

**SUMMARY OF QUANTITIES**

CONSTRUCTION TYPE CODE: 0010

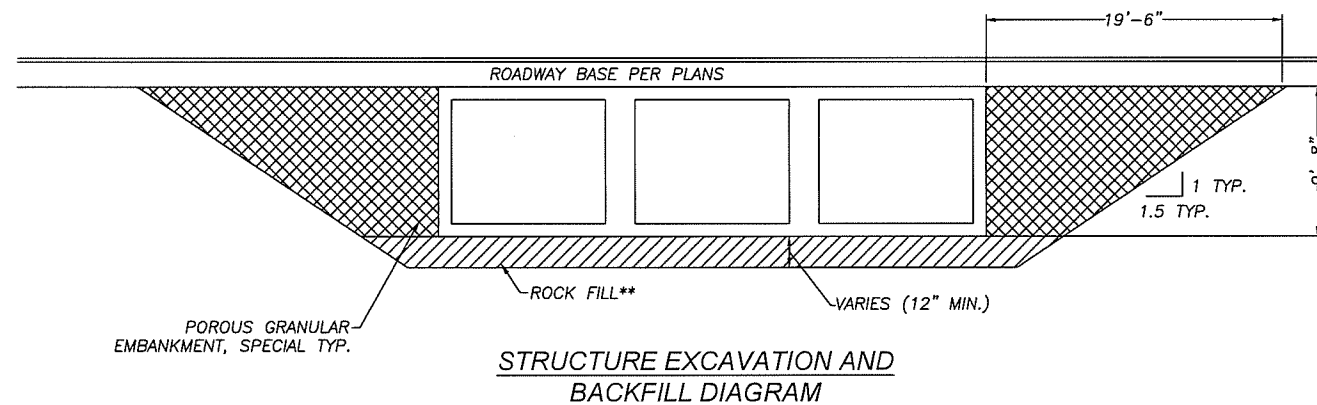
Code	Item	Unit of Measure	Quantity
25100630	EROSION CONTROL BLANKET	SQ YD	360
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	142
28000400	PERIMETER EROSION BARRIER	FOOT	177
35101400	AGGREGATE BASE COURSE, TYPE B	TON	274
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	822
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	83
40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	63
40604050	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N50	TON	63
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3088
△ 50900205	STEEL RAILING, TYPE S1	FOOT	78
51500100	NAME PLATES	EACH	1
52200015	PERMANENT SHEET PILING	SQ FT	1430
54003000	CONCRETE BOX CULVERTS	CU YD	21.8
54011008	PRECAST CONCRETE BOX CULVERTS 10' X 8'	FOOT	106
67100100	MOBILIZATION	LSUM	1
* X0900064	MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES	SQ YD	165
* X2020410	EARTH EXCAVATION (SPECIAL)	CU YD	60
* X2070304	POROUS GRANULAR EMBANKMENT, SPECIAL	CU YD	204
* X2501020	SEEDING, CLASS 2A (SPECIAL)	ACRE	0.1
* X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	LSUM	1
* Z0013798	CONSTRUCTION LAYOUT	LSUM	1
Z0054400	ROCK FILL	CU YD	125

\* SEE SPECIAL PROVISIONS

△ SPECIALTY ITEMS

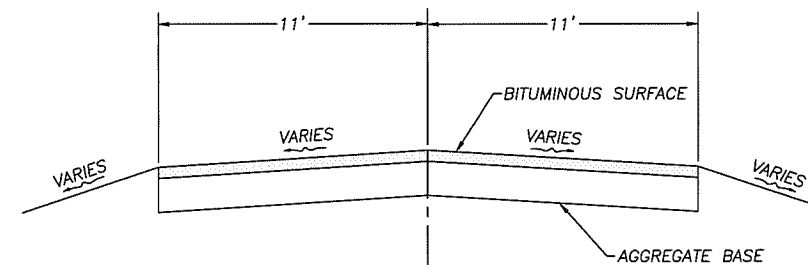
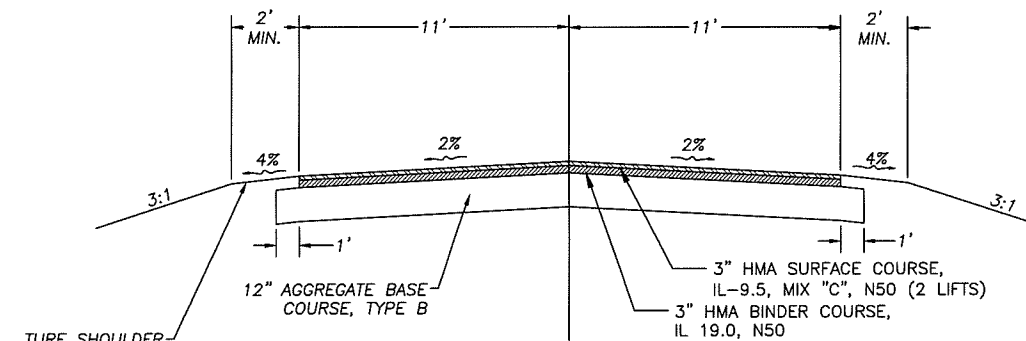
EARTHWORK SCHEDULE				
COLUMN IDENTIFICATION	A	B = A * (1-SLF)	C	D = B-C
	EARTH	EARTH EXCAVATION		EARTHWORK
		ADJUSTED FOR		BALANCE WASTE (+)
LOCATION	EXCAVATION	SHRINKAGE / LOSS	EMBANKMENT (IN PLACE)	OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA. 11+45 TO STA. 12+25	15	11	12	-1
STA. 13+25 TO STA. 13+75	45	34	15	19
<b>TOTAL</b>	<b>60</b>	<b>45</b>	<b>27</b>	<b>18</b>
		SHRINKAGE / LOSS FACTOR (SLF) = 0.25		

MIX DESIGN TABLE		
LOCATION AND MIXTURE USES:	TOP LIFT	ALL LOWER LIFTS
PG:	PG 5B-28	PG 5B-28
DESIGN AIR VOIDS	4.0 @ N50	4.0 @ N50
MIXTURE COMPOSITION (GRADATION MIXTURE)	IL 9.5	IL 19.0
FRICTION AGGREGATE	C	N/A
MIX UNIT WEIGHT	112 LBS/SY/IN	112 LBS/SY/IN
QUALITY MANAGEMENT PROGRAM TO BE USED	QC/QA	QC/QA



\*\*ROCK FILL SHALL MEET QUALITY DESIGNATION "B" AS REQUIRED IN ARTICLE 1004.01 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. THE TOP 6" SHALL BE CRUSHED STONE AND MEET THE GRADATION OF CA7 PER ARTICLE 1004.01 OF THE STANDARD SPECIFICATIONS. THE REMAINING THICKNESS SHALL BE CS02 MEETING THE GRADATION REQUIREMENTS LISTED BELOW. AGGREGATE SHALL BE PLACED IN 6 INCH LIFTS AND COMPACTED AS APPROVED BY THE ENGINEER. THE ROCK FILL THICKNESS SHALL BE BASED ON THE SOIL CONDITIONS AS DETERMINED IN THE FIELD BY THE ENGINEER. ALL EXCAVATION AND DISPOSAL OF UNSTABLE MATERIALS FOR ROCK FILL SHALL BE INCIDENTAL TO THE CONTRACT UNIT PRICE PER CUBIC YARD FOR ROCK FILL.

GRADATION TABLE			
GRADE NO.	SIEVE SIZE AND PERCENT PASSING		
CS02	6"	4"	2"
	100	80±10	25±15



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 PLOT SCALE = -  
 PLOT DATE = 7/7/21  
 FILE NAME = plan-2200296.dwg

DESIGNED - CTC  
 DRAWN - CTC  
 CHECKED - SAB  
 DATE - 12/18/2020

REVISED - 7/7/2021  
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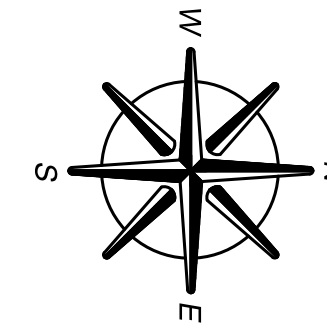
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES, TYPICAL SECTION**

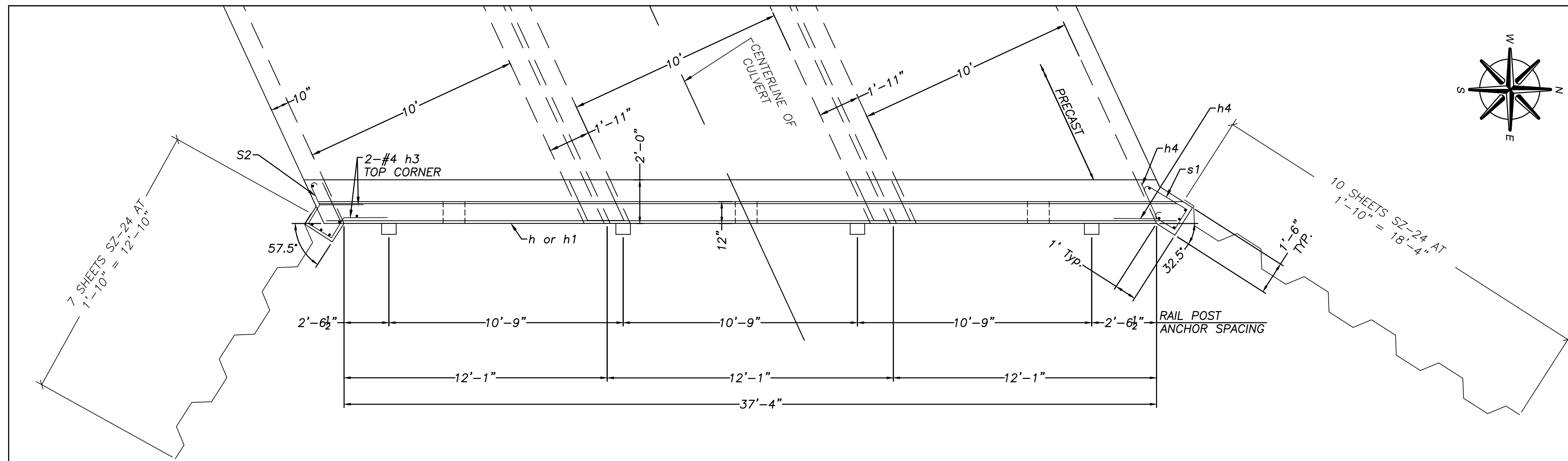
SCALE: - SHEET - OF - SHEETS STA. - TO STA. -

