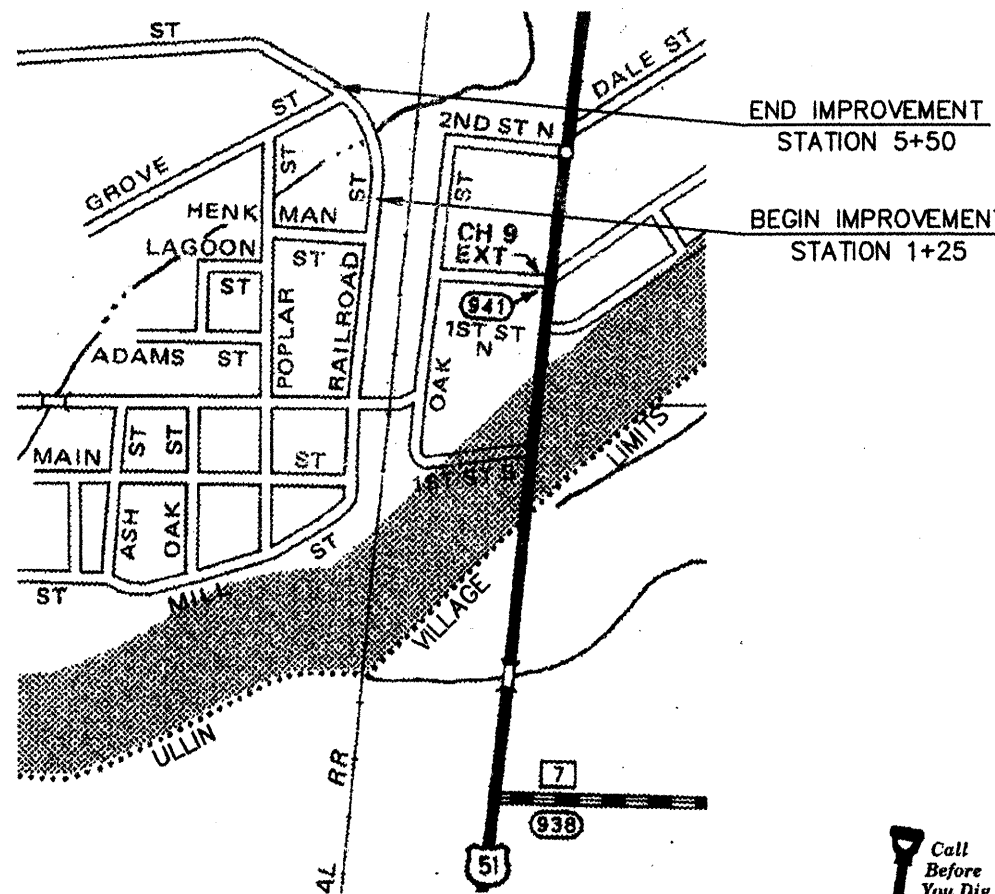


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM

TOWNSHIP ROUTE 23 (ELCO ROAD)
SECTION 09-01181-00-BR
PROJECT NO. BROS-153(31)
JOB NO. C-99-559-09
INDIAN CAMP CREEK

PULASKI COUNTY

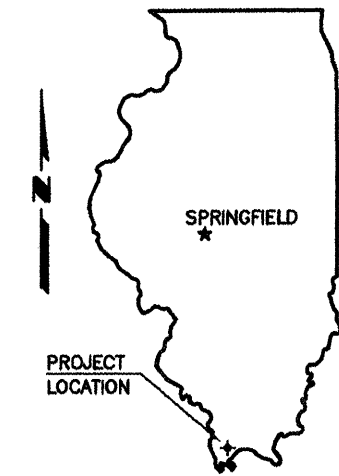


LOCATION MAP

SCALE: 1" = 660 FEET

NET LENGTH OF IMPROVEMENT = 425.00 FT. = 0.0805 MILES

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 23	09-01181-00-BR	PULASKI	13	1
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



SUMMARY OF QUANTITIES

CODE NO.	PAY ITEM	UNIT	TOTAL
* X0325592	REMOVE AND REPLACE STONE RIPRAP	CU YD	170
* X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.2
* X6063000	CONCRETE GUTTER, TYPE B (SPECIAL)	FOOT	61
* 20300100	CHANNEL EXCAVATION	CU YD	107
* 20400100	BORROW EXCAVATION	CU YD	483
20800150	TRENCH BACKFILL	CU YD	10
* 28100809	STONE DUMPED RIPRAP, CLASS A5	TON	325
* 40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	313
42400100	PORTLAND CEMENT CONCRETE SIDEWALK 4 INCH	SQ FT	15
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	75
44000600	SIDEWALK REMOVAL	SQ FT	15
* 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	27
50300225	CONCRETE STRUCTURES	CU YD	35.8
50300280	CONCRETE ENCASEMENT	CU YD	9.0
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2,384
50800105	REINFORCEMENT BARS	POUND	4,664
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	202
51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	826
51202305	DRIVING PILES	FOOT	826
51203200	TEST PILE METAL SHELLS	EACH	1
51500100	NAME PLATES	EACH	1
54210184	PIPE ELBOW, 15"	EACH	1
54213450	END SECTIONS 15"	EACH	1
550A0070	STORM SEWER, CLASS A, TYPE 1 15"	FOOT	102
60237000	INLETS, TYPE A, TYPE 15 FRAME AND LID	EACH	1
60300305	FRAMES AND LIDS TO BE ADJUSTED	EACH	2
60604400	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.18	FOOT	17
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	2
63200310	GUARDRAIL REMOVAL	FOOT	100
67100100	MOBILIZATION	L SUM	1
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

* SEE SPECIAL PROVISIONS Δ SPECIALITY ITEMS



Edward W. Miller
4-7-11

Edward W. Miller
PROFESSIONAL ENGINEER
#062-025277
EXPIRES NOV. 30, 2011

E. MILLER ENGINEERING, INC.
CONSULTING ENGINEERS
HARRISBURG, ILLINOIS

CONTRACT NO. 99421

INDEX OF SHEETS

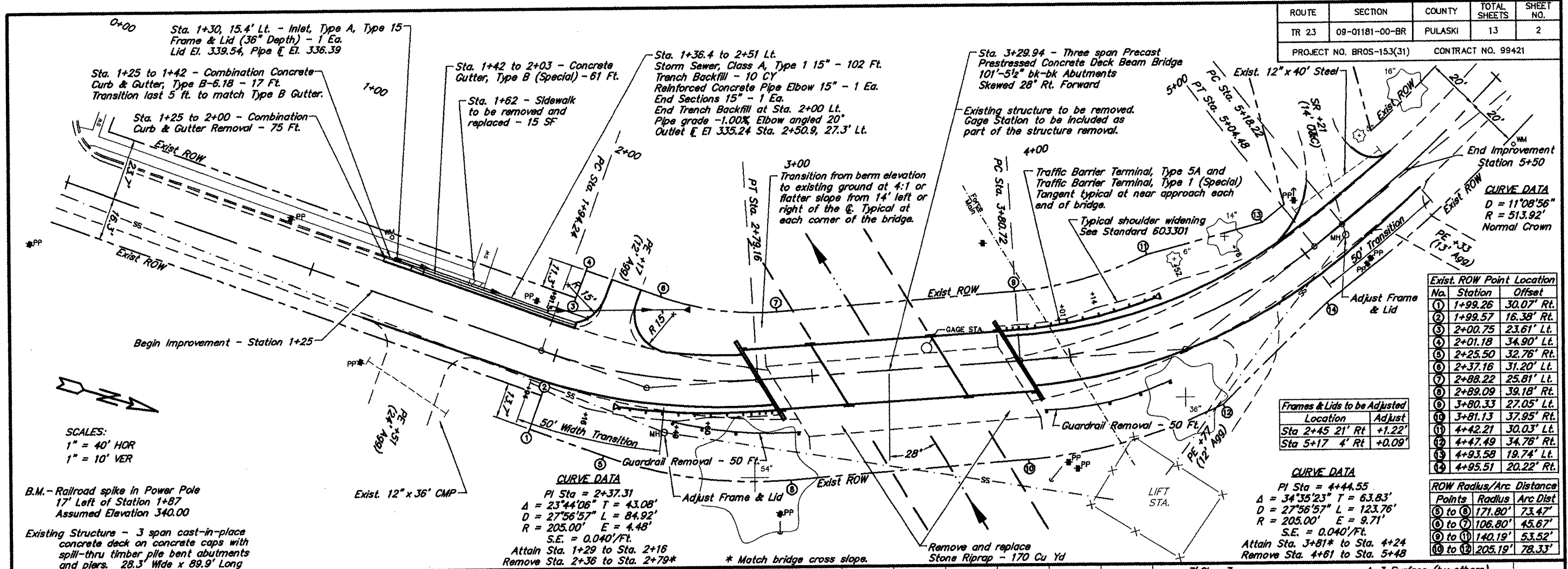
1. COVER SHEET
 2. PLAN AND PROFILE
 3. GENERAL PLAN AND ELEVATION
 4. 17" X 48" PPC DECK BEAM - SPANS 1 AND 3
 5. 17" X 48" PPC DECK BEAM DETAILS - SPANS 1 AND 3
 6. 17" X 48" PPC DECK BEAM - SPAN 2
 7. 17" X 48" PPC DECK BEAM DETAILS - SPAN 2
 8. ABUTMENT
 9. PIER
 10. STEEL RAILING, TYPE S1
 11. NAME PLATES
 12. PILING DETAILS
 13. CROSS SECTIONS
- STANDARDS 280001-05 TEMPORARY EROSION CONTROL SYSTEMS
 542301-03 PRECAST REINFORCED CONCRETE FLARED END SECTIONS
 606001-04 CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
 606201-02 TYPE B GUTTER
 630301-05 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
 635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT
 701901-01 TRAFFIC CONTROL DEVICES
 BLR-21-8 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
 BLR 27-1 TRAFFIC BARRIER TERMINAL TYPE 5A

CLASSIFICATION : LOCAL ROAD (RURAL)
ADT : 450
DESIGN SPEED : 25 MPH

ILLINOIS DEPARTMENT OF TRANSPORTATION	
Approved	<u>5/4/2011</u> <i>Stacy Cambart</i> Pulaski County Engineer
Passed	<u>5/23/2011</u> <i>Dennis W. Hult</i> District 9 Engineer of Local Roads and Streets
Releasing for Bid Based on Limited Review	<u>5/24/11</u> <i>Mary C. Jamie</i> Deputy Director of Highways, Region 5 Engineer Illinois Department of Transportation



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 23	09-01181-00-BR	PULASKI	13	2
PROJECT NO. BROS-153(31)		CONTRACT NO. 99421		



CURVE DATA

D = 11'08'56"
R = 513.92'
Normal Crown

Exist. ROW Point Location

No.	Station	Offset
1	1+99.26	30.07' Rt.
2	1+99.57	16.38' Rt.
3	2+00.75	23.61' Lt.
4	2+01.18	34.90' Lt.
5	2+25.50	32.76' Rt.
6	2+37.16	31.20' Lt.
7	2+88.22	25.81' Lt.
8	2+89.09	39.18' Rt.
9	3+80.33	27.05' Lt.
10	3+81.13	37.95' Rt.
11	4+42.21	30.03' Lt.
12	4+47.49	34.76' Rt.
13	4+93.58	19.74' Lt.
14	4+95.51	20.22' Rt.

Frames & Lids to be Adjusted

Location	Adjust
Sta 2+45 21' Rt	+1.22'
Sta 5+17 4' Rt	+0.09'

CURVE DATA

PI Sta = 4+44.55
Δ = 34°35'23" T = 63.83'
D = 27°56'57" L = 123.76'
R = 205.00' E = 9.71'
S.E. = 0.040'/Ft.
Attain Sta. 3+81* to Sta. 4+24
Remove Sta. 4+61 to Sta. 5+48

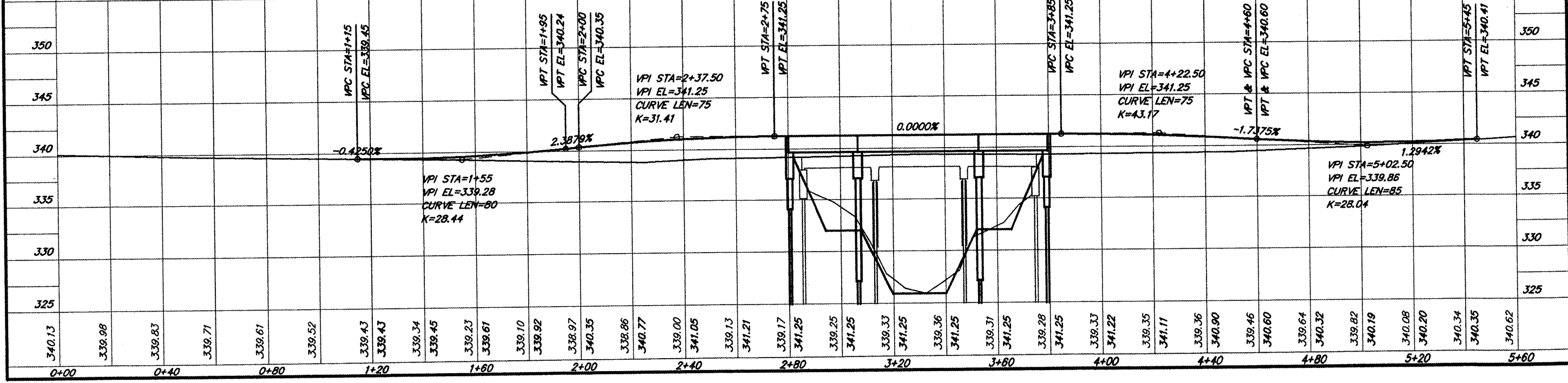
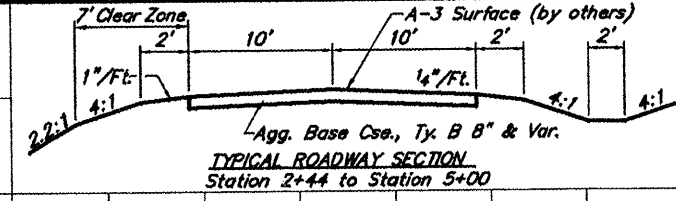
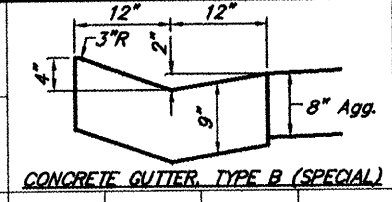
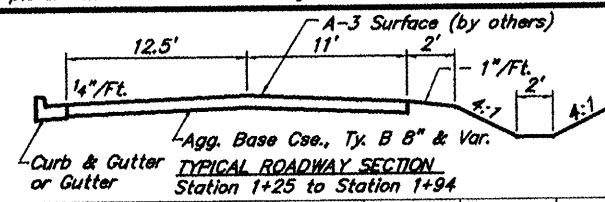
ROW Radius/Arc Distance

