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- 11 & 12 - ABUTMENTS
- 13 & 14 - PIERS
- 15 - STEEL H PILE DETAILS
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STANDARDS

- STANDARD 000001-05
- STANDARD 280001-05
- STANDARD 515001-03
- STANDARD 635006-03
- STANDARD 701901-01
- STANDARD BLR 21-8

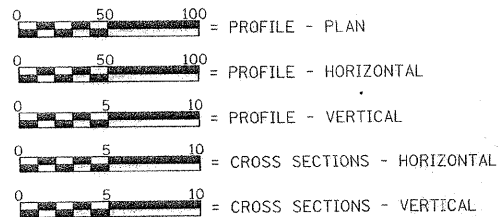
UTILITIES

SHELBY ELECTRIC COOPERATIVE
NORTH ROUTE 128
SHELBYVILLE, ILLINOIS 62562

CONSOLIDATED COMMUNICATIONS INC.
121 SOUTH 17TH STREET
MATTOON, ILLINOIS 61938-3915
217-234-9971

EJ WATER CORPORATION
108 N. MAIN ST.
DIETERICH, IL. 62424
217-774-3986

SCALE IN FEET



LAND SECTION - 3 & 10
 LAND QUARTER SECTION - S.W. & N.W.
 FUNCTIONAL CLASSIFICATION: LOCAL ROAD (NON-URBAN)
 A.D.T. - 75 (2007)
 A.D.T. - 100 (2027)
 30 M.P.H. DESIGN SPEED

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**PLANS FOR PROPOSED
 HIGHWAY BRIDGE PROGRAM**

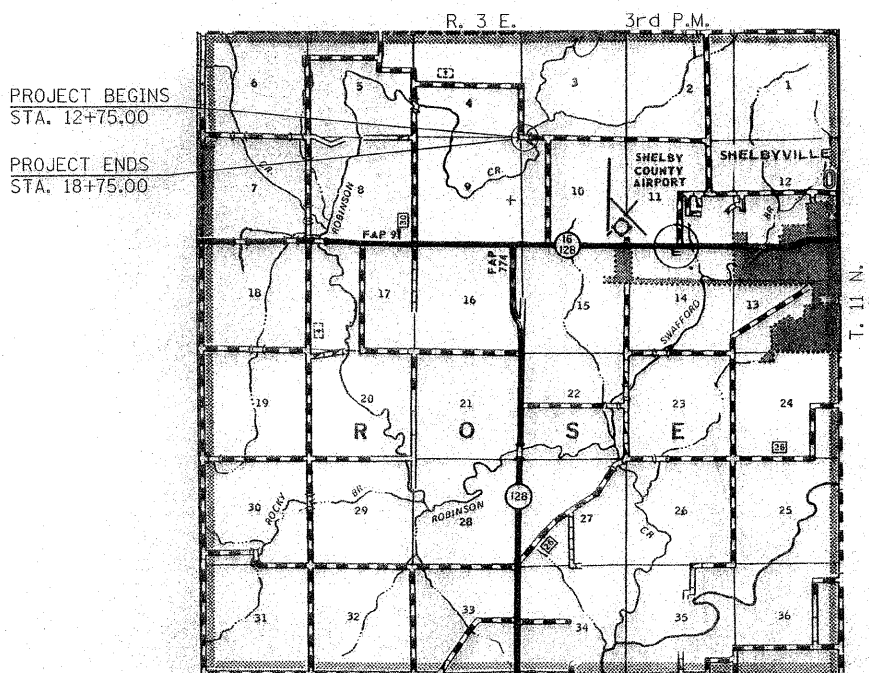
T.R. 159 OVER ROBINSON CREEK

SECTION 07-18118-00-BR

PROJECT BROS - 173(168)

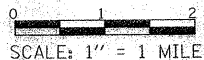
SHELBY COUNTY

C-97-121-10



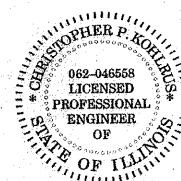
LOCATION PLAN

LENGTH OF SECTION - 600.00 FEET = 0.114 MILES



EXISTING STRUCTURE: TWO SPAN CONCRETE DECK BRIDGE ON STEEL STRINGERS WITH TIMBER ABUTMENTS, PIERS AND WINGWALLS. ±120'-0" BK.-BK. ABUTMENTS, ±21'-0" OUT-OUT DECK, STEEL CHANNEL RAIL, 0° SKEW.
 EXISTING STRUCTURE NO. 087-3327

PROPOSED STRUCTURE: THREE SPAN PRECAST CONCRETE DECK BEAM (21') BRIDGE ON OPEN CONCRETE ABUTMENTS AND SOLID CONCRETE PIERS. 24'-0" OUT. TO OUT. DECK, 135'-0" BK. TO BK. ABUTMENTS. STEEL RAILING TYPE S1. 0° SKEW.
 PROPOSED STRUCTURE NO. 087-3567.



Christopher P. Kollus 4-05-10
 EXPIRATION: 11/30/2011

APPROVED April 5, 2010
Jim Atteberry
 TOWNSHIP HIGHWAY COMMISSIONER

APPROVED April 5, 2010
S. A. Jones
 COUNTY ENGINEER

PASSED 4/13, 2010
Maureen J. Castel
 DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bld Based on Limited Review
4/13, 2010
Roger L. Doshell
 DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

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

CONTRACT NO. 95626

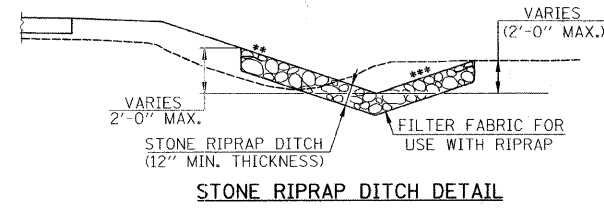
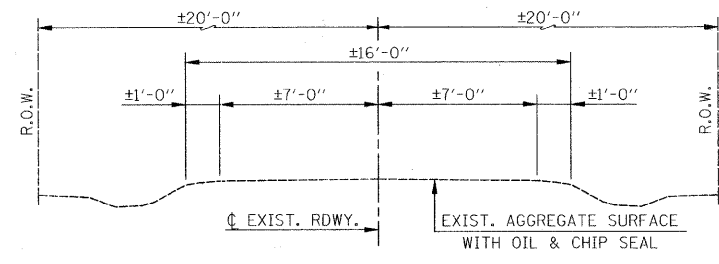
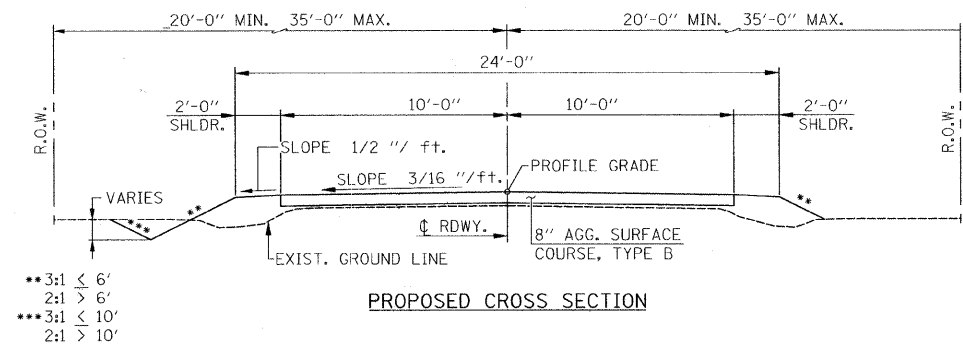
Allen Henderson & Associates, Inc.
 Civil and Structural Engineers Springfield, IL.
 62703 Phone: (217)544-8033 IL Design Firm
 No. 184-001907

TITLE SHEET

SCALE: 1" = 1 MILE SHEET NO. 1 OF 19 SHEETS STA. 12+75.00 TO STA. 18+75.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	1
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT			CONTRACT NO. 95626	

DESIGNED	REVISOR
DRAWN	REVISED
CHECKED	REVISED
DATE	REVISED



**SCHEDULE
STONE RIPRAP DITCH & FILTER FABRIC**

LOCATION	STONE RIPRAP DITCH QUANTITY		FILTER FABRIC QUANTITY	
	LT. (TON)	RT. (TON)	LT. (SQ. YD.)	RT. (SQ. YD.)
STA. 12+90 TO STA. 13+00	5	2	10	5
STA. 13+00 TO STA. 13+50	17	13	33	25
STA. 13+50 TO STA. 14+00	12	17	23	33
STA. 14+00 TO STA. 14+25	7	10	14	20
STA. 14+25 TO STA. 14+50	0	12	0	23
STA. 14+50 TO STA. 14+75	0	13	0	26
SUB-TOTAL	41	67	80	132
TOTAL	108		212	

GENERAL NOTES

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

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

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

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

SUMMARY OF QUANTITIES

ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	0.70
20200100	EARTH EXCAVATION	CU. YD. 184
20300100	CHANNEL EXCAVATION	CU. YD. 830
25000200	SEEDING CLASS 2	ACRE 0.5
25000400	NITROGEN FERTILIZER NUTRIENT	POUND 45
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND 45
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND 45
25100115	MULCH, METHOD 2	ACRE 0.5
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND 100
28000305	TEMPORARY DITCH CHECKS	FOOT 24
28100207	STONE RIPRAP, CLASS A4	TON 578
28102600	STONE RIPRAP DITCH	TON 108
28200200	FILTER FABRIC	SQ. YD. 1083
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON 472
50100100	REMOVAL OF EXISTING STRUCTURES	EACH 1
50200100	STRUCTURE EXCAVATION	CU. YD. 137
50300225	CONCRETE STRUCTURES	CU. YD. 111.9
50300280	CONCRETE ENCASEMENT	CU. YD. 16.9
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ. FT. 3204
50800105	REINFORCEMENT BARS	POUND 12060
50900205	STEEL RAILING, TYPE S1	FOOT 270
51201400	FURNISHING STEEL PILES HP 10X42	FOOT 224
51201600	FURNISHING STEEL PILES HP 12X53	FOOT 315
51500100	NAME PLATES	EACH 1
67100100	MOBILIZATION	L. SUM 1
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH 4
X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	EACH 1
X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	EACH 1
Z0065000	SETTING PILES IN ROCK	EACH 18

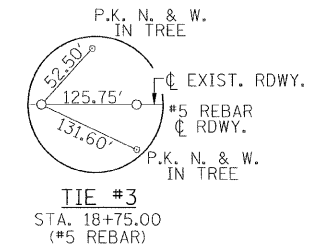
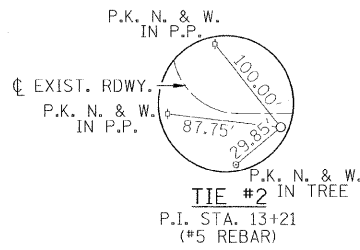
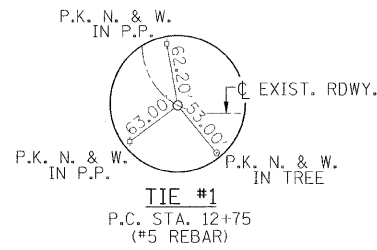
* SEE SPECIAL PROVISIONS
Δ SPECIALTY ITEMS

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+75 TO STA. 13+00	8	6	1	5
STA. 13+00 TO STA. 13+50	42	31	7	24
STA. 13+50 TO STA. 14+00	42	31	49	-18
STA. 14+00 TO STA. 14+50	20	15	190	-175
STA. 14+50 TO STA. 14+75	4	3	145	-142
BRIDGE OMISSION - STA. 14+75 TO STA. 16+10				
STA. 16+10 TO STA. 16+50	10	8	55	-47
STA. 16+50 TO STA. 17+00	11	8	73	-65
STA. 17+00 TO STA. 17+50	8	6	53	-47
STA. 17+50 TO STA. 18+00	13	10	20	-10
STA. 18+00 TO STA. 18+50	20	15	10	5
STA. 18+50 TO STA. 18+75	6	5	2	3
TOTAL	184	138	605	****0

**** QUANTITY HAS BEEN REDUCED BY 467 CU. YDS. OF SUITABLE CHANNEL AND STRUCTURE EXCAVATION WHICH HAS BEEN ESTIMATED AS APPROXIMATELY 50% OF THOSE TOTAL QUANTITIES.

SECTION 3 T. 11 N., R. 3 E., 3rd P.M.



PROPOSED CURVE DATA
 PI STA. = 13+21.00
 Δ = 34° 11' 14" (LT)
 D = 38° 18' 18"
 R = 149.58'
 T = 46.00'
 L = 89.25'
 E = 6.91'
 P.C. STA. = 12+75.00
 P.T. STA. = 13+64.25

STA. 15+42.50 - ϕ RDWY. AT ϕ STRUCTURE
 PROPOSED STRUCTURE: THREE SPAN PRECAST
 PRESTRESSED CONCRETE DECK BEAMS (21") ON
 OPEN CONCRETE ABUTMENTS AND SOLID CONCRETE
 PIERS. 24'-0" OUT.-OUT. DECK, 135'-0" BK.-BK.
 ABUTMENTS, 37'-9" (SPANS 1 & 3), 57'-0" (SPAN 2).
 STEEL RAILING TYPE S-1. 0° SKEW.

SCHEDULE TREE REMOVAL, ACRES

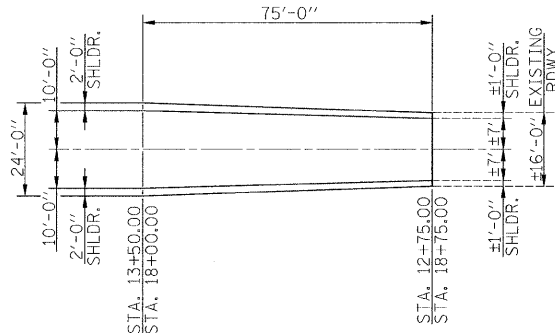
LOCATION	QUANTITY (ACRE)
STA. 12+95 TO STA. 17+00 LT.	0.3
STA. 12+95 TO STA. 16+32 RT.	0.3
STA. 17+00 TO STA. 18+75 LT.	0.1
TOTAL	0.7

SAY 0.7 ACRE

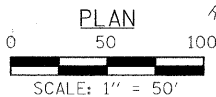
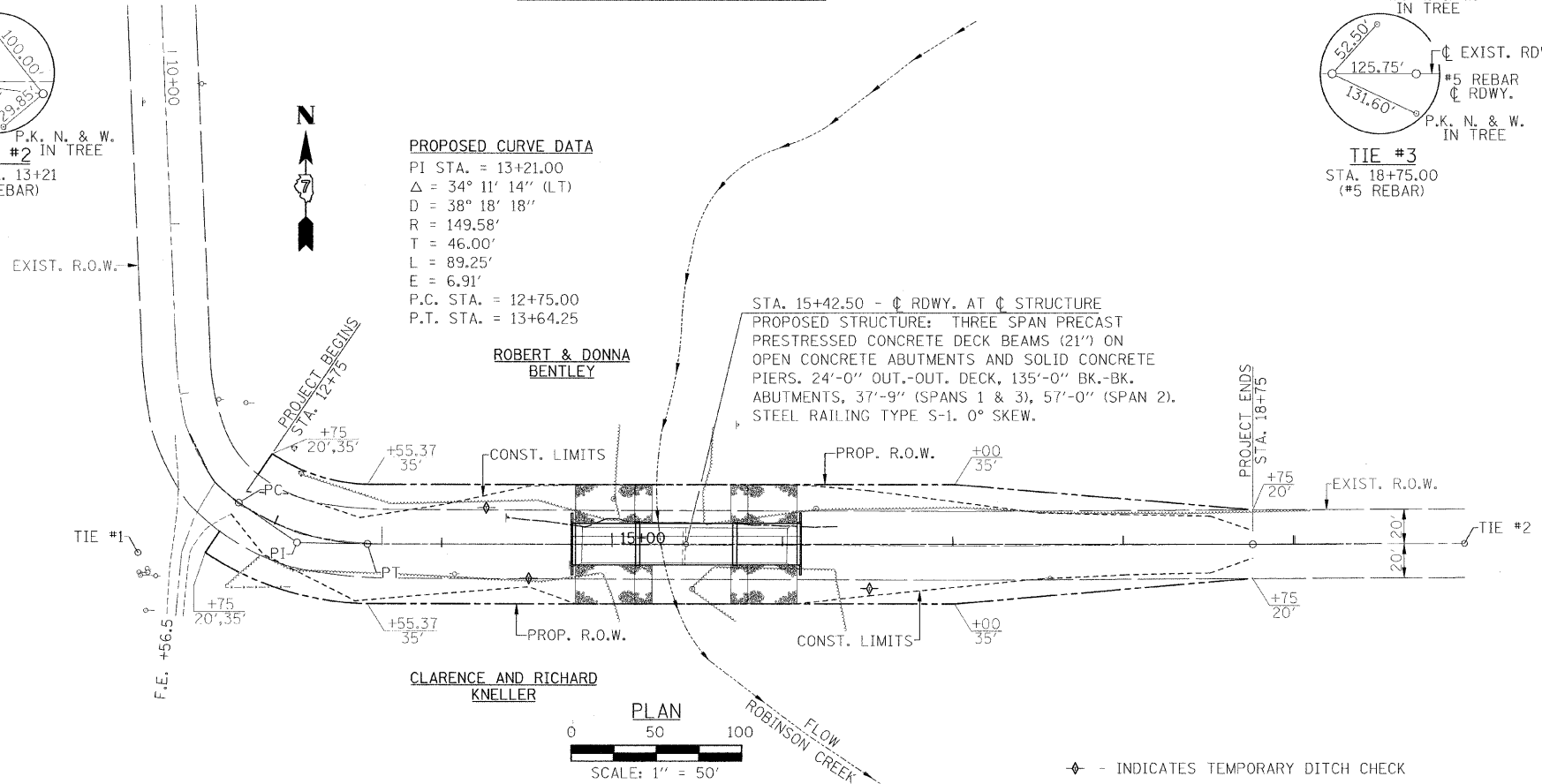
SCHEDULE TEMPORARY DITCH CHECKS

LOCATION	QUANTITY (FOOT)
STA. 14+25 21' LT.	8
STA. 14+50 20' RT.	8
STA. 16+50 26' RT.	8
TOTAL	24

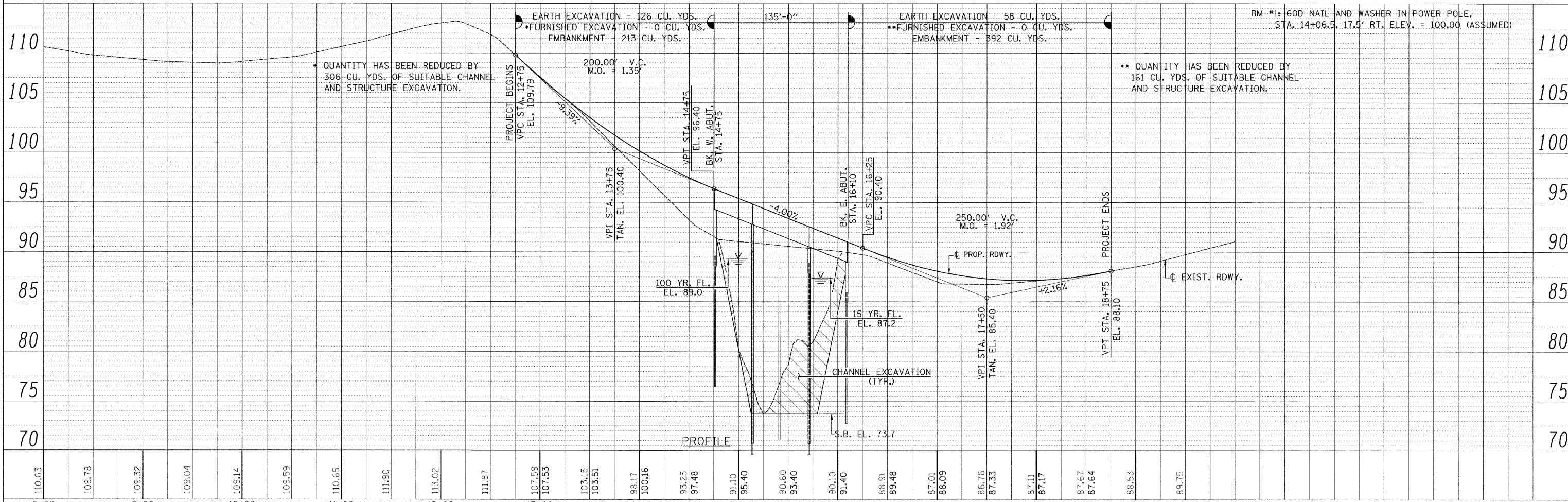
PLAN	SURVEYED	DATE
	PLOTTED	
	NOTED	
	BY	
	NO.	



