

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	1
CONTRACT NO. 95799		ILLINOIS	PROJECT BRS-0079(155)	

# STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANS FOR PROPOSED SURFACE TRANSPORTATION PROGRAM - BRIDGE

SECTION 16-00134-00-BR JASPER COUNTY

PROJECT BRS-0079(155)

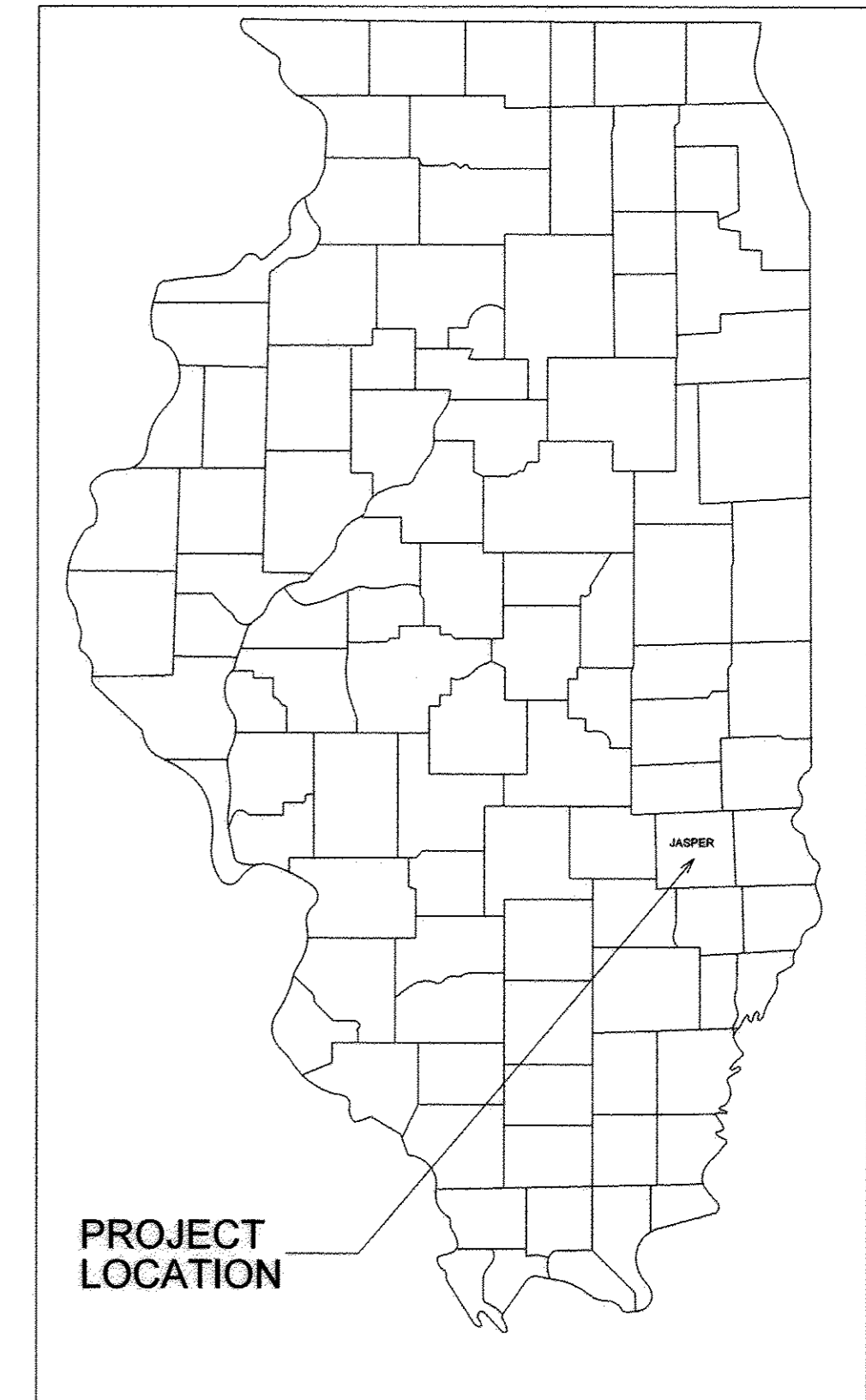
JOB NO. C-97-026-16

C.H. 8

CONTRACT NO. 95799

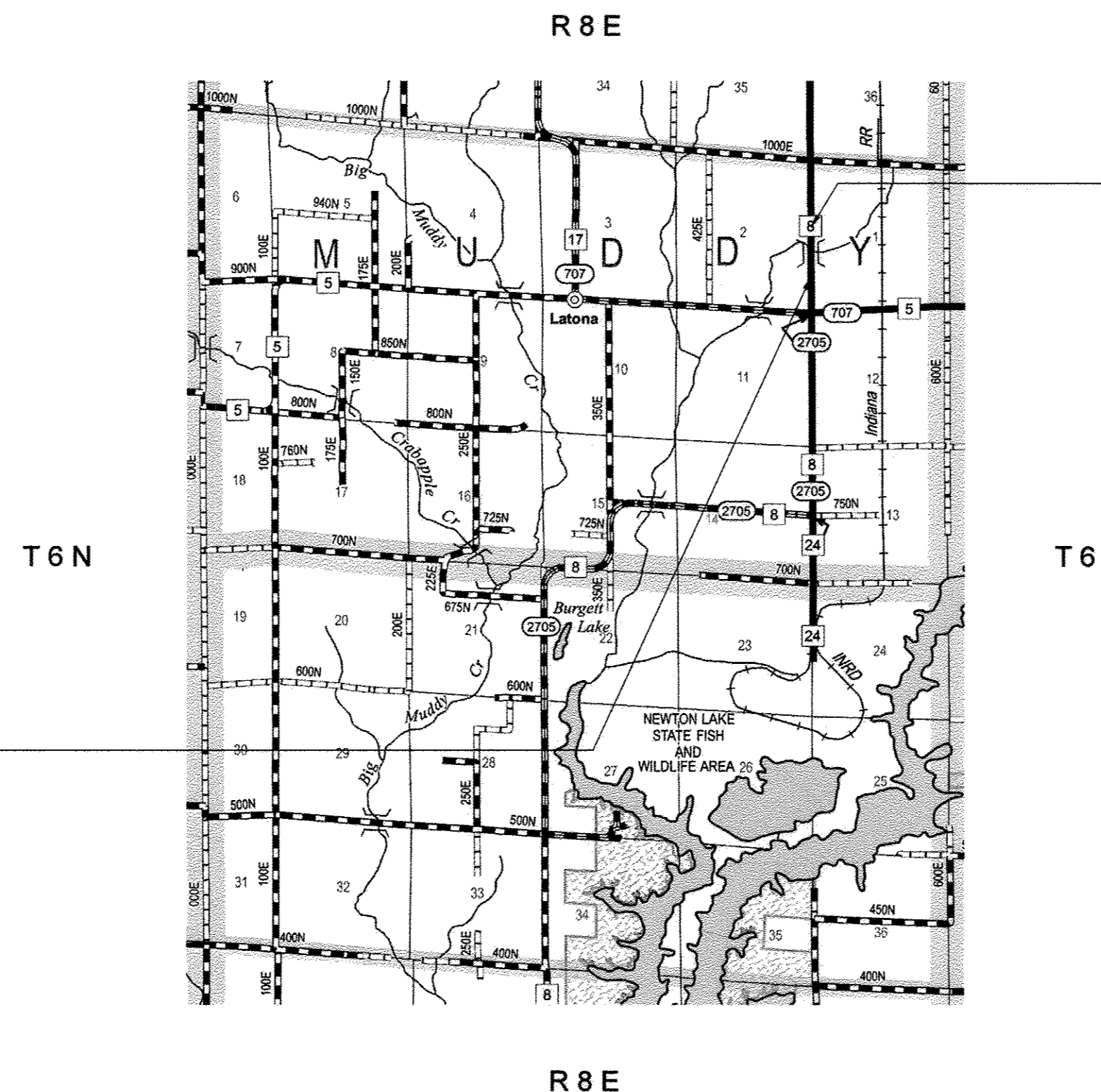
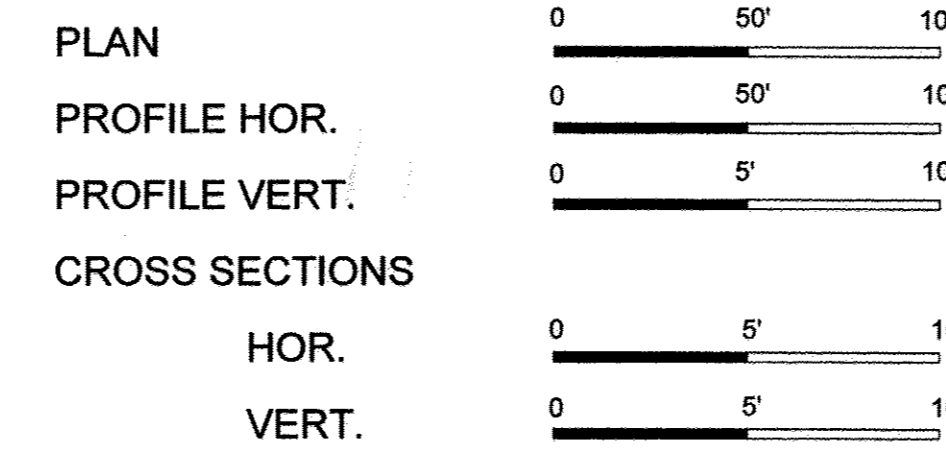
Joint Utility Locating Information for Excavators

JULIE 1-800-892-0123



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	ABUTMENT DETAILS
9	PILE DETAILS
10	BORING LOGS
11-14	CROSS SECTIONS
15	DETOUR PLAN

- STANDARD DRAWINGS
- STANDARD 000001-06
  - STANDARD 280001-07
  - STANDARD 353001-04
  - STANDARD 420001-08
  - STANDARD 515001-03
  - STANDARD 542301-03
  - STANDARD 630001-11
  - STANDARD 630301-07
  - STANDARD 701901-06
  - STANDARD 725001-01
  - STANDARD 780001-05
  - STANDARD BLR 21-9
  - STANDARD BLR 26-3
  - STANDARD BLR 27-1



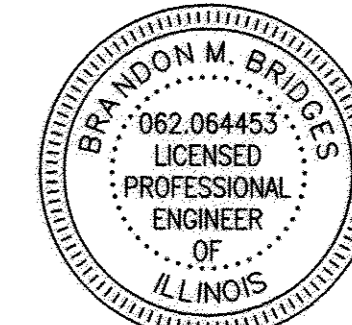
SECTION 16-00134-00-BR ENDS STA. 5+70.00

SECTION 16-00134-00-BR BEGINS STA. 2+42.00

SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE  
 42'-10" BK - BK. ABUTMENTS  
 STEEL H PILE / SPILLTHROUGH ABUTMENTS  
 28' DECK  
 EXISTING STRUCTURE NO. 040-3021  
 PROPOSED STRUCTURE NO. 040-3272

NET LENGTH SECTION 16-00134-00-BR = 328.00 Ft. = 0.062 Mi.

FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR  
 ADT = 550  
 DESIGN SPEED = 50 MPH



*Brandon M. Bridgman*  
 10/10/2016

LICENSE EXPIRES 11/30/2017

**CHARLESTON ENGINEERING, INC.**  
**CONSULTING ENGINEERS**  
 105 NORTH KITCHELL  
 P.O. BOX 397  
 OLNEY, ILLINOIS 62450  
 (618) 392-0738  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

APPROVED *Brandon M. Bridgman*  
 10-14-16  
 COUNTY ENGINEER

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PASSED *W. Armand East* 11-3-16  
 DISTRICT SEVEN ENGINEER OF  
 LOCAL ROADS AND STREETS

Releasing For  
 Bid Based on  
 Limited Review *Jeffrey M. Smith* 11-3-16  
 REGION FOUR ENGINEER

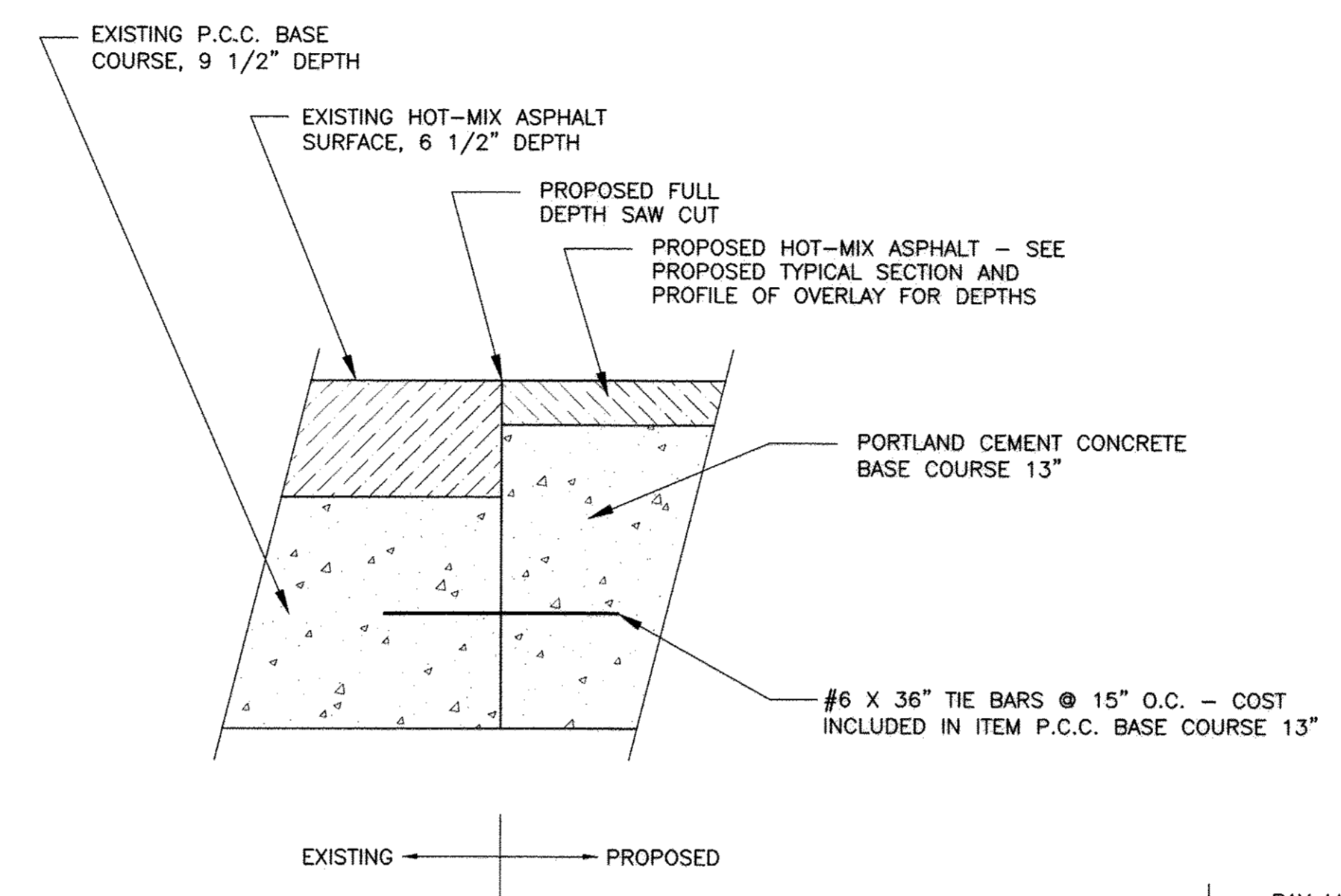
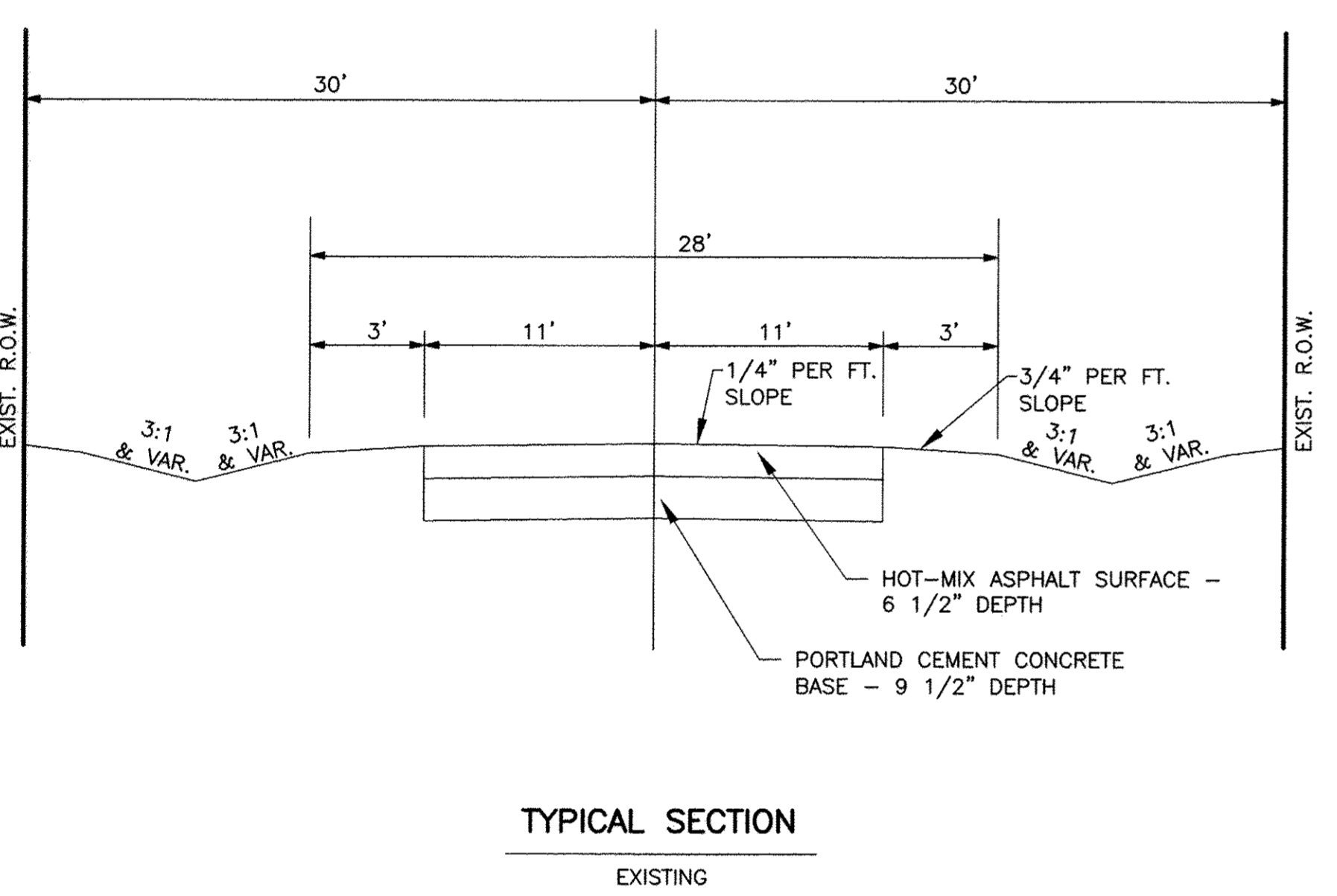
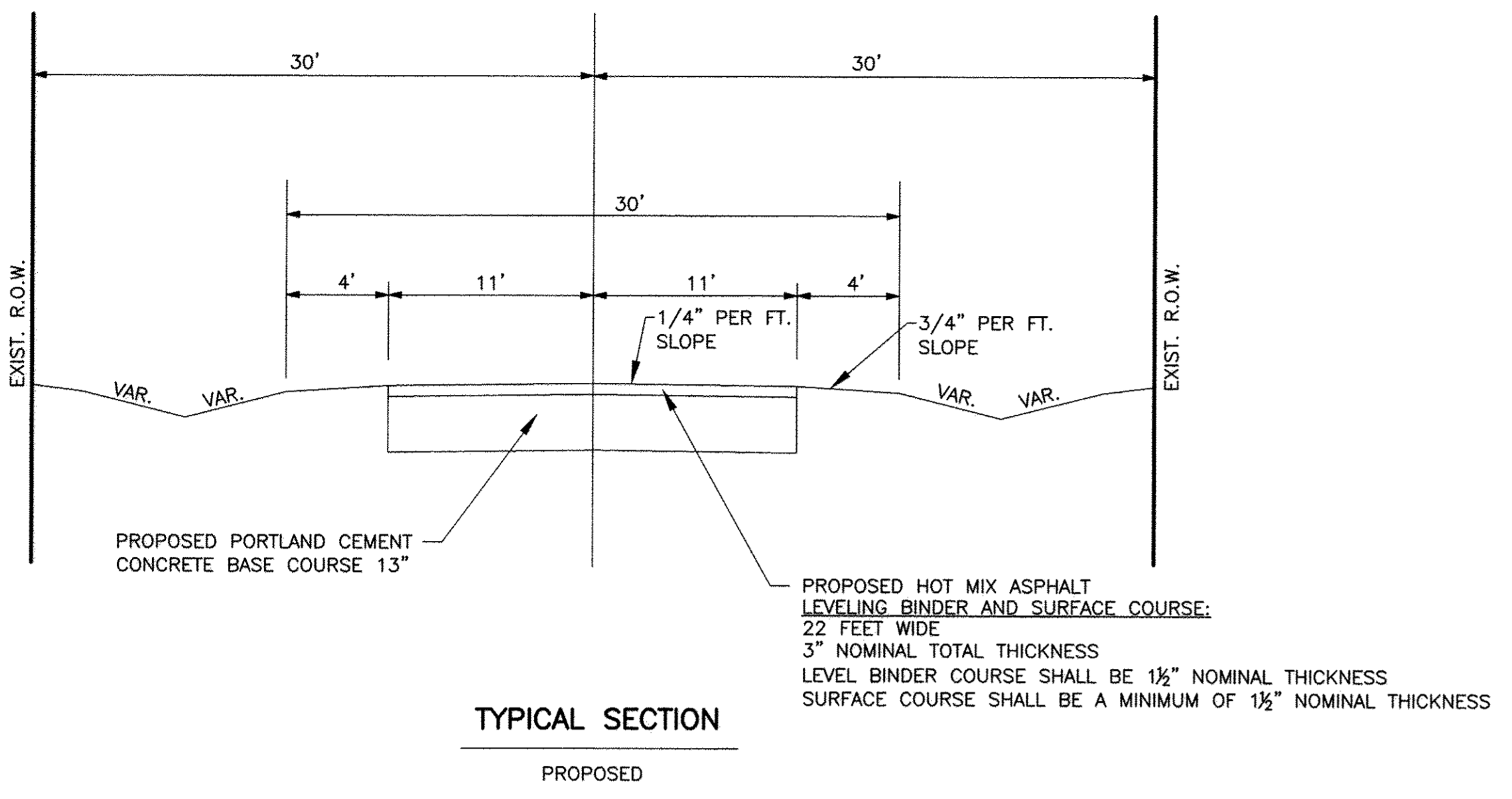
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	2
CONTRACT NO. 95799		ILLINOIS	PROJECT BRS-0079(155)	

**DESIGN DATA**

MAJOR COLLECTOR  
ADT = 550

**GENERAL NOTES**

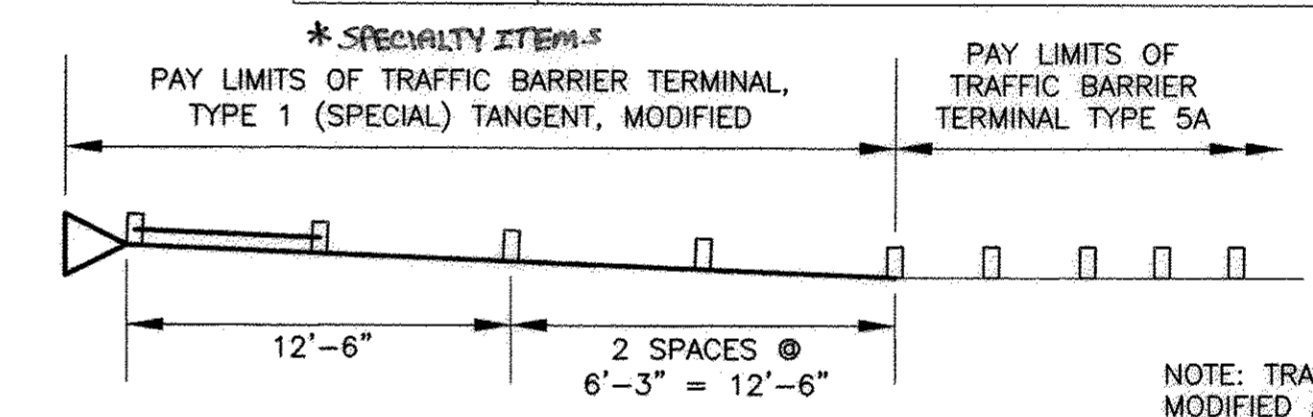
- SEEDING: THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 250 OF THE STANDARD SPECIFICATIONS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING, CLASS 2 (SPECIAL).
  - SPRING SEEDING SHALL EXTEND FROM JANUARY 1 TO JUNE 30  
FALL SEEDING SHALL EXTEND FROM JULY 1 TO DECEMBER 31
  - FERTILIZER NUTRIENTS SHALL BE APPLIED AT THE RATE OF 100 LB/ACRE
  - MULCHING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 251 OF THE STANDARD SPECIFICATIONS AND SHALL BE DONE BY METHOD 2, PROCEDURE 1 AT THE RATE OF 2 TONS PER ACRE.
- NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.



