



SUMMARY OF QUANTITIES			URBAN TOTAL QUANTITIES	CONSTRUCTION TYPE CODE				
CODE NO	ITEM	UNIT		0013 100% STATE				
52000020	PREFORMED JOINT SEAL 1 3/4"	FOOT	126	126				
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	6	6				
67100100	MOBILIZATION	L SUM	1	1				
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	80	80				
70300904	PAVEMENT MARKING TAPE, TYPE IV 4"	FOOT	2300	2300				
* 78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	2968	2968				
* 78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	FOOT	50	50				
* 78000600	THERMOPLASTIC PAVEMENT MARKING - LINE 12"	FOOT	28	28				
* 78009004	MODIFIED URETHANE PAVEMENT MARKING - LINE 4"	FOOT	1680	1680				
X0327408	REINSTALL RUBBER FENDER SYSTEM	L SUM	1	1				
X0327980	PAVEMENT MARKING REMOVAL - WATER BLASTING	SO FT	800	800				
52000000	PREFORMED JOINT SEAL, 1/2"	FOOT	63	63				
52000005	PREFORMED JOINT SEAL, 1"	FOOT	126	126				
52000037	PREFORMED JOINT SEAL 3"	FOOT	63	63				

SUMMARY OF QUANTITIES			URBAN TOTAL QUANTITIES	CONSTRUCTION TYPE CODE				
CODE NO	ITEM	UNIT		0013 100% STATE				
X5870015	BRIDGE DECK CONCRETE SEALER	SO FT	5641	5641				
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1	1				
X7030005	TEMPORARY PAVEMENT MARKING REMOVAL	SO FT	2300	2300				
Z0001905	STRUCTURAL STEEL REPAIR	POUND	15,680	15,680				
Z0012102	CONCRETE BRIDGE DECK SCARIFICATION 3/8 INCH	SO YD	1850	1850				
Z0012193	BRIDGE DECK THIN POLYMER OVERLAY 3/8"	SO YD	1850	1850				
Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SO FT	160	160				
Z0030850	TEMPORARY INFORMATION SIGNING	SO FT	102.8	102.8				
Z0041895	POLYMER CONCRETE	CU FT	7.0	7.0				
Z0073200	TEMPORARY SHORING AND CRIBBING	EACH	4	4				
X0327408	REINSTALL RUBBER FENDER SYSTEM	L SUM	1	1				

△ REV. 4-11-2020

\*- SPECIALITY ITEM

REV. - MS

FILE NAME =	USER NAME = kthams	DESIGNED -	REVISED -
pw:\planroom\dtd\illinois\gov\FW001\Documents\VDOT	Offices\District\Projects\0132\20\CADD\01\Design\0132\20-s	DRAWN -	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857	2019-159-BR	COOK	21	3
CONTRACT NO. 62K31			FED. ROAD DIST. NO. 1 (ILLINOIS) FED. AID PROJECT	

**STRUCTURAL STEEL REPAIR NOTES**

- The retrofit and fill plates shown on sheets 6 thru 11 of 12 are based on the field measurements of one repair location. It is the nature of riveted steel of this vintage to have routine variations. Similarly, previous repairs may have modified original conditions such as the floor beam connection angles at L0 (South), which will require changes to the dimensions and or fill plate thicknesses. Retrofit plates may require minor field adjustment to fit actual as-built conditions. The Contractor shall field verify existing dimensions, rivet/bolt locations, and details affecting the proposed work and Notify Engineer of any discrepancies or conflicts with the dimensions shown on sheets 6 thru 11 of 12. Necessary approved adjustments shall be made prior to ordering of materials. Such variations or adjustments shall not be cause for additional compensation and cost shall be included in STRUCTURAL STEEL REPAIR.
- Cost of rivet removal, trimming, reaming of bolt holes, and installation of all plates and bolts necessary to complete the work as shown on the plans shall be included in STRUCTURAL STEEL REPAIR.
- Fasteners shall be mechanically galvanized, high strength AASHTO F 3125 Grade A490 (ASTM A 490) bolts with threads excluded from the shear planes. Bolts having a diameter of 7/8 inch shall be used in existing rivet holes and in new 1 5/16 inch diameter open holes. Field verify existing rivet hole diameter after rivet removal. Holes that will not accommodate a new 7/8 inch diameter bolt shall be reamed to 1 5/16 inch diameter. Edge distances between center of the bolt hole and the edge of the new plates shall be 1 1/2 inches minimum, unless noted otherwise.
- All steel retrofit plate material shall conform to AASHTO M270 Grade 50 (ASTM A709 Grade 50). Steel fill plates may be Grade 36 (ASTM A36).
- All structural steel plate and shapes shall meet Zone 2 Charpy V-notch toughness requirements of 25 ft-lbs. at 40 deg. F.
- All new structural steel and bearing assembly shall be hot-dip galvanized. See Special Provisions for "Hot Dip Galvanizing for Structural Steel."
- One outside gusset plate repair and one inside gusset plate repair are required per location as shown on sheets 8 thru 11 of 12. Four such locations (L0-E, L10-E, L0-W, and L10-W) require these repairs.
- It is intended that the new retrofit plate bear flush on the web cover plate of the existing diagonal member.
- When retrofitting the inside gusset plate, shoring shall be used to support the floor beam end. The shoring shall be supported on the existing concrete pier. Refer to sheet 10 of 12 for floor beam reaction table. The shoring shall be positioned directly beneath the floor beam stiffeners. See Special Provisions.
- Should the Contractor elect to disconnect members for his/her convenience, the Contractor shall submit calculations demonstrating stability of the structure during all stages of the work, signed and sealed by a Licensed Illinois Structural Engineer.
- Contractor shall complete the inside gusset plate retrofit before beginning the outside gusset plate retrofit. Only one gusset plate on each truss shall be worked on at any time.
- Contractor shall remove rivets and replace with high-strength bolts one-at-a-time. Flame-cutting of rivets is not permitted. Newly installed bolts shall have the bolt heads located between the two gusset plates to facilitate installation of the retrofit and fill plates. Nuts and washers shall be installed snug tight on all new bolts until the installation of the new fill plates or retrofit plate, unless noted otherwise.
- Trimming of end diagonal flange angle, on member L0-U1 or U9-L10, to accommodate new retrofit plate shall occur by saw cutting or grinding. Flame-cutting is not permitted. All cut edges shall be smoothed to a surface roughness average of 250 micro-inches and interior cut must have a radius of 1"Ø.

