

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

|                             |         |              |           |
|-----------------------------|---------|--------------|-----------|
| SECTION                     | COUNTY  | TOTAL SHEETS | SHEET NO. |
| 09 BRIDGE PAINT 2019-1      | VARIOUS | 50           | 1         |
| ILLINOIS CONTRACT NO. 78677 |         |              |           |

**PROPOSED  
HIGHWAY PLANS**  
VARIOUS ROUTES  
SECTION D9 BRIDGE PAINT 2019-1  
PROJECT STP-UBY6(205)  
VARIOUS COUNTIES

FOR INDEX OF SHEETS, SEE SHEET NO. 2

FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 3

**BRIDGE NO. 1**  
SN. 041-0039  
IL 37 2017 ADT=3950, 9% TRUCKS  
TOWNSHIP-ROME  
POSTED SPEED: 55 MPH

**BRIDGE NO. 8**  
SN. 041-0088  
I-64 EB 2017 ADT=5650, 39% TRUCKS  
TOWNSHIP-DODDS  
POSTED SPEED: 70 MPH

**BRIDGE NO. 2**  
SN. 041-0040  
IL 142 2017 ADT=5800, 6% TRUCKS  
TOWNSHIP-DODDS  
POSTED SPEED: 55 MPH

**BRIDGE NO. 9**  
SN. 002-0032  
IL 3 2017 ADT=3800, 8% TRUCKS  
TOWNSHIP-CO UNIT ROAD DIST  
POSTED SPEED: 55 MPH

**BRIDGE NO. 3**  
SN. 041-0041  
IL 142 2017 ADT=5800, 6% TRUCKS  
TOWNSHIP-DODDS  
POSTED SPEED: 55 MPH

**BRIDGE NO. 10**  
SN. 028-0038  
IL 149 2017 ADT=4400, 7% TRUCKS  
TOWNSHIP-DENNING  
POSTED SPEED: 55 MPH

**BRIDGE NO. 4**  
SN. 041-0042  
IL 142 2017 ADT=5800, 6% TRUCKS  
TOWNSHIP-DODDS  
POSTED SPEED: 55 MPH

**BRIDGE NO. 11**  
SN. 028-0041  
IL 149 2017 ADT=2100, 10% TRUCKS  
TOWNSHIP-CAVE  
POSTED SPEED: 55 MPH

**BRIDGE NO. 5**  
SN. 041-0077  
I-64 EB 2017 ADT=11500, 38% TRUCKS  
TOWNSHIP-CASNER  
POSTED SPEED: 70 MPH

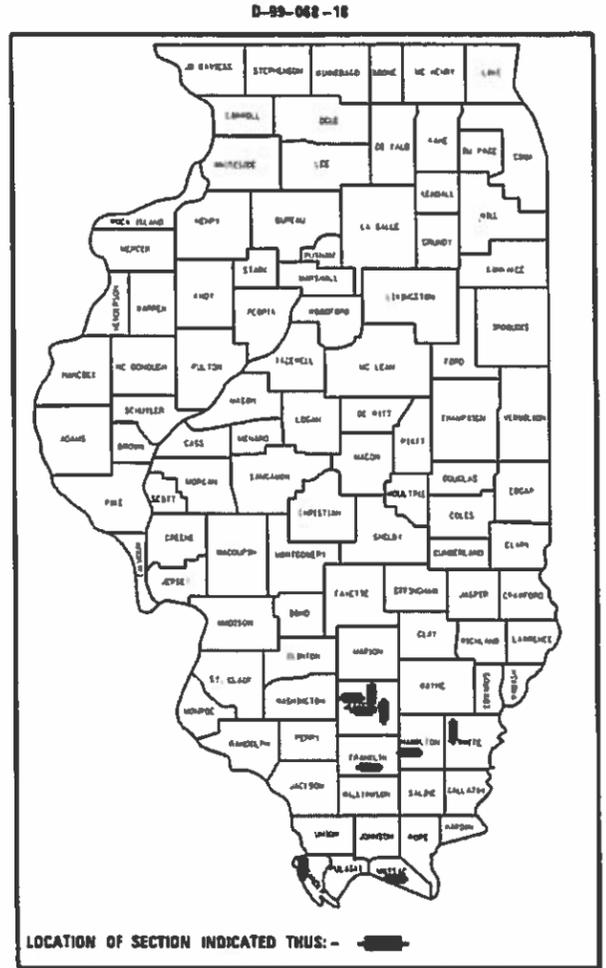
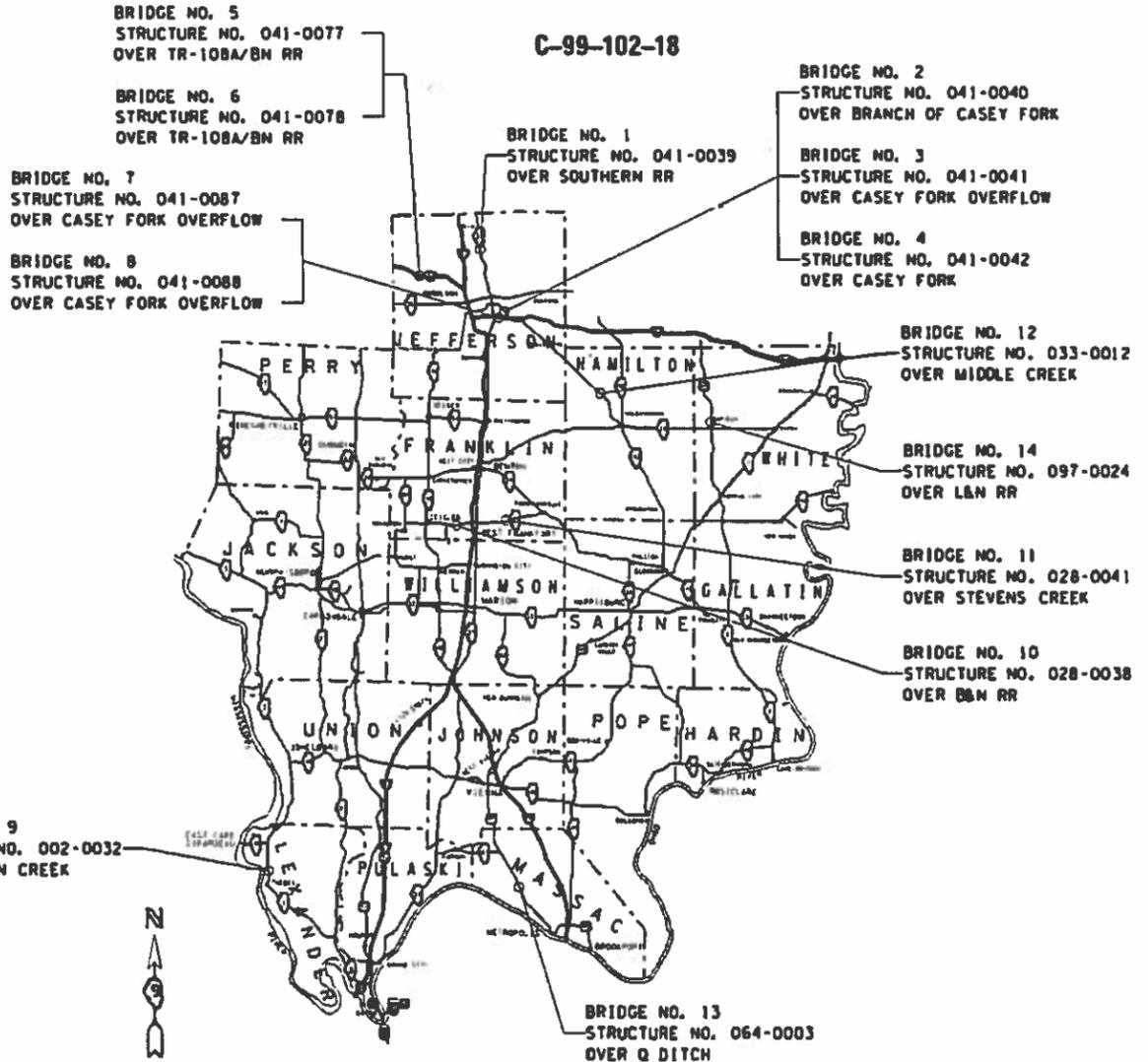
**BRIDGE NO. 12**  
SN. 033-0012  
IL 142 2017 ADT=3200, 8% TRUCKS  
TOWNSHIP-DAHLGREN  
POSTED SPEED: 55 MPH

**BRIDGE NO. 6**  
SN. 041-0078  
I-64 WB 2017 ADT=11500, 38% TRUCKS  
TOWNSHIP-CASNER  
POSTED SPEED: 70 MPH

**BRIDGE NO. 13**  
SN. 064-0003  
US 45 2017 ADT=2100, 8% TRUCKS  
TOWNSHIP-CO UNIT ROAD DIST  
POSTED SPEED: 55 MPH

**BRIDGE NO. 7**  
SN. 041-0087  
I-64 WB 2017 ADT=5650, 39% TRUCKS  
TOWNSHIP-DODDS  
POSTED SPEED: 70 MPH

**BRIDGE NO. 14**  
SN. 097-0024  
US 45 2017 ADT=2950, 12% TRUCKS  
TOWNSHIP-ENFIELD  
POSTED SPEED: 35 MPH



DESIGN DESIGNATION : N/A  
COORDINATE SYSTEM : N/A

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-992-0123  
OR 811

PROJECT ENGINEER: DAVID PICHE  
PROJECT DESIGNER: DAVID WILSON

CONTRACT NO. 78677

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUBMITTED Oct 1 20 18

Jeffrey Z. Kuen  
REGION FIVE ENGINEER

Dec 7 20 18  
Scott A. Etk  
ENGINEER OF DESIGN AND ENVIRONMENT

Dec 7 20 18  
David P. Chaf  
DIRECTOR OF HIGHWAYS, PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS







STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

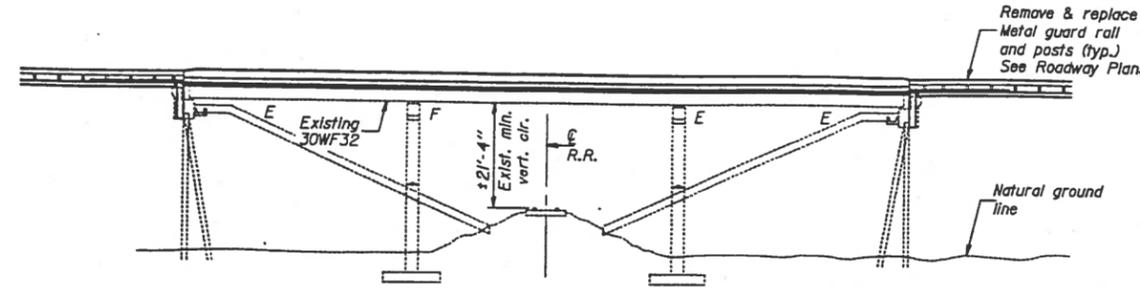
|              |             |              |    |
|--------------|-------------|--------------|----|
| PROJECT NO.  | 110-0039    | SHEET NO.    | 1  |
| DATE         | NOV 20 2012 | TOTAL SHEETS | 15 |
| CONTRACT NO. | 20 6        |              |    |

Bench Mark: Top S.W. wing Elevation 560.78

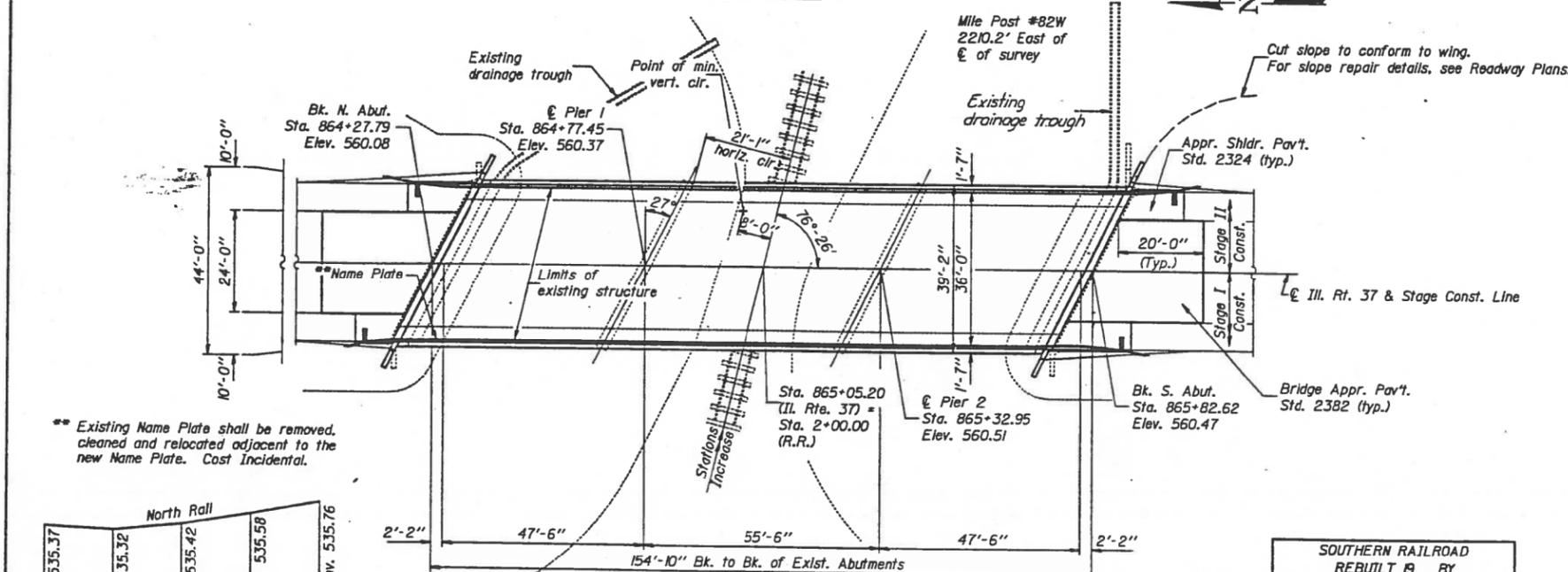
Existing Structure: S.N.: 041-0039, Built in 1956 as S.B.I. Rt. 142 Section 110-2-VB, is a three span continuous steel I-beam bridge with a non-composite slab. The substructure consists of pile bent abutments and R.C. piers with spread footings on rock. The existing concrete deck, abutment bearings and end diaphragms are to be replaced utilizing existing steel beams and substructure units. Traffic is to be staged. No salvage

GENERAL NOTES

Bridge Seat Sealer shall be applied to the seal area of the abutments. Est. quantity = 250 Sq. Ft.  
All contact surfaces of joints for the diaphragms shall be free of paint or lacquer.  
All existing structural steel which is to remain shall be cleaned by Method II prior to painting.  
The three coat lead and chromate free alkyl paint system shall be used for field painting of the Existing Structural Steel. The color of the final finish coat shall be Interstate Green (Munsell 7.5G 4/B). See Special Prov.  
The three coat lead and chromate free alkyl paint system shall be used for shop and field painting of New Structural Steel. The color of the final finish coat shall be Interstate Green (Munsell 7.5G 4/B). See Special Prov.  
Field welding of construction accessories will not be permitted to the bottom flange of beams nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.



ELEVATION



PLAN

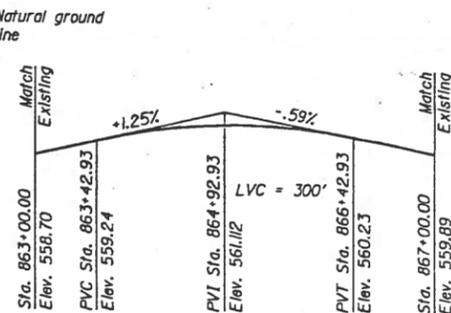
Existing Name Plate shall be removed, cleaned and relocated adjacent to the new Name Plate. Cost incidental.

| Station      | Elevation    |
|--------------|--------------|
| Sta. 1+00.00 | Elev. 535.36 |
| Sta. 1+50.00 | Elev. 535.29 |
| Sta. 2+00.00 | Elev. 535.36 |
| Sta. 2+50.00 | Elev. 535.44 |
| Sta. 3+00.00 | Elev. 535.57 |

RAILROAD PROFILE GRADE  
(as per survey)

|          |        |
|----------|--------|
| DESIGNED | W.D.C. |
| CHECKED  | W.D.C. |
| DRAWN    | W.D.C. |
| CHECKED  | W.D.C. |

|          |               |
|----------|---------------|
| DESIGNED | M. J. 9 1959  |
| EXAMINED | J. J. 10 1959 |
| PASSED   | J. J. 10 1959 |
| APPROVED | J. J. 10 1959 |



PROPOSED PROFILE GRADE  
(along  $\bar{c}$  of Rdwy.)

SOUTHERN RAILROAD  
REBUILT BY  
STATE OF ILLINOIS  
S.B.I. RT. 142 SEC. 110-2VBR  
PROJECT ACBHS-2826 (101)  
STA. 865+05.20 LOADING HS20  
STR. NO. 041-0039

NAME PLATE  
See Std. 2113

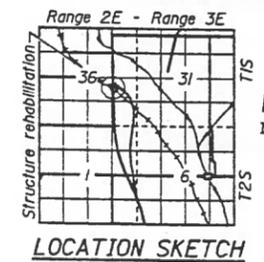
DESIGN SPECIFICATIONS  
AASHTO (1983) and applicable Interims (1984 thru 1988)  
Allow 25#/sq. ft. for future wearing surface.

DESIGN STRESSES

|        |  |
|--------|--|
| $f'_c$ | = 3,500 psi                            |
| $f_y$  | = 60,000 psi (reinforcement)           |
| $f_s$  | = 18,000 psi (exist. structural steel) |
| $f_s$  | = 20,000 psi (New structural steel)    |

TOTAL BILL OF MATERIAL

| ITEM                                 | UNIT     | SUPER | SUB  | TOTAL |
|--------------------------------------|----------|-------|------|-------|
| Concrete Removal                     | Cu. Yd.  |       | 12.1 | 12.1  |
| Expansion Bolts $\frac{3}{4}$ "      | Each     |       | 60   | 60    |
| Removal of Existing Concrete Deck    | Each     | 1     |      | 1     |
| Structure Excavation                 | Cu. Yd.  |       | 32   | 32    |
| Preformed Joint Seal 2 1/2"          | Lin. Ft. | 43    |      | 43    |
| Preformed Joint Seal 4"              | Lin. Ft. | 43    |      | 43    |
| Protective Coat                      | Sq. Yd.  | 125   |      | 125   |
| Elastomeric Bearing Assembly Type I  | Each     |       | 6    | 6     |
| Elastomeric Bearing Assembly Type II | Each     |       | 6    | 6     |
| Class X Concrete                     | Cu. Yd.  |       | 6.4  | 6.4   |
| Class X Concrete Superstructure      | Cu. Yd.  | 184.6 |      | 184.6 |
| Structural Steel                     | Lb.      | 6460  |      | 6460  |
| Stud Shear Connectors                | Each     | 2412  |      | 2412  |
| Cleaning and Painting Steel Bridge   | L. S.    | 1     |      | 1     |
| Structural Steel Removal             | Lb.      | 2460  |      | 2460  |
| Reinforcement Bars, Epoxy Coated     | Lb.      | 43130 | 1310 | 44440 |
| Name Plates                          | Each     | 1     |      | 1     |
| Jack and Remove Existing Bearings    | Each     |       | 12   | 12    |
| Bridge Seat Sealer                   | L.S.     |       | 1    | 1     |



LOCATION SKETCH

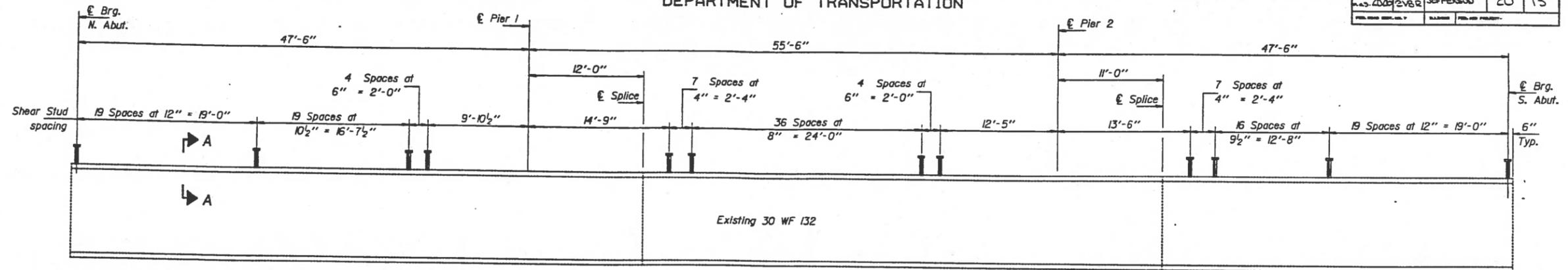
GENERAL PLAN  
ILLINOIS ROUTE 37 OVER  
SOUTHERN RAILROAD  
S.B.I. ROUTE 142-SECTION 110-2VBR  
JEFFERSON COUNTY  
STA. 865+05.20  
STRUCTURE NO. 041-0039