**ROADWAY TRANSITION DETAILS**

- STA. 3+48  
STA. 4+41
- NOTES:
- THE PROPOSED PORTLAND CEMENT CONCRETE BASE COURSE SHALL BE TIED TO THE EXISTING P.C.C. PAVEMENT USING #6 X 36" EPOXY COATED REBAR EXTENDING 18" INTO THE PROPOSED P.C.C. BASE COURSE. TIE BARS SHALL BE DRILLED AND EPOXY GROUTED INTO THE EXISTING PAVEMENT, 15" O.C., LOCATED AT MID-DEPTH OF THE EXISTING PAVEMENT.

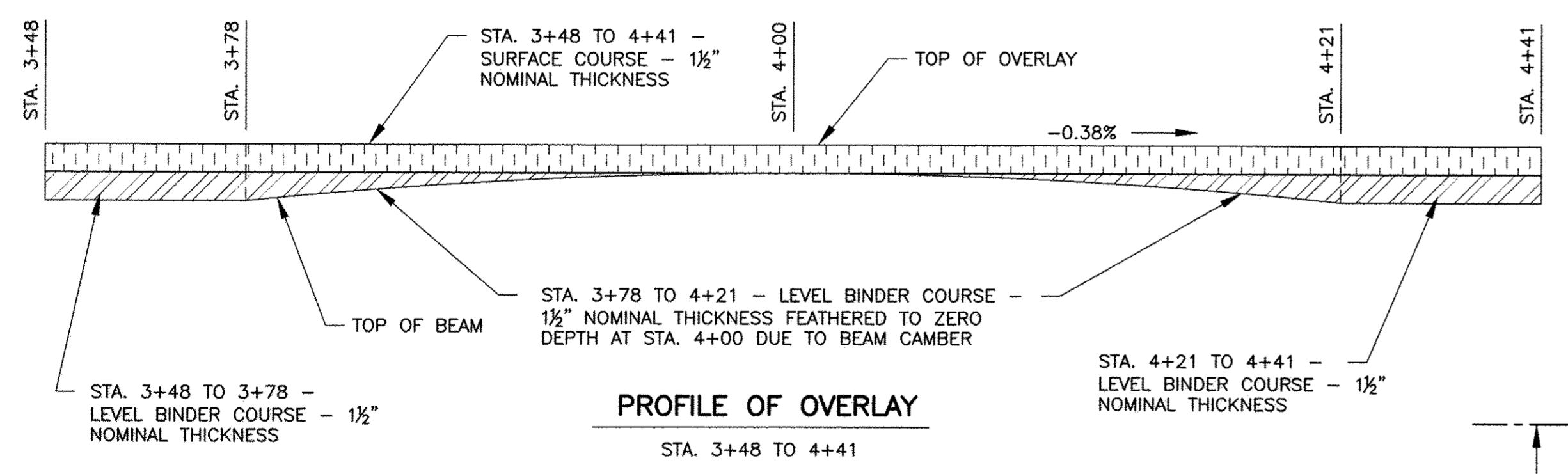
SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.20
X5020200	STRUCTURE EXCAVATION (SPECIAL)	CU YD	200
X6310195	TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT), MODIFIED	EACH	2
Z0016702	DETOUR SIGNING	L SUM	1
20200100	EARTH EXCAVATION	CU YD	90
20300100	CHANNEL EXCAVATION	CU YD	170
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	20
28000305	TEMPORARY DITCH CHECKS	FOOT	7.0
28000400	PERIMETER EROSION BARRIER	FOOT	345
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	120
35300720	PORTLAND CEMENT CONCRETE BASE COURSE 13"	SQ YD	125
40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	120
40600635	LEVELING BINDER (MACHINE METHOD), N70	TON	20
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	25
44000100	PAVEMENT REMOVAL	SQ YD	175
45000110	RELIEF JOINT 2"	FOOT	44
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	23.6
50300280	CONCRETE ENCASEMENT	CU YD	3.5
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	1148
50800105	REINFORCEMENT BARS	POUND	2815
* 50900205	STEEL RAILING, TYPE S1	FOOT	82
51201400	FURNISHING STEEL PILES HP10X42	FOOT	315
51202305	DRIVING PILES	FOOT	315
51203400	TEST PILE STEEL HP10X42	EACH	1
51204850	PILE SHOES	EACH	9
51500100	NAME PLATES	EACH	1
54213666	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 21"	EACH	1
542A0226	PIPE CULVERTS, CLASS A, TYPE 1 21"	FOOT	42
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	40
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	75
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
* 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	2
67100100	MOBILIZATION	L. SUM	1
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	40



**TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT, MODIFIED PLAN**

LT. STA. 3+40 TO 3+65  
LT. STA. 4+35 TO 4+60

NOTE: TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT, MODIFIED AND SHOULDER WIDENING SHALL BE CONSTRUCTED ACCORDING TO STANDARD 630301 EXCEPT AS MODIFIED BY THE ABOVE DRAWING.

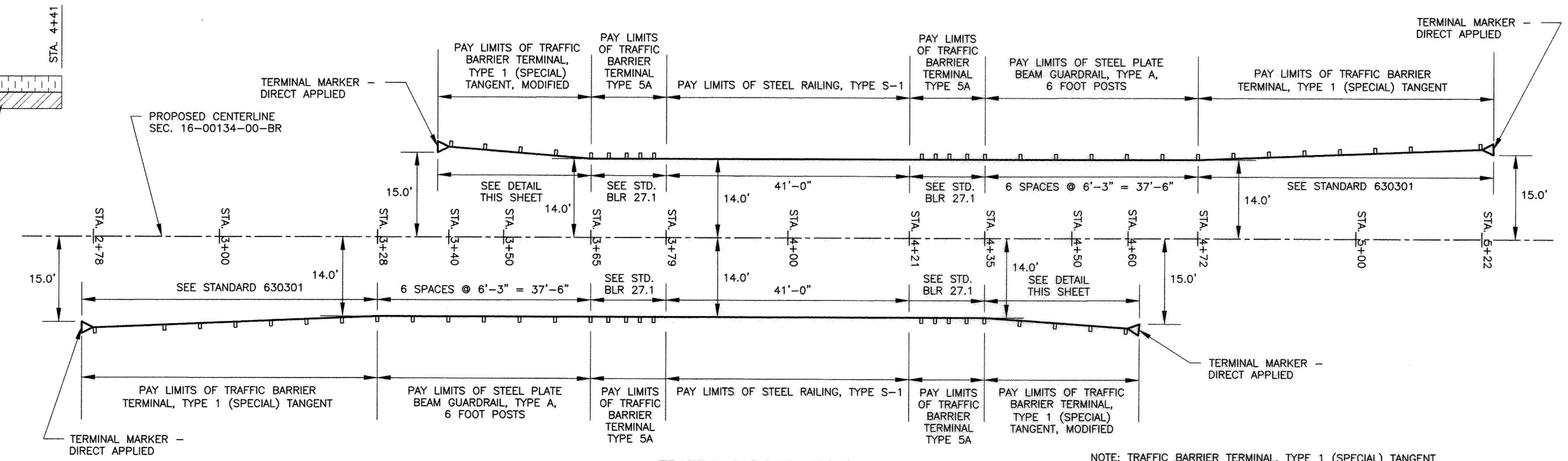


**PROFILE OF OVERLAY**

**HOT-MIX ASPHALT**

**SURFACE COURSE**  
APPLICATION: HOT-MIX ASPHALT SURFACE COURSE, MIXTURE "C" N70  
PG GRADE: PG 64-22  
DESIGN AIR VOIDS: 4.0% @ Ndesign 70  
MIXTURE COMPOSITION: IL-9.5  
FRICTION AGGREGATE: MIXTURE C

**LEVELING BINDER**  
APPLICATION: LEVELING BINDER (MACHINE METHOD) N70  
PG GRADE: PG 64-22  
DESIGN AIR VOIDS: 4.0% @ Ndesign 70  
MIXTURE COMPOSITION: IL-9.5  
FRICTION AGGREGATE: N/A



**TRAFFIC BARRIER TERMINAL AND BRIDGE GUARDRAIL PLAN**

RT. STA. 2+78 TO 4+66  
LT. STA. 3+40 TO 5+22

NOTE: TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT, MODIFIED, AND SHOULDER WIDENING SHALL BE CONSTRUCTED ACCORDING TO STANDARD 630301 EXCEPT AS MODIFIED BY THE ABOVE DRAWING.



B.M.—Rt. Sta. 1+48, Chiseled "X" in 18" X 30" PCC Box Culvert, Elev. 549.62

Existing Structure — Existing structure No. 040-3021 consists of a single span precast concrete deck beam bridge bearing on closed concrete abutments. The bk. to bk. of abutments length is 24.5' and the out-to-out roadway width is 26.2'. See Special Provisions under "Removal of Existing Structures" for more details of the existing structure. The existing structure shall be completely removed. Road closure shall be used during construction.

Salvage — See Special Provisions.

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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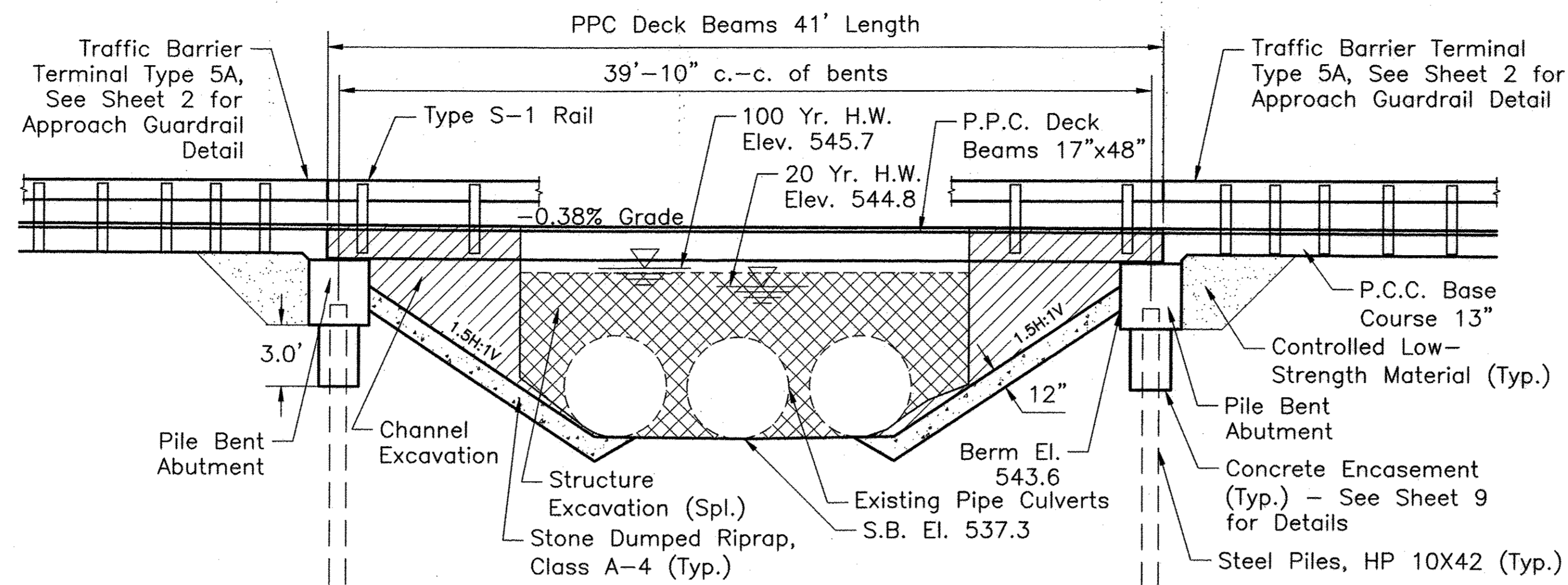
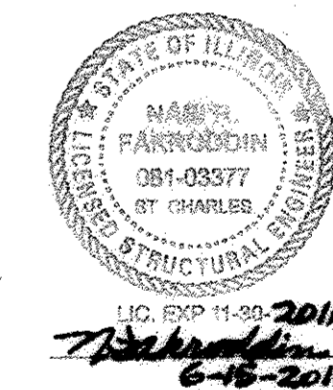
**GENERAL NOTES**

- The Contractor shall drive the test pile to 110% of the nominal required bearing specified in production locations at the South 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 10 X 42.
- See Sheet 10 for boring logs.
- Excavation required to construct the Abutments and Approach Pavement transition 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.
- All proposed construction activities shall be in accordance with Nationwide Permit Number 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.

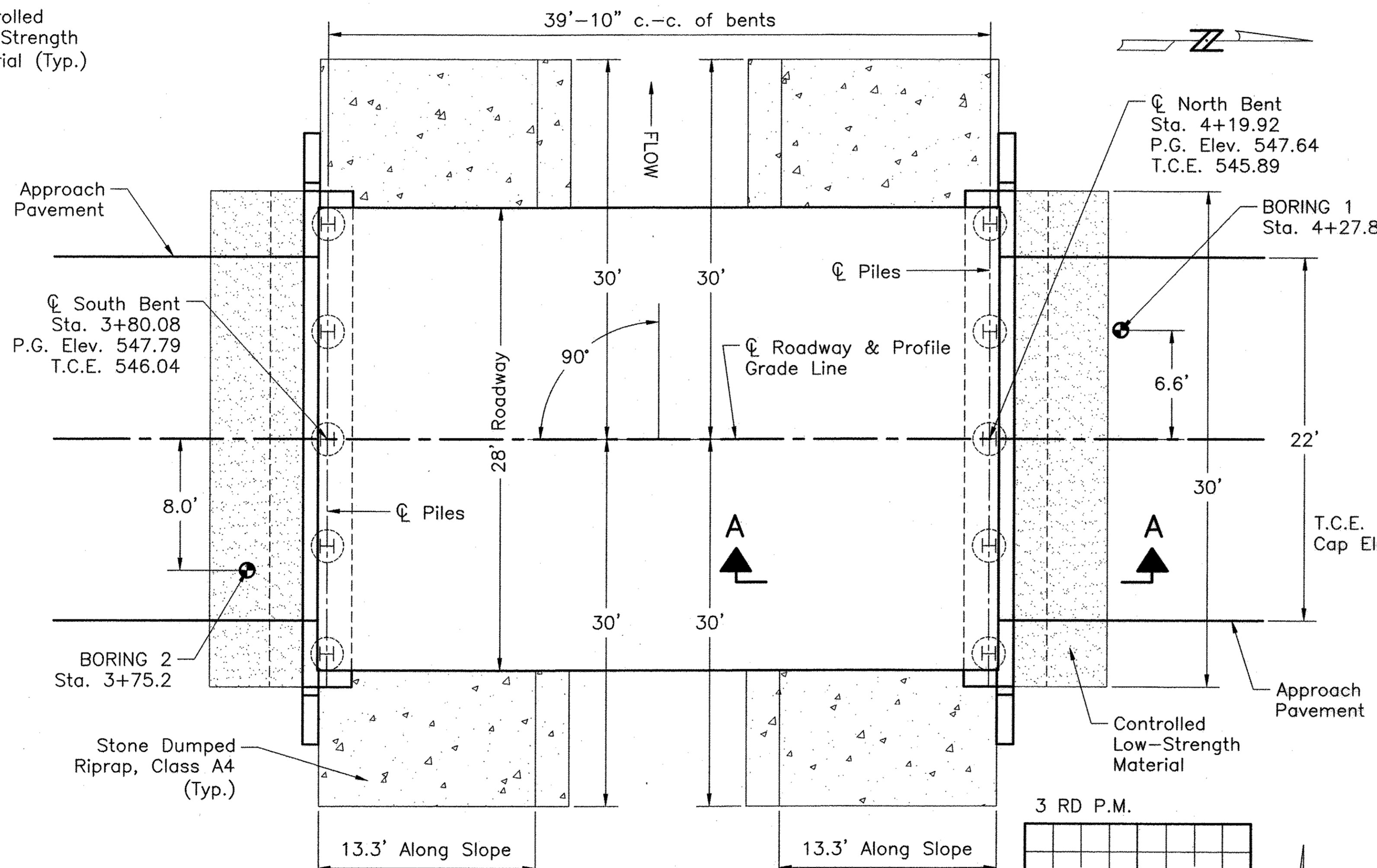
**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yd.	-	-	170	170
Structure Excavation (Special)	Cu. Yd.	-	-	200	200
Stone Dumped Riprap, Class A4	Tons	-	-	120	120
Controlled Low-Strength Material	Cu. Yd.	-	-	40	40
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	-	23.6	23.6
Concrete Encasement	Cu. Yd.	-	-	3.5	3.5
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	1148	-	-	1148
Reinforcement Bars	Pound	-	-	2815	2815
Steel Railing, Type S-1	Foot	82	-	-	82
Furnishing Steel Piles HP 10 X 42	Foot	-	-	315	315
Driving Piles	Foot	-	-	315	315
Test Pile Steel HP 10 X 42	Each	-	-	1	1
Pile Shoes	Each	-	-	9	9
Name Plates	Each	-	-	1	1

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.



**ELEVATION**



**PLAN**

Skew Angle = 0°

**LOADING HL-93**

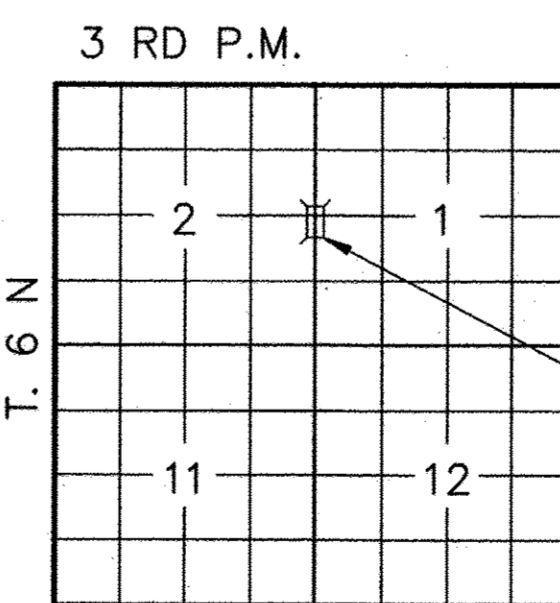
Allow 50#/sq. ft. for future wearing surface.

STATION 4+00.00  
SANDY CREEK  
SEC. 16-00134-00-BR BUILT 201-  
JASPER COUNTY  
PROJECT BRS-0079(155)  
LOADING HL-93  
STR. NO. 040-3272

**LETTERING FOR NAME PLATE**

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

**LOCATION SKETCH**



**WATERWAY INFORMATION**

Drainage Area = 2.4 SQ MI Low Grade Elev = 546.19 @ Sta. 7+00

Flood	Freq. Yr.	Q. C.F.S.	Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.		
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	20	620	141.5	191.0	544.8	0.3	0.2	545.1	545.0
Base	100	900	153.9	224.2	545.7	0.6	0.3	546.3	546.0
Overtopping									
Max. Calc.	500								

**INDEX OF SHEETS**

- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing, Type S-1
- Abutment Details
- Pile Details
- Boring Logs

**CHARLESTON ENGINEERING, INC.**

CONSULTING ENGINEERS

105 NORTH KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
(618) 362-0736

ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**GENERAL PLAN & ELEVATION**

**STRUCTURE NO. 040-3272**

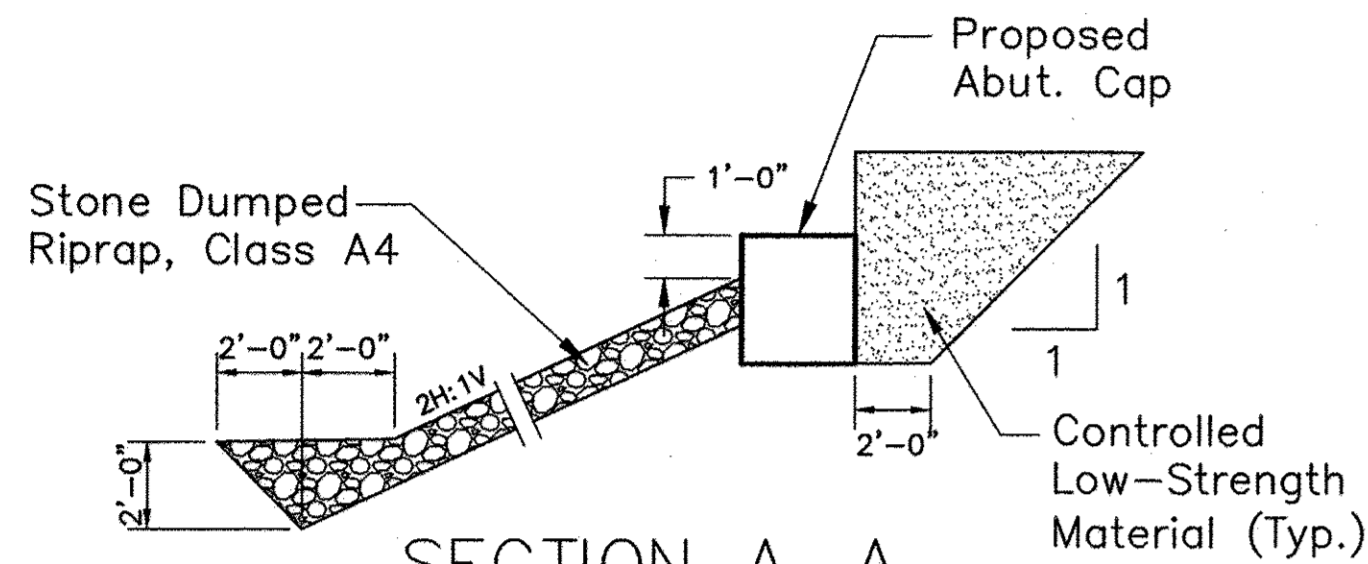
**C.H. 8**

**OVER SANDY CREEK**

**SECTION 16-00134-00-BR**

**JASPER COUNTY**

**STATION 4+00.00**



**SECTION A-A**

Note: See Special Provisions for Stone Dumped Riprap, Class A4

STATION	ELEVATION
3+48.58	547.91
3+50.00	547.90
3+75.00	547.81
3+78.58	547.79
4+00.00	547.71
4+21.42	547.63
4+25.00	547.62
4+41.42	547.55