Points	Radius	Arc Dist
6 to 7	171.80'	73.47'
7 to 8	106.80'	45.67'
8 to 9	140.19'	53.52'
9 to 10	205.19'	78.33'

SCALES:
1" = 40' HOR
1" = 10' VER

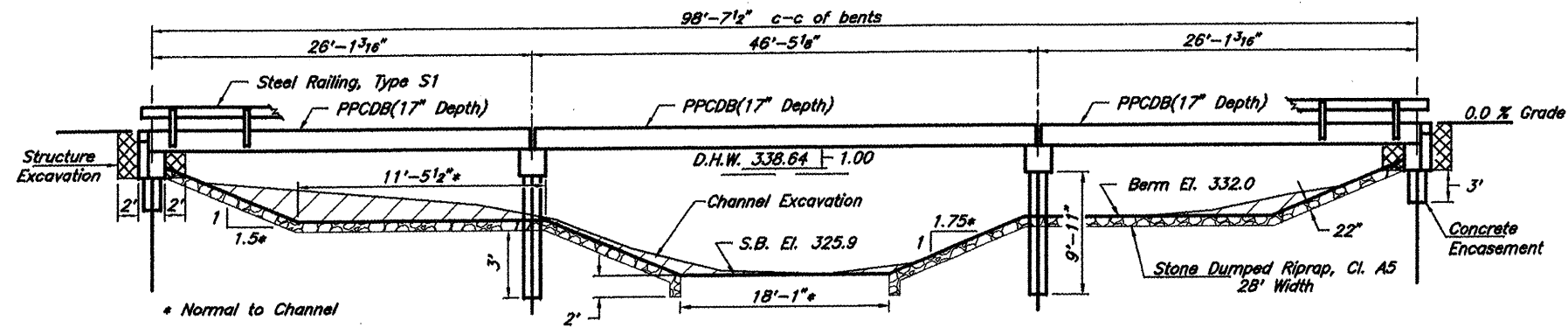
B.M. - Railroad spike in Power Pole
17' Left of Station 1+87
Assumed Elevation 340.00

Existing Structure - 3 span cast-in-place
concrete deck on concrete caps with
spill-thru timber pile bent abutments
and piers. 28.3' Wide x 89.9' Long



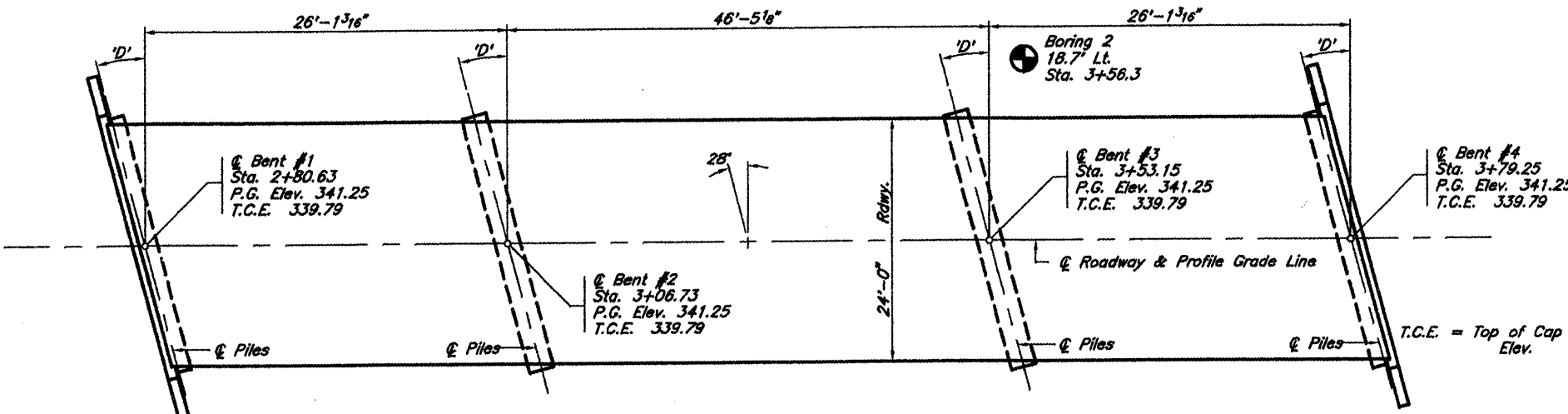
B.M. - Railroad spike in Power Pole
17' Left of Station 1+87
Assumed Elevation 340.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 23	09-01181-00-BR	PULASKI	13	3
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



Existing Structure - 3 span cast-in-place concrete deck on concrete caps with spill-thru timber pile bent abutments and piers. 28.3' Wide x 89.9' Long

ELEVATION



PLAN

Skew Angle "D" = 28° Right Forward

Boring 1
22.9' Rt.
Sta. 2+50.3

PILE DATA (2-PIERS)

Type & Size : Metal Shell 12"x0.250"
Nominal Required Bearing : 256 kips
Factored Resistance Available : 128 kips
Estimated Length : 62 Feet
Number Required : 8 (Includes 1 Test Pile located in Bent #2)

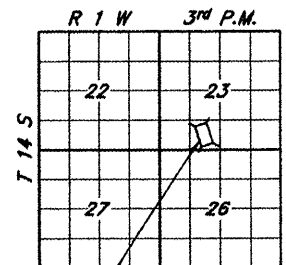
PILE DATA (2-ABUTS.)

Type & Size : Metal Shell 12"x0.250"
Nominal Required Bearing : 156 kips
Factored Resistance Available : 78 kips
Estimated Length : 52 Feet S. Abut., 46 Feet N. Abut.
Number Required : 8

INDIAN CAMP CREEK
SEC. 09-01181-00-BR BUILT 20
COUNTY UNIT ROAD DISTRICT
PULASKI COUNTY
LOADING HL-93
STR. NO. 077-3141

LETTERING FOR NAME PLATE

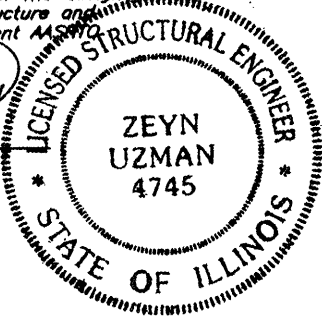
Locate Name Plate at Southeast Corner of Bridge (See Sheet B)



LOCATION SKETCH

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 type of structure and comply with the requirements of the current AASHTO LRFD Specifications.

Zeyn B. Uzman
S.E. #81-4745
Expires Nov 30, 2012



GENERAL NOTES

1. Metal Shell piles shall meet ASTM A 252 Grade 3 specifications.
2. Test Piles shall be driven to 110% of the Nominal Required Bearing indicated in the pile data.
3. The Contractor shall drive one test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
4. See special provisions for boring logs.
5. A Corrosion inhibitor, as covered in the Standard Specifications, shall be used in the precast prestressed concrete deck beams.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yds.				107
Stone Dumped Riprap, Class A5	Tons				325
Removal of Existing Structures	Each				1
Structure Excavation	Cu. Yds.			27	27
Concrete Structures	Cu. Yds.		17.2	18.6	35.8
Concrete Encasement	Cu. Yds.		6.9	2.1	9.0
P.P. Conc. Dk. Bm. 17" Dp.	Sq. Ft.	2,384			2,384
Reinforcement Bars	Pound		2,214	2,450	4,664
Steel Railing, Type S1	Foot	202			202
Furnishing Metal Shell Piles 12"x0.250"	Foot		434	392	826
Driving Piles	Foot		434	392	826
Test Pile Metal Shells	Each		1		1
Name Plates	Each			1	1

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications and all applicable interims.

LOADING HL-93

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

SEISMIC DATA

Soil Site Class = E
Design Spectral Acceleration at 0.2 sec. (S_{0.2}) = 1.447
Design Spectral Acceleration at 1.0 sec. (S_{0.1}) = 0.996
Seismic Performance Zone (SPZ) = 4

