

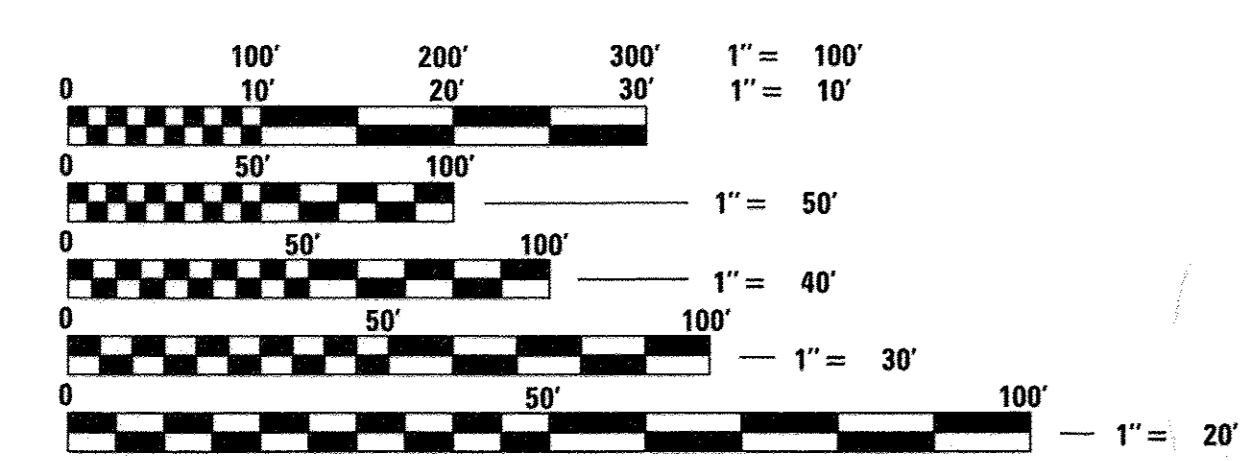
1. COVER SHEET
2. SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
3. PLAN AND PROFILE OF ROADWAY
4. GENERAL PLAN AND ELEVATION
- 5.-6. PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
7. STEEL RAILING, TYPE SM DETAILS
8. ABUTMENT DETAILS
9. HP PILE DETAILS
- 10.-11. CROSS SECTIONS OF ROADWAY

- HIGHWAY STANDARDS (SEE SPECIFICATIONS)
- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
 - 515001-03 NAME PLATE FOR BRIDGES
 - 630001-11 STEEL PLATE BEAM GUARDRAIL
 - 630301-07 SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
 - 631032-09 TRAFFIC BARRIER TERMINAL, TYPE 6A
 - 701901-06 TRAFFIC CONTROL DEVICES
 - 725001-01 OBJECT AND TERMINAL MARKERS
 - 780001-05 TYPICAL PAVEMENT MARKINGS
 - BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

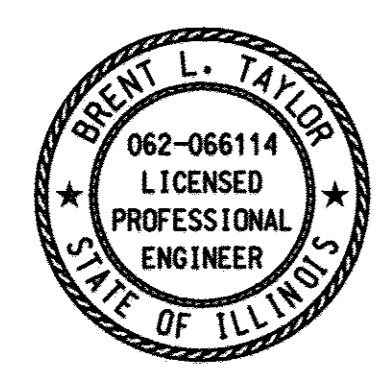
DESIGN CLASSIFICATION: MAJOR COLLECTOR
ADT₂₀₃₅ : 550

DESIGN SPEED: 50 MPH



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.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 or 811 Website: <http://www.illinois1call.com>



Brent L. Taylor 04/03/2017
BRENT L. TAYLOR
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 062-066114
EXPIRES NOV. 30, 2017

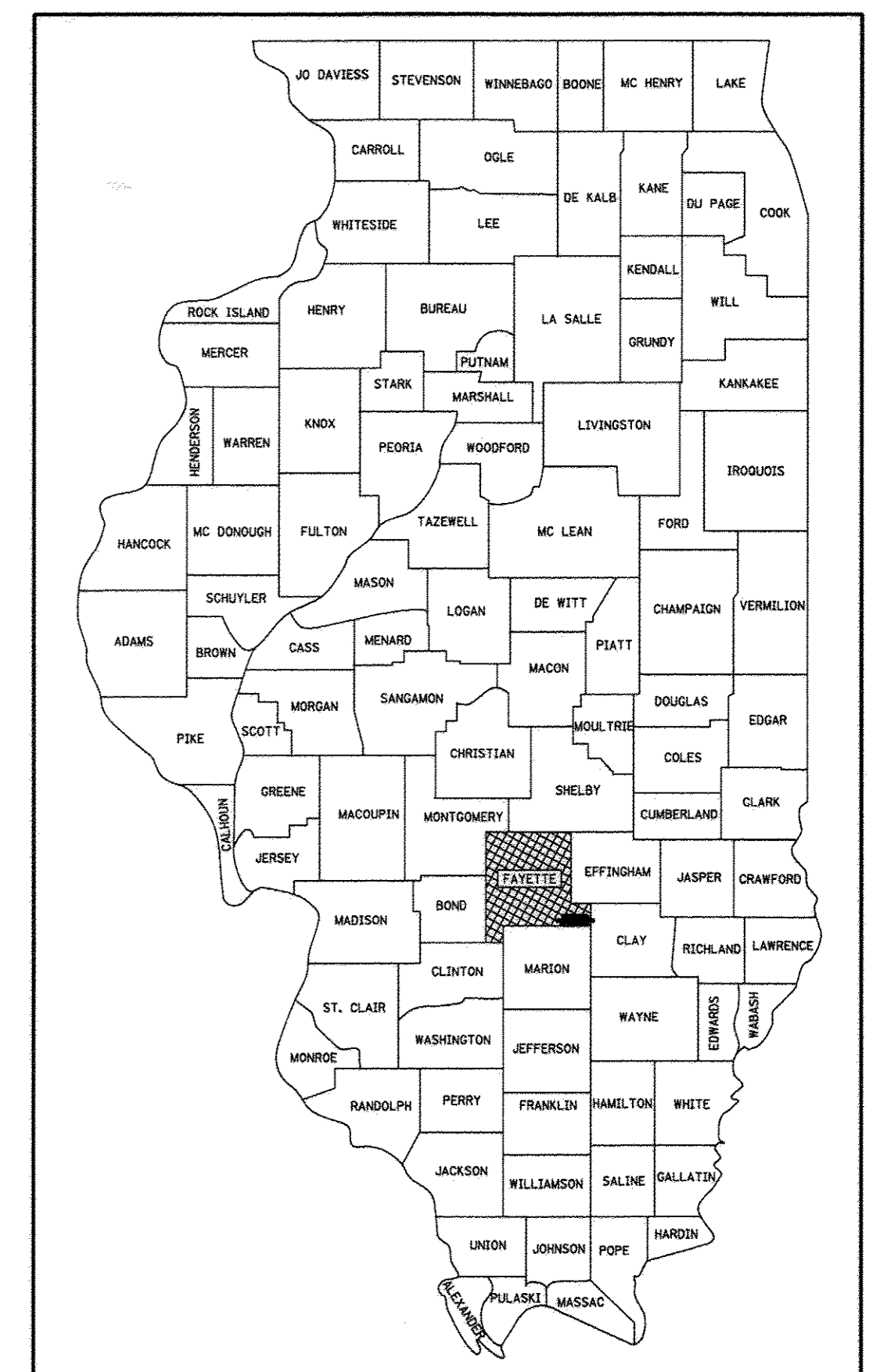
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED STP-BRIDGE

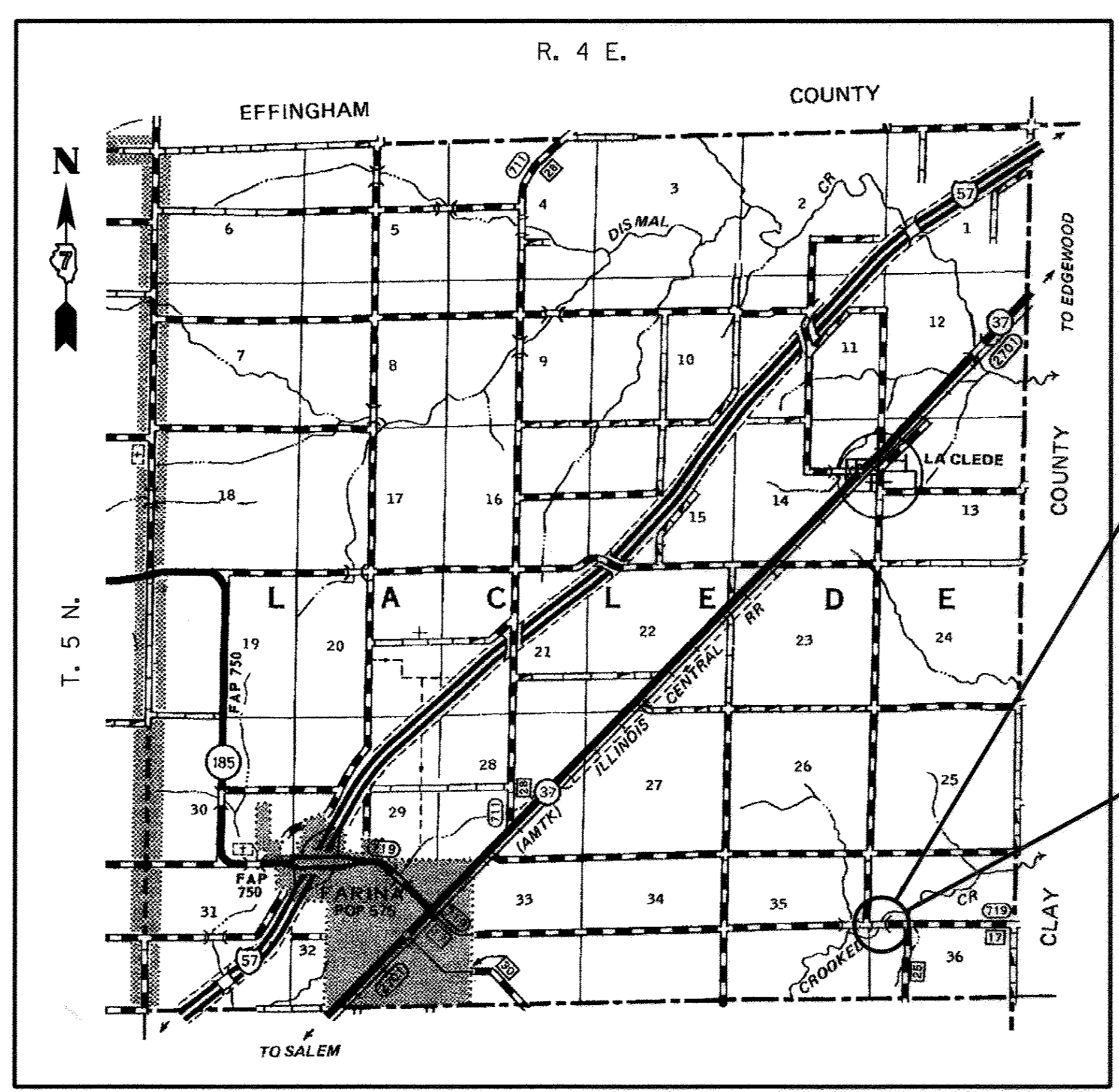
FAS 719 (CH 17) BRIDGE OVER CROOKED CREEK SECTION 14-00126-00-BR PROJECT NO. BRS-0719(110) LACLEDE ROAD DISTRICT FAYETTE COUNTY JOB NO. C-97-024-16

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAS 719	14-00126-00-BR	FAYETTE	11	1
			CONTRACT NO. 95814	

RAAI JOB NO. 53914



LOCATION OF SECTION INDICATED THUS: [Symbol]



SECTION ENDS
STA. 51+73.48

SECTION 14-00126-00-BR INCLUDES THE CONSTRUCTION OF A SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING FAS 719 (CH 17) OVER CROOKED CREEK, 90'-0" BK. TO BK. ABUTMENTS X 30'-0" WIDE, NO SKEW. EXISTING STRUCTURE NO. 026-3012 PROPOSED STRUCTURE NO. 026-3467

SECTION BEGINS
STA. 48+18.00

LOCATION: NEAR THE SOUTHWEST CORNER OF THE NW 1/4 OF SECTION 36, T5N, R4E, 3RD P.M.
NET LENGTH OF PROJECT: 355.48 FT. = 0.067 MI.

