

11-5-10 LETTING ITEM 015

AS-BUILTS

RESIDENT ENGINEER:
DANIEL W. O'DEAR

FIELD ENGINEER:
KENNETH D. CRAWFORD

CONTRACTOR:
STARK EXCAVATING, INC.
1805 E. WASHINGTON ST.
BLOOMINGTON, IL 61701

STARTED: FEBRUARY 28, 2011
COMPLETED: OCTOBER 4, 2012

COUNTY: MCLEAN (113)
SECTION: (57-7HB-2 & 57-7HB-1)BR
ROUTE: FAI 55 (I-55)
DISTRICT: 5
CONTRACT: 70520
JOB: C-95-041-06
PROJECT: ACBRI-055-4(172)156

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROPOSED HIGHWAY PLANS

F.A.I. ROUTE 55 (I-55)
SECTION (57-7HB-2 & 57-7HB-1)BR
PROJECT ACBRI-055-4(172)156
MCLEAN COUNTY
C-95-041-06
BRIDGE REPLACEMENT
OVER I-74 (EB) & I-55 BUSINESS (SB)
SOUTHWEST OF BLOOMINGTON

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	157-7HB-2 & 57-7HB-1BR	MCLEAN	153	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 70520		



James Paul Biggers
JAMES PAUL BIGGERS, P.E.
DATE: 8/09/10
LICENSE EXPIRES: 11/30/11

PLANS PREPARED BY:



JOHNSON, DEPP & QUISENBERRY
CONSULTING ENGINEERS

6450 South Sixth Street Road, Suite B Springfield, Illinois 62712
Phone: (217) 529-4534 Fax: (217) 529-6278



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD 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 EXCAVATION
1-800-892-0123
OR 811
BLOOMINGTON TOWNSHIP

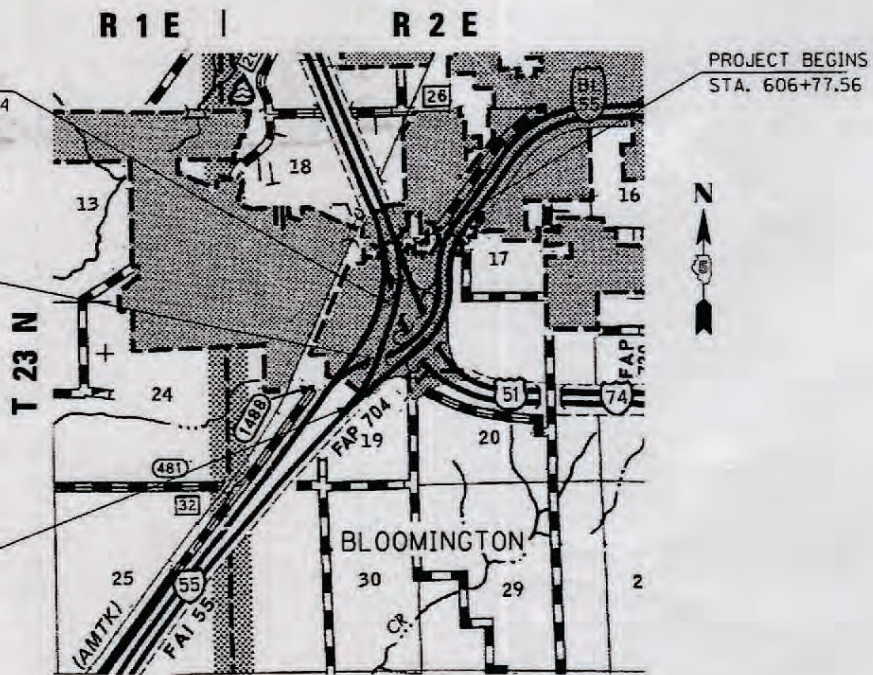
PROJECT ENGINEER: JASON STULTS (217)466-7364
PROJECT MANAGER: RUSTIN KEYS (217)466-7225

CONTRACT NO. 70520

EXISTING SN 057-0005 AT STA. 626+53.53
CARRYING F.A.I. 55 NB TRAFFIC OVER F.A.I. 74
EASTBOUND TO BE REMOVED AND REPLACED.
PROPOSED SN 057-0250 AT STA. 626+53.70
3-SPAN PLATE GIRDER BRIDGE 295'-0" BK-BK.
SKEW 59° 27' 54" LEFT FWD.

