

# 06-14-13 LETTING ITEM 178

## INDEX OF SHEETS

|      |                |
|------|----------------|
| 1    | COVER SHEET    |
| 2    | PLAN & PROFILE |
| 3-4  | CROSS SECTIONS |
| 5-13 | BRIDGE PLANS   |

STANDARDS:

|           |                   |
|-----------|-------------------|
| 280001-07 | - EROSION CONTROL |
| 515001-03 | - NAME PLATE      |
| 701901-02 | - TRAFFIC         |
| BLR 21-9  | - TRAFFIC         |
| BLR 22-7  | - TRAFFIC         |

## STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANS FOR PROPOSED FEDERAL-AID HIGHWAY BRIDGE PROGRAM

T.R.493  
WAYNE COUNTY  
SECTION 06-15142-00-BR  
STRUCTURE NO. 096-3457  
PROJECT NO. BROS-0191(065)  
JOB NO. C-97-050-12

### SUMMARY OF QUANTITIES

|       |       |   |                   |
|-------|-------|---|-------------------|
| 0.6   | ACRE  | SEEDING, CLASS 2 (SPECIAL)                          | X2501000          |
| 20    | TON   | AGGREGATE DITCH (SPECIAL)                           | X2830495          |
| 1     | L SUM | TRAFFIC CONTROL AND PROTECTION, (SPECIAL)           | X7010216          |
| 583   | CU YD | DETOUR ROADWAY REMOVAL                              | Z0016700          |
| 1,333 | SQ YD | SALVAGE AGGREGATE MATERIAL                          | XX003305          |
| 0.3   | ACRE  | TREE REMOVAL ACRES                                  | 20100500          |
| 367   | CU YD | EARTH EXCAVATION                                    | 20200100          |
| 100   | CU YD | CHANNEL EXCAVATION                                  | 20300100          |
| 922   | CU YD | FURNISHED EXCAVATION                                | 20400800          |
| 6     | CU YD | TRENCH BACKFILL                                     | 20800150          |
| 60    | FOOT  | PERIMETER EROSION BARRIER                           | 28000400          |
| 120   | TON   | STONE DUMPED RIPRAP, CLASS A4                       | 28100807          |
| 454   | TON   | AGGREGATE BASE COURSE, TYPE B                       | 35101400          |
| 230   | TON   | AGGREGATE SURFACE COURSE, TYPE B                    | 40200800          |
| 1     | EACH  | REMOVE EXISTING STRUCTURES                          | 50100100          |
| 32.2  | CU YD | CONCRETE STRUCTURES                                 | 50300225          |
| 1,440 | SQ FT | PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH) | 50400505          |
| 3,290 | POUND | REINFORCEMENT BARS                                  | 50800105          |
| 116   | FOOT  | STEEL RAILING, TYPE S1                              | 50900205 $\Delta$ |
| 495   | FOOT  | FURNISHING METAL SHELL PILES 12" X 0.250"           | 51200957          |
| 495   | FOOT  | DRIVING PILES                                       | 51202305          |
| 1     | EACH  | TEST PILE METAL SHELLS                              | 51203200          |
| 1     | EACH  | NAME PLATES   | 51500100          |
| 36    | FOOT  | PIPE CULVERTS, CLASS D, TYPE 1 18"                  | 542D0223          |
| 42    | FOOT  | PIPE CULVERTS, CLASS D, TYPE 1 24"                  | 542D0229          |
| 50    | FOOT  | PIPE CULVERTS, CLASS D, TYPE 1 60"                  | 542D0265          |
| 1     | L SUM | MOBILIZATION  | 67100100          |

$\Delta$  SPECIALTY ITEMS

FUNCTIONAL CLASS: RURAL LOCAL ROAD  
ADT = 50  
DESIGN SPEED = 30MPH

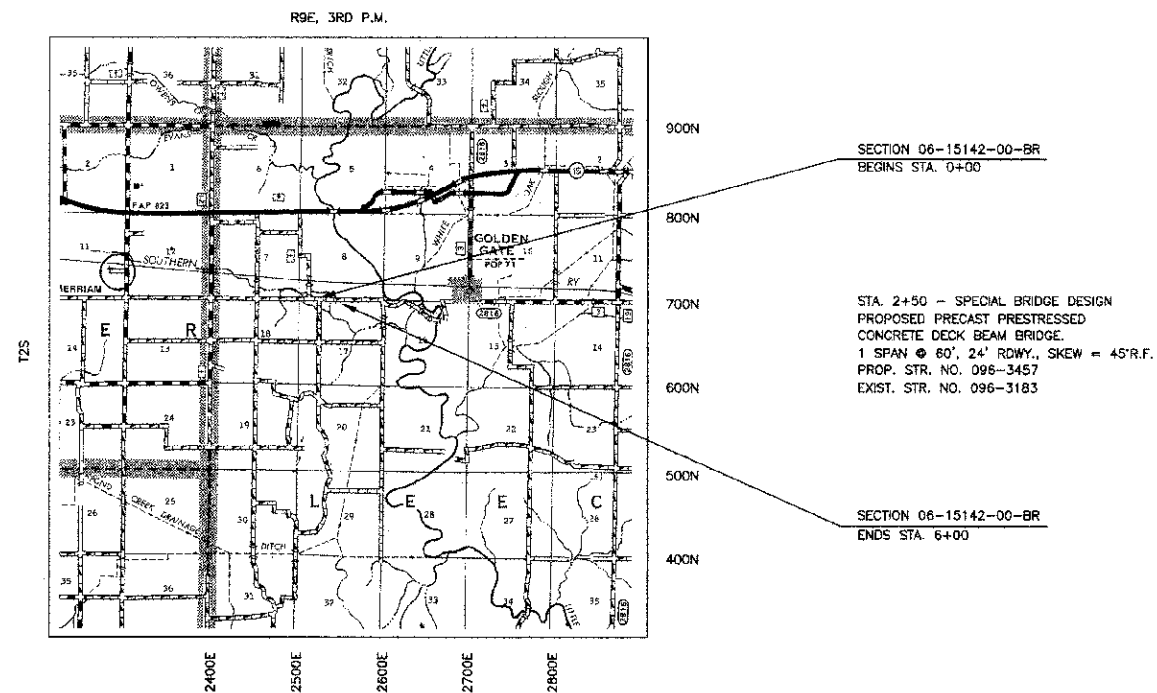
CONTRACT NO. 95695

TOLL FREE JOINT UTILITY LOCATING  
INFORMATION FOR EXCAVATORS (J.U.L.E.)  
TELEPHONE NO. 1-800-892-0123 OR 811

PROFESSIONAL DESIGN FIRM #184-000832

### SCALES

|               |                  |
|---------------|------------------|
| PLAN          | 1 INCH = 50 FEET |
| PROFILE HORZ. | 1 INCH = 50 FEET |
| PROFILE VERT. | 1 INCH = 10 FEET |
| CROSS SECTION | 1 INCH = 5 FEET  |



### LOCATION MAP

APPROXIMATE SCALE: 1 INCH = 1 MILE  
NET LENGTH = 600 L.F. = 0.11 MILES

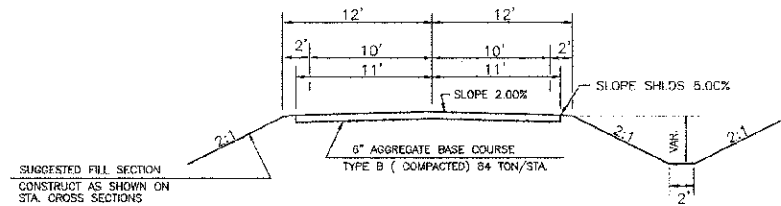


ILLINOIS REGISTERED PROFESSIONAL ENGINEER # 55018  
LICENSE EXPIRES NOVEMBER 30, 2013

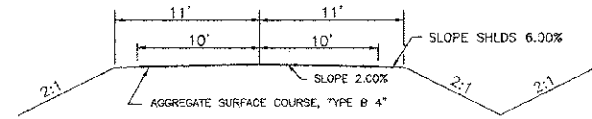
|   |  |
|---|--|
| ILLINOIS DEPARTMENT OF TRANSPORTATION     |  |
| APPROVED                                  | 11/28, 2012<br><i>Wayne County Engineer</i>      |
| PASSED                                    | 2/20, 2012<br><i>District Seven Engineer</i>     |
| RELEASING FOR BID BASED ON LIMITED REVIEW |  |
|   | 2/20, 2012<br><i>Deputy Director of Highways</i> |

|         |                |              |       |           |              |
|---------|----------------|--------------|-------|-----------|--------------|
| SECTION | 06-15142-00-BR | TOTAL SHEETS | 13    | SHEET NO. | 2            |
| COUNTY  | WAYNE          | ROAD DIST.   | LEECH | STA. 0+00 | TO STA. 6+00 |

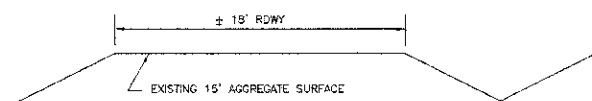
CONTRACT NO. 95695



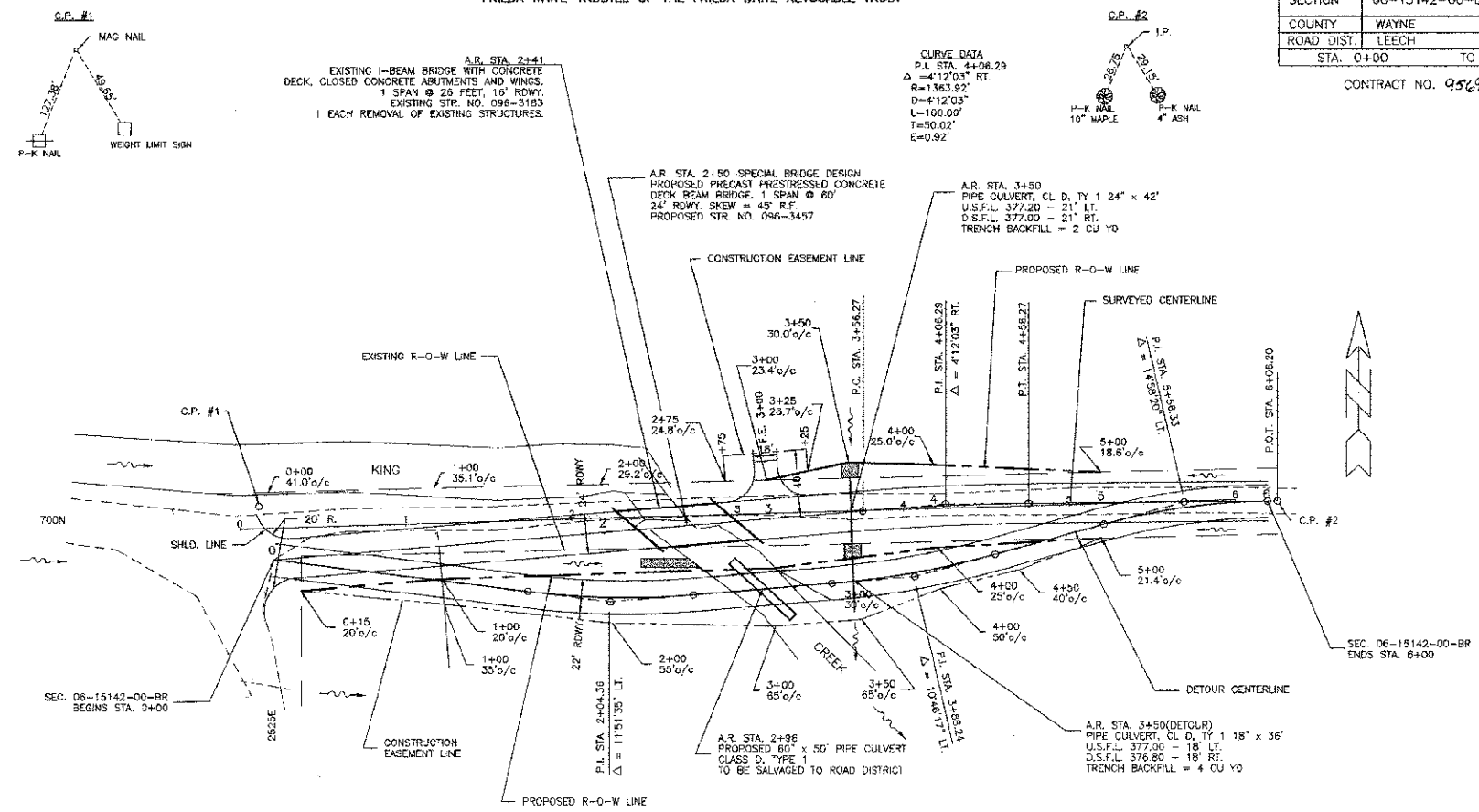
TYPICAL CROSS SECTION OF PROPOSED IMPROVEMENT



TYPICAL CROSS SECTION OF PROPOSED DETOUR ROADWAY



TYPICAL CROSS SECTION OF EXISTING ROADWAY



S.M. #3 ELEV. 381.09  
PAINTED "X" S.E.  
COR. BRIDGE DECK.

