

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 140	*	SHELBY	10	1

PROJECT BROS-173(150)

+ 05-09119-00-BR

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM  
PROJECT NO. BROS-173(150)  
T.R. 140 OVER MITCHELL CREEK  
SECTION 05-09119-00-BR  
LAKEWOOD ROAD DISTRICT  
SHELBY COUNTY  
JOB NO. C-97-059-07

**INDEX OF SHEETS**

- 1 - TITLE SHEET
- 2 - SUMMARY OF QUANTITIES, DETAILS, & TYPICAL SECTIONS
- 3 - PLAN & PROFILE
- 4 - GENERAL PLAN & ELEVATION
- 5 - SUPERSTRUCTURE
- 6 - RAILING
- 7 - ABUTMENTS
- 8 & 9 - CROSS SECTIONS
- 10 - STEEL PILE DETAILS

**STANDARDS**

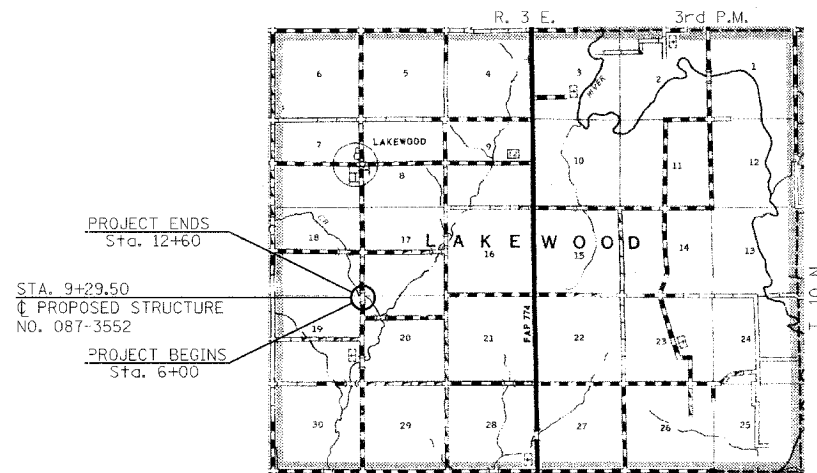
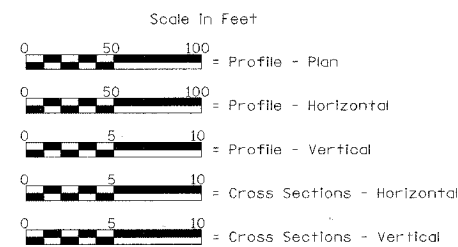
- STANDARD 000001-04
- STANDARD 280001-03
- STANDARD 515001-02
- STANDARD 635006-02
- STANDARD 702001-06
- STANDARD BLR 21-6

**DESCRIPTION**

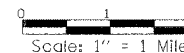
- STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- TEMPORARY EROSION CONTROL SYSTEMS
- NAME PLATE FOR BRIDGES
- REFLECTOR AND TERMINAL MARKER PLACEMENT
- TRAFFIC CONTROL DEVICES
- TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

EXISTING STRUCTURE: SINGLE SPAN TIMBER DECK BRIDGE ON STEEL STRINGERS WITH CLOSED TIMBER ABUTMENTS, WINGWALLS ON TIMBER PILES, ±40'-0" BK.-BK. ABUTMENTS, ±21'-0" CLEAR DECK WIDTH, TUBULAR STEEL RAILING. EXISTING STRUCTURE NO. 087-3126

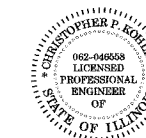
PROPOSED STRUCTURE: SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAMS (27") ON OPEN CONCRETE ABUTMENTS. 24'-0" OUT.-OUT. DECK, 66'-0" BK.-BK. ABUTMENTS. STEEL RAILING TYPE S1. 10° SKEW LT. FORWARD. PROPOSED STRUCTURE NO. 087-3552



**LOCATION PLAN**  
Length of Section - 660.00 Feet = 0.125 Miles



Land Section - 17, 18, 19, 20  
Land Quarter Section - S.W., S.E., N.E., N.W.  
Design Class: Local Road (Non-Urban)  
A.D.T. = 109(2004)  
A.D.T. < 150(2027)  
30 M.P.H. Design Speed



*Christopher P. Reblum* 3/30/07  
EXPIRATION DATE 11/30/07

APPROVED	10/20/07
	<i>[Signature]</i>
	COUNTY ENGINEER
APPROVED	04-27-07
	<i>[Signature]</i>
	ROAD COMMISSIONER
PASSED	4-12-07
	<i>[Signature]</i>
	DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
Releasing for Bid Based on Limited Review	4/12/07
	<i>[Signature]</i>
	DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER
	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

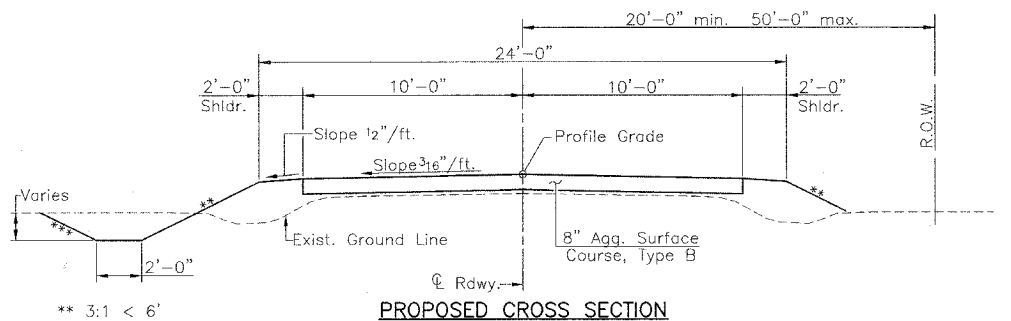
FILE NAME: SC1915 (REV. 3/30/07)

TOLL FREE  
"JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS"  
(CALL I.E.J.) TELEPHONE NUMBER  
1-800-892-9123

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R.140	*	SHELBY	10	2

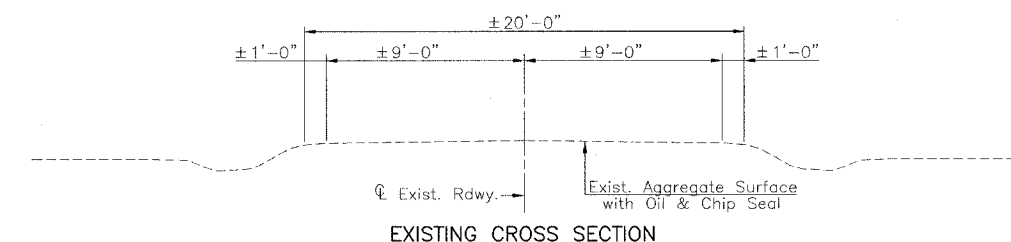
PROJECT BROS-173(150)

