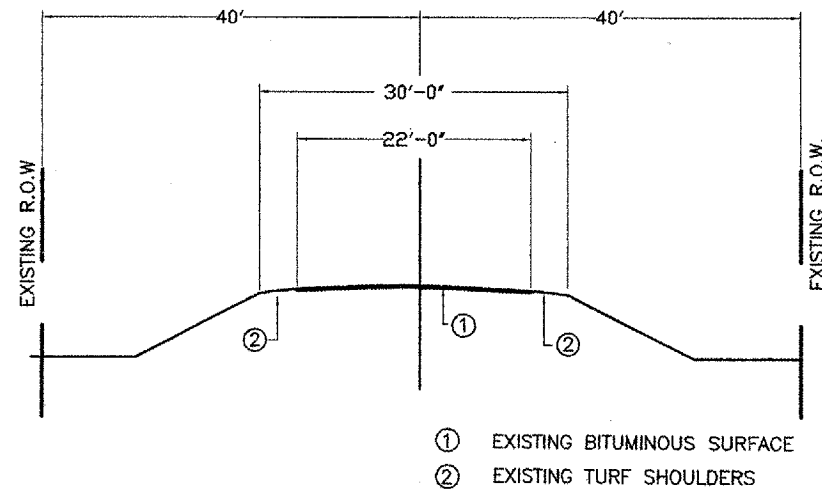


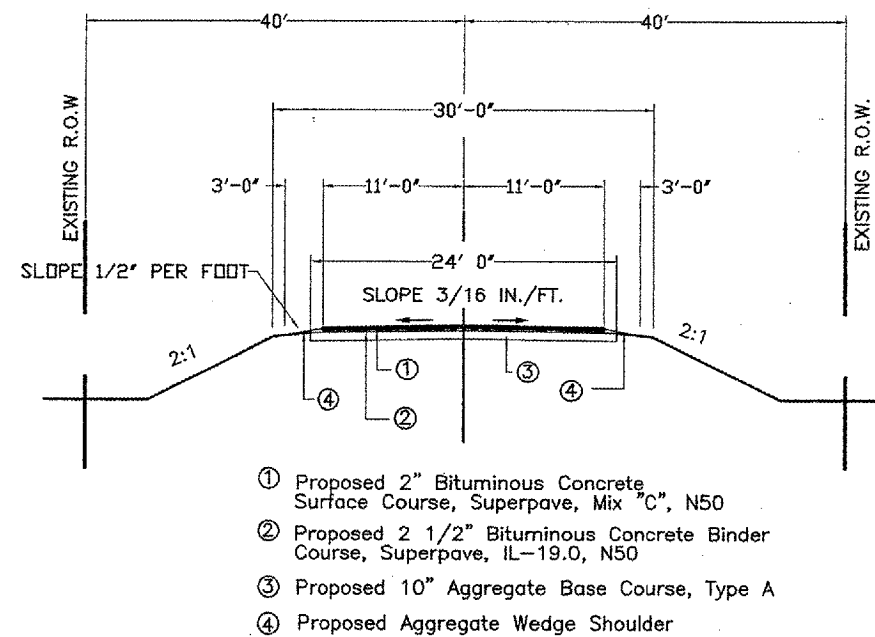
CONTRACT NO. 97279



EXISTING TYPICAL SECTION

STA. 26+60 TO STA. 27+60.25
STA. 29+11.75 TO STA. 29+56.07

SCALE: 1"=10'



PROPOSED TYPICAL SECTION

STA. 26+60 TO STA. 27+60.25
STA. 29+11.75 TO STA. 29+56.07

QUANTITIES USED FOR ESTIMATING

BITUMINOUS MATERIALS (PRIME COAT)

0.3 GAL/SQ.YD. (AGGREGATE BASE)
0.05 GAL/SQ.YD. (BITUMINOUS SURFACE)

SUMMARY OF QUANTITIES

BRIDGE CONSTR CODE - X081 - 2A

Quantity	Unit	Item	Item Number
50	TON	POROUS GRANULAR EMBANKMENT	20700110
204	TON	STONE DUMPED RIPRAP CLASS A4	28100807
22	TON	AGGREGATE BASE COURSE, TYPE A	35100100
18	GALLON	BITUMINOUS MATERIAL (PRIME COAT)	40600100
1	L SUM	REMOVAL OF EXISTING STRUCTURES	50100200
38	CU YD	CONCRETE STRUCTURES	50300225
4200	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	50400505
4340	POUND	REINFORCEMENT BARS	50800105
300	FOOT	STEEL BRIDGE RAIL, TYPE SM	50901005
1591	FOOT	FURNISHING STEEL PILES HP10X42	51201400
1591	FOOT	DRIVING STEEL PILES	51202700
2	EACH	TEST PILE STEEL HP10X42	51203400
14.4	CU YD	CONCRETE ENCASEMENT	51204315
1	EACH	NAME PLATES	51500100
467	SQ YD	WATERPROOFING MEMBRANE SYSTEM	58100200
900	FOOT	PORTLAND CEMENT MORTAR FAIRING COURSE	58300100
4	EACH	REMOVE AND RE-ERECT TRAFFIC BARRIER TERMINAL, TYPE 1A	63301995
4	EACH	REMOVE AND RE-ERECT TRAFFIC BARRIER TERMINAL, TYPE 5A	63302500
1	L SUM	MOBILIZATION	67100100
4	EACH	TERMINAL MARKER-DIRECT APPLIED	78201000
81	TON	BITUMINOUS CONCRETE SURFACE COURSE, SUPERPAVE, MIX "C", N50	X4066414
25	TON	BITUMINOUS CONCRETE BINDER COURSE, SUPERPAVE, IL-19.0, N50	X4066614
1	EACH	STRUCTURE EXCAVATION PROTECTION FOR PILE BENTS NO. 1	X5020301
1	EACH	STRUCTURE EXCAVATION PROTECTION FOR PILE BENTS NO. 2	X5020302

GENERAL NOTES

- All advance warning signs shall be 48 in. Fluorescent Orange.
- Pavement Marking to be done by others.

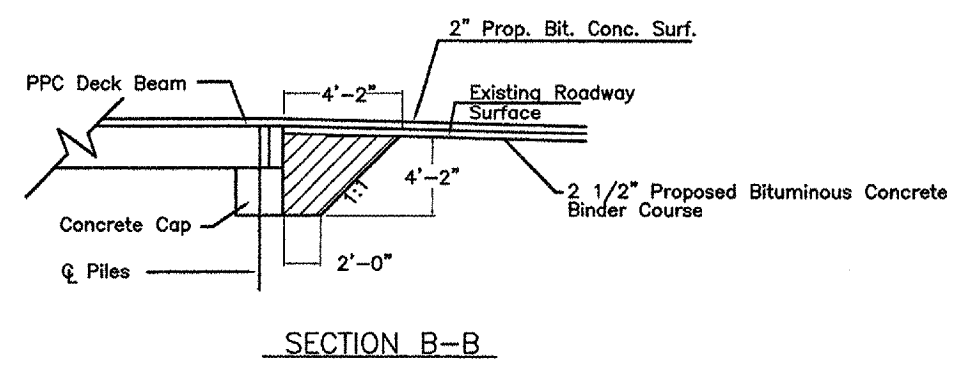
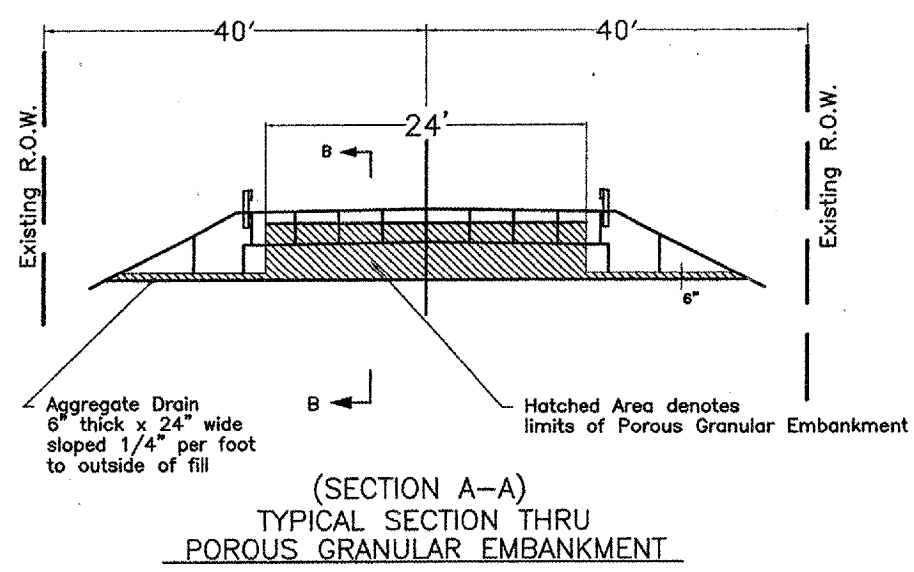
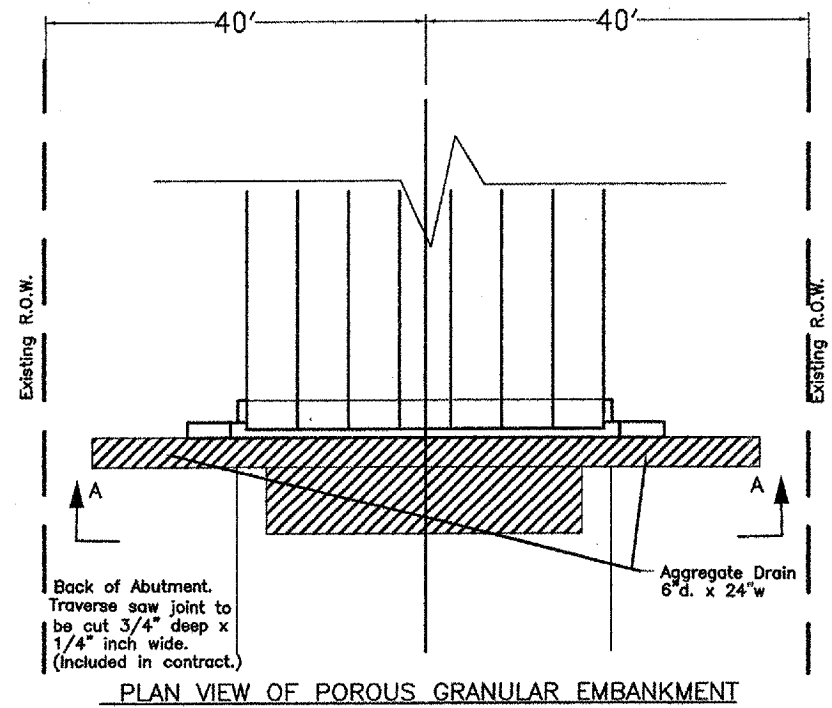
CONTRACT NO. 97279

