

**INDEX OF SHEETS**

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7-16	BRIDGE DESIGN

**HIGHWAY STANDARDS**

000001-06	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS (8 SHEETS)
515001-03	NAME PLATE FOR BRIDGES (2 SHEETS)
701901-06	TRAFFIC CONTROL DEVICES (3 SHEETS)
725001-01	OBJECT AND TERMINAL MARKERS
B.L.R. 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)
B.L.R. 23-4	TRAFFIC BARRIER TERMINAL TYPE 1
B.L.R. 27-1	TRAFFIC BARRIER TERMINAL TYPE 5A

**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	62.0
20300100	CHANNEL EXCAVATION	CU YD	280.0
20400800	FURNISHED EXCAVATION	CU YD	2002.0
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	1430.0
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	670.0
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.0
50300225	CONCRETE STRUCTURES	CU YD	25.8
50400605	PRECAST PRESTRESSED CONCRETE DECK BEAMS (33" DEPTH)	SQ FT	2040.0
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2980.0
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	170.0
51201400	FURNISHING STEEL PILES 10X42	FOOT	750.0
51202305	DRIVING PILES	FOOT	750.0
51500100	NAME PLATES	EACH	1.0
58700300	CONCRETE SEALER	SQ FT	93.0
67100100	MOBILIZATION	L SUM	1.0
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4.0
Δ LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2.0
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.7
Δ X6311205	TRAFFIC BARRIER TERMINAL, TYPE 5A (SPECIAL)	EACH	2.0

Δ SPECIALTY ITEMS

DESIGN DESIGNATION:  
DESIGN SPEED: 30 MPH  
HIGHWAY CLASS - LOCAL ROAD  
EXISTING STRUCTURE NO.: 033-3206  
PROPOSED STRUCTURE NO.: 033-3323  
CURRENT A.D.T. = 25  
CONTRACT NO. 99572



Know what's below.  
Call before you dig.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**PLANS FOR PROPOSED  
FEDERAL AID - S.T.P. BRIDGE**

T.R. 486 HAMILTON COUNTY SECTION 13-01117-00-BR

PROJECT NO. BROS-0065(056) JOB NO. C-99-515-14

CONTRACT #99572 SOUTHERN OUTLET

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	1

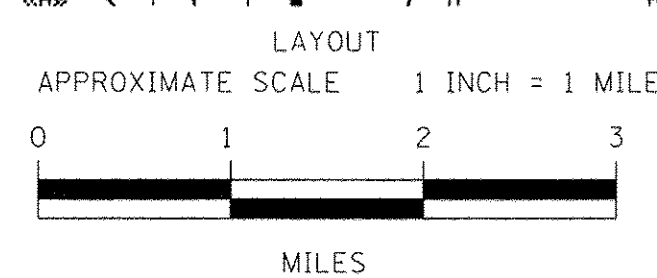
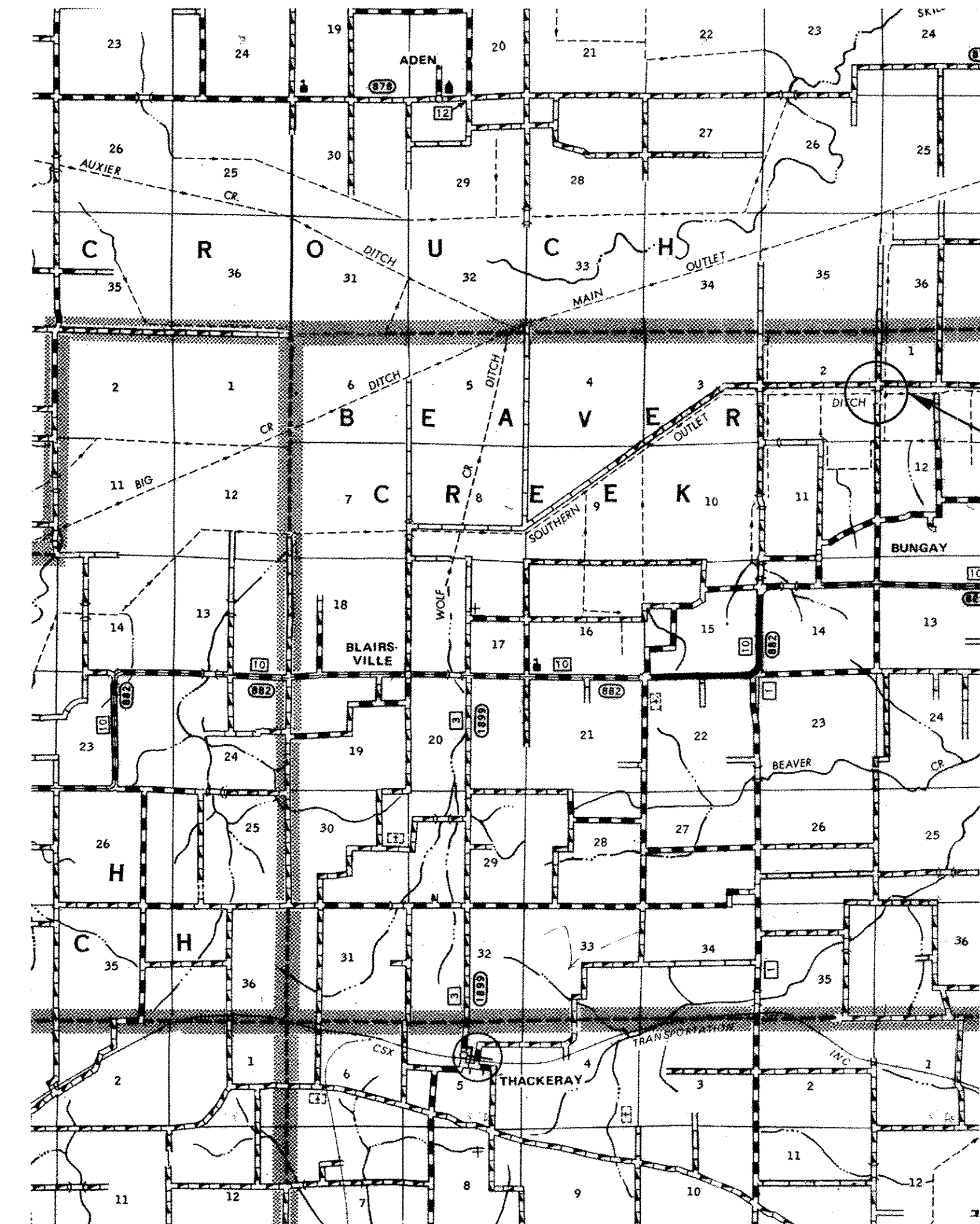
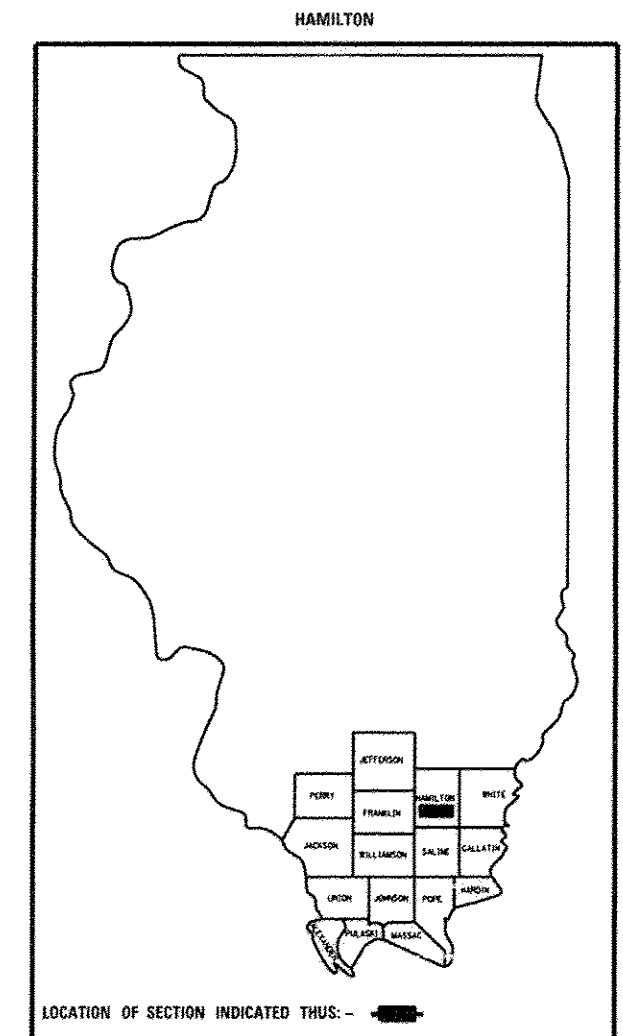
323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL  
62863  
PHONE: (618)-262-8651  
FAX: (618)-263-3327  
HLR JOB # 15.1125 LEC JOB # H31019HW

ILLINOIS PROFESSIONAL DESIGN FIRM  
LAND SURVEY, PROFESSIONAL ENGINEERING & STRUCTURAL ENGINEERING CORPORATION  
184-000959

**JAMAC**  
ENGINEERING  
A Division of Hampton, Lenzini and Henwick, Inc.



AARON M. MEFFORD  
NAME  
SIGNATURE  
1-5-17  
DATE  
11-30-17  
EXPIRES



GROSS LENGTH	795.00 FT	0.151 MILES
OMISSIONS	0.00 FT	0.000 MILES
NET LENGTH	795.00 FT	0.151 MILES

PLAN	1" = 50'	0 50' 100'
PROFILE	1" = 50'	0 50' 100'
PROFILE VERT.	1" = 5'	0 5' 10'

SECTION 13-01117-00-BR  
BEGINS STATION 1+00

STA 5+00, STRUCTURE NO. 033-3323,  
A 85' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH  
33" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS,  
24' WIDTH, 0° SKEW

SECTION 13-01117-00-BR  
ENDS STATION 8+95

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

APPROVED January 5, 2017  
*Kevin P. Hill*  
COUNTY ENGINEER

PASSED FEBRUARY 10, 2017  
*Dennis W. Hill*  
ENGINEER OF LOCAL ROADS AND STREETS

RELEASING FOR BID  
BASED ON LIMITED  
REVIEW: FEBRUARY 10, 2017  
*Jeffrey L. Keirn*  
JEFFREY L. KEIRN, P.E.  
REGION FIVE ENGINEER

TOWNSHIP ROUTE 486  
OVER SOUTHERN OUTLET  
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:  
TITLE SHEET

SCALE:	VARIES
BY:	A.M.M.
DATE:	1/3/17
REV:	

1 OF 16  
SHEETS  
SHEET NO.  
1



TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	2
FED. ROAD DIST. NO. 9 ILLINOIS		SOUTHERN OUTLET		
PROJECT * BROS-0651056		CONTRACT * 99572		
HLR JOB * 15.1125		LEC JOB * H131019HM		

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AARON M. MEFFORD  
56284  
REGISTERED PROFESSIONAL ENGINEER  
OF ILLINOIS

AARON M. MEFFORD  
NAME  
SIGNATURE  
1-5-17  
DATE  
11-30-17  
EXPIRES

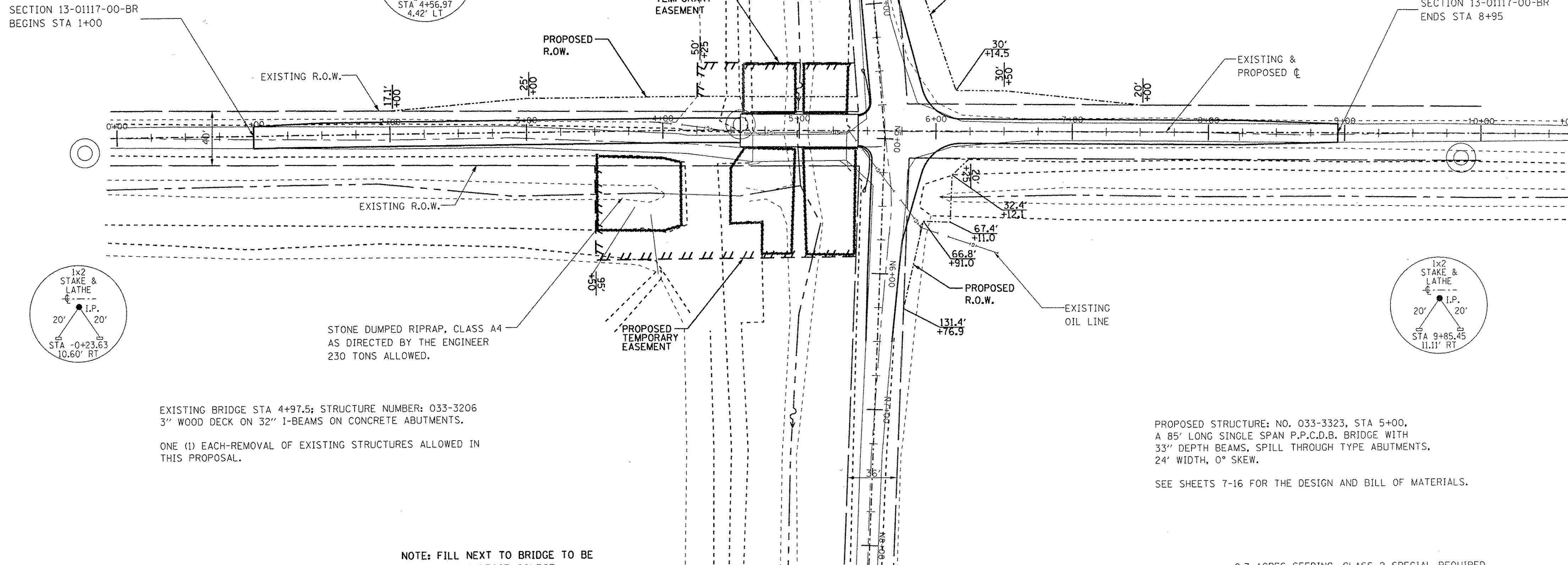
TOWNSHIP ROUTE 486  
OVER SOUTHERN OUTLET  
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:  
PLAN & PROFILE  
SCALE: VARIES  
BY: A.M.M.  
DATE: 10/17  
REV:  
2 OF 16 SHEETS  
SHEET NO. 2

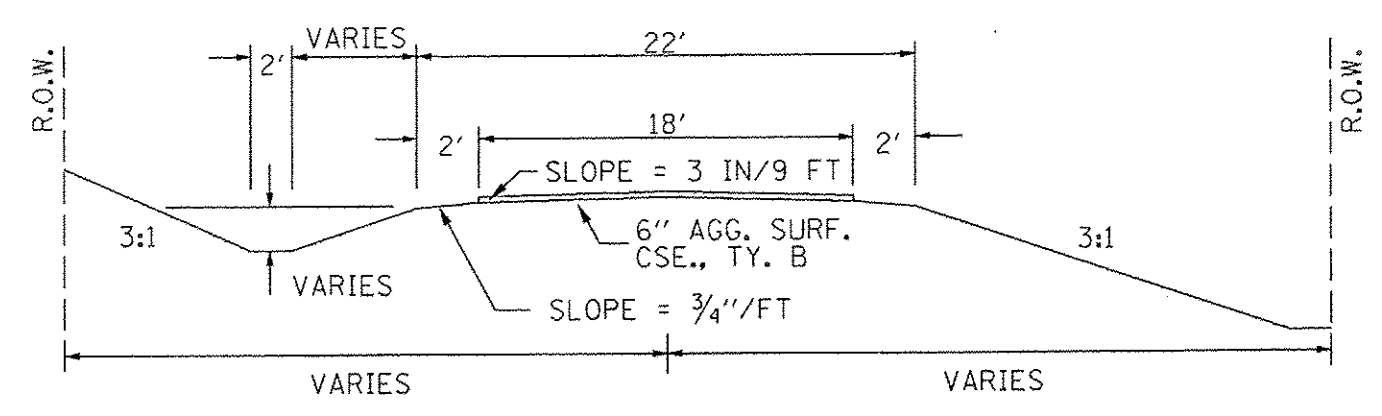
NOTE: CONSTRUCTION TRANSITION  
STA. 1+00 TO STA 1+50  
STA. 8+25 TO STA 8+95  
ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL

**GENERAL NOTES:**

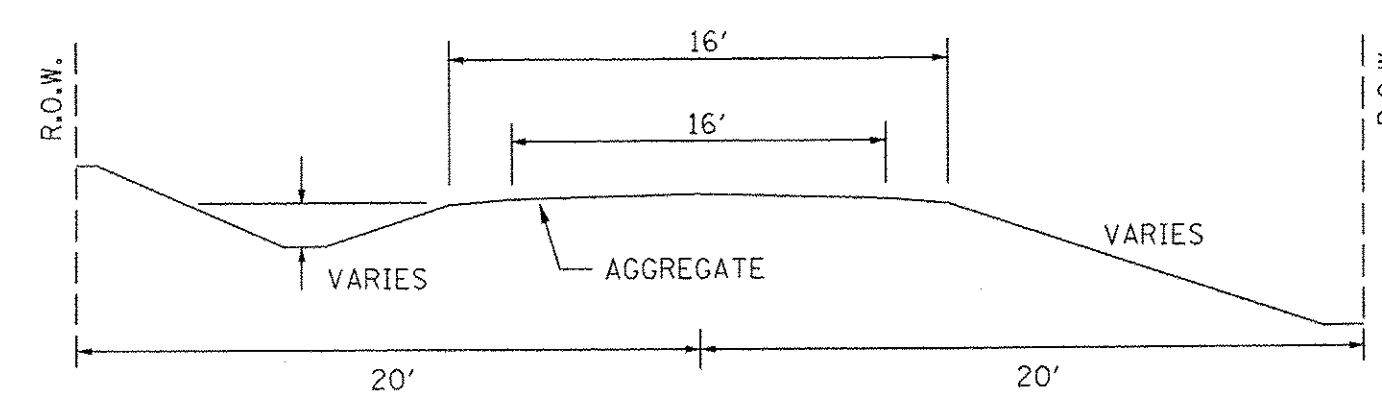
THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED APRIL 1, 2016.  
THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 85 FOOT LONG SINGLE SPAN PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.  
ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.  
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL THE UTILITIES, AFFECTING THE PROJECT, PRIOR TO CONSTRUCTION.  
WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE HAMILTON COUNTY HIGHWAY DEPARTMENT AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER.  
AGGREGATE SURFACE COURSE, TYPE B INCLUDES 50 TON FOR FILL NEXT TO THE BRIDGE, 300 TON FOR THE MAIN ROADWAY AND 320 TON FOR THE SIDE ROAD.



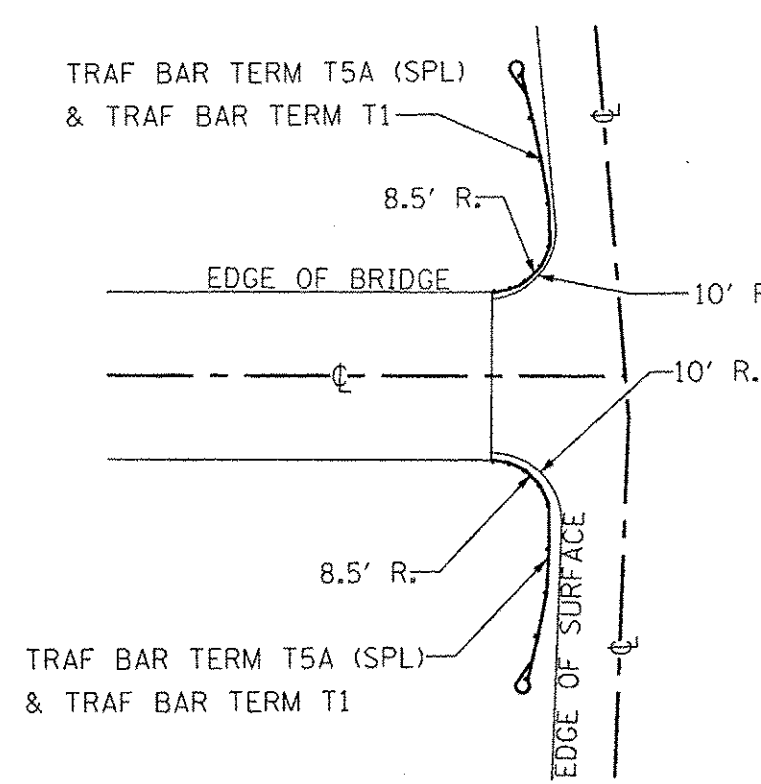
**TYPICAL CROSS SECTION PROPOSED**



**TYPICAL CROSS SECTION EXISTING**



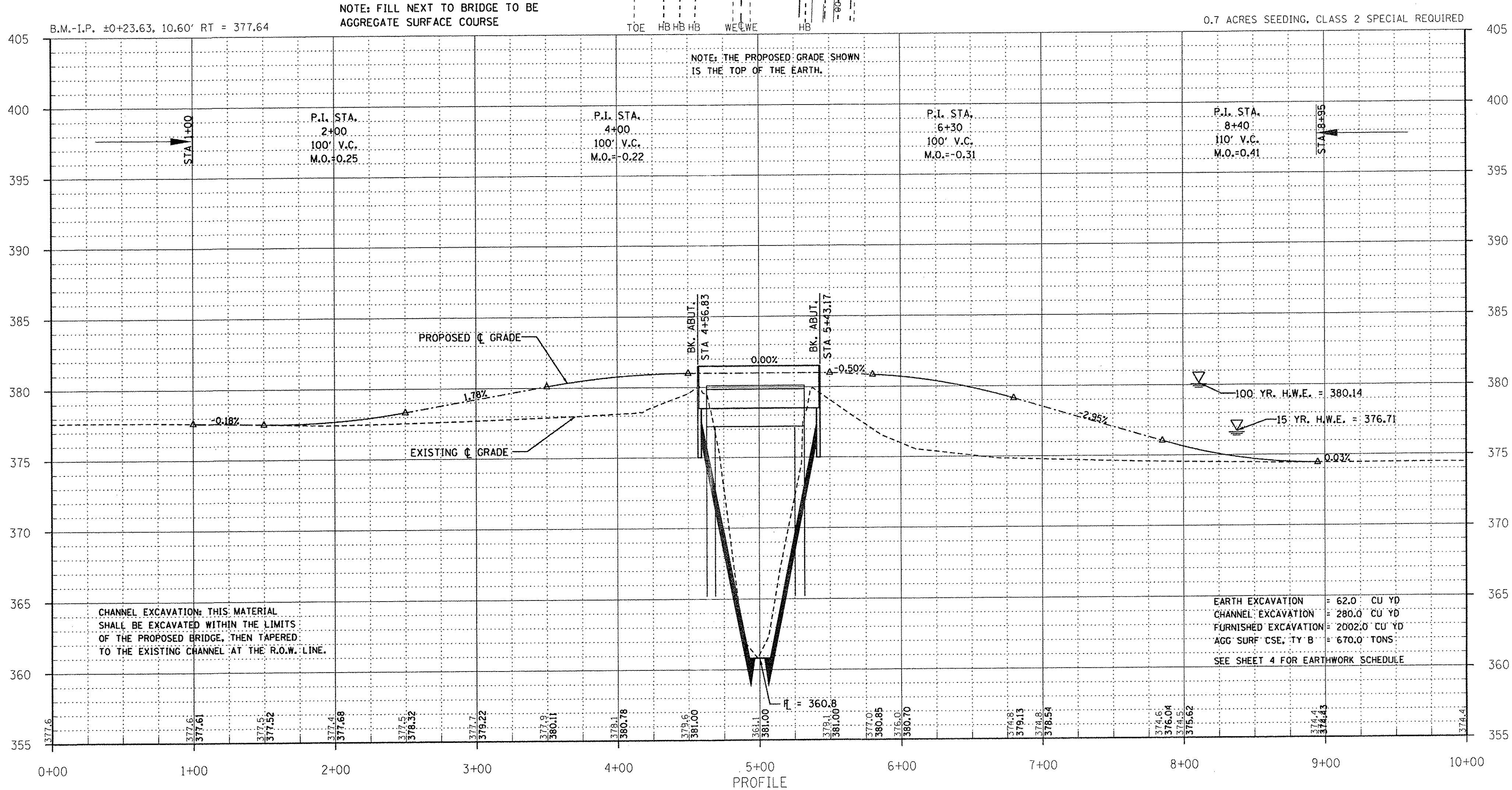
**INTERSECTION DETAIL**



UTILITIES:  
J.U.L.I.E.  
1-800-892-0123  
COUNTRYMARK  
812-838-4341

EXISTING BRIDGE STA 4+97.5; STRUCTURE NUMBER: 033-3206  
3" WOOD DECK ON 32" I-BEAMS ON CONCRETE ABUTMENTS.  
ONE (1) EACH-REMOVAL OF EXISTING STRUCTURES ALLOWED IN THIS PROPOSAL.

PROPOSED STRUCTURE: NO. 033-3323, STA 5+00.  
A 85' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH 33" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 0° SKEW.  
SEE SHEETS 7-16 FOR THE DESIGN AND BILL OF MATERIALS.

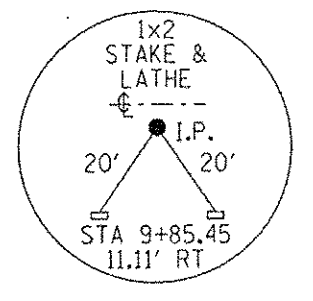
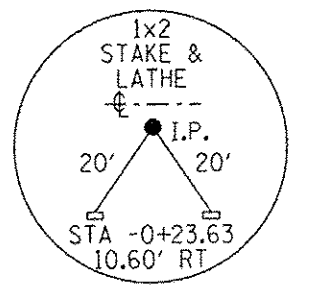
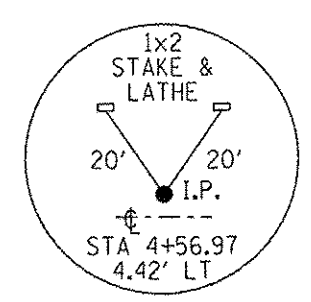


CHANNEL EXCAVATION: THIS MATERIAL SHALL BE EXCAVATED WITHIN THE LIMITS OF THE PROPOSED BRIDGE, THEN TAPERED TO THE EXISTING CHANNEL AT THE R.O.W. LINE.