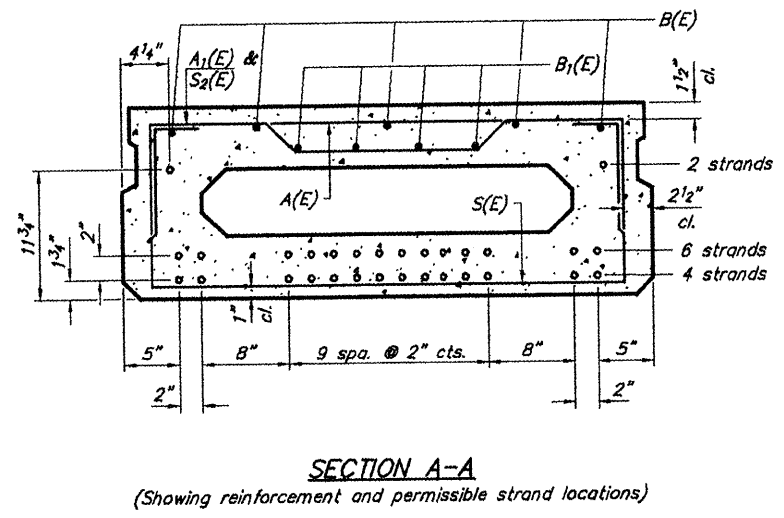
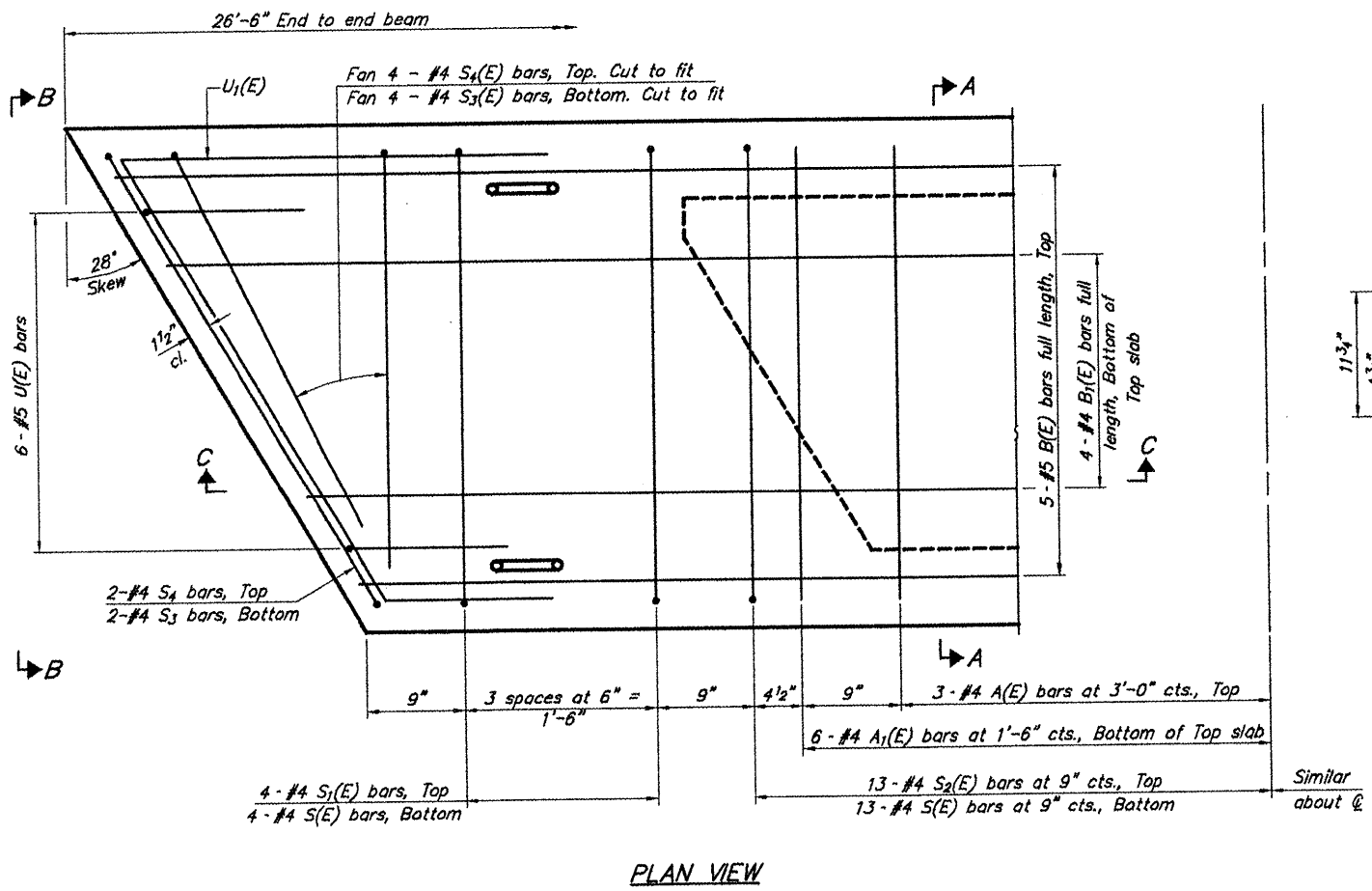
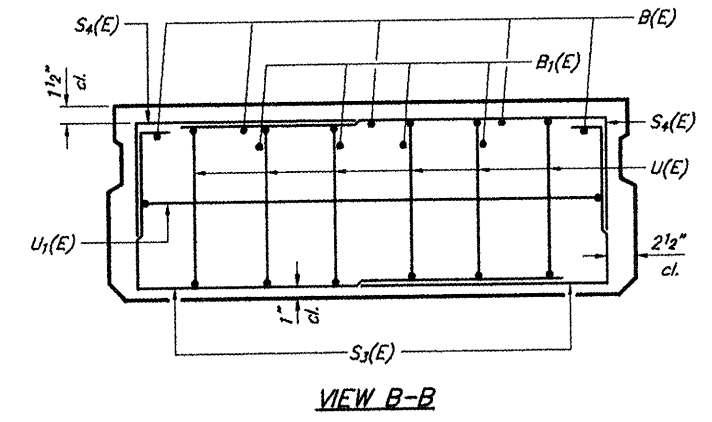
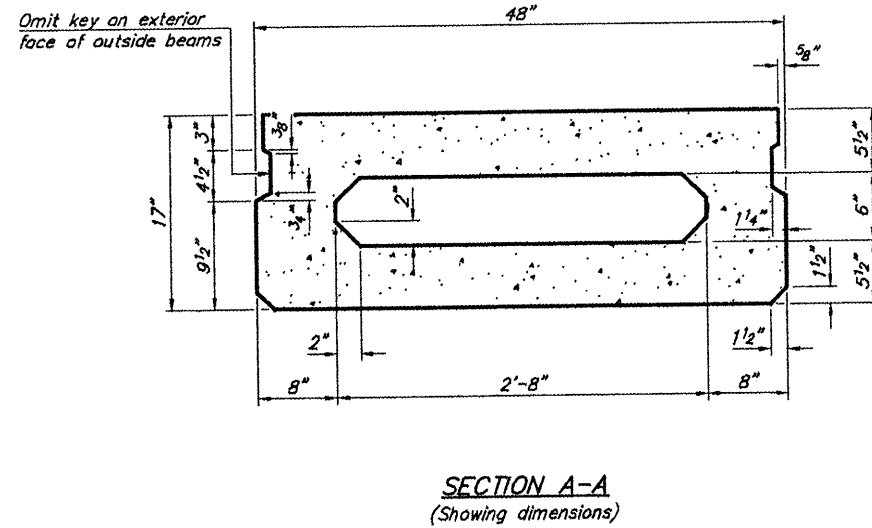
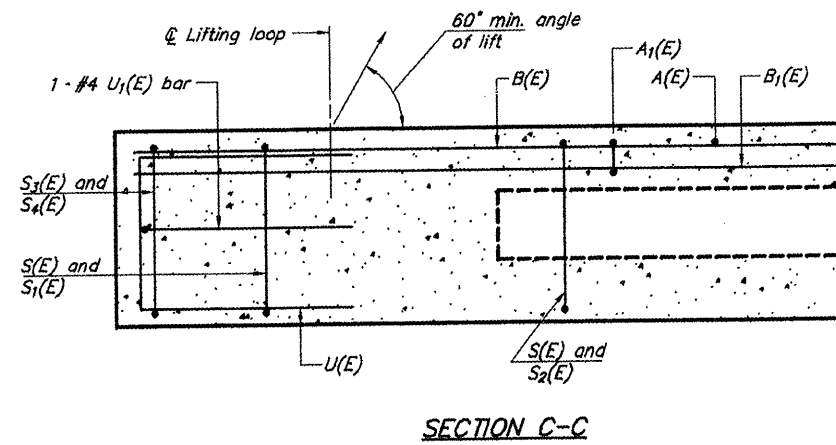
WATERWAY INFORMATION

Drainage Area = 39.5 Sq. Mi.		Low Grade Elev. = 339.42		At Sta. 1+27					
Flood Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Head-Ft. Exist.	Prop.				
Design	30	5,880	563.1	658.1	338.64	1.26	0.46	339.90	339.10
Base	100	7,490	563.1	738.8	339.60	1.02	0.80	340.62	340.40
Overtopping									
Max. Calc.	500								

Over Road Flow (Sq Ft): Exist. 191.4 506.4
Note: No over road flow used for proposed structure to allow for future raising of the approaches.

GENERAL PLAN & ELEVATION
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 23	09-01181-00-BR	PULASKI	13	4
PROJECT NO. BROS-153(31)		CONTRACT NO. 99421		



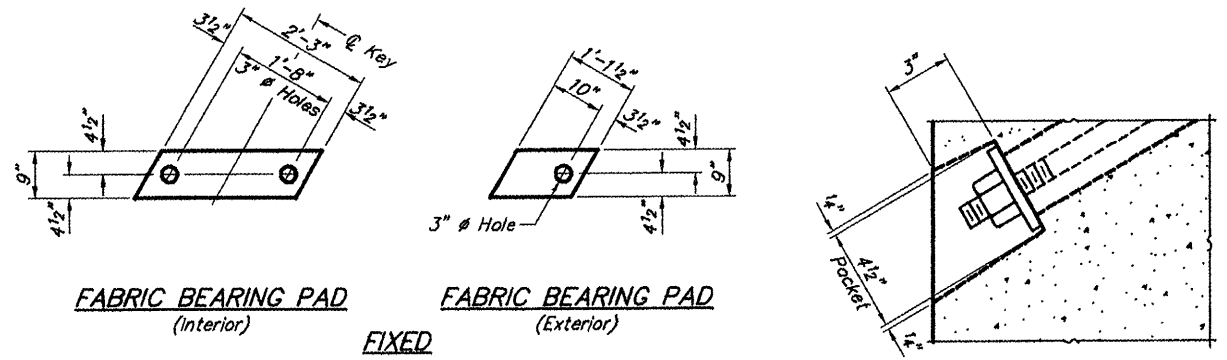
BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	6	#4	3'-7"	—
A1(E)	12	#4	3'-10"	—
B(E)	5	#5	26'-1"	—
B1(E)	4	#4	26'-1"	—
S(E)	34	#4	6'-9"	□
S1(E)	8	#4	5'-3"	□
S2(E)	26	#4	5'-6"	□
S3(E)	12	#4	4'-6"	□
S4(E)	12	#4	3'-9"	□
U(E)	12	#5	3'-8"	□
U1(E)	2	#4	8'-4"	□

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.

17" X 48" PPC DECK BEAM
SPANS 1 AND 3
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

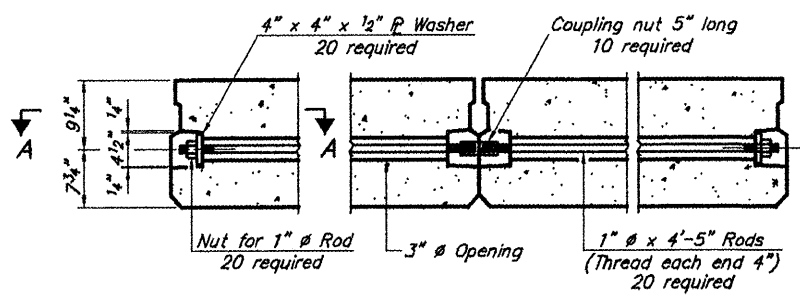
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 23	09-01181-00-BR	PULASKI	13	5
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



FABRIC BEARING PAD
(Interior) **FABRIC BEARING PAD**
(Exterior)

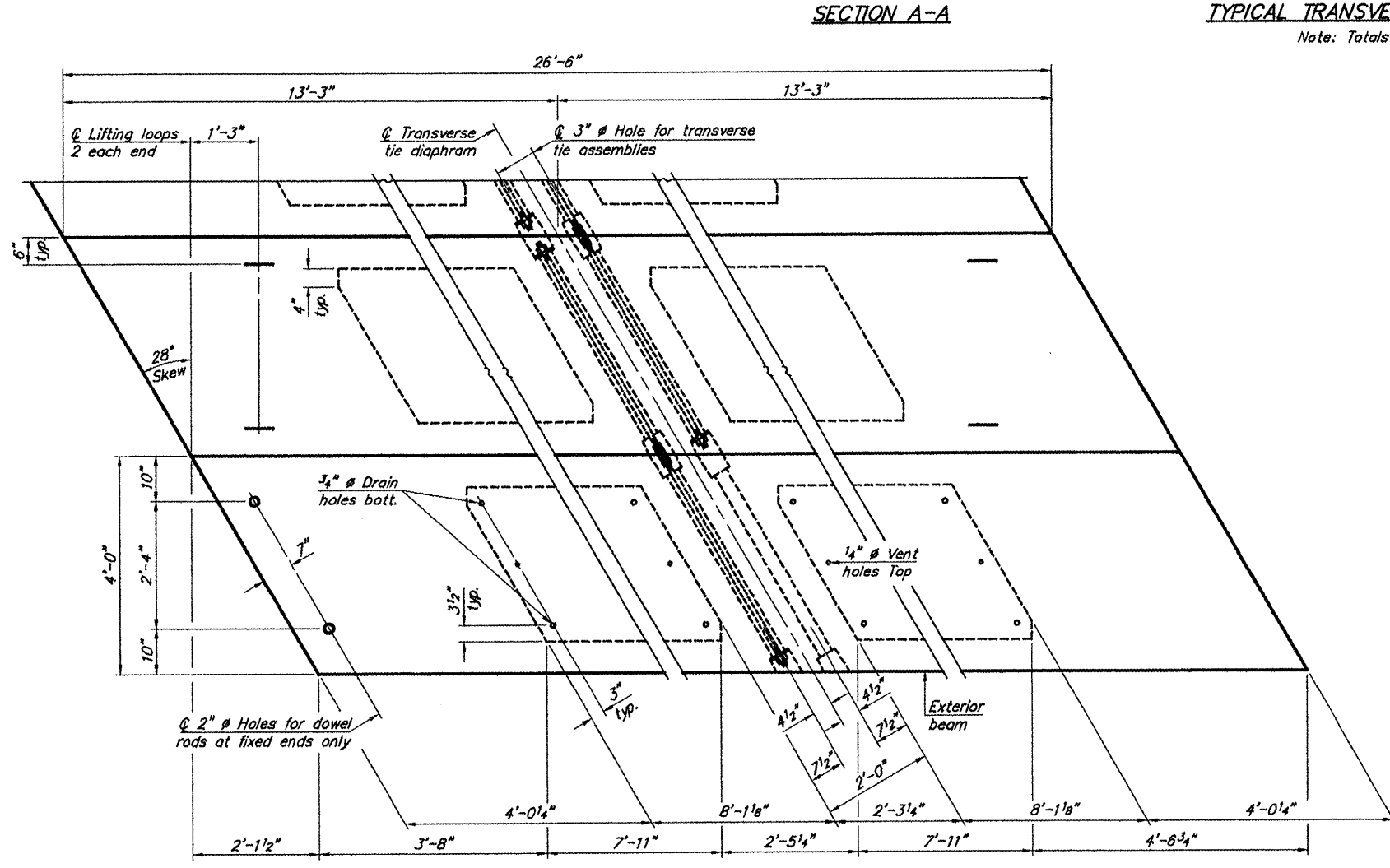
FIXED

Note: Omit holes when using expansion bearings.