FAYETTE COUNTY
HIGHWAY DEPARTMENT

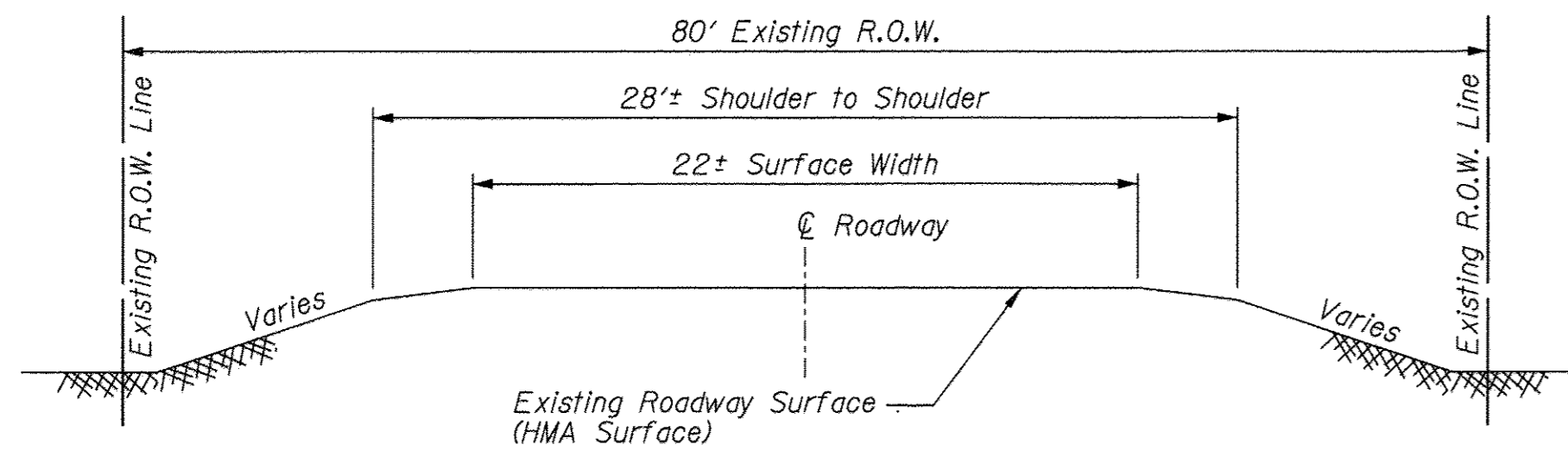
APPROVED 4-3-17
[Signature]
FAYETTE COUNTY, COUNTY ENGINEER

PASSED 4-13-2017
[Signature]
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

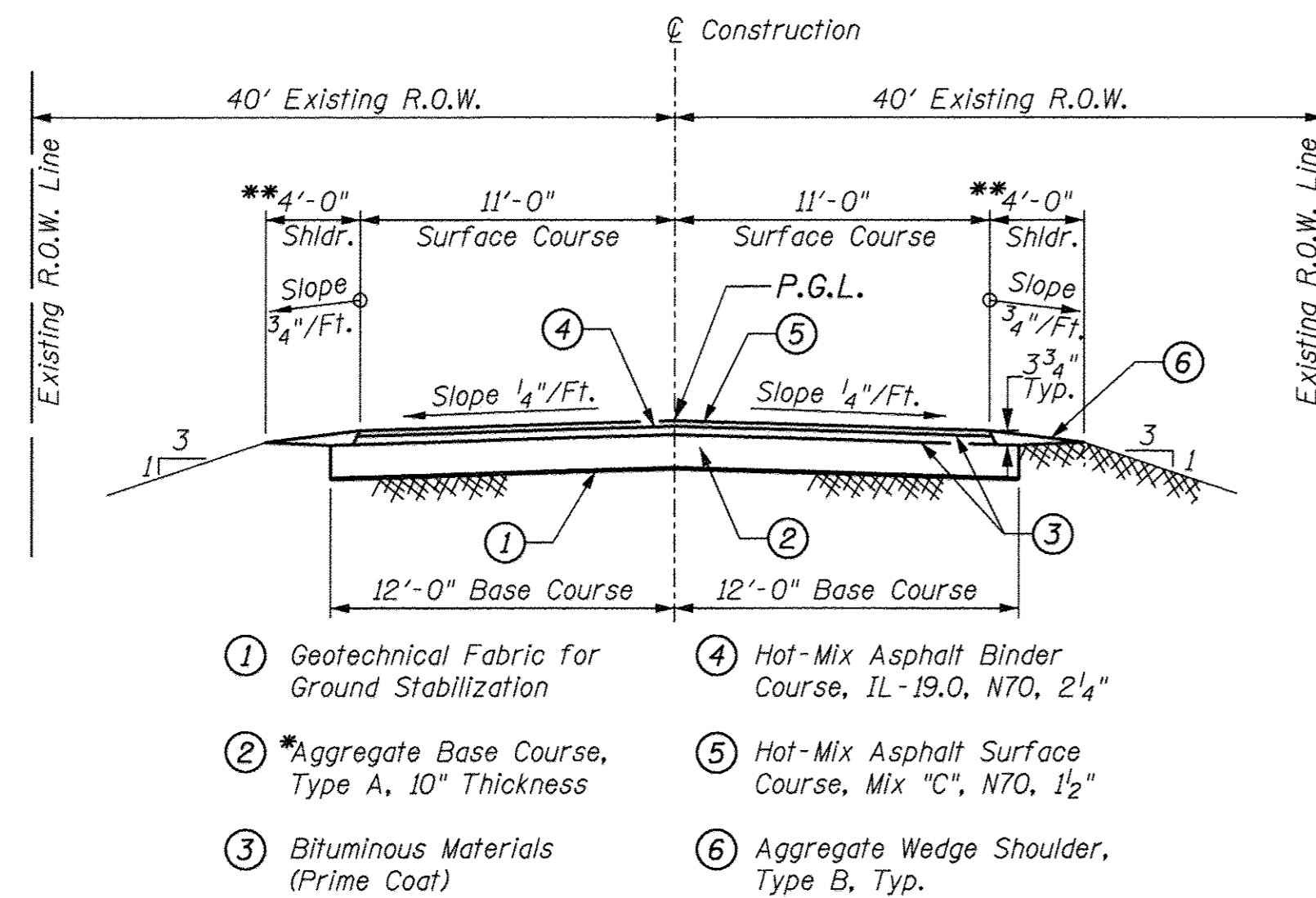
RELEASING FOR BID
BASED ON LIMITED
REVIEW 4-13-2017
[Signature]
REGION FOUR ENGINEER

**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

CONTRACT NO. 95814

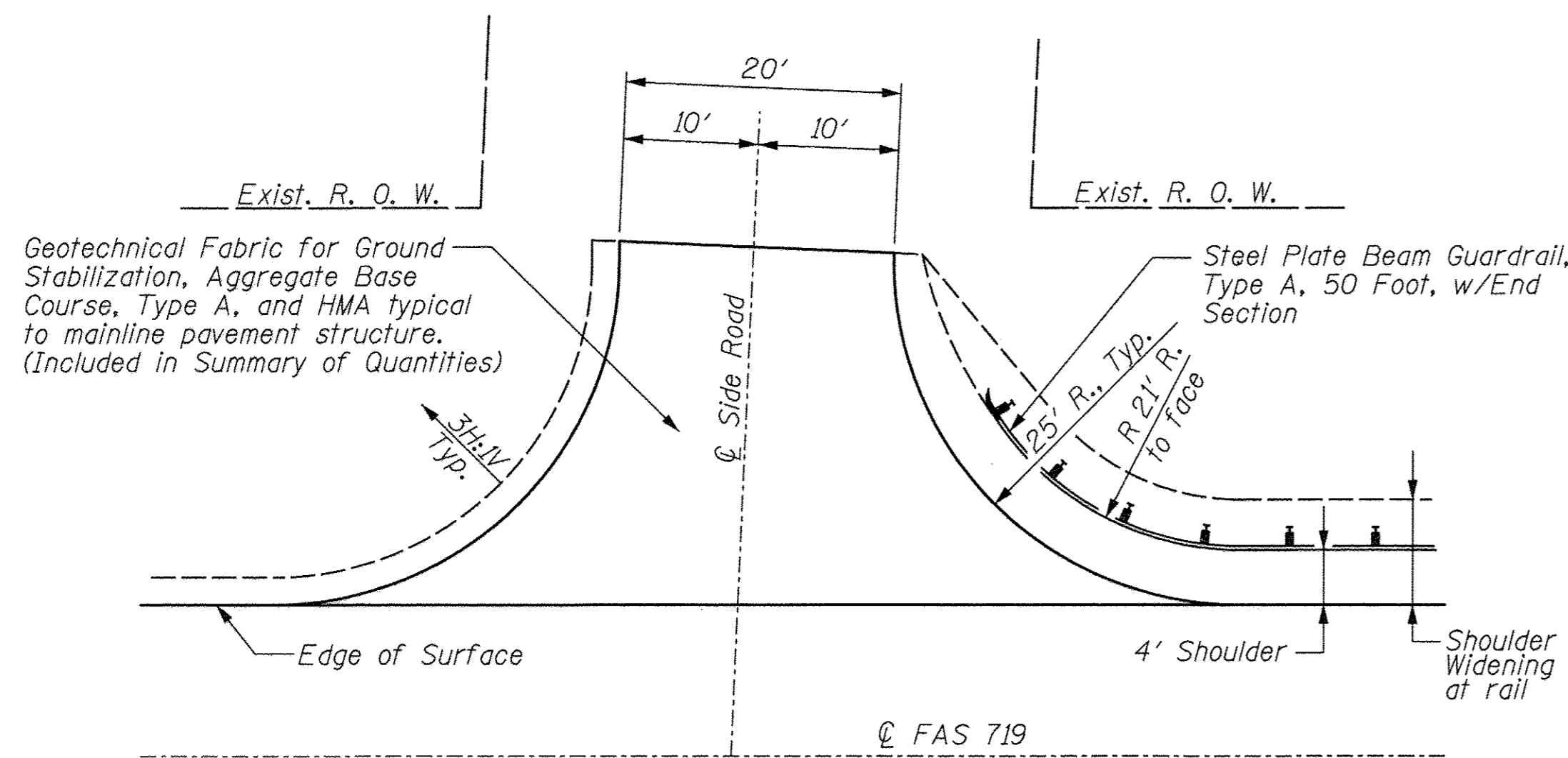


**TYPICAL SECTION
EXISTING APPROACH ROADWAY**



**TYPICAL SECTION
PROPOSED APPROACH ROADWAY**

Sta. 48+18.00 to Sta. 49+55.00
Sta. 50+45.00 to Sta. 51+73.48
*Base depth varies as per Article 351.07
**See Std. 630301 for Shoulder Widening for Type 1 (Special) Guardrail Terminals



SIDE ROAD INTERSECTION
Lt., Sta. 48+51.77

GENERAL NOTES

- This section shall be constructed according to the plans, the Special Provisions, and the "Standard Specifications for Road and Bridge Construction", adopted April 1, 2016.
- Roadway Centerline profiles refer to the finished surface.
- Any reference to a Standard in these plans shall be interpreted to mean the edition as indicated by the sub-number listed in the Index of Sheets or the copy of the Standard included in these plans.
- Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, 811, or by direct contact with non-members of J.U.L.I.E.
- The nominal thickness for surface course is shown on the Typical Sections, Standards, Schedules, or Special Details. The constructed thickness of the above item shall not be less than 90 percent of the nominal thickness at any location.
- Factors used for quantity calculations are as follows:
 Porous Granular Embankment 2.1 tons/cu. yd.
 Stone Dumped Riprap 130 pounds/cu. ft.
 All Aggregates 2.1 tons/cu. yd.
 Hot Mix Asphalt 0.056 tons/sq. yd./inch
 Bit. Materials (Prime Coat) 0.25 Pound/sq. ft. (on Aggregate)
 0.025 Pound/sq. ft. (between HMA lifts)
- Commitments: Existing fence removal and replacement within the limits of construction will be done by others and will be coordinated by Fayette County Highway Dept. The removal will be completed prior to the start of construction. The County will notify all emergency, school, and postal services of road closure prior to the start of construction. Documentation of the existing bridge will be conducted (by IDOT) prior to the start of construction. Documentation will conform to Level III Standards of the Illinois Historic American Engineering Record. The existing bridge shall not be demolished until written approval is received from the SHPO that the documentation is acceptable. No other commitments as of December 31, 2016.

