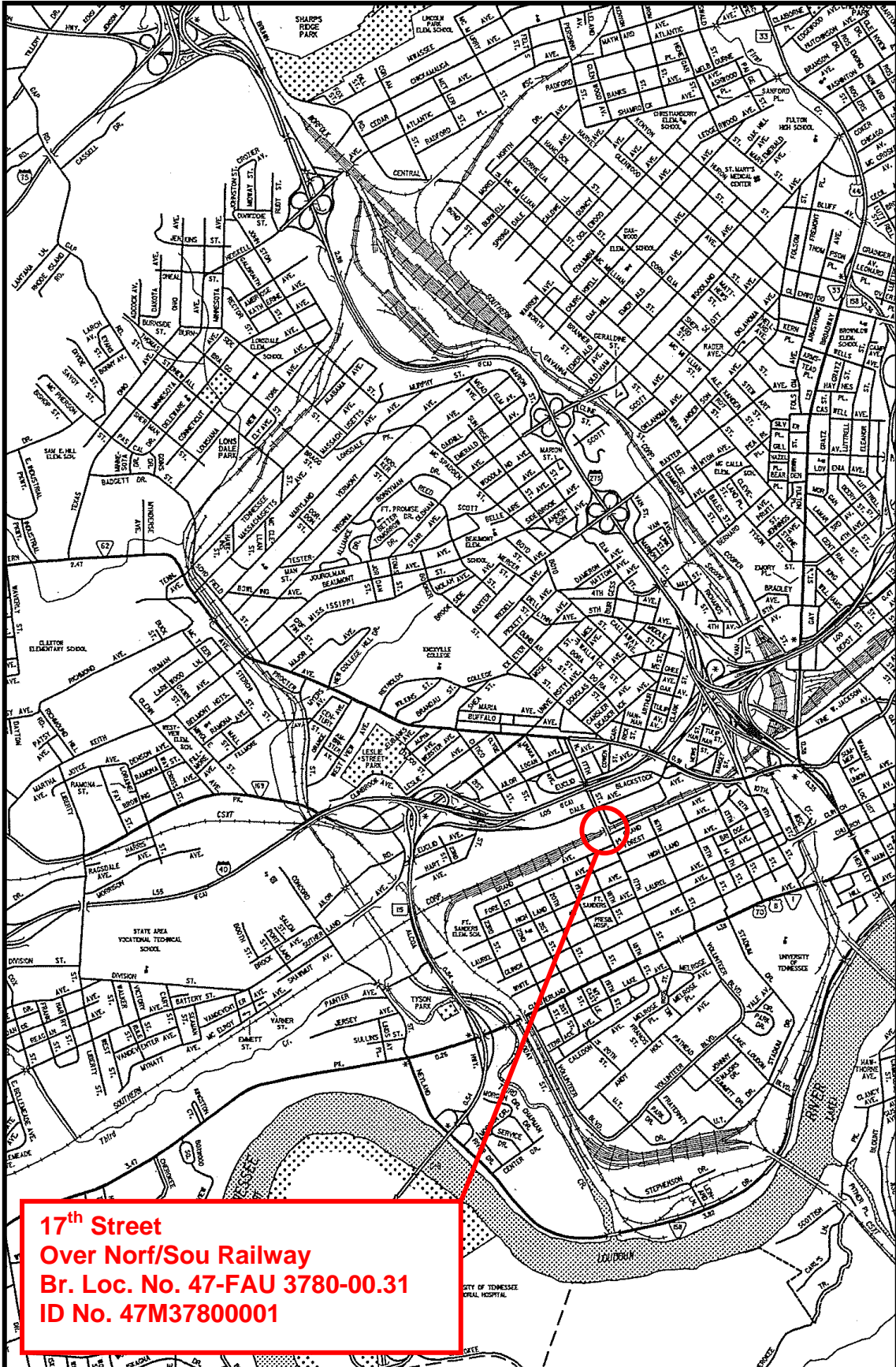


KNOX COUNTY



**17<sup>th</sup> Street  
Over Norf/Sou Railway  
Br. Loc. No. 47-FAU 3780-00.31  
ID No. 47M37800001**

**BRIDGE MAINTENANCE RECOMMENDATIONS**



Tennessee Department of Transportation

COUNTY: KNOX  
 CITY: KNOXVILLE  
 LOCATION: 47-03780-00.31-  
 CO. SEQ.: 1 SPEC. CASE: 0

CROSSING: SOUTHERN RAILWAY  
 FED BRIDGE NO.: 47M37800001

REVISED: 03/19/2020

FACILITY CARRIED:	FAU 3780 730617V	NUMBER OF MAIN SPANS:	3
HIGHWAY SYSTEM:	18-STP URBAN, NON-STATE SYS.	NUMBER OF APPROACH SPANS:	0
BRIDGE WIDTH (CURB TO CURB):	39 FT 8 IN	BRIDGE LENGTH (FT):	93
BRIDGE WIDTH (OUT TO OUT):	52 FT 5 IN	MAXIMUM SPAN LENGTH (FT):	46
APPROACH ROADWAY (W/SHOULDERS):	39 FT 0 IN	SKEW ANGLE (DEGREES):	90
MAINTAINED BY:	CITY OR MUNICIPAL HIGHWAY AGENCY		
MAIN SPAN MATERIAL:	CONCRETE		
MAIN SPAN DESIGN TYPE:	TEE BEAM		
APPROACH SPAN MATERIAL:	OTHER OR NOT APPLICABLE		
APPROACH SPAN DESIGN TYPE:	OTHER OR NOT APPLICABLE		
INSPECTION DATE:	03/18/2020	GENERAL CONDITION:	FAIR
PPRM PIN NUMBER:		STRUCTURALLY DEFICIENT:	NO
H TRUCK RATING @ INV.:	15 TONS	SUFFICIENCY RATING:	49.7

