

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 PLANS FOR PROPOSED  
 FEDERAL-AID S.T.R. PROGRAM  
 COUNTY HIGHWAY 8  
 WAYNE COUNTY  
 SECTION 02-00110-00-BR  
 STRUCTURE NO. 096-3439  
 PROJECT NO. ACRS-191(48)  
 JOB NO. C-97-025-05

INDEX OF SHEETS

- 1 COVER SHEET
- 2 PLAN & PROFILE
- 3 CROSS SECTIONS
- 4-11 BRIDGE PLANS

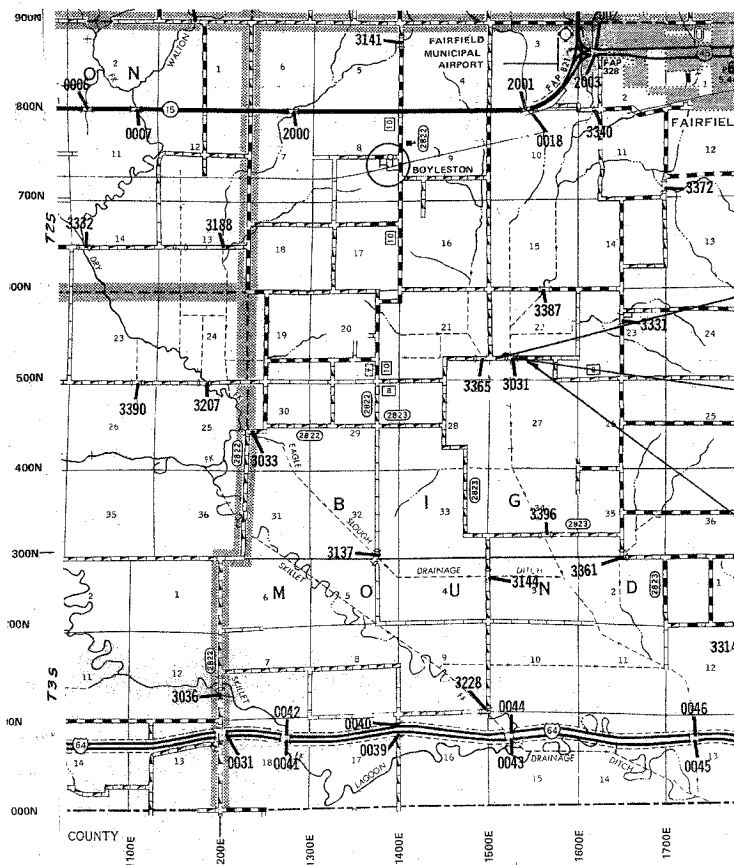
STANDARDS: 280001-02 - EROSION CONTROL  
 (SEE PROPOSAL) 702001-05 - TRAFFIC  
 BLR 21-6 - TRAFFIC  
 BLR 22-4 - TRAFFIC

SCALES

- PLAN 1 INCH = 50 FEET
- PROFILE HORZ. 1 INCH = 50 FEET
- PROFILE VERT. 1 INCH = 10 FEET
- CROSS SECTION 1 INCH = 5 FEET

QUANTITY	UNIT	ITEM	Y080-2A CODE NO.
96	CU.YD.	EARTH EXCAVATION	20200100
139	CU.YD.	CHANNEL EXCAVATION	20300100
2,252	CU.YD.	FURNISHED EXCAVATION	20400800
0.6	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
6	EACH	TEMPORARY DITCH CHECKS	28000300
60	FOOT	PERIMETER EROSION BARRIER	28000400
144	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
20	TON	STONE RIPRAP DITCH	28102600
451	TON	AGGREGATE BASE COURSE, TYPE B	35101400
40	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
33.2	CU.YD.	CONCRETE STRUCTURES	50300225
2,240	SQ.FT.	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	50400305
3,200	POUND	REINFORCEMENT BARS	50800105
160	FOOT	STEEL RAILING, TYPE S1	50900205
1,080	FOOT	FURNISHING STEEL PILES HP10X42	51201400
1,080	FOOT	DRIVING STEEL PILES	51202700
2	EACH	TEST PILE STEEL HP10X42	51203400
13.8	CU.YD.	CONCRETE ENCASEMENT	51204315
1	EACH	NAME PLATES	51500100
340	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 24"	542D0229
2	EACH	AUTOMATIC FLAP GATE 24"	60802024
1	L SUM	TRAFFIC CONTROL AND PROTECTION	70101700
1	EACH	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	X5020501
1	EACH	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	X5020502
1	L SUM	MOBILIZATION	67100100
34	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 12"	54200217

FUNCTIONAL CLASS: LOCAL ROAD  
 ADT = 75



LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE  
 NET LENGTH = 525 L.F. = 0.099 MILES

SECTION 02-00110-00-BR  
 BEGINS STA. 2+00

STA. 4+78 - STD. BRIDGE DESIGN  
 PROPOSED PRECAST PRESTRESSED  
 CONCRETE DECK BEAM BRIDGE.  
 3 SPANS @ 25', 30', 25' 28' RDWY. SKEW = 0°  
 PROP. STR. NO. 096-3439  
 EXIST. STR. NO. 096-3031

SECTION 02-00110-00-BR  
 ENDS STA. 7+25

TOLL FREE JOINT UTILITY LOCATING  
 INFORMATION FOR EXCAVATORS (J.U.L.I.E.)  
 TELEPHONE NO. 1-800-892-0123

CONTRACT NO. 95424

PROFESSIONAL DESIGN FIRM #184-000832

*Michael J. ...* 4-07-05  
 ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 31350  
 LICENSE EXPIRES NOVEMBER 30, 2005

APPROVED APRIL 7, 2005

*Arthur J. ...*  
 LOCAL AGENCY REPRESENTATIVE

PASSED 8-26, 2005

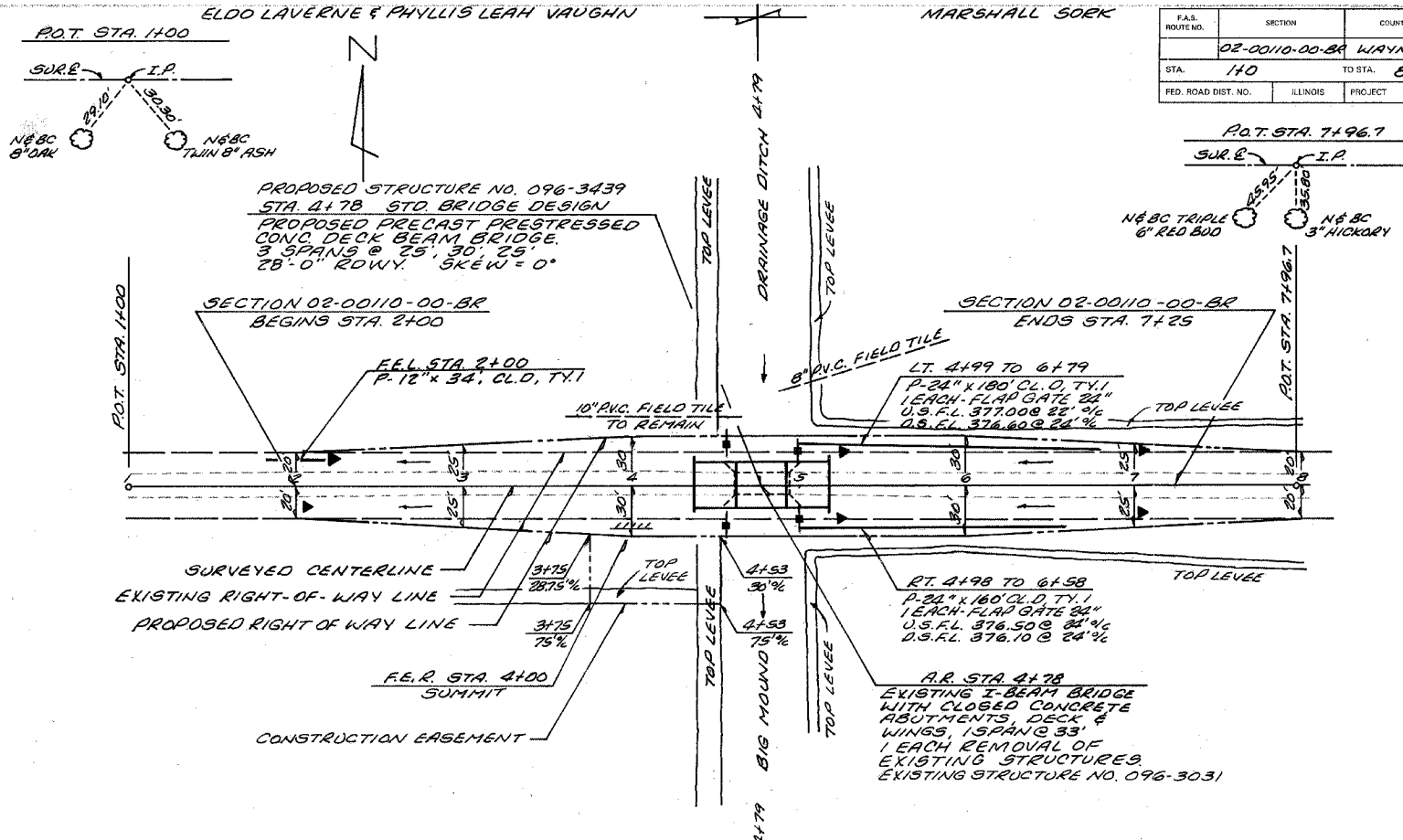
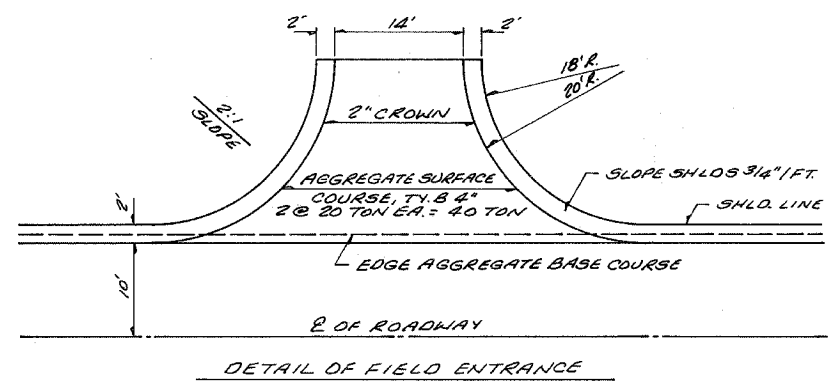
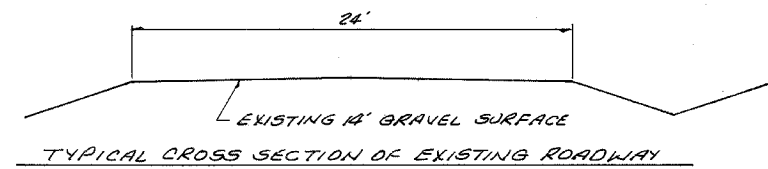
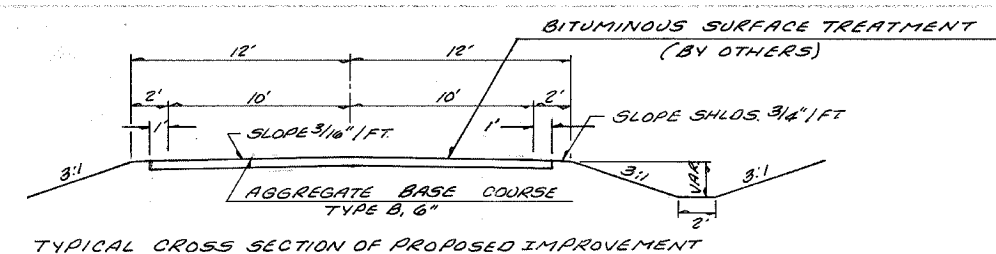
*Maurice ...*  
 DISTRICT SEVEN ENGINEER  
 OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW

