

|                 |             |                  |          |
|-----------------|-------------|------------------|----------|
| PROJECT         | DESIGNATION | BRIDGE FILE      | CONTRACT |
| IM-65-3(281)118 | 9814689     | MARION B-17-09FC | R-24327  |

| INDEX            |  |   |               |                          |
|------------------|--|---|---------------|--------------------------|
| STRUCTURE        | TYPE                                   | SPAN & SKEW   | OVER          | STATION                  |
| MARION B-17-09FC | CONTINUOUS COMPOSITE STEEL BEAM BRIDGE | 3 SPANS: 18669, 22403, 18669<br>SKEW: 16'00"00" LT. | CROOKED CREEK | 7+675.300<br>"WBL38TH-B" |

| SHEET NUMBER | SUBJECT                  |
|--------------|--------------------------|
| 1            | TITLE AND INDEX          |
| 2            | SOIL BORINGS             |
| 3-4          | GENERAL PLAN             |
| 5            | REMOVAL DETAILS          |
| 6-8          | END BENT DETAILS         |
| 9-11         | PIER DETAILS             |
| 12           | FRAMING PLAN             |
| 13-14        | STRUCTURAL STEEL DETAILS |
| 15           | BEARING ASSEMBLY DETAILS |
| 16-17        | SUPERSTRUCTURE DETAILS   |
| 18-19        | APPROACH SLAB DETAILS    |
| 20           | BRIDGE SUMMARY           |

# INDIANA DEPARTMENT OF TRANSPORTATION

## BRIDGE PLANS

FOR SPANS OVER 6.1 METERS

**ROUTE: I-65 RP: 117+072**

**PROJECT NO. IM-65-3(281)118 P.E.**

**IM-65-3(281)118 CONST.**

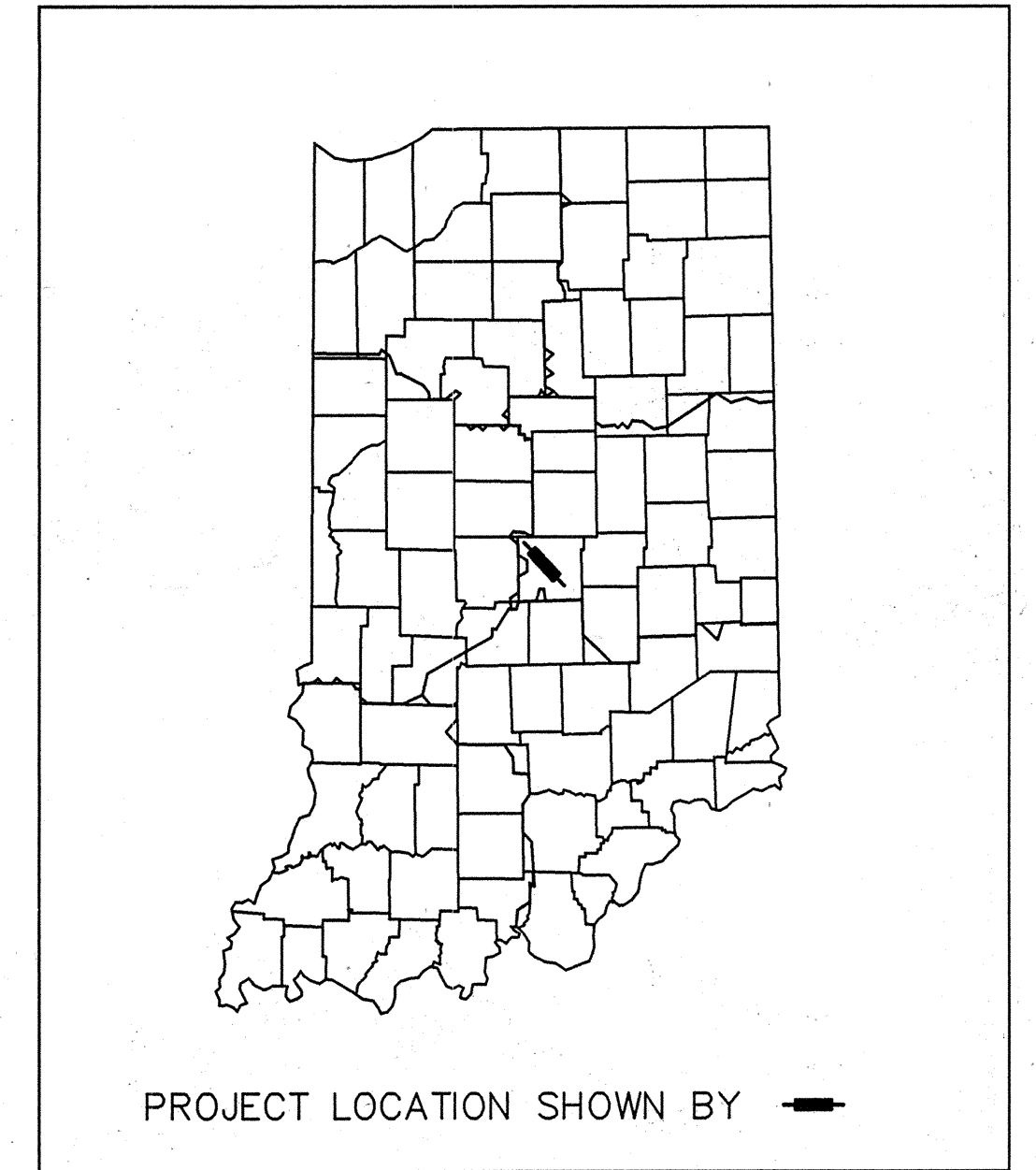
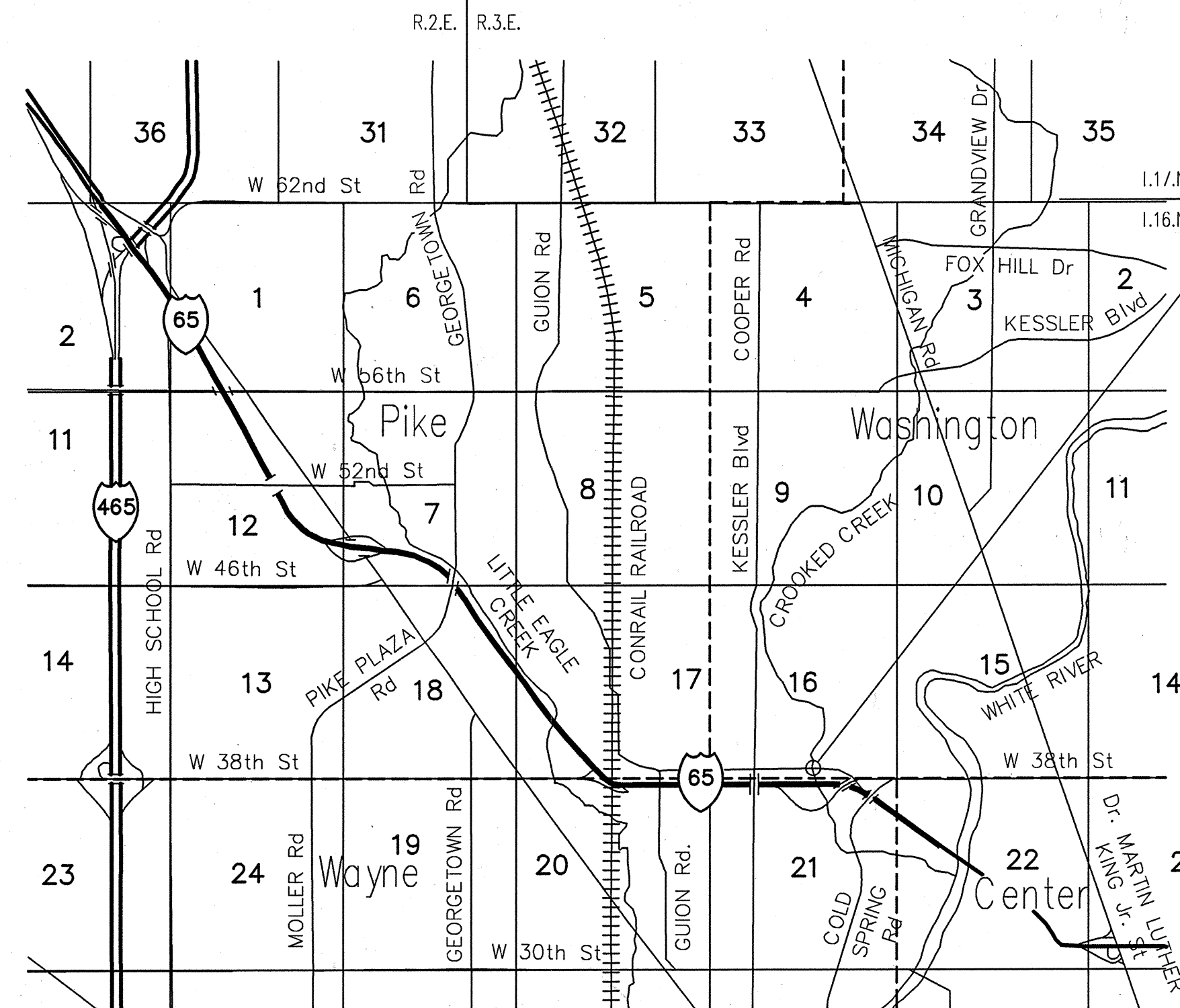
| TRAFFIC DATA             | 38th Street   |            |
|--------------------------|---------------|------------|
| A.A.D.T. (2000)          | 60963         | V.P.D.     |
| A.A.D.T. (2020)          | 82108         | V.P.D.     |
| D.H.V. (2020)            |               | V.P.H.     |
| DIRECTIONAL DISTRIBUTION | 52% WB 48% EB | %          |
| TRUCKS                   |               | % D.H.V.   |
|                          |               | % A.A.D.T. |

| DESIGN DATA               |                                       |
|---------------------------|---------------------------------------|
| ESAL'S                    | 36200280                              |
| DESIGN SPEED              | 90 KPH                                |
| PROJECT DESIGN CRITERIA   | PARTIAL RECONSTRUCTION (4R) (FREEWAY) |
| FUNCTIONAL CLASSIFICATION | PRINCIPAL ARTERIAL                    |
| RURAL / URBAN             | URBAN (SUBURBAN)                      |
| TERRAIN                   | LEVEL                                 |
| ACCESS CONTROL            | PARTIAL                               |

WIDENING FOR BRIDGE ON WB 38TH STREET OVER CROOKED CREEK  
IN WAYNE TOWNSHIP, MARION COUNTY

SCALE: 1:24000



### VICINITY MAP

INDIANAPOLIS, INDIANA  
WAYNE & PIKE TOWNSHIPS  
MARION COUNTY

INDIANA DEPARTMENT OF TRANSPORTATION  
STANDARD SPECIFICATIONS DATED 1999  
TO BE USED WITH THESE PLANS

R-24327

Time: 1/20/05  
Date: 10/2/2001  
Scale: 1"=100'  
Drawing File: F:\Draw\GIS\_MarionCo\MAR1709FC\AS\_BUILT\Title.dwg (C:\cawen)

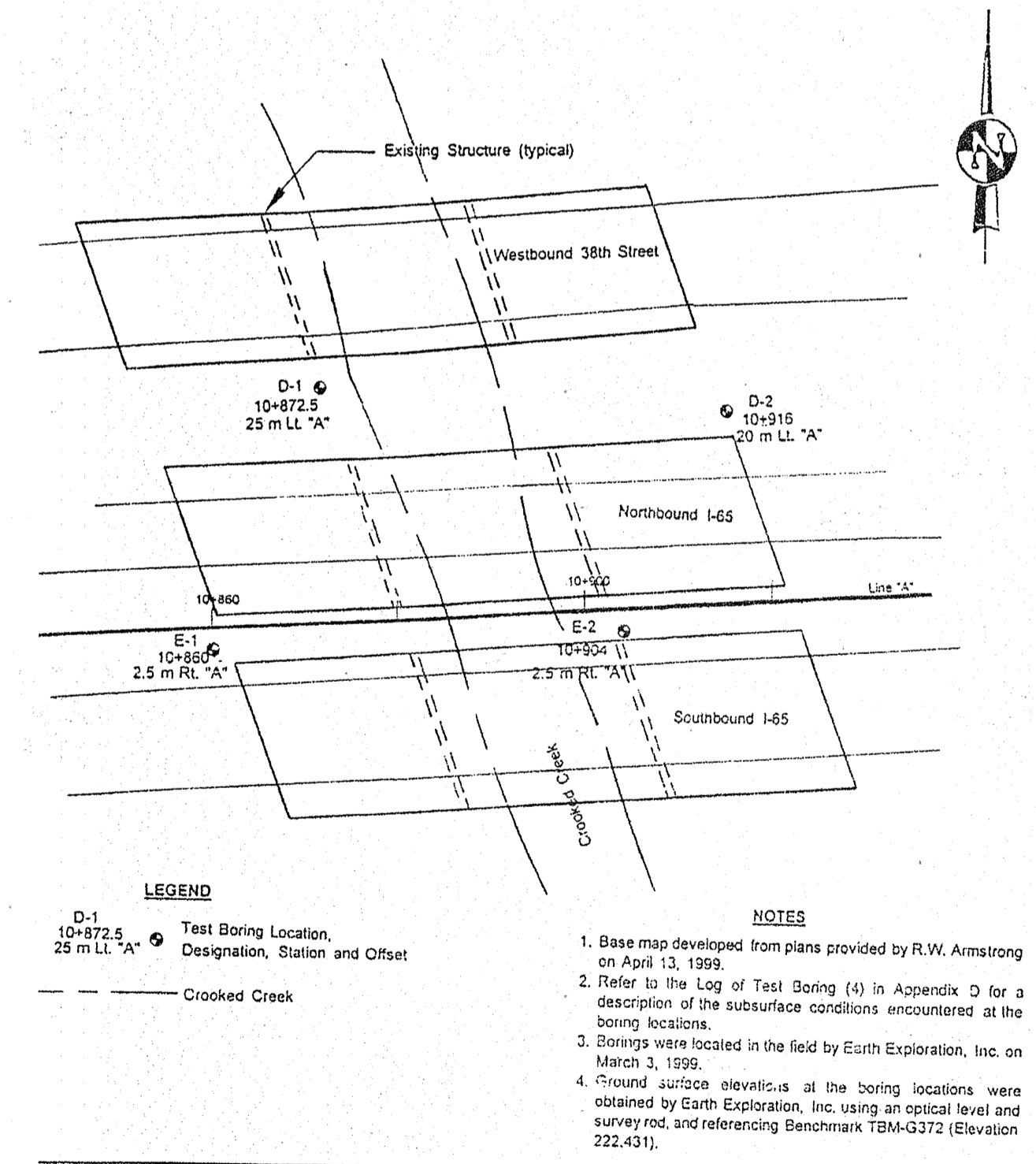
|  |   |  |   |  |
|--|---|--|---|--|
| <br><b>JANSEN &amp; SPAANS ENGINEERING</b><br>CONSULTING ENGINEERS<br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-9686<br>FAX (317) 259-8262 | <br><b>Butler Fairman Seufert</b><br>CONSULTING ENGINEERS<br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4615<br>FAX 317 713-4616 | FEDERAL HIGHWAY ADMINISTRATION<br>U.S. DEPT. OF TRANSPORTATION<br>APPROVED: _____ DATE _____<br>DIVISION ADMINISTRATOR | PLANS<br>PREPARED BY: JANSEN & SPAANS ENGINEERING (317)254-9686<br>PHONE NUMBER<br>CERTIFIED BY: <i>Michael J. Halterman</i> 9/28/01<br>DATE<br>APPROVED FOR LETTING: _____ DATE _____<br>CHIEF, DIVISION OF DESIGN | <br>BRIDGE FILE<br>MARION B-17-09 FC<br>DESIGNATION<br>9814689<br>SHEETS<br>1 of 20<br>CONTRACT<br>R-24327<br>PROJECT<br>IM-65-3(281)118 |
|--|---|--|---|--|

| SAMPLE |       | DESCRIPTION/CLASSIFICATION and REMARKS | SOIL PROPERTIES    |                    |                     |     |      |      |      |
|--------|-------|--|--------------------|--------------------|---------------------|-----|------|------|------|
| No.    | Rec % |  | q <sub>s</sub> kPa | q <sub>v</sub> kPa | γ kg/m <sup>3</sup> | W % | LL % | PL % | PI % |
| SS-1   | 100   | 6 10 7                                 |                    |                    |                     |     |      |      |      |
| SS-2   | 100   | 37 21 19                               |                    |                    |                     |     |      |      |      |
| SS-3   | 100   | 3 4 5                                  |                    |                    |                     |     |      |      |      |
| SS-4   | 100   | 3 4 5                                  |                    |                    |                     |     |      |      |      |
| SS-5   | 100   | 5 7 9                                  | 380                |                    | 10.3                | 18  | 12   | 6    |      |
| SS-6   | 100   | 10 10 14                               | >430               | 798                | 2128                | 9.1 |      |      |      |
| SS-7   | 0     | 19 23 47                               |                    |                    |                     |     |      |      |      |
| SS-8   | 0     | 32 34 35                               |                    |                    |                     |     |      |      |      |
| SS-9   | 90    | 5 9 11                                 | 380                |                    | 23.9                |     |      |      |      |

| SAMPLE |       | DESCRIPTION/CLASSIFICATION and REMARKS | SOIL PROPERTIES    |                    |                     |      |      |      |      |
|--------|-------|--|--------------------|--------------------|---------------------|------|------|------|------|
| No.    | Rec % |  | q <sub>s</sub> kPa | q <sub>v</sub> kPa | γ kg/m <sup>3</sup> | W %  | LL % | PL % | PI % |
| SS-10  | 100   | 19 22 24                               |                    |                    |                     |      |      |      |      |
| SS-11  | 90    | 12 12 19                               | >430               | 80*                | 1899                | 11.8 |      |      |      |
| SS-12  | 100   | 10 17 25                               | >430               |                    |                     | 14.0 |      |      |      |
| SS-13  | 100   | 9 9 16                                 |                    |                    |                     | 11.4 | NP   | NP   | NP   |
| SS-14  | 90    | 7 10 13                                |                    |                    |                     |      |      |      |      |
| SS-15  | 100   | 10 15 50.4                             | >430               |                    |                     | 14.2 | 27   | 12   | 15   |

| SAMPLE |       | DESCRIPTION/CLASSIFICATION and REMARKS | SOIL PROPERTIES    |                    |                     |     |      |      |      |
|--------|-------|--|--------------------|--------------------|---------------------|-----|------|------|------|
| No.    | Rec % |  | q <sub>s</sub> kPa | q <sub>v</sub> kPa | γ kg/m <sup>3</sup> | W % | LL % | PL % | PI % |
| SS-1   | 0     | 2 2 3                                  | 190                |                    | 15.8                |     |      |      |      |
| SS-2   | 100   | 1 2 2                                  | 140                |                    | 13.6                |     |      |      |      |
| SS-3   | 100   | 10 7 6                                 | >430               |                    | 8.1                 |     |      |      |      |
| SS-4   | 100   | 11 10 9                                | >430               |                    | 9.4                 |     |      |      |      |
| SS-5   | 100   | 3 6 7                                  | >430               |                    | 19.8                |     |      |      |      |
| SS-6   | 100   | 9 9 13                                 | >430               |                    | 7.6                 |     |      |      |      |
| SS-7   | 100   | 16 20 22                               |                    |                    |                     |     |      |      |      |
| SS-8   | 100   | 16 18 22                               | >430               |                    | 9.7                 |     |      |      |      |
| SS-9   | 100   | 15 17 29                               | >430               | 539                | 2109                | 8.9 |      |      |      |

| SAMPLE |       | DESCRIPTION/CLASSIFICATION and REMARKS | SOIL PROPERTIES    |                    |                     |      |      |      |      |
|--------|-------|--|--------------------|--------------------|---------------------|------|------|------|------|
| No.    | Rec % |  | q <sub>s</sub> kPa | q <sub>v</sub> kPa | γ kg/m <sup>3</sup> | W %  | LL % | PL % | PI % |
| SS-10  | 100   | 16 20 22                               | 360                |                    | 10.4                |      |      |      |      |
| SS-11  | 100   | 12 20 28                               | >430               |                    | 11.3                |      |      |      |      |
| SS-12  | 100   | 1 0 0                                  | >430               |                    | 11.6                |      |      |      |      |
| SS-13  | 100   | 13 20 23                               | >430               |                    | 11.6                |      |      |      |      |
| SS-14  | 100   | 23 30 46                               | >430               |                    | 9.7                 |      |      |      |      |
| SS-15  | 100   | 14 23 39                               | >430               | 865                | 2060                | 10.7 | 11   | 4    | 27   |
| SS-16  | 100   | 12 10 19                               | >430               |                    | 15.4                |      |      |      |      |

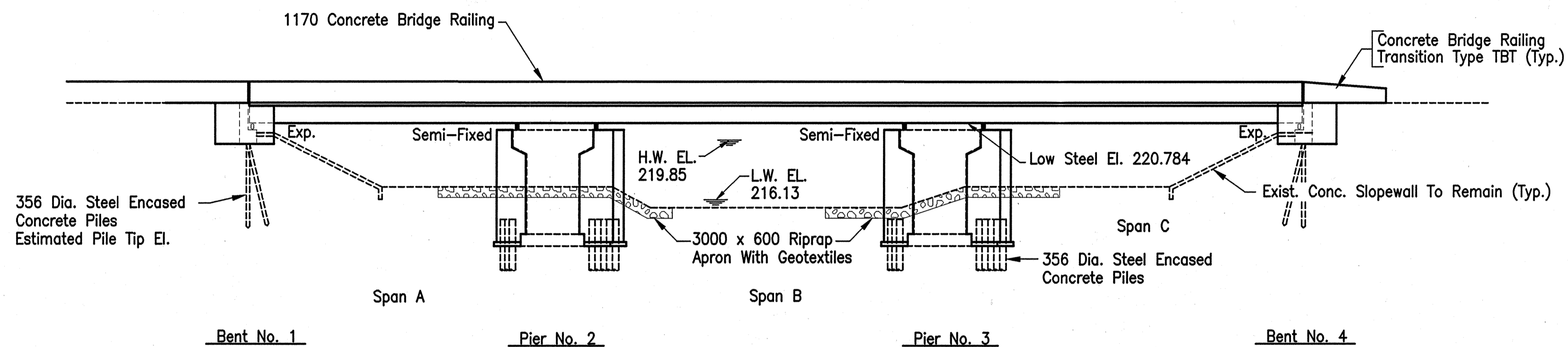


**BORING PLAN**  
SCALE: 1 : 500

Date: 10/27/2001  
 Drawing Title: E:\Data\105\MapDocs\105\BOL\BOL001.dwg (L001)

|  |   |  |                          |                             |                  |  |                  |                  |
|--|---|--|--------------------------|-----------------------------|------------------|--|------------------|------------------|
| <p><b>JSE</b><br/>JANSSEN &amp; SPAANS ENGINEERING<br/>CONSULTING ENGINEERS<br/>2825 EAST 56TH STREET<br/>INDIANAPOLIS, INDIANA 46220<br/>BUS. (317) 254-9686<br/>FAX (317) 259-8262</p> | <p><b>B&amp;S</b><br/>Butler Fairman Seufert<br/>CONSULTING ENGINEERS<br/>8450 WESTFIELD BLVD., SUITE 300<br/>INDIANAPOLIS, IN. 46240<br/>317 713-4615<br/>509 WEST 84TH DRIVE, SUITE G<br/>MERRILLVILLE, IN. 46410<br/>219 769-2333<br/>FAX 219 769-2377</p> |  | RECOMMENDED FOR APPROVAL | <i>Michael J. Halterman</i> | 9/28/01          | <b>INDIANA DEPARTMENT OF TRANSPORTATION</b><br><br><b>SOIL BORINGS</b> | HORIZONTAL SCALE | BRIDGE FILE      |
|  |   |  | CHECKED: M.J.H.          | CHECKED: M.J.H.             | DESIGNED: C.B.S. |  | DRAWN: K.R.O.    | VERTICAL SCALE   |
|  |   |  |                          |                             |                  |  | SURVEY BOOK      | SHEETS           |
|  |   |  |                          |                             |                  |  | CONTRACT         | PROJECT          |
|  |   |  |                          |                             |                  |  | R-24327          | IM-65-3(281)-118 |

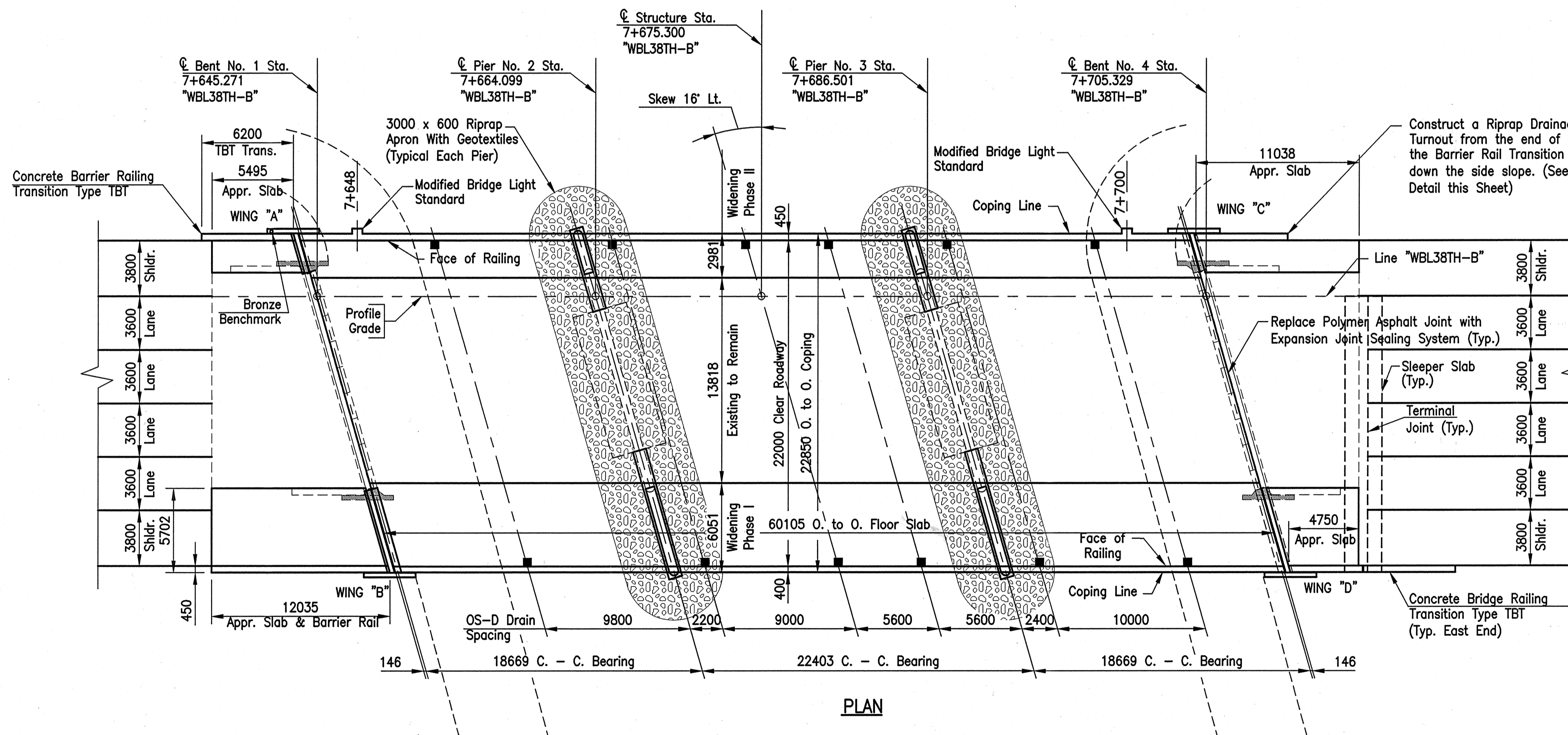
STRUCTURE BUILT TO A 245.0 m VERTICAL CURVE



ELEVATION

| "ORIGINAL" PROFILE GRADE (1995) |                   |
|---------------------------------|-------------------|
| P.V.I.                          | 7+735 "WBL38TH-B" |
| ORIGIN. EL.                     | 221.100           |
| V.C.                            | 245.0 m           |
| G1                              | -0.88%            |
| G2                              | +2.103%           |

| DESIGN LOADING FOR GEOTECHNICAL TESTING |                           |           |           |           |
|---|---------------------------|-----------|-----------|-----------|
| SUBSTRUCTURE                            | BENT NO.1                 | PIER NO.2 | PIER NO.3 | BENT NO.4 |
| DESIGN LOAD                             | 490 kN                    | 620 kN    | 620 kN    | 490 kN    |
| FACTOR OF SAFETY                        | 2.5                       | 2.5       | 2.5       | 2.5       |
| FACTORED DESIGN LOAD                    | 1225 kN                   | 1550 kN   | 1550 kN   | 1225 kN   |
| FRICTION IN SCOUR ZONE                  | - kN                      | - kN      | - kN      | - kN      |
| DOWN DRAG FRICTION                      | - kN                      | - kN      | - kN      | - kN      |
| ULTIMATE LOAD                           | 1225 kN                   | 1550 kN   | 1550 kN   | 1225 kN   |
| TESTING METHOD                          | by Formula Std. Spec. 701 |           |           |           |



PLAN

CONTINUOUS COMPOSITE STEEL BEAM BRIDGE  
3 SPANS: 18669, 22403, 18669, SKEW: 16'00"00" LT.  
22000 CL. RDWY.  
WESTBOUND 38TH ST. OVER CROOKED CREEK  
IN MARION COUNTY

All Dimensions Are In Millimeters (mm), And All Elevations Are In Meters (m), Except As Noted.

Time: 1/27/16 1:20:00  
Scale: 1:200  
Drawing File: F:\Drive\GIS\_Metric\Co\MB1709FC\AS\_BUILT\SPRINT.dwg (C:\own)

**JSE**  
JANSSEN & SPAANS ENGINEERING  
CONSULTING ENGINEERS  
9155 HARRISON PARK COURT  
INDIANAPOLIS, INDIANA 46216  
BUS: (317) 254-9686  
FAX: (317) 259-8262

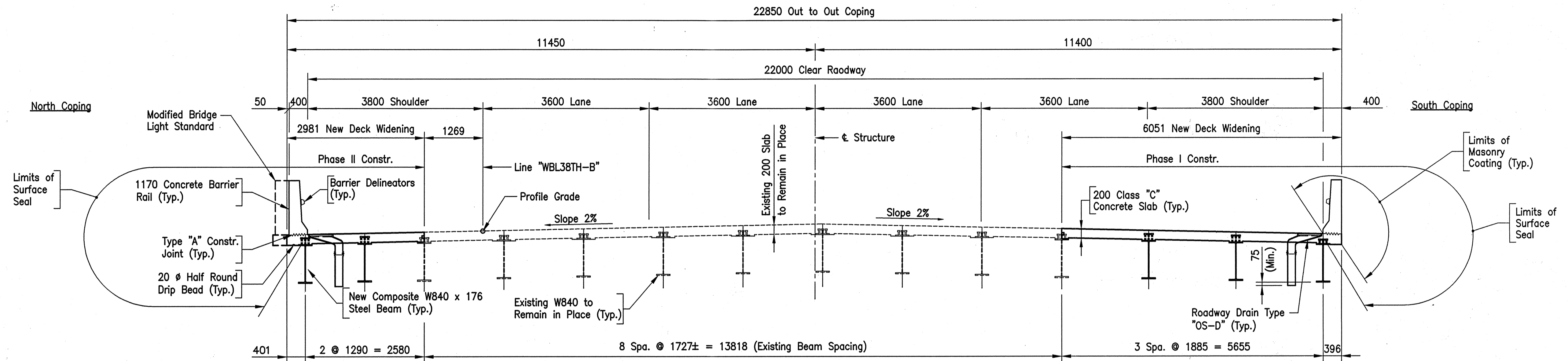
**B&S**  
Butler Fairman Seufert  
CONSULTING ENGINEERS  
8450 WESTFIELD BLVD., SUITE 300  
INDIANAPOLIS, IN. 46240  
BUS: (317) 713-4615  
FAX: 317 713-4616  
509 WEST 84TH DRIVE, SUITE 0  
MERRILLVILLE, IN. 46410  
219 769-2333  
FAX: 219 769-2377

MICHAEL J. HALTERMAN  
REGISTERED  
No. 20931  
STATE OF INDIANA  
PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL: Michael J. Halterman 9/28/01  
DESIGN ENGINEER DATE  
DESIGNED: CBS DRAWN: TAL  
CHECKED: LS CHECKED: JWR

INDIANA DEPARTMENT OF TRANSPORTATION  
GENERAL PLAN

|                  |                   |
|------------------|-------------------|
| HORIZONTAL SCALE | BRIDGE FILE       |
| 1 : 200          | MARION B-17-09 FC |
| VERTICAL SCALE   | DESIGNATION       |
|                  | 9814689           |
| SURVEY BOOK      | SHEETS            |
|                  | 3 of 20           |
| CONTRACT         | PROJECT           |
| R-24327          | IM-65-3 (281) 118 |



TYPICAL SECTION

DESIGN DATA

ALLOWABLE DESIGN STRESSES:

|                    |                         |
|--------------------|-------------------------|
| Class "C" Concrete | $F_c = 27 \text{ MPa}$  |
| Class "A" Concrete | $F_c = 24 \text{ MPa}$  |
| Class "B" Concrete | $F_c = 21 \text{ MPa}$  |
| Reinforcing Steel  | $F_y = 420 \text{ MPa}$ |

LIVE LOAD:

HS20-44 loading with distribution in accordance with 1996 A.A.S.H.T.O. Specifications and subsequent interim Specifications. Load Factor = 2.17

Checked for special loading of 10885 kg. axles spaced at 1220 mm centers.

DEAD LOAD:

Actual plus 1.7 kN per square meter (composite) for future wearing surface and 0.7 kN per square meter (non composite) for permanent metal deck forms. Slab designed with a 40 mm wearing surface. Load Factor = 1.30

GENERAL NOTES

Plans for the existing structures are on file in the Central Office and are available upon request.

Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field and report any errors or discrepancies to the Engineer.

Portions of Present Structures shall be removed.

Footings shall be lower than shown if found necessary. See Article 206.11 of the Specifications.

See Standards for details of piles.

Determine pile lengths by Article 701 of the Specifications.

Steel encased concrete piles shall be driven to the Ultimate Bearing noted.

Epoxy coated reinforcing steel shall be required in end bents, upper portion of mudwalls, floor slab and barrier railings.

Reinforcing steel covering shall be 75mm in footings except bottom steel which shall be 100mm.

Reinforcing steel covering shall be 65mm in top and 25mm in bottom of floor slabs and 50mm in all other areas unless noted.

Concrete shall be Class C in upper portion of mudwalls, floor slab and barrier railings.

Concrete shall be Class A in all portions of the project not noted above.

Continuous concrete pours shall be made between construction joints shown.

Chamfer exposed corners of concrete 25mm unless noted.

Install floor drains as shown.

Construct concrete approach slabs as shown.

Construct concrete slopewall as shown.

Place revetment riprap over geotextile as shown.