EARTH EXCAVATION = 62.0 CU YD  
CHANNEL EXCAVATION = 280.0 CU YD  
FURNISHED EXCAVATION = 2002.0 CU YD  
AGG SURF CSE, TY B = 670.0 TONS  
SEE SHEET 4 FOR EARTHWORK SCHEDULE

NOTE: FILL NEXT TO BRIDGE TO BE AGGREGATE SURFACE COURSE

0.7 ACRES SEEDING, CLASS 2 SPECIAL REQUIRED



TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	3
FED. ROAD DIST. NO. 9 ILLINOIS		SOUTHERN OUTLET		
PROJECT # BR05-0651056		CONTRACT # 99572		
HLR JOB # 15.1125		LEC JOB # H31L019HM		

323 W. 3RD ST.  
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CORPORATION  
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AARON M. MEFFORD  
NAME  
SIGNATURE  
DATE  
11-30-17  
EXPIRES

TOWNSHIP ROUTE 486  
OVER SOUTHERN OUTLET  
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:  
EAST-WEST ROAD  
PLAN & PROFILE

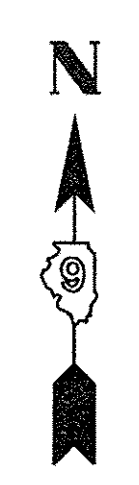
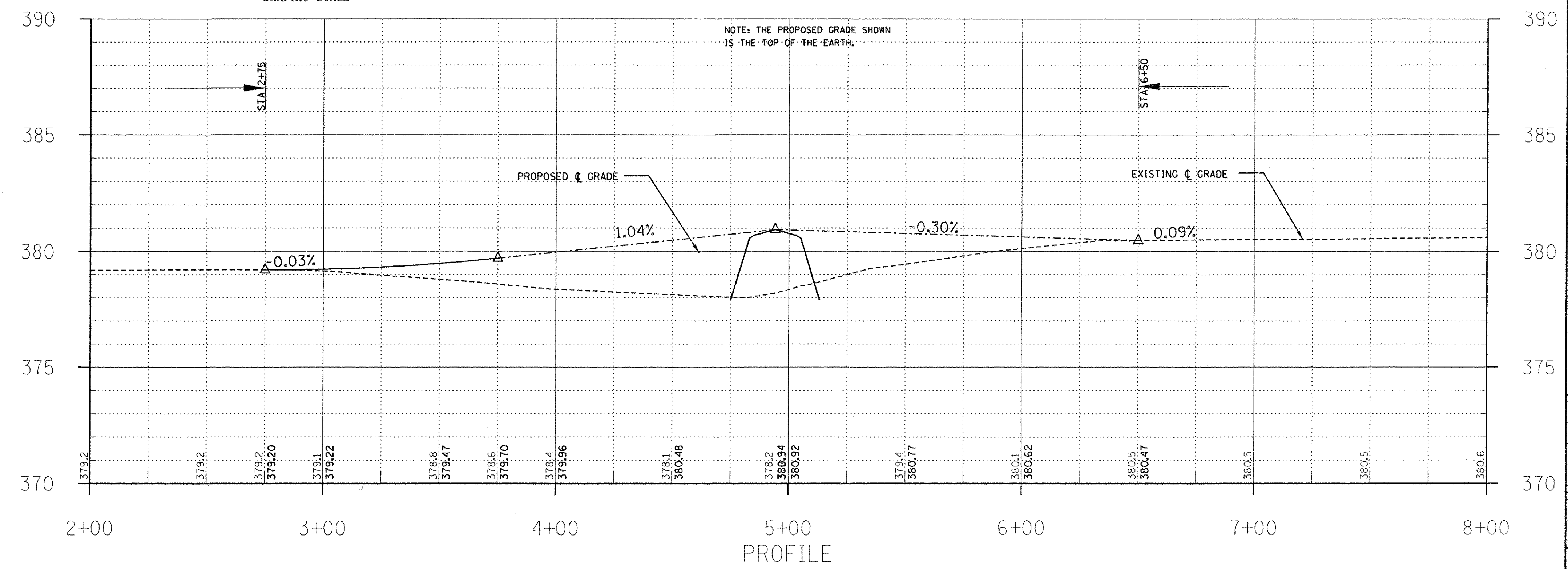
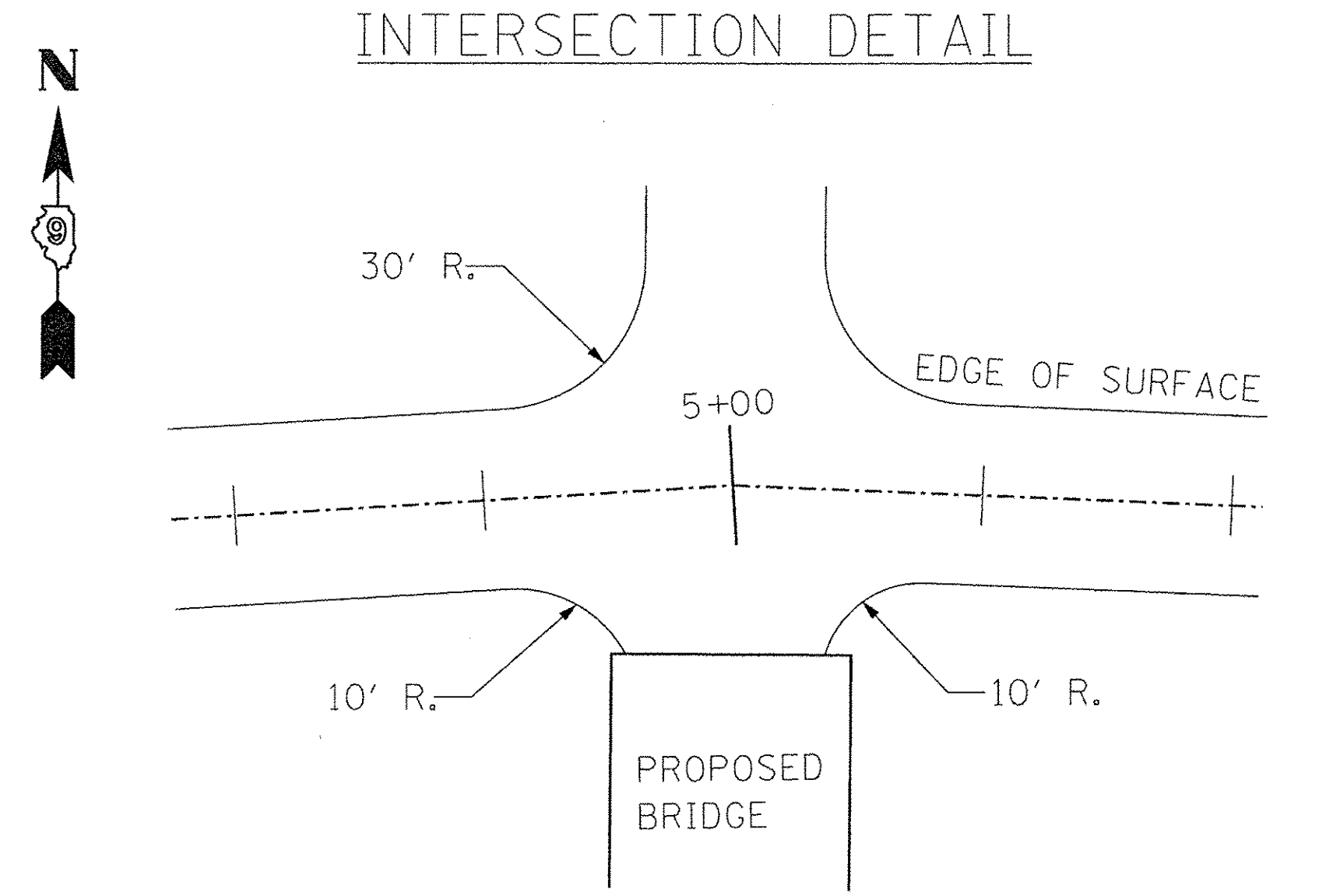
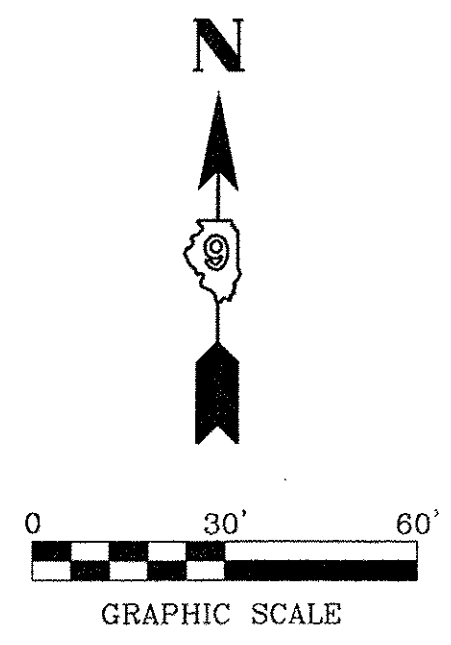
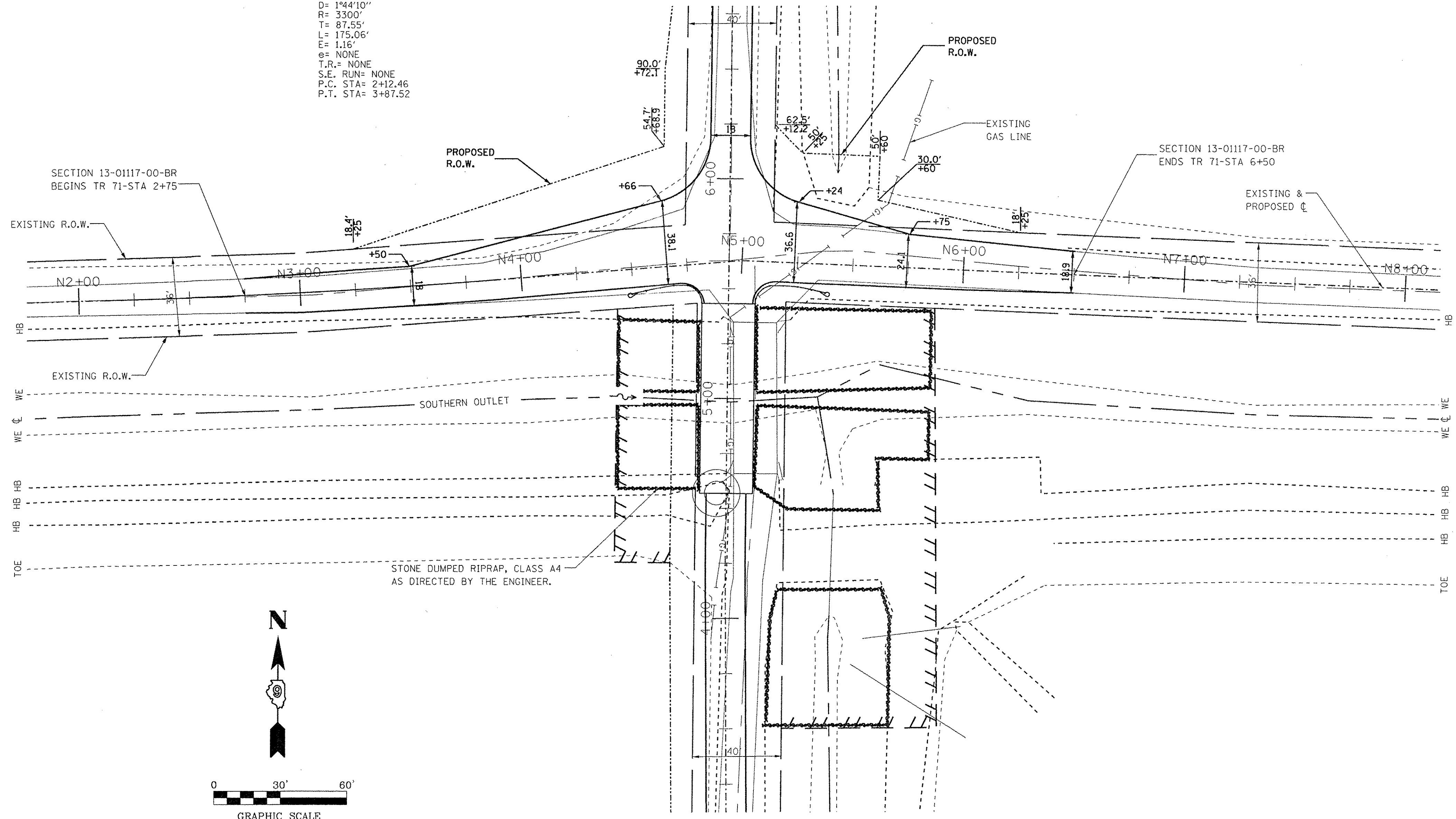
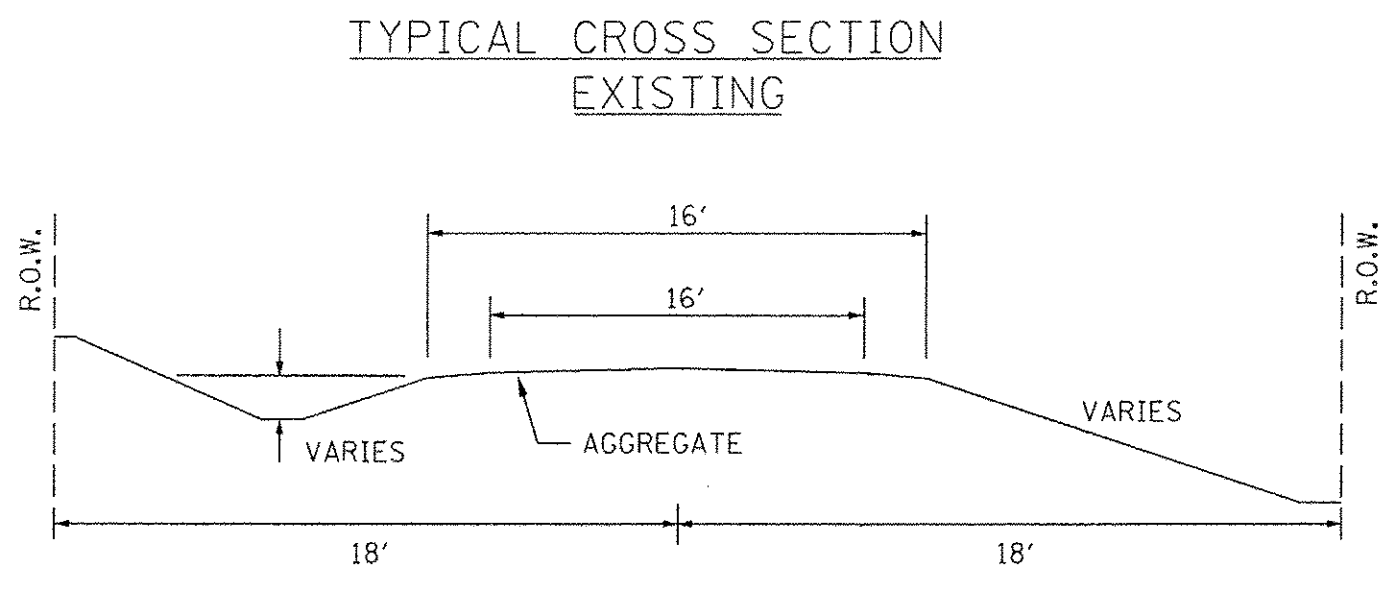
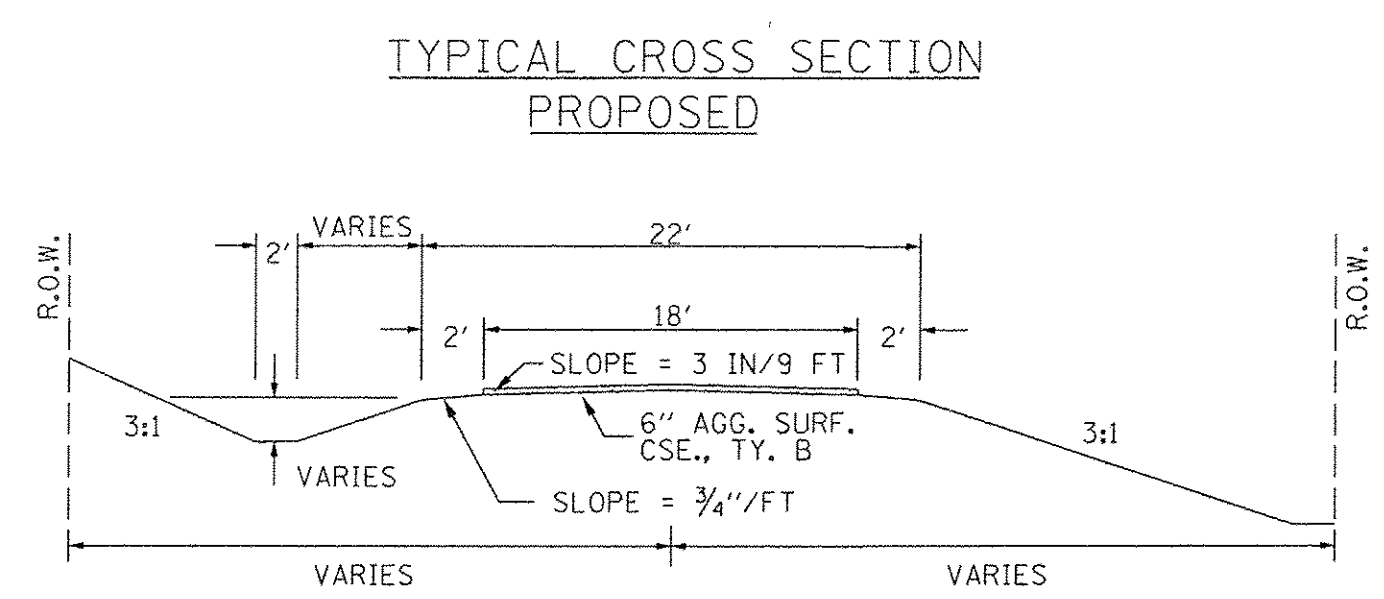
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BY: A.M.M.  
DATE: 10/17  
REV:

3 OF 16  
SHEETS

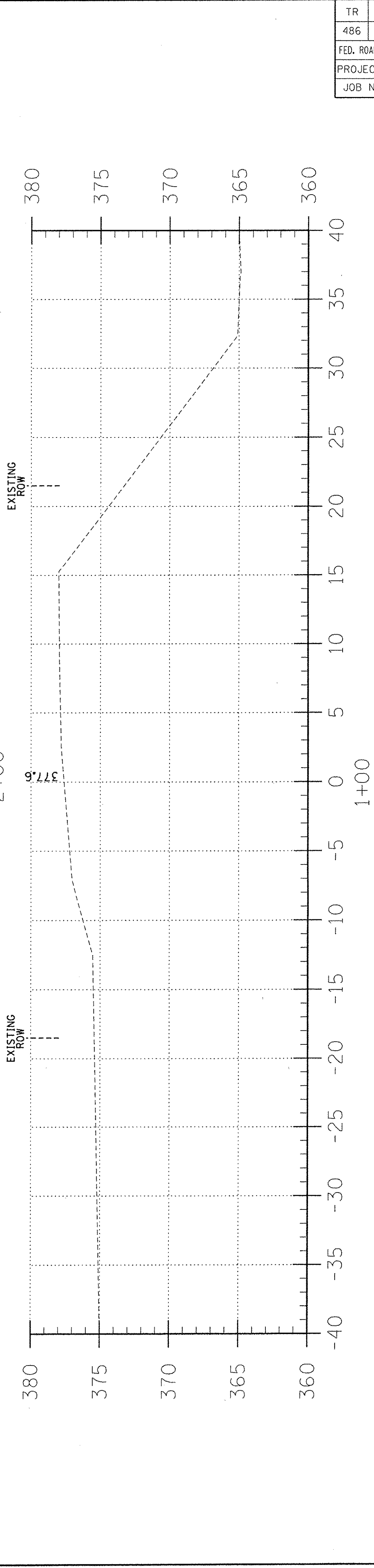
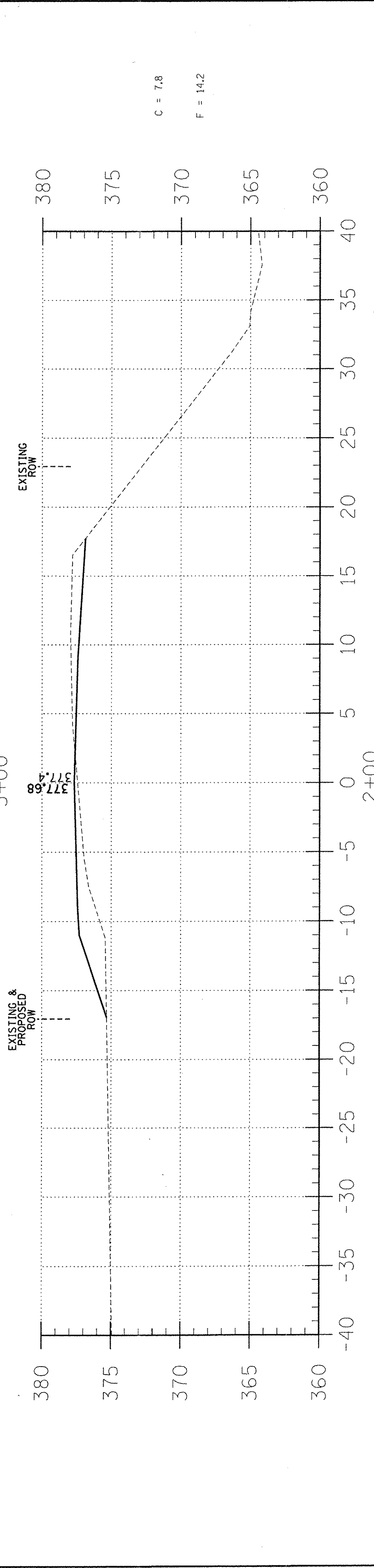
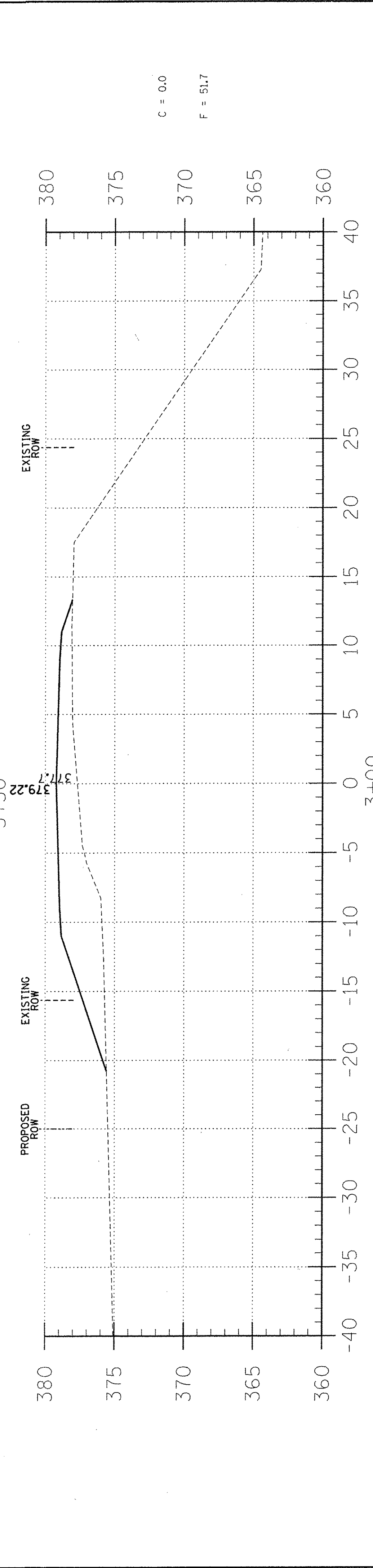
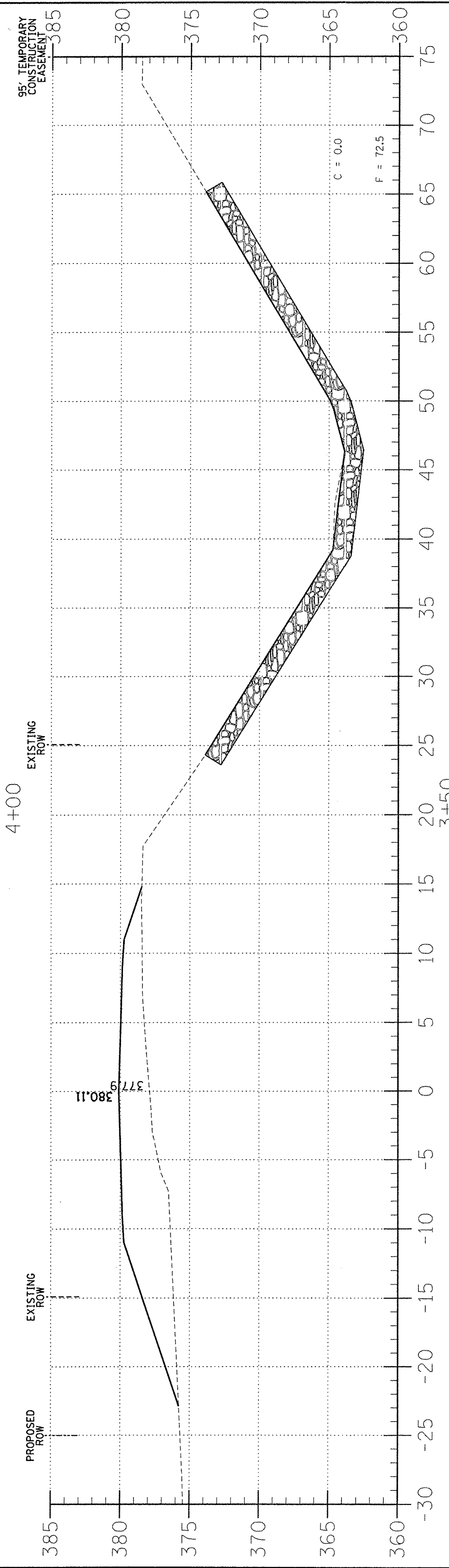
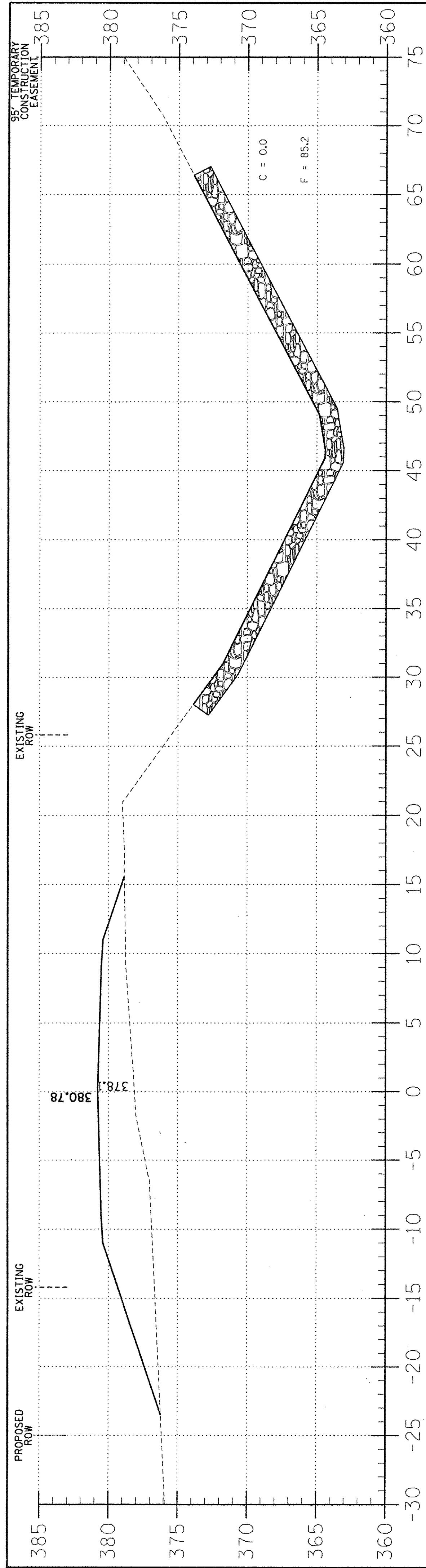
SHEET NO.  
**3**

NOTE: CONSTRUCTION TRANSITION  
STA. 2+75 TO STA 3+25  
STA. 6+00 TO STA 6+50  
ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL

CURVE #1  
P.I. STA= 3+00.01  
Δs LT. 3°02'22"  
D= 14410'  
R= 3300'  
T= 87.55'  
L= 175.06'  
E= 116'  
e= NONE  
T.R.= NONE  
S.E. RUN= NONE  
P.C. STA= 2+12.46  
P.T. STA= 3+87.52







EARTHWORK SCHEDULE

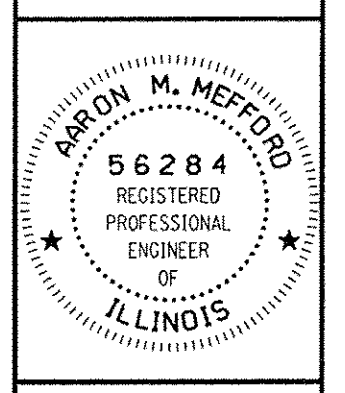
LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	ESTIMATED UNSUITABLE MATERIAL	SUITABLE MATERIAL ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 0+00 TO 4+56.8	35.2	0.0	0.0	26.4	505.6	-479.2
STA 4+56.8 TO 5+43.2	0.0	280.0	140.0	105.0	0.0	+105.0
STA 5+43.2 TO 10+00	0.0	0.0	0.0	0.0	1184.2	-1184.2
SIDEROAD	27.2	0.0	0.0	20.4	463.6	-443.2
TOTAL	62.4	280.0	140.0	151.8	2153.4	-2001.6

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	4
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT# BROS-0651056		CONTRACT# 99572		
JOB NO. C-99-515-14		SOUTHERN OUTLET		
HLR JOB # 15.1125		LEC JOB # H131L019HM		

323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL 62863  
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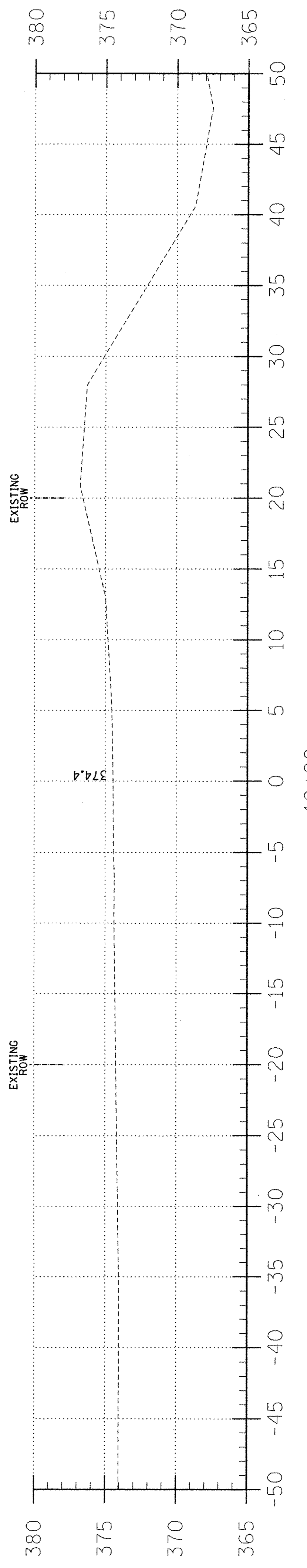
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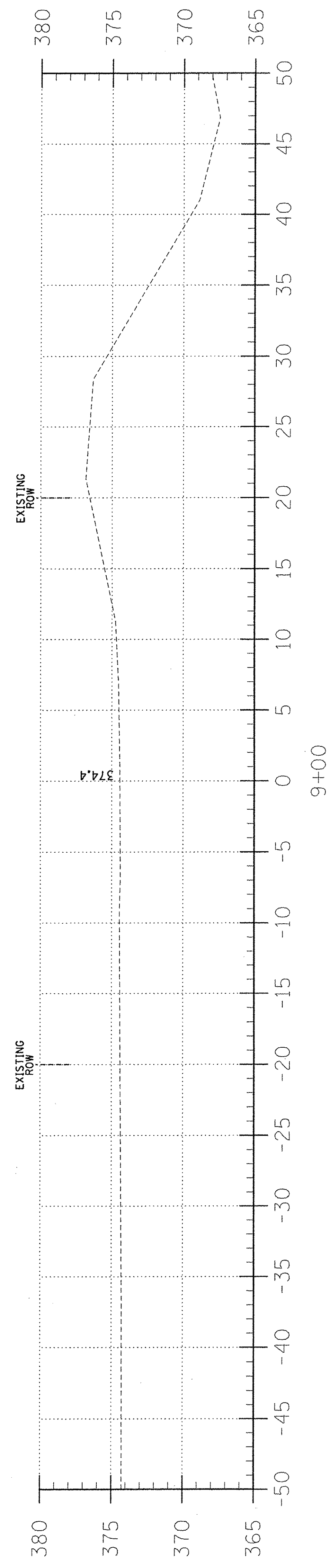
AARON M. MEFFORD  
NAME  
SIGNATURE  
DATE 11-30-17  
EXPIRES

