

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	02-02110-00-BR	EFFINGHAM	13	1
BISHOP ROAD DISTRICT		ILLINOIS	CONTRACT NO. 95422	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANS FOR PROPOSED  
BRIDGE REPLACEMENT & REHABILITATION PROGRAM

Joint Utility Locating Information for Excavators

JULIE 1-800-892-0123

SECTION 02-02110-00-BR      EFFINGHAM COUNTY

PROJECT BROS-049(146)

JOB NO. C-97-007-05

T.R. 139

INDEX OF SHEETS

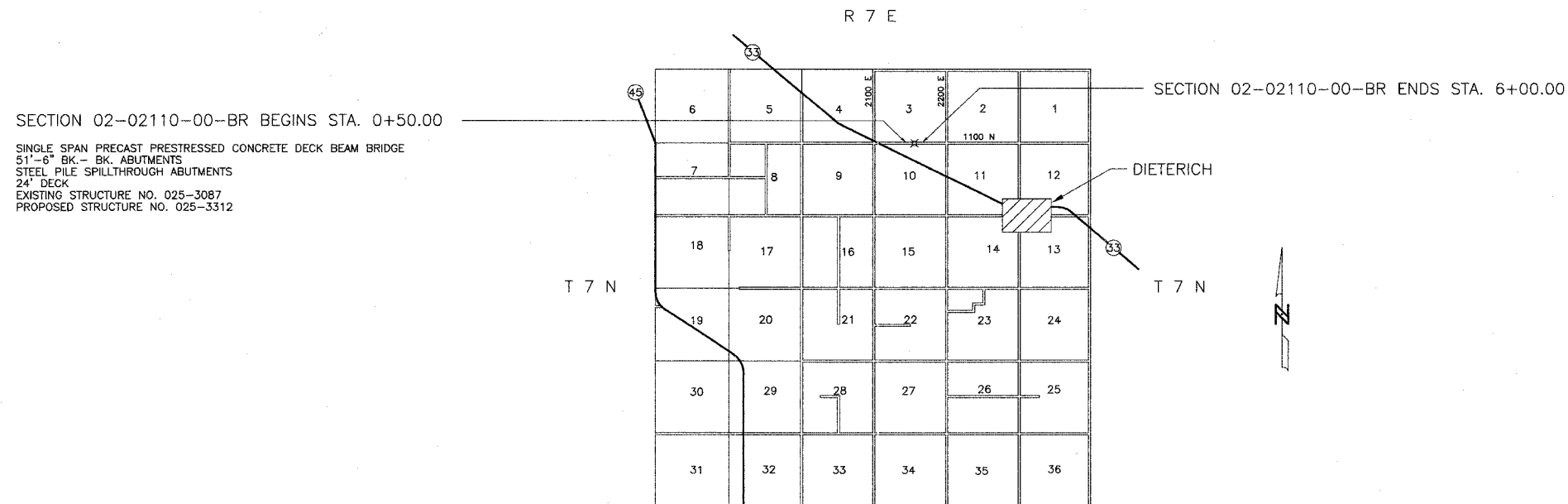
SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	GENERAL PLAN AND ELEVATION
5	STANDARD CS-2421-50
6	STANDARD CB-2421-36
7	STANDARD CB-2421-48
8	STANDARD CA-2421-10
9	STANDARD CR-TS1
10	STANDARD CN
11	STANDARD CX-1
12-13	CROSS SECTIONS

PLAN	0      50'      100'
PROFILE HOR.	0      50'      100'
PROFILE VERT.	0      5'      10'
CROSS SECTIONS	
HOR.	0      5'      10'
VERT.	0      5'      10'

THE ACCEPTANCE OF THIS PROJECT IS BASED ON THE MINIMUM DESIGN CRITERIA FOR A FEDERAL-AID B.R.R.P. TYPE IMPROVEMENT.

*Maureen Kaxot*  
DISTRICT ENGINEER OF LOCAL ROADS AND STREETS

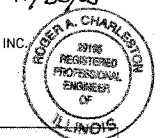
STANDARD DRAWINGS  
STANDARD 000001-04  
STANDARD 280001-02  
STANDARD 702001-05  
STANDARD BLR 21-6  
STANDARD BLR 22-4



APPROVED *[Signature]* DATE 02/09/05  
COUNTY ENGINEER

*Robert A. Charleston*  
Ill. Reg. Prof. Eng. #29178  
2/8/05  
Lic. Expires 11/30/05

CHARLESTON ENGINEERING INC.  
105 N. KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
PH. 618-392-0736



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

PASSED 4/1 2005  
*Maureen Kaxot*  
DIST. ENGINEER OF LOCAL ROADS

APPROVED 4/1 2005  
*Christine M. Reed*  
DEPUTY DIRECTOR OF HIGHWAYS  
REGION FOUR ENGINEER

CONTRACT NO. 95422

LOCAL ROAD  
ADT = 100  
DESIGN SPEED = 30 M.P.H.

NET LENGTH SECTION 02-02110-00-BR = 550.00 Ft. = 0.104 Mi.

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	02-02110-00-BR	EFFINGHAM	13	2
BISHOP ROAD DISTRICT		ILLINOIS	CONTRACT NO. 95422	

DESIGN DATA

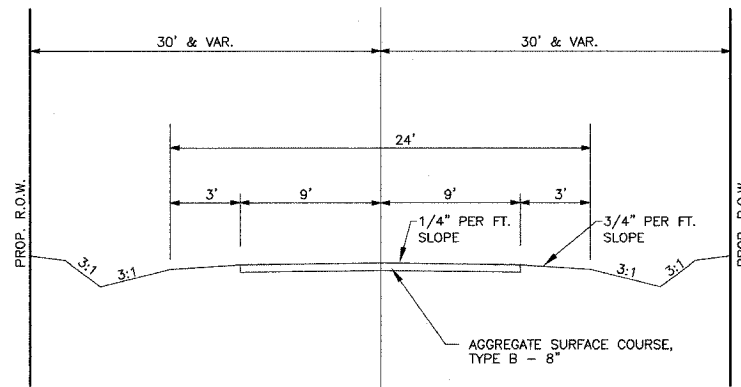
LOCAL ROAD  
ADT = 100

GENERAL NOTES

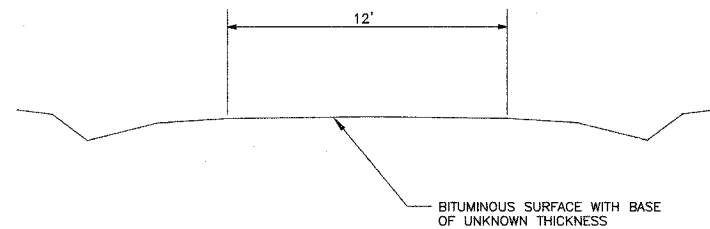
- SEEDING: THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 250 OF THE STANDARD SPECIFICATIONS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING CLASS 2 (SPECIAL).
    - SPRING SEEDING SHALL EXTEND FROM JANUARY 1 TO JUNE 30
    - FALL SEEDING SHALL EXTEND 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 2 AT THE RATE OF 2 TONS PER ACRE.
2. NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.

SUMMARY OF QUANTITIES

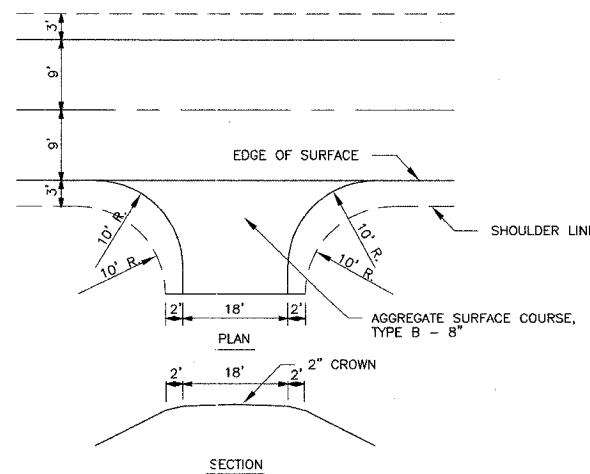
CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	275
20300100	CHANNEL EXCAVATION	CU YD	160
20400800	FURNISHED EXCAVATION	CU YD	35
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.45
28000300	TEMPORARY DITCH CHECKS	EACH	4
28000900	FENCE (EROSION CONTROL)	FOOT	200
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	120
35101400	AGGREGATE BASE COURSE, TYPE B	TON	60
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	480
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	17.2
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	1200
50800105	REINFORCEMENT BARS	POUND	1840
50900205	STEEL RAILING, TYPE S1	FOOT	100
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	420
51202700	DRIVING STEEL PILES	FOOT	420
51203400	TEST PILE STEEL HP 10X42	EACH	1
51204315	CONCRETE ENCASEMENT	CU YD	2.1
51500100	NAME PLATES	EACH	1
542A5485	PIPE CULVERTS, CLASS A, TYPE 1 EQUIVALENT ROUND SIZE 30"	FOOT	36



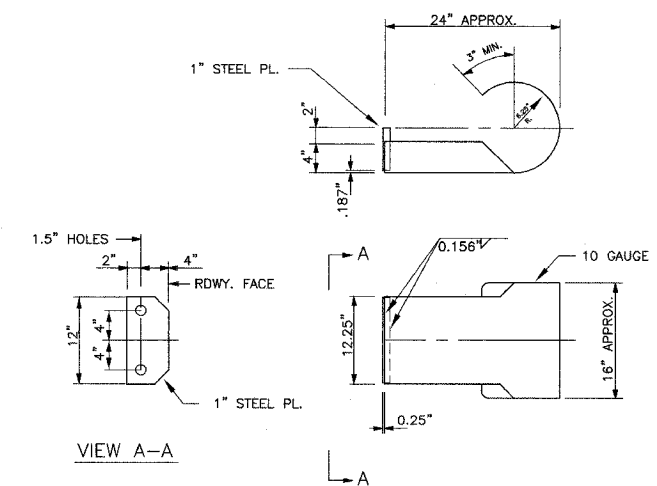
TYPICAL SECTION  
PROPOSED



TYPICAL SECTION  
EXISTING



PRIVATE ENTRANCE DETAIL

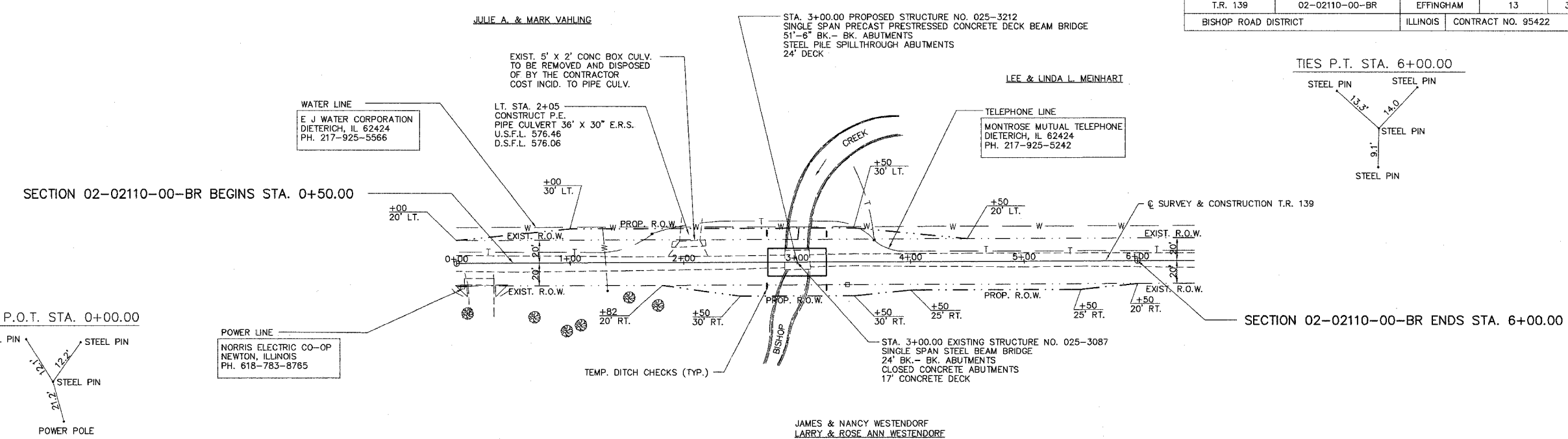


CURLED END SECTION DETAILS

4 REQUIRED - COST INCIDENTAL TO  
"STEEL RAILING, TYPE S-1"

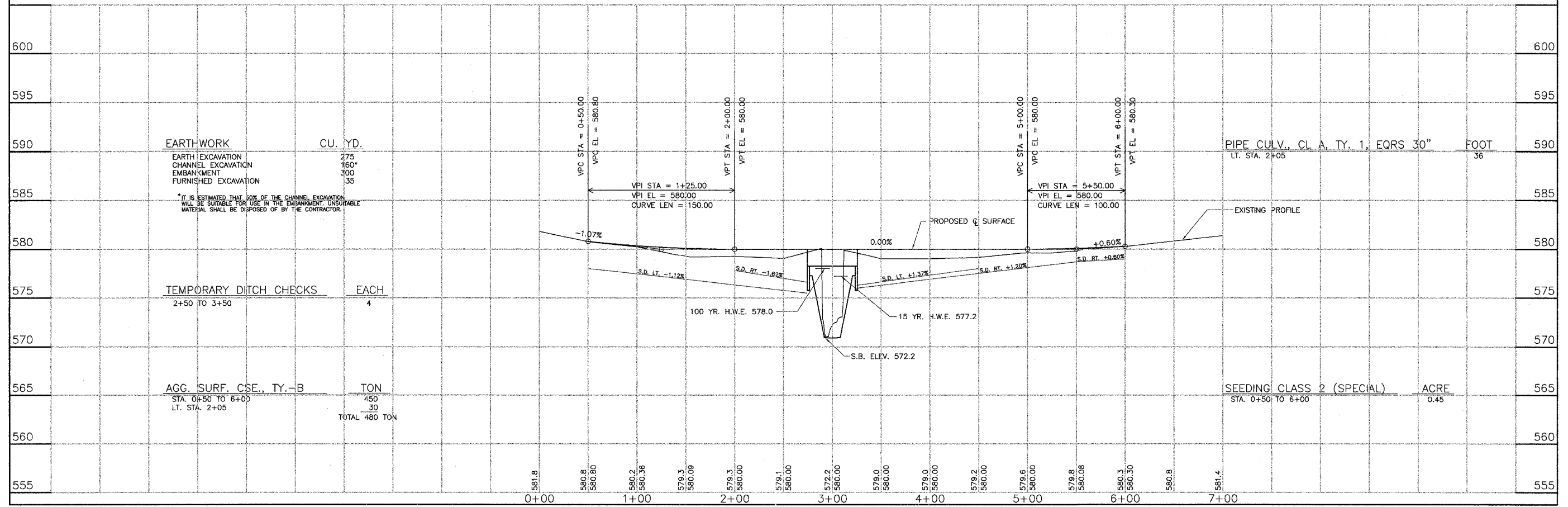
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	02-02110-00-BR	EFFINGHAM	13	3
BISHOP ROAD DISTRICT		ILLINOIS	CONTRACT NO. 95422	