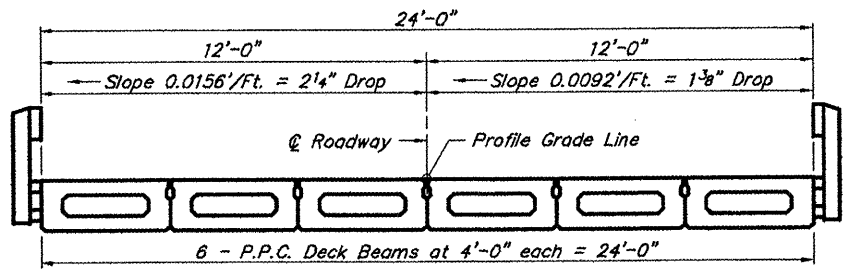
TYPICAL TRANSVERSE TIE ASSEMBLY

Note: Totals for two spans



PLAN VIEW

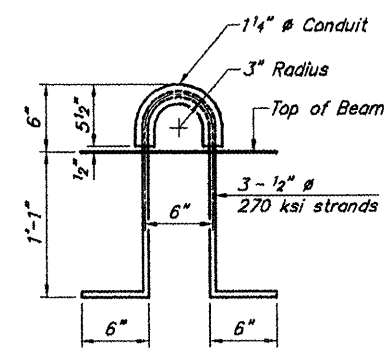
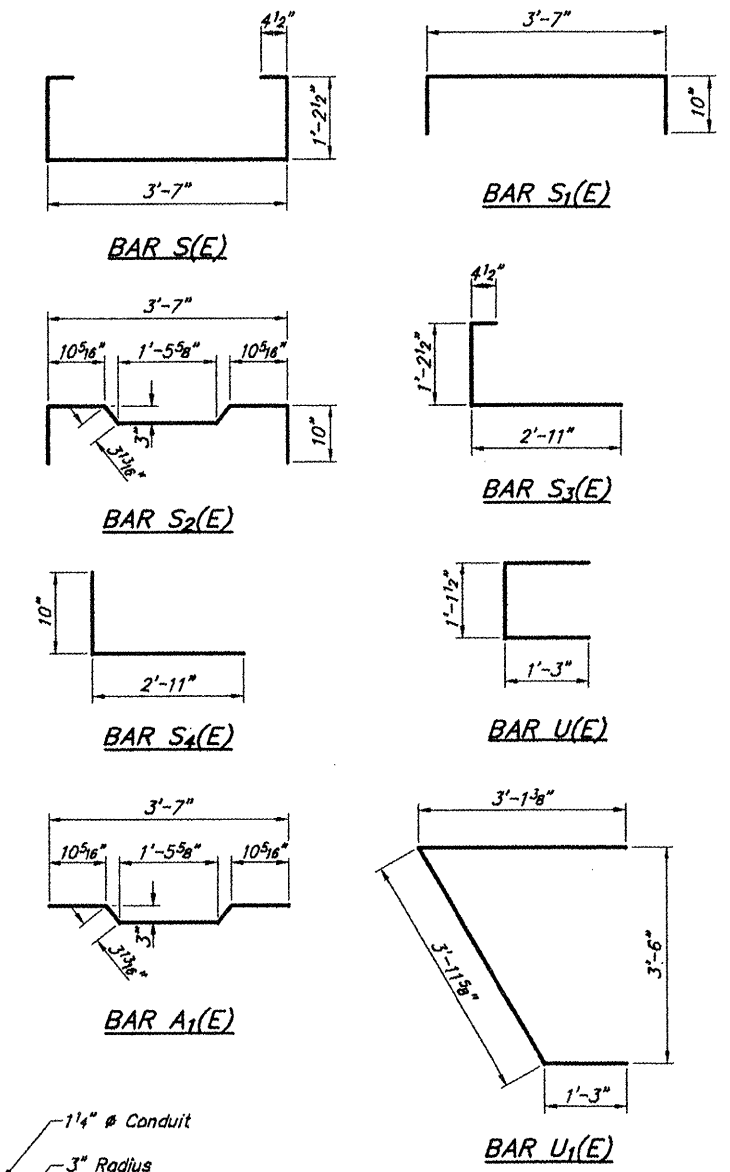
Note: Connect beams in pairs with the transverse tie configuration shown.



CROSS SECTION

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 Special Provisions).
Two 1/8" 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)(12) and 1021.06 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.



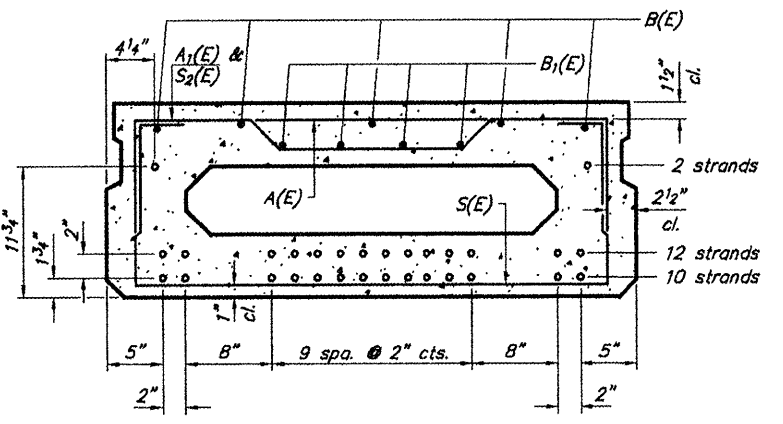
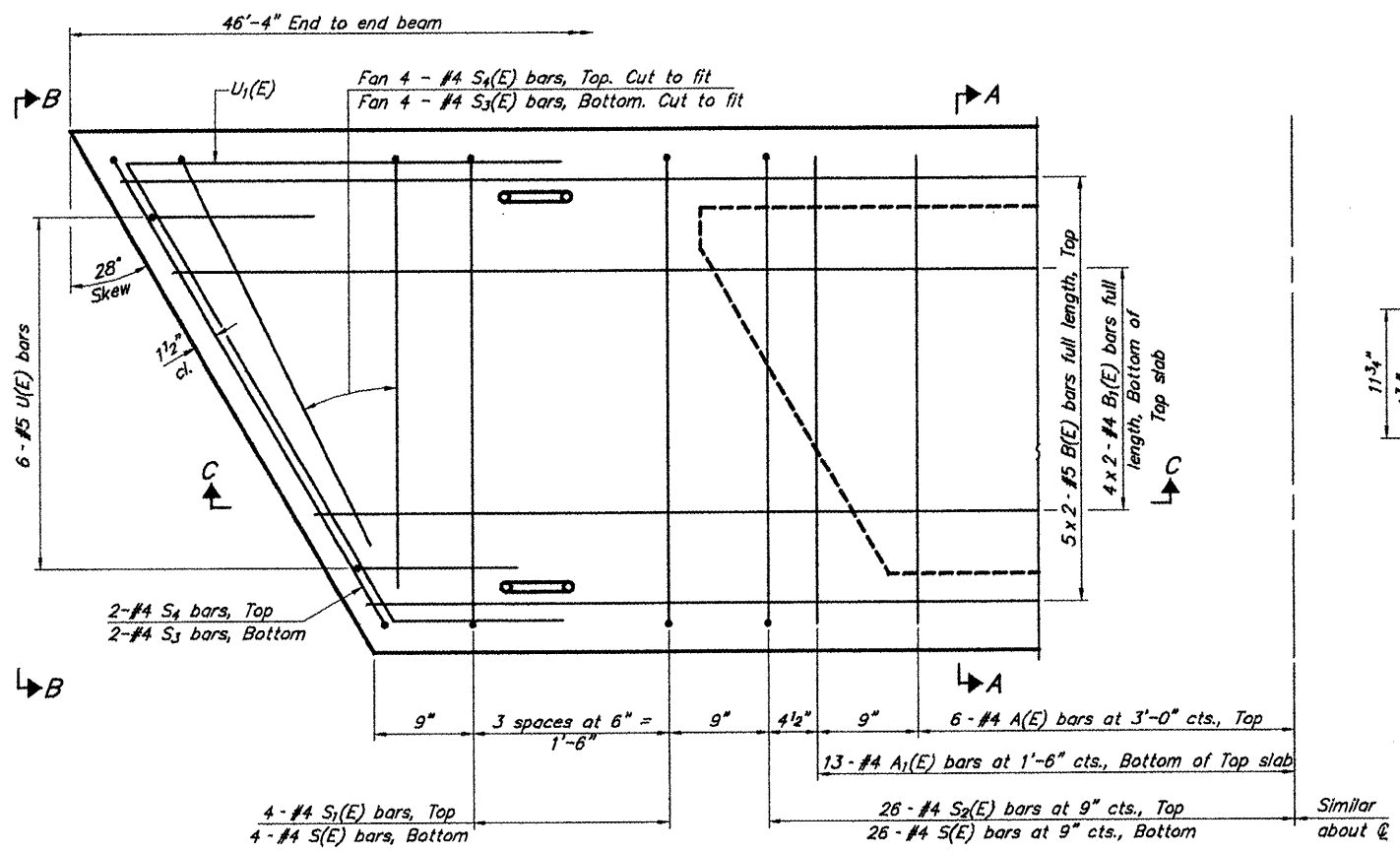
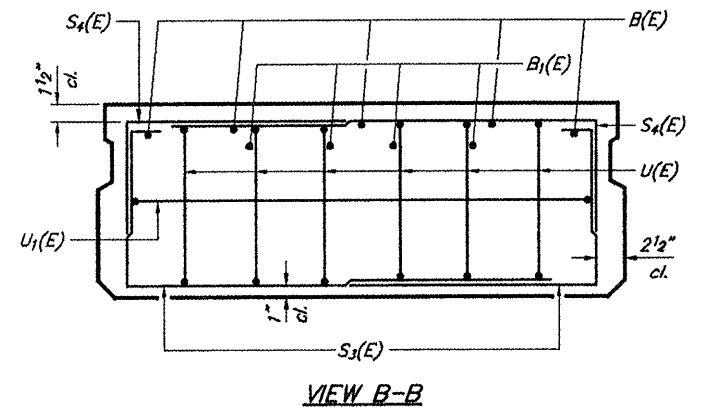
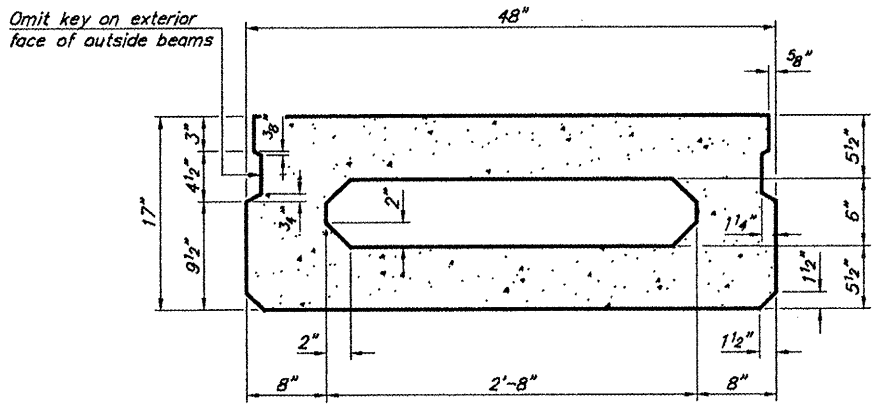
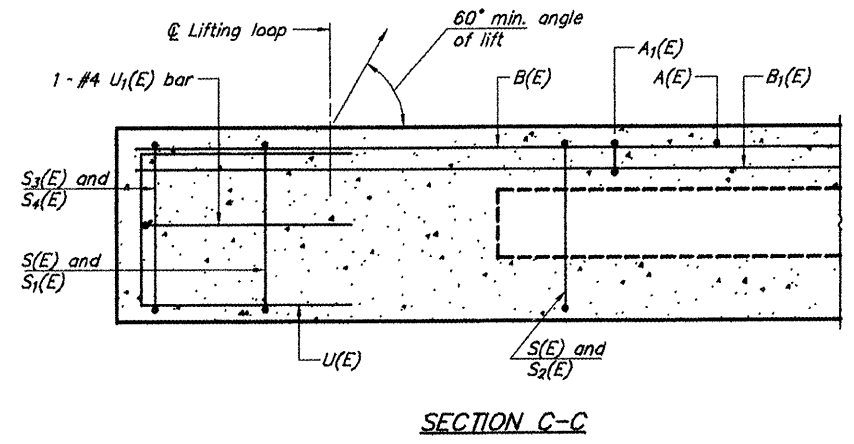
LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1272
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17" X 48" PPC DECK BEAM DETAILS
SPANS 1 AND 3
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 23	09-01181-00-BR	PULASKI	13	6
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	12	#4	3'-7"	—
A1(E)	26	#4	3'-10"	~
B(E)	10	#5	24'-1"	—
B1(E)	8	#4	23'-10"	—
S(E)	60	#4	6'-9"	□
S1(E)	8	#4	5'-3"	□
S2(E)	52	#4	5'-6"	□
S3(E)	12	#4	4'-6"	□
S4(E)	12	#4	3'-9"	□
U(E)	12	#5	3'-8"	□
U1(E)	2	#4	8'-4"	□

Bar Laps #4 bars = 1'-8"
#5 bars = 2'-2"

PLAN VIEW

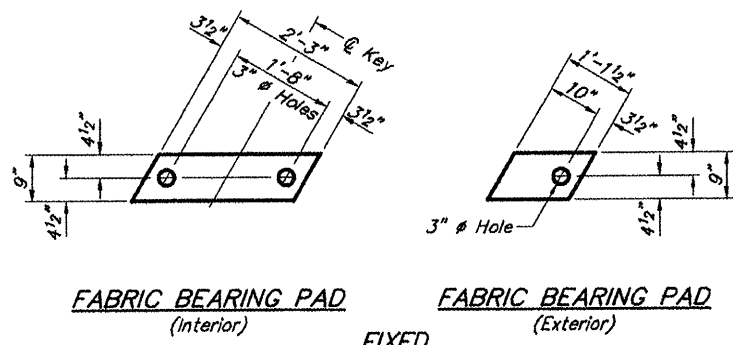
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

SECTION A-A
(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.

