03-08-13 LETTING ITEM 043

INDEX OF SHEETS

STANDARDS

STANDARD 280001-07
STANDARD 515001-03
STANDARD 630301-06
STANDARD 701011-03
STANDARD 701901-02
STANDARD BLR 21-9
STANDARD BLR 24-2
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 SECTION - 20
LAND QUARTER SECTION - N.E.
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR (NON-URBAN)
A.D.T. - 375 (2010)
A.D.T. - 650 (2020)
50 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. 93586

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

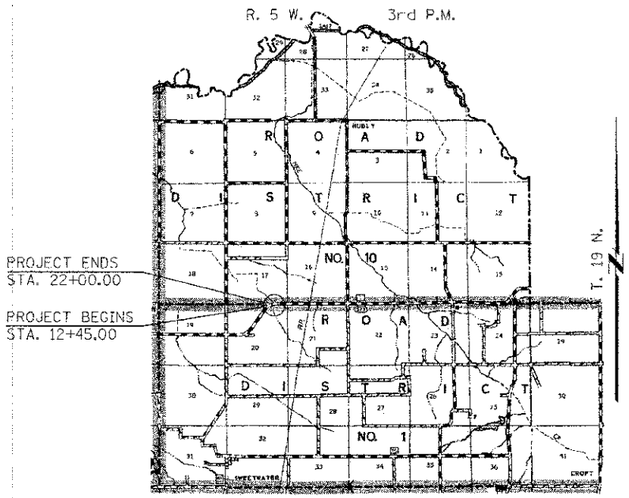
F.A.S. 573 (C.H. 1) OVER TRIBUTARY TO ALLEN'S GROVE DITCH

SECTION 11-00064-00-BR

PROJECT BRS-0573(321)

MENARD COUNTY

C-96-207-13



LOCATION PLAN

LENGTH OF SECTION - 955.00 FEET = 0.181 MILES

0 1 2
SCALE: 1" = 1 MILE

EXISTING STRUCTURE: SINGLE SPAN PRECAST CONCRETE DECK BEAMS SUPPORTED BY CLOSED TIMBER ABUTMENTS WITH TIMBER WINGWALLS. ±30'-0" BK.-BK. ABUTMENTS, ±30'-3" CUT.-OUT. DECK. CONCRETE CURB WITH STEEL RAILING. ±5° SKEW, LT. FWD.
EXISTING STRUCTURE NO. 065-3002

PROPOSED STRUCTURE: SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH) ON OPEN CONCRETE ABUTMENTS. 56'-0" BK.-BK. ABUTMENTS, 30'-0" CLEAR DECK WIDTH. STEEL RAILING TYPE S1. 10° SKEW RT. FWD.
PROPOSED STRUCTURE NO. 065-3128

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

Christopher P. Kohlrus 10/9/12
EXPIRATION: 11/30/2013

APPROVED 10-17, 2012
COUNTY ENGINEER

PASSED November 7, 2012.
Terrance H. Fountain
DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS

PASSED November 7, 2012
Ron Ambrambeau
DISTRICT SIX CONSTRUCTION ENGINEER

Releasing For Bid Based on Limited Review November 7, 2012
Roger L. Driskell
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

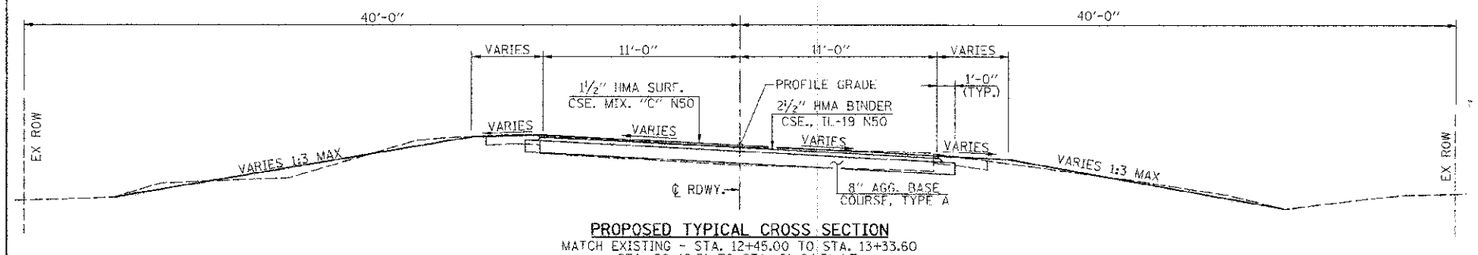
		DESIGNED	REVISED
		DRAWN	REVISED
		CHECKED	REVISED
		DATE	REVISED

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

TITLE SHEET

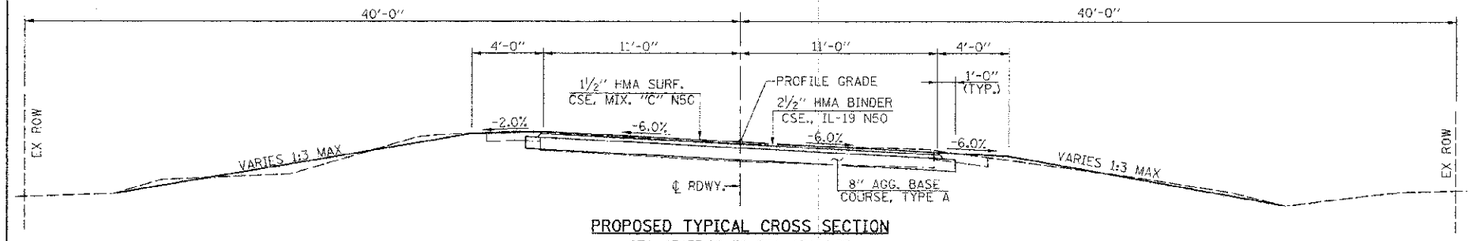
SCALE: 1" = 1 MILE SHEET NO. 1 OF 18 SHEETS STA. 12+45.00 TO STA. 22+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	
		CONTRACT NO. 93586		
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			



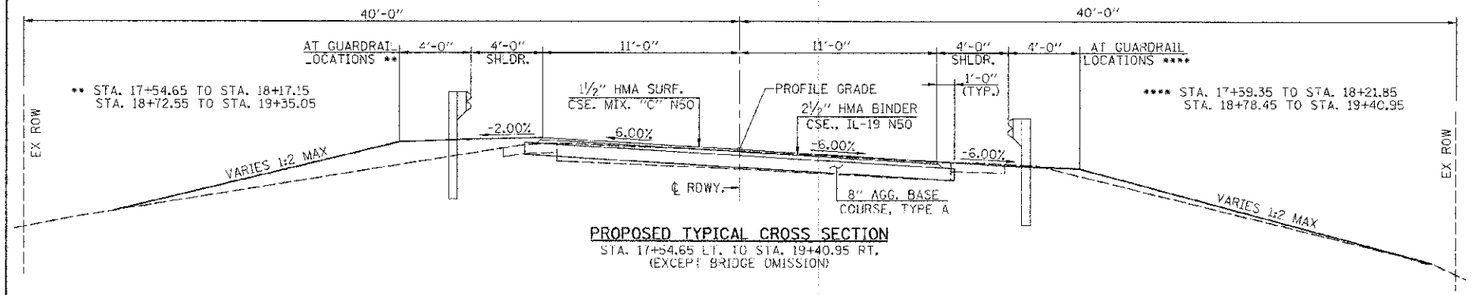
PROPOSED TYPICAL CROSS SECTION

MATCH EXISTING - STA. 12+45.00 TO STA. 13+33.60
STA. 20+18.51 TO STA. 21+94.51 LT.
STA. 20+18.51 TO STA. 21+28.51 RT.



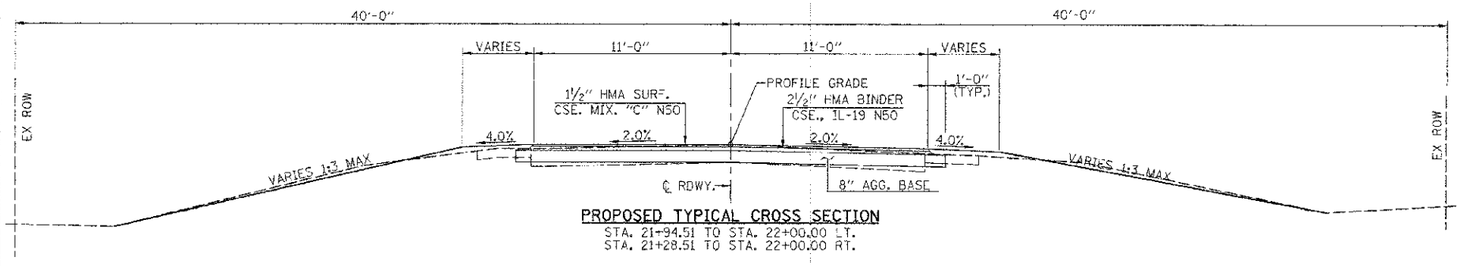
PROPOSED TYPICAL CROSS SECTION

STA. 13+33.60 TO STA. 17+54.65
STA. 19+40.95 TO STA. 20+18.51



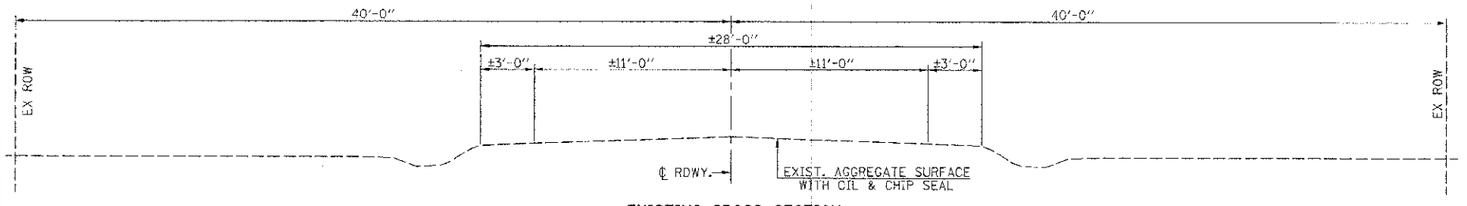
PROPOSED TYPICAL CROSS SECTION

STA. 17+54.65 LT. TO STA. 19+40.95 RT.
(EXCEPT BRIDGE OMISSION)



PROPOSED TYPICAL CROSS SECTION

STA. 21+94.51 TO STA. 22+00.00 LT.
STA. 21+28.51 TO STA. 22+00.00 RT.



EXISTING CROSS SECTION

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	UNIT	QUANTITY
	20200100	EARTH EXCAVATION	CU. YD.	731
	20300100	CHANNEL EXCAVATION	CU. YD.	441
	28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	120
	28000400	PERIMETER EROSION BARRIER	FOOT	1712
	28100807	STONE DUMPED RIPRAP, CLASS A4	TON	447
	28200200	FILTER FABRIC	SQ. YD.	568
	35100100	AGGREGATE BASE COURSE, TYPE A	TON	1166
	40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	899
	40603080	HOT MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	311
	40603310	HOT MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	186
*	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50200100	STRUCTURE EXCAVATION	CU. YD.	156
	50300225	CONCRETE STRUCTURES	CU. YD.	40.7
	50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ. FT.	1640
	50800105	REINFORCEMENT BARS	POUND	4970
Δ	50900205	STEEL RAILING, TYPE S1	FOOT	112
	51200957	FURNISHING METAL SHELL PILES 12" X 0.250"	FOOT	524
	51202305	DRIVING PILES	FOOT	524
	51203200	TEST PILE METAL SHELLS	EACH	2
	51500100	NAME PLATES	EACH	1
	54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	82
	59300100	CONTROLLED LOW STRENGTH MATERIAL	CU. YD.	28.8
Δ	63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
Δ	63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
	67100100	MOBILIZATION	L. SUM	1
Δ	78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	3820
Δ*	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
*	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	1.2
*	X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L. SUM	1

* SEE SPECIAL PROVISIONS
Δ SPECIALTY ITEMS

CONSTRUCTION TYPE CODE: 0011
BRIDGE TYPE: X080

GENERAL NOTES

WHERE SECTION OR SUBSECTION STONES ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH STONES ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR REFERENCED THEIR LOCATION.

SEEDING: FERTILIZER NUTRIENTS SHALL BE APPLIED AT A RATIO OF 1:1:1 AND AT A RATE OF 90 POUNDS PER ACRE FOR EACH NUTRIENT.

MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE.

AREAS TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

NO COMMITMENTS.