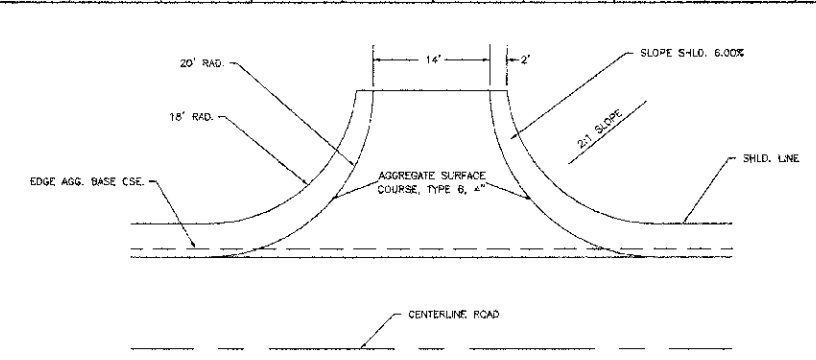
CURVE DATA (DETOUR)  
P.I. STA. 2+04.36  
Δ = 11°51'35" RT.  
R=483.11'  
D=1151.35'  
L=100.00'  
T=50.15'  
E=2.60'

CURVE DATA (DETOUR)  
P.I. STA. 3+28.09  
Δ = 10°46'17" RT.  
R=531.93'  
D=1046.17'  
L=100.00'  
T=50.15'  
E=2.36'

CURVE DATA (DETOUR)  
P.I. STA. 5+56.33  
Δ = 14°58'20" RT.  
R=382.68'  
D=1458.20'  
L=100.00'  
T=50.23'  
E=3.29'

GARY LOCKE & JUDY WIER

|  |   |   |   |  |  |  |   |
|--|---|---|---|--|--|--|---|
| AGGREGATE SURFACE COURSE, TYPE B<br>DETOUR ROAD STA. 0+00 - STA. 6+00 = 220 TONS<br>F.F.L. STA. 3+00<br>TOTAL = 220 TONS | AGGREGATE BASE COURSE, TYPE B<br>STA. 0+00 - STA. 2+20 = 185 TONS<br>STA. 2+80 - STA. 6+00 = 269 TONS<br>TOTAL = 454 TONS | EMPAVEMENT QUANTITIES<br>EARTH EXCAVATION = 367 CU YD<br>EARTH EXCAVATION ADJ. 25% = 275 CU YD<br>CHANNEL EXCAVATION = 100 CU YD<br>CHANNEL EXCAVATION ADJ. 25% = 75 CU YD<br>EMBANKMENT = 1272 CU YD<br>FURNISHED EXCAVATION = 922 CU YD | AGGREGATE DITCH, SPECIAL<br>RT. STA. 2+20 TO 2+50 = 8 TONS<br>LT. STA. 3+50 (10' X 10') = 6 TONS<br>RT. STA. 3+50 (10' X 10') = 6 TONS<br>TOTAL = 20 TONS | SEEDING CLASS 2, SPECIAL<br>STA. 0+00 TO STA. 6+00 = 0.6 ACRES | TREE REMOVAL ACRES<br>RT. STA. 2+00 TO STA. 4+20 = 0.3 ACRES | PERIMETER EROSION BARRIER<br>LOCATE ALONG TOE OF CHANNEL SLOPE<br>15 FEET @ EACH COR. BRIDGE = 60 FEET | CONSTRUCTION TRANSITION<br>FROM PROP. ROW TO EXIST. ROW<br>STA. 5+50 TO STA. 6+00<br>QUANTITIES INCLUDED IN THOSE LISTED. |
|--|---|---|---|--|--|--|---|

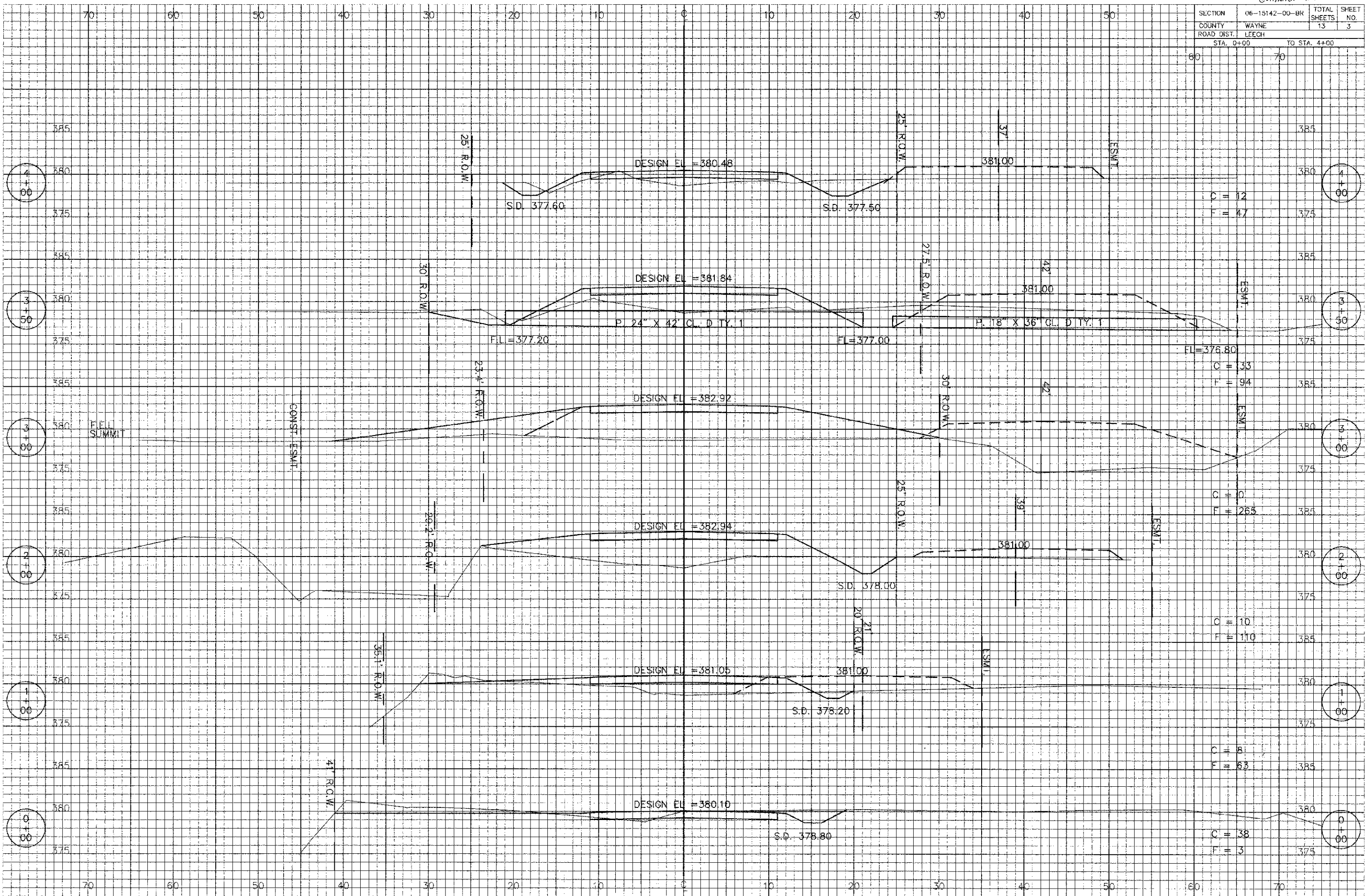


DETAIL OF FIELD ENTRANCE

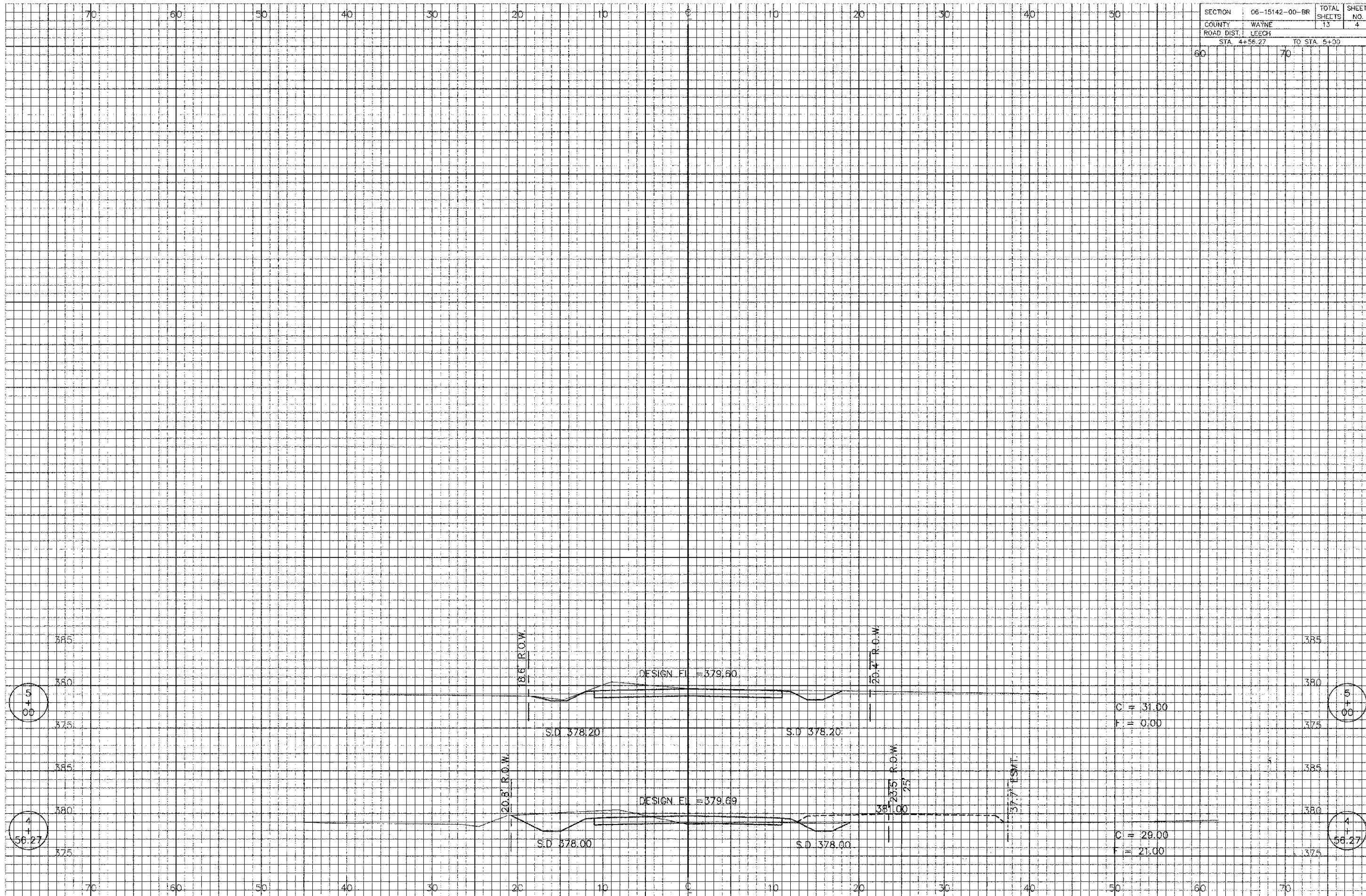
**CONNOR & CONNOR, Inc.**  
CONSULTING ENGINEERS  
210 East Locust Street  
ROBINSON, ILLINOIS 62454  
Phone 618-544-3623  
Fax 618-544-302  
Licensed Surveyors

|          |          |
|----------|----------|
| DATE     |          |
| SCALE    | 1" = 50' |
| DRAWN BY |          |
| PROJECT  |          |
| SHEET    | 2 OF 13  |

|            |                |              |    |           |   |
|------------|----------------|--------------|----|-----------|---|
| SECTION    | 06-15142-00-BR | TOTAL SHEETS | 13 | SHEET NO. | 3 |
| COUNTY     | WAYNE          |              |    |           |   |
| ROAD DIST. | LEECH          |              |    |           |   |
| STA. 0+00  |                | TO STA. 4+00 |    |           |   |



|            |                |              |      |           |   |
|------------|----------------|--------------|------|-----------|---|
| SECTION    | 06-15142-00-BR | TOTAL SHEETS | 13   | SHEET NO. | 4 |
| COUNTY     | WAYNE          |              |      |           |   |
| ROAD DIST. | LEECH          |              |      |           |   |
| STA.       | 4+56.27        | TO STA.      | 5+00 |           |   |