ROADWAY TRANSITION DETAIL



SECTION 10 T. 11 N., R. 3 E., 3rd P.M.



PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS OK'D	
	NO.	

110 105 100 95 90 85 80 75 70

8+00	9+00	10+00	11+00	12+00	13+00	14+00	15+00	16+00	17+00	18+00
110.63	109.78	109.32	109.04	109.14	109.59	110.65	111.90	113.02	111.87	107.59
					107.53	103.15	103.51	98.17	100.16	93.25
					97.48	91.10	95.40	90.60	93.40	90.10
					91.40	88.91	89.48	87.01	88.09	86.76
					87.33	87.11	87.47	87.67	87.64	88.53
					89.75					

110 105 100 95 90 85 80 75 70

8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00

USER NAME = *USER*	DESIGNED -	REVISED -
PLOT SCALE = *SCALE*	CHECKED -	REVISED -
PLOT DATE = *DATE*	DRAWN -	REVISED -
	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. 3 OF 19 SHEETS STA. 12+75.00 TO STA. 18+75.00

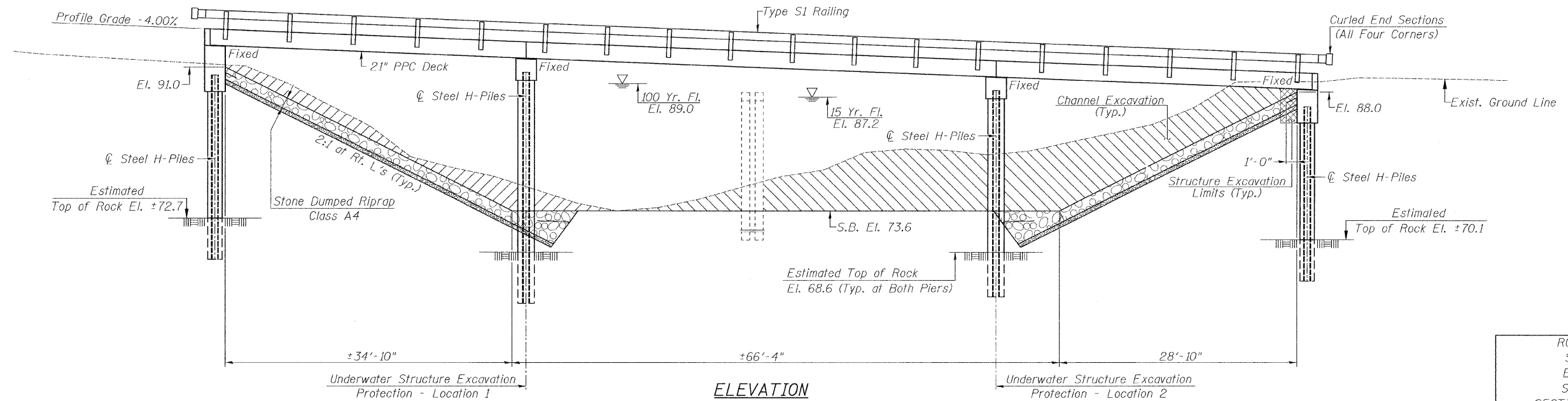
T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	3
CONTRACT NO. 95626				

ATTACHMENT 6A

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

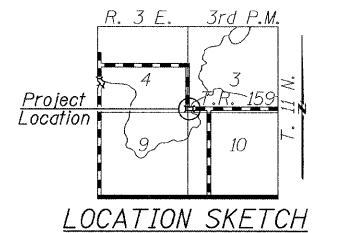
Existing Structure: Two Span Concrete Deck on Steel I-Beams with Timber Abutments and Timber Piers. ±120'-0" Bk.-Bk. Abutments, ±21'-0" Out.-Out. Deck, ±0° Skew. Existing Structure No.: 087-3327

Benchmark: 60d Nail & Washer in P.P. S.W. of Bridge Sta. 14+6.50, 17.5' Rl., El. 100.00 (Assumed)

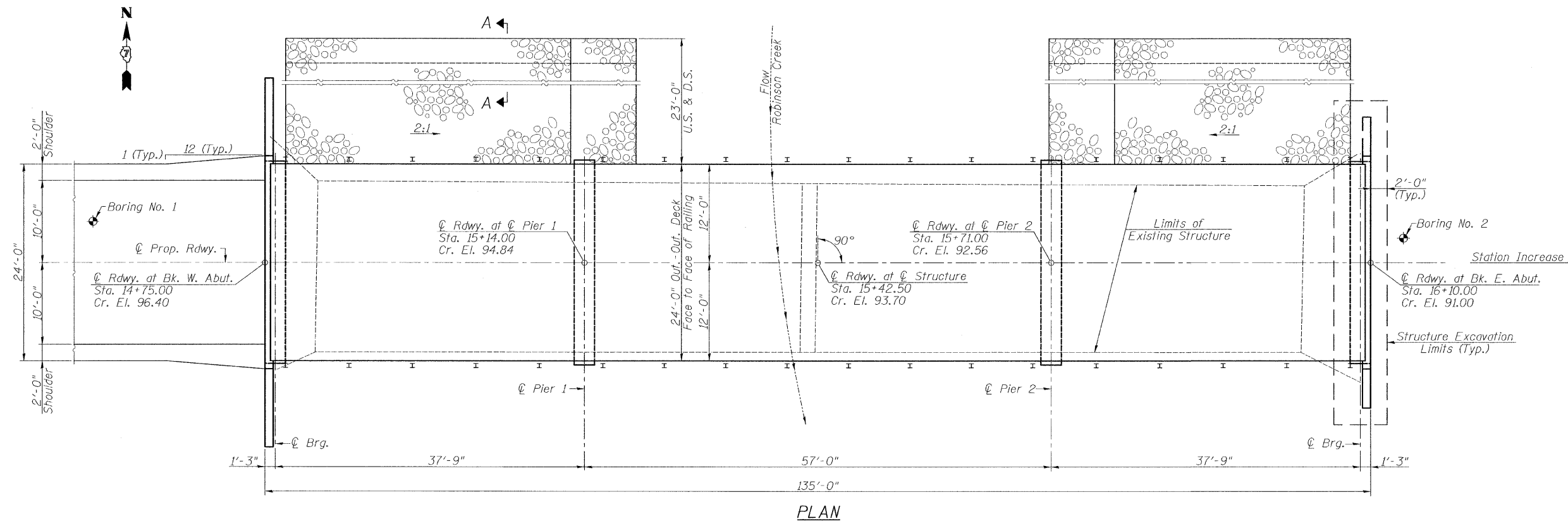


ELEVATION

ROBINSON CREEK
STA. 15+42.50
BUILT 20 BY
SHELBY COUNTY
SECTION 07-18118-00-BR
STR. NO. 087-3567 LOADING HL-93
NAME PLATE
(Standard 515001)



LOCATION SKETCH



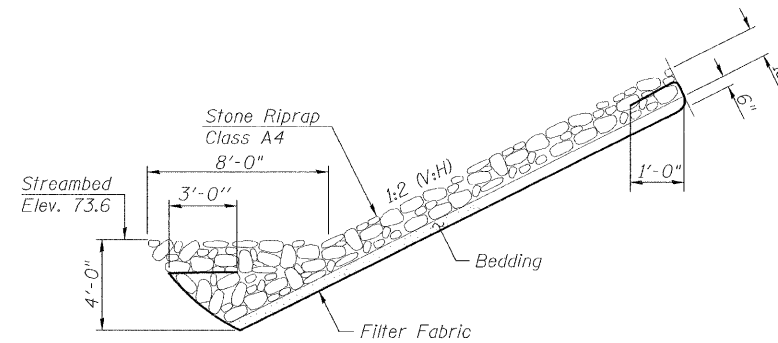
PLAN

FILE NAME =	USER NAME = #USER#	DESIGNED -	REVISED -	<p>Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907</p>	GENERAL PLAN & ELEVATION		T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	PLOT SCALE = #SCALE#	DRAWN -	REVISED -		SCALE: _____	SHEET NO. 4 OF 19 SHEETS	STA. 12+75.00 TO STA. 18+75.00	159	07-18118-00-BR	SHELBY	19	4
	PLOT DATE = #DATE#	CHECKED -	REVISED -					S.N. 087-3567			CONTRACT NO. 95626	
		DATE -	REVISED -					FED. ROAD DIST. NO. _____ ILLINOIS FED. AID PROJECT				

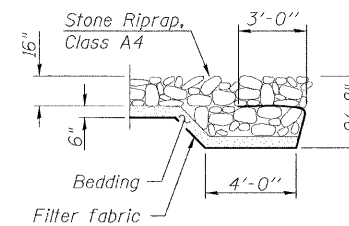
#FILEL#

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.		830	830
Stone Riprap, Class A4	Ton		578	578
Filter Fabric	Sq. Yd.		871	871
Removal of Existing Structures	Each			1
Structure Excavation	Cu. Yd.		137	137
Concrete Structures	Cu. Yd.		111.9	111.9
Concrete Encasement	Cu. Yd.		16.9	16.9
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	3204		3204
Reinforcement Bars	Lb.		12060	12060
Steel Railing, Type S-1	Foot	270		270
Furnishing Steel Pile HP 10x42	Foot		224	224
Furnishing Steel Pile HP 12x53	Foot		315	315
Name Plates	Each	1		1
Underwater Structure Excavation Protection - Location 1	Each		1	1
Underwater Structure Excavation Protection - Location 2	Each		1	1
Setting Piles in Rock	Each		18	18



END SLOPE RIPRAP TREATMENT



SECTION A-A

LOADING HL-93

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

DESIGN SPECIFICATIONS

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

DESIGN STRESSES

FIELD UNITS

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

PRECAST PRESTRESSED UNITS

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

GENERAL NOTES

- See Proposal for Boring Data.
- Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60. See Special Provisions.
- The layout of the riprap slopewall may be varied to suit ground conditions in the field as determined by the Engineer.
- Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.

WATERWAY INFORMATION

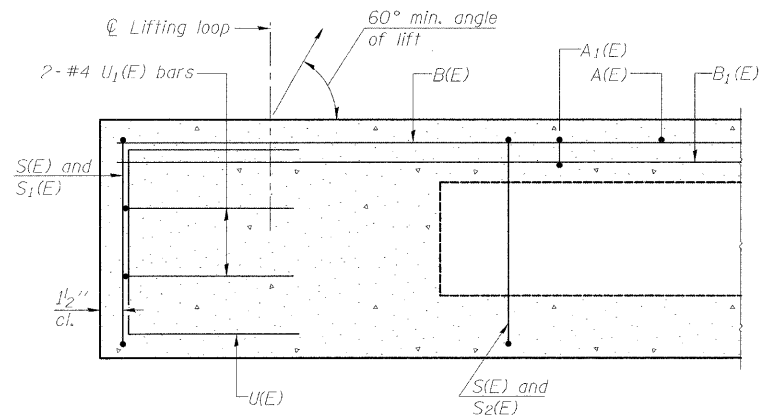
Flood		Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.	Head - ft.		Headwater El.	
				Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	15	4291	818	1272	87.2	0.1	0.1	87.3	87.3	
Base	100	7051	853	1481	89.0	0.3	0.2	89.3	89.2	
Exist. Overtop.	13.8	4200								
Prop. Overtop.	14.8	4275								
Max. Calc.	500	9388	853	1590	90.2	0.2	0.2	90.6	90.4	



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. LRFD Bridge Design Specifications."

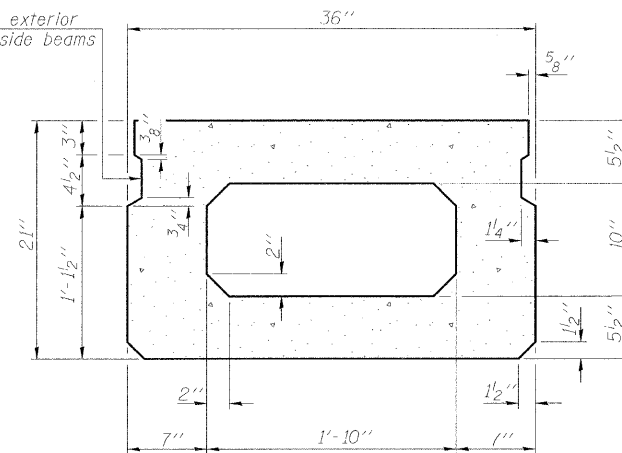
Mark A. Henderson 3/19/10
 Expiration Date 11/30/2010

FILE NAME =	USER NAME = #USER#	DESIGNED -	REVISIONS -	<p>Allen Henderson & Associates, Inc. Civil and Structural Engineers Springfield, IL 62703 Phone: (217)544-8033 IL Design Firm No. 184-001907</p>	GENERAL PLAN & ELEVATION			T.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = #SCALE#	CHECKED -	REVISIONS -	SCALE: NONE		SHEET NO. 5 OF 19 SHEETS	STA. 12+75.00 TO STA. 18+75.00	159	07-18118-00-BR	SHELBY	19	5	
PLOT DATE = #DATE#	DATE	REVISIONS -					S.N. 087-3567	CONTRACT NO. 95626				
							FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT					

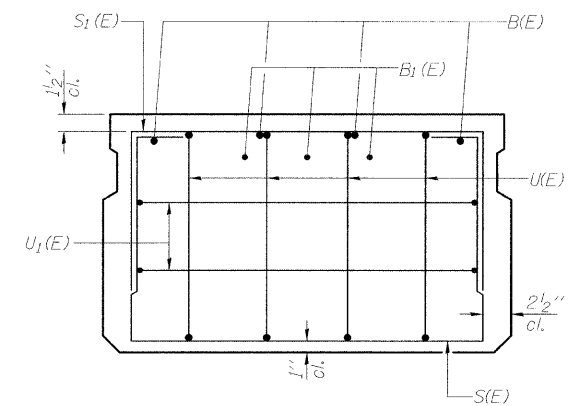


SECTION C-C

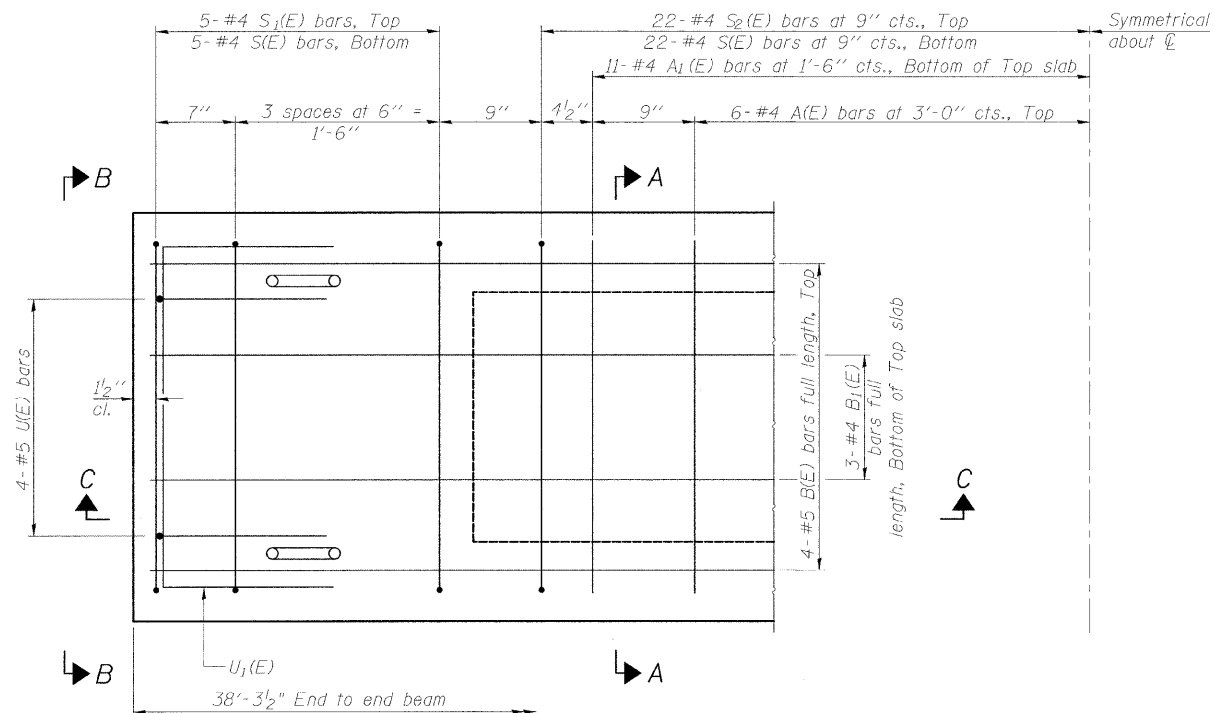
Omit key on exterior face of outside beams



SECTION A-A
(Showing dimensions)

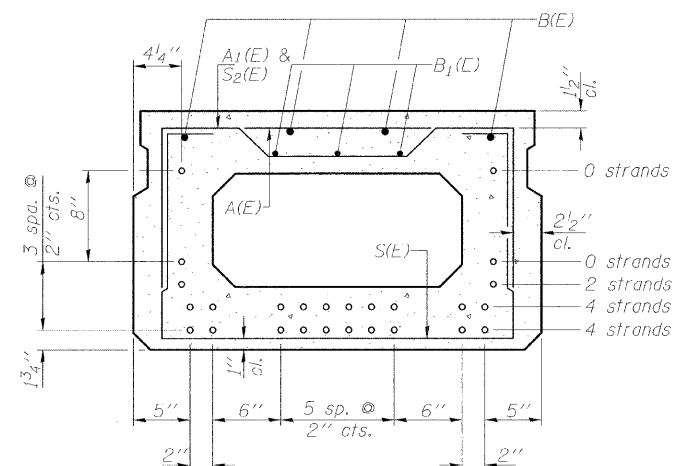


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4\"/>



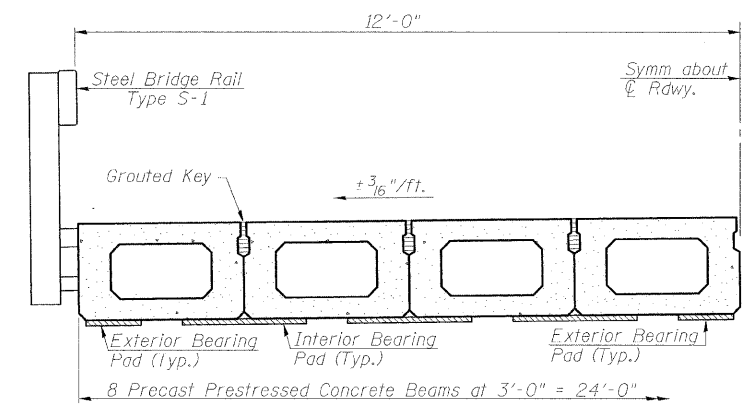
SECTION A-A

(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.