17" X 48" PPC DECK BEAM
SPAN 2
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

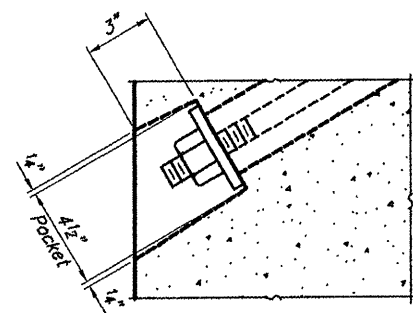
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 23	09-01181-00-BR	PULASKI	13	7
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



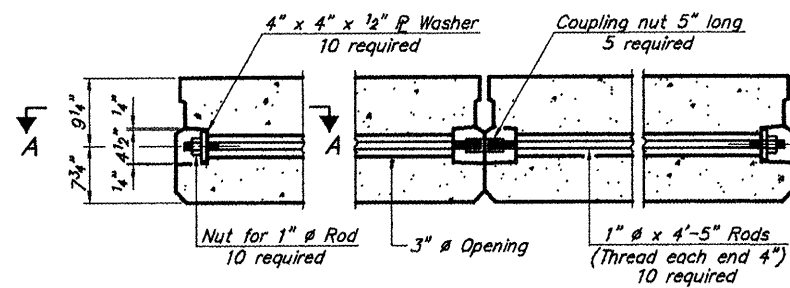
FABRIC BEARING PAD
(Interior) **FABRIC BEARING PAD**
(Exterior)

FIXED

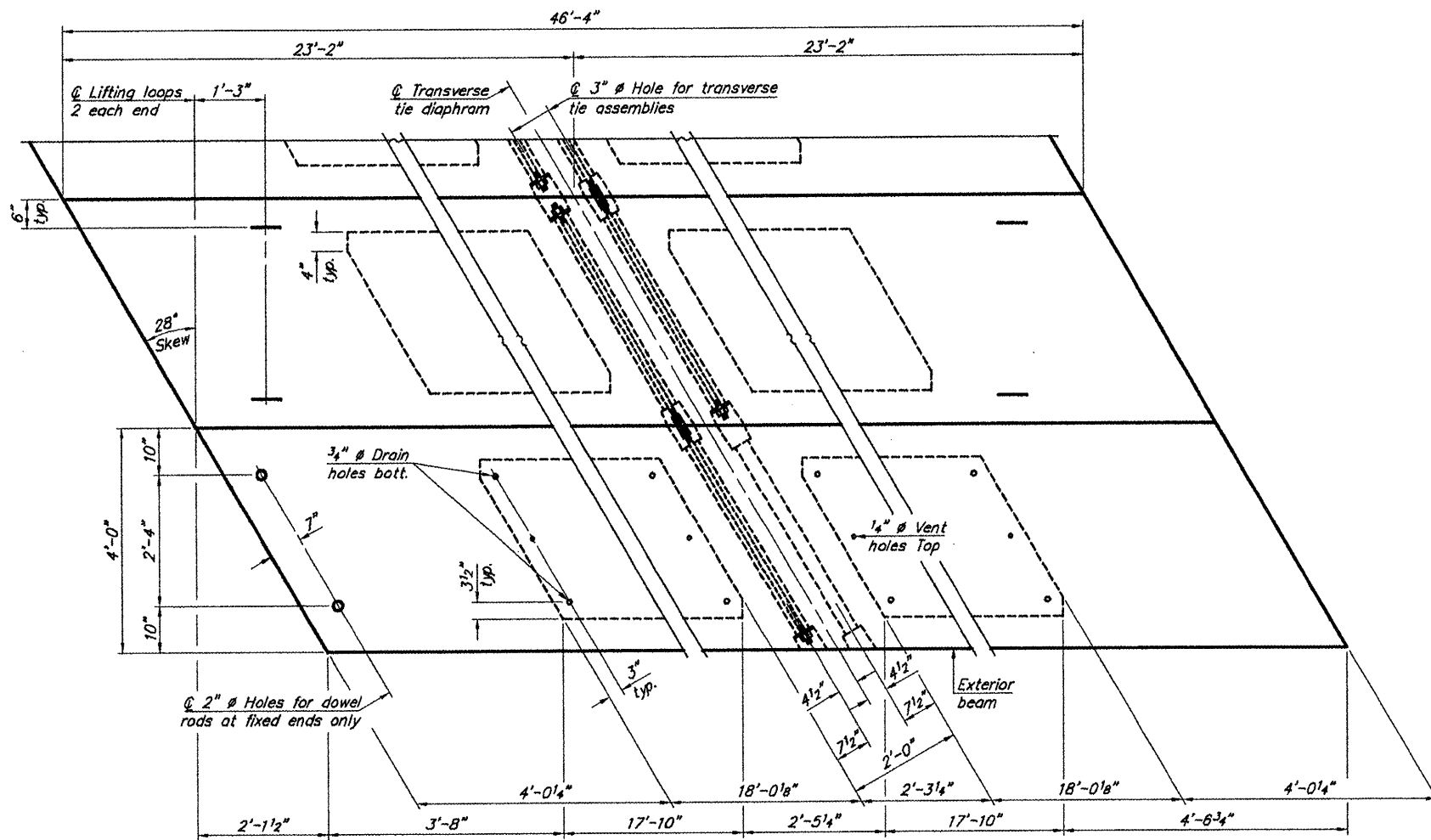
Note: Omit holes when using expansion bearings.



SECTION A-A

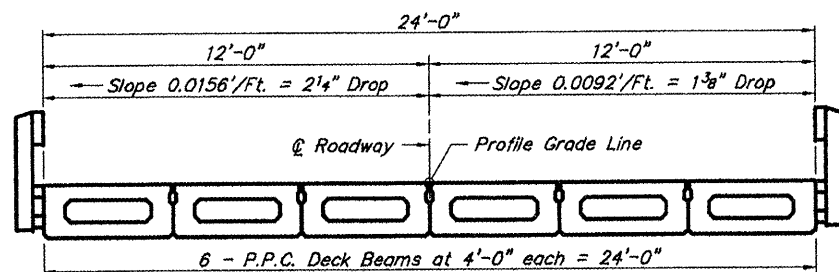


TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW

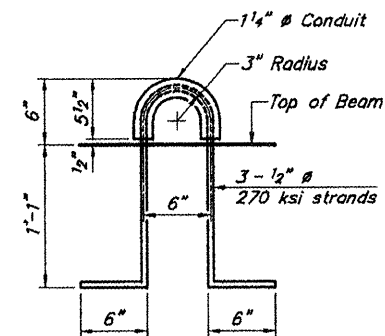
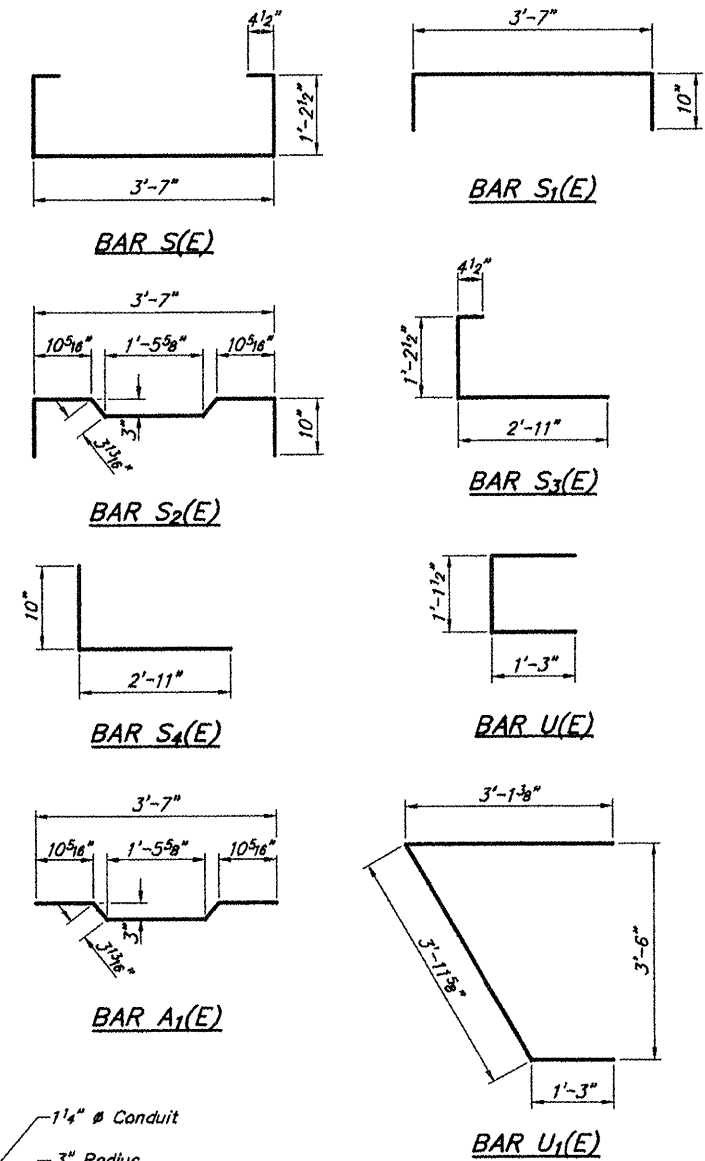
Note: Connect beams in pairs with the transverse tie configuration shown.



CROSS SECTION

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 Special Provisions).
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
Corrosion inhibitor, per Article 1020.05(b)(12) and 1021.06 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.



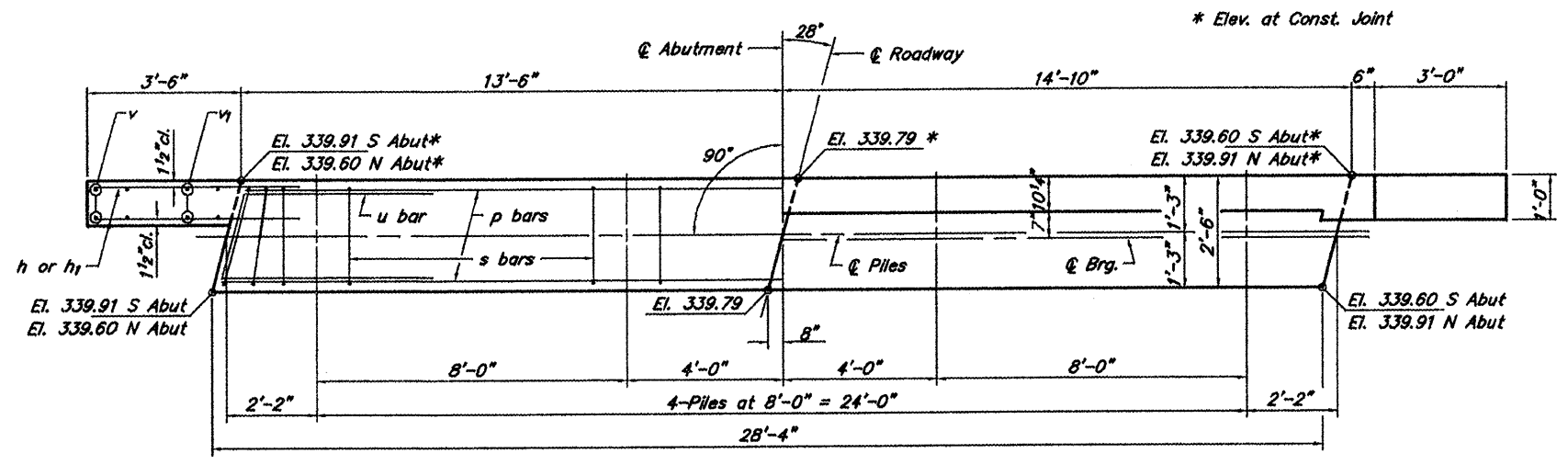
LIFTING LOOP DETAIL

BILL OF MATERIAL

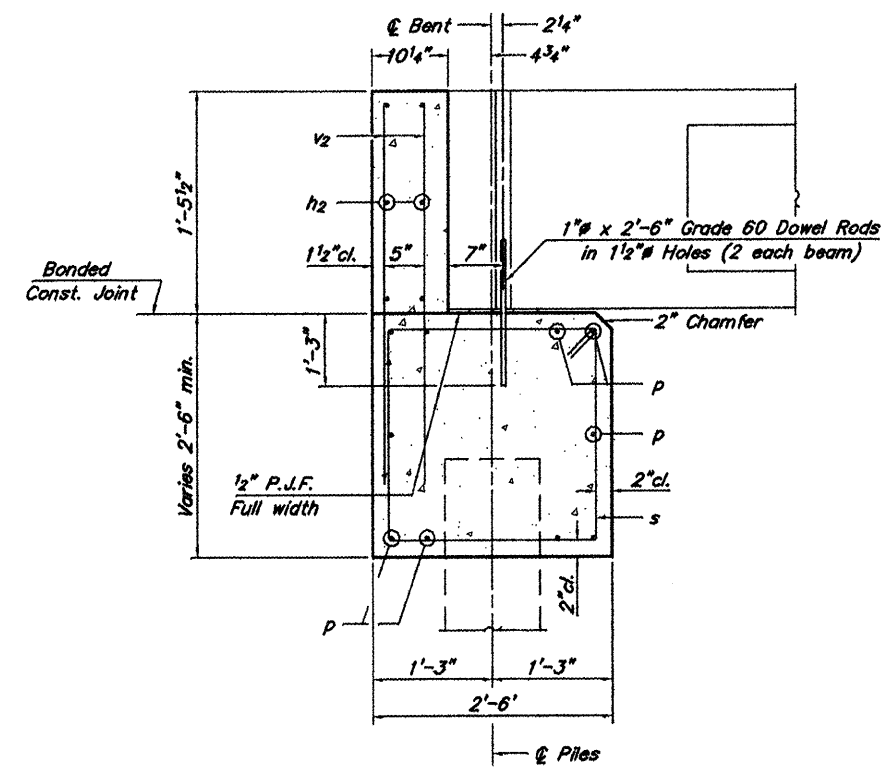
Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1112
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17" X 48" PPC DECK BEAM DETAILS
SPAN 2
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

