

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

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	1
FED. ROAD DIST. NO.		ILLINOIS	PROJECT	

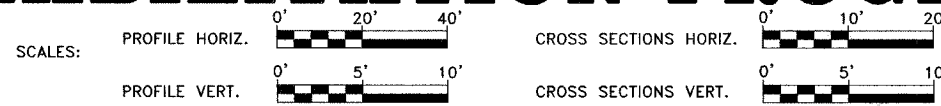
CONTRACT NO. 95461



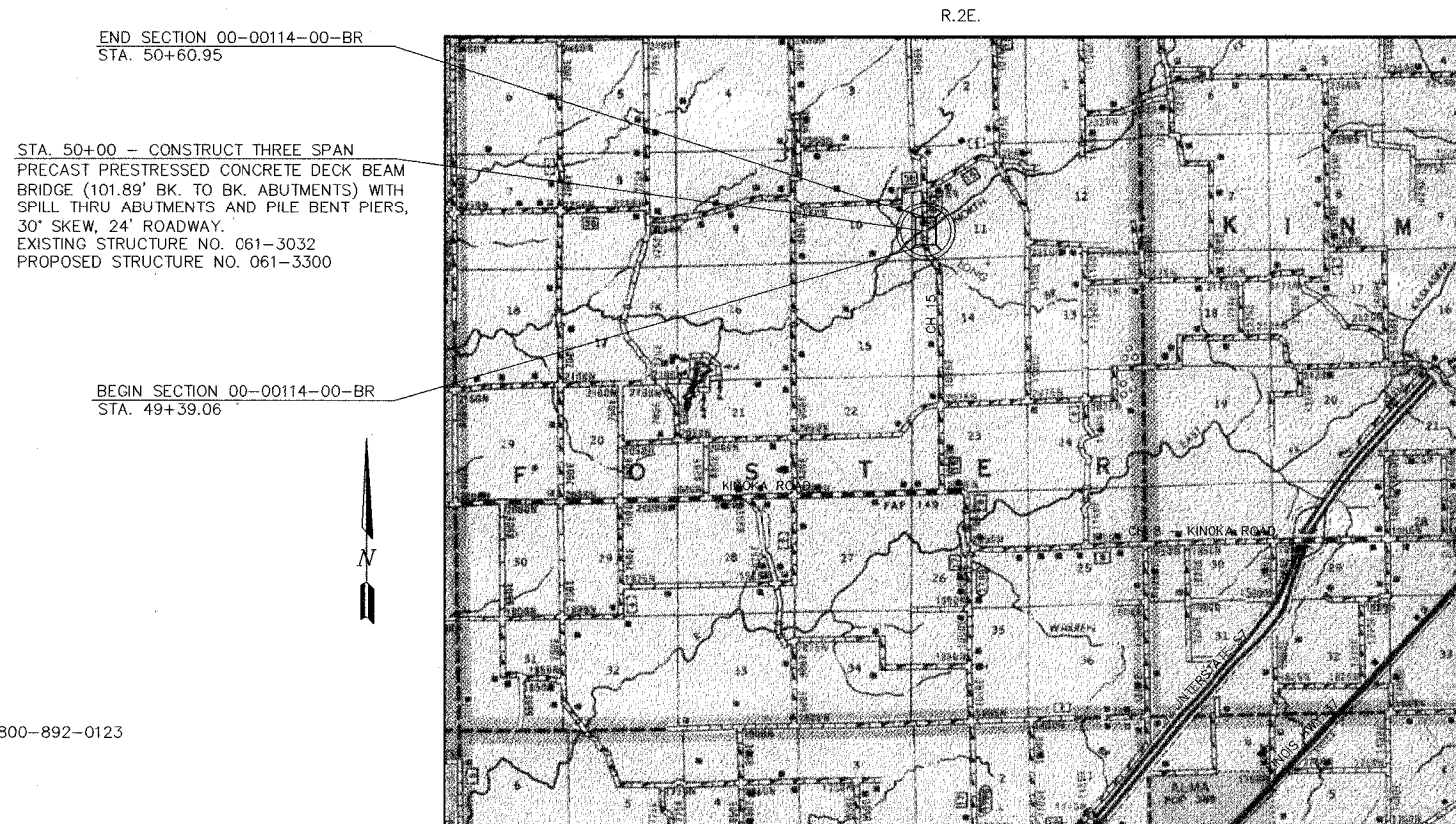
LOCATION OF PROJECT INDICATED THUS —

INDEX OF SHEETS

- 1 COVER SHEET
 - 2 TYPICAL CROSS SECTION, GENERAL NOTES AND SUMMARY OF QUANTITIES
 - 3 PLAN AND PROFILE SHEET
 - 4-13 BRIDGE PLANS
 - 14 CROSS SECTIONS
- STANDARD 000001-04 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- STANDARD 280001-02 TEMPORARY EROSION CONTROL SYSTEMS
- STANDARD 702001-06 TRAFFIC CONTROL DEVICES
- STANDARD B.L.R. 21-6 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS



SECTION 00-00114-00-BR PROJECT NO. BR0S-2792(105) MARION COUNTY JOB NO. C-97-060-04

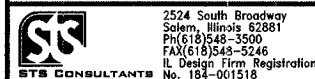


LOCATION MAP

APPROXIMATE SCALE - 1" = 0.73 MILES
NET LENGTH OF IMPROVEMENTS = 121.89 FOOT = 0.023 MILE

48 HOURS PRIOR TO EXCAVATION CALL J.U.L.I.E.: 1-800-892-0123

CLASS ROAD: RURAL MAJOR COLLECTOR
A.D.T. = 125
40 M.P.H.



STS JOB NO. 30132/MAHD0008

APPROVED January 26, 2006
John C. Cunningham
COUNTY ENGINEER

PASSED 2/24, 2006
Michael D. Kavel
DISTRICT SEVEN ENGINEER OF
LOCAL ROADS & STREETS

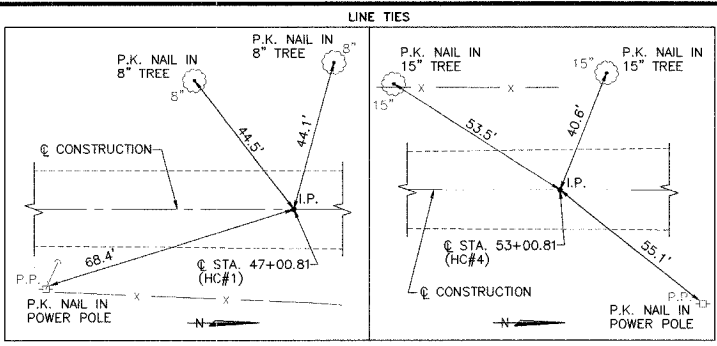
Releasing For
Bid Based on
Limited Review 2/24, 2006
Christina M. Reed
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



1-24-06
Lic. Exp. 11-30-07

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	3
FED. ROAD DIST. NO.		ILLINOIS PROJECT	CONTRACT NO. 95461	



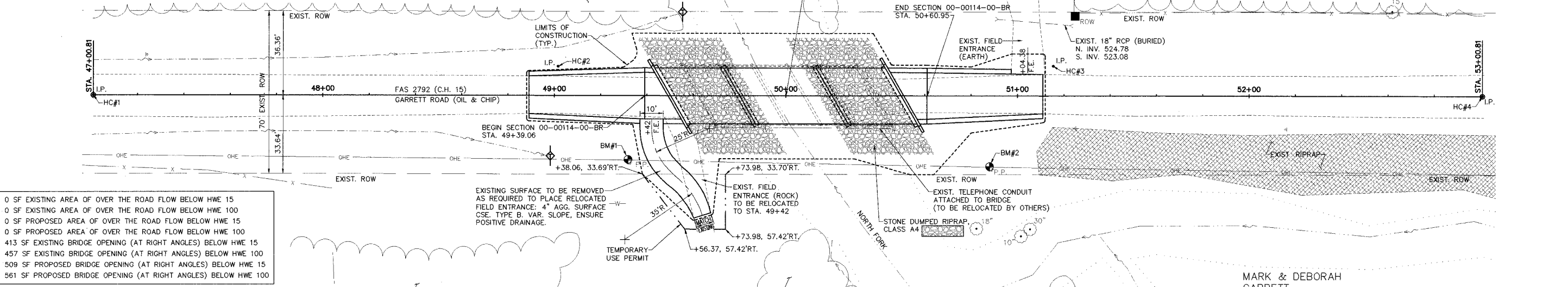
HORIZONTAL CONTROL COORDINATES			
POINT	LOCATION	N. COOR.	E. COOR.
HC#1(IRON PIN)	© STA. 47+00.81	4585.36	5012.37
HC#2(IRON PIN)	12.61' LT., STA. 49+01.61	4786.18	5000.00
HC#3(IRON PIN)	12.88' LT., STA. 51+15.43	5000.00	5000.00
HC#4(IRON PIN)	© STA. 53+00.81	5185.36	5013.10

BENCH MARK COORDINATES		
POINT	LOCATION	ELEV.
BM#1(R.R. SPIKE IN POWER POLE)	27.31' RT., STA. 49+31.82	529.11
BM#2(R.R. SPIKE IN POWER POLE)	30.24' RT., STA. 50+87.97	525.72

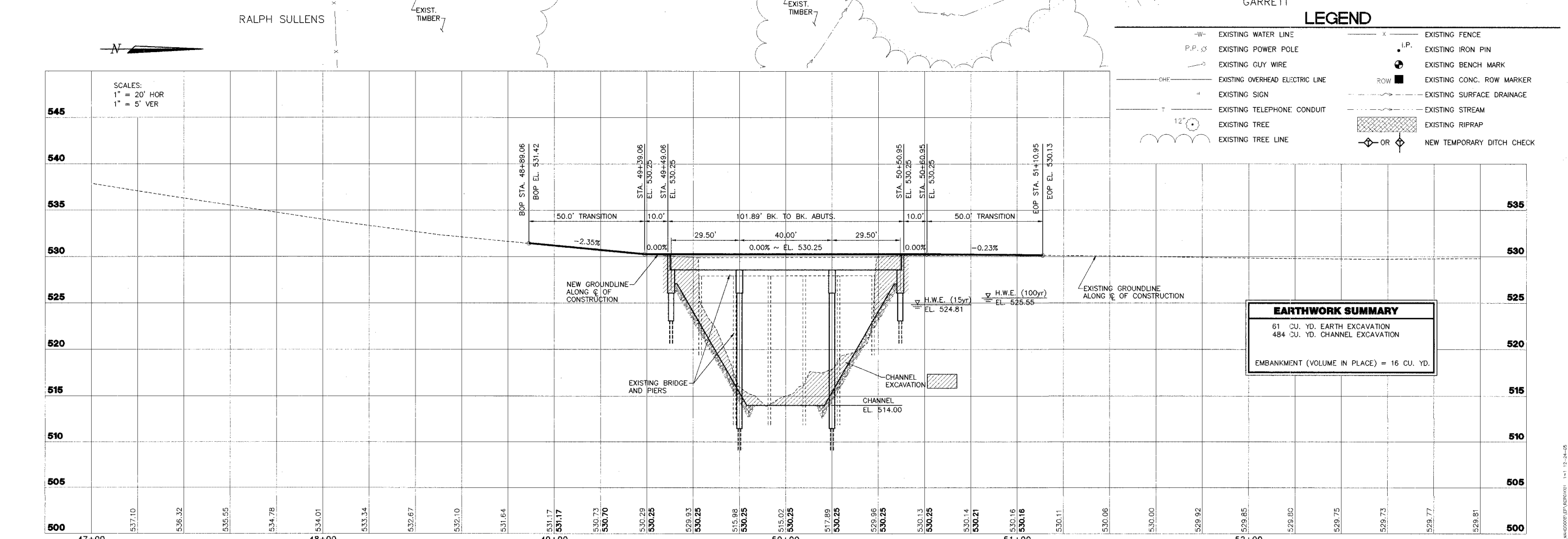
CONSTRUCT SEEDING, CLASS 2 (SPECIAL)
 STA. 48+89.06 TO STA. 51+10.95 = 0.04 ACRE

STA. 50+00 (EXISTING S.N. 061-3032) SECTION 00-00114-00-BR, EXISTING BRIDGE - FIVE SPAN TIMBER DECK, TIMBER STRINGERS, TIMBER PIER PILING AND TIMBER ABUTMENTS, TO BE REMOVED.


STA. 50+00 CONSTRUCT (PROPOSED S.N. 061-3300) THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (101.89' BK. TO BK. ABUTMENTS) WITH SPILL THRU ABUTMENTS AND PILE BENT PIERS ON STEEL H-PILES, 30' SKEW, 24' ROADWAY.



- 0 SF EXISTING AREA OF OVER THE ROAD FLOW BELOW HWE 15
- 0 SF EXISTING AREA OF OVER THE ROAD FLOW BELOW HWE 100
- 0 SF PROPOSED AREA OF OVER THE ROAD FLOW BELOW HWE 15
- 0 SF PROPOSED AREA OF OVER THE ROAD FLOW BELOW HWE 100
- 413 SF EXISTING BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 15
- 457 SF EXISTING BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 100
- 509 SF PROPOSED BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 15
- 561 SF PROPOSED BRIDGE OPENING (AT RIGHT ANGLES) BELOW HWE 100



EARTHWORK SUMMARY	
61 CU. YD. EARTH EXCAVATION	
484 CU. YD. CHANNEL EXCAVATION	
EMBANKMENT (VOLUME IN PLACE) = 16 CU. YD.	



2524 South Broadway
 Salem, Illinois 62881
 PH(618)548-5500
 FAX(618)548-5246
 IL Design Firm Registration
 No. 184-001518

FAS 2792
SECTION 00-00114-00-BR
MARION COUNTY, ILLINOIS

PLAN AND PROFILE
STA. 47+00 TO STA. 53+00

SURVEY	JAS	CHECKED	MRQ	DATE	12-14-05
DESIGN	J.C.MRQ	APPROVED	REVISED		
DRAWN	JMW,BLT		JOB NO.	30132	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

B.M. - B.M. #1, R.R. Spike in Power Pole, 27.31' RT., STA. 49+31.82, EL. 529.11
B.M. #2, R.R. Spike in Power Pole, 30.24' RT., STA. 50+87.97, EL. 525.72

Existing Structure - Five Span Structure With a Timber Deck on Timber Stringers, Supported by Timber Caps and Timber Piling.