STATION	ELEVATION
STA 3+48.58	ELEV. 547.91
STA 4+00.00	ELEV. 547.71
STA 4+41.42	ELEV. 547.55

**PROFILE GRADE**  
(along centerline roadway)

**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
Fy = 60,000 psi (reinforcement)

**PRECAST PRESTRESSED UNITS**

f'c = 6,000 psi  
f'ci = 5,000 psi  
F's = 270,000 psi (1/2" low relax. strands)  
Fsi = 201,960 psi (1/2" low relax. strands)

**DESIGN SPECIFICATIONS**

AASHTO LRFD Bridge Design Specifications - 6th edition

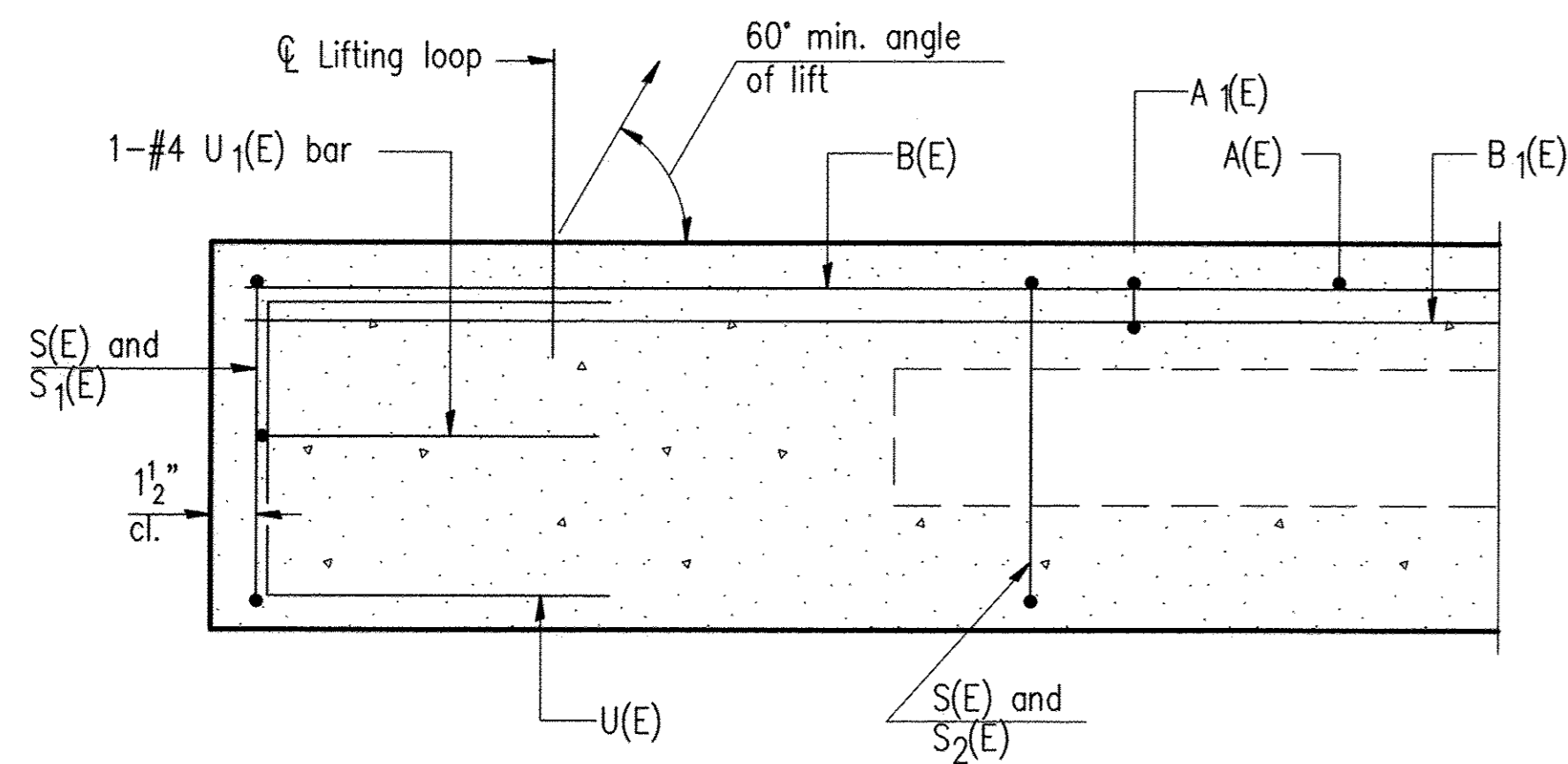
**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.158g  
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.397g  
Soil Site Class = C

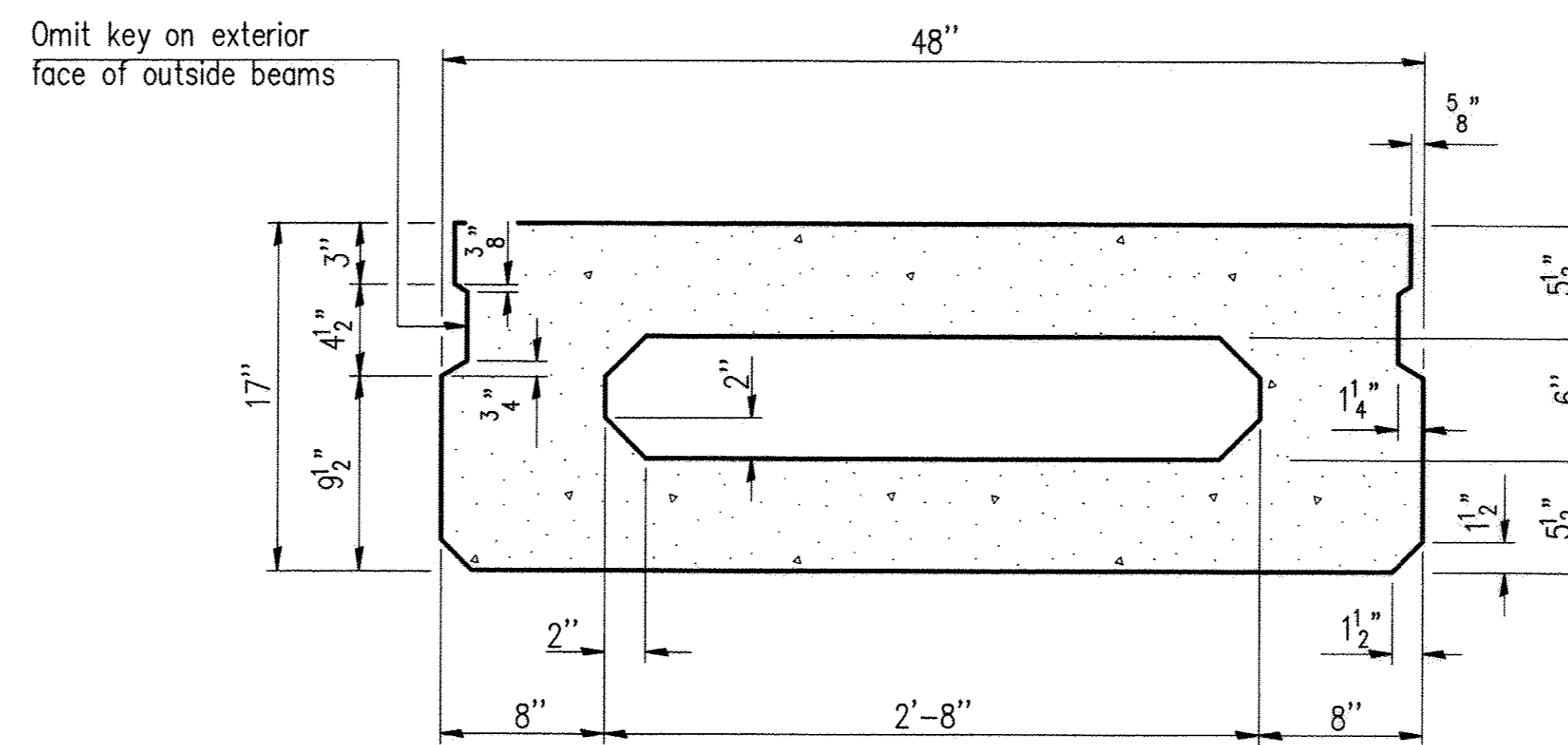
**PILE DATA (2-ABUTS.)**

Type	HP 10 X 42
Nominal Required Bearing	242 kips
Factored Resistance Available	133 kips
Estimated Pile Length	35 Feet - Both Abutments
Number of Production Piles	5 - North Abutment 4 - South Abutment
Number of Test Piles	1 - South Abutment

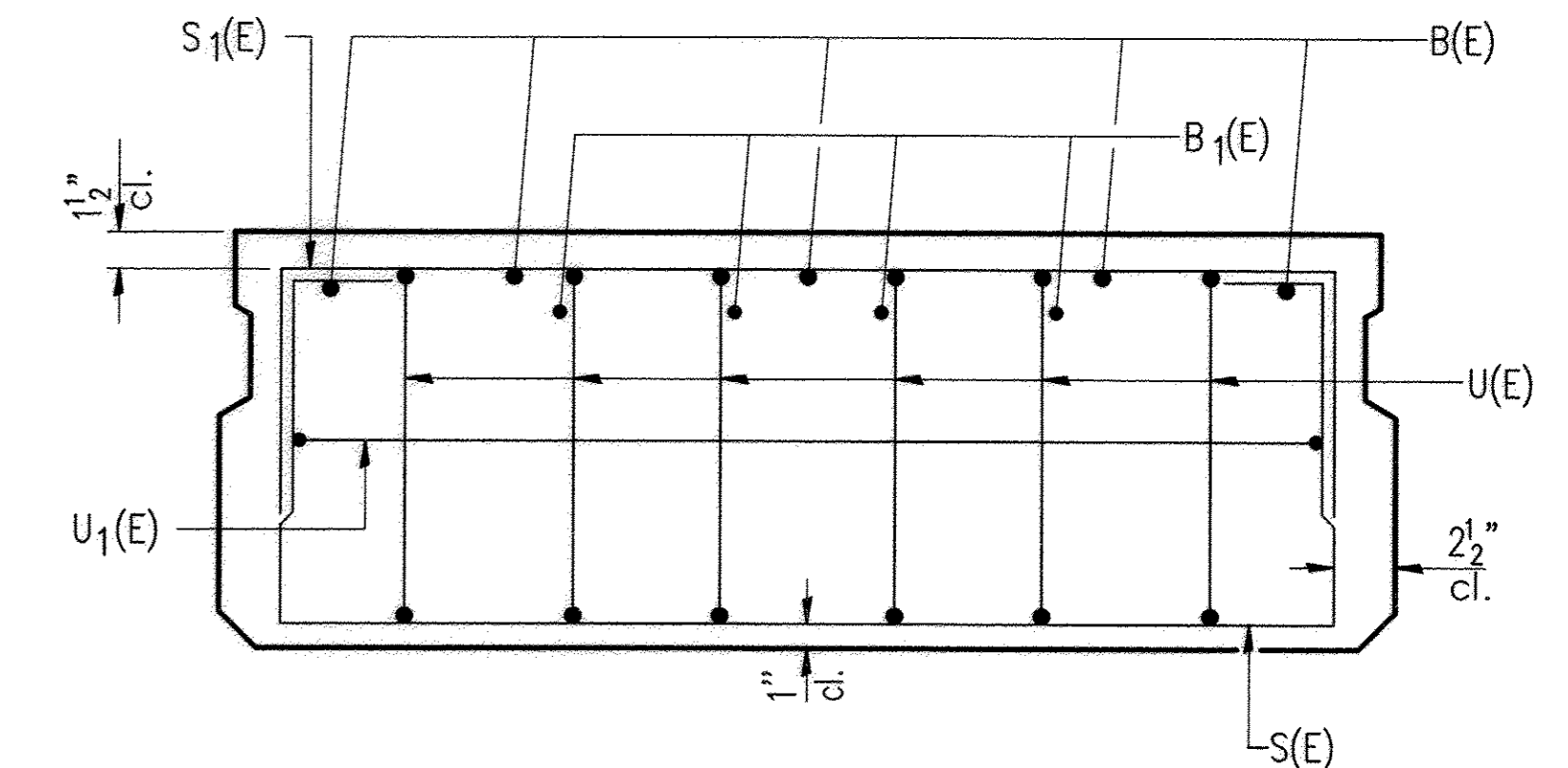
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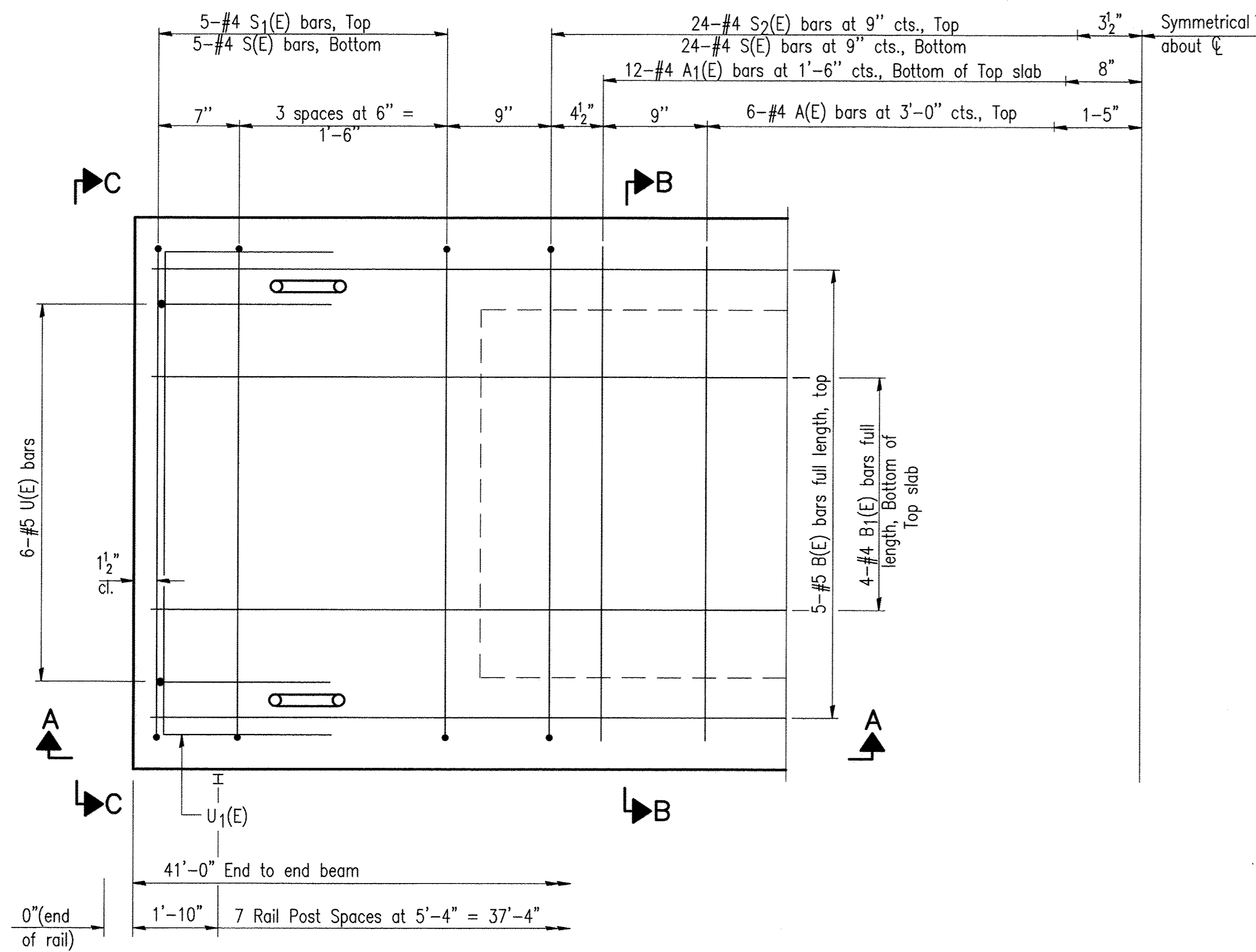
**SECTION A-A**



**SECTION B-B**  
(Showing dimensions)

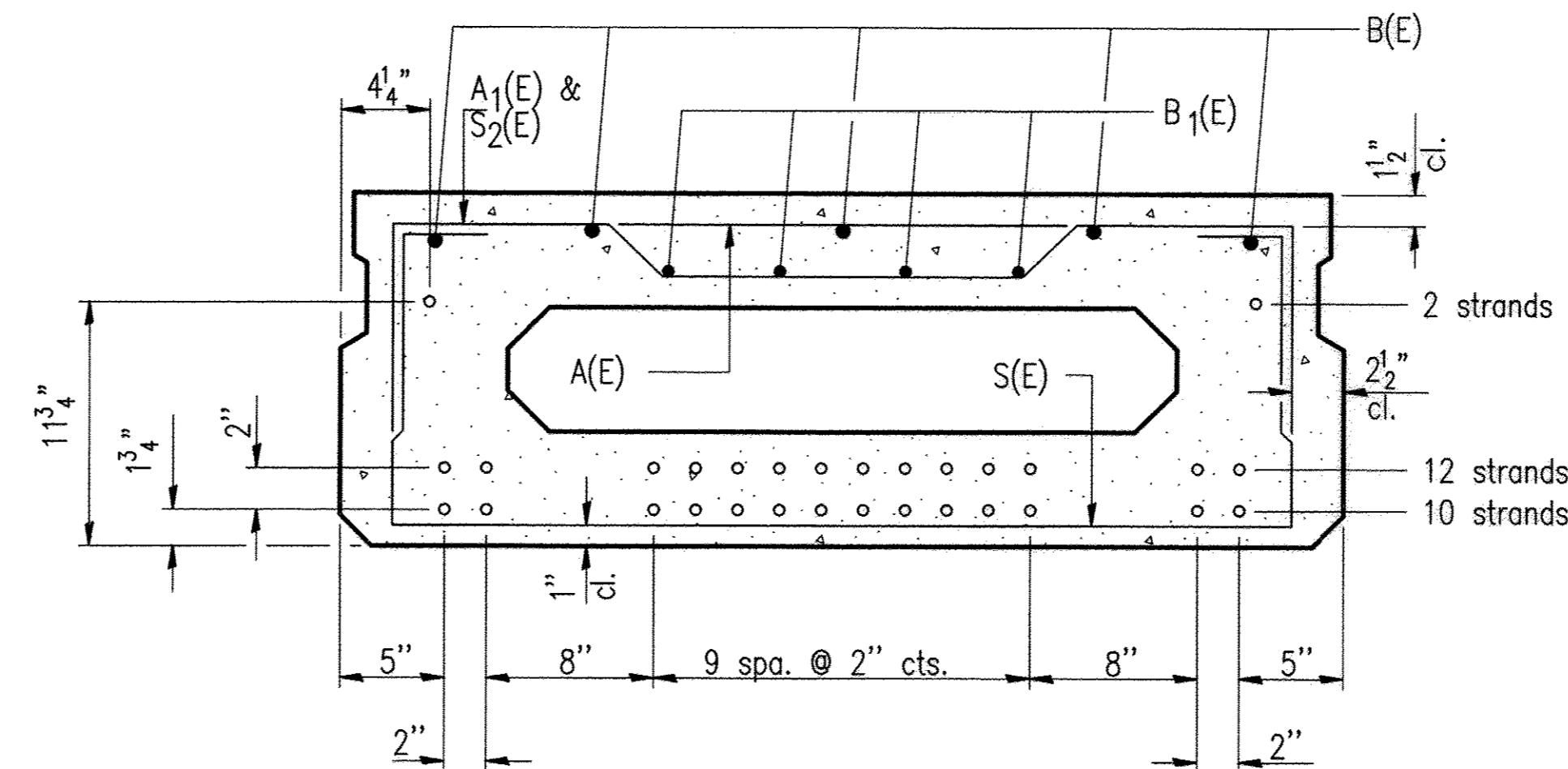


**VIEW C-C**



**PLAN VIEW**

Note: Spacing of S(E) and S<sub>2</sub>(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.



**SECTION B-B**

(Showing reinforcement and permissible strand locations)

Note: 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)	12	#4	3'-7"	—
A <sub>1</sub> (E)	24	#4	3'-10"	—
B(E)	5	#5	40'-9"	—
B <sub>1</sub> (E)	4	#4	40'-9"	—
S(E)	58	#4	6'-9"	U
S <sub>1</sub> (E)	10	#4	5'-3"	U
S <sub>2</sub> (E)	48	#4	5'-6"	U
U(E)	12	#5	3'-8"	U
U <sub>1</sub> (E)	2	#4	6'-0"	U

Note: See sheet 6 of 14 for additional details and Bill of Material.