No.	RECOMMENDATIONS	REPAIR DATE	REPAIRED BY
1.	PATCH COLUMN NO. A BENT NO. 1		
2.	REPAIR BRIDGERAIL AT APPROACH 2 (LEFT)		
3.	REPAIR CONC. BREASTWALL AT ABUTMENT NO. 1		

SUGGESTED ROUTINE MAINTENANCE AND COMMENTS
REPAIR DIAPHRAGMS IN SPAN NO. 3
CLEAN AND PAINT BEARING AT BENT NO. 2
REPAIR SIDEWALKS @ APPROACHES
APPROACH GUARDRAILS ARE SUB-STANDARD
BRIDGERAILS ARE SUBSTANDARD

GENERAL COMMENTS:



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# Bridge Condition Coding Form

Revised 03/19/2020

**Bridge Number:** 47M378000011  
(Includes Item 5A)

**Feature Intersected:** SOUTHERN RAILWAY

**Evaluation Status:** OTHER ITEM(S) HAVE BEEN CHANGED

**County:** 47

**Route:** 03780

**Special Case:** 0

**County Sequence:** 1

**Log Mile:** 0.31

## CODE ONLY THOSE VALUES WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE	CONDITION CODING GUIDELINES (Values for Coding Items 58, 59, 60 and 62)
90	LAST INSPECTION DATE	<b>03/18/2020</b>	N NOT APPLICABLE
	EARLIEST DATE OF NEXT REGULAR INSPECTION	<b>01/17/2022</b>	
		<u> / / </u>	
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN.	9 EXCELLENT CONDITION
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN.	8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
36	TRAFFIC SAFETY FEATURES		7 GOOD CONDITION - SOME MINOR PROBLEMS.
	Br. Rail Trans. Appr. Rail Terminal SPEED LIMIT	0 N N N 30	6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
41	STRC OPEN/CLOSED/POSTED	A	5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
	A K P		4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR.
58	DECK	5	3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOUSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.
59	SUPERSTRUCTURE	5	2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.
60	SUBSTRUCTURE	5	1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT IT BACK IN LIGHT SERVICE.
61	CHANL/CHANL PROTECTION	N	0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORREC
62	CULVERT AND RETAIN WALL	N	
71	WATERWAY ADEQUACY	N	
72	APPROACH RDWY ALIGNMENT	8	
521	OVERALL CONDITION	FAIR	
16	LATITUDE	17 LONGITUDE	
	N 35° 57.7320'	W 83° 59.1090'	
	<u>                    </u>	<u>                    </u>	
	<u>                    </u>	<u>                    </u>	
	<u>                    </u>	<u>                    </u>	

TEAM LEADER SIGNATURE

REVIEW DATE

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waive the provisions of §409

# Photographs

Bridge ID#: 47M37800001

Date: 03/18/2020



APPROACH FORWARD ON LOG



APPROACH BACK ON LOG - RAIL REPAIRED 2 LEFT

# Photographs

Bridge ID#: 47M37800001

Date: 03/18/2020



ELEVATION - RIGHT



ELEVATION - LEFT

# Photographs

Bridge ID#: 47M37800001

Date: 03/18/2020



VIEW UNDERNEATH



VIEW TOP DECK

# Photographs

Bridge ID#: 47M37800001

Date: 03/18/2020



ABUTMENT 1 EXP REBAR TYPICAL



OUTSIDE BEAM CRACKING TYPICAL

# Photographs

Bridge ID#: 47M3780001

Date: 03/18/2020



COLUMN A BENT 1 EXP REBAR TYPICAL



BENT CAP 1 EXP REBAR TYPICAL



# Photographs

Bridge ID#: 47M3780001

Date: 03/18/2020



DIAPHRAM BENT 2 EXP REBAR TYPICAL



ABUTMENT 1 BREASTWALL CRACK

BRIDGE INSPECTION REPORT

FORM BIR 3.0
Rev. 9-22-98
DT-0069

FIELD REPORT NO. 20 DATE 03-18-20
PREVIOUS REPORT NO. 19 DATE 03-27-18
PLANS --- YES [X] NO [ ]

BRIDGE NO. 47M37800001 BRIDGE LOCATION NO. 47 - 3780 - 00.31
ELEVEN DIGIT NO. CO. ROUTE L.M.

SEVENTEENTH ST. OVER NORFOLK & SOUTHERN RAILWAY SEVENTEENTH STREET VIADUCT
ROAD NAME FEATURE INTERSECTED STRUCTURE NAME(IF NAMED)

YEAR CONSTRUCTED 1937 COUNTY KNOX MAINTENANCE DISTRICT NO. 18
(ESTIMATED OR ACTUAL)
[ ] [X ]

YEAR WIDENED N/A YEAR REHABILITATED N/A
ESTIMATED OR ACTUAL ESTIMATED OR ACTUAL
[ ] [ ] [ ] [ ]

FEATURES

WEARING SURFACE-- CONCRETE [ ] TIMBER [ ] ASPHALT [x] (DEPTH= 2 in.)
FLARED WIDTH ----- YES [ ] NO [X]
NAVIGATIONAL CONTROL-- YES [ ] NO [X]
MEDIAN WIDTH ----- OPEN [ ] NONE [X] CLOSED [ ]
BRIDGE SKEW 90 ° LT [ ] RT [ ]

INSPECTORS

- 1. RADER-TL
2. MUSTAIN
3. HAAS
4. SAUTNER
5.
6.
7.
8.
9.

