

06-11-2021 LETTING ITEM 197

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM - BRIDGE

SECTION 19-00124-00-BR LAWRENCE COUNTY

PROJECT J0J7(421)

JOB NO. C-97-132-21

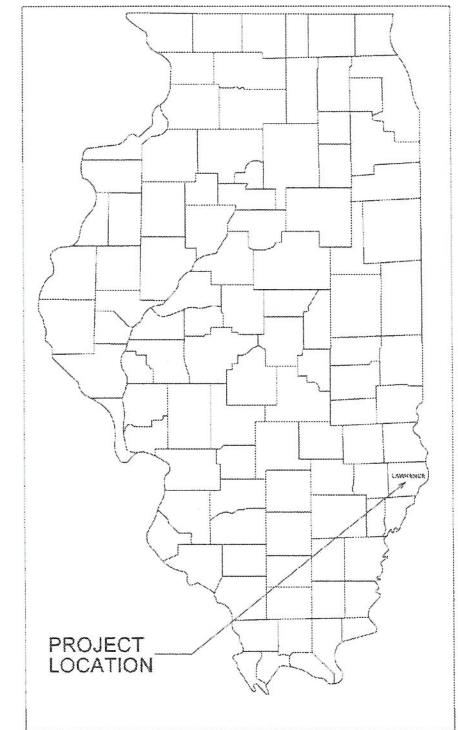
CH-11

CONTRACT NO. 95894

Joint Utility Locating Information for Excavators

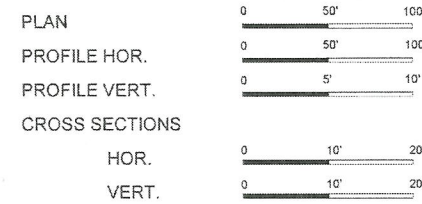
JULIE 1-800-892-0123

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH-11	19-00124-00-BR	LAWRENCE	15	1
CONTRACT 95894		ILLINOIS	PROJECT J0J7(421)	



INDEX OF SHEETS

SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	GENERAL PLAN AND ELEVATION
5	SUPERSTRUCTURE
6	SUPERSTRUCTURE DETAILS
7	STEEL RAILING, TYPE S-1
8	STEEL RAILING, TYPE S-1 DETAILS
9	ABUTMENT DETAILS
10	PILE DETAILS
11	BORING LOGS
12-15	CROSS SECTIONS



NOTE: SCALES VALID FOR 24" X 36" SHEETS

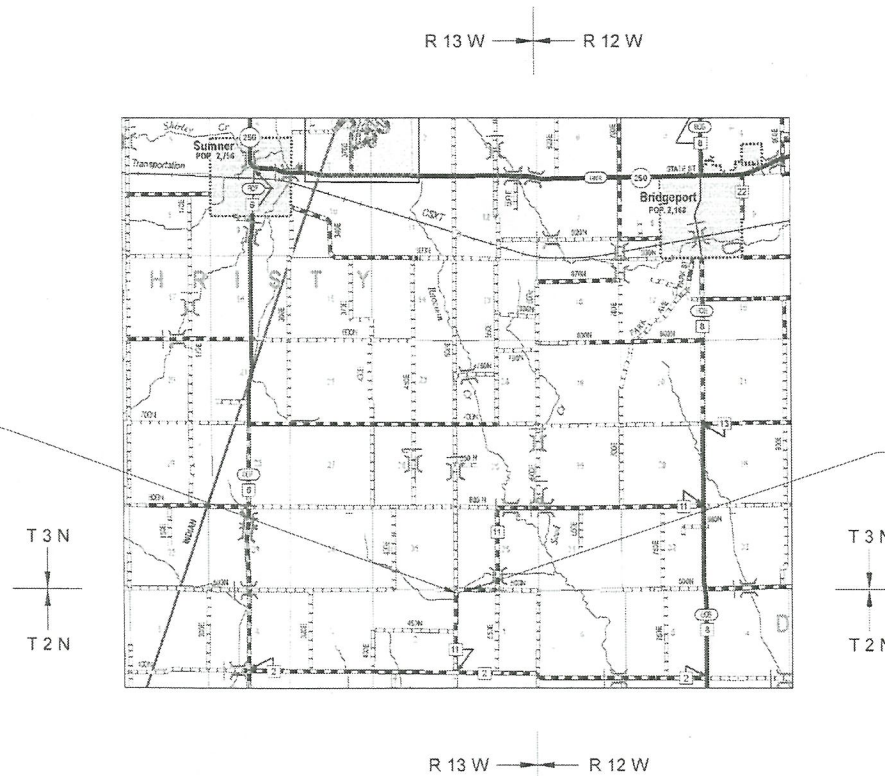
STANDARD DRAWINGS

- STANDARD 000001-08
- STANDARD 280001-07
- STANDARD 515001-04
- STANDARD 630301-08
- STANDARD 701901-08
- STANDARD 725001-01
- STANDARD BLR 21-9
- STANDARD BLR 23-4
- STANDARD BLR 28-3
- STANDARD BLR 27-1

SECTION 19-00124-00-BR BEGINS STA. 7+00.00

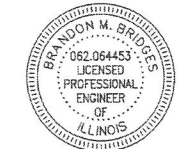
SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
58'-12" BK - BK. ABUTMENTS
STEEL H PILE / SPILLTHROUGH ABUTMENTS
28' WIDE DECK
EXISTING STRUCTURE NO. 051-5018
PROPOSED STRUCTURE NO. 051-3311

SECTION 19-00124-00-BR
ENDS STA. 12+50.00



CONTRACT NO. 95894
FUNCTIONAL CLASSIFICATION - MINOR COLLECTOR
ADT = 125
DESIGN SPEED = 40 MPH

NET LENGTH SECTION 19-00124-00-BR = 550.00 Ft. = 0.104 Mi.



Brandon M. Bridges
2/25/2021

LICENSE EXPIRES 11/30/2021

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0738
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003613

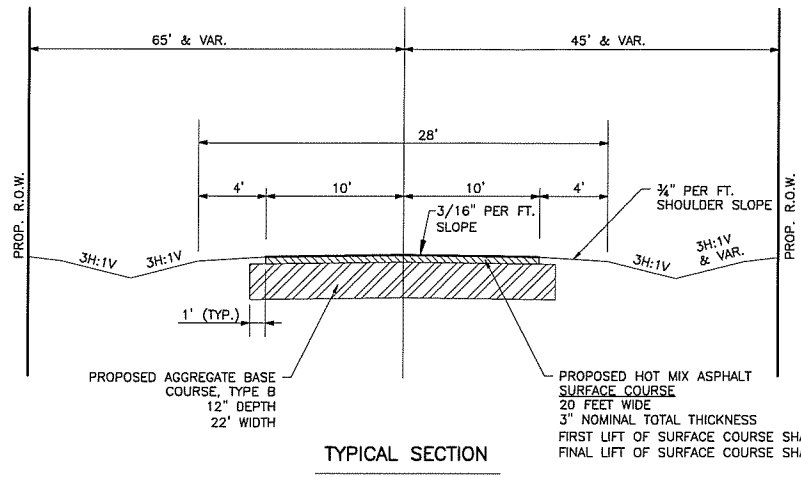
APPROVED *March 4th 2021*
Brandon M. Bridges
COUNTY ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

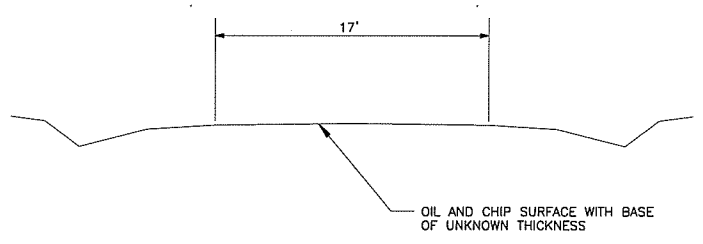
PASSED *April 16th 2021*
Scott Walker
DISTRICT SEVEN ENGINEER OF
LOCAL ROADS AND STREETS

Releasing For
Bid Based on
Limited Review

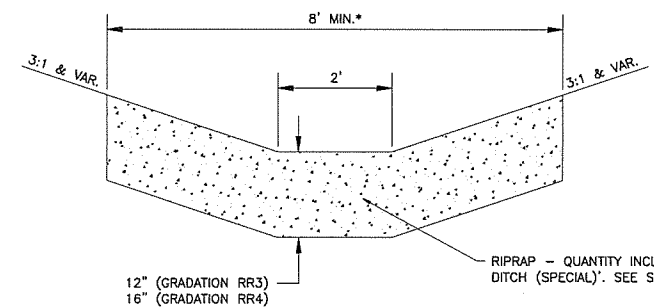
April 16th 2021
Jeffrey Myrtle
REGION FOUR ENGINEER



TYPICAL SECTION
PROPOSED



TYPICAL SECTION
EXISTING



AGGREGATE DITCH (SPECIAL) DETAIL

LT. STA. 7+00 TO 9+75*
RT. STA. 10+10 TO 12+00
*VARIABLE WIDTH - SEE CROSS SECTION SHEETS FOR WIDTHS

GENERAL NOTES

THE CONTRACTOR SHALL CONTACT JULIE (1-800-892-0123) BEFORE COMMENCING WORK. UNDERGROUND UTILITIES SHOWN ON THE PLAN SHEETS WERE OBTAINED FROM LOCAL UTILITY COMPANIES AND OTHER AVAILABLE SOURCES. LOCATIONS, SIZE, MATERIAL, DESCRIPTION, OR TYPE OF EXISTING UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT, OR COMPLETE AND SHALL BE CONSIDERED APPROXIMATE. ABOVE GROUND UTILITY LOCATIONS ARE SHOWN AS FOUND DURING THE INITIAL SURVEY FIELD WORK AND MAY NOT REFLECT CURRENT CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND COORDINATION WITH UTILITY COMPANIES.

THE ESTIMATED QUANTITY SHOWN IN THE SUMMARY OF QUANTITIES FOR HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N70 INCLUDES 80 TONS FOR THE FIRST LIFT AND 220 TONS FOR THE FINAL COURSE LIFT (FOR INFORMATION ONLY). THE HOT-MIX ASPHALT SHALL END AT THE BACK OF EACH ABUTMENT--NO H.M.A. OVERLAY ON THE BRIDGE STRUCTURE.

THE FOLLOWING RATES HAVE BEEN USED TO CALCULATE PLAN QUANTITIES:

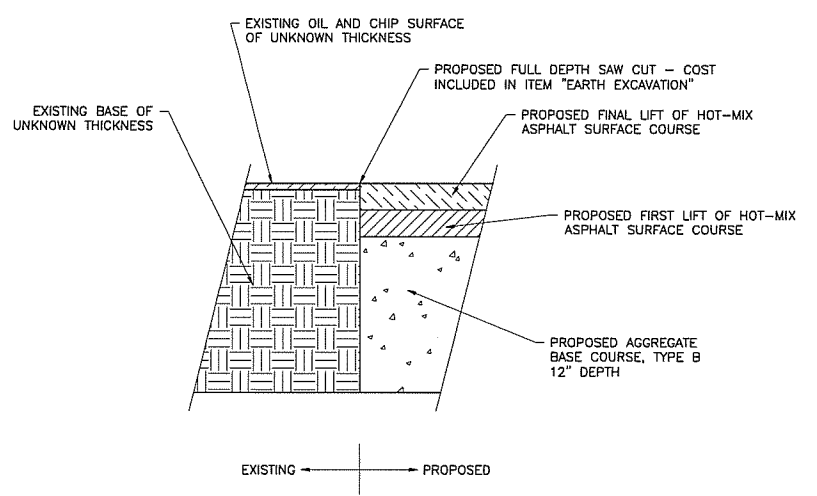
HOT-MIX ASPHALT	112 LBS/(SQ YD*INCH)
BITUMINOUS MATERIALS (PRIME COAT)	0.25 LB/SQ FT
BITUMINOUS MATERIALS (TACK COAT)-OVER HMA LIFTS	0.025 LB/SQ FT
BITUMINOUS MATERIALS (TACK COAT)-OVER O&C LIFTS	0.05 LB/SQ FT
AGGREGATE DITCH RIPRAP	2.0 TONS/CU YD
AGGREGATE BASE COURSE, TY-B	2.0 TONS/CU YD

PAVEMENT DESIGN DATA

ADT = 125 CLASS IV
MINOR COLLECTOR
PV = 88
SU = 9
MU = 3
MINOR COLLECTOR
PAVEMENT TYPE: HOT-MIX ASPHALT, 3" TOTAL NOMINAL THICKNESS
BASE TYPE: AGGREGATE BASE COURSE, TYPE B-12" THICK

HOT-MIX ASPHALT

SURFACE COURSE
APPLICATION: HOT-MIX ASPHALT SURFACE COURSE, MIXTURE "C" N70
PG GRADE: PG 70-22
DESIGN AIR VOIDS: 4.0% @ Ndesign 70
MIXTURE COMPOSITION: IL-9.5
FRICTION AGGREGATE: MIXTURE C



ROADWAY TRANSITION DETAILS

STA. 7+00
STA. 12+50

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
Δ LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	3
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.85
X2830495	AGGREGATE DITCH (SPECIAL)	TON	1030
Δ 20100500	TREE REMOVAL, ACRES	ACRE	0.55
20200100	EARTH EXCAVATION	CU YD	2170
20300100	CHANNEL EXCAVATION	CU YD	520
28100809	STONE DUMPED RIPRAP, CLASS A5	TON	570
35101400	AGGREGATE BASE COURSE, TYPE B	TON	970
40600275	BITUMINOUS MATERIALS (PRIME COAT)	POUND	2470
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	750
40604052	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "C", N70	TON	300
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	34.8
50300280	CONCRETE ENCASUREMENT	CU YD	3.5
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1568
50800105	REINFORCEMENT BARS	POUND	4460
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	116
51201600	FURNISHING STEEL PILES HP12X53	FOOT	198
51202305	DRIVING PILES	FOOT	198
51203600	TEST PILE STEEL HP12X53	EACH	1
51204650	PILE SHOES	EACH	9
51500100	NAME PLATES	EACH	1
58300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	60
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	1
67100100	MOBILIZATION	L. SUM	1
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

Δ SPECIALTY ITEMS

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS - LAND SURVEYORS
105 NORTH MITCHELL AVENUE
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 592-0738
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

DESIGNED - BMB	REVISED -
DRAWN - BMB	REVISED -
CHECKED - BMB	REVISED -
DATE - 10-2020	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

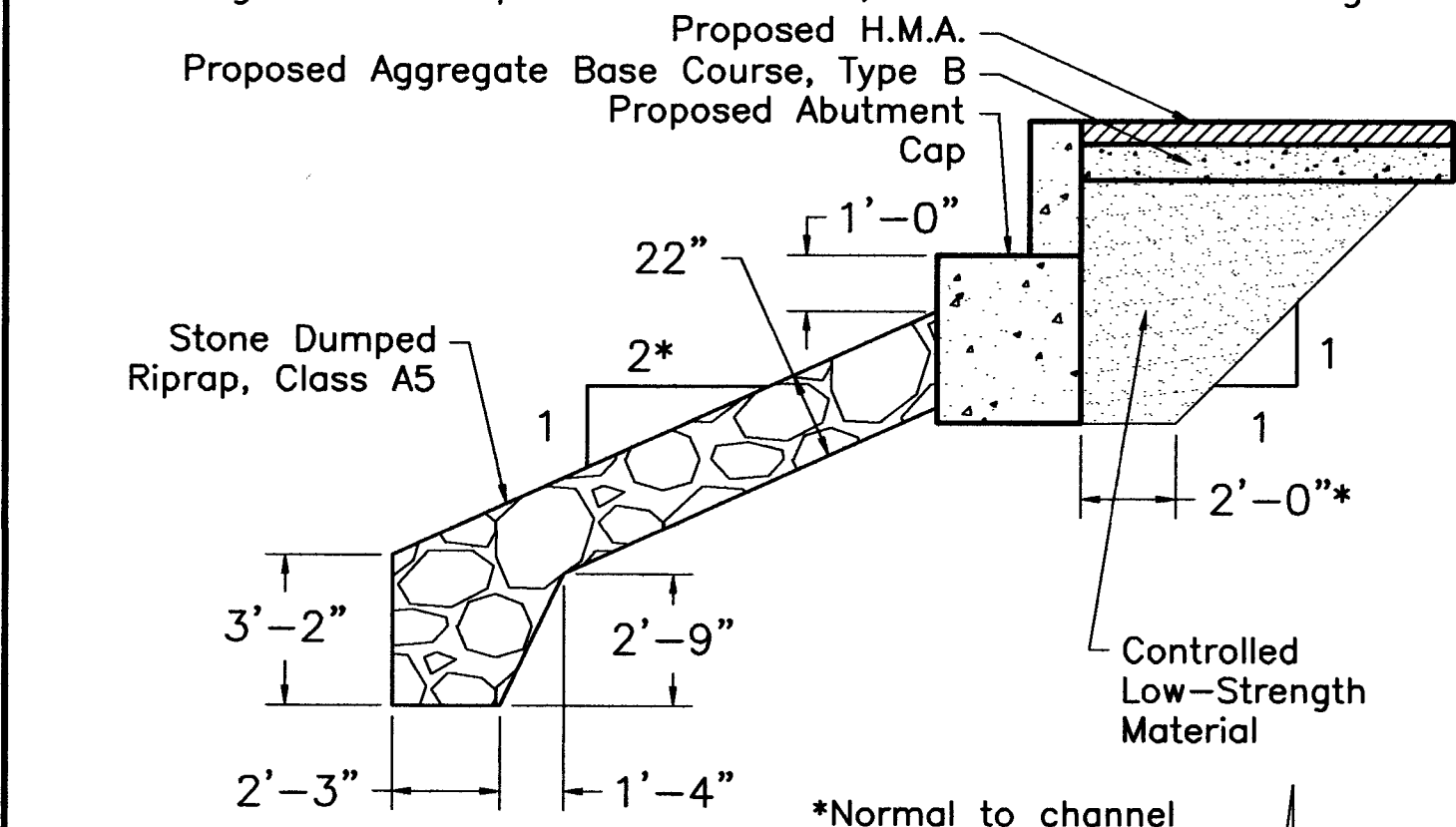
SUMMARY OF QUANTITIES

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH-11	19-00124-00-BR	LAWRENCE	15	2
CONTRACT 95894		ILLINOIS	PROJECT J0J7(421)	

B.M.—Rt. Sta. 8+34, 48.3' Rt. of Proposed \bar{C} Alignment, Nail in Power Pole, Elev. 451.20.

Existing Structure — Existing structure No. 051-5018 consists of a two-barrel cast-in-place concrete box culvert with wingwalls. The barrel length along the stream is 33.3' long and the opening from inside of West side of West barrel to inside of East side of East barrel is 21.7' along the roadway. The existing structure shall be completely removed and disposed off the jobsite. Road closure shall be used during construction.

No Salvage — See Special Provisions; "Removal of Existing Structures."

