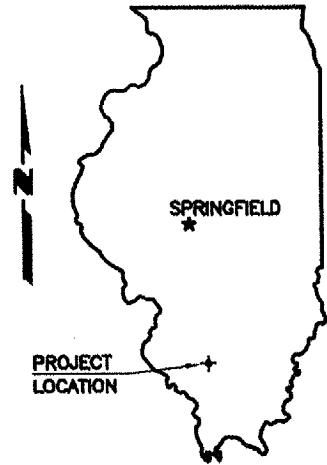


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM

TOWNSHIP ROUTE 222 (SWAN ROAD)
COUNTY UNIT ROAD DISTRICT
SECTION 02-06116-00-BR
PROJECT NO. BROS-145(32)
JOB NO. C-99-503-05
LITTLE BEAUCOUP CREEK
PERRY COUNTY

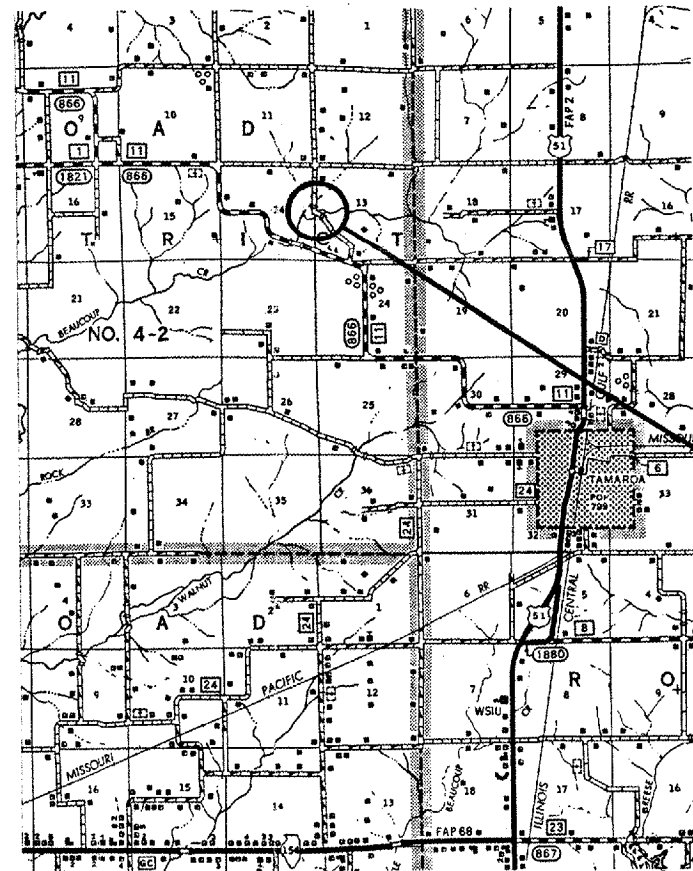
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	1
PROJECT NO. BROS-145(32)			CONTRACT NO. 99212	



INDEX OF SHEETS

1. COVER SHEET
 2. PLAN AND PROFILE
 3. GENERAL PLAN AND ELEVATION
 4. DECK BEAMS 27" x 36"
 5. DECK BEAMS 27" x 48"
 6. ABUTMENTS
 7. STEEL RAILING
 8. NAME PLATES
 9. FILE DETAILS
 10. CROSS SECTIONS
- STANDARDS 280001-03 TEMPORARY EROSION CONTROL SYSTEMS
702001-06 TRAFFIC CONTROL DEVICES
BLR-21-6 TRAFFIC CONTROL

<u>SUMMARY OF QUANTITIES</u>			
CODE NO.	PAY ITEM	UNIT	X 081-2A TOTAL
20100500	TREE REMOVAL, ACRES	ACRE	0.6
20200100	EARTH EXCAVATION	CU YD	699
20300100	CHANNEL EXCAVATION	CU YD	179
20400100	BORROW EXCAVATION	CU YD	920
25000200	SEEDING, CLASS 2	ACRE	0.6
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.2
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	72
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	72
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	72
25000700	AGRICULTURAL GROUND LIMESTONE	TON	2
25100120	MULCH, METHOD 2	TON	2
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	183
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	812
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	23
50300225	CONCRETE STRUCTURES	CU YD	19.6
50300280	CONCRETE ENCASEMENT	CU YD	2.1
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1366
50800105	REINFORCEMENT BARS	POUND	2280
50900205	STEEL RAILING, TYPE S1	FOOT	114
51201400	FURNISHING STEEL PILES HP10X42	FOOT	268
51202305	DRIVING PILES	FOOT	268
51500100	NAME PLATES	EACH	1
67100100	MOBILIZATION	L. SUM	1



LOCATION MAP

SCALE: 1" = 2 MILES

NET LENGTH OF IMPROVEMENT = 793.00 FT. = 0.1502 MILES

CLASSIFICATION : LOCAL ROAD
ADT : 25
DESIGN SPEED : 25 MPH



Edward W. Miller

Edward W. Miller
PROFESSIONAL ENGINEER
#062-025277
EXPIRES NOV. 30, 2009

CONTRACT NO. 99212

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

ILLINOIS DEPARTMENT OF TRANSPORTATION	
Approved _____	<u>Aug 15, 2007</u> <i>Douglas E. Redden</i> Perry County Engineer
Passed _____	<u>AUG. 31, 2007</u> <i>Dennis W. Hill</i> District 9 Engineer of Local Roads and Streets
Releasing for Bid Based on Limited Review _____	<u>AUG. 31, 2007</u> <i>Mary S. Kamin</i> Deputy Director of Highways, Region 5 Engineer

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	2
PROJECT NO. BROS-145(32)			CONTRACT NO. 99212	

B.M. - Dbl. Nails in 19" Tree
22' Lt. Sta. 15+29
Elev. 420.00 (Assumed)

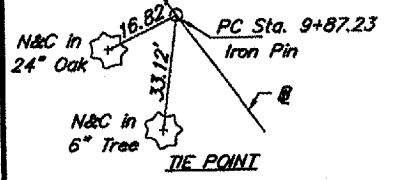
Existing Structure - Single span concrete deck with steel stringers on closed concrete abutments. 14.2' W x 22.0' L

Begin Improvement - Station 9+28

Richard Nowakowski
SW 1/4, NW 1/4, Sec. 13, T4S, R2W, 3 RD P.M.

CURVE DATA
PI Sta = 15+14.39
 $\Delta = 16^{\circ}02'03''$ T = 50.50'
D = 15^{\circ}58'46'' L = 100.34'
R = 358.56' E = 3.54'
S.E. = 0.040'/FL
Attain Sta. 14+55.4 to Sta. 15+34.4
Remove Sta. 15+44.5 to Sta. 16+23.5

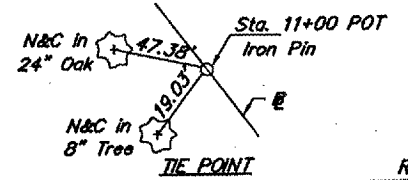
CURVE DATA
PI Sta = 17+88.60
 $\Delta = 31^{\circ}55'16''$ T = 67.63'
D = 24^{\circ}73'48'' L = 131.74'
R = 236.47' E = 9.48'



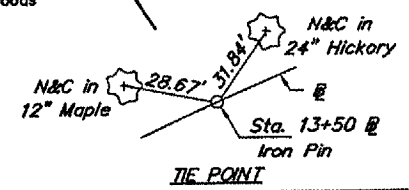
Richard Nowakowski
SE 1/4, NE 1/4, Sec. 14, T4S, R2W, 3 RD P.M.

See Special Provisions for grading plan

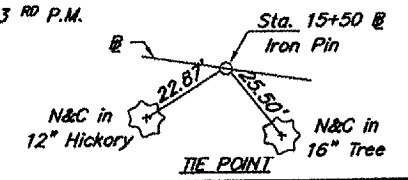
Tree Removal Acres: The limits for the tree removal will be between the new \mathcal{Q} and ROW line between the following Stations -
Sta. 12+20 Rt. to Sta. 15+00 Rt. 0.25 Ac.
Sta. 12+65 Lt. to Sta. 17+25 Lt. 0.35 Ac.
Total 0.60 Ac.



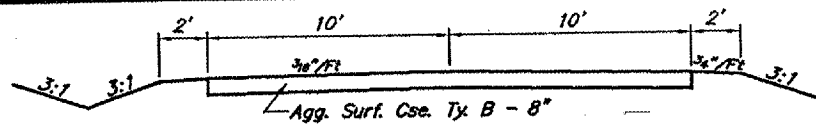
CURVE DATA
PI Sta = 11+43.64
 $\Delta = 63^{\circ}41'03''$ T = 156.41'
D = 22^{\circ}45'00'' L = 279.93'
R = 251.85' E = 37.90'
S.E. = 0.040'/FL
Attain Sta. 9+28.0 to Sta. 10+07.0
Remove Sta. 12+47.4 to Sta. 13+26.4



Rudolph Sebl
NW 1/4, SW 1/4, Sec. 13, T4S, R2W, 3 RD P.M.