MIXTURE REQUIREMENTS

MIXTURE USE(S)	HOT MIX ASPHALT SURFACE COURSE, MIX "C", N50	HOT MIX ASPHALT BINDER COURSE IL-19.0, N50
AC/PG	PG 64-22	PG 64-22
DESIGN AIR VOIDS	4.0% @ N DESIGN = 50	4.0% @ N DESIGN = 50
MIXTURE COMPOSITION	IL 9.5 OR 12.5	IL 19.0
FRICTION AGGREGATE	MIX C	N/A

PAVEMENT DESIGN INFORMATION

2022 DESIGN TRAFFIC: 662
PV-622, MU-20, SU-20
CLASS III ROAD DESIGN FOR
80,000 POUND LOAD
T.F. - 0.10
TEMP. -77°
E_{AC} - 620 ksi
S_{AC} - 291
USE: 4" HMA ON 8" AGGREGATE BASE

		DESIGNED	REVISED
		DRAWN	REVISED
		CHECKED	REVISED
		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

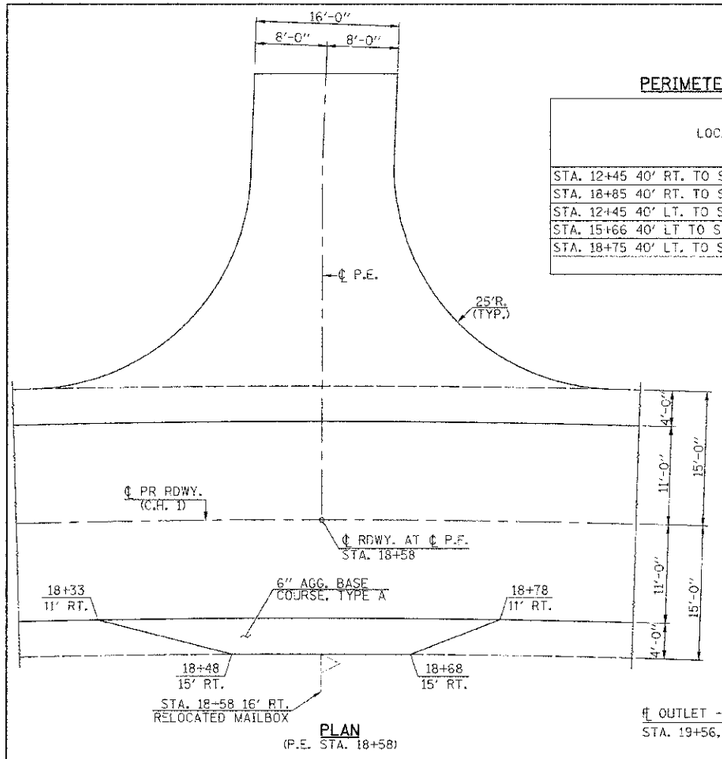
SCALE: 1" = 1 MILE | SHEET NO. 2 OF 18 SHEETS | STA. 12+45.00 TO STA. 22+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	2

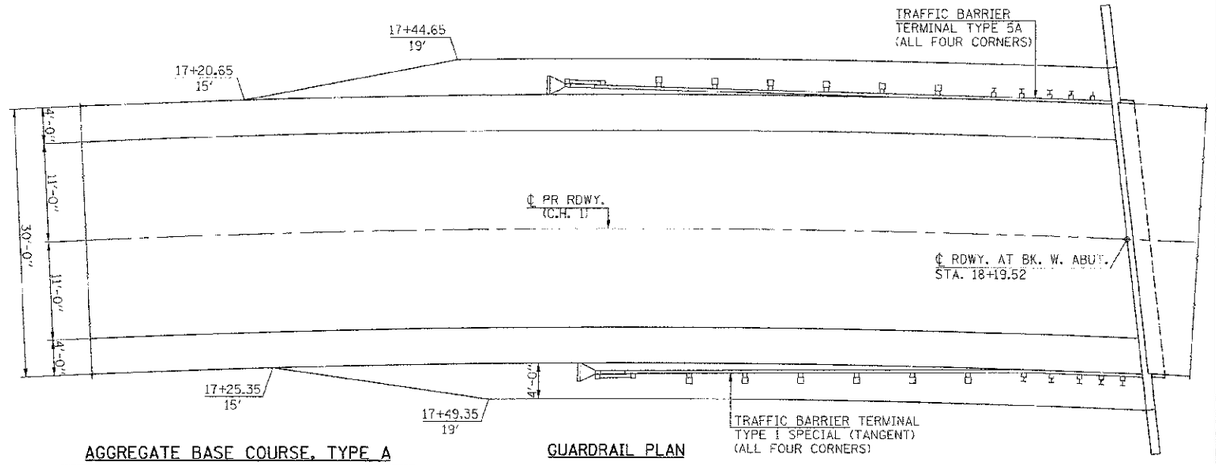
CONTRACT NO. 93586
FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

PERIMETER EROSION BARRIER

LOCATION	PERIMETER EROSION BARRIER
	FOOT
STA. 12+45 40' RT. TO STA. 18+20 40' RT.	555
STA. 18+85 40' RT. TO STA. 22+00 40' RT.	299
STA. 12+45 40' LT. TO STA. 15+50 40' LT.	305
STA. 15+66 40' LT TO STA. 18+10 40' LT.	244
STA. 18+75 40' LT. TO STA. 22+00 40' LT.	309
TOTAL	1712



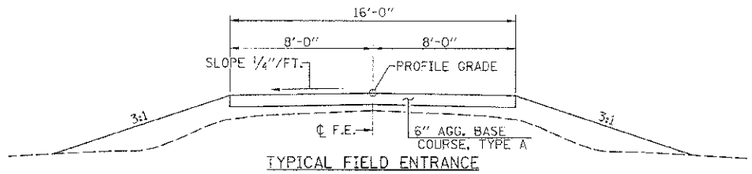
PLAN
(P.E. STA. 18+58)



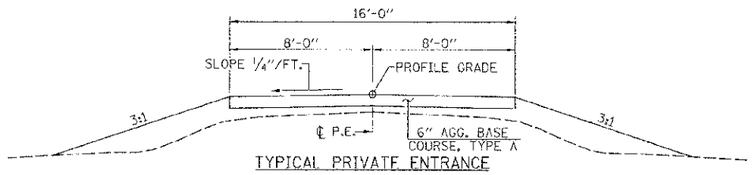
GUARDRAIL PLAN

AGGREGATE BASE COURSE, TYPE A

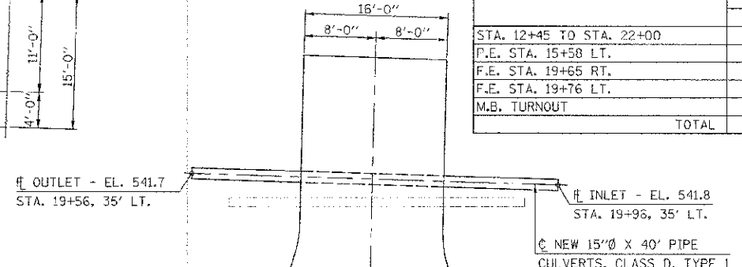
LOCATION	AGGREGATE BASE COURSE TYPE A
	TON
STA. 12+45 TO STA. 22+00	1092
P.E. STA. 15+58 LT.	23
F.E. STA. 19+65 RT.	23
F.E. STA. 19+76 LT.	23
M.B. TURNOUT	5
TOTAL	1166

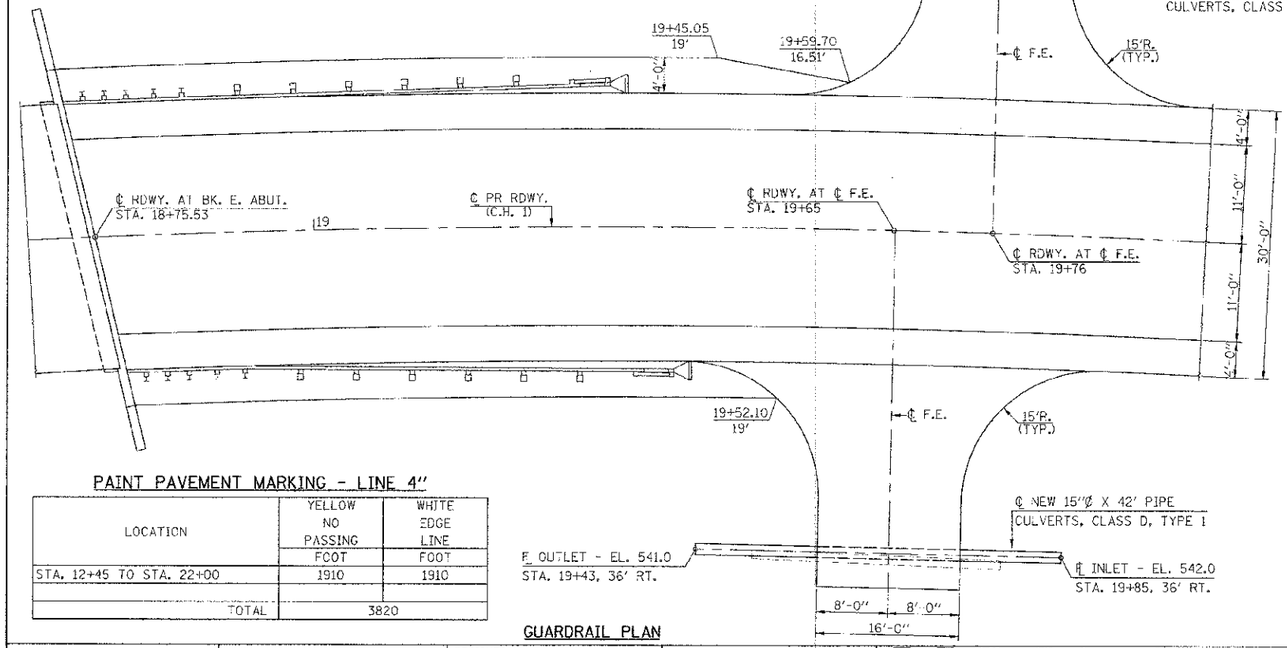


TYPICAL FIELD ENTRANCE



TYPICAL PRIVATE ENTRANCE





GUARDRAIL PLAN

PAINT PAVEMENT MARKING - LINE 4"

LOCATION	YELLOW NO PASSING	WHITE EDGE LINE
	FOOT	FOOT
STA. 12+45 TO STA. 22+00	1910	1910
TOTAL	3820	

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. 12+45 TO STA. 12+50	3	2	0	2
STA. 12+50 TO STA. 13+00	55	41	5	36
STA. 13+00 TO STA. 13+50	44	33	8	25
STA. 13+50 TO STA. 14+00	33	24	13	11
STA. 14+00 TO STA. 14+50	26	20	20	0
STA. 14+50 TO STA. 15+00	26	20	24	-4
STA. 15+00 TO STA. 15+50	26	20	17	3
STA. 15+50 TO STA. 16+00	26	20	11	9
STA. 16+00 TO STA. 16+50	26	20	19	1
STA. 16+50 TO STA. 17+00	29	22	19	3
STA. 17+00 TO STA. 17+50	31	23	35	-12
STA. 17+50 TO STA. 18+00	35	26	47	-21
STA. 18+00 TO STA. 18+19.50	15	11	34	-23
BRIDGE OMISSION - STA. 18+19.50 TO STA. 18+75.50				
STA. 18+75.50 TO STA. 19+00	24	18	36	-18
STA. 19+00 TO STA. 19+50	61	46	66	-20
STA. 19+50 TO STA. 20+00	79	59	48	11
STA. 20+00 TO STA. 20+50	75	56	15	41
STA. 20+50 TO STA. 21+00	50	37	6	31
STA. 21+00 TO STA. 21+50	44	33	6	27
STA. 21+50 TO STA. 22+00	23	17	3	14
TOTAL	731	548	432	116***

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

FILE NAME =
SCD FILE =

USER NAME = BARBER
PLOT SCALE = 0.0400 '/ IN.
PLOT DATE = 9/9/20

DESIGNED -
DRAWN -
CHECKED -
DATE -

REVISED -
REVISED -
REVISED -
REVISED -

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

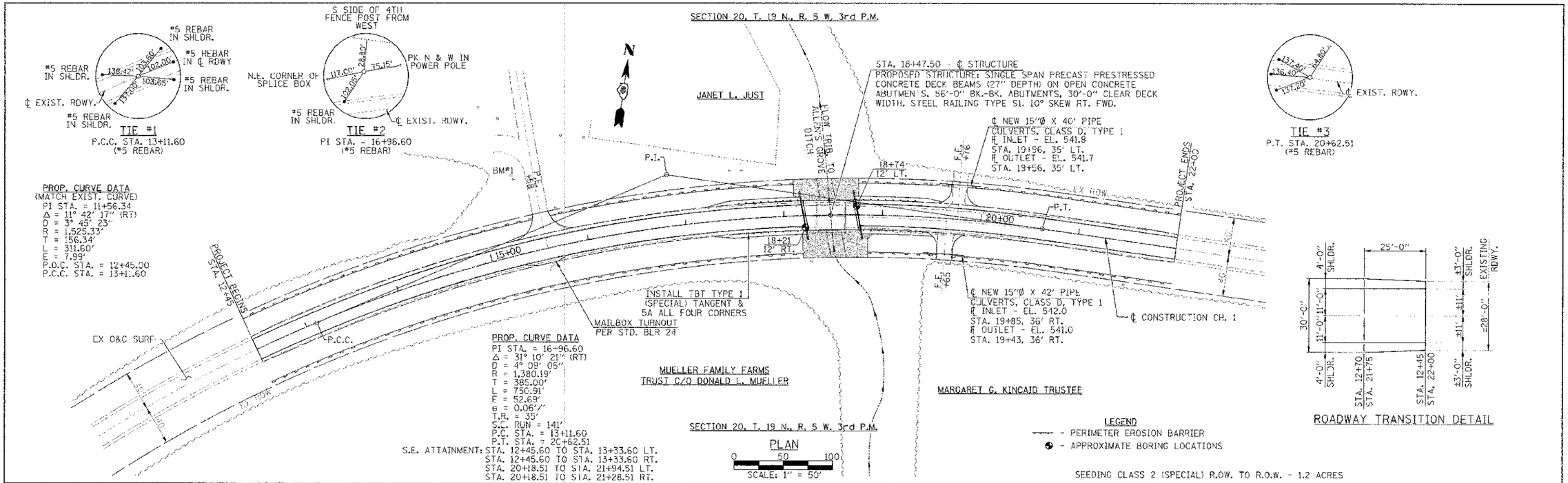
SCHEDULES & ROADWAY DETAILS

SCALE: VARIES | SHEET NO. 3 OF 18 SHEETS | STA. 12+45.00 TO STA. 22+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	3