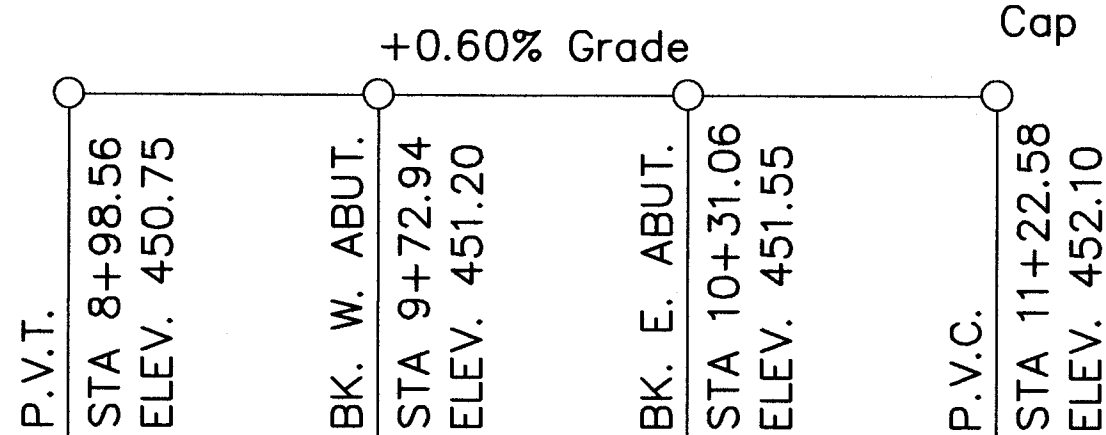


SECTION B-B

Note: See Special Provisions for Stone Dumped Riprap, Class A5

Not To Scale

T.C.E. = Top of Cap Elevation



PROFILE GRADE
(along \bar{C} roadway)

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $F_y = 60,000$ psi (reinforcement)

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $F'_s = 270,000$ psi ($\frac{1}{2}$ " low relax. strands)
 $F_{si} = 201,960$ psi ($\frac{1}{2}$ " low relax. strands)

DESIGN SPECIFICATIONS

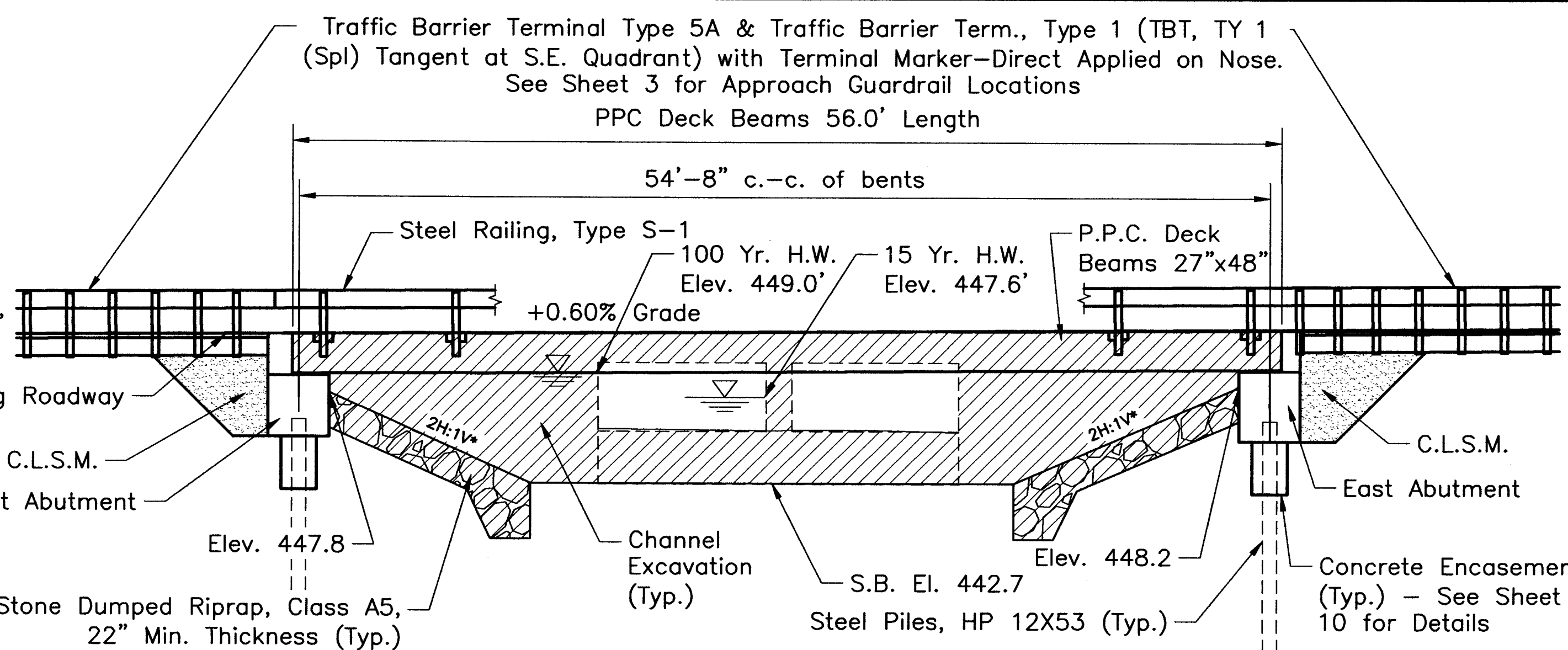
AASHTO LRFD Bridge Design Specifications — 9th edition

SEISMIC DATA

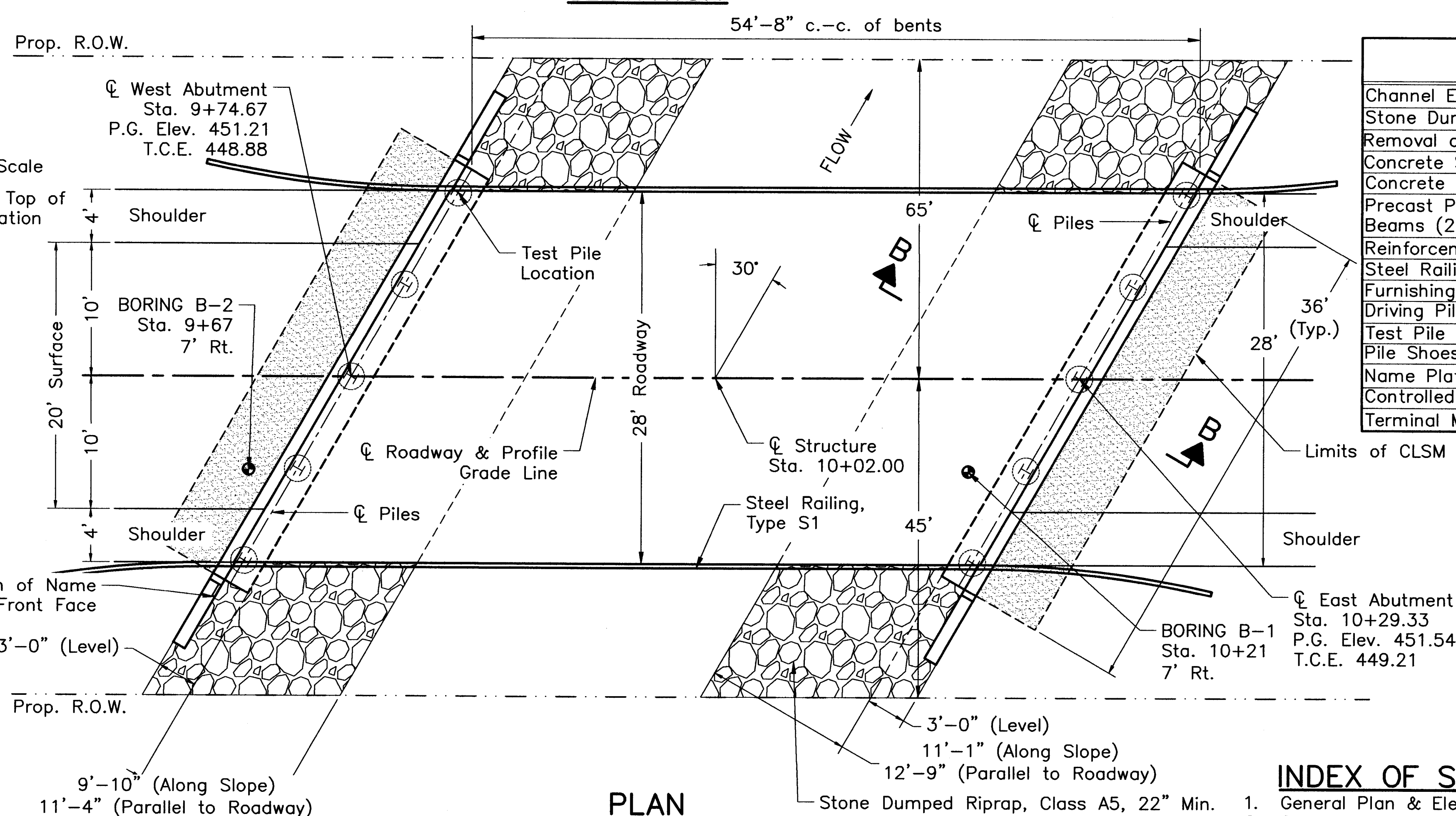
Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.191g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.414g
Soil Site Class = C

PILE DATA (2-ABUTS.)

Type: HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 228 kips
Estimated Pile Length: 22 Feet — East & West Abutments
Number of Production Piles: 4 — West Abutment, 5 — East Abutment
Number of Test Piles: 1 — West Abutment



ELEVATION



PLAN

Skew Angle = 30° Forward Left

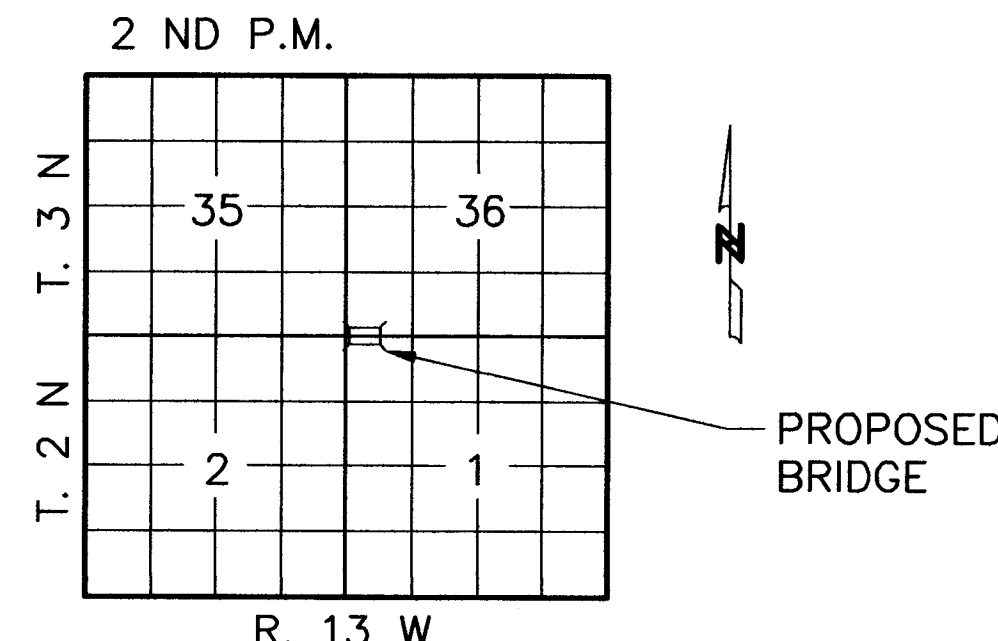
LOADING HL-93

70#/sq. ft. included in dead load for future wearing surface.

STATION 10+02.00
TRIBUTARY TO RACCOON CREEK
SEC. 19-00124-00-BR BUILT 202-
LAWRENCE COUNTY
PROJECT JOJ7(421)
LOADING HL-93
STR. NO. 051-3311

LETTERING FOR NAME PLATE

Locate Name Plate at SW Corner of Bridge (See Std. 515001)



LOCATION SKETCH

GENERAL NOTES

- Do not scale sheets 4-11.
- The Contractor shall drive the test pile to 110% of the nominal required bearing specified in production locations at the West Abutment or as approved by the Engineer before ordering the remainder of piles. The test pile shall be equipped with a steel pile shoe, and the cost of the pile shoe shall be included in item Test Pile Steel HP 12 X 53.
- See Sheet 11 for boring logs.
- Excavation required to construct the Abutments shall be included in the cost of Earth Excavation. No additional compensation will be allowed for Structure Excavation.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- Toe stone riprap treatment as shown in Section B-B shall extend entire channel length from proposed R.O.W. north to proposed R.O.W. south.
- All proposed construction activities shall be in accordance with Nationwide Permit Number 13 and 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity.
- The existing structure was investigated for presence of asbestos during the preliminary design phase and was found to NOT contain asbestos. Documentation confirming this finding was provided to the Illinois Department of Transportation at that time to clear this project for approval.

TOTAL BILL OF MATERIAL

Item	Unit	Sub.		Total
		Super	Piers	
Channel Excavation	Cu. Yd.	—	—	520
Stone Dumped Riprap, Class A5	Tons	—	—	570
Removal of Existing Structures	Each	—	—	1
Concrete Structures	Cu. Yd.	—	—	34.8
Concrete Encasement	Cu. Yd.	—	—	3.5
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1568	—	1568
Reinforcement Bars	Pound	—	—	4460
Steel Railing, Type S1	Foot	116	—	116
Furnishing Steel Piles HP 12 X 53	Foot	—	—	198
Driving Piles	Foot	—	—	198
Test Pile Steel HP 12 X 53	Each	—	—	1
Pile Shoes	Each	—	—	9
Name Plates	Each	—	—	1
Controlled Low-Strength Material	Cu. Yd.	—	—	60
Terminal Marker — Direct Applied	Each	4	—	4

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.



INDEX OF SHEETS

- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing, Type S1
- Steel Railing, Type S1 Details
- Abutment Details
- Pile Details
- Boring Logs

WATERWAY INFORMATION

Drainage Area=1.2 Sq.Mi. Low Grade Elev = 450.39 Sta. 7+00.00

Flood	Freq. Yr.	Q. C.F.S.	Opening Exist. Prop.	Sq. Ft.	Nat. H.W.E.	Head - Ft. Exist. Prop.	Headwater El.
Design	15	790	62.4	180.9	447.6	3.1 0.0	450.7 447.6
Base	100	1310	62.4	246.1	449.0	2.7 0.0	451.7 449.0

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS - LAND SURVEYORS
105 NORTH KITCHELL AVENUE
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #164003513