UTILITIES

J.U.L.I.E.: Design Phase Locate
Dig No.: X0640311 (03/04/2016)

Electric: Kimberly Thomson / Zach Michael
Ameren Illinois
1800 Ford Ave.
Effingham, IL 62401
Phone: 888-659-4540

Telephone: Rod Eller
Frontier Communications
801 W. Jackson
Altamont, IL 62411
Phone: 618-483-6205

Water: Wally Cox
Northeast Marion County Water Company
c/o Heneghan and Associates, PC
838 E. McCord St.
Centralia, IL 62801
Phone: 618-533-6525

SUMMARY OF QUANTITIES

Code No.	Item	Unit	Quantity
20200100	Earth Excavation	Cu Yd	148
20300100	Channel Excavation	Cu Yd	690
20400800	Furnished Excavation	Cu Yd	120
21001000	Geotechnical Fabric for Ground Stabilization	Sq Yd	804
28100807	Stone Dumped Riprap, Class A4	Ton	200
35100100	Aggregate Base Course, Type A	Ton	493
40600275	Bituminous Materials (Prime Coat)	Pound	1840
40603085	Hot-Mix Asphalt Binder Course, IL-19.0, N70	Ton	94
40603315	Hot-Mix Asphalt Surface Course, Mix "C", N70	Ton	108
44000100	Pavement Removal	Sq Yd	845
48102100	Aggregate Wedge Shoulder, Type B	Ton	46
50100100	Removal of Existing Structures	Each	1
50300225	Concrete Structures	Cu Yd	31.6
50400705	Precast Prestressed Concrete Deck Beams (42" Depth)	Sq Ft	2660
50800105	Reinforcement Bars	Pound	4960
* 50901050	Steel Railing, Type SM	Foot	180
51201600	Furnishing Steel Piles HP12x53	Foot	160
51500100	Name Plates	Each	1
58100200	Waterproofing Membrane System	Sq Yd	300
58300100	Portland Cement Mortar Fairing Course	Foot	798
59300100	Controlled Low-Strength Material	Cu Yd	70
* 63000001	Steel Plate Beam Guardrail, Type A, 6 Foot Posts	Foot	50
* 63100087	Traffic Barrier Terminal, Type 6A	Each	4
* 63100167	Traffic Barrier Terminal, Type 1 (Special) Tangent	Each	3
63200310	Guardrail Removal	Foot	644
67100100	Mobilization	L Sum	1
* 72501000	Terminal Marker - Direct Applied	Each	3
* 78001110	Paint Pavement Marking - Line 4"	Foot	731
X2501000	Seeding, Class 2 (Special)	Acre	0.3
X7010216	Traffic Control and Protection, (Special)	L Sum	1
Z0065000	Setting Piles in Rock	Each	10

* Specialty Item

RAAI JOB NO. 53914

TBM 1 - RR spike in Power Pole,
39.91' Lt. of Sta. 49+03.26 - Elev. 546.48

TBM 2 - RR spike in Telephone Pole,
25.08' Rt. of Sta. 50+83.46 - Elev. 542.79

LOADING HL-93

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

DESIGN SPECIFICATIONS

2014 (7th ED.) w/2015 & 2016 Revisions
AASHTO LRFD Bridge Design Specifications.

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
 $f_{pu} = 270,000$ psi ($1/2"$ ϕ low lax. strands)
 $f_{pbt} = 201,960$ psi ($1/2"$ ϕ low lax. strands)
 $f_y = 60,000$ psi (reinforcement)

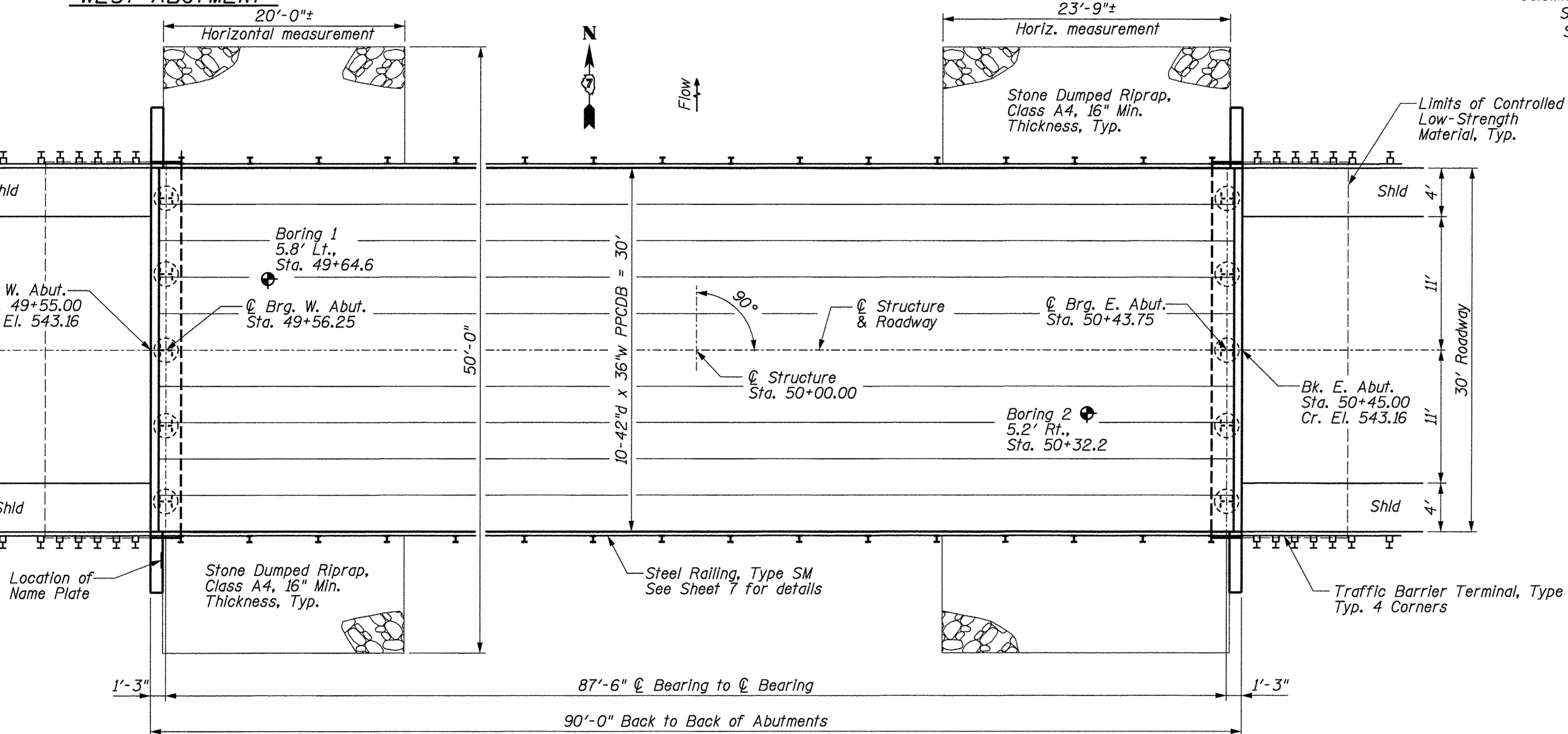
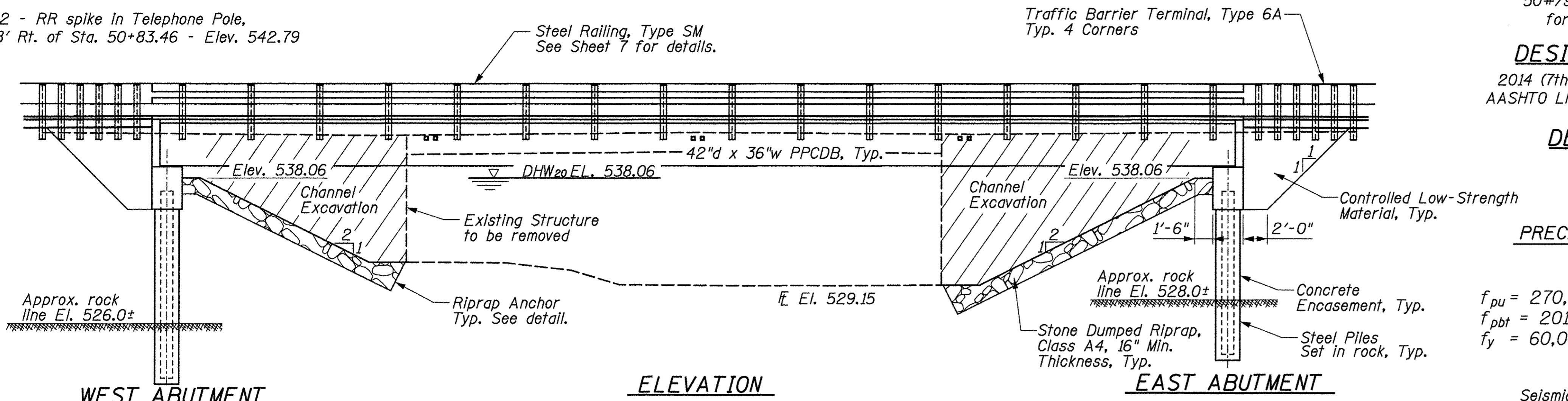
SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Soil Site Classification = C
 $S_{D1} = 0.174$ $S_{D5} = 0.452$

Existing Structure: Structure No.: 026-3012. single span concrete rigid
frame bridge with concrete deck integral with the closed concrete
abutments. 49.0' l. x 24.4' w. to be removed.

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	690
Stone Dumped Riprap, Class A4	Ton	200
HMA Surface Course, Mix "C", N70	Ton	45
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	31.6
PPCDB (42" Depth)	Sq Ft	2660
Reinforcement Bars	Pound	4960
Steel Railing, Type SM	Foot	180
Furnishing Steel Piles HPI2x53	Foot	160
Name Plates	Each	1
Waterproofing Membrane System	Sq Yd	300
Portland Cement Mortar Fairing Course	Foot	798
Controlled Low-Strength Material	Cu Yd	70
Setting Piles in Rock	Each	10



GENERAL NOTES

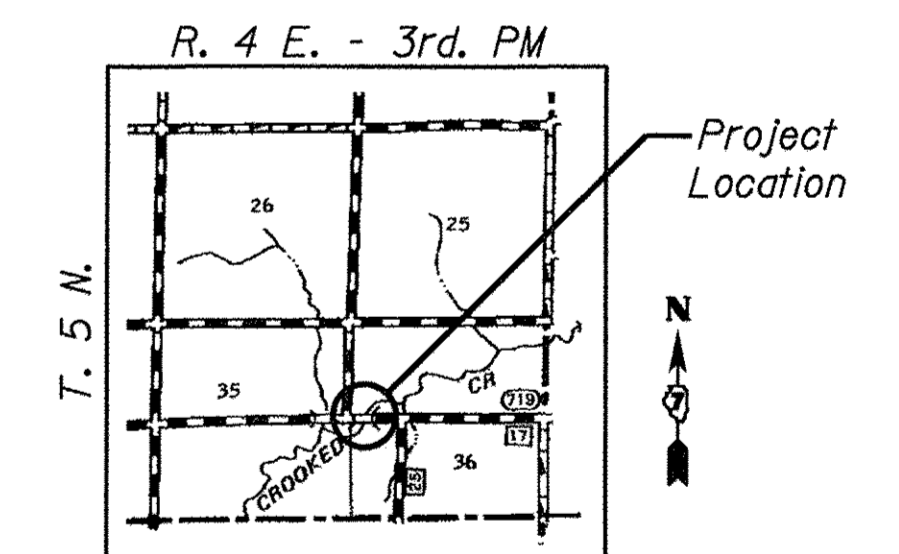
Layout of slope protection system may be varied in the field to suit
ground conditions as directed by the Engineer.

Channel excavation shall be excavated as shown within the limits of
the proposed bridge, then tapered to the existing channel at the ROW line.
If the Engineer deems the material satisfactory, it may be used to
construct the roadway embankment.

See Specifications for Soil Borings.

Do not scale these drawings.

The abutment bearing seat surfaces for the precast prestressed concrete
deck beams shall be adjusted by shimming to assure firm and even bearing.
As required, $1/8"$ fabric adjusting shims of the dimensions of the Exterior
Bearing Pad shall be provided for each bearing. The top surface of the
beams shall be finished according to the IDOT Manual for Fabrication of
Precast Prestressed Concrete Products.

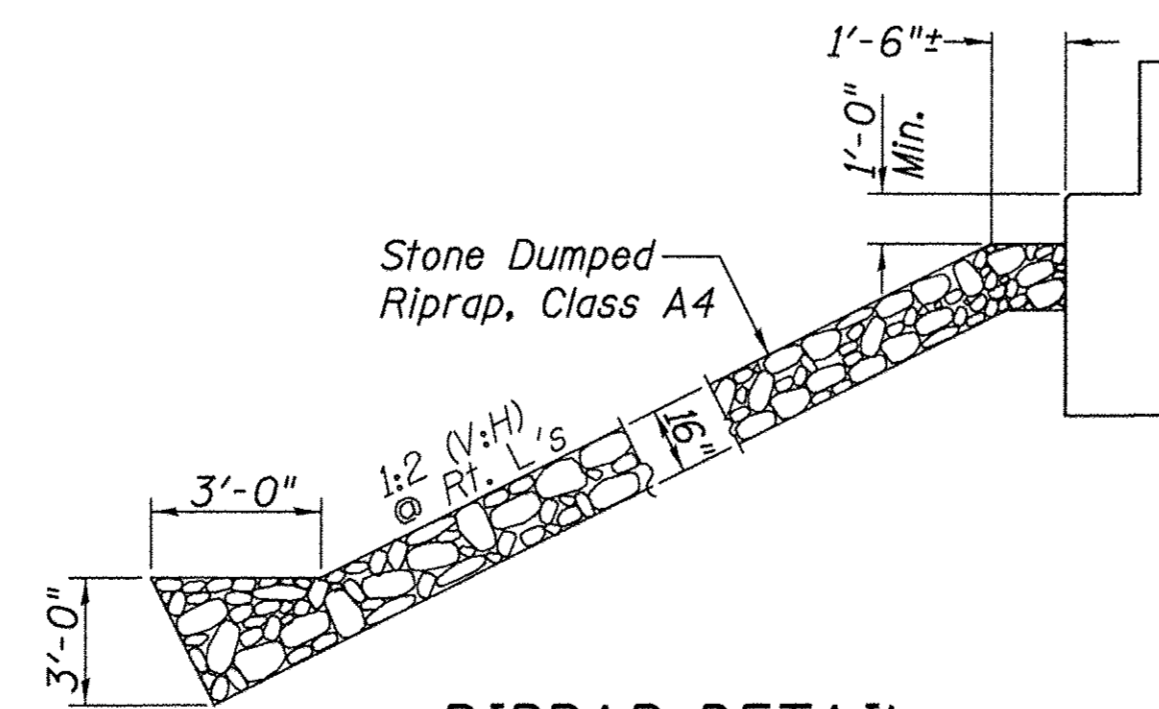


LOCATION SKETCH

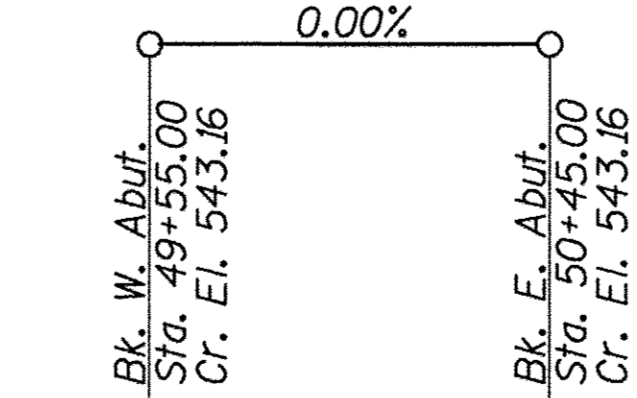
WATERWAY INFORMATION

Drainage Area = 9.32 sq. mi. Existing Low Grade Elev. 540.53 @ Sta. 46+00
Proposed Low Grade Elev. 540.53 @ Sta. 46+00