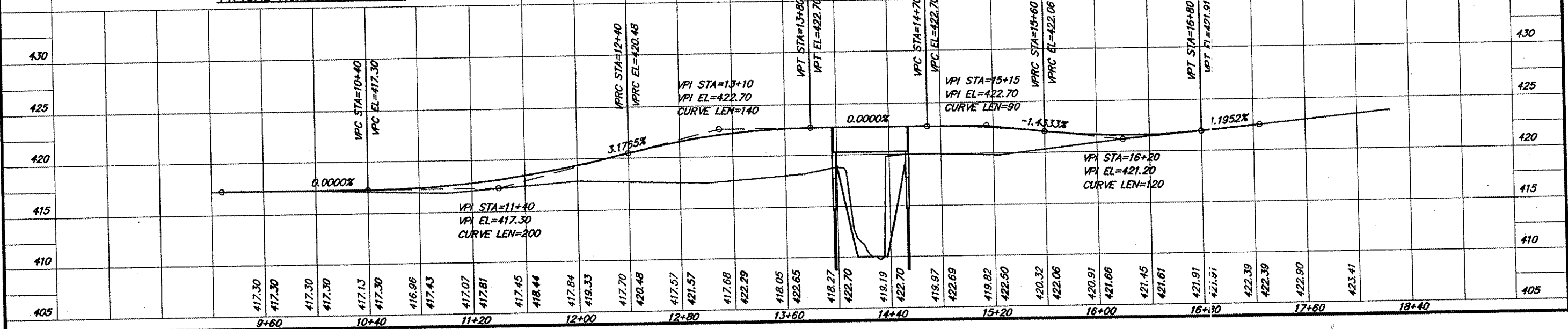
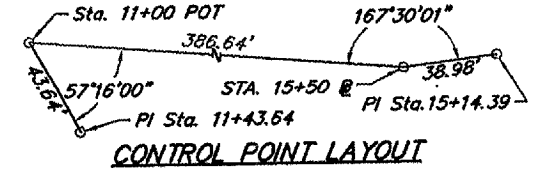


SCALES:
1" = 80' HOR
1" = 10' VER



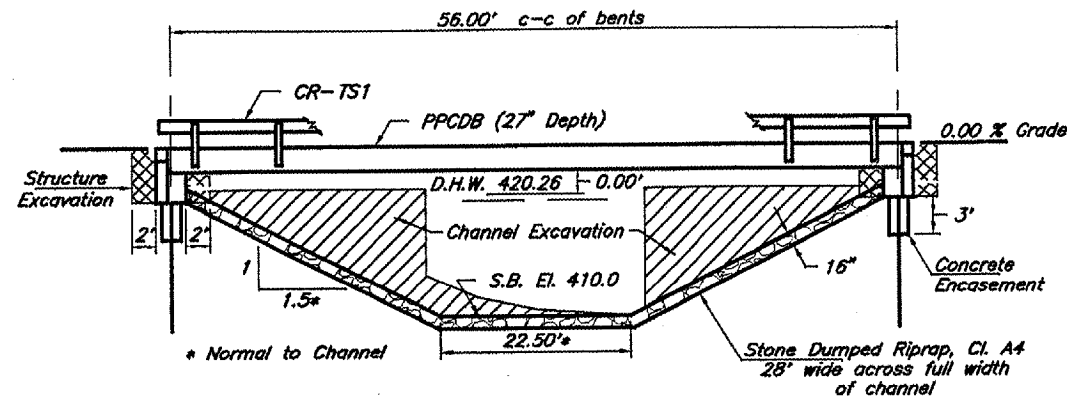
Embankment	1,242 CY
Earth Excavation	570 CY
Channel Excavation	92 CY
Borrow Excavation	580 CY
(Includes mitigation area quantities)	

Embankment	546 CY
Earth Excavation	129 CY
Channel Excavation	87 CY
Borrow Excavation	330 CY



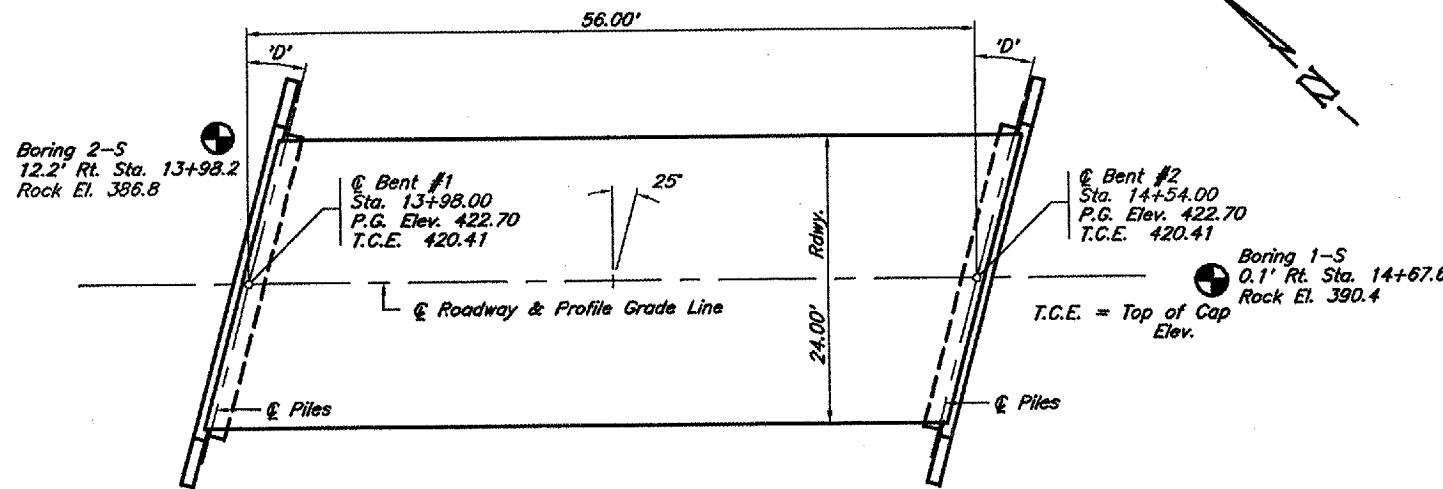
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	3
PROJECT NO. BROS-145(32)			CONTRACT NO. 99212	

B.M. - Double nail in 19" tree
22' Lt. Sta. 15+29
El. 420.00 (Assumed)



ELEVATION

Existing Structure - Single span concrete deck on steel stringers with closed concrete abutments.
14.2' W x 22.0' L



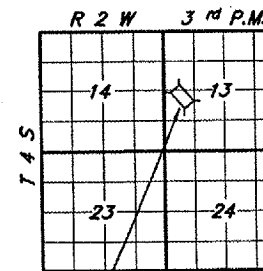
PLAN

Skew Angle "D" = 25' Left Forward

LITTLE BEAUCOUP CREEK
SEC. 02-06116-00-BR BUILT 20
COUNTY UNIT ROAD DISTRICT
PERRY COUNTY
LOADING HS20
STR. NO. 073-3177

LETTERING FOR NAME PLATE

Locate Name Plate at Southwest Corner of Bridge (See Std. CN)



LOCATION SKETCH

PILE DATA (2-ABUTS.)

Type & Size : HP10X42
Nominal Required Bearing : 246 kips
Allowable Resistance Available : 82 kips
Estimated Length : 35 Ft. Bent #1, 32 Ft. Bent #2
Number Required : 8

DESIGN SPECIFICATIONS

2003 AASHTO Standard Specifications - 17th ed.

LOADING HS20-44

Allow 25#/sq. ft. for future wearing surface

SEISMIC DATA

Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 11.5%
Site Coefficient (S) = 1.0

WATERWAY INFORMATION

Drainage Area = 9.74 Sq. Mi.		Low Grade Elev. = 417.3		At Sta. 10+00		
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Natural H.W.E.	Head-Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	15	1722	159.5 365.9	420.76	0.00 0.00	420.26 420.26
Base	100	2526	159.5 365.9	420.77	0.00 1.00	420.77 421.77
Overtopping	±205	3006		365.9 420.96		1.74 422.70
Max. Calc.	500					

Over Road Flow (Sq Ft): Exist. 1084.9 1388.7
Note: Deck elevation used for overtopping to allow for future raising of the approaches

GENERAL NOTES

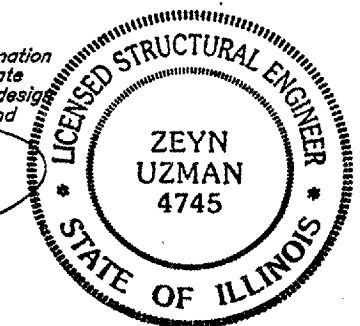
- Steel H piles shall meet AASHTO M270 Grade 50 specifications.
- See special provisions for boring logs.
- A Corrosion inhibitor, as covered in the Standard Specifications, shall be used in the precast prestressed concrete deck beams.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu. Yds.			19.6	19.6
P.P. Conc. Dk. Bm. 27" Dp.	Sq. Ft.	1366			1366
Steel Railing, Type S1	Foot	114			114
Reinforcement Bars	Pound			2280	2280
Furnishing Steel Piles HP10X42	Foot			268	268
Driving Piles	Foot			268	268
Concrete Encasement	Cu. Yds.			2.1	2.1
Name Plates	Each			1	1
Structure Excavation	Cu. Yds.			23	23
Channel Excavation	Cu. Yds.				179
Stone Dumped Riprap, Class A4	Tons				183