Surface Seal top of pier and end bent cap, front and top of mudwall, exposed surfaces of wingwalls, face of deck coping, underside of bridge floor from coping to exterior beam flange, bridge deck and concrete barrier railing. Estimated Quantity = 1201 Sq. Meters




Masonry Coat all exposed surfaces of wingwalls, front face of bent cap, concrete barrier railing, concrete barrier railing transitions, face of deck coping and underside of bridge floor from coping to exterior beam flange. Masonry coating shall conform to Federal Color Standard 595a, Color No. 27778 (Antique Ivory). See the Special Provisions. Estimated Quantity = 561 Sq. Meters

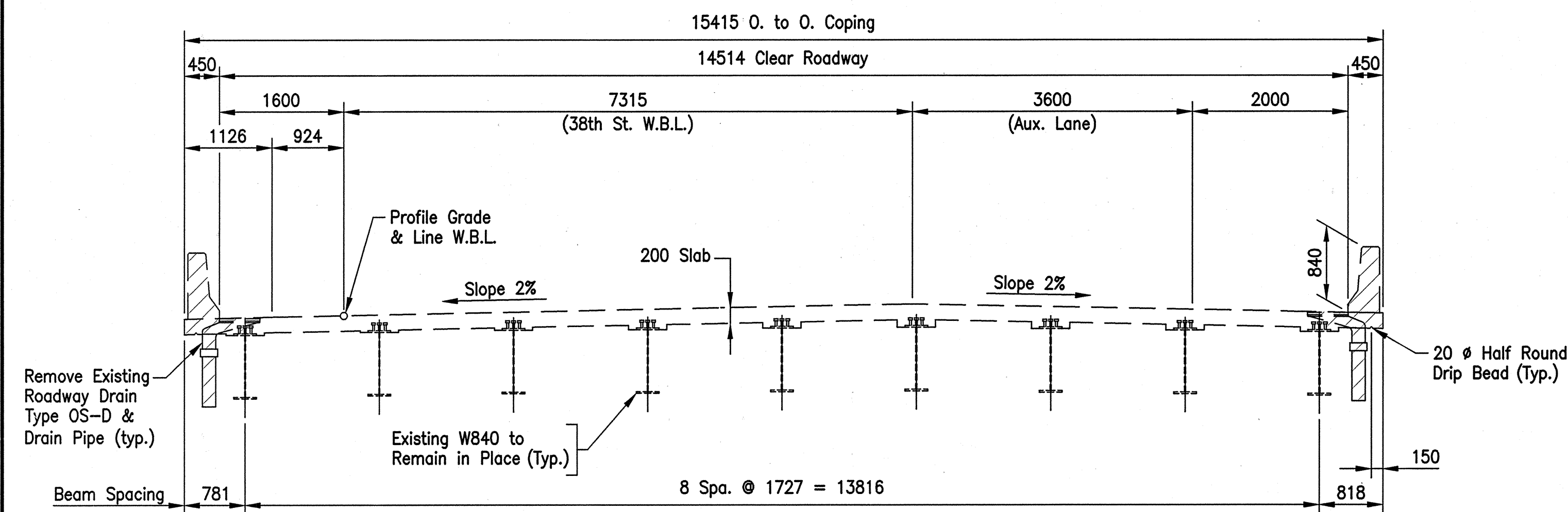
As an alternate, permanent metal deck forms may be used.

New steel diaphragms may be used in lieu of re-using existing diaphragms wherever reversing or retro-fitting is required.

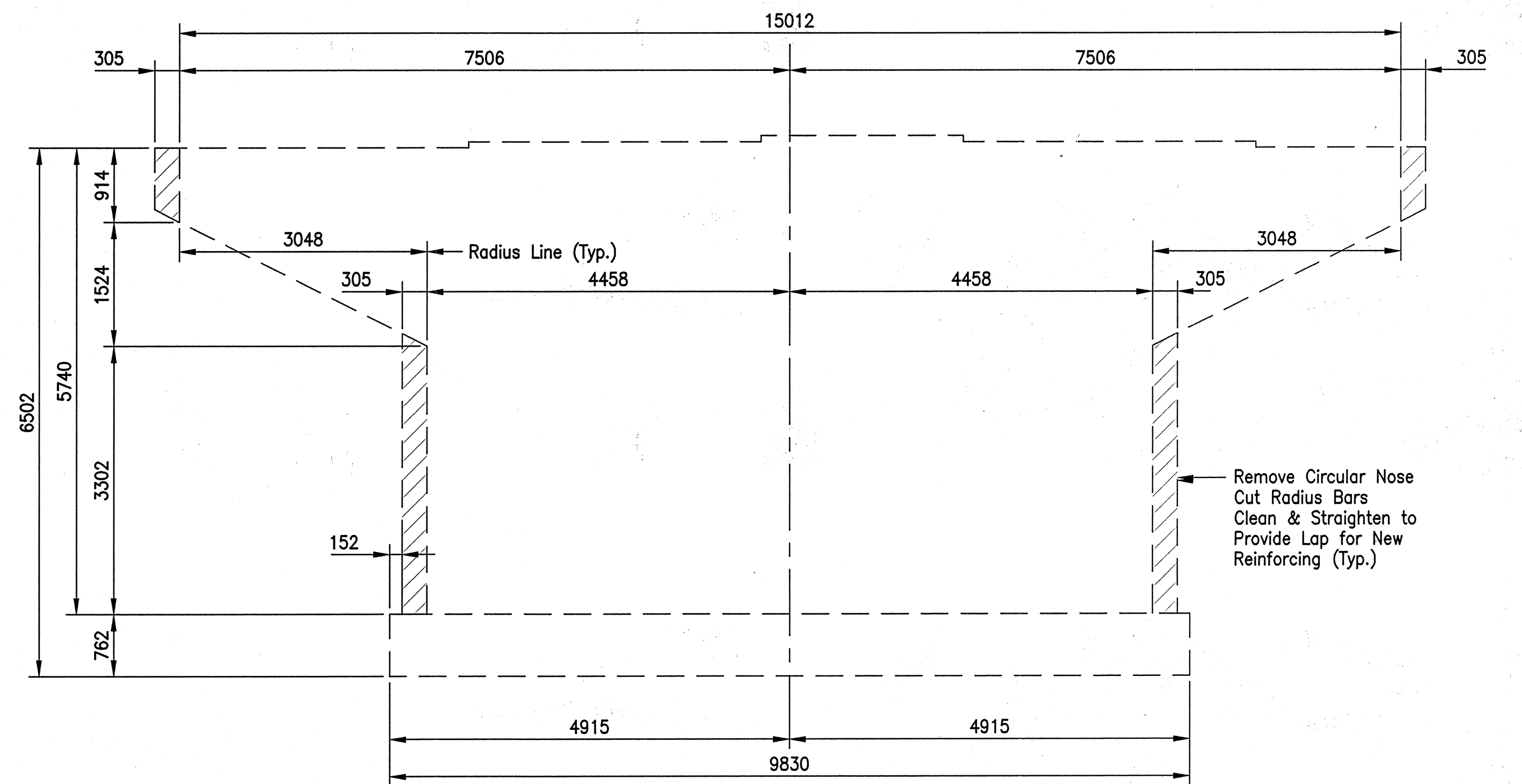
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|   |   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
|---|---|---|--|---|--|------------------|-------------|--------|-------------------|----------------|-------------|--|---------|-------------|--------|--|---------|----------|---------|---------|-------------------|
| <br><b>JANSEN &amp; SPAANS ENGINEERING</b><br>CONSULTING ENGINEERS<br><small>9155 HARRISON PARK COURT<br/>         INDIANAPOLIS, INDIANA 46216<br/>         BUS: (317) 254-9688<br/>         FAX (317) 259-8292</small> | <br><b>Butler Fairman Seufert</b><br>CONSULTING ENGINEERS<br><small>8450 WESTFIELD BLVD., SUITE 300 509 WEST BATH DRIVE, SUITE 0<br/>         INDIANAPOLIS, IN. 46240 MERRILLVILLE, IN. 46410<br/>         BUS: (317) 713-4815 219 769-2333<br/>         FAX (317) 713-4816 FAX 219 769-2377</small> | <br>MICHAEL J. HALTERMAN<br>REGISTERED<br>No. 20931<br>STATE OF INDIANA<br>PROFESSIONAL ENGINEER | RECOMMENDED FOR APPROVAL <i>Michael J. Halterman</i> 9/28/01<br>DESIGN ENGINEER DATE | <b>INDIANA</b><br><b>DEPARTMENT OF TRANSPORTATION</b><br><br>GENERAL PLAN | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>HORIZONTAL SCALE</td> <td>BRIDGE FILE</td> </tr> <tr> <td>1 : 50</td> <td>MARION B-17-09 FC</td> </tr> <tr> <td>VERTICAL SCALE</td> <td>DESIGNATION</td> </tr> <tr> <td></td> <td>9814689</td> </tr> <tr> <td>SURVEY BOOK</td> <td>SHEETS</td> </tr> <tr> <td></td> <td>4 of 20</td> </tr> <tr> <td>CONTRACT</td> <td>PROJECT</td> </tr> <tr> <td>R-24327</td> <td>IM-65-3 (281) 118</td> </tr> </table> | HORIZONTAL SCALE | BRIDGE FILE | 1 : 50 | MARION B-17-09 FC | VERTICAL SCALE | DESIGNATION |  | 9814689 | SURVEY BOOK | SHEETS |  | 4 of 20 | CONTRACT | PROJECT | R-24327 | IM-65-3 (281) 118 |
| HORIZONTAL SCALE  | BRIDGE FILE   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
| 1 : 50  | MARION B-17-09 FC   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
| VERTICAL SCALE  | DESIGNATION   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
|   | 9814689   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
| SURVEY BOOK   | SHEETS  |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
|   | 4 of 20   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
| CONTRACT  | PROJECT   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |
| R-24327   | IM-65-3 (281) 118   |   |  |   |  |                  |             |        |                   |                |             |  |         |             |        |  |         |          |         |         |                   |



EXISTING TYPICAL SECTION



EXISTING PIERS NO. 2 & 3 ELEVATION

Cross Hatched Areas Indicate Removal

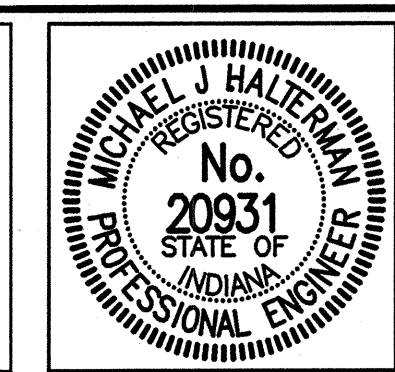
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Date: 10/9/2001  
 Scale: 1:50  
 Drawing File: F:\Drawings\GIS\Main\Drawings\BUILT\REMOVAL.dwg (C:\www)

**JSE**  
 JANSSEN & SPAANS ENGINEERING  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS: (317) 254-9886  
 FAX: (317) 259-8282

**B&S**  
 Butler Fairman Seufert  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300  
 INDIANAPOLIS, IN. 46240  
 317 713-4615  
 FAX 317 713-4616

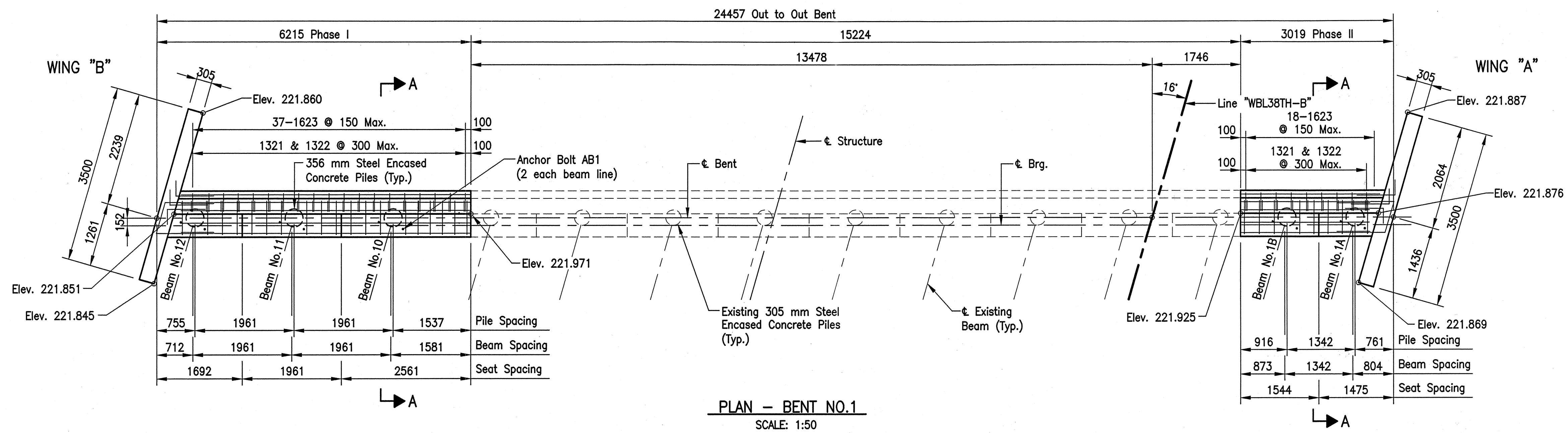
509 WEST 84TH DRIVE, SUITE G  
 MERRILLVILLE, IN. 46410  
 219 769-3333  
 FAX 219 769-2377



|                          |   |
|--------------------------|---|
| RECOMMENDED FOR APPROVAL | <i>Michael J. Haltman</i> 8/28/01<br>DESIGN ENGINEER DATE |
| DESIGNED: CBS            | DRAWN: TAL  |
| CHECKED: LS              | CHECKED: JWR  |

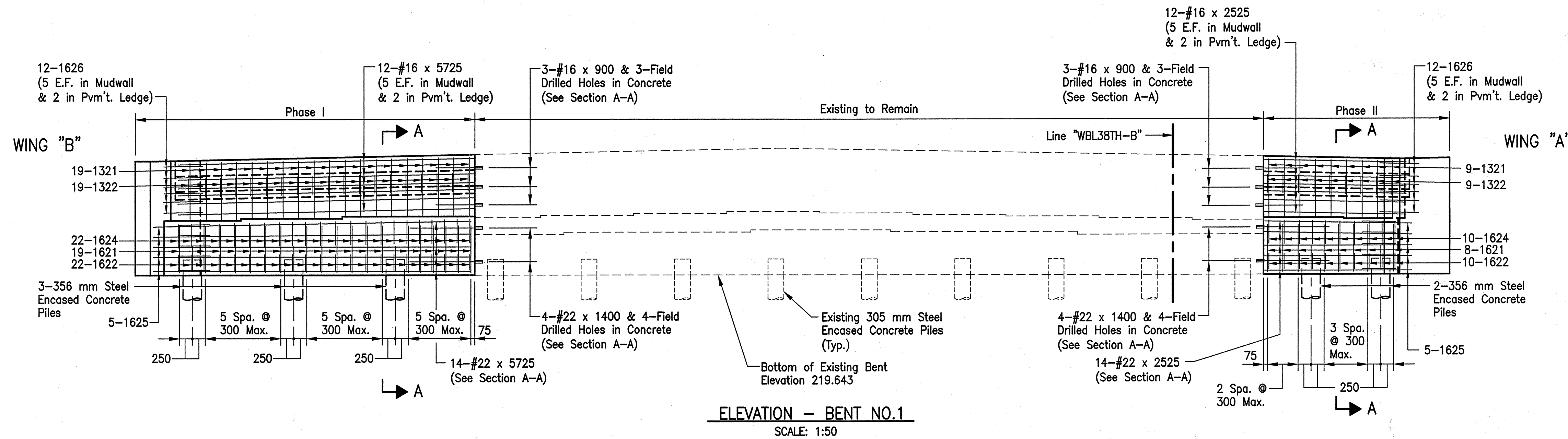
INDIANA  
 DEPARTMENT OF TRANSPORTATION  
 REMOVAL DETAILS

|                  |                   |
|------------------|-------------------|
| HORIZONTAL SCALE | BRIDGE FILE       |
| 1 : 50           | MARION B-17-09 FC |
| VERTICAL SCALE   | DESIGNATION       |
| 1 : 50           | 9814689           |
| SURVEY BOOK      | SHEETS            |
|                  | 5 of 20           |
| CONTRACT         | PROJECT           |
| R-24327          | IM-65-3 (281) 118 |



PLAN - BENT NO.1  
SCALE: 1:50

| BRIDGE SEAT ELEVATIONS |           |
|------------------------|-----------|
| BEAM LINE NO.          | ELEVATION |
| 1A                     | 220.716   |
| 1B                     | 220.741   |
| 10                     | 220.773   |
| 11                     | 220.733   |
| 12                     | 220.694   |



ELEVATION - BENT NO.1  
SCALE: 1:50

- Notes:
- All dimensions are in millimeters, all elevations are in meters unless noted.
  - For Reinforcing Bar Notes, see Bridge Standard 703-BRST-01.
  - Field drilled holes in concrete shall extend to a depth required to embed a bar 150 with an approved anchor system having a minimum pullout equal to 82 kN for #16 bars & 161 kN for #22 bars.
  - All Reinforcing Steel to be Epoxy Coated.

Date: 10/29/2001  
 Scale: 1:50 (PS)  
 Drawing File: F:\hmc\105\Main\105\Bent\BENT.dwg (Common)

**JOE**  
 JANSSEN & SPAANS ENGINEERING  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS. (317) 254-9686  
 FAX (317) 259-8262

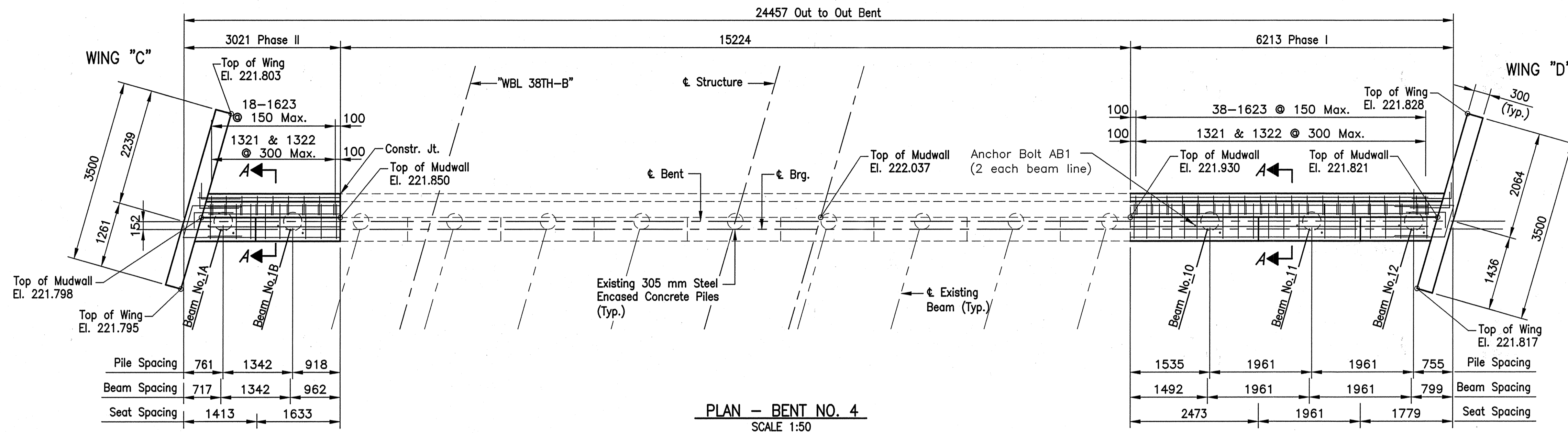
**B&S**  
 Butler Fairman Seufert  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300  
 INDIANAPOLIS, IN. 46240  
 317 713-4615  
 FAX 317 713-4616

MICHAEL J. HALTERMAN  
 REGISTERED  
 No. 20931  
 STATE OF INDIANA  
 PROFESSIONAL ENGINEER

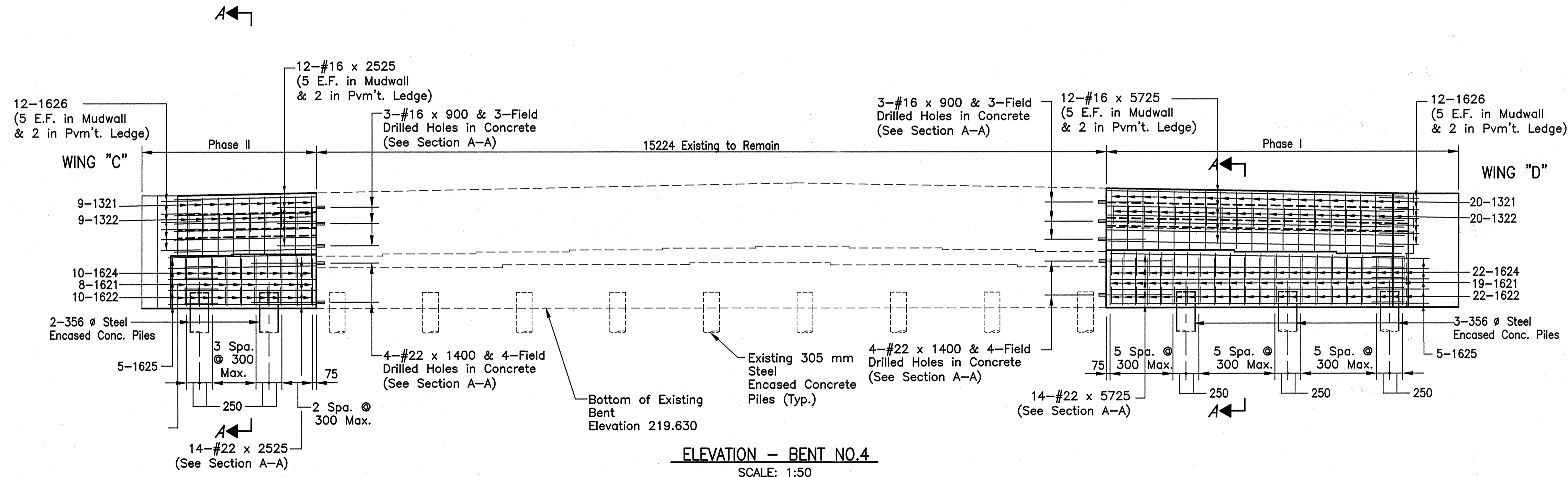
RECOMMENDED FOR APPROVAL  
 Michael J. Halterman 9/28/01  
 DESIGN ENGINEER DATE  
 DESIGNED: CBS DRAWN: DWB  
 CHECKED: LS CHECKED: JWR

INDIANA  
 DEPARTMENT OF TRANSPORTATION  
 END BENT DETAILS

|                  |                   |
|------------------|-------------------|
| HORIZONTAL SCALE | BRIDGE FILE       |
| 1 : 50           | MARION B-17-09 FC |
| VERTICAL SCALE   | DESIGNATION       |
| 1 : 50           | 9814689           |
| SURVEY BOOK      | SHEETS            |
|                  | 6 of 20           |
| CONTRACT         | PROJECT           |
| R-24327          | IM-65-3 (281) 118 |



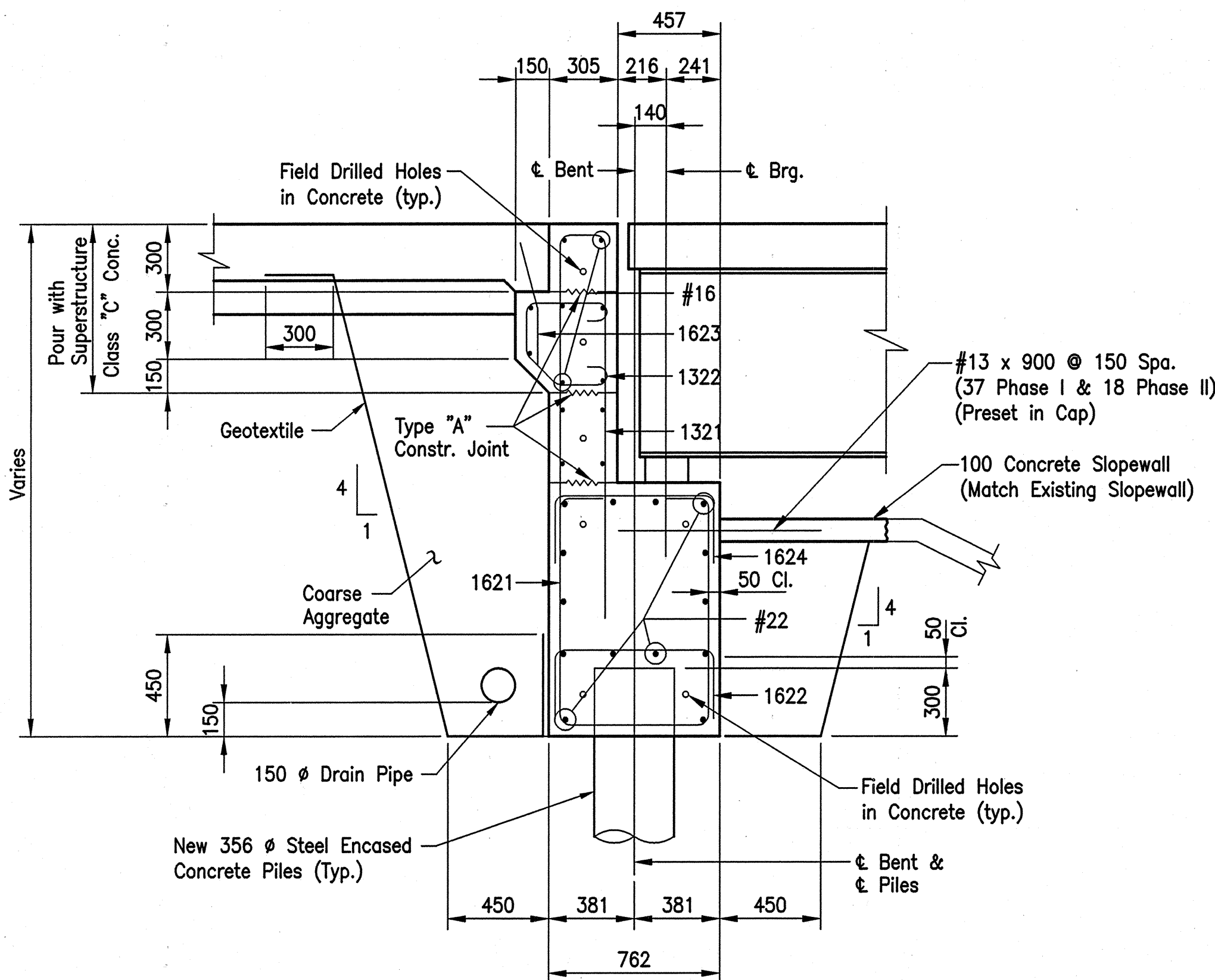
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|------------------------|-----------|
| BEAM LINE NO.          | ELEVATION |
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| 1B                     | 220.667   |
| 10                     | 220.735   |
| 11                     | 220.698   |
| 12                     | 220.663   |



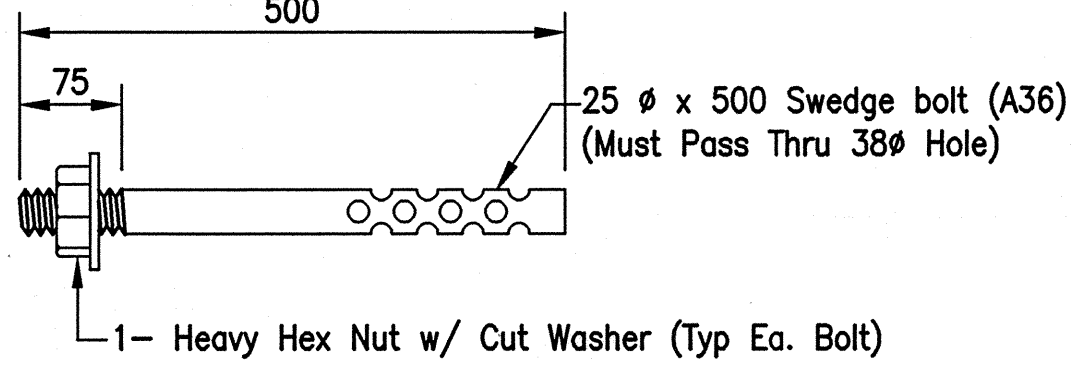
- Notes:
- All dimensions are in millimeters, all elevations are in meters unless noted.
  - For Reinforcing Bar Notes, see Bridge Standard 703-BRST-01.
  - Field drilled holes in concrete shall extend to a depth required to embed a bar 150 with an approved anchor system having a minimum pullout equal to 82 kN for #16 bars & 161 kN for #22 bars.
  - All Reinforcing Steel to be Epoxy Coated.

File: 10/2/01  
 Date: 10/2/01  
 Scale: 1:50 (FC)  
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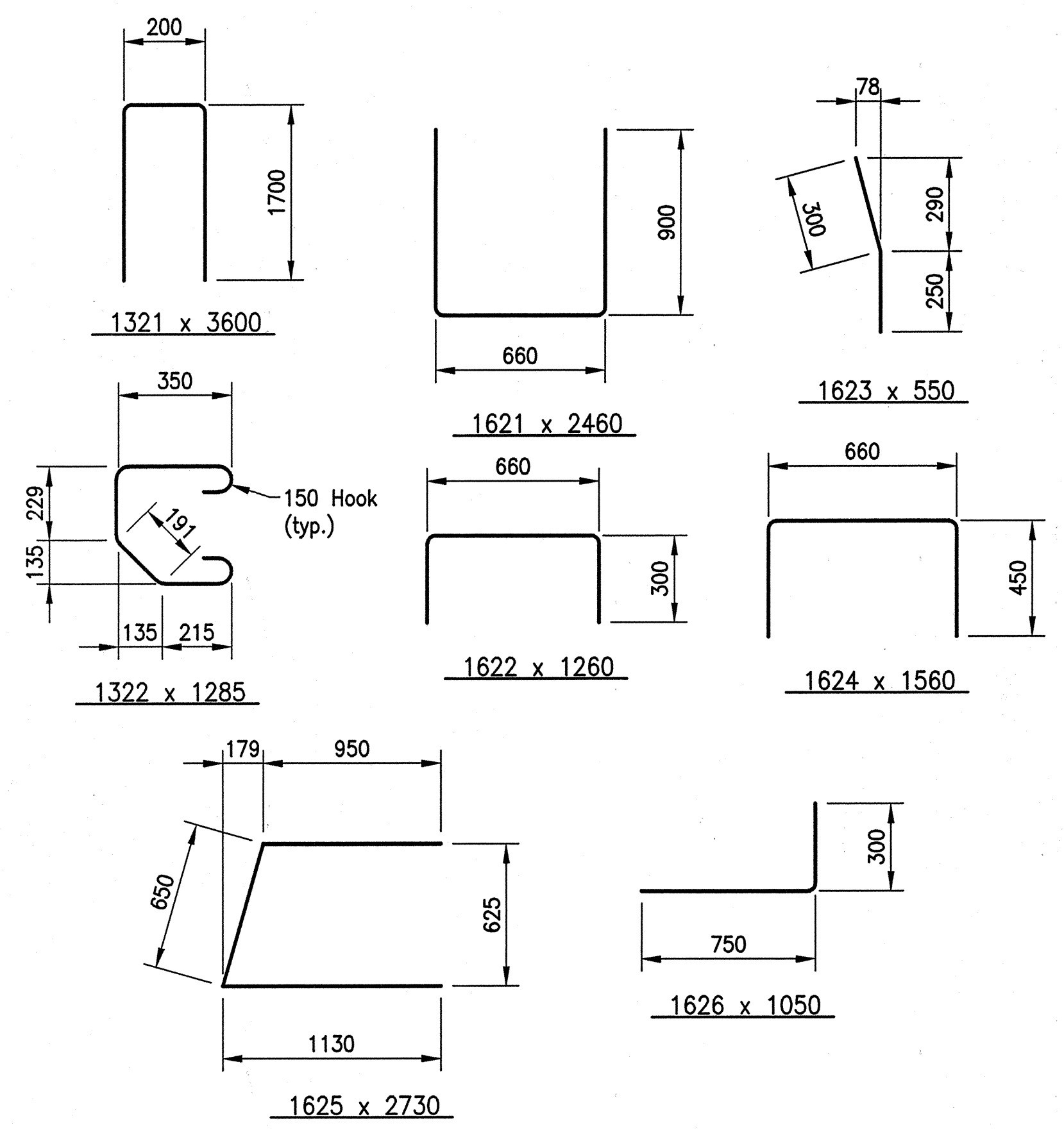
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| <br><b>JANSEN &amp; SPANS ENGINEERING</b><br>CONSULTING ENGINEERS<br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-9686<br>FAX (317) 259-9262 | <br><b>Butler Fairman Seufert</b><br>CONSULTING ENGINEERS<br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4615<br>FAX 317 713-4616 | <br>RECOMMENDED FOR APPROVAL<br><i>Michael J. Halterman</i> 9/28/01<br>DESIGN ENGINEER DATE  | <b>INDIANA</b><br><b>DEPARTMENT OF TRANSPORTATION</b><br><br><b>END BENT DETAILS</b> |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
|   |   | DESIGNED: CBS      DRAWN: REM<br>CHECKED: LS         CHECKED: JWR  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
|   |   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>HORIZONTAL SCALE</td> <td>BRIDGE FILE</td> </tr> <tr> <td>1 : 50</td> <td>MARION B-17-09 FC</td> </tr> <tr> <td>VERTICAL SCALE</td> <td>DESIGNATION</td> </tr> <tr> <td>1 : 50</td> <td>9814689</td> </tr> <tr> <td>SURVEY BOOK</td> <td>SHEETS</td> </tr> <tr> <td></td> <td>7 of 20</td> </tr> <tr> <td>CONTRACT</td> <td>PROJECT</td> </tr> <tr> <td>R-24327</td> <td>IM-65-3 (281) 118</td> </tr> </table> |  | HORIZONTAL SCALE | BRIDGE FILE | 1 : 50 | MARION B-17-09 FC | VERTICAL SCALE | DESIGNATION | 1 : 50 | 9814689 | SURVEY BOOK | SHEETS |  | 7 of 20 | CONTRACT | PROJECT | R-24327 | IM-65-3 (281) 118 |
| HORIZONTAL SCALE  | BRIDGE FILE   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
| 1 : 50  | MARION B-17-09 FC   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
| VERTICAL SCALE  | DESIGNATION   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
| 1 : 50  | 9814689   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
| SURVEY BOOK   | SHEETS  |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
|   | 7 of 20   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
| CONTRACT  | PROJECT   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |
| R-24327   | IM-65-3 (281) 118   |  |  |                  |             |        |                   |                |             |        |         |             |        |  |         |          |         |         |                   |