MINIMUM BAR LAP

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



HALF CROSS SECTION

BAR LIST
ONE BEAM ONLY

(For information only)

Bar	No.	Size	Length	Shape
A(E)	12	#4	2'-7"	—
A1(E)	22	#4	2'-10"	~
B(E)	4	#5	38'-0"	—
B1(E)	3	#4	38'-0"	—
S(E)	54	#4	6'-5"	⌊
S1(E)	10	#4	4'-11"	⌊
S2(E)	44	#4	5'-2"	⌊
U(E)	8	#5	4'-0"	⌊
U1(E)	4	#4	5'-0"	⌊

Note: See sheet 7 of 19 for additional details and Bill of Material.

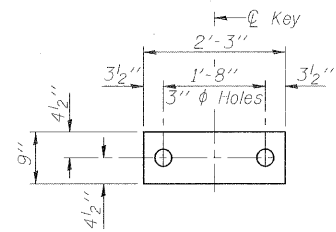
21" x 36" PPC DECK BEAM
SPANS 1 & 3

PD-2136-0

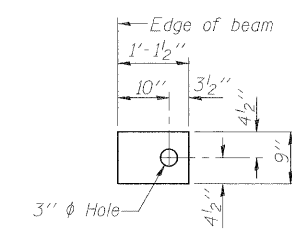
11-1-09

FILE NAME	USER NAME = #USER#	DESIGNED	REVISIONS	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	REVISIONS			159			19	6
PLOT SCALE = #SCALE#	CHECKED	REVISIONS	S.N. 087-3567	CONTRACT NO. 95626						
PLOT DATE = #DATE#	DATE	REVISIONS	FED. ROAD DIST. NO. - ILLINOIS	FED. AID PROJECT						

FILE



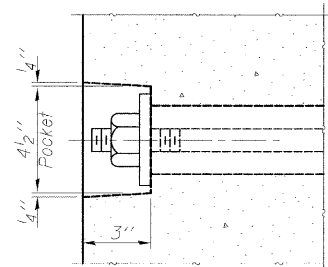
FABRIC BEARING PAD
(Interior)



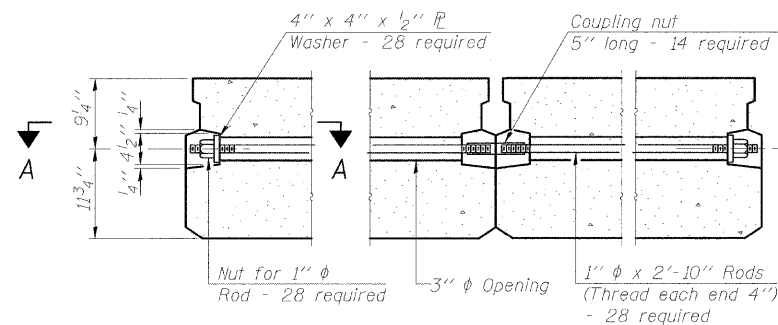
FABRIC BEARING PAD
(Exterior)

FIXED

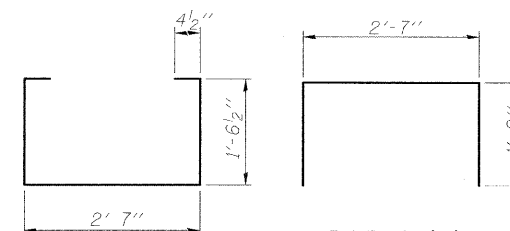
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



SECTION A-A

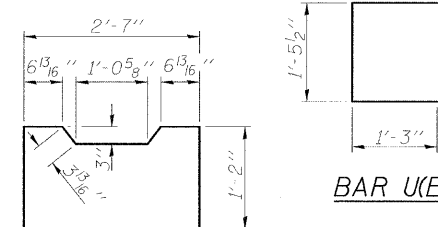


TYPICAL TRANSVERSE TIE ASSEMBLY



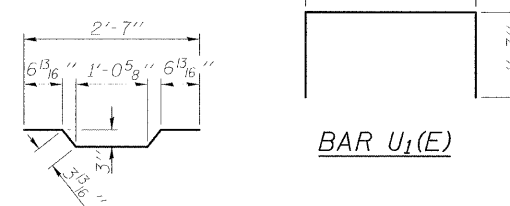
BAR S₁(E)

BAR S(E)



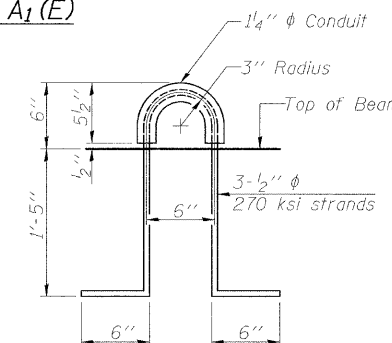
BAR U(E)

BAR S₂(E)



BAR U₁(E)

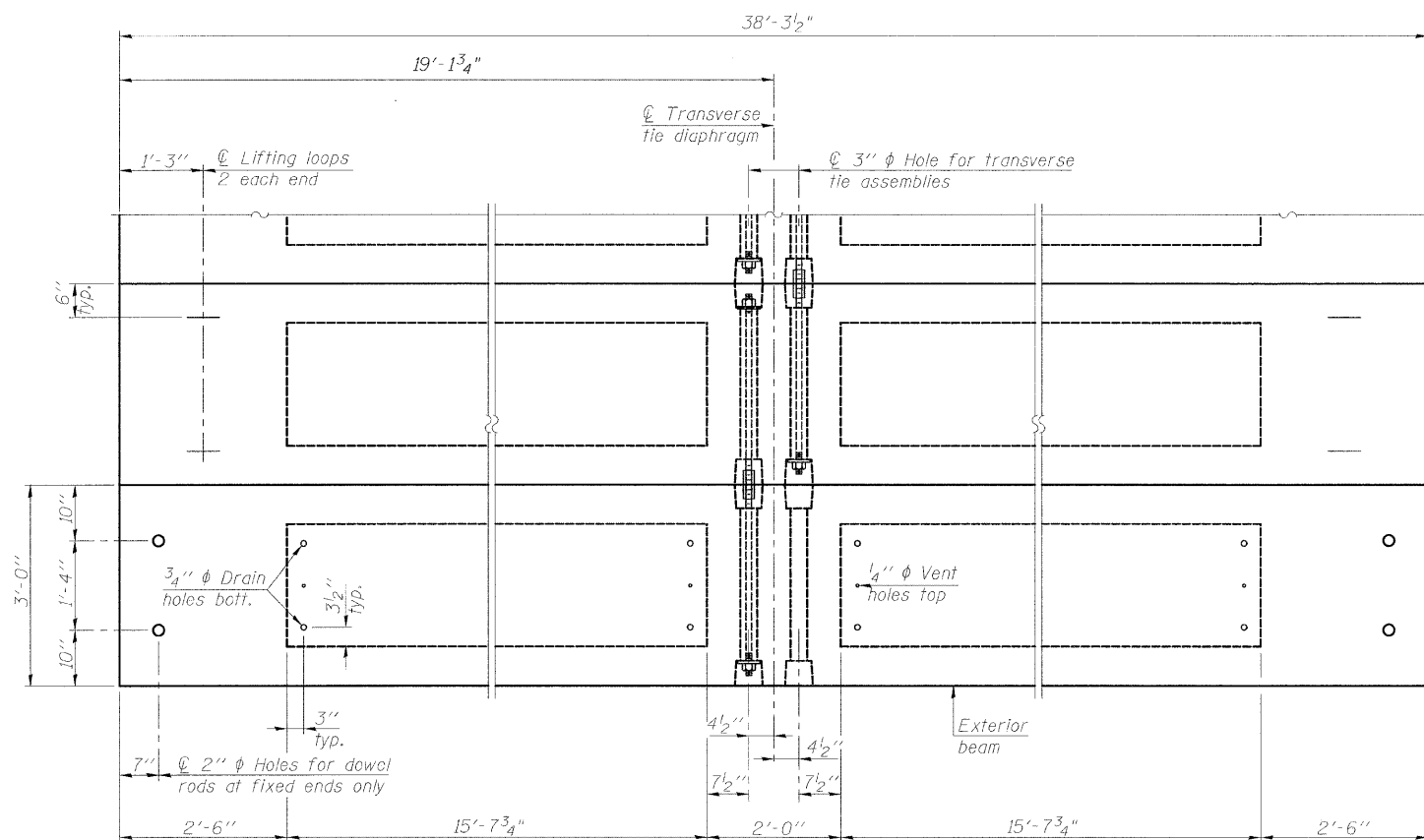
BAR A₁(E)



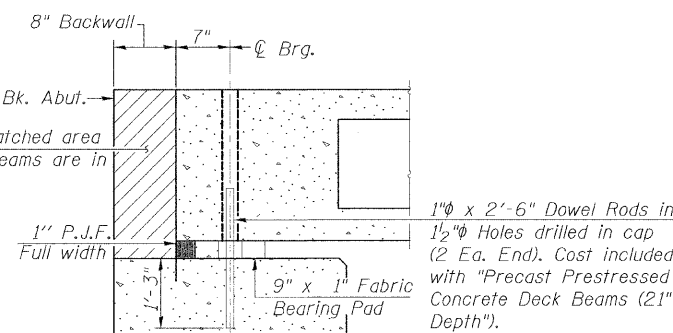
LIFTING LOOP DETAIL

BILL OF MATERIAL

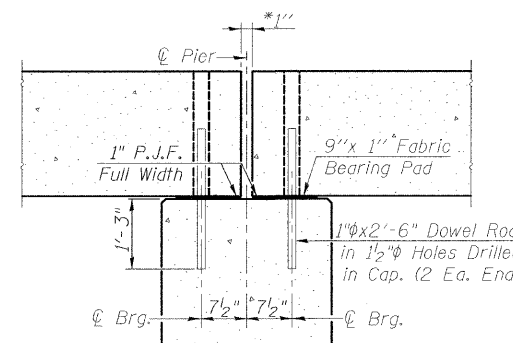
Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1838
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PLAN VIEW - SPANS 1 & 3



SECTION THRU ABUTMENT
(At Right Angles)



SECTION THRU PIER

Notes: After beams have been crocted, 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.
* 1" joint shall be filled with non-shrink grout.
* 1" dimension may vary to accomodate tolerance in beam lengths.

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to ASIM A 106, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Compressive strength of prestressed concrete, f'c, shall be 6000 psi. Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

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

PD-2136-0D

11-1-09

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

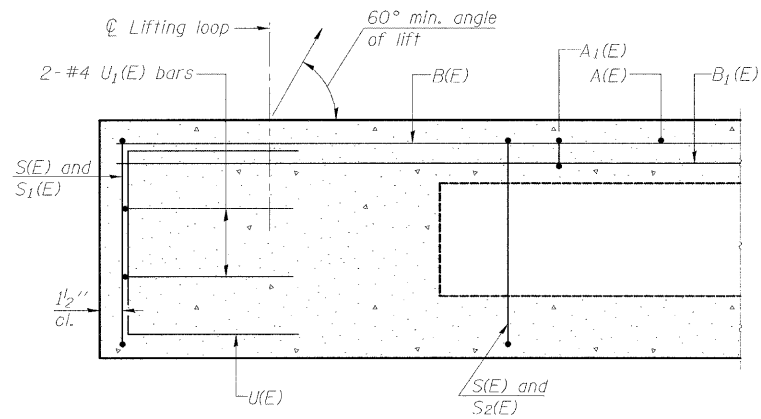


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Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL Design Firm
No. 184-001907

SUPERSTRUCTURE		SPANS 1 & 3	
SCALE: NONE	SHEET NO. 7 OF 19 SHEETS	STA. 12+75.00 TO STA. 18+75.00	

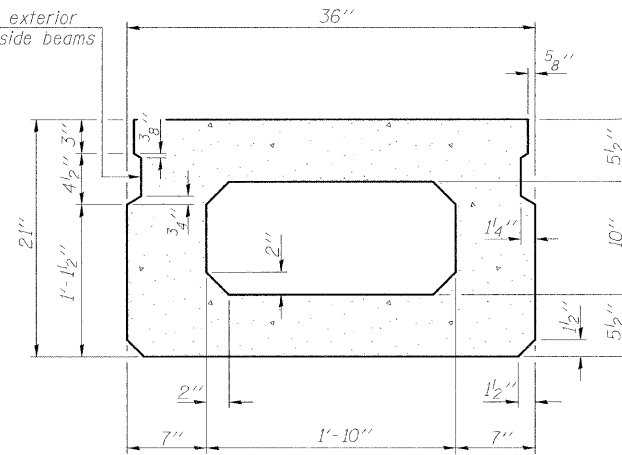
I.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	7
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				CONTRACT NO. 95626

21" X 36" PPC DECK BEAM DETAILS
SPANS 1 & 3

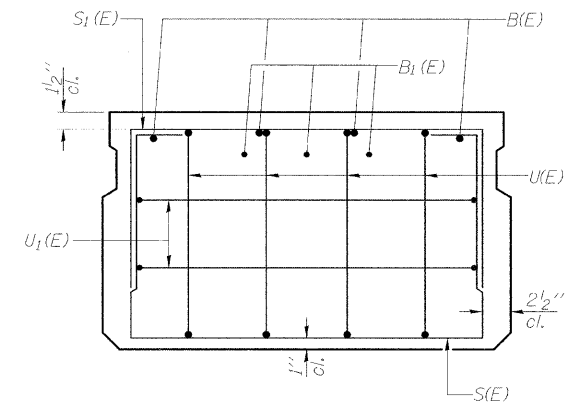


SECTION C-C

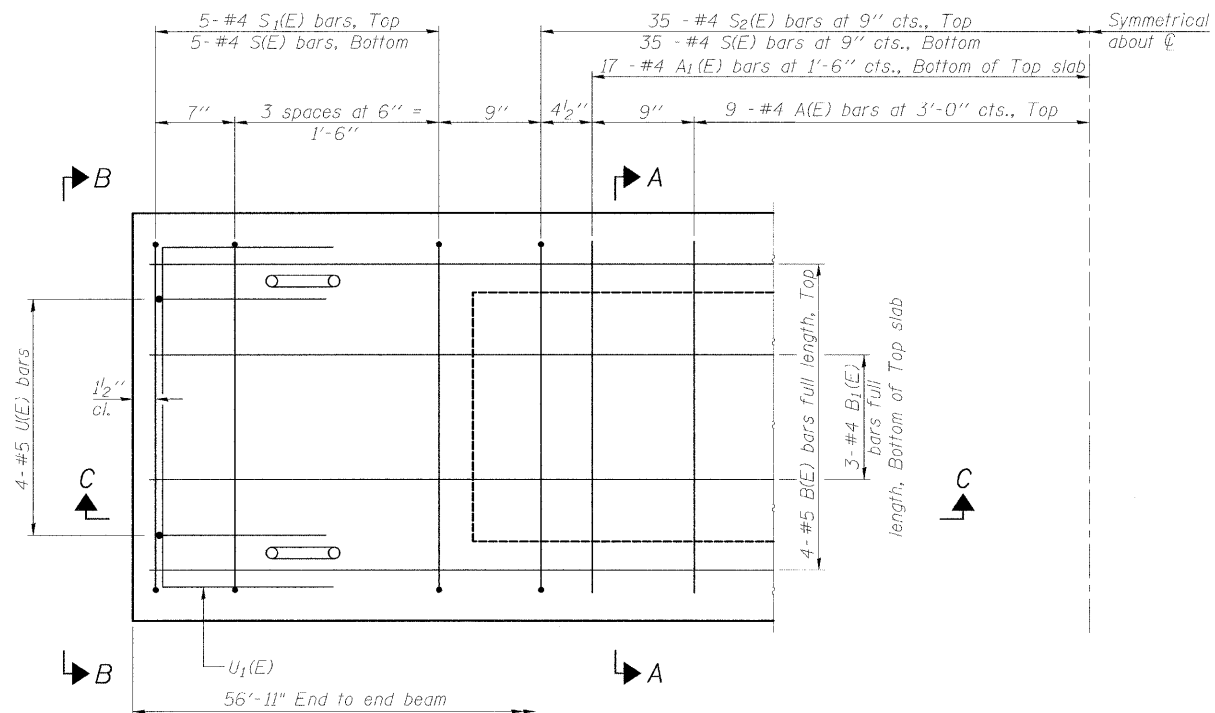
Omit key on exterior face of outside beams



SECTION A-A
(Showing dimensions)

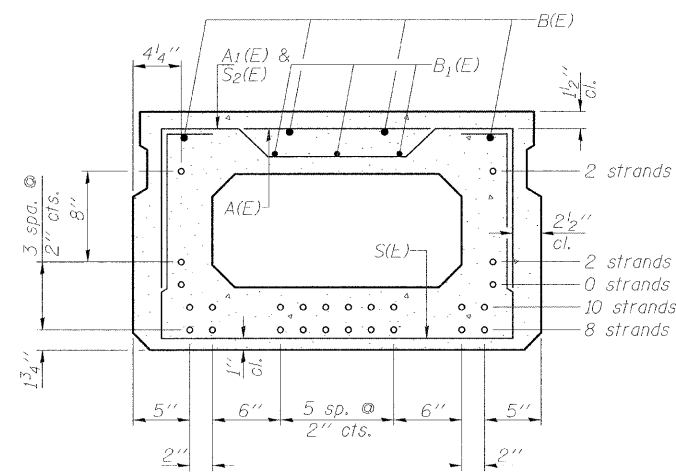


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4\"/>



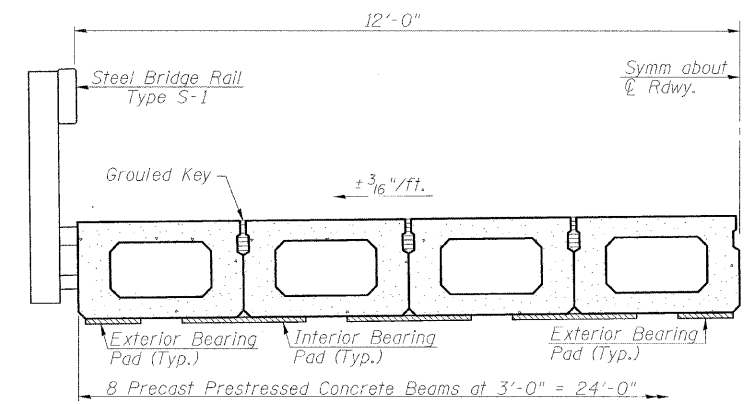
SECTION A-A

(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.

