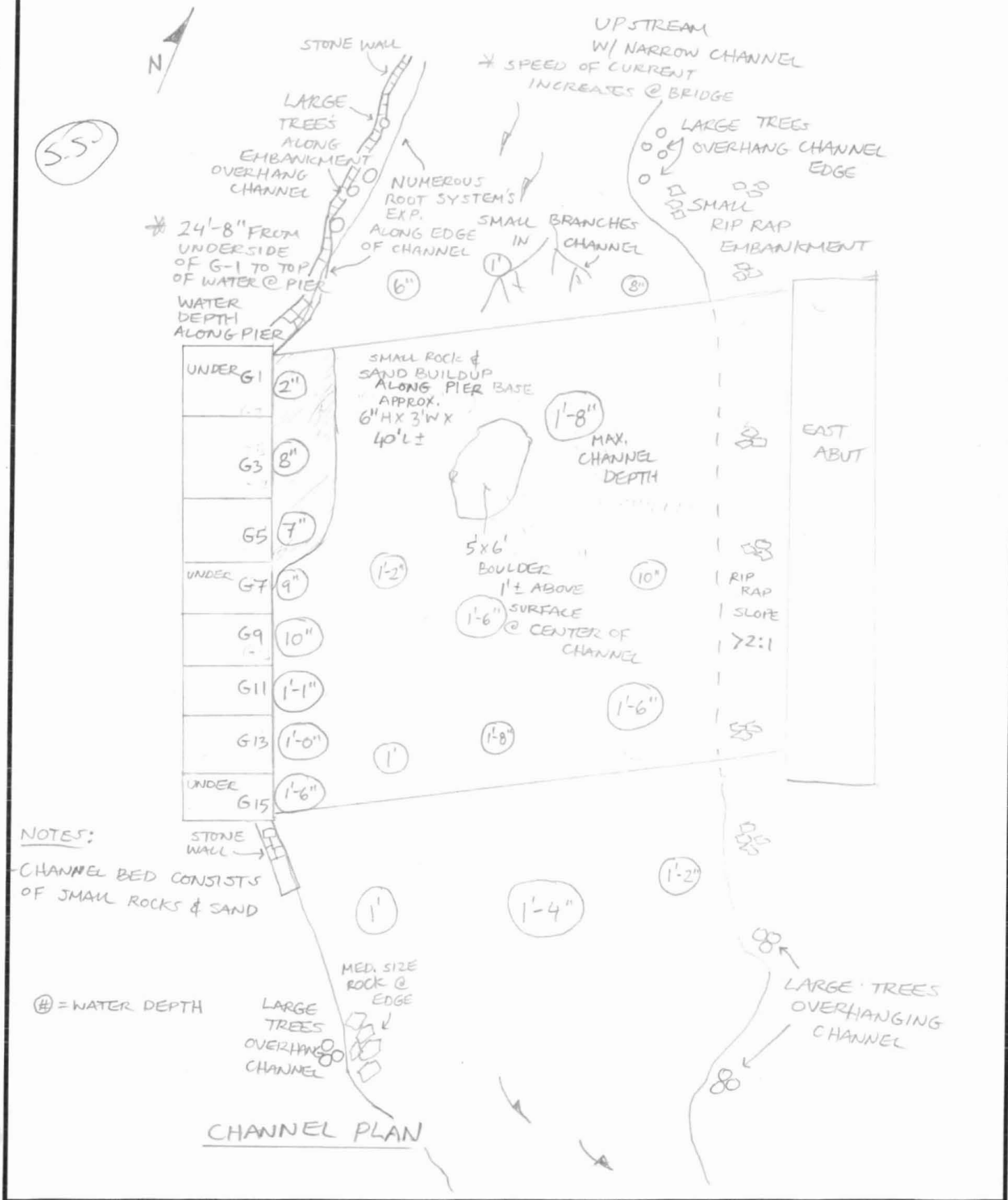
NOTES:

NORTHEAST WINGWALL
(N.T.S.)

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

HAKS FIELD NOTES	JOB NO.170-2357	BRIDGE NO. 05653
	DATE: 1/5/07	SHEET 14
	CREW: PH, EJL	



NOTES:

- CHANNEL BED CONSISTS OF SMALL ROCKS & SAND

(#) = WATER DEPTH

CHANNEL PLAN

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