3-5-10 LETTING ITEM 224

INDEX OF SHEETS

STANDARDS

STANDARD 515001-03
STANDARD 701011-02
STANDARD 701901-01
STANDARD BLR 21-8
STANDARD BLR 23-3
STANDARD BLR 26-1
STANDARD BLR 27-1

LIST OF UTILITIES

FRONTIER COMMUNICATIONS
1-800-921-8101

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

SCALE IN FEET

0 50 100 = PROFILE - PLAN
0 50 100 = PROFILE - HORIZONTAL
0 5 10 = PROFILE - VERTICAL
0 5 10 = CROSS SECTIONS - HORIZONTAL
0 5 10 = CROSS SECTIONS - VERTICAL

LAND SECTIONS - 4 & 5
LAND QUARTER SECTION - N.W. & N.E.
FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)
A.D.T. - 79 (2004)
A.D.T. - 90 (2020)
30 M.P.H. DESIGN SPEED

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

CONTRACT NO. 93510

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

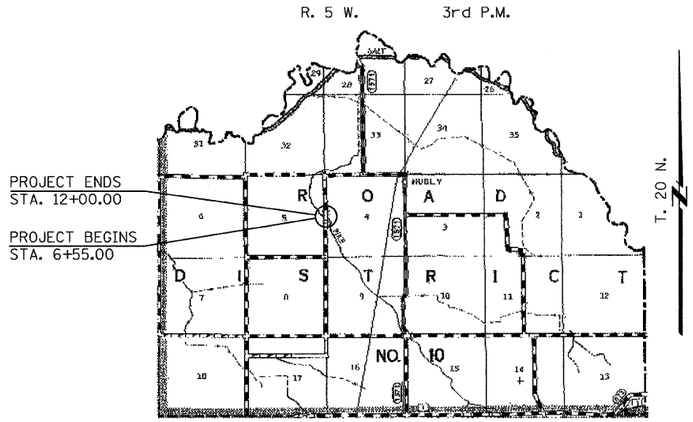
T.R. 166 OVER PIKE CREEK

SECTION 08-10110-00-BR

PROJECT BROS-0129(023)

MENARD COUNTY / ROAD DISTRICT NO. 10

C-96-230-09



LOCATION PLAN

LENGTH OF SECTION - 545.00 FEET = 0.103 MILES

0 1 2
SCALE: 1" = 1 MILE

EXISTING STRUCTURE: TWO SPAN TIMBER DECK ON STEEL STRINGERS SUPPORTED BY CLOSED TIMBER ABUTMENTS AND PIER WITH TIMBER WINGWALLS. ±40'-6" BK.-BK. ABUTMENTS, ±20'-6" OUT.-OUT. DECK. TIMBER CURBS AND STEEL RAILING. ±0° SKEW.
EXISTING STRUCTURE NO: 065-3065

PROPOSED STRUCTURE: THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (17" DEPTH) ON OPEN CONCRETE ABUTMENTS AND PILE BENT PIERS. 28'-0" OUT.-OUT DECK, 72'-0" BK.-BK. ABUTMENTS, 21'-5" (SPANS 1 & 3), 23'-7 1/2 " (SPAN 2), STEEL RAILING, TYPE S-1. 25° SKEW LT. FWD.
PROPOSED STRUCTURE NO. 065-3122

APPROVED Oct 27, 2009
Thomas R. Cross
COUNTY ENGINEER

PASSED Nov 24, 2009
DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS

PASSED November 23, 2009
Ron Achamberson
DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS
DISTRICT SIX CONSTRUCTION ENGINEER

Releasing For Bid Based on Limited Review Nov 24, 2009
Roger K. Driskell for
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CHRISTOPHER P. KOHLRUS
062-046558
LICENSED PROFESSIONAL ENGINEER OF
STATE OF ILLINOIS

Christopher P. Kohlrus 10/29/09
EXPIRATION: 11/30/2009

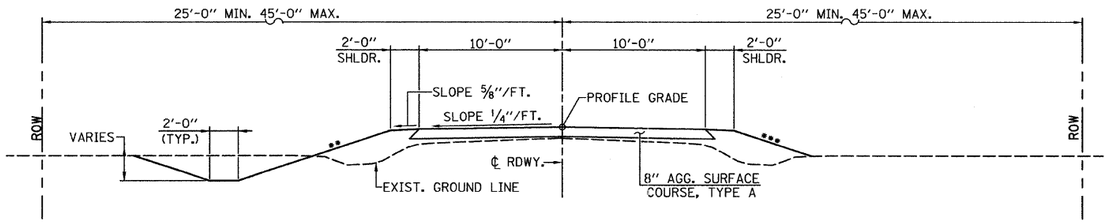
FILE NAME = $FILE$	USER NAME = $USER$	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = $SCALE$	CHECKED -	REVISED -
	PLOT DATE = $DATE$	DATE -	REVISED -

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

TITLE SHEET

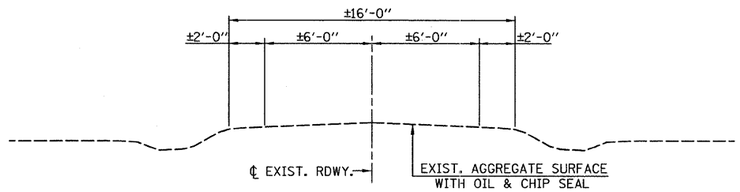
SCALE: 1" = 1 MILE | SHEET NO. 1 OF 17 SHEETS | STA. 6+55.00 TO STA. 12+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	1
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

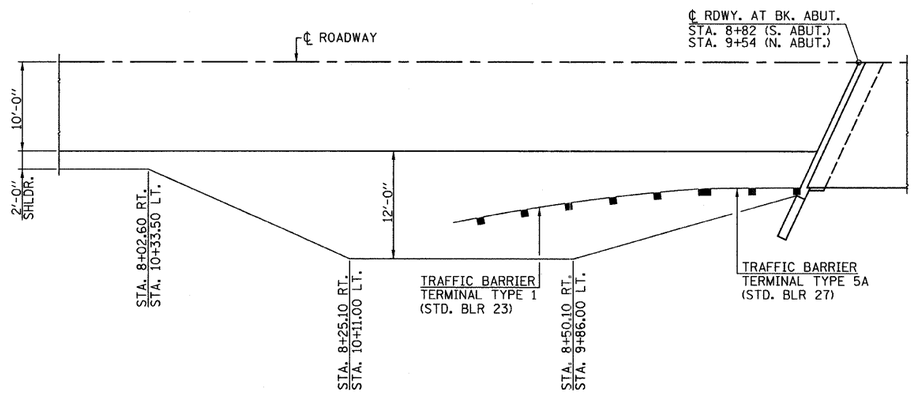


PROPOSED CROSS SECTION

•• 3:1 ≤ 6′
2:1 > 6′ OR AT GUARDRAIL LOCATIONS
••• 3:1 ≤ 6′
2:1 ≥ 6′



EXISTING CROSS SECTION



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

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	UNIT	QUANTITY
	20200100	EARTH EXCAVATION	CU. YD.	231
	20300100	CHANNEL EXCAVATION	CU. YD.	396
	20400800	FURNISHED EXCAVATION	CU. YD.	224
•	25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.6
	28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	100
	28100807	STONE DUMPED RIPRAP, CLASS A4	TON	569
	28200200	FILTER FABRIC	SQ. YD.	871
	40200100	AGGREGATE SURFACE COURSE, TYPE A	TON	441
•	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50200100	STRUCTURE EXCAVATION	CU. YD.	106
	50300225	CONCRETE STRUCTURES	CU. YD.	48.2
	50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ. FT.	1970
	50800105	REINFORCEMENT BARS	POUND	6160
△	50900205	STEEL RAILING, TYPE S-1	FOOT	144
	51200957	FURNISHING METAL SHELL PILES, 12" X 0.250"	FOOT	456
	51200958	FURNISHING METAL SHELL PILES, 14" X 0.250"	FOOT	526
	51202305	DRIVING PILES	FOOT	982
	51203200	TEST PILE METAL SHELLS	EACH	2
	51500100	NAME PLATES	EACH	1
△	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

• SEE SPECIAL PROVISIONS
△ SPECIALTY ITEMS

CONSTRUCTION TYPE CODE: X080-29

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.

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. 6+55 TO STA. 7+00	7	5	5	0
STA. 7+00 TO STA. 7+50	19	14	31	-17
STA. 7+50 TO STA. 8+00	25	19	83	-64
STA. 8+00 TO STA. 8+50	31	23	142	-119
STA. 8+50 TO STA. 8+82	21	16	107	-91
BRIDGE OMISSION - STA. 8+82 TO STA. 9+54	-	-	-	-
STA. 9+54 TO STA. 10+00	39	29	101	-72
STA. 10+00 TO STA. 10+50	28	21	94	-73
STA. 10+50 TO STA. 11+00	17	13	55	-42
STA. 11+00 TO STA. 11+50	20	15	22	-7
STA. 11+50 TO STA. 12+00	24	18	8	10
TOTAL	231	173	648	••••224

•••• QUANTITY HAS BEEN REDUCED BY 251 CU. YDS. (50% OF SUITABLE STRUCTURE AND CHANNEL EXCAVATION THAT MAY BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER).

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

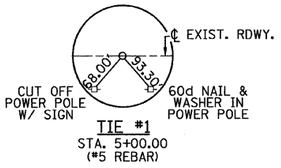
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

SUMMARY OF QUANTITIES, DETAILS & TYPICAL SECTIONS

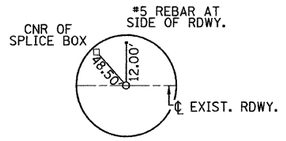
SCALE: NONE | SHEET NO. 2 OF 17 SHEETS

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	2
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SECTIONS 4 & 5, T. 20 N., R .5 W. 3rd P.M.



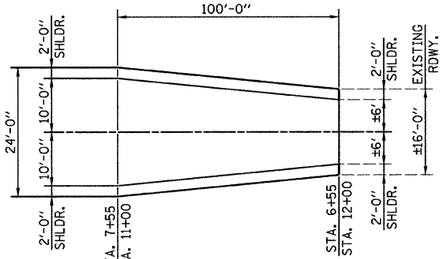
TIE #1
STA. 5+00.00
(#5 REBAR)



TIE #2
STA. 13+68.05
(#5 REBAR)

STA. 9+18.00 - ℄ RDWY. AT ℄ STRUCTURE
PROPOSED STRUCTURE: THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (17" DEPTH) ON OPEN CONCRETE ABUTMENTS AND PILE BENT PIERS. 28'-0" OUT.-OUT DECK, 72'-0" BK.-BK. ABUTMENTS, 21'-5" (SPANS 1 & 3), 23'-7 1/2 " (SPAN 2), STEEL RAILING, TYPE S-1. 25° SKEW LT. FWD.