\* 05-09119-00-BR



PROPOSED CROSS SECTION

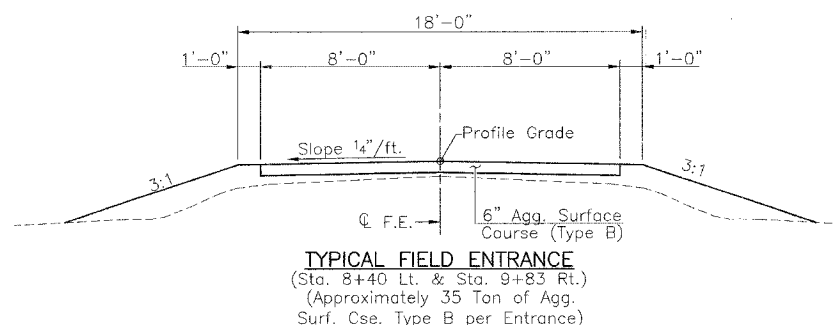
\*\* 3:1 < 6'  
\*\*\* 3:1 < 10'  
2:1 ≥ 10'



EXISTING CROSS SECTION

**EARTHWORK SCHEDULE**

Location	Earth Excavation	Earth Excavation Adjusted For Shrinkage	Embankment	Earthwork Balance Waste (+) or Shortage (-)
	Cubic Yard	Cubic Yard	Cubic Yard	Cubic Yard
Sta. 6+00 to Sta. 7+00	43	32	96	-64
Sta. 7+00 to Sta. 8+00	31	23	311	-288
Sta. 8+00 to Sta. 8+96.5	18	13	450	-437
Bridge Omission—Sta. 8+96.5 to Sta. 9+62.5	—	—	—	—
Sta. 9+62.5 to Sta. 10+00	93	70	212	-142
Sta. 10+00 to Sta. 11+00	170	128	354	-226
Sta. 11+00 to Sta. 12+00	52	39	143	-104
Sta. 12+00 to Sta. 12+60	16	12	4	+8
Total	423	317	1570	-1253



TYPICAL FIELD ENTRANCE  
(Sta. 8+40 Lt. & Sta. 9+83 Rt.)  
(Approximately 35 Ton of Agg. Surf. Cse. Type B per Entrance)

**SUMMARY OF QUANTITIES**

Code No.	Item	Unit	Quantity
20100110	Tree Removal (6 to 15 Units Diameter)	Unit	25
20200100	Earth Excavation	Cu. Yd.	423
20300100	Channel Excavation	Cu. Yd.	311
20400800	Furnished Excavation	Cu. Yd.	1253
* 25000200	Seeding, Class 2	Acre	0.8
25000400	Nitrogen Fertilizer Nutrient	Pound	72
25000500	Phosphorus Fertilizer Nutrient	Pound	72
25000600	Potassium Fertilizer Nutrient	Pound	72
* 25100115	Mulch, Method 2	Acre	0.8
* 28000250	Temporary Erosion Control Seeding	Pound	100
28000300	Temporary Ditch Checks	Each	2
* 28000500	Inlet and Pipe Protection	Each	2
* 28100207	Stone Riprap, Class A4	Ton	440
* 28102600	Stone Riprap Ditch	Ton	118
28200200	Filter Fabric	Sq. Yd.	756
* 40200800	Aggregate Surface Course, Type B	Ton	658
50100100	Removal of Existing Structures	Each	1
50200100	Structure Excavation	Cu. Yd.	70
50300225	Concrete Structures	Cu. Yd.	24.2
50300280	Concrete Encasement	Cu. Yd.	2.2
50400505	Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1552
50800105	Reinforcement Bars	Pound	2510
50900205	Steel Railing, Type S1	Foot	132
51201400	Furnishing Steel Piles HP10x42	Foot	234
51202305	Driving Piles	Foot	234
51203400	Test Pile Steel HP10x42	Each	2
51500100	Name Plates	Each	1
* 542D0223	Pipe Culverts, Class D, Type 1 18"	Foot	42
* 542D0235	Pipe Culverts, Class D, Type 1 30"	Foot	56
67100100	Mobilization	L. Sum	1
78201000	Terminal Marker - Direct Applied	Each	4

\* See Special Provisions

Construction Type Code: X080

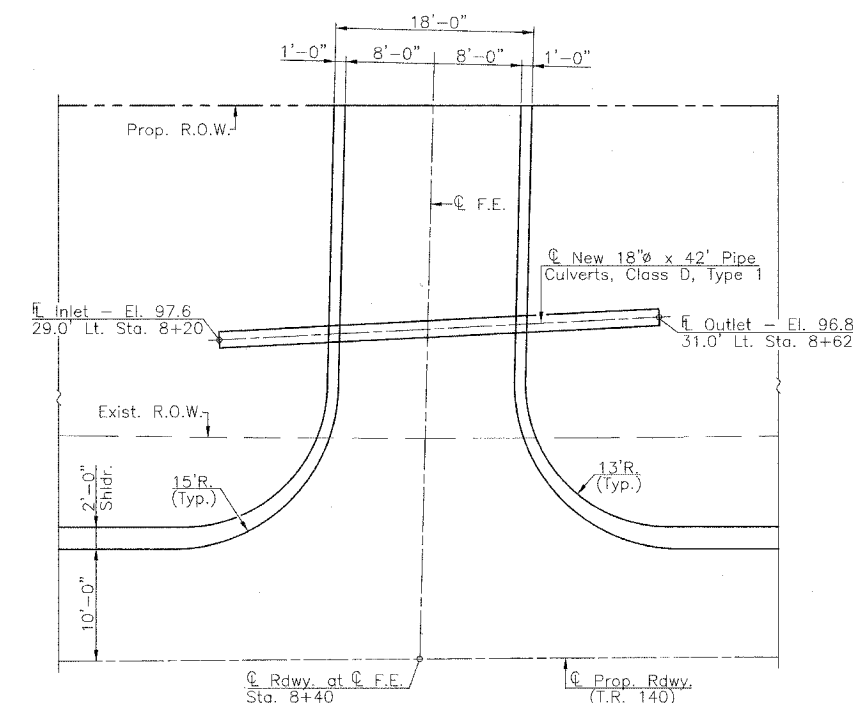
**GENERAL NOTES**

Where section or subsection stones are encountered, the Engineer shall be notified before such stones are removed. The contractor shall protect and preserve all property markers and monuments until the owner, authorized surveyor, or agent has witnessed or referenced their location.

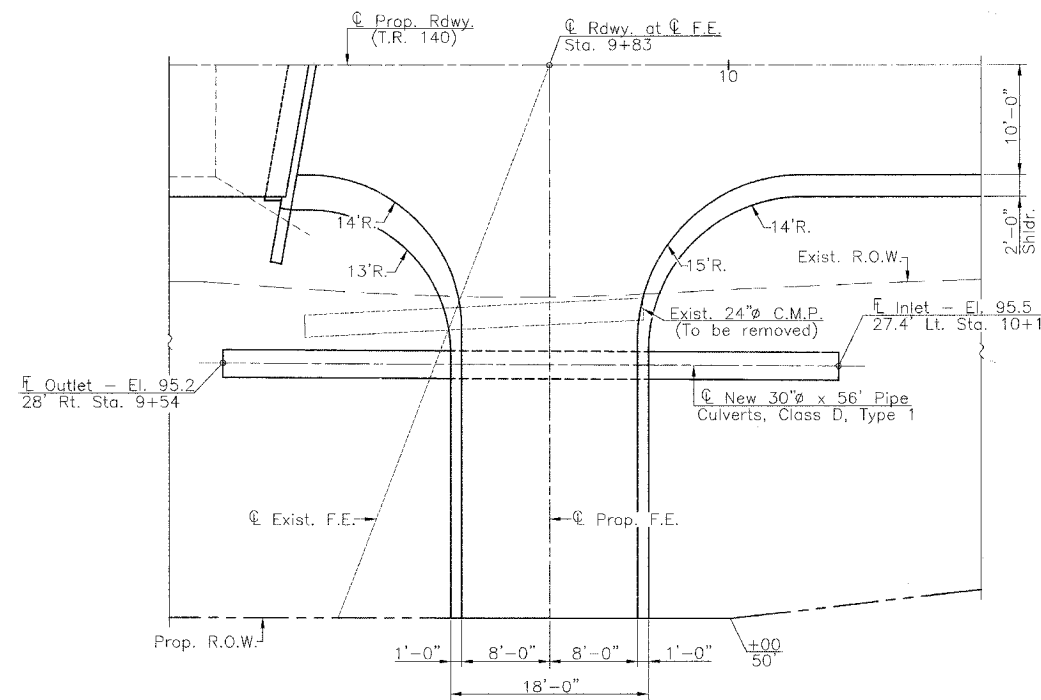
Seeding: Fertilizer nutrients shall be applied at a ratio of 1:1:1 and at a rate of 90 pounds per acre for each nutrient.