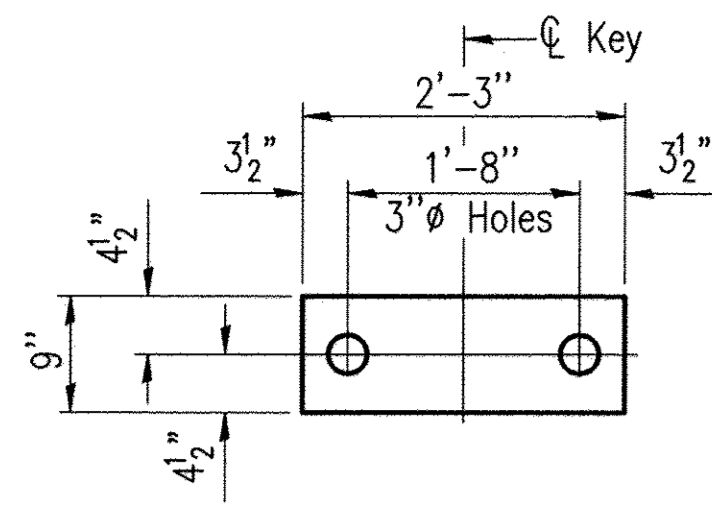
**MINIMUM BAR LAP**

#4 bar = 1'-11"  
#5 bar = 2'-6"

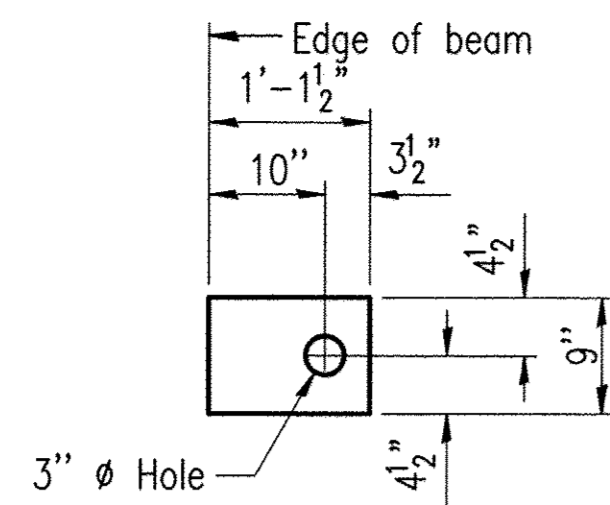
**CHARLESTON ENGINEERING, INC.**  
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**SUPERSTRUCTURE**  
**STRUCTURE NO. 040-3272**  
**C.H. 8**  
**OVER SANDY CREEK**  
**SECTION 16-00134-00-BR**  
**JASPER COUNTY**  
**STATION 4+00.00**

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**FABRIC BEARING PAD**  
(Interior)

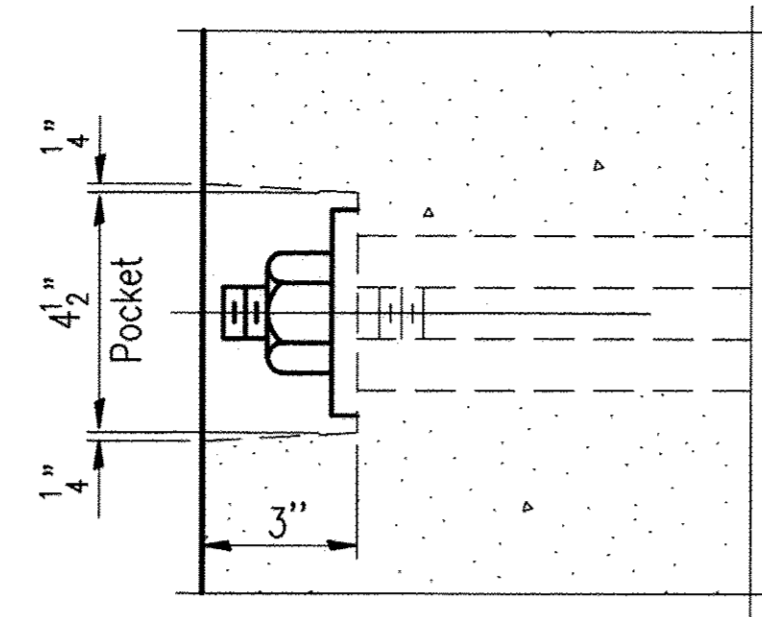


**FABRIC BEARING PAD**  
(Exterior)

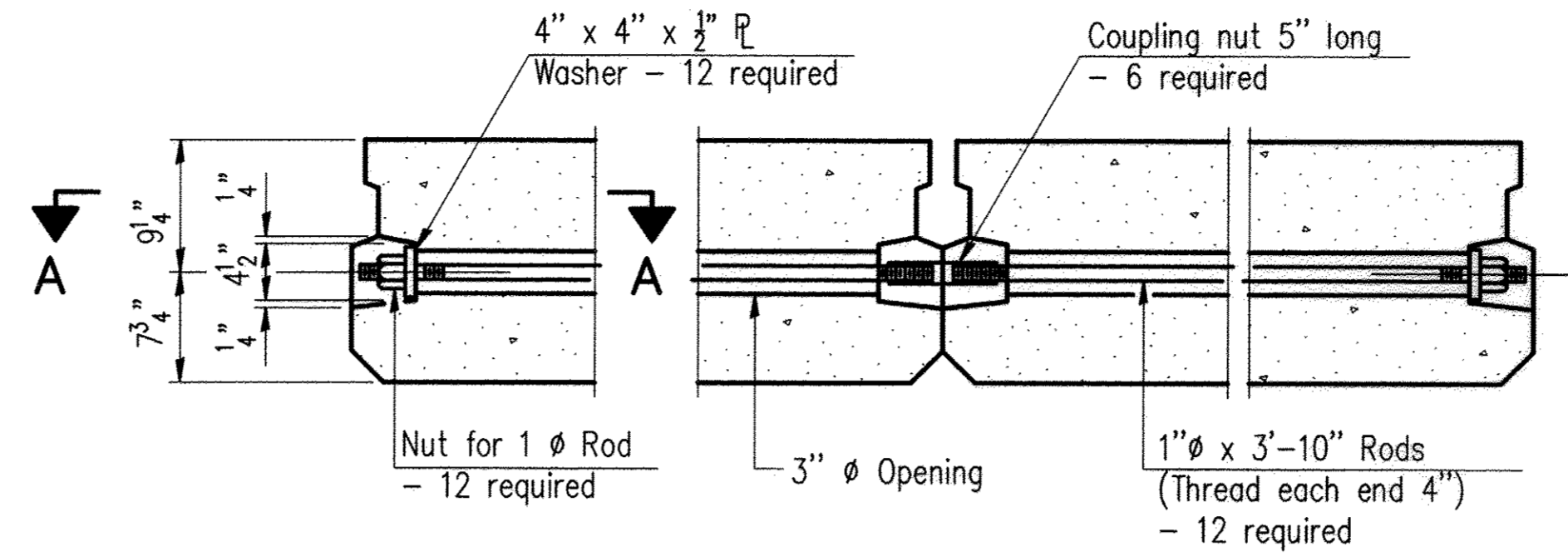
**Notes:**

All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.

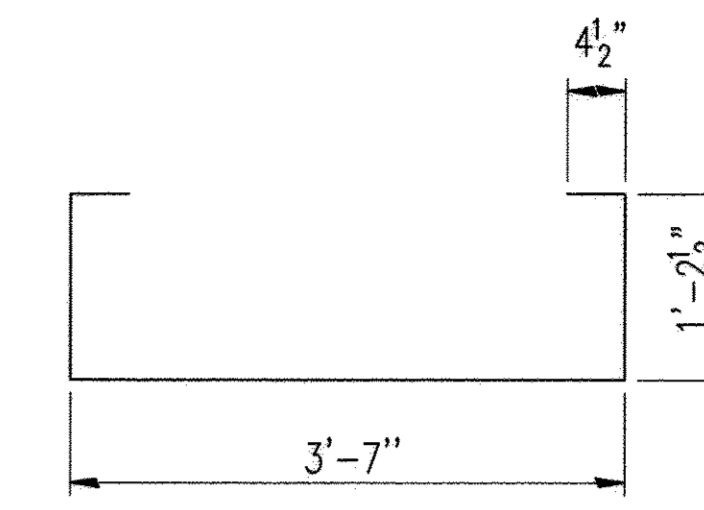
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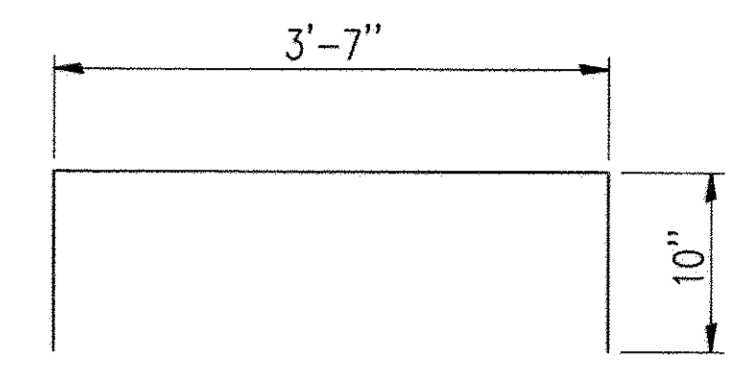
**SECTION A-A**



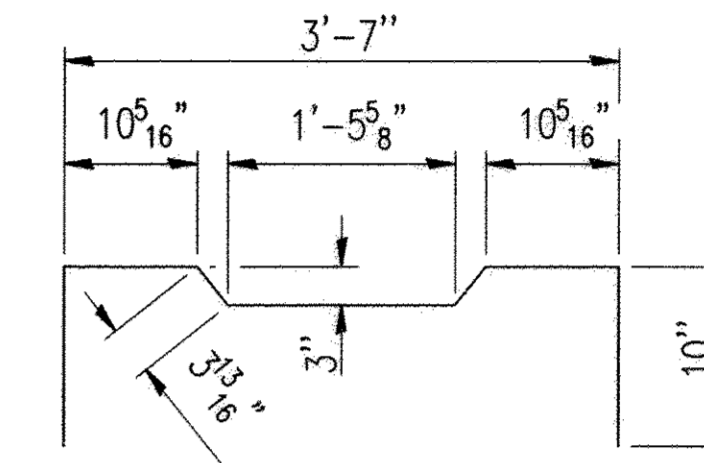
**TYPICAL TRANSVERSE TIE ASSEMBLY**



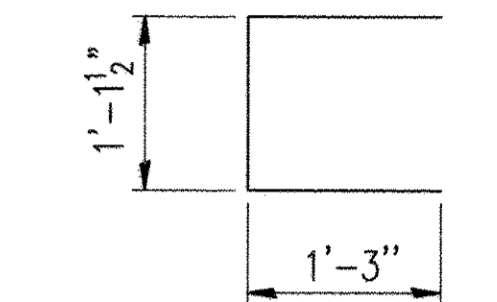
**BAR S(E)**



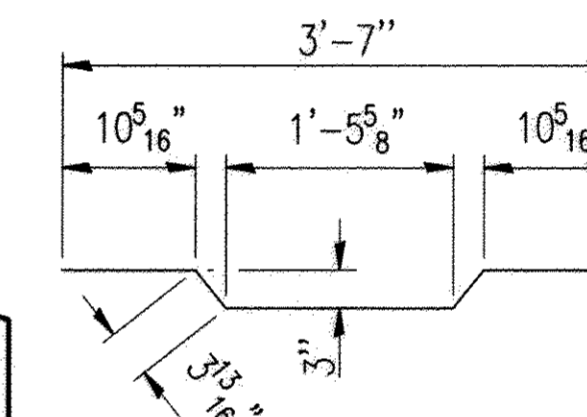
**BAR S1(E)**



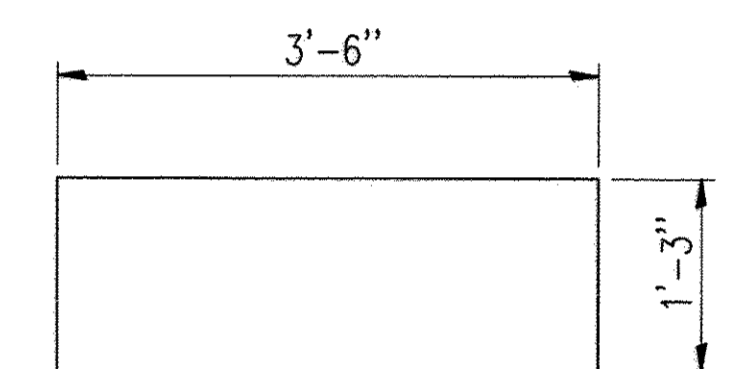
**BAR S2(E)**



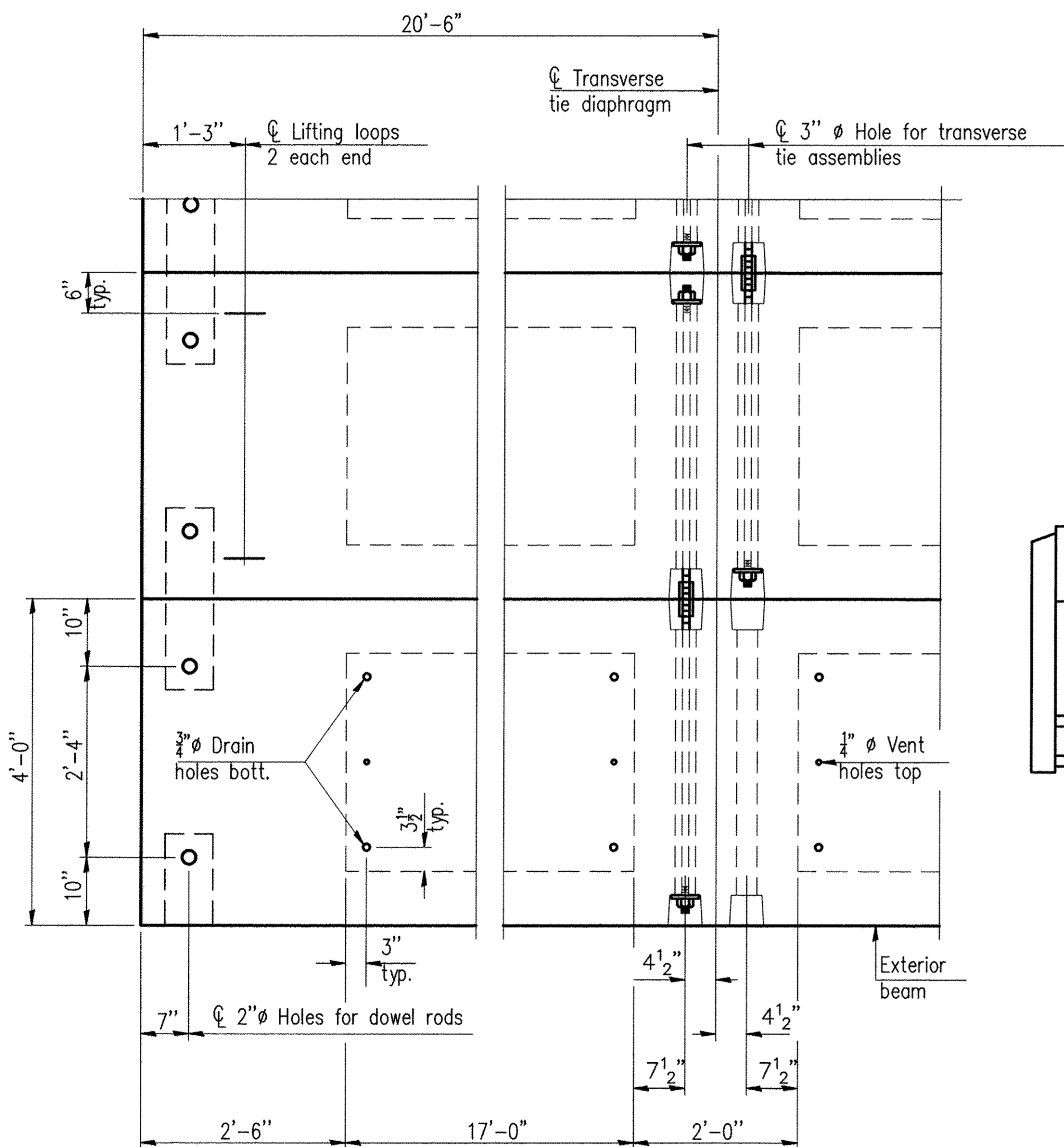
**BAR U(E)**



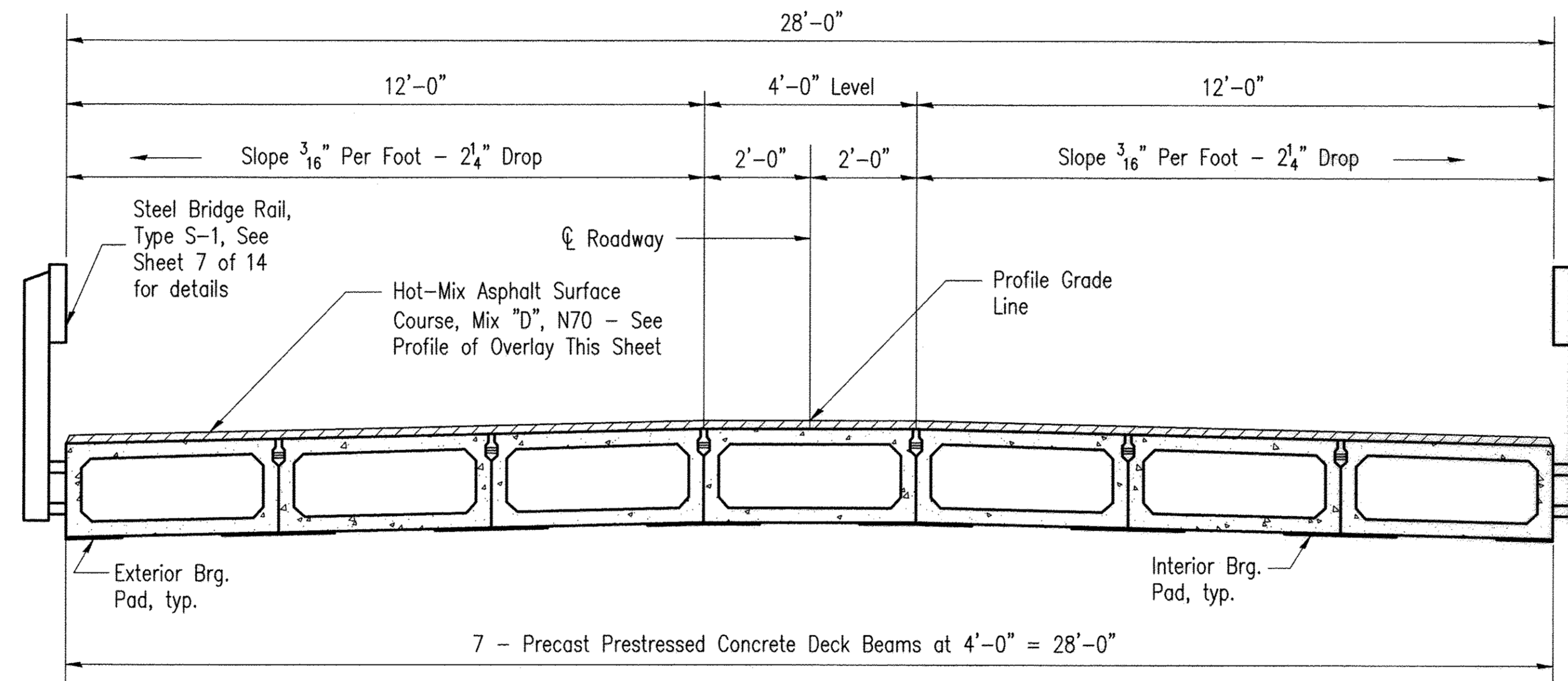
**BAR A1(E)**



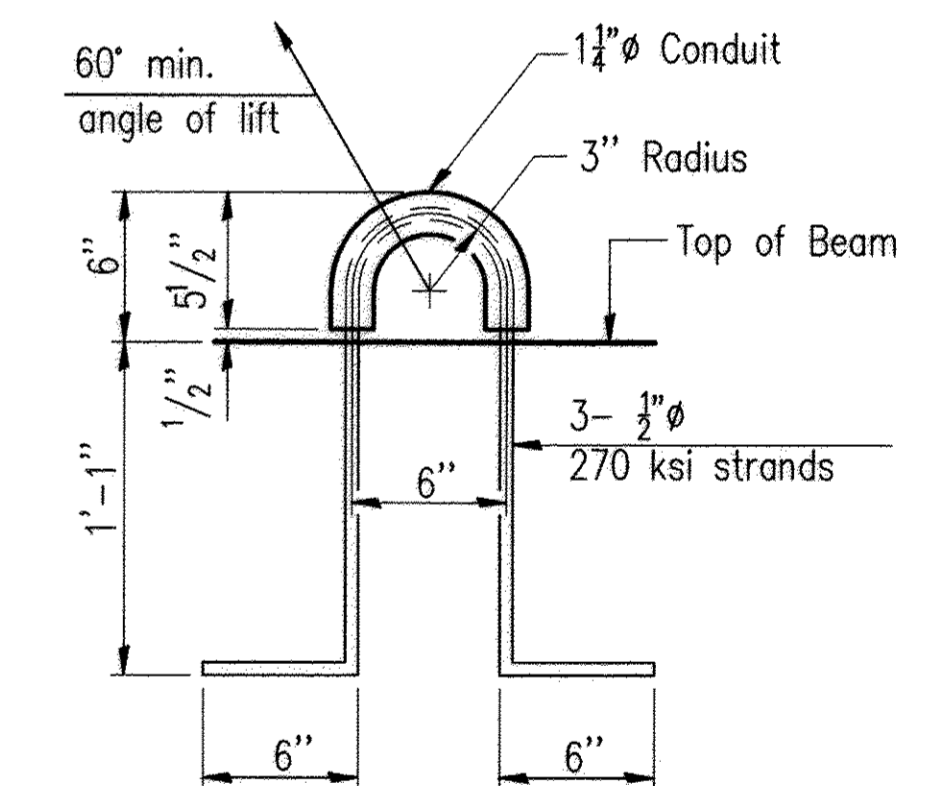
**BAR U1(E)**



**PLAN VIEW**



**CROSS SECTION**



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1148
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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

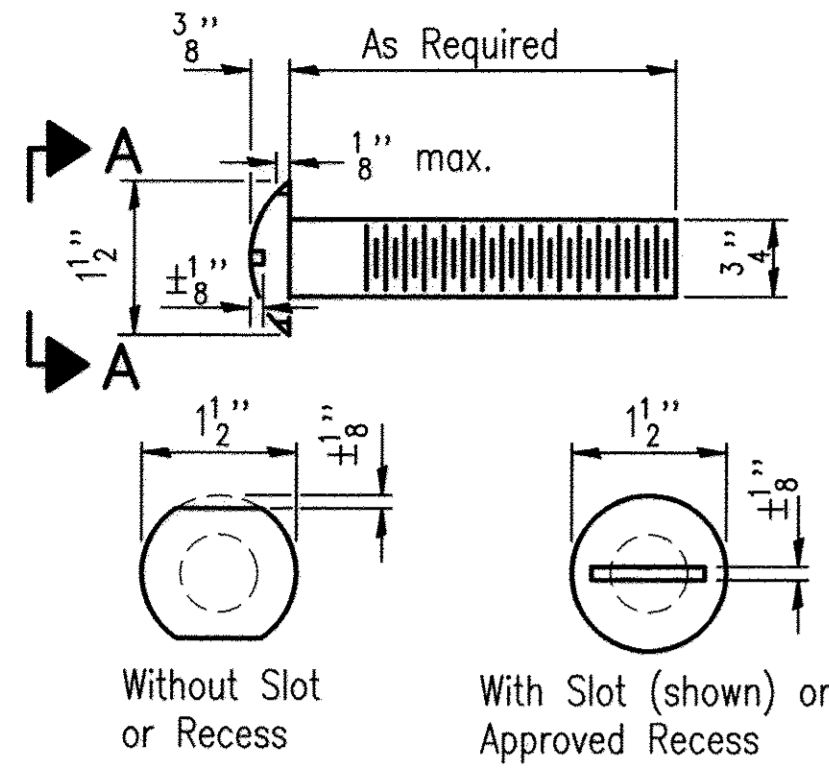
**SUPERSTRUCTURE DETAILS**  
STRUCTURE NO. 040-3272  
C.H. 8  
OVER SANDY CREEK  
SECTION 16-00134-00-BR  
JASPER COUNTY  
STATION 4+00.00

**NOTES**

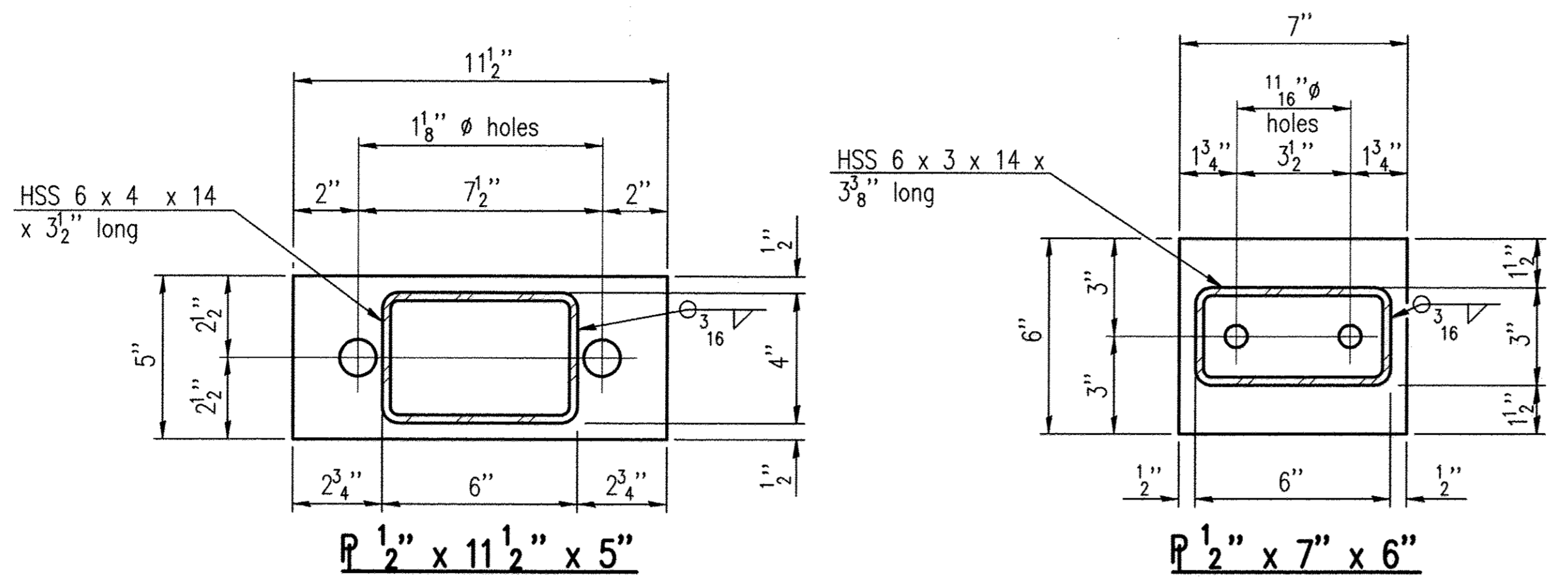
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 7/8" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.  
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.