TOWNSHIP ROUTE 486  
OVER SOUTHERN OUTLET  
HAMILTON COUNTY, ILLINOIS

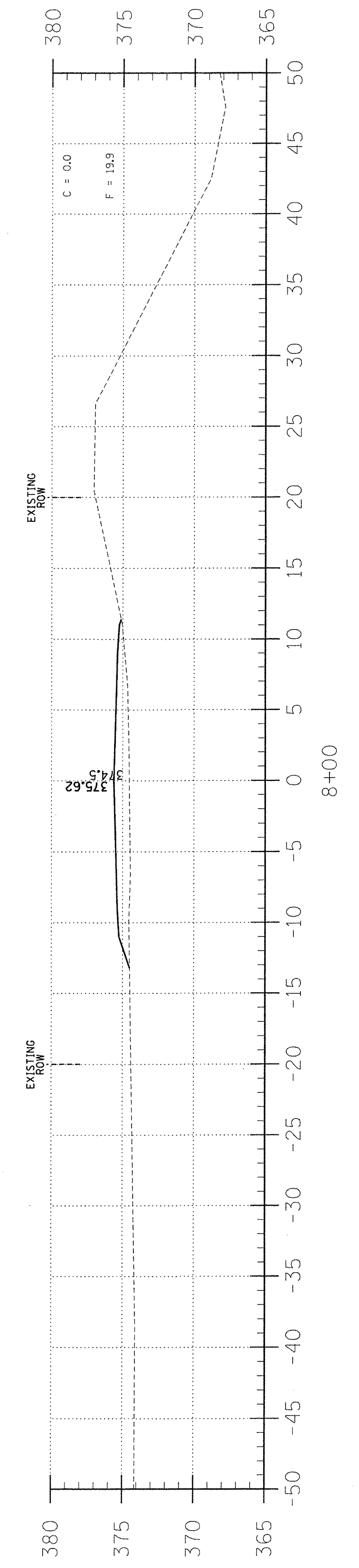
SHEET TITLE:  
CROSS-SECTIONS  
SCALE: 1" = 5'  
BY: A.M.M.  
DATE: 10/17  
REV:  
4 OF 16 SHEETS  
SHEET NO. 4



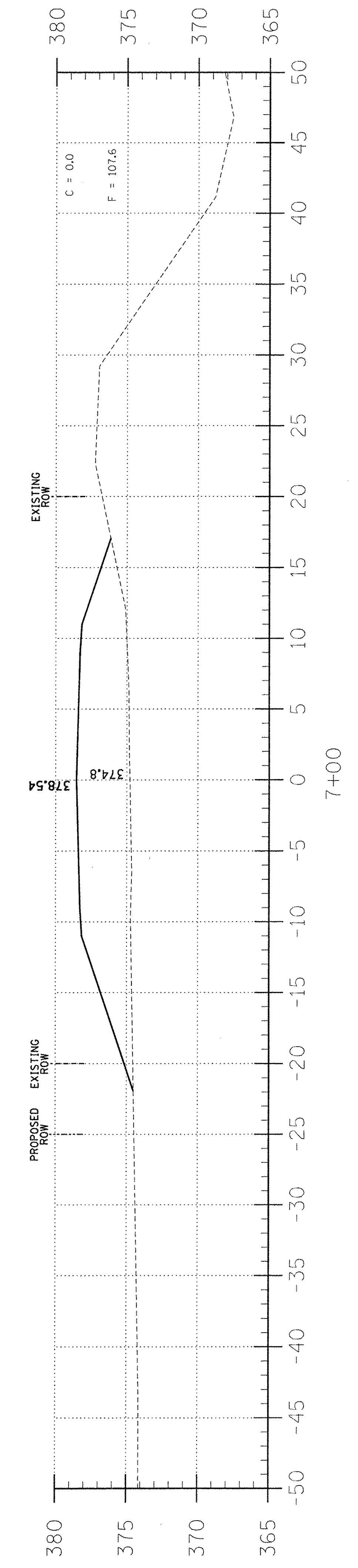
10+00



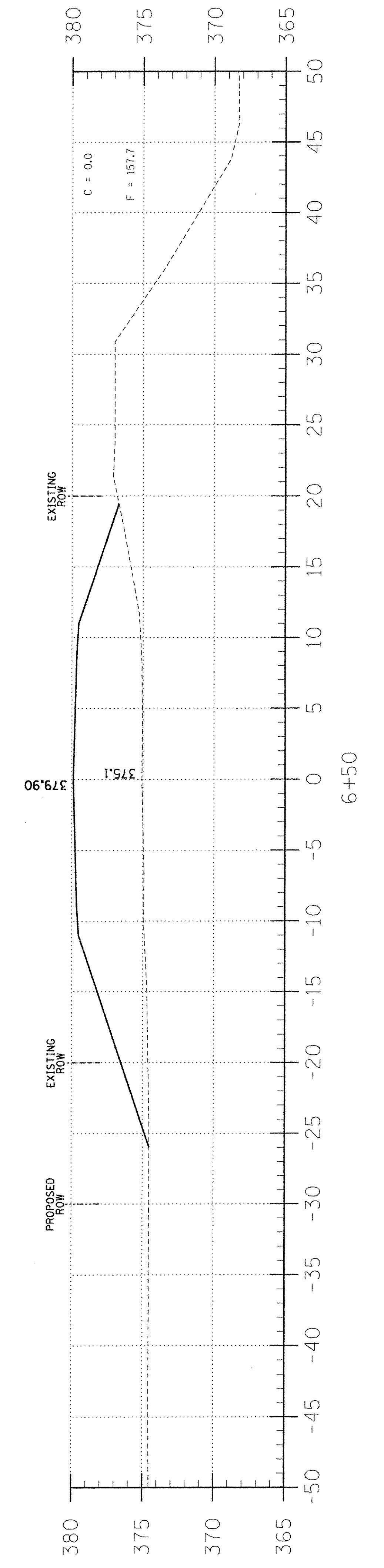
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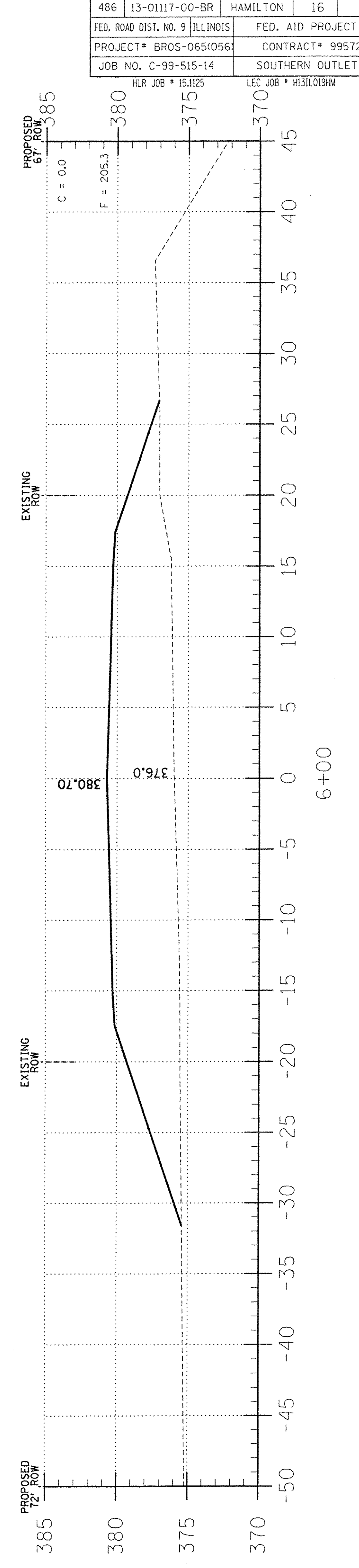
8+00



7+00



6+50



6+00

TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	5
FED. ROAD DIST. NO. 9		ILLINOIS	FED. AID PROJECT	
PROJECT# BROS-0651056		CONTRACT# 99572		
JOB NO. C-99-515-14		SOUTHERN OUTLET		
HLR JOB # 151125		LEC JOB # H131019HM		

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AARON M. MEFFORD  
NAME  
*Aaron Mefford*  
SIGNATURE  
1-5-17  
DATE  
11-30-17  
EXPIRES

TOWNSHIP ROUTE 486  
OVER SOUTHERN OUTLET  
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:  
CROSS-SECTIONS  
SCALE: 1" = 5'  
BY: A.M.M.  
DATE: 10/17  
REV:  
5 OF 16 SHEETS  
SHEET NO. 5



TR	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	6
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT* BROS-065(056)		CONTRACT* 99572		
JOB NO. C-99-515-14		SOUTHERN OUTLET		
HLR JOB # 15,1125		LEC JOB # H31L0194M		

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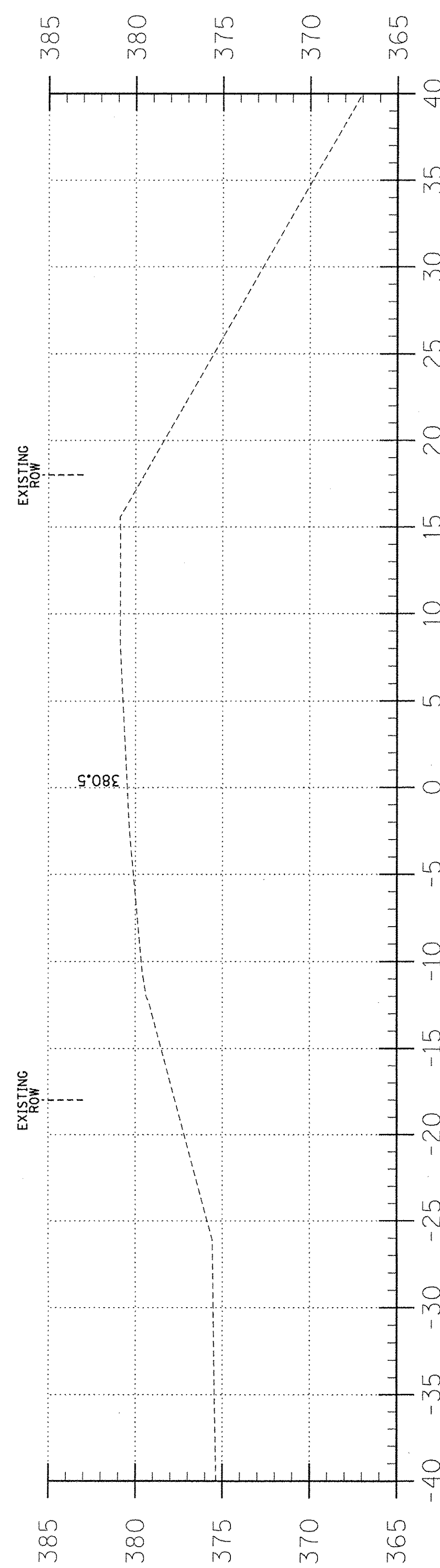


AARON M. MEFFORD  
NAME  
*Aaron M. Mefford*  
SIGNATURE  
1-5-11  
DATE  
11-30-17  
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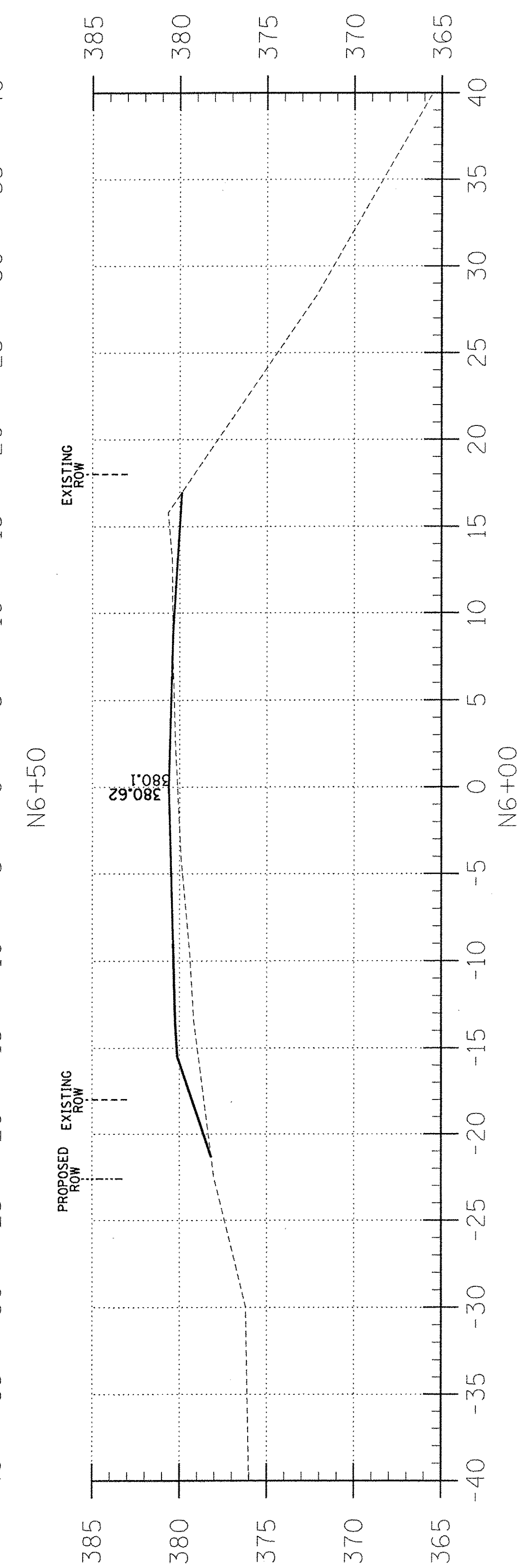
TOWNSHIP ROUTE 486  
OVER SOUTHERN OUTLET  
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:  
EAST-WEST ROAD  
CROSS-SECTIONS  
SCALE: 1" = 5'  
BY: A.M.M.  
DATE: 10/9/17  
REV:  
6 OF 16  
SHEETS  
SHEET NO.  
6

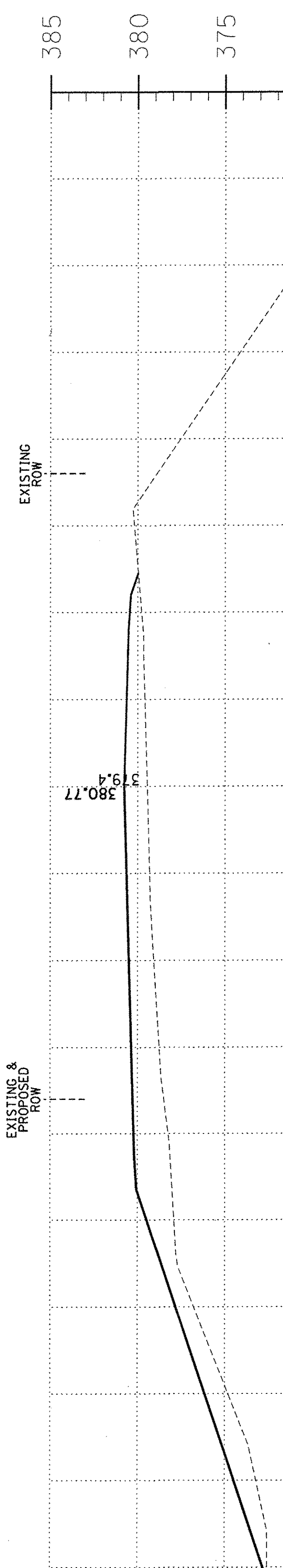
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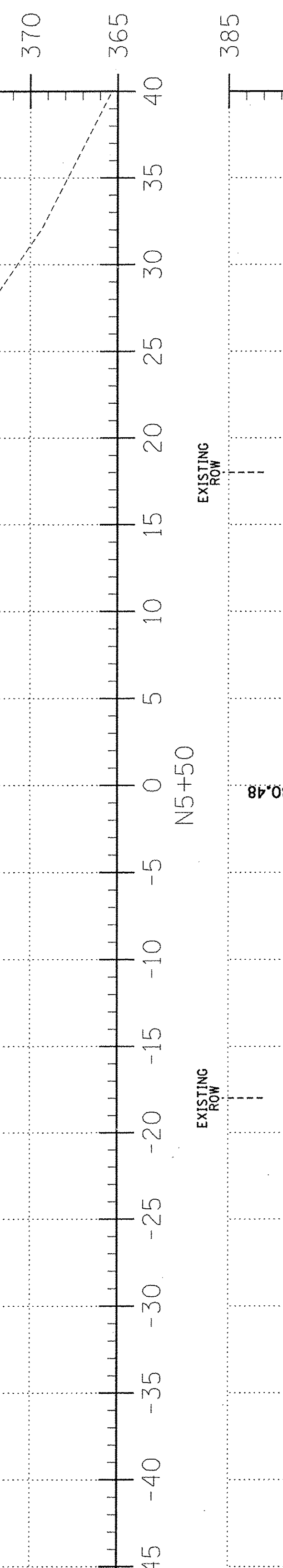
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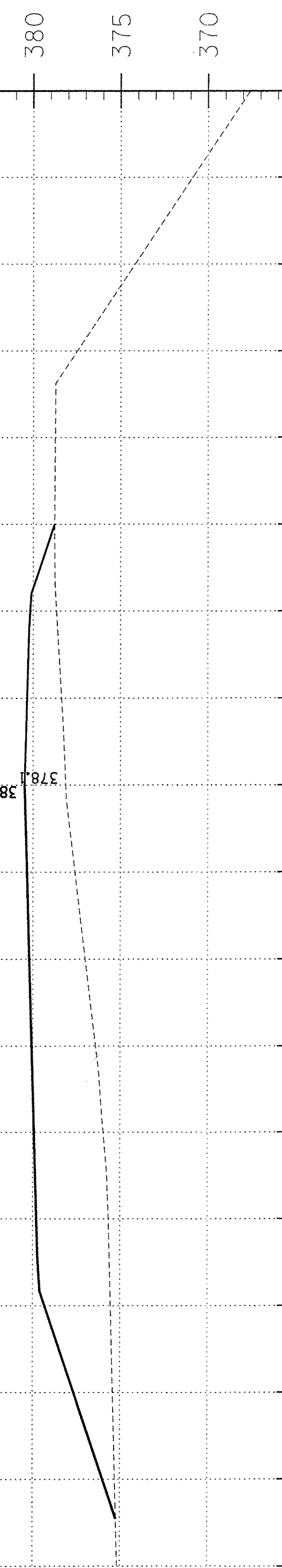
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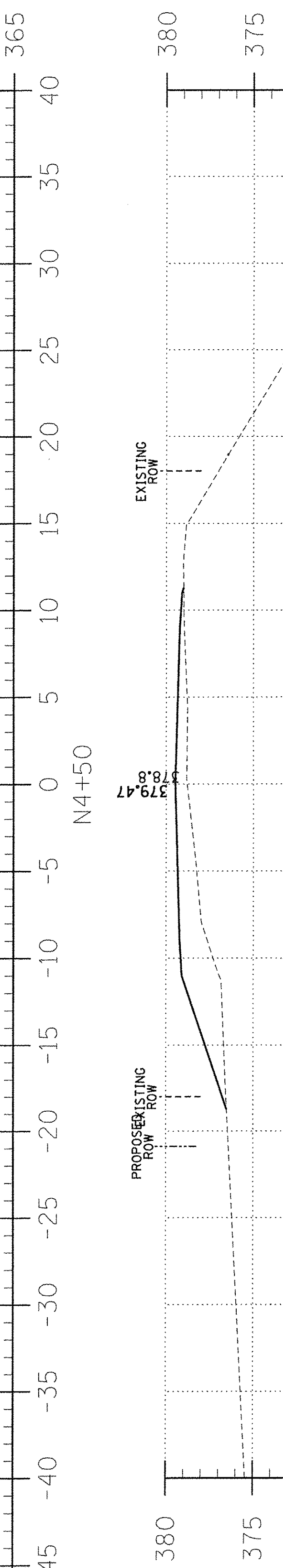
C = 0.0  
F = 26.8



C = 0.0  
F = 26.8



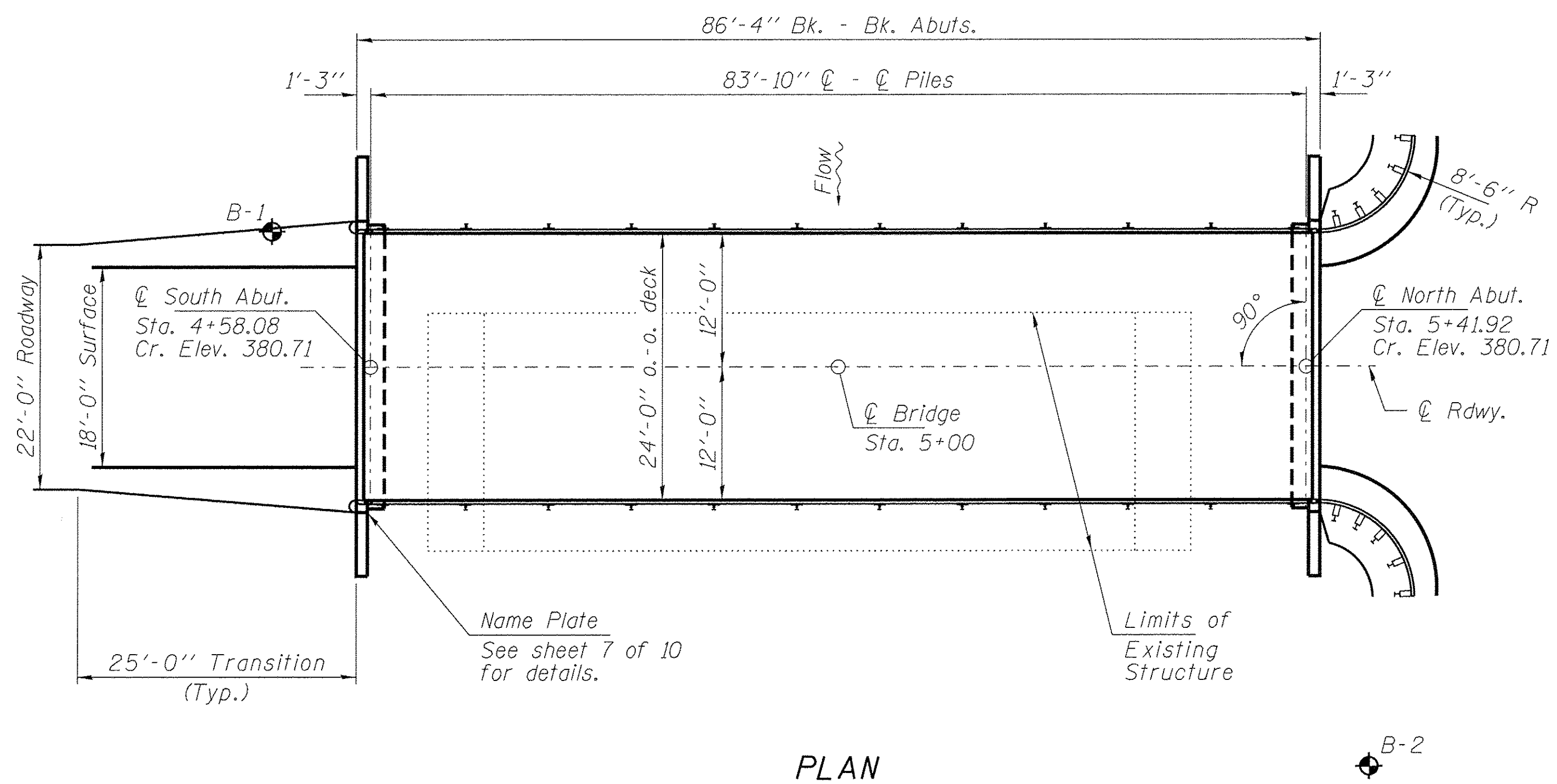
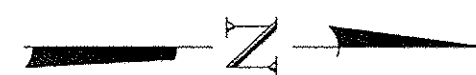
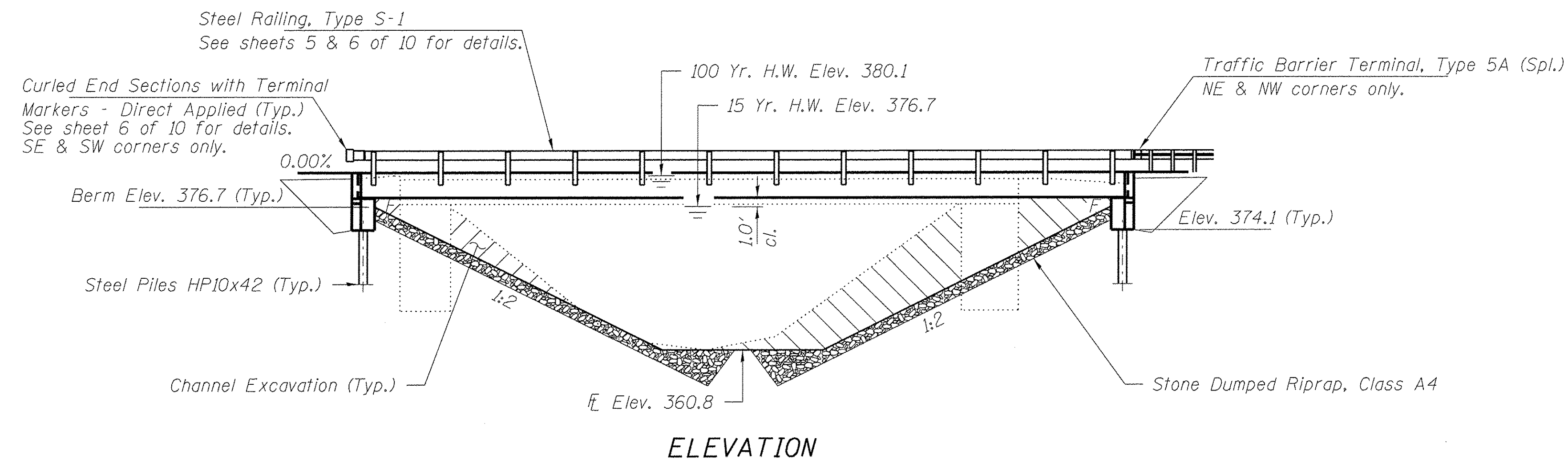
C = 0.0  
F = 26.8



EAST WEST ROAD

EXISTING STRUCTURE NO. 033-3206; Sta. 4+97.5 - A 3" timber deck on 32" steel I-beams on closed concrete abutments. 56.4' fc.-fc. abuts.; 20.4' a.-o. deck

Structure closed to traffic during construction.



**DESIGN SCOUR ELEVATION TABLE**

Event/Limit State	Design Scour Elevations (ft.)		Item 113
	S. Abut.	N. Abut.	
Q100	374.1	374.1	8
Q200	374.1	374.1	
Design	374.1	374.1	
Check	374.1	374.1	

**DESIGN SPECIFICATIONS**

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition with 2014 Interims.

**LOADING HL-93**

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

**DESIGN STRESSES**

**FIELD UNITS**

f'c = 3,500 psi  
fy = 60,000 psi (Reinf.)

**PRECAST PRESTRESSED UNITS**

f'c = 6,000 psi  
f'ci = 5,000 psi  
fpu = 270,000 psi (1/2" low lax. strands)  
fpbt = 201,960 psi (1/2" low lax. strands)  
fy = 60,000 psi (Reinf.)

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. (S<sub>D1</sub>) = 0.299g  
Design Spectral Acceleration at 0.2 sec. (S<sub>D5</sub>) = 0.717g  
Soil Site Class = D

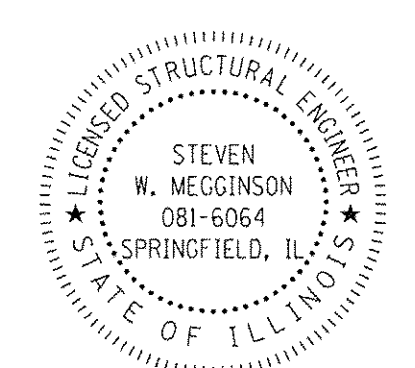
**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	15	3403	590	788	376.71					
Base	100	5630	654	869	380.14	0.65	0.47	380.79	380.61	

Drainage Area = 21.5 Sq. Mi. Existing Low Grade Elev. 374.5 @ Sta. 8+20  
Proposed Low Grade Elev. 374.5 @ Sta. 8+20

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 "AASHTO LRFD Specifications."

*Steven W. Megginson* 12/23/2016  
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064

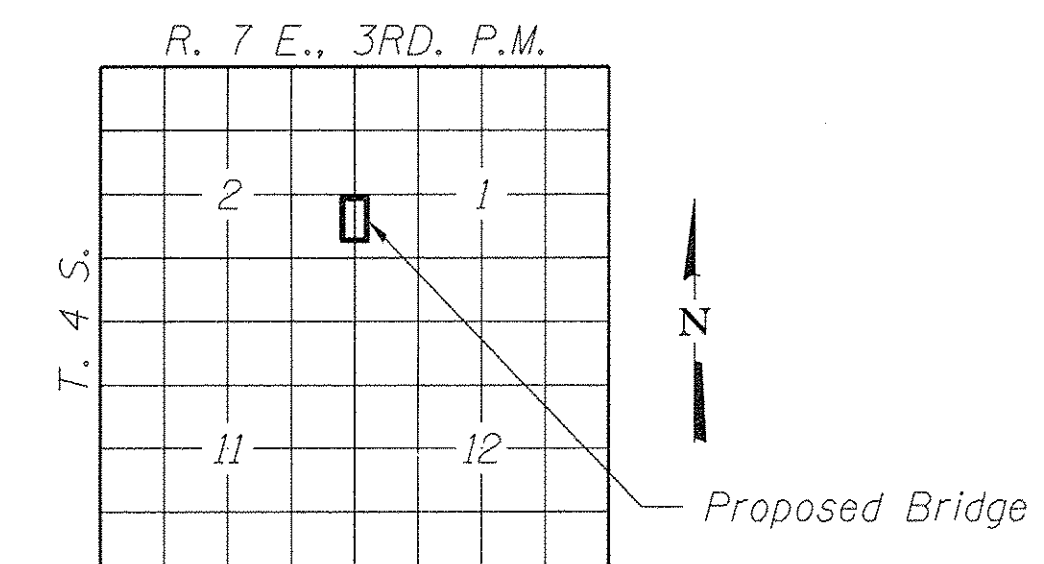


**GENERAL NOTES**

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60.  
All bars to be epoxy coated.  
Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.  
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act.  
The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.  
Concrete sealer shall be applied to the designated areas of the abutments.