MINIMUM BAR LAP

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



HALF CROSS SECTION

BAR LIST
ONE BEAM ONLY

(For information only)

Bar	No.	Size	Length	Shape
A(E)	18	#4	2'-7"	—
A1(E)	34	#4	2'-10"	~
B(E)	4	#5	56'-8"	—
B1(E)	3	#4	56'-8"	—
S(E)	80	#4	6'-5"	□
S1(E)	10	#4	4'-11"	□
S2(E)	70	#4	5'-2"	□
U(E)	8	#5	4'-0"	□
U1(E)	4	#4	5'-0"	□

Note: See sheet 9 of 19 for additional details and Bill of Material.

21" x 36" PPC DECK BEAM
SPAN 2

PD-2136-0

11-1-09

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



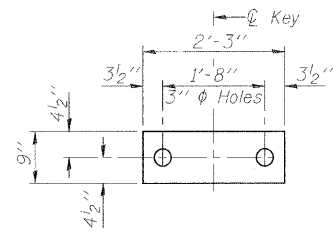
Allen Henderson & Associates, Inc.
Civil and Structural Engineers Springfield, IL
62703 Phone: (217)544-8033 IL Design Firm
No. 184-001907

SUPERSTRUCTURE
SPAN 2

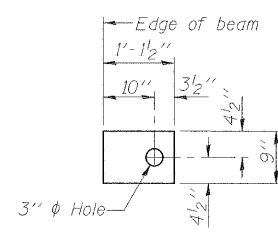
SCALE: NONE SHEET NO. 6 OF 19 SHEETS STA. 12+75.00 TO STA. 18+75.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	8
S.N. 087-3567	CONTRACT NO. 95626			
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

*FILE#



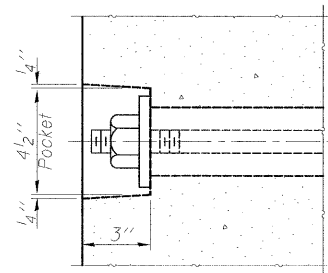
FABRIC BEARING PAD
(Interior)



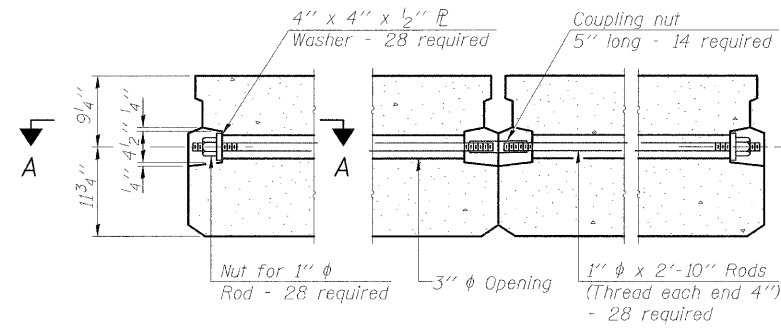
FABRIC BEARING PAD
(Exterior)

FIXED

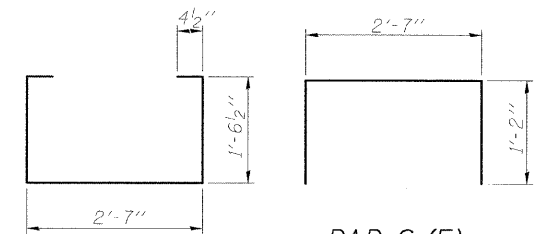
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



SECTION A-A

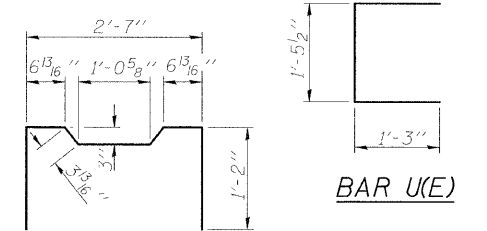


TYPICAL TRANSVERSE TIE ASSEMBLY

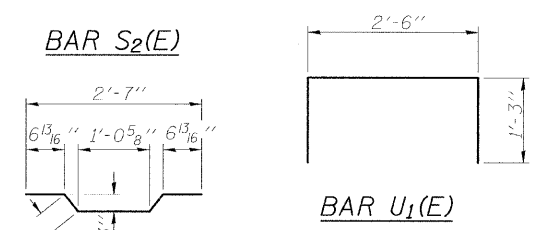


BAR S(E)

BAR S₁(E)

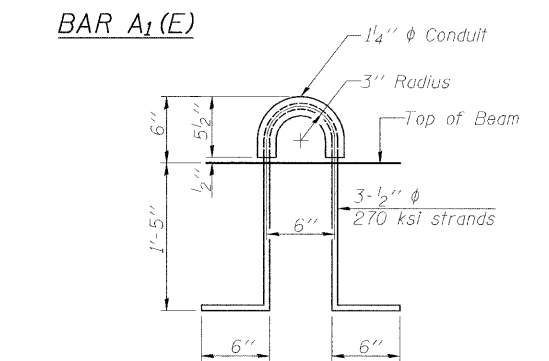


BAR U(E)



BAR S₂(E)

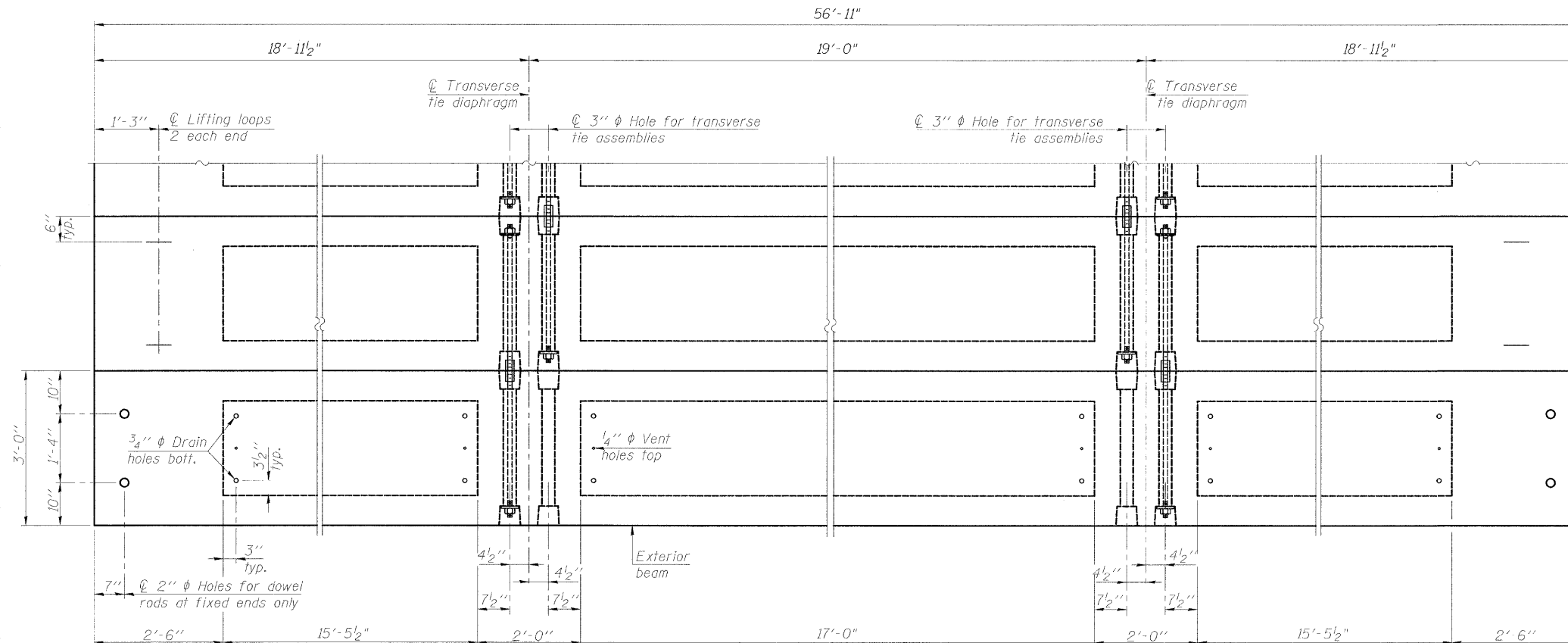
BAR U₁(E)



LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1366
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PLAN VIEW - SPAN 2

NOTES

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

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" phi rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" phi 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.

21" X 36" PPC DECK BEAM DETAILS
SPAN 2

PD-2136-OD

11-1-09

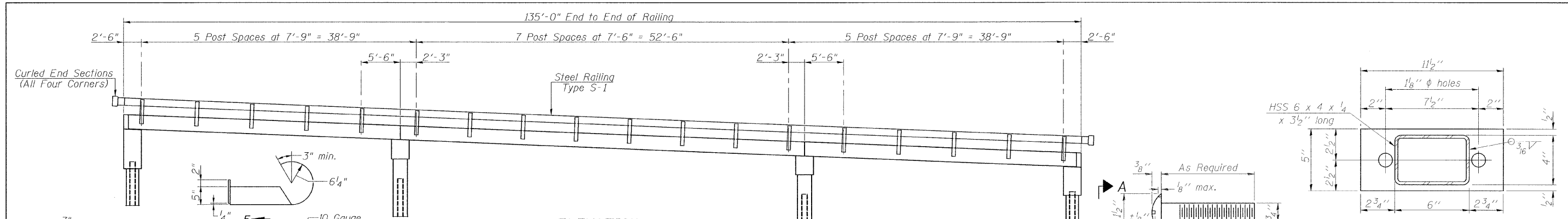
FILE NAME =	USER NAME = #USER#	DESIGNED -	REVISED -
		DRAWN -	REVISED -
		CHECKED -	REVISED -
		DATE -	REVISED -



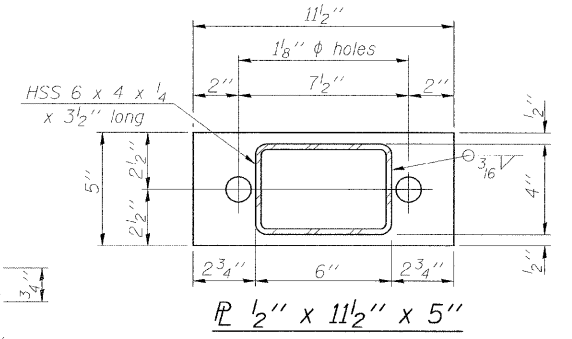
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Civil and Structural Engineers Springfield, IL.
62703 Phone: (217)544-8033 IL Design Firm
No. 184-001907

SUPERSTRUCTURE		T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
SPAN 2		159	07-18118-00-BR	SHELBY	19	9
SCALE: NONE		SHEET NO. 9 OF 19 SHEETS		STA. 12+75.00 TO STA. 18+75.00		S.N. 087-3567
						CONTRACT NO. 95626
						FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT

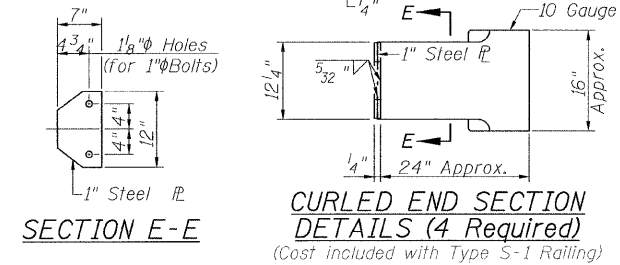
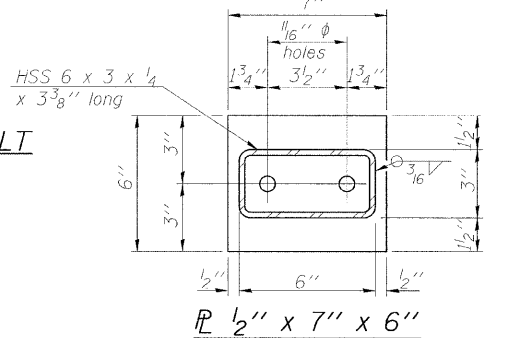
#FILE#



ELEVATION
(Showing Outside Face of Railing)

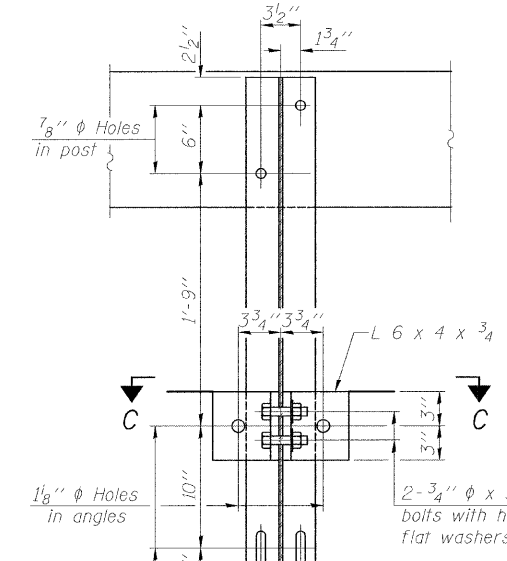


VIEW A-A ROUND HEAD BOLT

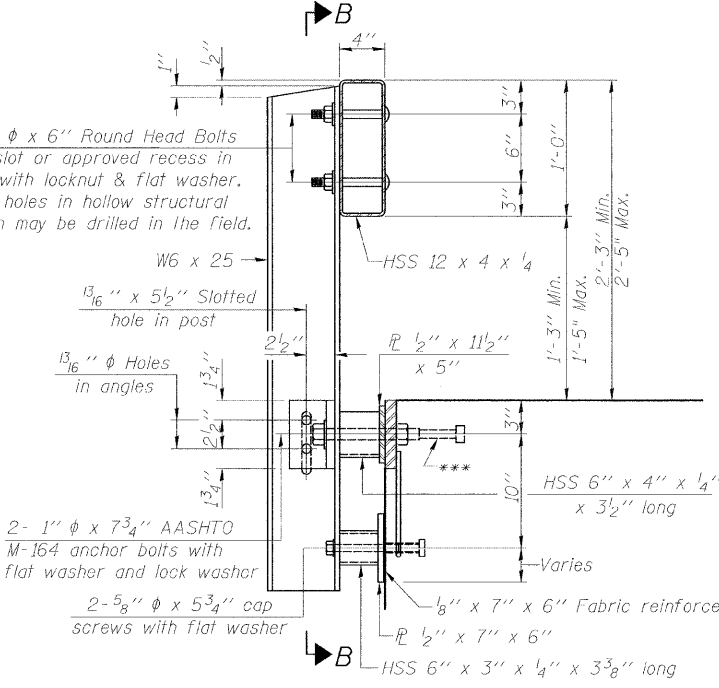


SECTION E-E
CURLED END SECTION
DETAILS (4 Required)
(Cost included with Type S-1 Railing)

2- 3/4" φ x 6" Round Head Bolts
(With slot or approved recess in head) with locknut & flat washer.
7/8" φ holes in hollow structural section may be drilled in the field.

