09-21-2018 LETTING ITEM 033

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	1
	ILLINOIS	CONTRACT NO. 78615		

STATE OF ILLINOIS

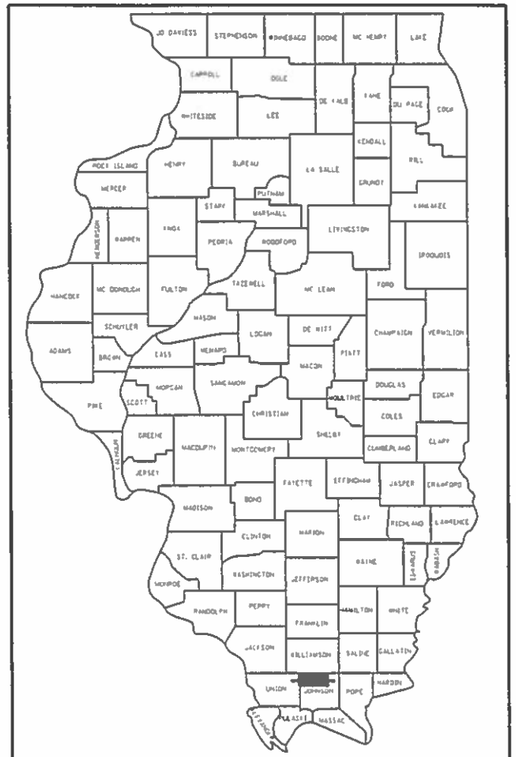
DEPARTMENT OF TRANSPORTATION

PROPOSED HIGHWAY PLANS

FAS ROUTE 927 (TUNNEL HILL) OVER I-24 PROJECT NHPP-4A87(854) D9 BRIDGE REPAIR 2018-4 JOHNSON COUNTY

C-99-007-18

D-99-002-18



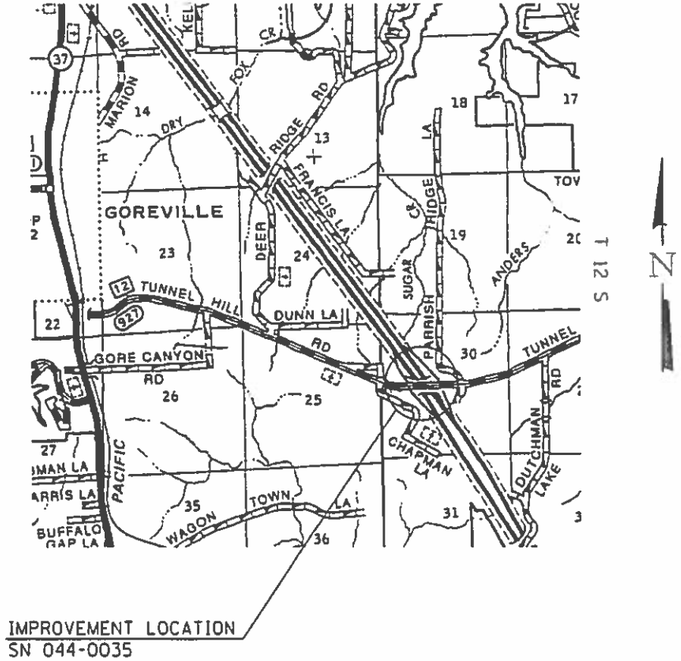
LOCATION OF SECTION INDICATED THUS: –

TRAFFIC DATA

2018 ADT: 1,480
SPEED LIMIT: 55 MPH

TOWNSHIPS

TUNNEL HILL



IMPROVEMENT LOCATION
SN 044-0035

GROSS LENGTH = 292 FT. = 0.05 MILES
NET LENGTH = 292 FT. = 0.05 MILES

DESIGN DESIGNATION : N/A

COORDINATE SYSTEM : ILLINOIS COORDINATE SYSTEM, EAST ZONE

POSTED SPEED : 55 MPH

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: DAVID PICHE
PROJECT DESIGNER: CHRIS LAMPORT

CONTRACT NO. 78615

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED June 22 20 18.

Jeffrey L Keirn
REGION FIVE ENGINEER

Aug 17 20 18
for E.A. CK
ENGINEER OF DESIGN AND ENVIRONMENT

Aug 17 20 18
Paul P.
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

GENERAL NOTES

1) THE THICKNESS OF HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT-MIX ASPHALT MIXTURE IS PLACED.

2) FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:

ALL HOT MIX ASPHALT 2.016 TONS/CU.YD.

3) IN ADDITION TO THE REQUIREMENTS OF ARTICLE 107.16 THE CONTRACTOR SHALL PROTECT THE SURFACE OF ALL BRIDGE DECKS AND BRIDGE APPROACH PAVEMENTS IN A MANNER SATISFACTORY TO THE ENGINEER BEFORE ANY EQUIPMENT IS ALLOWED TO CROSS THE STRUCTURE. PROTECTION SHALL BE PROVIDED FOR ALL EQUIPMENT AS DEFINED IN ARTICLE 101.17 REGARDLESS IF TRACK MOUNTED OR WHEELED.

4) AT ALL LOCATIONS WHERE THE PROPOSED HOT MIX ASPHALT OR CONCRETE PAVEMENT JOINS AN EXISTING HOT MIX ASPHALT OR CONCRETE PAVEMENT, A FULL DEPTH SAWED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT WILL BE INCLUDED IN THE COST OF THE TYPE OF PAVEMENT BEING CONSTRUCTED.

5) THE CENTERLINE PAVEMENT MARKING SHALL BE REMOVED FROM THE STOP BAR TO THE SAND ATTENUATORS OR DRUMS. EDGE LINE PAVEMENT MARKING SHOULD BE REMOVED IF A 10 FT LANE WIDTH CANNOT BE MAINTAINED. TEMPORARY EDGE LINES SHOULD BE INSTALLED WHEN THE EDGE LINES ARE REMOVED.

6) AFTER A LIFT OF HOT MIX ASPHALT HAS BEEN PLACED, THE LANE SHALL REMAIN CLOSED TO TRAFFIC UNTIL THE NEW MAT HAS COOLED TO 150 DEGREES FAHRENHEIT.

7) PRIOR TO PLACEMENT OF THE FINAL PAVEMENT MARKINGS THE RESIDENT ENGINEER SHOULD CONTACT THE BUREAU OF OPERATIONS AND ARRANGE FOR INSPECTION AND APPROVAL OF THE PAVEMENT MARKING LAYOUT.

8) THE ADVANCE DETECTOR LOOPS ARE TYPICALLY LOCATED 275 FEET IN ADVANCE OF THE STOP BAR. THE BUREAU OF OPERATIONS SHOULD APPROVE THE LOOP LOCATIONS PRIOR TO INSTALLATION.

9) COMMITMENTS: NONE AS OF JUNE 29, 2018.

STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
701001-02	OFF-ROAD, 2L2W MORE THAN 15' FROM PAVEMENT EDGE
701006-05	OFF-ROAD, 2L2W 15' TO 24" FROM PAVEMENT EDGE
701201-04	LANE CLOSURE, 2L2W DAY ONLY, FOR SPEEDS > 45 MPH
701316-12	LANE CLOSURE, 2L2W BRIDGE REPAIR FOR SPEEDS > 45 MPH
701901-07	TRAFFIC CONTROL DEVICES
780001-05	TYPICAL PAVEMENT MARKINGS
781001-04	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS

INDEX OF SHEETS

MIXTURE REQUIREMENTS

LOCATION(S):	HMA SURFACE COURSE
MIXTURE USE(S):	HMA SURFACE CSE, MIX C, N70 FINE GRADED
AC/PG GRADE:	PG64-22
ABR % (MAX.):	SEE BDE SPECIAL PROVISIONS
DESIGN AIR VOIDS:	4.0%, 70 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5mm FINE GRADED
FRICTION AGGREGATE:	C SURFACE
MIXTURE WEIGHT:	112 LBS/SQ YD/IN
QUALITY MANAGEMENT PROGRAM:	QCQA
MIXTURE WEIGHT:	NA

Prepared By: _____
DISTRICT STUDIES & PLANS ENGINEER

Examined By: _____
DISTRICT LAND ACQUISITION ENGINEER

Examined By: _____
DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: _____
DISTRICT OPERATIONS ENGINEER

Examined By: _____
DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: _____
DISTRICT CONSTRUCTION ENGINEER

Examined By: _____
DISTRICT MATERIALS ENGINEER

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	DRAWN - CPL	REVISED -	
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PLOT DATE = 6/21/2018	DATE - 06/11/18	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIGNATURES, GENERAL NOTES, STANDARDS, & INDEX OF SHEETS
SN 044-0035

SCALE: _____ | SHEET ___ OF ___ SHEETS | STA. _____ | TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	2
		CONTRACT NO. 78615		
	ILLINOIS FED. AID PROJECT			