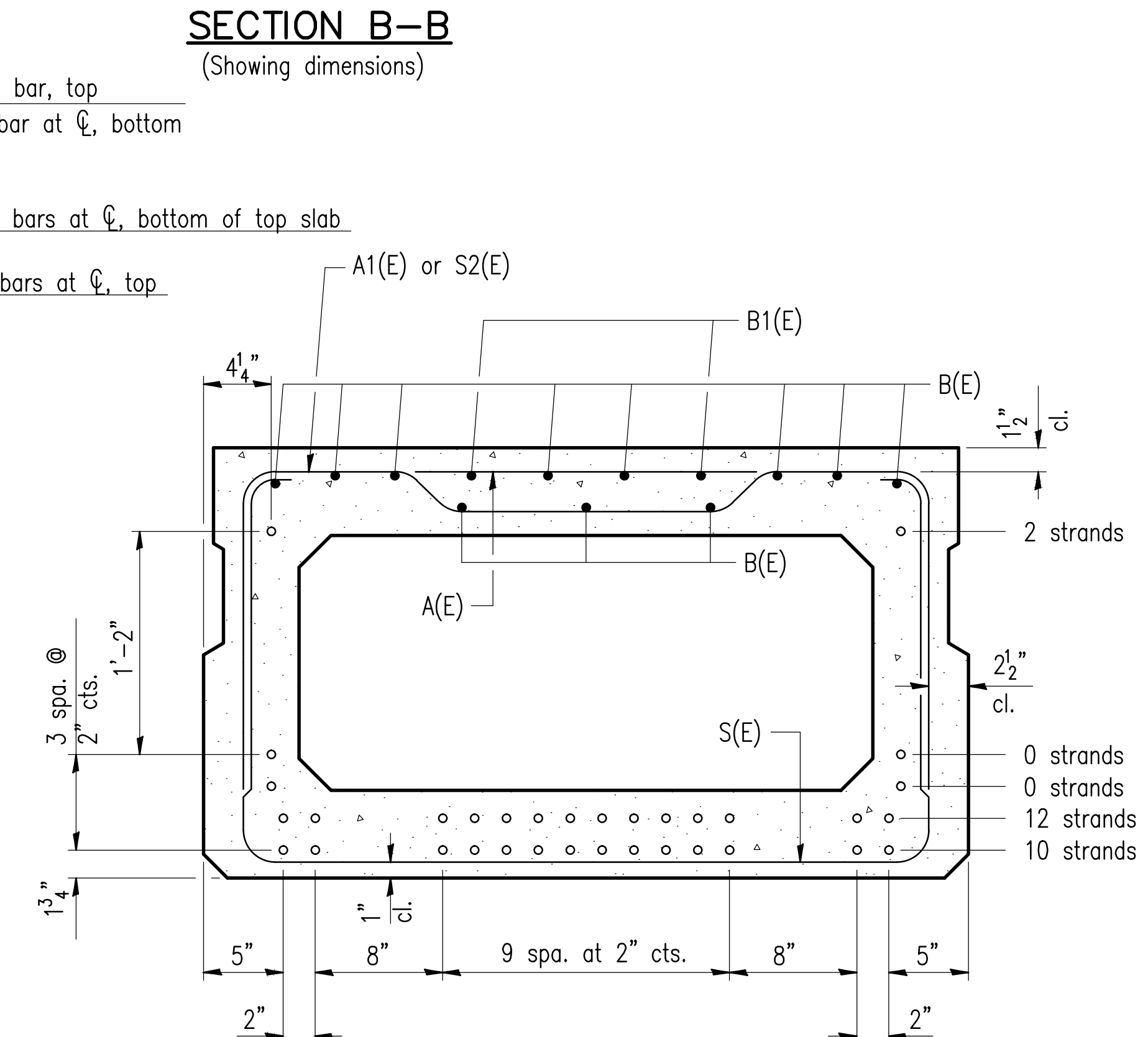
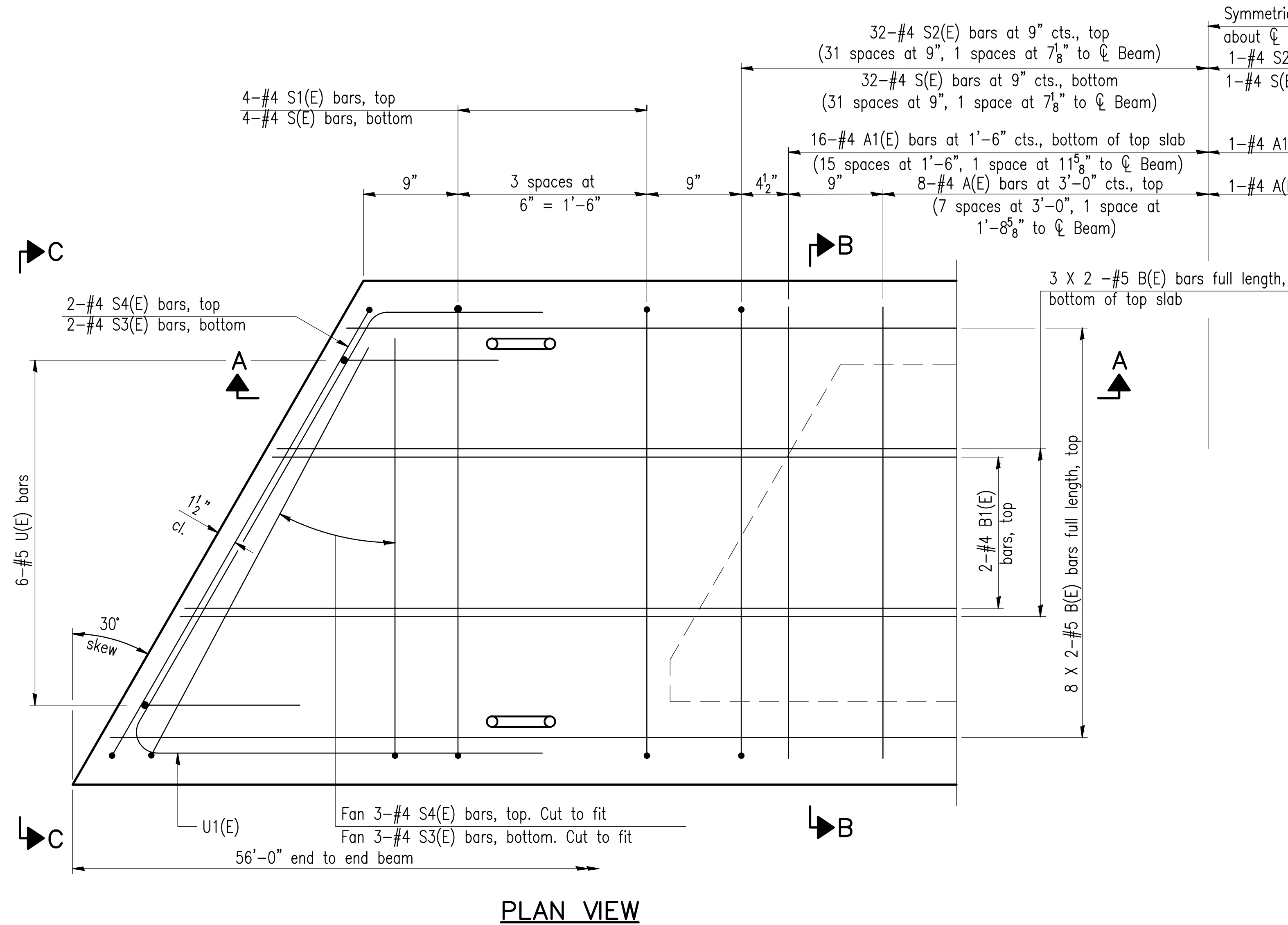
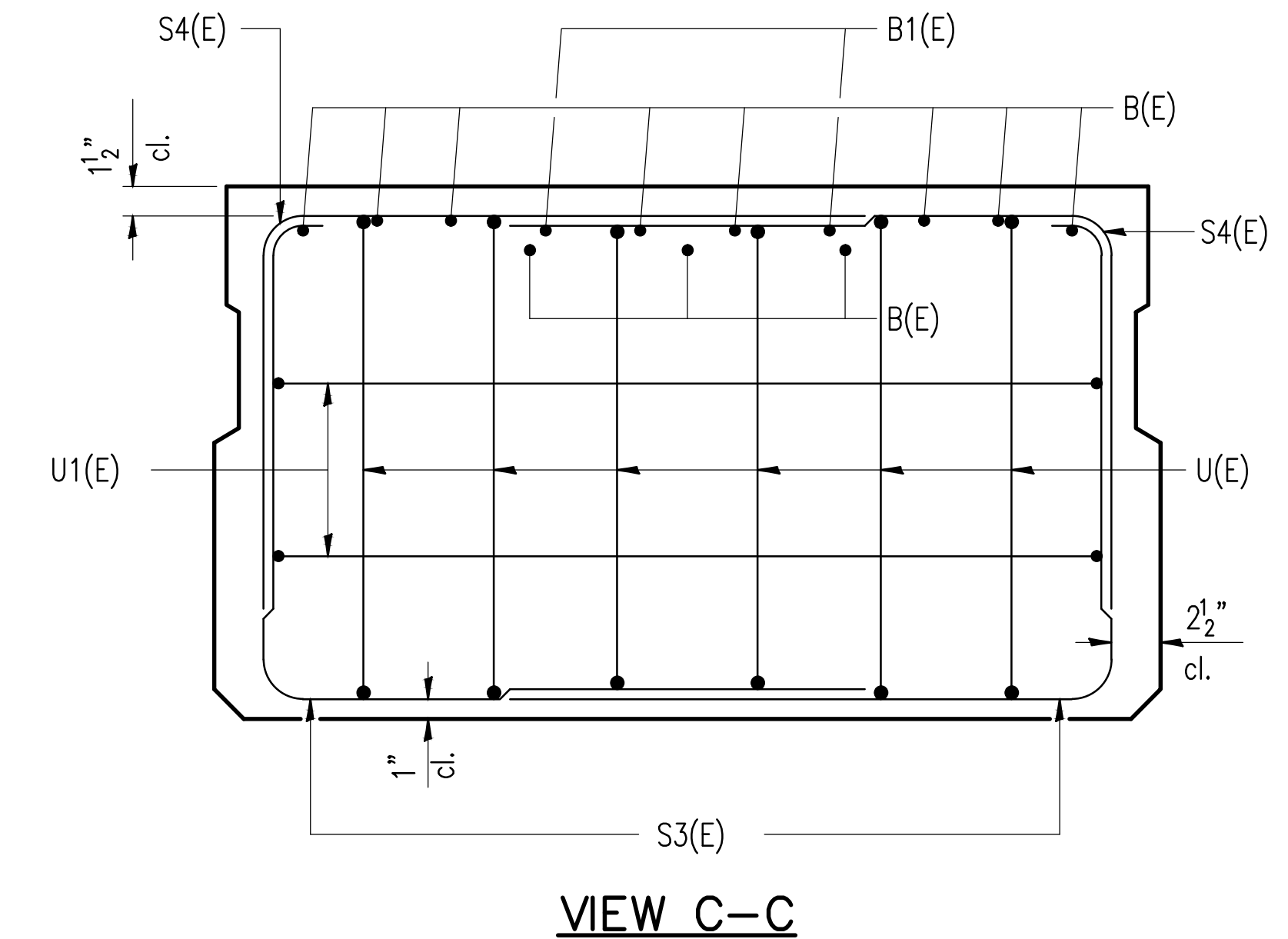
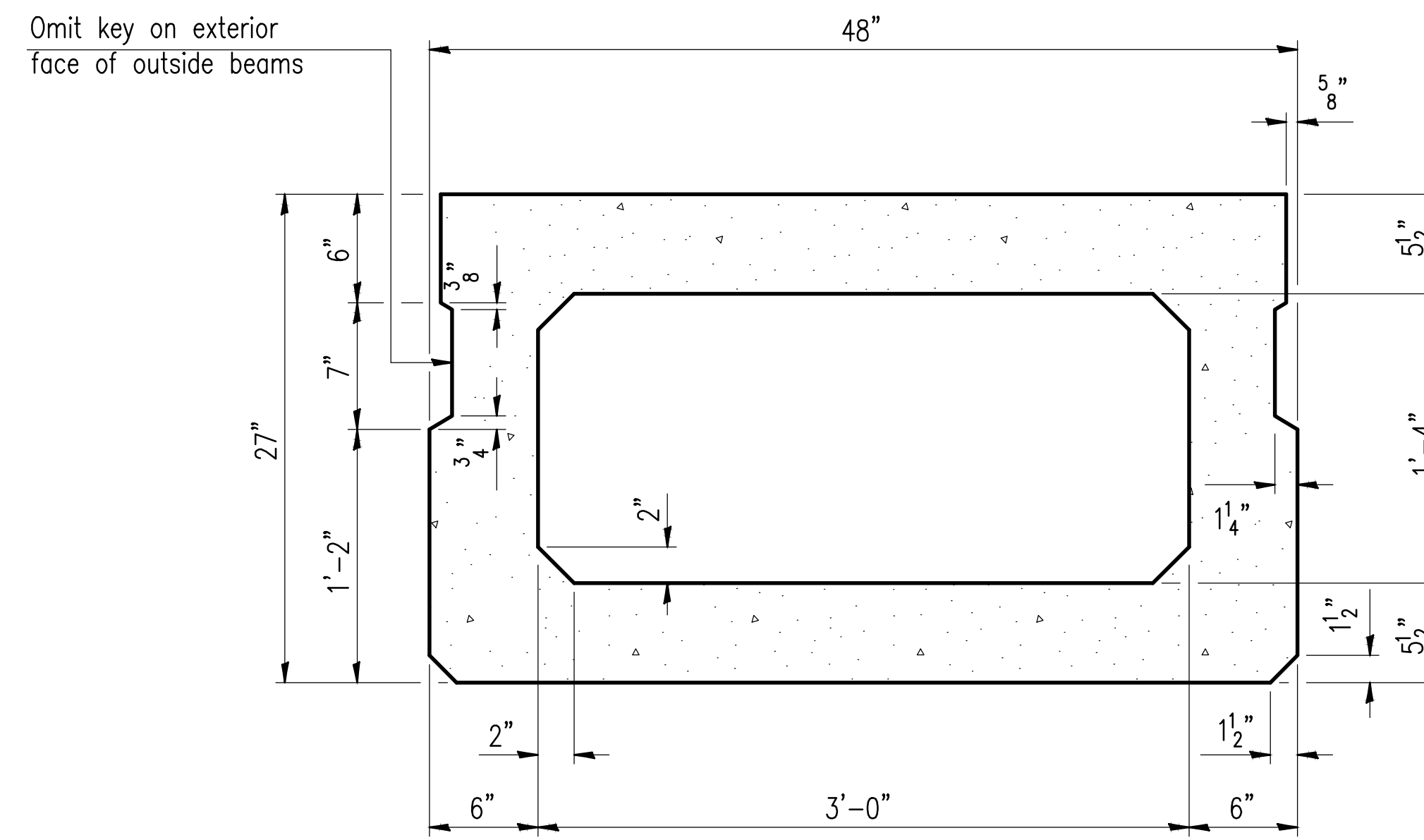
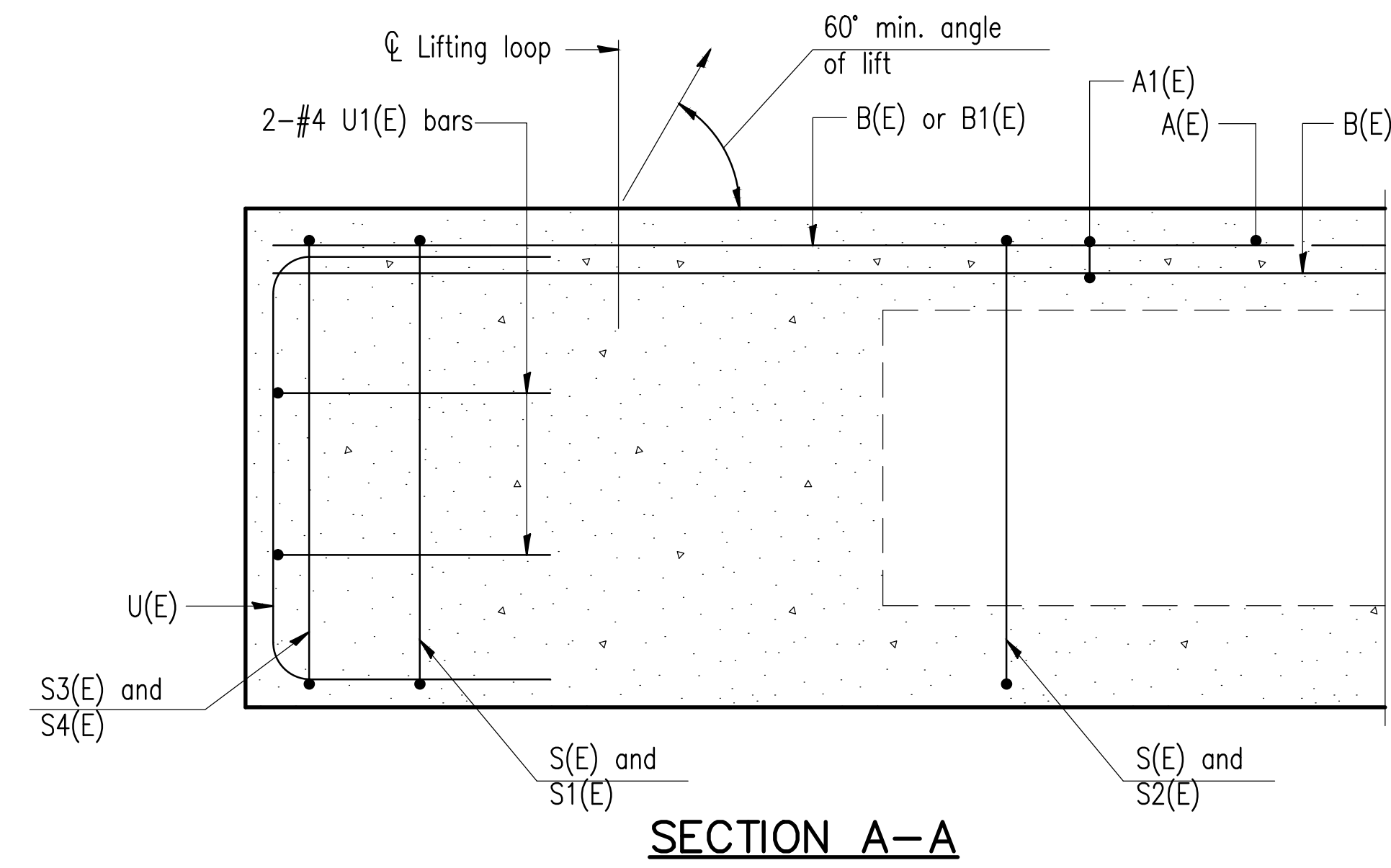
DESIGNED — NRF/BMB
DRAWN — BMB
CHECKED — NRF
DATE — 10-2020

REVISED —
REVISED —
REVISED —
REVISED —

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NUMBER 051-3311

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	19-00124-00-BR	LAWRENCE	15	4
CONTRACT 95894		ILLINOIS	PROJECT JOJ7(421)	



SECTION B-B
(Showing reinforcement and permissible strand locations)
Notes: 24 total strands

Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

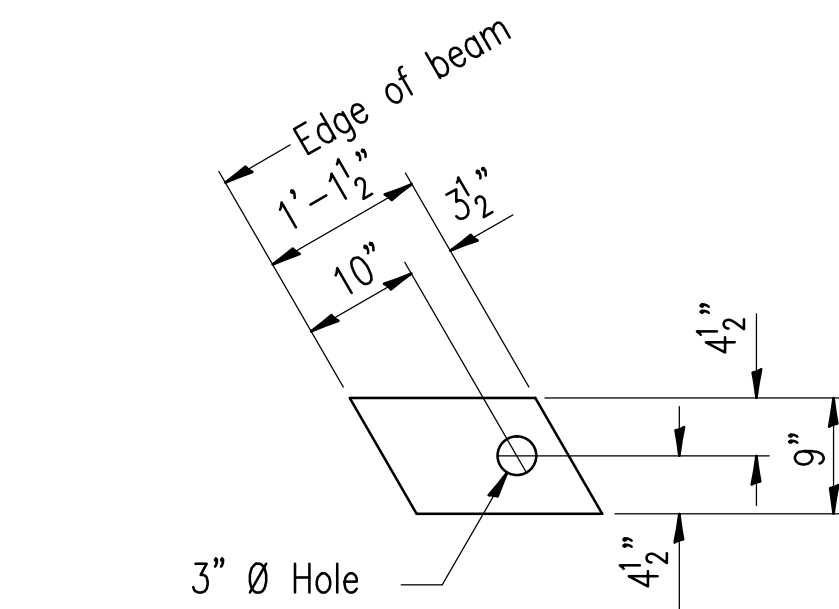
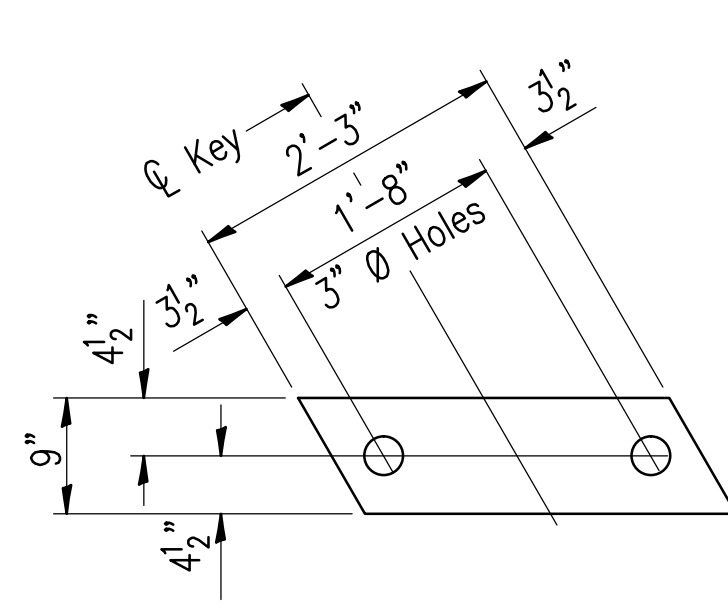
BAR LIST ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	17	#4	3'-7"	—
A1(E)	33	#4	3'-10"	—
B(E)	22	#5	29'-2"	—
B1(E)	4	#4	10'-0"	—
S(E)	73	#4	8'-5"	⌈
S1(E)	8	#4	6'-11"	⌈
S2(E)	65	#4	7'-2"	⌈
S3(E)	10	#4	6'-7"	⌈
S4(E)	10	#4	5'-10"	⌈
U(E)	12	#5	4'-6"	⌈
U1(E)	4	#4	8'-7"	⌈

Note: See sheet 6 of 15 for additional details and Bill of Material.

MINIMUM BAR LAP
#5 bar = 2'-6"

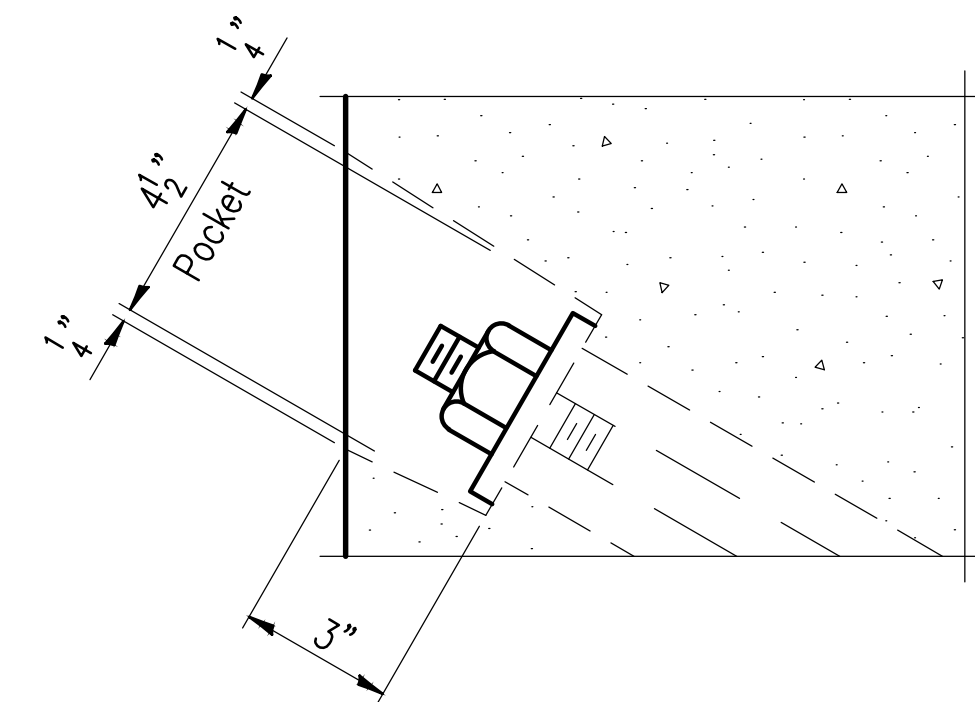
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



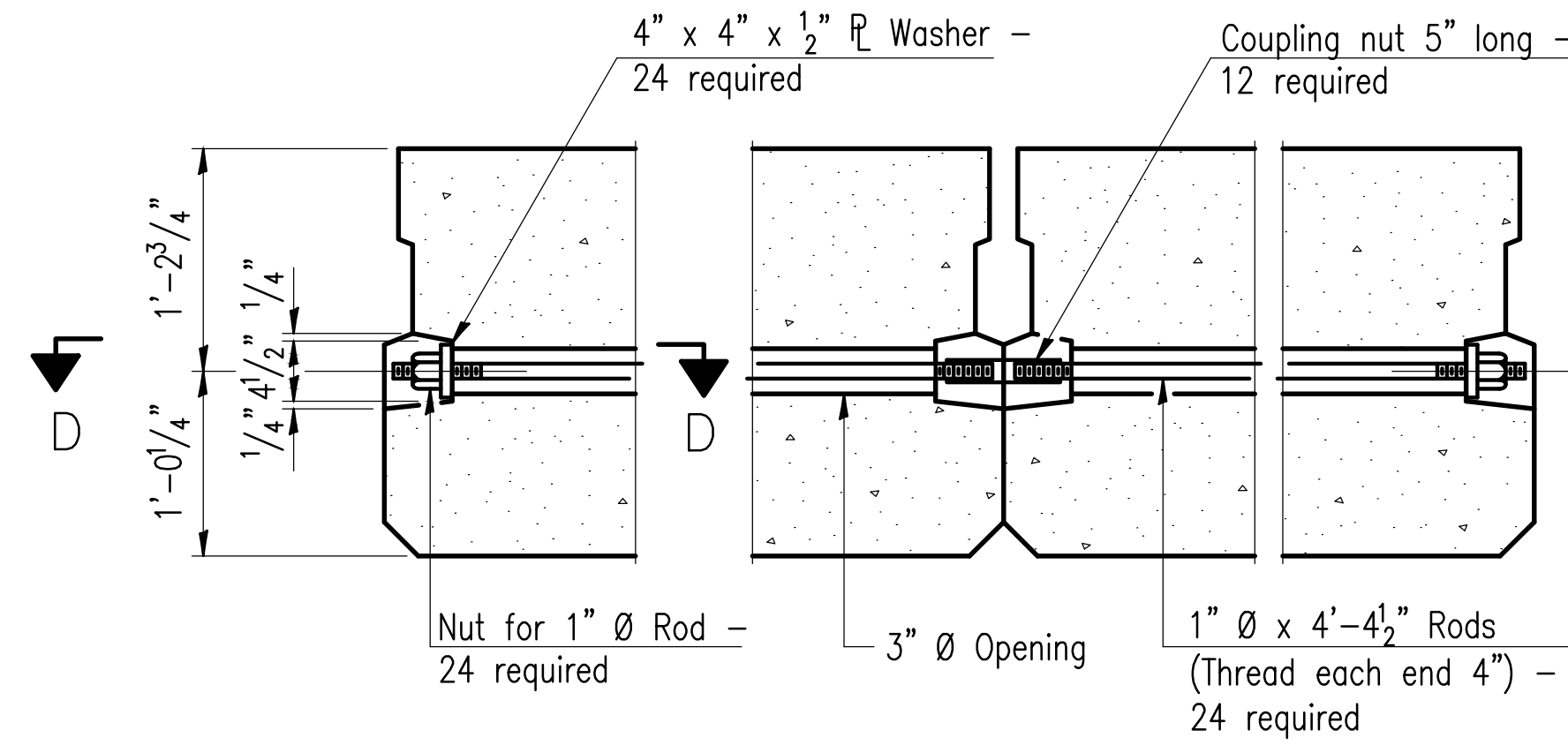
FABRIC BEARING PAD
(Interior)
12 Required