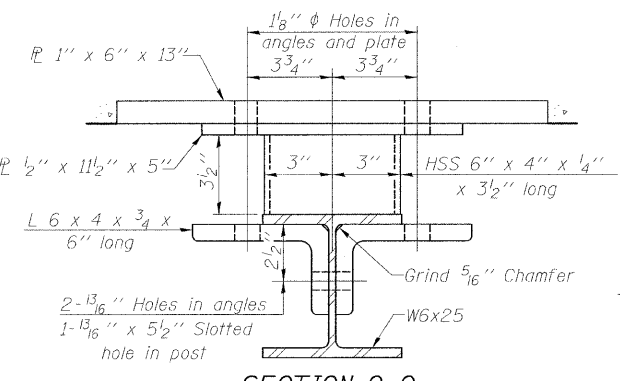


SECTION B-B

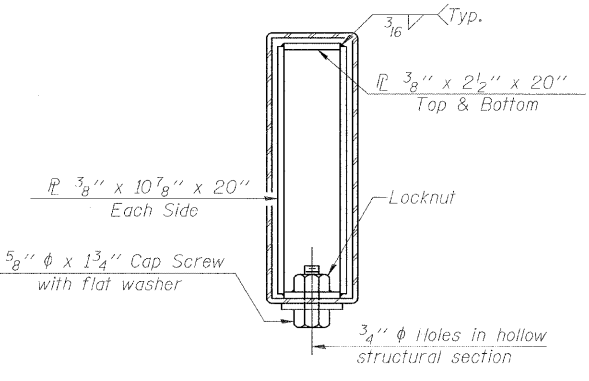


SECTION AT RAILING POST

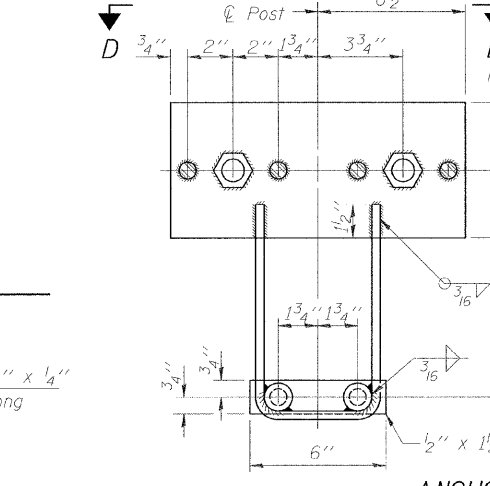
Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



SECTION C-C

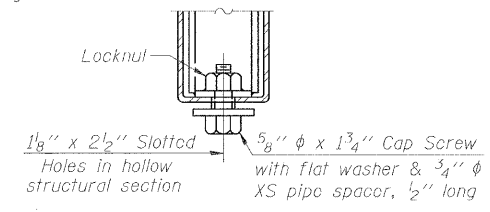


SECTIONS AT RAIL SPLICE

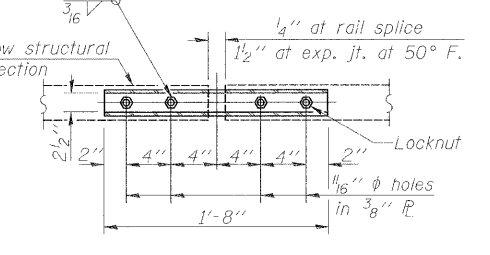


ANCHOR DEVICE

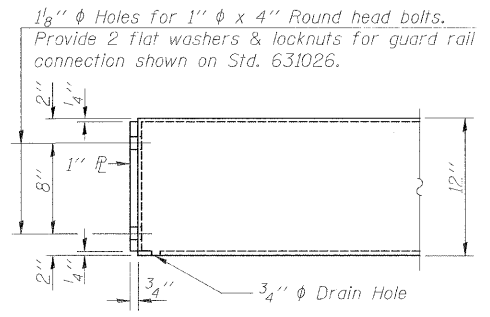
*Threaded areas shall be plugged or blocked off during casting of beam.



RAIL SPLICE CONNECTION AT EXPANSION JT.

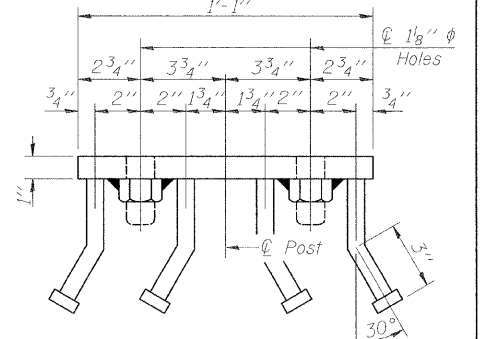


PLAN-BOTTOM SPLICE TYPICAL



END OF RAIL DETAILS

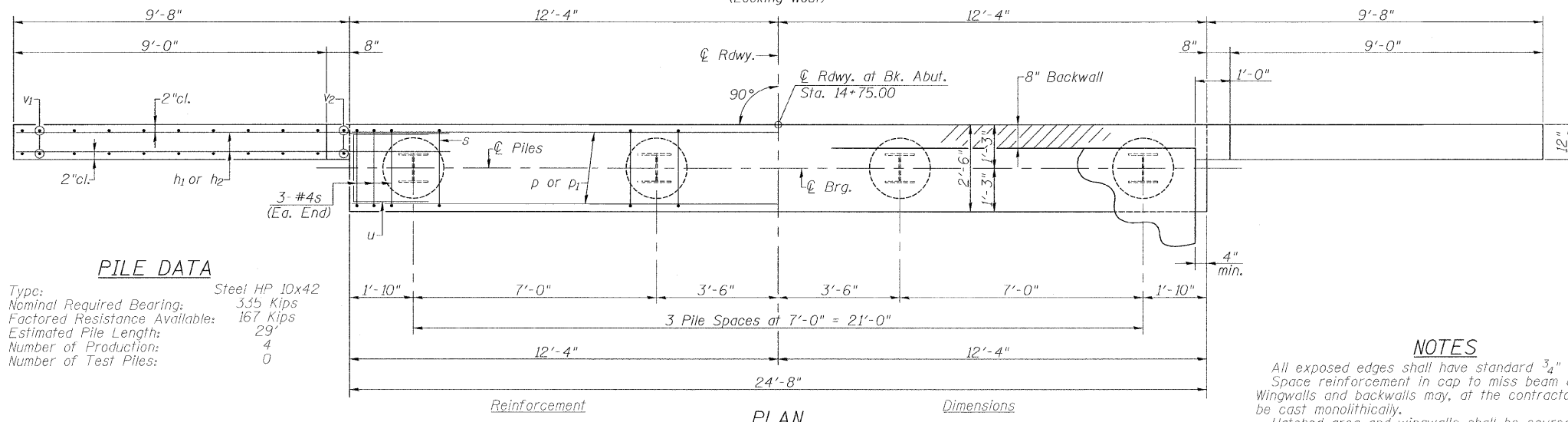
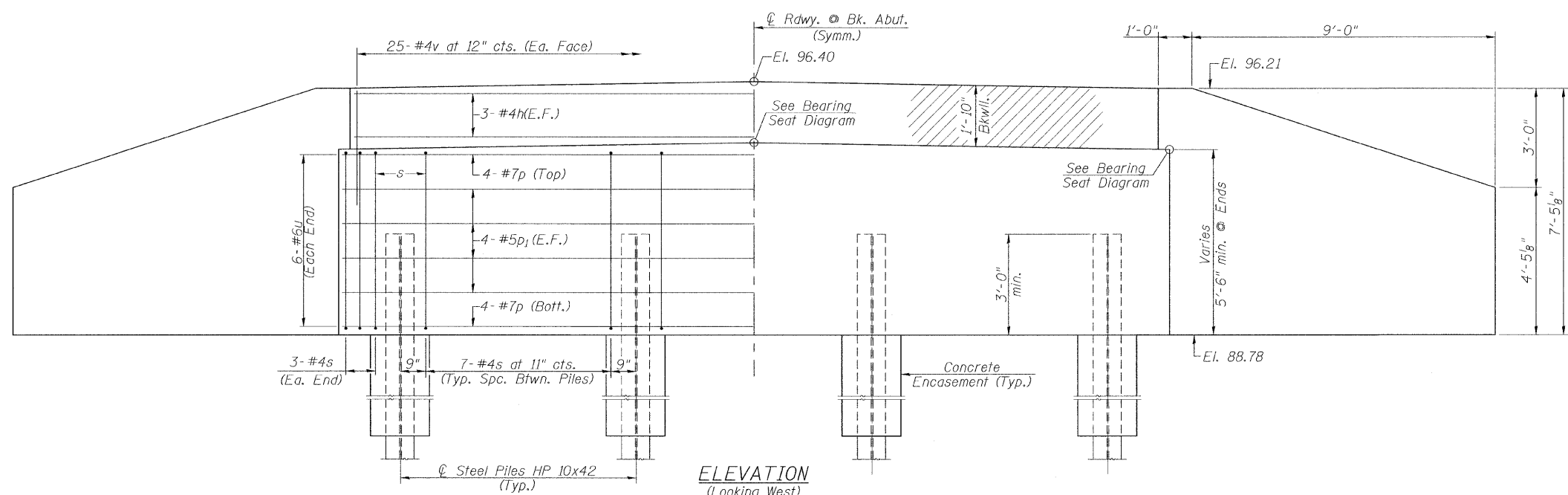
Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
All steel rail elements shall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



VIEW D-D

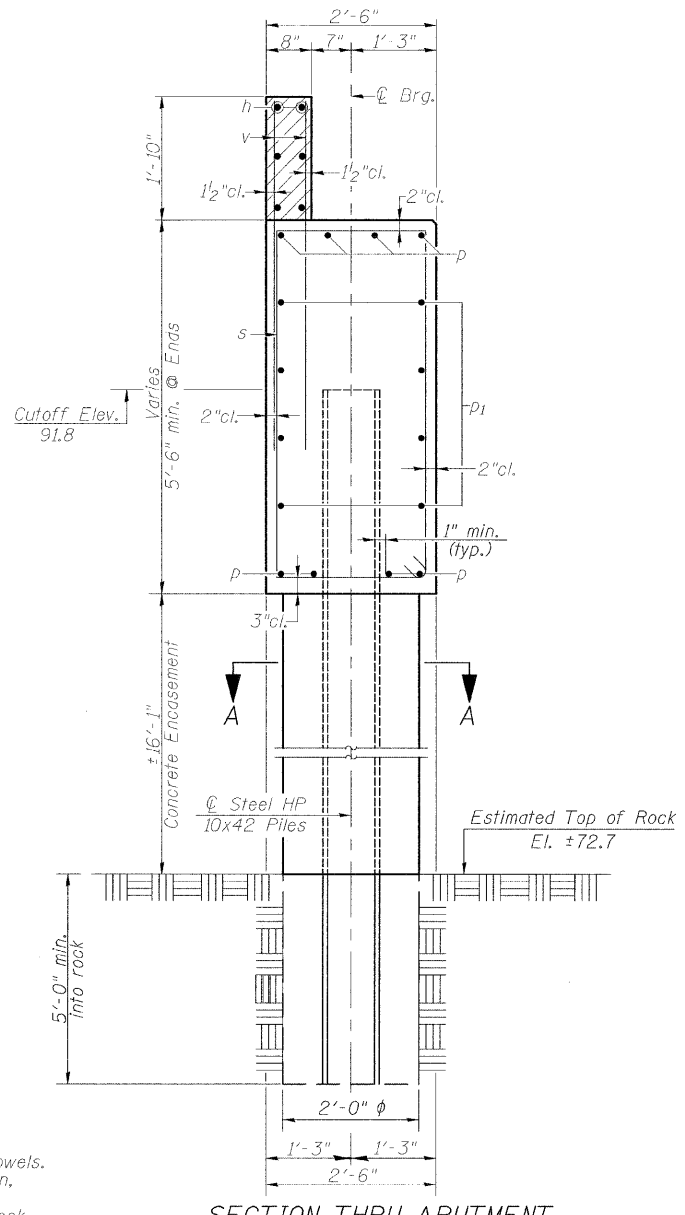
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	270



PILE DATA

Typc:	Steel HP 10x42
Nominal Required Bearing:	335 Kips
Factored Resistance Available:	167 Kips
Estimated Pile Length:	29'
Number of Production:	4
Number of Test Piles:	0



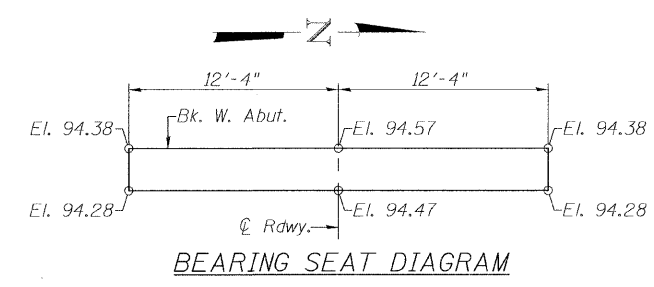
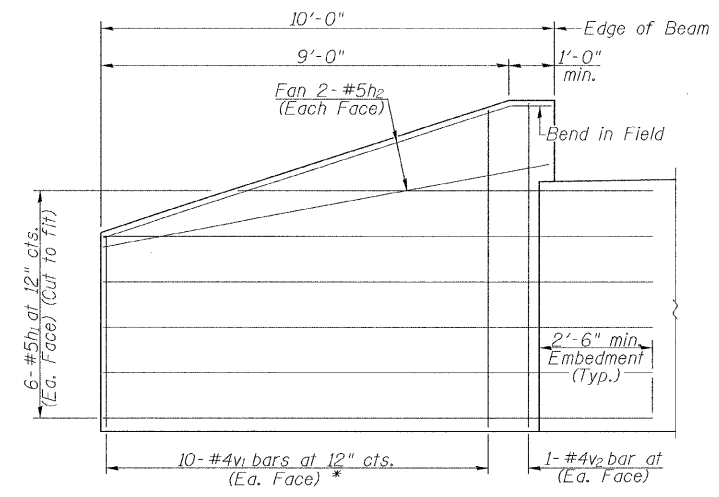
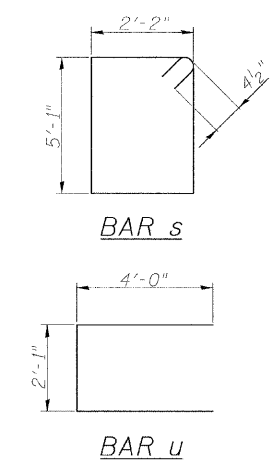
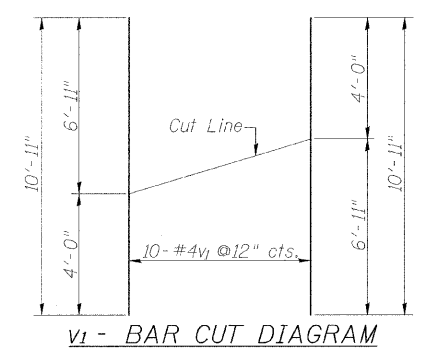
NOTES

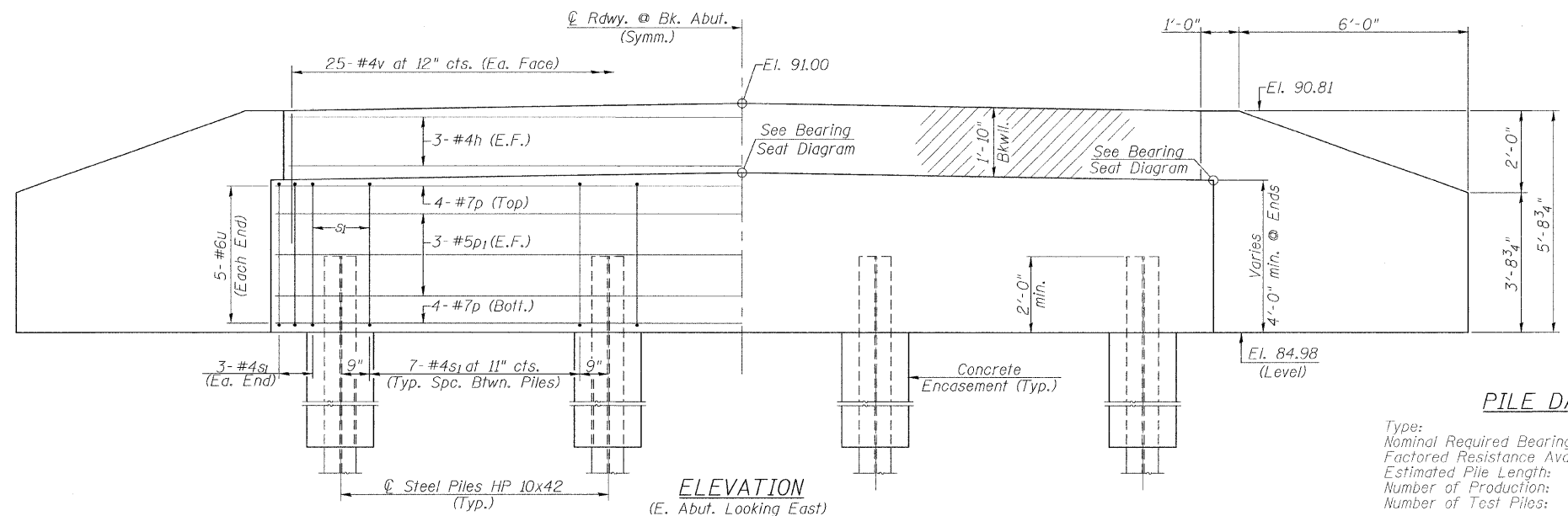
All exposed edges shall have standard 3/4" chamfer.
 Space reinforcement in cap to miss beam anchor dowels.
 Wingwalls and backwalls may, at the contractor's option, be cast monolithically.
 Hatched area and wingwalls shall be poured after deck beams are anchored in place.
 The Steel H-Piles shall be according to AASHTO M270, Grade 50.
 If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.
 Work this sheet with Sheet No. 15 of 19.