FOR INFORMATION ONLY 041-0039

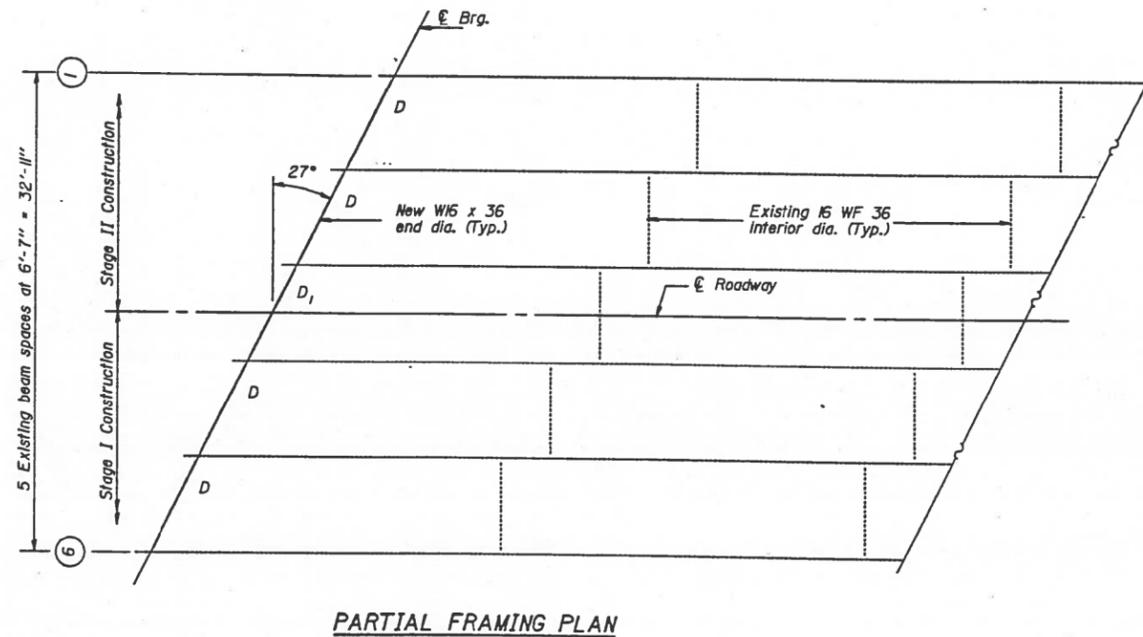
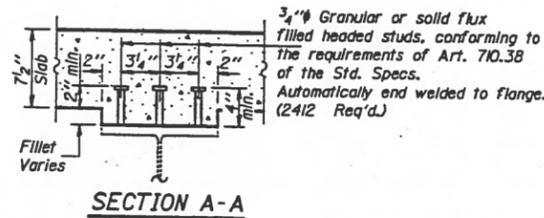
|                              |            |           |   |          |           |                        |         |              |                           |
|------------------------------|------------|-----------|---|----------|-----------|------------------------|---------|--------------|---------------------------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 041-0039 | F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO.                 |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 5                         |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          | SCALE:    |                        |         |              | CONTRACT NO. 78677        |
|                              | DATE       | REVISED   |   |          | SHEET     | OF                     | SHEETS  | STA.         | TO STA.                   |
|                              |            |           |   |          |           |                        |         |              | ILLINOIS FED. AID PROJECT |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

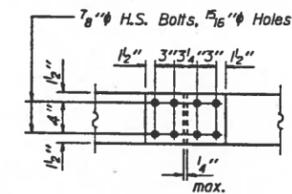
|            |              |              |            |           |
|------------|--------------|--------------|------------|-----------|
| DATE       | BY           | CHKD         | DATE       | SHEET NO. |
| 10/10/2018 | J.T. Downing | J.T. Downing | 10/10/2018 | 13        |
|            |              |              |            | 5 SHEETS  |



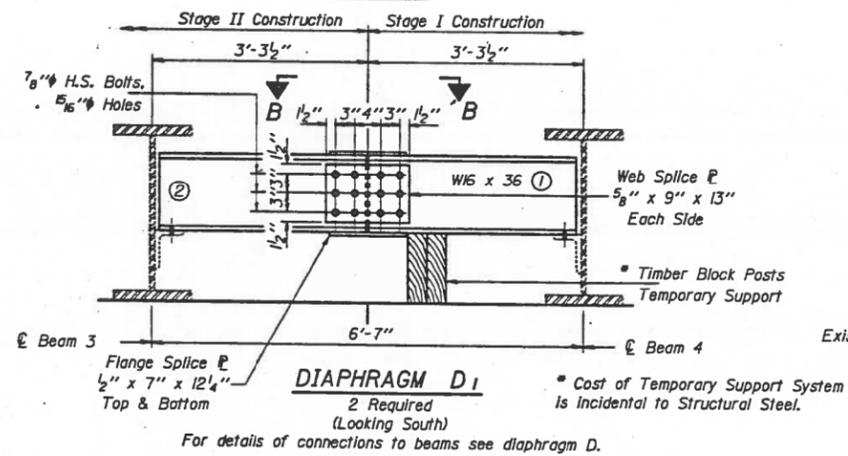
ELEVATION



PARTIAL FRAMING PLAN



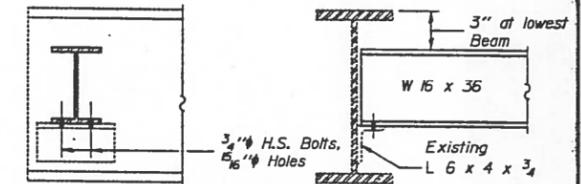
VIEW B-B



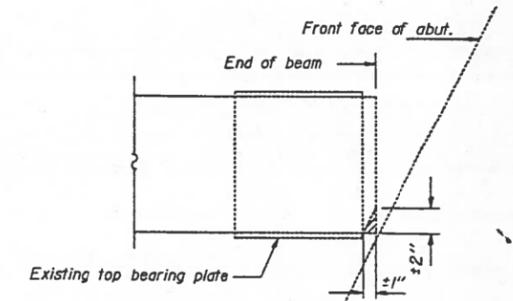
DIAPHRAGM D1 CONSTRUCTION SEQUENCE

- 1.) Order Diaphragm D1 in two sections with lengths of 3'-7 1/2" and 3'-7 1/2"
- 2.) Attach section ① of Diaphragm to Beam 4 and top flange splice P during Stage I Construction
- 3.) Place Temporary Support System between section ① of diaphragm and abutment bearing seat.
- 4.) Attach section ② of diaphragm to both Beam 3 and section ① of diaphragm during Stage II Construction.
- 5.) Attach all remaining splice plates to sections ① and ② of diaphragms.
- 6.) Remove Temporary Support System.

Note: Two hardened washers shall be required over all 5/16" holes. All contact surfaces of joints shall be free of paint or lacquer. Holes for attaching diaphragms to existing seat angles shall be field drilled.



DIAPHRAGM D



PLAN - SOUTH ABUTMENT

Beams #1, 2 & 3  
Remove hatched area on top and bottom flanges using a mechanically guided torch or other method as approved by the Engineer.  
Cut surfaces shall meet the ANSI surface roughness rating of 1000.  
Cost incidental to Contract.

STRUCTURAL STEEL DETAILS  
S.B.I. ROUTE 142-SECTION 110-2VBR  
JEFFERSON COUNTY  
STA. 865+05.20

|          |              |          |              |
|----------|--------------|----------|--------------|
| DESIGNED | May 9, 1999  | EXAMINED | May 9, 1999  |
| CHECKED  | J.T. Downing | PASSED   | J.T. Downing |
| DRAWN    | J.T. Downing | APPROVED | J.T. Downing |
| CHECKED  | J.T. Downing |          |              |

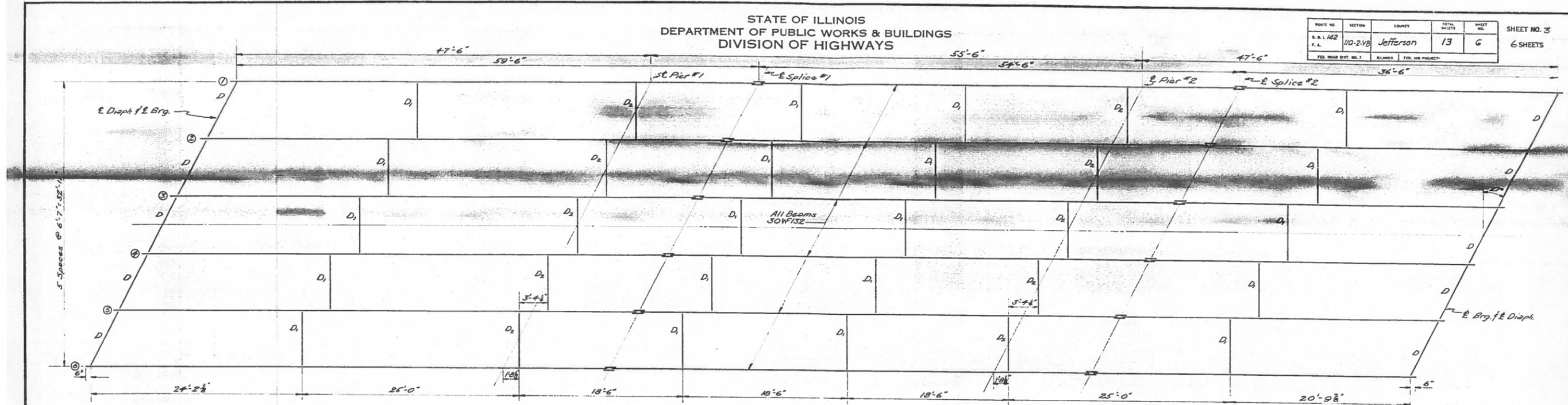
FOR INFORMATION ONLY 041-0039

|                              |            |           |   |          |                           |                        |         |              |           |
|------------------------------|------------|-----------|---|----------|---------------------------|------------------------|---------|--------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 041-0039 | F.A. RTE.                 | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | VAR                       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 6         |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          | CONTRACT NO. 78677        |                        |         |              |           |
|                              | DATE       | REVISED - |   |          | ILLINOIS FED. AID PROJECT |                        |         |              |           |

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

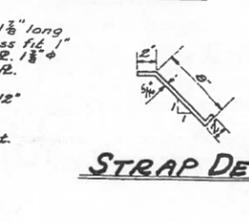
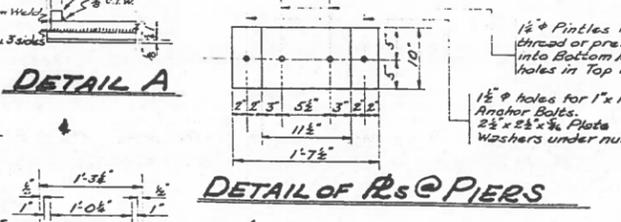
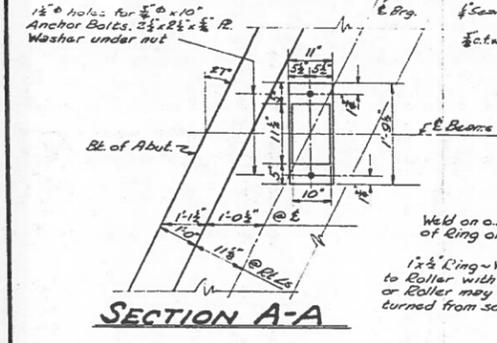
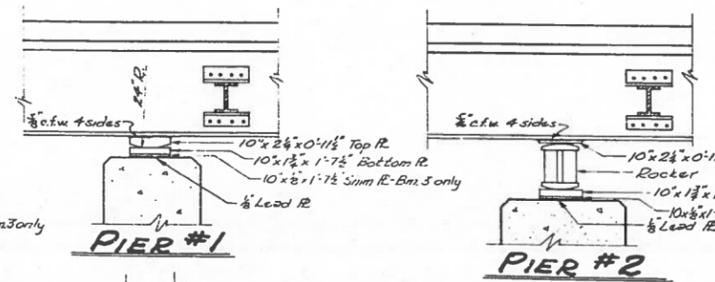
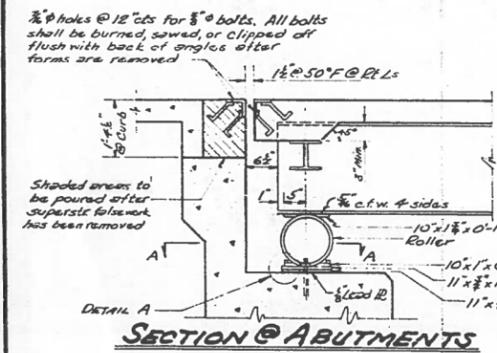
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|-----------------------|----------|------------------|--------------|-----------|
| ROUTE NO.             | SECTION  | COUNTY           | TOTAL SHEETS | SHEET NO. |
| S.R. 142              | 110-2-VB | Jefferson        | 13           | 6         |
| FED. ROAD DIST. NO. 7 | BLINDLY  | FED. AID PROJECT |              |           |

SHEET NO. 3  
6 SHEETS

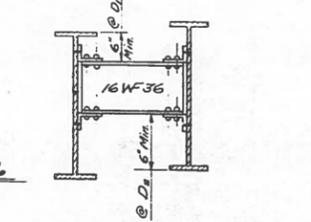


| Beam        | 1      | 2      | 3      | 4      | 5      | 6      |
|-------------|--------|--------|--------|--------|--------|--------|
| E.N. Brg.   | 559.05 | 559.16 | 559.25 | 559.22 | 559.15 | 559.03 |
| E Pier #1   | 559.25 | 559.36 | 559.43 | 559.42 | 559.35 | 559.23 |
| E Splice #1 | 559.30 | 559.41 | 559.48 | 559.47 | 559.40 | 559.28 |
| E Pier #2   | 559.41 | 559.52 | 559.59 | 559.57 | 559.51 | 559.39 |
| E Splice #2 | 559.44 | 559.55 | 559.62 | 559.61 | 559.54 | 559.42 |
| E S. Brg.   | 559.44 | 559.55 | 559.62 | 559.61 | 559.54 | 559.42 |

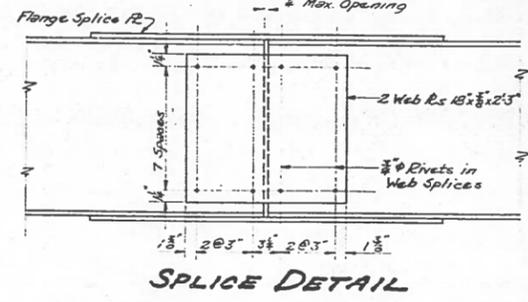
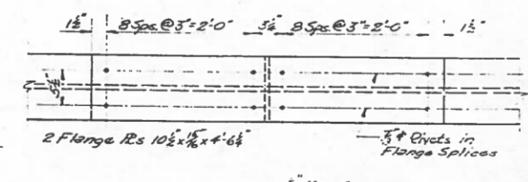
ELEVATION @ TOP OF BEAMS



STRAP DETAIL



DIAPHRAGM D



STRUCTURAL STEEL  
S.B.I. Rt. 142 SEC. 110-2-VB  
JEFFERSON COUNTY  
STA. 865+05.20

|          |       |
|----------|-------|
| DESIGNED | 19 56 |
| CHECKED  |       |
| DRAWN    |       |
| CHECKED  |       |

|          |       |
|----------|-------|
| DESIGNED | 19 56 |
| CHECKED  |       |
| DRAWN    |       |
| CHECKED  |       |

|          |       |
|----------|-------|
| DESIGNED | 19 56 |
| CHECKED  |       |
| DRAWN    |       |
| CHECKED  |       |

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
|                              | DRAWN -    | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/10/2018       | DATE -     | REVISED - |

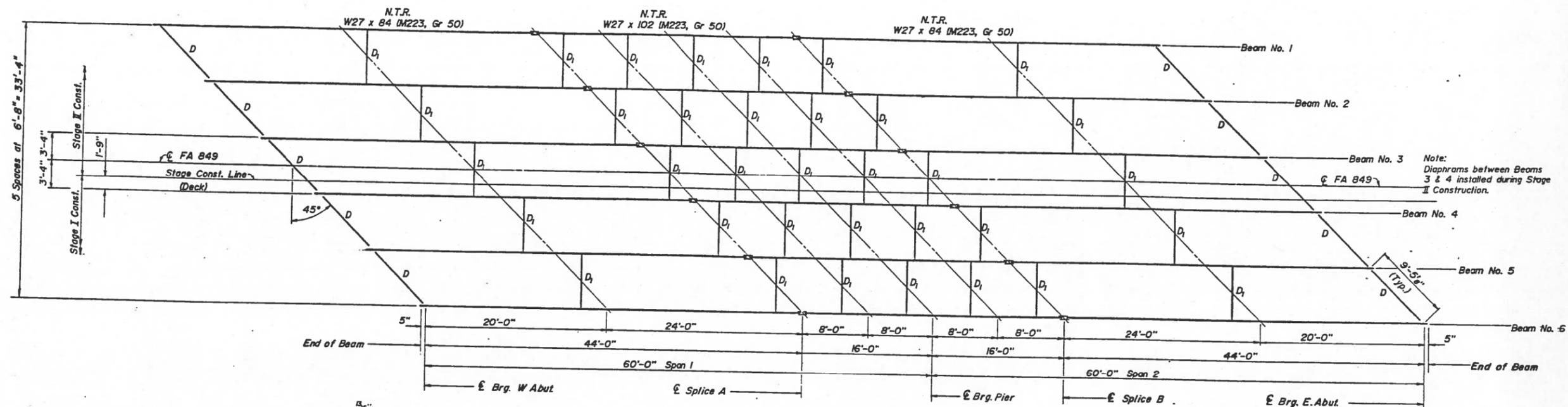
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|-----------|------------------------|---------|--------------|--------------------|
| F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO.          |
| VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 7                  |
|           |                        |         |              | CONTRACT NO. 78677 |



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

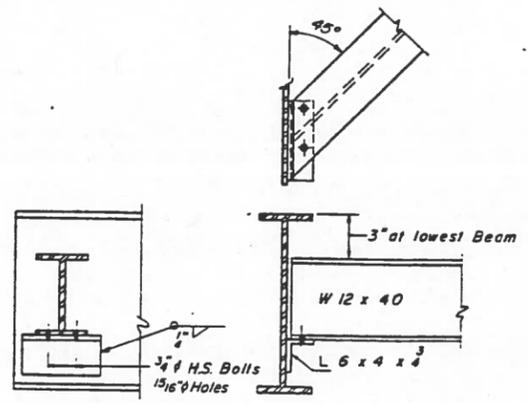
|             |         |           |              |           |
|-------------|---------|-----------|--------------|-----------|
| PROJECT NO. | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
| 849         | 113BR   | JEFFERSON | 23           | 11        |

BRIDGE SHEET 7 OF 17 SHEETS

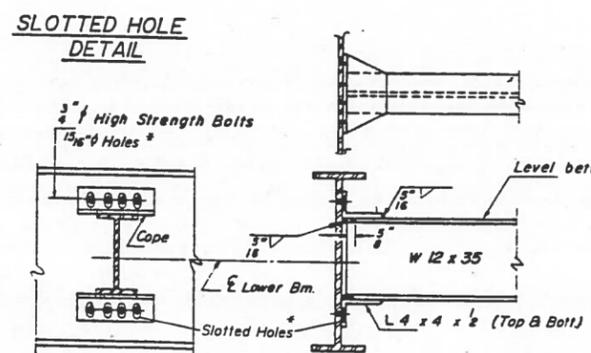


Note:  
Diaphragms between Beams 3 & 4 installed during Stage II Construction.

FRAMING PLAN

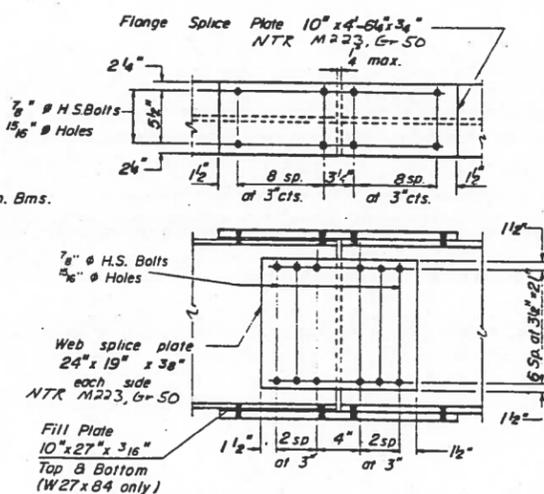


DIAPHRAGM D  
10 Required



DIAPHRAGM D1  
35 Required

Note: Two hardened washers shall be required over all 1 1/2" holes.  
\* Provide slotted holes in 4 x 4 x 1/2 angles for diaphragms between Bms. 3 & 4. Provide slots in angles at North end of diaphragms only. Provide 3/8" Str. R washer at each slotted connector.  
3/4" H.S. Bolts for diaphragms D1 between bms. 3 & 4 shall be tightened only after completing Stage II deck construction.



