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D-97-027-19

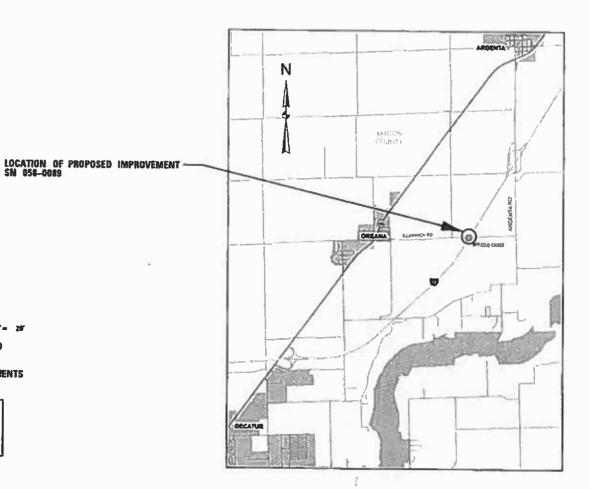
DEPARTMENT OF TRANSPORTATION

FOR INDEX OF SHEETS, SEE SHEET NO. 2 ADT (2017) = 12100 (1-72)

PROPOSED HIGHWAY PLANS

FAI 72 (I-72) **SECTION D7 BRIDGE REPAIRS 2020-2** PROJECT NHPP-E6NS(537) BRIDGE JOINT REPLACE., DECK REPAIR/OVERLAY **MACON COUNTY**

C-97-041-19



GROSS LENGTH = 300,00 FT. = 0.06 MILE NET LENGTH = 300.00 FT. = 0.06 MILE

LOCATION OF SECTION INDICATED THUS: -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION Jan 31

> PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E. JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS 1-800-892-0123

OR 811

PROJECT ENGINEER: BRIAN LEWIS **PROJECT MANAGER: MINDY JANSEN**

CONTRACT NO. 74910

GENERAL NOTES

THIS PROJECT IS LOCATED OVER I-72 ONE MILE EAST OF OREANA. THIS WORK INCLUDES THE FOLLOWING REPAIRS TO STRUCTURE NUMBER 058-0089 CARRYING CH-20 OVER I-72: BRIDGE JOINT REPLACEMENT/REPAIR, BRIDGE DECK REPAIRS (FULL AND PARTIAL PATCHING), HMA DECK OVERLAY, WATERPROOFING MEMBRANE SYSTEM, FLOOR DRAINS, BEARING REMOVAL AND ASSEMBLY, JOINT STRIP SEAL AND ALL OTHER WORK NECESSARY AS SHOWN ON THE PLANS.

HMA SURFACE COURSE, MIX "D", N90, MINIMUM LIFT THICKNESS IS 1 1/2" AND MAXIMUM LIFT THICKNESS IS 2 1/2".

PAINT PAVEMENT MARKING - 4" CONSISTS OF 600 FT OF YELLOW AND 600 FT OF WHITE.

INDEX OF SHEETS

SHEET NO. ITEM

- 1 COVER SHEET
- 2 INDEX OF SHEETS, HIGHWAY STANDARDS & GENERAL NOTES
- 3 SUMMARY OF QUANTITIES
- 4 LOCATION MAP AND DETOUR PLAN AND SIGNAGE DETAILS
- 5-14 BRIDGE REPAIR PLANS

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED FOLLOWING THE LAST NUMBERED SHEET OF THE PLANS.

STD. NO. DESCRIPTION

001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
701006-05	OFF-ROAD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701011-04	OFF-ROAD MOVING OPERATIONS, 2L, 2W, DAY ONLY
701201-05	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS >= 45 MPH
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701311-03	LANE CLOSURE, 2L, 2W, MOVING OPERATIONS, DAY ONLY
701400-09	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701406-12	LANE CLOSURE, FREEWAY/EXPRESSWAY, DAY OPERATIONS ONLY
701901-08	TRAFFIC CONTROL DEVICES
B.L.R. 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON
	RURAL LOCAL HIGHWAYS