PLAN
0 50 100
SCALE: 1" = 50'



ROADWAY TRANSITION DETAIL

UTILITIES

AT&T
1-888-611-4466

Menard Electric Cooperative
P.O. Box 100
Petersburg, Illinois 62675
1-217-632-7746

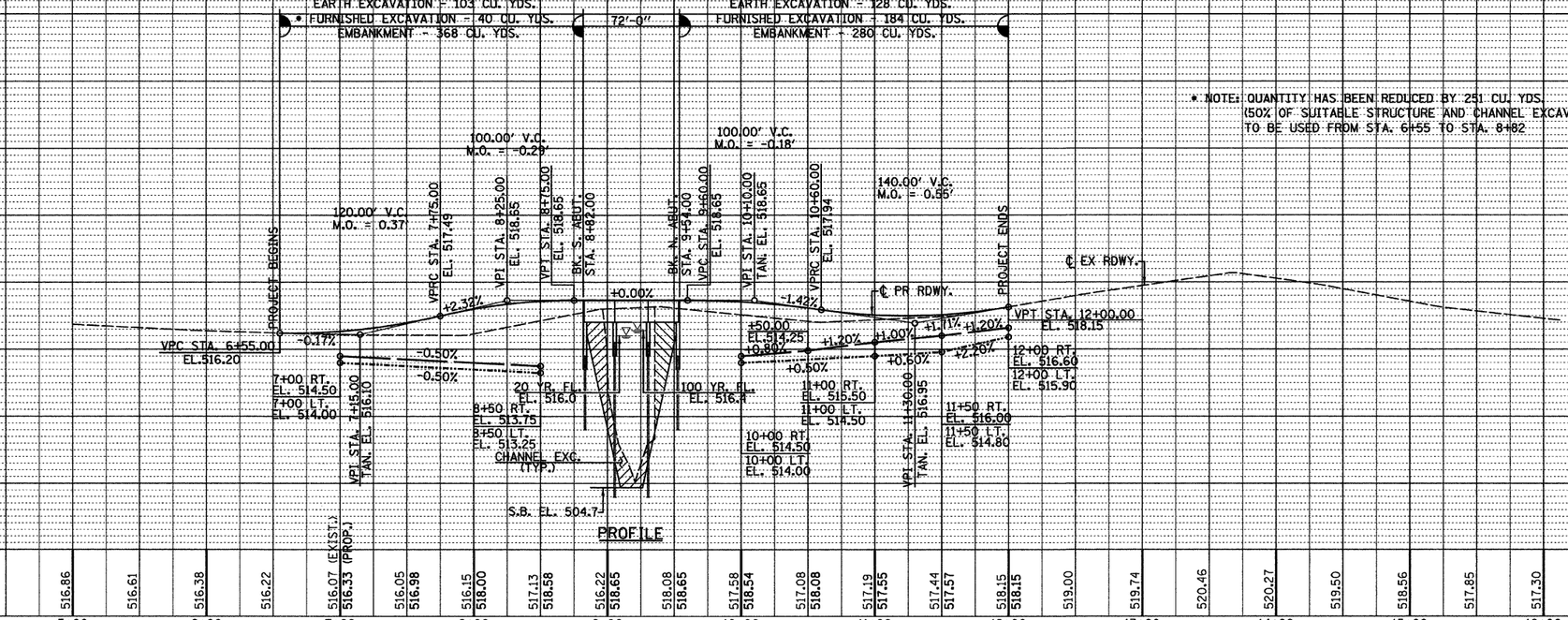
BM *1: 60d NAIL & WASHER IN POWER POLE
STA. 5+90, 25' RT., ELEVATION = 517.17

EARTH EXCAVATION = 103 CU. YDS.
* FURNISHED EXCAVATION = 40 CU. YDS.
EMBANKMENT = 368 CU. YDS.

72'-0"

EARTH EXCAVATION = 128 CU. YDS.
FURNISHED EXCAVATION = 184 CU. YDS.
EMBANKMENT = 280 CU. YDS.

* NOTE: QUANTITY HAS BEEN REDUCED BY 251 CU. YDS. (50% OF SUITABLE STRUCTURE AND CHANNEL EXCAVTION) TO BE USED FROM STA. 6+55 TO STA. 8+82



PROFILE

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		CHECKED -	REVISED -
	PLOT SCALE = *SCALE*	DRAWN -	REVISED -
	PLOT DATE = *DATE*	CHECKED -	REVISED -

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

ROADWAY PLAN & PROFILE

SCALE: 1" = 50' | SHEET NO. 3 OF 17 SHEETS | STA. 6+55.00 TO STA. 12+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	3
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

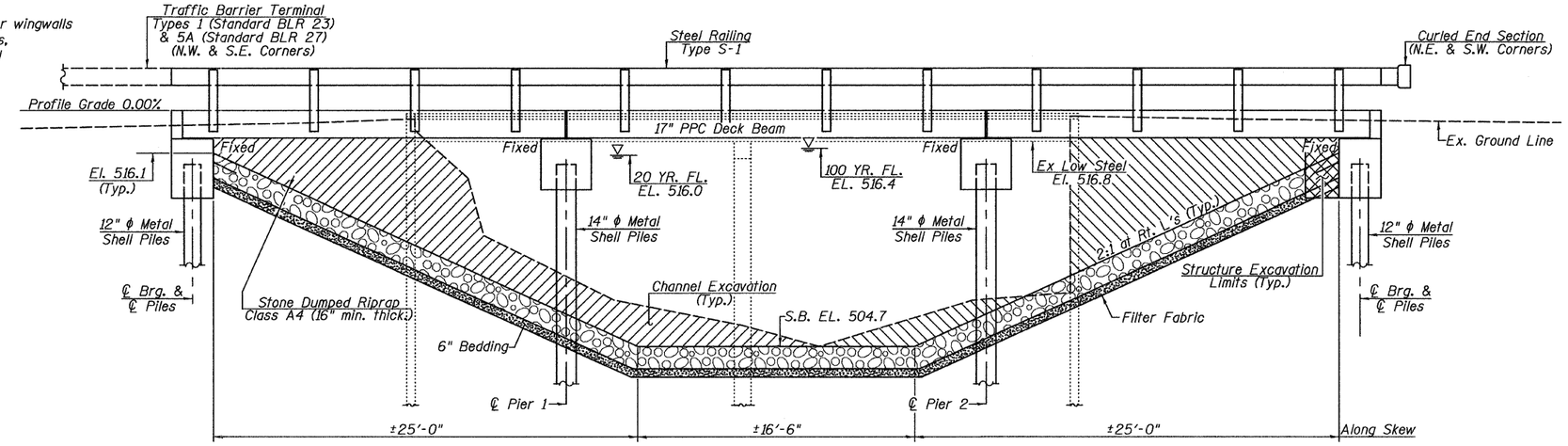
PLAN: SURVEYED, PLOTTED, DRAWN, CHECKED, R.O.W., PLAT CHECKED, ADD FILE NAME, NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, PLOTTED, DRAWN, CHECKED, ADD FILE NAME, STRUCTURE NO/YRS CKD, NOTE BOOK, NO., BY, DATE

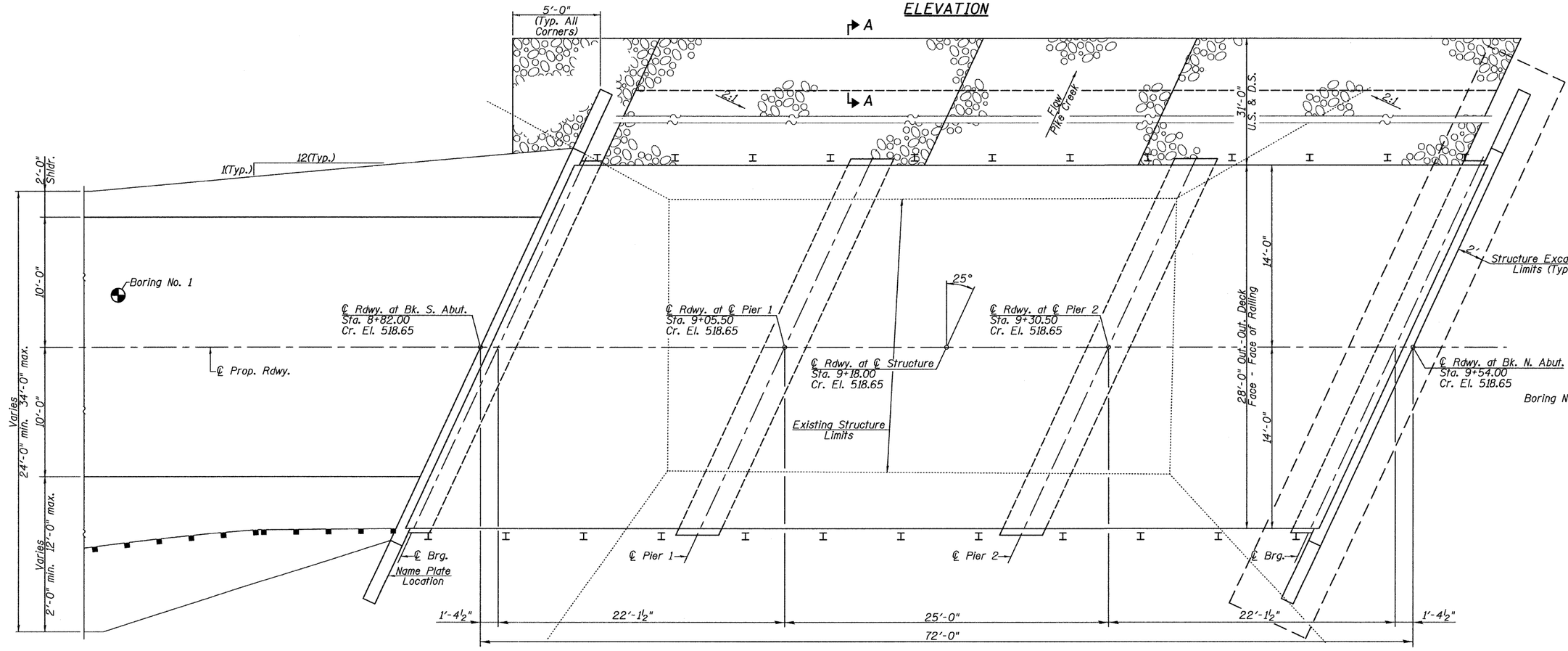
Existing Structure: Two span timber deck on steel stringers supported by closed timber abutments with timber wingwalls and a pile bent pier. ±40'-6" Bk.-Bk. Abutments, ±20'-6" Out.-Out. Deck. Timber Curbs and Steel Railing. ±0° Skew.

Benchmark: BM #1: 60d Nail & Washer in Power Pole, Sta. 5+90, 25' Rt., Elevation = 517.17

Estimated Quantity to be Removed: Structural Steel - 15,000 Lbs
Concrete Structures - 0 Cu. Yds.