SPLICE  
(N.T.R. - all plates)  
All Splice Plates are M 223, Gr 50 Struct. St.

ELEVATION TOP OF WF \*\*

| Location    | Beam 1 | 2      | 3      | 4      | 5      | 6      |
|-------------|--------|--------|--------|--------|--------|--------|
| W&E. Abuts  | 438.19 | 438.31 | 438.42 | 438.42 | 438.31 | 438.19 |
| Splices A&B | 438.19 | 438.31 | 438.42 | 438.42 | 438.31 | 438.19 |
| Pier        | 436.21 | 438.33 | 438.44 | 438.44 | 438.33 | 438.21 |

\* Elevations shown are for W27 x 84.  
For top of W27 x 102 at Splices add .02'.  
\*\* Use for Shop Fabrication only.  
N.T.R. = Notch Toughness Requirement.

STRUCTURAL STEEL  
FA RTE 849 SECTION 113BR  
JEFFERSON CO.  
STATION 112+38

FOR INFORMATION ONLY 041-0040

GREENE & BRADFORD, Ltd.  
CONSULTING ENGINEERS  
1418 STEVENSON DR. • P.O. BOX 488 • SPRINGFIELD, ILL.

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
|                              | DRAWN -    | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/10/2018       | DATE -     | REVISED - |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

041-0040

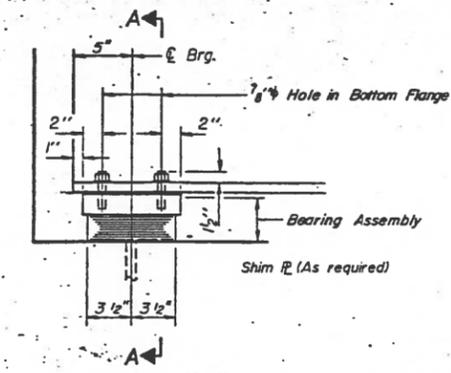
SCALE: SHEET OF SHEETS STA. TO STA.

|           |                        |          |                    |           |
|-----------|------------------------|----------|--------------------|-----------|
| F.A. RTE. | SECTION                | COUNTY   | TOTAL SHEETS       | SHEET NO. |
| VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS  | 50                 | 9         |
|           |                        |          | CONTRACT NO. 78677 |           |
|           |                        | ILLINOIS | FED. AID PROJECT   |           |

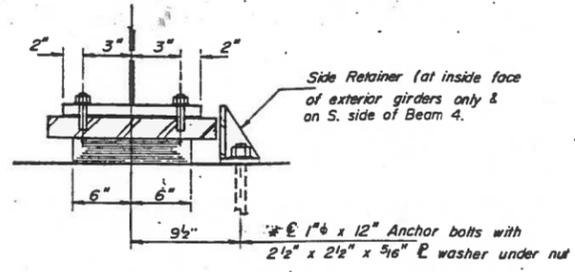
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

|                     |         |                 |         |       |
|---------------------|---------|-----------------|---------|-------|
| PROJECT NO.         | SECTION | COUNTY          | STATION | SHEET |
| 849                 | 113BR   | JEFFERSON       | 23      | 13    |
| DRAWN BY: J. W. ... |         | CHECKED BY: ... |         |       |

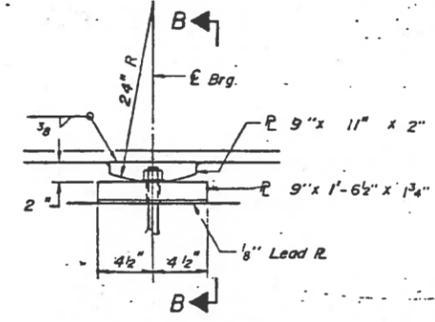
BRIDGE SHEET 9 OF 17 SHEETS



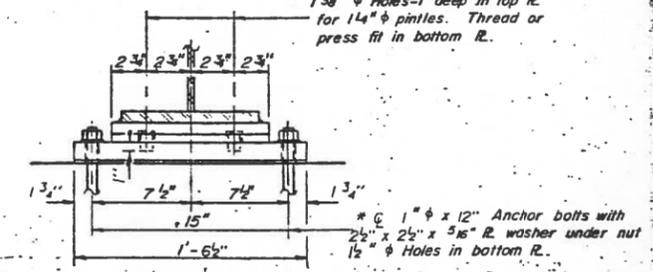
ELEVATION AT ABUT.



SECTION A-A.



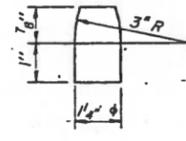
ELEVATION AT PIER



SECTION B-B

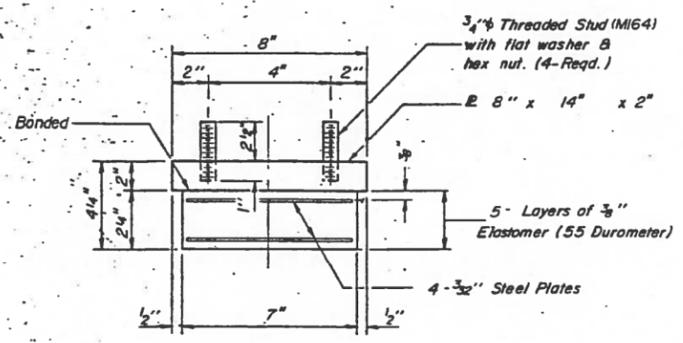
\* Notes: Anchor bolts at fixed bearings may be built into the masonry. See sheet # 15 for Anchor Bolt installation.

FIXED BEARING  
(6 - Req'd).



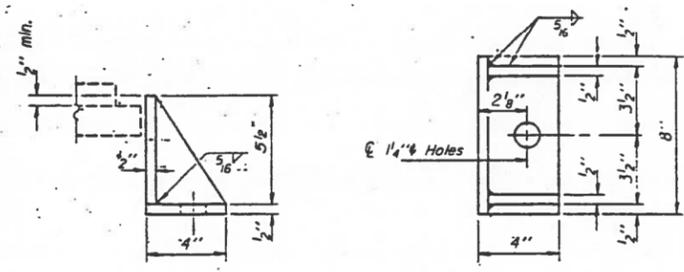
PINTLE

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly



SIDE RETAINER (6 Req'd)

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Side retainers are included in Structural Steel pay item.

BILL OF MATERIAL

| Item                                | Unit | Total |
|-------------------------------------|------|-------|
| Elastomeric Bearing Assembly Type I | Each | 12    |

BEARINGS

FA RTE 849 SECTION 113BR  
JEFFERSON CO.  
STATION 112+38

GREENE & BRADFORD, Ltd.  
CONSULTING ENGINEERS  
1719 STEVENSON DR • 217/238-4881 • SPRINGFIELD, ILL.

FOR INFORMATION ONLY 041-0040

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |
|                              | DATE -     | REVISED - |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

041-0040

SCALE: SHEET OF SHEETS STA. TO STA.

|                           |                        |         |                    |           |
|---------------------------|------------------------|---------|--------------------|-----------|
| F.A. RTE.                 | SECTION                | COUNTY  | TOTAL SHEETS       | SHEET NO. |
| VAR                       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50                 | 10        |
|                           |                        |         | CONTRACT NO. 78677 |           |
| ILLINOIS FED. AID PROJECT |                        |         |                    |           |

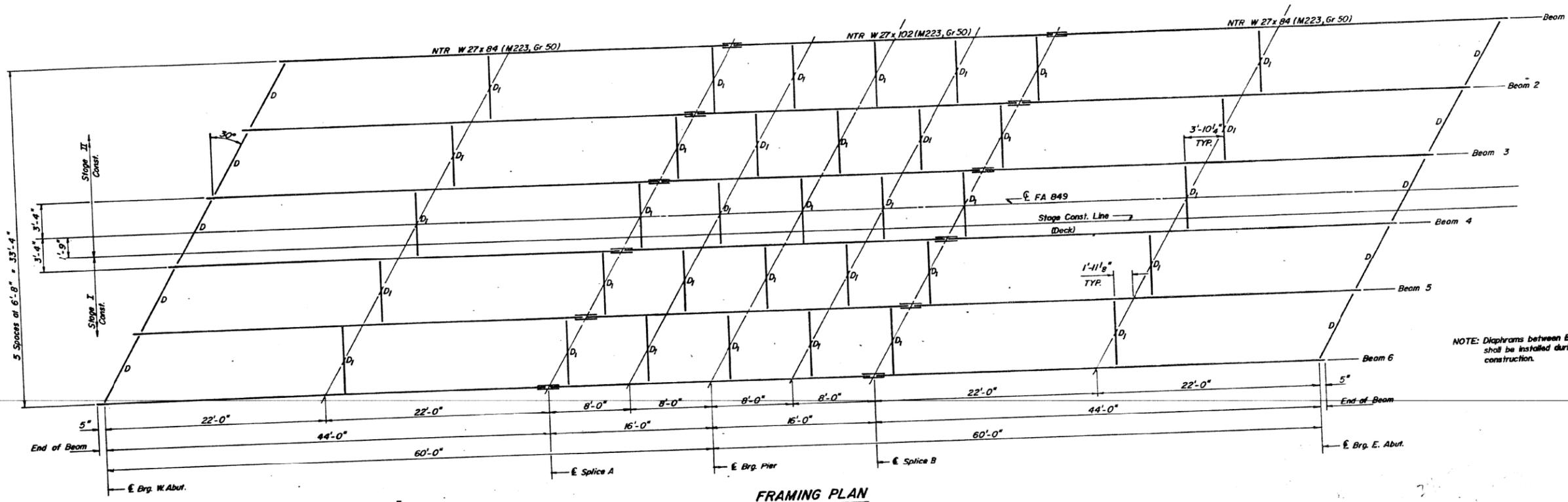
MODEL: Defaul  
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| ROUTE                                      | SECTION  | COUNTY    | TOTAL SHEETS | SHEET NO. |
|--|----------|-----------|--------------|-----------|
| FA 849                                     | 113 BR 3 | JEFFERSON | 22           | 12        |
| STA  | TO STA   |           |              |           |
| FHWA REG. NO. 5 ILLINOIS FED. AID PROJECT- |          |           |              |           |

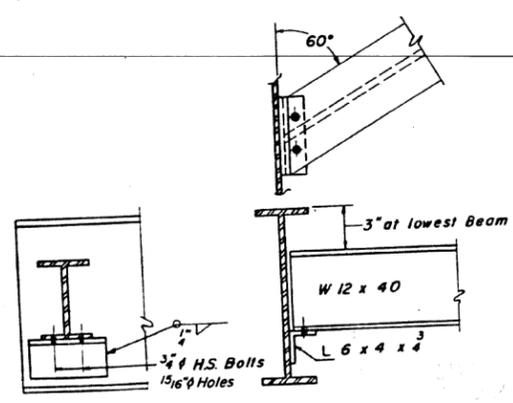
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BRIDGE SHEET 8 OF 17

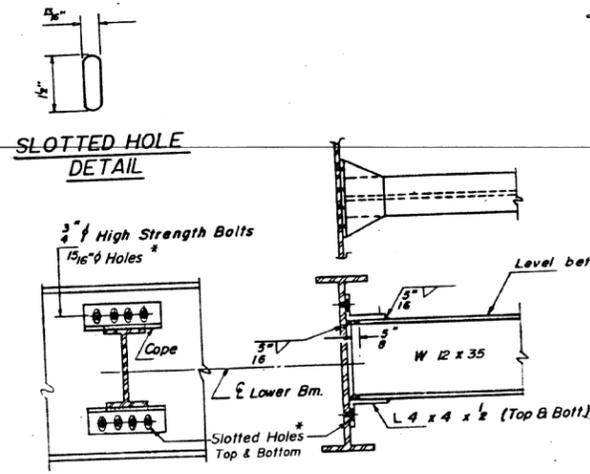


NOTE: Diaphragms between Beams 3 & 4 shall be installed during Stage II construction.

FRAMING PLAN

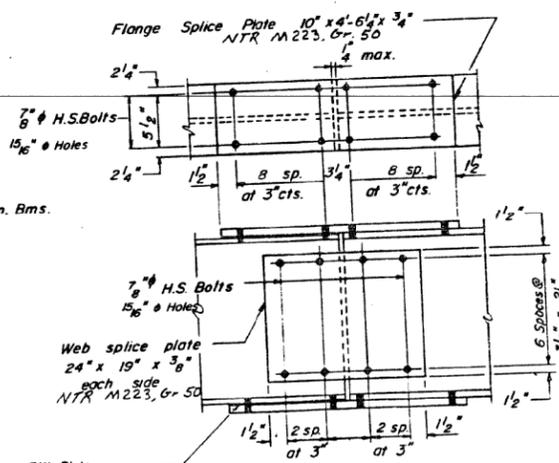


DIAPHRAGM D  
10 Required



DIAPHRAGM D1  
35 Required

Note: Two hardened washers shall be required over all 15/16" holes.  
\* Provide slotted holes in 4x4x1/2 angles for diaphragms between Beams 3 & 4. Provide slots in angles at North end of diaphragms only. Provide 1/2" Str. 12 washer at each slotted connector.  
3/4" H.S. Bolts for diaphragms D1 between Beams 3 & 4 shall be tightened only after completing Stage II deck construction.



SPLICE  
(M223, Gr 50)  
NTR - All Plates

ELEVATION TOP OF WF \*\*

| Location        | Beam 1 | 2      | 3      | 4      | 5      | 6      |
|-----------------|--------|--------|--------|--------|--------|--------|
| West Abutment   | 438.17 | 438.27 | 438.40 | 438.40 | 438.27 | 438.17 |
| * Splices A & B | 438.17 | 438.27 | 438.40 | 438.40 | 438.27 | 438.17 |
| Pier            | 438.17 | 438.27 | 438.40 | 438.40 | 438.27 | 438.17 |
| East Abutment   | 438.53 | 438.59 | 438.51 | 438.39 | 438.21 | 438.04 |

\* Elevations shown are for W 27 x 84. For top of W 27 x 102 at Splices add .02'  
\*\* Use for Shop Fabrication only.  
NTR - Notch Toughness Requirement.

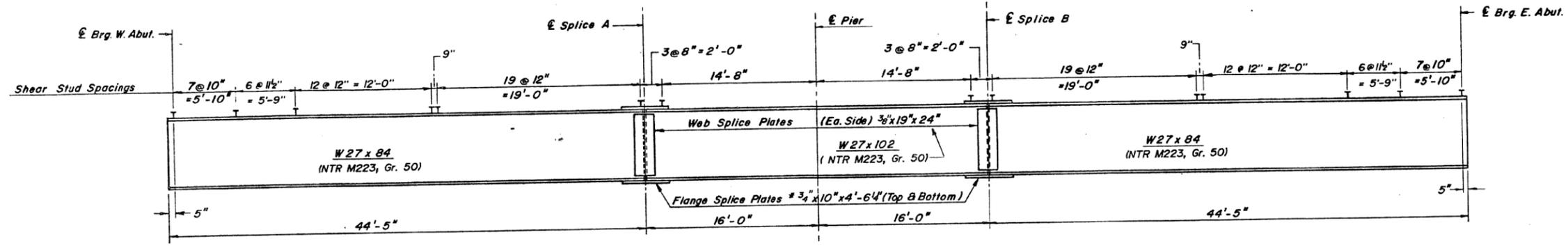
NOTE: Bolts for Interior Diaphragms between Beams 3 & 4 shall be tightened after Stage II Deck is in place.

STRUCTURAL STEEL  
FA RTE 849 SECTION 113 BR-3  
JEFFERSON CO.  
STATION 118+07.81  
S.N. 041-0041

GREENE & BRADFORD, Ltd.  
CONSULTING ENGINEERS  
1818 BRYANTON DR. • 217-682-8811 • SPRINGFIELD, ILL.

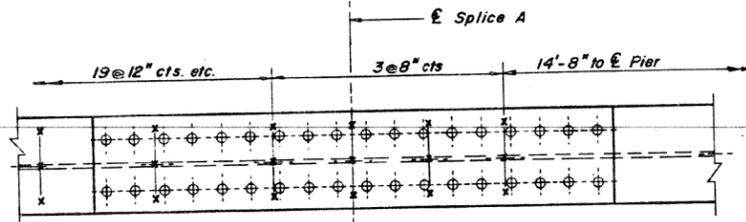
FOR INFORMATION ONLY 041-0041

|                              |            |           |   |          |                           |                        |         |              |           |         |
|------------------------------|------------|-----------|---|----------|---------------------------|------------------------|---------|--------------|-----------|---------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 041-0041 | F.A. RTE.                 | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |         |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | VAR                       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 12        |         |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          | SCALE:                    | SHEET                  | OF      | SHEETS       | STA.      | TO STA. |
|                              | DATE -     | REVISED - |   |          | ILLINOIS FED. AID PROJECT |                        |         |              |           |         |



**ELEVATION TYPICAL BEAM**

\* See Sheet 8 for Fill Plates



**STUD LOCATION PLAN**  
(Splice A Shown - B Similar)

- o - Flange Splice Bolt
- x - Shear Stud

Note: Minor relocation of studs will be permitted in order to avoid flange balls.

|                                  | 0.4 Sp. 1 | Pier  |
|----------------------------------|-----------|-------|
| $I_x$ (in <sup>4</sup> )         | 2850      | 3620  |
| $I_y$ (in <sup>4</sup> )         | 9088      |       |
| $S_x$ (in <sup>3</sup> )         | 213       | 267   |
| $S_y$ (in <sup>3</sup> )         | 342       |       |
| $Z$ (in <sup>3</sup> )           |           | 305   |
| $\theta$ (K/1)                   | 0.726     | 1.028 |
| $M_D$ (K)                        | 173       | -463  |
| $s \theta$ (K/1)                 | 302       |       |
| $M_s \theta$ (K)                 | 86        |       |
| $M \theta$ (K)                   | 417       | -222  |
| $M_{imp}$ (K)                    | 112       | -60   |
| $S_y (M \theta + I)$ (K)         | 882       | -470  |
| $M_a$ (K)                        | 1483      | -1212 |
| $M_u$ (K)                        | 1734      |       |
| $f_s \theta$ (non-comp) (k.s.i.) | 9.7       | 18.2  |
| $f_s \theta$ (comp) (k.s.i.)     | 3.3       |       |
| $f_s S_y (\theta + I)$ (k.s.i.)  | 30.9      | 18.5  |
| $f_s$ (Overload) (k.s.i.)        | 43.9      | 36.7  |
| $f_s$ (Total) (k.s.i.)           |           | 47.7  |
| VR (K)                           | 45.3      |       |

|                 | Abut | Pier  |
|-----------------|------|-------|
| $R_D$ (K)       | 23.1 | 77.0  |
| $R \theta$ (K)  | 35.8 | 43.8  |
| $I_{imp}$ (K)   | 9.7  | 11.8  |
| $R_{Total}$ (K) | 68.6 | 132.6 |

**NOTES**

$I_c$  and  $S_c$  are the moment of inertia and section modulus of the composite section used in computing  $f_s$  (Total Overload).

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total Overload).

VR is the maximum  $\pm$  impact shear range in span.

Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.

The Fully Plastic Moment capacity ( $M_p$ ) is computed according to AASHTO 10.48.1 & 10.50.11.

$f_s$  (Total) is the sum of the stresses due to  $1.3 [M_D + M_s \theta + 1.5 (M \theta + I)]$

$f_s$  (Overload) is the sum of the stresses due to  $M_D + M_s \theta + 1.5 (M \theta + I)$

$M_D$  - Moment due to dead loads on non-composite section.

$M_s \theta$  - Moment due to dead loads on composite section.

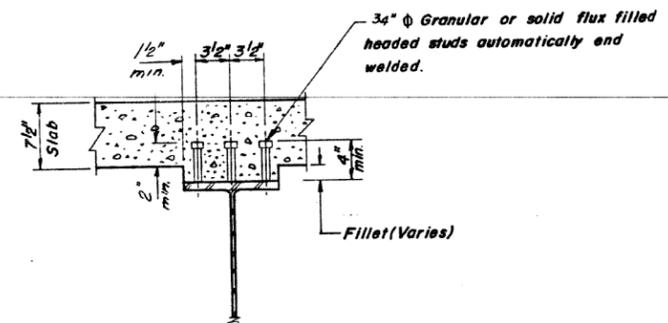
$M \theta$  - Moment due to live load on non-composite or composite section.

I - Live load impact.

\*  $M_u$  = Full Plastic Moment Capacity for Compact, Braced section.