**PROPOSED STRUCTURAL STEEL REPAIR PROCEDURE**

- Trim existing top flange angle leg on diagonal member, as shown on sheets 8 and 10 of 12.
- Clean and paint interior surfaces and isolated locations on exterior surfaces at repair locations.
- Wash remaining outside gusset surfaces.
- Verify retrofit plate dimensions.
- Erect approved temporary shoring below floor beam stiffeners in work area, as shown on sheet 10 of 12.
- Remove rivets and install new permanent bolts (fully pretensioned) on the inside gusset plate as shown on sheets 10 and 11 of 12. Drill new holes and install new permanent bolts (fully pretensioned) as shown on sheets 10 and 11 of 12.
- Remove rivets and install new bolts one-by-one in the outstanding leg of the floor beam connection angle, snug tight if required for clearances, as shown on sheets 10 and 11 of 12.
- Remove remaining rivets on inside gusset plate one-by-one and replace with new high strength bolts, snug tight.
- Field drill holes in new retrofit and fill plates to match existing holes in the gusset plate.
- Clean all surfaces of all cutting oils and debris.
- Touch up galvanized coating in the retrofit plate and fill plates.
- With all bolts installed in the gusset plate, remove the nuts/washers and install new fill and retrofit plates, do not remove nuts from bolts installed during Step 6.
- Reinstall all nuts and washers and pretension all bolts in the retrofit plate and floor beam connection angles.
- Install outside gusset plate retrofits following Steps 6 through 13, refer to sheets 8 and 9 of 12.
- Remove temporary shoring.
- Touch-up damage to painted and galvanized coatings.
- Install joint sealant along perimeter of plys between steel plate as directed by the Engineer.

**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.

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".

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

The Contractor shall close the sidewalk and two traffic lanes adjacent to the truss being retrofitted.

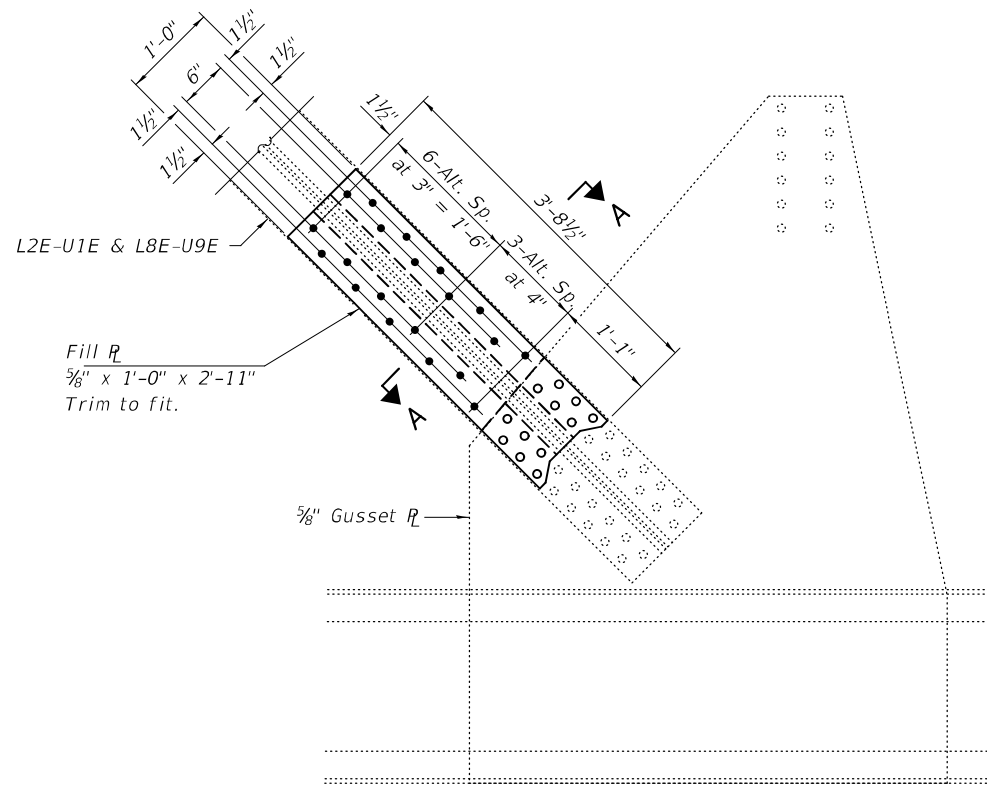
No permit loads are allowed access to the bridge during Structural Steel Repair work. The lane closure in the main truss span shall not be used for construction staging and the Contractor shall keep the lane closure in the span clear of all materials, equipment and parked vehicles.

**TOTAL BILL OF MATERIAL**

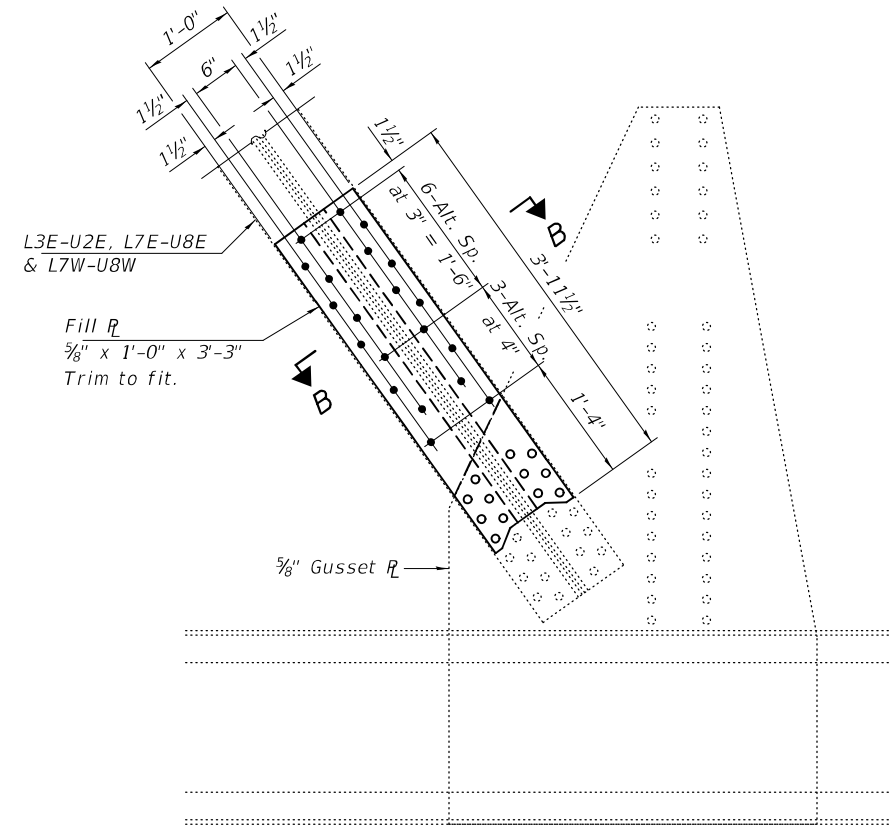
ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	15680
Bridge Deck Scarification 3/8"	Sq. Yd.	1850
Thin Polymer Overlay 3/8"	Sq. Yd.	1850
Structural Repair of Concrete (≤ 5")	Sq. Ft.	160
Bridge Deck Concrete Sealer	Sq. Ft.	5641
Prefomed Joint Seal 1/2"	Foot	63
Prefomed Joint Seal 1"	Foot	126
Prefomed Joint Seal 3"	Foot	63
Polymer Concrete	Cu. Ft.	7.0
Reinstall Rubber Fender System	L. Sum	1
Temporary Shoring and Cribbing	Each	4

