

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 209	15-05106-00-BR	CLAY	23	1
FED. ROAD DIST. NO.		ILLINOIS	CONTRACT NO. 95813	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM
OFF SYSTEM BRIDGE

PROJECT BROS-0025(088)
SECTION 15-05106-00-BR
HOOSIER ROAD DISTRICT

CLAY COUNTY
T.R. 209 / JASPER ROAD / GILL BRIDGE
PROPOSED STRUCTURE NO. 013-3248
C-97-025-17

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES AND GENERAL NOTES
3.	TYPICAL CROSS SECTIONS
4.	PLAN AND PROFILE
5-14.	STATION CROSS SECTIONS
15-21.	BRIDGE PLANS
22-23.	BORINGS

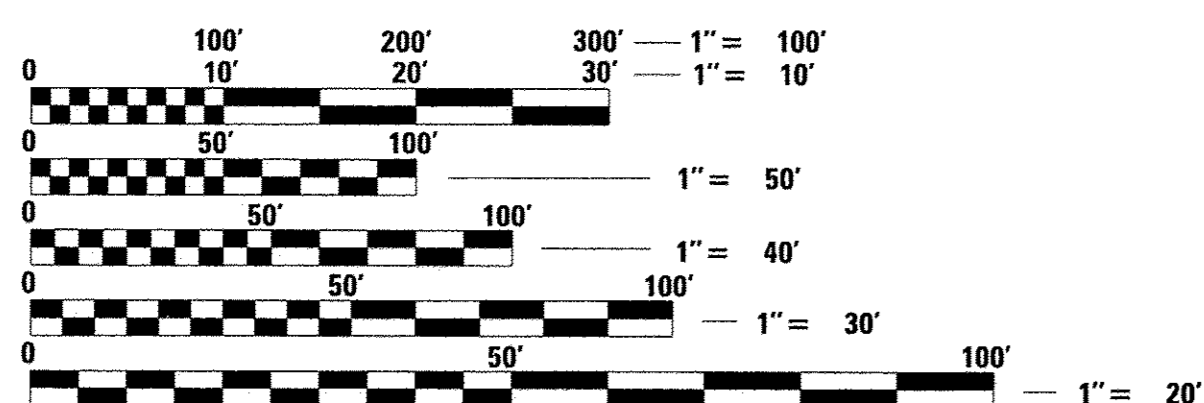
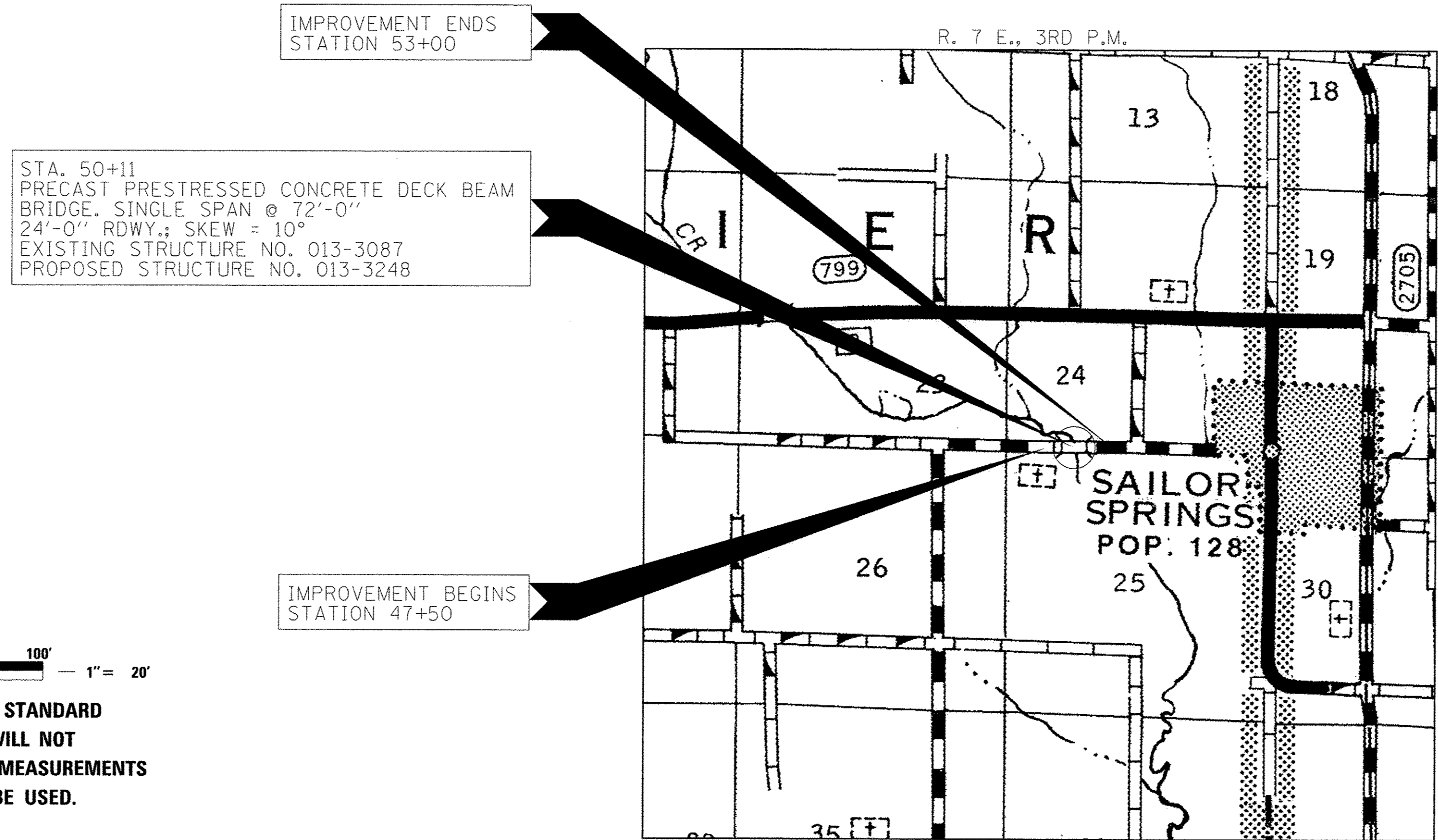
HIGHWAY STANDARDS:

000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
701901-06	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

UTILITIES

EJ WATER CORPORATION
 PO BOX 8
 DIETERICH, IL 62424

FRONTIER COMMUNICATIONS
 307 N JEFFERSON ST
 ROBINSON, IL 62454

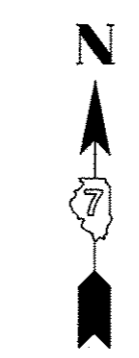


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

FUNCTIONAL CLASSIFICATION: LOCAL ROAD (0-250)
 DESIGN SPEED: 30 MPH
 DESIGN TRAFFIC: 100 ADT

CONTRACT NO. 95813 PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

LOCATION MAP
 APPROXIMATE SCALE: 0 1/2 MILE
 NET LENGTH OF SECTION = 550 FEET = 0.104 MILES



WARNING

CALL 811 BEFORE YOU DIG
DIG NO: X0130825

ILLINOIS DEPARTMENT OF TRANSPORTATION

APPROVED 04.05.17
R.A. Phillips
 COUNTY ENGINEER

APPROVED 04-05-17
Mark Phillips
 TOWNSHIP COMMISSIONER

PASSED 4-13-2017
Tom Hanna
 DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review
4-13-2017
Jeffrey McLaughlin
 REGION FOUR ENGINEER

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

DATE: 03/30/2017

HAMPTON, LENZINI AND RENWICK, INC.
 CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS
HLR
 3085 STEVENSON DRIVE, SUITE 201
 SPRINGFIELD, ILLINOIS 62703
 217.546.3400 www.hlrengineering.com
 184.009959
 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

EXPIRES: 11/30/2017 PROJECT NUMBER: 16.0001.130 DATE: 03/30/17

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	CONSTRUCTION
			TYPE CODE 0011
			TOTAL
^ 20100500	TREE REMOVAL, ACRES	ACRE	0.1
^ 20200100	EARTH EXCAVATION	CU YD	315
20300100	CHANNEL EXCAVATION	CU YD	135
20400800	FURNISHED EXCAVATION	CU YD	702
28000305	TEMPORARY DITCH CHECKS	FOOT	65
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	410
^ 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	24.6
50300280	CONCRETE ENCASEMENT	CU YD	3.4
^ 50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1,728
50800105	REINFORCEMENT BARS	POUND	2,640
* 50900205	STEEL RAILING, TYPE S1	FOOT	140
51201400	FURNISHING STEEL PILES HP10X42	FOOT	405
51202305	DRIVING PILES	FOOT	405
51203400	TEST PILE STEEL HP10X42	EACH	1
51500100	NAME PLATES	EACH	1
^ 59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	54
67100100	MOBILIZATION	L SUM	1
72000100	SIGN PANEL - TYPE 1	SQ FT	18
* 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
72800100	TELESCOPING STEEL SIGN SUPPORT	FOOT	28
^ X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.75
^ X2810208	STONE RIPRAP, CLASS A4 (SPECIAL)	TON	760

^ SEE SPECIAL PROVISIONS

* SPECIALTY ITEMS

GENERAL NOTES

- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION ADOPTED APRIL 1, 2016," THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
- ALL CLEARING AND GRUBBING, FENCE REMOVAL AND REMOVAL OF EXISTING DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION. THE REMOVAL OF THE EXISTING AGGREGATE SURFACE WILL BE PAID FOR AS EARTH EXCAVATION.
- ALL BITUMINOUS MATERIAL SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR IN A METHOD APPROVED BY THE ENGINEER. PROPER DISPOSAL OF BITUMINOUS MATERIAL SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- THE LOCATION OF EXISTING GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL FIELD INVESTIGATIONS AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE INDIVIDUAL UTILITY COMPANIES AND BY FIELD INSPECTION.
- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES:
AGGREGATE SURFACE COURSE, TYPE B 2.05 TON/CU YD
STONE RIPRAP, CLASS A4 (SPECIAL) 1.75 TON/CU YD
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.
ESTIMATED QUANTITY: SEEDING, CLASS 2 (SPECIAL) = 0.75 ACRES

COMMITMENTS:

- TREE REMOVAL IS PROHIBITED BETWEEN APRIL 1 AND SEPTEMBER 30.

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	SHRINKAGE FACTOR	PERCENT USED	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT REQUIRED	EARTHWORK BALANCE
	20200100	20300100					
	CU.YD.	CU.YD.			CU.YD.	CU.YD.	
TR 209							
STA 47+50 TO STA 49+74.31	155		25.00%	100.00%	117	535	-418
STA 49+74.31 TO STA 50+47.68		135	25.00%	70.00%	71		71
STA 50+47.68 TO STA 53+00	160		25.00%	100.00%	120	475	-355
TOTAL	315	135			308	1010	-702
USE	315	135					-702

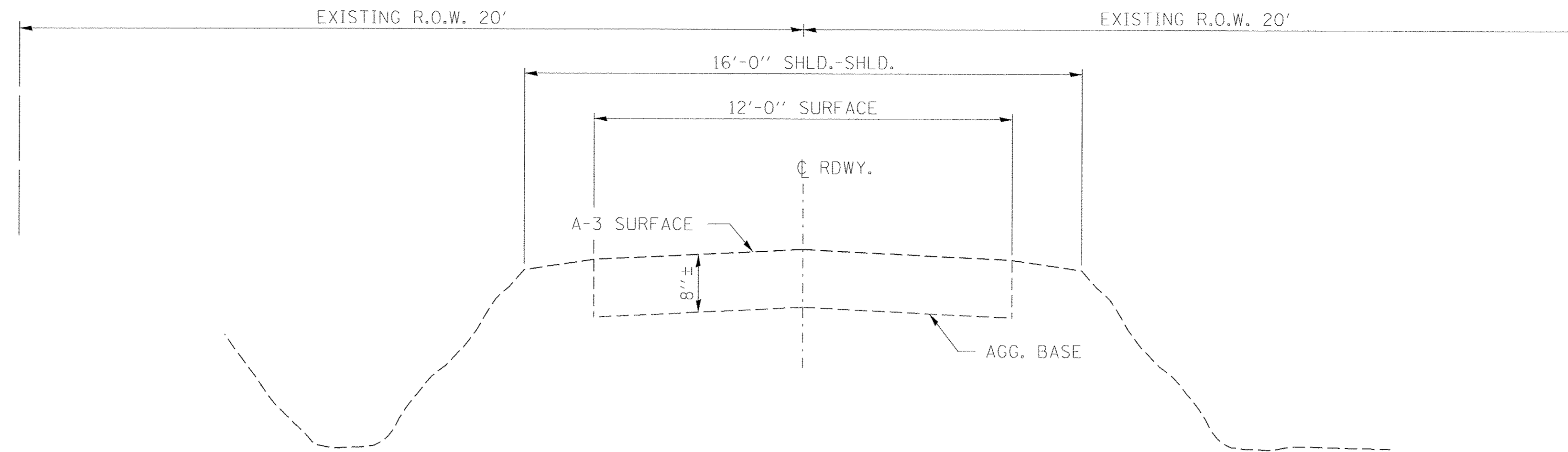
FURNISHED EXCAVATION 702 CU YDS

EROSION CONTROL SCHEDULE

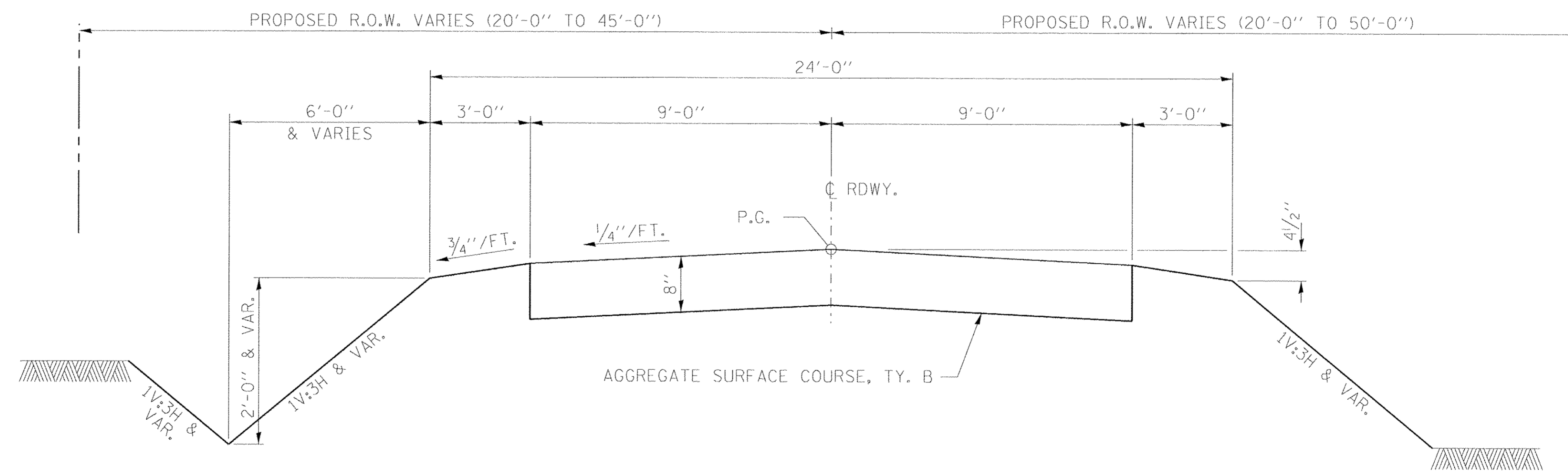
LOCATION	TEMPORARY DITCH CHECKS
	28000305
	FOOT
TR 209	
RT. STA 49+70	13
LT. STA 49+70	13
RT. STA 50+50	13
LT. STA 51+10	13
LT. STA 52+30	13
TOTAL	65

TREE REMOVAL SCHEDULE

LOCATION	TREE REMOVAL ACRES
	20100500
	ACRE
TR 209	
RT. STA 48+40 TO RT. STA 49+90	0.03
RT. STA 50+40 TO RT. STA 52+07	0.06
TOTAL	0.09
USE	0.1



EXISTING TYPICAL CROSS SECTION
STA. 47+50 TO 53+00



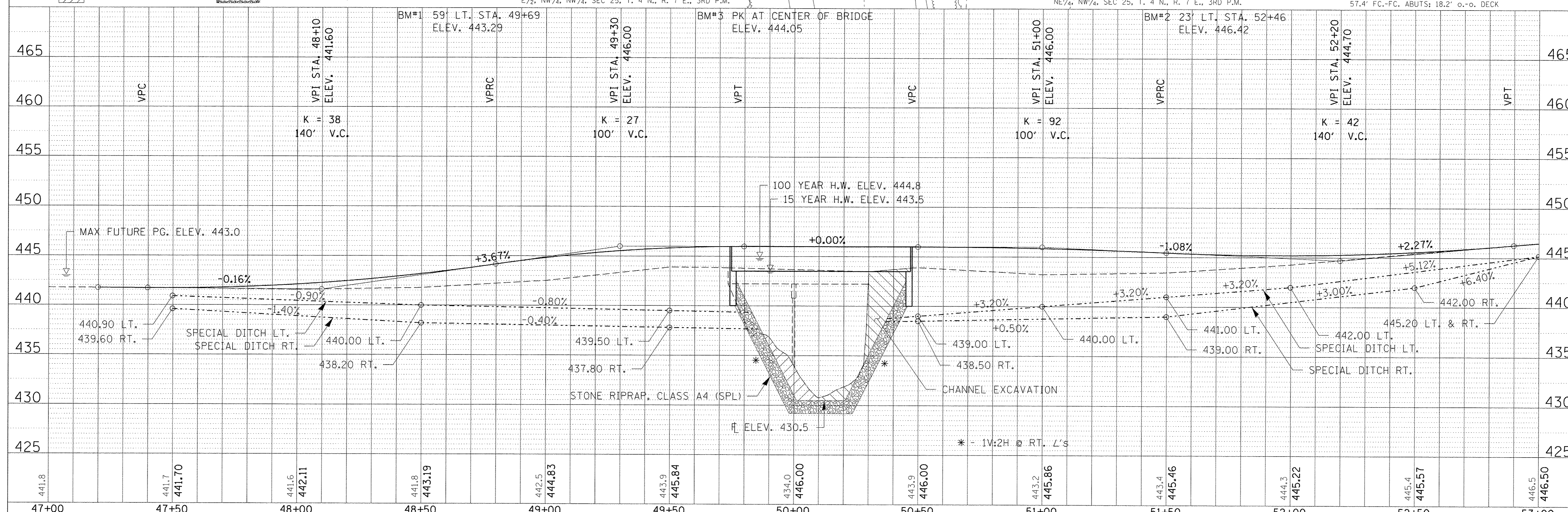
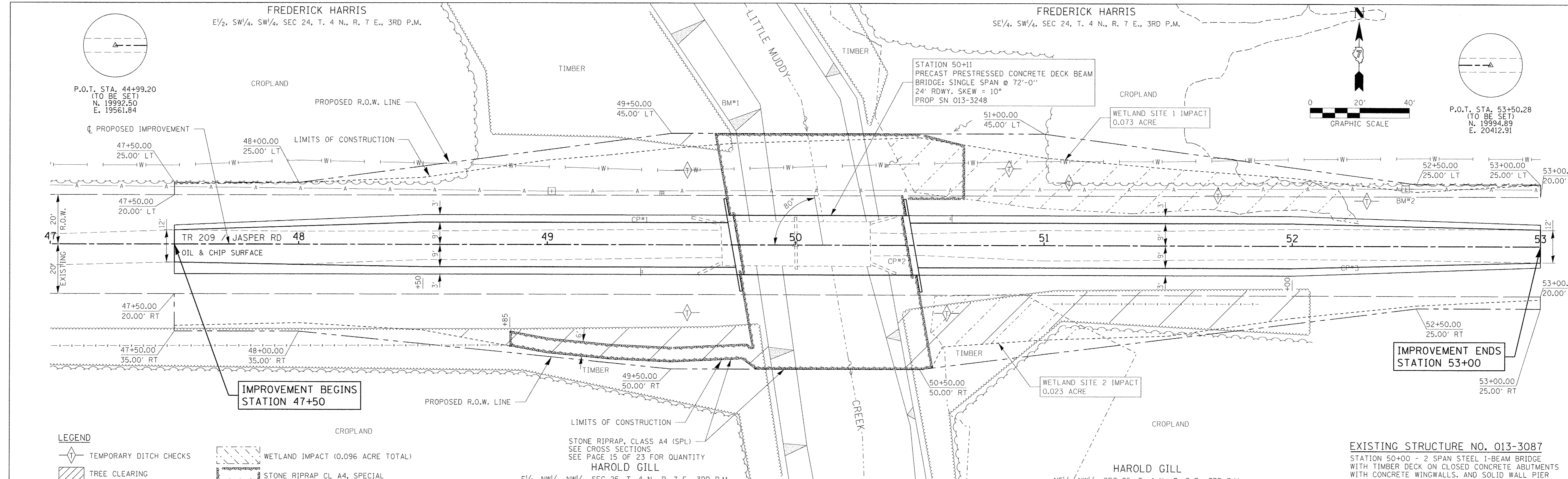
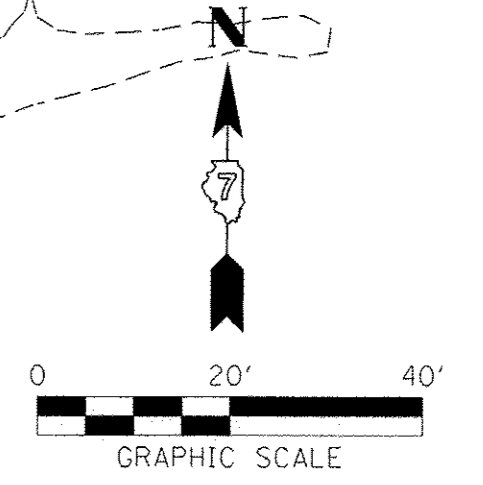
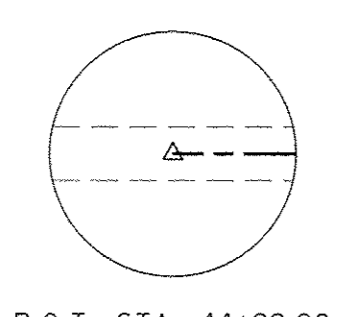
SUGGESTED CUT SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

SUGGESTED FILL SECTION
CONSTRUCT AS SHOWN IN
STATION CROSS SECTIONS

PROPOSED TYPICAL CROSS SECTION
STA. 47+50 TO 53+00

TRANSITIONS FROM THE PROPOSED ROADWAY TO THE EXISTING ROADWAY ARE TO BE CONSTRUCTED FROM STA. 47+50 TO 48+50 AND STA. 52+00 TO 53+00.

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HAMPTON, LENZINI AND RENWICK, INC. 3045 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE = #SCALE#	DRAWN - R.D.H.	REVISED -		SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	209	15-05106-00-BR	CLAY	23	3
HLR ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000055	PLOT DATE = 3/30/2017	CHECKED - S.W.M.	REVISED -					HOOSIER ROAD DISTRICT	CONTRACT NO. 95813		ILLINOIS FED. AID PROJECT BR05-002510881		
		DATE - 03/30/17	REVISED -										



DATE: _____

BY: _____

PLANNING: _____

DESIGN: _____

CHECKED: _____

DATE: _____

DATE: _____

BY: _____

PROFILING: _____

GRADES CHECKED: _____

B.M. NOTED: _____

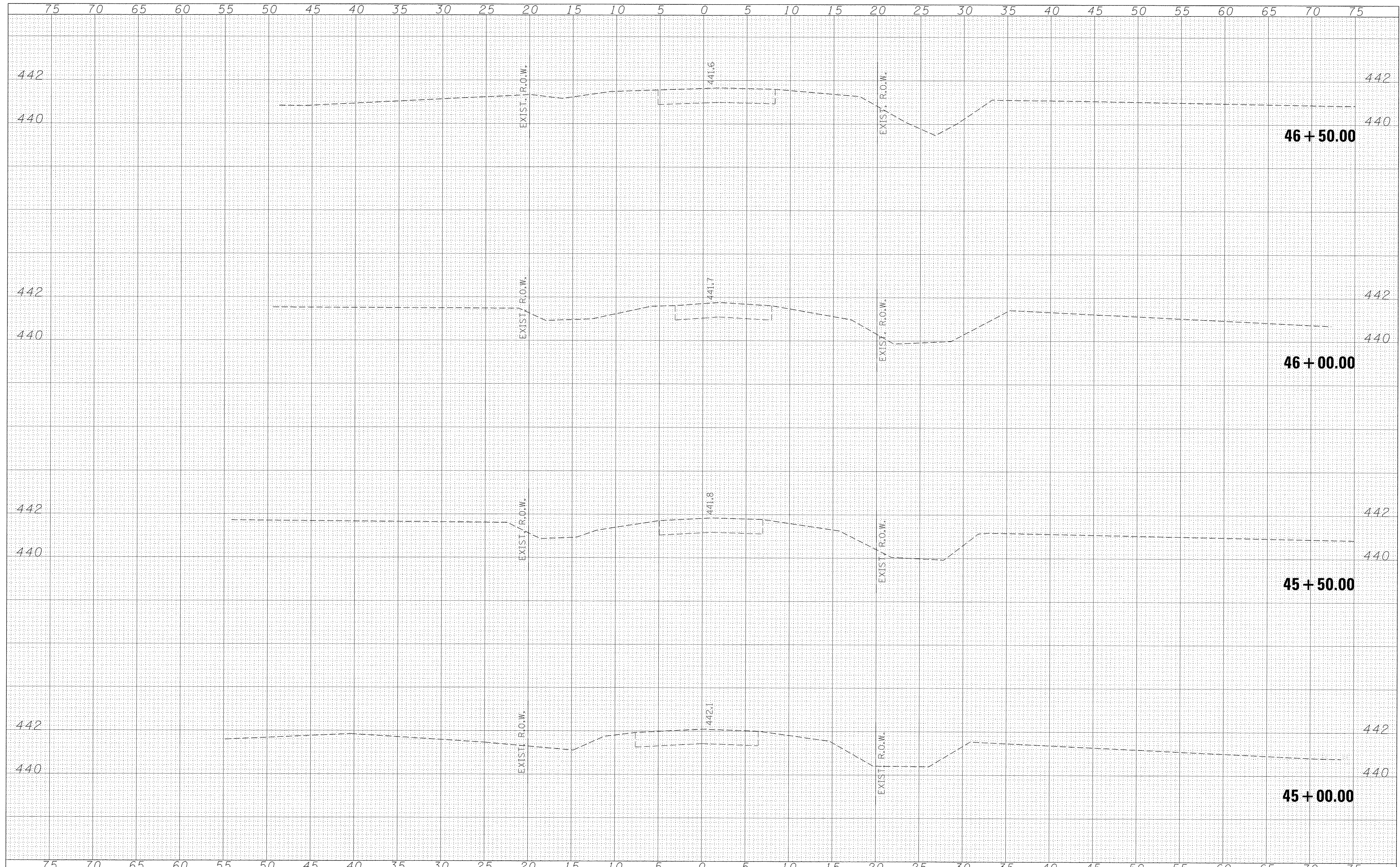
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DATE: _____