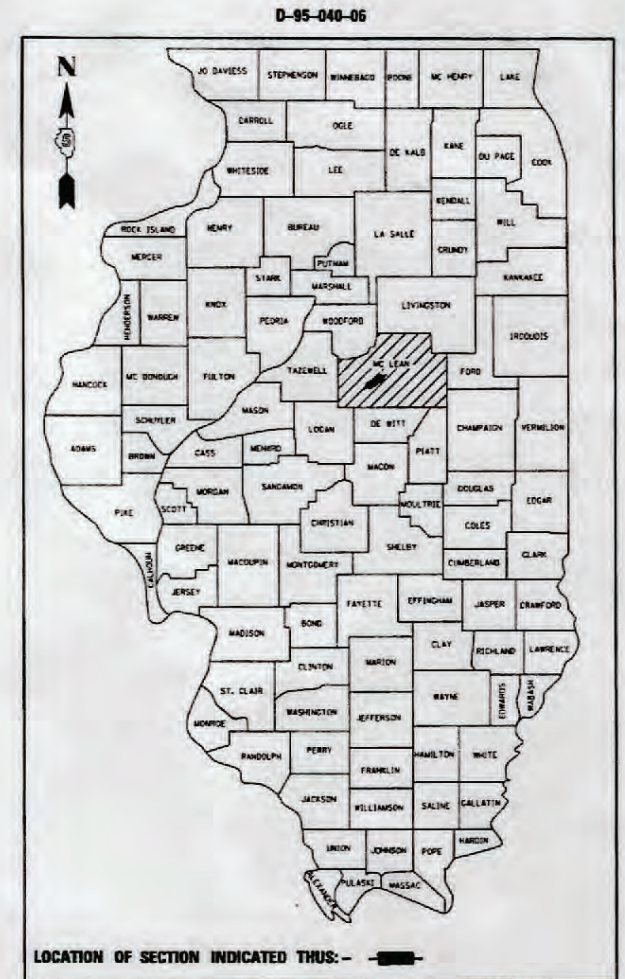
EXISTING SN 057-0004 AT STA. 644+38.15
CARRYING F.A.I. 55 NB TRAFFIC OVER BUSINESS F.A.I. 55
SOUTHBOUND TO BE REMOVED AND REPLACED.
PROPOSED SN 057-0249 AT STA. 644+36.37
3-SPAN PLATE GIRDER BRIDGE 200'-0" BK-BK.
SKEW 30° RIGHT FWD.

PROJECT ENDS
STA. 658+24



LOCATION MAP

GROSS LENGTH = 5,146.44 FEET = 0.975 MILES
NET LENGTH = 5,146.44 FEET = 0.975 MILES



LOCATION OF SECTION INDICATED THUS: -

INTERSTATE
F.A.I. 55
ADT (2008) = 11,900
ADT (2028) = 16,600
PV = 65.3% SJ = 4.4% MU = 30.3%
DESIGN SPEED = 70 MPH
DESIGN DESIGNATION: 14.955 INTERSTATE 29.26 (PCC-20)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
SUBMITTED: 8/11/2010
Joseph E. Cowden
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
October 1, 2010
Scott E. Stitt, P.E.
ENGINEER OF DESIGN AND ENVIRONMENT
October 1, 2010
Christina M. Reedler
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

B.M. 4848-4: Chiseled square on NE wing of SM 057-0005, Elev. 812.26.

EXISTING STRUCTURE: S.N. 057-0005, originally constructed in 1964 as FAI 55 Sec. 57-7HB-1 at Station 626+53.53, using steel beams with 7" concrete deck, 3 simple spans, 258'-6 3/8" back-back abutments, 35'-8" out-out width, stub abutments on concrete piles, multi-column piers with footings on timber piles. In 1991 the bridge was rehabilitated as FAI-55, Sec. 57-7HBR-1. The bridge deck was replaced and the substructure was repaired.

Existing structure shall be removed and replaced using staged construction to maintain one lane of traffic. No salvage.

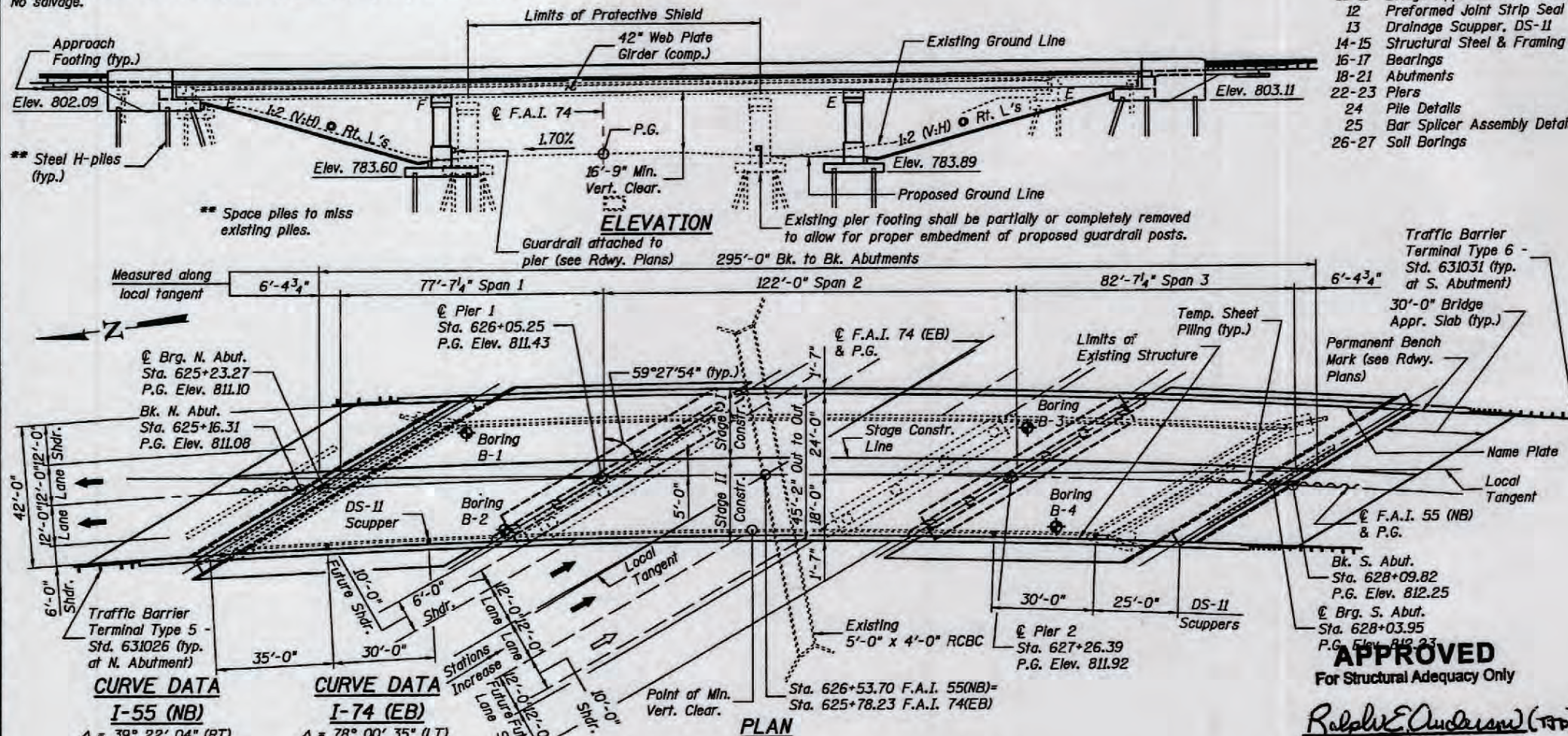
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS

- 1 Gen Plan, Gen Notes, Bill of Mat'l
- 2 Slopewall, Abutment Backfill, etc.
- 3 Stage Constr. & Temp. Sheet Piling
- 4 Temporary Concrete Barrier
- 5-7 Top of Slab Elevations
- 8-9 Superstructure Details
- 10-11 Bridge Approach Slab Details
- 12 Preformed Joint Strip Seal
- 13 Drainage Scupper, DS-II
- 14-15 Structural Steel & Framing Plan
- 16-17 Bearings
- 18-21 Abutments
- 22-23 Piers
- 24 Pile Details
- 25 Bar Splicer Assembly Details
- 26-27 Soil Borings

GENERAL NOTES

Fasteners shall be AASHTO M164 Type I, mechanically galvanized bolts. Bolts 7/8 in. ϕ , holes 1 in. ϕ , unless otherwise noted. All structural steel shall be AASHTO M 270 Grade 50, unless noted otherwise. Calculated weight of Structural Steel = 319740 lbs. No field welding is permitted except as specified in the contract documents. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions. Reinforcement bars designated (E) shall be epoxy coated. Slipforming of the parapets is not allowed. If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations. Bearing seat surfaces shall be constructed or adjusted to their designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings. Concrete Sealer shall be applied to the designated areas of the Abutments (exposed surfaces of beam seats, backwall and front/sides of cap) and Piers (all exposed surfaces). The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project. The Organic Zinc Rich Primer / Epoxy / Urethane paint system shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that the exterior surfaces and bottom of the bottom flange of the fascia beams, masked off connection surfaces, and field installed fasteners, all of which shall be touched up and finish coated in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Reddish Brown, Munsell No. 2.5YR 3/4. See Special Provision for "Cleaning and Painting New Metal Structures".



CURVE DATA

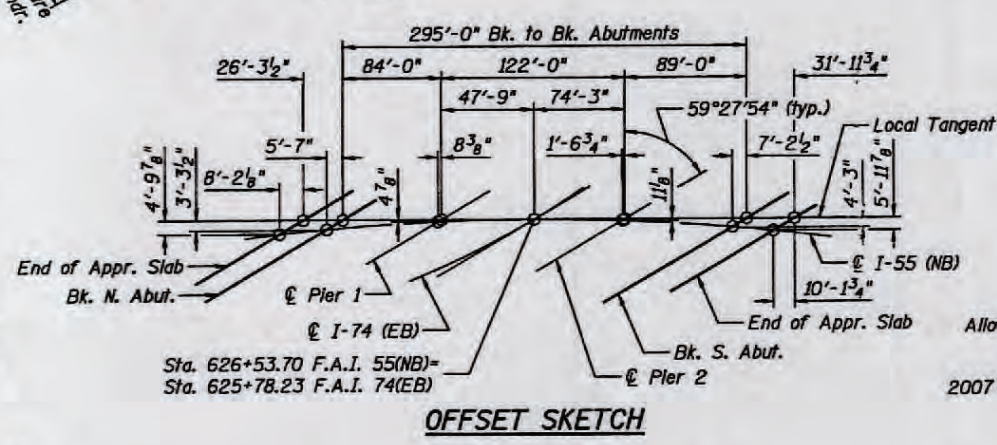
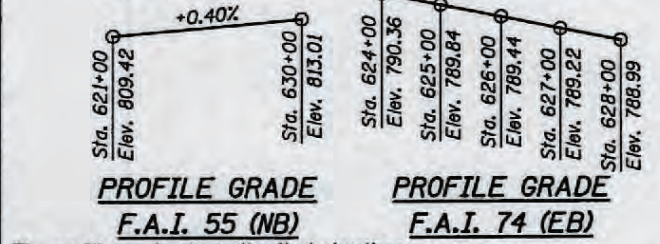
I-55 (NB)

$\Delta = 39^\circ 22' 04"$ (RT)
 $D = 2^\circ 00' 00"$
 $R = 2,864.78'$
 $T = 1,024.83'$
 $L = 1,968.38'$
 $E = 177.79'$
 $S.E. = 3.10\%$
P.C. STA. = 608+95.37
P.T. STA. = 628+63.75
P.I. STA. = 619+20.20

CURVE DATA

I-74 (EB)