90% FED 10% STATE 90% FED 10% STATE

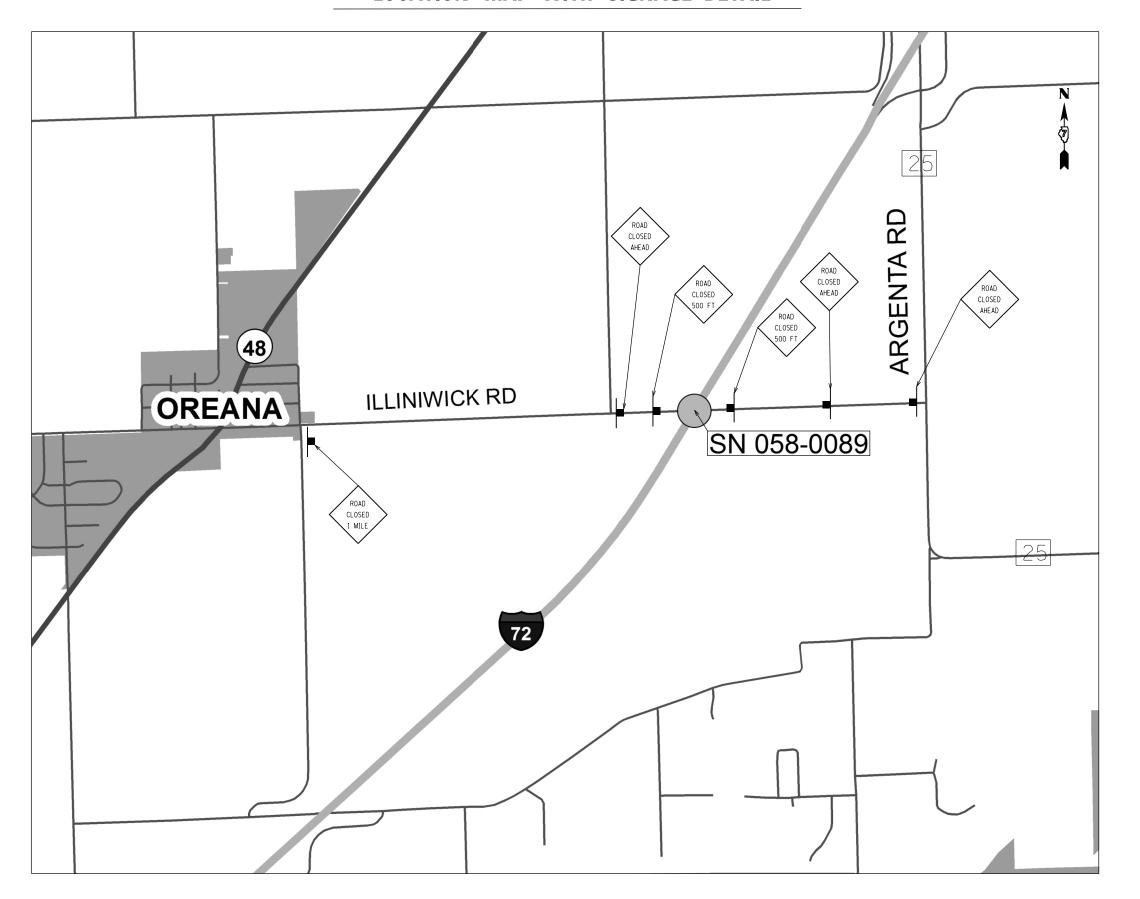
IARY OF QUANTITIE	- C			RUCTION TYPE CODE	—	SUMMARY OF QUANTITIES				TRUCTION TYPE CODE
ITEM	UNIT	TOTAL QUANTITIES	0047		CODE NO	ITEM	UNIT	TOTAL QUANTITIES	0047	
	3.1.	COANTITIES					J. C. T.	COANTILO		
ASPHALT SURFACE COURSE, IL-95, N90	TON	95	95		67100100	MOBILIZATION	L SUM	1	1	
ASPHALT SURFACE REMOVAL, 2"	SQ YD	1119	1119		70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD	L SUM	1	1	
						701201				
REMOVAL	CU YD	10.6	10.6							
					70100700	TRAFFIC CONTROL AND PROTECTION, STANDARD	L SUM	1	1	
VE SHIELD	SQ YD	425	425			701406				
RAINS	EACH	8	8		70107025	CHANGEABLE MESSAGE SIGN	CAL DA	56	56	
E STRUCTURES	CU YD	1.9	1.9		★ 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1200	1200	
E SUPERSTRUCTURE	CU YD	10	10		X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR	L SUM	1	1	
						21				
VE COAT	SO YD	25	25							
					Z0001800	APPROACH SLAB REPAIR (PARTIAL DEPTH)	SO YD	12	12	
CEMENT BARS, EPOXY COATED	POUND	2190	2190							
D JOINT STRIP SEAL	FOOT	88	88		Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	10	10	
D JOINT STRIP SEAL	1001	88	88		Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO	SO FT	33	33	
ERIC BEARING ASSEMBLY, TYPE I	EACH	10	10			OR LESS THAN 5 INCHES)				
30LTS, 1"	EACH	20	20		Z0016001	DECK SLAB REPAIR (FULL DEPTH, TYPE I)	SQ YD	5	5	
OOFING MEMBRANE SYSTEM	SO YO	1127	1127		70016002	DECK SLAB REPAIR (FULL DEPTH TYPE II)	SO YO	5	5	
- THE MEMBRANE STOTEM	34 15	1161	1121		20010002	SEAN SEAN NEIGHT (10EE DEI III, 177E 117	30 10	, J	,	
R'S FIELD OFFICE. TYPE A	CAL MO	3	3		Z0016200	DECK SLAB REPAIR (PARTIAL)	SO YD	36	36	

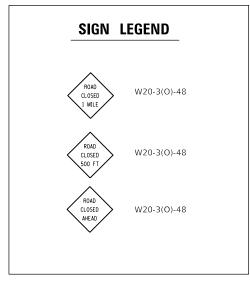
	USER NAME = steffenmk	DESIGNED -	REVISED -
		DRAWN -	REVISED -
ĺ	PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 12/10/2019	DATE -	REVISED -

SCALE:

SUMMARY OF QUANTITIES					F.A.I. RTE.	SECTION		COUNTY	TOTAL SHEETS	SHE
					72	D7 BRIDGE REPAIRS 20	20-2	MACON	14	3
								CONTRACT	NO. 74	910
SHEET	OF	SHEETS	STA.	TO STA.		ILLINOIS	FFD. AII	PROJECT		

LOCATION MAP WITH SIGNAGE DETAIL





VIOTE:

SIGNAGE SHALL BE IN ACCORDANCE WITH TRAFFIC CONTROL AND PROTECTION STANDARD BLR 21 AND AS SPECIFIED.

 USER NAME
 = steffenmk
 DESIGNED
 REVISED

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 REVISED

 PLOT SCALE
 = 100,0000 ' / in.
 CHECKED
 REVISED

 PLOT DATE
 = 12/10/2019
 DATE
 REVISED

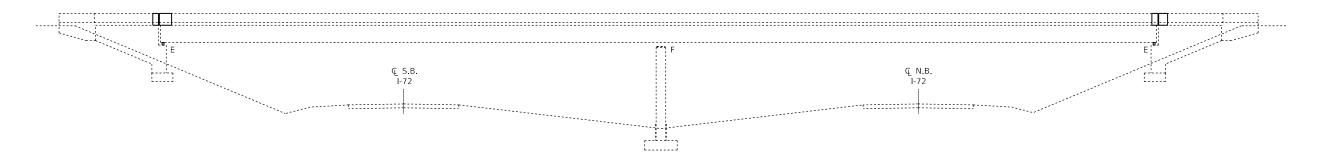
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION MAP WITH SIGNAGE DETAIL

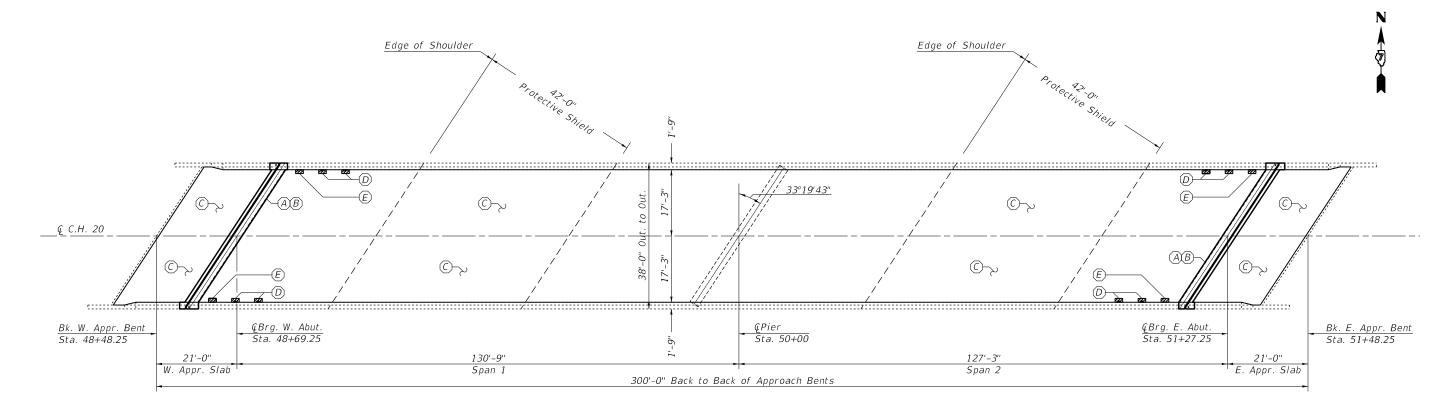
SHEET OF SHEETS STA. TO STA.