**INDEX OF STRUCTURE SHEETS**

1. General Plan & Elevation
2. Riprap Details
3. 33"x48" PPC Deck Beam
4. 33"x48" PPC Deck Beam Details
5. Superstructure Details
6. Steel Railing, Type S-1
7. Abutments
8. HP Pile Details
- 9-10. Borings



**LOCATION SKETCH**

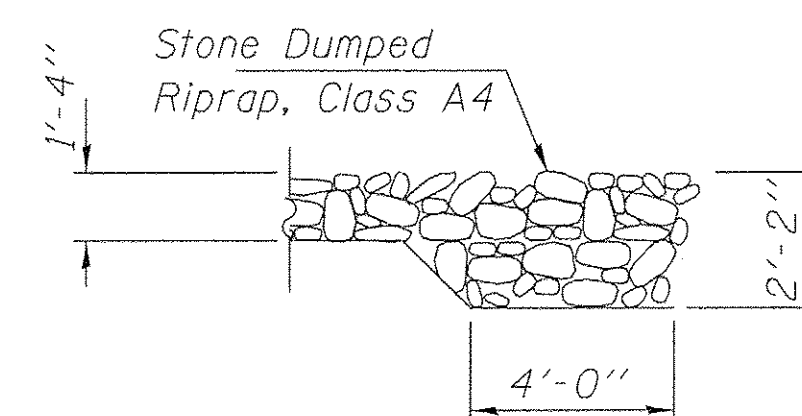
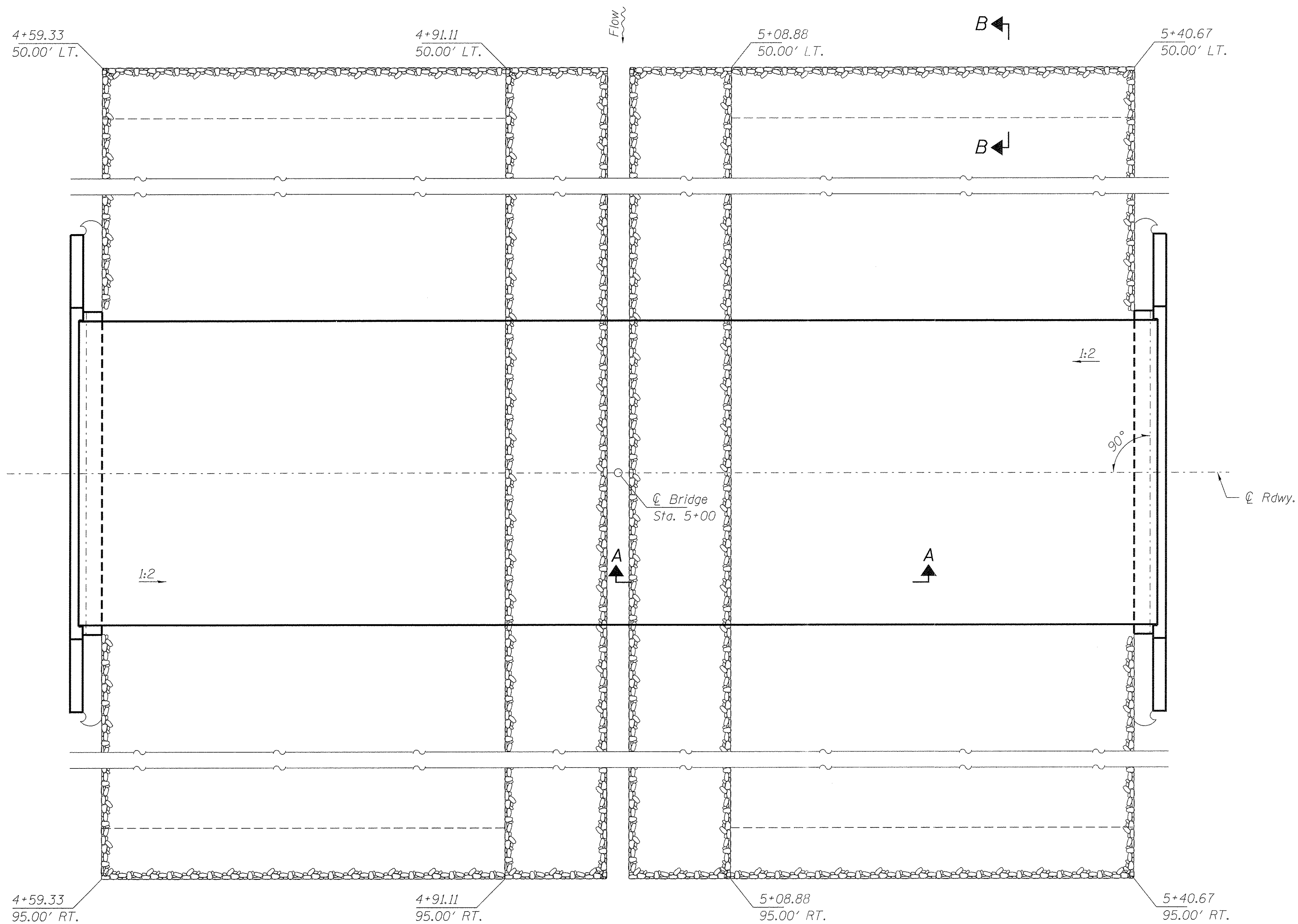
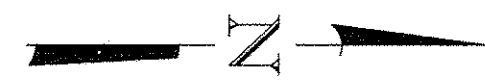
SOUTHERN OUTLET  
BUILT 2011 BY  
HAMILTON COUNTY  
SEC. 13-01117-00-BR  
BEAVER CREEK ROAD DISTRICT  
STR. NO. 033-3323  
LOADING HL-93

**NAME PLATE**  
See Std. 515001

**TOTAL BILL OF MATERIAL**

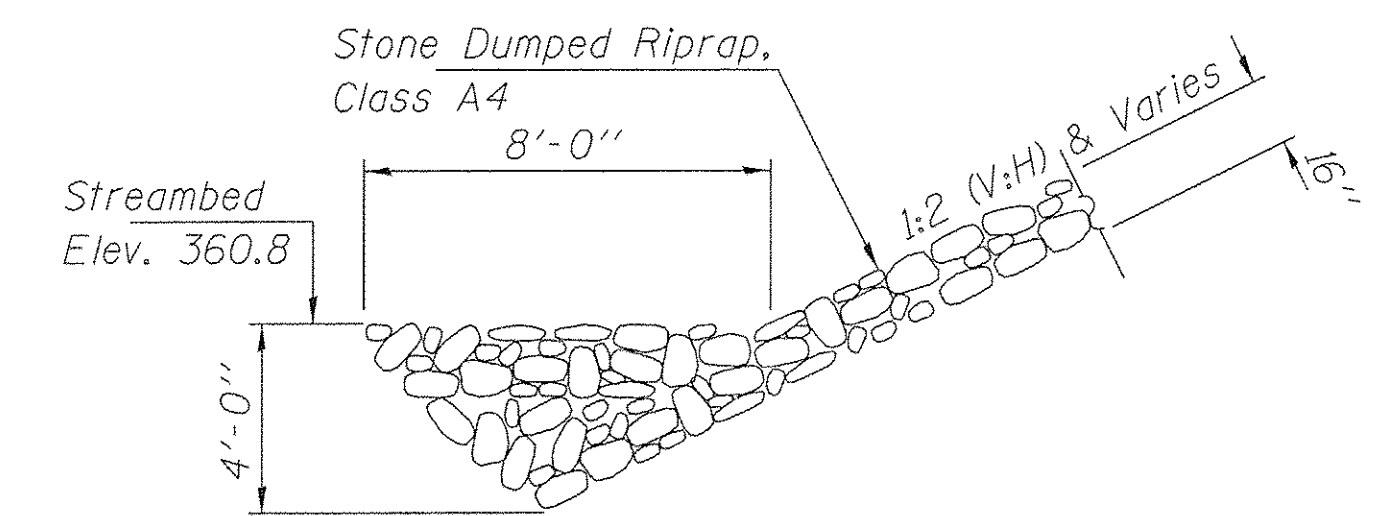
ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			280
Stone Dumped Riprap, Class A4	Ton			1,200
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		25.8	25.8
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2,040		2,040
Reinforcement Bars, Epoxy Coated	Pound		2,980	2,980
Steel Railing, Type S-1	Foot	170		170
Furnishing Steel Piles HP10x42	Foot		750	750
Driving Piles	Foot		750	750
Name Plates	Each		1	1
Terminal Marker - Direct Applied	Each	4		4
Concrete Sealer	Sq. Ft.		93	93





RIPRAP DETAIL

SECTION B-B

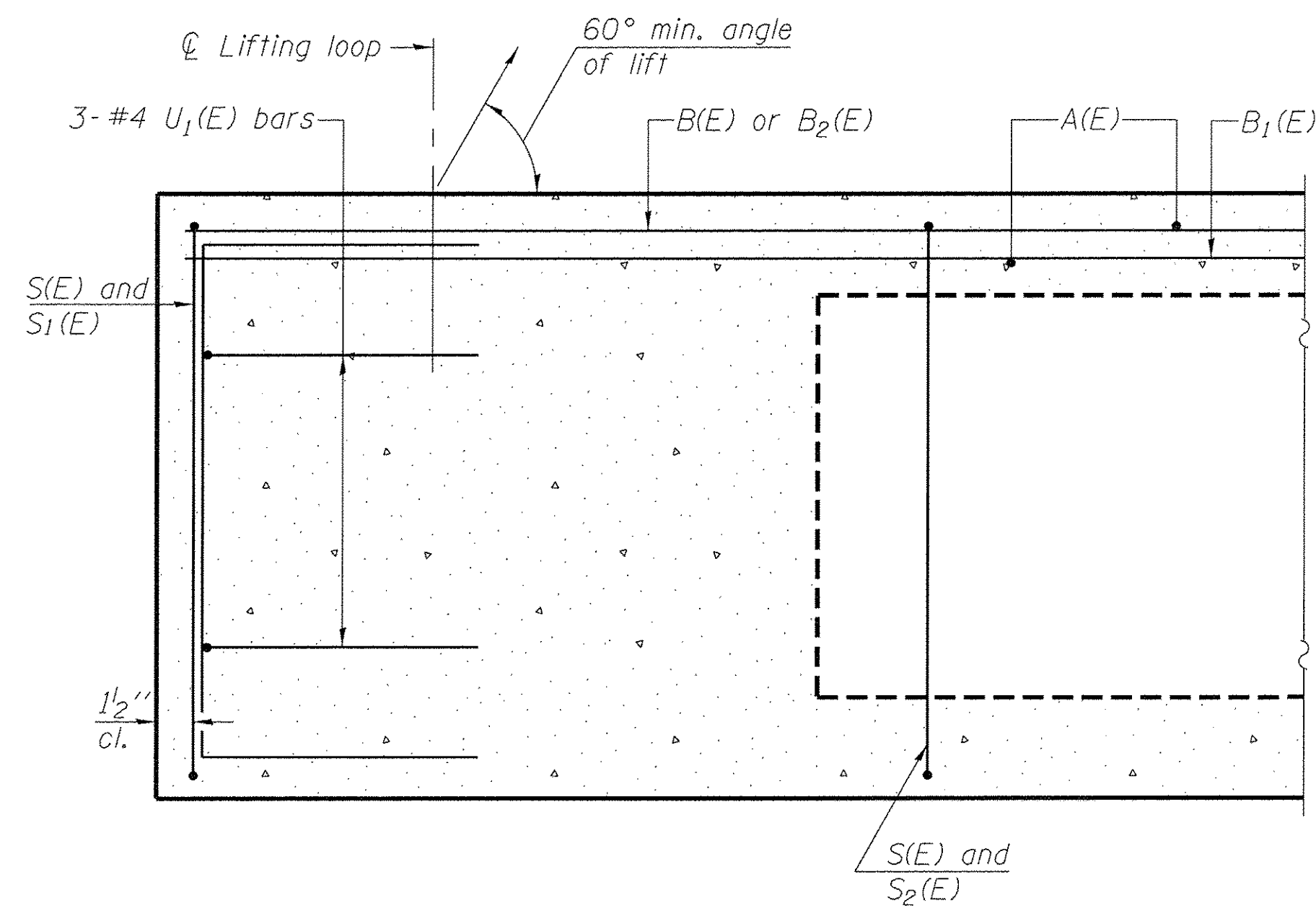


SECTION A-A

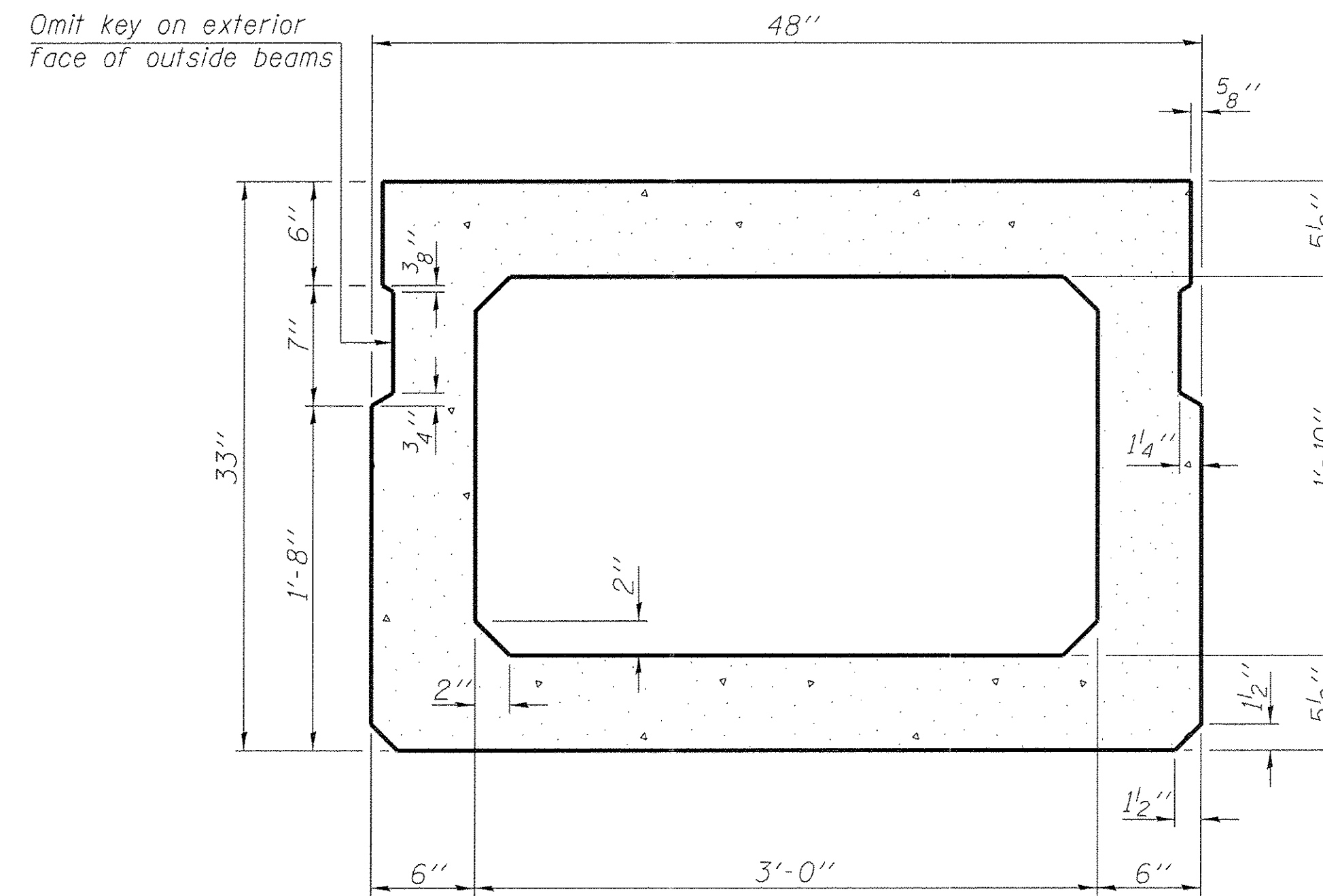
Note: See Special Provisions for Stone Dumped Riprap, Class A4.

FILE NAME = 140020-shr-bridge.dgn	USER NAME = #USER#	DESIGNED - J.R.T.	REVISED -	<b>STATE OF ILLINOIS HAMILTON COUNTY HIGHWAY DEPARTMENT</b>	<b>RIPRAP DETAILS STRUCTURE NO. 033-3323</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLLOT SCALE = #SCALE#	CHECKED - S.W.M.	REVISED -			486	13-01117-00-BR	HAMILTON	16	8
PLLOT DATE = 12/23/2016	DRAWN - R.D.H.	REVISED -	REVISED -			BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
	CHECKED - S.W.M.	REVISED -	REVISED -					ILLINOIS FED. AID PROJECT		
SHEET NO. 2 OF 10 SHEETS										

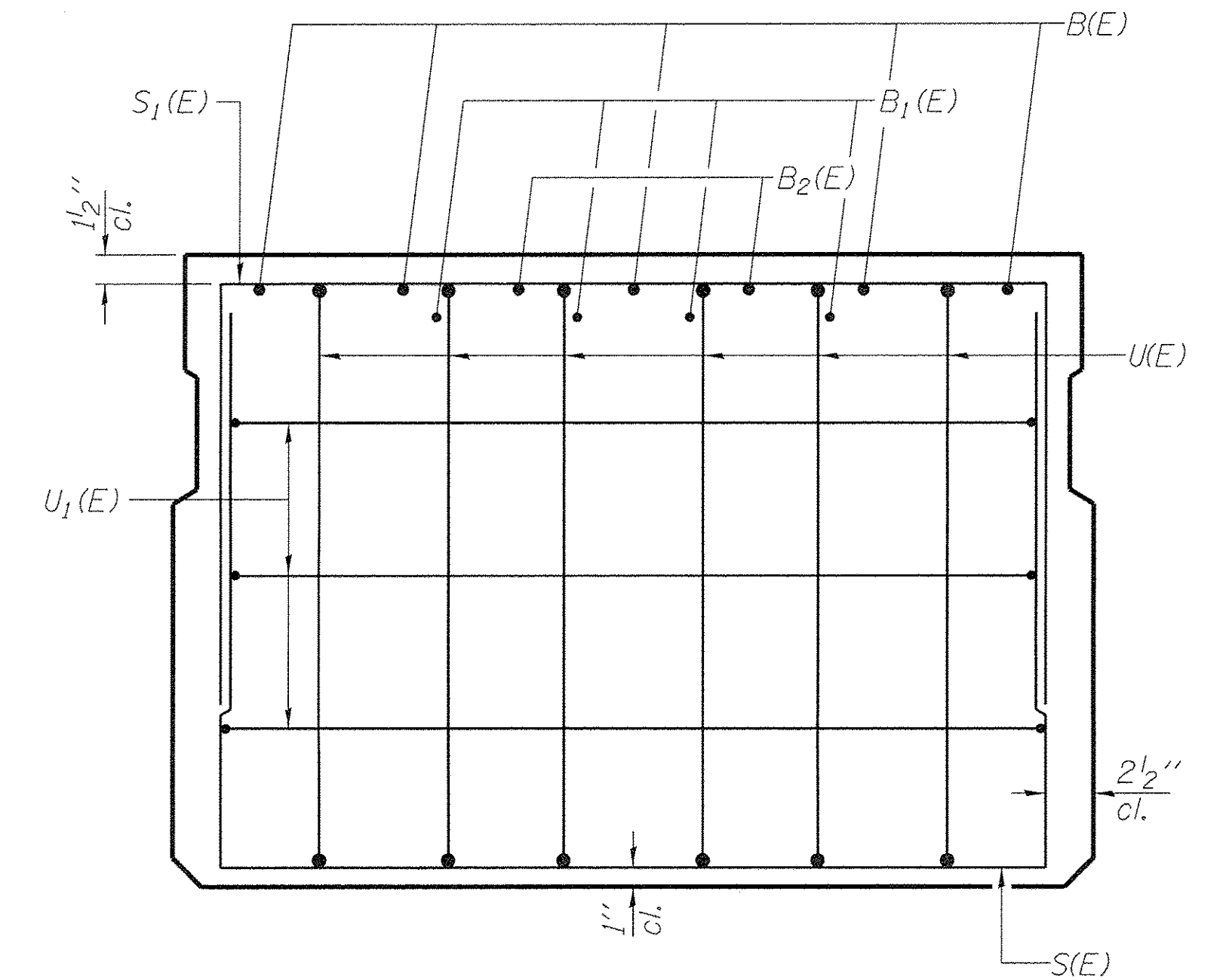




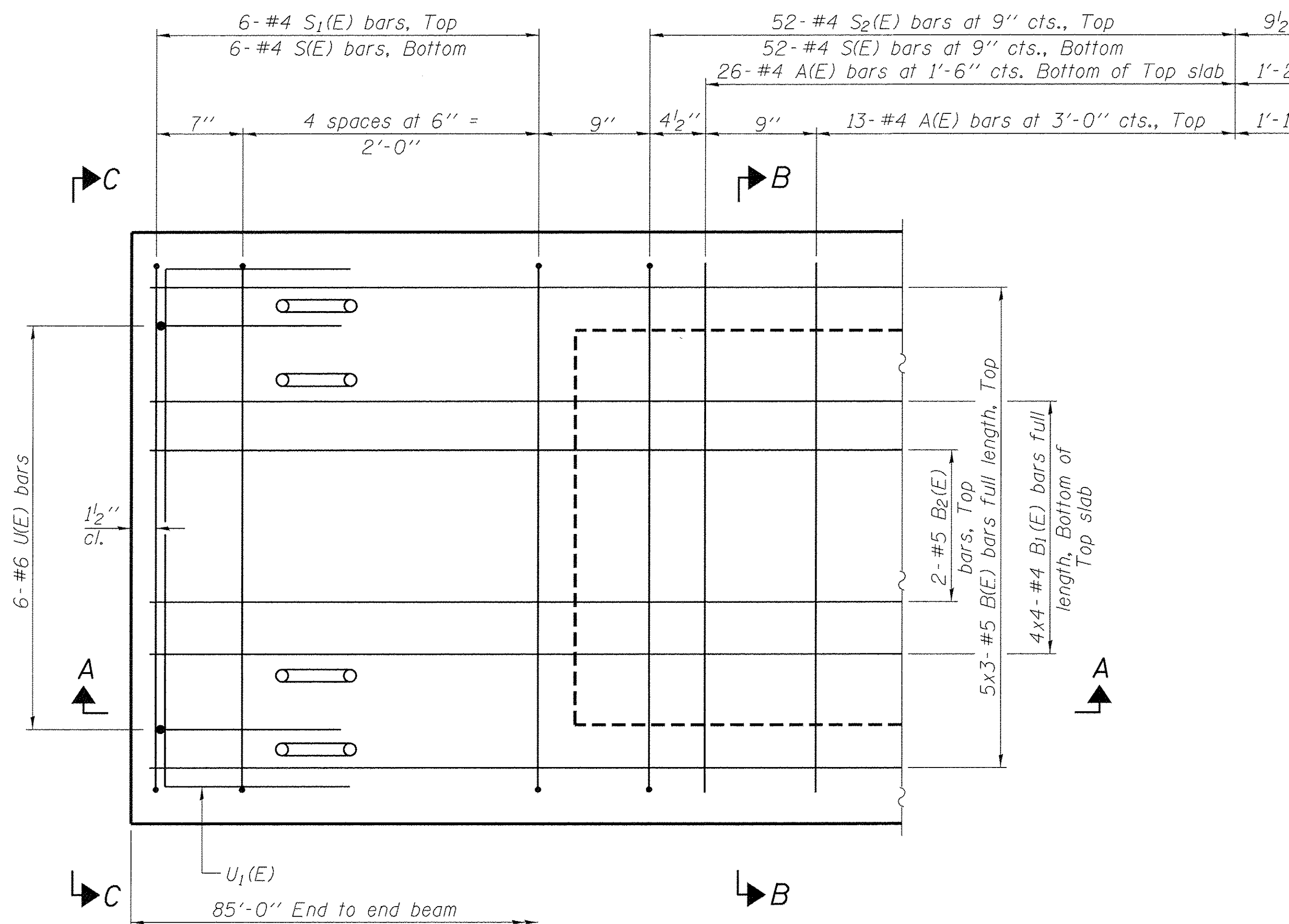
SECTION A-A



SECTION B-B  
(Showing dimensions)



VIEW C-C



PLAN VIEW

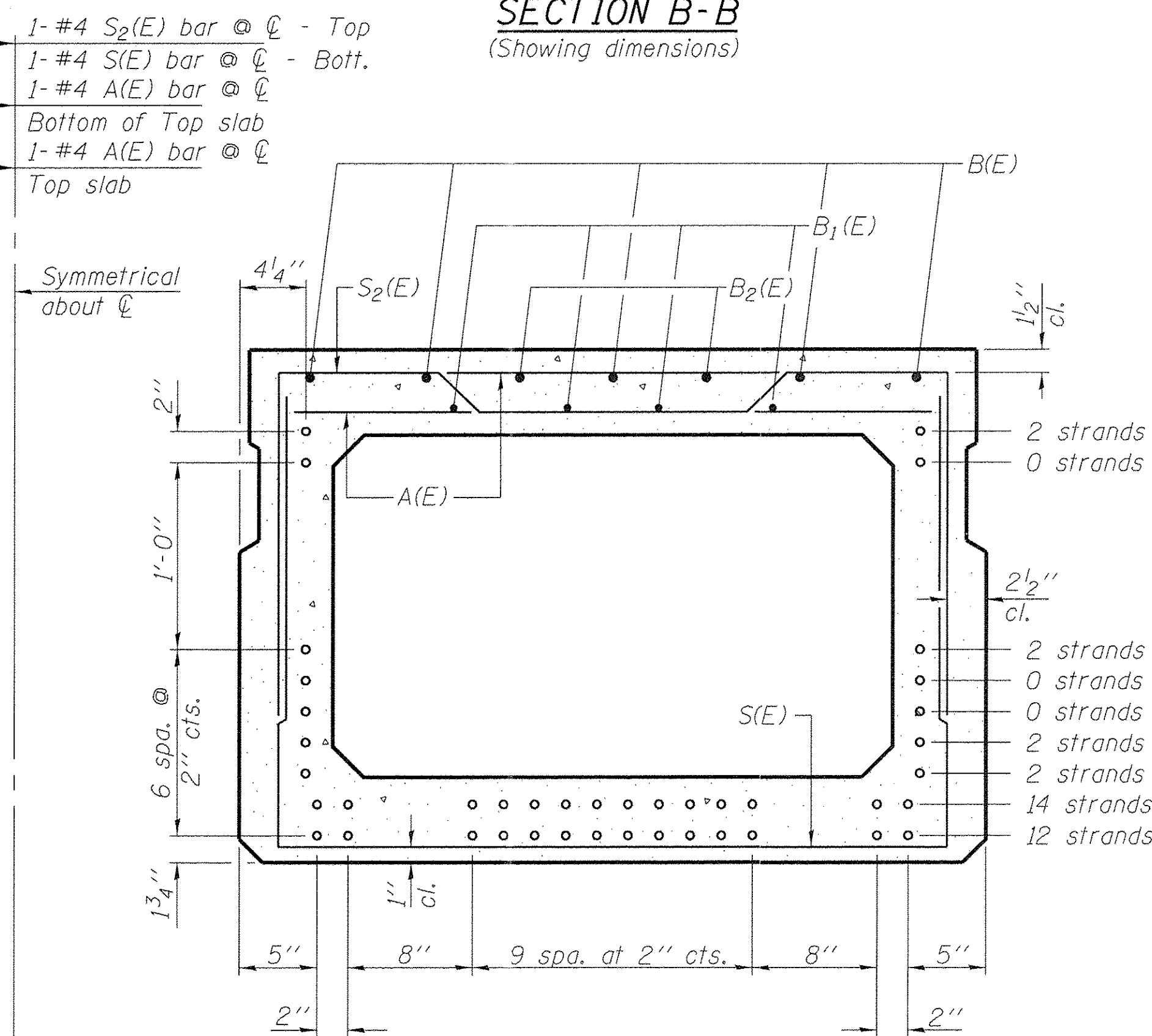
Notes:

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

Bars indicated thus 5x3- #5 etc. indicates 5 lines of bars with 3 lengths per line.

MINIMUM BAR LAP

#4 bar = 1'-11"  
#5 bar = 2'-6"



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.

BAR LIST  
ONE BEAM ONLY  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	80	#4	3'-7"	—
B(E)	15	#5	29'-11"	—
B1(E)	16	#4	22'-8"	—
B2(E)	4	#5	10'-0"	—
S(E)	117	#4	8'-8"	┌
S1(E)	12	#4	7'-5"	┌
S2(E)	105	#4	7'-8"	┌
U(E)	12	#6	5'-0"	┌
U1(E)	6	#4	6'-0"	┌

Note: See sheets 4 & 5 of 10 for additional details and Bill of Material.