8-26, 2005

*Christina ...*  
 DEPUTY DIRECTOR OF HIGHWAYS  
 REGION FOUR ENGINEER  
 STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

F.A.S. ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET
02-0010-00-BR	WAYNE	WAYNE	11	2
STA. 140	TO STA. 540		PROJECT	
FED. ROAD DIST. NO.	ILLINOIS	PROJECT		



**EARTHWORK SCHEDULE**

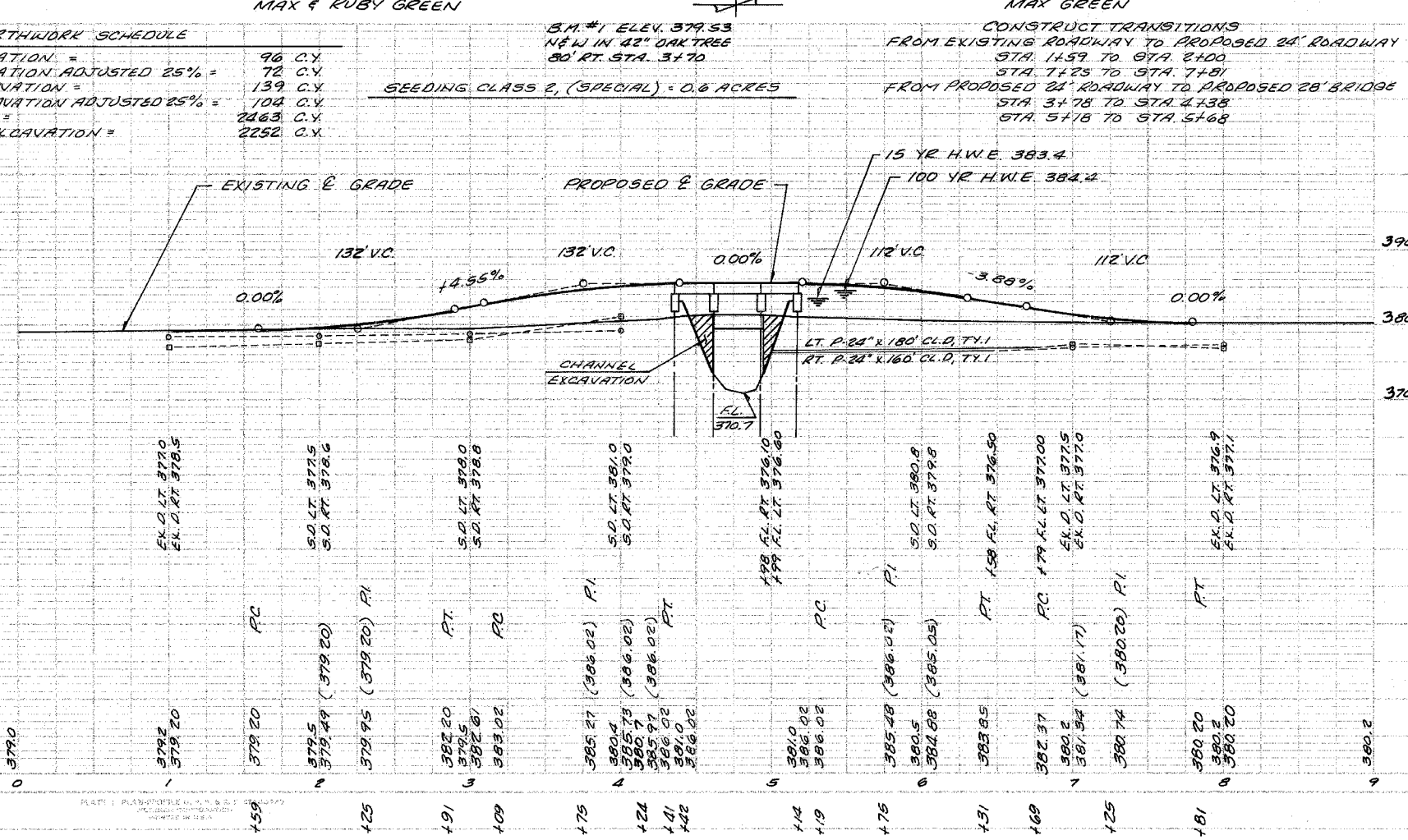
EARTH EXCAVATION =	96 C.Y.
EARTH EXCAVATION ADJUSTED 25% =	72 C.Y.
CHANNEL EXCAVATION =	139 C.Y.
CHANNEL EXCAVATION ADJUSTED 25% =	104 C.Y.
EMBANKMENT =	2463 C.Y.
FURNISHED EXCAVATION =	2252 C.Y.

- TEMPORARY DITCH CHECKS**
- LT. & RT. STA. 2+00 = 2 EACH
  - LT. & RT. STA. 5+25 = 2 EACH
  - LT. & RT. STA. 7+00 = 2 EACH
  - TOTAL = 6 EACH

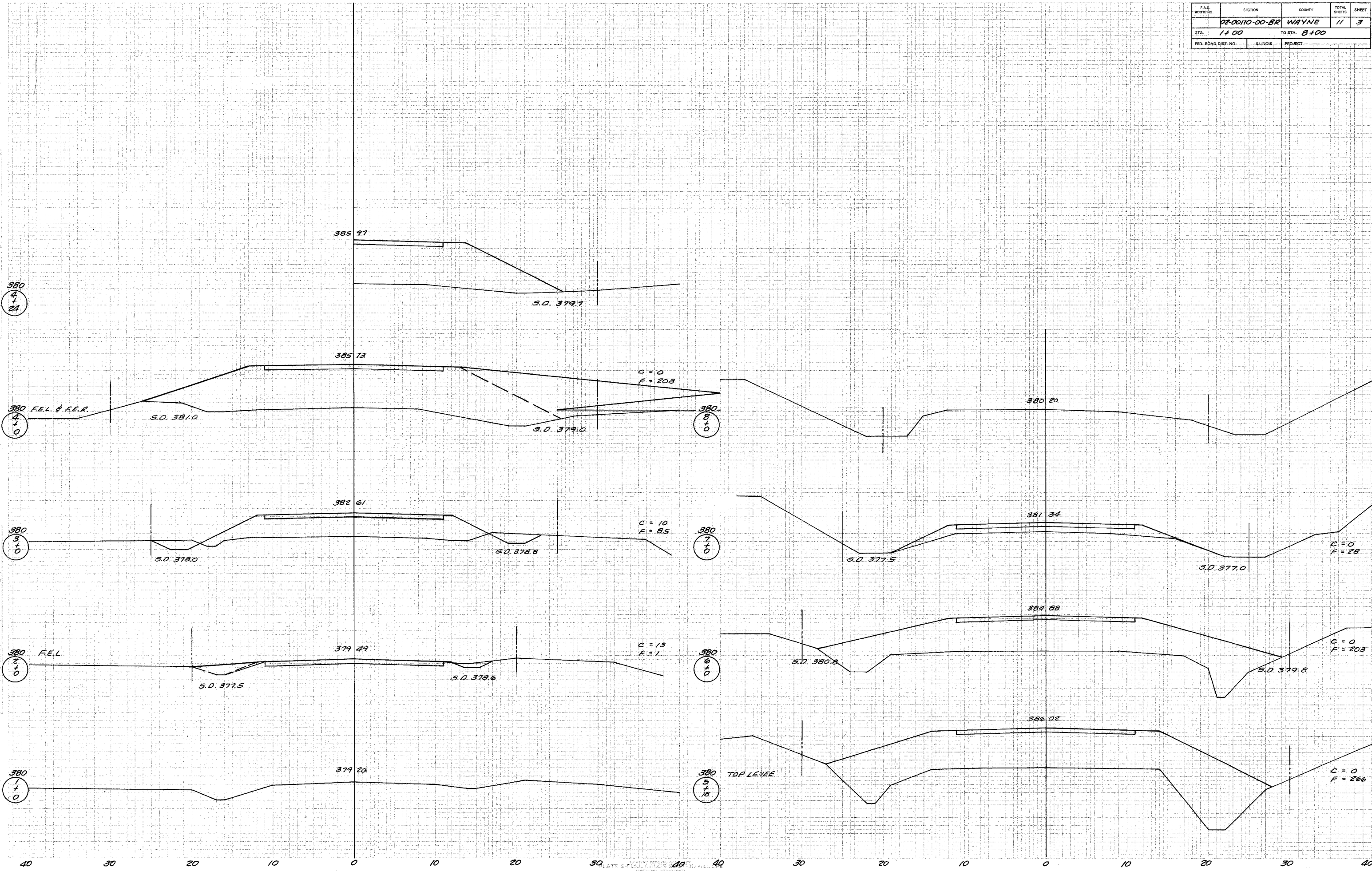
- PERIMETER EROSION BARRIER**
- LT. & RT. STA. 4+55 = 30 FEET
  - LT. & RT. STA. 5+00 = 30 FEET
  - TOTAL = 60 FEET

- STONE RIPRAP DITCH**
- RT. STA. 5+0 - 5+30 = 10 TON
  - LT. STA. 5+0 - 5+30 = 10 TON
  - TOTAL = 20 TON

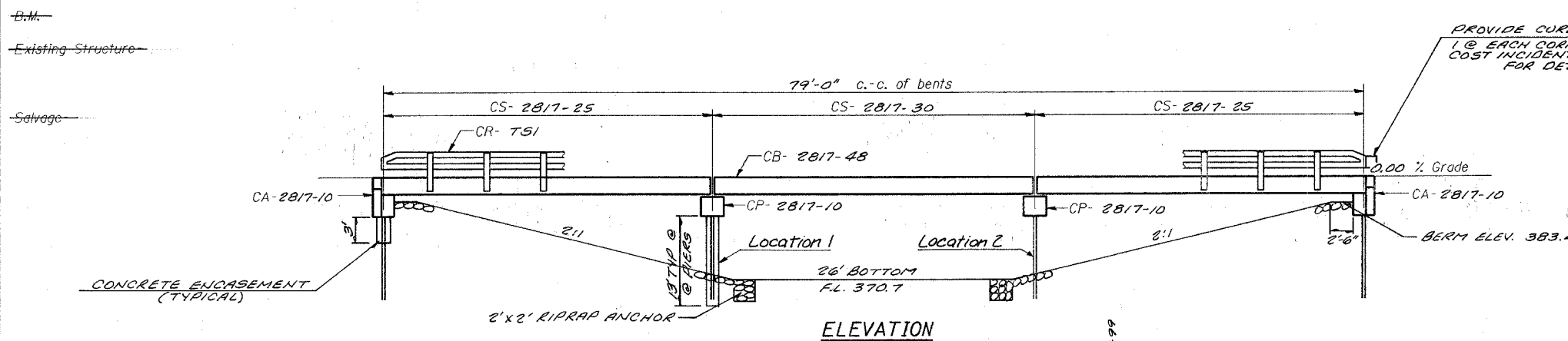
UTILITIES  
NONE



F.A.S. ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET
02-00110-00-BR		WAYNE	11	3
STA. 1+00	TO STA. 8+00			
FED. ROAD DIST. NO.	ILLINOIS	PROJECT		