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SUMMARY OF QUANTITIES

COUNTY:	JOHNSON CO
ROUTE:	FAS 927
FUNDING:	80% FED / 20% STATE
LOCATION:	RURAL
	BRIDGE REPAIRS
	0013

CODE NUMBER	ITEM DESCRIPTION	UNIT	
50102400	CONCRETE REMOVAL	CU YD	4.4
50300255	CONCRETE SUPERSTRUCTURE	CU YD	4.1
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	2,050
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	400
50800515	BAR SPLICERS	EACH	8
52000110	PREFORMED JOINT STRIP SEAL	FOOT	73
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	10
52100520	ANCHOR BOLTS, 1"	EACH	40
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	914
67100100	MOBILIZATION	L SUM	1
70100100	TRAFFIC CONTROL AND PROTECTION, STANDARD 701316	EACH	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1

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PLOT DATE = 6/28/2018	DATE - 06/11/18	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
SN 044-0035

SCALE: | SHEET 1 OF 3 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	JOHNSON	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	3
		CONTRACT NO. 78615		
	ILLINOIS	FED. AID PROJECT		

SUMMARY OF QUANTITIES - CONT

COUNTY:	JOHNSON CO
ROUTE:	FAS 927
FUNDING:	80% FED / 20% STATE
LOCATION:	RURAL

	CODE NUMBER	ITEM DESCRIPTION	UNIT	BRIDGE REPAIRS 0013
	70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DAY	4
	70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
	70300100	SHORT TERM PAVEMENT MARKING	FOOT	154
	70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SQ FT	51
	70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	3,388
*	78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	3,388
*	78100300	REPLACEMENT REFLECTOR	EACH	6
	78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	6
*	86200300	UNINTERRUPTABLE POWER SUPPLY, EXTENDED	EACH	1
	X0300002	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5FG, N70	TON	90
	X0327979	PAVEMENT MARKING REMOVAL - GRINDING	SQ FT	839
	X7015005	CHANGEABLE MESSAGE SIGN	CAL DAY	28

* SPECIALTY ITEM

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
SN 044-0035

SCALE: | SHEET 2 OF 3 SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	JOHNSON	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	4
		CONTRACT NO. 78615		
		ILLINOIS	FED. AID PROJECT	

SUMMARY OF QUANTITIES - CONT

COUNTY:	JOHNSON CO
ROUTE:	FAS 927
FUNDING:	80% FED / 20% STATE
LOCATION:	RURAL
	BRIDGE REPAIRS
	0013

CODE NUMBER	ITEM DESCRIPTION	UNIT	
X7030005	TEMPORARY PAVEMENT MARKING REMOVAL	SQ FT	1,129
Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	10
Z0001903	STRUCTURAL STEEL REMOVAL	POUND	50
Z0001905	STRUCTURAL STEEL REPAIR	POUND	730
Z0004556	HOT-MIX ASPHALT SURFACE REMOVAL (DECK)	SQ YD	910
Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	231
Z0016200	DECK SLAB REPAIR (PARTIAL)	SQ YD	8

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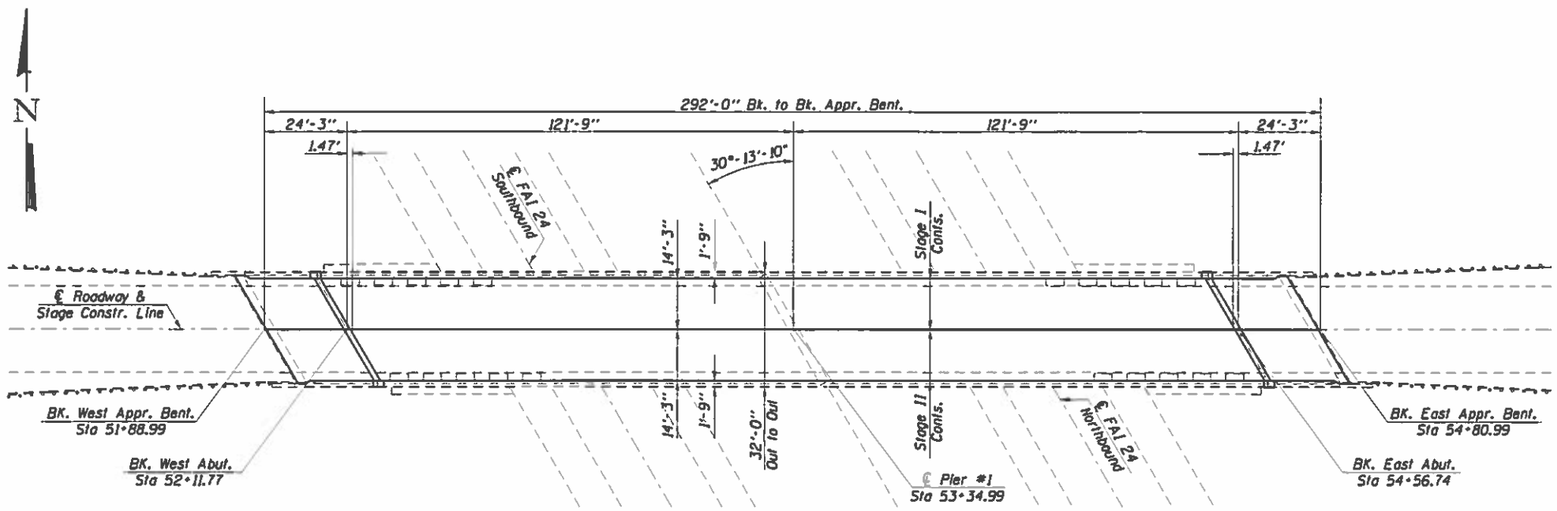
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
SN 044-0035

SCALE: _____ | SHEET 3 OF 3 SHEETS | STA. _____ | TO STA. _____

F.A.S. RTE.	SECTION	JOHNSON	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	5
		CONTRACT NO. 78615		
		ILLINOIS	FED. AID PROJECT	

ELEVATION



PLAN

GENERAL NOTES

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Joint openings shall be adjusted according to Article 520.04 of the Std. Specs. when the deck is poured at an ambient temperature other than 50°F.

Prior to pouring the new concrete deck section, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

All structural steel shall be shop painted with inorganic zinc rich primer per AASHTO M300, Type I. Cost included with Furnishing and Erecting Structural Steel.

If the analysis submitted to the Contractor for the jacking/temporary support system to be used show temporary stiffeners are required to prevent web crippling or buckling, the stiffeners shall be steel and bolted to the web. If stiffeners are not required, hardwood timbers shall be installed tightly between the top and bottom flange to prevent flange rotation.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

Existing structural steel shall only be cleaned and painted as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.

Reinforcement bars designated (E) shall be epoxy coated.

No field welding is permitted except as specified in the contract documents.

All structural steel shall be AASHTO M 270 Grade 36 unless otherwise noted.

Deck Slab Repair (Partial) quantities have been estimated at 1% of the deck. The Engineer shall show actual locations of deck repairs on as-built plans.

HMA Surface Removal (Deck) includes the removal of the existing HMA surface and the existing WMS per Deck Slab Repair Special Provision.

The deck surface final finish shall be tined according to Article 420.09(e)(1) of the Standard Specifications, cost included with Concrete Superstructure.

TOTAL BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Removal	Cu. Yd.	4.4
Concrete Superstructure	Cu. Yd.	4.1
Furnishing and Erecting Structural Steel	Pound	2050
Reinforcement Bars, Epoxy Coated	Pound	400
Bar Splicers	Each	8
Preformed Joint Strip Seal	Foot	73
Elastomeric Bearing Assembly, Type I	Each	10
Anchor Bolts 1" ϕ	Each	40
Waterproofing Membrane System	Sq. Yd.	914
Hot-Mix Asphalt Surface Course	Ton	90
Jack and Remove Existing Bearings	Each	10
Structural Steel Removal	Pound	50
Structural Steel Repair	Pound	730
HMA Surface Removal (Deck)	Sq. Yd.	910
Structural Repair of Concrete (Depth < 5 Inches)	Sq. Ft.	231
Deck Slab Repair (Partial)	Sq. Yd.	8

Scope of Work

1) Setup Traffic Control Std 701316 for Stage 1 Work in Westbound Lane

2) Remove Existing Bridge Joints and Replace with Preformed Joint Strip Seal

3) Remove Existing Bituminous Overlay and Waterproofing Membrane System (WMS)

4) Perform Partial Depth Deck Repairs and Install WMS and HMA Overlay

5) Remove and Replace Abutment Bearings (under Westbound Lane, including Center Beam Stage 1) *

6) Structural Steel Repairs (Center Beam) *

7) Switch Stages and Repeat

8) Substructure Repairs

* Driving lanes above beams requiring jacking or cribbing shall be closed to traffic during entire duration of such operations

Design Stresses

FIELD UNITS (Existing Construction)

f'c = 1,200 psi - Deck Slab
fc = 1,400 psi - Curb, Parapet, Substructure
f's = 20,000 psi (struct.)
f's = 20,000 psi (reinf.)
Vc = 75,000 psi (Figs)
n = 10

DAVID CARL PUZEY 081-005470 SPRINGFIELD ILLINOIS
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