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HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE = #SCALE#	DRAWN - L.G.C.	REVISED -			HOOSIER ROAD DISTRICT	CONTRACT NO. 95813			
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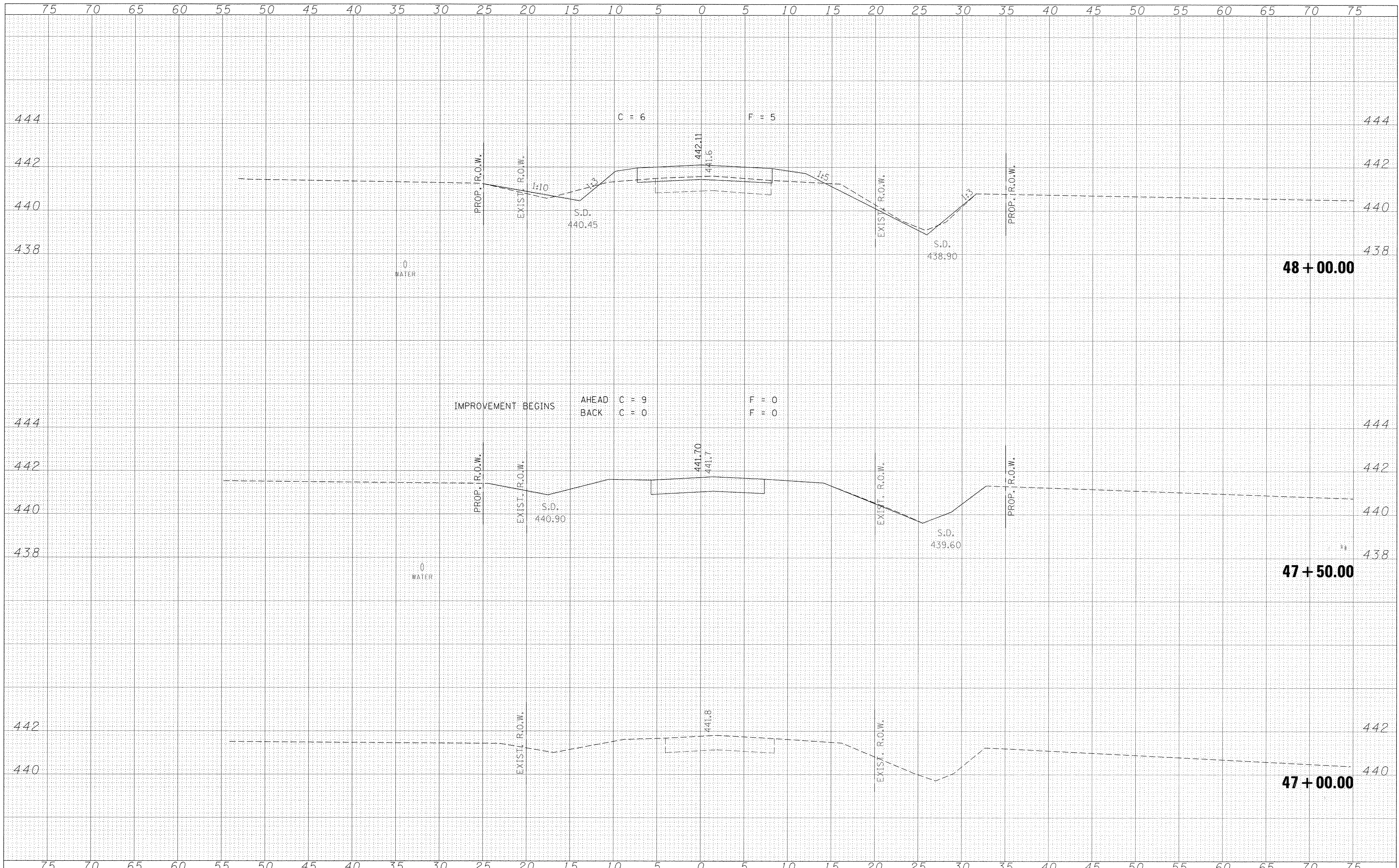
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ORIGINAL SURVEY	
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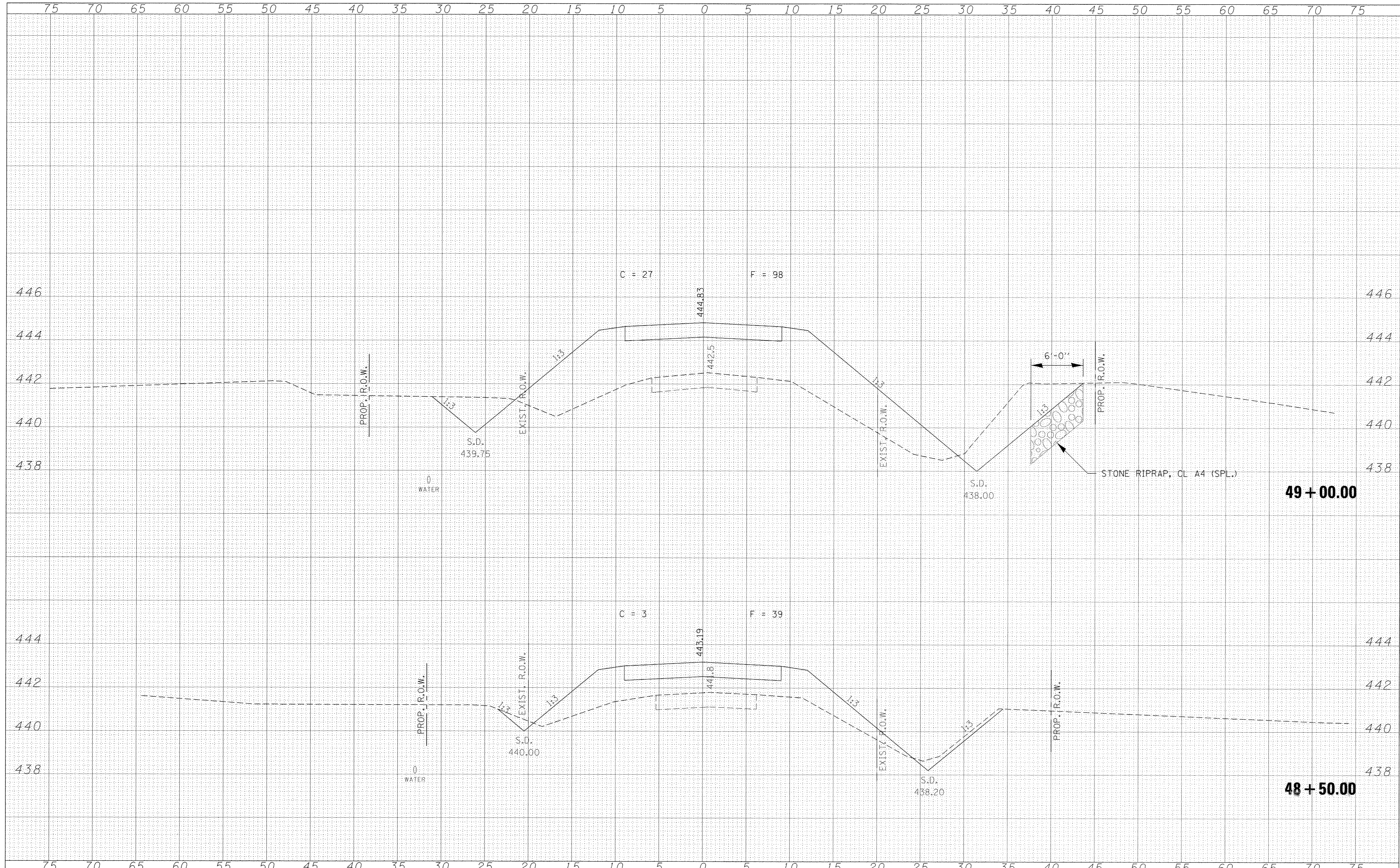
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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184-009959	PLOT SCALE = #SCALE#	DRAWN - T.W.K.	REVISED -		209	15-05106-00-BR	CLAY	23	6			
PLOT DATE = 3/30/2017	CHECKED - S.W.M.	DATE - 03/30/17	REVISED -		CONTRACT NO. 95813							
					ILLINOIS FED. AID PROJECT BROS-002510881							

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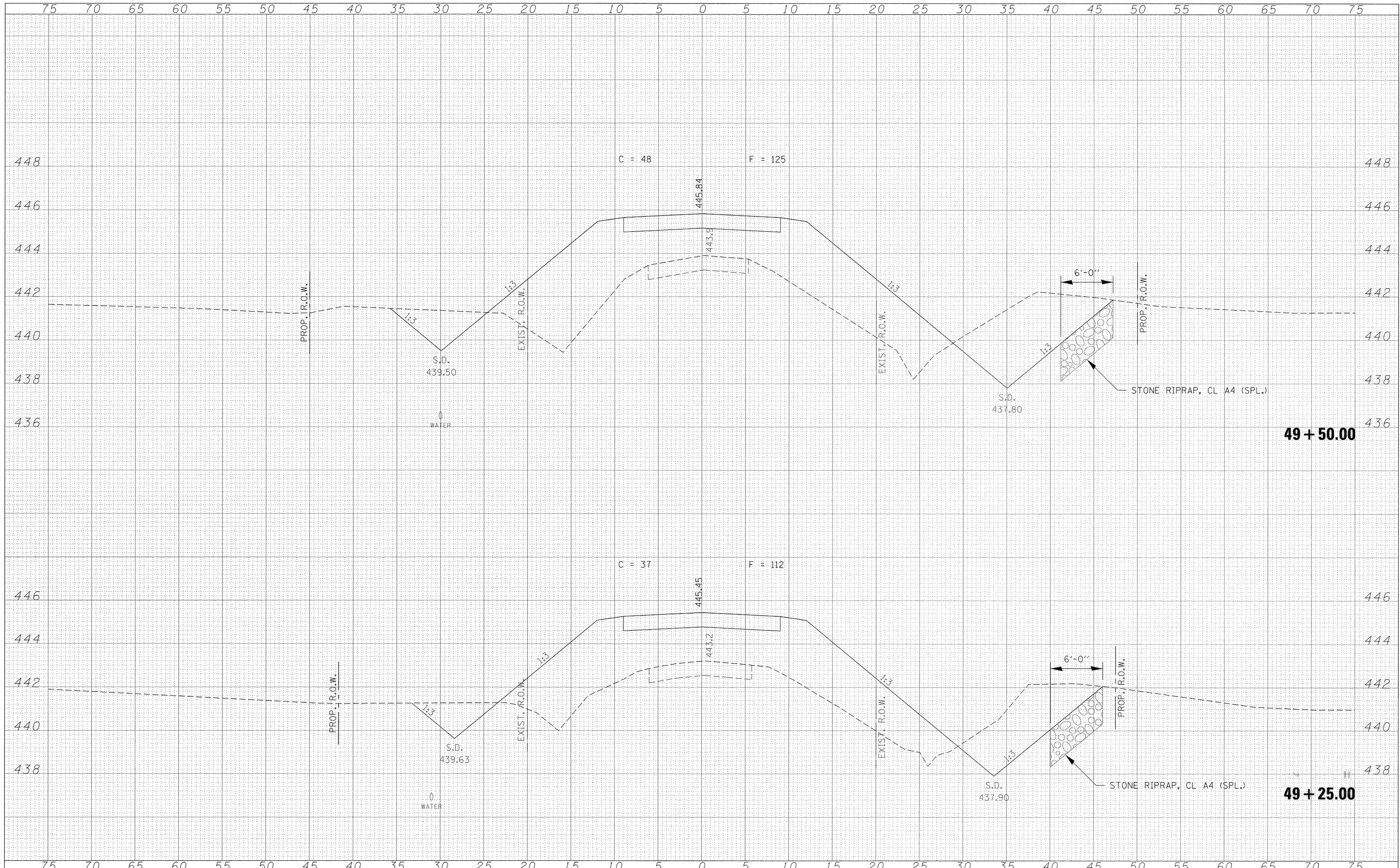
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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.009959	PLOT SCALE = #SCALE#	DRAWN - T.W.K.	REVISED -		SCALE: 5H:2V	SHEET NO. 3 OF 10 SHEETS	STA. 48+50.00 TO STA. 49+00.00	209	15-05106-00-BR	CLAY	23	7	
	PLOT DATE = 3/30/2017	CHECKED - S.W.M.	REVISED -					HOOSIER ROAD DISTRICT CONTRACT NO. 95813					
		DATE - 03/30/17	REVISED -					ILLINOIS FED. AID PROJECT BR05-0025(088)					

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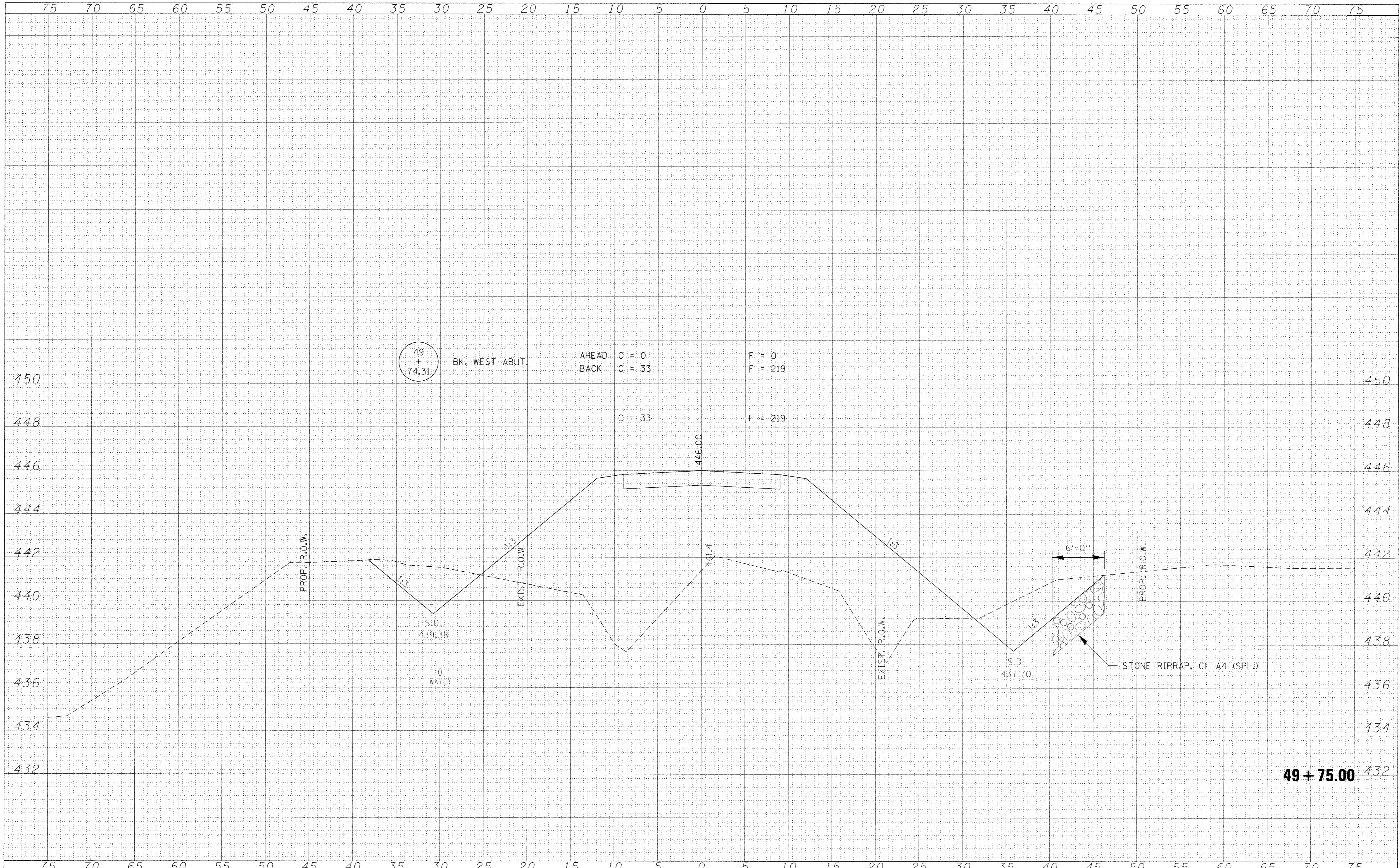
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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 194.000959		DRAWN - T.W.K.	REVISED -		209	15-05106-00-BR	CLAY	23	8					
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PLOT DATE = 3/30/2017		DATE - 03/30/17	REVISED -		HOOSIER ROAD DISTRICT CONTRACT NO. 95813								ILLINOIS FED. AID PROJECT BROS-0025(08B)	

DATE	
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DATE	
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TEMPLATE	
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49 + 75.00

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ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	DRAWN - T.W.K.
	CHECKED - S.W.M.
	DATE - 03/30/17
PLOT SCALE = #SCALE#	REVISED -
PLOT DATE = 3/30/2017	REVISED -

DESIGNED - L.A.P.	REVISED -
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DATE - 03/30/17	REVISED -

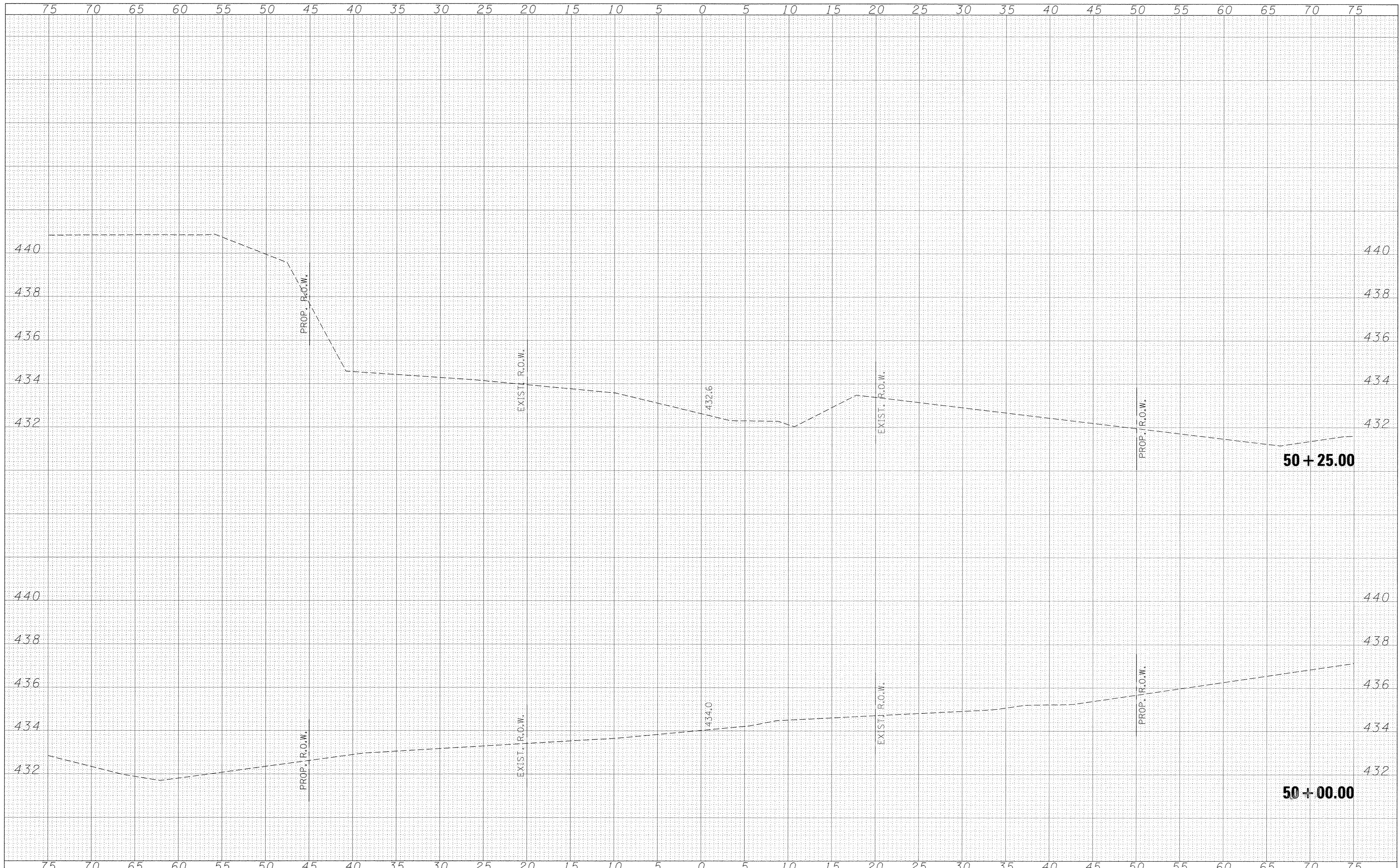
**STATE OF ILLINOIS
CLAY COUNTY HIGHWAY DEPARTMENT**

STATION CROSS SECTIONS			
SCALE: 5H:2V	SHEET NO. 5 OF 10 SHEETS	STA. 49+75.00	TO STA. 49+75.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209	15-05106-00-BR	CLAY	23	9
HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	
ILLINOIS FED. AID PROJECT BR05-002510881				

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



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PLOT DATE = 3/30/2017	REVISIED -

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CHECKED - S.W.M.	REVISIED -
DATE - 03/30/17	REVISIED -

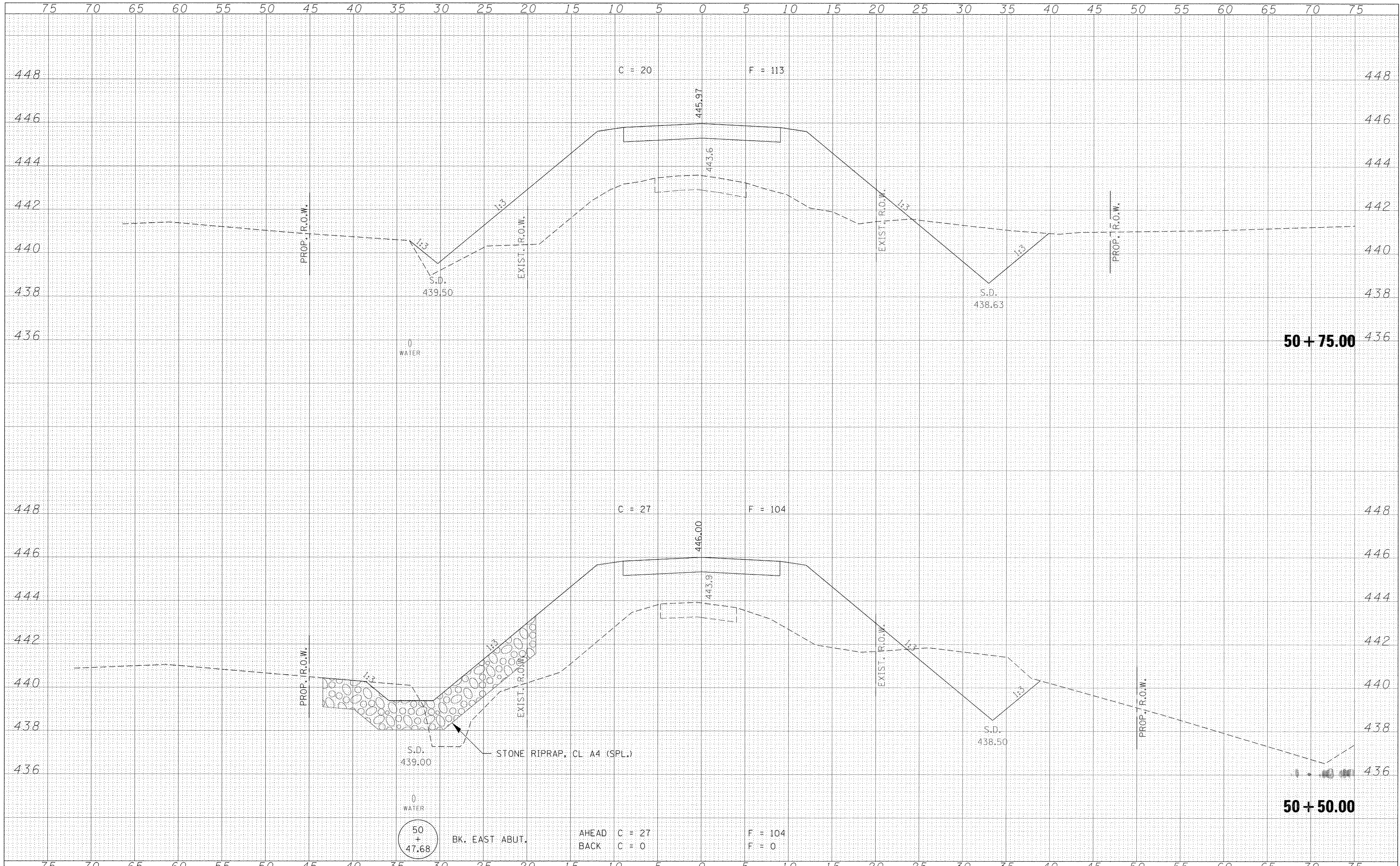
**STATE OF ILLINOIS
CLAY COUNTY HIGHWAY DEPARTMENT**

STATION CROSS SECTIONS	
SCALE: 5H:2V	SHEET NO. 6 OF 10 SHEETS
STA. 50+00.00	TO STA. 50+25.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209	15-05106-00-BR	CLAY	23	10
HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	
ILLINOIS FED. AID PROJECT BROS-0025(088)				

DATE	
BY	
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NOTE BOOK	
NO.	