Existing Known Utilities - Overhead electric, Telephone, Water

Note:
// Dimensions are parallel to roadway
⊥ Dimensions are perpendicular to channel

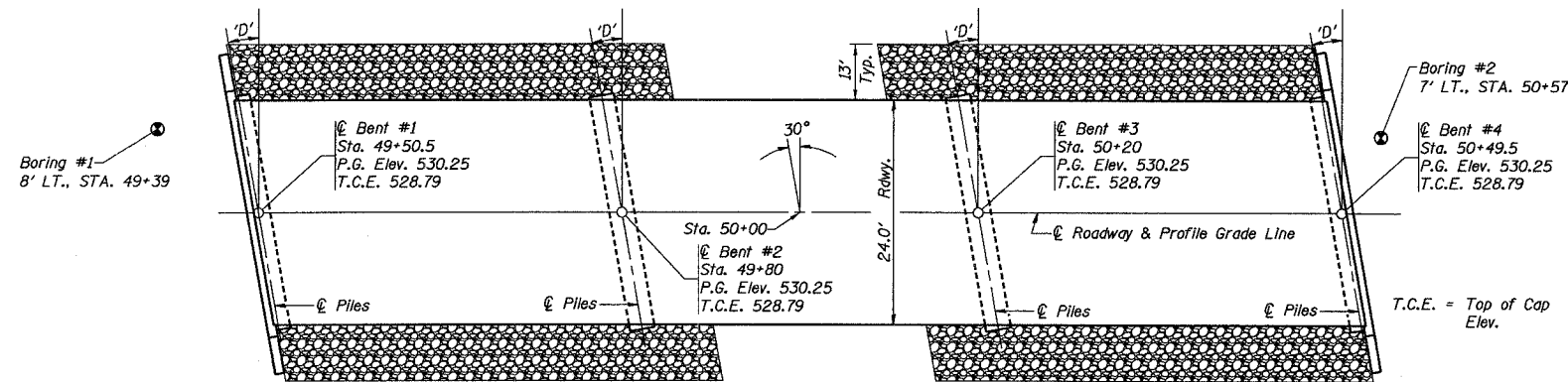
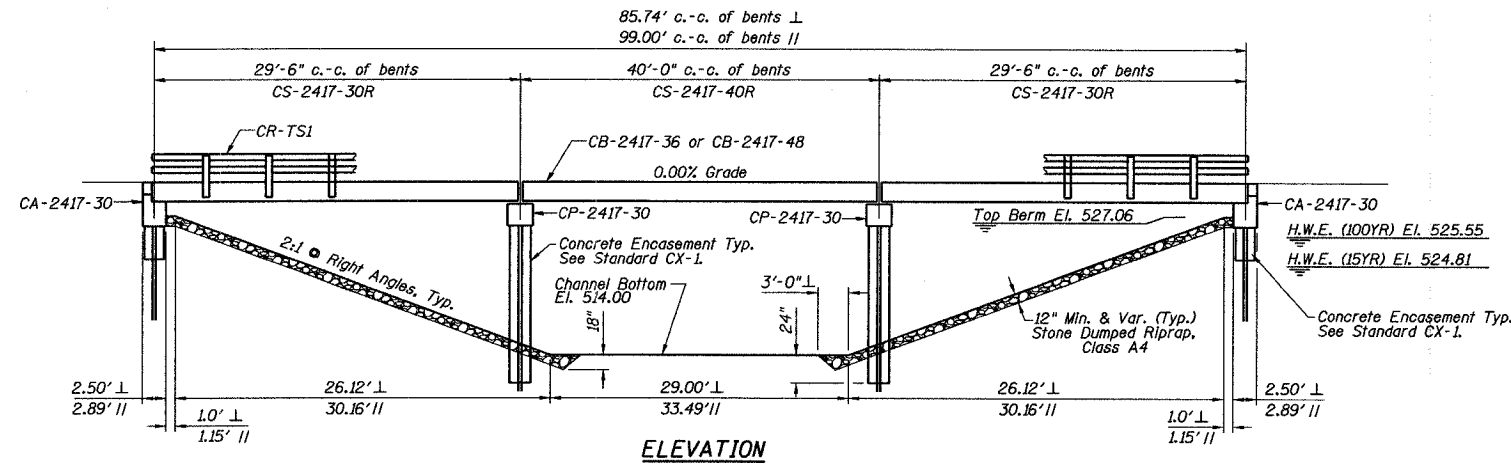
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-0014-00-BR	MARION	14	4
FED. ROAD DIST. NO.	ILLINOIS	PROJECT	CONTRACT NO. 95461	

GENERAL NOTES

- The contractor shall drive 2 test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- The Waterproofing Membrane System and Bituminous Concrete Surface Course Shown on the Standards Shall Not be Provided.

TOTAL BILL OF MATERIAL

Item	Unit	Sub.		Total
		Super	Piers	
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		17.4	19.4
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2400		2400
Steel Railing, Type S-1	Foot	200		200
Reinforcement Bars	Pound		2140	2540
Furnishing Steel Piles HP 12x53	Foot		504	504
Furnishing Steel Piles HP 10x42	Foot			504
Driving Steel Piles	Foot		504	1008
Test Pile Steel HP 10x42	Each			1
Test Pile Steel HP 12x53	Each		1	1
Name Plates	Each		1	1
Concrete Encasement	Cu. Yd.		12.6	14.7
Metal Shoes	Each		4	8



The standard detail sheets for this structure were assembled by me or persons under my direct supervision.

Date: 1-24-06

Date of License
Expiration: 11-30-2006

Signature: William D. Lueking
William D. Lueking



DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications - 17th ed.

LOADING HS 20-44

Allow 25# / Sq. Ft. for Future Wearing Surface.

SEISMIC DATA

Seismic Performance Category (SPC) = A
Bedrock Acceleration Coefficient (A) = 0.09
Site Coefficient (S) = 1.5

PILE DATA (2-PIERS)

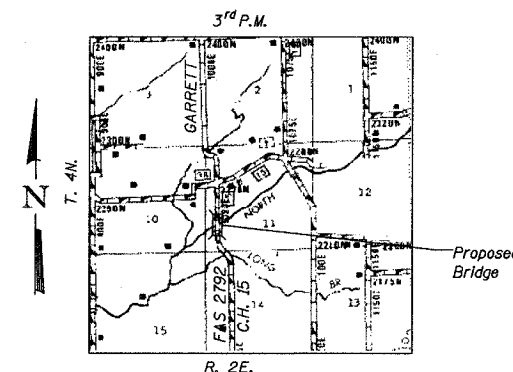
Type: HP12x53
Capacity: REFUSAL
Estimated Length: 72 Feet
Number Required: 8 (Includes 1 Test Pile located in Bent #2)
Provide Metal Shoes for Piles - Bent #2

PILE DATA (2-ABUTS.)

Type: HP10x42
Capacity: REFUSAL
Estimated Length: 72 Feet
Number Required: 8 (Includes 1 Test Pile located in Bent #1)
Provide Metal Shoes for Piles - Bent #1

STATION 50+00
NORTH FORK CREEK
SEC. 00-0014-00-BR BUILT 20...
PROJECT NO. BR0S-2792(105)
MARION COUNTY
LOADING HS20
STR. NO. 061-3300

LETTERING FOR NAME PLATE
Locate Name Plate at Northeast Corner of Bridge (See Std. CN)



LOCATION SKETCH

WATERWAY INFORMATION

Flood		Q		Opening Sq. Ft.		Nat. H.W.E. Ft.		Head - Ft.		Headwater Elev. - Ft.	
Freq. Yr.	C.F.S.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	15	1627	413	509	524.81	N/A	0.33	N/A	525.14		
Base	100	2555	457	561	525.55	N/A	0.69	N/A	526.24		
Overtopping											
Max. Calc.	500										

Drainage Area = 13.25 Sq. Mi. Low Grade Elev. 529.73 @ Sta. 52+60

INDEX OF SHEETS

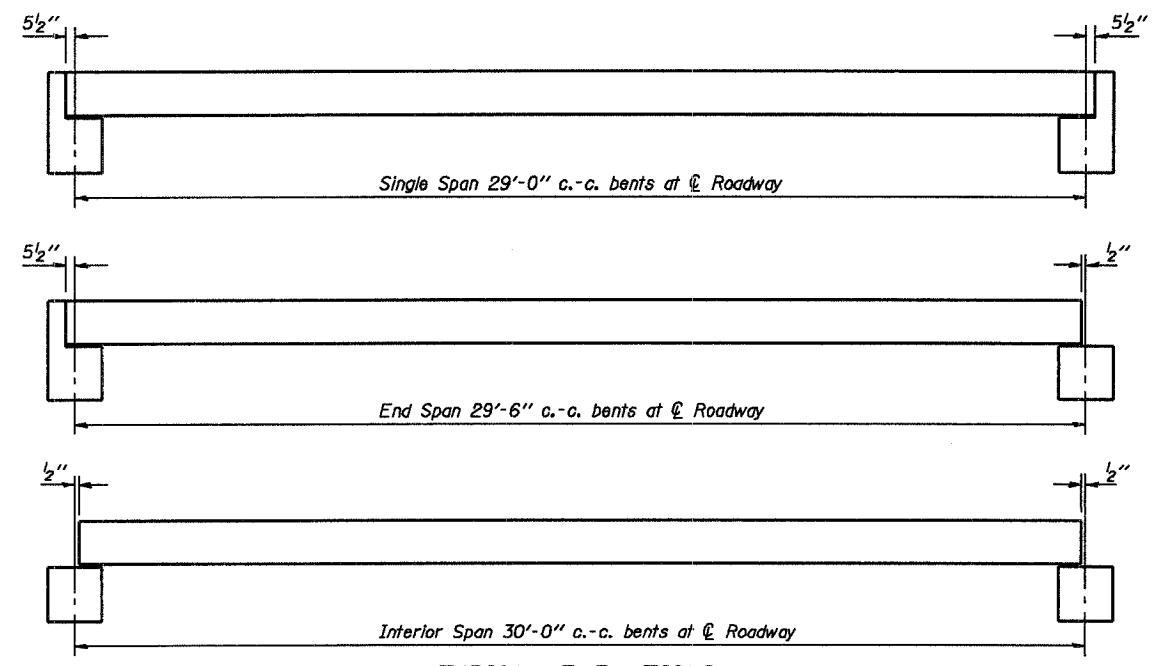
- General Plan & Elevation
- Standard CS-2417-30R
- Standard CS-2417-40R
- Standard CB-2417-36
- Standard CB-2417-48
- Standard CA-2417-30
- Standard CP-2417-30
- Standard CR-TS1
- Standard CN
- Standard CX-1

GENERAL PLAN & ELEVATION

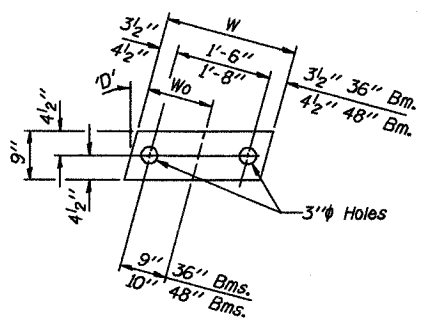
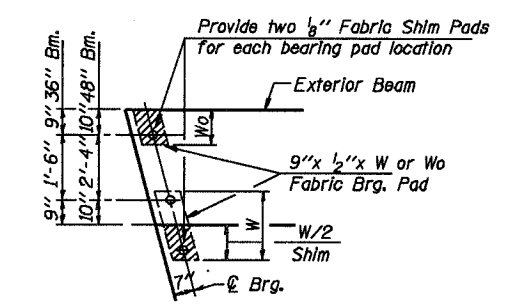
FAS 2792 OVER
NORTH FORK CREEK

SECTION 00-0014-00-BR
MARION COUNTY
STATION 50+00

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	DD-00114-00-BR	MARION	14	5
FED. ROAD DIST. NO.	ILLINOIS	PROJECT	95-461	

