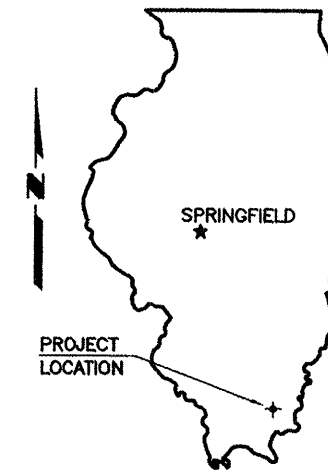


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM

COUNTY HIGHWAY 17 (HORSESHOE ROAD)
SECTION 06-00142-00-BR
PROJECT NO. BROS-165(28)
JOB NO. C-99-516-07

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 17	06-00142-00-BR	SALINE	10	1
PROJECT NO. BROS-165(28)		CONTRACT NO. 99449		



INDEX OF SHEETS

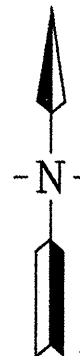
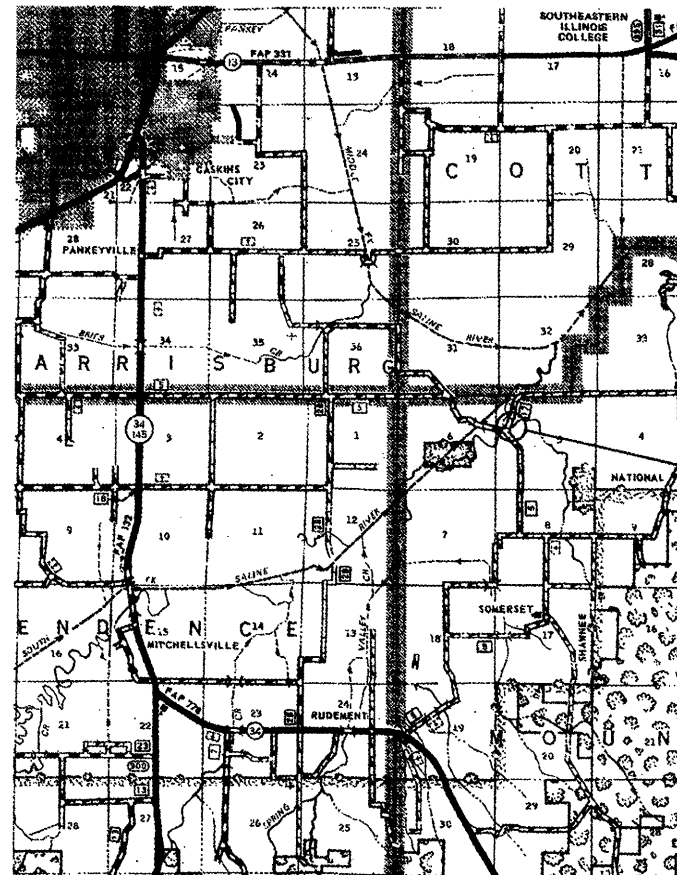
1. COVER SHEET
 2. PLAN AND PROFILE
 3. GENERAL PLAN AND ELEVATION
 4. 33" X 36" PPC DECK BEAM
 5. 33" X 36" PPC DECK BEAM DETAILS
 6. ABUTMENT
 7. STEEL RAILING, TYPE S1
 8. NAME PLATES
 9. PILING DETAILS
 10. CROSS SECTIONS
- STANDARDS 280001-05 TEMPORARY EROSION CONTROL SYSTEMS
635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-01 TRAFFIC CONTROL DEVICES
BLR 21-8 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES

SUMMARY OF QUANTITIES

CODE NO.	PAY ITEM	UNIT	TOTAL
* X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.1
20200100	EARTH EXCAVATION	CU YD	7
20300100	CHANNEL EXCAVATION	CU YD	124
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	160
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	35
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	77
50300225	CONCRETE STRUCTURES	CU YD	20.0
50300280	CONCRETE ENCASMENT	CU YD	3.4
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	1,876
50800105	REINFORCEMENT BARS	POUND	2,526
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	160
51201400	FURNISHING STEEL PILES HP10X42	FOOT	290
51202305	DRIVING PILES	FOOT	290
51204650	PILE SHOES	EACH	5
51500100	NAME PLATES	EACH	1
67100100	MOBILIZATION	L SUM	1
Δ 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

* SEE SPECIAL PROVISIONS Δ SPECIALTY ITEMS

SALINE COUNTY



PROPOSED IMPROVEMENT

LOCATION MAP

SCALE: 1" = 2 MILES

NET LENGTH OF IMPROVEMENT = 152.00 FT. = 0.0288 MILES

CLASSIFICATION : LOCAL ROAD (RURAL)
ADT : 125
DESIGN SPEED : 30 MPH

CONTRACT NO. 99449



4.22.11

Edward W. Miller

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

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

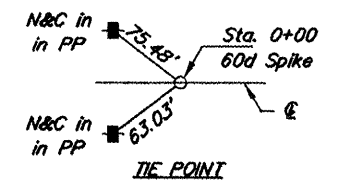
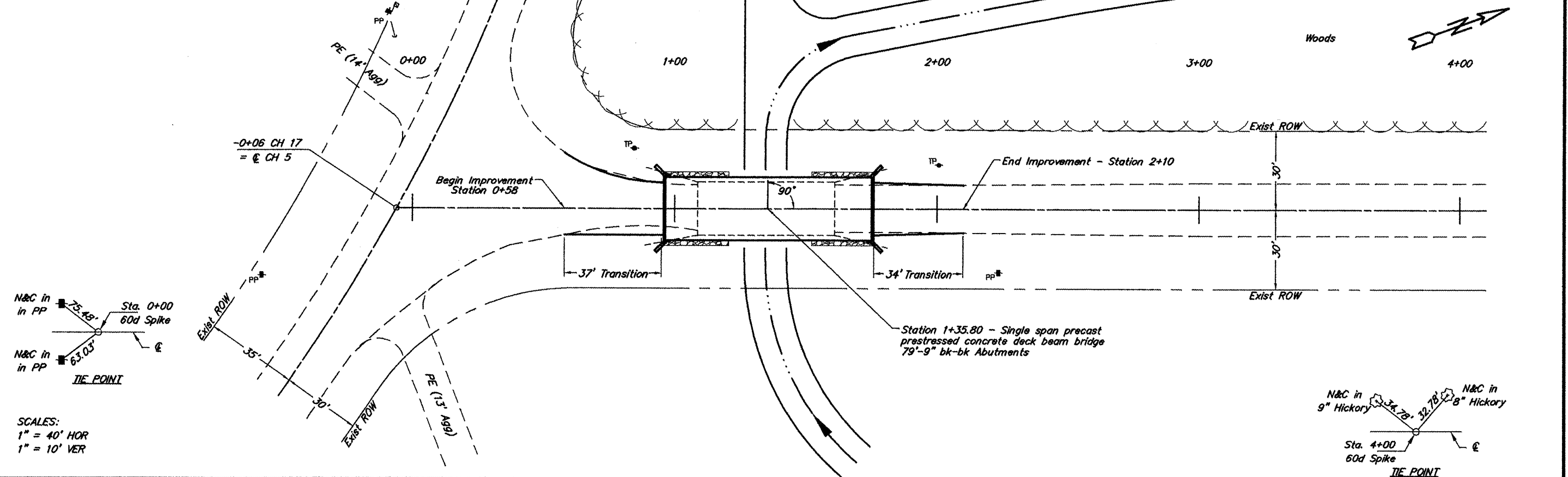


ILLINOIS DEPARTMENT OF TRANSPORTATION	
Approved	<u>04-25-2011</u> <i>[Signature]</i> Saline County Engineer
Passed	<u>5-16-2011</u> <i>[Signature]</i> District 9 Engineer of Local Roads and Streets
Releasing for Bid Based on Limited Review	<u>5-16-11</u> <i>[Signature]</i> Deputy Director of Highways, Region 5 Engineer Illinois Department of Transportation