FABRIC BEARING PAD
(Exterior)
4 Required

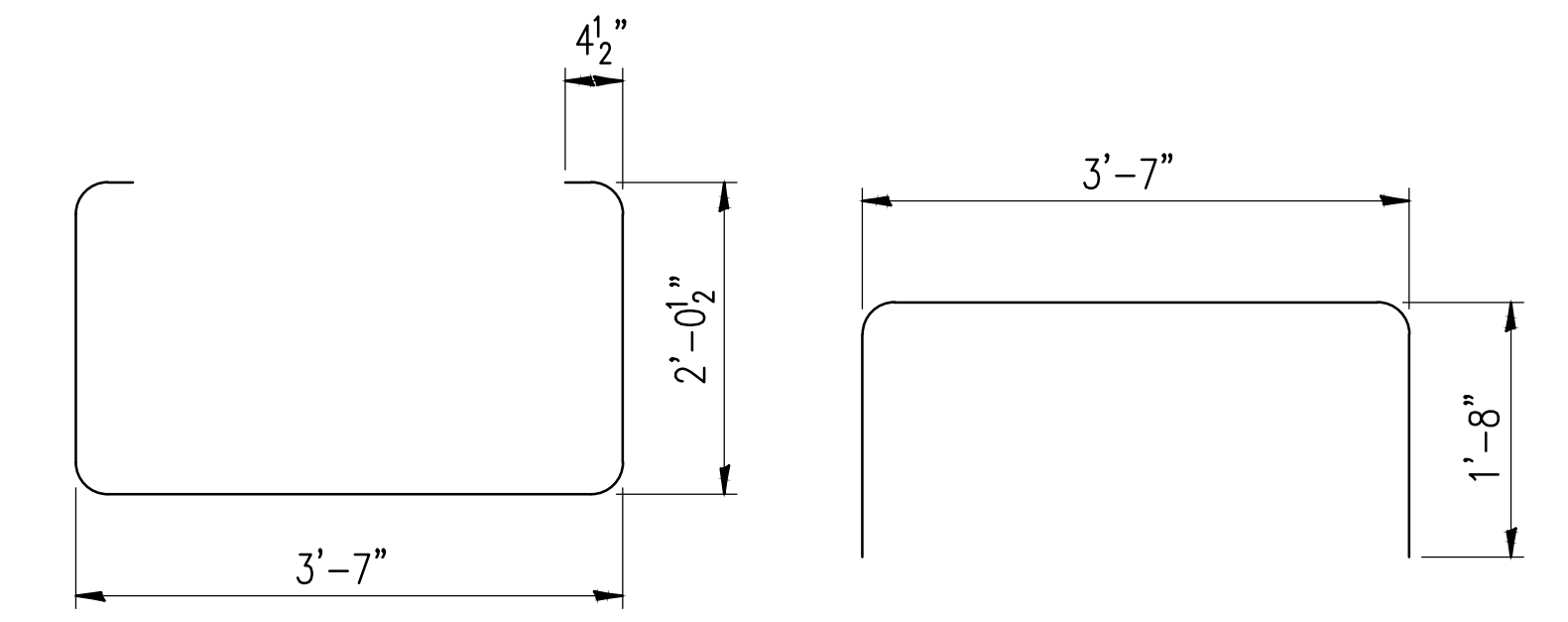
Notes:
All bearing pads shall be 1" thick.



SECTION D-D

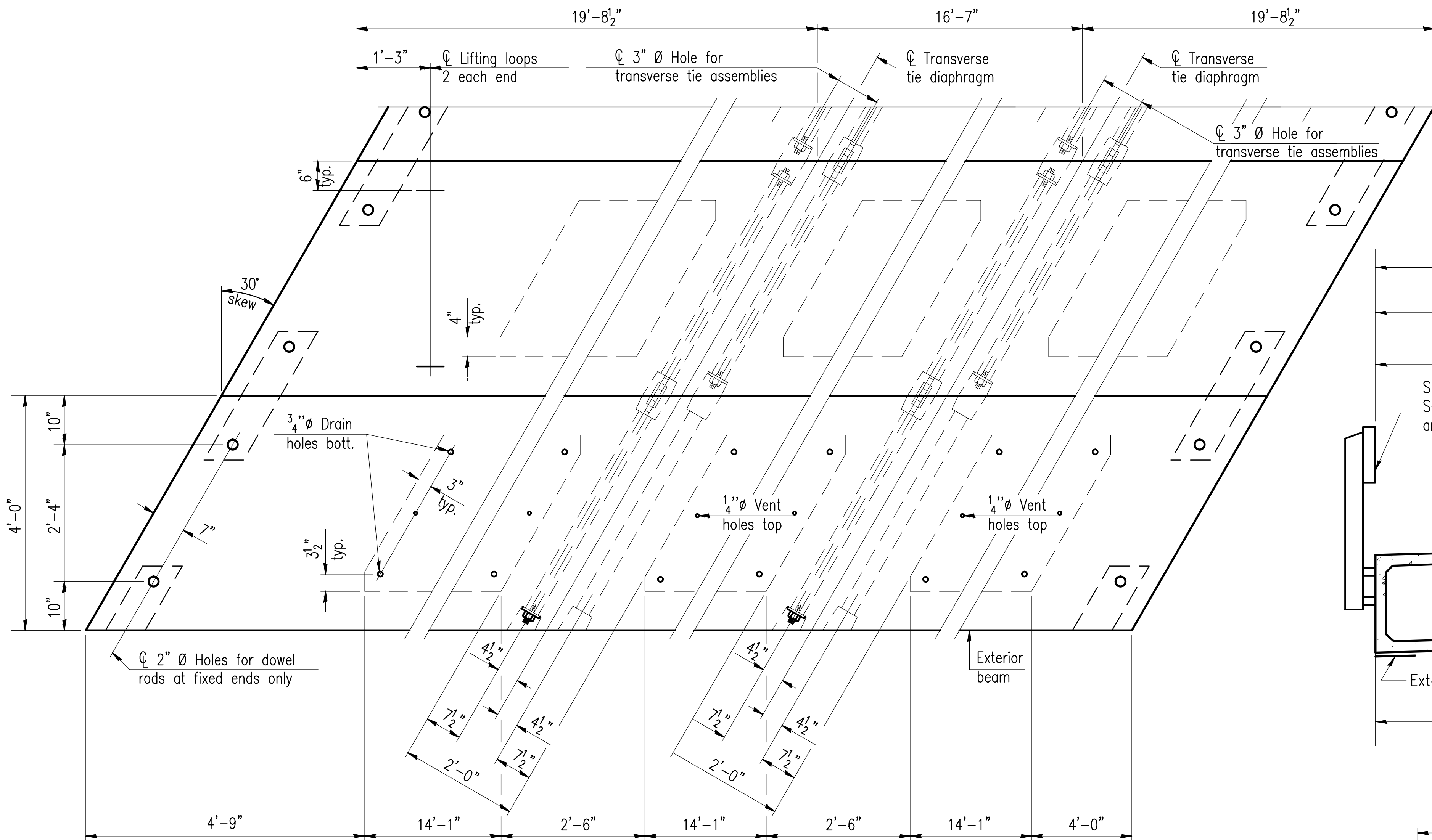


TYPICAL TRANSVERSE TIE ASSEMBLY



BAR S(E)

BAR S1(E)

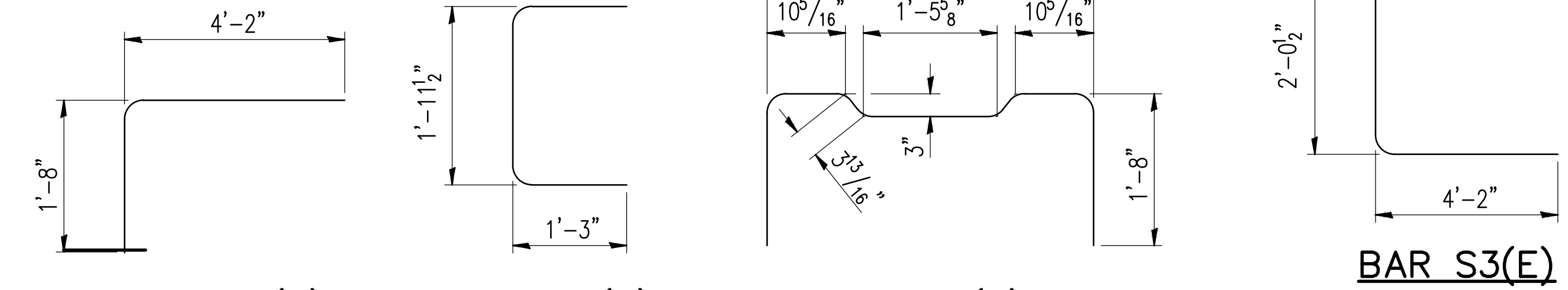


PLAN VIEW

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to ASTM A 706, Grade 60. See Standard Specifications. Two 3/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(10) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f'c, shall be 6000 psi. Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

Note:
Connect beams in pairs with the transverse tie configuration shown.

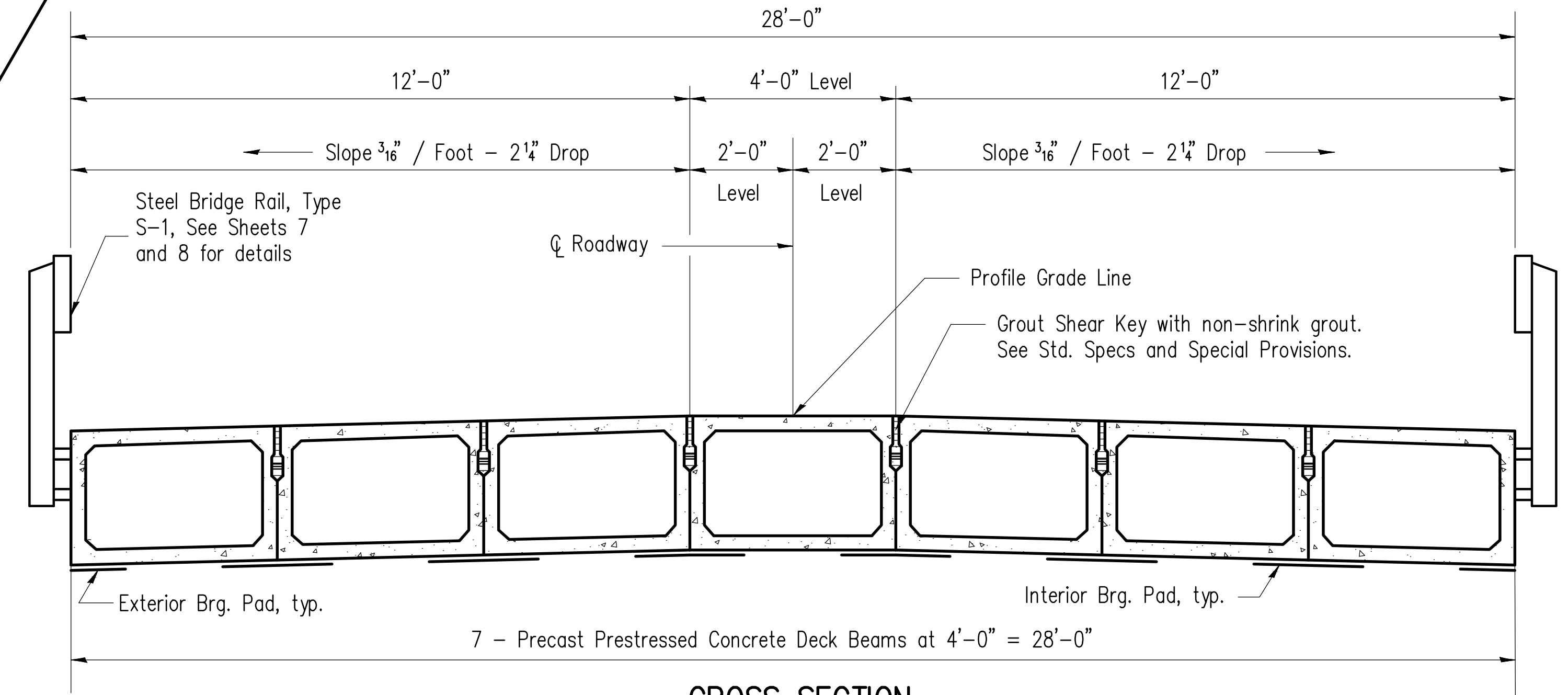


BAR S4(E)

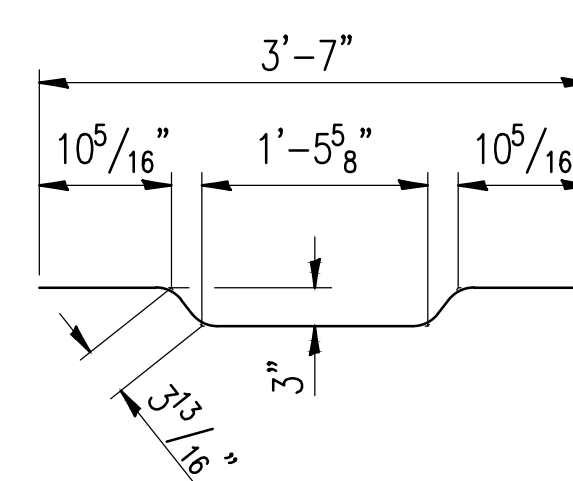
BAR U(E)

BAR S2(E)

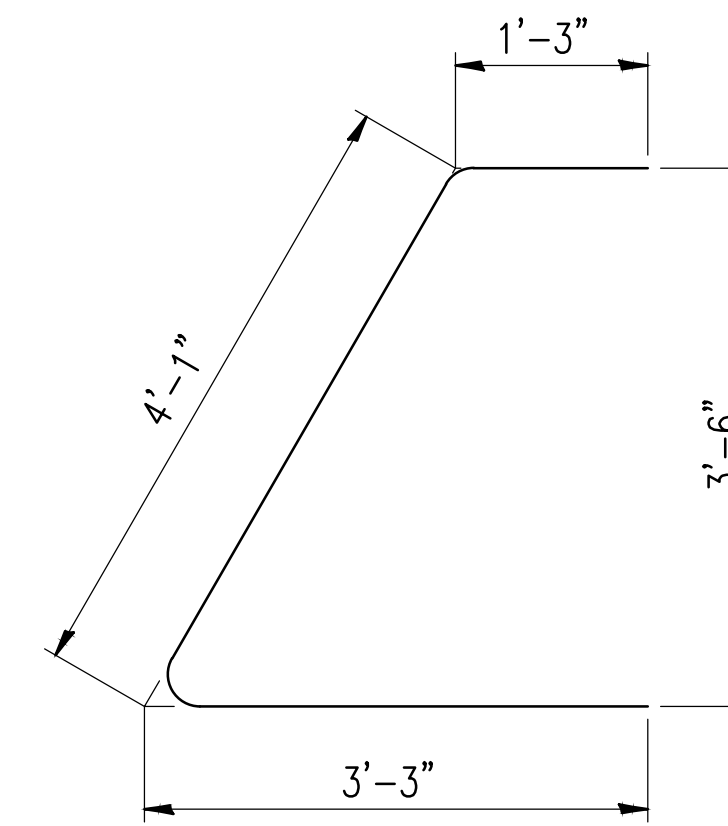
BAR S3(E)



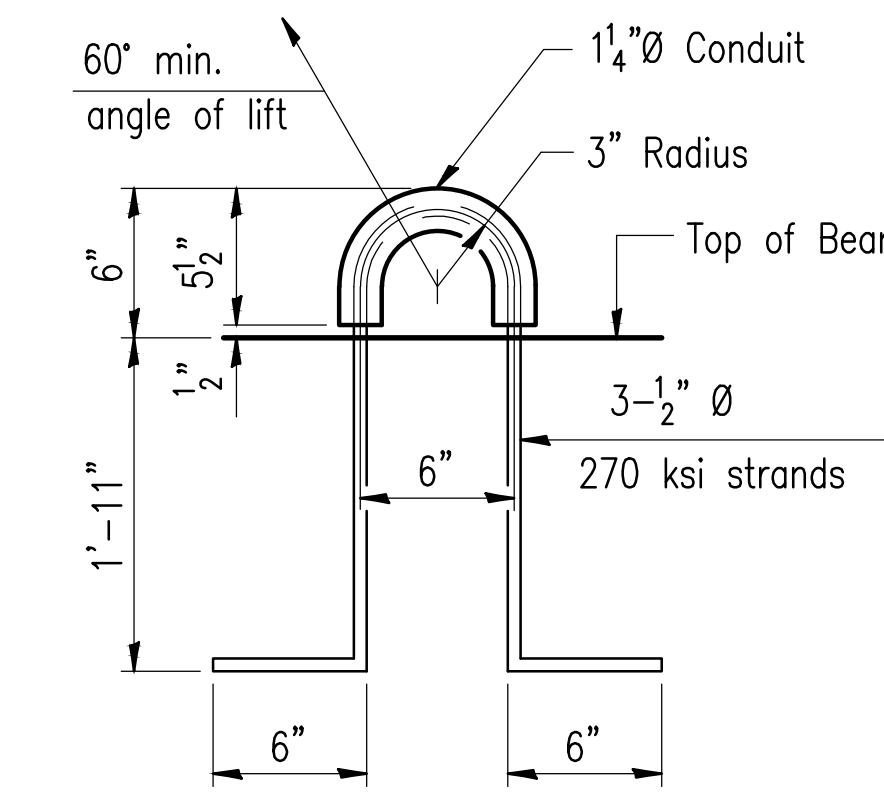
CROSS SECTION



BAR A1(E)