Mulch shall be applied at the rate of 2 tons per acre.

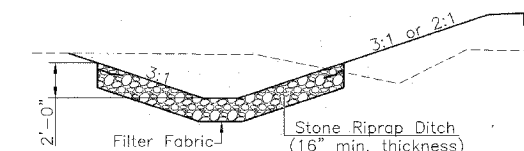
Areas to be seeded shall consist of all disturbed earth surfaces within the right-of-way as directed by the Engineer.



PLAN  
(F.E. Sta. 8+40 Lt.)



PLAN  
(F.E. Sta. 9+83 Rt.)



STONE RIPRAP DITCH DETAIL  
(Sta. 9+67.5 to Sta. 11+00 Lt.)

SUMMARY OF QUANTITIES  
DETAILS AND TYPICAL SECTIONS  
T.R. 140 OVER MITCHELL CREEK  
SECTION 05-09119-00-BR  
SHELBY COUNTY

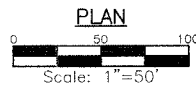
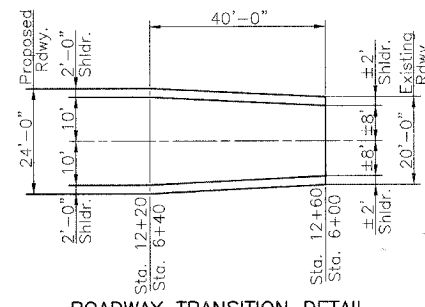
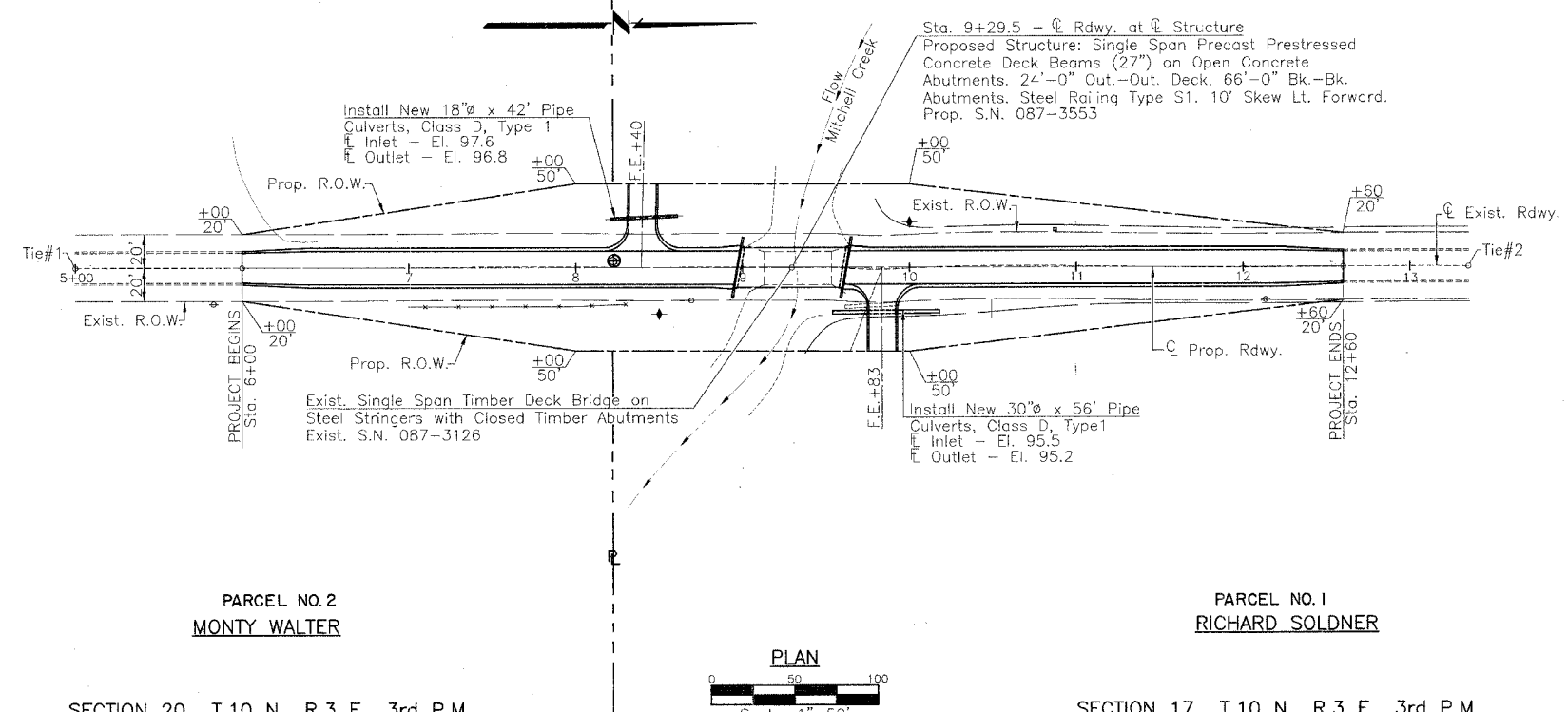
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R.140	*	SHELBY	10	3
PROJECT BROS-173(150)				
* 05-09119-00-BR				

SECTION 19 T.10 N., R.3 E., 3rd P.M.

SECTION 18 T.10 N., R.3 E., 3rd P.M.

