

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	1
CONTRACT NO. 95854		ILLINOIS	PROJECT 32KM(542)	

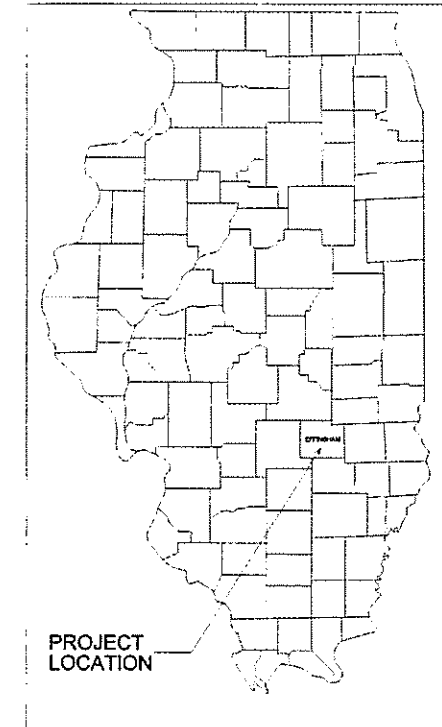
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM - BRIDGE**
SECTION 17-00097-00-BR EFFINGHAM COUNTY

PROJECT 32KM(542)
JOB NO. C-97-054-18
FAS ROUTE 708

CONTRACT NO. 95854

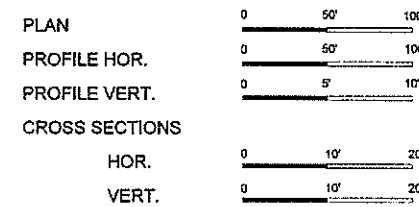
Joint Utility Locating Information for Excavators

JULIE 1-800-892-0123



INDEX OF SHEETS

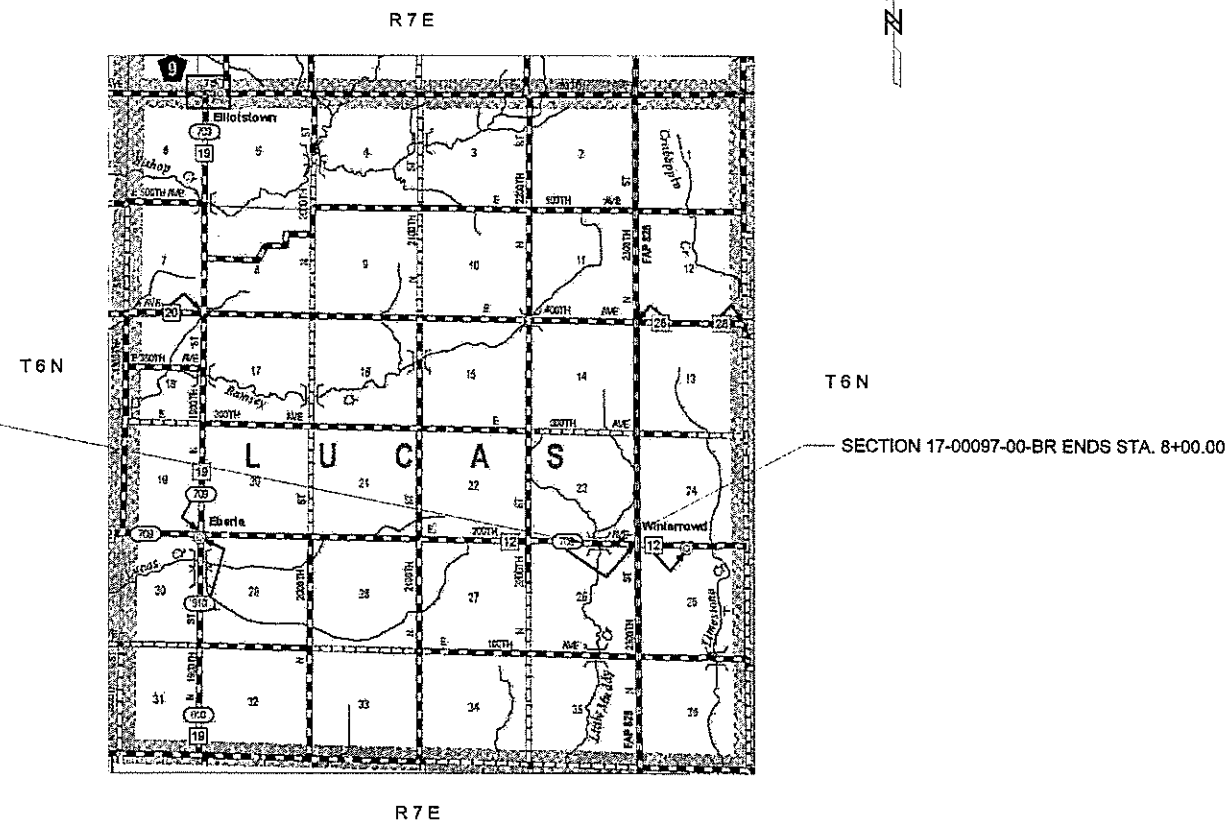
SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	GENERAL PLAN AND ELEVATION
5	SUPERSTRUCTURE
6	SUPERSTRUCTURE DETAILS
7	STEEL RAILING, TYPE S-1
8	STEEL RAILING, TYPE S-1 DETAILS
9	ABUTMENT DETAILS
10	FILE DETAILS
11	BORING LOGS
12-16	CROSS SECTIONS



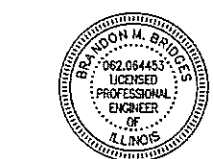
- STANDARD DRAWINGS
- STANDARD 000001-07
 - STANDARD 280001-07
 - STANDARD 515001-03
 - STANDARD 701901-08
 - STANDARD 725001-01
 - STANDARD BLR 21-9
 - STANDARD BLR 23-4
 - STANDARD BLR 26-3
 - STANDARD BLR 27-1

SECTION 17-00097-00-BR BEGINS STA. 0+00.00

SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
 81'-10" BK. BK. ABUTMENTS
 STEEL H. PILE / SPILLTHROUGH ABUTMENTS
 28' DECK
 EXISTING STRUCTURE NO. 025-3202
 PROPOSED STRUCTURE NO. 025-3333



NET LENGTH SECTION 17-00097-00-BR = 800.00 FT. = 0.152 MI.



Michael M. Bridges
3-21-2019

LICENSE EXPIRES 11/30/2019

CHARLESTON ENGINEERING, INC.
 CONSULTING ENGINEERS
 105 NORTH KITCHELL
 P.O. BOX 397
 OLNEY, ILLINOIS 62450
 (618) 392-0736
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

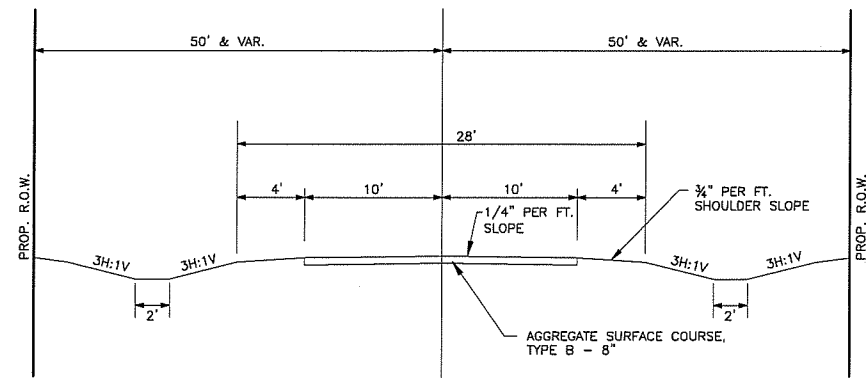
APPROVED 03/22/19
[Signature]
 COUNTY ENGINEER

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 PASSED 5-23-19
[Signature]
 DISTRICT SEVEN ENGINEER OF
 LOCAL ROADS AND STREETS

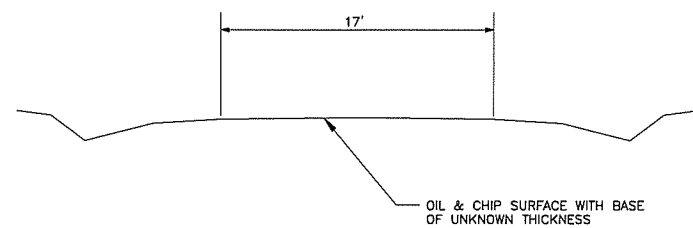
Releasing For
 Bid Based on
 Limited Review
5-23-19
[Signature]
 REGION FOUR ENGINEER

FUNCTIONAL CLASSIFICATION - MAJOR COLLECTOR
 ADT = 275
 DESIGN SPEED = 40 MPH

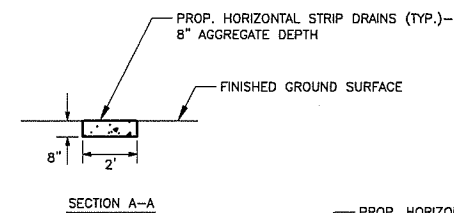
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	2
CONTRACT NO. 95854		ILLINOIS	PROJECT 32KM(542)	



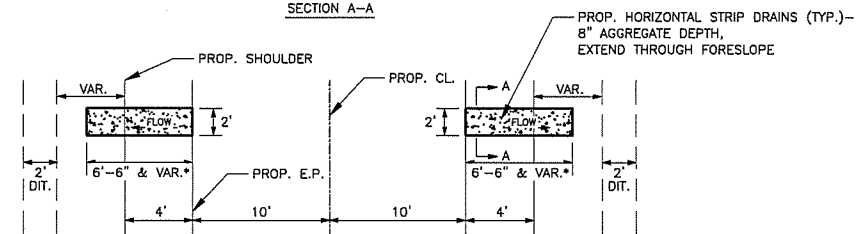
TYPICAL SECTION
PROPOSED



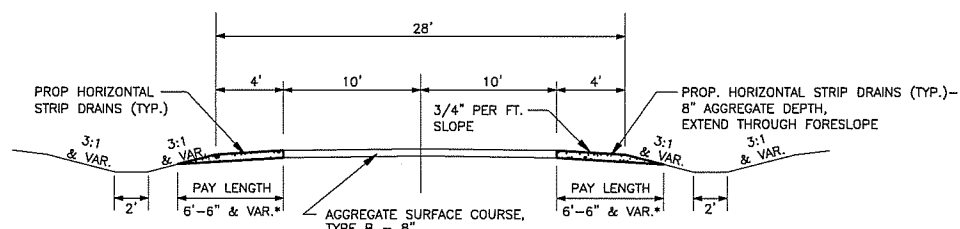
TYPICAL SECTION
EXISTING



SECTION A-A



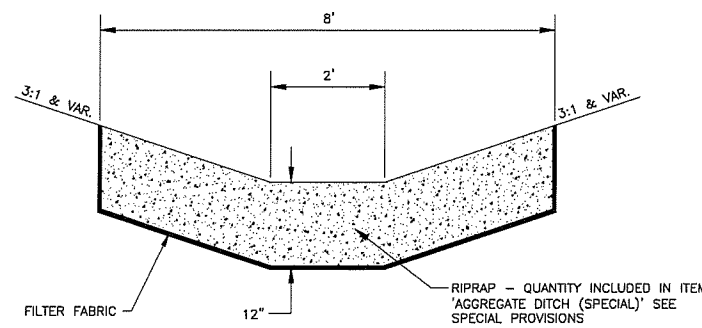
PROPOSED PLAN VIEW



PROPOSED SECTION VIEW

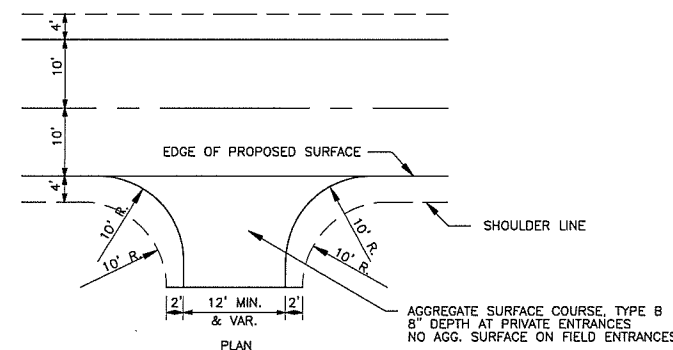
HORIZONTAL STRIP DRAINS DETAIL
SEE SHEET 3 FOR QUANTITIES AND LOCATION

*SEE SHEET 3 FOR PAY LENGTH THROUGH SHOULDER WIDENING FOR TRAFFIC BARRIER TERMINAL



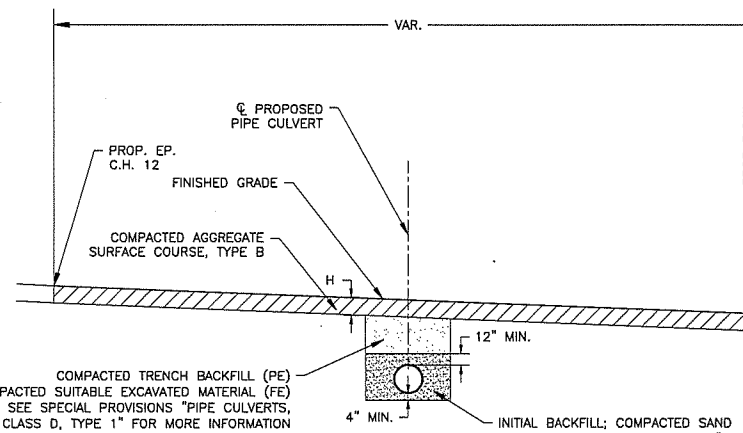
AGGREGATE DITCH (SPECIAL) DETAIL

RT. STA. 2+75 TO 3+85
LT. STA. 4+15 TO 5+28
RT. STA. 4+30 TO 5+50



ENTRANCE DETAIL

RT. STA. 1+60
RT. STA. 6+77



TRENCH DETAIL

THROUGH AGGREGATE OR GRASS SURFACES

NOTES:

1. DIMENSION H = 8" FOR PRIVATE ENTRANCES (PE)

SUMMARY OF QUANTITIES

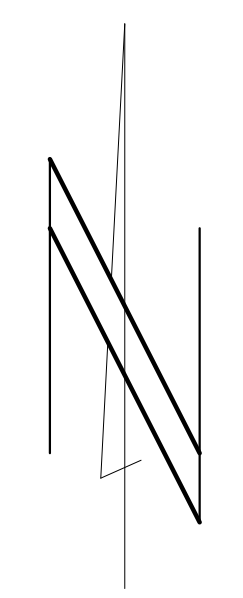
CODE NO.	ITEM	UNIT	QUANTITY
Δ LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	2
X0325834	HORIZONTAL STRIP DRAINS	FOOT	72
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.95
X2830495	AGGREGATE DITCH (SPECIAL)	TON	170
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1
20100110	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	8
20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	144
20200100	EARTH EXCAVATION	CU YD	620
20300100	CHANNEL EXCAVATION	CU YD	665
20400800	FURNISHED EXCAVATION	CU YD	1435
20800150	TRENCH BACKFILL	CU YD	5
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	95
28000305	TEMPORARY DITCH CHECKS	FOOT	175
28000500	INLET AND PIPE PROTECTION	EACH	2
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	760
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	950
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	78
50300225	CONCRETE STRUCTURES	CU YD	32.8
50300280	CONCRETE ENCASMENT	CU YD	3.5
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1680
50800105	REINFORCEMENT BARS	POUND	4200
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	124
51201600	FURNISHING STEEL PILES HP12X53	FOOT	585
51202305	DRIVING PILES	FOOT	585
51203600	TEST PILE STEEL HP12X53	EACH	1
51204650	PILE SHOES	EACH	9
51500100	NAME PLATES	EACH	1
54200217	PIPE CULVERTS, CLASS D, TYPE 1 12"	FOOT	56
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	44
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	60
Δ 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
67100100	MOBILIZATION	L. SUM	1
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4

Δ SPECIALTY ITEMS

DESIGN DATA

MAJOR COLLECTOR
ADT = 275

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	3
CONTRACT NO. 95854		ILLINOIS	PROJECT 32KM(542)	



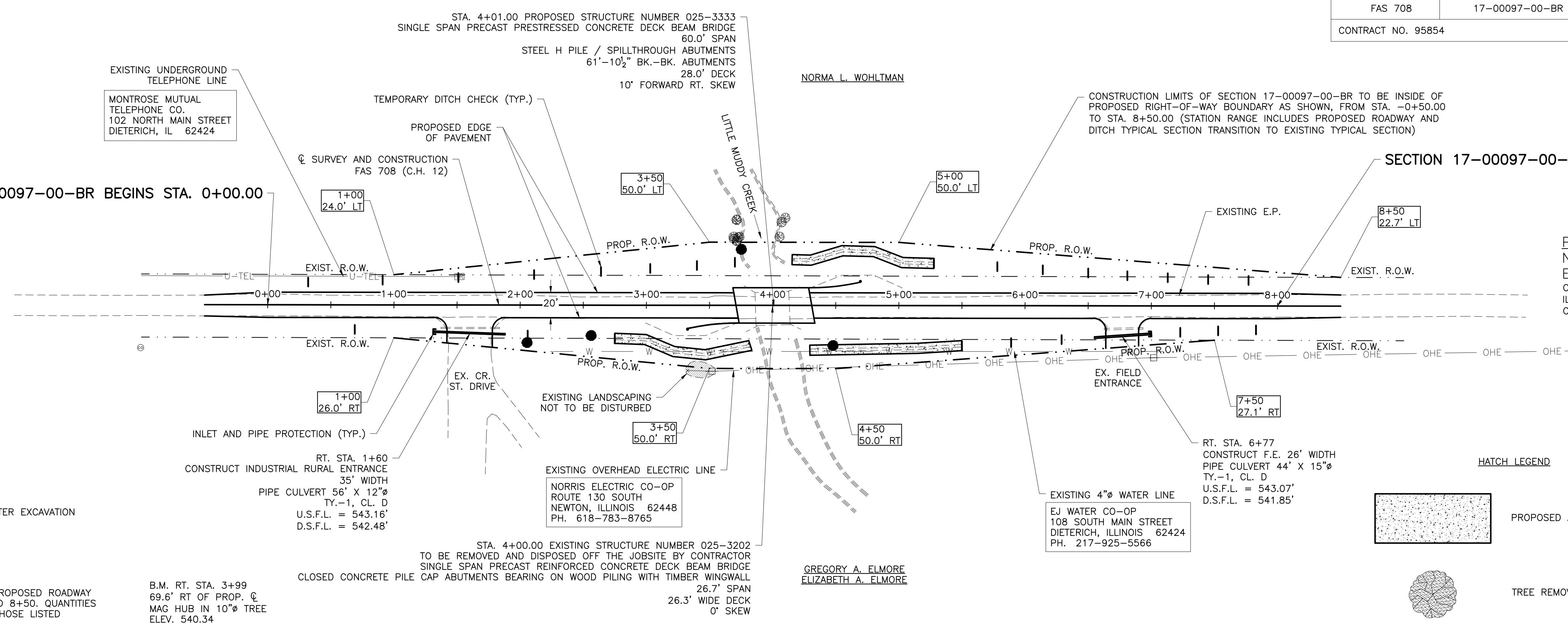
SCALES:
1" = 50' HOR
1" = 5' VER

SECTION 17-00097-00-BR BEGINS STA. 0+00.00

SECTION 17-00097-00-BR ENDS STA. 8+00.00

P.O.T. STA. 0+00.00
N: 828,225.35
E: 968,328.30
COORDINATES BASED ON NAD83 ILLINOIS EAST STATE PLANE COORDINATE SYSTEM

P.O.T. STA. 8+00.00
N: 828,207.37
E: 969,128.10
COORDINATES BASED ON NAD83 ILLINOIS EAST STATE PLANE COORDINATE SYSTEM



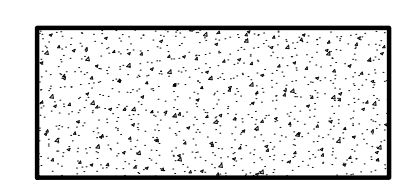
NOTE: PLACE RIPRAP IN DITCHES AFTER EXCAVATION

TRANSITION EXISTING ROADWAY TO PROPOSED ROADWAY STA. -0+50 TO 0+00 AND 8+00 TO 8+50. QUANTITIES FOR THE ABOVE ARE INCLUDED IN THOSE LISTED

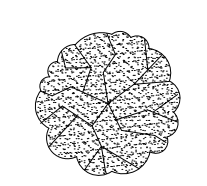
B.M. RT. STA. 3+99
69.6' RT OF PROP. C
MAG HUB IN 10" TREE
ELEV. 540.34

STA. 4+00.00 EXISTING STRUCTURE NUMBER 025-3202 TO BE REMOVED AND DISPOSED OFF THE JOBSITE BY CONTRACTOR SINGLE SPAN PRECAST REINFORCED CONCRETE DECK BEAM BRIDGE CLOSED CONCRETE PILE CAP ABUTMENTS BEARING ON WOOD PILING WITH TIMBER WINGWALL 26.7' SPAN 26.3' WIDE DECK 0' SKEW

HATCH LEGEND

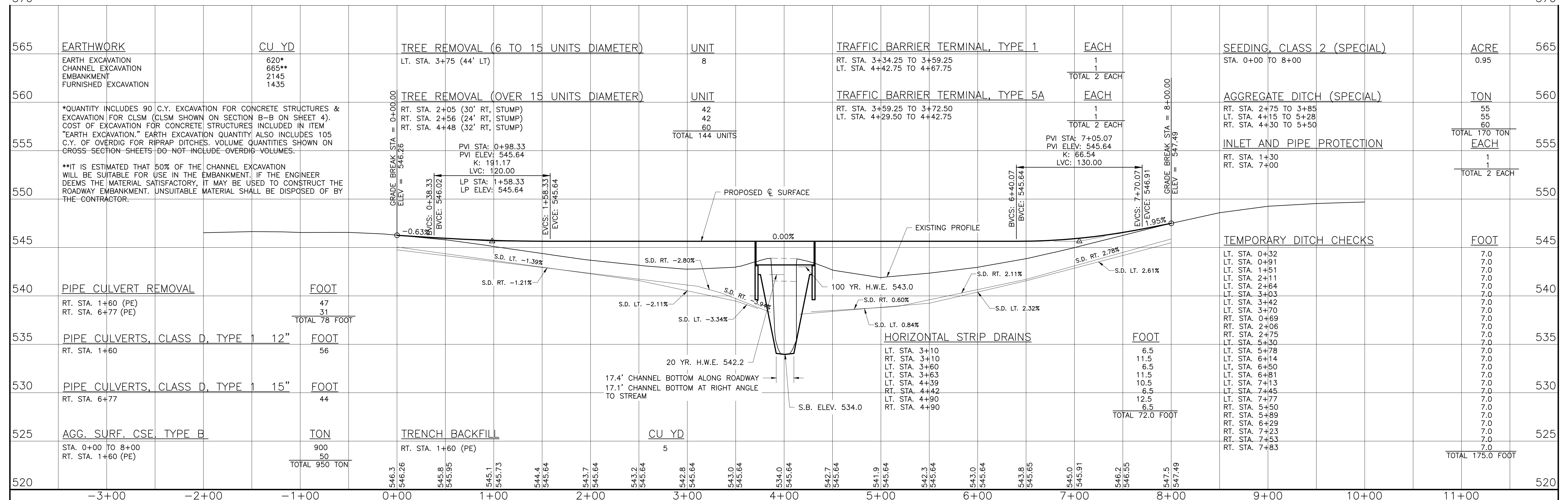


PROPOSED AGGREGATE DITCH (SPECIAL)



TREE REMOVAL

NO.	DESCRIPTION	UNIT	QUANTITY	NO.	DESCRIPTION	UNIT	QUANTITY
565	EARTHWORK	CU YD		565	TREE REMOVAL (6 TO 15 UNITS DIAMETER)	UNIT	
	EARTH EXCAVATION	620*			TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	
	CHANNEL EXCAVATION	665**					
	EMBANKMENT	2145					
	FURNISHED EXCAVATION	1435					
560				560	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	
					TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	
555	*QUANTITY INCLUDES 90 C.Y. EXCAVATION FOR CONCRETE STRUCTURES & EXCAVATION FOR CLSM (CLSM SHOWN ON SECTION B-B ON SHEET 4). COST OF EXCAVATION FOR CONCRETE STRUCTURES INCLUDED IN ITEM "EARTH EXCAVATION." EARTH EXCAVATION QUANTITY ALSO INCLUDES 105 C.Y. OF OVERDIG FOR RIPRAP DITCHES. VOLUME QUANTITIES SHOWN ON GROSS SECTION SHEETS DO NOT INCLUDE OVERDIG VOLUMES.						
550	**IT IS ESTIMATED THAT 50% OF THE CHANNEL EXCAVATION WILL BE SUITABLE FOR USE IN THE EMBANKMENT. IF THE ENGINEER DEEMS THE MATERIAL SATISFACTORY, IT MAY BE USED TO CONSTRUCT THE ROADWAY EMBANKMENT. UNSUITABLE MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.						
550							
545							
540	PIPE CULVERT REMOVAL	FOOT					
535	PIPE CULVERTS, CLASS D, TYPE 1 12"	FOOT					
530	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT					
525	AGG. SURF. CSE. TYPE B	TON					
520							



B.M.—Rt. Sta. 3+99, Mag Hub in 10"Ø tree, Elev. 540.34.

Existing Structure — Existing structure No. 025-3202 consists of a single span precast reinforced concrete deck beam bridge bearing on closed concrete pile cap abutments bearing on wood piling with timber wingwalls. The bk. of abutments length is 38.0' and the out-to-out deck width is 26.3'. The existing structure shall be completely removed and disposed off the jobsite. Road closure shall be used during construction.

No Salvage — See Special Provisions; "Removal of Existing Structures."

Transition guardrail from bridge rail height (23" top of deck beam to centerline railing) to Traffic Barrier Terminal Type 5A height (21" finished ground line to centerline terminal railing)

Traffic Barrier Terminal Type 1, Rt. Sta. 3+34.25 to 3+59.25 & Lt. Sta. 4+42.75 to 4+67.75 with Terminal Marker—Direct Applied on Nose.

Traffic Barrier Terminal Type 5A, Rt. Sta. 3+59.25 to 3+72.50 & Lt. Sta. 4+29.50 to 4+42.75.

Curled End Section with Terminal Marker—Direct Applied on Nose. See Sheet 8 for details. Located at Rt. Sta. 4+34 and Lt. Sta. 3+68.

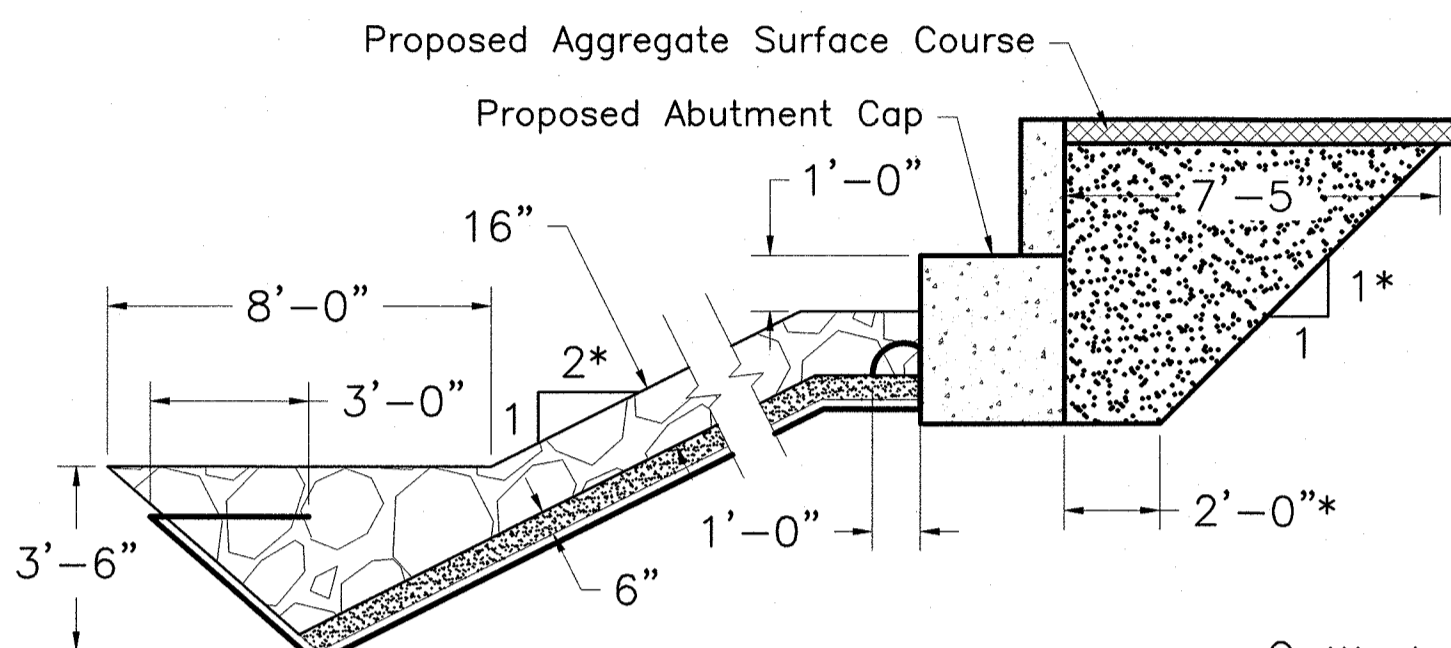
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	4
CONTRACT 95854		ILLINOIS	PROJECT 32KM(542)	

GENERAL NOTES

- Do not scale sheets 4-11.
- The Contractor shall drive the test pile to 110% of the nominal required bearing specified in production locations at the East Abutment or as approved by the Engineer before ordering the remainder of piles. The test pile shall be equipped with a steel pile shoe, and the cost of the pile shoe shall be included in item Test Pile Steel HP 12 X 53.
- See Sheet 11 for boring logs.
- Excavation required to construct the Abutments shall be included in the cost of Earth Excavation. No additional compensation will be allowed for Structure Excavation.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- The cost of the bedding material shall be included in the cost of the Stone Dumped Riprap, Class A4 (per the Standard Specifications) and no additional compensation will be allowed. The estimated quantity for the bedding material is 180 tons (For information only). See Special Provisions for more information.
- Toe stone riprap treatment as shown in Section A-A shall extend entire channel length from proposed R.O.W. north to proposed R.O.W. south.
- 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.