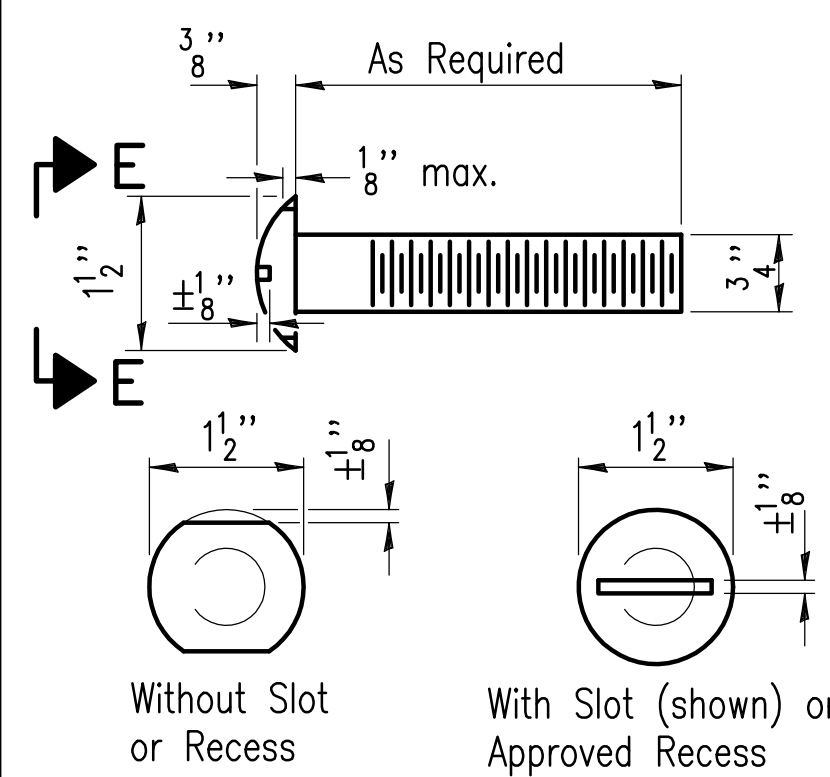
BAR U1(E)



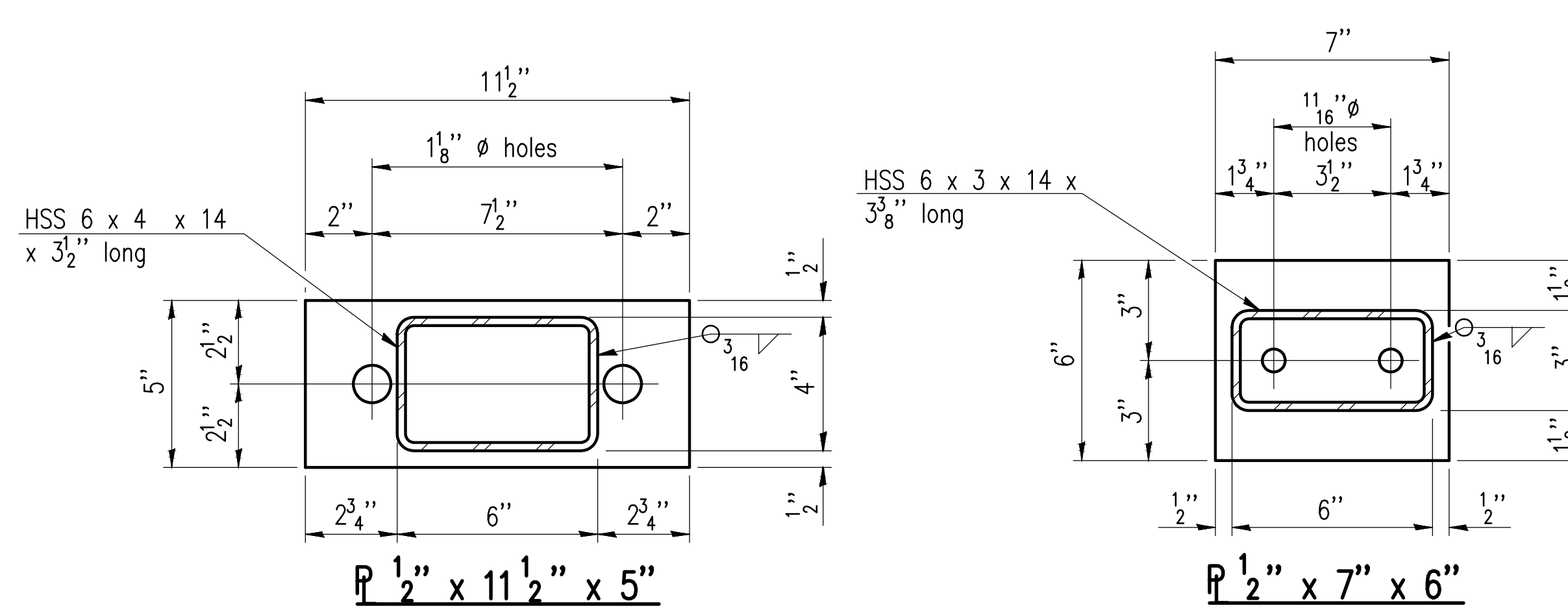
LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1568
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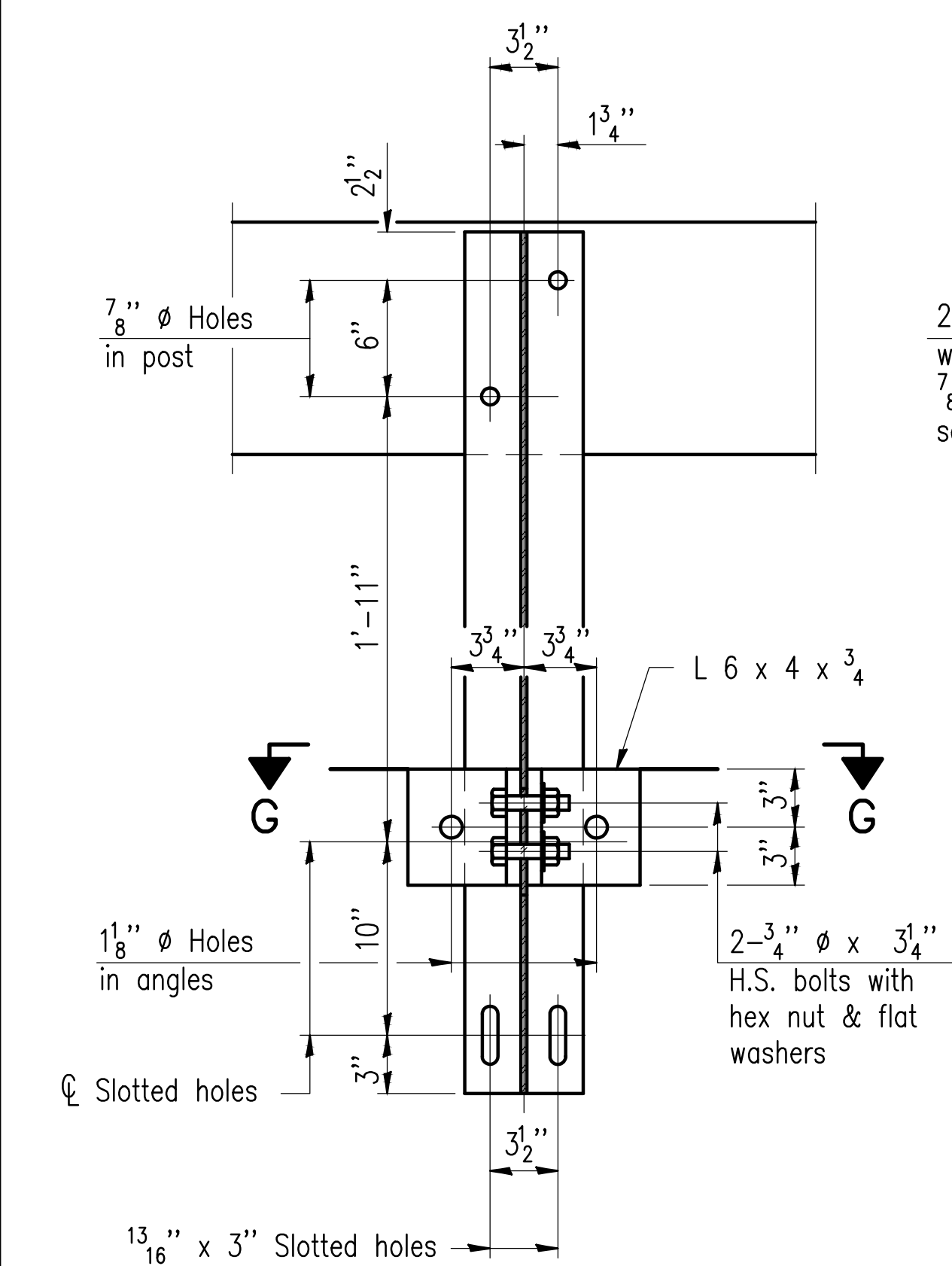


**VIEW E-E
ROUND HEAD BOLT**

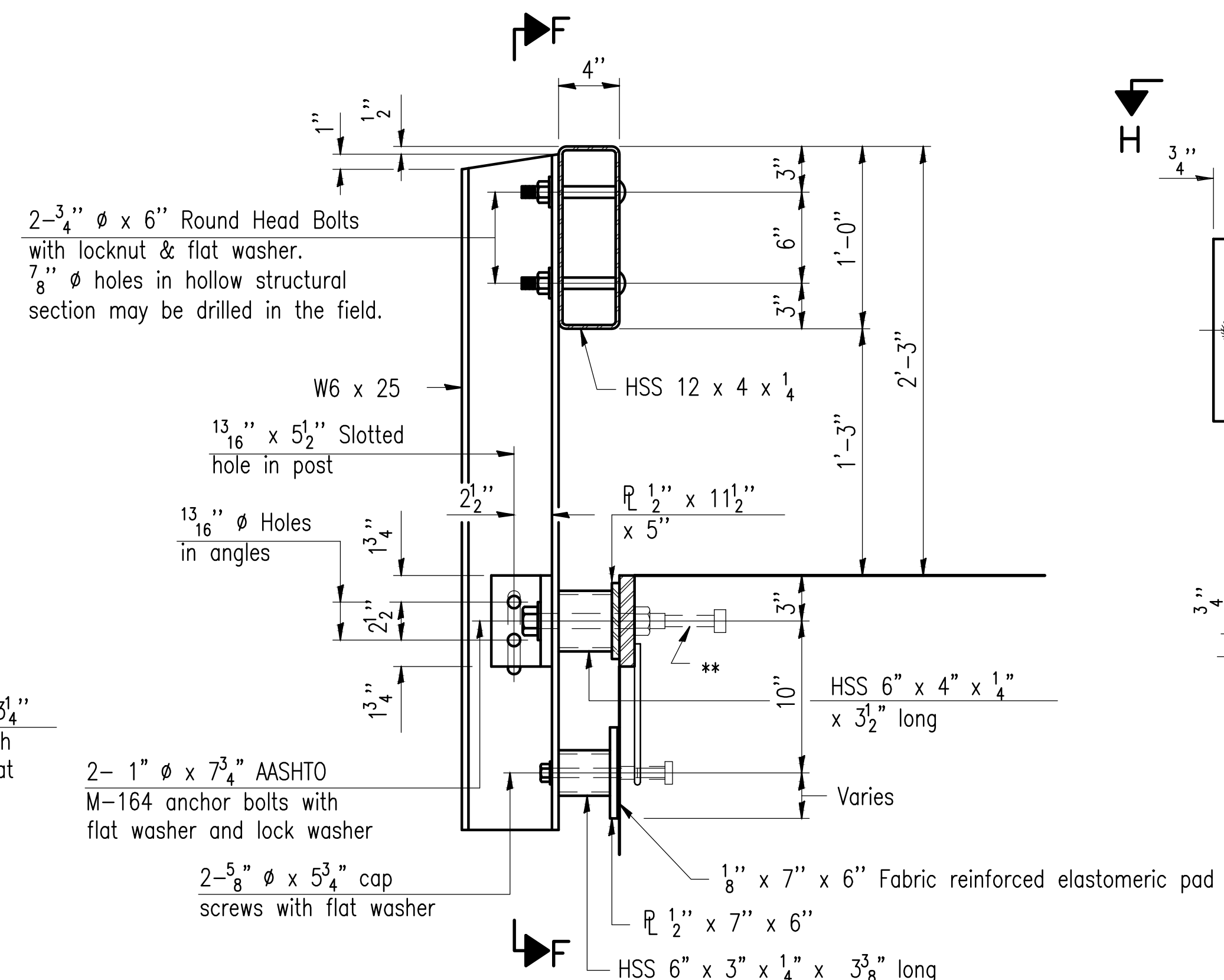


P 1/2" x 11 1/2" x 5"

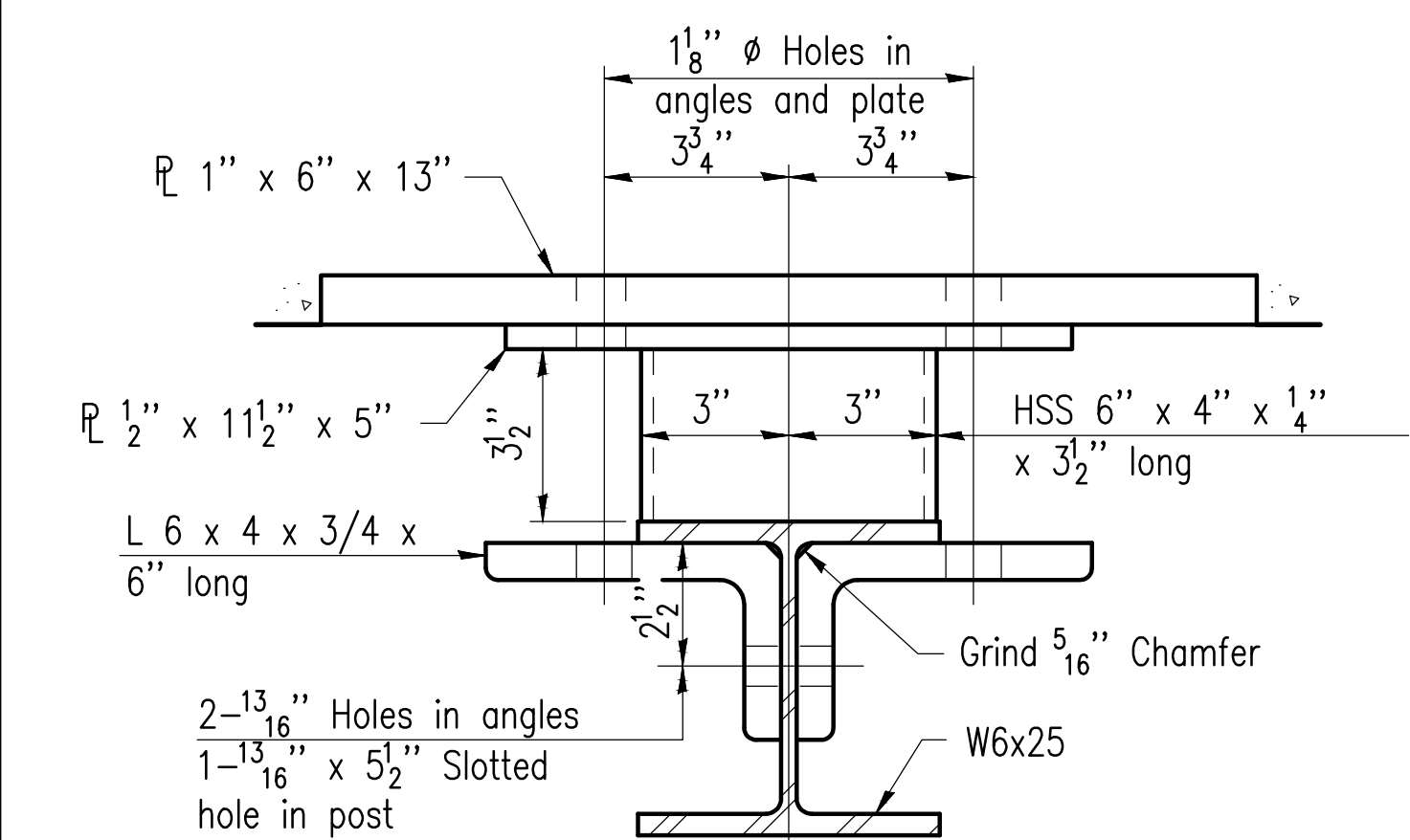
P 1/2" x 7" x 6"