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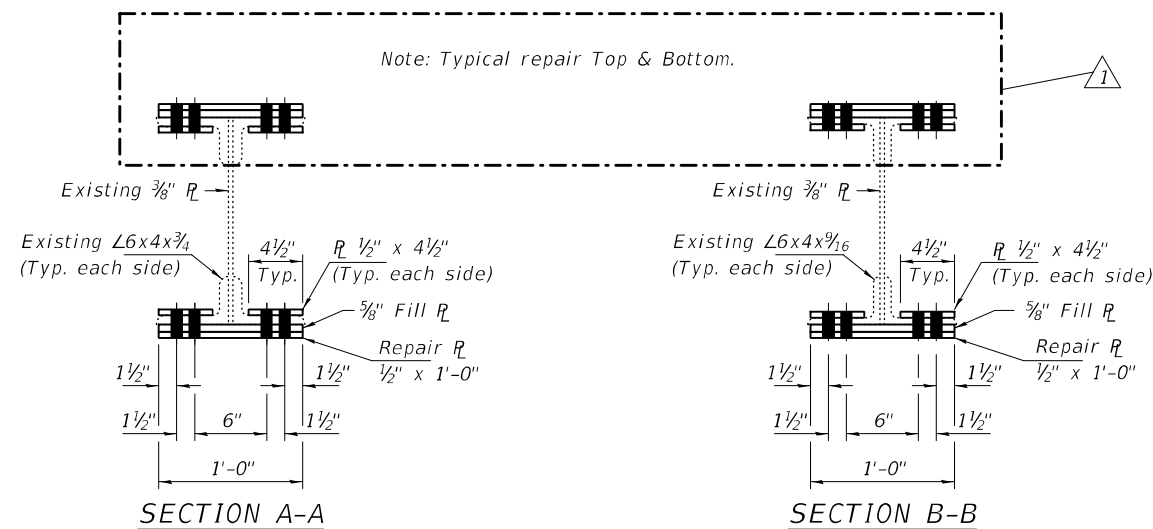
DESIGNED - JOV	EXAMINED	DATE - MARCH 20, 2020	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL NOTES AND BILL OF MATERIAL SN 016-0294</b>	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
CHECKED - VHV	PASSED	REVISED 04/09/2020 ATH			2857	2019-159-BR	COOK	21	12	
DRAWN - daburdell		REVISED -			CONTRACT NO. 62K31					
CHECKED - JOV VHV					SHEET NO. 2 OF 12 SHEETS					



**REPAIR "A" AT L2E-U1E & L8E-U9E**  
(L2E-U1E shown, L8E-U9E similar by rotation.)



**REPAIR "A" AT L3E-U2E, L7E-U8E & L7W-U8W**  
(L3E-U2E & L7W-U8W shown, L7E-U8E similar by rotation.)



**BOLT HOLE LEGEND**

- - Existing rivet to remain.
- - Replace existing 7/8"Ø rivet with 7/8"Ø A490 Bolt.
- - New 7/8"Ø A490 Bolt.

REV. 4-11-2020

DESIGNED - JOV  
 CHECKED - VHV  
 DRAWN - daburdell  
 CHECKED - JOV VHV

EXAMINED  
 PASSED  
 Timothy A. [Signature]  
 ENGINEER OF STRUCTURAL SERVICES  
 Carl [Signature]  
 ENGINEER OF BRIDGES AND STRUCTURES

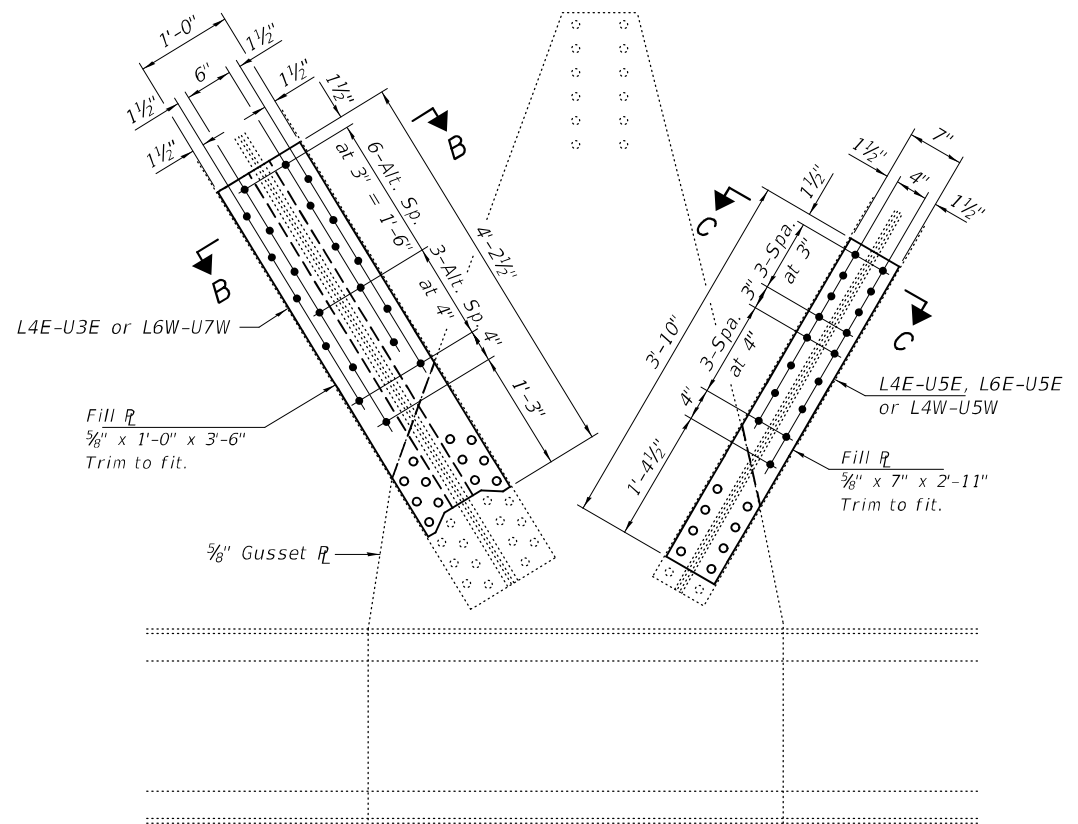
DATE - MARCH 20, 2020  
 REVISED 04/09/2020 ATH  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