PAVING SCHEDULE

LOCATION	AGG BASE CSE TA TON	BIT. CONC. BINDER TON	BIT. SURF. CSE TON
STA. 27+10 TO STA. 27+60.25	11	17	
STA. 29+11.75 STA. 29+36.07	11	8	
STA. 26+60 TO STA. 29+58.07			81
TOTAL	22	25	81

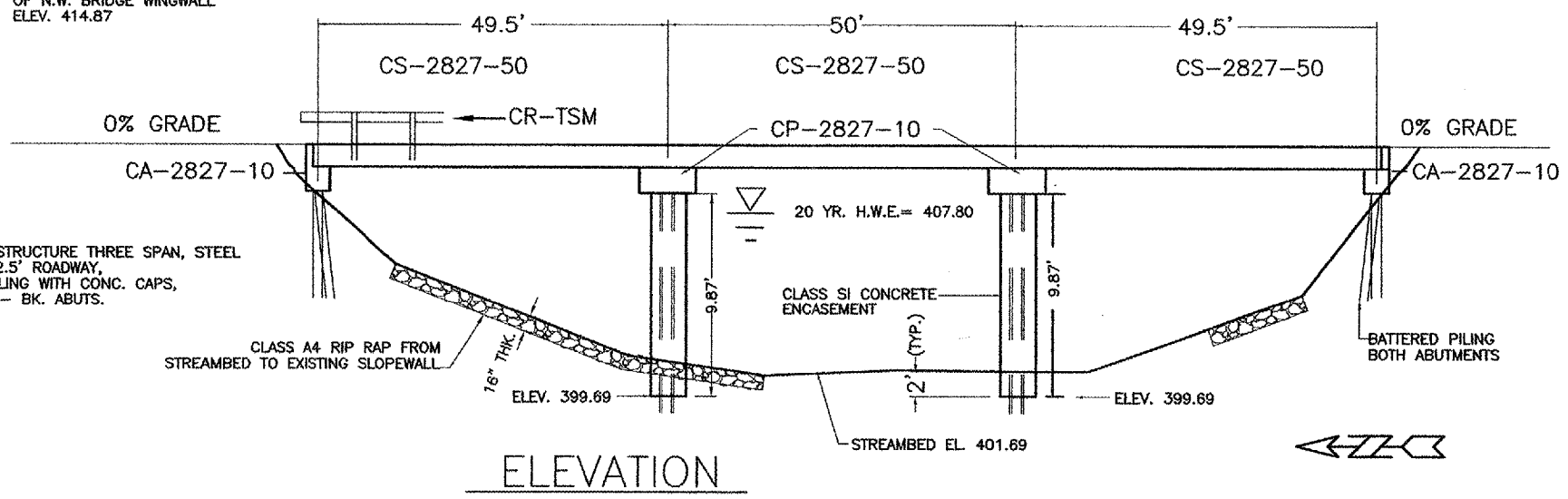
MIXTURE REQUIREMENTS -- SUPERPAVE PROJECT

MIXTURE USE	SURFACE	BINDER
AC/PG	PG 64-22	PG 64-22
RAP % (MAX)	0	0
DESIGN AIR VOIDS	4.0% @ Ndes=50	4.0% @ Ndes=50
MIX COMPOSITION (GRADATION MIXTURE)	9.5	IL 19.0
FRICITION AGG	MIXTURE C	MIXTURE B

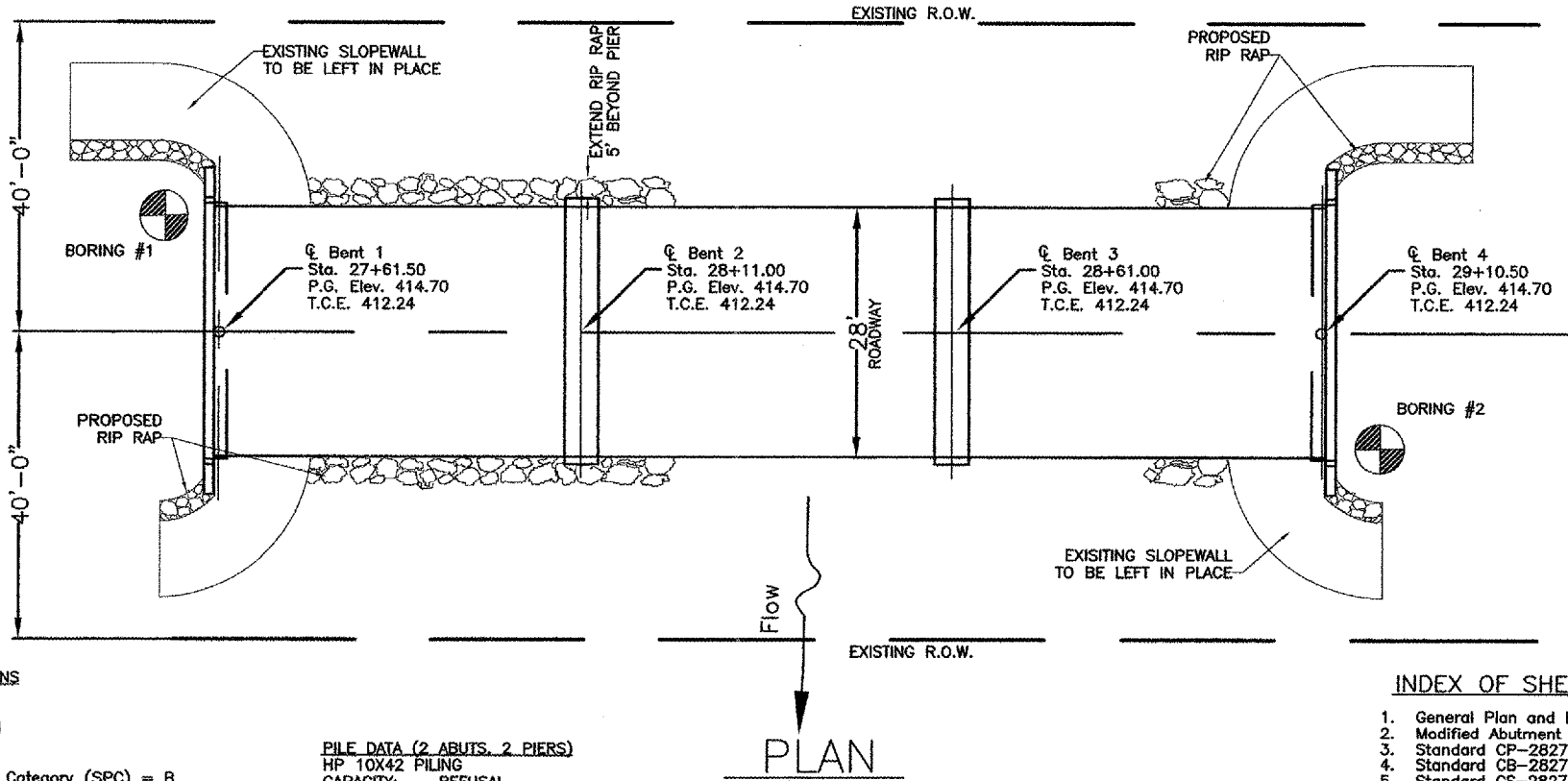


CONTRACT NO. 97279

B.M.#1 - CHISELED SQUARE ON TOP OF N.W. BRIDGE WINGWALL ELEV. 414.87



EXISTING STRUCTURE THREE SPAN, STEEL BEAMS, 22.5' ROADWAY, TIMBER PILING WITH CONC. CAPS, 162' BK. - BK. ABUTS.



DESIGN SPECIFICATIONS
1996 AASHTO
HS 20 LOADING
LOAD FACTOR DESIGN

SEISMIC DATA
Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 0.135g
Site Coefficient (S) = 1.5

PILE DATA (2 ABUTS, 2 PIERS)
HP 10X42 PILING
CAPACITY: REFUSAL
ESTIMATED LENGTH

74 FT BENT NO. 1
73 FT BENT NO. 2
72 FT BENT NO. 3
70 FT BENT NO. 4

NO. REQ'D: 5 EACH ABUTMENT
7 EACH PIER
TOTAL: 24
(INCLUDES 1 TEST PILE IN EACH ABUTMENT)

COX CREEK
BUILT 2006 BY
RANDOLPH COUNTY
SEC 05-00039-04-BR
STATION 28+36
STR NO 079-3194 LOADING HS20

LETTERING FOR NAME PLATE
LOCATE THE NAME PLATE AT THE NORTHWEST CORNER OF BRIDGE (SEE STANDARD CN)

GENERAL NOTES

- Class SI Concrete shall be used throughout except in the deck beams.
- See the special provisions for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for the Precast Prestressed Concrete Deck Beams.
- Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60. The top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specification except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a minimum of 1/4".
- In addition to all other requirements of section 512 of the Standard Specifications, splices for H-piles shall develop the full capacity of the steel's cross sectional area of the pile for tension, shear and bending forces. One approved method of achieving this requirement is full penetration butt welding of the entire cross section. Other types of splices meeting the full capacity requirements may be allowed subject to the approval of the Engineer. Any proposal by the contractor to use an alternate splice method must include adequate documentation demonstrating that the full tension, shear and bending capacities will be met. Appropriate welder qualifications will be required for the positions and processed used in splicing all piles. Nondestructive testing of completed welds will be limited to visual inspection.
- The Article or Section numbers referencing the Standard Specifications for Road and Bridge Construction as shown on the standard bridge plan sheets included with the contract plans should be interpreted as referring to the current edition of the Standard Specification (Adopted January 1, 2002) as shown in the "Article/Section No. Reference Table".