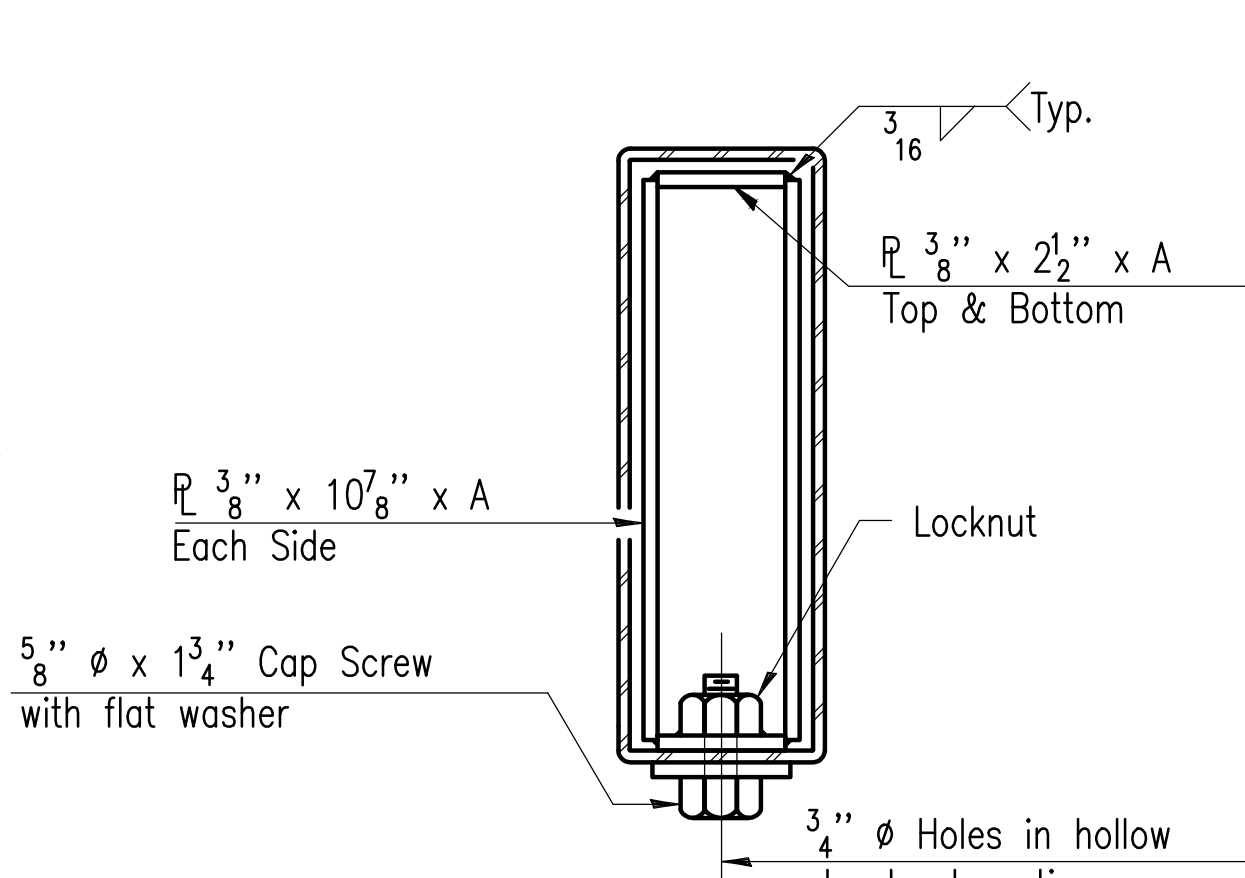
SECTION F-F



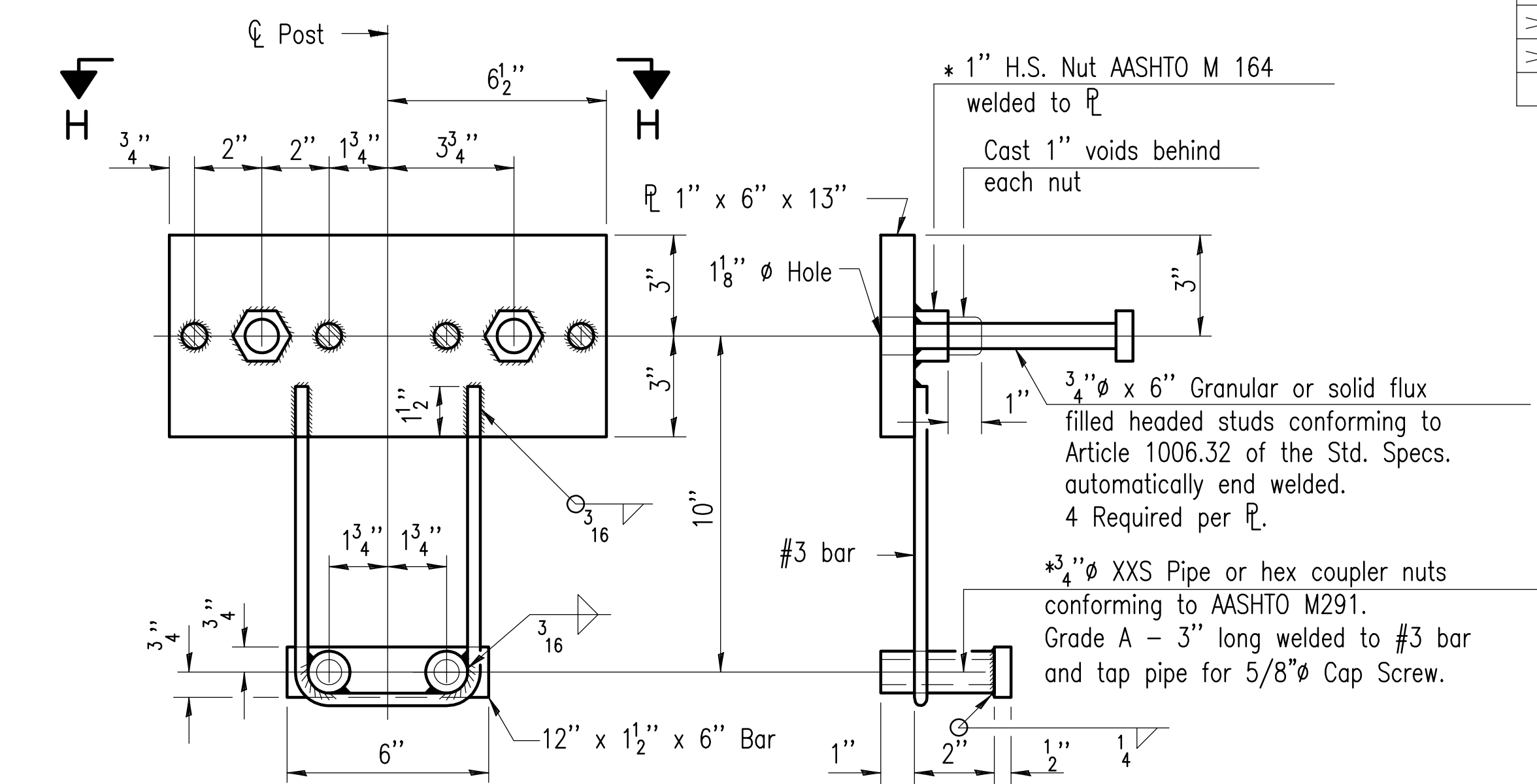
SECTION AT RAILING POST



SECTION G-G

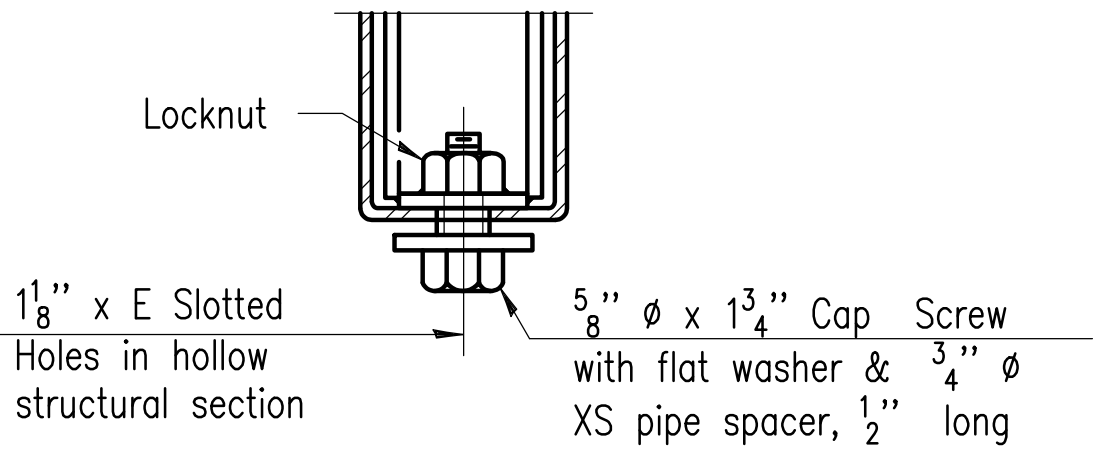


SECTIONS AT RAIL SPLICE

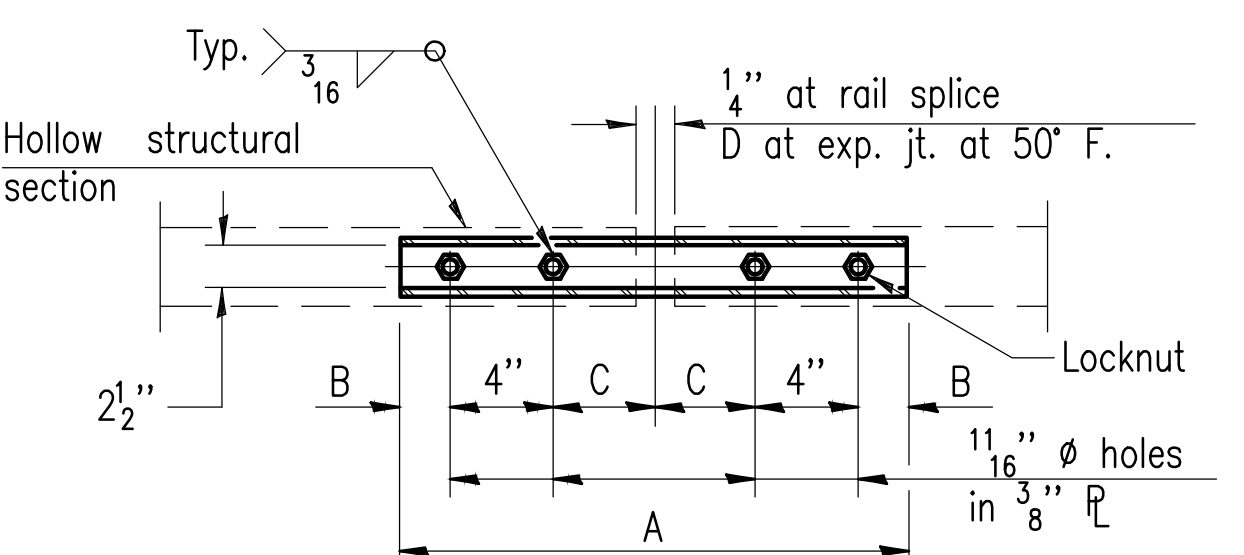


ANCHOR DEVICE

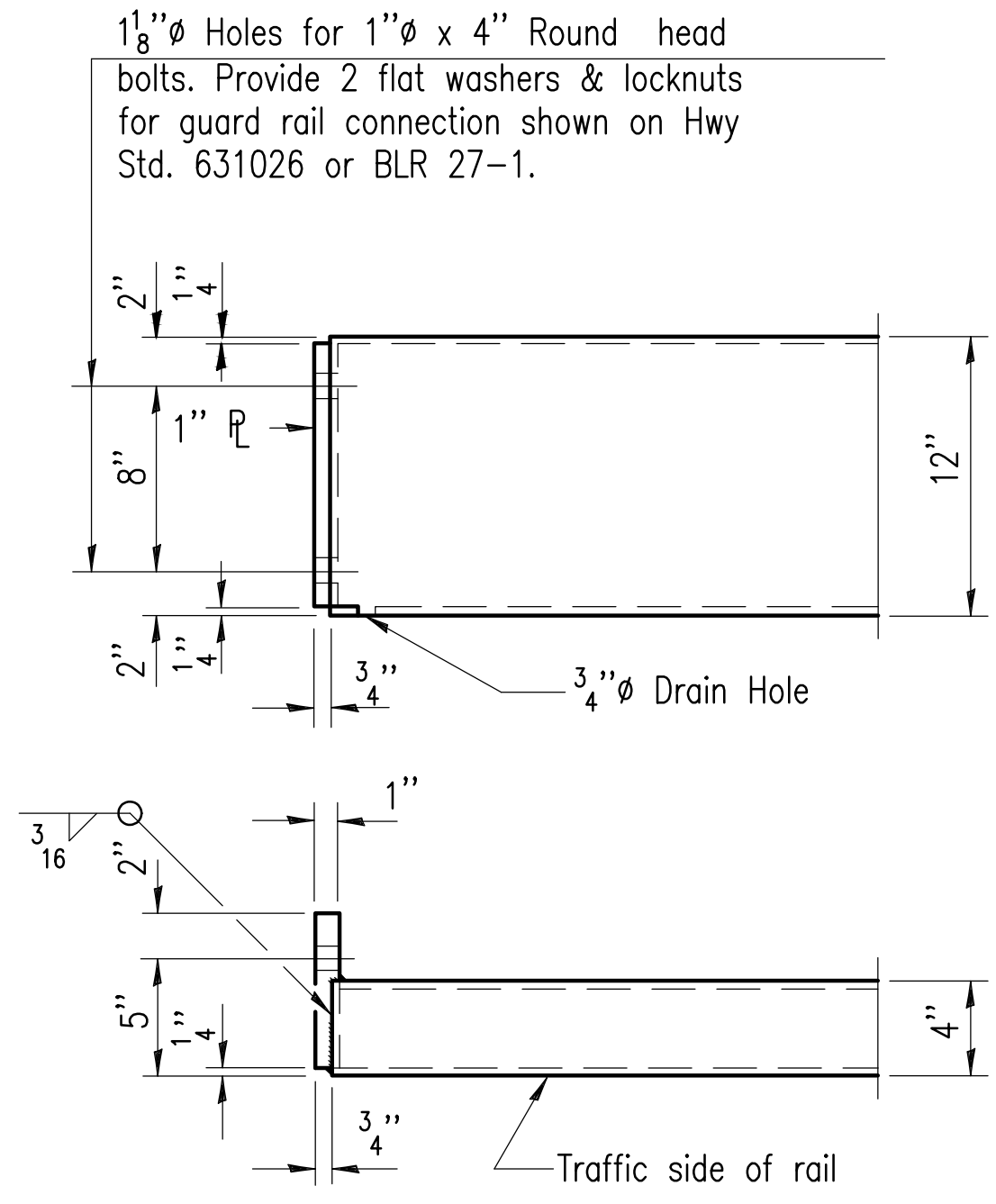
*Threaded areas shall be plugged or blocked off during casting of beam.



**RAIL SPLICE CONNECTION
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE P
TYPICAL**



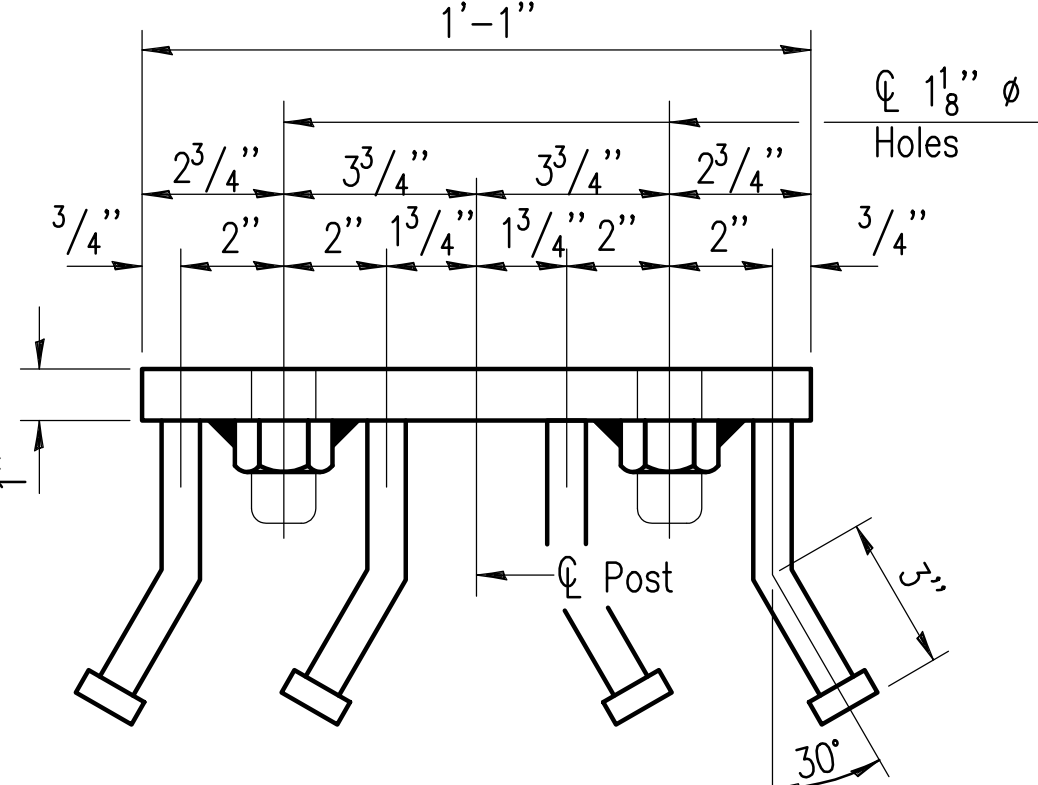
END OF RAIL DETAILS

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 1/4"	1'-8"	2"	4"	

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

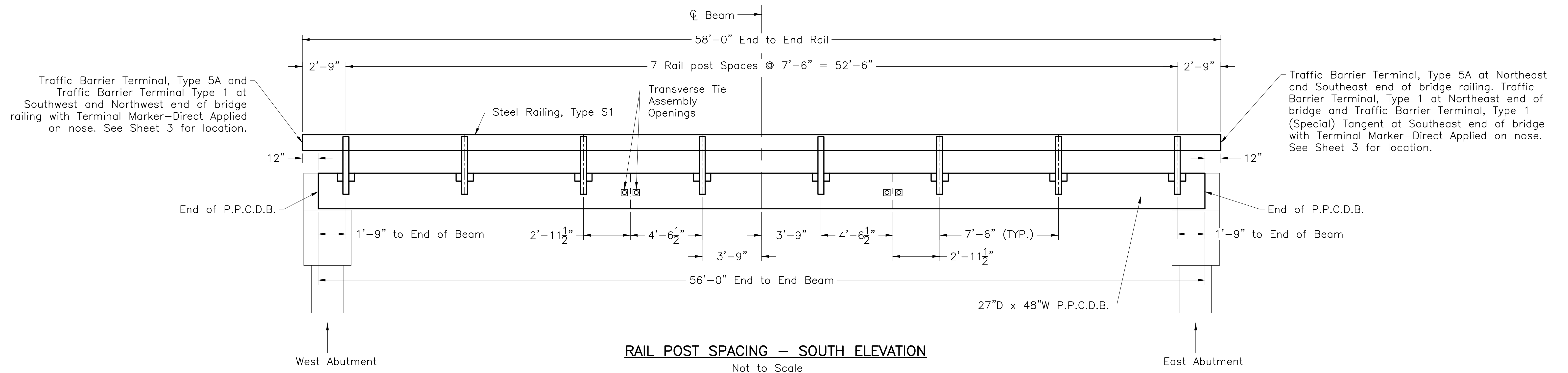
Notes:
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
** The studs of 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.



VIEW H-H

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	116



CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS - LAND SURVEYORS
105 NORTH KITCHELL AVENUE
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

DESIGNED - NRF/BMB
DRAWN - BMB
CHECKED - NRF
DATE - 10-2020

REVISED -
REVISED -
REVISED -
REVISED -

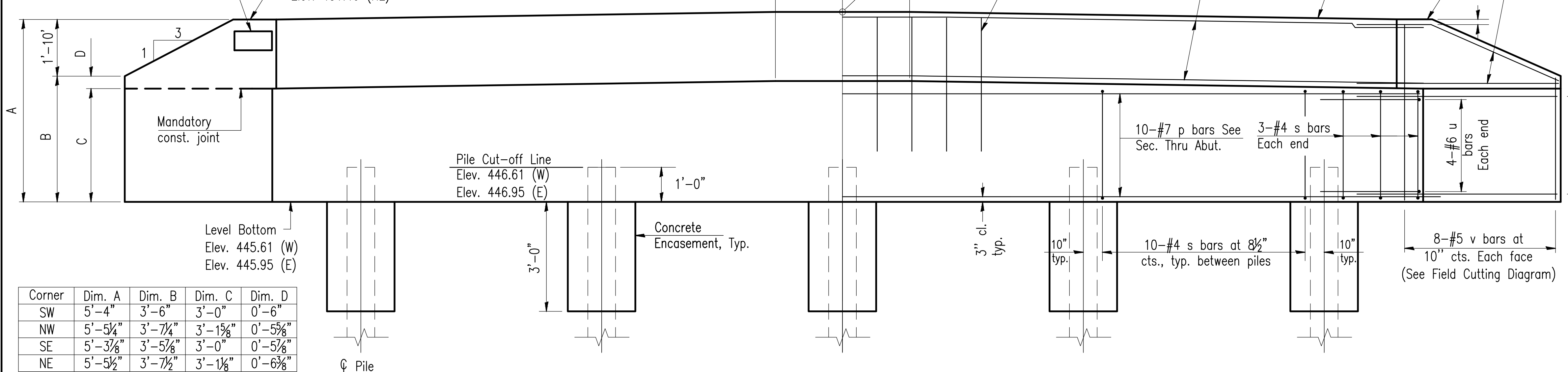
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL RAILING, TYPE S-1 DETAILS
STRUCTURE NUMBER 051-3311

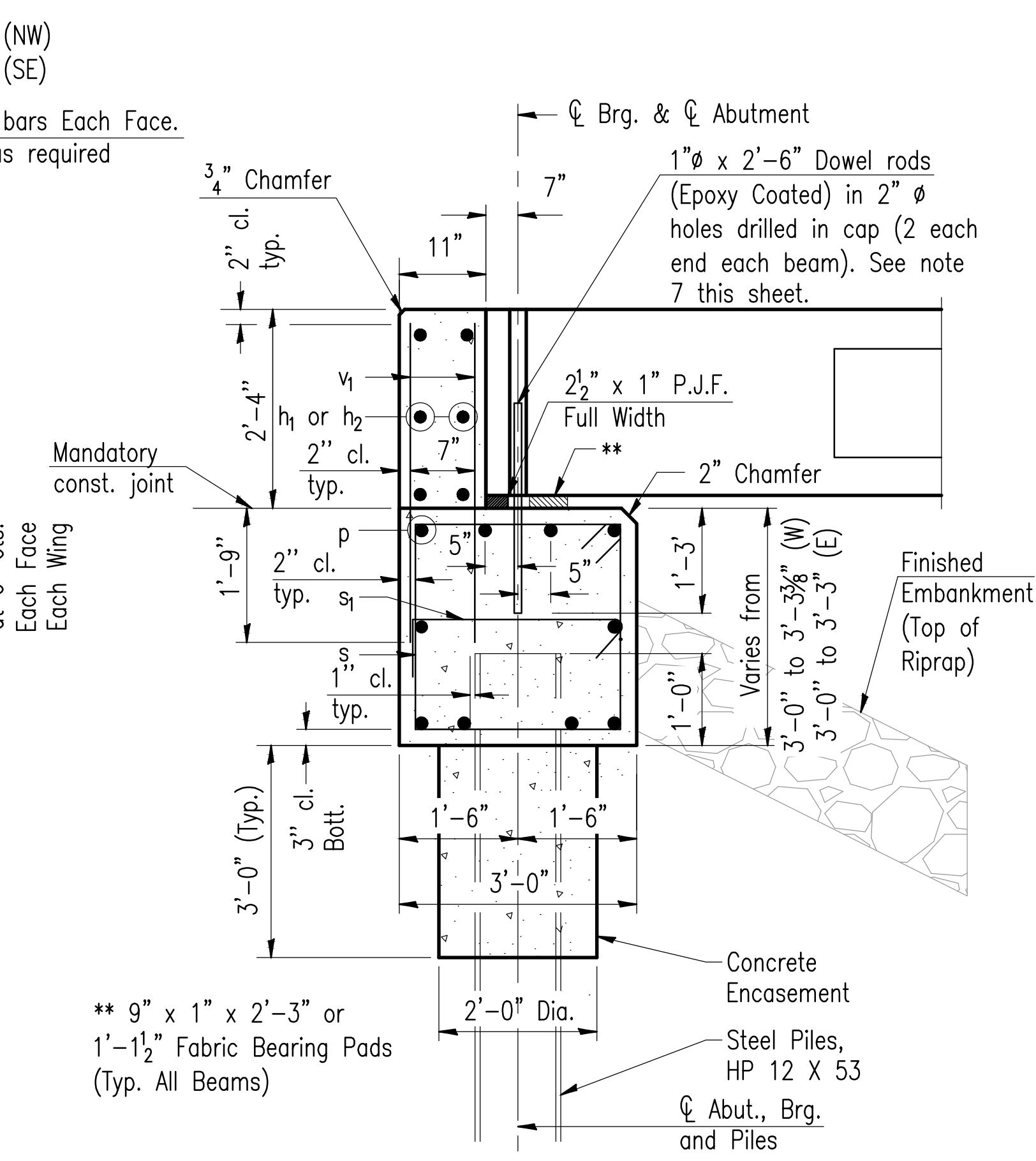
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 11	19-00124-00-BR	LAWRENCE	15	8
CONTRACT 95894		ILLINOIS	PROJECT JOJ7(421)	

* Cast top of wingwall and backwall flush with exterior beam face after beams have been erected.