CONTRACT NO. 93586

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT



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

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

PLAN & PROFILE

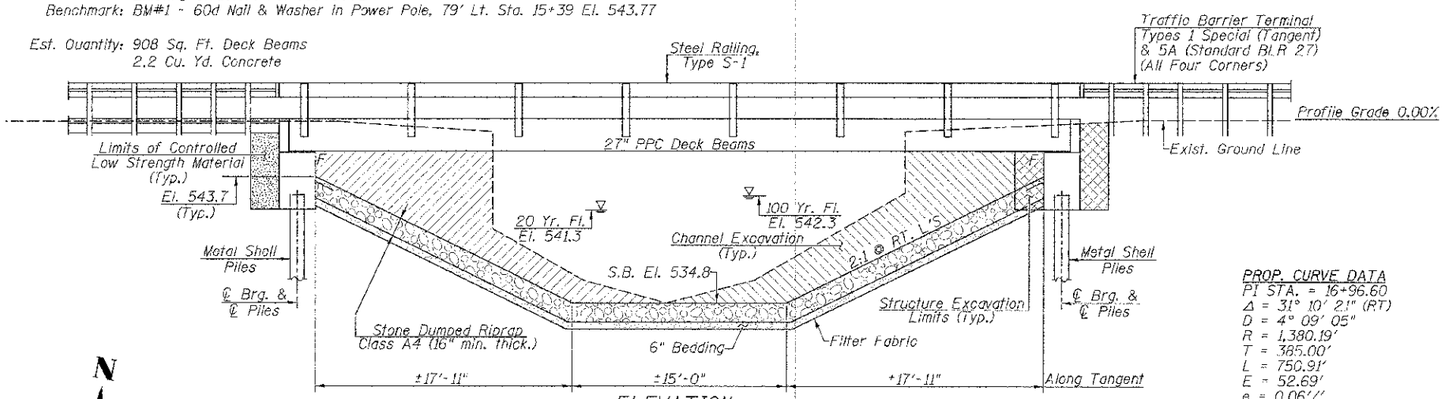
SCALE: 1" = 50' | SHEET NO. 4 OF 18 SHEETS | STA. 12+45.00 TO STA. 22+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	4
		CONTRACT NO. 93586		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

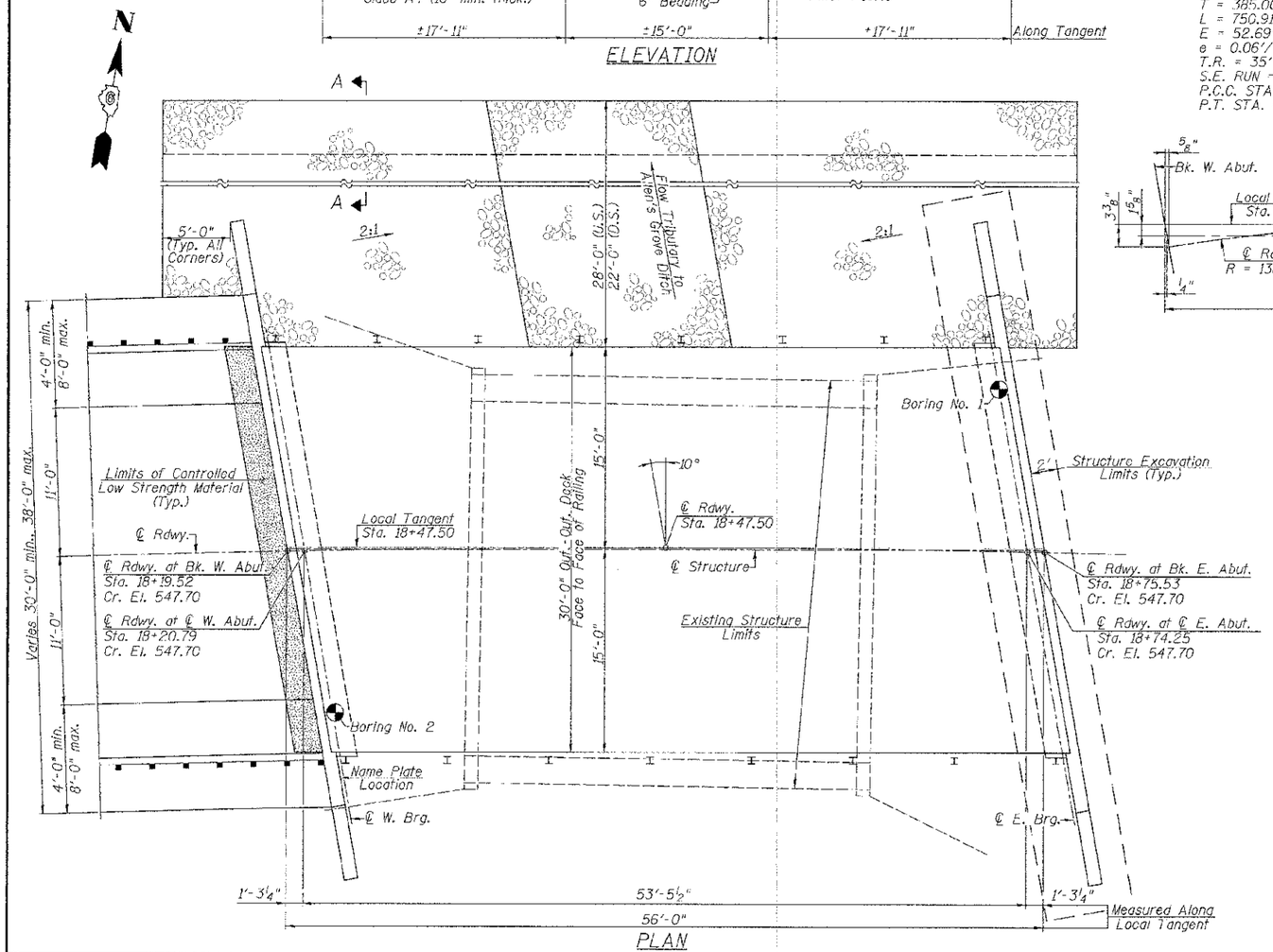
Existing Structure: Single span precast concrete deck beams supported by closed timber abutments with timber wingwalls. ±30'-0" Bk.-Bk. Abutments, ±30'-3" Out.-Out. Deck. Concrete curbs with steel railing. ±0° Skew. Existing Structure No. 065-3002

Benchmark: BM#1 - 60d Nail & Washer in Power Pole, 79' Lt. Sta. 15+39 El. 543.77

Est. Quantity: 908 Sq. Ft. Deck Beams
2.2 Cu. Yd. Concrete

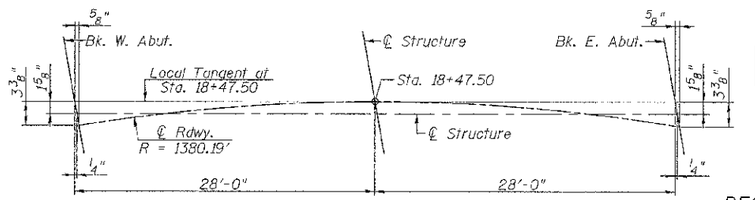


ELEVATION

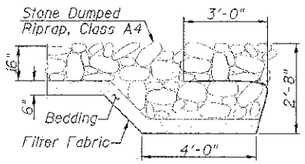


PLAN

PROP. CURVE DATA
PI STA. = 16+96.60
Δ = 31° 10' 21" (RT)
D = 4° 09' 05"
R = 1,380.19'
T = 385.00'
L = 750.91'
E = 52.69'
e = 0.06'/'
T.R. = 35'
S.E. RUN = 141'
P.C.C. STA. = 13+11.60
P.T. STA. = 20+62.51



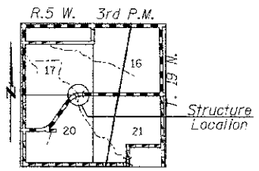
OFFSET SKETCH



SECTION A-A

TRIBUTARY TO ALLEN'S GROVE DITCH
BUILT 20 BY
MENARD COUNTY
SECTION 11-00064-00-BR
F.A.S. 513 STA. 18+47.50
STR. NO. 065-3128 LOADING HL-93

NAME PLATE
(Standard 515001)



LOCATION SKETCH

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			441
Stone Dumped Riprap, Class A4	Ton		447	447
Filter Fabric	Sq. Yd.		568	568
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		156	156
Concrete Structures	Cu. Yd.		40.7	40.7
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1640		1640
Reinforcement Bars	Pound		4970	4970
Steel Railing, Type S-1	Foot	112		112
Furnishing Metal Shell Piles 12" x 0.250"	Foot		524	524
Driving Piles	Foot		524	524
Test Pile Metal Shells	Each		2	2
Name Plates	Each		1	1
Controlled Low Strength Material	Cu. Yd.		28.8	28.8

WATERWAY INFORMATION

Drainage Area = 1.31 Sq. Mi. | Pr. Low Grade Elev. 543.7 | @ Sta. 4+25

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	511	109	181	541.3	0.2	0.0	541.5	541.3
Base	100	742	136	223	542.3	0.2	0.0	542.5	542.3
Exist. Overtop.	Greater than 500 Years								
Prop. Overtop.	Greater than 500 Years								
Max. Calc.	500	1040	148	241	542.7	0.8	0.0	543.5	542.7

DESIGN SCOUR ELEVATIONS

Design Scour Elevation (Ft.)	W. Abut.	E. Abut.
	540.4	540.4

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 (½ϕ" low lax strands)
fpbt = 201960 psi (½"ϕ low lax strands)

GENERAL NOTES

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

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications
5th Edition with 2010 Interims

LOADING HL-93

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

GERALD B. ROTHERHAM
081-005673
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

Dated: 10/19/2012

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".

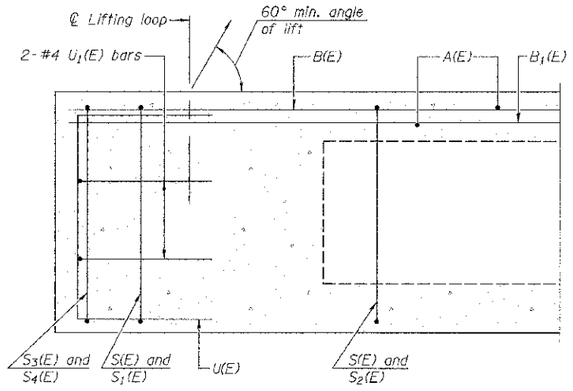
Expiration Date 11/30/2012

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

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

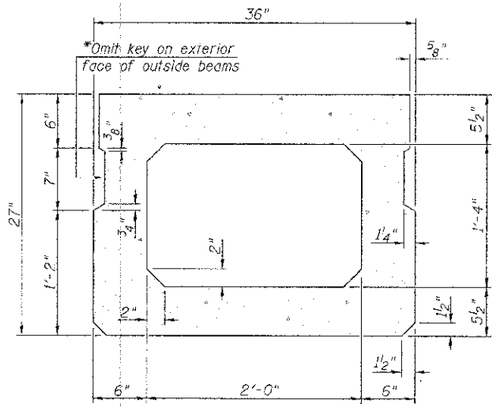
GENERAL PLAN & ELEVATION
STRUCTURE NO. 065-3128
SHEET NO. 1 OF 7 SHEETS

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	5
		CONTRACT NO. 93586		
		ILLINOIS FED. AID PROJECT		



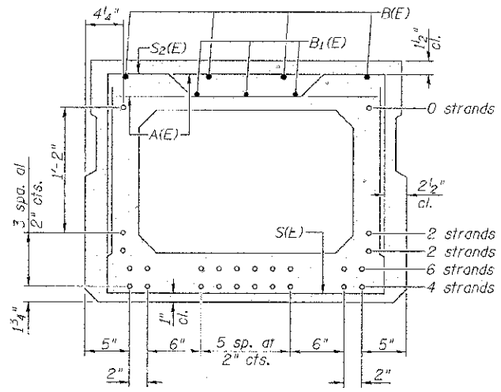
SECTION A-A

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.



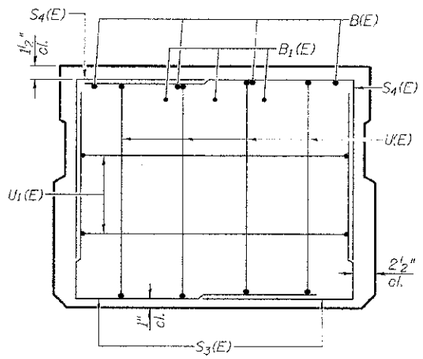
SECTION B-B
(Showing dimensions)

* Rail post anchor devices to be cast into exterior face of outside beams.