7/30/18
Expires 11/30/18

BRIDGE REPAIR
TUNNEL HILL ROAD (FAS 927)
OVER I-24
JOHNSON COUNTY
D9 BRIDGE REPAIR 2018-4
STA. 53+34.99
SN 044-0035

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
SN 044-0035

SCALE: ____ | SHEET __ OF __ SHEETS | STA. ____ TO STA. ____

F.A.S. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	6
		CONTRACT NO. 78615		
		ILLINOIS FED. A'D PROJECT		

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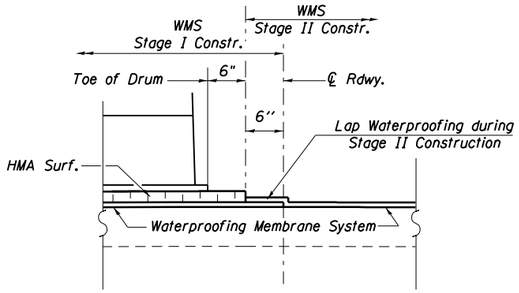
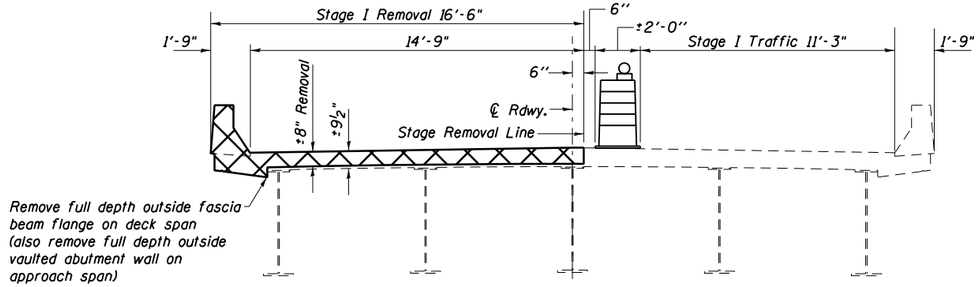
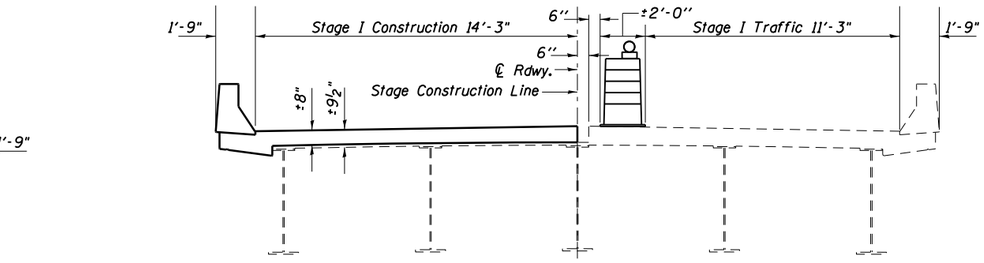


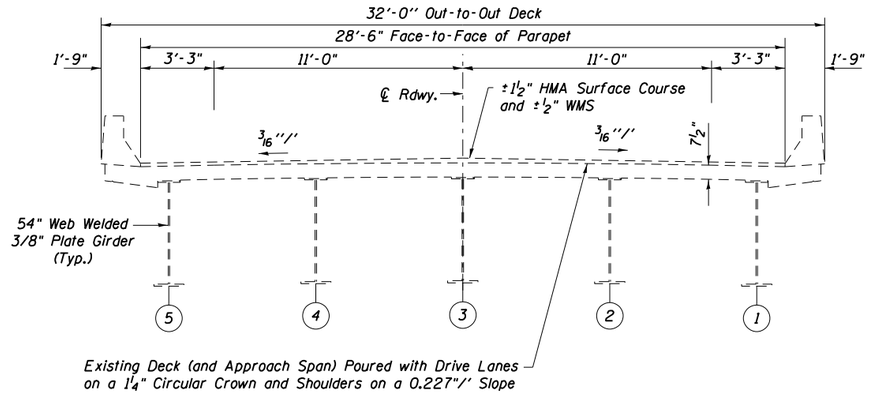
WATERPROOFING TREATMENT AT STAGE CONSTRUCTION



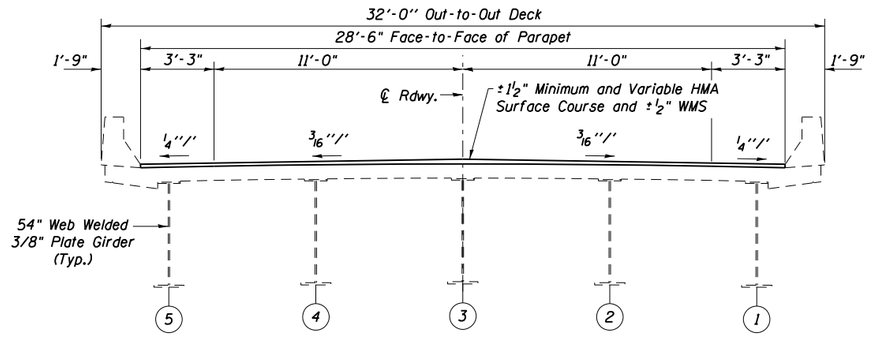
STAGE I REMOVAL



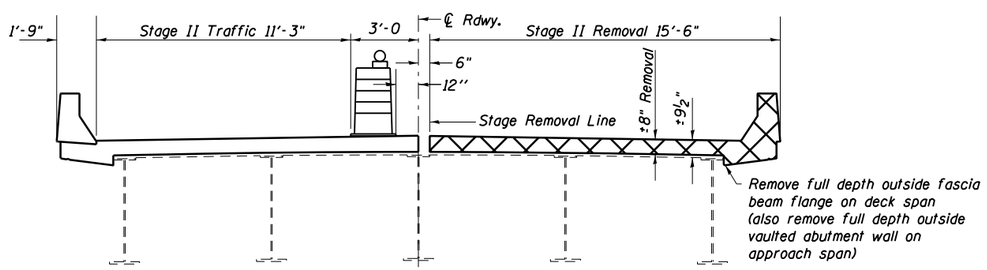
STAGE I CONSTRUCTION



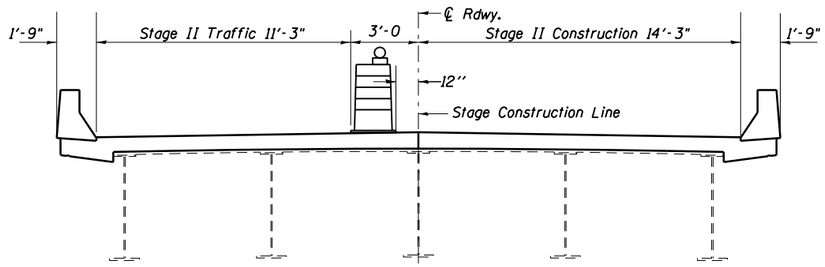
TYPICAL BRIDGE SECTION - EXISTING



TYPICAL BRIDGE SECTION - PROPOSED



STAGE II REMOVAL



STAGE II CONSTRUCTION

Concrete Removal (Shown at Joint Locations on Deck Side)

Notes: All Sections looking East

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS AND STAGING
SN 044-0035

SCALE: _____ | SHEET __ OF __ SHEETS | STA. _____ | TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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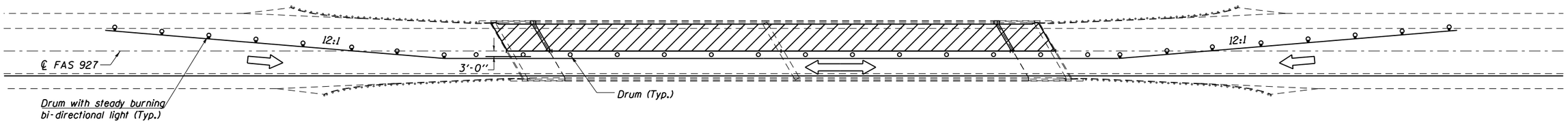
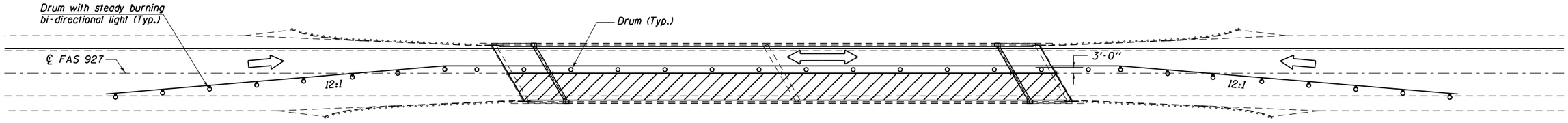
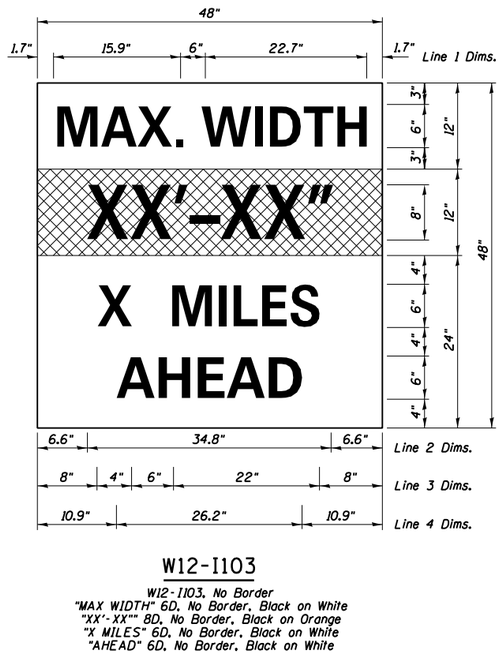
		CONTRACT NO. 78615		
	ILLINOIS	FED. AID PROJECT		



STAGE I TRAFFIC



STAGE II TRAFFIC



W12-I103

W12-1103, No Border
"MAX WIDTH" 6D, No Border, Black on White
"XX'-XX"" 8D, No Border, Black on Orange
"X MILES" 6D, No Border, Black on White
"AHEAD" 6D, No Border, Black on White

Notes for Max Width Sign:

1. Install a Max Width Sign each direction on Tunnel Hill Road to give traffic approaching work zone enough advance notice to change routes if needed. Exact locations as directed by engineer.