SCALES:  
1" = 50' HOR  
1" = 5' VER



B.M. LT. STA. 3+44  
SPIKE IN P.P.  
ELEV. 579.14

TRANSITION EXISTING ROADWAY TO PROPOSED ROADWAY  
STA. 0+00 TO 0+50 AND STA. 6+00 TO 6+50  
QUANTITIES FOR THE ABOVE ARE INCLUDED IN THOSE LISTED

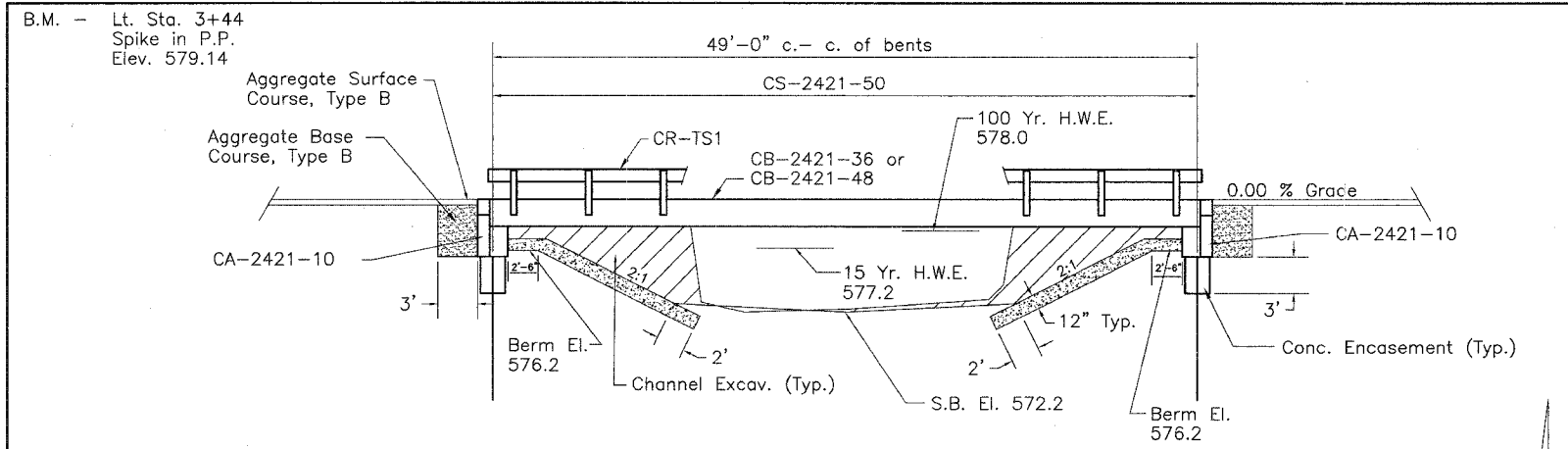


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	02-02110-00-BR	EFFINGHAM	13	4
BISHOP ROAD DISTRICT		ILLINOIS	CONTRACT NO. 95422	

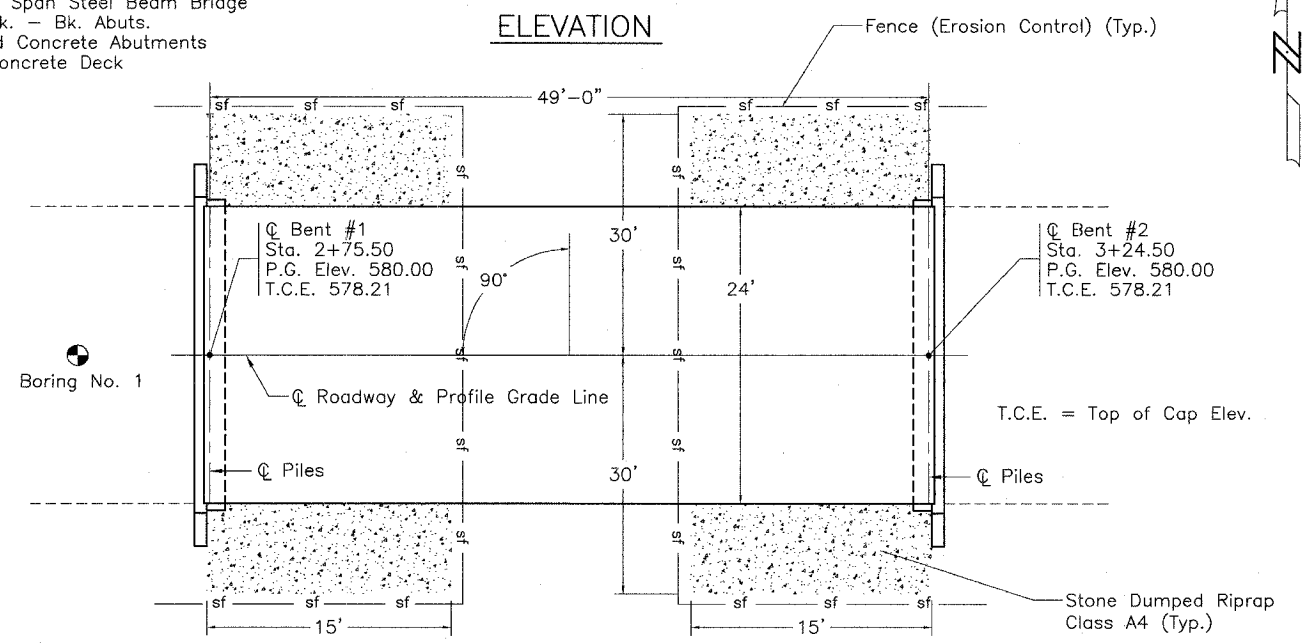
**GENERAL NOTES**

- The Contractor shall drive 1 test piles as specified in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- Channel Excavation: This material shall be excavated as shown within the limits of the proposed bridge then tapered to the existing channel at the Roadway R.O.W. It is estimated that 50% of the Channel Excavation will be suitable for use in the embankment. Unsuitable material shall be disposed of by the Contractor.

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu.Yds.			17.2	17.2
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq.Ft.	1200			1200
Steel Railing, Type S-1	Foot	100			100
Reinforcement Bars	Pound			1840	1840
Furnishing Steel Piles HP 10 X 42	Foot			420	420
Driving Steel Piles	Foot			420	420
Test Pile Steel, HP 10 X 42	Each			1	1
Name Plates	Each			1	1
Concrete Encasement	Cu.Yds.			2.1	2.1
Aggregate Base Course, Type B	Tons			60	60
Stone Dumped Riprap, Class A-4	Tons			120	120
Channel Excavation	Cu.Yds.			160	160
Fence (Erosion Control)	Foot			200	200



Existing Structure - Existing Structure No. 025-3087  
Single Span Steel Beam Bridge  
24' Bk. - Bk. Abuts.  
Closed Concrete Abutments  
17' Concrete Deck



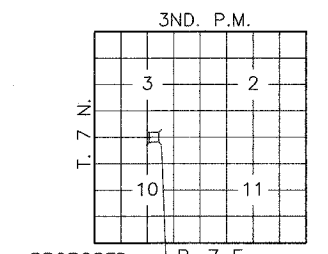
**PILE DATA (2-ABUTS.)**

Type	HP 10 X 42
Capacity	Refusal
Estimated Length	60'
Number Required	8 (Includes 1 Test Pile located in Bent #2)

STATION 3+00.00  
BISHOP CREEK  
SEC. 02-02110-00-BR BUILT 200  
EFFINGHAM COUNTY  
PROJECT BROS-049(146)  
LOADING HS-20  
STR. NO. 025-3312

**LETTERING FOR NAME PLATE**

Locate Name Plate at S.W. corner of Bridge (See Std. CN)



**LOCATION SKETCH**

**INDEX OF SHEETS**

- GENERAL PLAN & ELEVATION
- STANDARD CS-2421-50
- STANDARD CB-2421-36
- STANDARD CB-2421-48
- STANDARD CA-2421-10
- STANDARD CR-TS1
- STANDARD CN
- STANDARD CX-1

Salvage - Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Bishop Road District. The Contractor shall dispose of all remaining material.

NOTE:  
The Article or Section numbers referencing the Standard Specifications for Road and Bridge Construction as shown on the standard bridge plan sheets included with the contract plans should be interpreted as referring to the current edition of the Standard Specifications (Adopted January 1, 2002) as shown in the "Article/Section No. Reference Table"

**ARTICLE/SECTION NO. REFERENCE TABLE**

Previous No.	Current No.
504.06	504.06
505.04	505.04
706.05	1006.05
706.32	1006.32
760.07	1060.07

**DESIGN SPECIFICATIONS**

1996 AASHTO  
HS20-44 Loading. Load Factor Design.

**WATERWAY INFORMATION**

Drainage Area = 3.4 Sq. Mi. Low Grade Elev. = 580.0 @ Sta.3+00

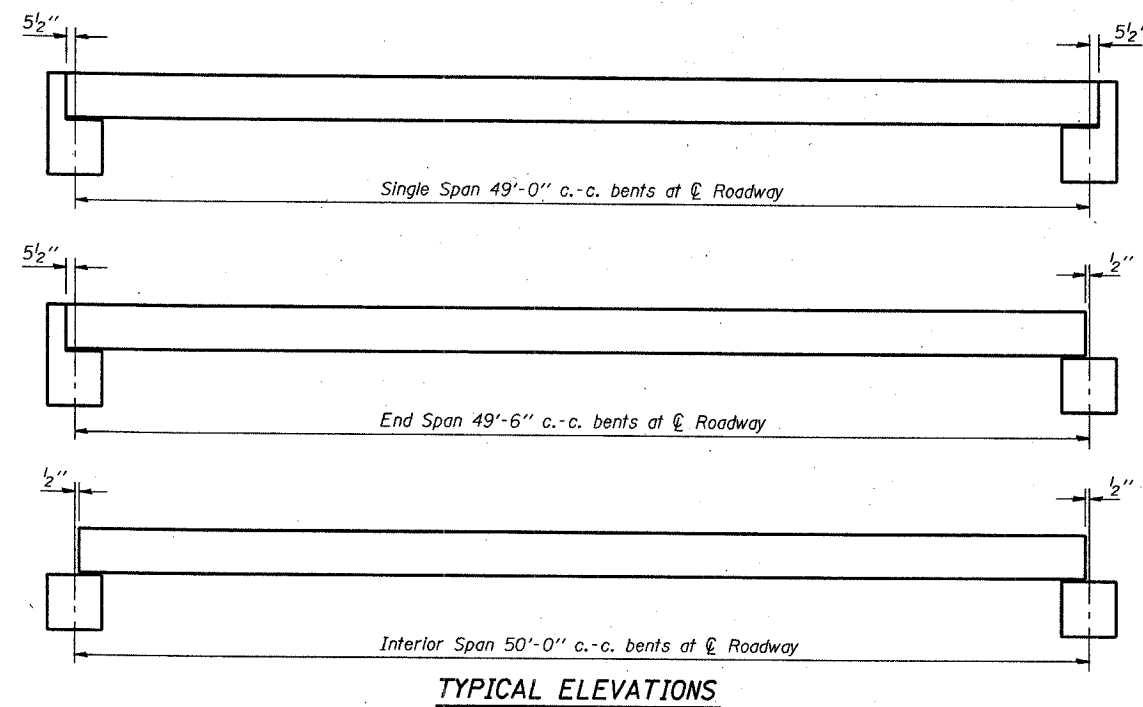
Flood	Freq. Yr.	Q ft <sup>3</sup> /s	Opening ft <sup>2</sup>		Nat. H.W.E.	Head - ft		Headwater	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	605	105	180	577.2	0.30	0.00	577.50	577.20
Base	100	935	122	217	578.0	0.60	0.00	578.60	578.00
Overtopping									
Max. Calc.	500								

**GENERAL PLAN & ELEVATION**  
T.R. ROUTE 139  
OVER BISHOP CREEK  
SECTION 02-02110-00-BR  
EFFINGHAM COUNTY  
STATION 3+00.00

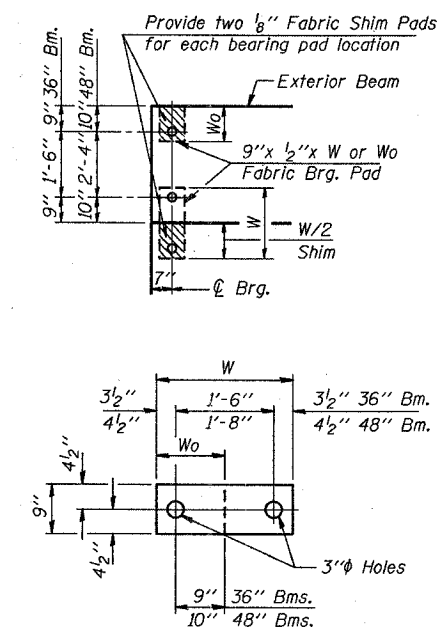
REL.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	*	EFFINGHAM	13	5
FED. ROAD DIST. NO. 7	ALPHEUS	FED. AID PROJECT NO.		