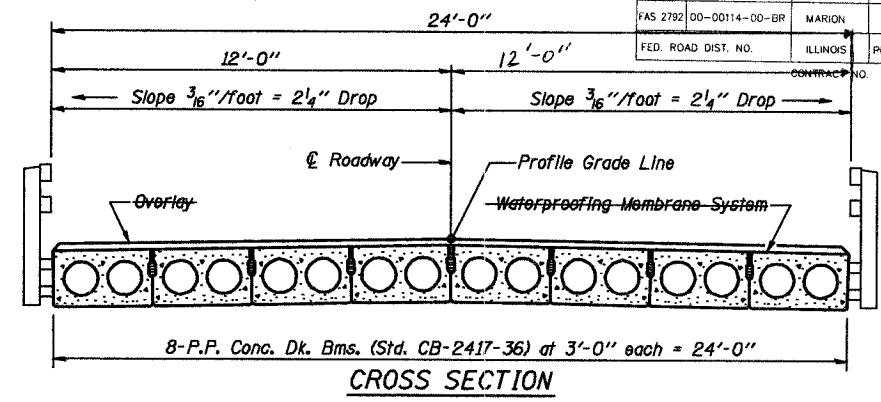


TYPICAL ELEVATIONS

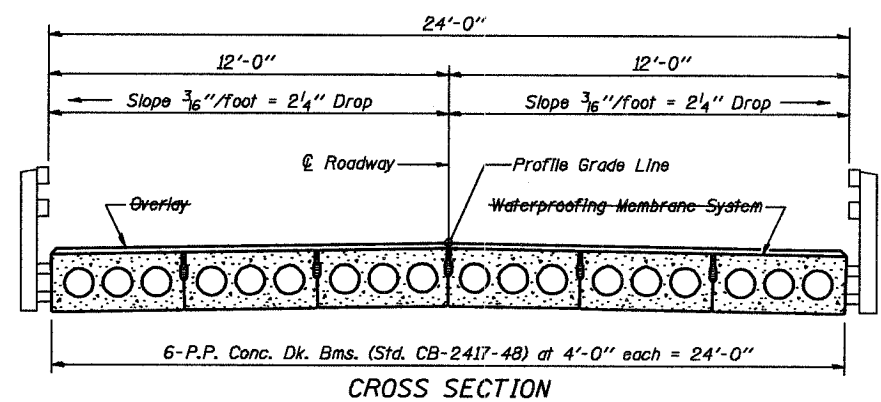


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

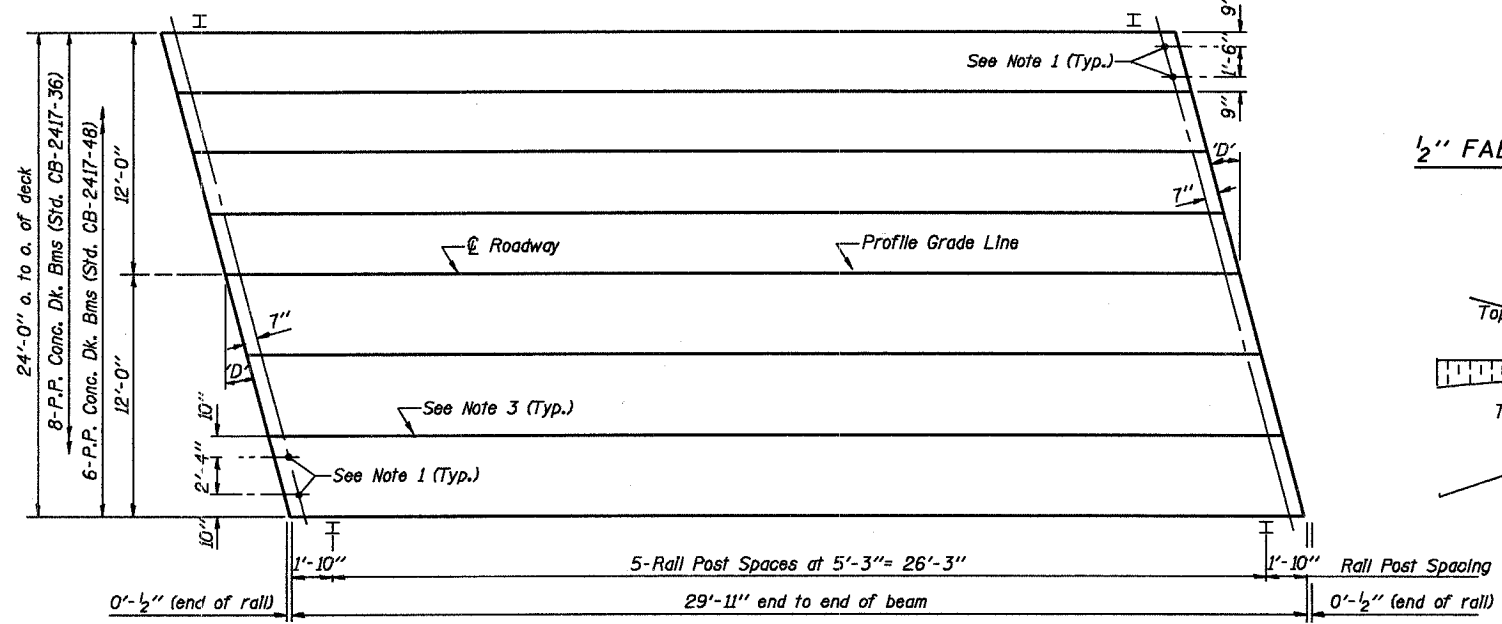
1/2" FABRIC BRG. PAD DETAILS



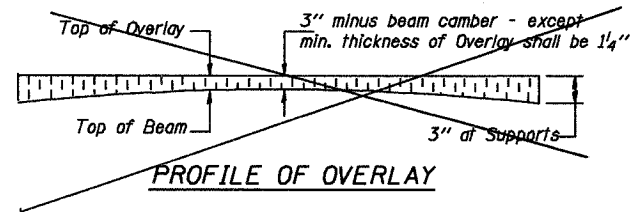
CROSS SECTION



CROSS SECTION



PLAN
(D' = Designated Skew Angle)

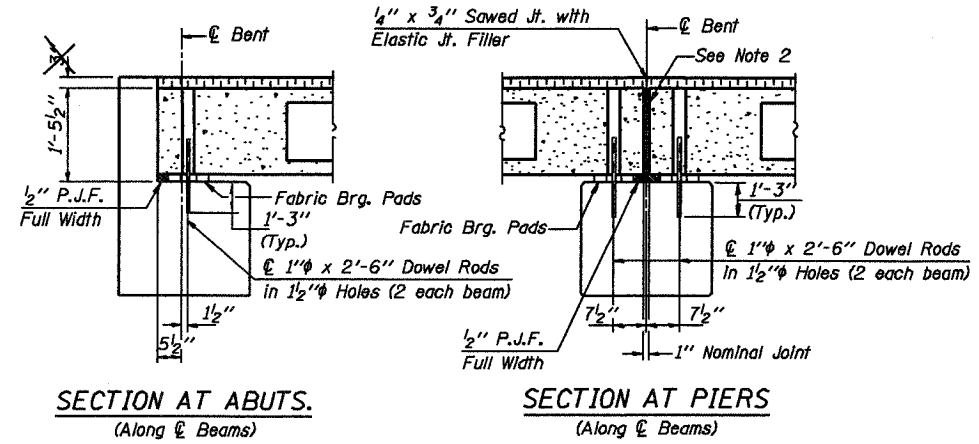


PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

	5°	10°	15°	20°	25°	30°
A	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2 1/4"	2 5/8"
B	7 1/2"	7 5/8"	7 3/4"	8"	8 1/4"	8 5/8"

- 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.



SECTION AT ABUTS.
(Along centerline of Beams)

SECTION AT PIERS
(Along centerline of Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	720 Sq. Ft.
Steel Railing	60 Ft.
Waterproofing Membrane System	80.0 Sq. Yds.
Portland Cement Mortar	210 Ft. 36"
Fairing Course	150 Ft. 48"

Note: Quantity of overlay for one span = 12.0 Tons

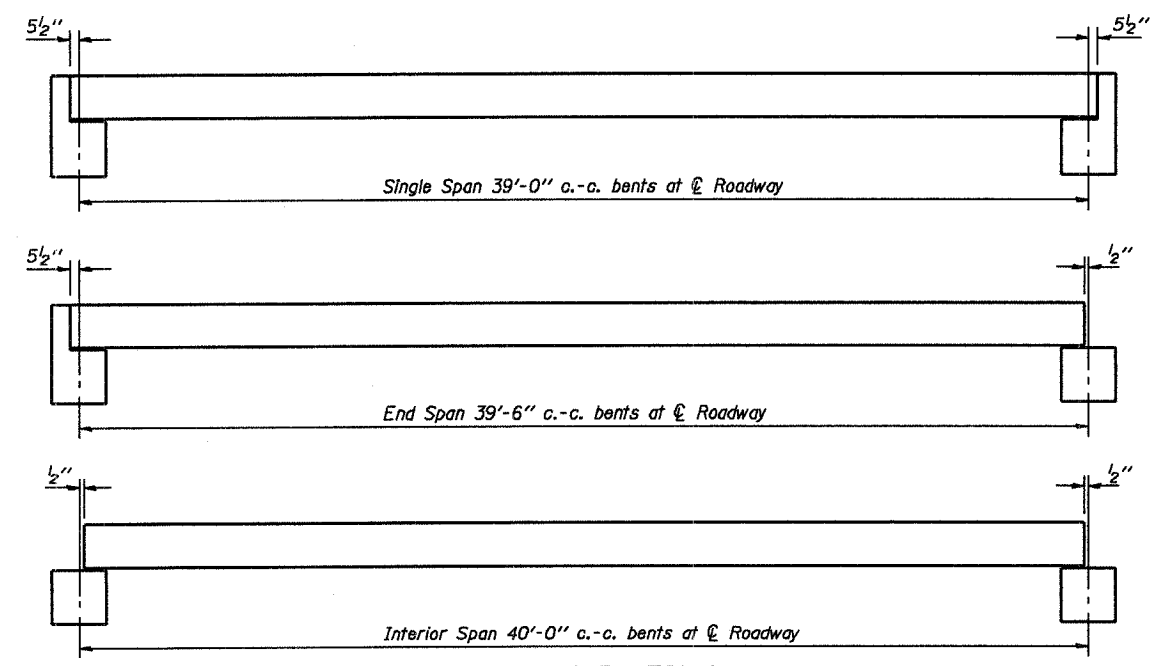
P.P.C. DECK BEAM SUPERSTRUCTURE			
24' RDWY.	17" BMS.	30' SPAN	RIGHT
STANDARD CS-2417-30R			

Illinois Department of Transportation

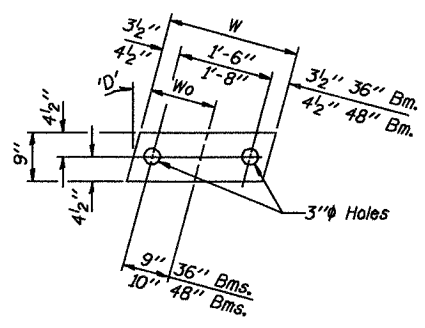
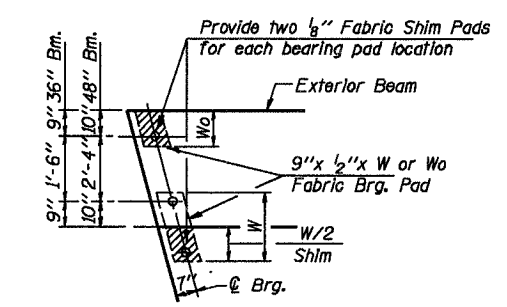
PASSED APRIL 4, 2005
Theresa S. Nungesser
Engineer of Bridge Design

APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-0014-00-BR	MARION	14	6
FED. ROAD DIST. NO.	ILLINOIS		PROJECT	
			95461	

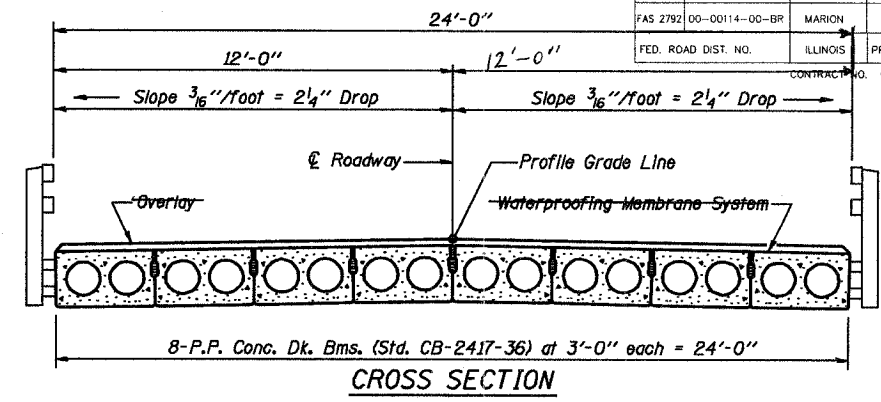


TYPICAL ELEVATIONS

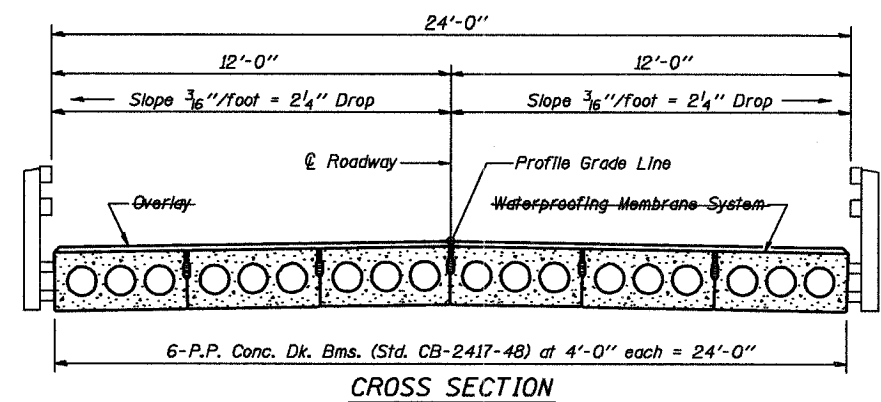


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

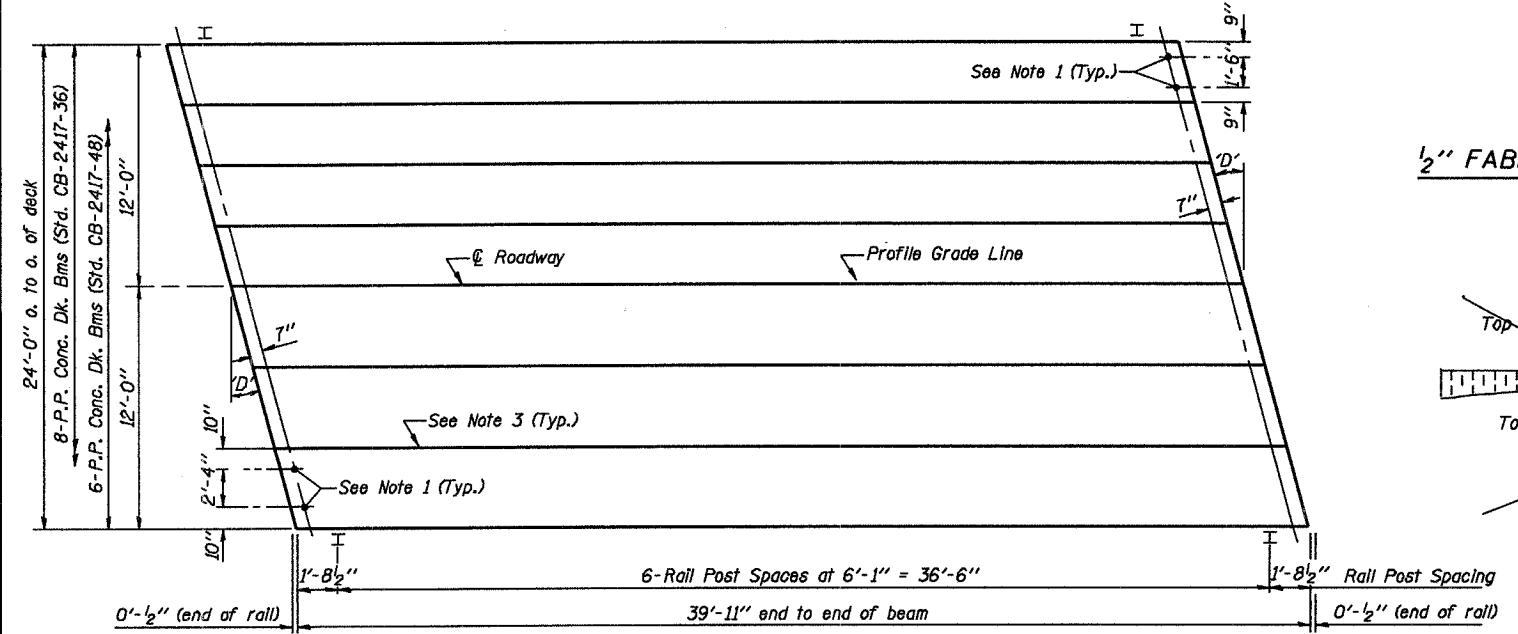
1/2" FABRIC BRG. PAD DETAILS



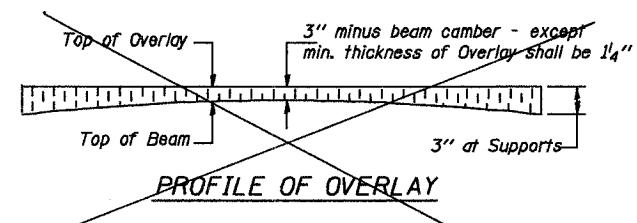
CROSS SECTION



CROSS SECTION



PLAN
(D' = Designated Skew Angle)