**BENCHMARK:**

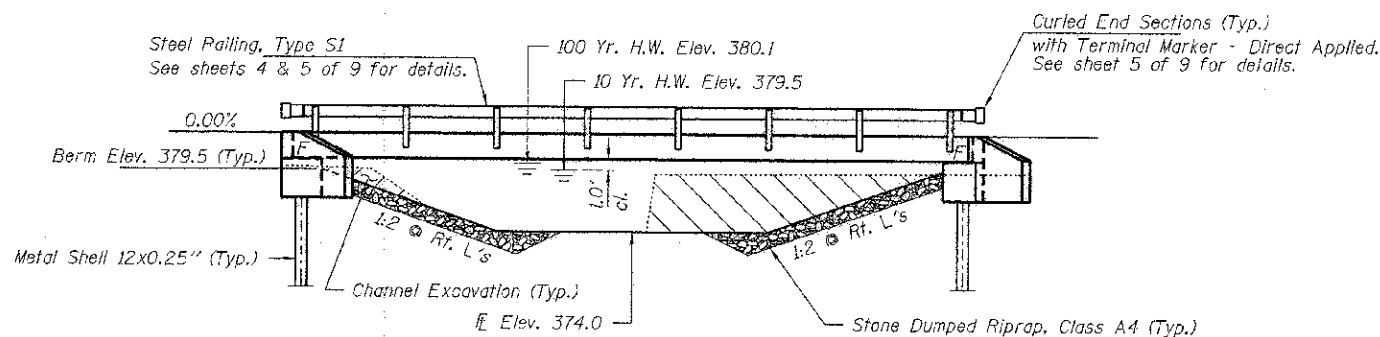
EXISTING STRUCTURE NO. 096-3183; Sta. 2+41 - Single span I-beam bridge with concrete deck on closed concrete abutments and wingwalls. 30.0' bk.-bk. abutms.; 16.0' o.-o. deck.

Structure closed to traffic during construction.

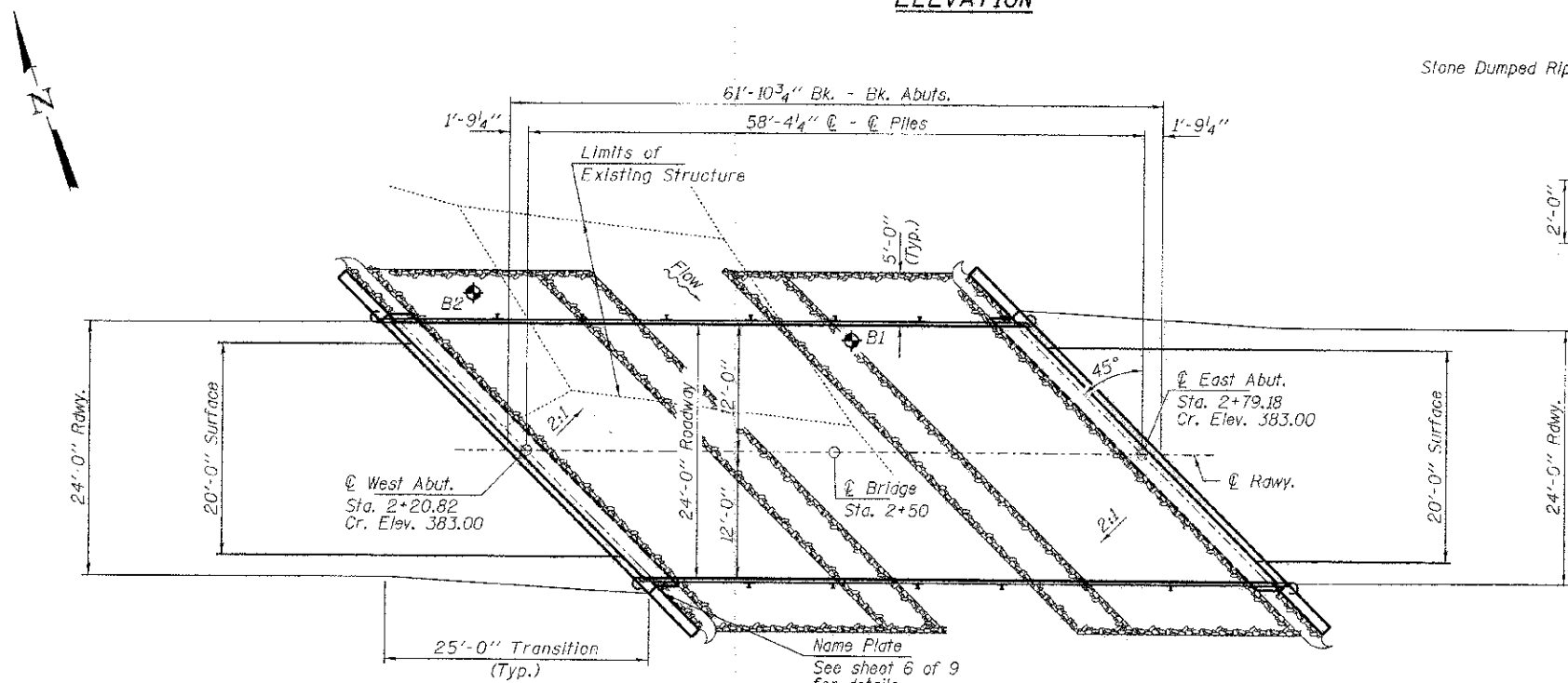
No Salvage

**GENERAL NOTES**

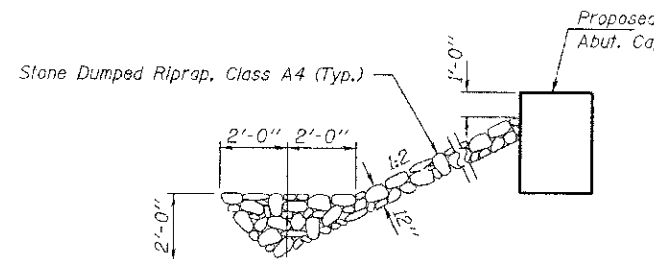
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
 The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the West Abutment or approved by the Engineer before ordering the remainder of piles. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.  
 Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.  
 All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.



**ELEVATION**



**PLAN**

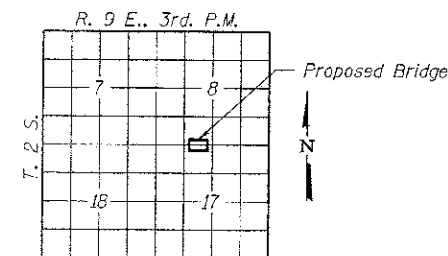


**SECTION A-A**

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

**INDEX OF STRUCTURE SHEETS**

1. General Plan & Elevation
2. 27" x 48" PPC Deck Beam
3. 27" x 48" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. Abutments
7. Metal Shell Pile Details
- 8-9. Borings



**LOCATION SKETCH**

KING CREEK  
 BUILT 2011 BY  
 WAYNE COUNTY  
 SEC. 06-15142-00-BR  
 LEECH ROAD DISTRICT  
 STR. NO. 096-3457  
 LOADING HL-93

**NAME PLATE**  
 Sec Std. 515001

**DESIGN STRESSES**

**FIELD UNITS**

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

**PRECAST PRESTRESSED UNITS**

f'c = 6,000 psi  
 f'ci = 5,000 psi  
 fpu = 270,000 psi (1/2" low lax. strands)  
 fpbt = 204,960 psi (1/2" low lax. strands)  
 fy = 60,000 psi (Reinf.)

**LOADING HL-93**

Design Specifications: 2012 AASHTO LRFD with all applicable Interims.  
 50#/Sq. Ft. included in dead load for future wearing surface.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
 Design Spectral Acceleration at 1.0 sec. (S<sub>1</sub>) = 0.279g  
 Design Spectral Acceleration at 0.2 sec. (S<sub>s</sub>) = 0.670g  
 Soil Site Class = D

**DESIGN SCOUR TABLE**

| Location  | W. Abut. | E. Abut. |
|-----------|----------|----------|
| Elevation | 376.90   | 376.90   |

**WATERWAY INFORMATION**

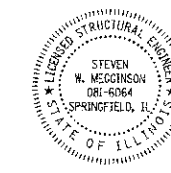
| Flood      | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. |       | Natural H.W.E. | Head - Ft. |       | Headwater El. |       |       |
|------------|-----------|----------|-----------------|-------|----------------|------------|-------|---------------|-------|-------|
|            |           |          | Exist.          | Prop. |                | Exist.     | Prop. | Exist.        | Prop. |       |
| Design     | 10        | 1280     | 108             | 151   | *59            | 379.5      | 0.4   | 0.3           | 379.9 | 379.8 |
| Base       | 100       | 2470     | 114             | 174   | *180           | 380.1      | 0.3   | 0.8           | 380.4 | 380.9 |
| Max. Calc. | 500       | 3380     | 114             | 190   | -              | 380.5      | 0.3   | 0.9           | 380.8 | 381.4 |

Drainage Area = 4.65 Sq. Mi. Existing Low Grade Elev. 379.5 @ Sta. 3+00 Proposed Low Grade Elev. 382.9 @ Sta. 3+00

Low water approach to remain. \*Approach

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO LRFD Specifications."