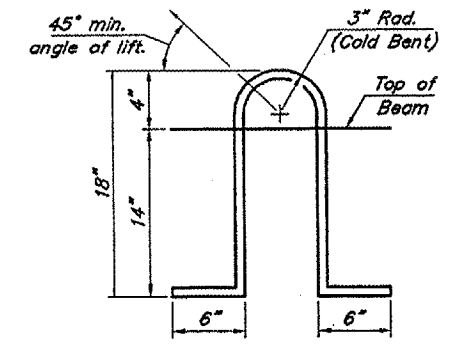
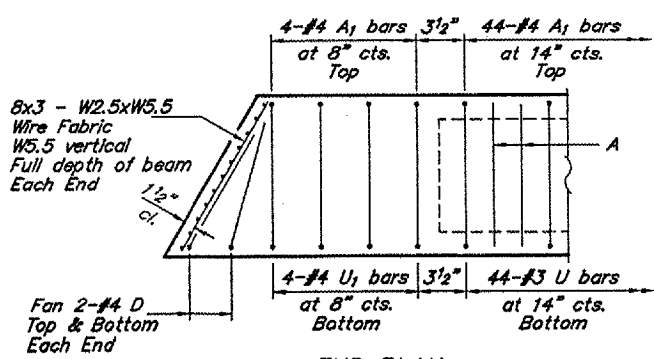
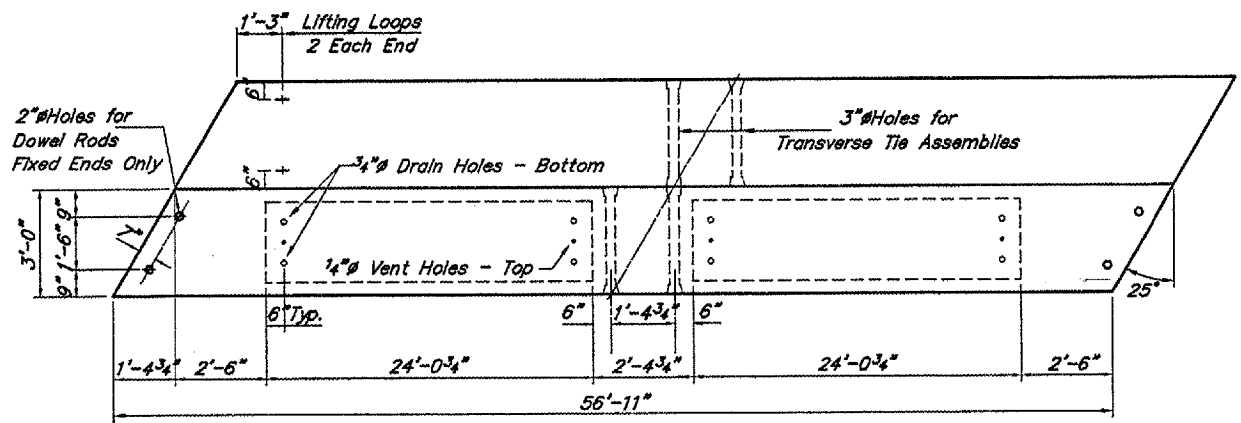
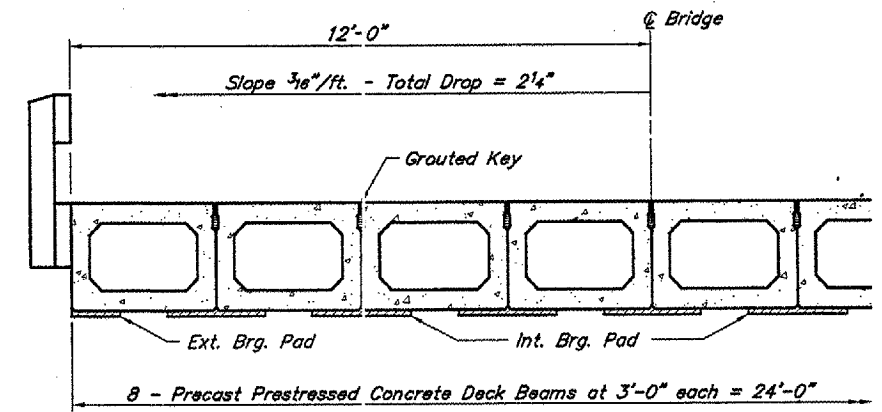
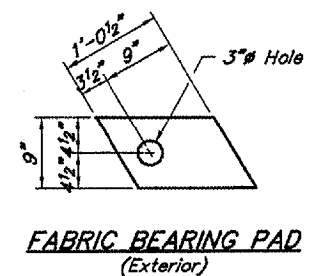
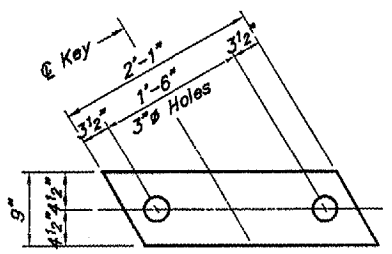
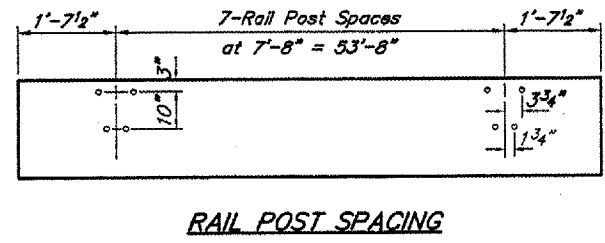
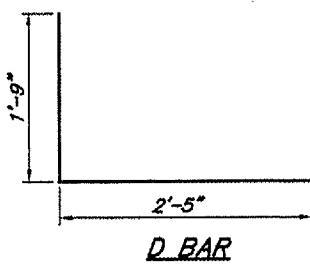
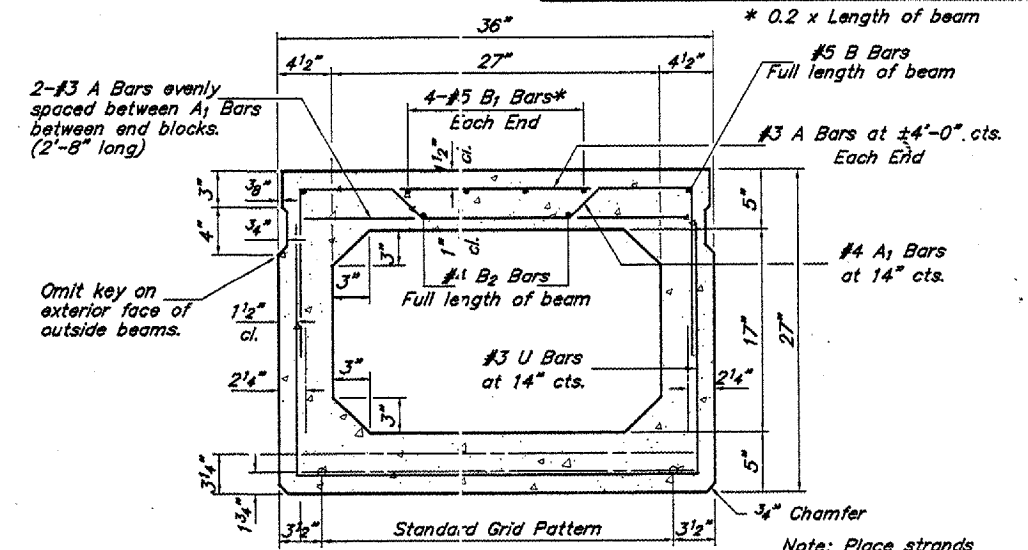
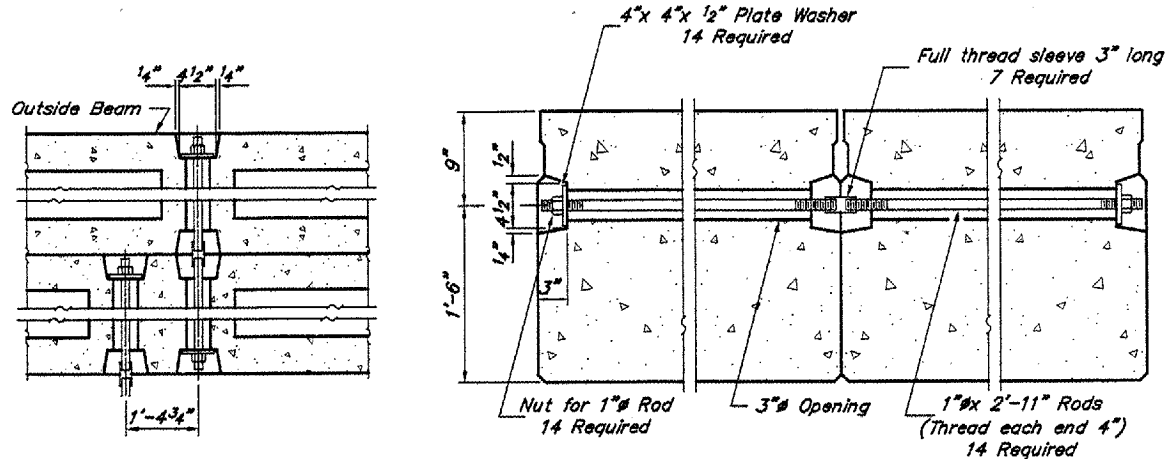
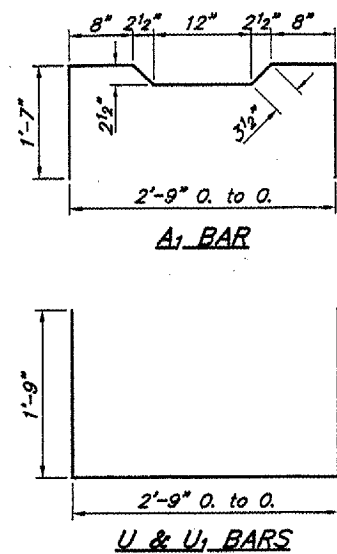
"I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway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

Zeyn B. Uzman
SE #84-5745
Expires Nov. 30, 2008



GENERAL PLAN & ELEVATION
TOWNSHIP ROUTE 222
LITTLE BEAUCOUP CREEK
SECTION 02-06116-00-BR
PERRY COUNTY
STATION 14+26

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	4
PROJECT NO. BROS-145(32)			CONTRACT NO. 99212	



NOTES

Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60. 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 sq. in. Required release strength, f'ci, shall be 4,000 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

Lifting loops shall be 5/8" diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 33,000 lbs. or 2-1/2"-270 ksi strands, as shown. 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. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/2" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

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 a minimum of 24 hours prior to grouting the shear keys. Nominal 1" joint at C of Pier shall be filled with non-shrink grout.

Rail Post Anchor Devices shall be cast into exterior face of outside beams as elsewhere specified.

Cost of reinforcement and accessories cast into the beam, of bearing pads, and of grouting longitudinal shear keys is incidental to Precast Prestressed Concrete Deck Beams.

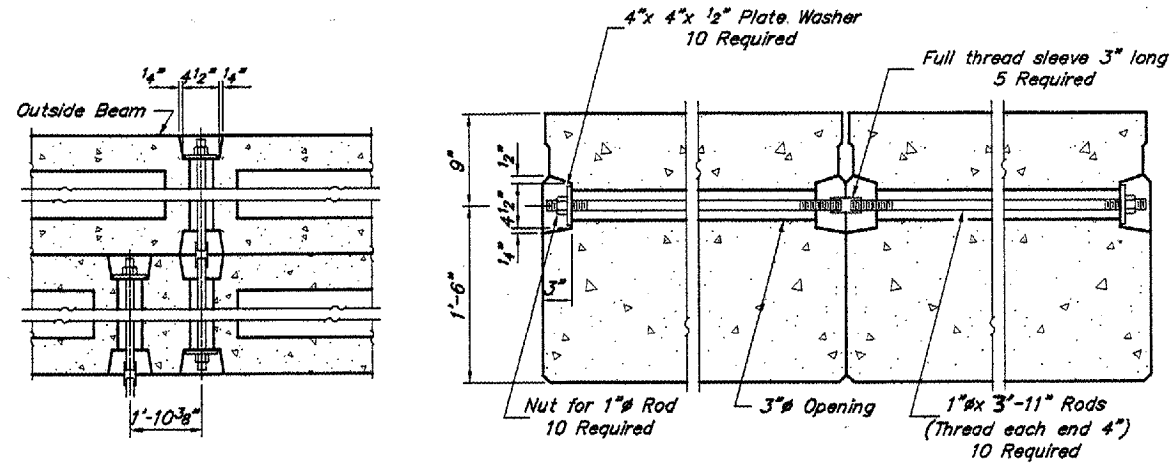
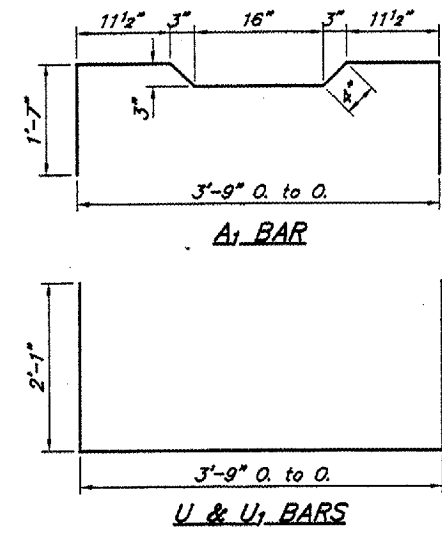
When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a min. of 1/4".