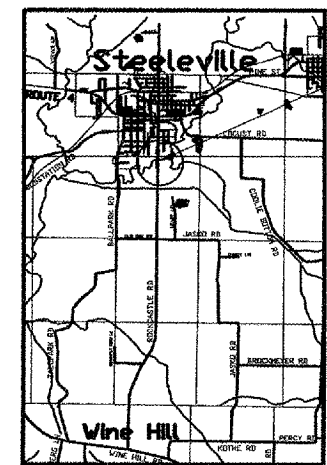
ARTICLE/SECTION NO. REFERENCE TABLE

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

TOTAL BILL OF MATERIAL

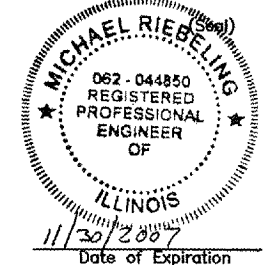
Item	Unit	Super	Sub Struct.		Total
			Piers	Abuts.	
Removal of Existing Structures	L. Sum				1
Bit Conc Surf Cse, Super. Mix C, N50	Tons	53			53
Waterproofing Membrane System	Sq Yd	467			467
Concrete Structures	Cu Yd		17.2	20.8	38
P.P. Conc. Deck Beams 27" DP	Sq Ft	4200			4200
Steel Bridge Rail, Type SM	Foot	300			300
Reinforcement Bars	Pound		1760	2580	4340
Test Piles HP 10X42	Each			2	2
Furnishing Steel Piles HP 10X42	Foot		1015	576	1591
Driving Steel Piles	Foot		1015	576	1591
Name Plates	Each	1			1
Class SI Conc Encasement	Cu Yd		11.8	2.6	14.4
Stone Dumped Riprap CI A4	Ton		141	63	204

R.5W. 3rd P.M.



These Plans were prepared by me or a member of my staff working under my direct supervision

Michael Riebeling 3/09/06
County Engineer Date



INDEX OF SHEETS

- General Plan and Elevation
- Modified Abutment Base Sheet
- Standard CP-2827-10
- Standard CB-2827-48
- Standard CS-2827-50
- Standard CR-TSM
- Standard CX-1
- Standard CN

WATERWAY INFORMATION

DRAINAGE AREA=46.7 SQ MI LOW GRADE ELEVATION 414.70 AT STATION 28+36

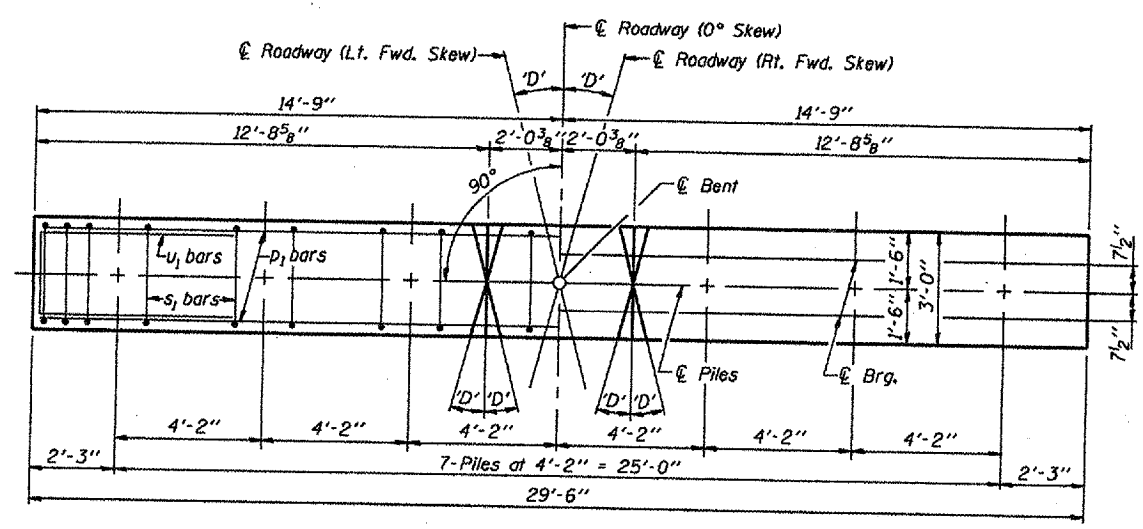
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head-Ft.		Headwater Elev.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
DESIGN	20	4393	605	605	407.80	0.79	0.79	408.59	408.59
BASE	100	5794	675	675	408.37	1.05	1.05	409.42	409.42
Max Calc	500								

GENERAL PLAN & ELEVATION

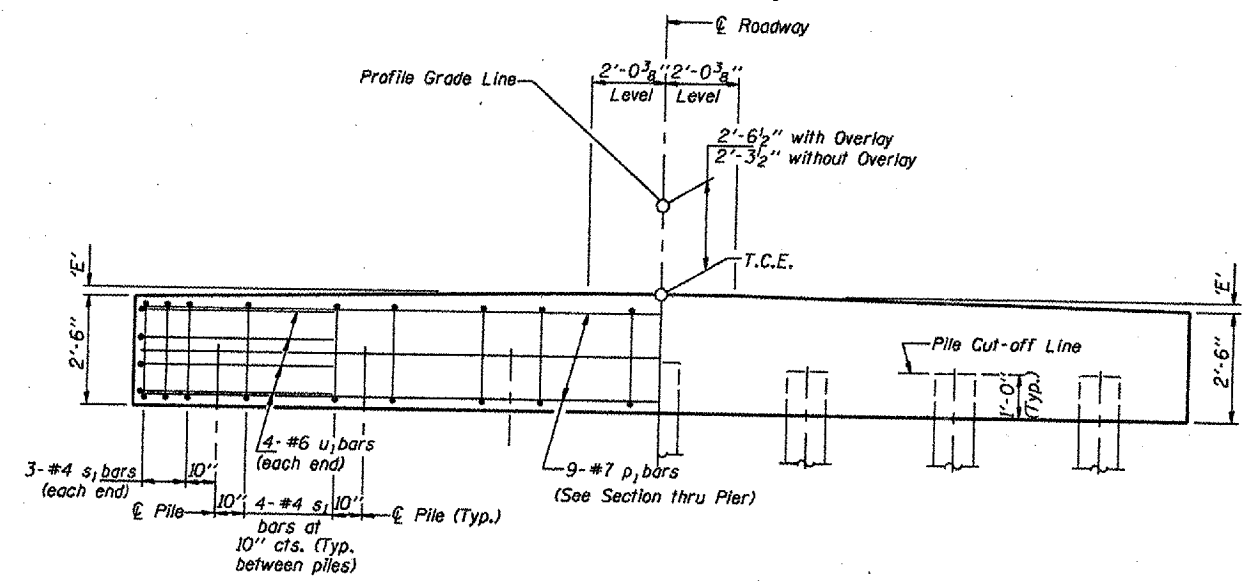
COUNTY HIGHWAY 19
OVER COX CREEK

SECTION 05-00039-04-BR
RANDOLPH COUNTY
STATION 28+36

97279



PLAN
(*D' = Designated Skew Angle)



ELEVATION

DIMENSION 'E'

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

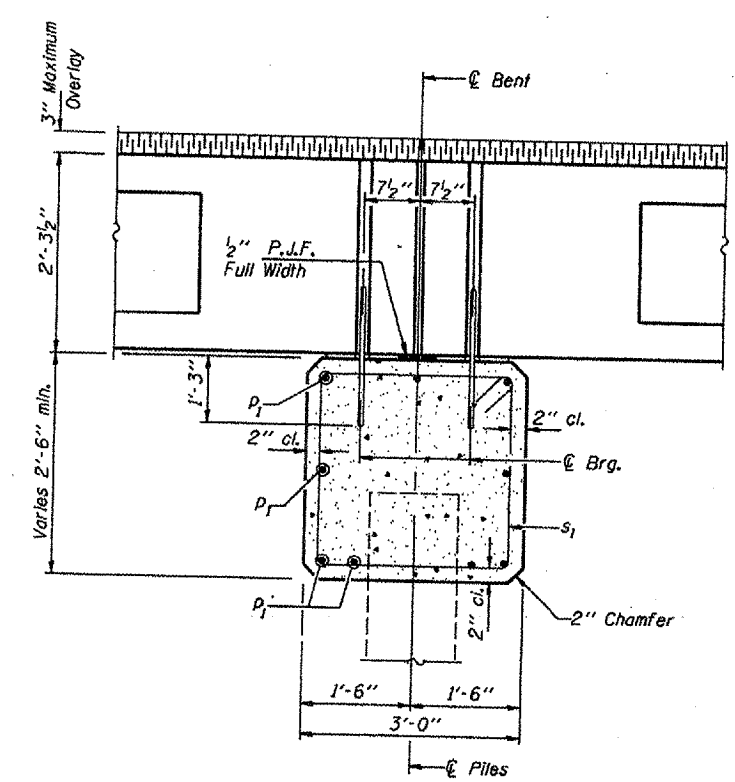
MAXIMUM PILE LOADS

SPAN	TONS
40'	33
50'	38
60'	43

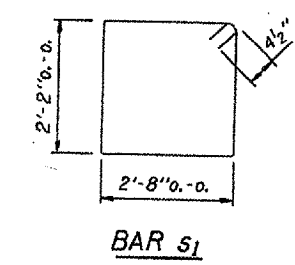
Longer of Either Span Supported by Pier.

DESIGN STRESSES

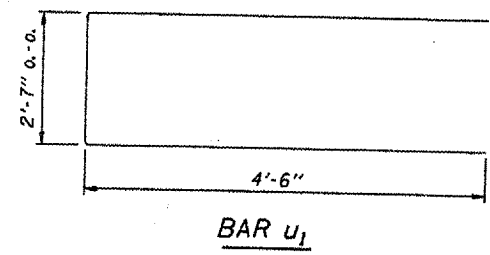
f'c = 3,500 psi
fy = 60,000 psi



SECTION THRU PIER
(At Right Angles)



BAR s1



BAR u1

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p1	9	#7	29'-2"	—
s1	30	#4	10'-5"	□
u1	8	#6	11'-7"	□
Concrete Structures			8.6	Cu. Yds.
Reinforcement Bars			880	Lb.

