

CONTRACT NO. 95851

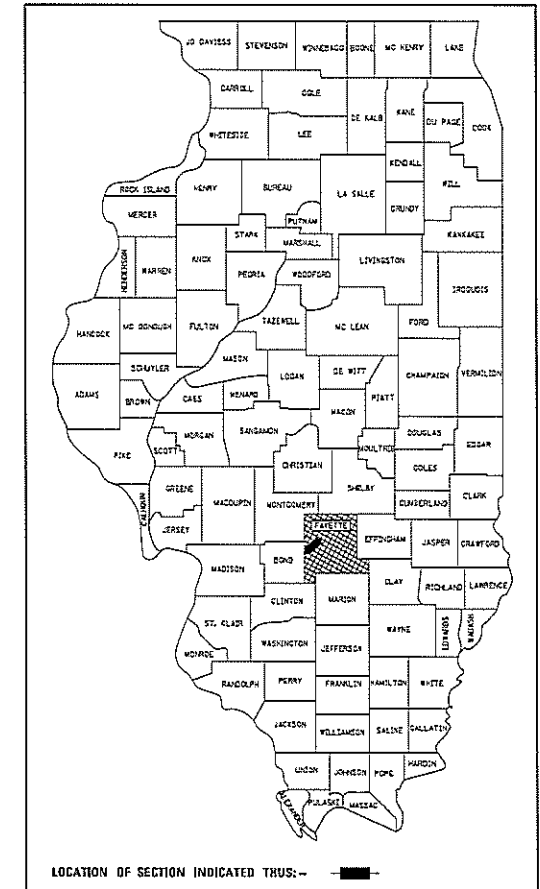
11-08-2019 LETTING ITEM 079

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
STP OFF-SYSTEM BRIDGE FUNDING

TR 371 OVER HURRICANE CREEK
SECTION 15-02129-00-BR
PROJECT NO. 36X0(087)
BEAR GROVE ROAD DISTRICT
FAYETTE COUNTY
JOB NO. C-97-056-18

| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|--------------------|----------------|---------|--------------|-----------|
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 1 |
| CONTRACT NO. 95851 | | | | |
| RAAI JOB NO. 5411T | | | | |



- INDEX OF SHEETS**
- COVER SHEET
 - SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
 - PLAN AND PROFILE OF ROADWAY
 - GENERAL PLAN AND ELEVATION
 - 6. PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
 - STEEL RAILING, TYPE S1 DETAILS
 - ABUTMENT DETAILS
 - PIER DETAILS
 - HP PILE DETAILS
 - 12. CROSS SECTIONS OF ROADWAY

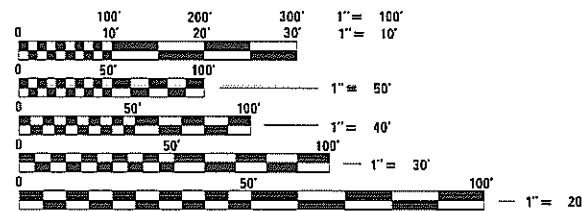
HIGHWAY STANDARDS (SEE SPECIFICATIONS)

- 000001-07 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 280001-07 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-03 NAME PLATE FOR BRIDGES
- 701901-08 TRAFFIC CONTROL DEVICES
- 725001-01 OBJECT AND TERMINAL MARKERS
- BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

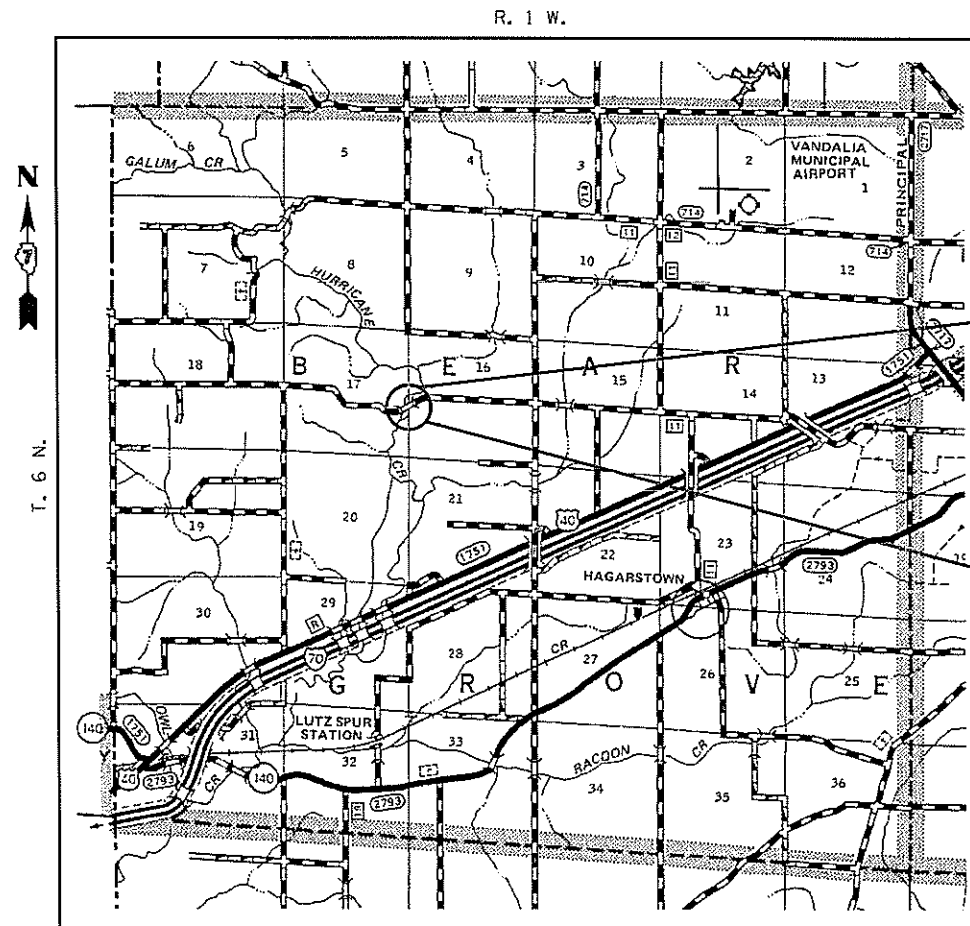
DESIGN CLASSIFICATION: RURAL LOCAL ROAD
ADT₂₀₁₇ : 150

DESIGN SPEED: 30 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>



SECTION ENDS
STA. 6+00.00

SECTION 15-02129-00-BR INCLUDES THE CONSTRUCTION OF A THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING TR 371 OVER HURRICANE CREEK, 181'-11" BK. TO BK. ABUTMENTS X 24' WIDE, 30° AHEAD LEFT SKEW, EXISTING STRUCTURE NO. 026-3177 PROPOSED STRUCTURE NO. 026-3472

SECTION BEGINS
STA. 14+50.00

LOCATION: NEAR THE NE CORNER, NE 1/4, SE 1/4, SECTION 17, T6N, R1W, 3rd P.M.
NET LENGTH OF PROJECT: 850.00 FT. = 0.161 MI.

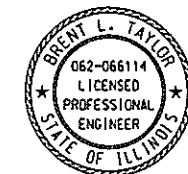
FAYETTE COUNTY
HIGHWAY DEPARTMENT

APPROVED 3-14-2019
[Signature]
FAYETTE COUNTY, COUNTY ENGINEER

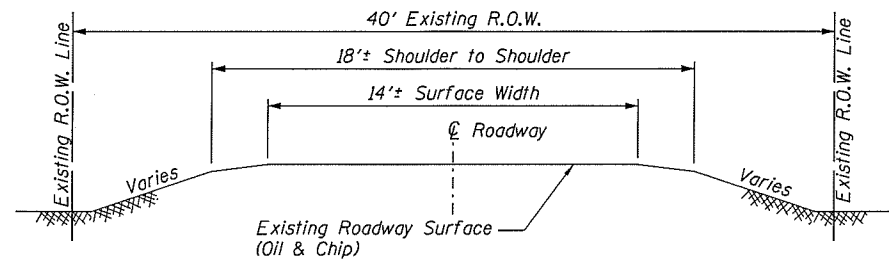
PASSED 4-11-19
[Signature]
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID
BASED ON LIMITED
REVIEW 4-11-19
[Signature]
REGION FOUR ENGINEER

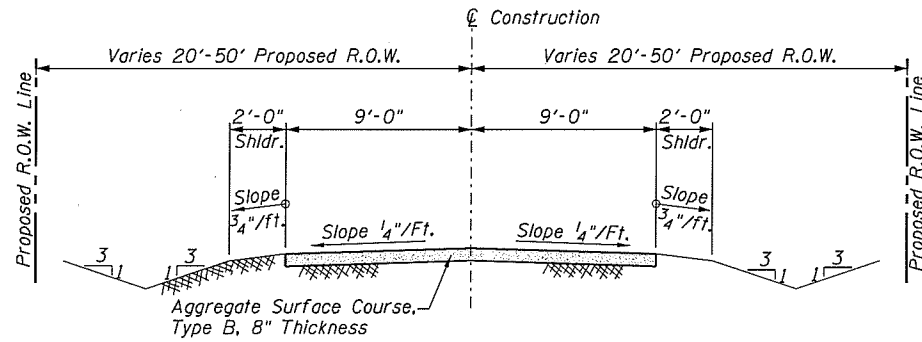
PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS



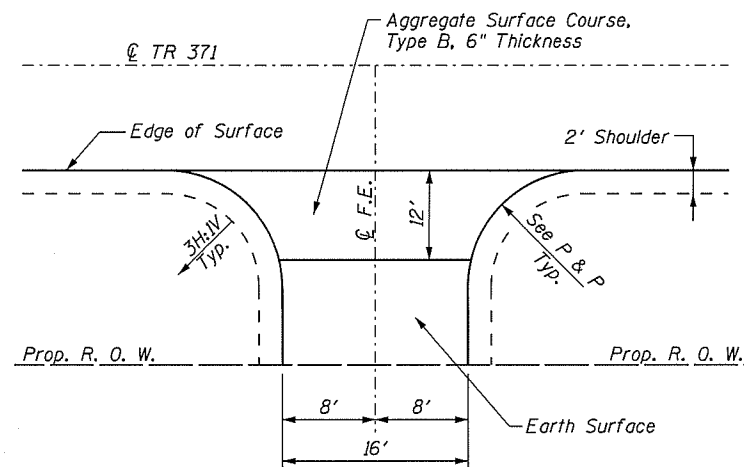
[Signature] 03/14/2019
BRENT L. TAYLOR
SALEM, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 062-066114
EXPIRES NOV. 30, 2019



**TYPICAL SECTION
EXISTING APPROACH ROADWAY**



**TYPICAL SECTION
PROPOSED APPROACH ROADWAY**



TYPICAL FIELD ENTRANCE
Aggregate Surface Course, Type B 6" Depth
Lt., Sta. 8+25 - 15 Ton
Lt., Sta. 12+80 - 12 Ton
(Included in Summary of Quantities)

UTILITIES

J.U.L.I.E.: Design Phase Locate
Dig No.: A2043223
07/23/2018

Water: Fayette Water Company
Attn: Denny Vaughn
2371 E 1350 St
Brownstown, IL 62418
Phone: 618-347-2430

Telephone: Frontier Communications
Attn: Mr. Rod Eller
801 West Jackson Street
Altamont, IL 62411
Phone: 618-483-6205

Electric: Southwestern Electric Co-Op
Attn: Ms. Kim Jackson
525 U.S. Route 40
Greenville, IL 62246
Phone: 618-664-5922

Telephone: AT&T / Distribution

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.
- 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.
- Roadway Centerline profiles refer to the finished surface.
- 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.
Aggregate Surface Course 2.1 tons/cu. yd.
- Commitments:
No tree clearing will be allowed or performed from April 1 through September 30 as part of the effort to conserve the Indiana and Northern Long-Eared bat.

The Fayette County Engineer will notify public service providers prior to the start of construction.

Existing fence removal and replacement within the limits of construction will be done by others and will be coordinated by the Township. The removal will be completed prior to the start of construction.

To date, no other commitments have been made.

SUMMARY OF QUANTITIES

| Code No. | Item | Unit | Quantity |
|-----------|---|-------|----------|
| 20100500 | TREE REMOVAL, ACRES | ACRE | 0.6 |
| 20200100 | EARTH EXCAVATION | CU YD | 317 |
| 20300100 | CHANNEL EXCAVATION | CU YD | 1213 |
| 20400800 | FURNISHED EXCAVATION | CU YD | 2513 |
| 20700110 | POROUS GRANULAR EMBANKMENT | TON | 110 |
| 20800150 | TRENCH BACKFILL | CU YD | 20 |
| 28000500 | INLET AND PIPE PROTECTION | EACH | 3 |
| 28100807 | STONE DUMPED RIPRAP, CLASS A4 | TON | 407 |
| 40200800 | AGGREGATE SURFACE COURSE, TYPE B | TON | 638 |
| 50100100 | REMOVAL OF EXISTING STRUCTURES | EACH | 1 |
| 50105220 | PIPE CULVERT REMOVAL | FOOT | 94 |
| 50300225 | CONCRETE STRUCTURES | CU YD | 48.4 |
| 50300280 | CONCRETE ENCASEMENT | CU YD | 38.8 |
| 50400505 | PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH) | SQ FT | 4320 |
| 50800105 | REINFORCEMENT BARS | POUND | 6620 |
| *50900205 | STEEL RAILING, TYPE S1 | FOOT | 364 |
| 51201600 | FURNISHING STEEL PILES HP12X53 | FOOT | 383 |
| 51201800 | FURNISHING STEEL PILES HP14X73 | FOOT | 613 |
| 51202305 | DRIVING PILES | FOOT | 996 |
| 51203600 | TEST PILE STEEL HP12X53 | EACH | 1 |
| 51203800 | TEST PILE STEEL HP14X73 | EACH | 1 |
| 51204650 | PILE SHOES | EACH | 20 |
| 51500100 | NAME PLATES | EACH | 1 |
| 542D0229 | PIPE CULVERTS, CLASS D, TYPE 1 24" | FOOT | 76 |
| 542D0265 | PIPE CULVERTS, CLASS D, TYPE 1 60" | FOOT | 78 |
| 67100100 | MOBILIZATION | L SUM | 1 |
| *72501000 | TERMINAL MARKER - DIRECT APPLIED | EACH | 4 |
| X2501000 | SEEDING, CLASS 2 (SPECIAL) | ACRE | 0.9 |

* SPECIALTY ITEMS

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
SALEM, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

| | |
|-------------------|-----------|
| DESIGNED - BLT | REVISED - |
| DRAWN - JN | REVISED - |
| CHECKED - WDL | REVISED - |
| DATE - 03/14/2019 | REVISED - |

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

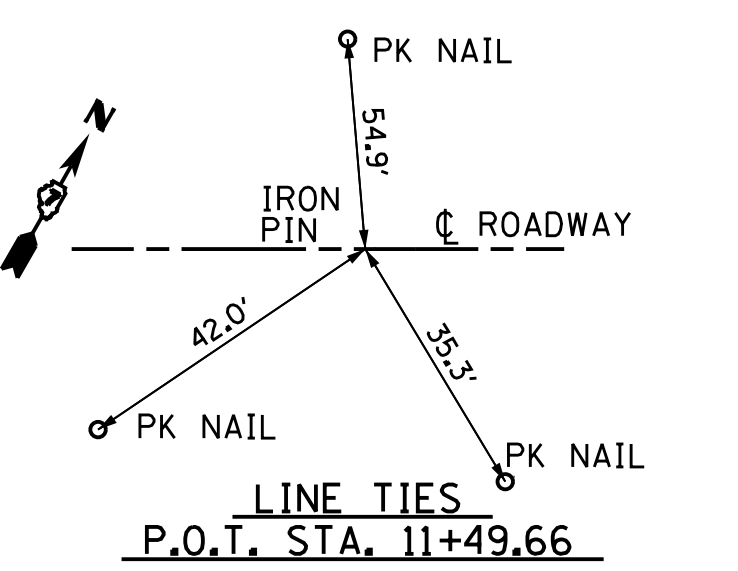
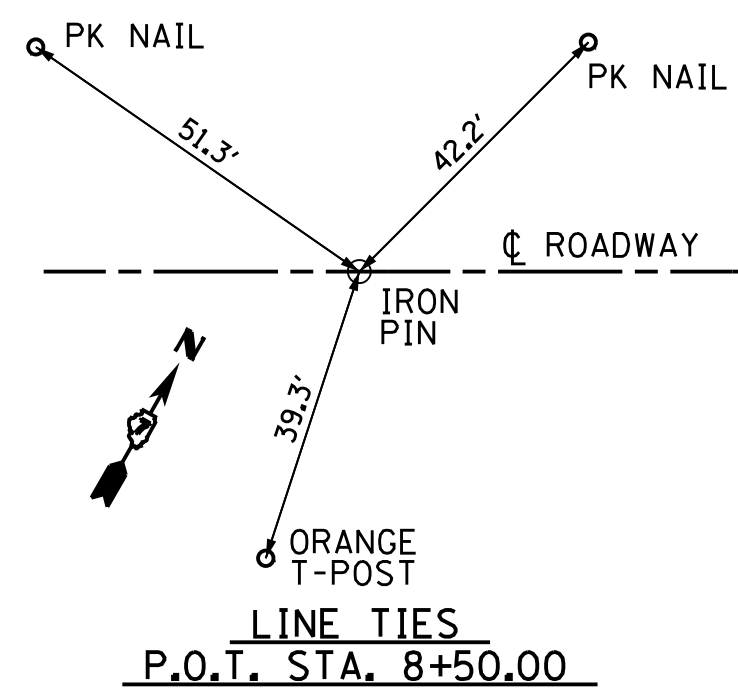
SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS

| | | | | |
|--------------------|----------------|---------|--------------|-----------|
| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 2 |
| CONTRACT NO. 95851 | | | | |

RAAI JOB NO. 54117

SCALES:
 HORZ. - 0 50 100
 VERT. - 0 10 20

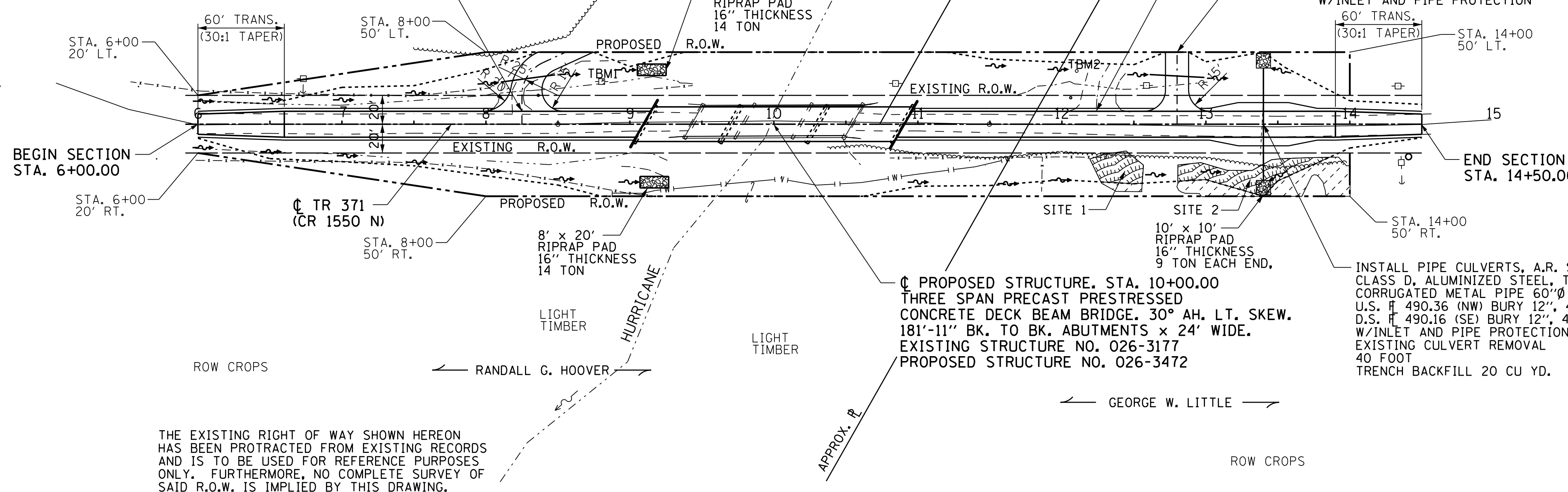
----- LIMITS OF CONSTRUCTION



CONSTRUCT FIELD ENTRANCE
 STA. 8+25 LT.
 PIPE CULVERTS, CLASS D,
 ALUMINIZED STEEL, TYPE 1,
 CORRUGATED METAL PIPE
 24"Ø X 38 FOOT.
 U.S. # 495.76 (SW)
 D.S. # 495.44 (NE)
 W/INLET AND PIPE PROTECTION
 EXISTING CULVERT REMOVAL
 24 FOOT

NOTE:
 SEE GENERAL PLAN AND
 ELEVATION SHEET FOR
 LAYOUT OF RIPRAP
 AT BRIDGE.

EXISTING STRUCTURE: STRUCTURE NO.: 026-3177. THREE SPAN BRIDGE WITH
 PRECAST CONCRETE CHANNEL BEAM DECK, TIMBER PILE
 BENT ABUTMENTS WITH CONCRETE CAPS, CONCRETE PILE
 BENT PIERS WITH CONCRETE CAPS, 113'±L. x 22.8'±W.
 30° AHEAD LEFT SKEW. TO BE REMOVED.
 SEE SPECIAL PROVISIONS.



THE EXISTING RIGHT OF WAY SHOWN HEREON
 HAS BEEN PROTRACTED FROM EXISTING RECORDS
 AND IS TO BE USED FOR REFERENCE PURPOSES
 ONLY. FURTHERMORE, NO COMPLETE SURVEY OF
 SAID R.O.W. IS IMPLIED BY THIS DRAWING.

ROW CROPS
 GEORGE W. LITTLE

LIMITS OF JURISDICTIONAL WETLAND.
 DURING CONSTRUCTION OF THE PROPOSED
 IMPROVEMENTS, THE CONTRACTOR SHALL EMPLOY
 ANY MEANS NECESSARY TO ENSURE THAT THE AREA
 OUTSIDE OF THE LIMITS OF CONSTRUCTION REMAIN
 UNDISTURBED AND PROTECTED FOR THE DURATION
 OF THE PROJECT.