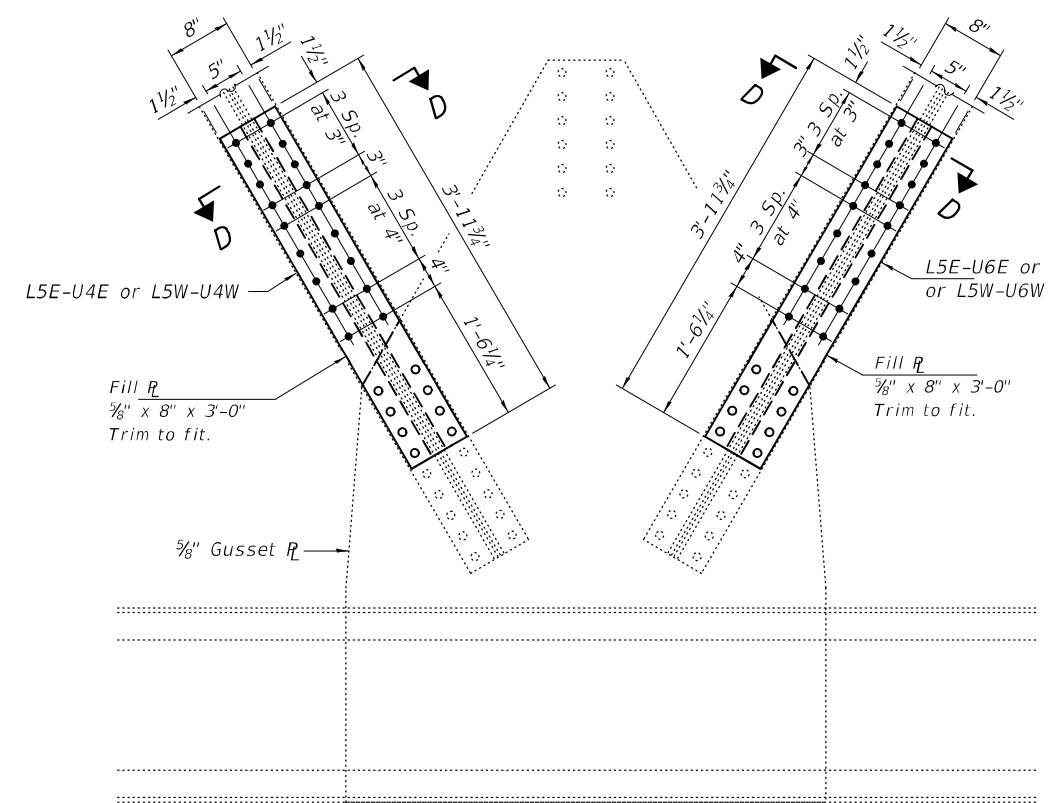
REPAIR DETAILS  
 SN 016-0294

SHEET NO. 6 OF 12 SHEETS

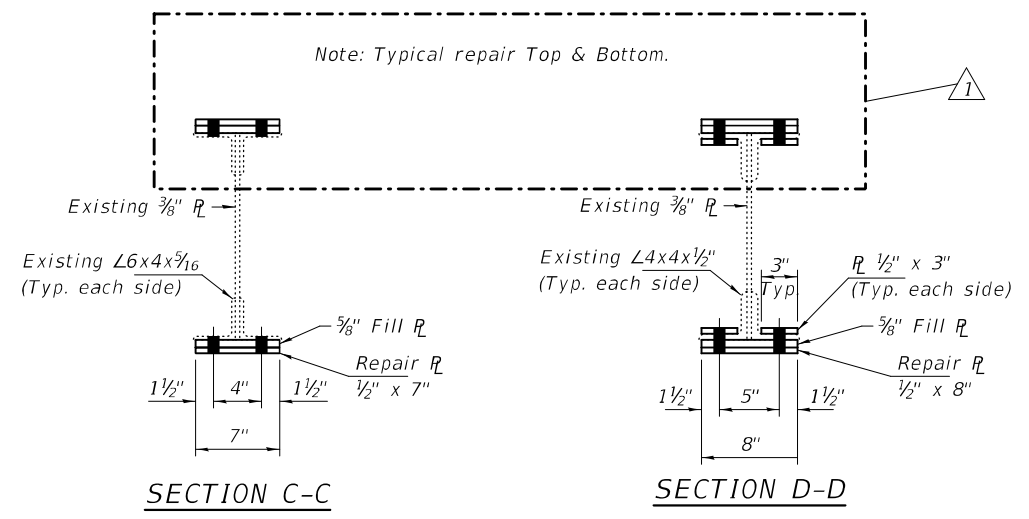
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857	2019-159-BR	COOK	21	16
CONTRACT NO. 62K31				
ILLINOIS FED. AID PROJECT				



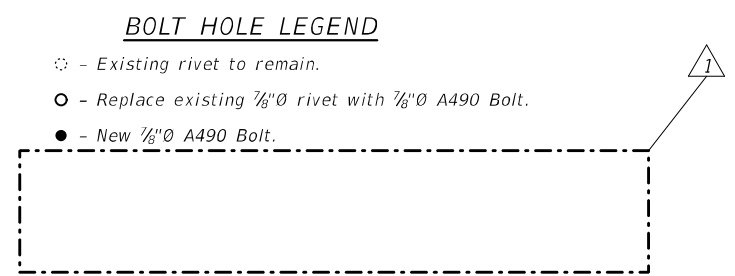
**REPAIR "A" AT L4E-U3E, L4E-U5E, L6E-U5E, L6W-U7W & L4W-U5W**  
 (L4E & U3E & L4E-U5E shown, L6W-U5E, L6W-U7W & L4W-U5W similar)