$\Delta = 78^\circ 00' 35"$ (LT)
 $D = 1^\circ 29' 59"$
 $R = 3,820.35'$
 $T = 3,094.20'$
 $L = 5,201.51'$
 $E = 1,095.86'$
 $S.E. = 1.70\%$
P.C. STA. = 621+49.55
P.T. STA. = 673+51.06
P.I. STA. = 652+43.75



APPROVED
For Structural Adequacy Only

Ralph E. Anderson (SEAL)
Engineer of Bridges & Structures

STATION 626+53.70
BUILT 20__ BY
STATE OF ILLINOIS
F.A.I. RTE. 55 SEC. (57-7HB-1)BR
LOADING HL-93
STR. NO. 057-0250
NAME PLATE
See Std. 515001

LOADING HL-93
Allow 50# / sq. ft. for future wearing surface.
DESIGN SPECIFICATIONS
2007 AASHTO LRFD Bridge Design Specifications with 2008 & 2009 Interims

DESIGN STRESSES
FIELD UNITS
 $f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 50,000$ psi (M270 Grade 50)

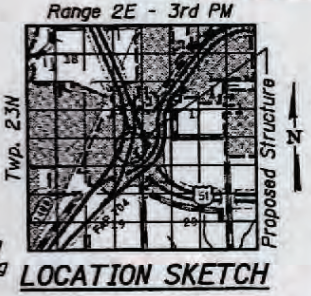
SEISMIC DATA
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{d1}) = 0.13g
Design Spectral Acceleration at 0.2 sec. (S_{d5}) = 0.21g
Soil Site Class = D

GENERAL NOTES (Cont'd)

The concrete for bridge decks finished according to Article 503.16(a) of the Standard Specifications shall be placed and compacted parallel to the skew in uniform increments along centerline of bridge. The machine used for finishing shall be set parallel to the skew for striking off and screeding the concrete. Braced Excavation shall be provided for Pier 1 adjacent to the I-74 (EB) shoulder, see Special Provisions. Protective Shield shall be provided for the full width of the bridge deck, over the roadway below from edge of shoulder to edge of shoulder.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu Yd	--	296	296
Removal Of Existing Structures	Each	1	--	1
Protective Shield	Sq Yd	344	--	344
Structure Excavation	Cu Yd	--	1581	1581
Concrete Structures	Cu Yd	--	666.6	666.6
Concrete Superstructure	Cu Yd	577.4	--	577.4
Bridge Deck Grooving	Sq Yd	1534	--	1534
Concrete Encasement	Cu Yd	--	14.7	14.7
Protective Coat	Sq Yd	1926	--	1926
Stud Shear Connectors	Each	5625	--	5625
Reinforcement Bars, Epoxy Coated	Pound	144790	61820	206610
Bar Splicers	Each	1306	242	1548
Slope Wall 4 Inch	Sq Yd	--	919	919
Furnishing Steel Piles HP12x53	Foot	--	2640	2640
Driving Piles	Each	--	4	4
Test Pile Steel HP12x53	Each	--	4	4
Pile Shoes	Each	--	23	23
Temporary Sheet Piling	Sq Ft	--	1151	1151
Name Plates	Each	1	--	1
Preformed Joint Strip Seal	Foot	184	--	184
Elastomeric Bearing Assembly, Type I	Each	--	12	12
Elastomeric Bearing Assembly, Type II	Each	--	6	6
Anchor Bolts, 1"	Each	--	24	24
Anchor Bolts, 1 1/2"	Each	--	24	24
Concrete Sealer	Sq Ft	--	6575	6575
Geocomposite Wall Drain	Sq Yd	--	145	145
Pipe Underdrains For Structures 4"	Foot	--	215	215
Braced Excavation	Cu Yd	--	114	114
Drainage Scuppers, DS-II	Each	4	--	4
Diamond Grinding (Bridge Section)	Sq Yd	1457	--	1457
Furn. And Erecting Struct. Steel Bridge No. 1	L Sum	1	--	1
Mechanical Splicers	Each	--	120	120



GENERAL PLAN & ELEVATION
I-55 (NB) OVER I-74 (EB)
F.A.I. RTE. 55 SECTION (57-7HB-1)BR
MCLEAN COUNTY
STATION 626+53.70
STRUCTURE NO. 057-0250

SHEET	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1 OF 27	55	57-7HB-1)BR	MCLEAN	153	51
STA. 626+53.70			CONTRACT NO. 70520		
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT					

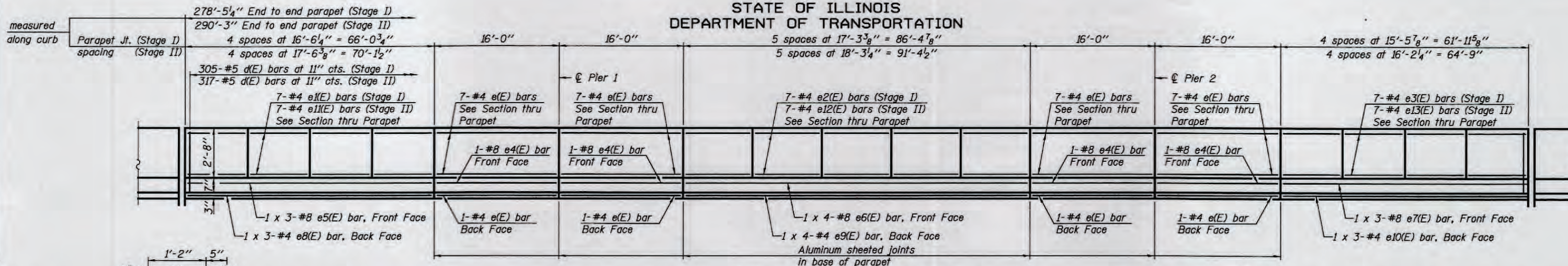
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Johnson, Depp & Quisenberry
CONSULTING ENGINEERS
Springfield, Illinois