TR. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
120	20-03121-00-BR	BOONE	11	3
CONTRACT NO 85713			ILLINOIS FED. AID PROJECT TR	

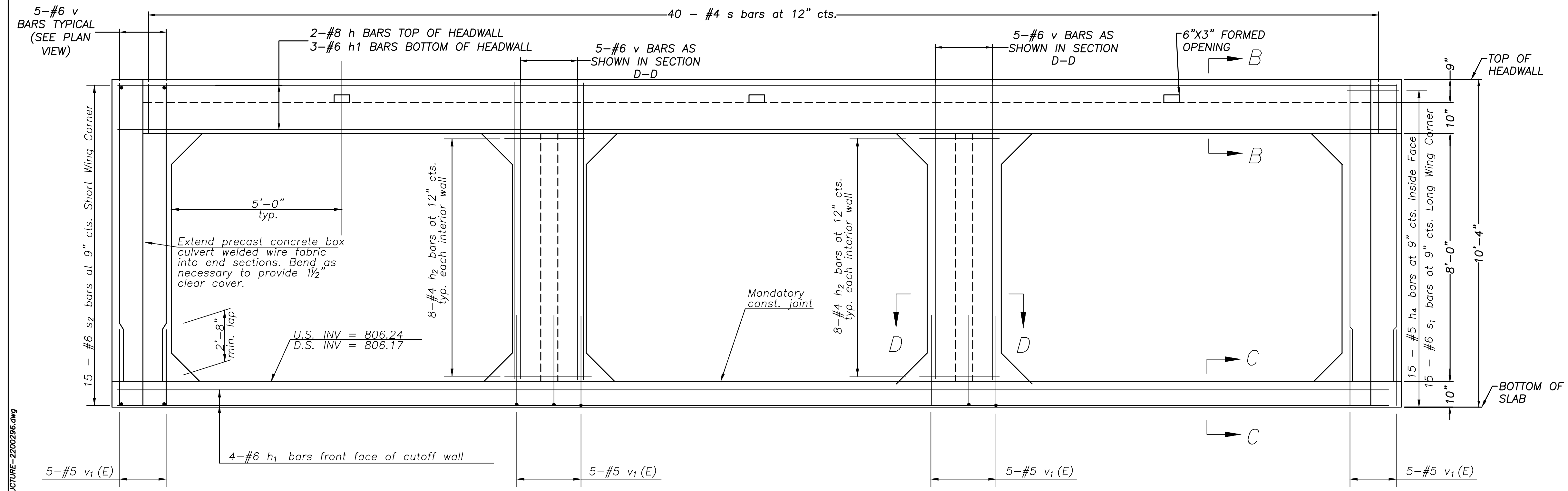
**GENERAL NOTES**



Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.  
 The design fill height for this structure is 1 foot. The precast concrete box culvert sections shall conform to the requirements of AASHTO M259.  
 The minimum effective section modulus of the permanent sheet pile walls shall be 15.0 in./ft.  
 The sheet pile cap shall be A992 steel.  
 Areas of the precast box culvert in contact with cast-in-place concrete shall be sandblasted, cleaned, and wetted prior to placing concrete in the field according to Article 5003.09(b).  
 The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M259.  
 The joints between precast box sections shall be sealed, all voids filled with mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing bond. The seal shall be centered over the joint, secured in place and protected during the backfilling process.  
 Remaining sheet piling shall not be driven until concrete strength has attained a minimum flexural strength of 650 psi or a minimum compressive strength of 3500 psi. All sheet piling may be driven prior to constructing collar. Adjust concrete corner dimensions to match sheeting.  
 Collar dimensions assume a 10" wall thickness on the precast box sections. Adjustment of the cast in place reinforcing shall be required for other wall thicknesses.  
 Precast section reinforcement shall be extended a minimum of 2 feet on the end sections at the collar.  
 All construction joints to the precast shall be bonded.



