

# STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

## PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

**T.R. 43 OVER GROVE CREEK  
SECTION 08-03115-00-BR  
PROJECT BROS-0129(025)  
MENARD COUNTY / ROAD DISTRICT NO. 3  
C -96-231-09**

R. 6 W. 3rd P.M.

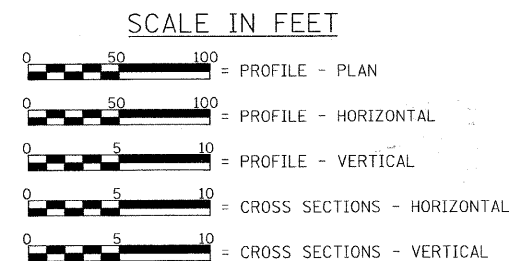
- INDEX OF SHEETS**
- 1 - TITLE SHEET
  - 2 - SUMMARY OF QUANTITIES, DETAILS, & TYPICAL SECTIONS
  - 3 - PLAN & PROFILE
  - 4 & 5 - GENERAL PLAN & ELEVATION
  - 6 & 7 - SUPERSTRUCTURE
  - 8 - RAILING
  - 9 - ABUTMENTS
  - 10 - METAL SHELL PILE DETAILS
  - 11 - 15 - CROSS SECTIONS

- STANDARDS**
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  - STANDARD 701011-02
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  - STANDARD BLR 23-3
  - STANDARD BLR 26-2
  - STANDARD BLR 27-1

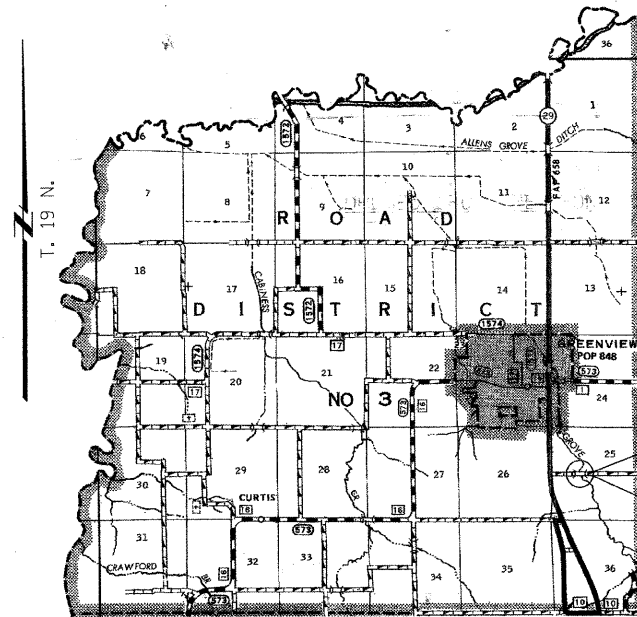
**LIST OF UTILITIES**

AT&T  
1-888-611-4466

MENARD ELECTRIC COOPERATIVE  
P.O. BOX 100  
PETERSBURG, ILLINOIS 62675  
1-217-632-7746

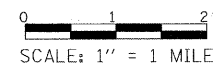


LAND SECTION - 25  
LAND QUARTER SECTION - N.W.  
FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)  
A.D.T. - 125 (2004)  
A.D.T. - 150 (2020)  
30 M.P.H. DESIGN SPEED



- LOCATION PLAN

LENGTH OF SECTION = 425.00 FEET = 0.080 MILES



EXISTING STRUCTURE: SINGLE SPAN TIMBER DECK ON STEEL STRINGERS SUPPORTED BY CLOSED TIMBER ABUTMENTS WITH TIMBER WINGWALLS. ±30'-6" BK.-BK. ABUTMENTS, ±18'-0" OUT.-OUT. DECK. STEEL RAILING. ±0° SKEW.  
EXISTING STRUCTURE NO. 065-3042

PROPOSED STRUCTURE: SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (33" DEPTH) ON OPEN CONCRETE ABUTMENTS. 28'-0" OUT.-OUT DECK, 77'-6" BK.-BK. ABUTMENTS. STEEL RAILING, TYPE S-1. 0° SKEW.  
PROPOSED STRUCTURE NO. 065-3123

PROJECT ENDS  
STA. 12+50.00

PROJECT BEGINS  
STA. 8+25.00



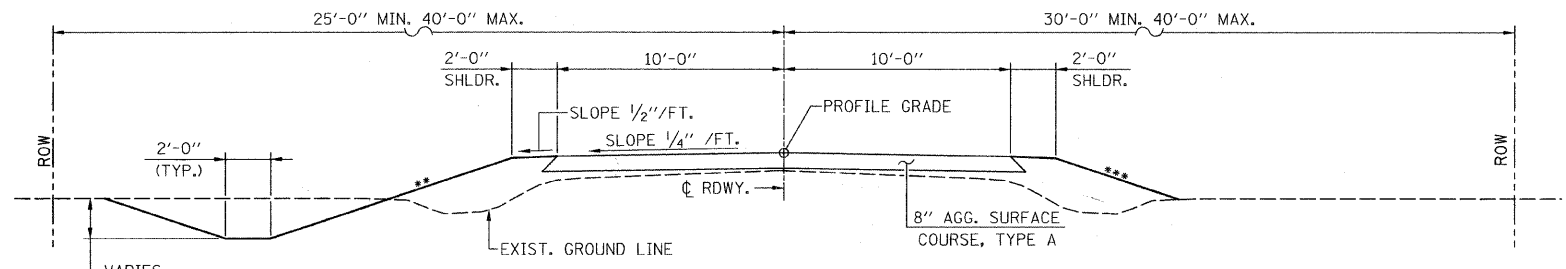
*Christopher P. Rollins* 2/26/10  
EXPIRATION: 11/30/2011

APPROVED <u>Feb 22</u> , 2010 <i>Thomas R. Casco</i> COUNTY ENGINEER
PASSED <u>March 12</u> , 2010 <i>Terrance H. Korman</i> DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS
PASSED <u>March 11</u> , 2010 <i>Ron A. Chamberlain</i> DISTRICT SIX CONSTRUCTION ENGINEER
Releasing For Bid Based on Limited Review <u>March 12</u> , 2010 <i>Roger H. Driskill</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

TOLL FREE  
"JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS"  
(J.U.L.I.E.) TELEPHONE NUMBER  
1-800-892-0123

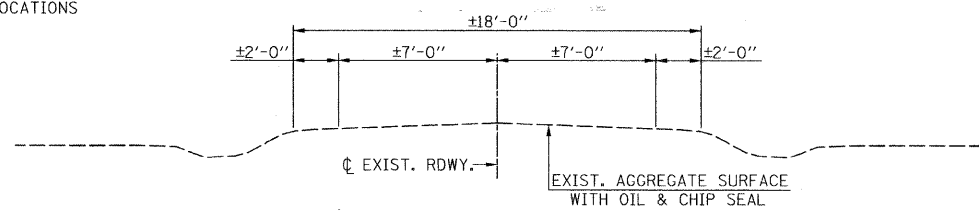
CONTRACT NO. **93530**

FILE NAME	USER NAME	DESIGNED	REVISED	<p><b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907</p>	<b>TITLE SHEET</b>	T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
DATE	DATE	DRAWN	REVISED		-SCALE: 1" = 1 MILE SHEET NO. 1 OF 15 SHEETS	43	08-03115-00-BR	MENARD	15	1
CHECKED	DATE	CHECKED	REVISED		STA. 8+25.00 TO STA. 12+50.00	CONTRACT NO.				

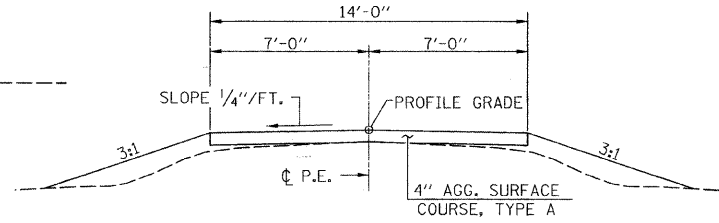


**PROPOSED CROSS SECTION**

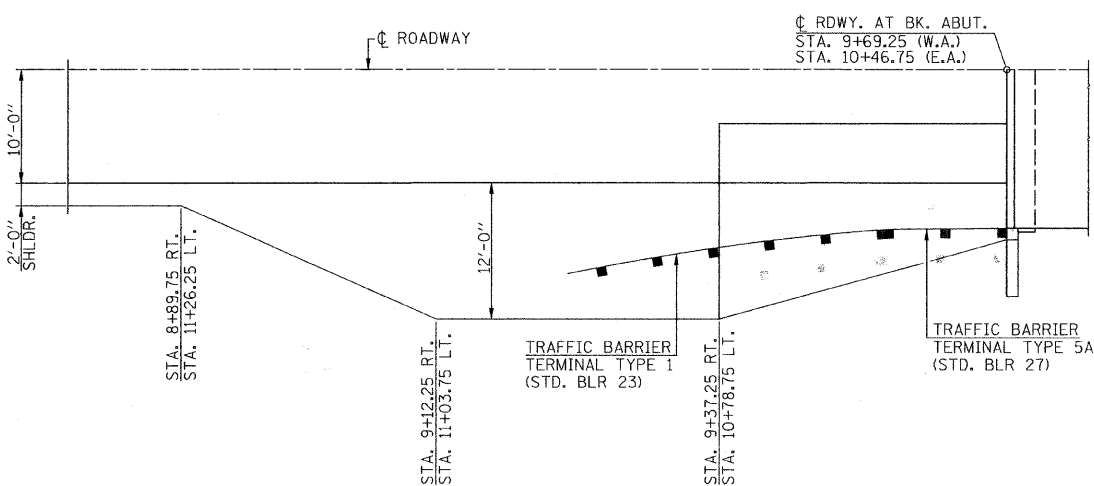
•• 3:1 < 6'  
 2:1 > 6' OR AT GUARDRAIL LOCATIONS  
 ••• 3:1 < 10'  
 2:1 > 10'



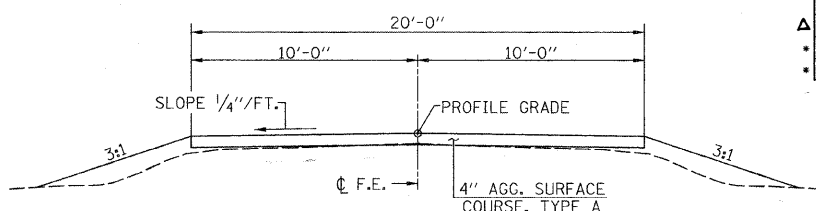
**EXISTING CROSS SECTION**



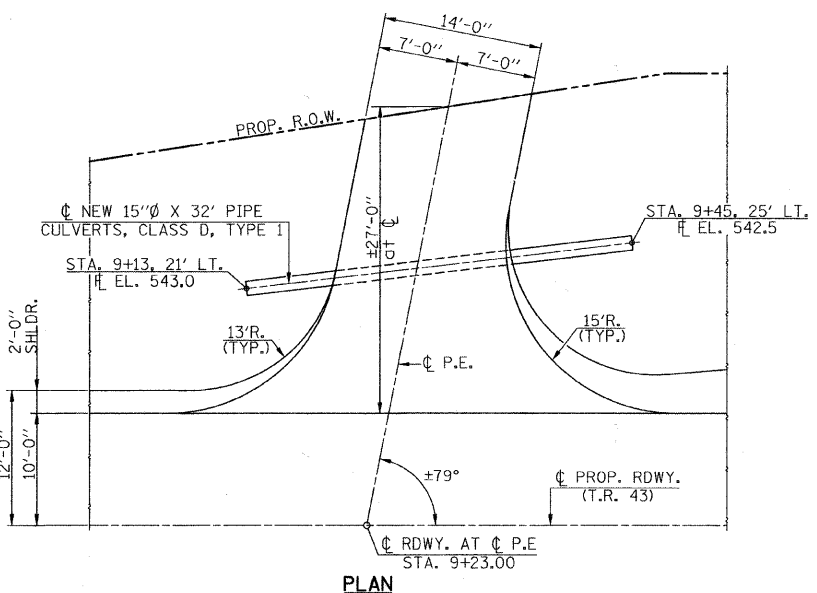
**PROPOSED CROSS SECTION**  
 (P.E. STA. 9+23 LT.)



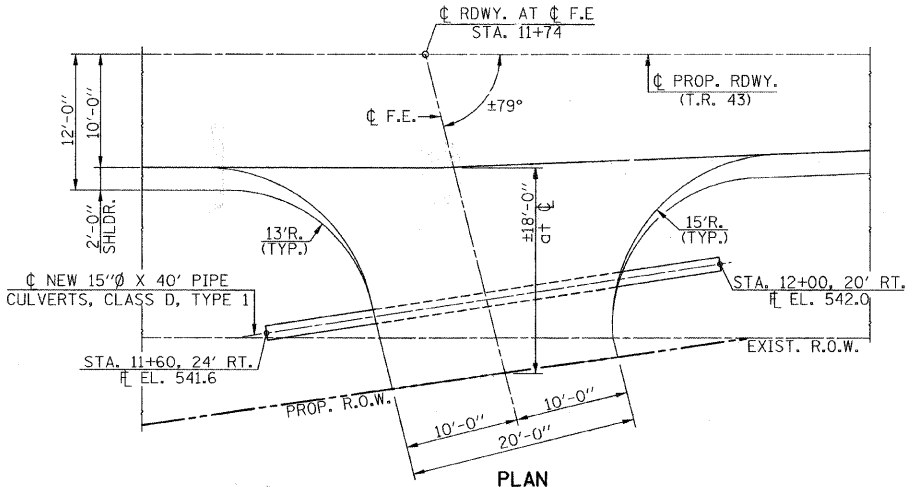
**GUARDRAIL PLAN LAYOUT**  
 (N.E. & S.W. CORNERS)



**PROPOSED CROSS SECTION**  
 (F.E. STA. 11+74 RT.)



**PLAN**



**PLAN**

**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.3
20200100	EARTH EXCAVATION	CU. YD.	155
20300100	CHANNEL EXCAVATION	CU. YD.	2098
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.9
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	563
28200200	FILTER FABRIC	SQ. YD.	786
40200100	AGGREGATE SURFACE COURSE, TYPE A	TON	353
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU. YD.	146
50300225	CONCRETE STRUCTURES	CU. YD.	28.0
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ. FT.	2133
50800105	REINFORCEMENT BARS	POUND	3260
50900205	STEEL RAILING, TYPE S-1	FOOT	155
51200957	FURNISHING METAL SHELL PILES 12"X0.250"	FOOT	815
51202305	DRIVING PILES	FOOT	815
51203200	TEST PILE METAL SHELLS	EACH	2
51500100	NAME PLATES	EACH	1
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	72
63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
67100100	MOBILIZATION	L. SUM	1
70101700	TRAFFIC CONTROL AND PROTECTION	L. SUM	1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2
Z0015500	DEBRIS REMOVAL	L. SUM	1
Z0022800	FENCE REMOVAL	FOOT	134

\* SEE SPECIAL PROVISIONS  
 CONSTRUCTION TYPE CODE: X080-2A

**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 SEEDDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.  
 NO COMMITMENTS.