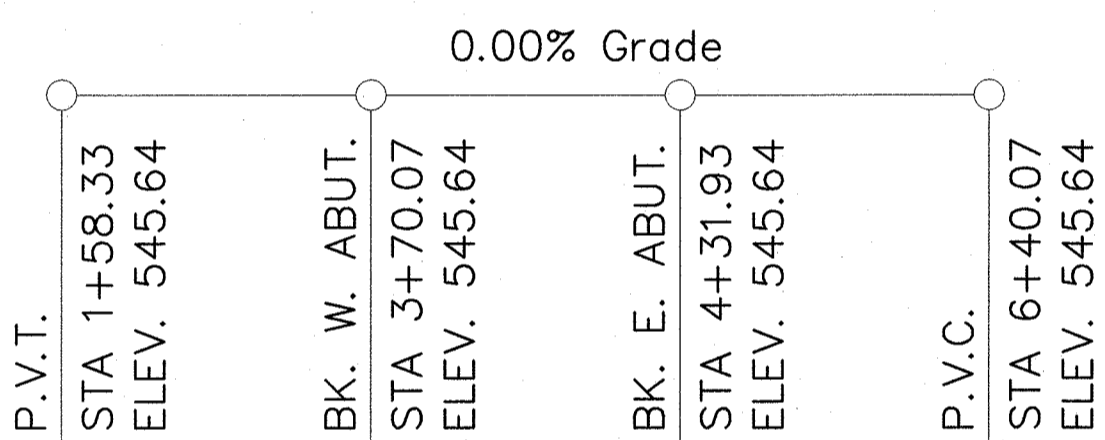
TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yd.	-	-	665	665
Stone Dumped Riprap, Class A4	Tons	-	-	760	760
Controlled Low-Strength Material	Cu. Yd.	-	-	60	60
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	-	32.8	32.8
Concrete Encasement	Cu. Yd.	-	-	3.5	3.5
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1680	-	-	1680
Reinforcement Bars	Pound	-	-	4200	4200
Steel Railing, Type S1	Foot	124	-	-	124
Furnishing Steel Piles HP 12 X 53	Foot	-	-	585	585
Driving Piles	Foot	-	-	585	585
Test Pile Steel HP 12 X 53	Each	-	-	1	1
Pile Shoes	Each	-	-	9	9
Name Plates	Each	-	-	1	1
Terminal Marker — Direct Applied	Each	4	-	-	4



SECTION B-B

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



PROFILE GRADE

(along centerline roadway)

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $F_y = 60,000$ psi (reinforcement)

PRECAST PRESTRESSED UNITS

$f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $F'_s = 270,000$ psi ($\frac{1}{2}$ " low relax. strands)
 $F_{si} = 201,960$ psi ($\frac{1}{2}$ " low relax. strands)

DESIGN SPECIFICATIONS

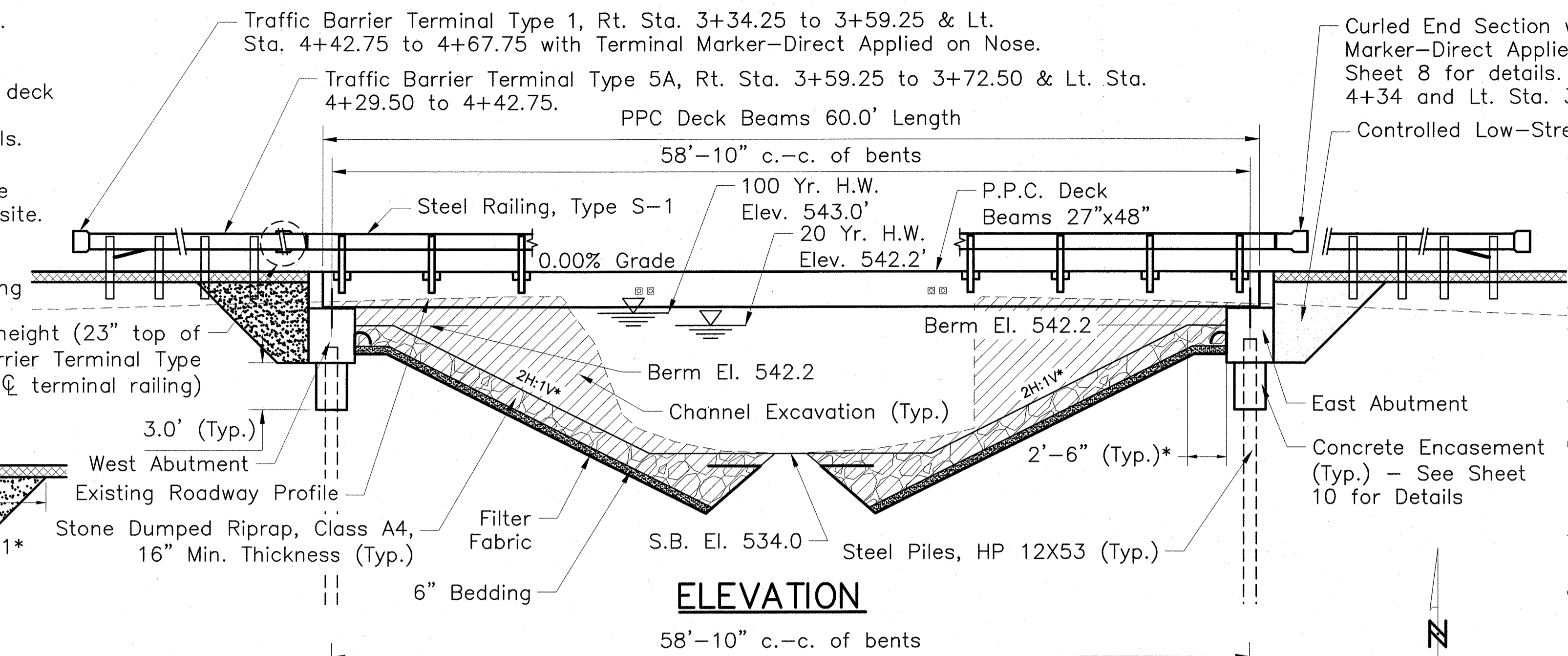
AASHTO LRFD Bridge Design Specifications — 7th edition

SEISMIC DATA

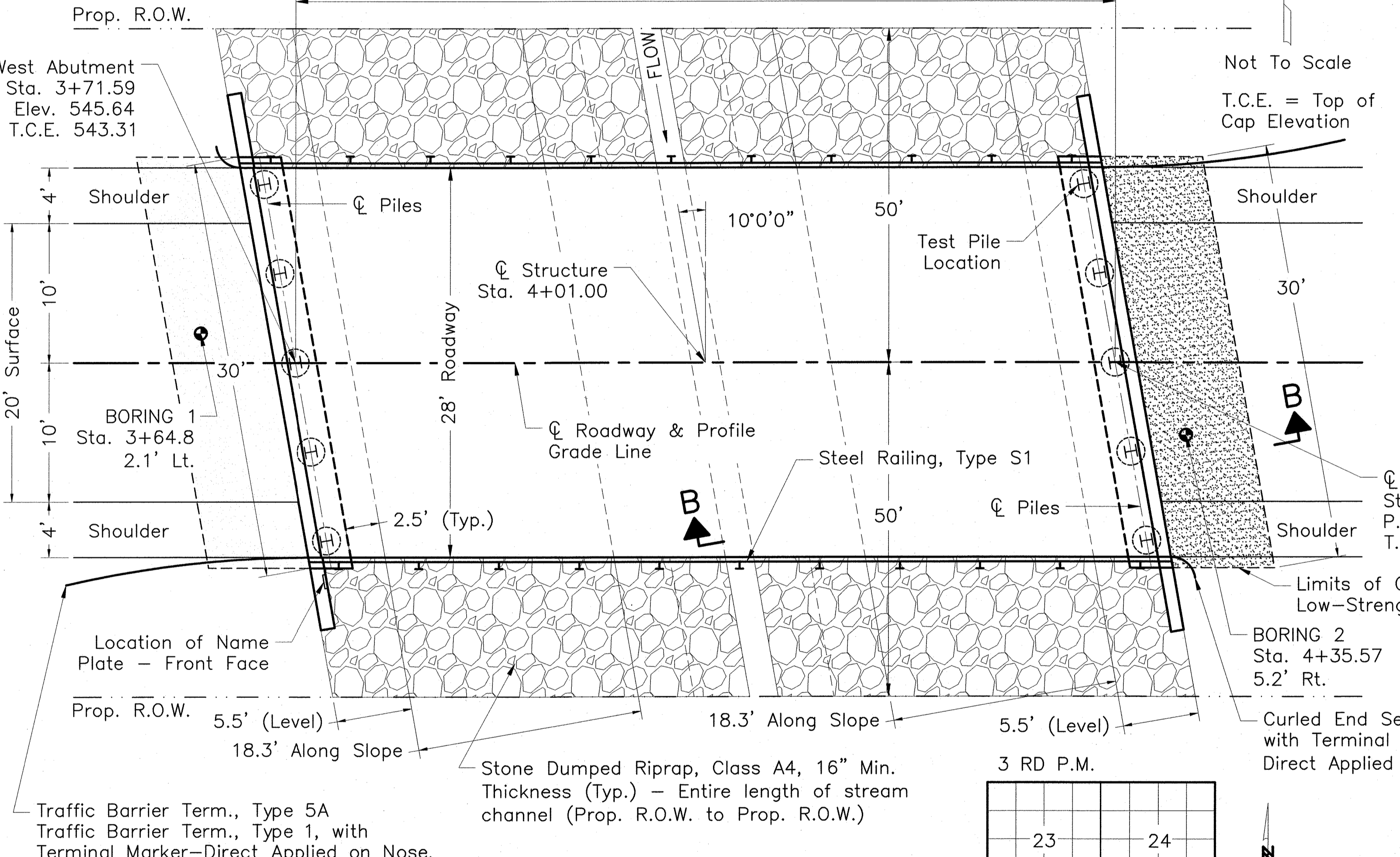
Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.163g
Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.413g
Soil Site Class = C

PILE DATA (2-ABUTS.)

Type	HP 12 X 53
Nominal Required Bearing	418 kips
Factored Resistance Available	230 kips
Estimated Pile Length	65 Feet — Both Abutments
Number of Production Piles	5 — West Abutment 4 — East Abutment
Number of Test Piles	1 — East Abutment



ELEVATION



PLAN

Skew Angle = 10° Forward Right

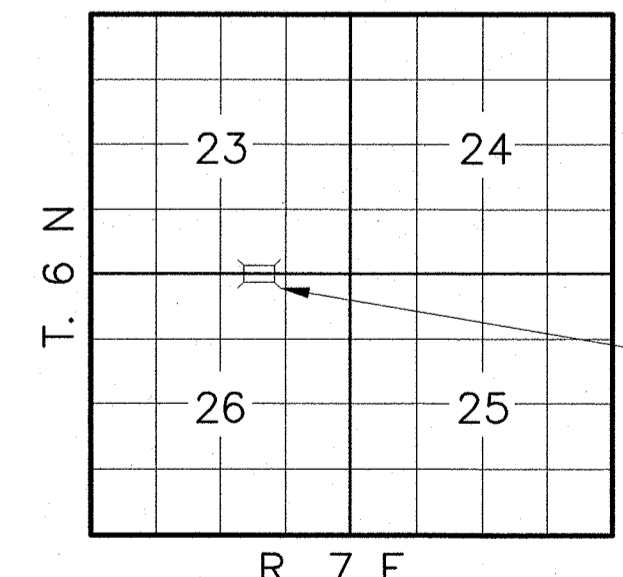
LOADING HL-93

50#/sq. ft. included in dead load for future wearing surface.

CH-12 STATION 4+01.00
LITTLE MUDDY CREEK
SEC. 17-00097-00-BR BUILT 201_
EFFINGHAM COUNTY
PROJECT 32KM(542)
LOADING HL-93
STR. NO. 025-3333

LETTERING FOR NAME PLATE

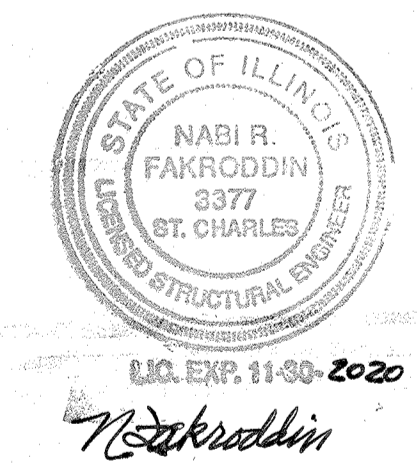
Locate Name Plate at SW Corner of Bridge (See Std. 515001)



LOCATION SKETCH WATERWAY INFORMATION

Drainage Area=3.3 Sq.Mi.		Low Grade Elev = 545.64 Sta. 1+58.33 to 6+40.07							
Flood	Freq. Yr.	Q. C.F.S.	Opening Exist.	Opening Prop.	Nat. H.W.E.	Head Exist.	Head Prop.	Headwater Exist.	Headwater Prop.
Design	20	1060	163.5	243.0	542.2	0.6	0.1	542.8	542.3
Base	100	1560	173.8	280.9	543.0	1.3	0.2	544.3	543.2
Overtopping									
Max. Calc.	500								

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 Standard Specifications for Highway Bridges.



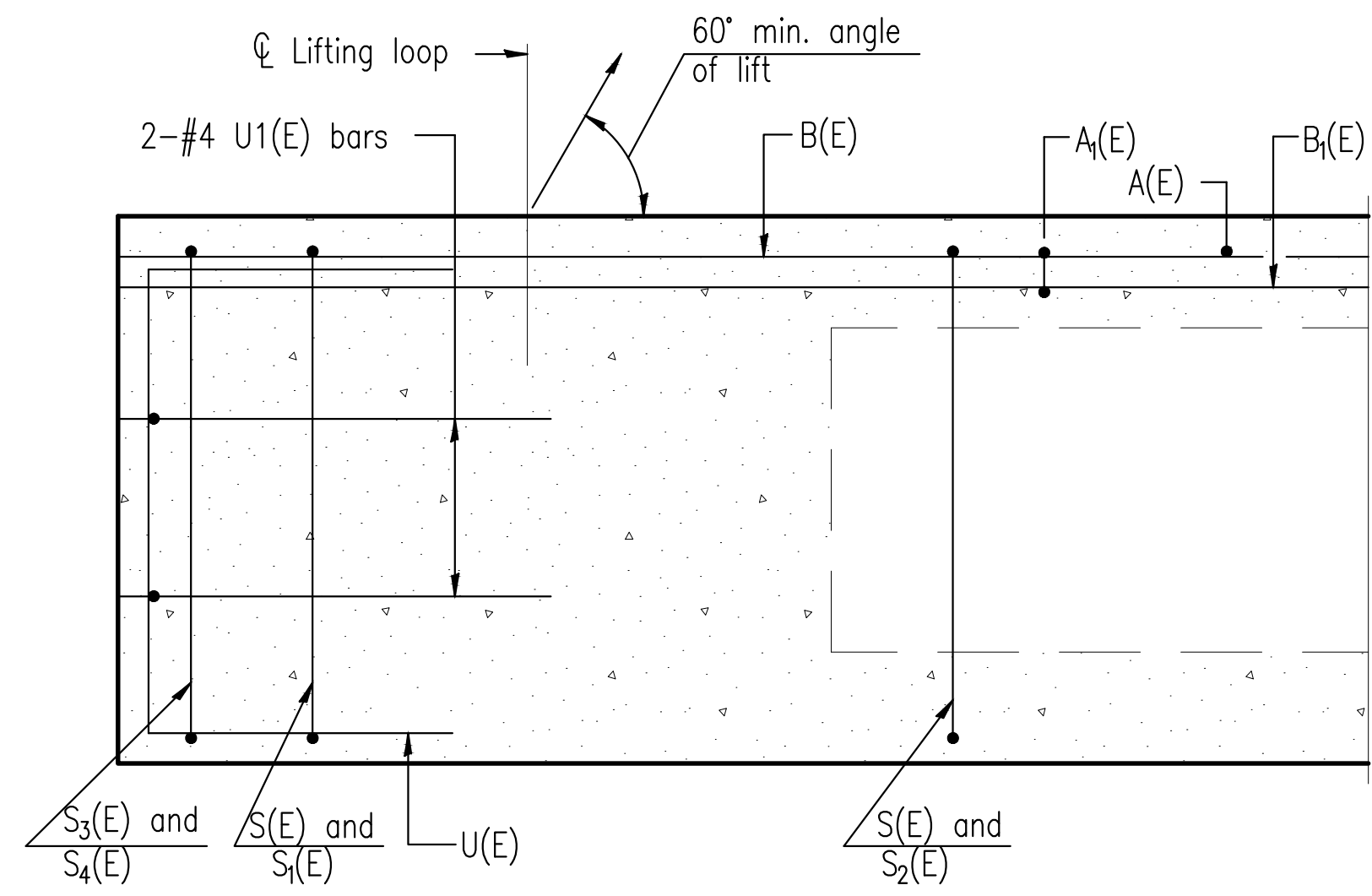
INDEX OF SHEETS

- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing, Type S1
- Steel Railing, Type S1 Details
- Abutment Details
- Pile Details
- Boring Logs

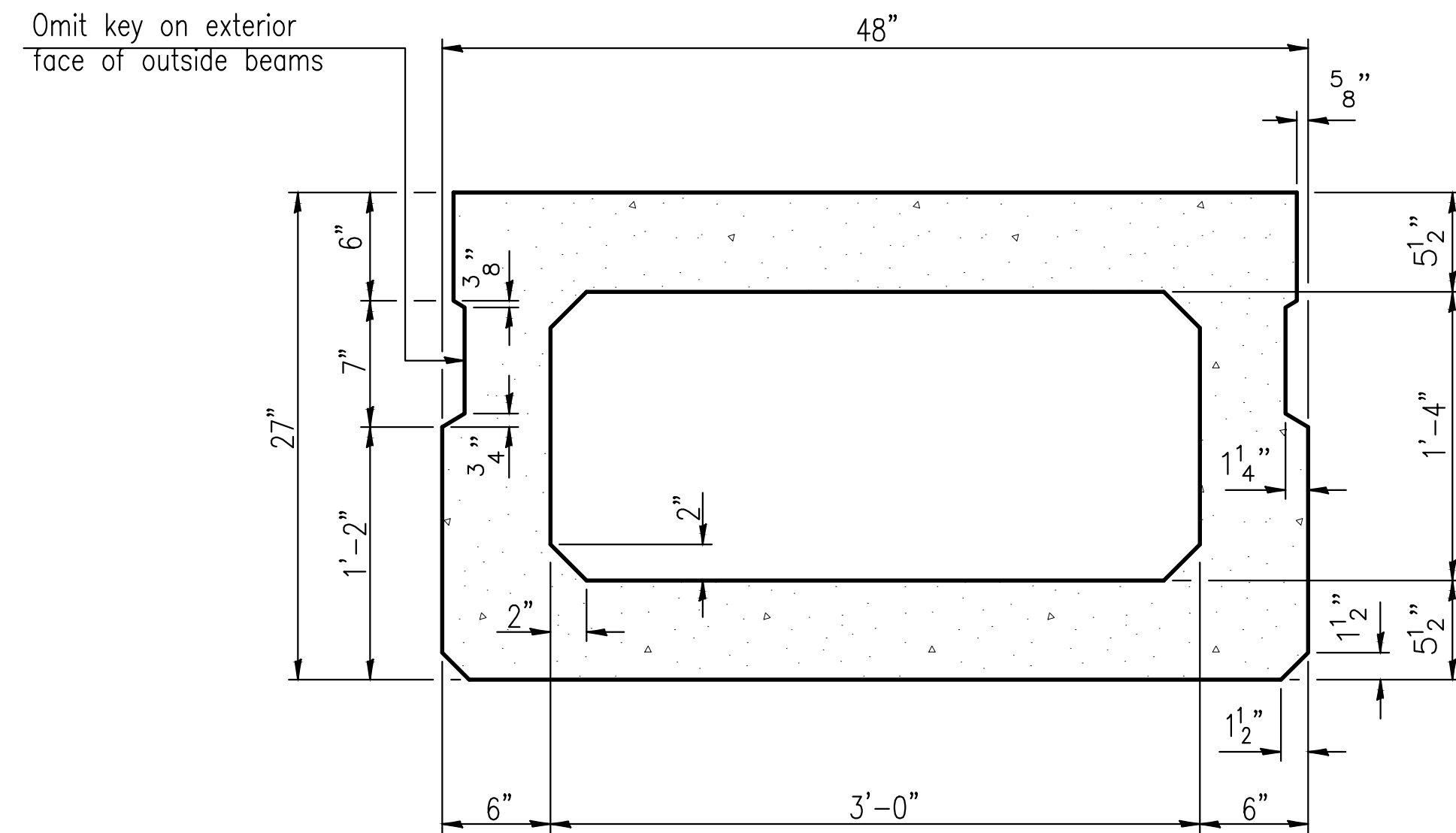
CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
106 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 025-3333
FAS 708 (CH-12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00

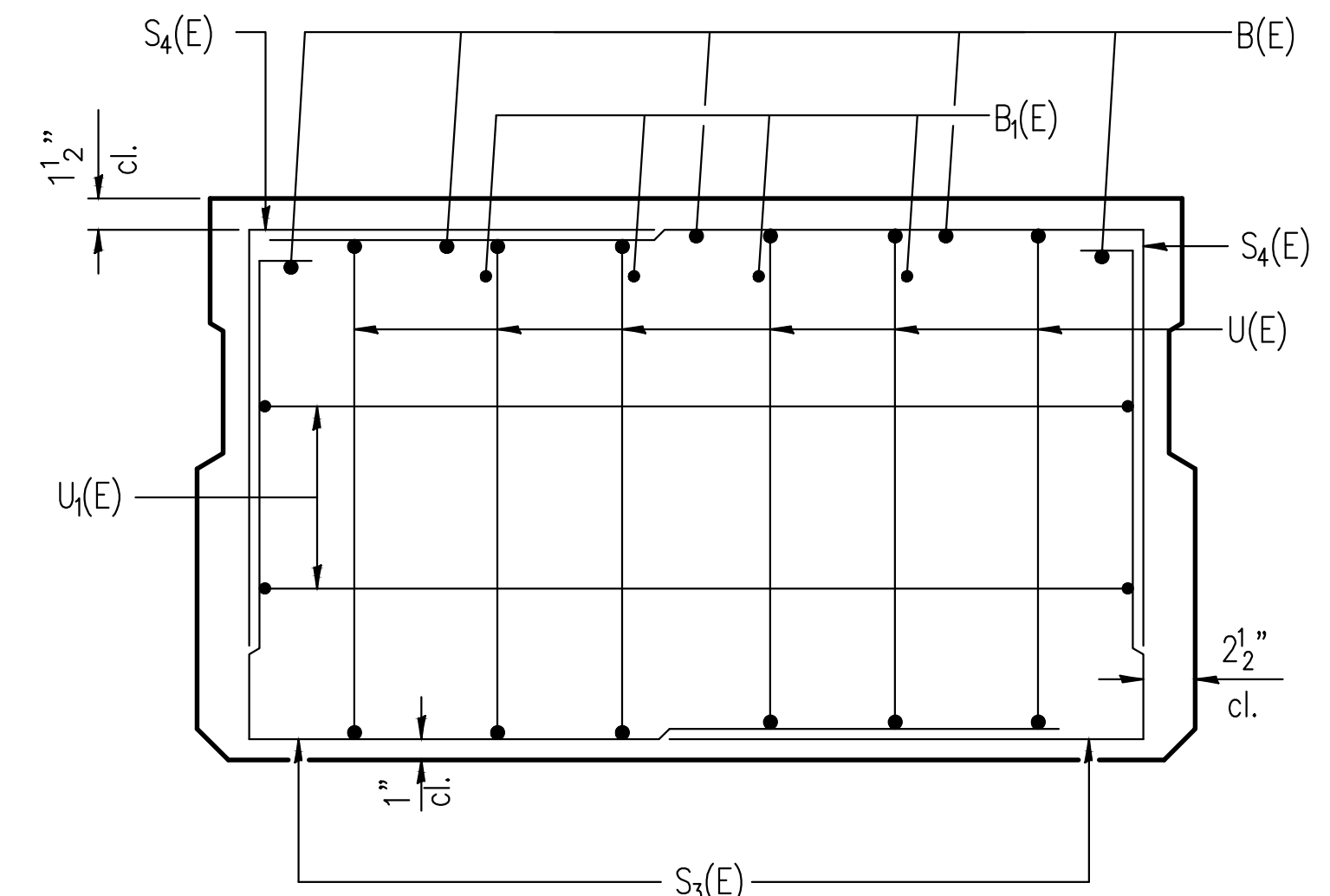
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CONTRACT 95854		ILLINOIS	PROJECT 32KM(542)	



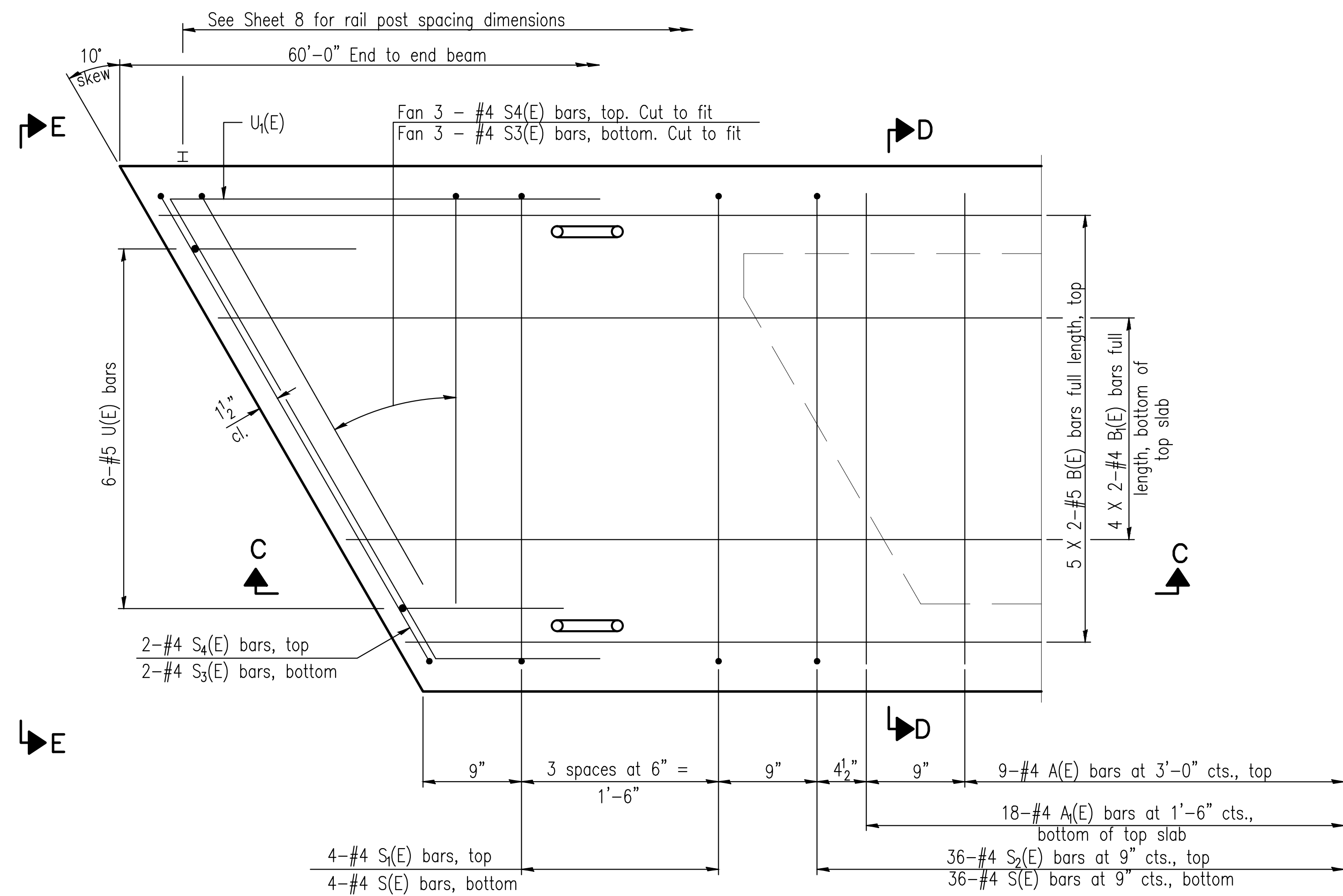
SECTION C-C



SECTION D-D
(Showing dimensions)