\* 02-02110-00-BR

CONTRACT NO. 95422

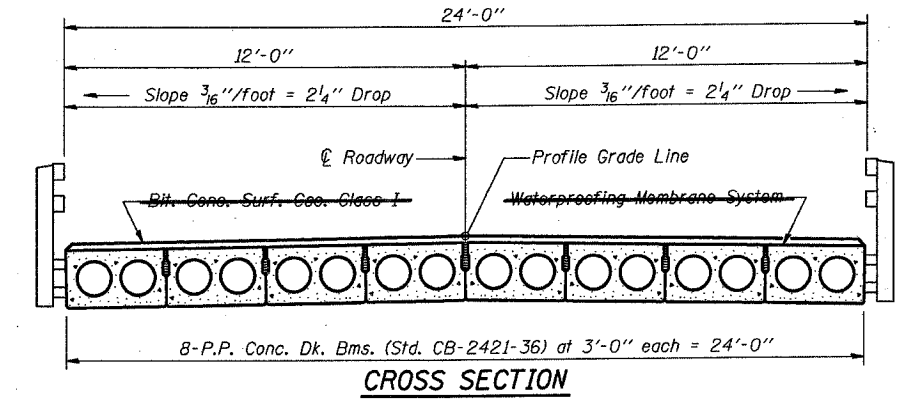


TYPICAL ELEVATIONS

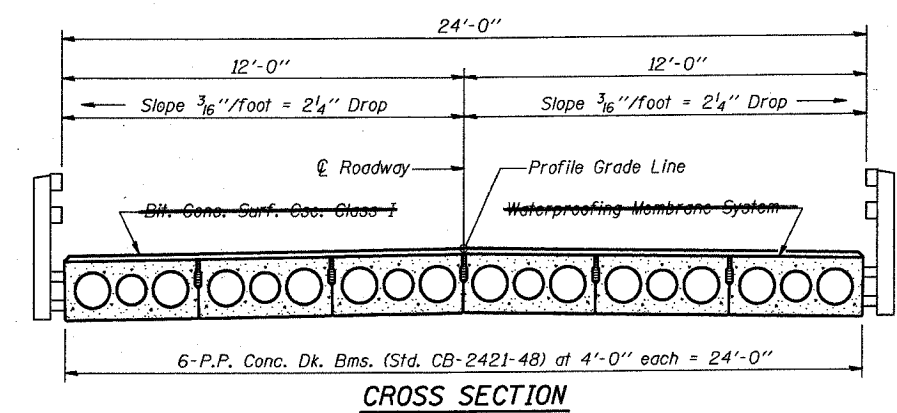


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

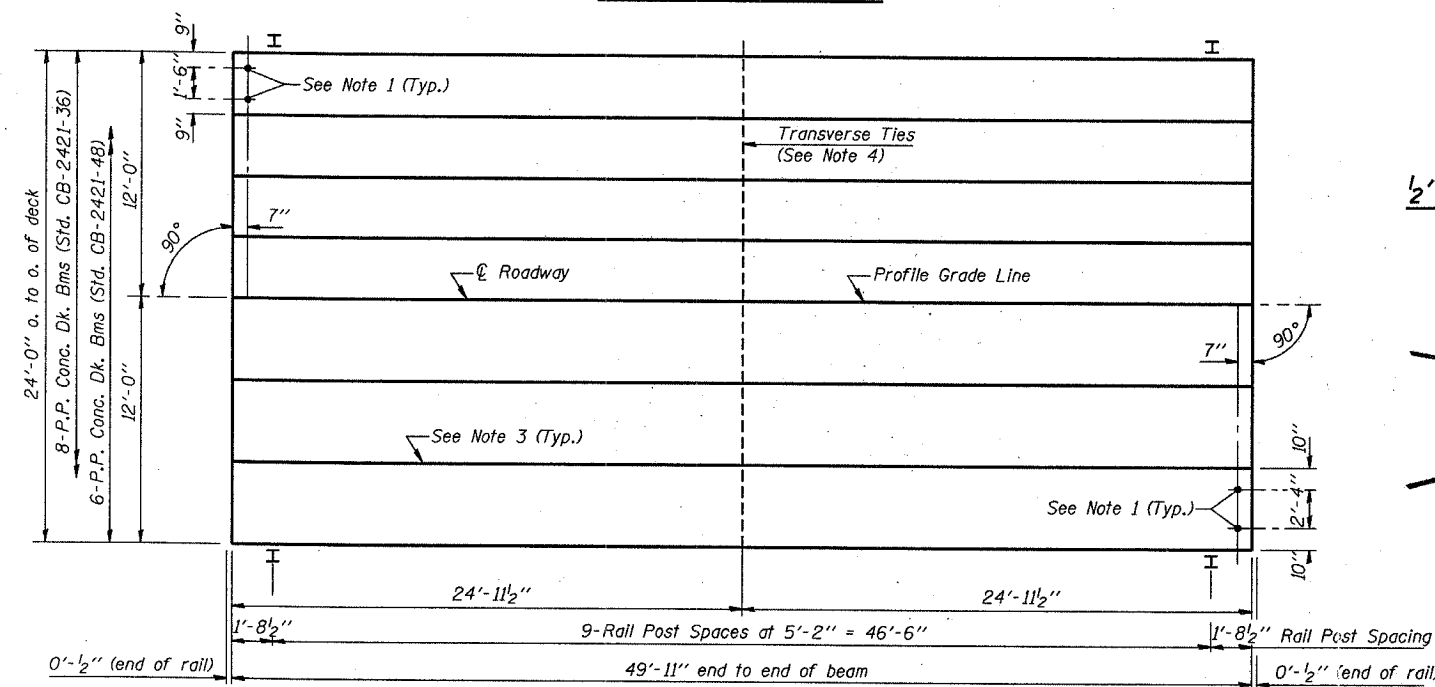
1/2" FABRIC BRG. PAD DETAILS



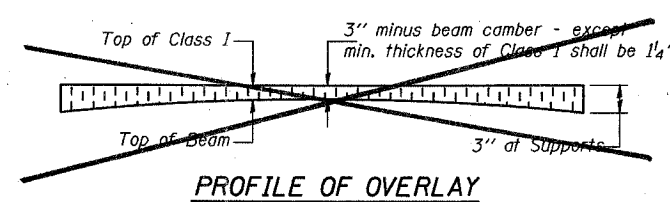
CROSS SECTION



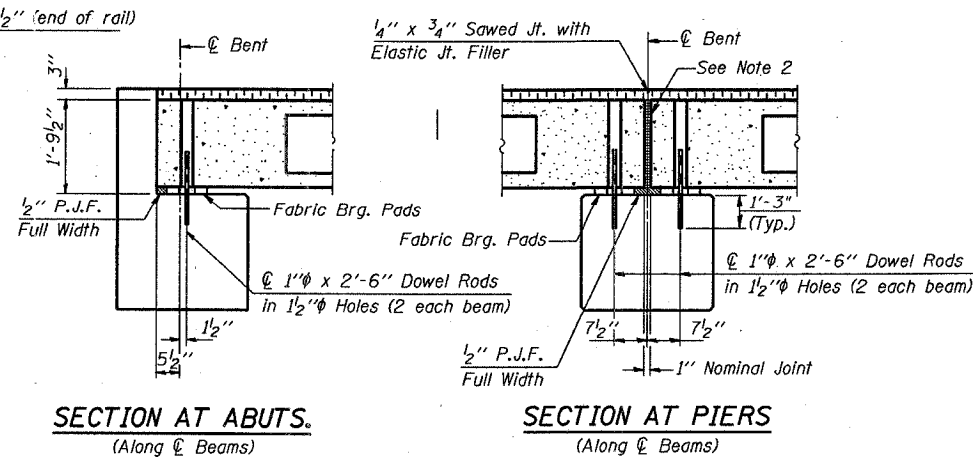
CROSS SECTION



PLAN



PROFILE OF OVERLAY



SECTION AT ABUTS.  
(Along centerline of Beams)

SECTION AT PIERS  
(Along centerline of Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 21" Dp.	1200 Sq. Ft.
Steel Railing	100 Ft.
Bit. Conc. Surf. Cse. Class I	45.0 Tons
Waterproofing Membrane System	133.3 Sq. Yds.

- NOTES**
- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
  - Nominal 1" joint at centerline of Pier shall be filled with non-shrink grout.
  - Longitudinal keys shall be grouted.
  - The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995

*Ralph E. Anderson*  
Engineer of Bridge Design

APPROVED NOVEMBER 1, 1995

*Ralph E. Anderson*  
Engineer of Bridges and Structures

P.P.C. DECK BEAM SUPERSTRUCTURE

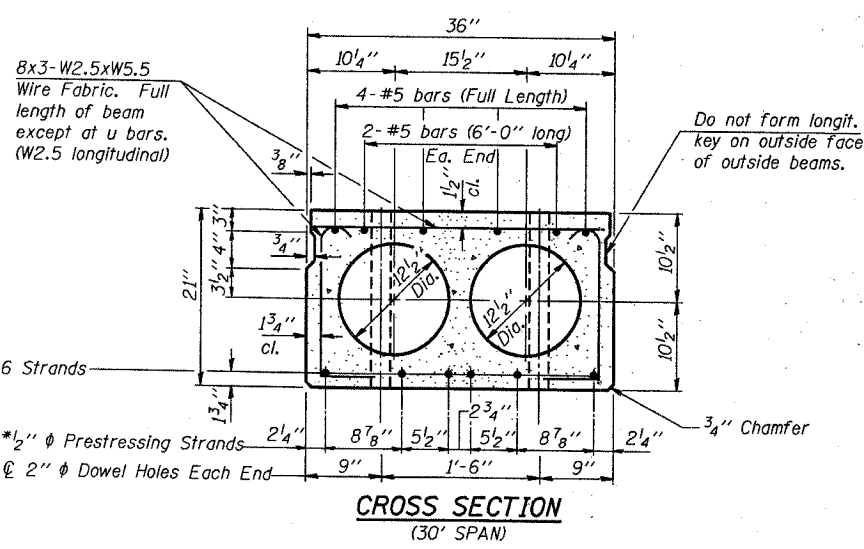
24' RDWY.	21" BMS.	50' SPAN	0° SKEW
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STANDARD CS-2421-50

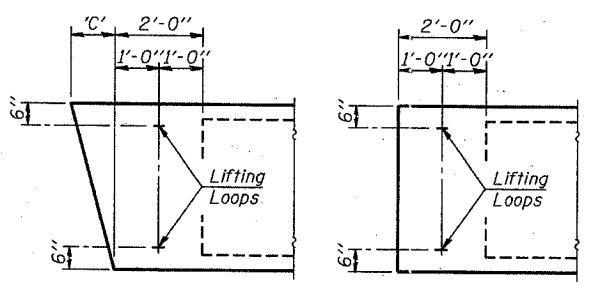
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 1.39	EFFINGHAM	15	6

\* 02-02110-00-BR

CONTRACT NO. 95422

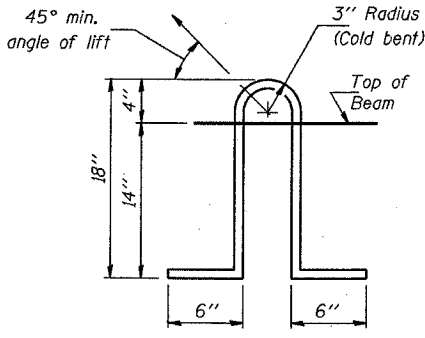


**CROSS SECTION**  
(30' SPAN)



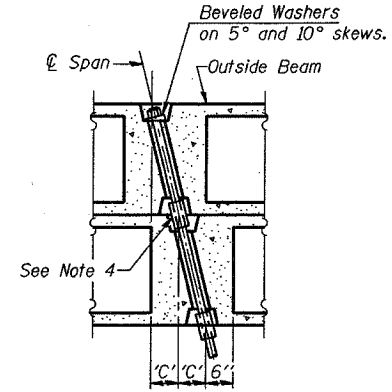
**END BLOCK DETAILS**

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.