PARCEL NO.3  
C.E. McDONALD

PARCEL NO.4  
RICHARD SOLDNER



SCHEDULE TREE REMOVAL (6 TO 15 UNITS DIAMETER)

Location	Quantity (Unit)
Sta. 8+68 19' Rt.	8
Sta. 8+69 20' Rt.	8
Sta. 8+71 20' Rt.	9
<b>Total</b>	<b>25</b>

SCHEDULE DITCH CHECKS

Location	Quantity (Each)
Sta. 8+50 28' Rt.	1
Sta. 10+00 27' Lt.	1
<b>Total</b>	<b>2</b>

SCHEDULE INLET & PIPE PROTECTION

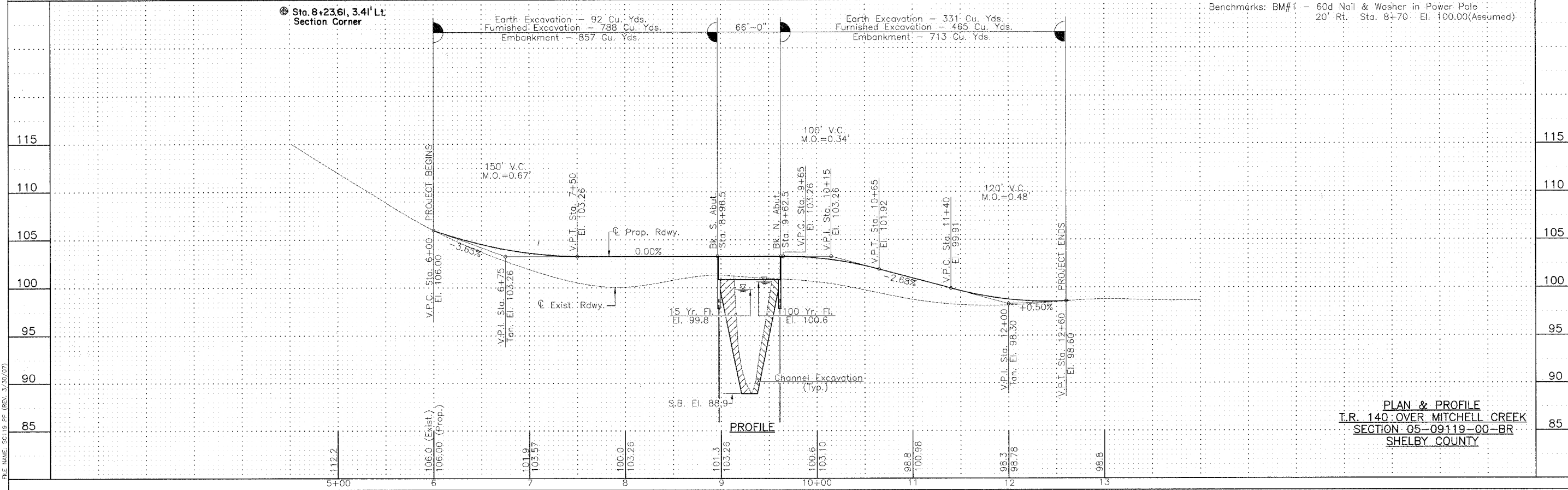
Location	Quantity (Each)
Sta. 8+20 to Sta. 8+62 Lt.	1
Sta. 9+54 to Sta. 10+10 Rt.	1
<b>Total</b>	<b>2</b>

UTILITIES

Shelby Electric Cooperative  
 North Route 128  
 Shelbyville, Illinois 62565  
 Consolidated Communications Inc.  
 121 South 17th Street  
 Mattoon, Illinois 61938-3915  
 217-234-9971

SECTION 20 T.10 N., R.3 E., 3rd P.M.

SECTION 17 T.10 N., R.3 E., 3rd P.M.

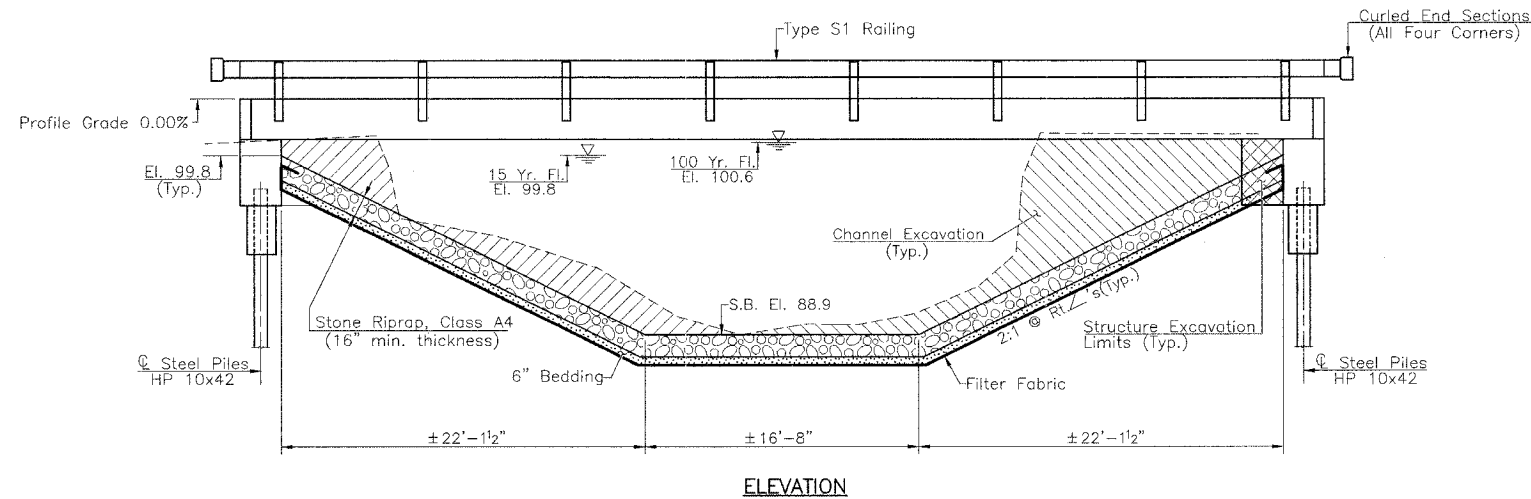


PLAN & PROFILE  
 T.R. 140 OVER MITCHELL CREEK  
 SECTION 05-09119-00-BR  
 SHELBY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 140	*	SHELBY	10	4
PROJECT BROS-173(150)				
* 05-09119-00-BR				

Existing Structure: Single Span Timber Deck on Steel Stringers with Closed Timber Abutments, Wingwalls on Timber Piles. ± 40'-0" Bk.-Bk. Abutments, ± 20'-0" Clear Deck Width, Tubular Steel Railing.

Benchmarks: BM#1 -- 60d Nail & Washer in Power Pole  
20' Rt. Sta. 8+70 El. 100.00 (Assumed)



**TOTAL BILL OF MATERIAL**

Item	Super	Sub	Total
Channel Excavation	Cu. Yd.		311
Stone Riprap, Class A4	Ton		440
Filter Fabric	Sq. Yd.		756
Removal of Existing Structures	Each		1
Structure Excavation	Cu. Yd.		70
Concrete Structures	Cu. Yd.	24.2	24.2
Concrete Encasement	Cu. Yd.	2.2	2.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1552	1552
Reinforcement Bars	Pound	2510	2510
Steel Railing Type S1	Foot	132	132
Furnishing Steel Piles HP 10x42	Foot	234	234
Driving Piles	Foot	234	234
Test Pile, Steel HP 10x42	Each	2	2
Name Plates	Each	1	1

**WATERWAY INFORMATION**

Drainage Area = 12.2 Sq. Miles		Low Grade Elev. = 98.8		@ Sta. 12+00		
Flood	Freq. Yr.	Q	Opening Sq. Ft.	Nat. H.W.E.	Head-Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	15	1946	305 375	99.8	0.5 0.3	100.3 100.1
Base	100	3090	337 417	100.6	0.5 0.7	101.1 101.3
Exist. Overtop	7.6	1625				
Prop. Overtop	9.5	1725				
Max. Calc.	500	4019	344 427	101.1	0.4 0.8	101.5 101.9

**DESIGN STRESSES**

**FIELD UNITS**

f<sub>c</sub> = 1400 psi  
v<sub>c</sub> = 56.2 psi  
f<sub>s</sub> = 24000 psi  
n = 9

**PRECAST PRESTRESSED UNITS**

f'<sub>c</sub> = 6000 psi  
f'<sub>ci</sub> = 5000 psi  
f'<sub>s</sub> = 270000 psi  
f'<sub>si</sub> = 201960 psi

**GENERAL NOTES**

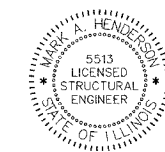
See Proposal for Boring Data.  
Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified). See Special Provisions.  
The layout of the riprap slopewall may be varied to suit conditions in the field as determined by the engineer.  
The contractor shall drive one test pile in a permanent location at the North and South Abutment as directed by the Engineer in the field prior to ordering the remainder of piles.