ELEVATION



PLAN

FILE NAME = $FILEL$	USER NAME = $USER$	DESIGNED - MAH	REVISED -	Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907	GENERAL PLAN & ELEVATION	T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - MJS	REVISED -			166	08-10110-00-BR	MENARD	17	4
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	PLOT DATE = $DATE$	DATE -	REVISED -		SCALE: SHEET NO. 4 OF 17 SHEETS STA. 6+55.00 TO STA. 12+00.00	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			396
Stone Dumped Riprap, Class A4	Ton		569	569
Filter Fabric	Sq. Yd.		871	871
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		106	106
Concrete Structures	Cu. Yd.		48.2	48.2
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	1970		1970
Reinforcement Bars	Pound		6160	6160
Steel Railing, Type S-1	Foot	144		144
Furnishing Metal Shell Piles 12"x0.250"	Foot		456	456
Furnishing Metal Shell Piles 14"x0.250"	Foot		526	526
Driving Piles	Foot		982	982
Test Pile Metal Shells	Each			2
Name Plates	Each		1	1

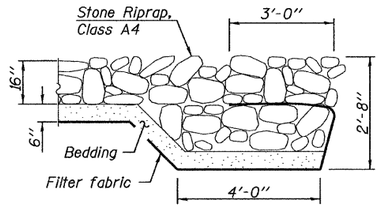
WATERWAY INFORMATION

Drainage Area = 29.52 Sq. Mi. Pr. Low Grade Elev. 516.20 @ Sta. 6+35

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head - ft. Exist.	Head - ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	20	2603	314	425	516.0	1.2	0.5	517.2	516.5
Base	100	3831	329	449	516.4	0.9	0.7	517.3	517.1
Exist. Overtop.	12	2340							
Prop. Overtop.	16.4	2540							
Max. Calc.	500	5043	340	467	516.7	0.8	0.7	517.5	517.4

Construction Permits: The Requirements of the IDNR - Office of Water Resources have been fulfilled in accordance with Statewide Permit No. 2.

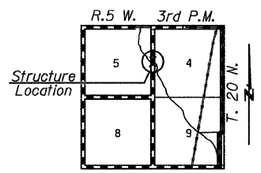
Design Scour Elevation Table			
N. Abutment	S. Abutment	Pier 1	Pier 2
512.9	512.9	502.1	502.1



SECTION A-A

PIKE CREEK
BUILT 20 BY
ROAD DISTRICT NO. 10
MENARD COUNTY
SECTION 08-10110-00-BR
STR. NO. 065-3122 LOADING HL-93

NAME PLATE
(Standard 515001)



LOCATION SKETCH

DESIGN STRESSES

FIELD UNITS
f'c = 3500 psi
fy = 60000 psi (Reinforcement)

PRECAST PRESTRESSED UNITS
f'c = 6000 psi
f'ci = 5000 psi
fpu = 270000 psi ($\frac{1}{2}\phi$" low lax strands)
fpbt = 201960 psi ($\frac{1}{2}$"ϕ 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 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 South Abutment and at Pier 2 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.

MARK A. HENDERSON * 5513 LICENSED STRUCTURAL ENGINEER * STATE OF ILLINOIS

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 10/29/09
Expiration Date 11/30/2010

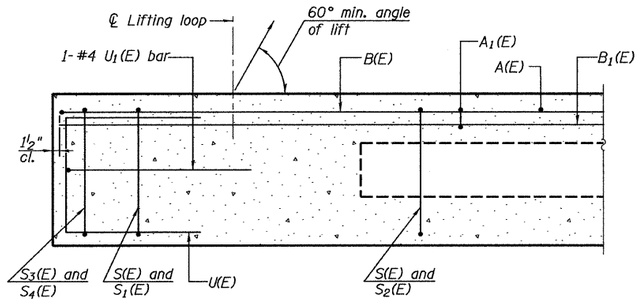
FILE NAME = $FILEL$	USER NAME = $USER$	DESIGNED - MAH	REVISED -
		DRAWN - MJS	REVISED -
	PLOT SCALE = $SCALE$	CHECKED -	REVISED -
	PLOT DATE = $DATE$	DATE -	REVISED -

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

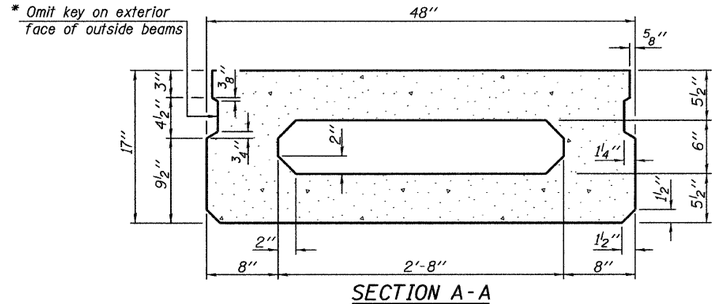
GENERAL PLAN & ELEVATION

SCALE: NONE | SHEET NO. 5 OF 17 SHEETS

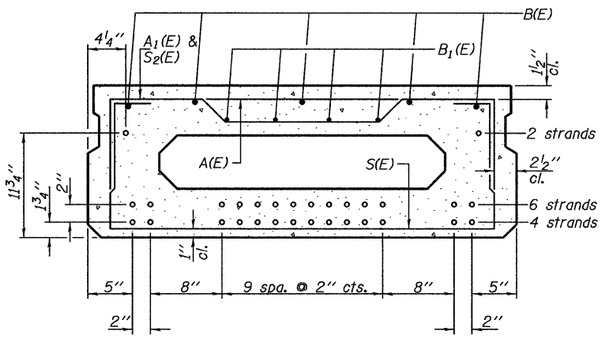
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	5
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION C-C

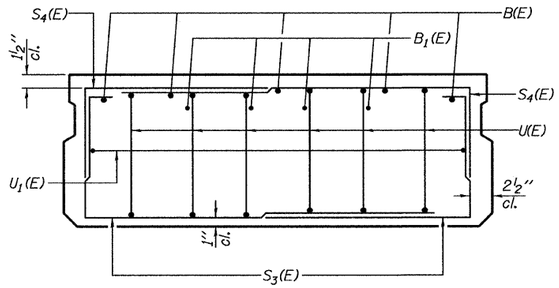


SECTION A-A
(Showing dimensions)

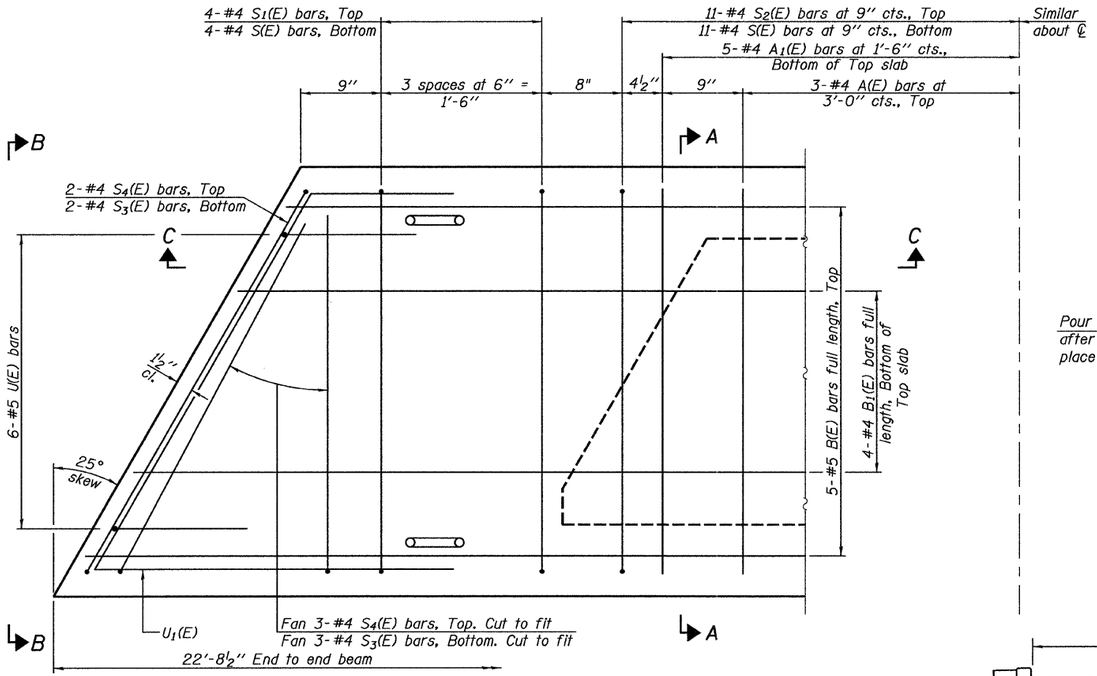


SECTION A-A
(Showing reinforcement and permissible strand locations)

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



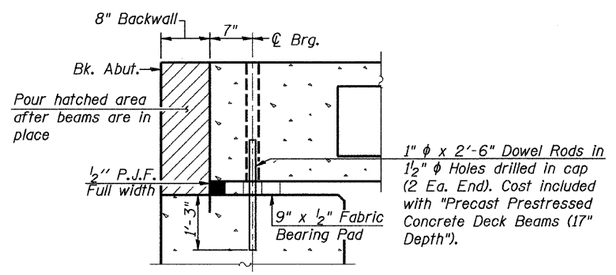
VIEW B-B



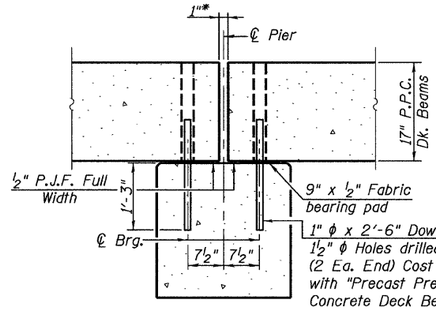
PLAN VIEW

Note: Spacing of S(E) and $S_2(E)$ 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.

* Rail Post Anchor Devices to be cast into Exterior Face of Outside Beams



SECTION THRU ABUTMENT
(At Right Angles)

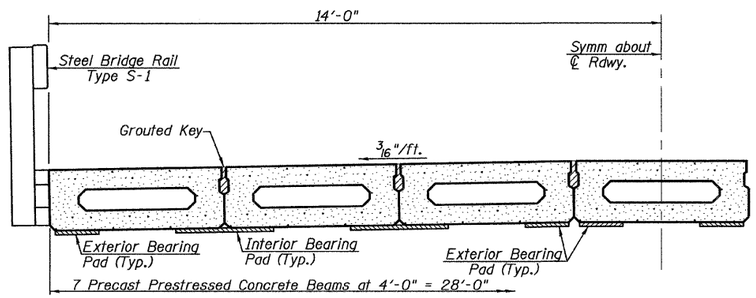


SECTION THRU PIER

Notes : After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

All horizontal dimensions are at right angles to beam ends. Hatched area to be poured after beams are in place.

* 1" joint shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.



HALF CROSS SECTION

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	5	#4	3'-7"	—
$A_1(E)$	11	#4	3'-10"	~
B(E)	5	#5	22'-4"	—
$B_1(E)$	4	#4	22'-4"	—
S(E)	29	#4	6'-9"	⌴
$S_1(E)$	8	#4	5'-3"	⌐¬
$S_2(E)$	21	#4	5'-6"	⌐¬
$S_3(E)$	10	#4	5'-2"	⌐
$S_4(E)$	10	#4	4'-5"	⌐
U(E)	12	#5	3'-8"	⊏
$U_1(E)$	2	#4	8'-2"	⊏

Note: See sheet 7 of 17 for additional details and Bill of Material.