STRUCTURE TYPE CTB NO. SPANS 3
Main Span Main Span
STRUCTURE TYPE N/A NO. SPANS N/A
Approach Spans Approach Spans

MAXIMUM SPAN LENGTH 46.0' TOTAL LENGTH 93.0'
(\*\*.\*ft.) (\*\*.\*ft.)

WIDTHS (\*.ft.)

DECK OUT-TO-OUT 52.3'
ROADWAY CURB/CURB 39.8'
SIDEWALK 5.0'RT 5.0'LT
\*APPROACH ROADWAY 39.0'
APP. SHDR. 0.0'RT 0.0'LT

CLEARANCES

MIN. VERTICAL OVER DECK N/A
MIN. VERTICAL UNDER CL. 21'-02"
MIN. LAT. UNDER CLEAR. 09.4' RT.
0.0' LT.

(< 25 ft.)

\*DOES NOT INCLUDE SHOULDERS FRACTURE CRITICAL NBIS BRIDGE
DETAILS: YES [ ] NO [X] LENGTH N/A
IF YES, INCLUDE BIR 3.9 (ft.)(in.)

UNDERWATER INSPECTION

INSPECTION PERFORMED BY:
DOT FIELD TEAM [ ] DATE: CHANGE IN STRUCTURAL CONDITION:
CONTRACT DIVERS [ ] DATE: YES [ ] NO [X]
NONE REQUIRED [X] MAJOR REPAIRS MADE: YES [ ] NO [X]

COMMENTS:

SUPERVISING BRIDGE INSPECTOR BRIDGE RATING [ ] [X] [ ] [ ]
GOOD FAIR POOR CRITICAL

**PERFORMANCE EVALUATION**

Time of day inspected 10:00 AM Weather conditions 55°, CLOUDY

Vehicles observed ALL TYPES

**LIVE LOAD BEHAVIOR**

COMMENTS

Substructure	YES	NO	
Horiz. & Vert. Defl.-	[ ]	[X]	_____
Vibration - - - - -	[ ]	[X]	_____
Superstructure			
Horiz. & Vert. Defl.-	[ ]	[X]	_____
Vibration - - - - -	[ ]	[X]	_____

**APPROACH**

Alignment	<u>G</u>	F	P	C	_____
Pavement	<u>G</u>	F	P	C	_____

**TRAFFIC SAFETY FEATURES**

	STANDARD				SUB-STANDARD		
Bridgerailing	G	<u>F</u>	P	C	[ ]	[X]	SCALE; BROKEN SECTIONN AT APPROACH 2 LEFT; BARRIER INSTALLED
Transitions	G	F	P	C	[ ]	[ ]	N/A
Guardrail	G	<u>F</u>	P	C	[ ]	[X]	SCALE
Guardrail Terminal	G	F	P	C	[ ]	[ ]	N/A

**SIGNING**

	YES	NO	NEEDED	
Paddleboard - - - - -	[ ]	[X]	[ ]	WEIGHT LIMIT POSTED:
Vertical Clearance (< 14'-6") - -	[ ]	[X]	[ ]	YES [ ] NO [X]
Narrow [ ] One Lane Bridge [ ] -	[ ]	[X]	[ ]	GROSS--- _____ TONS
				2 AXLE-- _____ TONS
				3 OR MORE
				AXLES--- _____ TONS
Other Signs or Plaques	_____			
Comments Regarding Any Problems With Signing	_____			

**DECK**

COMMENTS

WEARING SURFACE	<u>G</u>	F	P	C	NEW OVERLAY 2018
DECK - STRUCTURAL CONDITION	G	<u>F</u>	P	C	HAIRCRACKS, DISCOLORATION
CURBS	G	F	P	C	N/A
MEDIAN	G	F	P	C	N/A
SIDEWALKS	G	<u>F</u>	P	C	SCALE
PARAPET	G	F	P	C	N/A
RAILING	G	<u>F</u>	P	C	SCALE
PAINT	G	F	P	C	N/A
DRAINS	G	F	P	C	N/A
LIGHTING STD'S	G	F	P	C	N/A
UTILITIES	<u>G</u>	F	P	C	
JOINT LEAKAGE	G	<u>F</u>	P	C	WATER SEEPAGE ALONG BENTS
EXPANSION JOINTS	G	F	P	C	N/A

**SUPERSTRUCTURE**

COMMENTS

BEARING DEVICES	G	<u>F</u>	P	C	LIGHT CORROSION @ ROLLERS
GIRDERS OR BEAMS	G	<u>F</u>	P	C	SCALING, HAIRCRACKS, DISCOLORATION AT ENDS
FLOOR BEAMS	G	F	P	C	N/A
STRINGERS	G	F	P	C	N/A
DIAPHRAGMS	G	<u>F</u>	P	C	SCALING @ BENT 2
BRACING	G	F	P	C	N/A
TRUSSES - GENERAL	G	F	P	C	N/A
- PORTALS	G	F	P	C	N/A
- BRACING	G	F	P	C	N/A
PAINT	G	F	P	C	NONE
ALIGNMENT OF MEMBERS	<u>G</u>	F	P	C	

**TEXTURE COAT**

CONDITION RATING	G	F	P	C	NEEDS SPOT PAINTING?	YES [ ]	NO [ ]
OVERALL APPEARANCE	G	F	P	C	NEEDS REPAINTING?	YES [ ]	NO [ ]
STAINING	G	F	P	C	COMMENTS		
FADING	G	F	P	C			
SCALING	G	F	P	C			