PD-3348-0

6-8-15

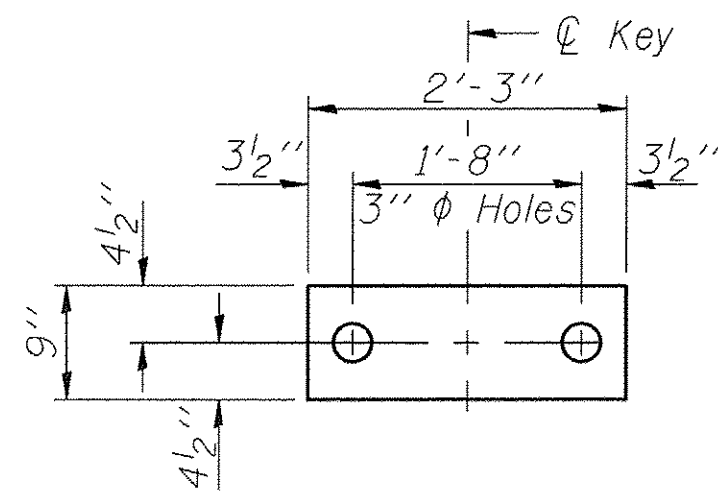
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HAMPTON, LENZINI AND RENWICK, INC. 3095 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-000959	PLOT SCALE = #SCALE#	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 12/23/2016	DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS  
HAMILTON COUNTY HIGHWAY DEPARTMENT

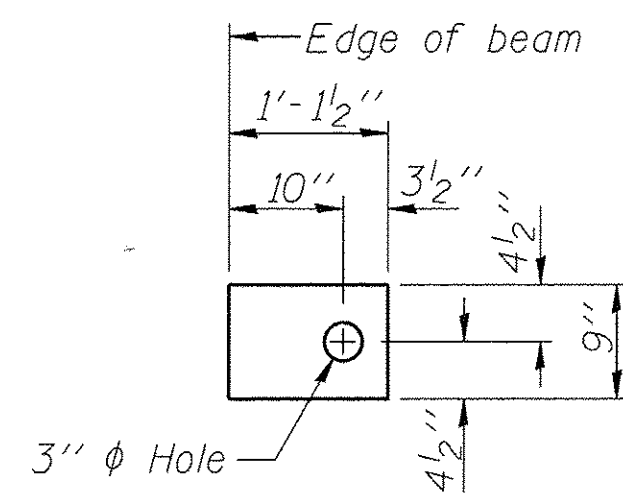
33" x 48" PPC DECK BEAM  
STRUCTURE NO. 033-3323

SHEET NO. 3 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	9
BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
ILLINOIS FED. AID PROJECT				



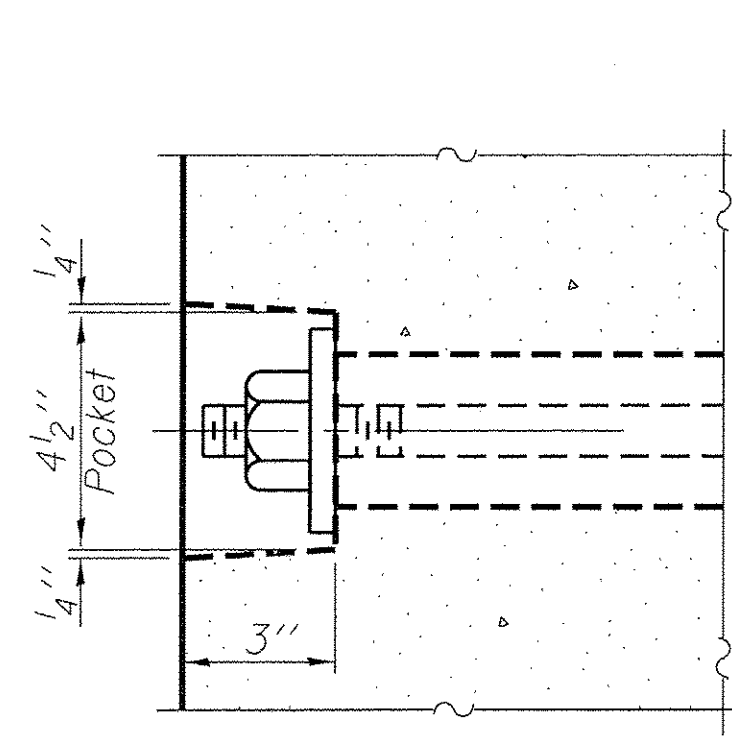
**FABRIC BEARING PAD**  
(Interior - 10 Required)



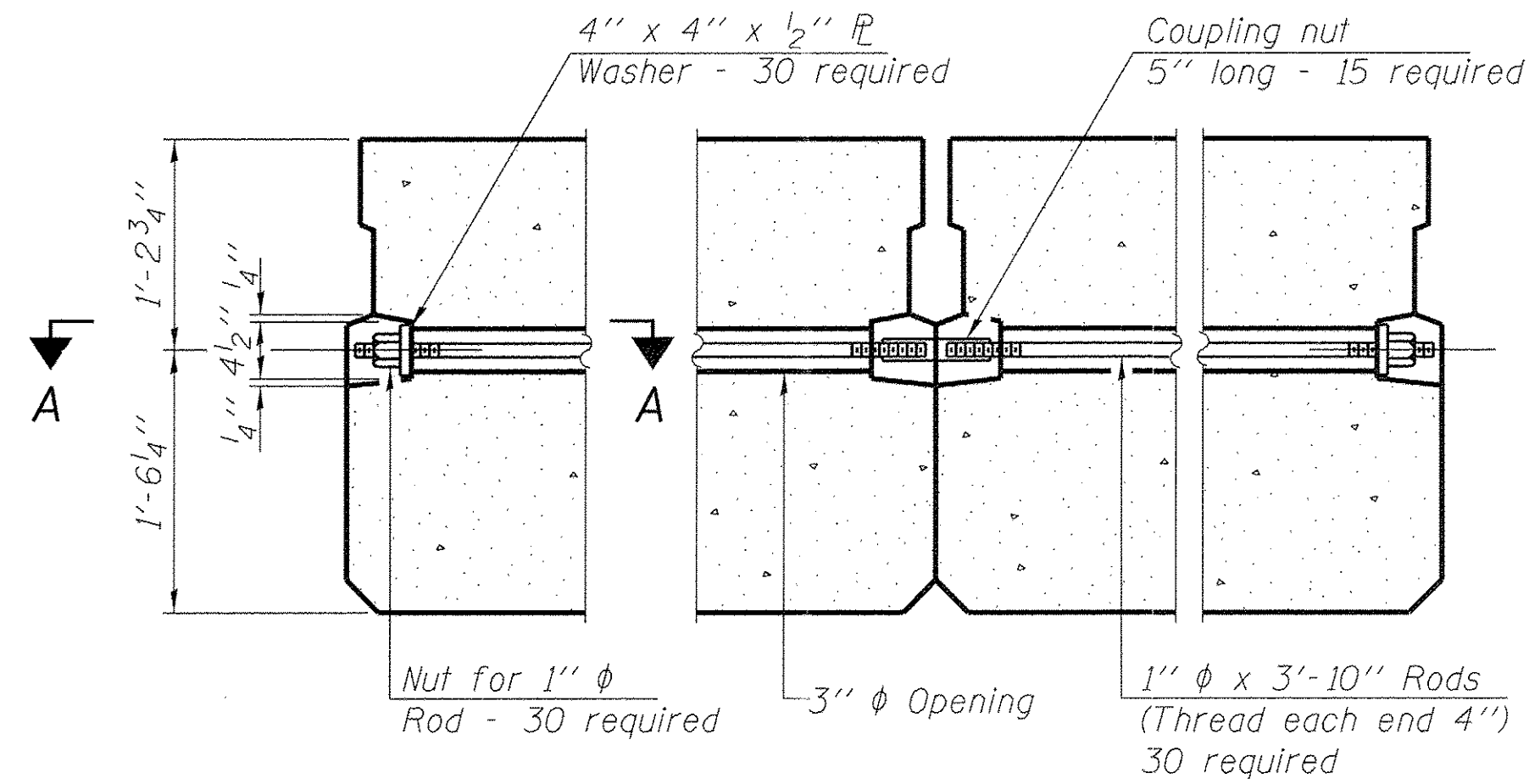
**FABRIC BEARING PAD**  
(Exterior - 4 Required)

**FIXED**

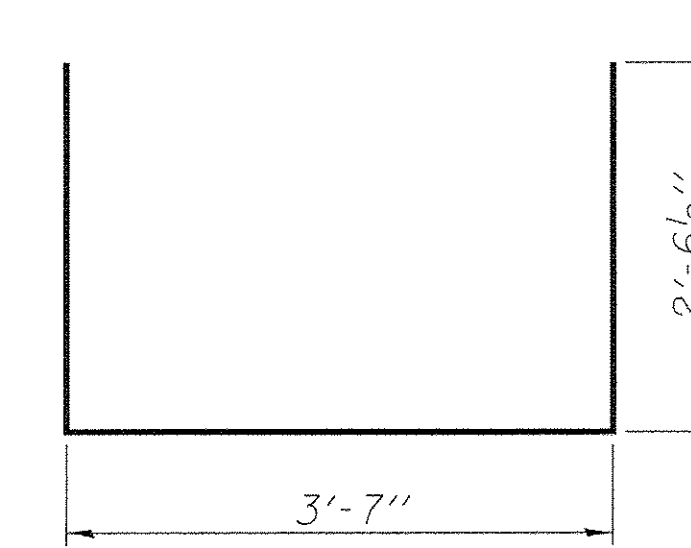
Notes:  
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.



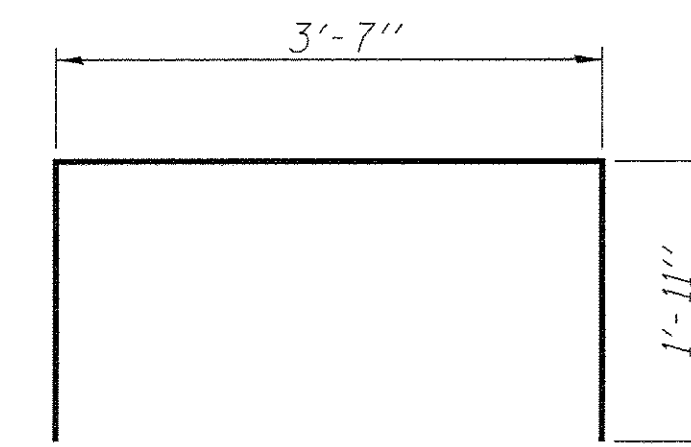
**SECTION A-A**



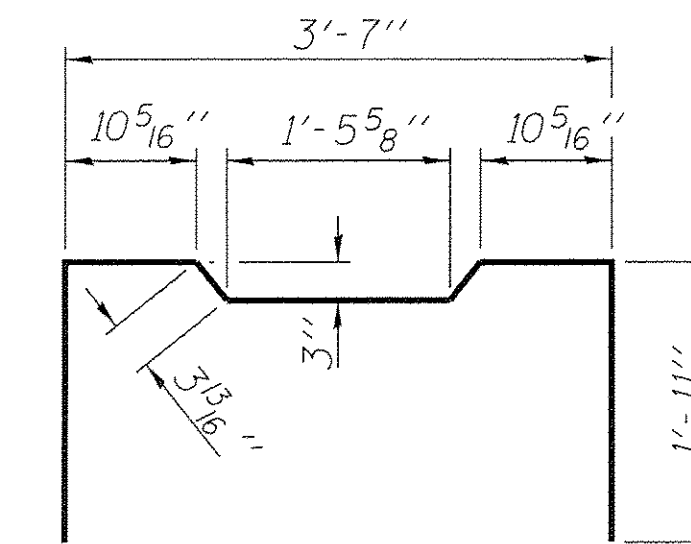
**TYPICAL TRANSVERSE TIE ASSEMBLY**



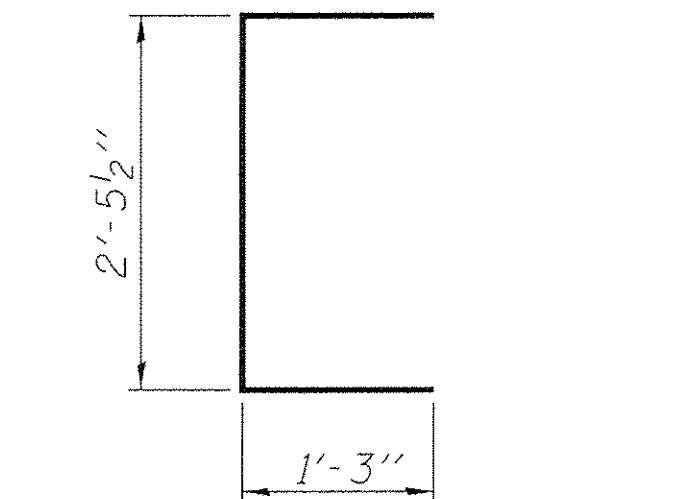
**BAR S(E)**



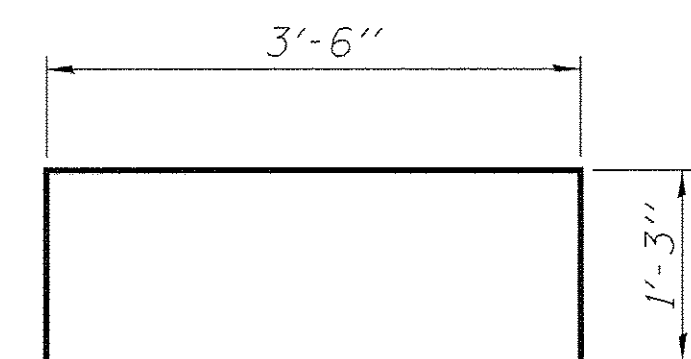
**BAR S1(E)**



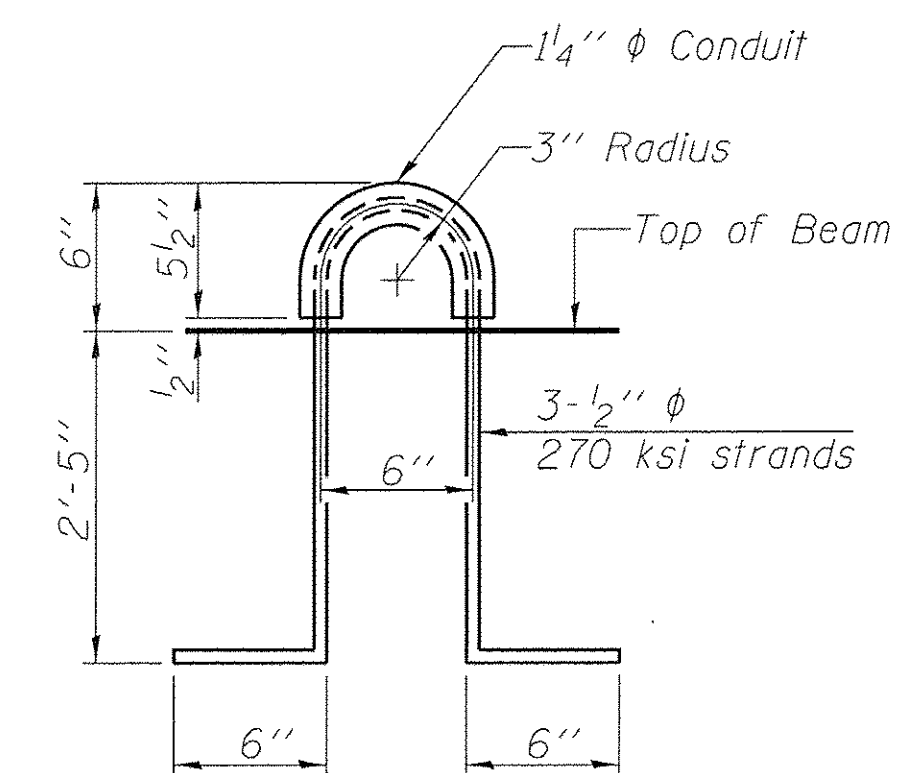
**BAR S2(E)**



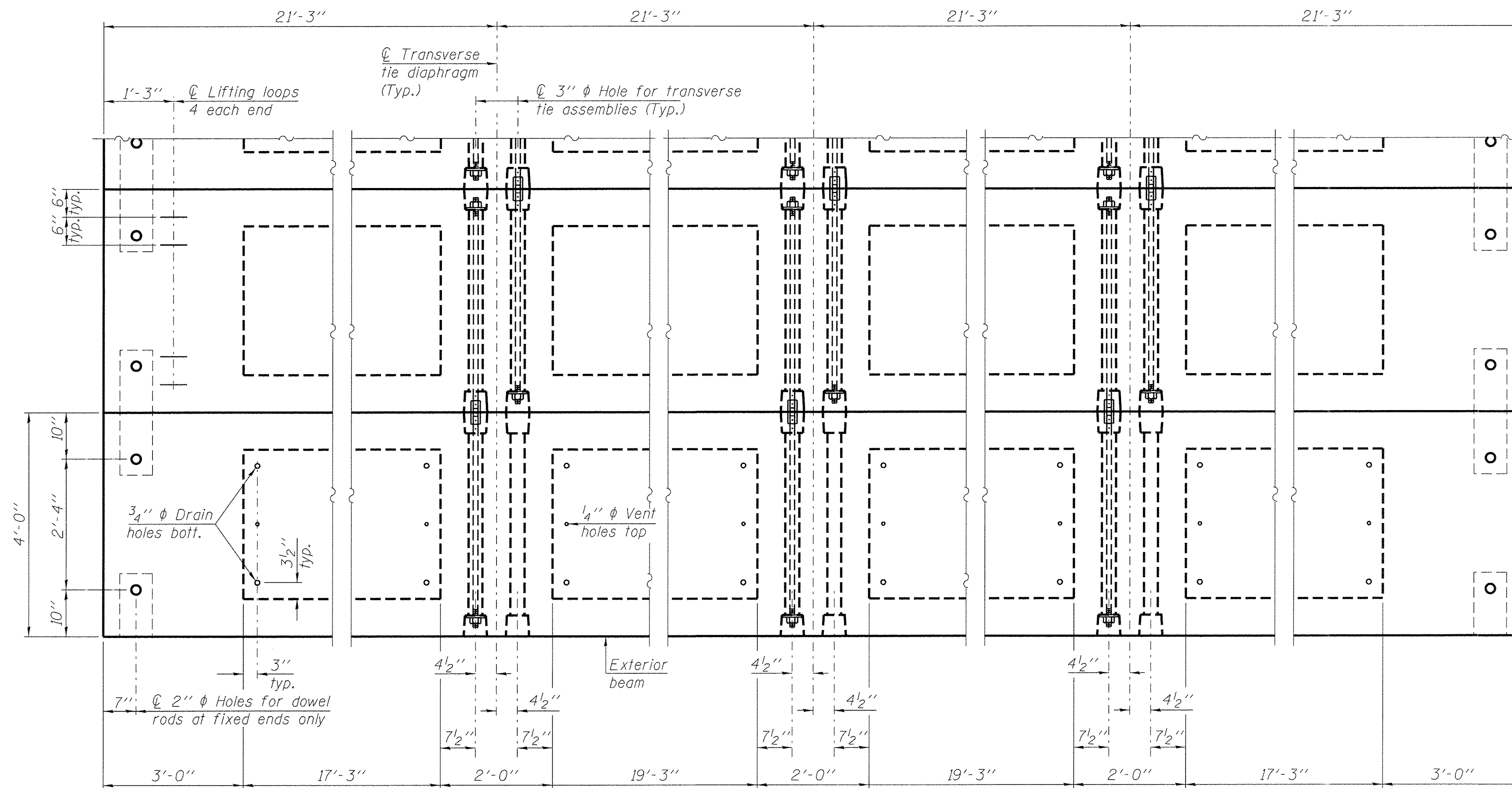
**BAR U(E)**



**BAR U1(E)**



**LIFTING LOOP DETAIL**



**PLAN VIEW**

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place. Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions). Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling. Corrosion inhibitor, per Article 1020.05(b)(10) and 1021.07 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. Reinforcement bars designated (E) shall be epoxy coated.

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

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	2,040
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PD-3348-0D

1-28-16

FILE NAME = 140020-shr-bridge.dgn	USER NAME = #USER#	DESIGNED - J.R.T.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.	3085 STEVENSON DRIVE, SUITE 201	CHECKED - S.W.M.	REVISED -
SPRINGFIELD, ILLINOIS 62763	ILLINOIS PROFESSIONAL DESIGN FIRM	DRAWN - R.D.H.	REVISED -
LS / PE / SE CORP. 184.009999	PLT DATE = 12/23/2016	CHECKED - S.W.M.	REVISED -

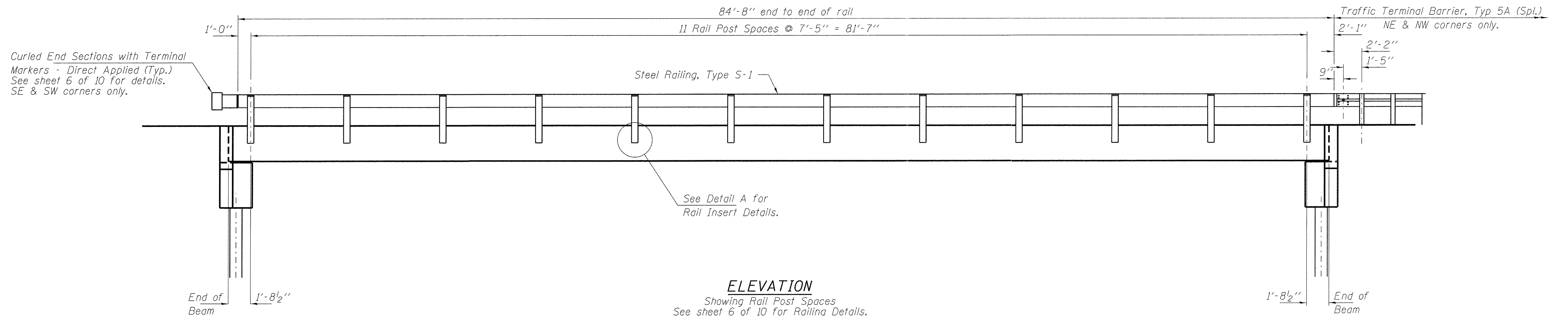
**STATE OF ILLINOIS**  
**HAMILTON COUNTY HIGHWAY DEPARTMENT**

**33" x 48" PPC DECK BEAM DETAILS**  
**STRUCTURE NO. 033-3323**

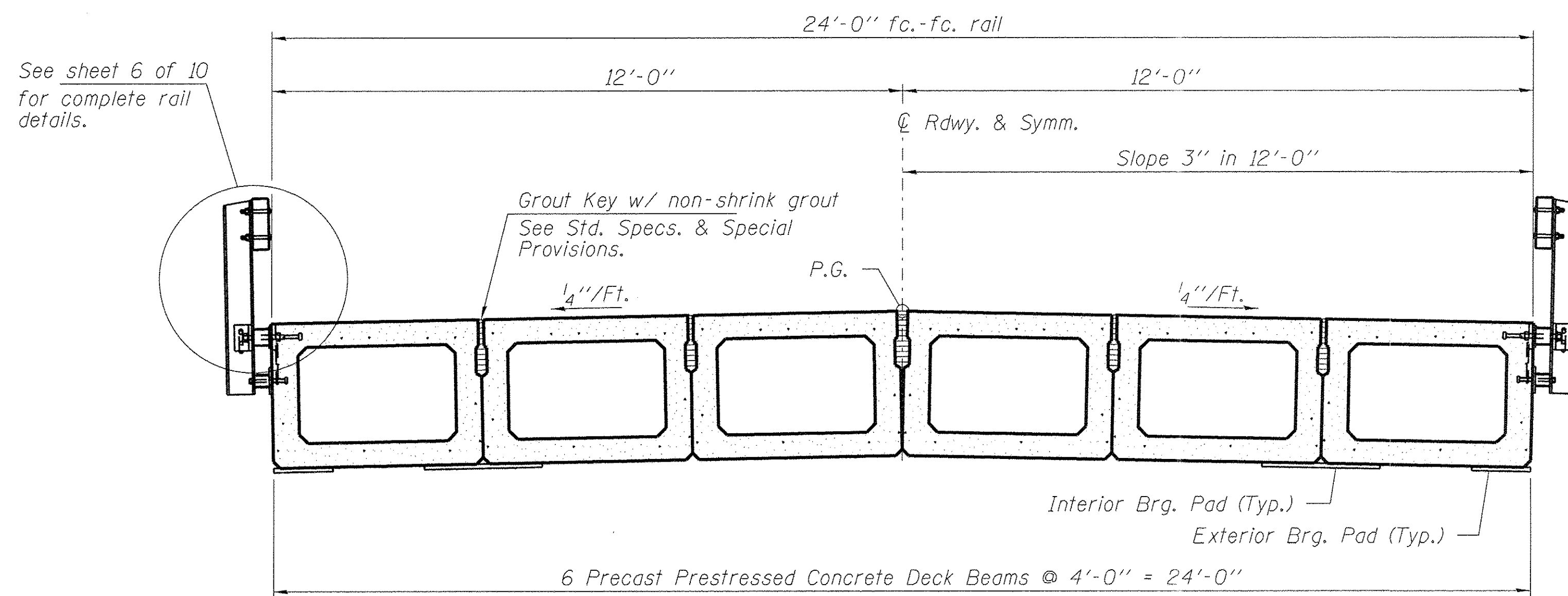
SHEET NO. 4 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
ILLINOIS FED. AID PROJECT				

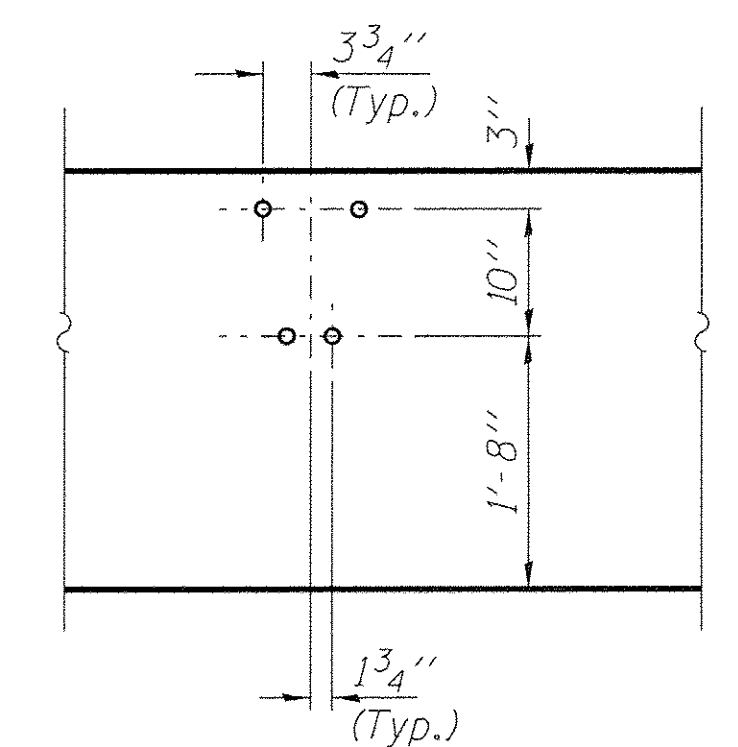




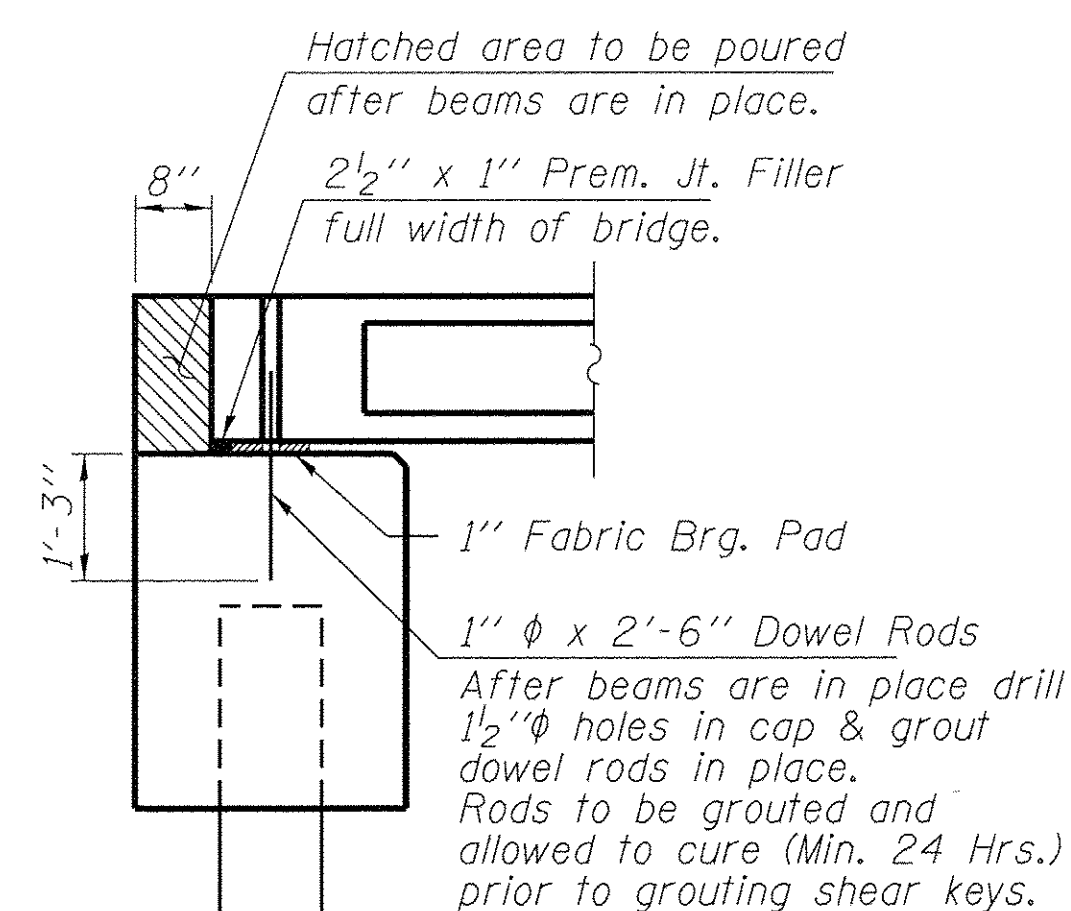
**ELEVATION**  
Showing Rail Post Spaces  
See sheet 6 of 10 for Railing Details.



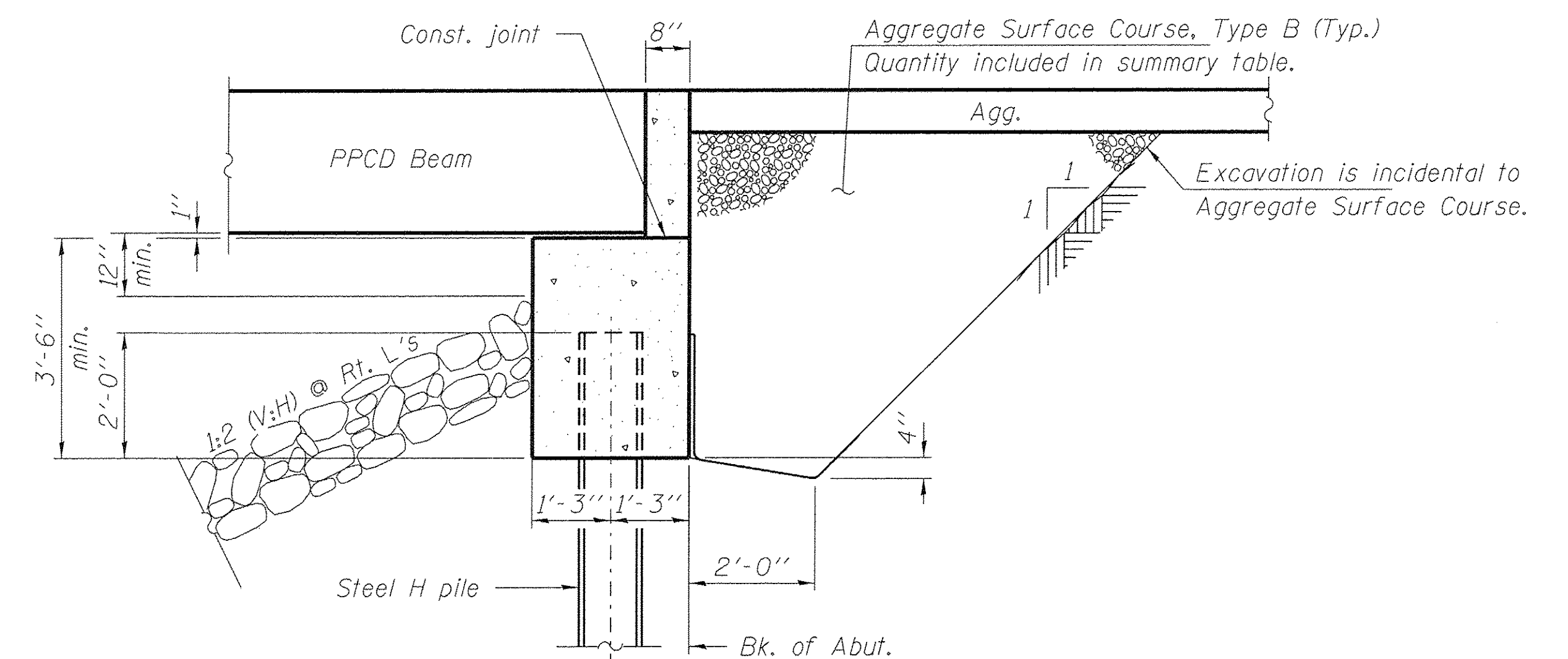
**CROSS SECTION**  
See sheets 3 & 4 of 10 for Superstructure.