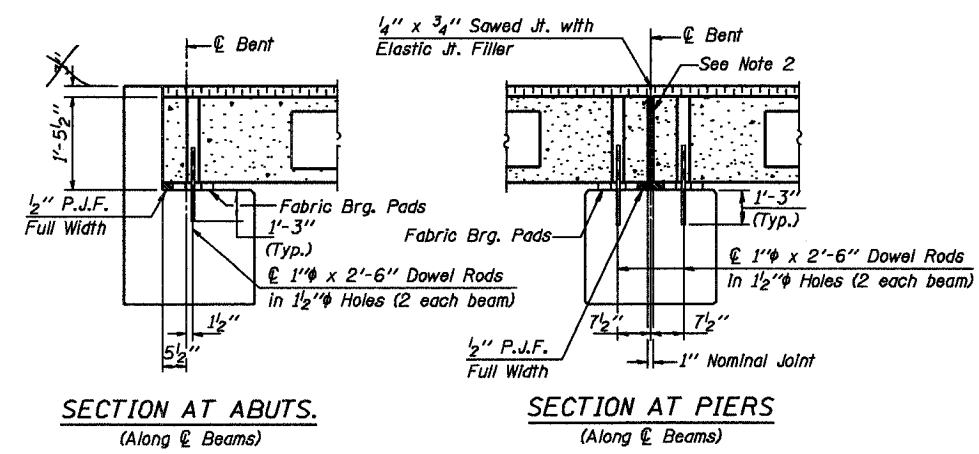


PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

D'	5°	10°	15°	20°	25°	30°
A	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2 1/4"	2 5/8"
B	7 1/2"	7 3/8"	7 3/4"	8"	8 1/4"	8 5/8"

- 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 C.R. Pier shall be filled with non-shrink grout.
 - Longitudinal keys shall be grouted.



SECTION AT ABUTS.
(Along C.R. Beams)

SECTION AT PIERS
(Along C.R. Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	960 Sq. Ft.
Steel Railing	80 Ft.
Waterproofing Membrane System	106.7 Sq. Yds.
Portland Cement Mortar	280 Ft. 36"
Fairing Course	200 Ft. 48"

Note: Quantity of overlay for one span = 13.2 Tons

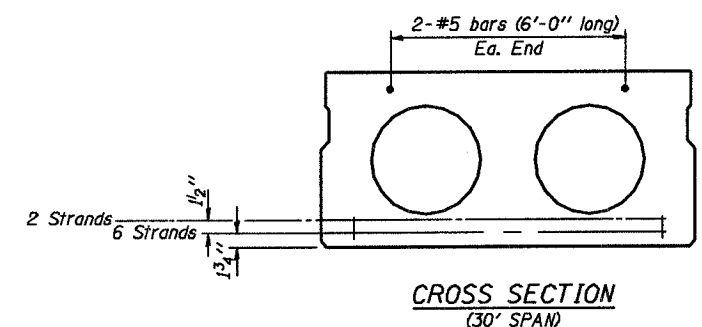
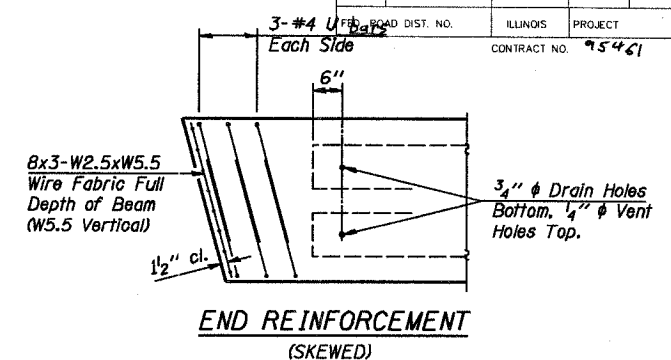
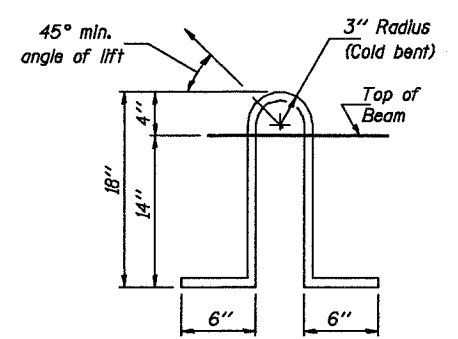
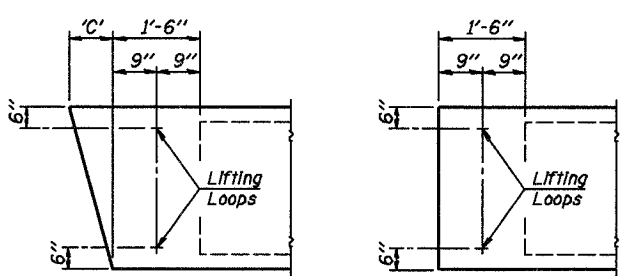
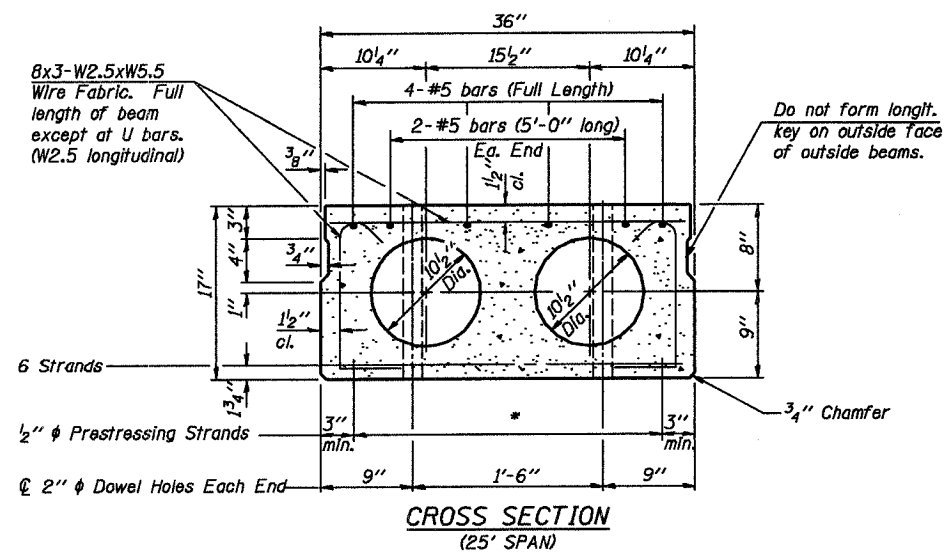
P.P.C. DECK BEAM SUPERSTRUCTURE			
24' RDWY.	17" BMS.	40' SPAN	RIGHT
STANDARD CS-2417-40R			

Illinois Department of Transportation

PASSED APRIL 4, 2005
 (Signature)
 Engineer of Bridge Design

APPROVED APRIL 4, 2005
 (Signature)
 Engineer of Bridges and Structures

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	7
ROAD DIST. NO.		ILLINOIS PROJECT	CONTRACT NO. 95461	

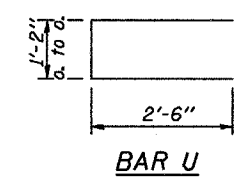
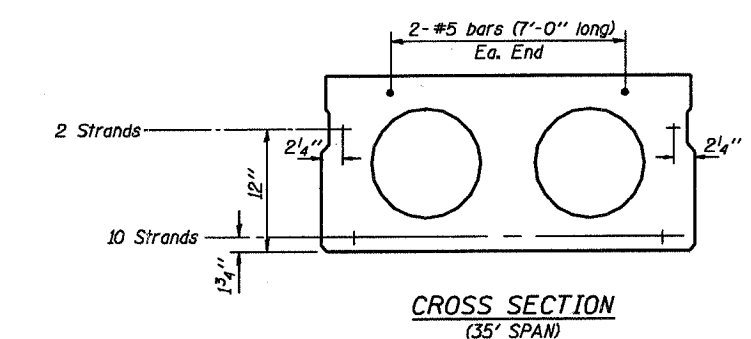
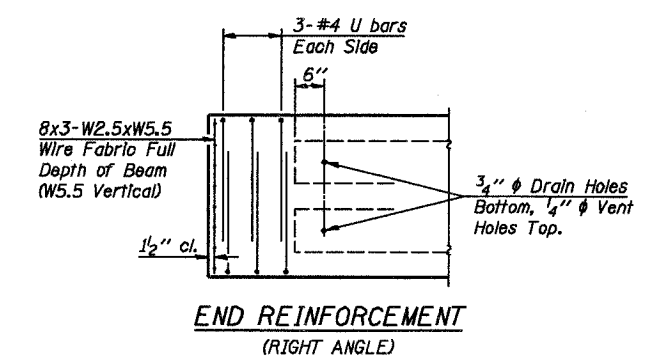


DIMENSION 'C'

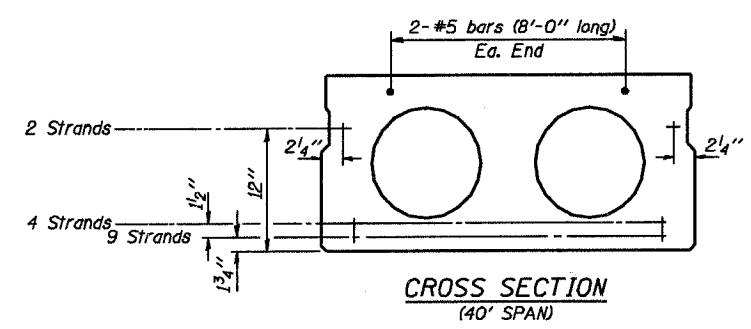
Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3 3/8	6 3/8	9 5/8	13 3/8	16 3/4	20 3/4

*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
 2. The minimum distance from center to center of strands in all directions shall be 2".
 3. The minimum clearance from strand to dowel hole shall be 1/2".
 4. The minimum clearance from strand to void shall be 1 1/2".
- Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



MIN. BAR LAP
#5 bars = 1'-8"



DESIGN STRESSES

- $f'_c = 5,000$ p.s.i.
- $f'_a = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2" ϕ Strand)
- $f_{el} = 201,960$ p.s.i. (1/2" ϕ Strand)
- $f_y = 60,000$ p.s.i.

NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 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 the requirements of AASHTO M-31 or M-322, Grade 60.
4. Roll Post anchor devices shall be cast into outside beam as elsewhere specified.
5. When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. 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".
6. 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.

NOTE
The std. reinf. and dimensions shown on the 25' span cross section is typical for all spans, except as shown.

Illinois Department of Transportation

PASSED APRIL 4, 2005
Theresa S. Nemanick
Engineer of Bridge Design

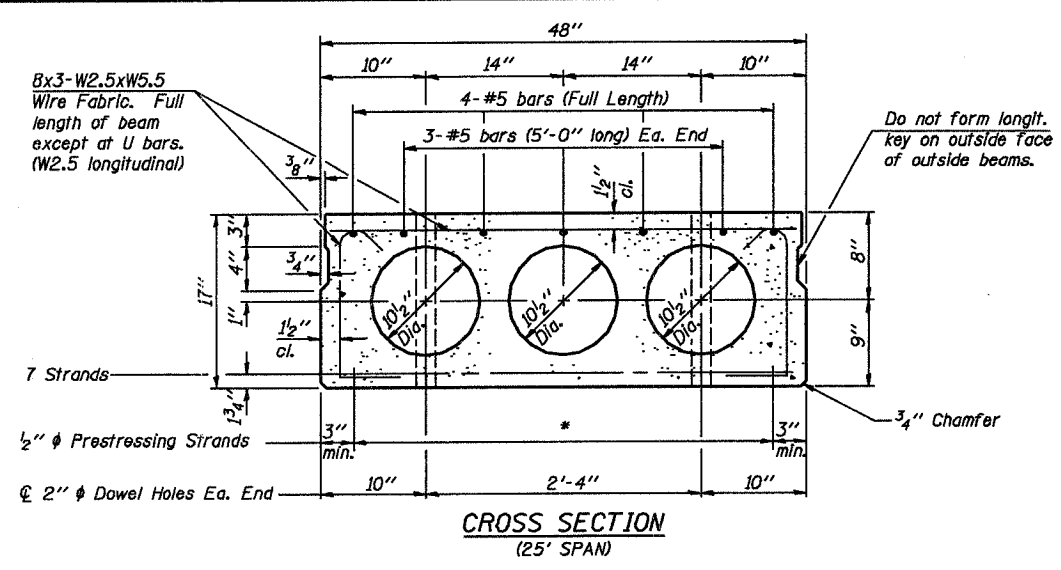
APPROVED APRIL 4, 2005
Ralph E. Cook
Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS

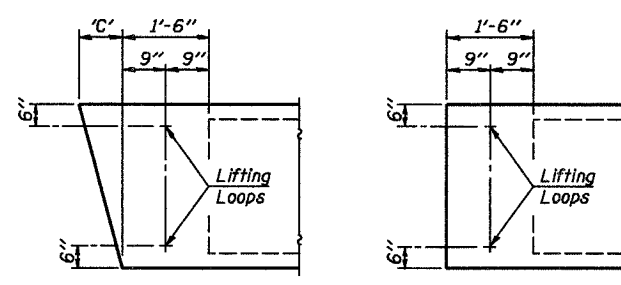
24' ROADWAY | 17" x 36" BEAMS

STANDARD CB-2417-36

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	8
DIST. NO.			ILLINOIS PROJECT	CONTRACT NO. 95461

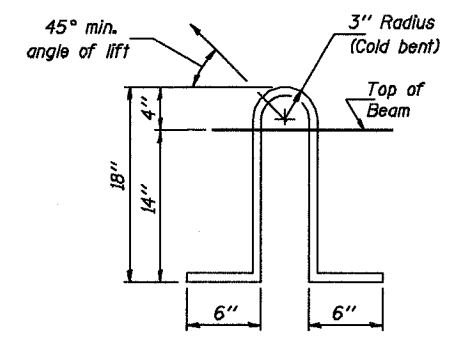


CROSS SECTION
(25' SPAN)



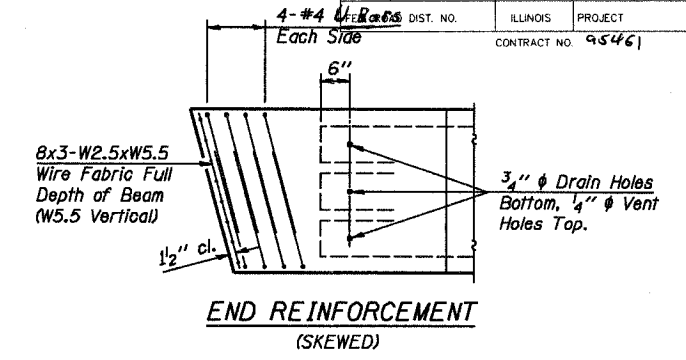
END BLOCK DETAILS

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.

