

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
**PLANS FOR PROPOSED  
STP-BRIDGE**

**TR 260 OVER ASH CREEK  
SECTION 13-12123-00-BR  
PROJECT NO. BROS-0051 (095)  
RAMSEY ROAD DISTRICT  
FAYETTE COUNTY  
JOB NO. C-97-044-14**



LOCATION OF SECTION INDICATED THUS: - ■ -

- INDEX OF SHEETS**
1. COVER SHEET
  2. SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
  3. PLAN AND PROFILE OF ROADWAY
  4. GENERAL PLAN AND ELEVATION
  - 5.-8. PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
  9. STEEL RAILING, TYPE S1 DETAILS
  10. ABUTMENT DETAILS
  11. PIER DETAILS
  12. HP PILE DETAILS
  13. APPROACH RAIL DETAILS
  - 14.-15. CROSS SECTIONS OF ROADWAY

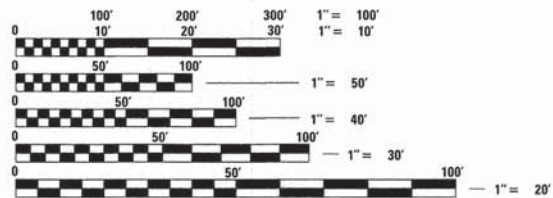
**HIGHWAY STANDARDS**  
000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS  
515001-03 NAME PLATE FOR BRIDGES  
630001-10 STEEL PLATE BEAM GUARDRAIL  
635006-03 REFLECTOR AND TERMINAL MARKER PLACEMENT  
701901-03 TRAFFIC CONTROL DEVICES  
BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

DESIGN CLASSIFICATION: RURAL LOCAL ROAD

ADT<sub>2013</sub> : 100  
ADT<sub>2033</sub> : 125

DESIGN SPEED: 30 MPH

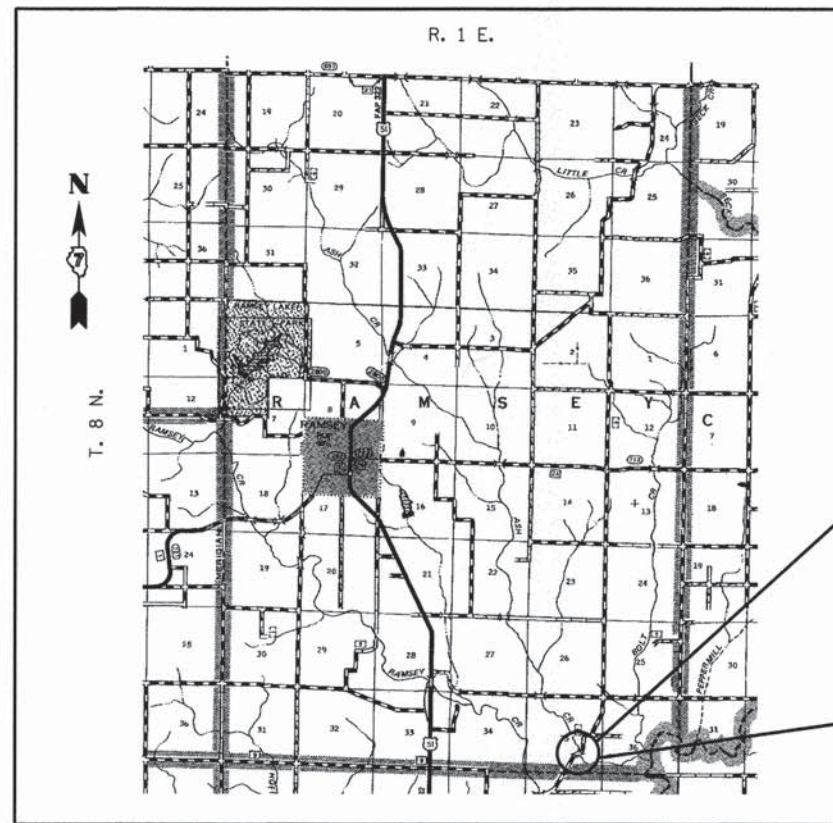


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.  
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS  
1-800-892-0123 or 811 Website: <http://www.illinois1call.com>



*Gary L. Hahn* 06-16-2014  
GARY L. HAHN  
CENTRALIA, ILLINOIS  
ILLINOIS LICENSED PROFESSIONAL  
ENGINEER NO. 62-42606  
EXPIRES NOV. 30, 2015



SECTION ENDS  
STA. 52+47.00

SECTION 13-12123-00-BR INCLUDES THE CONSTRUCTION OF A THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING TR 260 OVER ASH CREEK, 94'-8" BK. TO BK. ABUTMENTS X 24' WIDE, NO SKEW. EXISTING STRUCTURE NO. 026-3107 PROPOSED STRUCTURE NO. 026-3460

SECTION BEGINS  
STA. 46+20.00

LOCATION: NEAR THE SE CORNER OF THE NW 1/4 OF THE SE 1/4, SECTION 35, T8N, R1E, 3RD P.M.  
NET LENGTH OF PROJECT: 627.00 FT. = 0.119 MI.

FAYETTE COUNTY  
HIGHWAY DEPARTMENT

APPROVED 6-17, 2014  
*Miss A. W. S.*  
FAYETTE COUNTY, COUNTY ENGINEER

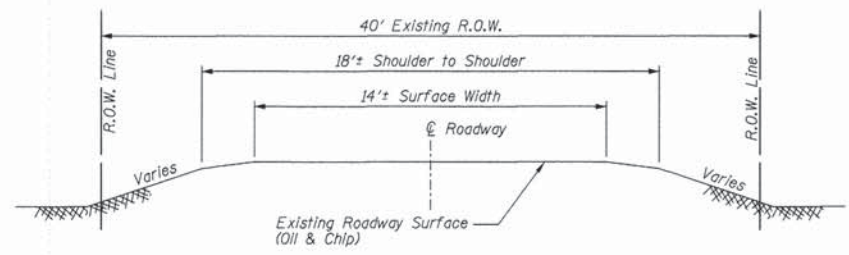
PASSED 7-21, 2014  
*Marcus J. Cantel*  
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID  
BASED ON LIMITED  
REVIEW 7-21, 2014  
*Roger D. Quishell*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

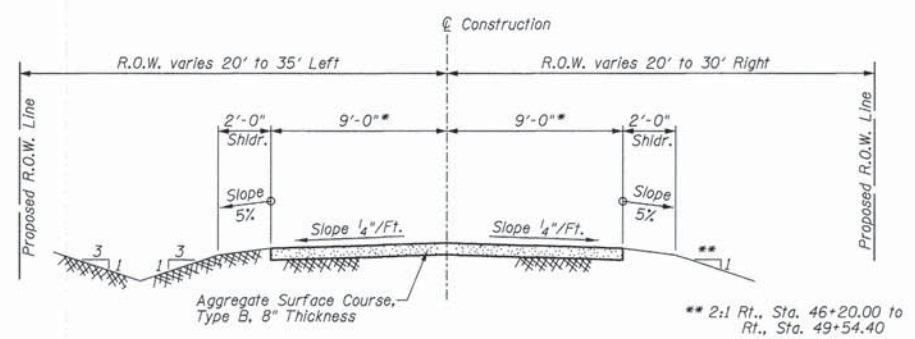
**PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS**

**CONTRACT NO. 95744**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	1
RAAI JOB NO. 52513 ILLINOIS FED. AID PROJECT			CONTRACT NO. 95744	



**TYPICAL SECTION  
EXISTING APPROACH ROADWAY**



**TYPICAL SECTION  
PROPOSED APPROACH ROADWAY**  
\*Varies in transitions

**GENERAL NOTES**

- This section shall be constructed according to the plans, the Special Provisions, and the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2012.
- Any reference to a Standard in these plans shall be interpreted to mean the edition as indicated by the sub-number listed in the Index of Sheets or the copy of the Standard included in these plans.
- Roadway Centerline profiles refer to the finished surface.
- Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, 811, or by direct contact with non-members of J.U.L.I.E.
- If Ash trees are removed on the Project, the Contractor shall become familiar with and comply with measures specified by the Illinois Department of Agriculture (IDOA) to prevent the spread of the Emerald Ash Borer. The IDOA information for Ash tree removal can be found on the IDOA website at [www.agr.state.il.us/eab](http://www.agr.state.il.us/eab).
- The Aggregate Surface Course, Type B gradation shall be CA 6 or CA 10. Only crushed stone will be approved for use on this project.
- The nominal thickness for surface course is shown on the Typical Sections, Standards, Schedules, or Special Details. The constructed thickness of the above item shall not be less than 90 percent of the nominal thickness at any location.
- Factors used for quantity calculations are as follows:  
 Porous Granular Embankment 2.1 tons/cu. yd.  
 Stone Dumped Riprap 130 pounds/cu. ft.  
 Aggregate Surface Course 2.1 tons/cu. yd.
- Commitments: None as of March 1, 2014.

**SUMMARY OF QUANTITIES**

Code No.	Item	Unit	Quantity
20100500	TREE REMOVAL, ACRES	ACRE	0.2
20200100	EARTH EXCAVATION	CU YD	114
20300100	CHANNEL EXCAVATION	CU YD	218
20400800	FURNISHED EXCAVATION	CU YD	657
20700110	POROUS GRANULAR EMBANKMENT	TON	78
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	210
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	485
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	40.0
50300280	CONCRETE ENCASEMENT	CU YD	18.8
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2232
50800105	REINFORCEMENT BARS	POUND	5420
* 50900205	STEEL RAILING, TYPE S1	FOOT	190
51201600	FURNISHING STEEL PILES HP12X53	FOOT	804
51202305	DRIVING PILES	FOOT	804
51203600	TEST PILE STEEL HP12X53	EACH	1
51204650	PILE SHOES	EACH	18
51500100	NAME PLATES	EACH	1
* 63000009	STEEL PLATE BEAM GUARDRAIL, TYPE B, 9 FOOT POSTS	FOOT	50
67100100	MOBILIZATION	L SUM	1
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	3
* F30120Y2	SEEDLING-QUERCUS ALBA (WHITE OAK), 2-YEAR OLD, BARE ROOT	UNIT	0.2
* X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.4

\* Specialty Item

**UTILITIES**

J.U.L.I.E.: Design Phase Locate  
Dig No.: A0430384

Telephone: Frontier Communications  
Contact: Rod Eller  
801 W. Jackson  
Altamont, IL 62411  
Phone: 217-854-2222

Electric: Southwestern Electric Co-Op  
Contact: Kim Jackson  
525 US Rt 40  
Greenville, IL 62246  
Phone: 618-664-5922

Water: Fayette Water Company  
Contact: Denny Buchanan  
2371 N 1350th St.  
Brownstown, IL 62418  
Phone: 618-347-2430

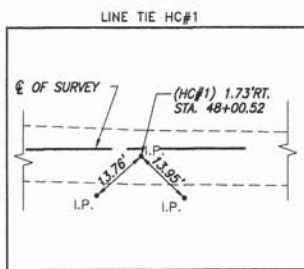
**RHUTASEL and ASSOCIATES, INC.**  
CONSULTING ENGINEERS • LAND SURVEYORS  
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS  
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 06/16/2014	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS  
STRUCTURE NO. 026-3460**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	2
RAAF JOB NO. 52513			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 95744	



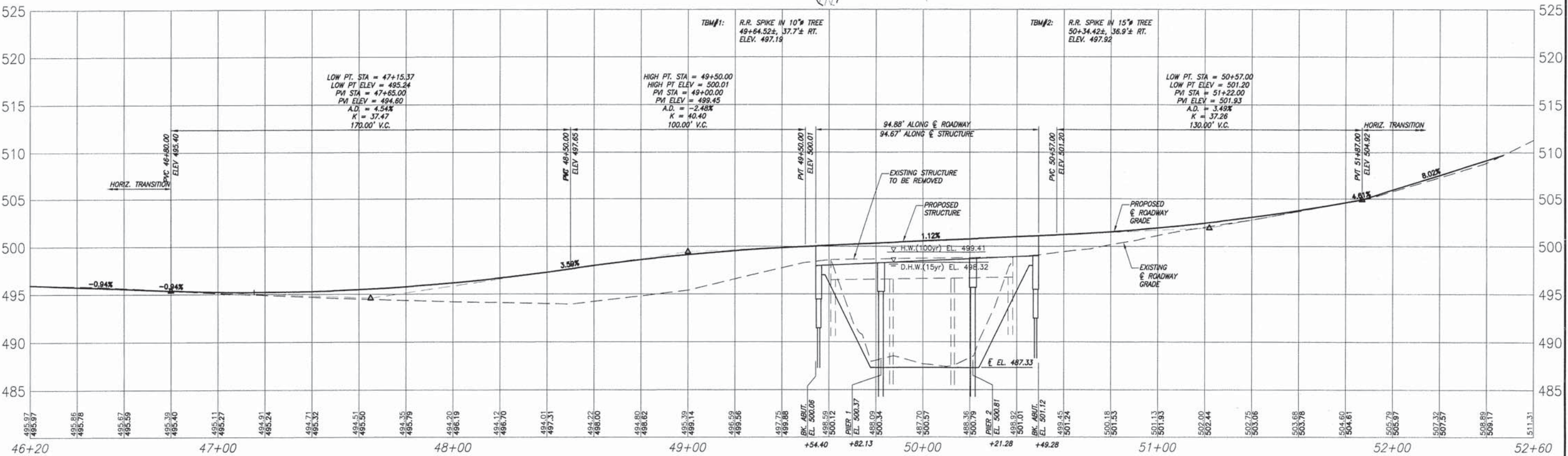
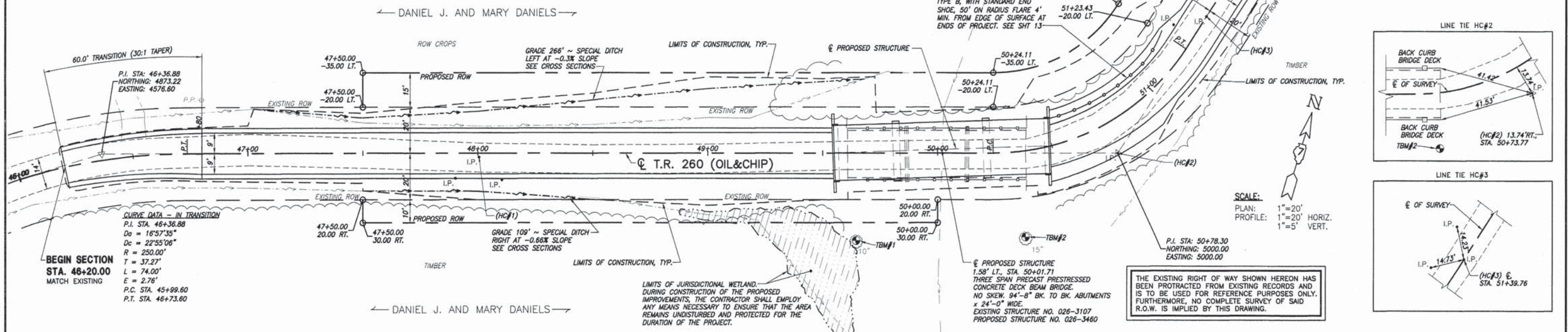
EARTHWORK SCHEDULE				
LOCATION	EARTH EXCAVATION CU. YD.	EARTH ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 46+20 TO STA. 49+54.40	70	53	615	-562
STA. 50+49.28 TO STA. 52+47	44	33	128	-95
TOTAL	114	86	743	-657

\*25% SHRINKAGE  
\*\*FURNISHED EXCAVATION

TREE REMOVAL (ACRES)	
LOCATION	ACRES
LT., STA. 49+25 TO 51+50	0.2

NOTE: ANY PRUNING OF THE EXISTING TREE CANOPY TO FACILITATE CONSTRUCTION SHALL BE INCLUDED IN THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

CONTRACTOR SHALL PLANT 20 WHITE OAK SEEDLINGS IN LOCATIONS AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER UNIT FOR SEEDLING-QUERCUS ALBUS (WHITE OAK), 2-YEAR OLD, BARE ROOT. SEE THE SPECIAL PROVISIONS.