2. The contractor shall furnish the posts and erect the signs at the locations directed by the engineer. All signs shall be post mounted.

3. The noted work, including signs, posts, hardware and labor shall be included in the contract unit price, each, for Traffic Control and Protection, Std. 701316, no other compensation will be allowed.

4. The width shown on the W12-1103 sign shall be 9'-9" for both Stage I and Stage II.

5. The "X" MILES AHEAD will be determined by the engineer.

Notes: See Standard 701316 for additional details.

HMA and WMS Removal and Replacement

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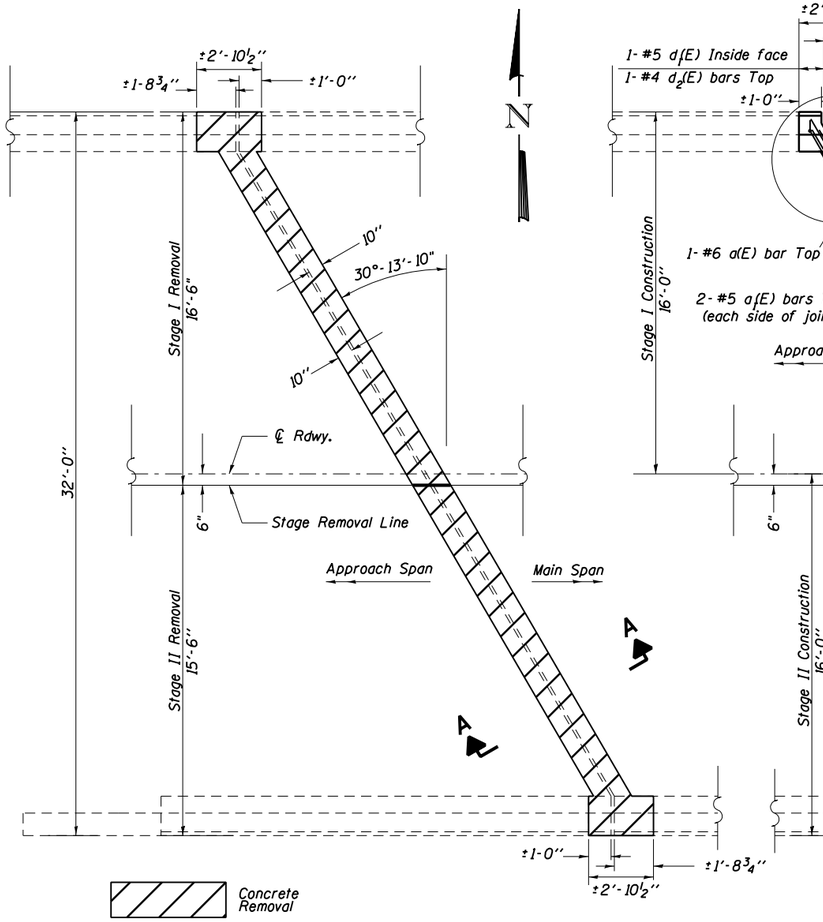
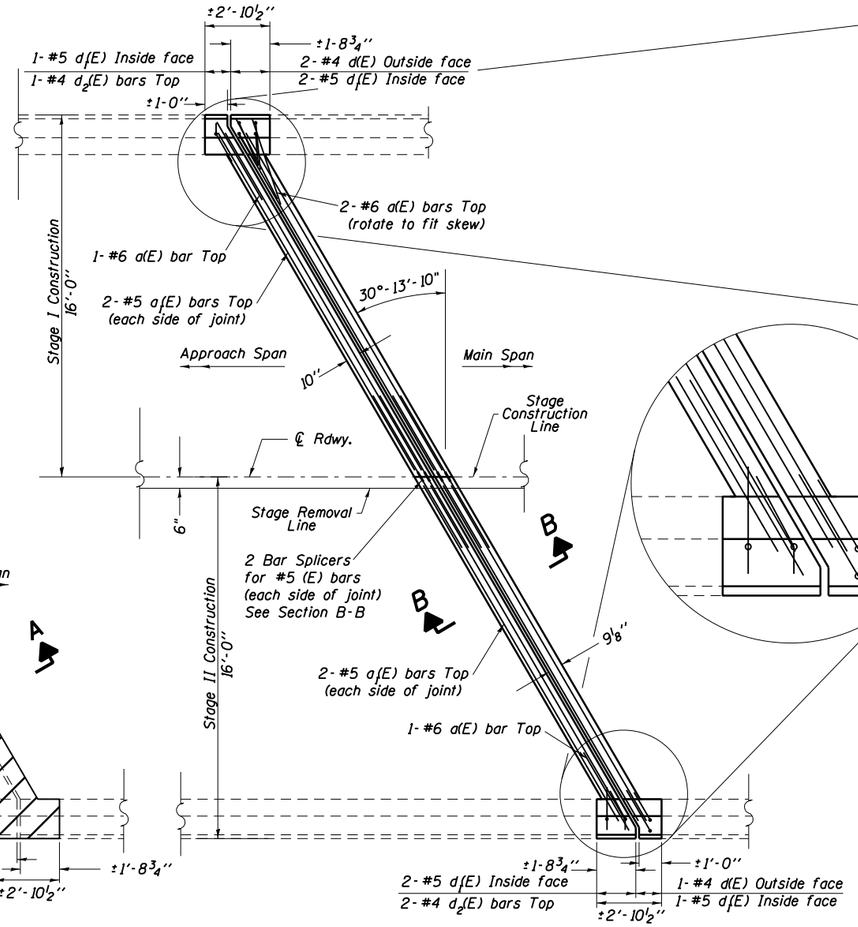
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

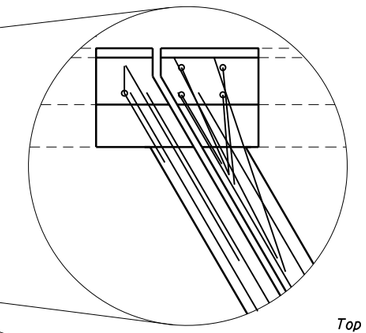
STAGING DETAILS
SN 044-0035

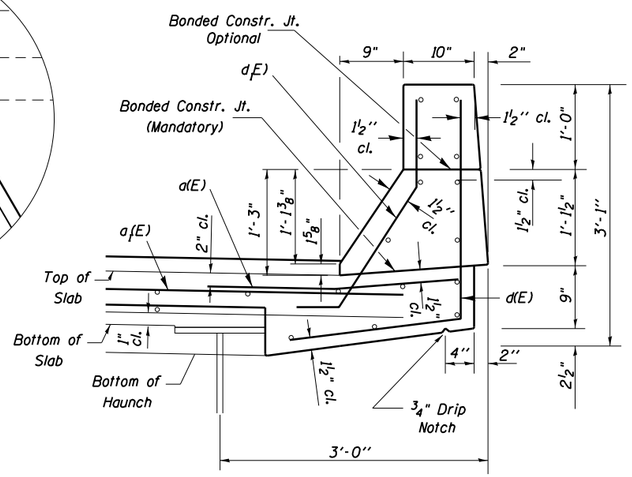
SCALE: _____ SHEET __ OF __ SHEETS STA. _____ TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	8
		CONTRACT NO. 78615		
	ILLINOIS	FED. AID PROJECT		