FILE NAME: pw:\\planroom

EXISTING STRUCTURE: SN 058-0089, built in 1975, is a 2 span bridge carrying C.H. 20 over F.A.I. Rte. 72. The proposed project consists of replacement of the expansion joints with new strip seals, bearing replacement at abutments with new elastomeric bearings, replacement of deck drains, full and partial depth deck repairs, replacement of waterproofing membrane system and HMA surface and substructure repairs.



ELEVATION



PLAN

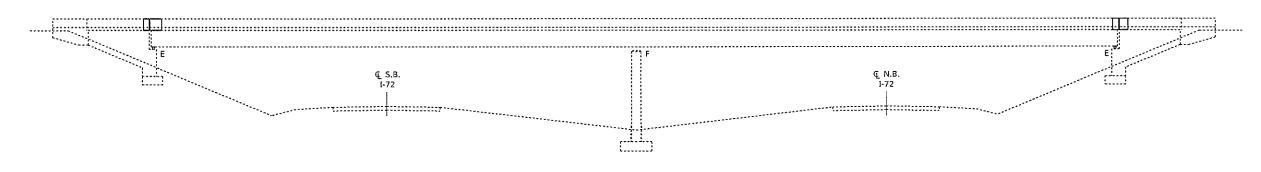
- (A) Remove Existing Neoprene Exp. Jt. and Install Preformed Strip Seal
- (B) Remove Existing Abutment Bearings and Install new Elastomeric Bearings, Type I
- © Remove and Replace Existing HMA Surface & Waterproofing Membrane System
- D Remove and Replace Existing Deck Drains
- (E) Remove Existing Deck Drain

USER NAME = steffenmk	DESIGNED - R. Walker	REVISED - 11/19/2019	CTATE OF HIMMOR		GENERAL PLAN & ELEVATION	F.A.I. RTE	SECTION	COUNTY	TOTAL SHEET SHEETS NO.
	DRAWN - R. Walker	REVISED -	STATE OF ILLINOIS		SN 058-0089	72	D7 BRIDGE REPAIRS 2020-2	MACON	14 5
PLOT SCALE = 100.0000 ' / in.	CHECKED - D. Macklin	REVISED -	DEPARTMENT OF TRANSPORTATION		2M 030-0003			CONTRAC	T NO. 74910
PLOT DATE = 12/10/2019	DATE - 5/9/2019	REVISED -		SCALE:	SHEET 1 OF 10 SHEETS STA. TO STA.		ILLINOIS FED. AII	D PROJECT	

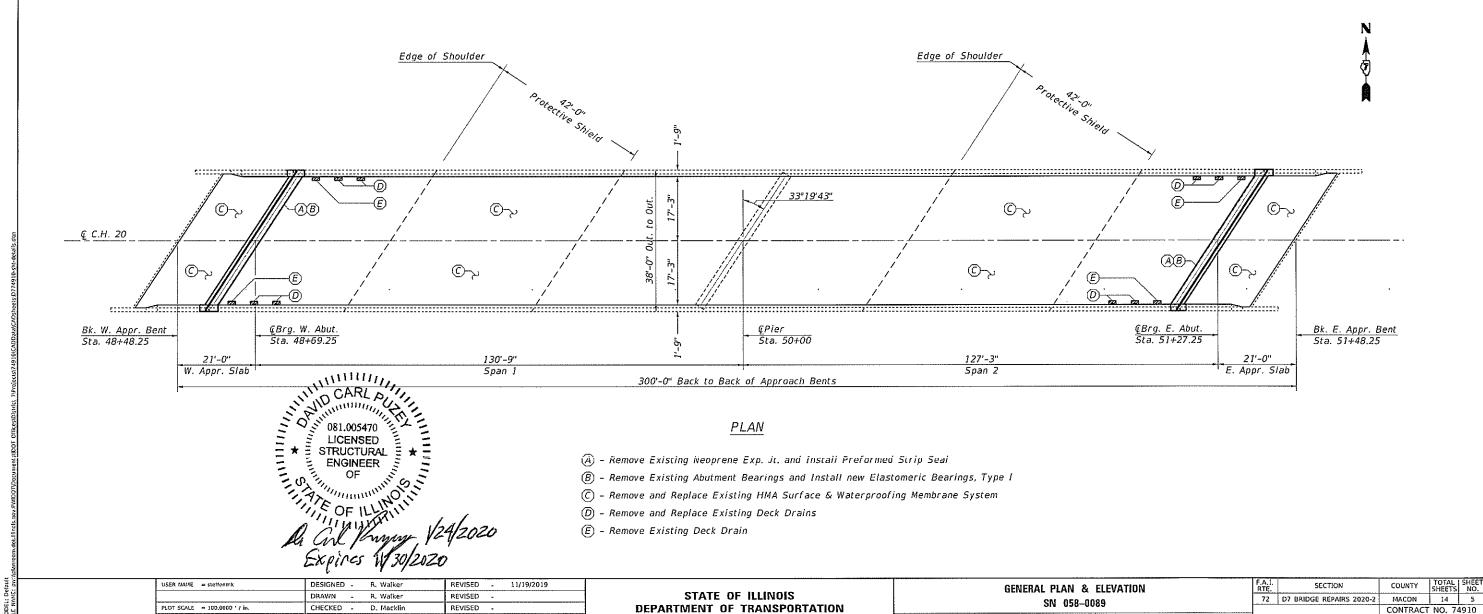
EXISTING STRUCTURE: SN 058-0089, built in 1975, is a 2 span bridge carrying C.H. 20 over F.A.I. Rte. 72. The proposed project consists of replacement of the expansion joints with new strip seals, bearing replacement at abutments with new elastomeric bearings, replacement of deck drains, full and partial depth deck repairs, replacement of waterproofing membrane system and HMA surface and substructure repairs.