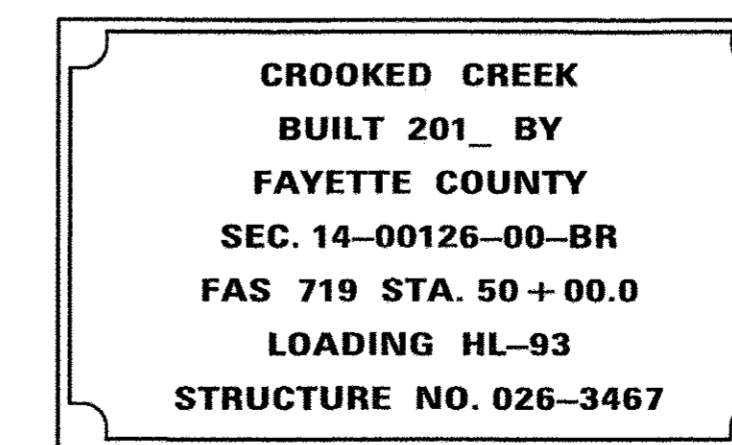
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	20	2220	365	542	538.06	0.42	0.07	538.48	538.13
Base	100	3290	415	627	539.20	0.86	0.53	540.06	539.73
Max. Calc.	500	4450	456	629	540.15	1.47	1.10	541.62	541.25



RIPRAP DETAIL

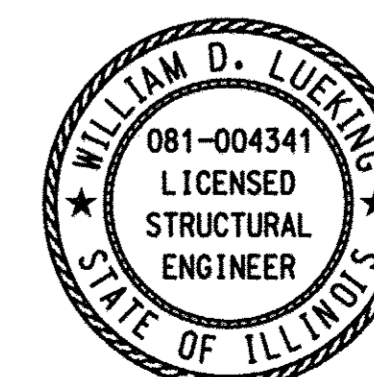


GRADE ON STRUCTURE
(along ϕ FAS 719)

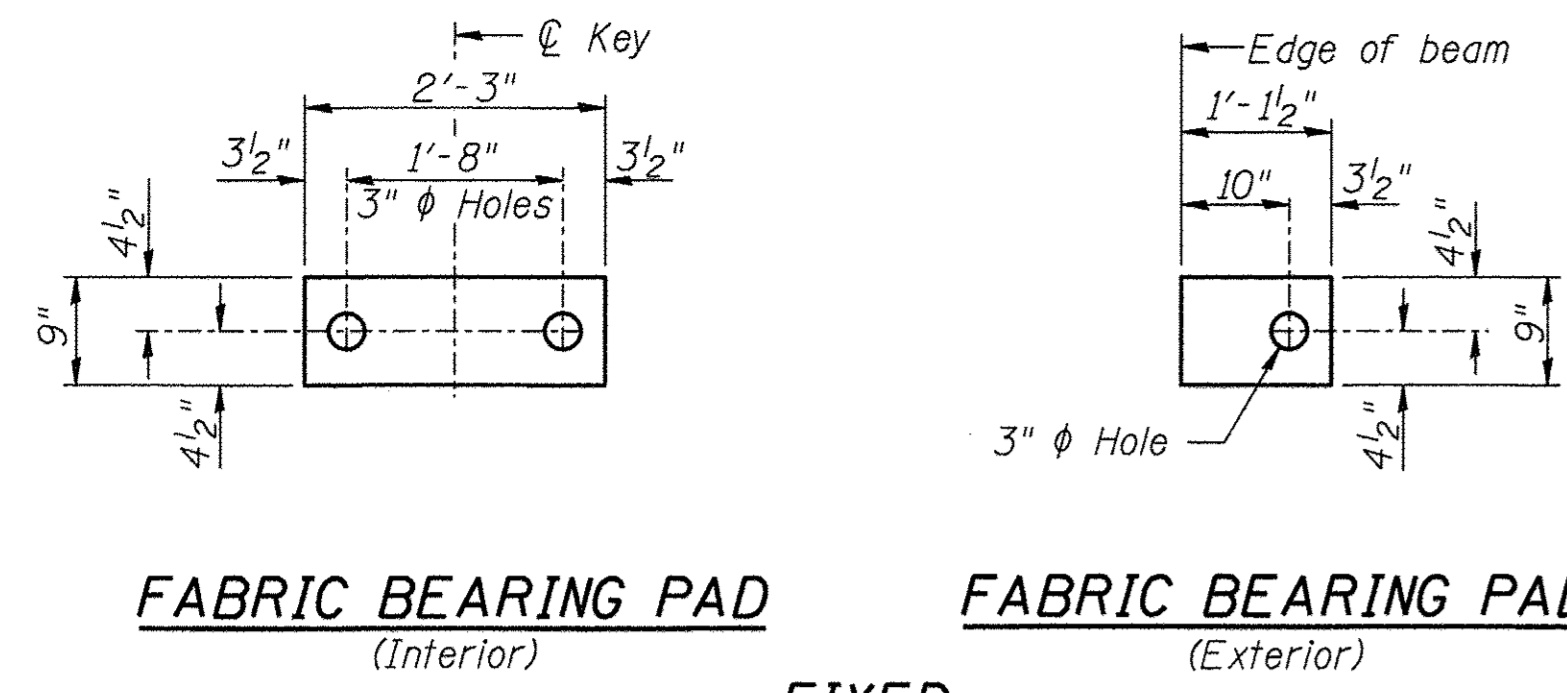


NAME PLATE

See Std. 515001



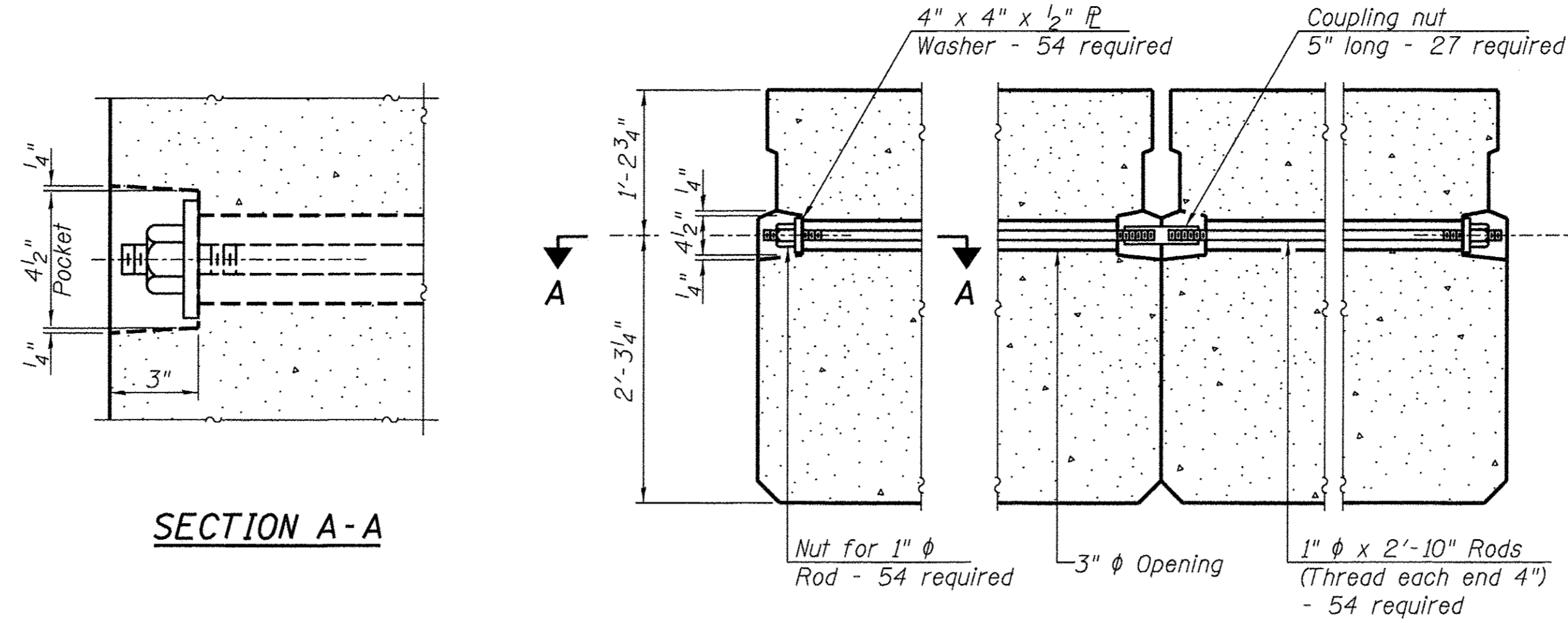
William D. Lueking 4-03-17
William D. Lueking
Centralia, Illinois
Illinois Licensed Structural
Engineer No. 081-004341
Lic. Expires Nov. 30, 2018



FABRIC BEARING PAD
(Interior) **FABRIC BEARING PAD**
(Exterior)

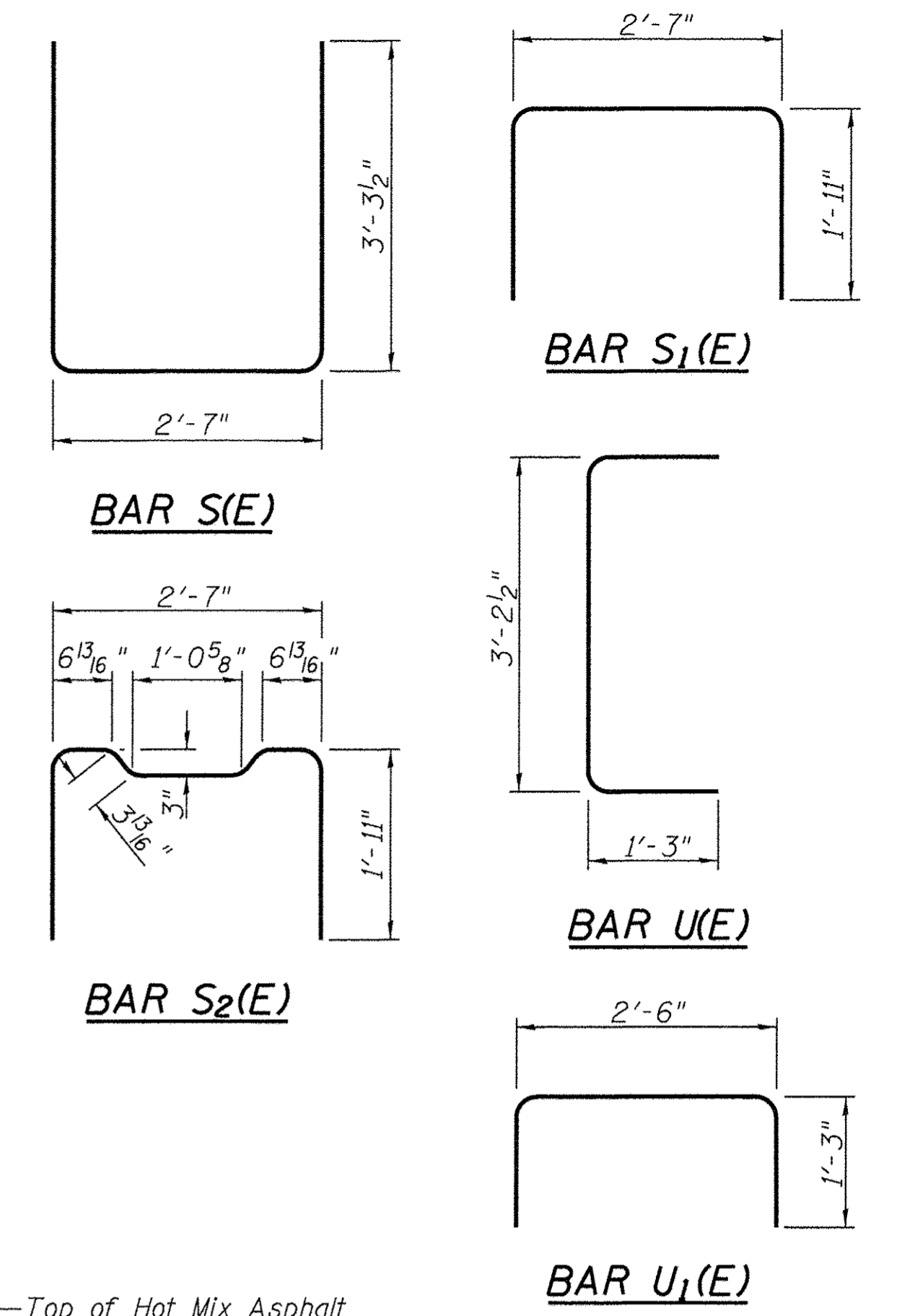
FIXED

Notes:
All bearing pads shall be 1" thick.