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	6	#4	24'-4"	—
h1	24	#5	12'-0"	—
h2	8	#5	10'-4"	—
p	8	#7	24'-4"	—
p1	8	#5	24'-4"	—
s	27	#4	15'-3"	□
u	12	#6	10'-1"	□
v	50	#4	3'-3"	—
v1	20	#4	10'-11"	—
v2	4	#4	6'-11"	—

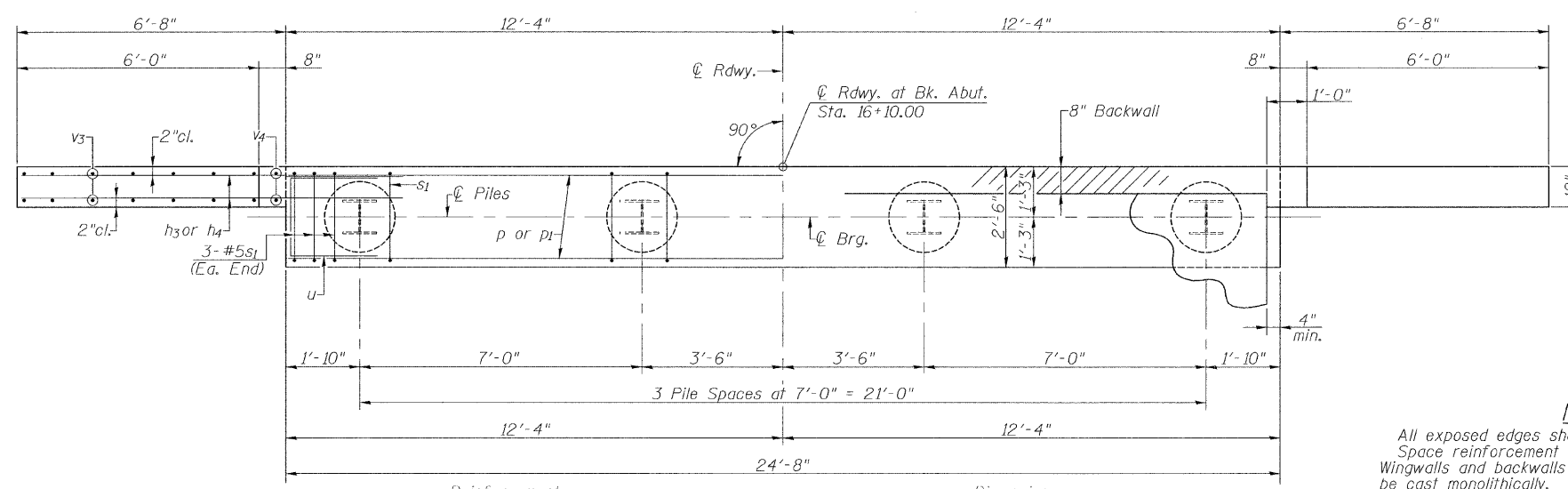
Concrete Structures	Cu. Yd.	18.4
Reinforcement Bars	Pound	1820
Furnishing Steel Piles HP 10x42	Foot	116
Concrete Encasement	Cu. Yd.	7.5
Structure Excavation	Cu. Yd.	41
Setting Piles in Rock	Each	4





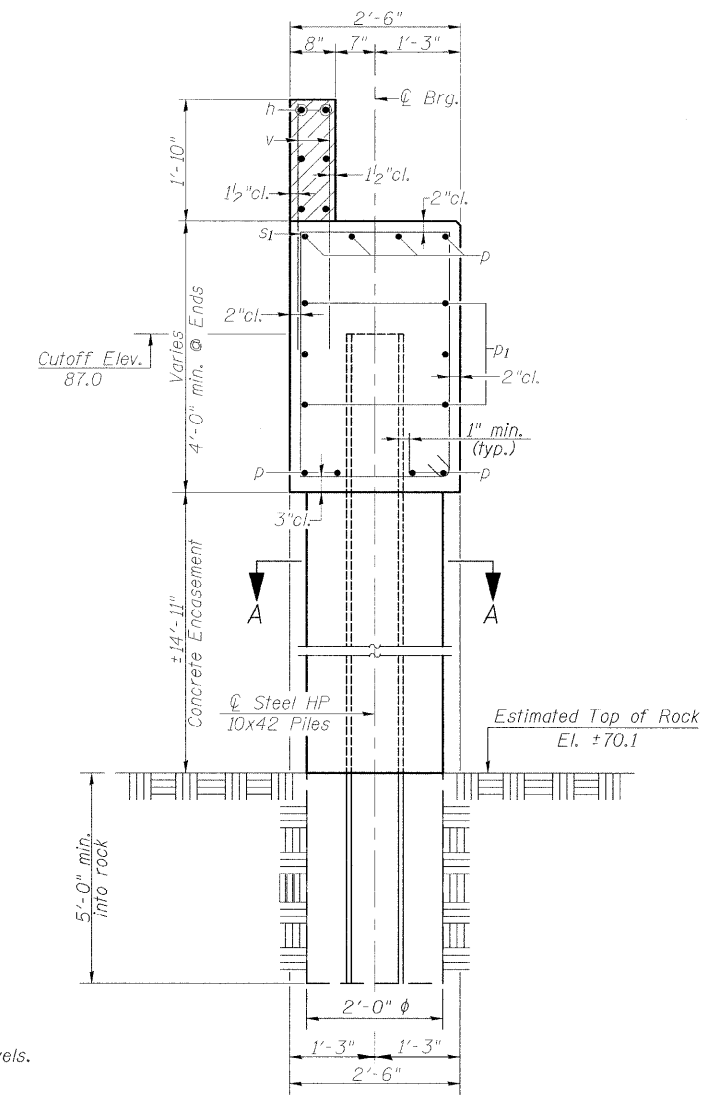
ELEVATION
(E. Abut. Looking East)

PILE DATA
 Type: Steel HP 10x42
 Nominal Required Bearing: 335 Kips
 Factored Resistance Available: 167 Kips
 Estimated Pile Length: 27'
 Number of Production: 4
 Number of Test Piles: 0



PLAN

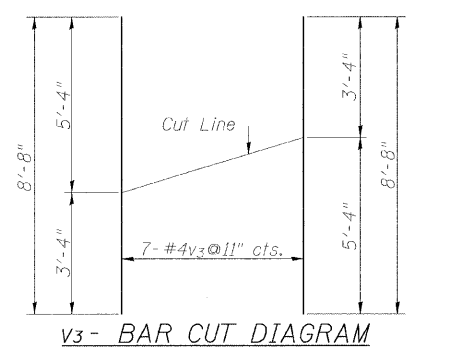
NOTES
 All exposed edges shall have standard 3/4" chamfer.
 Space reinforcement in cap to miss beam anchor dowels.
 Wingwalls and backwalls may, at the contractor's option, be cast monolithically.
 Hatched area and wingwalls shall be poured after deck beams are anchored in place.
 The Steel H-Piles shall be according to AASHTO M270, Grade 50.
 If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater into forms.
 Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.
 Work this sheet with Sheet No. 15 of 19.



SECTION THRU ABUTMENT

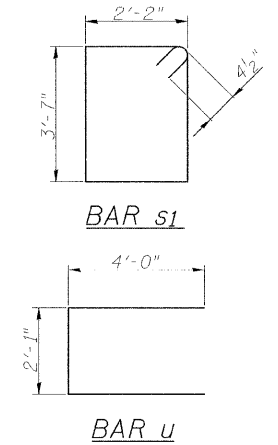
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	6	#4	24'-4"	—
h3	16	#5	9'-2"	—
h4	12	#5	7'-0"	—
p	8	#7	24'-4"	—
p1	6	#5	24'-4"	—
s1	27	#4	12'-3"	□
u	10	#6	10'-1"	□
v	50	#4	3'-3"	—
v3	14	#4	8'-8"	—
v4	4	#4	5'-5"	—
Concrete Structures			Cu. Yd.	13.0
Reinforcement Bars			Pound	1470
Furnishing Steel Piles HP 10x42			Foot	108
Concrete Encasement			Cu. Yd.	7.0
Structure Excavation			Cu. Yd.	58
Setting Piles in Rock			Each	4



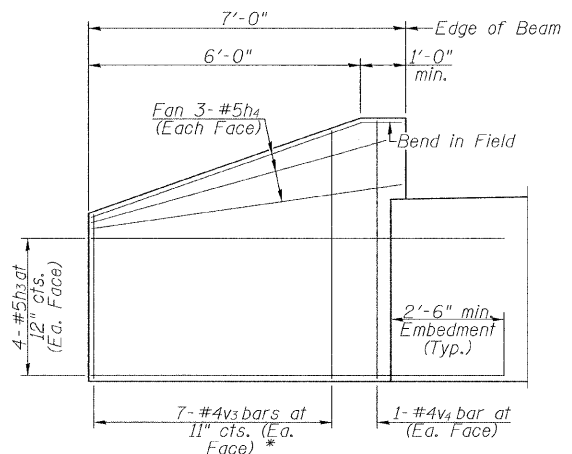
v3 - BAR CUT DIAGRAM

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



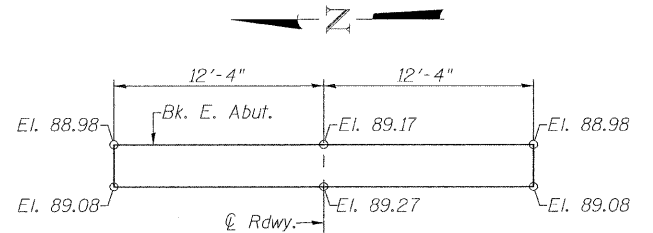
BAR s1

BAR u

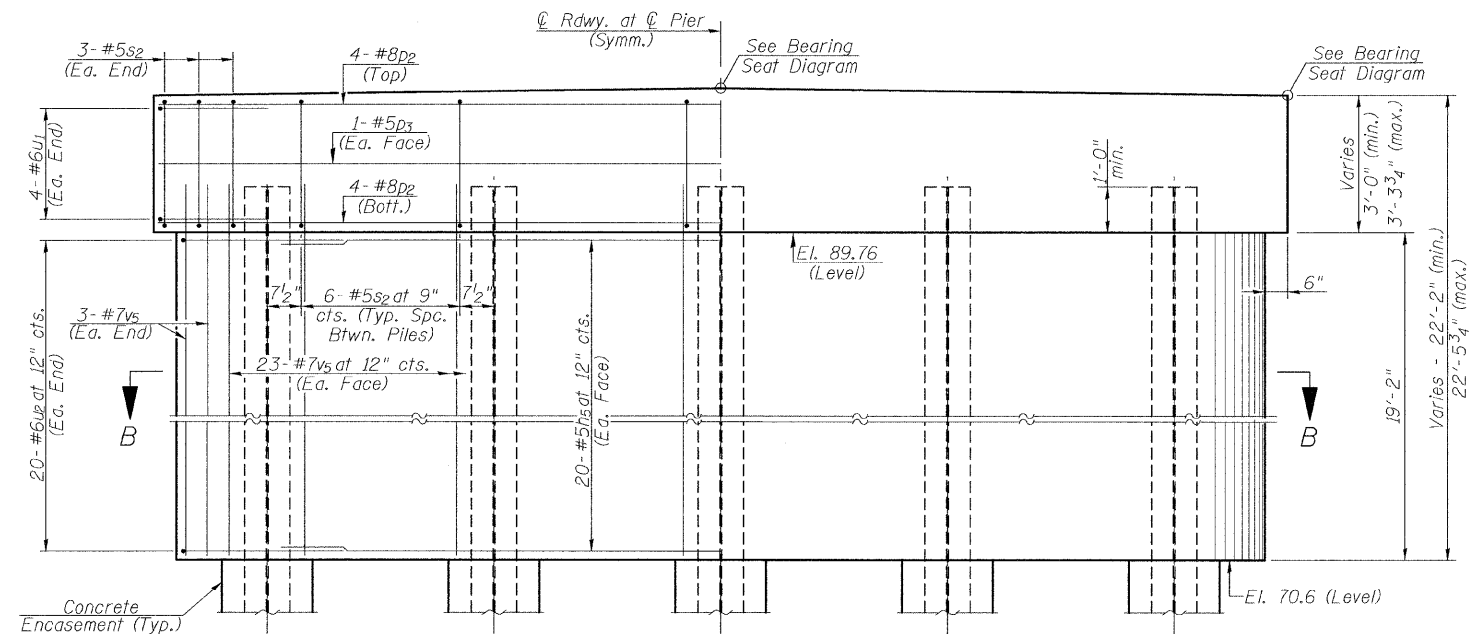


WINGWALL ELEVATION
(Showing Reinforcement)

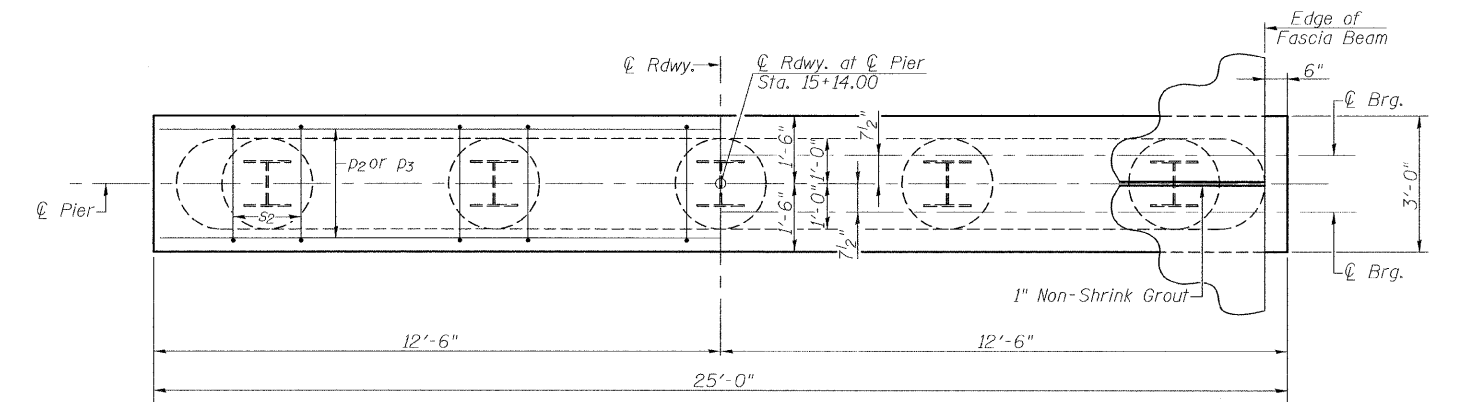
* See v3-bar cut diagram



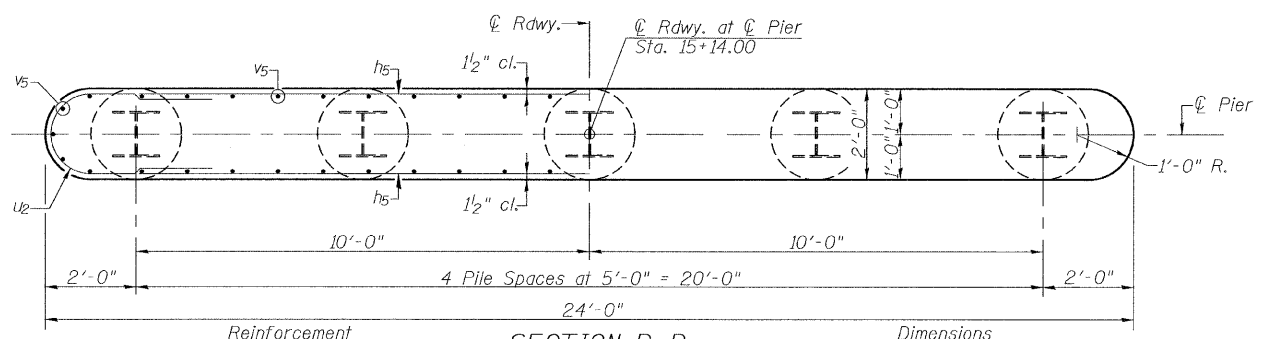
BEARING SEAT DIAGRAM



Reinforcement ELEVATION Dimensions



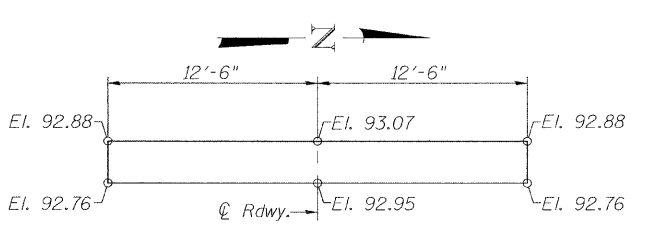
Reinforcement PLAN Dimensions



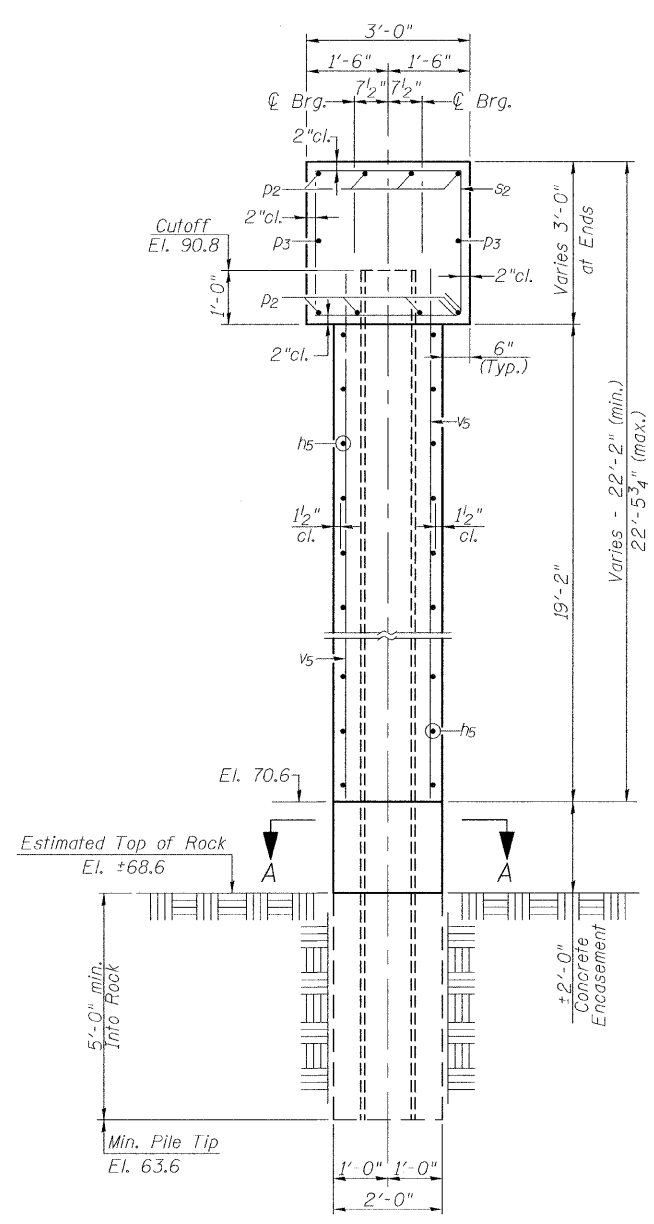
Reinforcement SECTION B-B Dimensions

PILE DATA

Pier 1
 Type: Steel HP 12x53
 Nominal Required Bearing: 419 Kips
 Factored Resistance Available: 209 Kips
 Estimated Pile Length: 33'
 Number of Production: 5
 Number of Test Piles: 0