PLOT DATE == 12:10/2019

DATE - 5/9/2019



ELEVATION

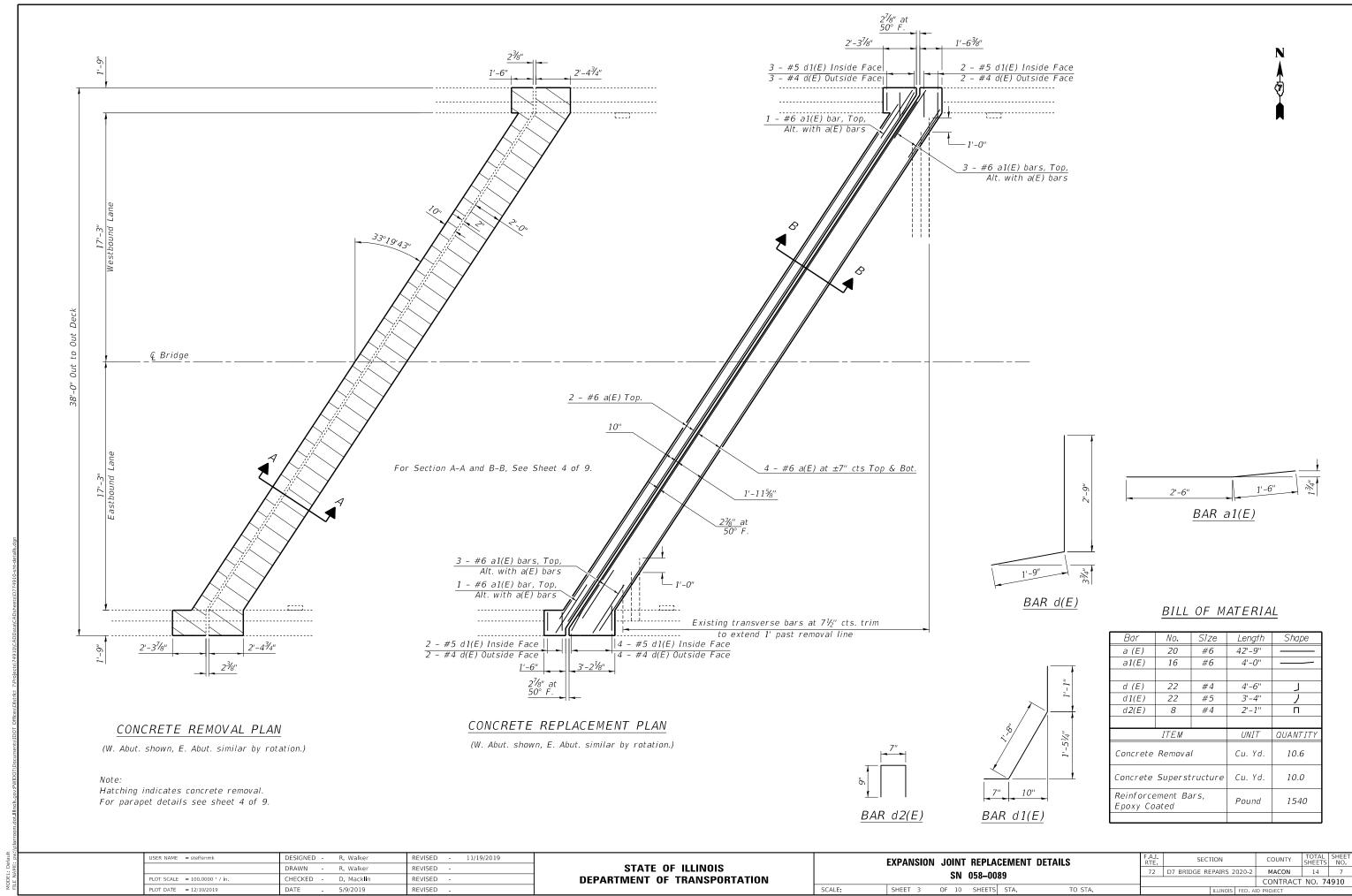


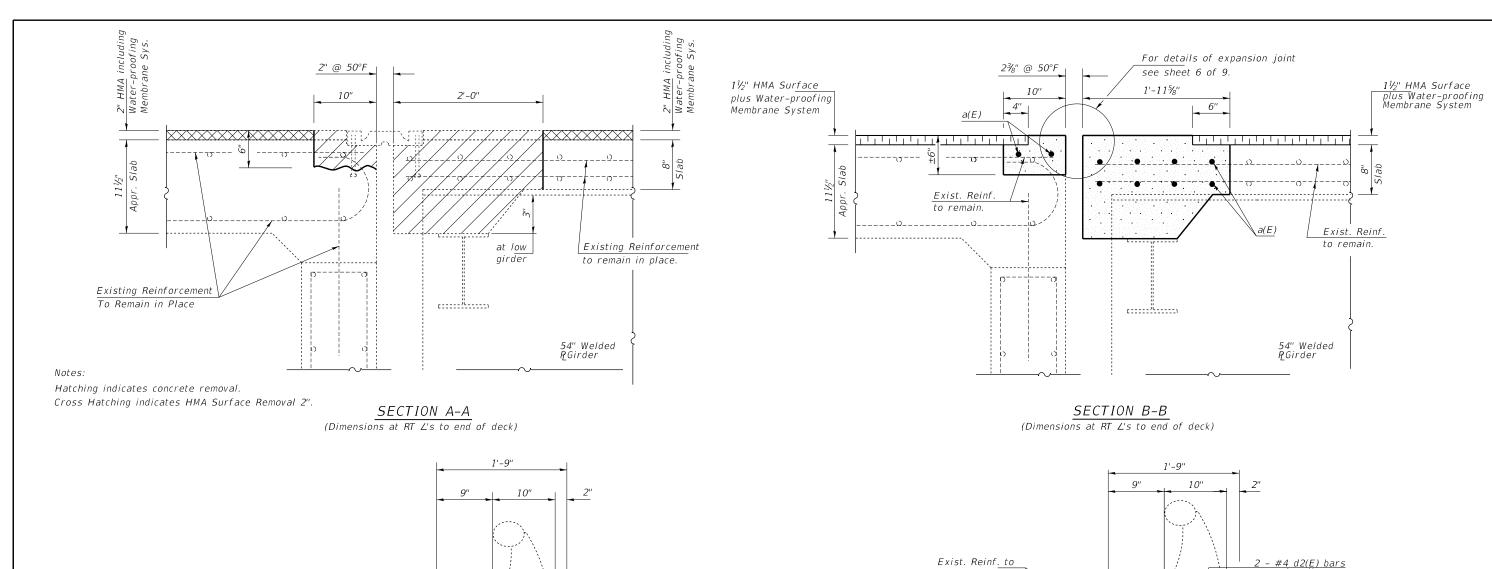
SCALE:

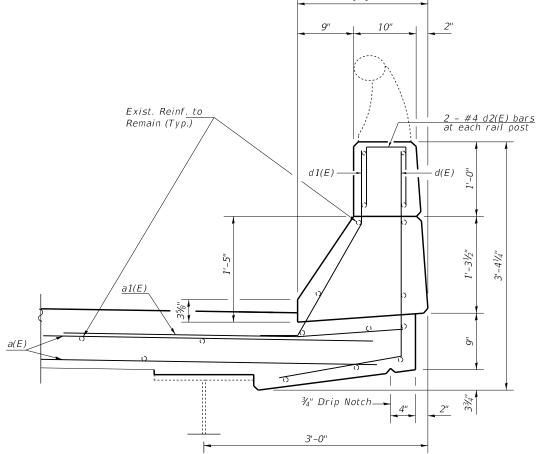
SHEET 1 OF 10 SHEETS STA.

TO STA.