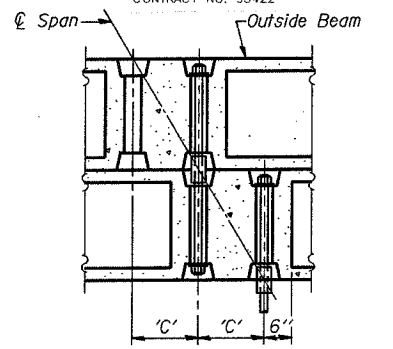


**LIFTING LOOP DETAIL**

Lifting loops shall be 2. 1/2" phi - 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



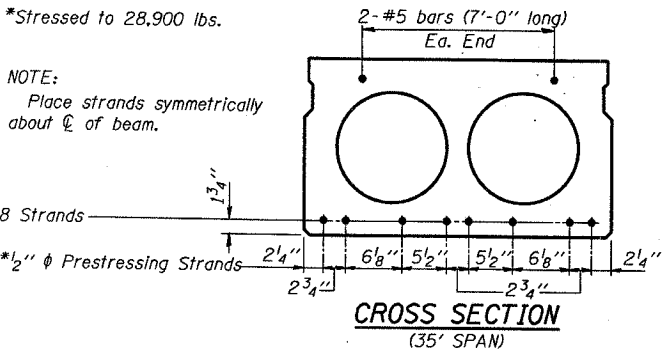
**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=0°, 5° and 10°)



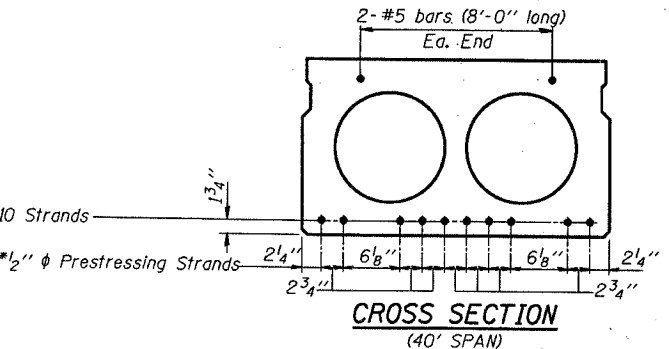
**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=15°, 20°, 25° and 30°)

**DIMENSION 'C'**

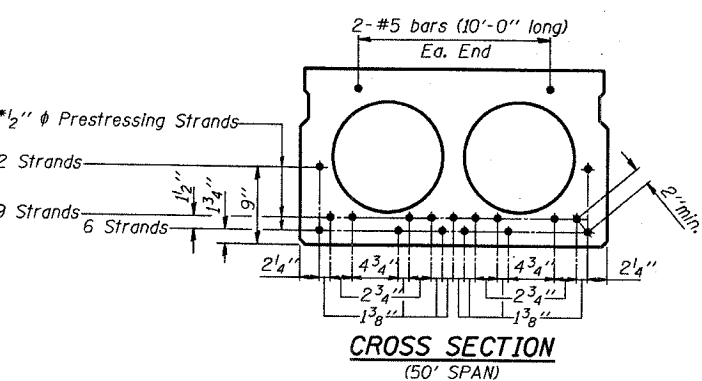
Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3 3/8	6 3/8	9 5/8	13 3/8	16 3/4	20 3/4



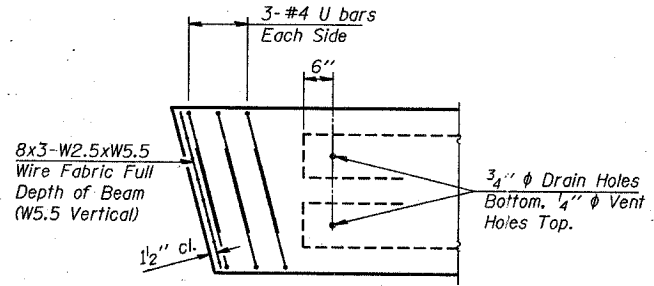
**CROSS SECTION**  
(35' SPAN)



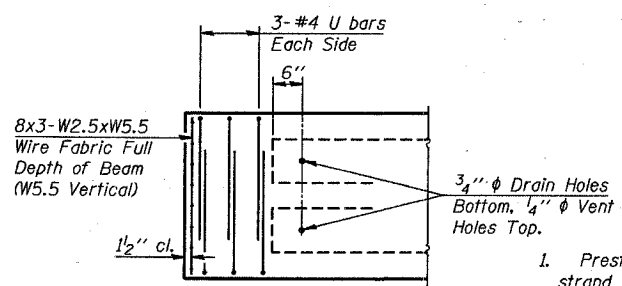
**CROSS SECTION**  
(40' SPAN)



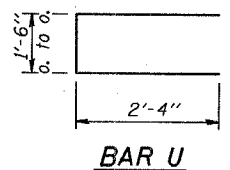
**CROSS SECTION**  
(50' SPAN)



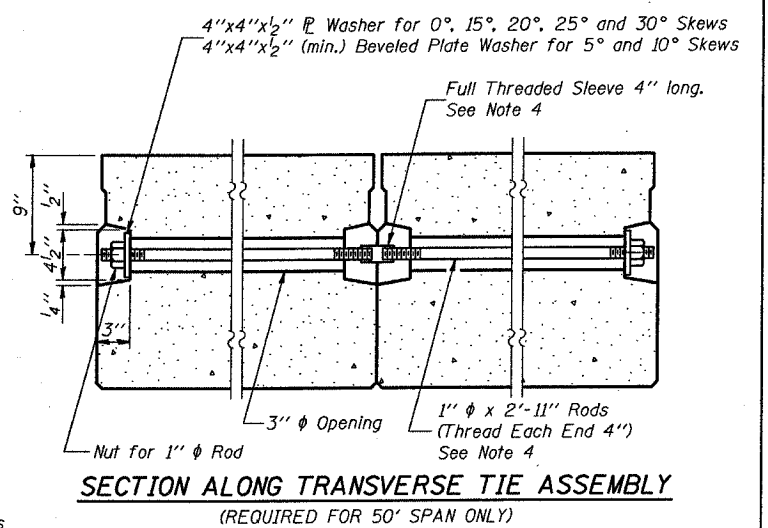
**END REINFORCEMENT**  
(SKEWED)



**END REINFORCEMENT**  
(RIGHT ANGLE)



**BAR U**



**SECTION ALONG TRANSVERSE TIE ASSEMBLY**  
(REQUIRED FOR 50' SPAN ONLY)

**NOTES**

1. Prestressing steel shall be uncoated high strength, stress relieved 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60.
4. On 0°, 5° and 10° skew angles, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a minimum of 1/4".
7. Low relaxation strands may be substituted for the stress relieved strands. The initial prestressing force applied to each strand shall be the same as for the stress relieved strands (28,900 lbs.).
8. Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

**DESIGN STRESSES**

$f'_c = 5,000$  p.s.i.  
 $f'_{ci} =$  (See Required Release Strength Table)  
 $f_s = 270,000$  p.s.i. (1/2" phi Strand)  
 $f_{si} = 189,000$  p.s.i. (1/2" phi Strand)  
 $f_y = 60,000$  p.s.i.

**REQUIRED RELEASE STRENGTH**

Span	$f'_{ci}$ (psi)
30'	4,000
35'	4,000
40'	4,200
50'	4,100

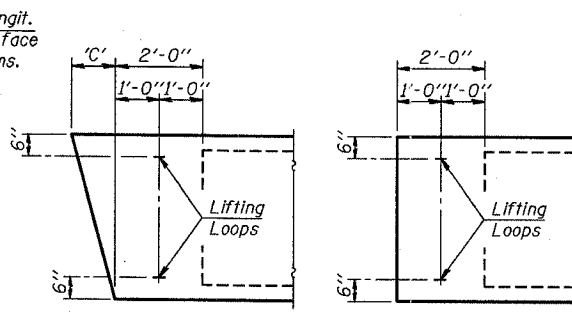
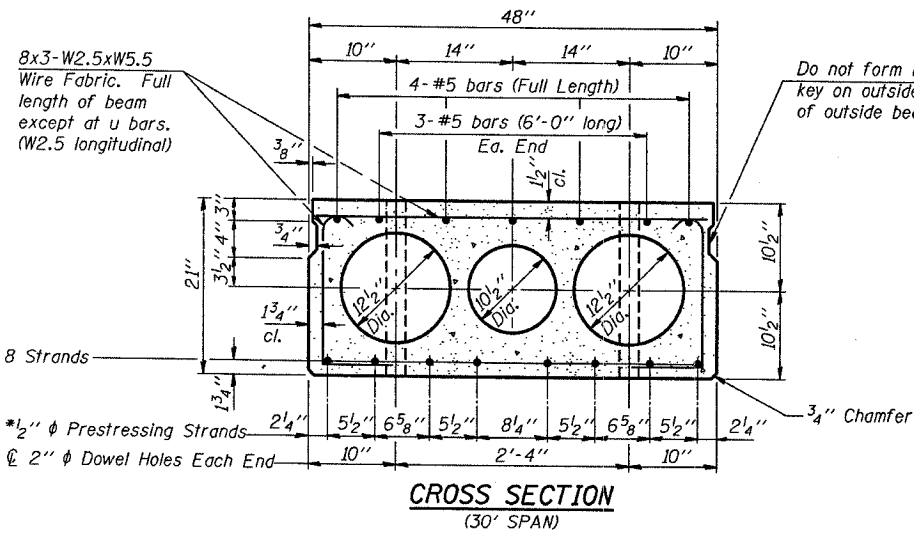
Illinois Department of Transportation  
 PASSED NOVEMBER 1, 1995  
 Engineer of Bridge Design  
 APPROVED NOVEMBER 1, 1995  
 Engineer of Bridges and Structures

NOTE  
 The std. reinf. shown on the 30' span cross section is typical for all spans, except as shown.

**P.P.C. DECK BEAM DETAILS**  
 24' ROADWAY | 21" x 36" BEAMS  
 STANDARD CB-2421-36

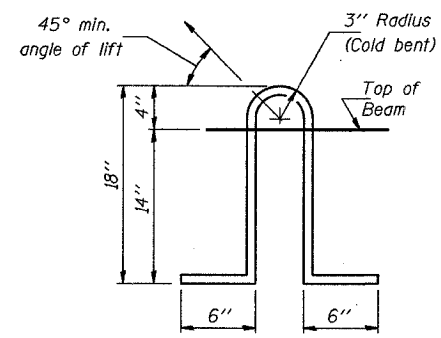
REL.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	*	EFFINGHAM	13	7
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT NO.	

\* 02-02110-00-BR



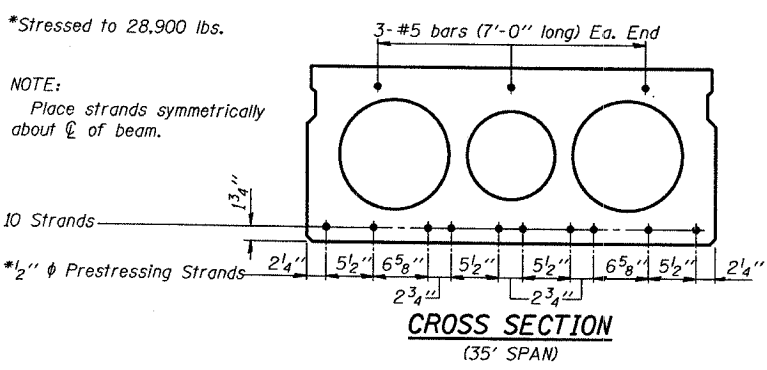
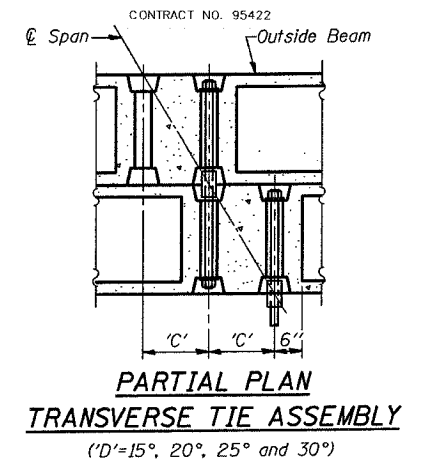
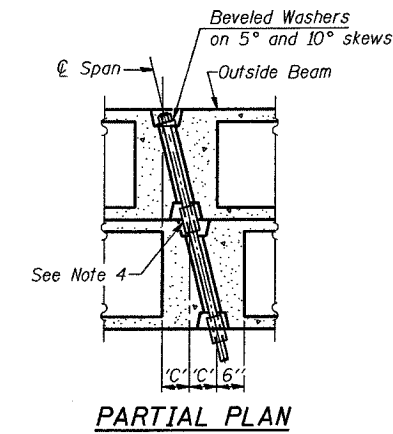
**END BLOCK DETAILS**