**RHUTASEL and ASSOCIATES, INC.**  
CONSULTING ENGINEERS • LAND SURVEYORS  
CENTRALIA, ILLINOIS  
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - JN	REVISED -
DRAWN - JMW	REVISED -
CHECKED - WDL	REVISED -
DATE - 06-16-2014	REVISED -

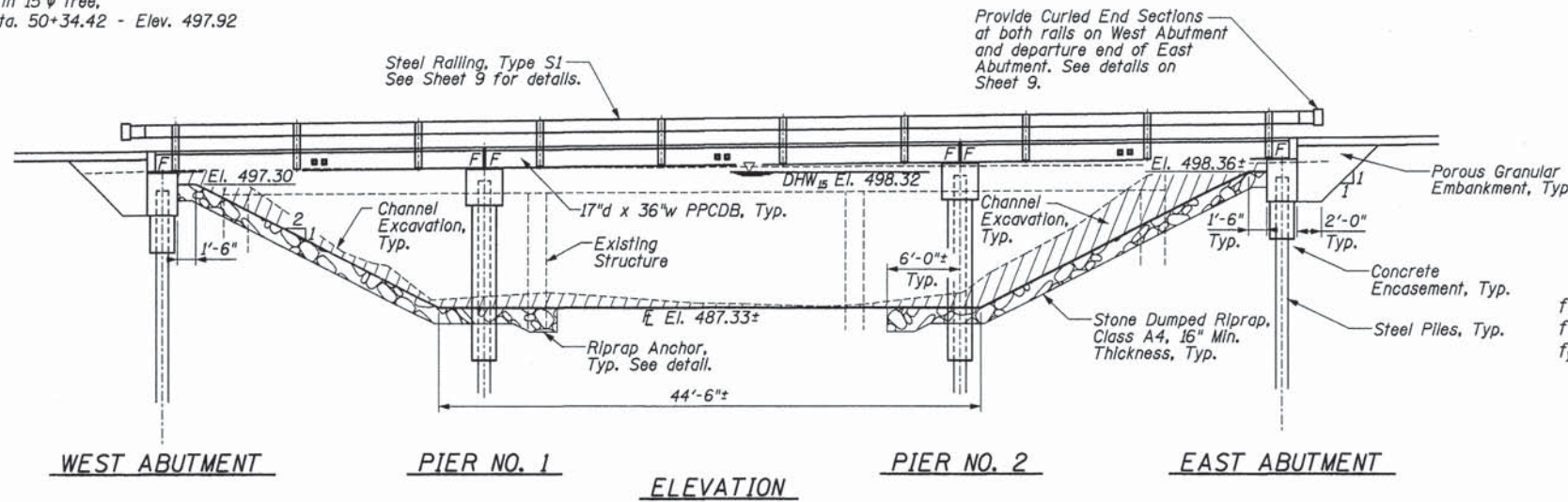
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PLAN AND PROFILE OF ROADWAY**  
**STRUCTURE NO. 026-3460**  
STA. 46+20 TO STA. 52+15

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	3
CONTRACT NO. 95744			RAAI JOB NO. 52513 ILLINOIS FED. AID PROJECT	

TBM #1 - RR spike in 10" tree,  
37.7'± Rt. of Sta. 49+64.52 - Elev. 497.19

TBM #2 - RR spike in 15" tree,  
36.9'± Rt. of Sta. 50+34.42 - Elev. 497.92



**LOADING HL-93**

50#/sq. ft. Included in dead load for future wearing surface.

**DESIGN SPECIFICATIONS**

2010 (5th Ed.) AASHTO LRFD Bridge Design Specifications

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (reinforcement)

**PRECAST PRESTRESSED UNITS**

$f'_c = 6,000$  psi  
 $f_{ci} = 5,000$  psi  
 $f_{pu} = 270,000$  psi ( $\frac{1}{2}$ "  $\phi$  low lax. strands)  
 $f_{pbt} = 201,960$  psi ( $\frac{1}{2}$ "  $\phi$  low lax. strands)  
 $f_y = 60,000$  psi (reinforcement)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Soil Site Classification = D  
 $S_{d1} = 0.216$   $S_{d5} = 0.477$

**BILL OF MATERIALS (BRIDGE ONLY)**

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	218
Porous Granular Embankment	Ton	78
Stone Dumped Riprap, Class A4	Ton	210
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	40.0
Concrete Encasement	Cu Yd	18.8
PPCDB (17" Depth)	Sq Ft	2232
Reinforcement Bars	Pound	5420
Steel Railing, Type S1	Foot	190
Furnishing Steel Piles HP12x53	Foot	804
Driving Piles	Foot	804
Test Pile Steel HP12x53	Each	1
Pile Shoes	Each	18
Name Plates	Each	1
Terminal Marker - Direct Applied	Each	3

**CURVE DATA**

P.I. STA = 50+78.30  
 $D_a = 56^\circ 54' 31"$   
 $D_c = 57^\circ 17' 45"$   
 $R = 100.00'$   
 $T = 54.19'$   
 $L = 99.32'$   
 $E = 13.74'$   
P.C. STA = 50+24.11  
P.T. STA = 51+23.43

**DESIGN SCOUR TABLE**

Location	Design Scour Elevation
W. Abut.	494.8
Pier 1	483.0
Pier 2	483.0
E. Abut.	495.8

**GENERAL NOTES**

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

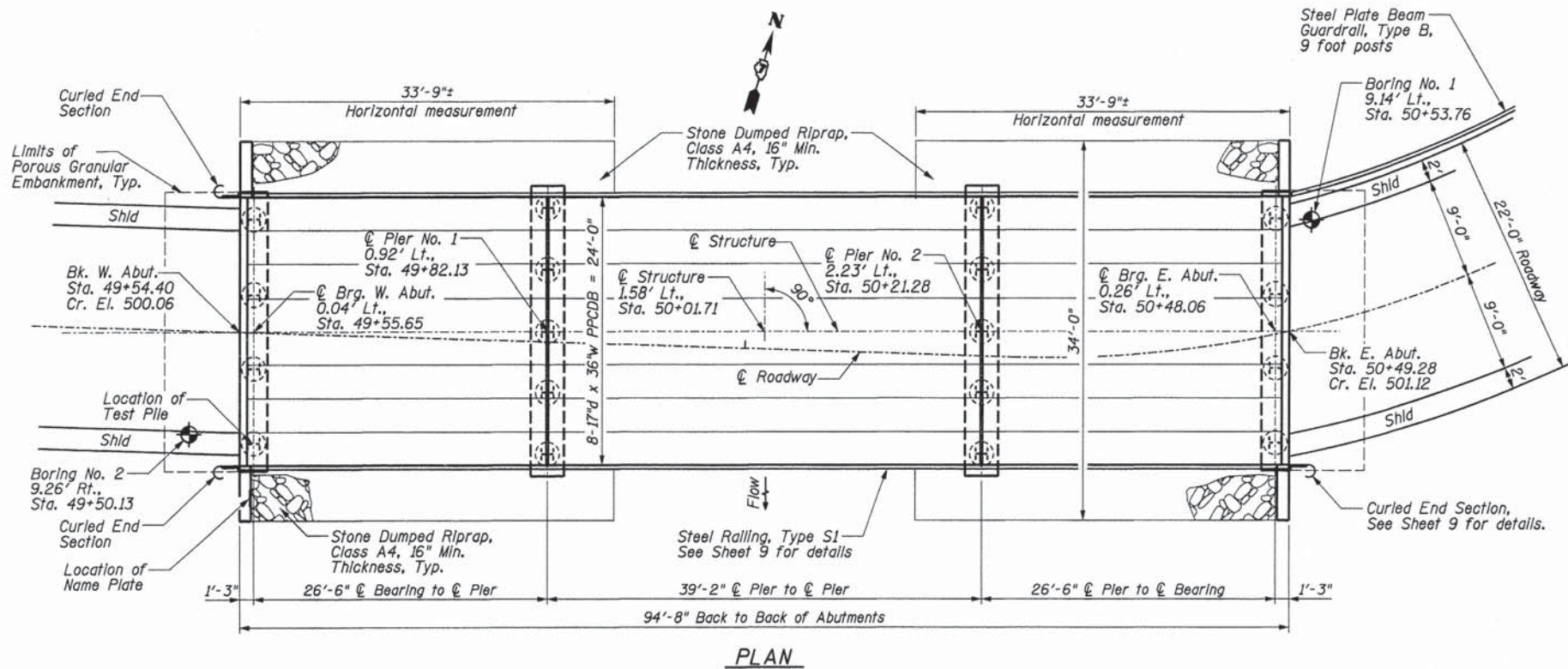
See Section 502 of the Standard Specifications for Structural Excavation.

See Special Provisions for Soil Borings.

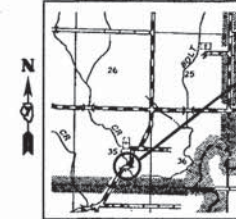
Do not scale these drawings.

The abutment bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required,  $\frac{1}{8}$ " fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

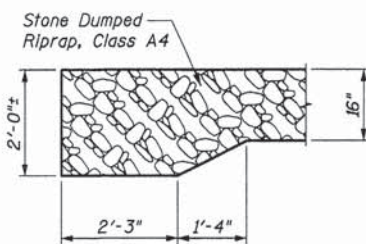
The Contractor is hereby advised that very stiff soils may be encountered prior to the location of anticipated nominal required bearing. See the soil borings for further information.



**R. I. E. - 3rd. PM**



**LOCATION SKETCH**

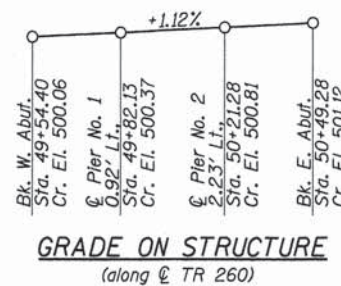


**RIPRAP ANCHOR DETAIL**

**WATERWAY INFORMATION**

Drainage Area = 19.2 sq. mi. Existing Low Grade Elev. 494.01 @ Sta. 48+40.00 Proposed Low Grade Elev. 495.24 @ Sta. 47+15.37

Flood Yr.	Freq. C.F.S.	Q	Opening Sq. Ft.	Nat. Exlst. Prop.	H.W.E. Exlst. Prop.	Head - Ft. Exlst. Prop.	Headwater El. Exlst. Prop.		
Design	15	3770	519	683	498.32	0.05	0.03	498.37	498.35
Base	100	6270	519	725	499.41	0.03	0.05	499.44	499.46
Max. Calc.	500	8530	519	725	500.20	0.01	0.08	500.21	500.28



**GRADE ON STRUCTURE**  
(along  $\phi$  TR 260)

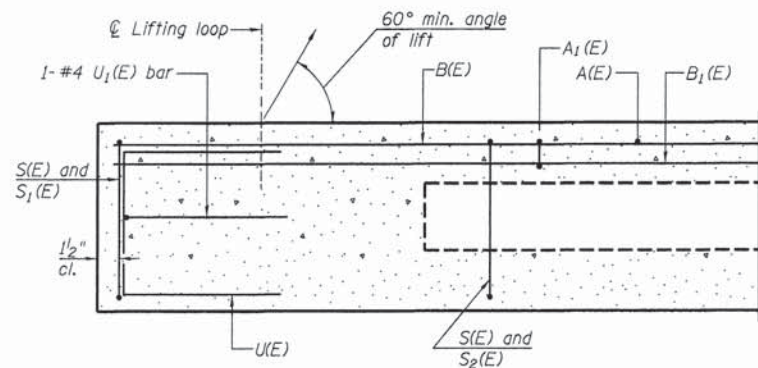
I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.