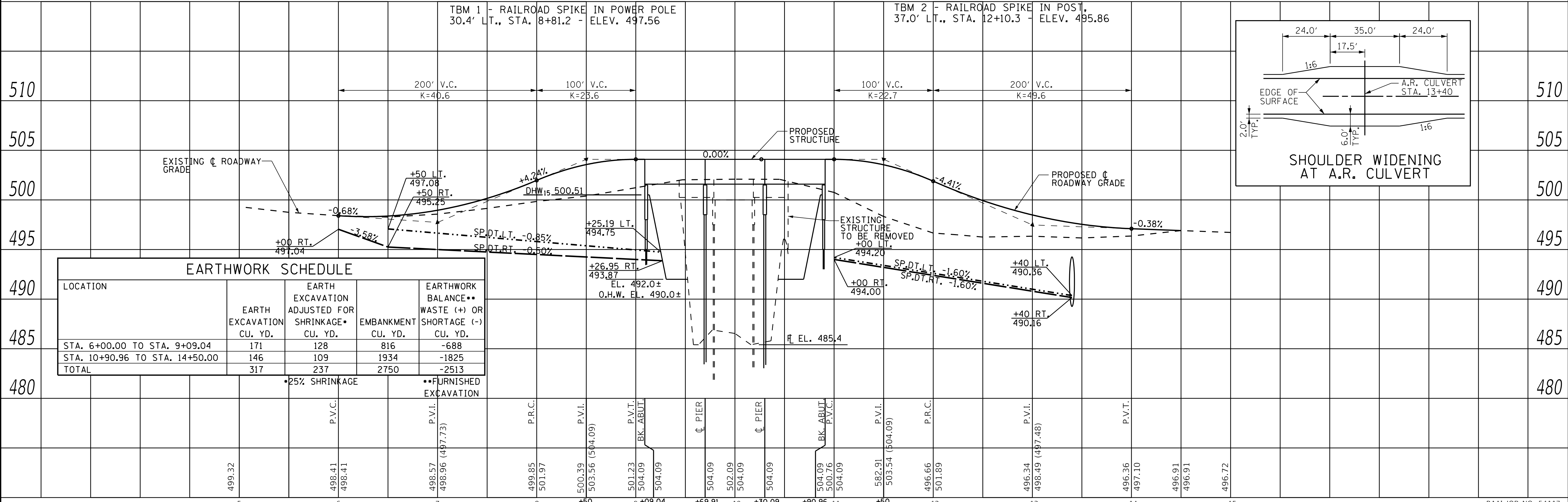
AREA OF WETLAND WITHIN
 LIMITS OF CONSTRUCTION

AREA OF WETLAND WITHIN
 LIMITS OF CONSTRUCTION
 SITE 1 = 0.01 AC.
 SITE 2 = 0.03 AC

| TREE REMOVAL, ACRES | |
|-------------------------------|------------|
| LOCATION | ACRE |
| LT., STA. 8+00 TO STA. 9+50 | 0.2 |
| RT., STA. 10+30 TO STA. 14+00 | 0.4 |
| TOTAL | 0.6 |

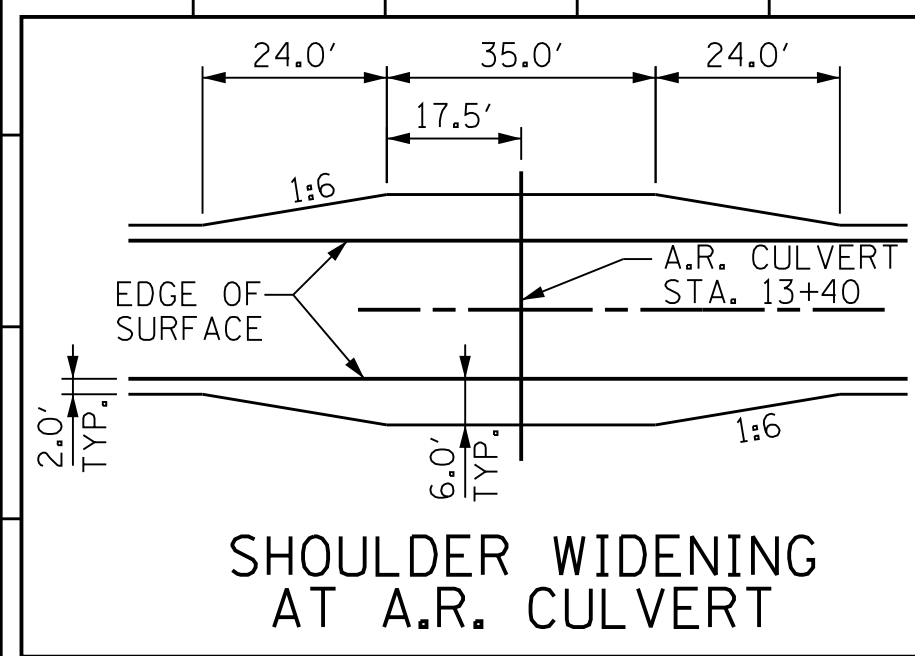
| | |
|-----------|--|
| DATE | |
| BY | |
| SURVEYED | |
| PLOTTED | |
| ALIGNED | |
| CHECKED | |
| NOTE BOOK | |
| NO. | |
| FILE NAME | |

| | |
|-----------------------------|--|
| DATE | |
| BY | |
| SURVEYED | |
| PLOTTED | |
| GRADES CHECKED | |
| STRUCTURE NOTATIONS CHECKED | |
| NOTE BOOK | |
| NO. | |



| EARTHWORK SCHEDULE | | | | |
|--------------------------------|--------------------------|--|--------------------|---|
| LOCATION | EARTH EXCAVATION CU. YD. | EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD. | EMBANKMENT CU. YD. | EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (-) CU. YD. |
| STA. 6+00.00 TO STA. 9+09.04 | 171 | 128 | 816 | -688 |
| STA. 10+90.96 TO STA. 14+50.00 | 146 | 109 | 1934 | -1825 |
| TOTAL | 317 | 237 | 2750 | -2513 |

*25% SHRINKAGE
 **FURNISHED EXCAVATION



RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS
 SALEM, ILLINOIS FREEBURG, ILLINOIS
 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT
 DRAWN - JN
 CHECKED - GLH
 DATE - 03/14/2019

REVISED -
 REVISED -
 REVISED -
 REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ROADWAY

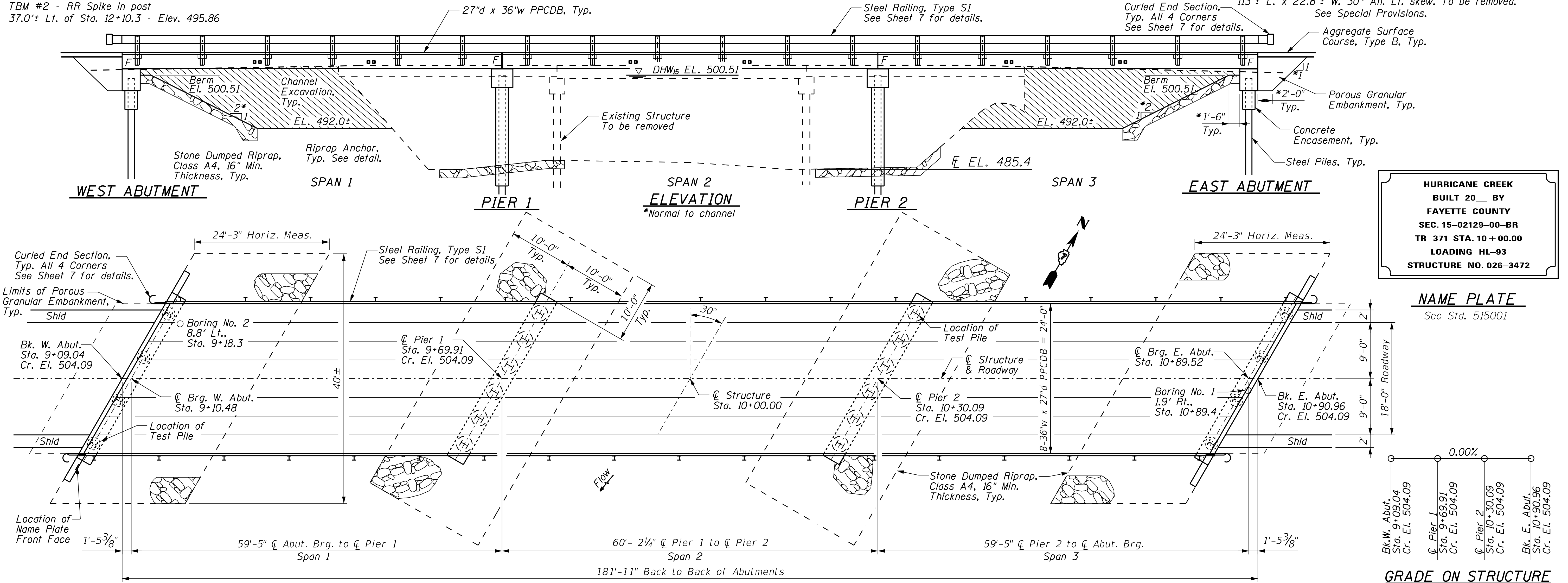
| | | | | |
|--------|----------------|---------|--------------------|-----------|
| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 3 |
| | | | CONTRACT NO. 95851 | |

RAAI JOB NO. 54117

TBM #1 - RR Spike in power pole
30.4'± Lt. of Sta. 8+81.2 - Elev. 497.56

TBM #2 - RR Spike in post
37.0'± Lt. of Sta. 12+10.3 - Elev. 495.86

Existing Structure: Structure No.: 026-3177. Three span bridge with precast channel beam deck. Timber pile bent abutments with concrete caps. Concrete pile bent piers with concrete caps. 113'± L. x 22.8'± W. 30° Ah. Lt. skew. To be removed. See Special Provisions.



HURRICANE CREEK
BUILT 20__ BY
FAYETTE COUNTY
SEC. 15-02129-00-BR
TR 371 STA. 10+00.00
LOADING HL-93
STRUCTURE NO. 026-3472

NAME PLATE
See Std. 515001

GRADE ON STRUCTURE
(along C TR 371)

DESIGN SCOUR TABLE

| Event/Limit | Design Scour Elevations (ft.) | | | | Item 113 |
|-------------|-------------------------------|--------|-------|----------|----------|
| | W. Abut. | Pier 1 | Pier | E. Abut. | |
| Q100 | NA | 479.4 | 479.4 | NA | Abut. 8 |
| Q200 | NA | 479.1 | 479.1 | NA | Pier 5 |
| Design | 498.5 | 479.4 | 479.4 | 498.5 | |
| Check | 498.5 | 479.1 | 479.1 | 498.5 | |

PLAN

WATERWAY INFORMATION

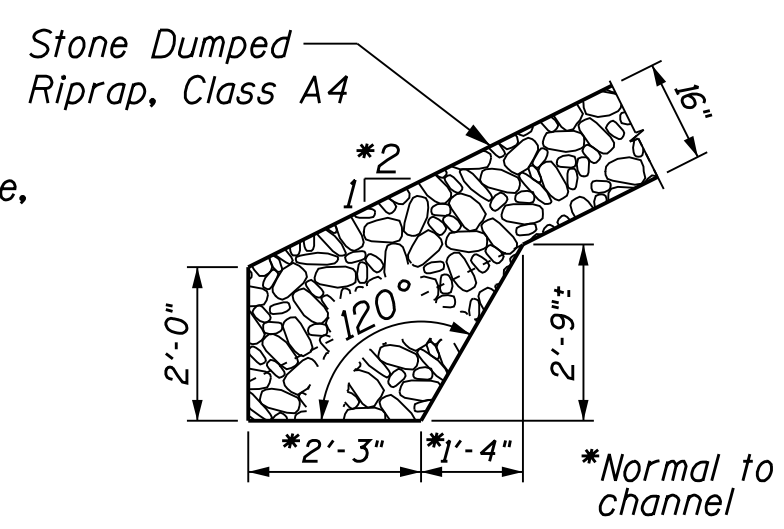
| Drainage Area = 108.2 sq. mi. | | Existing Low Grade Elev. 496.17 @ Sta. 13+50 | | Proposed Low Grade Elev. 496.72 @ Sta. 15+00 | | |
|-------------------------------|-----------|--|------------------------------|--|-------------------------|----------------------------|
| Flood | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. Exist. Prop. | Nat. H.W.E. | Head - Ft. Exist. Prop. | Headwater El. Exist. Prop. |
| Design | 15 | 10,000 | 1318 1815 | 500.51 | 0.35 0.26 | 500.86 500.77 |
| Base | 100 | 15,900 | 1318 2020 | 502.01 | 0.42 0.33 | 502.43 502.34 |
| Max. Calc. | 500 | 21,300 | 1318 2020 | 503.00 | 0.42 0.33 | 503.42 503.33 |

BILL OF MATERIALS (BRIDGE ONLY)

| ITEM | UNIT | TOTAL |
|----------------------------------|-------|-------|
| Channel Excavation | Cu Yd | 1213 |
| Porous Granular Embankment | Ton | 110 |
| Stone Dumped Riprap, Class A4 | Ton | 361 |
| Removal of Existing Structures | Each | 1 |
| Concrete Structures | Cu Yd | 48.4 |
| Concrete Encasement | Cu Yd | 38.8 |
| PPCDB (27" Depth) | Sq Ft | 4320 |
| Reinforcement Bars | Pound | 6620 |
| Steel Railing, Type S1 | Foot | 364 |
| Furnishing Steel Piles HP12x53 | Foot | 383 |
| Furnishing Steel Piles HP14x73 | Foot | 613 |
| Driving Piles | Foot | 996 |
| Test Pile Steel HP12x53 | Each | 1 |
| Test Pile Steel HP14x73 | Each | 1 |
| Pile Shoes | Each | 20 |
| Name Plates | Each | 1 |
| Terminal Marker - Direct Applied | Each | 4 |

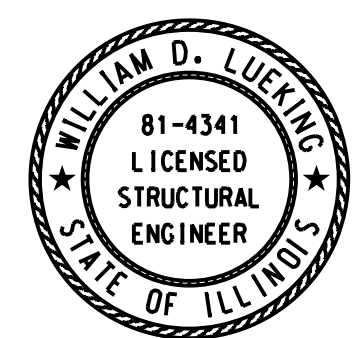
GENERAL NOTES

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
See Section 502 of the Standard Specifications for Structural Excavation.
Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at 50' Lt. and Rt. (from C) of the bridge. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.
See Special Provisions 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.



RIPRAP ANCHOR DETAIL

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.



William D. Lueking
Salem, Illinois
Illinois Licensed Structural Engineer No. 081-4341
Expires Nov. 30, 2020

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)

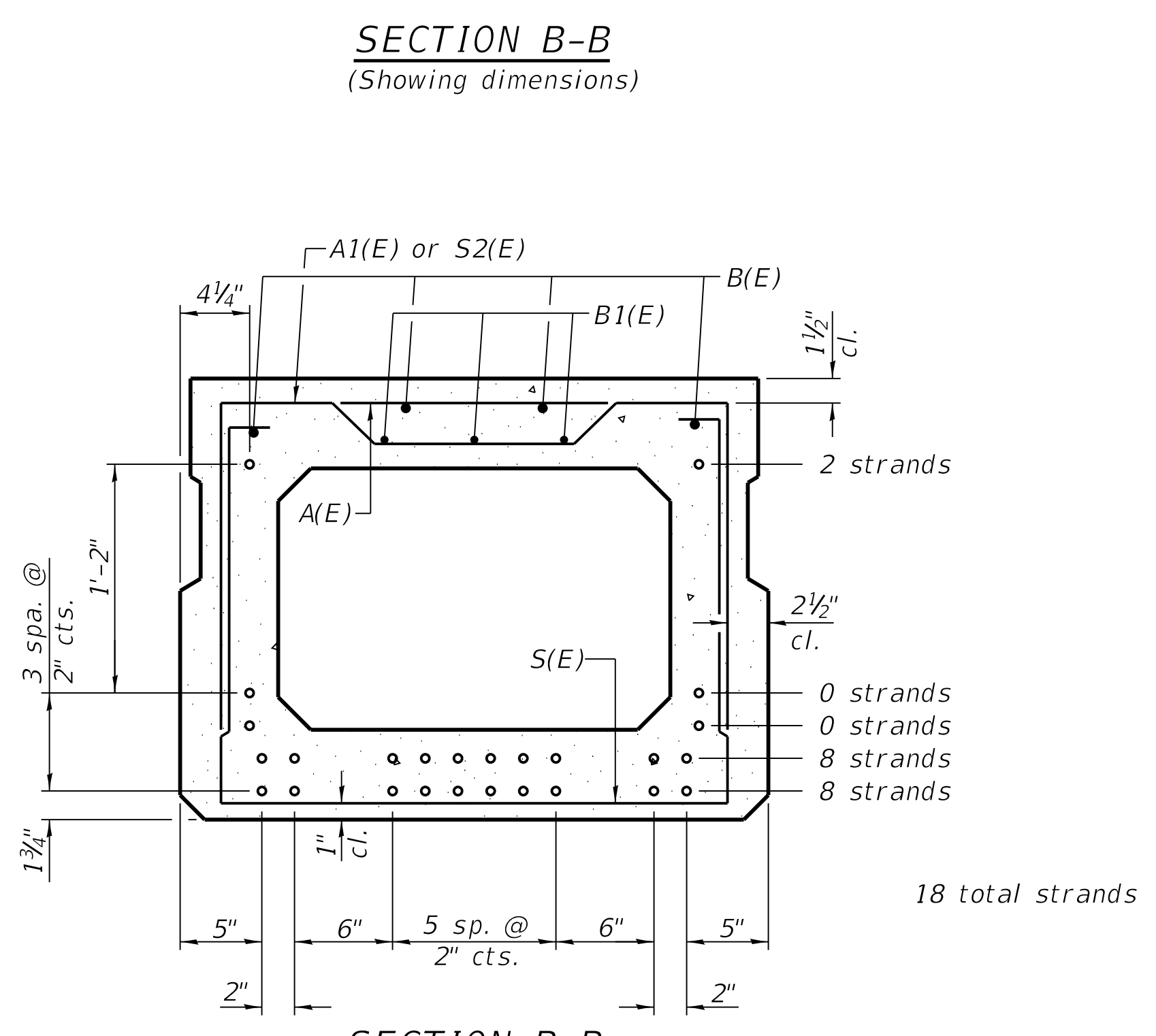
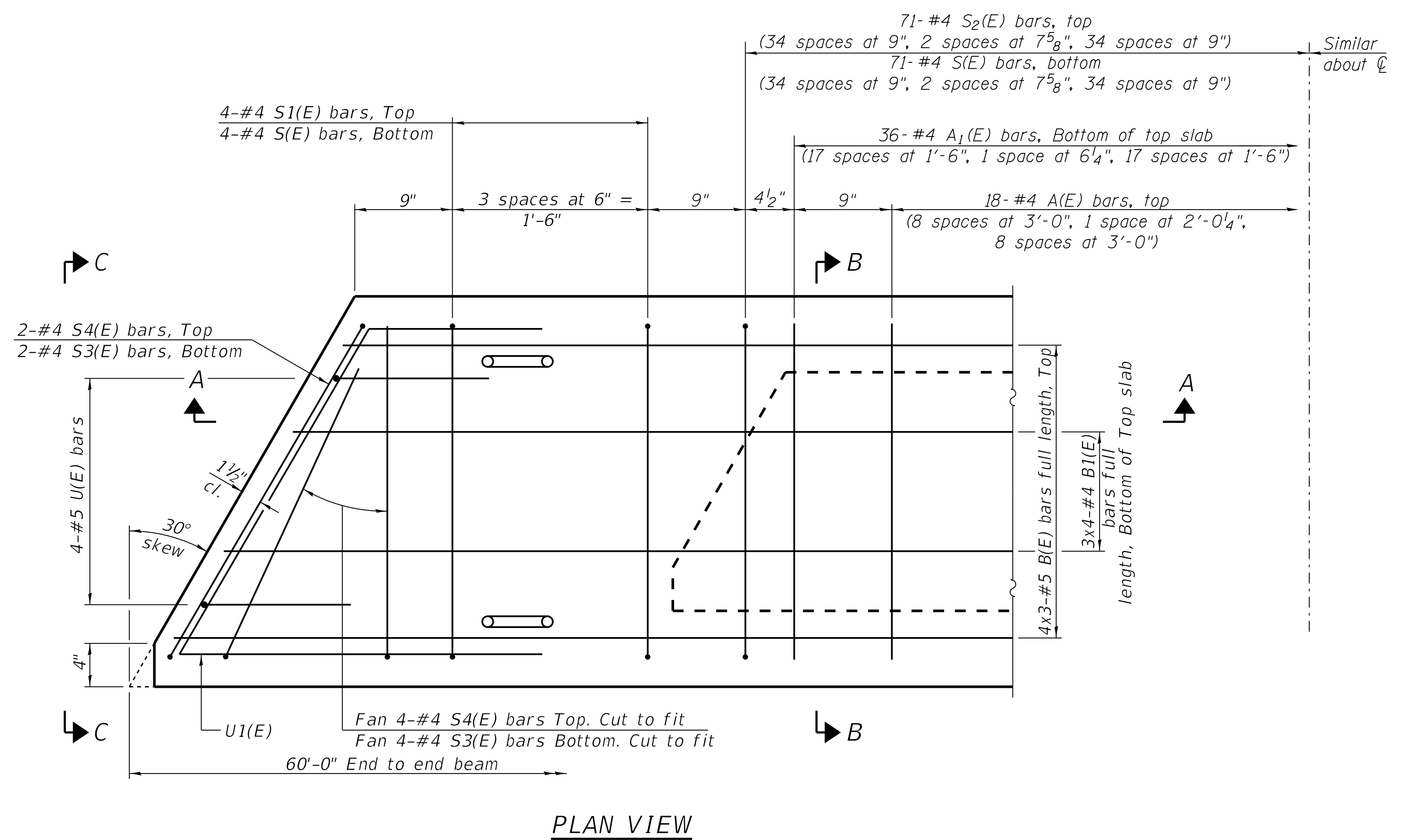
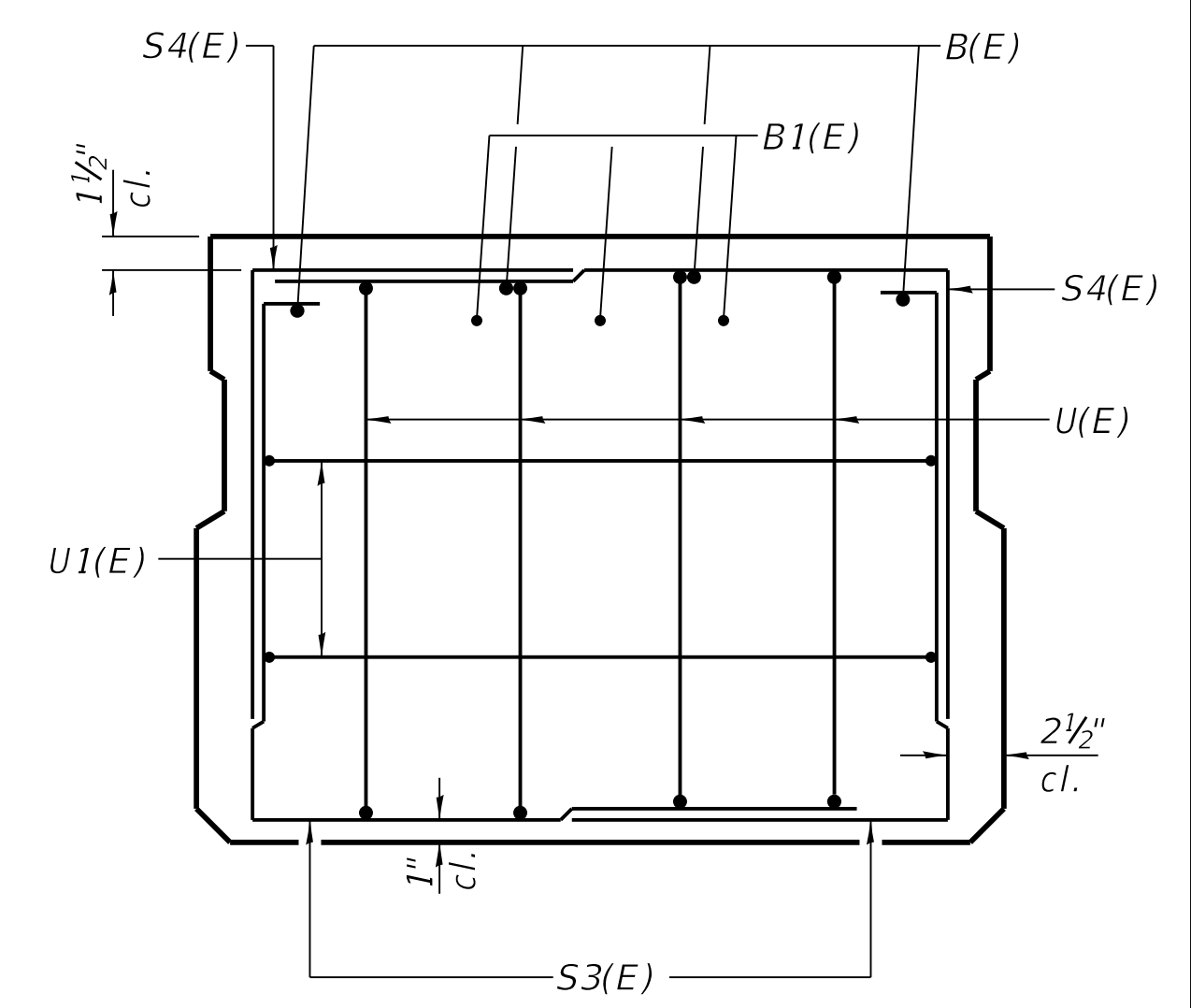
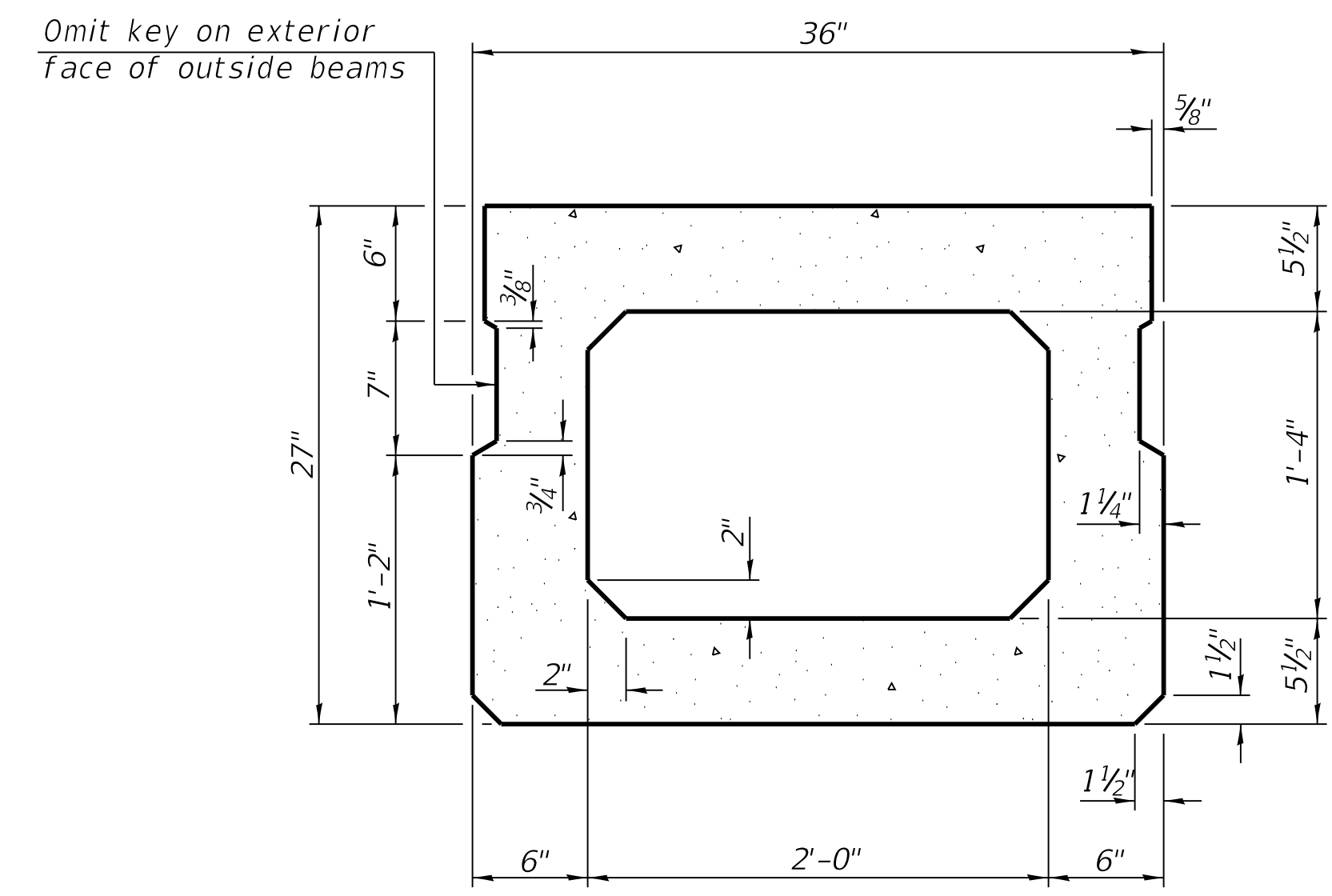
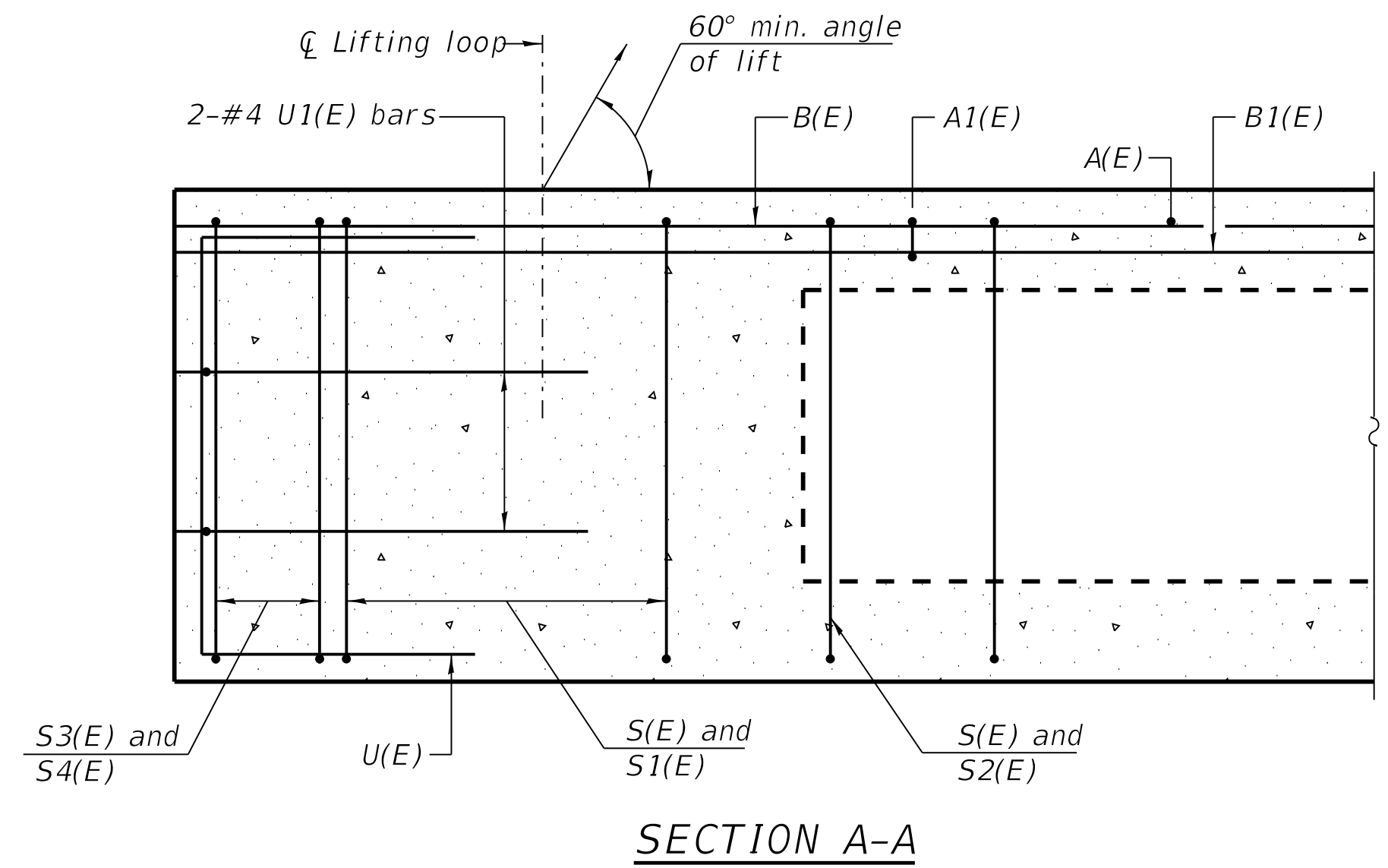
SEISMIC DATA
Seismic Performance Zone (SPZ) = 2
Soil Site Classification = D
S_{D1} = 0.229 S_{D5} = 0.509