Steven W. Megginson 11/06/2012  
 ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2014

**TOTAL BILL OF MATERIAL**

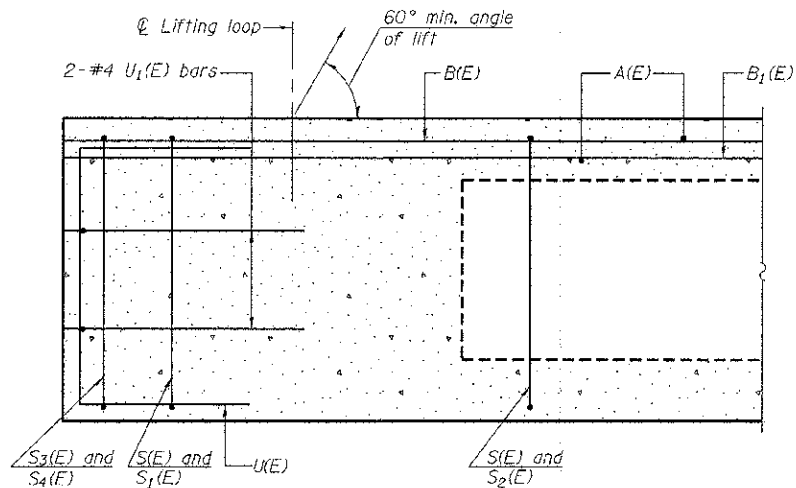
| ITEM  | UNIT    | SUPER | SUB   | TOTAL |
|---|---------|-------|-------|-------|
| Channel Excavation                                  | Cu. Yd. |       |       | 100   |
| Stone Dumped Riprap, Class A4                       | Ton     |       |       | 120   |
| Removal of Existing Structures                      | Each    |       |       | 1     |
| Concrete Structures                                 | Cu. Yd. |       | 32.2  | 32.2  |
| Precast Prestressed Concrete Deck Beams (27" Depth) | Sq. Ft. | 1,440 |       | 1,440 |
| Reinforcement Bars                                  | Pound   |       | 3,290 | 3,290 |
| Steel Railing, Type S1                              | Foot    | 116   |       | 116   |
| Furnishing Metal Shell Piles 12x0.25"               | Foot    |       | 495   | 495   |
| Driving Piles                                       | Foot    |       | 495   | 495   |
| Test Pile Metal Shells                              | Each    |       | 1     | 1     |
| Name Plates   | Each    |       | 1     | 1     |

|                                      |             |                   |           |
|--------------------------------------|-------------|-------------------|-----------|
| FILE NAME - 110294-ahb-bridgedgn     | USER NAME * | DESIGNED - D.W.T. | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC.   |             | CHECKED - S.W.M.  | REVISED - |
| 1501 SPRINGFIELD, ILLINOIS 62733     |             | DRAWN - D.A.B.    | REVISED - |
| ILLINOIS PROFESSIONAL DESIGN FIRM    |             | CHECKED - S.W.M.  | REVISED - |
| 1511 1/2 SPRINGFIELD, ILLINOIS 62733 |             |                   |           |

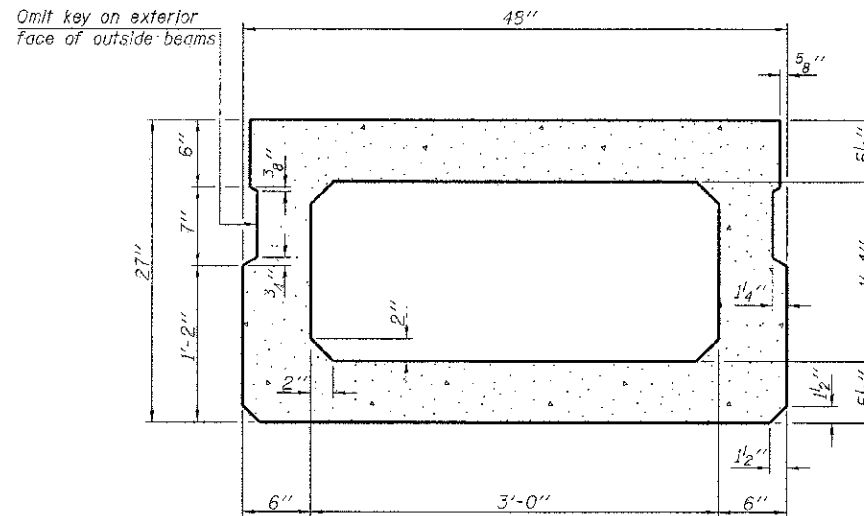
STATE OF ILLINOIS  
 WAYNE COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION  
 STRUCTURE NO. 096-3457  
 SHEET NO. 1 OF 9 SHEETS

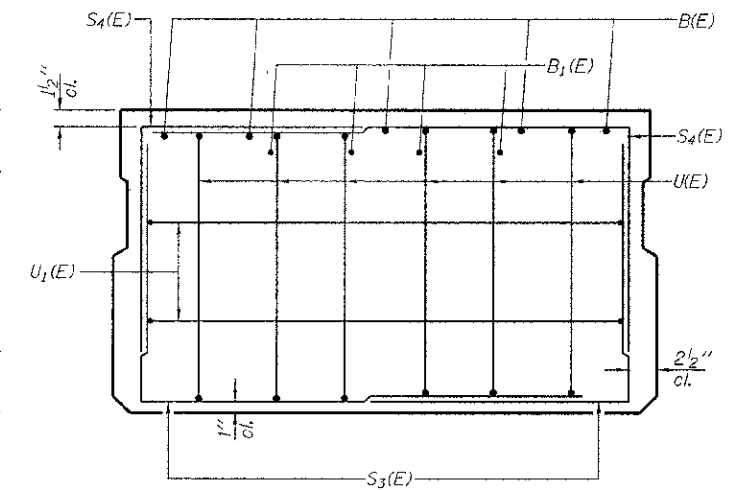
| T.R.                      | SECTION        | COUNTY | TOTAL SHEETS       | SHEET NO. |
|---------------------------|----------------|--------|--------------------|-----------|
| 493                       | 06-15142-00-BR | WAYNE  | 13                 | 5         |
| LEECH ROAD DISTRICT       |                |        | CONTRACT NO. 95695 |           |
| ILLINOIS FED. AID PROJECT |                |        |                    |           |



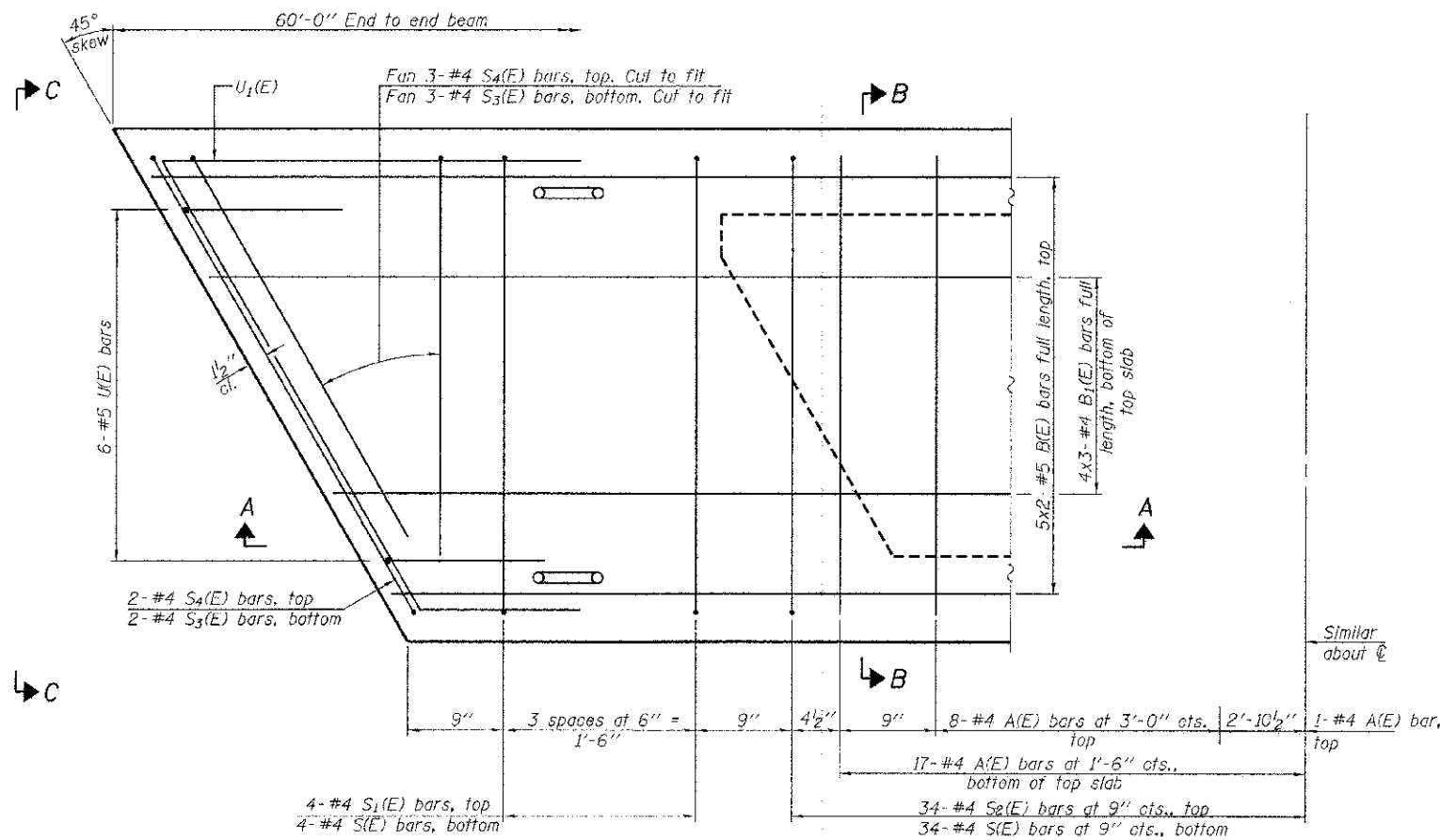
SECTION A-A



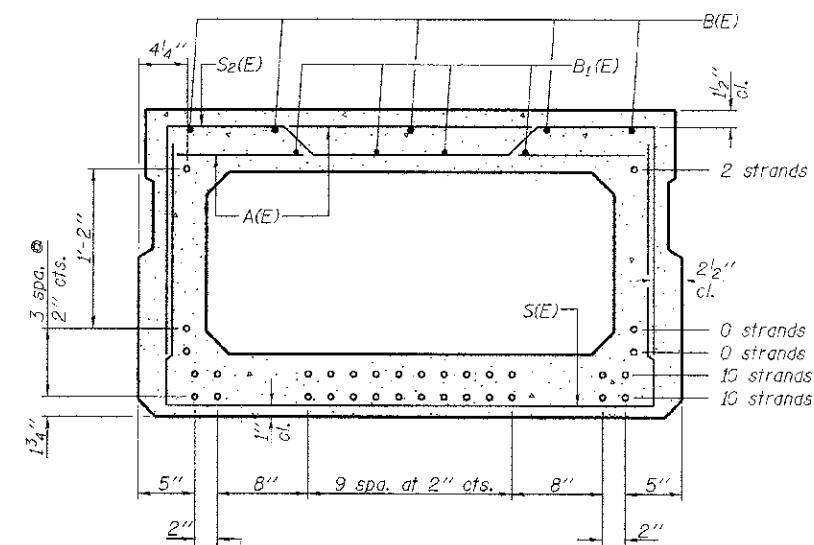
SECTION B-B  
(Showing dimensions)



VIEW C-C



PLAN VIEW



SECTION B-B

(Showing reinforcement and permissible strand locations)

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

BAR LIST  
ONE BEAM ONLY  
(For information only)

| Bar   | No. | Size | Length | Shape |
|-------|-----|------|--------|-------|
| A(E)  | 51  | #4   | 3'-7"  | —     |
| B(E)  | 10  | #5   | 31'-1" | —     |
| B1(E) | 12  | #4   | 21'-3" | —     |
| S1(E) | 8   | #4   | 6'-11" | ┌┐    |
| S2(E) | 68  | #4   | 7'-2"  | ┌┐    |
| S3(E) | 10  | #4   | 5'-5"  | ┌┐    |
| S4(E) | 10  | #4   | 5'-2"  | ┌┐    |
| U(E)  | 12  | #5   | 4'-6"  | ┌┐    |
| U1(E) | 4   | #4   | 11'-0" | ┌┐    |