SECTION A-A

TYPICAL TRANSVERSE TIE ASSEMBLY

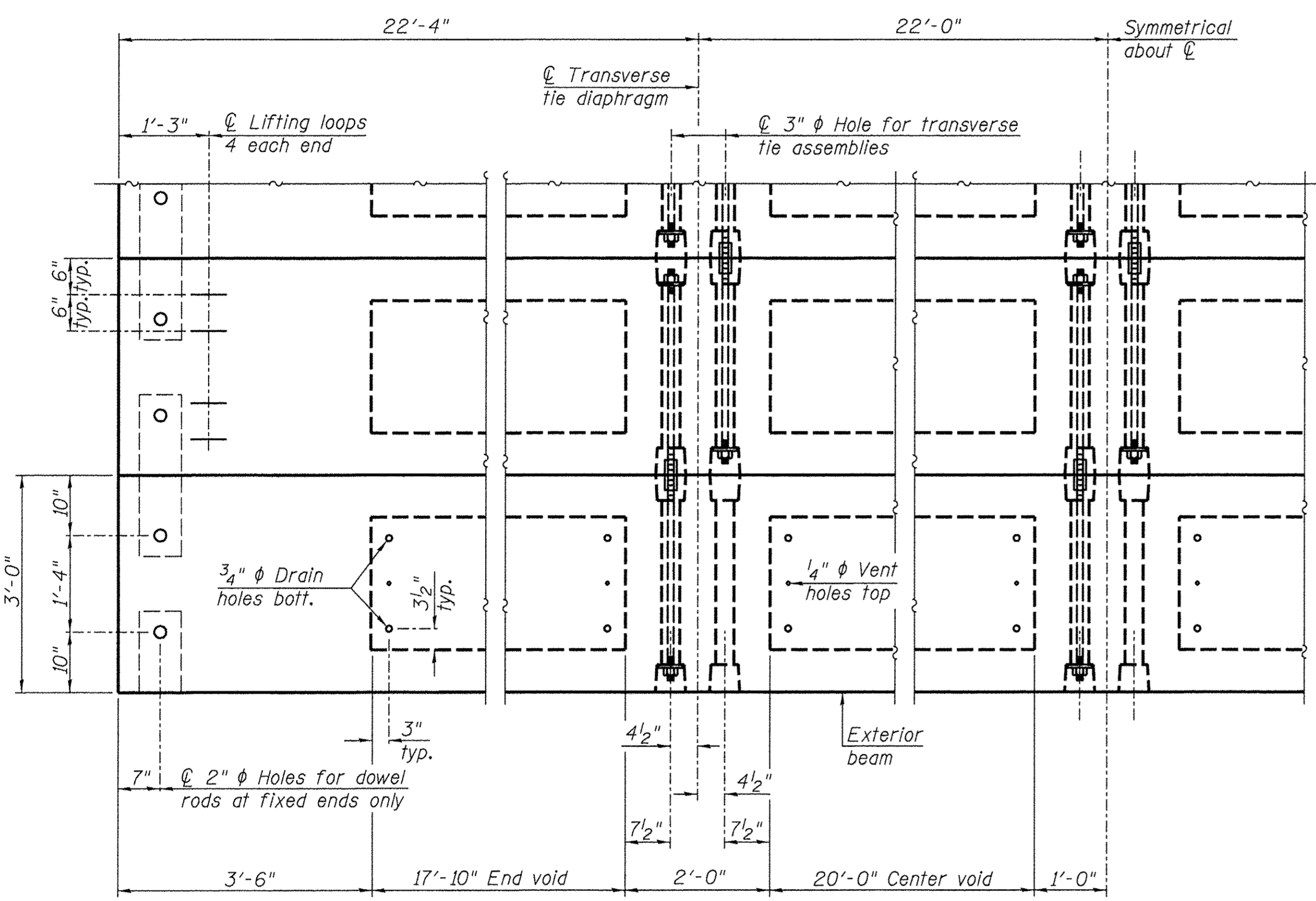


BAR S(E)

BAR S₁(E)

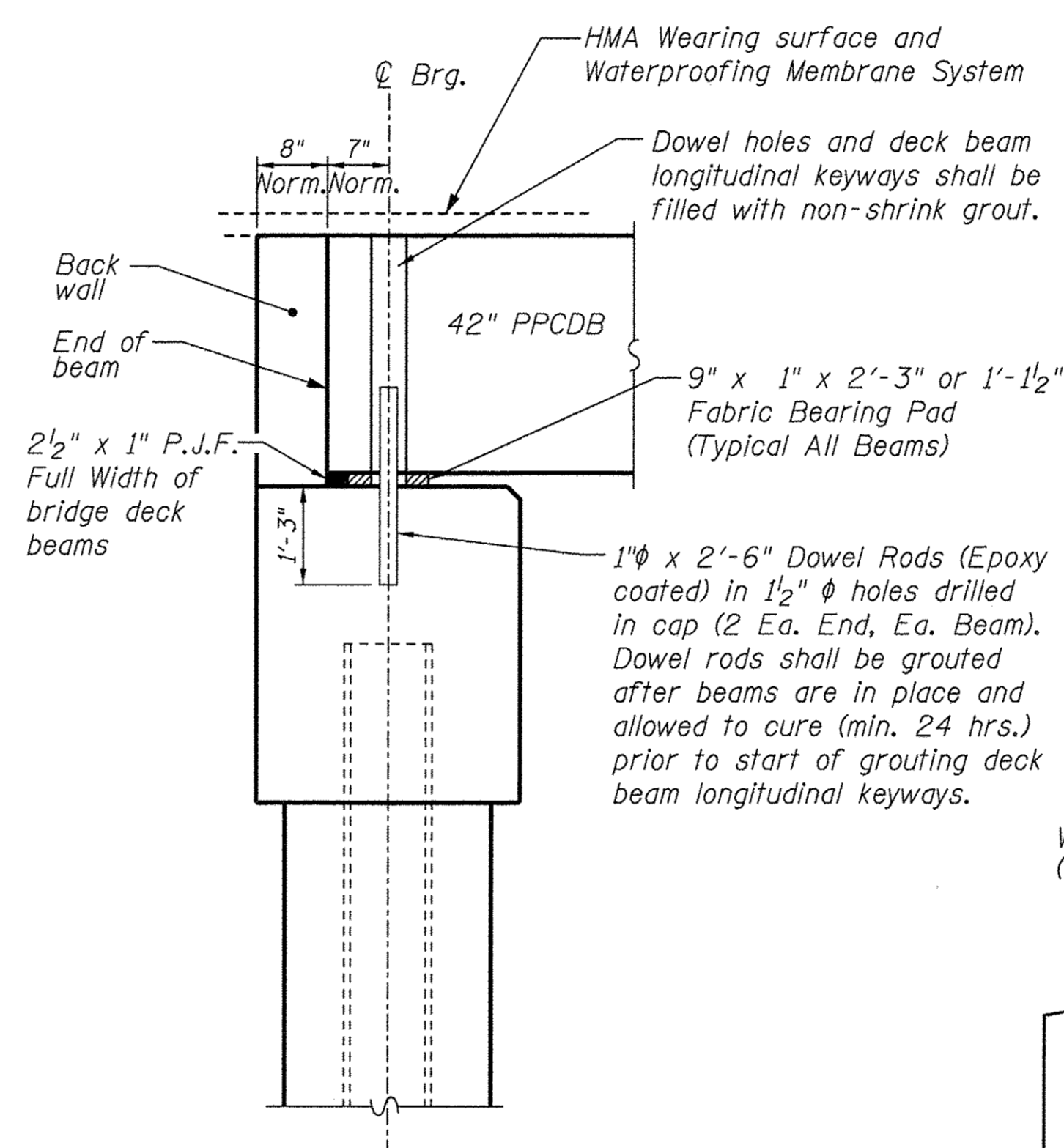
BAR U(E)

BAR U₁(E)

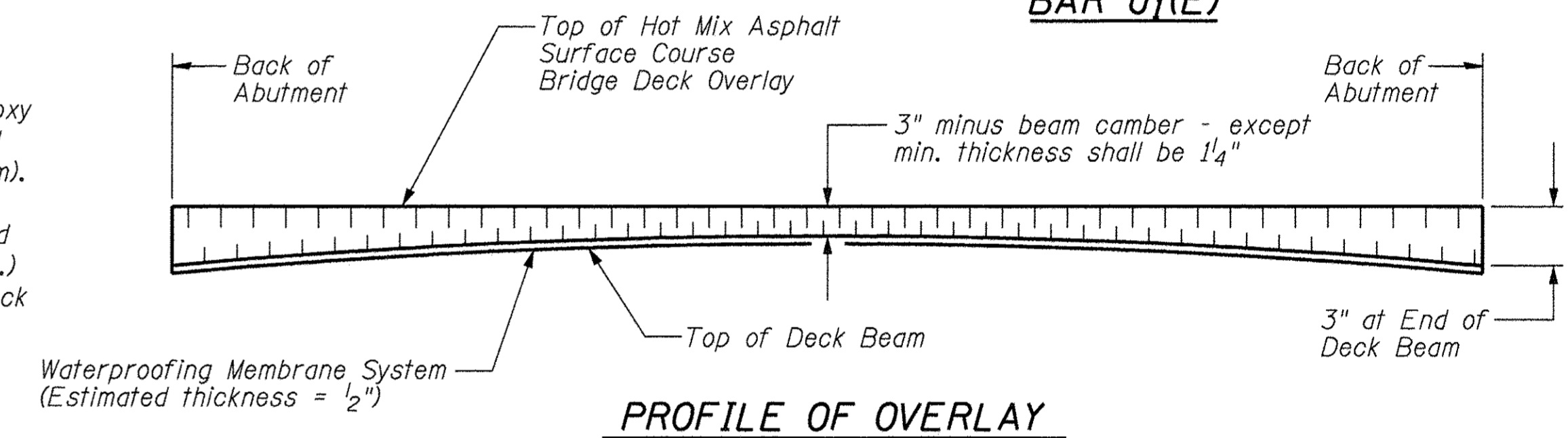


PLAN VIEW

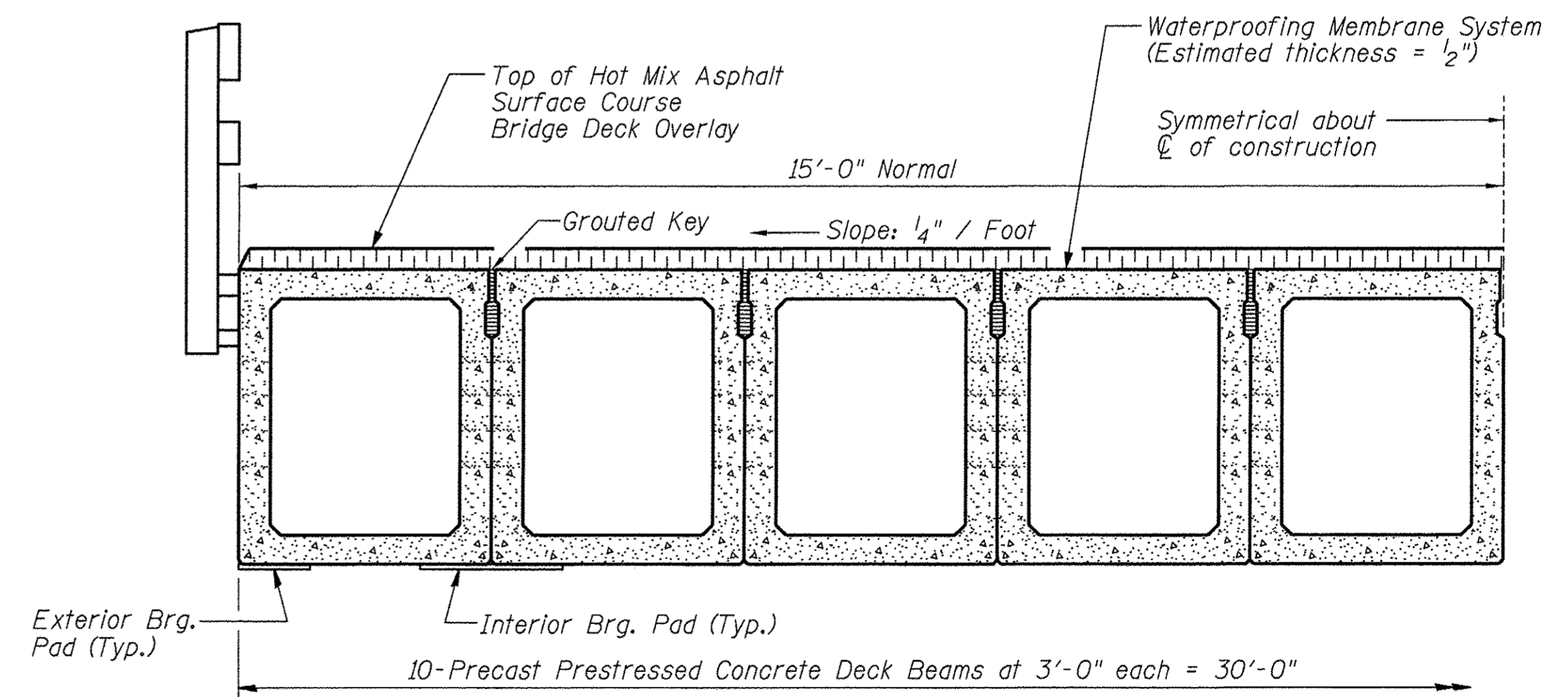
Note: Connect beams in pairs with the transverse tie configuration shown.