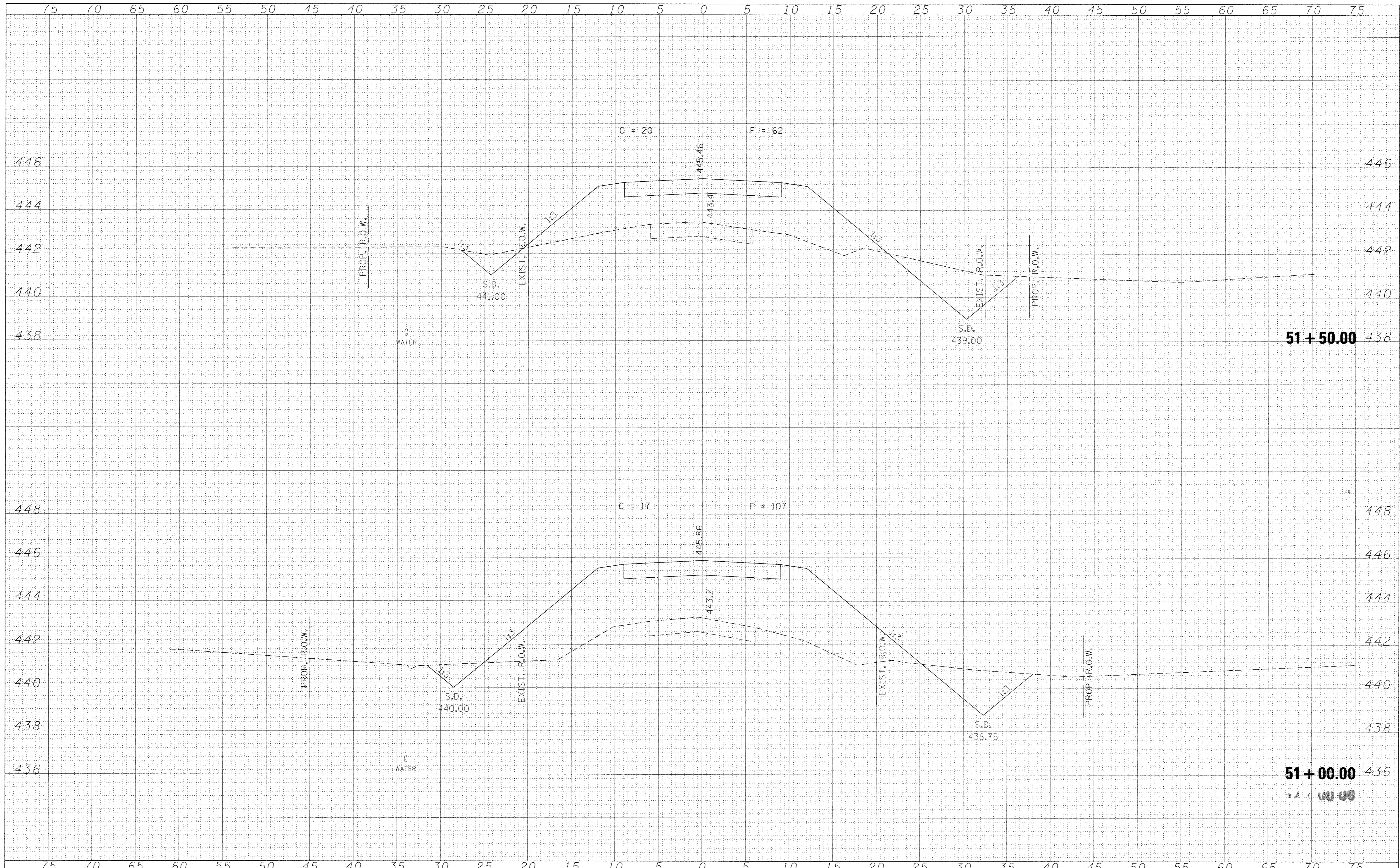
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ORIGINAL SURVEY	
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HAMPTON, LENZINI AND RENWICK, INC. 3065 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	DRAWN - T.W.K.	REVISED -		209	15-05106-00-BR	CLAY	23	11			
PLOT DATE = 3/30/2017	CHECKED - S.W.M.	DATE - 03/30/17	REVISED -		SCALE: 5H:2V		SHEET NO. 7 OF 10 SHEETS		STA. 50+50.00 TO STA. 50+75.00		CONTRACT NO. 95813	
											ILLINOIS FED. AID PROJECT BR05-0025(08B)	

DATE	
BY	
FINAL SURVEY	
SURVEYED	
PLOTTED	
FORM LATE	
AREAS	
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DATE	
BY	
ORIGINAL SURVEY	
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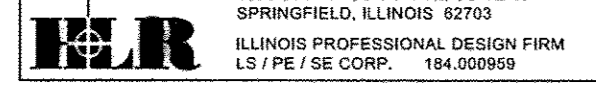
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CHECKED - S.W.M.	REVISOR -
DATE - 03/30/17	REVISOR -
PLOT SCALE = #SCALE#	
PLOT DATE = 3/30/2017	

DESIGNED - L.A.P.	REVISOR -
DRAWN - T.W.K.	REVISOR -
CHECKED - S.W.M.	REVISOR -
DATE - 03/30/17	REVISOR -

**STATE OF ILLINOIS
CLAY COUNTY HIGHWAY DEPARTMENT**

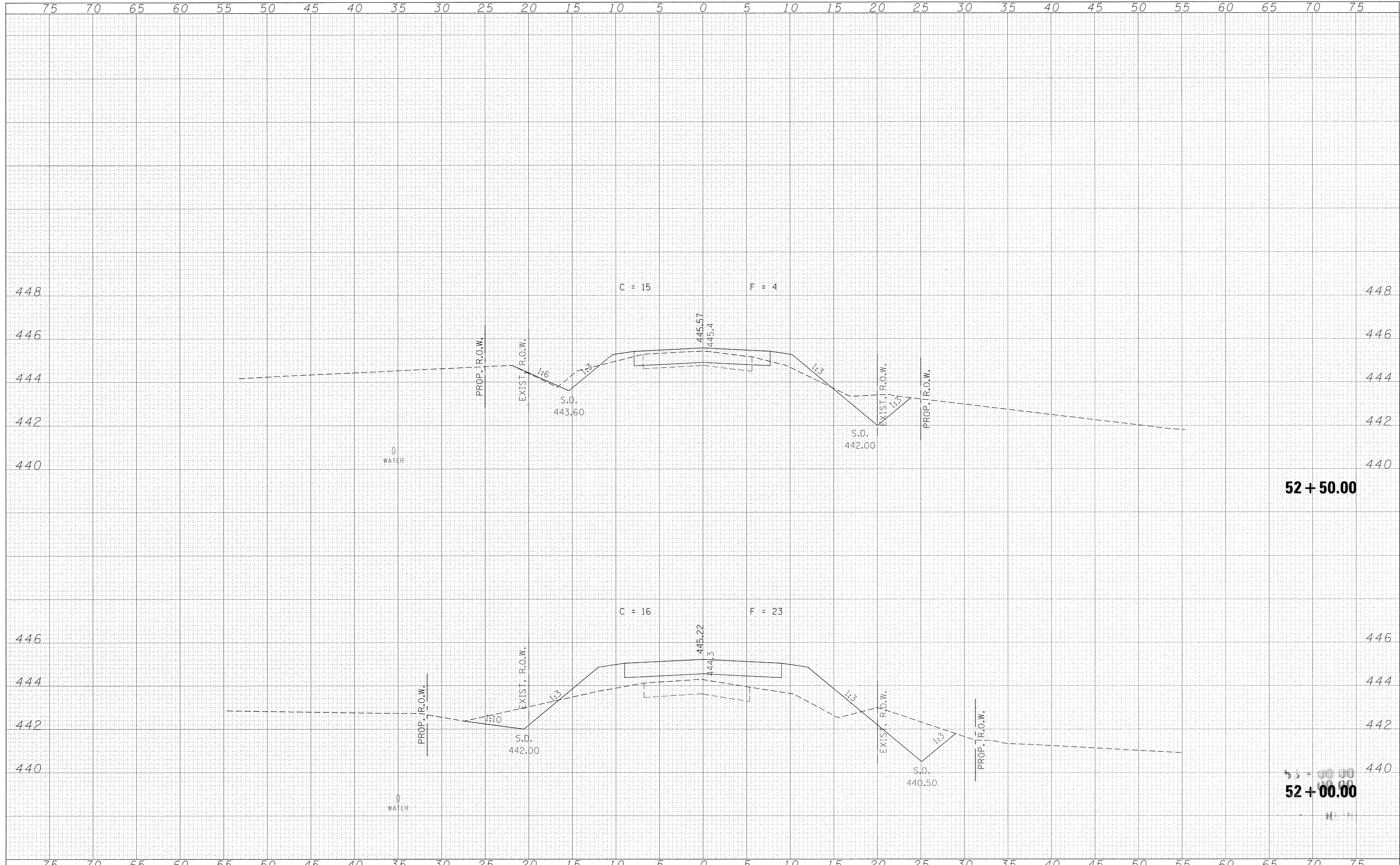
STATION CROSS SECTIONS	
SCALE: 5H:2V	SHEET NO. 8 OF 10 SHEETS
STA. 51+00.00	TO STA. 51+50.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209	15-05106-00-BR	CLAY	23	12
HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	
[ILLINOIS] FED. AID PROJECT BROS-0025108B				



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

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



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	REVISED - REVISED - REVISED - REVISED -
PLOT SCALE = #SCALE#	
PLOT DATE = 3/30/2017	

**STATE OF ILLINOIS
CLAY COUNTY HIGHWAY DEPARTMENT**

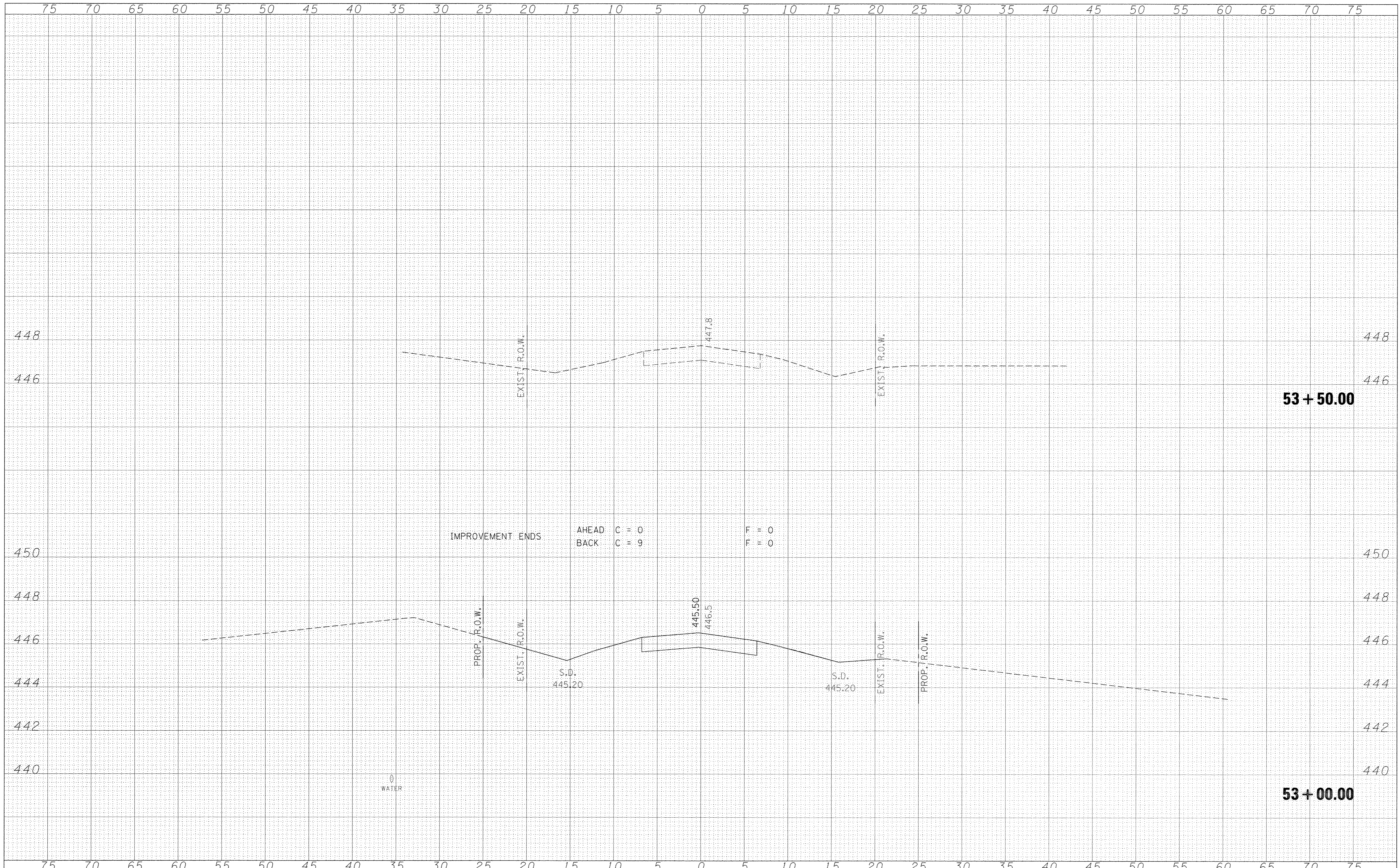
STATION CROSS SECTIONS

SCALE: 5H:2V SHEET NO. 9 OF 10 SHEETS STA. 52+00.00 TO STA. 52+50.00

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209	15-05106-00-BR	CLAY	23	13
HOOSIER ROAD DISTRICT		CONTRACT NO. 95813		
ILLINOIS FED. AID PROJECT BROS-002510881				

DATE	
BY	
SURVEYED	
TEMPLATE	
AREAS CHECKED	
NO.	

DATE	
BY	
ORIGINAL SURVEY	
TEMPLATE	
AREAS CHECKED	
NO.	



IMPROVEMENT ENDS
 AHEAD C = 0
 BACK C = 9
 F = 0
 F = 0

FILE NAME = 160001-shr-ssht.dgn	USER NAME = #USER#	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS CLAY COUNTY HIGHWAY DEPARTMENT	STATION CROSS SECTIONS				T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE = \$SCALE#	DRAWN - T.W.K.	REVISED -		209	15-05106-00-BR	CLAY	23	14				
LEI	PLOT DATE = 3/30/2017	CHECKED - S.W.M.	REVISED -		SCALE: 5H:2V SHEET NO. 10 OF 10 SHEETS STA. 53+00.00 TO STA. 53+50.00				CONTRACT NO. 95813				
REVISION PROFESSIONAL DESIGN FIRM LEI / SE CORP. 184.009959		DATE - 03/30/17	REVISED -		[ILLINOIS] FED. AID PROJECT BR05-0025(088)								

BENCHMARK: PK at center of bridge; Elev. 444.05

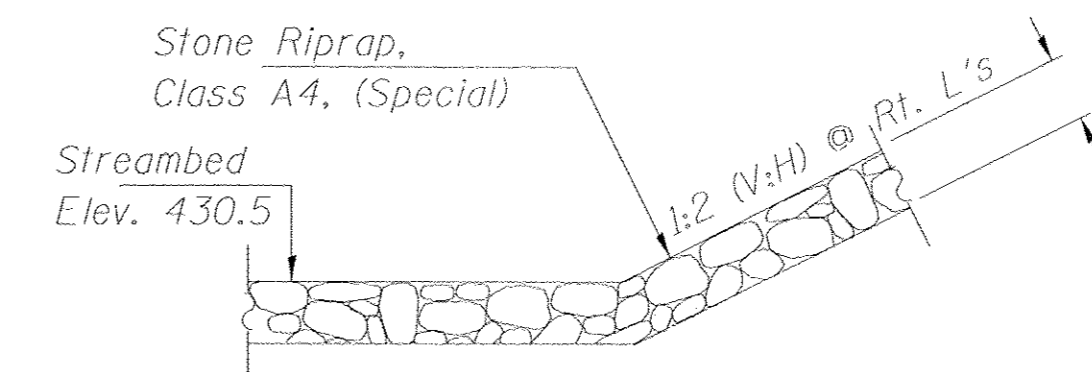
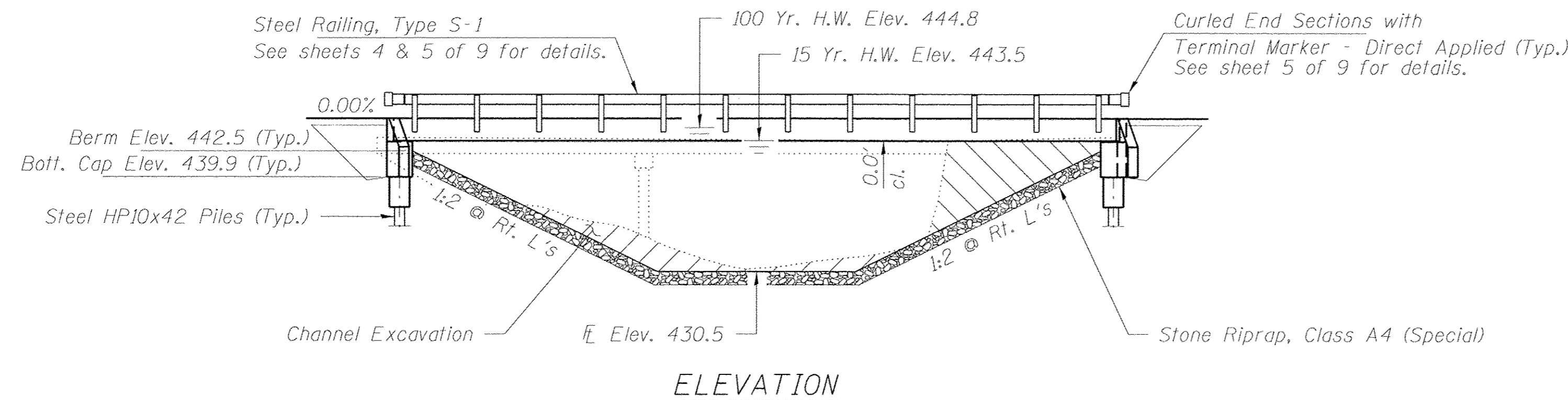
EXISTING STRUCTURE: Sta. 50+00 - 2 Span steel I-beam bridge with timber deck on closed concrete abutments and wingwalls and solid wall pier. 57.4' fc.-fc. abuts., 18.2' o.-o. deck.

Structure closed to traffic during construction.

No Salvage

GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer. The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the East Abutment or approved by the Engineer before ordering the remainder of piles. 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.

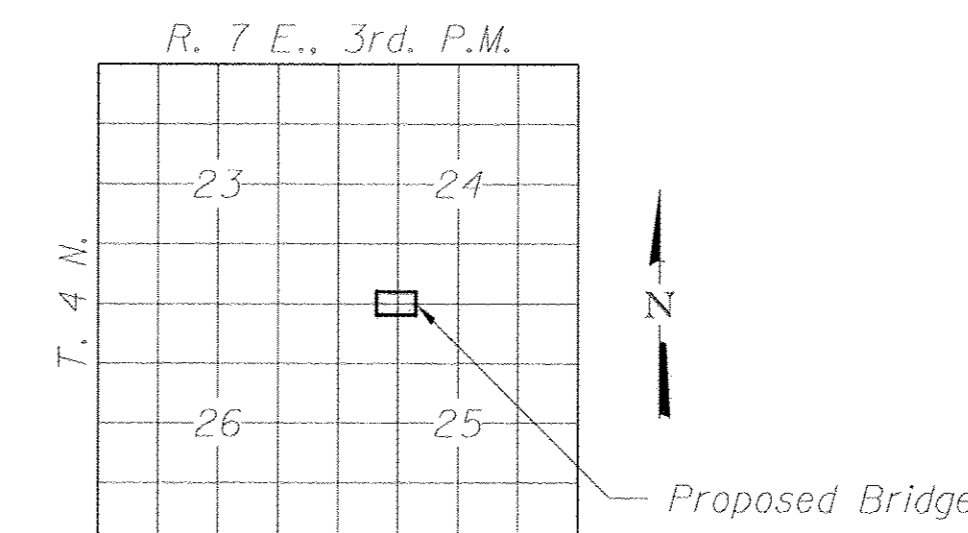
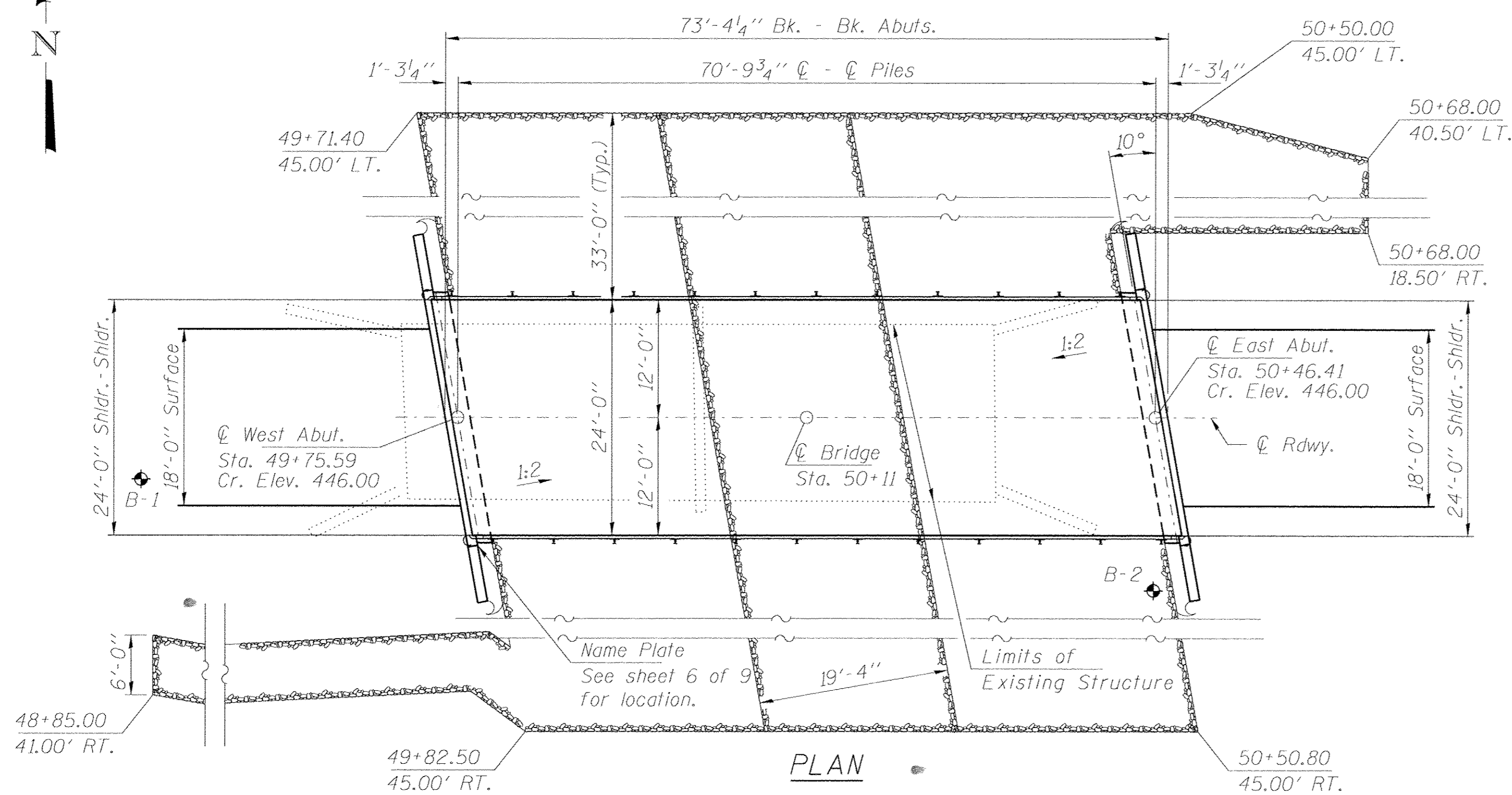
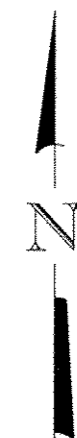


SECTION A-A

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

INDEX OF STRUCTURE SHEETS

1. General Plan & Elevation
2. 27"x48" PPC Deck Beam
3. 27"x48" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. Abutments
7. HP-Pile Details
- 8-9. Borings



LOCATION SKETCH

LITTLE MUDDY CREEK
BUILT 2011 BY
CLAY COUNTY
SEC. 15-05106-00-BR
HOOSIER ROAD DISTRICT
STR. NO. 013-3248
LOADING HL-93

NAME PLATE

See Sld. 515001

DESIGN SCOUR ELEVATION TABLE

Event/Limit State	Design Scour Elevations (ft.)	Item 113
	W. Abut. E. Abut.	
Q100	439.9 439.9	8
Q200	439.9 439.9	
Design	439.9 439.9	
Check	439.9 439.9	

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 & 2016 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. (SD1) = 0.177g
Design Spectral Acceleration at 0.2 sec. (SD5) = 0.470g
Soil Site Class = C

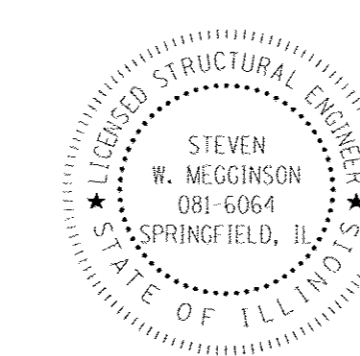
WATERWAY INFORMATION

Flood		Q		Opening Sq. Ft.		Natural Head - Ft.		Headwater El.	
Yr.	C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.	Prop.
10	4480	400	530	443.20	0.30	0.84	443.50	444.04	
Design	15	5090	400	550	443.49	0.30	0.75	443.79	444.24
Base	100	8160	400	550	444.78	0.17	0.79	444.95	445.57
Scour Check	200	9290	400	550	445.19	0.13	0.72	445.32	445.91
Existing Overtop	10	4480	400		443.20	0.30		443.50	443.20
Proposed Overtop	10	4480		550	443.20		0.84	443.20	444.04
Max. Calc.	500	10900	400	550	445.73	0.09	0.64	445.82	446.37

10 Year Velocity Through Existing Bridge = 5.1 fps
10 Year Velocity Through Proposed Bridge = 5.8 fps
Note: Low roadway approach max PG = 443.0

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. McQuinn 03/30/2017
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2018

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			135
Stone Riprap, Class A4 (Special)	Ton			760
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		24.6	24.6
Concrete Encasement	Cu. Yd.		3.4	3.4
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,728		1,728
Reinforcement Bars	Pound		2,640	2,640
Steel Railing, Type S-1	Foot	140		140
Furnishing Steel Piles HPI0x42	Foot		405	405
Driving Piles	Foot		405	405
Test Pile Steel HPI0x42	Each		1	1
Name Plates	Each		1	1
Controlled Low-Strength Material	Cu. Yd.		54	54

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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763 ILLINOIS PROFESSIONAL DESIGN FIRM LS/P/E/SE CORP. 194.000959	PLOT SCALE = \$SCALE\$	CHECKED - S.W.M.	REVISED -
PLOT DATE = 3/30/2017		DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

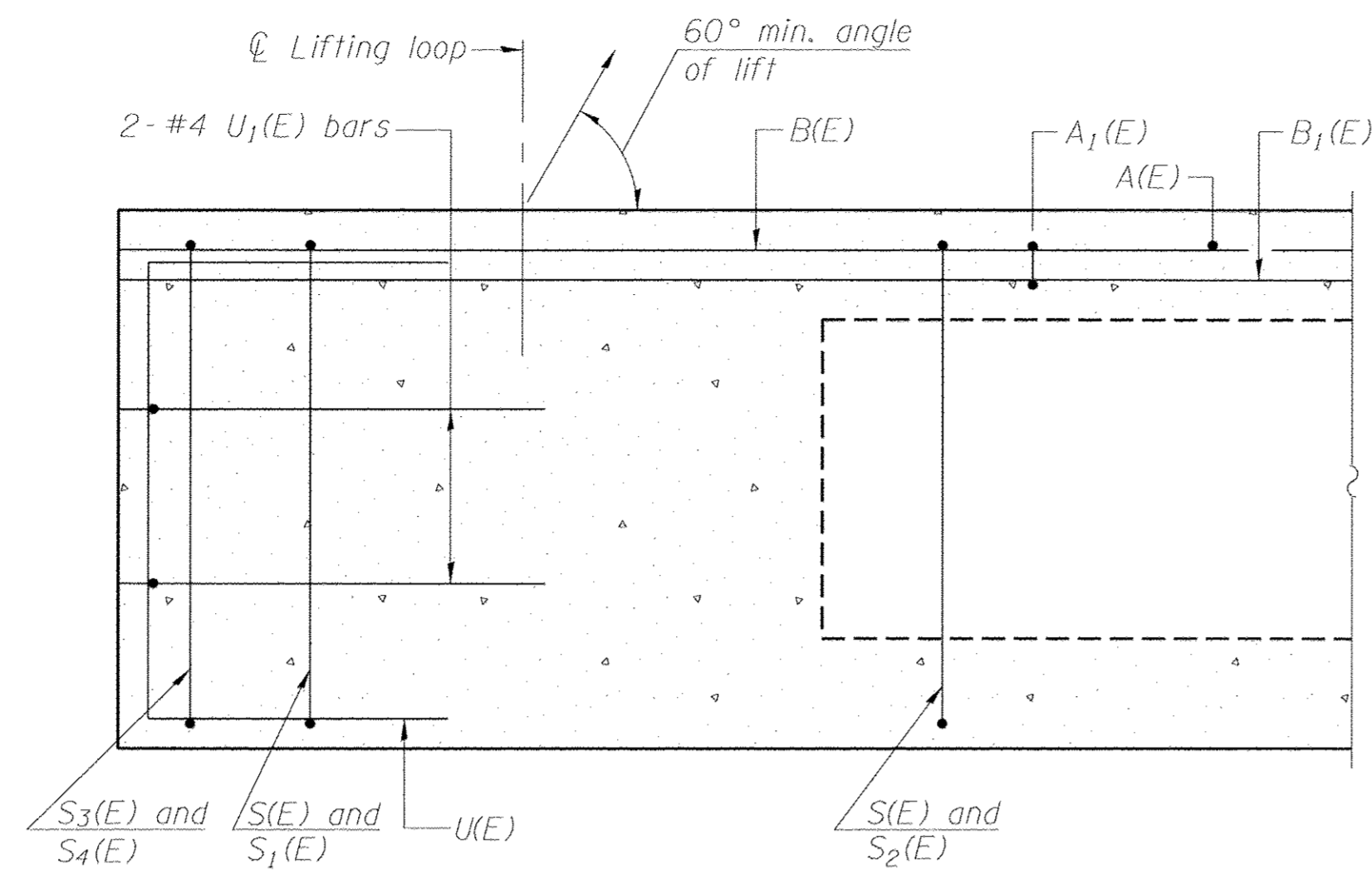
**STATE OF ILLINOIS
CLAY COUNTY HIGHWAY DEPARTMENT**

**GENERAL PLAN & ELEVATION
STRUCTURE NO. 013-3248**

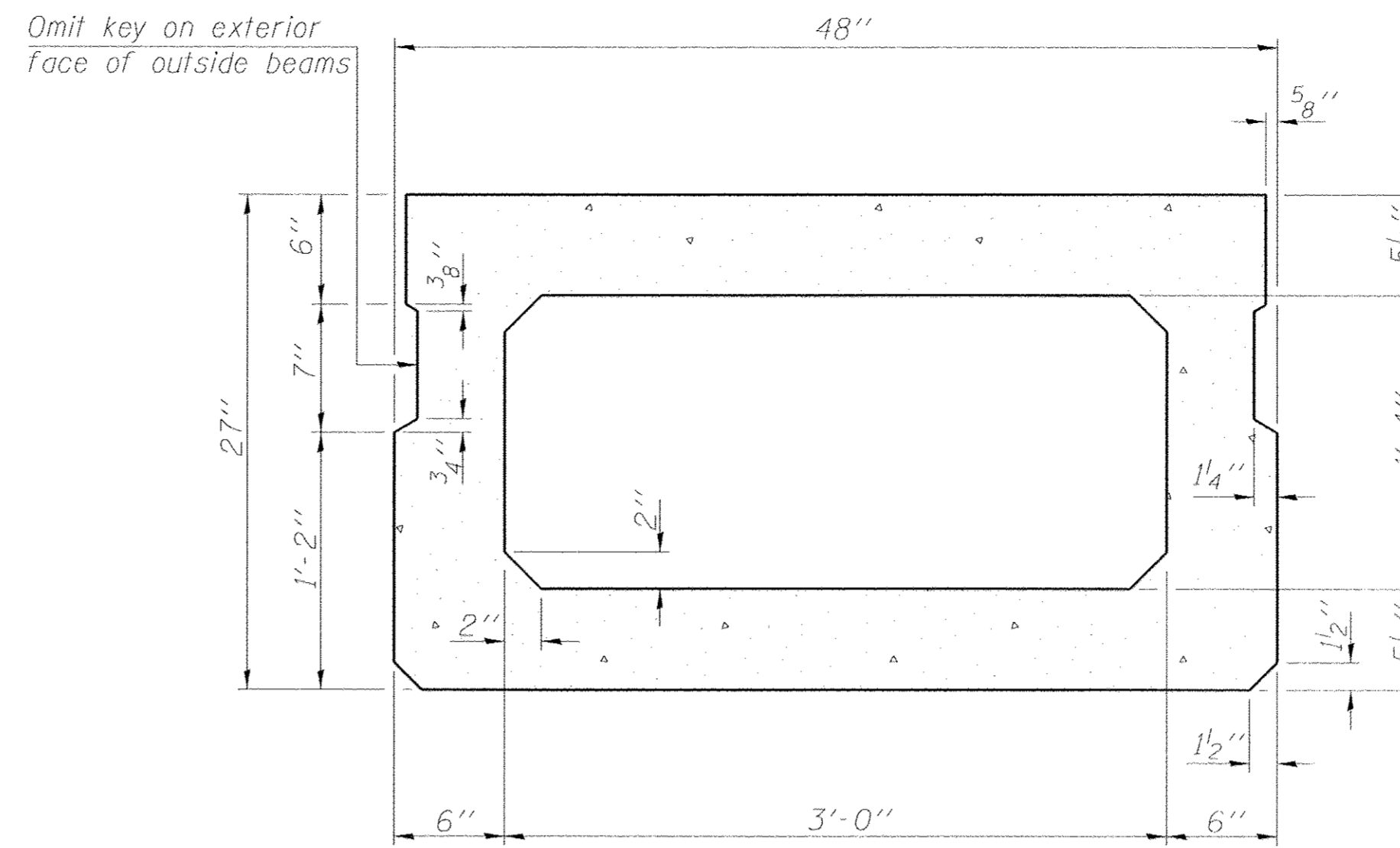
SHEET NO. 1 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	