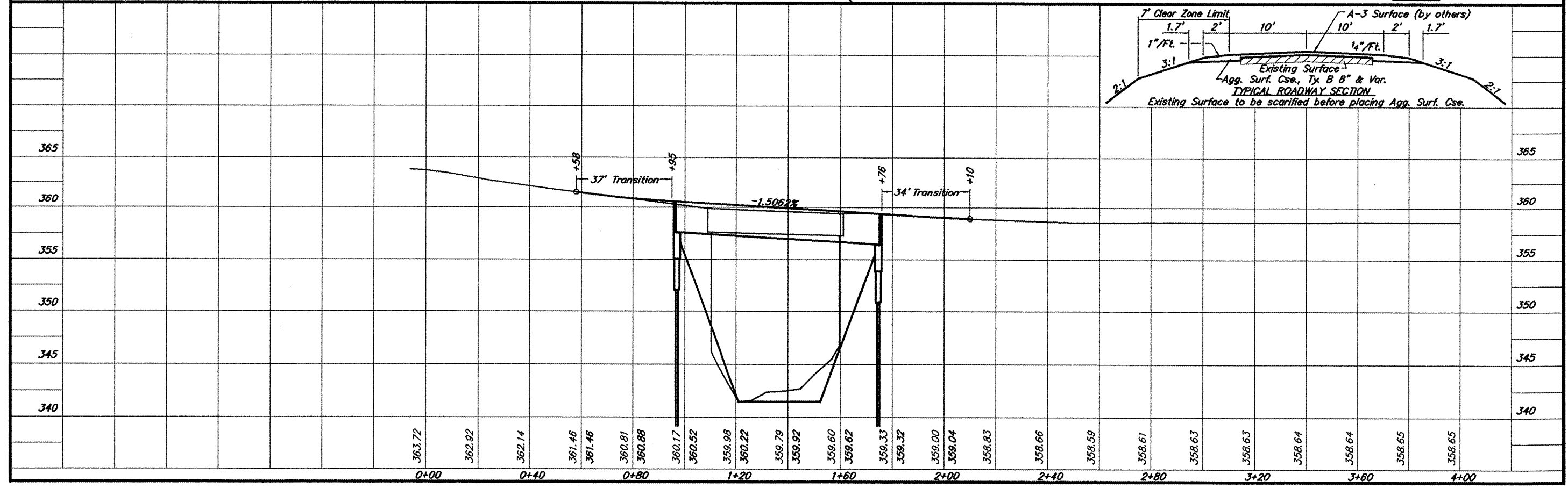
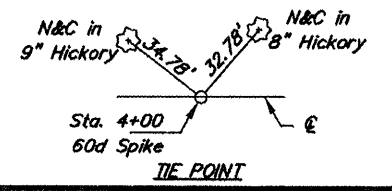
B.M. - RR Spike in PP
 24' Rt. Sta. 2+24
 Elev. 358.00

Existing Structure - Timber deck on
 steel stringers. 20.2' W x 52.2' L.

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 17	06-00142-00-BR	SALINE	10	2
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	

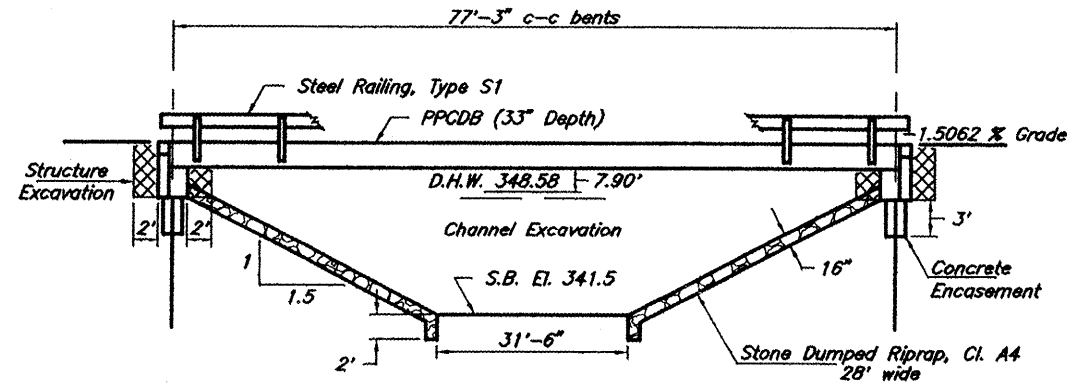


SCALES:
 1" = 40' HOR
 1" = 10' VER



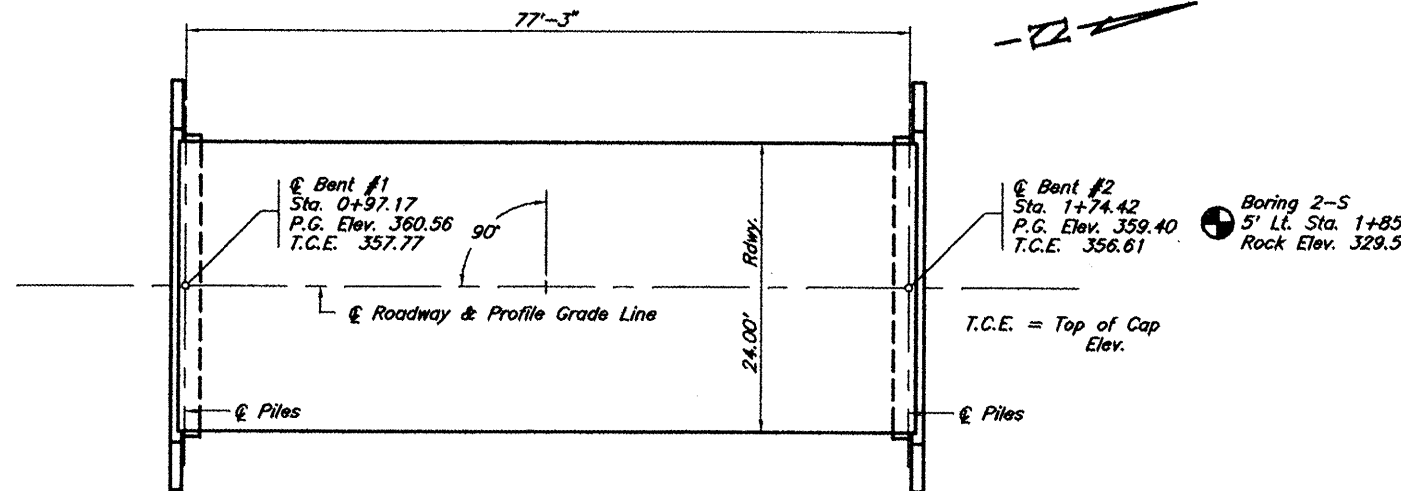
B.M. - RR Spike in PP
24' Rt. Sta. 2+24
Assumed Elev. 358.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 17	06-00142-00-BR	SALINE	10	3
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	



ELEVATION

Existing Structure - Timber deck on steel stringers with closed timber pile bent abutments. 20.2' W x 52.2' L



PLAN

Boring 1-S
7' Lt. Sta. 0+83
Rock Elev. 348.4

⊙ Bent #1
Sta. 0+97.17
P.G. Elev. 360.56
T.C.E. 357.77

⊙ Bent #2
Sta. 1+74.42
P.G. Elev. 359.40
T.C.E. 356.61

Boring 2-S
5' Lt. Sta. 1+85
Rock Elev. 329.5

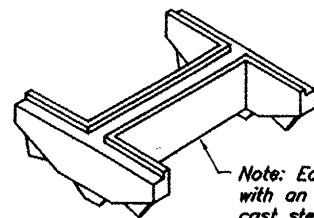
T.C.E. = Top of Cap Elev.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yds.			124	124
Stone Dumped Riprap, Cl. A4	Tons			160	160
Removal of Existing Structures	Each				1
Structure Excavation	Cu. Yds.			77	77
Concrete Structures	Cu. Yds.			20.0	20
Concrete Encasement	Cu. Yds.			3.4	3.4
P.P. Conc. Dk. Brn. 33" Dp.	Sq. Ft.	1,876			1,876
Reinforcement Bars	Pound			2,526	2,526
Steel Railing, Type S1	Foot	160			160
Furnishing Steel Piles HP10X42	Foot			290	290
Driving Piles	Foot			290	290
Pile Shoes	Each			5	5
Name Plates	Each			1	1

PILE DATA (2-ABUTS.)

Type & Size : HP10X42
Nominal Required Bearing : 312 kips
Factored Resistance Available : 147 kips
Estimated Length : 29 Feet
Number Required : 10



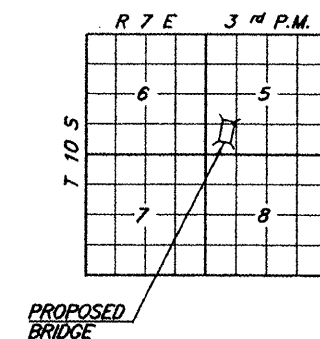
Note: Each pile shall be provided with an "APF HardBite" point or cast steel alternate, of the proper size, subject to approval of the Engineer.

PILE SHOES
South Abutment only

STATION 1+35.80
SEC. 06-00142-00-BR BUILT 20
SALINE COUNTY
LOADING HL-93
STR. NO. 083-3235

LETTERING FOR NAME PLATE

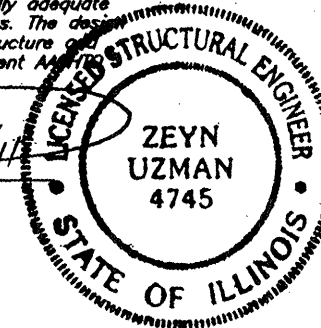
Locate Name Plate at Southeast Corner of Bridge (See Sheet 8)



LOCATION SKETCH

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

4/25/11
ZEYN B. UZMAN 012
S.E. #81-4745
Expires Nov. 30, 2012



DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications and all applicable interims.