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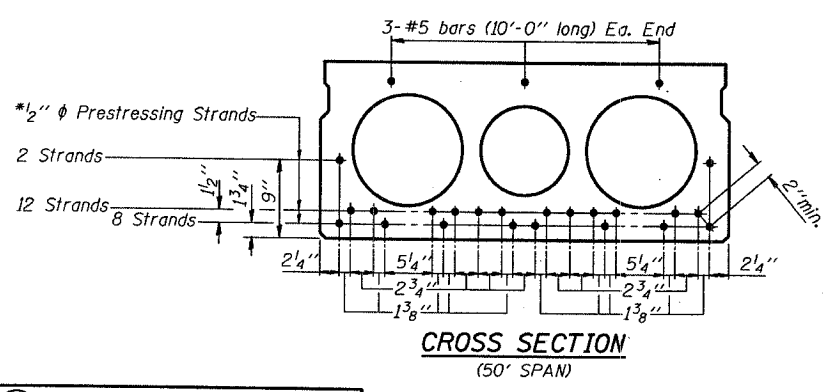
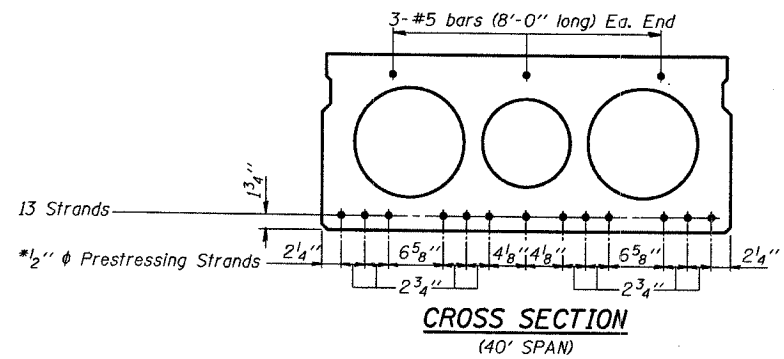
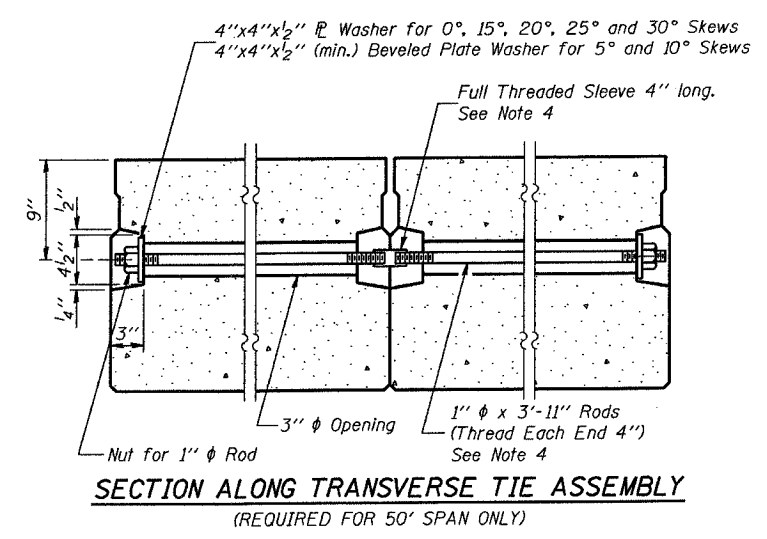
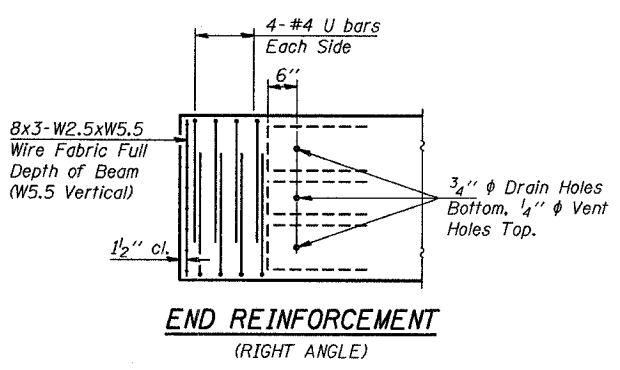
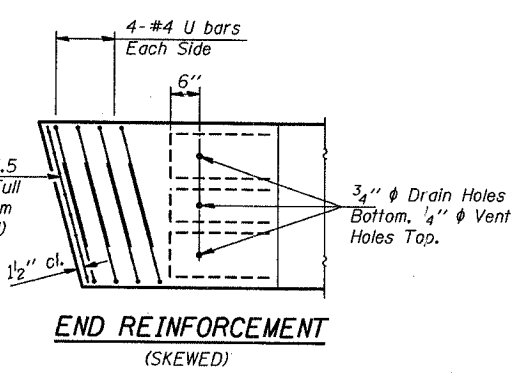
**LIFTING LOOP DETAIL**

Lifting loops shall be 2. 1/2"  $\phi$ -270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.

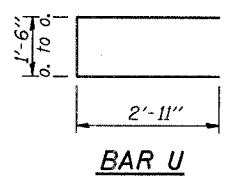


**DIMENSION 'C'**

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	4 1/4	8 1/2	12 7/8	17 1/2	22 3/8	27 3/4



- NOTES**
- Prestressing steel shall be uncoated high strength, stress relieved 7-wire strand, Grade 270.
  - The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
  - Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60.
  - On 0°, 5° and 10° skew, alternate approved transverse tie rods of increased segmental length are acceptable.
  - Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
  - When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a minimum of 1/4".
  - Low relaxation strands may be substituted for the stress relieved strands. The initial prestressing force applied to each strand shall be the same as for the stress relieved strands (28,900 lbs.).
  - Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.



**DESIGN STRESSES**

$f'_c = 5,000$  p.s.i.  
 $f'_{ci}$  = (See Required Release Strength Table)  
 $f'_s = 270,000$  p.s.i. (1/2"  $\phi$  Strand)  
 $f_{ai} = 189,000$  p.s.i. (1/2"  $\phi$  Strand)  
 $f_y = 60,000$  p.s.i.

**REQUIRED RELEASE STRENGTH**

Span	$f'_{ci}$ (psi)
30'	4,000
35'	4,000
40'	4,000
50'	4,200

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995

*Raj D. Kasper*  
 Engineer of Bridge Design

APPROVED NOVEMBER 1, 1995

*Ralph E. Anderson*  
 Engineer of Bridges and Structures

**NOTE**

The std. reinf. shown on the 30' span cross section is typical for all spans, except as shown.

**P.P.C. DECK BEAM DETAILS**

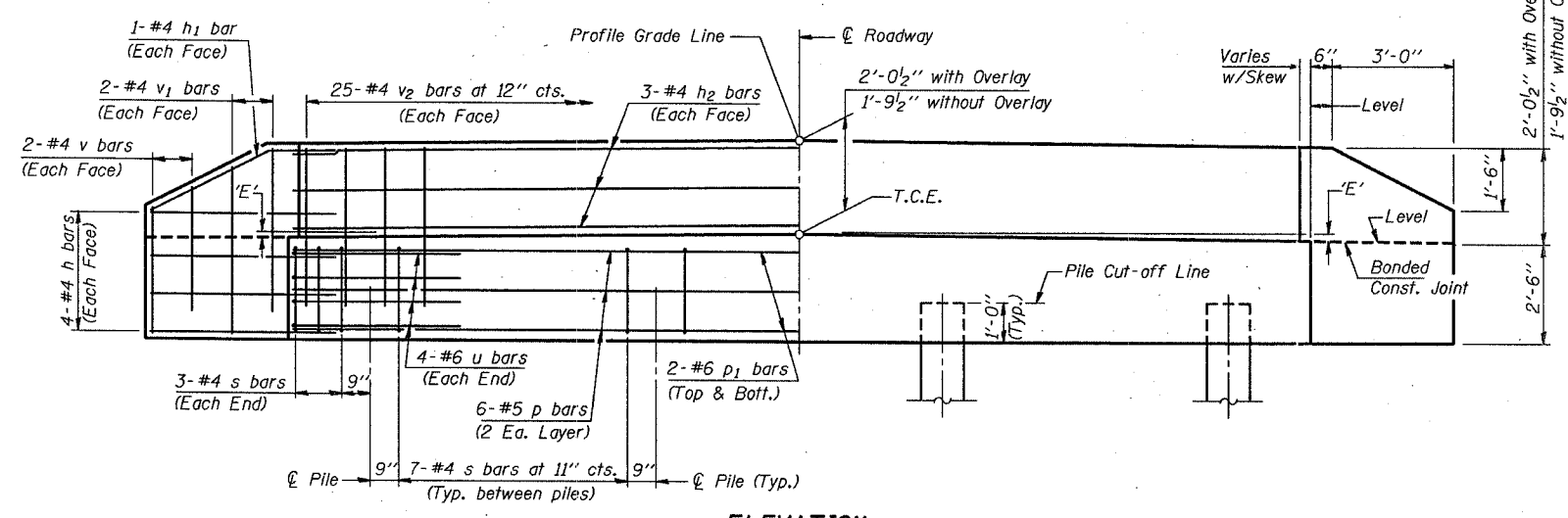
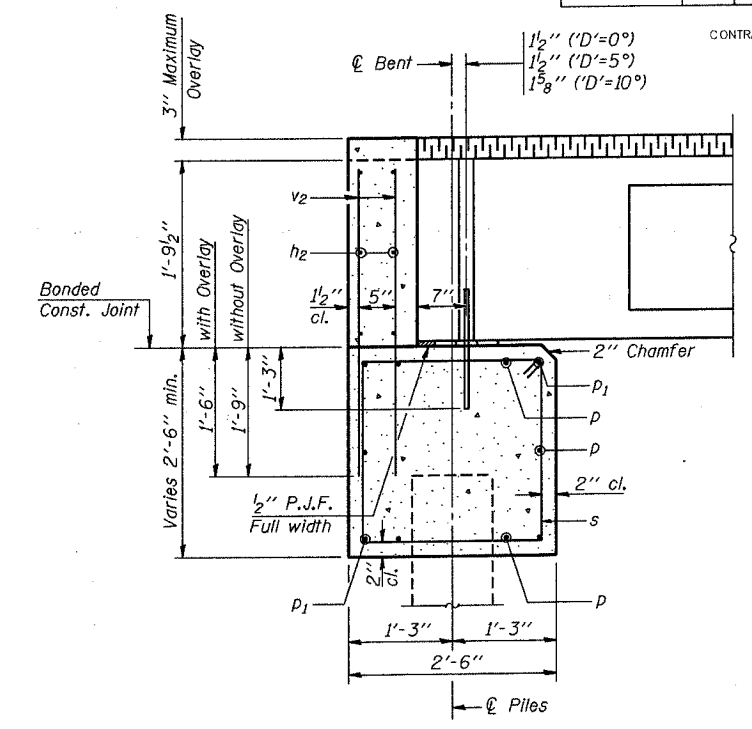
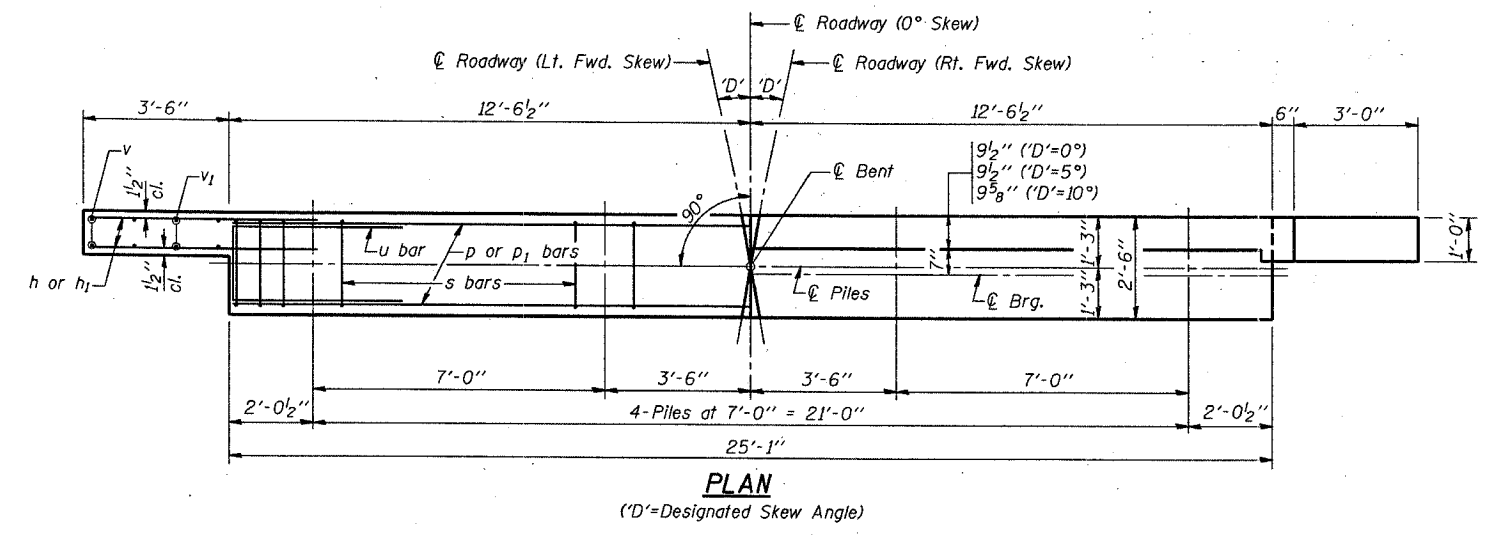
24' ROADWAY | 21" x 48" BEAMS

**STANDARD CB-2421-48**

\* 02-02110-00-BR

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	EFFINGHAM	13	8
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT NO.

CONTRACT NO. 95422

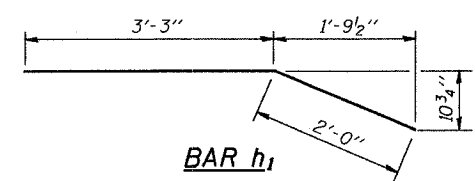
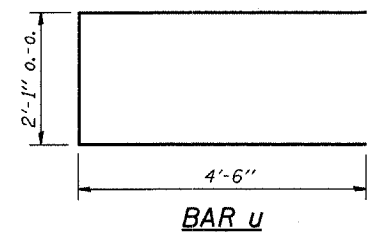
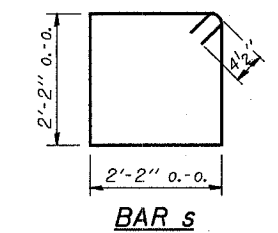


**DIMENSION 'E'**

GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 1/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/8"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"	1 5/8"	3"
Over 3% to 4%	2 3/8"	2 3/8"	1 7/8"	2 3/4"	1 3/8"	3 1/4"

**NOTES**

- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.