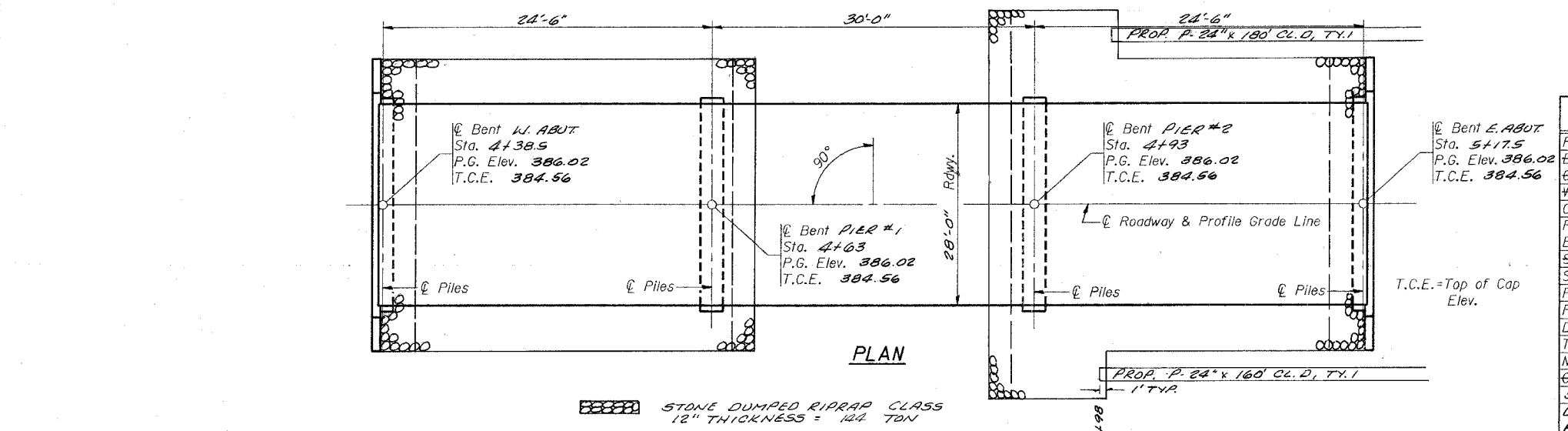


ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	*	WAYNE	11	4
FED. ROAD DIST. NO. 7				
ILLINOIS FED. AID PROJECT				
* 02-00110-00-BR				



**GENERAL NOTES**

1. The Contractor shall drive 2 test piles, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
2. See Special Provisions for boring logs.
3. A Calcium Nitrite Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.



**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
Bituminous Concrete Surface Course, Class I	Fon				
Waterproofing Membrane System - Concrete Structures	Sq. Yd.		14.2	19.0	33.2
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2240			2240
Steel Bridge Rail, Type SM	Foot				
Steel Railing, Type S-1	Foot	160			160
Reinforcement Bars	Pound		1300	1900	3200
Furnishing STEEL PILES HP 10x42	Foot		540	540	1080
Driving STEEL PILES	Foot		540	540	1080
Test Piles STEEL HP 10x42	Each		1	1	2
Name Plates	Each		1	1	2
Class II CONCRETE ENCASUREMENT	Cu. Yd.		11.2	2.6	13.8
STONE DUMPED RIPRAP CLASS 12	TON			144	144
Underwater Structure Excavation Protection Location 1	Each		1		1
Underwater Structure Excavation Protection Location 2	Each		1		1

NOTE:  
The Article or Section numbers referencing the Standard Specifications for Road and Bridge Construction as shown on the standard bridge plan sheets included with the contract plans should be interpreted as referring to the current edition of the Standard Specification (Adopted January 1, 1997) 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

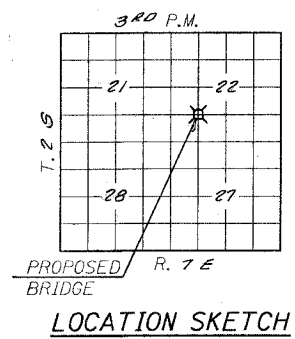
**SEISMIC DATA**  
Seismic Performance Category (S.P.C.) = B  
Bedrock Acceleration Coefficient A = 0.094  
Site Coefficient S = 1

**PILE DATA (2-PIERS)**  
Type STEEL HP 10x42  
Capacity REFUSAL Tons  
Estimated Length 60 Feet  
Number Required 10 (Includes 1 Test Pile located in Bent #3.) PIER #2

**PILE DATA (2-ABUTS.)**  
Type STEEL HP 10x42  
Capacity REFUSAL Tons  
Estimated Length 60 Feet  
Number Required 10 (Includes 1 Test Pile located in Bent #1.) W. ABUT.

**STATION 4+78**  
BIG MOUND DRAINAGE DITCH  
SEC. 02-00110-00-BR BUILT  
  
WAYNE COUNTY  
LOADING HS20  
STR. NO. 096-3439

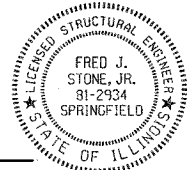
**LETTERING FOR NAME PLATE**  
Locate Name Plate at SOUTHWEST Corner of Bridge (See Std. CN)



**INDEX OF SHEETS**

1. General Plan & Elevation
2. Standard CS- 2817-25
3. Standard CS- 2817-30
4. Standard CB- 2817-48
5. Standard CA- 2817-10
6. Standard CP- 2817-10
7. Standard CR- T51
8. Standard CX- 1
9. Standard

"I certify these Standard Bridge Plans for seismic adequacy and foundation treatment".



Fred J. Stone, Jr. (1-27-03)  
ILLINOIS STRUCTURAL No. 2934 (Expires 11/30/06)

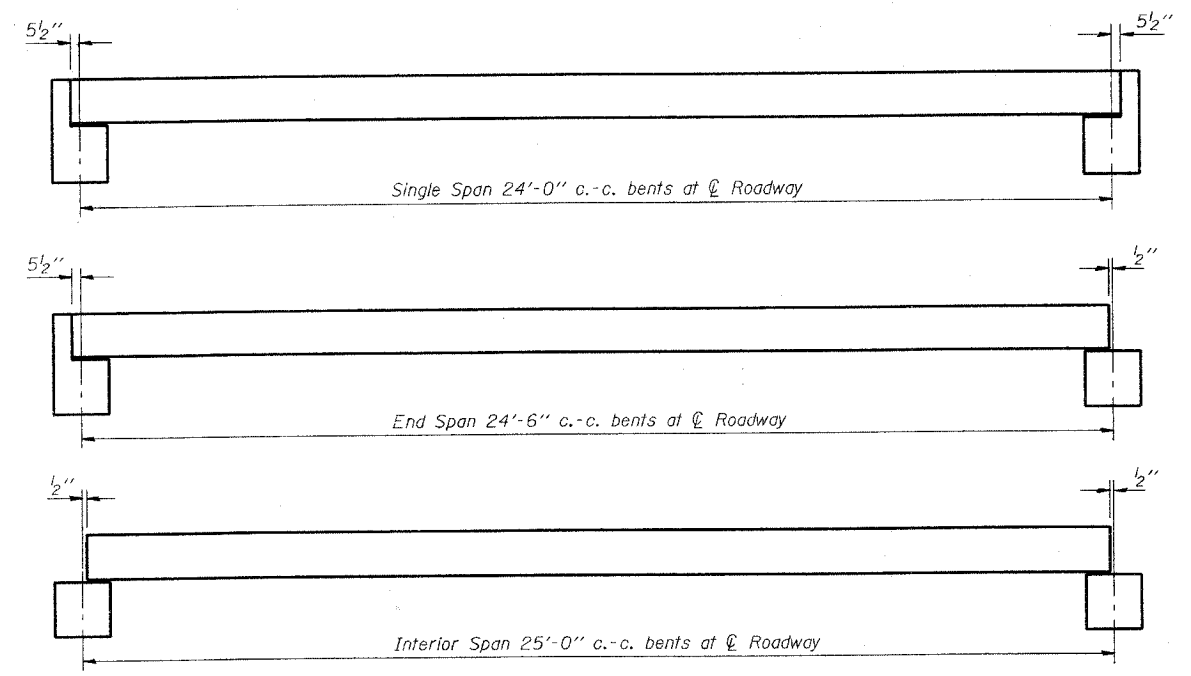
**DESIGN SPECIFICATIONS**  
1996 AASHTO, HS20-44 Loading. Load Factor Design.

**WATERWAY INFORMATION**

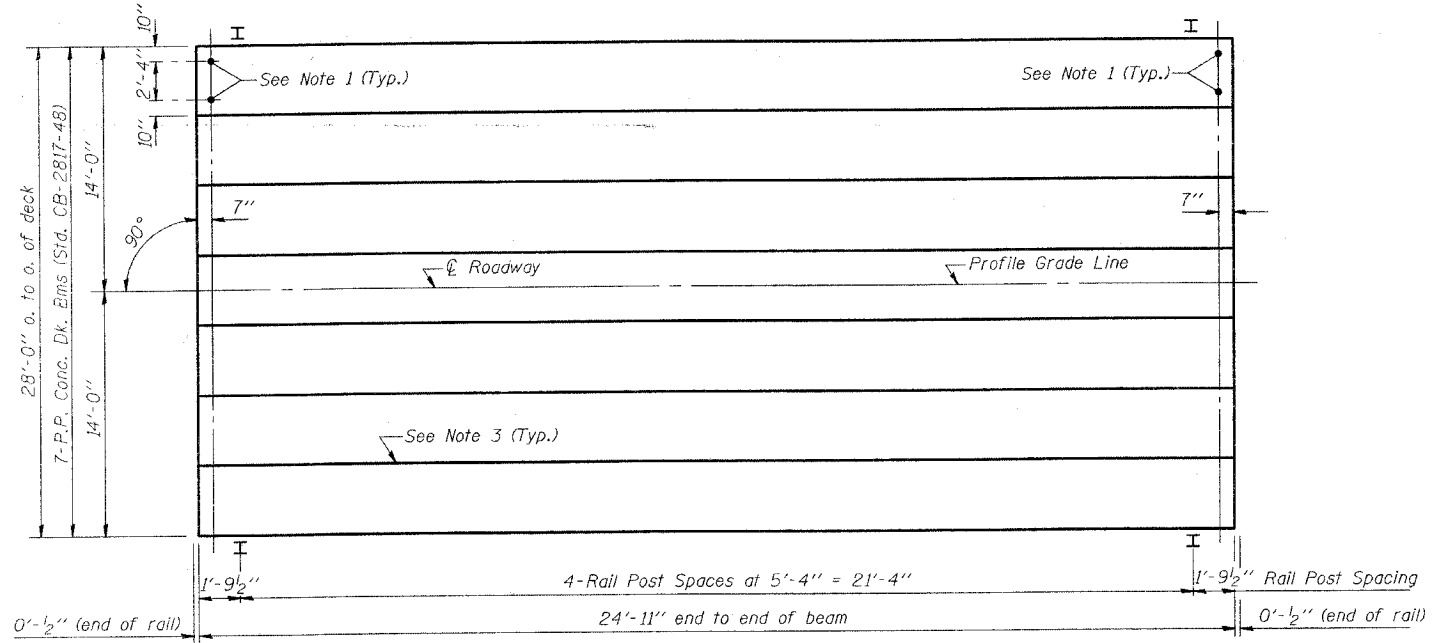
Drainage Area = 14.0 SQ. MI. Low Grade Elev. = 379.0 @ Sta. 0+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	2028	94,283	544	383.4	N.A.	0.2	383.4	384.6
Base	100	3211	94,283	816	384.4	N.A.	0.4	384.4	384.8
Overtopping									
Max. Calc.	500								