| | |
|-------------------|-----------|
| DESIGNED - WDL | REVISED - |
| DRAWN - JN | REVISED - |
| CHECKED - BLT | REVISED - |
| DATE - 03/14/2019 | REVISED - |

RAAI JOB NO. 54117

| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|--------|----------------|---------|--------------|-----------|
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 4 |

CONTRACT NO. 95851



BAR LIST
ONE BEAM ONLY
(For information only)

| Bar | No. | Size | Length | Shape |
|-------|-----|------|--------|-------|
| A(E) | 18 | #4 | 2'-7" | — |
| A1(E) | 36 | #4 | 2'-10" | ~ |
| B(E) | 12 | #5 | 21'-7" | — |
| B1(E) | 12 | #4 | 16'-5" | — |
| S(E) | 79 | #4 | 7'-5" | ⌋ |
| S1(E) | 8 | #4 | 5'-11" | ⌋ |
| S2(E) | 71 | #4 | 6'-2" | ⌋ |
| S3(E) | 12 | #4 | 4'-11" | ⌋ |
| S4(E) | 12 | #4 | 4'-2" | ⌋ |
| U(E) | 8 | #5 | 4'-6" | ⌋ |
| U1(E) | 4 | #4 | 6'-10" | ⌋ |

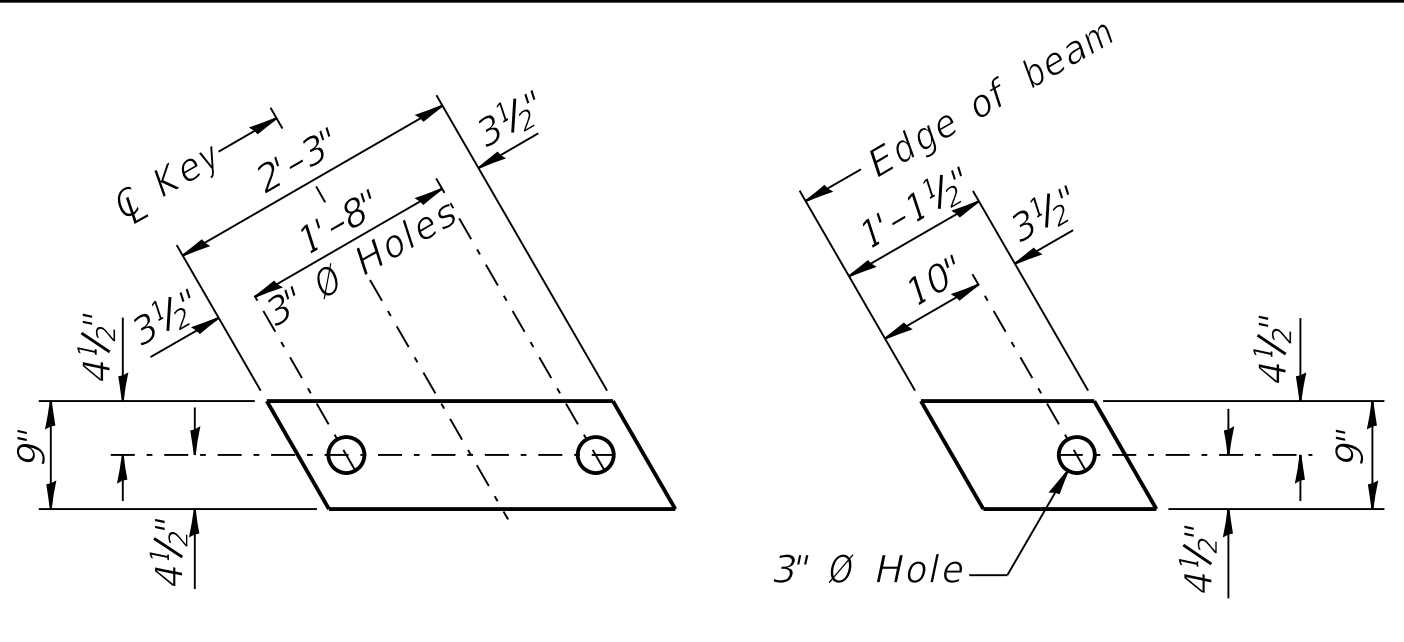
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

Bars indicated thus: 4x3-#5 etc. indicates 4 lines of bars with 3 lengths per line.

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

| | | | |
|------------|------------|-----------|--|
| DESIGNED - | WDL | REVISED - | |
| DRAWN - | JN | REVISED - | |
| CHECKED - | BLT | REVISED - | |
| DATE - | 03/14/2019 | REVISED - | |

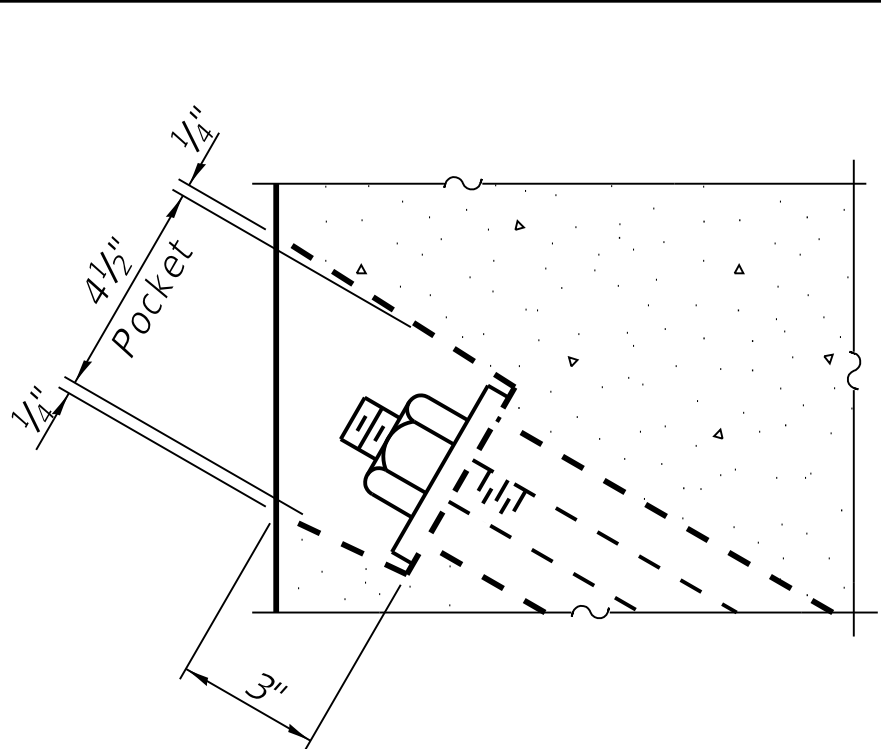
| | | | | |
|--------|----------------|---------|--------------------|-----------|
| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 5 |
| | | | CONTRACT NO. 95851 | |



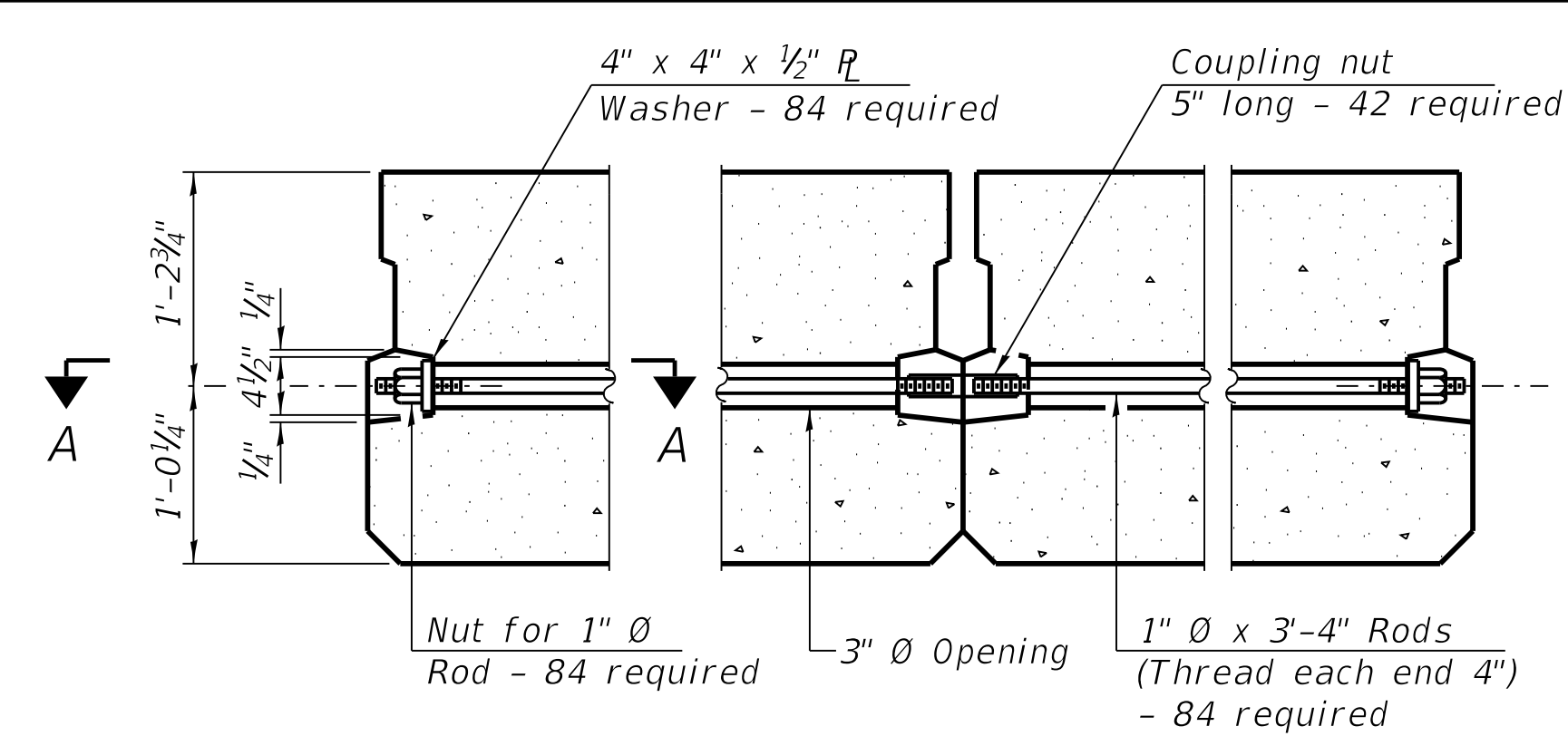
FABRIC BEARING PAD
(Interior) **FABRIC BEARING PAD**
(Exterior)

FIXED

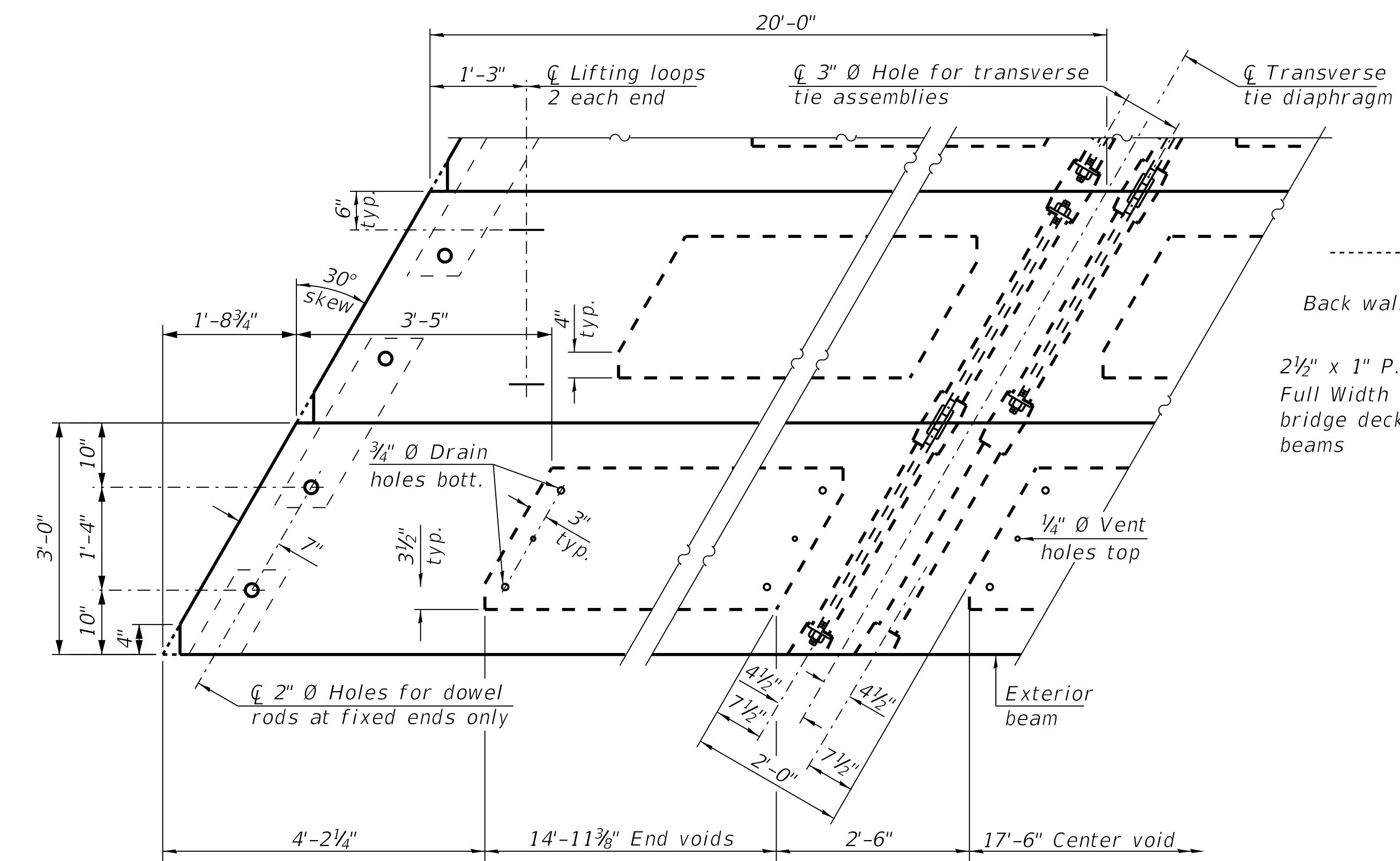
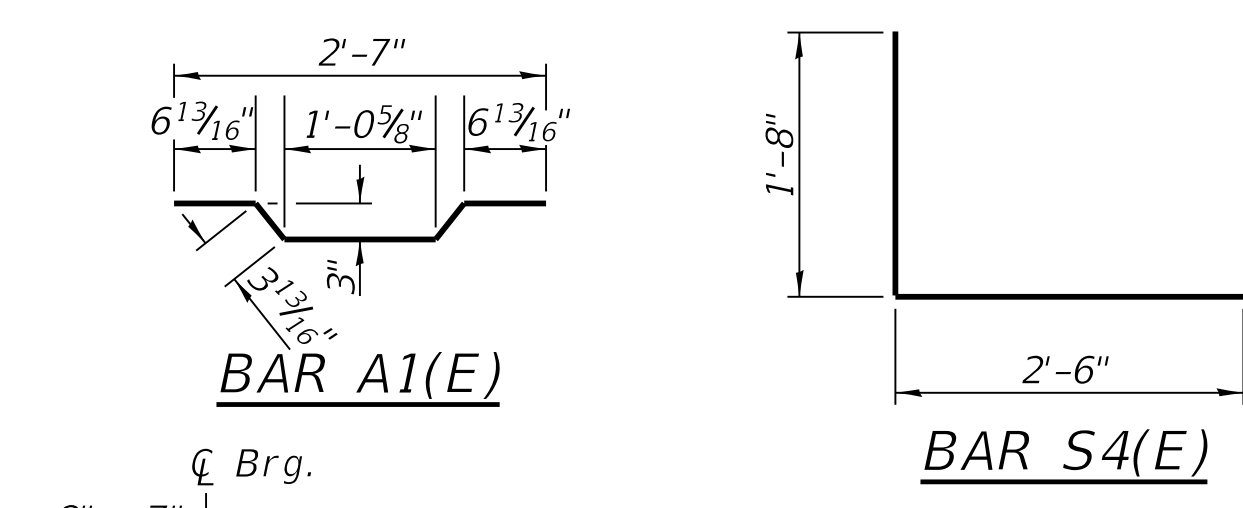
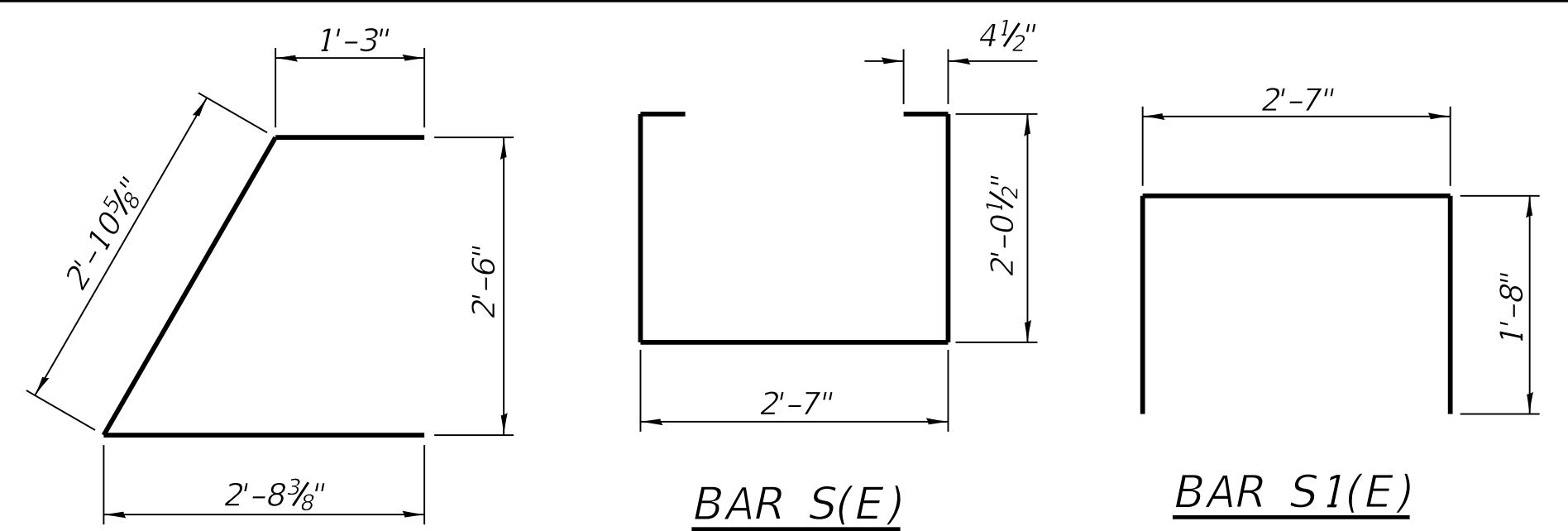
Note: All bearing pads shall be 1" thick.