**EARTHWORK SCHEDULE**

LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CU. YD.	CU. YD.	CU. YD.	CU. YD.
STA. 8+25.00 TO STA. 8+50.00	4	3	1	2
STA. 8+50.00 TO STA. 9+00.00	26	19	7	12
STA. 9+00.00 TO STA. 9+50.00	32	24	83	-59
STA. 9+50.00 TO STA. 9+69.25	11	8	53	-45
BRIDGE OMISSION - STA. 9+69.25 TO STA. 10+46.75				
STA. 10+46.75 TO STA. 10+50.00	1	1	8	-7
STA. 10+50.00 TO STA. 11+00.00	9	7	156	-149
STA. 11+00.00 TO STA. 11+50.00	13	10	118	-108
STA. 11+50.00 TO STA. 12+00.00	24	18	39	-21
STA. 12+00.00 TO STA. 12+50.00	21	16	11	5
<b>TOTAL</b>	<b>155</b>	<b>117</b>	<b>476</b>	<b>-359 ****</b>

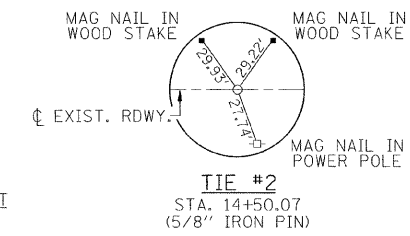
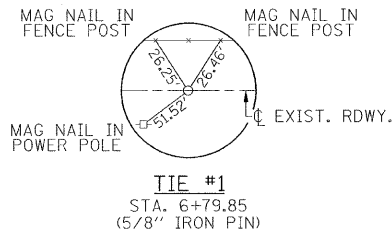
\*\*\*\* - NO FURNISHED EXCAVATION WILL BE REQUIRED. THE COST OF DISPOSING EXCESS STRUCTURE OR CHANNEL EXCAVATION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR CHANNEL EXCAVATION.

FILE NAME	USER NAME	DESIGNED	REVISED
#FILE#	#USER#	DRAWN	REVISED
	PLOT SCALE	CHECKED	REVISED
	PLOT DATE	DATE	REVISED

**Allen Henderson & Associates, Inc.**  
 Civil and Structural Engineers Springfield, IL  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907

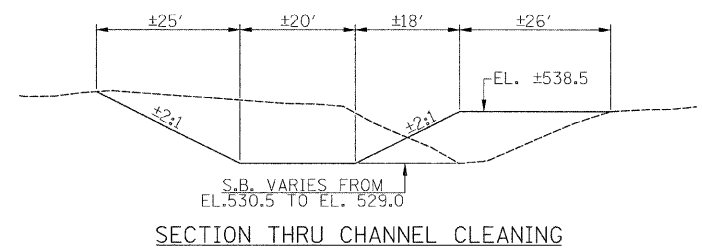
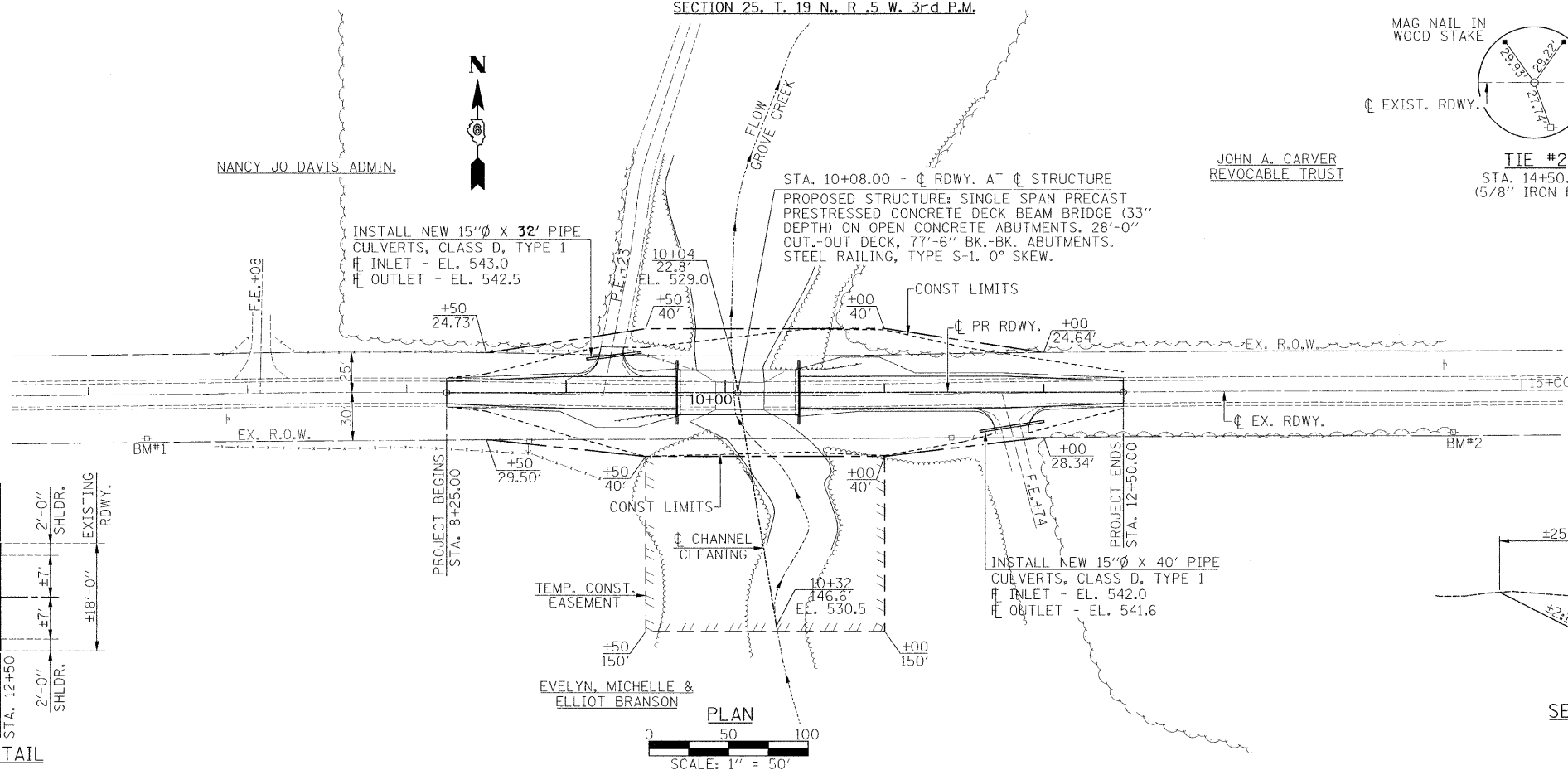
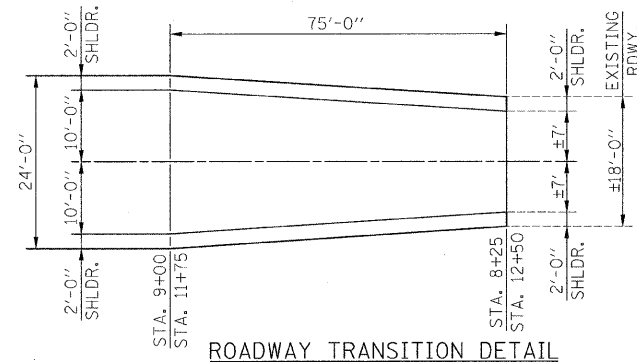
SCALE:	SHEET NO. 2 OF 15 SHEETS	STA. TO STA.
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T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
43	08-03115-00-BR	MENARD	15	2
CONTRACT NO. 93530				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



REVISION	DATE
BY	
PLAN	
NOTE BOOK	
NO.	
NO.	
NO.	
NO.	
NO.	

REVISION	DATE
BY	
PROFILE	
NOTE BOOK	
NO.	
NO.	
NO.	
NO.	
NO.	