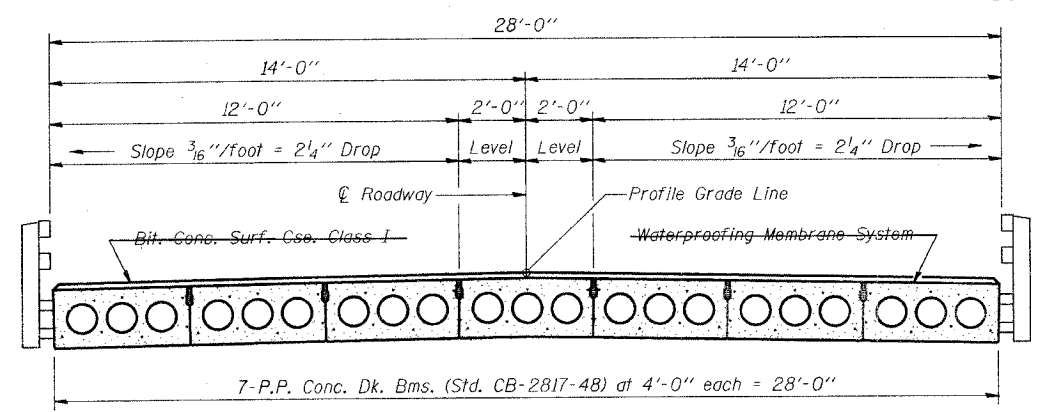
**GENERAL PLAN & ELEVATION**  
C.H. ROUTE 8  
OVER BIG MOUND DRAINAGE DITCH  
SECTION 02-00110-00-BR  
WAYNE COUNTY  
STATION 4+78



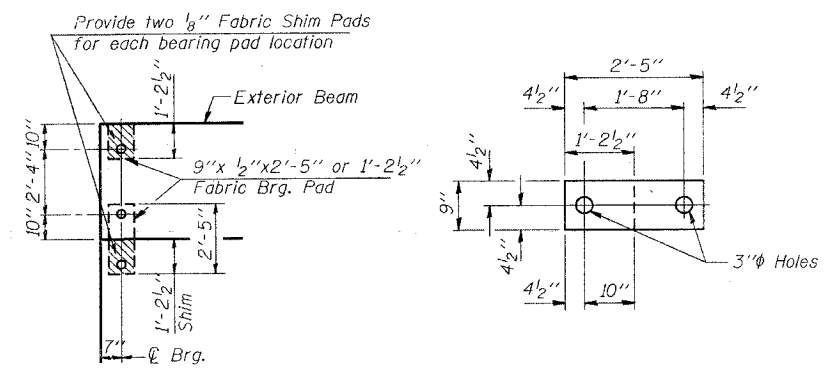
TYPICAL ELEVATIONS



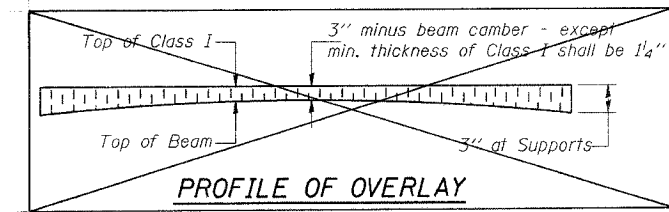
PLAN



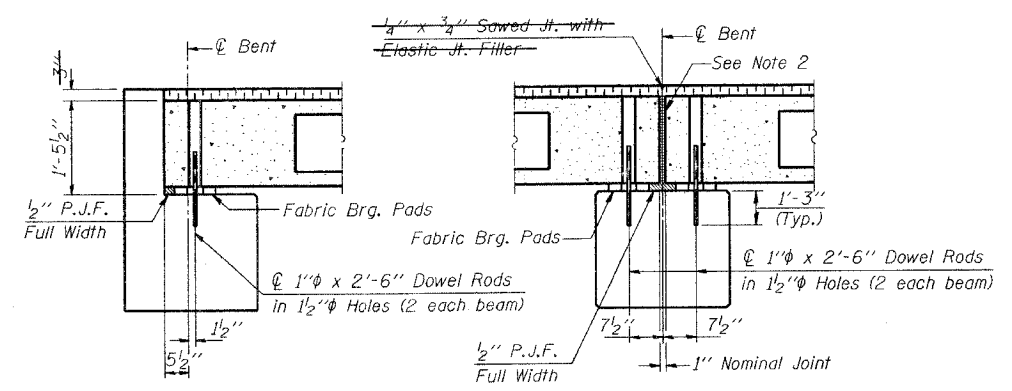
CROSS SECTION



1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



SECTION AT ABUTS.  
(Along Roadway)

SECTION AT PIERS  
(Along Roadway)

NOTES

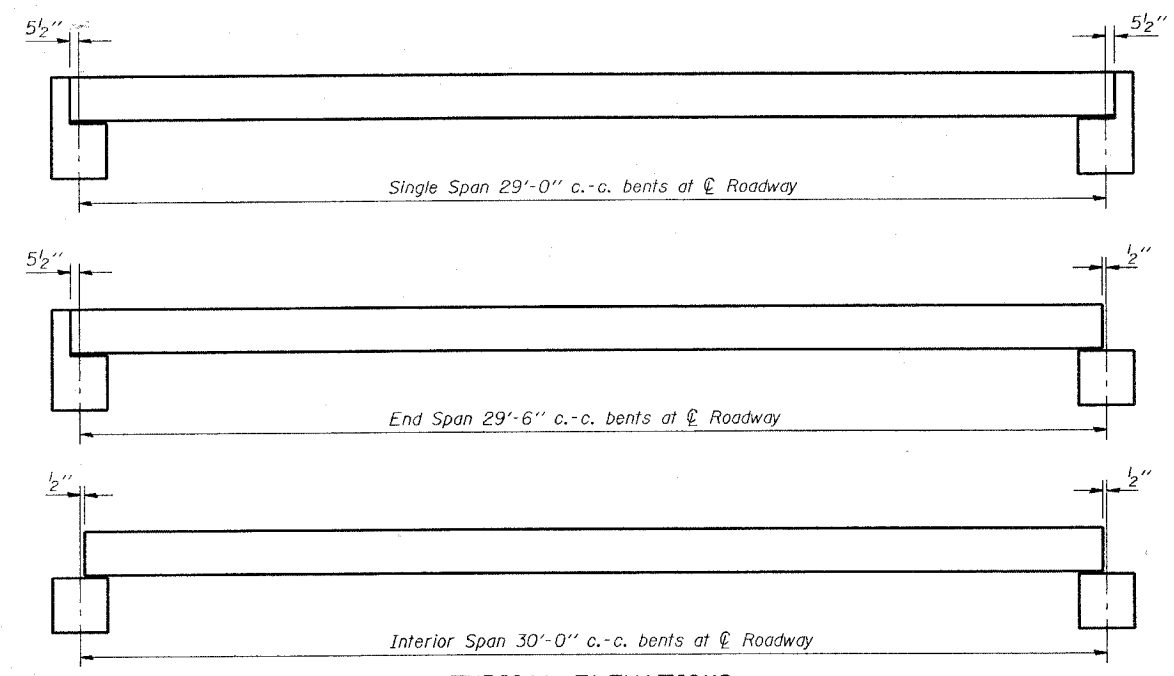
1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
2. Nominal 1" joint at Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted. WITH NON-SHRINK GROUT.

QUANTITIES FOR ONE SPAN

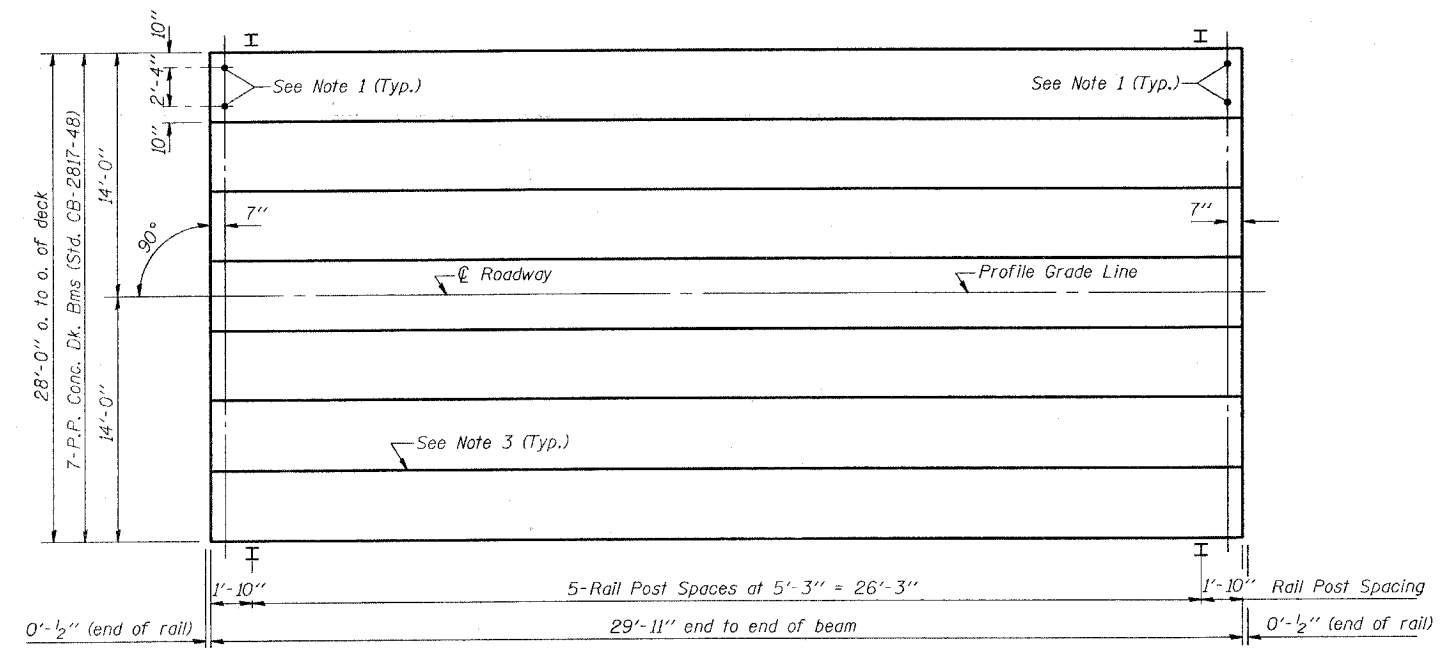
P.P. Conc. Dk. Bm. 17" Dp.	700 Sq. Ft.
Steel Railing	50 Ft.
Bit. Conc. Surf. Cse. Class I	12.4 Tons
Waterproofing Membrane System	77.8 Sq. Yds.