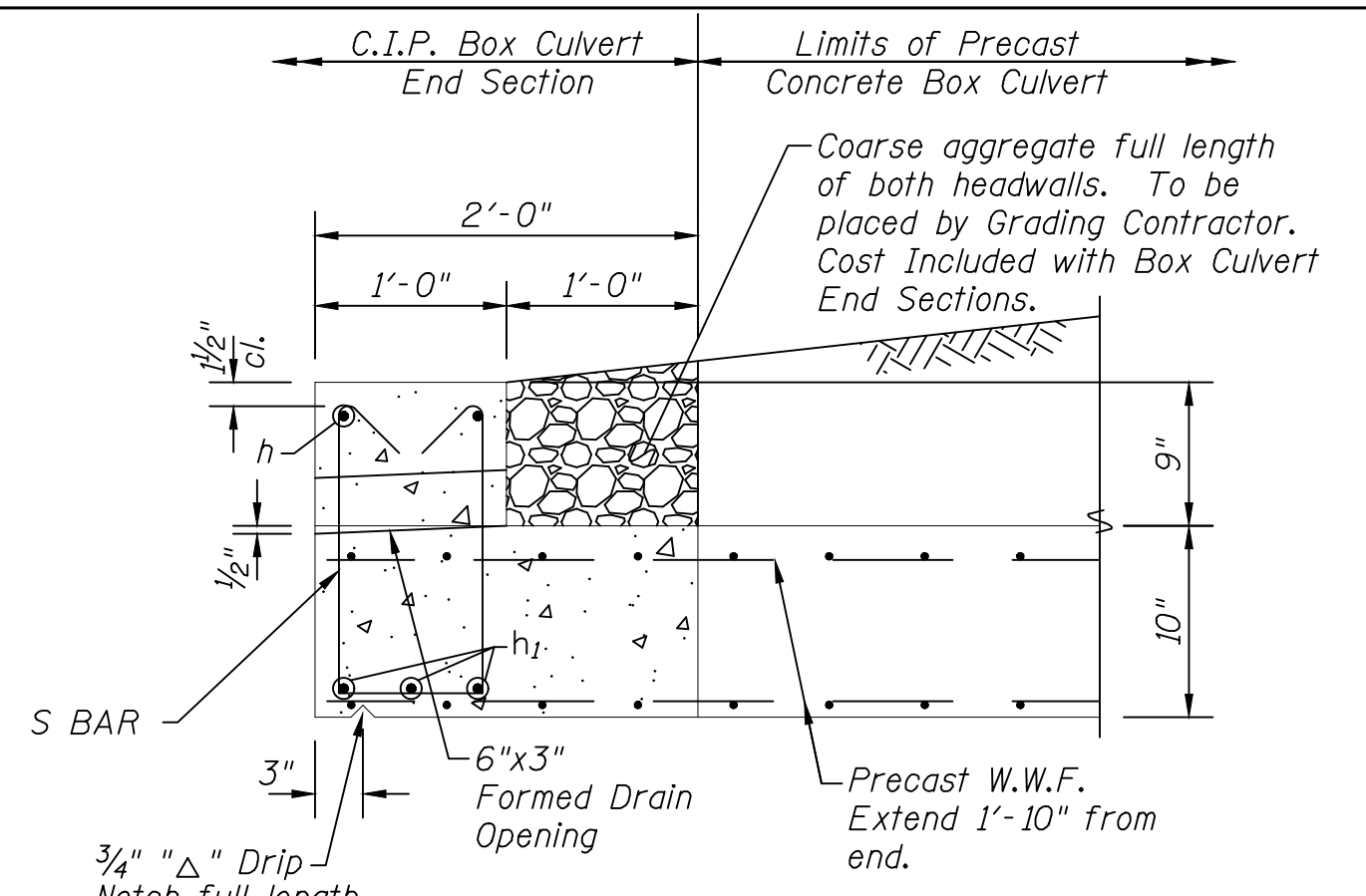
**COLLAR PLAN VIEW**



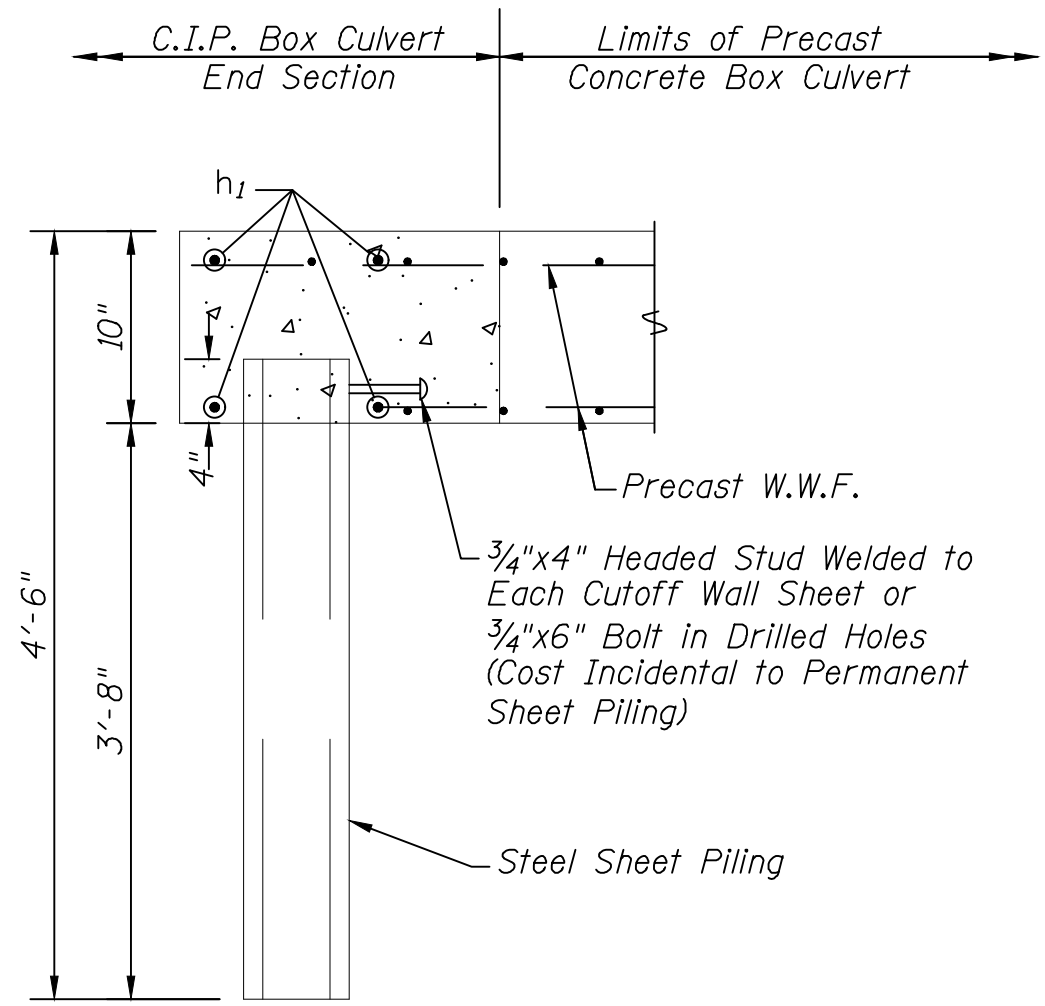
**SECTION THRU BARREL**

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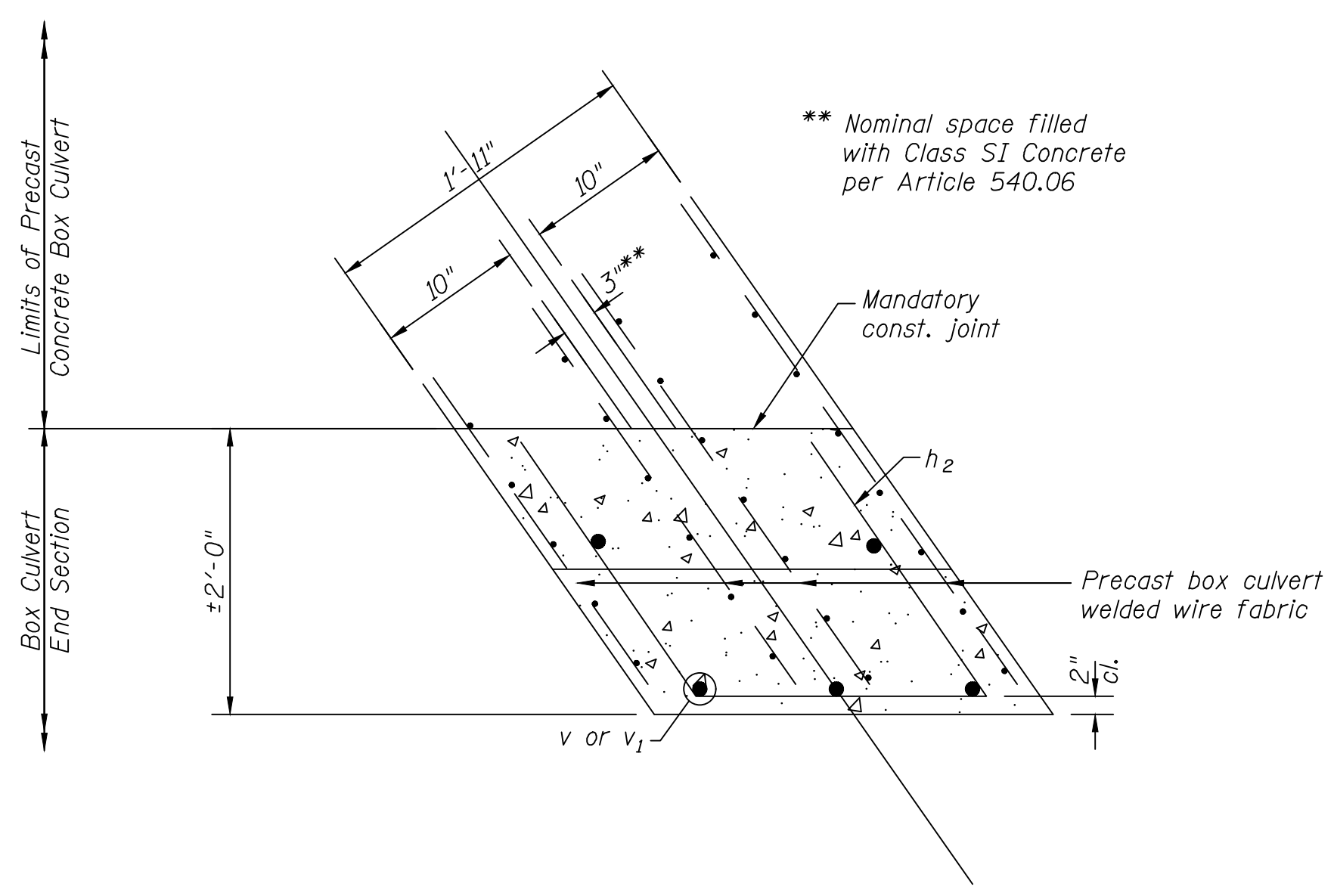
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	PLOT DATE = 7/9/21	CHECKED - SAB	REVISED -				CONTRACT NO 85713 -				
	FILE NAME = structure-2200296.dwg	DATE - 12/18/2020	REVISED -				ILLINOIS FED. AID PROJECT TR				
SCALE: - SHEET - OF - SHEETS STA. - TO STA. -											