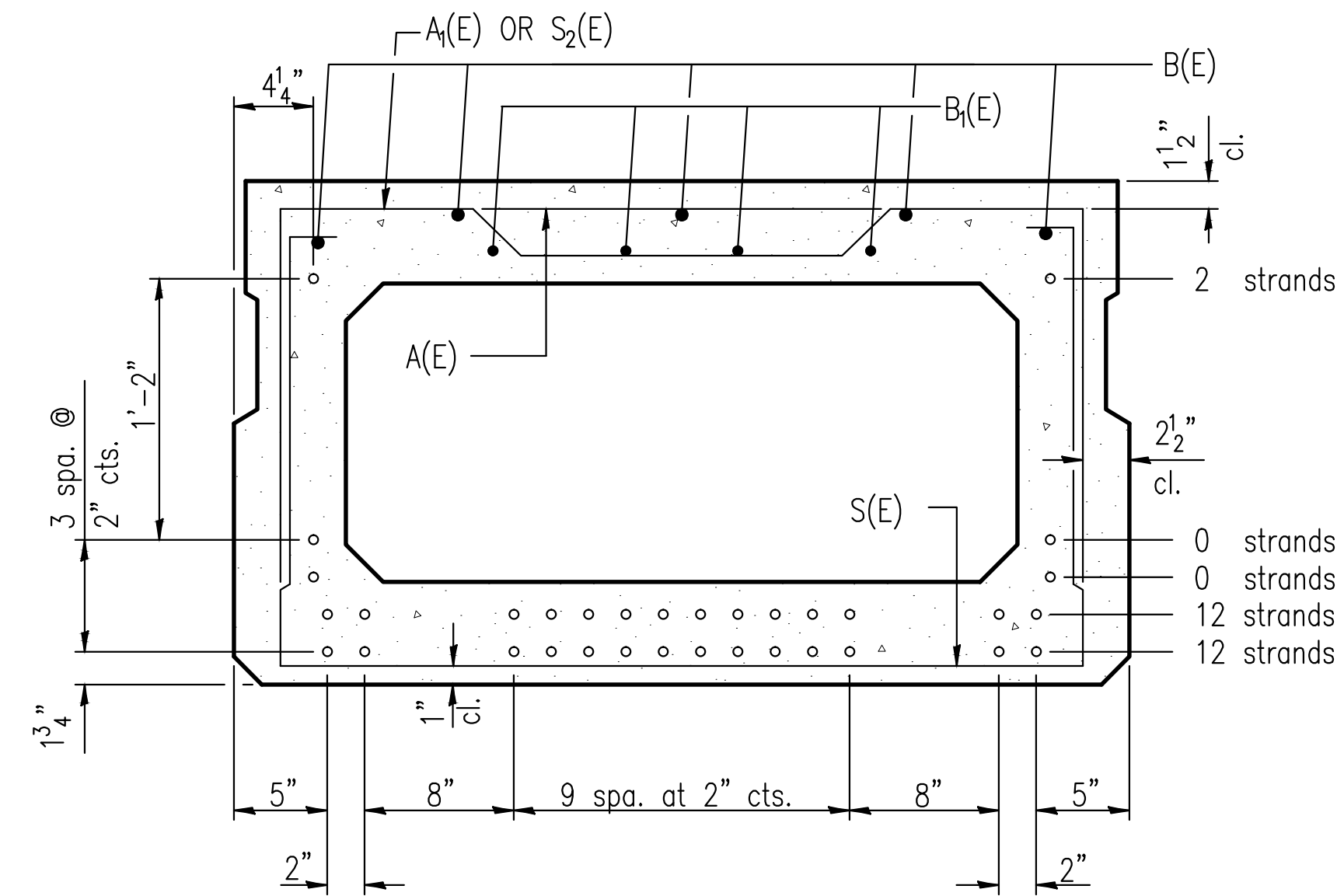


VIEW E-E



PLAN VIEW

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



SECTION D-D

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

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

BAR LIST ONE BEAM ONLY
(For information only)

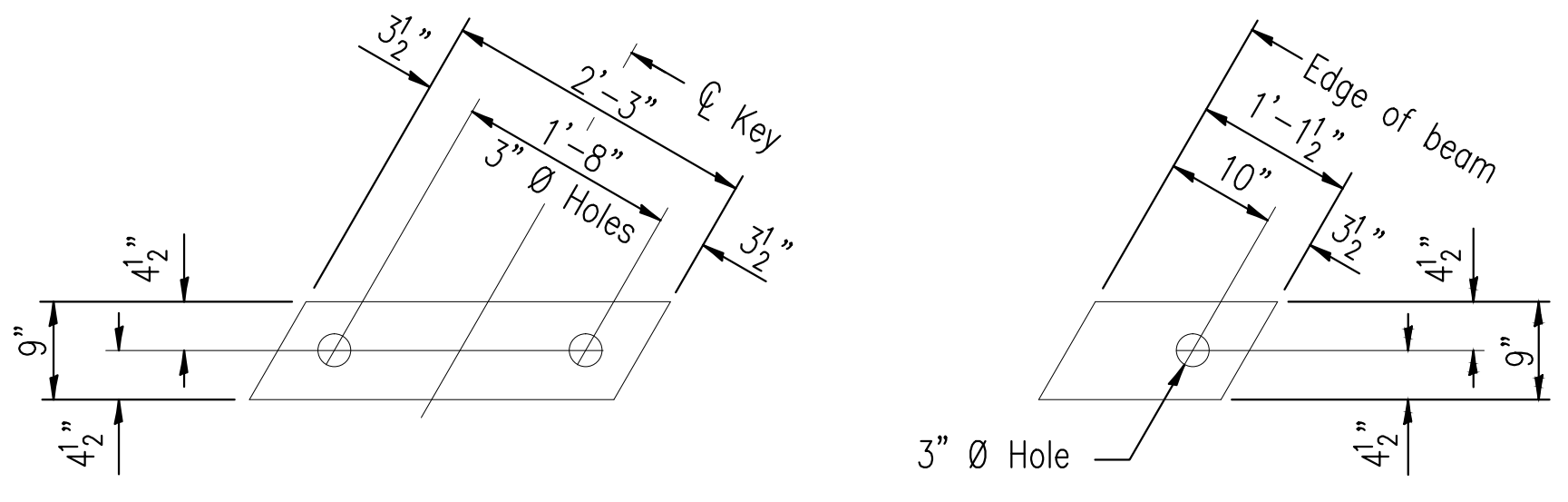
Bar	No.	Size	Length	Shape
A(E)	18	#4	3'-7"	—
A1(E)	36	#4	3'-10"	—
B(E)	10	#5	31'-2"	—
B1(E)	8	#4	31'-2"	—
S(E)	80	#4	8'-5"	U
S1(E)	8	#4	6'-11"	U
S2(E)	72	#4	7'-2"	U
S3(E)	10	#4	6'-1"	U
S4(E)	10	#4	5'-4"	U
U(E)	12	#5	4'-6"	U
U1(E)	4	#4	6'-8"	U

Note: See sheet 6 of 16 for additional details and Bill of Material.

CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003613

SUPERSTRUCTURE
STRUCTURE NO. 025-3333
FAS 708 (C.H. 12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00

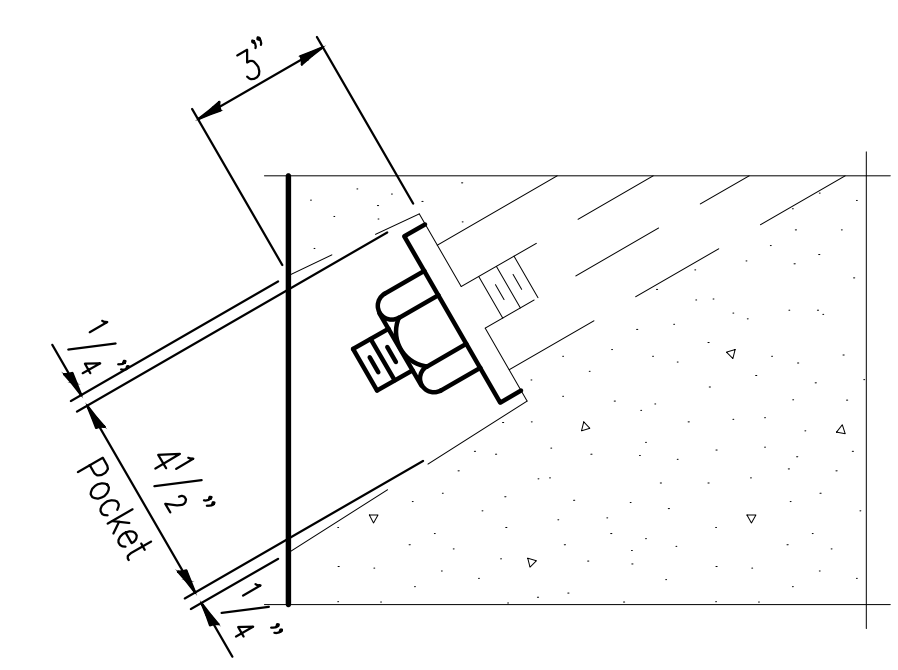
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	6
CONTRACT 95854		ILLINOIS	PROJECT 32KM(542)	



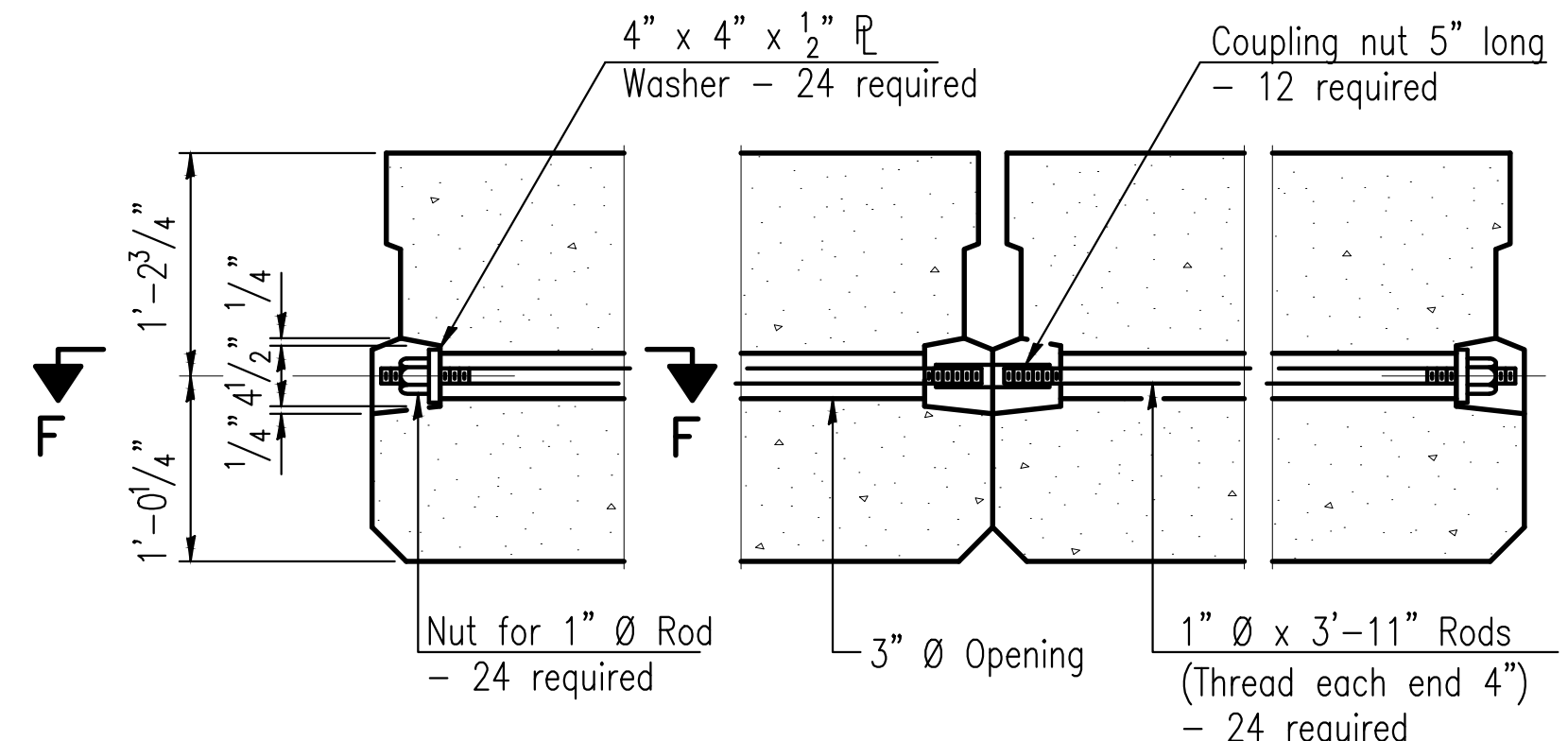
FABRIC BEARING PAD
(Interior)
12 Required

FABRIC BEARING PAD
(Exterior)
4 Required

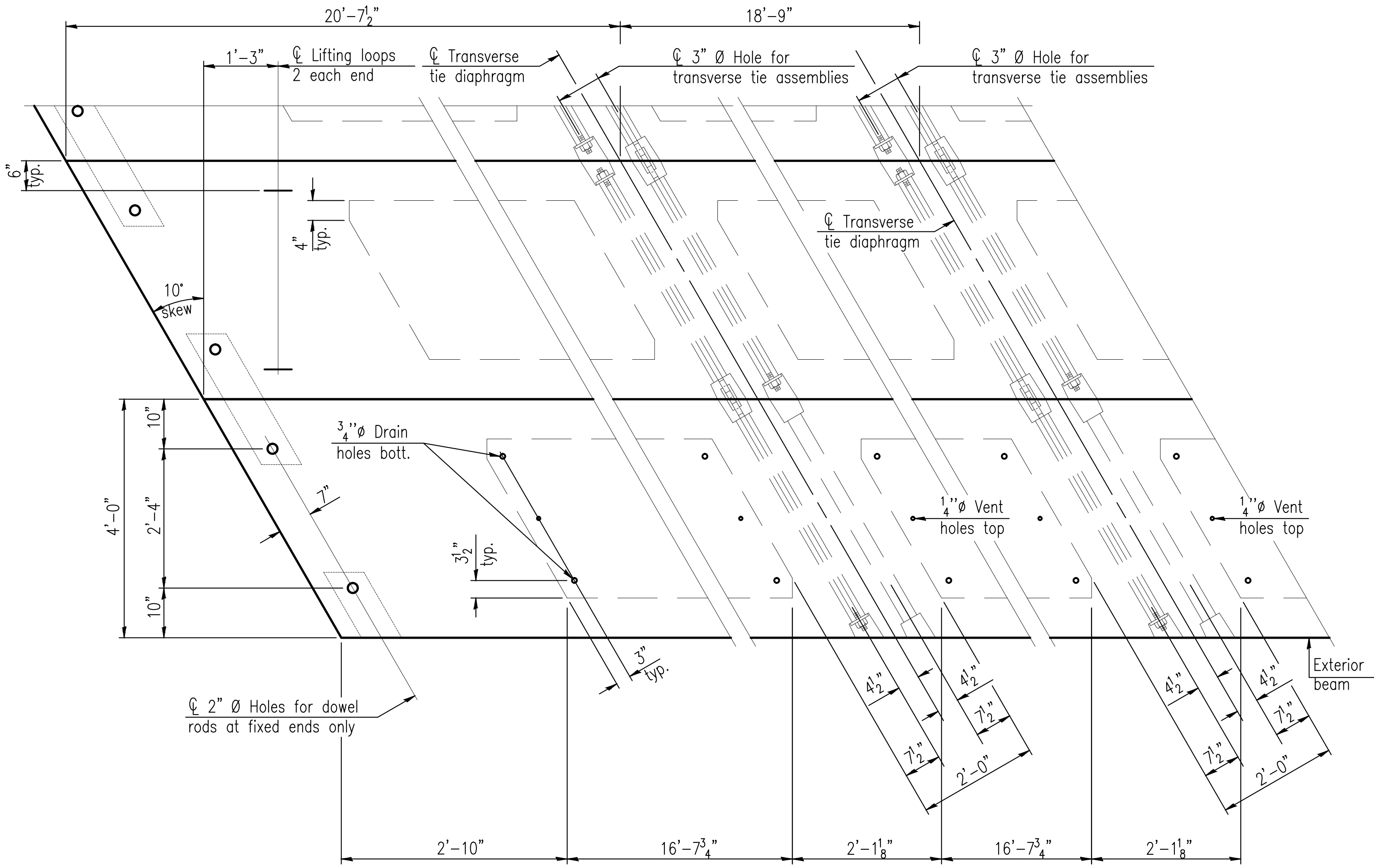
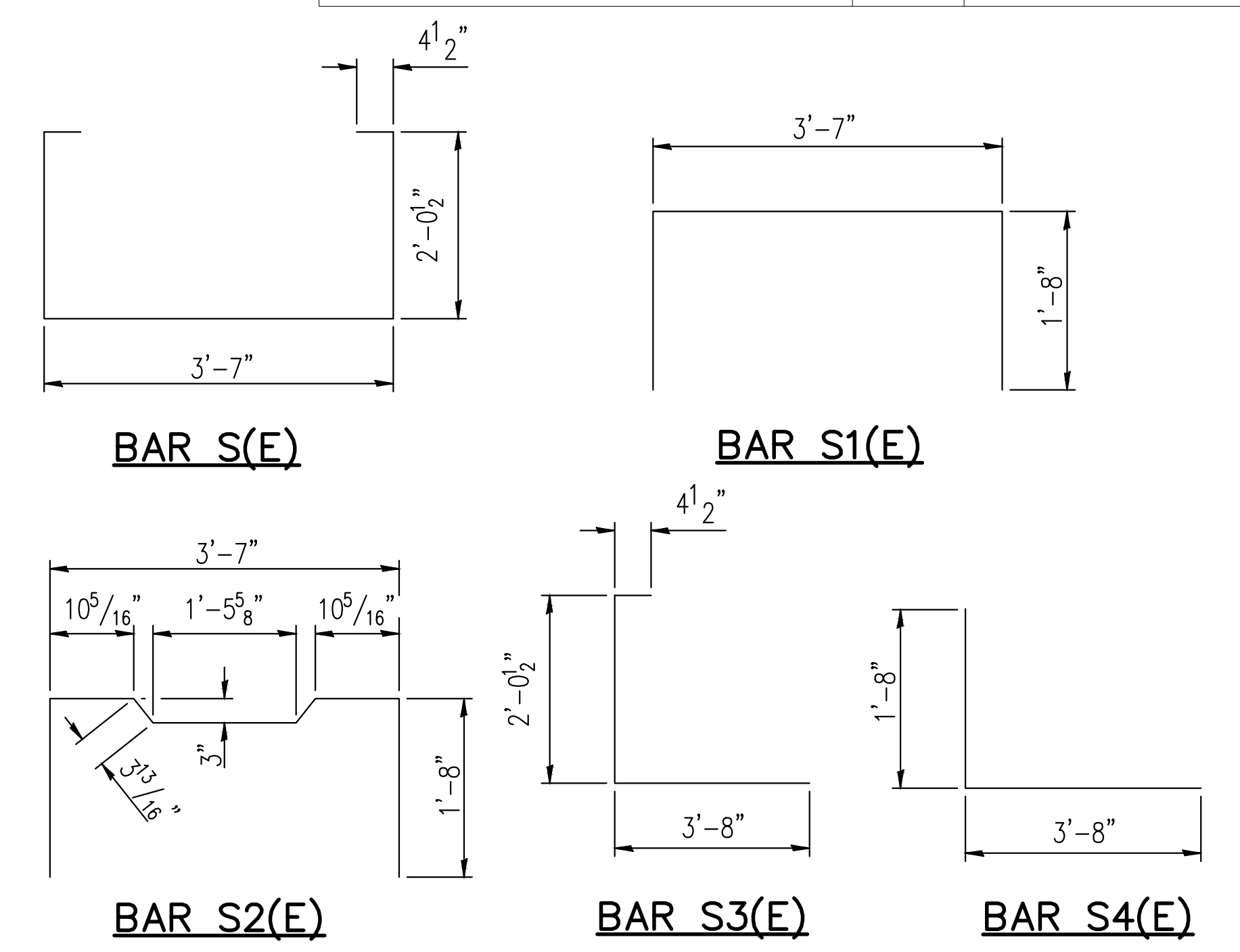
FIXED
Notes:
All bearing pads shall be 1" thick.



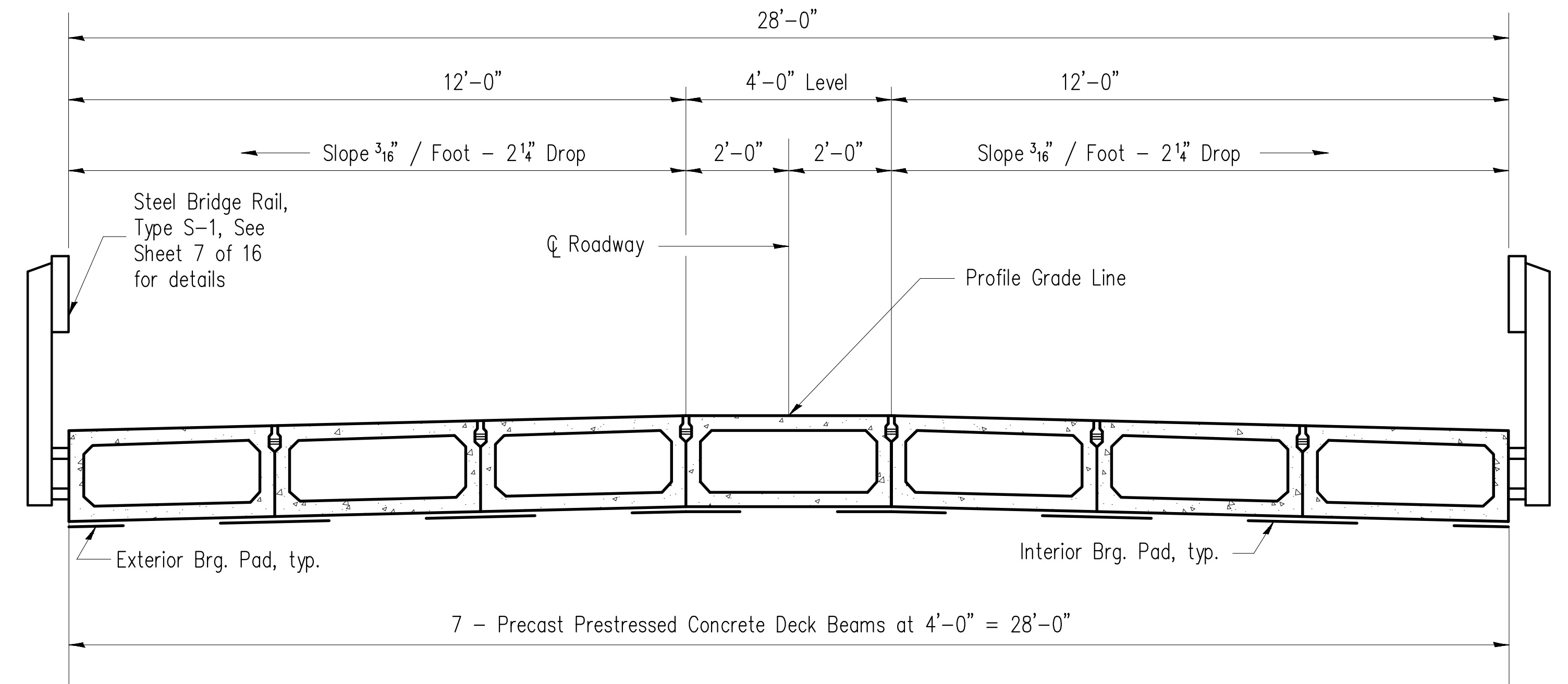
SECTION F-F



TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW



CROSS SECTION

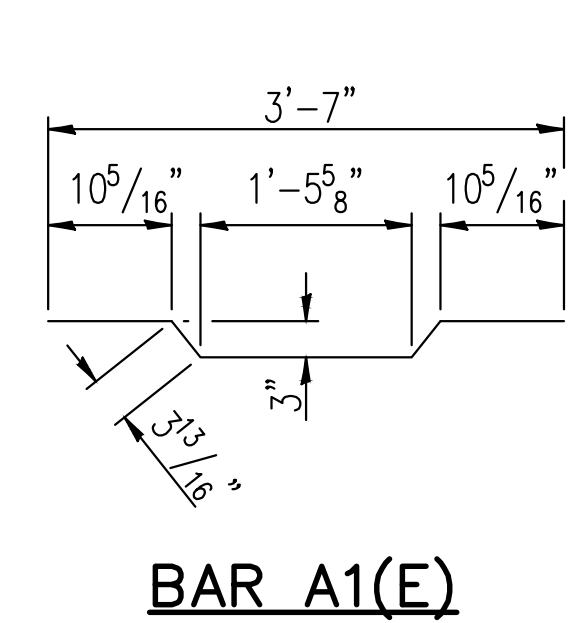
BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1680
---	---------	------

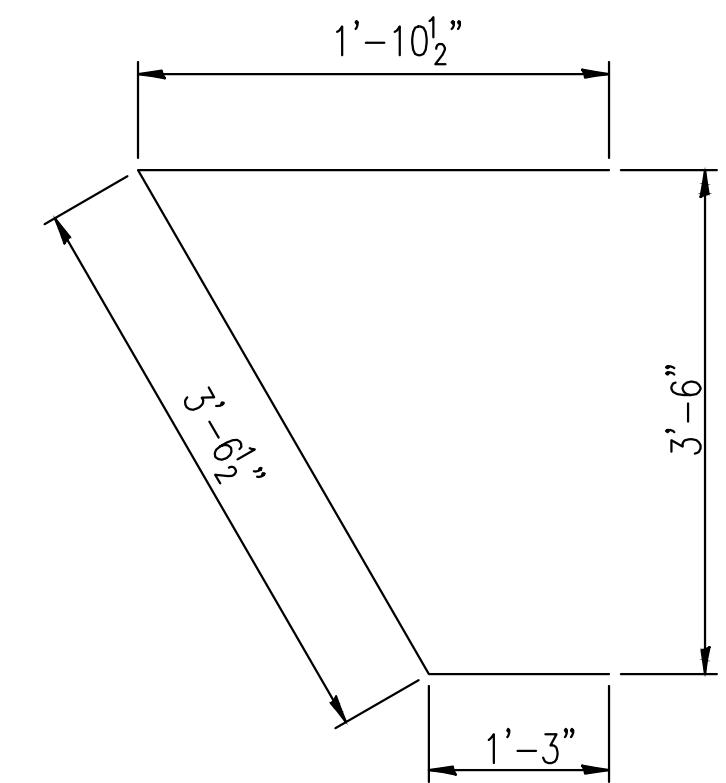
Note: Connect beams in pairs with the transverse tie configuration shown.

NOTES

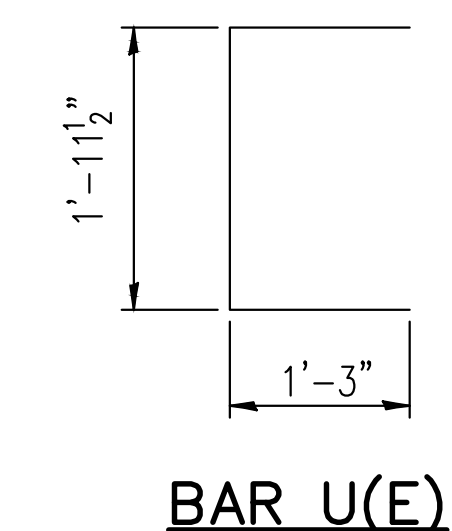
Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior 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 Standard Specifications. Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling. Corrosion Inhibitor, per Article 1020.05(b)(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.