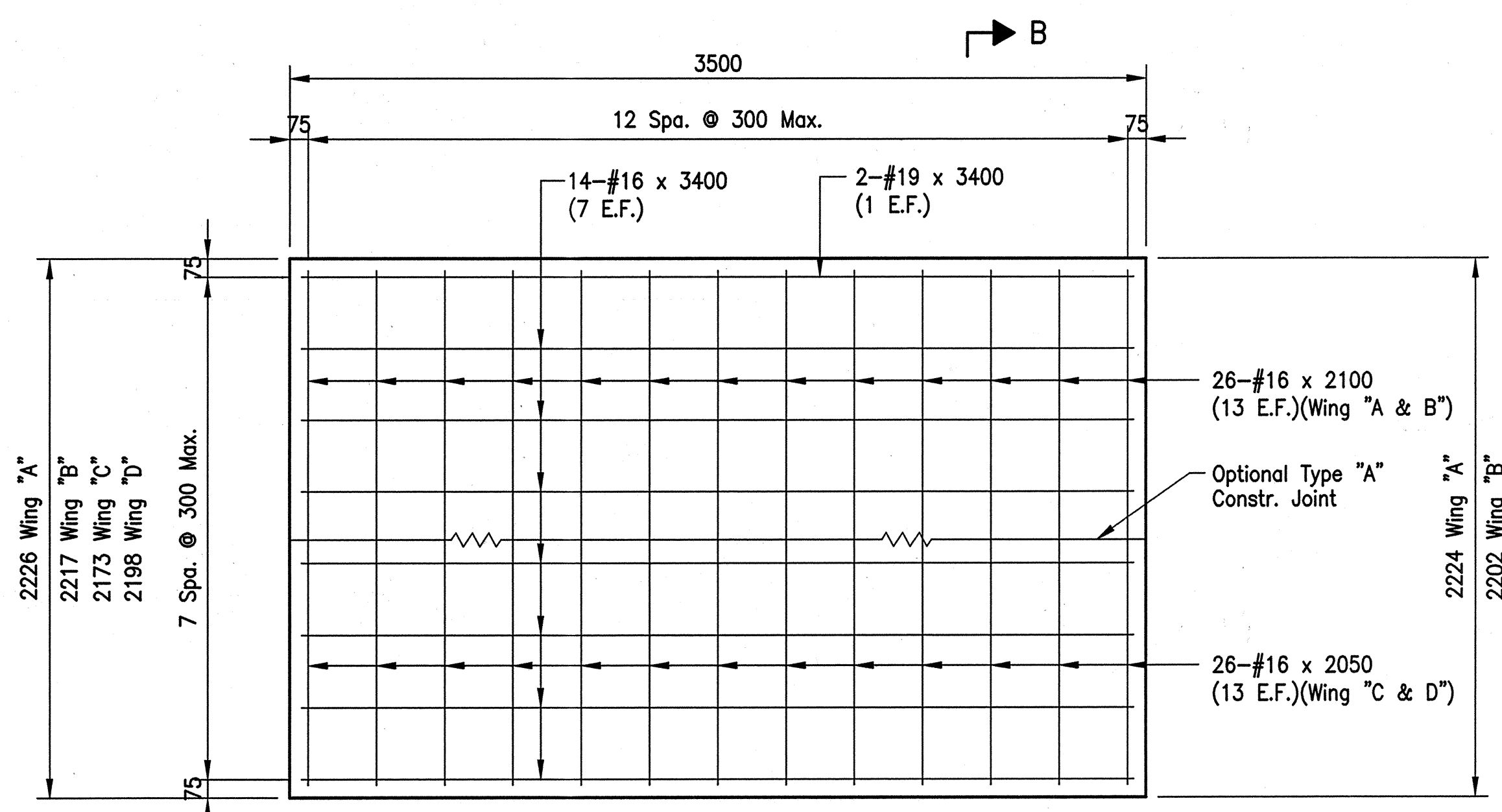
SECTION A-A  
SCALE: 1:20



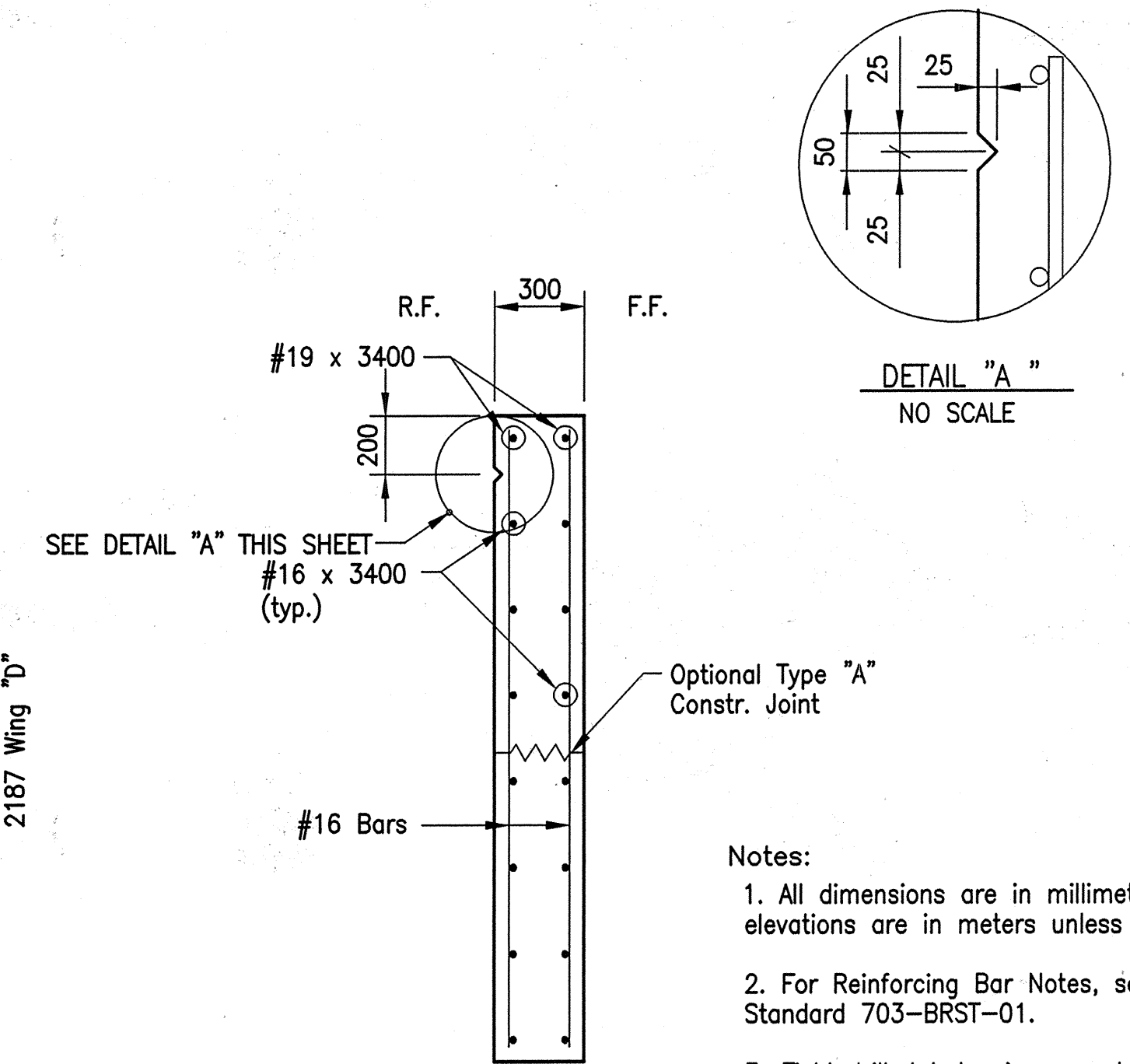
ANCHOR BOLT AB1 DETAIL



BAR BENDING DETAILS  
NO SCALE



TYPICAL WING DETAILS  
SCALE: 1:20



DETAIL "A"  
NO SCALE

SECTION B-B

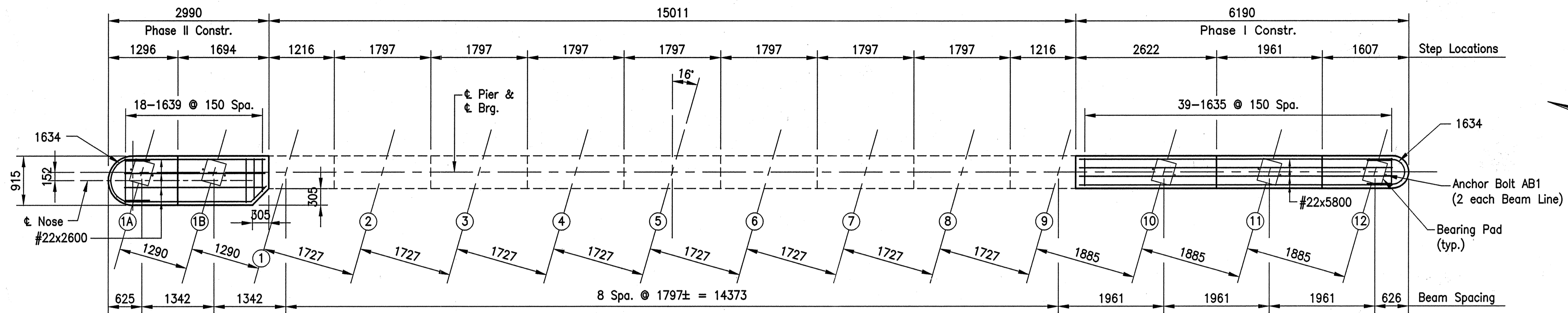
- Notes:
1. All dimensions are in millimeters, all elevations are in meters unless noted.
  2. For Reinforcing Bar Notes, see Bridge Standard 703-BRST-01.
  3. Field drilled holes in concrete shall extend to a depth required to embed a bar 150 with an approved anchor system having a minimum pullout equal to 82 kN for #16 bars & 161 kN for #22 bars.
  4. All Reinforcing Steel to be Epoxy Coated.

| END BENT NO.1-PHASE I<br>BILL OF MATERIALS     |                   |             |                    | END BENT NO.1-PHASE II<br>BILL OF MATERIALS    |                   |             |                    | END BENT NO.4-PHASE I<br>BILL OF MATERIALS    |                   |             |                    | END BENT NO.4-PHASE II<br>BILL OF MATERIALS   |                   |             |                    |
|--|-------------------|-------------|--------------------|--|-------------------|-------------|--------------------|---|-------------------|-------------|--------------------|---|-------------------|-------------|--------------------|
| EPOXY COATED REINFORCING STEEL                 |                   |             |                    | EPOXY COATED REINFORCING STEEL                 |                   |             |                    | EPOXY COATED REINFORCING STEEL                |                   |             |                    | EPOXY COATED REINFORCING STEEL                |                   |             |                    |
| Size or Mark                                   | No. of Bars       | Length (mm) | Mass (Kg.)         | Size or Mark                                   | No. of Bars       | Length (mm) | Mass (Kg.)         | Size or Mark                                  | No. of Bars       | Length (mm) | Mass (Kg.)         | Size or Mark                                  | No. of Bars       | Length (mm) | Mass (Kg.)         |
| #22  | 4                 | 1400        |                    | #22  | 4                 | 1400        | 17                 | #22   | 4                 | 1400        | 17                 | #22   | 4                 | 1400        | 17                 |
| #22  | 14                | 5725        |                    | #22  | 14                | 2525        |                    | #22   | 14                | 5725        |                    | #22   | 14                | 2525        |                    |
| TOTAL #22 BARS                                 |                   |             | 261                | TOTAL #22 BARS                                 |                   |             | 125                | TOTAL #22 BARS                                |                   |             | 261                | TOTAL #22 BARS                                |                   |             | 125                |
| #19  | 2                 | 3400        | 15                 | #19  | 2                 | 3400        | 15                 | #19   | 2                 | 3400        | 15                 | #19   | 2                 | 3400        | 15                 |
| 1621   | 19                | 2460        |                    | 1621   | 8                 | 2460        |                    | 1621  | 19                | 2460        |                    | 1621  | 8                 | 2460        |                    |
| 1622   | 22                | 1260        |                    | 1622   | 10                | 1260        |                    | 1622  | 22                | 1260        |                    | 1622  | 10                | 1260        |                    |
| 1623   | 37                | 550         |                    | 1623   | 18                | 550         |                    | 1623  | 38                | 550         |                    | 1623  | 17                | 550         |                    |
| 1624   | 22                | 1560        |                    | 1624   | 10                | 1560        |                    | 1624  | 22                | 1560        |                    | 1624  | 10                | 1560        |                    |
| 1625   | 5                 | 2730        |                    | 1625   | 5                 | 2730        |                    | 1625  | 5                 | 2730        |                    | 1625  | 5                 | 2730        |                    |
| 1626   | 12                | 1050        |                    | 1626   | 12                | 1050        |                    | 1626  | 12                | 1050        |                    | 1626  | 12                | 1050        |                    |
| #16  | 12                | 5725        |                    | #16  | 14                | 3400        |                    | #16   | 12                | 5725        |                    | #16   | 14                | 3400        |                    |
| #16  | 14                | 3400        |                    | #16  | 12                | 2525        |                    | #16   | 14                | 3400        |                    | #16   | 12                | 2525        |                    |
| #16  | 26                | 2100        |                    | #16  | 26                | 2100        |                    | #16   | 26                | 2050        |                    | #16   | 26                | 2050        |                    |
| #16  | 3                 | 900         |                    | #16  | 3                 | 900         |                    | #16   | 3                 | 900         |                    | #16   | 3                 | 900         |                    |
| TOTAL #16 BARS                                 |                   |             | 511                | TOTAL #16 BARS                                 |                   |             | 340                | TOTAL #16 BARS                                |                   |             | 509                | TOTAL #16 BARS                                |                   |             | 338                |
| 1321   | 19                | 3600        |                    | 1321   | 9                 | 3600        |                    | 1321  | 20                | 3600        |                    | 1321  | 9                 | 3600        |                    |
| 1322   | 19                | 1285        |                    | 1322   | 9                 | 1285        |                    | 1322  | 20                | 1285        |                    | 1322  | 9                 | 1285        |                    |
| #13  | 37                | 900         |                    | #13  | 18                | 900         |                    | #13   | 37                | 900         |                    | #13   | 18                | 900         |                    |
| TOTAL #13 BARS                                 |                   |             | 125                | TOTAL #13 BARS                                 |                   |             | 60                 | TOTAL #13 BARS                                |                   |             | 130                | TOTAL #13 BARS                                |                   |             | 60                 |
| TOTAL E.C. REINFORCING STEEL                   |                   |             | 912                | TOTAL E.C. REINFORCING STEEL                   |                   |             | 540                | TOTAL E.C. REINFORCING STEEL                  |                   |             | 915                | TOTAL E.C. REINFORCING STEEL                  |                   |             | 538                |
| CONCRETE CLASS "A" IN SUBSTRUCTURE             |                   |             | 8.1 m <sup>3</sup> | CONCRETE CLASS "A" IN SUBSTRUCTURE             |                   |             | 5.0 m <sup>3</sup> | CONCRETE CLASS "A" IN SUBSTRUCTURE            |                   |             | 8.1 m <sup>3</sup> | CONCRETE CLASS "A" IN SUBSTRUCTURE            |                   |             | 5.0 m <sup>3</sup> |
| CONCRETE CLASS "C" IN SUPERSTRUCTURE           |                   |             | 1.8 m <sup>3</sup> | CONCRETE CLASS "C" IN SUPERSTRUCTURE           |                   |             | 0.9 m <sup>3</sup> | CONCRETE CLASS "C" IN SUPERSTRUCTURE          |                   |             | 1.8 m <sup>3</sup> | CONCRETE CLASS "C" IN SUPERSTRUCTURE          |                   |             | 0.9 m <sup>3</sup> |
| MISCELLANEOUS                                  |                   |             |                    | MISCELLANEOUS                                  |                   |             |                    | MISCELLANEOUS                                 |                   |             |                    | MISCELLANEOUS                                 |                   |             |                    |
| Surface Seal                                   | 19 m <sup>2</sup> |             |                    | Surface Seal                                   | 13 m <sup>2</sup> |             |                    | Surface Seal                                  | 19 m <sup>2</sup> |             |                    | Surface Seal                                  | 13 m <sup>2</sup> |             |                    |
| Masonry Coating                                | 7 m <sup>2</sup>  |             |                    | Masonry Coating                                | 7 m <sup>2</sup>  |             |                    | Masonry Coating                               | 7 m <sup>2</sup>  |             |                    | Masonry Coating                               | 7 m <sup>2</sup>  |             |                    |
| Pipe, End Bent Drain, 150mm                    | 6 m               |             |                    | Pipe, End Bent Drain, 150mm                    | 3 m               |             |                    | Pipe, End Bent Drain, 150mm                   | 6 m               |             |                    | Pipe, End Bent Drain, 150mm                   | 3 m               |             |                    |
| Geotextiles                                    | 22 m <sup>2</sup> |             |                    | Geotextiles                                    | 11 m <sup>2</sup> |             |                    | Geotextiles                                   | 22 m <sup>2</sup> |             |                    | Geotextiles                                   | 11 m <sup>2</sup> |             |                    |
| Coarse Aggregate                               | 8 m <sup>3</sup>  |             |                    | Coarse Aggregate                               | 4 m <sup>3</sup>  |             |                    | Coarse Aggregate                              | 8 m <sup>3</sup>  |             |                    | Coarse Aggregate                              | 4 m <sup>3</sup>  |             |                    |
| 356 mm Steel Encased Concrete Piles 3 @ 11.0 m | 33 m              |             |                    | 356 mm Steel Encased Concrete Piles 2 @ 11.0 m | 22 m              |             |                    | 356 mm Steel Encased Concrete Piles 3 @ 9.5 m | 28.5 m            |             |                    | 356 mm Steel Encased Concrete Piles 3 @ 9.5 m | 19 m              |             |                    |
| Field Drilled Holes in Concrete                | 7 Each            |             |                    | Field Drilled Holes in Concrete                | 7 Each            |             |                    | Field Drilled Holes in Concrete               | 7 Each            |             |                    | Field Drilled Holes in Concrete               | 7 Each            |             |                    |
| Anchor Bolt AB1                                | 6 Each            |             |                    | Anchor Bolt AB1                                | 4 Each            |             |                    | Anchor Bolt AB1                               | 6 Each            |             |                    | Anchor Bolt AB1                               | 4 Each            |             |                    |

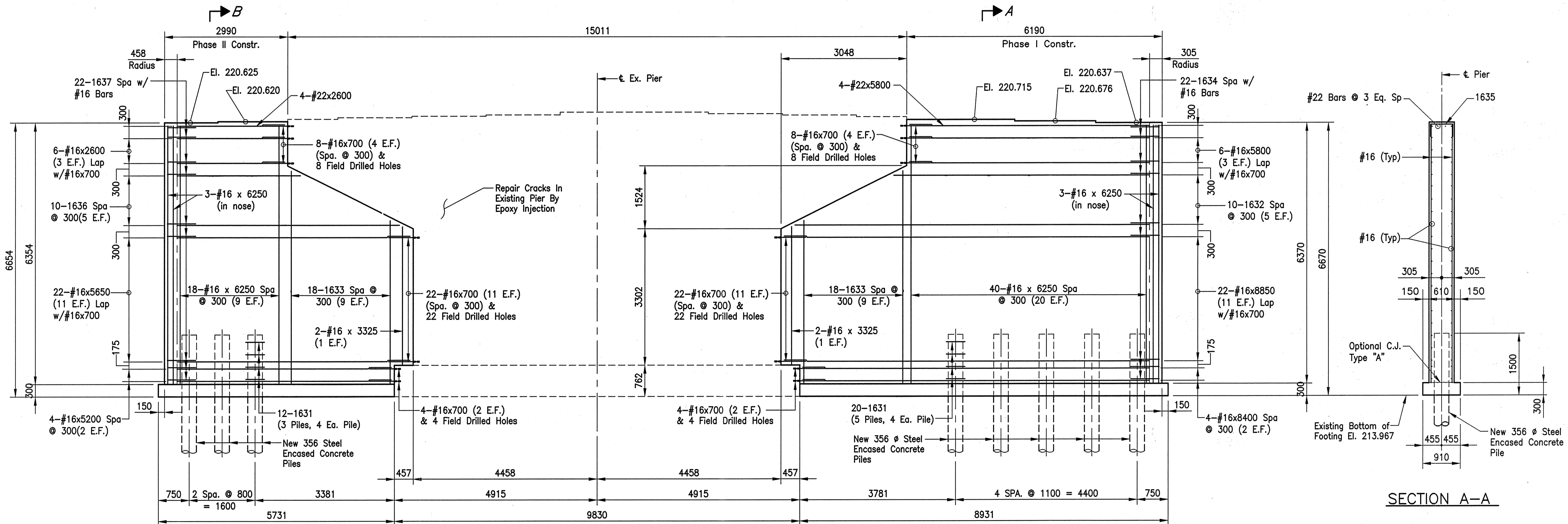
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|--|--|---|---|----------------|--|
| <br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-8686<br>FAX (317) 259-8282 | <br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4615<br>FAX 317 713-4616 | <br>Michael J. Haltzman<br>DESIGN ENGINEER DATE 9/28/01 | <b>INDIANA DEPARTMENT OF TRANSPORTATION</b> |                | HORIZONTAL SCALE<br>1 : 50<br>BRIDGE FILE<br>MARION B-17-09 FC |
|  |  |   | <b>END BENT DETAILS</b>                     |                | VERTICAL SCALE<br>1 : 50<br>DESIGNATION<br>9814689             |
|  |  |   | DESIGNED: CBS                               | DRAWN: DWB/REM | SURVEY BOOK  |
|  |  |   | CHECKED: LS                                 | CHECKED: JWR   | SHEETS<br>8 of 20  |
|  |  |   |   |                | CONTRACT<br>R-24327  |
|  |  |   |   |                | PROJECT<br>IM-65-3 (281) 118                                   |





PIER NO. 2 PLAN



PIER NO. 2 ELEVATION

Notes:  
 All dimensions are in millimeters, all elevations are in meters unless noted.  
 For Reinforcing Bar Notes, see Bridge Standard 703-BRST-01.  
 Field drilled holes in concrete shall extend to a depth required to embed a bar 150 with an approved anchor system having a minimum pullout equal to 82kN for #16 bars.  
 For Section B-B, refer to sheet 11.

Title: 151145  
 Date: 10/2/2001  
 Scale: 1:50  
 Drawing File: F:\Drawings\MS\1709FC\AS\_BUILT\PIER2.dwg (Down)

**JSE**  
 JANSSEN & SPAANS ENGINEERING  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS: (317) 254-9686  
 FAX: (317) 259-8262

**B&S**  
 Butler Fairman Seufert  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300  
 INDIANAPOLIS, IN. 46240  
 BUS: (317) 713-4615  
 FAX: 317 713-4616

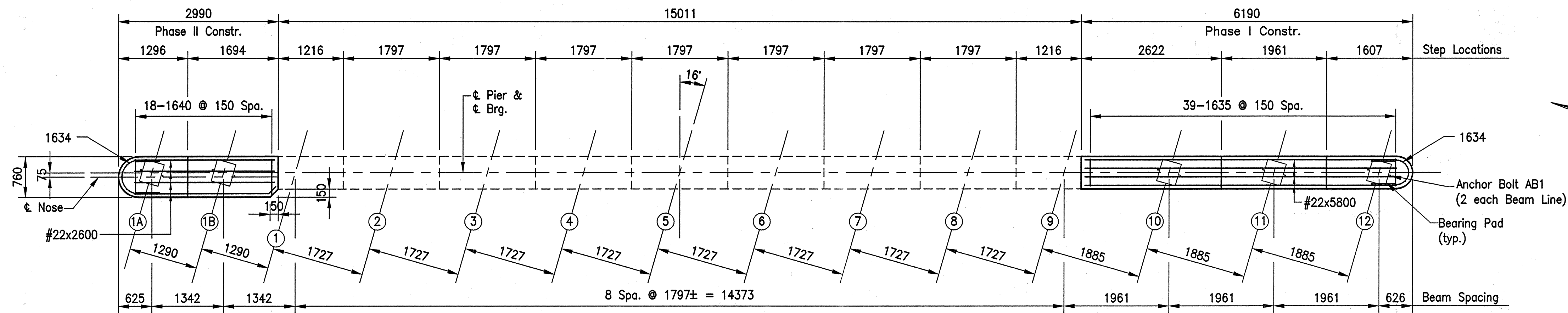
509 WEST BATH DRIVE, SUITE G  
 MERRILLVILLE, IN. 46410  
 219 769-2333  
 FAX 219 769-2377

MICHAEL J. HALTERMAN  
 REGISTERED  
 No. 20931  
 STATE OF INDIANA  
 PROFESSIONAL ENGINEER

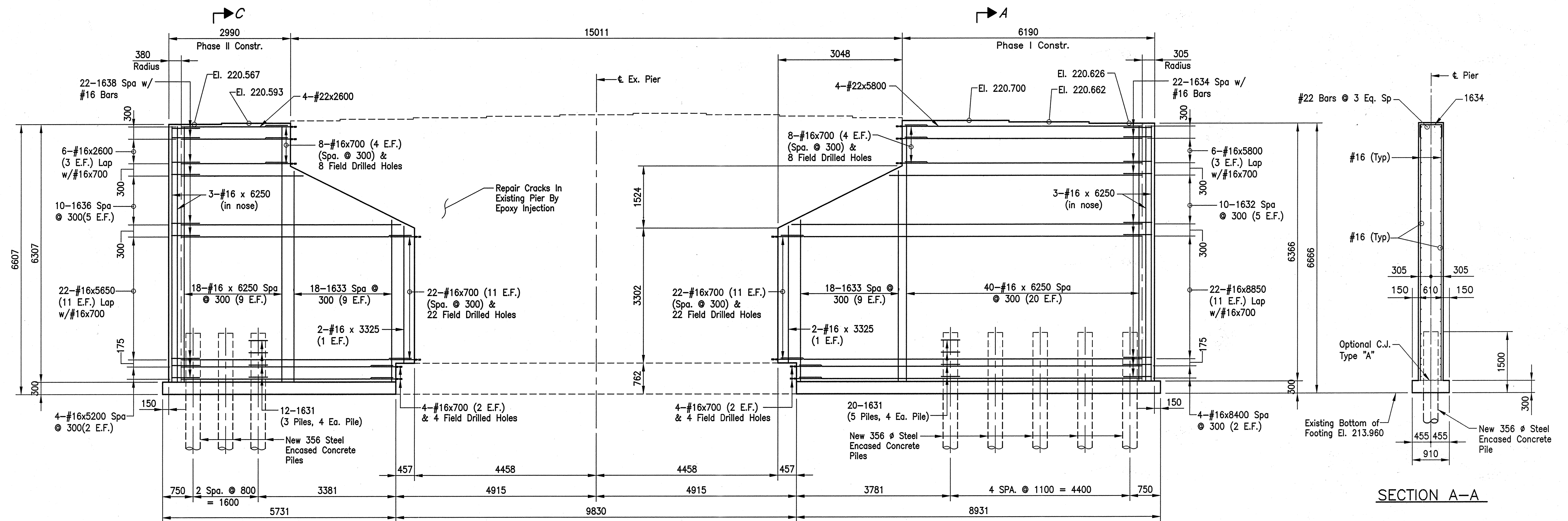
RECOMMENDED FOR APPROVAL  
 Michael J. Halterman 9/28/01  
 DESIGN ENGINEER DATE  
 DESIGNED: CBS DRAWN: DWB  
 CHECKED: LS CHECKED: JWR

INDIANA  
 DEPARTMENT OF TRANSPORTATION  
 PIER DETAILS

|                            |                                  |
|----------------------------|----------------------------------|
| HORIZONTAL SCALE<br>1 : 50 | BRIDGE FILE<br>MARION B-17-09 FC |
| VERTICAL SCALE<br>1 : 50   | DESIGNATION<br>9814689           |
| SURVEY BOOK                | SHEETS<br>9 of 20                |
| CONTRACT<br>R-24327        | PROJECT<br>IM-65-3 (281) 118     |



PIER NO. 3 PLAN



PIER NO. 3 ELEVATION

SECTION A-A

Notes:  
 All dimensions are in millimeters, all elevations are in meters unless noted.  
 For Reinforcing Bar Notes, see Bridge Standard 703-BRST-01.  
 Field drilled holes in concrete shall extend to a depth required to embed a bar 150 with an approved anchor system having a minimum pullout equal to 82kN for #16 bars.  
 For Section C-C, refer to sheet 11.

Time: 1:54:33  
 Scale: 1:50  
 Drawing File: F:\Drawings\Main\Co\MB1709FC\AS BUILT\PIER3.dwg (Down)

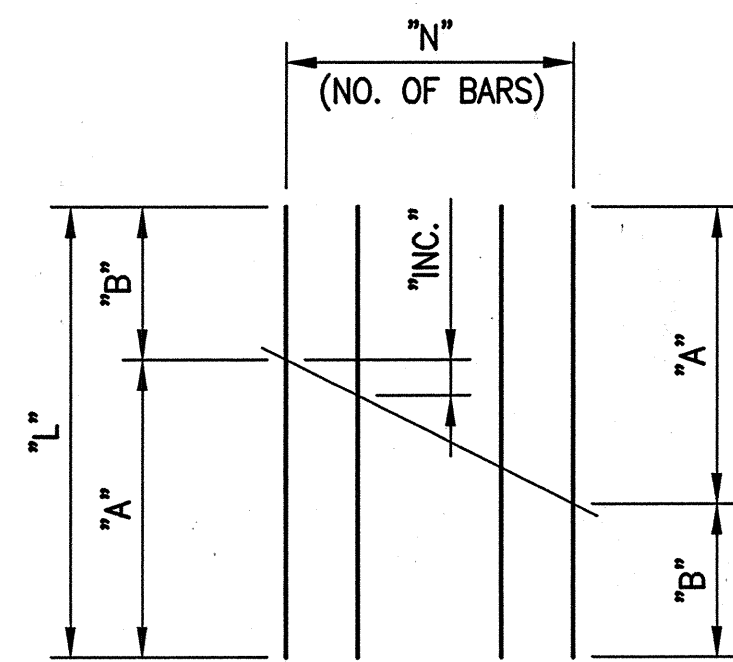
**JSE**  
 JANSSEN & SPAANS ENGINEERING  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS. (317) 254-9686  
 FAX (317) 259-6262

**B&S**  
 Butler Fairman Seufert  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300 509 WEST BATH DRIVE, SUITE 0  
 INDIANAPOLIS, IN. 46240 MERRILLVILLE, IN. 46410  
 317 713-4615 219 769-2333  
 317 713-4616 219 769-2377

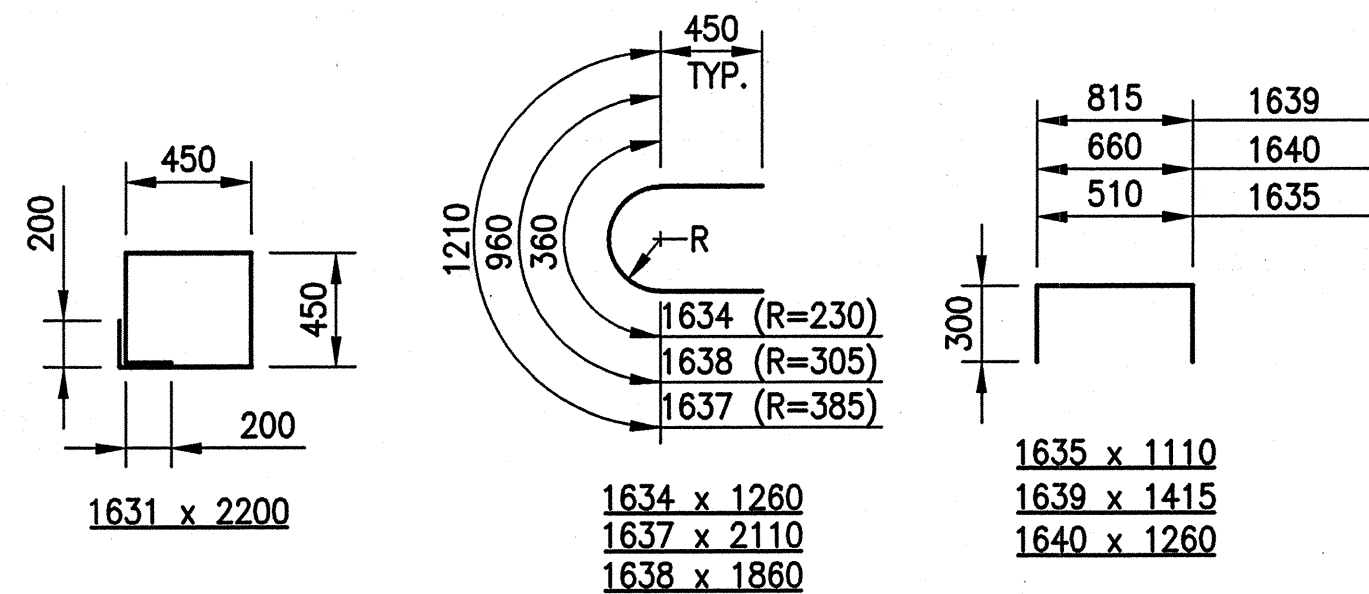
RECOMMENDED FOR APPROVAL: *Michael J. Halterman* 9/28/01  
 DESIGN ENGINEER DATE  
 DESIGNED: CBS DRAWN: DWB  
 CHECKED: LS CHECKED: JWR

INDIANA  
 DEPARTMENT OF TRANSPORTATION  
 PIER DETAILS

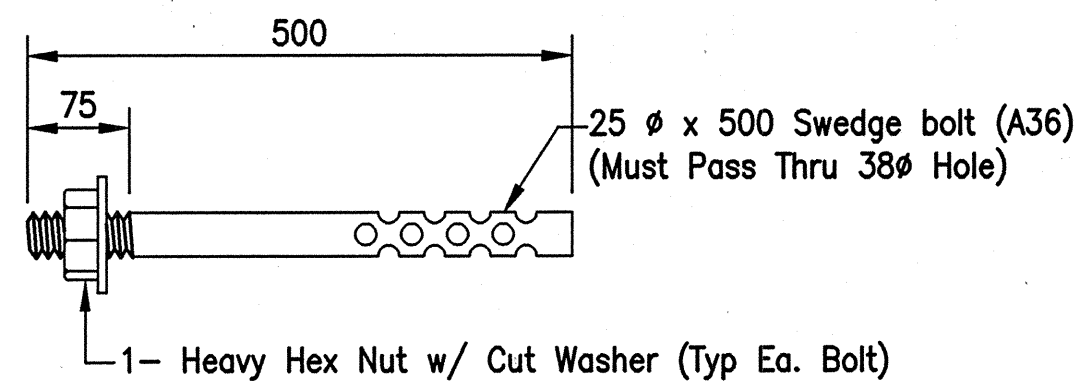
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| HORIZONTAL SCALE<br>1 : 50 | BRIDGE FILE<br>MARION B-17-09 FC |
| VERTICAL SCALE<br>1 : 50   | DESIGNATION<br>9814689           |
| SURVEY BOOK                | SHEETS<br>10 of 20               |
| CONTRACT<br>R-24327        | PROJECT<br>IM-65-3 (281) 118     |



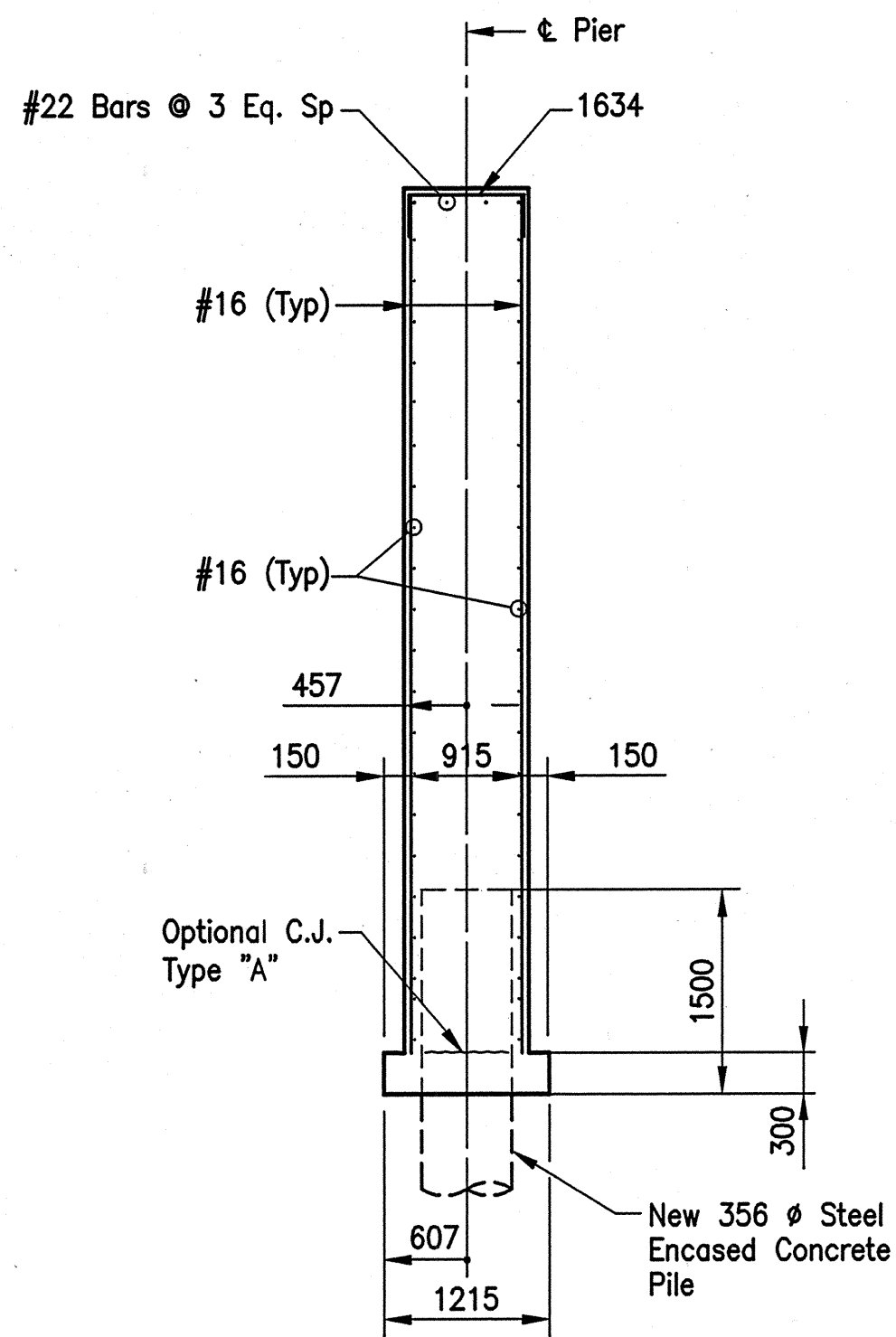
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| 1633 | 9100  | 5150 | 3950 | 150   | 9 |
| 1636 | 8400  | 5400 | 3000 | 600   | 5 |



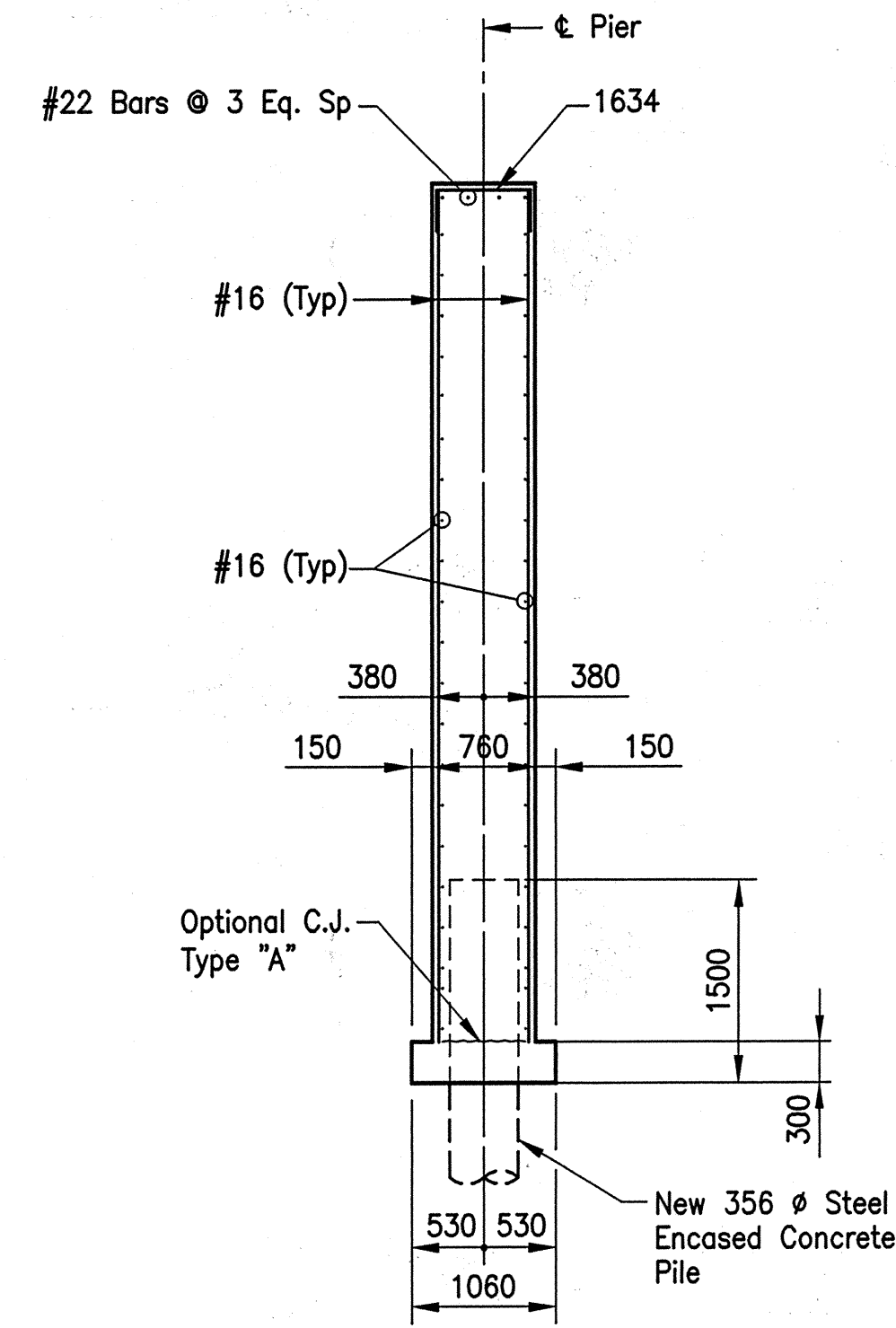
**BAR BENDING DETAILS**  
NO SCALE



**ANCHOR BOLT AB1 DETAIL**



**SECTION B-B**



**SECTION C-C**

Notes:  
All dimensions are in millimeters, all elevations are in meters unless noted.