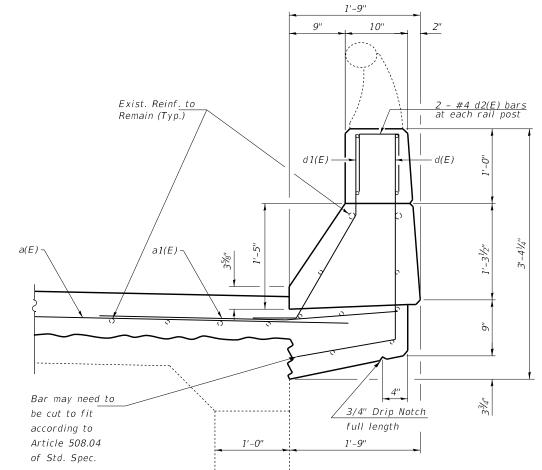
ILLINOIS FED. AID PROJECT





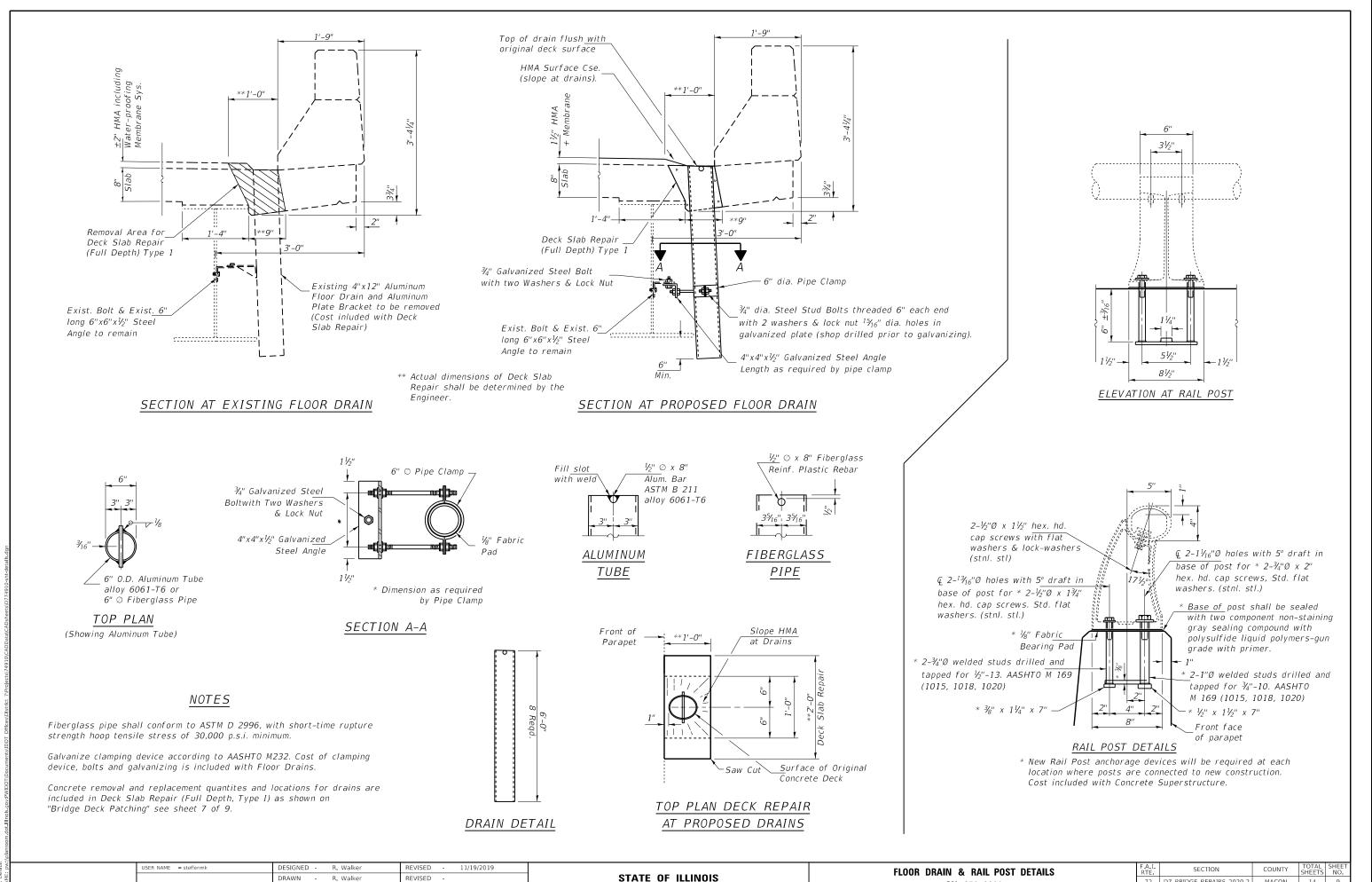


SECTION THRU DECK PARAPET



SECTION THRU APPROACH PARAPET

USER NAME = steffenmk	DESIGNED -	R. Walker	REVISED - 11/19/2019			EXPANSIO	N JOINT REPLA	CEMENT DETAIL	2	F.A.I. BTF	SECTION	COUNTY	TOTAL SHEET
	DRAWN -	R. Walker	REVISED -	STATE OF ILLINOIS	'	LAI AIIOIOI	SN 058-00		-0	72	D7 BRIDGE REPAIRS 2020-2	MACON	14 8
PLOT SCALE = 100.0000 / in.	CHECKED -	D. Mack li n	REVISED -	DEPARTMENT OF TRANSPORTATION			314 030-00	03				CONTRACT	NO. 74910
PLOT DATE = 12/10/2019	DATE -	5/9/2019	REVISED -		SCALE:	SHEET 4	OF 10 SHEETS	STA.	TO STA.		ILLINOIS FED. AID	PROJECT	



DEPARTMENT OF TRANSPORTATION

72 D7 BRIDGE REPAIRS 2020-2 MACON 14 9

CONTRACT NO. 74910

SN 058-0089

TO STA.

SHEET 5 OF 10 SHEETS STA.