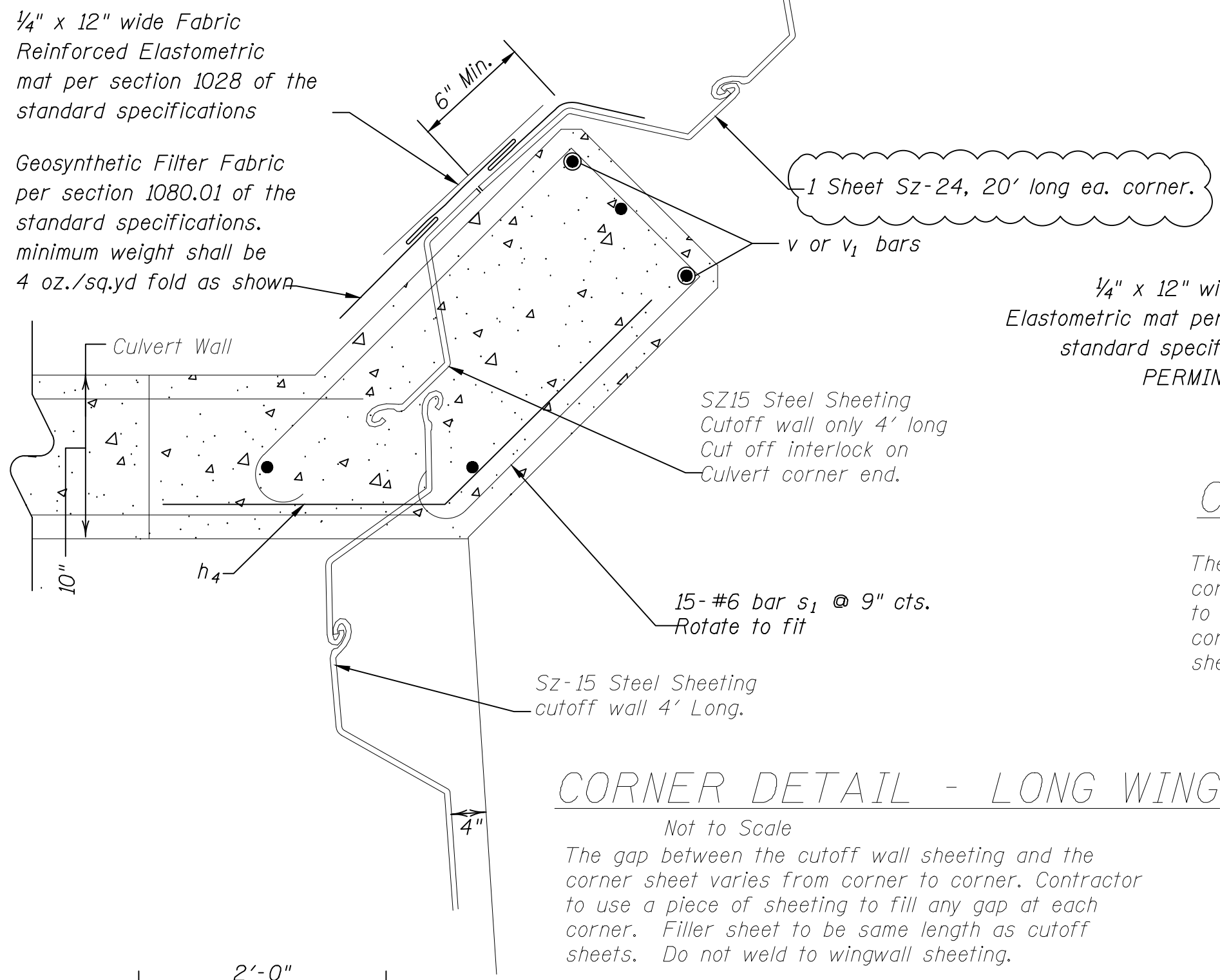
SECTION B-B



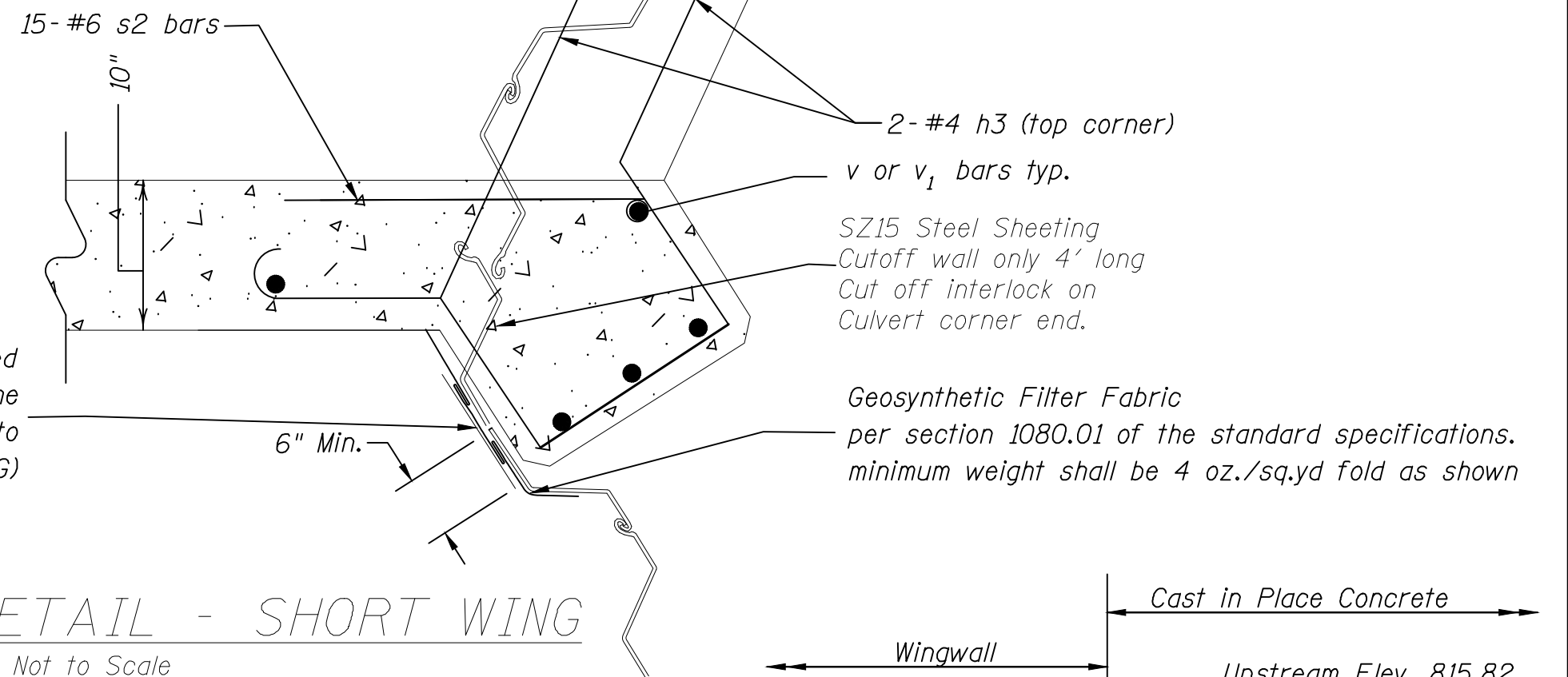
SECTION C-C



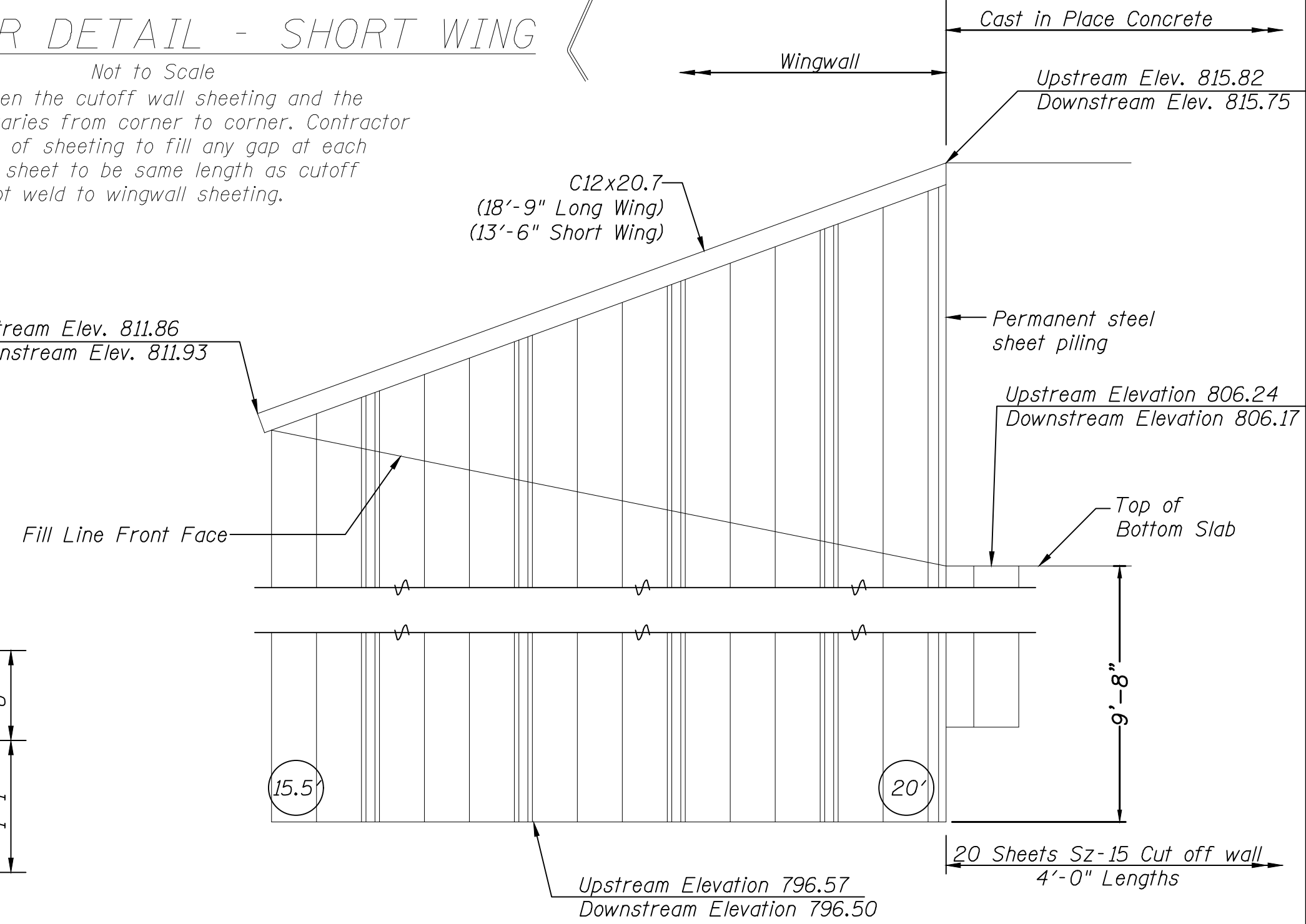
SECTION D-D



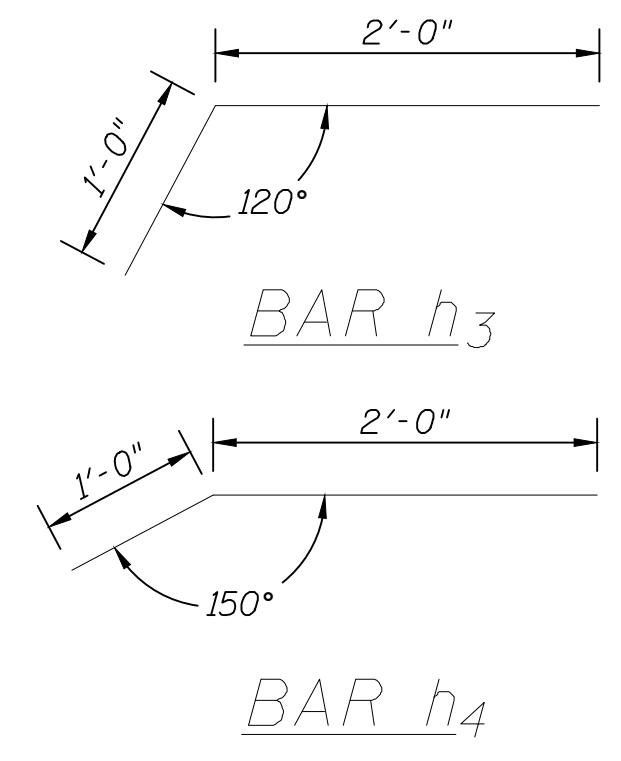
CORNER DETAIL - LONG WING



CORNER DETAIL - SHORT WING

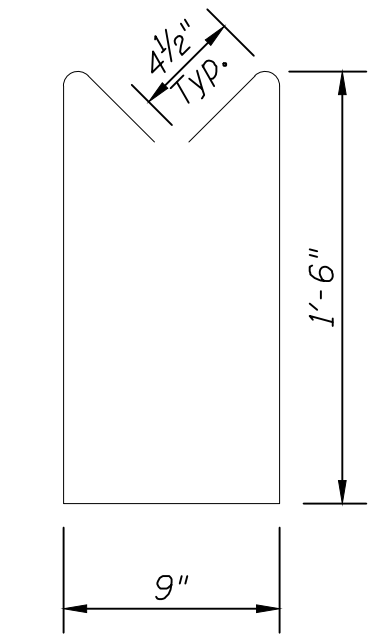


WINGWALL ELEVATION

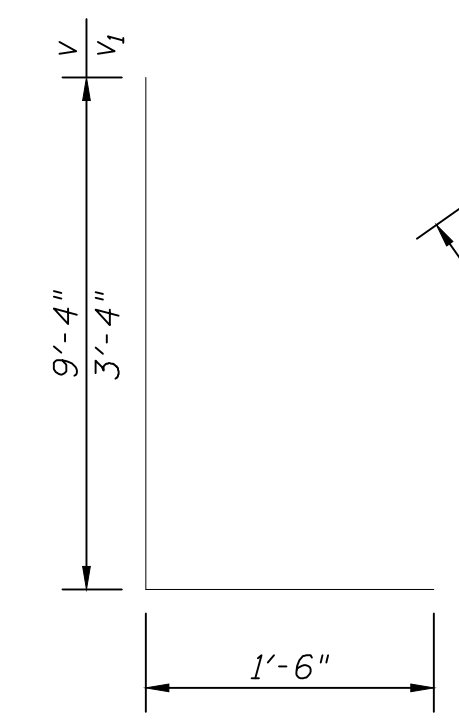


BAR h3

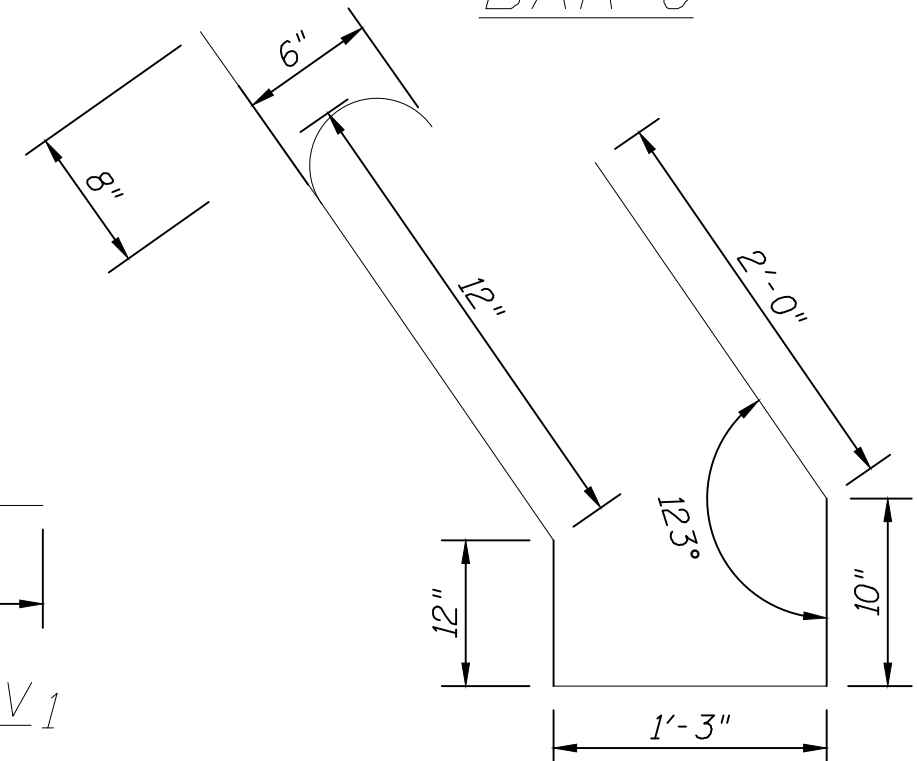
BAR h4



BAR s

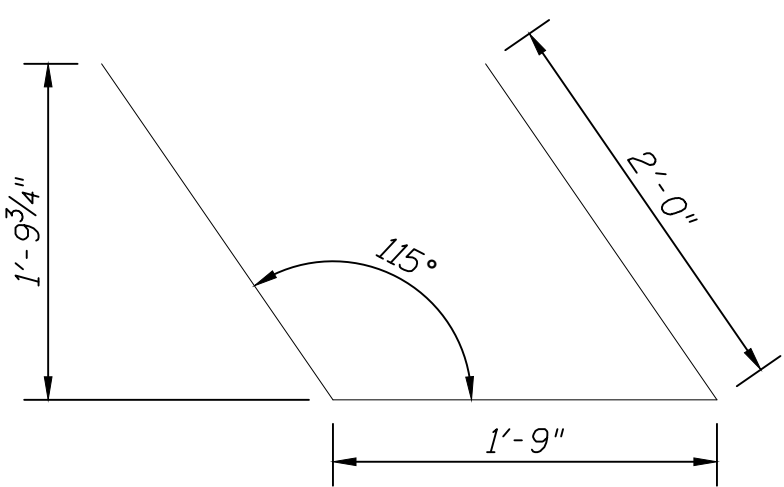


BARS v & v1



BAR s2

BAR s1