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

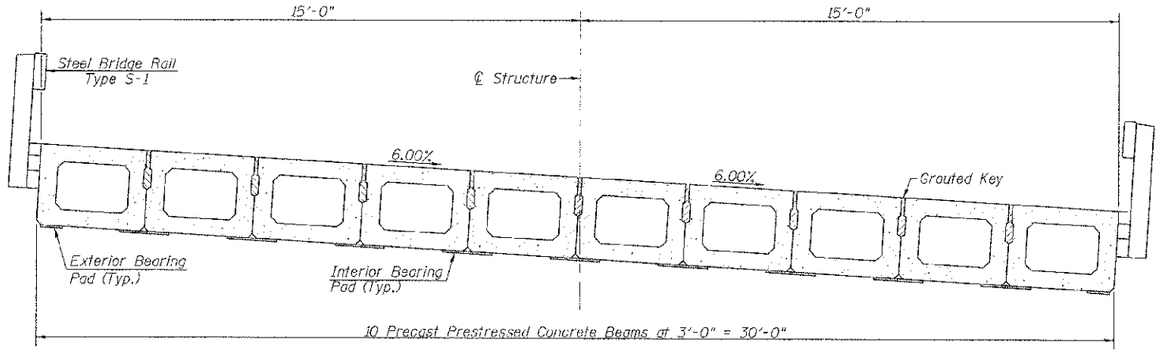
Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.



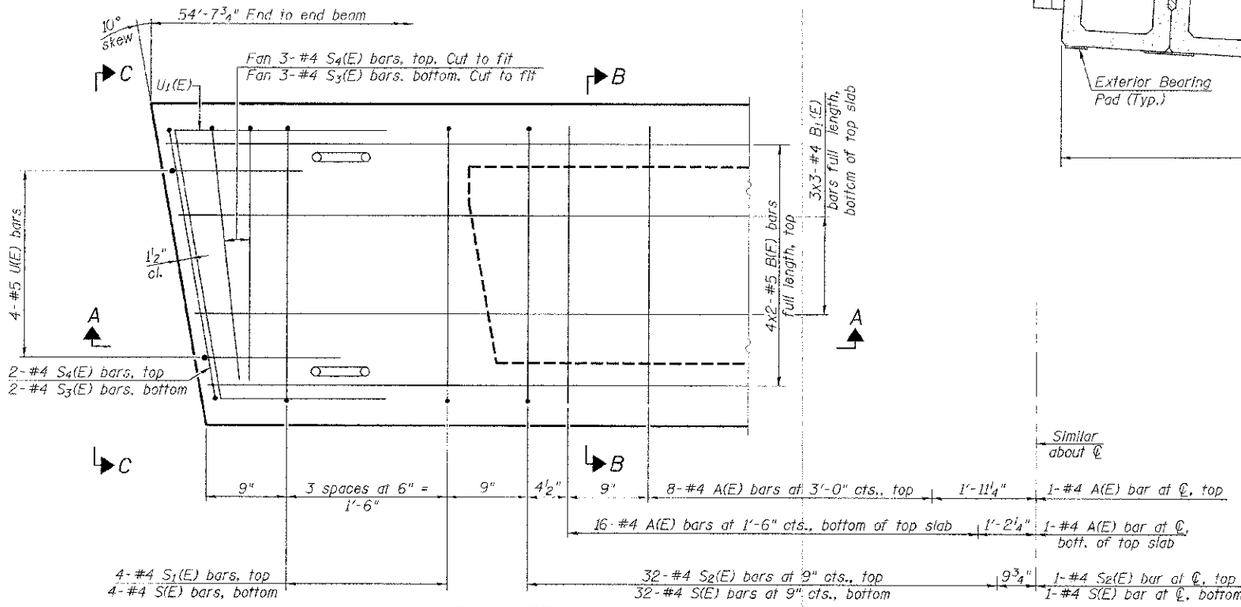
VIEW C-C

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

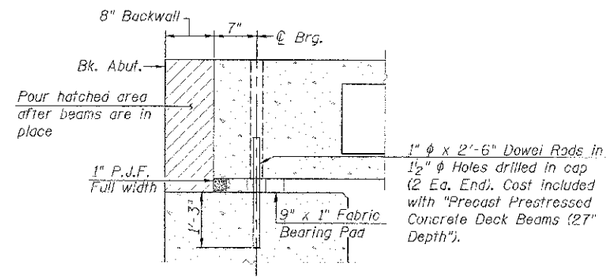
Notes: After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
All horizontal dimensions are at right angles to beam ends.



CROSS SECTION
(Looking East)



PLAN VIEW



SECTION THRU ABUTMENT
(At Right Angles)

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	50	#4	2'-7"	—
B(E)	8	#5	28'-7"	—
B1(E)	9	#4	20'-3"	—
S(E)	73	#4	6'-5"	L
S1(E)	8	#4	5'-11"	⊐
S2(E)	65	#4	6'-2"	⊐
S3(E)	10	#4	4'-6"	L
S4(E)	10	#4	4'-3"	L
U(E)	8	#5	4'-6"	⊏
U1(E)	4	#4	5'-6"	⊏

Note: See sheet 7 of 18 for additional details and Bill of Material.
Bars indicated thus 4x2-#5 etc. indicates 4 lines of bars with 2 lengths per line.
Reinforcement designated (E) to be epoxy coated.

PD-2736-R 7-1-10

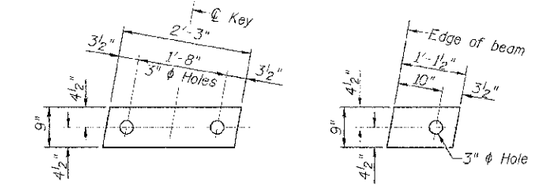
FILE NAME	USER NAME	DESIGNED -	REVISED -
		CHECKED	REVISED
	PLOT SCALE	DRAWN -	REVISED -
	PLOT DATE	CHECKED	REVISED

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

27" x 36" PPC DECK BEAM
STRUCTURE NO. 065-3128
SHEET NO. 2 OF 7 SHEETS

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	6

CONTRACT NO. 93586
ILLINOIS FED. AID PROJECT

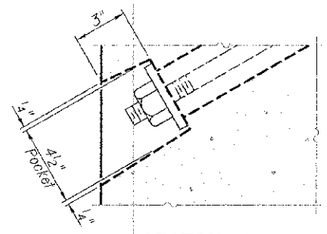


FABRIC BEARING PAD
(Interior)
(18 Required)

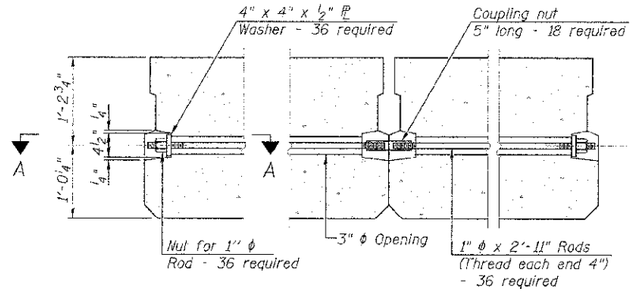
FABRIC BEARING PAD
(Exterior)
(4 Required)

FIXED

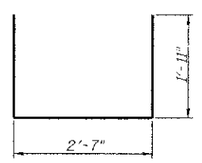
Notes:
All bearing pads shall be 1" thick.



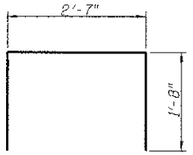
SECTION A-A



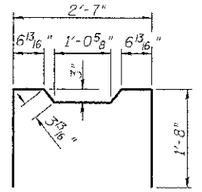
TYPICAL TRANSVERSE TIE ASSEMBLY



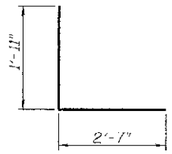
BAR S(E)



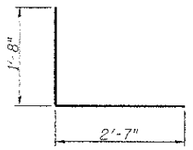
BAR S_1(E)



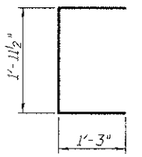
BAR S_2(E)



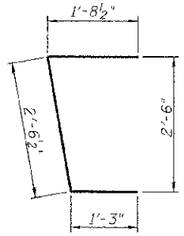
BAR S_3(E)



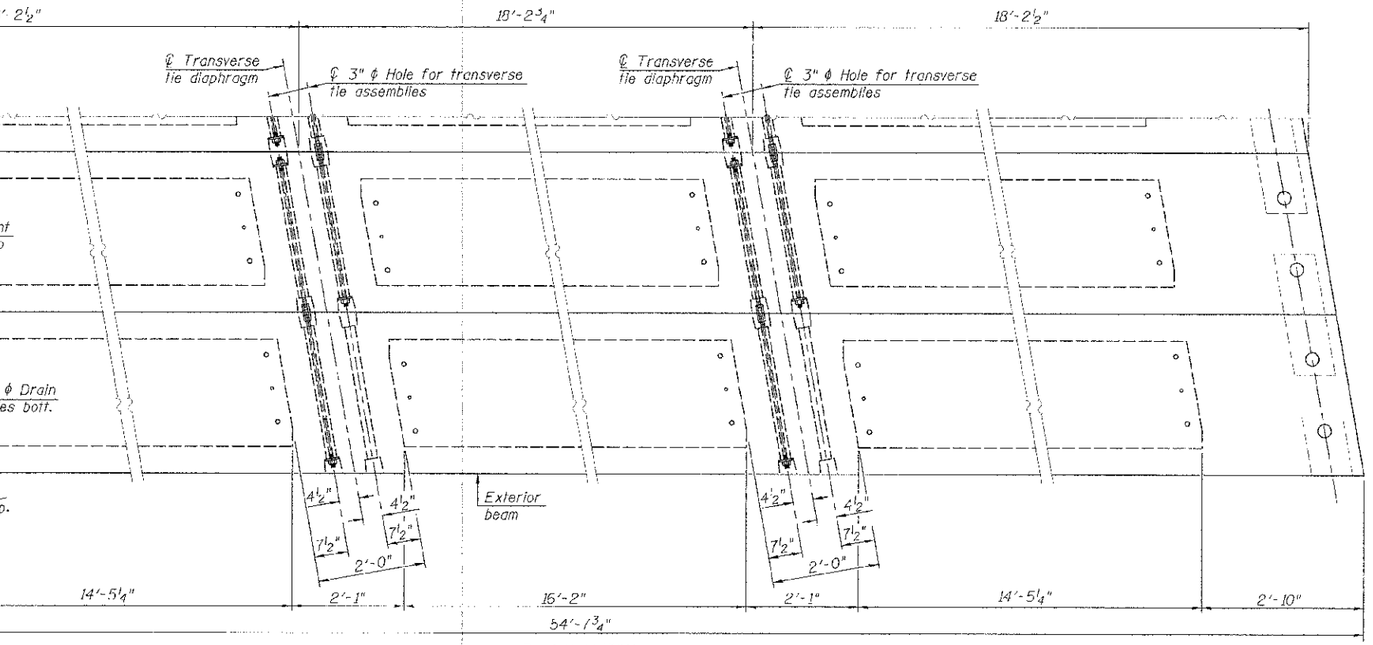
BAR S_4(E)



BAR U(E)

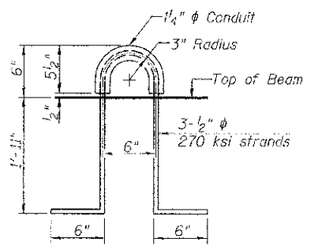


BAR U_1(E)



PLAN VIEW

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



LIFTING LOOP DETAIL

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.

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.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1640

PD-2736-RD 7-1-10

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

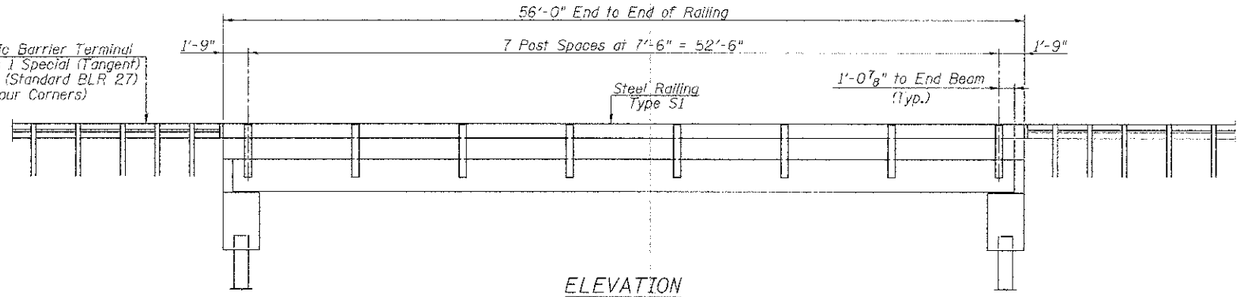
REVISED
REVISED
REVISED
REVISED

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

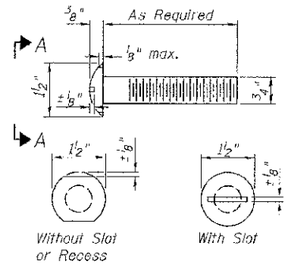
27" x 36" PPC DECK BEAM DETAILS
STRUCTURE NO. 065-3128
SHEET NO. 3 OF 7 SHEETS

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	7

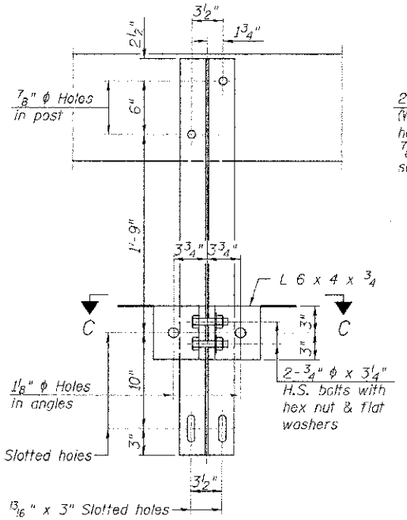
CONTRACT NO. 93586
ILLINOIS FED. AID PROJECT