NOTE

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

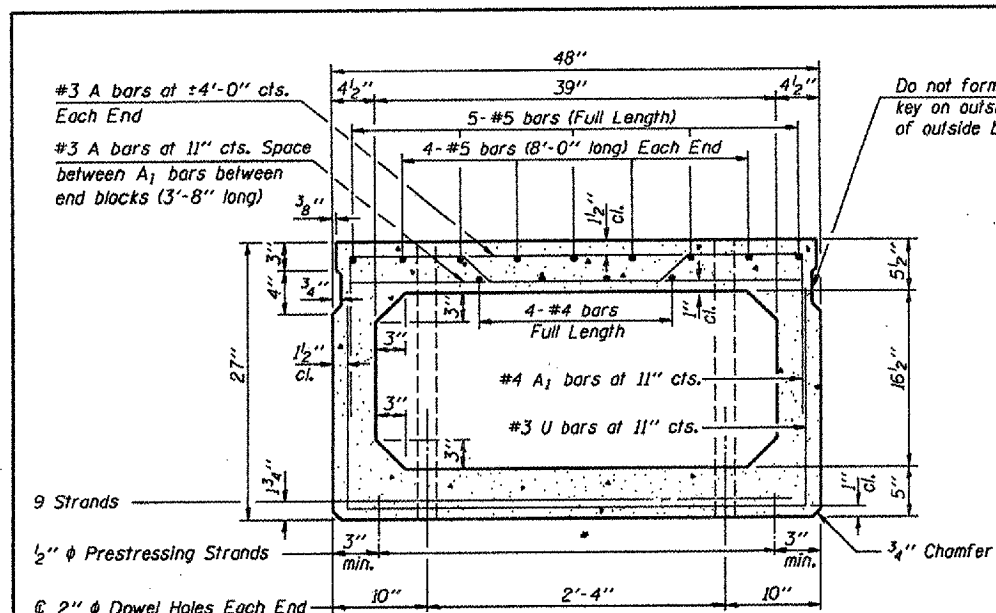
P.P.C. DECK BEAMS PILE BENT PIER		
28' RDWY.	27" BMS.	'D'=0°, 5° OR 10°
STANDARD CP-2827-10		

Illinois Department of Transportation

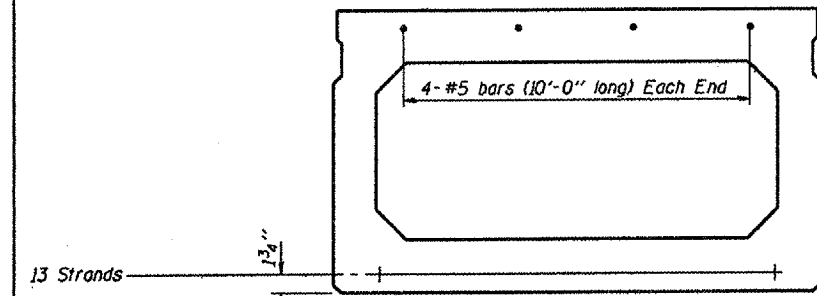
PASSED APRIL 4, 2005
Thomas J. Pannaloni
 Engineer of Bridge Design

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

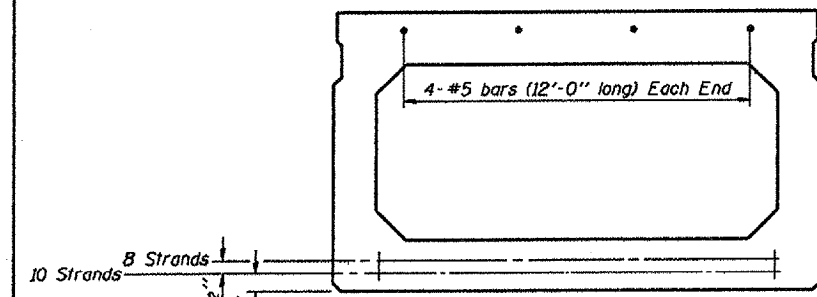
188-1-1 (2/95)



CROSS SECTION
(40' SPAN)

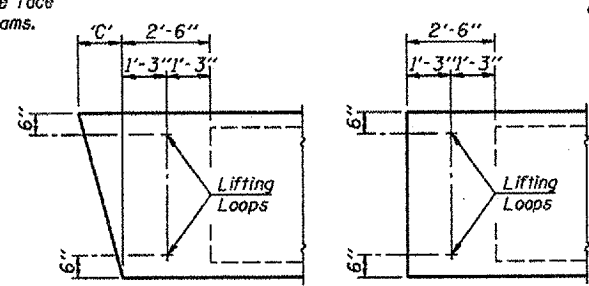


CROSS SECTION
(50' SPAN)



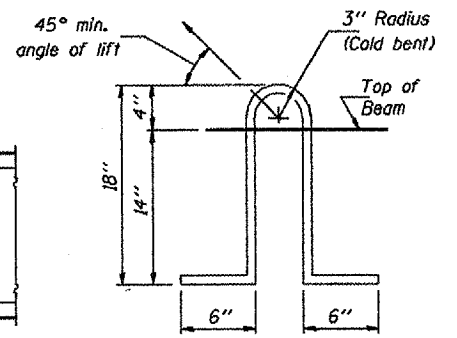
CROSS SECTION
(60' SPAN)

Do not form longit. key on outside face of outside beams.



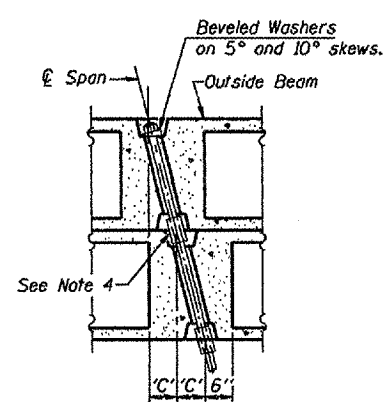
END BLOCK DETAILS

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.

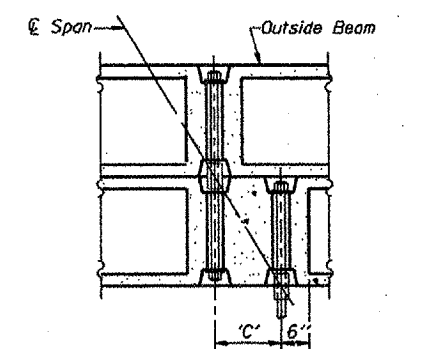


LIFTING LOOP DETAIL

Lifting loops shall be 3. 1/2" φ 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



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



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

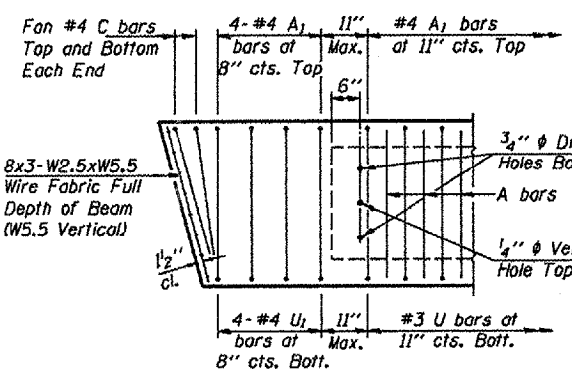
DIMENSION 'C'

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

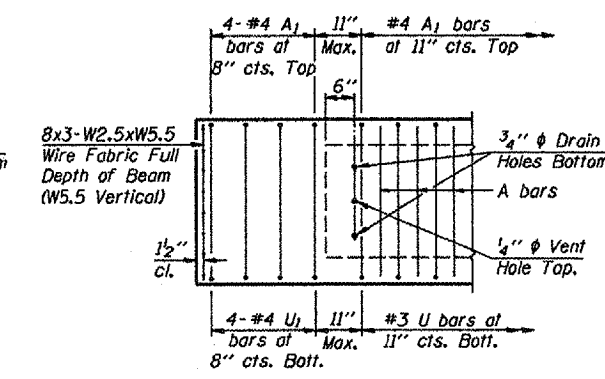
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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 1/2".

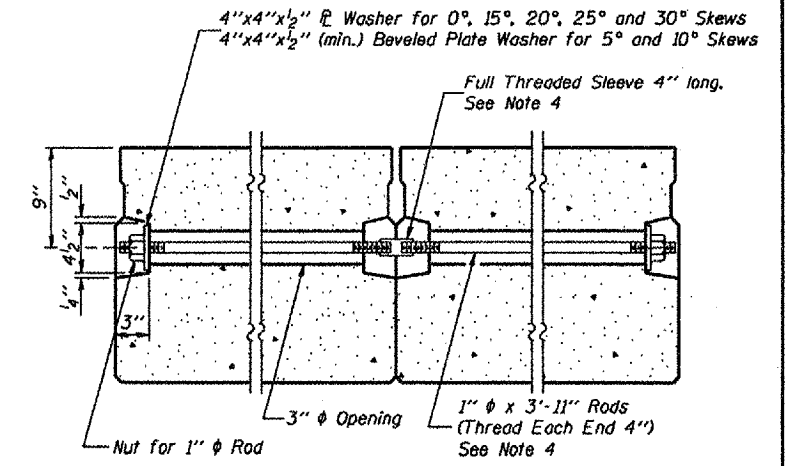
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
(SKEWED)



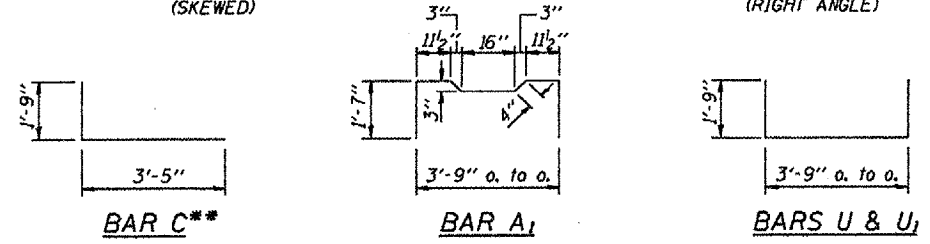
END REINFORCEMENT
(RIGHT ANGLE)



SECTION ALONG TRANSVERSE TIE ASSEMBLY
(REQUIRED FOR 50' & 60' SPANS ONLY)

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. On 0°, 5° and 10° skew angles, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When 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".
7. Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.



DESIGN STRESSES

- f_c = 5,000 p.s.i.
- f_c' = 4,000 p.s.i.
- f_s = 270,000 p.s.i. (1/2" φ Strand)
- f_{sl} = 201,960 p.s.i. (1/2" φ Strand)
- f_y = 60,000 p.s.i.