LOADING HL-93

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

SEISMIC DATA

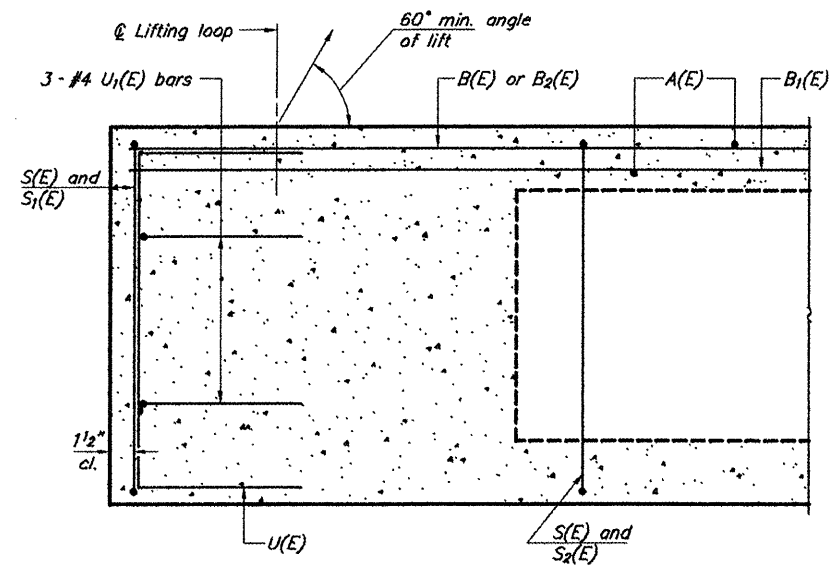
Soil Site Class = C
Design Spectral Acceleration at 0.2 sec. (S_{0.2}) = 0.704
Design Spectral Acceleration at 1.0 sec. (S_{0.1}) = 0.255
Seismic Performance Zone (SPZ) = 2

WATERWAY INFORMATION

		Drainage Area = 3.51 Sq. Mi.		Low Grade Elev. = 358.58		At Sta. 2+50	
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Natural H.W.E.	Head-Ft. Exist. Prop.	Headwater El. Exist. Prop.	
Design	15	1,950	264.4 348.6	348.58	0.86 0.37	349.44 348.95	
Base	100	3,370	377.6 426.9	350.87	1.76 0.93	352.63 351.80	
Overtopping							
Max. Calc.	500	4,800	456.1 525.4	352.46	3.22 1.81	355.68 354.27	

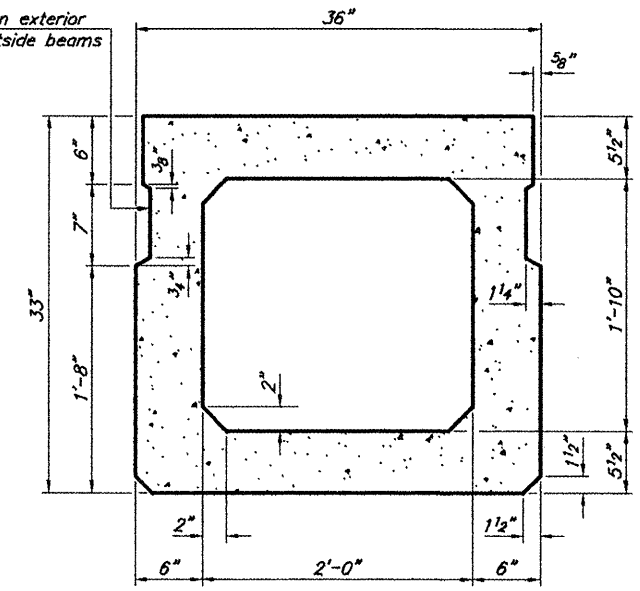
GENERAL PLAN & ELEVATION
COUNTY HIGHWAY 17 (HORSESHOE ROAD)
TRIBUTARY TO SOUTH FORK SALINE RIVER
SECTION 06-00142-00-BR
SALINE COUNTY
STRUCTURE NO. 083-3235

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
CH 17	06-00142-00-BR	SALINE	10	4
PROJECT NO. BROS-165(28)		CONTRACT NO. 99449		

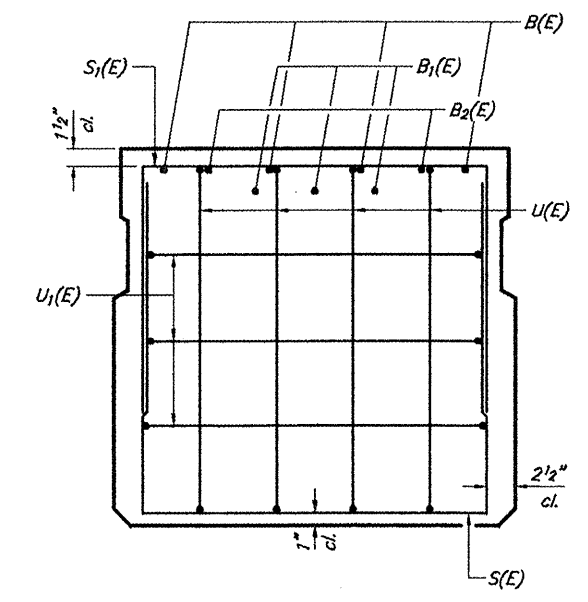


SECTION C-C

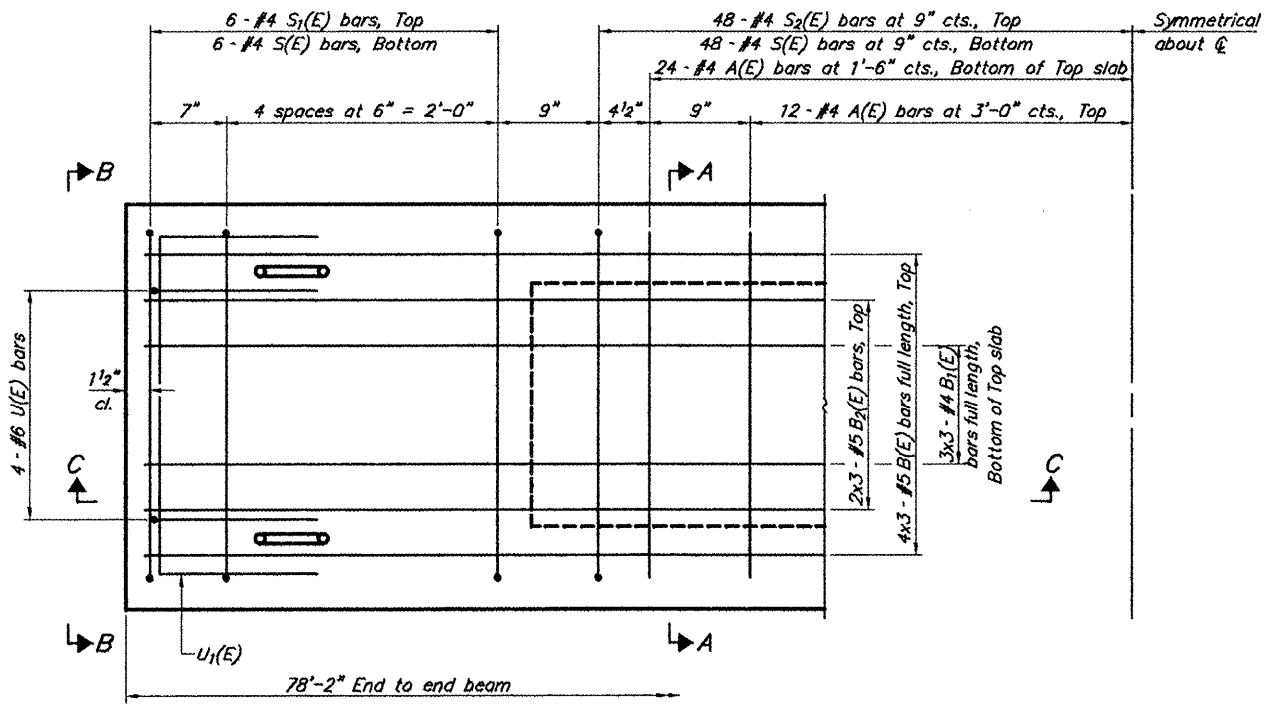
Omit key on exterior face of outside beams



SECTION A-A
(Showing dimensions)