Set Name Plate on outside face of South Wing of West Abutment - See Detail This Sheet

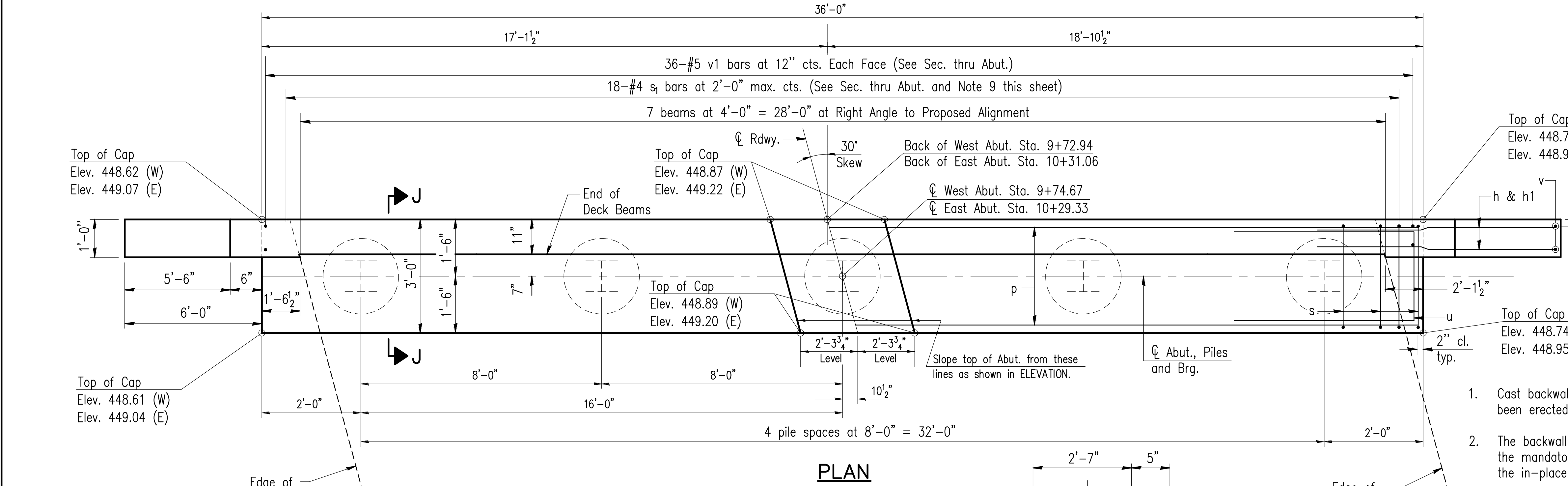


Corner	Dim. A	Dim. B	Dim. C	Dim. D
SW	5'-4"	3'-6"	3'-0"	0'-6"
NW	5'-5 1/4"	3'-7 1/4"	3'-1 3/8"	0'-5 5/8"
SE	5'-3 3/8"	3'-5 3/8"	3'-0"	0'-5 5/8"
NE	5'-5 1/2"	3'-7 1/2"	3'-1 1/8"	0'-6 3/8"



ELEVATION

SECTION J-J
(At Right Angles)



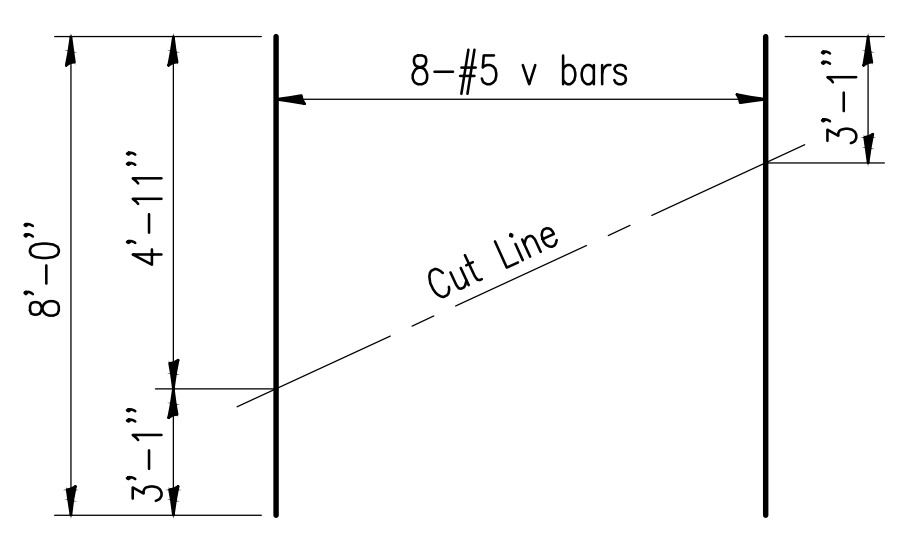
PLAN

PILE DATA WEST ABUTMENT

Type: Steel HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 228 kips
Est. Length: 22 Feet/Pile
No. Production Piles: 4
No. Test Piles: 1

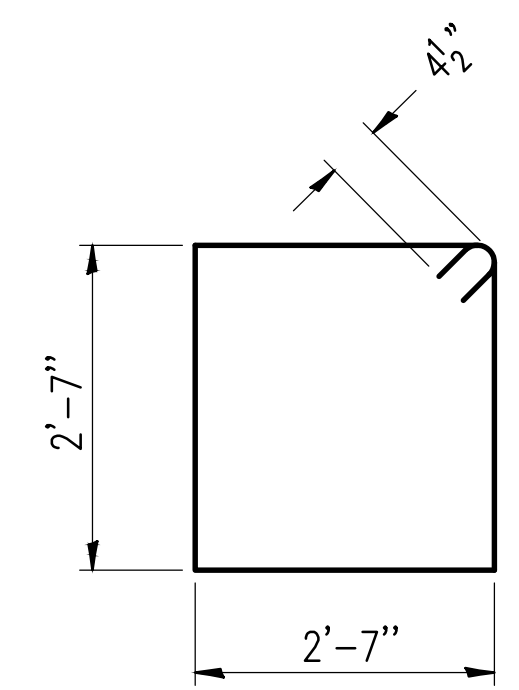
PILE DATA EAST ABUTMENT

Type: Steel HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 228 kips
Est. Length: 22 Feet/Pile
No. Production Piles: 5
No. Test Piles: 0

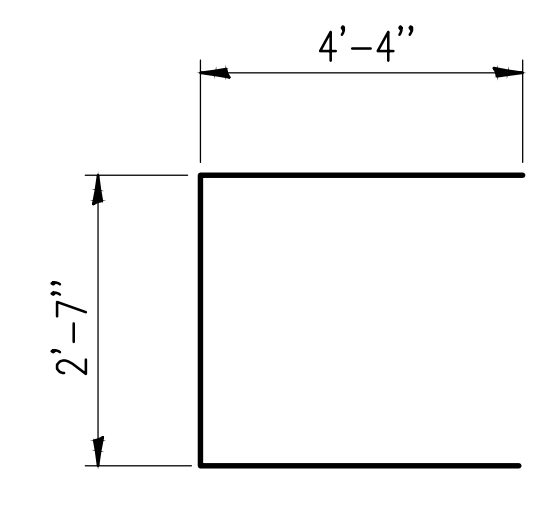


FIELD CUTTING DIAGRAM

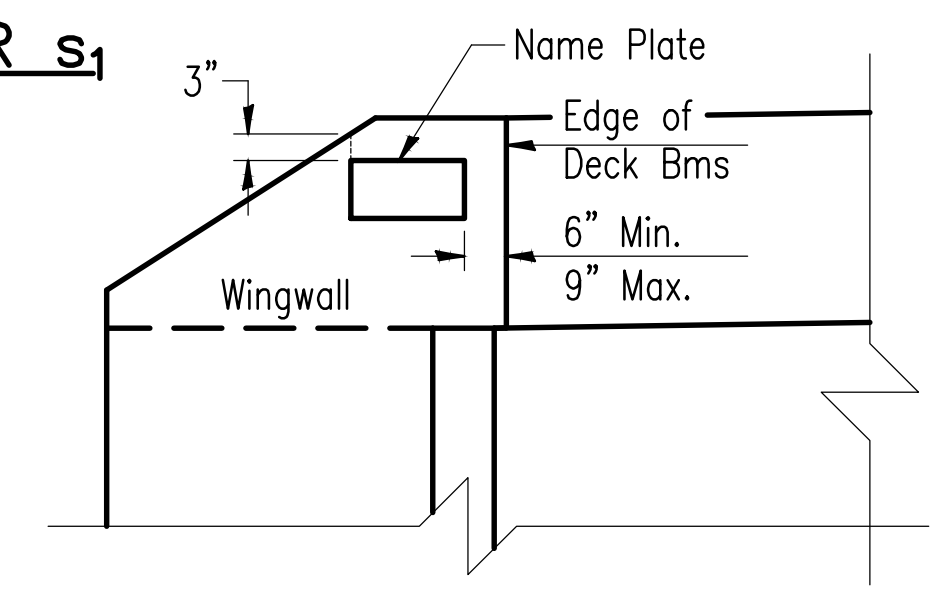
Order v bars full length. Cut as shown and use remainder of bars in opposite face.



BAR s1



BAR u



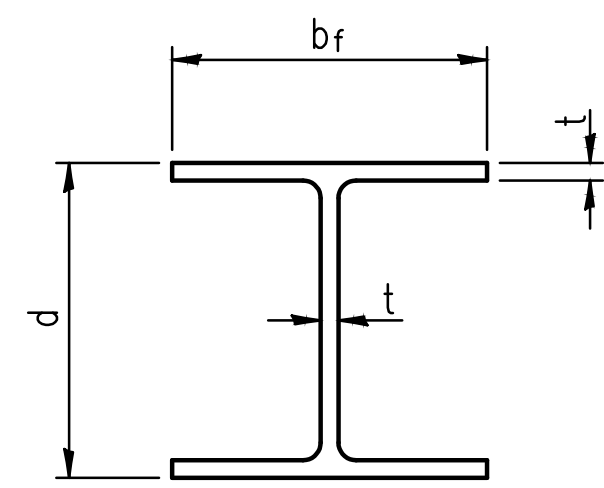
NAME PLATE PLACEMENT

- General Notes:**
1. Cast backwalls and top of Wingwalls after beams have been erected.
 2. The backwalls and the portion of the Wingwalls above the mandatory construction joint shall be cast against the in-place beam.
 3. Extend "h" bars into the abutment cap.
 4. For details of piles and Concrete Encasement, see sheet 10 of 50.
 5. Drawings not to scale.
 6. All clearances between rebar and form surface shall be 2" unless otherwise noted.
 7. Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (Illinois Modified).
 8. Space reinforcement in cap to miss PPCDB dowel rods.
 9. All exposed edges shall have a standard 3/4" chamfer unless otherwise noted or as directed by the Engineer.
 10. s1 bars: Alternate the position of the 90° and 135° hooked ends between adjacent s1 bars.

BILL OF MATERIAL FOR ONE ABUTMENT

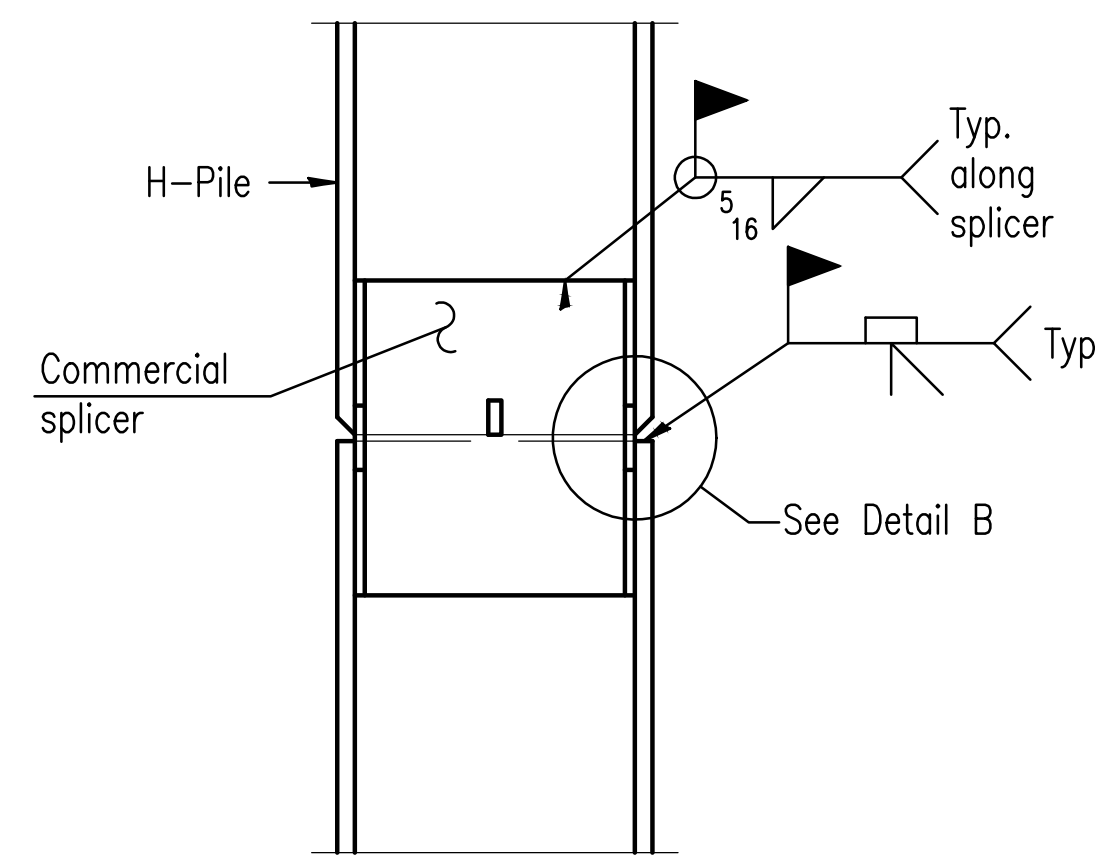
Bar	No.	Size	Length	Shape	
h	24	#6	9'-4"	—	
h1	12	#4	8'-3"	—	
h2	6	#4	35'-8"	—	
p	10	#7	35'-8"	—	
s	46	#4	11'-1"	□	
s1	18	#4	3'-9"	┌	
u	8	#6	11'-3"	—	
v	16	#5	8'-0"	CUT IN FIELD	
v1	72	#5	3'-11"	—	
Concrete Structures				Cu. Yd.	17.4
Concrete Encasement				Pound	1.75
Reinforcement Bars				Pound	2230
Furnishing Steel Piles HP 12 X 53		Foot	W Abut.	88	
		Foot	E Abut.	110	
Driving Piles		Foot	W Abut.	88	
		Foot	E Abut.	110	
Test Pile Steel HP 12 X 53		Each	W Abut.	1	
		Each	E Abut.	0	
Pile Shoes		Each	W Abut.	4*	
		Each	E Abut.	5	

*See Note 2 on Sheet 4 (GPE).

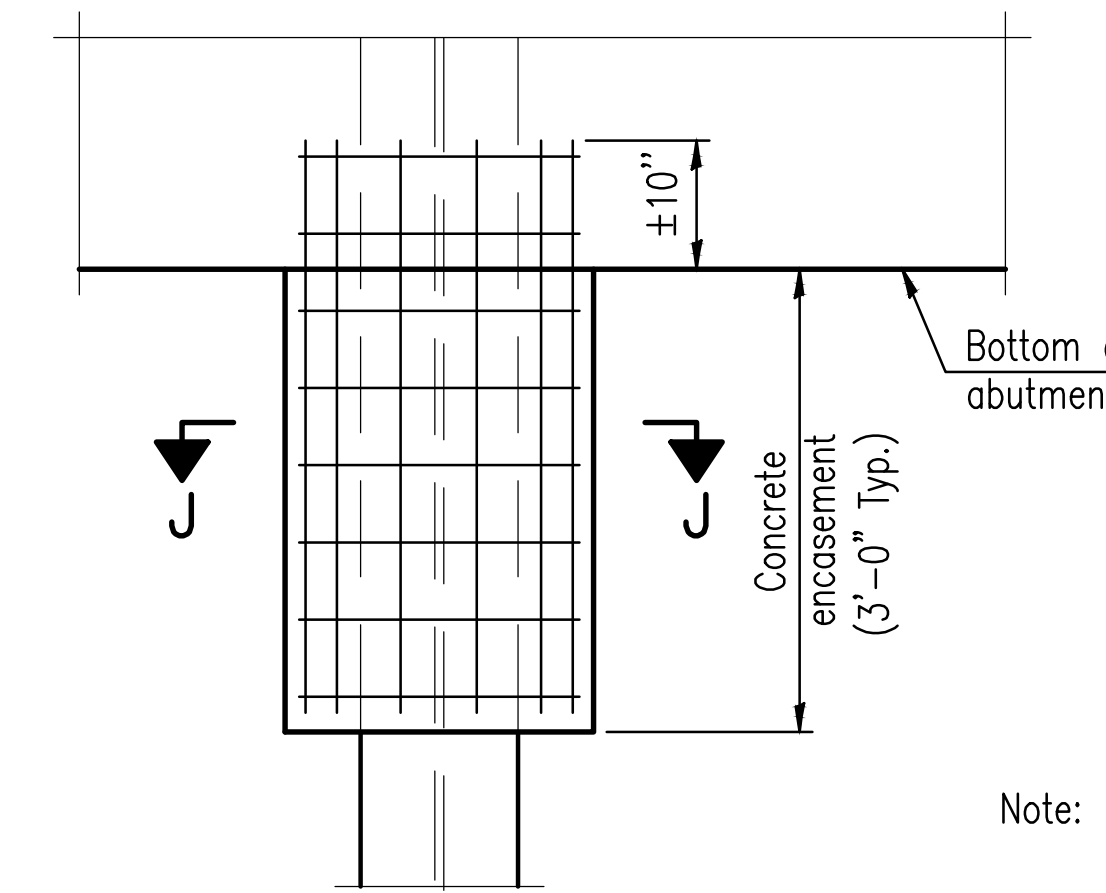


STEEL PILE TABLE

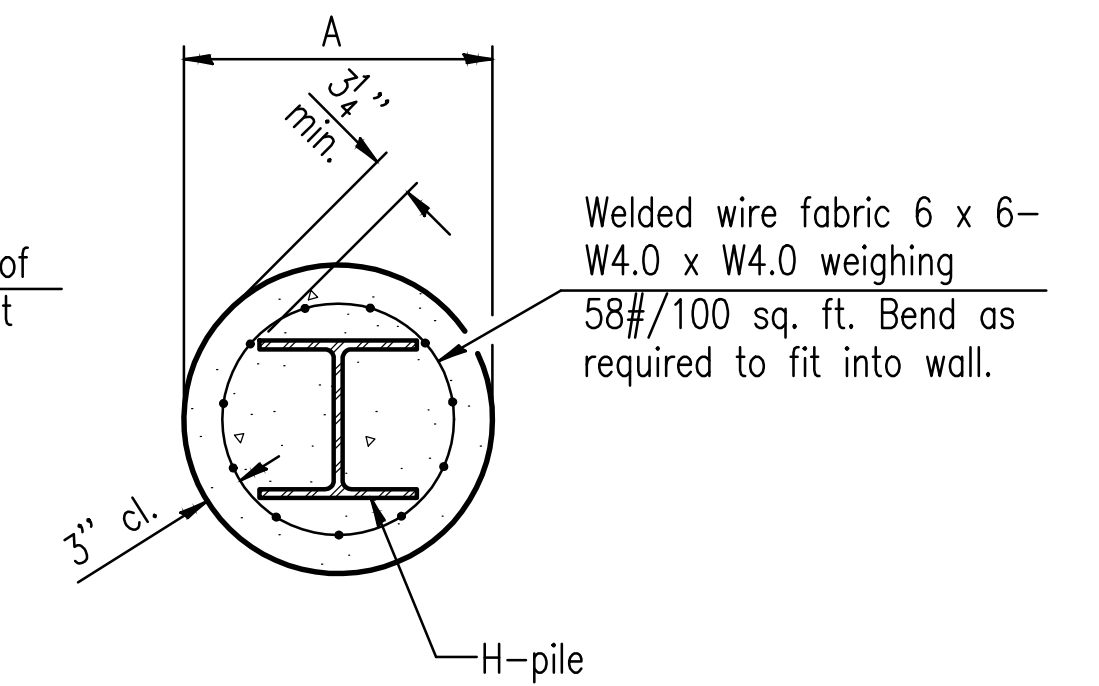
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 12x53	11 ³ / ₄ "	12"	7 ¹ / ₁₆ "	24"