**DESIGN SPECIFICATIONS**

2002 A.A.S.H.T.O. Specifications.

**LOADING HS 20-44**

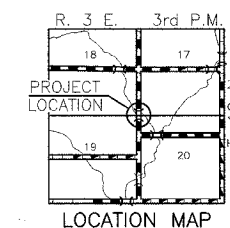
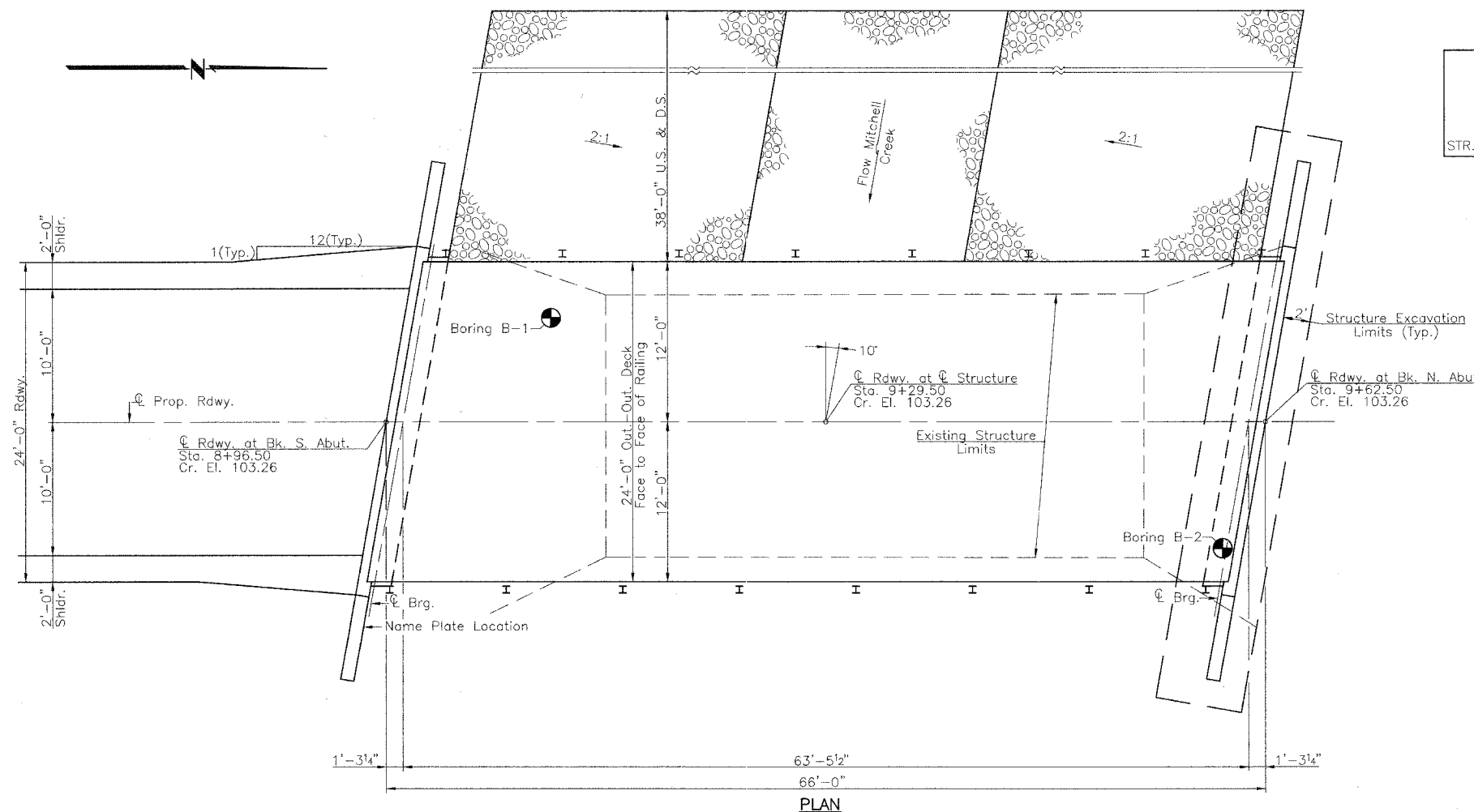
Allow 50#/sq. ft. for future wearing surface.



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

Mark A. Henderson 3/30/07  
Expiration Date 11/30/2008

MITCHELL CREEK  
BUILT 200 BY  
SHELBY COUNTY  
SECTION 05-09119-00-BR  
STA. 9+29.50  
PROJECT BROS-173(150)  
STR. NO. 087-3552 LOADING HS20-44  
**NAME PLATE**  
(Standard 515001)







RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 140	*	SHELBY	10	7
PROJECT BROS-173(150)				

\* 05-09119-00-BR

**NOTES**

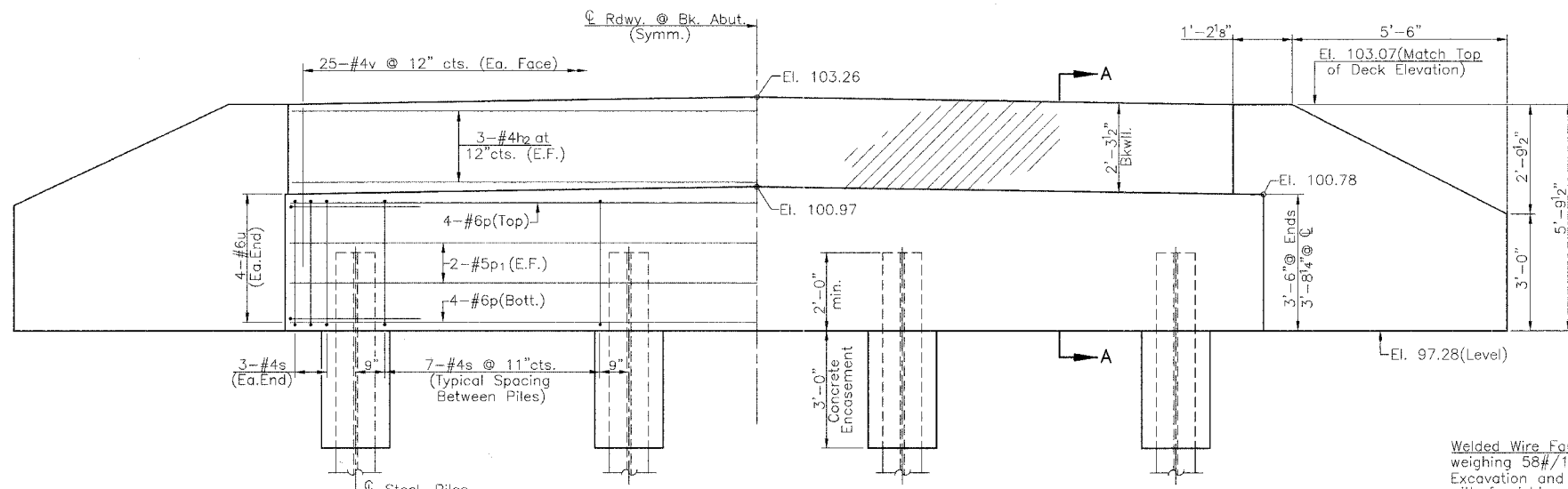
All exposed edges shall have standard 3/4" chamfer.  
 Space reinforcement in cap to miss beam anchor dowels.  
 Wingwalls and Backwalls may, at the contractor's option, be cast monolithically.