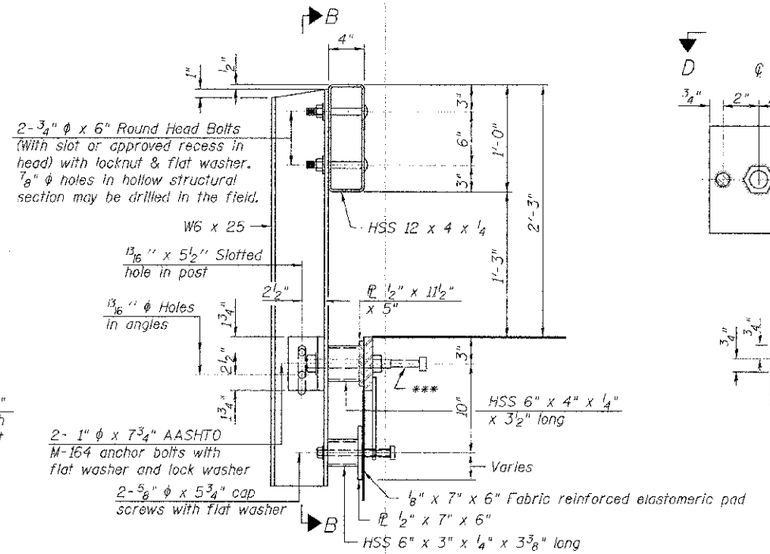
ELEVATION
(Showing Outside Face)



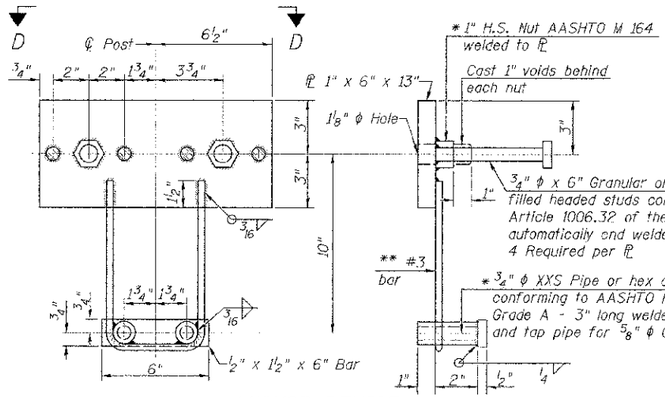
VIEW A-A
ROUND HEAD BOLT



SECTION B-B

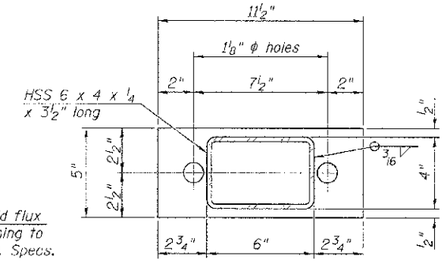


SECTION AT RAILING POST

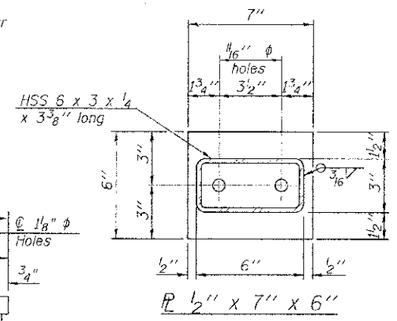


ANCHOR DEVICE

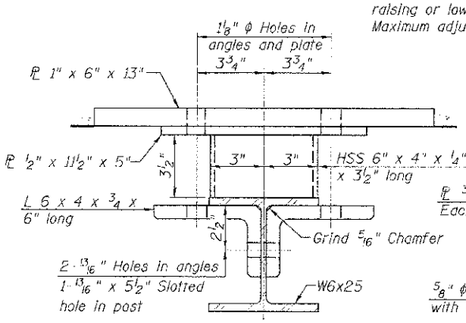
* Threaded areas shall be plugged or blocked off during casting of beam.



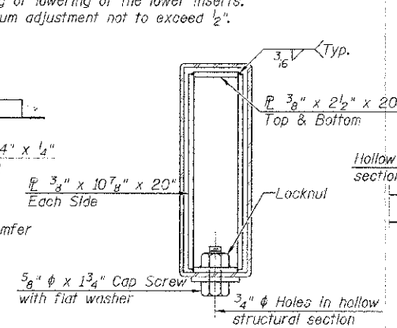
PL 1/2" x 11 1/2" x 5"



PL 1/2" x 7" x 6"

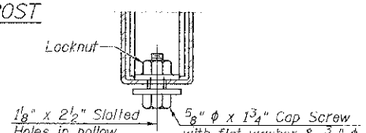


SECTION C-C

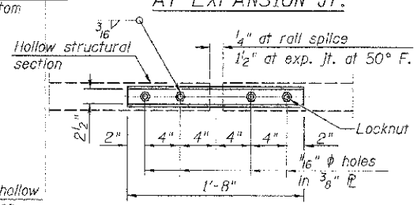


SECTIONS AT RAIL SPLICE

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

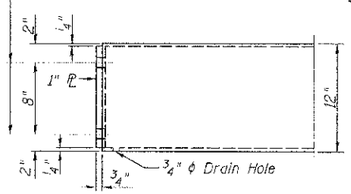


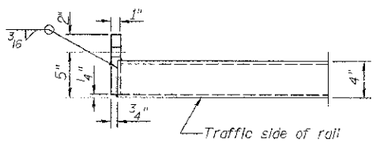
RAIL SPLICE CONNECTION AT EXPANSION JT.



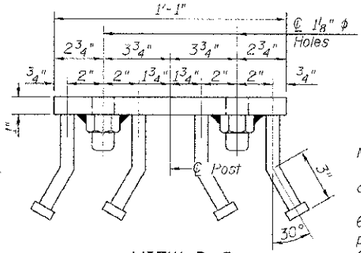
PLAN-BOTT. SPLICE PL TYPICAL

1 1/8" ϕ Holes for 1" ϕ x 4" Round head bolts. Provide 2 flat washers & locknuts for guard rail connection shown on Hwy Std. 631026 or BLR 27.





END OF RAIL DETAILS



VIEW D-D

Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.

All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

*** 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.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	112

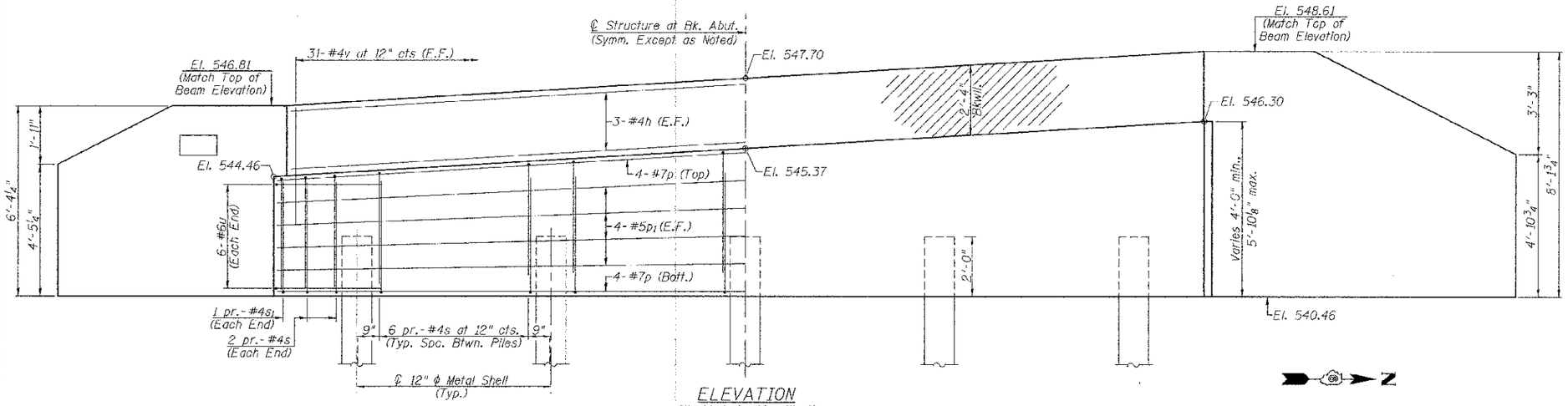
R-23A 7-1-10 (10'-9" Maximum Post Spacing)

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

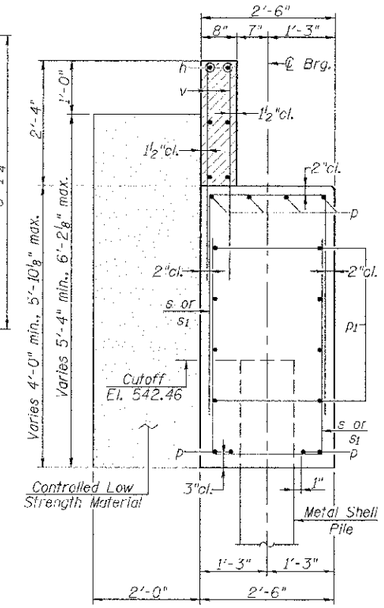
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907

STEEL RAILING, TYPE S1
STRUCTURE NO. 065-3128
SHEET NO. 4 OF 7 SHEETS

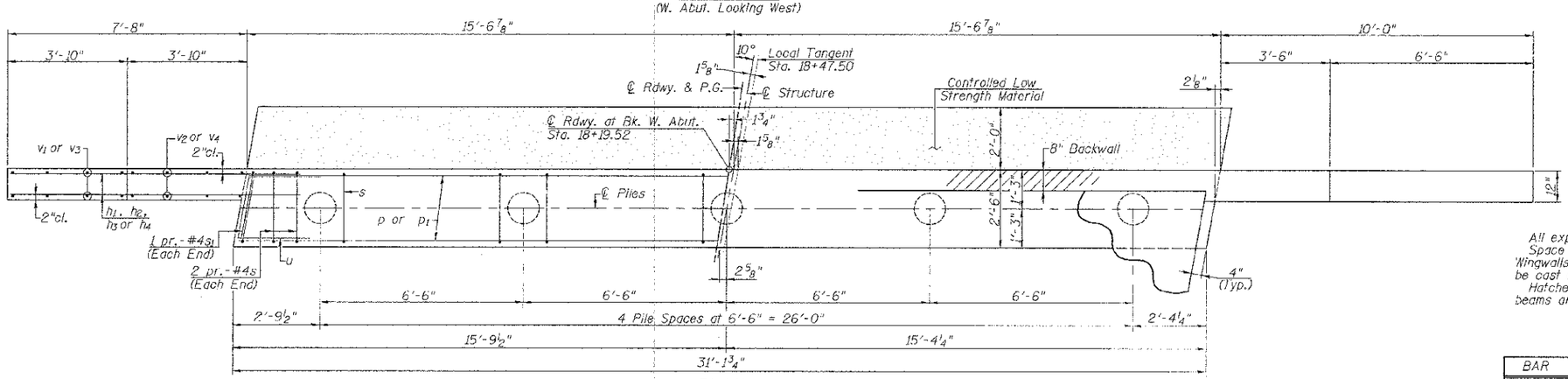
C.H. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	8
		CONTRACT NO. 93586		
		ILLINOIS FED. AID PROJECT		



ELEVATION
(W. Abut. Looking West)



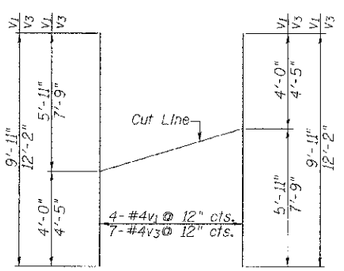
SECTION THRU ABUTMENT



PLAN

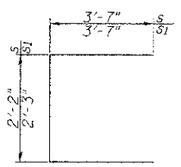
PILE DATA

	W. Abut.
Pile Type & Size:	Metal Shell Piles 12"ϕ x 0.25" walls
Nominal Required Bearing:	284 Kips
Factored Resistance Available:	156 Kips
Estimated Pile Length:	64'
Number of Production:	4
Number of Test Piles:	1

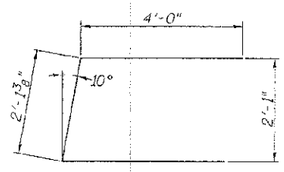


v1 & v3 - BAR CUT DIAGRAM

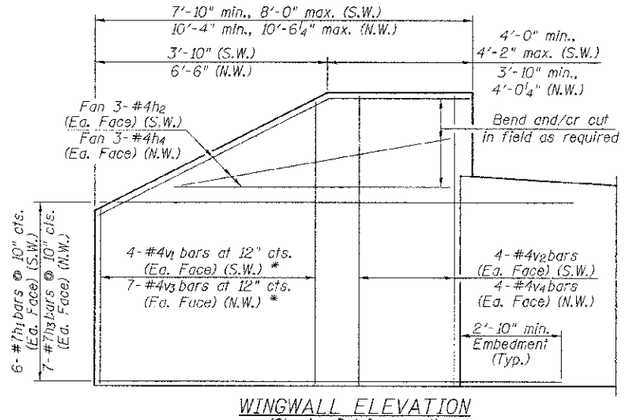
Order v1 & v3 bars full length: Layout in field according to diagram. Cut v1 & v3 bars along cut line. Use remainder of each bar in opposite face.