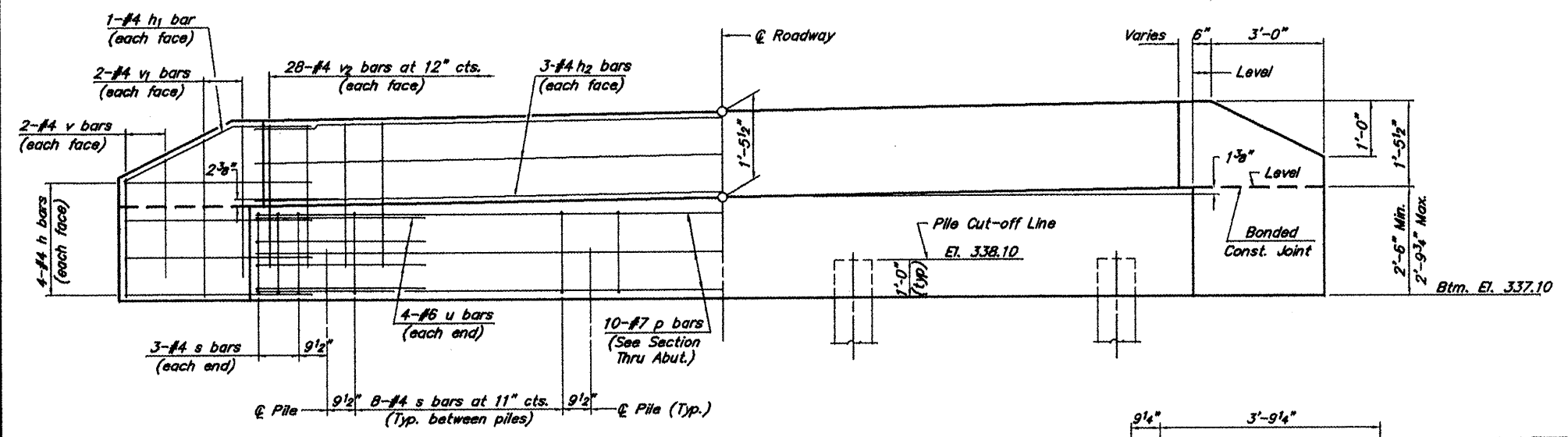
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 23	09-01181-00-BR	PULASKI	13	8
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



PLAN



SECTION THRU ABUT.
(At Right Angles)



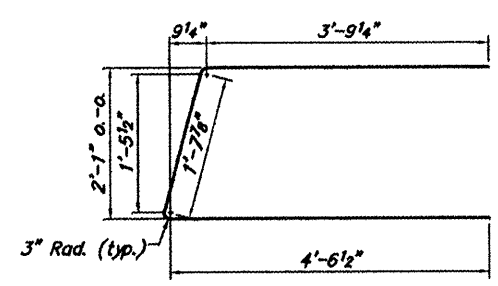
ELEVATION
(Reverse cross slope for S Abut)

NOTES

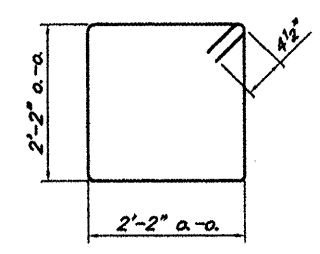
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

DESIGN STRESSES

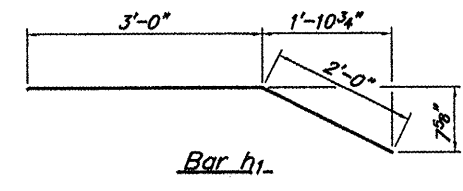
$f'_c = 3,500 \text{ psi}$
 $f_y = 60,000 \text{ psi}$



Bar u



Bar s



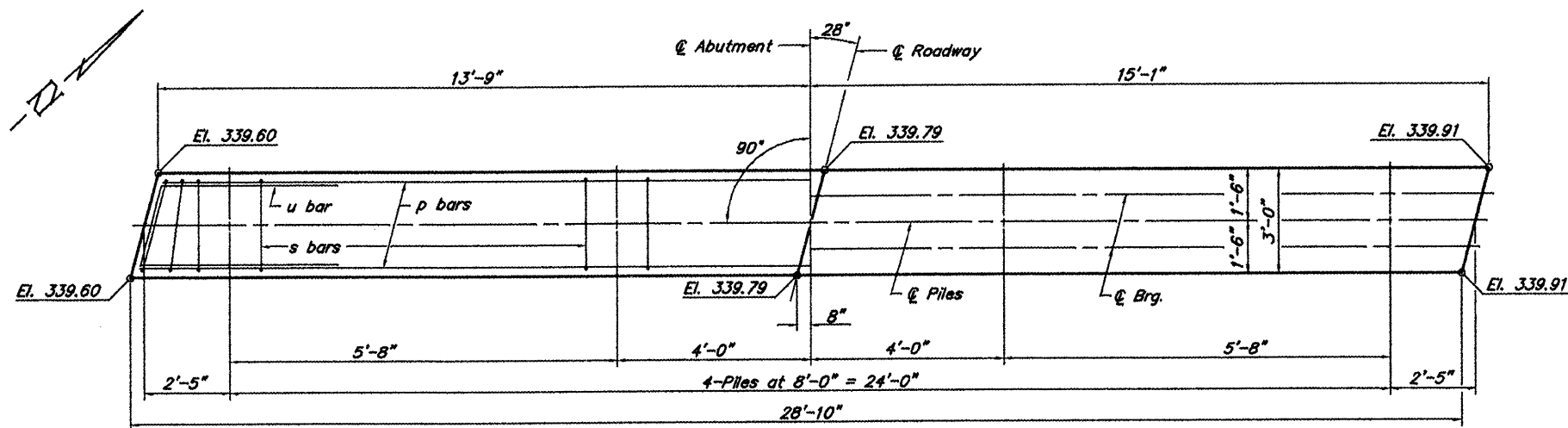
Bar h1

BILL OF MATERIAL
FOR ONE ABUTMENT

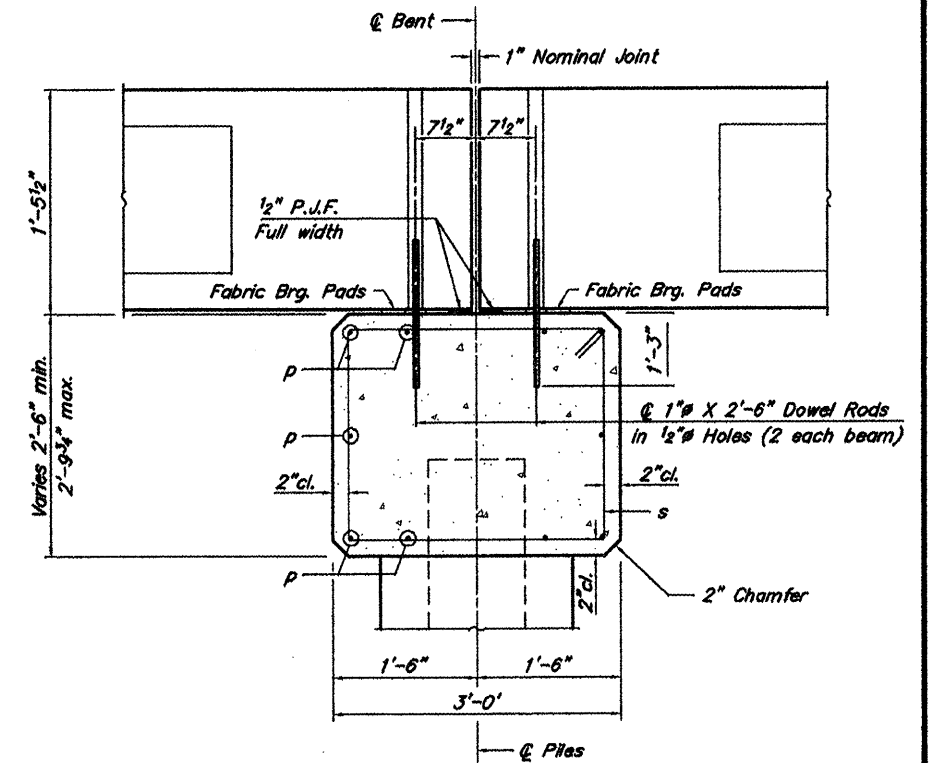
Bar	No.	Size	Length	Shape
h	16	#4	5'-6"	—
h1	4	#4	5'-6"	—
h2	6	#4	28'-0"	—
p	10	#7	28'-0"	—
s	30	#4	9'-5"	□
u	8	#6	10'-9"	—
v	8	#4	2'-10"	—
v1	8	#4	3'-6"	—
v2	56	#4	3'-1"	—
Concrete Structures			9.3	Cu. Yds.
Reinforcement Bars			1225	Lbs.

ABUTMENT
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

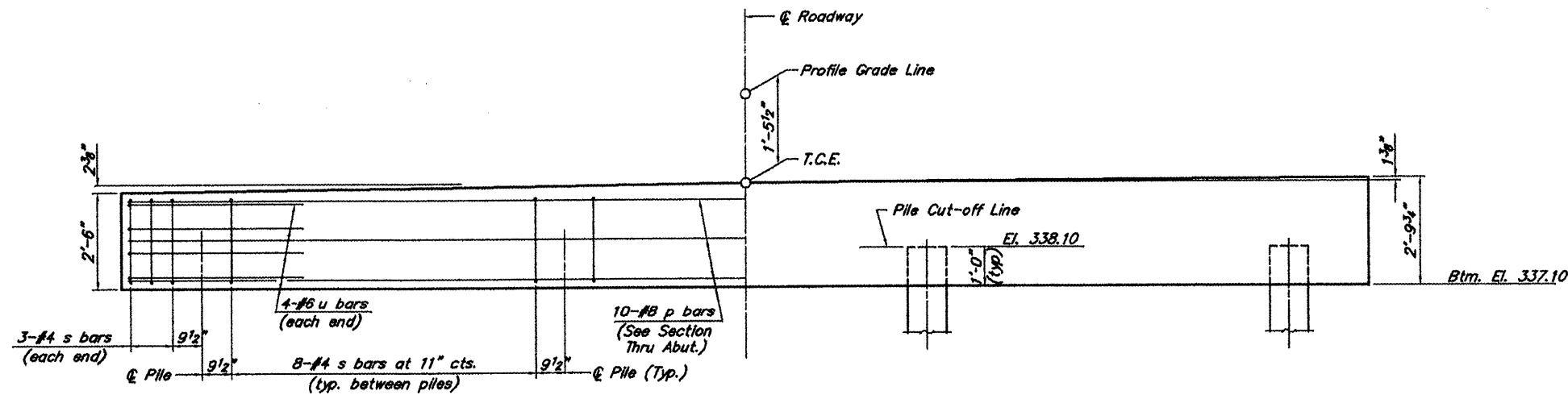
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
TR 23	09-01181-00-BR	PULASKI	13	9
PROJECT NO. BROS-153(31)		CONTRACT NO. 99421		



PLAN



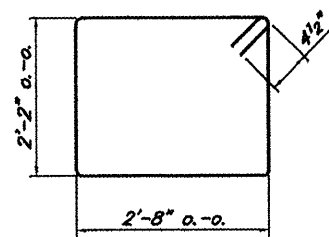
SECTION THRU PIER
(At Right Angles)



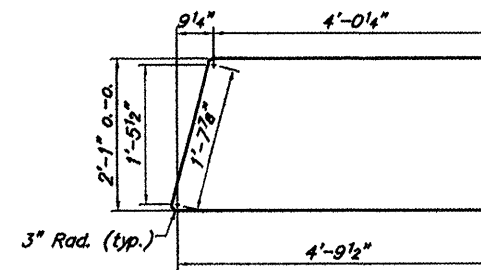
ELEVATION

BILL OF MATERIAL
FOR ONE PIER

Bar	No.	Size	Length	Shape
p	10	#8	28'-6"	—
s	30	#4	10'-5"	□
u	8	#6	11'-3"	□
Class 'X' Concrete			8.6	Cu. Yds.
Reinforcement Bars			1107	Lbs.