**BILL OF MATERIAL FOR ONE ABUTMENT**

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	6	#5	24'-9"	—
p1	4	#6	24'-9"	—
s	27	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	2'-8"	—
v1	8	#4	3'-8"	—
v2	50	#4	3'-5"	—
Concrete Structures				8.6 Cu. Yds.
Reinforcement Bars				920 Lbs.

**MAXIMUM PILE LOADS**

SPAN	TONS
30'	27
35'	30
40'	32
50'	37

**DESIGN STRESSES**

f'c = 3,500 psi  
fy = 60,000 psi

P.P.C. DECK BEAMS	
PILE BENT ABUTMENT	
24' RDWY.	21" BMS. 'D'=0°, 5° OR 10°
STANDARD CA-2421-10	

Illinois Department of Transportation

PASSED November 1, 1995

*Gregory D. Keppner*  
Engineer of Bridge Design

APPROVED November 1, 1995

*Ralph E. Anderson*  
Engineer of Bridges and Structures



SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 1.39	EFFINGHAM	13	9

**NOTES**

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft.-lbs. at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M-270 Grade 36 except posts and angles shall conform to AASHTO M-270 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A-307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M-164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M-232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted.

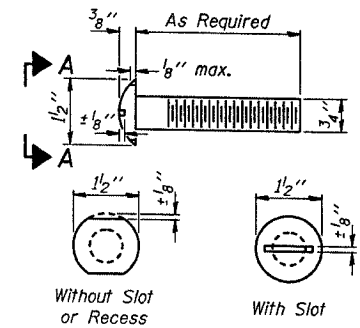
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing, Type S-1.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

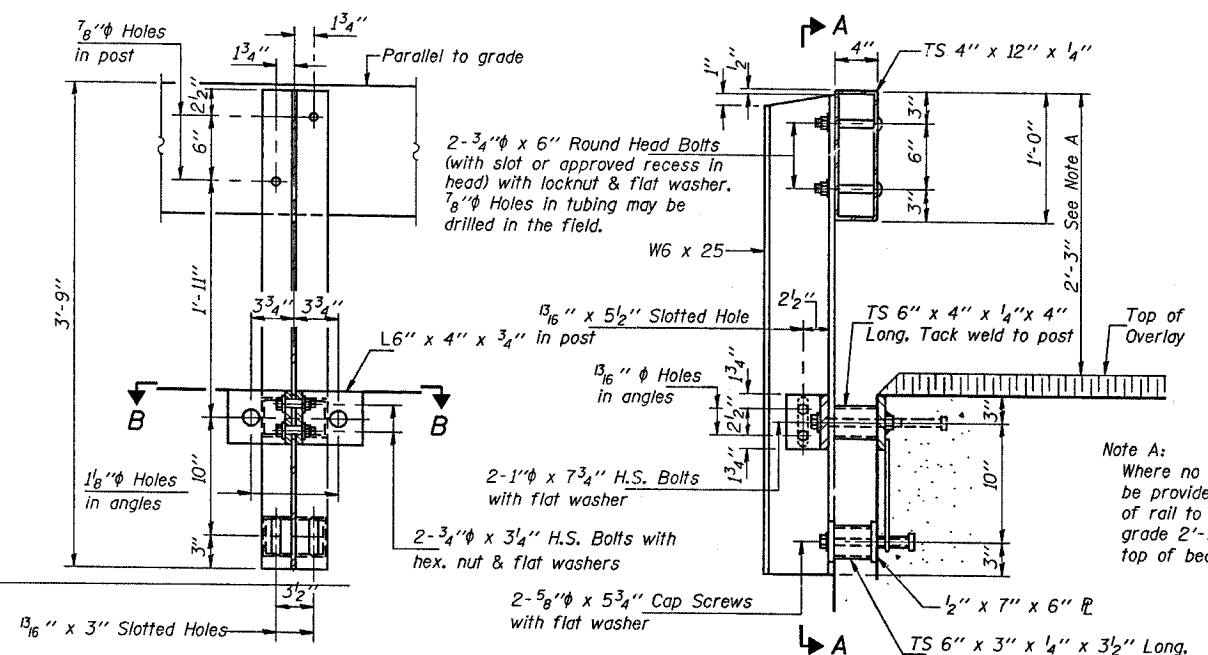
The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 760.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

The 3/4" high strength bolts used to connect the 6" x 4" x 3/4" angles to the post shall be tightened in accordance with Article 505.04 (f) (3) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

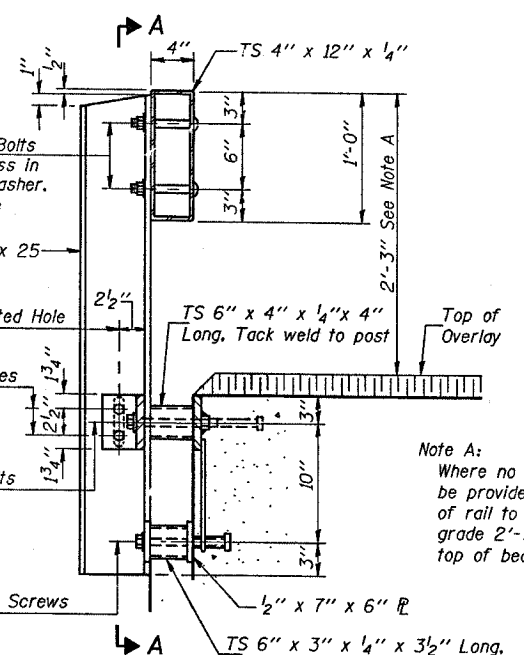
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6" or less.



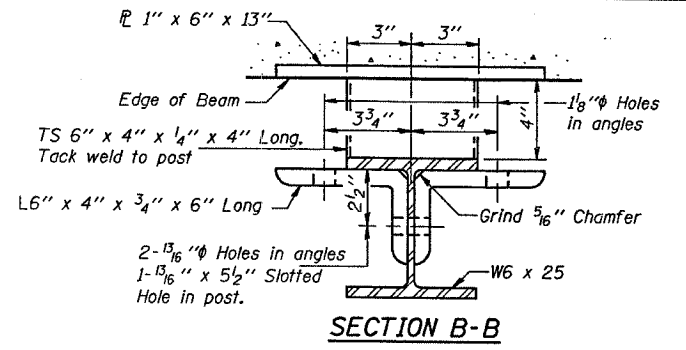
**VIEW A-A  
 ROUND HEAD BOLT**



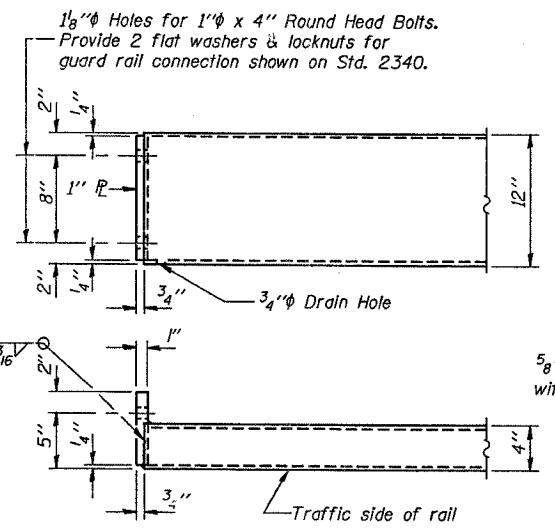
**SECTION A-A**



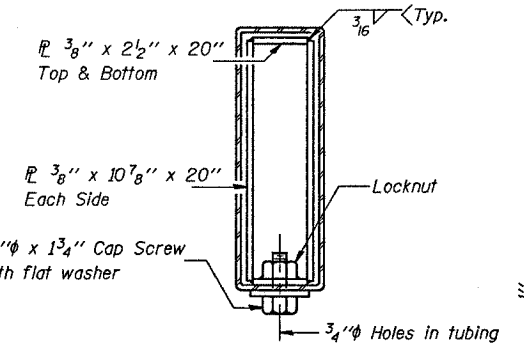
**SECTION AT RAIL POST**



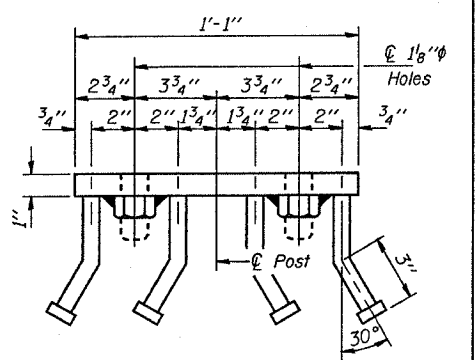
**SECTION B-B**



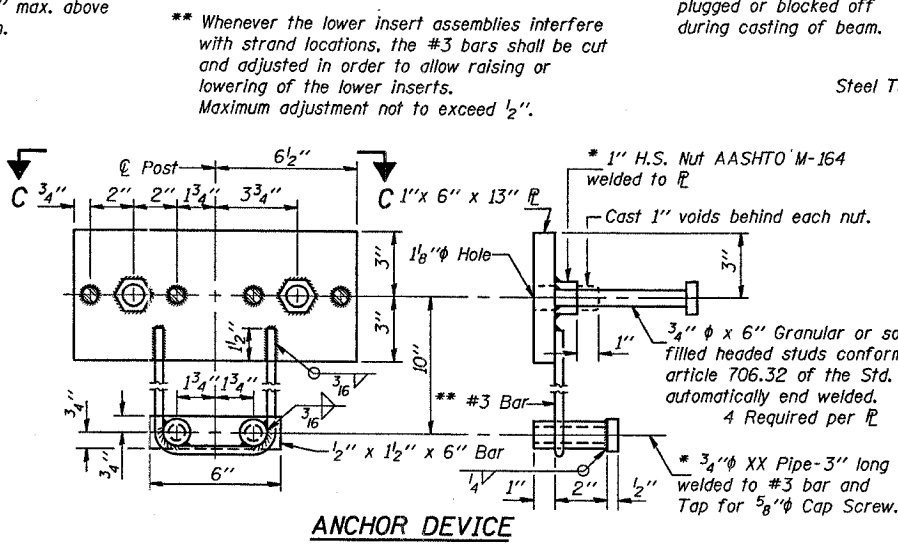
**END OF RAIL DETAILS**



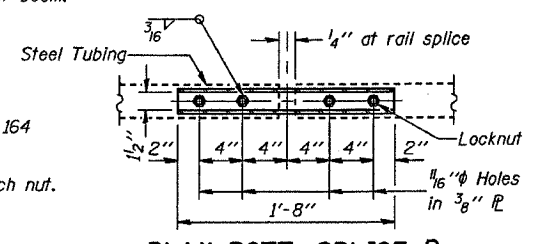
**SECTION AT RAIL SPLICE**



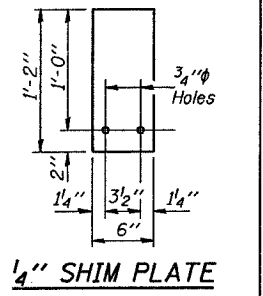
**VIEW C-C**



**ANCHOR DEVICE**



**PLAN-BOTT. SPLICE R  
 TYPICAL**



**1/4 SHIM PLATE**

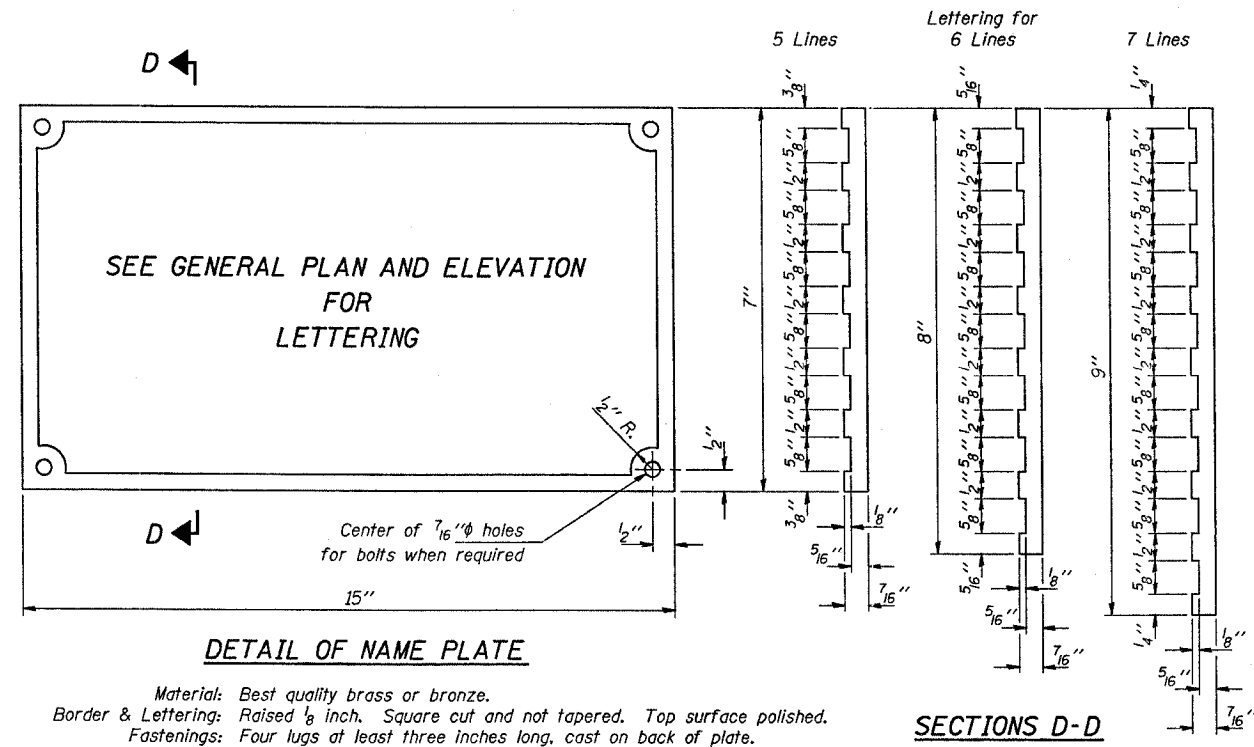
Illinois Department of Transportation  
 PASSED November 1, 1995  
 Engineer of Bridge Design  
 APPROVED November 1, 1995  
 Engineer of Bridges and Structures

**STEEL RAILING, TYPE S-1  
 STANDARD CR-TS1**

NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I.R. 139	*	EFFINGHAM	13	10
PUB. ROAD DIST. NO. 7		BLINDS	PUB. AND PROJECT NO.	