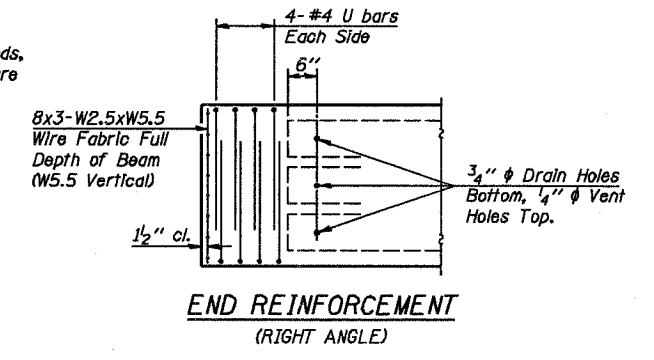


LIFTING LOOP DETAIL

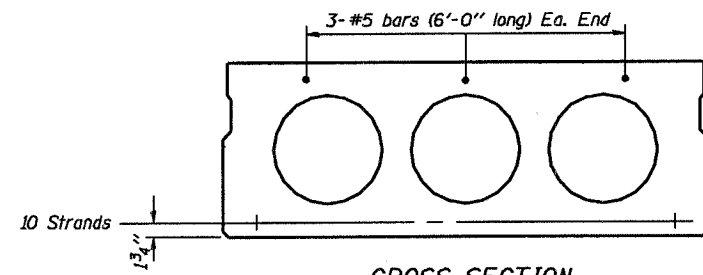
Lifting loops shall be 2. 1/2 inch diameter 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



END REINFORCEMENT
(SKEWED)



END REINFORCEMENT
(RIGHT ANGLE)



CROSS SECTION
(30' SPAN)

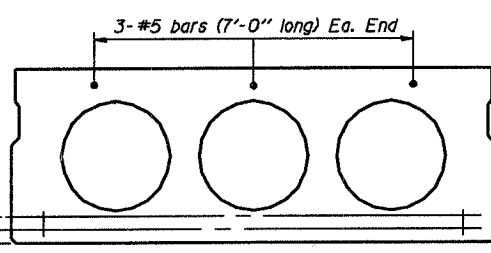
DIMENSION 'C'

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

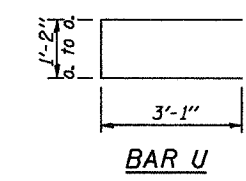
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1 1/2".

Vertical placement of strands shall not be adjusted to satisfy the above guidelines.

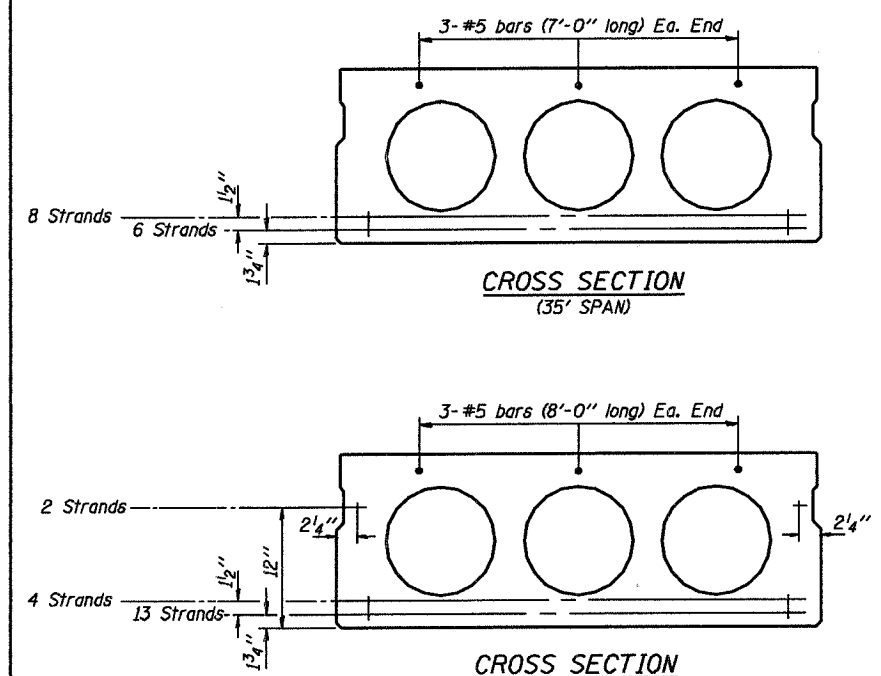


CROSS SECTION
(35' SPAN)



BAR U

MIN. BAR LAP
#5 bars = 1'-8"



CROSS SECTION
(40' SPAN)

DESIGN STRESSES

- $f'_c = 5,000$ p.s.i.
- $f'_d = 4,000$ p.s.i.
- $f'_s = 270,000$ p.s.i. (1/2" diameter Strand)
- $f_{st} = 201,960$ p.s.i. (1/2" diameter Strand)
- $f_y = 60,000$ p.s.i.

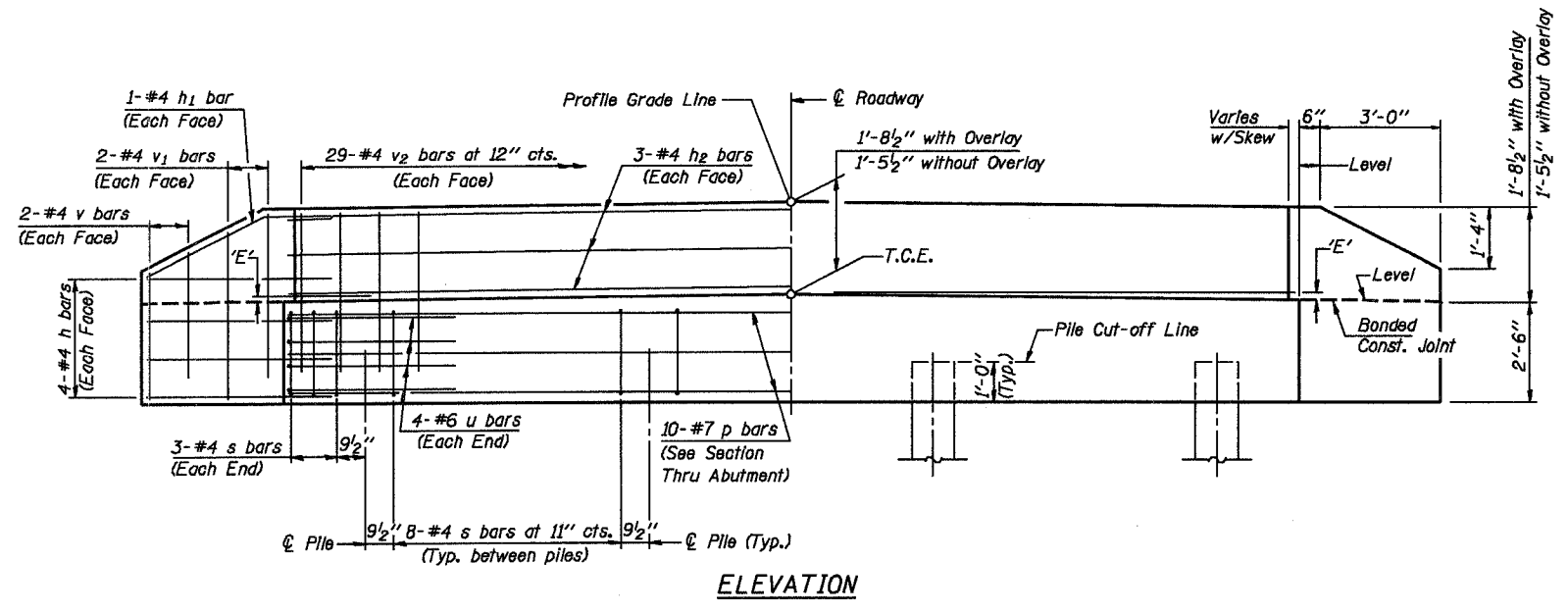
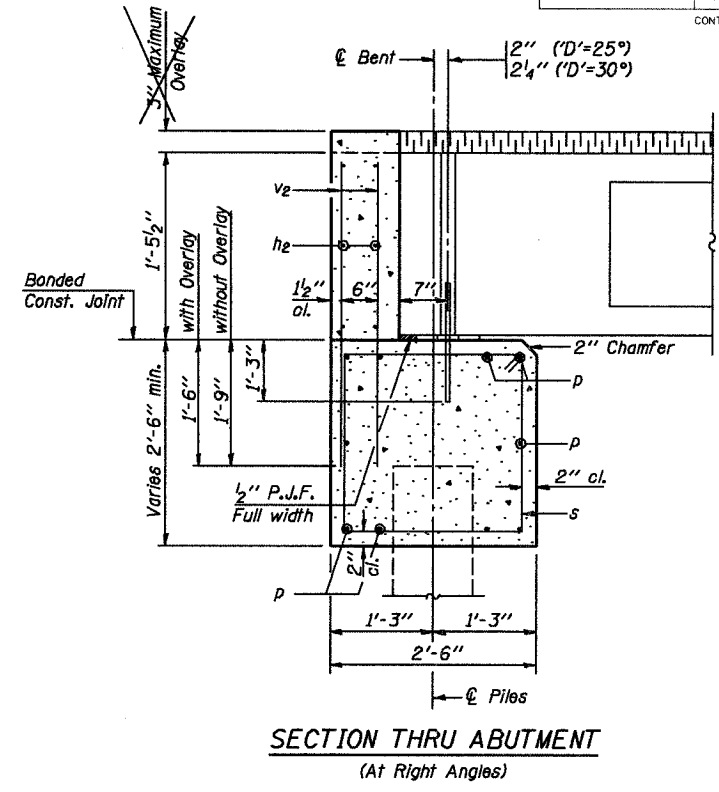
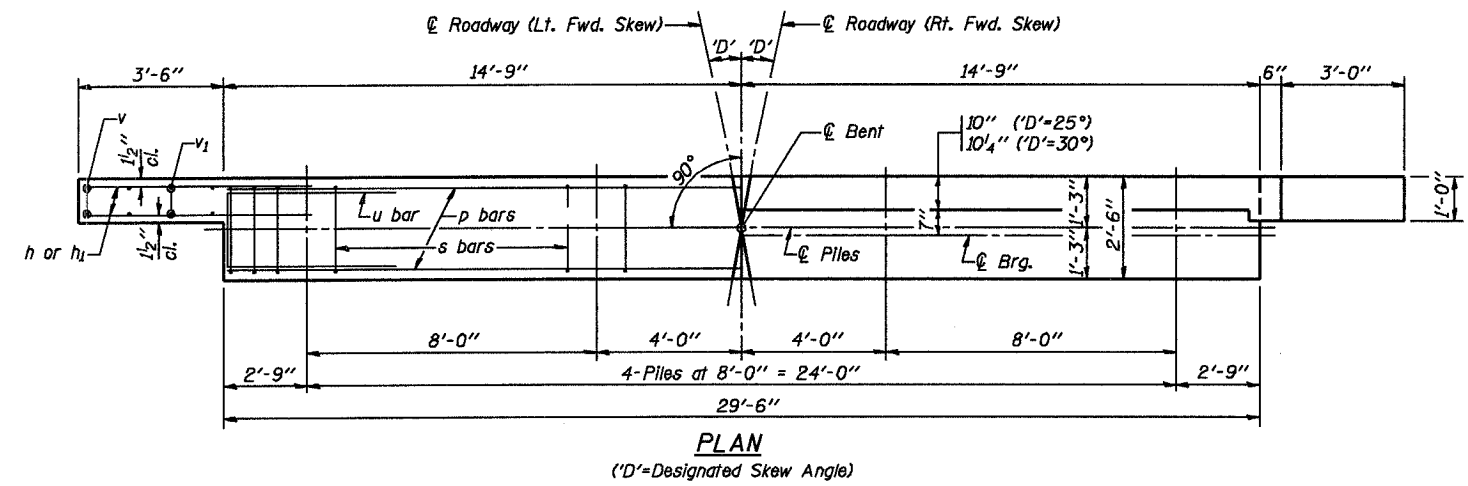
NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 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 the requirements of AASHTO M-31 or M-322, Grade 60.
4. Roll Post anchor devices shall be cast into outside beam as elsewhere specified.
5. When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. 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".
6. 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.

NOTE
The std. reinf. and dimensions shown on the 25' span cross section is typical for all spans, except as shown.