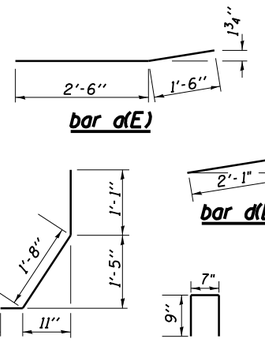


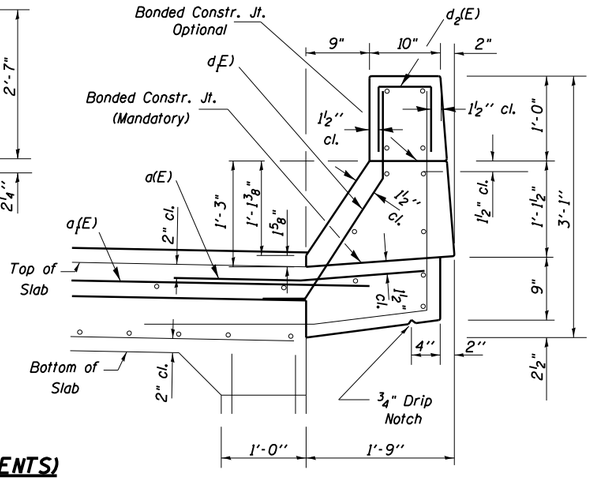






SECTION THRU PARAPET
Deck Section

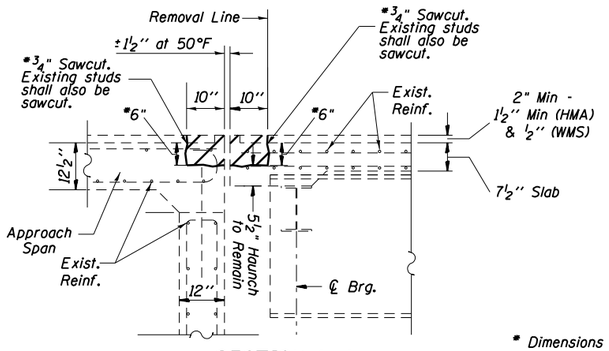




SECTION THRU PARAPET
Approach Section

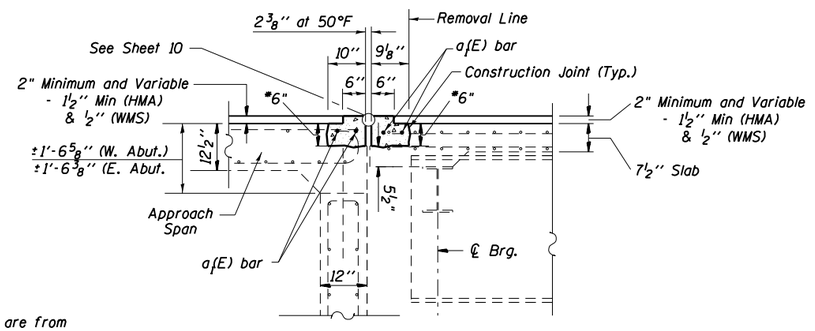
WEST ABUT. PLAN SHOWING CONCRETE REMOVAL
East Abut. similar by 180° rotation

WEST ABUT. PLAN SHOWING NEW CONCRETE
East Abut. similar by 180° rotation



SECTION A-A
Dimensions measured ⊥ Right Angles

* Dimensions are from top of deck



SECTION B-B
Dimensions measured ⊥ Right Angles

BILL OF MATERIAL (2 ABUTMENTS)

Bar	No.	Size	Length	Shape
d(E)	8	#6	4'-0"	▬
a_1(E)	16	#5	17'-3"	▬
d(E)	6	#4	4'-8"	⌋
d_1(E)	12	#5	3'-3"	⌋
d_2(E)	6	#4	2'-1"	⊓
Bar Splicers		Each	8	
Concrete Superstructure		Cu Yd	4.1	
Concrete Removal *		Cu Yd	4.4	
Reinforcement Bars, Epoxy Coated		Pound	400	

* Removal of polymer concrete nosing and HMA overlay within joint removal sawcuts paid for as concrete removal

BRIDGE REPAIR
TUNNEL HILL ROAD (FAS 927)
OVER I-24
JOHNSON COUNTY
D9 BRIDGE REPAIR 2018-4
STA. 53+34.99
SN 044-0035

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT JOINT DETAILS
SN 044-0035

SCALE: _____ SHEET __ OF __ SHEETS STA. _____ TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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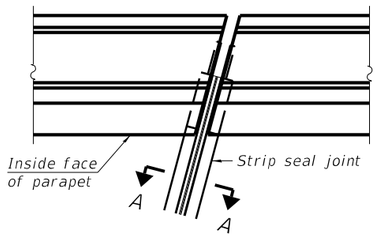
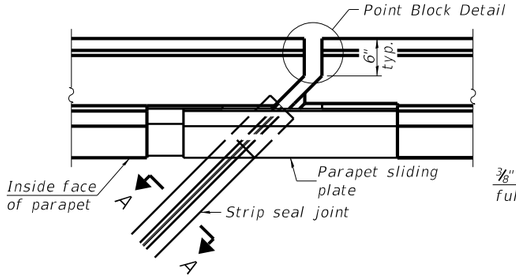
		CONTRACT NO. 78615		
		ILLINOIS FED. AID PROJECT		

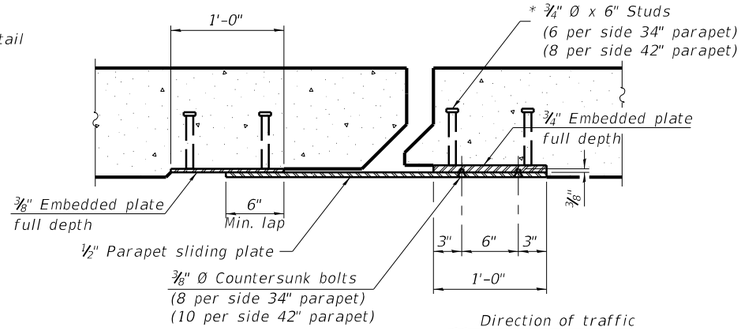


FOR SKEWS ≤ 30°

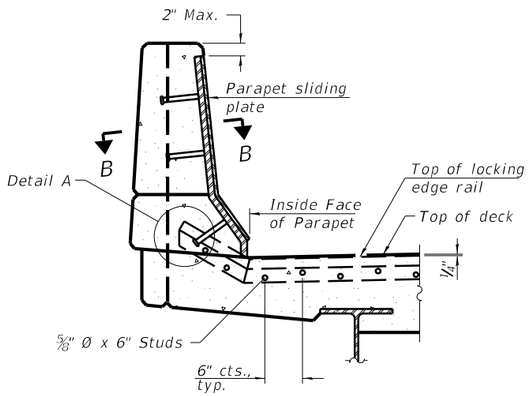


FOR SKEWS > 30°

PLAN AT PARAPET

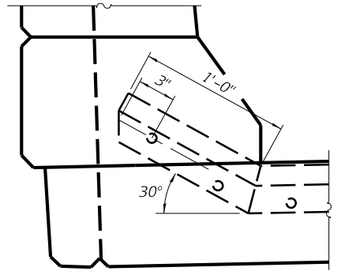


SECTION B-B

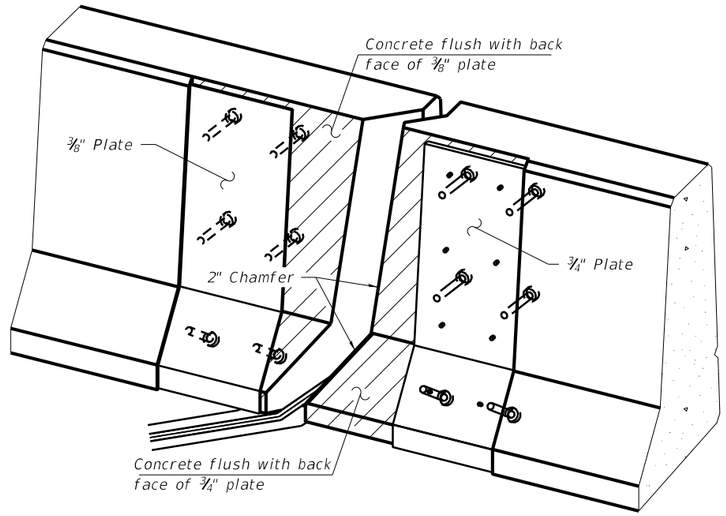


ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)



DETAIL A



TRIMETRIC VIEW

(Showing embedded plates only)

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". 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.

The manufacturer's recommended installation methods shall be followed.

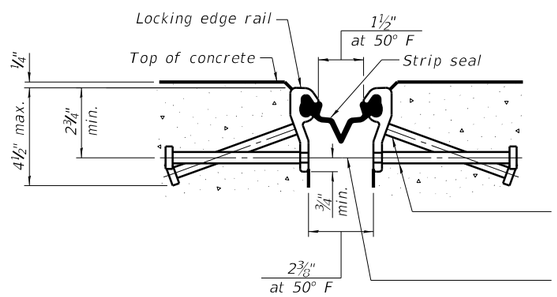
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

The Maximum space between locking edge rail segments shall be 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. Such adjustments shall be at no additional cost to the State.