For Reinforcing Bar Notes, see Bridge Standard 703-BRST-01.

Field drilled holes in concrete shall extend to a depth required to embed a bar 150 with an approved anchor system having a minimum pullout equal to 82kN for #16 bars.

For additional details, refer to sheets 9 & 10.

**PIER NO. 3-PHASE II  
BILL OF MATERIALS**

| REINFORCING STEEL       |             |             |            |
|-------------------------|-------------|-------------|------------|
| Size And Mark           | No. of Bars | Length (mm) | Mass (Kg.) |
| #22                     | 4           | 2600        | 32         |
| 1631                    | 12          | 2200        |            |
| 1633                    | 9           | 9100        |            |
| 1635                    | 18          | 1110        |            |
| 1636                    | 5           | 8400        |            |
| 1638                    | 22          | 1860        |            |
| 1640                    | 18          | 1260        |            |
| #16                     | 21          | 6250        |            |
| #16                     | 22          | 5650        |            |
| #16                     | 4           | 5200        |            |
| #16                     | 2           | 3325        |            |
| #16                     | 6           | 2600        |            |
| #16                     | 34          | 700         |            |
| TOTAL #16               |             |             | 863        |
| TOTAL REINFORCING STEEL |             |             | 895        |

**PIER NO. 3-PHASE I  
BILL OF MATERIALS**

| REINFORCING STEEL       |             |             |            |
|-------------------------|-------------|-------------|------------|
| Size And Mark           | No. of Bars | Length (mm) | Mass (Kg.) |
| #22                     | 4           | 5800        | 71         |
| 1631                    | 20          | 2200        |            |
| 1632                    | 5           | 14800       |            |
| 1633                    | 9           | 9100        |            |
| 1635                    | 22          | 1260        |            |
| 1636                    | 39          | 1110        |            |
| #16                     | 22          | 8850        |            |
| #16                     | 4           | 8400        |            |
| #16                     | 43          | 6250        |            |
| #16                     | 6           | 5800        |            |
| #16                     | 2           | 3325        |            |
| #16                     | 34          | 700         |            |
| TOTAL #16               |             |             | 1294       |
| TOTAL REINFORCING STEEL |             |             | 1365       |

**PIER NO. 2-PHASE II  
BILL OF MATERIALS**

| REINFORCING STEEL       |             |             |            |
|-------------------------|-------------|-------------|------------|
| Size And Mark           | No. of Bars | Length (mm) | Mass (Kg.) |
| #22                     | 4           | 2600        | 32         |
| 1631                    | 12          | 2200        |            |
| 1633                    | 9           | 9100        |            |
| 1635                    | 18          | 1110        |            |
| 1636                    | 5           | 8400        |            |
| 1637                    | 22          | 2110        |            |
| 1639                    | 18          | 1415        |            |
| #16                     | 21          | 6250        |            |
| #16                     | 22          | 5650        |            |
| #16                     | 4           | 5200        |            |
| #16                     | 2           | 3325        |            |
| #16                     | 6           | 2600        |            |
| #16                     | 34          | 700         |            |
| TOTAL #16               |             |             | 877        |
| TOTAL REINFORCING STEEL |             |             | 909        |

**PIER NO. 2-PHASE I  
BILL OF MATERIALS**

| REINFORCING STEEL       |             |             |            |
|-------------------------|-------------|-------------|------------|
| Size And Mark           | No. of Bars | Length (mm) | Mass (Kg.) |
| #22                     | 4           | 5800        | 71         |
| 1631                    | 20          | 2200        |            |
| 1632                    | 5           | 14800       |            |
| 1633                    | 9           | 9100        |            |
| 1634                    | 22          | 1260        |            |
| 1635                    | 39          | 1110        |            |
| #16                     | 22          | 8850        |            |
| #16                     | 4           | 8400        |            |
| #16                     | 43          | 6250        |            |
| #16                     | 6           | 5800        |            |
| #16                     | 2           | 3325        |            |
| #16                     | 34          | 700         |            |
| TOTAL #16               |             |             | 1294       |
| TOTAL REINFORCING STEEL |             |             | 1365       |

| CONCRETE                  |                      | CONCRETE                  |                      | CONCRETE                  |                      | CONCRETE                  |                      |
|---------------------------|----------------------|---------------------------|----------------------|---------------------------|----------------------|---------------------------|----------------------|
| Class "A" In Substructure | Class "A" In Footing | Class "A" In Substructure | Class "A" In Footing | Class "A" In Substructure | Class "A" In Footing | Class "A" In Substructure | Class "A" In Footing |
| 19.6m <sup>3</sup>        | 1.6m <sup>3</sup>    | 32.1m <sup>3</sup>        | 2.4m <sup>3</sup>    | 19.6m <sup>3</sup>        | 1.6m <sup>3</sup>    | 32.2m <sup>3</sup>        | 2.4m <sup>3</sup>    |
| Total Class "A"           |                      | Total Class "A"           |                      | Total Class "A"           |                      | Total Class "A"           |                      |
| 21.2m <sup>3</sup>        |                      | 34.5m <sup>3</sup>        |                      | 21.5m <sup>3</sup>        |                      | 34.5m <sup>3</sup>        |                      |

| MISCELLANEOUS                   |   | MISCELLANEOUS                   |   | MISCELLANEOUS                   |   | MISCELLANEOUS                   |   |
|---------------------------------|---|---------------------------------|---|---------------------------------|---|---------------------------------|---|
| Field Drilled Holes in Concrete | 3-Piles, Conc., Steel Encased (6.3mm Min. Thick) 356mm ø x 11.0 m | Field Drilled Holes in Concrete | 3-Piles, Conc., Steel Encased (6.3mm Min. Thick) 356mm ø x 11.0 m | Field Drilled Holes in Concrete | 3-Piles, Conc., Steel Encased (6.3mm Min. Thick) 356mm ø x 10.5 m | Field Drilled Holes in Concrete | 3-Piles, Conc., Steel Encased (6.3mm Min. Thick) 356mm ø x 10.5 m |
| 34 Each                         | 33.0 m  | 34 Each                         | 55.0 m  | 34 Each                         | 31.5 m  | 34 Each                         | 52.5 m  |
| Surface Seal 61 m <sup>2</sup>  |   | Surface Seal 98 m <sup>2</sup>  |   | Surface Seal 61 m <sup>2</sup>  |   | Surface Seal 98 m <sup>2</sup>  |   |
| Anchor Bolt AB1 4 Each          |   | Anchor Bolt AB1 6 Each          |   | Anchor Bolt AB1 4 Each          |   | Anchor Bolt AB1 6 Each          |   |

Title: 14541  
 Date: 10/2/2001  
 Scale: 1=50  
 Drawing File: F:\Drawings\Bridges\BRI709FC\AS\_BILT\PIERBILL.dwg (Down)

**JSE**  
**JANSSEN & SPAANS ENGINEERING**  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS: (317) 254-9686  
 FAX: (317) 259-8262

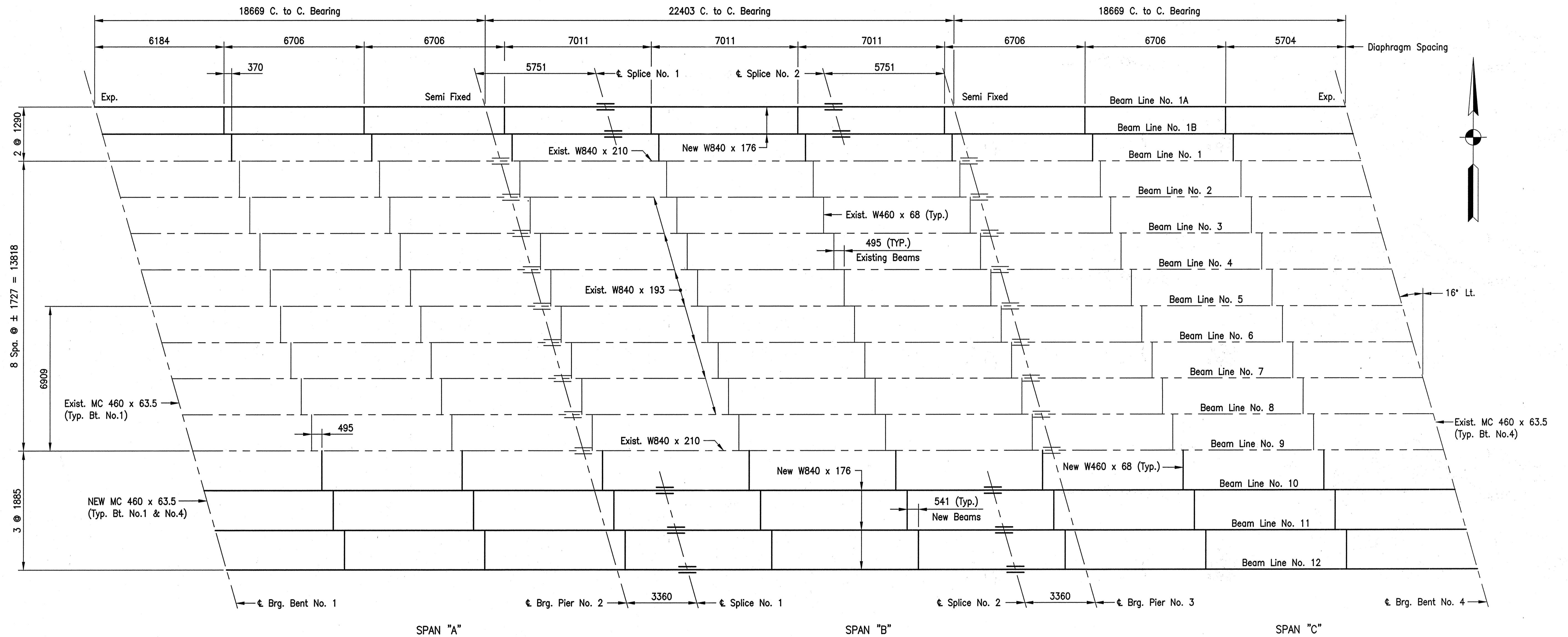
**B&S**  
**Butler Fairman Seufert**  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300  
 INDIANAPOLIS, IN. 46240  
 317 713-4615  
 FAX 317 713-4616

**MICHAEL J. HALTERMAN**  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 20931  
 STATE OF INDIANA

RECOMMENDED FOR APPROVAL  
*Michael J. Halterman* 9/28/01  
 DESIGN ENGINEER DATE  
 DESIGNED: CBS DRAWN: DWB  
 CHECKED: LS CHECKED: JWR

**INDIANA DEPARTMENT OF TRANSPORTATION**  
**PIER DETAILS**

|                            |                                  |
|----------------------------|----------------------------------|
| HORIZONTAL SCALE<br>1 : 50 | BRIDGE FILE<br>MARION B-17-09 FC |
| VERTICAL SCALE<br>1 : 50   | DESIGNATION<br>9814689           |
| SURVEY BOOK                | SHEETS<br>11 of 20               |
| CONTRACT<br>R-24327        | PROJECT<br>IM-65-3 (281) 118     |



**FRAMING PLAN**

ESTIMATED WIEGHT OF STRUCTURAL STEEL - 60671 kg

All Dimensions Are In Millimeters (mm), And All Elevations Are In Meters (m), Except As Noted.

File: 145429  
 Date: 10/26/2001  
 Scale: 1"=100'  
 Drawing File: F:\Drawings\Bridges\B1709FC\AS BUILT\FRAMING.dwg (Jdown)

**JSE**  
 JANSSEN & SPAANS ENGINEERING  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS: (317) 254-9686  
 FAX: (317) 259-8262

**B&S**  
 Butler Fairman Seufert  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300      509 WEST BATH DRIVE, SUITE G  
 INDIANAPOLIS, IN. 46240      MERRILLVILLE, IN. 46410  
 317 713-4615      219 789-2333  
 FAX 317 713-4616      FAX 219 789-2377

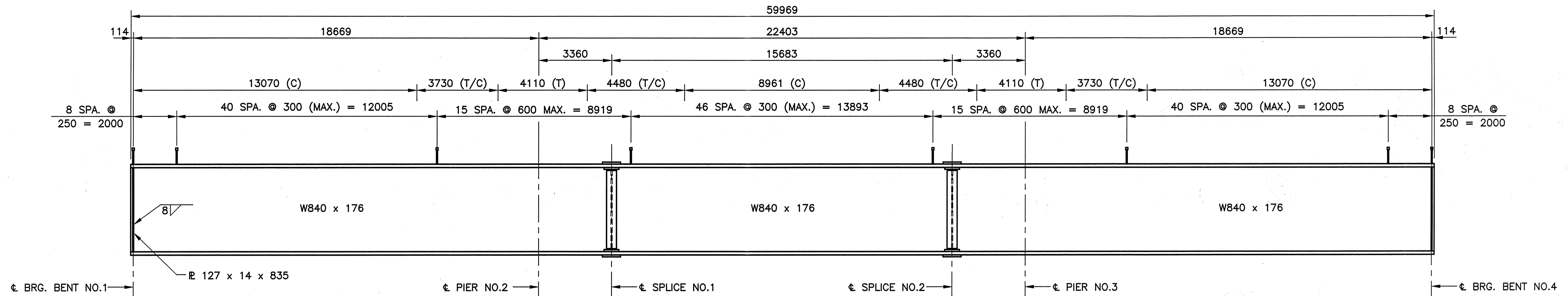
MICHAEL J. HALTERMAN  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 20931  
 STATE OF INDIANA

RECOMMENDED FOR APPROVAL: *Michael J. Halterman* 9/28/01  
 DESIGN ENGINEER      DATE

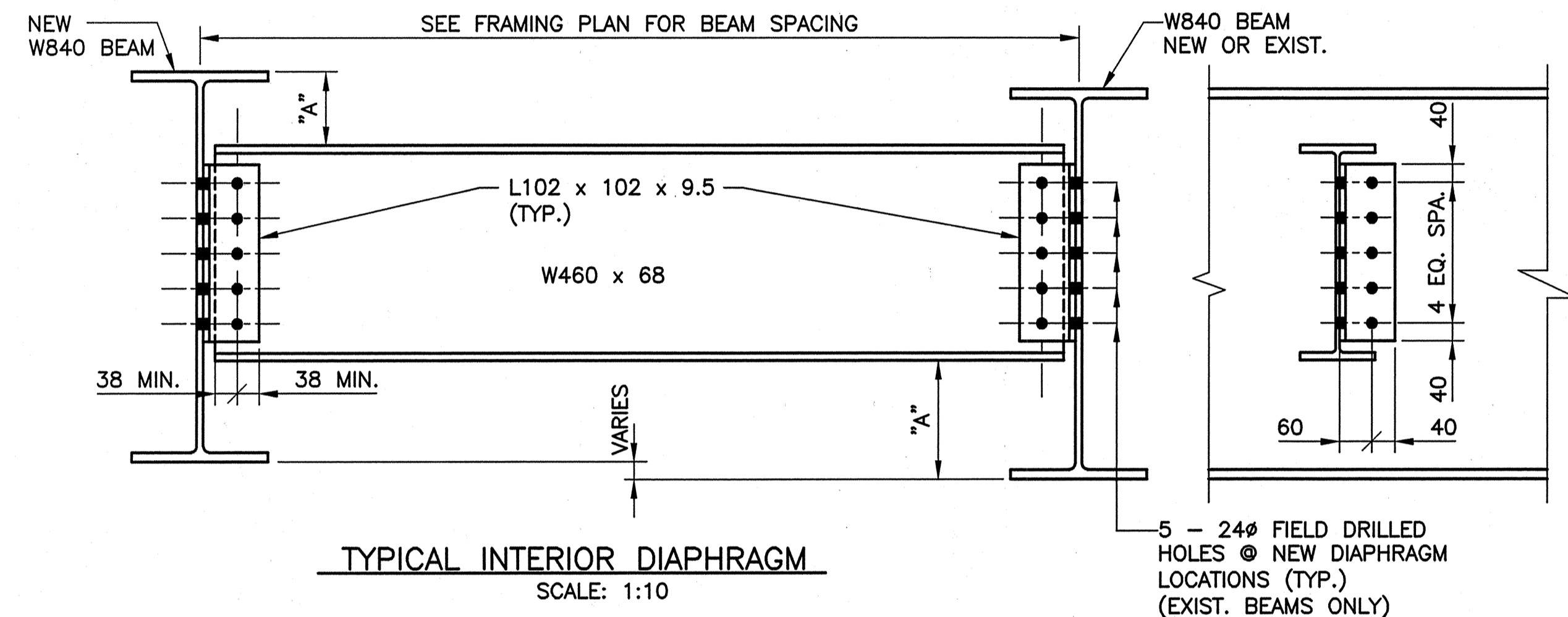
DESIGNED: CBS      DRAWN: TAL  
 CHECKED: LS      CHECKED: JWR

INDIANA DEPARTMENT OF TRANSPORTATION  
 FRAMING PLAN

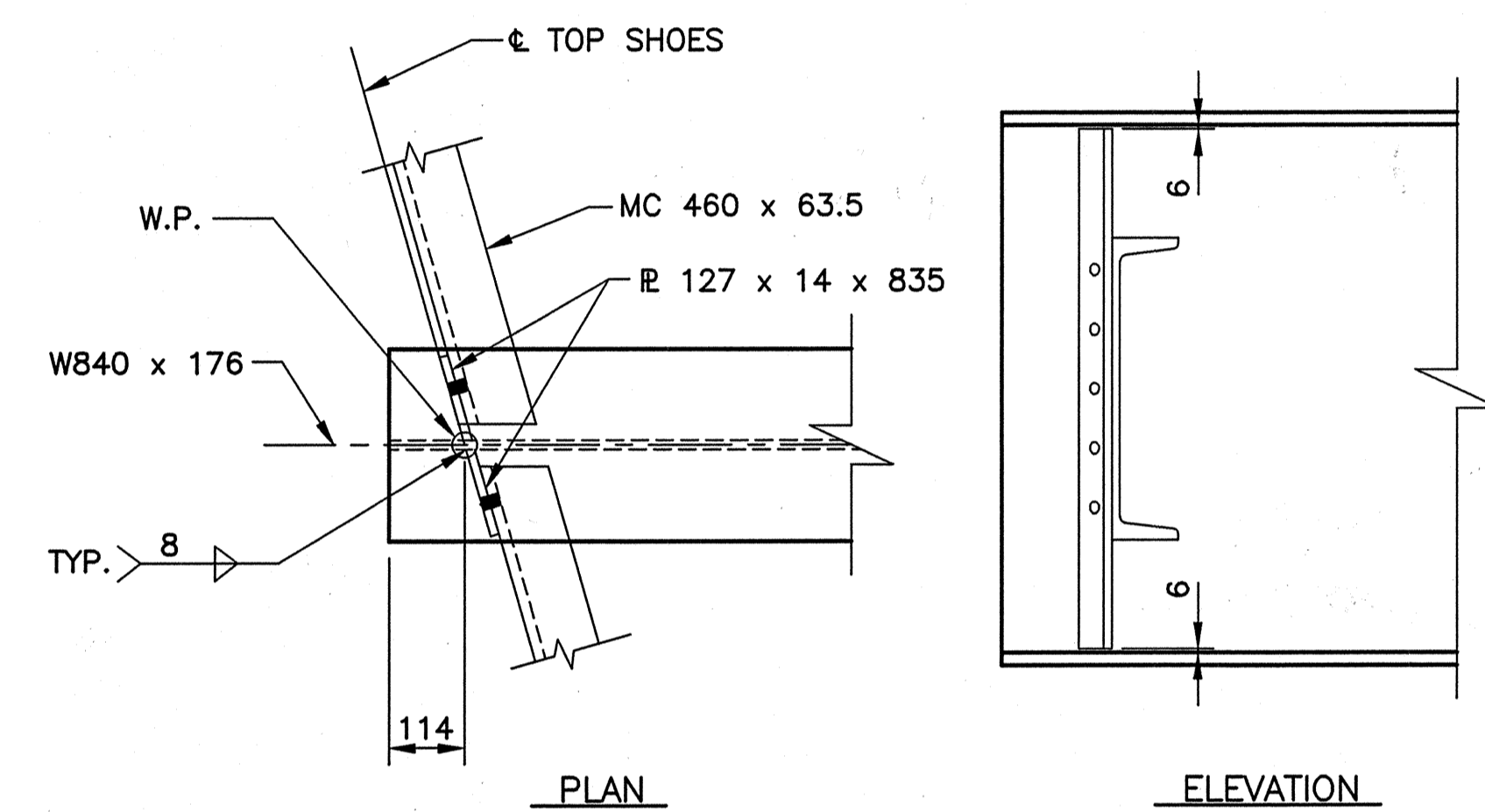
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|-----------------------------|----------------------------------|
| HORIZONTAL SCALE<br>1 : 100 | BRIDGE FILE<br>MARION B-17-09 FC |
| VERTICAL SCALE<br>1 : 100   | DESIGNATION<br>9814689           |
| SURVEY BOOK                 | SHEETS<br>12 of 20               |
| CONTRACT<br>R-24327         | PROJECT<br>IM-65-3 (281) 118     |



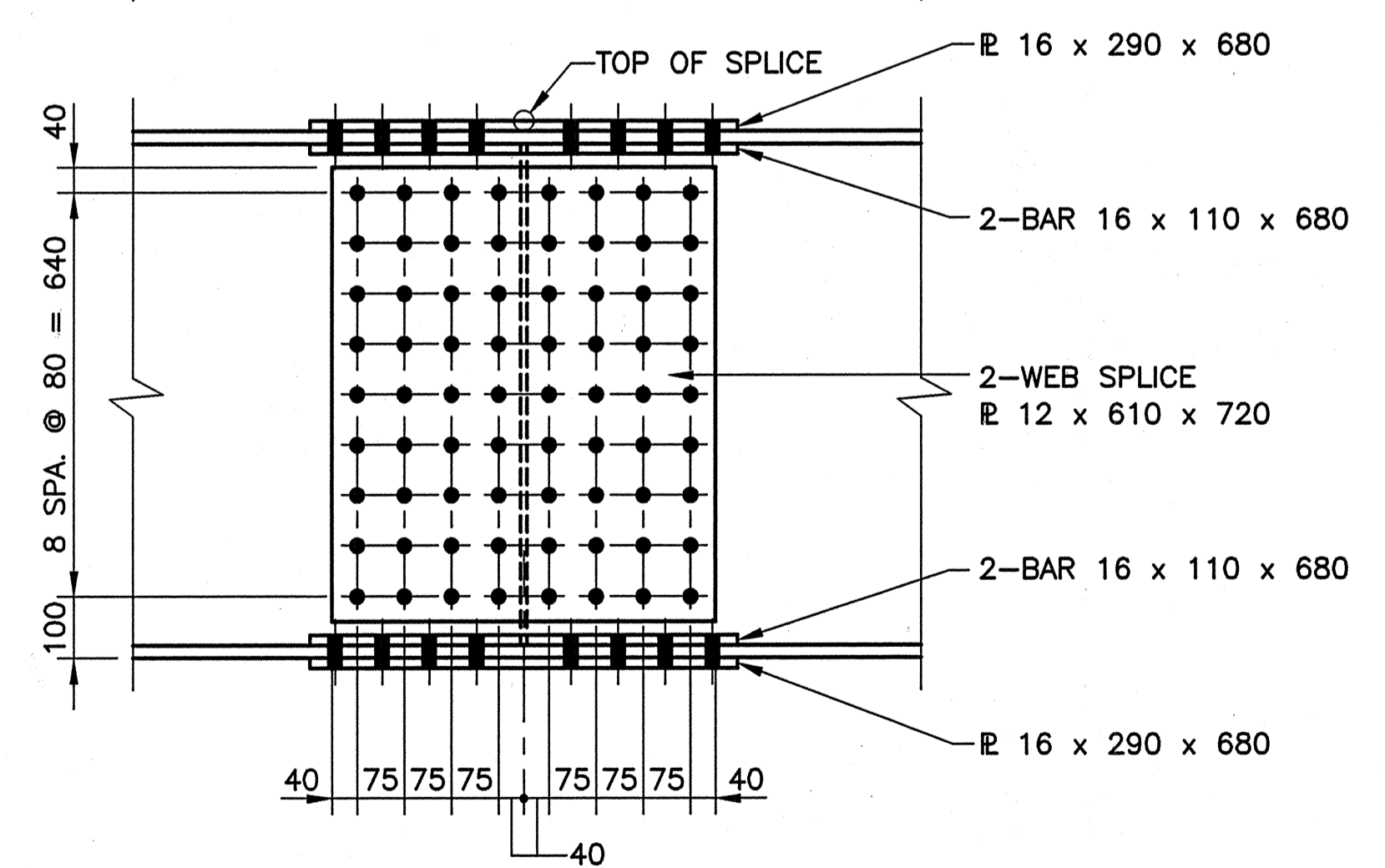
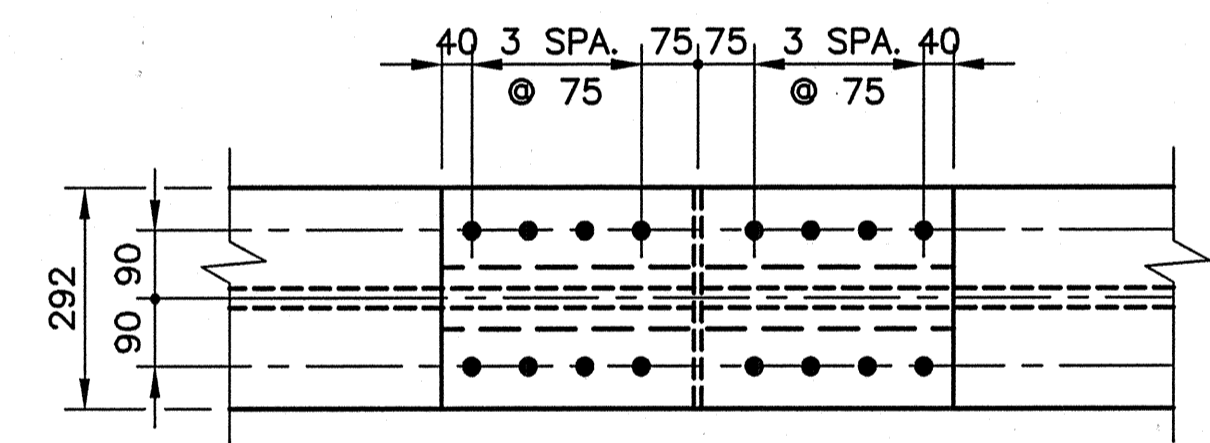
**NEW BEAM ELEVATION-PHASE I**  
(BEAMS NO. 10, 11, & 12)  
NO SCALE



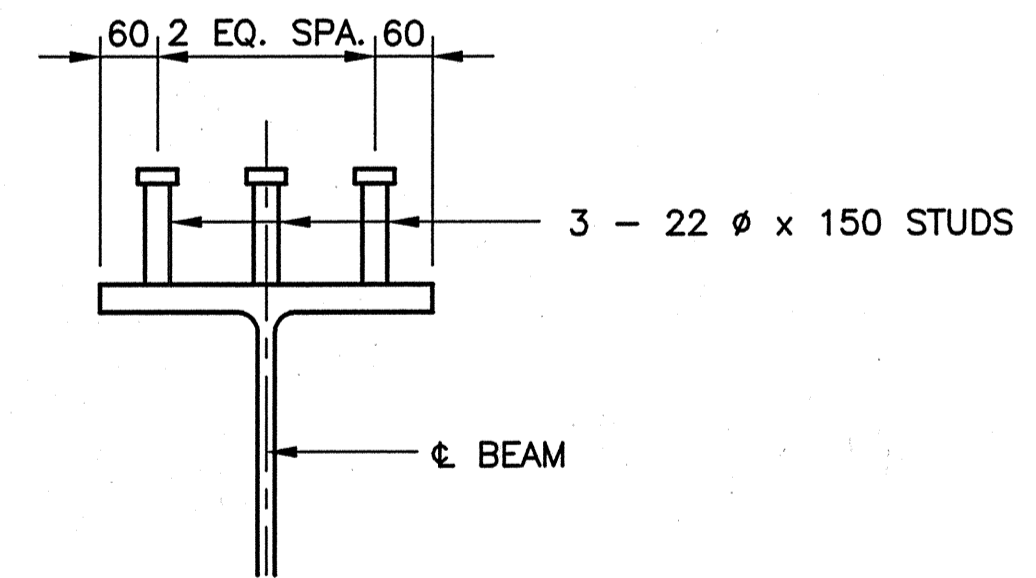
**TYPICAL INTERIOR DIAPHRAGM**  
SCALE: 1:10



**END BEAM DETAIL**  
SCALE: 1:10



**SPLICE NO.1 AND NO.2 DETAILS**  
SCALE: 1:10



**TYPICAL SHEAR STUD CONNECTOR DETAILS**  
NO SCALE

**NOTES:**  
STUDS SHALL BE AUTOMATICALLY WELDED TO THE BEAM BY THE USE OF A STUD WELDING GUN. THE WELDS SHALL BE OF SUFFICIENT STRENGTH TO PERMIT THE STUDS TO BE BENT 30°. THE CONTRACTOR MAY USE WELDED CHANNELS OR 19Ø WELDED STUDS AS ALTERNATE SHEAR CONNECTORS. IF USED, THE ALTERNATE CONNECTORS SHALL HAVE EQUIVALENT SHEAR VALUE AND THE PROPOSED SIZE AND SPACING SHALL BE SUBMITTED FOR APPROVAL.

**SCREED NOTES**

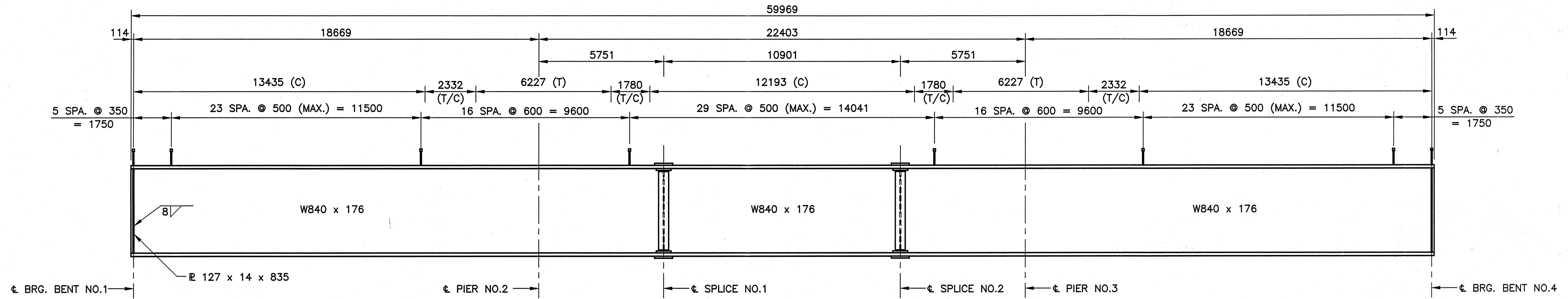
SCREED ELEVATIONS SHALL BE DETERMINED BY ADDING CONCRETE DEAD LOAD DEFLECTIONS TO THE FINAL CONCRETE ELEVATIONS AT ALL SCREED POINTS. TAKE ELEVATIONS AT SCREED POINTS ON TOP OF BEAMS ADJACENT TO SCREED POINTS. SUBSTRACT THESE ELEVATIONS FROM THE ELEVATIONS CORRECTED FOR DEFLECTION AND USE THE RESULTING DIMENSIONS AS THE HEIGHT FOR SETTING THE SCREED OR COPING FORM ABOVE THAT POINT. THIS DIMENSION REMAINS CONSTANT REGARDLESS OF HOW MUCH OR IN WHAT ORDER THE CONCRETE IS POURED. DO NOT SET SCREEDS BY LEVELING. NO CONCRETE IN THE FLOOR SLAB IS TO BE POURED UNTIL THE ABOVE OPERATIONS ARE COMPLETE.

SCREED ELEVATIONS WILL BE FURNISHED UPON REQUEST.