PD-1748-L 10-1-08

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

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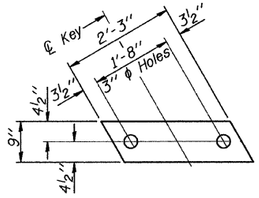
No. 184-001907

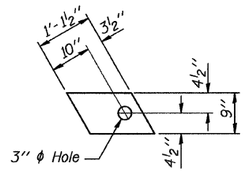
SUPERSTRUCTURE (SPANS 1 & 3)

SCALE: NONE | SHEET NO. 6 OF 17 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	6
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

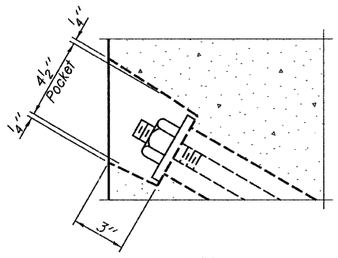


FABRIC BEARING PAD
(Interior)
(16 Required)

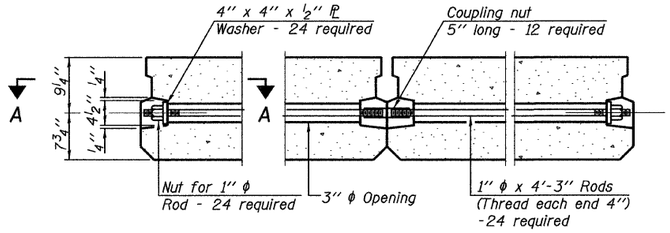


FABRIC BEARING PAD
(Exterior)
(24 Required)

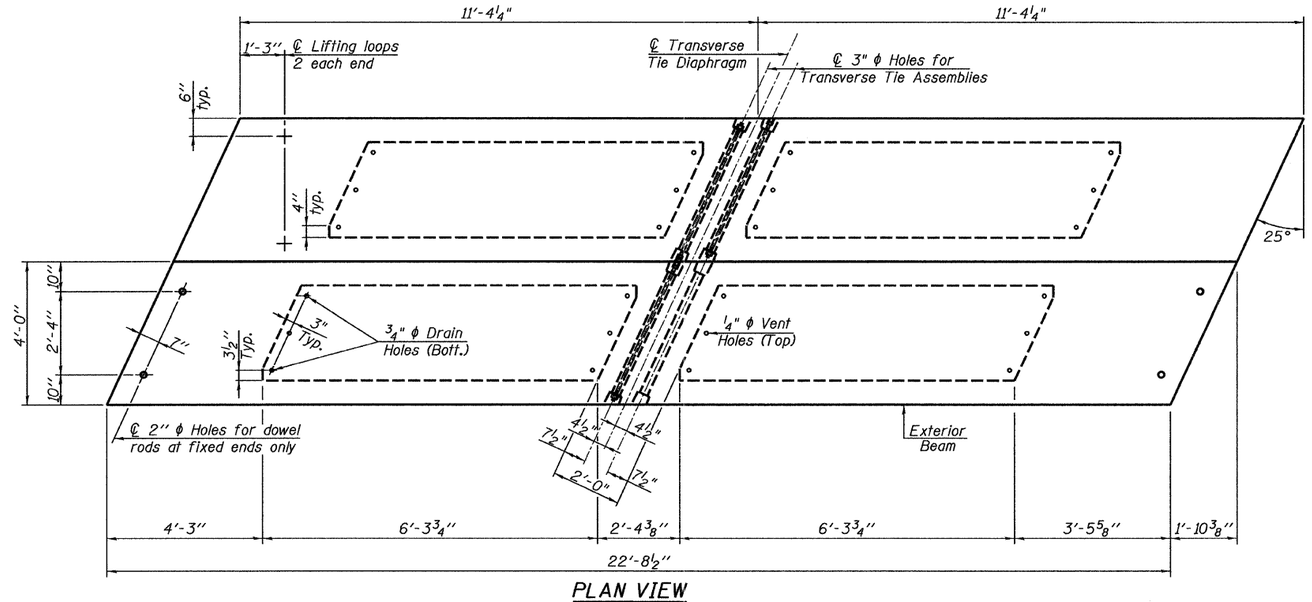
FIXED



SECTION A-A

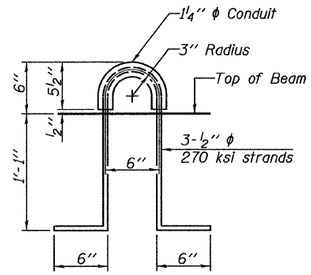


TYPICAL TRANSVERSE TIE ASSEMBLY

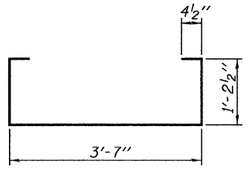


PLAN VIEW

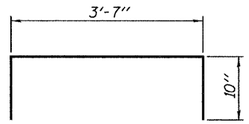
Note: Connect beams in pairs with the transverse tie configuration shown.



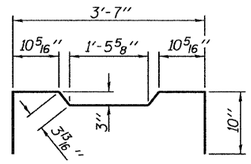
LIFTING LOOP DETAIL



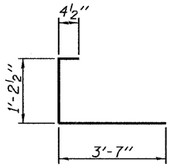
BAR S(E)



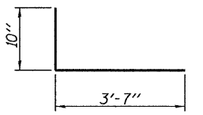
BAR S1(E)



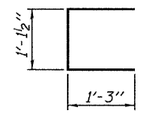
BAR S2(E)



BAR S3(E)

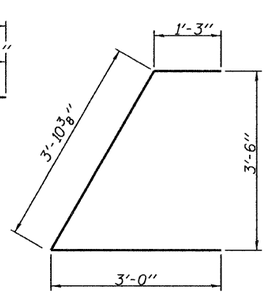


BAR S4(E)



BAR U(E)

BAR A1(E)



BAR U1(E)

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	1272

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand. Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ 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 ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

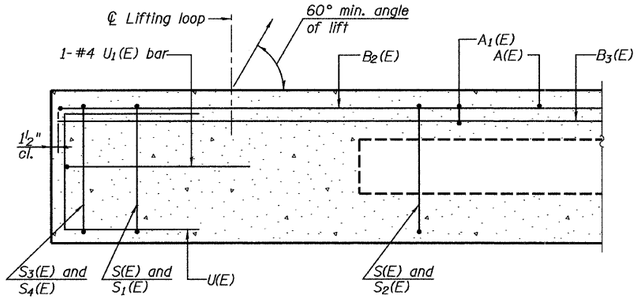
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

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

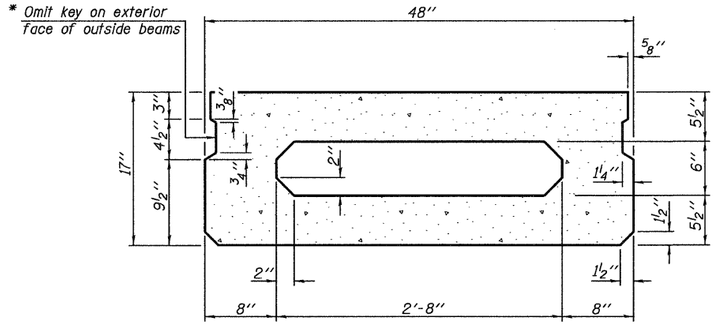
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

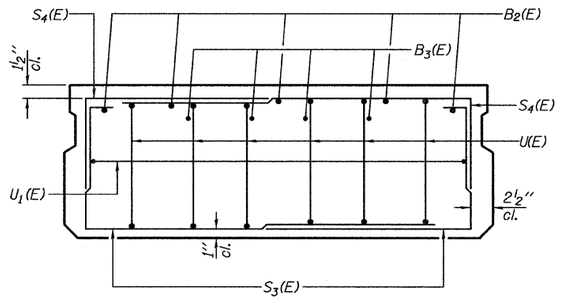
PD-1748-LD 10-1-08

FILE NAME = $FILEL$	USER NAME = $USER$	DESIGNED -	REVISED -	Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907	SUPERSTRUCTURE (SPANS 1 & 3)			T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
		DRAWN -	REVISED -					166	08-10110-00-BR	MENARD	17 / 7
	PLOT SCALE = $SCALE$	CHECKED -	REVISED -							CONTRACT NO. 93510	
	PLOT DATE = $DATE$	DATE -	REVISED -		SCALE: NONE	SHEET NO. 7 OF 17 SHEETS	STA. TO STA.		FED. ROAD DIST. NO. ILLINOIS	FED. AID PROJECT	



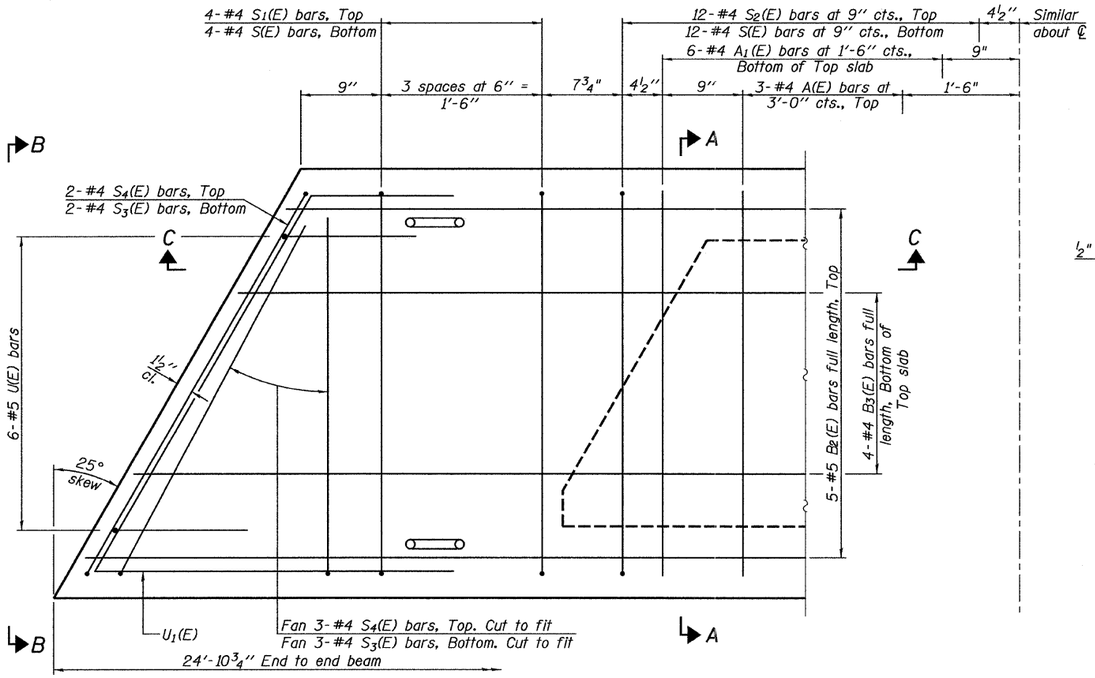
SECTION C-C





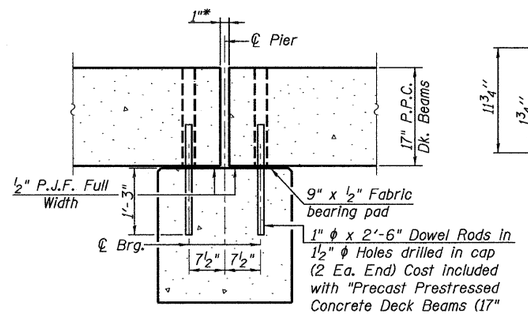
VIEW B-B

SECTION A-A
(Showing dimensions)



PLAN VIEW

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



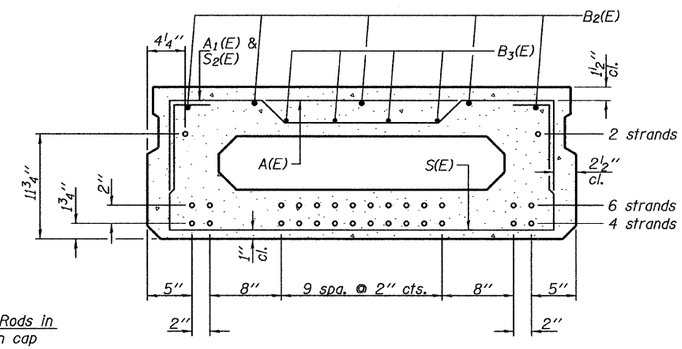
SECTION THRU PIER

Notes : After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

All horizontal dimensions are at right angles to beam ends.