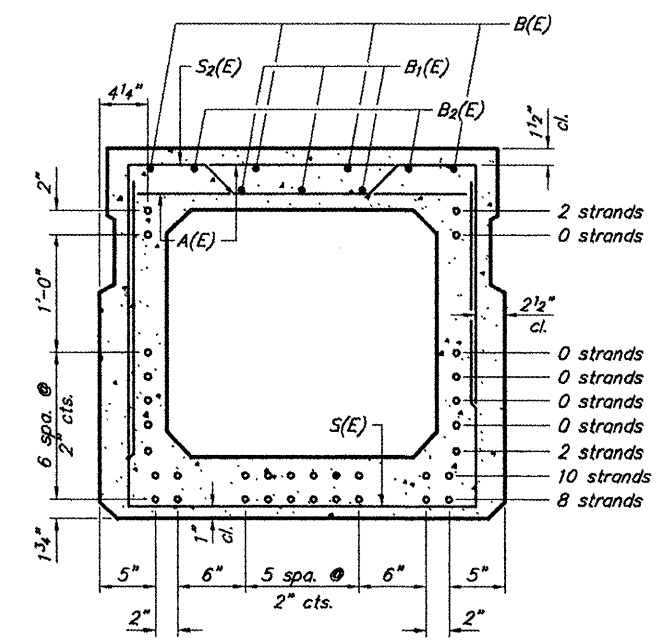


VIEW B-B



PLAN VIEW

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



SECTION A-A
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

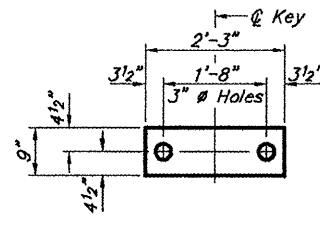
BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	72	#4	2'-7"	—
B(E)	12	#5	27'-5"	—
B1(E)	9	#4	27'-1"	—
B2(E)	6	#5	27'-5"	—
S(E)	108	#4	7'-5"	□
S1(E)	12	#4	6'-3"	□
S2(E)	96	#4	6'-6"	□
U(E)	8	#6	5'-0"	□
U1(E)	6	#4	5'-0"	□

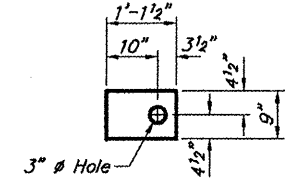
Bar Laps #4 bars = 1'-8"
#5 bars = 2'-2"

33" X 36" PPC DECK BEAM
COUNTY HIGHWAY 17 (HORSESHOE ROAD)
TRIBUTARY TO SOUTH FORK SALINE RIVER
SECTION 06-00142-00-BR
SALINE COUNTY
STRUCTURE NO. 083-3235

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
CH 17	06-00142-00-BR	SALINE	10	5
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	



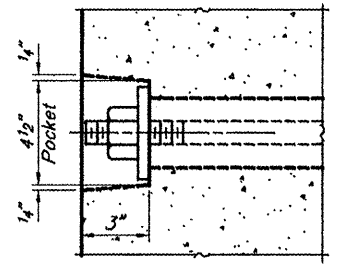
FABRIC BEARING PAD (Interior)



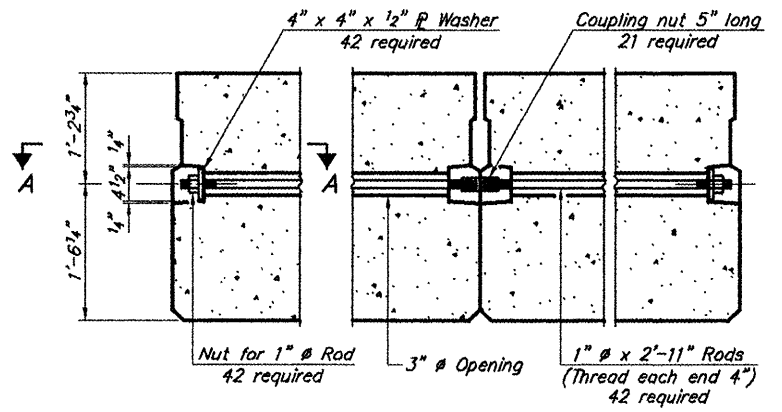
FABRIC BEARING PAD (Exterior)

FIXED

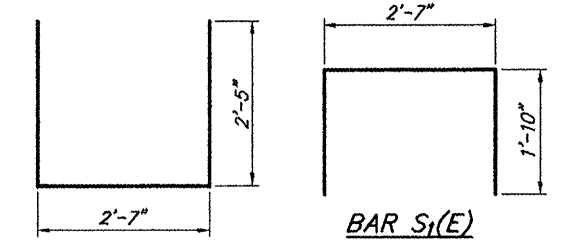
Note: Omit holes when using expansion bearings.



SECTION A-A

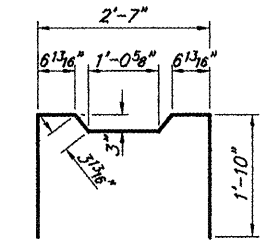


TYPICAL TRANSVERSE TIE ASSEMBLY



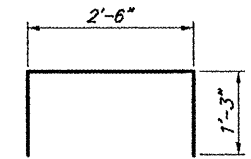
BAR S₁(E)

BAR S(E)

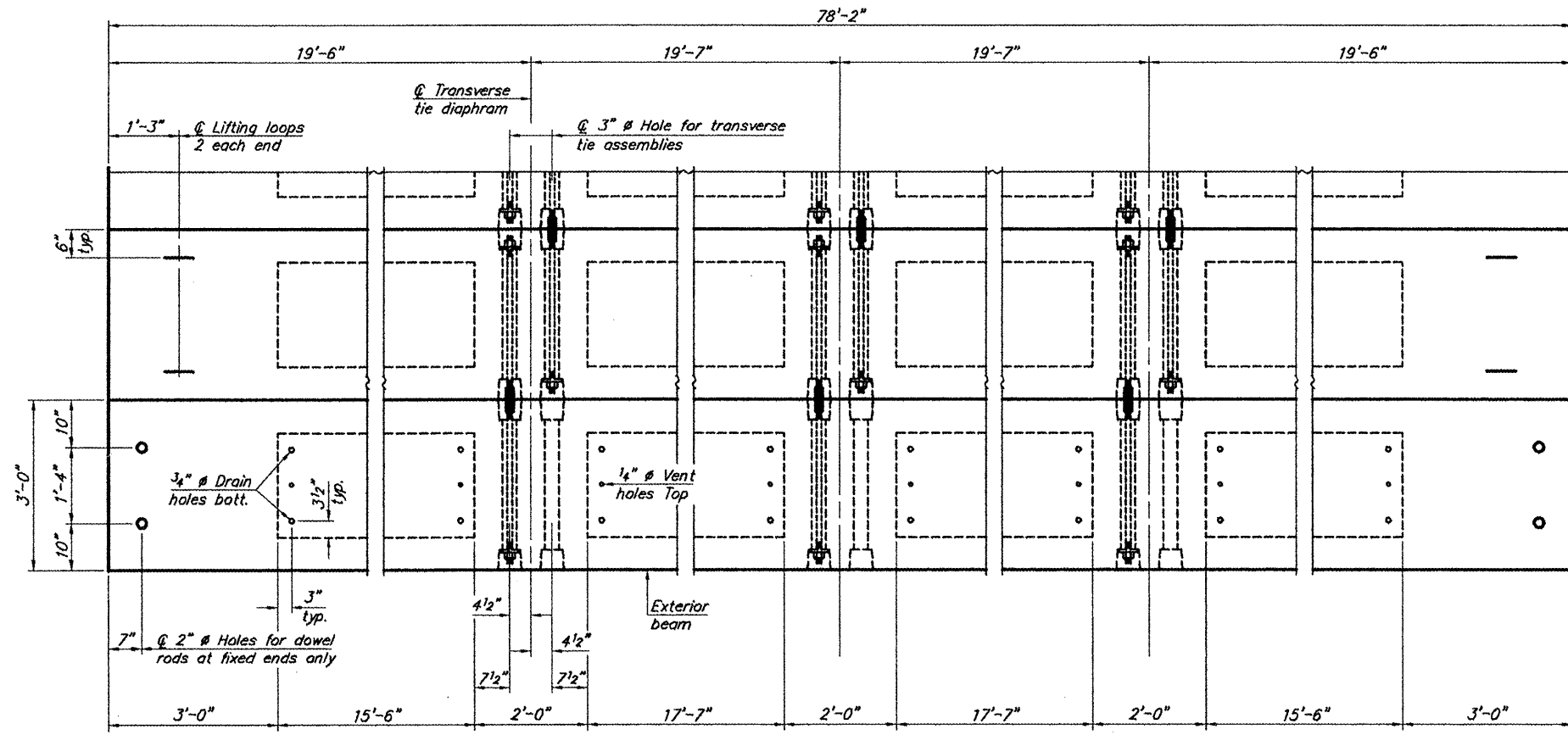


BAR U(E)

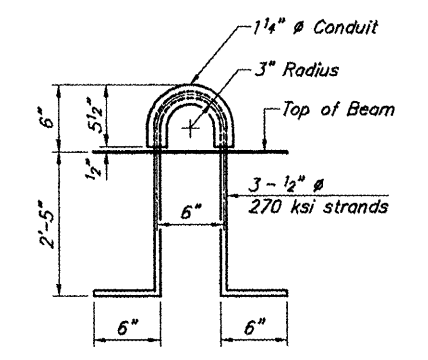
BAR S₂(E)



BAR U₁(E)



PLAN VIEW

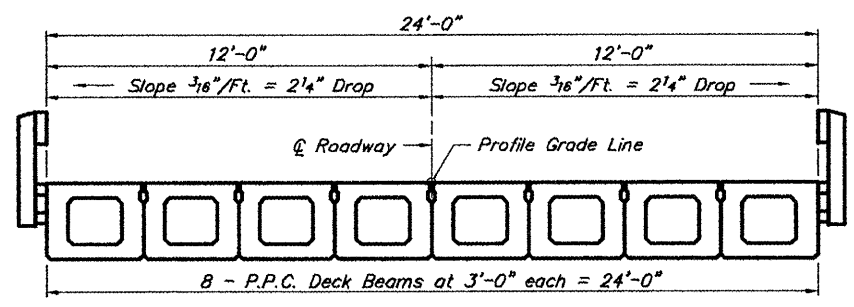


LIFTING LOOP DETAIL

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

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling. Corrosion inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f'_c, shall be 6000 psi. Compressive strength of prestressed concrete at release, f'_{ci}, shall be 5000 psi.