**SUBSTRUCTURE**

**ABUTMENTS**

COMMENTS

CAPS	G	F	P	C	N/A
BREASTWALL	G	<b><u>F</u></b>	P	C	SCALE UP TO 3" DEEP @ NO. 1_W/REBAR EXPOSED 1" OPEN VERTICAL CRACK UNDER BEAM I
WINGS	G	<b><u>F</u></b>	P	C	BREAK-OUTS, HAIRCRACKS
BACKWALL	G	<b><u>F</u></b>	P	C	HAIRCRACKS, DELAMINATION @ #1
PLUMB	<b><u>G</u></b>	F	P	C	
FOOTING	G	F	P	C	N/V
PILES	G	F	P	C	N/V
EMBANKMENT	G	F	P	C	N/A
BEARING SURFACE	<b><u>G</u></b>	F	P	C	
SLOPE PAVING	G	F	P	C	N/A
RIP RAP	G	F	P	C	N/A

**PIERS**

CAPS	G	F	P	C	N/A
COLUMNS	G	F	P	C	N/A
PLUMB	G	F	P	C	N/A
FOOTINGS	G	F	P	C	N/A
PILES	G	F	P	C	N/A
BEARING SURFACE	G	F	P	C	N/A

**BENTS**

CAPS	G	<b><u>F</u></b>	P	C	SCALING
COLUMNS	G	<b><u>F</u></b>	P	C	1" DEEP SCALE @ #1, W/REBAR EXPOSED
PLUMB	<b><u>G</u></b>	F	P	C	
FOOTINGS	G	F	P	C	N/A
PILES	G	F	P	C	N/A
BEARING SURFACE	<b><u>G</u></b>	F	P	C	

PILES NEED REPLACEMENT NO [ ] YES [ ]

PILES TO BE REPLACED:	PILE	BENT	PILE	BENT	PILE	BENT	PILE	BENT	PILE	BENT

## INSPECTION TEAM'S SUMMARY

Federal ID # 47M37800001

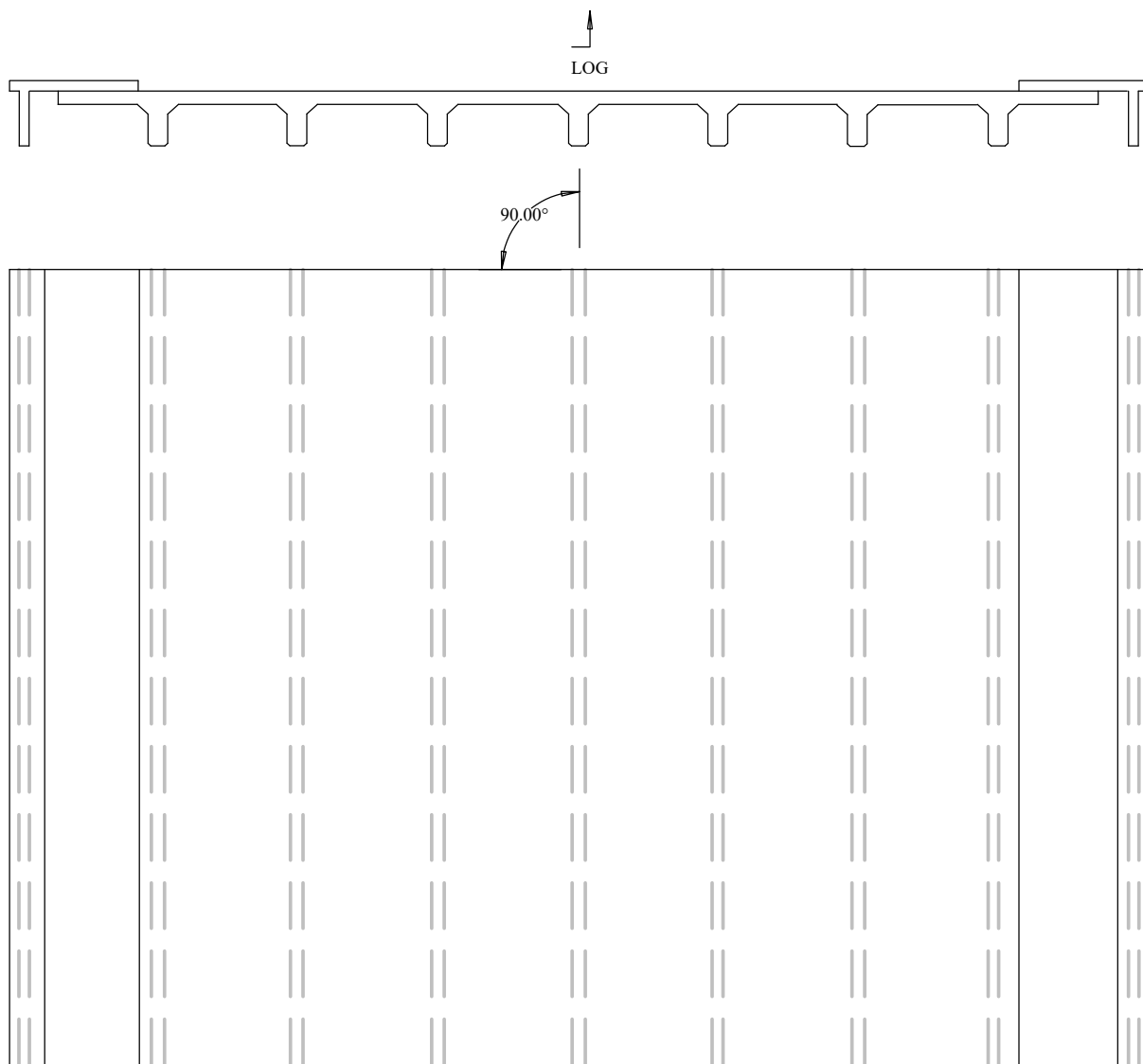
Bridge # 47-03780-00.31

Wednesday, March 18, 2020

The subject bridge was inspected on the above date and found to be in generally fair condition. Roadway alignment is good. Asphalt is continuous across the approaches and deck and is rated good. Sidewalks are in fair condition with scale and cracking. There is a portion of bridgerail missing at approach 2 left with a metal barrier installed in its place. Joints are in fair condition with deterioration of the sealer material. No traffic safety features meet code. There is no signing.