MIN. BAR LAP

- #4 bars = 1'-4"
- #5 bars = 1'-8"

NOTE
The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

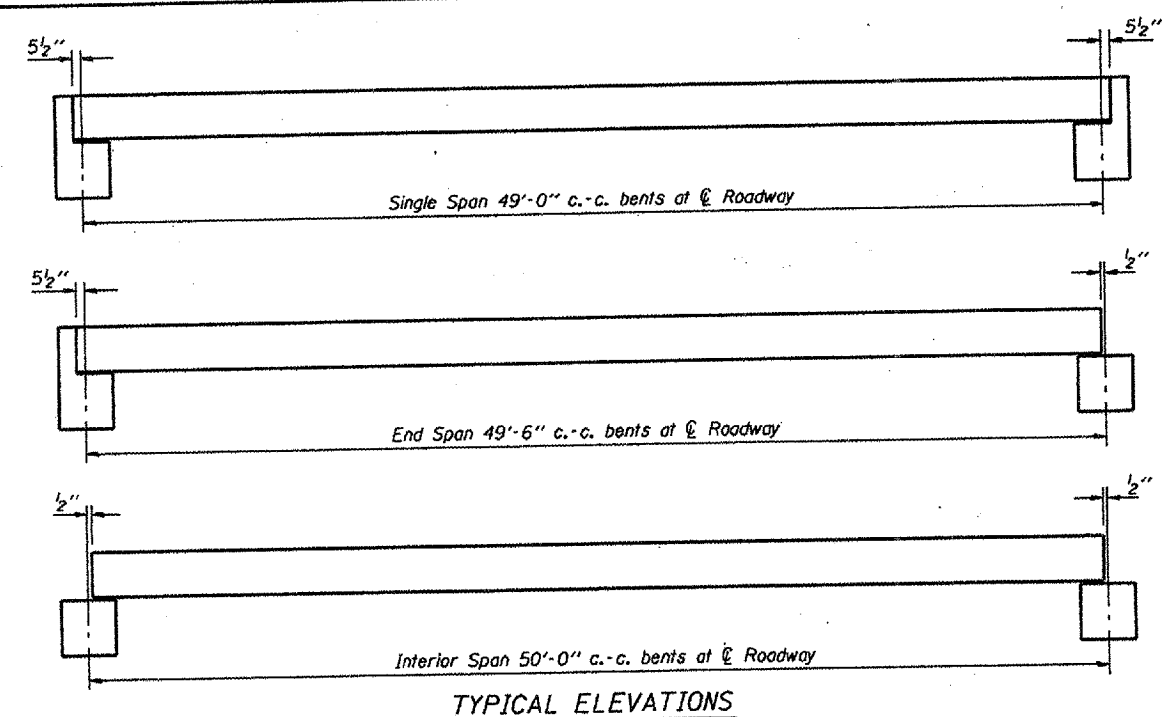
****NOTE:**
The following number of C bars shall be used:

Skew	No.
5° and 10°	1
15° and 20°	2
25° and 30°	3

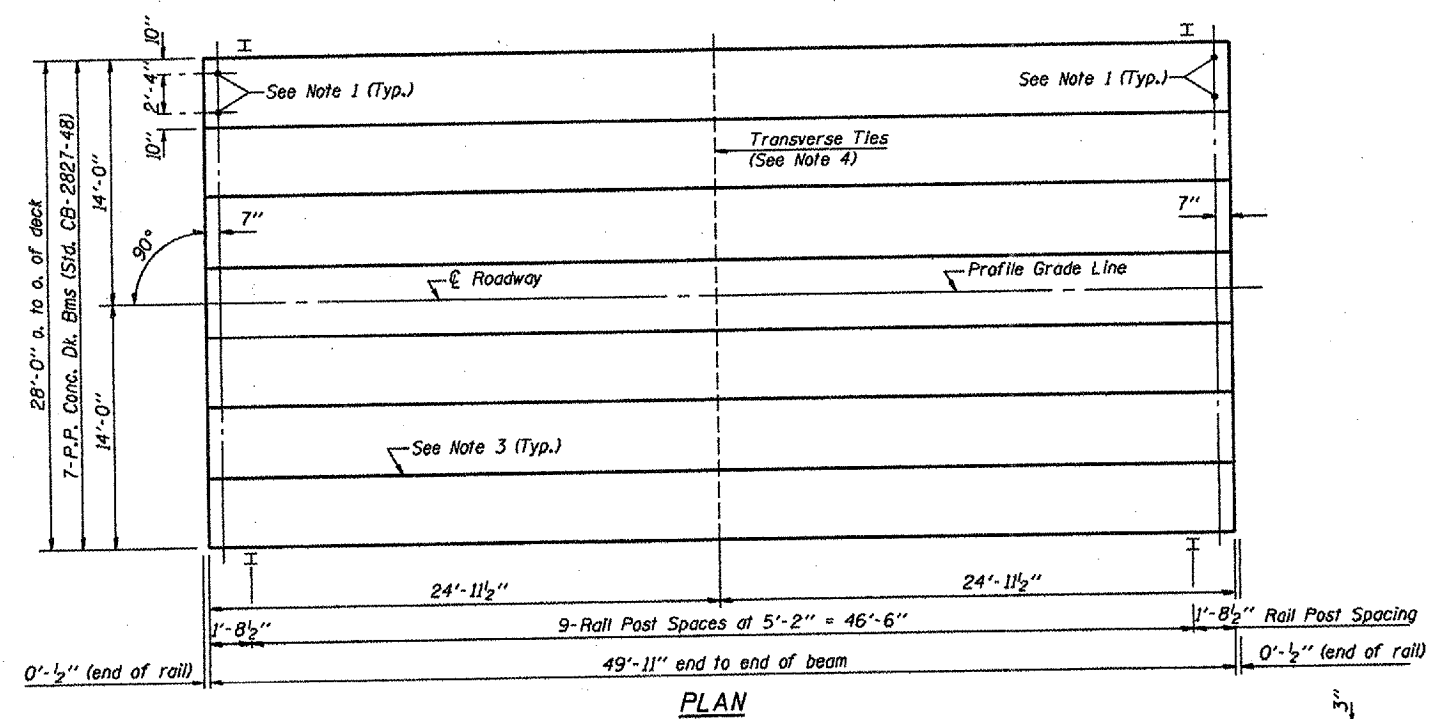
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas S. Romanowski
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Robinson
 Engineer of Bridges and Structures

P.P.C. DECK BEAM DETAILS

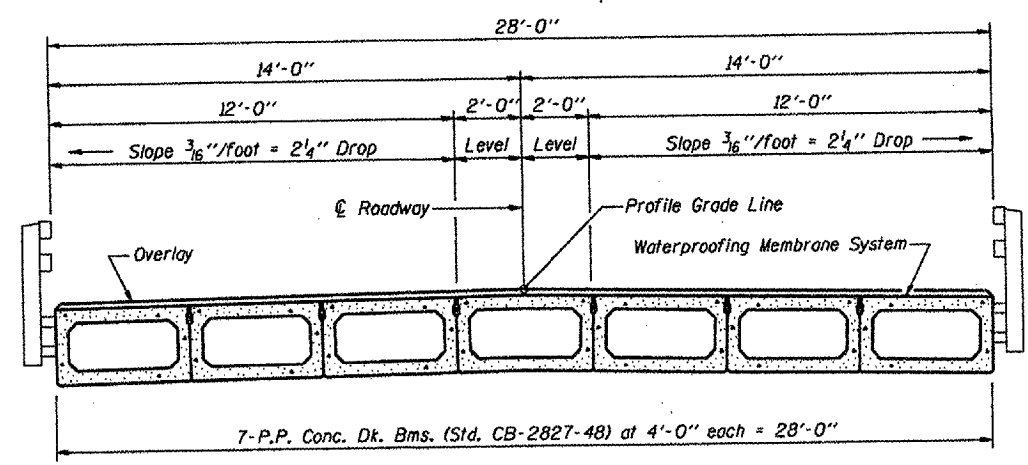
28' ROADWAY	27" x 48" BEAMS
STANDARD CB-2827-48	



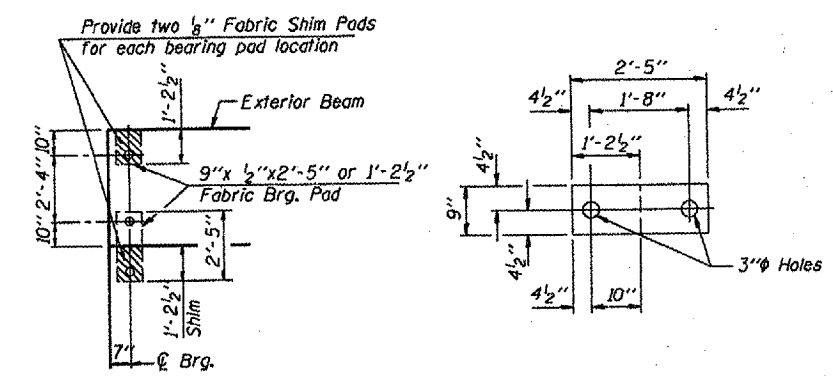
TYPICAL ELEVATIONS



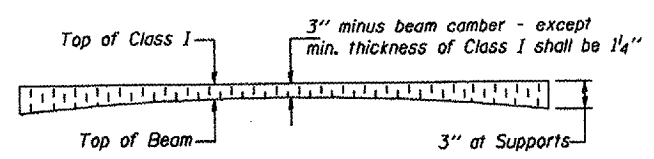
PLAN



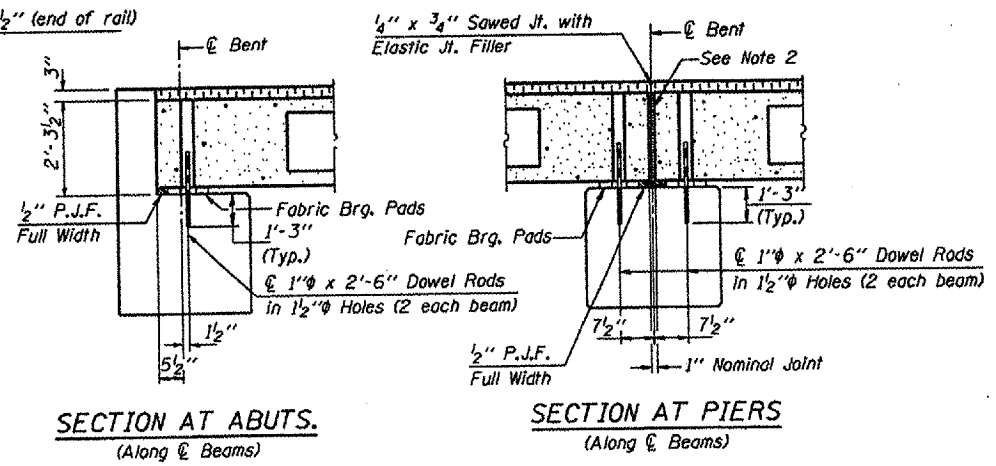
CROSS SECTION



1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



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

SECTION AT PIERS
(Along C.R. Beams)

NOTES

1. 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.
2. Nominal 1" joint at C.R. Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.
4. The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.