FIXED BEARING ABUTMENT



PROFILE OF OVERLAY

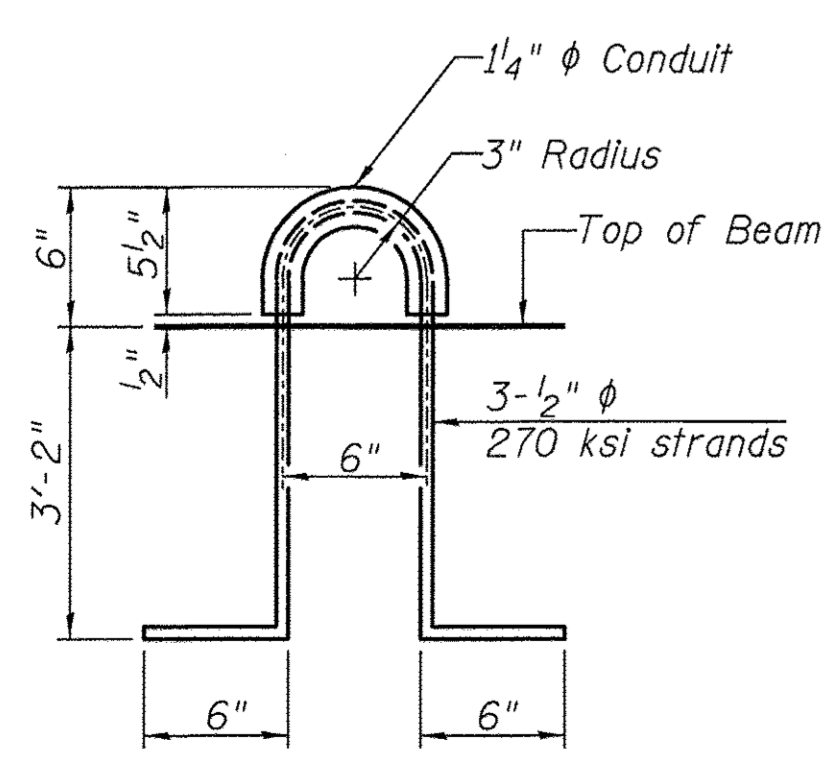


HALF CROSS SECTION

See Sheet 7 for the details showing the spacing and mounting of posts and rails to the PPCDB.

BILL OF MATERIAL

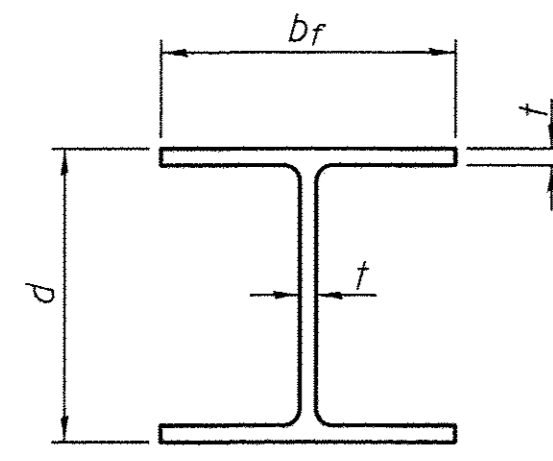
Precast Prestressed Concrete Deck Beams (42" depth)	Sq. Ft.	2660
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LIFTING LOOP DETAIL

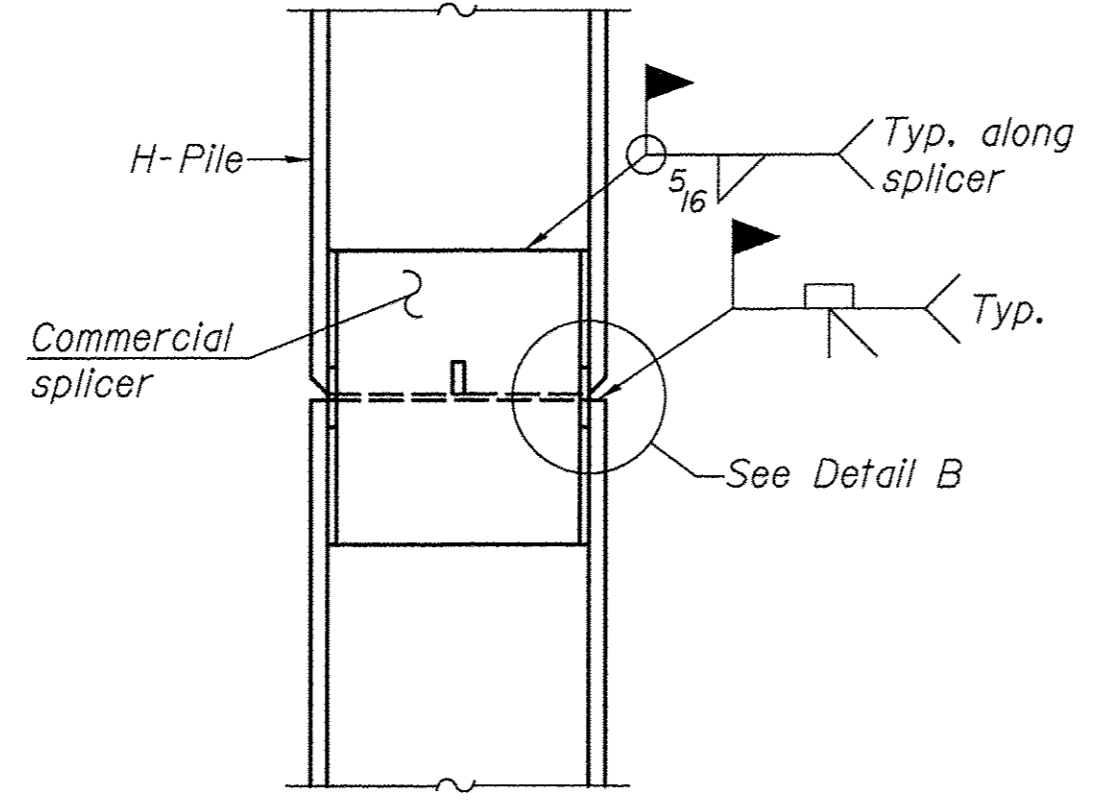
NOTES

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. (IL Modified).
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

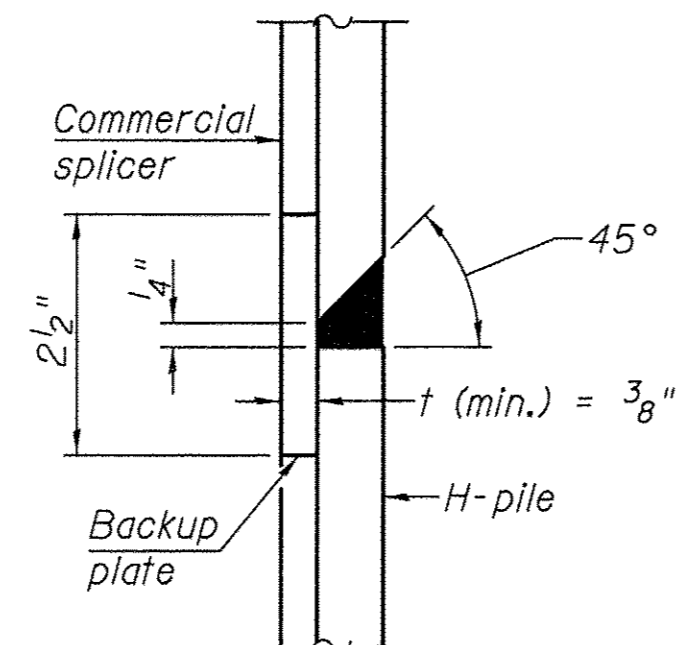


STEEL PILE TABLE

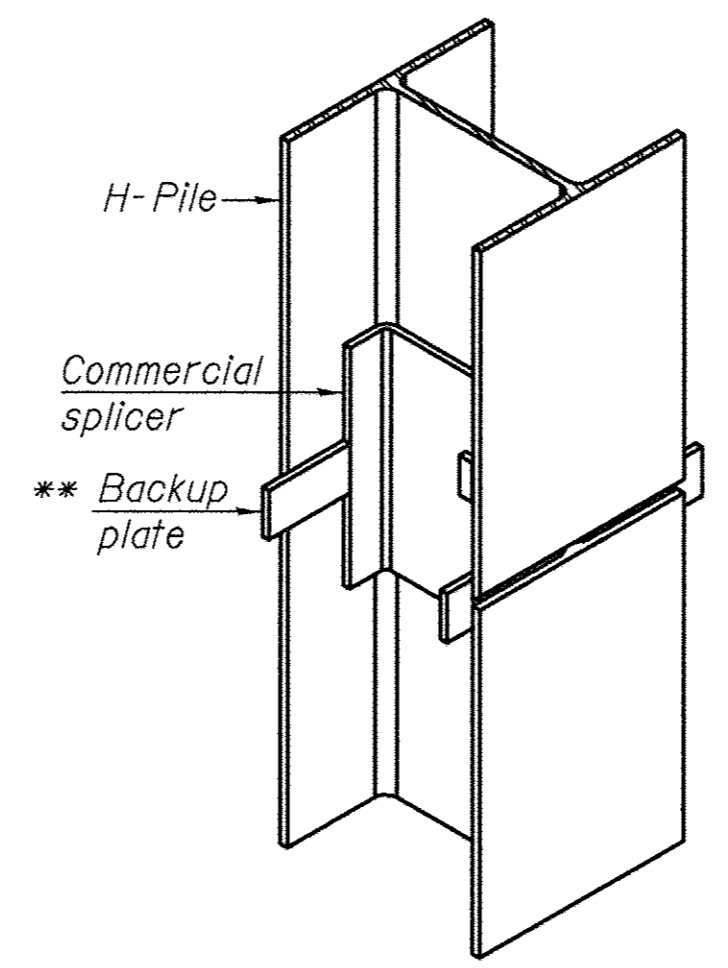
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11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



ELEVATION

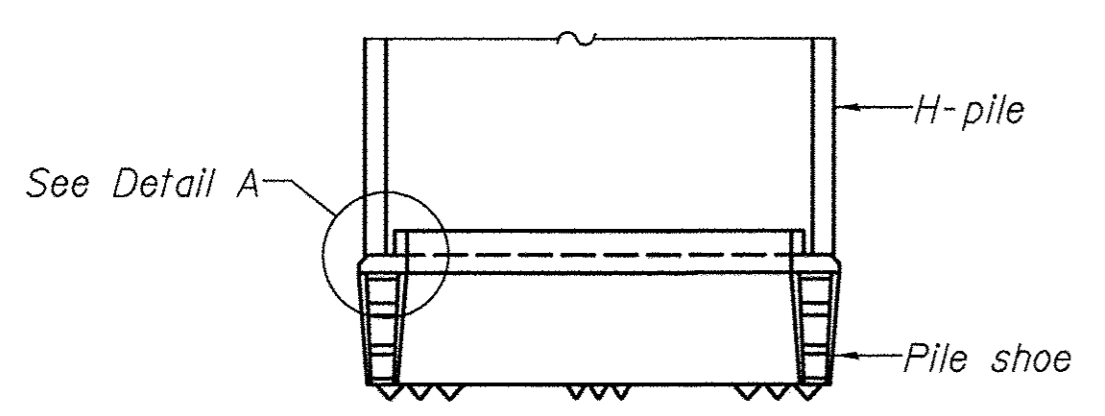


DETAIL "B"