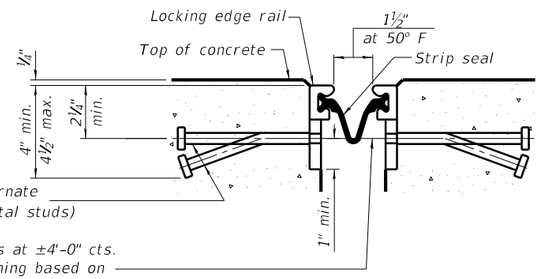
SHOWING ROLLED RAIL JOINT

* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

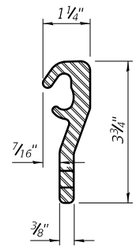
⅜" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION A-A

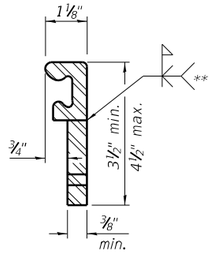
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



SHOWING WELDED RAIL JOINT



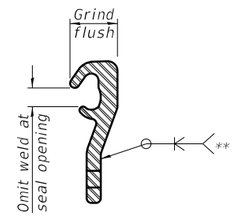
ROLLED (EXTRUDED) RAIL



WELDED RAIL

LOCKING EDGE RAILS

** 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	73

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
SN 044-0035

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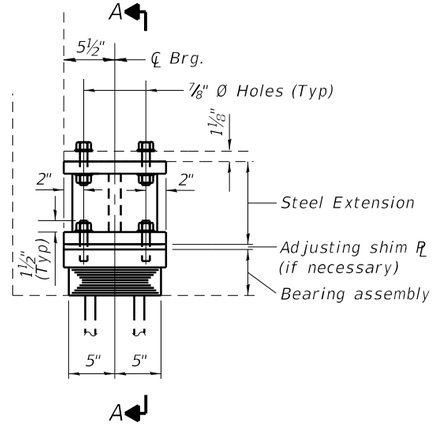
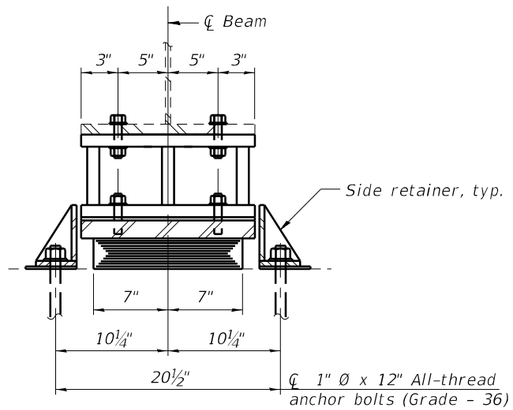
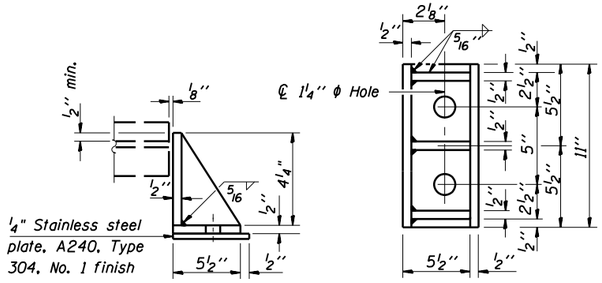
		CONTRACT NO. 78615		
		ILLINOIS FED. AID PROJECT		



ELEVATION AT ABUT.



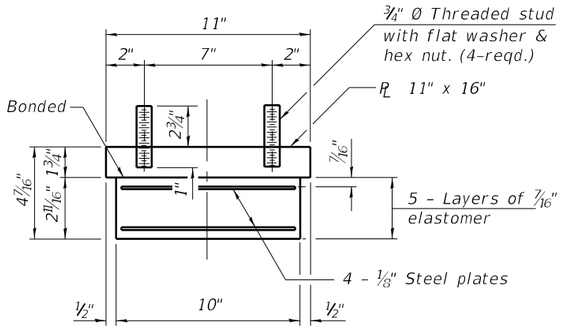
SECTION A-A



SIDE RETAINER

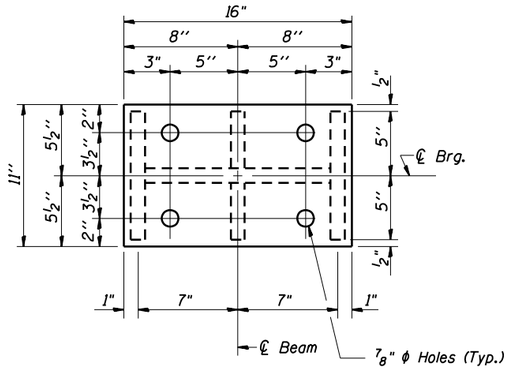
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

TYPE I ELASTOMERIC EXP. BRG.

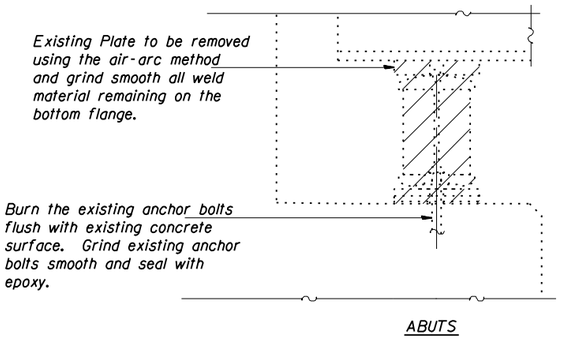


BEARING ASSEMBLY

Note: Shim plates shall not be placed under bearing assembly.



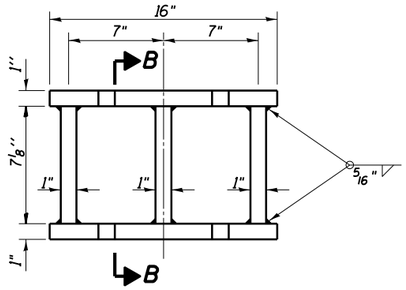
PLAN-TOP & BOTTOM PLATE



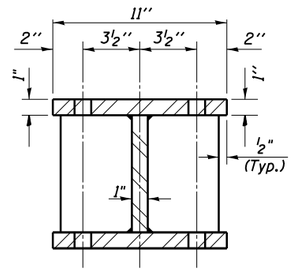
ABUTS

EXISTING BEARING REMOVAL DETAIL

Cost is included with Jack and Remove Existing Bearings



STEEL EXTENSION DETAIL



SECTION B-B

Notes:

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.

Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

The minimum jack capacity required is 60 Tons.

Existing diaphragm removal and reinstallation may be required to facilitate drilling holes, cost to be included with "Jack and Remove Existing Bearings".

Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

New steel extensions, connection bolts, Shim ℄'s are included in "Furnishing and Erecting Structural Steel".

Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

GIRDER REACTIONS

R℄	(K)	50.6
R℄	(K)	38.6
Imp.	(K)	7.7
R (Total)	(K)	96.9

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	10
Anchor Bolts, 1"	Each	40
Jack and Remove Existing Bearings	Each	10
Furnishing and Erecting Structural Steel	Pound	2,050

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT BEARING DETAILS
SN 044-0035

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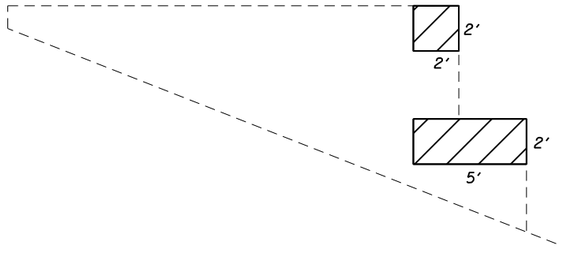
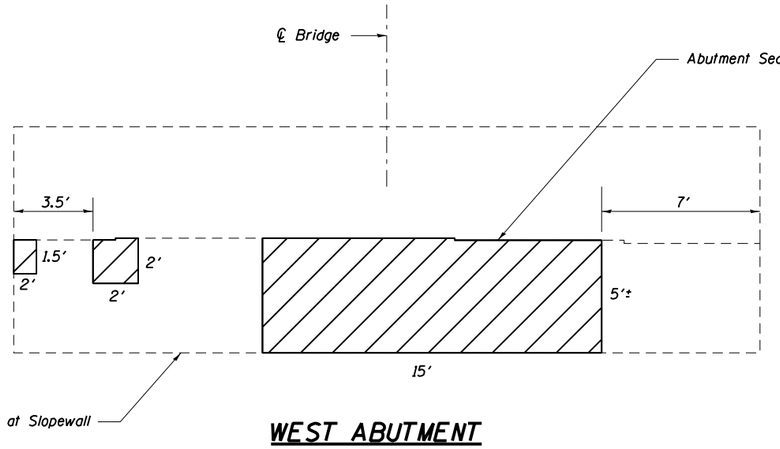
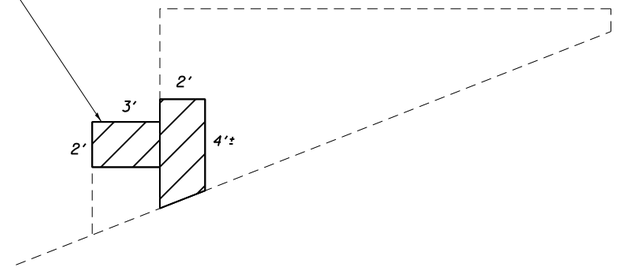
		CONTRACT NO. 78615		
	ILLINOIS FED. AID PROJECT			