P.P.C. DECK BEAM SUPERSTRUCTURE			
28' RDWY.	17" BMS.	25' SPAN	0° SKEW
STANDARD CS-2817-25			

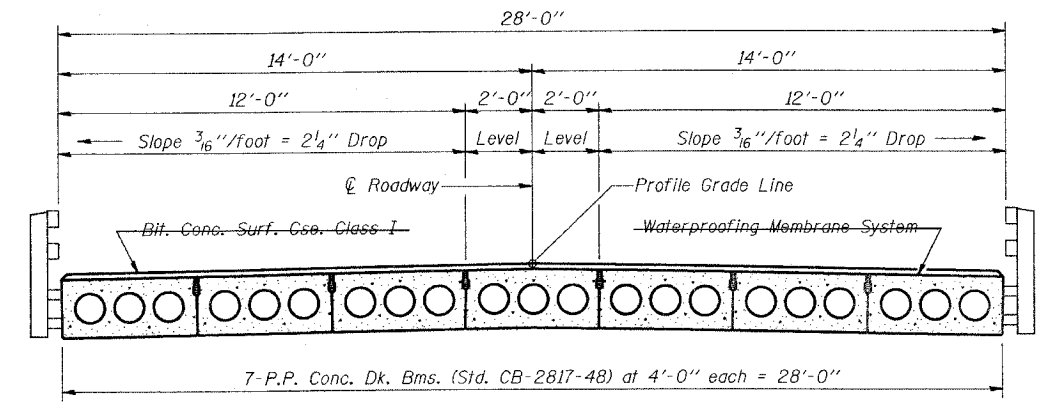
Illinois Department of Transportation  
 PASSED NOVEMBER 1, 1995  
 Engineer of Bridge Design  
 APPROVED NOVEMBER 1, 1995  
 Engineer of Bridges and Structures



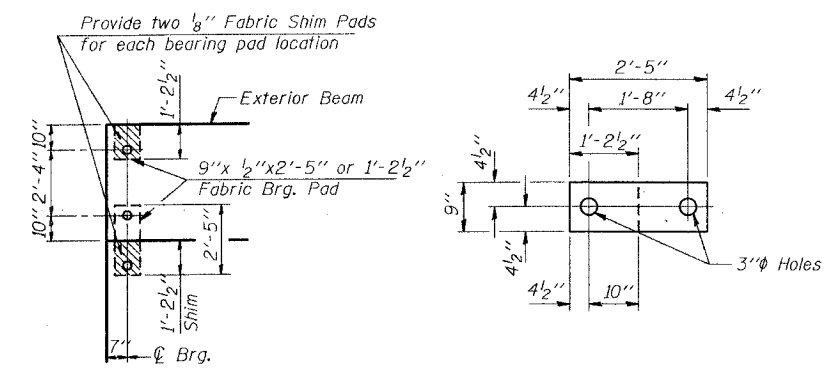
TYPICAL ELEVATIONS



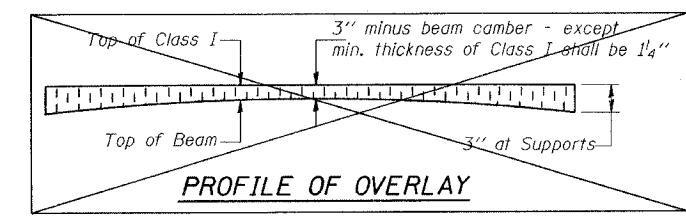
PLAN



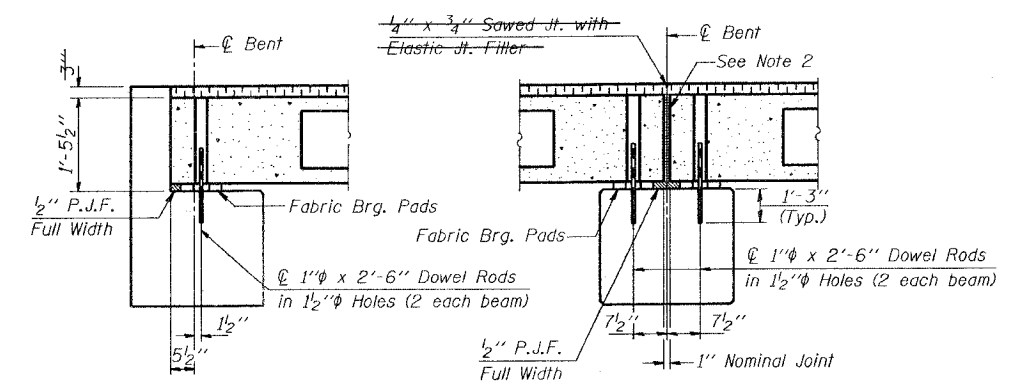
CROSS SECTION



1/2" FABRIC BRG. PAD DETAILS



PROFILE OF OVERLAY



SECTION AT ABUTS.  
(Along centerline of Beams)

SECTION AT PIERS  
(Along centerline of Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	840 Sq. Ft.
Steel Railing	60 Ft.
Dkt. Conc. Surf. Cse. Class I	14.4 Tons
Waterproofing Membrane System	93.3 Sq. Yds.

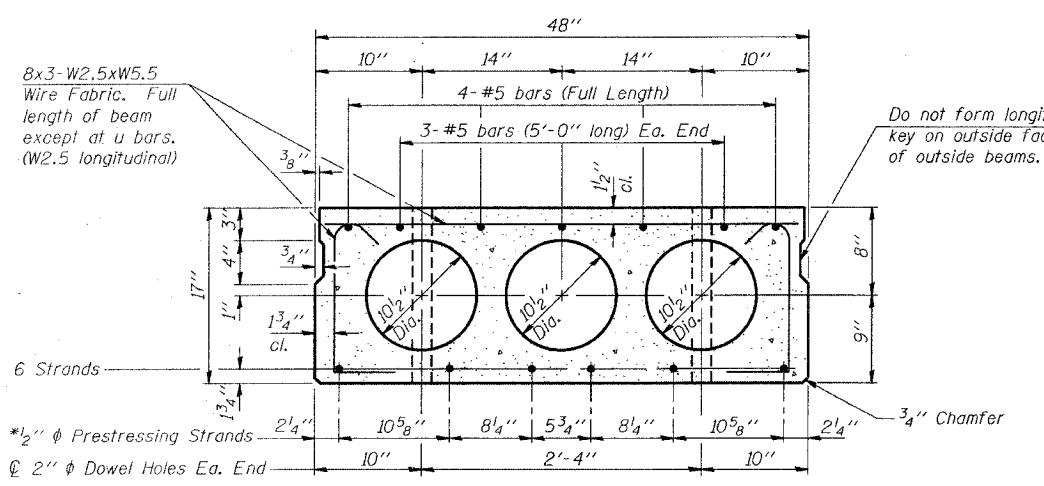
NOTES

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 centerline of Pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted. WITH NON-SHRINK GROUT

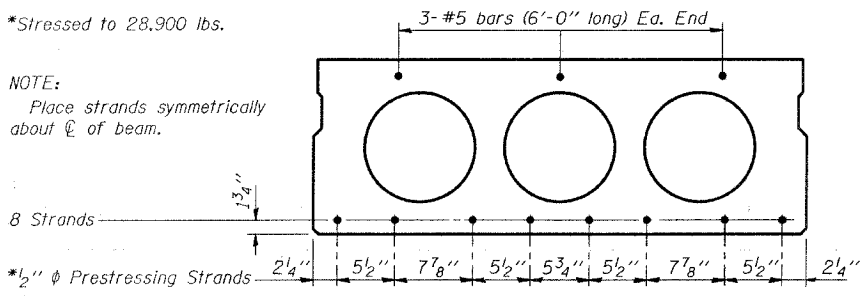
Illinois Department of Transportation  
 PASSED NOVEMBER 1, 1995  
*Raj D. Kasper*  
 Engineer of Bridge Design  
 APPROVED NOVEMBER 1, 1995  
*Ralph E. Anderson*  
 Engineer of Bridges and Structures

P.P.C. DECK BEAM  
 SUPERSTRUCTURE  
 28' RDWY. 17" BMS. 30' SPAN 0° SKEW  
 STANDARD CS-2817-30

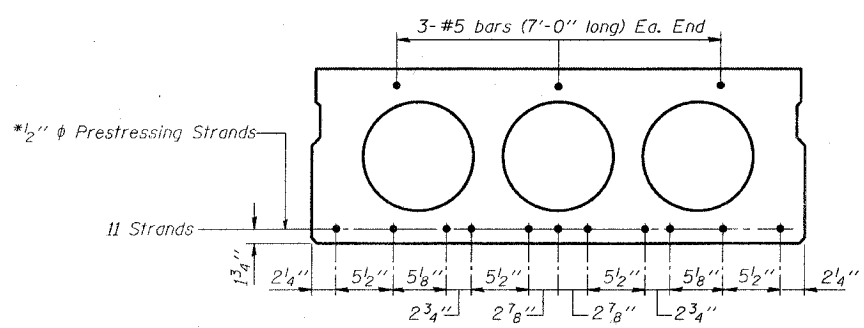
F.A.S. ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET
02-0010-00-88	WAYNE	11	7	
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	PROJECT		



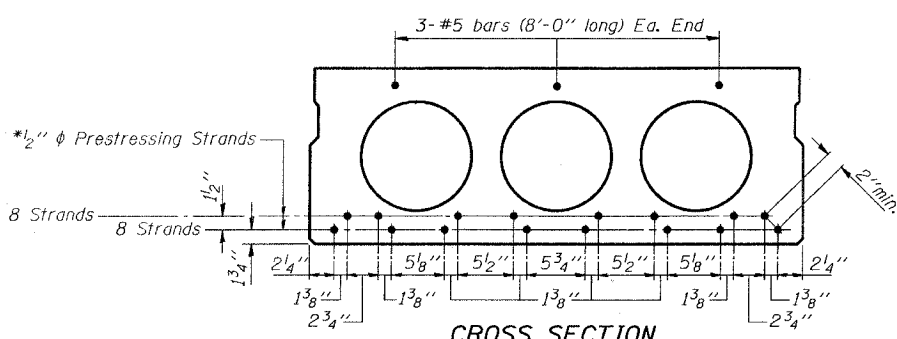
**CROSS SECTION**  
(25' SPAN)



**CROSS SECTION**  
(30' SPAN)

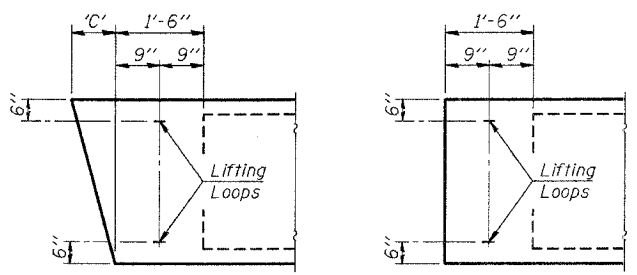


**CROSS SECTION**  
(35' SPAN)



**CROSS SECTION**  
(40' SPAN)

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

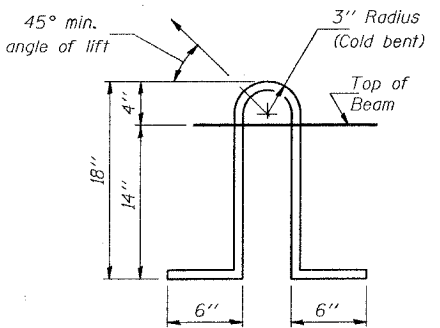


**END BLOCK DETAILS**

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.