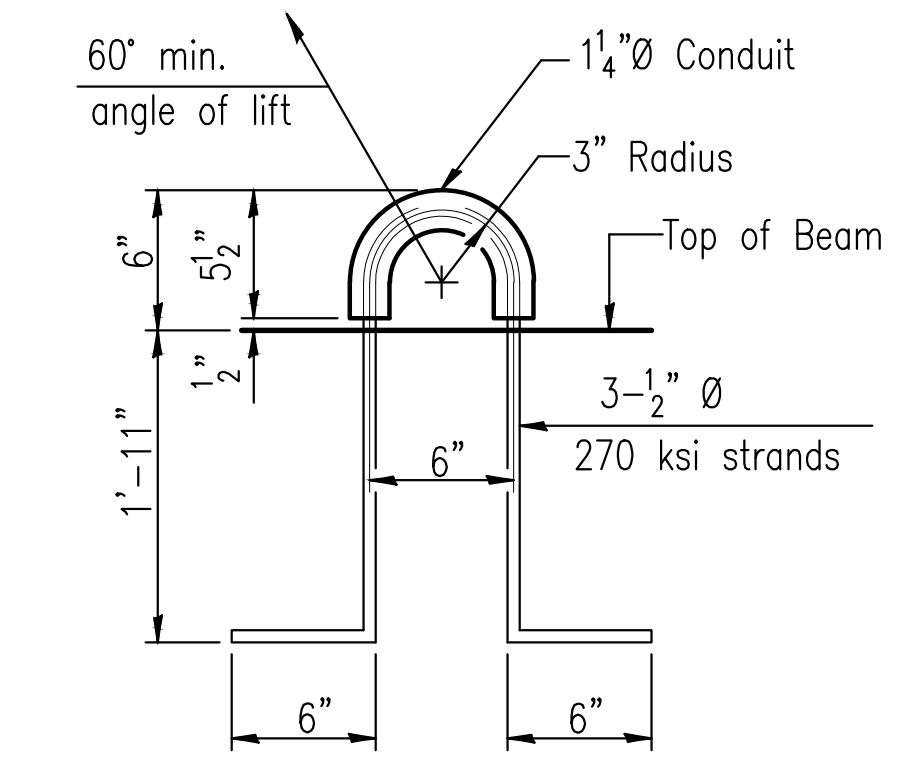
BAR A1(E)



BAR U1(E)



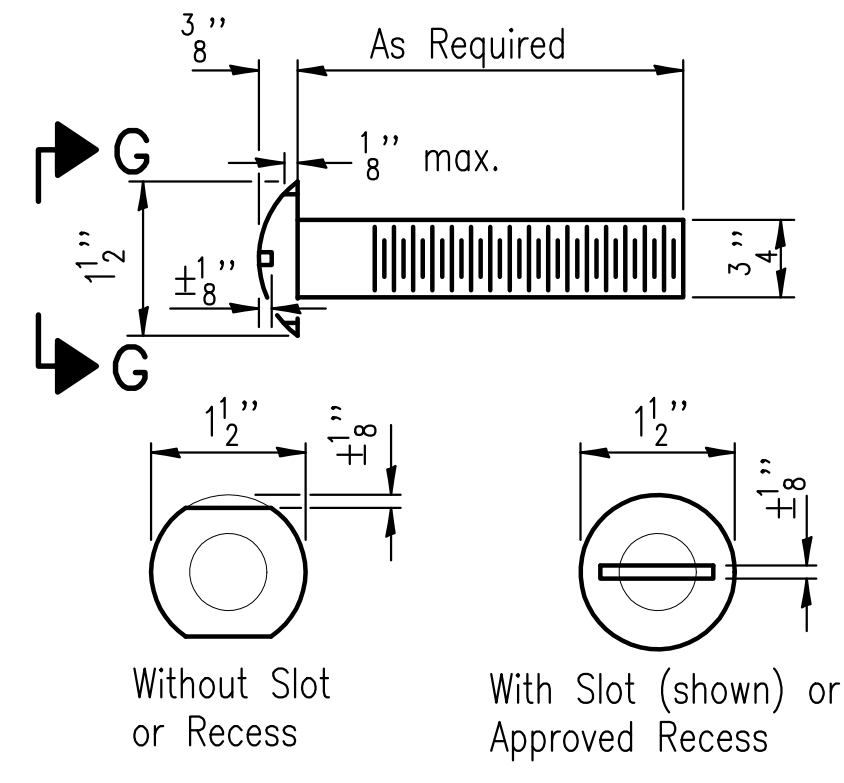
BAR U(E)



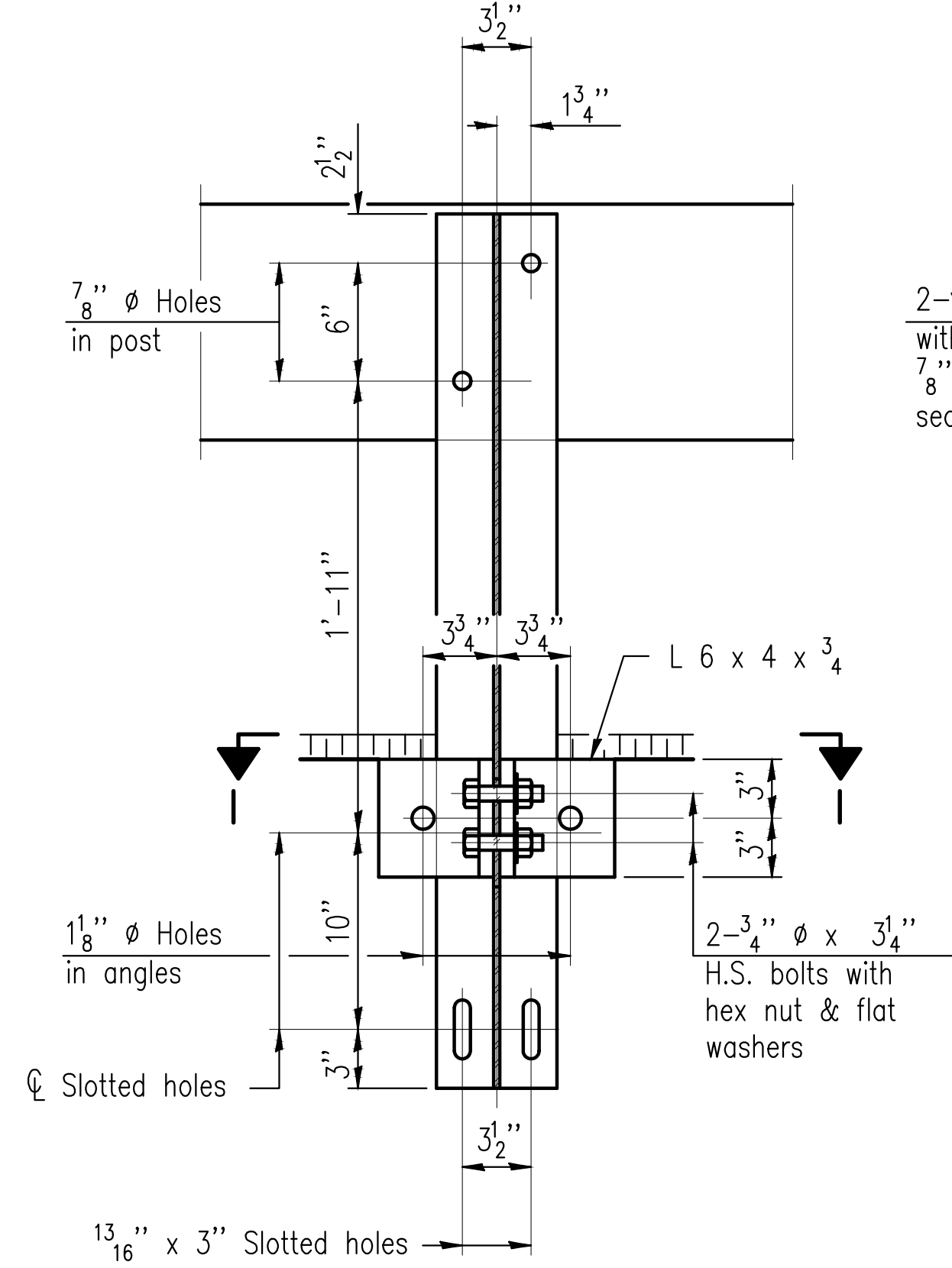
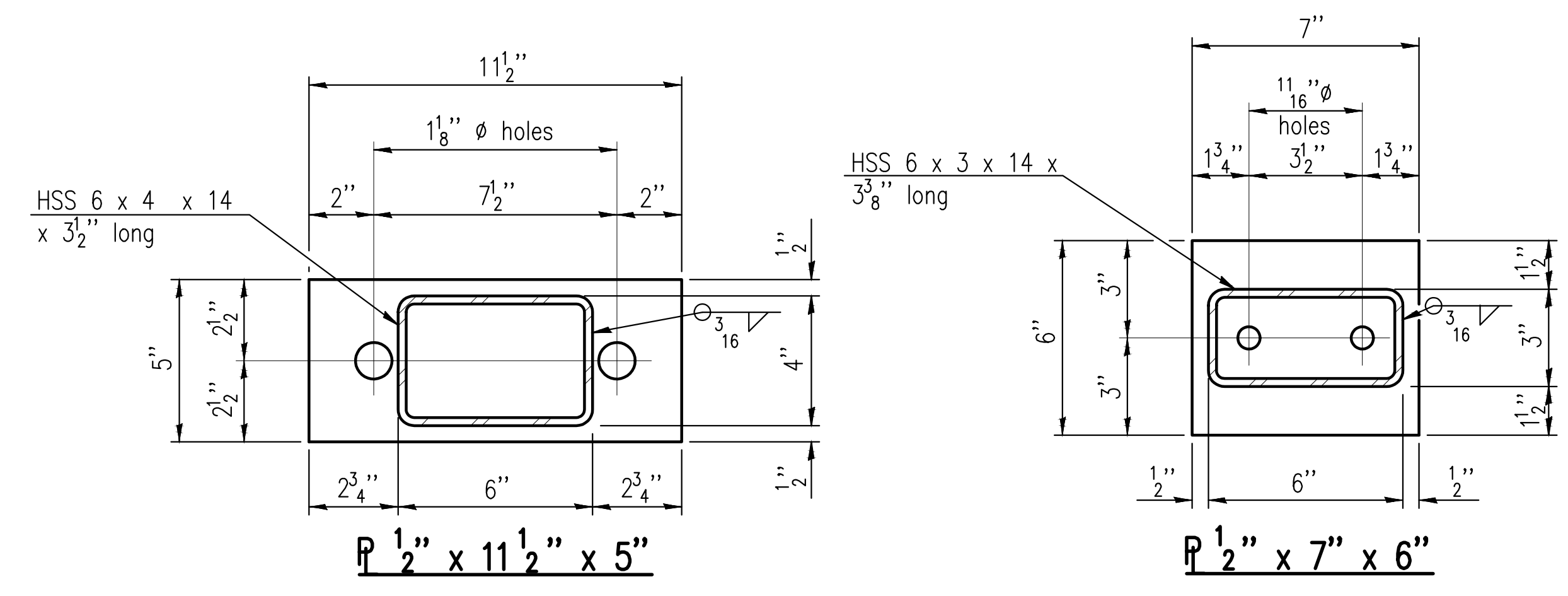
LIFTING LOOP DETAIL

CHARLESTON ENGINEERING, INC.
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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003613

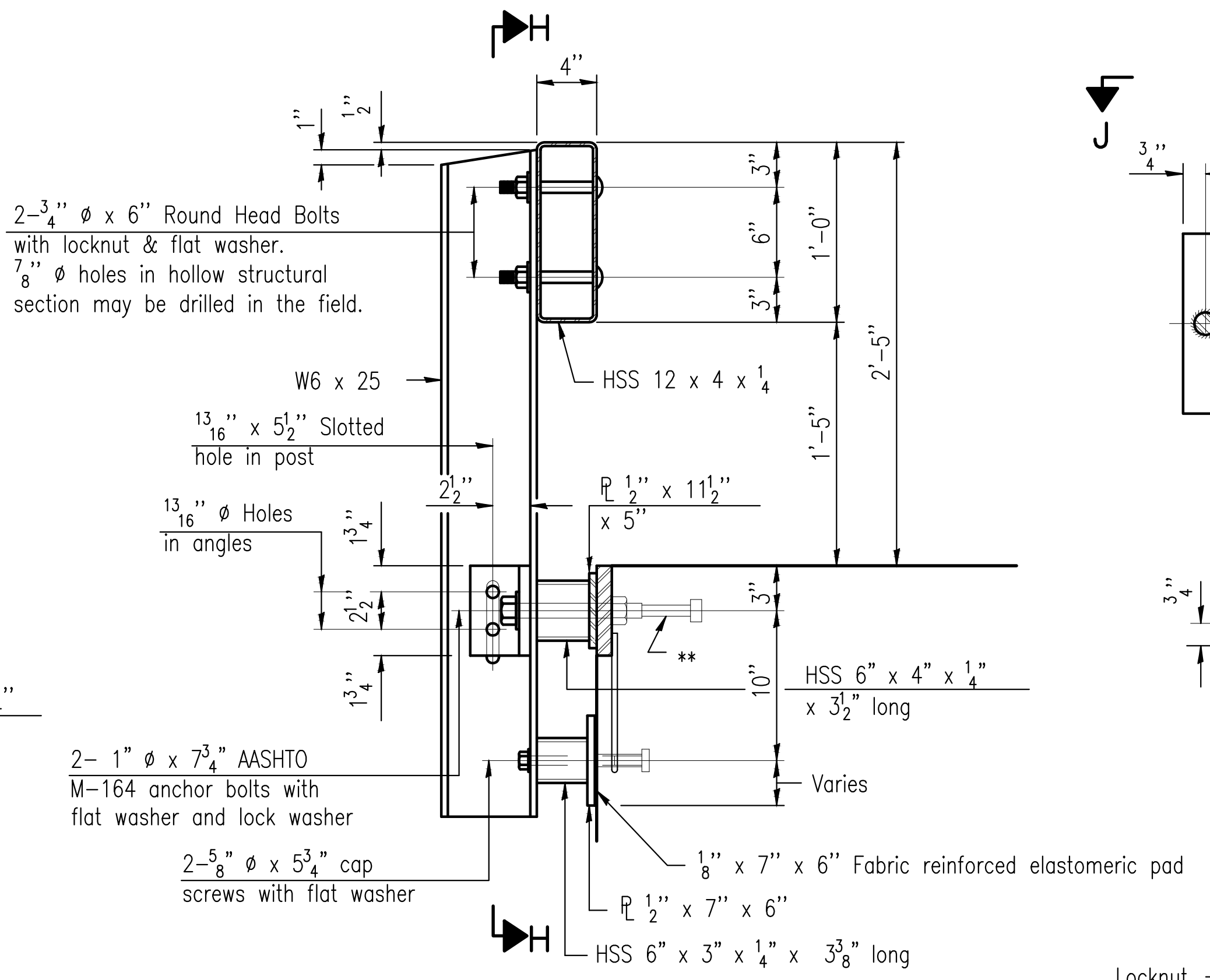
SUPERSTRUCTURE DETAILS
STRUCTURE NO. 025-3333
FAS 708 (C.H. 12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00



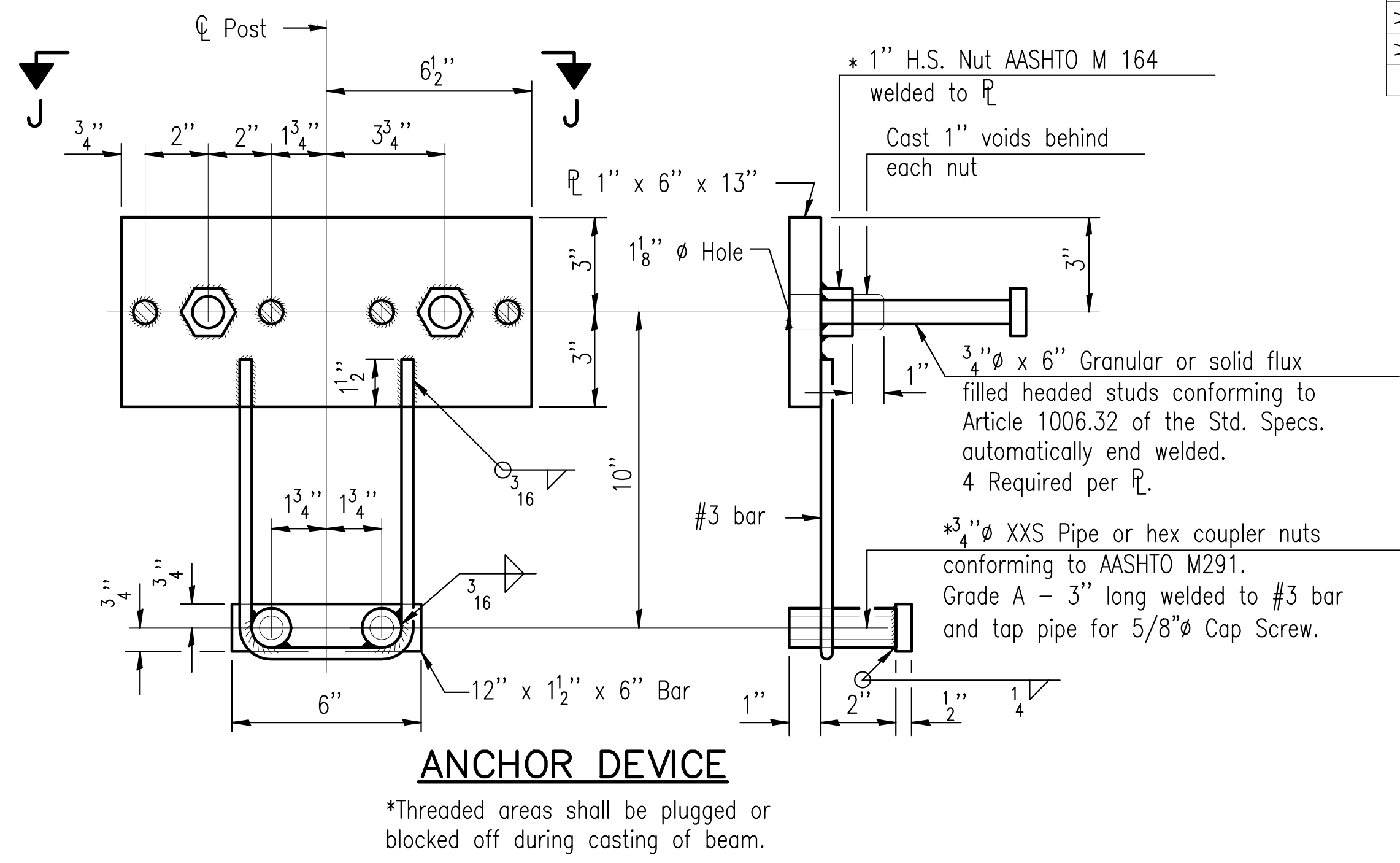
**VIEW G-G
ROUND HEAD BOLT**



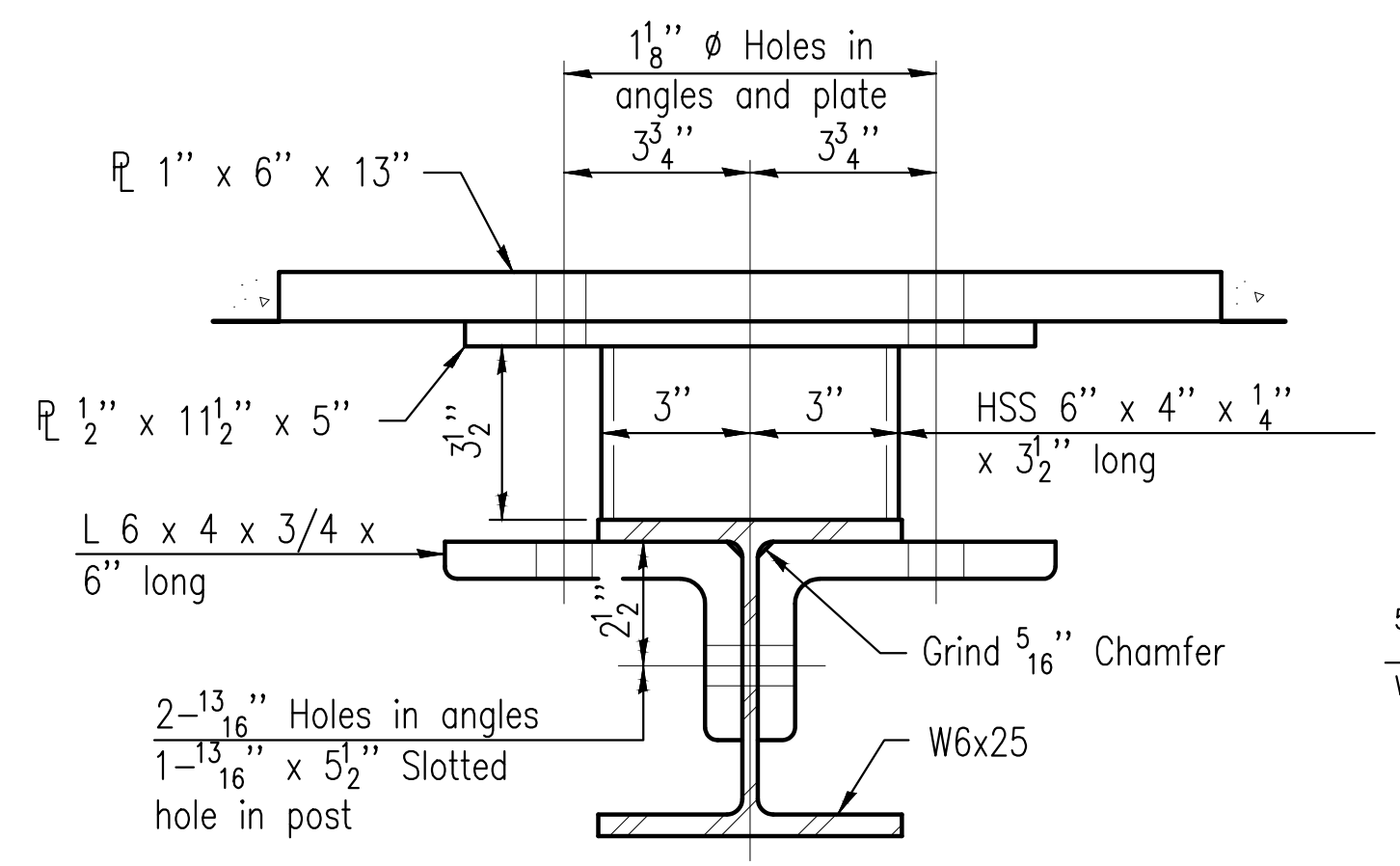
SECTION H-H



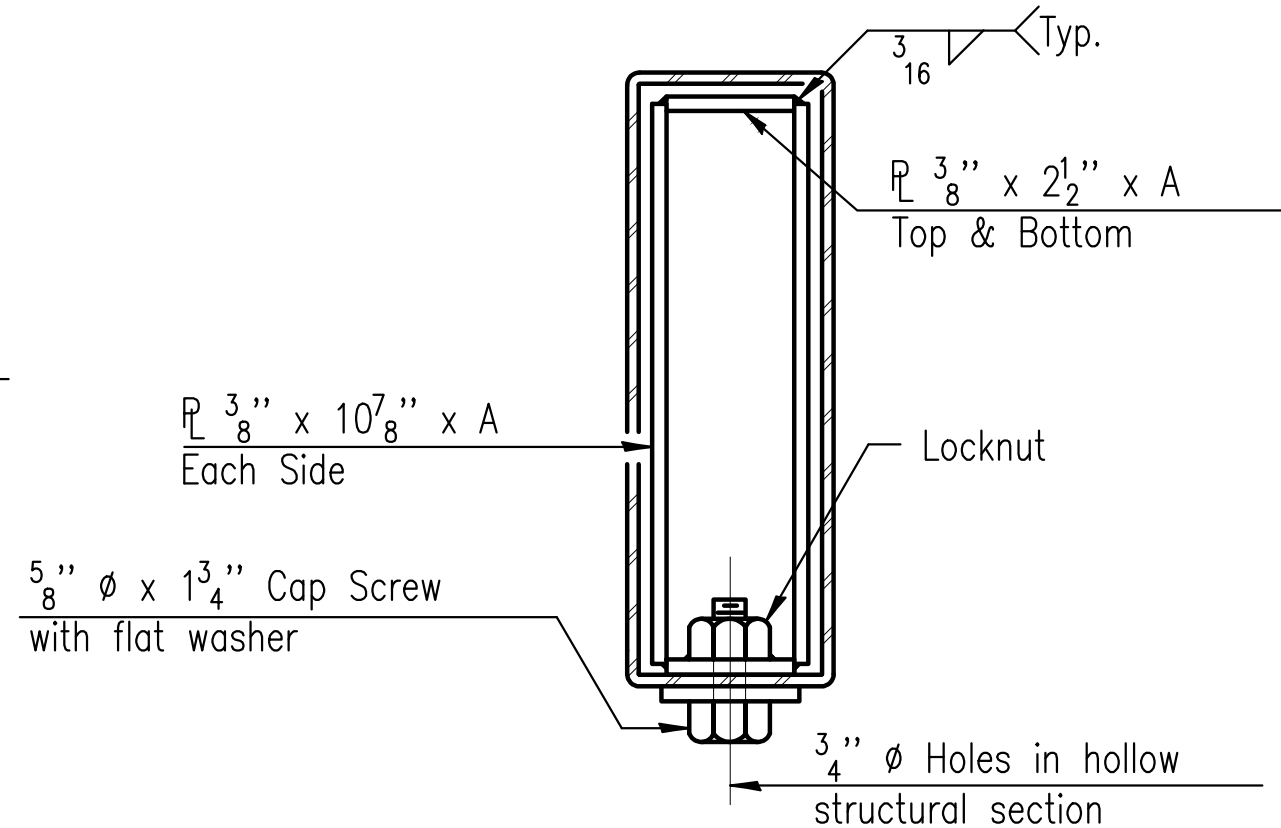
SECTION AT RAILING POST



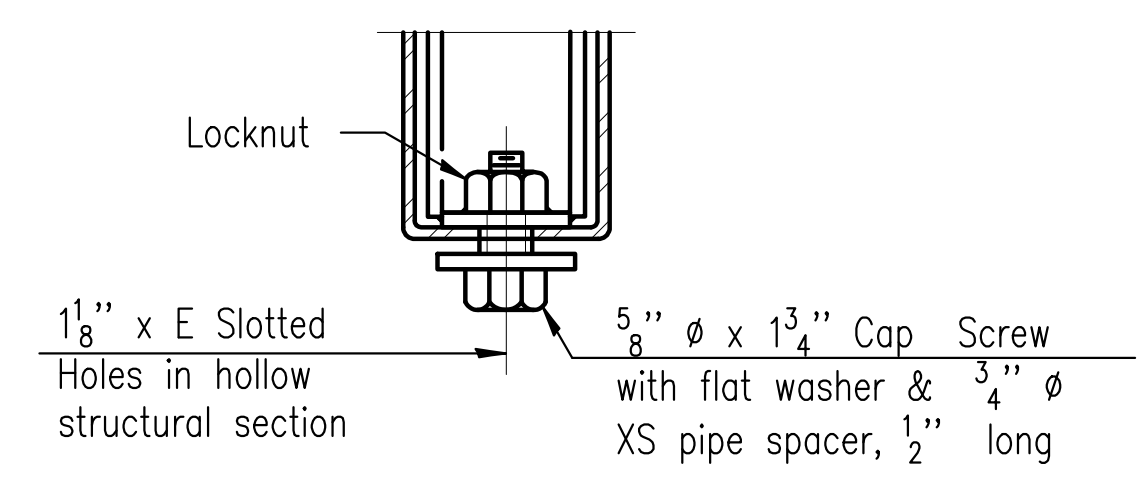
ANCHOR DEVICE



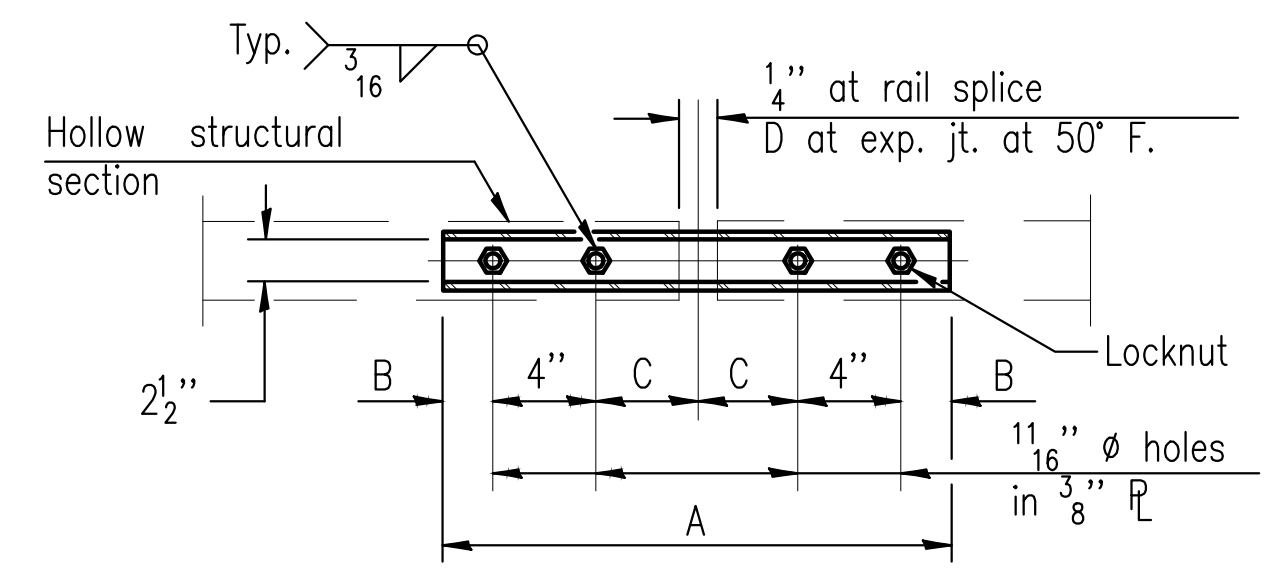
SECTION I-I



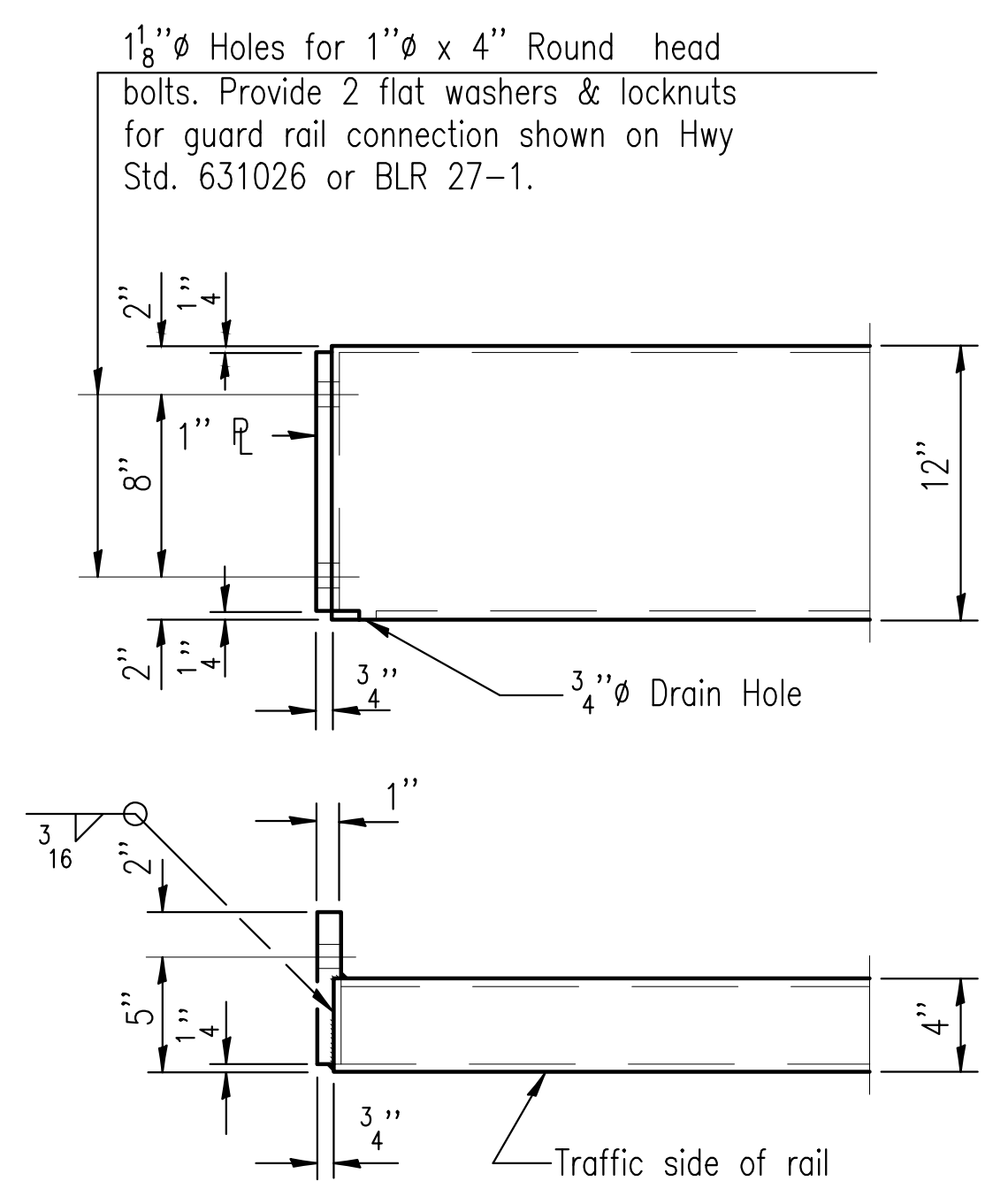
SECTIONS AT RAIL SPLICE



**RAIL SPLICE CONNECTION
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE P
TYPICAL**



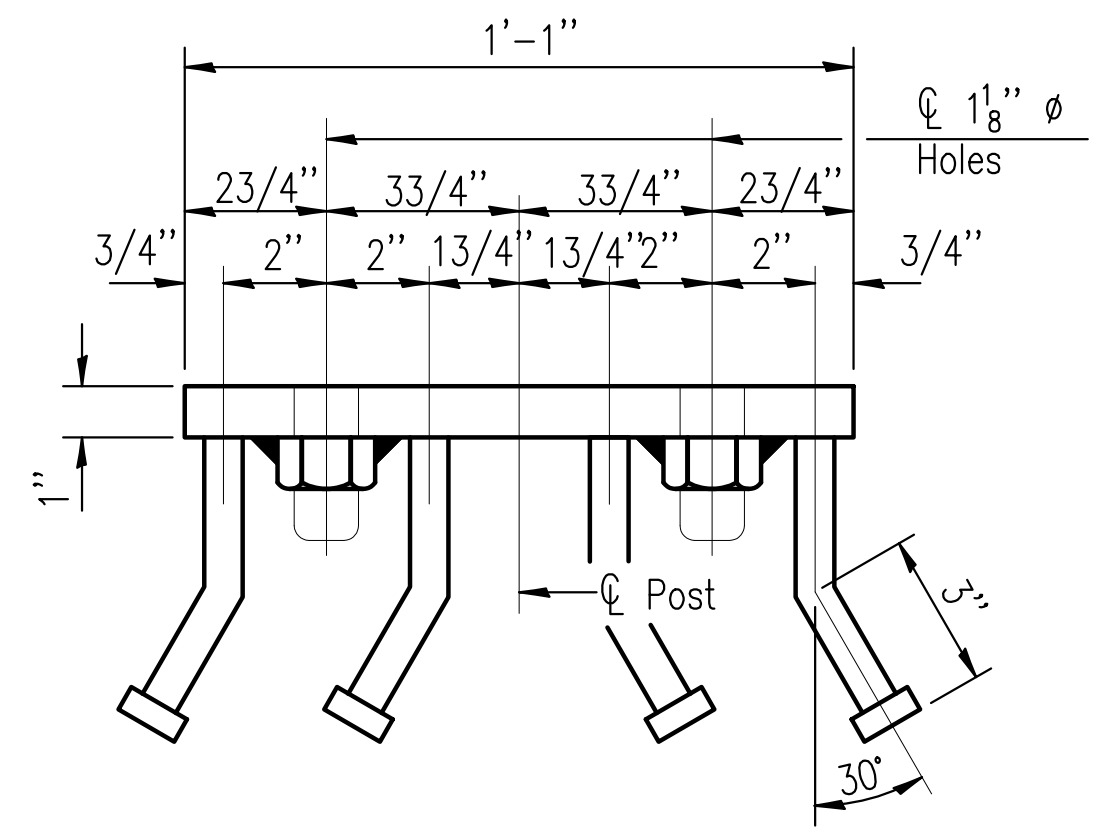
END OF RAIL DETAILS

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 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. Cast included with Steel Railing, Type S-1.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 ** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