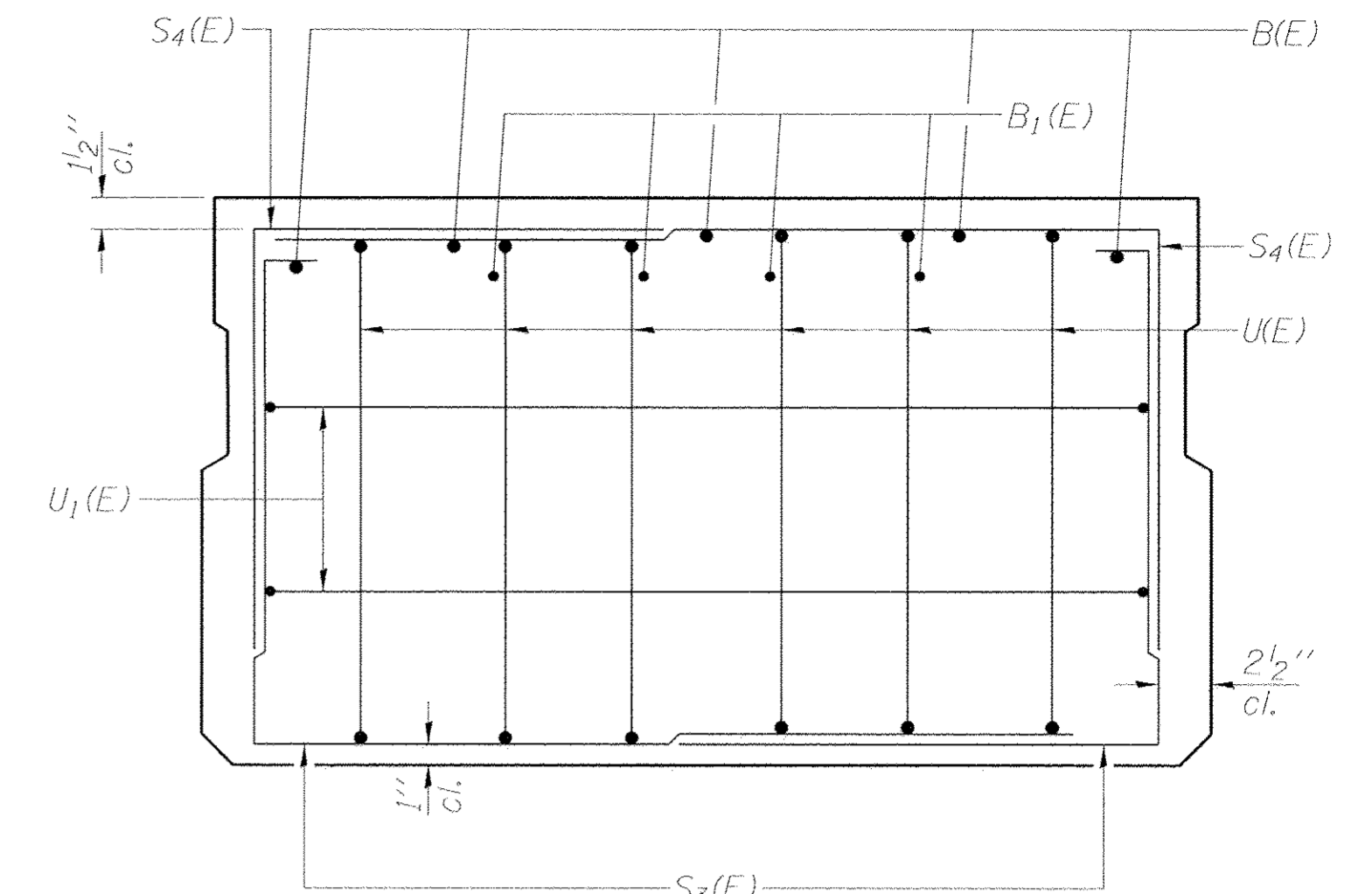
ILLINOIS FED. AID PROJECT BROS-0025(08B)



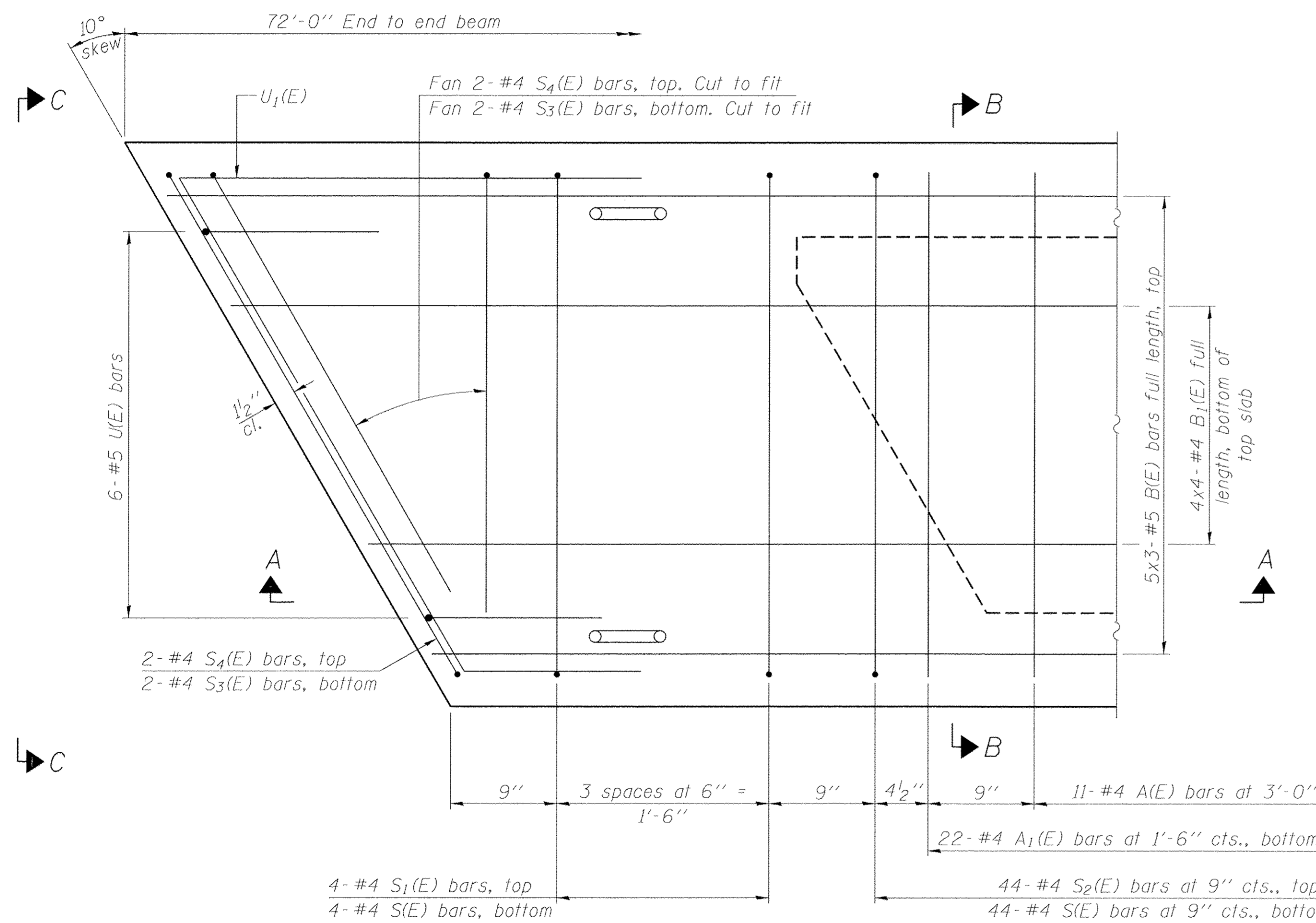
SECTION A-A



SECTION B-B
(Showing dimensions)

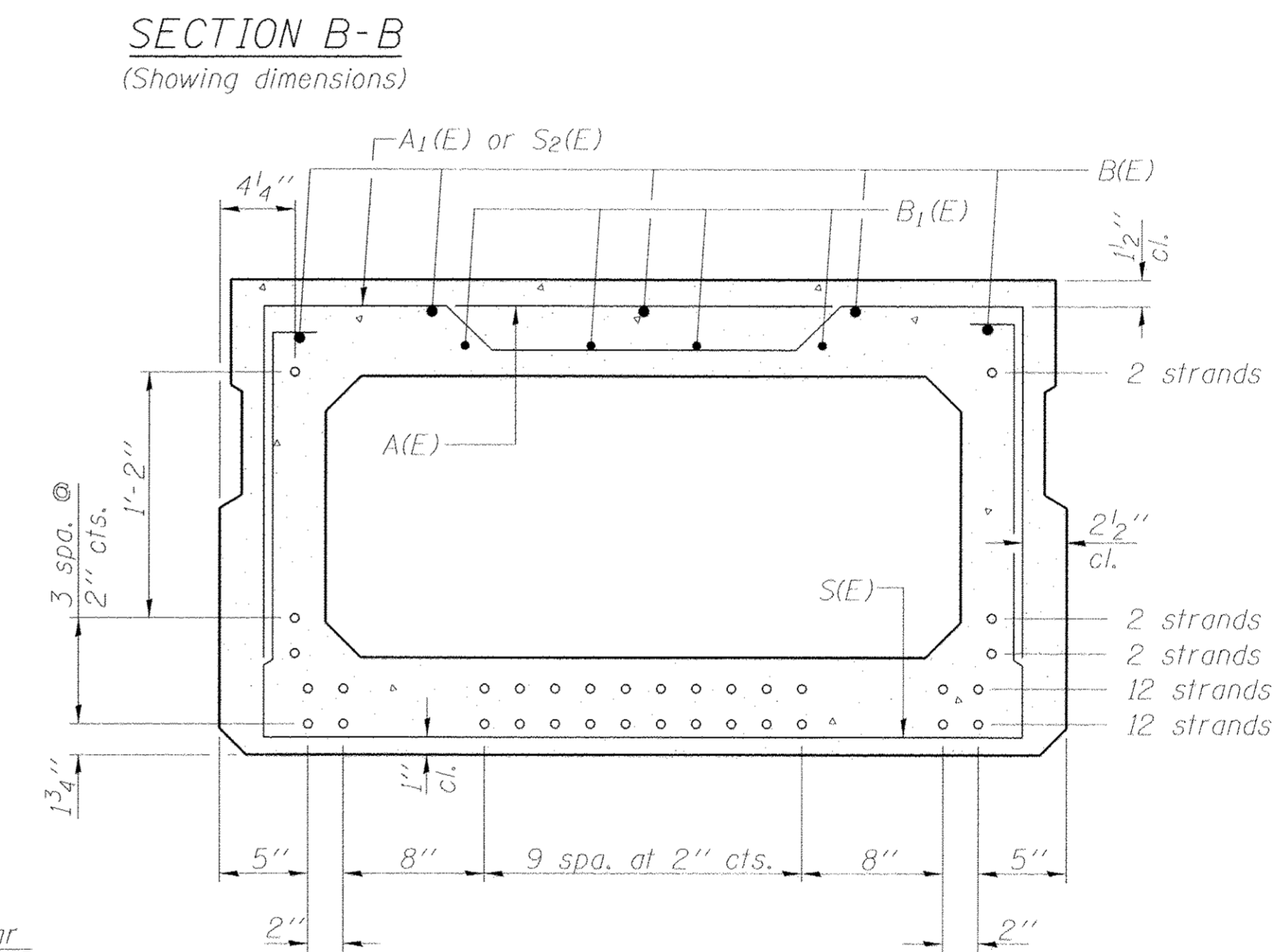


VIEW C-C



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.



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)	23	#4	3'-7"	—
A ₁ (E)	45	#4	3'-10"	—
B(E)	15	#5	25'-7"	—
B ₁ (E)	16	#4	19'-5"	—
S(E)	97	#4	8'-5"	⌈
S ₁ (E)	8	#4	6'-11"	⌈
S ₂ (E)	89	#4	7'-2"	⌈
S ₃ (E)	8	#4	5'-3"	⌈
S ₄ (E)	8	#4	4'-6"	⌈
U(E)	12	#5	4'-6"	⌈
U ₁ (E)	4	#4	6'-8"	⌈

Note: See sheet 3 & 4 of 9 for additional details and Bill of Material.

MINIMUM BAR LAP

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

PD-2748-R

06-01-16

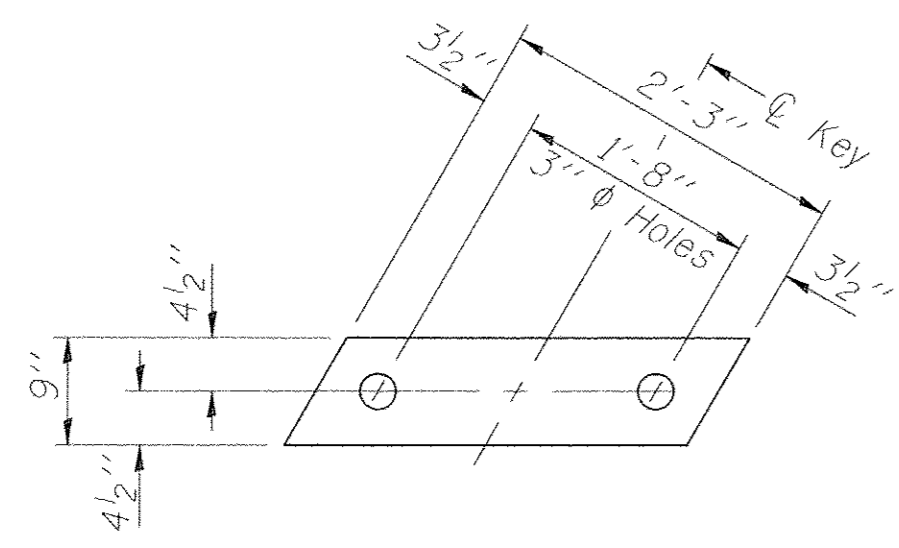
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PLOT DATE = 3/30/2017		DRAWN - R.D.H.	REVISED -
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STATE OF ILLINOIS
CLAY COUNTY HIGHWAY DEPARTMENT

27" x 48" PPC DECK BEAM
STRUCTURE NO. 013-3248

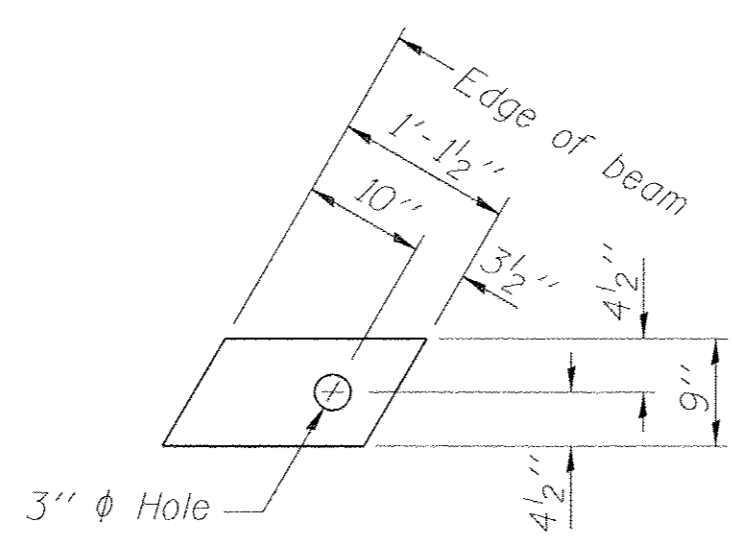
SHEET NO. 2 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209	15-05106-00-BR	CLAY	23	16
HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	
[ILLINOIS] FED. AID PROJECT BROS-0025(088)				



FABRIC BEARING PAD

(Interior - 10 Req'd.)

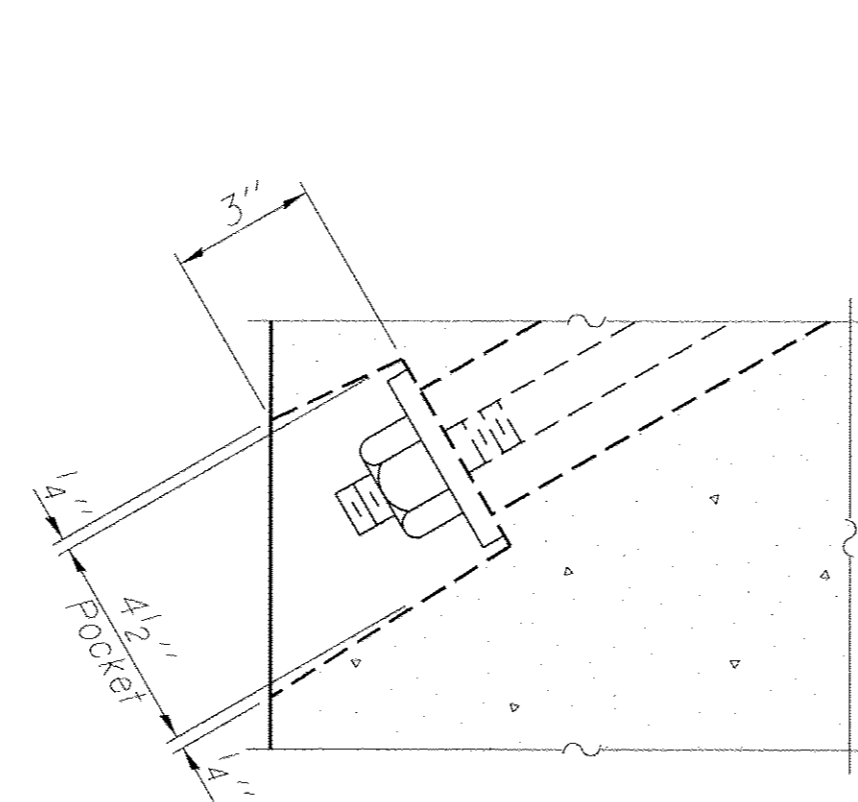


FABRIC BEARING PAD

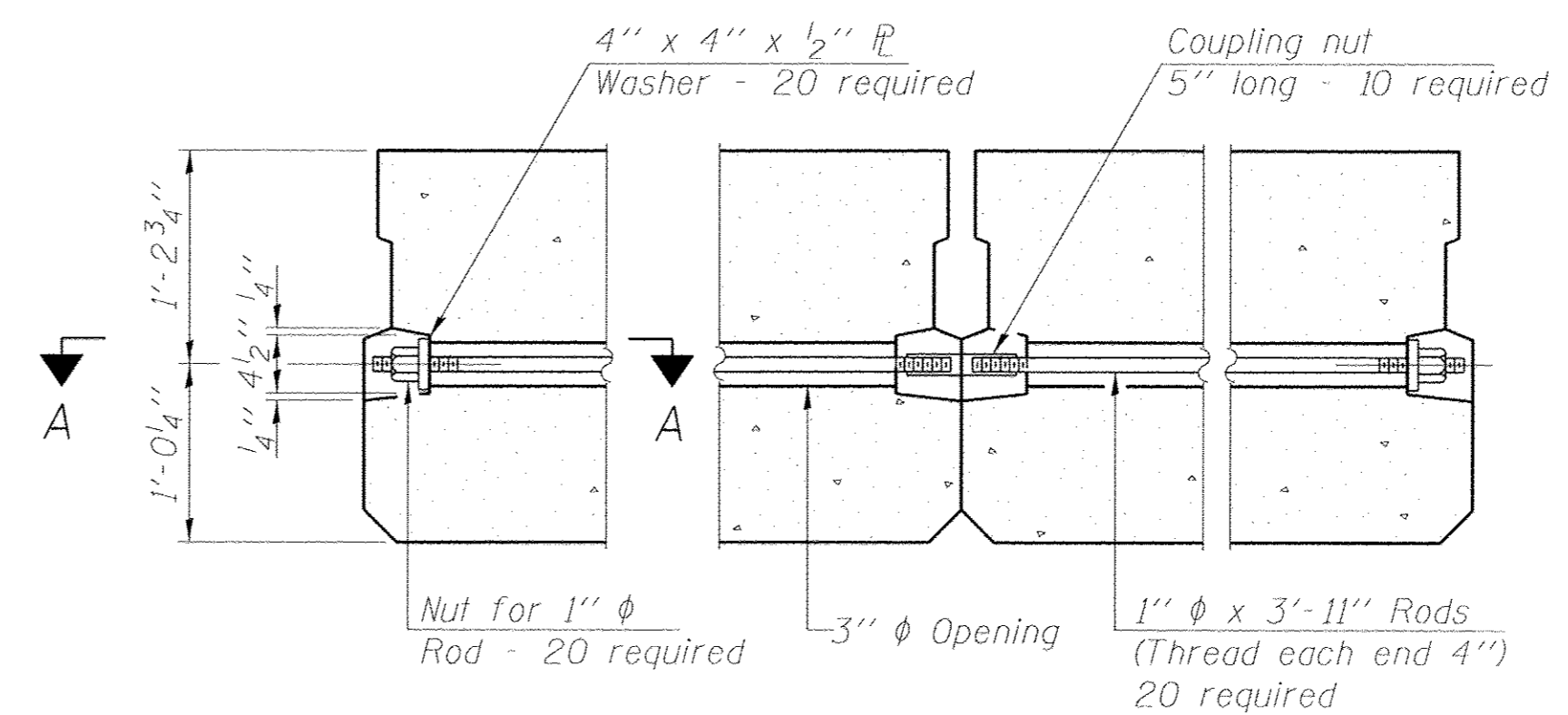
(Exterior - 4 Req'd.)

FIXED

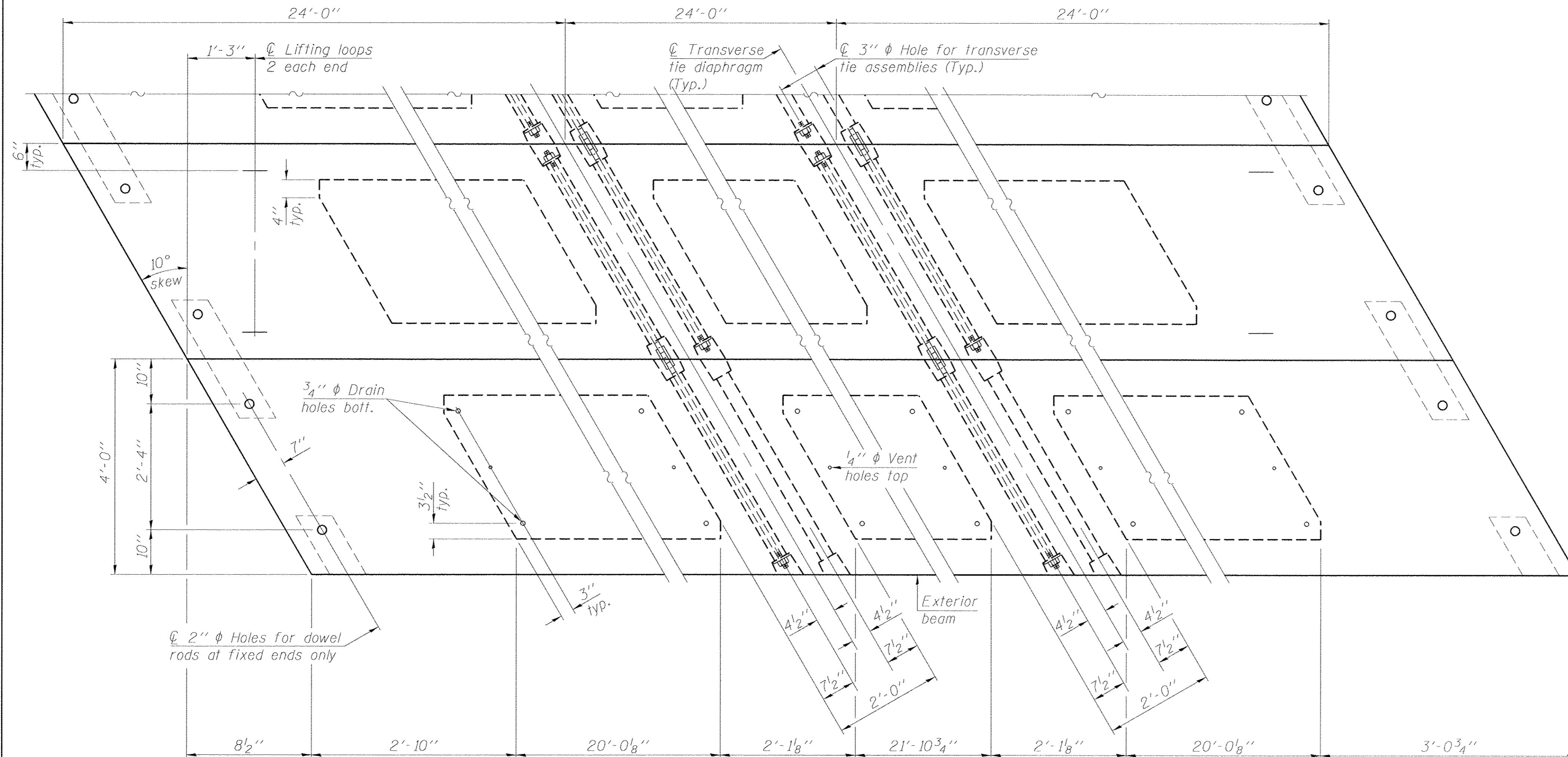
Notes:
 All bearing pads shall be 1" thick.
 Omit holes when using expansion bearings.
 Expansion bearing pad shall be bonded to the substructure.



SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY

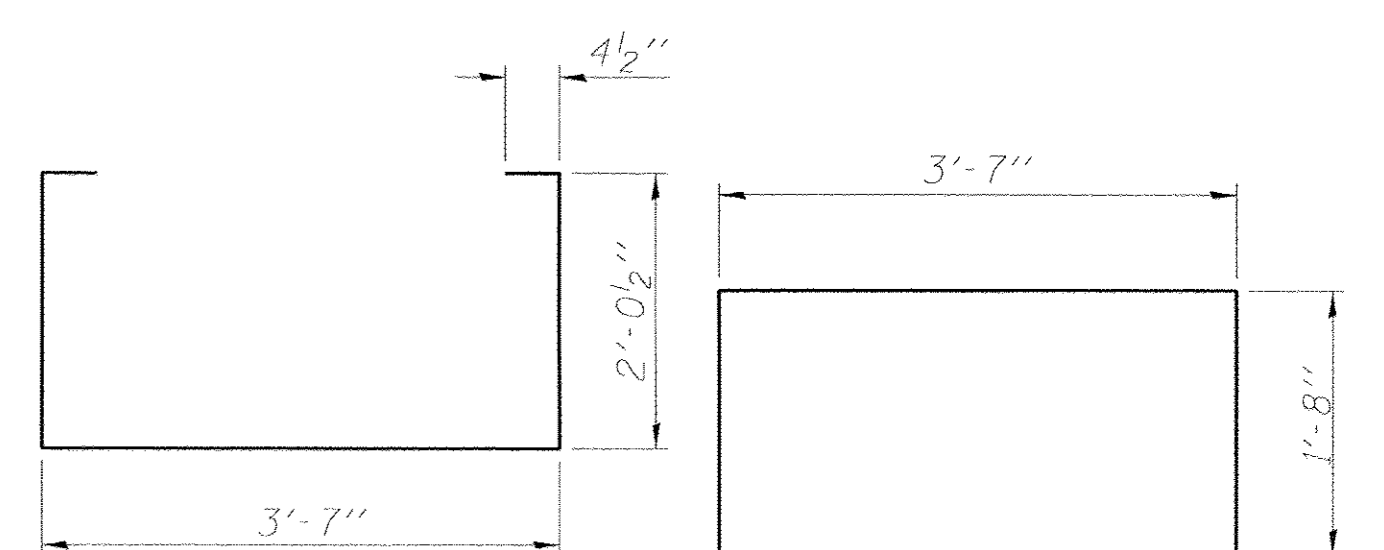


PLAN VIEW

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

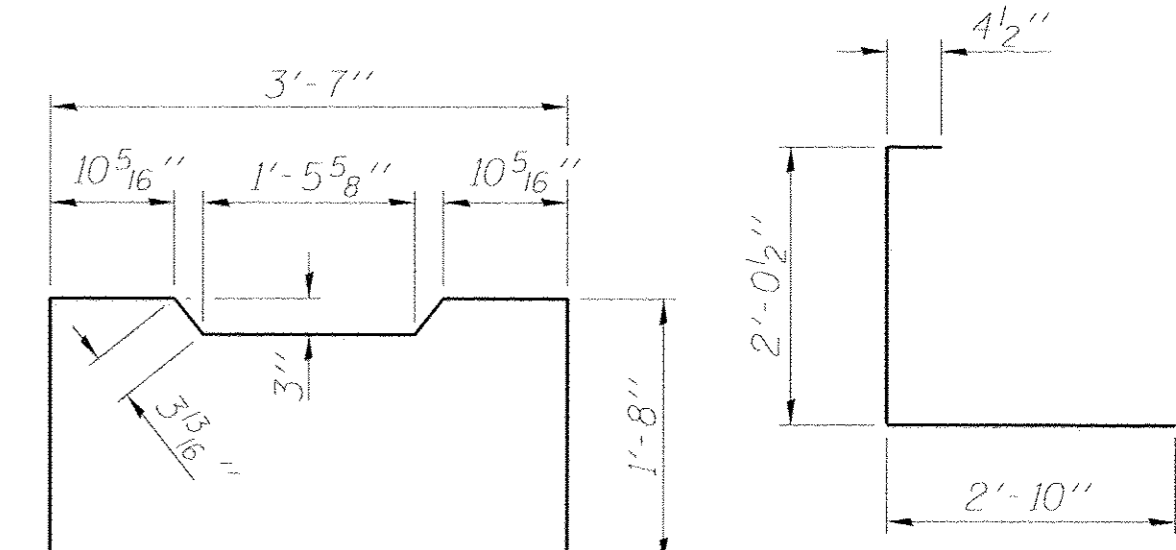
NOTES

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" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
 Two 3/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
 A minimum 2 1/2" ϕ 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.



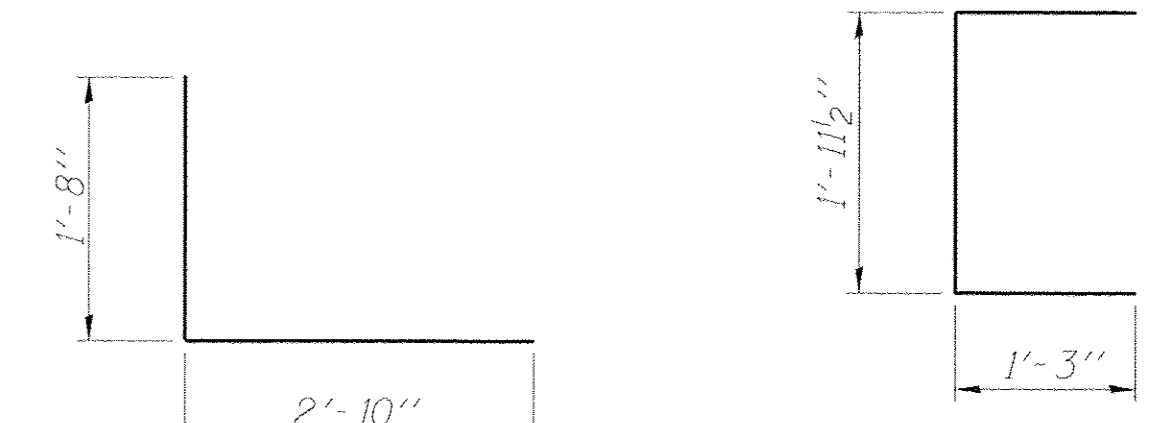
BAR S(E)

BAR S1(E)



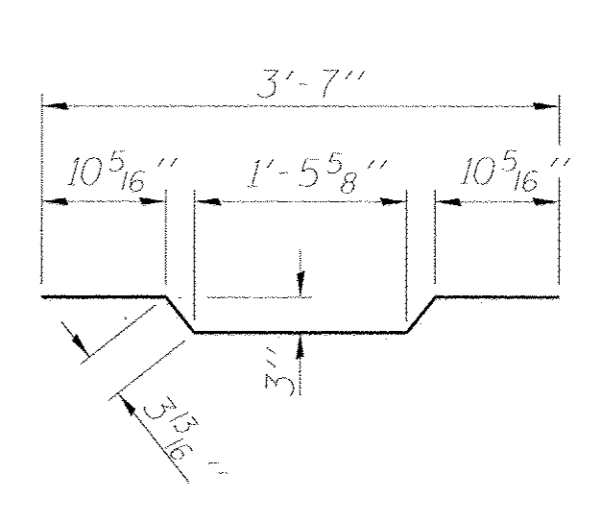
BAR S2(E)

BAR S3(E)

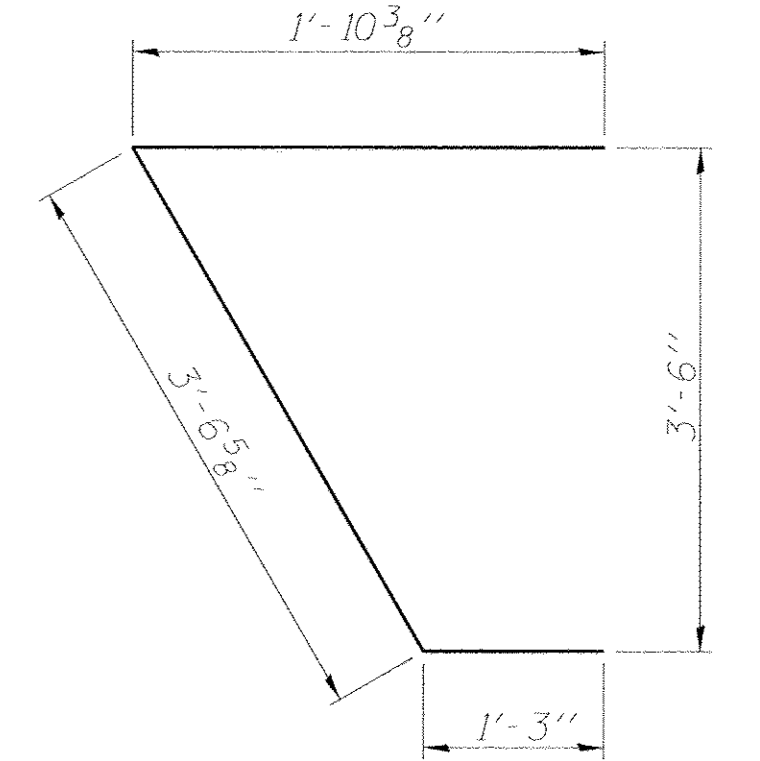


BAR S4(E)

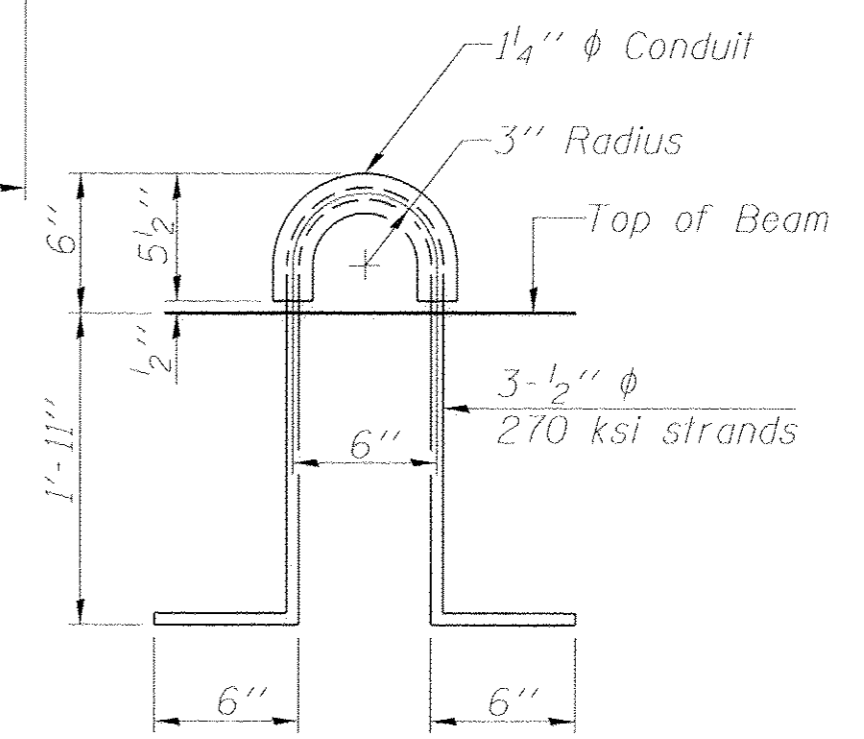
BAR U(E)



BAR A1(E)



BAR U1(E)



LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,728
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PD-2748-RD 06-01-16

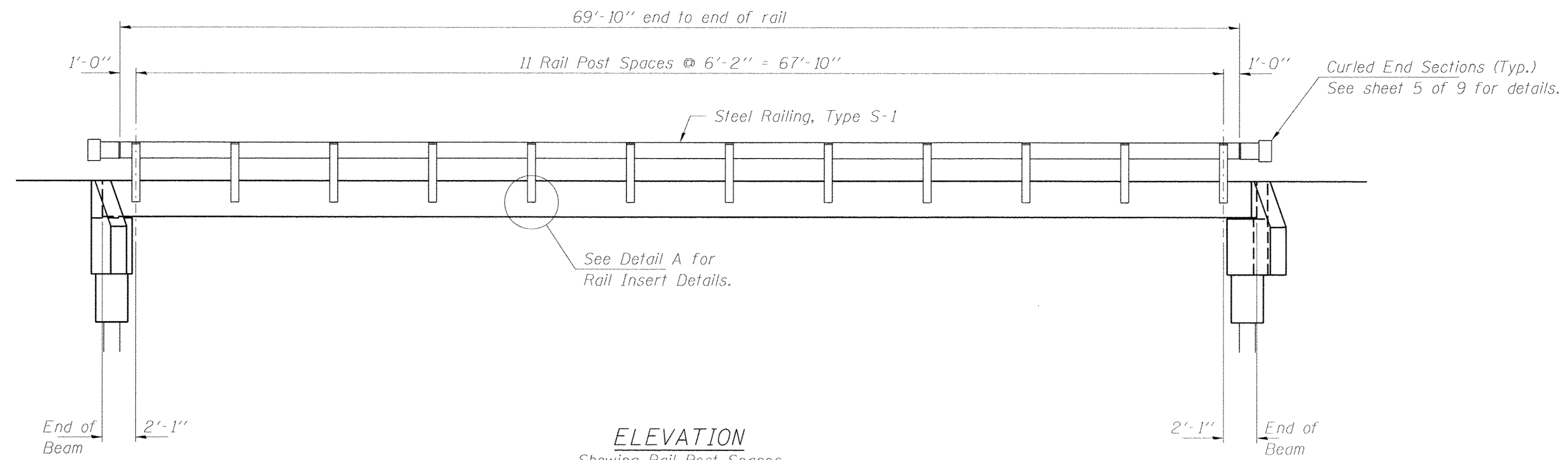
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	PLOT DATE = 3/30/2017	DRAWN - R.D.H.	REVISED -
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**STATE OF ILLINOIS
 CLAY COUNTY HIGHWAY DEPARTMENT**

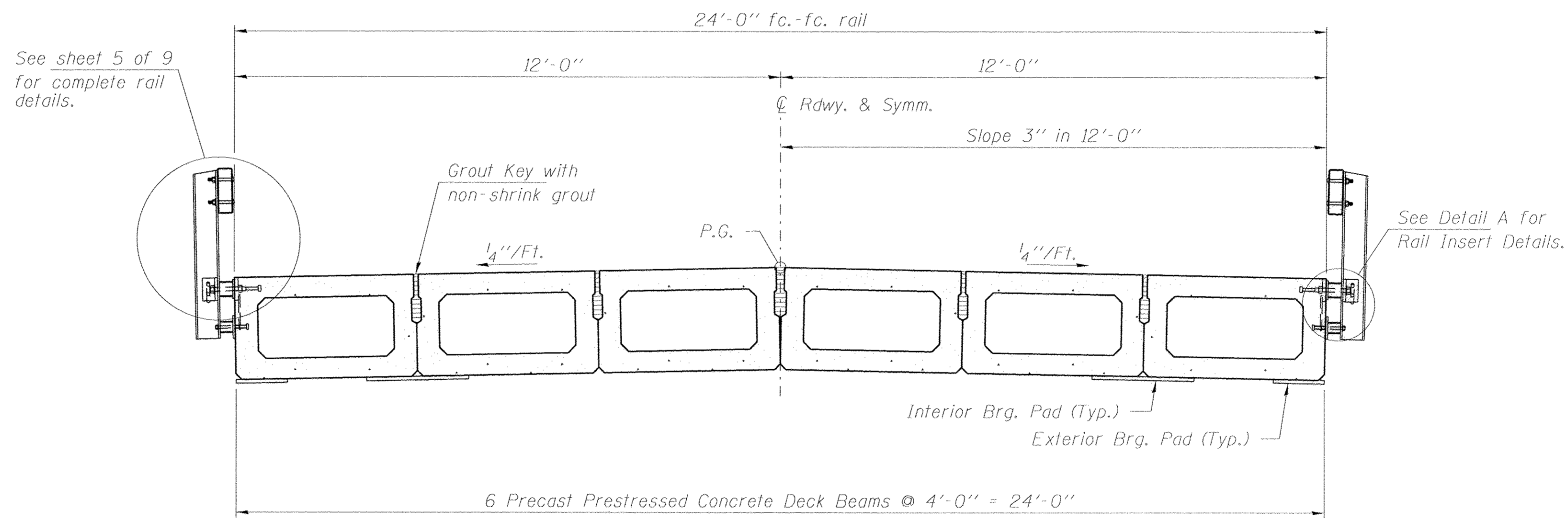
**27" x 48" PPC DECK BEAM DETAILS
 STRUCTURE NO. 013-3248**

SHEET NO. 3 OF 9 SHEETS

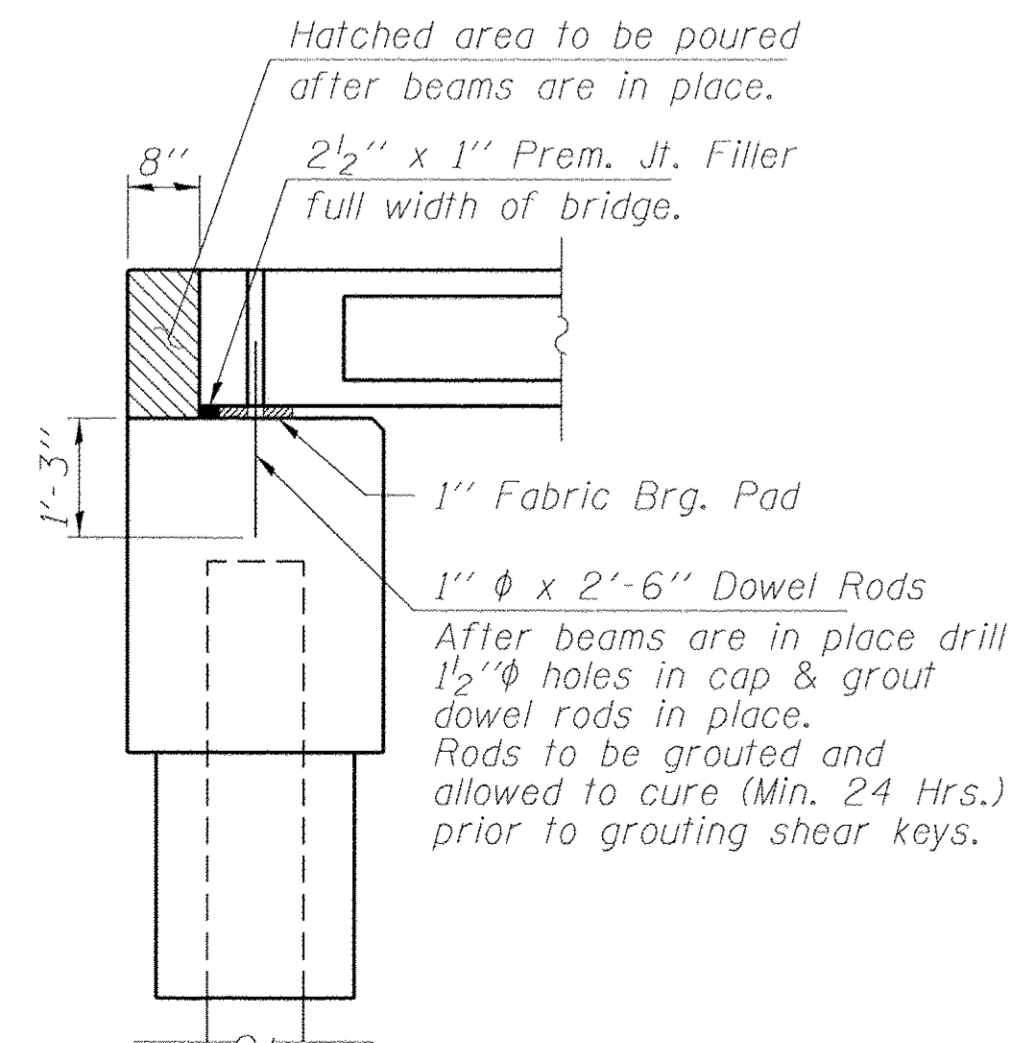
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	
[ILLINOIS] FED. AID PROJECT BR05-0025(08B)				



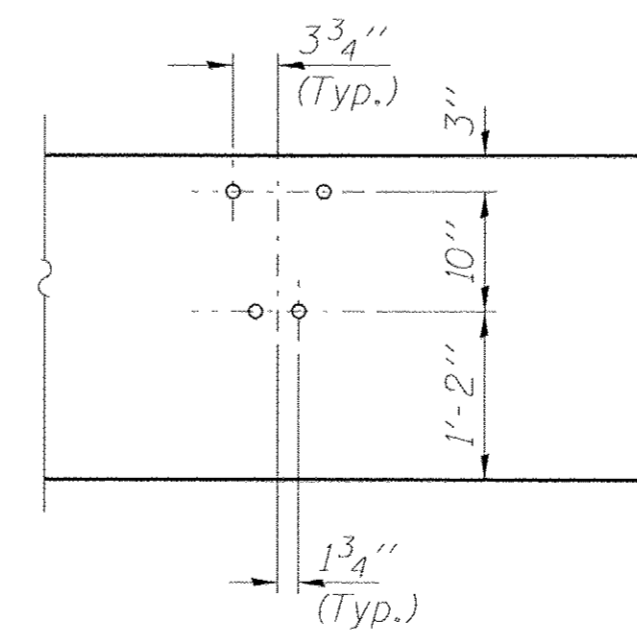
ELEVATION
Showing Rail Post Spaces
See sheet 5 of 9 for Railing Details.



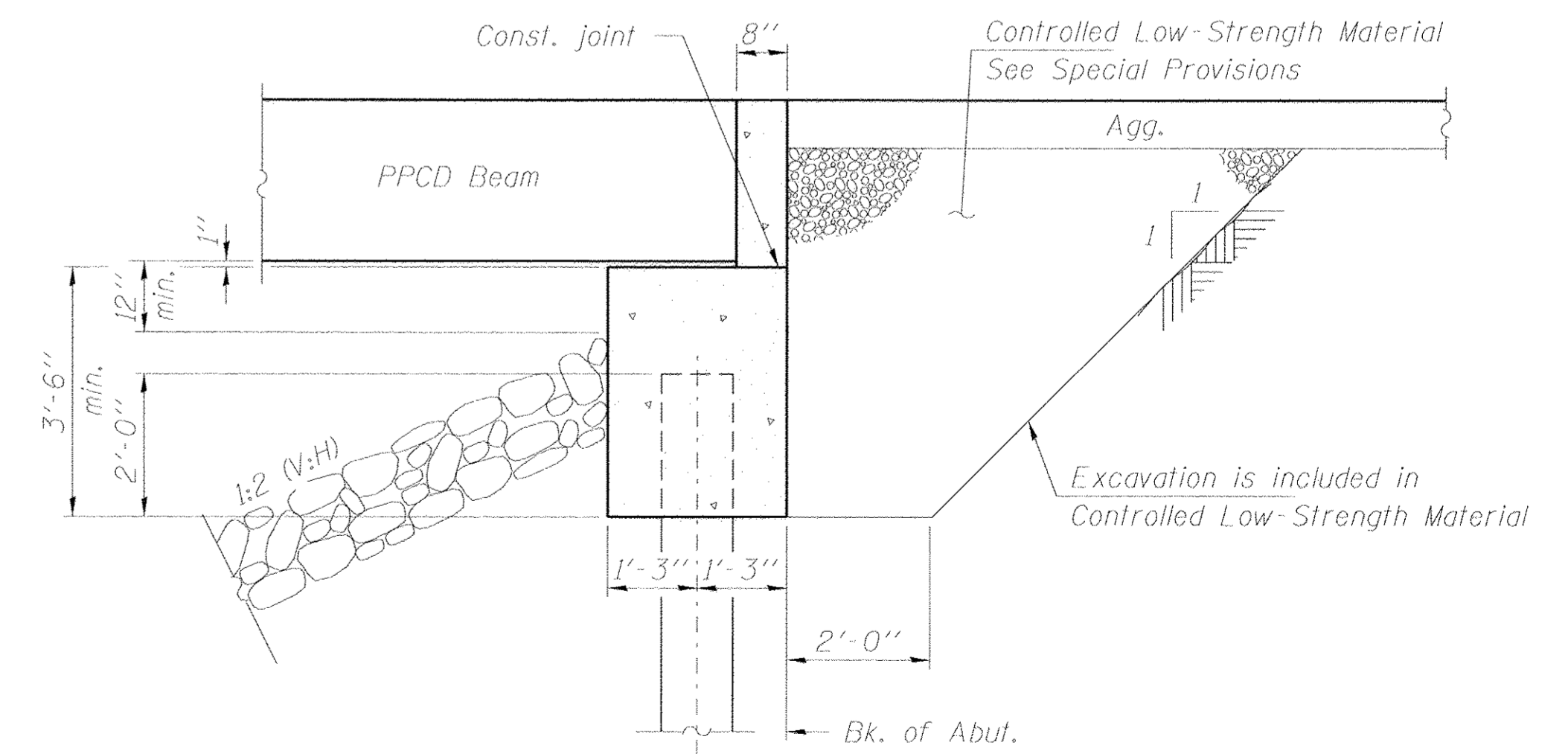
CROSS SECTION
See sheets 2 & 3 of 9 for Superstructure.