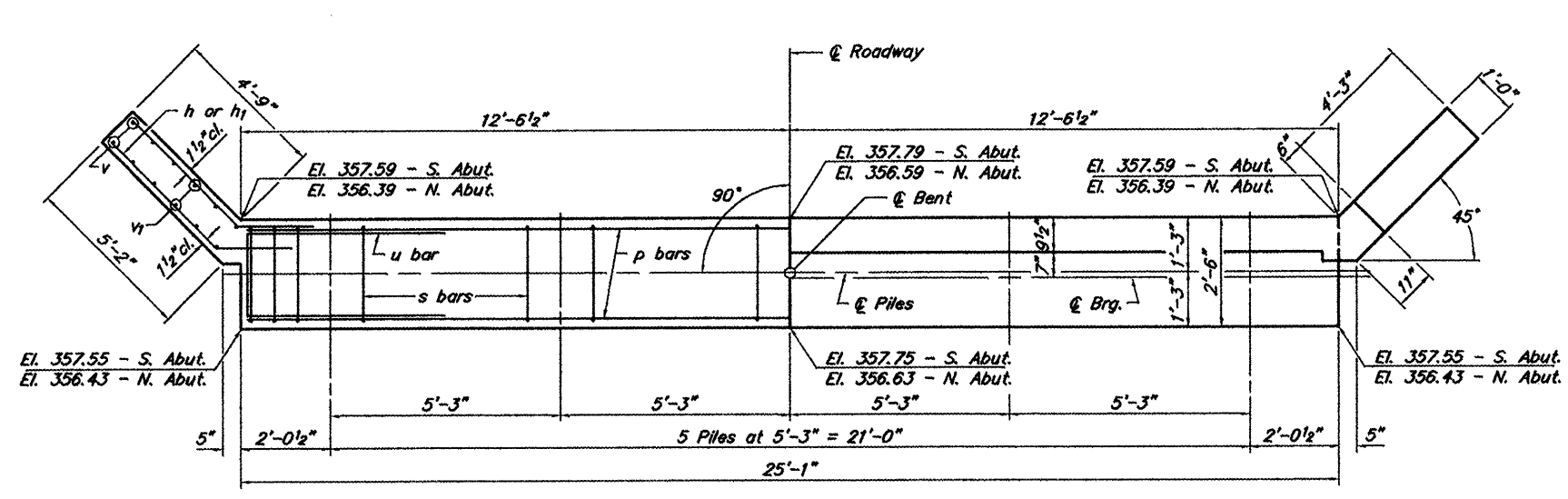
CROSS SECTION

BILL OF MATERIAL

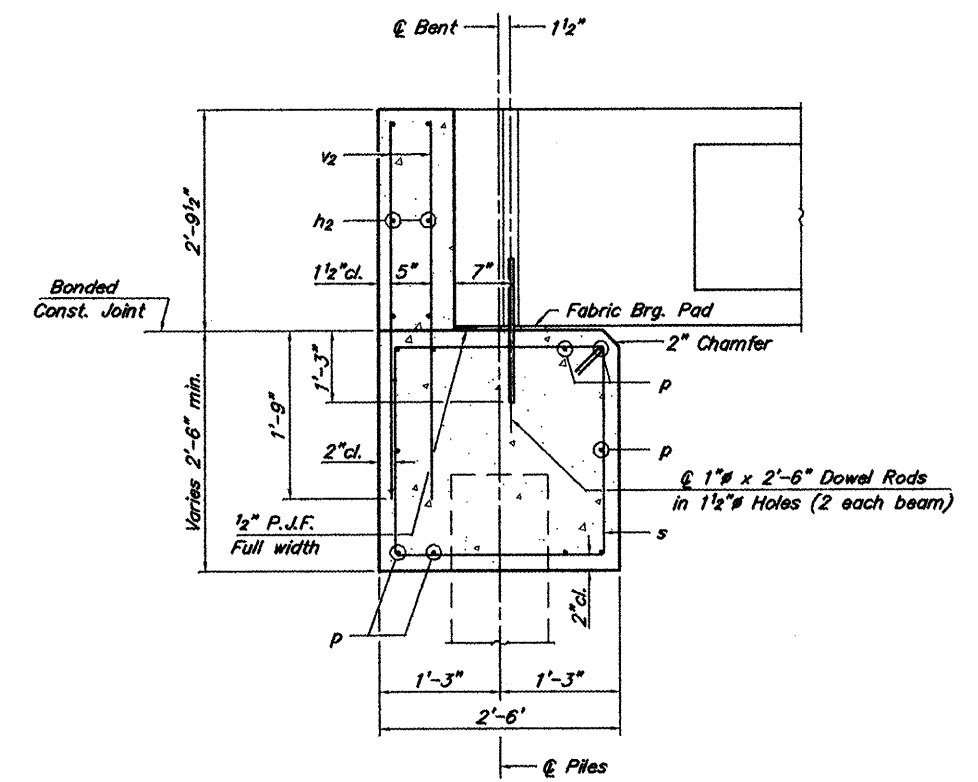
Material	Sq. Ft.	Quantity
Precast Prestressed Conc. Deck Bms. (33" depth)		1,876

33" X 36" PPC DECK BEAM DETAILS
 COUNTY HIGHWAY 17 (HORSESHOE ROAD)
 TRIBUTARY TO SOUTH FORK SALINE RIVER
 SECTION 06-00142-00-BR
 SALINE COUNTY
 STRUCTURE NO. 083-3235

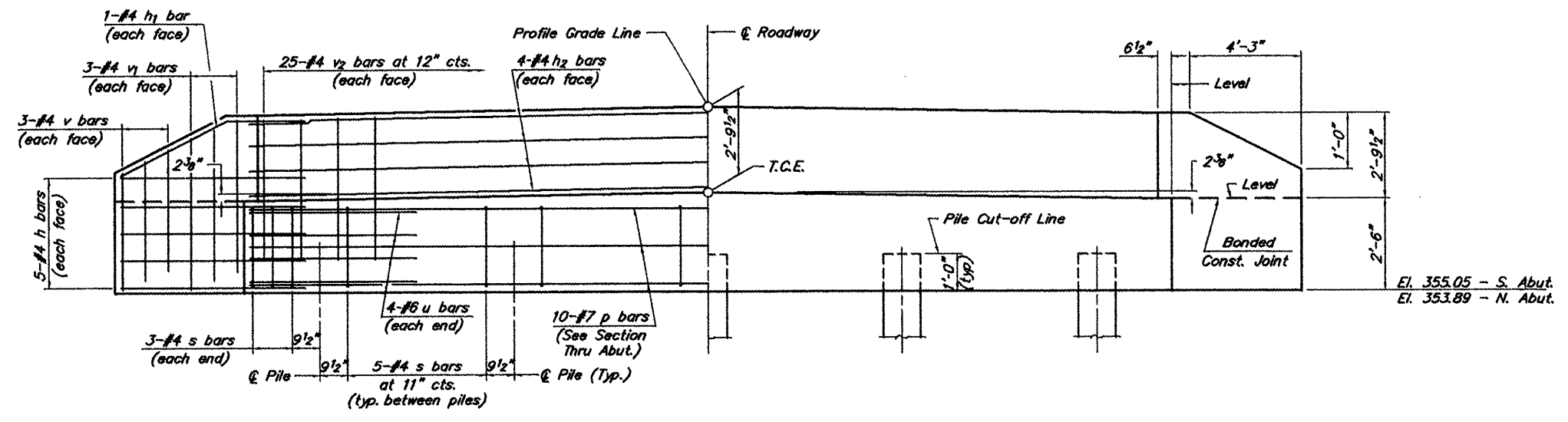
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
CH 17	06-00142-00-BR	SALINE	10	6
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	



PLAN



SECTION THRU ABUT.
(At Right Angles)