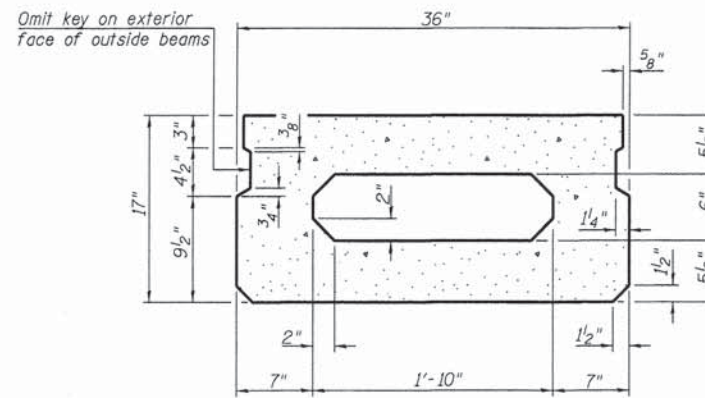
Gary L. Hahn  
Date of Signing: 06-16-2014  
Date of License Expiration: 11/30/2014

STATION 50+01.71  
BUILT 201\_ BY  
FAYETTE COUNTY  
TR 260 SEC. 13-12123-00-BR  
LOADING HL-93  
STRUCTURE NO. 026-3460

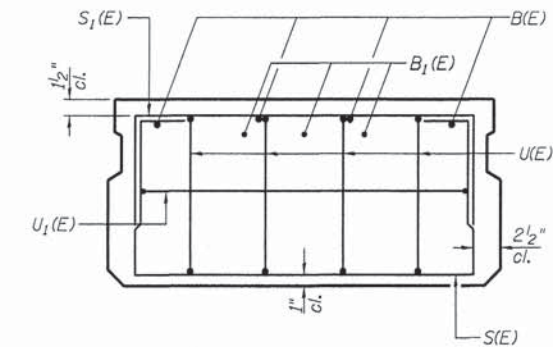
**NAME PLATE**  
See Std. 515001



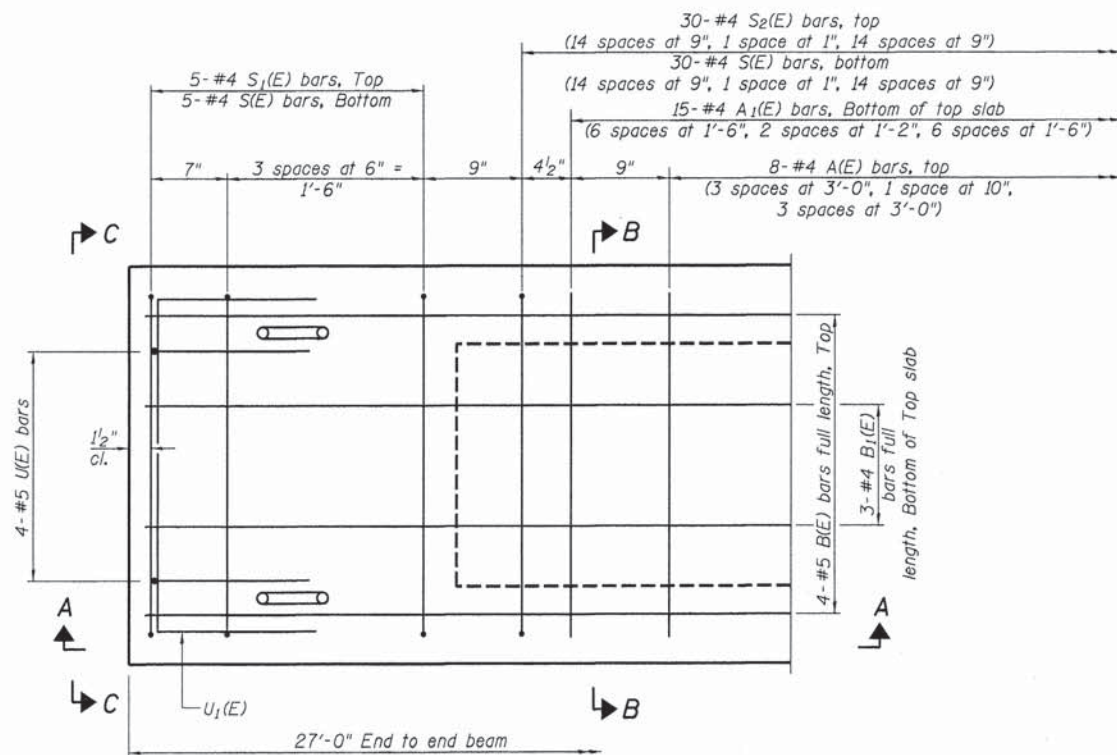
**SECTION A-A**



**SECTION B-B**  
(Showing dimensions)



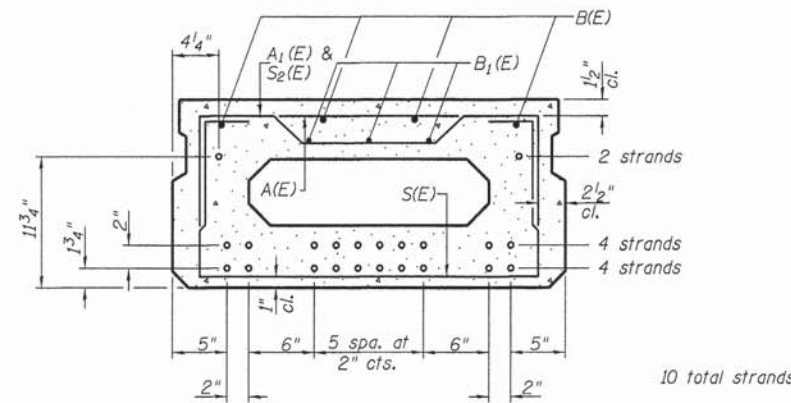
**VIEW C-C**



**PLAN VIEW**

Note: Spacing of S(E) and S<sub>2</sub>(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.

Symmetrical about  $\bar{C}$



**SECTION B-B**  
(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.

**MINIMUM BAR LAP**

#4 bar = 2'-0"  
#5 bar = 2'-6"

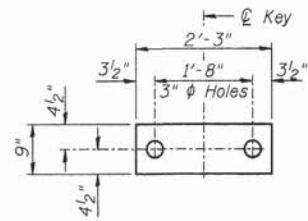
**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	8	#4	2'-7"	—
A <sub>1</sub> (E)	15	#4	2'-10"	—
B(E)	4	#5	26'-8"	—
B <sub>1</sub> (E)	3	#4	26'-8"	—
S(E)	40	#4	5'-9"	□
S <sub>1</sub> (E)	10	#4	4'-3"	□
S <sub>2</sub> (E)	30	#4	4'-6"	□
U(E)	8	#5	3'-8"	□
U <sub>1</sub> (E)	2	#4	5'-0"	□

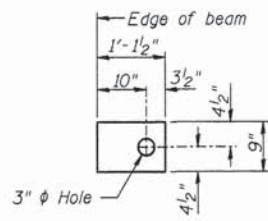
Note: See Sheets 6 & 8 for additional details and Bill of Material.

See Sheet 8 for Typ. Half Cross Section

*Span 1 or 3*



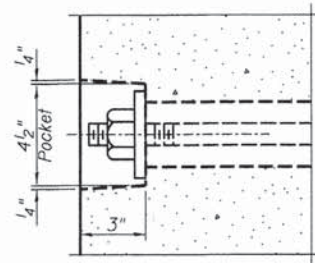
**FABRIC BEARING PAD**  
(Interior)



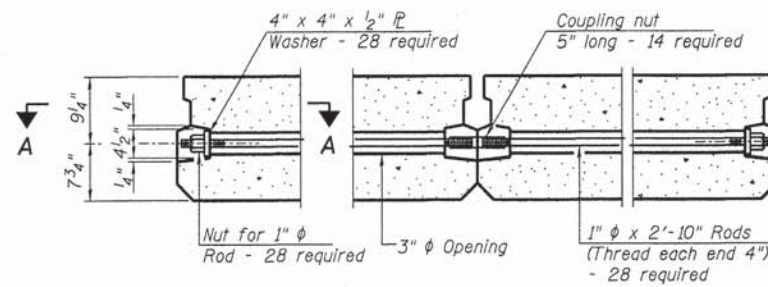
**FABRIC BEARING PAD**  
(Exterior)

**FIXED**

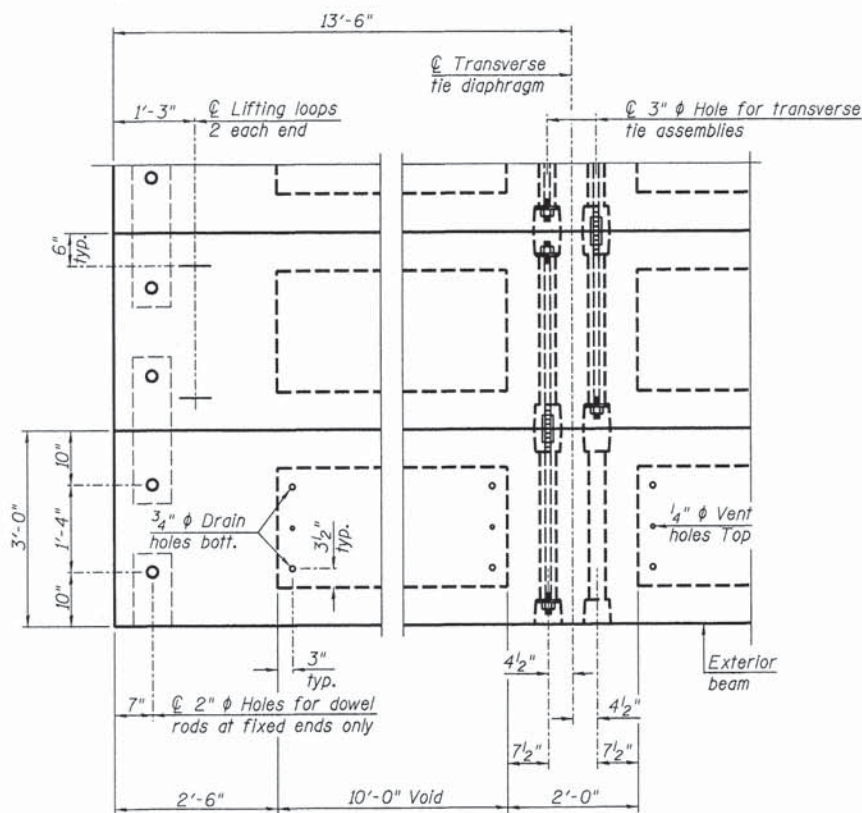
Note: All bearing pads shall be 1" thick.



**SECTION A-A**

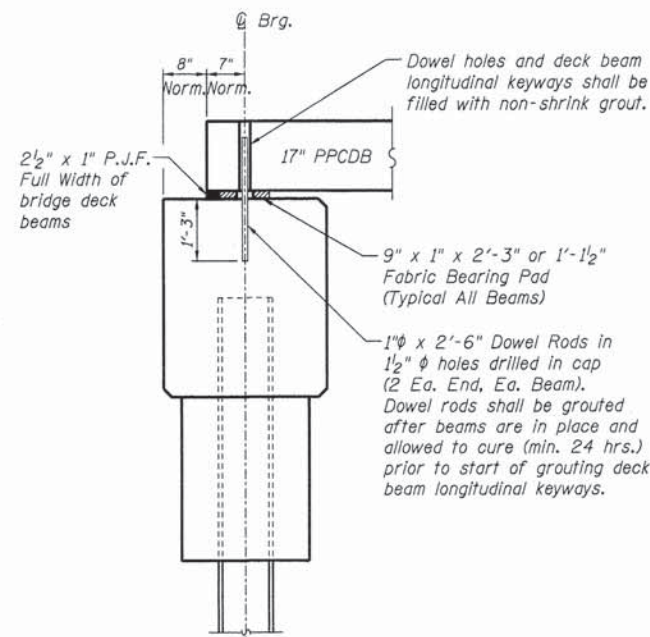


**TYPICAL TRANSVERSE TIE ASSEMBLY**



**PLAN VIEW**

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



**FIXED BEARING ABUTMENT**

**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, Illinois modified.

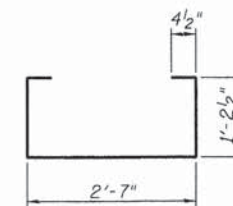
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.

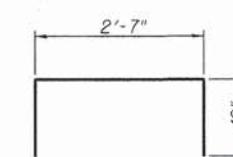
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

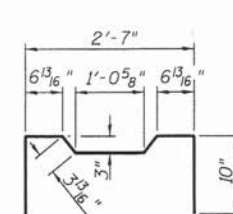
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.