**PILE DATA**

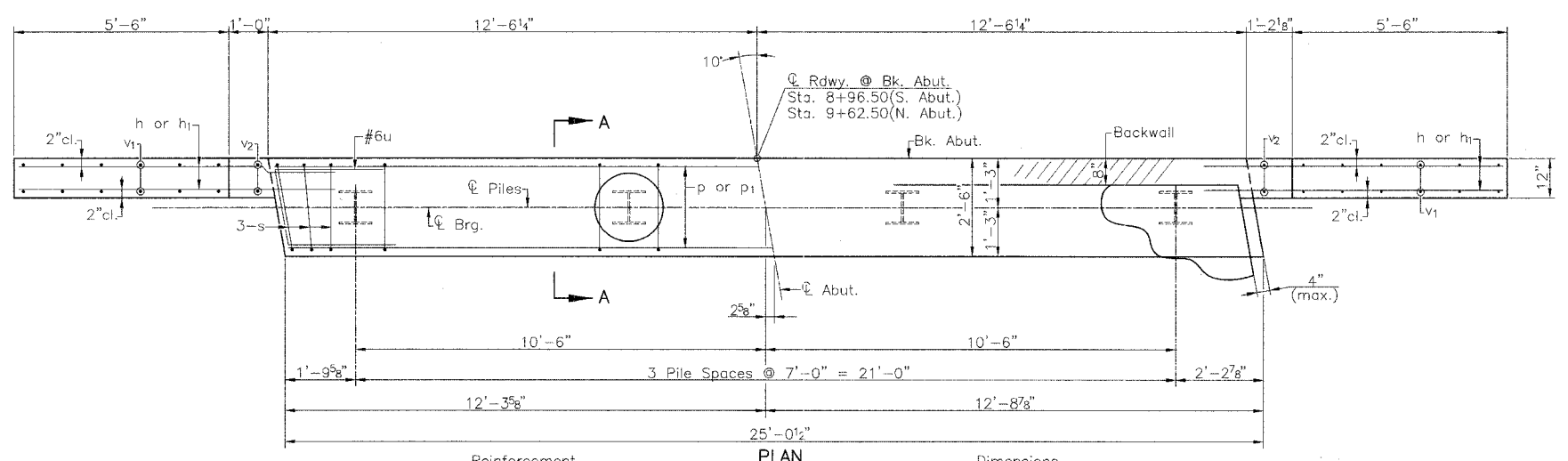
	S. Abut.	N. Abut.
Pile Type & Size:	Steel HP 10x42	Steel HP 10x42
Nominal Required Bearing:	335 kips	335 kips
Allowable Resistance Available:	111 kips	111 kips
Estimated Pile Length:	39'	39'
Number of Production:	3	3
Number of Test Piles:	1	1

The steel H-piles shall be according to AASHTO M270 Grade 50. The test piles shall be driven to 110 percent of the nominal required bearing indicated in the pile data information.

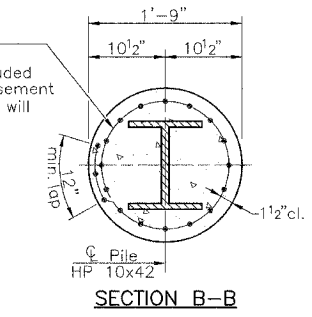
Note: Hatched area and wingwalls shall be poured after deck beams are anchored in place. Concrete quantity included in Concrete Structures.



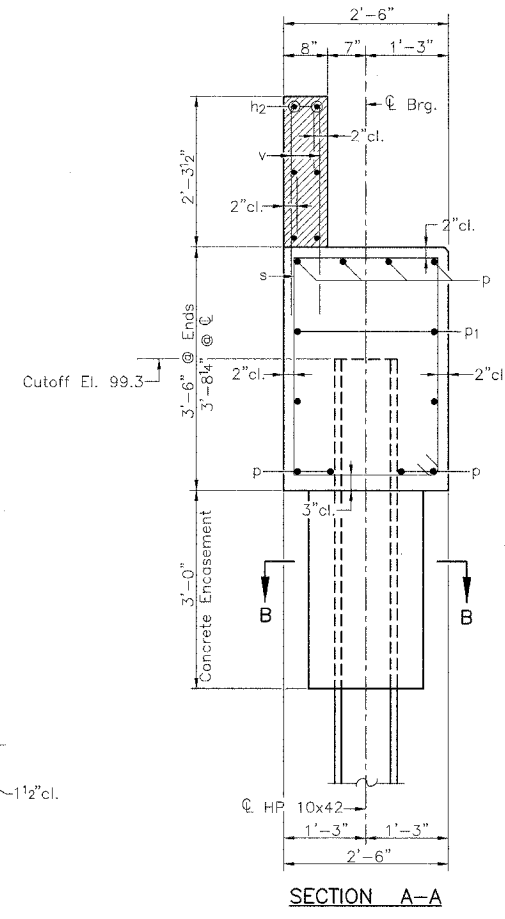
**ELEVATION**  
 (S. Abut. Looking South)  
 (N. Abut. Looking North)



**PLAN**



**SECTION B-B**

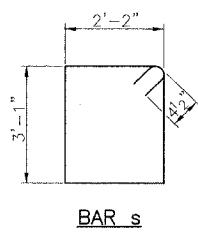


**SECTION A-A**

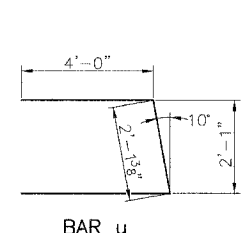
Welded Wire Fabric 6x6-W4.0 x W4.0 weighing 58#/100 sq.ft. The cost of Excavation and Reinforcement is included with furnishing piles. Forms for encasement may be omitted when soil conditions will permit. Extend 9" min. into cap.