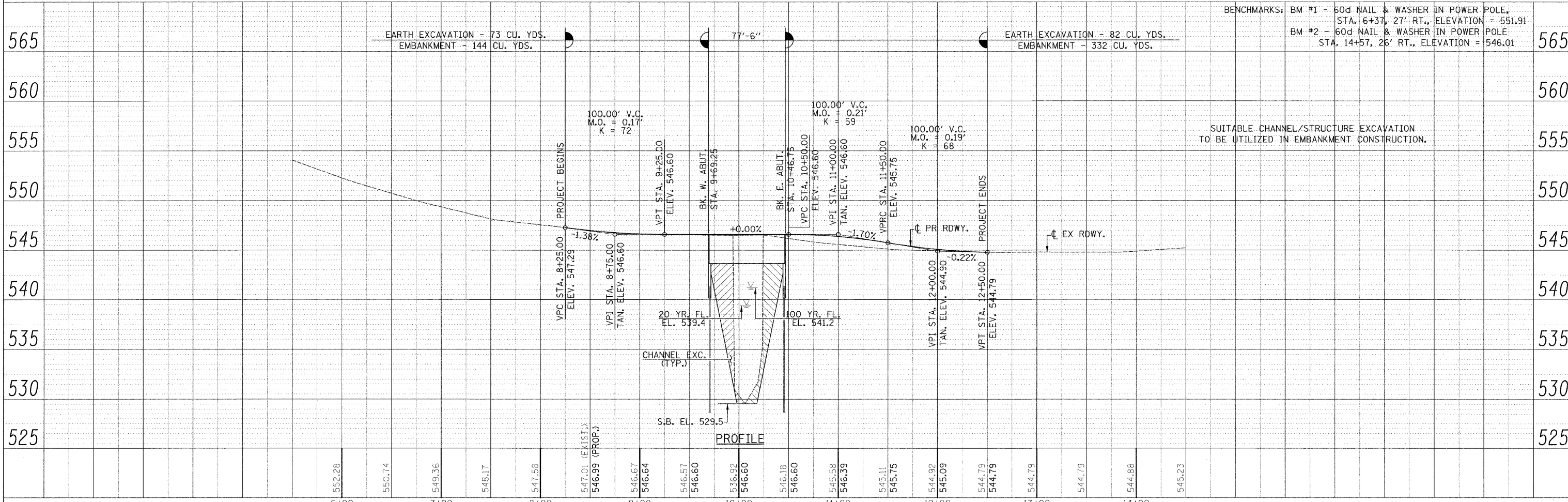
**SCHEDULE FENCE REMOVAL**

LOCATION	QUANTITY (FOOT)
STA. 8+50 TO STA. 9+82 LT.	134
<b>TOTAL</b>	<b>134</b>

**SCHEDULE TREE REMOVAL, ACRES**

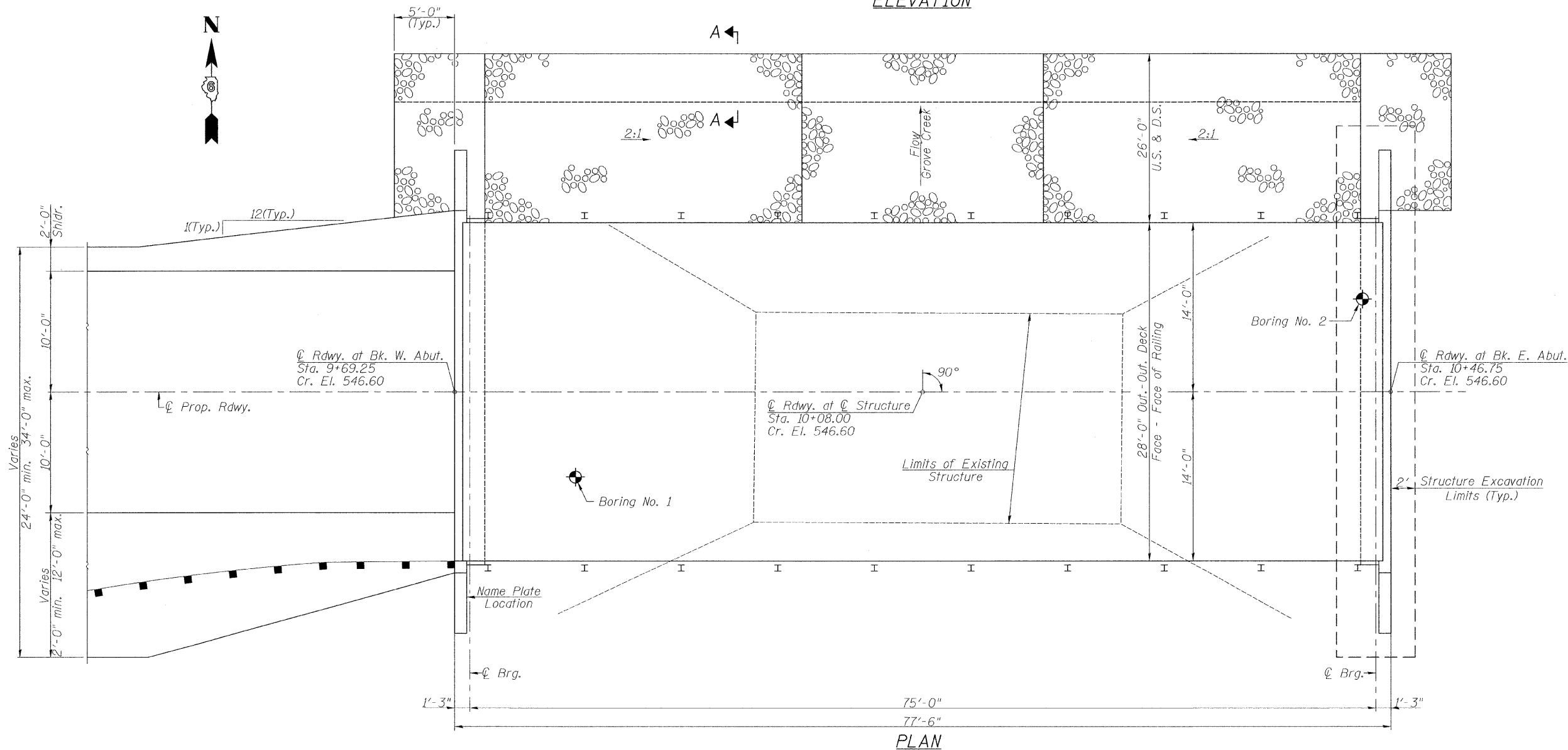
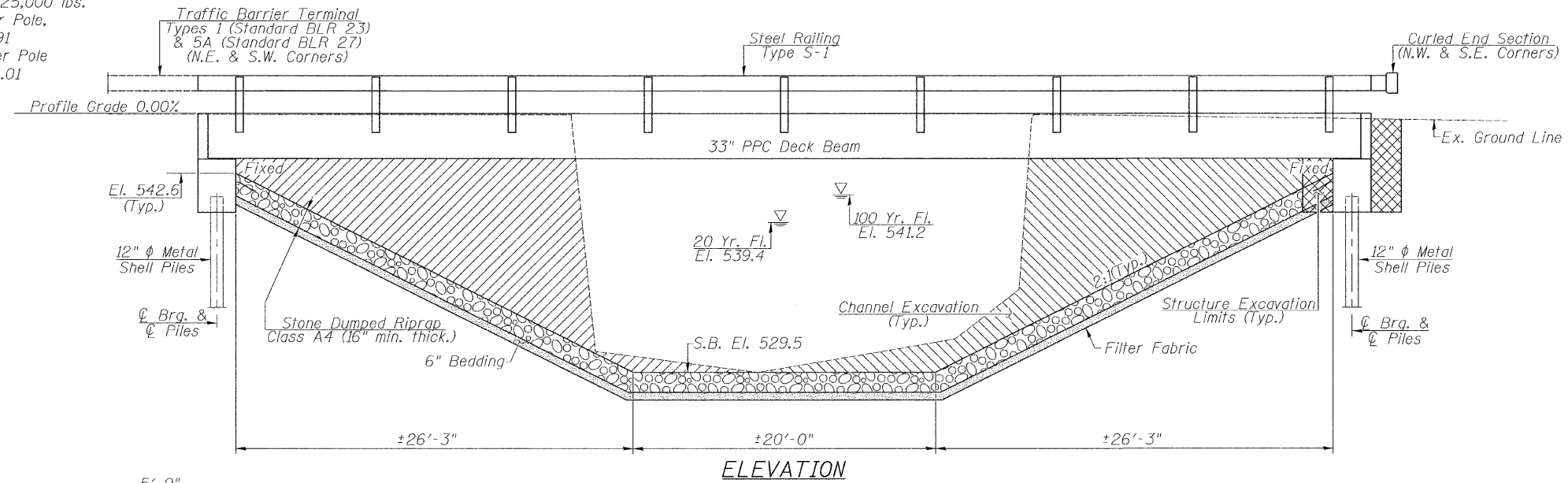
LOCATION	QUANTITY (ACRE)
STA. 9+42 TO STA. 1+79 LT.	0.01
STA. 9+50 TO STA. 10+27 RT.	0.17
STA. 10+28 TO STA. 10+66 LT.	0.02
STA. 10+45 TO STA. 11+00 RT.	0.09
<b>TOTAL</b>	<b>0.29</b>

SAY 0.3 ACRES



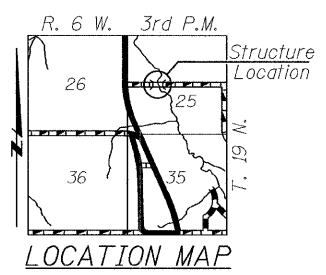
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PLOT DATE = #DATE#	CHECKED -	REVISED -	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT							

Existing Structure: Single span timber deck on steel stringers supported by closed timber abutments with timber wingwalls.  $\pm 30'-6"$  Bk.-Bk. Abutments,  $\pm 18'-0"$  Out.-Out. Deck. Steel Railing.  $\pm 0^\circ$  Skew.  
 Est. Quantity of Structural Steel =  $\pm 25,000$  lbs.  
 Benchmarks: BM #1 - 60d Nail & Washer in Power Pole, Sta. 6+37, 27' Rt., Elevation = 551.91  
 BM #2 - 60d Nail & Washer in Power Pole, Sta. 14+57, 26' Rt., Elevation = 546.01  
 Salvage: No Salvage



STA. 10+08.00  
 BUILT 20 BY  
 ROAD DISTRICT NO. 3  
 MENARD COUNTY  
 SECTION 08-03115-00-BR  
 PROJECT BROS-0129(025)  
 STR. NO. 065-3123 LOADING HL-93

NAME PLATE  
 (Standard 515001)



FILE NAME =	USER NAME = #USER#	DESIGNED - MAH	REVISED -	<b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907	<b>GENERAL PLAN &amp; ELEVATION</b>		T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		DATE -	REVISED -		FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT						

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			2098
Stone Dumped Riprap, Class A4	Ton		563	563
Filter Fabric	Sq. Yd.		786	786
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		146	146
Concrete Structures	Cu. Yd.		28.0	28.0
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2133		2133
Reinforcement Bars	Pound		3260	3260
Steel Railing, Type S-1	Foot	155		155
Furnishing Metal Shell Piles 12"x0.250"	Foot		815	815
Driving Piles	Foot		815	815
Test Pile Metal Shells	Each		2	2
Name Plates	Each		1	1

**WATERWAY INFORMATION**

Flood		Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head - ft.		Headwater El.	
				Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design		20	1556	242	395	539.4	1.7	0.1	541.1	539.5
Base		100	2317	295	507	541.2	2.3	0.1	543.5	541.3
Exist. Overtop.		Greater than 500 years								
Prop. Overtop.		Greater than 500 years								
Max. Calc.		500	3074	331	592	542.4	4.4	0.2	546.8	542.6

Drainage Area = 11.44 Sq. Mi. Pr. Low Grade Elev. 544.79 @ Sta. 12+50  
 Construction Permits: The Requirements of the IDNR - Office of Water Resources have been fulfilled in accordance with Statewide Permit No. 2.

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	N. Abut.	S. Abut.
	540.0	540.0

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3500$  psi  
 $f_y = 60000$  psi  
 (Reinforcement)

**PRECAST PRESTRESSED UNITS**

$f'_c = 6000$  psi  
 $f'_{ci} = 5000$  psi  
 $f_{pu} = 270000$  psi ( $\frac{1}{2}$ " low lax strands)  
 $f_{pbt} = 201960$  psi ( $\frac{1}{2}$ " low lax strands)

**GENERAL NOTES**

See Proposal for Boring Data.  
 Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60. See Special Provisions.  
 The layout of the riprap slope 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 each abutment as directed by the Engineer in the field prior to ordering the remainder of piles.  
 Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications, 4th Edition with 2008 Interims.

**LOADING HL-93**

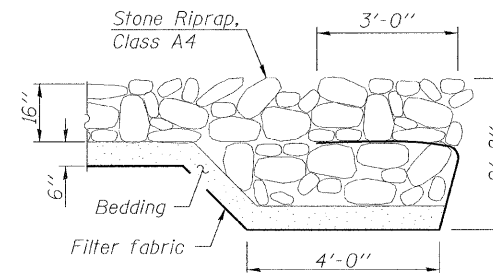
Allow 50#/sq. ft. for future wearing surface.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
 Design Spectral Acceleration at 1.0 sec ( $S_{D1}$ ) = .139g  
 Design Spectral Acceleration at 0.2 sec ( $S_{D5}$ ) = .227g  
 Soil Site Class = D

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* 2/20/2010  
 Expiration Date 11/30/2010



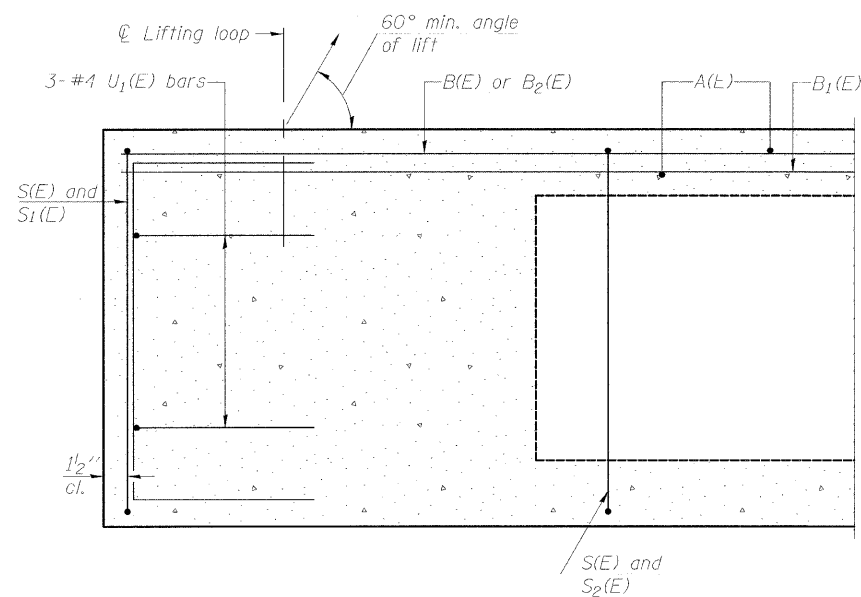
**SECTION A-A**



**Allen Henderson & Associates, Inc.**  
 Civil and Structural Engineers Springfield, IL.  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907

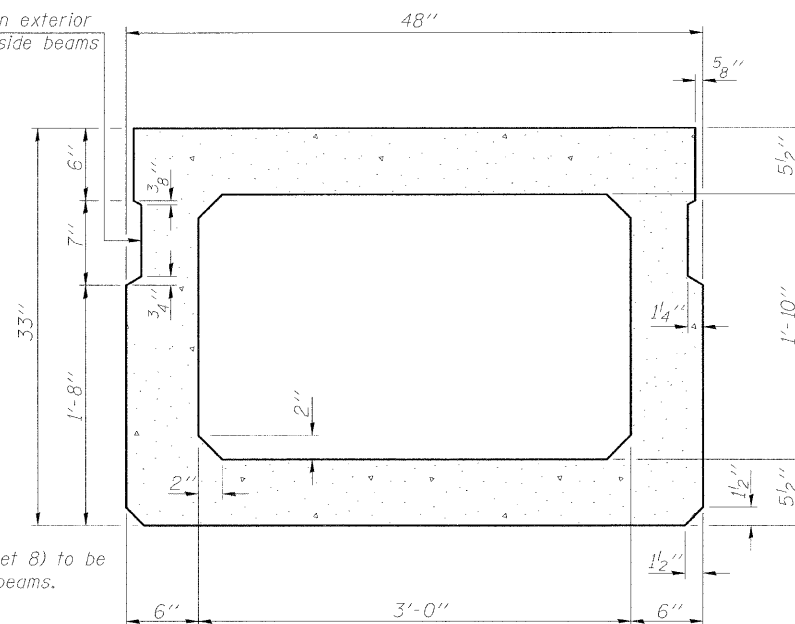
**GENERAL PLAN & ELEVATION**

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SCALE:				SHEET NO. 5 OF 15 SHEETS	STA. TO STA.
				FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT