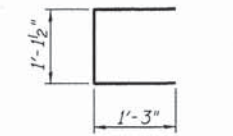
**BAR S(E)**



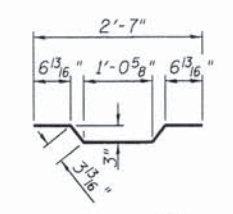
**BAR S1(E)**



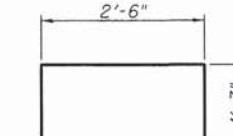
**BAR S2(E)**



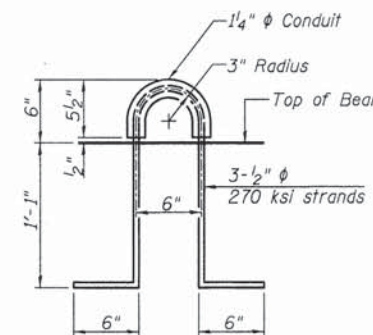
**BAR U(E)**



**BAR A1(E)**

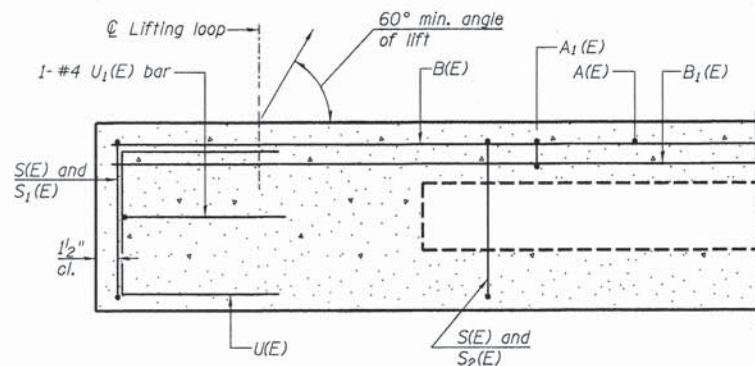


**BAR U1(E)**

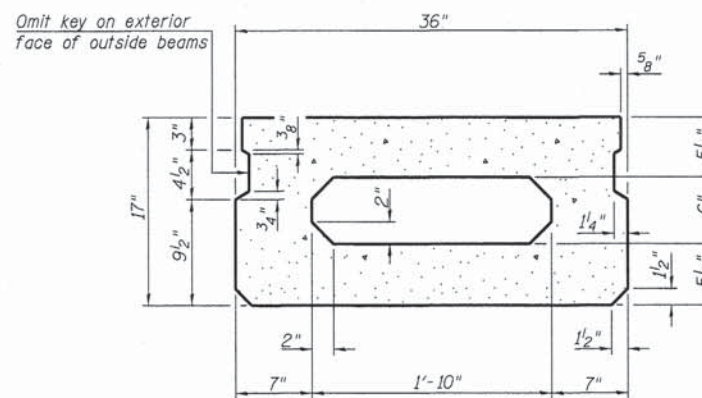


**LIFTING LOOP DETAIL**

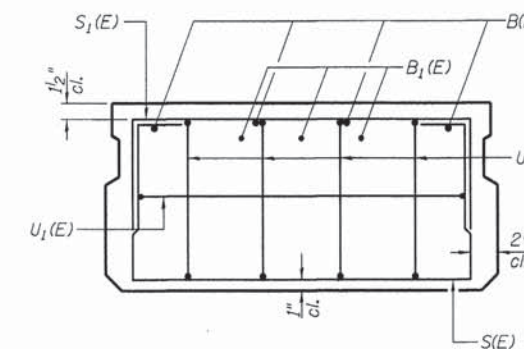
*Span 1 or 3*



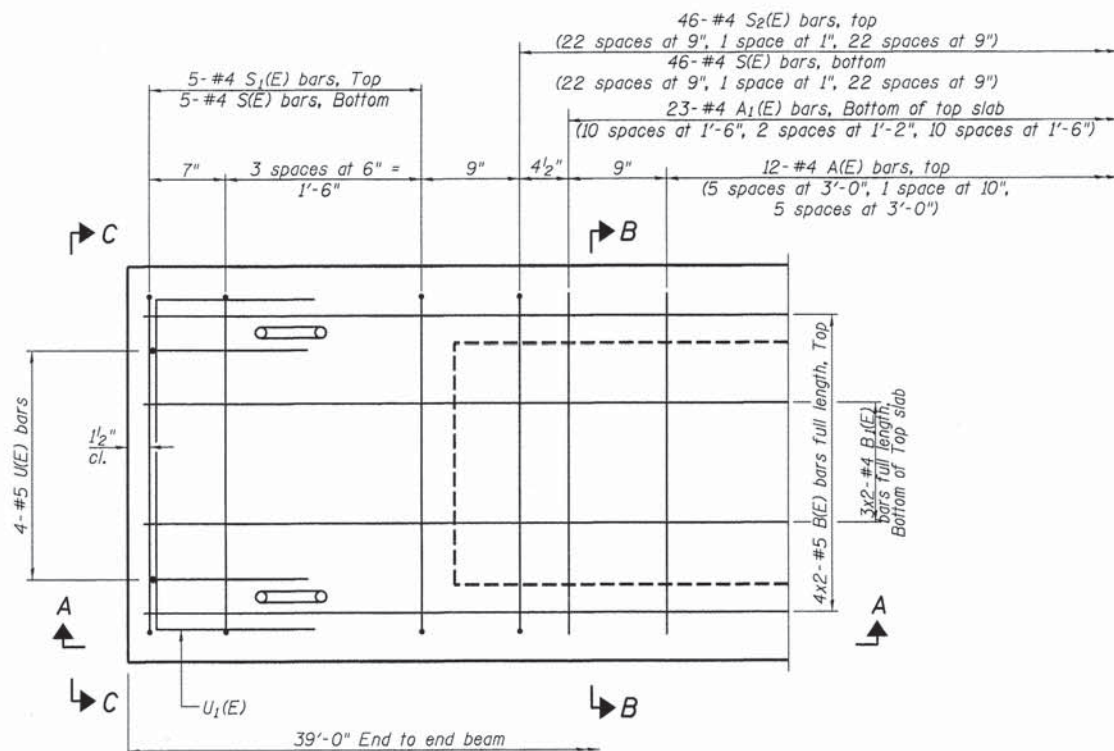
**SECTION A-A**



**SECTION B-B**  
(Showing dimensions)



**VIEW C-C**

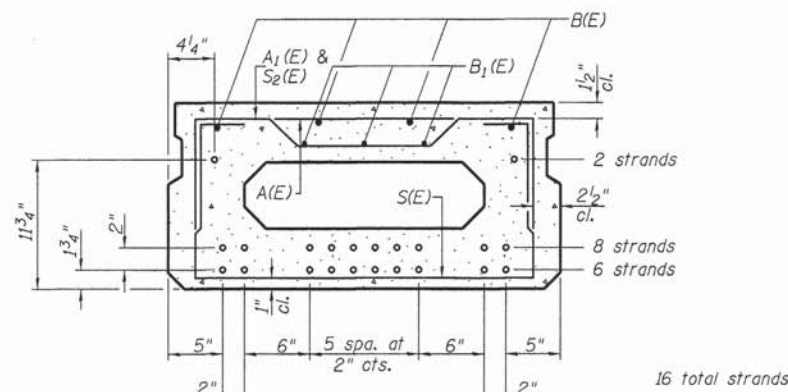


**PLAN VIEW**

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.

Bars Indicated thus: 4x5-#5 etc. indicates 4 lines of bars with 5 lengths per line.

Symmetrical about  $\bar{C}$



**SECTION B-B**  
(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.

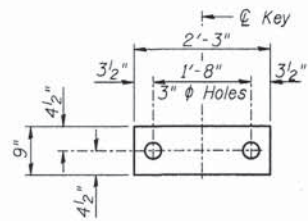
**MINIMUM BAR LAP**  
#4 bar = 2'-0"  
#5 bar = 2'-6"

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

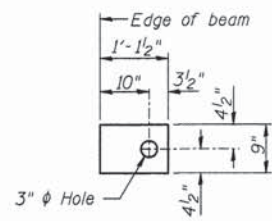
Bar	No.	Size	Length	Shape
A(E)	12	#4	2'-7"	—
A1(E)	23	#4	2'-10"	~
B(E)	8	#5	20'-7"	—
B1(E)	6	#4	20'-4"	—
S(E)	56	#4	5'-9"	U
S1(E)	10	#4	4'-3"	U
S2(E)	46	#4	4'-6"	U
U(E)	8	#5	3'-8"	U
U1(E)	2	#4	5'-0"	U

Note: See Sheet 8 for additional details and Bill of Material.

*Span 2*



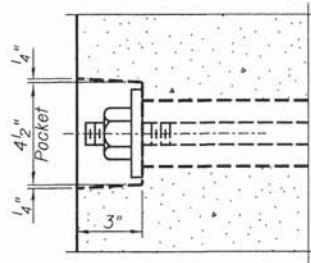
**FABRIC BEARING PAD**  
(Interior)



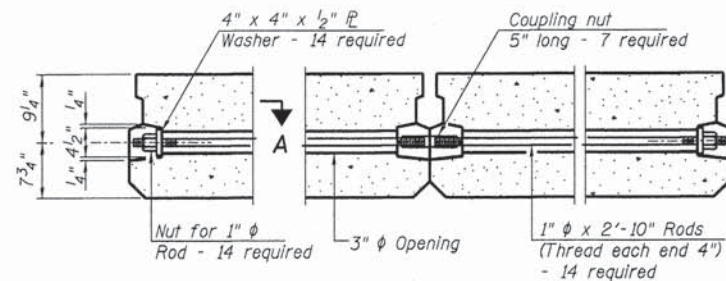
**FABRIC BEARING PAD**  
(Exterior)

**FIXED**

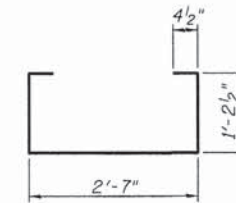
Notes: All bearing pads shall be 1" thick.



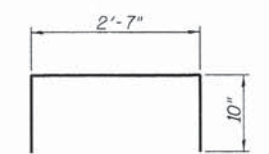
**SECTION A-A**



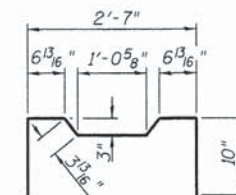
**TYPICAL TRANSVERSE TIE ASSEMBLY**



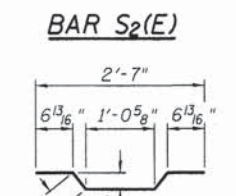
**BAR S(E)**



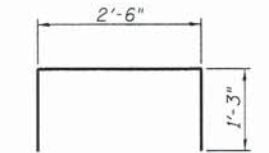
**BAR S1(E)**



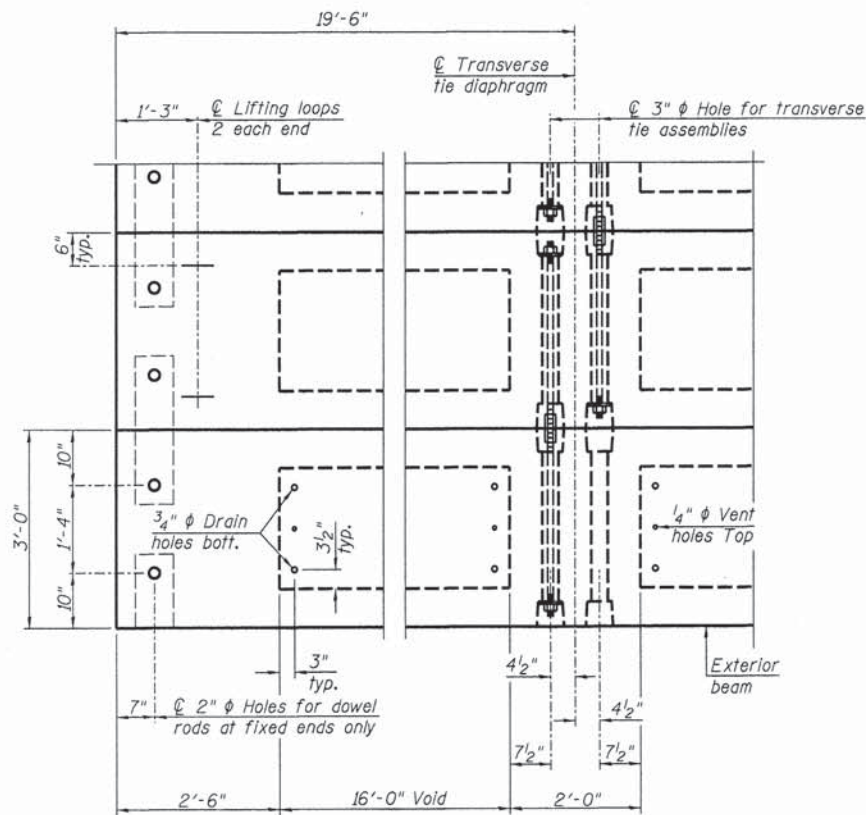
**BAR UE)**



**BAR A1(E)**

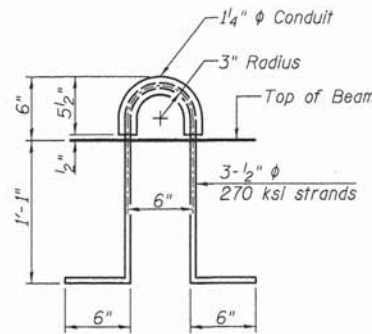


**BAR U1(E)**

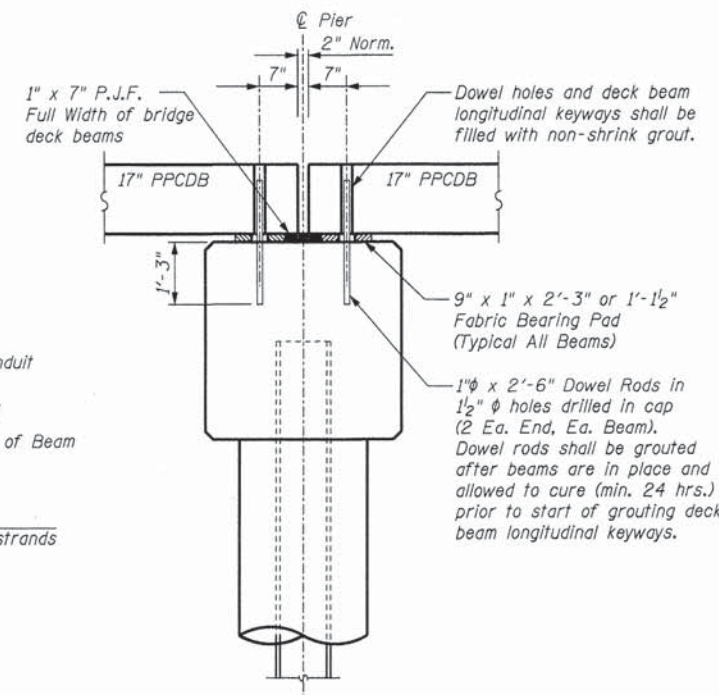


**PLAN VIEW**

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



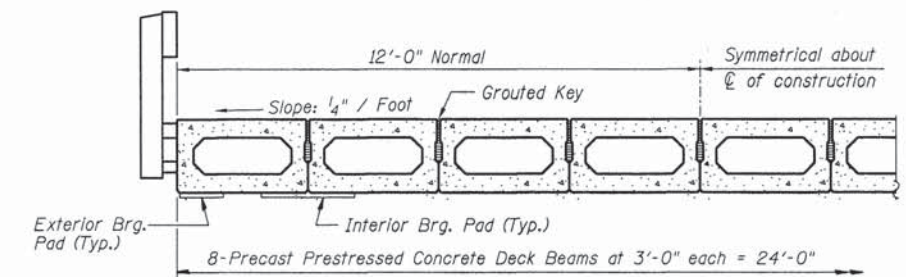
**LIFTING LOOP DETAIL**



**FIXED BEARING PIER**

**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" diameter 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, Illinois modified. 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" diameter 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.



**TYP. HALF CROSS SECTION**

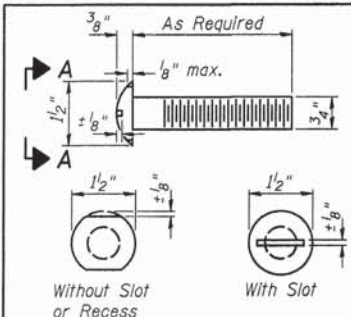
See Sheet 9 for the details showing the spacing and mounting of posts and rails to the PPCDB.