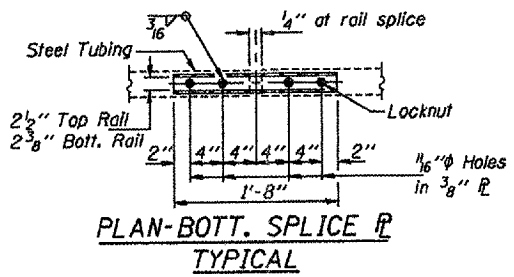
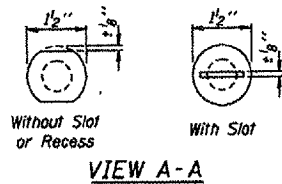
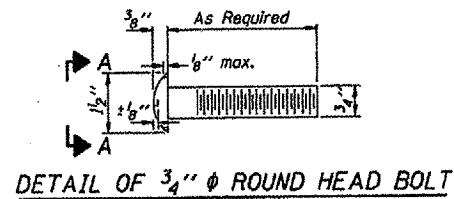
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Thomas J. Nemaska
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. Anderson
 Engineer of Bridges and Structures

QUANTITIES FOR ONE SPAN

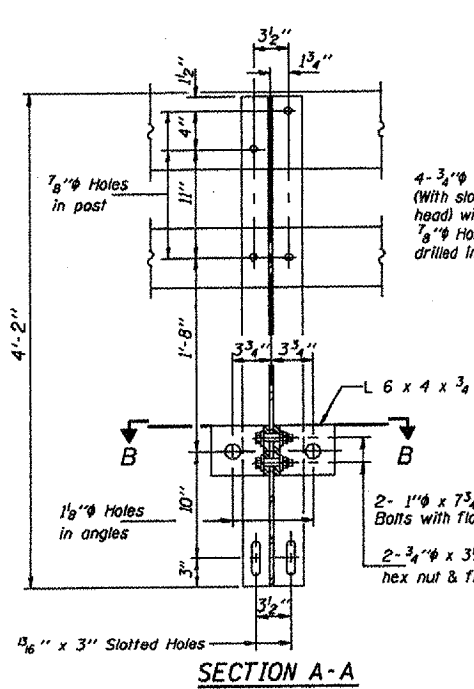
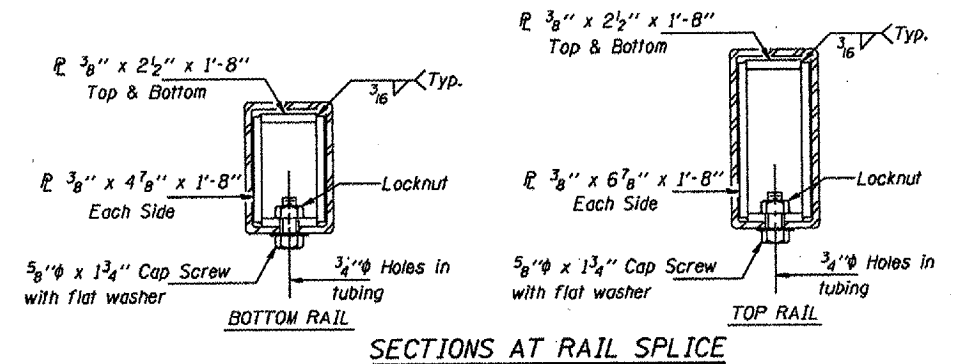
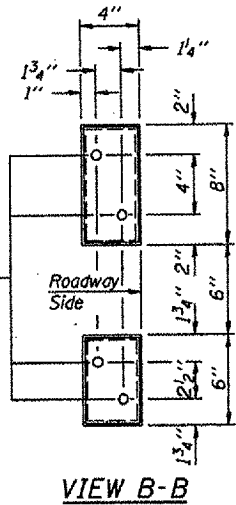
P.P. Conc. Dk. Bm. 17" Dp.	1400 Sq. Ft.
Steel Railing	100 Ft.
Waterproofing Membrane System	155.6 Sq. Yds.
Portland Cement Mortar Fairing Course	300 Ft.

Note: Quantity of overlay for one span = 21.9 Tons

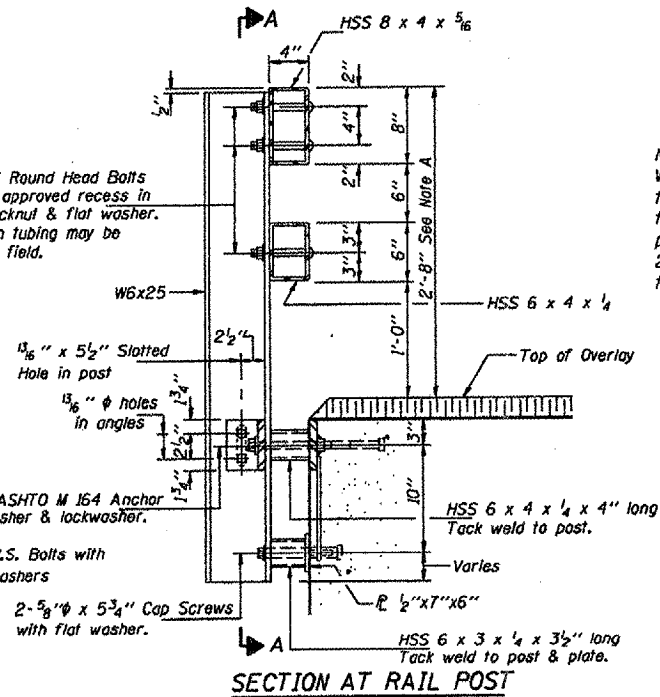
P.P.C. DECK BEAM
 SUPERSTRUCTURE
 28' RDWY. 27" BMS. 50' SPAN 0° SKEW
 STANDARD CS-2827-50



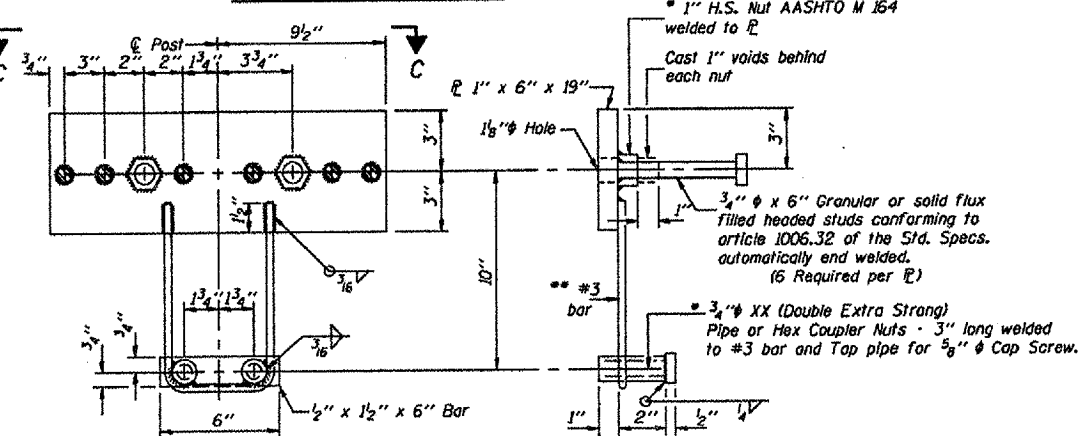
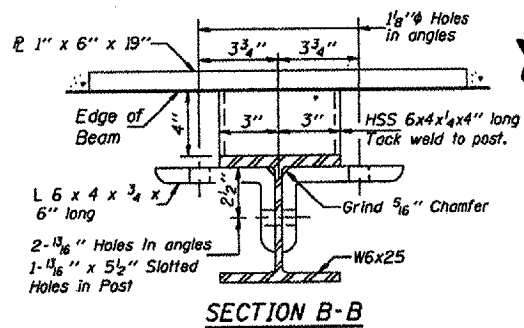
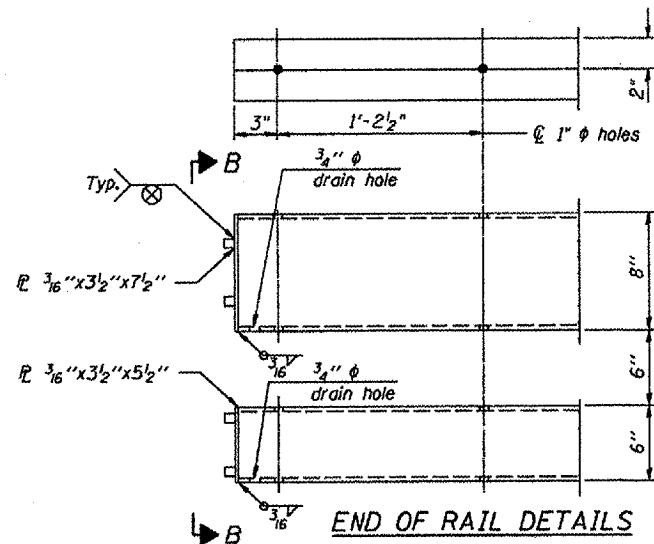
① - 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



4 - 3/4" x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8" Holes in tubing may be drilled in the field.