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

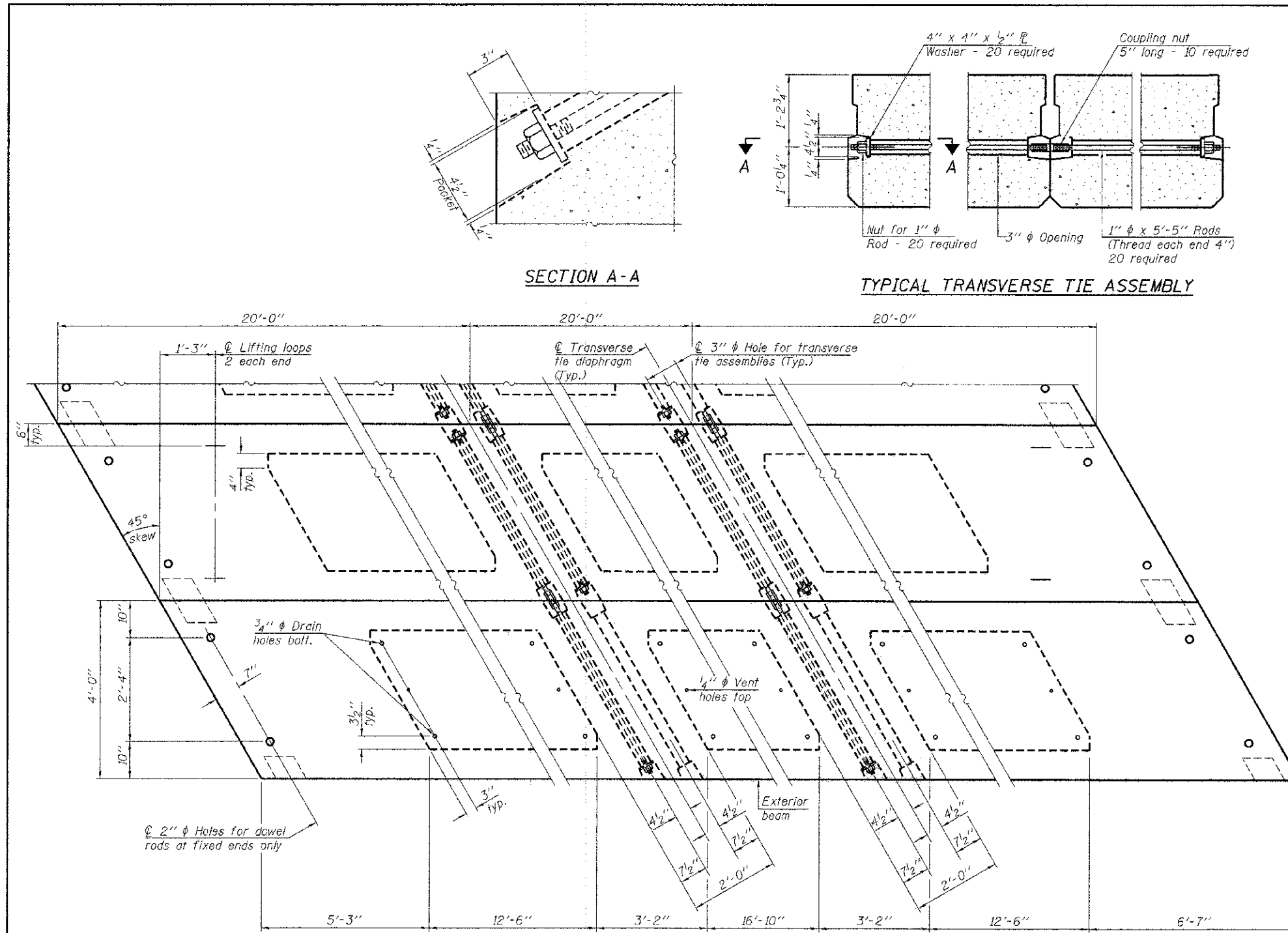
Notes:  
Spacing of S1(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.  
Bars indicated thus 5x2-#5 etc. indicates 5 lines of bars with 2 lengths per line.

MINIMUM BAR LAP  
#4 bar = 2'-0"  
#5 bar = 2'-6"

PD-2748-R

7-1-10

|   |                       |                   |           |  |   |                           |                    |        |              |           |
|---|-----------------------|-------------------|-----------|--|---|---------------------------|--------------------|--------|--------------|-----------|
| FILE NAME = 118294-sh1-bridge.dgn   | USER NAME =           | DESIGNED - D.W.T. | REVISED - | <b>STATE OF ILLINOIS<br/>WAYNE COUNTY HIGHWAY DEPARTMENT</b> | <b>27" x 48" PPC DECK BEAM<br/>STRUCTURE NO. 096-3457</b> | T.R.                      | SECTION            | COUNTY | TOTAL SHEETS | SHEET NO. |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3042 EVERETT ROAD, SUITE 301<br>SPRINGFIELD, ILLINOIS 62703 | PLOT SCALE =          | CHECKED - S.W.M.  | REVISED - |  |   | 493                       | 06-15142-00-BR     | WAYNE  | 13           | 6         |
| ILLINOIS PROFESSIONAL DESIGN FIRM<br>L.S. 17-112 CORP. 184.000095                                 | PLOT DATE = 11/6/2012 | DRAWN - D.A.B.    | REVISED - |  |   | LEECH ROAD DISTRICT       | CONTRACT NO. 95695 |        |              |           |
|   |                       | CHECKED - S.W.M.  | REVISED - |  |   | ILLINOIS FED. AID PROJECT |                    |        |              |           |



**PLAN VIEW** **NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.

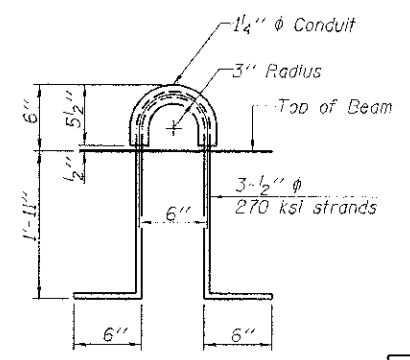
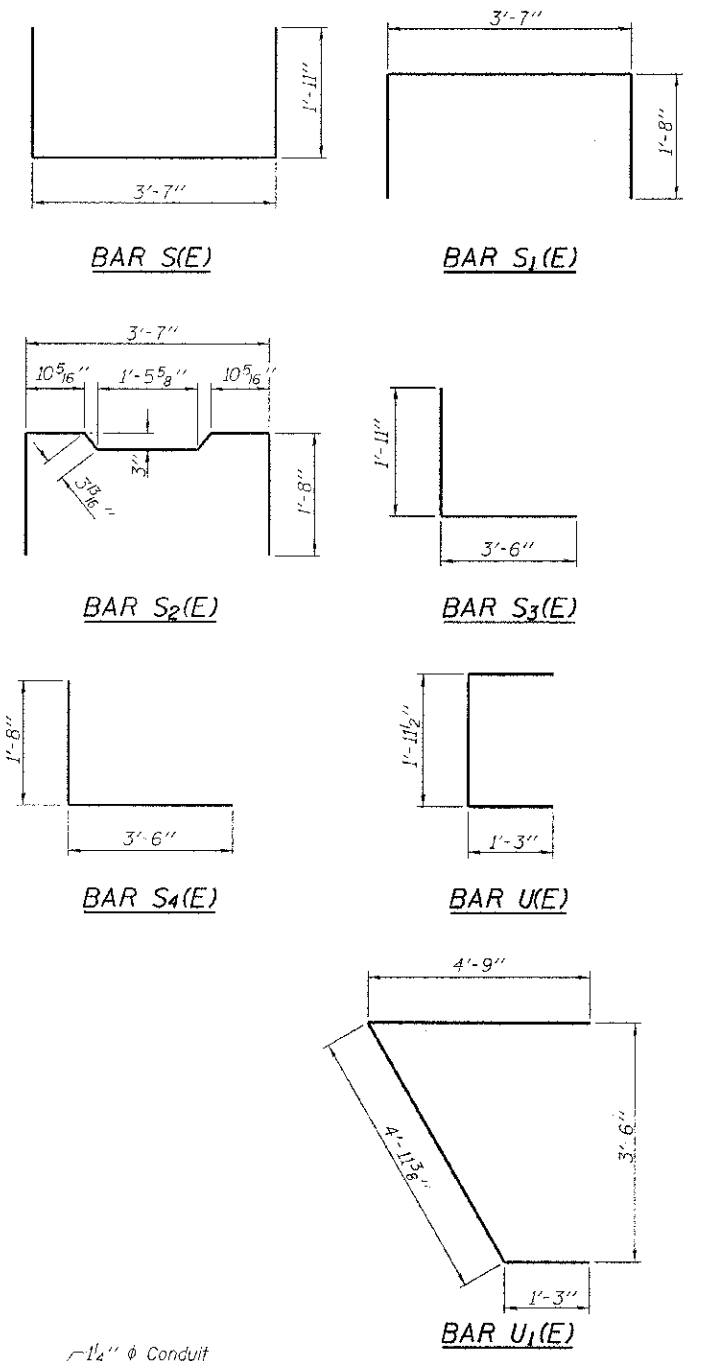
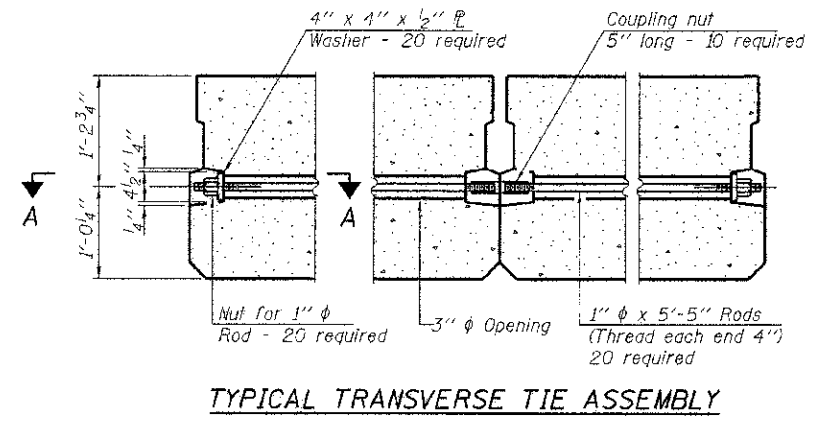
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.07 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

All reinforcement shall be epoxy coated.

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



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

|   |         |       |
|---|---------|-------|
| Precast Prestressed Conc. Deck Bms. (27" depth) | Sq. Ft. | 1,440 |
|---|---------|-------|

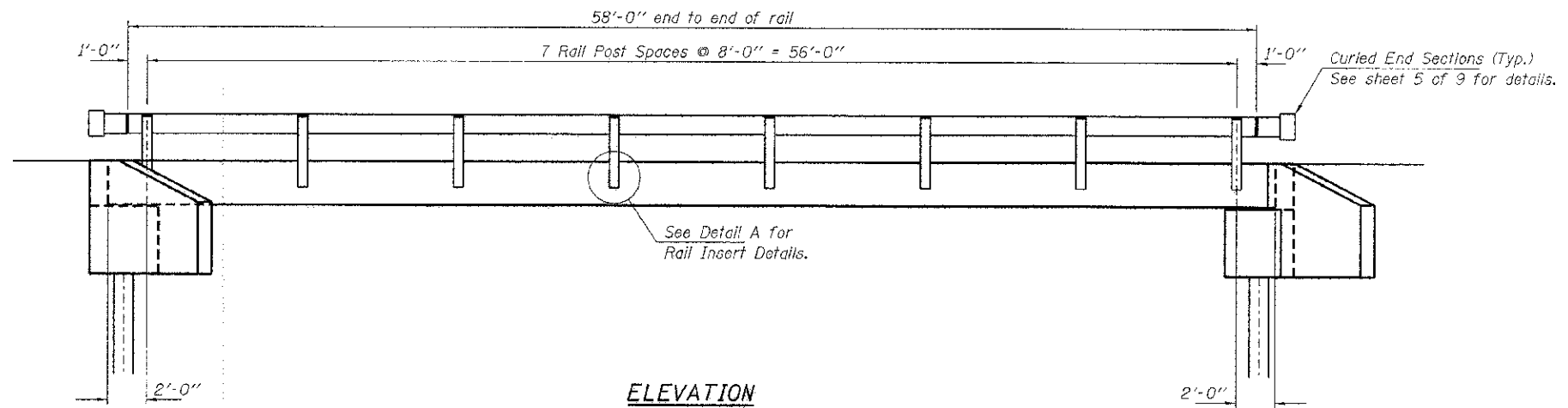
PD-2748-RD 7-1-10

|                                    |                       |                   |           |
|------------------------------------|-----------------------|-------------------|-----------|
| FILE NAME = 118234-sht-bridge.dgn  | USER NAME =           | DESIGNED - D.W.T. | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC. |                       | CHECKED - S.W.M.  | REVISED - |
| 3435 STEVENSON DRIVE, SUITE 301    |                       | DRAWN - D.A.B.    | REVISED - |
| SPRINGFIELD, ILLINOIS 62703        | PLOT SCALE =          | CHECKED - S.W.M.  | REVISED - |
| ILLINOIS PROFESSIONAL DESIGN FIRM  | PLOT DATE = 11/6/2012 |                   |           |
| 12/14/88 (02/01) 104 (02/01)       |                       |                   |           |