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	7
CONTRACT NO. 95799		ILLINOIS	PROJECT BRS-0079(155)	

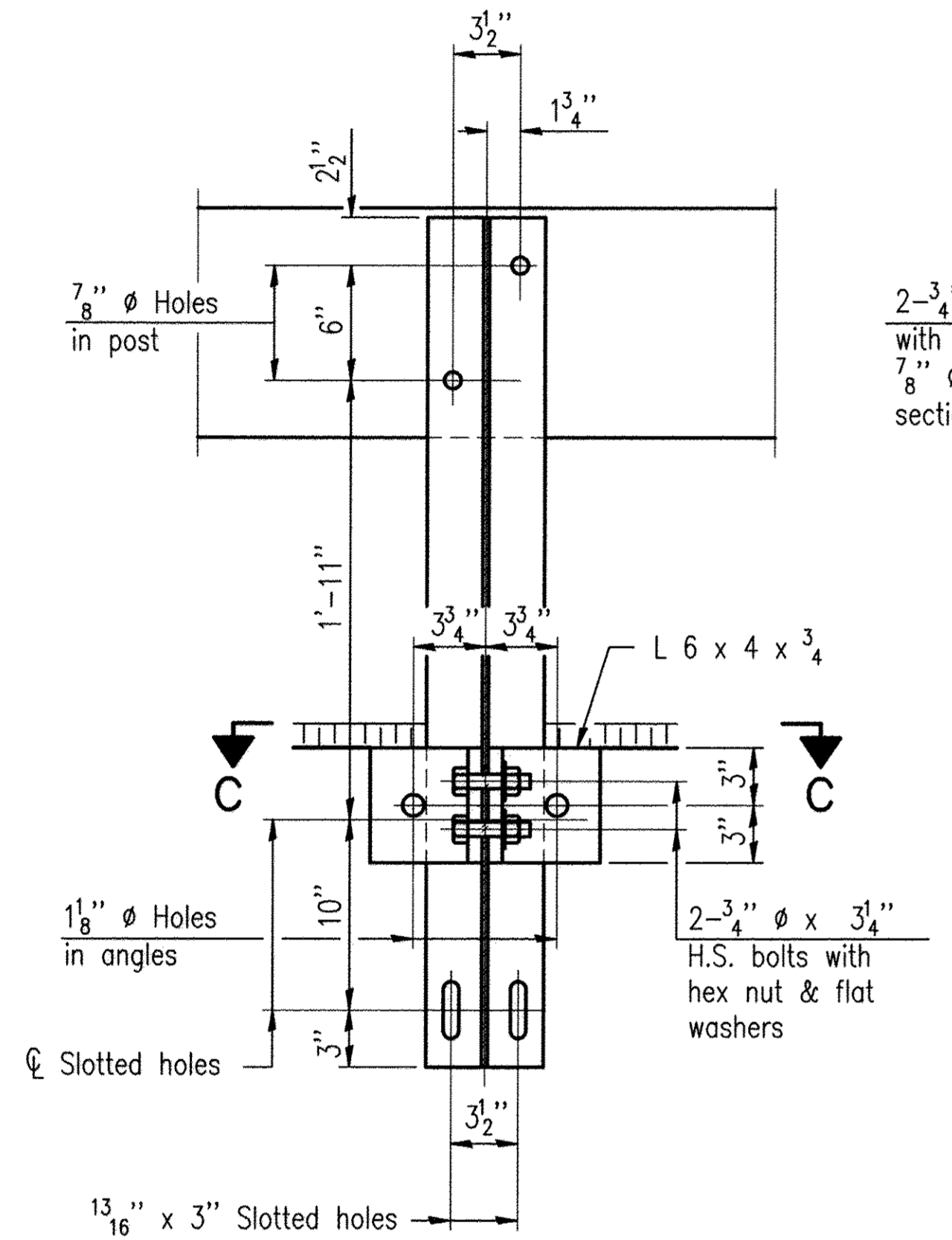


**VIEW A-A  
ROUND HEAD BOLT**

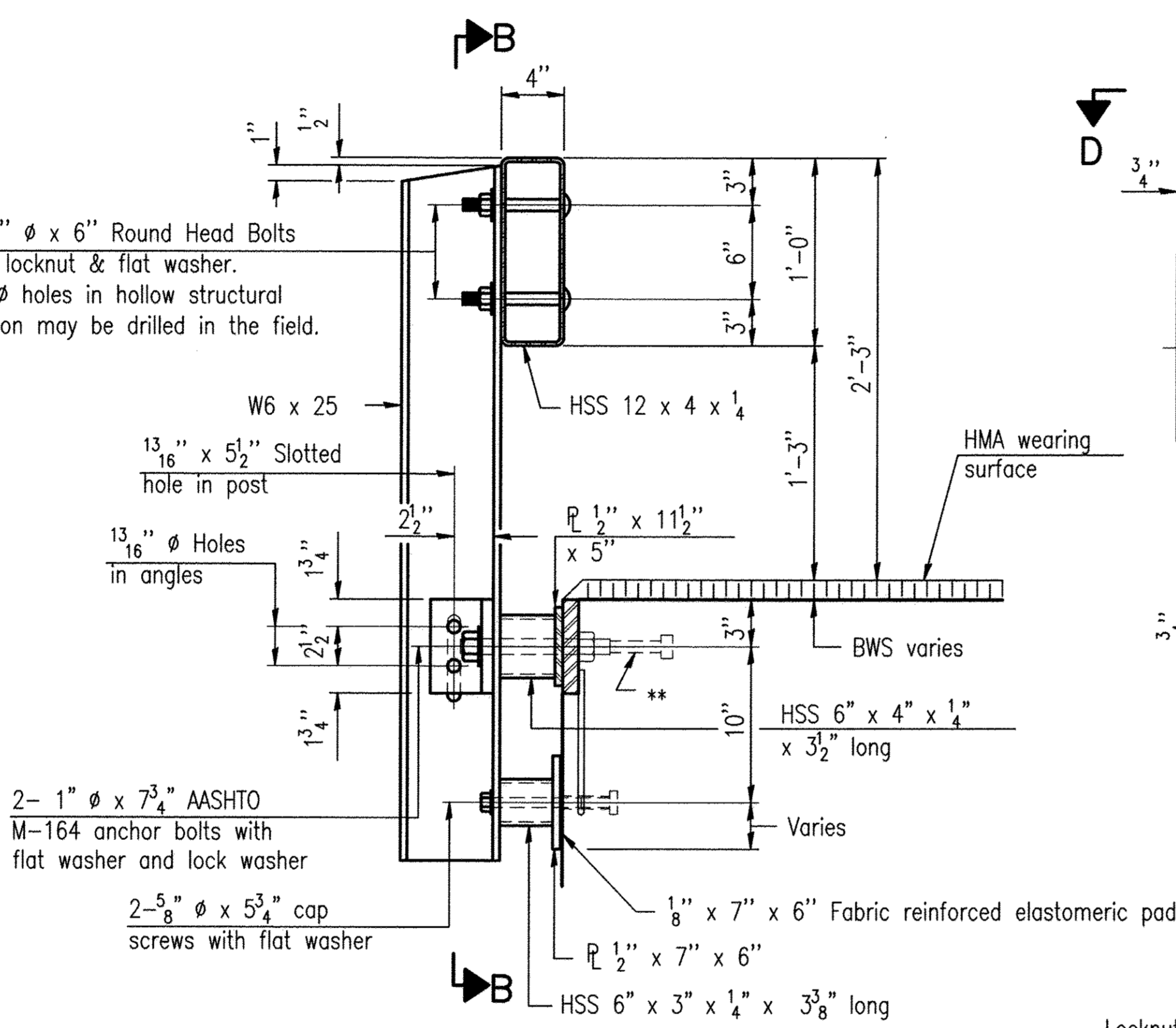


**P 1/2" x 11 1/2" x 5"**

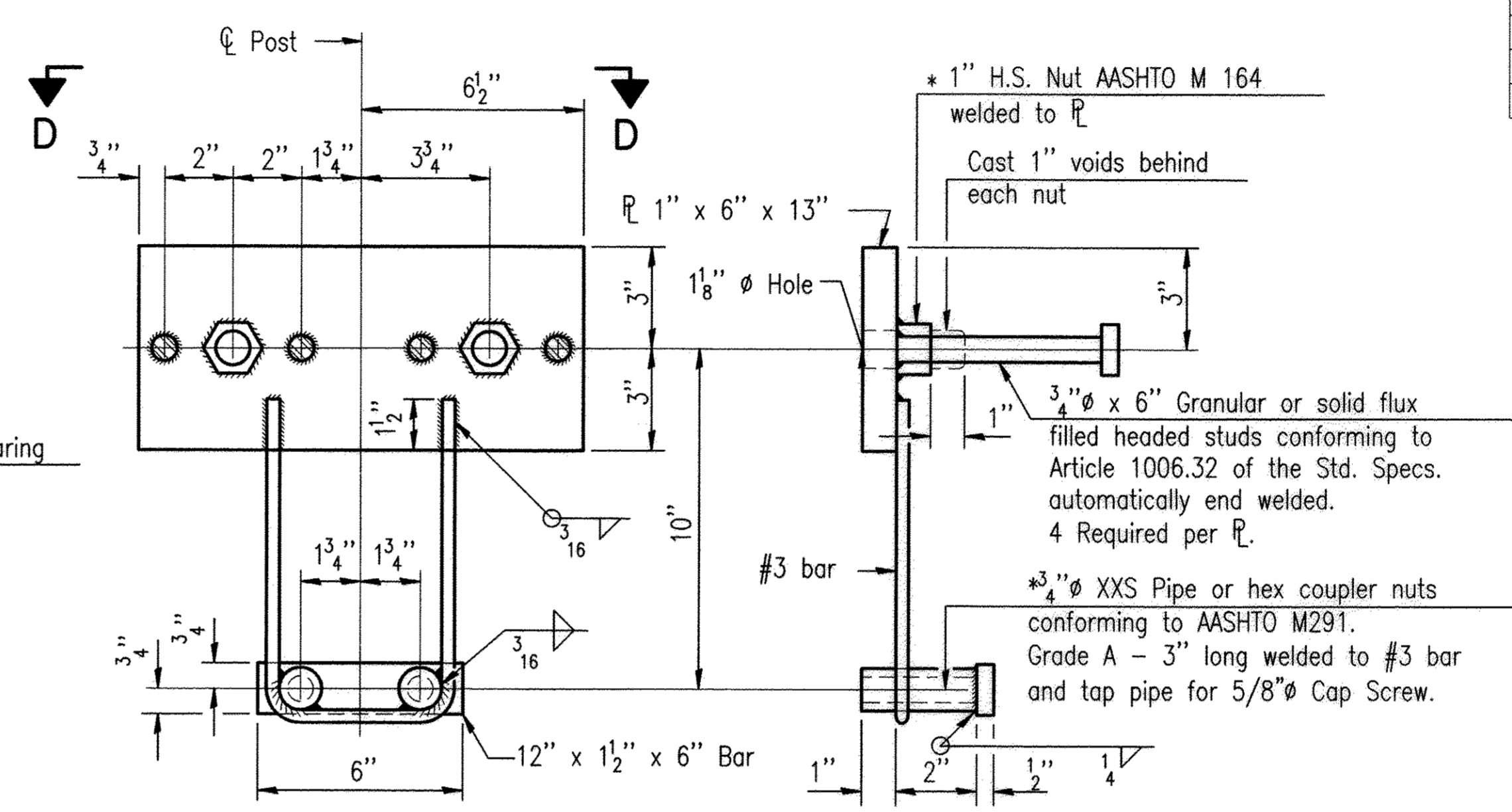
**P 1/2" x 7" x 6"**



**SECTION B-B**

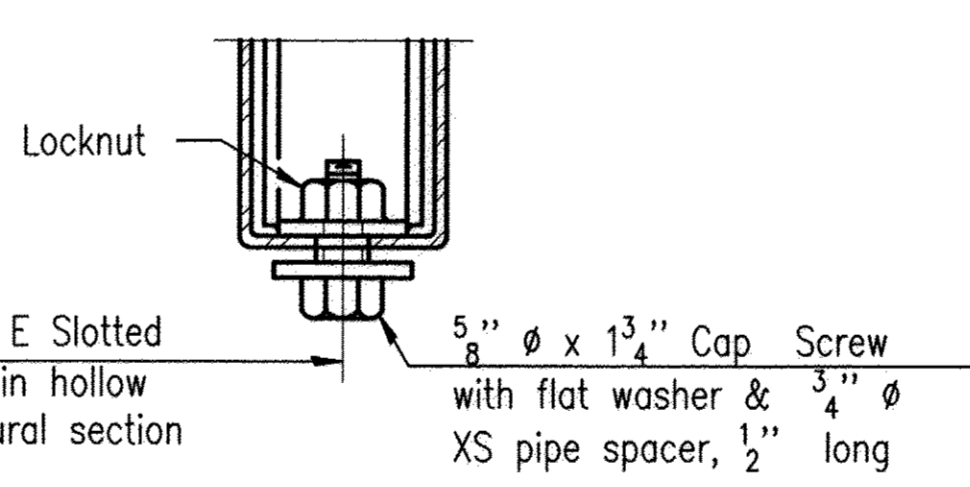


**SECTION AT RAILING POST**

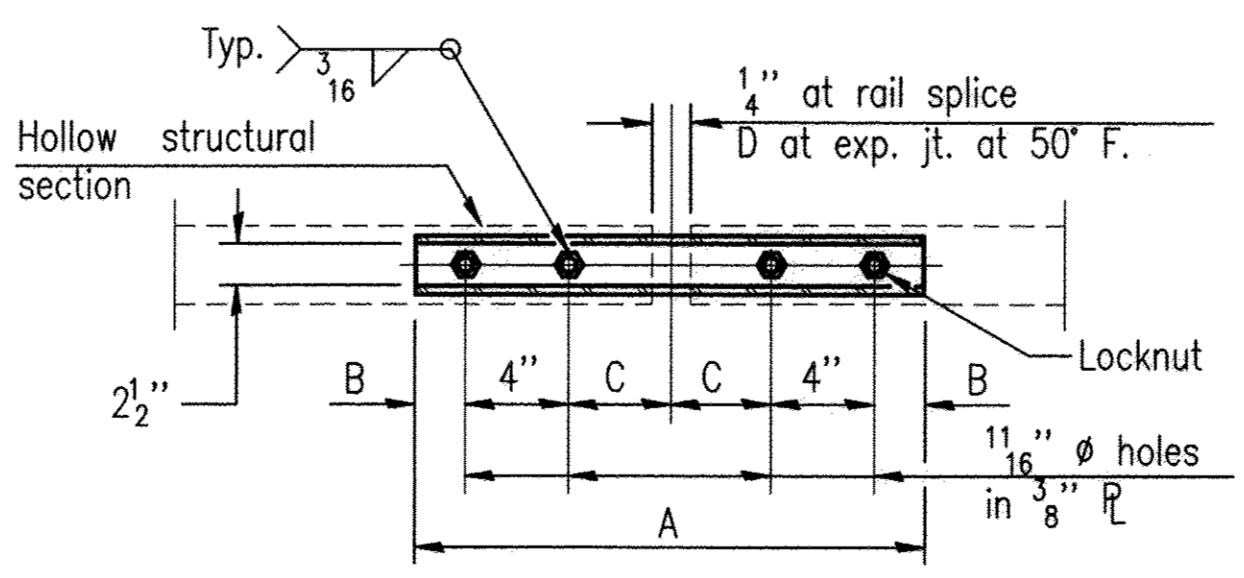


**ANCHOR DEVICE**

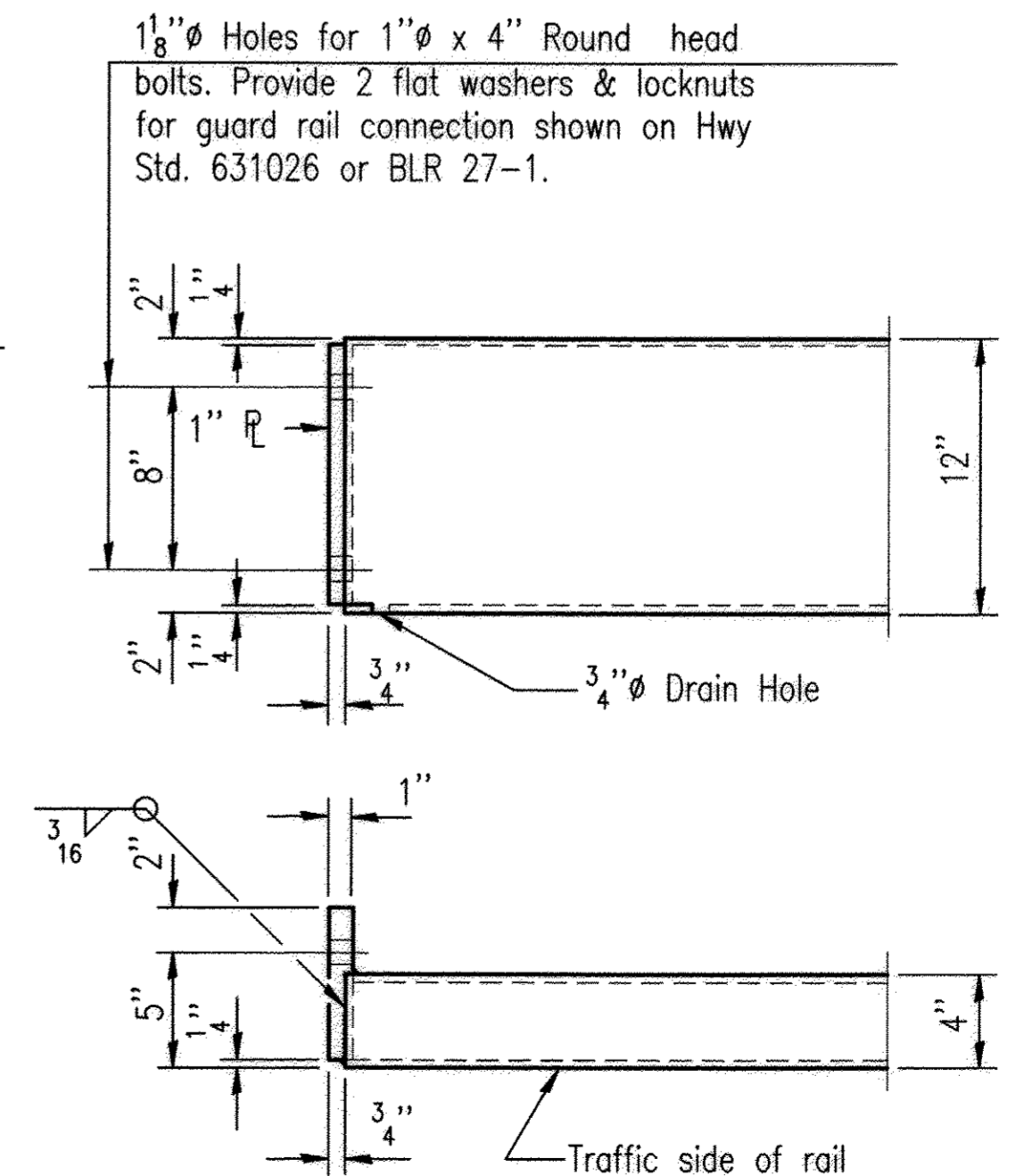
\*Threaded areas shall be plugged or blocked off during casting of beam.