SECTION A-A

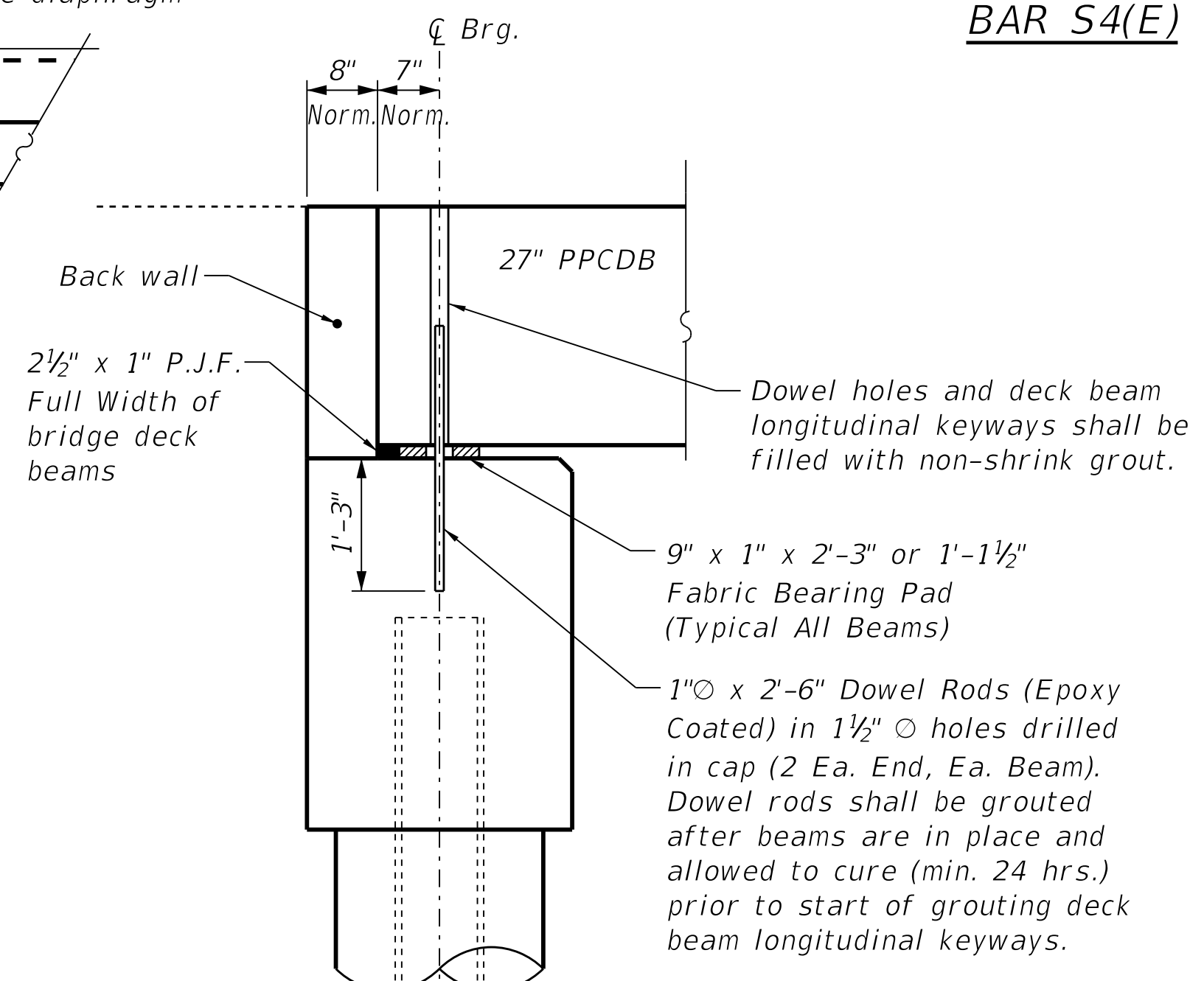


TYPICAL TRANSVERSE TIE ASSEMBLY

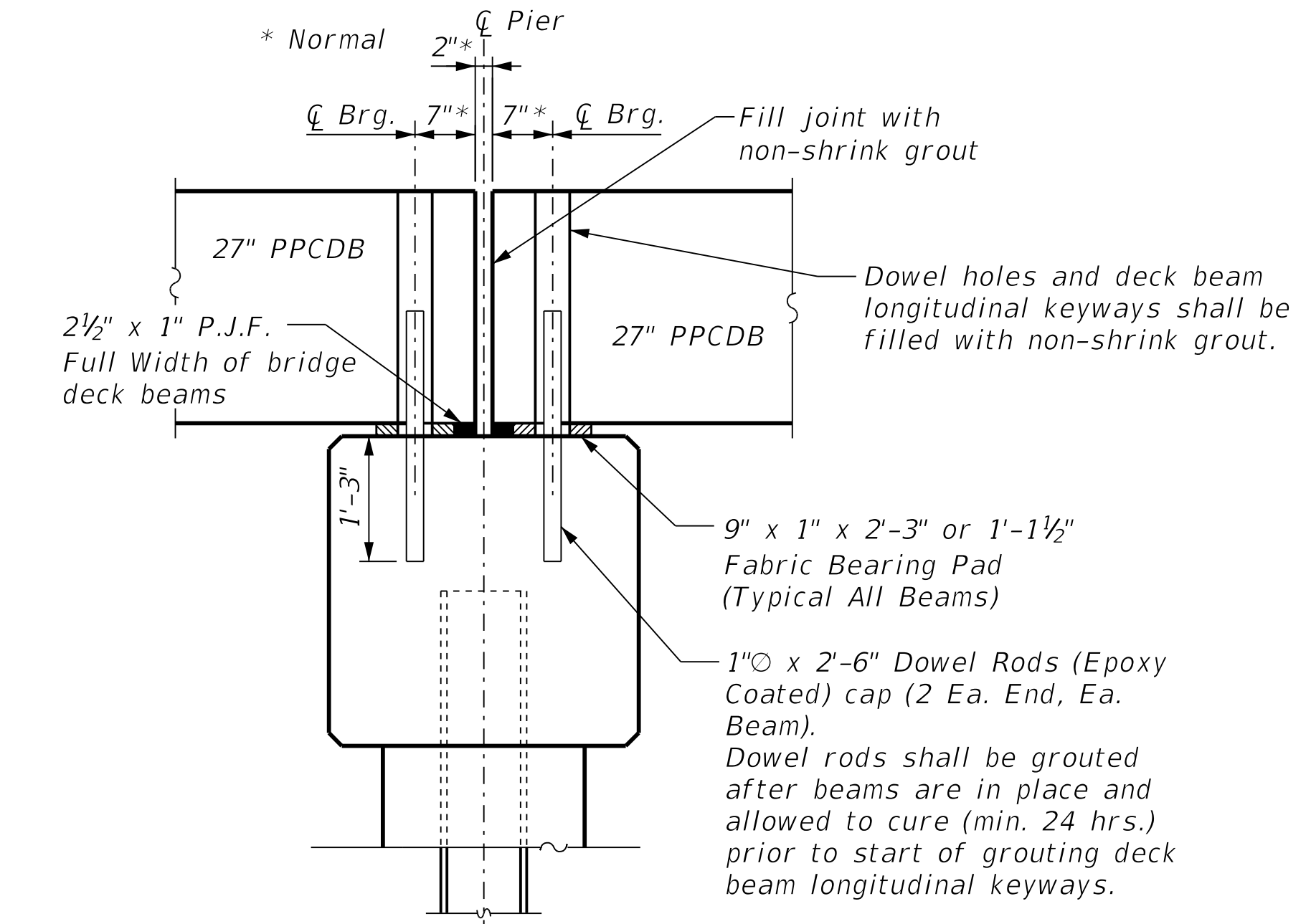


PLAN VIEW

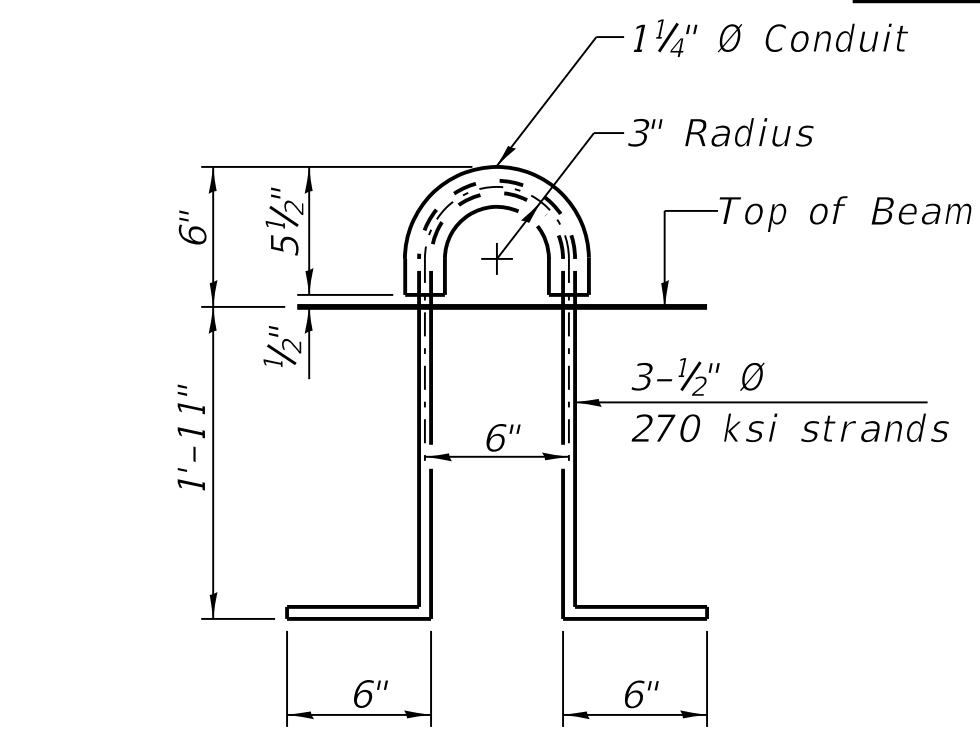
Note: Connect beams in pairs with the transverse tie configuration shown.



FIXED BEARING ABUTMENT
(Normal to \bar{C})



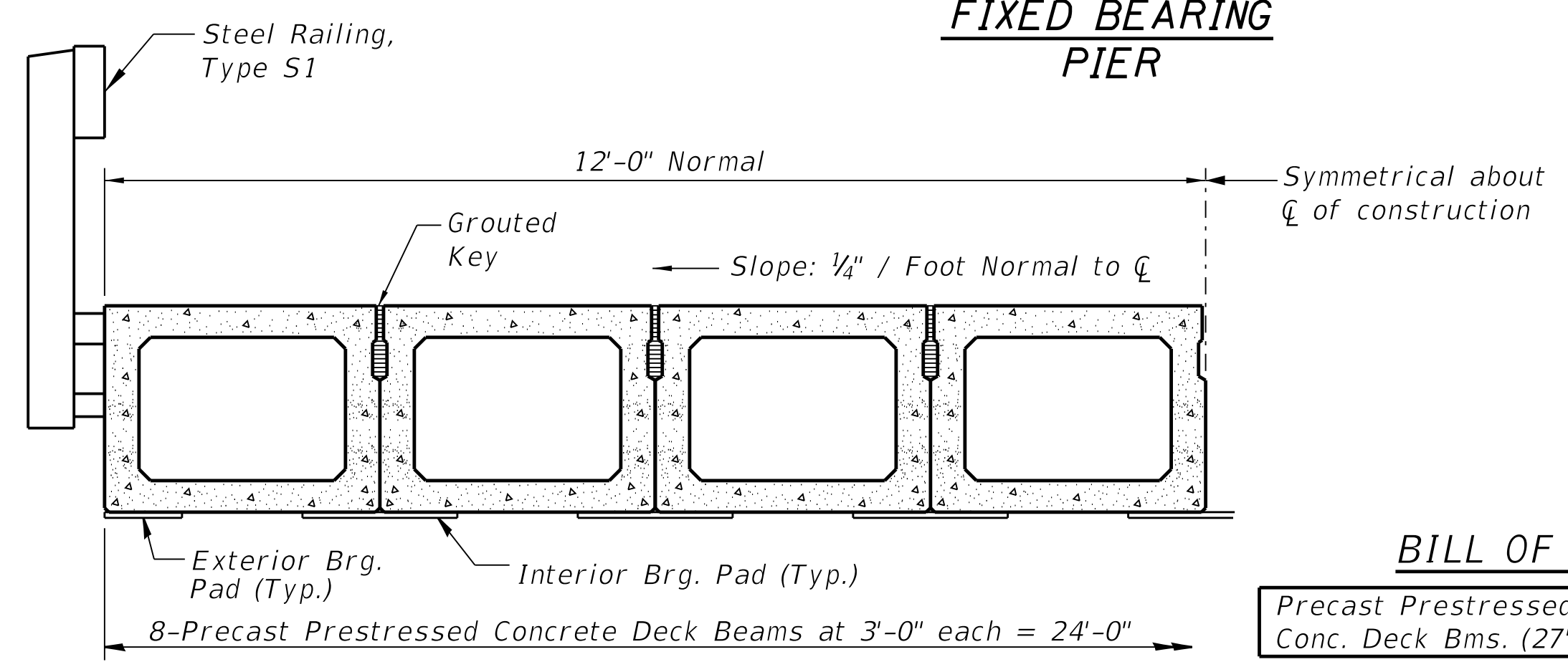
FIXED BEARING PIER



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" \bar{O} 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 the requirements of ASTM A706, 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" \bar{O} 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.



HALF CROSS SECTION

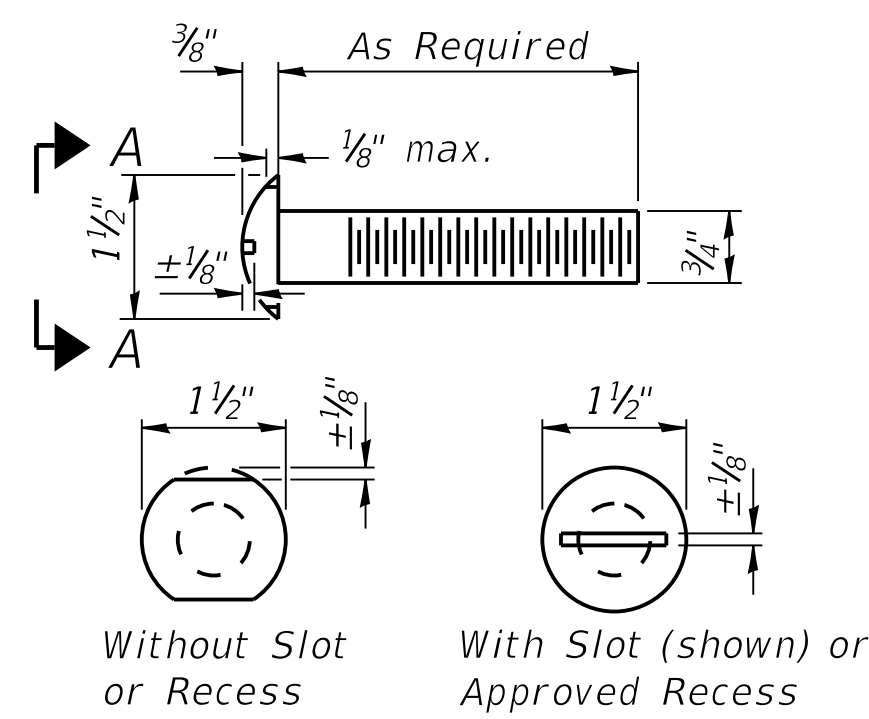
See Sheet 7 for the details showing the spacing and mounting of posts and rails to the PPCDB.

BILL OF MATERIAL

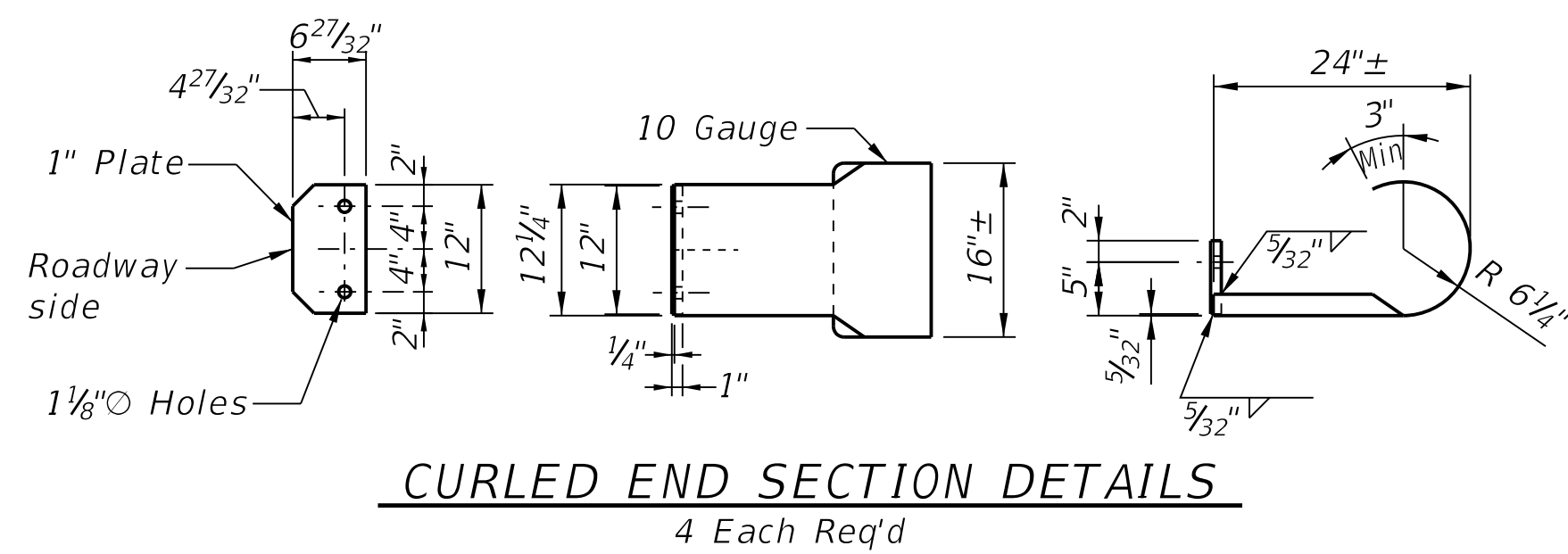
| | | |
|---|---------|------|
| Precast Prestressed Conc. Deck Bms. (27" depth) | Sq. Ft. | 4320 |
|---|---------|------|

| | |
|-------------------|-----------|
| DESIGNED - WDL | REVISED - |
| DRAWN - JN | REVISED - |
| CHECKED - BLT | REVISED - |
| DATE - 03/14/2019 | REVISED - |

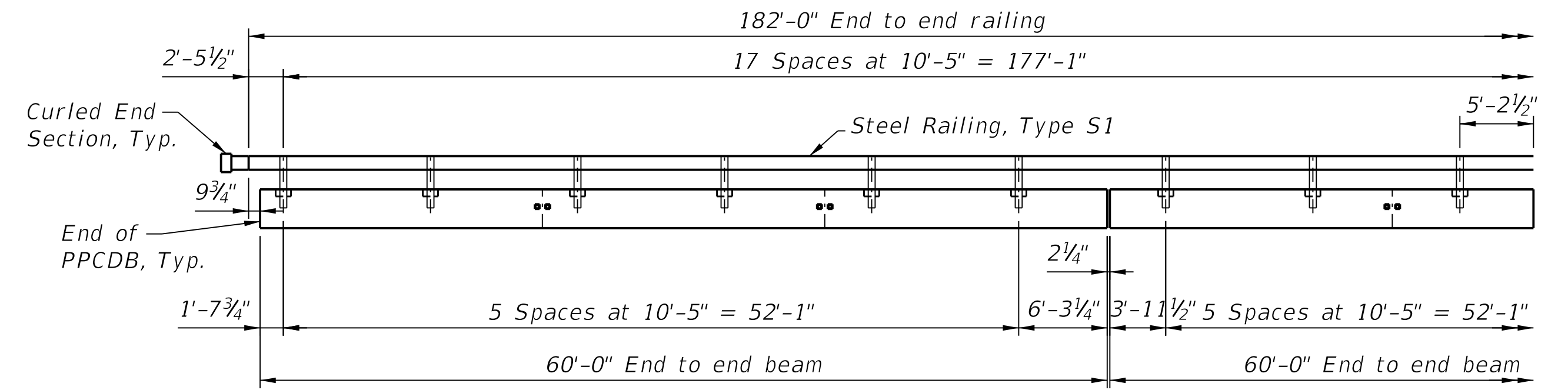
| | | | | |
|--------|----------------|---------|--------------------|-----------|
| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 6 |
| | | | CONTRACT NO. 95851 | |