**DETAIL A**

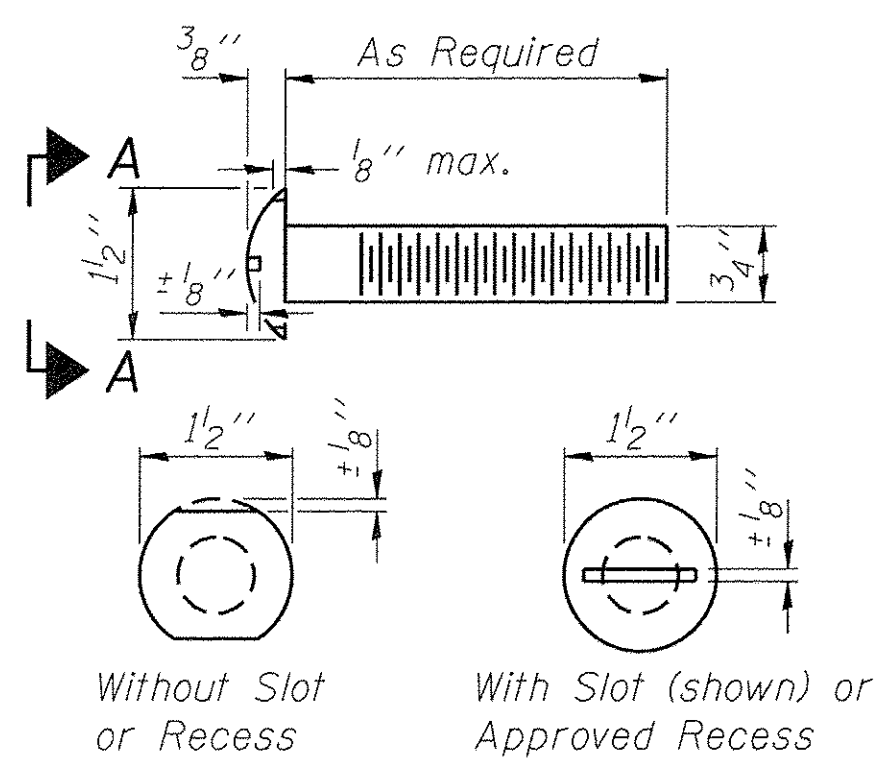


**SECTION AT ABUTMENTS**  
© Rt. L's

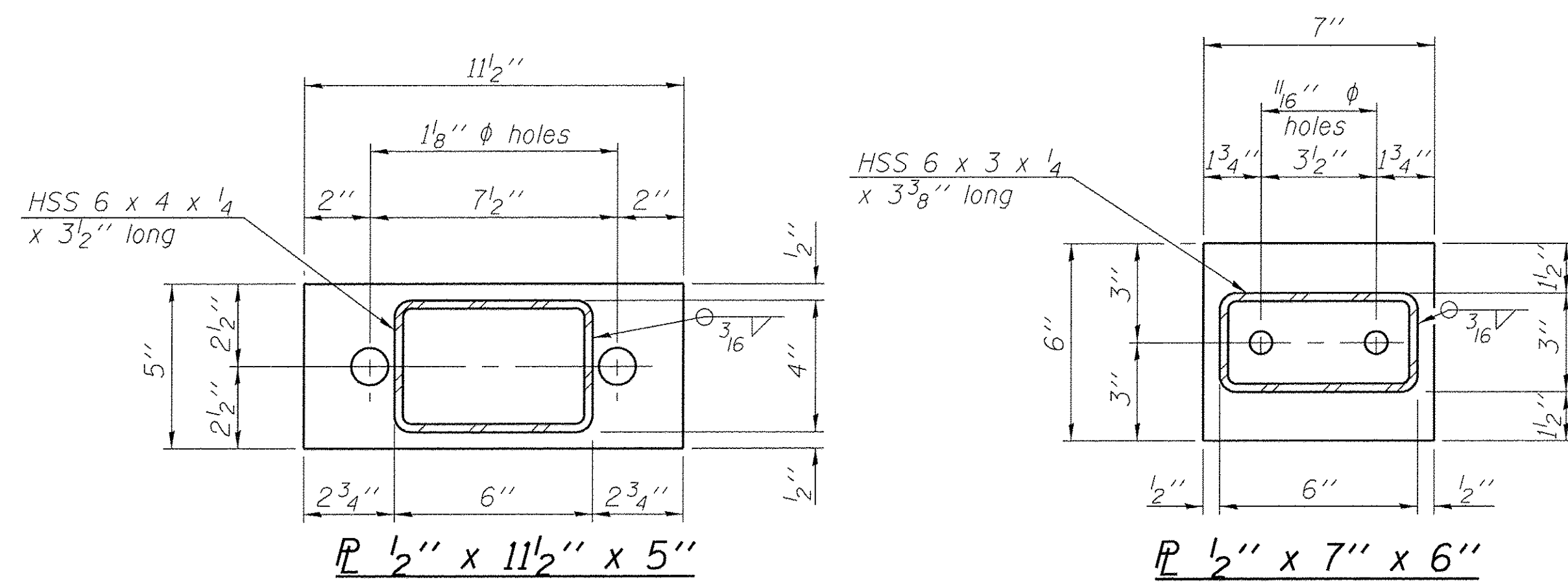


**SECTION THRU ABUTMENT**  
(Horiz. dim. © Rt. L's)

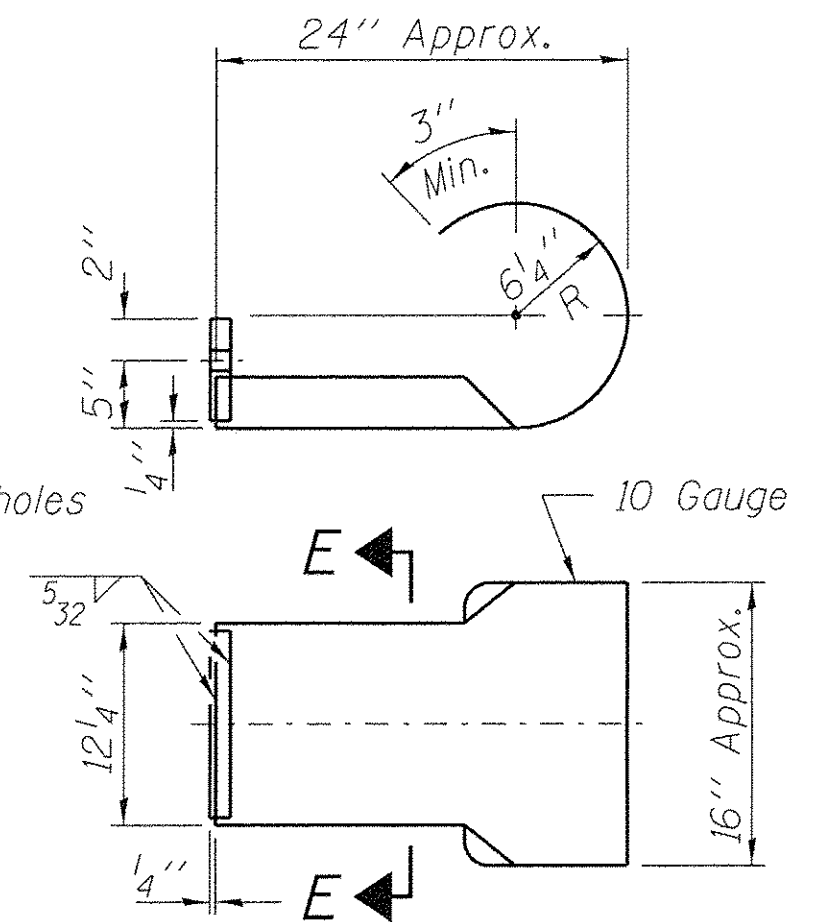
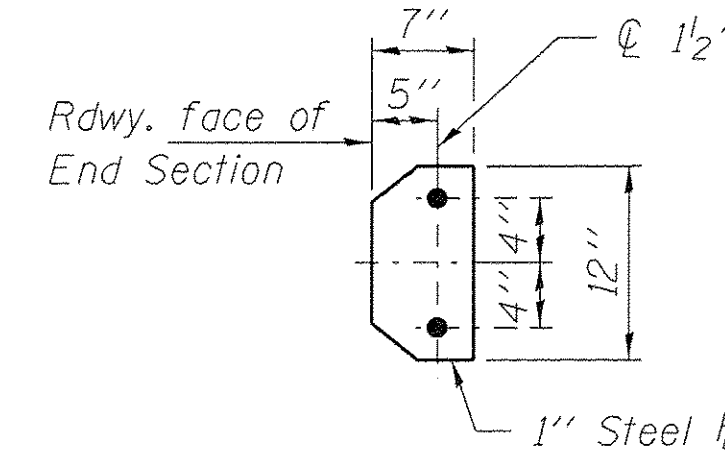
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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = #SCALE#	CHECKED - S.W.M.	REVISED -			486	13-01117-00-BR	HAMILTON	16	11	
	PLOT DATE = 12/23/2016	DRAWN - R.D.H.	REVISED -			BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572			
		CHECKED - S.W.M.	REVISED -			ILLINOIS FED. AID PROJECT					
						SHEET NO. 5 OF 10 SHEETS					



**VIEW A-A  
ROUND HEAD BOLT**



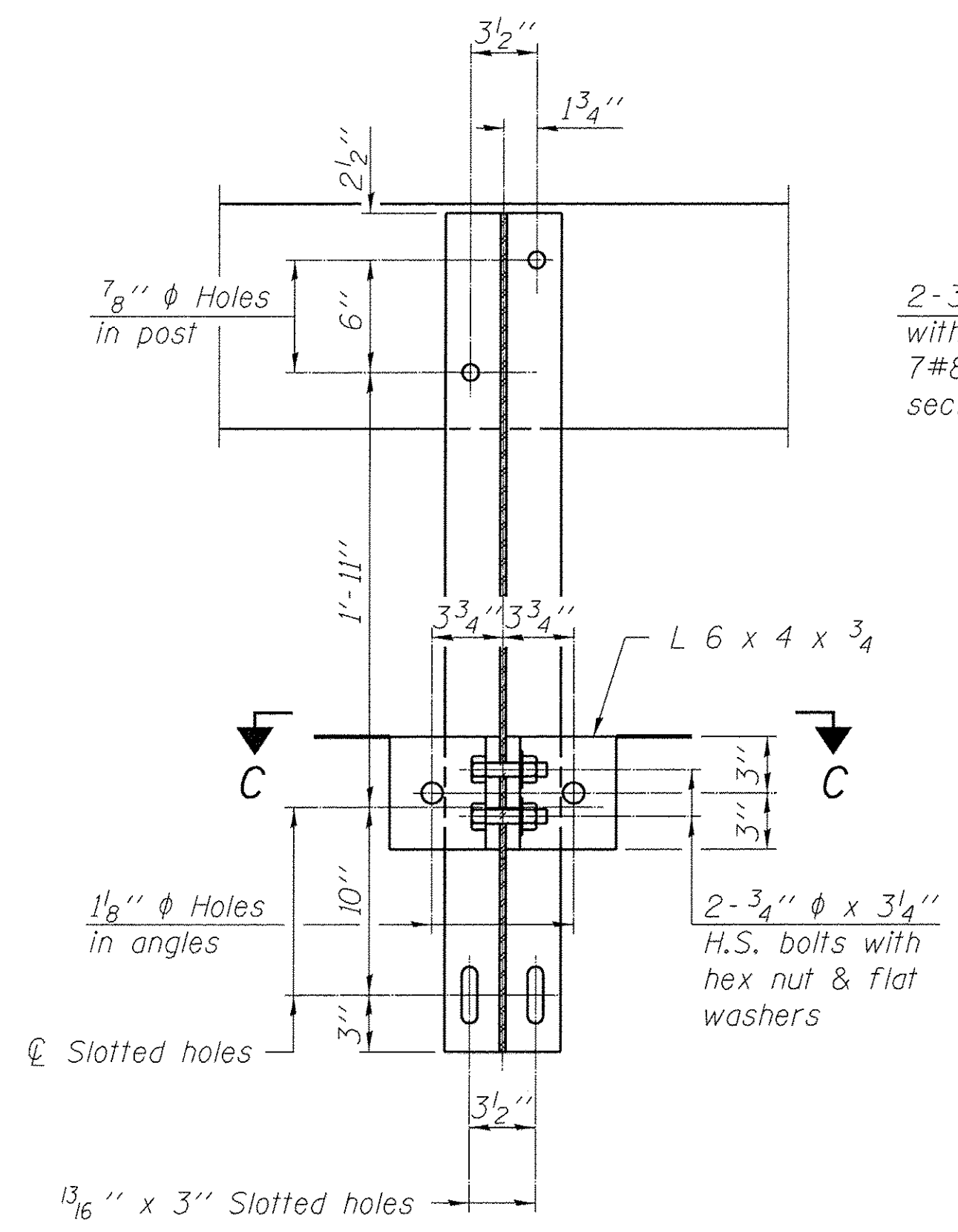
Note: Cost of curled end sections shall be included with the Steel Railing. (2 Required at SE & SW corners.)



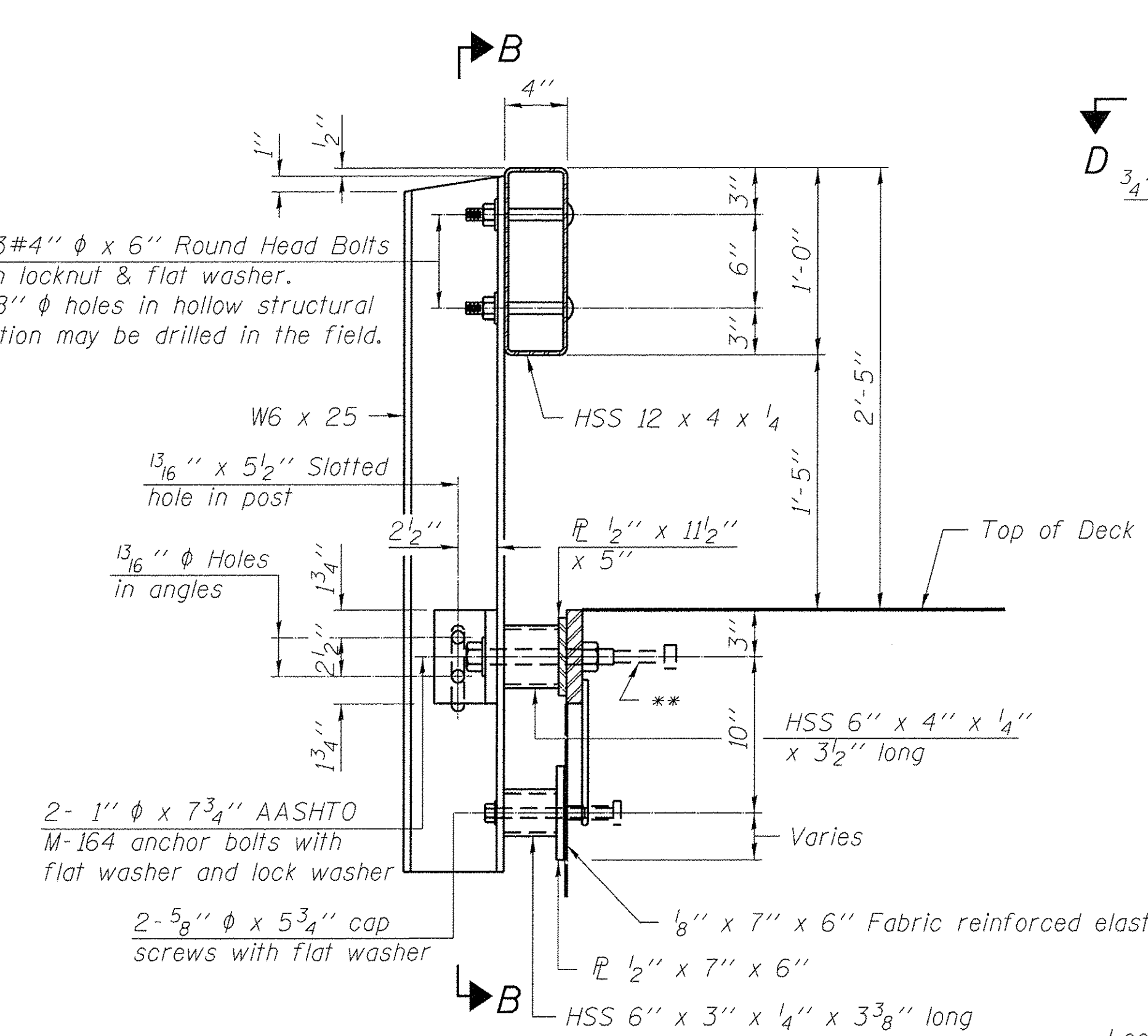
**SECTION E-E  
CURLLED END SECTION DETAILS  
SPLICE DIMENSIONS**

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	

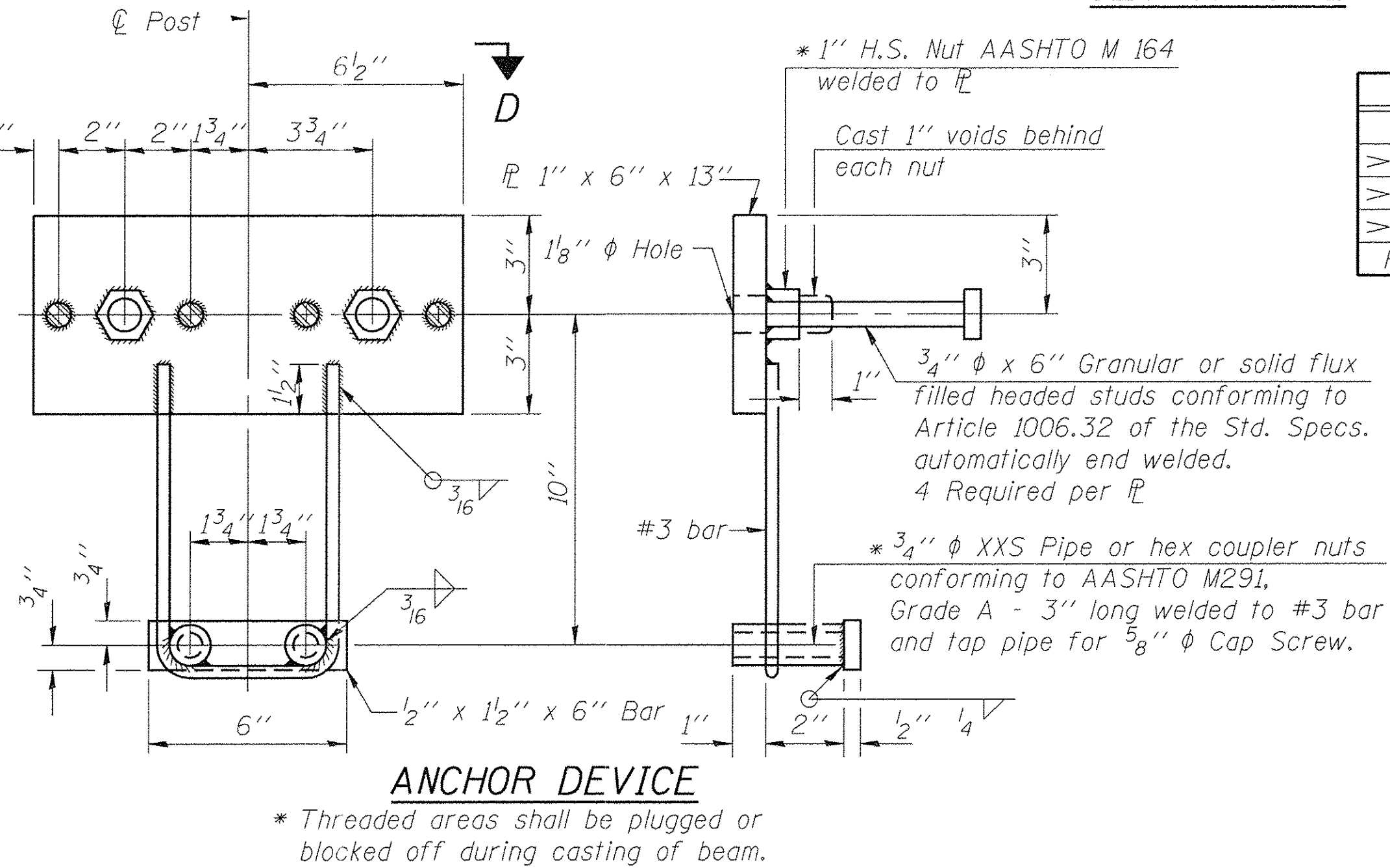
T = Total movement at expansion joint as shown on the design plans.



**SECTION B-B**

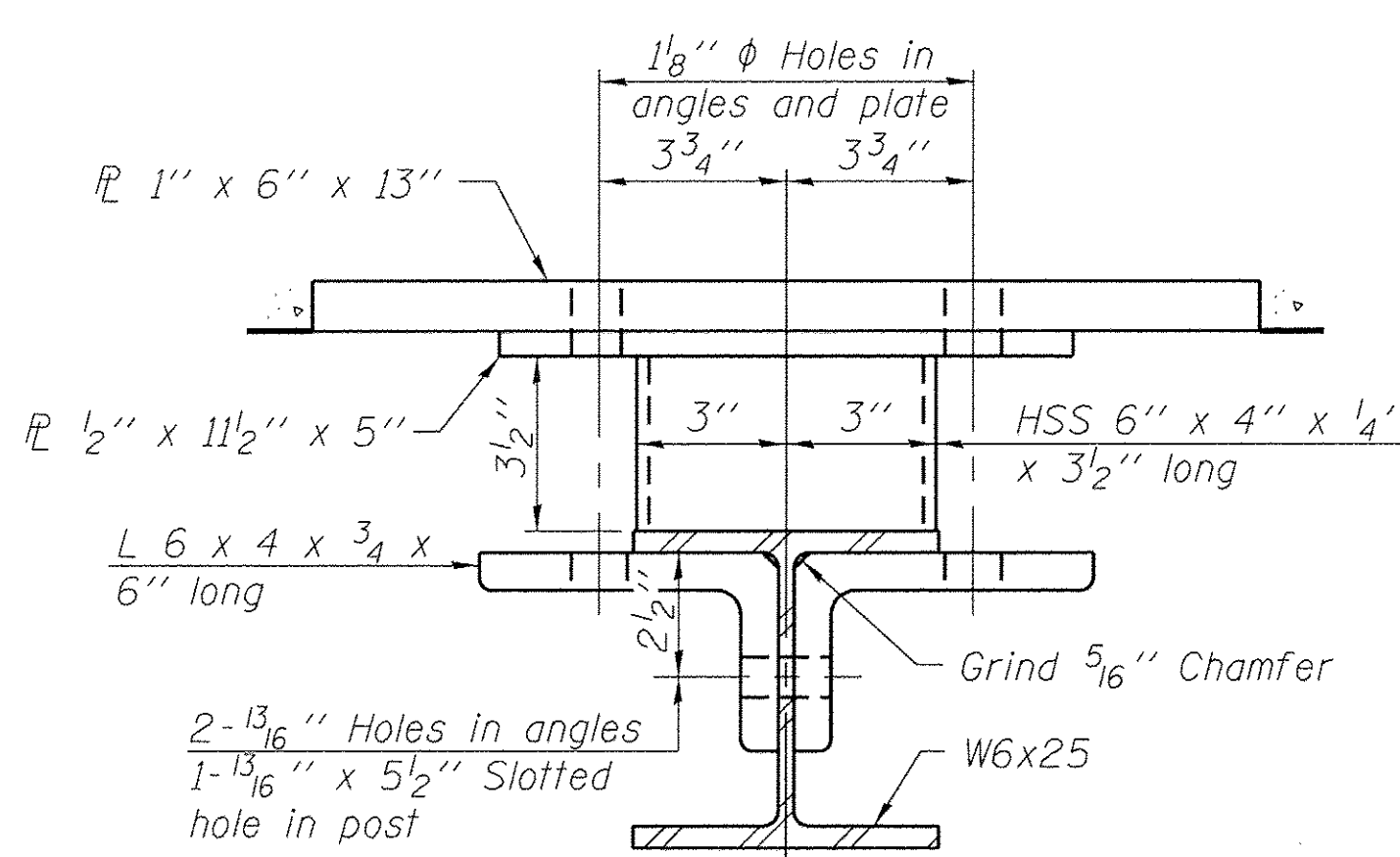


**SECTION AT RAILING POST**

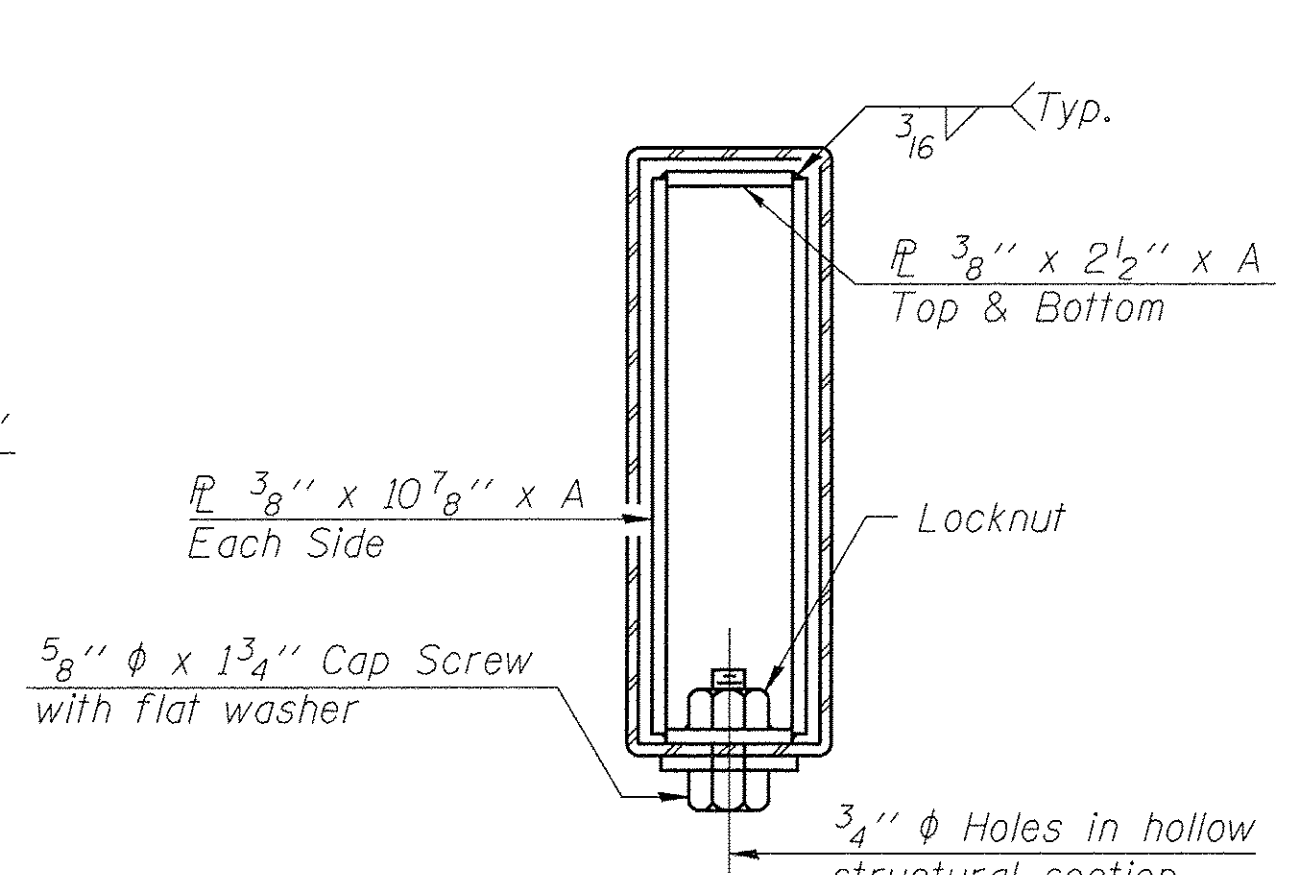


**ANCHOR DEVICE**

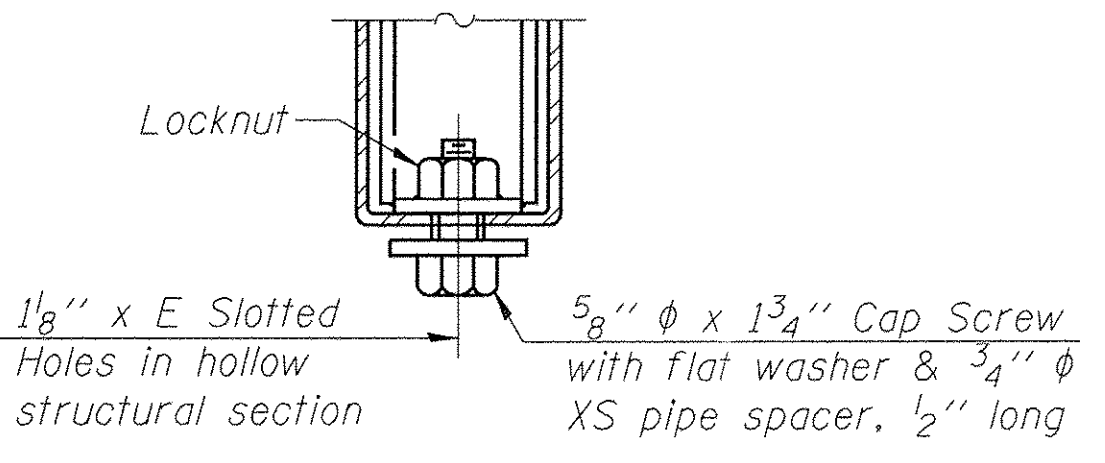
Notes:  
For multi-span bridges, sufficient 1/4 inch x 6 inch x 1'-2 inch galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.  
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.  
\*\* The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