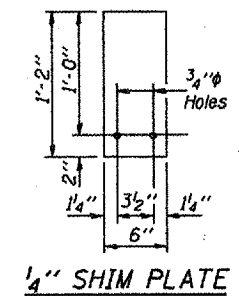
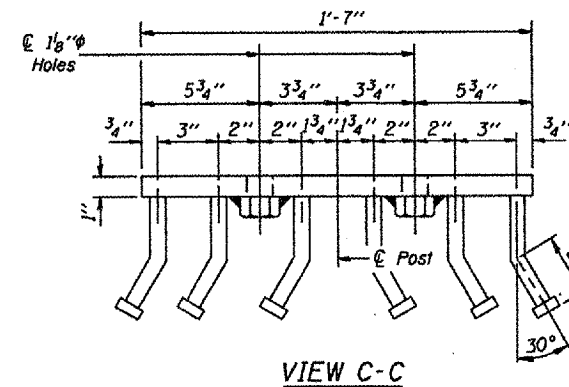
Note A: Where no overlay is to be provided, adjust top of rail to lay parallel to grade 2'-10" max. above top of beam



ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

** 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".



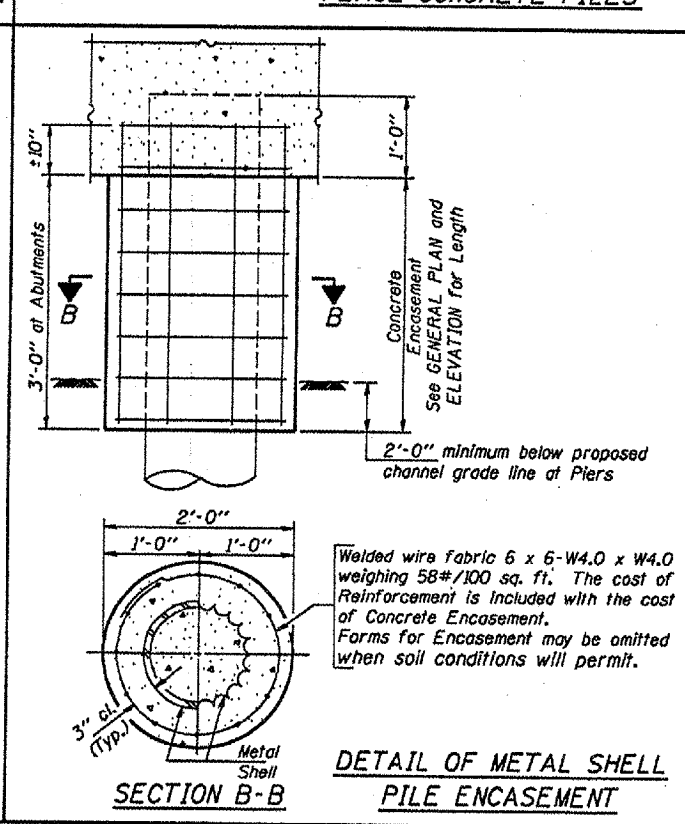
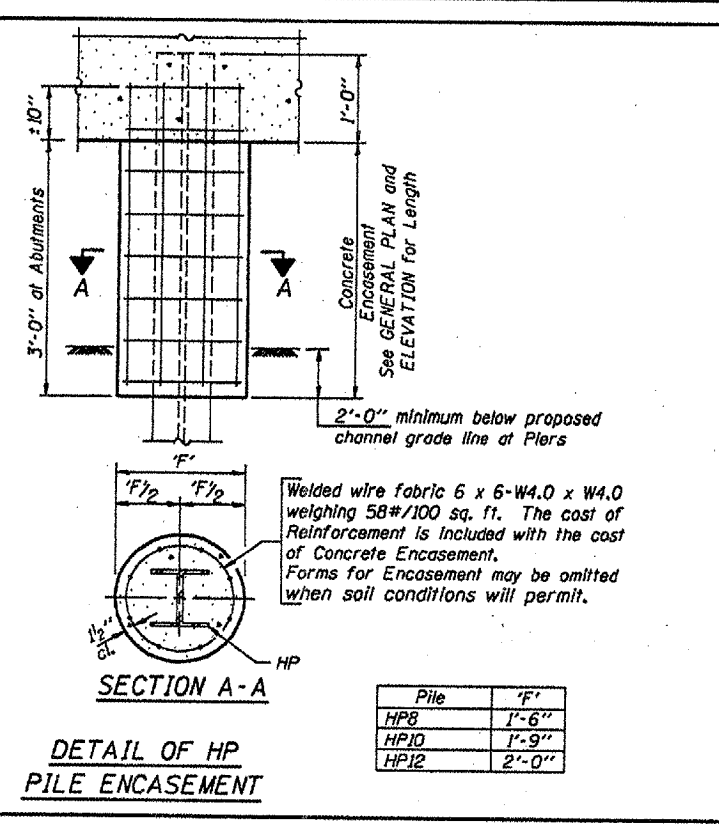
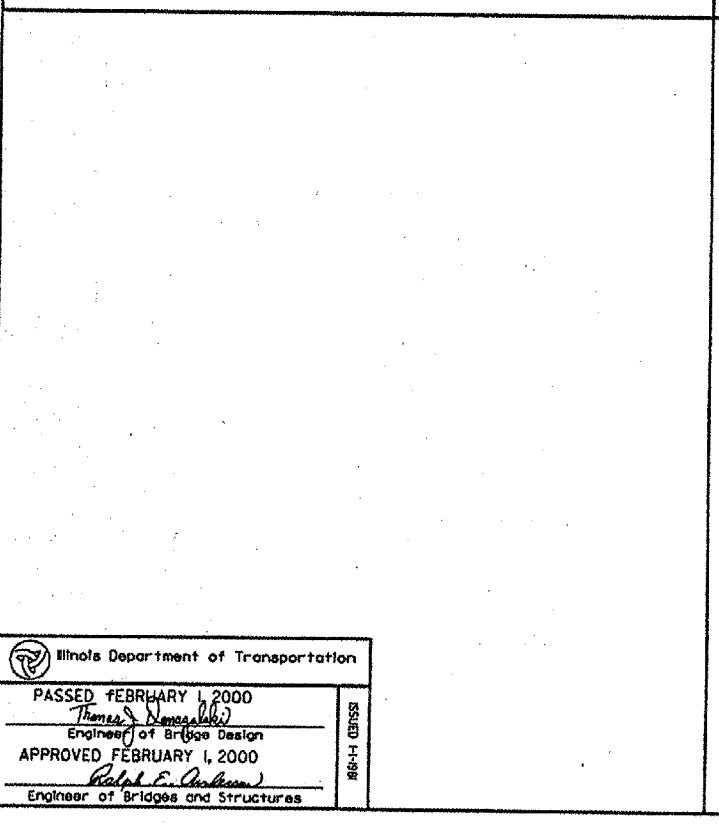
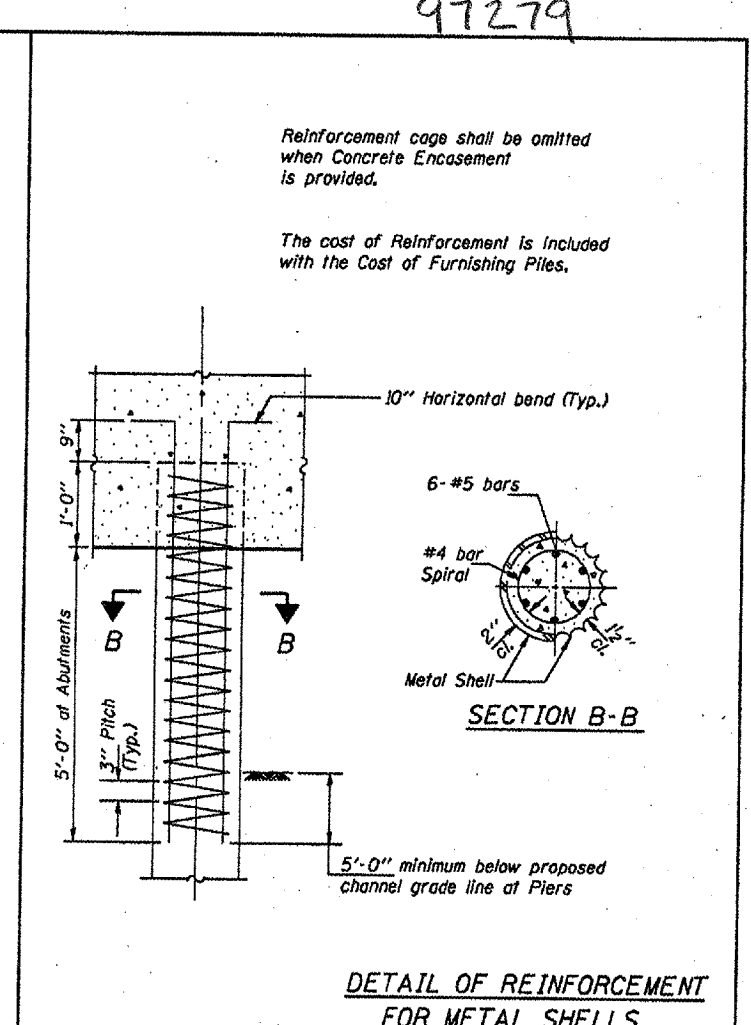
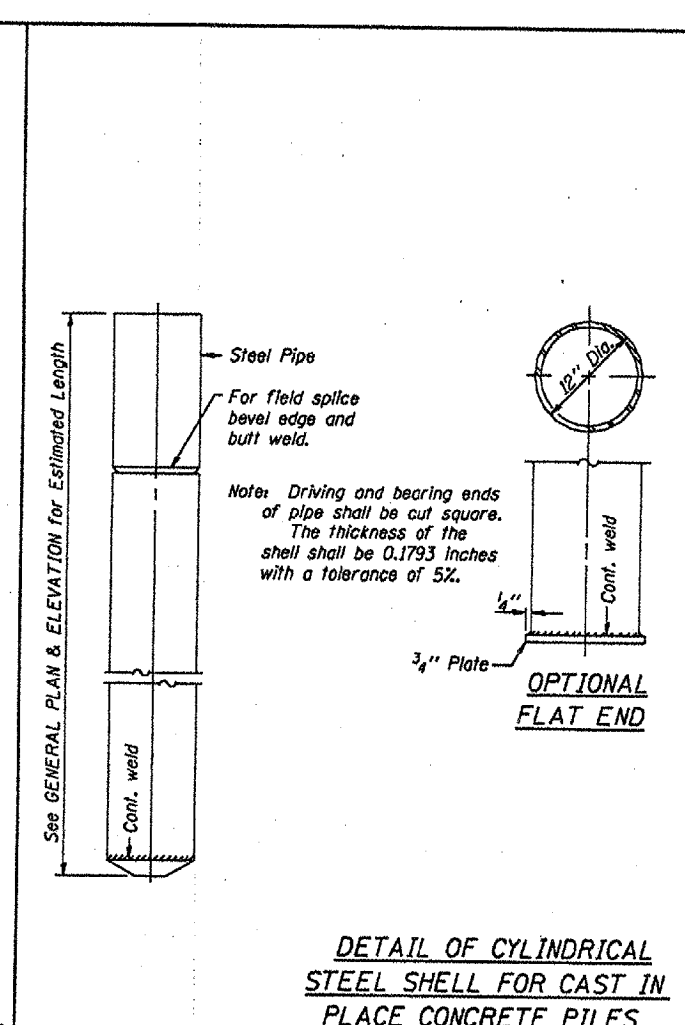
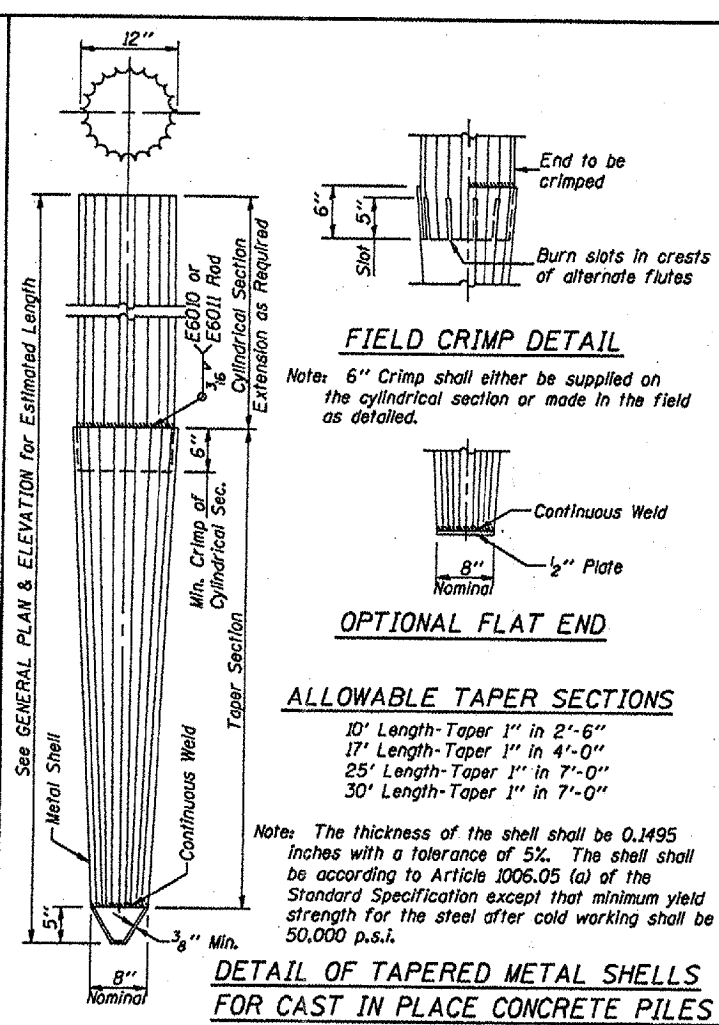
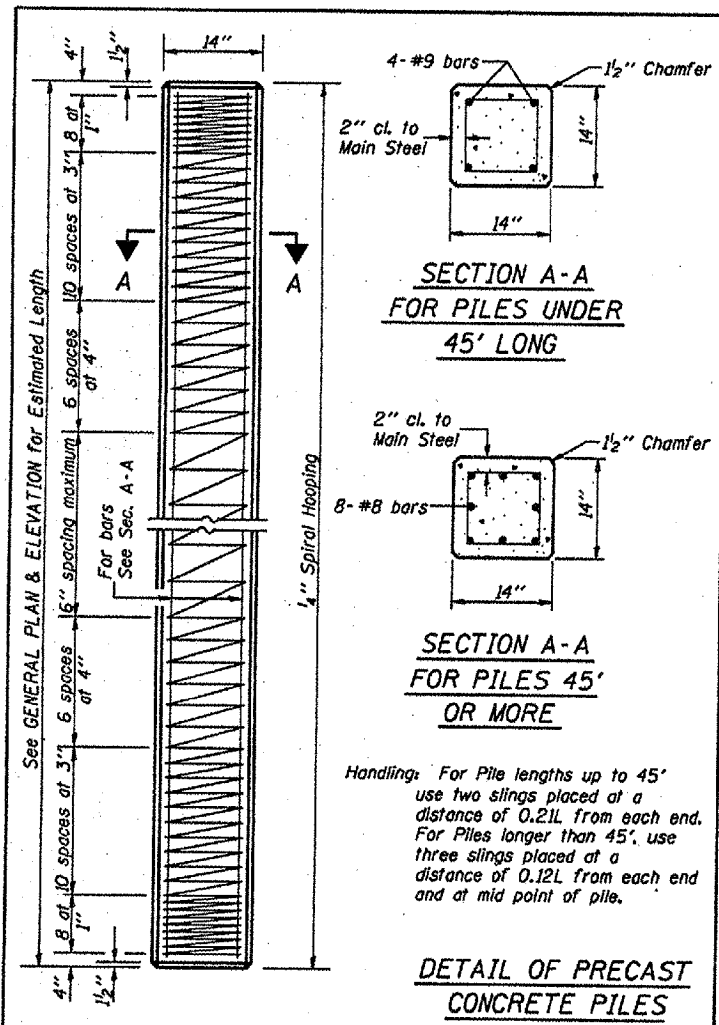
NOTES