**BILL OF MATERIAL**

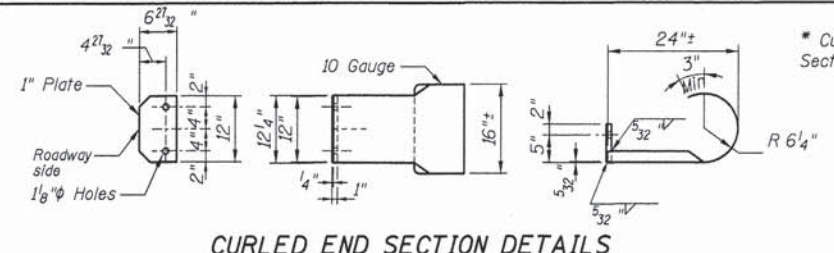
Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	2232
-------------------------------------------------	---------	------

*Span 2*

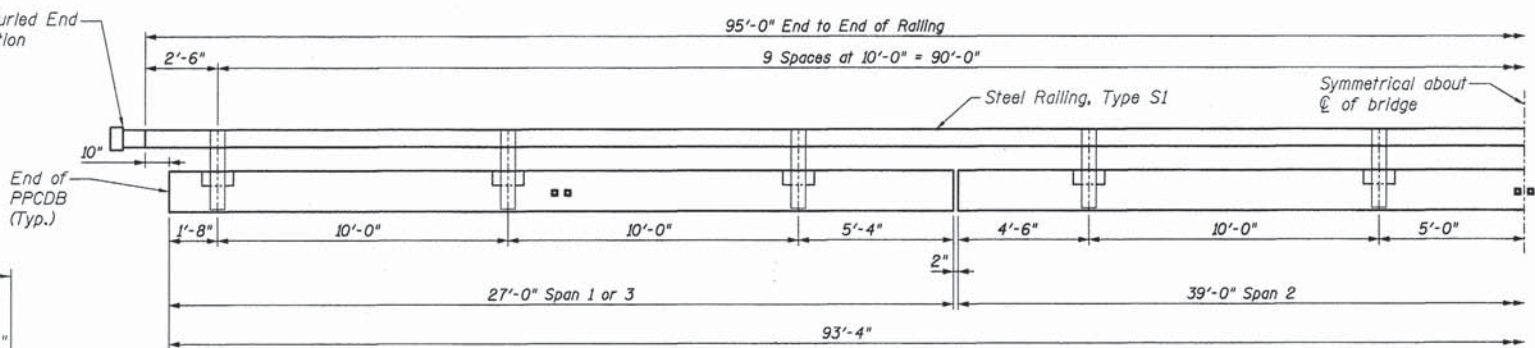




**VIEW A-A  
ROUND HEAD BOLT**

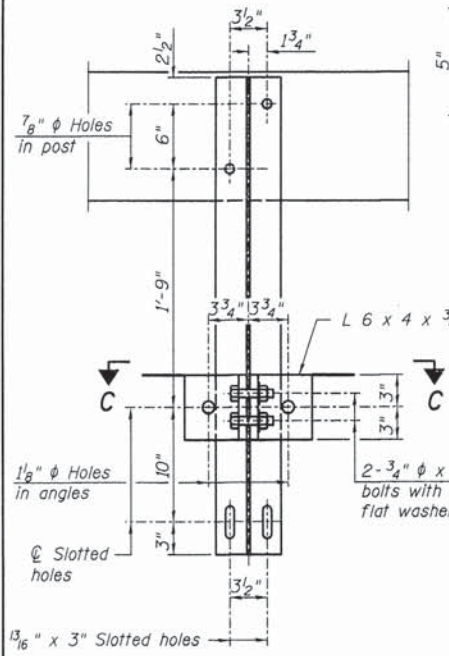


**CURLLED END SECTION DETAILS**

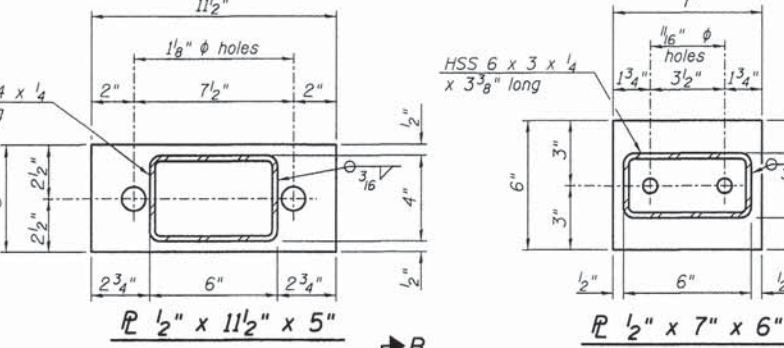


**ELEVATION**

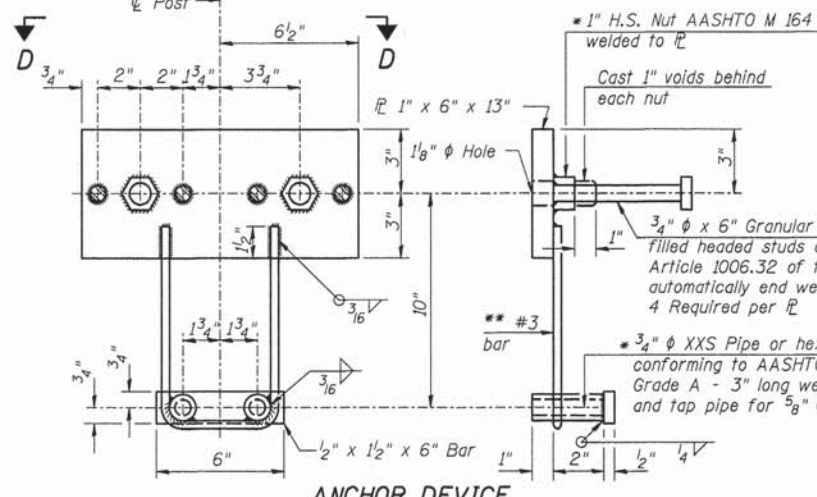
**Note:** The cost of three Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



**SECTION B-B**

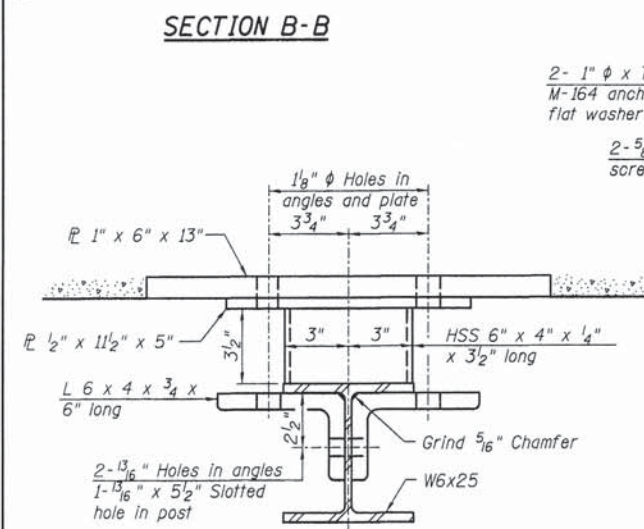


**SECTION AT RAILING POST**

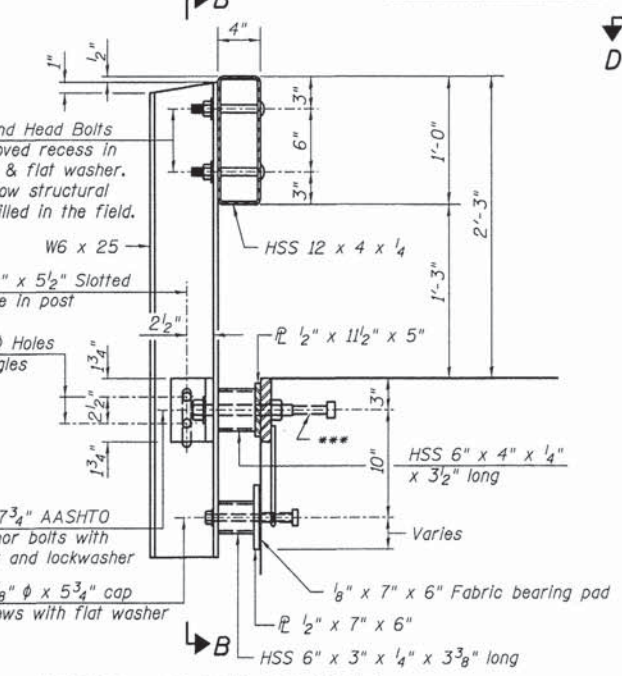


**ANCHOR DEVICE**

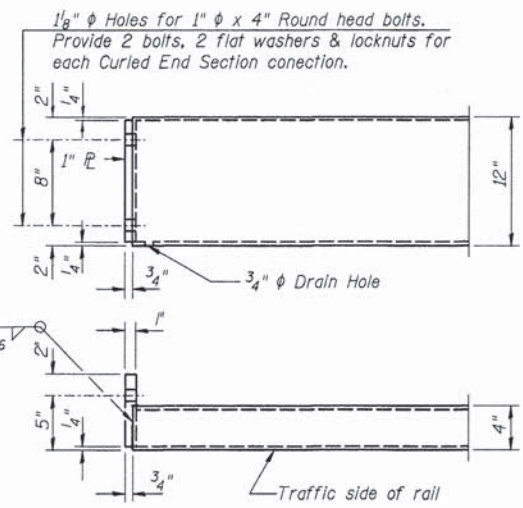
**Notes:**  
All field drilled holes shall be coated with an approved zinc rich paint before erection.  
For multi-span bridges, sufficient 1/4 x 6 x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.  
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
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.



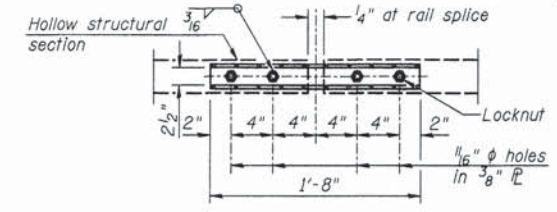
**SECTION C-C**



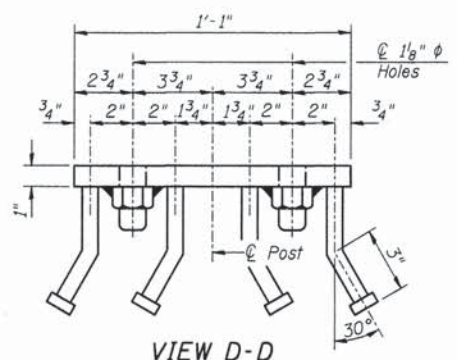
**SECTIONS AT RAIL SPLICE**



**END OF RAIL DETAILS**



**PLAN-BOTT. SPLICE R  
TYPICAL**



**VIEW D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S1	Foot	190

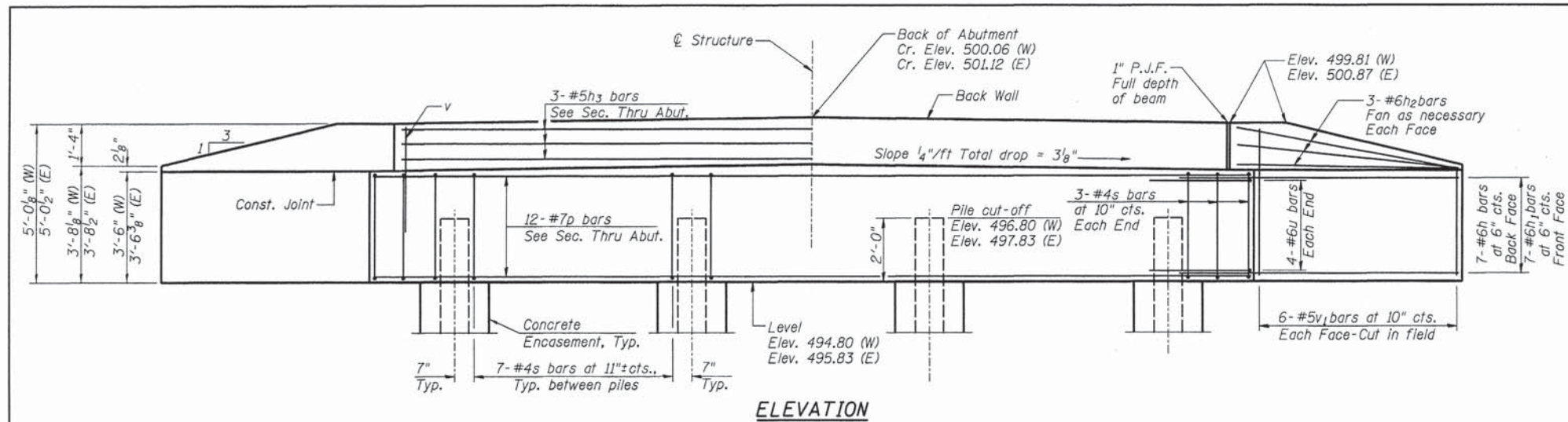
**RHUTASEL and ASSOCIATES, INC.**  
CONSULTING ENGINEERS • LAND SURVEYORS  
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS  
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 06/16/2014	REVISED -

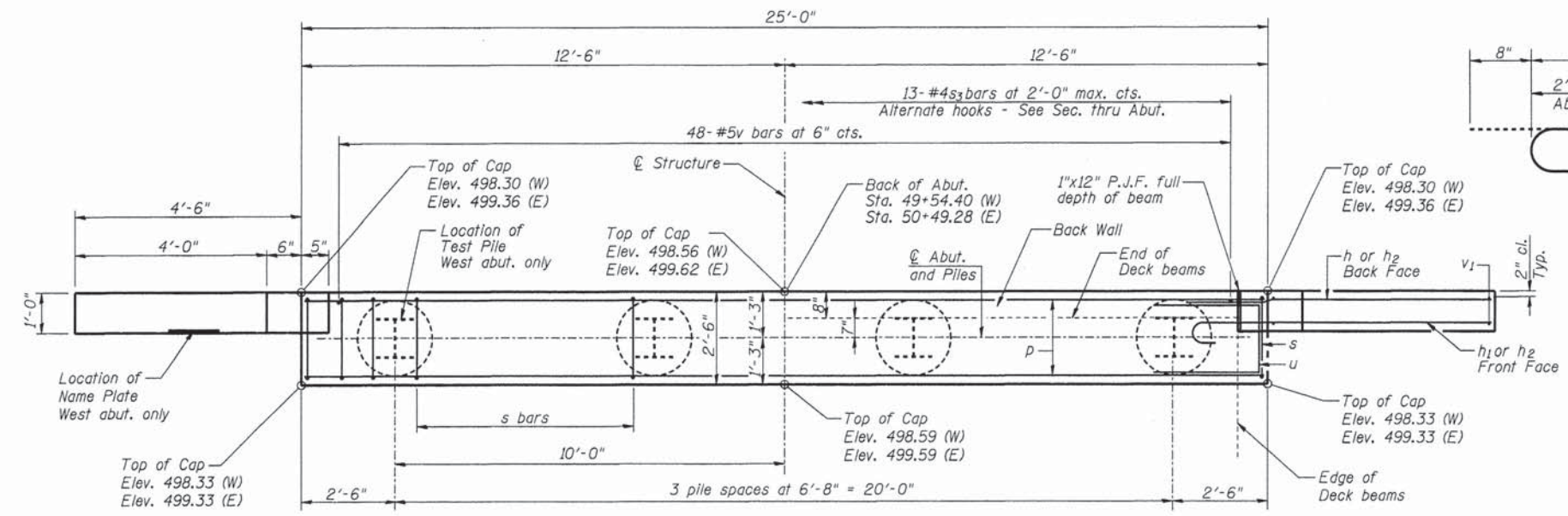
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**STEEL RAILING, TYPE S1 DETAILS  
STRUCTURE NO. 026-3460**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	9
CONTRACT NO. 95744				
RAAI JOB NO. 52513 ILLINOIS FED. AID PROJECT				



**ELEVATION**



**PLAN**

**PILE DATA WEST ABUTMENT**

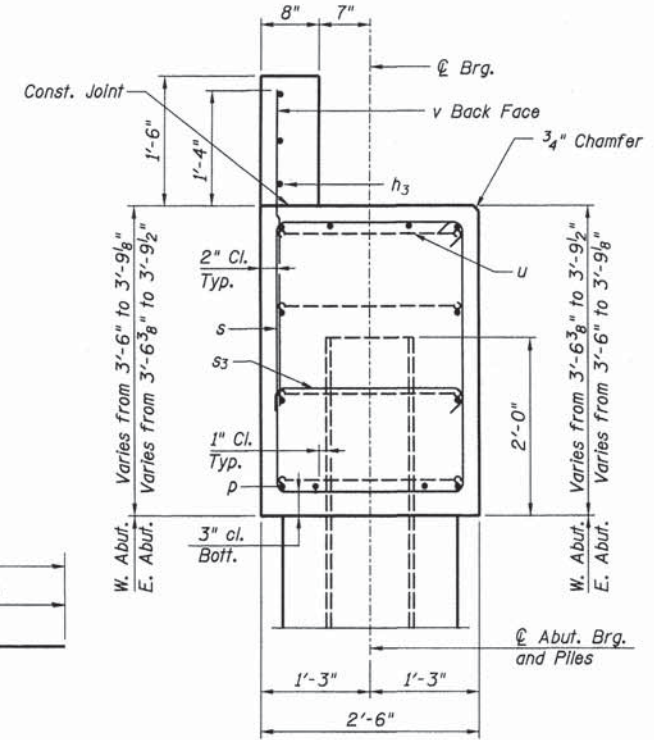
Type: Steel HP12x53  
 Nominal Required Bearing: 419 kips  
 Factored Resistance Available: 230 kips  
 Estimated Length: 47'/pile  
 No. Production Piles w/Pile Shoes: 3  
 No. Test Piles w/Pile Shoes: 1

**PILE DATA EAST ABUTMENT**

Type: Steel HP12x53  
 Nominal Required Bearing: 419 kips  
 Factored Resistance Available: 230 kips  
 Estimated Length: 47'/pile  
 No. Production Piles w/Pile Shoes: 4  
 No. Test Piles w/Pile Shoes: 0

**GENERAL NOTES**

- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).
- All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.
- All clearances between rebar and form surface shall be 2", unless otherwise noted.
- Space reinforcement in cap to miss PPCDB dowel rods.
- The Steel H-piles shall be according to AASHTO M270 Grade 50.
- The Contractor shall drive one (1) Steel HP12x53 Test Pile in a production location at the West abutment as directed by the Engineer before ordering the remainder of the piles.
- The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.
- The position of the 90° & 135° hooked ends of the s3 bar shall be alternated between adjacent bars.
- The Contractor is hereby advised that very stiff soils may be encountered prior to the location of anticipated nominal required bearing. See the soil borings for further information.