ELEVATION

BAR LIST FOR ONE ABUTMENT

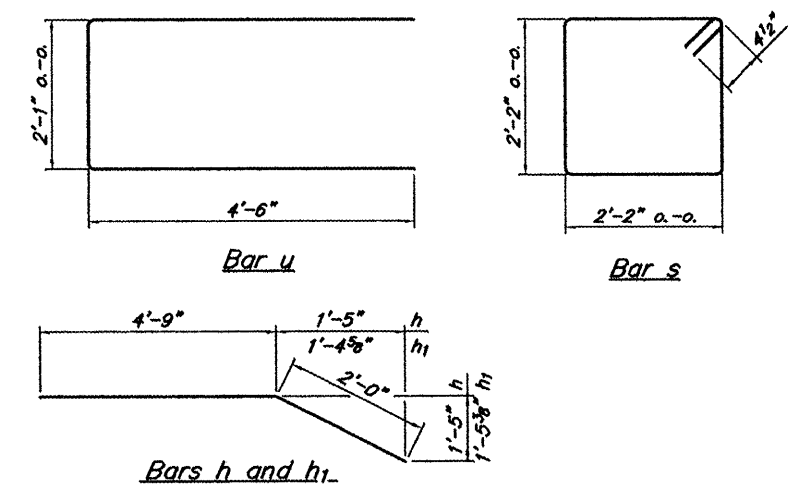
Bar	No.	Size	Length	Shape
h	16	#4	6'-9"	—
h ₁	4	#4	6'-9"	—
h ₂	8	#4	24'-9"	—
P	10	#7	24'-9"	—
s	26	#4	9'-5"	□
u	8	#6	11'-1"	—
v	12	#4	4'-2"	—
v ₁	12	#4	4'-10"	—
v ₂	50	#4	4'-5"	—

NOTES

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

DESIGN STRESSES

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

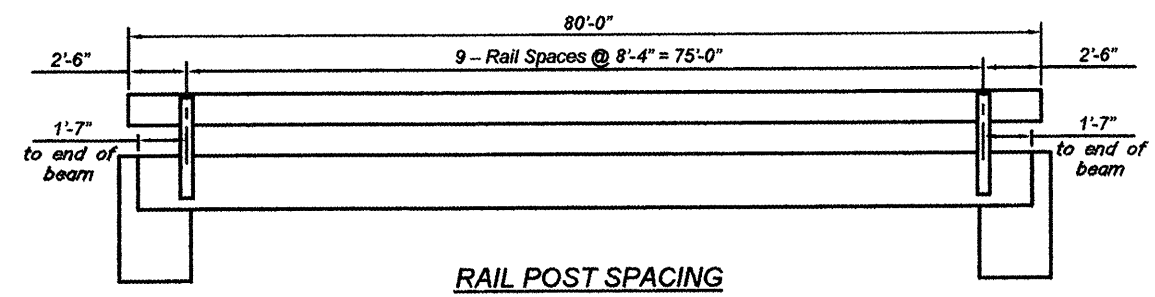


QUANTITIES FOR ONE ABUTMENT

Concrete Structures	10.0	Cu. Yds.
Reinforcement Bars	1,263	Lbs.

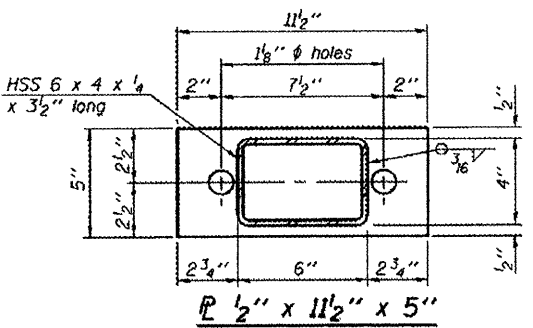
ABUTMENT
COUNTY HIGHWAY 17 (HORSESHOE ROAD)
TRIBUTARY TO SOUTH FORK SALINE RIVER
SECTION 06-00142-00-BR
SALINE COUNTY
STRUCTURE NO. 083-3235

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 17	06-00142-00-BR	SALINE	10	7
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	

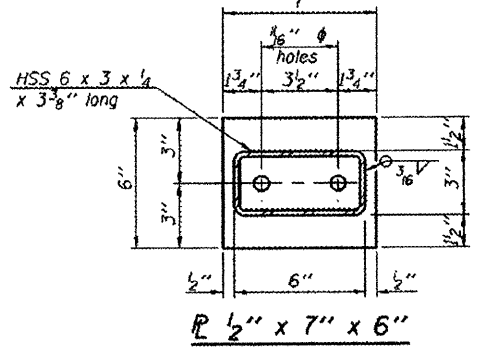


RAIL POST SPACING

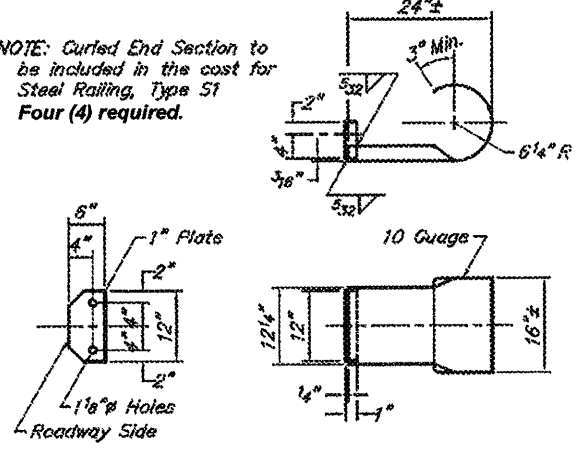
NOTE: Curled End Section to be included in the cost for Steel Railing, Type S1 Four (4) required.



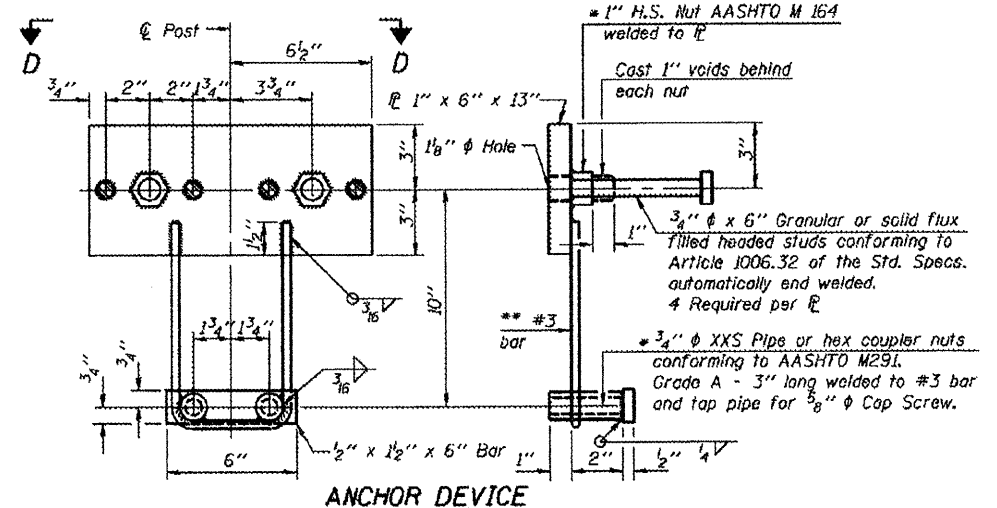
R 1/2" x 11 1/2" x 5"



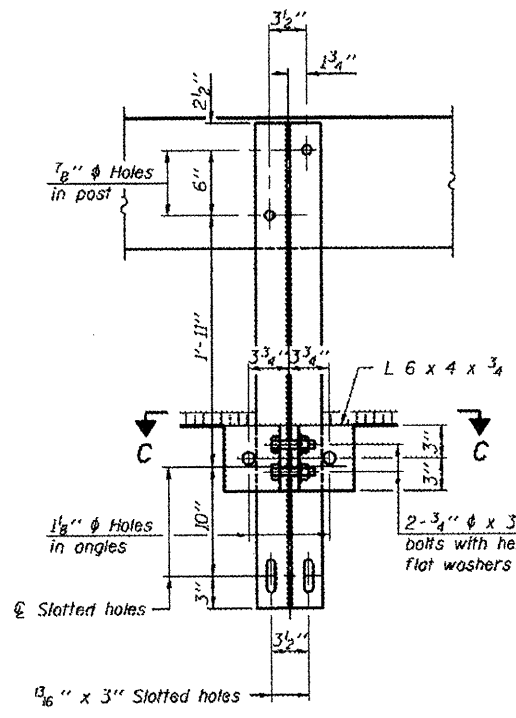
R 1/2" x 7" x 6"