BAR h2

BILL OF MATERIAL - 2 ENDS

Bar	No.	Size	Length	Shape
h	4	#8	39'-0"	—
h1	14	#6	39'-0"	—
h2	32	#4	5'-9"	┌
h3	4	#4	3'-0"	┌
h4	30	#4	3'-0"	┌
s	80	#4	4'-6"	┌
s1	30	#6	5'-10"	┌
s2	30	#6	6'-9"	┌
v	40	#6	10'-10"	—
v1	40	#5	4'-10"	┌
Concrete Box Culverts		Cu. Yd.	21.8	
Reinforcement Bars, Epoxy Coated		Pound	3,088	
Permanent Sheet Piling		Sq. Ft.	1,430	

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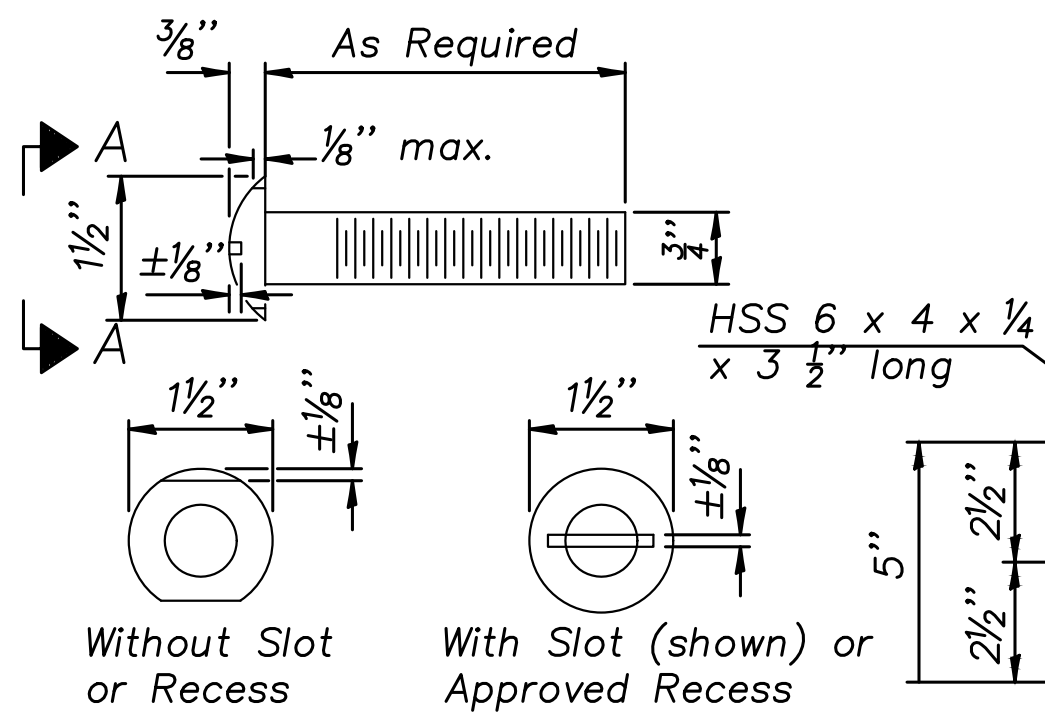
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