The bottom of the deck, as well as the CTB's and diaphragms, is in fair condition with scale, haircracks and soot stains. Roller bearings are in fair condition with light corrosion. Abutment breastwalls are in fair condition from spalling with exposed rebar, delamination and a 1" open vertical crack under beam I. Wings are rated fair with breakouts and haircracks. Bent caps and columns are in fair condition with heavy spalling up to 1" deep with exposed rebar at column A bent 1.

BR  
TECH SENIOR

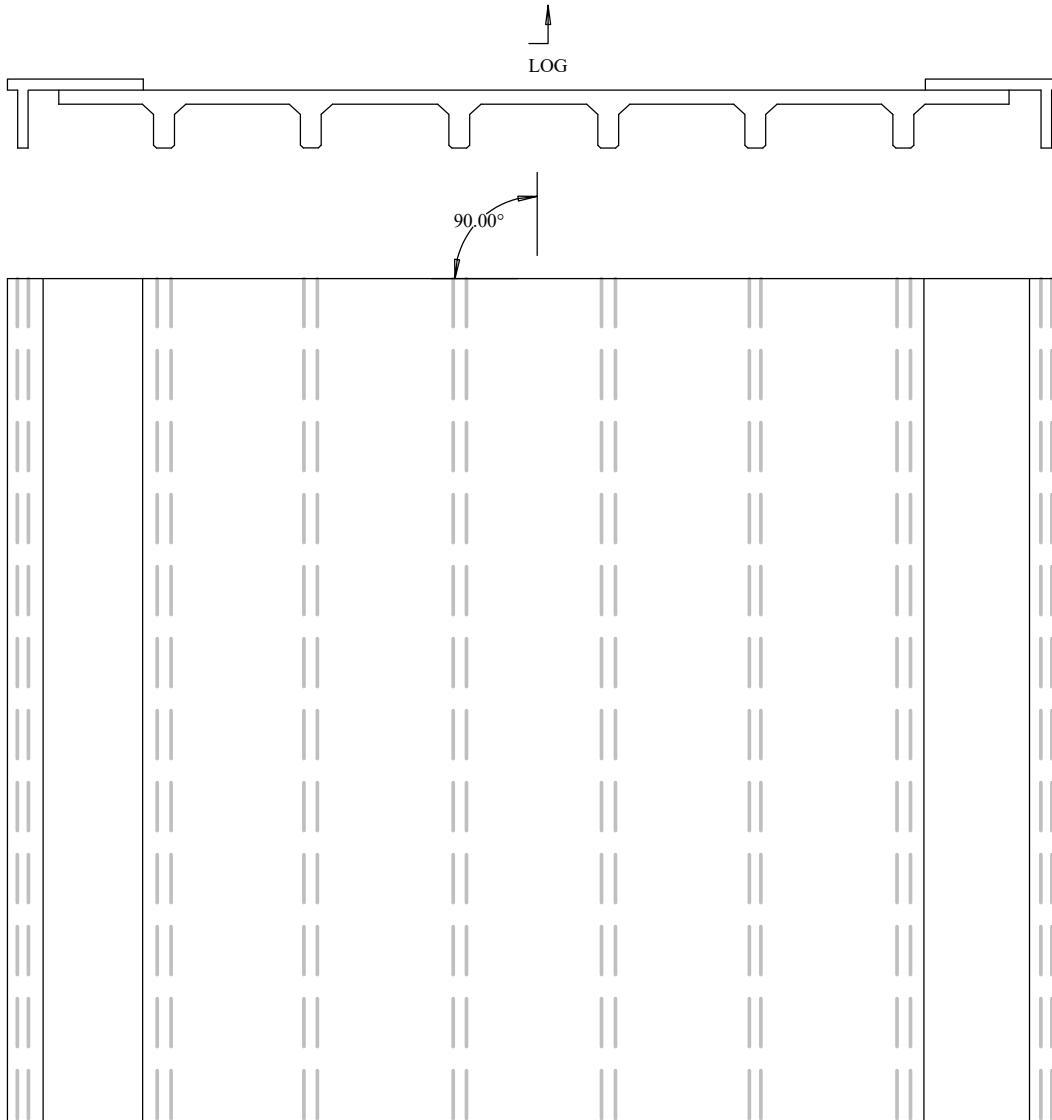


BRIDGE NO. 47-3780-00.31

03-18-20 BR

TOP DECK SPAN 1&3

WEARING SURFACE	G	
BRIDGE RAIL	F	LIGHT SCALE
SIDEWALK	F	LIGHT SCALE



BRIDGE NO. 47-3780-00.31

03-18-20 BR

TOP DECK SPAN 2

WEARING SURFACE	G	
BRIDGE RAIL	F	LIGHT SCALE
SIDEWALK	F	LIGHT SCALE