BILL OF MATERIAL

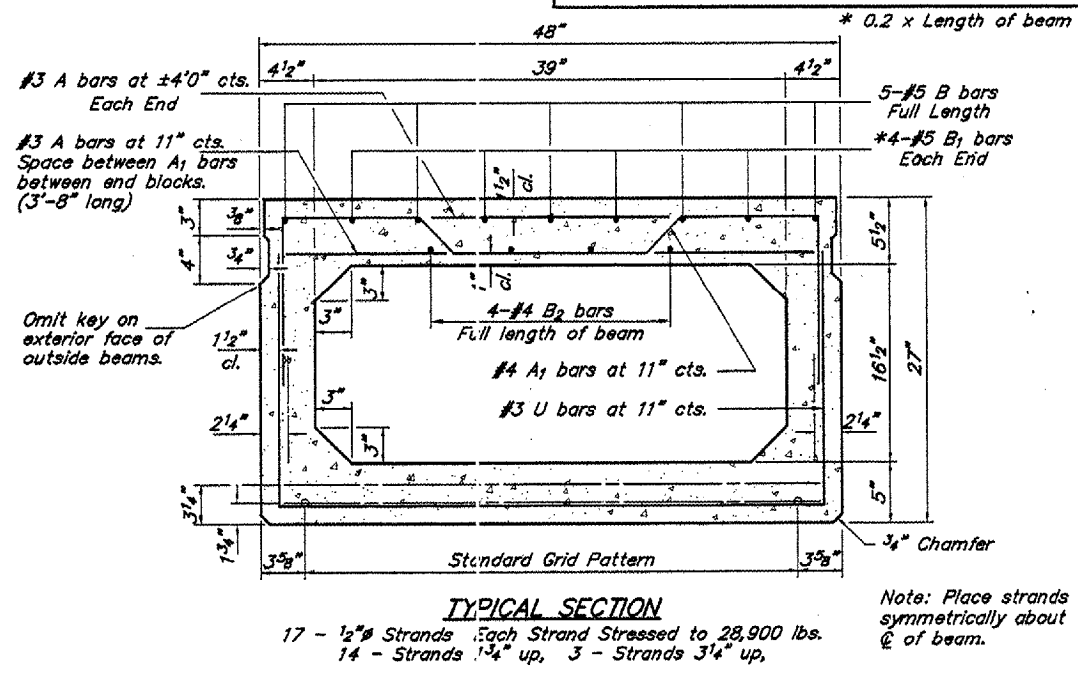
Bar	No.	Size	Length	Shape
A	94	#3	2'-8"	—
A ₁	52	#4	6'-1"	—
B	2	#5	56'-7"	—
B ₁	8	#5	11'-5"	—
B ₂	2	#4	56'-11"	—
D	8	#4	4'-2"	—
U	44	#3	6'-3"	—
U ₁	8	#4	6'-3"	—
Precast Prestressed Concrete Deck Beams		Sq. Ft.	1366	

DECK BEAMS 27" X 36"
LITTLE BEAUCOUP CREEK
SECTION 02-06116-00-BR
PERRY COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	5
PROJECT NO. BROS-145(32)		CONTRACT NO. 98212		

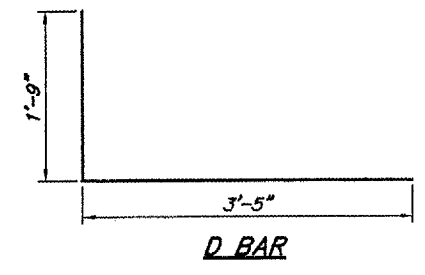


TYPICAL TRANSVERSE TIE ASSEMBLY

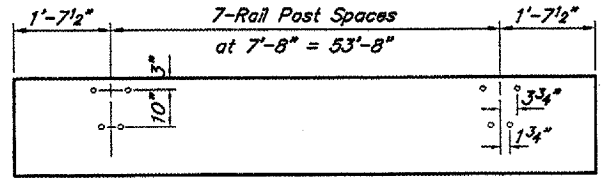


TYPICAL SECTION

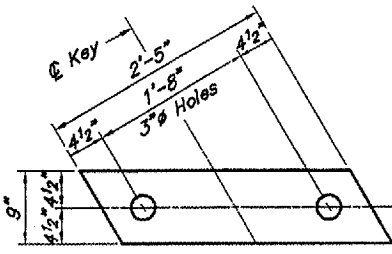
Note: Place strands symmetrically about @ of beam.



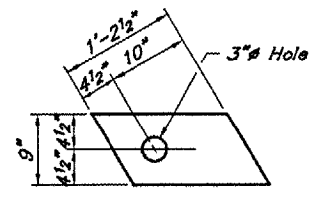
D BAR



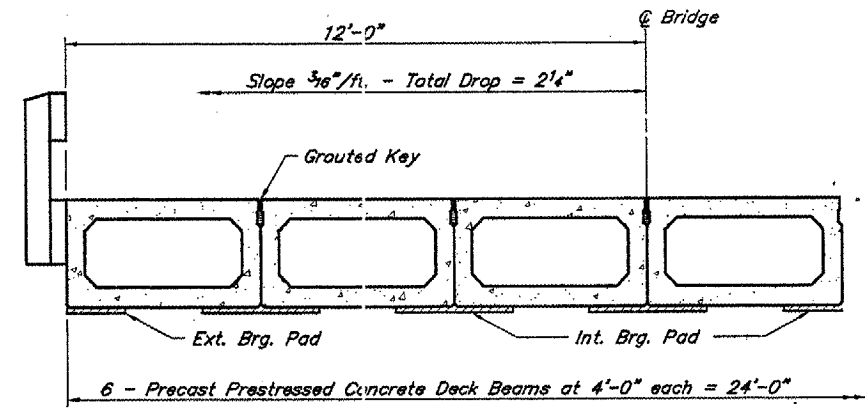
RAIL POST SPACING



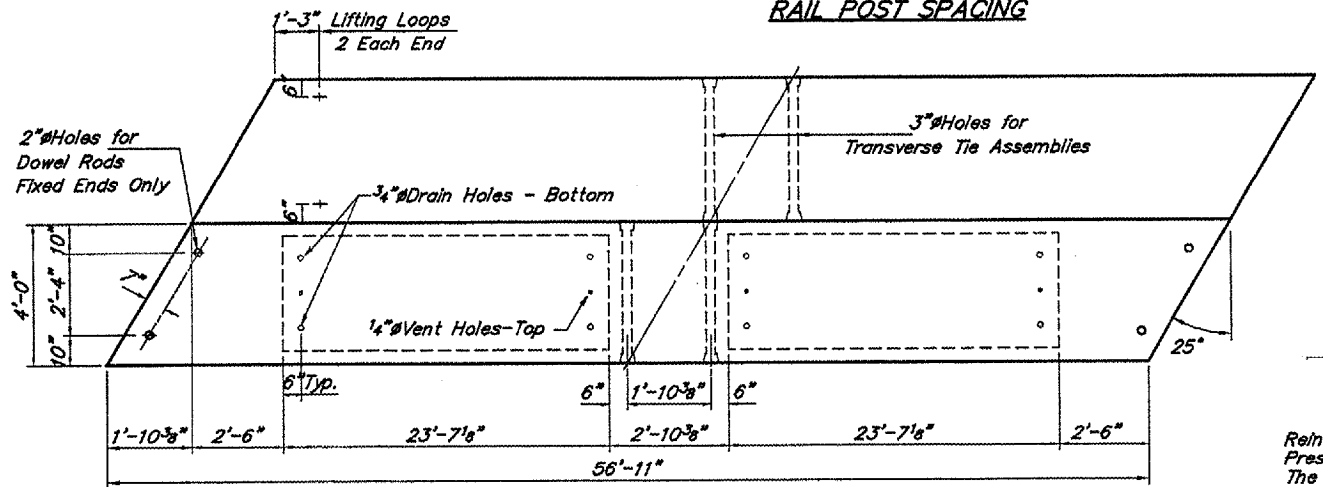
FABRIC BEARING PAD (Interior)



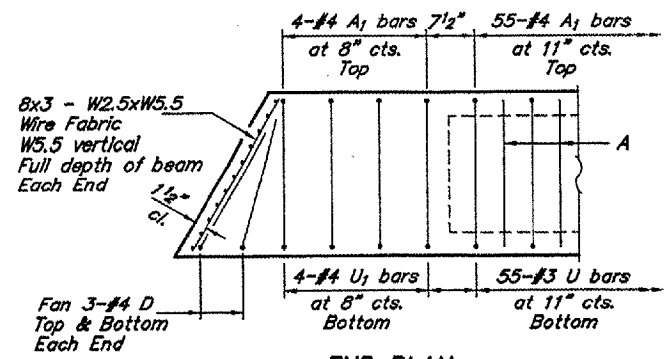
FABRIC BEARING PAD (Exterior)



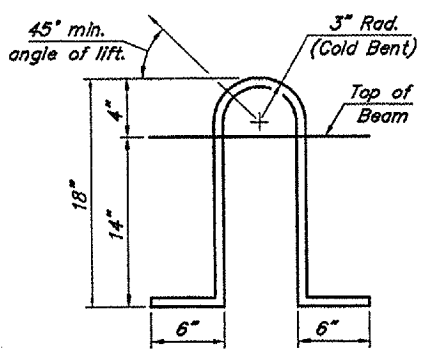
HALF CROSS SECTION



PLAN



END PLAN



LIFTING LOOP DETAIL

NOTES

Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60. 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 sq. in. Required release strength, f'ci, shall be 4,000 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

Lifting loops shall be 3/4" diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 46,000 lbs. or 3-1/2"-270 ksi strands, as shown.

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.

The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

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 a minimum of 24 hours prior to grouting the shear keys.

Nominal 1" joint at @ Pier shall be filled with non-shrink grout.

Rail Post Anchor Devices shall be cast into exterior face of outside beams as elsewhere specified.

Cost of reinforcement and accessories cast into the beam, of bearing pads, and of grouting longitudinal shear keys is incidental to Precast Prestressed Concrete Deck Beams.