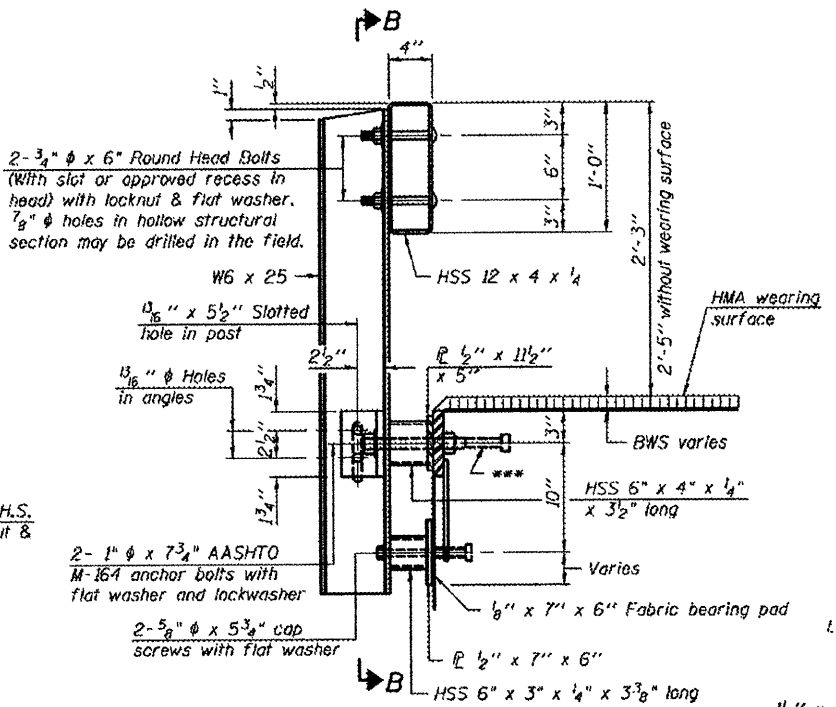
CURLLED END SECTION DETAILS



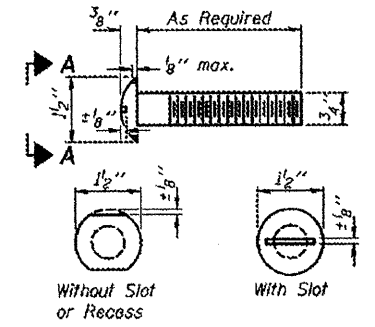
ANCHOR DEVICE



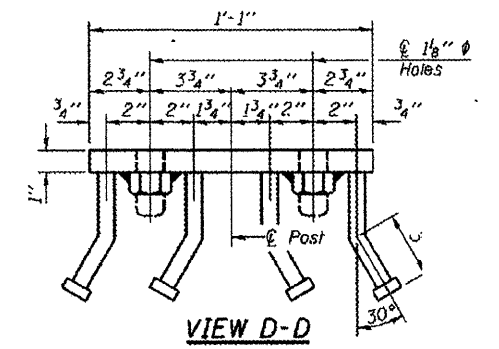
SECTION B-B



SECTION AT RAILING POST



VIEW A-A ROUND HEAD BOLT

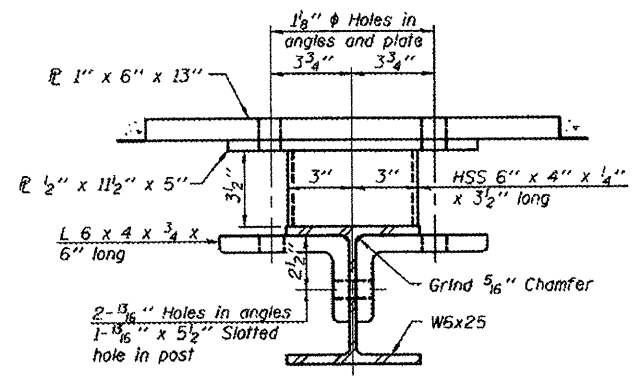


VIEW D-D

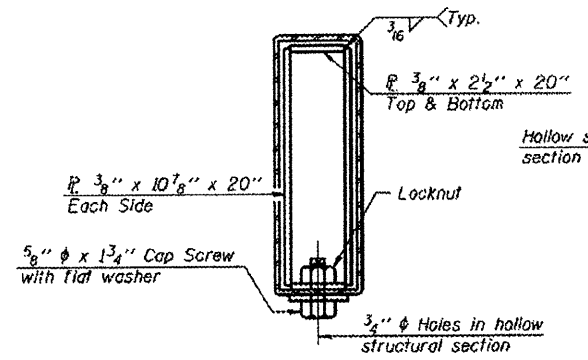
Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection. For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1. All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 * Threaded areas shall be plugged or blocked off during casting of beam.
 ** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".
 *** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.
 10'-9" Maximum Post Spacing

BILL OF MATERIAL

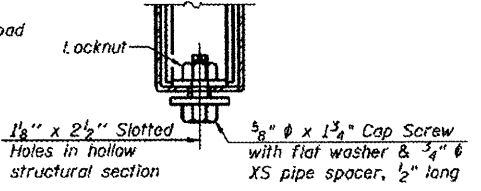
Item	Unit	Quantity
Steel Railing, Type S-1	Foot	160



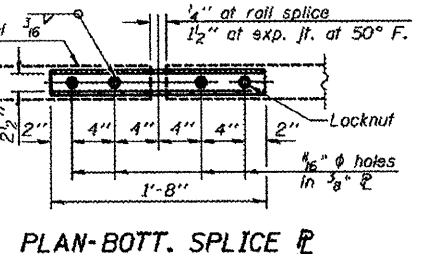
SECTION C-C



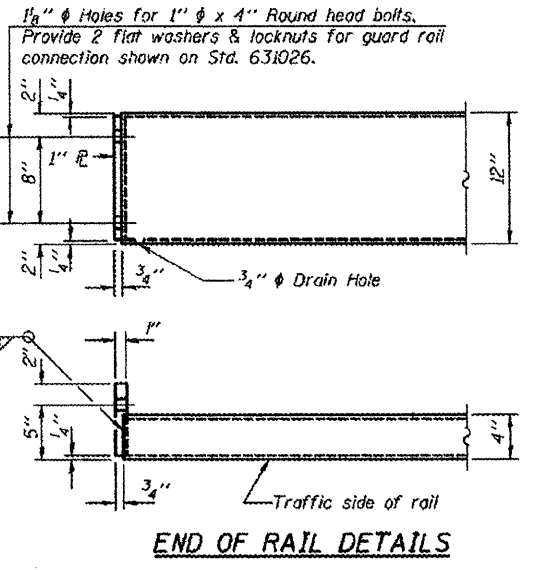
SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



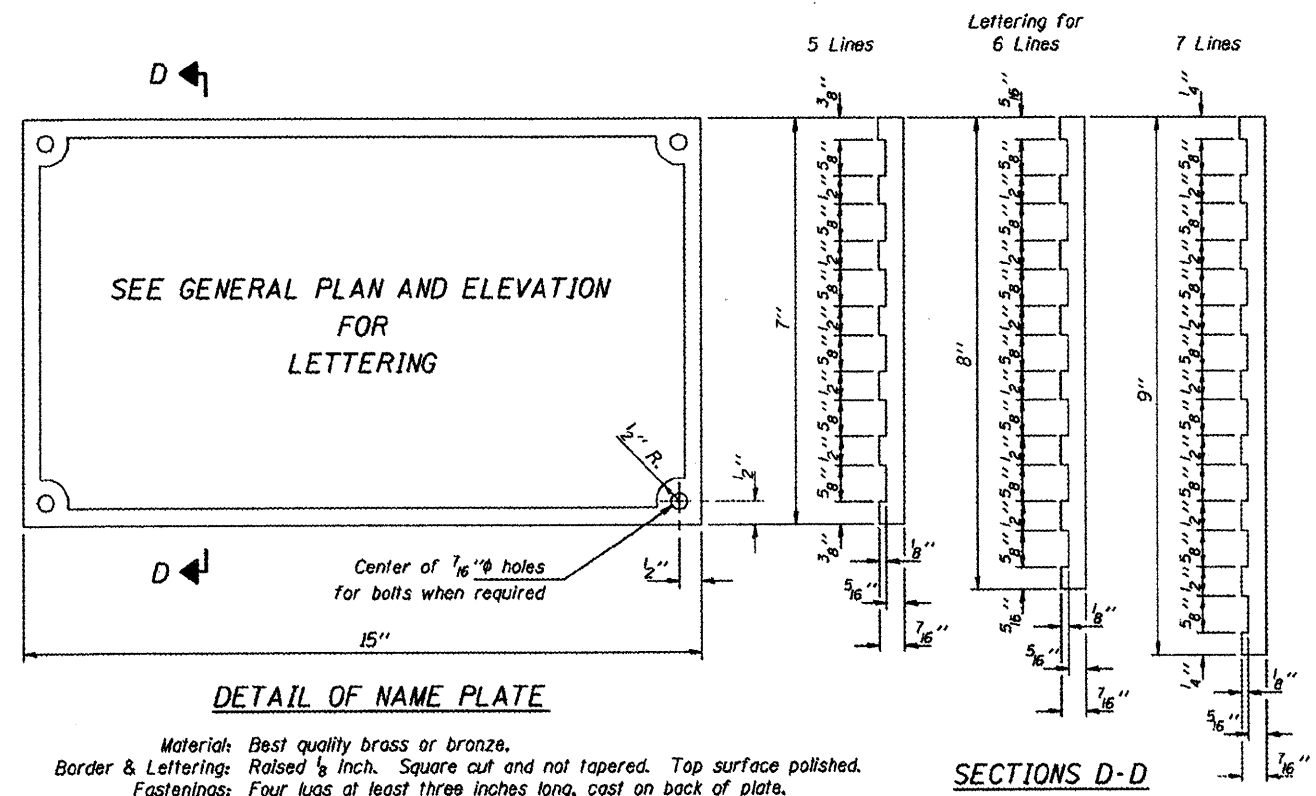
PLAN-BOTT. SPLICE TYPICAL



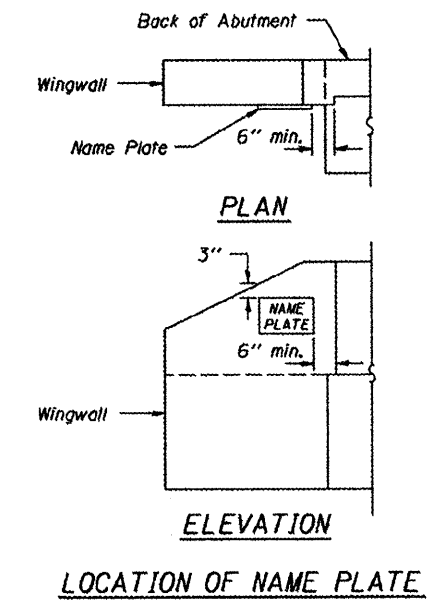
END OF RAIL DETAILS

STEEL RAILING, TYPE S-1
COUNTY HIGHWAY 17 (HORSESHOE ROAD)
TRIBUTARY TO SOUTH FORK SALINE RIVER
SECTION 06-00142-00-BR
SALINE COUNTY
STRUCTURE NO. 083-3235