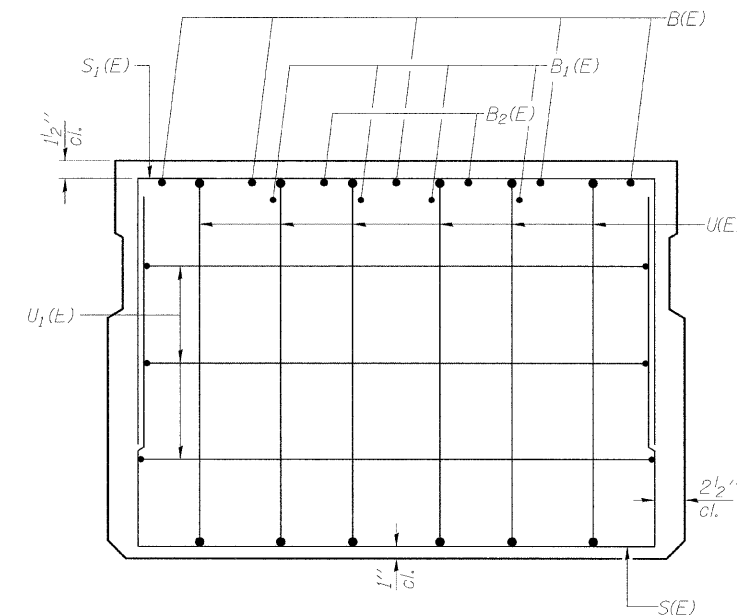


SECTION C-C

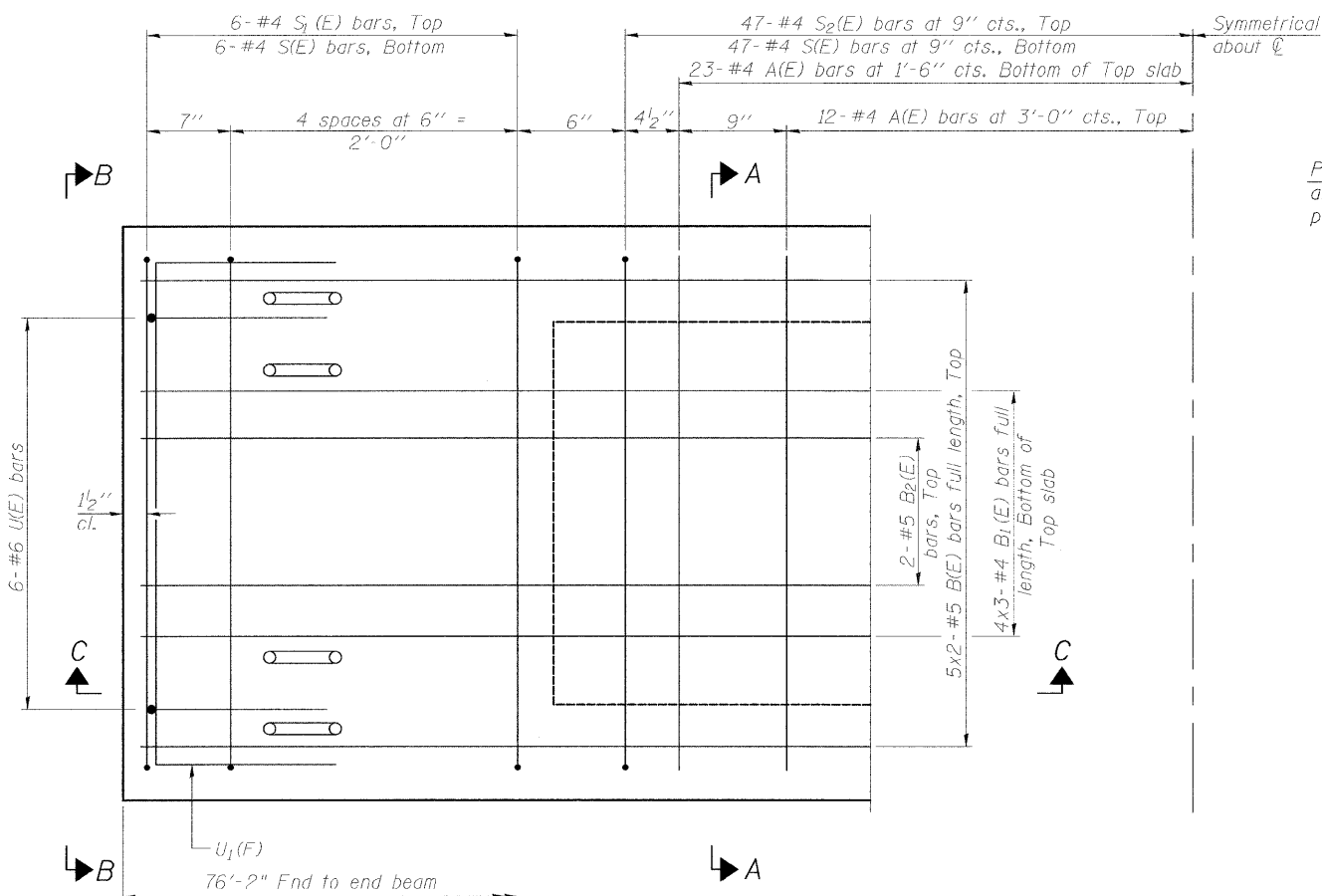
\*Omit key on exterior face of outside beams



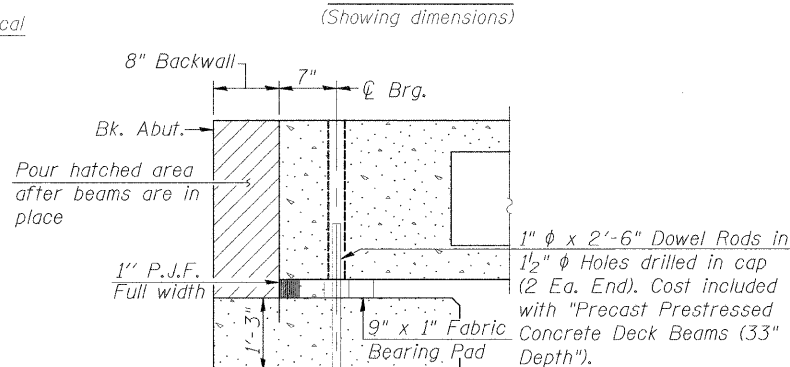
SECTION A-A (Showing dimensions)



VIEW B-B



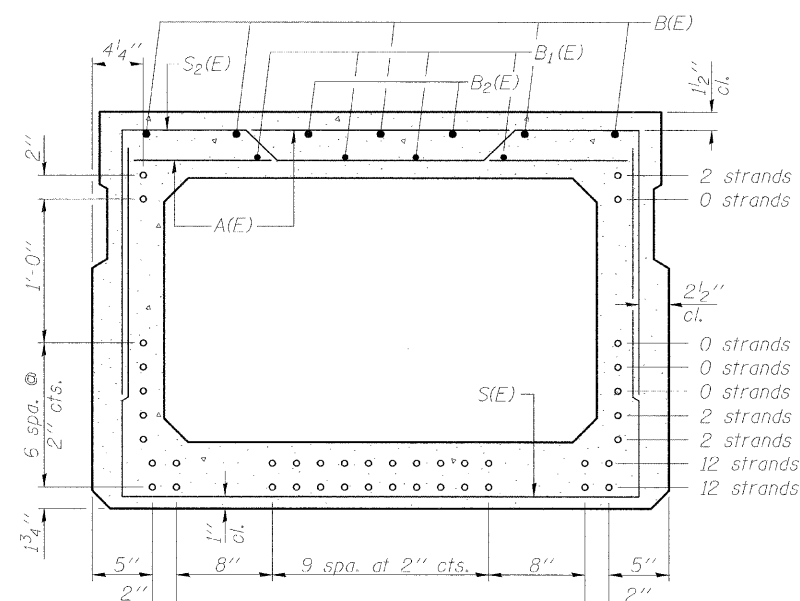
PLAN VIEW



SECTION THRU ABUTMENT (At Right Angles)

MINIMUM BAR LAP

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



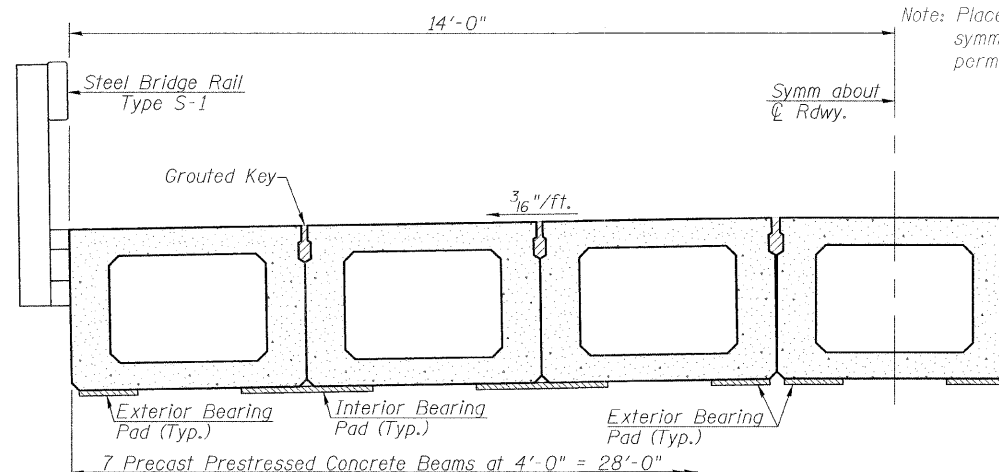
SECTION A-A

(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)	71	#4	3'-7"	—
B(E)	10	#5	39'-3"	—
B1(E)	12	#4	26'-8"	—
B2(E)	4	#5	15'-3"	—
S(E)	106	#4	8'-5"	□
S1(E)	12	#4	7'-3"	□
S2(E)	94	#4	7'-6"	□
U(E)	12	#6	5'-0"	□
U1(E)	6	#4	6'-0"	□

Note: See sheet 7 of 15 for additional details and Bill of Material.  
Bars indicated thus 5x2-#5 indicates 5 lines of bars with 2 lengths per line.



HALF CROSS SECTION

Note: Spacing of S1(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.

PD-3348-0

11-1-09

FILE NAME =	USER NAME = #USER#	DESIGNED -	REVISED -
#FILE#		DRAWN -	REVISED -
	PLOT SCALE = #SCALE#	CHECKED -	REVISED -
	PLOT DATE = #DATE#	DATE -	REVISED -

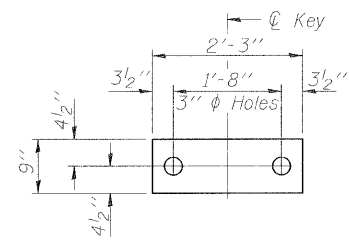


Allen Henderson & Associates, Inc.  
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SUPERSTRUCTURE

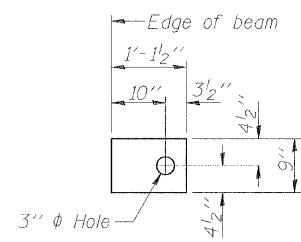
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T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
43	08-03115-00-BR	MENARD	15	6
CONTRACT NO. 93530				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**FABRIC BEARING PAD**

(Interior)  
(8 Required)



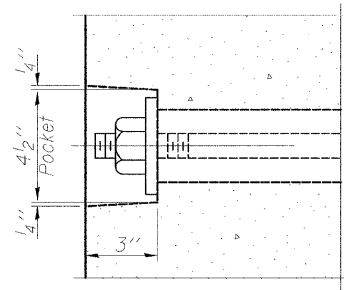
**FABRIC BEARING PAD**

(Exterior)  
(12 Required)

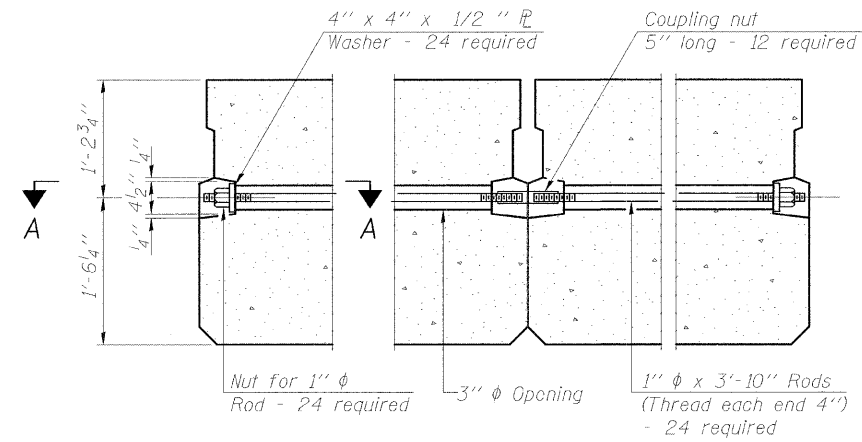
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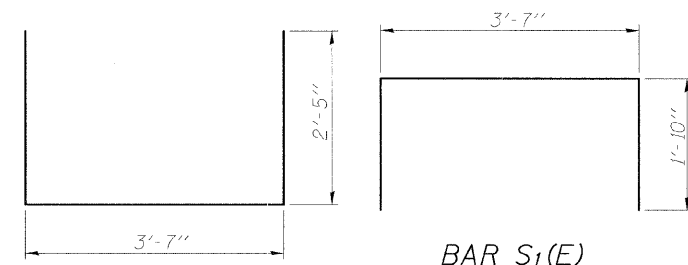
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