**SEC. THRU ABUT.**  
(Normal to C)

**BAR h1**

**BAR s3**

**BAR u**

**BAR s**

**BILL OF MATERIAL FOR ONE ABUTMENT**

Bar	No.	Size	Length	Shape
h	14	#6	8'-0"	
h1	14	#6	7'-0"	
h2	12	#6	4'-9"	
h3	3	#5	23'-8"	
p	12	#7	24'-8"	
s	27	#4	11'-3"	
s3	13	#4	3'-3"	
u	8	#6	9'-3"	
v	48	#5	3'-6"	
v1	24	#5	4'-9"	CUT IN FIELD
Concrete Structures			Cu. Yd.	10.9
Concrete Encasement			Cu. Yd.	1.4
Reinforcement Bars			Pound	1720
Furnishing Steel Piles, HP12x53	Foot	W Abut.		141
		E Abut.		188
Driving Piles	Foot	W Abut.		141
		E Abut.		188
Test Pile, Steel HP12x53	Each	W Abut.		1
		E Abut.		0
Piles Shoes	Each	W Abut.		4
		E Abut.		4

For details of piles and Concrete Encasement, see Sheet 12.

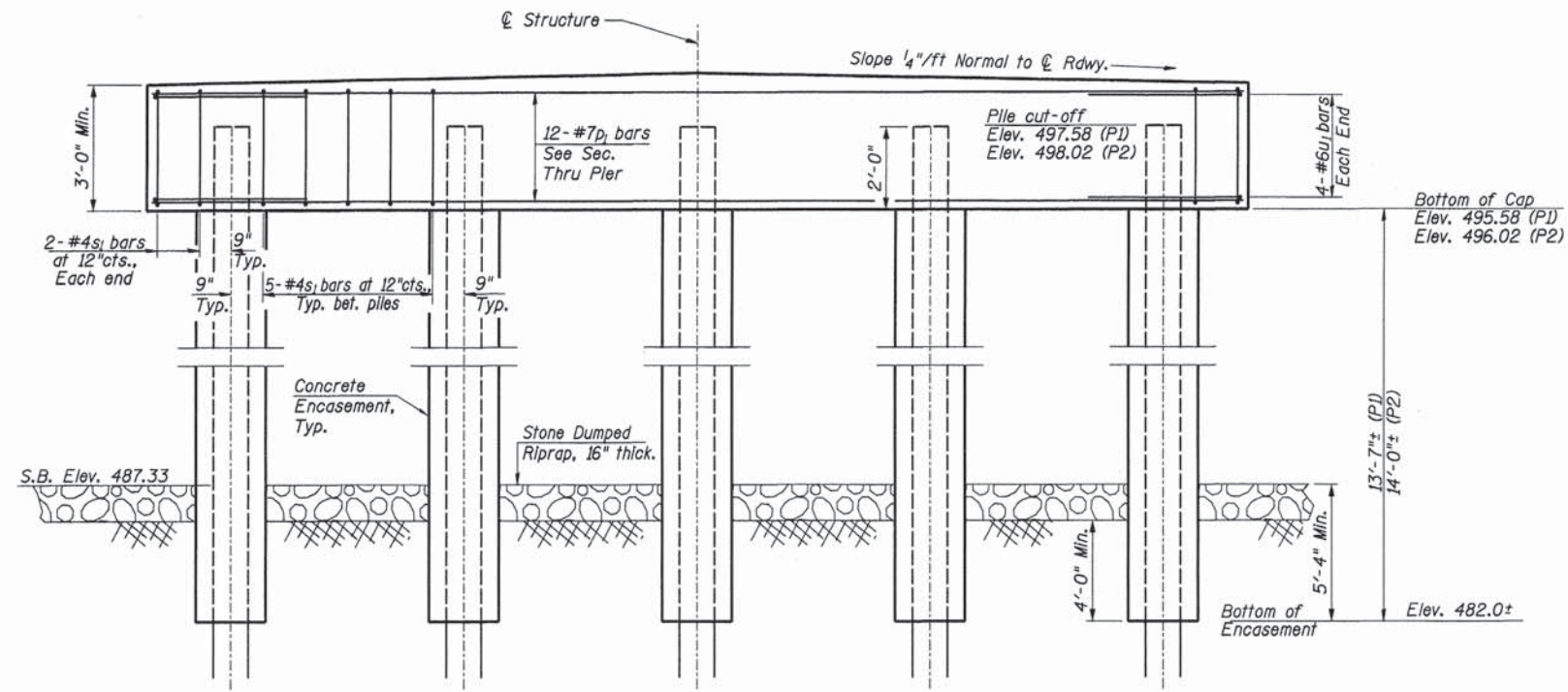
**RHUTASEL and ASSOCIATES, INC.**  
 CONSULTING ENGINEERS • LAND SURVEYORS  
 CENTRALIA, ILLINOIS FREEBURG, ILLINOIS  
 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 06/16/2014	REVISED -

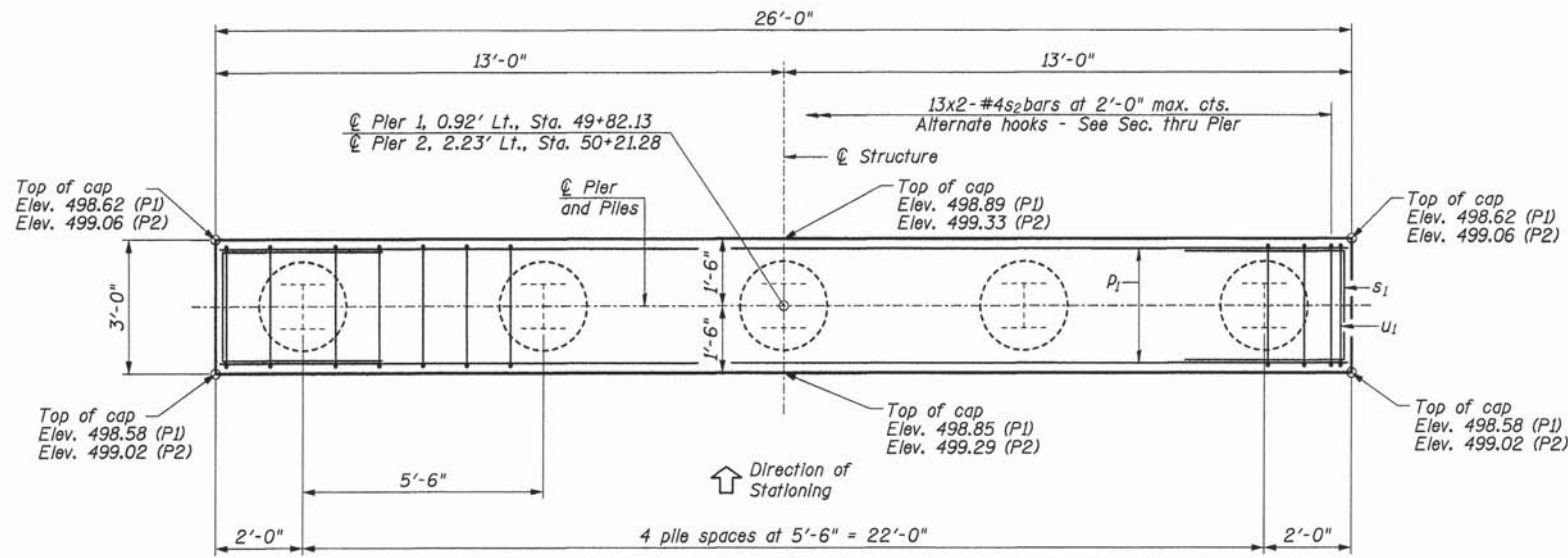
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**ABUTMENT DETAILS**  
**STRUCTURE NO. 026-3460**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	10
CONTRACT NO. 95744				
RAAL JOB NO. 52513 [ILLINOIS] FED. AID PROJECT				



ELEVATION



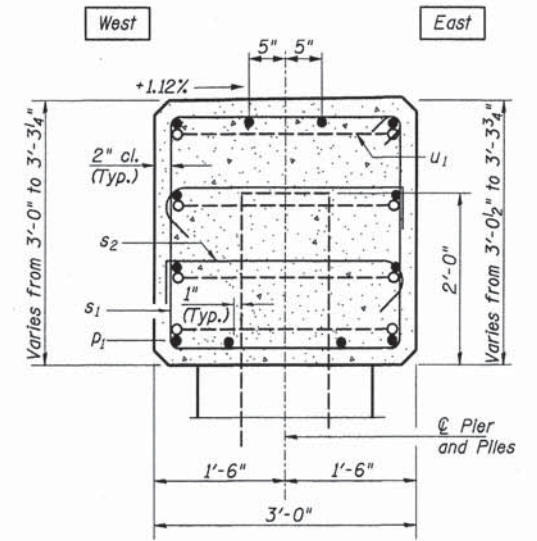
PLAN

PILE DATA  
PIER 1

Type: Steel HP12x53  
Nominal Required Bearing: 419 kips  
Factored Resistance Available: 120 kips  
Estimated Length: 47'/pile  
No. Production Piles w/Pile Shoes: 5  
No. Test Piles w/Pile Shoes: 0

PILE DATA  
PIER 2

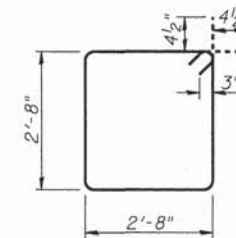
Type: Steel HP12x53  
Nominal Required Bearing: 419 kips  
Factored Resistance Available: 120 kips  
Estimated Length: 48'/pile  
No. Production Piles w/Pile Shoes: 5  
No. Test Piles w/Pile Shoes: 0



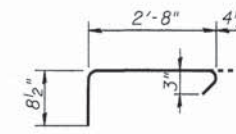
SEC. THRU PIER

GENERAL NOTES

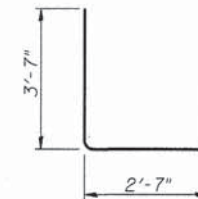
- All exposed edges shall have standard 3/4" chamfer, unless otherwise noted.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).
- All clearances between rebar and form surface shall be 2", unless otherwise noted.
- Space reinforcement in cap to miss PPCDB dowel rods.
- The Steel H-piles shall be according to AASHTO M270 Grade 50.
- The position of the 90° & 135° hooked ends of the s<sub>2</sub> bar shall be alternated between adjacent bars as shown, both vertically and horizontally.
- The Contractor is hereby advised that very stiff soils may be encountered prior to the location of anticipated nominal required bearing. See the soil borings for further information.



BAR s<sub>1</sub>



BAR s<sub>2</sub>



BAR u<sub>1</sub>

BILL OF MATERIAL  
FOR ONE PIER

Bar	No.	Size	Length	Shape
p <sub>1</sub>	12	#7	25'-8"	—
s <sub>1</sub>	24	#4	11'-5"	□
s <sub>2</sub>	26	#4	3'-9"	┌
u <sub>1</sub>	8	#6	9'-9"	—
Concrete Structures				Cu. Yd.
Concrete				Cu. Yd.
Encasement				Cu. Yd.
Reinforcement Bars				Pound
Furnishing Steel				Foot
Piles, HP12x53				Foot
Driving Piles				Foot
Pile Shoes				Each

For details of piles and Concrete Encasement, see Sheet 12.