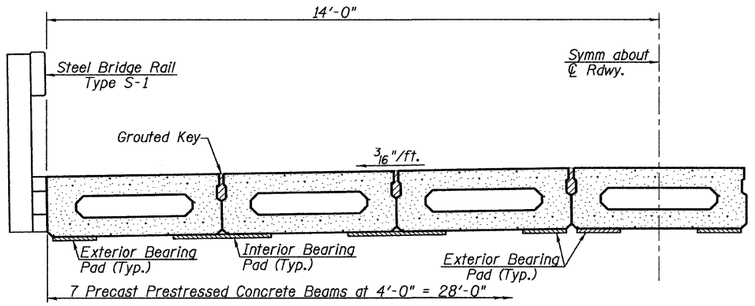
Hatched area to be poured after beams are in place.

* 1" joint shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.



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.



HALF CROSS SECTION

* Rail Post Anchor Devices to be cast into Exterior Face of Outside Beams

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	6	#4	3'-7"	—
A1(E)	12	#4	3'-10"	~
B2(E)	5	#5	24'-7"	—
B3(E)	4	#4	24'-7"	—
S(E)	32	#4	6'-9"	⊔
S1(E)	8	#4	5'-3"	⊓
S2(E)	24	#4	5'-6"	⊓
S3(E)	10	#4	5'-2"	⊔
S4(E)	10	#4	4'-5"	⊔
U(E)	12	#5	3'-8"	⊏
U1(E)	2	#4	8'-2"	⊏

Note: See sheet 9 of 17 for additional details and Bill of Material.

PD-1748-L 10-1-08

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

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Civil and Structural Engineers Springfield, IL.
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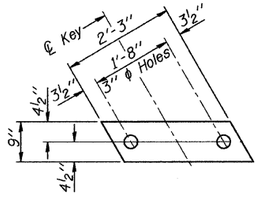
No. 184-001907

SUPERSTRUCTURE (SPAN 2)

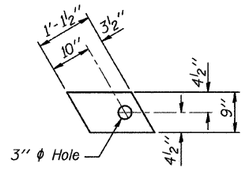
SCALE: NONE | SHEET NO. 8 OF 17 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	8
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

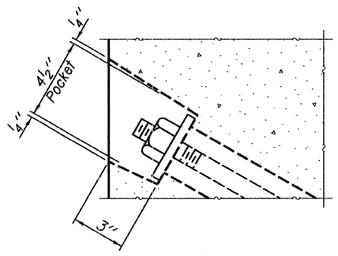


FABRIC BEARING PAD
(Interior)
(8 Required)

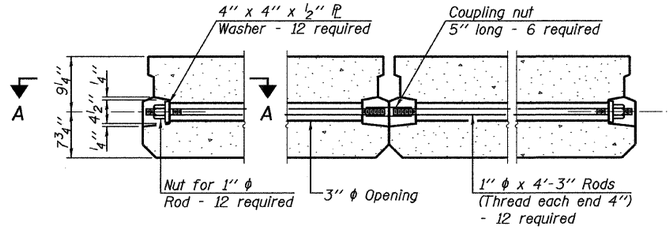
FIXED



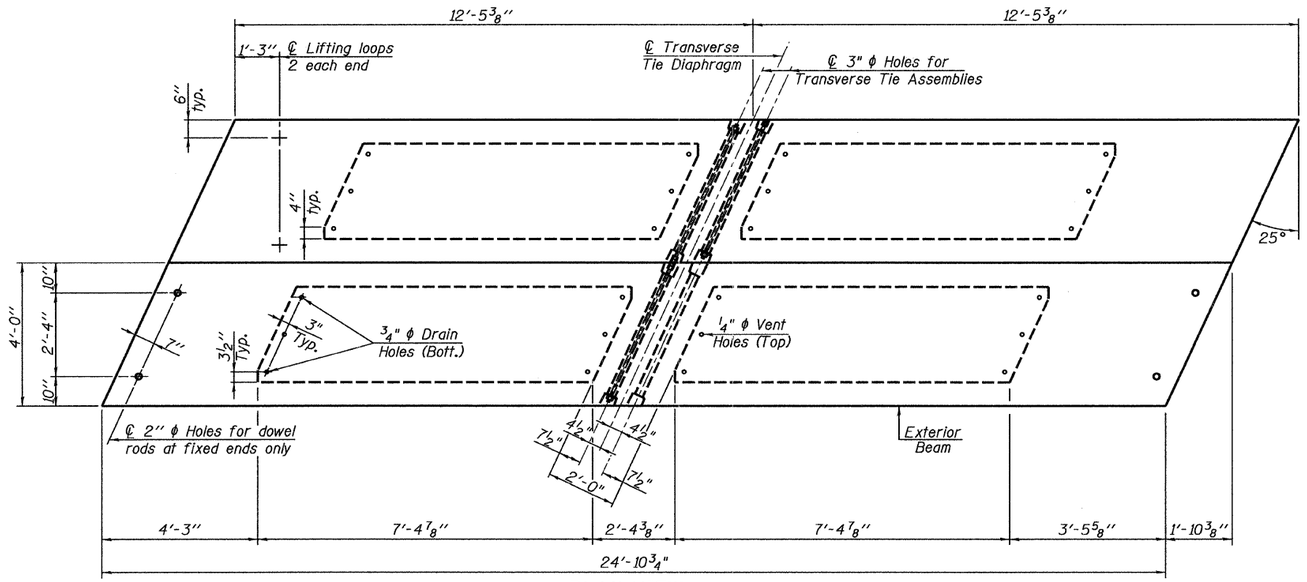
FABRIC BEARING PAD
(Exterior)
(12 Required)



SECTION A-A

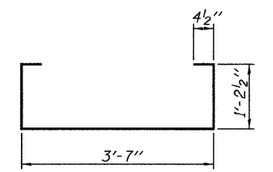


TYPICAL TRANSVERSE TIE ASSEMBLY

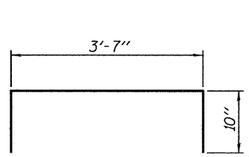


PLAN VIEW

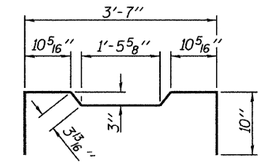
Note: Connect beams in pairs with the transverse tie configuration shown.



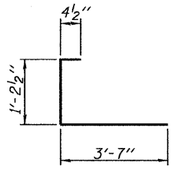
BAR S(E)



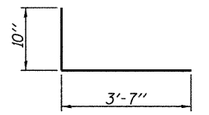
BAR S1(E)



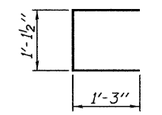
BAR S2(E)



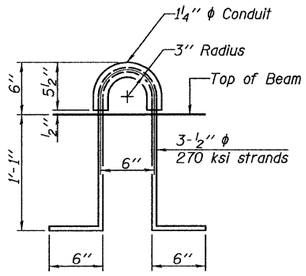
BAR S3(E)



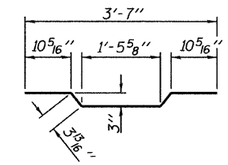
BAR S4(E)



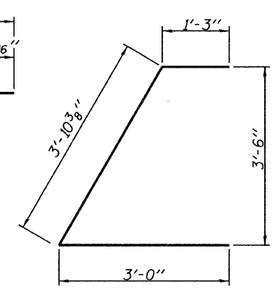
BAR U(E)



LIFTING LOOP DETAIL



BAR A1(E)



BAR U1(E)

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	698

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ 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 ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ 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.

PD-1748-LD 10-1-08

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

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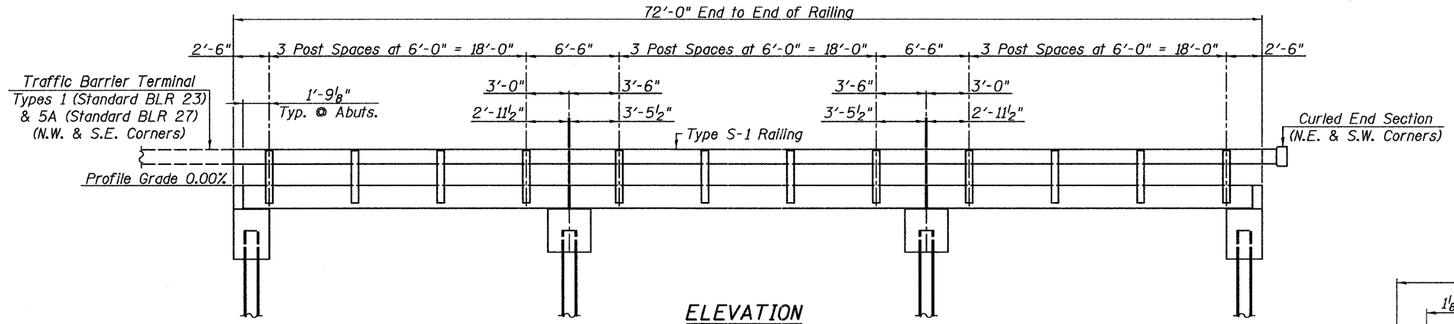
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

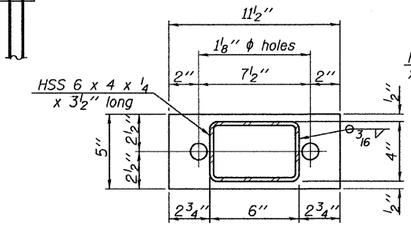
SUPERSTRUCTURE (SPAN 2)

SCALE: NONE | SHEET NO. 9 OF 17 SHEETS | STA. | TO STA.