**SECTION A-A**

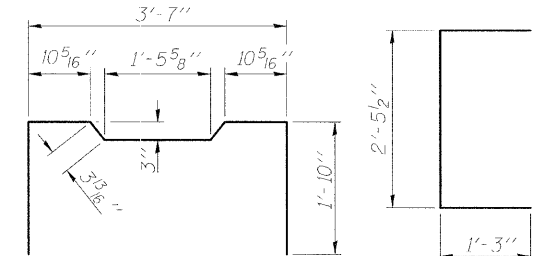


**TYPICAL TRANSVERSE TIE ASSEMBLY**



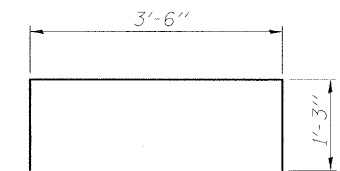
**BAR S(E)**

**BAR S<sub>1</sub>(E)**

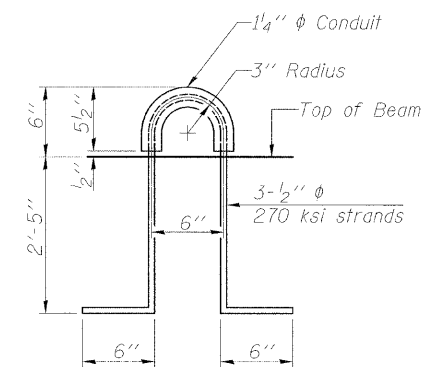


**BAR S<sub>2</sub>(E)**

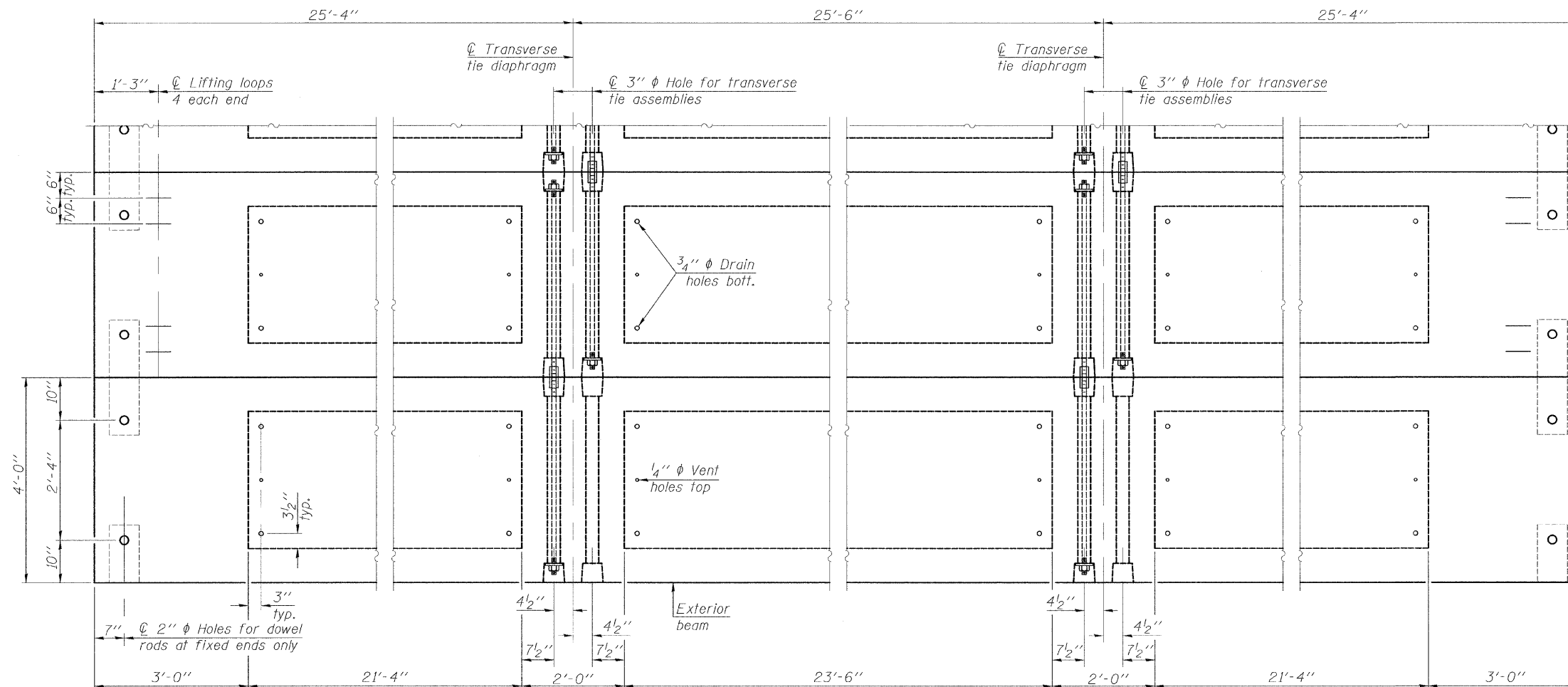
**BAR U(E)**



**BAR U<sub>1</sub>(E)**



**LIFTING LOOP DETAIL**



**PLAN VIEW**

**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. (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" 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.

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

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	2133
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PD-3348-0D

11-1-09

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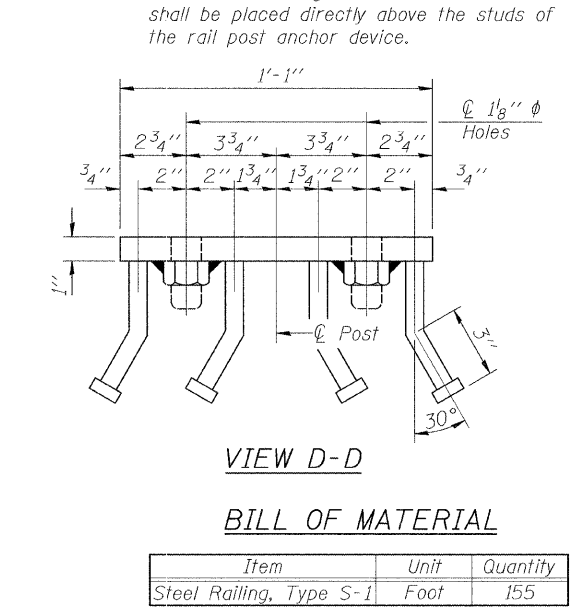
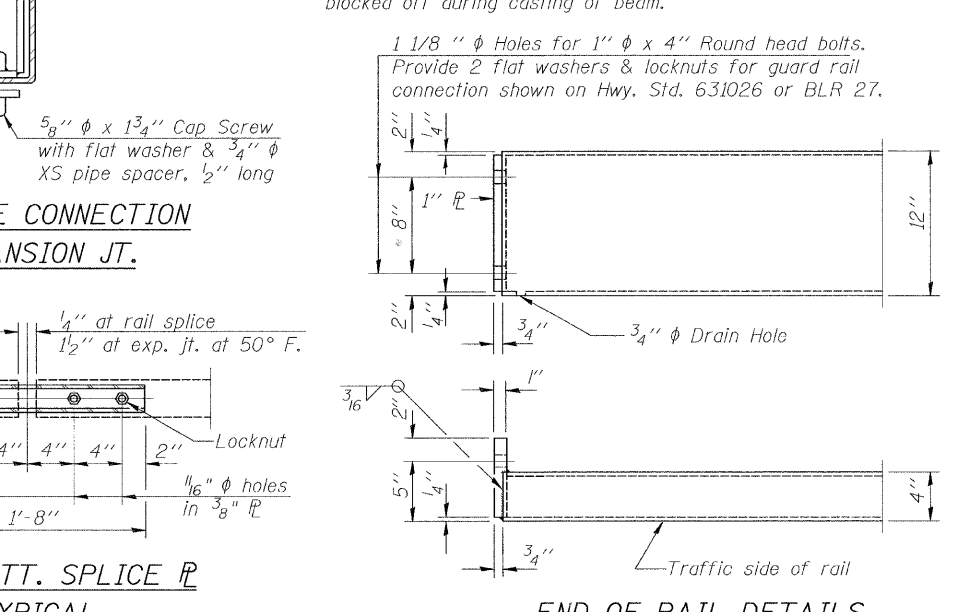
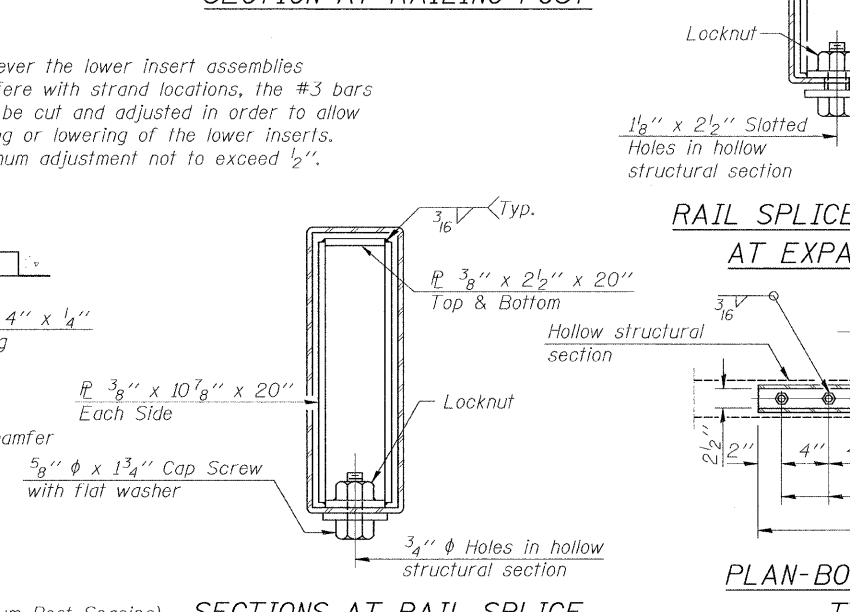
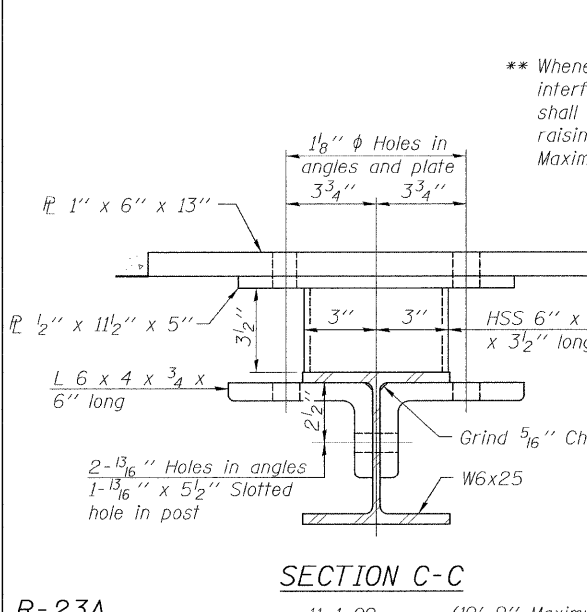
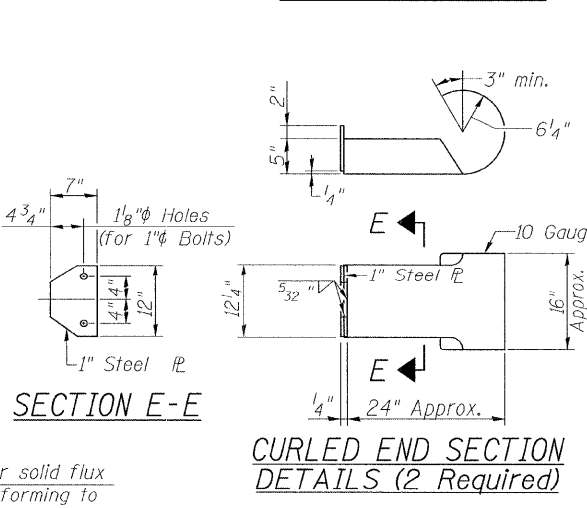
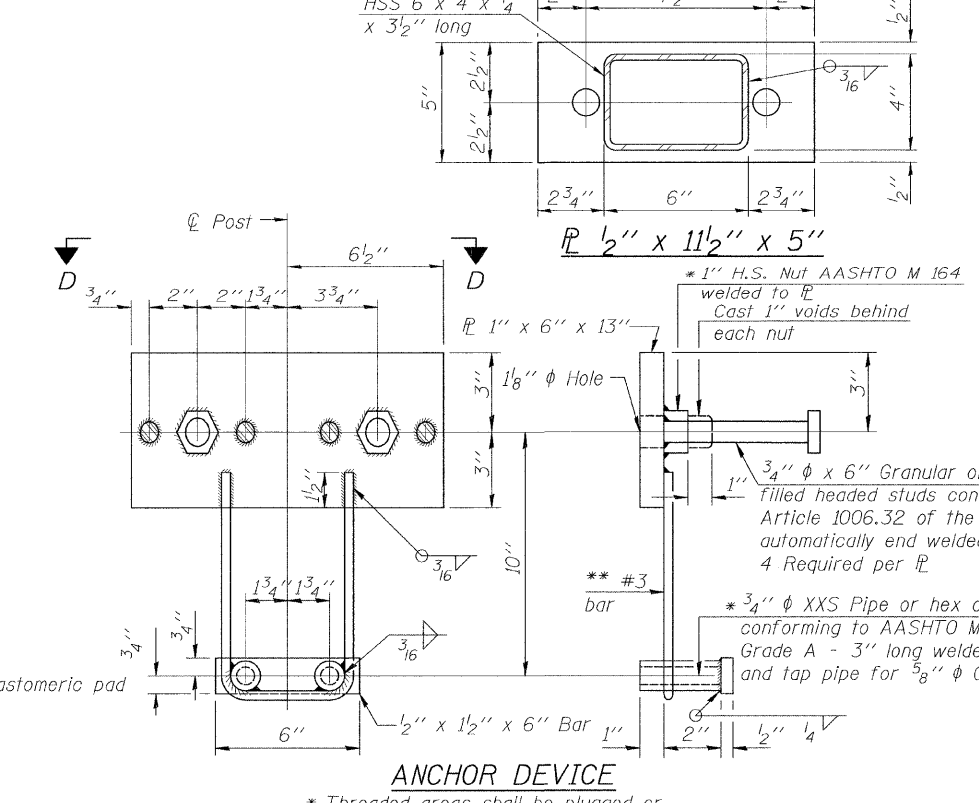
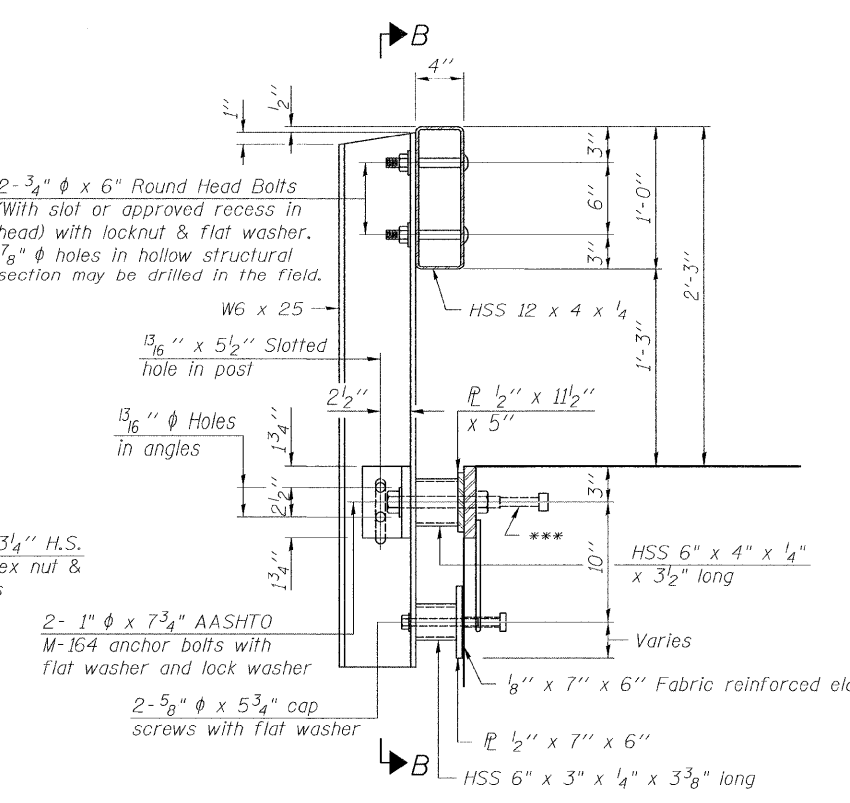
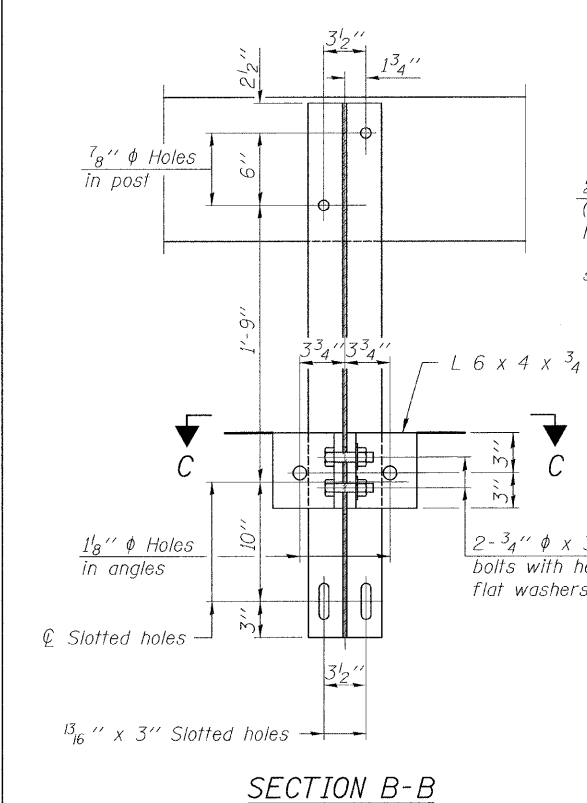
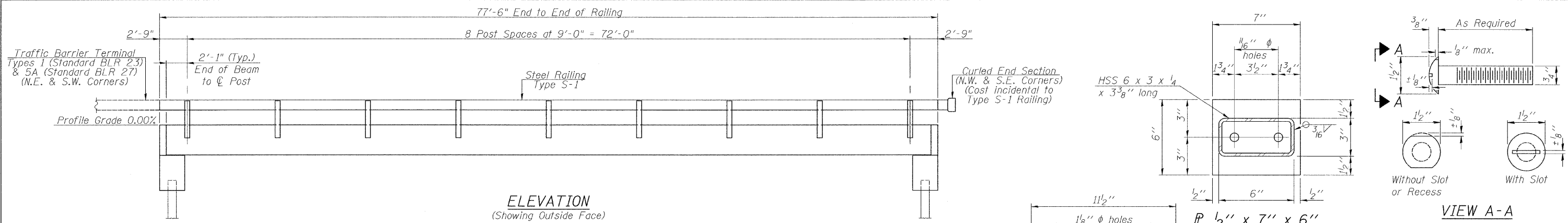