WEST ABUTMENT
Looking North



WEST ABUTMENT
Looking West



WEST ABUTMENT
Looking South

EAST ABUTMENT
Looking South

EAST ABUTMENT
Looking East

EAST ABUTMENT
Looking North

BILL OF MATERIAL

Item	Unit	Total
Structural Repair of Concrete (Depth ≤ 5 Inches)	Sq. Ft.	231

Structural Repair of Concrete ≤ 5"

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT SUBSTRUCTURE REPAIRS
SN 044-0035

SCALE: _____ | SHEET __ OF __ SHEETS | STA. _____ | TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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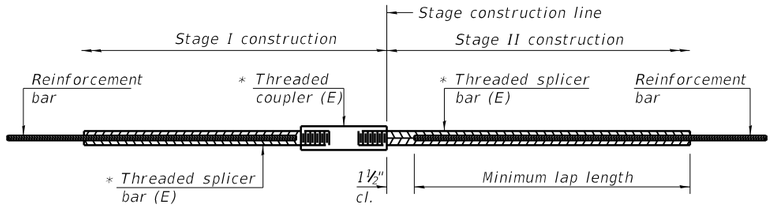
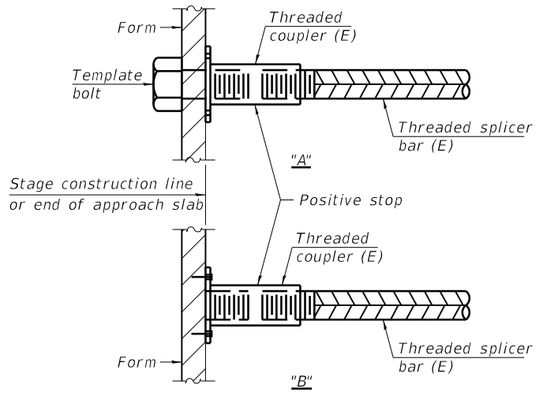


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1½" + thread length

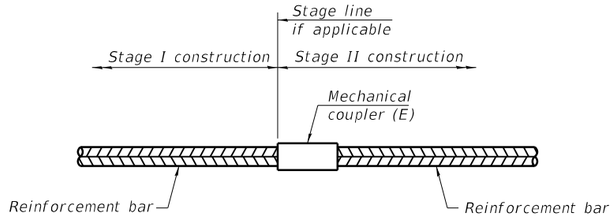
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
℄ at Joint Repairs	#5	8	3'-0"



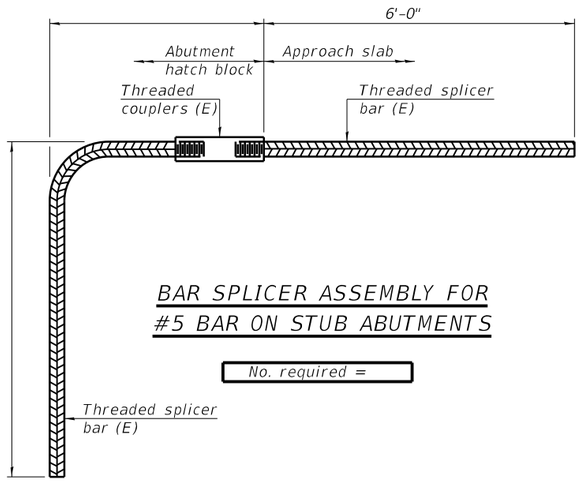
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1

2-17-2017

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
SN 044-0035

SCALE: _____ | SHEET __ OF __ SHEETS | STA. _____ | TO STA. _____

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 78615		
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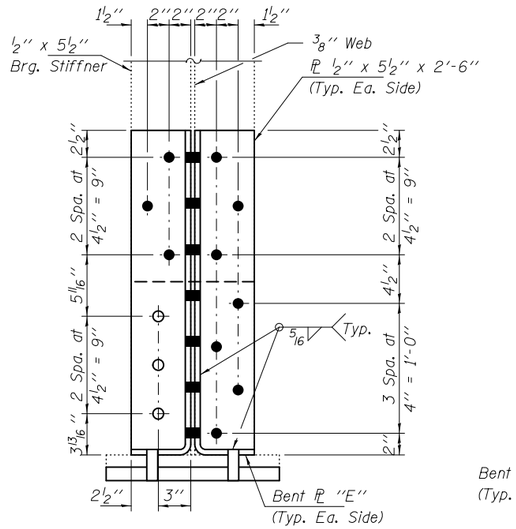
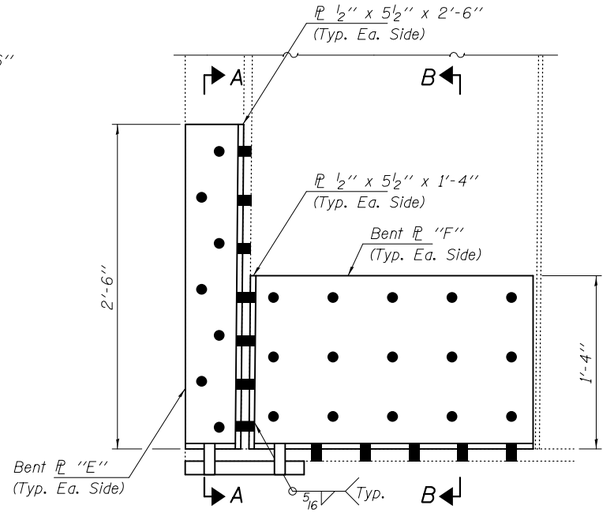


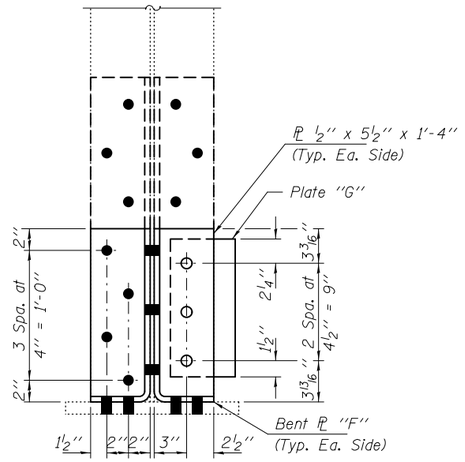
SECTION A-A

Crossframe not shown for clarity



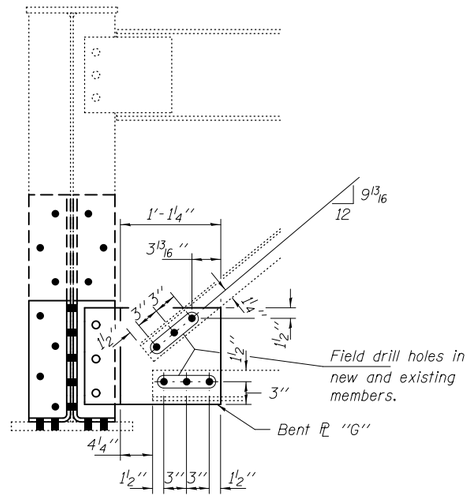
ELEVATION

Repair A



SECTION B-B

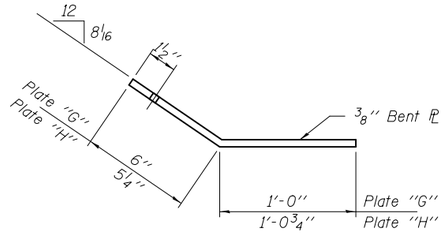
Crossframe not shown for clarity



CROSS FRAME CONNECTION ℄

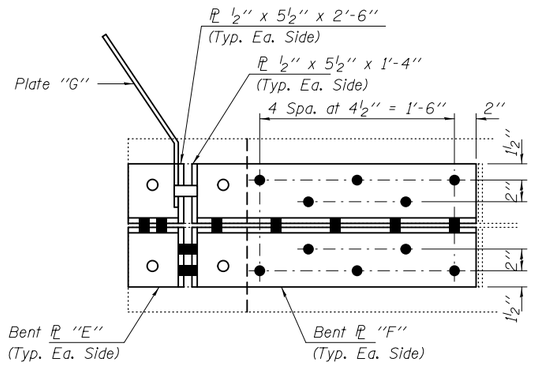
Repair C
(Looking West)

Existing cross frame connection ℄ to be removed using the air-arc method and grind smooth all weld material remaining on the cross frame diagonals. Cost included with Structural Steel Removal.