\*\* Non-compact section

$M_a$  (Applied Moment) =  $1.3 [M_D + M_s \theta + 1.5 (M \theta + I)]$



**SHEAR STUDS**

1,764 Req'd.

**STRUCTURAL STEEL DETAILS**  
FA RTE 849 SECTION 113BR-3  
JEFFERSON CO.  
STATION 118+07.81

GREENE & BRADFORD, Ltd.  
CONSULTING ENGINEERS

FOR INFORMATION ONLY 041-0041

|                              |            |           |   |                           |                        |         |        |              |           |    |
|------------------------------|------------|-----------|---|---------------------------|------------------------|---------|--------|--------------|-----------|----|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 041-0041                  | F.A. RTE.              | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |    |
| DRAWN -                      | REVISED -  | VAR       |   |                           | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50     | 13           |           |    |
| PLOT SCALE = 100.0000' / in. | CHECKED -  | REVISED - |   |                           | CONTRACT NO. 78677     |         |        |              |           |    |
| PLOT DATE = 10/10/2018       | DATE -     | REVISED - |   |                           | SCALE:                 | SHEET   | OF     | SHEETS       | STA.      | TO |
|                              |            |           |   | ILLINOIS FED. AID PROJECT |                        |         |        |              |           |    |

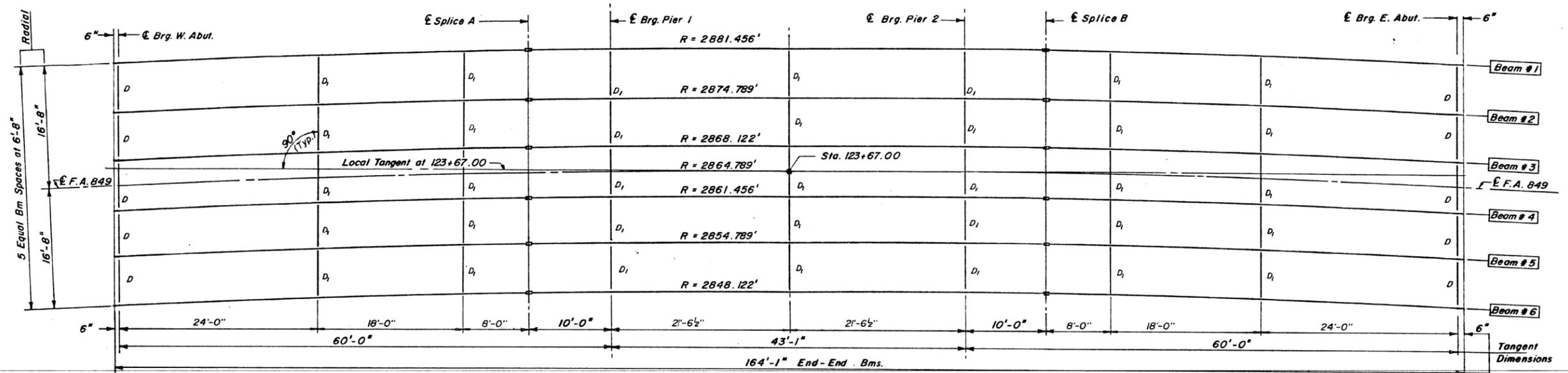




STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

|                      |         |           |                  |       |
|----------------------|---------|-----------|------------------|-------|
| PROJECT NO.          | SECTION | COUNTY    | SHEETS           | SHEET |
| 849                  | 113BR-1 | JEFFERSON | 27               | 14    |
| FED. AID DIST. NO. 7 |         | ILLINOIS  | FED. AID PROJECT |       |

BRIDGE SHEET B OF 17



TOP OF WF ELEVATION \*

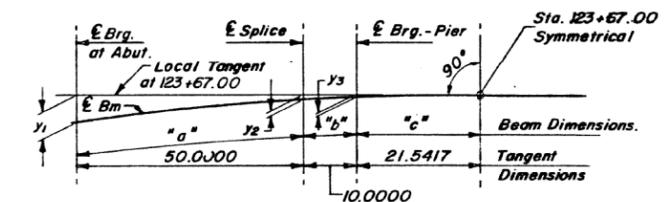
| Beam | ELEV   |
|------|--------|
| 1    | 439.33 |
| 2    | 438.99 |
| 3    | 438.65 |
| 4    | 438.31 |
| 5    | 437.97 |
| 6    | 437.63 |

\* Use designated elevation throughout for each beam line.  
For Fabrication Only

FRAMING PLAN

(All Bms. W27 x 94)  
M223 Gr50 N.T.R.

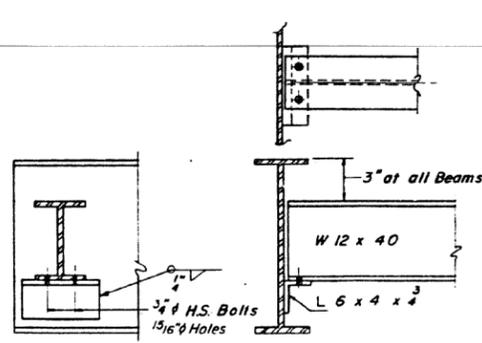
NOTE: Place diaphragms between Bms. #3 & #4 during Stage II construction.



| Dim. Beam | BEAM DIMENSIONS |         |         | LAYOUT DIMENSIONS |        |        |
|-----------|-----------------|---------|---------|-------------------|--------|--------|
|           | "a"             | "b"     | "c"     | y1                | y2     | y3     |
| 1         | 50.0103         | 10.0004 | 21.5419 | 1.1540            | 0.1726 | 0.0805 |
| 2         | 50.0103         | 10.0004 | 21.5419 | 1.1567            | 0.1730 | 0.0807 |
| 3         | 50.0104         | 10.0004 | 21.5419 | 1.1594            | 0.1734 | 0.0809 |
| 4         | 50.0105         | 10.0004 | 21.5419 | 1.1621            | 0.1738 | 0.0811 |
| 5         | 50.0105         | 10.0004 | 21.5419 | 1.1648            | 0.1742 | 0.0813 |
| 6         | 50.0106         | 10.0004 | 21.5419 | 1.1675            | 0.1747 | 0.0815 |

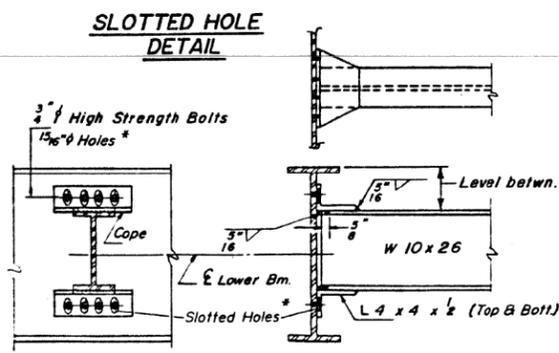
BEAM GEOMETRY

NOTES: 1. All dimensions shown in feet.  
2. Beams symmetrical about Sta. 123+67.00



DIAPHRAGM D1

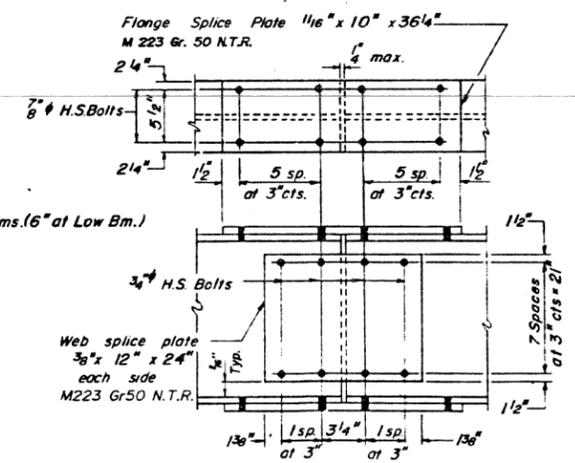
10 Required



DIAPHRAGM D2

35 Required

Note: Two hardened washers shall be required over all 1 1/2 inch holes.  
\* Provide slotted holes in 4 x 4 x 1/2 angles for diaphragms between Bms. 3 & 4. Provide slots in angles at North end of diaphragms only. Provide 3/8 inch Str. R washer at each slotted connector.  
3/4 inch H.S. Bolts for diaphragms D1 between bms. 3 & 4 shall be tightened only after completing Stage II deck construction. Slots to be 1/2 inch x 1 1/2 inch.



SPLICE

NOTE: All Splice Plates are to be M223 Gr50 Structural Steel

N.T.R. = Notch Toughness Requirement

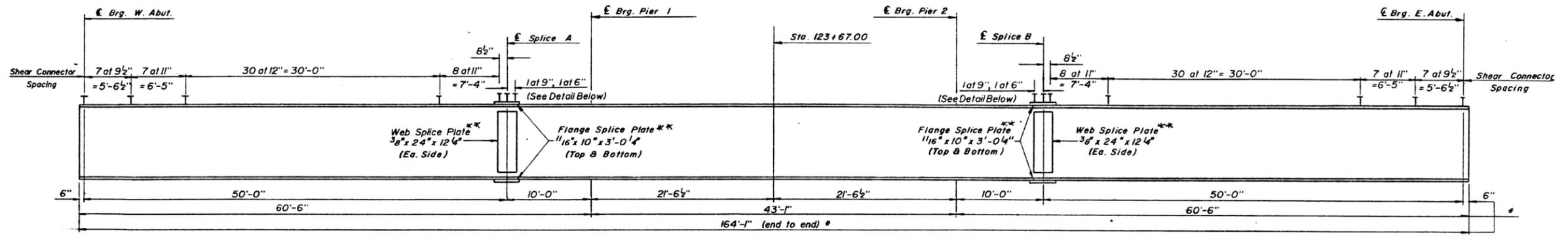
STRUCTURAL STEEL

F.A. RTE. 849 (ILL. 142) CASEY FORK CR.  
SECTION 113BR-1  
JEFFERSON COUNTY  
STATION 123+67.00  
STRUCTURE NO. 041-0042

GREENE & BRADFORD, Ltd.  
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FOR INFORMATION ONLY 041-0042

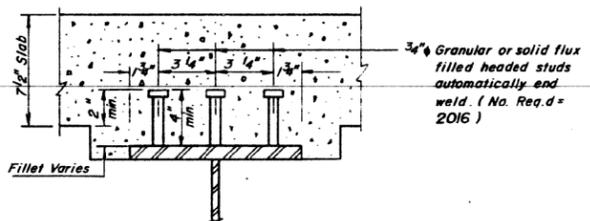
|                              |            |           |   |          |           |                        |         |              |           |    |      |
|------------------------------|------------|-----------|---|----------|-----------|------------------------|---------|--------------|-----------|----|------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 041-0042 | F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |    |      |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 16        |    |      |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          | SCALE:    | SHEET                  | OF      | SHEETS       | STA.      | TO | STA. |
|                              | DATE -     | REVISED - |   |          |           |                        |         |              |           |    |      |



**TYPICAL BEAM**  
 (Use W 27x94 throughout)\*\*  
 \*\* NTR M223, G-50

Note: Fabricate beams to horizontal radius shown on Sheet 8

\* Dimensions along local tangent @ Sta. 123+67.00  
 For dimensions along beam see Sheet 8

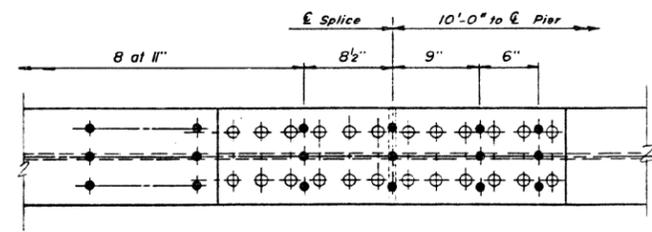


**SHEAR STUDS**

| INTERIOR GIRDER MOMENT TABLE    |           |        |           |
|---------------------------------|-----------|--------|-----------|
|                                 | 0.4 Sp. 1 | Pier   | 0.5 Sp. 2 |
| $I_s$ (in <sup>4</sup> )        | 3270      | 3270   | 3270      |
| $I_c$ (in <sup>4</sup> )        | 10434     | —      | —         |
| $S_s$ (in <sup>3</sup> )        | 243       | 243    | 243       |
| $S_c$ (in <sup>3</sup> )        | 374       | —      | —         |
| $\bar{Q}$ (K/1)                 | 738       | 1,040  | 1,040     |
| $M \bar{Q}$ (K)                 | 231       | -286.3 | -46       |
| $s \bar{Q}$ (K/1)               | 302       | —      | —         |
| $M_s \bar{Q}$ (K)               | 105       | —      | —         |
| $M L$ (K)                       | 424       | -177   | 185       |
| $M_{imp}$ (K)                   | 114       | -52    | 56        |
| $M_a$ (K)                       | 897       | -382   | 402       |
| $M_u$ (K)                       | 1603      | 781    | 461       |
| $M_u$ (K)                       | 2280      | 1158   | —         |
| $f_s \bar{Q}$ non-comp (k.s.i.) | 11.4      | -14.1  | -2.2      |
| $f_s \bar{Q}$ (comp) (k.s.i.)   | 3.5       | —      | —         |
| $f_s \bar{Q}_s$ (k+1) (k.s.i.)  | 28.8      | -18.8  | 19.5      |
| $f_s$ (Overload) (k.s.i.)       | 43.7      | -32.9  | 17.3      |
| $f_s$ (Total) (k.s.i.)          | —         | -42.8  | —         |
| $VR$ (K)                        | 49.4      | —      | —         |

**NOTES**

$I_c$  and  $S_c$  are the moment of inertia and section modulus of the composite section used in computing  $f_s$  (Total Overload).  
 $I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total Overload).  
 $VR$  is the maximum  $\bar{Q}$  + impact shear range in span.  
 The Fully Plastic Moment Capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 & 10.50.11.  
 $f_s$  (Total) is the sum of the stresses due to  $1.3[M \bar{Q} + M_s \bar{Q} + \bar{Q}_s(M \bar{Q} + I)]$   
 $f_s$  (Overload) is the sum of the stresses due to  $M \bar{Q} + M_s \bar{Q} + \bar{Q}_s(M \bar{Q} + I)$   
 $M \bar{Q}$  - Moment due to dead loads on non-composite section.  
 $M_s \bar{Q}$  - Moment due to dead loads on composite section.  
 $M \bar{L}$  - Moment due to live load on non-composite or composite section.  
 $I$  - Live load impact.



**PLAN DETAIL**

○ Splice Bolt  
 ● Shear Connector  
 (Stud Spacing @ Flange Splice)  
 NOTE: Splice A shown, Splice B similar by rotation. Location of shear connectors may be adjusted slightly to avoid flange splice bolts.

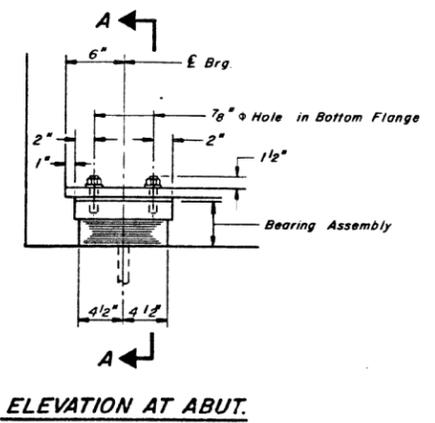
| INTERIOR GIRDER REACTION TABLE |       |       |
|--------------------------------|-------|-------|
|                                | Abut. | Pier  |
| $R \bar{Q}$ (K)                | 26.5  | 58.4  |
| $R \bar{L}$ (K)                | 35.9  | 46.1  |
| $Imp$ (K)                      | 9.7   | 12.4  |
| $R_{Total}$ (K)                | 72.1  | 116.9 |

\*  $M_u$  = Full Plastic Moment Capacity for Compact, Braced section.  
 \*\* Non-compact section  
 $M_a$  (Applied Moment) =  $1.3 [M \bar{Q} + M_s \bar{Q} + \bar{Q}_s (M \bar{Q} + I)]$

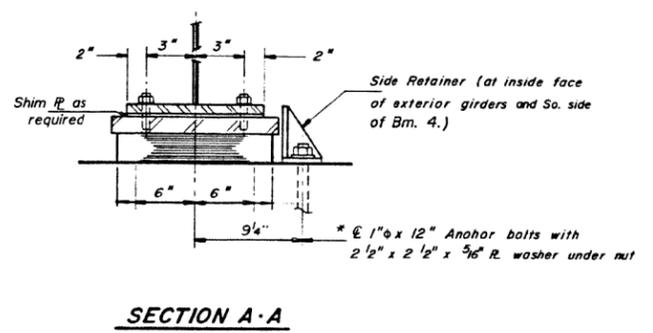
**STRUCTURAL STEEL DETAILS**  
 F.A. RTE. 849 (ILL. 142) / CASEY FORK R.  
 SECTION 113BR-1  
 JEFFERSON COUNTY  
 STATION 123+67.00  
 STRUCTURE NO. 041-0042

FOR INFORMATION ONLY 041-0042

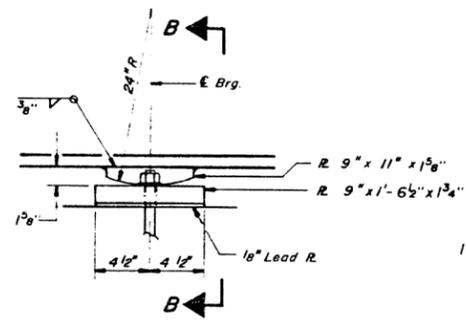
GREENE & BRADFORD, LTD.  
 CONSULTING ENGINEERS  
 1875 STEVENSON DR. • 217-838-8881 • SPRINGFIELD, ILL.



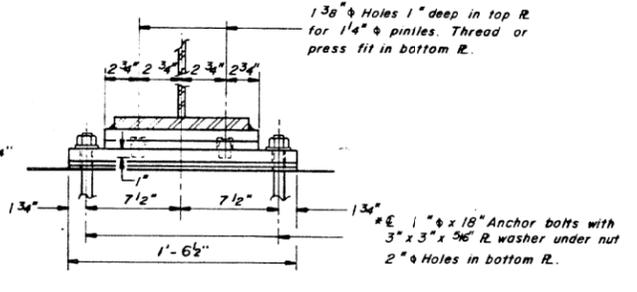
ELEVATION AT ABUT.



SECTION A-A



ELEVATION AT PIER

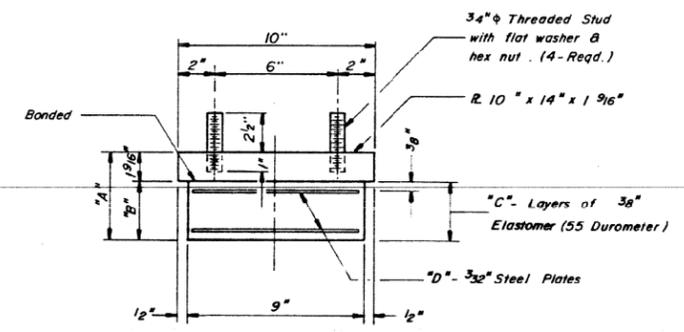


SECTION B-B

**TYPE I ELASTOMERIC EXP. BRG.**

\* NOTES: Anchor bolts at fixed bearings may be built into the masonry. See sheet #11 for Anchor Bolt installation.

**FIXED BEARING (PIER - 2)**

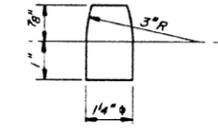


**BEARING ASSEMBLY - ABUTS**  
(See Table for Values A, B, C, D)

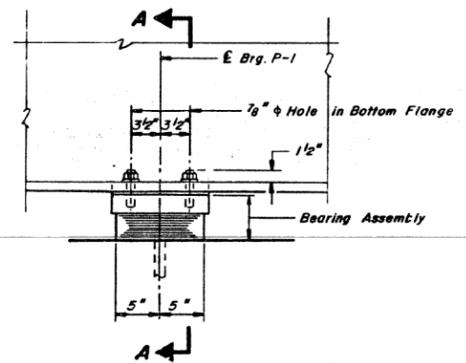
NOTES: Shim plates shall not be placed under Bearing Assembly.