SECTION AT ABUTMENTS
© Rt. L's

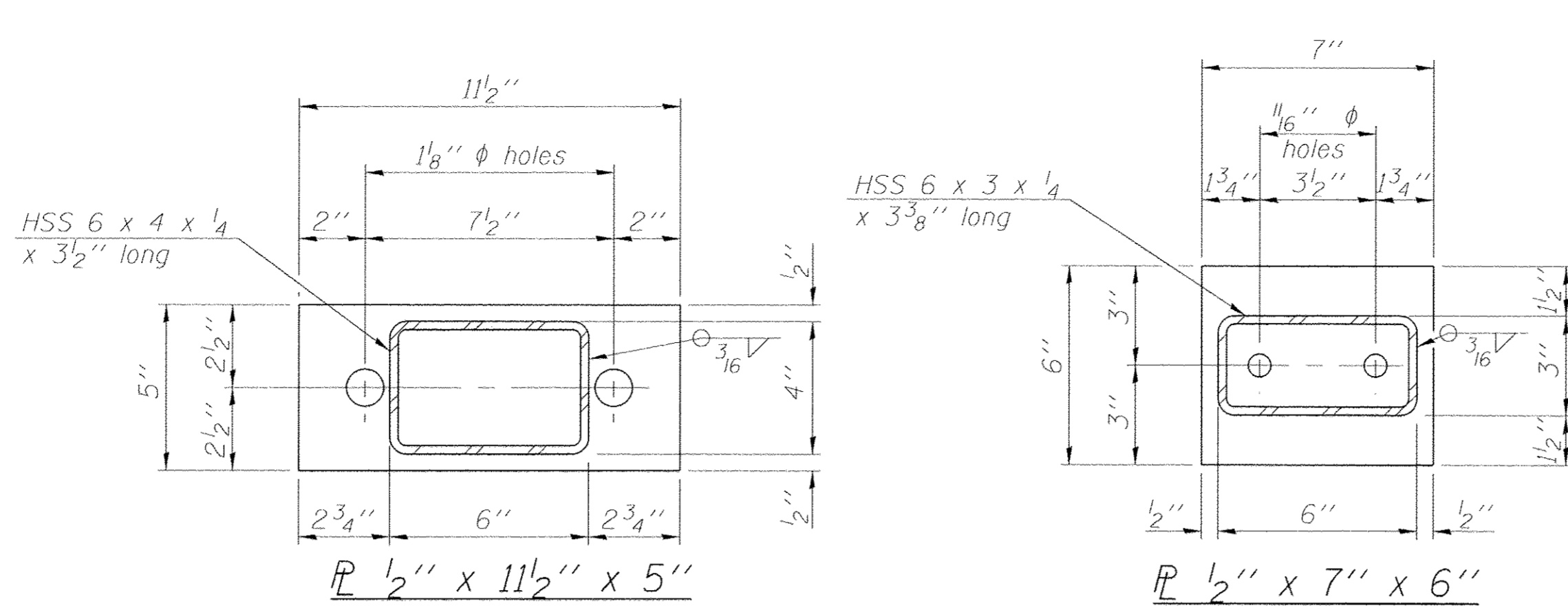
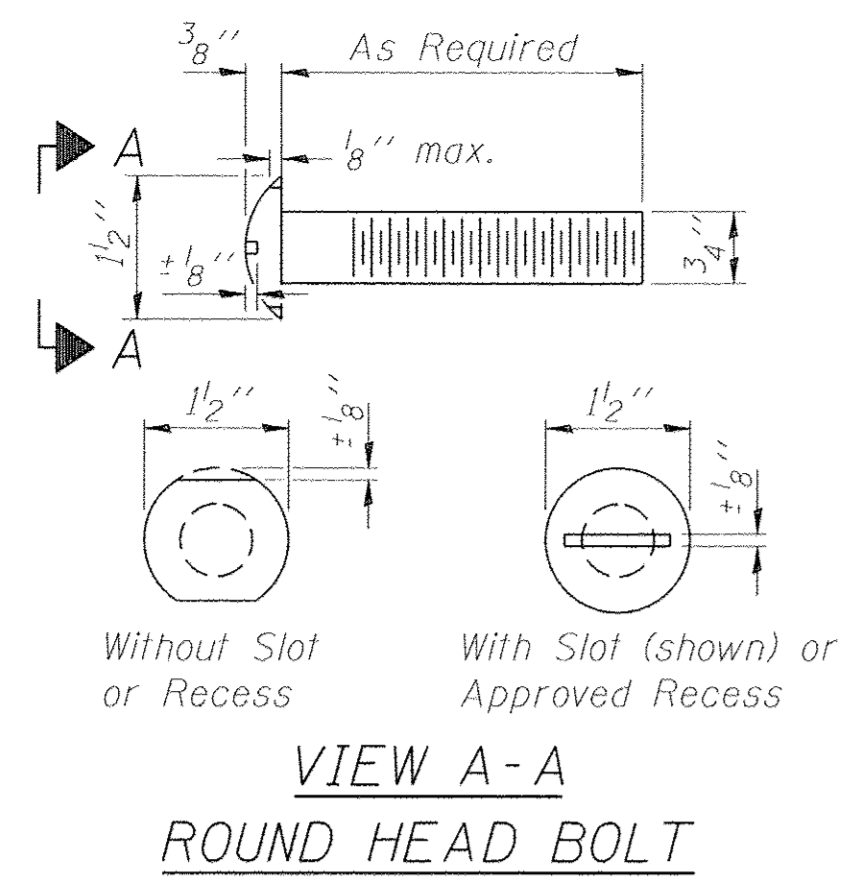


DETAIL A

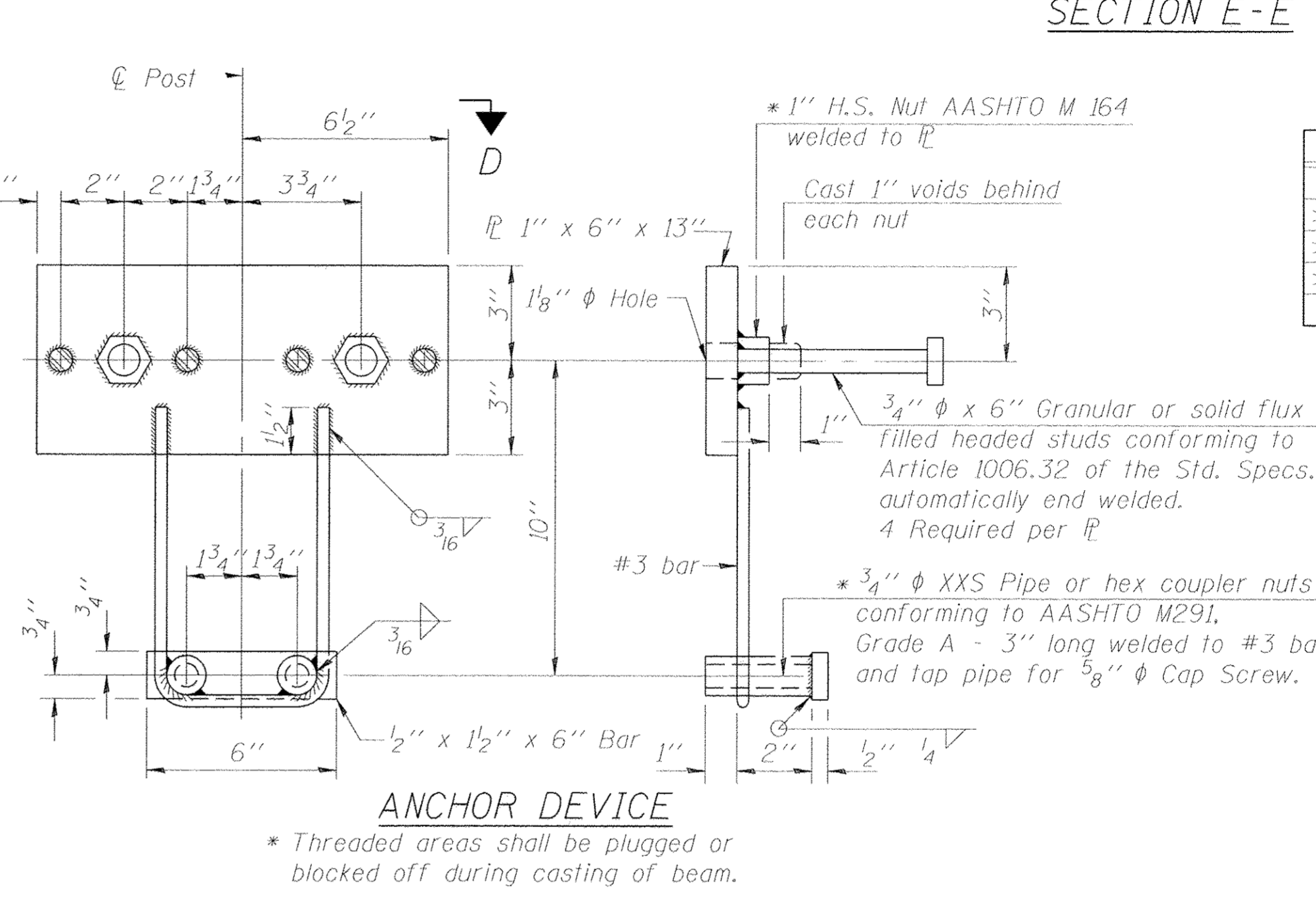
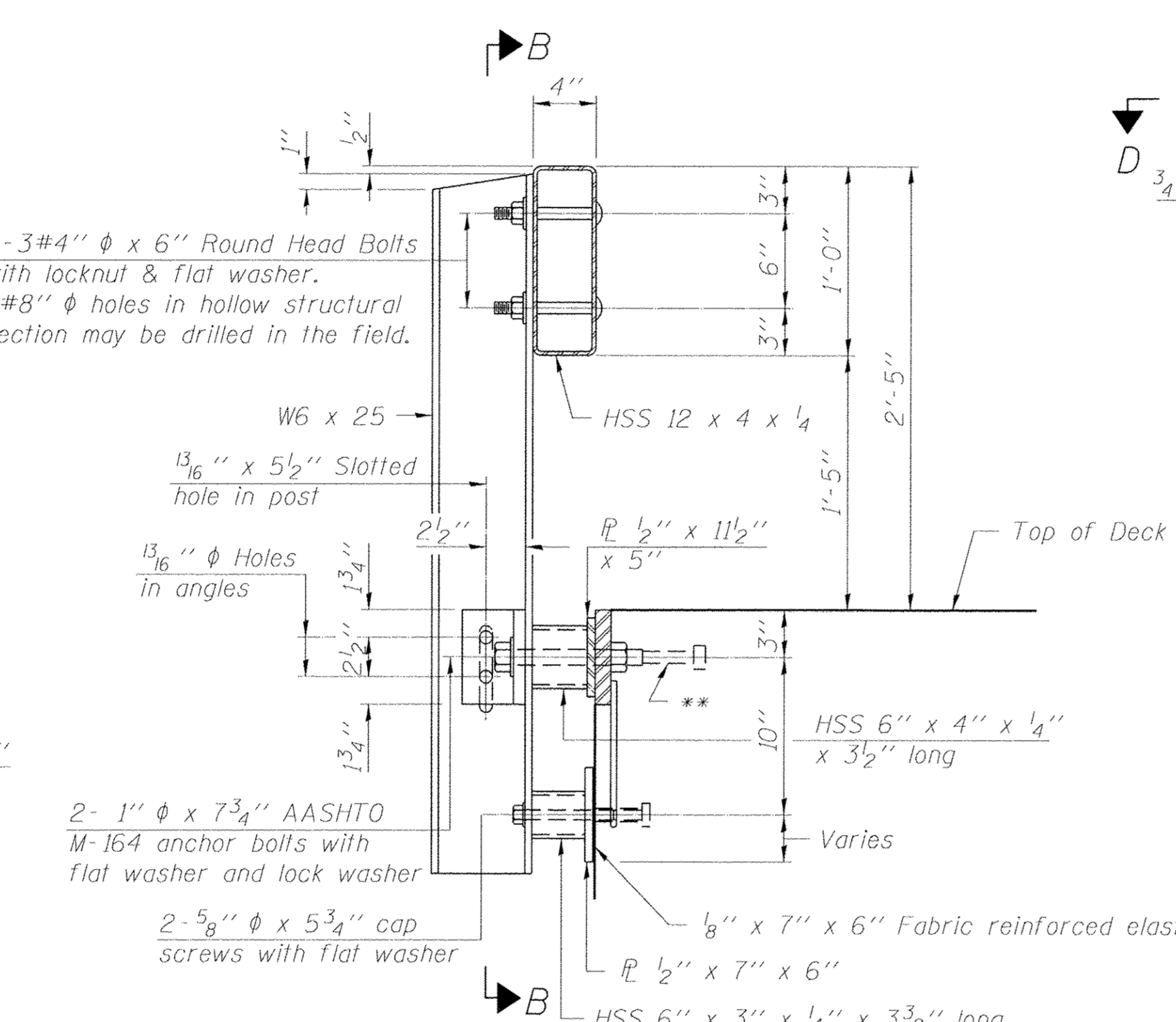
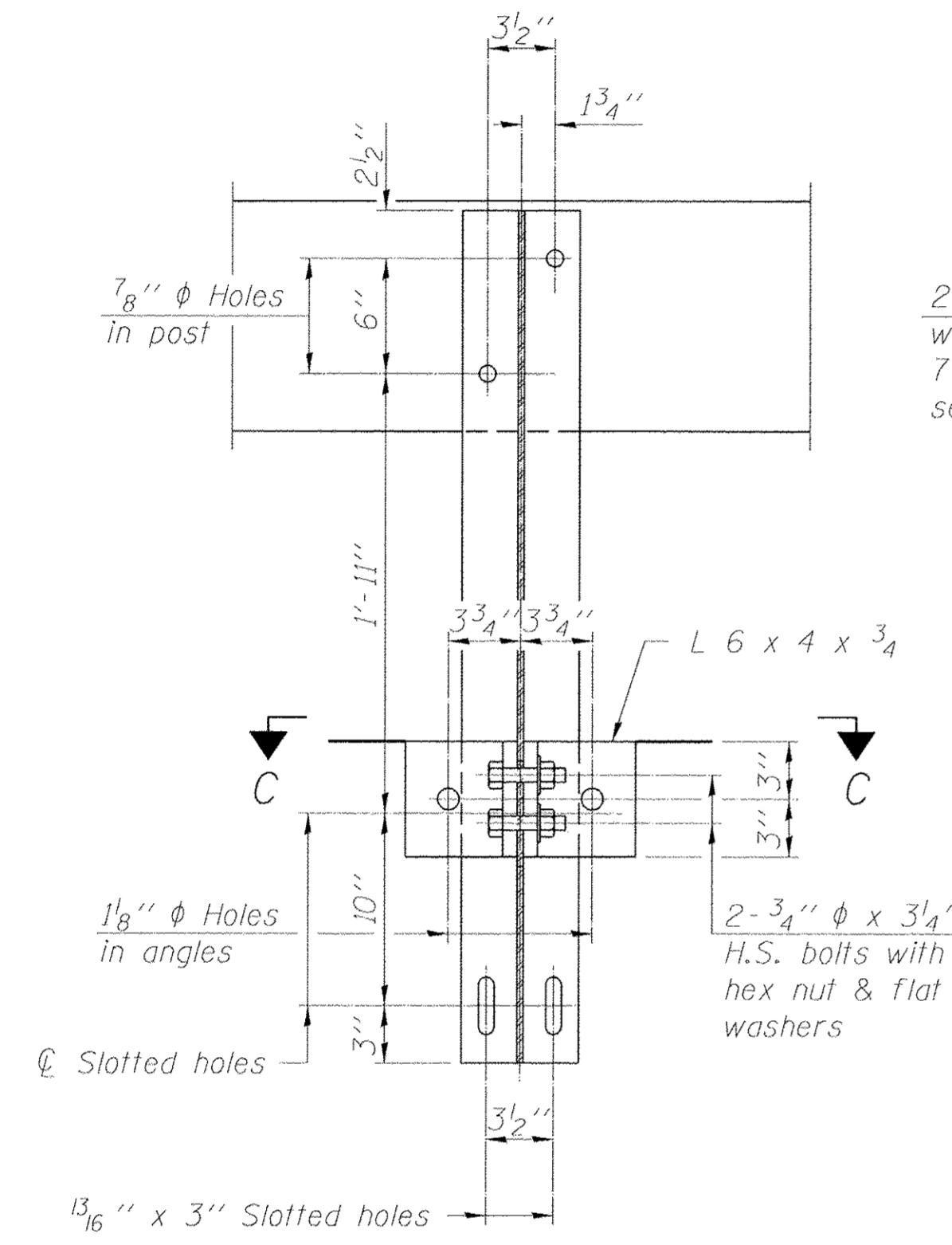
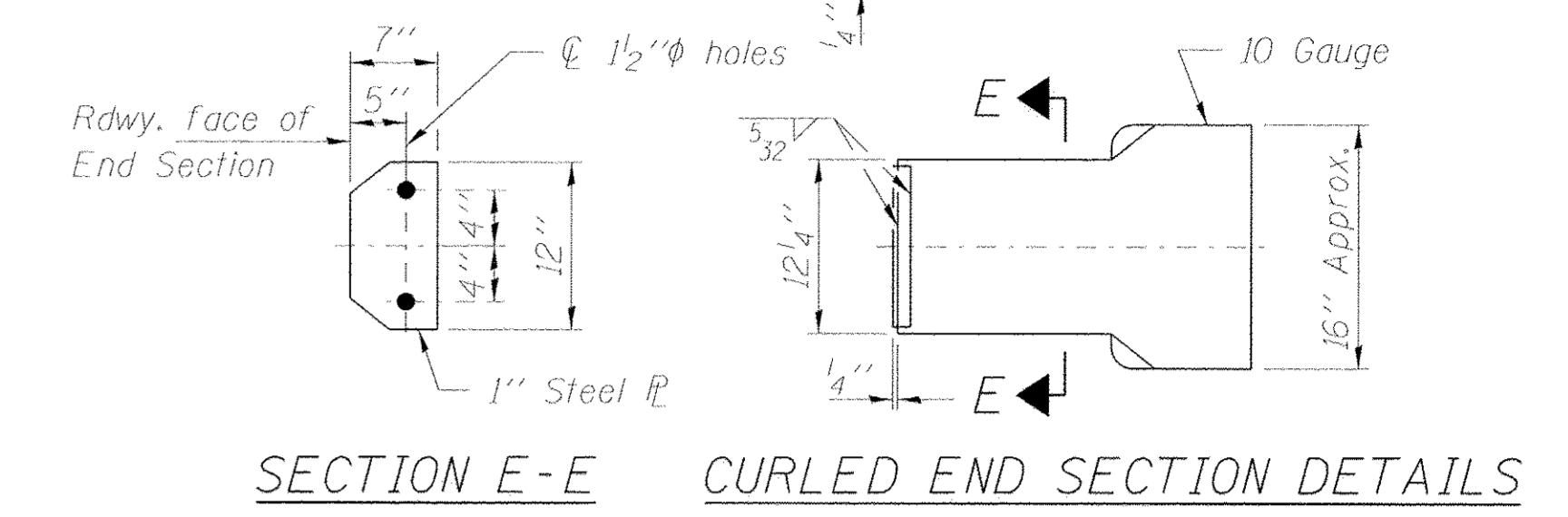


SECTION THRU ABUTMENT
(Horiz. dim. © Rt. L's)

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HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763 ILLINOIS PROFESSIONAL DESIGN FIRM LS/PE/SE CORP. 184.000959	PLOT SCALE = \$SCALE\$	CHECKED - S.W.M.	REVISED -			209	15-05106-00-BR	CLAY	23	18
	PLOT DATE = 3/30/2017	DRAWN - R.D.H.	REVISED -			HOOSIER ROAD DISTRICT		CONTRACT NO. 95813		
		CHECKED - S.W.M.	REVISED -			[ILLINOIS] FED. AID PROJECT BR05-0025(08B)				
SHEET NO. 4 OF 9 SHEETS										



Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)

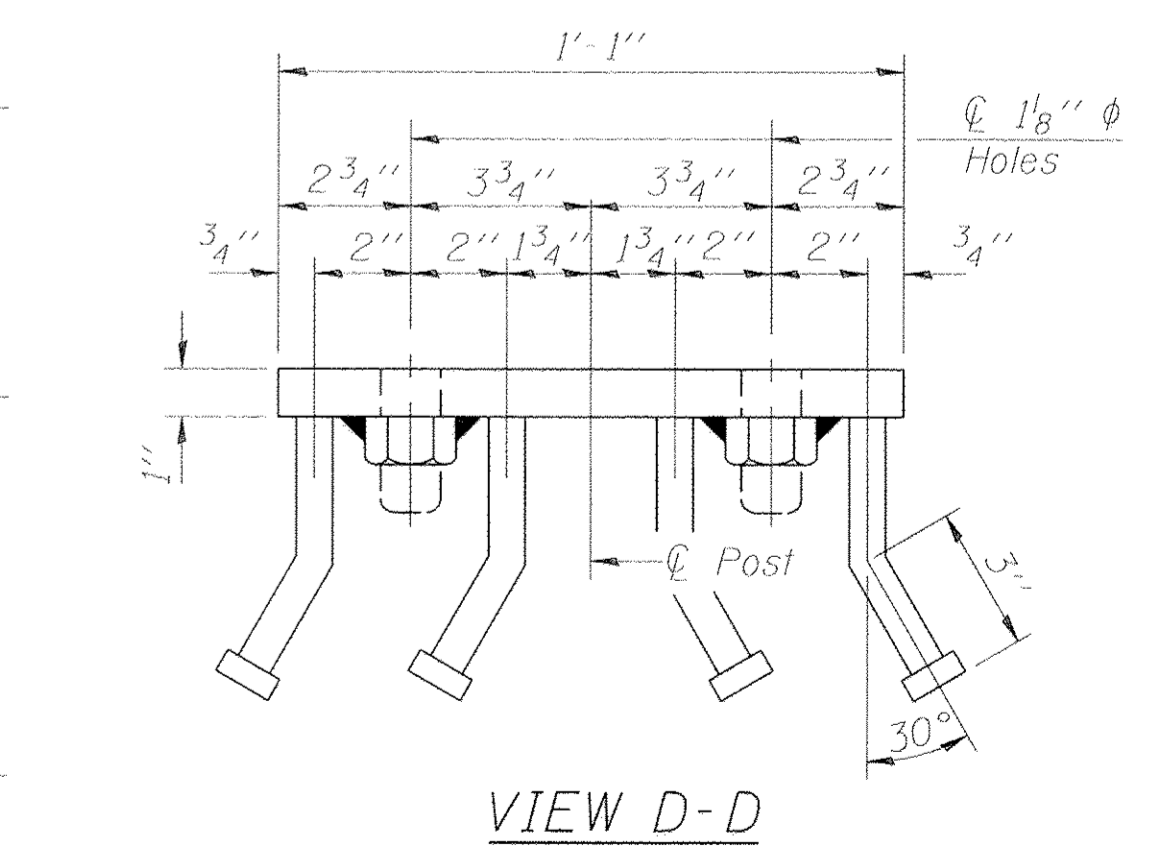
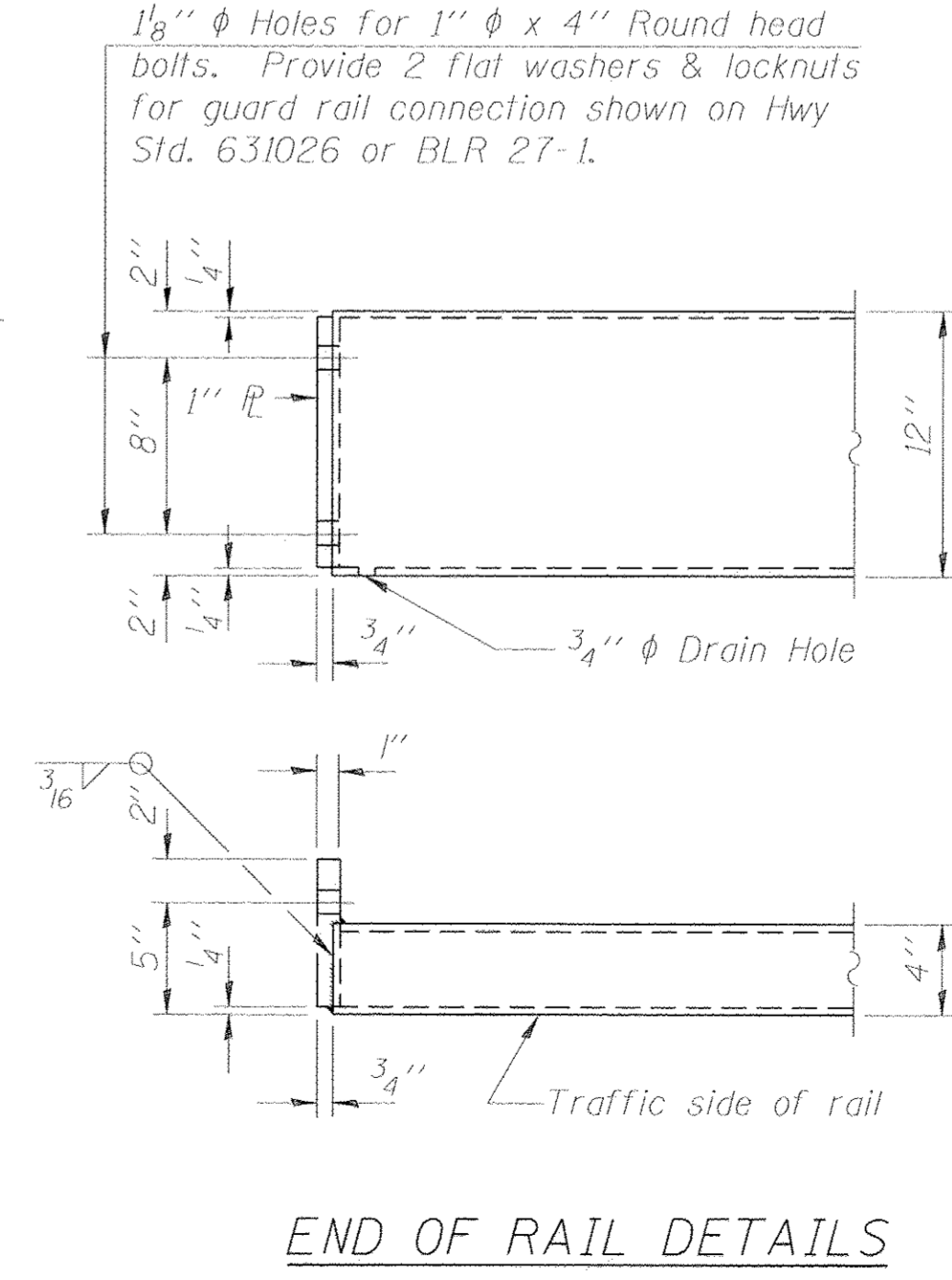
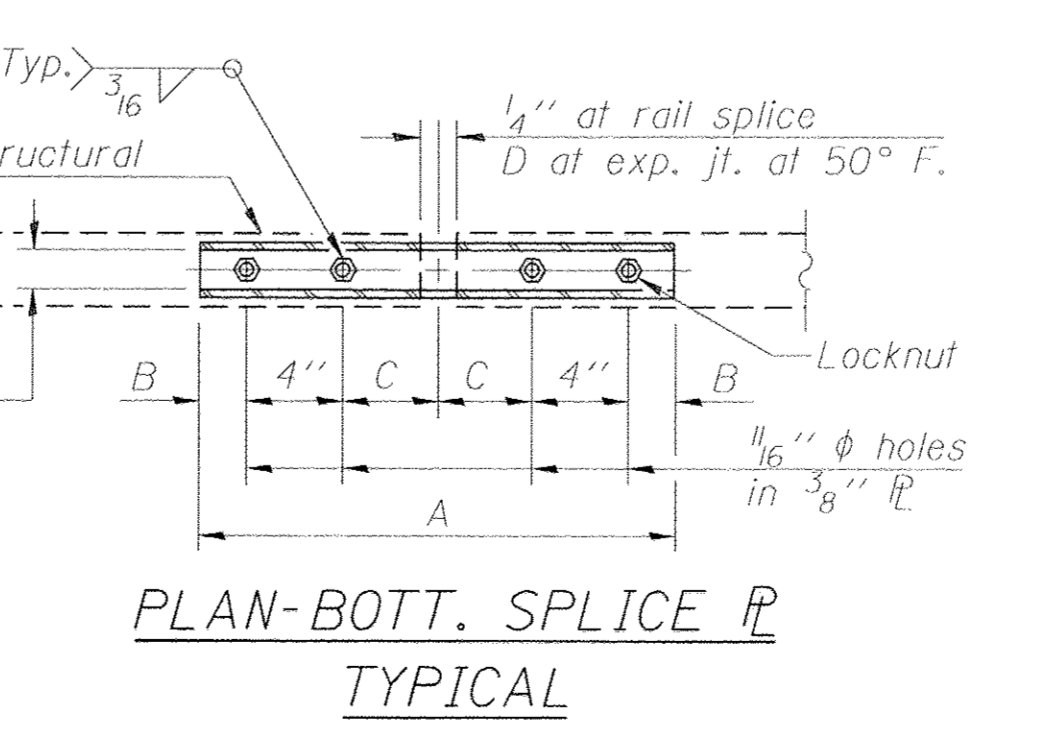
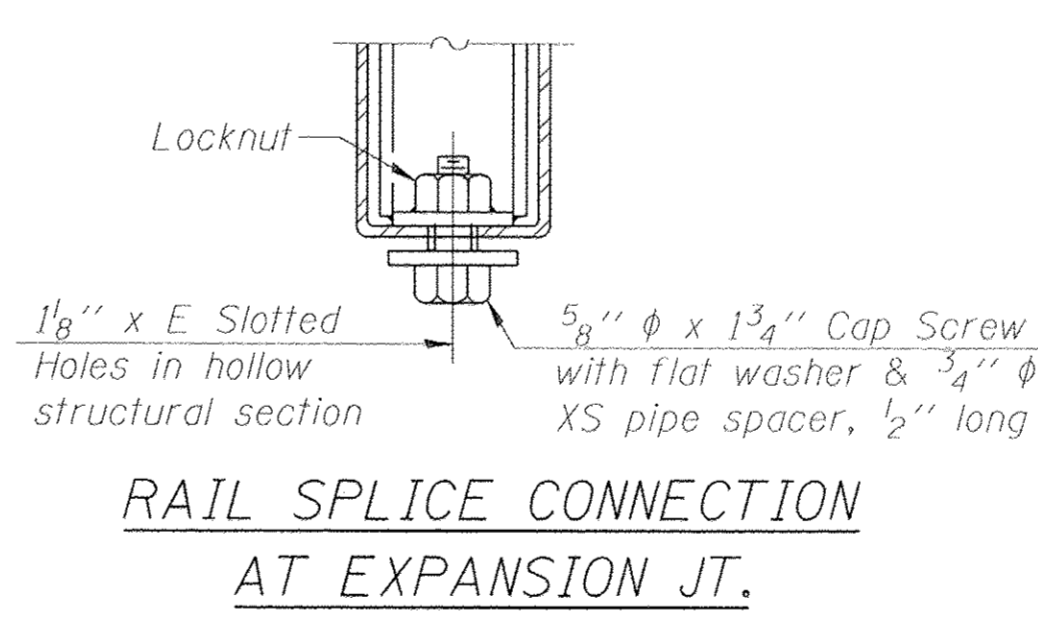
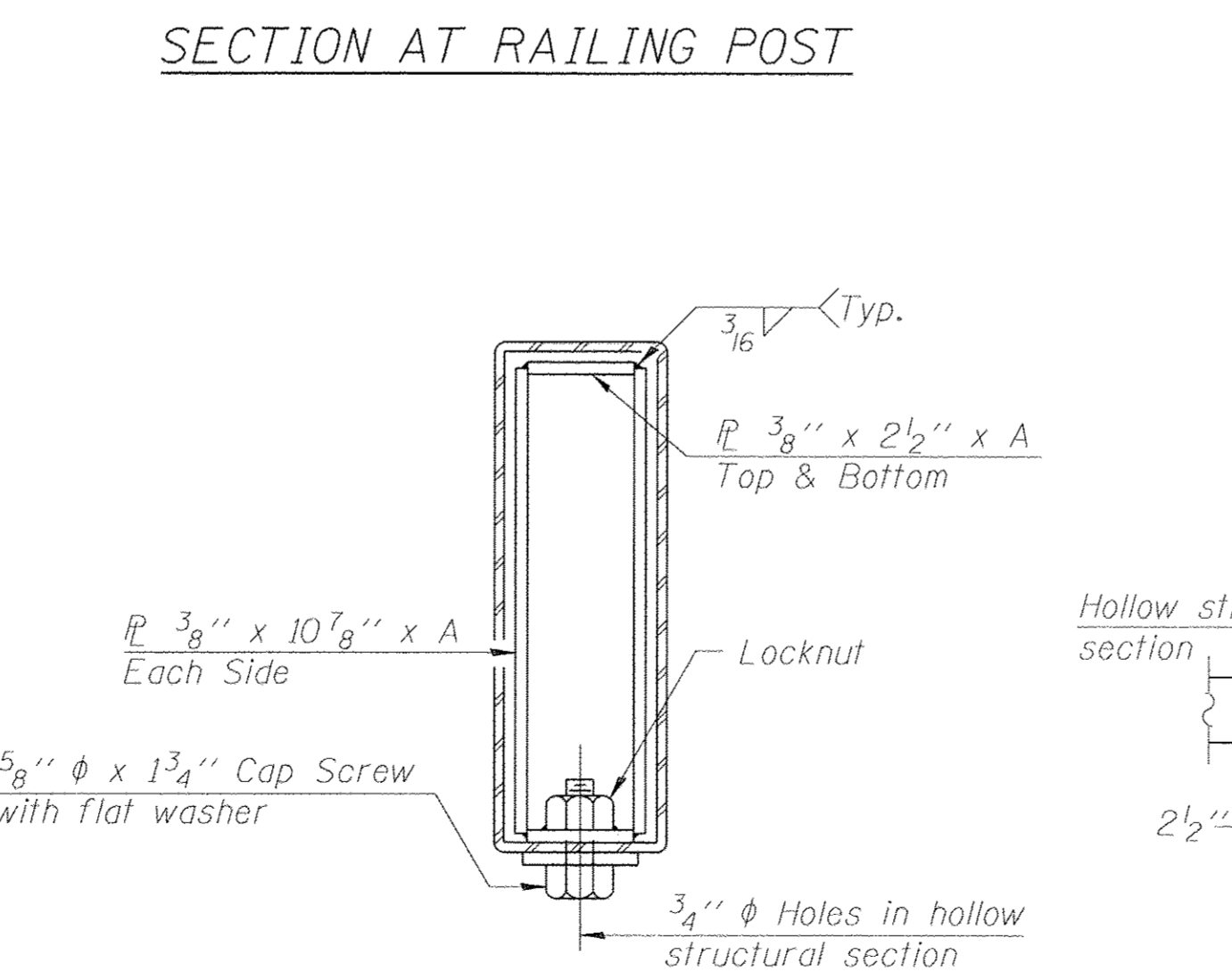
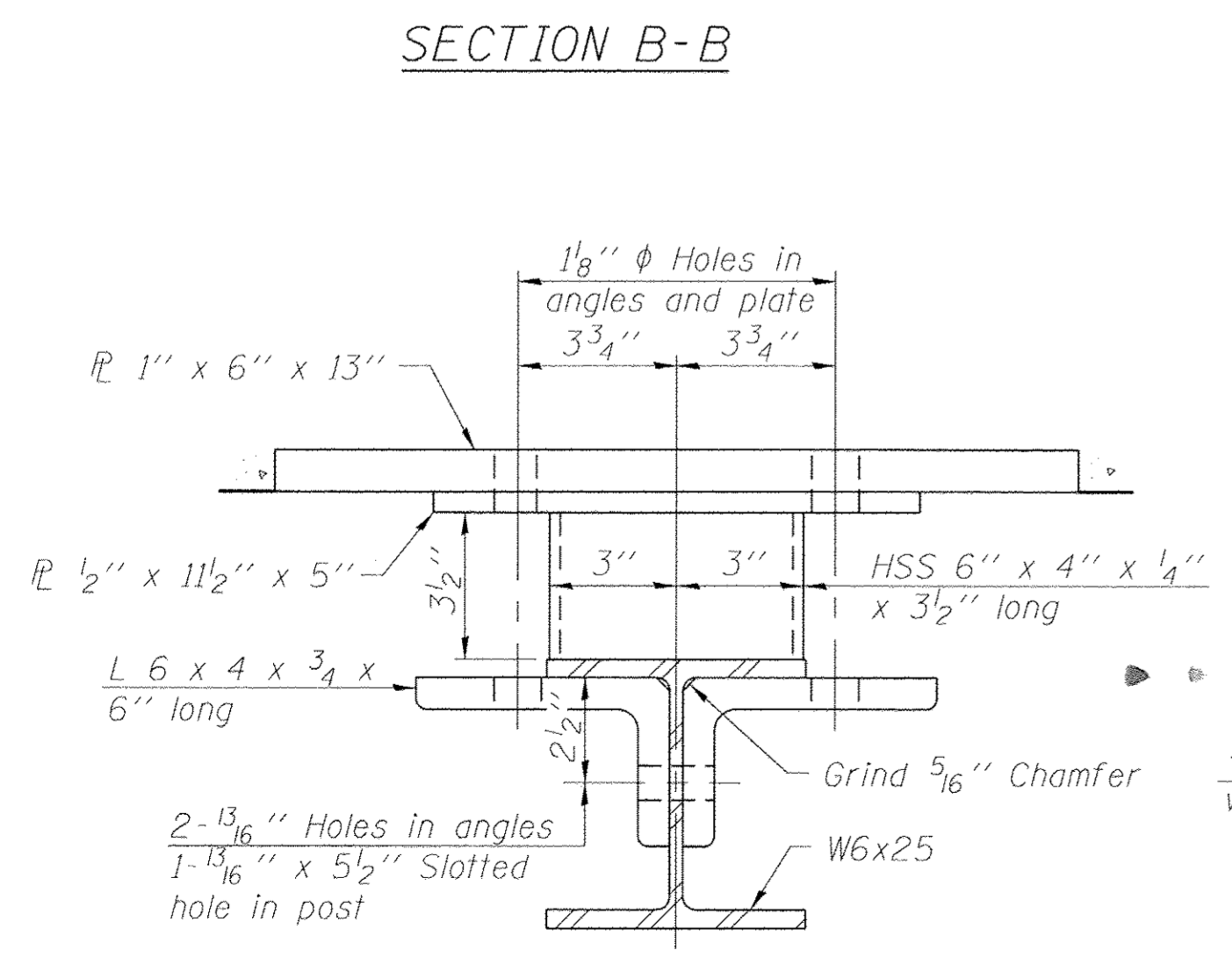