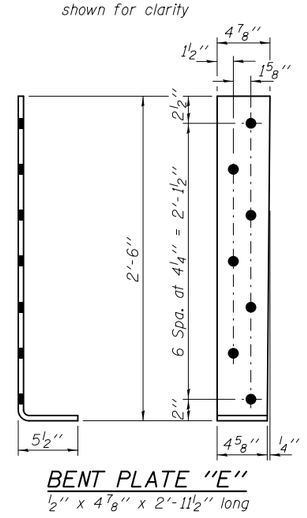
BENT PLATES "G" & "H"

⅜" x 1'-0¾" x 1'-6" long



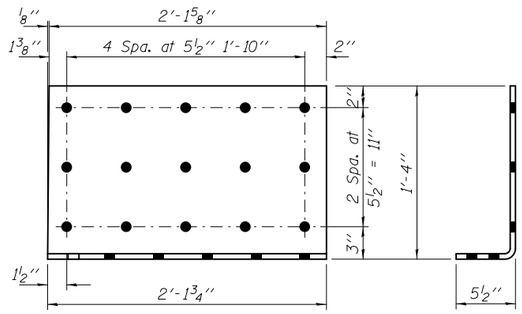
PLAN

Repair A



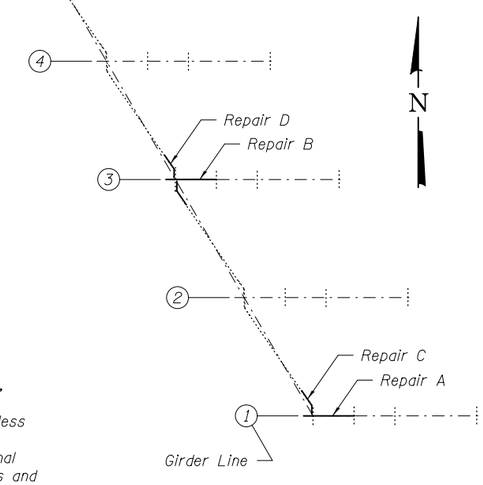
BENT PLATE "E"

½" x 4⅞" x 2'-11½" long



BENT PLATE "F"

½" x 2'-2" x 1'-9½" long



PARTIAL FRAMING PLAN

● - Use holes in new steel as template

○ - Use holes in existing steel as template

NOTES

All structural steel shall conform to AASHTO Classification M-270 Gr. 36, unless otherwise noted.

Fasteners shall be high strength bolts. Bolts ¾"ϕ, open holes 13/16"ϕ, unless otherwise noted.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

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".

All structural steel shall be shop painted with the inorganic zinc rich primer per AASHTO M300, Type 1. Cost included with Structural Steel Repair.

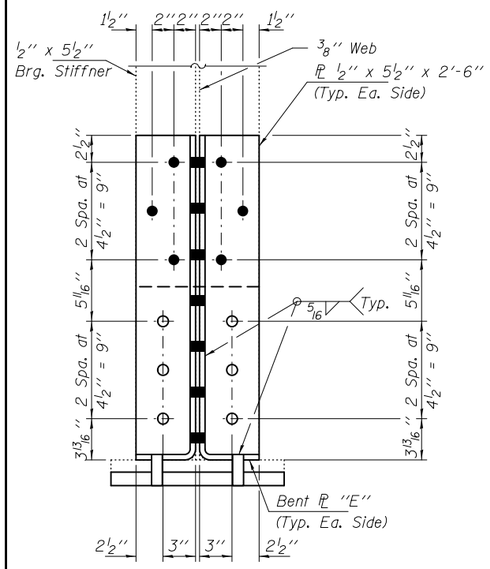
BILL OF MATERIAL

Item	Unit	Total
Structural Steel Repair	Pound	730
Structural Steel Removal	Pound	50

EXPIRES 11-30-2018

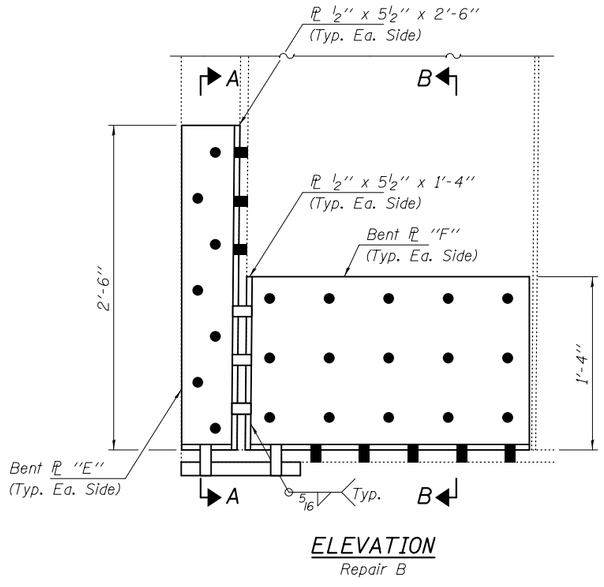
DESIGNED - HSS	EXAMINED	Timothy A. Sheldahl	DATE	JULY 30, 2018	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REPAIR DETAILS FAS 927 OVER FAI 24 SN 044-0035	
CHECKED - JSB		ACTING ENGINEER OF STRUCTURAL SERVICES					
DRAWN - daburdell	PASSED	E. Carl Tenney	REVISED			SHEET NO. 1 OF 2 SHEETS	
CHECKED - HSS JSB		ENGINEER OF BRIDGES AND STRUCTURES	REVISED				

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	14
		CONTRACT NO. 78615		
	ILLINOIS FED. AID PROJECT			



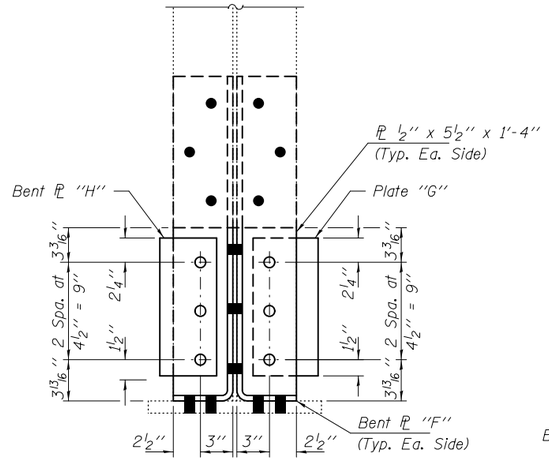
SECTION A-A

Crossframe not shown for clarity



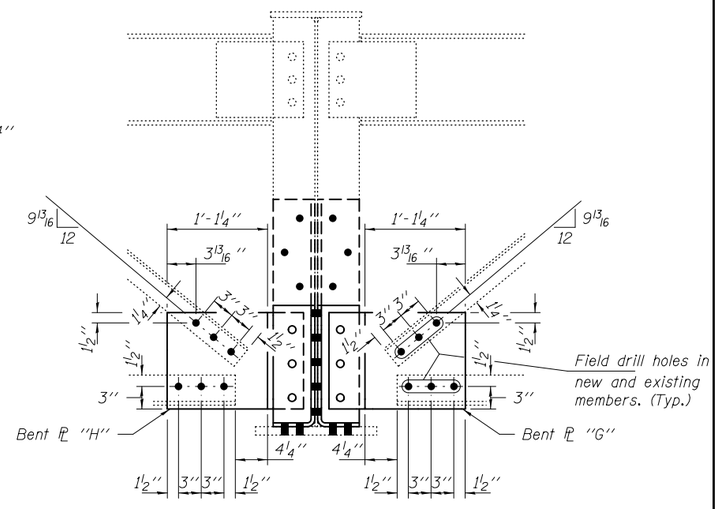
ELEVATION

Repair B



SECTION B-B

Crossframe not shown for clarity

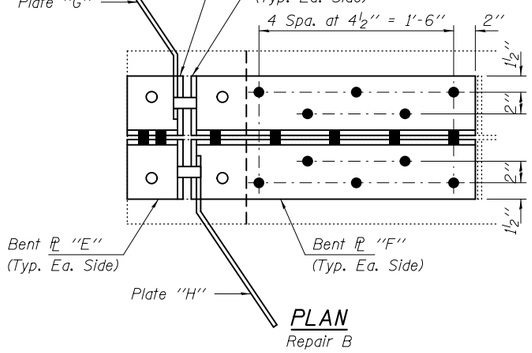


CROSS FRAME CONNECTION ℄

Repair D

(Looking West)

Existing cross frame connection ℄ to be removed using the air-arc method and grind smooth all weld material remaining on the cross frame diagonals. Cost included with Structural Steel Removal.



PLAN

Repair B

Notes:
For repair locations, see Partial Framing Plan on sheet 1 of 2.
For Bent Plate ''E'', ''F'' and ''G'', see sheet 1 of 2.

● - Use holes in new steel as template

○ - Use holes in existing steel as template

DESIGNED - HSS	EXAMINED	ACTING ENGINEER OF STRUCTURAL SERVICES	DATE JULY 30, 2018	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REPAIR DETAILS SN 044–0035	F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CHECKED - JSB	PASSED	ENGINEER OF BRIDGES AND STRUCTURES	REVISED			927	D9 BRIDGE REPAIR 2018-4	JOHNSON	15	15
DRAWN - daburdell			REVISED		SHEET NO. 2 OF 2 SHEETS			CONTRACT NO. 78615		
CHECKED - HSS JSB							ILLINOIS FED. AID PROJECT			