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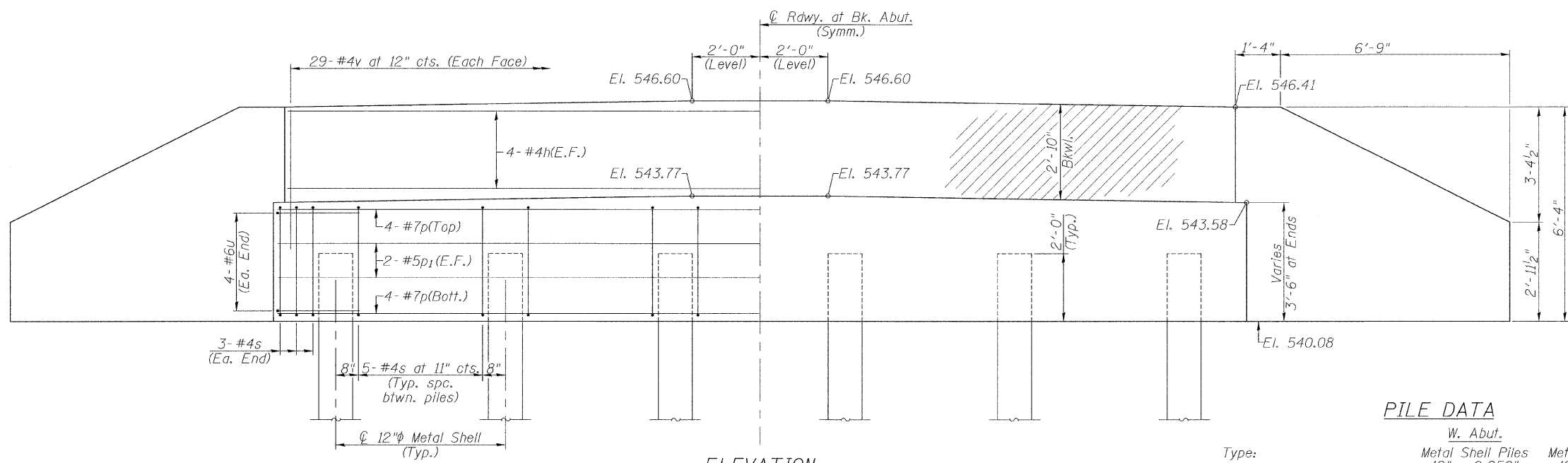
**SUPERSTRUCTURE**

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T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 93530				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



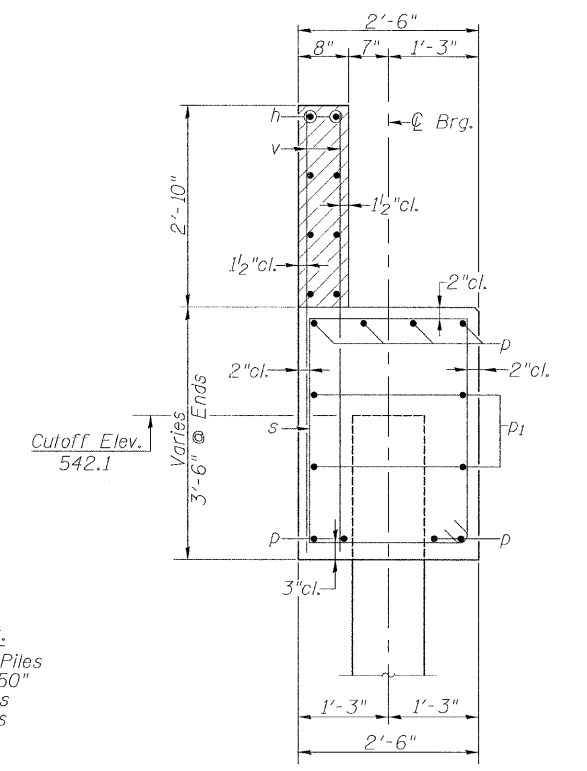




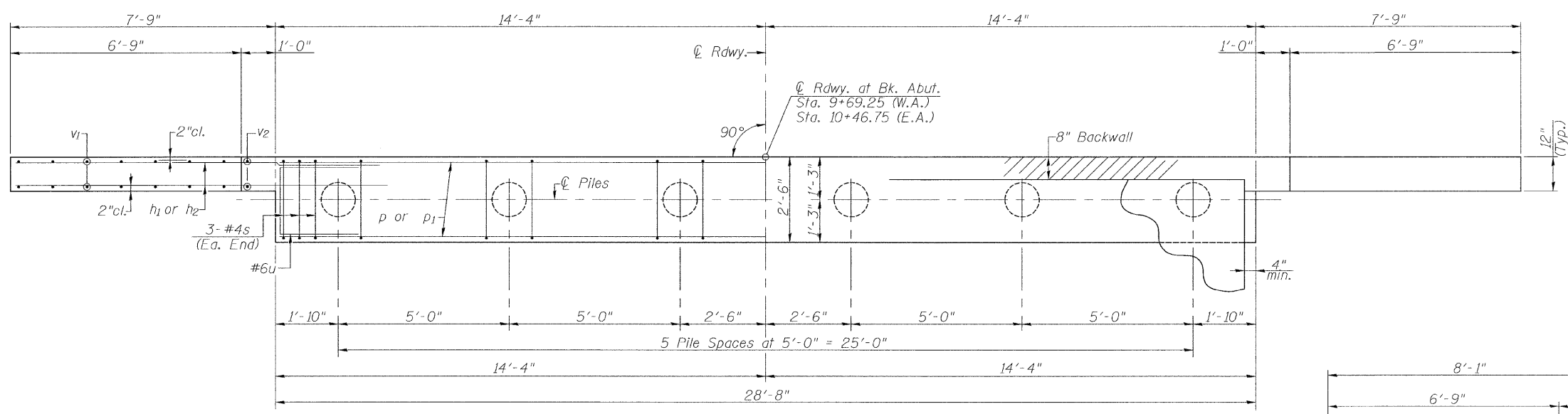
**ELEVATION**  
(W. Abut. Looking West)  
(E. Abut. Looking East)

**PILE DATA**

Type:	W. Abut.	E. Abut.
Nominal Required Bearing:	Metal Shell Piles 12" x 0.250"	Metal Shell Piles 12" x 0.250"
Factored Resistance Available:	290 Kips	290 Kips
Estimated Pile Length:	145 Kips	145 Kips
Number of Production:	80'	83'
Number of Test Piles:	5	5
	1	1



**SECTION THRU ABUTMENT**

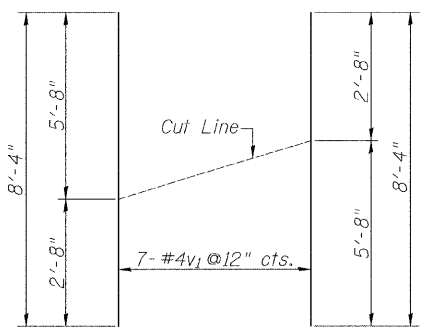


**PLAN**

**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.  
Hatched area and wingwalls shall be poured after deck beams are anchored in place.  
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at substructures specified or approved by the Engineer before ordering the remainder of piles.

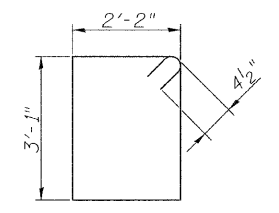
**BILL OF MATERIAL TWO ABUTMENTS**

BAR	NO.	SIZE	LENGTH	SHAPE
h	16	#4	30'-8"	—
h <sub>1</sub>	32	#5	10'-3"	—
h <sub>2</sub>	24	#5	7'-9"	—
p	16	#7	28'-4"	—
p <sub>1</sub>	8	#5	28'-4"	—
s	62	#4	11'-3"	□
u	16	#6	10'-1"	□
v	116	#4	4'-4"	—
v <sub>1</sub>	28	#4	8'-4"	—
v <sub>2</sub>	8	#4	5'-11"	—
Concrete Structures			Cu. Yd.	28.0
Reinforcement Bars			Pound	3260
Structure Excavation			Cu. Yd.	146
Furnishing Metal Shell Piles 12"x0.250"			Foot	815
Driving Piles			Foot	815
Test Pile Metal Shells			Each	2

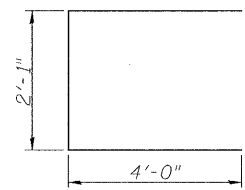


**v<sub>1</sub> - BAR CUT DIAGRAM**

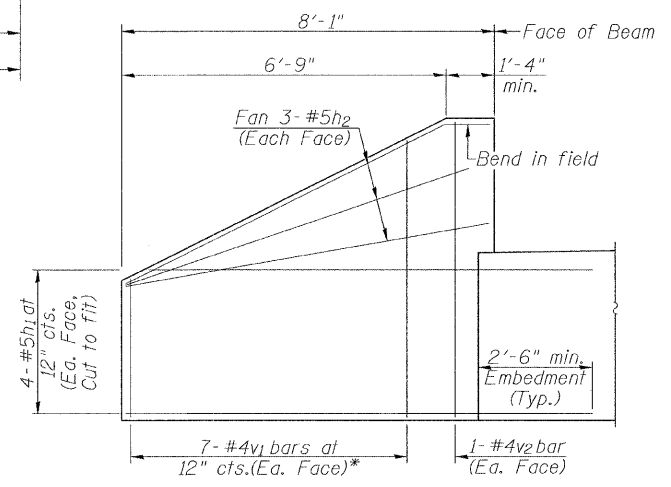
Order v<sub>1</sub> bars full length. Layout in field according to diagram. Cut v<sub>1</sub> bars along cut line. Use remainder of each bar in opposite face.