**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE P  
TYPICAL**



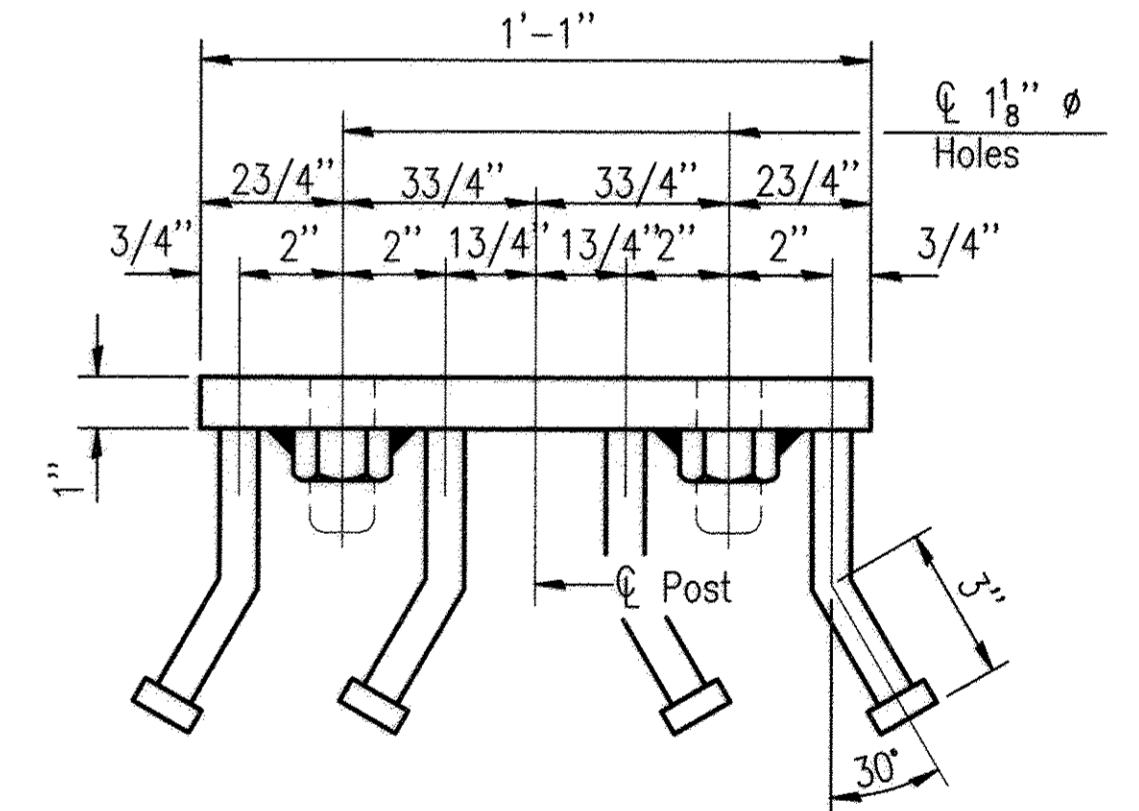
**END OF RAIL DETAILS**

**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 D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	82

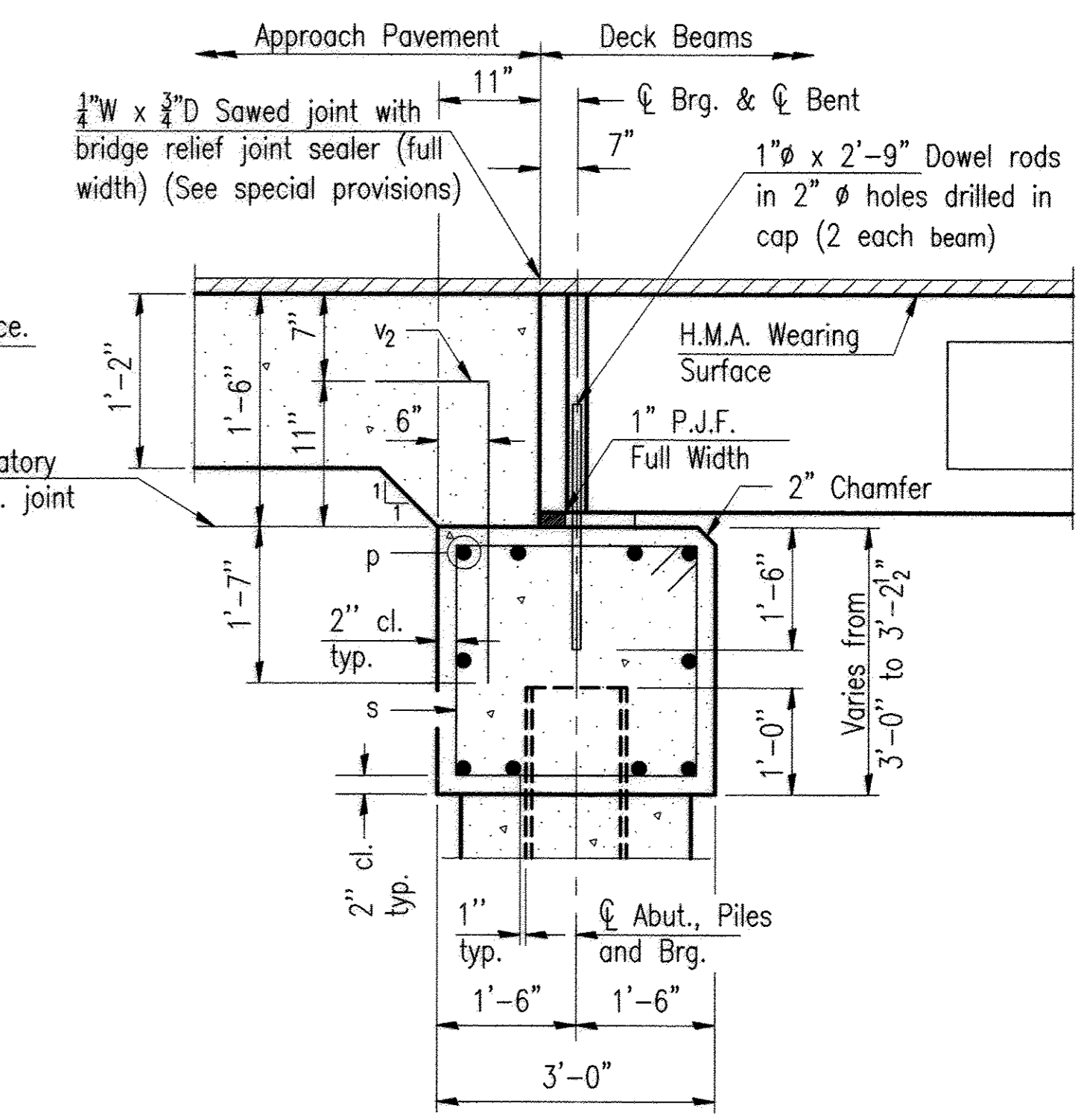
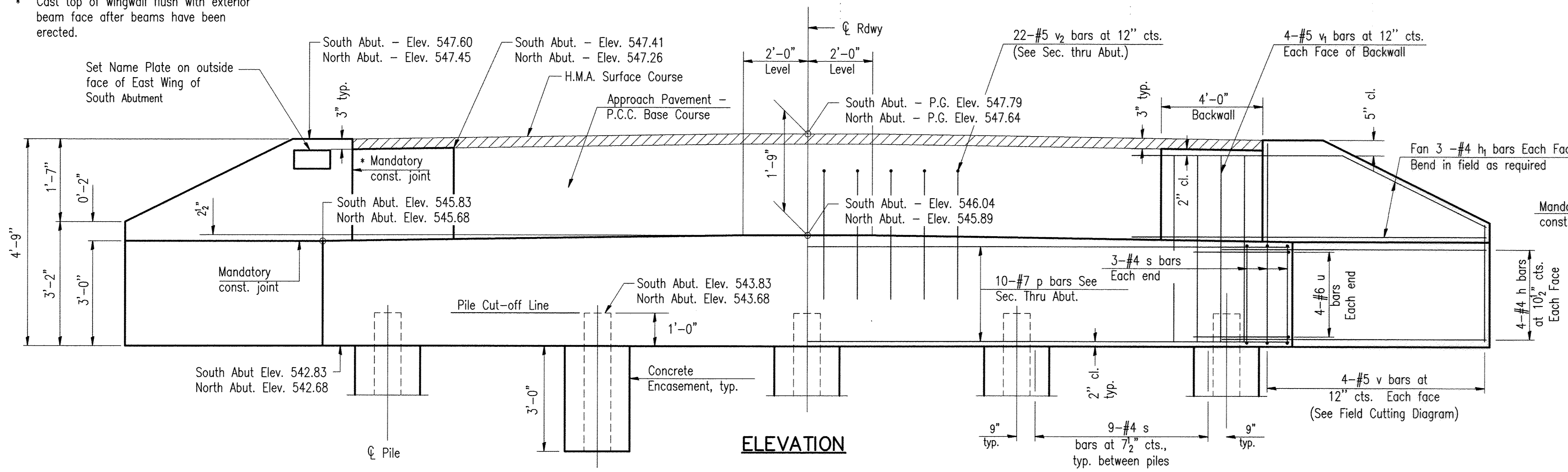
**CHARLESTON ENGINEERING, INC.**  
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P.O. BOX 387  
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(618) 392-0735  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 040-3272  
C.H. 8  
OVER SANDY CREEK  
SECTION 16-00134-00-BR  
JASPER COUNTY  
STATION 4+00.00**

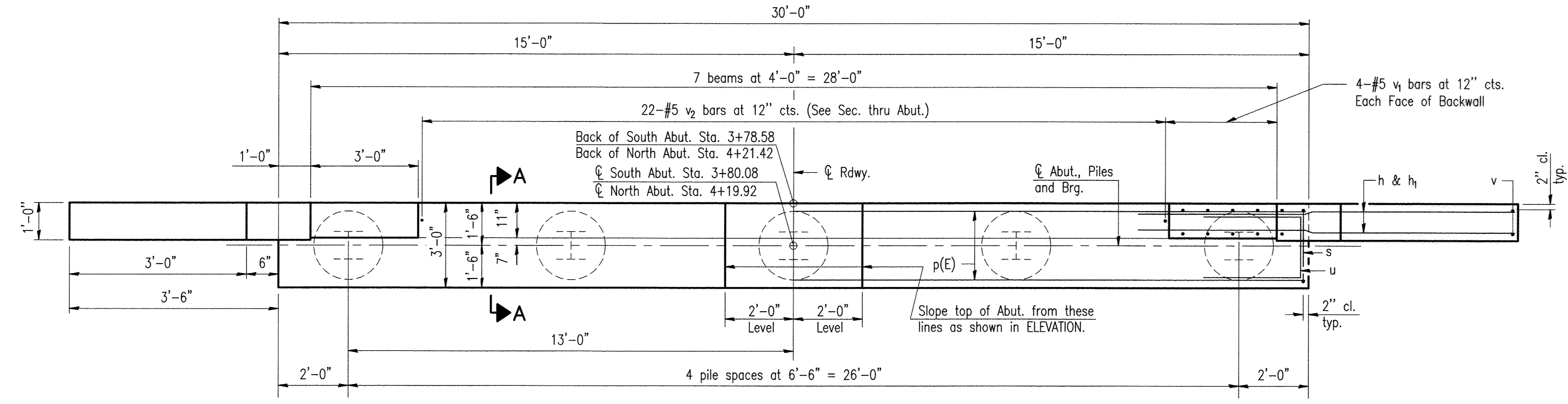
(10'-9" Maximum Post Spacing)

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	8
CONTRACT NO. 95799		ILLINOIS	PROJECT BRS-0079(155)	

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



SECTION A-A

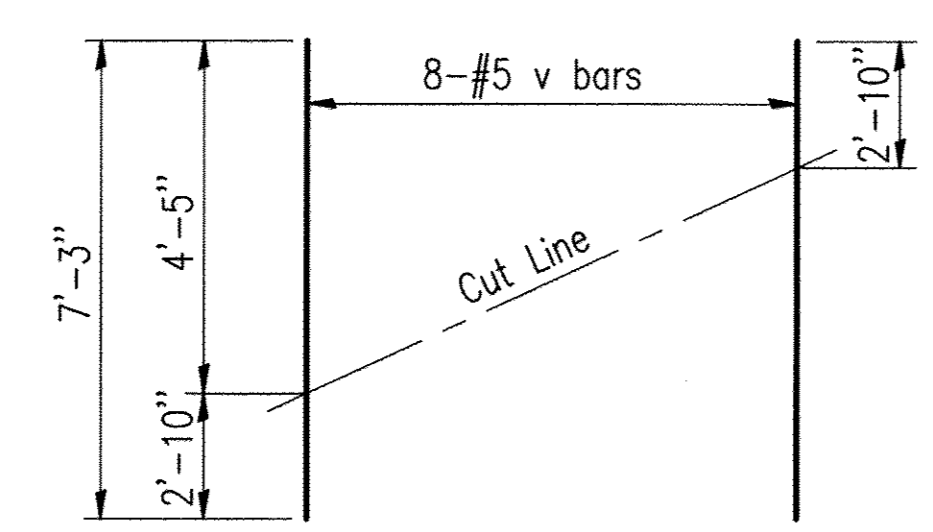


PLAN

**BILL OF MATERIAL - 2 ABUTS.**

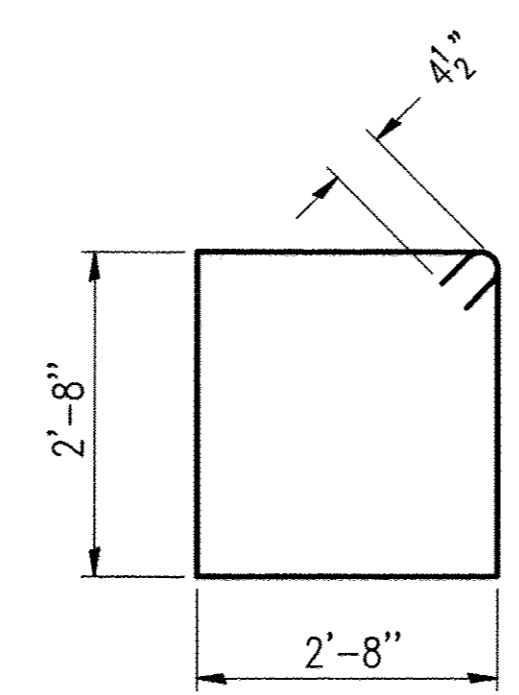
Bar	No.	Size	Length	Shape	
h	32	#4	5'-3"	—	
h <sub>1</sub>	24	#4	9'-3"	—	
p	20	#7	29'-8"	—	
s	84	#4	11'-5"	□	
u	16	#6	11'-8"	—	
v	16	#5	7'-3"	—	
v <sub>1</sub>	32	#5	4'-1"	—	
v <sub>2</sub>	44	#5	3'-6"	—	
Concrete Structures				Cu. Yd.	23.6
Reinforcement Bars				Pound	2815
Furnishing Steel Piles				Foot	315
HP 10 X 42					
Driving Piles				Foot	315
Test Pile HP 10 X 42				Each	1
Pile Shoes				Each	9
Concrete Encasement				Cu. Yd.	3.5

**PILE DATA**  
 Type: HP 10 X 42  
 Nominal Required Bearing: 242 kips  
 Factored Resistance Available: 133 kips  
 Est. Length: 35 Feet  
 No. Production Piles: 9  
 No. Test Piles: 1 - South Abutment

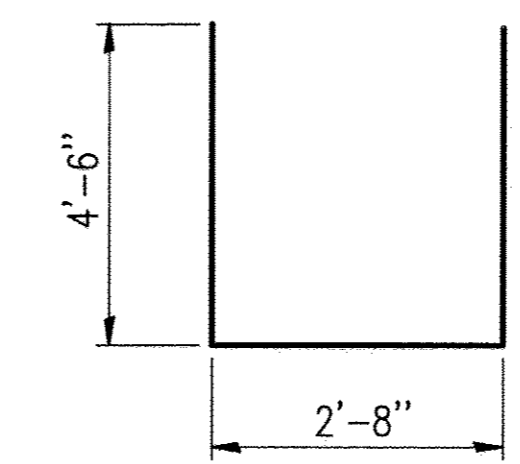


FIELD CUTTING DIAGRAM

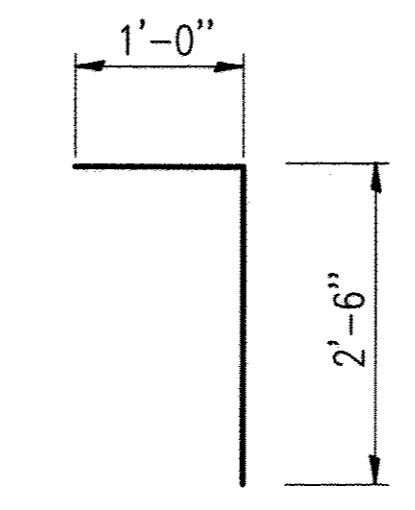
Order v bars full length. Cut as shown and use remainder of bars in opposite face.



BAR s



BAR u



BAR v<sub>2</sub>

**Notes:**

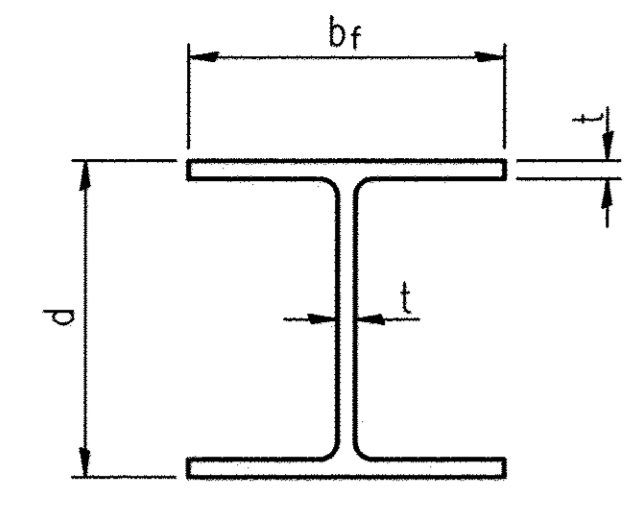
1. Cast Approach Pavement, Backwalls, and Wingwalls after beams have been erected.
2. The Approach Pavement, Backwalls, and the portion of the Wingwalls above the mandatory construction joint shall be cast against the in-place beam.
3. Extend "h" bars into the abutment cap.
4. For details of piles and Concrete Encasement, see sheet 9 of 14.
5. Drawings not to scale.

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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**ABUTMENT DETAILS**  
**STRUCTURE NO. 040-3272**  
**C.H. 8**  
**OVER SANDY CREEK**  
**SECTION 16-00134-00-BR**  
**JASPER COUNTY**  
**STATION 4+00.00**

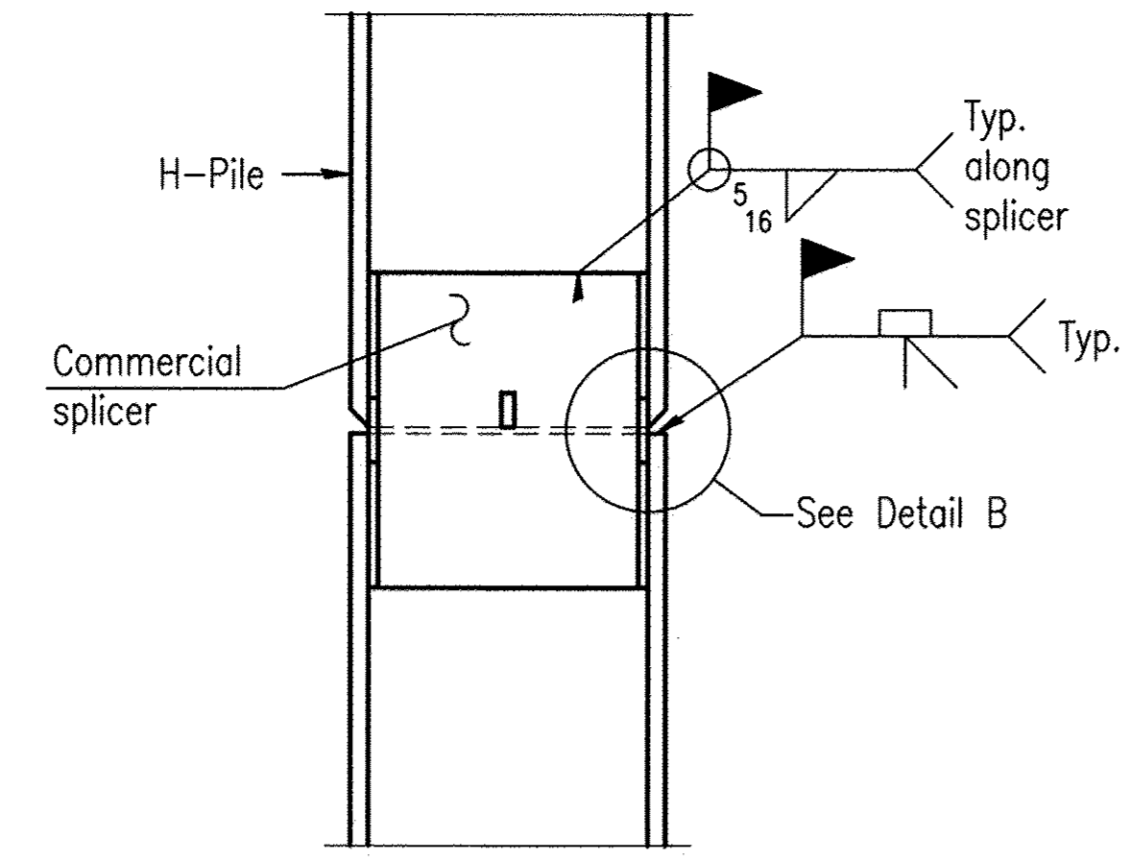


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	9
CONTRACT NO. 95799		ILLINOIS	PROJECT BRS-0079(155)	

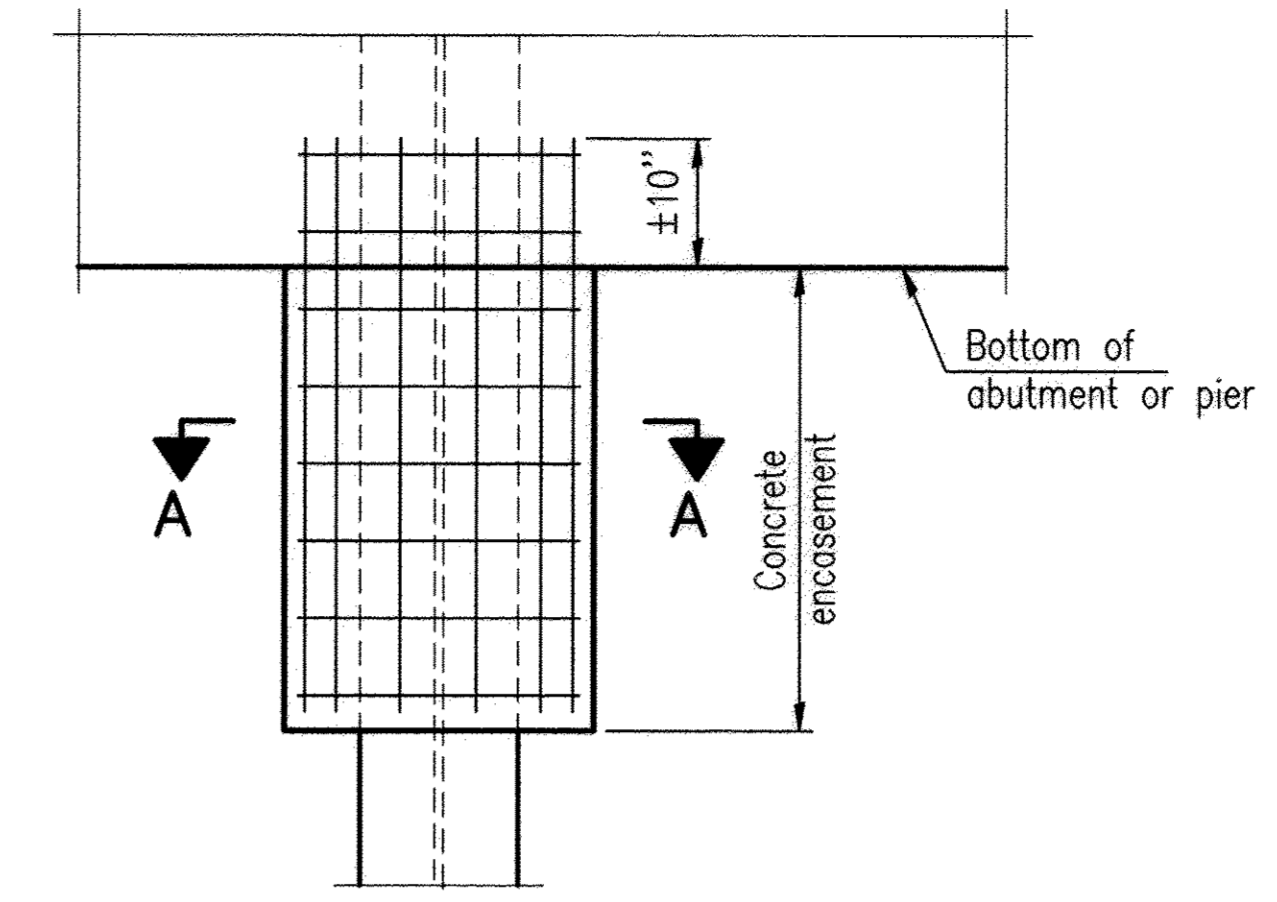


**STEEL PILE TABLE**

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 10x42	9 <sup>3</sup> / <sub>4</sub> "	10 <sup>1</sup> / <sub>8</sub> "	7 <sup>1</sup> / <sub>16</sub> "	24"