BARS s & s1



BAR u



WINGWALL ELEVATION
(Showing Reinforcement)
* See v1 & v3 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.

BILL OF MATERIAL
WEST ABUTMENT

BAR	NO.	SIZE	LENGTH	SHAPE
h	6	#4	34'-0"	——
h1	12	#7	10'-11"	——
h2	6	#4	8'-3"	——
h3	14	#7	13'-1"	——
h4	6	#4	10'-9"	——
p	8	#7	30'-9"	——
p1	8	#5	30'-9"	——
s	56	#4	9'-4"	⊏
s1	4	#4	9'-5"	⊏
u	12	#6	10'-2"	⊏⊐
v	62	#4	3'-9"	——
v1	4	#4	9'-11"	——
v2	8	#4	5'-11"	——
v3	7	#4	12'-2"	——
v4	8	#4	7'-9"	——

Structure Excavation	Cu. Yd.	78
Concrete Structures	Cu. Yd.	20.3
Reinforcement Bars	Pound	2485
Furnishing Metal Shell Piles 12"x0.250"	Foot	256
Driving Piles	Foot	256
Test Pile Metal Shells	Each	1
Controlled Low Strength Material	Cu. Yd.	14.4

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

Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
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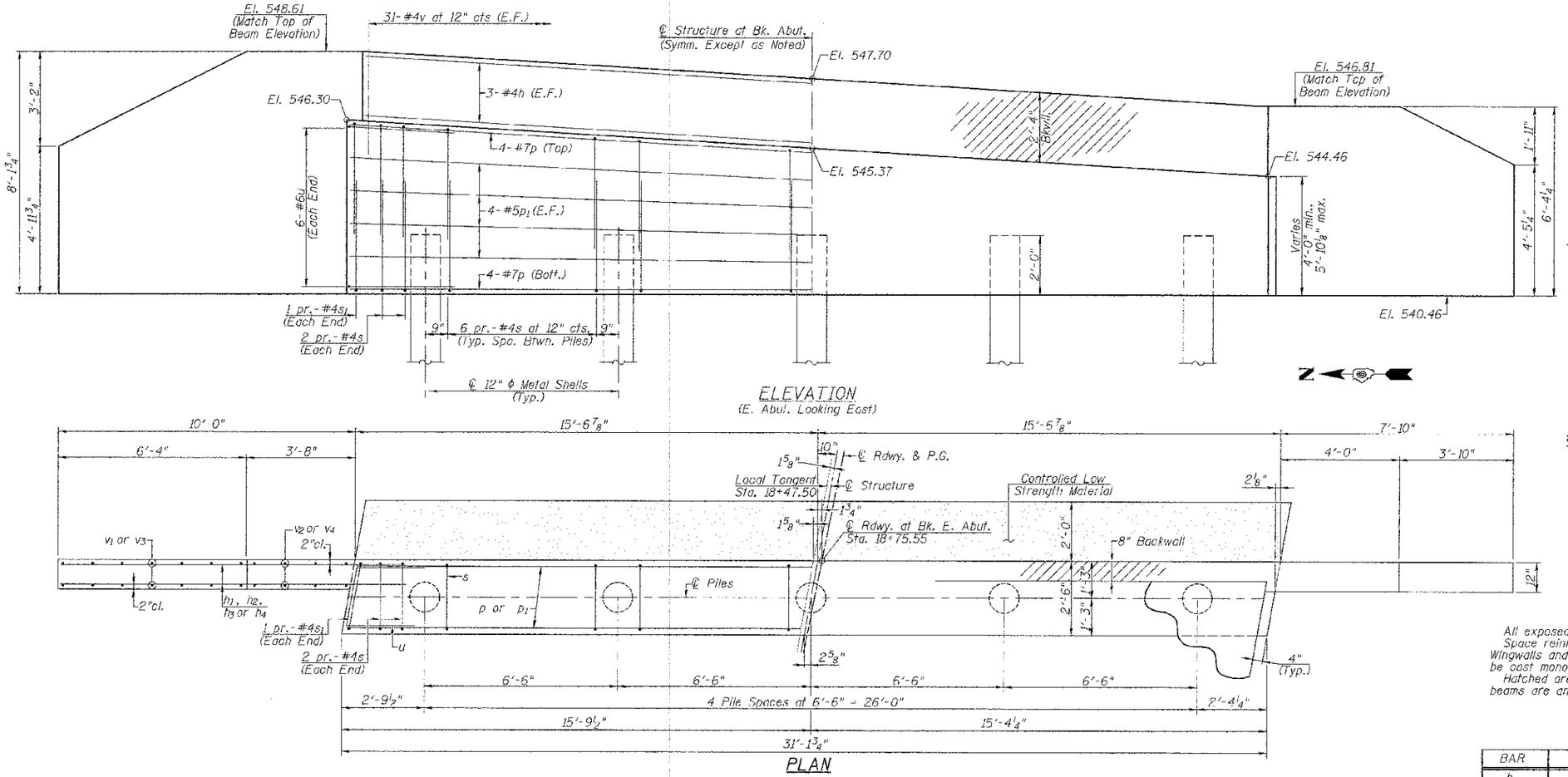
No. 184-001907

WEST ABUTMENT
STRUCTURE NO. 065-3128
SHEET NO. 5 OF 7 SHEETS

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	9

CONTRACT NO. 93586
ILLINOIS FED. AID PROJECT



PILE DATA

	E. Abut.
Pile Type & Size:	Metal Shell Piles 12"ϕ x 0.25" walls
Nominal Required Bearing:	348 Kips
Factored Resistance Available:	192 Kips
Estimated Pile Length:	67'
Number of Production:	4
Number of Test Piles:	1

Order v_1 & v_3 bars full length: Layout in field according to diagram. Cut v_1 & v_3 bars along cut line. Use remainder of each bar in opposite face.

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.

BILL OF MATERIAL
EAST ABUTMENT

BAR	NO.	SIZE	LENGTH	SHAPE
h	6	#4	34'-0"	——
h1	12	#7	10'-11"	——
h2	6	#4	8'-3"	——
h3	14	#7	13'-1"	——
h4	6	#4	10'-9"	——
p	8	#7	30'-9"	——
p1	8	#5	30'-9"	——
s	55	#4	9'-4"	⊏
s1	4	#4	9'-5"	⊏
u	12	#6	10'-2"	⊏
v	62	#2	3'-9"	——
v1	4	#4	9'-11"	——
v2	8	#4	5'-11"	——
v3	7	#4	12'-2"	——
v4	8	#4	7'-9"	——

Structure Excavation	Cu. Yd.	78
Concrete Structures	Cu. Yd.	20.4
Reinforcement Bars	Pound	2485
Furnishing Metal Shell Piles 12"x0.250"	Foot	268
Driving Piles	Foot	268
Test Pile Metal Shells	Each	1
Controlled Low Strength Material	Cu. Yd.	14.4

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Civil and Structural Engineers Springfield, IL.
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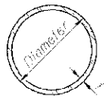
EAST ABUTMENT
STRUCTURE NO. 065-3128
SHEET NO. 6 OF 7 SHEETS

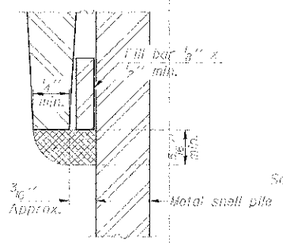
C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1	11-00064-00-BR	MENARD	18	10

CONTRACT NO. 93586
ILLINOIS FED. AID PROJECT

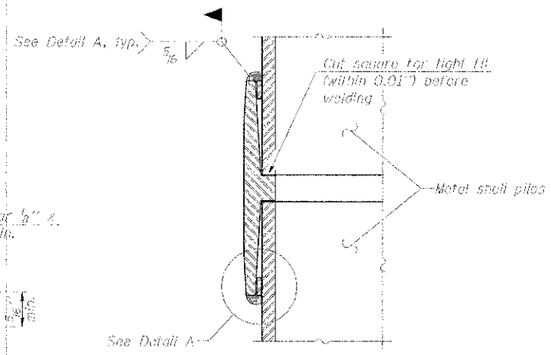


METAL SHELL PILE TABLE

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	0.0358
PP14	0.312"	45.61	0.0361

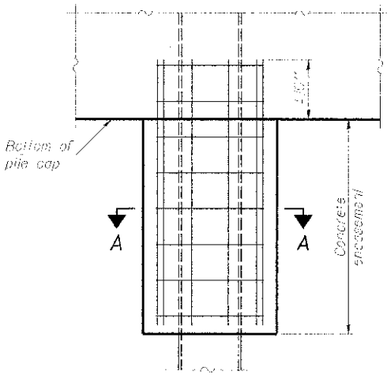


DETAIL A

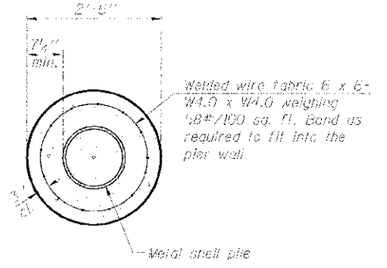


Notes:
The ¼" x ½" min. fill bar may be constructed of 2 bars with a ⅛" max. gap between them.
Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE



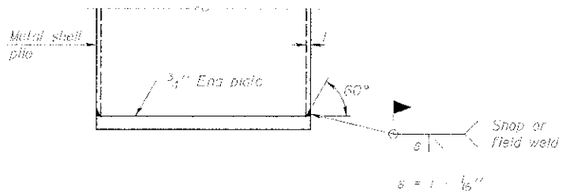
ELEVATION



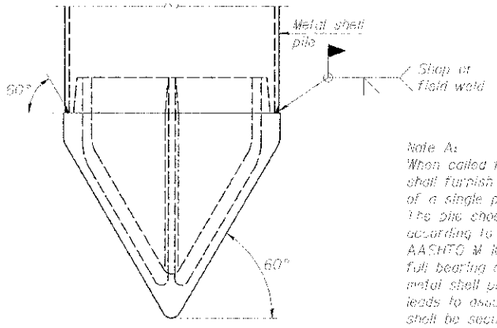
SECTION A-A

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

CONCRETE ENCASEMENT AT PIERS

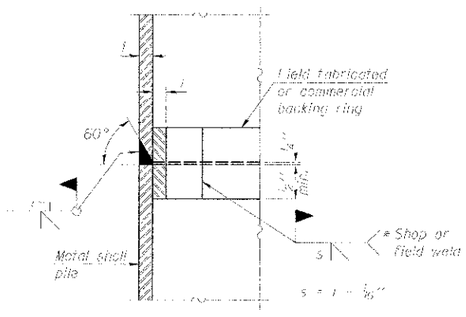


END PLATE ATTACHMENT

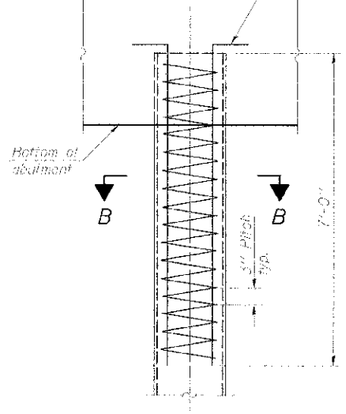


Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90 60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over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



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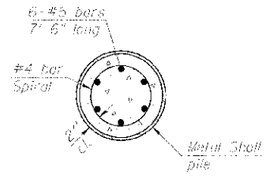

SECTION B-B

METAL SHELL REINFORCEMENT AT ABUTMENTS
(Included in cost of metal shell piles.)