**BAR s**



**BAR u**



**WINGWALL ELEVATION**  
(Showing Reinforcement)

\* See v<sub>1</sub> - bar cut diagram

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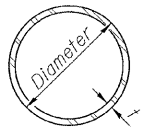
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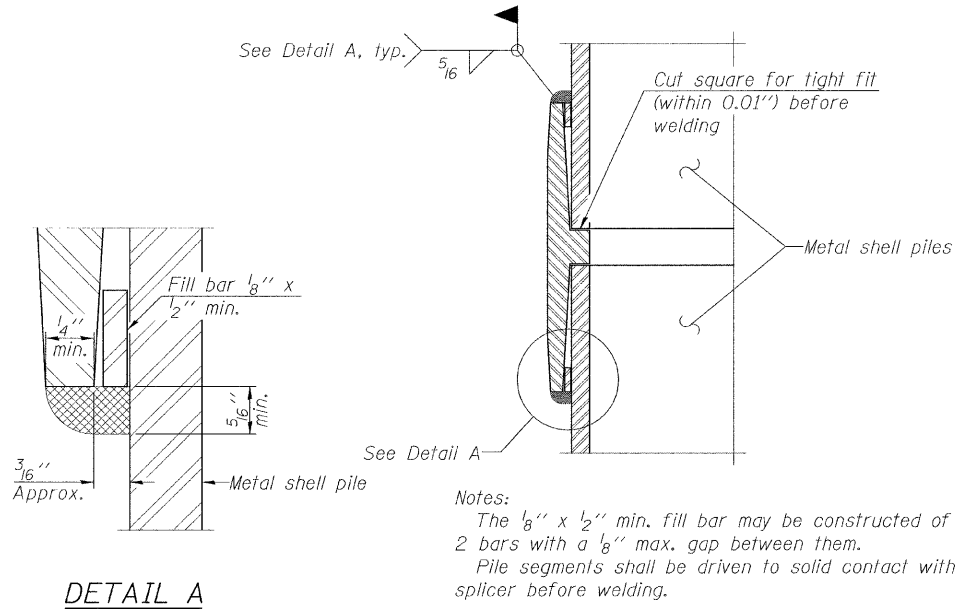
**ABUTMENTS**  
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T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
43	08-03115-00-BR	MENARD	15	9
CONTRACT NO. 93530				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**METAL SHELL PILE TABLE**

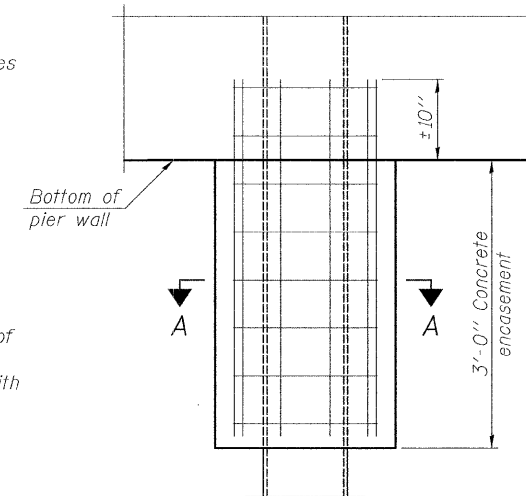
Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. <sup>3</sup> /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



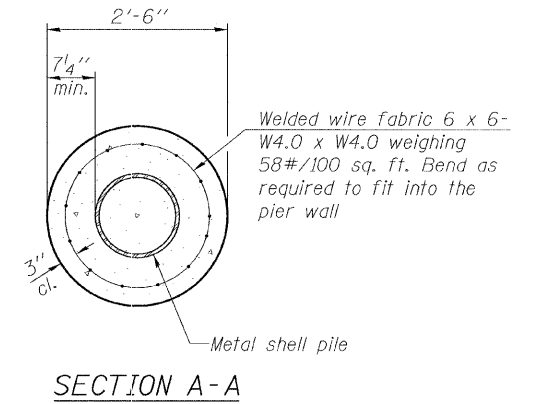
Notes:  
 The  $\frac{1}{8}$ " x  $\frac{1}{2}$ " min. fill bar may be constructed of 2 bars with a  $\frac{1}{8}$ " max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

**DETAIL A**

**WELDED COMMERCIAL SPLICE**



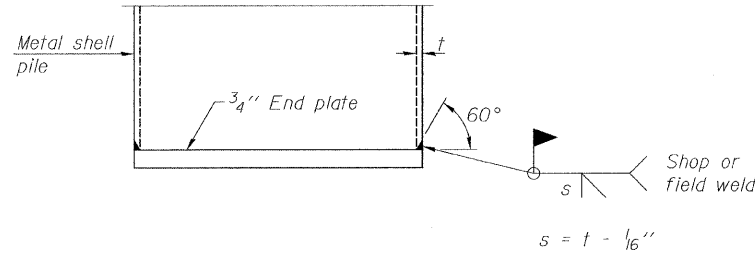
**ELEVATION**



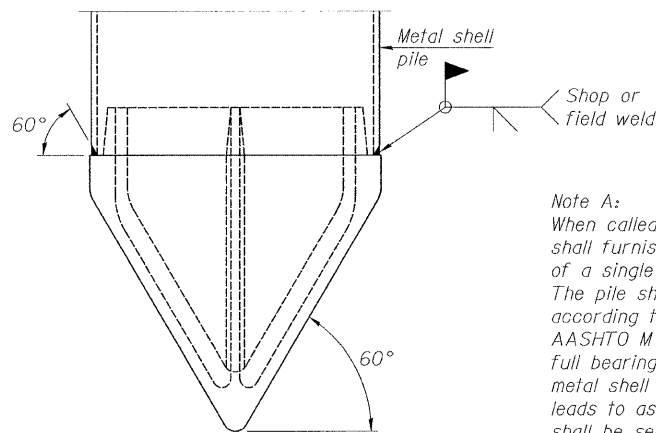
**SECTION A-A**

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

**CONCRETE ENCASEMENT AT PIERS**



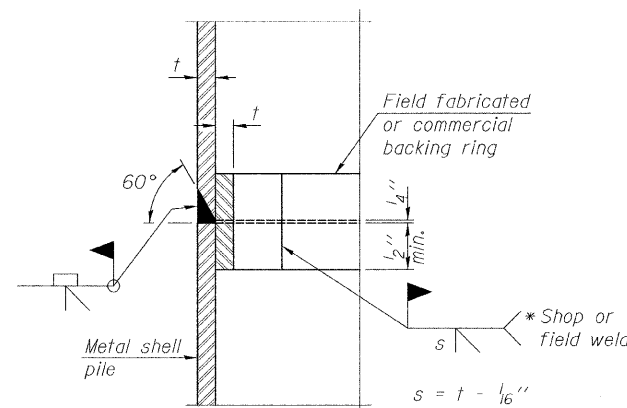
**END PLATE ATTACHMENT**



Note A:  
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

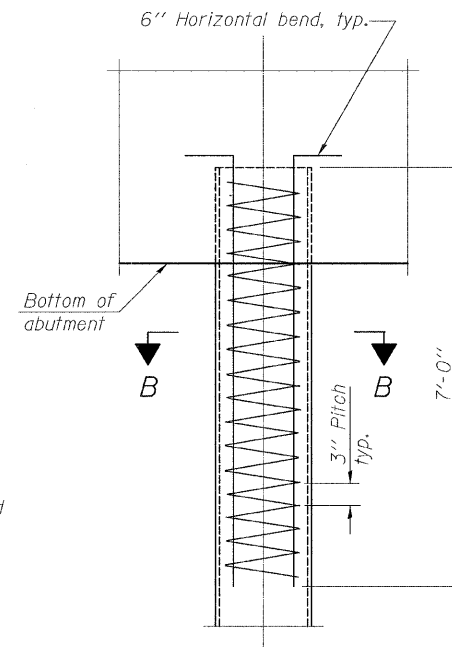
**METAL SHELL PILE SHOE ATTACHMENT**

(See Note A)



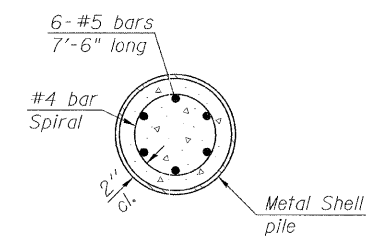
**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**



**SECTION B-B**

Note:  
 The metal shell piles shall be according to ASTM A 252 Grade 3.

F-MS

11-1-09

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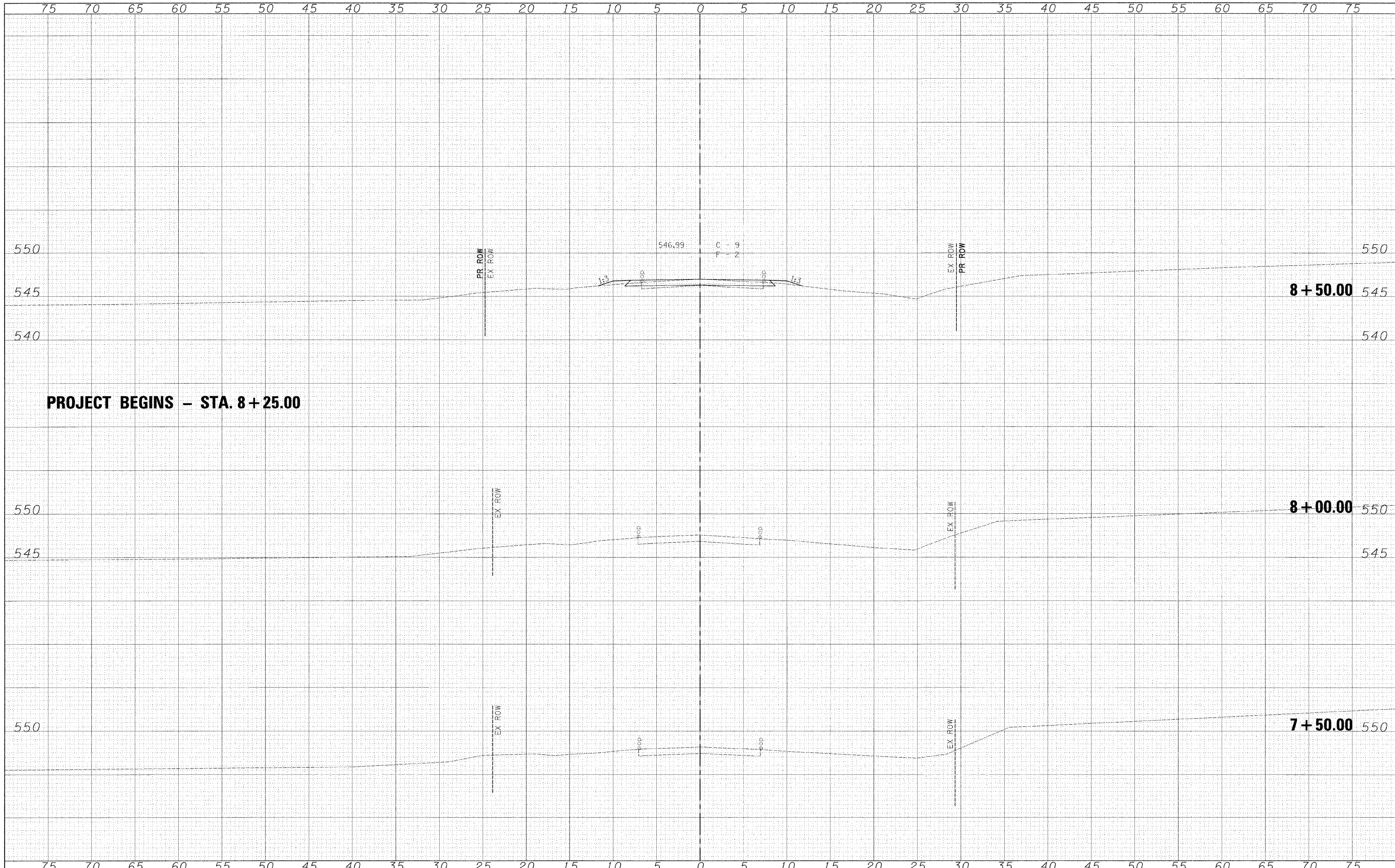


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<b>METAL SHELL PILE DETAILS</b>		T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
SCALE:	SHEET NO. 10 OF 15 SHEETS	43	08-03115-00-BR	MENARD	15	10
	STA. TO STA.	FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		CONTRACT NO. 93530

FINAL SURVEY	DATE
NOTED	
NOTE BOOK	
NO.	

ORIGINAL SURVEY	DATE
NOTED	
NOTE BOOK	
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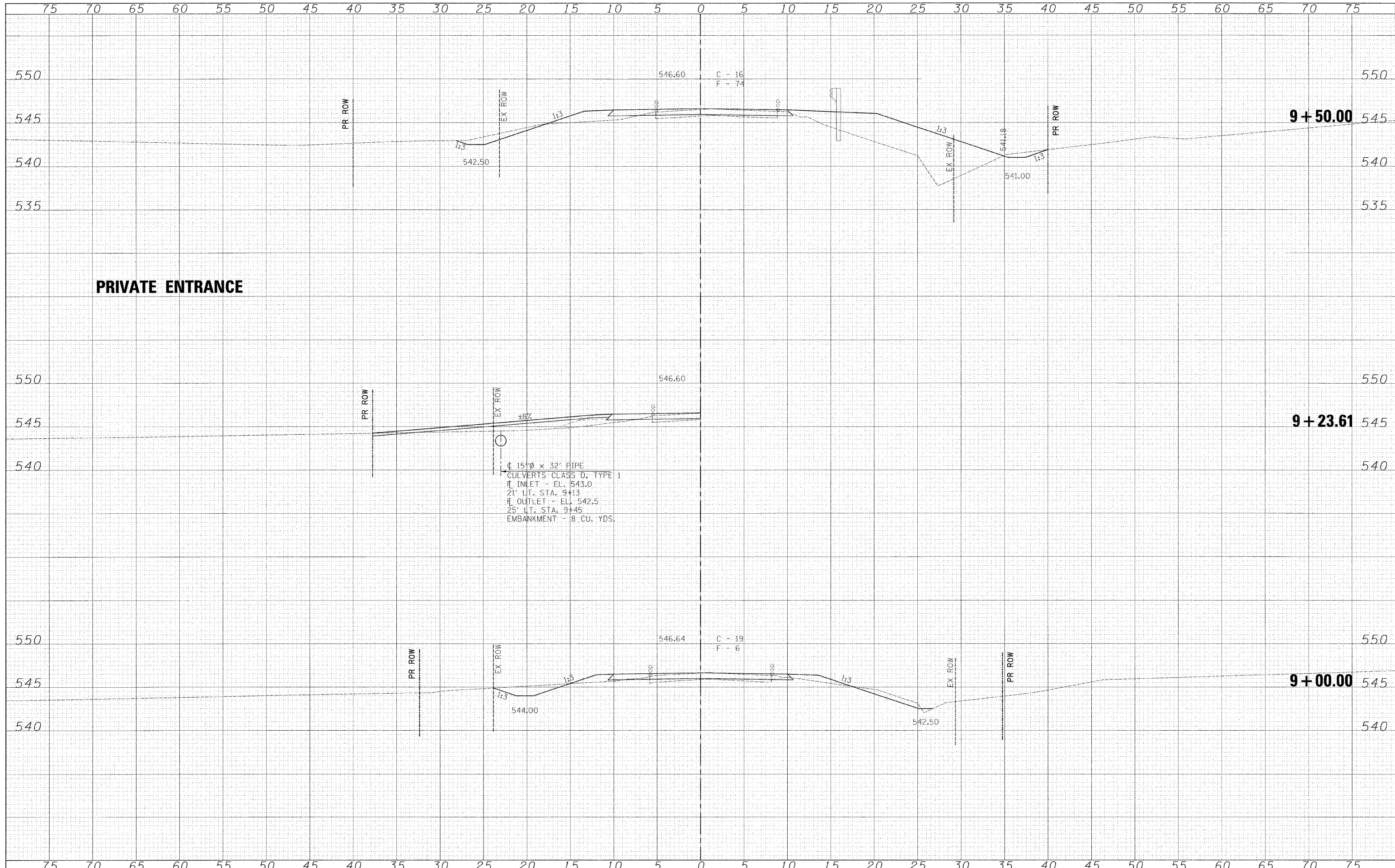
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No. 184-001907