**REPAIR "A" AT L5E-U4E, L5E-U6E, L5W-U6W & L5W-U4W**  
 (L5E & U4E & L5E-U6E shown, L5W-U6W & L5W-U4W similar)

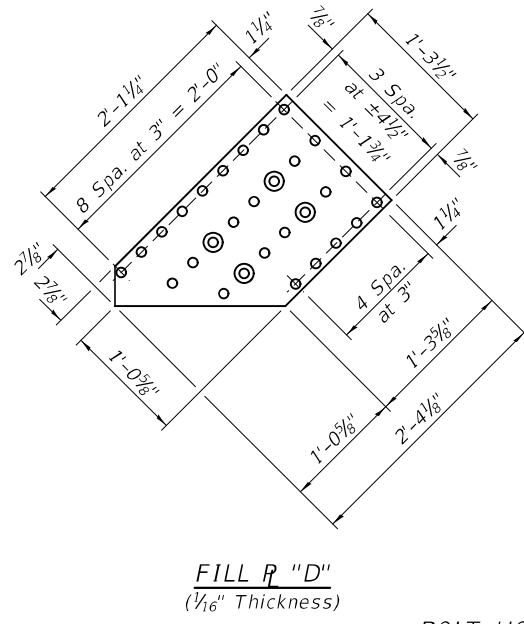
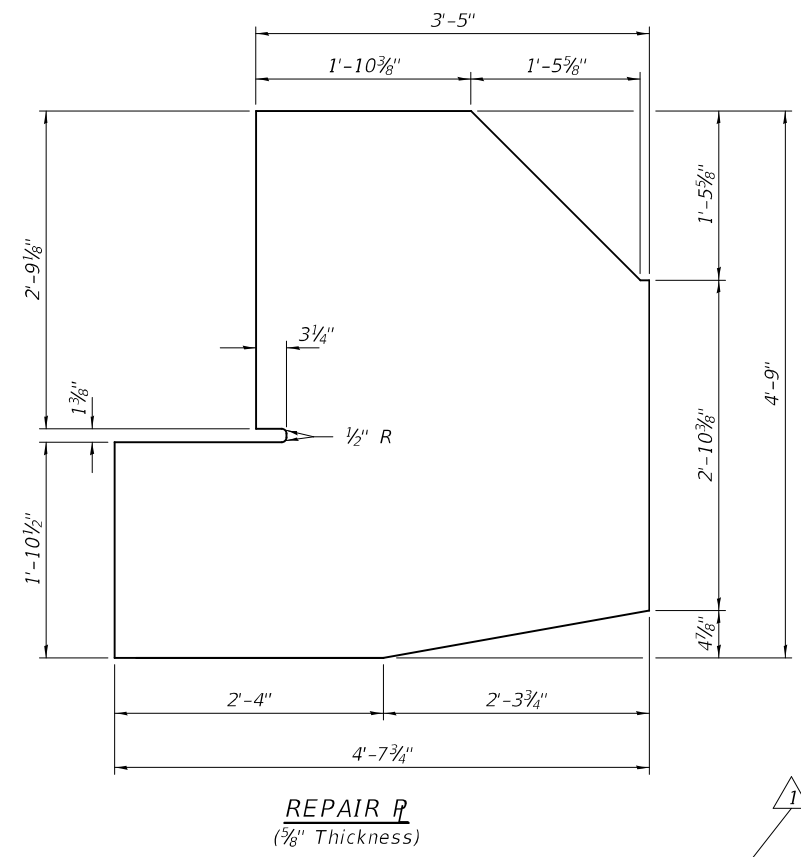
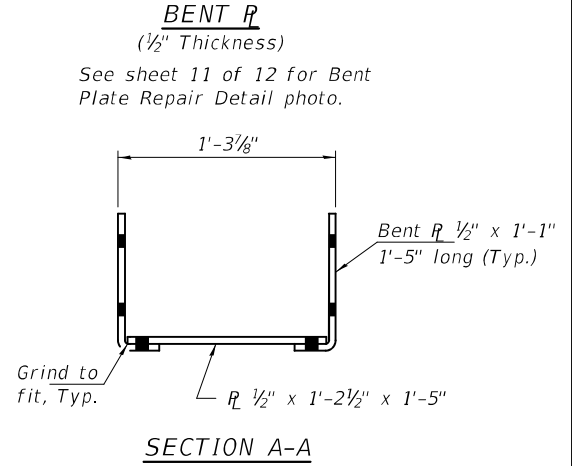
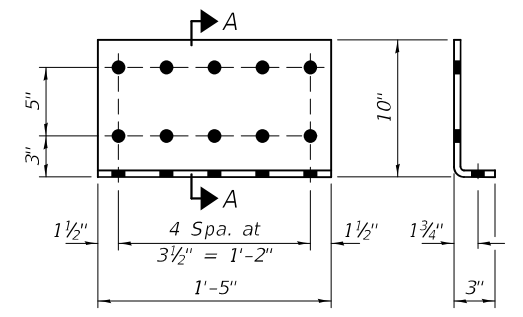
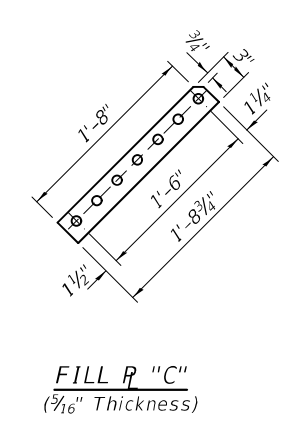
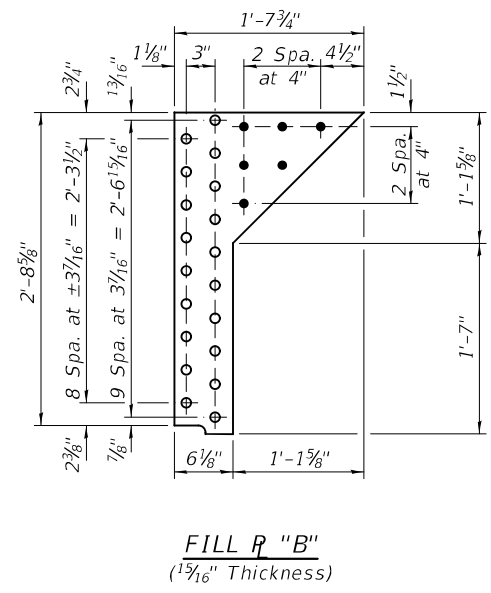
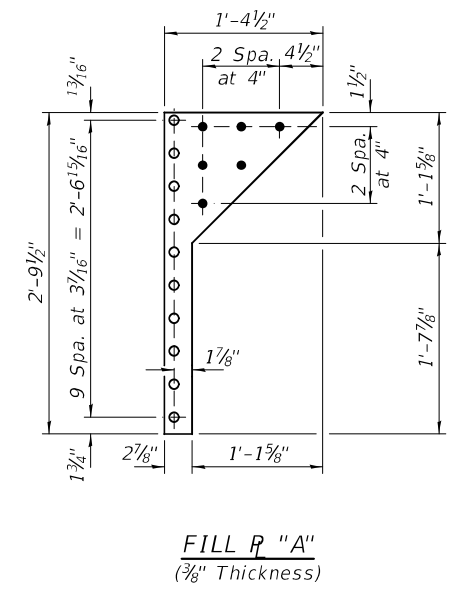
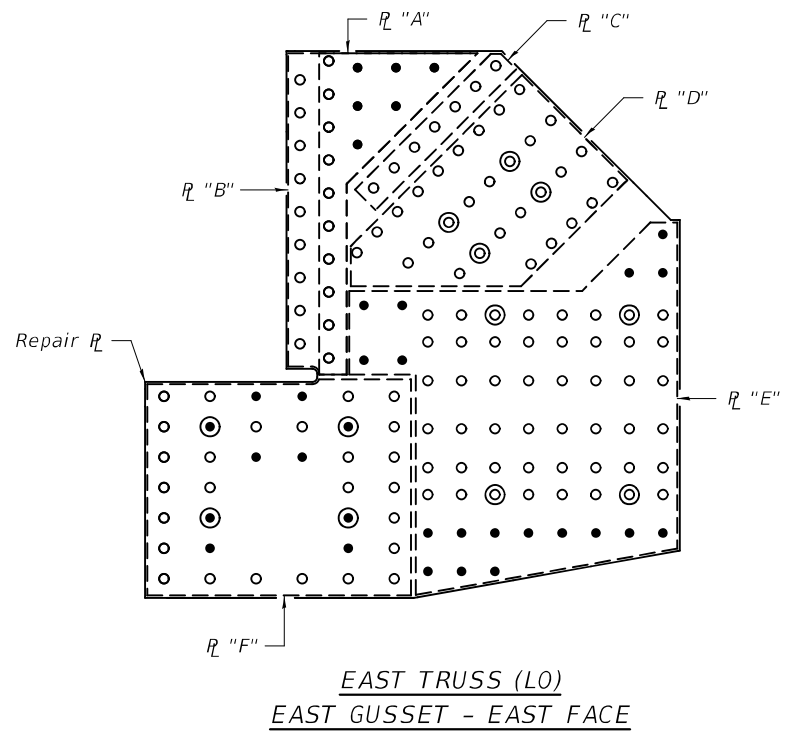