TABLE OF VALUES

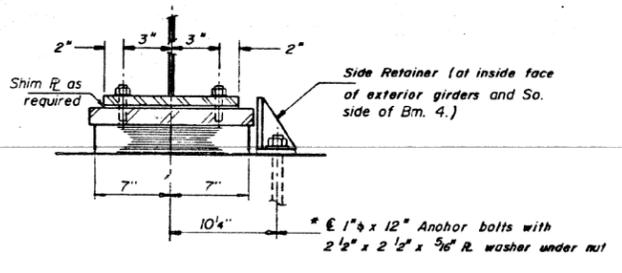
| Value Location | A        | B       | C | D |
|----------------|----------|---------|---|---|
| West Abut.     | 4 3/4"   | 3 3/16" | 7 | 6 |
| East Abut.     | 3 13/16" | 2 1/4"  | 5 | 4 |



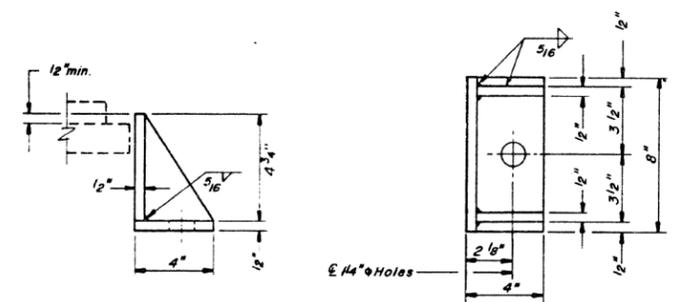
PINTLE



ELEVATION AT PIER I

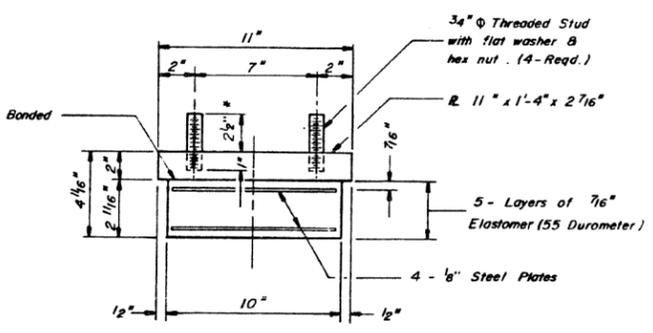


SECTION A-A



**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight of Side retainers included with Structural Steel. (9 Req'd)



**BEARING ASSEMBLY - PIER I**  
**TYPE I ELASTOMERIC EXP. BRG.**

**BILL OF MATERIAL**

| Item                                | Unit | Total |
|-------------------------------------|------|-------|
| Elastomeric Bearing Assembly Type I | Each | 18    |

**BEARINGS**

RT. 843 ILL. 142 1/2 CASEY FORK CR.  
SECTION 113BR-1  
JEFFERSON COUNTY  
STATION 123+67.00  
STRUCTURE NO. 041-0042

GREENE & BRADFORD, Ltd.  
CONSULTING ENGINEERS  
1514 STEVENSON DR. • 217-228-8811 • SPRINGFIELD, ILL.

FOR INFORMATION ONLY 041-0042

MODEL: Defaul  
 FILE NAME: P:\ILLINOIS\BRIDGE\PROJECTS\113BR-1\Drawings\10976677-0041.dwg  
 PROJECT: 113BR-1  
 OFFICE: DISTRICT 9  
 DATE: 10/10/2018







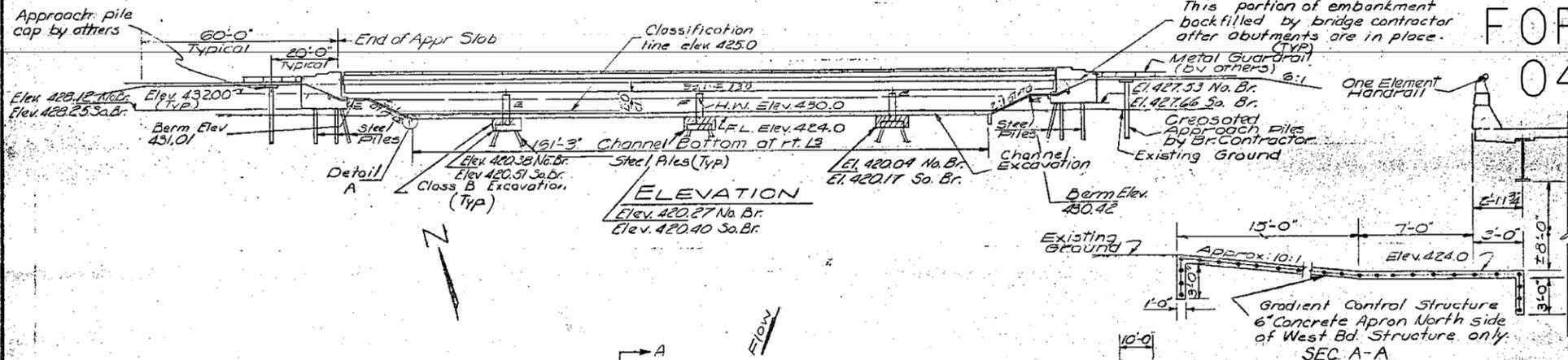
B.M. #6 - RR Spike in 11" Oak tree  
 200' LT. OF STA. 2765+00 Elev. 429.502

Approach Pile Data  
 Type: Crososated  
 Required Length: 10  
 Number Required: 24

STATE OF ILLINOIS  
 DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
 DIVISION OF HIGHWAYS

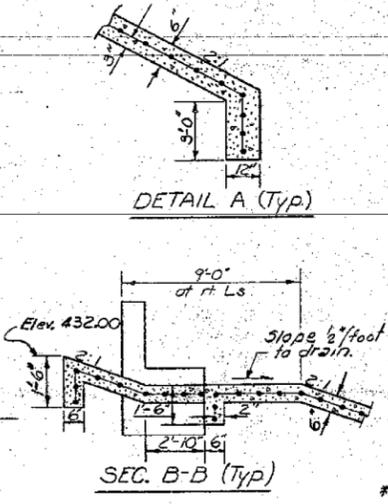
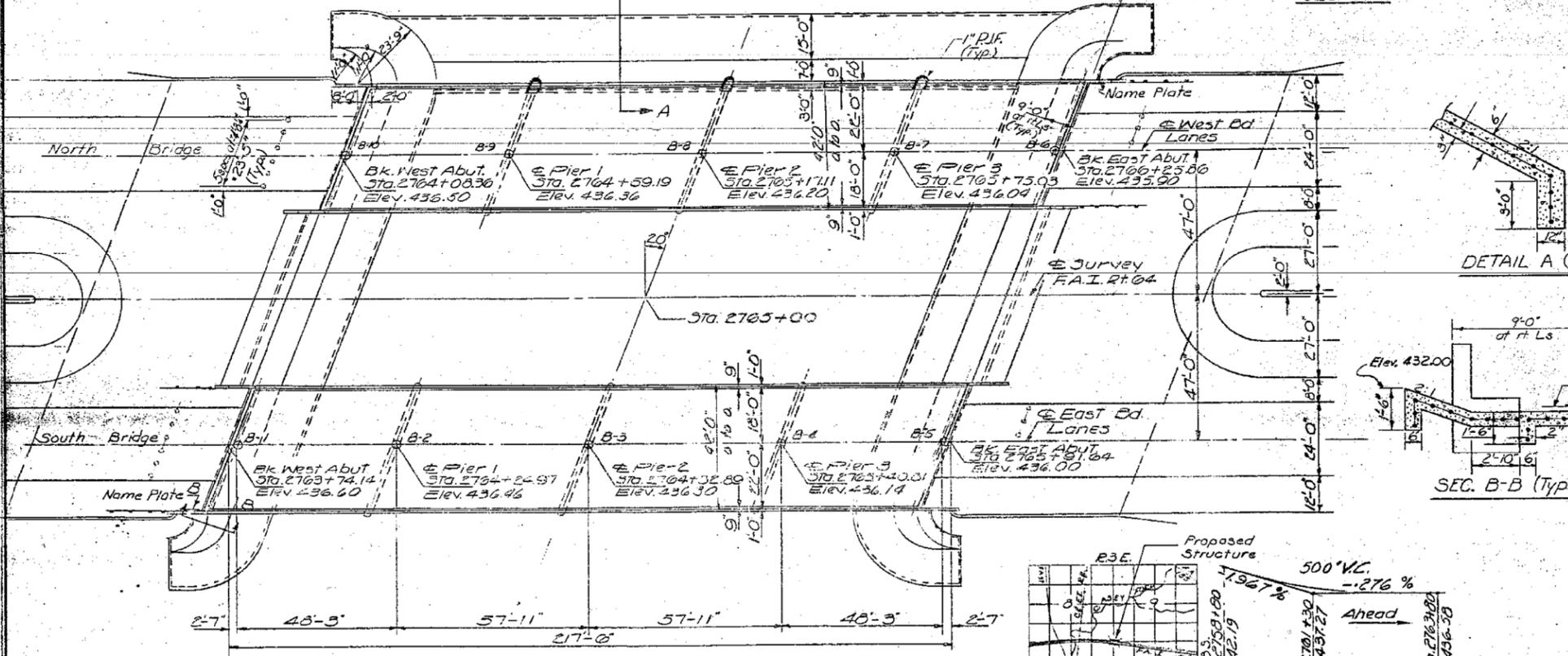
|             |         |           |           |             |
|-------------|---------|-----------|-----------|-------------|
| ROUTE NO.   | SECTION | COUNTY    | SHEET NO. | SHEET TOTAL |
| 41-B        | 41-B    | JEFFERSON | 99        | 44          |
| SHEET NO. 1 |         |           |           |             |
| 11 SHEETS   |         |           |           |             |

FOR INFORMATION ONLY  
 041-0087 & 041-0088



**GENERAL NOTES**

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.  
 Rivets 3/4", open holes 1/2", unless otherwise noted.  
 Diaphragm connections may be adapted to shop welding subject to approval by the Engineer.  
 Except as otherwise provided, all structural steel shall receive one shop coat of red lead paint and two field coats of Aluminum paint.  
 Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.  
 Anchor bolts shall be set before riveting diaphragms over supports.  
 Slope wall shall be reinforced with welded wire fabric 6" x 6" mesh, weighing 58# per 100 sq. ft.  
 Class A Excavation for structures includes excavation for slope wall.  
 The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.  
 The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Standard Concrete.  
 Layout of slope walls may be varied to suit ground conditions in field as directed by the engineer.  
 The contractor shall drive four steel test piles, one each of west abutment South Bridge, East abutment North Bridge, Pier One North Bridge, and Pier 3 South Bridge in a permanent location, as directed by the Engineer before ordering the remainder of piles.



**TOTAL BILL OF MATERIALS**

| ITEM                           | UNIT     | SUPER  | SUB   | TOTAL  |
|--------------------------------|----------|--------|-------|--------|
| Class "A" Concrete             | Cu.Yd.   |        | 300.1 | 300.1  |
| Class "B" Excav. for Structure | Cu.Yd.   |        |       | 443    |
| Class X Concrete               | Cu.Yd.   | 520.4  | 181.2 | 701.6  |
| Protective Coat                | Sq. Yd.  |        |       | 2270   |
| Structural Steel               | Lbs.     | 410170 |       | 410170 |
| Aluminum Scaffolding           | Lbs.     | 857    |       | 857    |
| Reinforcement Bars             | Lbs.     | 167350 | 31000 | 162350 |
| Crososated Piles up to 20'     | Lin. Ft. |        |       | 240    |
| Steel Piles (BBP36)            | Lin. Ft. |        |       | 3797   |
| Test Piles (Spec. BBP36)       | Eq.      |        |       | 4      |
| Name Plates                    | Eq.      |        |       | 2      |
| Slope Wall (6")                | Sq. Yd.  |        |       | 1800   |
| Bridge Seat Sealant            | L.S.     |        |       | 1      |
| Channel Excavation             | Cu.Yd.   |        |       | 2090   |

\*\* At abutments only.  
 \*\*\* Includes quantity of gradient control structure  
 † Includes excavation for slope walls.

DESIGNED: J. J. Hammett  
 CHECKED: George H. Bass  
 DRAWN: J. M. Heninger  
 CHECKED: George H. Bass

EXAMINED: *Casey*  
 PASSED: *W. E. Blaymon*  
 APPROVED: *J. E. Staff*

STATION 2765+00  
 BUILT 196 BY  
 STATE OF ILLINOIS  
 F.A.I. RT. 64 SEC. 41-BB-1  
 FA. PROJ. 1-1643(A)  
 LOADING H20E241  
 NAME PLATE  
 See Std. 2113-T

**WATERWAY INFORMATION**

Drainage Area - 53,040 Acres \*  
 Character - Level, rolling, hilly, wooded, cultivated.  
 Required Opening - (50 Year Flood) - 1000 Sq. Ft.  
 Present Opening - None  
 Proposed Opening - 1000 Sq. Ft.  
 Proposed Opening - 10,800 cfs.\*

**DESIGN STRESSES**

$f_c = 1400$  psi. (Super. & Sub)  
 $f_s = 20,000$  psi. (Reinf.)  
 $f_s = 20,000$  psi. (Struct.)  
 $v_c = 75$  psi. (Figs.)  
 $n = 10$   
 L. L. Deflection = 1/1000

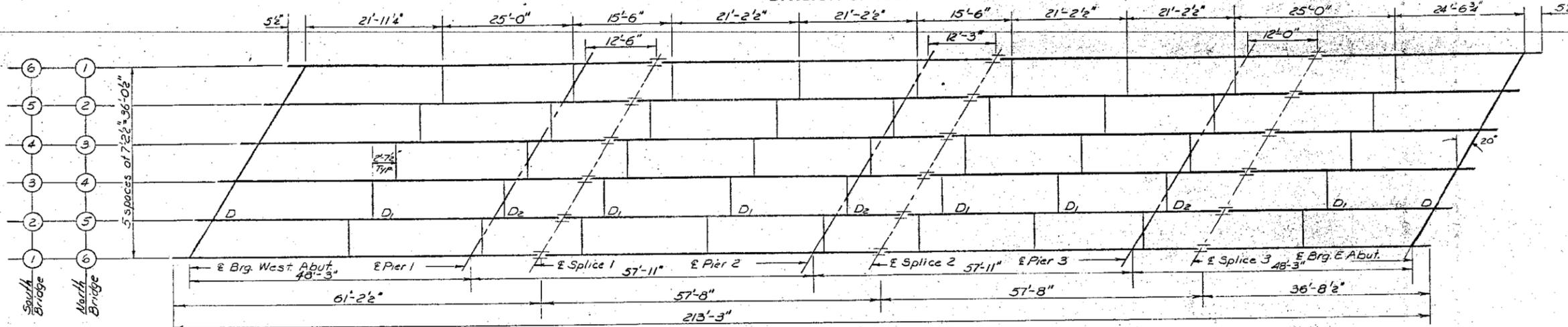
**GENERAL PLAN ELEVATION**  
 CASEY FORK  
 OVERFLOW CHANNEL  
 F.A.I. ROUTE 64  
 SECTION 41-BB-1  
 JEFFERSON COUNTY  
 STATION 2765+00

FOR INFORMATION ONLY

041-0087 & 041-0088

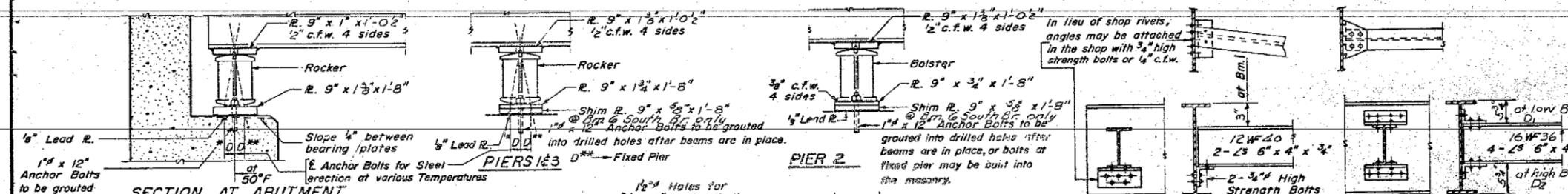
STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

|  |         |           |              |           |             |
|--|---------|-----------|--------------|-----------|-------------|
| PROJECT NO.  | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. | SHEET NO. G |
| 41-8   | 2-1     | JEFFERSON | 99           | 51        | 11 SHEETS   |
| F.A. RT. 64 SEC. 41-8B-1 JEFFERSON COUNTY STA. 2765+00 |         |           |              |           |             |



FRAMING PLAN  
(All Beams 33 WF 130)

Note: Run all diaphragms level



SECTION AT ABUTMENT

PIER 2

DIAPHRAGM D

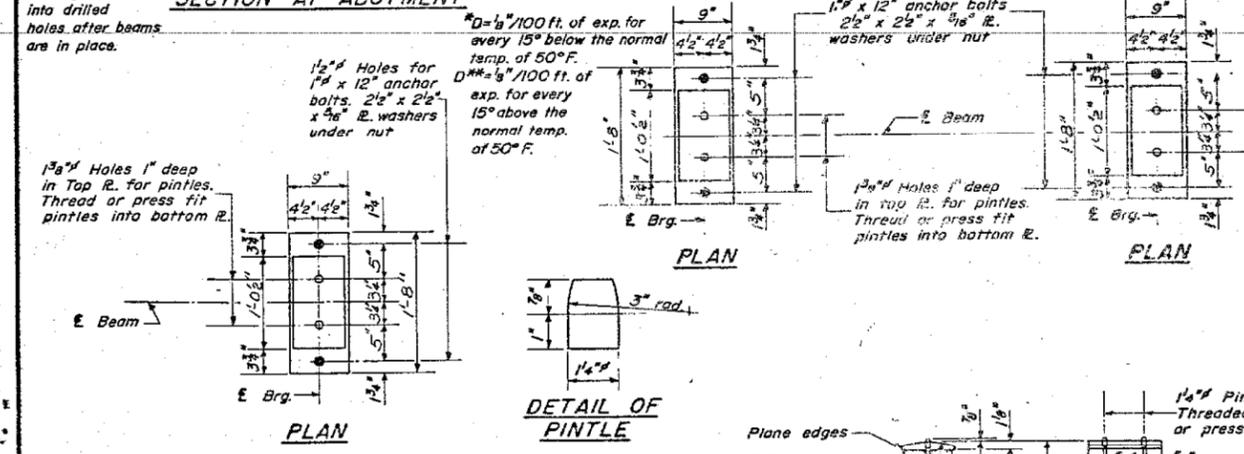
DIAPHRAGM D<sub>2</sub>

MOMENTS & REACTIONS (Interior Beams)

| Beam   | Moment (Kip. Ft.) |          |           |        | Reaction (KIP) |       |       |      |
|--------|-------------------|----------|-----------|--------|----------------|-------|-------|------|
|        | 0.25 Span         | 0.5 Span | 0.75 Span | Pier   | Abut.          | Pier  | Abut. | Pier |
| 1 or 4 | 181.9             | -314.6   | 152.2     | -304.6 | 20.1           | 65.2  | 63.5  |      |
| 2 or 3 | 313.2             | -252.4   | 311.7     | -263.4 | 36.2           | 43.8  | 43.8  |      |
| TWP    | 90.5              | -71.0    | 85.1      | -72.0  | 10.5           | 12.3  | 12.0  |      |
| TOTAL  | 585.6             | -638.0   | 549.0     | -640.0 | 66.8           | 121.3 | 119.3 |      |

ELEVATIONS OF TOP OF WF  
(for fabrication only)

| NORTH BRIDGE      |        |        |        |        |        |        |
|-------------------|--------|--------|--------|--------|--------|--------|
|                   | 0m1    | 0m2    | 0m3    | 0m4    | 0m5    | 0m6    |
| E Brg. West Abut. | 435.57 | 435.67 | 435.80 | 435.87 | 435.77 | 435.64 |
| E Brg. Pier 1     | 435.34 | 435.49 | 435.67 | 435.69 | 435.53 | 435.46 |
| E Splice 1        | 435.23 | 435.44 | 435.57 | 435.64 | 435.53 | 435.41 |
| E Brg. Pier 2     | 435.16 | 435.31 | 435.44 | 435.51 | 435.40 | 435.28 |
| E Splice 2        | 435.13 | 435.28 | 435.41 | 435.48 | 435.37 | 435.25 |
| E Brg. Pier 3     | 435.00 | 435.15 | 435.28 | 435.35 | 435.24 | 435.12 |
| E Splice 3        | 434.97 | 435.12 | 435.25 | 435.32 | 435.21 | 435.09 |
| E Brg. East Abut. | 434.93 | 435.04 | 435.21 | 435.28 | 435.17 | 435.05 |
| SOUTH BRIDGE      |        |        |        |        |        |        |
| E Brg. West Abut. | 435.50 | 435.60 | 435.90 | 435.94 | 435.83 | 435.70 |
| E Brg. Pier 1     | 435.47 | 435.60 | 435.72 | 435.78 | 435.66 | 435.52 |
| E Splice 1        | 435.42 | 435.57 | 435.67 | 435.73 | 435.61 | 435.47 |
| E Brg. Pier 2     | 435.29 | 435.44 | 435.54 | 435.60 | 435.48 | 435.34 |
| E Splice 2        | 435.26 | 435.41 | 435.51 | 435.57 | 435.45 | 435.31 |
| E Brg. Pier 3     | 435.13 | 435.28 | 435.39 | 435.44 | 435.32 | 435.18 |
| E Splice 3        | 435.10 | 435.25 | 435.33 | 435.41 | 435.29 | 435.15 |
| E Brg. East Abut. | 435.06 | 435.21 | 435.31 | 435.37 | 435.25 | 435.11 |