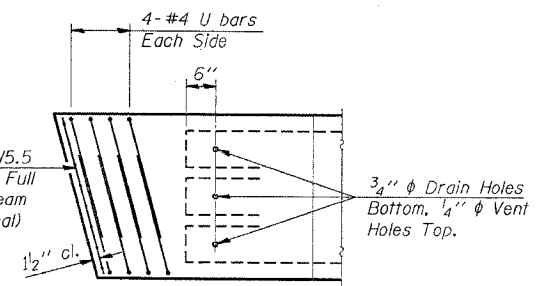
**DIMENSION 'C'**

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

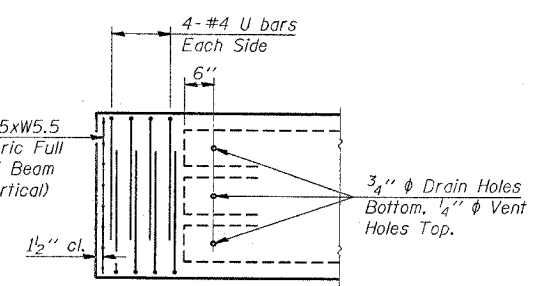


**LIFTING LOOP DETAIL**

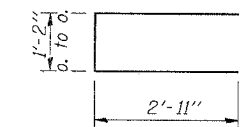
Lifting loops shall be 2, 1/2 inch diameter 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



**END REINFORCEMENT**  
(SKEWED)



**END REINFORCEMENT**  
(RIGHT ANGLE)



**BAR U**

**NOTES**

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

**DESIGN STRESSES**

- $f_c = 5,000$  p.s.i.
- $f_{ci}$  = (See Required Release Strength Table)
- $f_s = 270,000$  p.s.i. (1/2 inch Strand)
- $f_{si} = 189,000$  p.s.i. (1/2 inch Strand)
- $f_y = 60,000$  p.s.i.

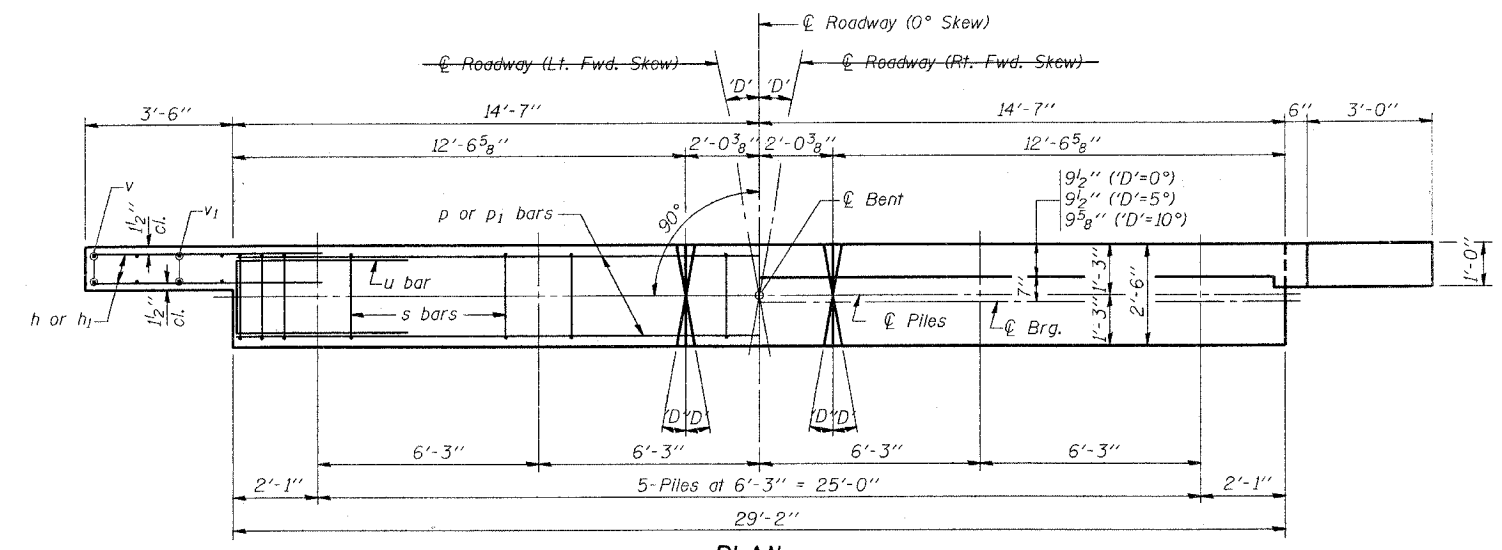
**REQUIRED RELEASE STRENGTH**

Span	$f_{ci}$ (psi)
25'	4,000
30'	4,000
35'	4,000
40'	4,100

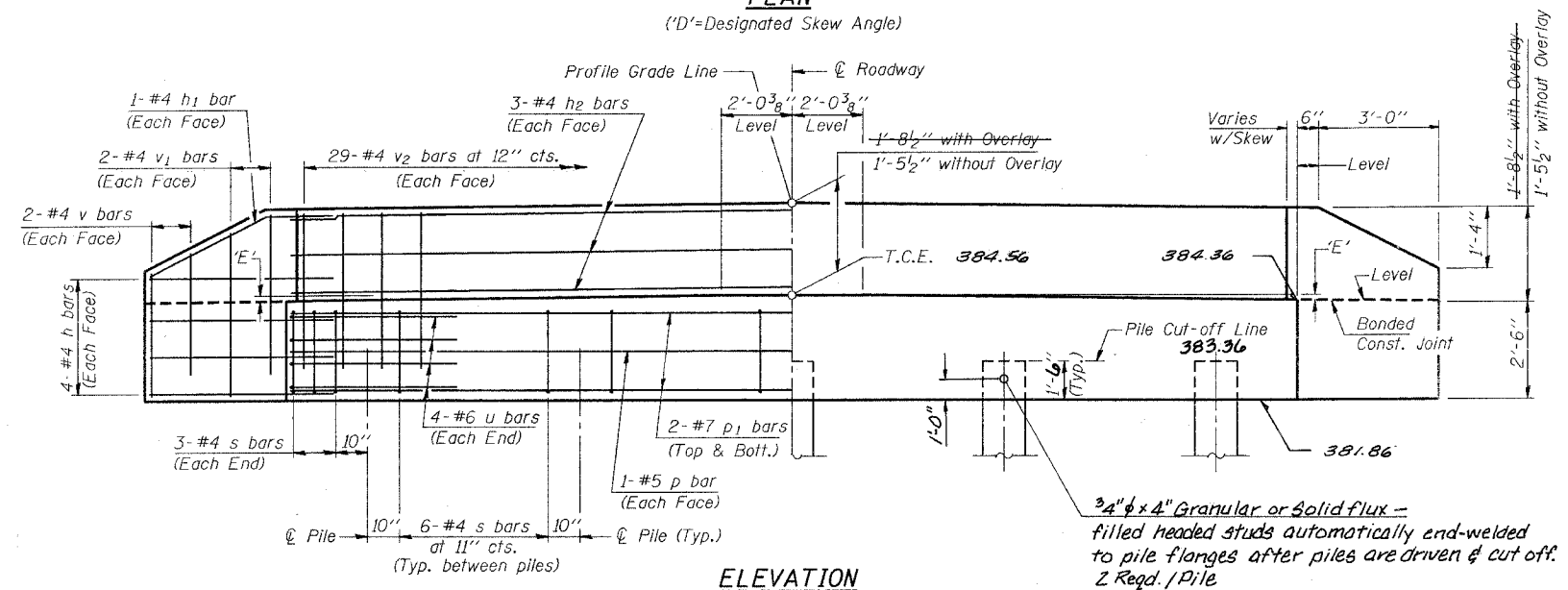
Illinois Department of Transportation  
PASSED NOVEMBER 1, 1995  
*Gregory J. Kasper*  
Engineer of Bridge Design  
APPROVED NOVEMBER 1, 1995  
*Ralph E. Anderson*  
Engineer of Bridges and Structures

**P.P.C. DECK BEAM DETAILS**  
28' ROADWAY | 17" x 48" BEAMS  
STANDARD CB-2817-48

REL.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
*		WAYNE	11	8



**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"

**NOTES**

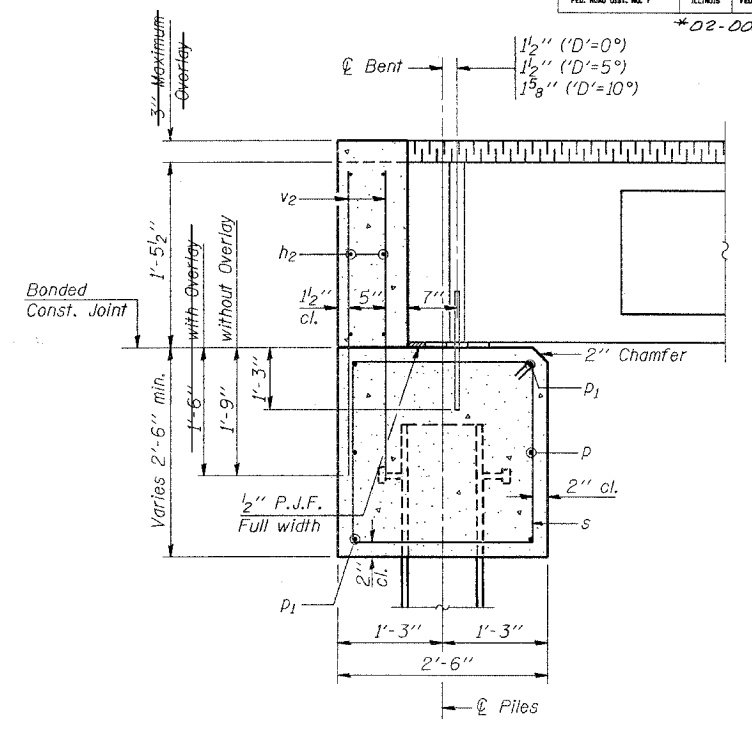
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

**MAXIMUM PILE LOADS**

SPAN	TONS
25'	25
30'	25
35'	25
40'	27

**DESIGN STRESSES**

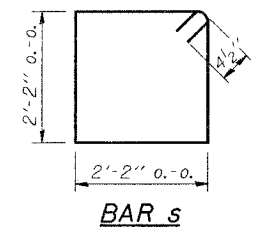
f'c = 3,500 psi  
fy = 60,000 psi



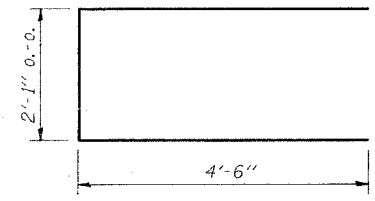
**SECTION THRU ABUTMENT**  
(At Right Angles)

**BILL OF MATERIAL FOR ONE ABUTMENT**

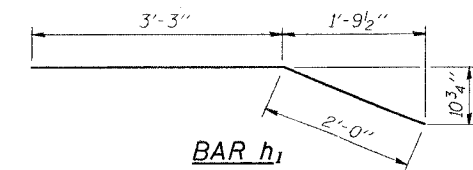
Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	28'-10"	—
p	2	#5	28'-10"	—
p1	4	#7	28'-10"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	—
v	8	#4	2'-6"	—
v1	8	#4	3'-5"	—
v2	58	#4	3'-1"	—
Concrete Structures			9.5 Cu. Yds.	
Reinforcement Bars			950 Lbs.	