ELEVATION



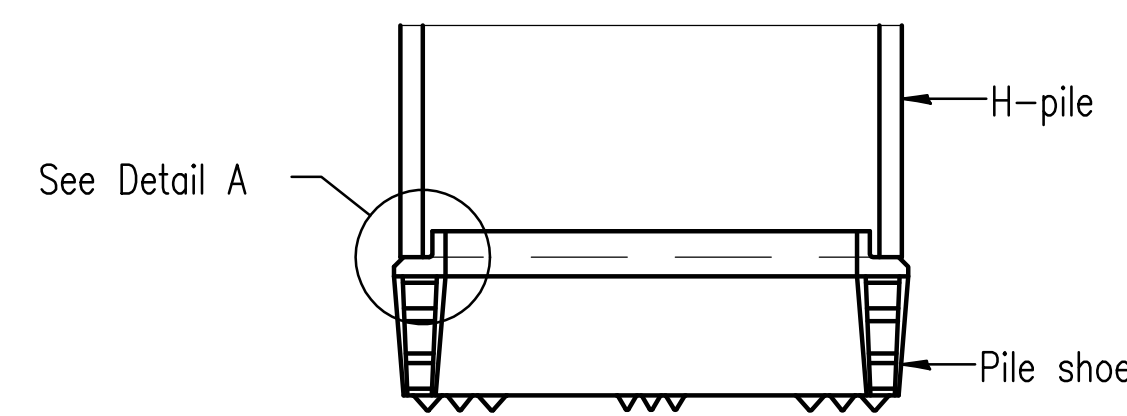
**ELEVATION
DRIVEN PILES**



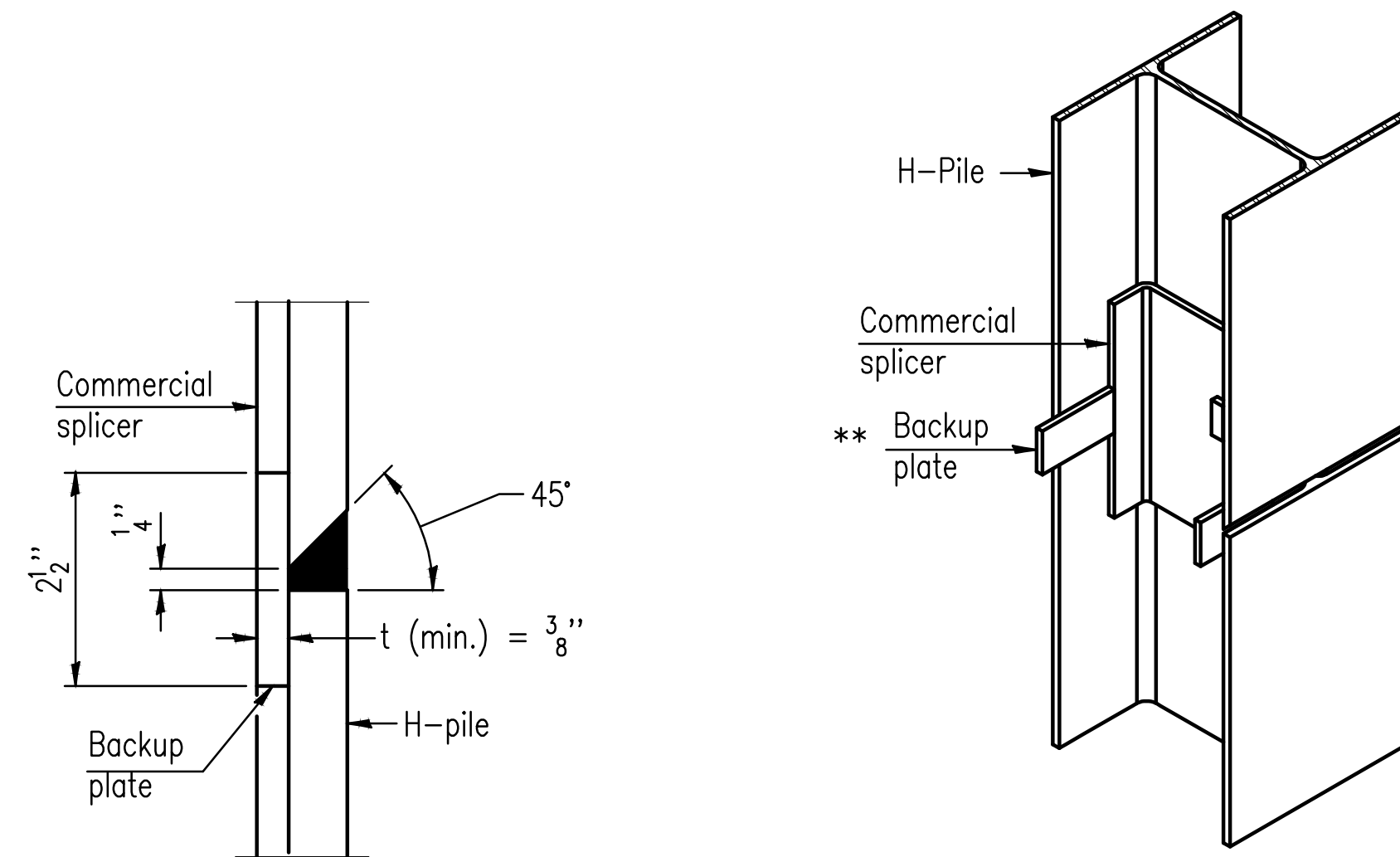
SECTION J-J

Note: Forms for encasement may be omitted when soil conditions permit. If soil conditions are not favorable to use the soil as forms, the Contractor shall provide forms; the cost for the forms and all labor to install forms shall be included in item "Concrete Encasement."

PILE ENCASEMENT



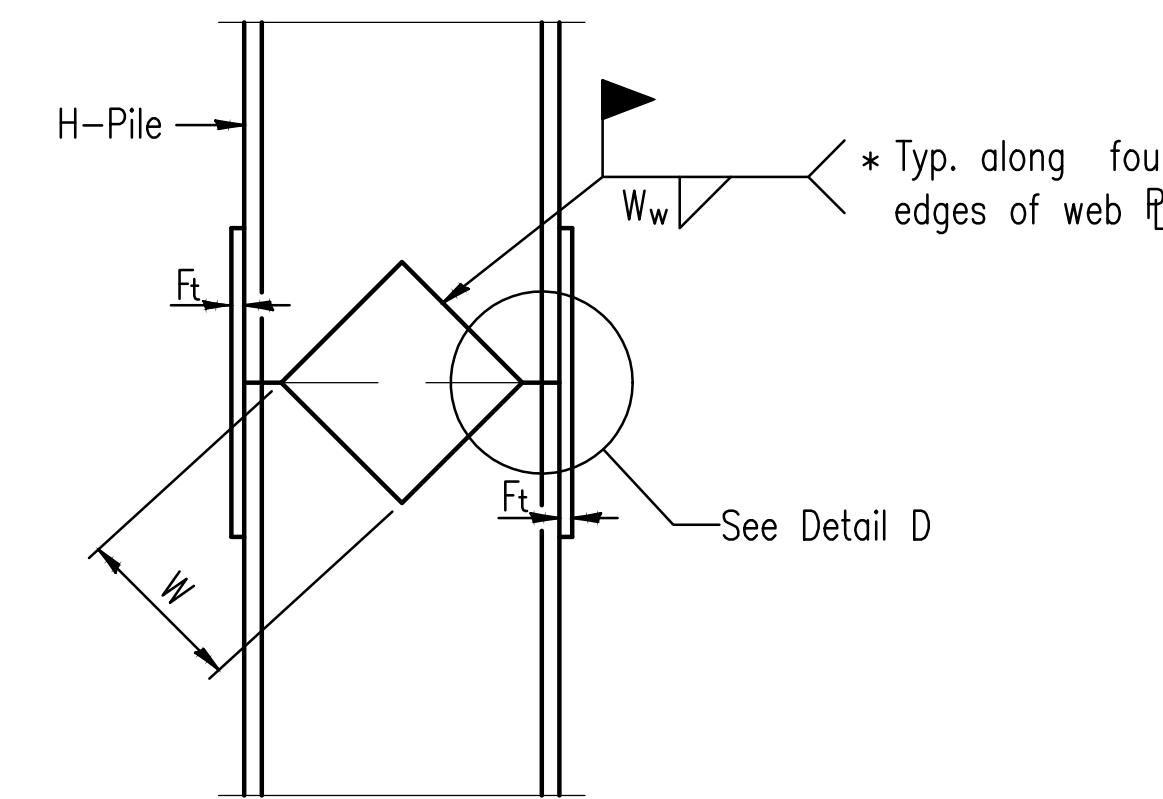
ELEVATION



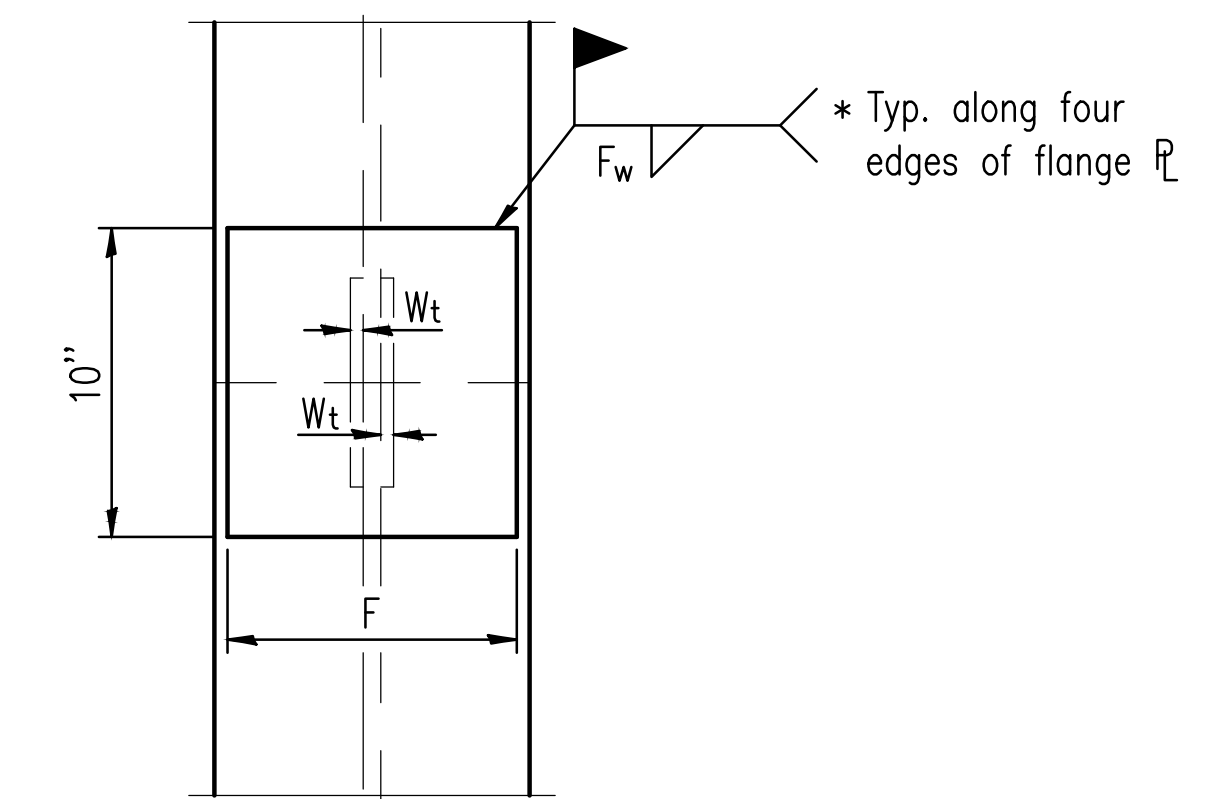
DETAIL "B"

ISOMETRIC VIEW

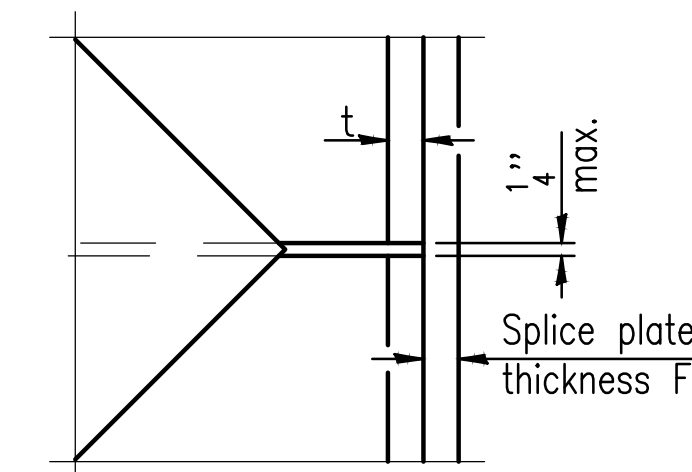
**WELDED COMMERCIAL
SPLICE**



ELEVATION

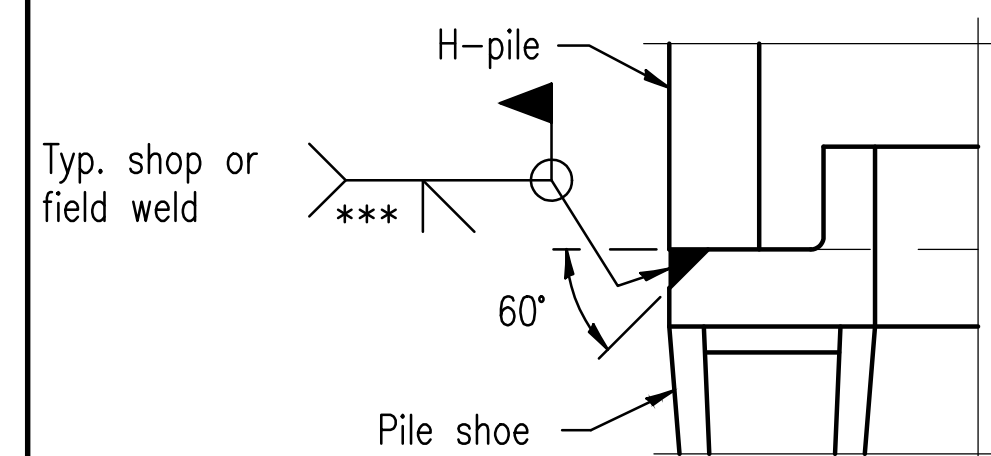


END VIEW



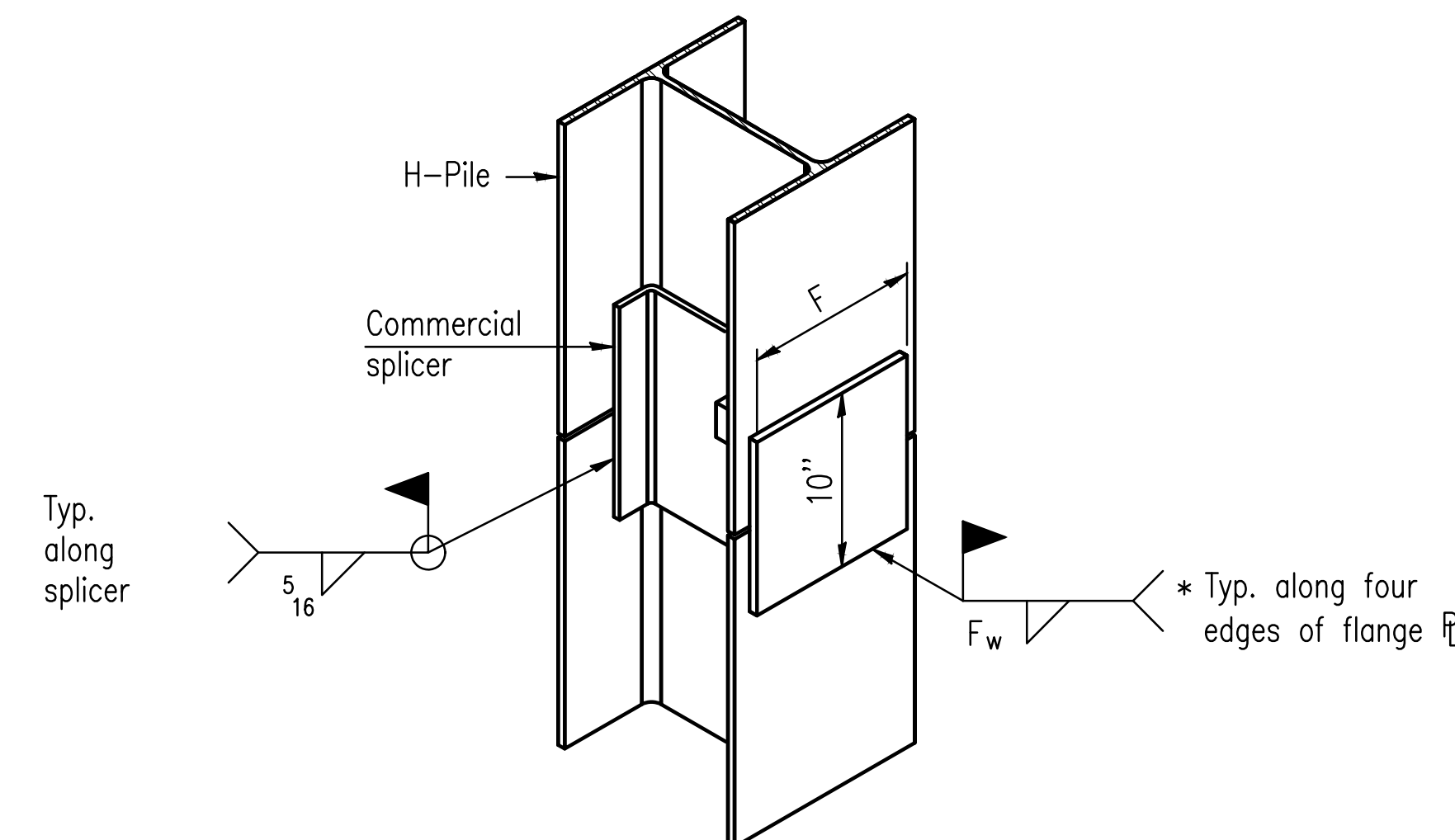
DETAIL D

Designation	F	F _t	F _w	W	W _t	W _w
HP 12x53	10"	5 ⁵ / ₈ "	1 ¹ / ₂ "	6 ¹ / ₂ "	1 ¹ / ₂ "	3 ³ / ₈ "



DETAIL A

H-PILE SHOE ATTACHMENT



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- ***Weld size per pile shoe manufacturer (5/16" min.).

Note: The steel H-piles shall be according to AASHTO M270 Grade 50.

**WELDED PLATE FIELD
SPLICE**