Note:  
See sheet 6 of 12 for  
Sec B-B.



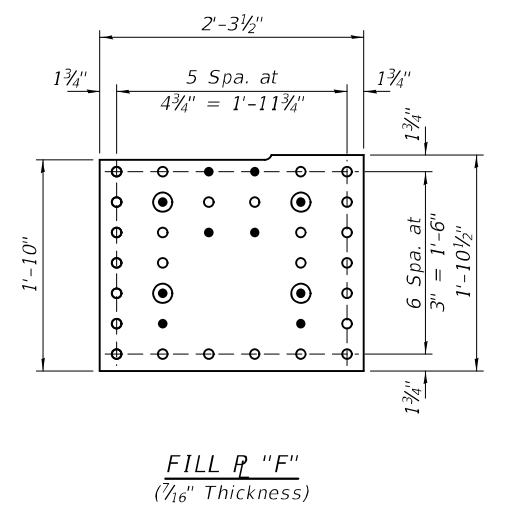
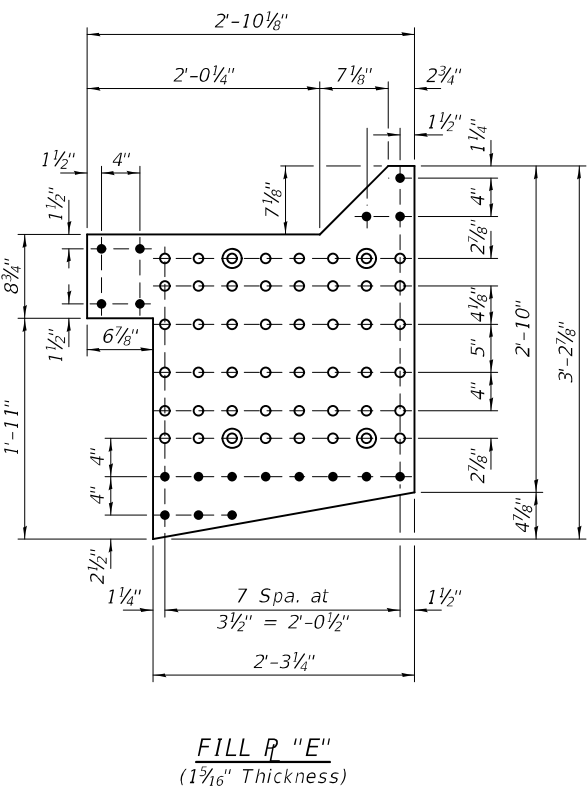
△ REV. 4-11-2020

DESIGNED - JOV	EXAMINED - <i>Timothy A. Dandger</i> ENGINEER OF STRUCTURAL SERVICES	DATE - MARCH 20, 2020	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>REPAIR DETAILS SN 016-0294</b>	F.A.U. RTE. 2857	SECTION 2019-159-BR	COUNTY COOK	TOTAL SHEETS 21	SHEET NO. 17	
CHECKED - VHV	PASSED - <i>Carl Ringer</i> ENGINEER OF BRIDGES AND STRUCTURES	REVISED 04/09/2020 ATH			CONTRACT NO. 62K31					
DRAWN - daburdell		REVISED -			ILLINOIS FED. AID PROJECT					
CHECKED - JOV VHV			SHEET NO. 7 OF 12 SHEETS							



**BOLT HOLE LEGEND**

- - Existing rivet to remain.
- - Replace existing  $\frac{7}{8}$ "Ø rivet with  $\frac{7}{8}$ "Ø A490 Bolt.
- - New  $\frac{7}{8}$ "Ø A490 Bolt.
- ⊙ - Replace existing  $\frac{7}{8}$ "Ø rivet with new  $\frac{7}{8}$ "Ø A490 Bolt. Install and prestress prior to erecting fill/retrofit plates. Size holes in fill/retrofit plates to fit around nuts and bolt heads.
- - New  $\frac{7}{8}$ "Ø A490 Bolt. Install and prestress prior to erecting fill/retrofit plates. Size holes in fill/retrofit plates to fit around nuts and bolt heads.