VIEW J-J

BILL OF MATERIAL

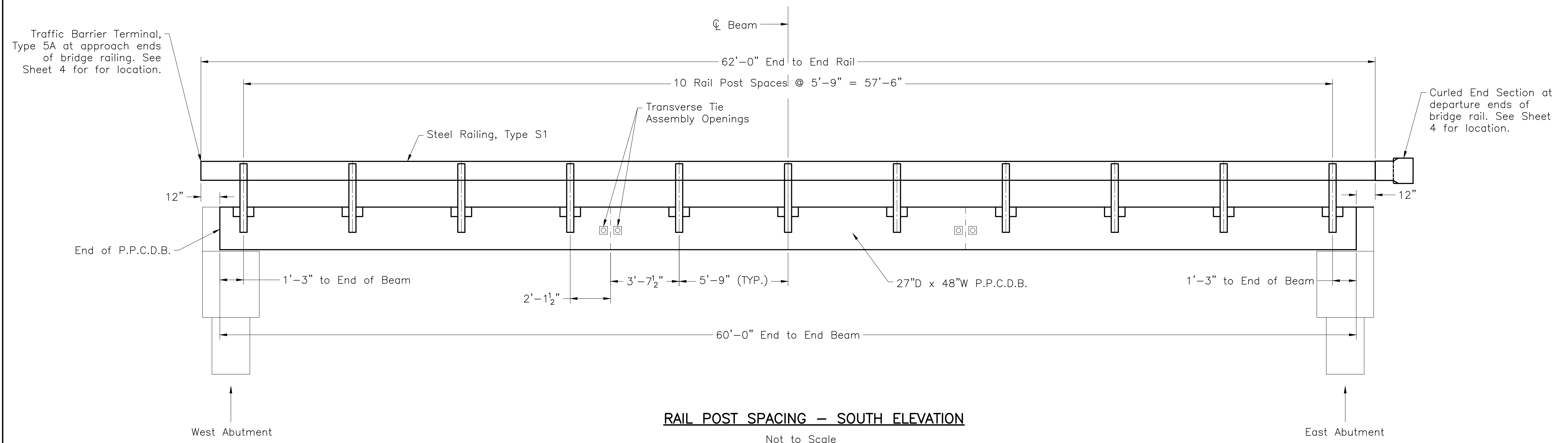
Item	Unit	Quantity
Steel Railing, Type S-1	Foot	124

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 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**STEEL RAILING, TYPE S-1
 STRUCTURE NO. 025-3333
 FAS 708 (CH-12)
 OVER LITTLE MUDDY CREEK
 SECTION 17-00097-00-BR
 EFFINGHAM COUNTY
 STATION 4+01.00**

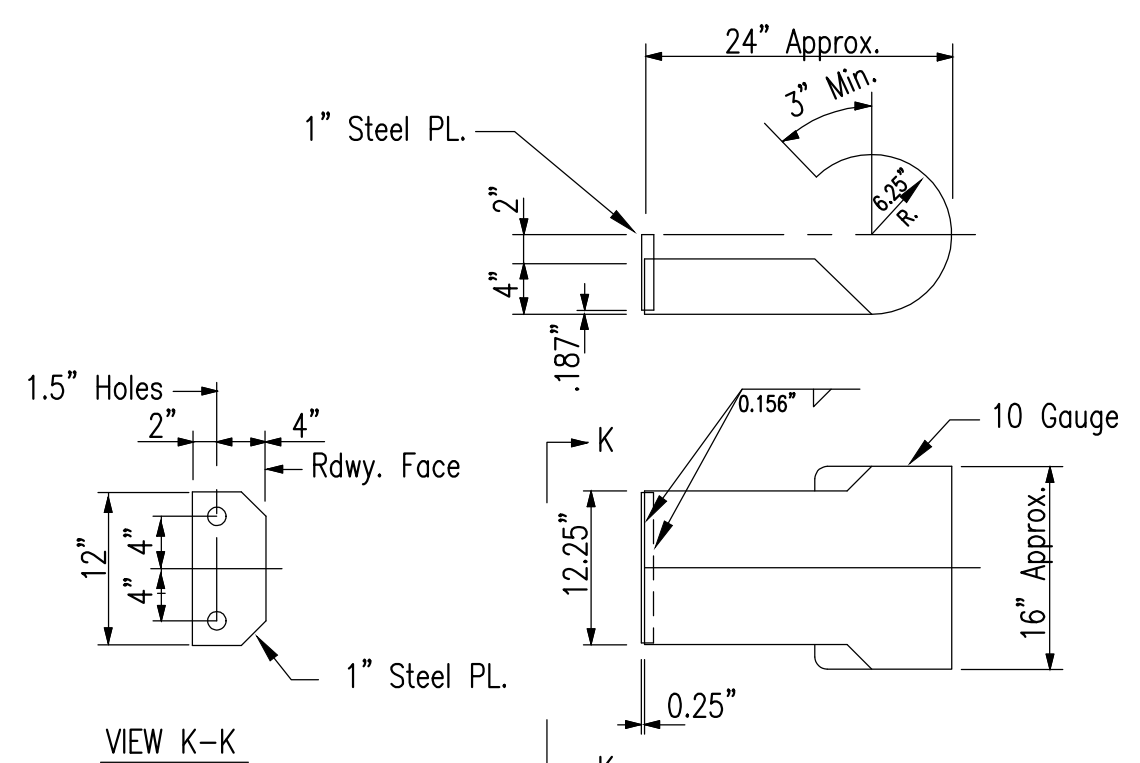
(10'-9" Maximum Post Spacing)

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	8
CONTRACT 95854		ILLINOIS	PROJECT 32KM(542)	



RAIL POST SPACING - SOUTH ELEVATION

Not to Scale



CURLED END SECTION DETAILS

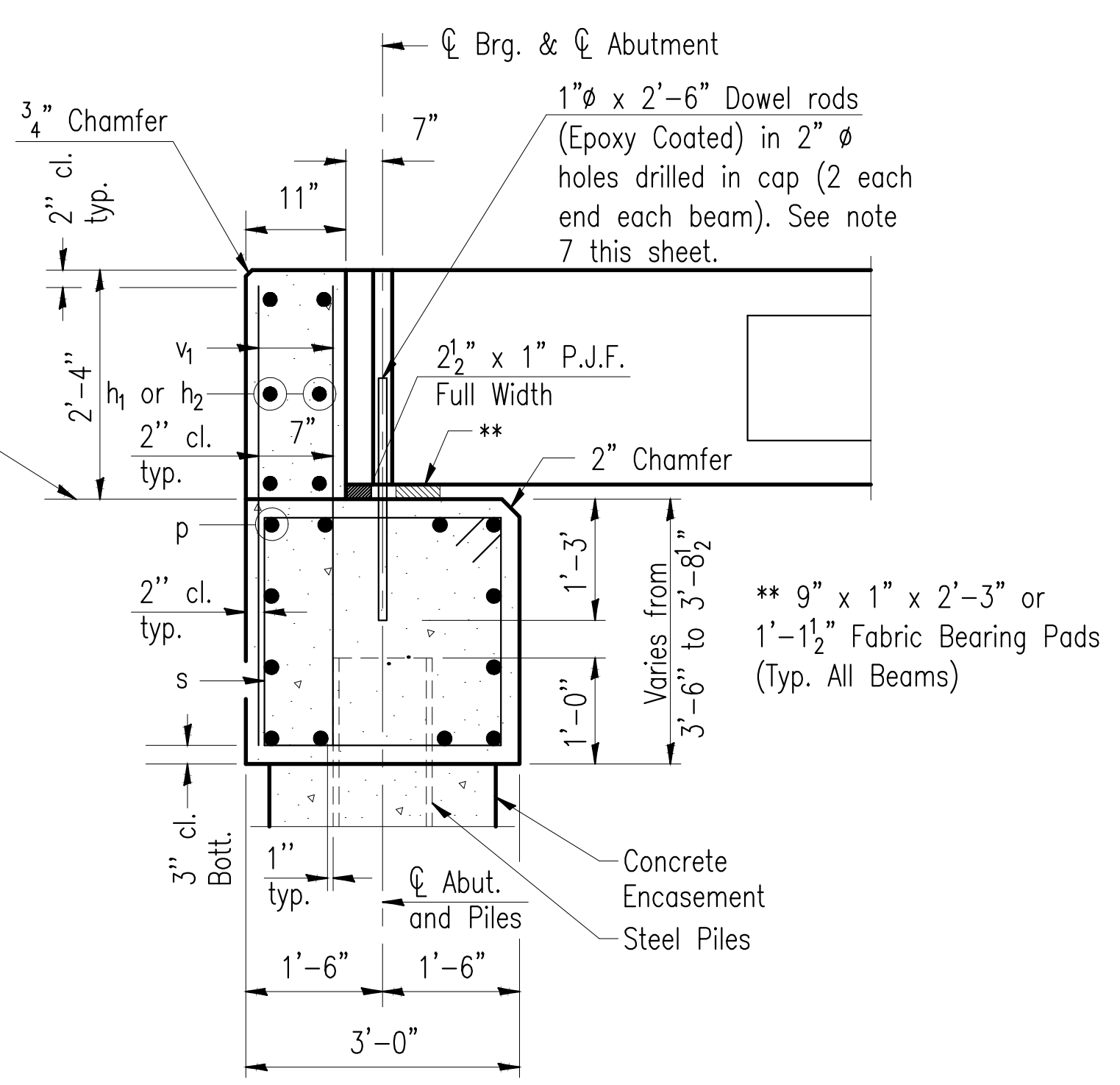
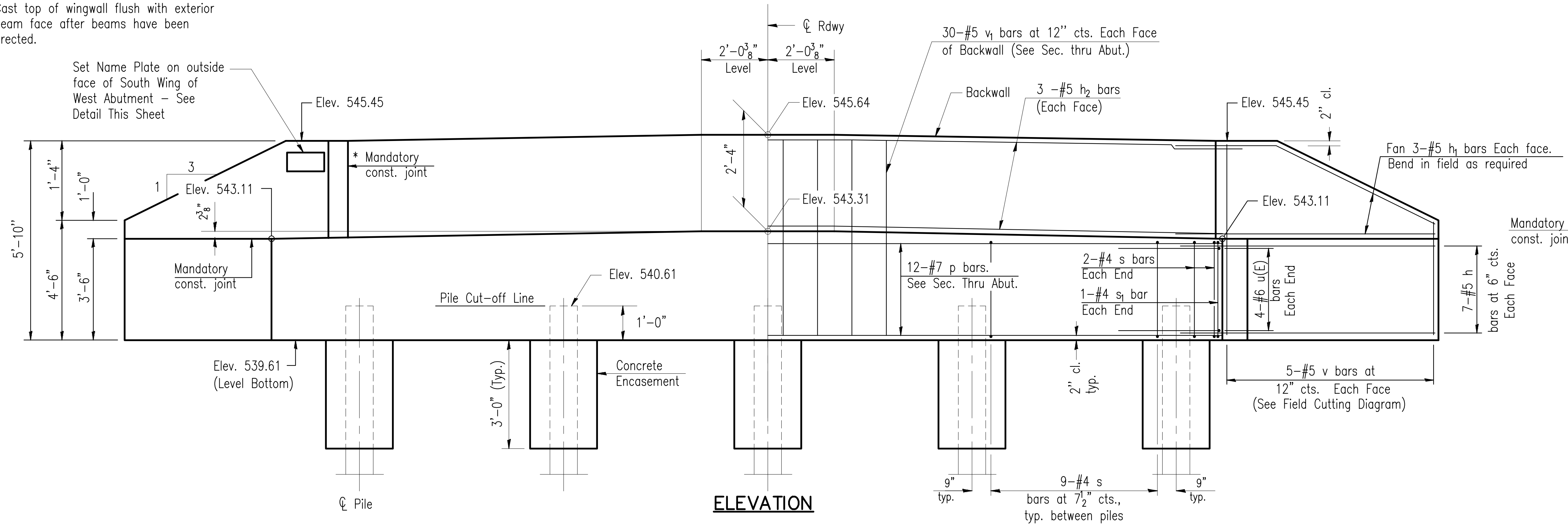
2 Required - The cost of the Curled End Sections shall be included the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.

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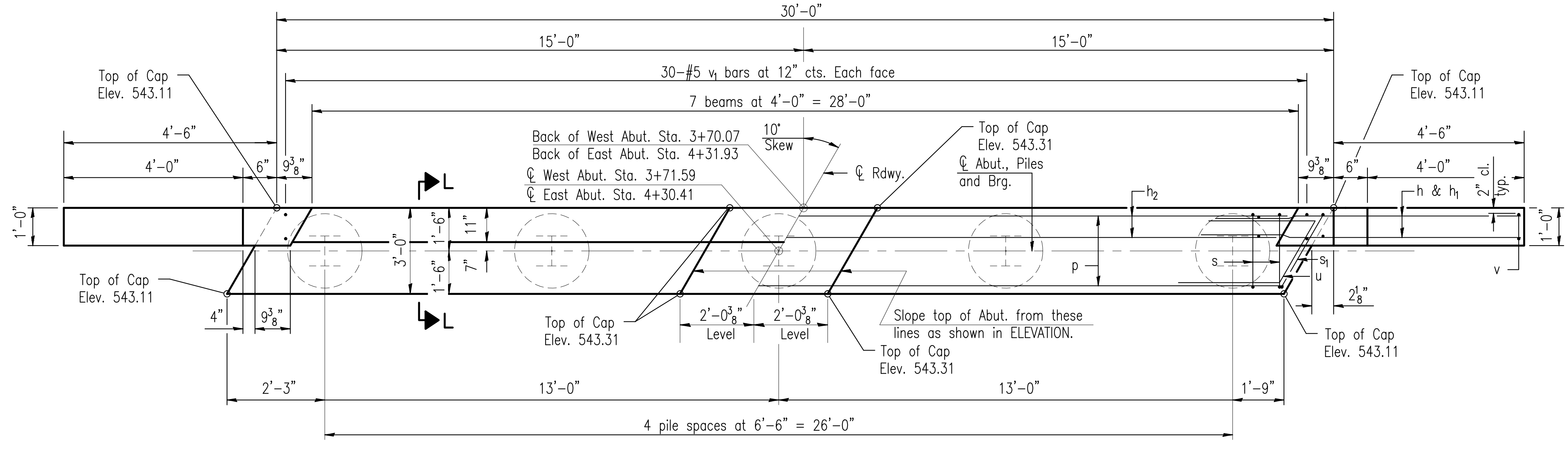
STEEL RAILING, TYPE S1 DETAILS
STRUCTURE NO. 025-3333
FAS 708 (CH-12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	9
CONTRACT 95854		ILLINOIS PROJECT 32KM(542)		

* Cast top of wingwall flush with exterior beam face after beams have been erected.



SECTION L-L
(At Right Angles)



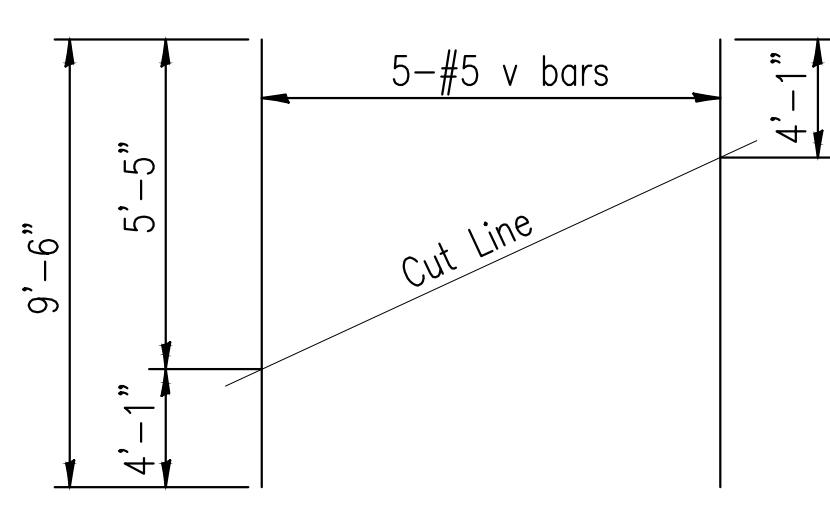
PLAN

PILE DATA WEST ABUTMENT

Type: Steel HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Est. Length: 65 Feet
No. Production Piles: 5
No. Test Piles: 0

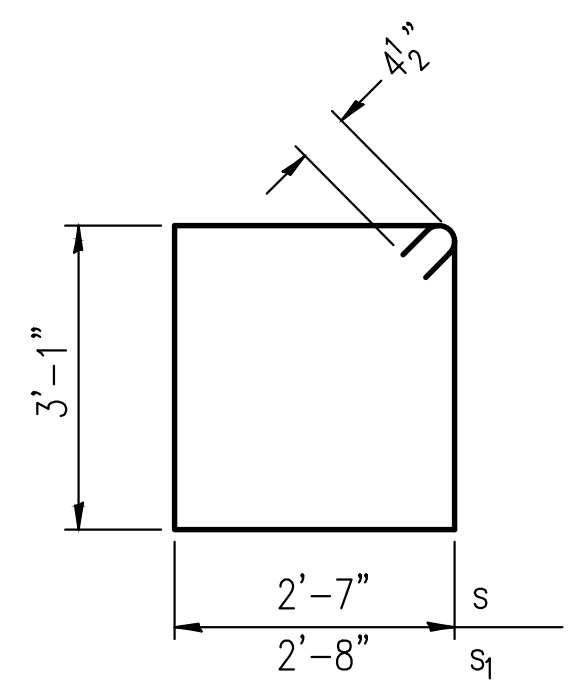
PILE DATA EAST ABUTMENT

Type: Steel HP 12 X 53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Est. Length: 65 Feet
No. Production Piles: 4
No. Test Piles: 1

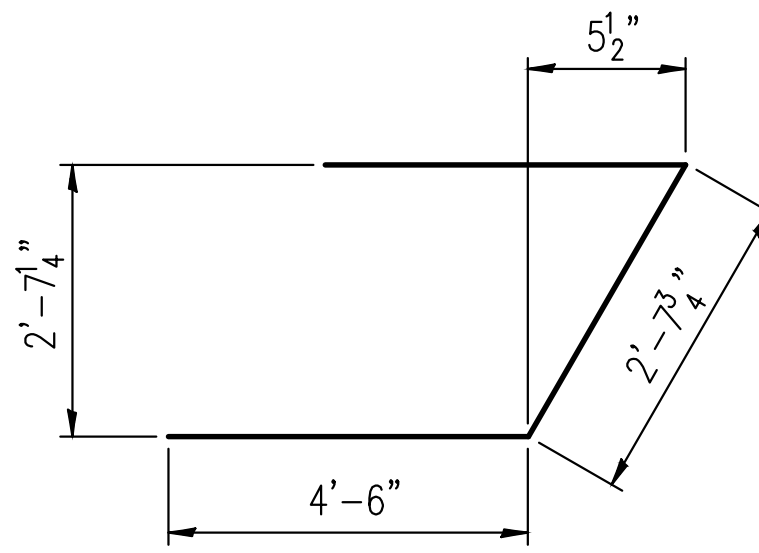


FIELD CUTTING DIAGRAM

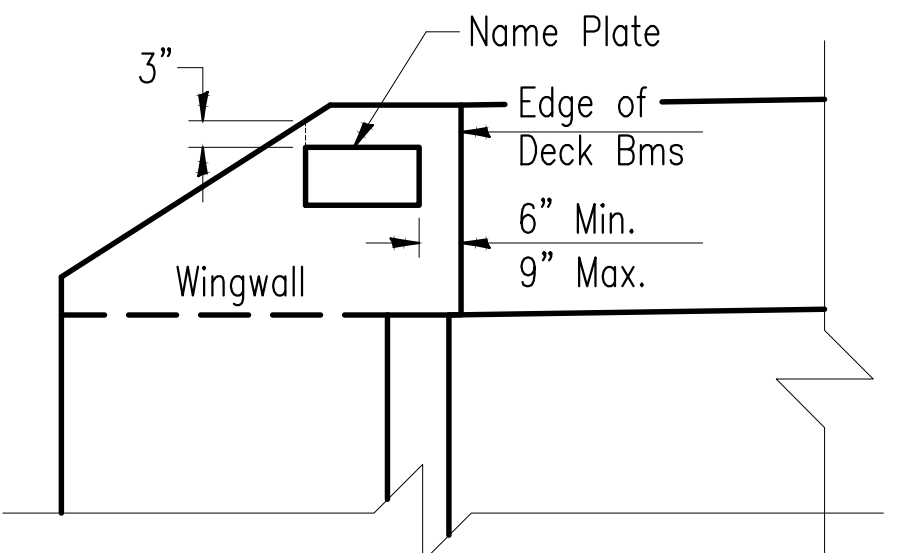
Order v bars full length. Cut as shown and use remainder of bars in opposite face.



BARS s & s1



BAR u



NAME PLATE PLACEMENT

BILL OF MATERIAL - 2 ABUTMENTS

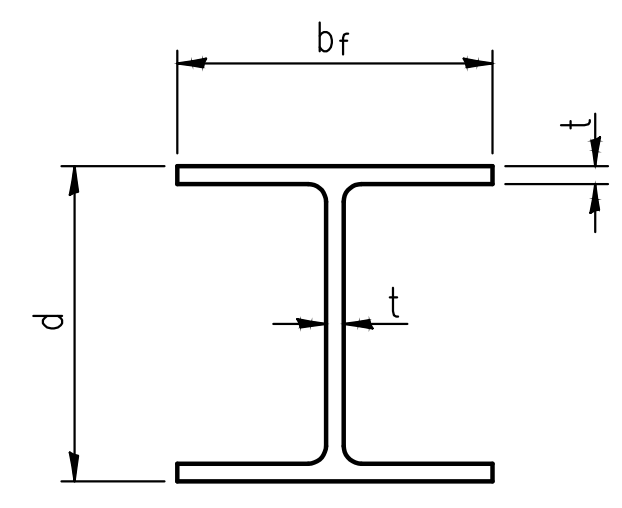
Bar	No.	Size	Length	Shape
h	56	#5	6'-4"	—
h1	24	#5	7'-6"	—
h2	12	#5	27'-8"	—
p	24	#7	29'-8"	—
s	80	#4	11'-11"	□
s1	4	#4	12'-1"	□
u	16	#6	11'-8"	—
v	20	#5	9'-6"	—
v1	120	#5	5'-5"	—
Concrete Structures		Cu. Yd.	32.8	
Reinforcement Bars		Pound	4200	
Furnishing Steel Piles		Foot	585	
HP 12 X 53		Foot	585	
Driving Piles		Foot	585	
Test Pile HP 12 X 53		Each	1	
Concrete Encasement		Cu. Yd.	3.5	
Pile Shoes		Each	9	

General Notes:

1. Cast backwalls and top of Wingwalls after beams have been erected.
2. The backwalls and the portion of the Wingwalls above the mandatory construction joint shall be cast against the in-place beam.
3. Extend "h" bars into the abutment cap.
4. For details of piles and Concrete Encasement, see sheet 10 of 16.
5. Drawings not to scale.
6. All clearances between rebar and form surface shall be 2" unless otherwise noted.
7. Space reinforcement in cap to miss PPCDB dowel rods.
8. All exposed edges shall have a standard 3/4" chamfer unless otherwise noted or as directed by the Engineer.

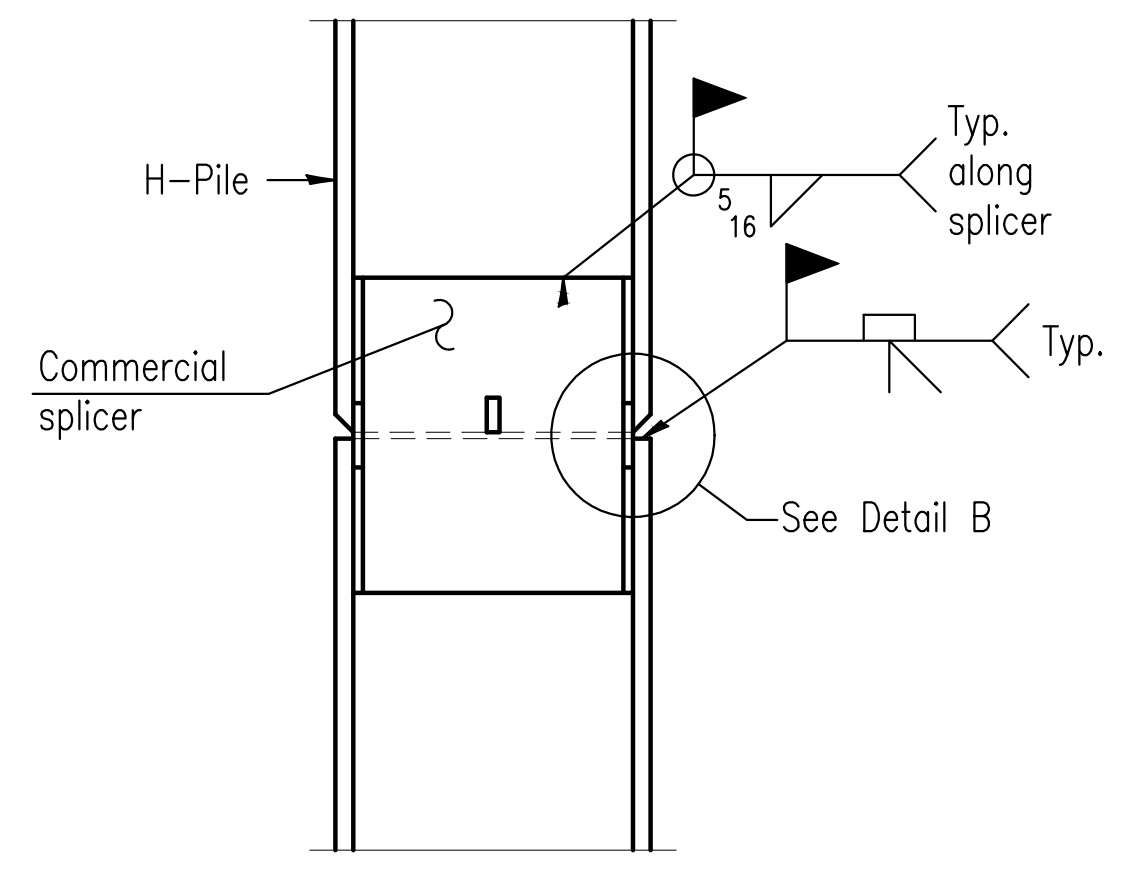
CHARLESTON ENGINEERING, INC.
CONSULTING ENGINEERS
105 NORTH KITCHELL
P.O. BOX 397
OLNEY, ILLINOIS 62450
(618) 382-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 003513

ABUTMENT DETAILS
STRUCTURE NO. 025-3333
FAS 708 (CH-12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00