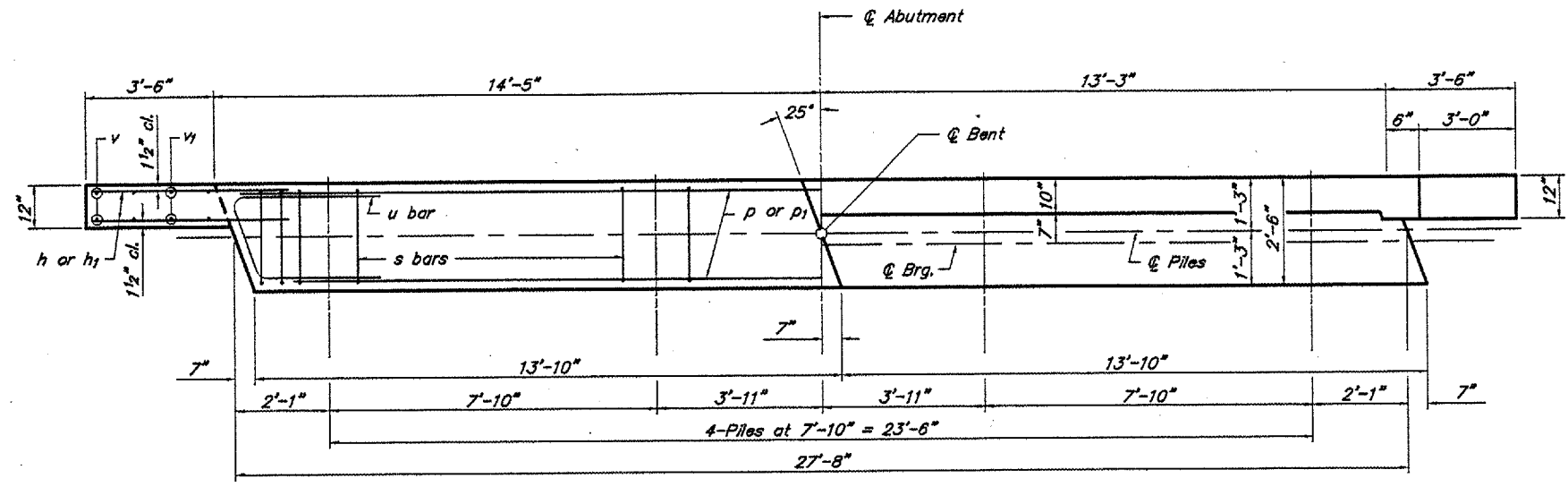
When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a min. of 1/4".

BILL OF MATERIAL

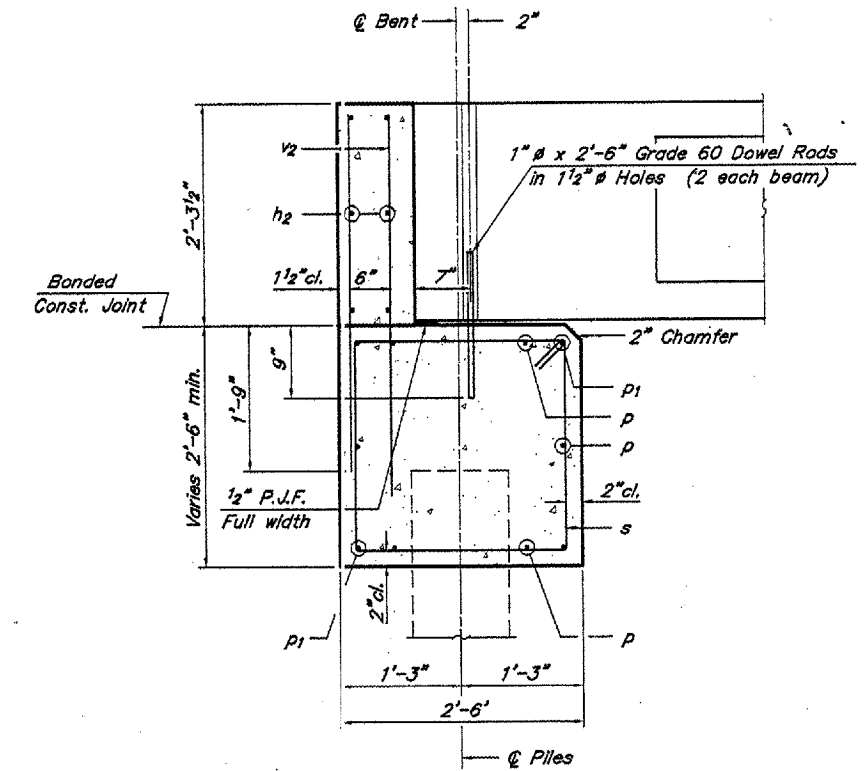
Bar	No.	Size	Length	Shape
A	62	#3	3'-8"	—
A1	63	#4	7'-1"	—
B	5	#5	56'-7"	—
B1	8	#5	11'-5"	—
B2	4	#4	56'-7"	—
D	12	#4	5'-2"	—
U	55	#3	7'-11"	—
U1	8	#4	7'-11"	—
Precast Prestressed Concrete Deck Beams		Sq. Ft.	1366	

DECK BEAMS 27" X 48"
LITTLE BEAUCOUP CREEK
SECTION 02-06116-00-BR
PERRY COUNTY

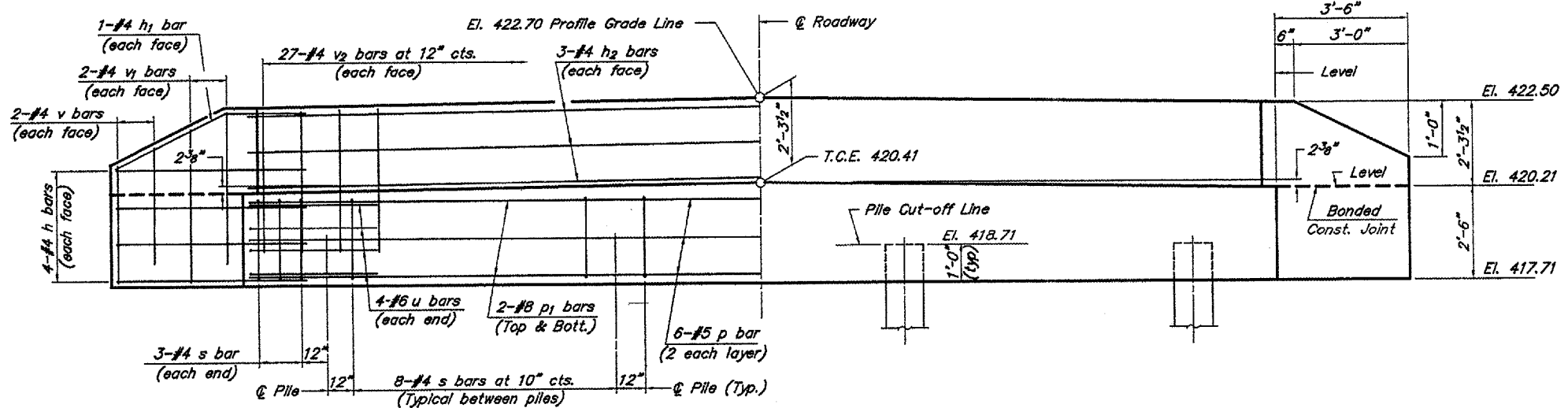
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	6
PROJECT NO. BROS-145(32)		CONTRACT NO. 99212		



PLAN



SECTION THRU ABUT.
(At Right Angles)



ELEVATION

BAR LIST FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-5"	—
h1	4	#4	5'-5"	—
h2	6	#4	27'-4"	—
p	6	#5	27'-4"	—
p1	4	#8	27'-4"	—
s	30	#4	9'-5"	□
u	8	#6	10'-8"	—
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	54	#4	3'-11"	—

QUANTITIES FOR ONE ABUTMENT

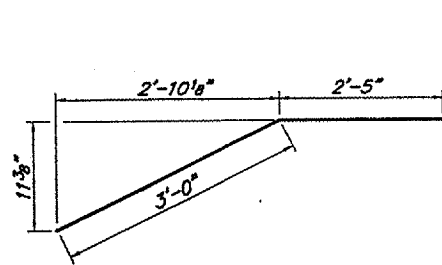
Concrete Structures	9.8 Cu. Yds.
Reinforcement Bars	1140 Lbs.

NOTES

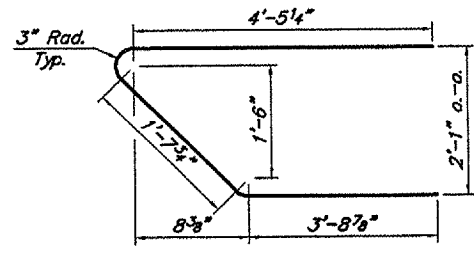
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

DESIGN STRESSES

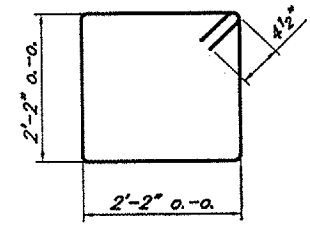
$f_c = 3,500$ psi
 $f_y = 60,000$ psi



Bar h1



Bar u



Bar s

ABUTMENTS
LITTLE BEAUCOUP CREEK
SECTION 02-06116-00-BR
PERRY COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	7
PROJECT NO. BROS-146(32)			CONTRACT NO. 99212	

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.

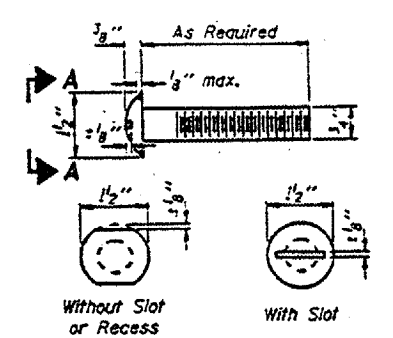
For multi-span bridges, sufficient 1/2" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing, Type S-1.