Bar s



Bar u

DESIGN STRESSES

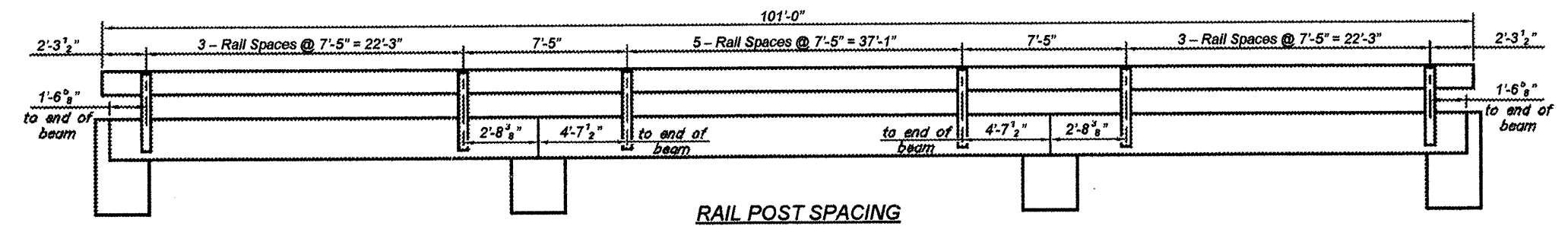
$f_c' = 3,500$ psi
 $f_y = 60,000$ psi

NOTE

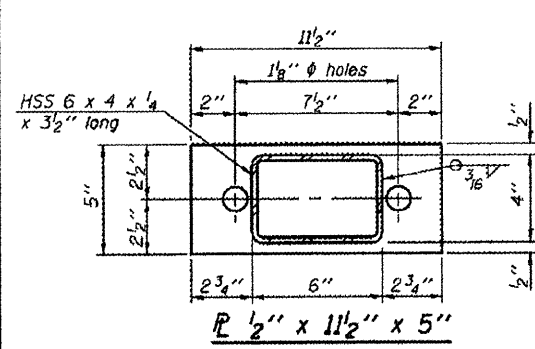
Reinforcement bars shall conform to
A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

PIER
TOWNSHIP ROUTE 23 (ELCO ROAD)
INDIAN CAMP CREEK
SECTION 09-01181-00-BR
PULASKI COUNTY
STRUCTURE NO. 077-3141

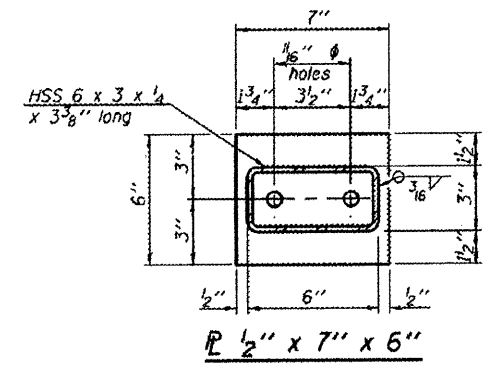
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 23	09-01181-00-BR	PULASKI	13	10
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



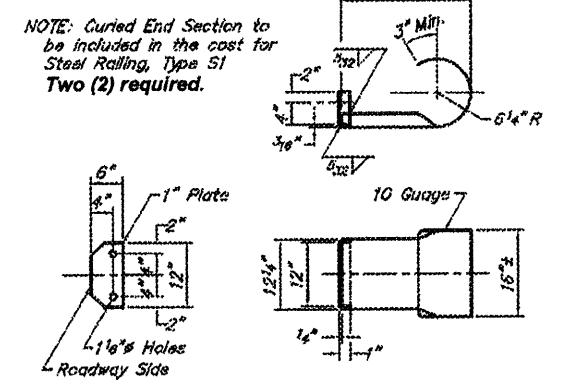
RAIL POST SPACING



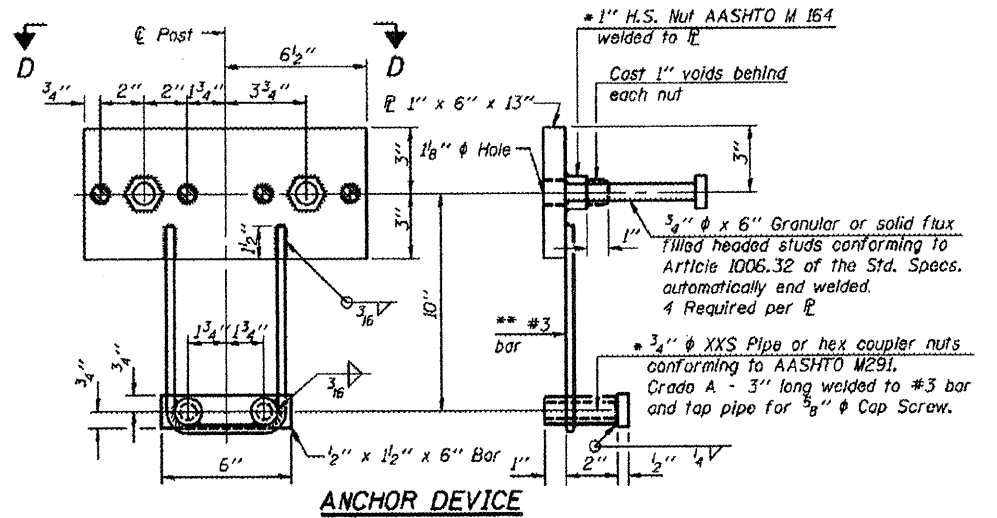
SECTION B-B



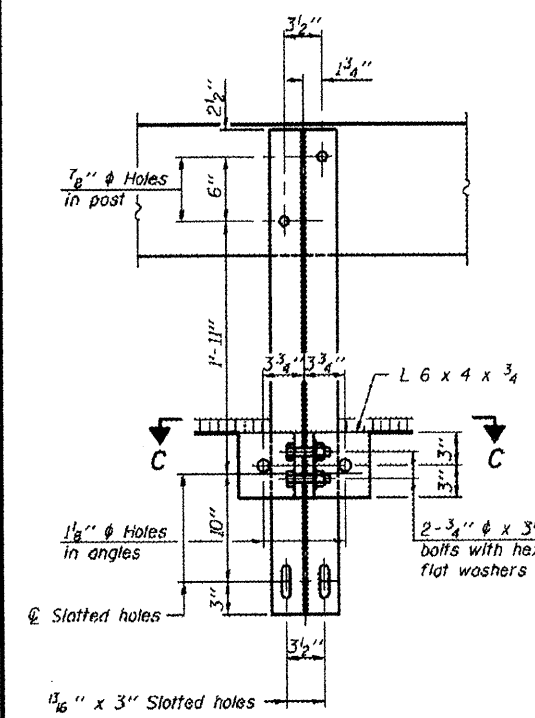
SECTION AT RAILING POST



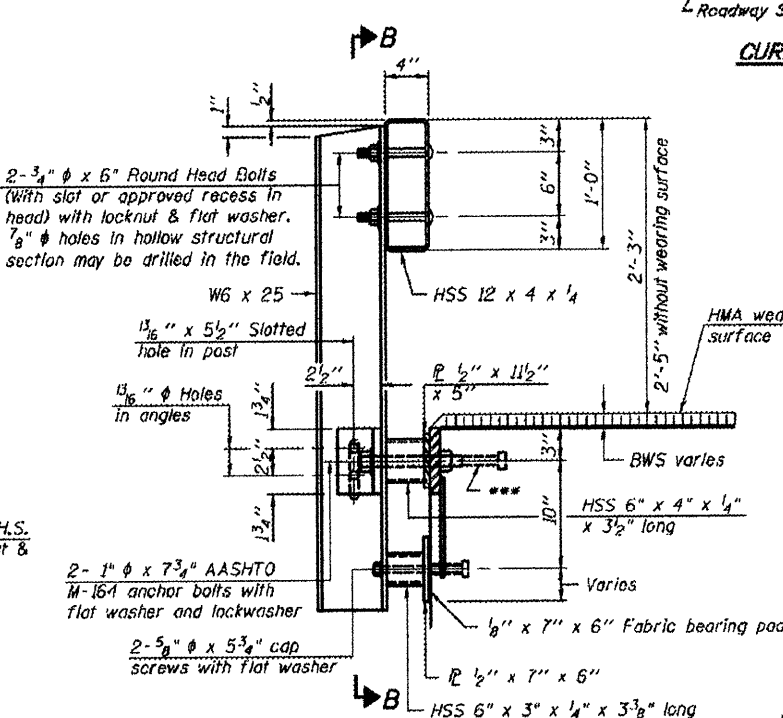
CURLLED END SECTION DETAILS



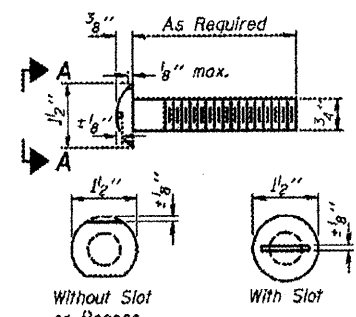
ANCHOR DEVICE



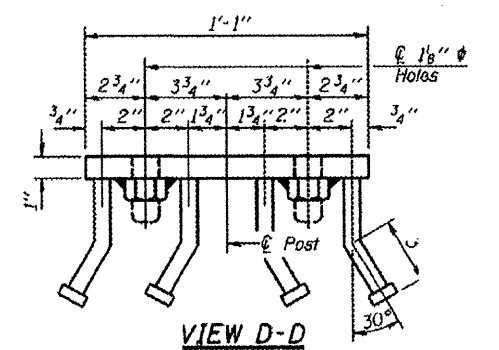
SECTION C-C



SECTION AT RAILING POST



VIEW A-A ROUND HEAD BOLT



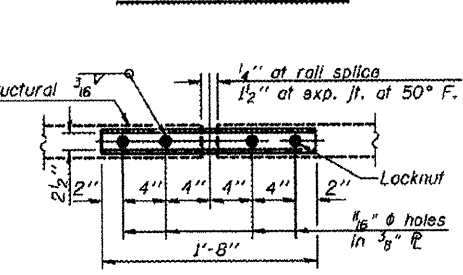
VIEW D-D

Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 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.
 * Threaded areas shall be plugged or blocked off during casting of beam.
 ** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".
 *** 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.
 10'-9" Maximum Post Spacing

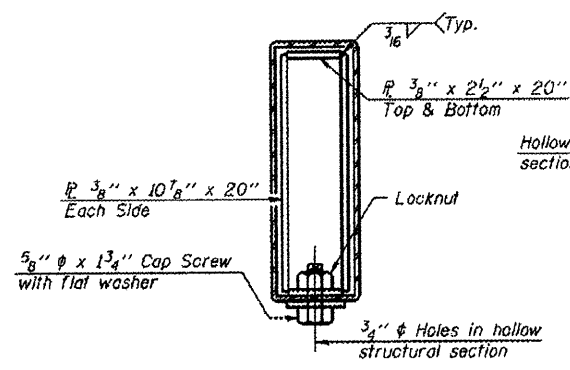
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	202

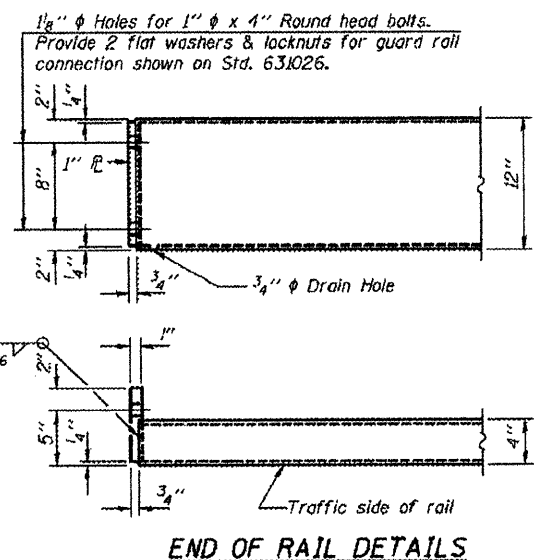
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE P TYPICAL