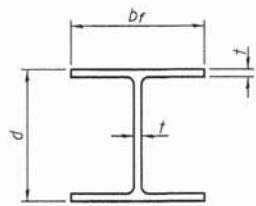
**RHUTASEL and ASSOCIATES, INC.**  
CONSULTING ENGINEERS • LAND SURVEYORS  
CENTRALIA, ILLINOIS  
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 06/16/2014	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

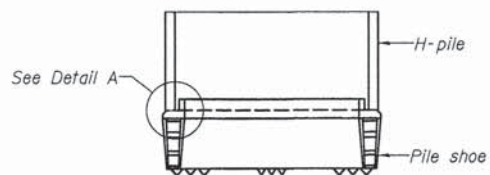
PIER DETAILS  
STRUCTURE NO. 026-3460

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	11
CONTRACT NO. 95744				
RAAI JOB NO. 52513 ILLINOIS FED. AID PROJECT				

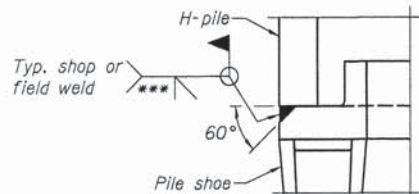


**STEEL PILE TABLE**

Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	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"	11/16"	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 1/8"	7/16"	18"

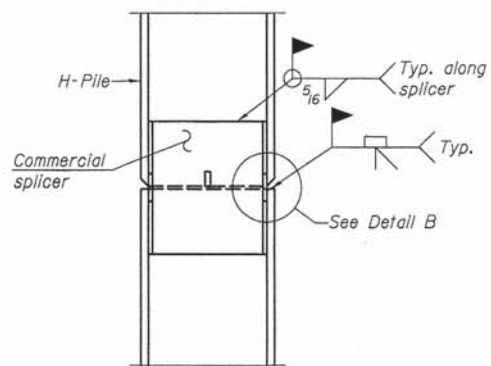


**ELEVATION**



**DETAIL A**

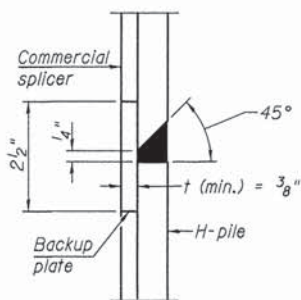
**H-PILE SHOE ATTACHMENT**



**ELEVATION**

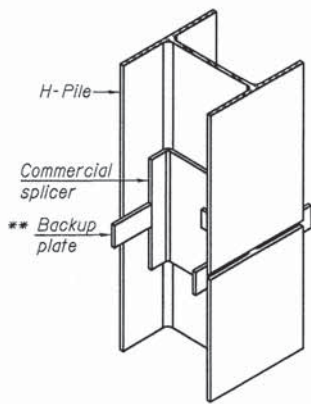
**SEISMIC PILE DETAILS**

Typical each flange, each exterior pile

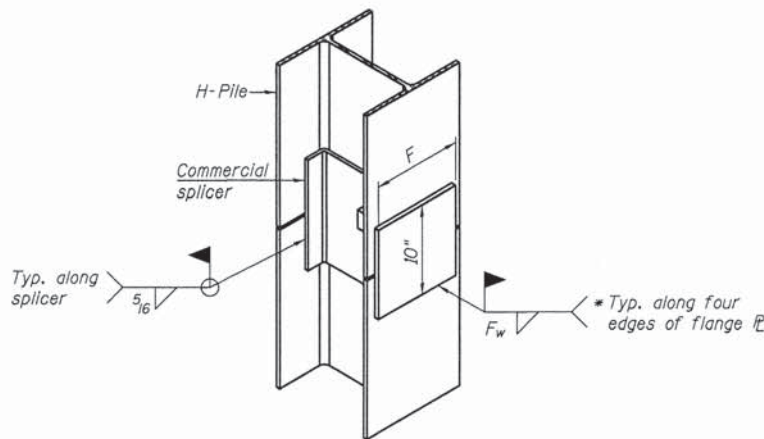


**DETAIL "B"**

**WELDED COMMERCIAL SPLICE**



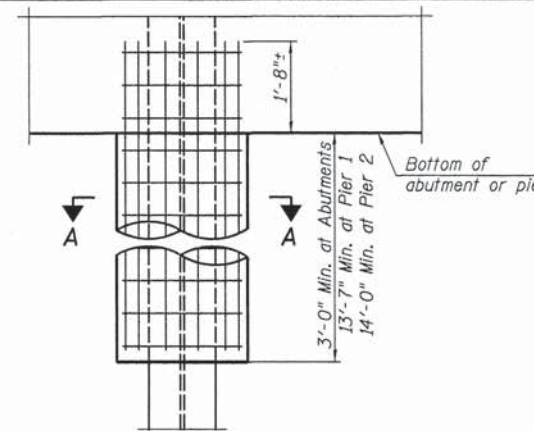
**ISOMETRIC VIEW**



**ISOMETRIC VIEW**

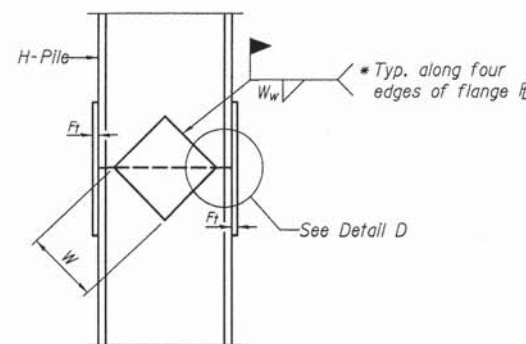
**WELDED COMMERCIAL SPLICE ALTERNATE**

- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).

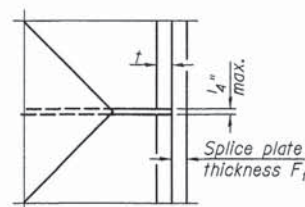


**ELEVATION**

**PILE ENCASEMENT**

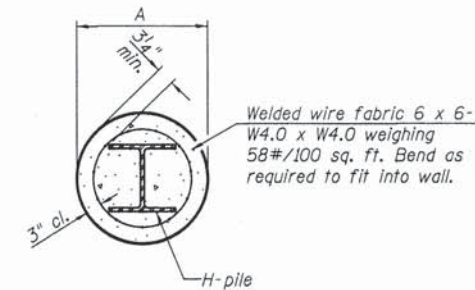


**ELEVATION**



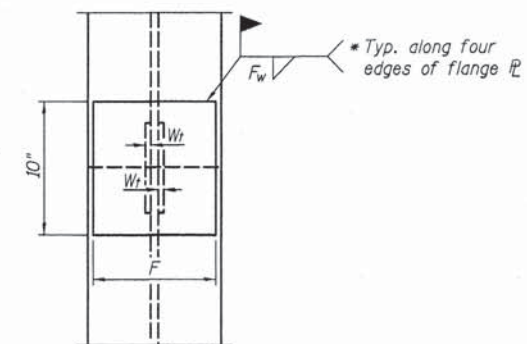
**DETAIL D**

**WELDED PLATE FIELD SPLICE**



**SECTION A-A**

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



**END VIEW**

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"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

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

**RHUTASEL and ASSOCIATES, INC.**  
CONSULTING ENGINEERS • LAND SURVEYORS  
CENTRALIA, ILLINOIS      FREEBURG, ILLINOIS  
ILLINOIS DESIGN FIRM LICENSE NO. 184-00287

DESIGNED - BLT  
DRAWN - JN  
CHECKED - WDL  
DATE - 06/16/2014

REVISED -  
REVISED -  
REVISED -  
REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

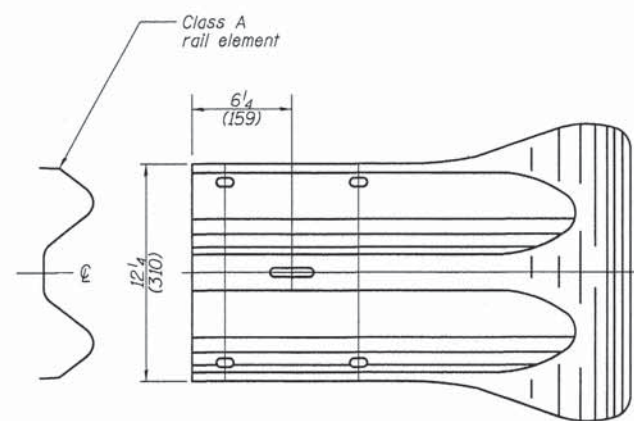
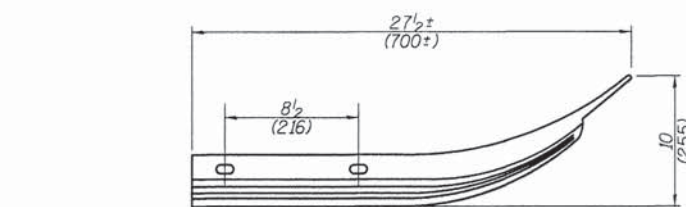
**HP PILE DETAILS**  
**STRUCTURE NO. 026-3460**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	12
CONTRACT NO. 95744				
RAAI JOB NO. 52513 ILLINOIS FED. AID PROJECT				

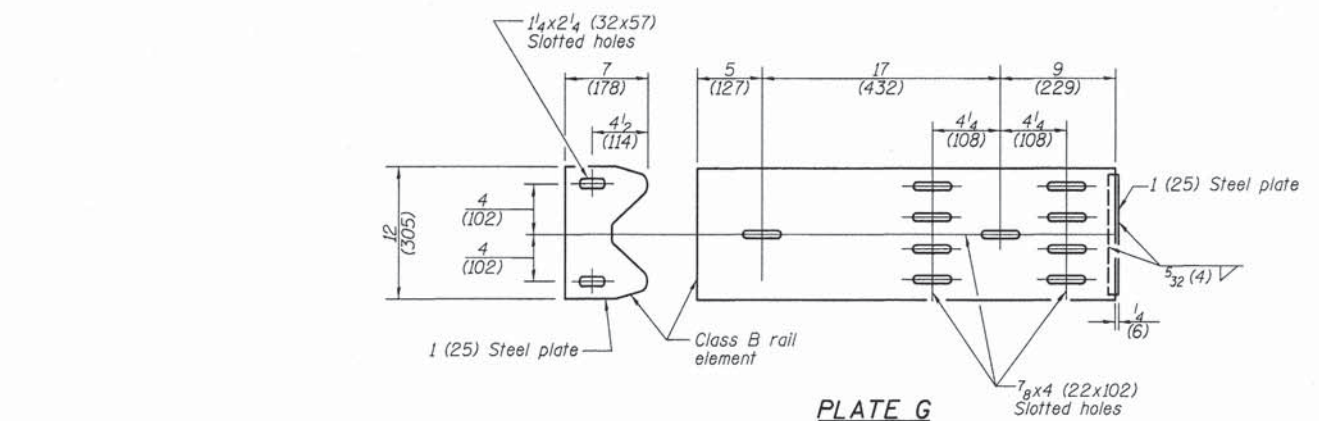
**BILL OF MATERIAL**

ITEM	QUADRANT	QUANTITY (FOOT)
SPBGR	NE	50
Total		50

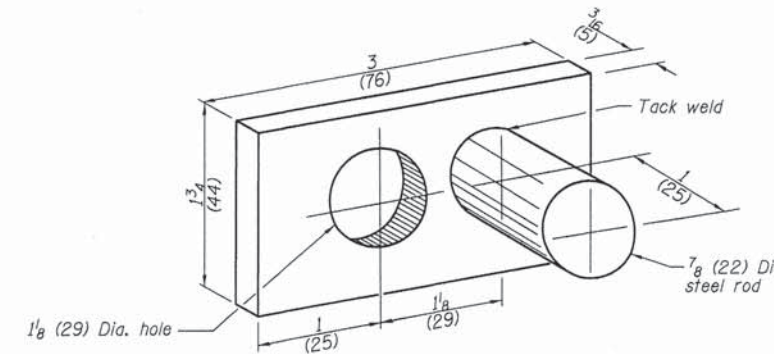
Cost of the End Shoe and the connection to the Steel Railing, Type S1 shall be included in the unit price for Steel Plate Beam Guardrail, Type B, 9 Foot Posts and no additional compensation will be allowed.



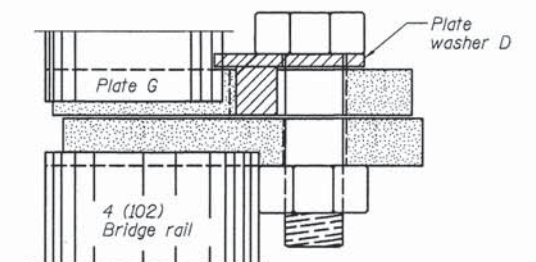
**END SHOE**



**PLATE G**



**PLATE WASHER D**



**PLACEMENT OF PLATE WASHER D (PLAN)**

**RHUTASEL and ASSOCIATES, INC.**  
CONSULTING ENGINEERS • LAND SURVEYORS  
CENTRALIA, ILLINOIS      FREEBURG, ILLINOIS  
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT  
DRAWN - JN  
CHECKED - WDL  
DATE - 06/16/2014