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

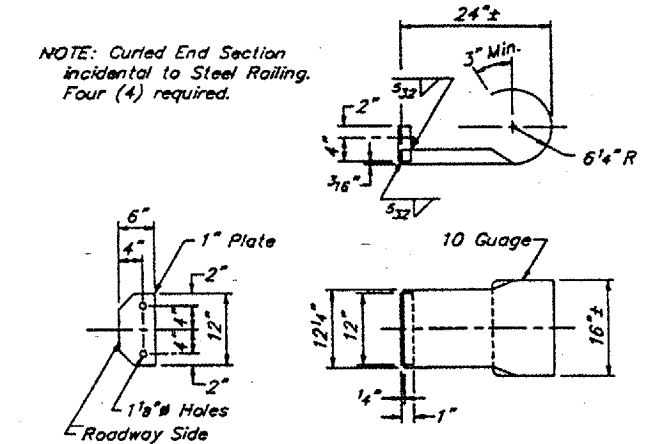
The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 760.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

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.

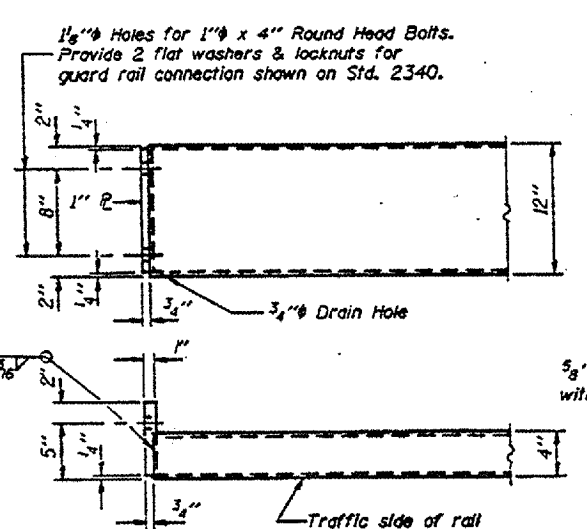
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