**VIEW A-A
ROUND HEAD BOLT**

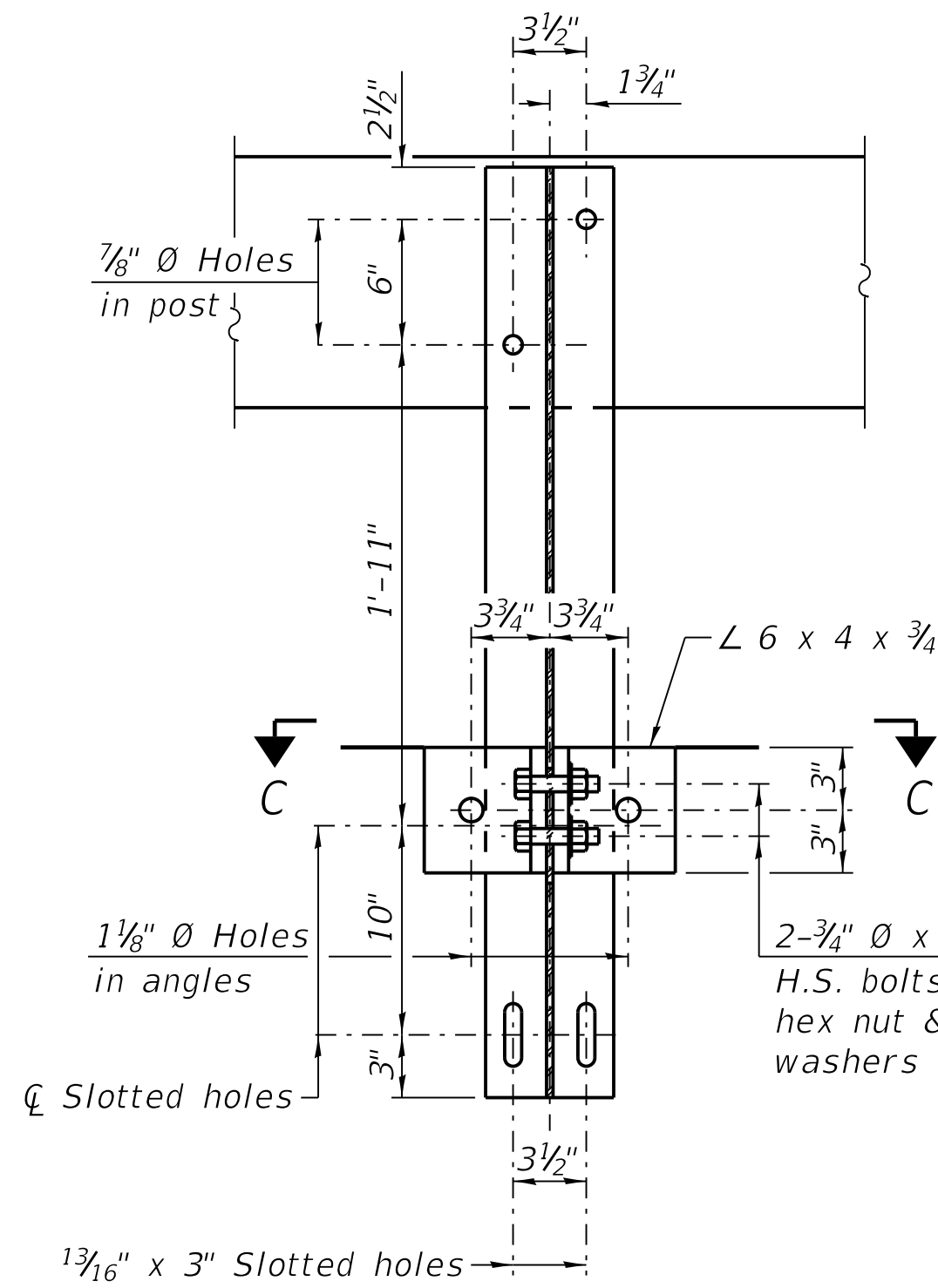


CURLLED END SECTION DETAILS
4 Each Req'd

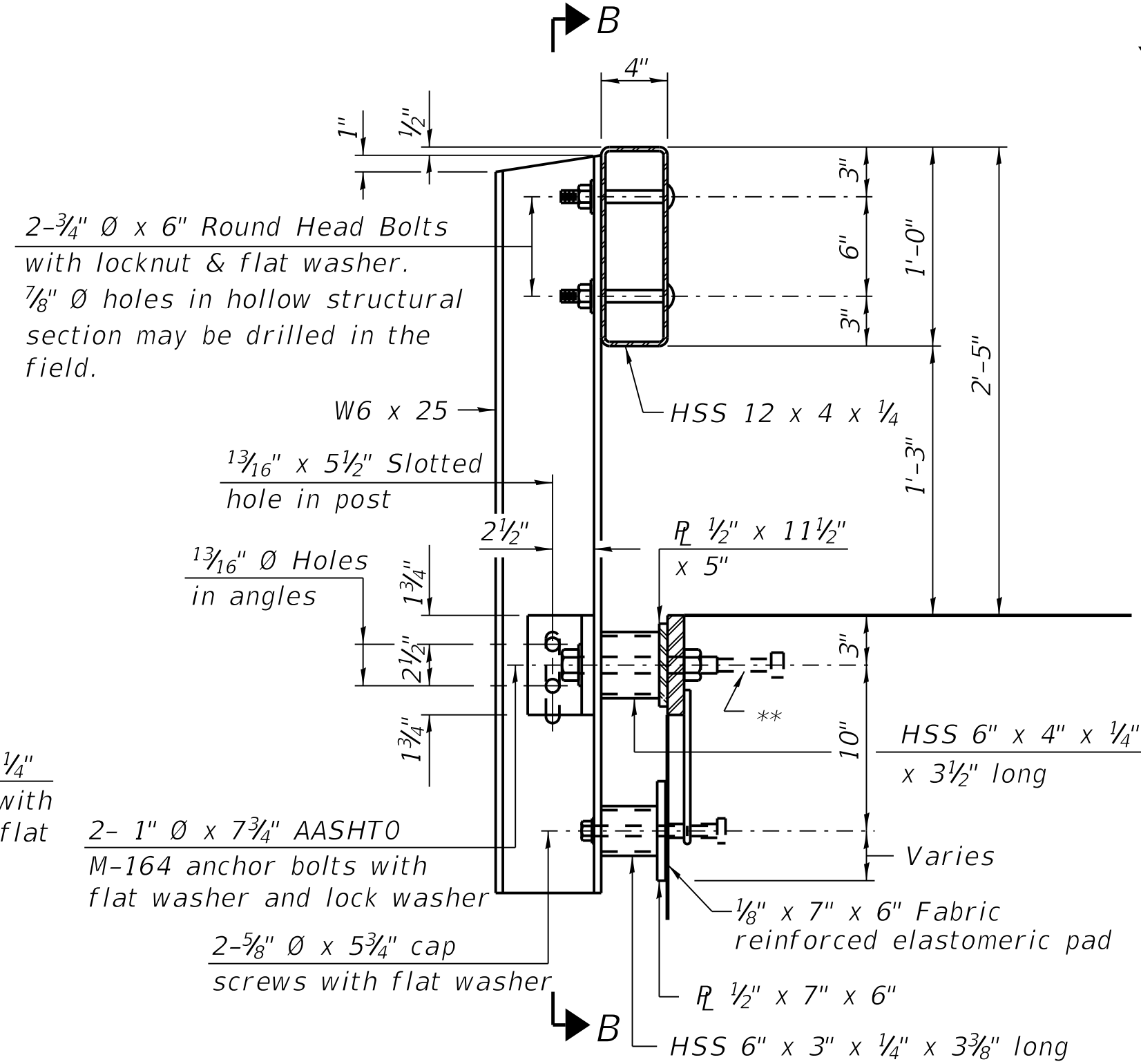


ELEVATION

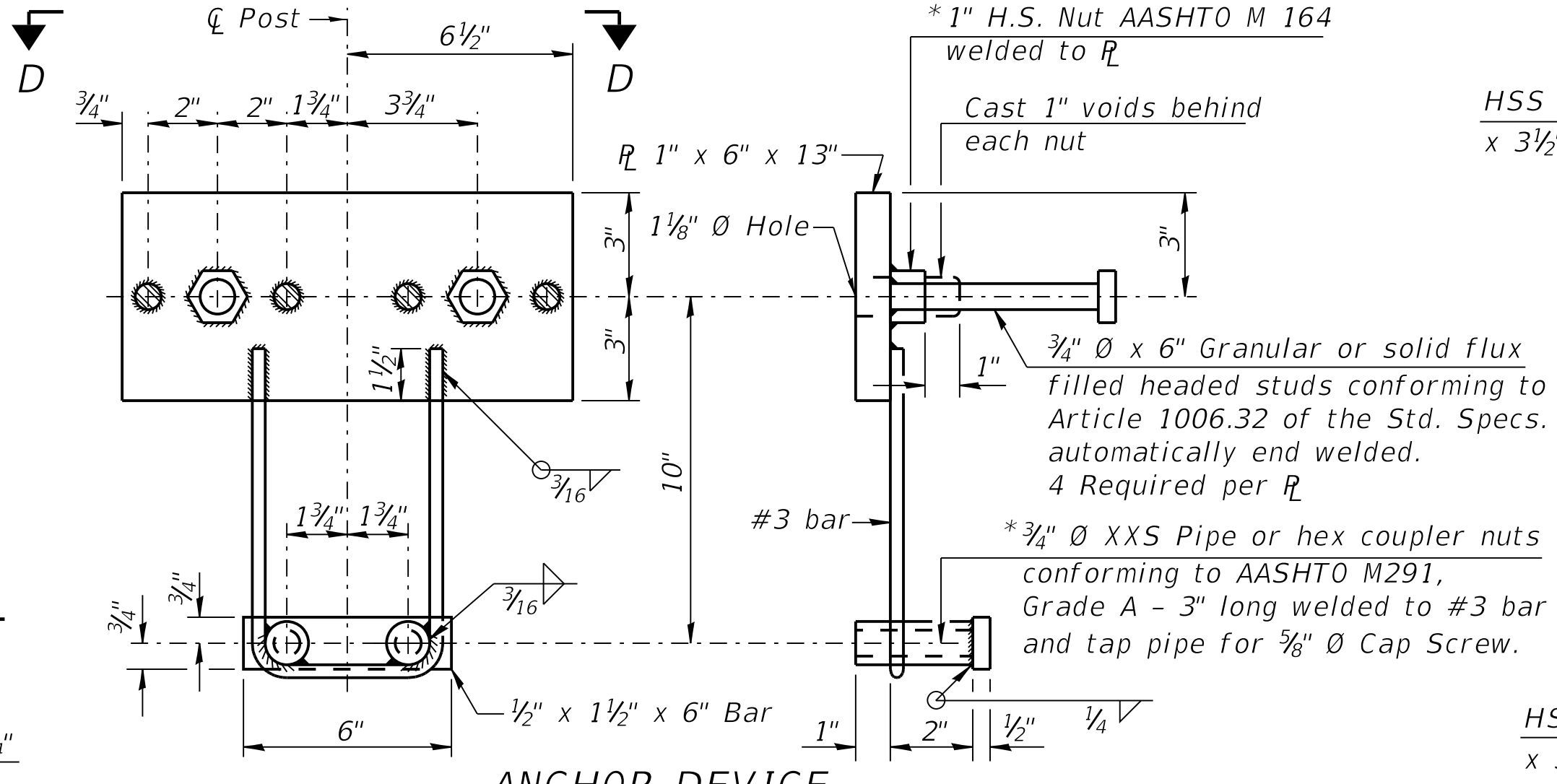
Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



SECTION B-B

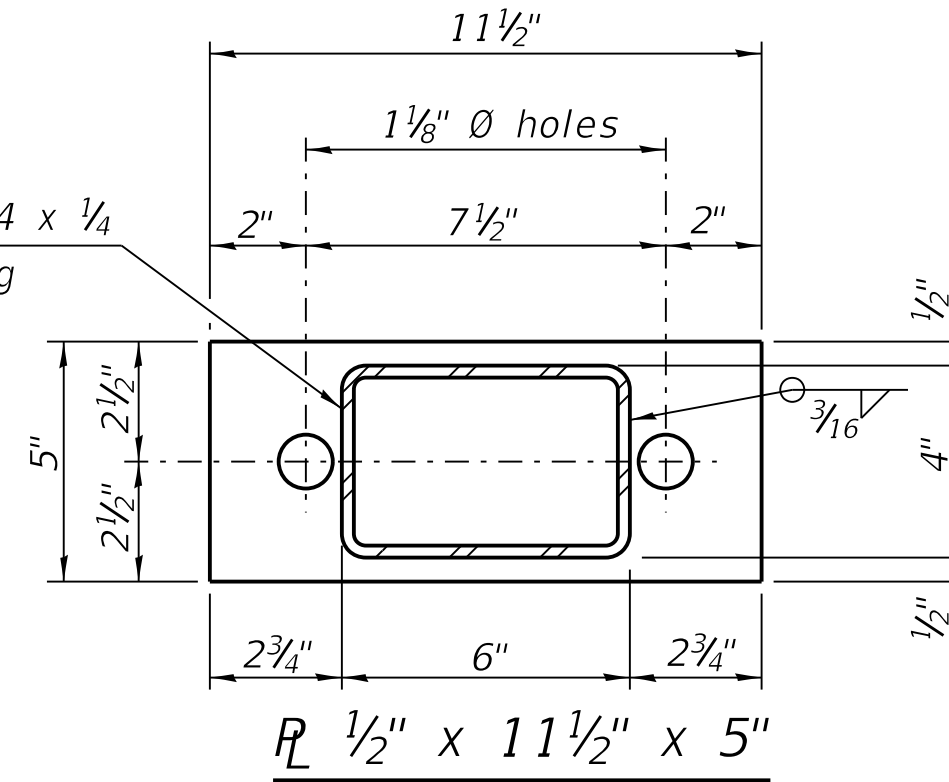


SECTION AT RAILING POST

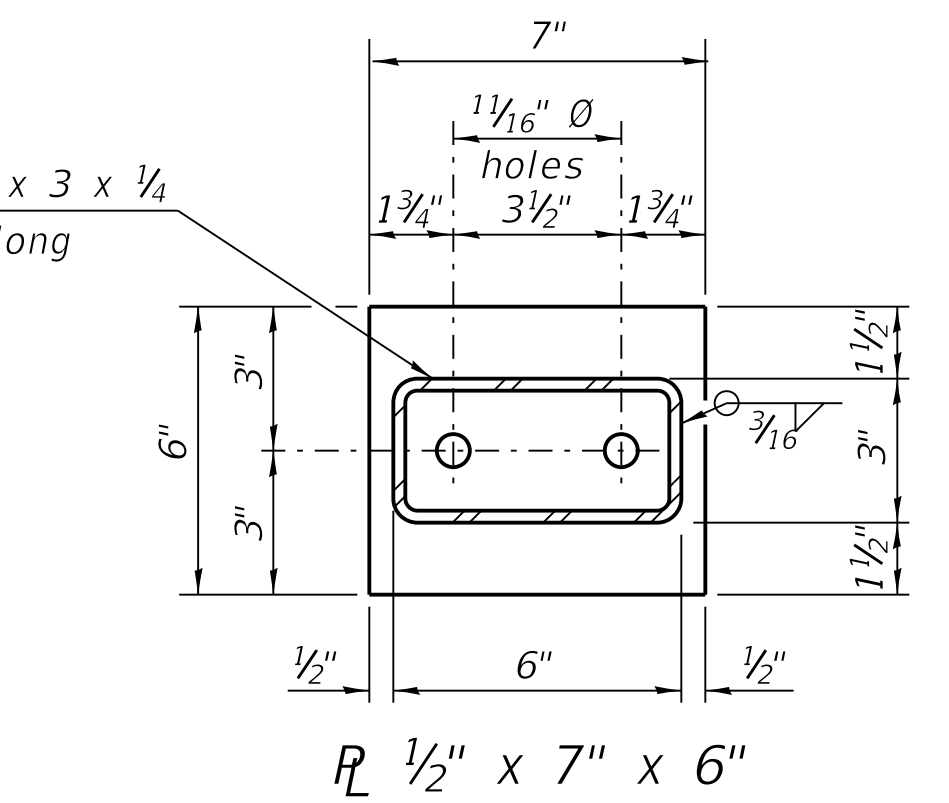


ANCHOR DEVICE

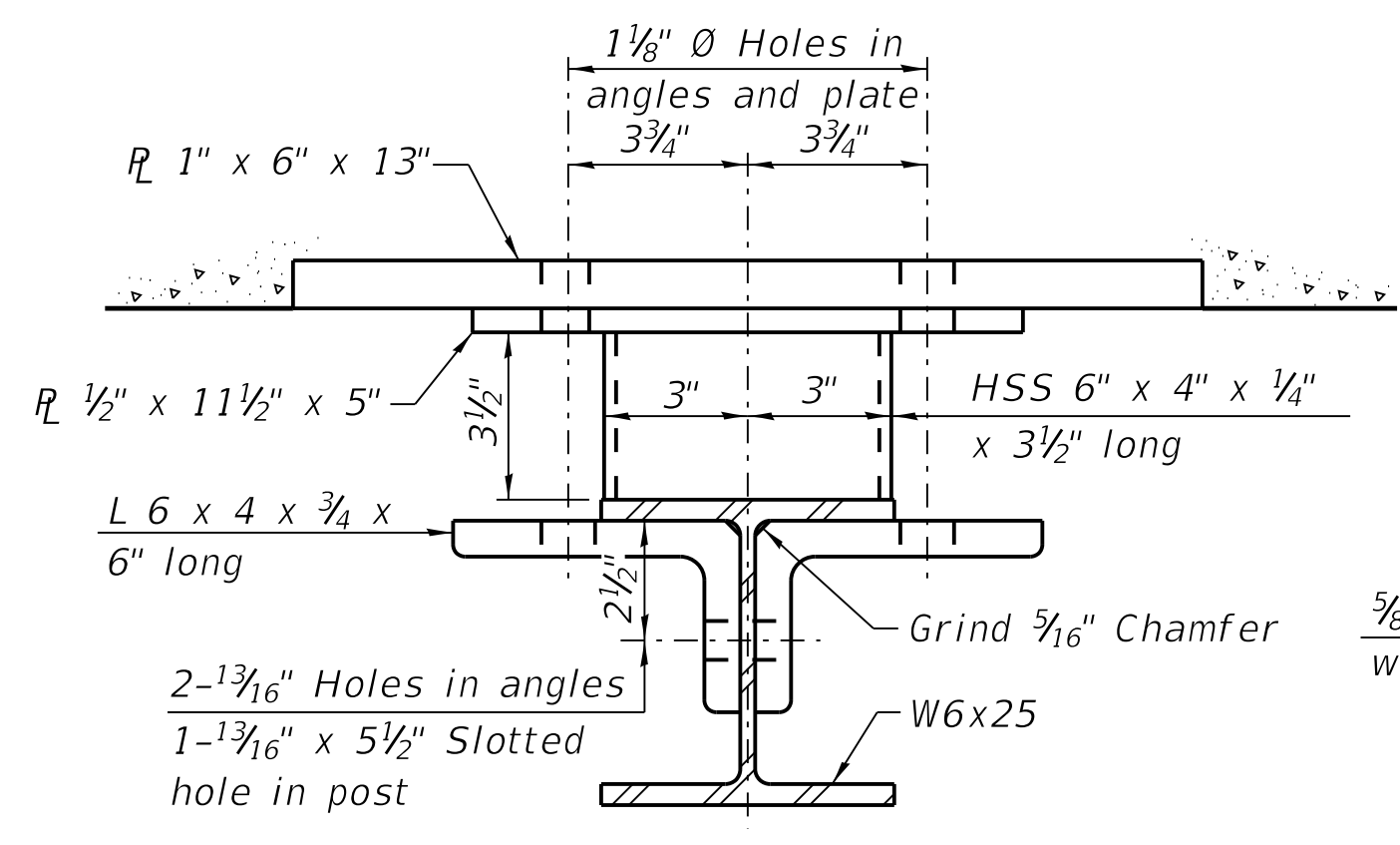
* Threaded areas shall be plugged or blocked off during casting of beam.