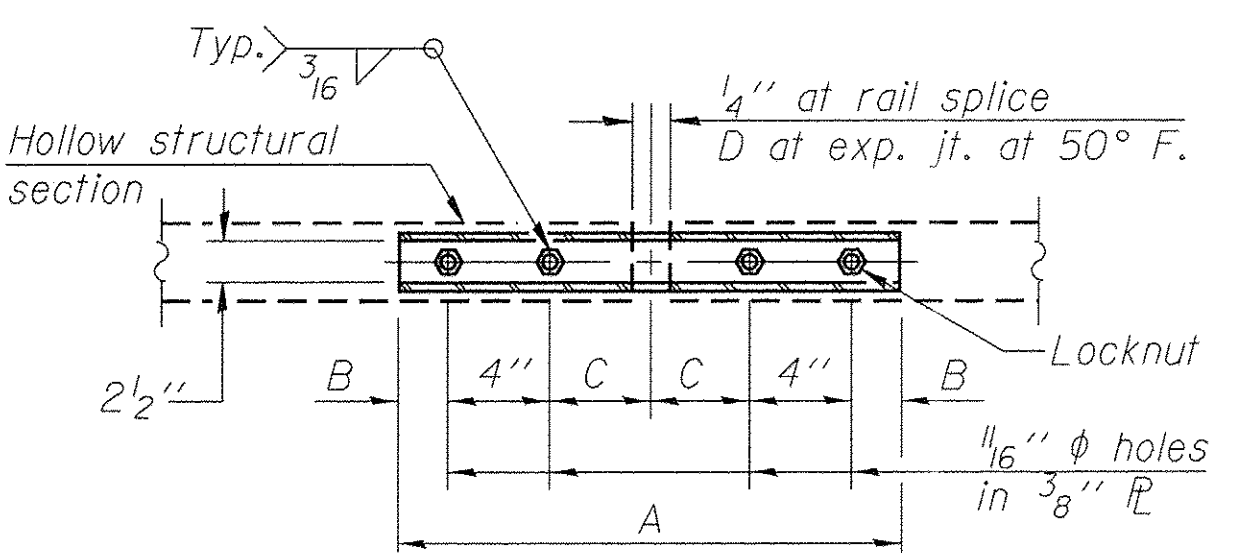
**SECTION C-C**



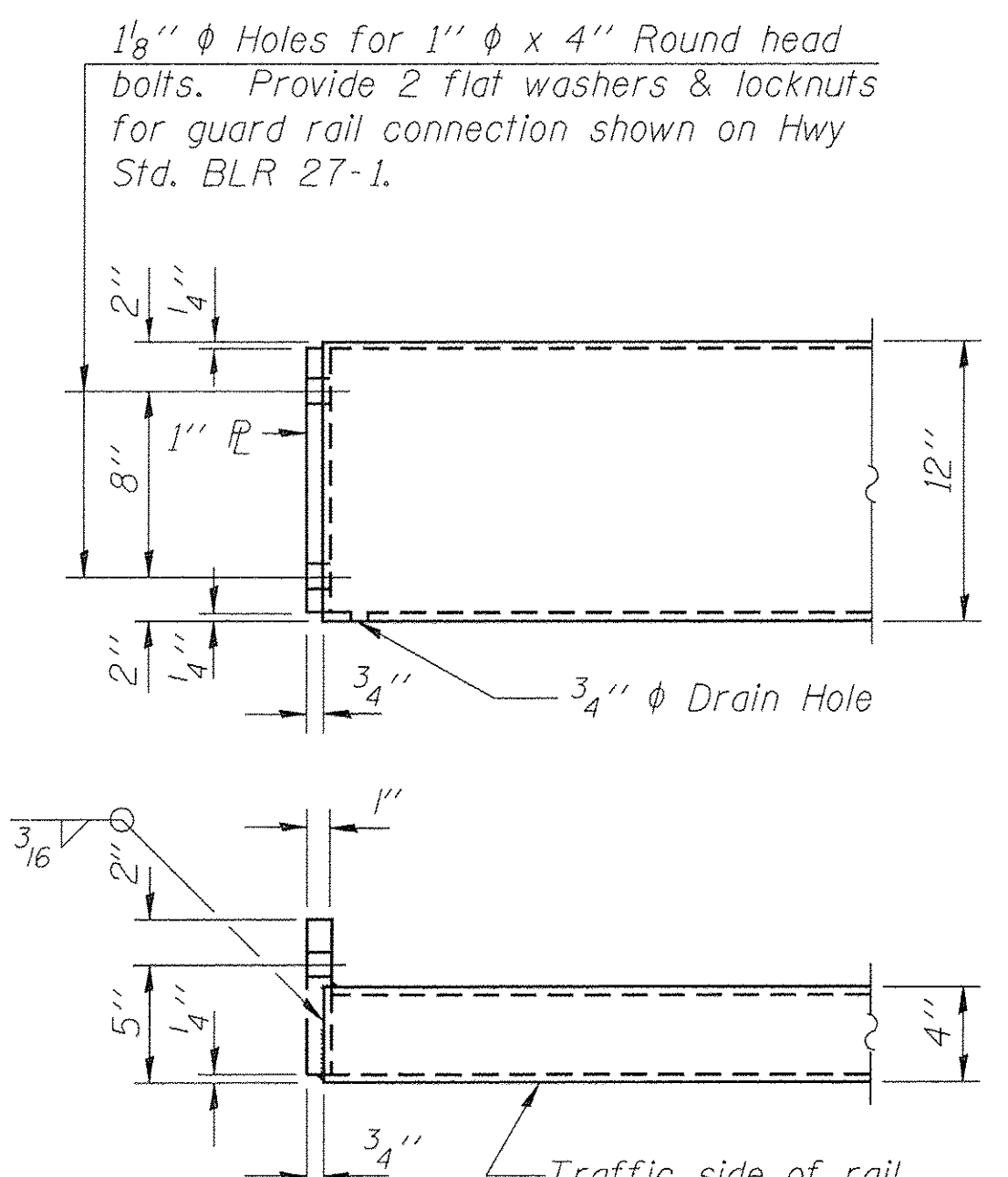
**SECTIONS AT RAIL SPLICE**



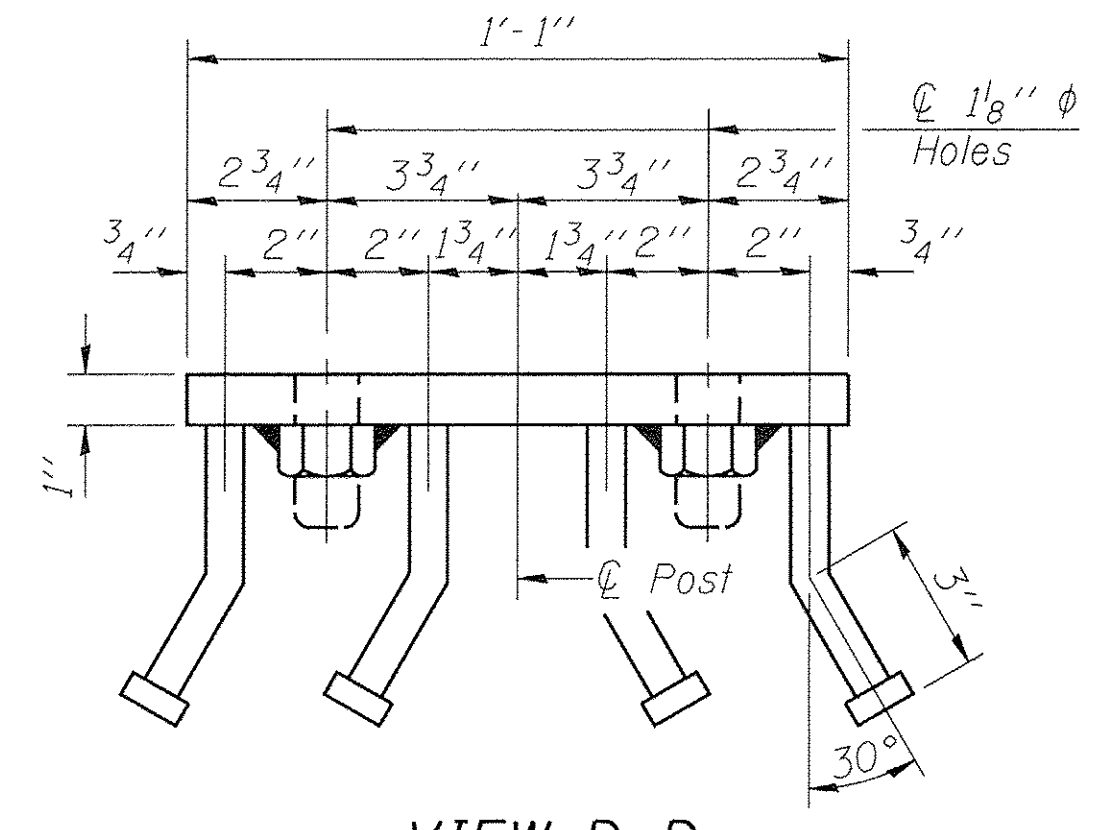
**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE RAIL  
TYPICAL**



**END OF RAIL DETAILS**



**VIEW D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	170

R-23A 11-22-16 (10'-9" Maximum Post Spacing)

FILE NAME = 140020-sht-bridge.dgn	USER NAME = #USER#	DESIGNED - J.R.T.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.	PLOT SCALE = #SCALE#	CHECKED - S.W.M.	REVISED -
3005 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62708	PLOT DATE = 12/23/2016	DRAWN - R.D.H.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.W.M.	REVISED -

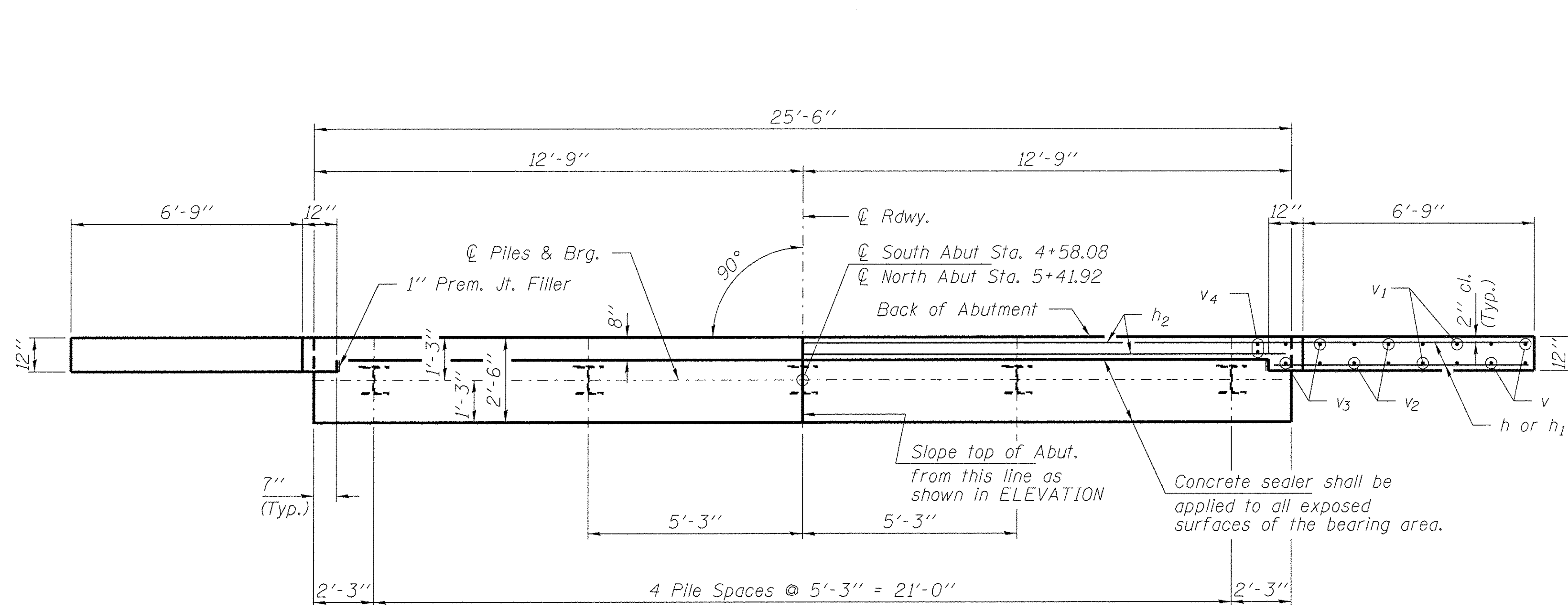
**STATE OF ILLINOIS  
HAMILTON COUNTY HIGHWAY DEPARTMENT**

**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 033-3323**

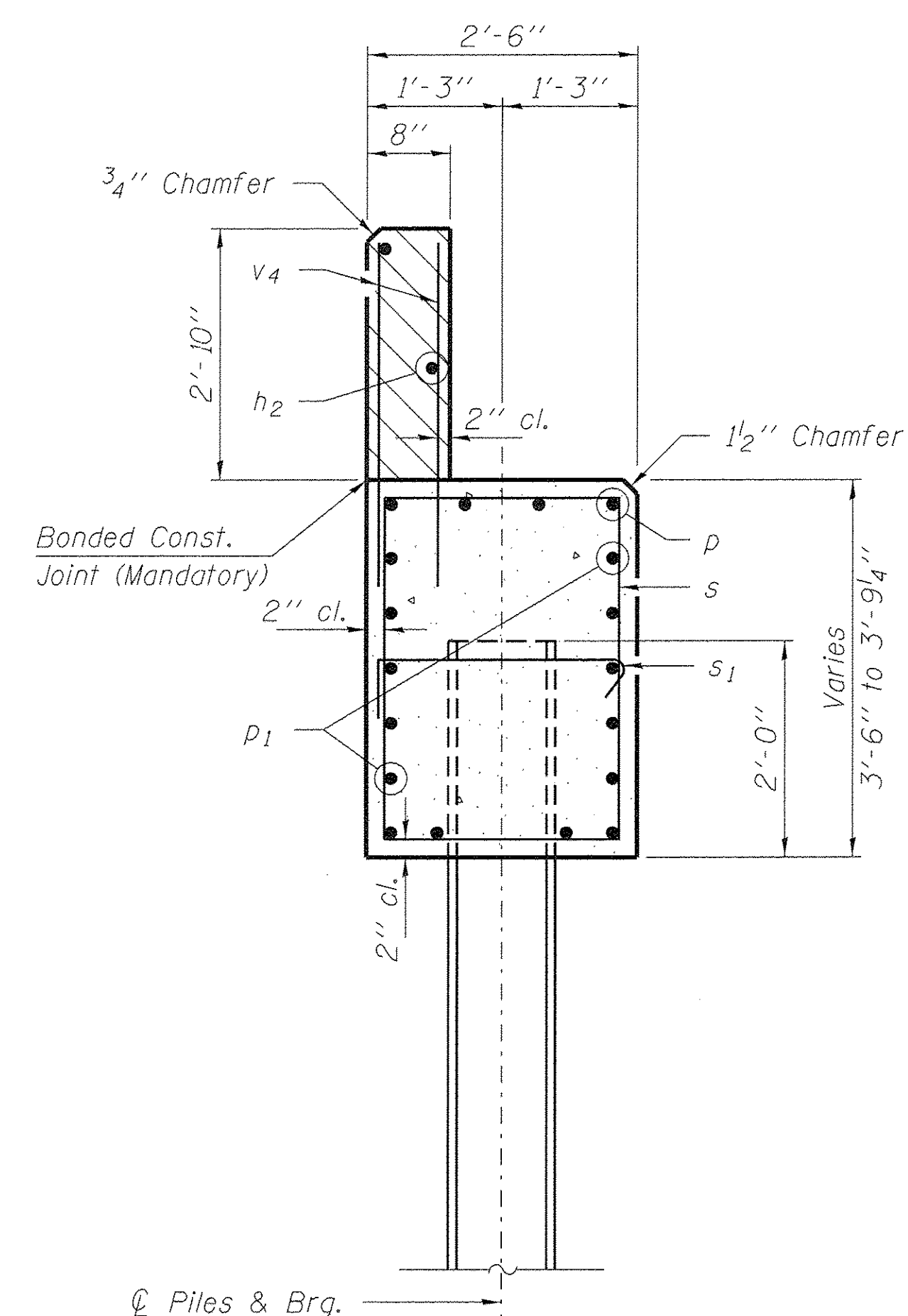
SHEET NO. 6 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	12
BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
ILLINOIS FED. AID PROJECT				



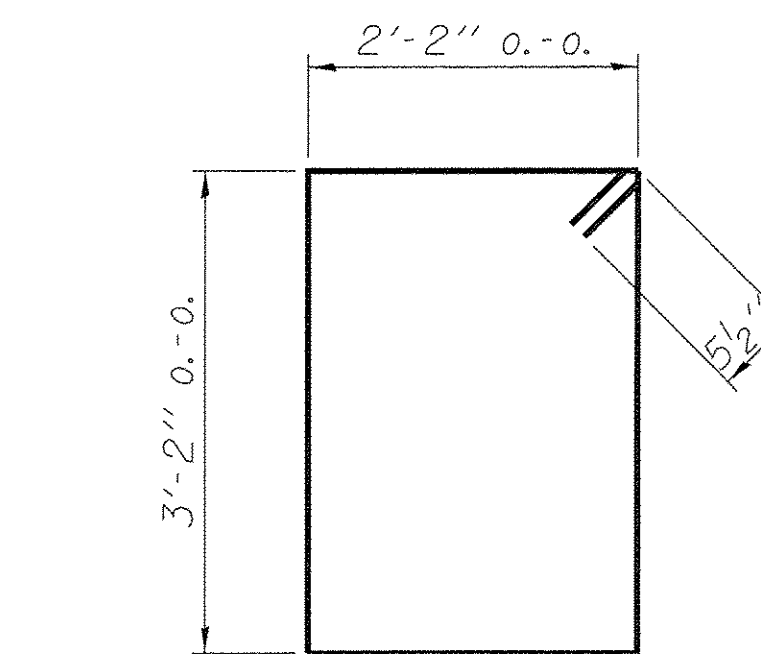


PLAN

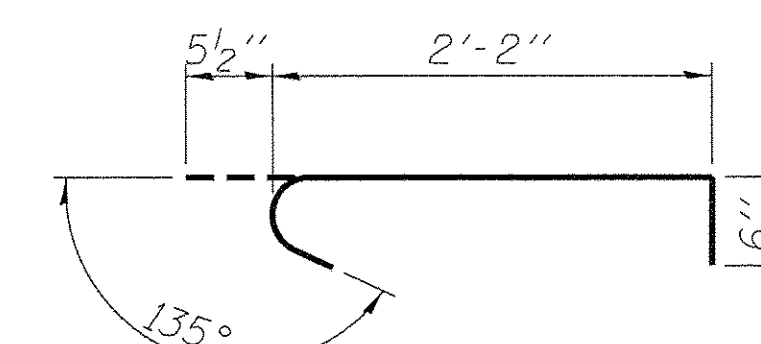


SECTION A-A

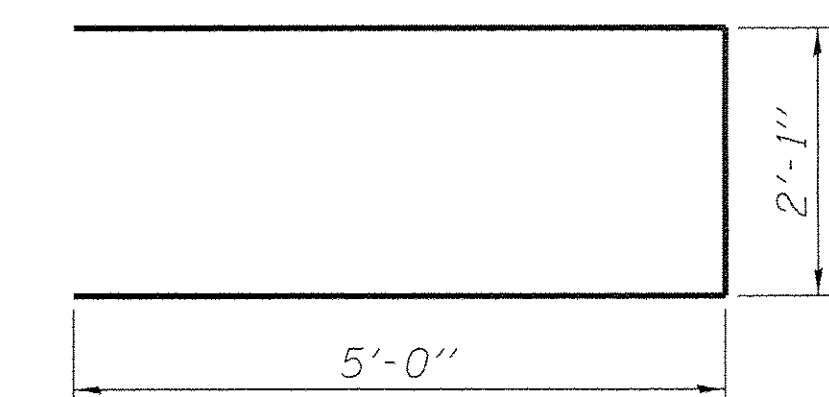
Hatched area to be poured after beams are in place.



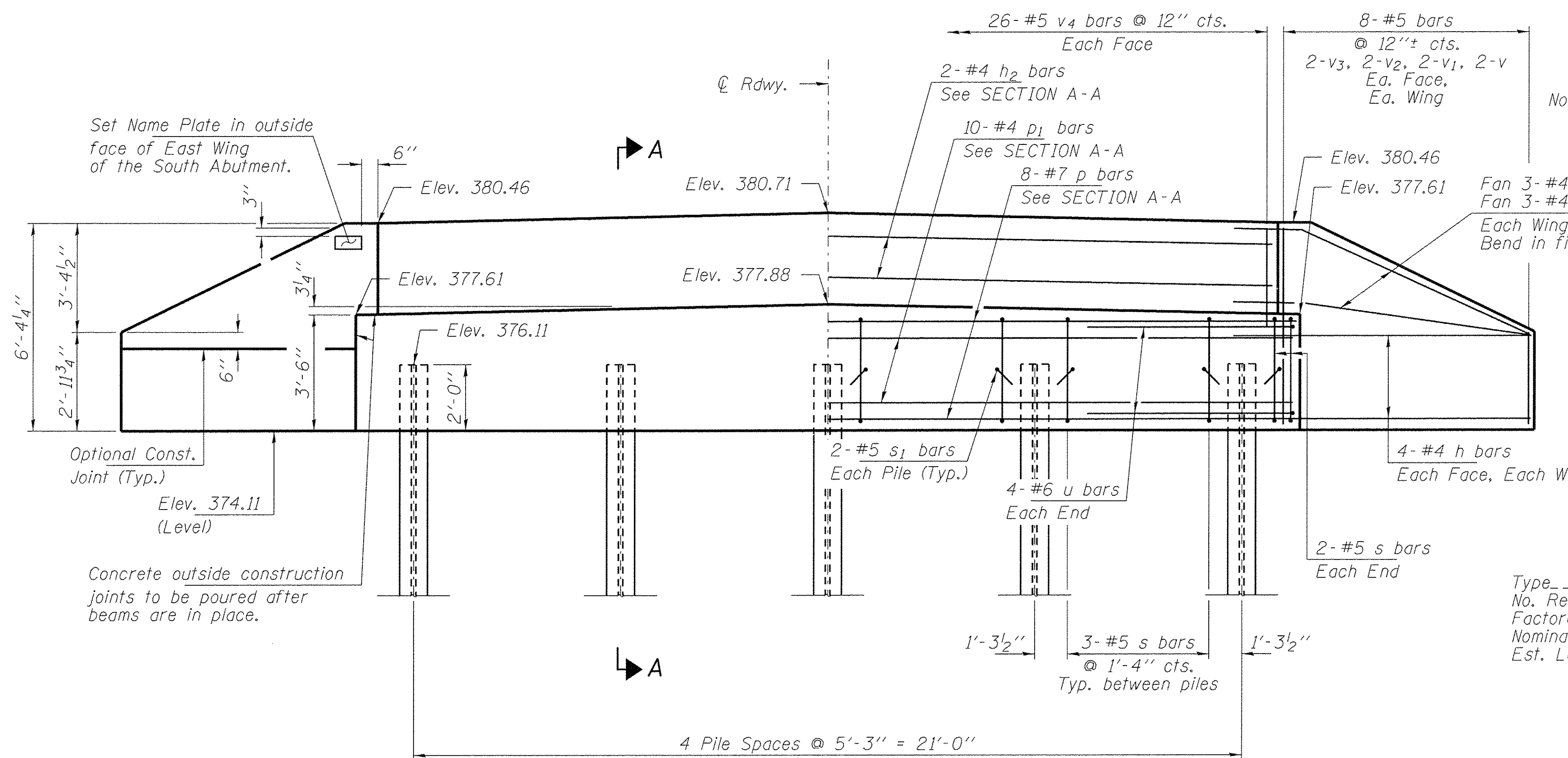
BAR s



BAR s1



BAR u



ELEVATION

Note: Extend h bars into abutment cap.

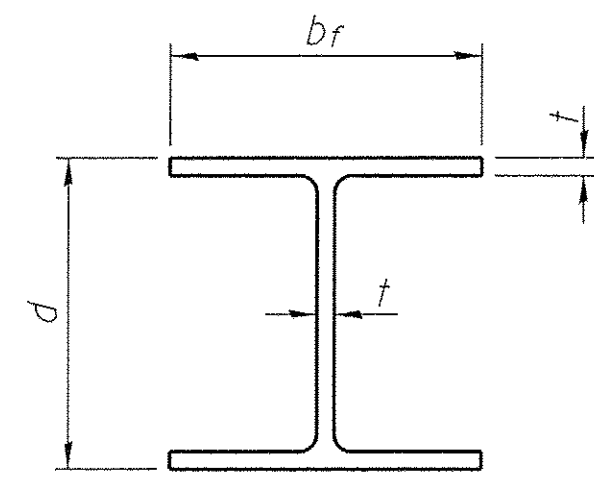
PILE DATA

Type ----- Steel Piles HP10x42  
 No. Req'd. (2 Abuts.) ----- 10  
 Factored Resistance Available (RF) ----- 184 Kips/Pile  
 Nominal Required Bearing (Rn) ----- 335 Kips/Pile  
 Est. Length ----- 75 Ft./Pile

BILL OF MATERIAL - 2 ABUTS.