DRAWN -

HECKED -

LOT DATE = 12/10/2019

R. Walker

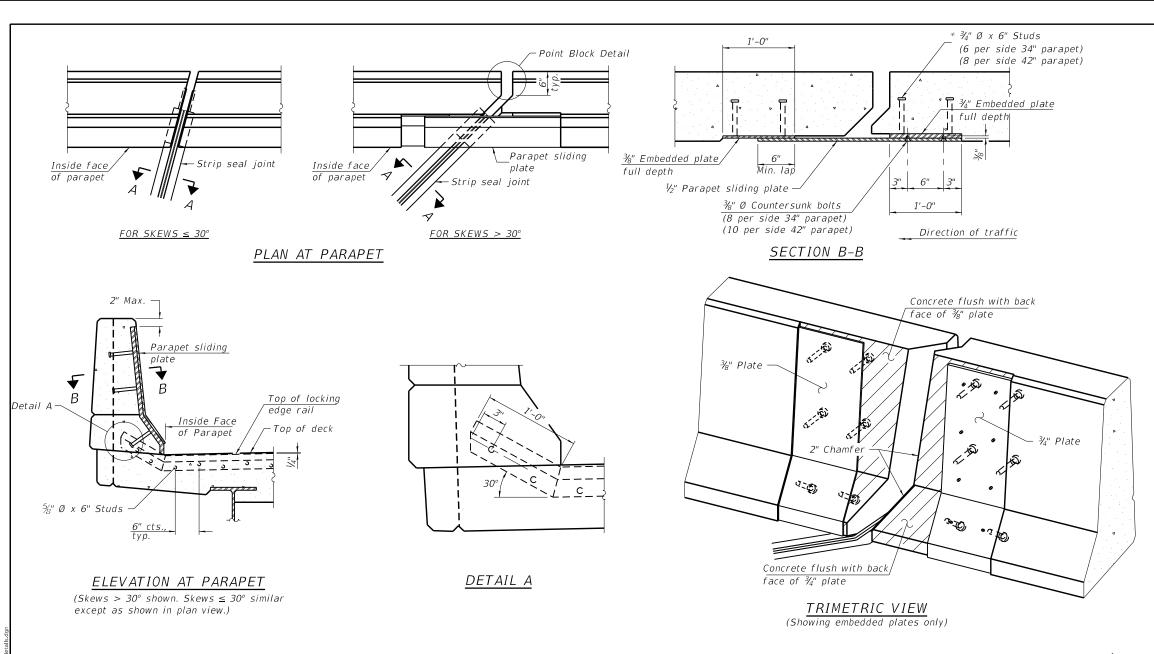
D. Mack**li**n

5/9/2019

REVISED

REVISED

REVISED



Notes

The strip seal shall be made continuous and shall have a minimum thickness of V_4 ". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the $4\frac{1}{2}$ " maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

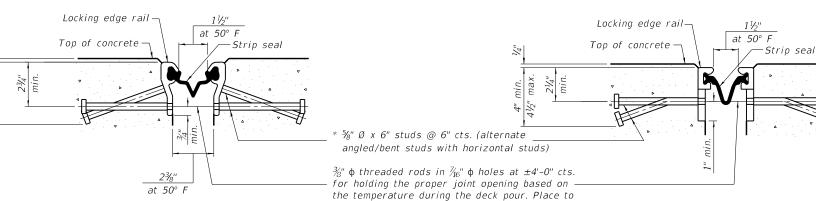
The manufacturer's recommended installation methods shall be followed.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

The Maximum space between locking edge rail segments shall be $\frac{3}{16}$ " and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.

34" F-shape barrier shown, 42" F-shape similar as noted. The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.

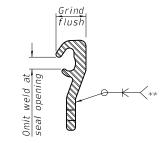


$\frac{1 \frac{1}{4}}{\frac{3}{6}}$ $\frac{3}{4}$ $\frac{3}{6}$ $\frac{3}{6}$

LOCKING EDGE RAILS

SCALE:

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	88

SECTION A-A

miss studs. All rods shall be burned, or sawed

off flush with the plates after concrete is set.

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

USER NAME = steffenmk	DESIGNED -	R. Walker	REVISED - 11/19/2019
	DRAWN -	R. Walker	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	D. Mack li n	REVISED -
PLOT DATE = 12/10/2019	DATE -	5/9/2019	REVISED -

SHOWING ROLLED RAIL JOINT

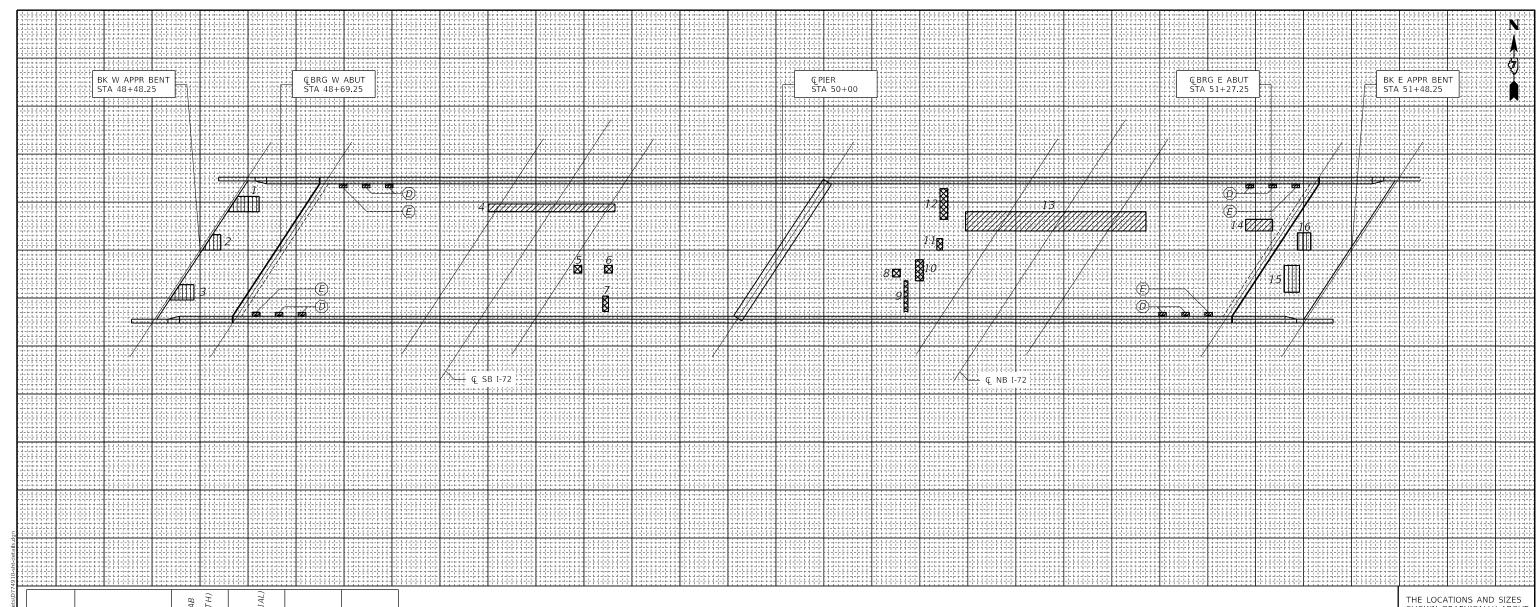
8-11-17

EJ-SS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHOWING WELDED RAIL JOINT

								F.A.I. SECTION COUNTY			TOTAL SHEETS	SHEET NO.
	STRUCTURE NO. 058-0089							D7 BRIDGE REPAIRS 2	020-2	MACON	14	10
	3111001011E1101 030-0003									CONTRACT	NO. 74	4910
SHEET 6 OF 10 SHEETS STA. TO STA.								TLUNOIS	EED ΔI	D PROJECT		