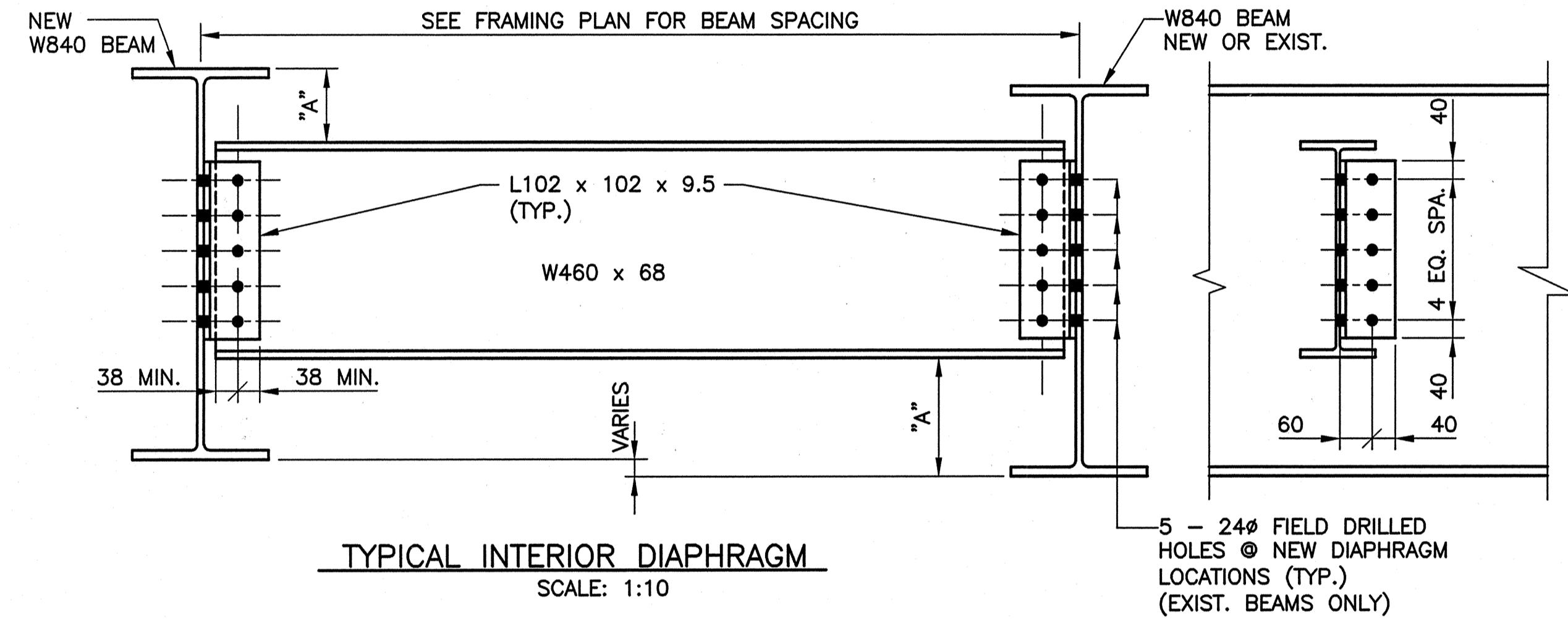
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND ALL ELEVATIONS ARE IN METERS (m), EXCEPT AS NOTED.
  2. ALL STRUCTURAL STEEL TO BE A709M GRADE 345, UNLESS NOTED.
  3. ALL BOLTS SHALL BE 22Ø A325M, TYPE 3 HIGH STRENGTH WITH OPEN HOLES OF 24Ø, UNLESS NOTED.
  4. FOR DIAPHRAGM LOCATIONS AND SPLICE LOCATIONS, SEE FRAMING PLAN SHEET NO 11.

Title: 212  
 Date: 10/2/2001  
 Scale: 1=100  
 Drawing File: F:\work\105\Marion\B-17\98\FC\AS\_BUILT\CAD\B-17.dwg (down)

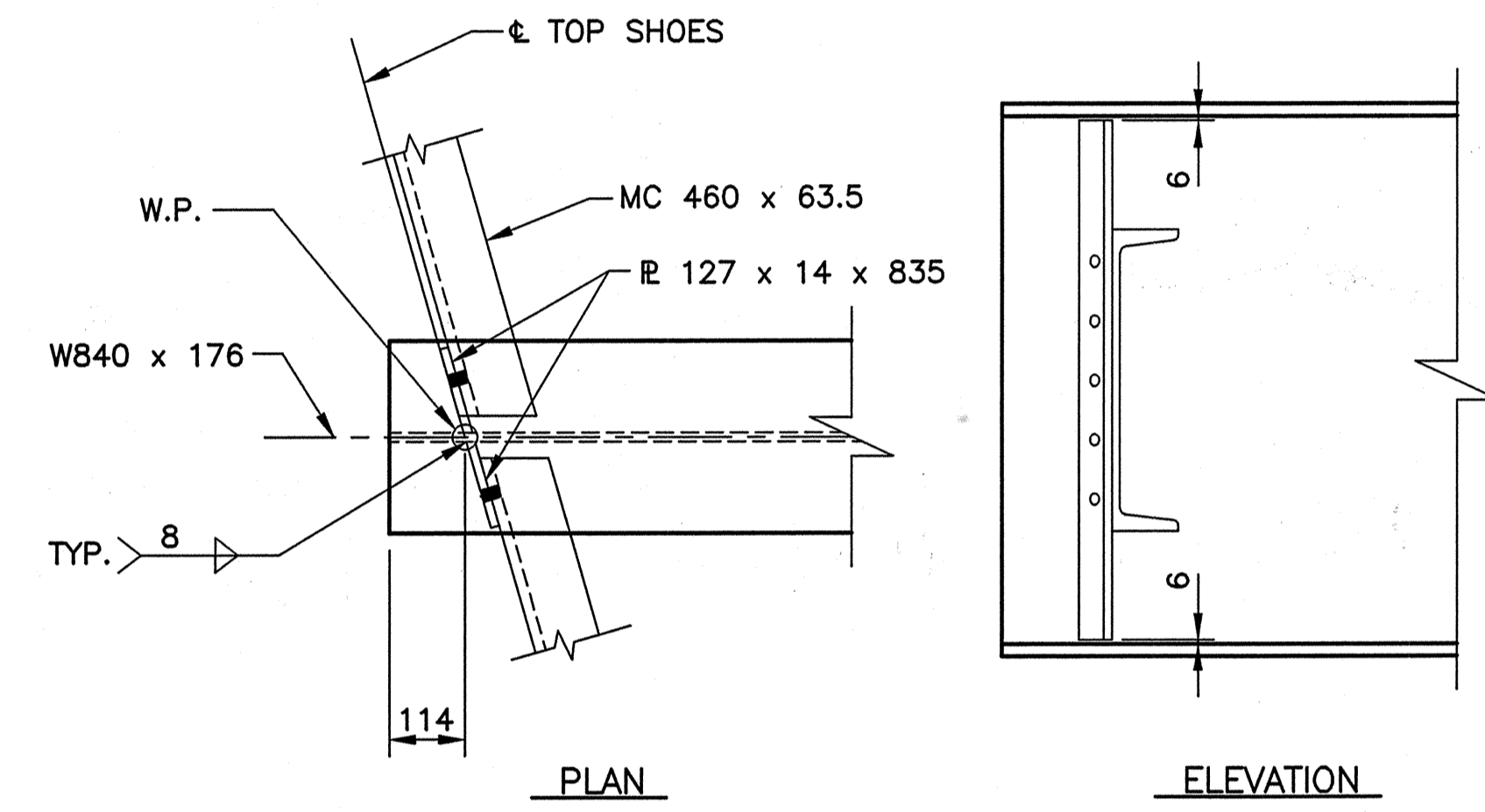
|  |  |   |                                 |                  |                   |
|--|--|---|---------------------------------|------------------|-------------------|
| <br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-9686<br>FAX (317) 259-8262 | <br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4615<br>FAX 317 713-4616 | <br>RECOMMENDED FOR APPROVAL<br><i>Michael J. Halterman</i> 9/28/01<br>DESIGN ENGINEER DATE | <b>STRUCTURAL STEEL DETAILS</b> | HORIZONTAL SCALE | BRIDGE FILE       |
|  |  |   |                                 | AS NOTED         | MARION B-17-09 FC |
| <br>DESIGNED: CBS<br>CHECKED: LS   | <br>DRAWN: TAL<br>CHECKED: JWR   | SURVEY BOOK   | VERTICAL SCALE                  | DESIGNATION      |                   |
|  |  |   | AS NOTED                        | 9814689          |                   |
|  |  | CONTRACT  | SHEETS                          |                  |                   |
|  |  | R-24327   | 13 of 20                        |                  |                   |
|  |  |   | PROJECT                         |                  |                   |
|  |  |   | IM-65-3 (281) 118               |                  |                   |



**NEW BEAM ELEVATION-PHASE II**  
(BEAMS NO. 1A AND 1B)  
NO SCALE

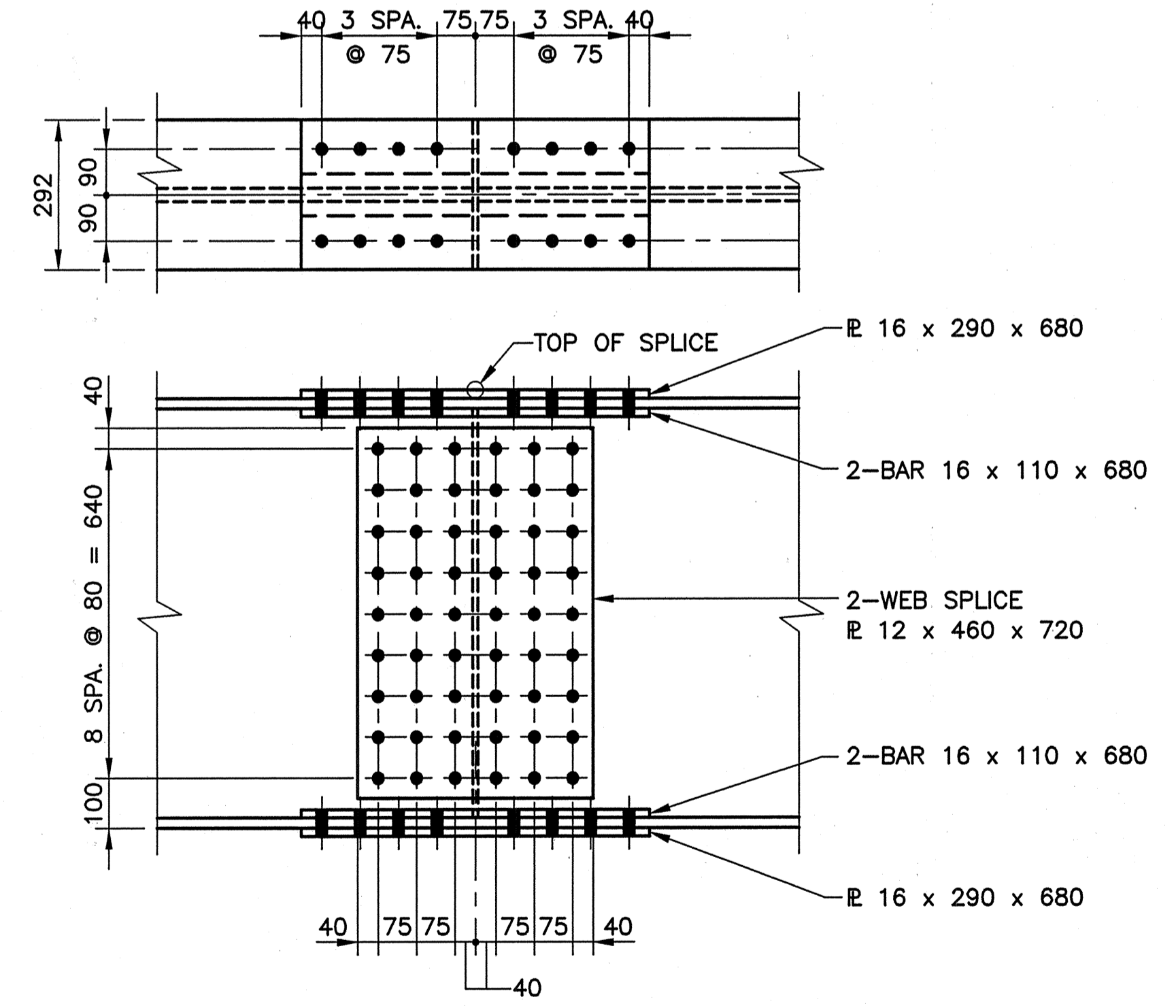


**TYPICAL INTERIOR DIAPHRAGM**  
SCALE: 1:10

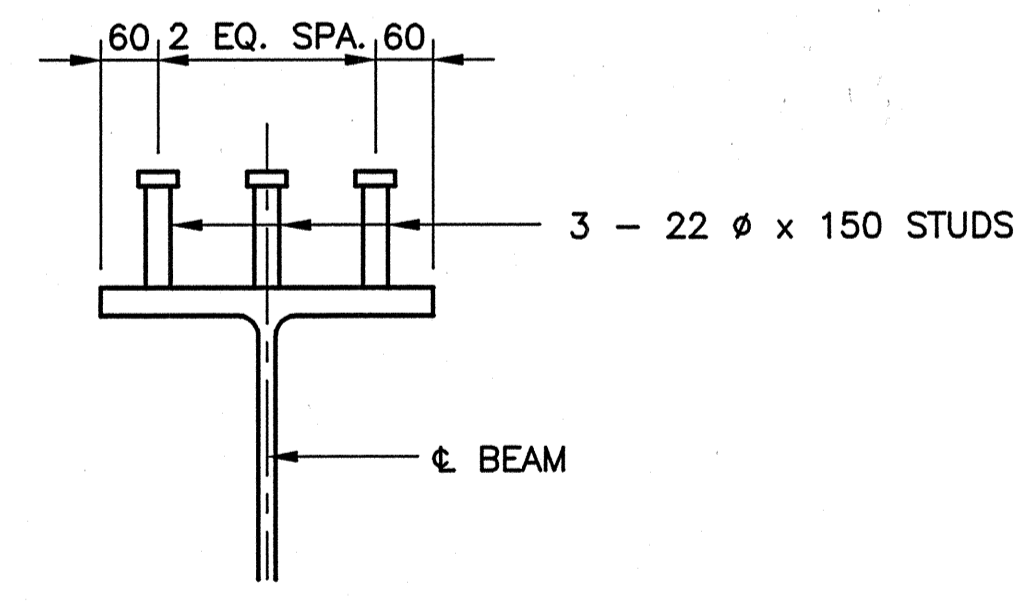


NOTE: PROPOSED BEAM SHOWN. AT EXISTING EXTERIOR BEAM  
INSTALL PLATE ON OUTSIDE WEB FOR NEW CONSTRUCTION.  
EXISTING END DIAPHRAGMS TO REMAIN AS IS EXCEPT AS NOTED.

**END BEAM DETAIL**  
SCALE: 1:10



**SPLICE NO.1 AND NO.2 DETAILS**  
SCALE: 1:10



**TYPICAL SHEAR STUD CONNECTOR DETAILS**  
NO SCALE

NOTES:  
STUDS SHALL BE AUTOMATICALLY WELDED TO THE BEAM BY THE USE OF A STUD WELDING GUN. THE WELDS SHALL BE OF SUFFICIENT STRENGTH TO PERMIT THE STUDS TO BE BENT 30°. THE CONTRACTOR MAY USE WELDED CHANNELS OR 19Ø WELDED STUDS AS ALTERNATE SHEAR CONNECTORS. IF USED, THE ALTERNATE CONNECTORS SHALL HAVE EQUIVALENT SHEAR VALUE AND THE PROPOSED SIZE AND SPACING SHALL BE SUBMITTED FOR APPROVAL.

**SCREED NOTES**

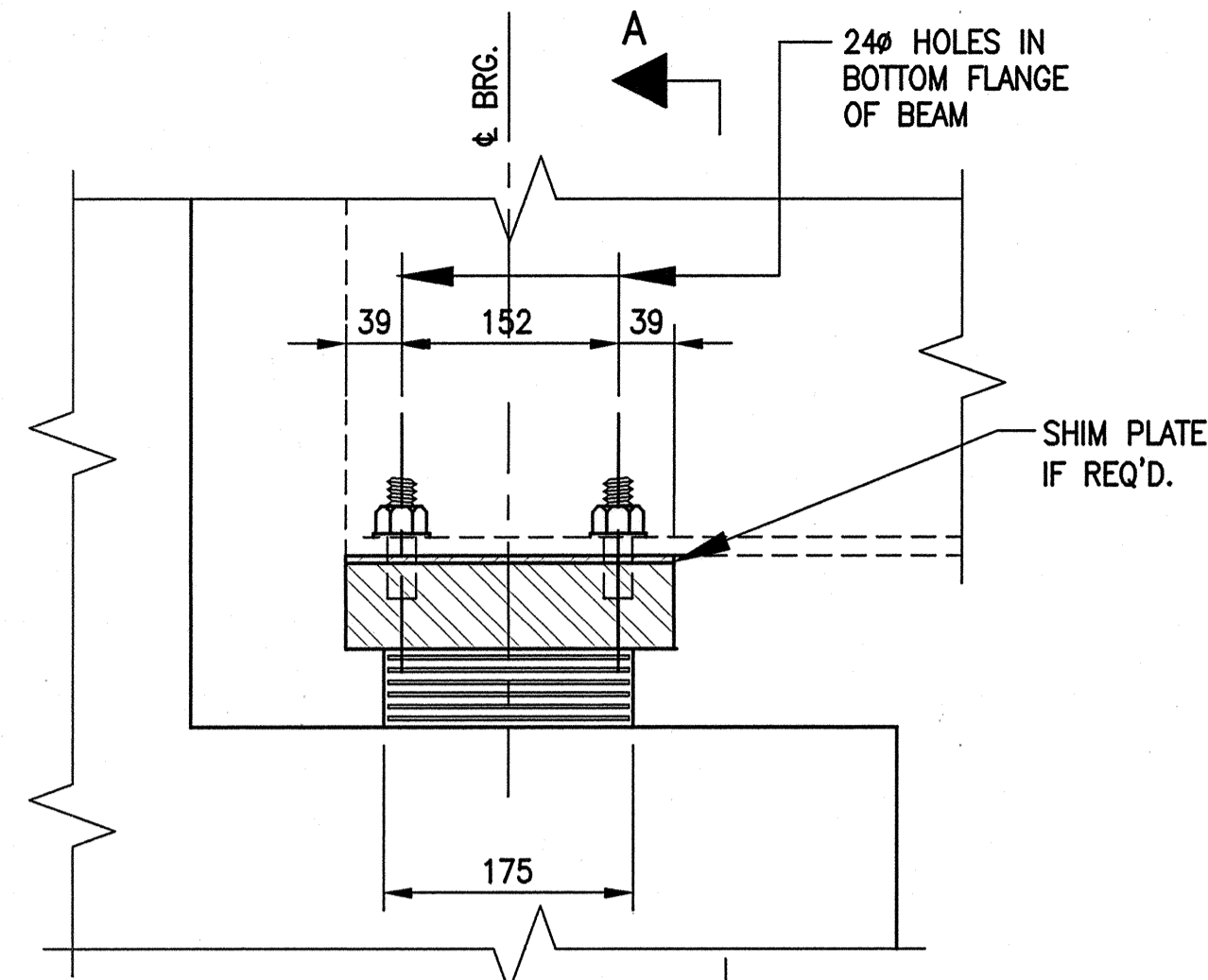
SCREED ELEVATIONS SHALL BE DETERMINED BY ADDING CONCRETE DEAD LOAD DEFLECTIONS TO THE FINAL CONCRETE ELEVATIONS AT ALL SCREED POINTS. TAKE ELEVATIONS AT SCREED POINTS ON TOP OF BEAMS ADJACENT TO SCREED POINTS. SUBSTRACT THESE ELEVATIONS FROM THE ELEVATIONS CORRECTED FOR DEFLECTION AND USE THE RESULTING DIMENSIONS AS THE HEIGHT FOR SETTING THE SCREED OR COPING FORM ABOVE THAT POINT. THIS DIMENSION REMAINS CONSTANT REGARDLESS OF HOW MUCH OR IN WHAT ORDER THE CONCRETE IS POURED. DO NOT SET SCREEDS BY LEVELING. NO CONCRETE IN THE FLOOR SLAB IS TO BE POURED UNTIL THE ABOVE OPERATIONS ARE COMPLETE.

SCREED ELEVATIONS WILL BE FURNISHED UPON REQUEST.

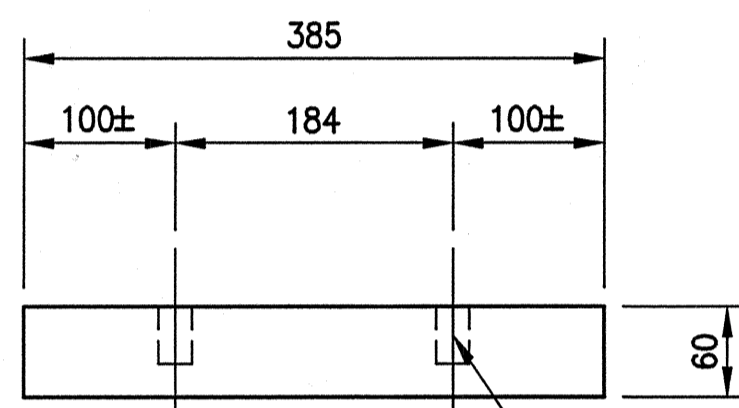
- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) AND ALL ELEVATIONS ARE IN METERS (m), EXCEPT AS NOTED.
  2. ALL STRUCTURAL STEEL TO BE A709M GRADE 345, UNLESS NOTED.
  3. ALL BOLTS SHALL BE 22Ø A325M, TYPE 3 HIGH STRENGTH WITH OPEN HOLES OF 24Ø, UNLESS NOTED.
  4. FOR DIAPHRAGM LOCATIONS AND SPLICE LOCATIONS, SEE FRAMING PLAN SHEET NO 11.

Date: 10/2/2001  
 Plot: 10/2/2001  
 Scale: 1=100  
 Drawing File: F:\Drawings\MB1709FCV\AS\_BUILT\GIBER2.dwg (C:\own)

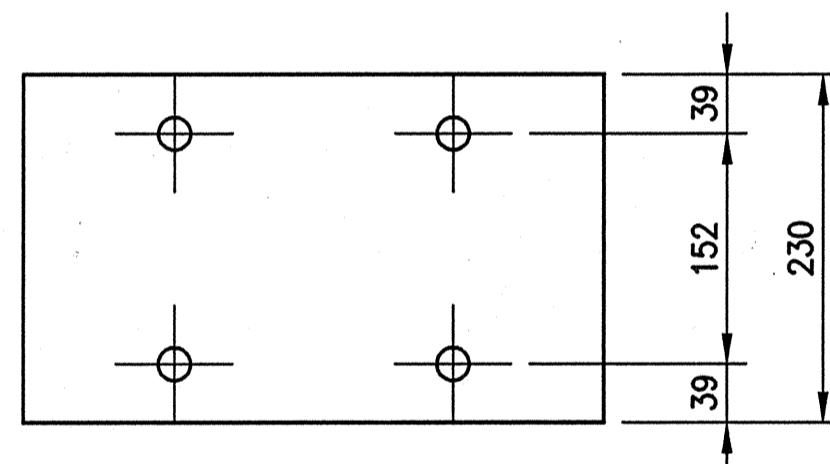
|   |   |  |  |   |  |
|---|---|--|--|---|--|
| <p><b>JSE</b><br/>JANSSEN &amp; SPANS ENGINEERING<br/>CONSULTING ENGINEERS<br/>9155 HARRISON PARK COURT<br/>INDIANAPOLIS, INDIANA 46216<br/>BUS: (317) 254-9686<br/>FAX: (317) 259-9262</p> | <p><b>B&amp;S</b><br/>Butler Fairman Seufert<br/>CONSULTING ENGINEERS<br/>8450 WESTFIELD BLVD., SUITE 300<br/>INDIANAPOLIS, IN. 46240<br/>317 713-4615<br/>FAX 317 713-4616</p> |  | RECOMMENDED FOR APPROVAL<br><br>DESIGN ENGINEER DATE 9/28/01 | <b>STRUCTURAL STEEL DETAILS</b>               | HORIZONTAL SCALE<br>AS NOTED<br>BRIDGE FILE<br>MARION B-17-09 FC |
|   |   |  | DESIGNED: CBS<br>CHECKED: LS                                 |   | DRAWN: TAL<br>CHECKED: JWR                                       |
|   |   |  |  | CONTRACT PROJECT<br>R-24327 IM-65-3 (281) 118 |  |