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Theresia N. Nannabati
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Robert E. Anderson
 Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS
 24' ROADWAY | 17" x 48" BEAMS
 STANDARD CB-2417-48



DIMENSION 'E'

GRADE	'D'=25°		'D'=30°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 1/2"	2 1/2"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/8"	2 7/8"	2"	2 7/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	1/2"	4 5/8"
Over 3% to 4%	0"	5 1/8"		

NOTES

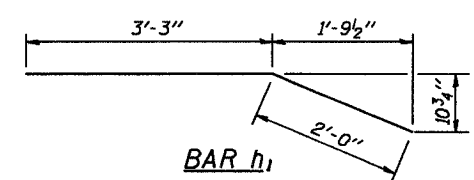
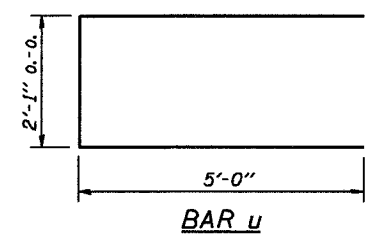
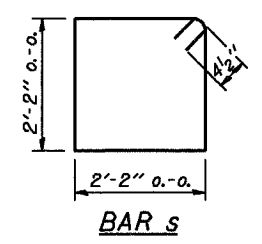
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

SPAN	TONS
25'	25
30'	26
35'	28
40'	30

DESIGN STRESSES

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



BILL OF MATERIAL FOR ONE ABUTMENT

Bar No.	Size	Length	Shape
h	16 #4	5'-0"	—
h1	4 #4	5'-3"	—
h2	6 #4	29'-2"	—
p	10 #7	29'-2"	—
s	30 #4	9'-5"	□
u	8 #6	12'-1"	□
v	8 #4	2'-6"	—
v1	8 #4	3'-5"	—
v2	58 #4	3'-1"	—
Concrete Structures			9.7 Cu. Yds.
Reinforcement Bars			1270 Lb.

P.P.C. DECK BEAMS		
PILE BENT ABUTMENT		
24' RDWY.	17" BMS.	'D'=25° OR 30°
STANDARD CA-2417-30		

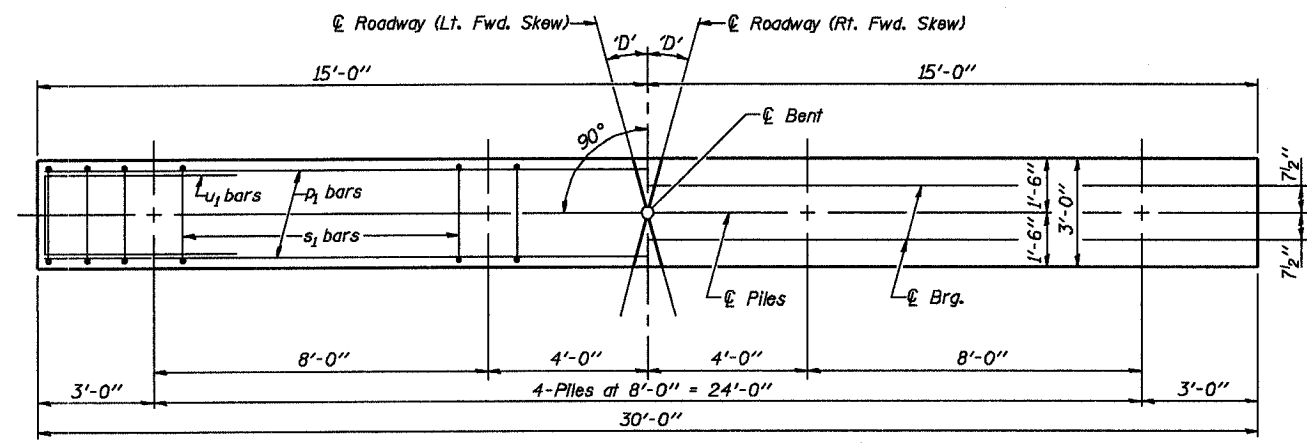
Illinois Department of Transportation

PASSED APRIL 4, 2005
Theresa S. Nannagalli
Engineer of Bridge Design

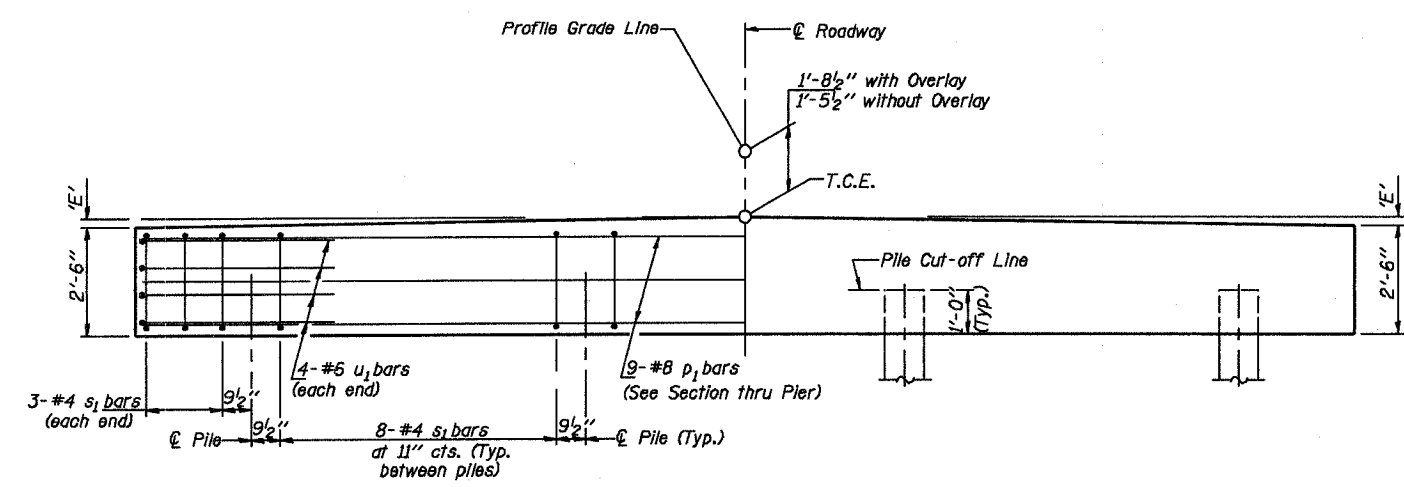
APPROVED APRIL 4, 2005
Ralph E. Anderson
Engineer of Bridges and Structures

ISSUED 1-1-88

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	10
FED. ROAD DIST. NO.	ILLINOIS	PROJECT	CONTRACT NO. 95461	



PLAN
(*D'* = Designated Skew Angle)



ELEVATION

DIMENSION 'E'

GRADE	<i>D'</i> = 25°		<i>D'</i> = 30°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 1/2"	2 1/2"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/8"	2 1/8"	2"	2 1/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	1/8"	4 5/8"
Over 3% to 4%	0"	5 1/8"		

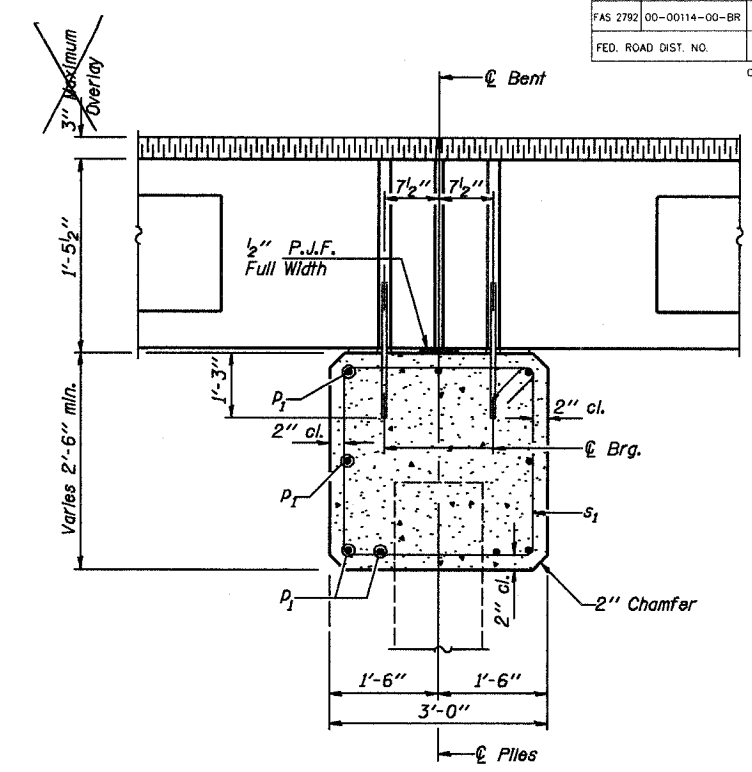
MAXIMUM PILE LOADS

SPAN	TONS
25'	34
30'	38
35'	42
40'	45

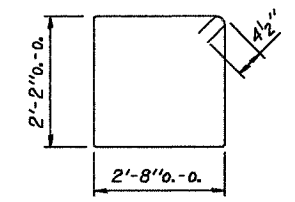
Longer of Either Span Supported by Pier.

DESIGN STRESSES

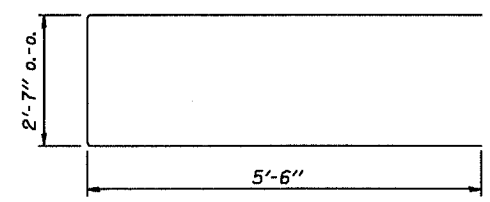
f' = 3,500 psi
f_y = 60,000 psi



SECTION THRU PIER
(At Right Angles)



BAR s₁



BAR u₁

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
<i>p</i> ₁	9	#8	29'-8"	—
<i>s</i> ₁	30	#4	10'-5"	□
<i>u</i> ₁	8	#6	12'-7"	—
Concrete Structures			8.7	Cu. Yds.
Reinforcement Bars			1070	Lb.

NOTE

Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.

P.P.C. DECK BEAMS PILE BENT PIER		
24' RDWY.	17" BMS.	<i>D'</i> = 25° OR 30°
STANDARD CP-2417-30		

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 (Theresa S. Nomanoff)
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 (Ralph E. Walker)
 Engineer of Bridges and Structures

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	11
FED. ROAD DIST. NO.	ILLINOIS	PROJECT		

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 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 A307 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 according to AASHTO M 232.

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

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

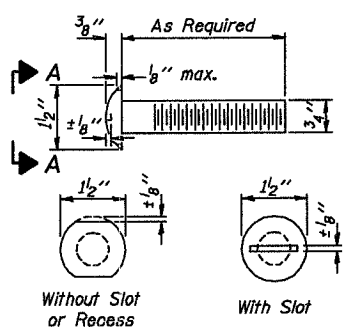
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

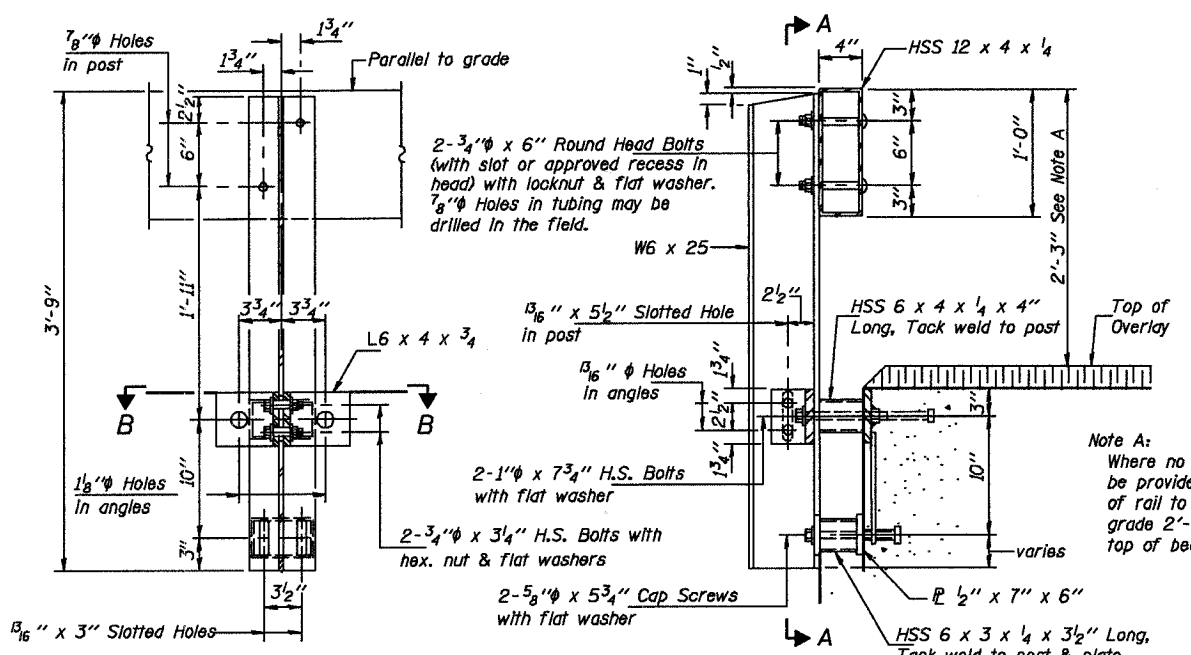
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/2" fabric bearing pads shall be placed between the plates and concrete.

The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (FX2) 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.