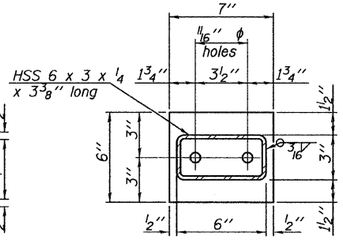
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	9
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



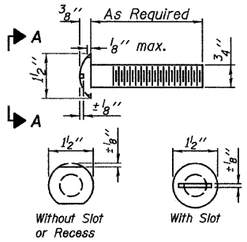
ELEVATION
(Showing Outside Face)



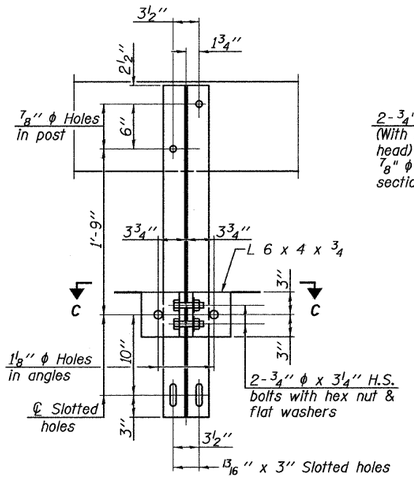
PL ½" x 11½" x 5"



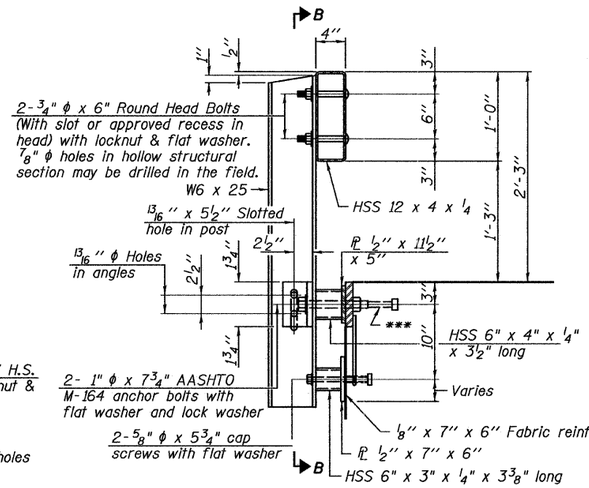
PL ½" x 7" x 6"



VIEW A-A
ROUND HEAD BOLT

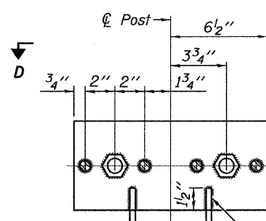


SECTION B-B

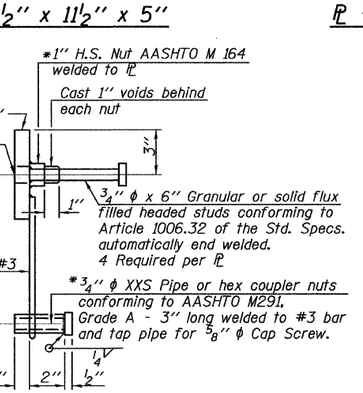


SECTION AT RAILING POST

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed ½".

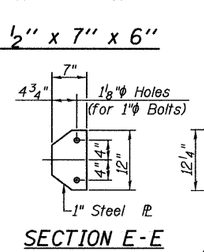


RAIL SPLICE CONNECTION
AT EXPANSION JT.

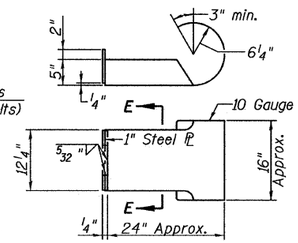


ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam.

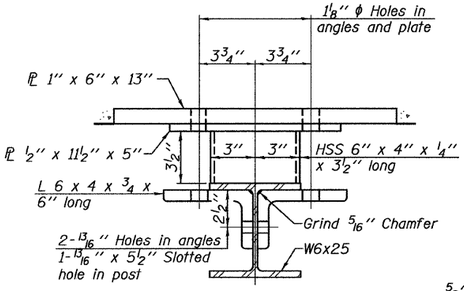


SECTION E-E

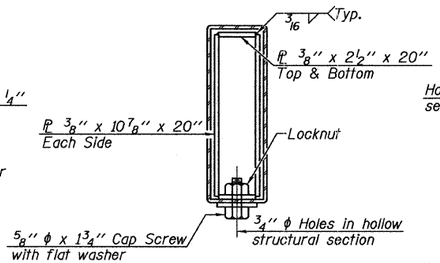


CURLED END SECTION
DETAILS (2 Required)

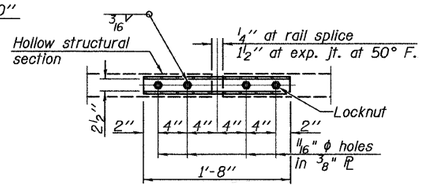
Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient ¼" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
*** 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.



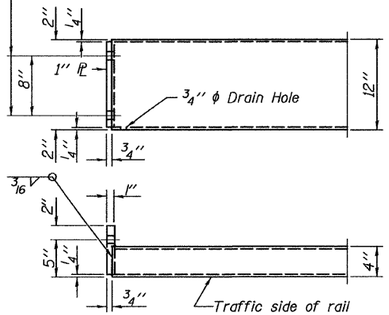
SECTION C-C



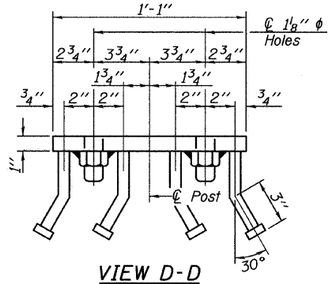
SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE PL
TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	144

R-23A 10-1-08 (10'-9" Maximum Post Spacing)

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

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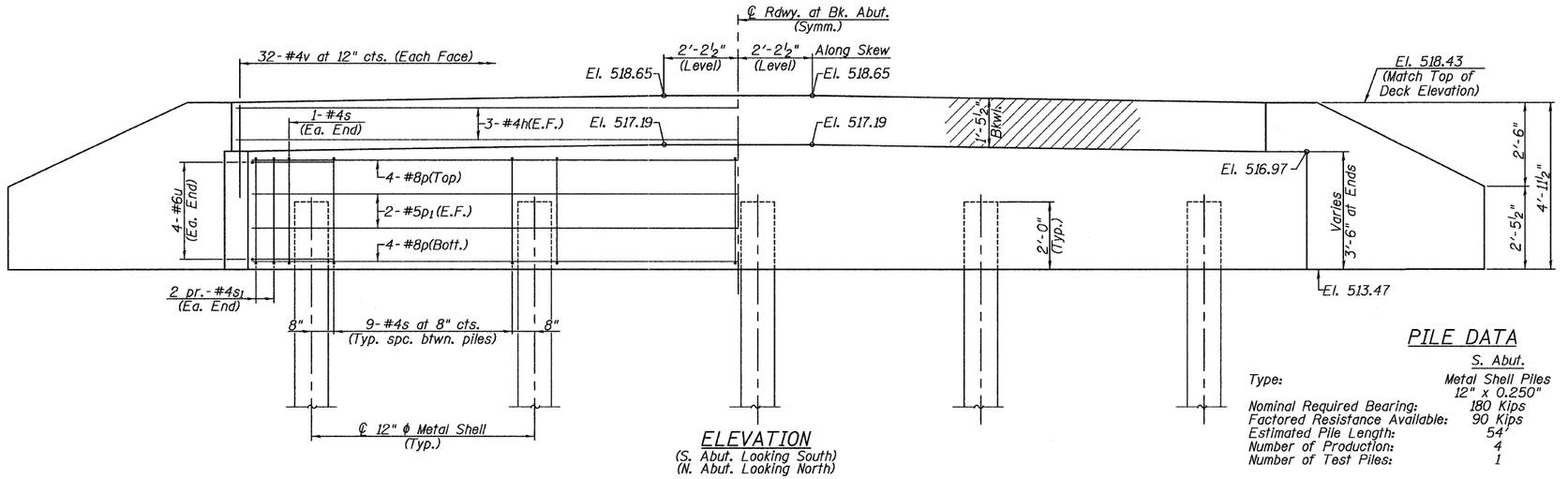
No. 184-001907

STEEL RAILING TYPE S-1

SCALE: NONE | SHEET NO. 10 OF 17 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	10
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

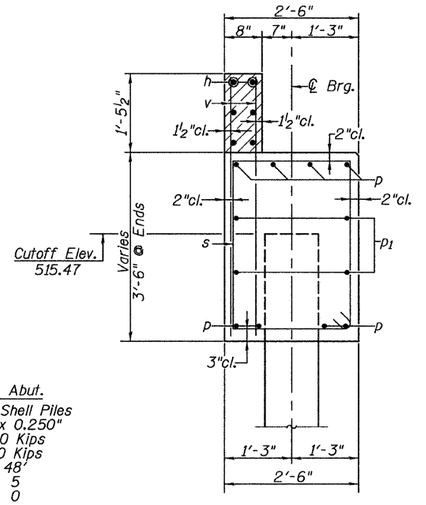


ELEVATION

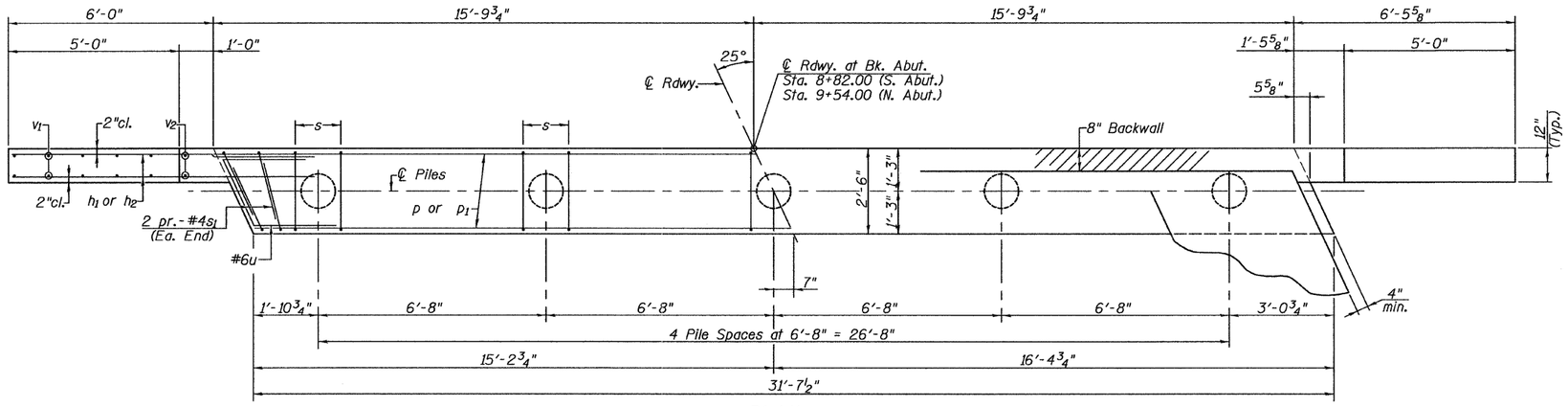
(S. Abut. Looking South)
(N. Abut. Looking North)

PILE DATA

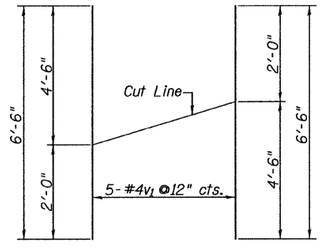
	S. Abut.	N. Abut.
Type:	Metal Shell Piles 12" x 0.250"	Metal Shell Piles 12" x 0.250"
Nominal Required Bearing:	180 Kips	180 Kips
Factored Resistance Available:	90 Kips	90 Kips
Estimated Pile Length:	54'	48'
Number of Production:	4	5
Number of Test Piles:	1	0



SECTION THRU ABUTMENT

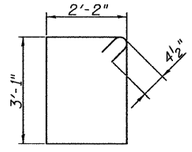


PLAN

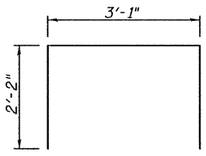


v1 - BAR CUT DIAGRAM

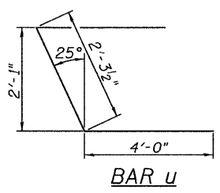
Order v_1 bars full length: Layout in field according to diagram. Cut v_1 bars along cut line. Use remainder of each bar in opposite face.