PLAN

PLAN

PLAN

DETAIL OF PINTLE

DETAIL OF ROCKER AT ABUTMENTS & PIERS 1 & 3

DETAIL OF BOLSTER AT PIER 2

DETAIL OF SPLICE

|          |                |
|----------|----------------|
| DESIGNED | A.Y. HAYIA*    |
| CHECKED  | George Al-Bazi |
| DRAWN    | Jm. Heninger   |
| CHECKED  | George Al-Bazi |

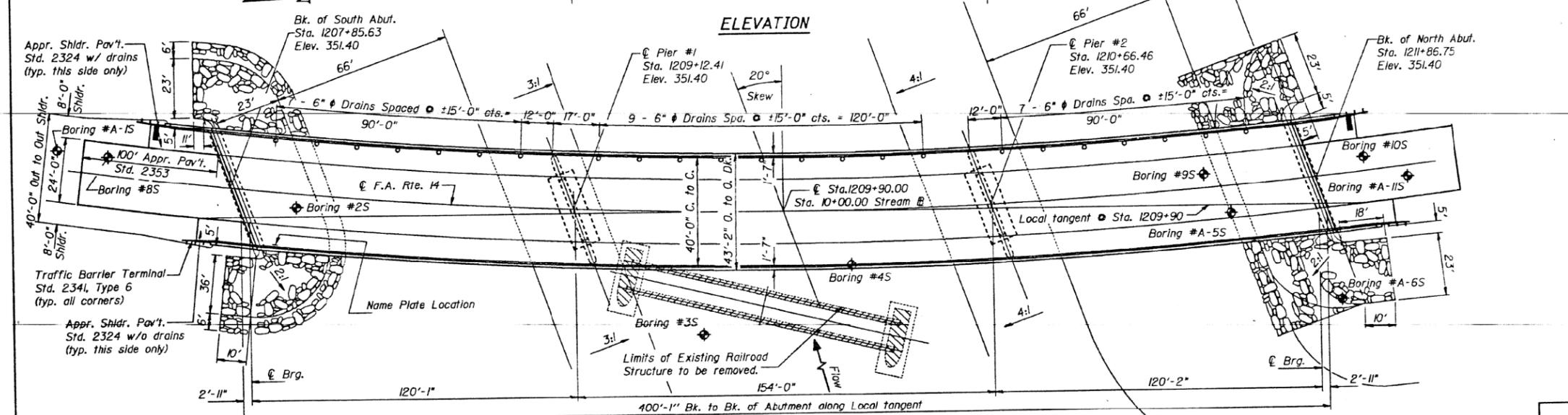
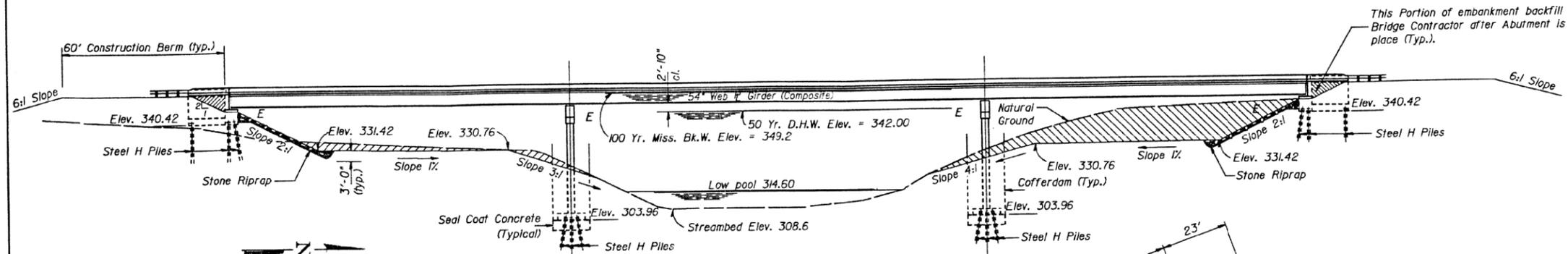
|          |              |
|----------|--------------|
| EXAMINED | W.E. Blumson |
| PASSED   | W.E. Blumson |
| APPROVED | W.E. Blumson |

STRUCTURAL STEEL  
NORTH & SOUTH BRIDGES  
F.A. RT. 64 SEC. 41-8B-1  
JEFFERSON COUNTY  
STA. 2765+00

B.M. Benchmark R.R. Spike in 16" Maple tree, 14' Lt. Sta. 1208+74.00 Elev. 333.44

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

|             |           |       |      |           |             |
|-------------|-----------|-------|------|-----------|-------------|
| PROJECT NO. | SECTION   | DRAWN | DATE | SHEET     | SHEET NO. 1 |
| 133B-1      | Alexander | 145   | 127  | 19 SHEETS |             |



**PROFILE GRADE**  
(Along  $\bar{C}$  Roadway)

Sta. 1207+00.00 Elev. 351.40

0.00%

**CURVE DATA**

$\Delta = 61^{\circ}-19'-50''$   
 $D = 3^{\circ}$   
 $L = 2044.354$   
 $R = 1909.86$   
 $T = 1132.428$   
 $E = 310.491$   
 $P.C. = 1193+40.48$   
 $P.I. = 1204+72.91$   
 $P.T. = 1213+84.83$   
 $S.E. = .06 \text{ ft./ft.}$

**WATERWAY INFORMATION**

Drainage Area = 217 Sq. Mi. Low Grade Elev. 351.40 @ Sta. 1215+20.00

| Flood Yr.   | Freq. C.F.S. | Opening Sq. Ft. |       | Nat. H.W.E. | Head - Ft. |       | Headwater El. |        |
|-------------|--------------|-----------------|-------|-------------|------------|-------|---------------|--------|
|             |              | Exist.          | Prop. |             | Exist.     | Prop. | Exist.        | Prop.  |
| Design      | 50           | 15759           | 5764  | 342.00      | -          | 0.0   | -             | 342.00 |
| Base        | 100          | 17904           | 5764  | 342.00      | -          | 0.0   | -             | 342.00 |
| Overtopping | -            | -               | 5764  | 342.00      | -          | 0.0   | -             | 342.00 |
| Max. Calc.  | 500          | 22787           | 5764  | 342.00      | -          | 0.0   | -             | 342.00 |

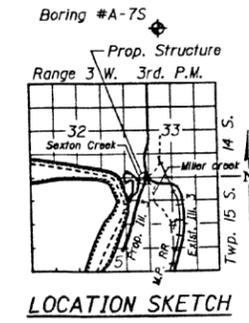
10 Yr. Flood on Mississippi River.

**DESIGN SPECIFICATIONS**  
1983 AASHTO, 1984 Interims (Seismic Zone 3)

**LOADING HS 20-44**  
Allow 25# / sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS**  
 $f'_c = 3,500 \text{ psi}$   
 $f_y = 60,000 \text{ psi (reinf.)}$   
 $f_y = 36,000 \text{ psi (M183)}$   
 $f_y = 50,000 \text{ psi (M223 Grade 50)}$



STATION 1209+90.00  
BUILT 1988 BY  
STATE OF ILLINOIS  
F.A. RTE. 14 SEC. 133B-1  
F.A. PROJECT F-BRF-14(119)  
LOADING HS20  
STR. NO. 002-0032

**NAME PLATE**  
See Std. 2113

**GENERAL PLAN**  
ILLINOIS RTE. 3 OVER SEXTON CREEK  
F.A. RTE. 14 SECTION 133B-1  
ALEXANDER COUNTY  
STATION 1209+90.00  
STRUCTURE NUMBER 002-0032

FOR INFORMATION ONLY 002-0032

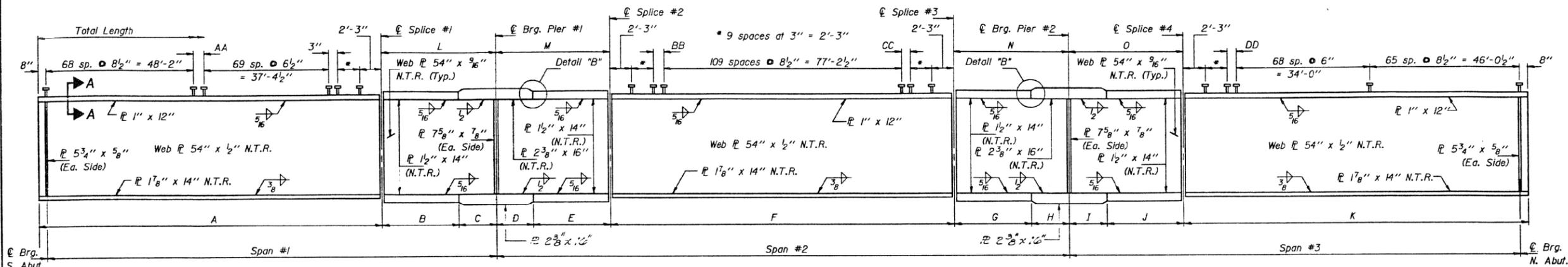
|                              |            |           |   |          |           |                        |         |              |           |    |      |
|------------------------------|------------|-----------|---|----------|-----------|------------------------|---------|--------------|-----------|----|------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 002-0032 | F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |    |      |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 24        |    |      |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          | SCALE:    | SHEET                  | OF      | SHEETS       | STA.      | TO | STA. |
|                              | DATE -     | REVISED - |   |          |           |                        |         |              |           |    |      |



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

|           |         |        |           |           |
|-----------|---------|--------|-----------|-----------|
| ROUTE NO. | SECTION | COUNTY | SHEET NO. | SHEET NO. |
|           |         |        | 136       | 19 SHEETS |

Notes: All dimensions are along the curve except as noted.  
Work this sheet with sheets #9, #11 & #12 of 19.  
All flanges, webs, bearing stiffeners and splice plates materials shall be AASHTO M223 Grade 50.  
All other Structural Steel shall be AASHTO M-183.



GIRDER ELEVATION

\*NTR\* denotes plates to which notch toughness requirements are applicable.

CROSS FRAME SPACING

| Gir. Loc. | a          | b           | c           | d          | e          | f           | g          | h          | i          | j           | k          | l          | m          | n          | o           | p          | q          | r          | s           | t           | u          | v          | w          |  |
|-----------|------------|-------------|-------------|------------|------------|-------------|------------|------------|------------|-------------|------------|------------|------------|------------|-------------|------------|------------|------------|-------------|-------------|------------|------------|------------|--|
| #1        | 21'-8"     | 21'-7"      | 21'-7"      | 22'-4 1/2" | 22'-1 1/4" | 14'-7 3/4"  | 3'-9 5/8"  | 11'-2 1/8" | 16'-11"    | 20'-8 1/4"  | 21'-2 3/8" | 22'-0 1/8" | 22'-3 1/8" | 18'-8 3/8" | 17'-9 1/4"  | 11'-7 1/8" | 18'-1 1/8" | 17'-4 1/8" | 20'-7 1/4"  | 21'-7"      | 24'-3 1/4" | 4'-0"      |            |  |
| #2        | 17'-2 1/8" | 21'-8 1/4"  | 21'-8 1/4"  | 22'-6"     | 22'-2 1/2" | 14'-8 5/8"  | 3'-9 5/8"  | 11'-2 1/8" | 16'-11"    | 20'-8 1/4"  | 21'-2 3/8" | 22'-2 3/8" | 22'-4 3/8" | 18'-9 1/8" | 17'-10 1/4" | 2'-11 1/2" | 8'-8 3/8"  | 18'-2 1/8" | 17'-5 1/8"  | 20'-8 3/8"  | 21'-8 1/4" | 24'-4 5/8" | 6'-4 3/8"  |  |
| #3        | 12'-9 1/8" | 21'-9 1/2"  | 21'-9 1/2"  | 22'-7 1/8" | 22'-3 3/8" | 14'-9 1/2"  | 7'-7 1/4"  | 7'-5 1/2"  | 17'-0"     | 20'-9 3/8"  | 21'-3 1/2" | 22'-3 1/2" | 22'-5 3/8" | 18'-11"    | 17'-11 1/4" | 5'-11"     | 5'-9 1/2"  | 18'-4"     | 17'-6 1/8"  | 20'-9 3/8"  | 21'-1 1/2" | 24'-6 1/8" | 8'-8 3/8"  |  |
| #4        | 8'-4 1/8"  | 21'-10 3/4" | 21'-10 3/4" | 22'-8 1/8" | 22'-5 1/8" | 14'-10 3/8" | 11'-4 1/4" | 3'-8 5/8"  | 17'-1"     | 20'-10 3/8" | 21'-4 3/4" | 22'-4 3/4" | 22'-7"     | 19'-0"     | 18'-0 3/8"  | 8'-10 3/8" | 2'-10 3/4" | 17'-7 1/4" | 20'-10 3/4" | 21'-10 3/4" | 24'-7 1/2" | 11'-0 1/8" |            |  |
| #5        | 4'-0"      | 22'-0"      | 22'-0"      | 22'-9 3/4" | 22'-6 3/8" | 14'-11 1/8" | 15'-2 1/2" |            | 17'-1 1/8" | 20'-11 1/4" | 21'-6"     | 22'-6"     | 22'-8 3/8" | 19'-1 1/8" | 18'-1 3/8"  | 11'-9 1/8" |            | 18'-6 1/8" | 17'-8 1/8"  | 21'-0"      | 22'-0"     | 24'-8 1/8" | 13'-5 1/4" |  |

GIRDER DIMENSIONS

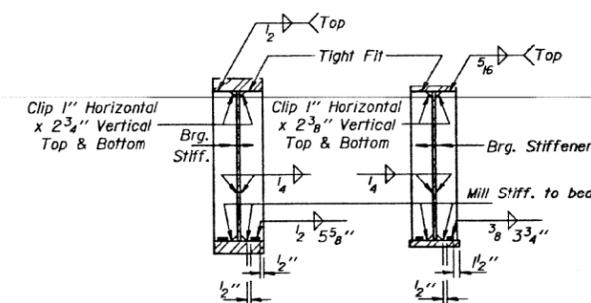
| Gir. Loc. | Radius   | Span #1      | Span #2      | Span #3     | Total Length | A          | B           | C           | D           | E          | F           | G          | H           | I           | J          | K          | L           | M          | N          | O          |
|-----------|----------|--------------|--------------|-------------|--------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|-------------|------------|------------|-------------|------------|------------|------------|
| #1        | 1891.53' | 123'-11 1/2" | 154'-3 1/8"  | 117'-6 3/8" | 397'-1 1/4"  | 91'-7 1/2" | 21'-0"      | 12'-0"      | 12'-0"      | 22'-6"     | 87'-0 1/8"  | 20'-9"     | 12'-0"      | 12'-0"      | 20'-6"     | 85'-8 5/8" | 33'-0"      | 34'-6"     | 32'-9"     | 32'-6"     |
| #2        | 1900.69' | 123'-10 1/8" | 154'-1 1/8"  | 117'-6"     | 396'-10"     | 91'-6 3/8" | 20'-11 1/8" | 11'-11 1/8" | 11'-11 1/8" | 22'-5 3/4" | 86'-11 1/2" | 20'-8 1/8" | 11'-11 1/8" | 12'-0"      | 20'-5 1/8" | 85'-8 1/8" | 32'-11 3/4" | 34'-5 1/8" | 32'-8 3/4" | 32'-5 1/8" |
| #3        | 1909.86' | 123'-8 1/8"  | 154'-0 1/4"  | 117'-5 1/2" | 396'-6 1/8"  | 91'-5 1/4" | 20'-11 3/8" | 11'-11 3/8" | 11'-11 3/8" | 22'-5 3/8" | 86'-10 3/4" | 20'-8 1/4" | 11'-11 3/8" | 11'-11 3/8" | 20'-5 3/8" | 85'-7 1/8" | 32'-11 3/8" | 34'-5 3/8" | 32'-8 3/8" | 32'-5 3/8" |
| #4        | 1919.03' | 123'-7 1/4"  | 153'-11 1/2" | 117'-4 1/8" | 396'-3 3/8"  | 91'-4 1/4" | 20'-11 3/8" | 11'-11 3/8" | 11'-11 3/8" | 22'-5 3/8" | 86'-10 3/8" | 20'-8 1/2" | 11'-11 3/8" | 11'-11 3/8" | 20'-5 3/8" | 85'-7 1/2" | 32'-11"     | 34'-5"     | 32'-8 3/8" | 32'-5 3/8" |
| #5        | 1928.19' | 123'-5 3/4"  | 153'-10 3/8" | 117'-4 3/8" | 396'-0 1/2"  | 91'-3 3/8" | 20'-11 3/8" | 11'-11 3/8" | 11'-11 3/8" | 22'-5 3/8" | 86'-9 1/2"  | 20'-8 1/2" | 11'-11 3/4" | 11'-11 3/4" | 20'-5 1/2" | 85'-7 1/8" | 32'-10 5/8" | 34'-4 5/8" | 32'-8 1/4" | 32'-5 1/4" |

"X" & "Y" OFFSET DIMENSIONS

| Gir. Loc. | Brg. S. Abut. |            | Splice #1 |            | Brg. Pier #1 |            | Splice #2 |        | Splice #3 |        | Brg. Pier #2 |           | Splice #4 |            | Brg. N. Abut. |           |
|-----------|---------------|------------|-----------|------------|--------------|------------|-----------|--------|-----------|--------|--------------|-----------|-----------|------------|---------------|-----------|
|           | X             | Y          | X         | Y          | X            | Y          | X         | Y      | X         | Y      | X            | Y         | X         | Y          | X             | Y         |
| #1        | 4'-2"         | 11'-5 1/2" | 1'-3 1/8" | 3'-7 3/4"  | 8 1/4"       | 1'-10 5/8" | 2 1/2"    | 7 1/8" | 1 1/8"    | 4 5/8" | 5 3/8"       | 1'-3 1/2" | 1'-0 1/8" | 2'-9 1/4"  | 3'-4 1/2"     | 9'-3 3/8" |
| #2        | 4'-0 1/8"     | 11'-0 1/4" | 1'-2 1/8" | 3'-5"      | 7 1/2"       | 1'-8 3/8"  | 2 1/2"    | 6 1/8" | 1 1/8"    | 5 1/8" | 6 1/8"       | 1'-4 1/8" | 1'-0 1/8" | 2'-11 1/4" | 3'-5 3/4"     | 9'-6 1/2" |
| #3        | 3'-10 1/4"    | 10'-7 1/4" | 1'-2"     | 3'-2 3/8"  | 6 1/8"       | 1'-6 1/8"  | 2 1/2"    | 5 1/8" | 2 1/2"    | 6"     | 6 3/8"       | 1'-6 1/8" | 1'-1 1/2" | 3'-1 1/4"  | 3'-7"         | 9'-10"    |
| #4        | 3'-8 1/4"     | 10'-2 1/4" | 1'-1"     | 2'-11 1/8" | 6 1/4"       | 1'-5 1/4"  | 1 3/4"    | 5"     | 2 1/2"    | 7 1/4" | 1'-7 1/8"    | 1'-2 3/8" | 3'-3 3/8" | 3'-8 1/4"  | 10'-1 1/2"    |           |
| #5        | 3'-6 3/4"     | 9'-9 3/8"  | 1'-0 1/8" | 2'-9 1/2"  | 5 5/8"       | 1'-3 5/8"  | 1 1/2"    | 4 1/4" | 2 1/8"    | 7 3/4" | 1'-9 1/2"    | 1'-3 1/8" | 3'-5 1/2" | 3'-9 1/2"  | 10'-4 1/4"    |           |

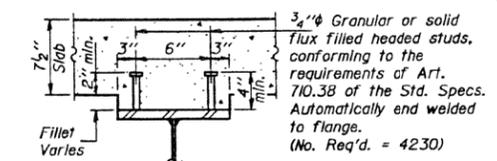
VALUES OF AA THRU DD

| Gir. Loc. | AA     | BB     | CC     | DD     |
|-----------|--------|--------|--------|--------|
| #1        | 8"     | 4 1/2" | 4 1/2" | 6 1/2" |
| #2        | 6 1/8" | 4 1/2" | 4 1/2" | 5 3/8" |
| #3        | 5 3/8" | 4 1/2" | 4 1/2" | 5 3/8" |
| #4        | 4 3/4" | 3 3/8" | 3 3/4" | 5"     |
| #5        | 3 5/8" | 3 1/2" | 3 1/2" | 4 5/8" |