PATCH	SI	ZE	APPROACH SLAB REPAIR (PARTIAL DEPTH)	DECK SLAB REPAIR (PARTIAL)	DECK SLAB REPAIR (FD TY 1)	DECK SLAB REPAIR (FD TY 2)
NO.	LENGTH	WIDTH	SQ YD	SQ YD	SQ YD	SQ YD
1	7.0	4.0	3.11			
2	3.5	4.0	1.56			
3	5.0	4.0	2.22			
4	33.0	2.0		7.33		
5	2.0 2.0				0.44	
6	2.0 2.0				0.44	
7	1.5	4.0				0.67
8	2.0	2.0			0.44	
9	1.0	8.0				0.89
10	2.0	5.5				1.22
11	1.5	3.0			0.50	
12	2.0	8.0				1.78
13	47.0	5.0		26.11		
14	7.0 3.0			2.33		
15	4.0 7.0		3.11			
16	3.5 4.5		1.75			
	TOTALS	·	11.8	35.8	1.8	4.6

DECK DRAINS:

- \bigcirc Remove and Replace Existing Deck Drains (2' x 1') x 8 = 16 sq ft / 9 = 1.8 sq yd
- (E) Remove Existing Deck Drain*
- $-(2' \times 1') \times 4 = 8 \text{ sq ft } / 9 = 0.9 \text{ sq yd}$
- $\underline{1.8}$ + $\underline{0.9}$ = 2.7 sq yd ~ Add $\underline{\underline{3}}$ sq yd to FD TY 1 Qty.

SCALE:

* Cost of removing drain assembly, brackets and bolts included with Deck Slab Repair

SHOWN GRAPHICALLY ABOVE ARE APPROXIMATE. SEE THIS TABLE FOR ACTUAL SIZES.



PARTIAL DEPTH

APPR. SLAB REPAIR (PD)

DATE OF SURVEY: 3-21-2019 SURVEY BY: DPM & RAW METHOD OF SURVEY: VISUAL

APPROACH SLAB REPAIR (PD) 12 SQ YD

DECK SLAB REPAIR (PD) 36 SQ YD

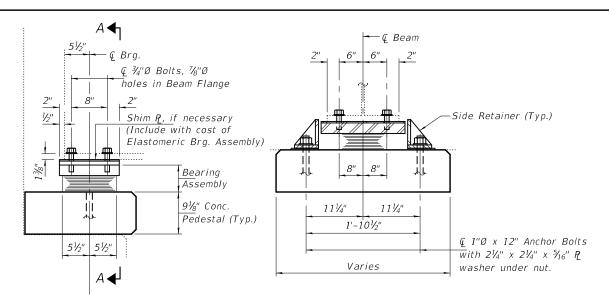
DECK SLAB REPAIR (FDTY1) 5 SQ YD

DECK SLAB REPAIR (FDTY2) 5 SQ YD

USER NAME = steffenmk	DESIGNED -	R. Walker	REVISED - 11/19/2019
	DRAWN -	R. Walker	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	D. Mack li n	REVISED -
PLOT DATE = 12/10/2019	DATE -	5/9/2019	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**

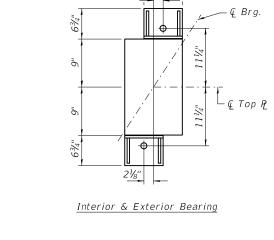
	BRIDGE DECK PATCHING								
	SN 058-0089								
			J14	030-00	0.5				
SHEET	7	OF	10	SHEETS	STA.	TO STA.			



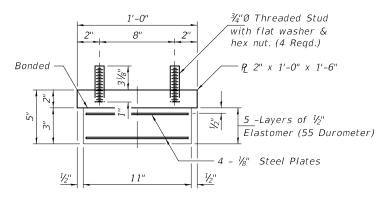
ELEVATION AT ABUTMENT

SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



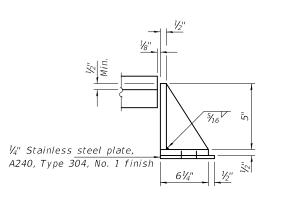
BOLT HOLE LOCATIONS

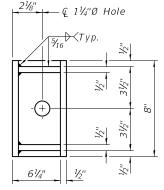


BEARING ASSEMBLY

Note

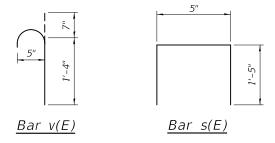
Shim plates shall not be placed under Bearing Assembly.





SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



TYI/REPS 5-17-2018

DESIGNED - CCC	EXAMINED	mot A Mallet	DATE -	JANUARY 29, 2020
CHECKED - SMR		ENGINEER OF STRUCTURAL SERVICES		
DRAWN - Venkat Reddy	PASSED	& Carl Prayey	REVISED	-
CHECKED - CCC SMR		ENGINEER OF BRIDGES AND STRUCTURES	REVISED	-

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

BEARING REPLACEMENT DETAILS FAS 594B OVER I-72 SN 058 - 0089 SHEET NO. 8 OF 10 SHEETS

FA.S. RTE. SECTION COUNTY TOTAL SHEETS SHEETS NO. 594B D7 BRIDGE REPAIRS 2020-2 MACON 14 12 CONTRACT NO. 74910

Notes:

Diaphragm removal and reinstallation may be required to facilitate drilling holes. Cost included with Elastomeric Bearings Assembly Type I.

BEAM REACTIONS

(K)

(K)

R (Total) (K) 122.5

74.8

39.9

7.8

Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions. Adjustment must account for deck heave due to pack rust (if present).

Min. jack capacity = 74 Tons.

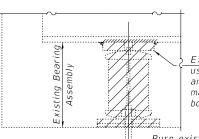
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Cost of Side retainers and Stainless Steel plates shall be included in the cost of Elastomeric Bearing Assembly, Type I. All structural steel shall conform to AASHTO Classification M270 Gr. 36, unless otherwise noted.

All new structural steel and bearing assembly shall be hot-dip galvanized. See Special Provisions for "Hot Dip Galvanizing For Structural Steel".

Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".



Existing P to be removed using the air-arc method and grind smooth all weld material remaining on the bottom flange.

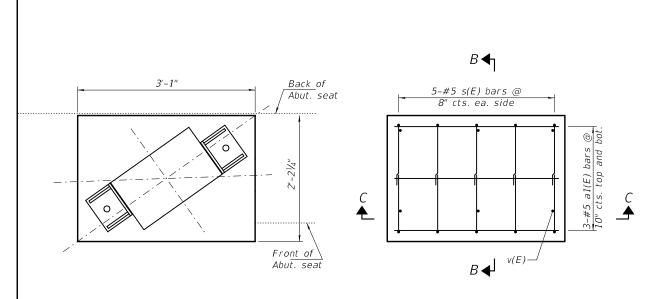
Burn existing anchor bolts flush with existing concrete surface. Grind existing anchor bolt smooth and seal with epoxy.