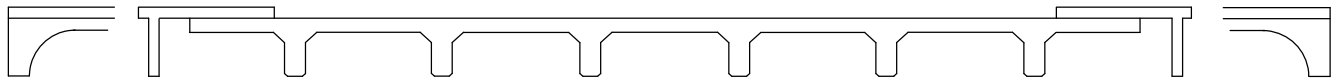




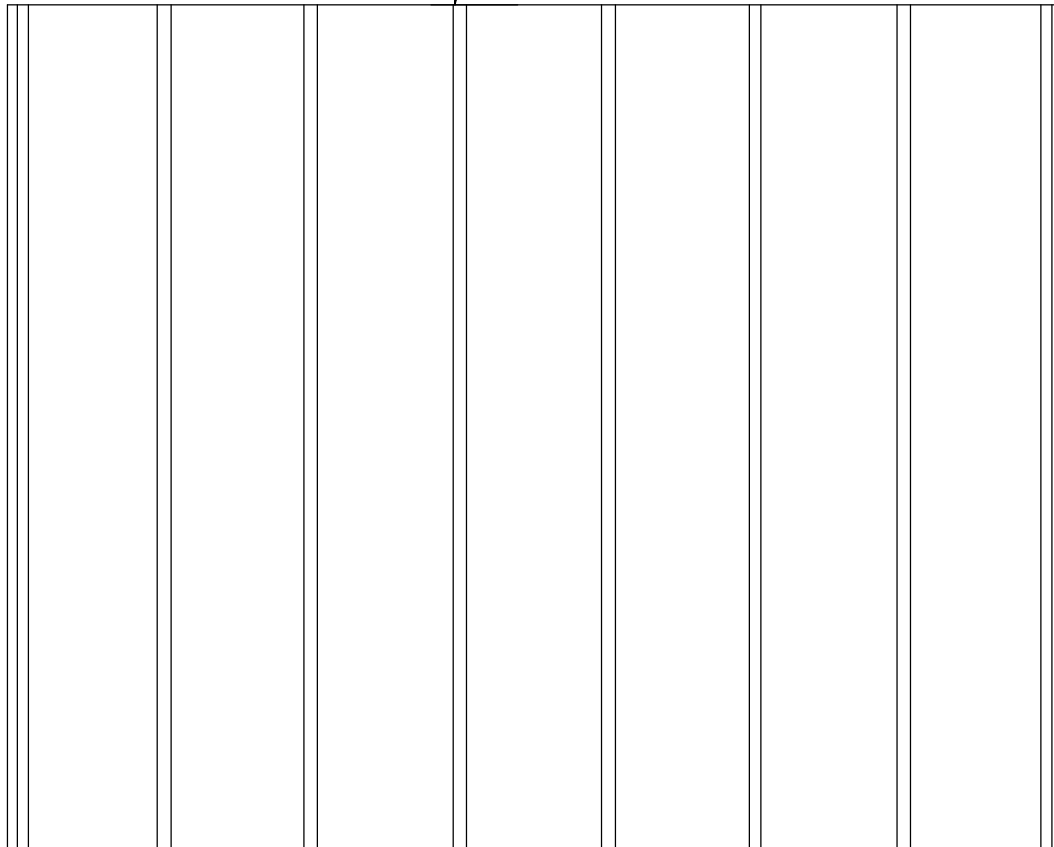
EXT. VIEW  
BEAM A

LOG

EXT. VIEW  
BEAM H



90.00°



A B C D E F G H

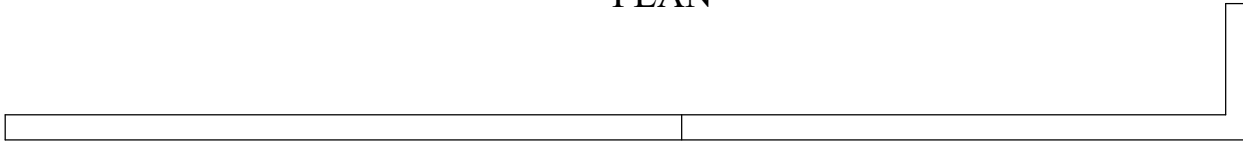
BRIDGE NO. 47-3780-00.31

03-18-20 GM

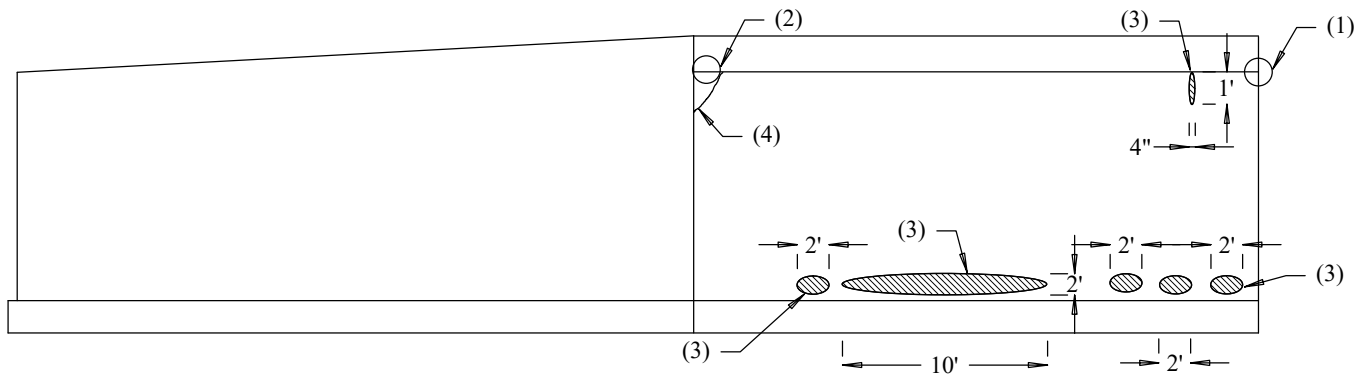
BOTTOM DECK SPAN 2

BOTTOM DECK	F	HAIRCRACKS/STAINING
BEAMS	F	HAIRCRACKS/STAINING
DIAPHRAGMS	F	SCALE/HAIRCRACKS/LEACHING

## PLAN



## ELEVATION



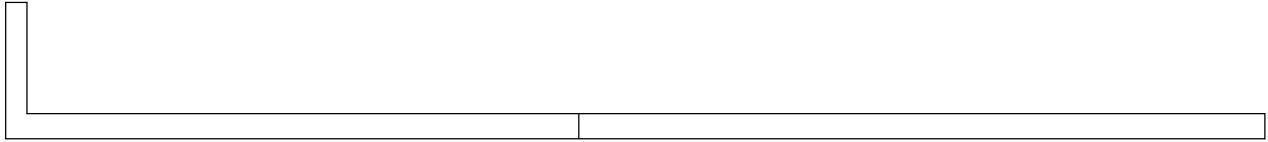
BRIDGE NO. 47-3780-00.31

03-18-20 ACSIII

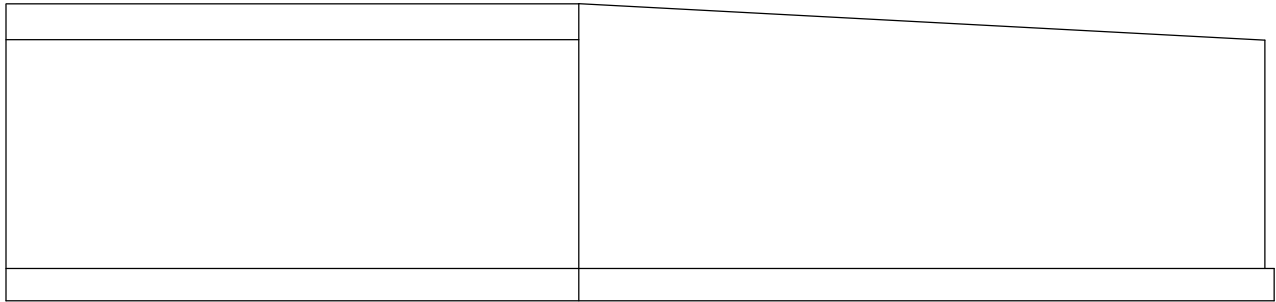
ABUTMENT 1

BREASTWALL	F	(1) 3" DEEP SPALLING UNDER BEAM A (4) 1" OPEN CRACK UNDER BEAM I
		(2) 2" DEEP SPALLING UNDER BEAM I
		(3) NUMEROUS AREAS OF 2" DEEP SPALLING ALONG BOTTOM
BACKWALL	F	HAIRCRAKS/STAINING
WINGS	F	HAIRCRAKS/STAINING