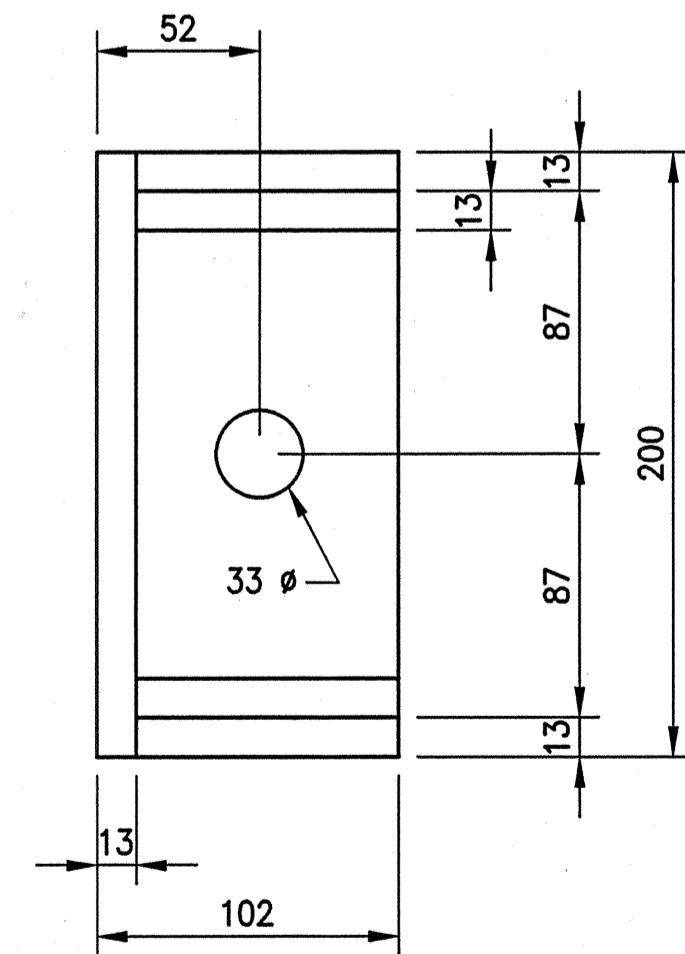
SECTION AT BENTS 1 & 4  
SCALE: 1:5



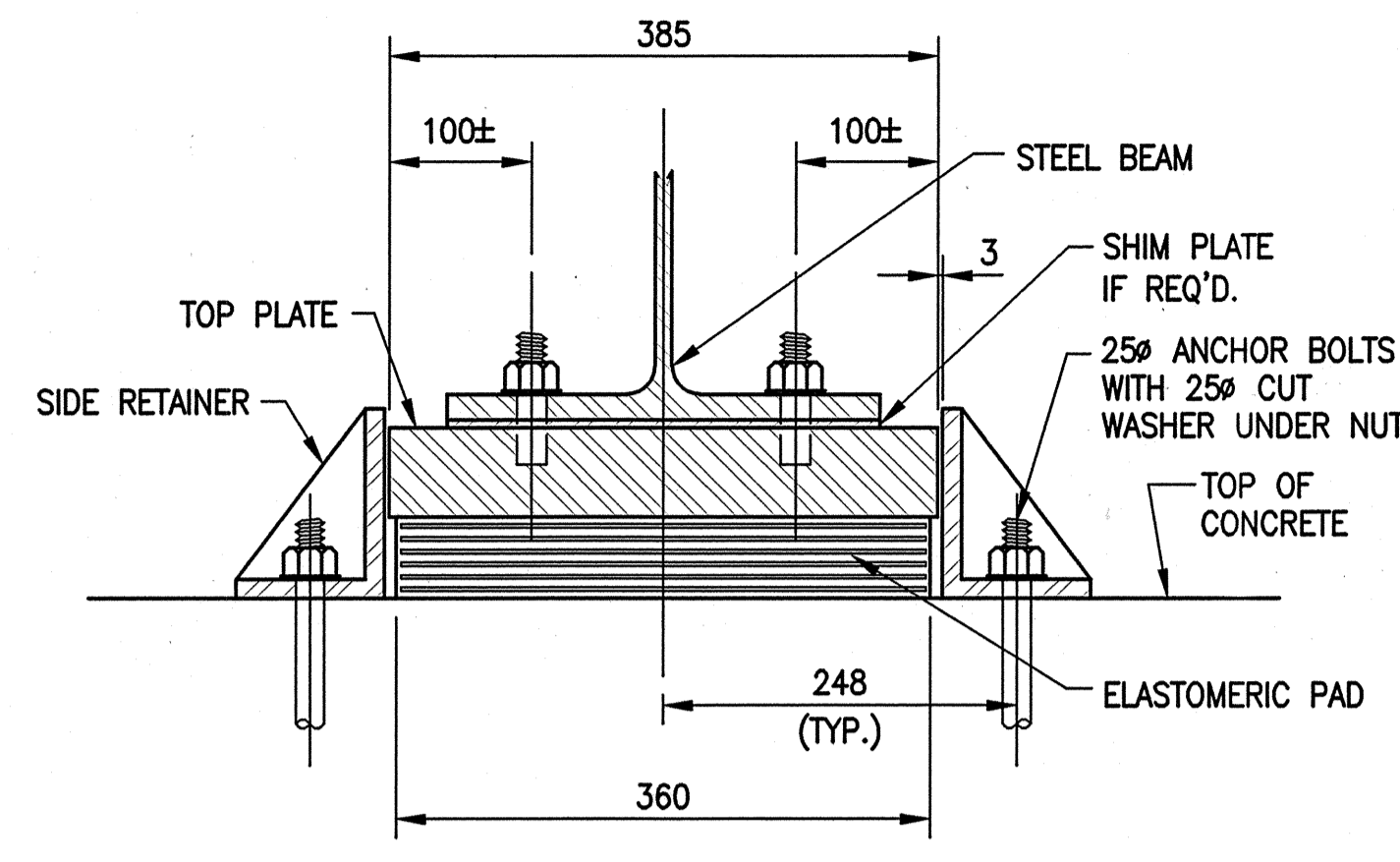
ELEVATION TOP PLATE  
SCALE: 1:5



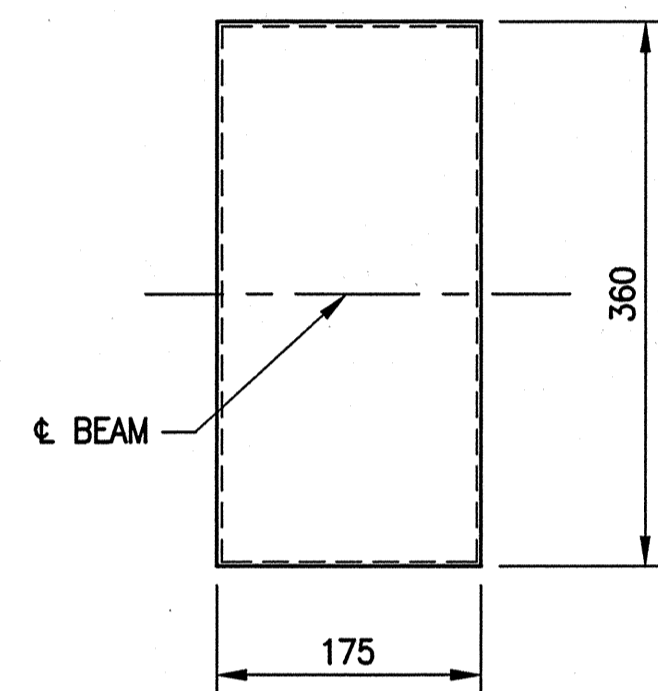
PLAN VIEW TOP PLATE  
SCALE: 1:5



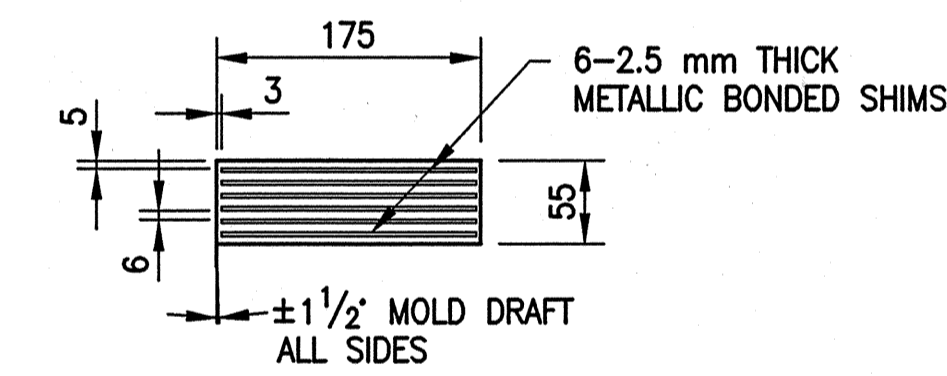
PLAN



SECTION A-A  
SCALE: 1:5

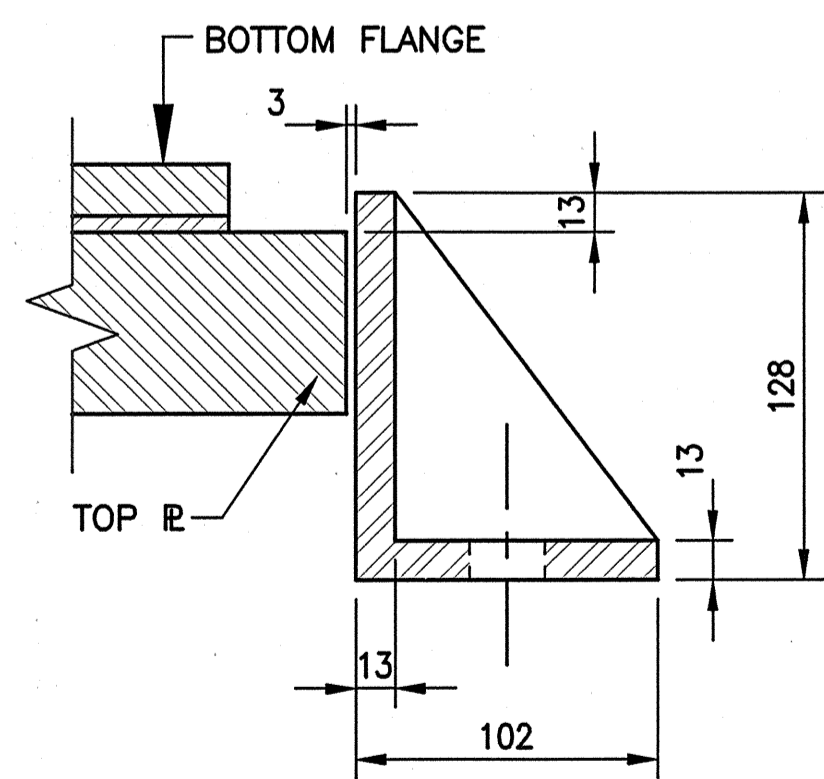


PLAN VIEW  
SCALE: 1:5



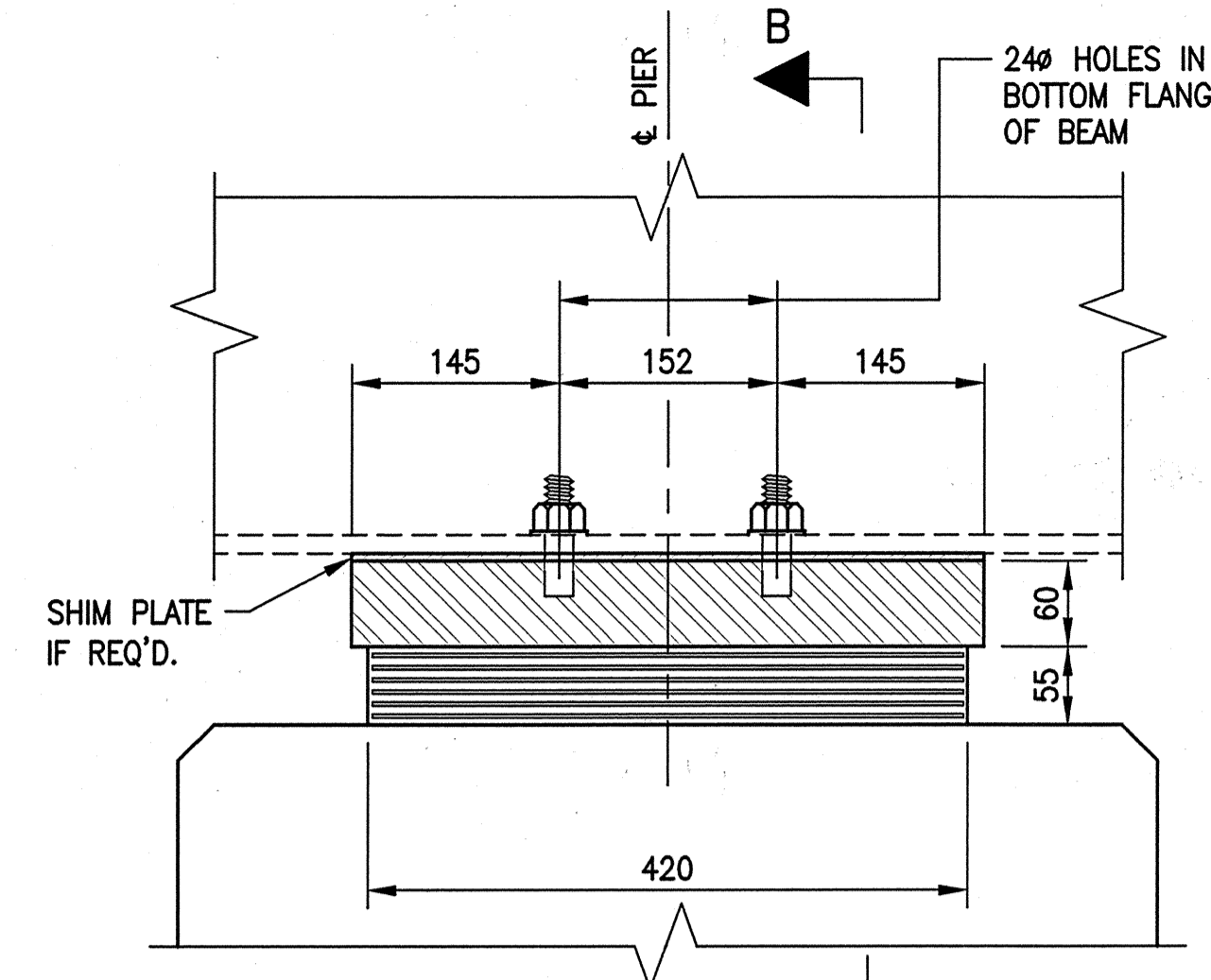
ELASTOMERIC BEARING PAD  
DETAIL AT BENTS 1 & 4  
SCALE: 1:5

BENTS 1 & 4 BEARING PAD DETAILS

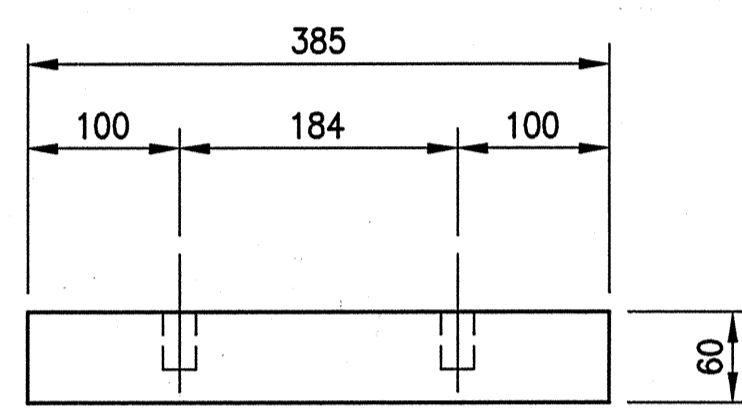


SECTION C-C

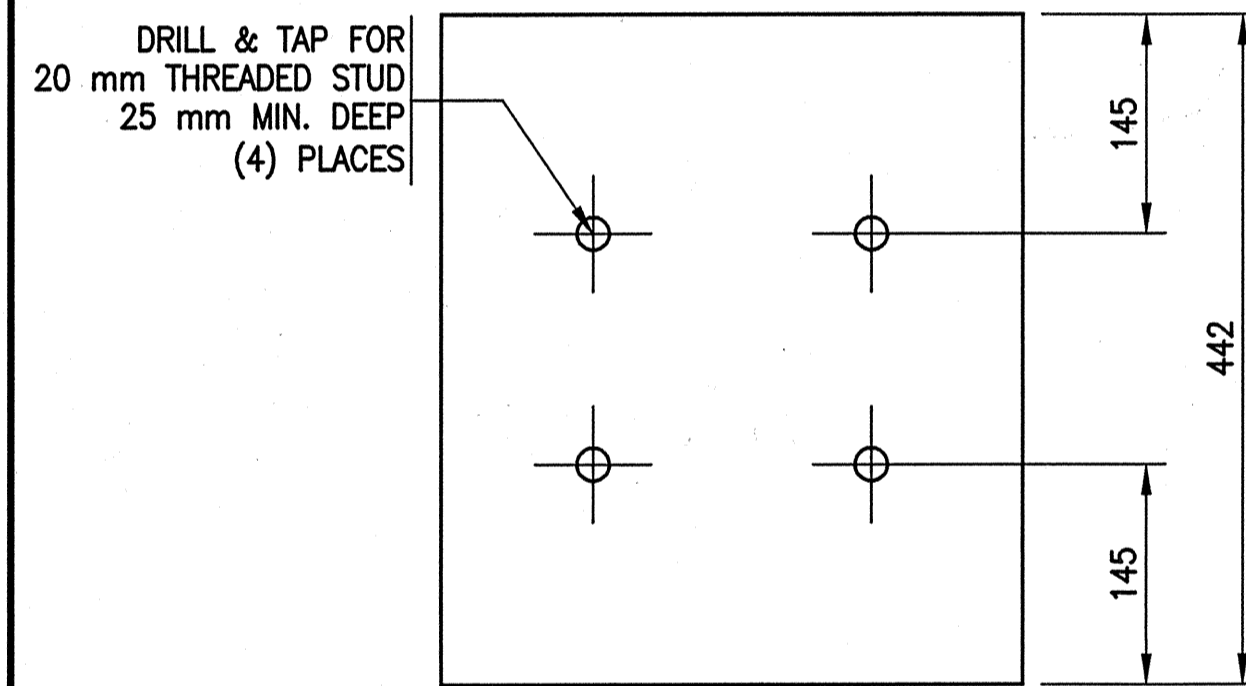
SIDE RETAINER



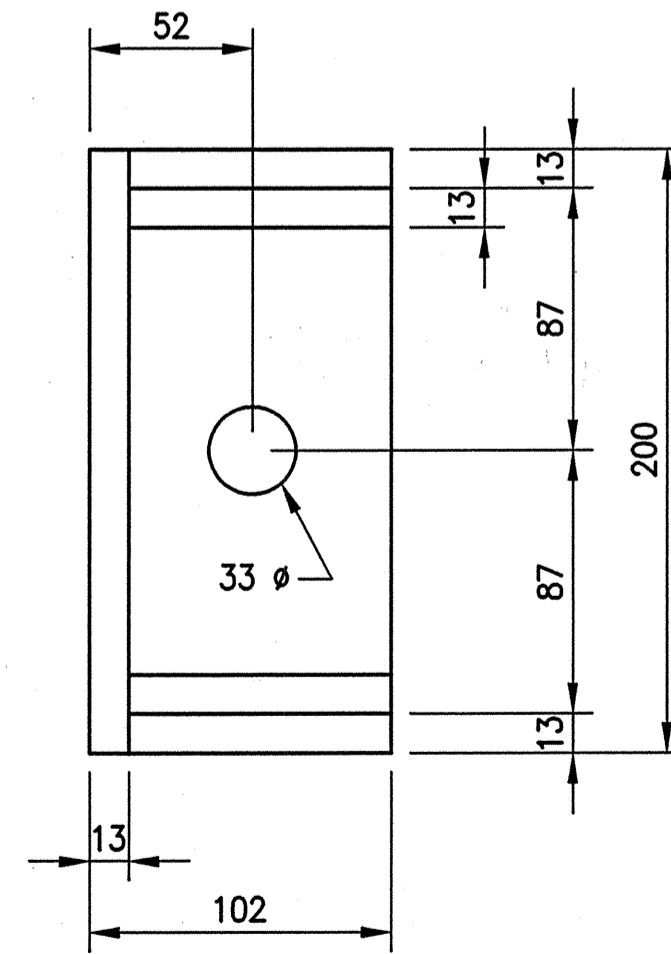
SECTION AT PIERS 2 & 3  
SCALE: 1:5



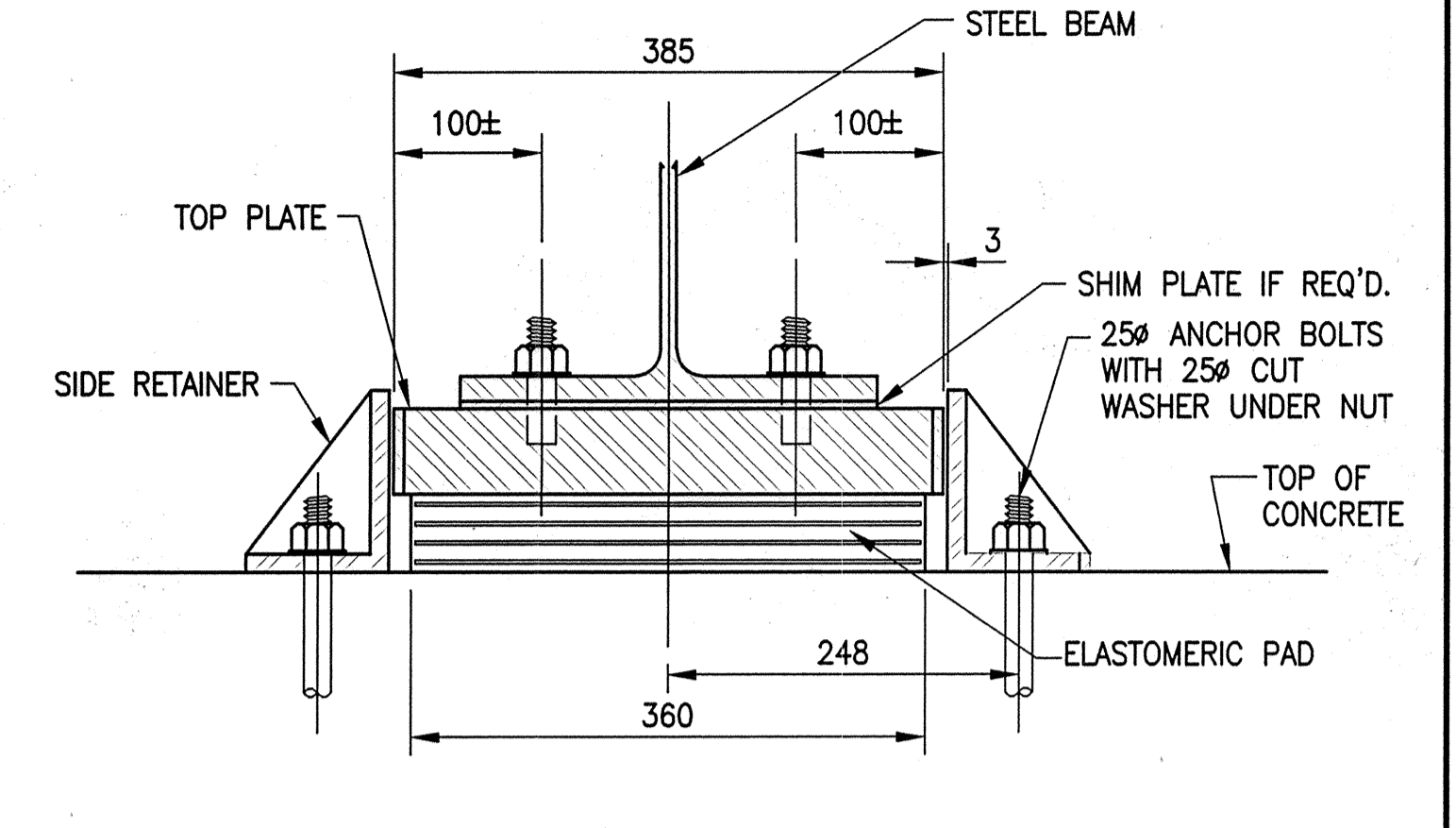
ELEVATION TOP PLATE  
SCALE: 1:5



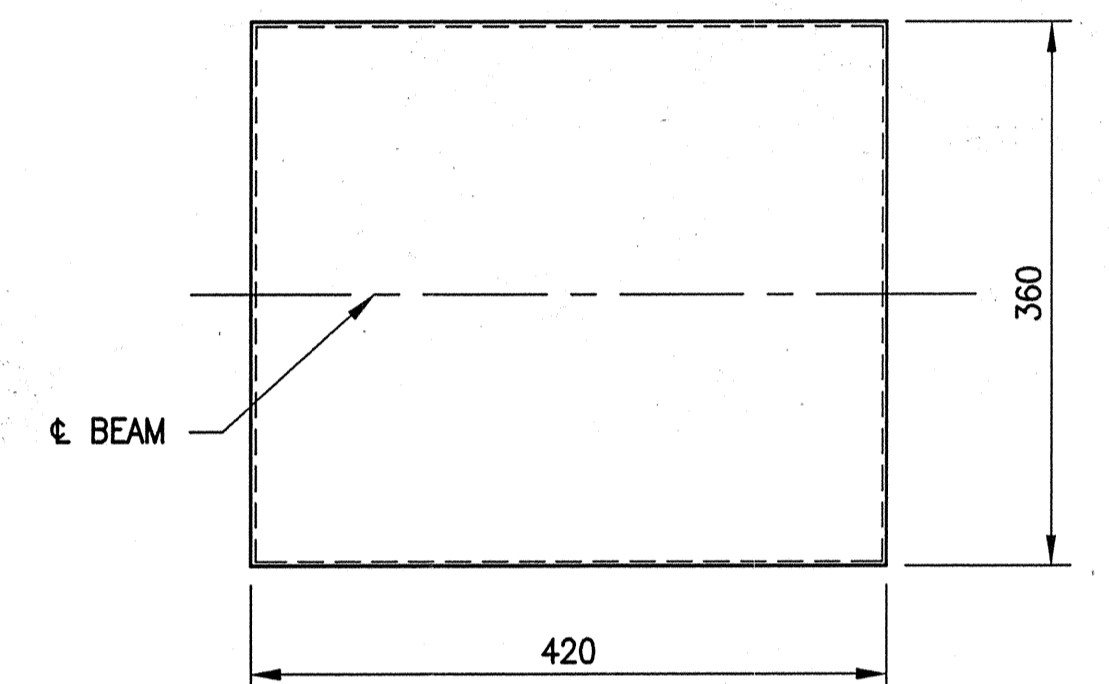
PLAN VIEW TOP PLATE  
SCALE: 1:5



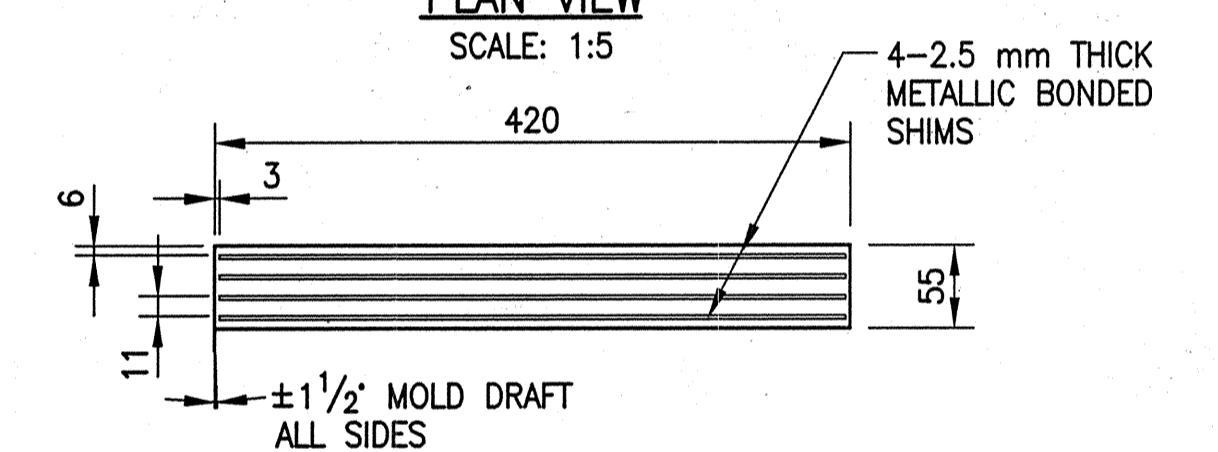
PLAN



SECTION B-B  
SCALE: 1:5

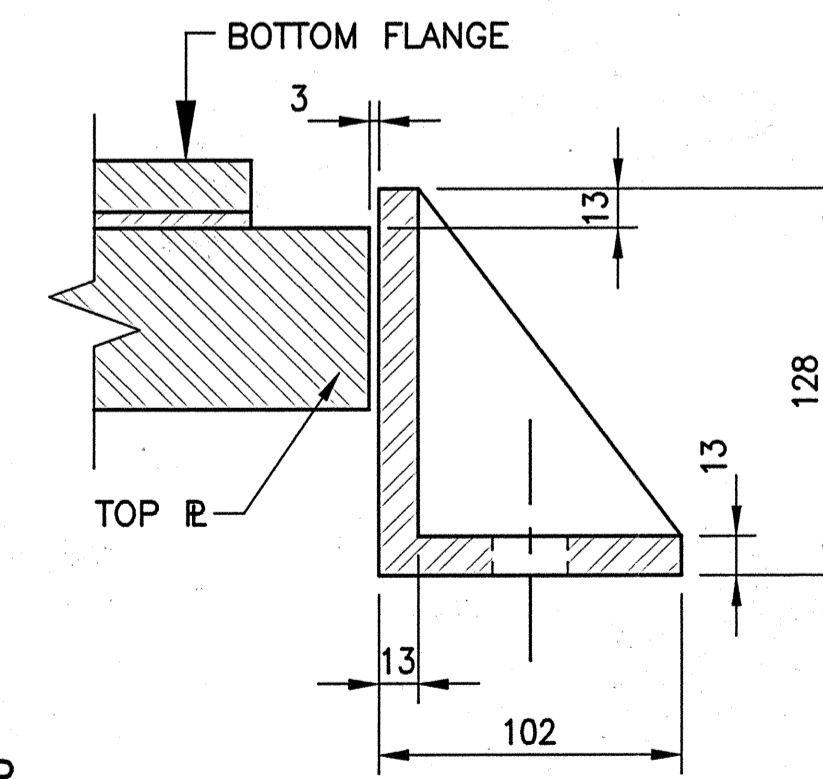


PLAN VIEW  
SCALE: 1:5



ELASTOMERIC BEARING PAD  
DETAIL AT PIERS 2 & 3  
SCALE: 1:5

PIERS 2 & 3 BEARING PAD DETAILS



SECTION C-C

SIDE RETAINER

All Dimensions Are In Millimeters (mm), And All Elevations Are In Meters (m), Except As Noted.

Date: 10/2/2001  
 Title: 10/2/2001  
 Scale: 1:5  
 Drawing File: F:\Drawings\MB1709FC\AS\_BUILT\Bent-detailed.dwg (Cohen)

**JSE**  
 JANSSEN & SPAANS ENGINEERING  
 CONSULTING ENGINEERS  
 9155 HARRISON PARK COURT  
 INDIANAPOLIS, INDIANA 46216  
 BUS. (317) 254-9888  
 FAX (317) 259-8262

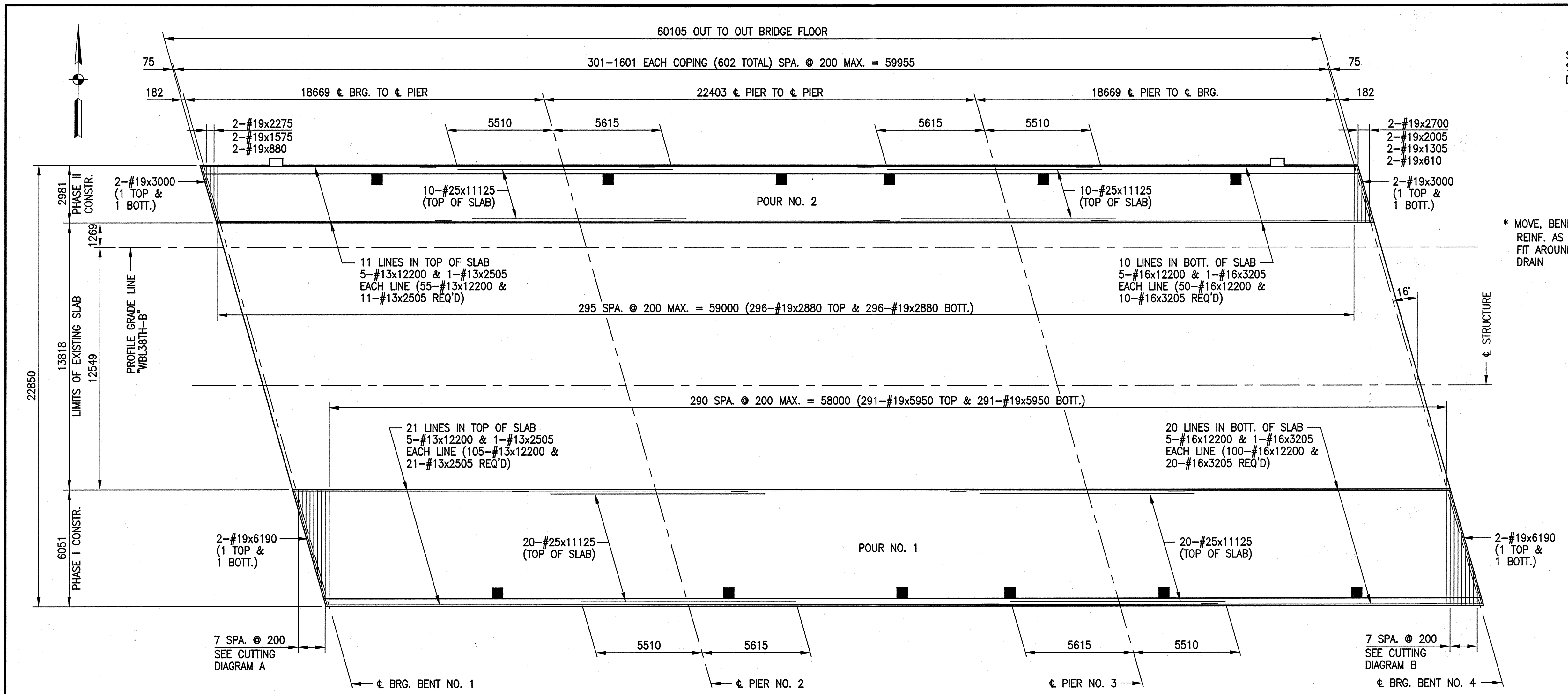
**B&S**  
 Butler Fairman Seufert  
 CONSULTING ENGINEERS  
 8450 WESTFIELD BLVD., SUITE 300  
 INDIANAPOLIS, IN. 46240  
 317 713-4615  
 FAX 317 713-4616

MICHAEL J. HALTERMAN  
 REGISTERED  
 No. 20931  
 STATE OF INDIANA  
 PROFESSIONAL ENGINEER

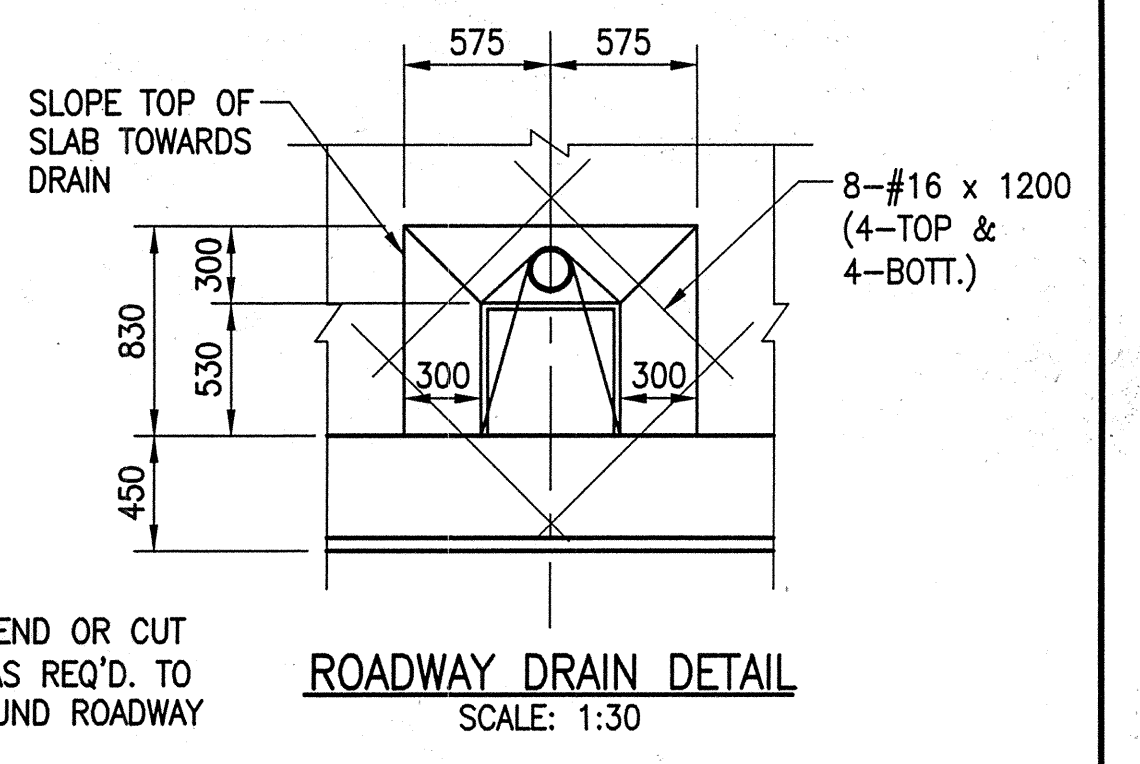
RECOMMENDED FOR APPROVAL  
 Michael J. Halterman 9/28/01  
 DESIGN ENGINEER DATE  
 DESIGNED: CBS DRAWN: TAL  
 CHECKED: LS CHECKED: MJH

INDIANA  
 DEPARTMENT OF TRANSPORTATION  
 BEARING ASSEMBLY DETAILS

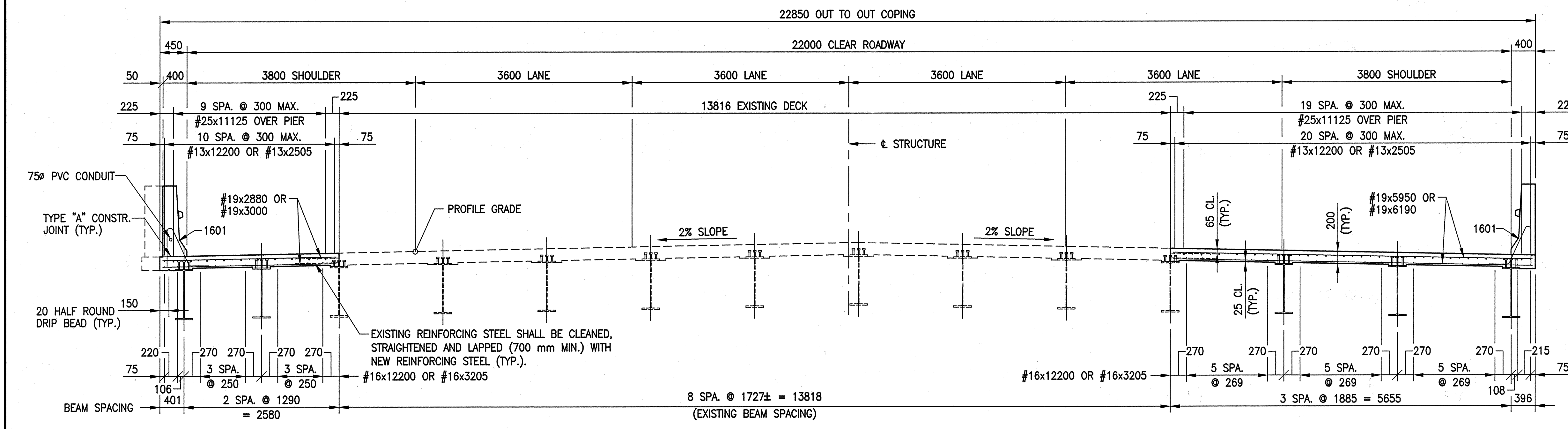
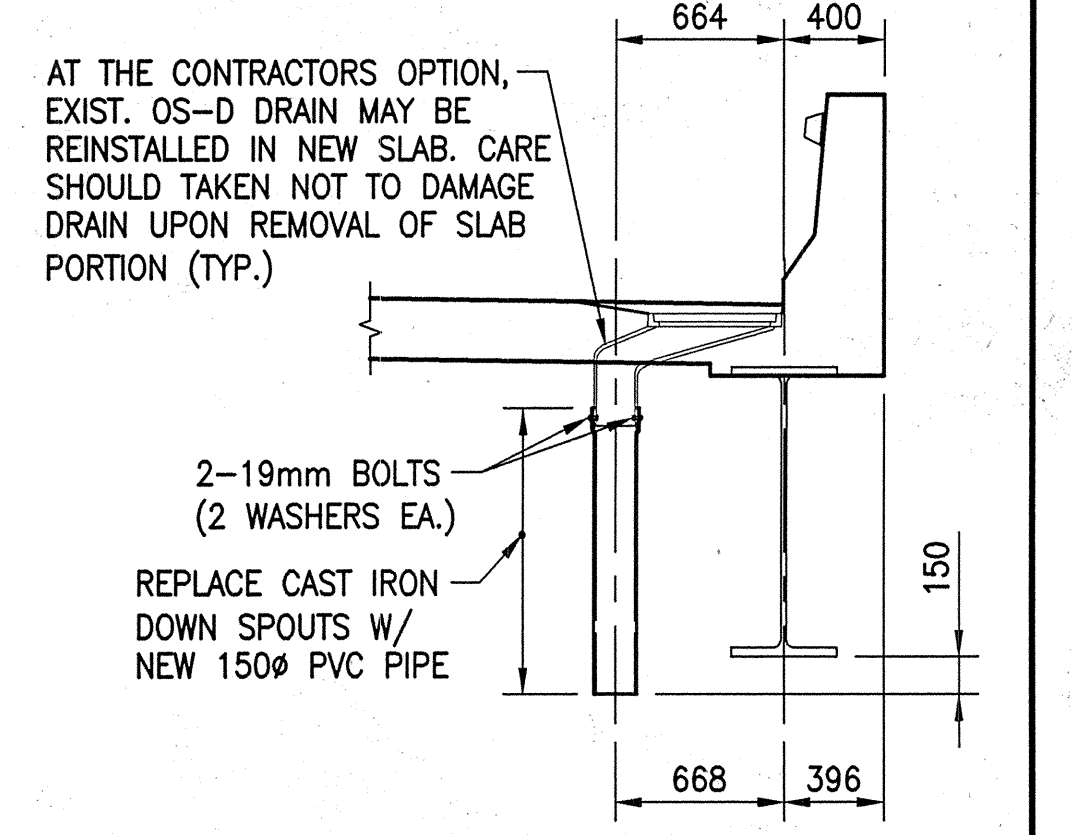
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|------------------|-------------------|
| HORIZONTAL SCALE | BRIDGE FILE       |
| AS NOTED         | MARION B-17-09 FC |
| VERTICAL SCALE   | DESIGNATION       |
| AS NOTED         | 9814689           |
| SURVEY BOOK      | SHEETS            |
|                  | 15 of 20          |
| CONTRACT         | PROJECT           |
| R-24327          | IM-65-3 (281) 118 |



**SLAB PLAN**  
SCALE: 1:125



**ROADWAY DRAIN DETAIL**  
SCALE: 1:30



**TYPICAL SECTION**  
SCALE: 1:50

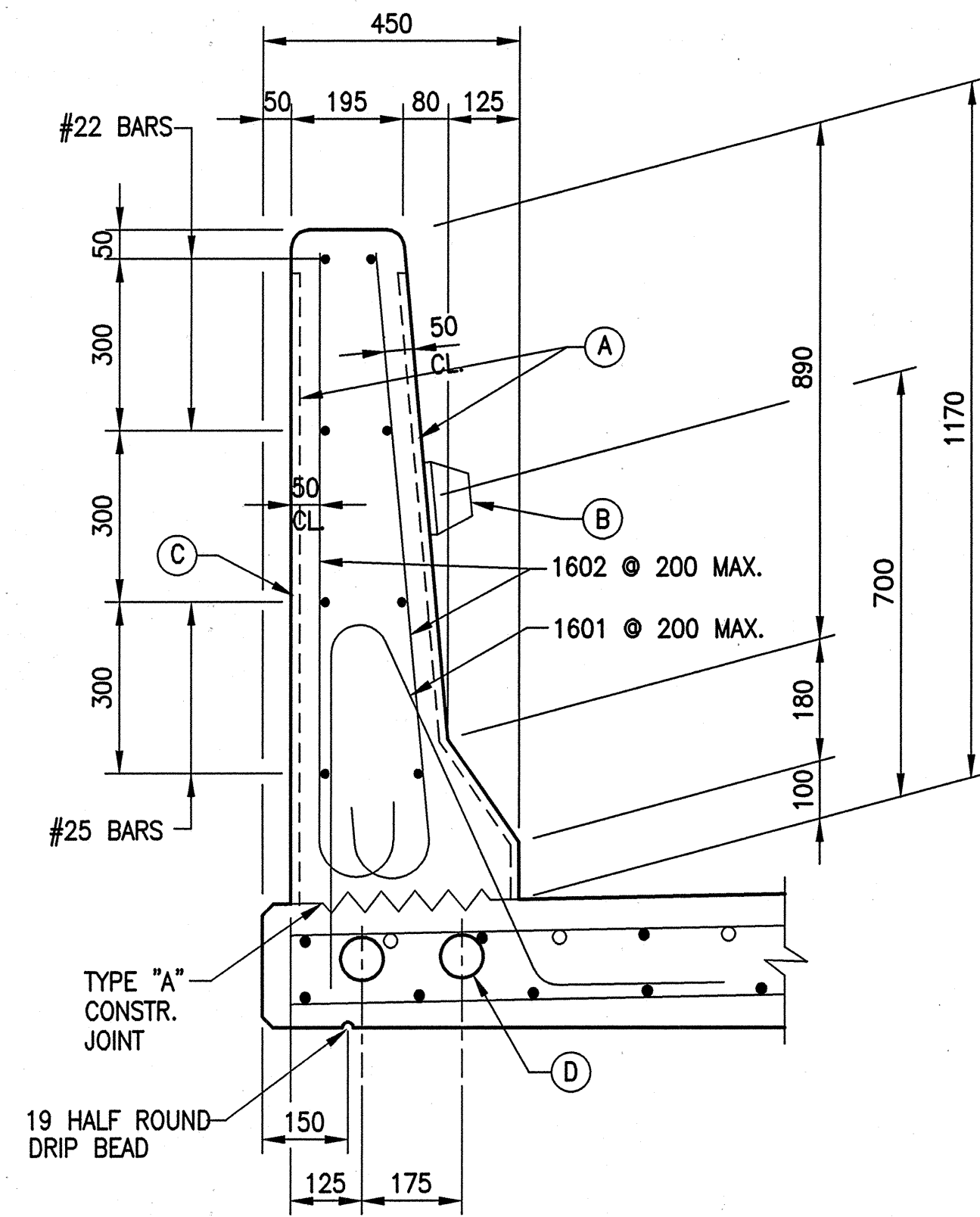
**NOTES:**

- ALL REINFORCING STEEL TO BE EPOXY COATED IN SUPERSTRUCTURE.
- FOR REINFORCING NOTES, SEE BRIDGE STD. 703-BRST-01.
- MINIMUM LAP LENGTH LENGTHS  
 #13 BAR = 700  
 #16 BAR = 840  
 #19 BAR = 1020  
 #22 BAR = 1270  
 #25 BAR = 1680  
 #29 BAR = 2140
- FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET NO. 17.