**TWO ABUTMENTS  
 BILL OF MATERIAL**

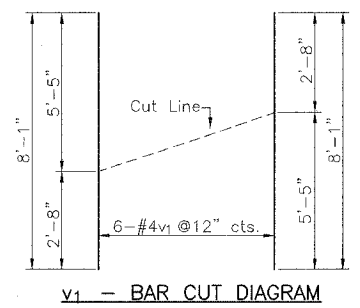
BAR	NO.	SIZE	LENGTH	SHAPE
h	32	#5	8'-6"	—
h1	24	#5	6'-4"	—
h2	12	#4	27'-0"	—
p	16	#6	24'-8"	—
p1	8	#5	24'-8"	—
s	54	#4	11'-3"	□
u	16	#6	10'-2"	—
v	100	#4	3'-9"	—
v1	24	#4	8'-1"	—
v2	8	#4	5'-5"	—
Concrete Structures				Cu. Yd. 24.2
Reinforcement Bars				Pound 2510
Furnishing Steel Piles HP 10x42				Foot 234
Driving Piles				Foot 234
Test Pile, Steel HP 10x42				Each 2
Concrete Encasement				Cu. Yd. 2.2
Structure Excavation				Cu. Yd. 70



**BAR s**

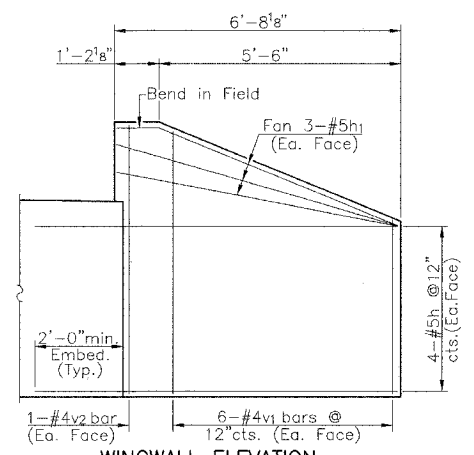


**BAR u**



**v1 - BAR CUT DIAGRAM**

Order v1 bars full length: Layout in field according to diagram. Cut v1 bars along cut line. Use remainder of each bar in opposite face.



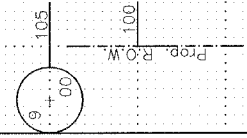
**WINGWALL ELEVATION**  
 (Showing Reinforcement)

\* See v1-bar cut diagram

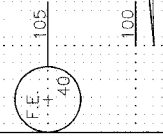
**ABUTMENTS  
 T.R. 140 OVER MITCHELL CREEK  
 SECTION 05-09119-00-BR  
 SHELBY COUNTY**

CONTRACT NO. 95509				
RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 140	*	SHELBY	10	8
PROJECT BR05-173(150)				
* 05-09119-00-BR				

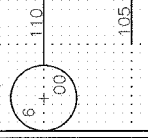
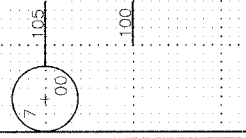
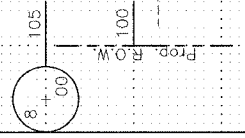
Bk. N. Abut. - Sta. 9+62.5



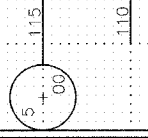
Bk. S. Abut. - Sta. 8+96.5



C. New 18" x 42" Pipe  
 Culverts: Class D, Type 1  
 Inlet - El. 97.6 (29' Lt. Sta. 8+20)  
 Outlet - El. 98.8 (31' Lt. Sta. 8+62)  
 Embankment - 35 cu. yds.



PROJECT BEGINS - Sta. 6+00

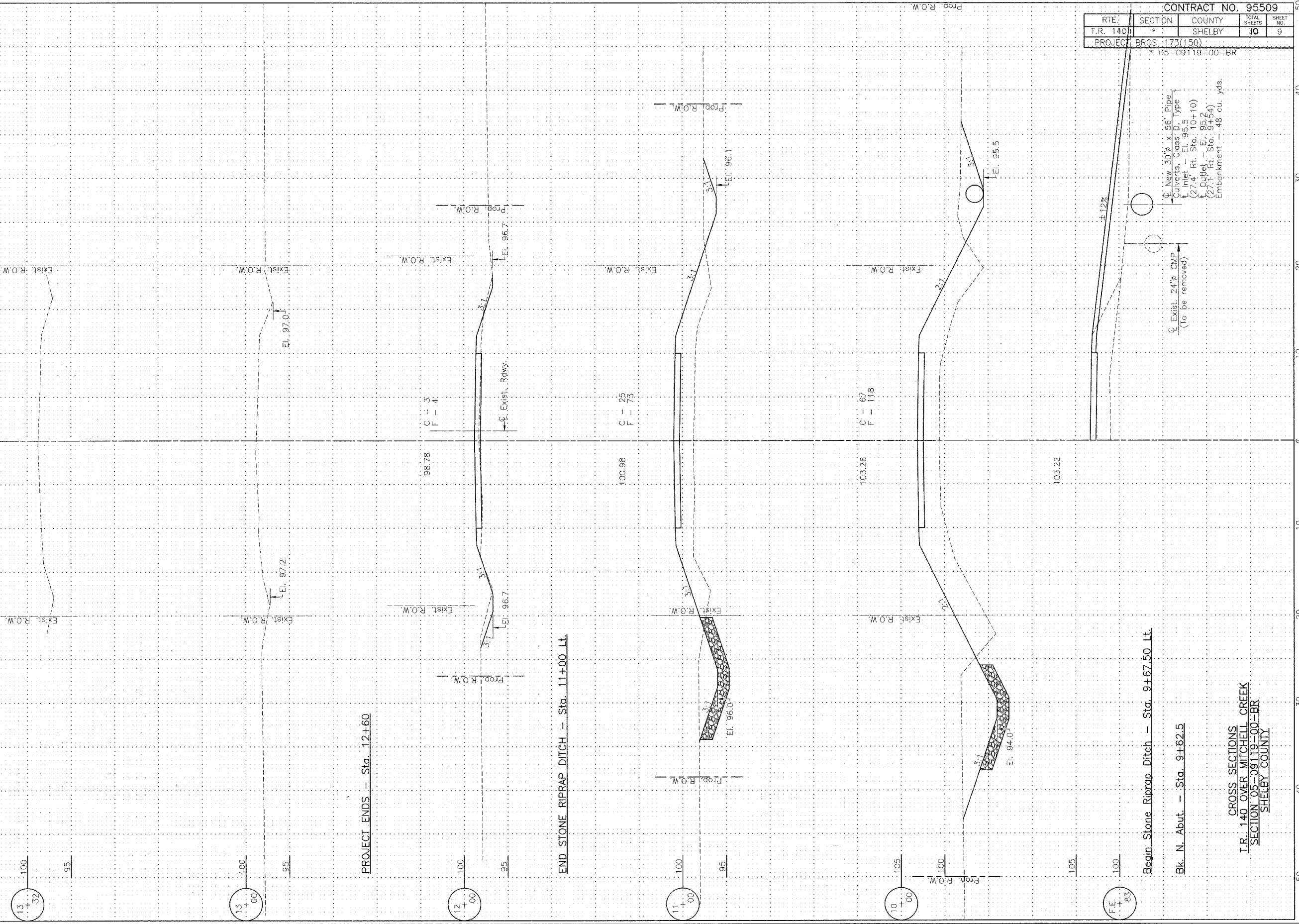


CROSS SECTIONS  
 I.R. 140 OVER MITCHELL CREEK  
 SECTION 05-09119-00-BR  
 SHELBY COUNTY

DATE: 05-09-00 BY: HENRY 02/22/00



FILE NAME: 05-09119-00-BR-00



13+32  
+100  
-95

13+00  
+100  
-95

12+00  
+100  
-95

11+00  
+100  
-95

10+00  
+105  
-100  
-95

9+62.5  
+100  
-105

PROJECT ENDS - Sta. 12+60

END STONE RIPRAP DITCH - Sta. 11+00 LL

Begin Stone Riprap Ditch - Sta. 9+67.50 LL

Bk. N. Abut. - Sta. 9+62.5

CROSS SECTIONS  
I.R. 140 OVER MITCHELL CREEK  
SECTION 05-09119-00-BR  
SHELBY COUNTY

CONTRACT NO. 95509				
RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 140	*	SHELBY	10	9
PROJECT: BR05-173(150)				
* 05-09119-00-BR				