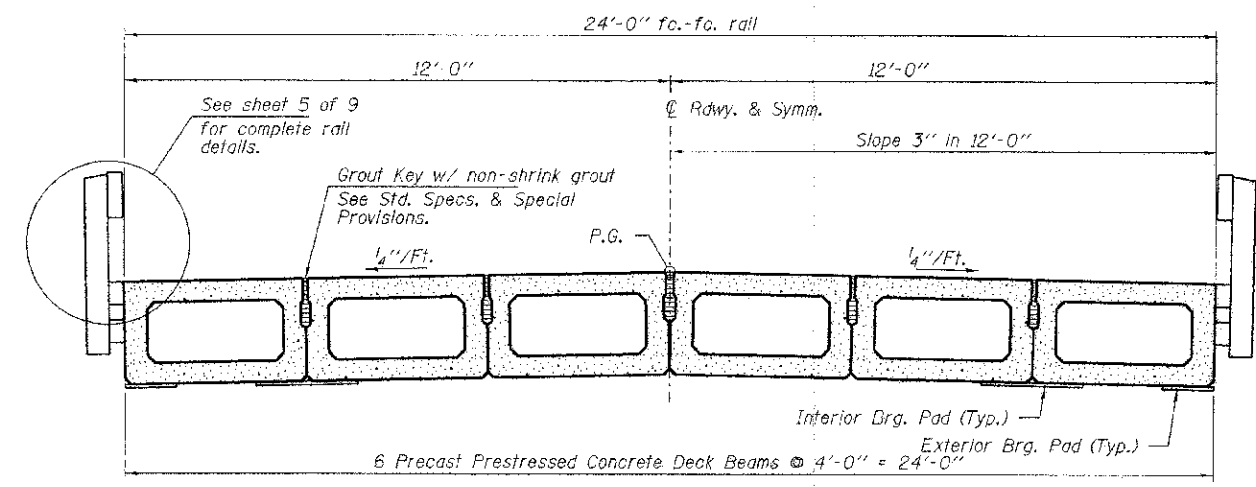
**STATE OF ILLINOIS**  
**WAYNE COUNTY HIGHWAY DEPARTMENT**

**27" x 48" PPC DECK BEAM DETAILS**  
**STRUCTURE NO. 096-3457**  
SHEET NO. 3 OF 9 SHEETS

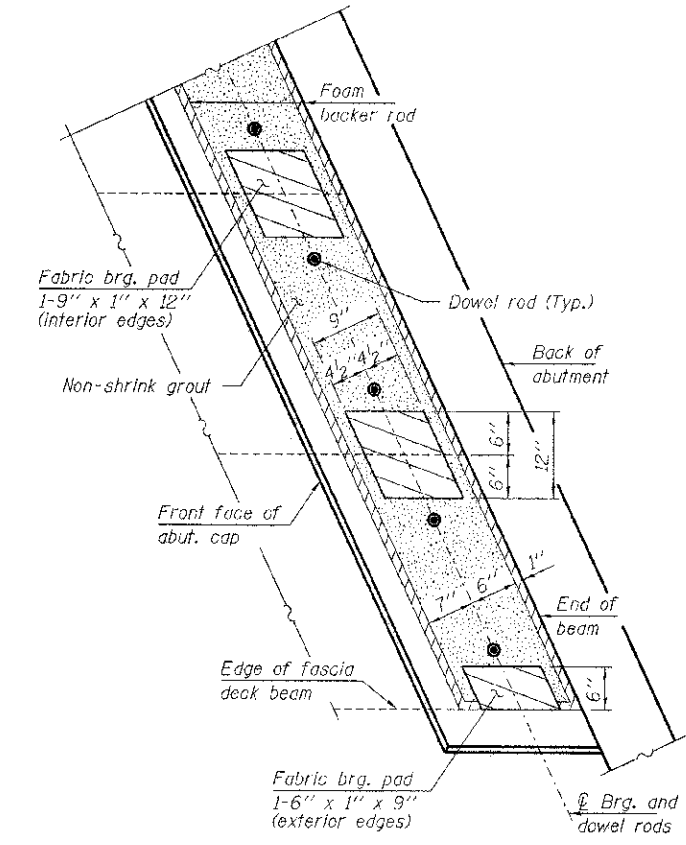
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|-----------------------------|----------------|--------|--------------------|-----------|
| T.R.                        | SECTION        | COUNTY | TOTAL SHEETS       | SHEET NO. |
| 493                         | 06-15142-09-BR | WAYNE  | 13                 | 7         |
| LEECH ROAD DISTRICT         |                |        | CONTRACT NO. 95695 |           |
| [ILLINOIS] FED. AID PROJECT |                |        |                    |           |



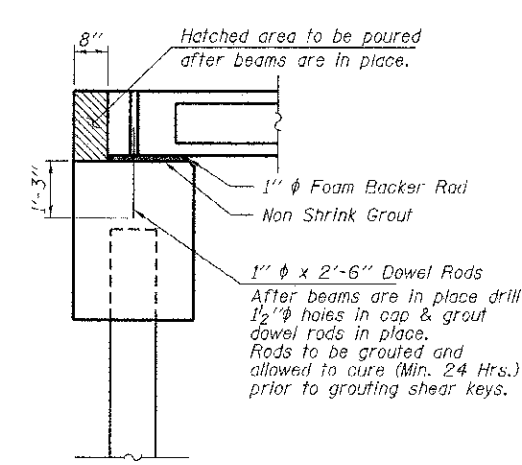
**ELEVATION**  
Showing Rail Post Spacing  
See sheet 5 of 9 for Rolling Details.



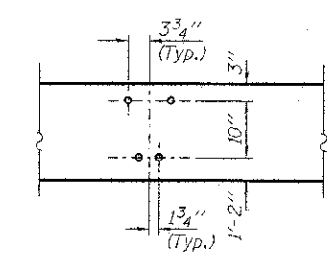
**CROSS SECTION**  
See sheets 2 & 3 of 9 for Superstructure.



**PLAN**



**SECTION AT ABUTMENTS**  
© R.L.L.'s

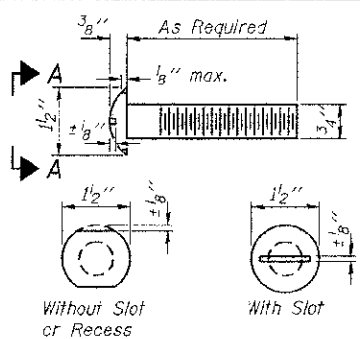


**DETAIL A**

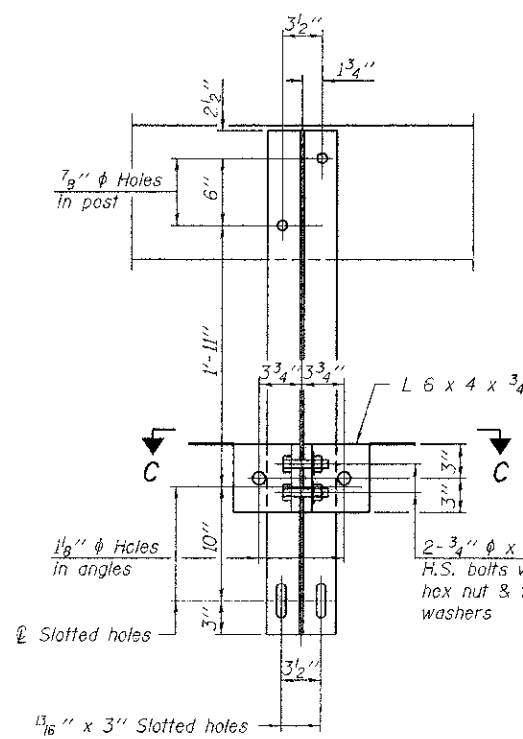
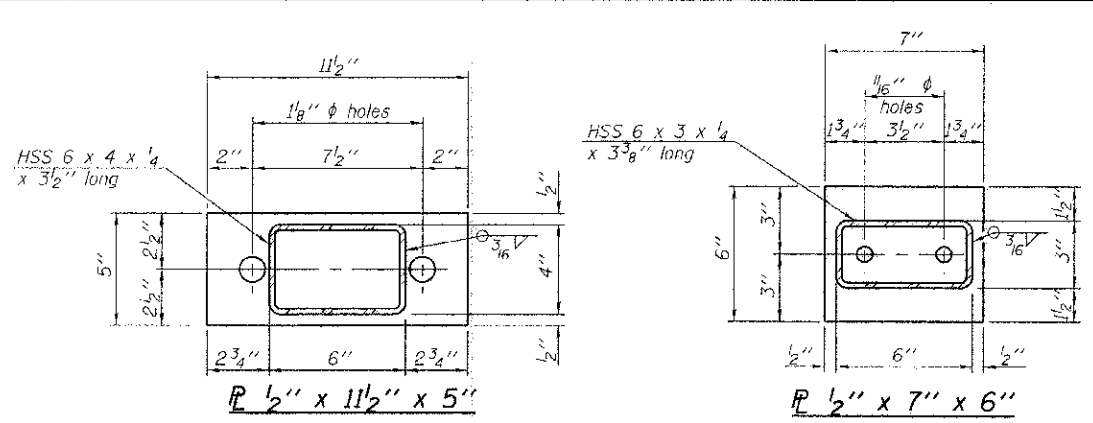
**Notes:**  
The bearing seat surfaces shall be adjusted by shimming the bearing to assure firm and even bearing prior to placement of grout. 2-<sup>1</sup>/<sub>8</sub>" fabric adjusting shims of the dimensions of the exterior bearing pad shown shall be provided for each bearing.

|   |                       |                   |           |  |  |                         |                |                           |              |           |  |
|---|-----------------------|-------------------|-----------|--|--|-------------------------|----------------|---------------------------|--------------|-----------|--|
| FILE NAME = 110294-ahb-bridge.dgn   | USER NAME =           | DESIGNED - D.W.T. | REVISED - | <b>STATE OF ILLINOIS<br/>WAYNE COUNTY HIGHWAY DEPARTMENT</b> | <b>SUPERSTRUCTURE DETAILS<br/>STRUCTURE NO. 096-3457</b> | T.R.                    | SECTION        | COUNTY                    | TOTAL SHEETS | SHEET NO. |  |
| <b>HAMPTON, LENZINI AND RENWICK, INC.</b><br>3005 STEVENSON DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62761 | PLCT SCALE =          | CHECKED - S.W.M.  | REVISED - |  |  | 493                     | 06-15142-00-BR | WAYNE                     | 13           | 8         |  |
| <b>HLR</b><br>ILLINOIS PROFESSIONAL DESIGN FIRM<br>1817 W. 18th Street, Springfield, IL 62761               | PLCT DATE = 11/9/2012 | DRAWN - D.A.B.    | REVISED - |  |  | LEECH ROAD DISTRICT     |                | CONTRACT NO. 95695        |              |           |  |
|   |                       | CHECKED - S.W.M.  | REVISED - |  |  | SHEET NO. 4 OF 9 SHEETS |                | ILLINOIS FED. AID PROJECT |              |           |  |
|   |                       |                   |           |  |  |                         |                |                           |              |           |  |