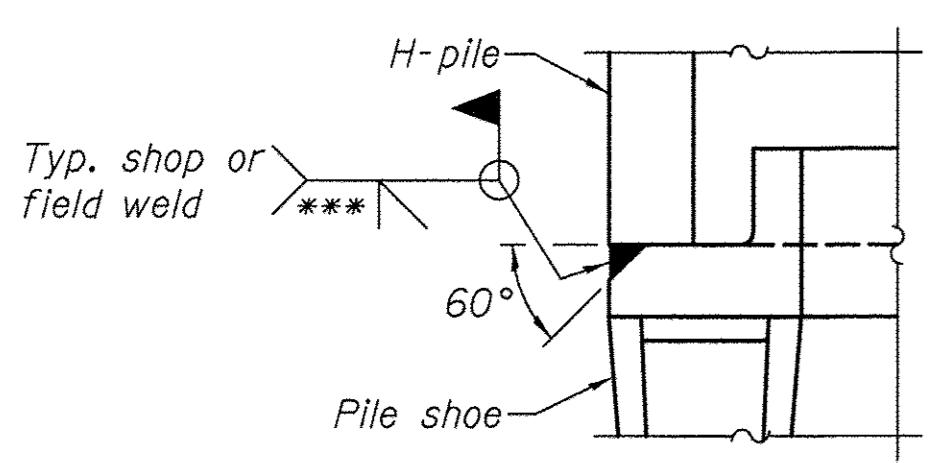


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

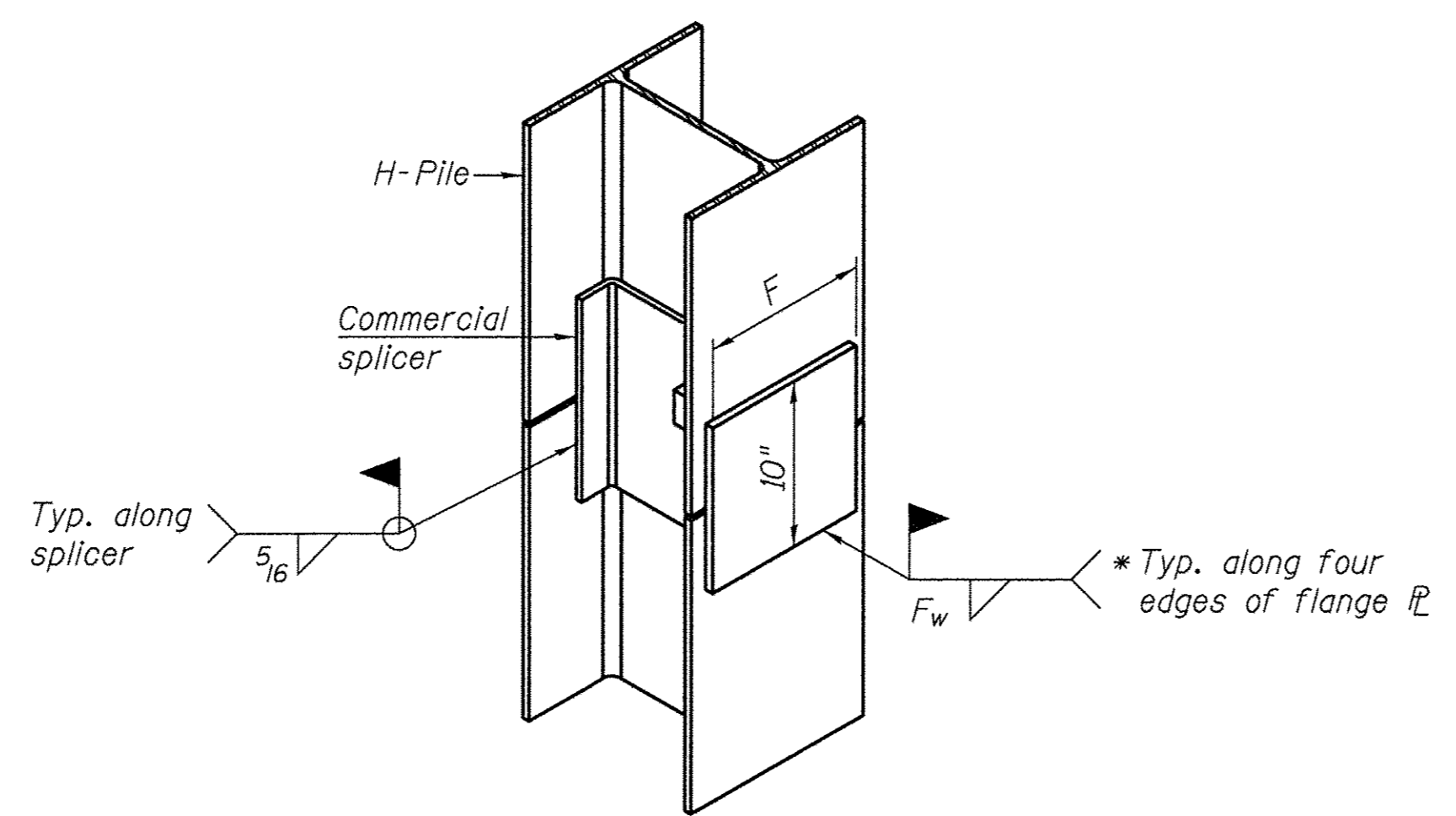


ELEVATION



DETAIL A

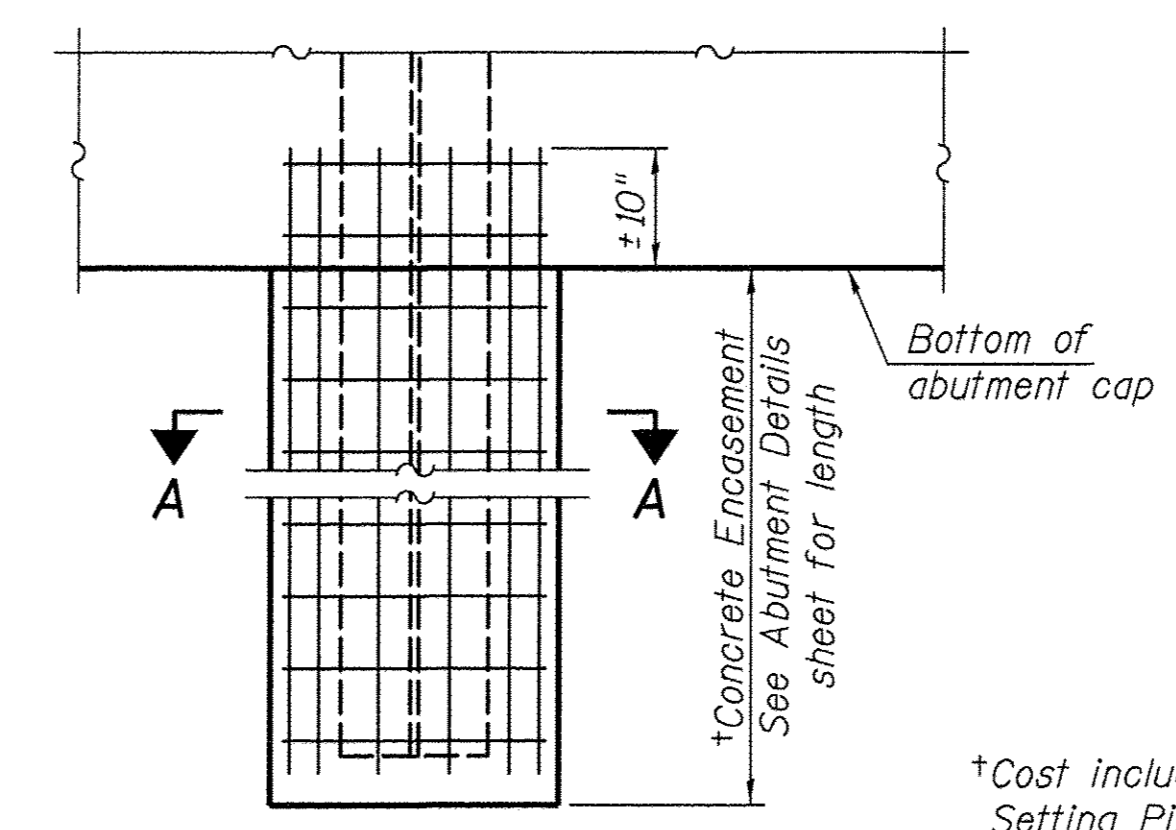
H-PILE SHOE ATTACHMENT



ISOMETRIC VIEW

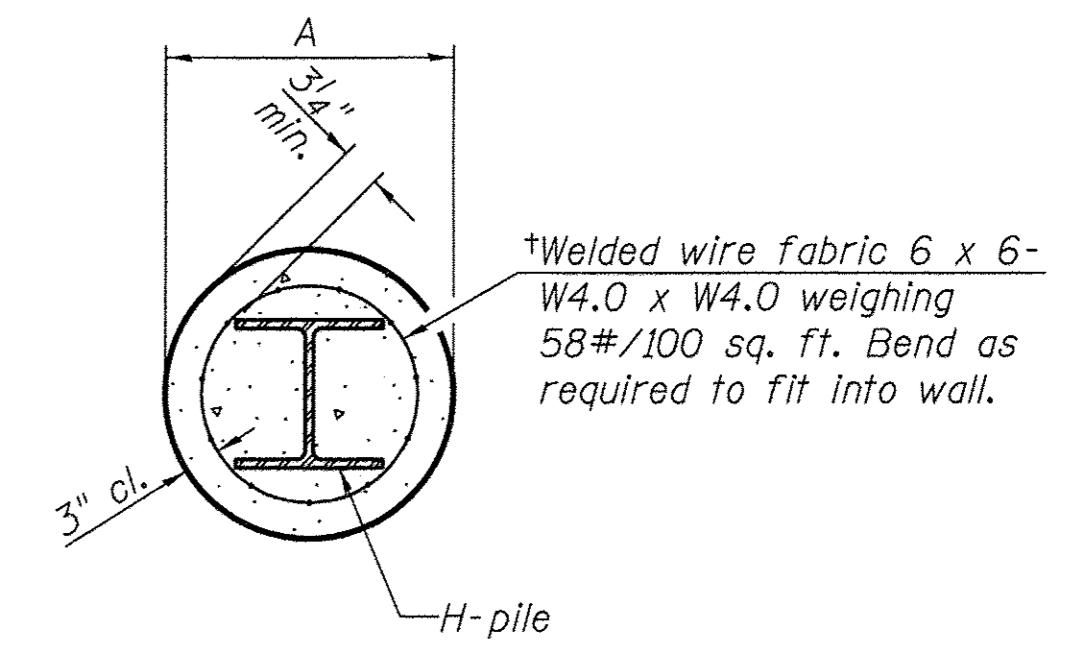
WELDED COMMERCIAL SPLICE ALTERNATE

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

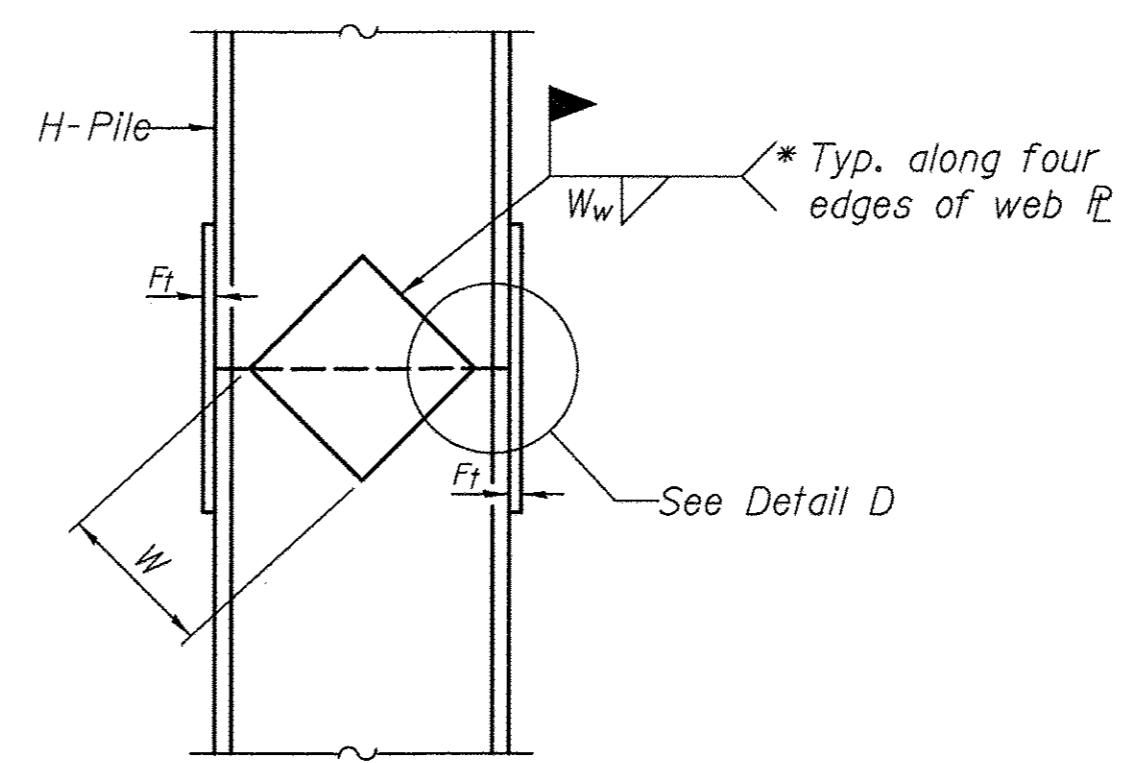


ELEVATION

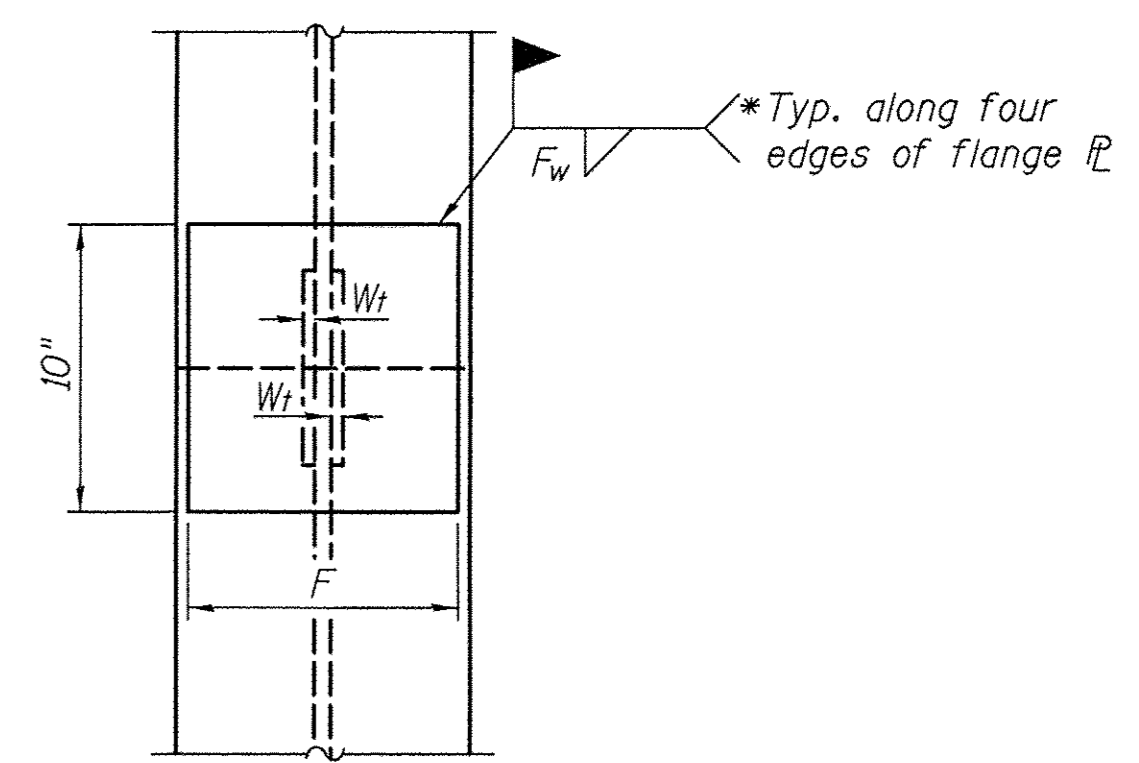
PILE ENCASEMENT



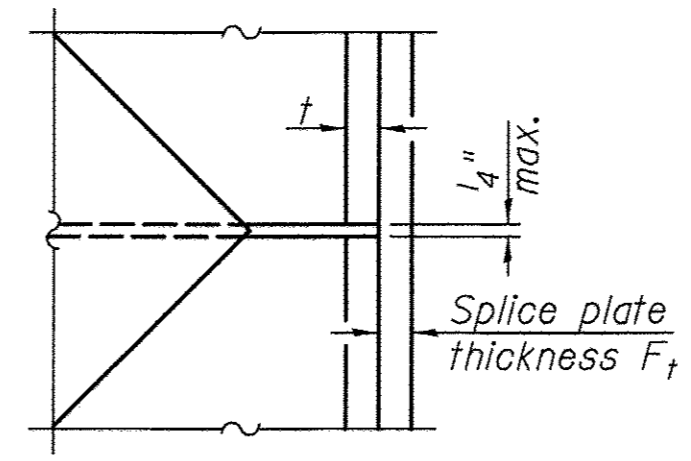
SECTION A-A



ELEVATION



END VIEW



DETAIL D

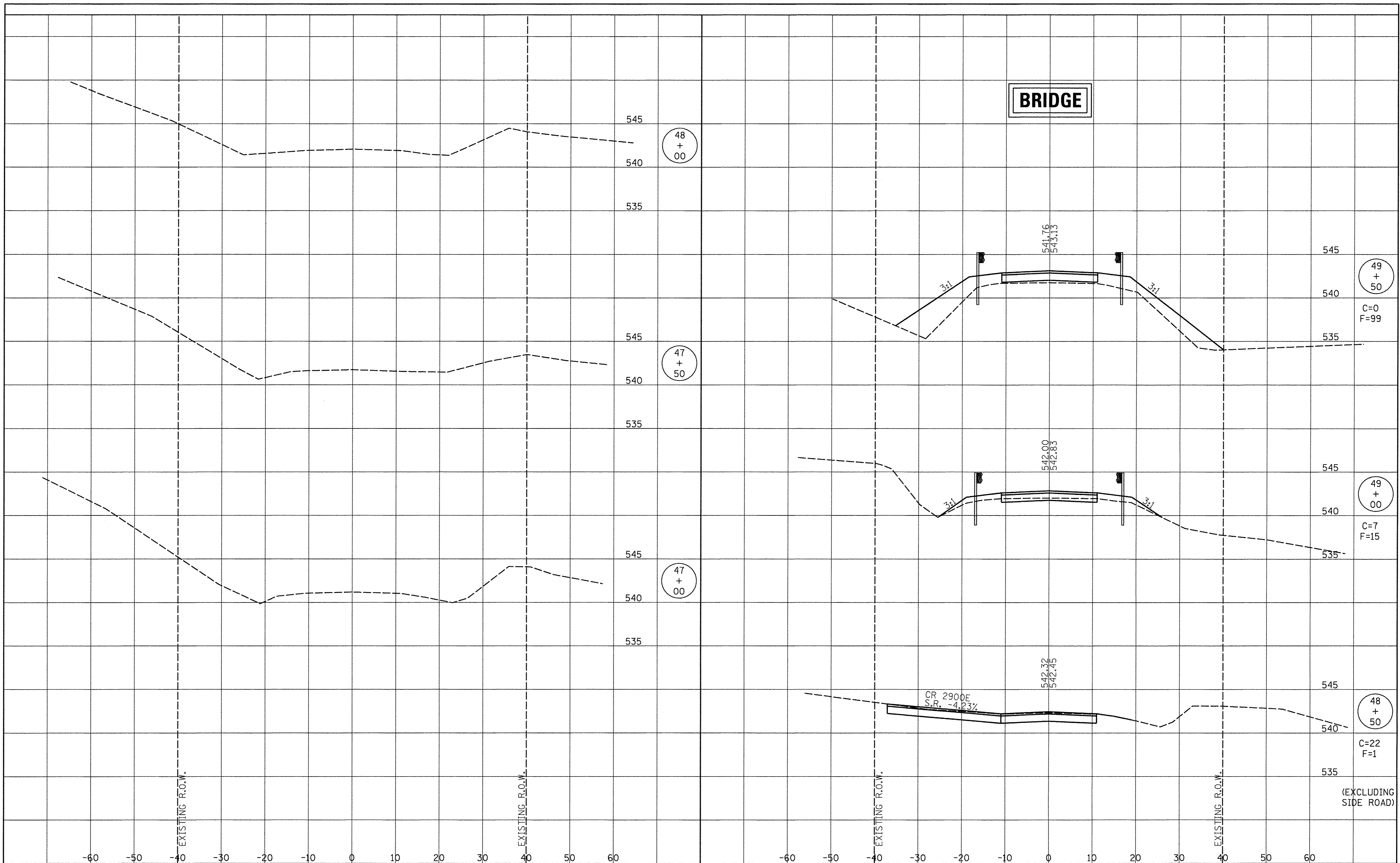
WELDED PLATE FIELD SPLICE

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"	1/16"	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"	1/16"	6 1/2"	5 8"	1/2"
x74	10"	7/8"	1/16"	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"

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

DATE	
BY	
SURVEYED	
NOTE BOOK	
TEMPLATE	
AREAS CHECKED	
NO.	

DATE	
BY	
SURVEYED	
NOTE BOOK	
TEMPLATE	
AREAS CHECKED	
NO.	