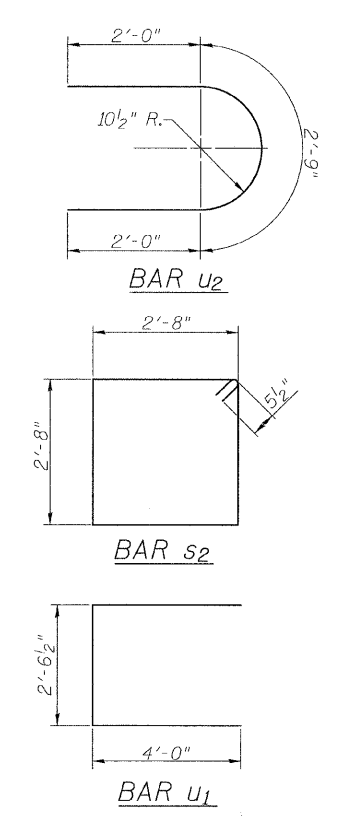
BEARING SEAT DIAGRAM



SECTION THRU PIER

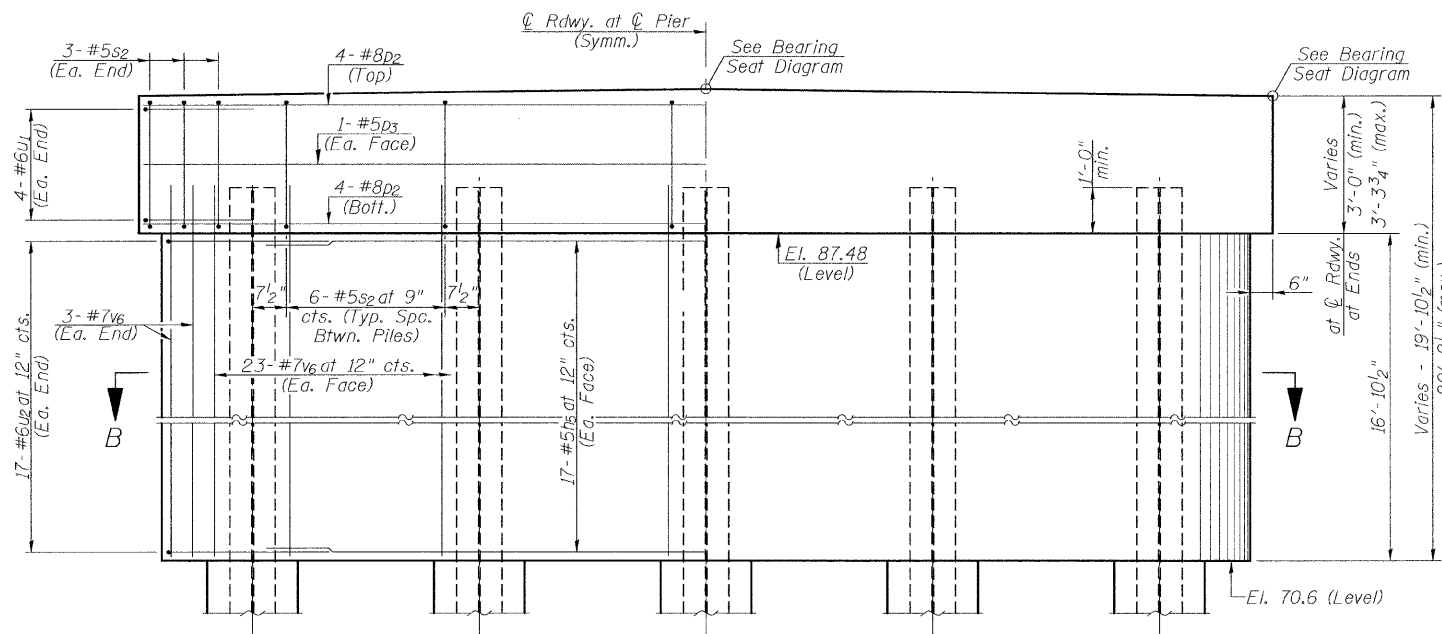
NOTES

All exposed edges shall have standard 3/4" chamfer except as noted.
 Space reinforcement in pier caps to miss beam anchor dowels.
 The Steel H-Piles shall be according to AASHTO M270, Grade 50.
 If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.
 Work this sheet with Sheet No. 19.

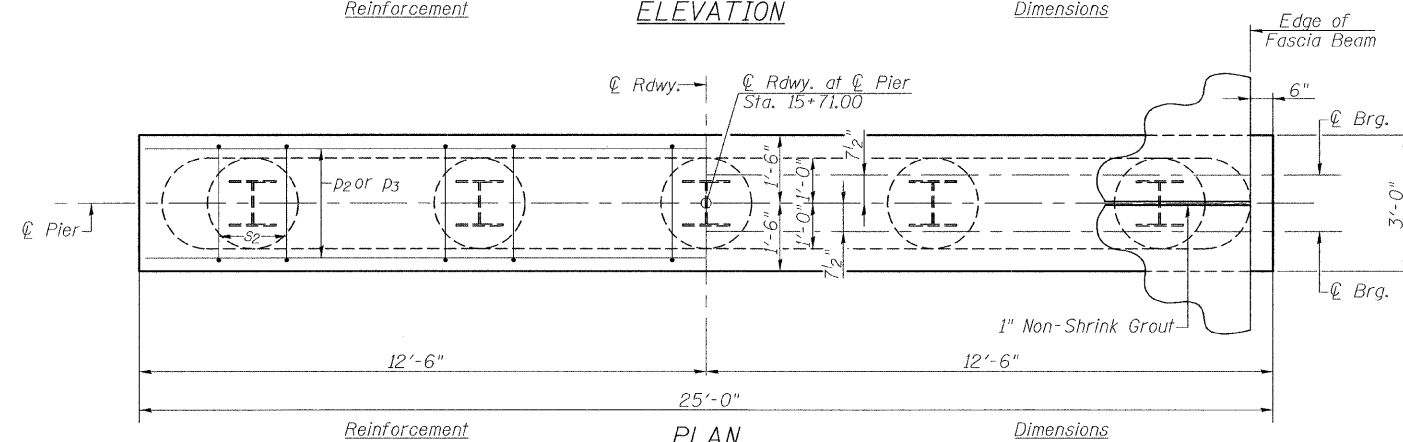


PIER 1 BILL OF MATERIAL

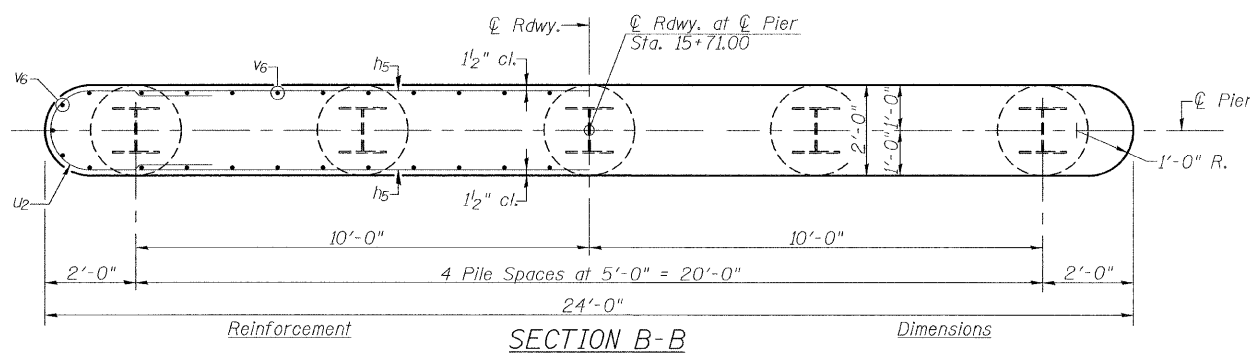
BAR	NO.	SIZE	LENGTH	SHAPE
h5	40	#5	21'-0"	—
p2	8	#8	24'-8"	—
p3	2	#5	24'-8"	—
s2	30	#5	11'-7"	□
u1	8	#6	10'-7"	□
u2	40	#6	6'-9"	C
v5	52	#7	21'-0"	—
Concrete Structures			Cu. Yd.	42.2
Reinforcement Bars			Pound	4590
Furnishing Steel Piles, HP 12x53 Foot				165
Underwater Structure Excavation Protection - Location 1			Each	1
Structure Excavation			Cu. Yd.	19
Setting Piles in Rock			Each	5
Concrete Encasement			Cu. Yd.	1.2



Reinforcement ELEVATION Dimensions



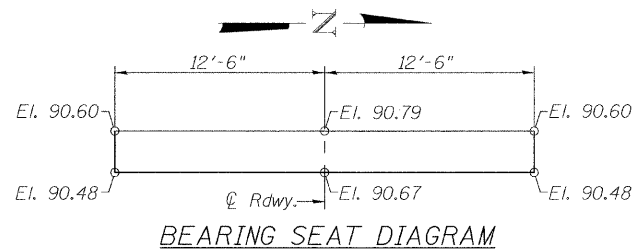
Reinforcement PLAN Dimensions



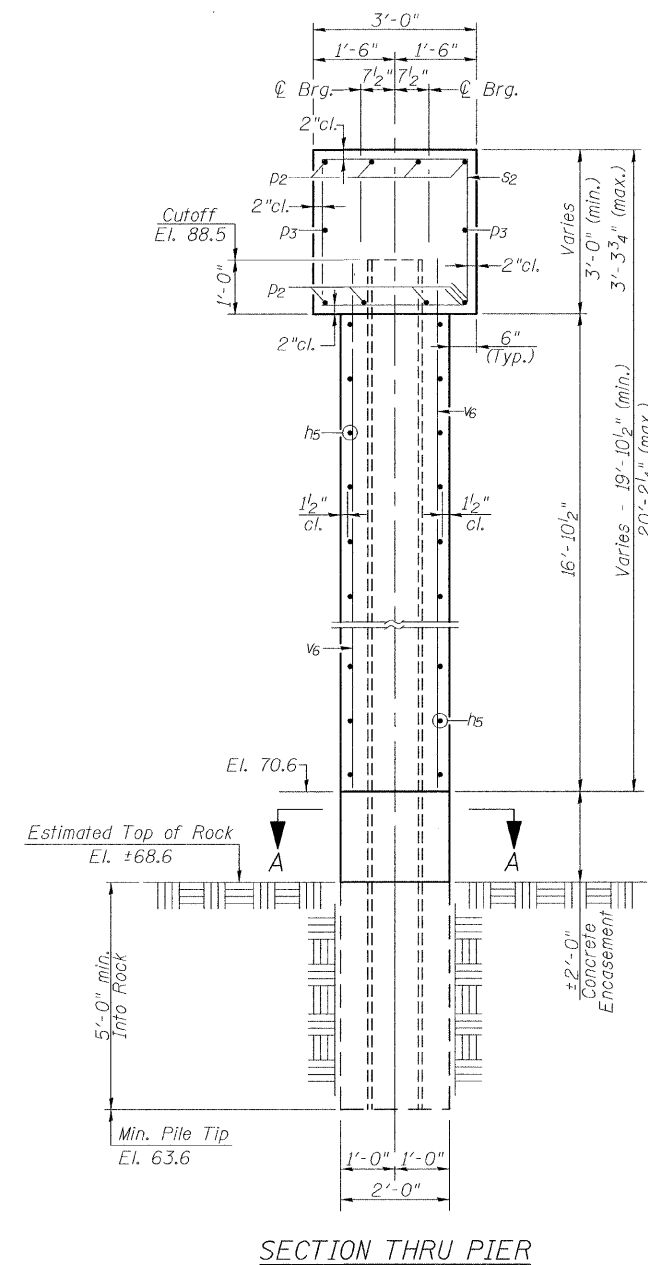
Reinforcement SECTION B-B Dimensions

PILE DATA

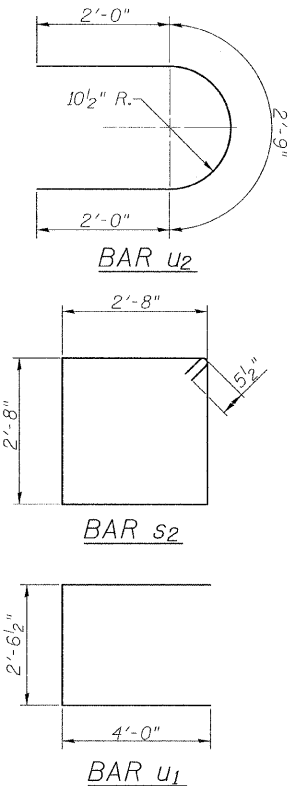
Pier 2
 Type: Steel HP 12x53
 Nominal Required Bearing: 419 Kips
 Factored Resistance Available: 209 Kips
 Estimated Pile Length: 30'
 Number of Production: 5
 Number of Test Piles: 0



BEARING SEAT DIAGRAM



SECTION THRU PIER



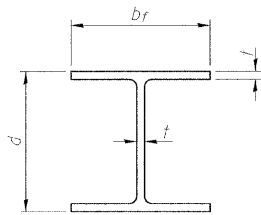
PIER 2 BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h5	34	#5	21'-0"	—
p2	8	#8	24'-8"	—
p3	2	#5	24'-8"	—
s2	30	#5	11'-7"	□
u1	8	#6	10'-7"	□
u2	34	#6	6'-9"	□
v6	52	#7	19'-0"	—
Concrete Structures			Cu. Yd.	38.3
Reinforcement Bars			Pound	4180
Furnishing Steel Piles, HP 12x53			Foot	150
Underwater Structure Excavation				
Protection - Location 2			Each	1
Structure Excavation			Cu. Yd.	19
Setting Piles in Rock			Each	5
Concrete Encasement			Cu. Yd.	1.2

NOTES

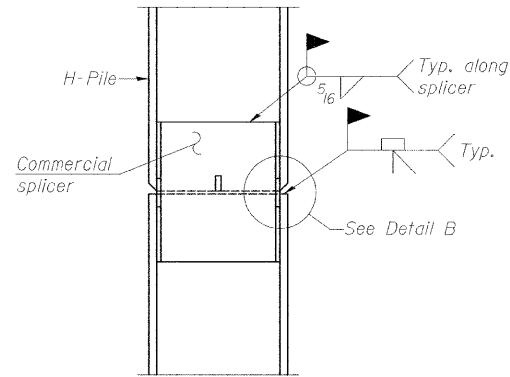
All exposed edges shall have standard 3/4" chamfer except as noted.
 Space reinforcement in pier caps to miss beam anchor dowels.
 The Steel H-Piles shall be according to AASHTO M270, Grade 50.
 If a portion of the pier wall or concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.
 Work this sheet with Sheet No. 15 of 19.

FILE NAME =	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	PIER 2		T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		DRAWN -	REVISED -		SCALE: NONE	SHEET NO. 14 OF 19 SHEETS	STA. 12+75.00 TO STA. 18+75.00	159	07-1818-00-BR	SHELBY	19	14
		CHECKED -	REVISED -					S.N. 087-3567	CONTRACT NO. 95626			
		DATE -	REVISED -					FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT				

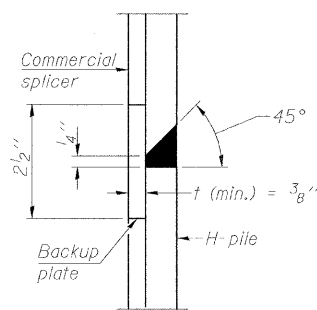


STEEL PILE TABLE

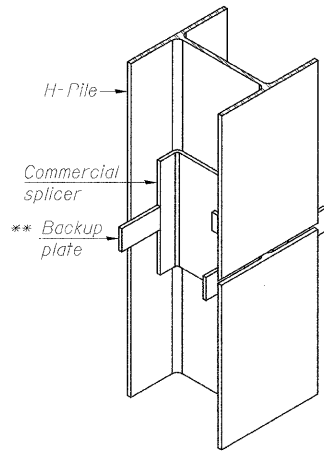
Designation	Depth d	Flange width b _f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53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



ELEVATION

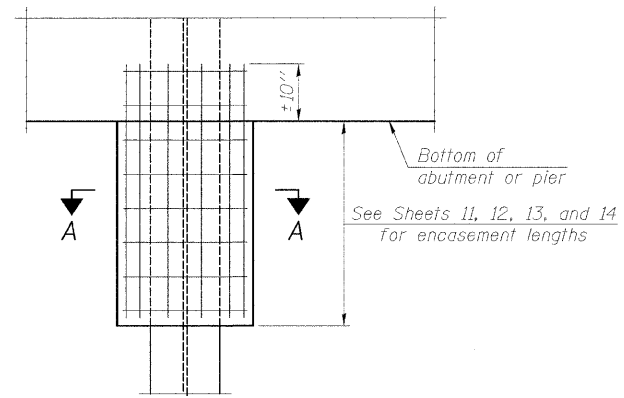


DETAIL "B"



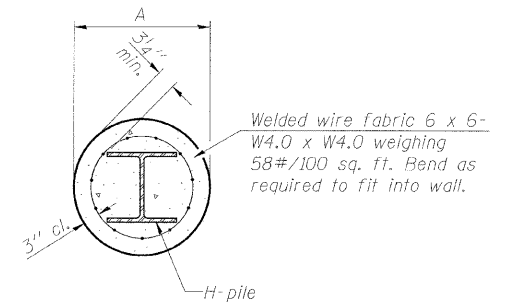
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



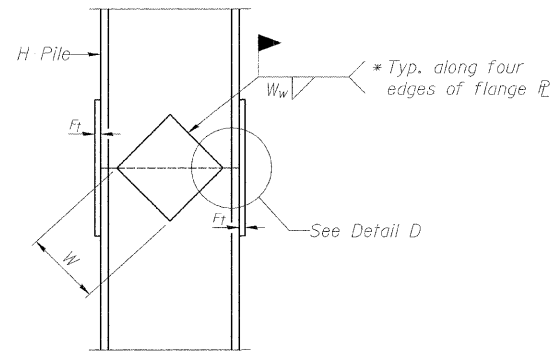
ELEVATION

PILE ENCASEMENT

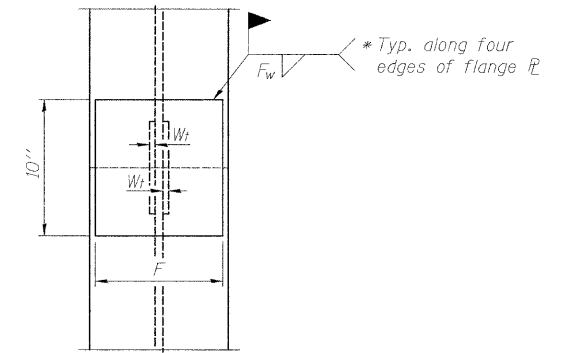


SECTION A-A

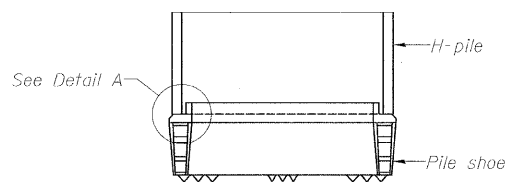
Note:
Forms for encasement may be omitted when soil conditions permit.