\* 02-02110-00-BR

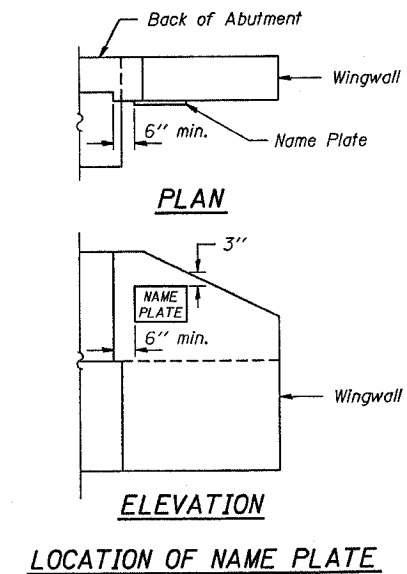
CONTRACT NO. 95422



**DETAIL OF NAME PLATE**

Material: Best quality brass or bronze.  
 Border & Lettering: Raised  $\frac{1}{8}$  inch. Square cut and not tapered. Top surface polished.  
 Fastenings: Four lugs at least three inches long, cast on back of plate.

**SECTIONS D-D**



**ELEVATION**  
**LOCATION OF NAME PLATE**

Illinois Department of Transportation

PASSED November 1, 1995  
*Greg J. Kaspar*  
 Engineer of Bridge Design

APPROVED November 1, 1995  
*Ralph E. Anderson*  
 Engineer of Bridges and Structures

ISSUED 7-1-95

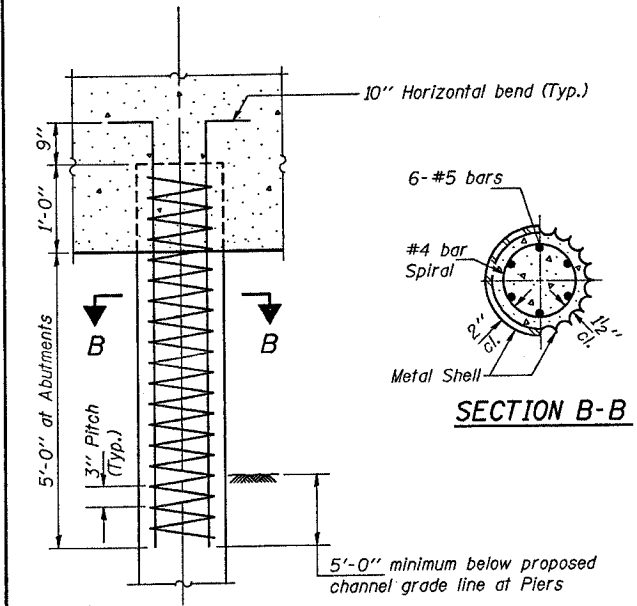
**NAME PLATE**  
**STANDARD CN**

\* 02-02110-00-BR  
 T.J.R. 1.39  
 CONTRACT NO. 95422

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*	EFFINGHAM	13	11

Reinforcement cage shall be omitted when Class SI Concrete Encasement is provided.

The cost of Reinforcement is incidental to the Cost of Furnishing Piles.



**DETAIL OF REINFORCEMENT FOR METAL SHELLS**

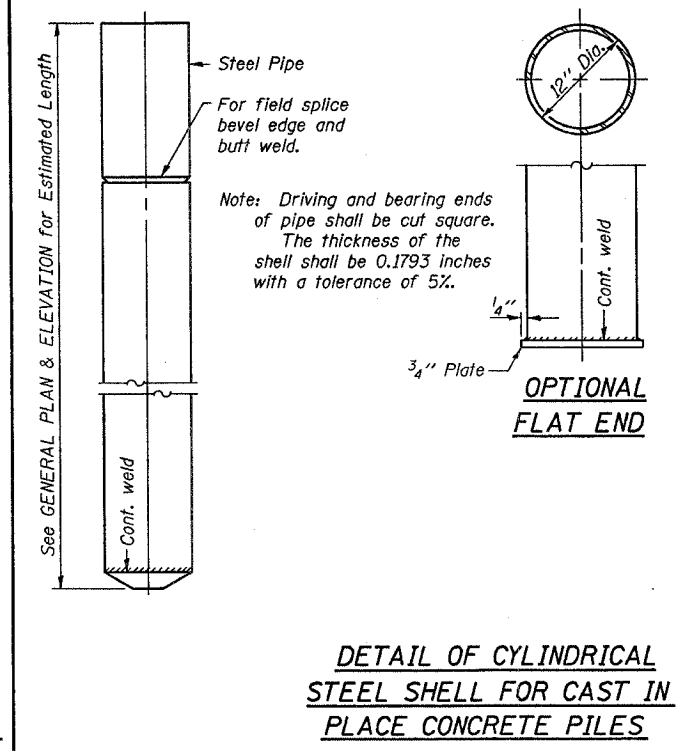
**QUANTITIES/LIN. FT. OF ENCASEMENT (STEEL PILES)**

Pile Size	Item	Quantity
HP8	Class SI Concrete Encasement	0.063 C.Y.
HP10	Class SI Concrete Encasement	0.086 C.Y.
HP12	Class SI Concrete Encasement	0.112 C.Y.

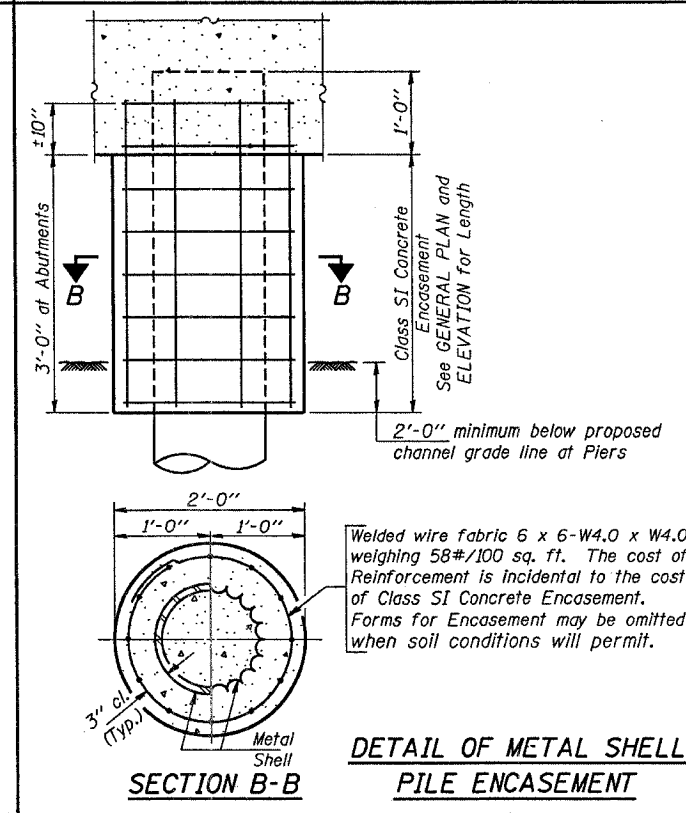
**(METAL SHELL PILES)**

Pile Size	Item	Quantity
12" Dia.	Class SI Concrete Encasement	0.087 C.Y.

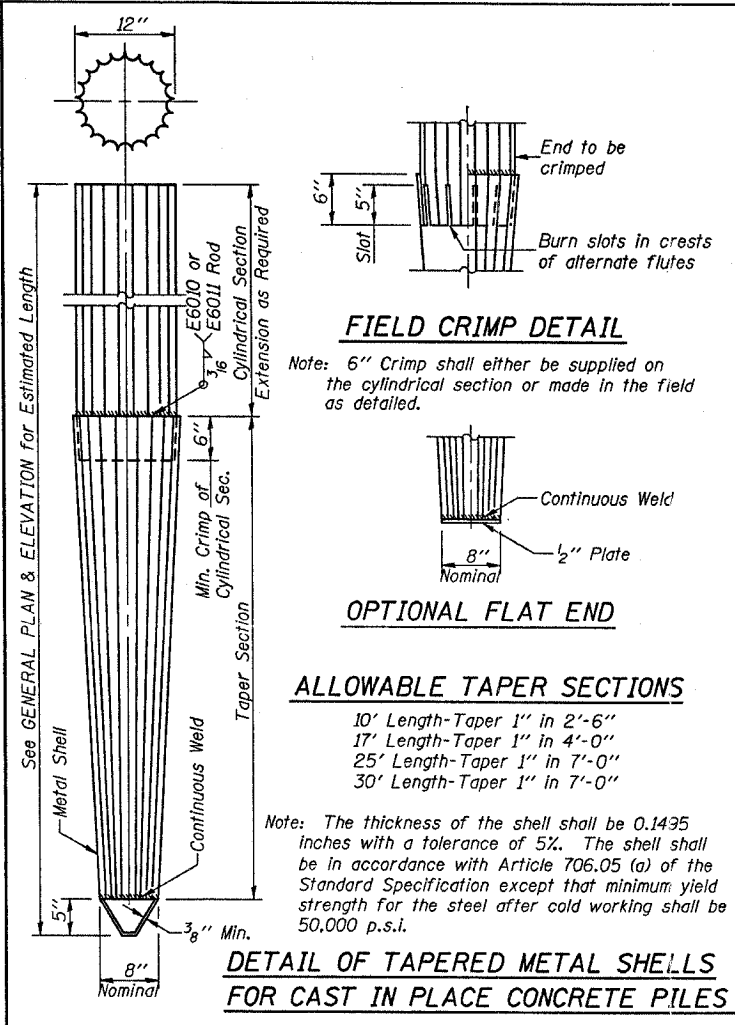
**PILE DETAILS**  
**STANDARD CX-1**



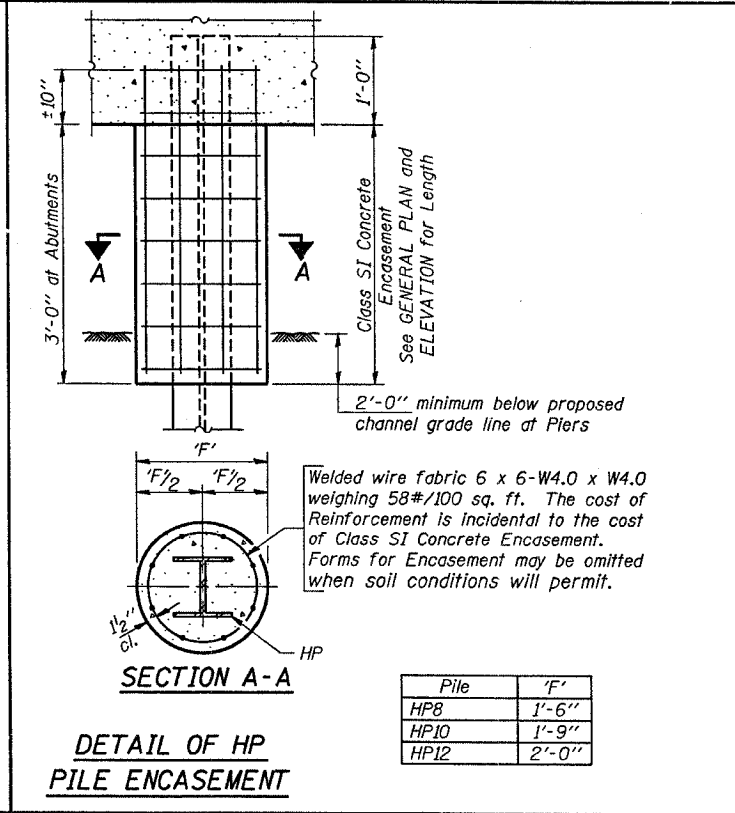
**DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES**