SPLICE DIMENSIONS

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 1/4"	1'-8"	2"	4"	

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

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



BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	140

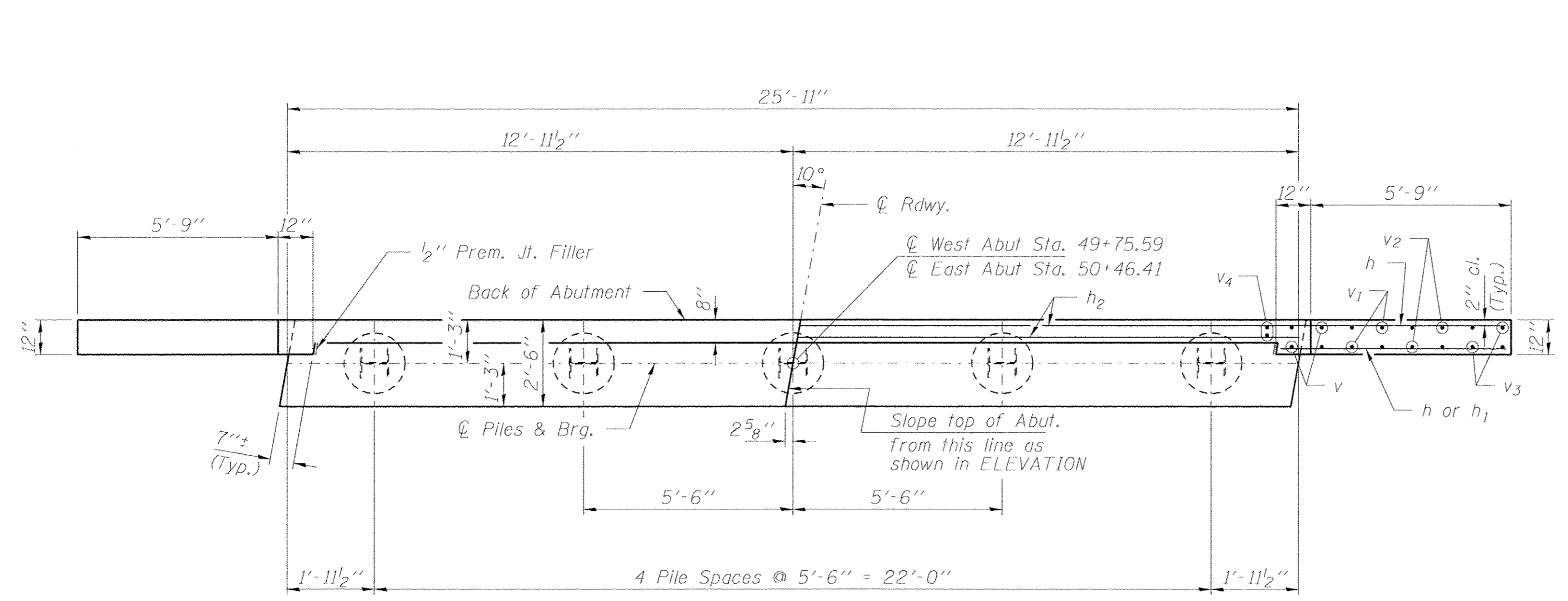
R-23A 11-22-16 (10'-9" Maximum Post Spacing)

FILE NAME = 168001-shrt-br-bridge.dgn	USER NAME = #USER#	DESIGNED - L.A.P.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3035 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62763 ILLINOIS PROFESSIONAL DESIGN FIRM LS/PE/SE CORP. 164.000959	PLOT SCALE = #SCALE#	CHECKED - S.W.M.	REVISED -
	PLOT DATE = 3/30/2017	DRAWN - R.D.H.	REVISED -
		CHECKED - S.W.M.	REVISED -

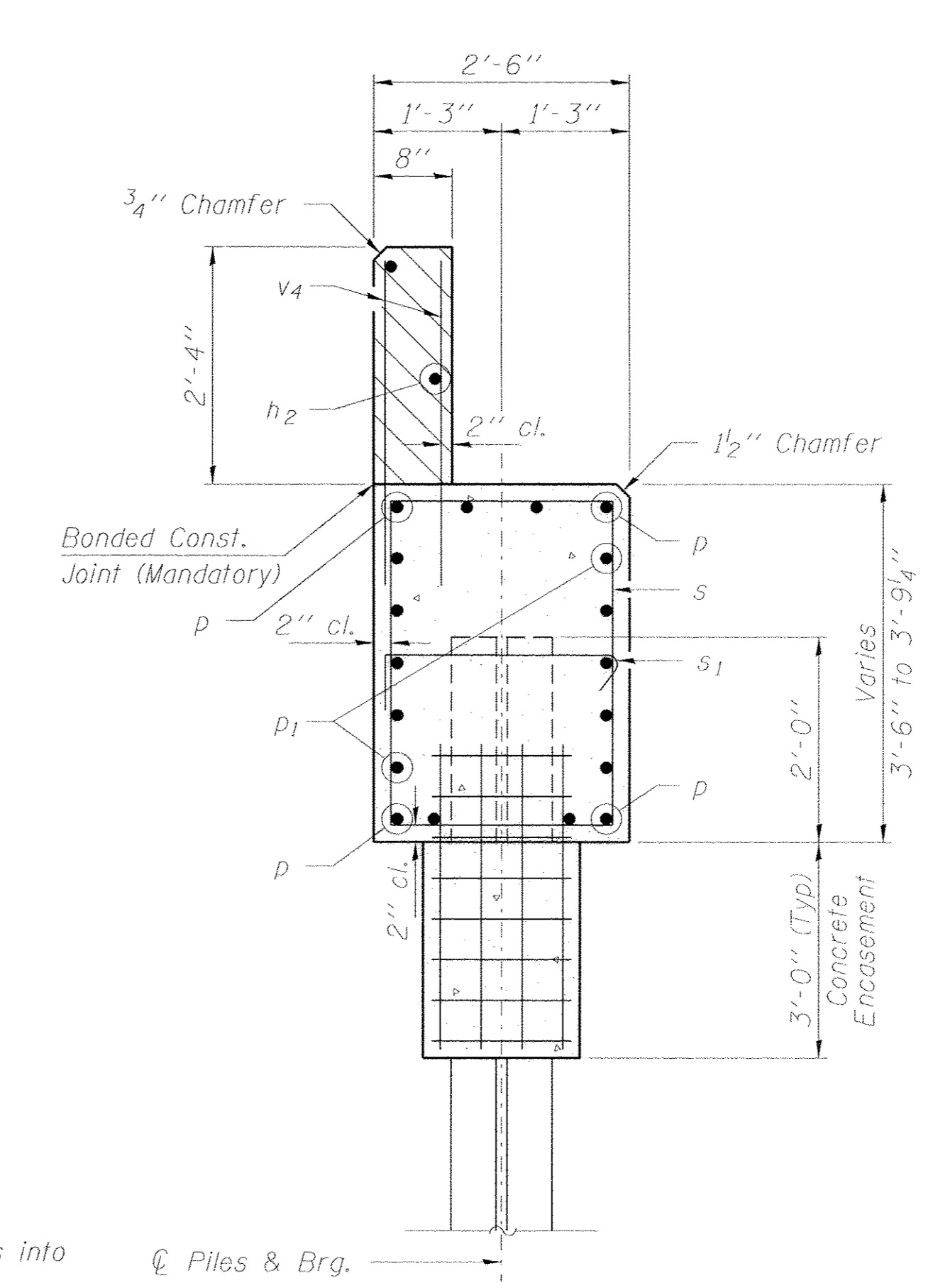
STATE OF ILLINOIS
 CLAY COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1
 STRUCTURE NO. 013-3248
 SHEET NO. 5 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
209	15-05106-00-BR	CLAY	23	19
HOOSIER ROAD DISTRICT			CONTRACT NO. 95813	
[ILLINOIS] FED. AID PROJECT BROS-0025(08B)				

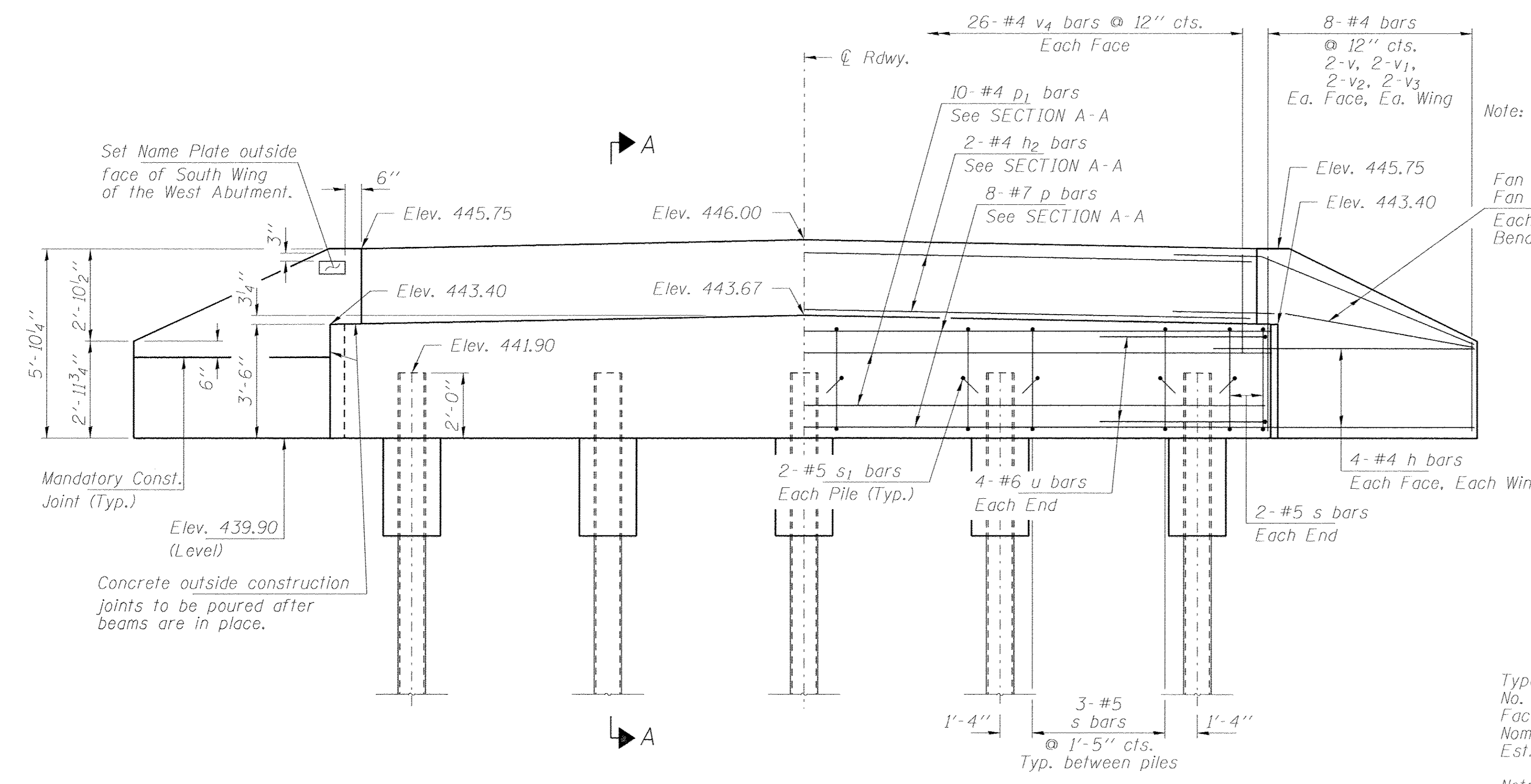
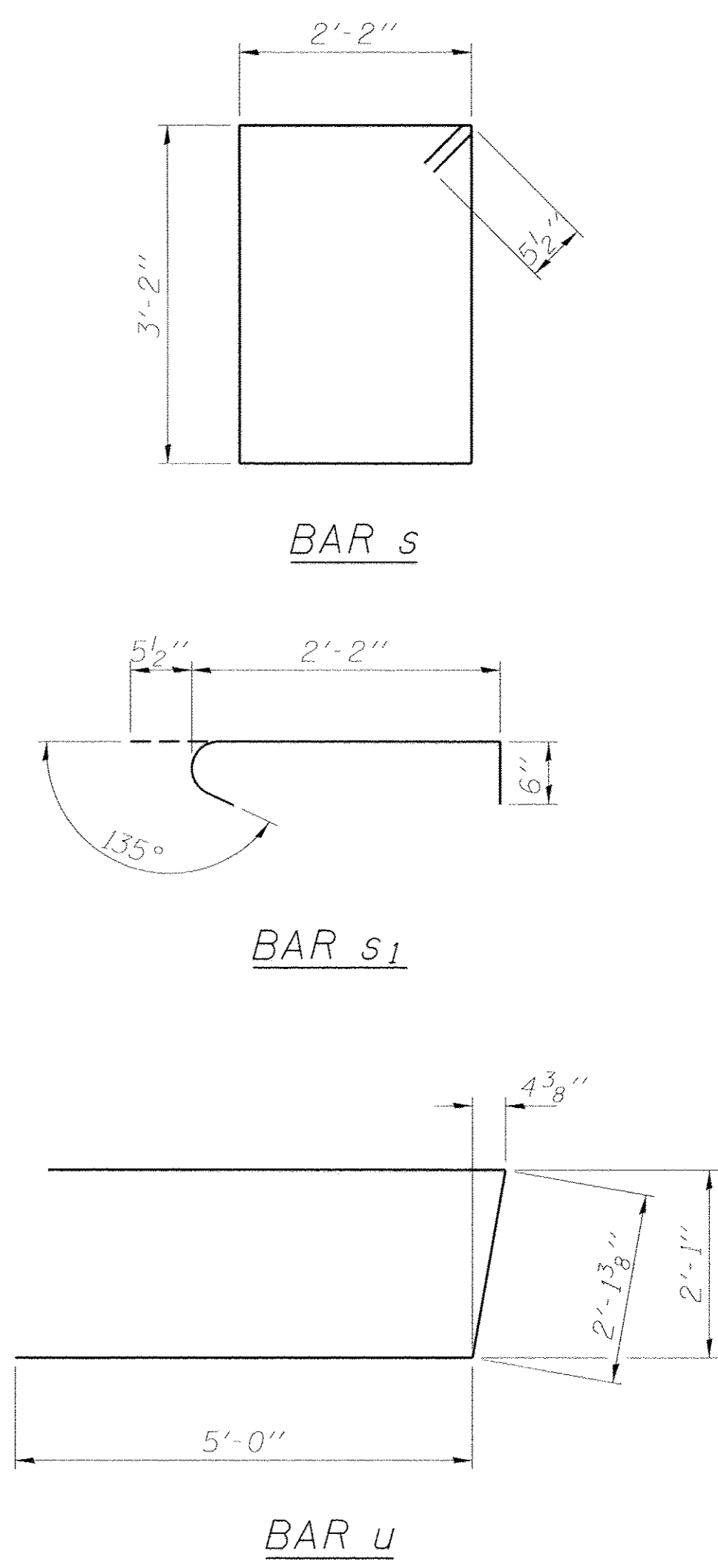


PLAN



SECTION A-A

Hatched area to be poured after beams are in place.
Cast top of wingwall flush with exterior beam face after beams have been erected.



ELEVATION

Note: Extend h bars into abutment cap.
Fan 2- #4 h bars (B.F.)
Fan 2- #4 h1 bars (F.F.)
Each Wing
Bend in field.

PILE DATA

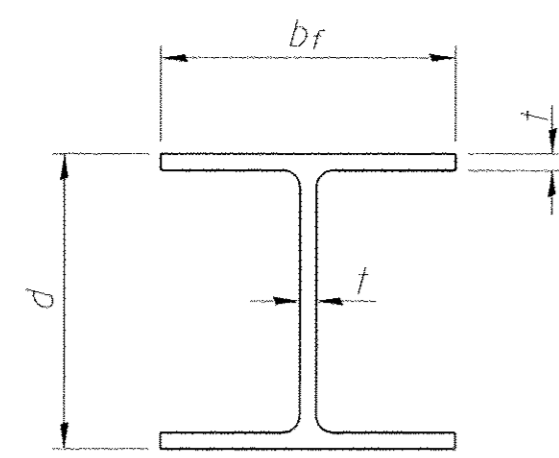
Type ----- Steel HP10x42
No. Req'd. (2 Abutments) ----- *10
Factored Resistance Available (RF) ----- 184 Kips/Pile
Nominal Required Bearing (Rn) ----- 335 Kips/Pile
Est. Length ----- 45 Ft/Pile

Notes: *Includes one test pile to be driven in a permanent location at the West Abutment.

The test pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

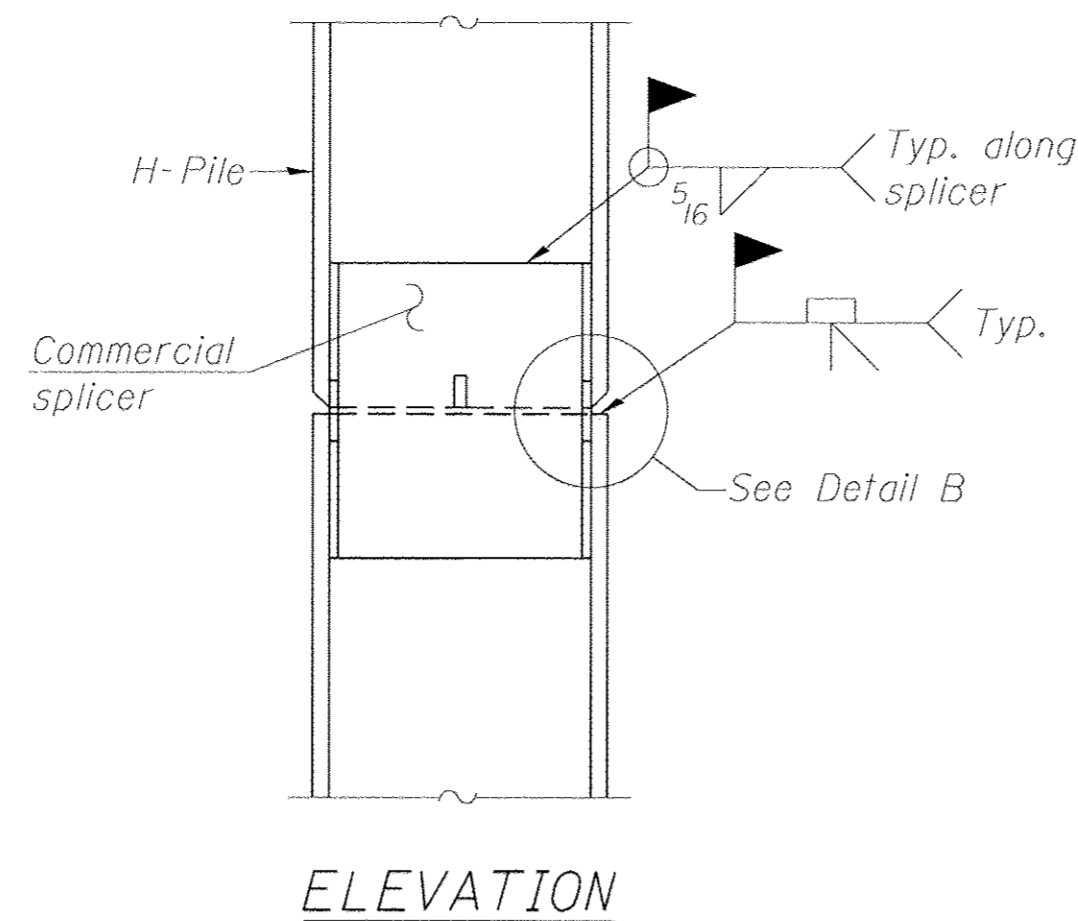
BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h	40	#4	8'-0"	—
h1	8	#4	6'-6"	—
h2	4	#4	25'-7"	—
p	16	#7	25'-7"	—
p1	20	#4	25'-7"	—
s	32	#5	11'-7"	□
s1	20	#5	3'-2"	┌┐
u	16	#6	12'-2"	▭
v	16	#4	5'-6"	—
v1	16	#4	4'-7"	—
v2	16	#4	3'-8"	—
v3	16	#4	2'-9"	—
v4	104	#4	3'-2"	—
Concrete Structures			Cu. Yd.	24.6
Concrete Encasement			Cu. Yd.	3.4
Reinforcement Bars			Pound	2,640
Steel Piles HP10x42			Foot	405
Test Pile Steel HP10x42			Each	1
Name Plates			Each	1

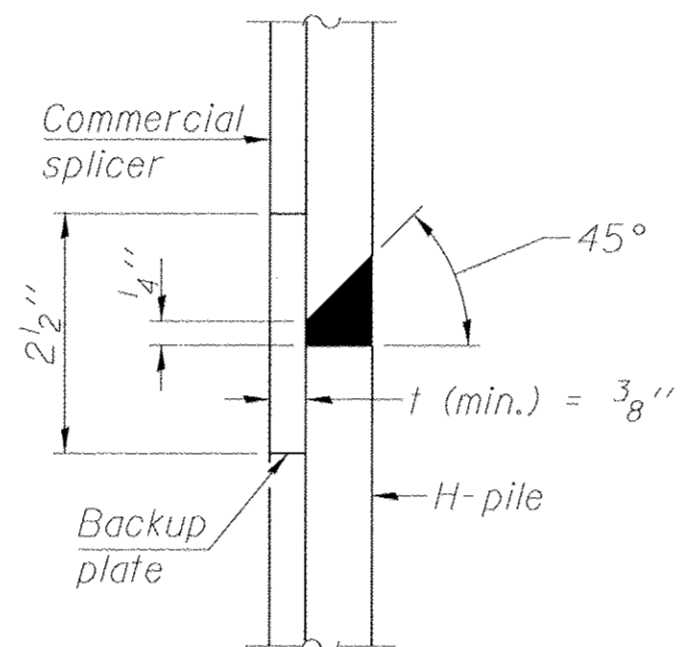


STEEL PILE TABLE

Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	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"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 3/8"	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"