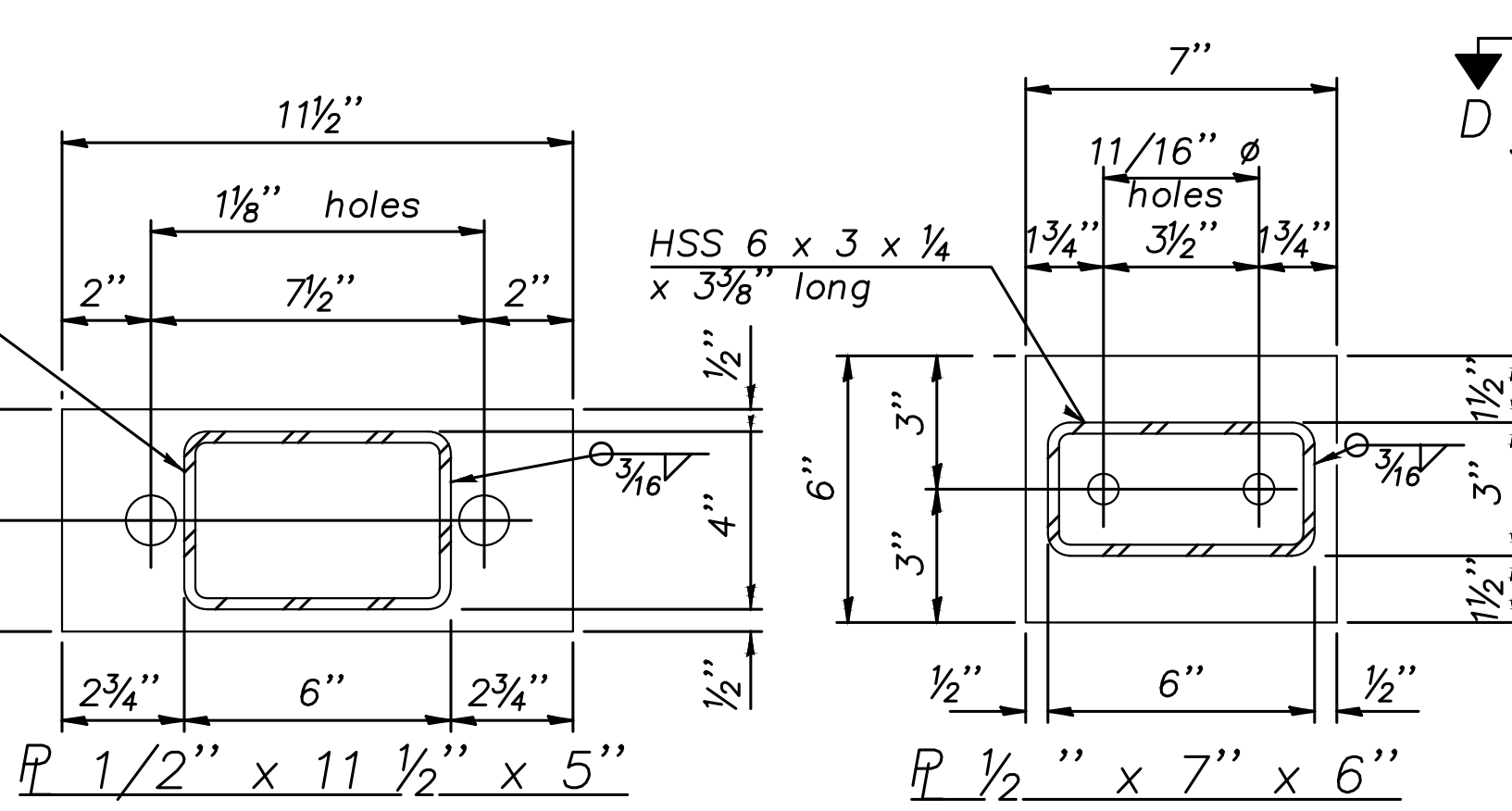
BOX CULVERT DETAILS

SCALE: -	SHEET - OF - SHEETS	STA. - TO STA. -
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TR RTE. 120	SECTION 20-03121-00-BR	COUNTY BOONE	TOTAL SHEETS 11	SHEET NO. 10
CONTRACT NO 85713			ILLINOIS FED. AID PROJECT TR	



VIEW A-A  
ROUND HEAD BOLT



ANCHOR DEVICE

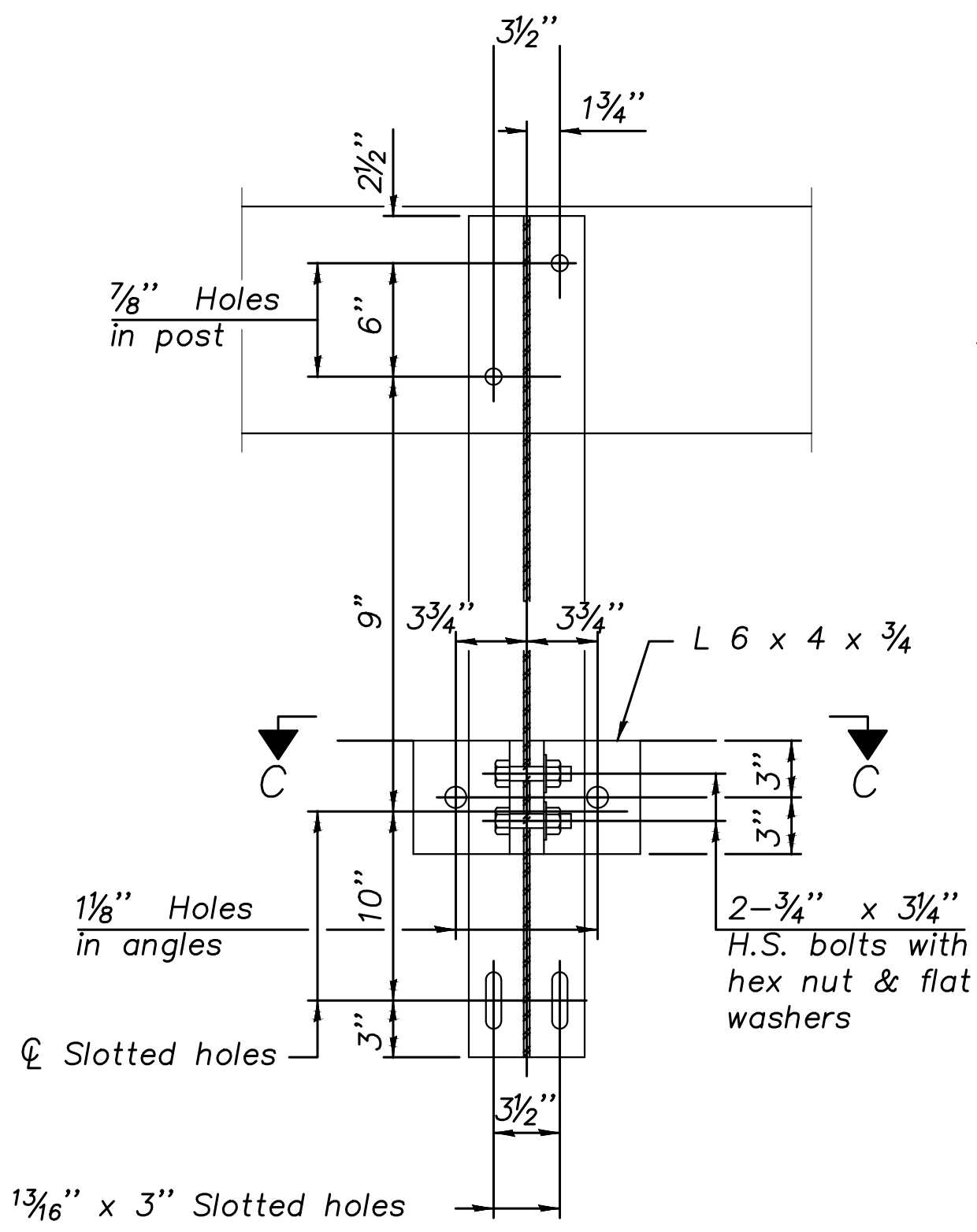
\* Threaded areas shall be plugged or blocked off during casting of beam.

**SPLICE DIMENSIONS**

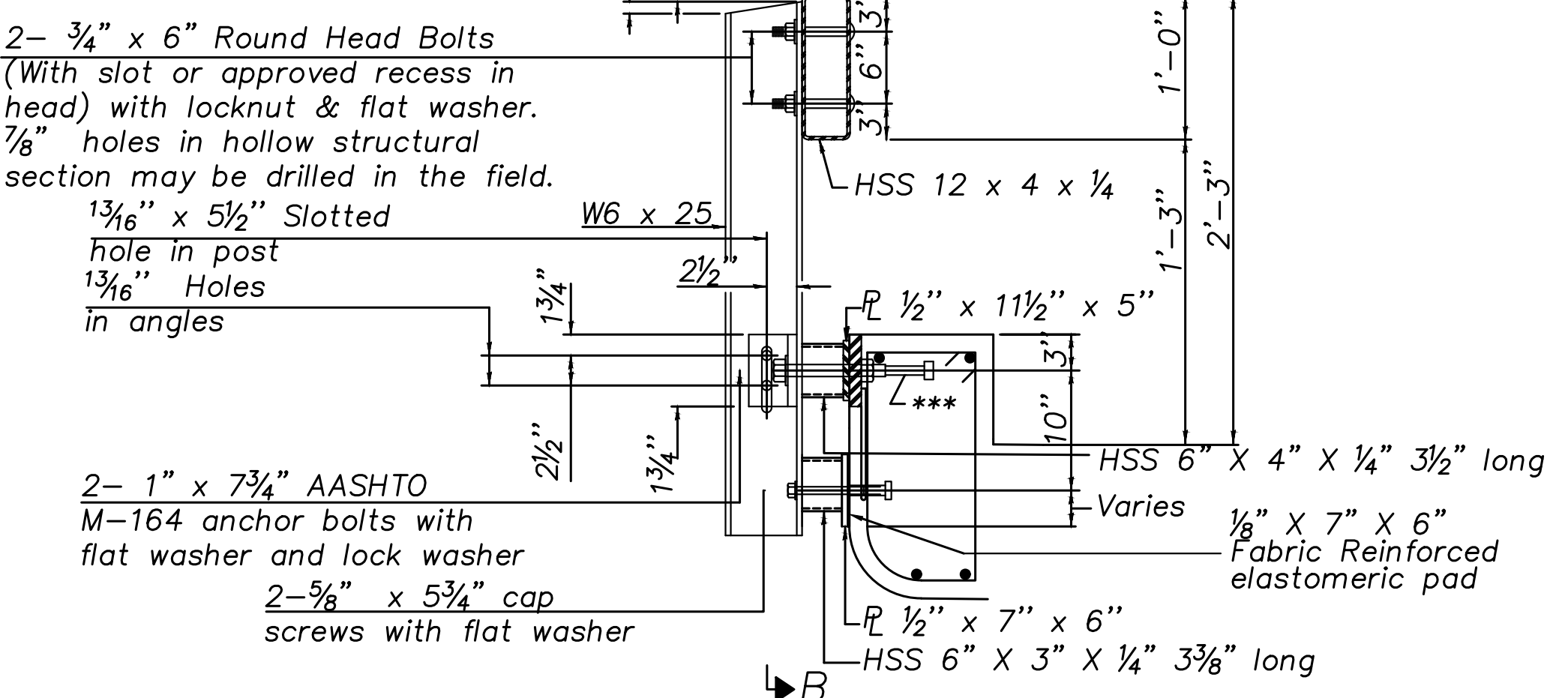
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	