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

F-MS

1-27-12

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		CHECKED	REVISED
	PLOT SCALE	DRAWN	REVISED
	PLOT DATE	CHECKED	REVISED

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METAL SHELL PILE DETAILS
STRUCTURE NO. 065-3128
SHEET NO. 7 OF 7 SHEETS

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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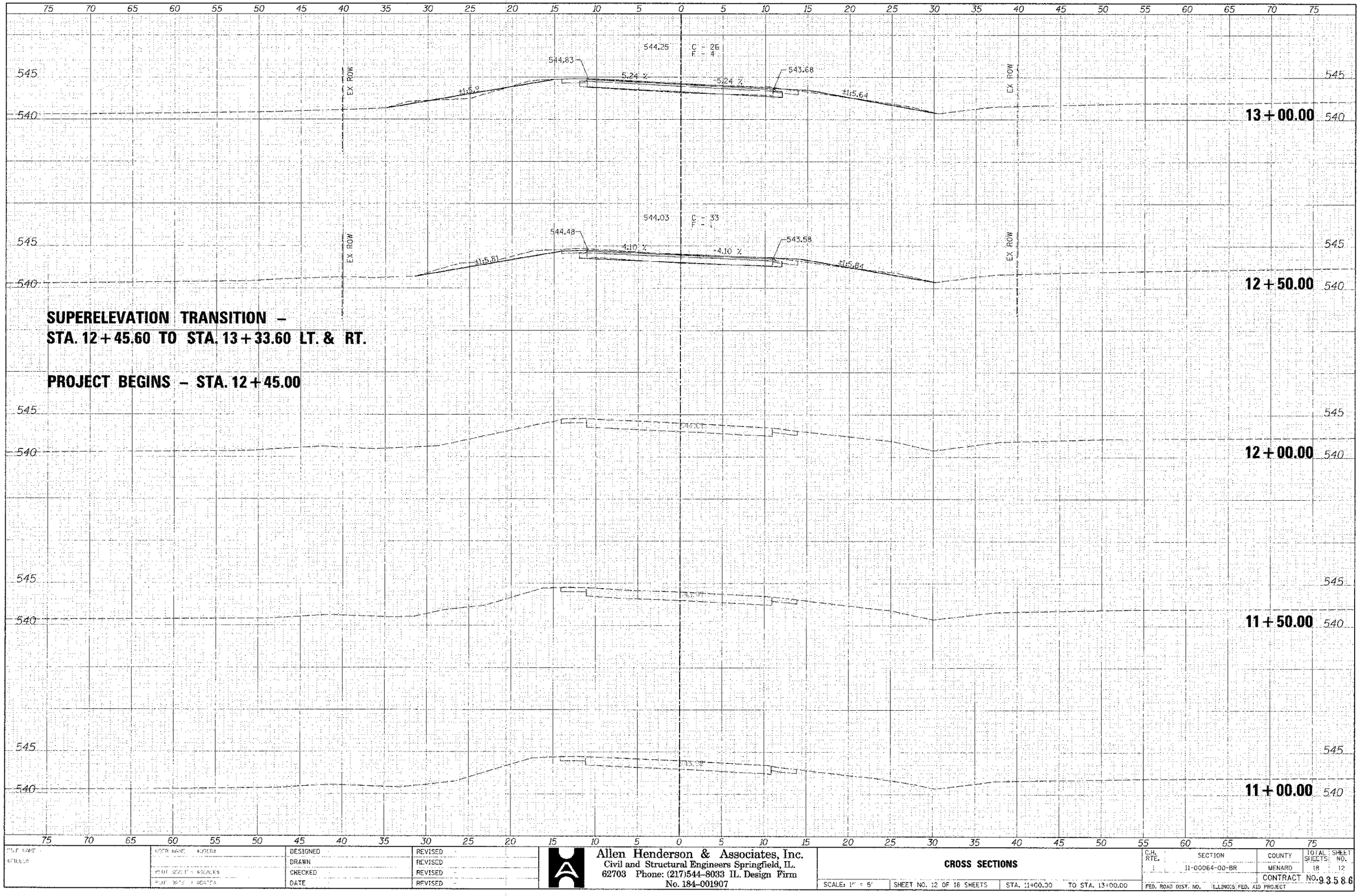
		CONTRACT NO. 93586		
		ILLINOIS FED. AID PROJECT		



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		CHECKED	REVISED
		DATE	REVISED

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CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 12 OF 18 SHEETS | STA. 11+00.00 | TO STA. 13+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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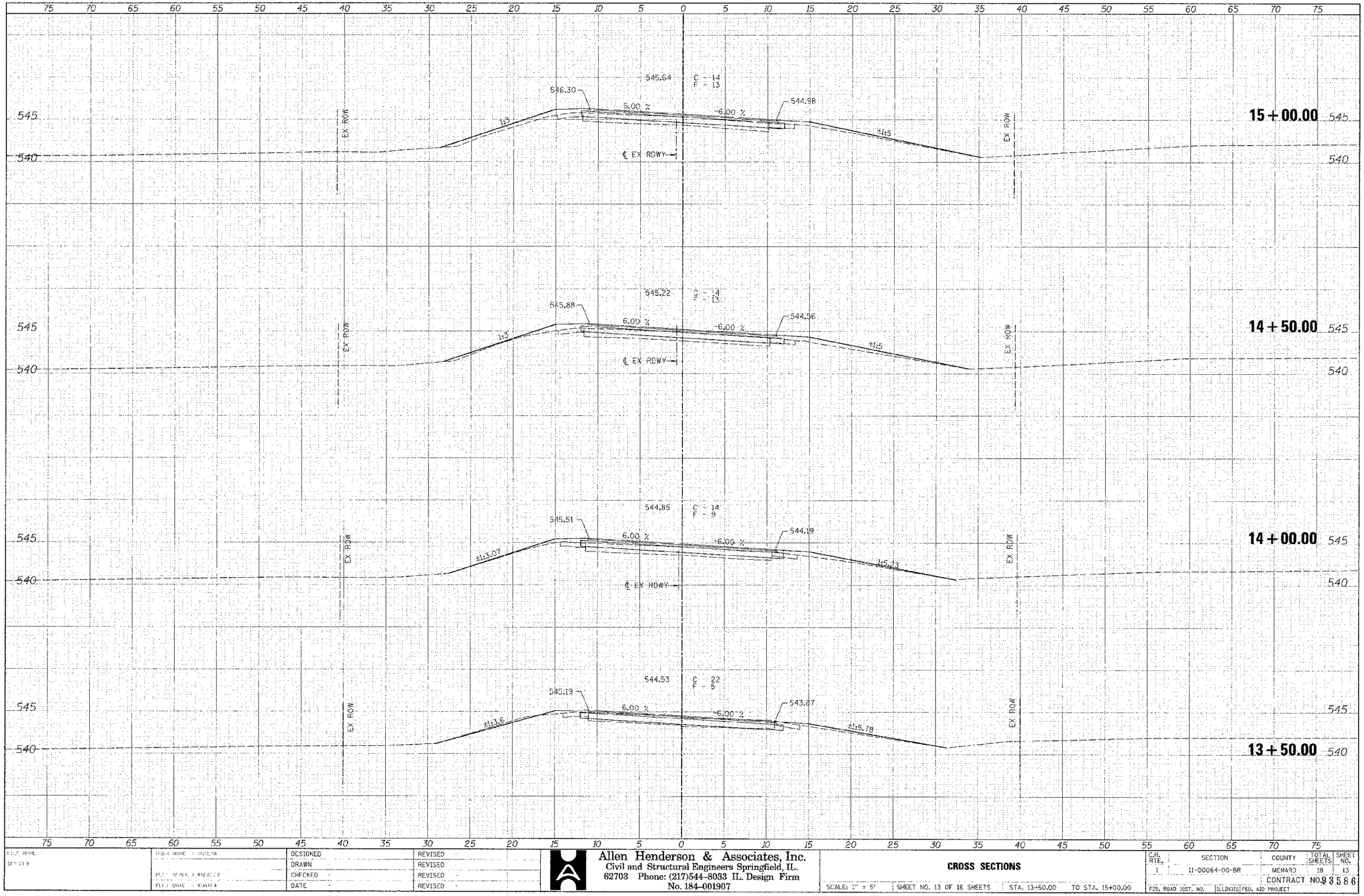
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	CONTRACT NO. 93586		



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

CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 13 OF 18 SHEETS | STA. 13+50.00 | TO STA. 15+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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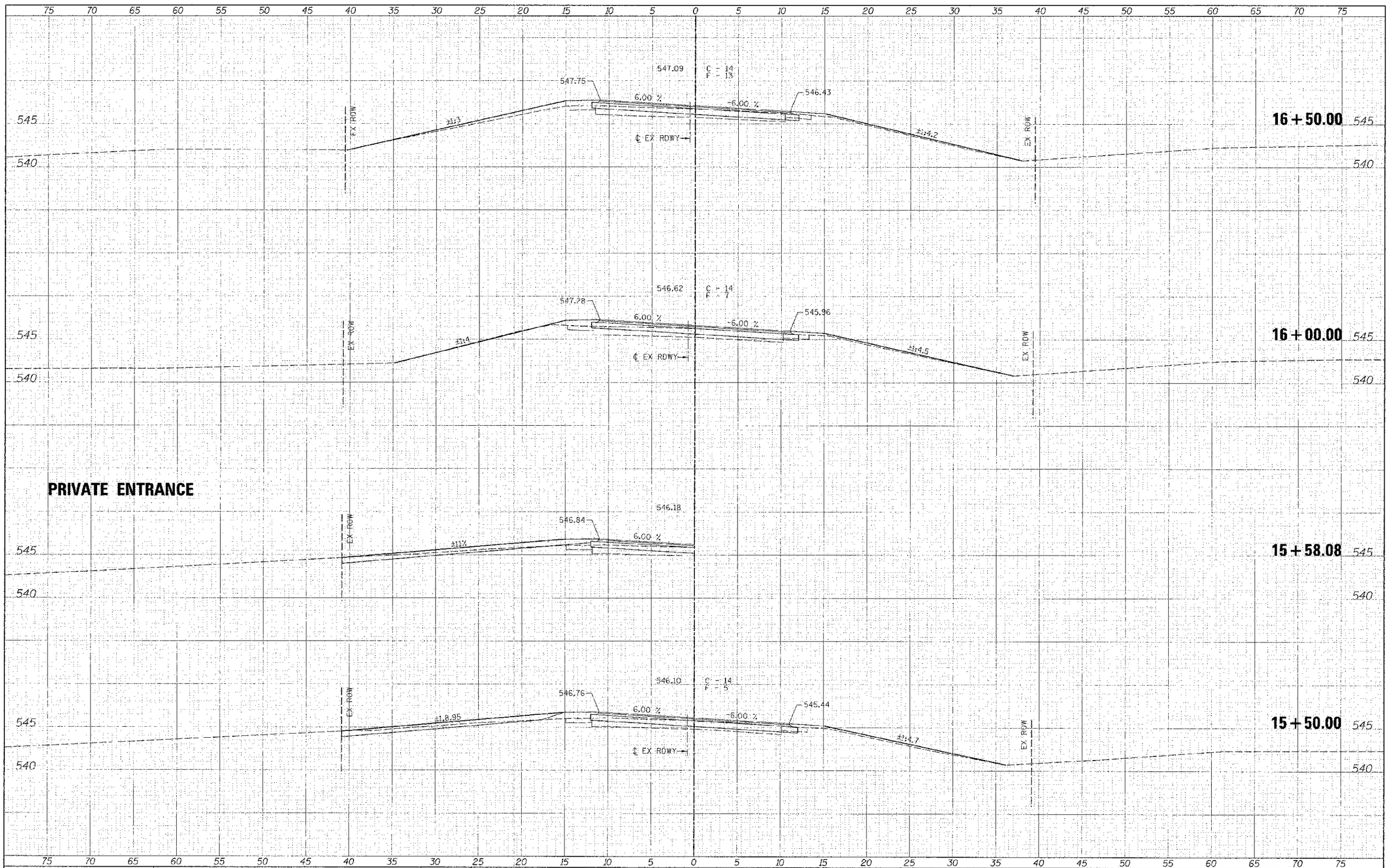
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL.
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No. 184-001907

CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 14 OF 18 SHEETS | STA. 15+50.00 | TO STA. 16+50.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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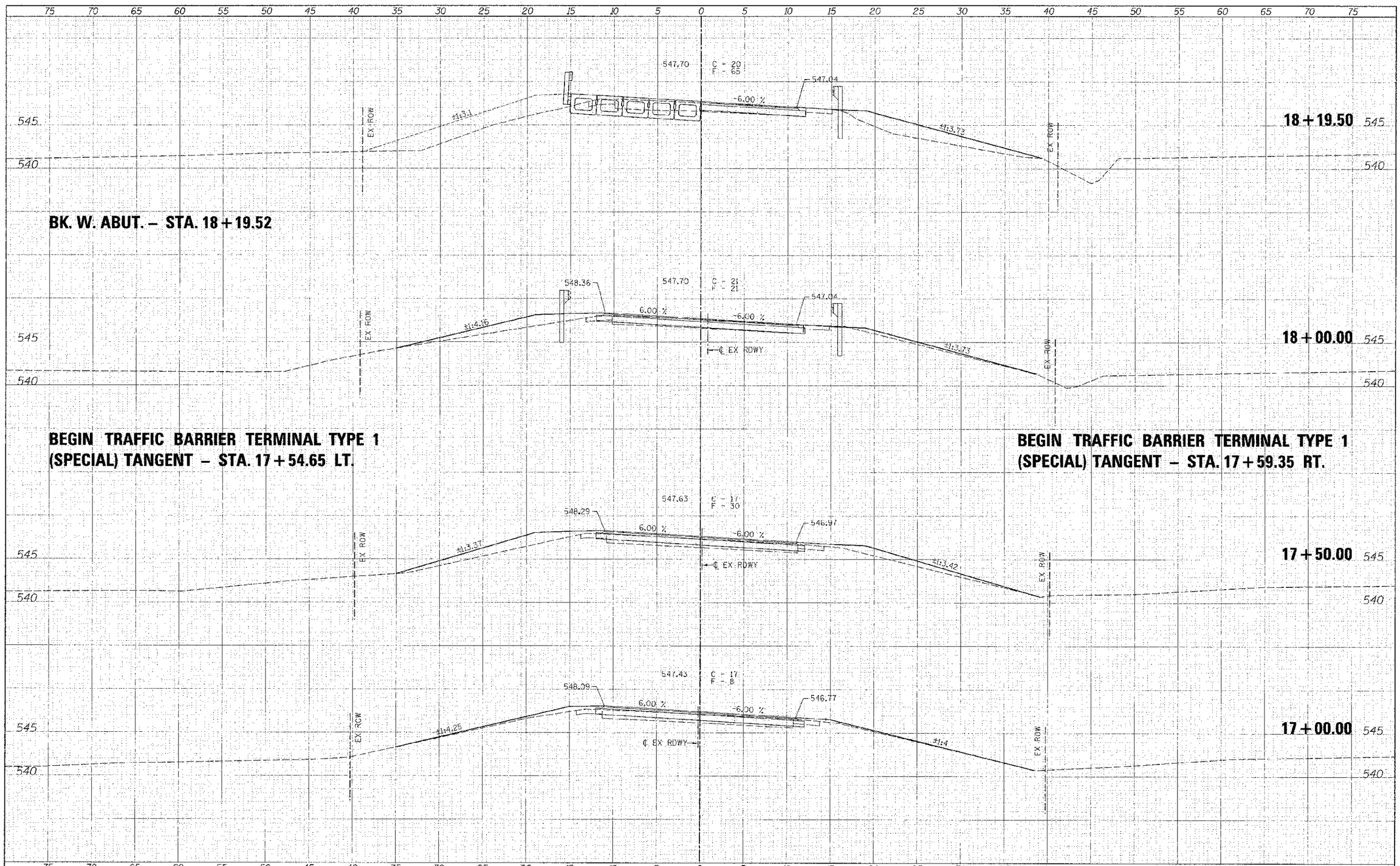
		CONTRACT NO. 93586		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