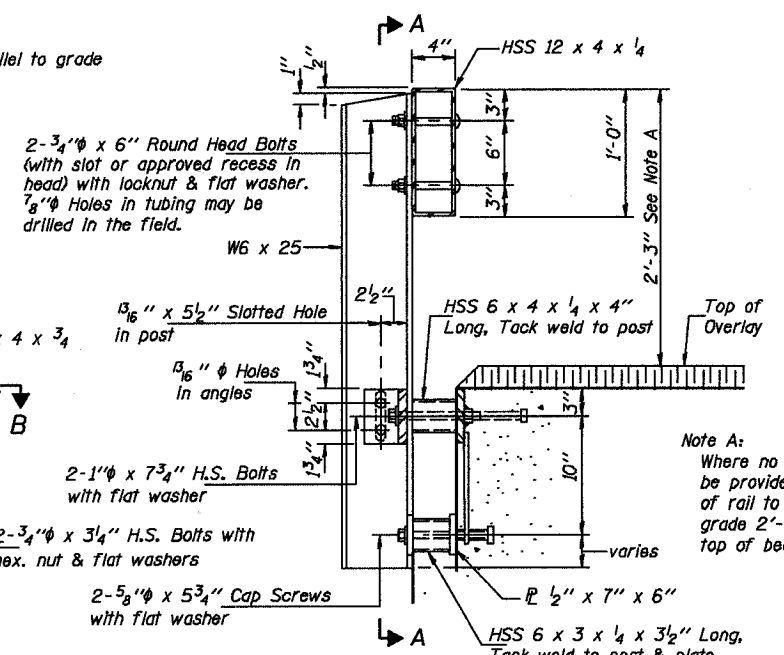
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



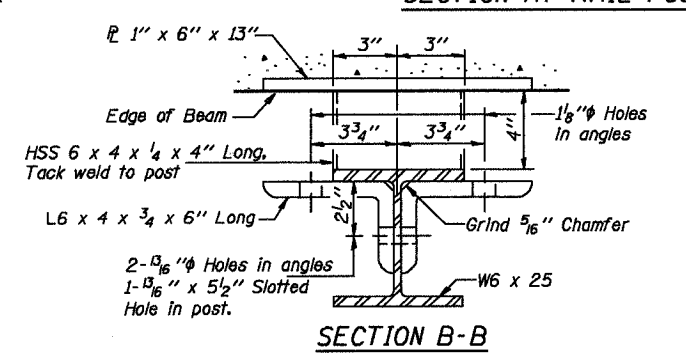
VIEW A-A
ROUND HEAD BOLT



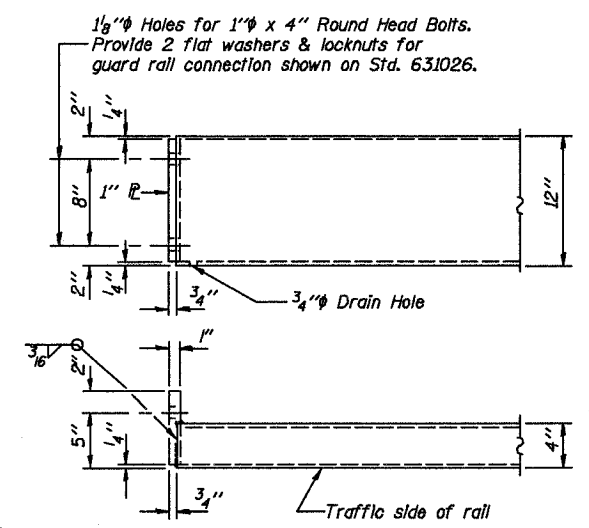
SECTION A-A



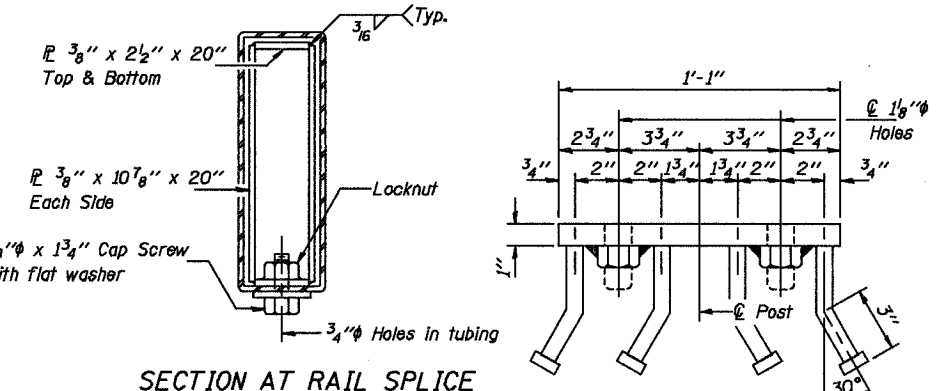
SECTION AT RAIL POST



SECTION B-B

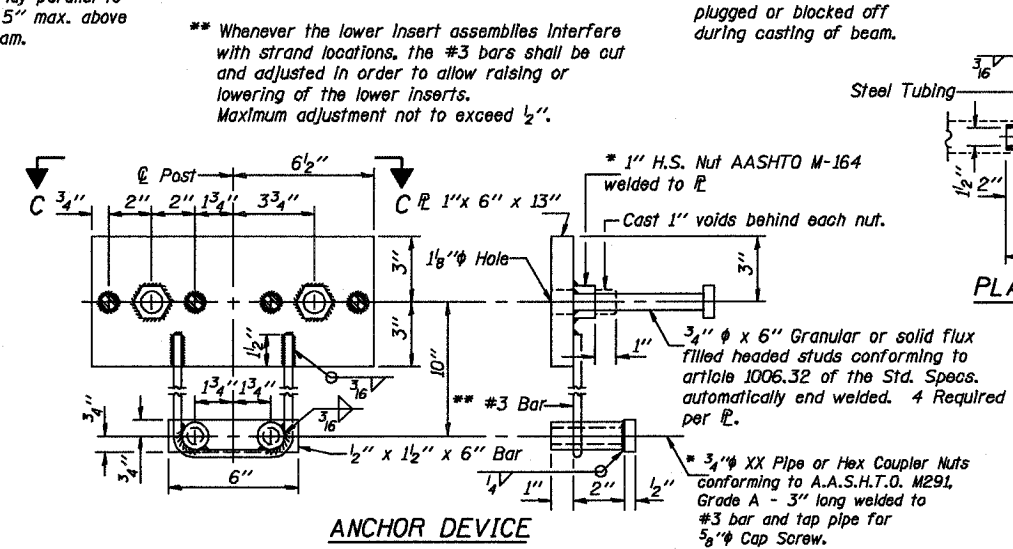


END OF RAIL DETAILS

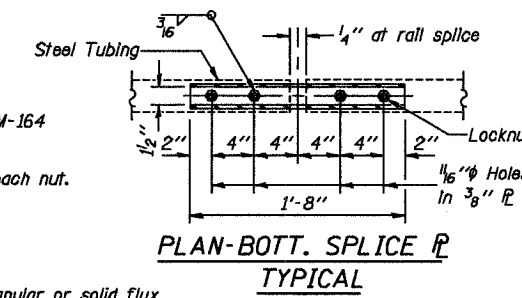


SECTION AT RAIL SPLICE

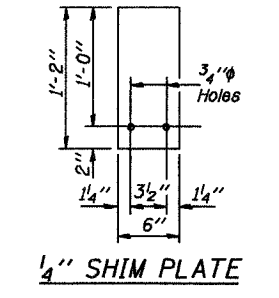
VIEW C-C



ANCHOR DEVICE



PLAN-BOTT. SPLICE TYPICAL



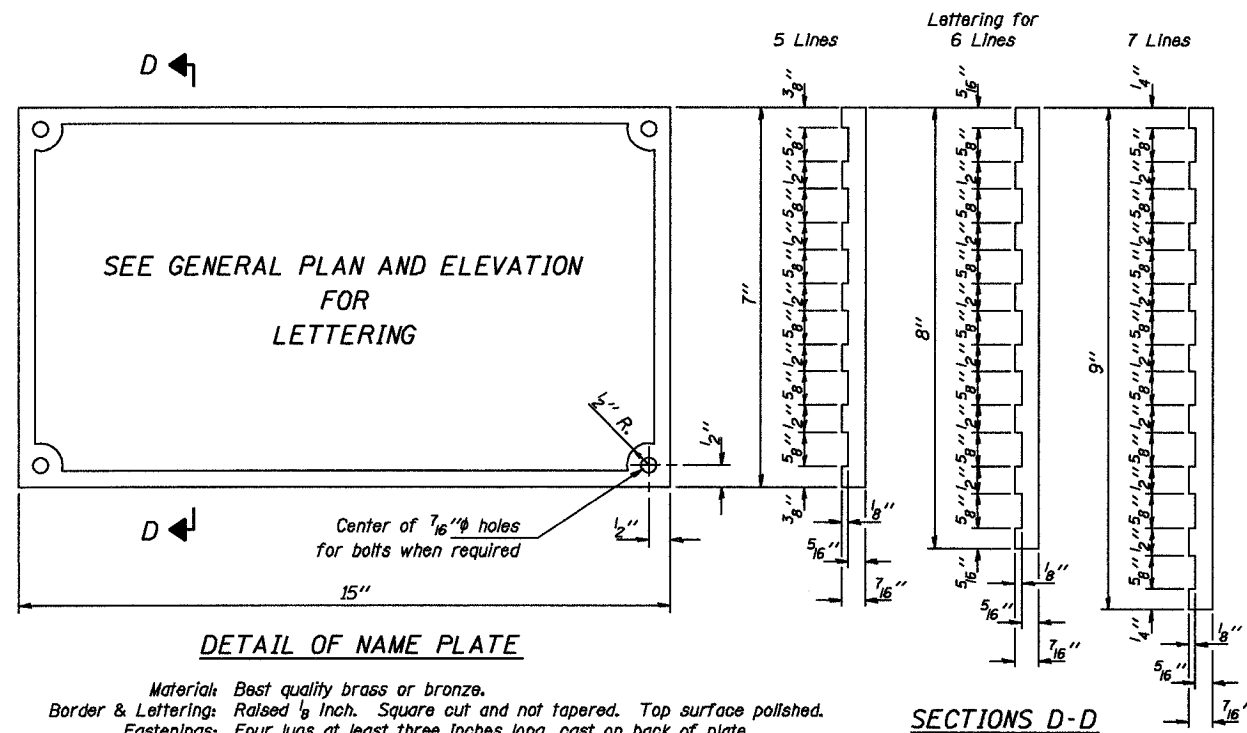
1/4 SHIM PLATE

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Nemejicki
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures

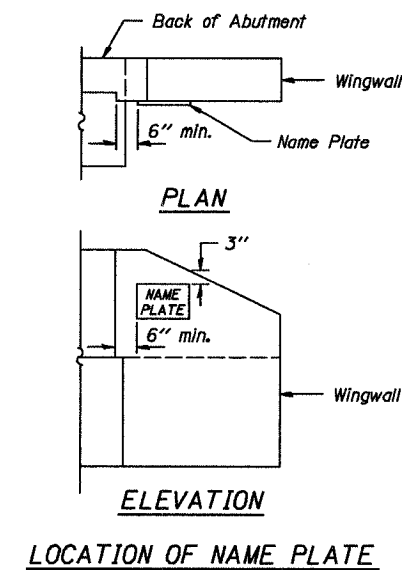
STEEL RAILING, TYPE S-1
STANDARD CR-TS1

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2782	00-00114-00-BR	MARION	14	12
FED. ROAD DIST. NO.	ILLINOIS	PROJECT		

CONTRACT NO. 95461



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.