T = Total movement at expansion joint as shown on the design plans.

Notes:  
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.  
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

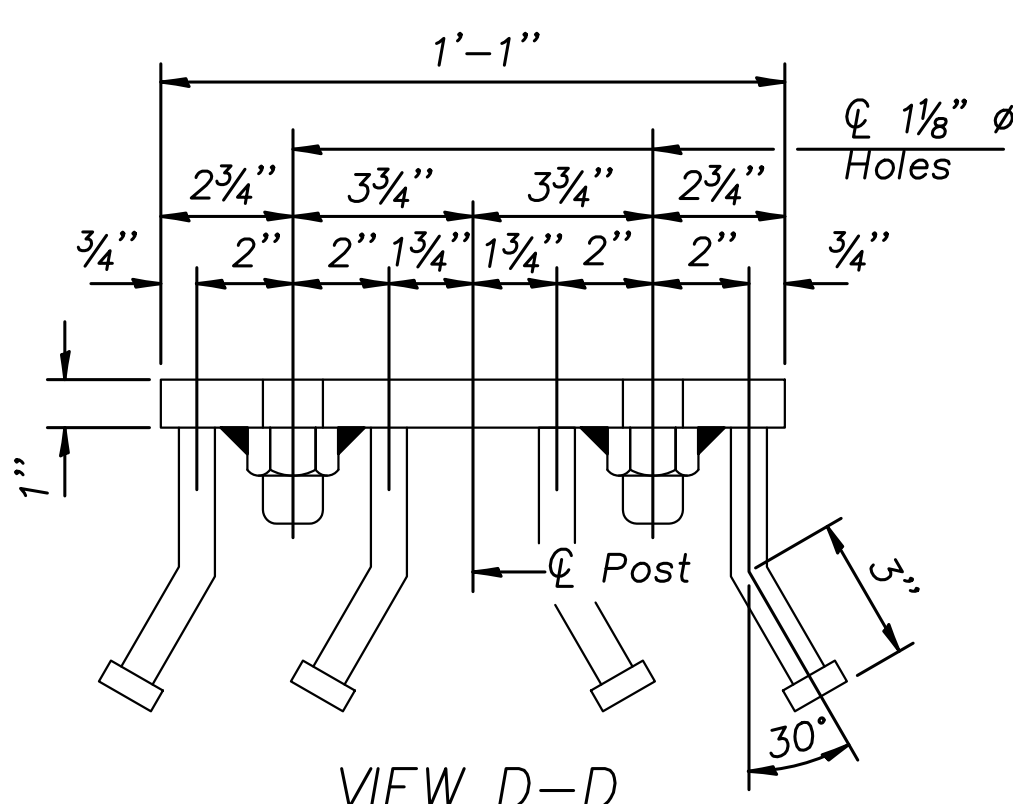


SECTION B-B

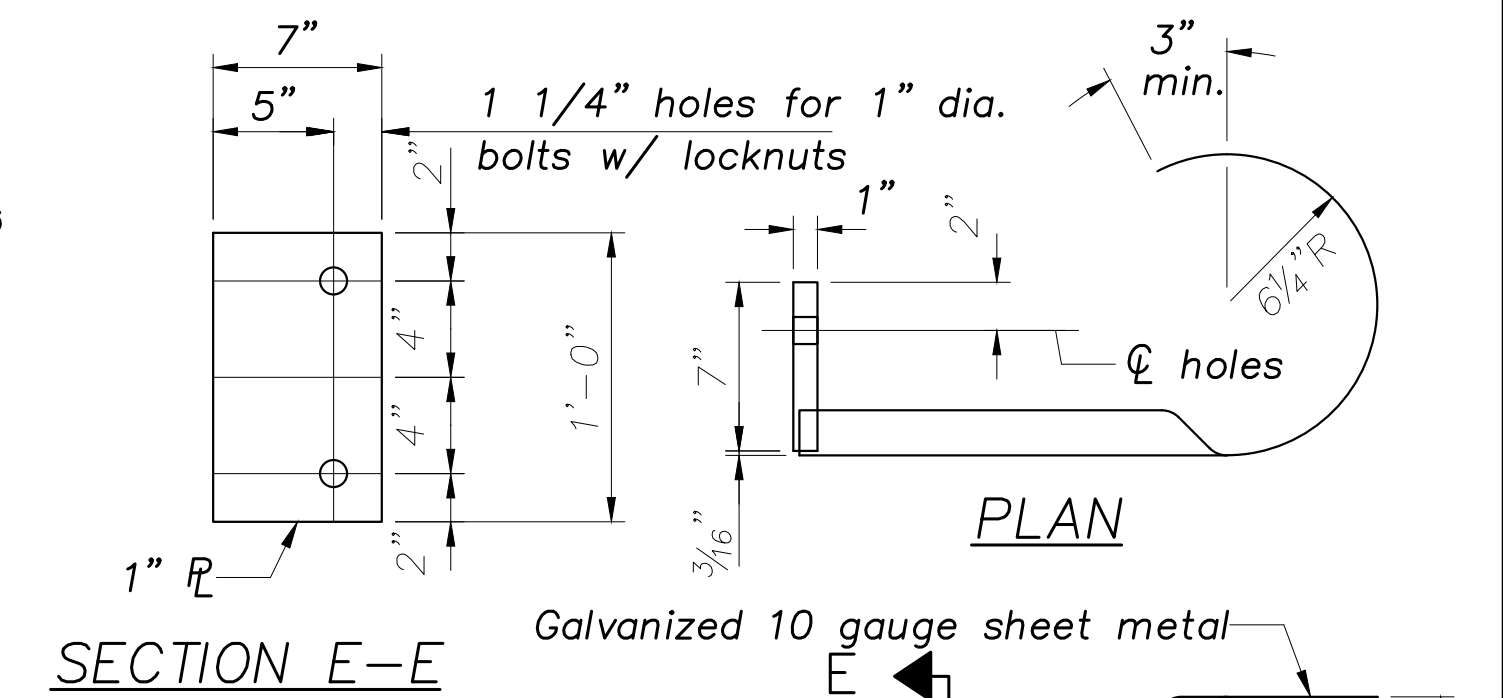


SECTION AT RAILING POST

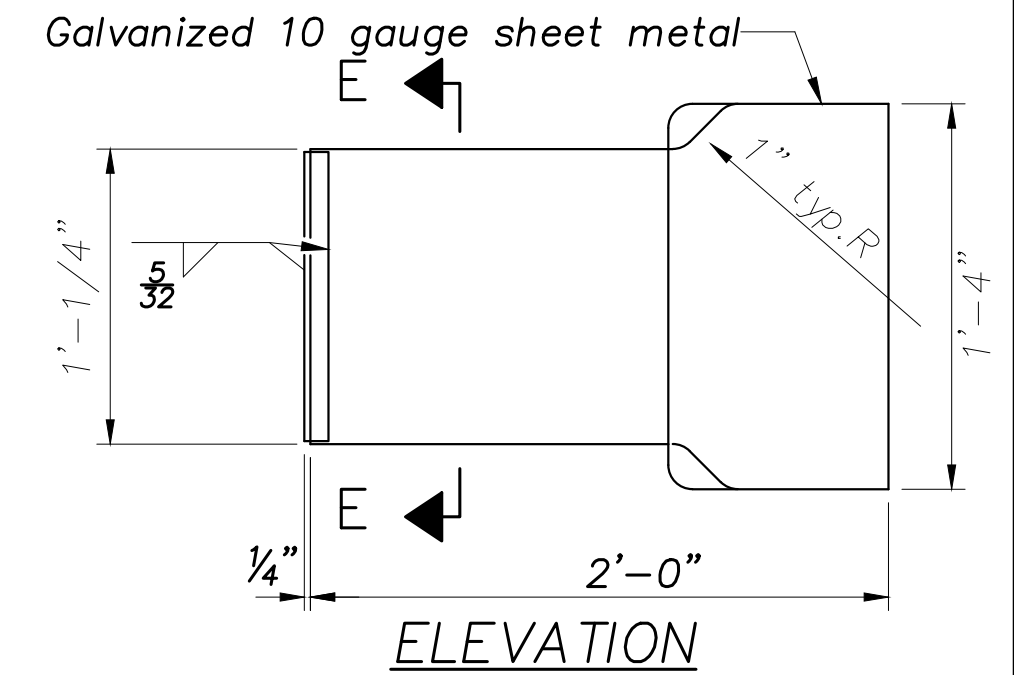
Upstream end shown. Downstream end similar.