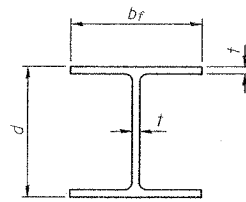
3. New 30" x 56" Pipe  
 Culverts Class: D, Type 1  
 Inlet - El. 95.5  
 (27.4' Rt. Sta. 10+10)  
 Outlet - El. 95.2  
 (27.1' Rt. Sta. 9+64)  
 Embankment - 48 cu. yds.

3. Existing 24" CMP  
 (To be removed)

50 40 30 20 10 0 10 20 30 40 50

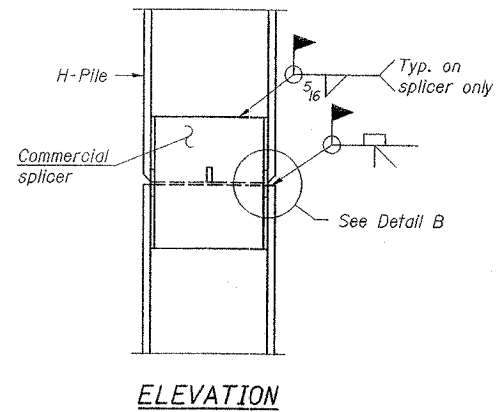
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR140	*	SHELBY	10	10
FED. ROAD DIST. NO.	ILLINOIS PROJECT			

\*05-09119-00-BR

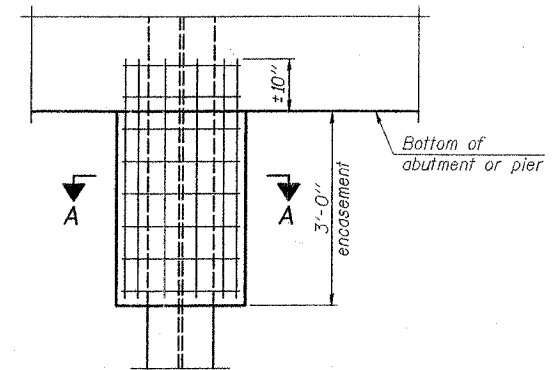


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 5/8"	7/16"	18"

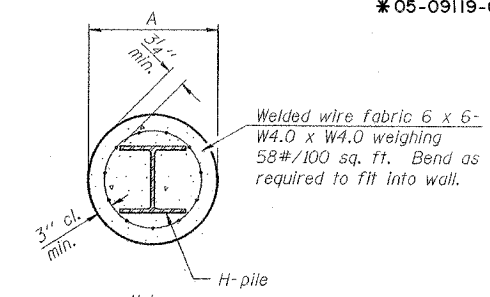


ELEVATION



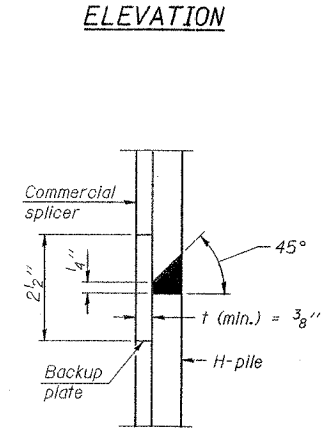
ELEVATION

PILE ENCASEMENT

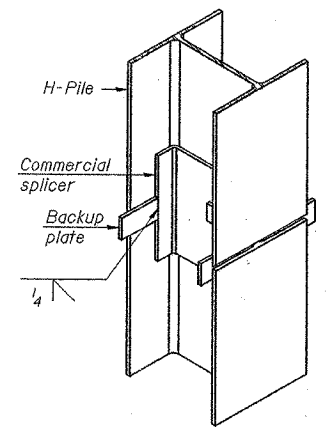


SECTION A-A

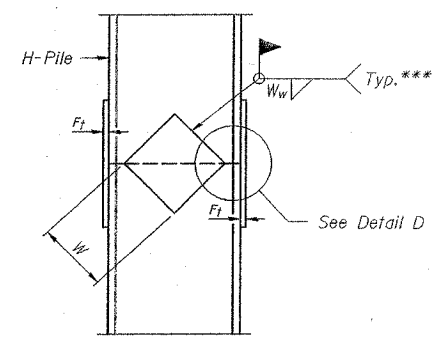
Note:  
Forms for encasement may be omitted when soil conditions permit.



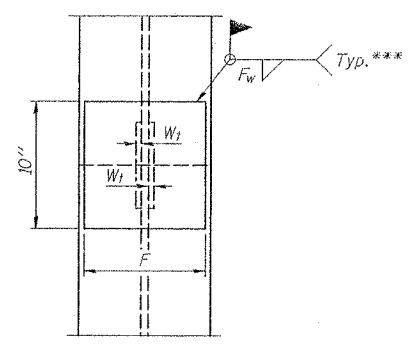
DETAIL "B"



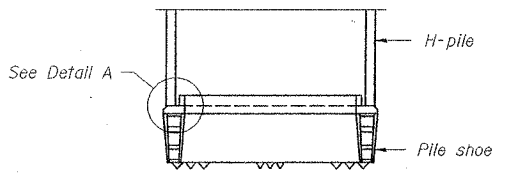
ISOMETRIC VIEW



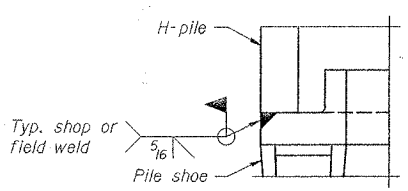
ELEVATION



END VIEW

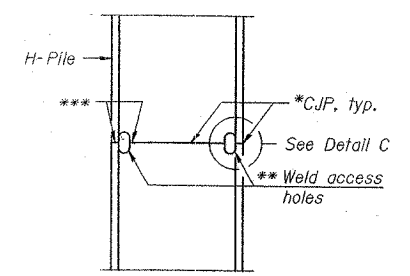


ELEVATION

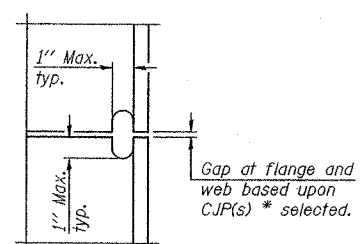


DETAIL A

H-PILE SHOE ATTACHMENT

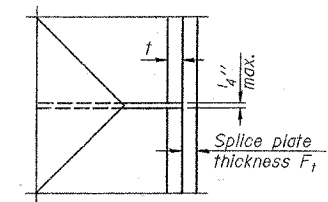


ELEVATION



DETAIL C

COMPLETE PENETRATION WELD SPLICE



DETAIL D

WELDED PLATE FIELD SPLICE

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

STEEL H PILE DETAILS

\* 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.

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