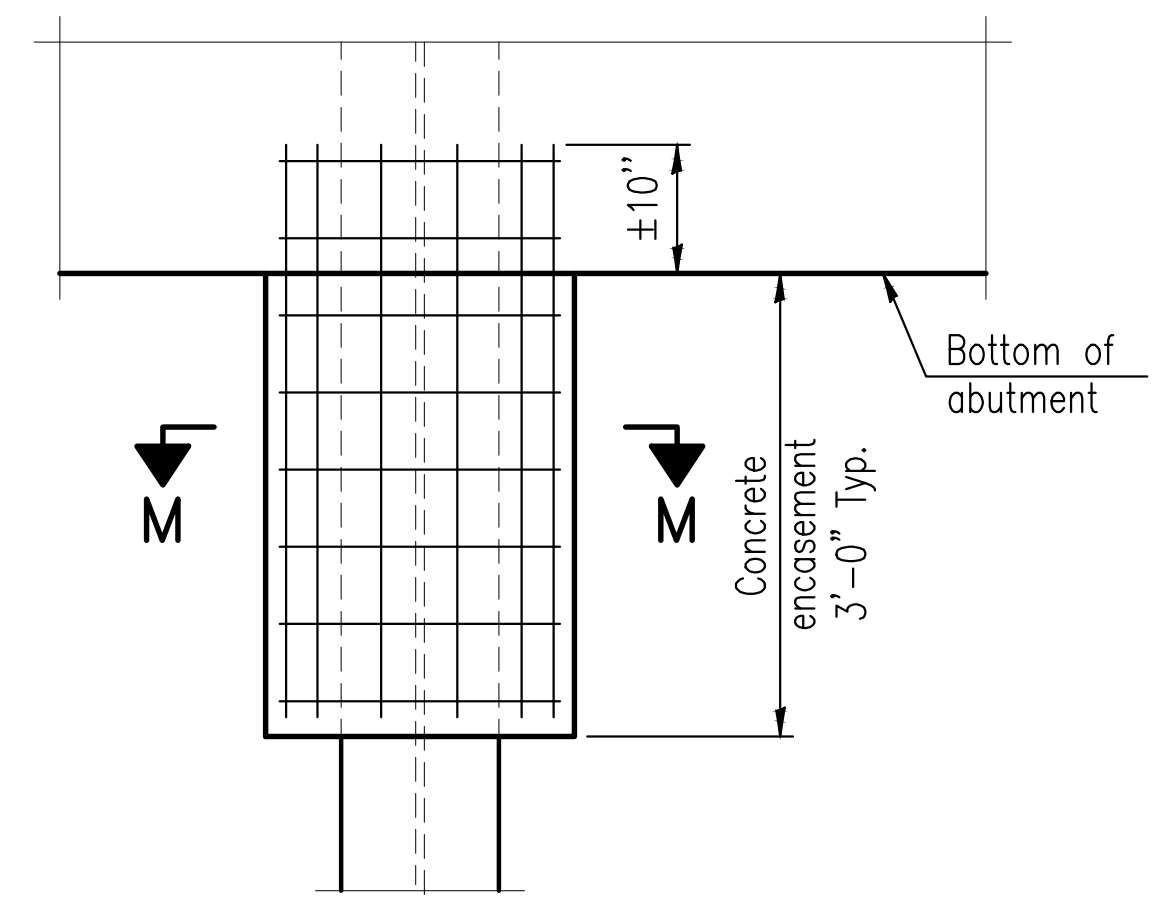


STEEL PILE TABLE

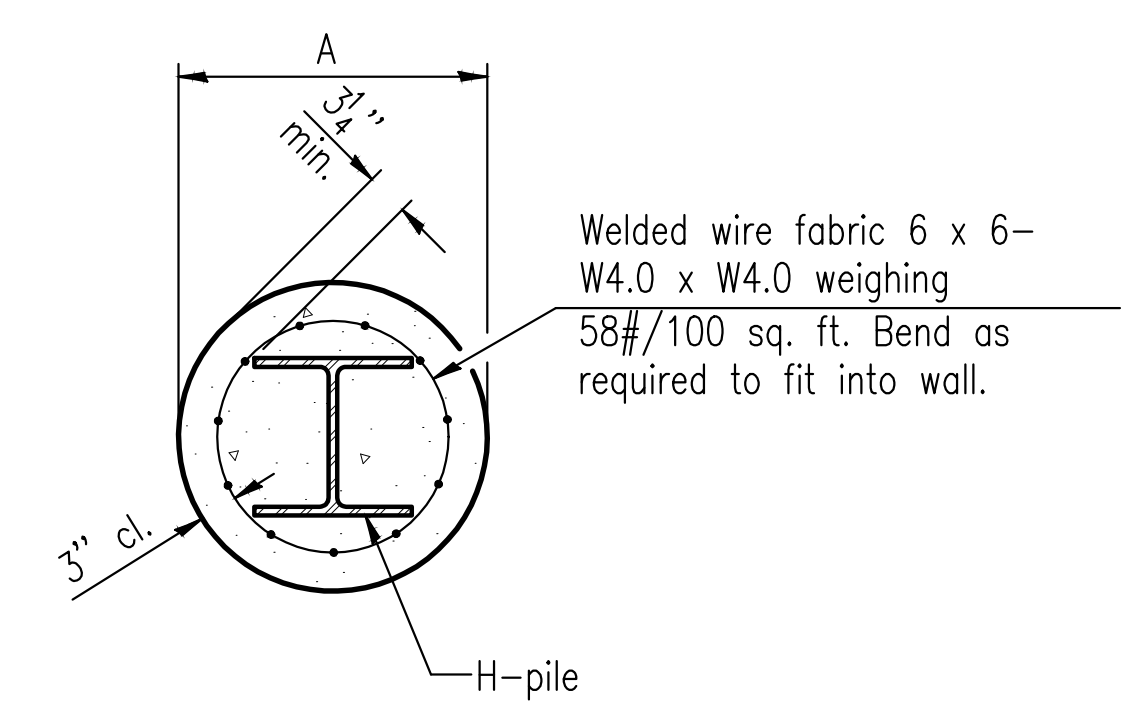
Designation	Depth d	Flange width bf	Web and Flange thickness t	Encasement diameter A
HP 12x53	11 ³ / ₄ "	12"	7 ⁷ / ₁₆ "	24"



ELEVATION



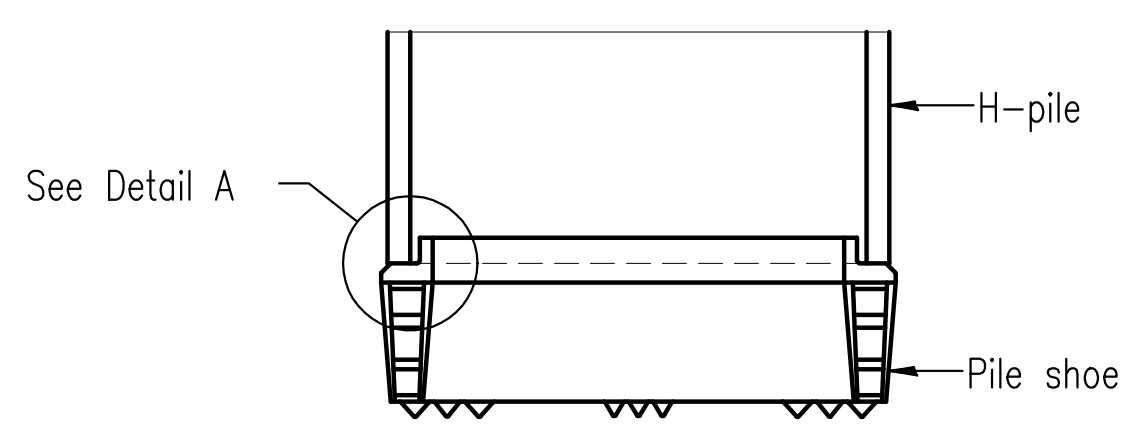
ELEVATION



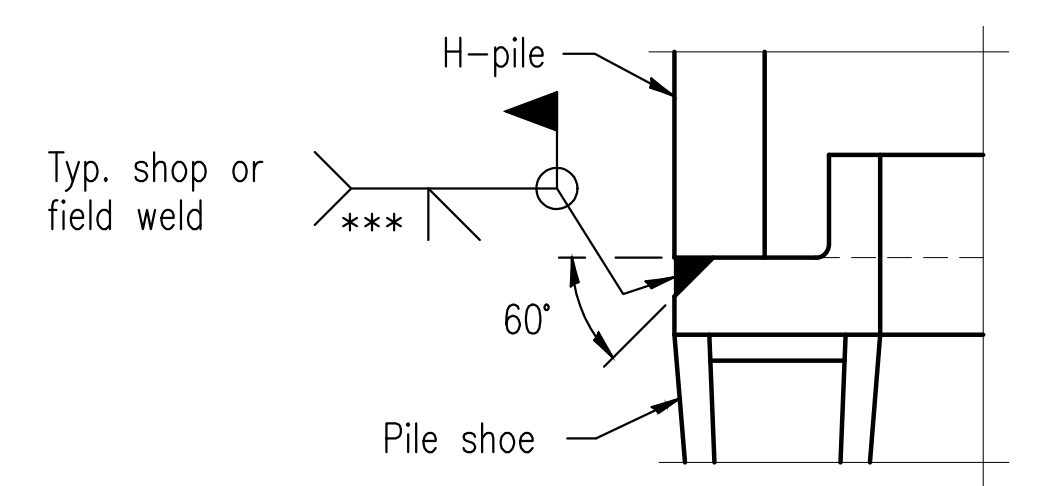
SECTION M-M

PILE ENCASEMENT

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

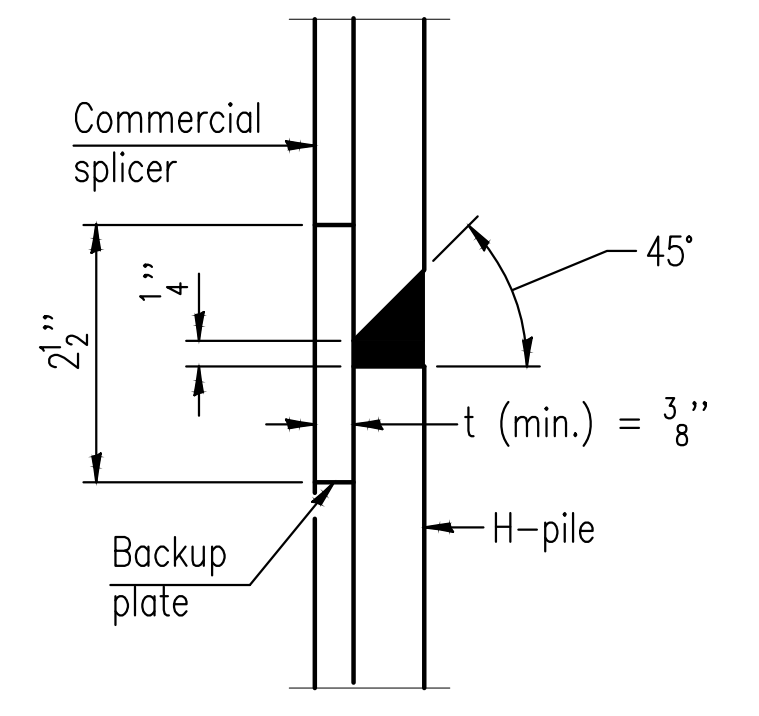


ELEVATION

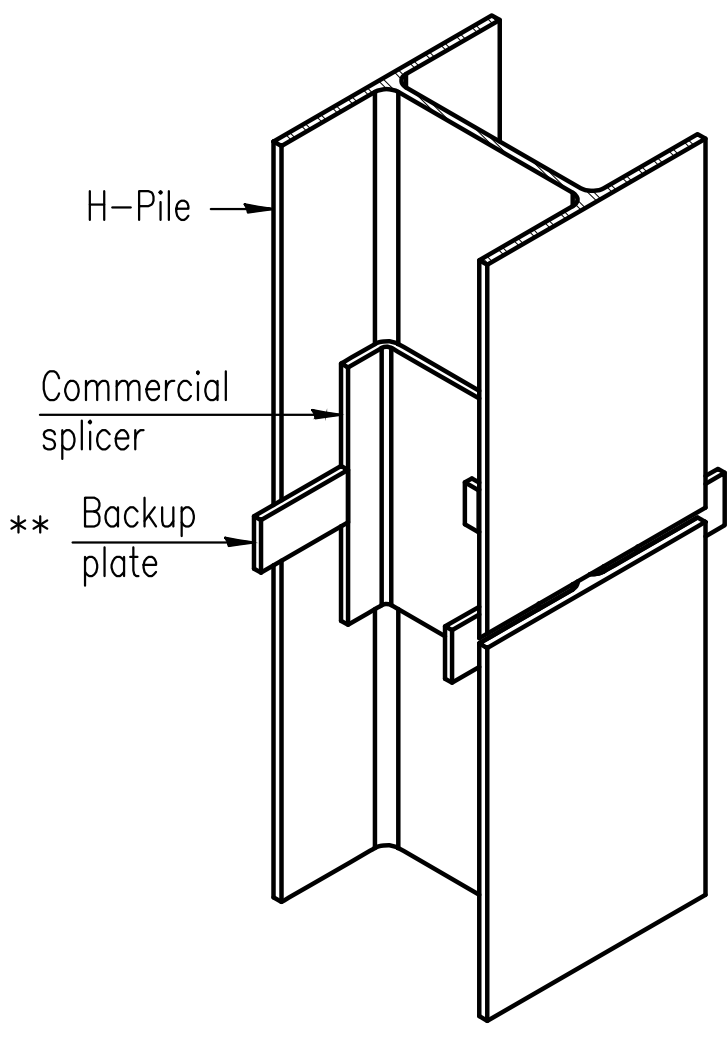


DETAIL A

H-PILE SHOE ATTACHMENT

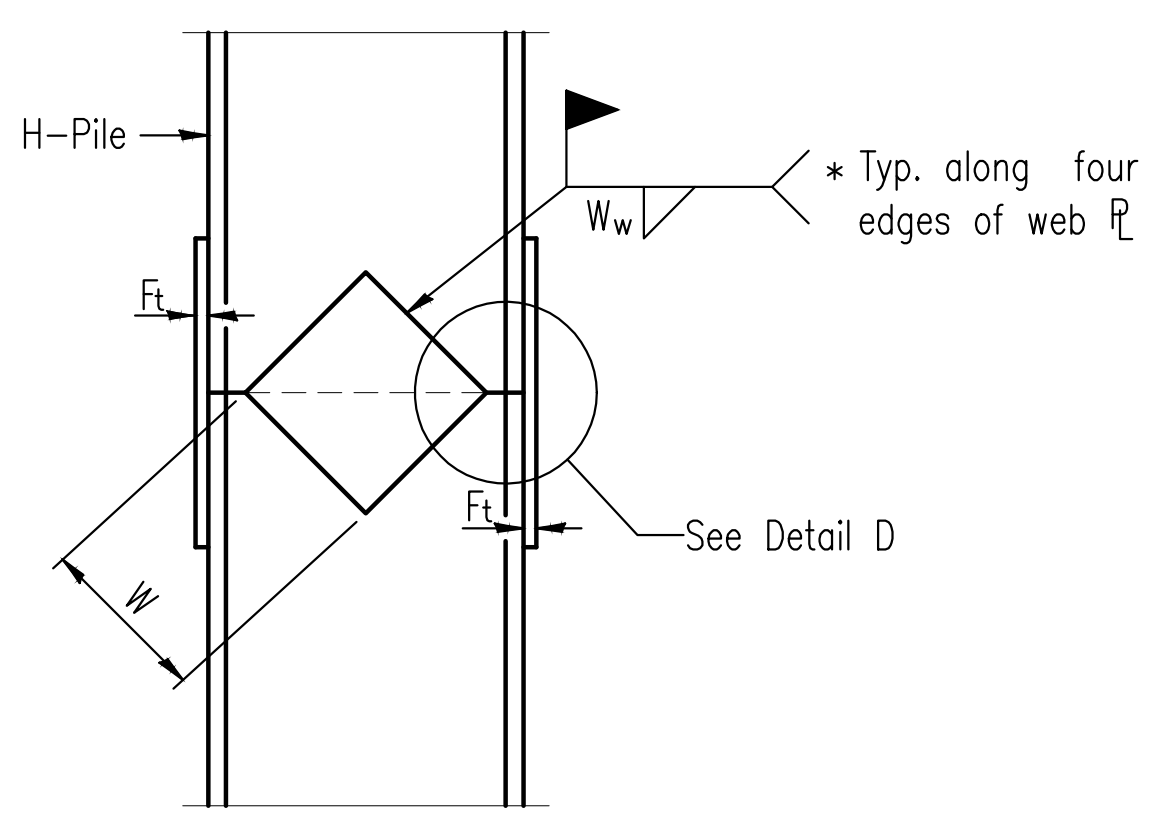


DETAIL "B"

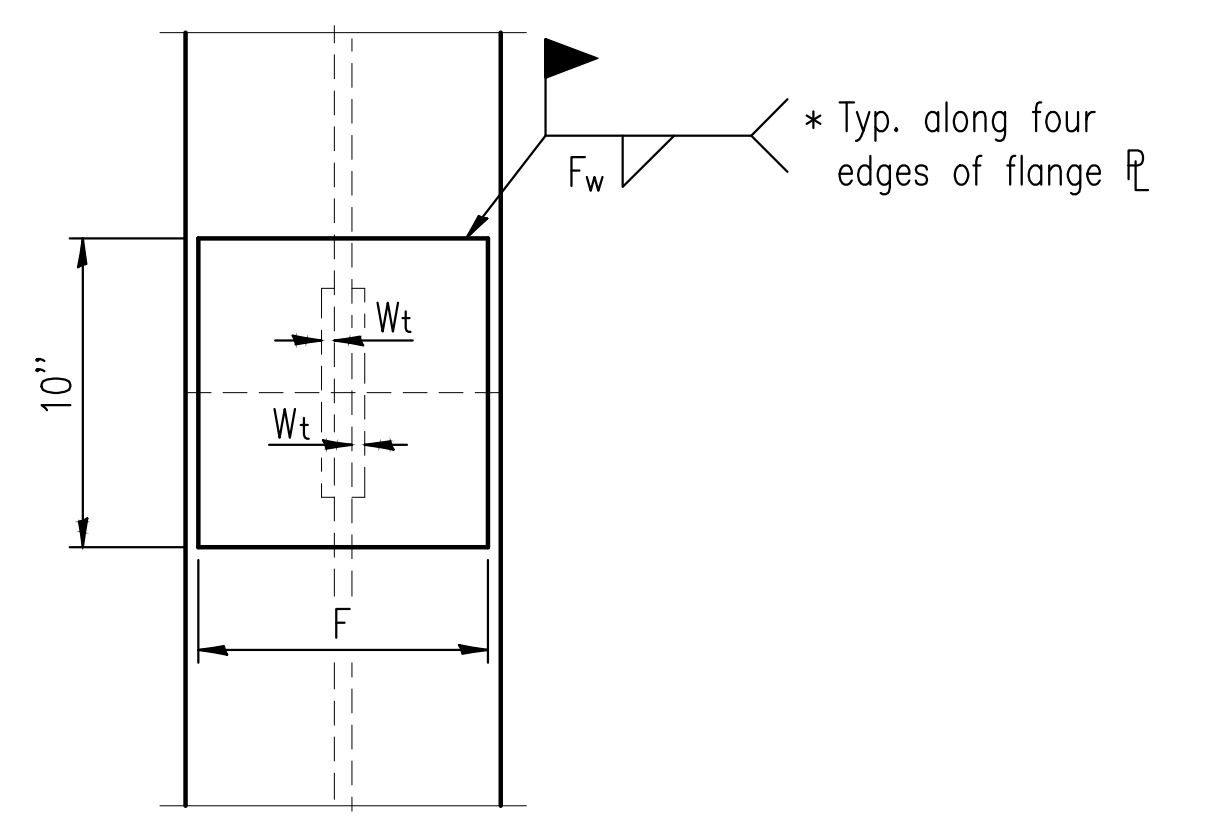


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

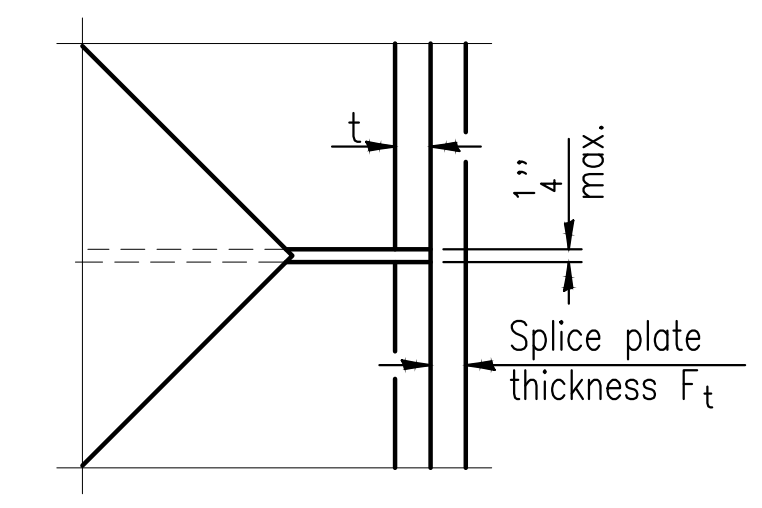


ELEVATION



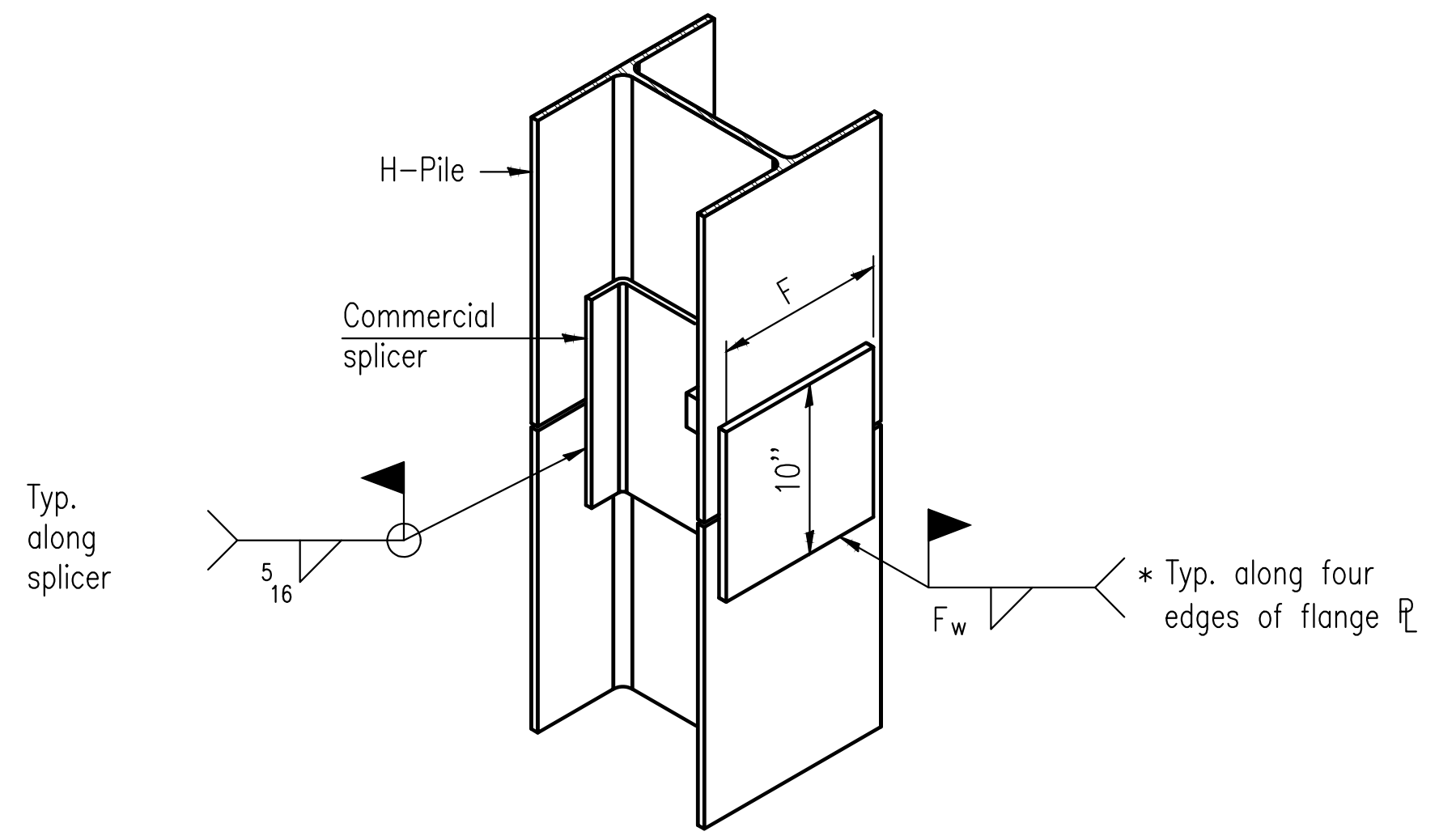
END VIEW

Designation	F	F _t	F _w	W	W _t	W _w
HP 12x53	10"	5 ³ / ₈ "	1 ¹ / ₂ "	6 ¹ / ₂ "	1 ¹ / ₂ "	3 ³ / ₈ "