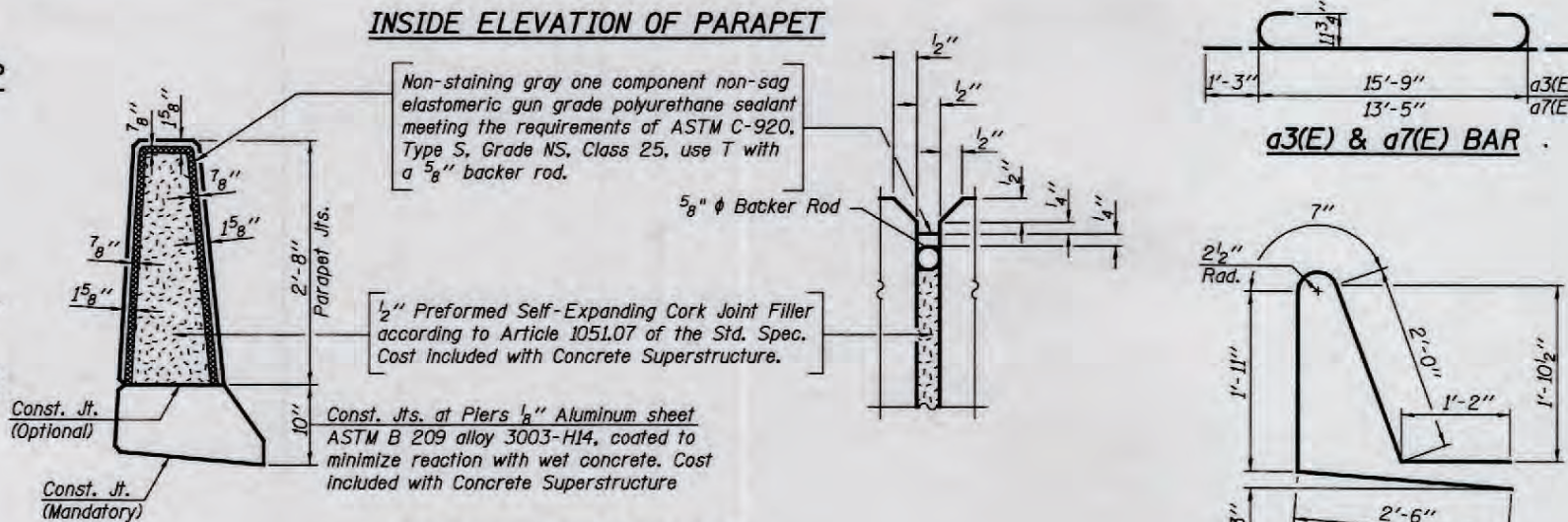
DESIGNED: DCD DRAWN: P. Ray
CHECKED: CMV CHECKED: CMV/DCD

Signed: *David C. Depp*
Date: 8-31-2010
Lic. Expires: 11-30-2010

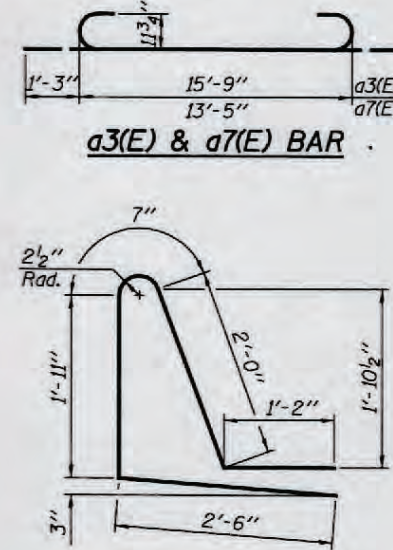
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



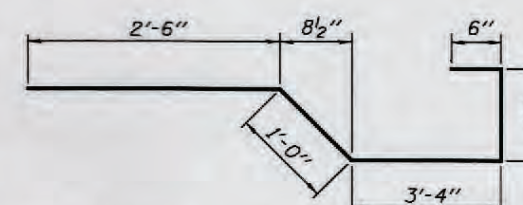
INSIDE ELEVATION OF PARAPET



PARAPET JOINT DETAILS



BAR d1(E)