Illinois Department of Transportation

PASSED APRIL 4, 2005

Thames S. Namagalla
 Engineer of Bridge Design

APPROVED APRIL 4, 2005

Ralph E. Anderson
 Engineer of Bridges and Structures

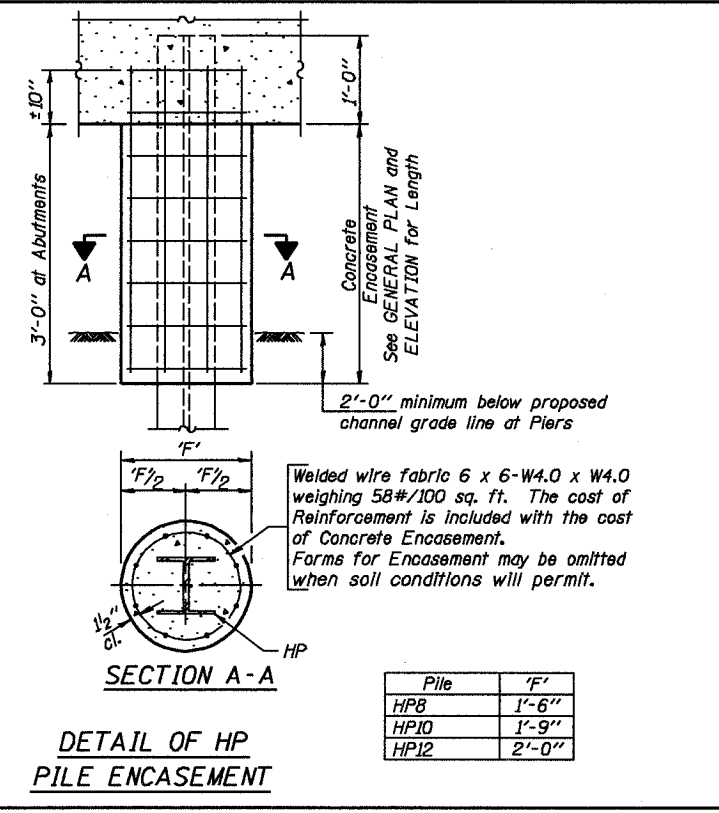
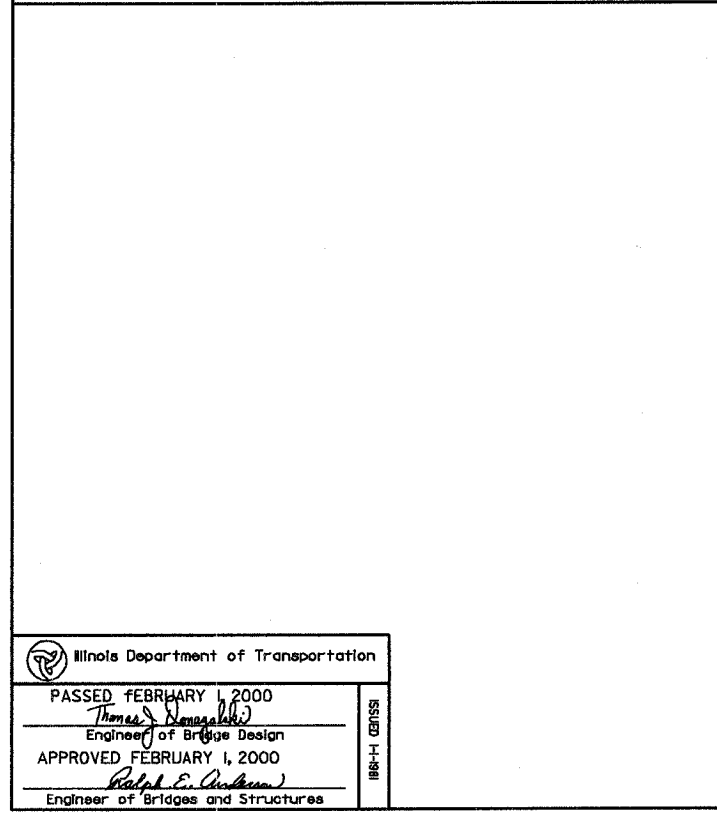
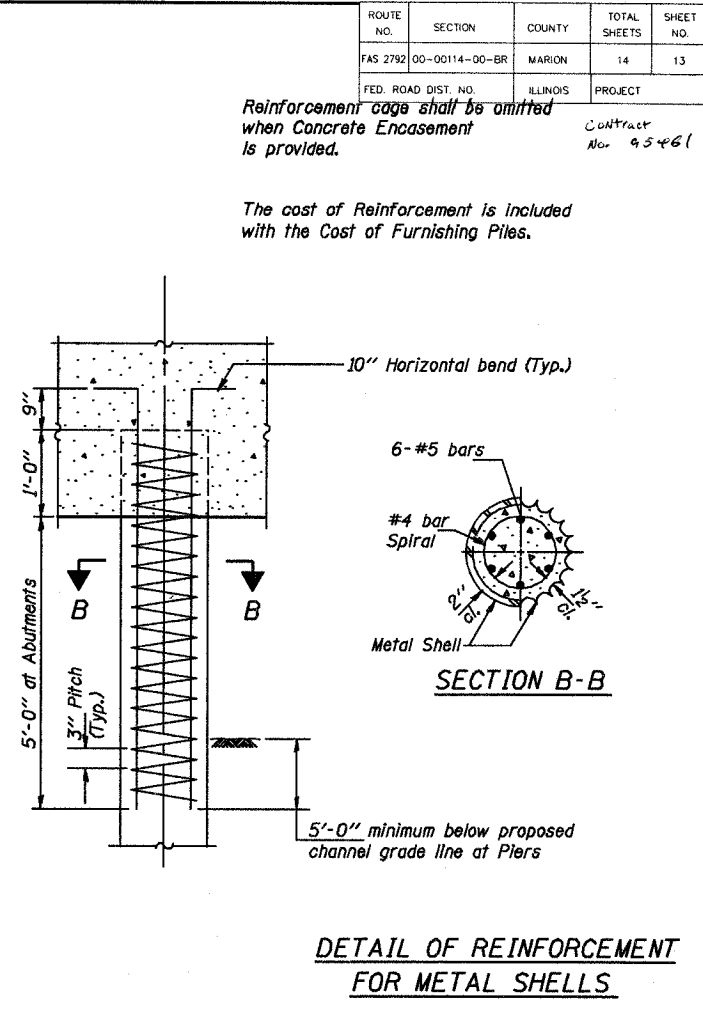
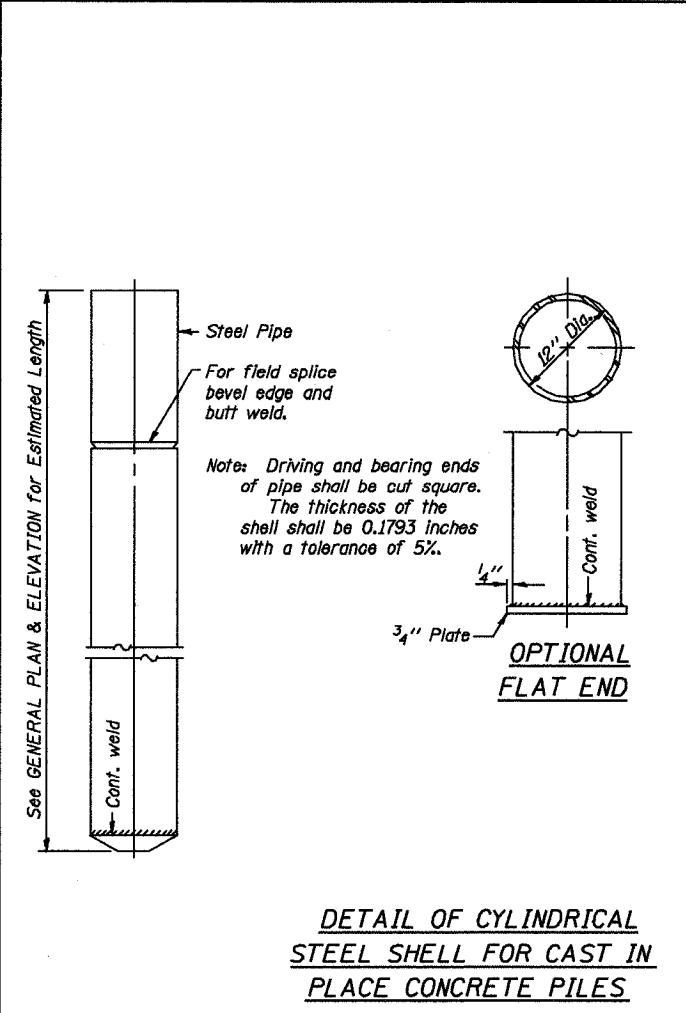
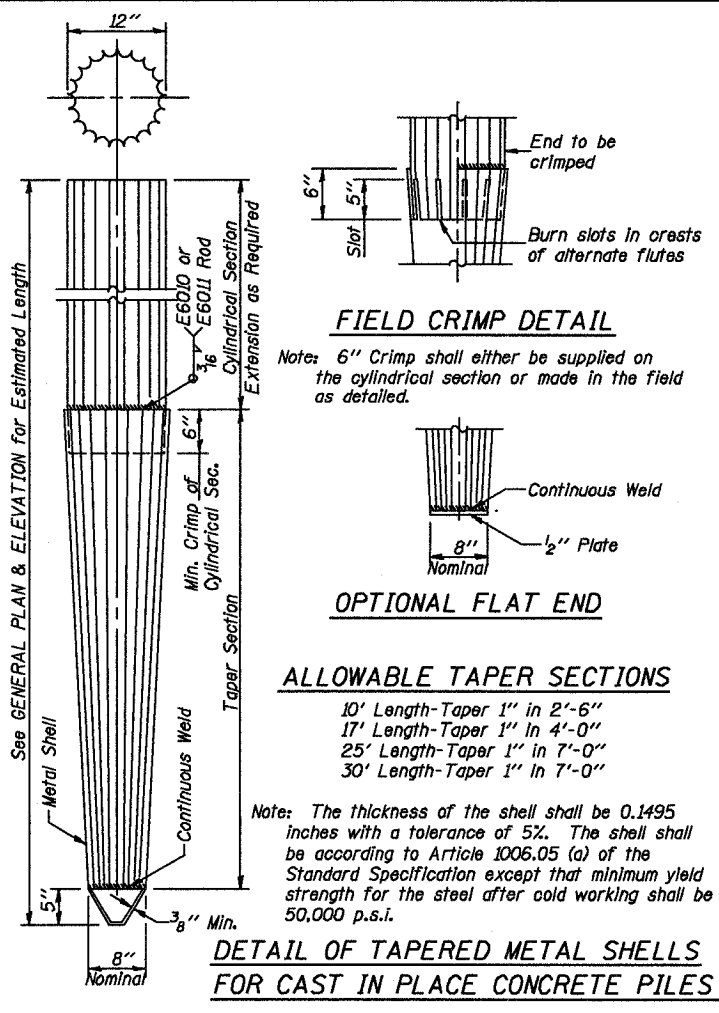
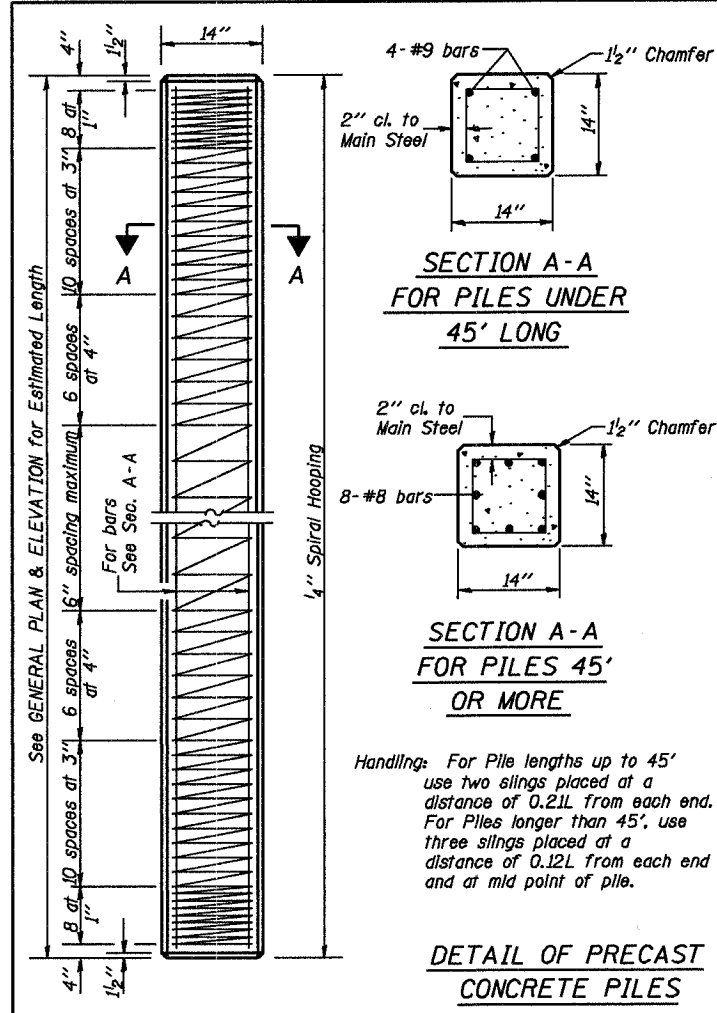
ISSUED 7-1-99B

NAME PLATE
 STANDARD CN

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	13
FED. ROAD DIST. NO.	ILLINOIS	PROJECT		

Reinforcement cage shall be omitted when Concrete Encasement is provided. Contract No. 95461

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



QUANTITIES/FT. OF ENCASEMENT (STEEL PILES)

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

(METAL SHELL PILES)

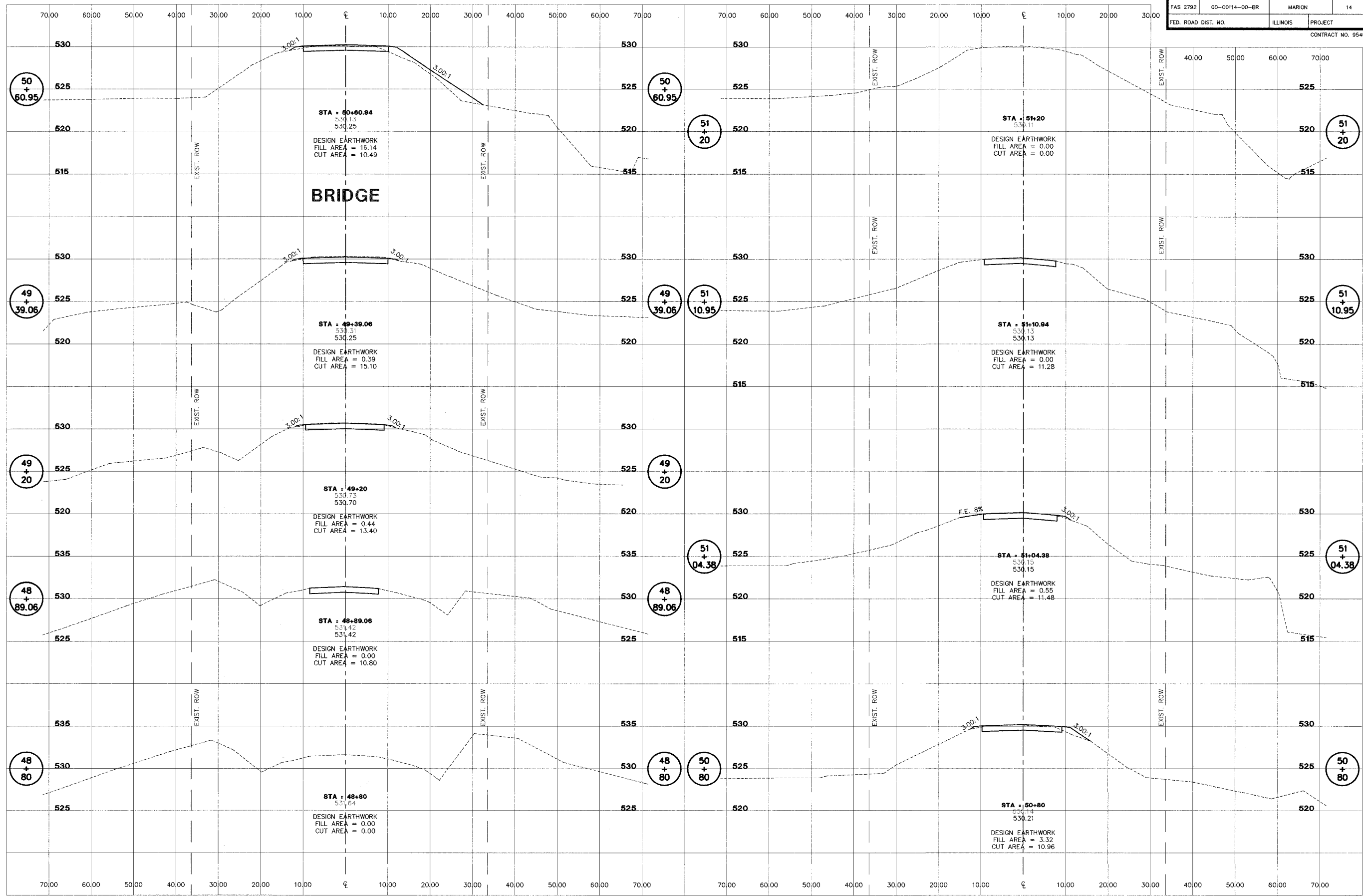
Pile Size	Item	Quantity
12" Dia.	Concrete Encasement	0.087 C.Y.

PILE DETAILS

STANDARD CX-1

Illinois Department of Transportation
PASSED FEBRUARY 1, 2000
Approved by: Thomas J. Romagnolo, Engineer of Bridge Design
APPROVED FEBRUARY 1, 2000
Approved by: Robert E. Anderson, Engineer of Bridges and Structures

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 2792	00-00114-00-BR	MARION	14	14
FED. ROAD DIST. NO.	ILLINOIS PROJECT		CONTRACT NO. 95461	



	2524 South Broadway Salem, Illinois 62881 Ph: (618) 548-3500 Fax: (618) 548-5246 IL Design Firm Registration No. 184-001518		FAS 2792 SECTION 00-00114-00-BR MARION COUNTY, ILLINOIS		CROSS SECTIONS STA. 48+80 TO STA. 51+20		SURVEY JAS DESIGN DJC,MRQ DRAWN JMW,BLT	CHECKED MRQ APPROVED	DATE 12-14-05 REVISED	JOB NO. 30132
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