DETAIL D

WELDED PLATE FIELD SPLICE



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

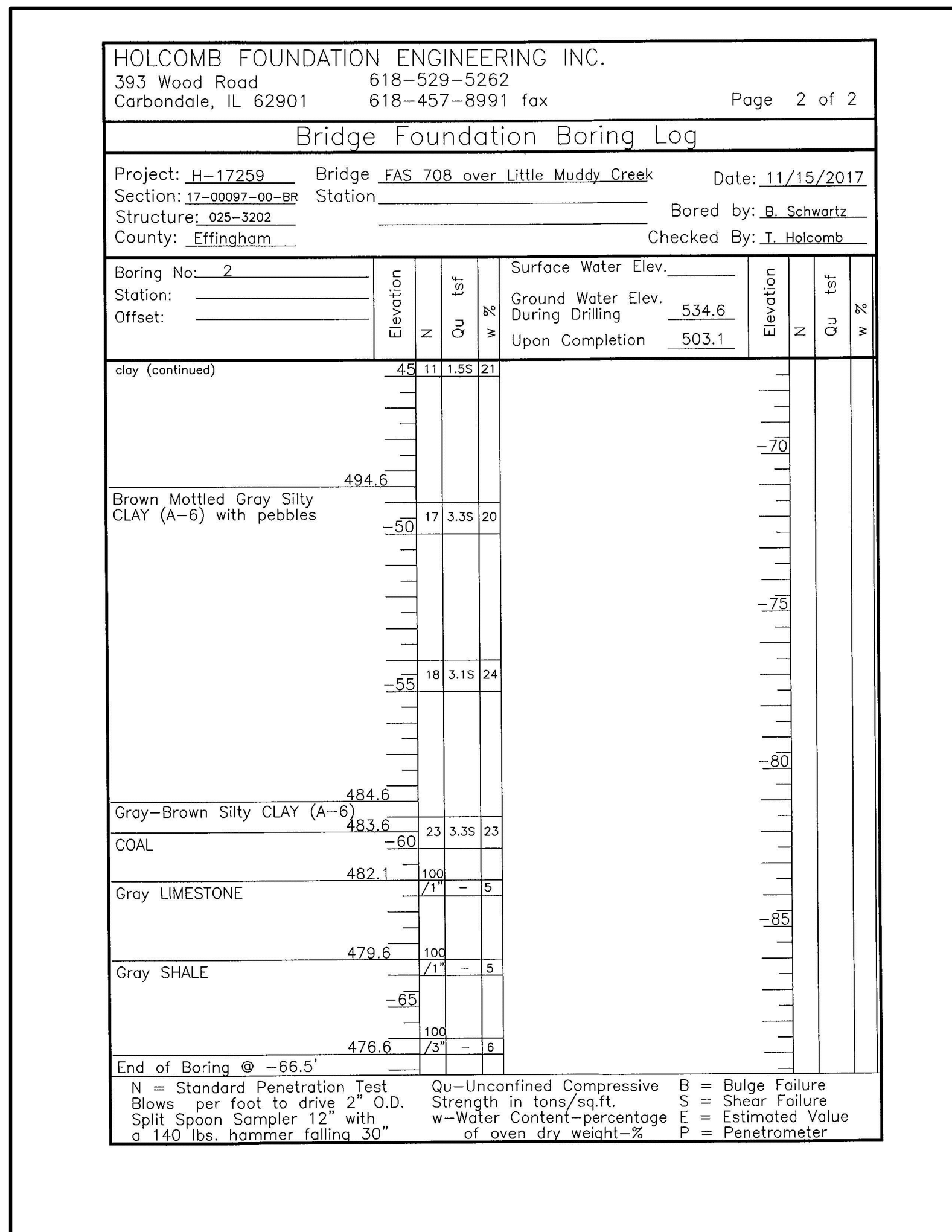
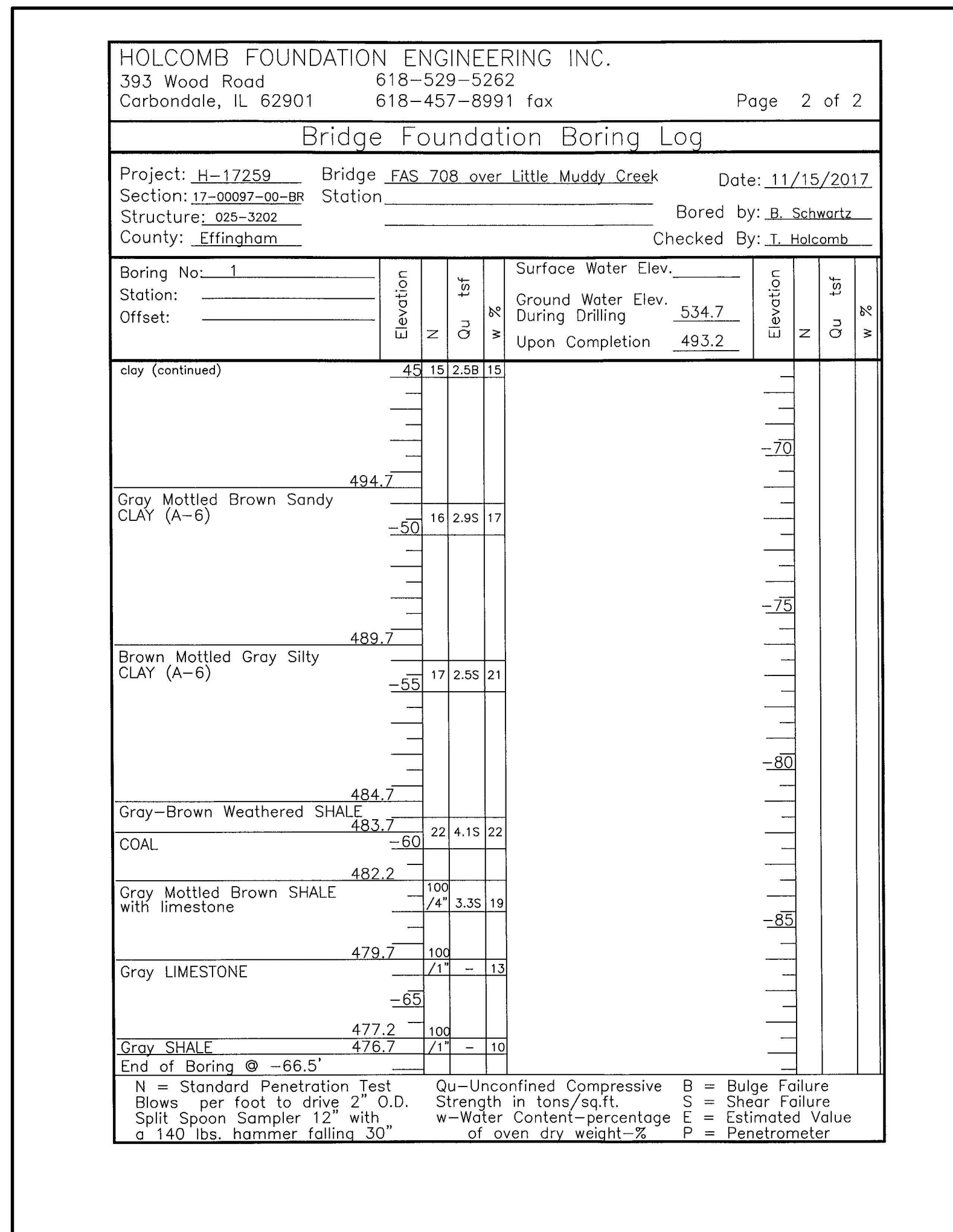
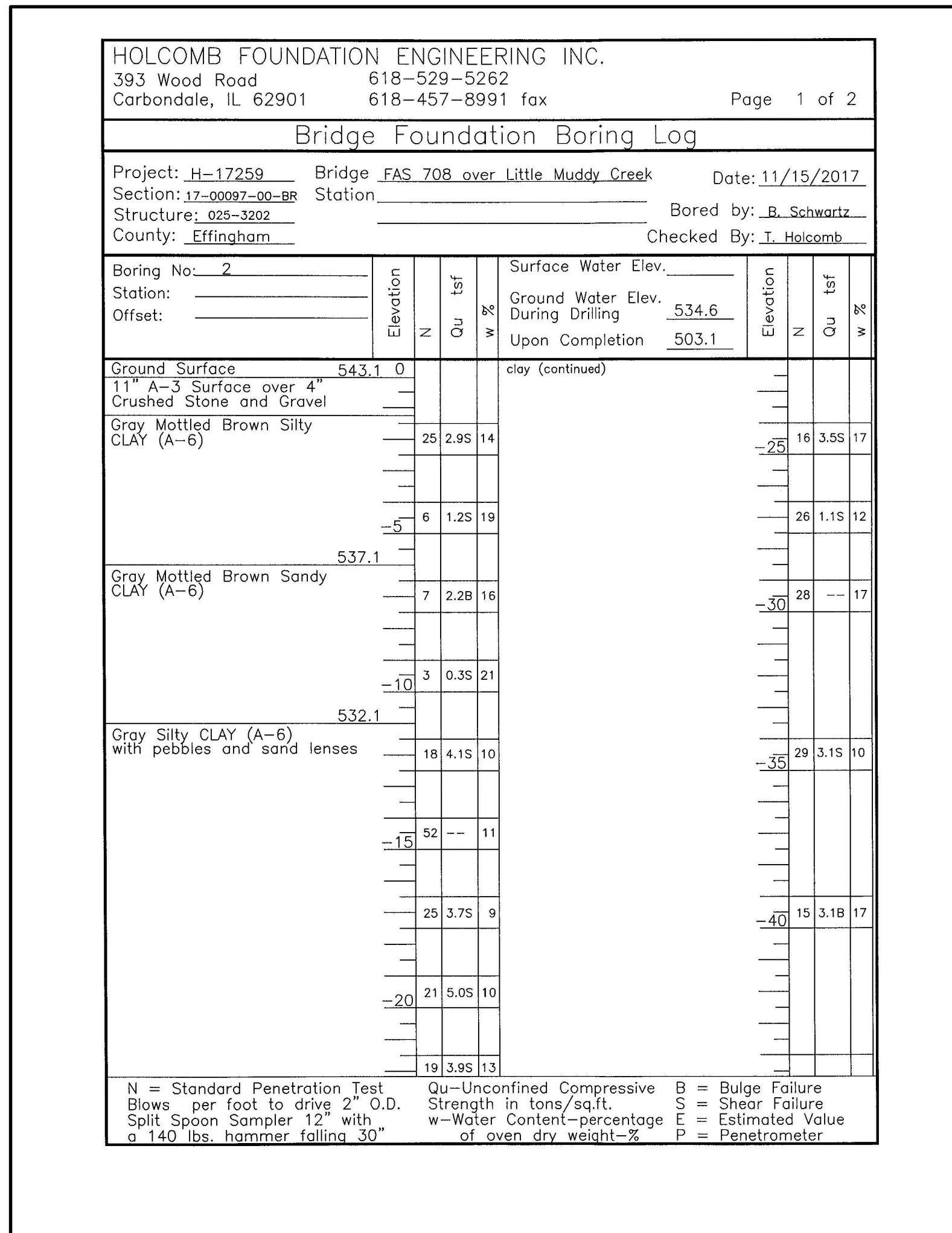
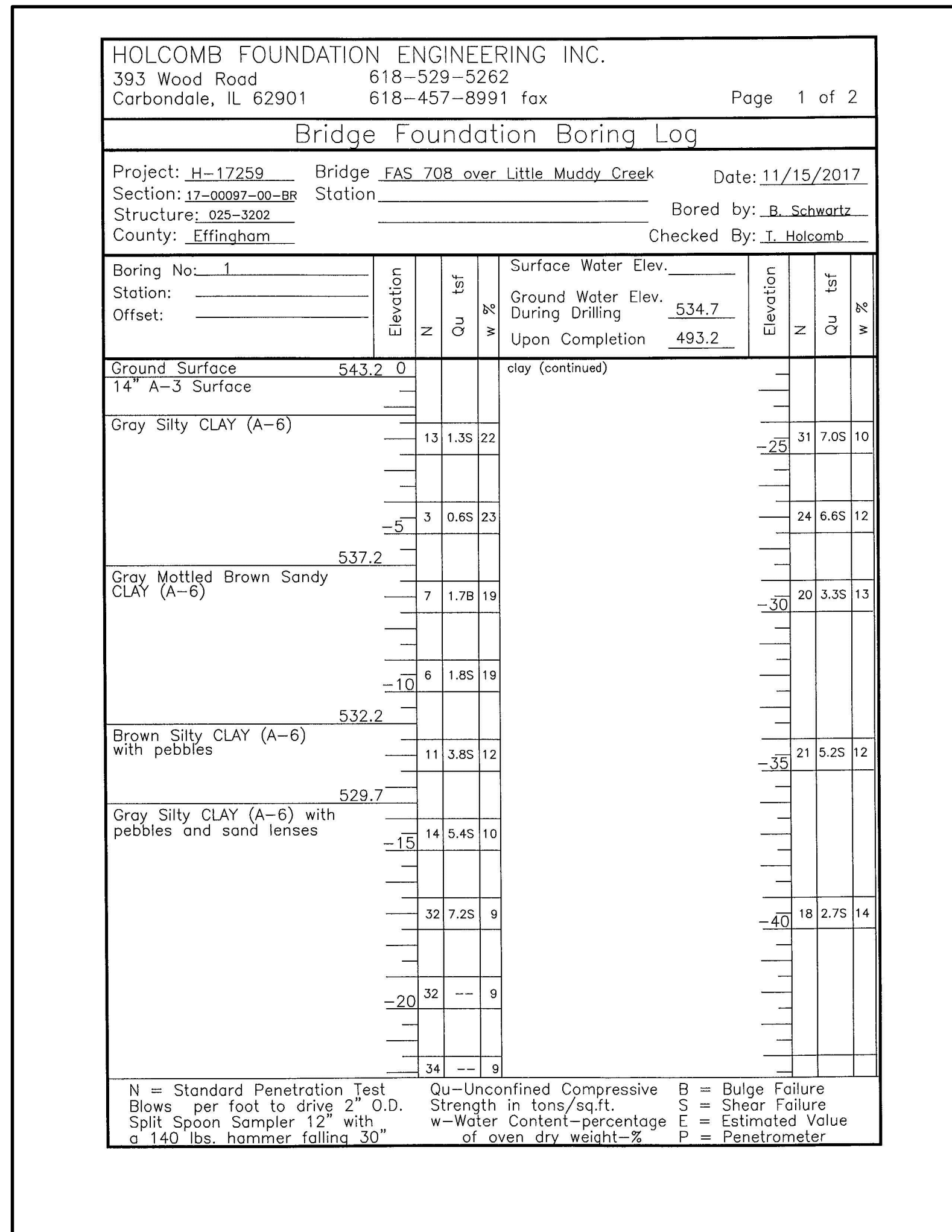
- * Interrupt welds 1/4" from end of web and/or each flange.
- ** Remove portions of backup plates that extend outside the flanges.
- ***Weld size per pile shoe manufacturer (5/16" min.).

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

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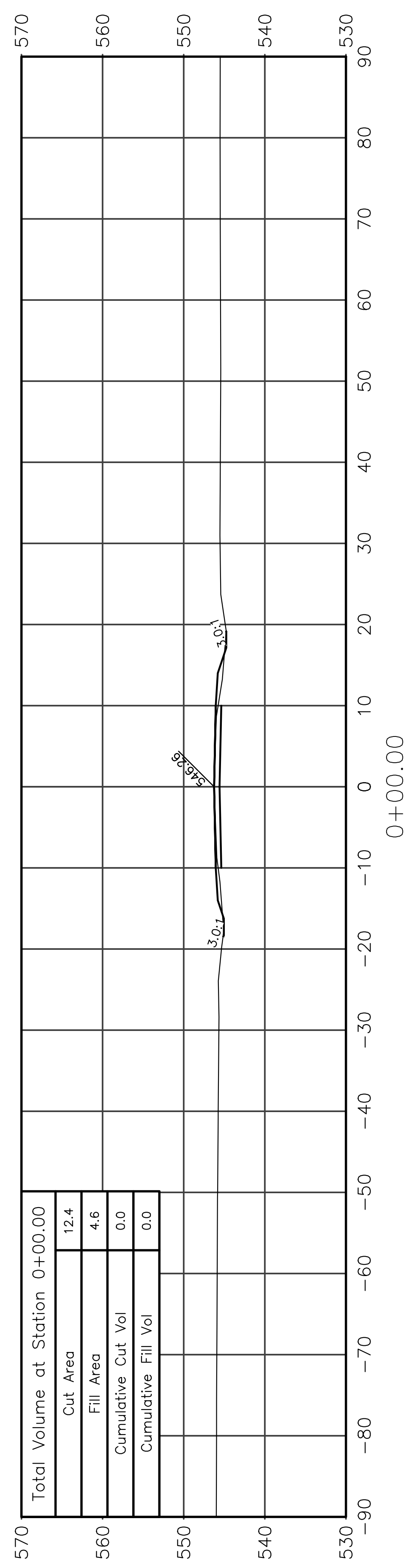
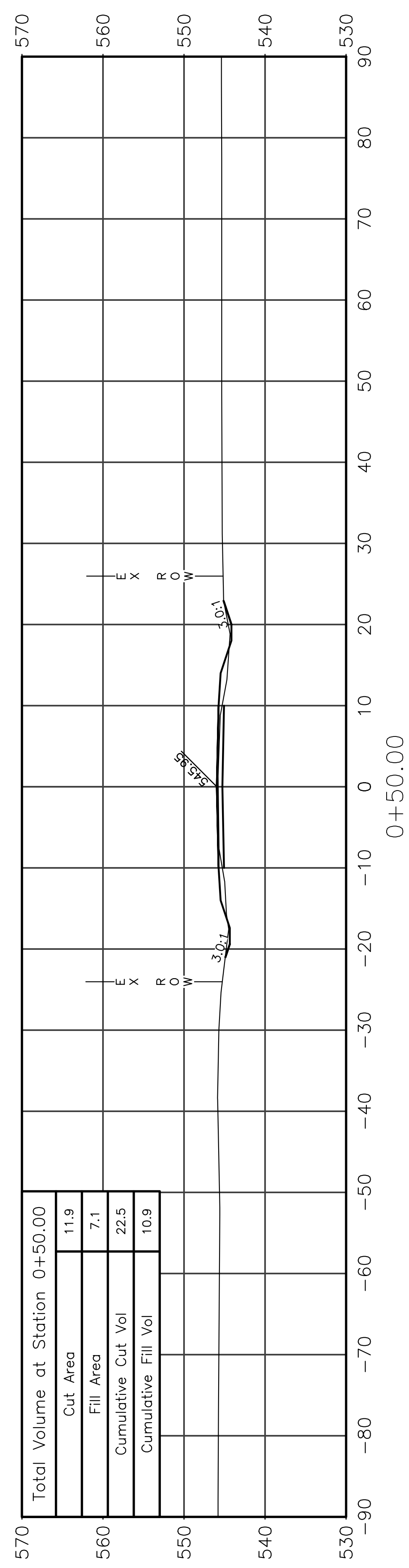
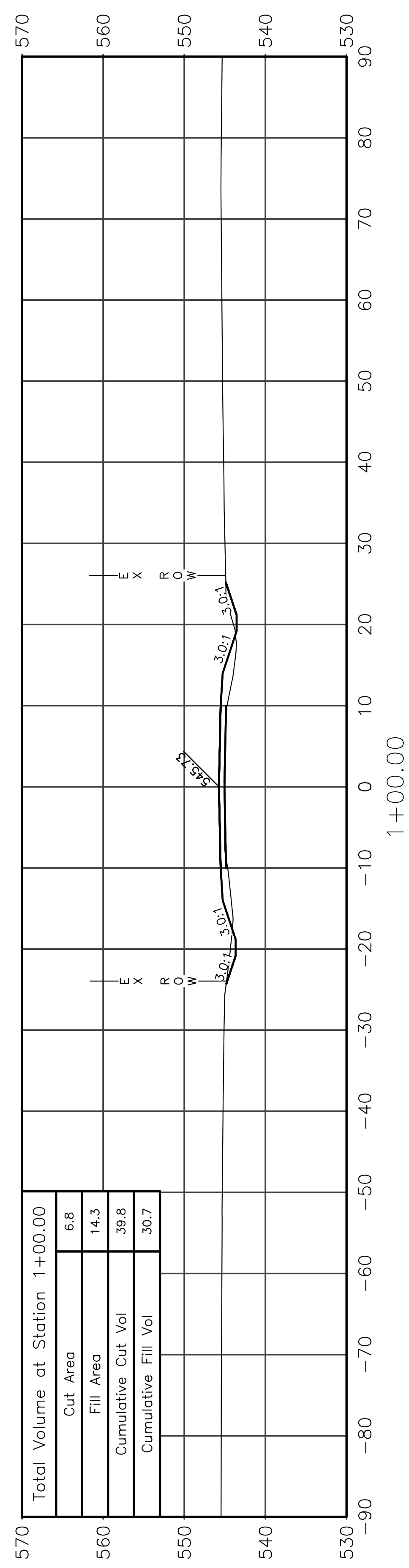
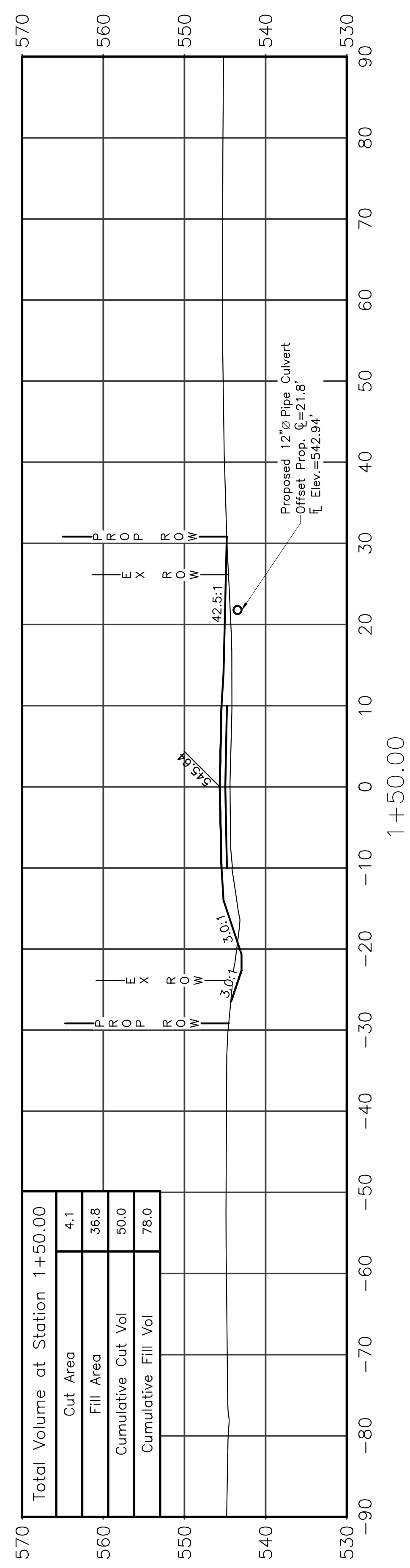
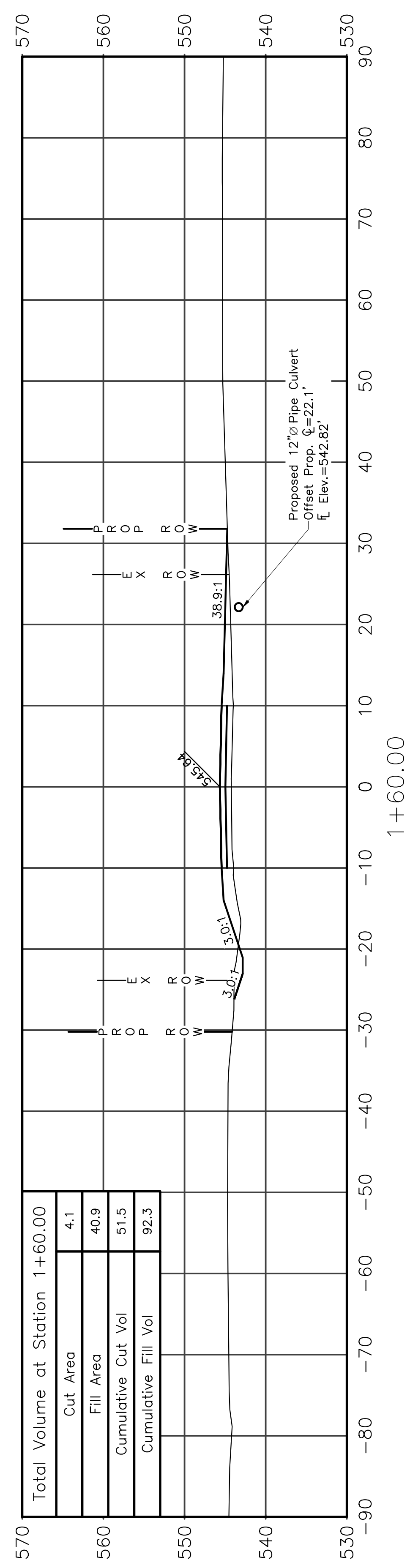
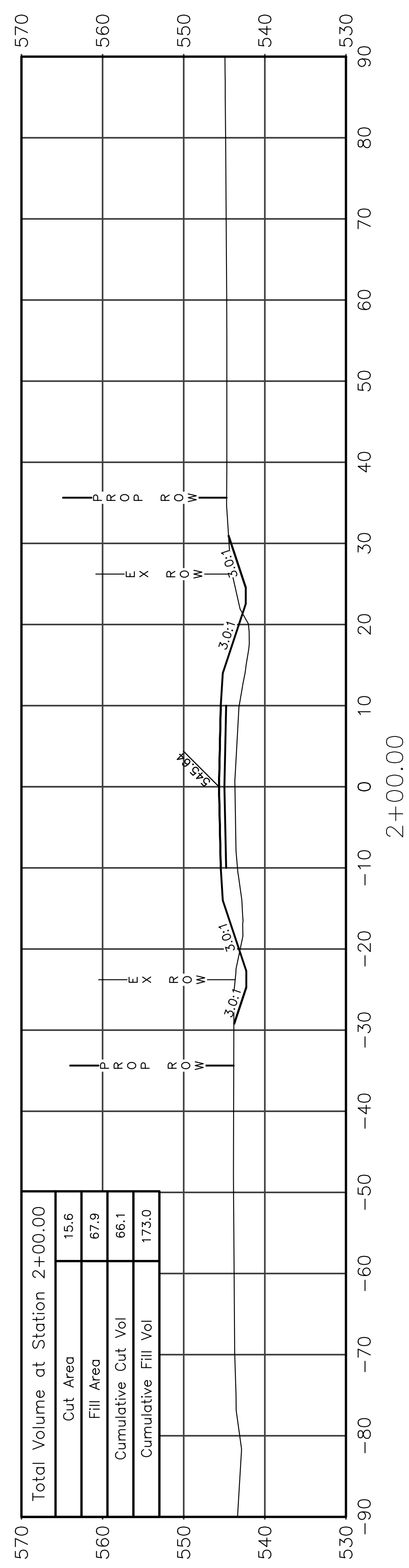
PILE DETAILS
STRUCTURE NO. 025-3333
FAS 708 (CH-12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00

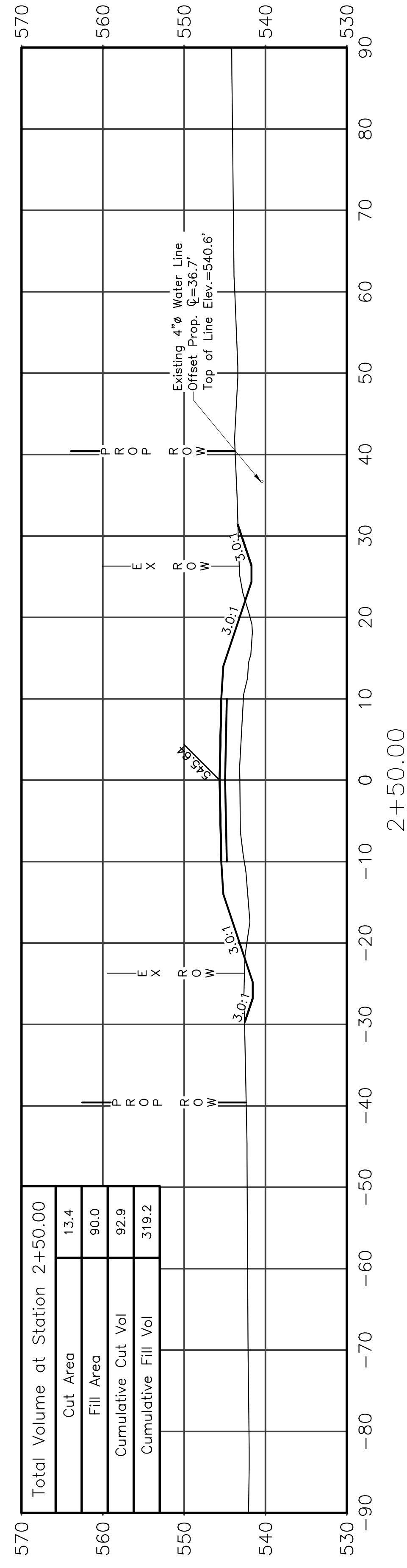
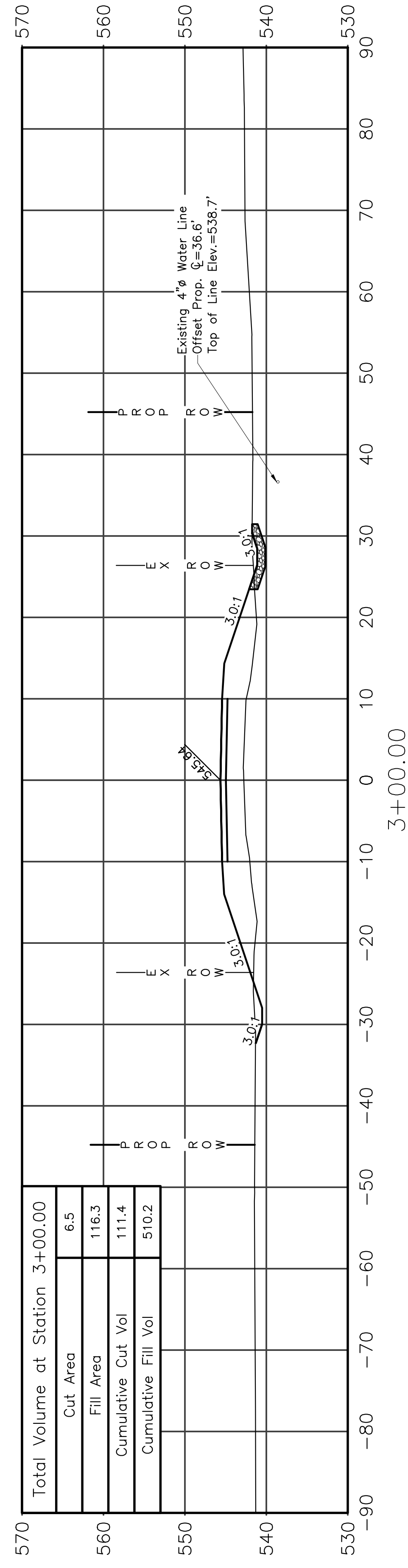
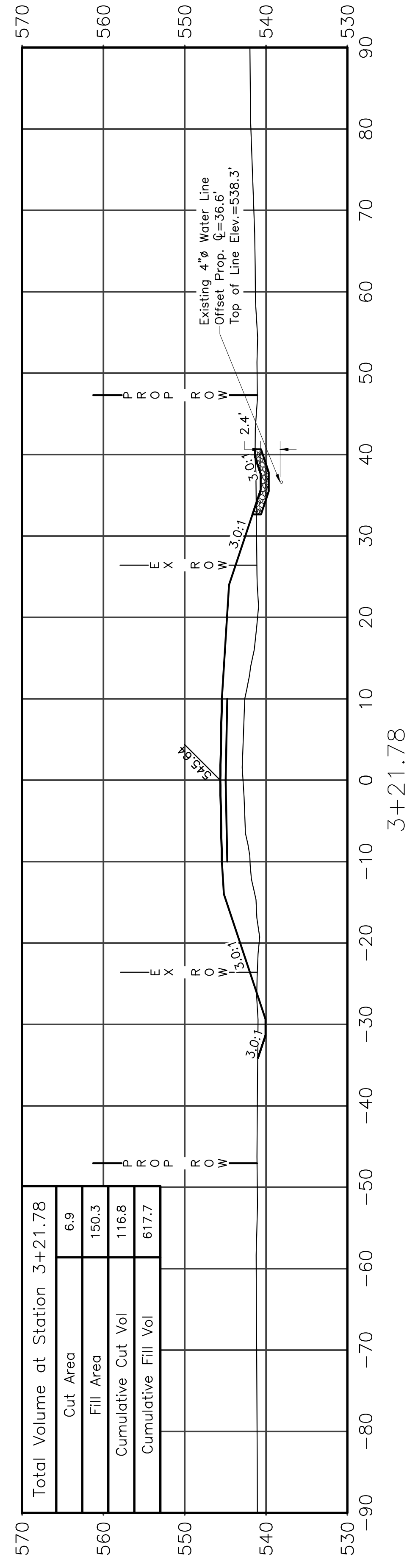
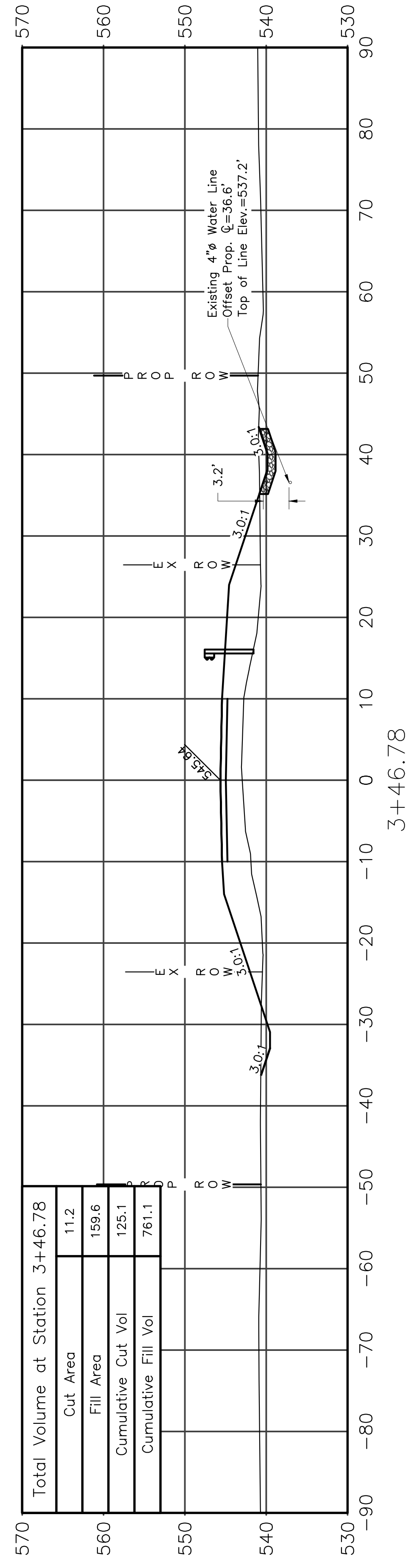
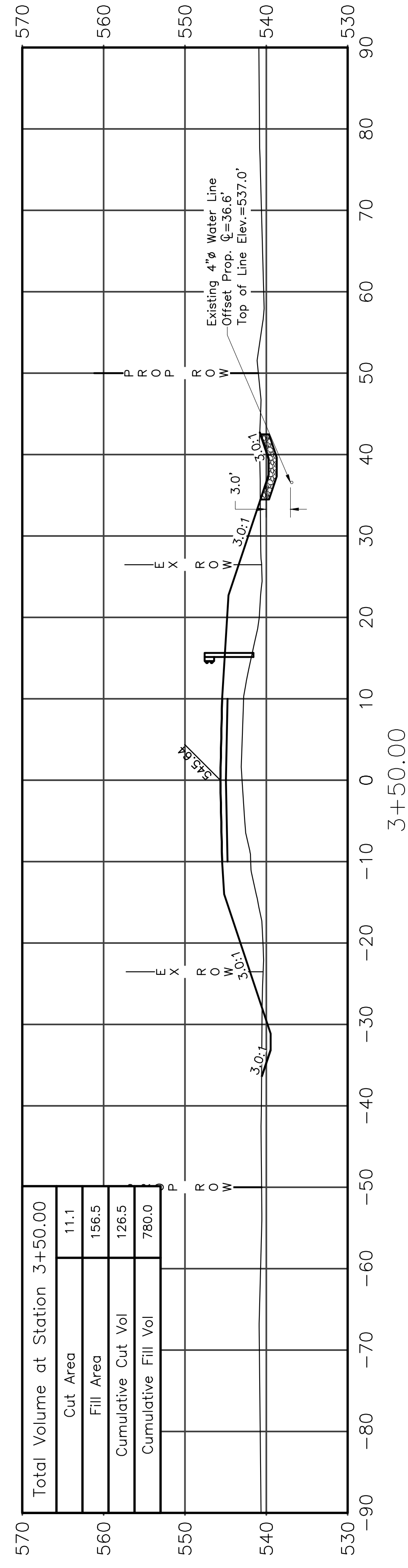
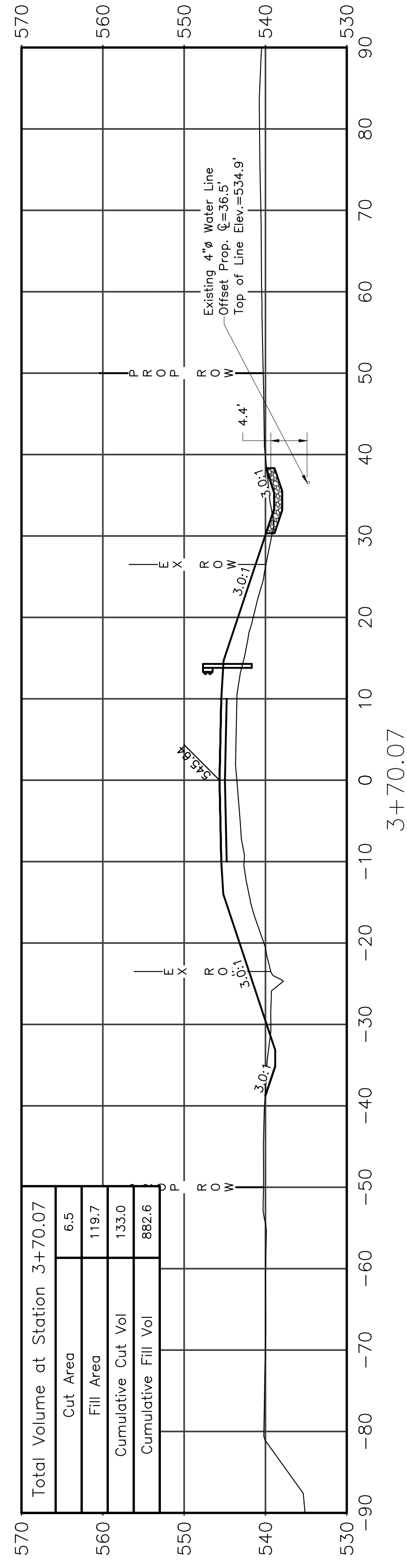
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	11
CONTRACT 95854		ILLINOIS PROJECT 32KM(542)		