PLAN



ELEVATION

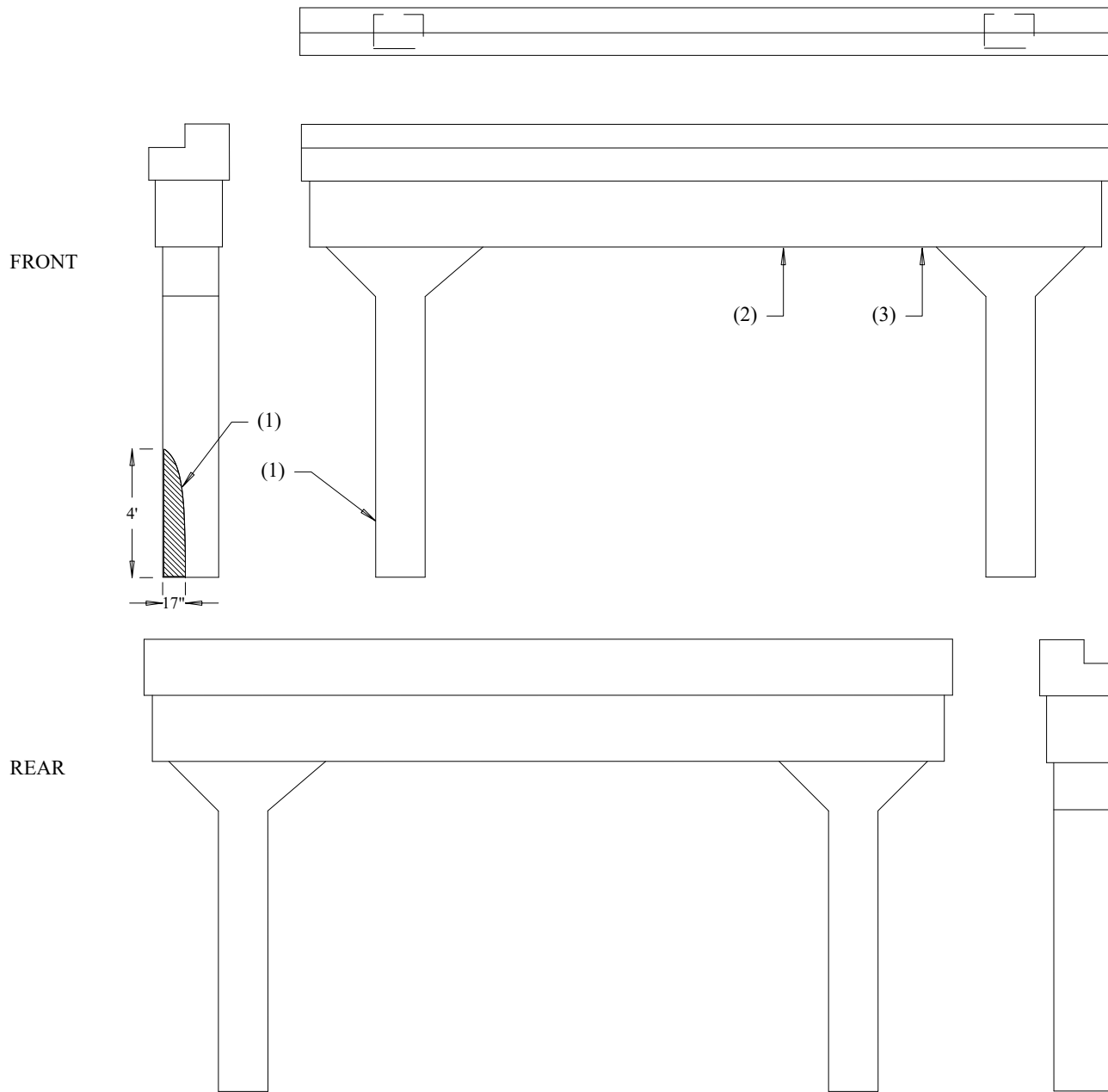


BRIDGE NO. 47-3780-00.31

03-18-20 ACSIII

ABUTMENT 2

BREASTWALL	F	HAIRCRAACKS/STAINING
BACKWALL	F	HAIRCRAACKS/STAINING
WINGS	F	HAIRCRAACKS/STAINING



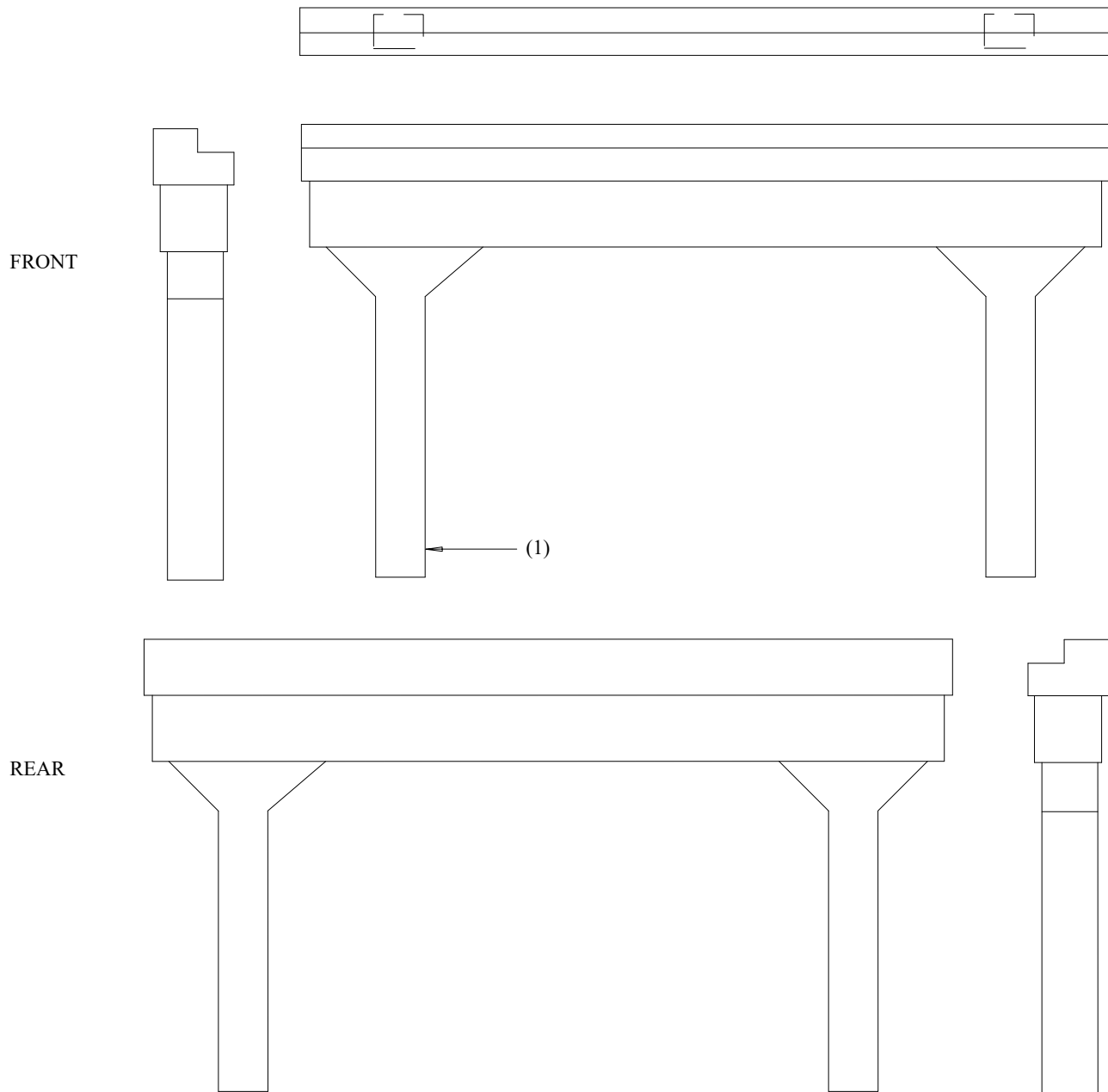
BRIDGE NO. 47-3780-00.31

03-18-20 ACSIII

BENT 1

CAP	F	LIGHT SCALE/HIGH STEEL POPOUTS
		(2) IN PLACE SPALLING/DELAMINATION BOTTOM
		(3) SPALL W/EXPOSED REBAR 2' DIAMETER BOTTOM
COLUMNS	F	(1) 1" DEEP SCALING W/BROKEN REBAR COLUMN A

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BRIDGE NO. 47-3780-00.31

03-18-20 ACSIII

BENT 2

CAP	F	LIGHT SCALE/HIGH STEEL POPOUTS
COLUMNS	F	LIGHT SCALE/HIGH STEEL POPOUTS
		(1) SPALL W/EXPOSED REBAR 2' DIAMETER COLUMN A

← LOGGED TOWARD CUMBERLAND AVENUE