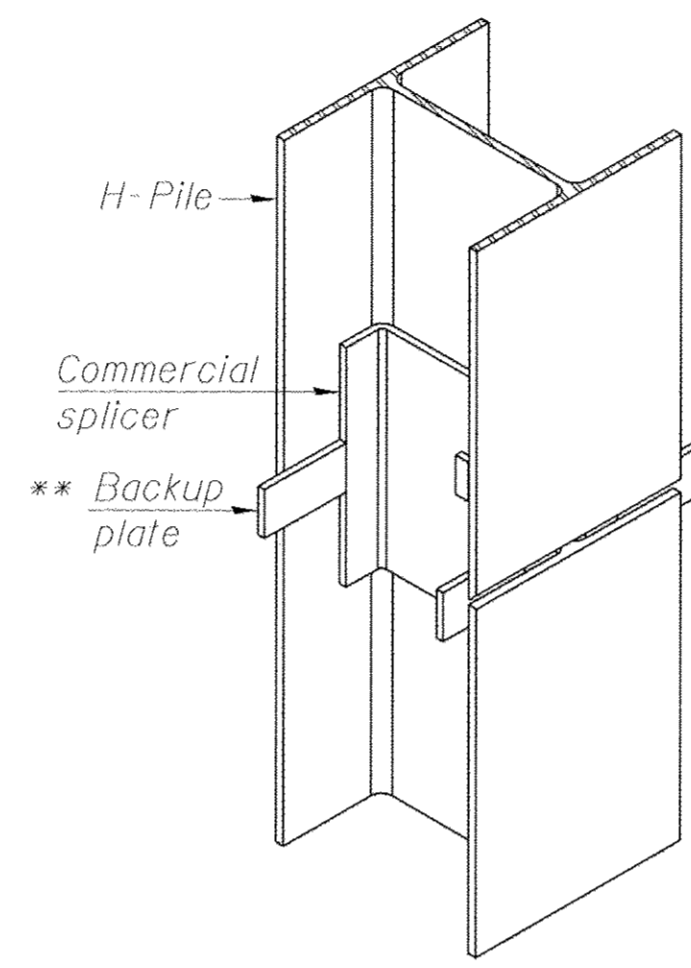


ELEVATION

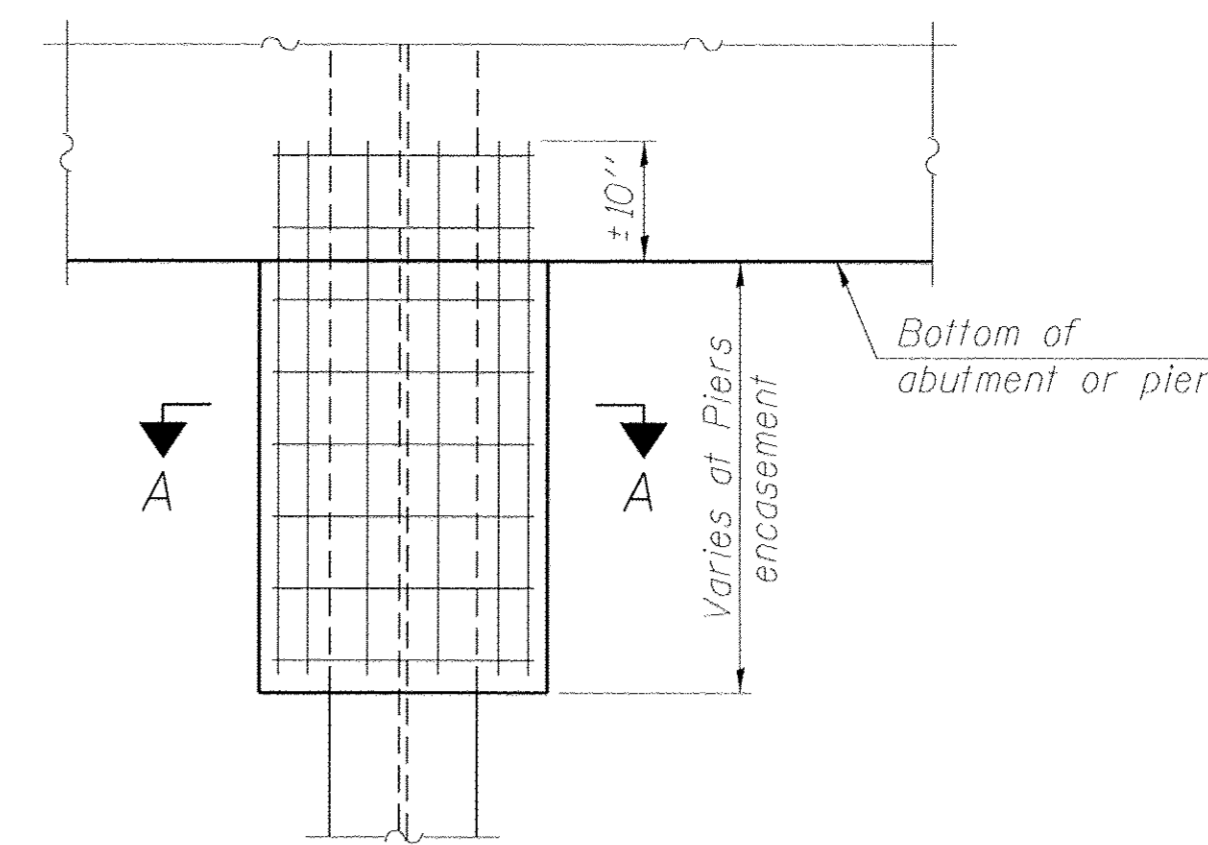


DETAIL "B"

WELDED COMMERCIAL SPLICE

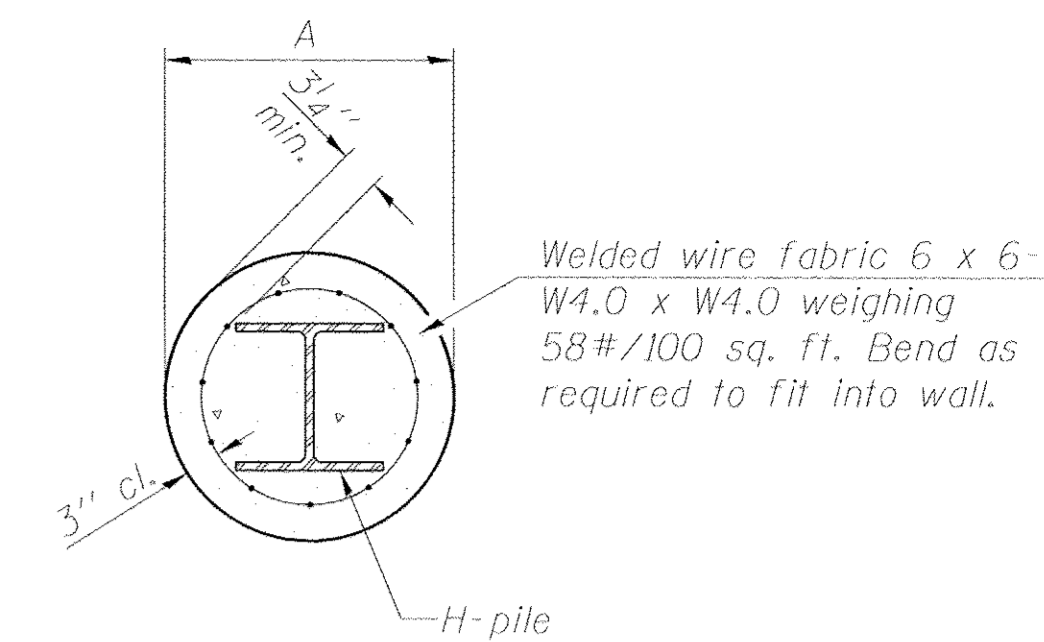


ISOMETRIC VIEW



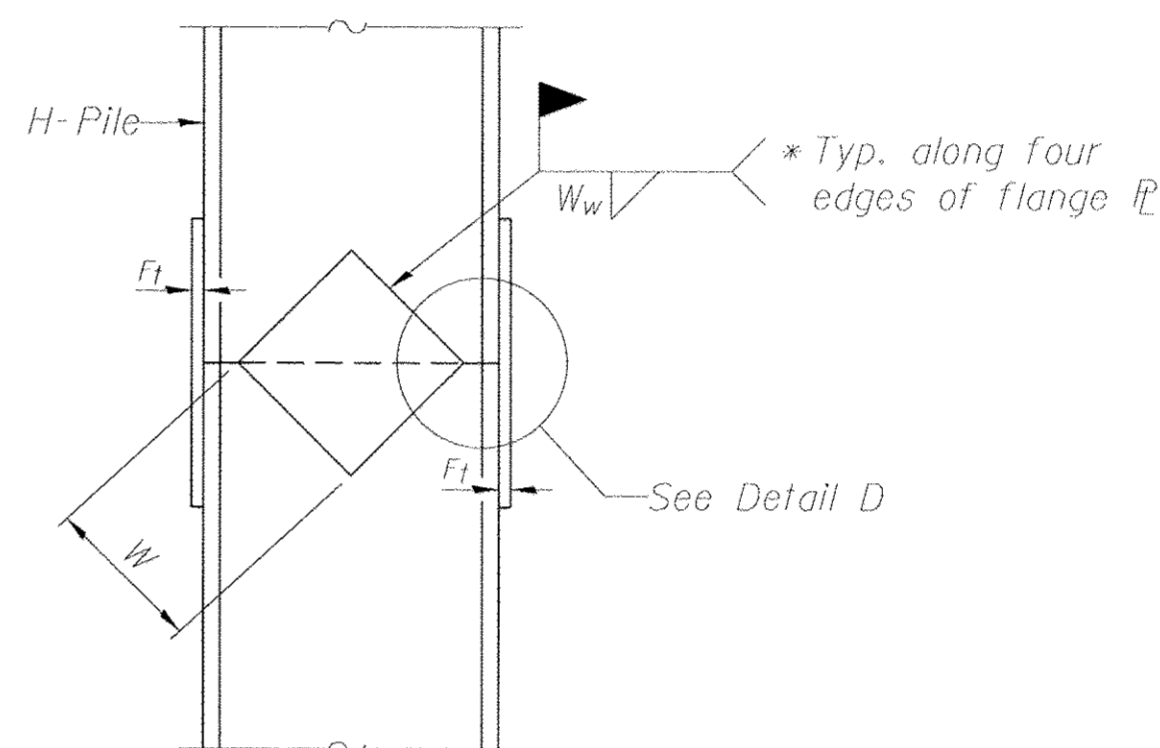
ELEVATION

PILE ENCASEMENT

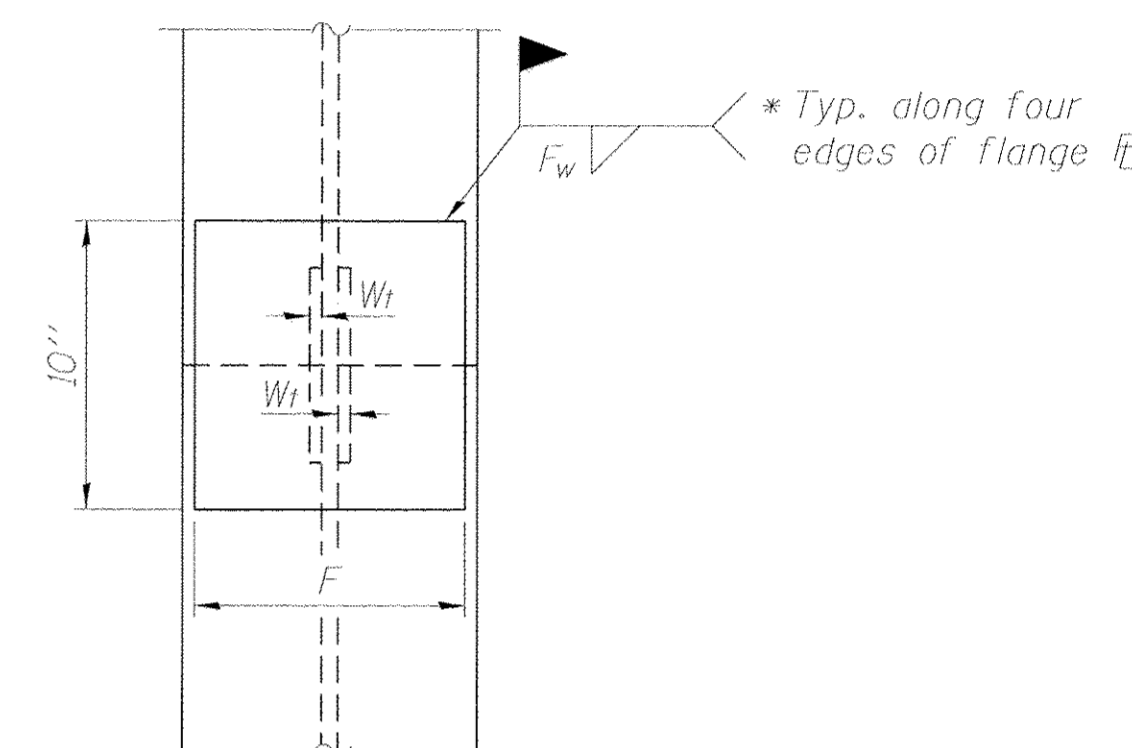


SECTION A-A

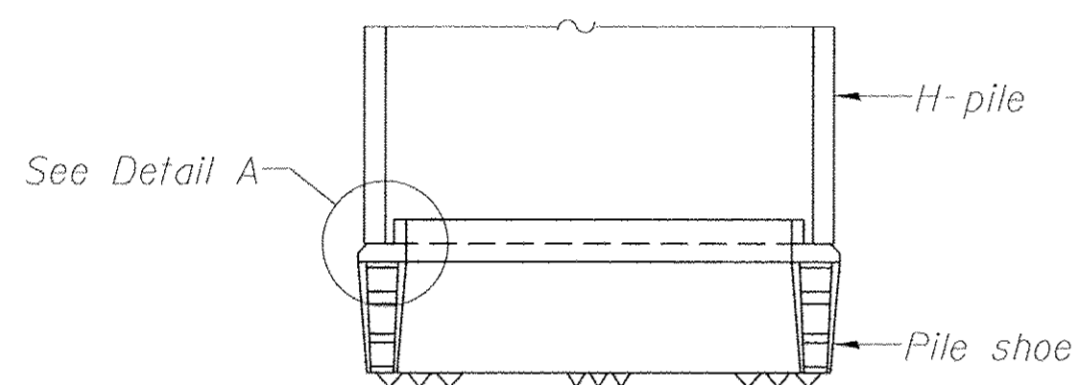
Note:
Forms for encasement may be omitted when soil conditions permit.



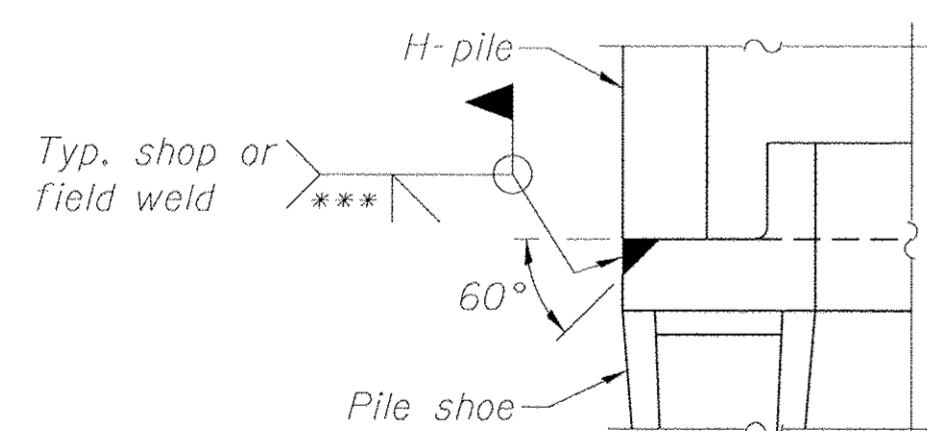
ELEVATION



END VIEW

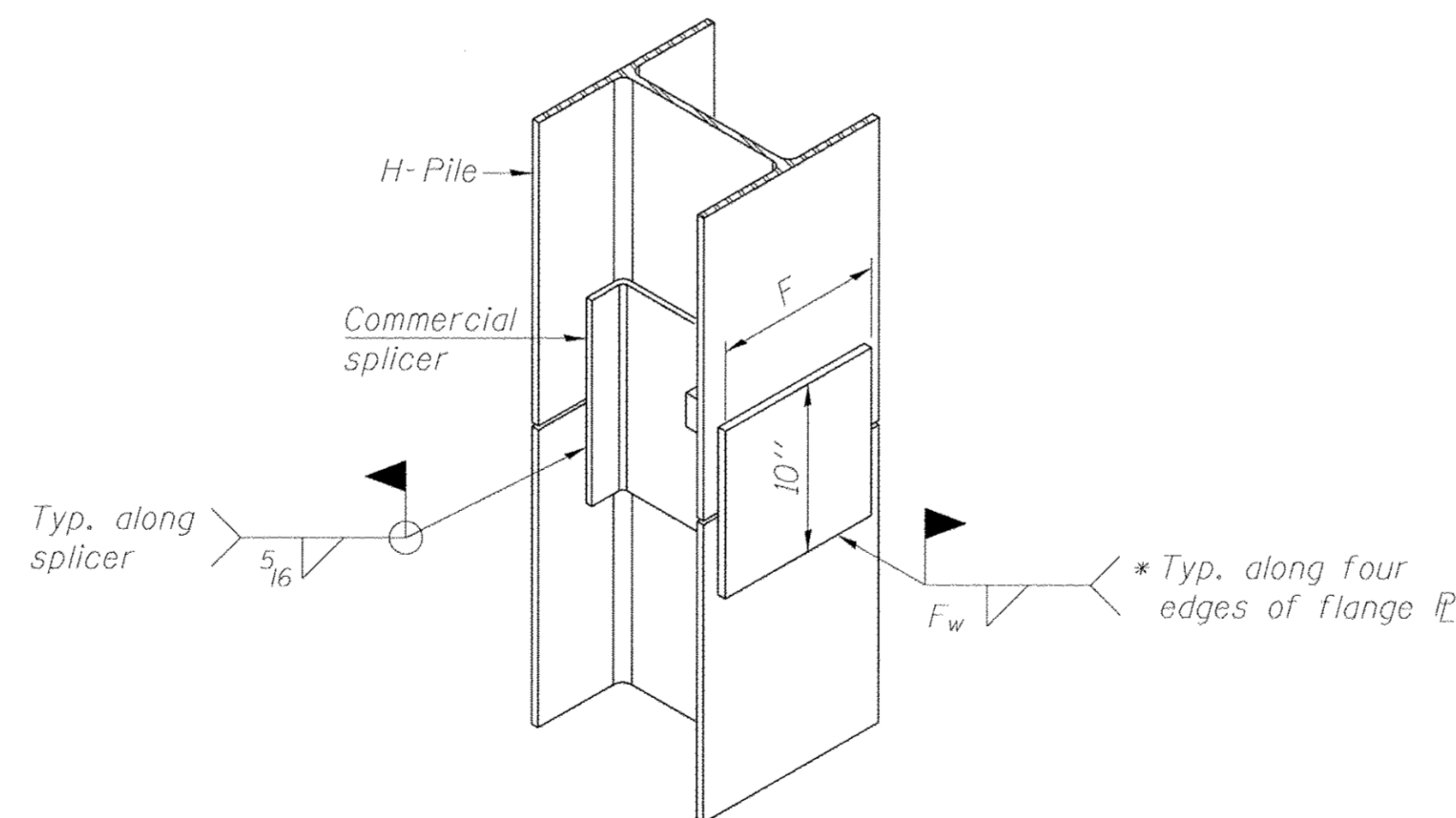


ELEVATION

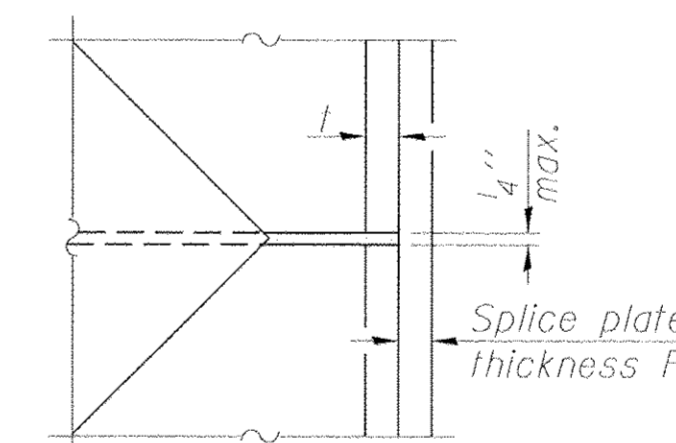


DETAIL A

H-PILE SHOE ATTACHMENT



ISOMETRIC VIEW



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"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	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"

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

7-1-10

FILE NAME = 162001-shb-bridge.dgn	USER NAME = *USER*	DESIGNED - L.A.P.	REVISED -	STATE OF ILLINOIS CLAY COUNTY HIGHWAY DEPARTMENT	HP PILE DETAILS STRUCTURE NO. 013-3248	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
HAMPTON, LENZINI AND RENWICK, INC. 3045 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 -			209	15-05106-00-BR	CLAY	23	21	
	PLOT DATE = 3/30/2017	DRAWN - R.D.H.	REVISED -			HOOSIER ROAD DISTRICT CONTRACT NO. 95813					
		CHECKED - S.W.M.	REVISED -			[ILLINOIS] FED. AID PROJECT BROS-0025(088)					

SHEET NO. 7 OF 9 SHEETS

NOBLE		BORING No. B-1					water level reading		
ENGINEERING CONSULTANTS		County: Clay, IL		Sheet No. 1 of 2		1st encounter: 19'			
Client: Clay County Highway Dept.		Weather: Overcast		Temperature: 80's		water level reading			
Driller: Noble Engineering Consultants		Date Start: 7-24-14		Surface Elevation: N/A		@completion dry cave			
Location: Gill Bridge		Date Finished: 7-24-14		Driller: Tony Schocker		Backfill: Soil cuttings			
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**
1							0.0'-0.3' Topsoil/gravel		442.8
2	SS-1	1.0'-2.5'	6	3-3-3	20	-		FILL	
3									
4	SS-2	3.5'-5.0'	7	3-3-4	70	-	0.3'-5.0' silt, clay, organics, etc, FILL	FILL	437.8
5									
6	SS-3	6.0'-7.5'	3	1-1-2	50	-		CL	
7									
8									
9	SS-4	8.5'-10.0'	4	1-2-2	100	0.9		CL	
10									432.8
11									
12									
13									
14	SS-5	13.5'-15.0'	6	2-2-4	100	1.0	5.0'-21.5' SILTY CLAY, trace to some sand, occ. wet sand seams, medium stiff to stiff, brown	CL	427.8
15									
16									
17									
18									
19	SS-6	18.5'-20.0'	6	2-3-3	100	0.9		CL	
20									422.8
21									
22									
23									
24	SS-7	23.5'-25.0'	11	2-4-7	100	1.0	21.5'-28' CLAY, trace sand, stiff, gray	CH	417.8
25									
26									
27									
28									
29									
30	SS-8	28.5'-30.0'	49	15-21-28	100	4.5+	28.0'-32.0' CLAYEY SILT (TILL), trace to some sand, hard, gray	CL-ML	412.8
Drilling Method: HSA (2-1/4" id)		comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 40.5'									
Drill Rig: Mobile B-47									
Sampling: split-spoon (SS)									

NOBLE		BORING No. B-1					water level reading		
ENGINEERING CONSULTANTS		County: Clay, IL		Sheet No. 2 of 2		1st encounter: 19'			
Client: Clay County Highway Dept.		Weather: Sunny		Temperature: 80's		water level reading			
Driller: Noble Engineering Consultants		Date Start: 7-24-14		Surface Elevation: N/A		@completion Dry Cave			
Location: Gill Bridge		Date Finished: 7-24-14		Driller: Tony Schocker		Backfill: Soil Cuttings			
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**
31									
32									
33									
34	SS-9	33.5'-35.0'	100+	48-100/5"	100	-	28.0'-32.0' CLAY SILT (TILL), trace to some sand, occ. cobbles, hard, gray		407.8
35									
36									
37									
38									
39	SS-10	39.5'-40.0'	100+	38-100/5"	100	-	32.0'-40.5' HIGHLY WEATHERED SHALE, dark gray		402.8
40							AR 40.5'		
Drilling Method: HSA (3-3/4" id)		comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 40.5'									
Drill Rig: Mobile B-47									
Sampling: split-spoon (SS)									

BORING-1

NOBLE		BORING No. B-2		water level reading					
ENGINEERING CONSULTANTS		County: Clay, IL	Sheet No. 1 of 2	1st encounter: 19'					
Client: Clay County Highway Dept.		Weather: Overcast	Temperature: 80's	water level reading					
Driller: Noble Engineering Consultants		Date Start: 7-24-14	Surface Elevation: N/A	@completion	dry cave				
Location: Gill Bridge		Date Finished: 7-24-14	Driller: Tony Schocker	Backfill:	Soil Cuttings				
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**
1							0.0'-0.3' Topsoil		441.0
2	SS-1	1.0'-2.5'	9	2-2-7	20	-		FILL	
3									
4	SS-2	3.5'-5.0'	12	5-6-6	30	-	0.3'-5.0' silt, clay, organics, etc, FILL	FILL	436.0
5									
6	SS-3	6.0'-7.5'	8	3-4-4	50	-		CL	
7									
8									
9	SS-4	8.5'-10.0'	10	2-4-6	100	2.1		CL	
10									431.0
11									
12									
13									
14	SS-5	13.5'-15.0'	6	2-3-3	100	1.3	5.0'-17.0' SILTY CLAY, trace to some sand, v. stiff to stiff, brown	CL	426.0
15									
16									
17									
18									
19	SS-6	18.5'-20.0'	10	3-4-6	100	1.0	17.0'-21.0' CLAY, trace sand, occ wet sand seams, stiff, gray	CH	421.0
20									
21									
22									
23									
24	SS-7	23.5'-25.0'	43	10-16-27	100	4.5+	21.0'-34.5' CLAYEY SILT (TILL), trace to some sand, occ. cobbles, hard, gray	CL-ML	416.0
25									
26									
27									
28									
29									
30	SS-8	28.5'-30.0'	50	10-13-37	100	4.5+		CL-ML	411.0
Drilling Method: HSA (2-1/4" id)		comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 41.2'									
Drill Rig: Mobile B-47									
Sampling: split-spoon (SS)									

NOBLE		BORING No. B-2		water level reading					
ENGINEERING CONSULTANTS		County: Clay, IL	Sheet No. 2 of 2	1st encounter: 18'					
Client: Clay County Highway Dept.		Weather: Sunny	Temperature: 80's	water level reading					
Driller: Noble Engineering Consultants		Date Start: 7-24-14	Surface Elevation: N/A	@completion	Dry Cave				
Location: Gill Bridge		Date Finished: 7-24-14	Driller: Tony Schocker	Backfill:	Soil Cuttings				
Depth	Sample No.	Sample Depth	N-Value	Blow Count	Recovery (%)	Qp (tsf)*	Soil Description	USC Class.	Elev.**
31									
32									
33									
34	SS-9	33.5'-35.0'	100+	28-33-100/5	100	-	21.0'-34.5' CLAY SILT (TILL), trace to some sand, occ. cobbles, hard, gray	CL-ML	406.0
35									
36									
37									
38									
39	SS-10	39.5'-40.0'	100+	38-100/5*	100	-	34.5'-41.2' HIGHLY WEATHERED SHALE, dark gray		401.0
40									
				AR 41.2'					
Drilling Method: HSA (3-3/4" id)		comments		* Qp test is an estimate of the unconfined compressive strength performed by a compact calibrated spring loaded cylinder					
Depth: 0' to 41.2'									
Drill Rig: Mobile B-47									
Sampling: split-spoon (SS)									

BORING 2