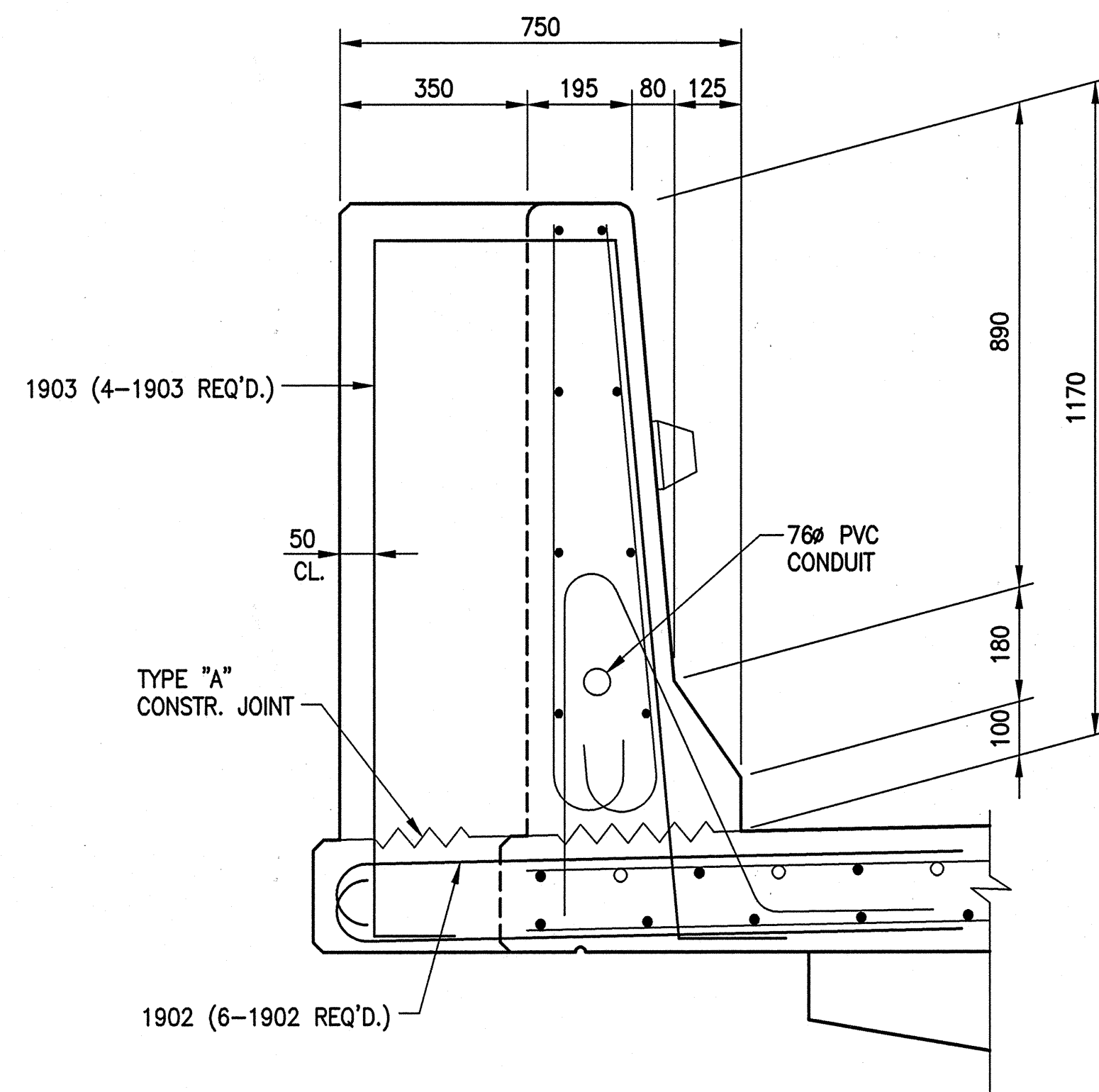
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|  |   |   |  |  |
|--|---|---|--|--|
| <br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-9686<br>FAX (317) 259-8292 | <br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4818<br>509 WEST BATH DRIVE, SUITE C<br>MERRILLVILLE, IN. 46410<br>219 769-2333<br>FAX 219 768-2377 | <br>RECOMMENDED FOR APPROVAL<br><i>Michael J. Halterman</i> 9/28/01<br>DESIGN ENGINEER DATE | <b>INDIANA DEPARTMENT OF TRANSPORTATION</b><br><br><b>SUPERSTRUCTURE DETAILS</b> | HORIZONTAL SCALE<br>AS NOTED<br>VERTICAL SCALE<br>BRIDGE FILE<br>MARION B-17-09 FC<br>DESIGNATION<br>9814689 |
| DESIGNED: CBS      DRAWN: TAL<br>CHECKED: LS        CHECKED: JWR   |   |   |  | SURVEY BOOK      SHEETS<br>16 of 20<br>CONTRACT        PROJECT<br>R-24327        IM-65-3 (281) 118           |





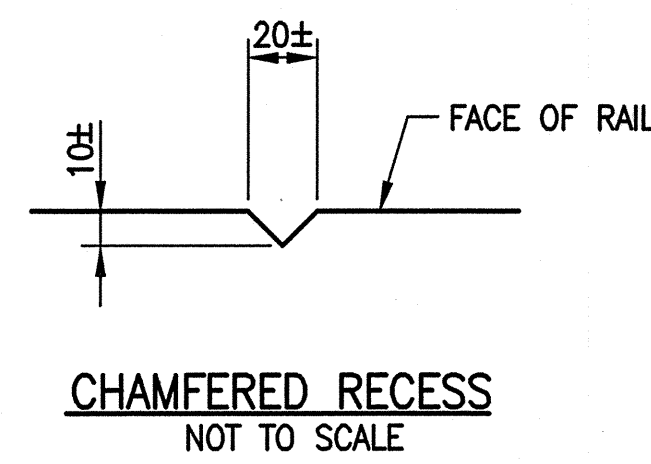
**BARRIER SECTION**  
SCALE: 1:10



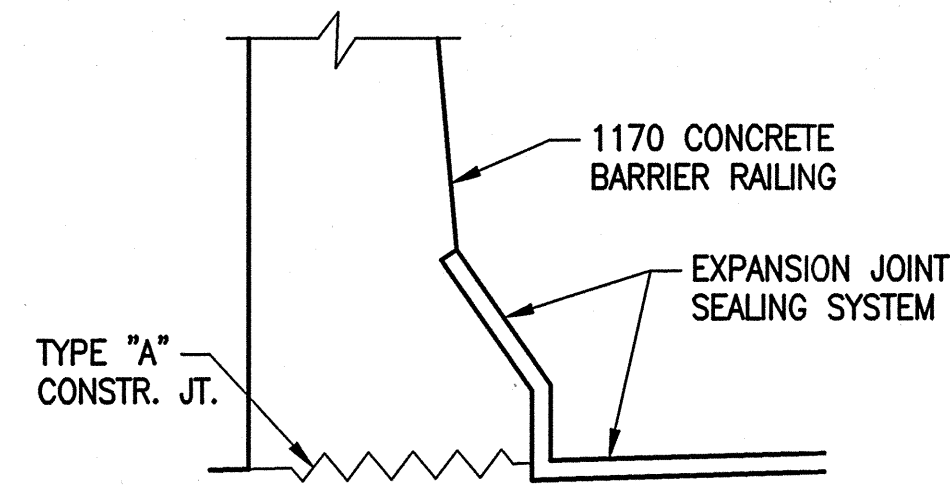
**MODIFIED BRIDGE LIGHT STANDARD**  
SCALE: 1:10

SEE STANDARD DWGS. 807-BLIT-01 THRU 04,  
FOR ADDITIONAL BRIDGE LIGHTING DETAILS.

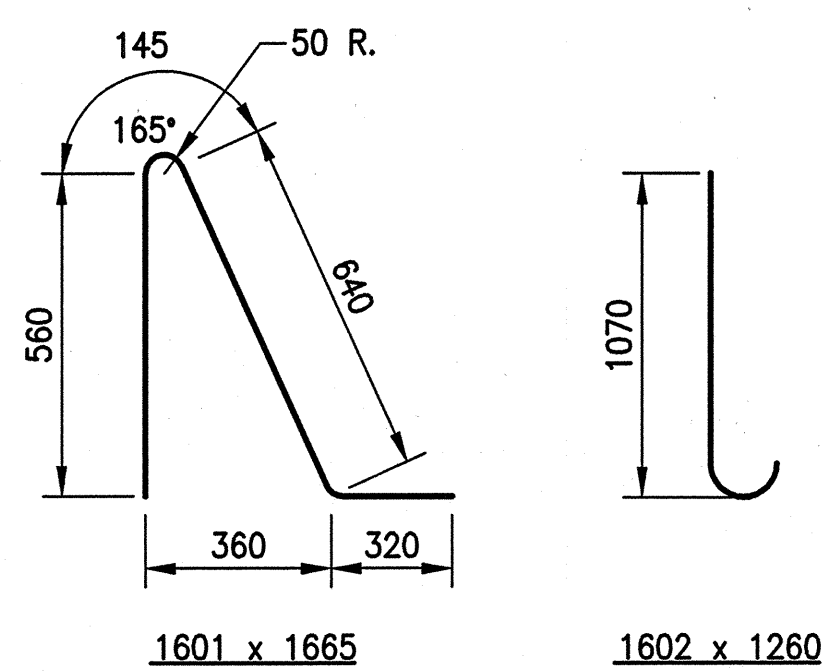
- (A) CHAMFERED RECESSES ON EXTERIOR AND INTERIOR FACES AT 1500 SPACING. (SEE DETAIL BELOW)
- (B) BARRIER DELINEATORS AT 6000 SPACING.
- (C) MASONRY COATING AND SURFACE SEAL REQUIRED ON ALL FACES OF RAIL AND TRANSITIONS.
- (D) 2-76 PVC CONDUIT FOR FIBER OPTICS AT OUTSIDE SHOULDER COPING.



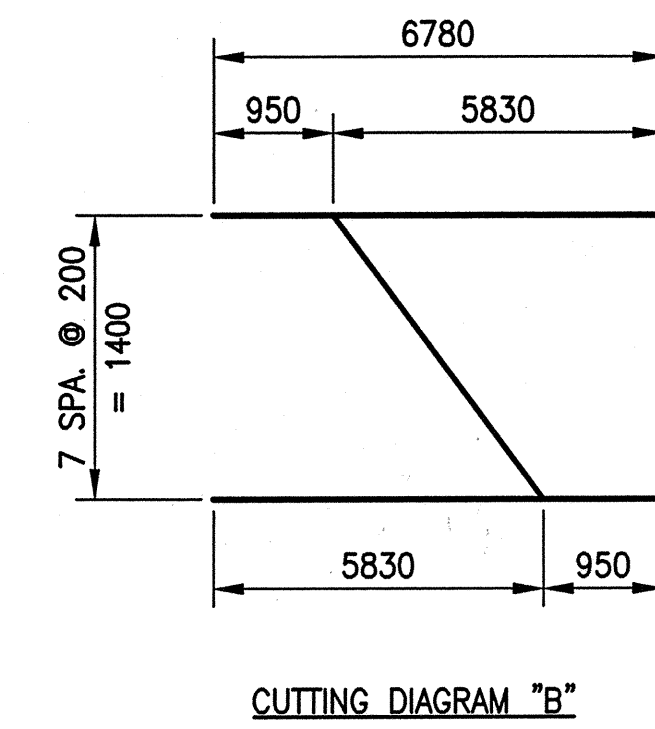
**CHAMFERED RECESS**  
NOT TO SCALE



**EXPANSION JOINT DETAIL AT CONCRETE BARRIER RAIL**  
SCALE: 1:10

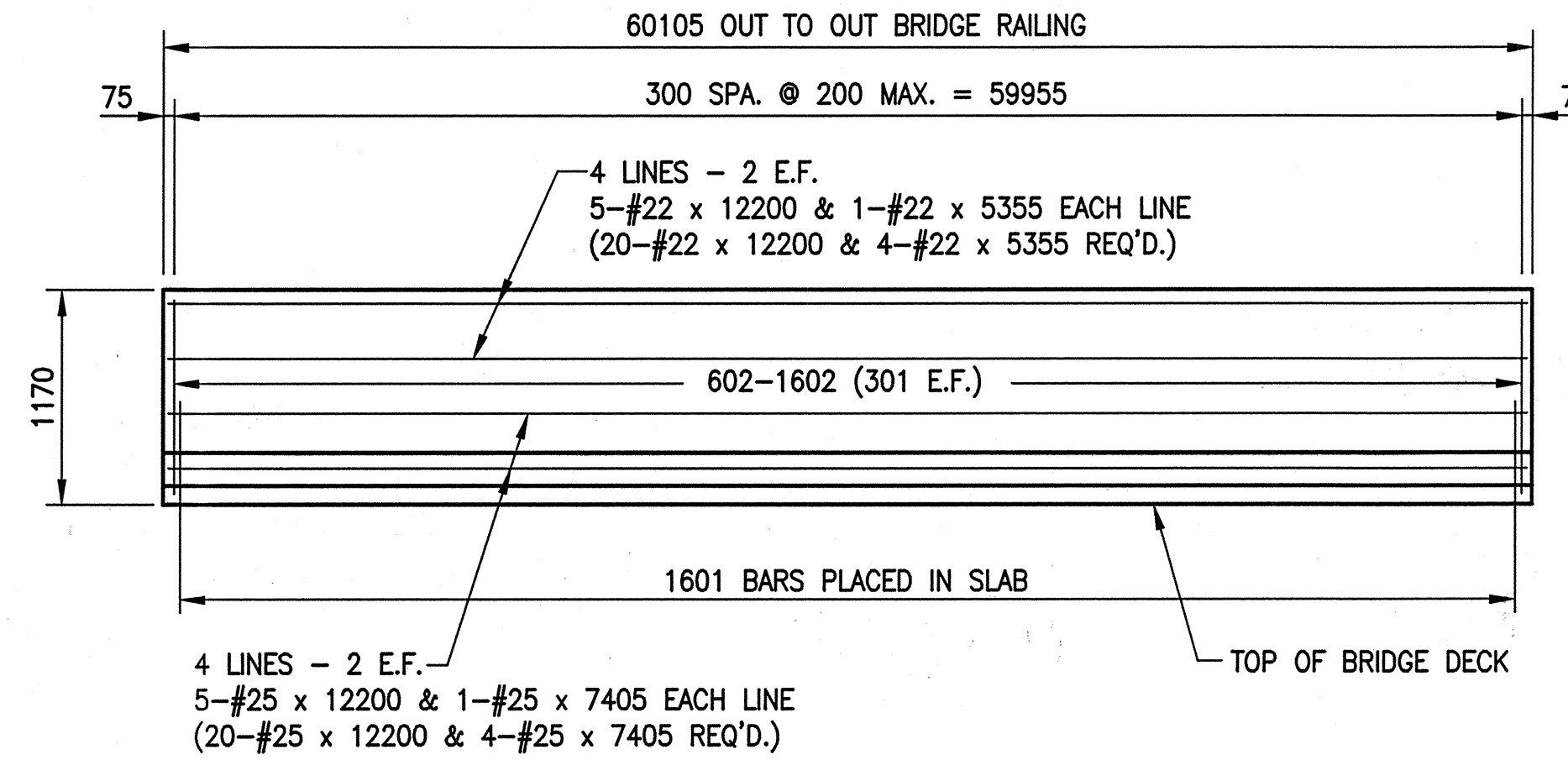


**CUTTING DIAGRAM "A"**  
(8-#19 x 6520 REQUIRED)  
(1-#19 x 6520 MAKES TWO BARS)

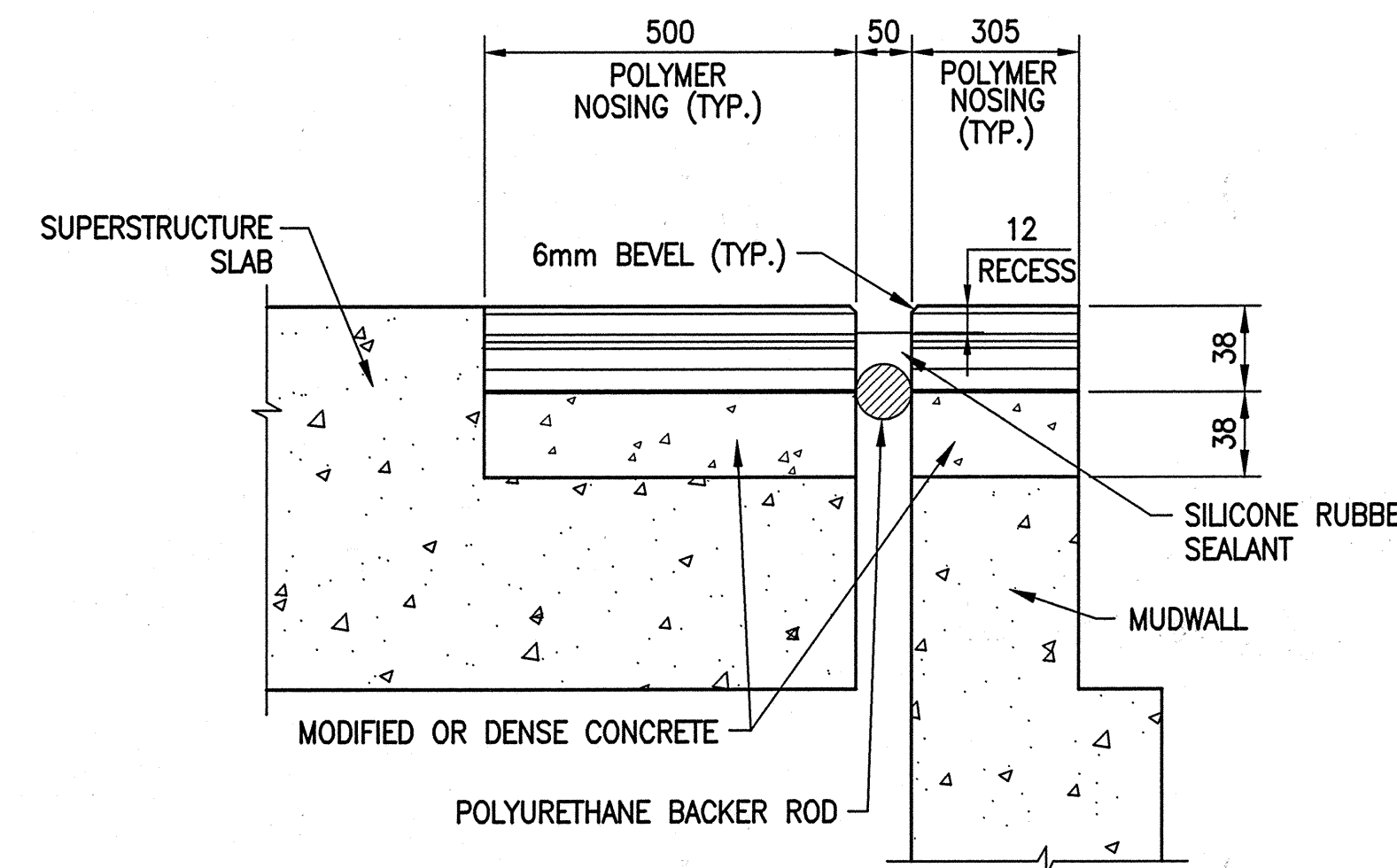


**CUTTING DIAGRAM "B"**  
(8-#19 x 6780 REQUIRED)  
(1-#19 x 6780 MAKES TWO BARS)

**BAR BENDING DETAILS**  
NO SCALE



**RAILING ELEVATION**  
NO SCALE



**EXPANSION JOINT SEALING SYSTEM**  
NO SCALE

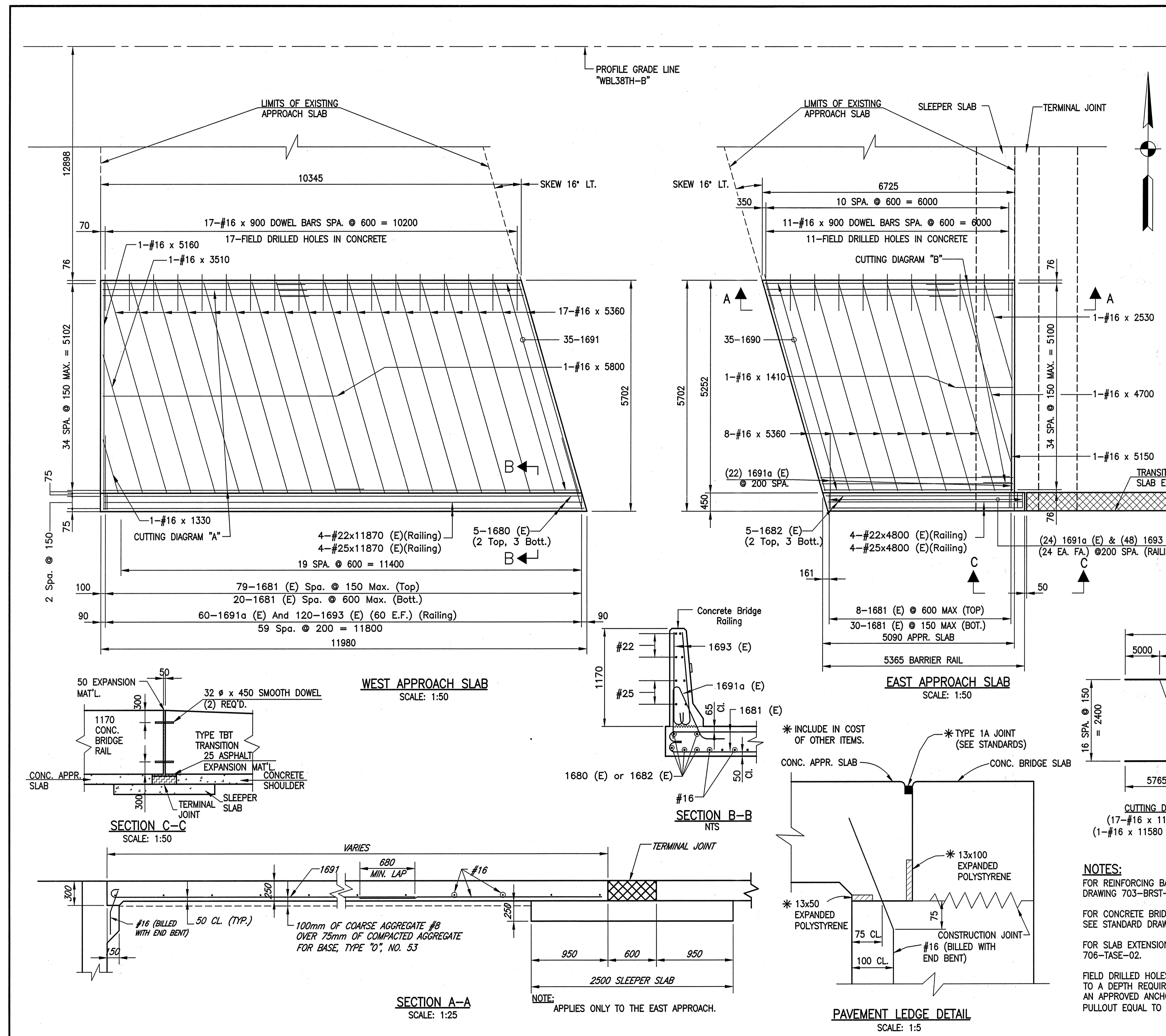
| SUPERSTRUCTURE BILL OF MATERIALS PHASE I |             |             |                     | SUPERSTRUCTURE BILL OF MATERIALS PHASE II |             |             |                     |
|--|-------------|-------------|---------------------|---|-------------|-------------|---------------------|
| EPOXY COATED REINFORCING STEEL           |             |             |                     | EPOXY COATED REINFORCING STEEL            |             |             |                     |
| Size or Mark                             | No. of Bars | Length (mm) | Mass (Kg.)          | Size or Mark                              | No. of Bars | Length (mm) | Mass (Kg.)          |
| #25                                      | 20          | 12200       |                     | #25                                       | 20          | 12200       |                     |
| #25                                      | 40          | 11125       |                     | #25                                       | 20          | 11125       |                     |
| #25                                      | 4           | 7405        |                     | #25                                       | 4           | 7405        |                     |
| TOTAL #25 BARS                           |             |             | 2856                | TOTAL #25 BARS                            |             |             | 1972                |
| #22                                      | 20          | 12200       |                     | #22                                       | 20          | 12200       |                     |
| #22                                      | 4           | 5355        |                     | #22                                       | 4           | 5355        |                     |
| TOTAL #22 BARS                           |             |             | 807                 | TOTAL #22 BARS                            |             |             | 807                 |
| #19                                      | 8           | 6780        |                     | #19                                       | 12          | 1375        |                     |
| #19                                      | 8           | 6520        |                     | #19                                       | 8           | 3405        |                     |
| #19                                      | 4           | 6190        |                     | #19                                       | 4           | 3000        |                     |
| #19                                      | 582         | 5950        |                     | #19                                       | 592         | 2880        |                     |
| TOTAL #19 BARS                           |             |             | 8033                | #19                                       | 2           | 2700        |                     |
|  |             |             |                     | #19                                       | 2           | 2005        |                     |
|  |             |             |                     | #19                                       | 2           | 1575        |                     |
| 1601                                     | 301         | 1665        |                     | #19                                       | 2           | 1305        |                     |
| 1602                                     | 602         | 1260        |                     | #19                                       | 2           | 880         |                     |
| #16                                      | 100         | 12200       |                     | #19                                       | 2           | 610         |                     |
| #16                                      | 20          | 3205        |                     |   |             |             |                     |
| #16                                      | 48          | 1200        |                     | TOTAL #19 BARS                            |             |             | 3987                |
| TOTAL #16 BARS                           |             |             | 4037                | 1601                                      | 301         | 1665        |                     |
| #13                                      | 105         | 12200       |                     | 1602                                      | 602         | 1260        |                     |
| #13                                      | 21          | 2505        |                     | #16                                       | 50          | 12200       |                     |
|  |             |             |                     | #16                                       | 10          | 3205        |                     |
|  |             |             |                     | #16                                       | 48          | 1200        |                     |
| TOTAL #13 BARS                           |             |             | 1325                | TOTAL #13 BARS                            |             |             | 694                 |
| TOTAL EPOXY COATED STEEL                 |             |             | 17058               | TOTAL #16 BARS                            |             |             | 3041                |
| CONCRETE CLASS "C"                       |             |             | 75.8 m <sup>3</sup> | #13                                       | 55          | 12200       |                     |
| Class "C" Concrete Railing               |             |             | 60.1 m              | #13                                       | 11          | 2505        |                     |
| MISCELLANEOUS                            |             |             |                     | TOTAL #13 BARS                            |             |             | 694                 |
| Surface Seal                             |             |             | 540 m <sup>2</sup>  | TOTAL EPOXY COATED STEEL                  |             |             | 10501               |
| Masonry Coating                          |             |             | 357 m <sup>2</sup>  | CONCRETE CLASS "C"                        |             |             | 38.0 m <sup>3</sup> |
| Barrier Delineators                      |             |             | 10 Each             | Class "C" Concrete Railing                |             |             | 60.1 m              |
| Cast Iron Grates, Basins and Fittings    |             |             | 660 Kg              | MISCELLANEOUS                             |             |             |                     |
| 150mm PVC Drain Pipe                     |             |             | 6 m                 | Surface Seal                              |             |             | 177 m <sup>2</sup>  |
|  |             |             |                     | Masonry Coating                           |             |             | 176 m <sup>2</sup>  |
|  |             |             |                     | Barrier Delineators                       |             |             | 10 Each             |
|  |             |             |                     | Cast Iron Grates, Basins and Fittings     |             |             | 660 Kg              |
|  |             |             |                     | 150mm PVC Drain Pipe                      |             |             | 6 m                 |
|  |             |             |                     | 76 PVC CONDUIT                            |             |             | 180 m               |
|  |             |             |                     | ANCHOR BOLT AR-22                         |             |             | 8 EACH              |

**NOTES:**

1. ALL REINFORCING STEEL TO BE EPOXY COATED IN SUPERSTRUCTURE.
2. FOR REINFORCING NOTES, SEE BRIDGE STD. 703-BRST-01.
3. MINIMUM LAP LENGTH LENGTHS  
 #13 BAR = 700  
 #16 BAR = 840  
 #19 BAR = 1020  
 #22 BAR = 1270  
 #25 BAR = 1680  
 #29 BAR = 2140
4. FOR ADDITIONAL SUPERSTRUCTURE DETAILS, SEE SHEET NO. 16.

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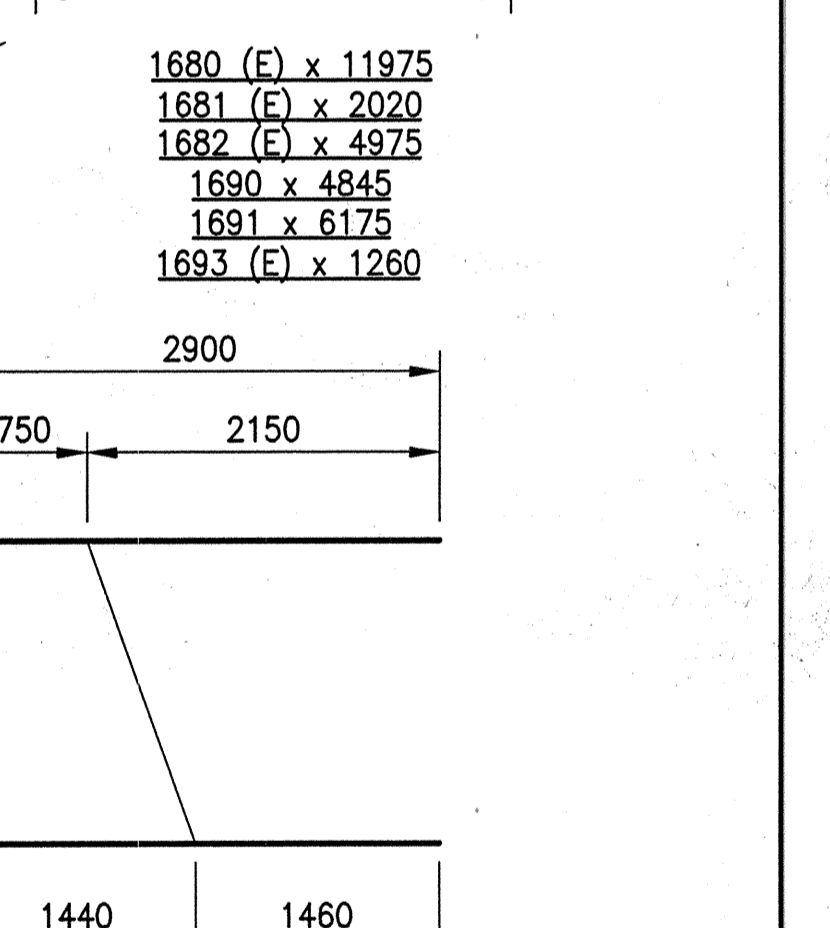
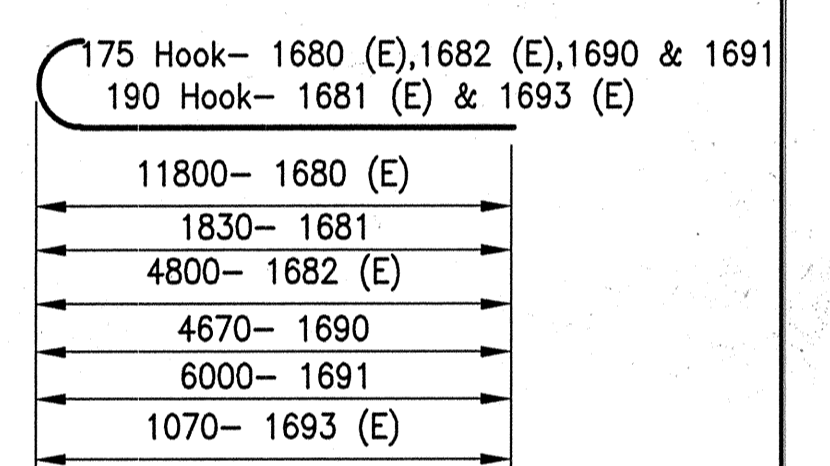
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|--|--|--|--|
| <br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-8886<br>FAX (317) 258-8282 | <br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4815<br>FAX 317 713-4616 | <br>RECOMMENDED FOR APPROVAL<br><i>Michael J. Halterman</i> 9/28/01<br>DESIGN ENGINEER DATE                  | <b>INDIANA DEPARTMENT OF TRANSPORTATION</b><br><b>SUPERSTRUCTURE DETAILS</b> |
| DESIGNED: CBS  | DRAWN: TAL   | CHECKED: LS  | CHECKED: JWR   |
| HORIZONTAL SCALE AS NOTED<br>VERTICAL SCALE AS NOTED   |  | BRIDGE FILE MARION B-17-09 FC<br>DESIGNATION 9814689<br>SHEETS 17 of 20<br>PROJECT R-24327 IM-65-3 (281) 118 |  |



| WEST APPROACH-PHASE I<br>BILL OF MATERIALS |             |                   |            |
|--|-------------|-------------------|------------|
| REINFORCING STEEL                          |             |                   |            |
| Size or Mark                               | No. of Bars | Length (mm)       | Mass (Kg.) |
| 1691                                       | 35          | 6175              |            |
| 16   | 17          | 11580             |            |
| 16   | 1           | 5800              |            |
| 16   | 17          | 5360              |            |
| 16   | 1           | 5160              |            |
| 16   | 1           | 3510              |            |
| 16   | 1           | 1330              |            |
| 16   | 17          | 900               |            |
| TOTAL PLAIN REINFORCING STEEL              |             |                   | 831        |
| EPOXY COATED REINFORCING STEEL             |             |                   |            |
| 25 (E)                                     | 4           | 11870             |            |
| TOTAL #25 BARS                             |             |                   | 189        |
| 22 (E)                                     | 4           | 11870             |            |
| TOTAL #22 BARS                             |             |                   | 144        |
| 1693 (E)                                   | 120         | 1260              |            |
| 1691a (E)                                  | 60          | 1680              |            |
| 1681 (E)                                   | 99          | 2020              |            |
| 1680 (E)                                   | 5           | 11975             |            |
| TOTAL #16 BARS                             |             |                   | 794        |
| TOTAL EPOXY COATED REINF. STEEL            |             |                   | 1127       |
| MISCELLANEOUS                              |             |                   |            |
| R.C. Pavement, 250 mm                      |             | 64 m <sup>2</sup> |            |
| Surface Seal                               |             | 64 m <sup>2</sup> |            |
| Subbase for Cement Concrete Pavement       |             | 12 m <sup>3</sup> |            |
| Field Drilled Holes                        |             | 17 Each           |            |