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 17	06-00142-00-BR	SALINE	10	8
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	

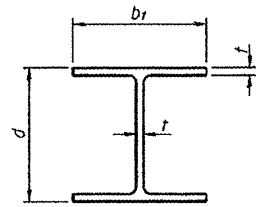


DETAIL OF NAME PLATE
 Material: Best quality brass or bronze.
 Border & Lettering: Raised 1/8 inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.



NAME PLATES
 COUNTY HIGHWAY 17 (HORSESHOE ROAD)
 TRIBUTARY TO SOUTH FORK SALINE RIVER
 SECTION 06-00142-00-BR
 SALINE COUNTY
 STRUCTURE NO. 083-3235

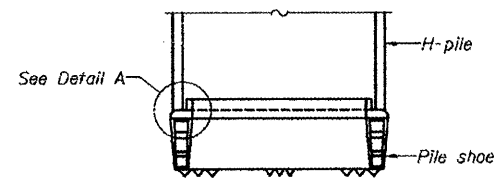
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 17	06-00142-00-BR	SALINE	10	9
PROJECT NO. BROS-165(28)			CONTRACT NO. 99449	



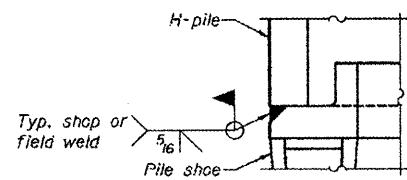
STEEL PILE TABLE

Designation	Depth <i>d</i>	Flange width <i>br</i>	Web and Flange thickness <i>t</i>	Encasement diameter <i>A</i>	Encasement Quantity/Ft. C.Y.
HP 14x117	14 1/4"	14 7/8"	13/16"	30"	0.173
x102	14"	14 3/4"	1/16"	30"	0.174
x89	13 7/8"	14 3/4"	5/8"	30"	0.175
x73	13 5/8"	14 5/8"	1/2"	30"	0.176
HP 12x84	12 1/4"	12 1/4"	1/16"	24"	0.110
x74	12 1/8"	12 1/4"	5/8"	24"	0.111
x63	12"	12 1/8"	1/2"	24"	0.112
x53	11 3/4"	12"	7/16"	24"	0.112
HP 10x57	10"	10 1/4"	9/16"	24"	0.112
x42	9 3/4"	10 1/8"	1/16"	24"	0.113
HP 8x36	8"	8 3/8"	7/16"	18"	0.063

Note: The steel H-piles shall be according to AASHTO M270 Grade 50.

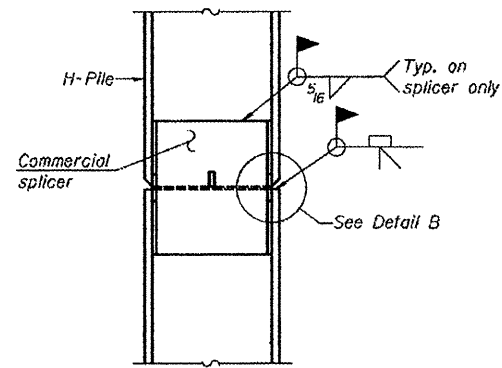


ELEVATION

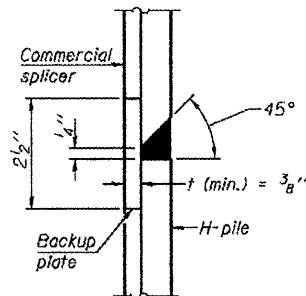


DETAIL A

H-PILE SHOE ATTACHMENT

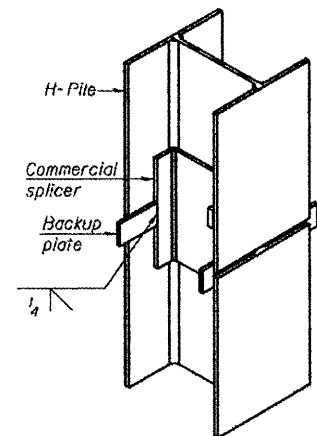


ELEVATION

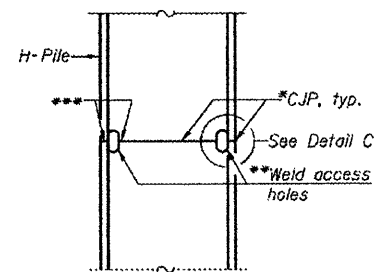


DETAIL "B"

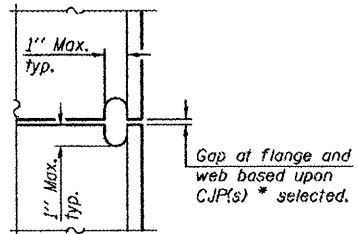
WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW

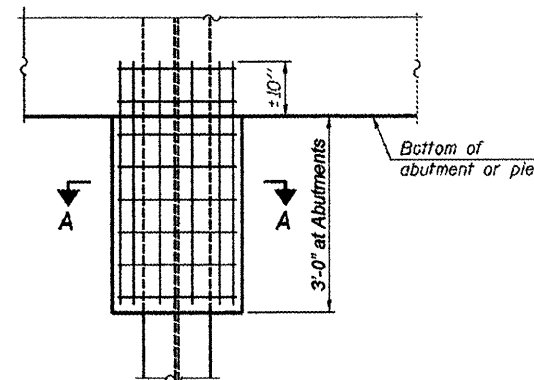


ELEVATION



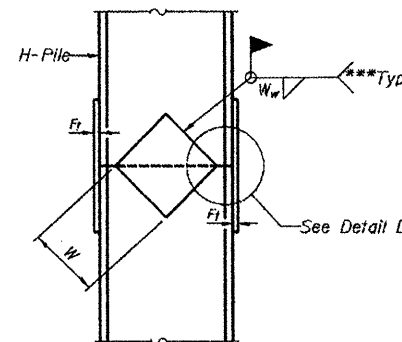
DETAIL C

COMPLETE PENETRATION WELD SPLICE

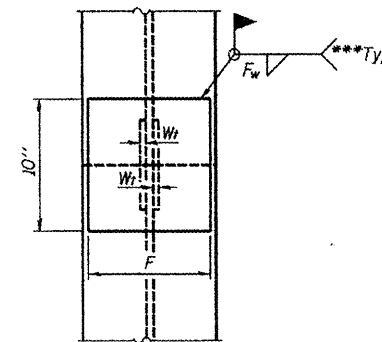


ELEVATION

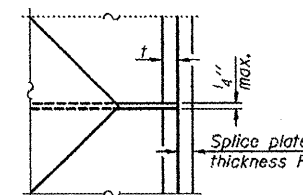
PILE ENCASEMENT



ELEVATION

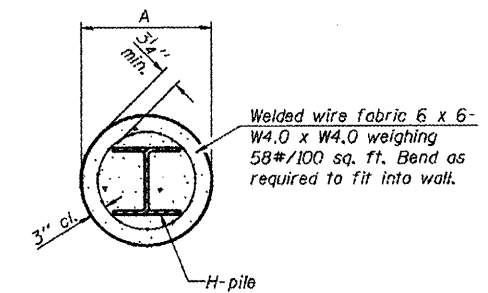


END VIEW



DETAIL D

WELDED PLATE FIELD SPLICE



SECTION A-A

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

Designation	F	F _t	F _w	W	W _t	W _w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 1/2"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 1/2"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 1/2"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 1/2"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	5 1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	5 1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	4 1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	4 1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	4 1/2"	3/8"

*Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.

**Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.

***Interrupt welds 1/4" from end of each pile.

PILING DETAILS
COUNTY HIGHWAY 17 (HORSESHOE ROAD)
TRIBUTARY TO SOUTH FORK SALINE RIVER
SECTION 06-00142-00-BR
SALINE COUNTY
STRUCTURE NO. 083-3235