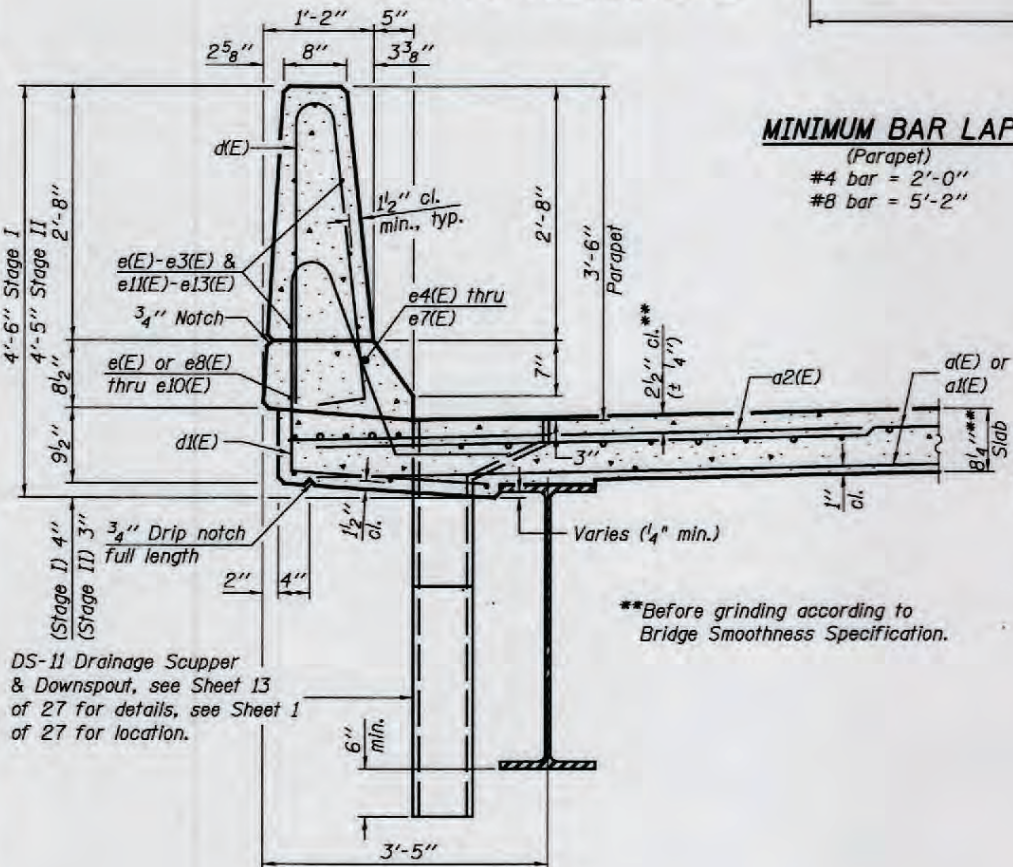
BAR x(E)

BAR x1(E)

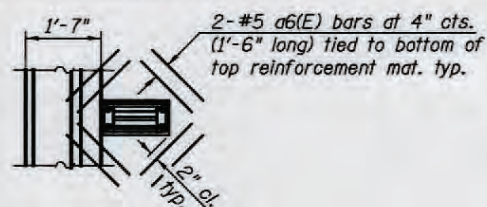
SUPERSTRUCTURE
BILL OF MATERIAL

Bar	No.	Size	Length	Shape	
a(E)	986	#5	19'-10"	—	
a1(E)	1019	#5	23'-10"	—	
a2(E)	1219	#6	6'-6"	—	
a3(E)	12	#9	18'-3"	C	
a4(E)	5	#9	42'-0"	—	
a5(E)	5	#9	51'-9"	—	
a6(E)	32	#5	1'-6"	—	
a7(E)	12	#9	15'-11"	C	
a8(E)	5	#9	35'-9"	—	
a9(E)	5	#9	43'-1"	—	
b(E)	432	#5	34'-6"	—	
b1(E)	88	#6	50'-0"	—	
b2(E)	328	#5	38'-6"	—	
d(E)	622	#5	6'-10"	L	
d1(E)	622	#5	8'-2"	L	
e(E)	64	#4	15'-8"	—	
e1(E)	28	#4	16'-2"	—	
e2(E)	35	#4	16'-11"	—	
e3(E)	28	#4	15'-2"	—	
e4(E)	8	#8	15'-8"	—	
e5(E)	6	#8	26'-8"	—	
e6(E)	8	#8	26'-8"	—	
e7(E)	6	#8	24'-11"	—	
e8(E)	6	#4	24'-7"	—	
e9(E)	8	#4	24'-3"	—	
e10(E)	6	#4	22'-10"	—	
e11(E)	28	#4	17'-2"	—	
e12(E)	35	#4	17'-11"	—	
e13(E)	28	#4	15'-10"	—	
x(E)	70	#5	8'-3"	L	
x1(E)	70	#5	4'-1"	L	
Reinforcement Bars, Epoxy Coated				Pound	112700
Concrete Superstructure				Cu. Yds.	455.6

Bars indicated thus 1 x 3-#8 etc. indicates 1 line of bars with 3 lengths per line.