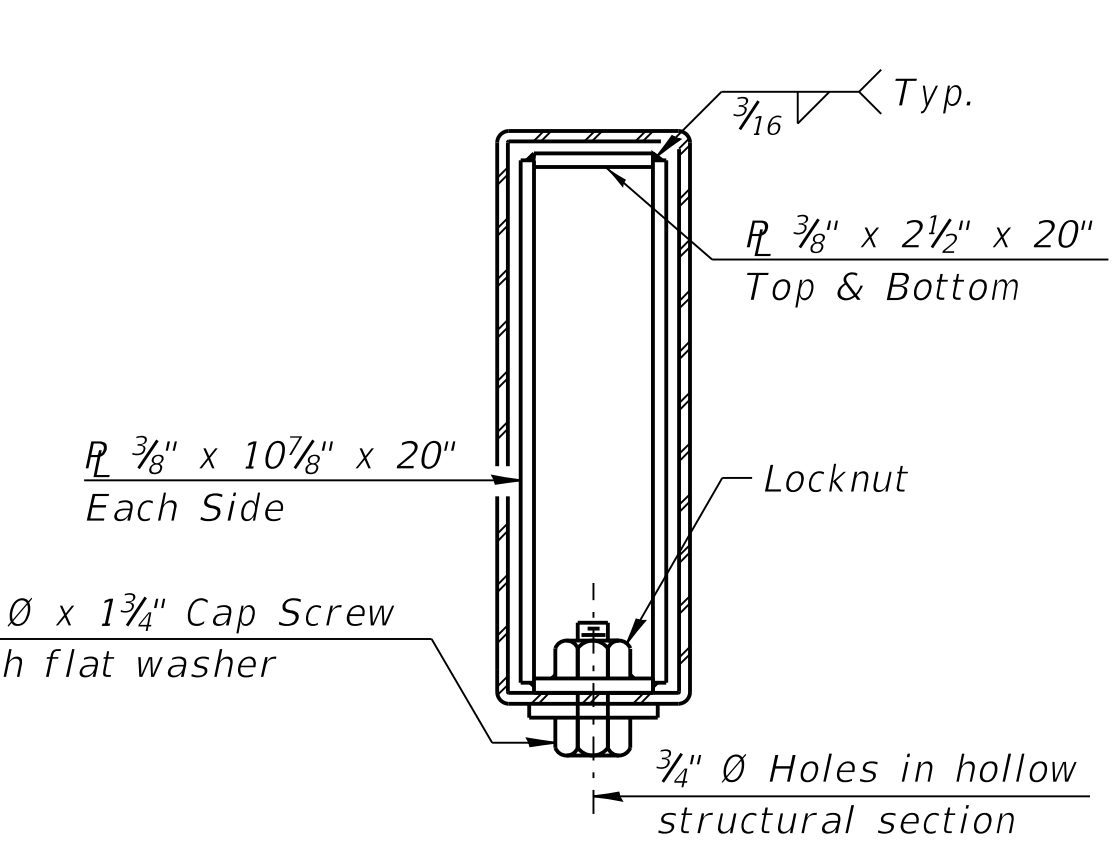
R 1/2" x 11 1/2" x 5"



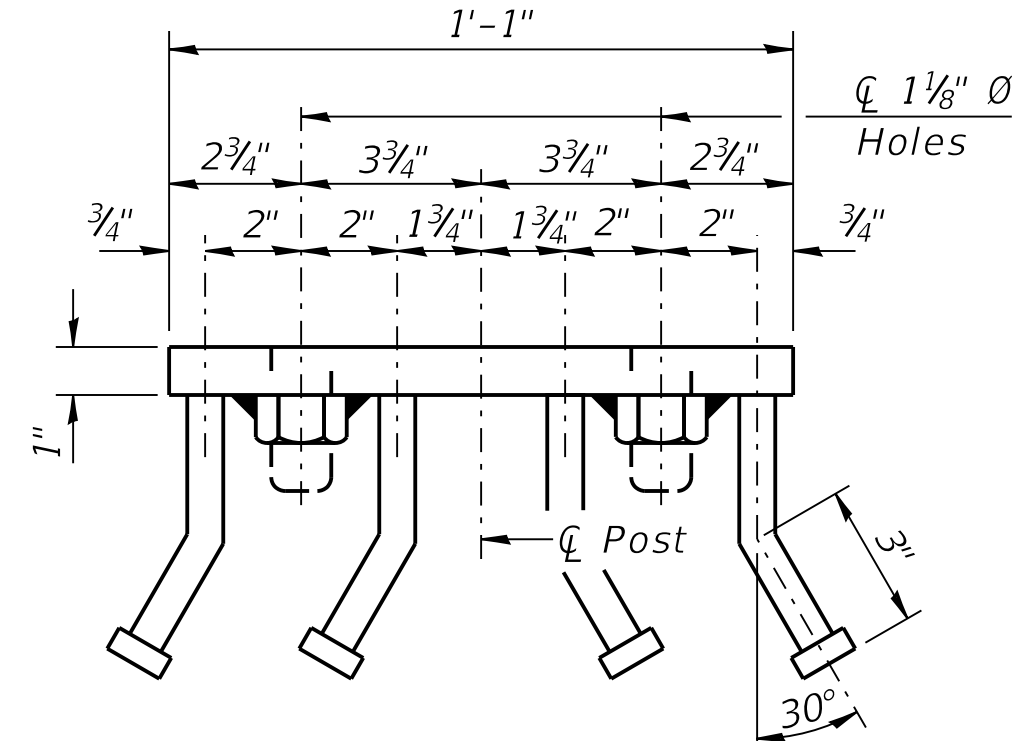
R 1/2" x 7" x 6"



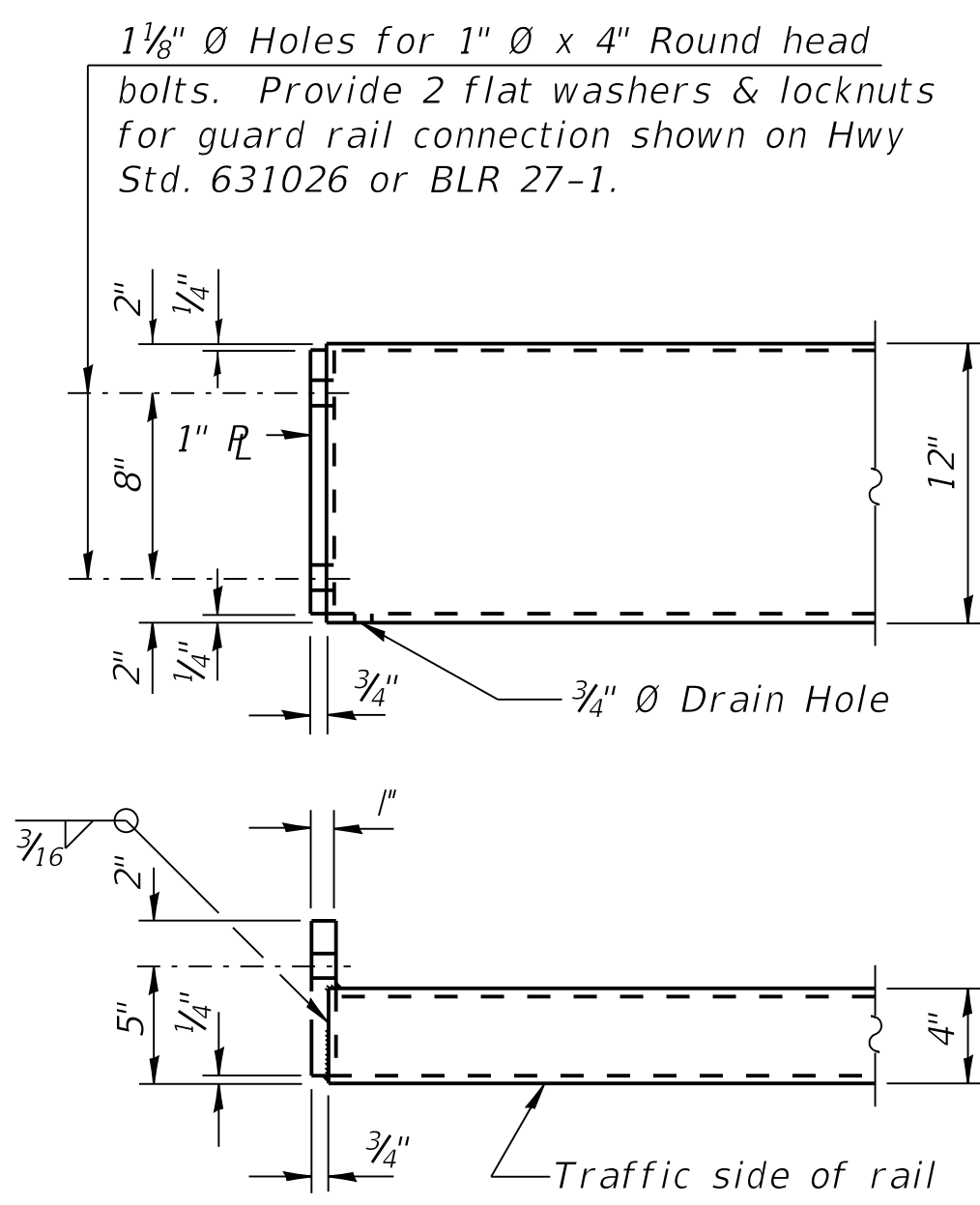
SECTION C-C



SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE R TYPICAL



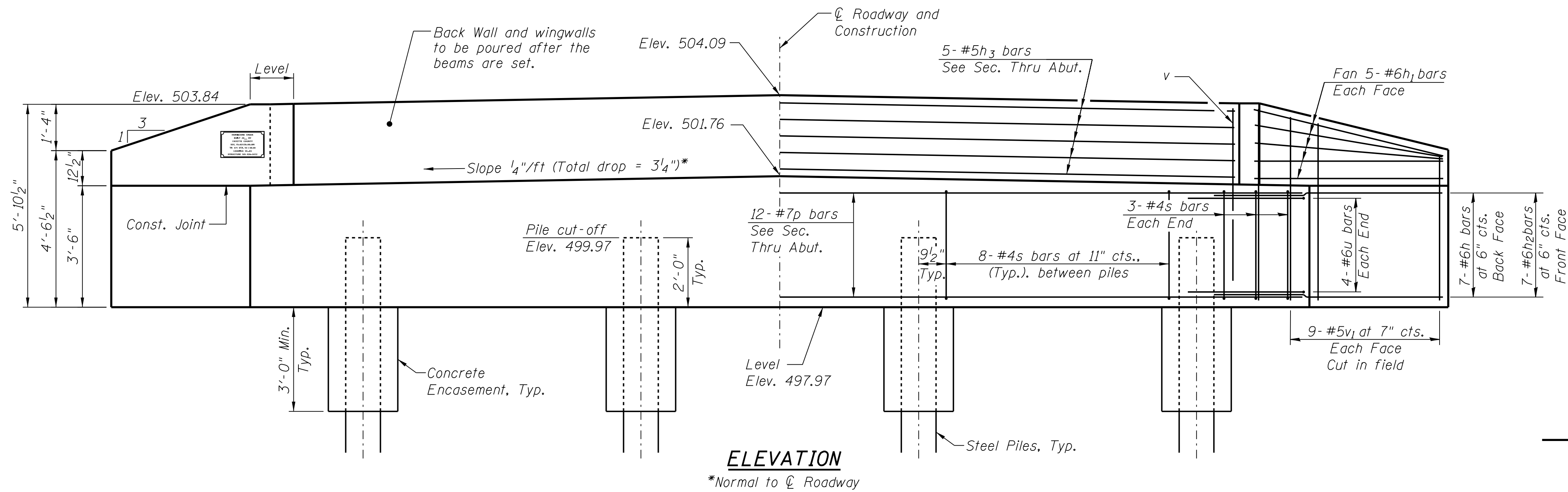
END OF RAIL DETAILS

Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

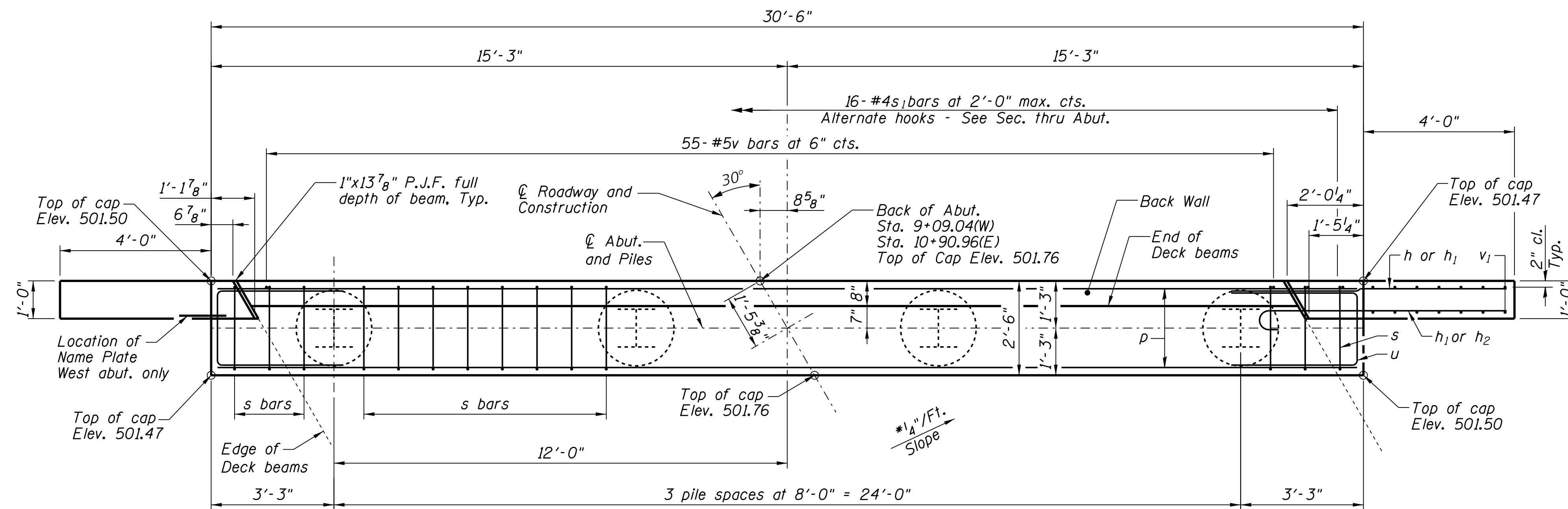
**The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.

BILL OF MATERIAL

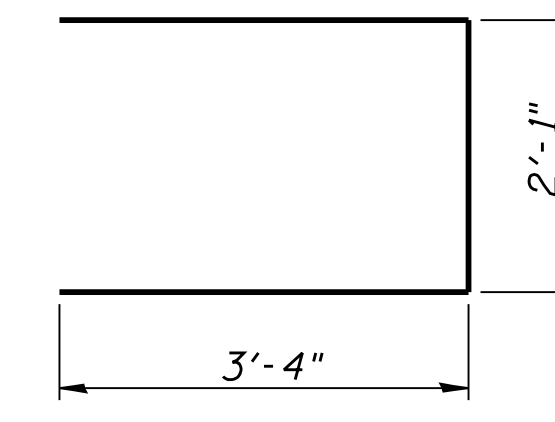
| Item | Unit | Quantity |
|------------------------|------|----------|
| Steel Railing, Type S1 | Foot | 364 |



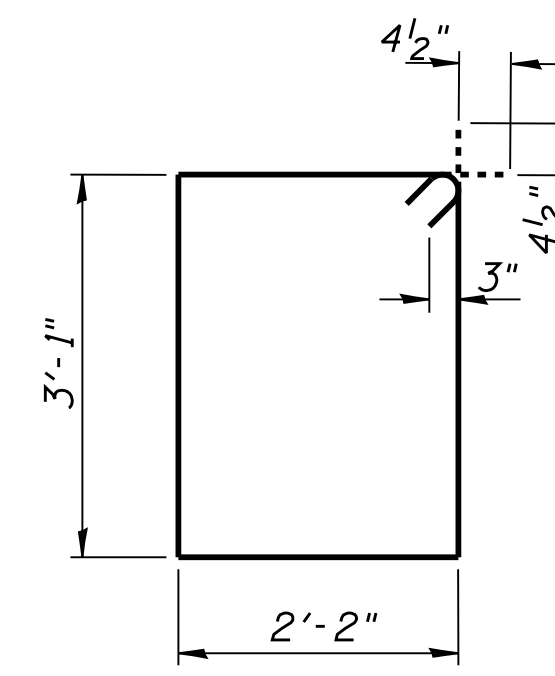
ELEVATION
*Normal to ϕ Roadway



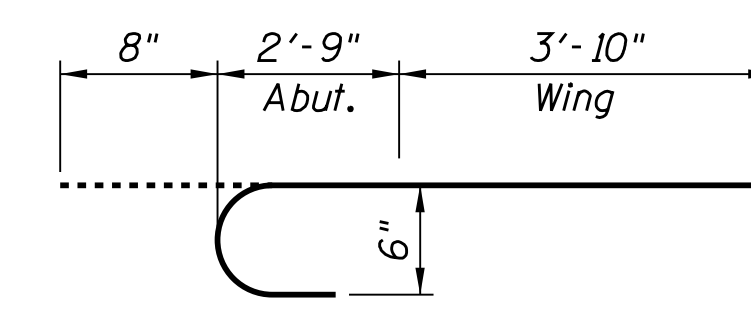
PLAN
*Normal to ϕ Roadway



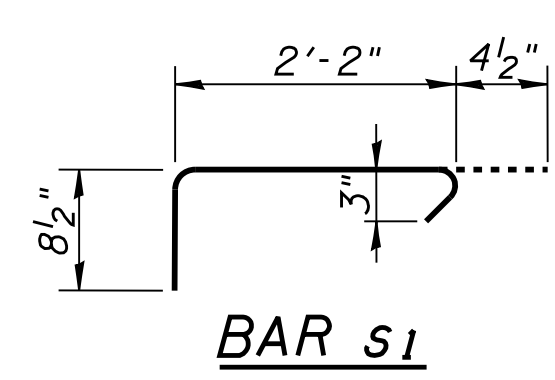
BAR u



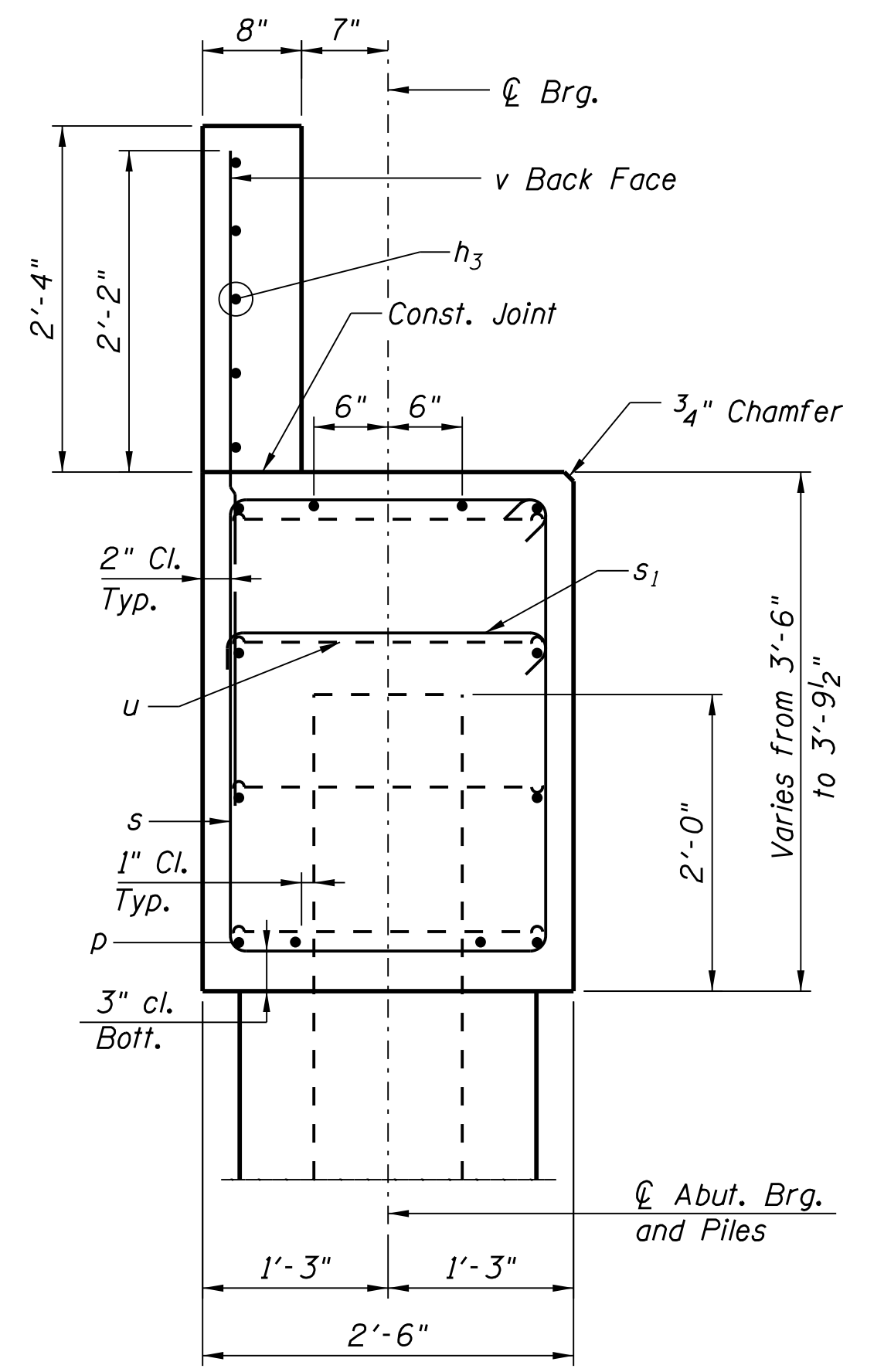
BAR s



BAR h2



BAR s1



SEC. THRU ABUT.
(Normal to ϕ)

BILL OF MATERIAL FOR ONE ABUTMENT

| Bar | No. | Size | Length | Shape |
|---------------------------------|------|----------|---------|--------------|
| h | 14 | #6 | 8'-0" | — |
| h1 | 20 | #6 | 4'-8" | CUT IN FIELD |
| h2 | 14 | #6 | 7'-3" | — |
| h3 | 5 | #5 | 27'-4" | — |
| p | 12 | #7 | 30'-2" | — |
| s | 30 | #4 | 11'-3" | □ |
| s1 | 16 | #4 | 3'-3" | ┌ |
| u | 8 | #6 | 8'-9" | □ |
| v | 55 | #5 | 4'-4" | — |
| v1 | 36 | #5 | 5'-6" | CUT IN FIELD |
| Concrete Structures | | | Cu. Yd. | 13.7 |
| Concrete Encasement | | | Cu. Yd. | 1.4 |
| Reinforcement Bars | | | Pound | 2160 |
| Furnishing Steel Piles, HP12x53 | Foot | W. Abut. | | 171 |
| | | E. Abut. | | 212 |
| Driving Piles | Foot | W. Abut. | | 171 |
| | | E. Abut. | | 212 |
| Test Pile Steel HP12x53 | Each | W. Abut. | | 1 |
| | | E. Abut. | | 0 |
| Pile Shoes | Each | W. Abut. | | 4 |
| | | E. Abut. | | 4 |

For details of piles and Concrete Encasement, see HP Pile Details sheet.

PILE DATA WEST ABUTMENT

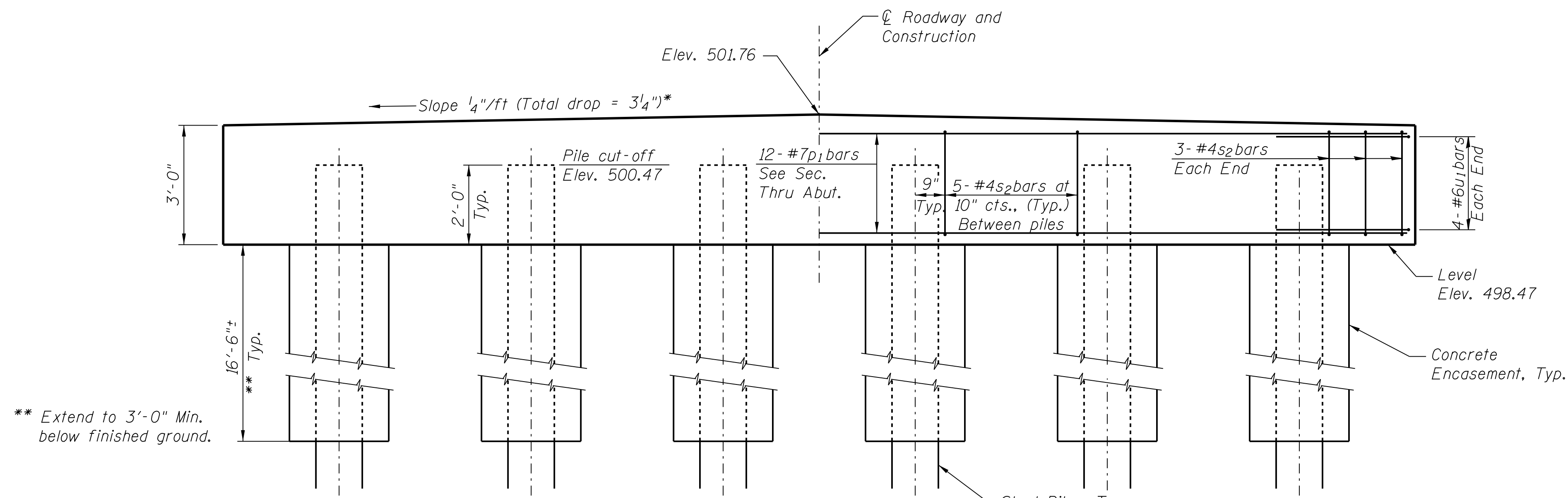
Type: Steel HP12x53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Estimated Length: 57'/pile
No. Production Piles w/Pile Shoes: 3
No. Test Piles w/ Pile Shoes: 1

PILE DATA EAST ABUTMENT

Type: Steel HP12x53
Nominal Required Bearing: 418 kips
Factored Resistance Available: 230 kips
Estimated Length: 53'/pile
No. Production Piles w/Pile Shoes: 4
No. Test Piles w/Pile Shoes: 0

GENERAL NOTES

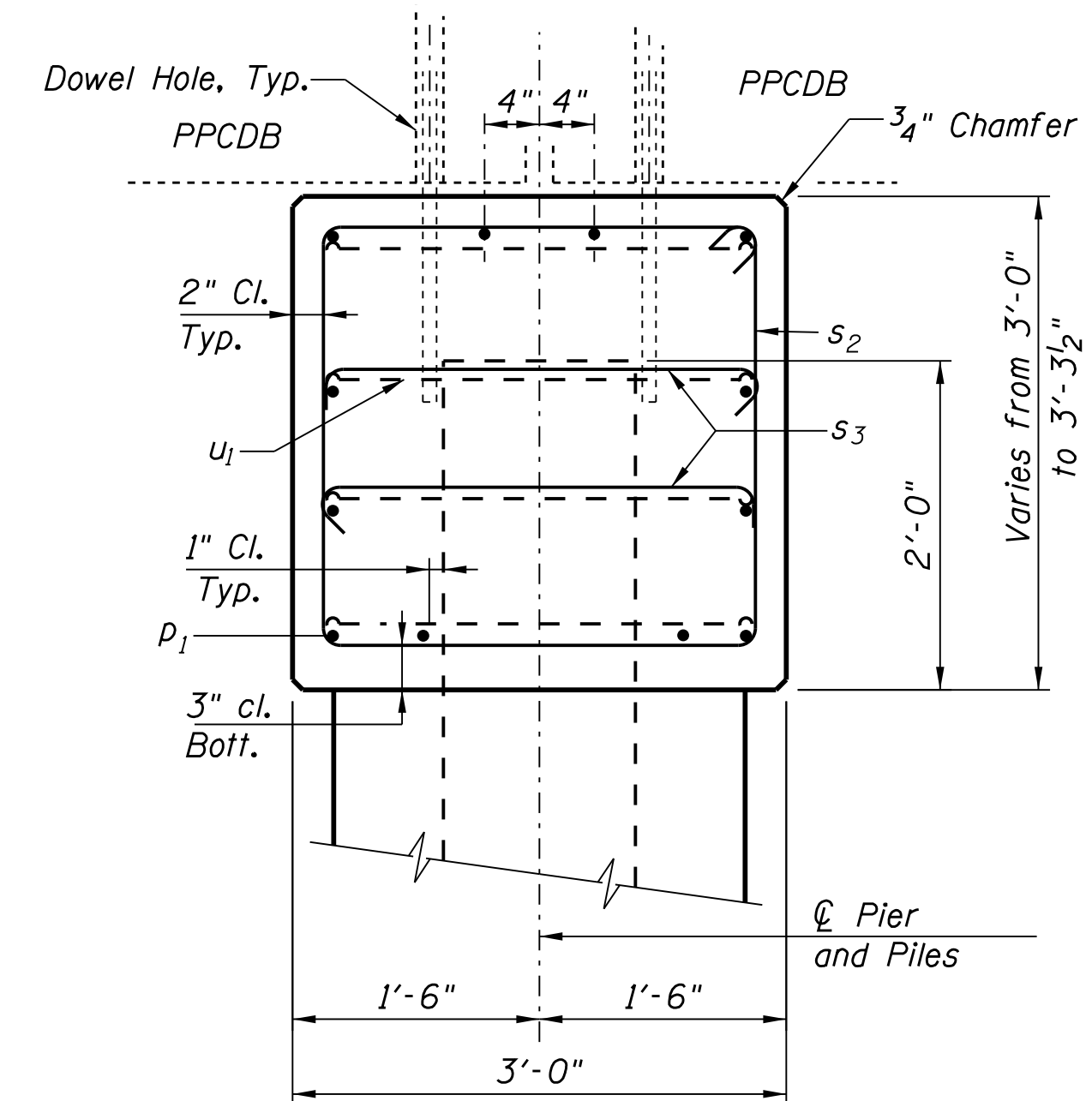
- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).
- All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.
- All clearances between rebar and form surface shall be 2", unless otherwise noted.
- Space reinforcement in cap to miss PPCDB dowel rods.
- The Steel H-piles shall be according to AASHTO M270 Grade 50.
- The Contractor shall drive one (1) Test Pile of the size indicated in a permanent location as shown on the plans or as directed by the Engineer before ordering the remainder of the piles.
- The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.
- The back wall and portion of the wingwalls above the construction joint shall be cast against the in-place deck beams.
- The position of the 90° & 135° hooked ends of the s1 bar shall be alternated between adjacent bars horizontally.