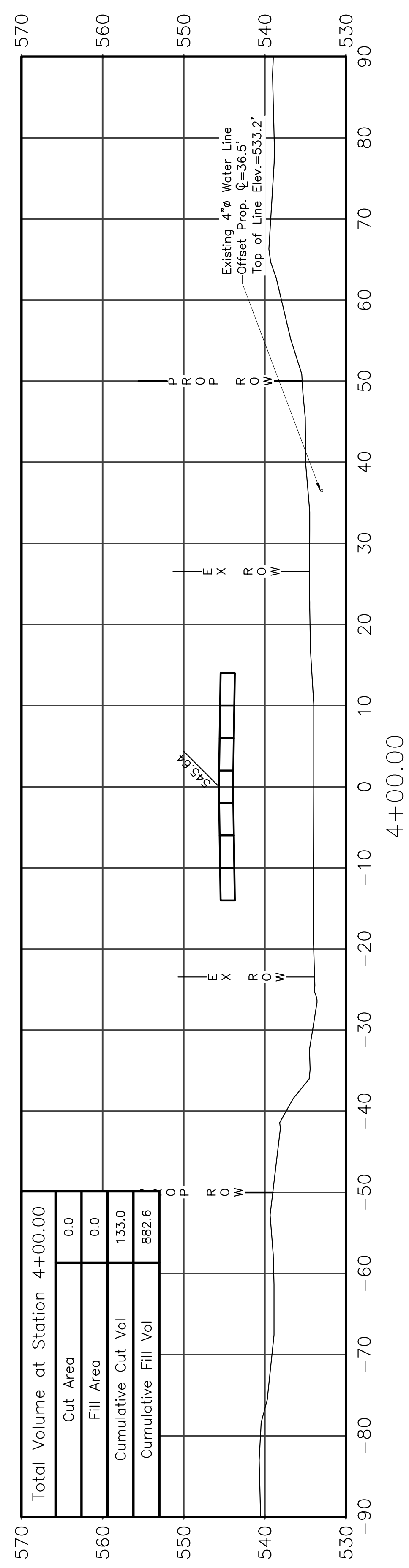
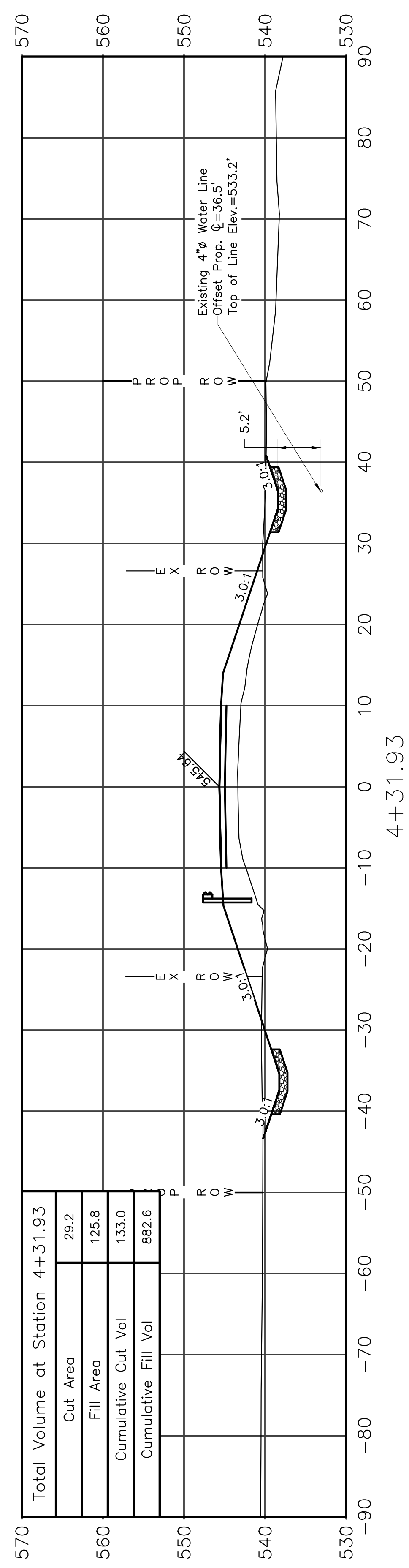
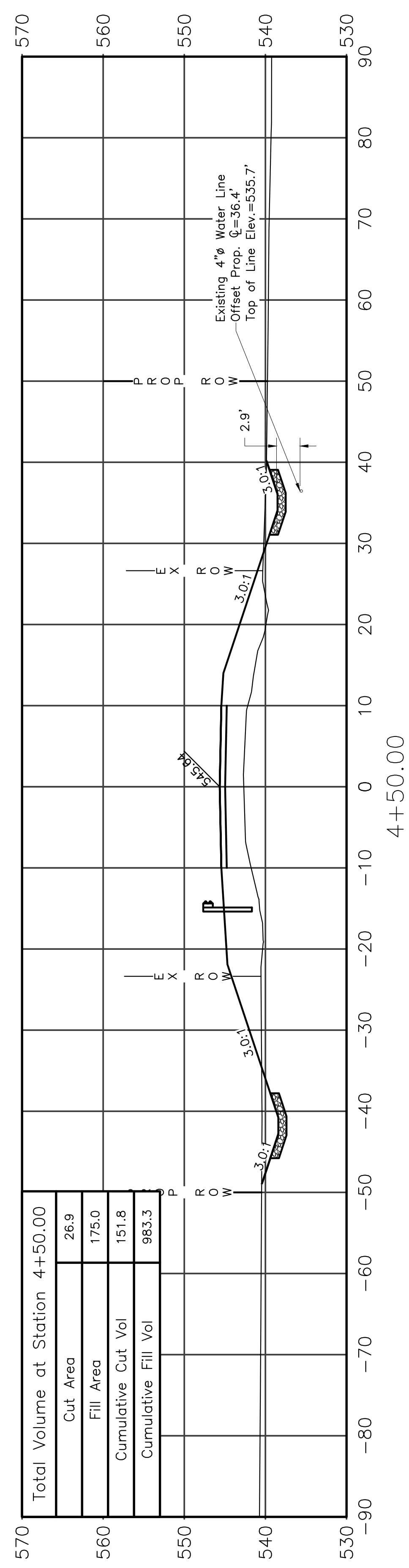
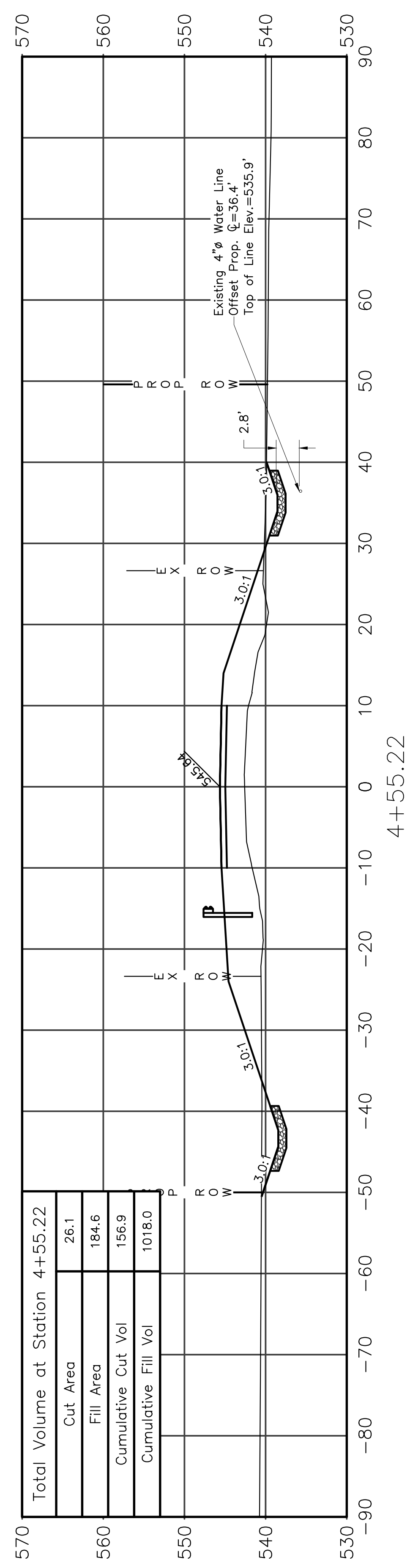
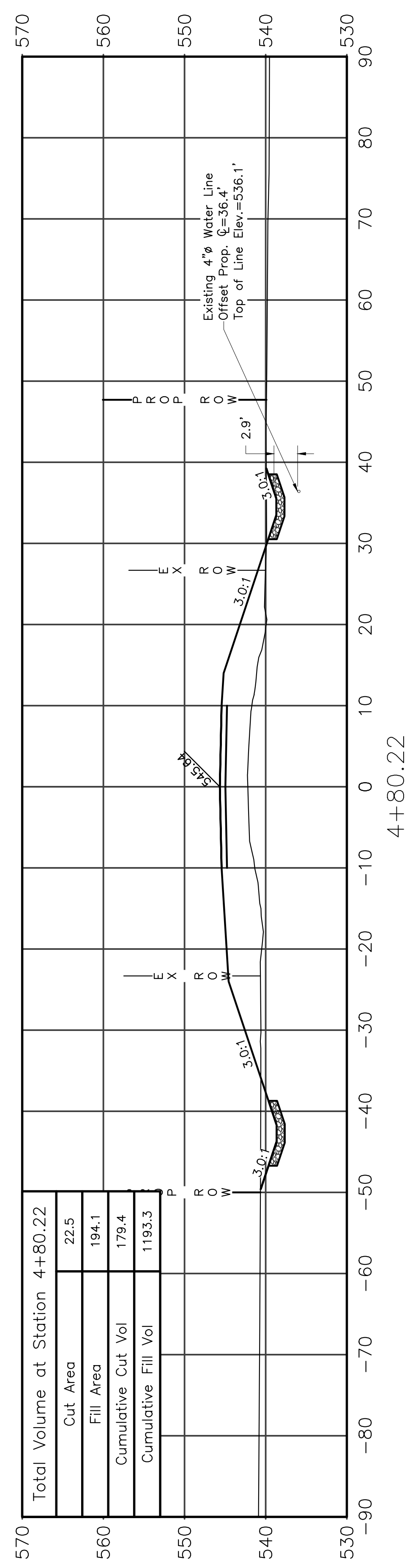
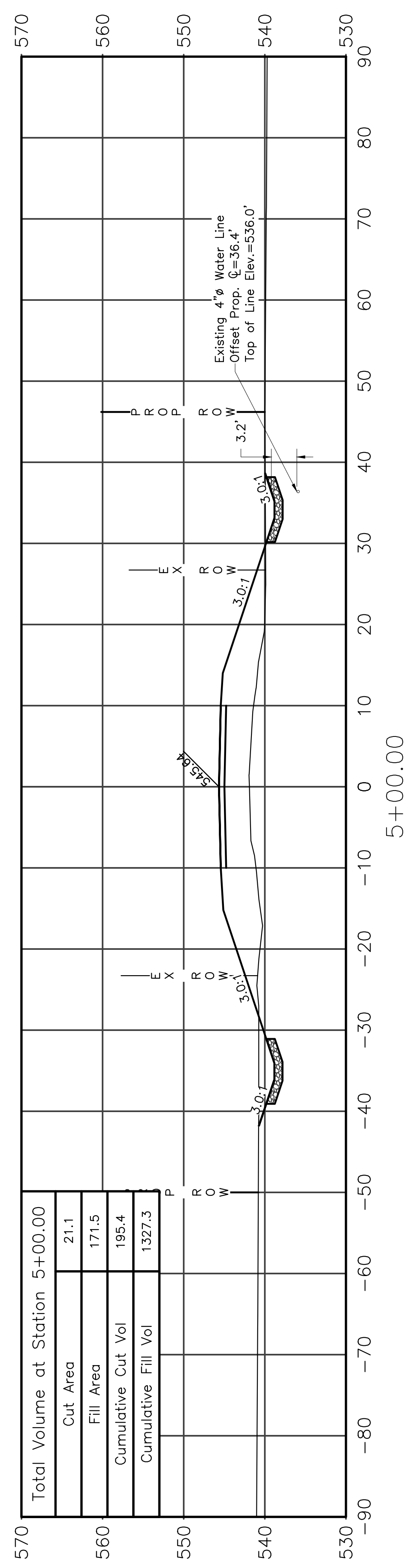


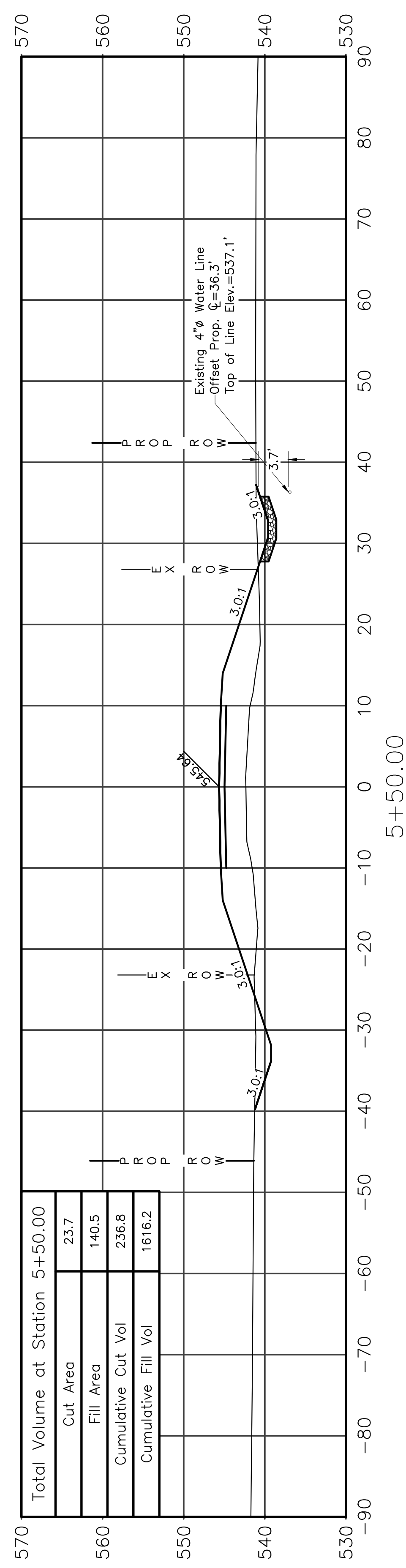
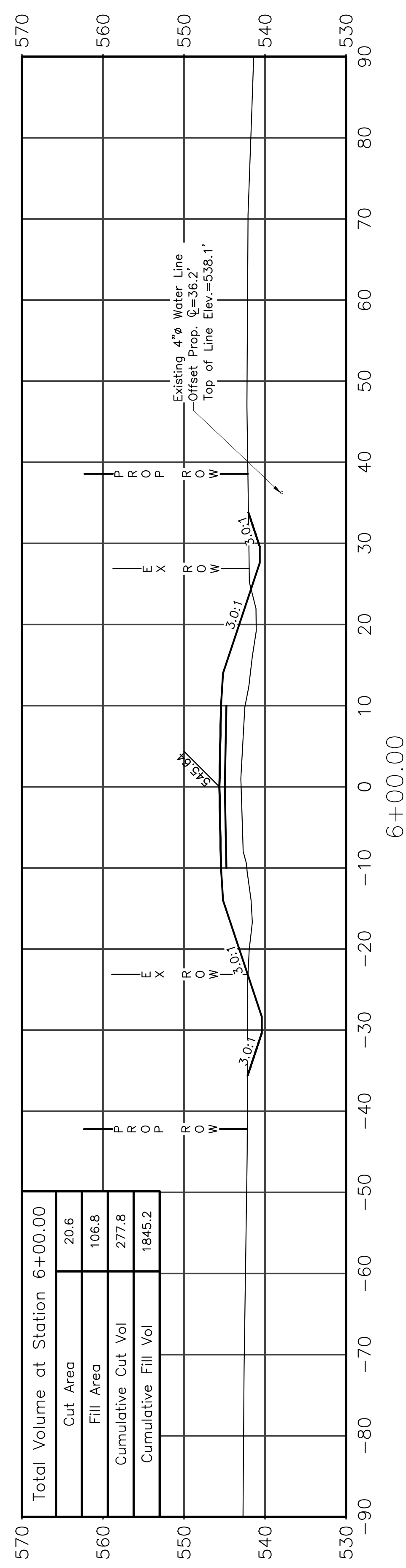
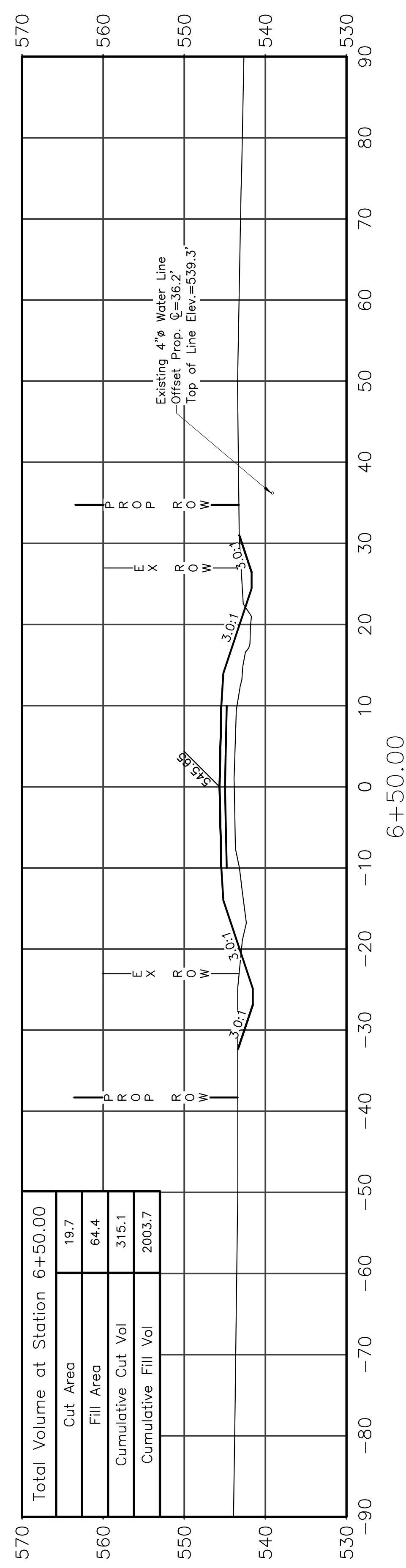
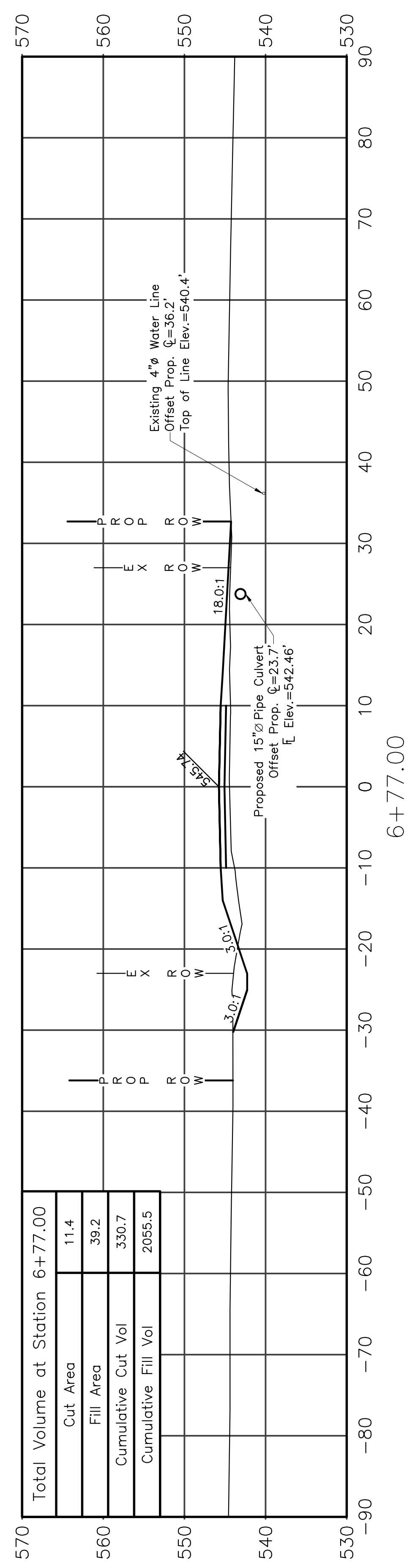
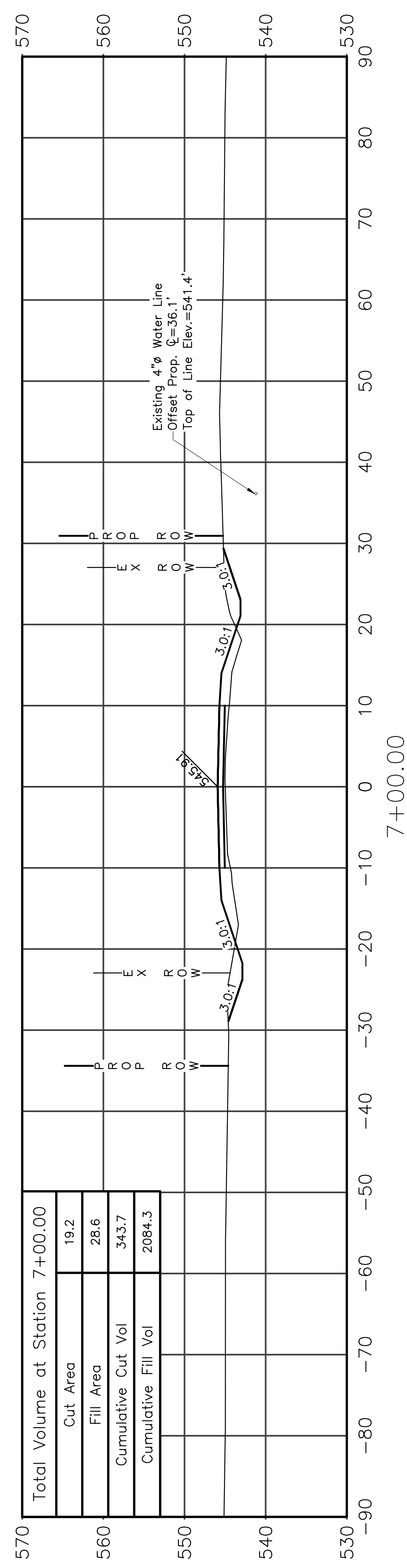
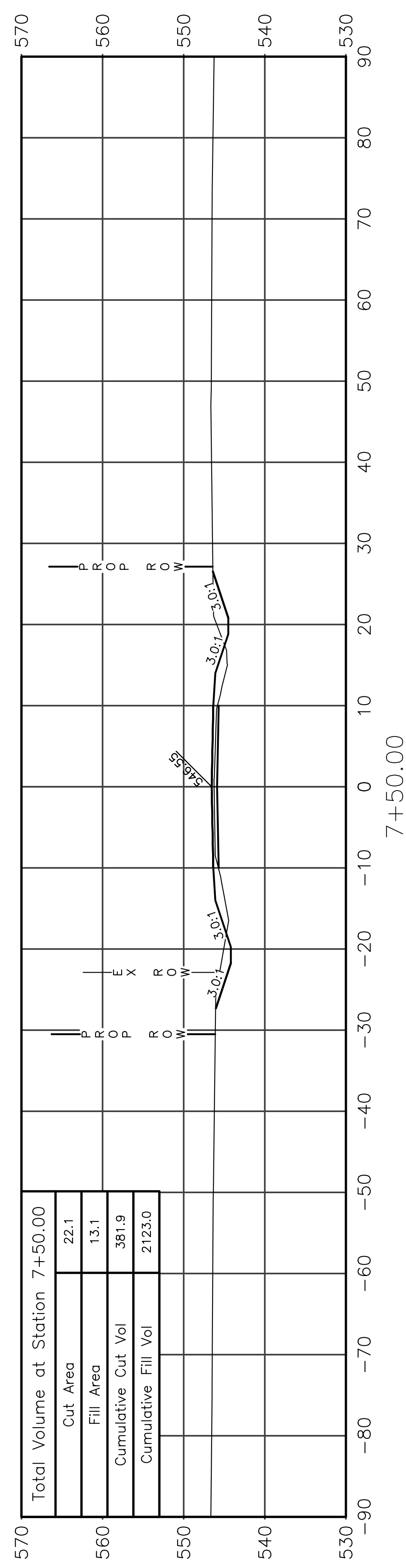
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105 NORTH KITCHELL
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OLNEY, ILLINOIS 62450
(618) 392-0736
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

BORING LOGS
STRUCTURE NO. 025-3333
FAS 708 (C.H. 12)
OVER LITTLE MUDDY CREEK
SECTION 17-00097-00-BR
EFFINGHAM COUNTY
STATION 4+01.00

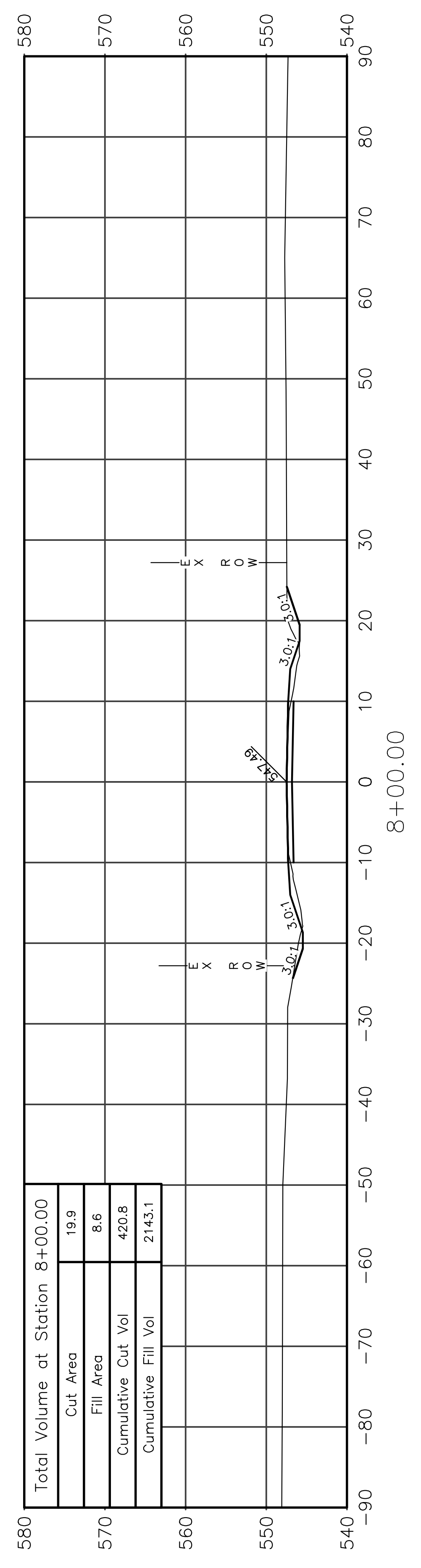








ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 708	17-00097-00-BR	EFFINGHAM	16	16
CONTRACT NO. 95854		ILLINOIS	PROJECT 32KM(542)	



Total Volume at Station 8+00.00	
Cut Area	19.9
Fill Area	8.6
Cumulative Cut Vol	420.8
Cumulative Fill Vol	2143.1