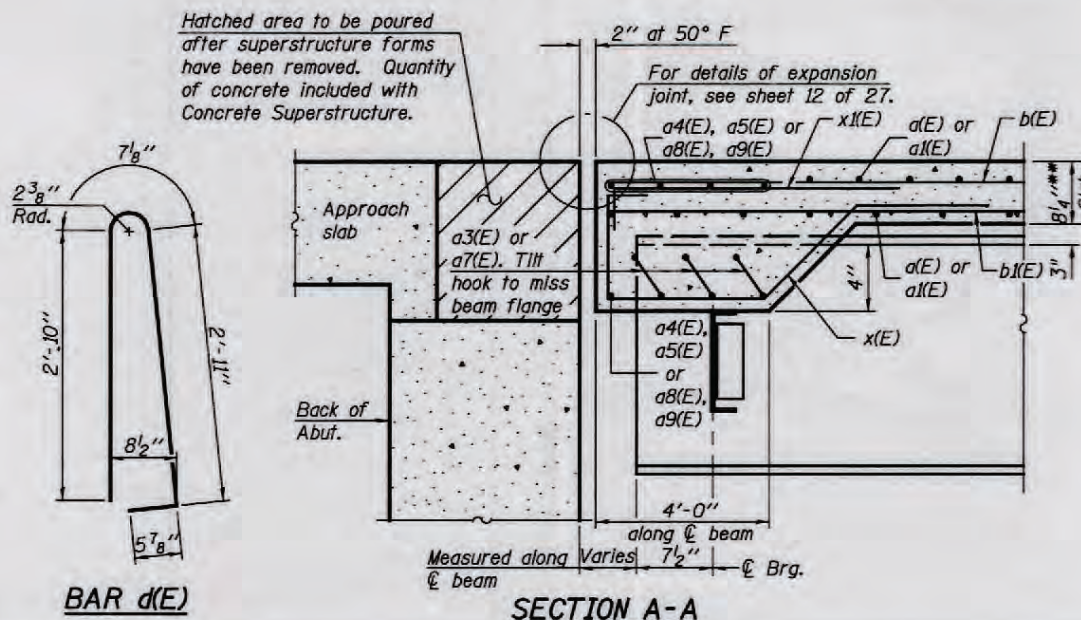


SECTION THRU PARAPET



PLAN AT SCUPPER

Note:
Cut longitudinal reinforcement to clear drainage scuppers.



SECTION A-A

BAR d(E)

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JD Johnson, Depp & Quisenberry
CONSULTING ENGINEERS
Springfield, Illinois

DESIGNED: DCD	DRAWN: P. Ray
CHECKED: CMV	CHECKED: CMV/DCD

S-D 11-1-09 (Modified)

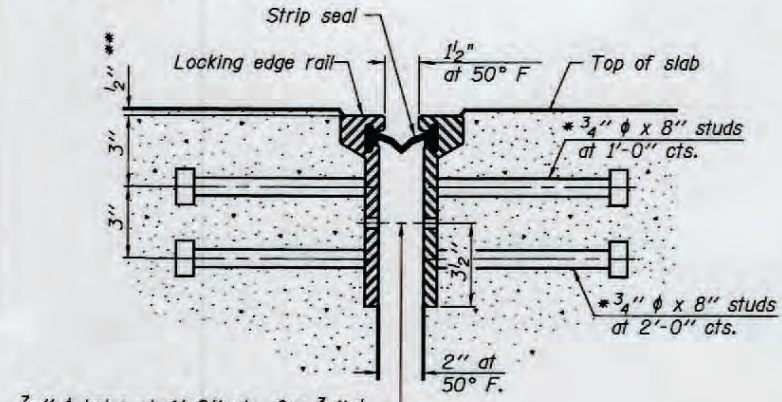
SUPERSTRUCTURE DETAILS
STRUCTURE NO. 057-0250

SHEET 9 OF 27	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55	(57-THB-1)BR	MCLEAN	153	59
	STA. 626+53.70		CONTRACT NO. 70520		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

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

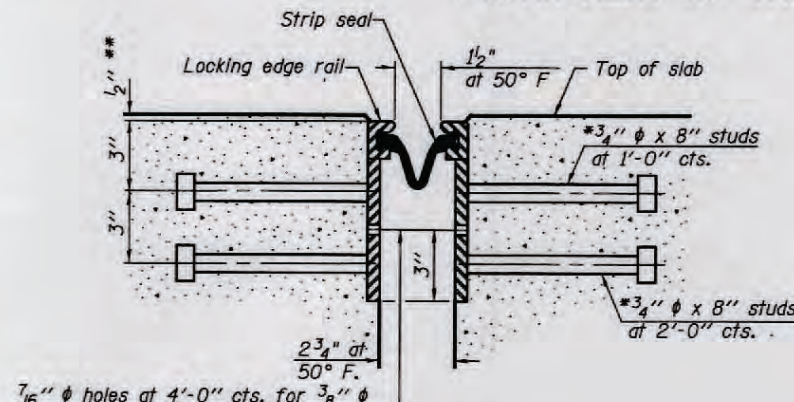
** Before grinding according to Bridge Smoothness Specification.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



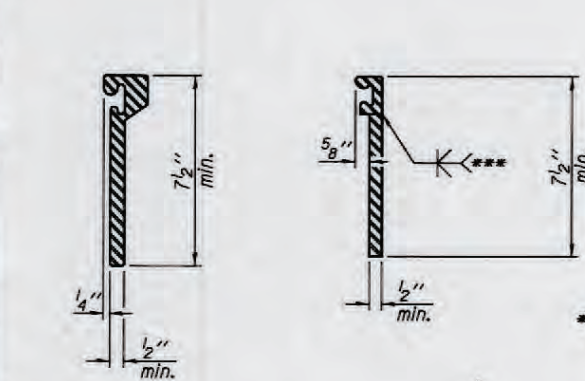
7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU
ROLLED RAIL JOINT



7/16" ϕ holes at 4'-0" cts. for 3/8" ϕ bolts. All bolts shall be burned, sawed, or chipped off flush with the plates after forms are removed, typ.