REVISED -  
REVISED -  
REVISED -  
REVISED -

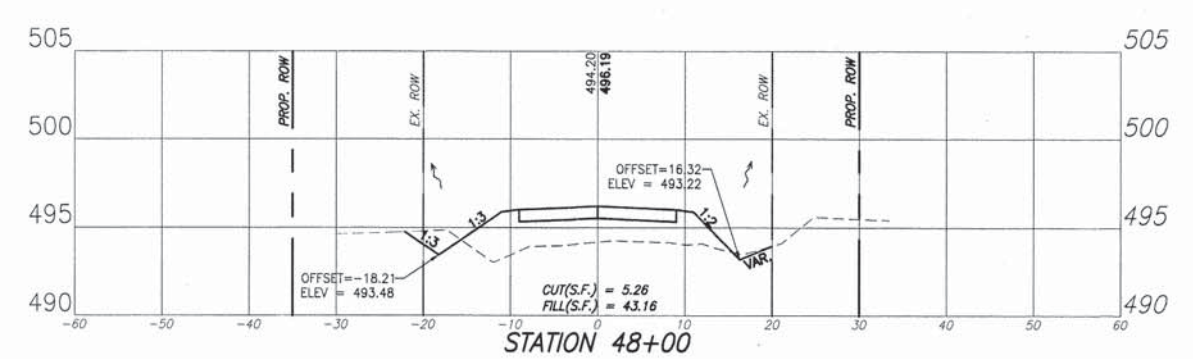
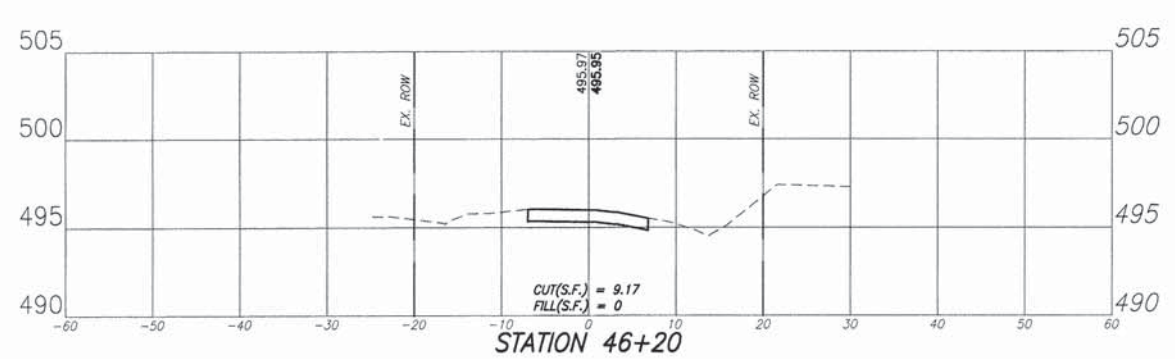
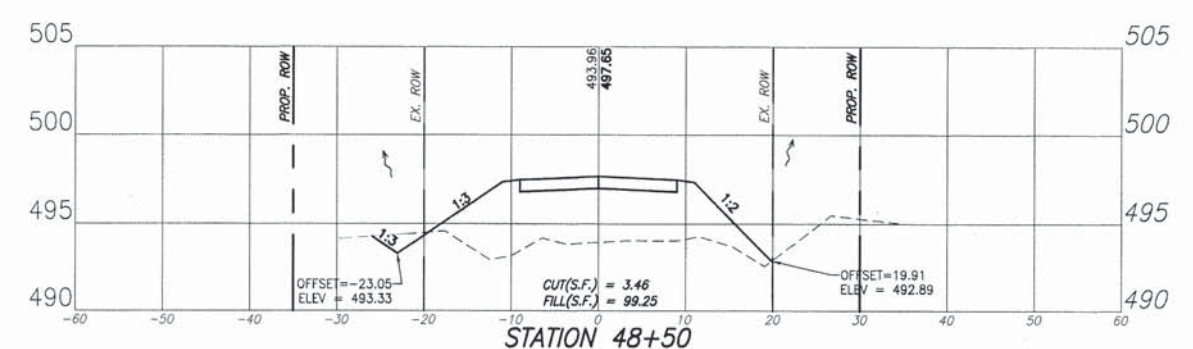
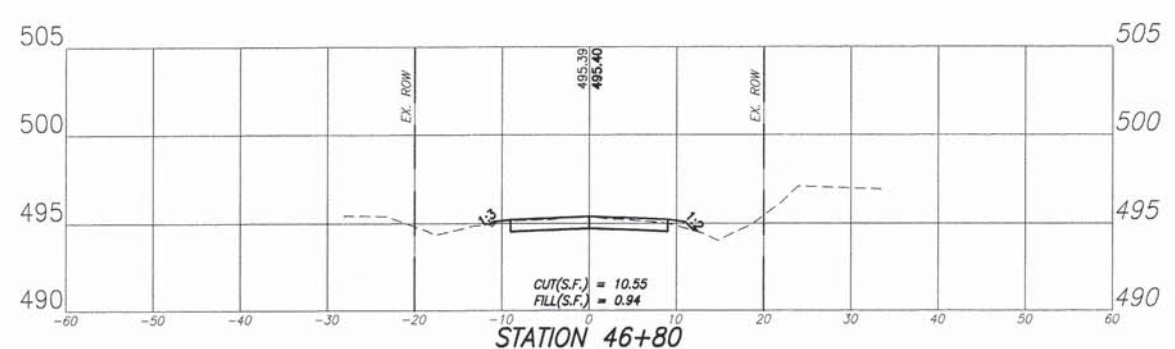
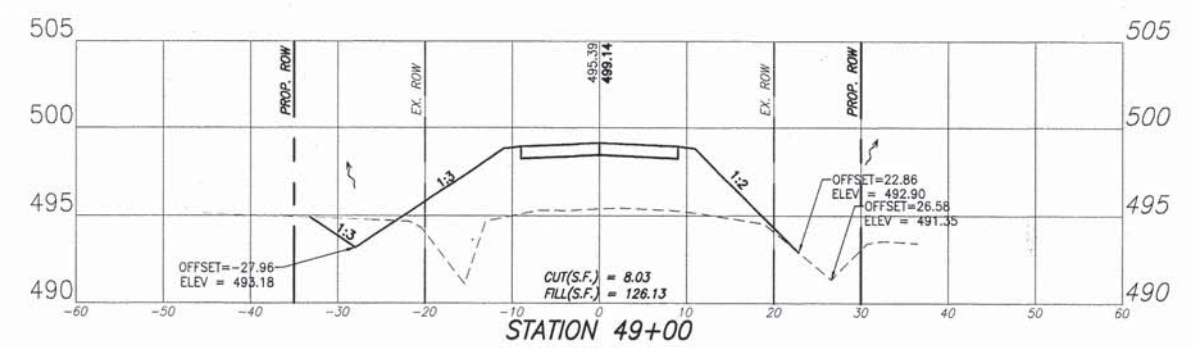
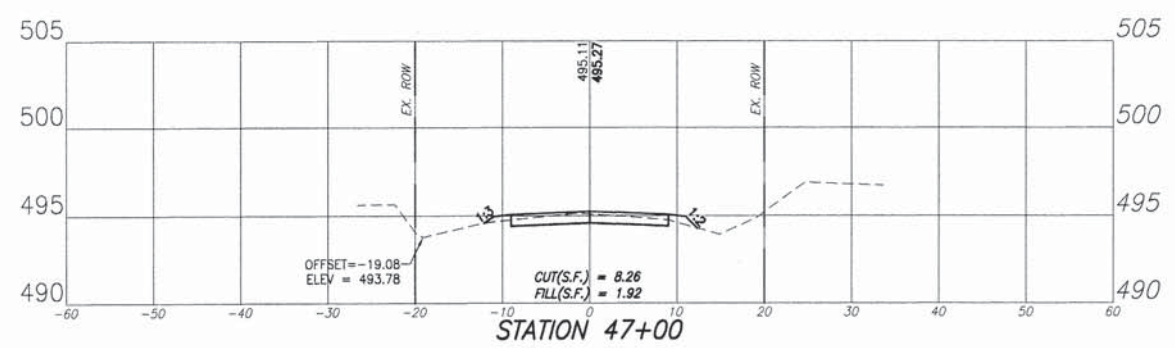
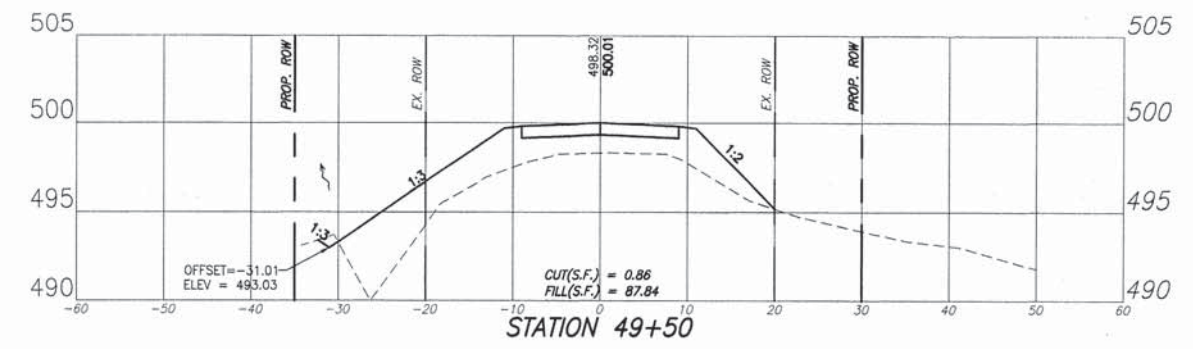
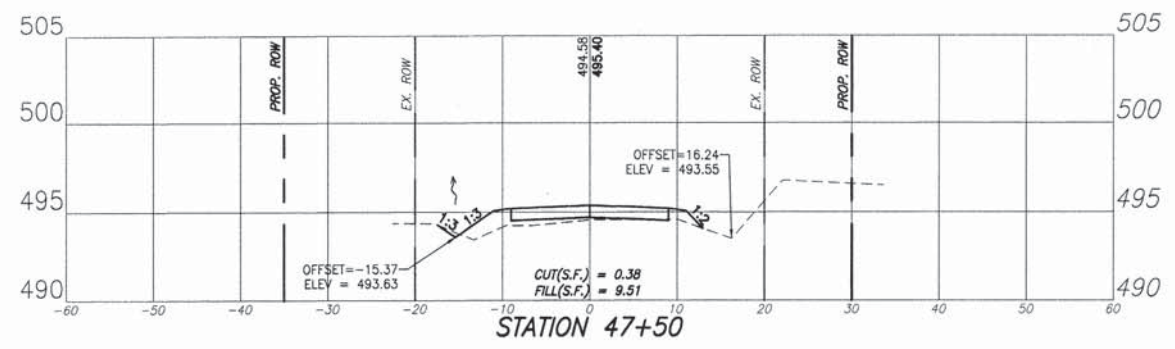
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

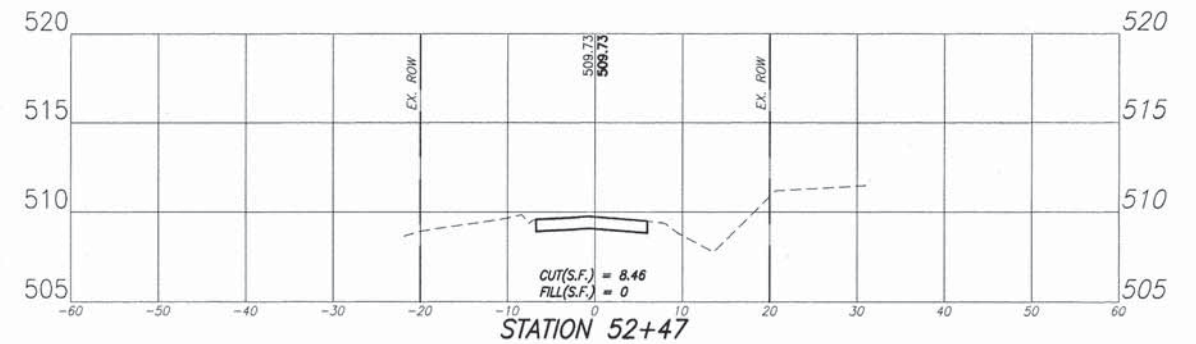
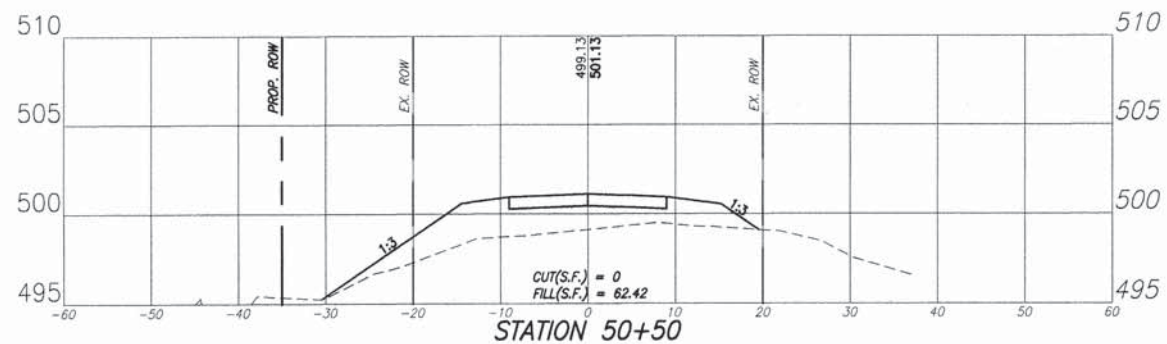
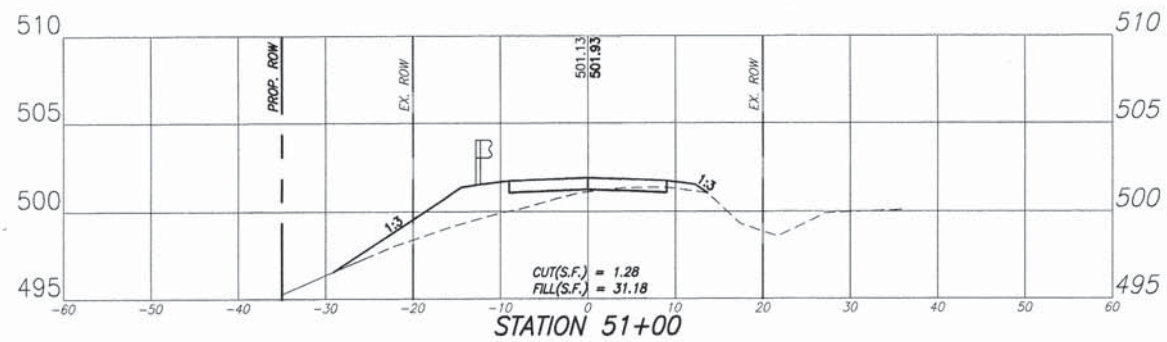
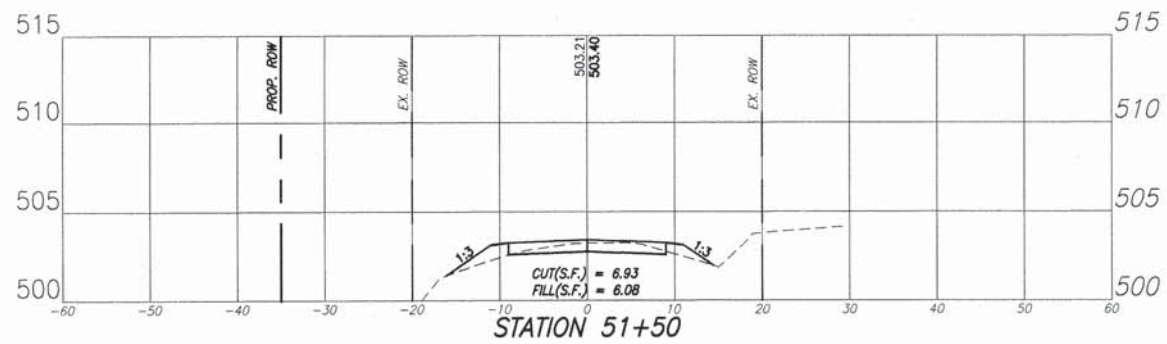
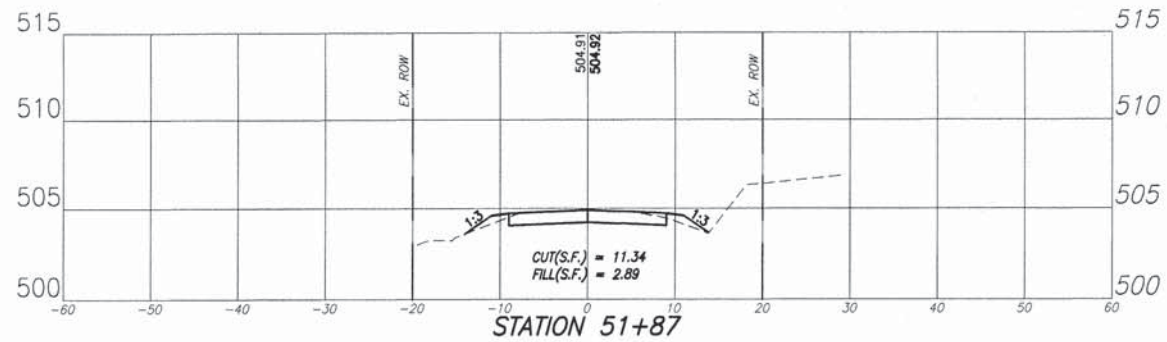
**APPROACH RAIL DETAILS  
STRUCTURE NO. 026-3460**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 260	13-12123-00-BR	FAYETTE	15	13
CONTRACT NO. 95744				

RAAI JOB NO. 52513 ILLINOIS FED. AID PROJECT

BRIDGE





BRIDGE