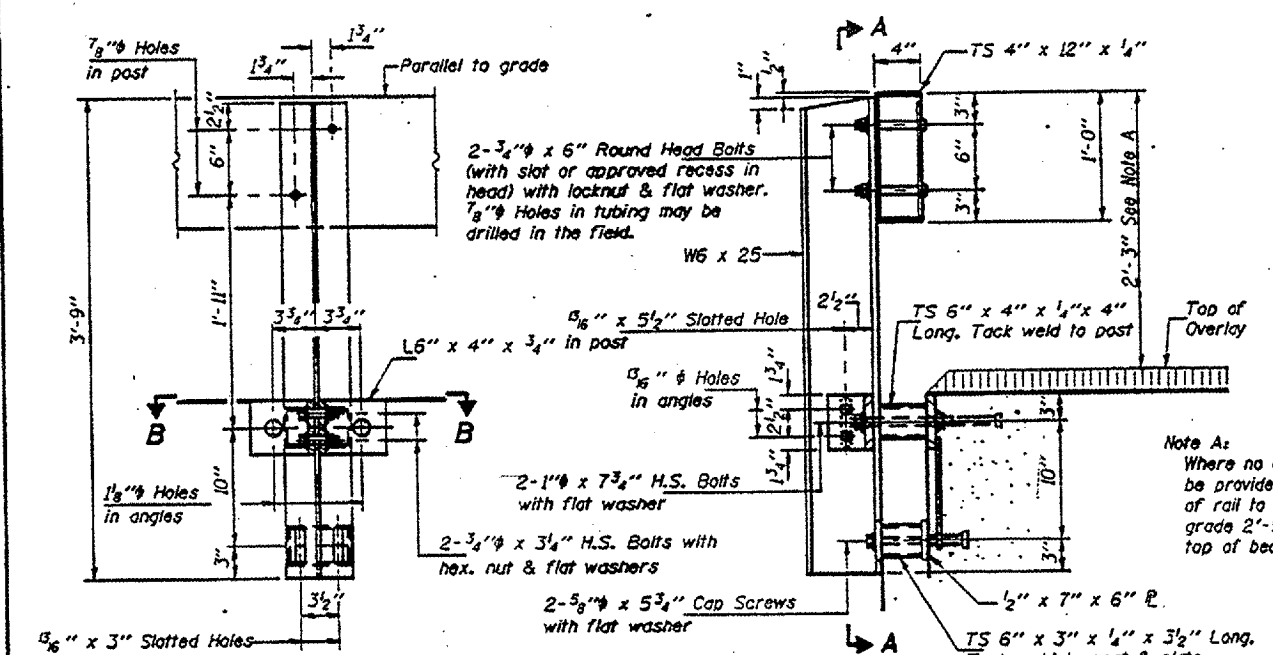
**VIEW A-A
ROUND HEAD BOLT**



CURLED END SECTION DETAILS

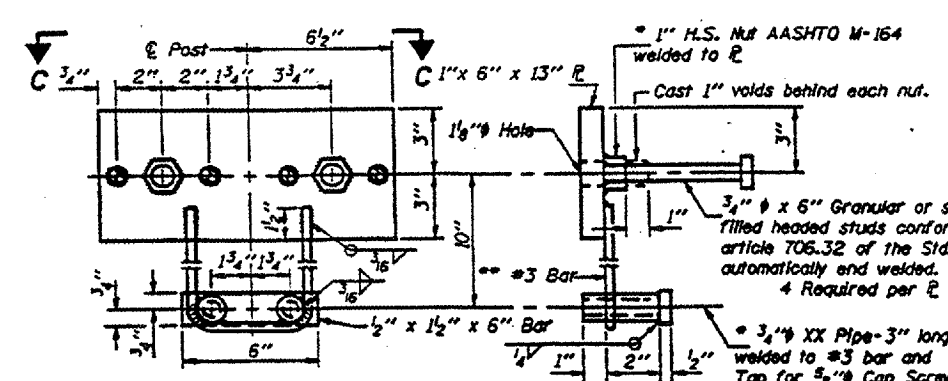


END OF RAIL DETAILS

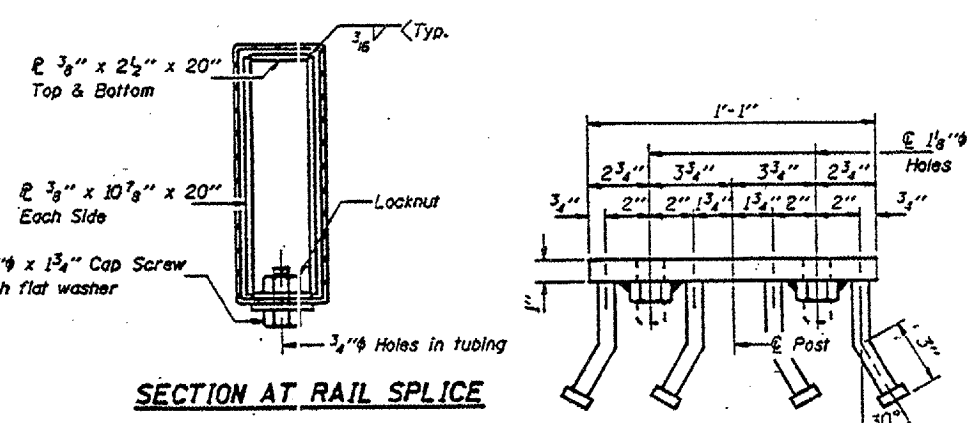


SECTION A-A

SECTION AT RAIL POST

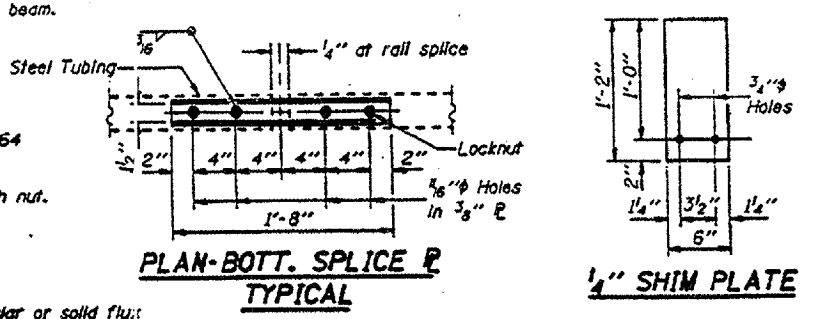


ANCHOR DEVICE



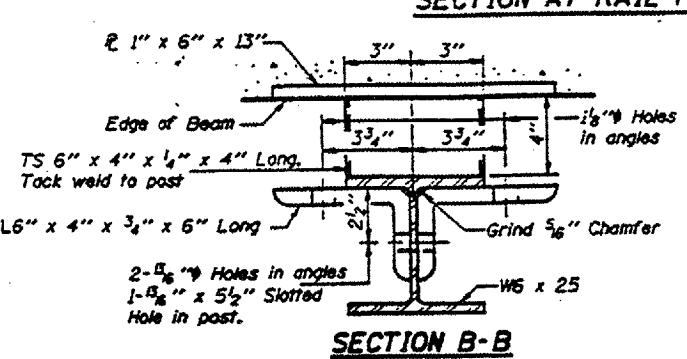
SECTION AT RAIL SPLICE

VIEW C-C



**PLAN-BOTT. SPLICE P
TYPICAL**

1/4" SHIM PLATE

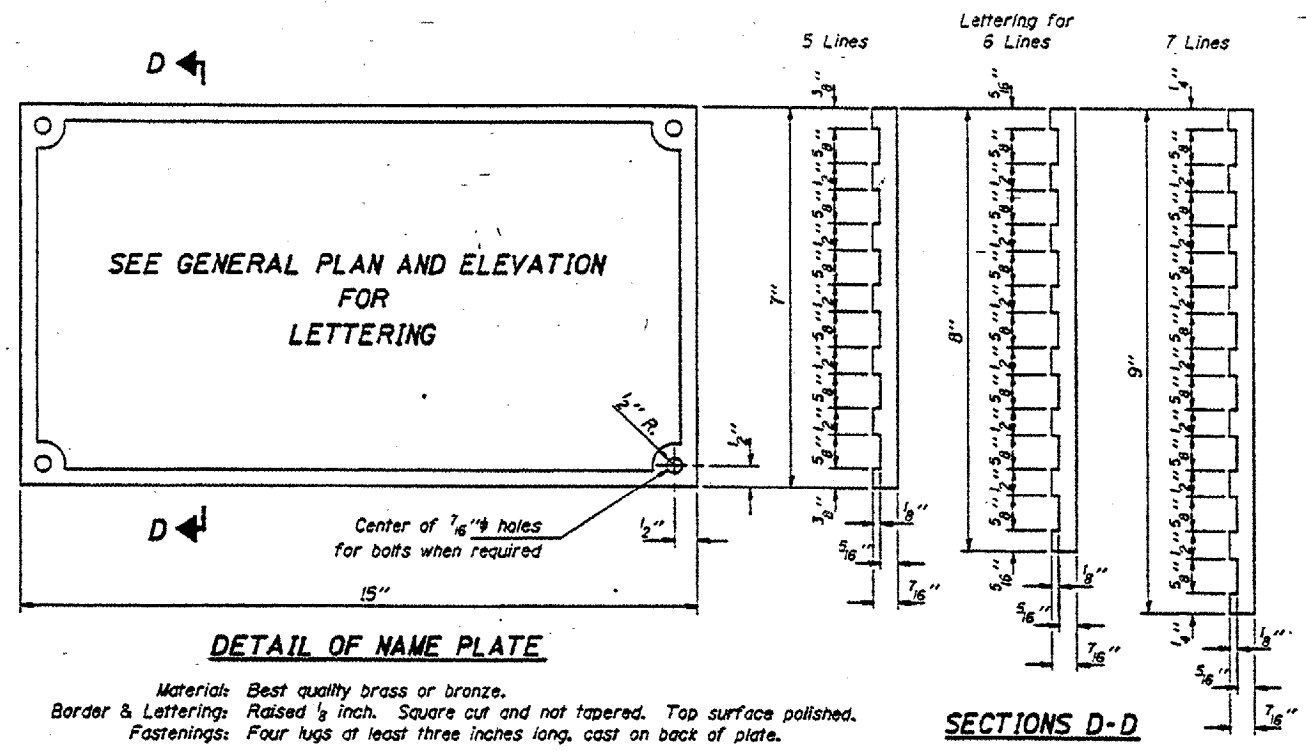


SECTION B-B

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

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

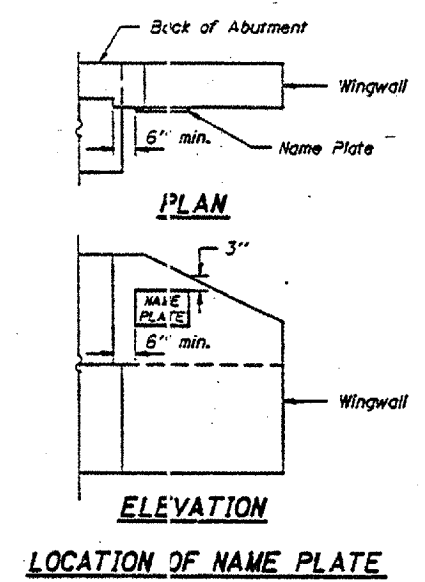
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	8
PROJECT NO. BROS-146(32)			CONTRACT NO. 99212	



DETAIL OF NAME PLATE

Materials: Best quality brass or bronze.
 Border & Lettering: Raised 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

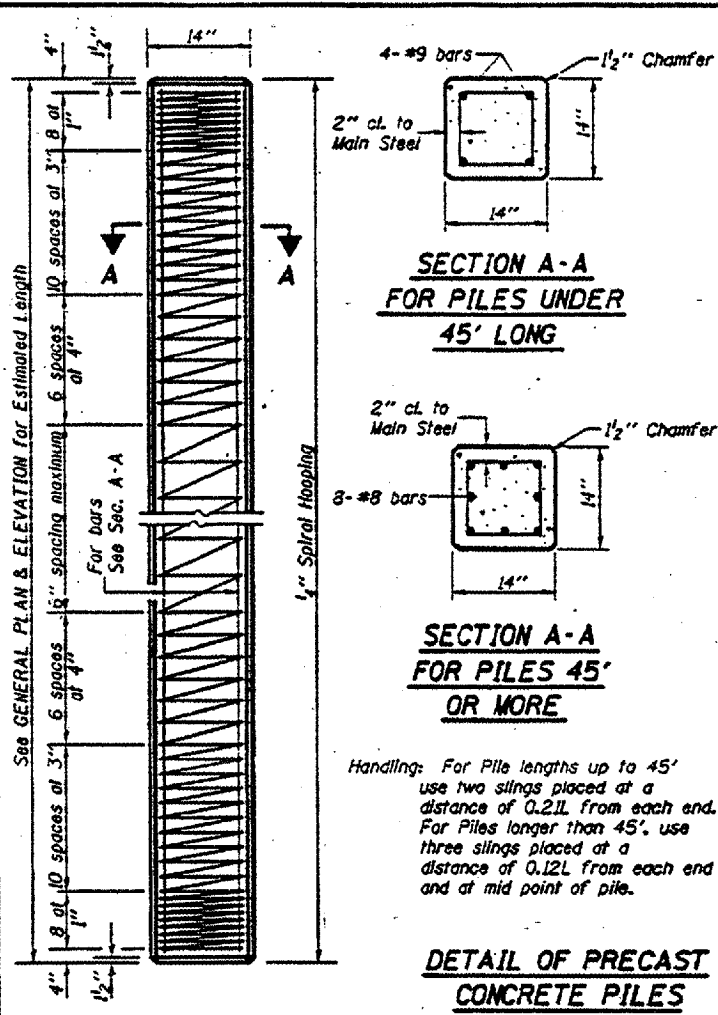


LOCATION OF NAME PLATE

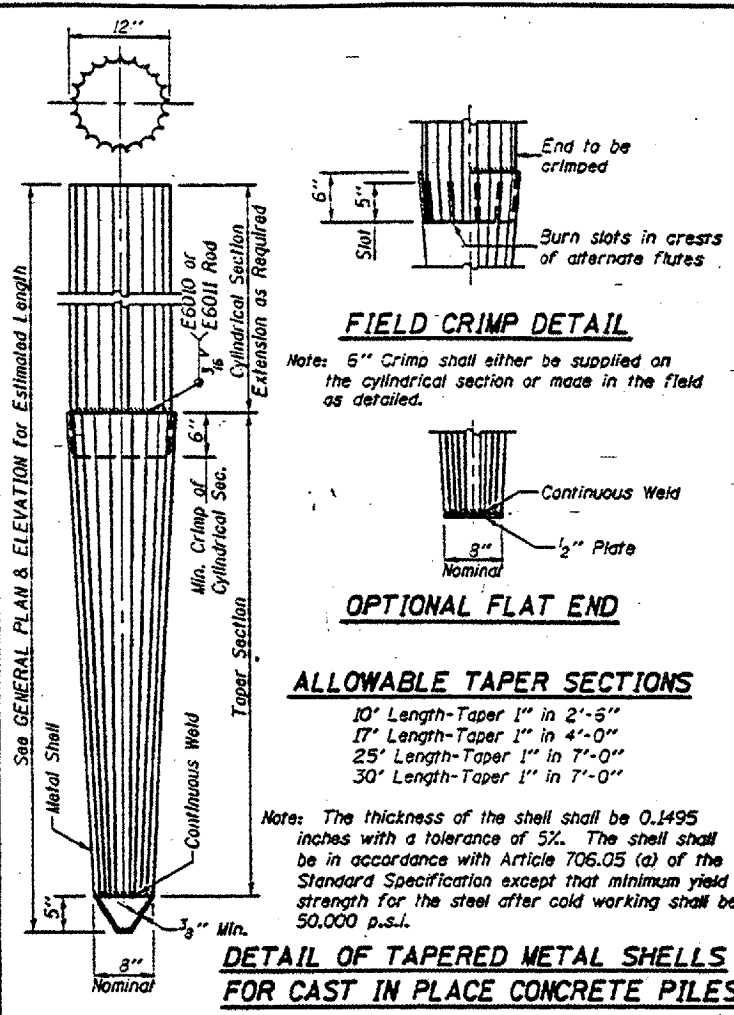
Illinois Department of Transportation
 PASSED November 1, 1935
 Approved by: *Robert C. Anderson*
 Engineer of Bridge Design
 APPROVED November 1, 1935
 Approved by: *Robert C. Anderson*
 Engineer of Bridges and Structures

NAME PLATE
STANDARD CN

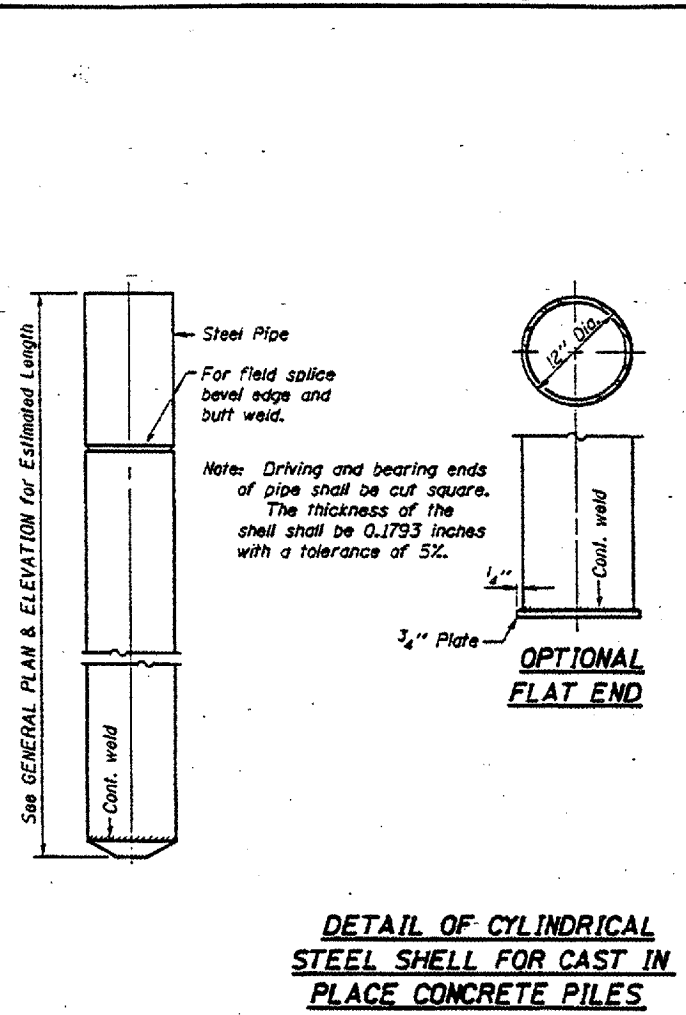
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 222	02-06116-00-BR	PERRY	10	9
PROJECT NO. BROS-148(32)			CONTRACT NO. 99212	