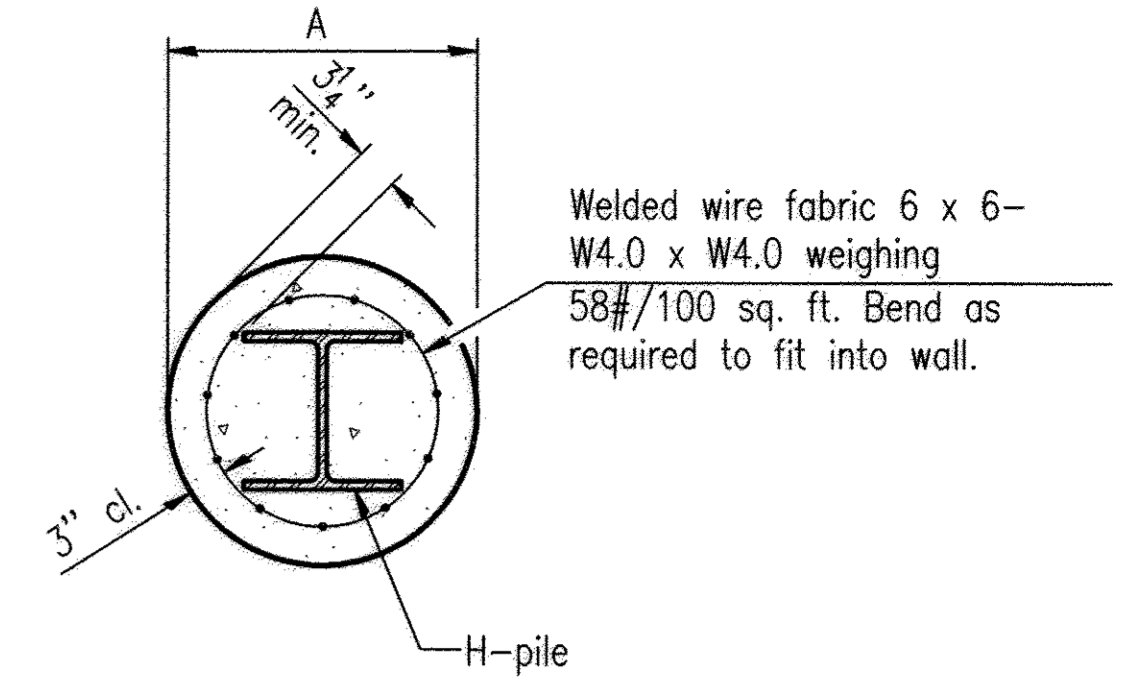


**ELEVATION**



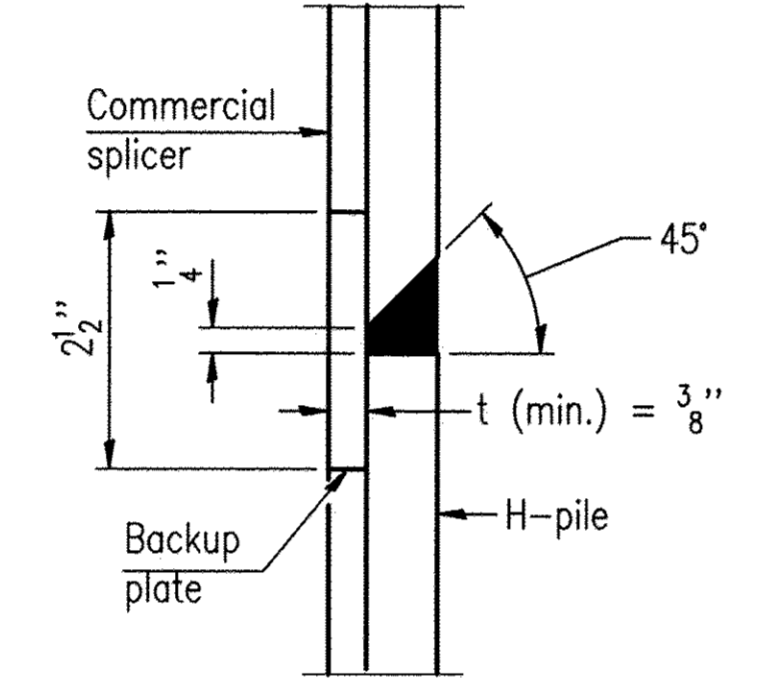
**ELEVATION**

**PILE ENCASEMENT**

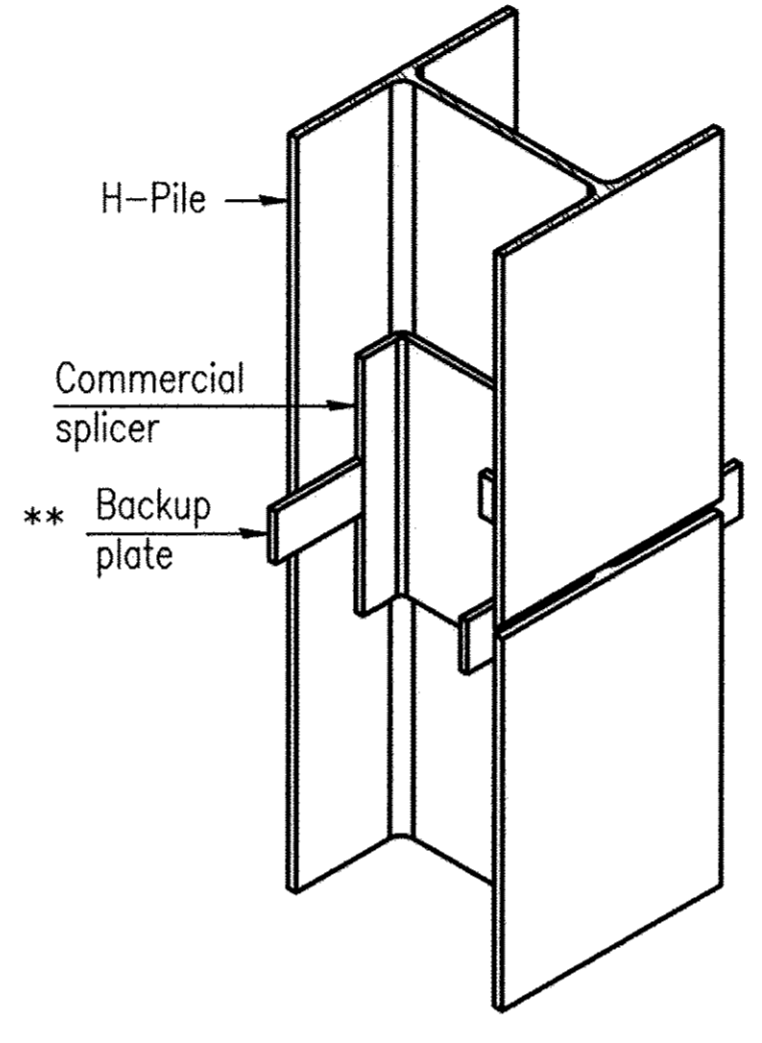


**SECTION A-A**

Note: Forms for encasement may be omitted when soil conditions permit.

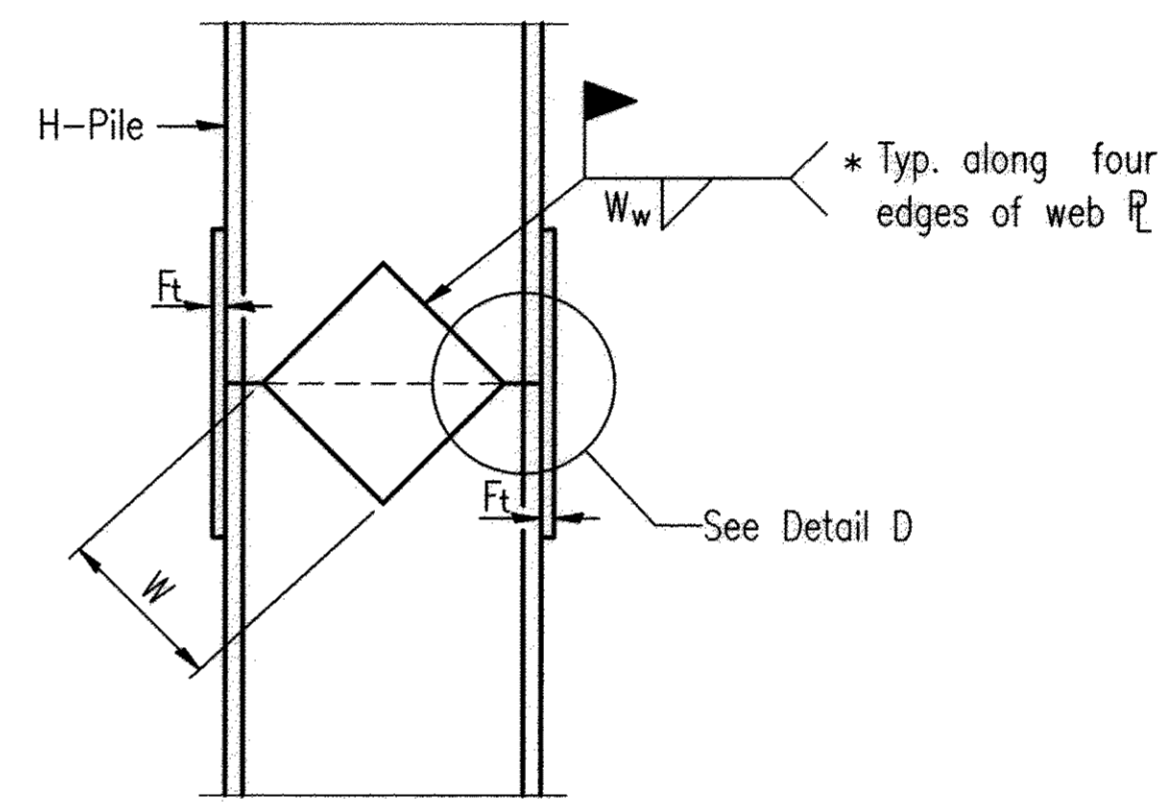


**DETAIL "B"**

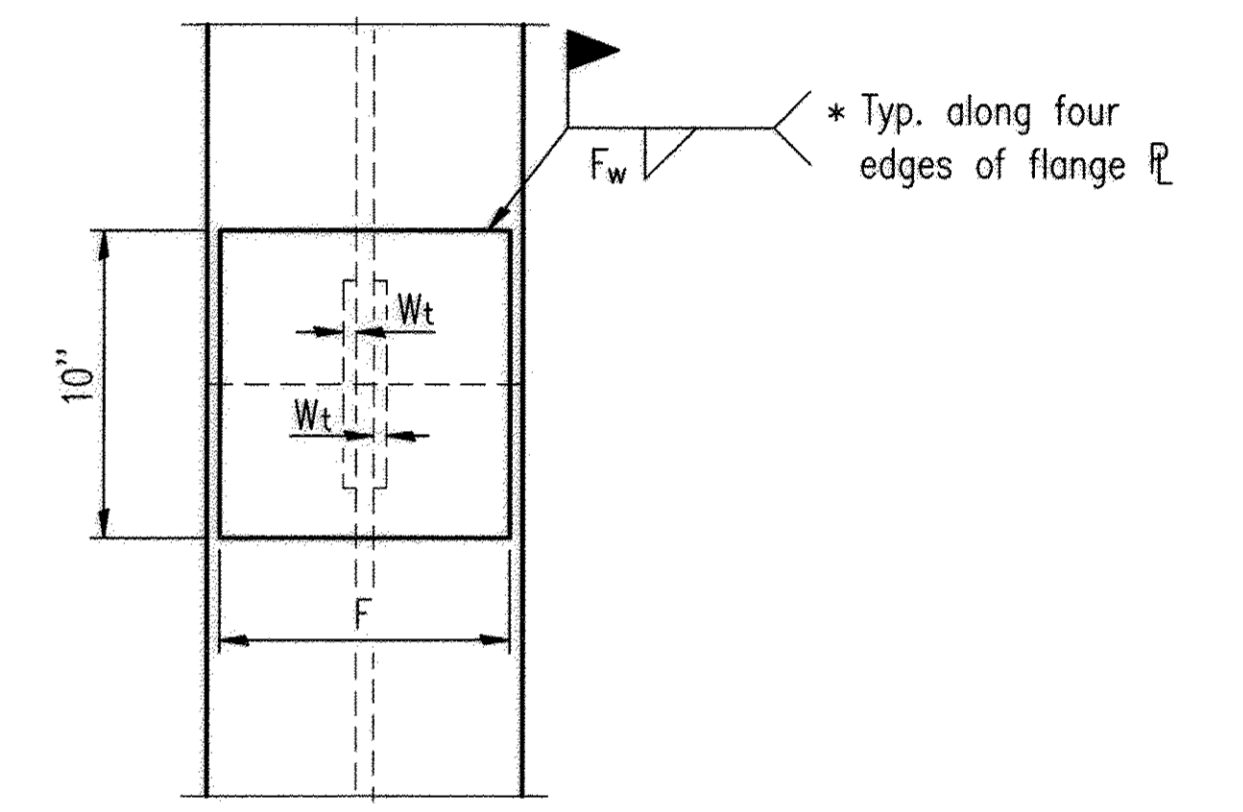


**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE**

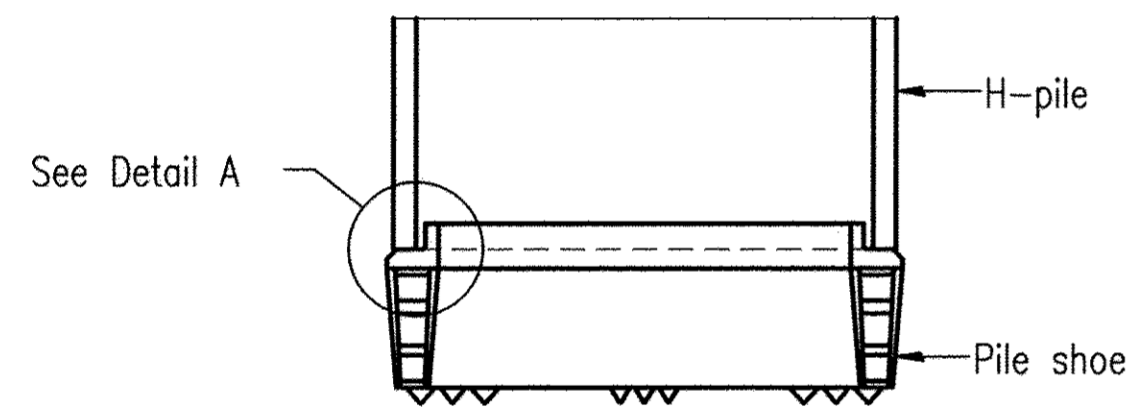


**ELEVATION**

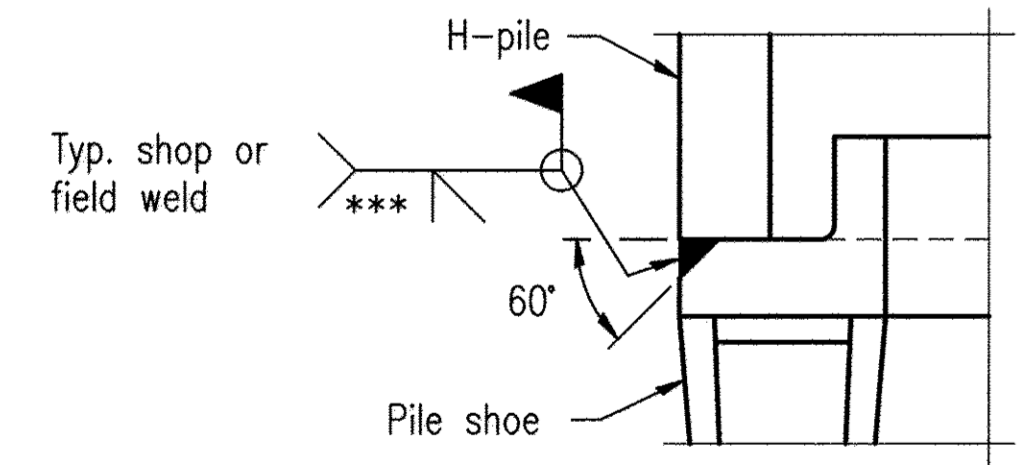


**END VIEW**

Designation	F	F <sub>t</sub>	F <sub>w</sub>	W	W <sub>t</sub>	W <sub>w</sub>
HP 10x42	8"	5 <sup>1</sup> / <sub>8</sub> "	9 <sup>1</sup> / <sub>16</sub> "	5 <sup>1</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>2</sub> "	3 <sup>1</sup> / <sub>8</sub> "

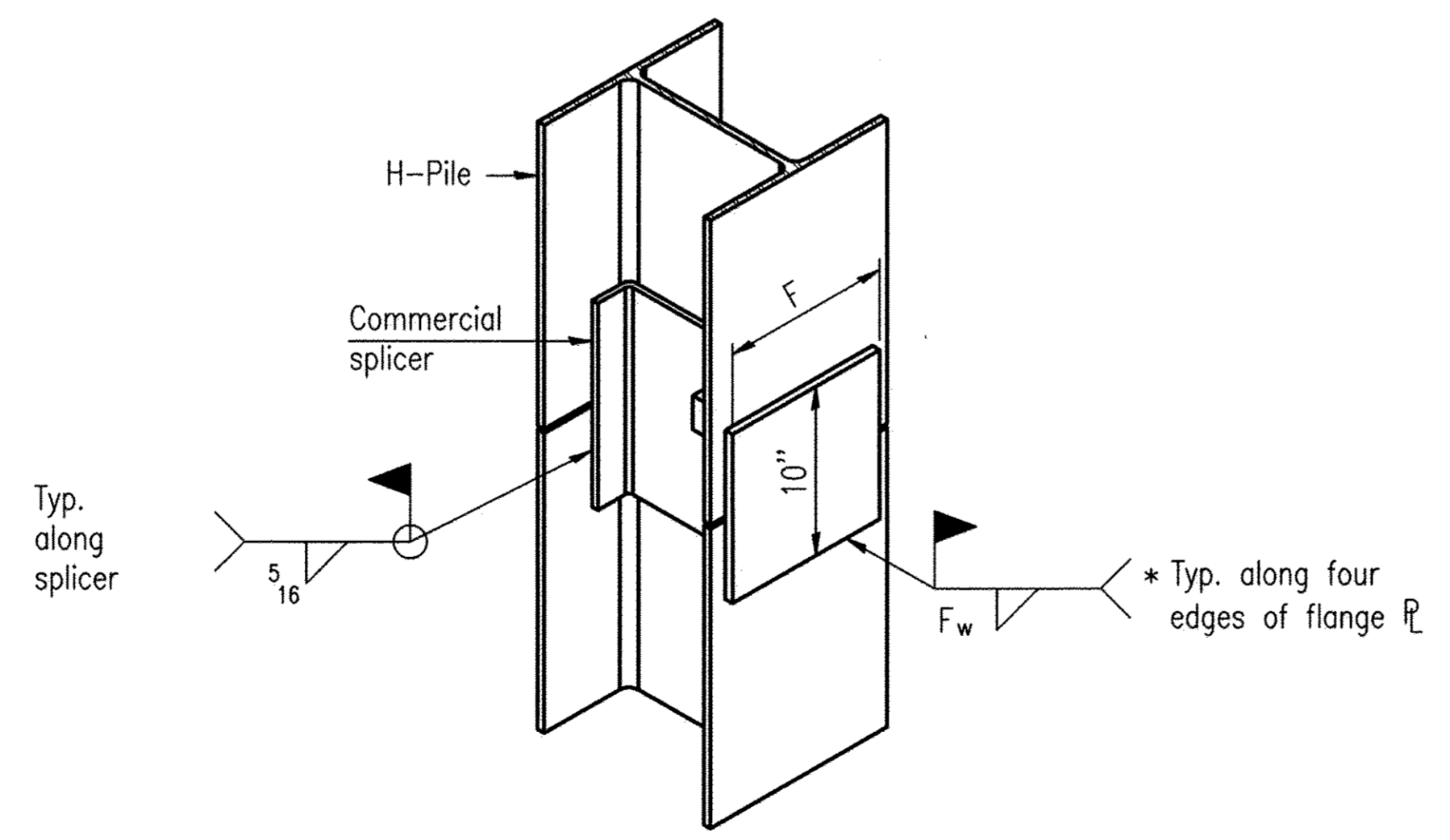


**ELEVATION**



**DETAIL A**

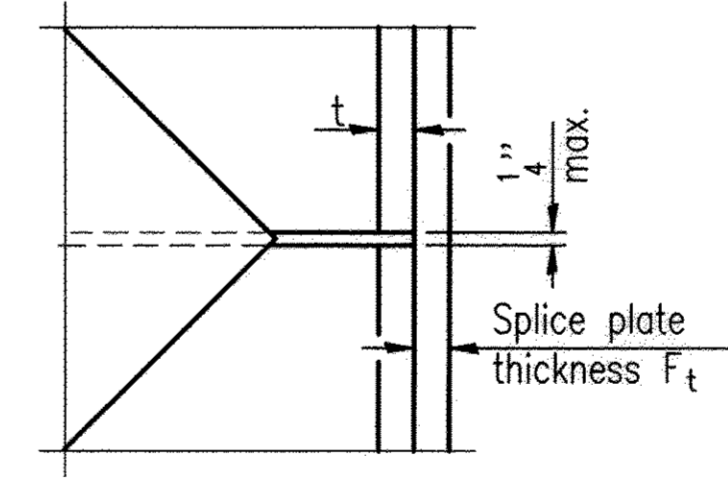
**H-PILE SHOE ATTACHMENT**



**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.).



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

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

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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**PILE DETAILS**  
**STRUCTURE NO. 040-3272**  
**C.H. 8**  
**OVER SANDY CREEK**  
**SECTION 16-00134-00-BR**  
**JASPER COUNTY**  
**STATION 4+00.00**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	10
CONTRACT NO. 95799		ILLINOIS	PROJECT BRS-0079(155)	

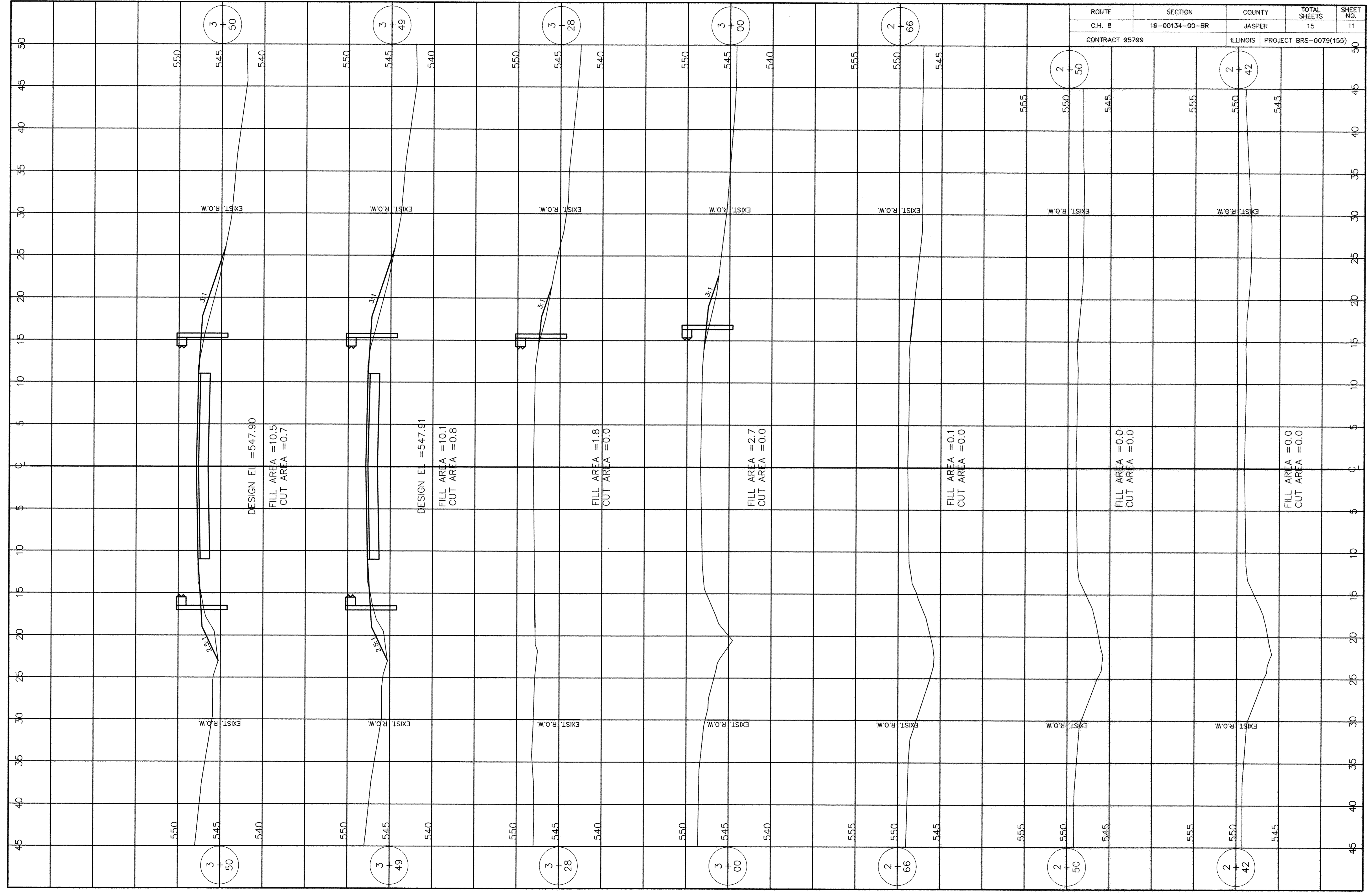
<b>NOBLE</b>				<b>BORING No. B-1</b>		<b>water level reading</b>			
<b>ENGINEERING CONSULTANTS</b>		County: Jasper, IL		Sheet No. 1 of 1		1st encounter: Dry			
Client: Charelston Engineering		Weather: Overcast		Temperature: 50's		<b>water level reading</b>			
Driller: Noble Engineering Consultants		Date Start: 2-19-16		Surface Elevation: ~547.5		@completion Dry Cave			
Location: Sec. #16-00134-00-BR		Date Finished: 2-19-16		Driller: Tony Schocker		Backfill: Soil cuttings			
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**
1							0.0'-0.54' Asphaltic concrete		546.5
2							0.54'-1.33' Concrete pavement	FILL	545.5
3							1.33'-5.2' silt, clay, sand, etc, FILL		544.5
4	SS-1	3.5'-5.0'	8	3-4-4	50			FILL	543.5
5									542.5
6	SS-2	6.0'-7.5'	8	3-4-4	50	0.8	5.2'-9.5' SILTY CLAY, trace to some sand, medium stiff, brown	CL	541.5
7									540.5
8									539.5
9	SS-3	8.5'-10.0'	21	3-9-12	60	-		CL	538.5
10									537.5
11									536.5
12									535.5
13									534.5
14	SS-4	13.5'-15.0'	40	9-17-23	70	-	9.5'-28.0' CLAYEY SILT(till), trace to some sand, medium dense to very dense, moist, brown	CL-ML	533.5
15									532.5
16									531.5
17									530.5
18									529.5
19	SS-5	18.5'-20.0'	68	14-27-41	80	-		CL-ML	528.5
20									527.5
21									526.5
22									525.5
23									524.5
24	SS-6	23.5'-25.0'	79	17-38-41	80	-		CL-ML	523.5
25									522.5
26									521.5
27									520.5
28									519.5
29							28.0'-33.2' HIGHLY WEATHERED ROCK		518.5
30	SS-7	28.5'-30.0'	100+	59-100/5"	100	-	AR 33.2'		517.5
Drilling Method: HSA (2-1/4" id)		comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 33.2'				** ground surface elevation at boring location is estimated and is not surveyed					
Drill Rig: Mobile B-47									
Sampling: split-spoon (SS)									