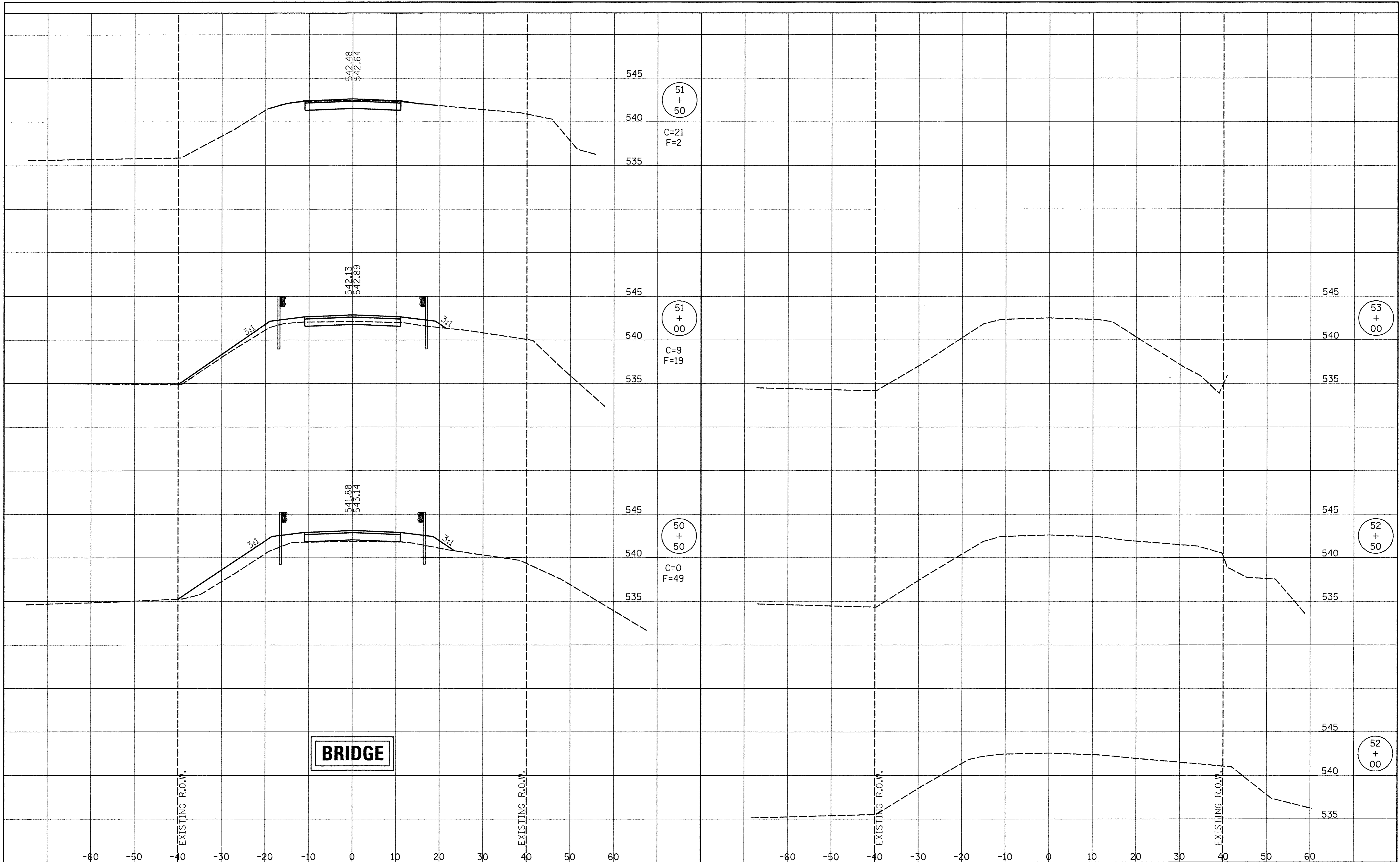


RHUTASEL and ASSOCIATES, INC. CONSULTING ENGINEERS • LAND SURVEYORS CENTRALIA, ILLINOIS FREEBURG, ILLINOIS ILLINOIS DESIGN FIRM LICENSE NO. 184-000287	DESIGNED - BLT DRAWN - JN CHECKED - GLH DATE - 03/31/2017	REVISED - REVISED - REVISED - REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CROSS SECTIONS OF ROADWAY	ROUTE SECTION COUNTY TOTAL SHEET NO. FAS 719 14-00126-00-BR FAYETTE 11 10
					STA. 47+00 TO STA. 49+50

RAAI JOB NO. 53914

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

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



RHUTASEL and ASSOCIATES, INC. CONSULTING ENGINEERS • LAND SURVEYORS CENTRALIA, ILLINOIS FREEBURG, ILLINOIS ILLINOIS DESIGN FIRM LICENSE NO. 184-000287	DESIGNED - BLT	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CROSS SECTIONS OF ROADWAY		ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - JN	REVISED -		FAS 719	14-00126-00-BR	FAYETTE	11	11		
CHECKED - GLH	REVISED -	STA. 50+50 TO STA. 53+00		CONTRACT NO. 95814						
DATE - 03/31/2017	REVISED -									

RAAI JOB NO. 53914