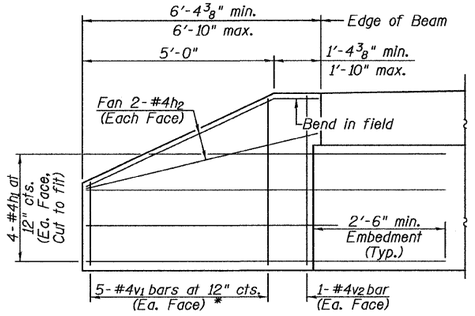
BAR s



BAR s1



BAR u



WINGWALL ELEVATION

(Showing Reinforcement)
* See v_1 - bar cut diagram

NOTES

All exposed edges shall have standard ¾" 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	12	#4	32'-8"	——
h_1	32	#4	9'-0"	——
h_2	16	#4	6'-10"	——
p	16	#8	31'-3"	——
p_1	8	#5	31'-3"	——
s	76	#4	11'-3"	◹
s_1	16	#4	7'-5"	⊓
u	16	#6	10'-3"	⊏
v	128	#4	2'-8"	——
v_1	20	#4	6'-6"	——
v_2	8	#4	4'-7"	——
Concrete Structures			Cu. Yd.	26.6
Reinforcement Bars			Pound	3360
Structure Excavation			Cu. Yd.	106
Furnishing Metal Shell Piles 12" x 0.250"			Foot	456
Driving Piles			Foot	456
Test Pile Metal Shells			Each	1

FILE NAME = $FILE1$	USER NAME = $USER$	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = $SCALE$	CHECKED -	REVISED -
	PLOT DATE = $DATE$	DATE -	REVISED -

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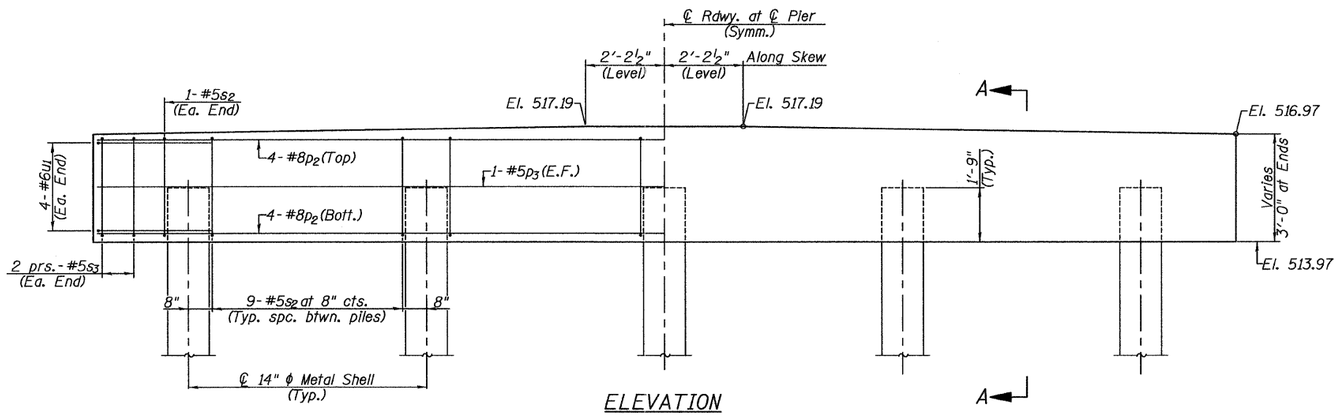
No. 184-001907

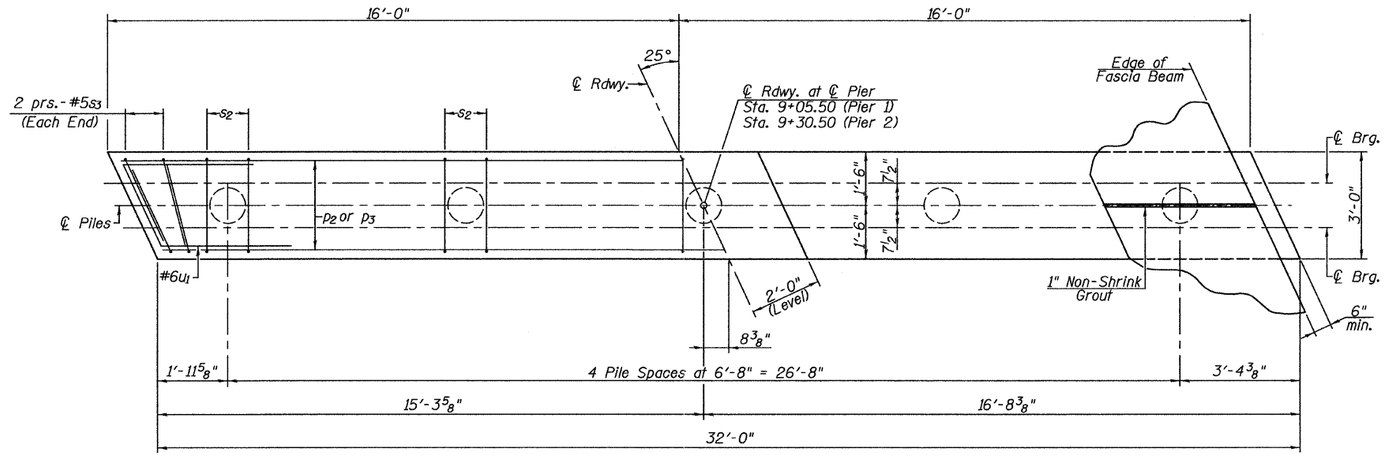
ABUTMENTS

SCALE: ½" = 1'-0" | SHEET NO. 11 OF 17 SHEETS | STA. | TO STA.

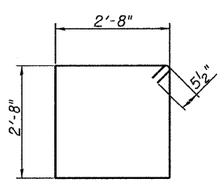
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	11
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



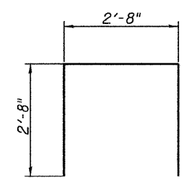
ELEVATION



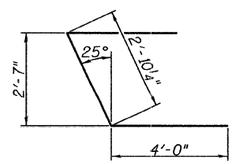
PLAN



BAR s_2



BAR s_3



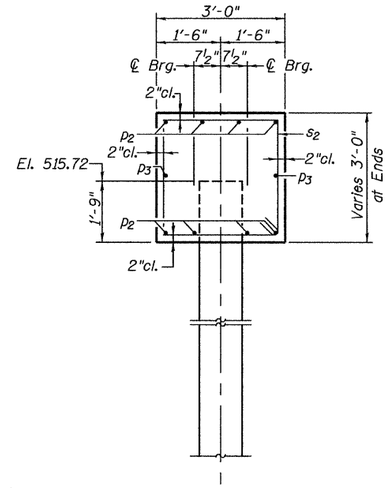
BAR u_1

PILE DATA

	Pier 1	Pier 2
Pile Type & Size:	Metal Shell Piles 14" x 0.250"	Metal Shell Piles 14" x 0.250"
Nominal Required Bearing:	233 Kips	233 Kips
Factored Resistance Available:	112 Kips	112 Kips
Estimated Pile Length:	62'	54'
Number of Production:	5	4
Number of Test Piles:	0	1

NOTES

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.
All exposed edges shall have standard $\frac{3}{4}$" chamfer.
Space reinforcement in cap to miss beam anchor dowels.



SECTION A-A

BILL OF MATERIAL TWO PIERS

BAR	NO.	SIZE	LENGTH	SHAPE
p_2	16	#8	31'-8"	——
p_3	4	#5	31'-8"	——
s_2	76	#5	11'-7"	□
s_3	16	#5	8'-0"	□
u_1	16	#6	10'-10"	⌐
Concrete Structures			Cu. Yd.	21.6
Reinforcement Bars			Pound	2800
Furnishing Metal Shell Piles 14" x 0.250"			Foot	526
Driving Piles			Foot	526
Test Pile Metal Shells			Each	1

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

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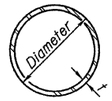
No. 184-001907

PIERS

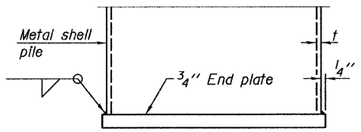
SCALE: ½" = 1'-0" | SHEET NO. 12 OF 17 SHEETS | STA. | TO STA.

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	12
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

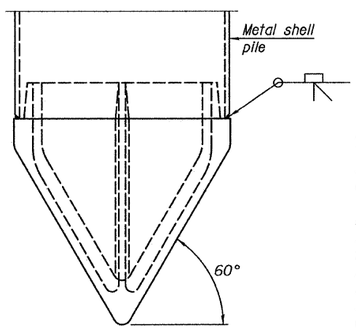


METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume ($yd.^3$/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



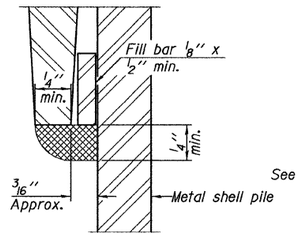
END PLATE ATTACHMENT



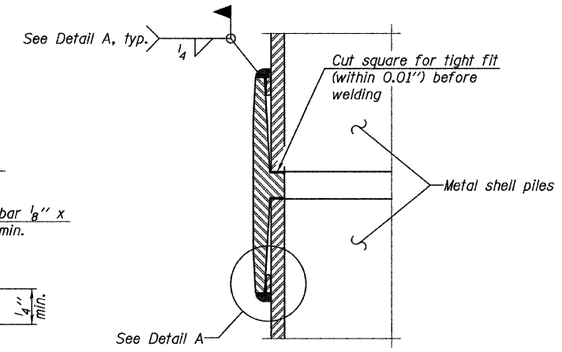
Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over 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)

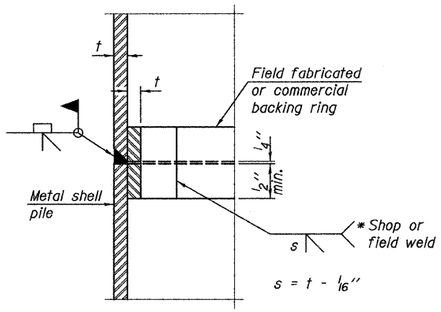


DETAIL A



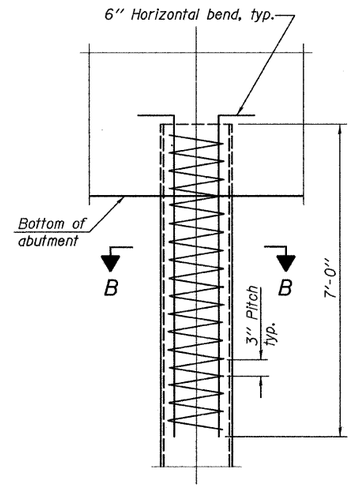
Notes:
The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE

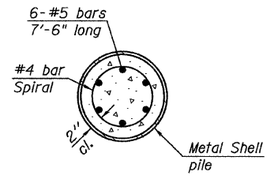


COMPLETE PENETRATION WELD SPLICE

* 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



SECTION B-B

METAL SHELL REINFORCEMENT AT ABUTMENTS

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

F-MS 10-1-08

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

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Civil and Structural Engineers Springfield, IL.
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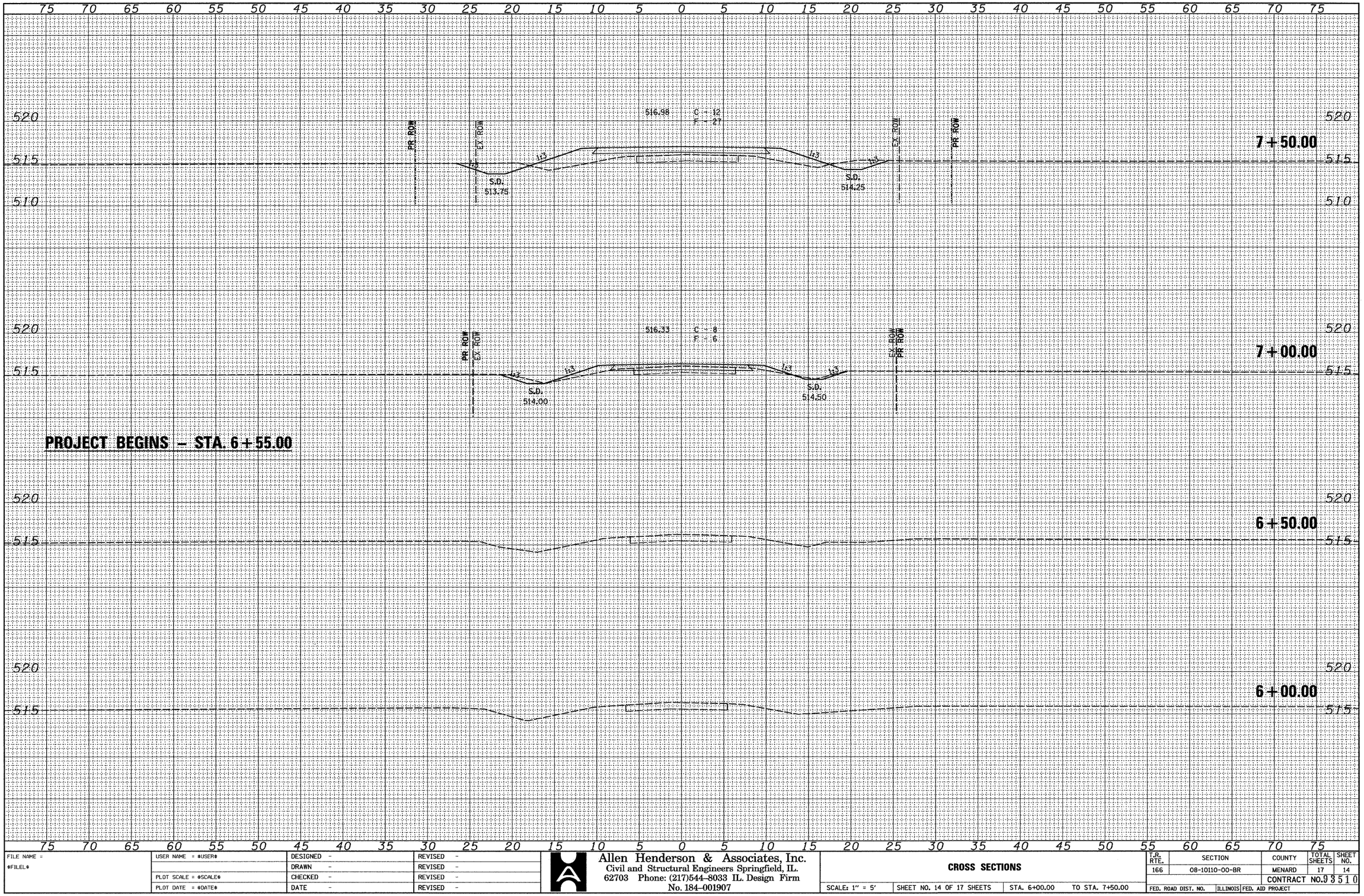
METAL SHELL PILE DETAILS

SCALE: NONE | SHEET NO. 13 OF 17 SHEETS

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	13
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	CONTRACT NO. 93510	



FINAL SURVEY | NOTE BOOK | NO. | SURVEYED | PLOTTED | TEMPLATE | AREAS | AREAS CHECKED | BY | DATE

ORIGINAL SURVEY | NOTE BOOK | NO. | SURVEYED | PLOTTED | TEMPLATE | AREAS | AREAS CHECKED | BY | DATE

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

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No. 184-001907

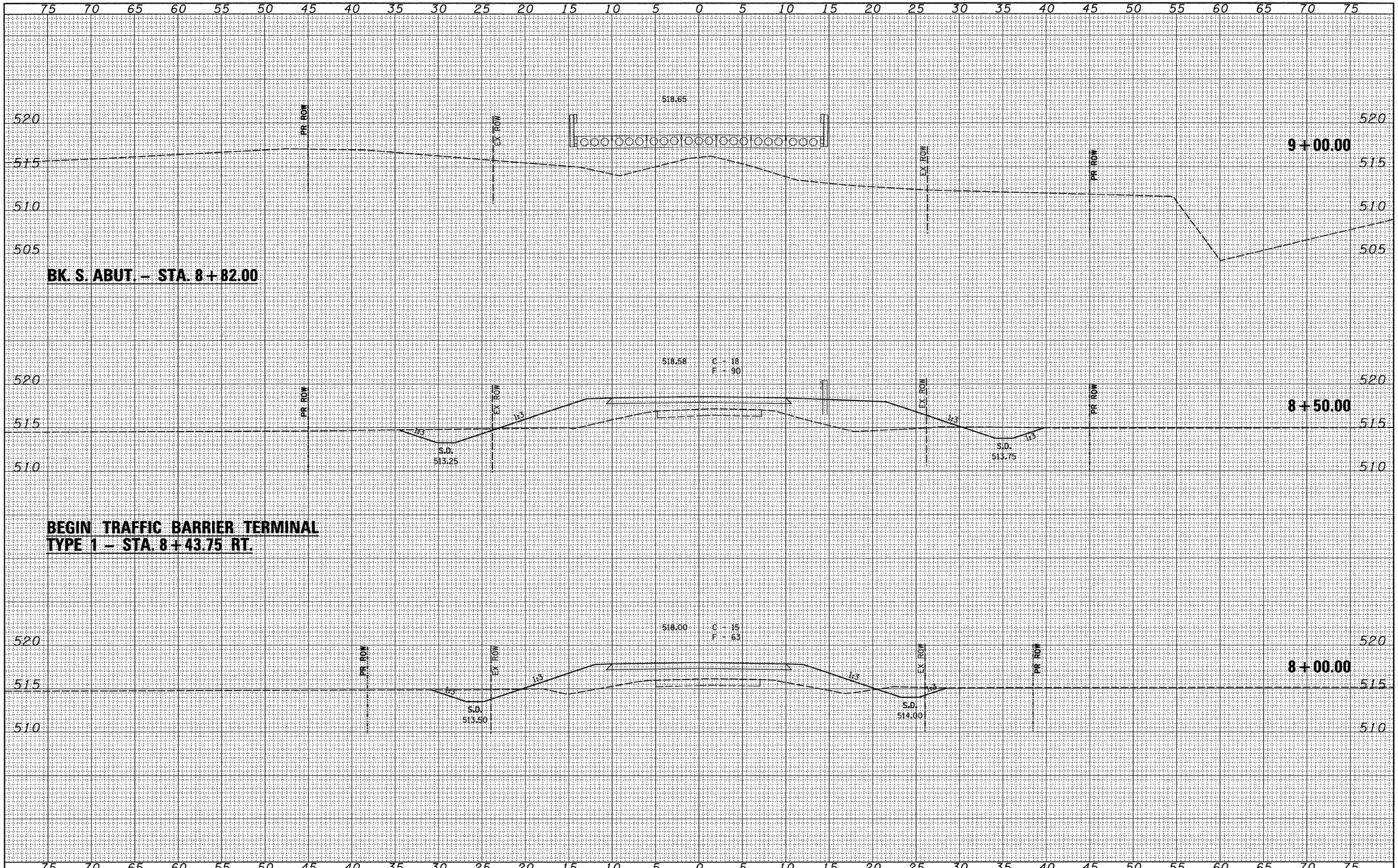
CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 14 OF 17 SHEETS | STA. 6+00.00 | TO STA. 7+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	14
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

BK. S. ABUT. – STA. 8+82.00



BEGIN TRAFFIC BARRIER TERMINAL TYPE 1 – STA. 8+43.75 RT.

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

FILE NAME = $FILE$	USER NAME = $USER$	DESIGNED –	REVISED –
		DRAWN –	REVISED –
	PLOT SCALE = $SCALE$	CHECKED –	REVISED –
	PLOT DATE = $DATE$	DATE –	REVISED –

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Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm
No. 184-001907

CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 15 OF 17 SHEETS | STA. 8+00.00 | TO STA. 9+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	15
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

520
515

PR ROW
EX ROW
1:3
1:3
518.08
C = 7
F = 42
S.D.
514.25
PR ROW
EX ROW
10 + 50.00

520
515

PR ROW
EX ROW
1:3
1:3
518.54
C = 23
F = 59
S.D.
514.00
S.D.
514.50
PR ROW
EX ROW
10 + 00.00

END TRAFFIC BARRIER TERMINAL TYPE 1 – STA. 9 + 83.25 LT.

BK. N. ABUT. – STA. 9 + 54.00.00

520
515
510

PR ROW
EX ROW
518.65
EX ROW
PR ROW
9 + 50.00

ORIGINAL SURVEY	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED		
NO.	TEMPLATE		
	AREAS		
	AREAS CHECKED		

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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

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

CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 16 OF 17 SHEETS | STA. 9+50.00 | TO STA. 10+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	16
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FINAL SURVEY	SURVEYED	BY
	PLOTTED	
NOTE BOOK	TEMPLATE	
	AREAS	
NO.	AREAS CHECKED	

ORIGINAL SURVEY	SURVEYED	BY
	PLOTTED	
NOTE BOOK	TEMPLATE	
	AREAS	
NO.	AREAS CHECKED	

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

520
515

PROJECT ENDS – STA. 12+00.00

12+50.00

EX. ROW

518.15 C = 15
F = 2

1:3 1:3

S.D.
515.90

S.D.
516.60

EX. ROW

12+00.00

520
515

520
515

517.57 C = 11
F = 7

PR. ROW
EX. ROW

1:3 1:3 1:3

S.D.
514.80

S.D.
516.00

EX. ROW
PR. ROW

11+50.00

520
515

520
515

517.55 C = 11
F = 17

PR. ROW

EX. ROW

1:3 1:3 1:3

S.D.
514.50

S.D.
515.50

EX. ROW

PR. ROW

11+00.00

520
515

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

FILE NAME = $FILE1$	USER NAME = $USER$	DESIGNED -	REVISED -
		DRAWN -	REVISED -
	PLOT SCALE = $SCALE$	CHECKED -	REVISED -
	PLOT DATE = $DATE$	DATE -	REVISED -

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CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 17 OF 17 SHEETS | STA. 11+00.00 | TO STA. 12+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
166	08-10110-00-BR	MENARD	17	17
		CONTRACT NO. 93510		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		