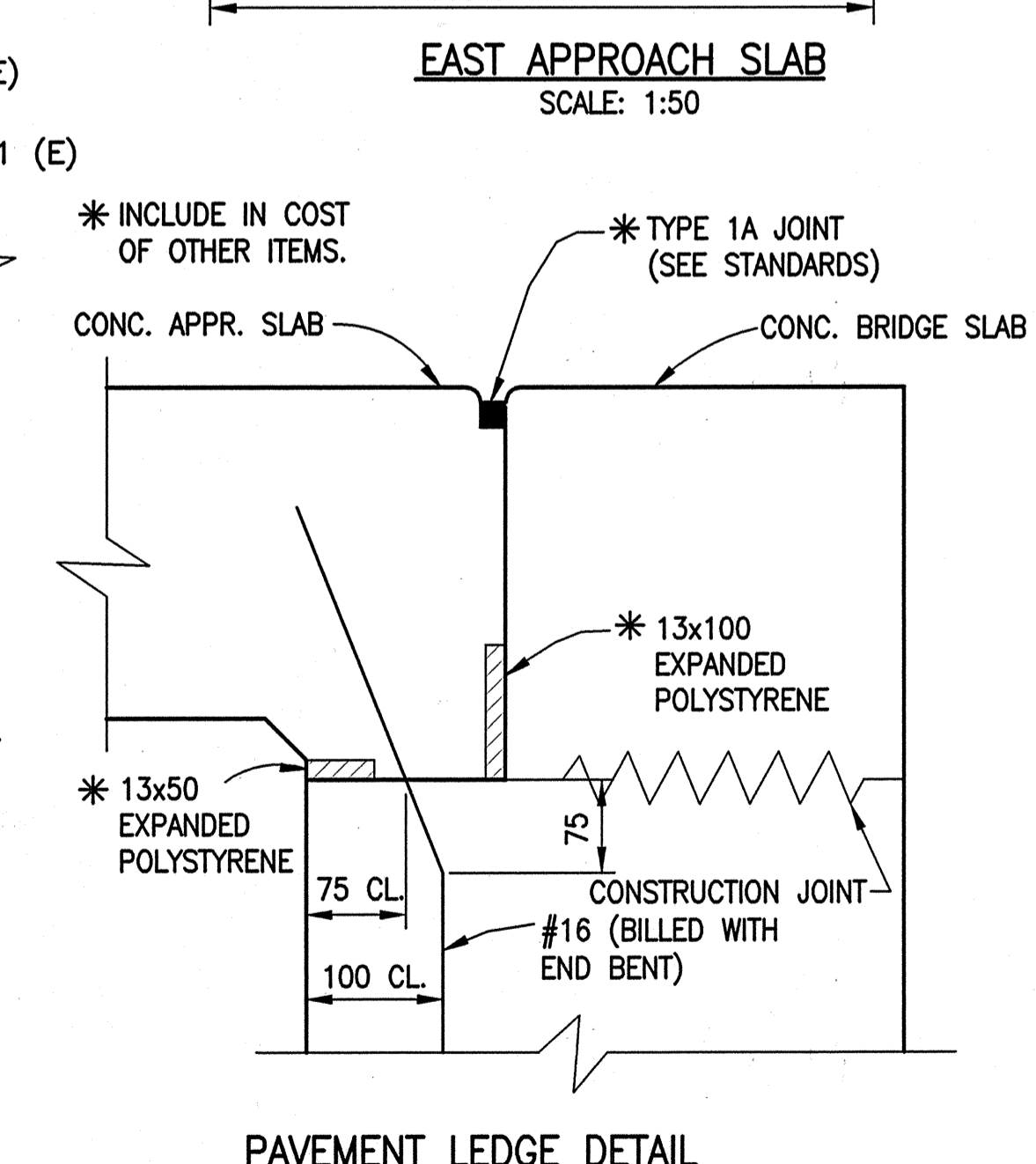
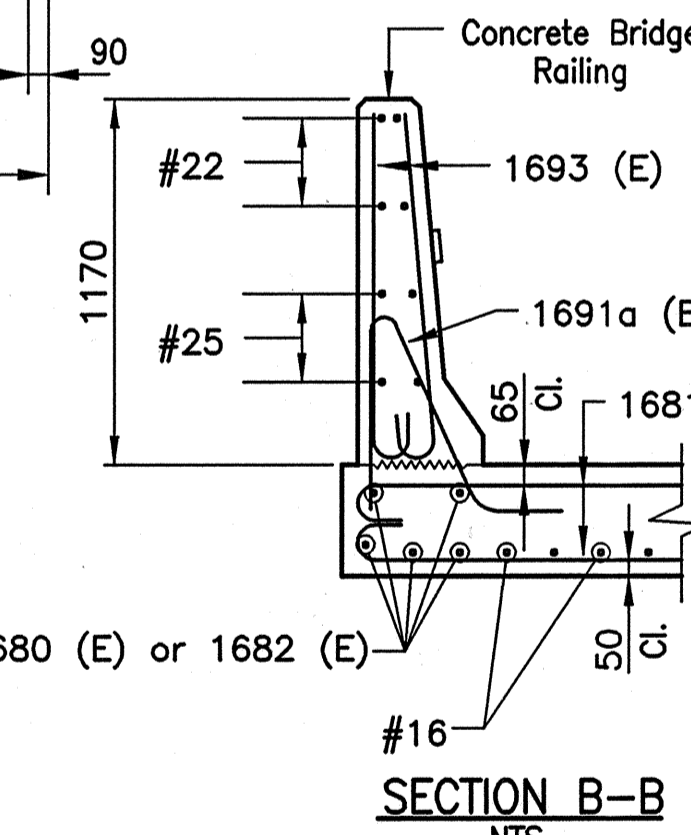
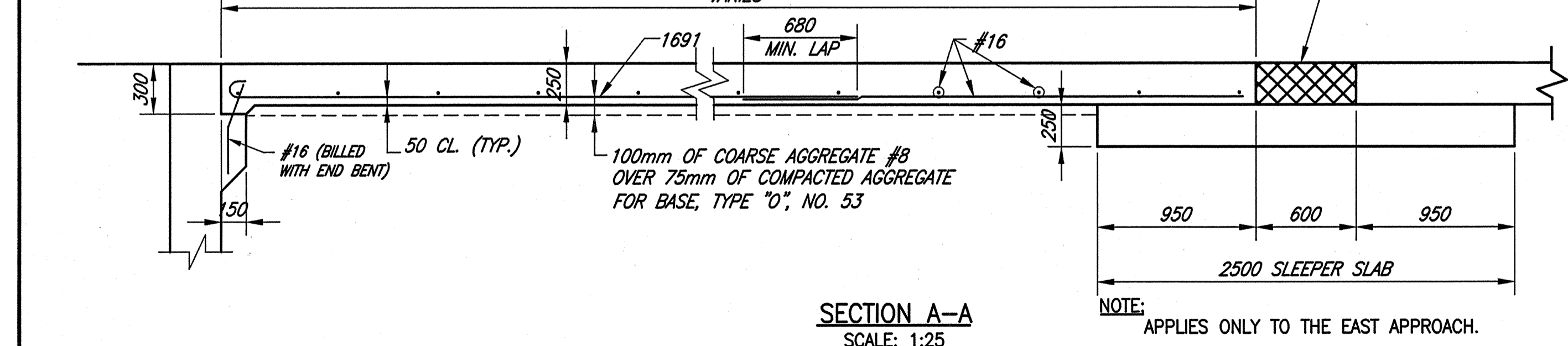
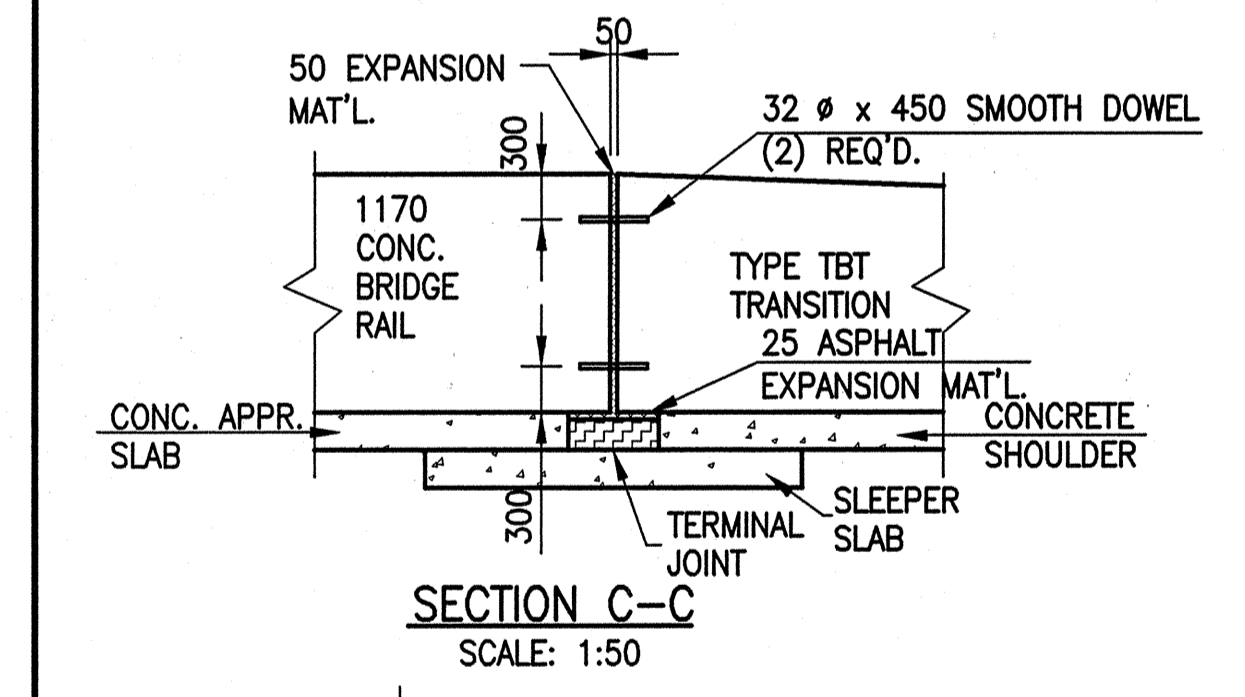
| EAST APPROACH-PHASE I<br>BILL OF MATERIALS |             |                   |            |
|--|-------------|-------------------|------------|
| REINFORCING STEEL                          |             |                   |            |
| Size or Mark                               | No. of Bars | Length (mm)       | Mass (Kg.) |
| 1690                                       | 35          | 4845              |            |
| #16  | 8           | 5360              |            |
| #16  | 1           | 5150              |            |
| #16  | 1           | 4700              |            |
| #16  | 17          | 2900              |            |
| #16  | 1           | 2530              |            |
| #16  | 1           | 1410              |            |
| #16  | 11          | 900               |            |
| TOTAL REINFORCING STEEL                    |             |                   | 443        |
| EPOXY COATED REINFORCING STEEL             |             |                   |            |
| 25 (E)                                     | 4           | 4800              |            |
| TOTAL #25 BARS                             |             |                   | 76         |
| 22 (E)                                     | 4           | 4800              |            |
| TOTAL #22 BARS                             |             |                   | 59         |
| 1693 (E)                                   | 48          | 1260              |            |
| 1691a (E)                                  | 24          | 1680              |            |
| 1681 (E)                                   | 38          | 2020              |            |
| 1682 (E)                                   | 5           | 4975              |            |
| TOTAL #16 BARS                             |             |                   | 314        |
| TOTAL EPOXY COATED REINF. STEEL            |             |                   | 449        |
| MISCELLANEOUS                              |             |                   |            |
| R.C. Pavement, 250 mm                      |             | 32 m <sup>2</sup> |            |
| Surface Seal                               |             | 32 m <sup>2</sup> |            |
| Transition TBT Slab Extension              |             | 1 Each            |            |
| Subbase for Cement Concrete Pavement       |             | 6 m <sup>3</sup>  |            |
| Field Drilled Holes                        |             | 11 Each           |            |

Quantities included in Transition TBT Slab Extension:  
Epoxy Coated Reinforcing Steel = 212 Kg.  
R.C. Bridge Appr. = 2.8 m<sup>2</sup>



**NOTES:**  
FOR REINFORCING BAR NOTES, SEE STANDARD DRAWING 703-BRST-01.  
FOR CONCRETE BRIDGE RAILING TRANSITION TYPE TBT, SEE STANDARD DRAWINGS 706-TTBT-01 THRU. 03.  
FOR SLAB EXTENSION REINFORCING, REFER TO STD. 706-TASE-02.  
FIELD DRILLED HOLES IN CONCRETE SHALL EXTEND TO A DEPTH REQUIRED TO EMBED A BAR 150 WITH AN APPROVED ANCHOR SYSTEM HAVING A MINIMUM PULLOUT EQUAL TO 82 kN FOR #16 BARS.

All Dimensions Are In Millimeters (mm), And All Elevations Are In Meters (m), Except As Noted.



Time: 2/15/04  
Scale: 1/4"=1'-0"  
Drawing File: F:\pave\BIS\_MarionCo\MB1708FC\AS\_BULLY\PRR2.dwg (down)

**JSE**  
JANSSEN & SPANNS ENGINEERING  
CONSULTING ENGINEERS  
9155 HARRISON PARK COURT  
INDIANAPOLIS, INDIANA 46216  
BUS. (317) 254-9686  
FAX (317) 259-8262

**B&S**  
Butler Fairman Seufert  
CONSULTING ENGINEERS  
8450 WESTFIELD BLVD., SUITE 300  
INDIANAPOLIS, IN. 46240  
317 713-4615  
FAX 317 713-4616

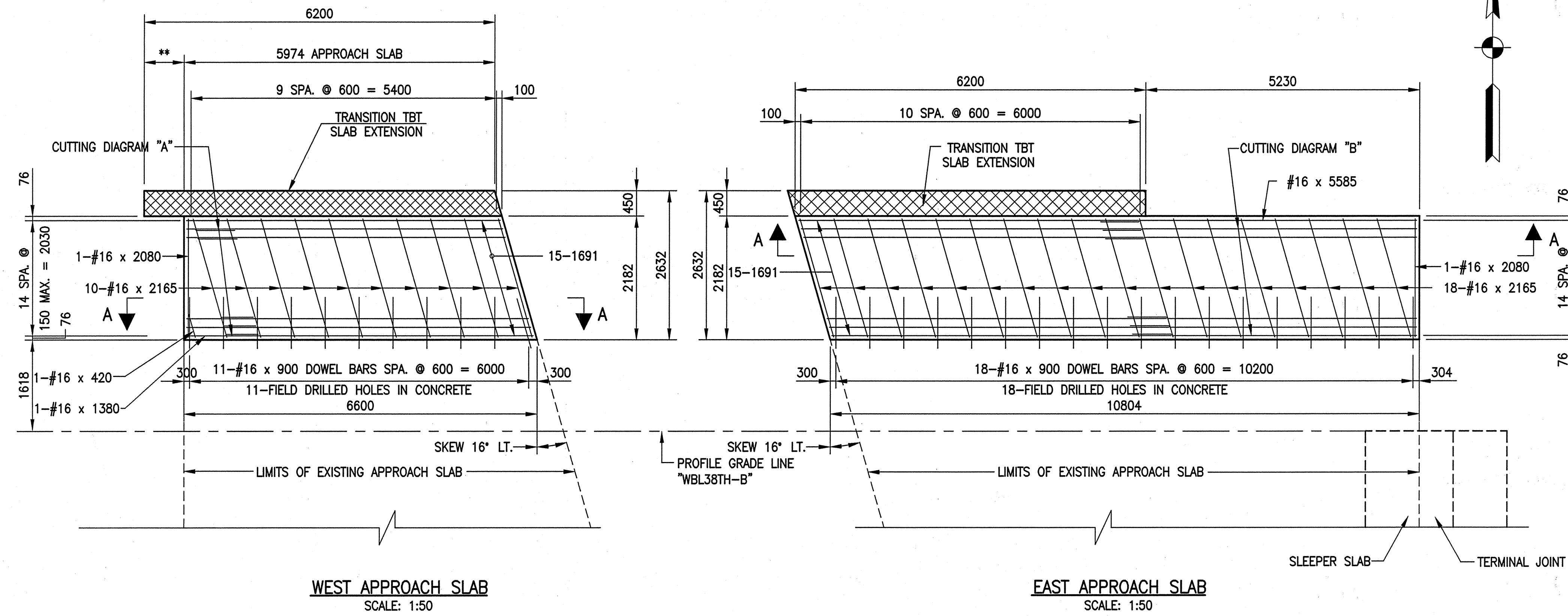
MICHAEL J. HALTERMAN  
REGISTERED PROFESSIONAL ENGINEER  
No. 20931  
STATE OF INDIANA

RECOMMENDED FOR APPROVAL  
Michael J. Halterman 9/28/01  
DESIGN ENGINEER DATE  
DESIGNED: CBS DRAWN: TAL  
CHECKED: LS CHECKED: JWR

INDIANA  
DEPARTMENT OF TRANSPORTATION  
APPROACH SLAB PLAN  
PHASE I

|                  |                   |
|------------------|-------------------|
| HORIZONTAL SCALE | BRIDGE FILE       |
| AS NOTED         | MARION B-17-09 FC |
| VERTICAL SCALE   | DESIGNATION       |
|                  | 9814689           |
| SURVEY BOOK      | SHEETS            |
|                  | 18 of 20          |
| CONTRACT         | PROJECT           |
| R-24327          | IM-65-3 (281) 118 |

\*\* - Eliminate 1681E Bars In This Area.



**WEST APPROACH-PHASE II  
BILL OF MATERIALS**

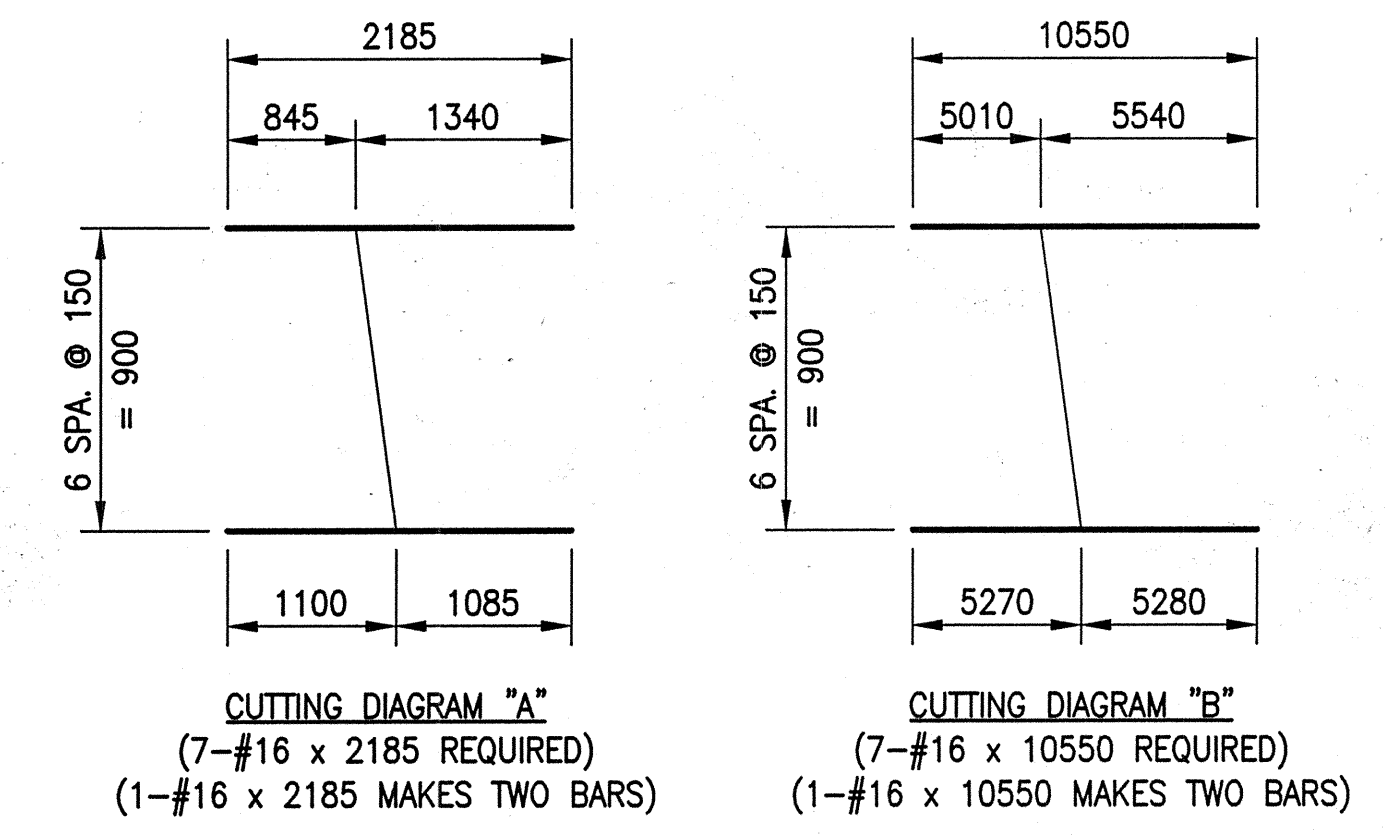
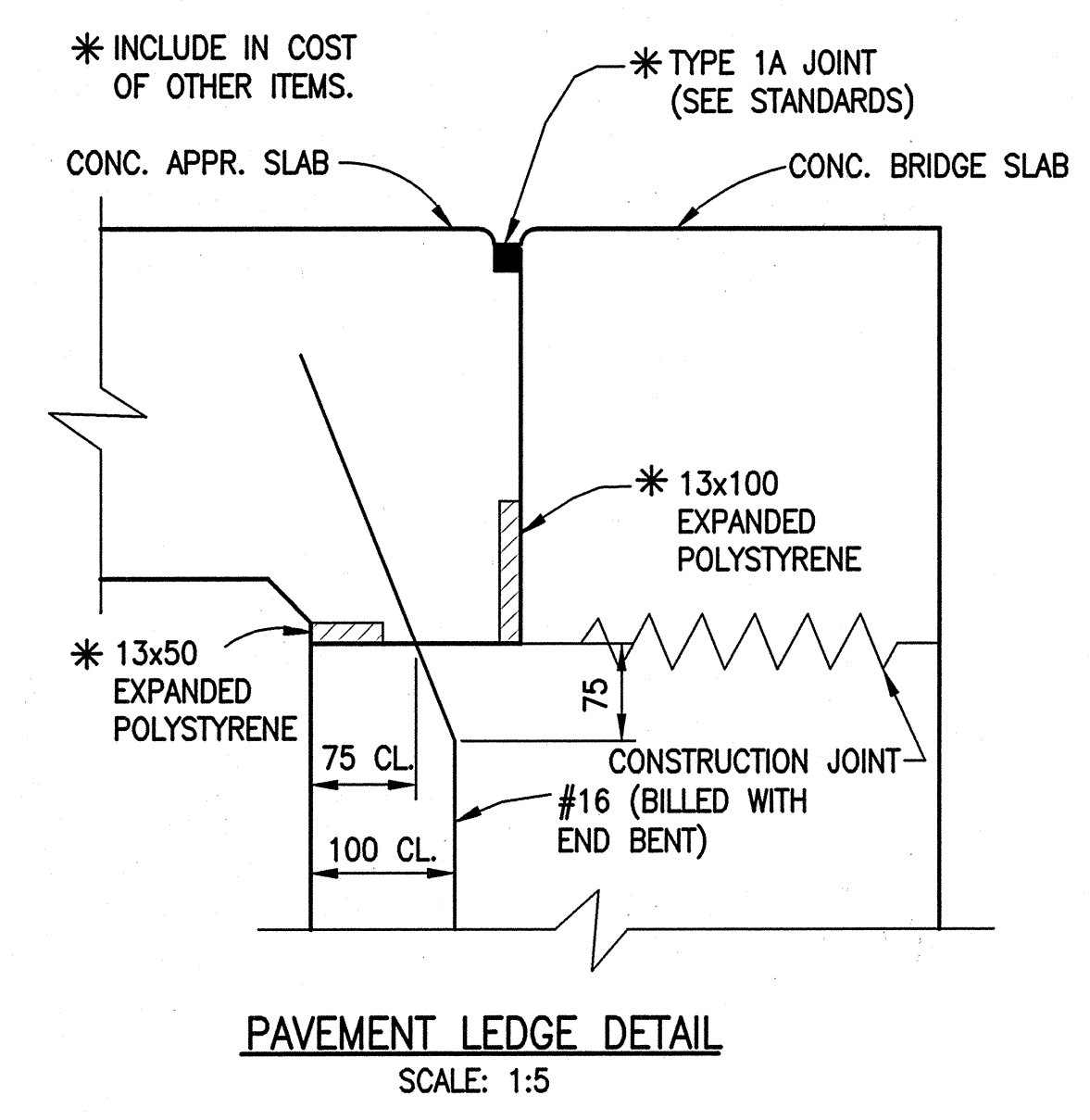
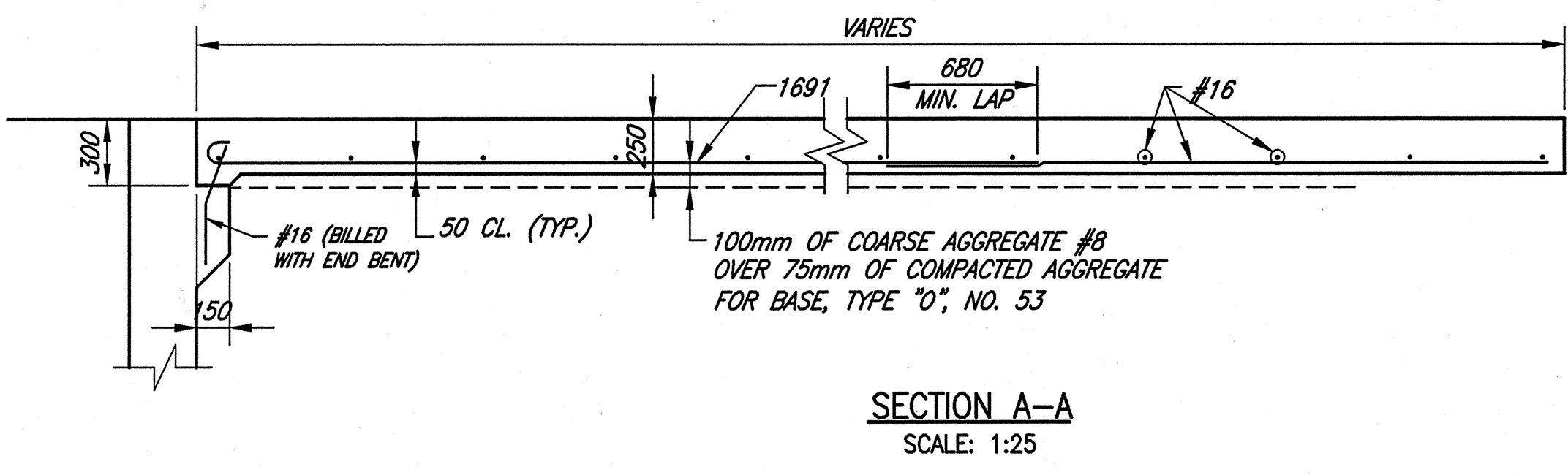
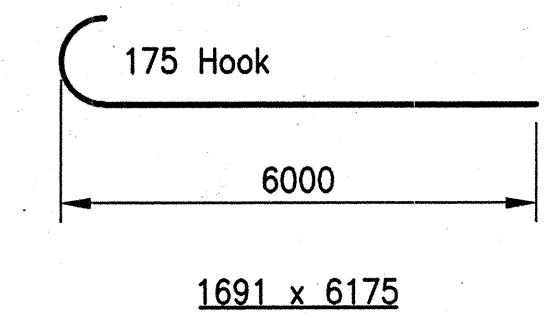
| REINFORCING STEEL                    |             |                   |            |
|--------------------------------------|-------------|-------------------|------------|
| Size or Mark                         | No. of Bars | Length (mm)       | Mass (Kg.) |
| 1691                                 | 15          | 6175              |            |
| #16                                  | 7           | 2185              |            |
| #16                                  | 10          | 2165              |            |
| #16                                  | 1           | 2080              |            |
| #16                                  | 1           | 1380              |            |
| #16                                  | 11          | 900               |            |
| #16                                  | 1           | 420               |            |
| TOTAL REINFORCING STEEL              |             |                   | 223        |
| MISCELLANEOUS                        |             |                   |            |
| R.C. Pavement, 250 mm                |             | 13 m <sup>2</sup> |            |
| Surface Seal                         |             | 13 m <sup>2</sup> |            |
| Transition TBT Slab Extension        |             | 1 Each            |            |
| Subbase for Cement Concrete Pavement |             | 3 m <sup>3</sup>  |            |
| Field Drilled Holes                  |             | 11 Each           |            |

**EAST APPROACH-PHASE II  
BILL OF MATERIALS**

| REINFORCING STEEL                    |             |                   |            |
|--------------------------------------|-------------|-------------------|------------|
| Size or Mark                         | No. of Bars | Length (mm)       | Mass (Kg.) |
| 1691                                 | 15          | 6175              |            |
| #16                                  | 7           | 10550             |            |
| #16                                  | 1           | 5585              |            |
| #16                                  | 18          | 2165              |            |
| #16                                  | 1           | 2080              |            |
| #16                                  | 18          | 900               |            |
| TOTAL REINFORCING STEEL              |             |                   | 251        |
| MISCELLANEOUS                        |             |                   |            |
| R.C. Pavement, 250 mm                |             | 24 m <sup>2</sup> |            |
| Surface Seal                         |             | 24 m <sup>2</sup> |            |
| Transition TBT Slab Extension        |             | 1 Each            |            |
| Subbase for Cement Concrete Pavement |             | 5 m <sup>3</sup>  |            |
| Field Drilled Holes                  |             | 18 Each           |            |

Quantities included in Transition TBT Slab Extension:  
Epoxy Coated Reinforcing Steel = 212 Kg.  
R.C. Bridge Appr. = 2.8 m<sup>2</sup>

Quantities included in Transition TBT Slab Extension:  
Epoxy Coated Reinforcing Steel = 212 Kg.  
R.C. Bridge Appr. = 2.8 m<sup>2</sup>



CUTTING DIAGRAM "A"  
(7-#16 x 2185 REQUIRED)  
(1-#16 x 2185 MAKES TWO BARS)

CUTTING DIAGRAM "B"  
(7-#16 x 10550 REQUIRED)  
(1-#16 x 10550 MAKES TWO BARS)

**BAR BENDING DETAILS**  
NO SCALE

**NOTES:**  
FOR REINFORCING BAR NOTES, SEE STANDARD DRAWING 703-BRST-01.  
FOR CONCRETE BRIDGE RAILING TRANSITION TYPE TBT, SEE STANDARD DRAWINGS 706-TTBT-01 THRU. 03.  
FOR SLAB EXTENSION REINFORCING, SEE STD. 706-TASE-02.  
FIELD DRILLED HOLES IN CONCRETE SHALL EXTEND TO A DEPTH REQUIRED TO EMBED A BAR 150 WITH AN APPROVED ANCHOR SYSTEM HAVING A MINIMUM PULLOUT EQUAL TO 82 kN FOR #16 BARS.

All Dimensions Are in Millimeters (mm), And All Elevations Are in Meters (m), Except As Noted.

Title: 04/17/05  
 Date: 10/2/2001  
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|   |   |   |   |
|---|---|---|---|
| <br><b>JANSEN &amp; SPANS ENGINEERING</b><br>CONSULTING ENGINEERS<br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-9686<br>FAX (317) 259-8262 | <br><b>Butler Fairman Seufert</b><br>CONSULTING ENGINEERS<br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4815<br>FAX 317 713-4616 | <br>RECOMMENDED FOR APPROVAL<br><i>Michael J. Halterman</i> 9/28/01<br>DESIGN ENGINEER DATE | <b>INDIANA DEPARTMENT OF TRANSPORTATION</b><br><br>APPROACH SLAB PLAN<br>PHASE II |
|   |   | DESIGNED: CBS<br>CHECKED: LS  | DRAWN: TAL<br>CHECKED: JWR  |
|   |   | HORIZONTAL SCALE<br>AS NOTED<br>VERTICAL SCALE  | BRIDGE FILE<br>MARION B-17-09 FC<br>DESIGNATION<br>9814689                        |
|   |   | SURVEY BOOK<br>CONTRACT<br>R-24327  | SHEETS<br>19 of 20<br>PROJECT<br>IM-65-3 (281) 118                                |

**SUMMARY OF BRIDGE QUANTITIES**

| ITEM                        | CONCRETE               |                      |                      | CONCRETE<br>"C"<br>IN RAILING | REINF.<br>STEEL | REINF.<br>STEEL<br>EPOXY<br>COATED | STRUCT.<br>STEEL<br>*** | ANCHOR<br>BOLTS | 356mm STEEL<br>ENCASED CONCRETE<br>PILES | 150mm<br>P.V.C.<br>DRAIN<br>PIPE | CAST IRON<br>GRATES,<br>BASINS &<br>FITTINGS | EXPANSION<br>JOINT<br>SEALING<br>SYSTEM | SUBBASE<br>FOR CEMENT<br>CONCRETE<br>PAVEMENT | THREADED<br>TIE-BAR<br>EPOXY | REINFORCE<br>PAVEMENT<br>250mm | RAILING<br>TRANSITION<br>TYPE TBT | FIELD<br>DRILLED<br>HOLES IN<br>CONCRETE | BARRIER<br>DELINEATORS | MASONRY<br>COATING<br>(ESTIMATED)<br>** | SURFACE<br>SEAL<br>(ESTIMATED)<br>** | "B"<br>BORROW<br>FOR STR.<br>BACKFILL | REVETMENT<br>RIPRAP | GEOTEXTILES | COARSE<br>AGGREGATE |
|-----------------------------|------------------------|----------------------|----------------------|-------------------------------|-----------------|------------------------------------|-------------------------|-----------------|--|----------------------------------|--|---|---|------------------------------|--------------------------------|-----------------------------------|--|------------------------|---|--------------------------------------|---------------------------------------|---------------------|-------------|---------------------|
|                             | "C"<br>IN<br>SUPERSTR. | "A"<br>IN<br>SUBSTR. | "B"<br>IN<br>FOOTING |                               |                 |                                    |                         |                 |  |                                  |  |   |   |                              |                                |                                   |  |                        |   |                                      |                                       |                     |             |                     |
|                             | m <sup>3</sup>         | m <sup>3</sup>       | m <sup>3</sup>       |                               |                 |                                    |                         |                 |  |                                  |  |   |   |                              |                                |                                   |  |                        |   |                                      |                                       |                     |             |                     |
| SUPERSTRUCTURE              |                        |                      |                      |                               |                 |                                    |                         |                 |  |                                  |  |   |   |                              |                                |                                   |  |                        |   |                                      |                                       |                     |             |                     |
| PHASE I                     | 75.8                   |                      |                      | 60.1                          |                 | 17058                              | 36855                   |                 |  | 6                                | 660  | 27                                      |   |                              |                                |                                   |  | 10                     | 357                                     | 540                                  |                                       |                     |             |                     |
| PHASE II                    | 38.0                   |                      |                      | 60.1                          |                 | 10501                              | 23816                   |                 |  | 6                                | 660  | 21                                      |   |                              |                                |                                   |  | 10                     | 176                                     | 177                                  |                                       | 25                  | 78          |                     |
| SUBSTRUCTURE                |                        |                      |                      |                               |                 |                                    |                         |                 |  |                                  |  |   |   |                              |                                |                                   |  |                        |   |                                      |                                       |                     |             |                     |
| BENT NO. 1-PHASE I          | 1.8                    | 8.1                  |                      |                               |                 | 912                                |                         | 6               | 3  | 33                               | 6  |   |   |                              |                                |                                   | 7  | 7                      | 19                                      |                                      |                                       |                     | 22          | 8                   |
| BENT NO. 1-PHASE II         | 0.9                    | 5.0                  |                      |                               |                 | 540                                |                         | 4               | 2  | 22                               | 3  |   |   |                              |                                |                                   | 7  | 7                      | 13                                      |                                      |                                       |                     | 11          | 4                   |
| PIER NO. 2-PHASE I          |                        | 34.5                 |                      |                               |                 | 1365                               |                         | 6               | 5  | 52.5                             |  |   |   |                              |                                |                                   | 34                                       |                        | 98                                      |                                      |                                       |                     |             |                     |
| PIER NO. 2-PHASE II         |                        | 21.2                 |                      |                               |                 | 909                                |                         | 4               | 3  | 31.5                             |  |   |   |                              |                                |                                   | 34                                       |                        | 61                                      |                                      |                                       | 108                 | 180         |                     |
| PIER NO. 3-PHASE I          |                        | 34.5                 |                      |                               |                 | 1365                               |                         | 6               | 5  | 55                               |  |   |   |                              |                                |                                   | 34                                       |                        | 98                                      |                                      |                                       |                     |             |                     |
| PIER NO. 3-PHASE II         |                        | 21.2                 |                      |                               |                 | 895                                |                         | 4               | 3  | 33                               |  |   |   |                              |                                |                                   | 34                                       |                        | 61                                      |                                      |                                       | 108                 | 180         |                     |
| BENT NO. 4-PHASE I          | 1.8                    | 8.1                  |                      |                               |                 | 915                                |                         | 6               | 3  | 28.5                             | 6  |   |   |                              |                                |                                   | 7  | 7                      | 19                                      |                                      |                                       |                     | 22          | 8                   |
| BENT NO. 4-PHASE II         | 0.9                    | 5.0                  |                      |                               |                 | 538                                |                         | 4               | 2  | 19                               | 3  |   |   |                              |                                |                                   | 7  | 7                      | 13                                      |                                      |                                       |                     | 11          | 4                   |
| APPROACH SLAB               |                        |                      |                      |                               |                 |                                    |                         |                 |  |                                  |  |   |   |                              |                                |                                   |  |                        |   |                                      |                                       |                     |             |                     |
| EAST APPROACH SLAB-PHASE I  |                        |                      |                      |                               |                 | 443                                | 449                     |                 |  |                                  |  | 6                                       |   |                              | 32                             | 1                                 | 11                                       |                        |   | 32                                   |                                       |                     |             |                     |
| EAST APPROACH SLAB-PHASE II |                        |                      |                      |                               |                 | 251                                |                         |                 |  |                                  |  | 5                                       |   |                              | 24                             | 1                                 | 18                                       |                        |   | 24                                   |                                       |                     |             |                     |
| WEST APPROACH SLAB-PHASE I  |                        |                      |                      |                               |                 | 831                                | 1127                    |                 |  |                                  |  | 12                                      |   |                              | 64                             |                                   | 17                                       |                        |   | 64                                   |                                       |                     |             |                     |
| WEST APPROACH SLAB-PHASE II |                        |                      |                      |                               |                 | 223                                |                         |                 |  |                                  |  | 3                                       |   |                              | 13                             | 1                                 | 11                                       |                        |   | 13                                   |                                       |                     |             |                     |
| TOTALS                      | 119.2                  | 137.6                |                      | 120.2                         | 6282            | 32037                              | 60671                   | 40              | 26                                       | 274                              | 30   | 1320                                    | 48  | 26                           | 133                            | 3                                 | 221                                      | 20                     | 561                                     | 1232                                 |                                       | 241                 | 504         | 24                  |

| REVISIONS |      |
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Time: 2/19/06  
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| <br><b>JANSEN &amp; SPAANS ENGINEERING</b><br>CONSULTING ENGINEERS<br>9155 HARRISON PARK COURT<br>INDIANAPOLIS, INDIANA 46216<br>BUS. (317) 254-9686<br>FAX (317) 259-6262 | <br><b>Butler Fairman Seufert</b><br>CONSULTING ENGINEERS<br>8450 WESTFIELD BLVD., SUITE 300<br>INDIANAPOLIS, IN. 46240<br>317 713-4615<br>FAX 317 713-4616 |  | RECOMMENDED FOR APPROVAL<br><i>Michael J. Haltzman</i> 9/28/01<br>DESIGN ENGINEER DATE | <b>INDIANA</b><br><b>DEPARTMENT OF TRANSPORTATION</b><br><br><b>BRIDGE SUMMARY</b> | HORIZONTAL SCALE<br>NONE     | BRIDGE FILE<br>MARION B-17-09 FC |
|  |  |   | DESIGNED: CBS<br>CHECKED: LS   |  | DRAWN: TAL<br>CHECKED: JWR   | VERTICAL SCALE<br>NONE           |
|  |  |   |  | CONTRACT<br>R-24327  | PROJECT<br>IM-65-3 (281) 118 |                                  |