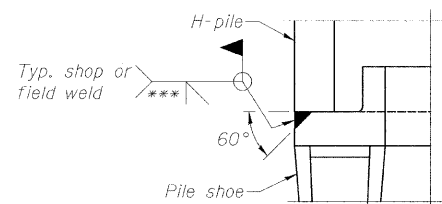
ELEVATION



END VIEW

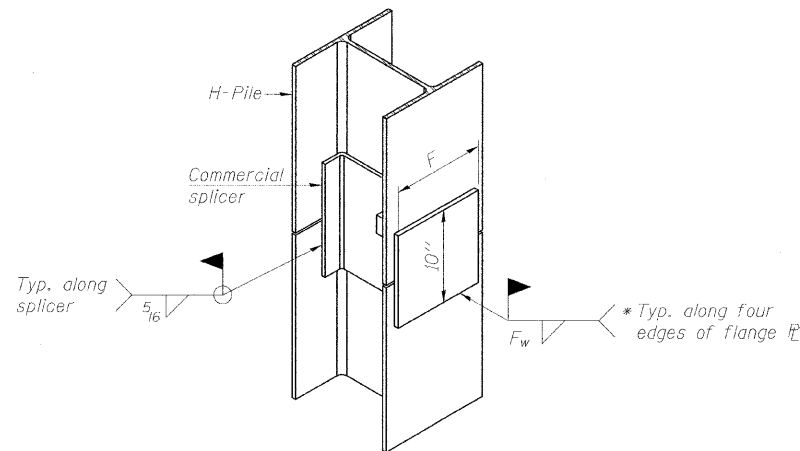


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT

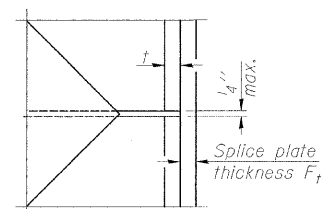


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

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

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



DETAIL D

WELDED PLATE FIELD SPLICE

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

HP PILE DETAILS
STRUCTURE NO. 087-3567

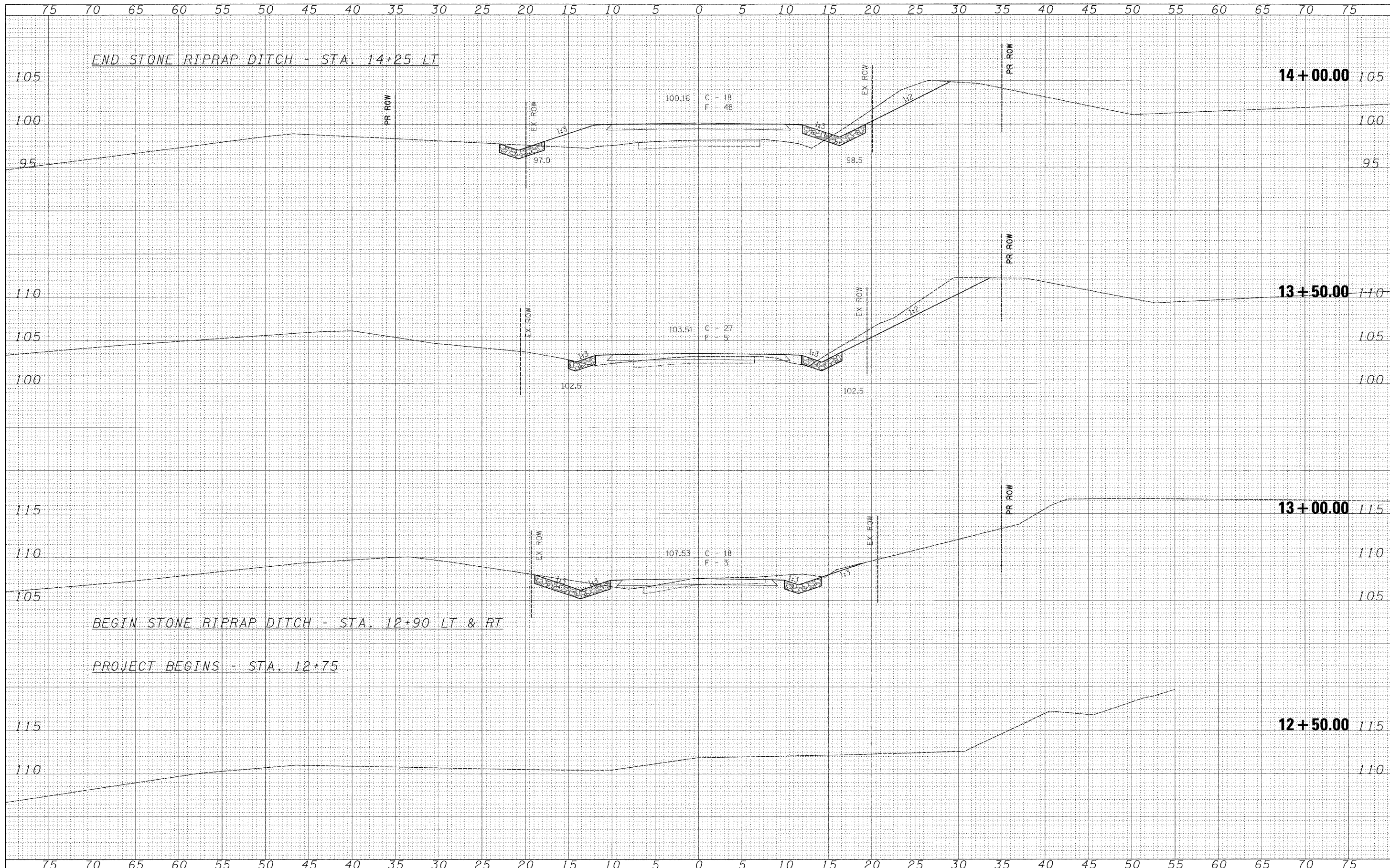
F-HP

11-1-09

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		CHECKED - ---	REVISED - ---		SCALE: NONE SHEET NO. 15 OF 19 SHEETS STA. 12+75.00 TO STA. 18+75.00			S.N. 087-3567	CONTRACT NO. 95626			
		DATE - ---	REVISED - ---					FED. ROAD DIST. NO. - [ILLINOIS] FED. AID PROJECT				

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

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



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No. 184-001907

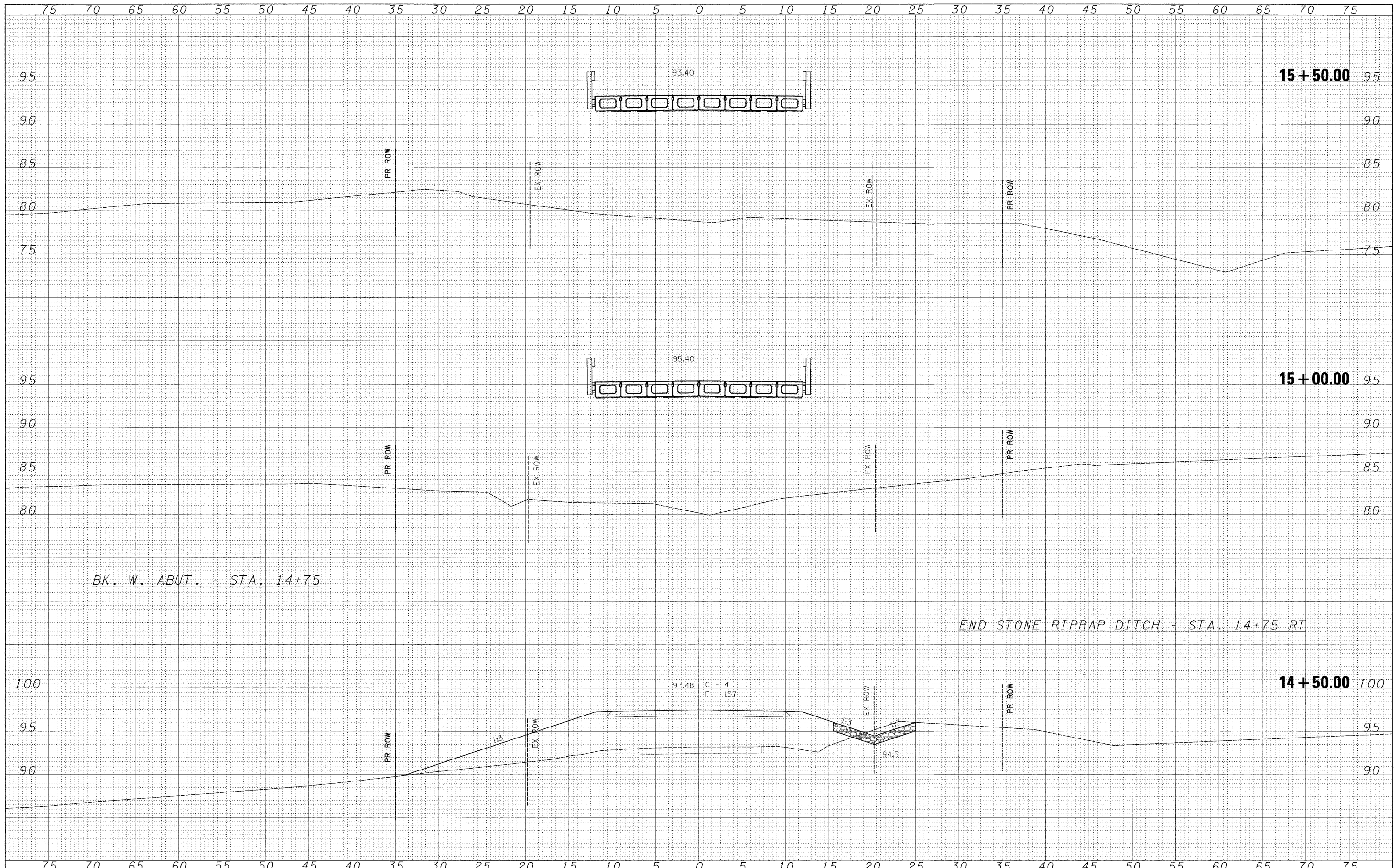
CROSS SECTIONS

SCALE: 1"=5' V & H SHEET NO. 16 OF 19 SHEETS STA. 12+50.00 TO STA. 14+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT			CONTRACT NO. 95626	

FINAL SURVEY	DATE
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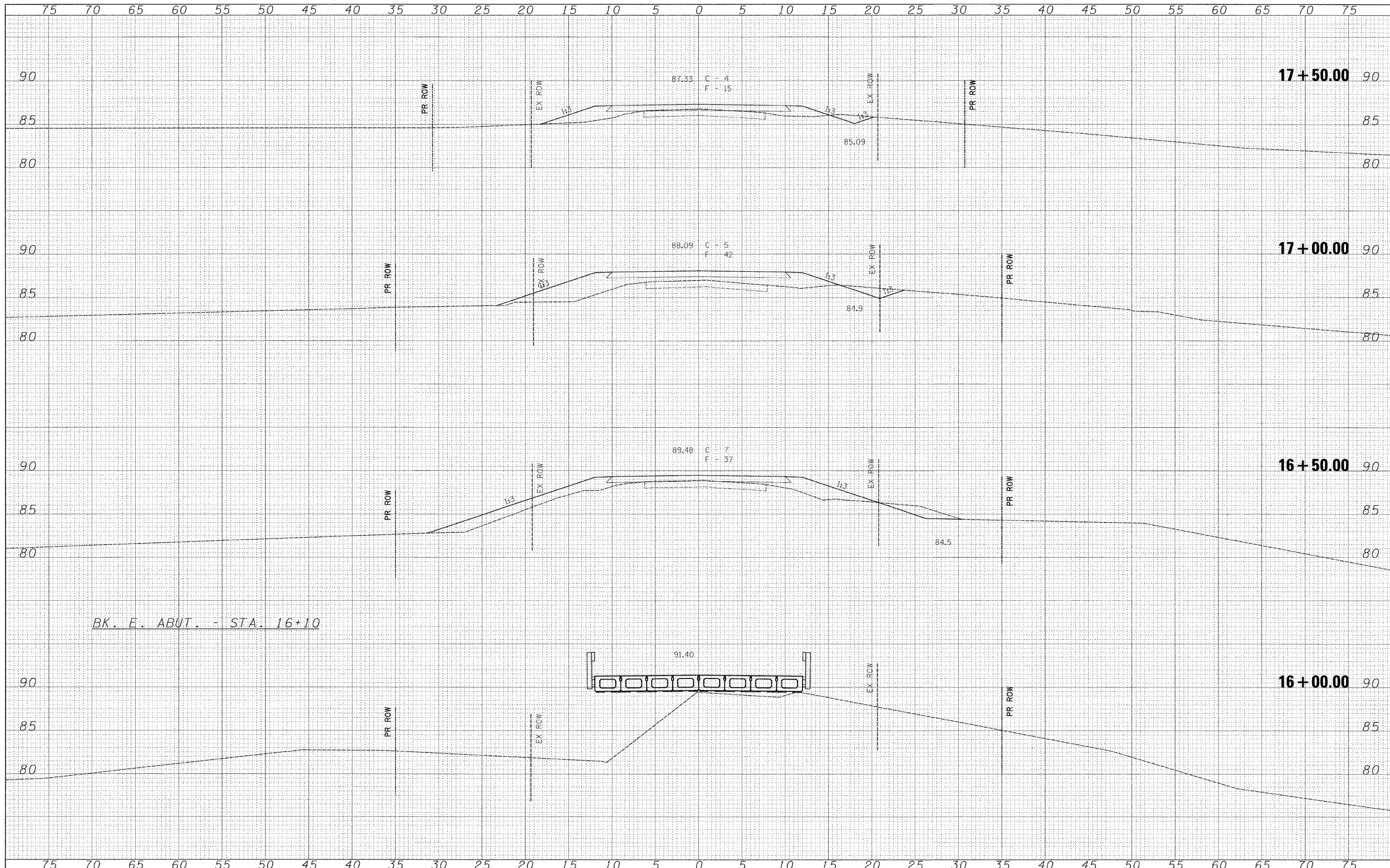
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No. 184-001907

CROSS SECTIONS
SCALE: 1"=5' V & H SHEET NO. 17 OF 19 SHEETS STA. 14+50.00 TO STA. 15+50.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	17
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT			CONTRACT NO. 95626	

FINAL	DATE
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NOTE BOOK	NO.
TEMPLATE	AREAS CHECKED

ORIGINAL	DATE
SURVEY	BY
NOTE BOOK	NO.
TEMPLATE	AREAS CHECKED



BK. E. ABUT. - STA. 16+10

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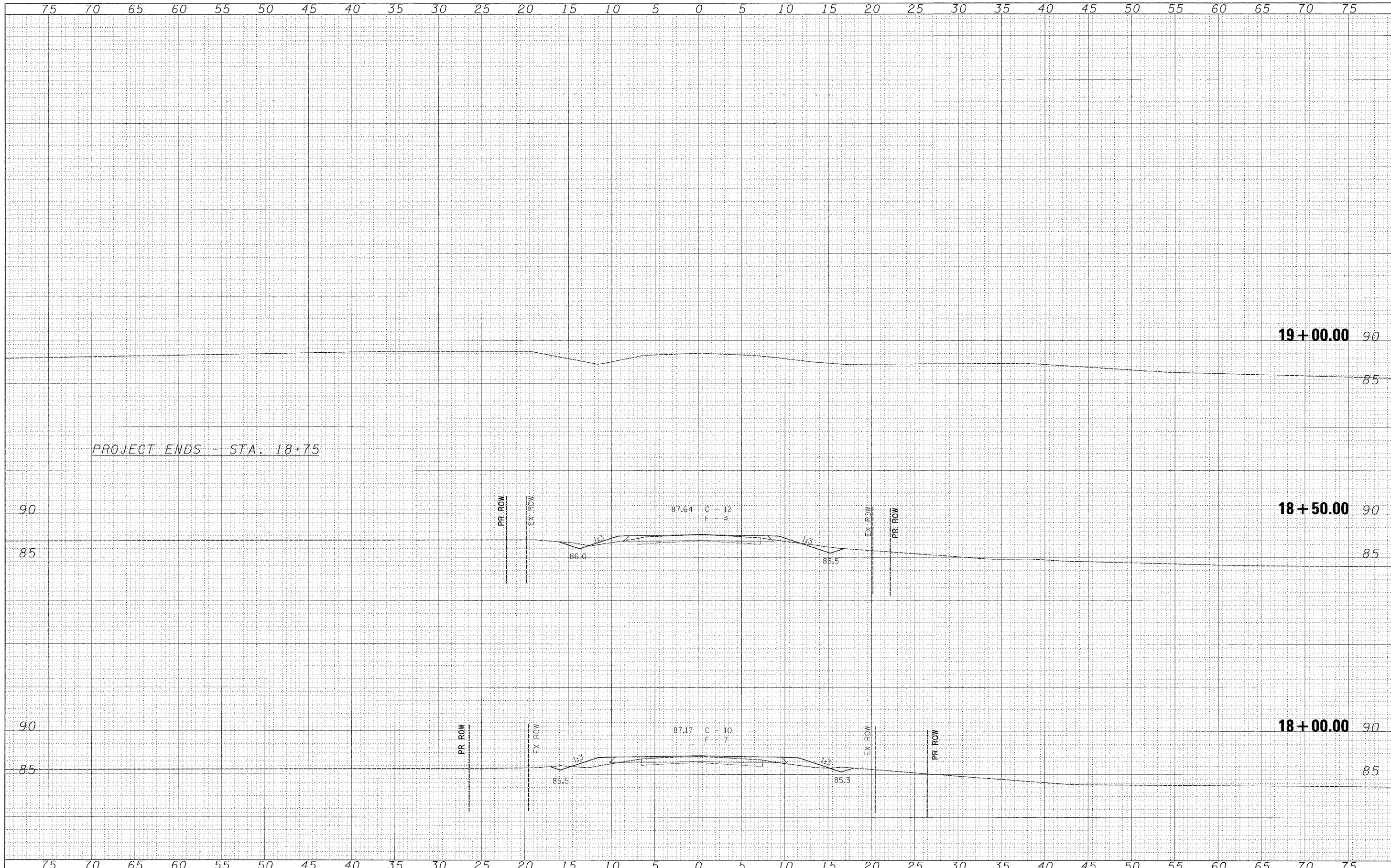
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T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	18
CONTRACT NO. 95626				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

FINAL SURVEY	BY	DATE
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ORIGINAL SURVEY	BY	DATE
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CROSS SECTIONS

SCALE: 1"=5' V & H SHEET NO. 19 OF 19 SHEETS STA. 18+00.00 TO STA. 19+00.00

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
159	07-18118-00-BR	SHELBY	19	19
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT			CONTRACT NO. 95626	