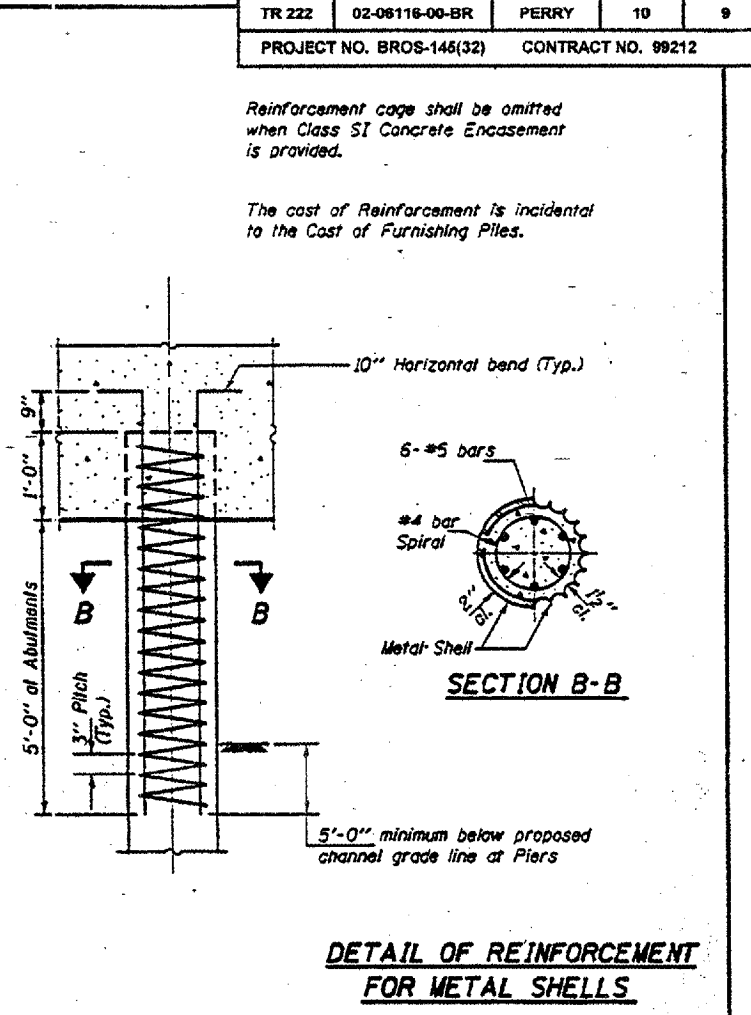
DETAIL OF PRECAST CONCRETE PILES



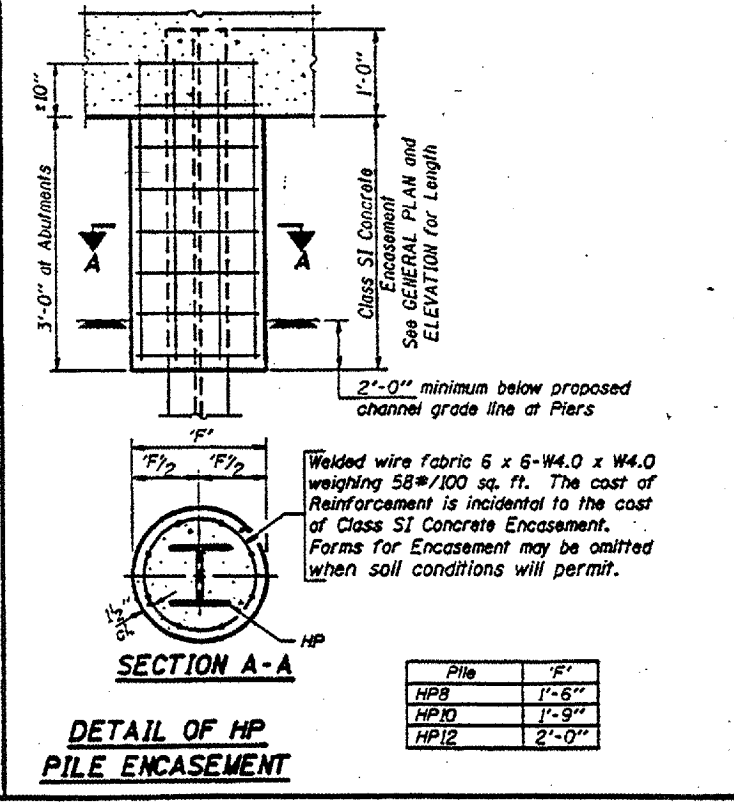
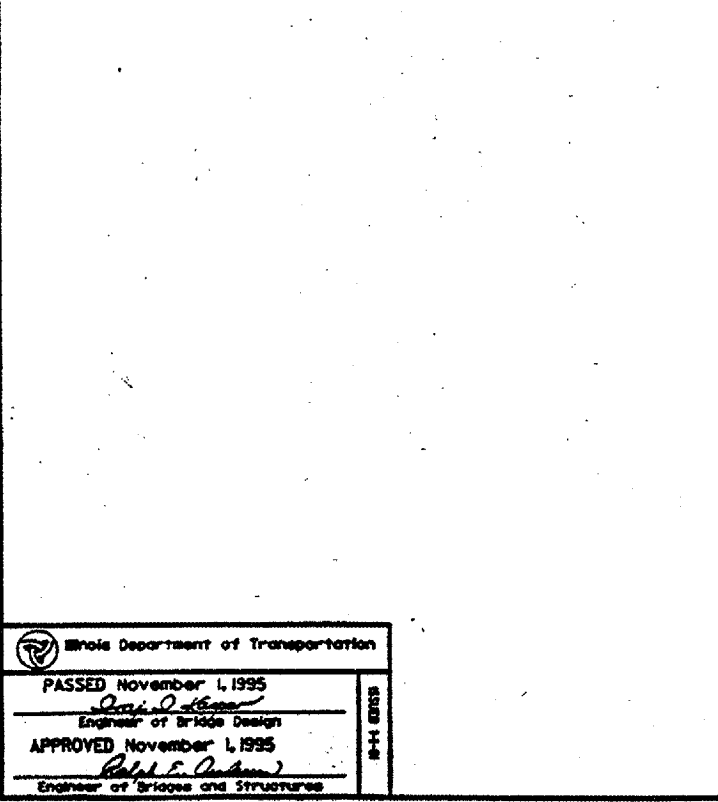
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



DETAIL OF REINFORCEMENT FOR METAL SHELLS



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

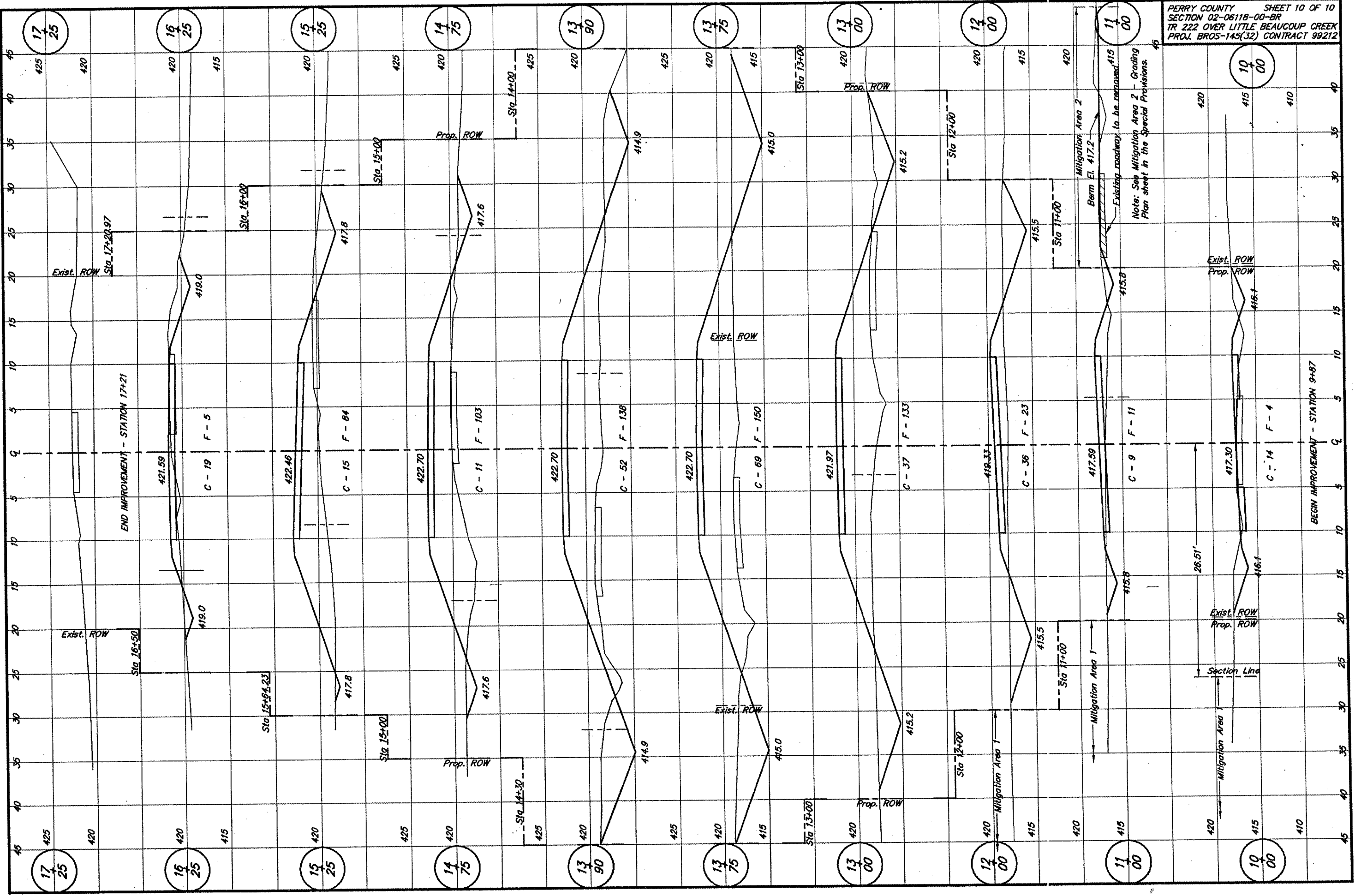
Pile Size	Item	Quantity
HP8	Class SI Concrete Encasement	0.063 C.Y.
HP10	Class SI Concrete Encasement	0.086 C.Y.
HP12	Class SI Concrete Encasement	0.112 C.Y.

(METAL SHELL PILES)

Pile Size	Item	Quantity
12" Dia.	Class SI Concrete Encasement	0.097 C.Y.

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

PILE DETAILS
 STANDARD CX-1



17
25

16
25

15
25

14
75

13
90

13
75

13
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12
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11
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10
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17
25

16
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15
25

14
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13
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13
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13
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12
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11
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10
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