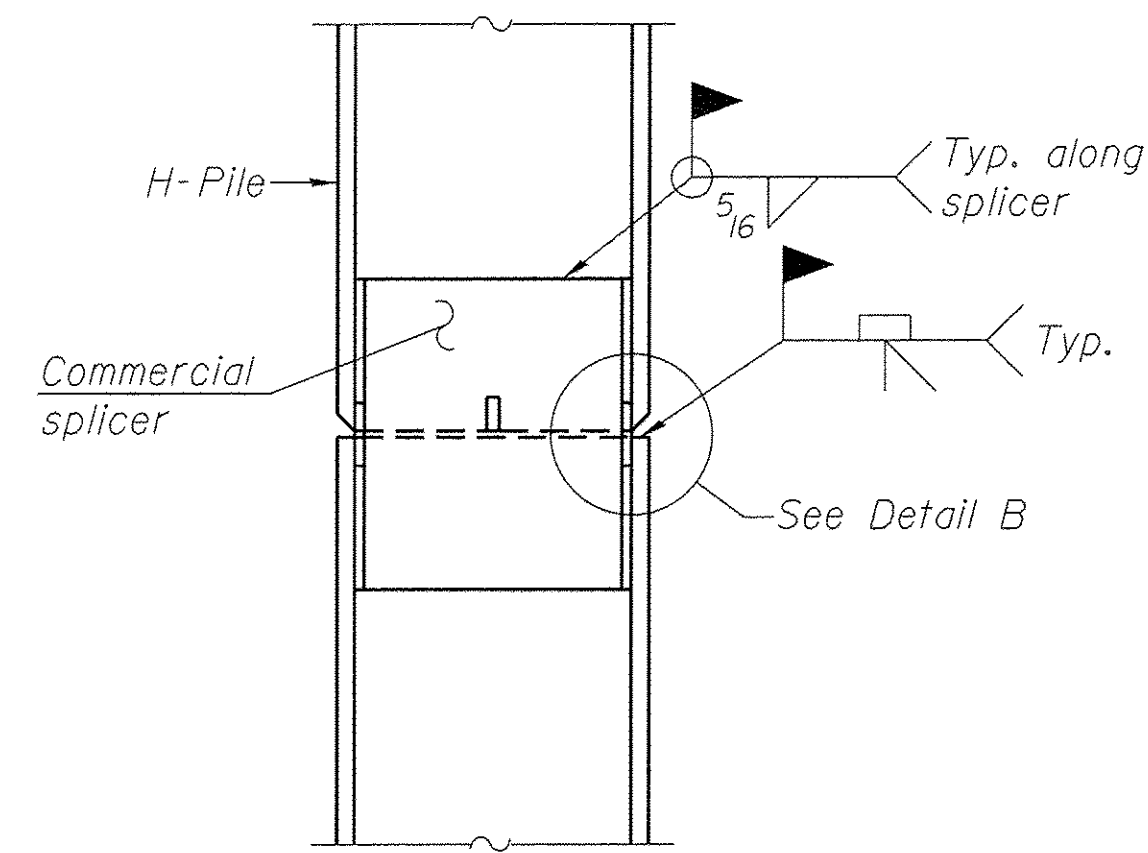
BAR	NO.	SIZE	LENGTH	SHAPE
h	44	#4	9'-0"	—
h1	12	#4	7'-6"	—
h2	4	#4	25'-2"	—
p	16	#7	25'-2"	—
p1	20	#4	25'-2"	—
s	32	#5	11'-7"	□
s1	20	#5	3'-2"	U
u	16	#6	12'-1"	U
v	16	#5	2'-9"	—
v1	16	#5	3'-9"	—
v2	16	#5	4'-10"	—
v3	16	#5	5'-11"	—
v4	104	#5	3'-8"	—
Concrete Structures			Cu. Yd.	25.8
Reinforcement Bars, Epoxy Coated			Pound	2,980
Furnishing Steel Piles HP10x42			Foot	750
Driving Piles			Foot	750
Name Plates			Each	1
Concrete Sealer			Sq. Ft.	93

All reinforcement bars shall be epoxy coated

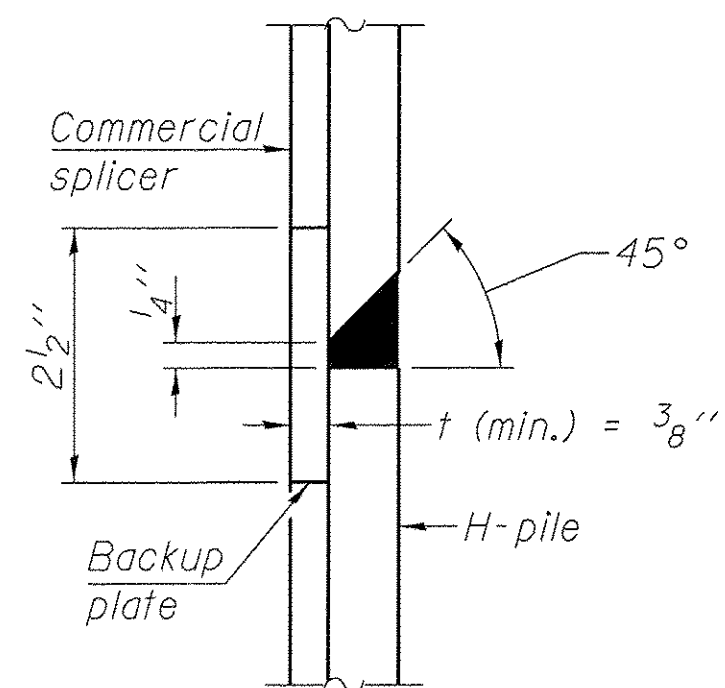


**STEEL PILE TABLE**

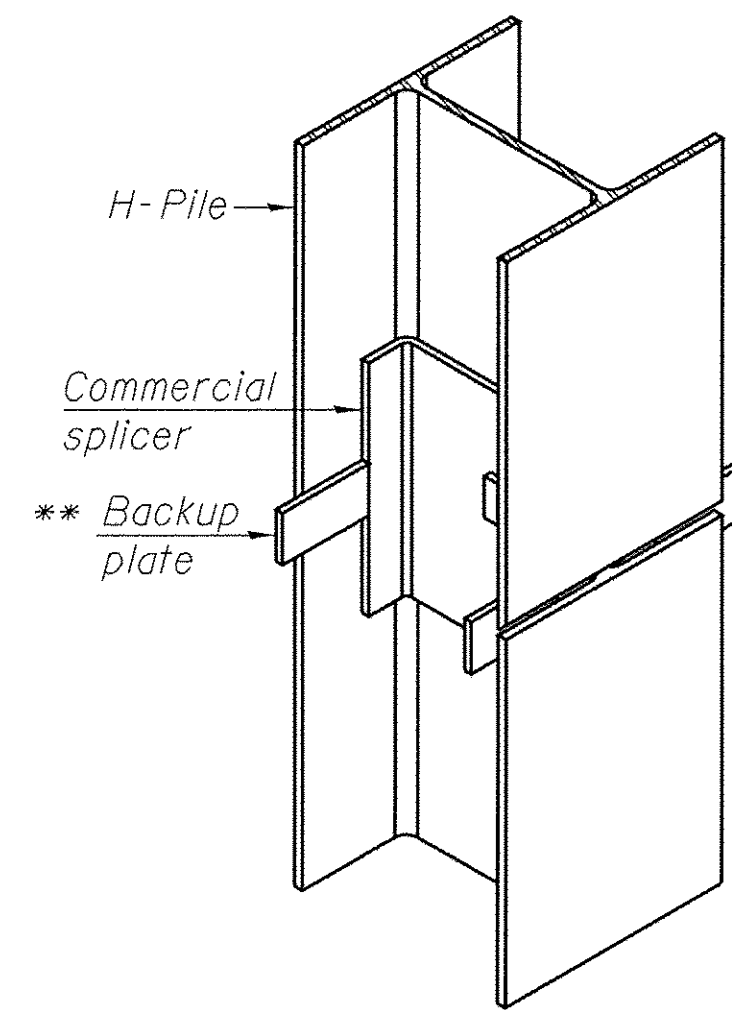
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 <sup>1</sup> / <sub>4</sub> "	14 <sup>7</sup> / <sub>8</sub> "	1 <sup>3</sup> / <sub>16</sub> "	30"
x102	14"	14 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>16</sub> "	30"
x89	13 <sup>7</sup> / <sub>8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



**ELEVATION**

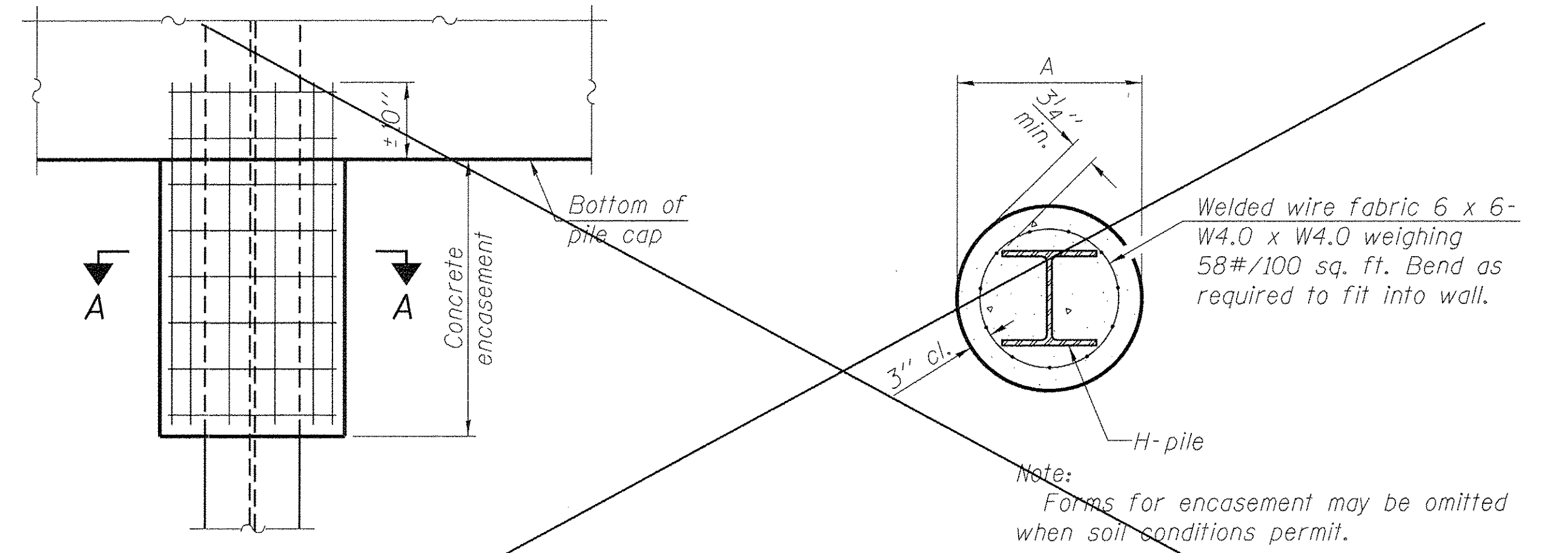


**DETAIL "B"**



**ISOMETRIC VIEW**

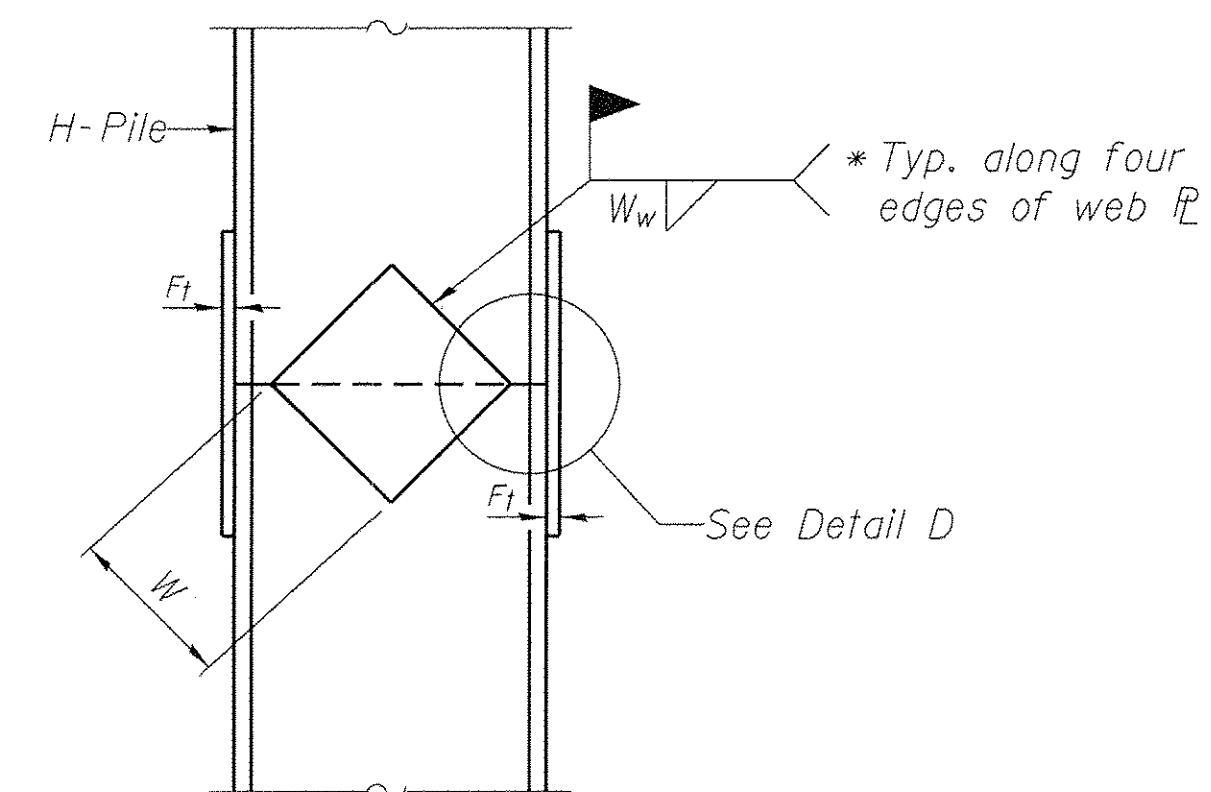
**WELDED COMMERCIAL SPLICE**



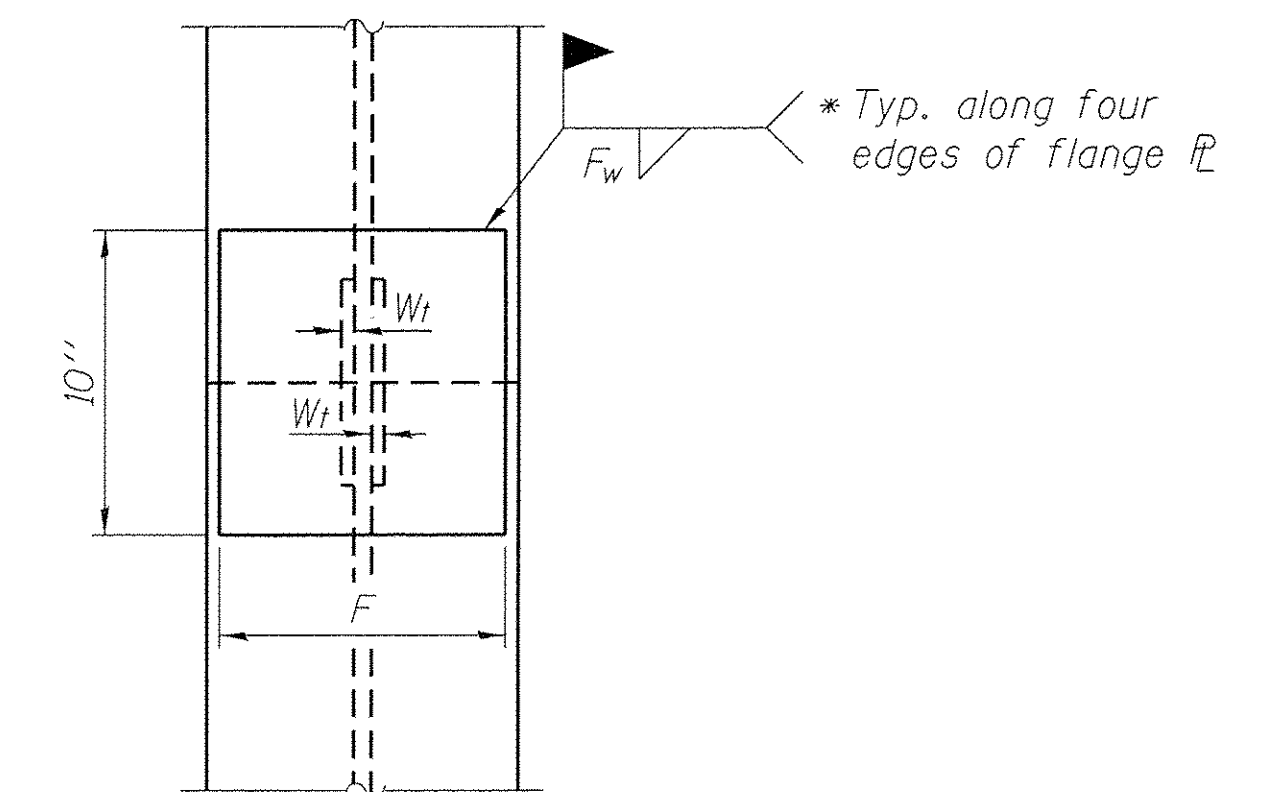
**ELEVATION**

**SECTION A-A**

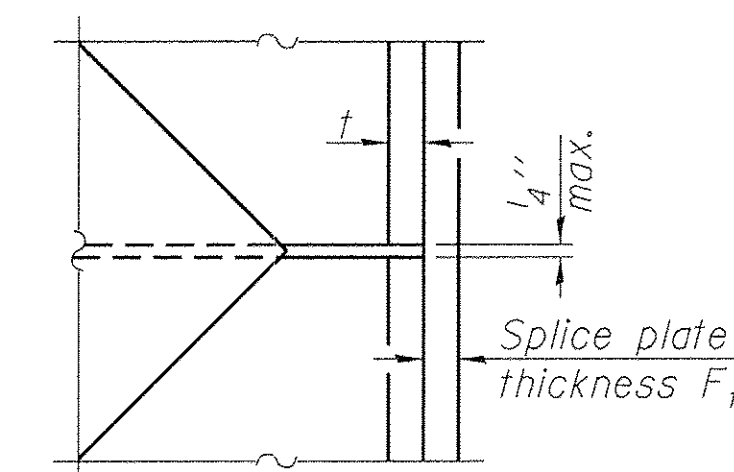
**PILE ENCASEMENT**  
(Not Required)



**ELEVATION**



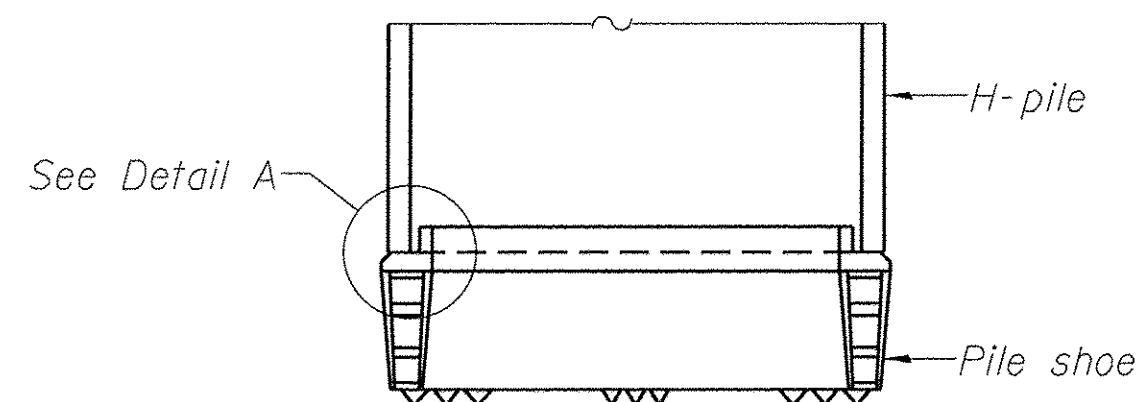
**END VIEW**



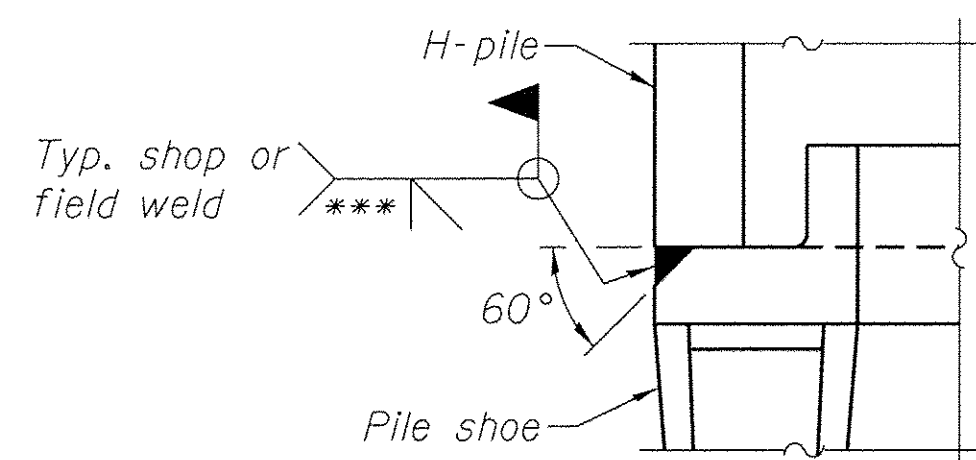
**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	F <sub>t</sub>	F <sub>w</sub>	W	W <sub>t</sub>	W <sub>w</sub>
HP 14x117	12 <sup>1</sup> / <sub>2</sub> "	1"	7 <sup>7</sup> / <sub>8</sub> "	7 <sup>3</sup> / <sub>4</sub> "	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "
x102	12 <sup>1</sup> / <sub>2</sub> "	7 <sup>7</sup> / <sub>8</sub> "	3 <sup>3</sup> / <sub>4</sub> "	7 <sup>3</sup> / <sub>4</sub> "	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "
x89	12 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>16</sub> "	7 <sup>3</sup> / <sub>4</sub> "	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "
x73	12 <sup>1</sup> / <sub>2</sub> "	5 <sup>5</sup> / <sub>8</sub> "	9 <sup>9</sup> / <sub>16</sub> "	7 <sup>3</sup> / <sub>4</sub> "	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "
HP 12x84	10"	7 <sup>7</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>16</sub> "	6 <sup>1</sup> / <sub>2</sub> "	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "
x74	10"	7 <sup>7</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>16</sub> "	6 <sup>1</sup> / <sub>2</sub> "	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "
x63	10"	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "	6 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "
x53	10"	5 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>2</sub> "	6 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "
HP 10x57	8"	3 <sup>3</sup> / <sub>4</sub> "	9 <sup>9</sup> / <sub>16</sub> "	5 <sup>1</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "
x42	8"	5 <sup>5</sup> / <sub>8</sub> "	9 <sup>9</sup> / <sub>16</sub> "	5 <sup>1</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "
HP 8x36	7"	5 <sup>5</sup> / <sub>8</sub> "	7 <sup>7</sup> / <sub>16</sub> "	4 <sup>1</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "

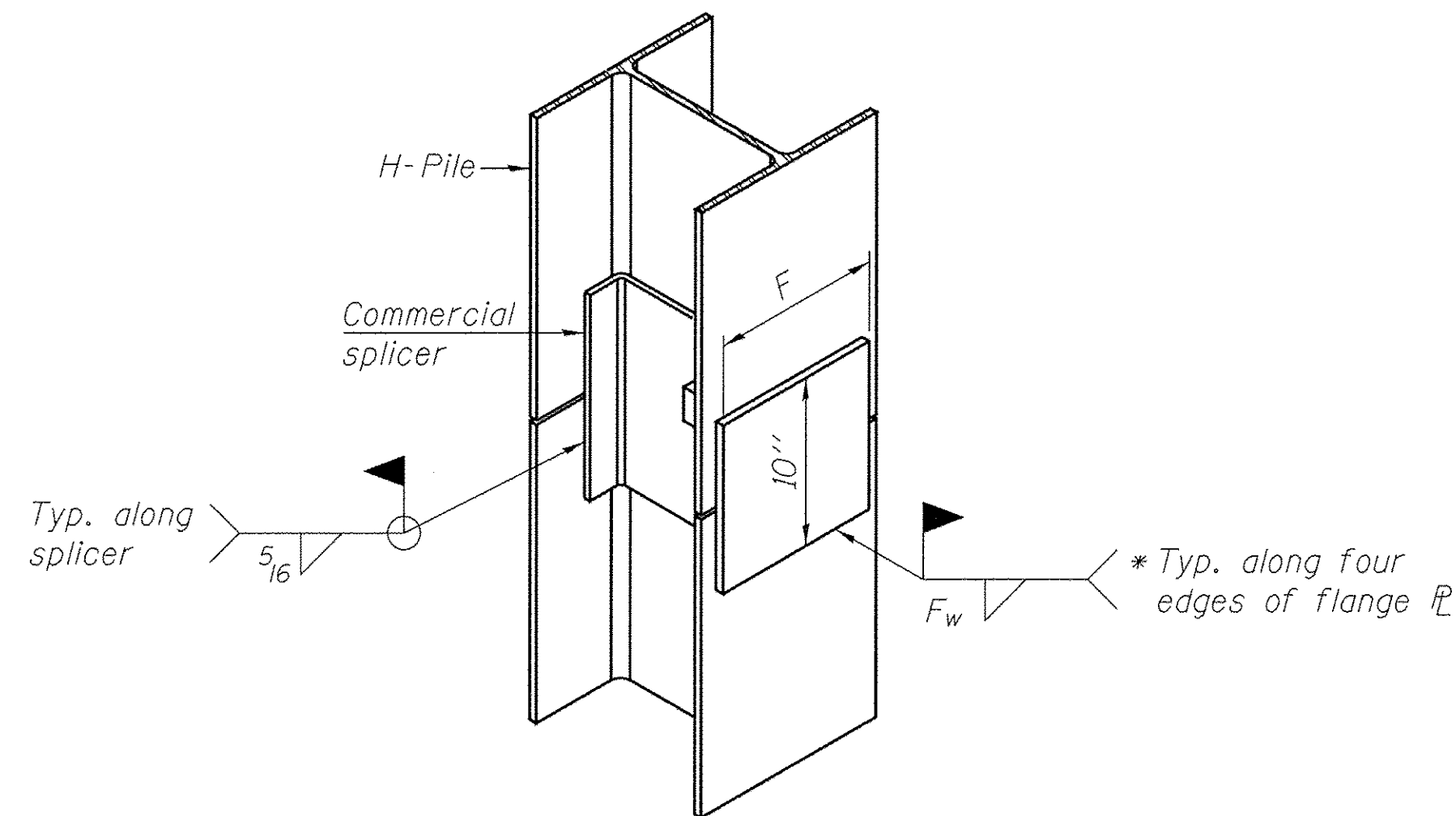


**ELEVATION**



**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.

F-HP 1-27-12

FILE NAME = 140220-shr-bridge.dgn	USER NAME = *USER*	DESIGNED - J.R.T.	REVISED -	<b>STATE OF ILLINOIS HAMILTON COUNTY HIGHWAY DEPARTMENT</b>	<b>HP PILE DETAILS STRUCTURE NO. 033-3323</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC.	3088 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	CHECKED - S.W.M.	REVISED -			486	13-01117-00-BR	HAMILTON	16	14
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = *SCALE*	DRAWN - R.D.H.	REVISED -			BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
PLOT DATE = 12/23/2016	CHECKED - S.W.M.	REVISED -	SHEET NO. 8 OF 10 SHEETS			ILLINOIS FED. AID PROJECT				



HOLCOMB FOUNDATION ENGINEERING INC.  
 P.O. Box 88 618-529-5262  
 Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-14050 Bridge IR-486 over Southern Outlet Drain Date: 3-27-2014  
 Section: 13-01117-00-BR Station \_\_\_\_\_  
 Structure: 033-3206 Bored by: B. Schwartz  
 County: Hamilton Checked by: T. Holcomb

Boring No. 1	Station	Offset	Elevation	N	Qu tsf	w %	Surface Water Elev.		Elevation	N	Qu tsf	w %
							During Drilling	Upon Completion				
			379.9	0								
								341.4				
								plugged				
			376.4	9	2.95	21						
			368.9	8	2.35	24						
			361.4	8	2.18	24						
			361.4	7	2.15	24						
			361.4	5	1.28	25						
			361.4	5	2.05	29						
			361.4	3	1.28	31						
			361.4	0	0.68	41						
			361.4	13	3.18	25						

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
 Qu-Unconfined Compressive Strength in tons/sq.ft.  
 w-Water Content-percentage of oven dry weight-%  
 B = Bulge Failure  
 S = Shear Failure  
 E = Estimated Value  
 P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC.  
 P.O. Box 88 618-529-5262  
 Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-14050 Bridge IR-486 over Southern Outlet Drain Date: 3-27-2014  
 Section: 13-01117-00-BR Station \_\_\_\_\_  
 Structure: 033-3206 Bored by: B. Schwartz  
 County: Hamilton Checked by: T. Holcomb

Boring No. 1	Station	Offset	Elevation	N	Qu tsf	w %	Surface Water Elev.		Elevation	N	Qu tsf	w %
							During Drilling	Upon Completion				
								341.4				
								plugged				
			311.4	45	18	29						
			353.9	9	3.25	29						
			353.9	3	--	44						
			353.9	1	0.68	27						
			353.9	7	2.15	24						
			353.9	3	1.05	41						
			353.9	5	2.05	29						
			353.9	3	1.28	31						
			353.9	0	0.68	41						
			353.9	18	--	21						

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
 Qu-Unconfined Compressive Strength in tons/sq.ft.  
 w-Water Content-percentage of oven dry weight-%  
 B = Bulge Failure  
 S = Shear Failure  
 E = Estimated Value  
 P = Penetrometer

BORING 1

FILE NAME = 140220-sht-bridge.dgn	USER NAME = #USER#	DESIGNED - J.R.T.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959		CHECKED - S.W.M.	REVISED -
	PLOT SCALE = #SCALE#	DRAWN - R.D.H.	REVISED -
	PLOT DATE = 12/23/2016	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS  
 HAMILTON COUNTY HIGHWAY DEPARTMENT

BORINGS  
 STRUCTURE NO. 033-3323

SHEET NO. 9 OF 10 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	15
BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
ILLINOIS FED. AID PROJECT				

HOLCOMB FOUNDATION ENGINEERING INC.  
 P.O. Box 88 618-529-5262  
 Carbondale, Il. 62903 618-457-8991 fax Page 1 of 2

Bridge Foundation Boring Log

Project: H-14050 Bridge IR-486 over Southern Outlet Drain Date: 3-27-2014  
 Section: 13-01117-00-BR Station \_\_\_\_\_ Bored by: B. Schwartz  
 Structure: 033-3206 \_\_\_\_\_ Checked by: T. Holcomb  
 County: Hamilton \_\_\_\_\_

Boring No.: 2 Station: Offset:	Surface Water Elev.				Ground Water Elev. During Drilling				Ground Water Elev. Upon Completion				
	Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %	
Ground Surface 379.2	0												clay (continued)
Brown Silty CLAY (A-6)	12		17		-25	8	2.5S	28					
375.7													
Brown Mottled Gray Silty CLAY (A-6)	7	1.9B	25		0	0.3B	45						
10	1.7B	23		-30	2	1.1B	24						
10	1.8B	26											
5	1.0B	29		-35	1	1.0B	35						
365.7													
Gray Mottled Brown Silty CLAY (A-6)	3	1.0B	31										
4	1.4B	32		-40	0		27						Gray SAND (A-2-4)
360.7													
Gray CLAY (A-7-6)	2	0.6B	42										
8	0.6B	25											

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
 Qu-Unconfined Compressive Strength in tons/sq.ft.  
 w-Water Content-percentage of oven dry weight-%  
 B = Bulge Failure  
 S = Shear Failure  
 E = Estimated Value  
 P = Penetrometer

BORING 2

HOLCOMB FOUNDATION ENGINEERING INC.  
 P.O. Box 88 618-529-5262  
 Carbondale, Il. 62903 618-457-8991 fax Page 2 of 2

Bridge Foundation Boring Log

Project: H-14050 Bridge IR-486 over Southern Outlet Drain Date: 3-27-2014  
 Section: 13-01117-00-BR Station \_\_\_\_\_ Bored by: B. Schwartz  
 Structure: 033-3206 \_\_\_\_\_ Checked by: T. Holcomb  
 County: Hamilton \_\_\_\_\_

Boring No.: 2 Station: Offset:	Surface Water Elev.				Ground Water Elev. During Drilling				Ground Water Elev. Upon Completion				
	Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %	Elevation	N	Qu tsf	w %	
sand (continued)	45	14	--	22									clay (continued)
					-70	52	--	14					
	9	--	18										
					100	/1'	--	10					Gray Sandy SHALE
					-75								
	10	--	21										
					100	/1'	--	12					End of Boring @ -79.0'
					-80								
					-85								
	6	1.0B	26										Gray Silty CLAY (A-6)
	10	1.7B	14										Gray Silty CLAY (A-6) with pebbles

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
 Qu-Unconfined Compressive Strength in tons/sq.ft.  
 w-Water Content-percentage of oven dry weight-%  
 B = Bulge Failure  
 S = Shear Failure  
 E = Estimated Value  
 P = Penetrometer

STATE OF ILLINOIS  
 HAMILTON COUNTY HIGHWAY DEPARTMENT

BORINGS  
 STRUCTURE NO. 033-3323

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
486	13-01117-00-BR	HAMILTON	16	16
BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99572		
ILLINOIS FED. AID PROJECT				