** Extend to 3'-0" Min. below finished ground.

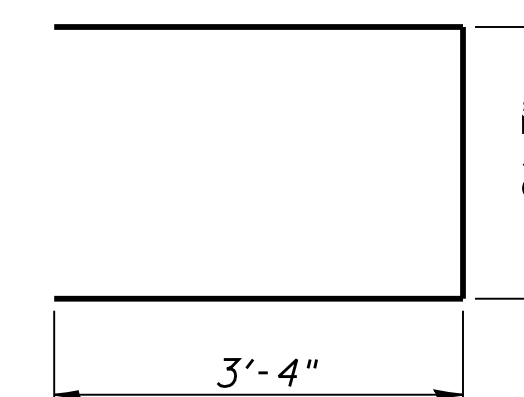
ELEVATION

*Normal to \bar{C} Roadway

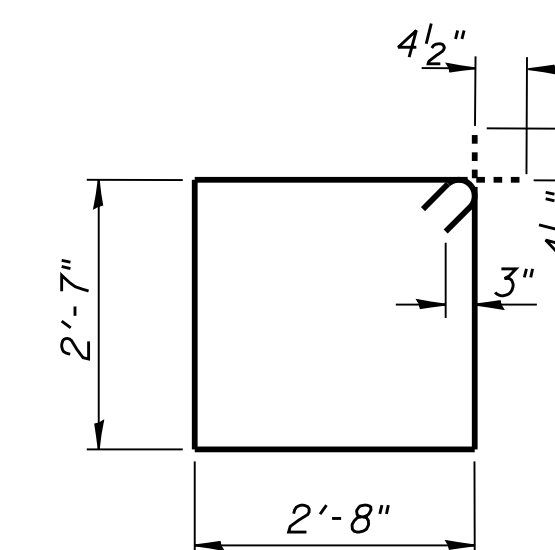


SEC. THRU PIER

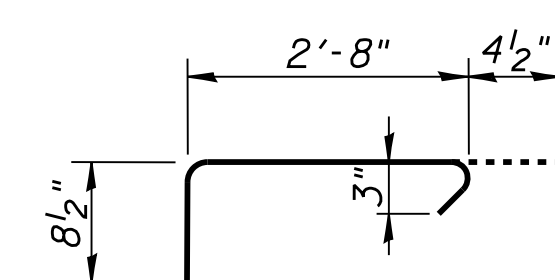
(Normal to \bar{C})



BAR u1



BAR s2

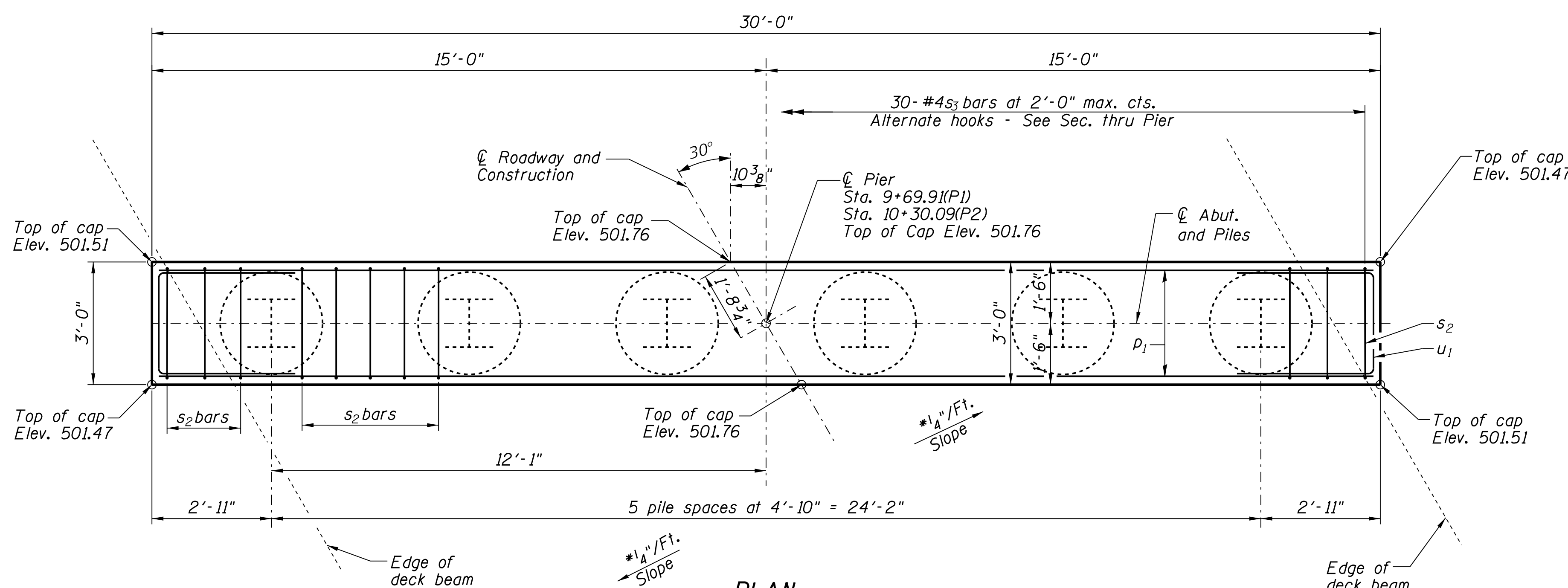


BAR s3

BILL OF MATERIAL FOR ONE PIER

| Bar | No. | Size | Length | Shape | |
|---------------------|-----|------|--------|---------|------|
| p1 | 12 | #7 | 29'-8" | — | |
| s2 | 31 | #4 | 11'-3" | □ | |
| s3 | 30 | #4 | 3'-9" | ┌┐ | |
| u1 | 8 | #6 | 9'-3" | ┌┐ | |
| Concrete Structures | | | | Cu. Yd. | 10.5 |
| Concrete Encasement | | | | Cu. Yd. | 18.0 |
| Reinforcement Bars | | | | Pound | 1150 |
| Furnishing Steel | | | | Foot | 348 |
| Piles, HP14x73 | | | | Pier 1 | 265 |
| Driving Piles | | | | Pier 2 | 348 |
| Test Pile Steel | | | | Pier 1 | 0 |
| HP14x73 | | | | Pier 2 | 1 |
| Pile Shoes | | | | Pier 1 | 6 |
| | | | | Pier 2 | 6 |

For details of piles and Concrete Encasement, see HP Pile Details sheet.



PLAN

*Normal to \bar{C} Roadway

PILE DATA PIER NO. 1

Type: Steel HP14x73
 Nominal Required Bearing: 455 kips
 Factored Resistance Available: 250 kips
 Estimated Length: 58'/pile
 No. Production Piles w/Pile Shoes: 6
 No. Test Piles w/ Pile Shoes: 0

PILE DATA PIER NO. 2

Type: Steel HP14x73
 Nominal Required Bearing: 455 kips
 Factored Resistance Available: 250 kips
 Estimated Length: 53'/pile
 No. Production Piles w/Pile Shoes: 5
 No. Test Piles w/Pile Shoes: 1

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

The Contractor shall drive one (1) Test Pile of the size indicated in a permanent location as shown on the plans or as directed by the Engineer before ordering the remainder of the piles.

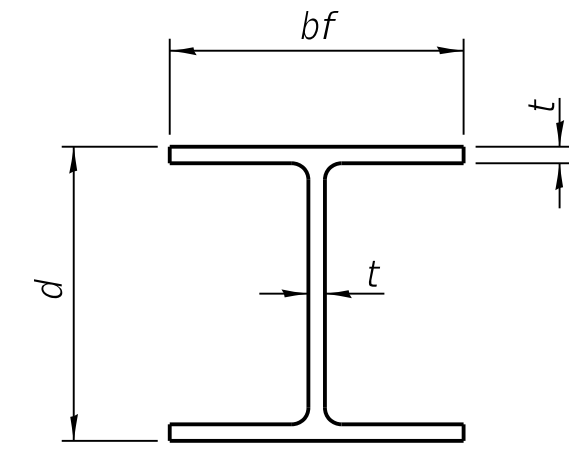
The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

The position of the 90° & 135° hooked ends of the s3 bar shall be alternated between adjacent bars as shown, both vertically and horizontally.

If a portion of the concrete encasement is under water, reinforcement may be placed underwater into forms. Concrete shall be tremied according to Article 503.08 of the Standard Specifications to an elevation of 1'-0" above the water line at the time of construction.

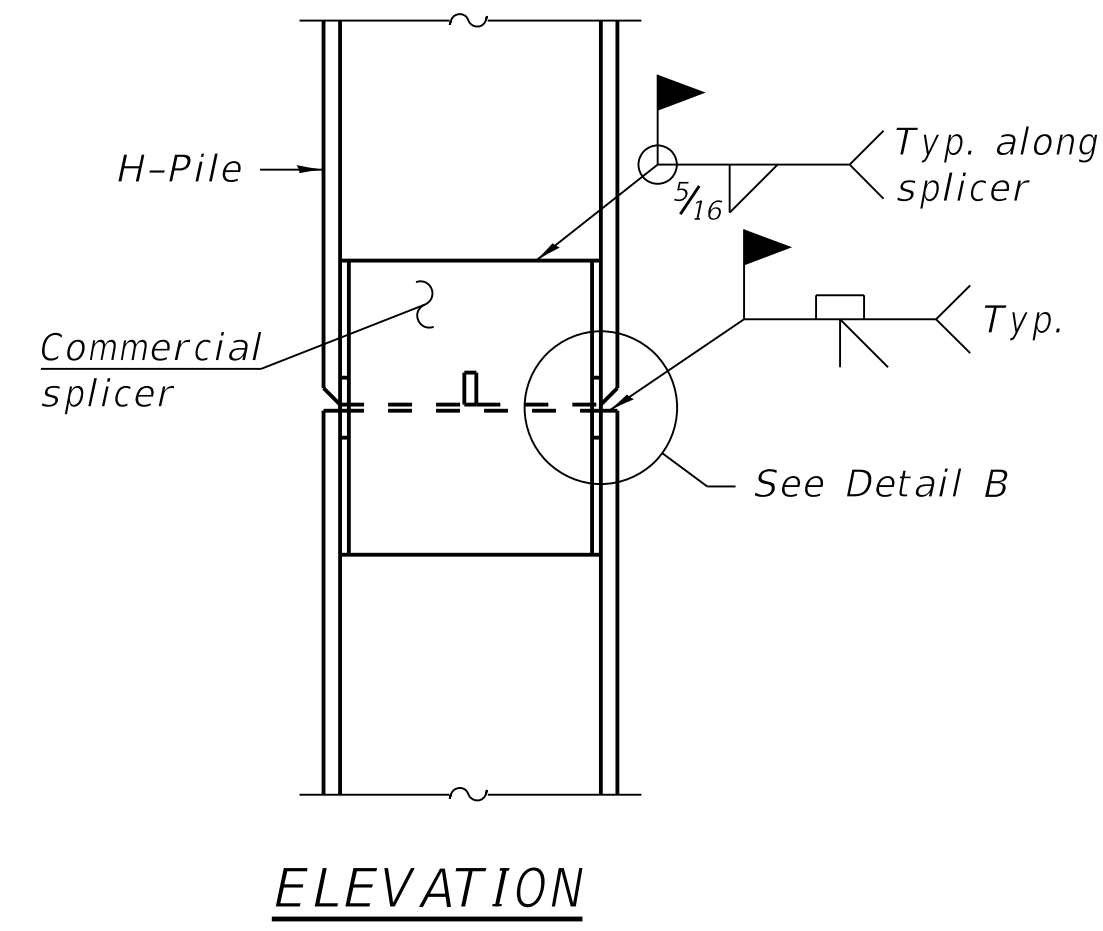
| | | | |
|------------|------------|-----------|--|
| DESIGNED - | BLT | REVISED - | |
| DRAWN - | JN | REVISED - | |
| CHECKED - | WDL | REVISED - | |
| DATE - | 03/14/2019 | REVISED - | |

| | | | | |
|--------|----------------|---------|--------------------|-----------|
| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 9 |
| | | | CONTRACT NO. 95851 | |

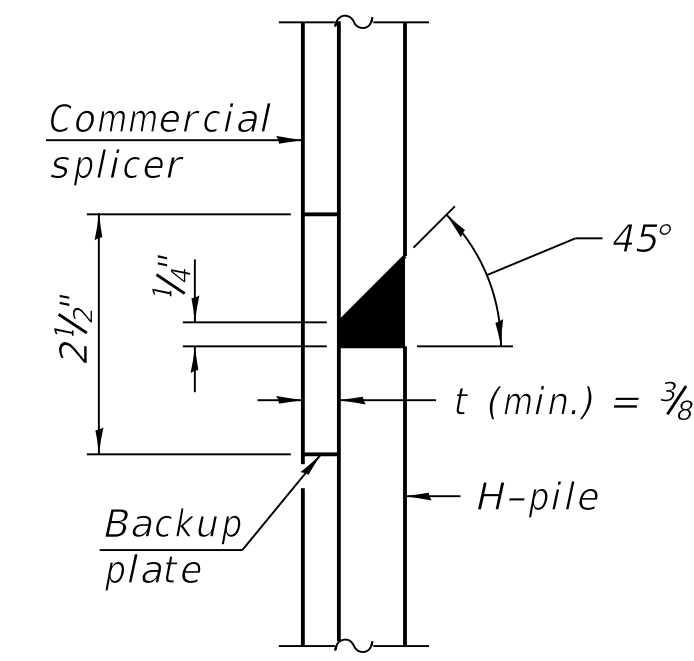


STEEL PILE TABLE

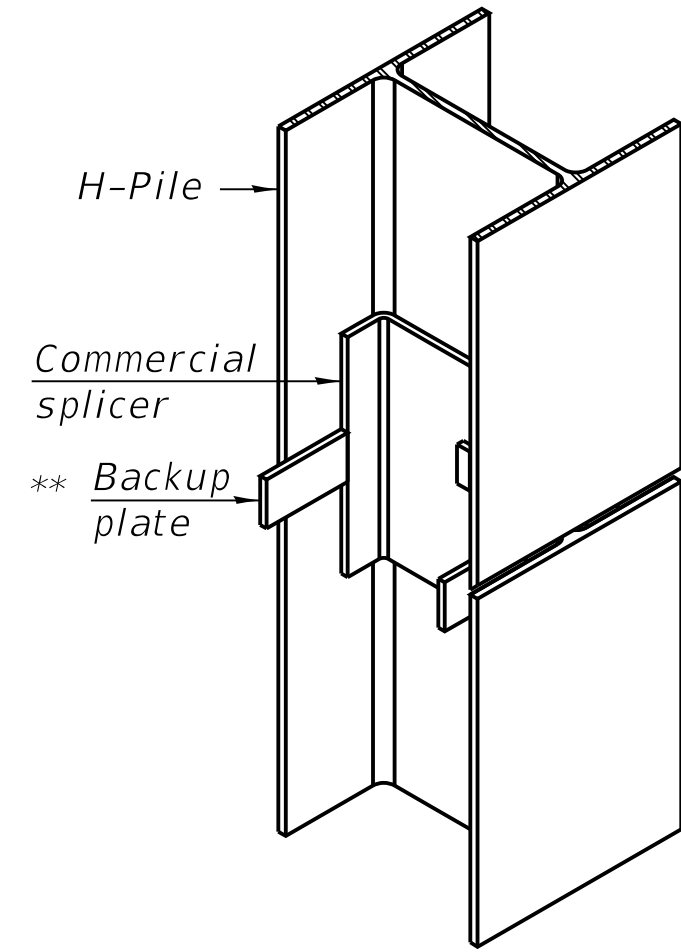
| Designation | Depth d | Flange width bf | Web and Flange thickness t | Encasement diameter A |
|-------------|---------|-----------------|----------------------------|-----------------------|
| HP 14x117 | 14 1/4" | 14 7/8" | 1 3/16" | 30" |
| x102 | 14" | 14 3/4" | 1 1/16" | 30" |
| x89 | 13 7/8" | 14 3/4" | 5/8" | 30" |
| x73 | 13 3/8" | 14 3/8" | 1/2" | 30" |
| HP 12x84 | 12 1/4" | 12 1/4" | 1 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

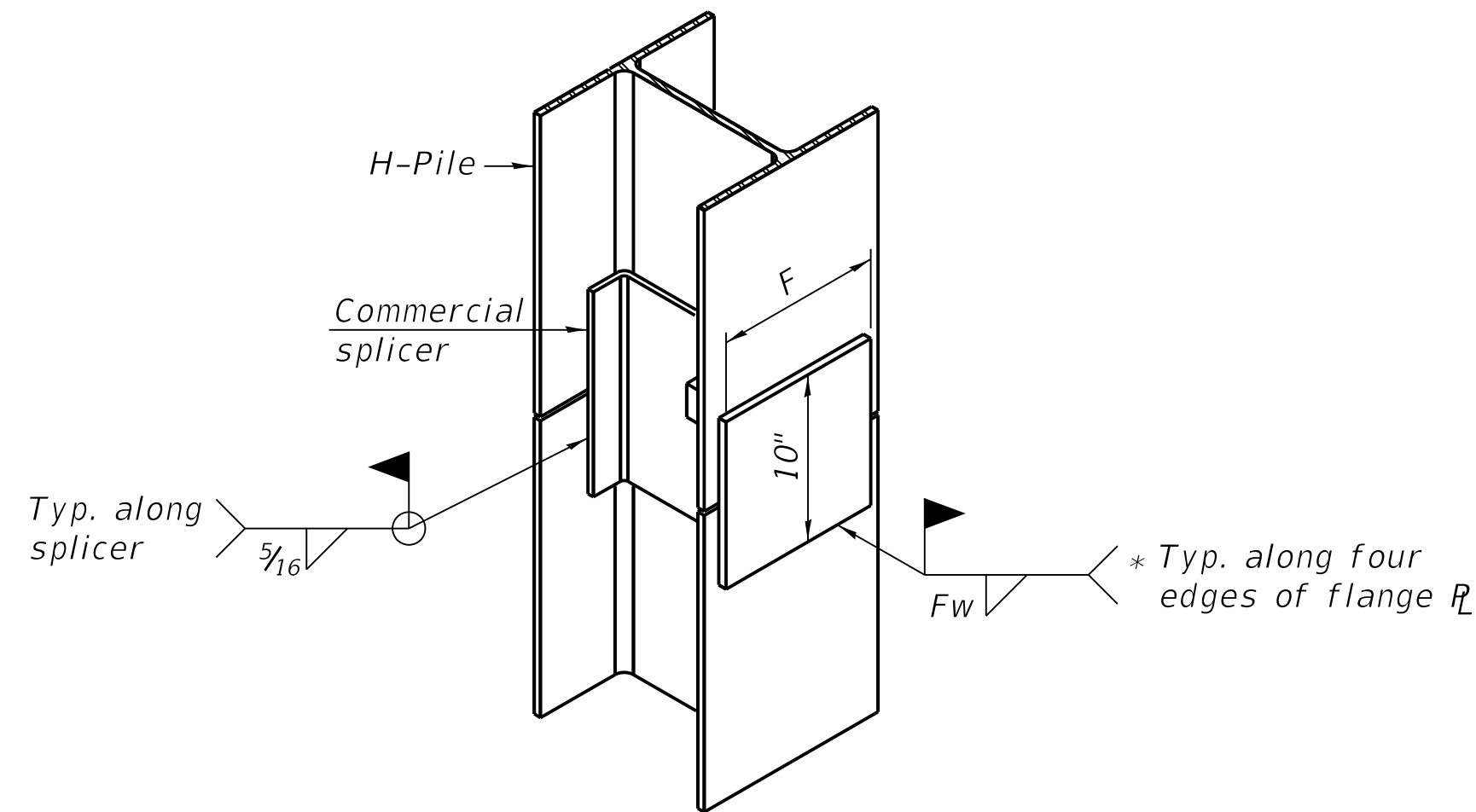


DETAIL "B"