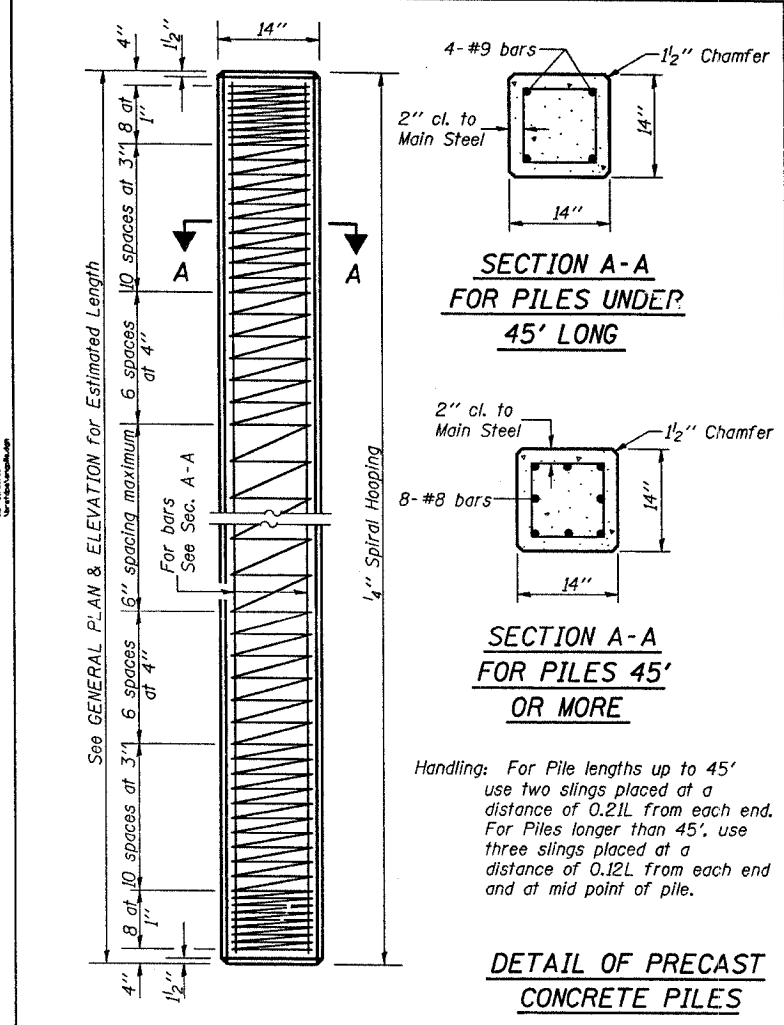
**DETAIL OF METAL SHELL PILE ENCASEMENT**



**ALLOWABLE TAPER SECTIONS FOR CAST IN PLACE CONCRETE PILES**

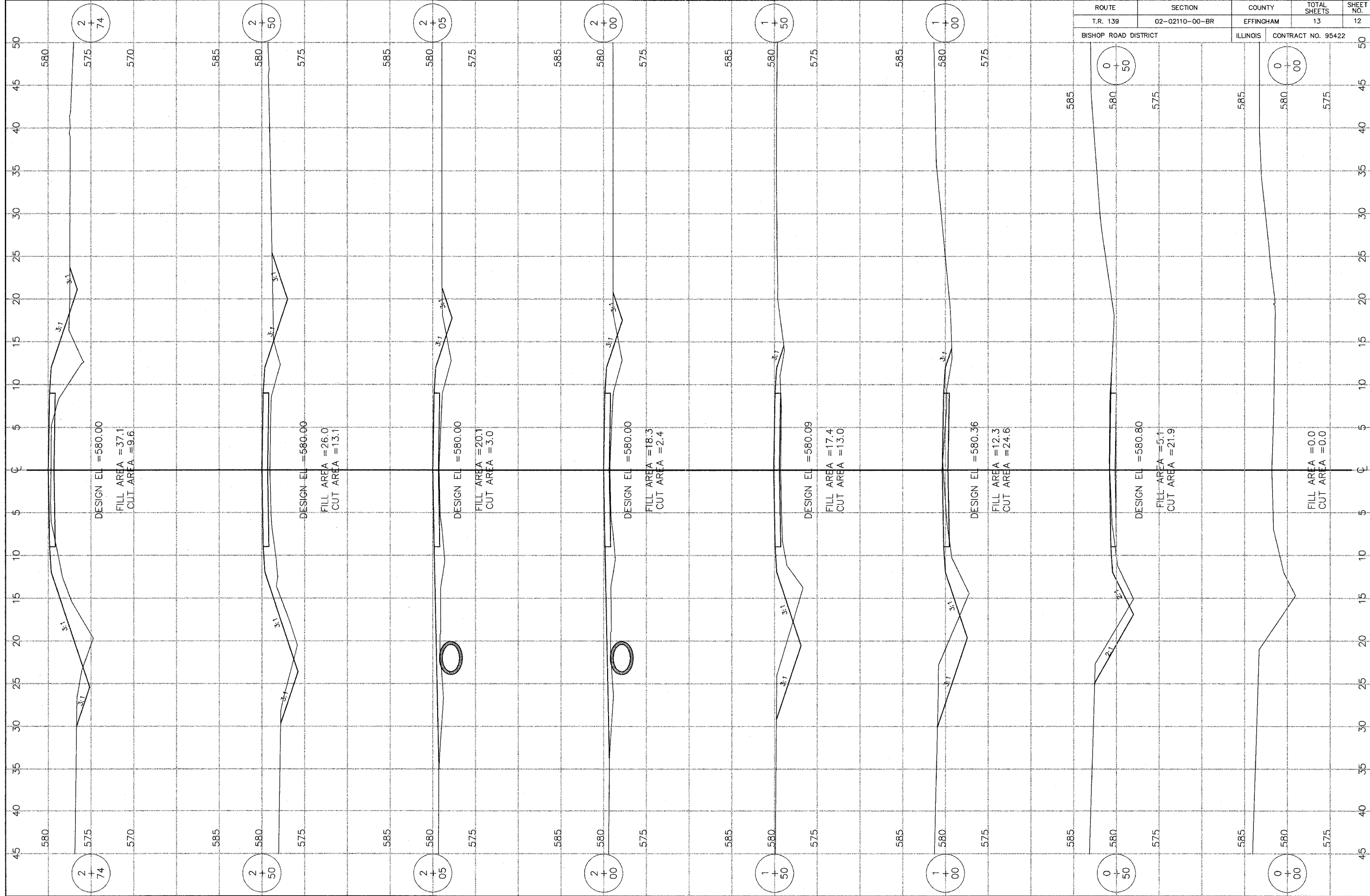


**DETAIL OF HP PILE ENCASEMENT**



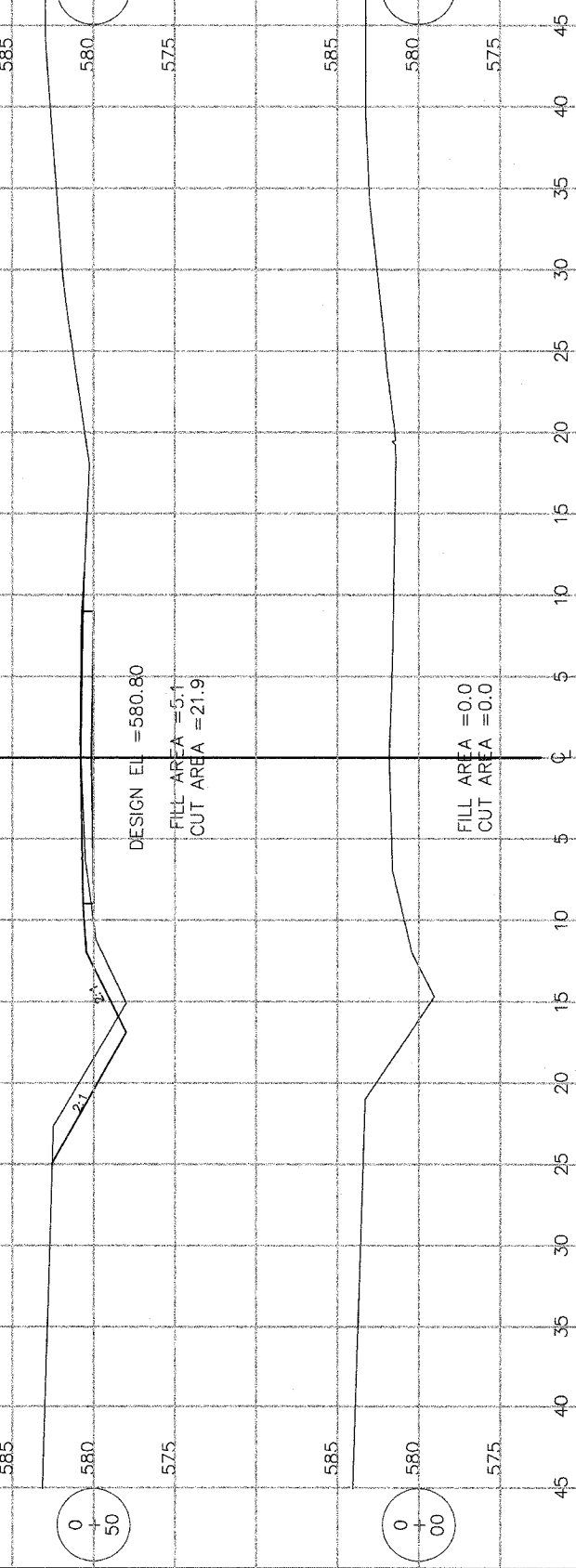
**DETAIL OF PRECAST CONCRETE PILES**

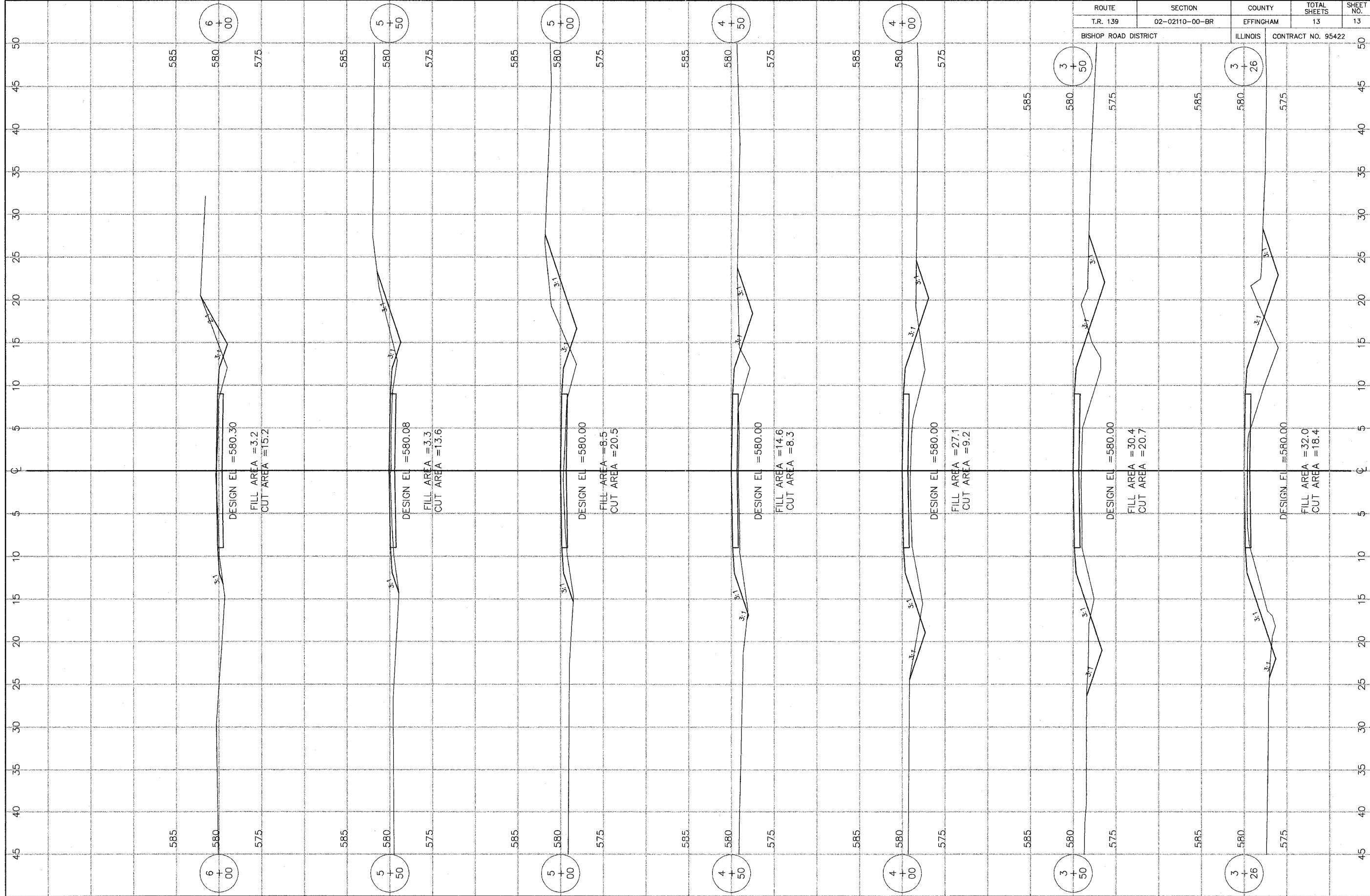
Illinois Department of Transportation  
 PASSED November 1, 1995  
 APPROVED November 1, 1995  
 Engineer of Bridge Design  
 Engineer of Bridges and Structures



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	02-02110-00-BR	EFFINGHAM	13	12

BISHOP ROAD DISTRICT ILLINOIS CONTRACT NO. 95422





ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 139	02-02110-00-BR	EFFINGHAM	13	13

BISHOP ROAD DISTRICT ILLINOIS CONTRACT NO. 95422