**BAR s**



**BAR u**

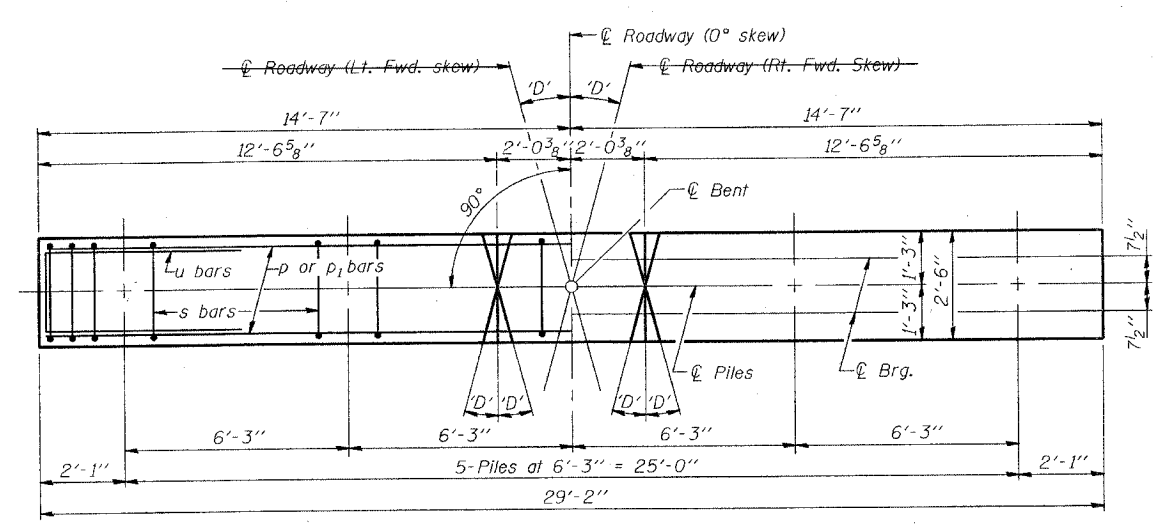


**BAR h1**

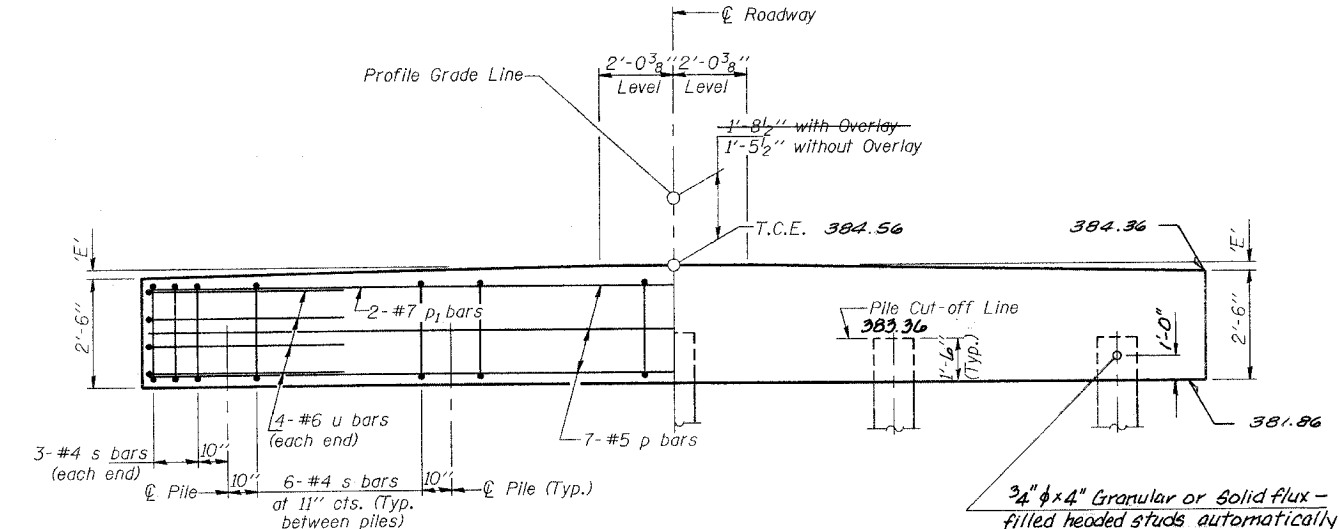
Illinois Department of Transportation  
 PASSED November 1, 1995  
 Engineer of Bridge Design  
 APPROVED November 1, 1995  
 Engineer of Bridges and Structures

**P.P.C. DECK BEAMS  
 PILE BENT ABUTMENT**  
 28' RDWY. 17" BMS. 'D'=0°, 5° OR 10°  
 STANDARD CA-2817-10





**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"

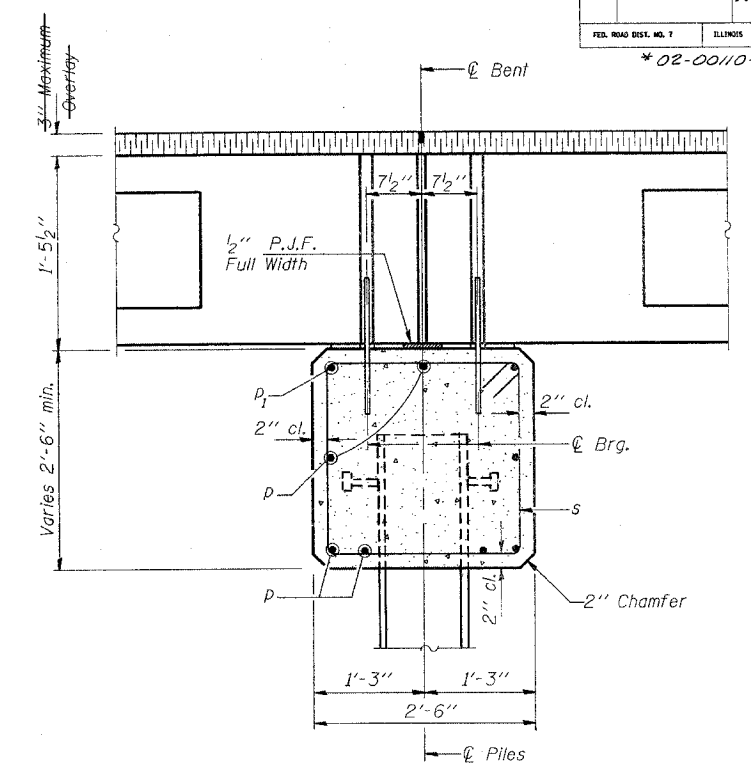
**MAXIMUM PILE LOADS**

SPAN	TONS
25'	29
30'	32
35'	35
40'	39

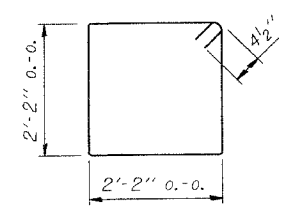
Longer of Either Span Supported by Pier.

**DESIGN STRESSES**

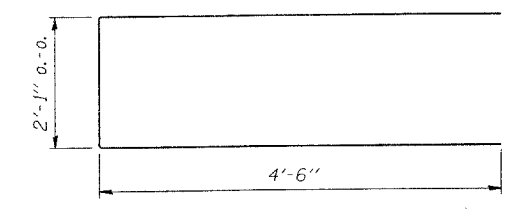
f'c = 3,500 psi  
 fy = 60,000 psi



**SECTION THRU PIER**  
 (At Right Angles)



**Bar s**



**Bar u**

**BILL OF MATERIAL FOR ONE PIER**

Bar	No.	Size	Length	Shape
p	7	#5	28'-10"	—
p1	2	#7	28'-10"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	—
Concrete Structures			7.1	Cu. Yds.
Reinforcement Bars			650	Lbs.

**NOTE**

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

P.P.C. DECK BEAMS PILE BENT PIER		
28' RDWY.	17" BMS.	'D'=0°, 5° OR 10°
STANDARD CP-2817-10		

Illinois Department of Transportation  
 PASSED November 1, 1995  
 Dr. D. Kasper  
 Engineer of Bridge Design  
 APPROVED November 1, 1995  
 Ralph E. Anderson  
 Engineer of Bridges and Structures

**NOTES**

F.A.E. ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET
02-0010-00-BE	WAYNE	11	10	
CONTRACT NO. 95424				

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft.-lbs. at 0° F.  
 All other steel shapes and plates shall conform to the requirements of AASHTO M-270 Grade 36 except posts and angles shall conform to AASHTO M-270 Grade 50.

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

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

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

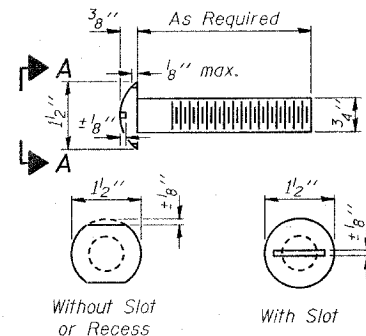
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing, Type S-1.