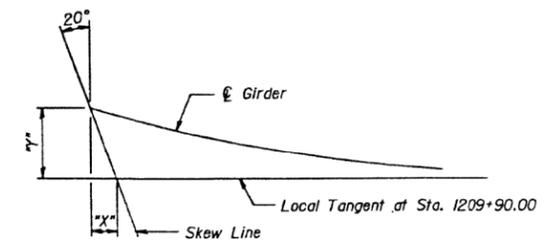
SECTION AT PIER

SECTION AT ABUTMENT

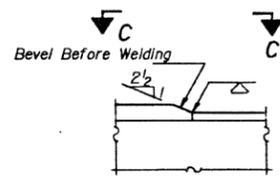


SECTION A-A

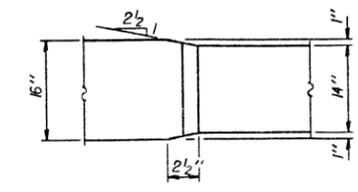
DESIGNED: *John A. Wanda*  
CHECKED: *Eric E. Lowry*  
DRAWN: *John F. Schneller Jr.*  
EXAMINED: *Gregory O. Kasper*  
PASSED: *James J. Ruppel*  
APPROVED: \_\_\_\_\_



"X" & "Y" OFFSET LOCATIONS



DETAIL "B"



VIEW C-C

STRUCTURAL STEEL  
F.A. RT. 14 SECTION 133B-1  
ALEXANDER COUNTY  
STATION 1209+90.00

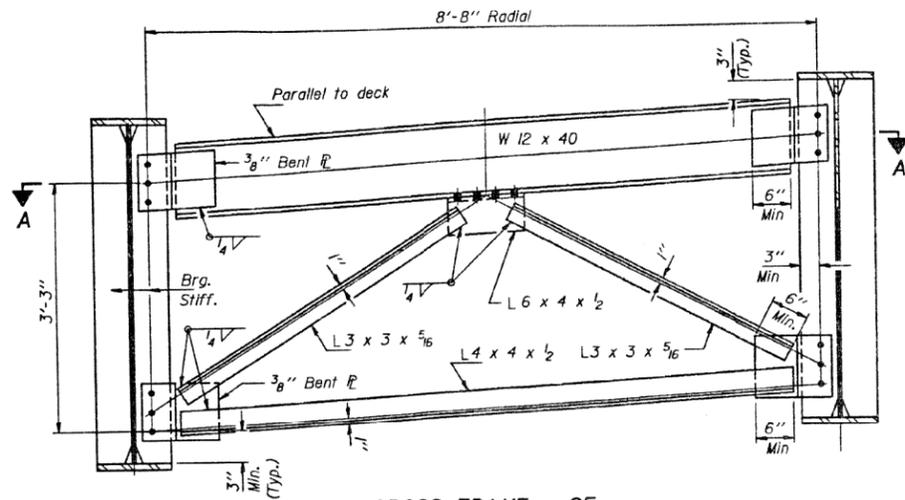
FOR INFORMATION ONLY 002-0032

|                              |            |           |                              |          |           |                        |         |              |                           |
|------------------------------|------------|-----------|------------------------------|----------|-----------|------------------------|---------|--------------|---------------------------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS            | 002-0032 | F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO.                 |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - | DEPARTMENT OF TRANSPORTATION |          | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 26                        |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |                              |          | SCALE:    | SHEET OF SHEETS        | STA.    | TO STA.      | CONTRACT NO. 78677        |
|                              | DATE -     | REVISED - |                              |          |           |                        |         |              | ILLINOIS FED. AID PROJECT |

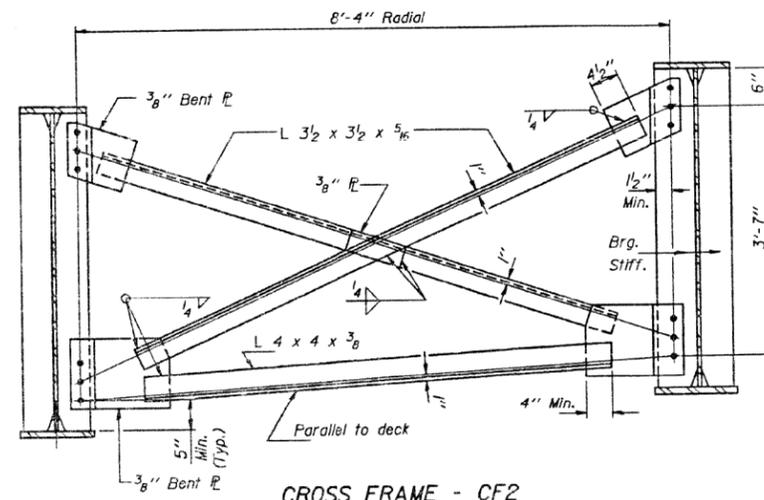
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|------------------|---------|--------------------|-----------|--------------|
| ROUTE NO.        | SECTION | COUNTY             | SHEET NO. | SHEET NO. // |
|                  |         |                    | 137       | 19 SHEETS    |
| F.A. RT. 14      |         | SECTION 133B-1     |           |              |
| ALEXANDER COUNTY |         | STATION 1209+90.00 |           |              |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

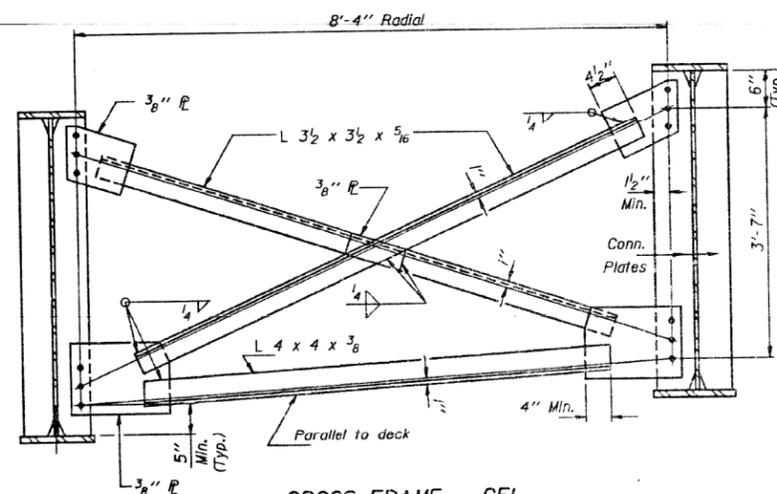
Notes:  
 Use  $\frac{3}{4}$ " H.S. Bolts with  $\frac{5}{16}$ " holes.  
 Two hardened washers shall be required over all holes for Cross Frame.  
 All connecting plates and bearing stiffeners are placed radial.  
 All Structural Steel for cross frames shall be AASHTO M-183.  
 For Section A-A see sheet #12 of 19.  
 \* Omit connecting plates on exterior side of exterior Girders.



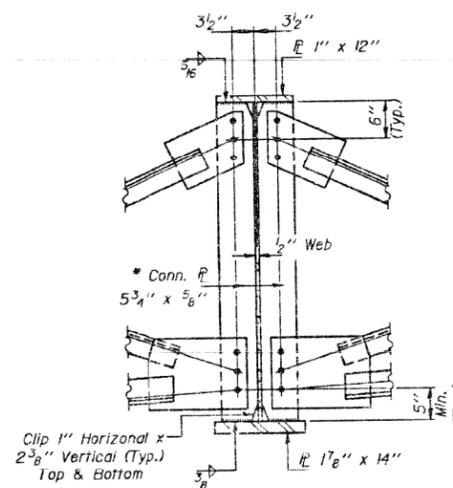
**CROSS FRAME - CF**  
(8 Required)



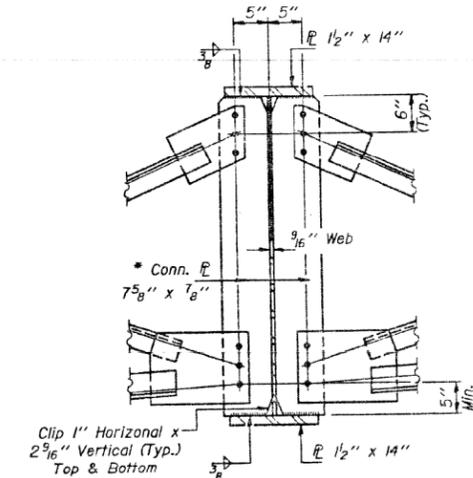
**CROSS FRAME - CF2**  
(8 Required)



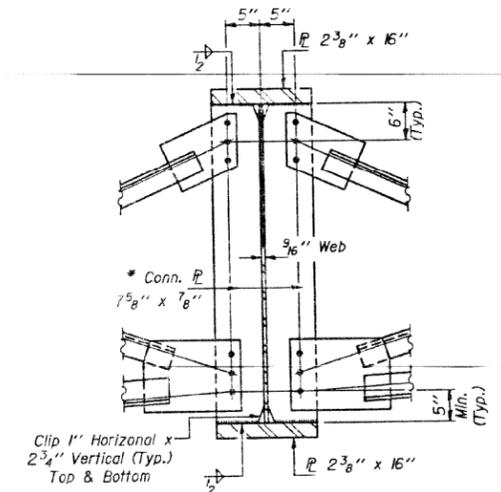
**CROSS FRAME - CF1**  
(80 Required)



**CROSS FRAME - CF1**  
(Showing Connecting Plates at 12" Top Flange and 14" Bottom Flange)



**CROSS FRAME - CF1**  
(Showing Connecting Plates at 14" Top Flange and 14" Bottom Flange)



**CROSS FRAME - CF1**  
(Showing Connecting Plates at 16" Top Flange and 16" Bottom Flange)

DESIGNED *W. Hilliard*  
 CHECKED *Eric E. Lantry*  
 DRAWN *John F. Schneller Jr.*  
 CHECKED *G.A.A.*

EXAMINED *Origi O. Kaspar*  
 PASSED *James T. Kasper*  
 APPROVED \_\_\_\_\_  
 DIRECTOR OF HIGHWAYS

**STRUCTURAL STEEL**  
**F.A. RT. 14 SECTION 133B-1**  
**ALEXANDER COUNTY**  
**STATION 1209+90.00**

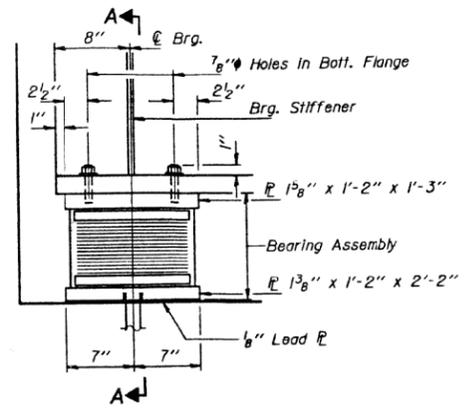
FOR INFORMATION ONLY 002-0032

|                              |            |           |   |          |           |         |                  |              |           |         |
|------------------------------|------------|-----------|---|----------|-----------|---------|------------------|--------------|-----------|---------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 002-0032 | F.A. RTE. | SECTION | COUNTY           | TOTAL SHEETS | SHEET NO. |         |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | SCALE:    | SHEET   | OF               | SHEETS       | STA.      | TO STA. |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          |           |         |                  |              |           |         |
|                              | DATE -     | REVISED - |   |          |           |         |                  |              |           |         |
|                              |            |           |   |          | ILLINOIS  |         | FED. AID PROJECT |              |           |         |

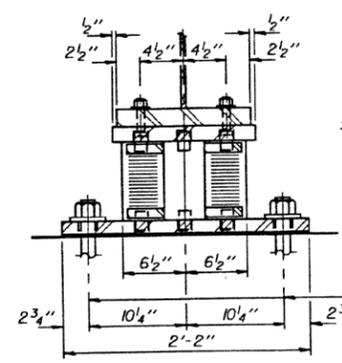


|           |         |         |        |              |
|-----------|---------|---------|--------|--------------|
| ROUTE NO. | SECTION | COUNTY  | SHEETS | SHEET NO. 13 |
| DIST.     |         |         | 139    | 19 SHEETS    |
| FILE NAME | DATE    | PROJECT |        |              |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



ELEVATION AT ABUTS.

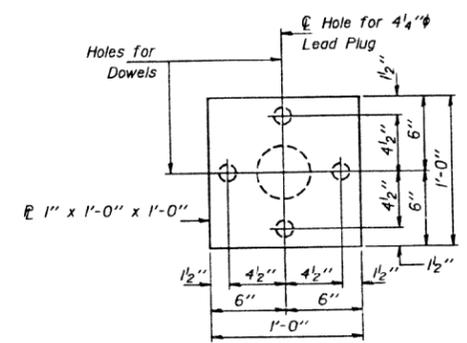


SECTION A-A

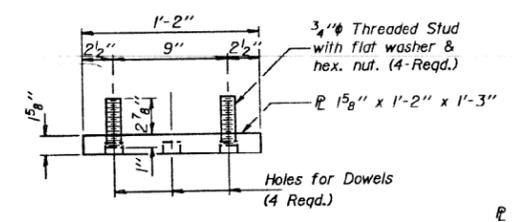
See sheet #15 of 19 for Anchor Bolt installation.

1/2" x 19" Anchor bolts with 3" x 3" x 5/16" R washer under nut 2" Hole in bottom fl.

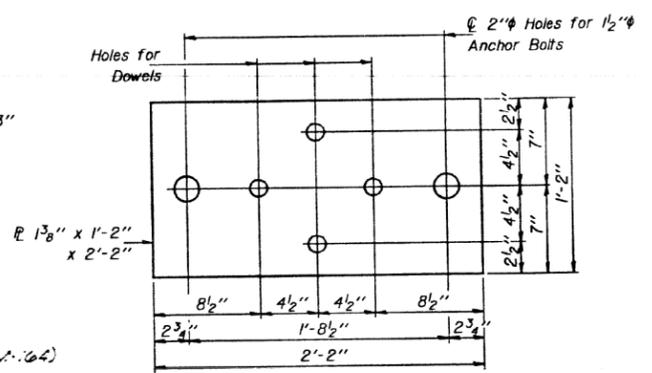
SEISMIC ISOLATION BEARING 1'-1" x 1'-1"



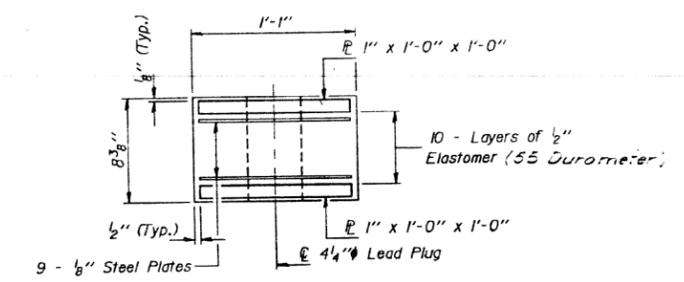
PLAN - TOP 1" PLATE



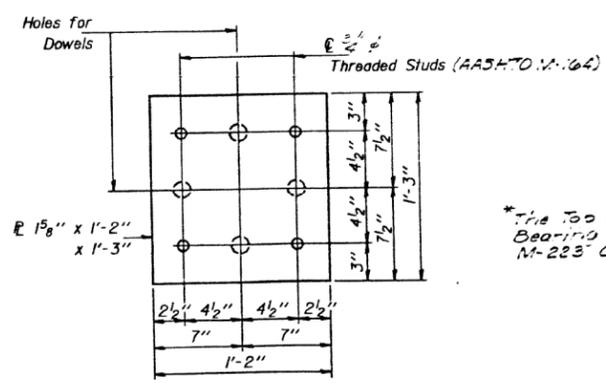
\*TOP BEARING ASSEMBLY



\*PLAN - BOTTOM BEARING ASSEMBLY

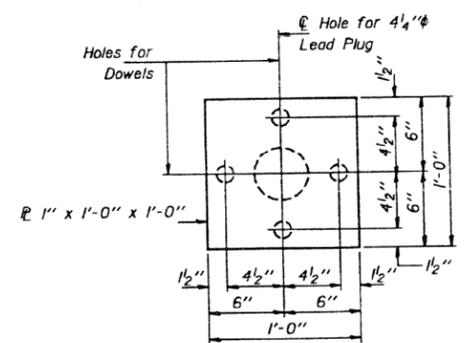


INTERIOR BEARING ASSEMBLY



\*PLAN - TOP BEARING ASSEMBLY

\*The Top & Bottom Plates of the Bearing Assembly shall be AASHTO M-223 Grade 50.



PLAN - BOTTOM 1" PLATE

BILL OF MATERIAL

| Item                                       | Unit | Total |
|--|------|-------|
| Seismic Isolation Bearing Ass'y. 13" x 13" | Each | 10    |

DESIGNED: *John F. Schneller Jr.* Feb 11 1988  
 CHECKED: *Eric E. Sawdy*  
 DRAWN: *John F. Schneller Jr.*  
 CHECKED: *GPA*  
 EXAMINED: *Dr. J. O. Kasper*  
 PASSED: *James J. Robinson*  
 APPROVED: \_\_\_\_\_  
 DIRECTOR OF HIGHWAYS

FOR INFORMATION ONLY 002-0032

ABUTMENT BEARING DETAILS  
 F.A. RT. 14 SECTION I33B-1  
 ALEXANDER COUNTY  
 STATION 1209+90.00

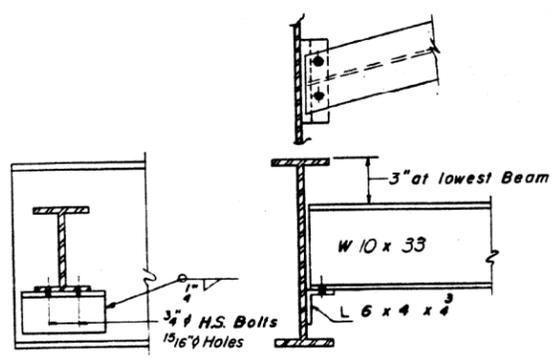
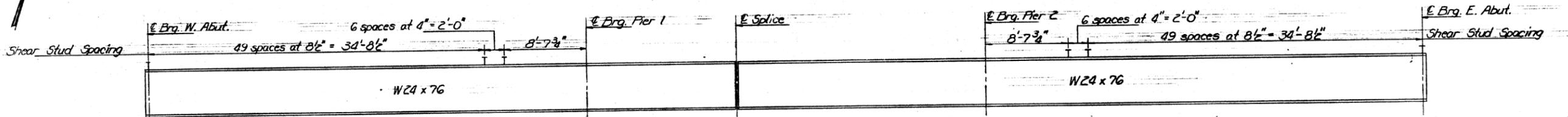
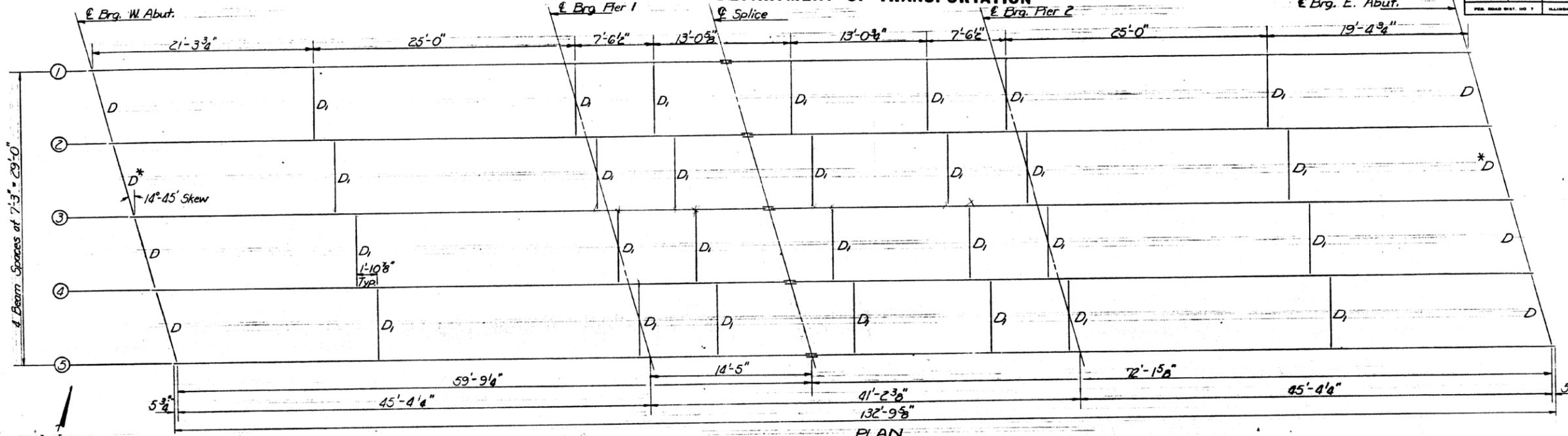
MOEFL: Defaul  
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|                              |            |           |                              |          |           |                        |         |              |                           |
|------------------------------|------------|-----------|------------------------------|----------|-----------|------------------------|---------|--------------|---------------------------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS            | 002-0032 | F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO.                 |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - | DEPARTMENT OF TRANSPORTATION |          | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 29                        |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |                              |          | SCALE:    |                        |         |              | CONTRACT NO. 78677        |
|                              | DATE -     | REVISED - |                              |          | SHEET     | OF                     | SHEETS  | STA.         | TO STA.                   |
|                              |            |           |                              |          |           |                        |         |              | ILLINOIS FED. AID PROJECT |

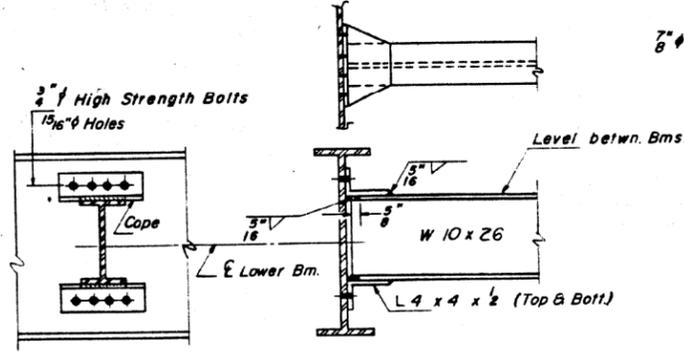


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

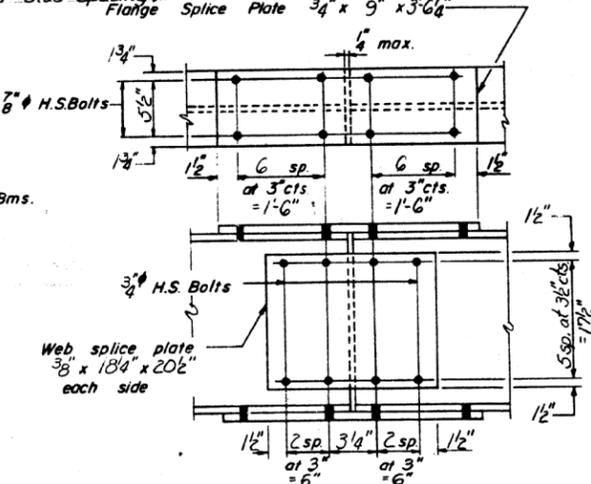
|           |           |          |              |           |                          |
|-----------|-----------|----------|--------------|-----------|--------------------------|
| ROUTE NO. | SECTION   | COUNTY   | TOTAL SHEETS | SHEET NO. | SHEET NO. 6<br>12 SHEETS |
| 873       | 106 VB-DR | Franklin | 28           | 22        |                          |



**DIAPHRAGM D**  
3 Required

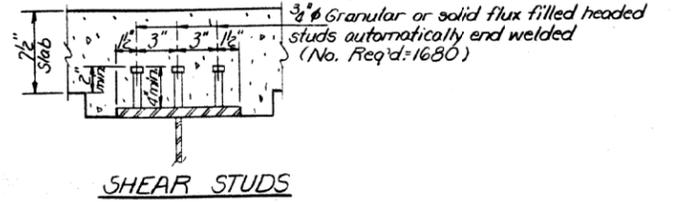


**DIAPHRAGM D1**  
28 Required



**SPLICE**

Notes: For Notch Toughness Requirements see General Notes on Sheet #1.  
\* Diaphragms designated D, between beams 2 and 3 shall be bolted to Beam 2 and temporarily supported in a final position (level) during Stage I Construction. The connection at Beam 3 shall be made during Stage II Construction.