VIEW D-D



SECTION E-E



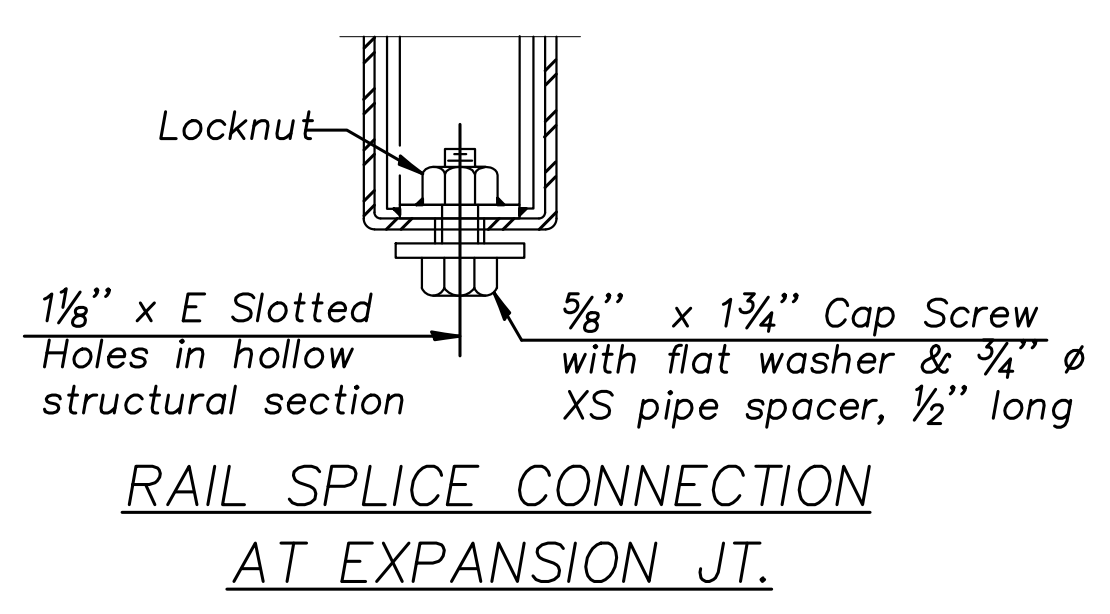
ELEVATION

**CURLED END SECTION DETAILS**  
4 required - All materials per Article 1006.25 Steel Plate Beam Guardrail of the Standard Specifications

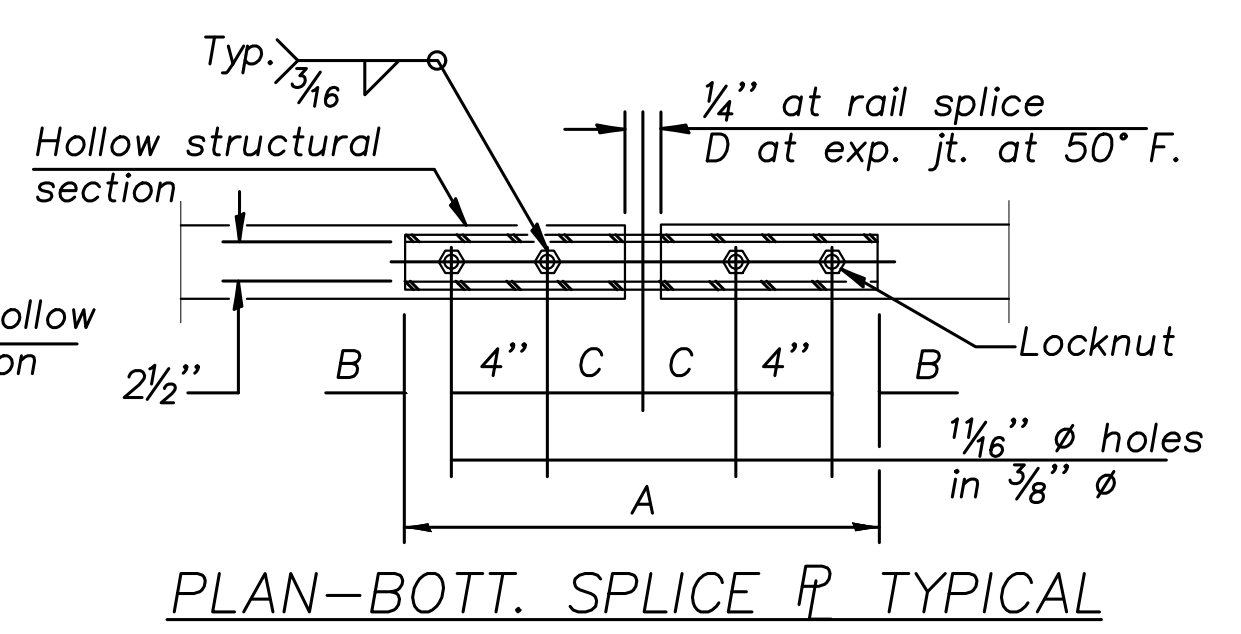
Cost of curled end sections is included in the contract unit price per Foot for Steel Railing, Type S-1. This price shall include all material, labor, and equipment necessary to complete work as indicated in the plans.

**BILL OF MATERIAL**

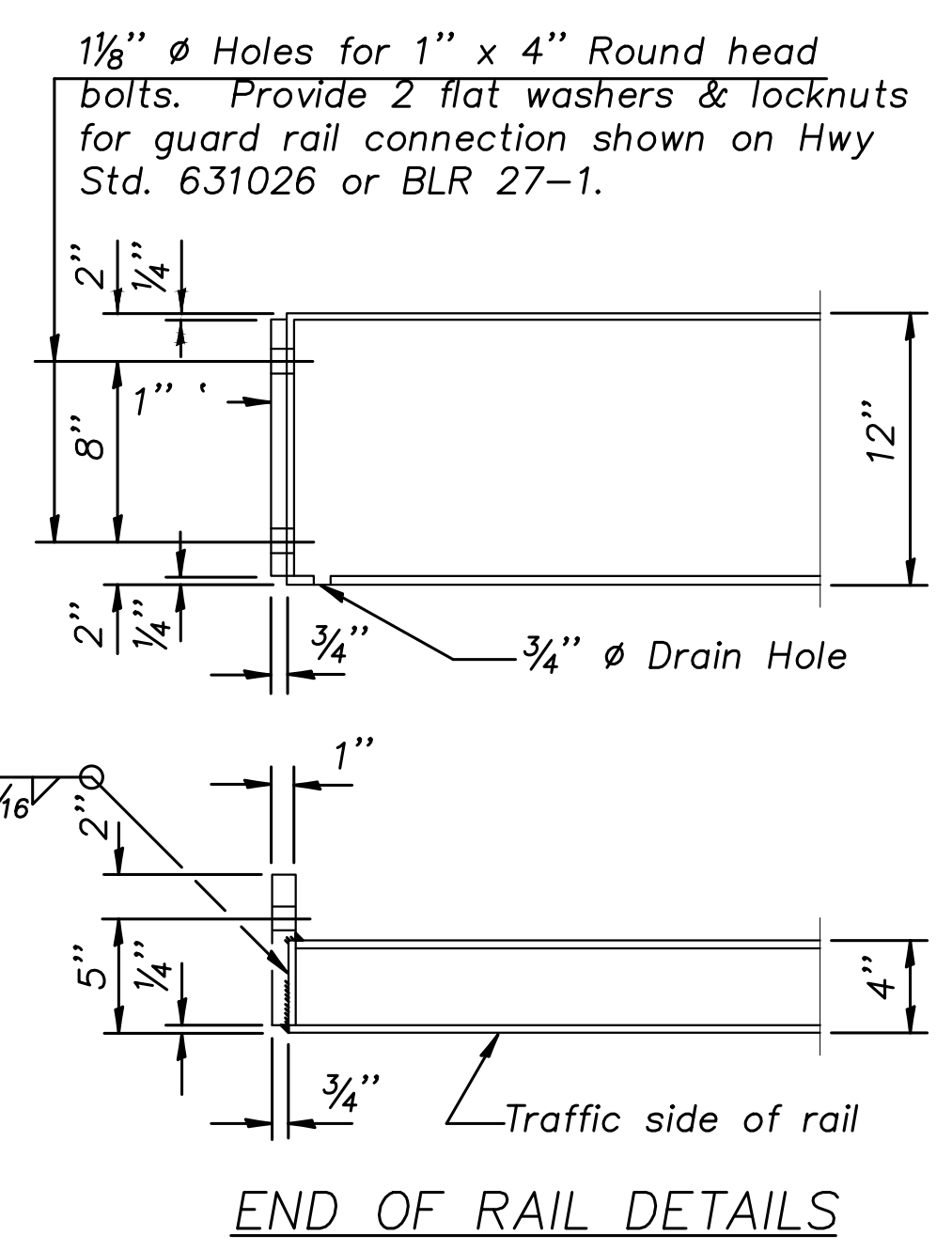
Item	Unit	Quantity
Steel Railing, Type S-1	Foot	78



RAIL SPLICE CONNECTION  
AT EXPANSION JT.



PLAN-BOTT. SPLICE R TYPICAL



END OF RAIL DETAILS

1-12-15 (10'-9" Maximum Post Spacing)

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