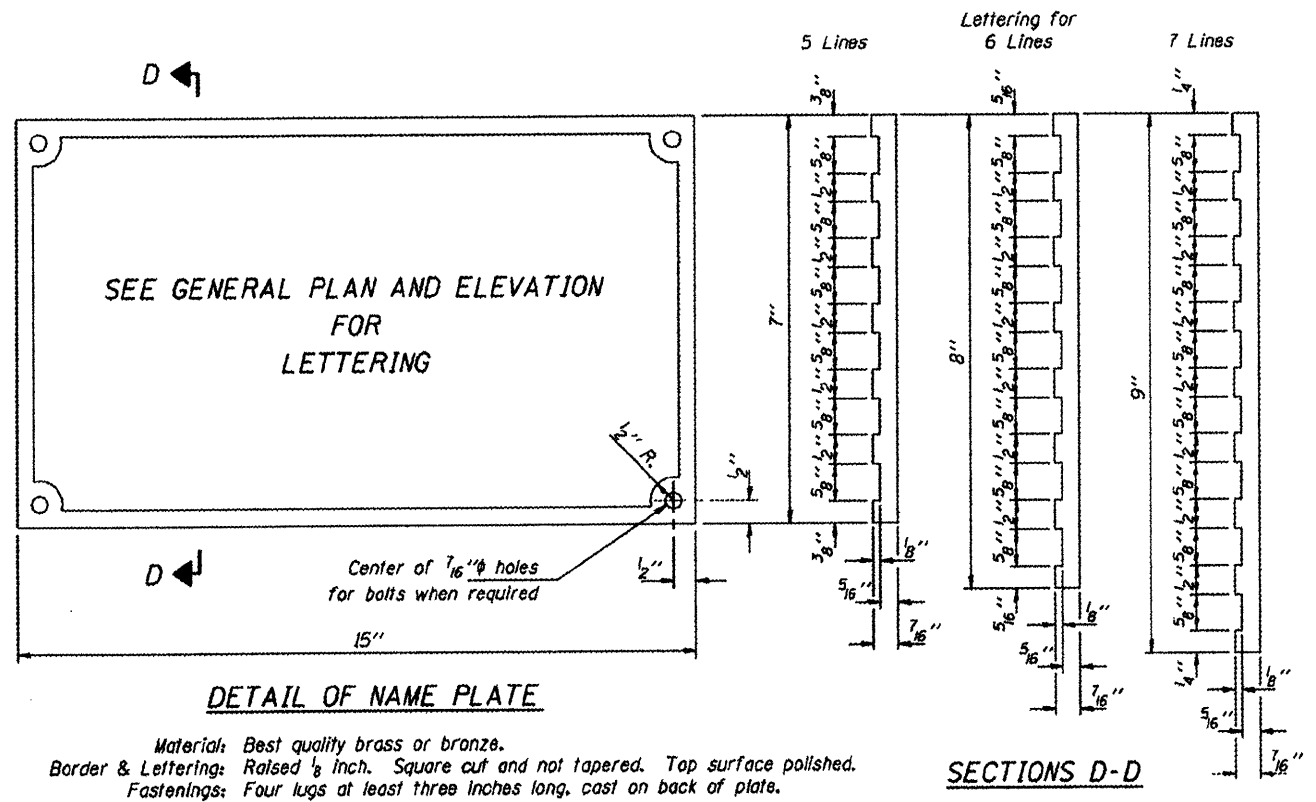
SECTIONS AT RAIL SPLICE



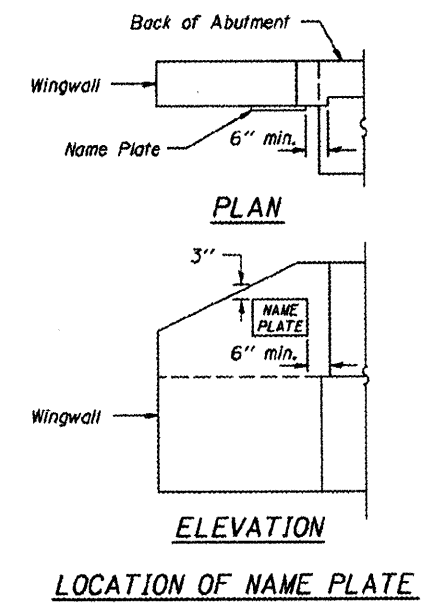
END OF RAIL DETAILS

**STEEL RAILING, TYPE S-1
 TOWNSHIP ROUTE 23 (ELCO ROAD)
 INDIAN CAMP CREEK
 SECTION 09-01181-00-BR
 PULASKI COUNTY
 STRUCTURE NO. 077-3141**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 23	09-01181-00-BR	PULASKI	13	11
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	

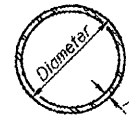


Material: Best quality brass or bronze.
 Border & Lettering: Raised $\frac{1}{8}$ inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.



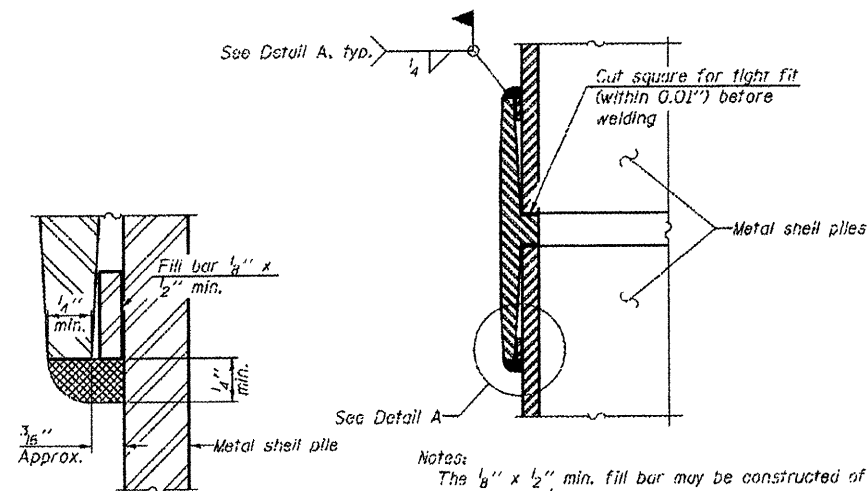
NAME PLATES
 TOWNSHIP ROUTE 23 (ELCO ROAD)
 INDIAN CAMP CREEK
 SECTION 09-01181-00-BR
 PULASKI COUNTY
 STRUCTURE NO. 077-3141

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 23	09-01181-00-BR	PULASKI	13	12
PROJECT NO. BROS-153(31)			CONTRACT NO. 99421	



METAL SHELL PILE TABLE

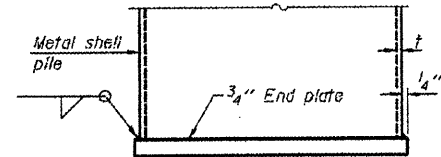
Designation and outside diameter	Wall thickness t	Weight per Foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



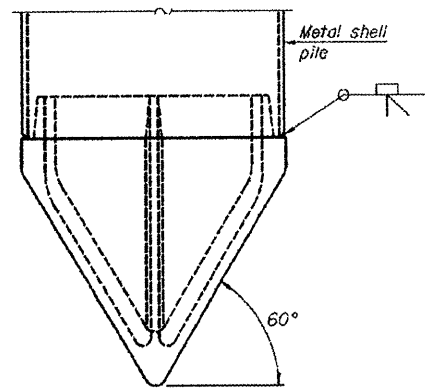
DETAIL A

WELDED COMMERCIAL SPLICE

Notes:
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.



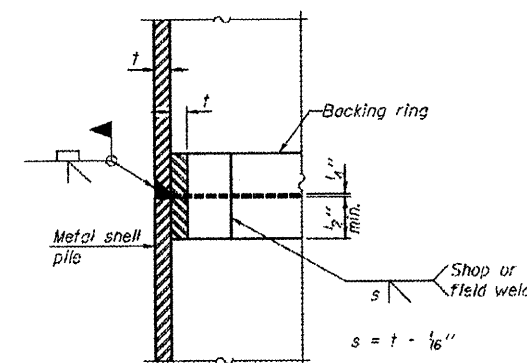
END PLATE ATTACHMENT



METAL SHELL PILE SHOE ATTACHMENT

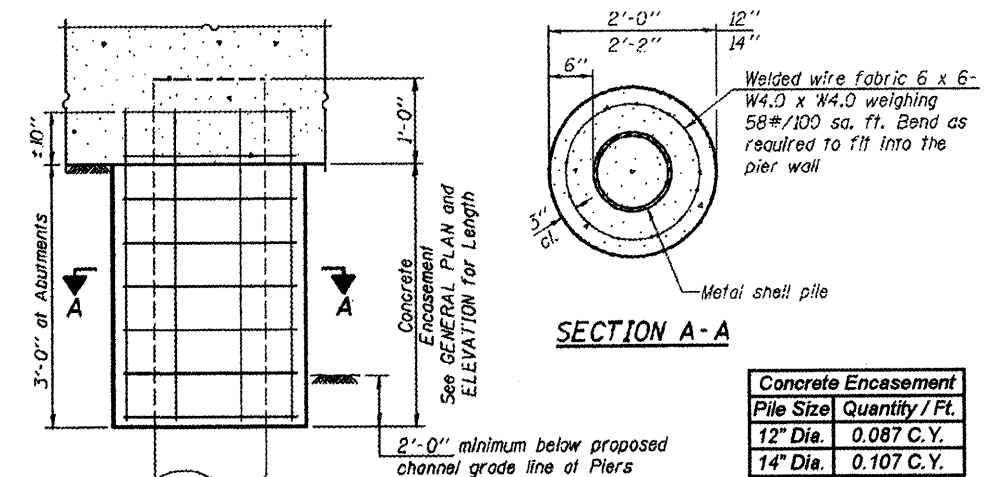
(See Note A)

Note A:
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.



COMPLETE PENETRATION WELD SPLICE

Backing ring made from pile shell. Remove segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.

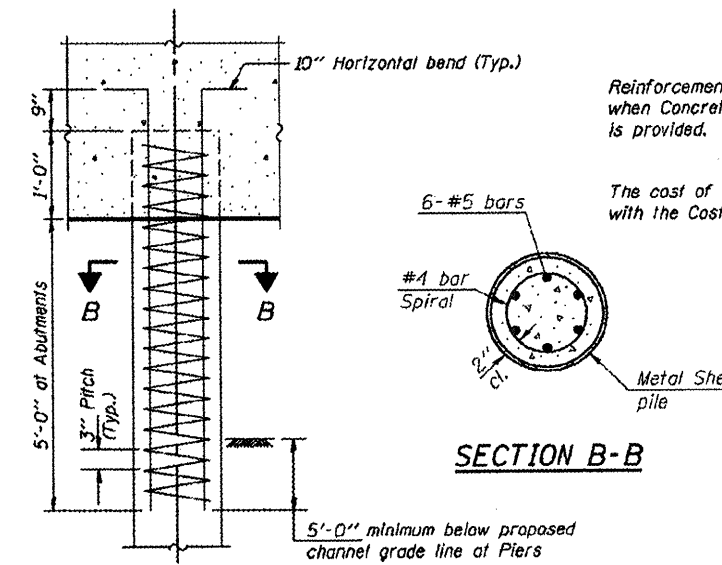


ELEVATION

CONCRETE ENCASEMENT

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

Concrete Encasement	
Pile Size	Quantity / Ft.
12" Dia.	0.087 C.Y.
14" Dia.	0.107 C.Y.



ELEVATION

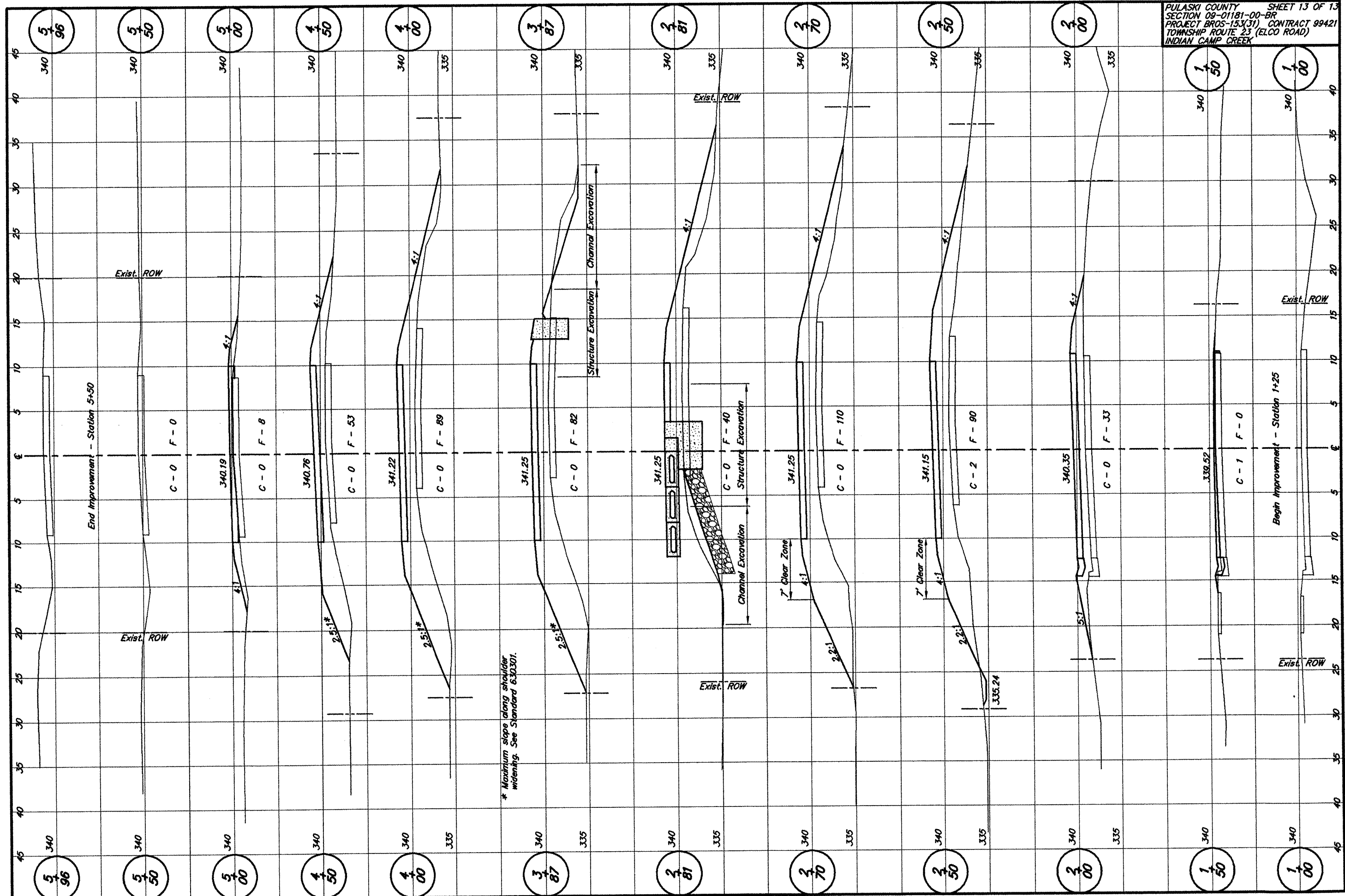
METAL SHELL REINFORCEMENT

Reinforcement cage shall be omitted when Concrete Encasement is provided.

The cost of Reinforcement is included with the Cost of Furnishing Piles.

Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.

PILING DETAILS
 TOWNSHIP ROUTE 23 (ELCO ROAD)
 INDIAN CAMP CREEK
 SECTION 09-01181-00-BR
 PULASKI COUNTY
 STRUCTURE NO. 077-3141



* Maximum slope along shoulder widening. See Standard 630301.