Note:  
Bolt holes not shown for clarity.  
All holes within the repair plate should be field drilled.

DESIGNED - JOV  
CHECKED - VHV  
DRAWN - daburdell  
CHECKED - JOV VHV

EXAMINED  
PASSED  
Timothy A. Daulton  
ENGINEER OF STRUCTURAL SERVICES  
Carl R. Roper  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - MARCH 20, 2020  
REVISED 04/09/2020 ATH  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

REPAIR DETAILS  
SN 016-0294  
SHEET NO. 9 OF 12 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857	2019-159-BR	COOK	21	18A
CONTRACT NO. 62K31				
ILLINOIS FED. AID PROJECT				

REV. 4-11-2020



**PHOTO - EAST TRUSS (L0)  
WEST GUSSET - LOOKING EAST**

Diagonal bracing to be temporarily unattached and then reattached after repair plate installation.

Remove existing Pin and plate.

Location of Temp. Shoring

1/2" Bent R

1/2" Bent R

**EAST TRUSS (L0)  
WEST GUSSET - LOOKING EAST**  
(West Truss similar by rotation)

**EAST TRUSS (L0)  
WEST GUSSET - LOOKING EAST**  
(West Truss similar by rotation)

Remove existing Pin and plate.

**INTERIOR STRINGER  
REACTION TABLE**

	Floor Beam
R <sub>P</sub> (K)	11
R <sub>L</sub> (K)	26
Imp. (K)	8
R (Total) (K)	45

Note:  
For Repair Details, see  
sheet 11 of 12.

**BOLT HOLE LEGEND**

- - Existing rivet to remain.
- - Replace existing 7/8"Ø rivet with 7/8"Ø A490 Bolt.
- - New 7/8"Ø A490 Bolt.
- ⊙ - Replace existing 7/8"Ø rivet with new 7/8"Ø A490 Bolt. Install and prestress prior to erecting fill/retrofit plates.
- ⊙ - New 7/8"Ø A490 Bolt. Install and prestress prior to erecting fill/retrofit plates.

Outstanding leg of angle to be trimmed.

REV. 4-11-2020

DESIGNED - JOV  
CHECKED - VHV  
DRAWN - daburdell  
CHECKED - JOV VHV

EXAMINED  
PASSED  
*Timothy A. Daulton*  
ENGINEER OF STRUCTURAL SERVICES  
*Carl R. Rieger*  
ENGINEER OF BRIDGES AND STRUCTURES

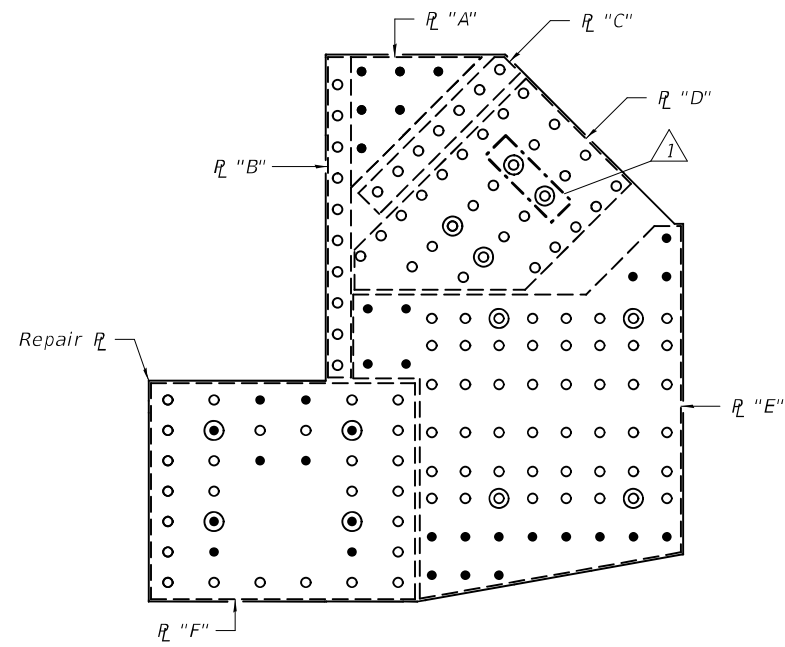
DATE - MARCH 20, 2020  
REVISED 04/09/2020 ATH  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

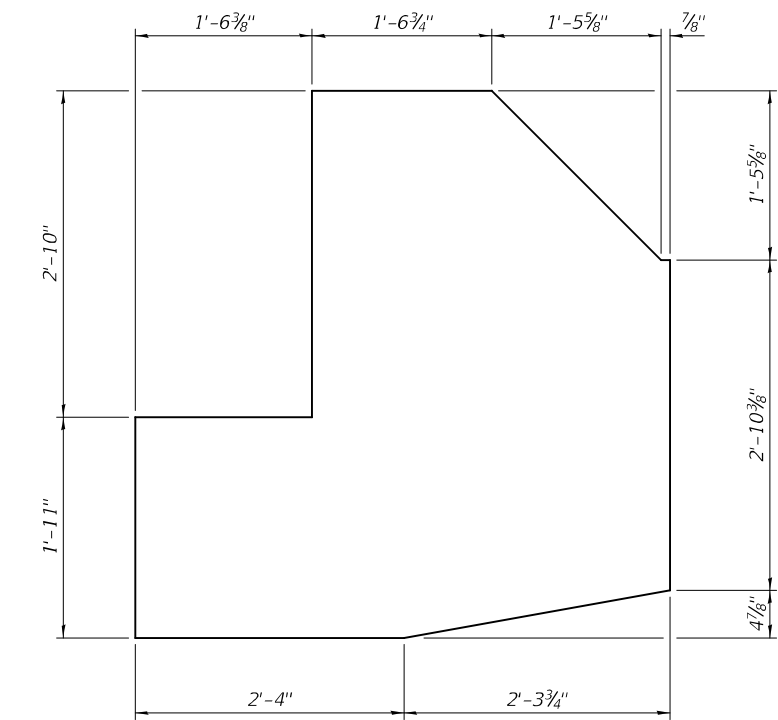
REPAIR DETAILS  
SN 016-0294

SHEET NO. 10 OF 12 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2857	2019-159-BR	COOK	21	18B
CONTRACT NO. 62K31				
ILLINOIS FED. AID PROJECT				



**EAST TRUSS (LO)  
WEST GUSSET - WEST FACE**

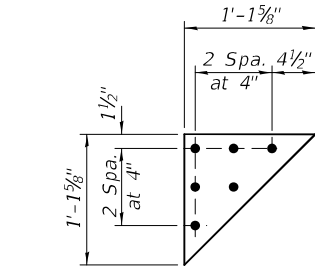


**REPAIR R**  
(5/8" Thickness)

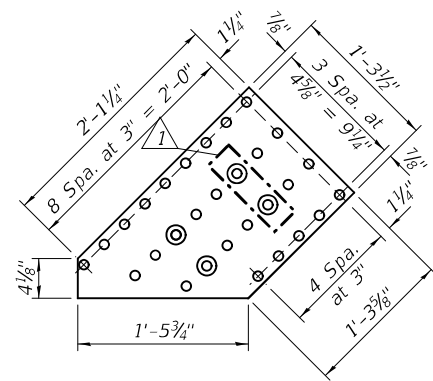
Note:  
Bolt holes not shown for clarity.  
All holes within the repair plate  
should be field drilled.