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

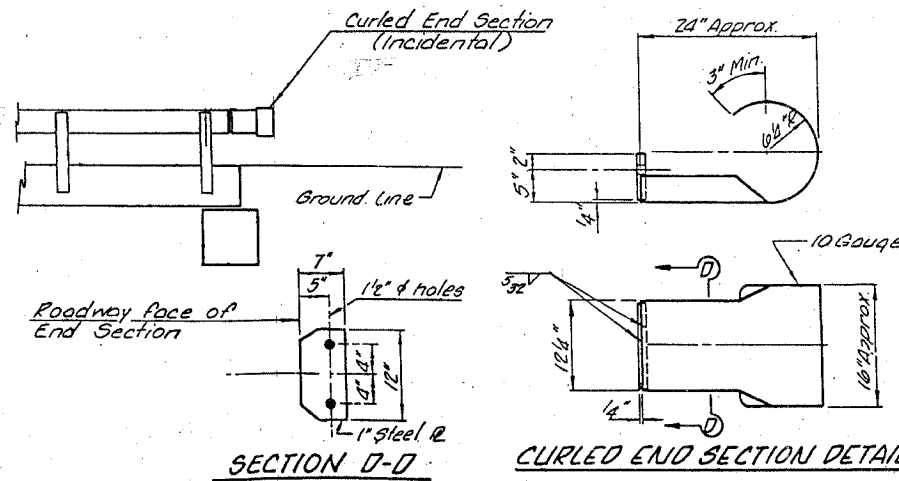
The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 760.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

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

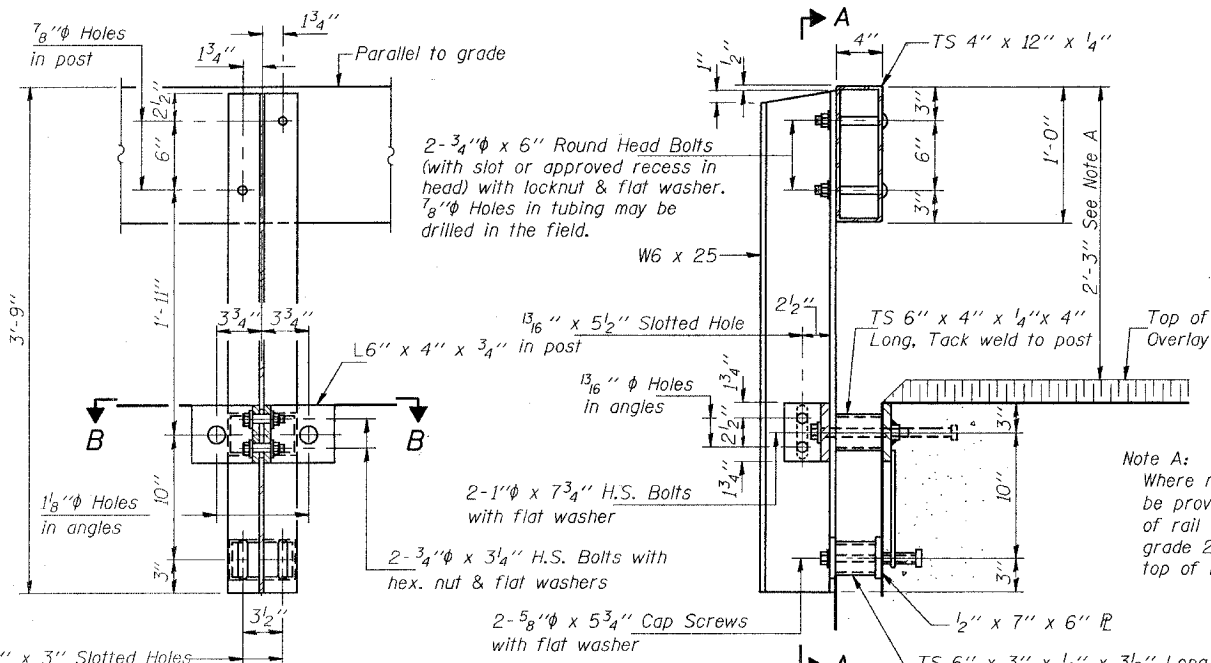
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



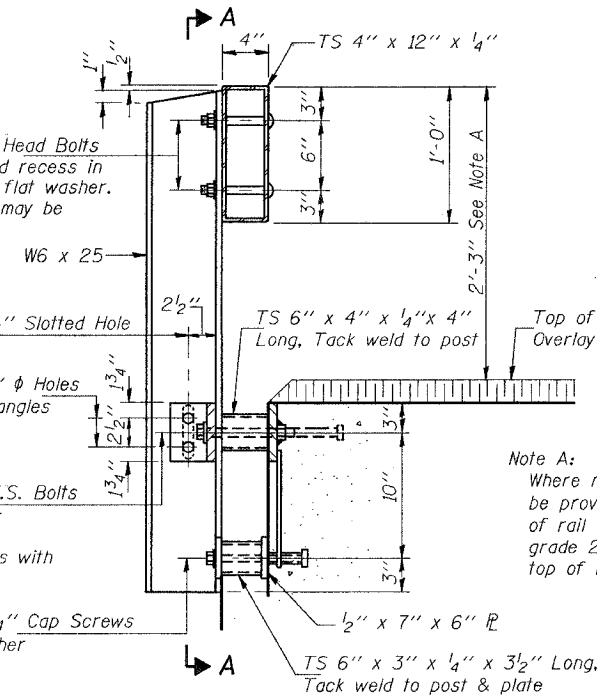
**VIEW A-A  
ROUND HEAD BOLT**



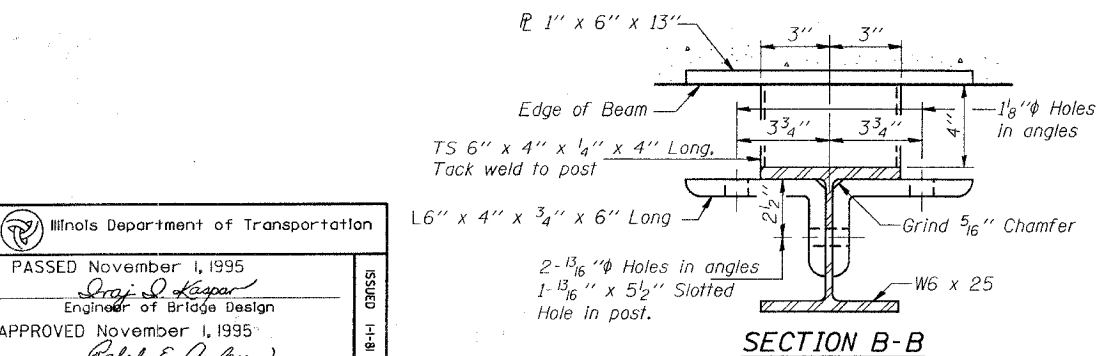
**SECTION D-D  
CURLED END SECTION DETAIL**



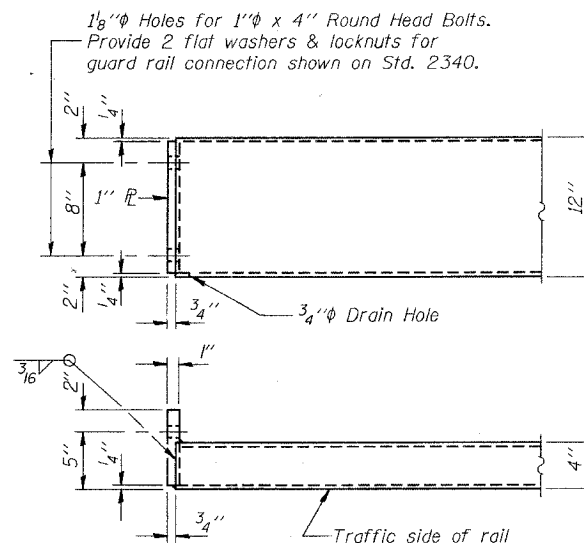
**SECTION A-A**



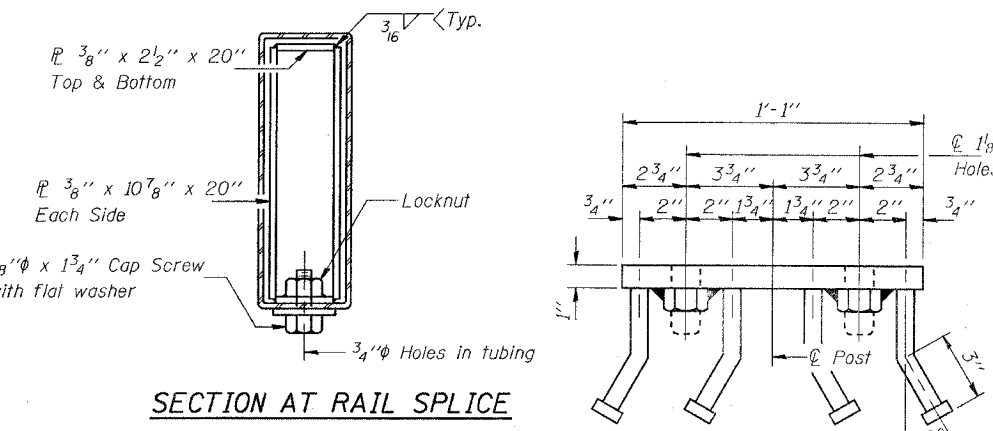
**SECTION AT RAIL POST**



**SECTION B-B**

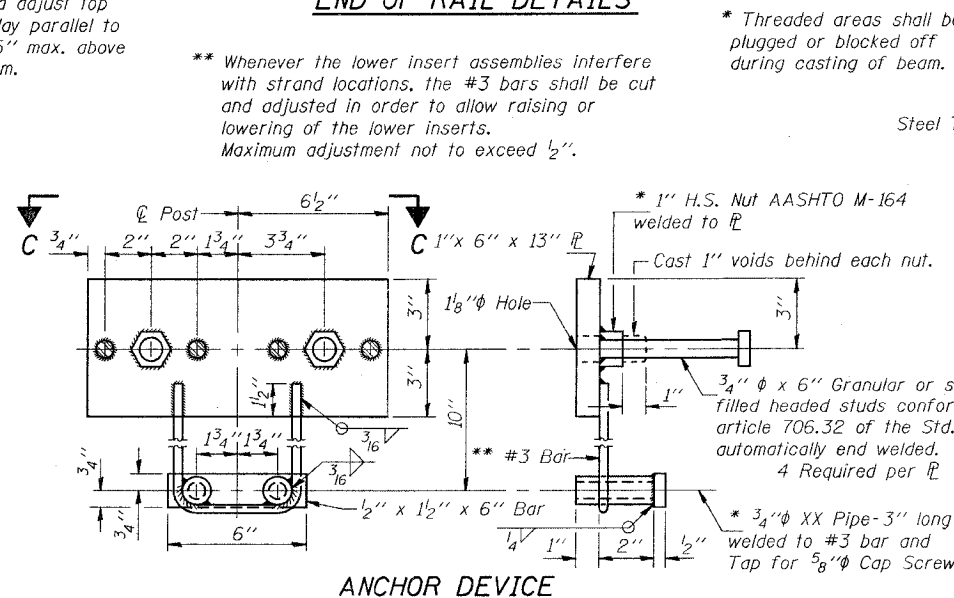


**END OF RAIL DETAILS**

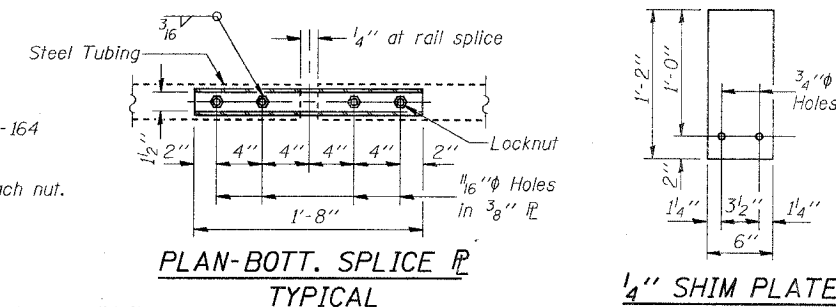


**SECTION AT RAIL SPLICE**

**VIEW C-C**



**ANCHOR DEVICE**



**PLAN-BOTT. SPLICE TYPICAL**

**1/4\" SHIM PLATE**

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

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