**CROSS SECTIONS**  
SCALE: 1" = 5'  
SHEET NO. 11 OF 15 SHEETS  
STA. 7+50.00 TO STA. 8+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
43	08-03115-00-BR	MENARD	15	11
FED. ROAD DIST. NO.				ILLINOIS FED. AID PROJECT
CONTRACT NO. 93530				

DATE	
BY	
FINAL SURVEY	
NOTED	
PLOTTED	
TEMPLATE	
NOTE BOOK	
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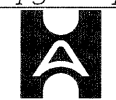


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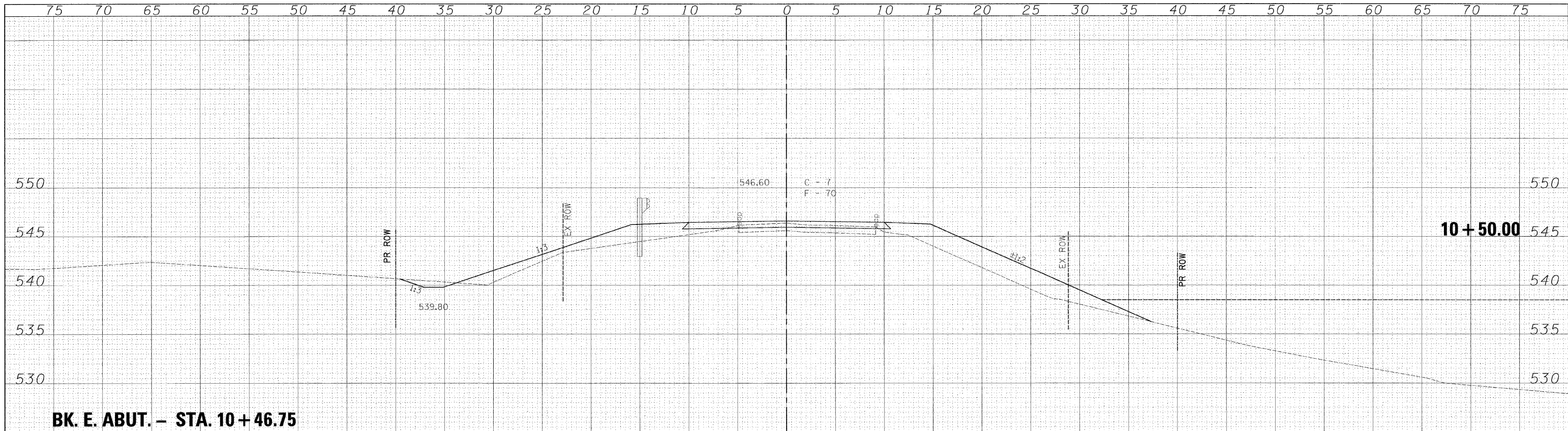


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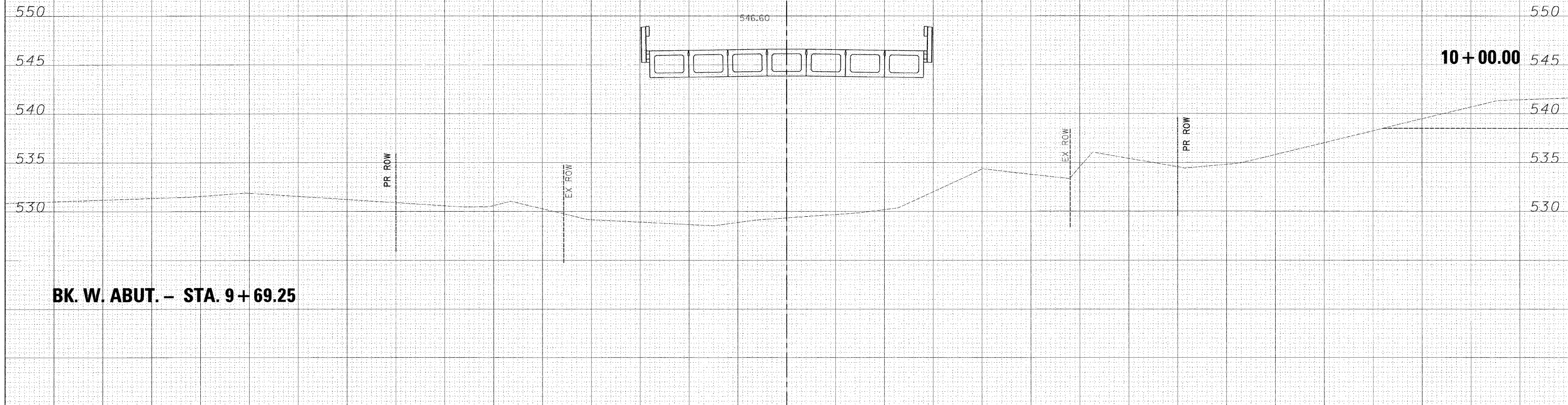
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 STA. 9+00.00 TO STA. 9+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
43	08-03115-00-BR	MENARD	15	12
CONTRACT NO. 93530				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

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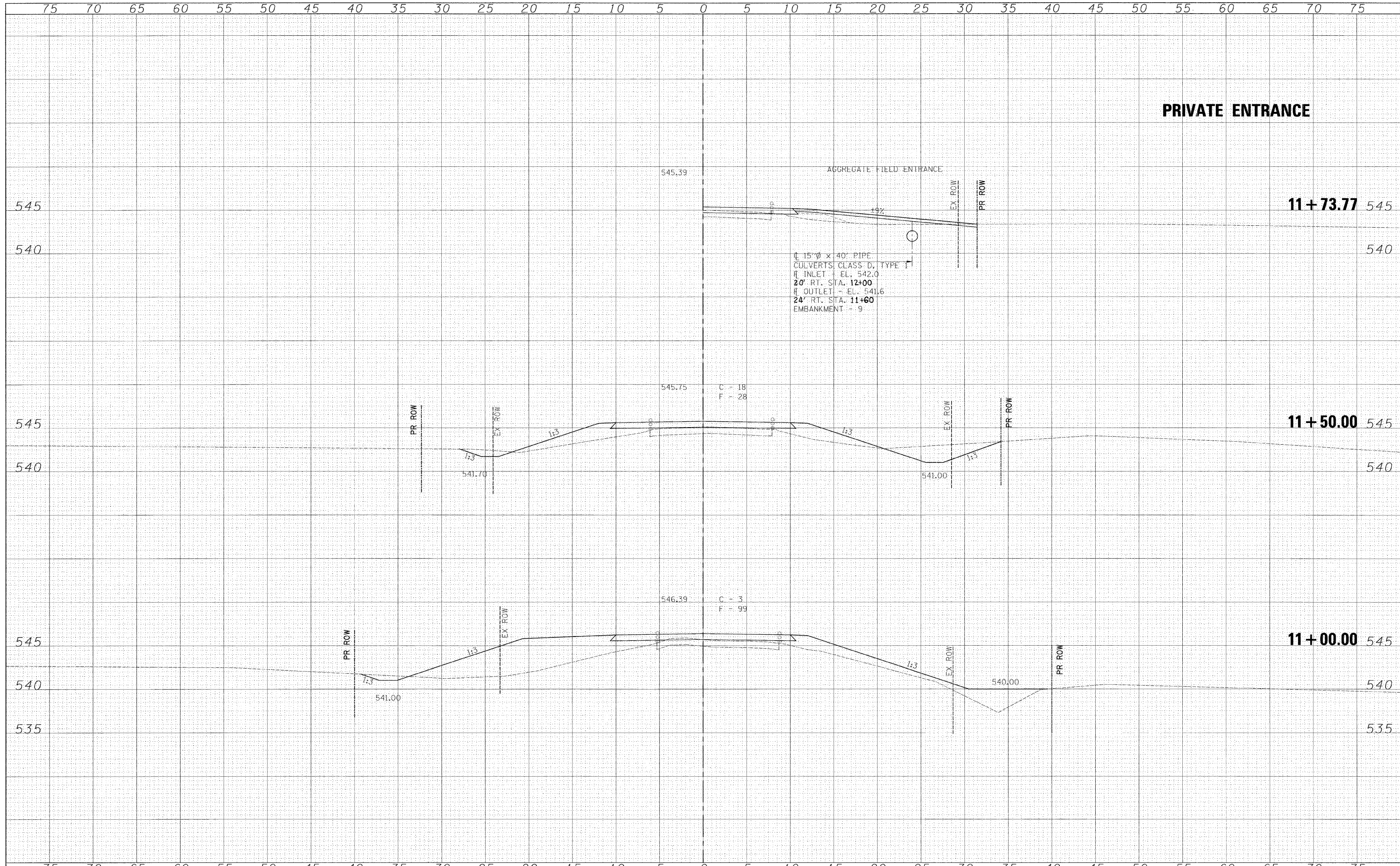
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		DATE -	REVISIONS -		CONTRACT NO. <b>93530</b>							

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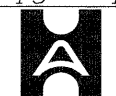
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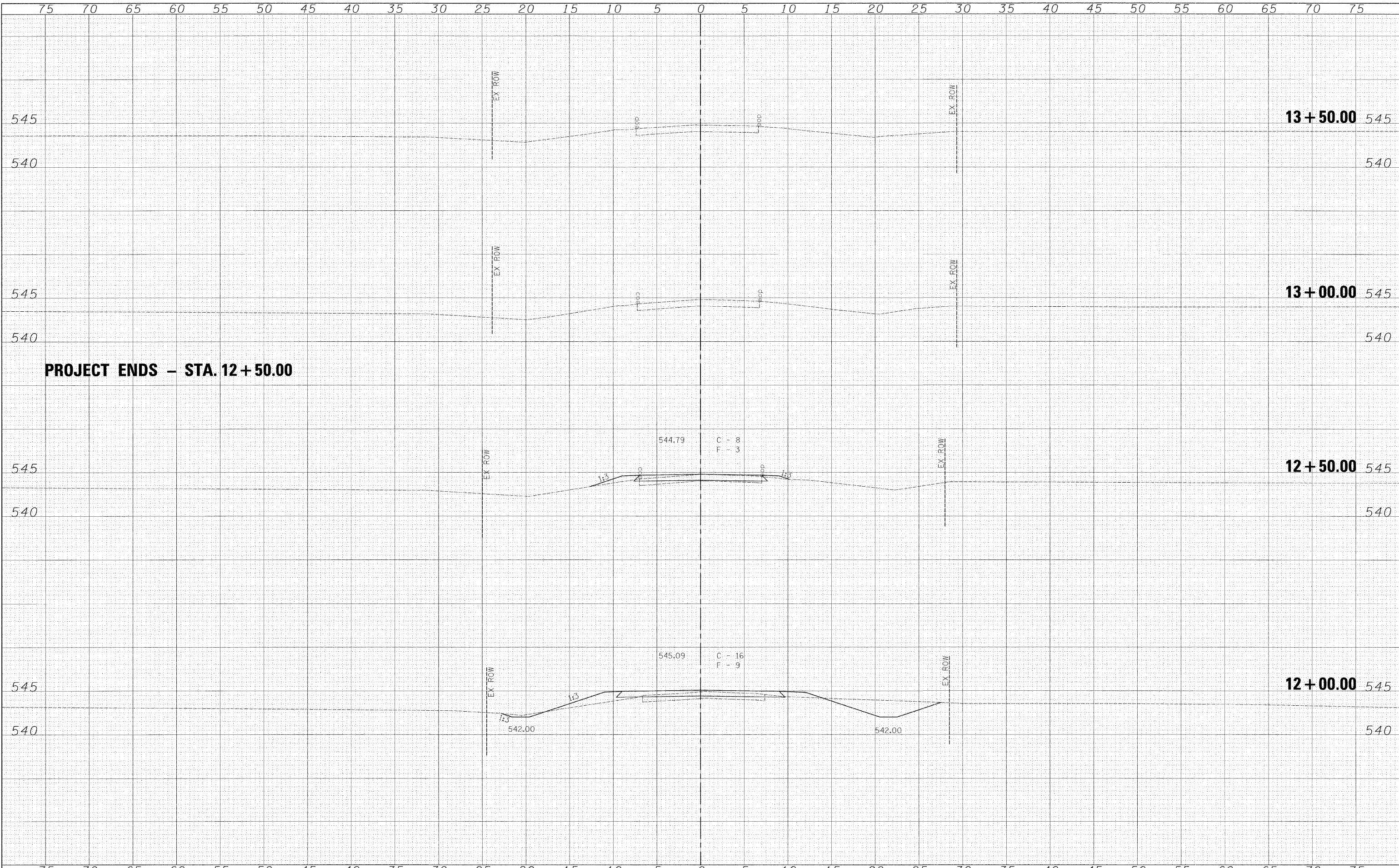
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 No. 184-001907

**CROSS SECTIONS**  
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 SHEET NO. 14 OF 15 SHEETS  
 STA. 11+00.00 TO STA. 11+73.77

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 93530	

DATE	
BY	
DESIGNED	
DRAWN	
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DATE	
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 No. 184-001907

**CROSS SECTIONS**  
 SCALE: 1" = 5'  
 SHEET NO. 15 OF 15 SHEETS  
 STA. 12+00.00 TO STA. 13+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
43	08-03115-00-BR	MENARD	15	15
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 93530	