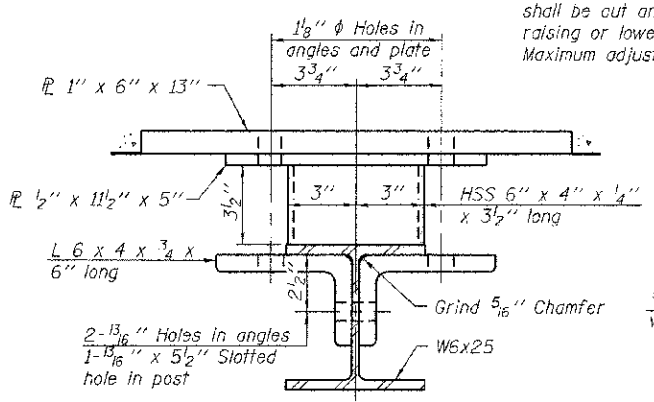


VIEW A-A  
ROUND HEAD BOLT

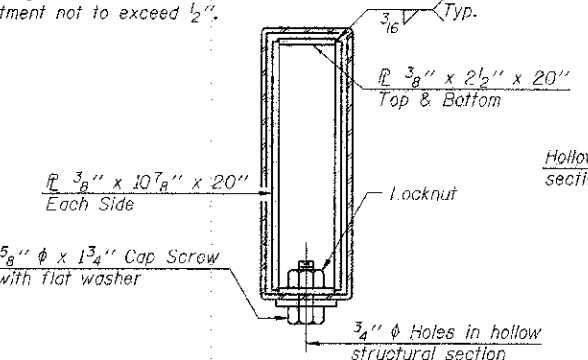


SECTION C-C

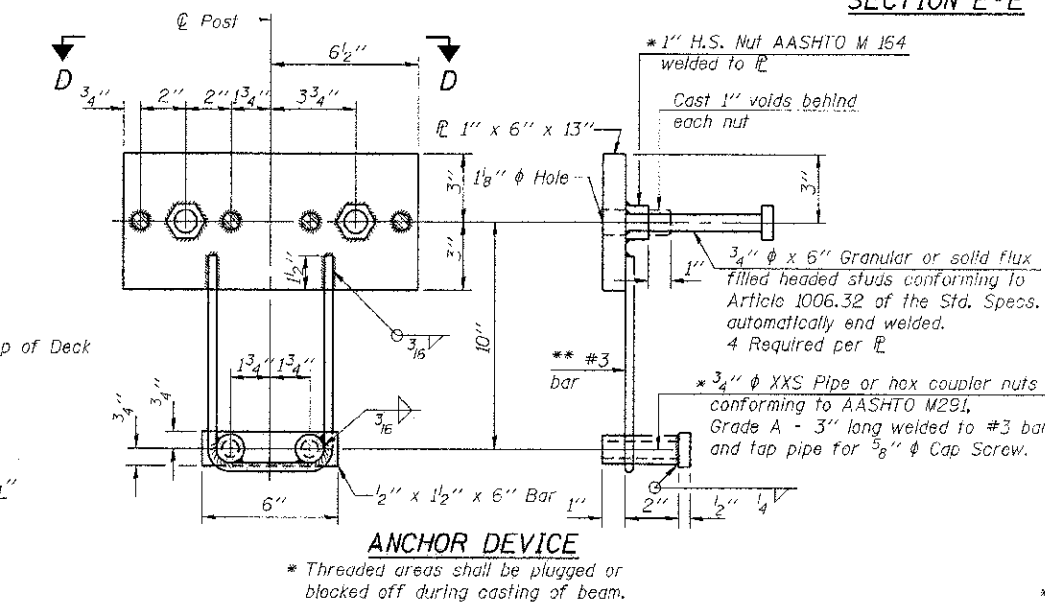
\*\* Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



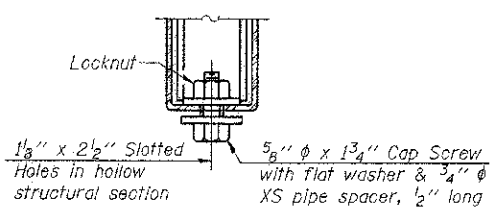
SECTION AT RAIL SPLICE



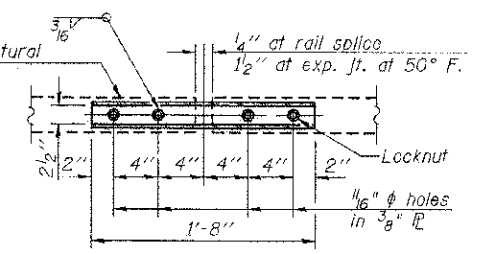
SECTIONS AT RAIL SPLICE



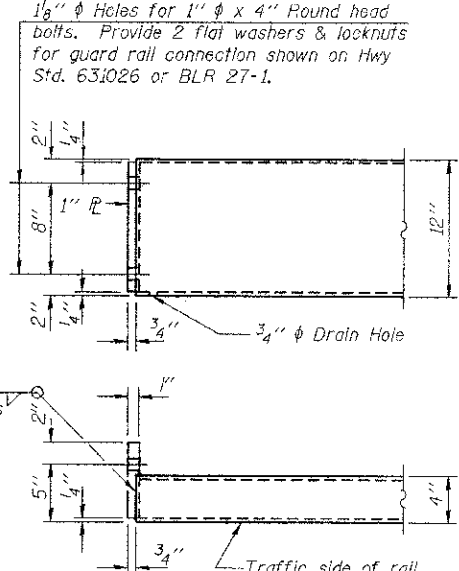
ANCHOR DEVICE



RAIL SPLICE CONNECTION AT EXPANSION JT.

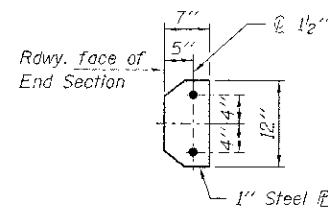


PLAN-BOTT. SPLICE TYPICAL

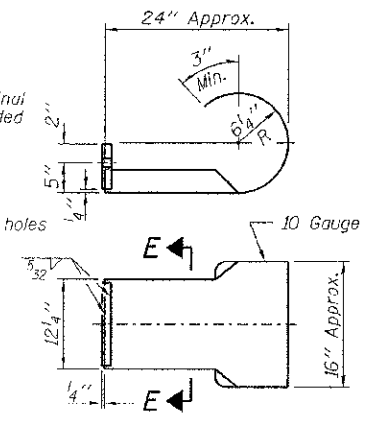


END OF RAIL DETAILS

Note: Cost of curled end sections and Terminal Marker - Direct Applied shall be included with the Steel Railing. (4 Required)

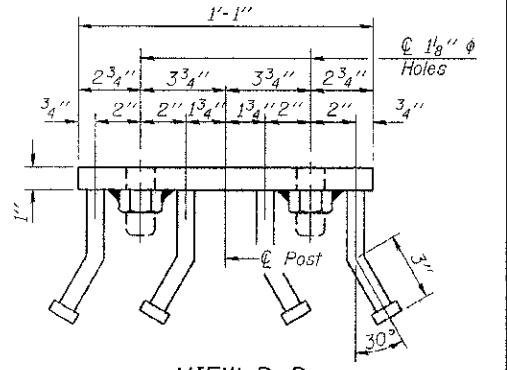


SECTION E-E



CURLED END SECTION DETAILS

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



VIEW D-D

BILL OF MATERIAL

| Item                    | Unit | Quantity |
|-------------------------|------|----------|
| Steel Railing, Type S-1 | Foot | 116      |

R-23A 7-1-10 (10'-9" Maximum Post Spacing)

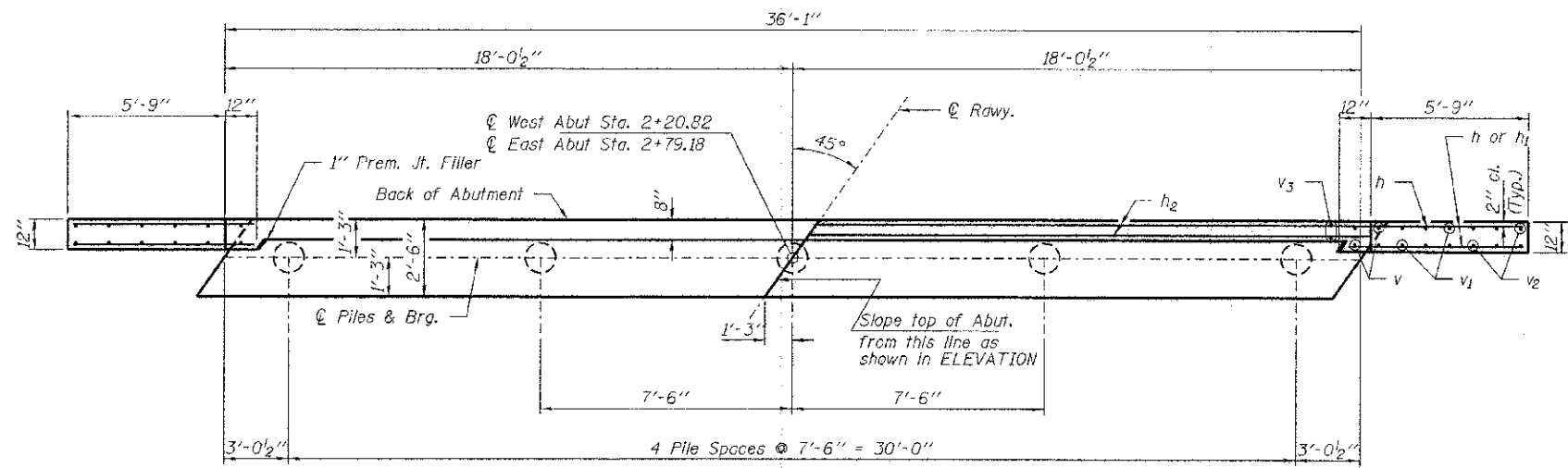
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| FILE NAME = 1:2294-sh1-bridg.dgn  | USER NAME =           | DESIGNED - D.W.T. | REVISED - |
| HAMPTON, LENZINI AND RENWICK, INC.<br>3755 EVERSHAM DRIVE, SUITE 201<br>SPRINGFIELD, ILLINOIS 62703 | PLOT SCALE =          | CHECKED - S.W.M.  | REVISED - |
| ILLINOIS PROFESSIONAL DESIGN FIRM<br>ILL. REG. NO. 00000000   | PLOT DATE = 11/6/2012 | DRAWN - D.A.B.    | REVISED - |
|   |                       | CHECKED - S.W.M.  | REVISED - |

STATE OF ILLINOIS  
WAYNE COUNTY HIGHWAY DEPARTMENT

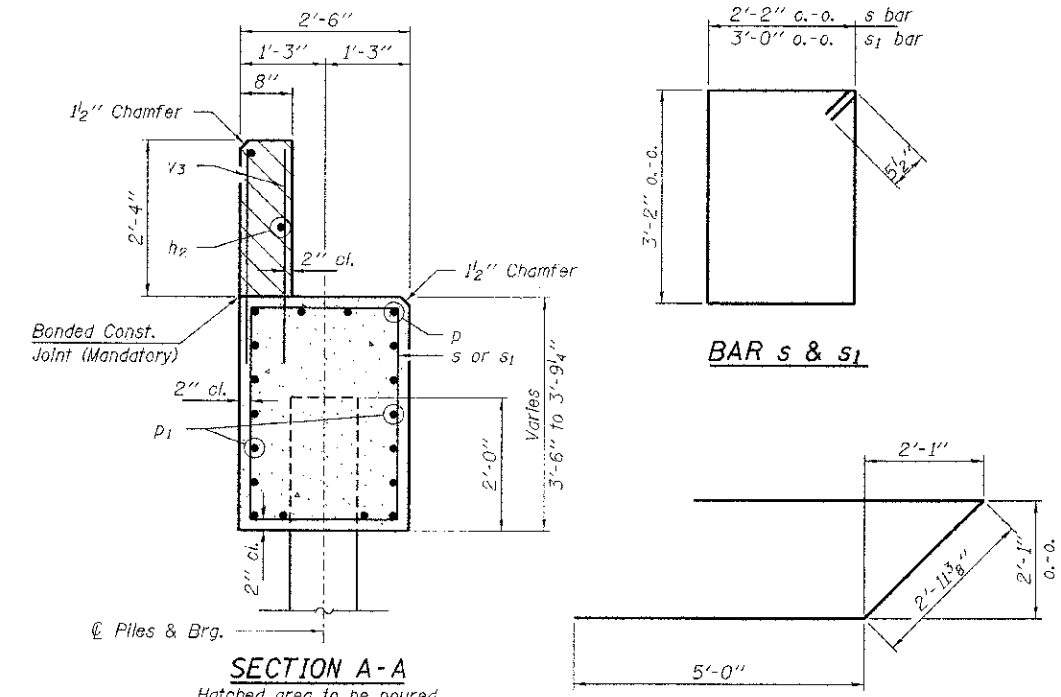
STEEL RAILING, TYPE S-1  
STRUCTURE NO. 096-3457

|                           |                |                    |                 |
|---------------------------|----------------|--------------------|-----------------|
| T.R.                      | SECTION        | COUNTY             | TOTAL SHEET NO. |
| 493                       | 06-15142-00-BR | WAYNE              | 13 9            |
| LEECH ROAD DISTRICT       |                | CONTRACT NO. 95695 |                 |
| ILLINOIS FED. AID PROJECT |                |                    |                 |