**BOLT HOLE LEGEND**

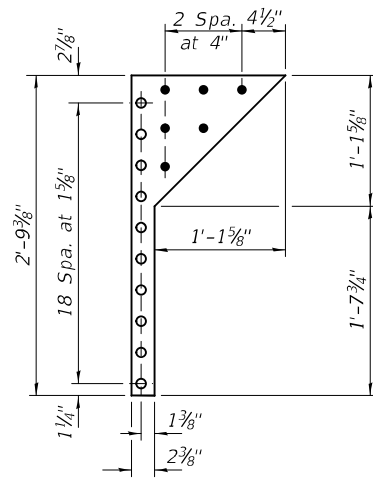
- - Existing rivet to remain.
- - Replace existing 7/8"Ø rivet with 7/8"Ø A490 Bolt.
- - New 7/8"Ø A490 Bolt.
- ⊙ - Replace existing 7/8"Ø rivet with new 7/8"Ø A490 Bolt. Install and prestress prior to erecting fill/retrofit plates. Size holes in fill/retrofit plates to fit around nuts and bolt heads.
- - New 7/8"Ø A490 Bolt. Install and prestress prior to erecting fill/retrofit plates. Size holes in fill/retrofit plates to fit around nuts and bolt heads.



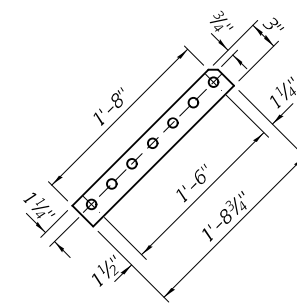
**FILL R "A"**  
(3/8" Thickness)



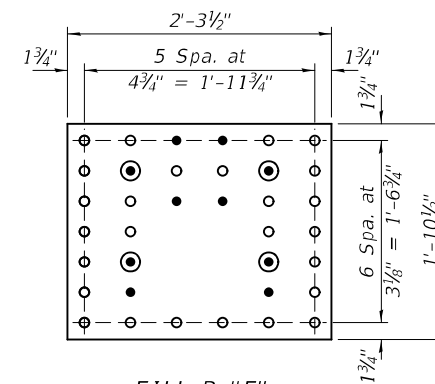
**FILL R "D"**  
(1/4" Thickness)



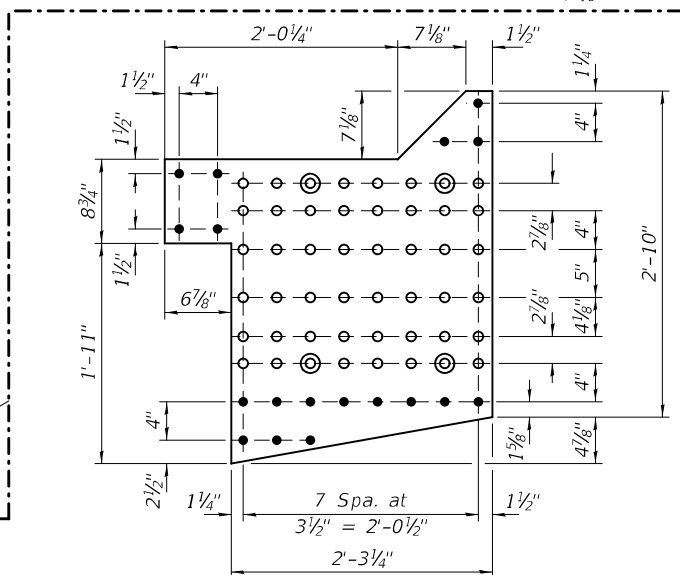
**FILL R "B"**  
(1 5/16" Thickness)



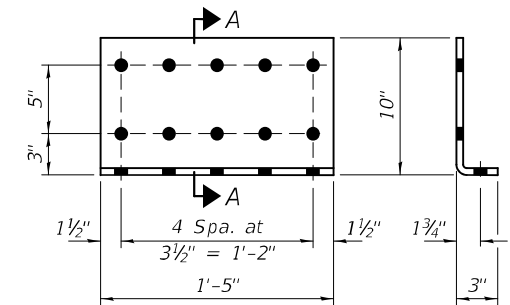
**FILL R "C"**  
(5/16" Thickness)



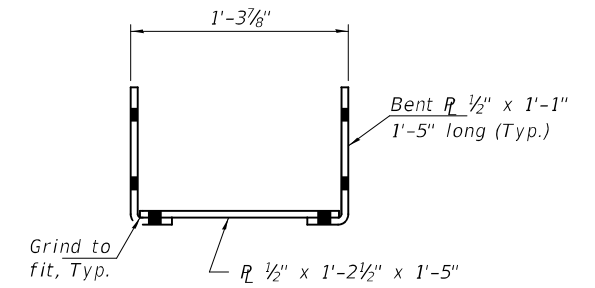
**FILL R "F"**  
(7/16" Thickness)



**FILL R "E"**  
(1 1/16" Thickness)



**BENT R**  
(1/2" Thickness)



**SECTION A-A**



**BENT R REPAIR DETAILS**

Remove lacing to  
install repair plates.

DESIGNED - JOV  
CHECKED - VHV  
DRAWN - daburdell  
CHECKED - JOV VHV

EXAMINED  
PASSED  
ENGINEER OF STRUCTURAL SERVICES  
ENGINEER OF BRIDGES AND STRUCTURES

DATE - MARCH 20, 2020  
REVISED 04/09/2020 ATH  
REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**REPAIR DETAILS  
SN 016-0294**

SHEET NO. 11 OF 12 SHEETS

F.A.U. RTE. SECTION COUNTY TOTAL SHEETS SHEET NO.  
2857 2019-159-BR COOK 21 18C  
CONTRACT NO. 62K31  
ILLINOIS FED. AID PROJECT

REV. 4-11-2020