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C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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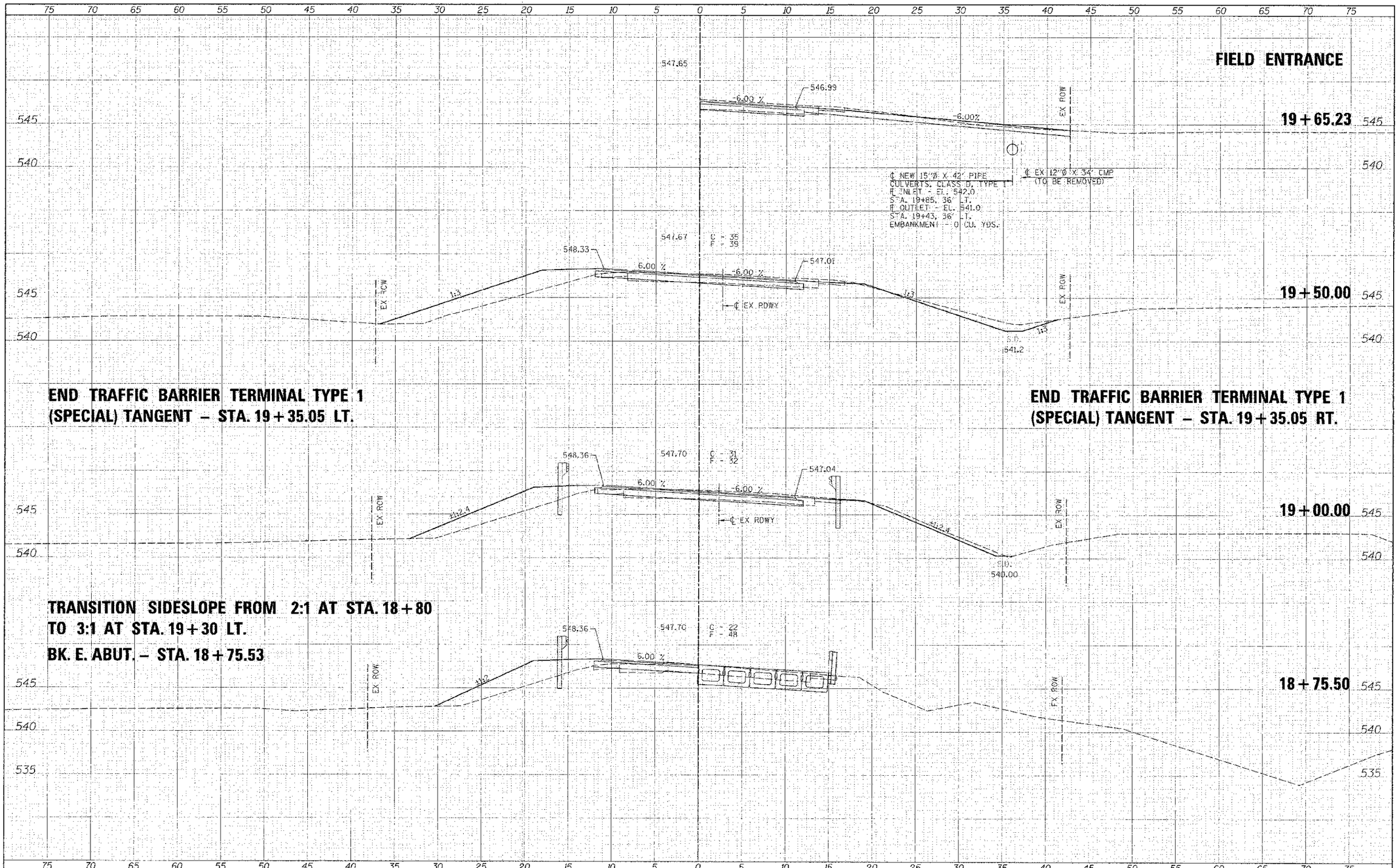

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	PLOT DATE =	DATE -	REVISED

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

CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 16 OF 18 SHEETS | STA. 18+75.50 | TO STA. 19+65.23

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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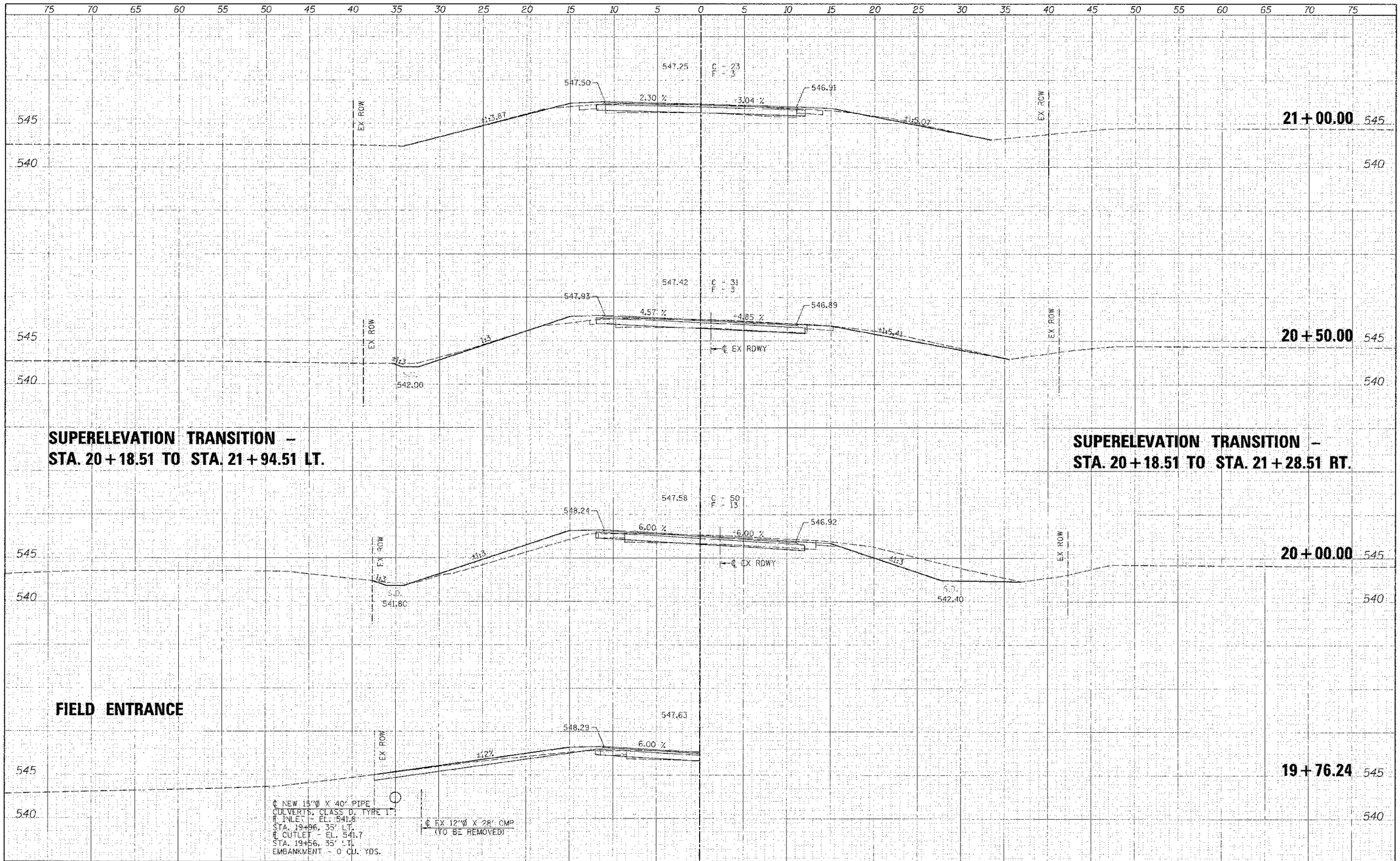
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	CONTRACT NO. 93586	



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No. 184-001907

CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 17 OF 18 SHEETS | STA. 19+76.24 | TO STA. 21+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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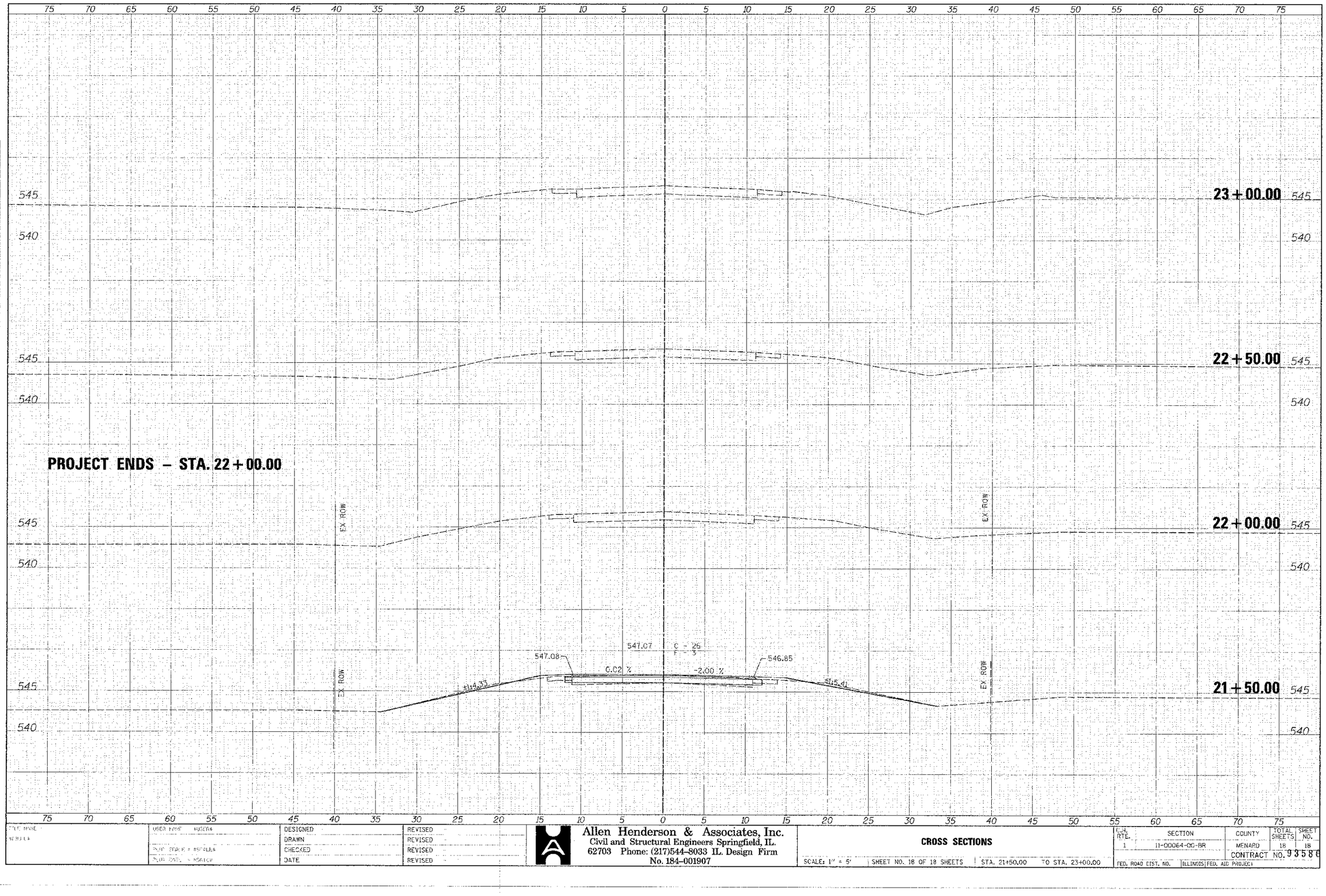
FED. ROAD DIST. NO. | ILLINOIS FED. AID PROJECT

CONTRACT NO. 93586



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Civil and Structural Engineers Springfield, IL.
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CROSS SECTIONS

SCALE: 1" = 5' | SHEET NO. 18 OF 18 SHEETS | STA. 21+50.00 | TO STA. 23+00.00

C.H. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	CONTRACT NO. 93586	