ISOMETRIC VIEW

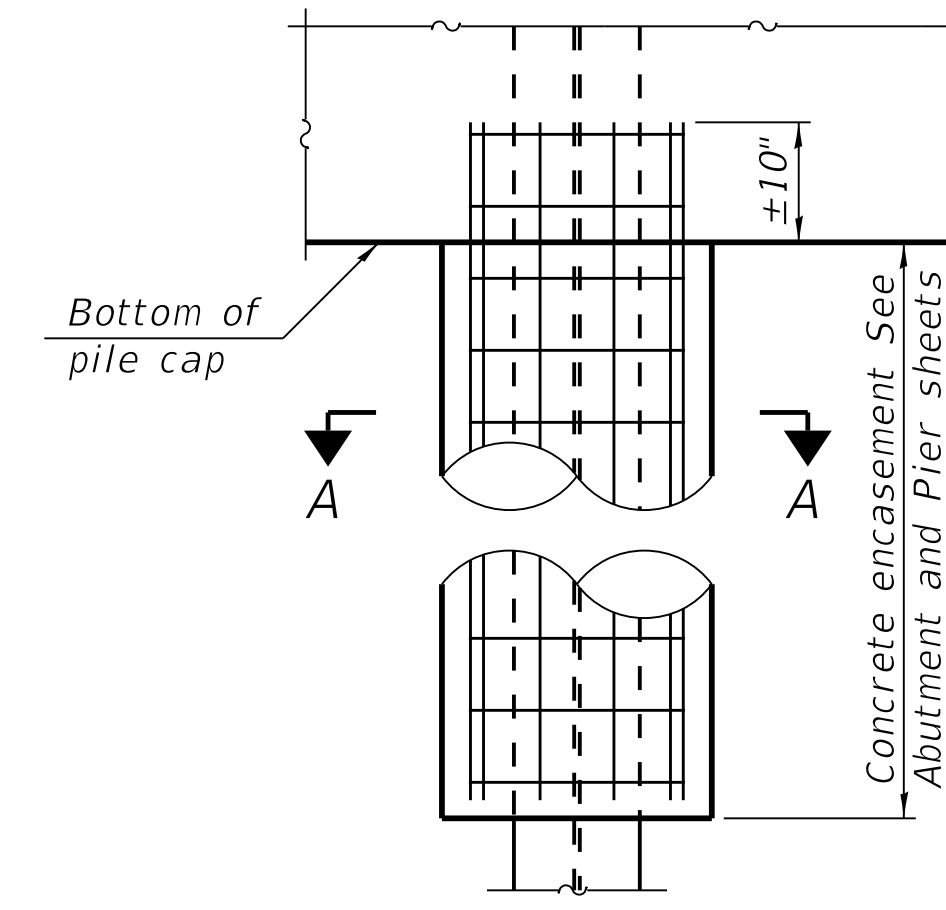
WELDED COMMERCIAL SPLICE



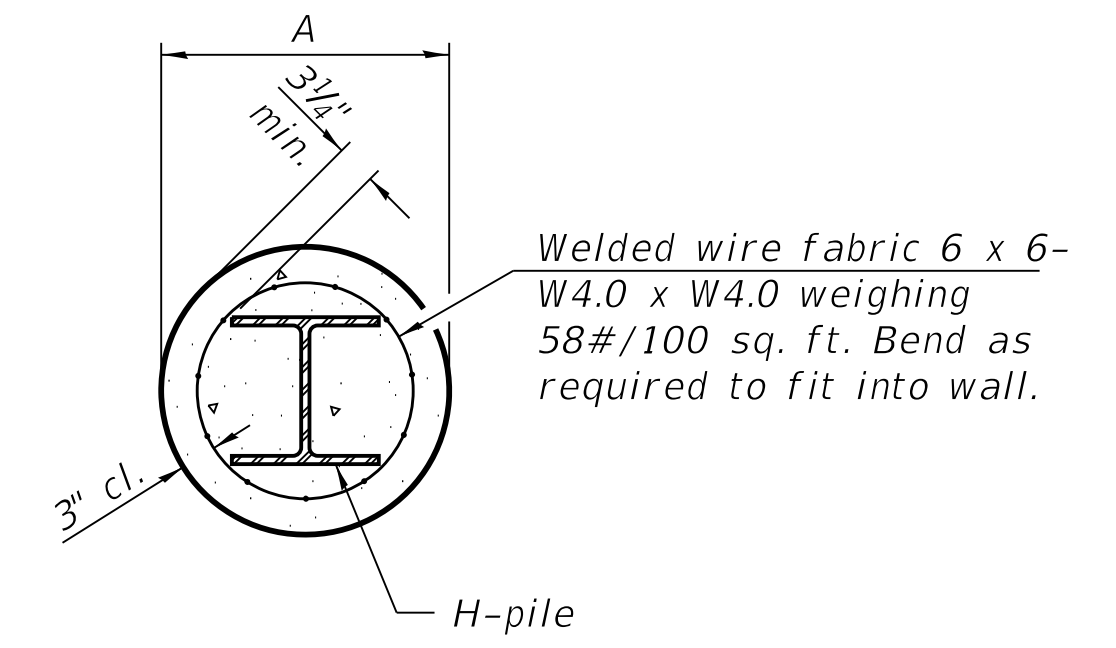
ISOMETRIC VIEW

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.).

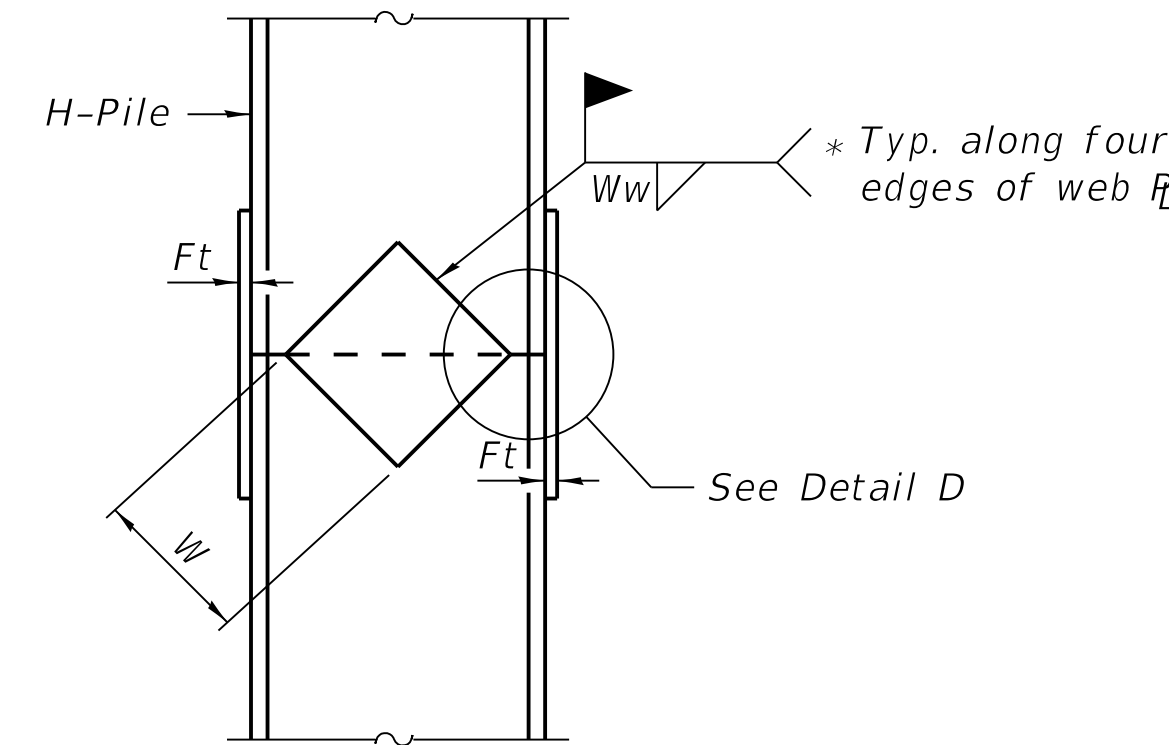


ELEVATION

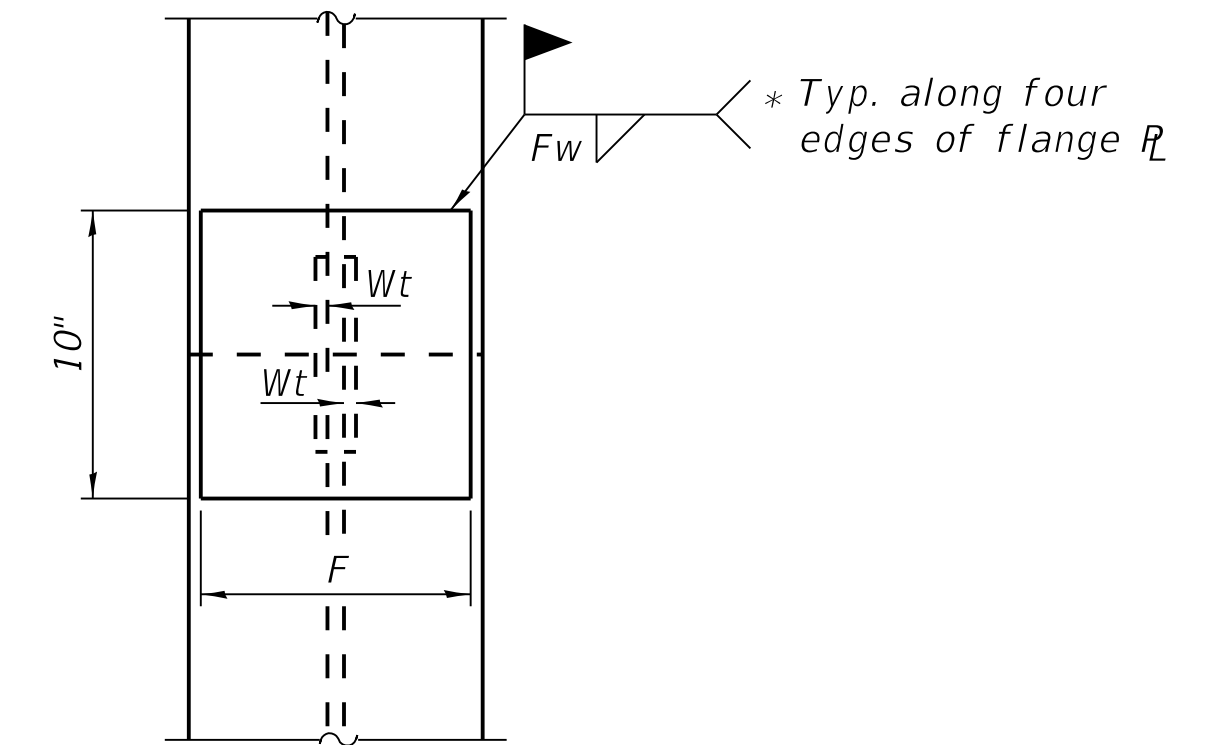


SECTION A-A

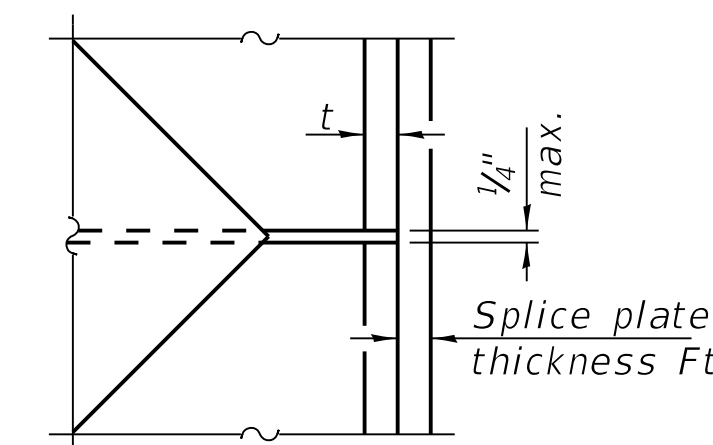
INDIVIDUAL PILE CONCRETE ENCASUREMENT
 (Forms for encasement may be omitted when soil conditions permit).



ELEVATION



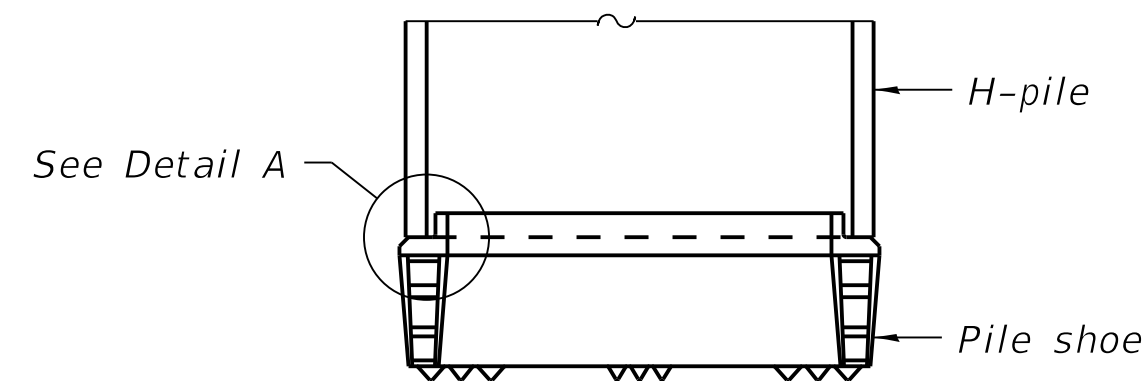
END VIEW



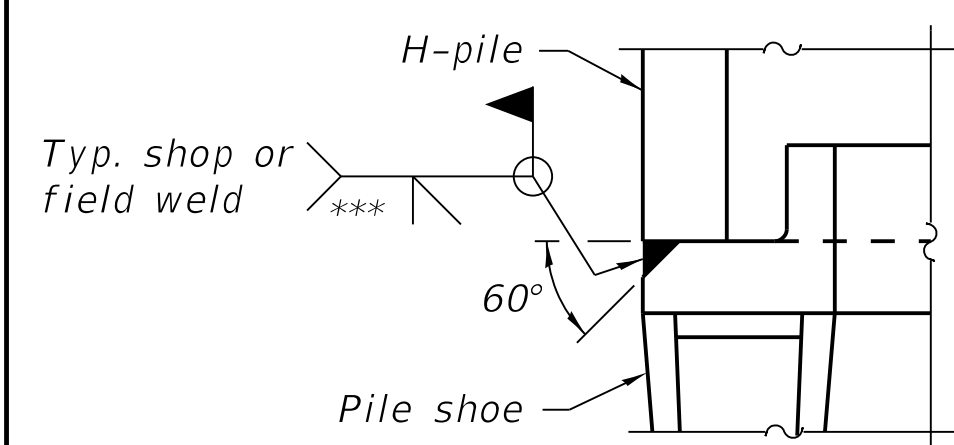
DETAIL D

WELDED PLATE FIELD SPLICE

| Designation | F | Ft | Fw | W | Wt | Ww |
|-------------|---------|------|---------|--------|------|------|
| 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 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 1/16" | 6 1/2" | 5/8" | 1/2" |
| x74 | 10" | 7/8" | 1 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" |



ELEVATION



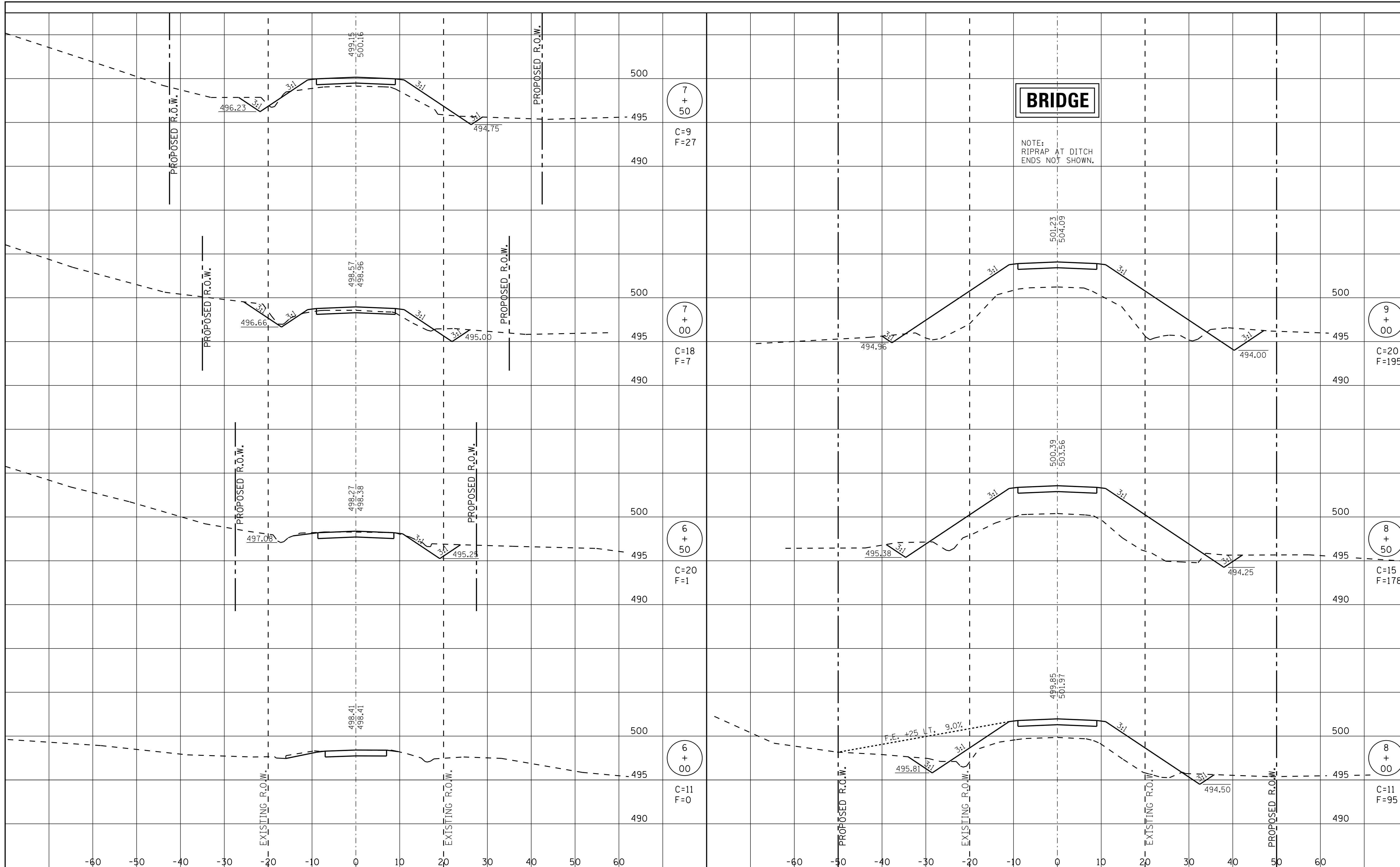
DETAIL A

SHOE ATTACHMENT

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

| | | | |
|------------------|---|----|------|
| FINAL SURVEY NO. | SURVEYED PLOTTED TEMPLATE AREAS CHECKED | BY | DATE |
| | | | |

| | | | |
|---------------------|---|----|------|
| ORIGINAL SURVEY NO. | SURVEYED PLOTTED TEMPLATE AREAS CHECKED | BY | DATE |
| | | | |



RHUTASEL and ASSOCIATES, INC.
 CONSULTING ENGINEERS • LAND SURVEYORS
 SALEM, ILLINOIS • FREEBURG, ILLINOIS
 ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

| | | | |
|------------|------------|-----------|--|
| DESIGNED - | BLT | REVISED - | |
| DRAWN - | JN | REVISED - | |
| CHECKED - | GLH | REVISED - | |
| DATE - | 03/14/2019 | REVISED - | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY

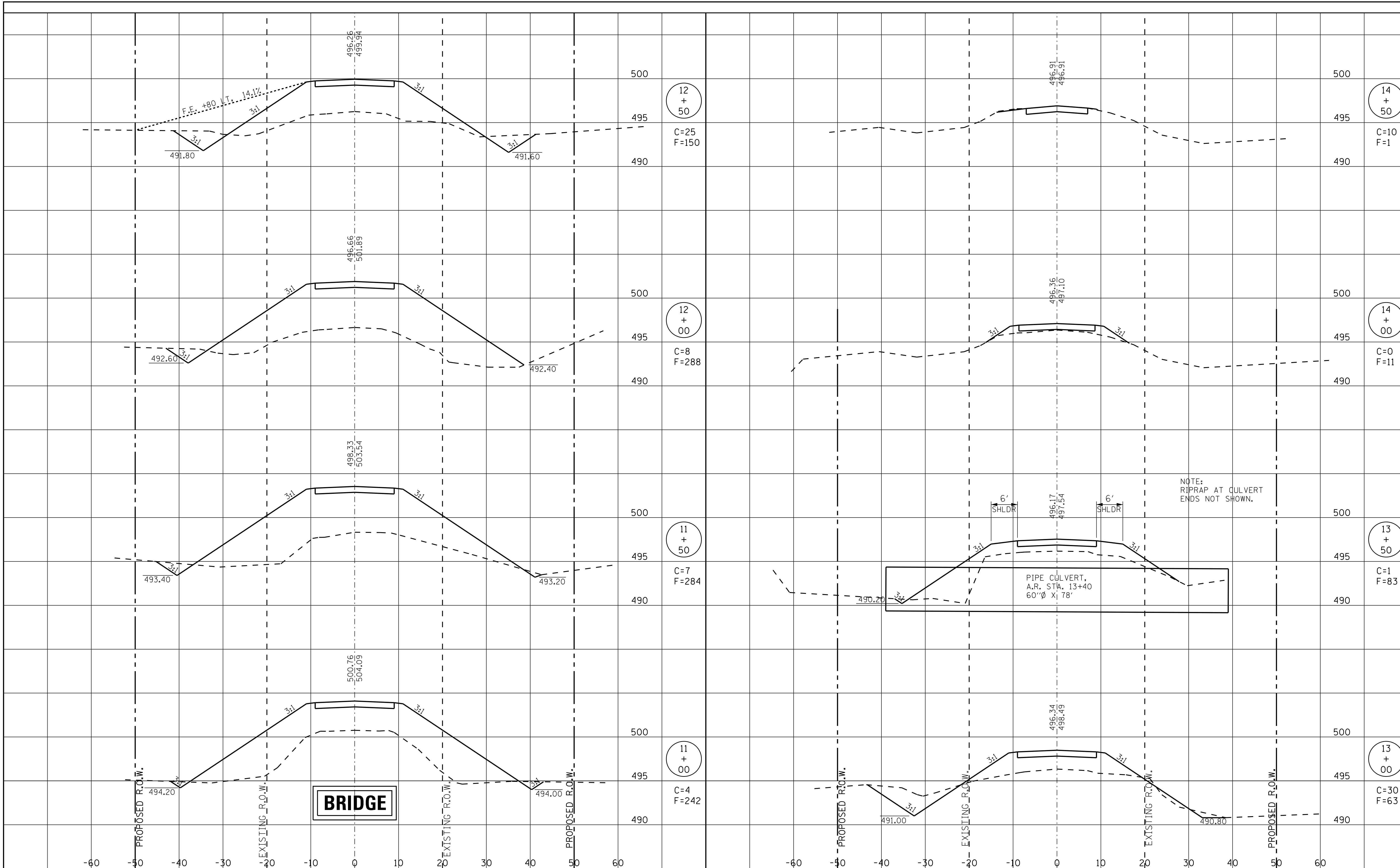
| | | | | |
|--------|----------------|---------|--------------|--------------------|
| ROUTE | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| TR 371 | 15-02129-00-BR | FAYETTE | 12 | 11 |
| | | | | CONTRACT NO. 95851 |

STA. 6+00 TO STA. 9+00

RAAI JOB NO. 54117

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

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



| | | | | | | | | | |
|---|-------------------|-----------|---|----------------------------------|--------------------------|----------------|---------|--------------|-----------|
| RHUTASEL and ASSOCIATES, INC. CONSULTING ENGINEERS • LAND SURVEYORS SALEM, 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 - | | | TR 371 | 15-02129-00-BR | FAYETTE | 12 | 12 |
| | CHECKED - GLH | REVISED - | | | CONTRACT NO. 95851 | | | | |
| | DATE - 03/14/2019 | REVISED - | | | STA. 11+00 TO STA. 14+00 | | | | |

RAAI JOB NO. 54117