SHEET NO. 5 OF 9 SHEETS

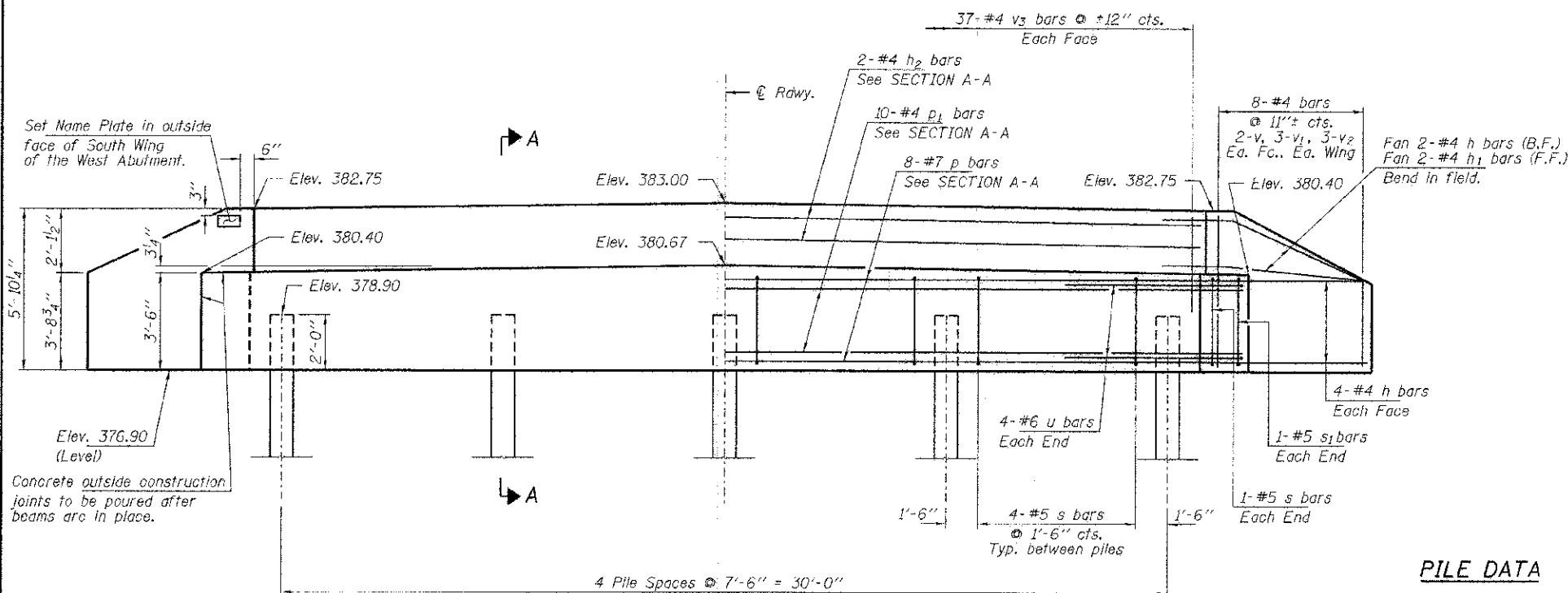


PLAN



SECTION A-A

Hatched area to be poured after beams are in place.



ELEVATION

BILL OF MATERIAL - 2 ABUTS.

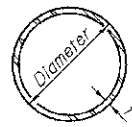
| BAR                         | NO. | SIZE | LENGTH  | SHAPE |
|-----------------------------|-----|------|---------|-------|
| h                           | 40  | #4   | 8'-0"   | —     |
| h1                          | 8   | #4   | 8'-6"   | —     |
| h2                          | 4   | #4   | 35'-9"  | —     |
| p                           | 16  | #7   | 35'-9"  | —     |
| p1                          | 20  | #4   | 35'-9"  | —     |
| s                           | 36  | #5   | 11'-7"  | □     |
| s1                          | 4   | #5   | 13'-3"  | □     |
| u                           | 16  | #6   | 13'-0"  | ▤     |
| v                           | 16  | #4   | 5'-5"   | —     |
| v1                          | 24  | #4   | 4'-5"   | —     |
| v2                          | 24  | #4   | 3'-5"   | —     |
| v3                          | 148 | #4   | 3'-2"   | —     |
| Concrete Structures         |     |      | Cu. Yd. | 32.2  |
| Reinforcement Bars          |     |      | Pound   | 3,290 |
| Metal Shell Piles 12"x0.25" |     |      | Foot    | 495   |
| Test Pile Metal Shells      |     |      | Each    | 1     |
| Name Plates                 |     |      | Each    | 1     |

PILE DATA

Type ----- Metal Shell Piles 12"x0.25"  
 No. Req'd. (2 Abutments) ----- \*10  
 Factored Resistance Available ----- 150 Kips/Pile  
 Nominal Req'd Bearing ----- 273 Kips/Pile  
 Est. Length ----- 55 Ft/Pile

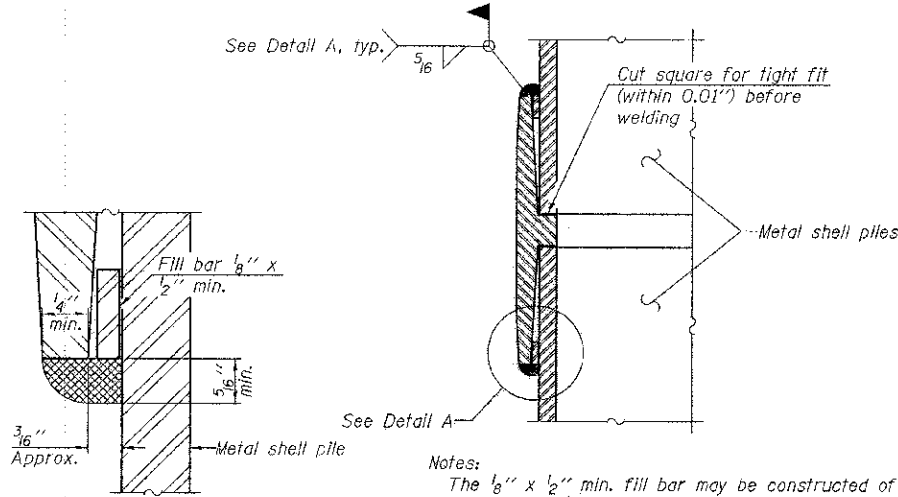
Notes: \* Includes one test pile to be driven in permanent location at the West Abutment.

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



**METAL SHELL PILE TABLE**

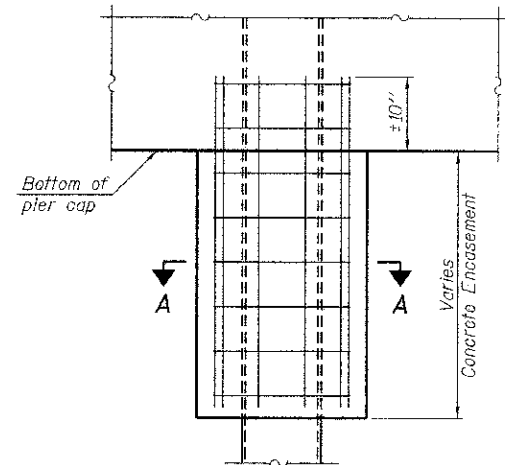
| Designation and outside diameter | Wall thickness t | Weight per foot (Lbs./ft.) | Inside volume (yd. <sup>3</sup> /ft.) |
|----------------------------------|------------------|----------------------------|---------------------------------------|
| PP12                             | 0.179"           | 22.60                      | 0.0274                                |
| PP12                             | 0.250"           | 31.37                      | 0.0267                                |
| PP14                             | 0.250"           | 36.71                      | 0.0368                                |
| PP14                             | 0.312"           | 45.61                      | 0.0361                                |



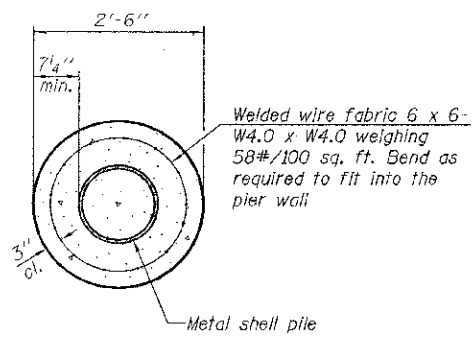
**DETAIL A**

**WELDED COMMERCIAL SPLICE**

Notes:  
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.



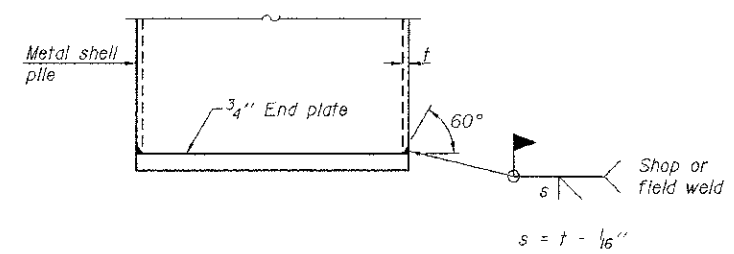
**ELEVATION**



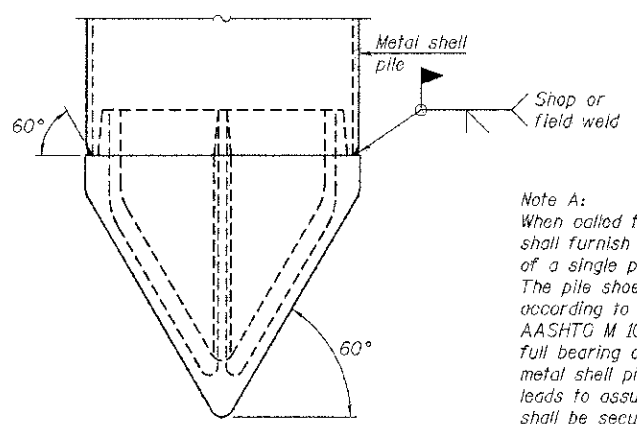
**SECTION A-A**

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

**CONCRETE ENCASEMENT AT PIERS**



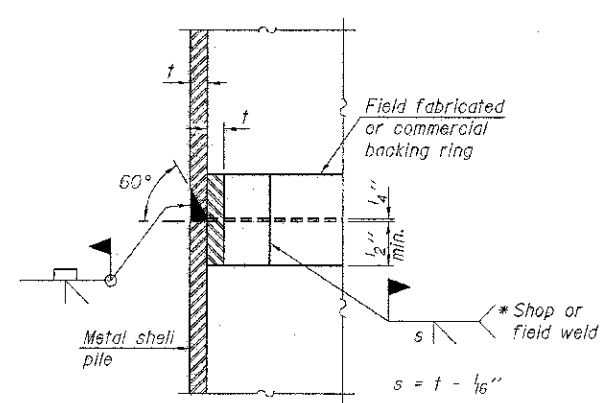
**END PLATE ATTACHMENT**



**METAL SHELL PILE SHOE ATTACHMENT**

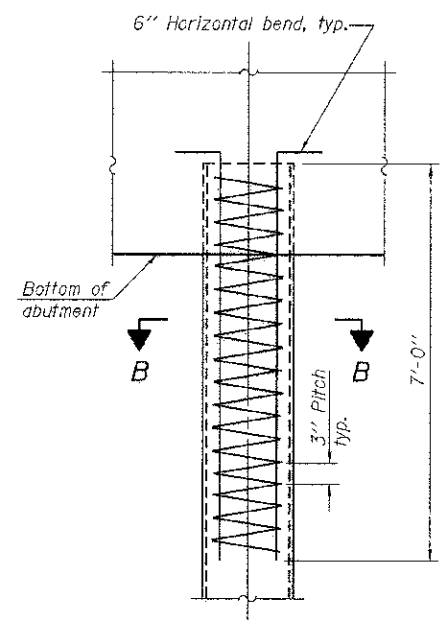
(See Note A)

Note A:  
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35, and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

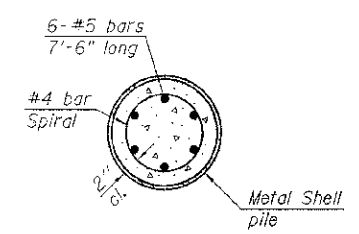


**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**



**SECTION B-B**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**

Note:  
 The metal shell piles shall be according to ASTM A 252 Grade 3.