EXISTING BEARING REMOVAL DETAIL

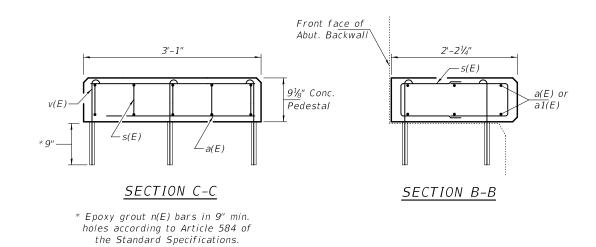
Cost included with Jack and Remove Existing Bearings.

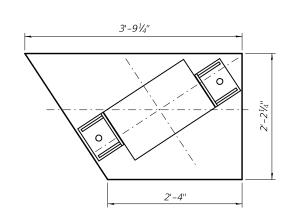
BILL OF MATERIAL

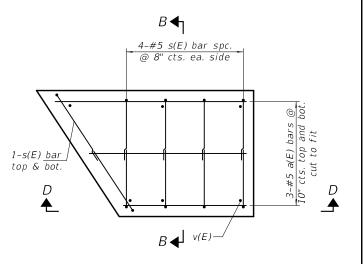
Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	10
Jack and Remove Existing Bearings	Each	10
Concrete Structures	Cu. Yd.	1.89
Anchor Bolts, 1"Ø	Each	20
Reinforcement Bars, Epoxy Coated	Pound	650



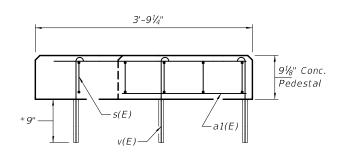
PLAN VIEW-INTERIOR CONCRETE PEDESTAL





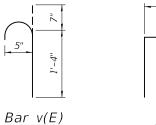


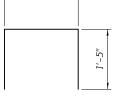
PLAN VIEW-EXTERIOR CONCRETE PEDESTAL



SECTION D-D

* Epoxy grout n(E) bars in 9" min. holes according to Article 584 of the Standard Specifications.



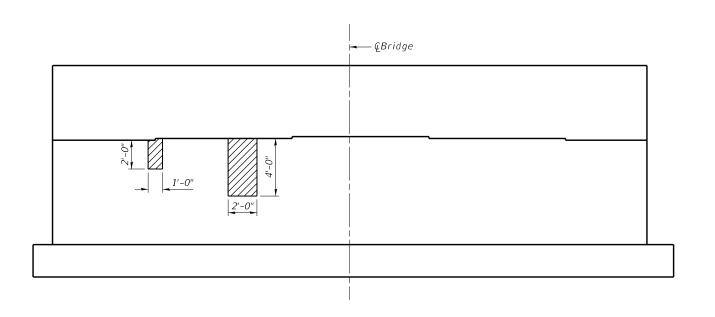


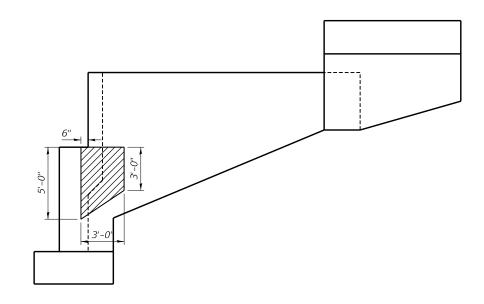
Bar s(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	24	#5	3'-5"	
a1(E)	36	#5	2'-9"	
s(E)	100	#5	3'-3"	
v(E)	60	#5	1'-11"	

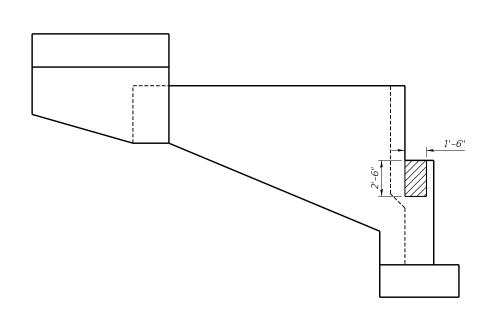
DESIGNED - CCC	EXAMINED	I most A A 1 (1)	DATE - JANUARY 29, 2020		BEARING REPLACEMENT DETAILS	F.A.S. SECTION	COUNTY TOTAL SH	IEET
CHECKED - SMR	_	ENGINEER OF STRUCTURAL SERVICES		STATE OF ILLINOIS	FAS 594B OVER I-72	594B D7 BRIDGE REPAIRS 2020-2	MACON 14	13
DRAWN - Venkat Reddy	PASSED	d. Carl Princey	REVISED -	DEPARTMENT OF TRANSPORTATION	SN 058-0089		CONTRACT NO. 74910	
CHECKED - CCC SMR	_	ENGINEER OF BRIDGES AND STRUCTURES	REVISED -		SHEET NO. 9 OF 10 SHEETS	ILLINOIS FED, A	ID PROJECT	_

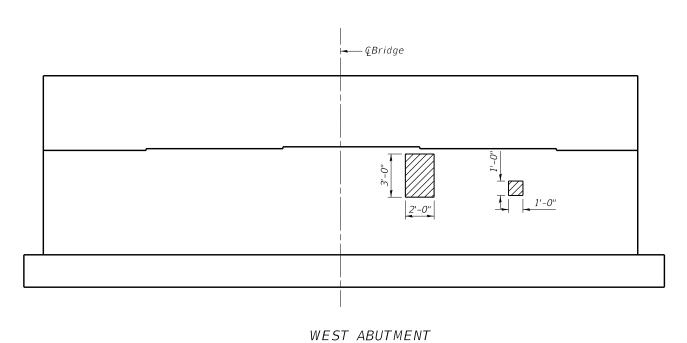




EAST ABUTMENT

SOUTHEAST WINGWALL





SOUTHWEST WINGWALL



Structural Repair of Concrete ≤ 5 inches

Notes: Quantities and locations are approximated. Actual quantities and locations to be determined in the field by the Engineer.

SCALE:

This work is intended to repair only areas of severe deterioration. Some minor deteriorated areas may be left unrepaired.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete ≤ 5 inches	Sq. Ft.	33

USER NAME = steffenmk	DESIGNED -	R. Walker	REVISED - 11/19/2019
	DRAWN -	R. Walker	REVISED -
PLOT SCALE = 100.0000 / in.	CHECKED -	D. Mack li n	REVISED -
PLOT DATE = 12/10/2019	DATE -	5/9/2019	REVISED -

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION**

STRUCTURAL REPAIR OF CONCRETE SN 058-0089 SHEET 10 OF 10 SHEETS STA. TO STA.

SECTION 72 D7 BRIDGE REPAIRS 2020-2 MACON 14 14 CONTRACT NO. 74910