SECTION THRU
WELDED RAIL JOINT



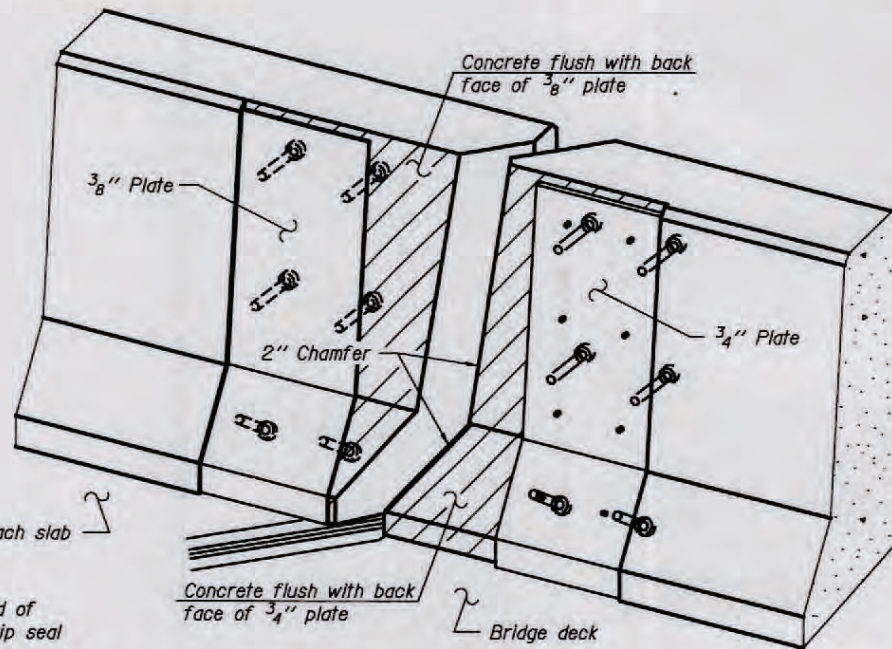
ROLLED
EXTRUDED RAIL

WELDED RAIL

*** 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.



Approach slab

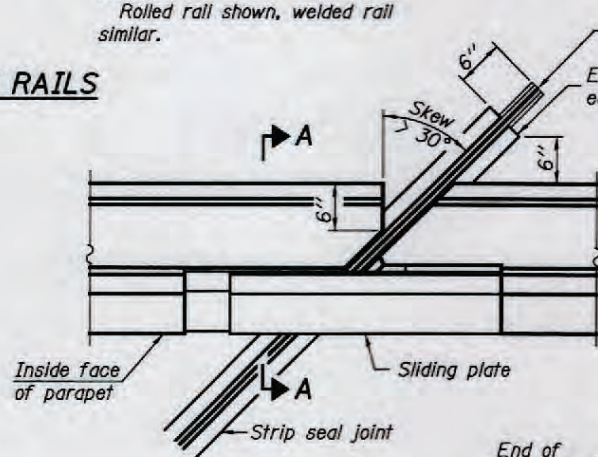
Bridge deck

Notes:

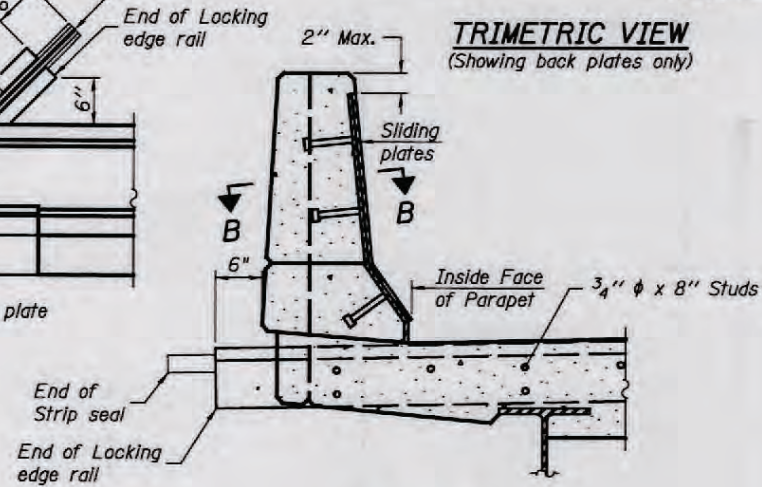
The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches. The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed. The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State. All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

LOCKING EDGE RAILS



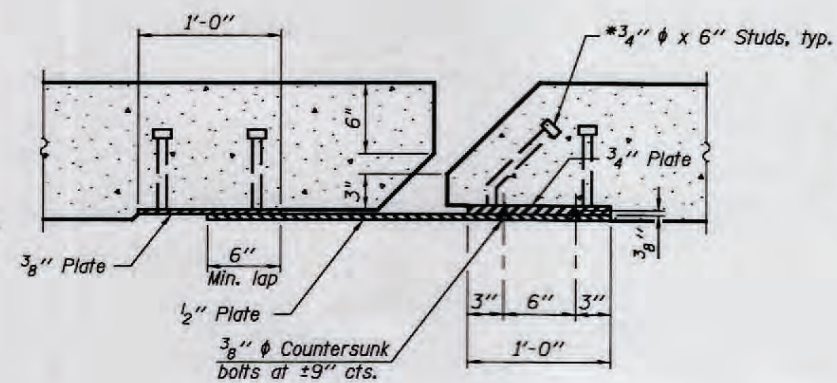
PLAN



SECTION A-A

POINT BLOCK DETAILS
(for skews > 30°)

TRIMETRIC VIEW
(Showing back plates only)



SECTION B-B

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	184

(MODIFIED)
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 057-0250

JD Johnson, Depp & Quisenberry
CONSULTING ENGINEERS
Springfield, Illinois

DESIGNED: DCD DRAWN: P. Ray
CHECKED: CMV CHECKED: CMV/DCD

EJ-SSJ 11-1-09 (Modified)

SHEET 12 OF 27	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	55	(57-7HB-1BR)	MCLEAN	153	62
STA. 626+53.70			CONTRACT NO. 70520		
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT					

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