<b>NOBLE</b>				<b>BORING No. B-2</b>		<b>water level reading</b>			
<b>ENGINEERING CONSULTANTS</b>		County: Jasper, IL		Sheet No. 1 of 1		1st encounter: Dry			
Client: Charelston Engineering		Weather: Overcast		Temperature: 50's		<b>water level reading</b>			
Driller: Noble Engineering Consultants		Date Start: 2-22-16		Surface Elevation: ~547.5		@completion Dry Cave			
Location: Sec. #16-00134-00-BR		Date Finished: 2-22-16		Driller: Tony Schocker		Backfill: Soil cuttings			
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**
1							0.0'-0.54' Asphaltic concrete		546.5
2							0.54'-1.22' Concrete pavement	FILL	545.5
3							1.22'-6.5' silt, clay, sand, etc, FILL		544.5
4	SS-1	3.5'-5.0'	10	3-6-4	70			FILL	543.5
5									542.5
6	SS-2	6.0'-7.5'	14	2-3-11	100	1.0	6.5'-9.5' SILTY CLAY, trace to some sand, stiff, brown	CL	541.5
7									540.5
8									539.5
9	SS-3	8.5'-10.0'	20	8-8-12	40	-		CL	538.5
10									537.5
11									536.5
12									535.5
13									534.5
14	SS-4	13.5'-15.0'	35	7-15-20	100	-	9.5'-29.5' CLAYEY SILT(till), trace to some sand, medium dense to very dense, moist, brown	CL-ML	533.5
15									532.5
16									531.5
17									530.5
18									529.5
19	SS-5	18.5'-20.0'	28	7-14-14	100	-		CL-ML	528.5
20									527.5
21									526.5
22									525.5
23									524.5
24	SS-6	23.5'-25.0'	22	7-10-12	100	-		CL-ML	523.5
25									522.5
26									521.5
27									520.5
28									519.5
29							29.5'-33.4' HIGHLY WEATHERED ROCK		518.5
30	SS-7	28.5'-30.0'	92	21-35-57	100	-	AR 33.4'		517.5
Drilling Method: HSA (2-1/4" id)		comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 33.4'				** ground surface elevation at boring location is estimated and is not surveyed					
Drill Rig: Mobile B-47									
Sampling: split-spoon (SS)									

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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**BORING LOGS**  
**STRUCTURE NO. 040-3272**  
**C.H. 8**  
**OVER SANDY CREEK**  
**SECTION 16-00134-00-BR**  
**JASPER COUNTY**  
**STATION 4+00.00**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	11
CONTRACT 95799		ILLINOIS	PROJECT BRS-0079(155)	



DESIGN EL = 547.90  
 FILL AREA = 10.5  
 CUT AREA = 0.7

DESIGN EL = 547.91  
 FILL AREA = 10.1  
 CUT AREA = 0.8

FILL AREA = 1.8  
 CUT AREA = 0.0

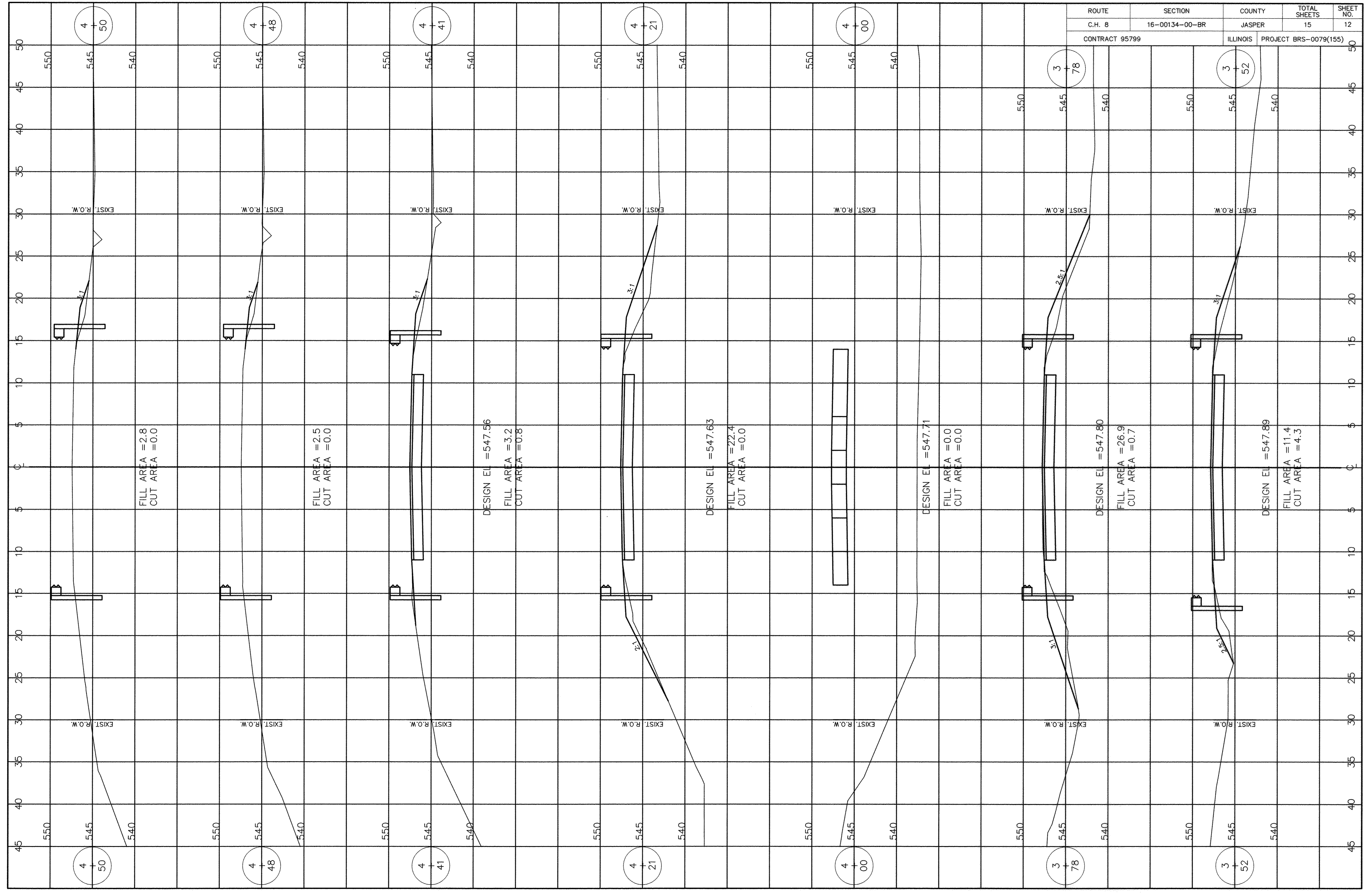
FILL AREA = 2.7  
 CUT AREA = 0.0

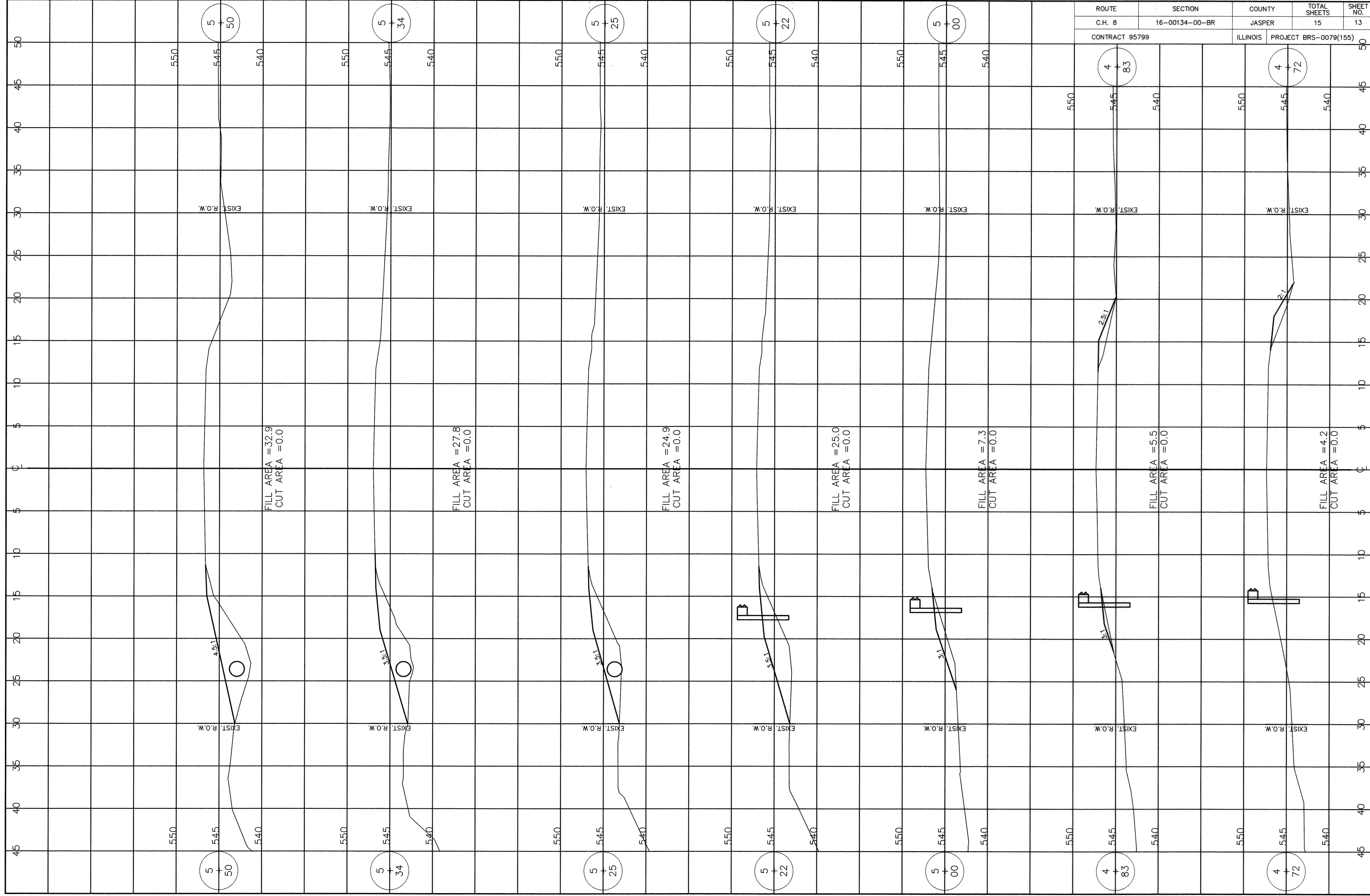
FILL AREA = 0.1  
 CUT AREA = 0.0

FILL AREA = 0.0  
 CUT AREA = 0.0

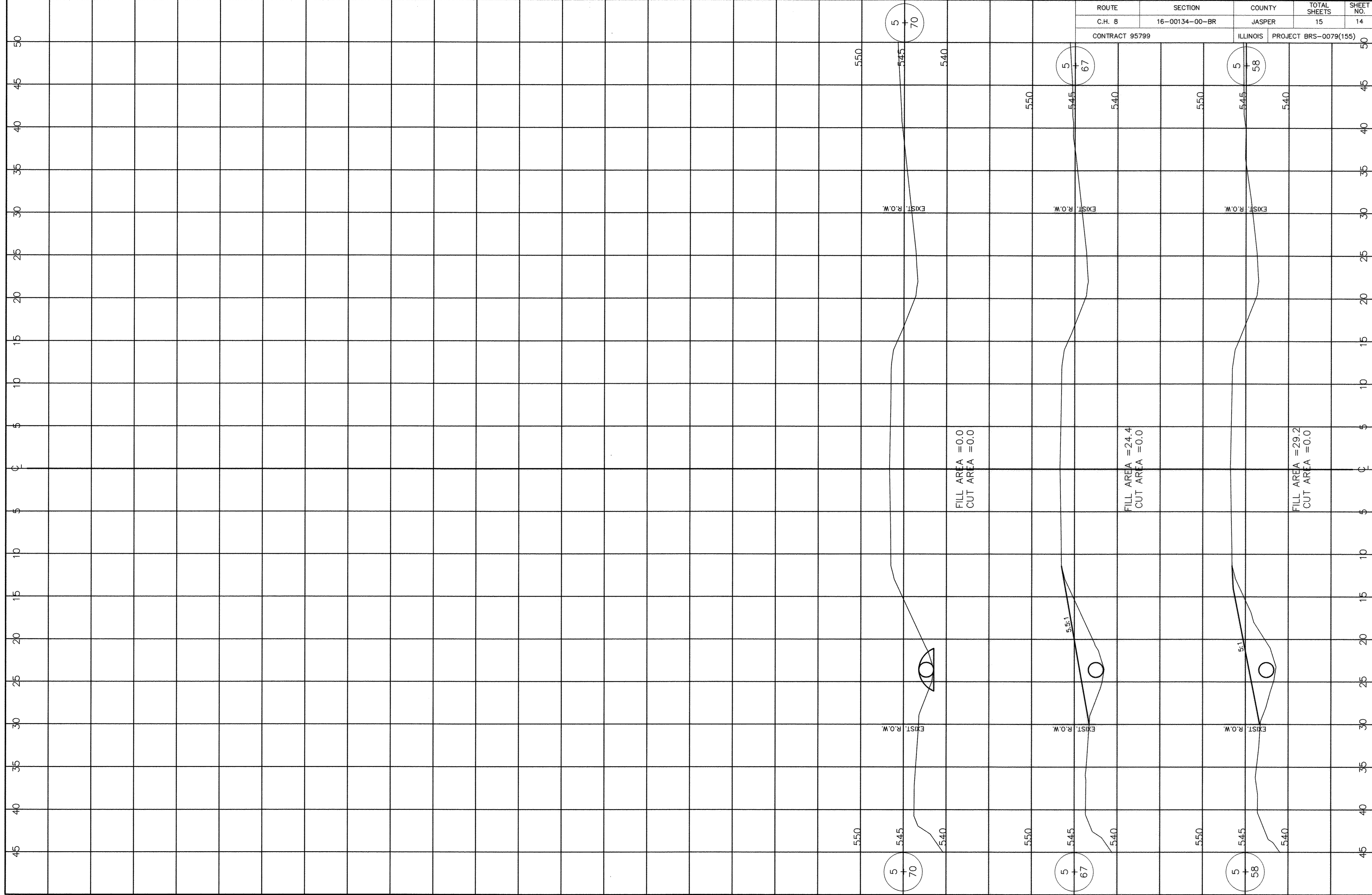
FILL AREA = 0.0  
 CUT AREA = 0.0

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	12
CONTRACT 95799		ILLINOIS	PROJECT BRS-0079(155)	





ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	13
CONTRACT 95799		ILLINOIS	PROJECT BR5-0079(155)	



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 8	16-00134-00-BR	JASPER	15	14
CONTRACT 95799		ILLINOIS	PROJECT BRS-0079(155)	

FILL AREA = 0.0  
CUT AREA = 0.0

FILL AREA = 24.4  
CUT AREA = 0.0

FILL AREA = 29.2  
CUT AREA = 0.0

5  
70

5  
67

5  
58

5  
70

5  
67

5  
58

EXIST. R.O.W.

EXIST. R.O.W.

EXIST. R.O.W.

EXIST. R.O.W.

EXIST. R.O.W.

EXIST. R.O.W.

5:5.1

5:1

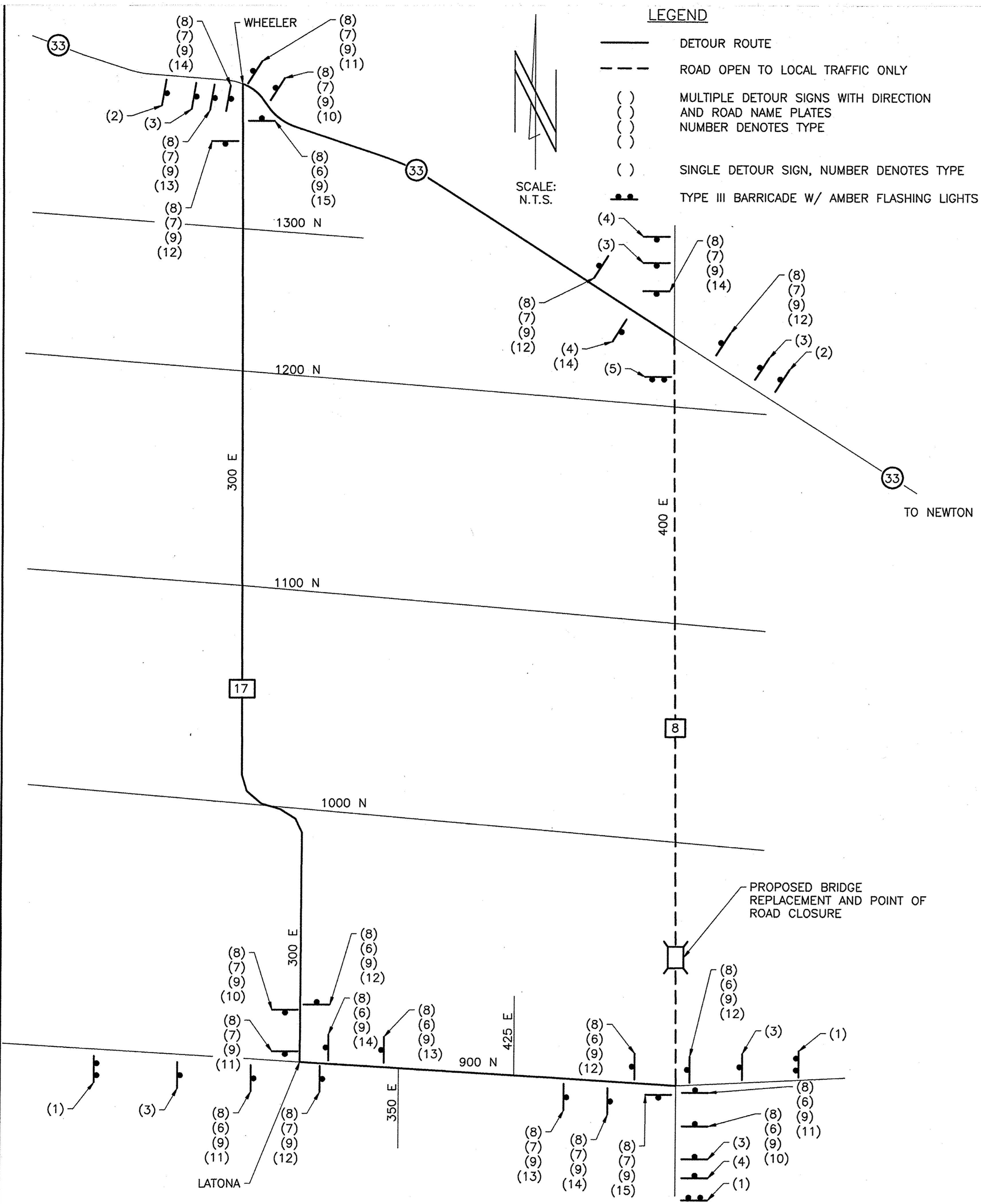
45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50

45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50

**LEGEND**

- DETOUR ROUTE
- - - ROAD OPEN TO LOCAL TRAFFIC ONLY
- ( ) MULTIPLE DETOUR SIGNS WITH DIRECTION AND ROAD NAME PLATES NUMBER DENOTES TYPE
- ( ) SINGLE DETOUR SIGN, NUMBER DENOTES TYPE
- TYPE III BARRICADE W/ AMBER FLASHING LIGHTS

SCALE: N.T.S.



DETOUR SIGN LEGEND					
SIGN NUMBER	SIGN DESCRIPTION	SIGN DESIGNATION	SIGN SIZE	AMBER FLASHER	18" X 18" ORANGE FLAG
1	CH 8 NORTH CLOSED TO THRU TRAFFIC	R11-4	60" X 30"	2	0
2	CH 8 SOUTH CLOSED TO THRU TRAFFIC	R11-4	60" X 30"	2	0
3	DETOUR AHEAD	W20-2	48" X 48"	1	1
4	ROAD CLOSED AHEAD	W20-3	48" X 48"	1	1
5	ROAD CLOSED TO THRU TRAFFIC	R11-4	60" X 30"	2	0
6	NORTH	M3-1	24" X 12"	0	0
7	SOUTH	M3-3	24" X 12"	0	0
8	DETOUR	M4-8	24" X 12"	0	0
9	CIPS ROAD	M1-1100	24" X 12"	0	0
10	ADVANCE TURN ARROW (LEFT)	M5-1 L	21" X 15"	0	0
11	DIRECTIONAL ARROW (LEFT)	M6-1	21" X 15"	0	0
12	DIRECTIONAL ARROW (STRAIGHT)	M6-3	21" X 15"	0	0
13	ADVANCE TURN ARROW (RIGHT)	M5-1 R	21" X 15"	0	0
14	DIRECTIONAL ARROW (RIGHT)	M6-1	21" X 15"	0	0
15	END DETOUR	R11-2	48" X 30"	0	0

- NOTES:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL DETOUR SIGNING DETAILS.
  - SEE SPECIAL PROVISIONS AND STANDARD BLR 21-9 FOR ADDITIONAL SIGNS REQUIRED BY THE TRAFFIC CONTROL PLAN.
  - THE ENGINEER WILL FIELD STAKE THE LOCATIONS OF ANY SIGNS IF REQUESTED BY THE CONTRACTOR IN WRITING AT LEAST THREE WEEKS PRIOR TO THE INSTALLATION OF DETOUR SIGNING.
  - LONGITUDINAL DIMENSIONS SHOWN MAY BE ADJUSTED IN THE FIELD TO FIT EXISTING CONDITIONS.
  - THE FOLLOWING ILLINOIS DEPARTMENT OF TRANSPORTATION STANDARDS ARE APPLICABLE FOR THIS WORK:
    - 5.A. STANDARD 701901
    - 5.B. BLR 21

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 397  
 OLNEY, ILLINOIS 62450  
 (618) 362-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**DETOUR PLAN**  
 STRUCTURE NO. 040-3272  
 C.H. 8  
 OVER SANDY CREEK  
 SECTION 16-00134-00-BR  
 JASPER COUNTY  
 STATION 4+00.00