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 requirements 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 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 SM.
 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 BRIDGE RAIL, TYPE SM.
 The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 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 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 6'-3".

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

STEEL BRIDGE RAIL, TYPE SM
 STANDARD CR-TSM

97279



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.

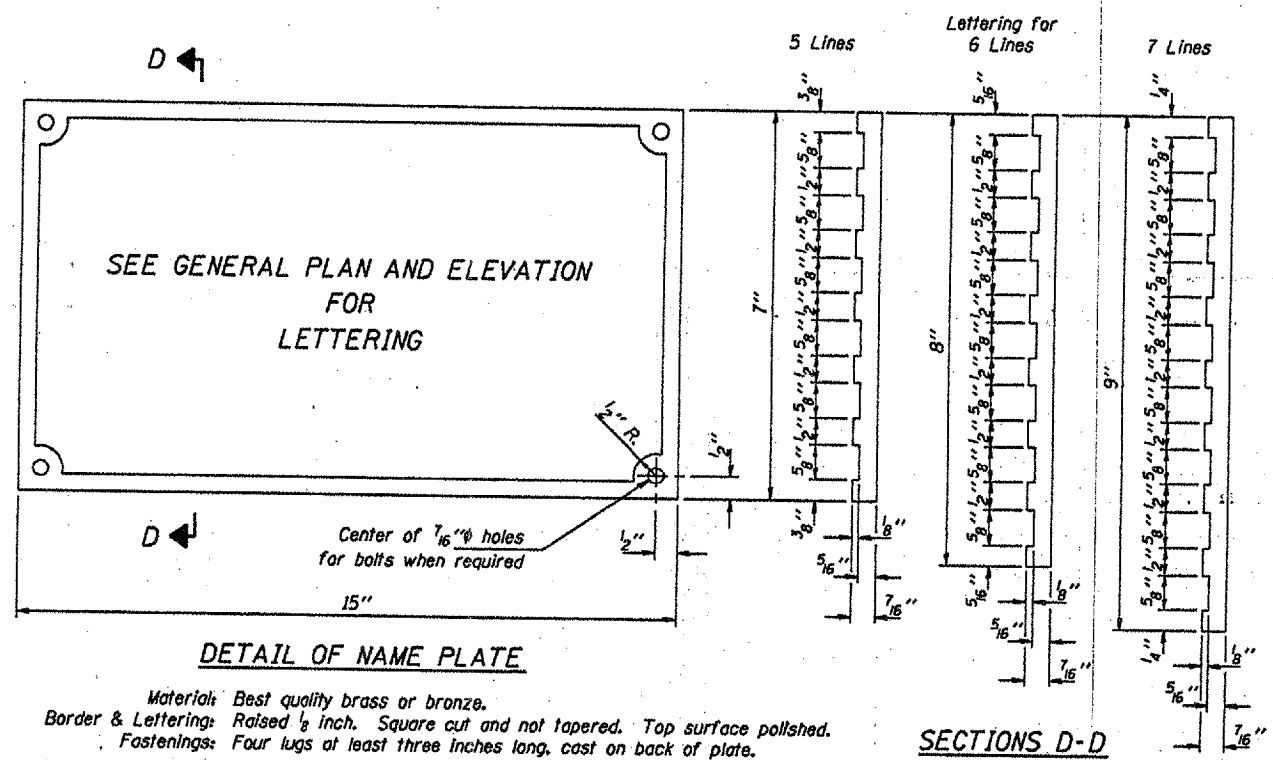
(METAL SHELL PILES)

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

PILE DETAILS

STANDARD CX-1

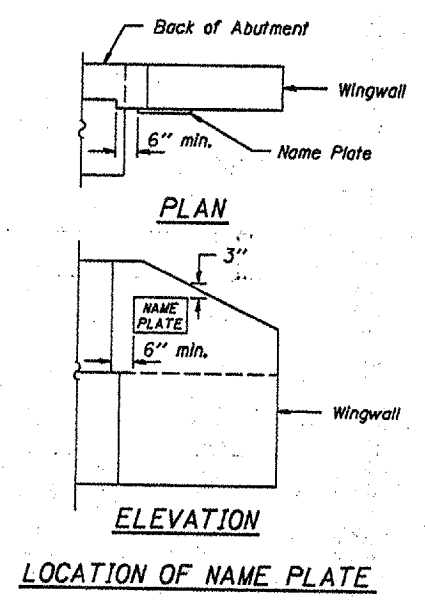
Illinois Department of Transportation
 PASSED FEBRUARY 1, 2000
 Approved by: Thomas J. Nemecek, Engineer of Bridge Design
 APPROVED FEBRUARY 1, 2000
 Approved by: Ralph E. Anderson, Engineer of Bridges and Structures



DETAIL OF NAME PLATE

Material: 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 APRIL 4, 2005
 Thomas S. Nema...
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Ralph E. ...
 Engineer of Bridges and Structures

NAME PLATE
 STANDARD CN