**SHEAR STUDS**

Note: Two hardened washers shall be required over all 1 5/16 inch holes. All contact surfaces of joints shall be free of paint or lacquer.

Note: All beams and splice plate material shall be AASHTO M223 Grade 50. All diaphragms and connecting angles shall be AASHTO M183.

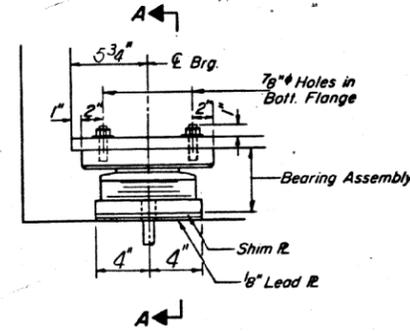
|          |                |          |             |
|----------|----------------|----------|-------------|
| DESIGNED | Rick Brunette  | DATE     | May 23 1983 |
| CHECKED  | M. Bloxdorf    | EXAMINED | [Signature] |
| DRAWN    | Joe Sutherland | PASSED   | [Signature] |
| CHECKED  | M. Bloxdorf    | APPROVED | [Signature] |

FOR INFORMATION ONLY 028-0038

STRUCTURAL STEEL  
F.A. RT. 873 SEC. 106 VB-DR  
FRANKLIN COUNTY  
STATION 568+25.90

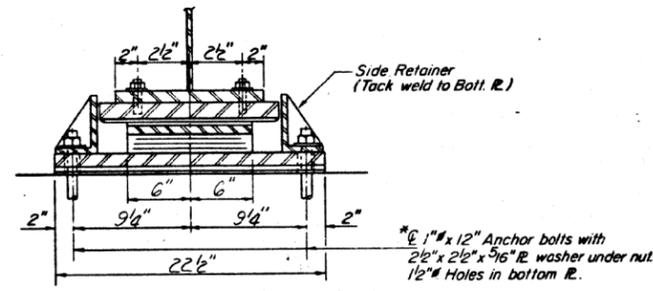
I-2-D 8-30-80

|                              |            |           |   |          |           |                        |         |              |           |         |
|------------------------------|------------|-----------|---|----------|-----------|------------------------|---------|--------------|-----------|---------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 028-0038 | F.A. RTE. | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |         |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |   |          | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 31        |         |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |   |          | SCALE:    | SHEET                  | OF      | SHEETS       | STA.      | TO STA. |
|                              | DATE -     | REVISED - |   |          |           |                        |         |              |           |         |

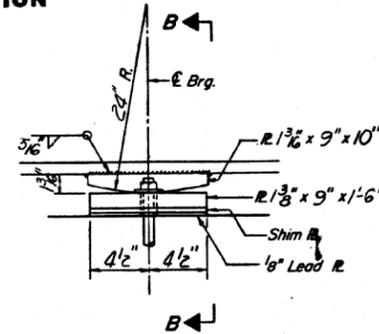


ELEVATION WEST ABUT.

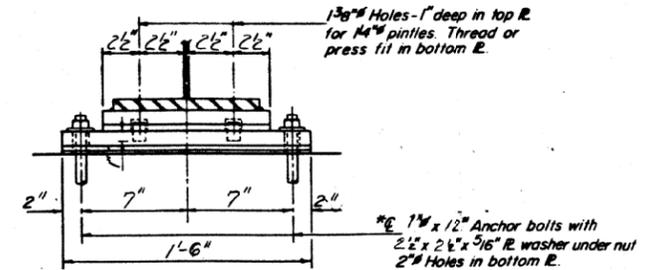
TYPE II TFE ELASTOMERIC EXP. BRG.



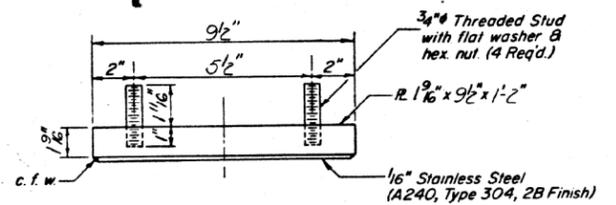
SECTION A-A



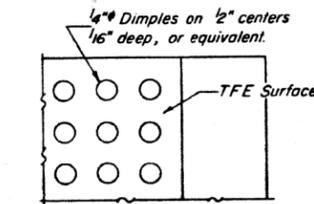
ELEVATION AT PIER-2



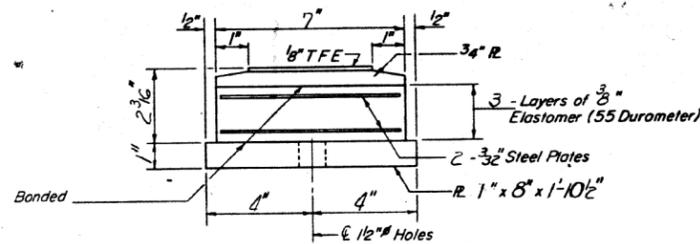
SECTION B-B



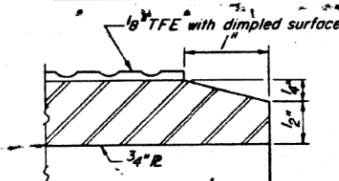
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE



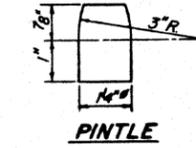
BOTTOM BEARING ASSEMBLY



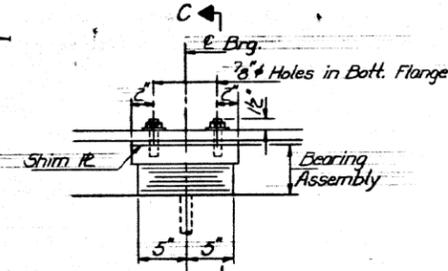
SECTION THRU TFE

\*Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry.

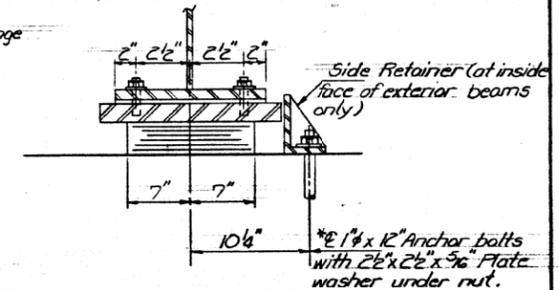
FIXED BEARING  
Note: All fixed bearing plates shall be AASHTO M223 Grade 50.



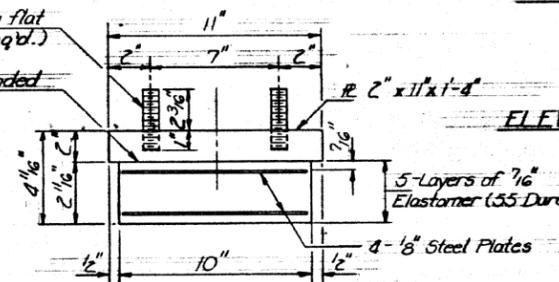
PINTLE



ELEVATION AT PIER-1

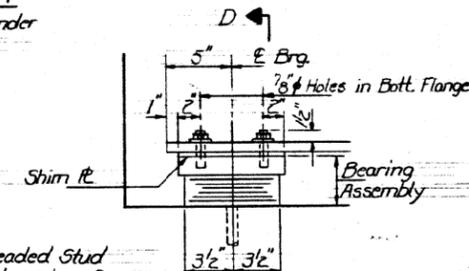


SECTION C-C

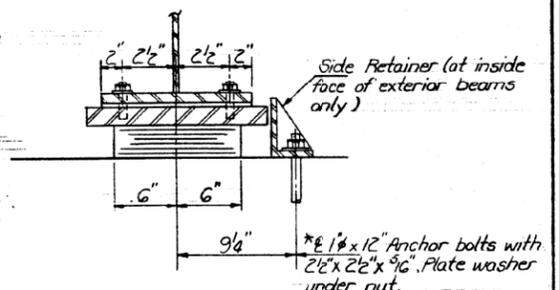


BEARING ASSEMBLY AT PIER-1

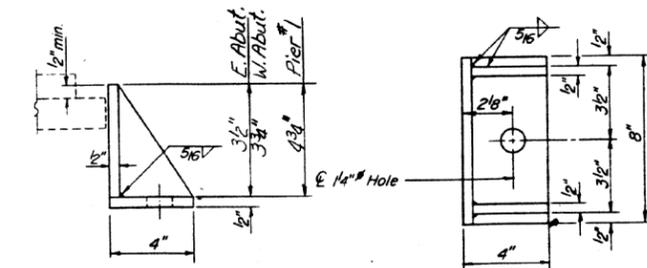
Note: Shim plates shall not be placed under Bearing Assembly.



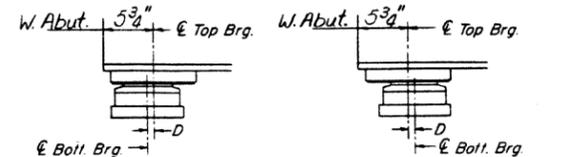
ELEVATION EAST ABUT.



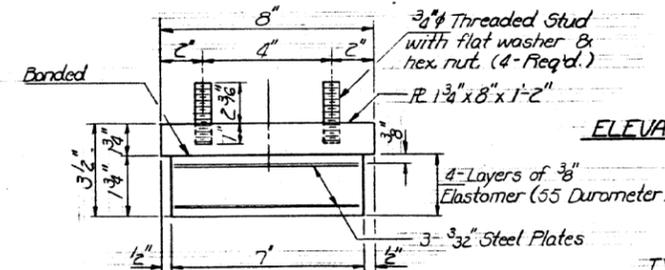
SECTION D-D



SIDE RETAINER



BELOW 50°F (Move bott. brg. away from fixed brg.)  
ABOVE 50°F (Move bott. brg. toward fixed brg.)  
SETTING ANCHOR BOLTS AT EXP. BRG.  
D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F



BEARING ASSEMBLY AT EAST ABUT.

Note: Shim plates shall not be placed under Bearing Assembly.

TYPE I ELASTOMERIC EXPANSION BEARINGS

BILL OF MATERIAL

| Item                                  | Unit | Total |
|---------------------------------------|------|-------|
| Elastomeric Bearing Assembly, Type I  | Each | 10    |
| Elastomeric Bearing Assembly, Type II | Each | 5     |

BEARING DETAILS  
F.A. RT. 873 SEC. 106VB-DR  
FRANKLIN COUNTY  
STATION 568+25.90

|          |                |          |                                 |
|----------|----------------|----------|---------------------------------|
| DESIGNED | Rick Brunette  | EXAMINED | May 23 1983<br>James J. Paulain |
| CHECKED  | M. Bloxdorf    | PASSED   |                                 |
| DRAWN    | Joe Sutherland | APPROVED |                                 |
| CHECKED  | M. Bloxdorf    |          |                                 |

I-2-E2 4-1-79

Rev. 5-23-83 GR

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

See Proposal for Boring Data.

Fasteners shall be high strength bolts (AASHTO M 164, Type 3).  
Bolts 3/4", open holes 1 1/8" and bolts 1/2", open holes 5/8", unless otherwise noted.

Calculated weight of Structural Steel = 42,980 Pounds.  
All Structural Steel shall be AASHTO M 222.

AASHTO M 222 structural steel shall not be painted except that for a distance of three times the depth of the beams (but not exceeding 10 feet) each way from deck joints, the AASHTO M 222 structural steel shall be cleaned and given one coat of the basic lead silico chromate primer and one coat of zinc rich paint to be applied in the shop with spot painting only in the field.  
Field welding of construction accessories will not be permitted to the bottom flange of beams nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.  
Anchor bolts shall be set before bolting diaphragms over supports.

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Expansion bolts shall consist of approved expansion anchors, providing certified minimum proof load = 4,050 lbs., and 3/4" x 12" hooked bolts.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. (For Type I Elastomeric Bearings, shims of the dimensions of top plate shall be provided and placed as detailed).

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material of the steel wide flange beams.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53 Grade 60.

The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 222.

All contact surfaces of joints for the diaphragms shall be free of paint or loquax.

Temporary Bridge Rail to extend from end to end of Approach Pavement.

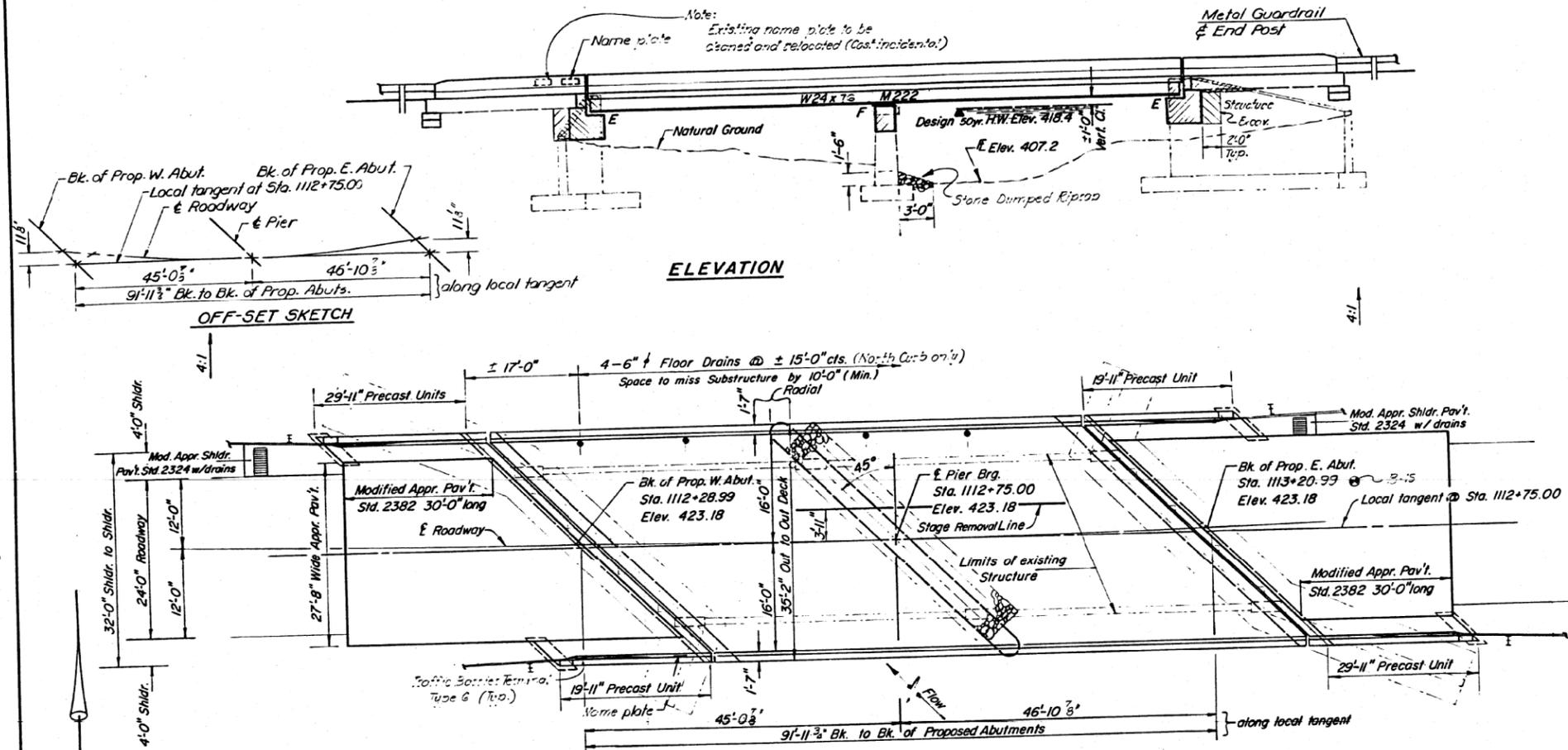
TOTAL BILL OF MATERIAL

| Item                                 | Unit     | Super. | Sub. | Total |
|--------------------------------------|----------|--------|------|-------|
| Removal of Existing Superstructures  | Each     | 1      |      | 1     |
| Concrete Removal                     | Cu. Yd.  |        | 30   | 30    |
| Floor Drains                         | Each     | 4      |      | 4     |
| Class X Concrete                     | Cu. Yd.  | 118.4  | 97.1 | 215.5 |
| Structural Steel                     | L.S.     | 2.5    |      | 2.5   |
| Stud Shear Connectors                | Each     | 1320   |      | 1320  |
| Reinforcement Bars                   | Pound    | 10870  | 7830 | 18700 |
| Reinforcement Bars (Epoxy Coated)    | Pound    | 16870  |      | 16870 |
| Name Plates                          | Each     | 1      |      | 1     |
| Stone Dumped Riprap                  | Sq. Yd.  |        | 19   | 19    |
| Neoprene Expansion Joint 2"          | Lin. Ft. | 95     |      | 95    |
| Temporary Bridge Rail                | Lin. Ft. | 179    |      | 179   |
| Elastomeric Bearing Assembly, Type I | Each     | 10     |      | 10    |
| Expansion Bolts 3/4 Inch             | Sq. Yd.  | 422    |      | 422   |
| Protective Coat                      | Cu. Yd.  |        | 72   | 72    |
| Structure Excavation                 | Sq. Ft.  | 373    |      | 373   |
| Precast Concrete Bridge Slab         | Sq. Ft.  |        | 373  | 373   |

GENERAL PLAN  
F.A. Rte. 873 Over STEVENS CREEK  
F.A. Rte. 873 SECTION 107B-DR-1  
FRANKLIN COUNTY  
Sta. 1112+75.00

B.M. Railroad spike in 24" Ash, 33' right of station 1112+75.00  
Existing Structure: 028-0041 The existing structure built in 1928 as S.B.I. 149 Section 107-B is a 87'-9" Bk. to Bk. two span bridge. The existing superstructure consists of 4 reinforced concrete "T" girders with an out to out of 24.7'. The existing substructure is composed of two R.C. closed abutments and one solid concrete pier. The existing superstructure shall be removed and replaced with a concrete slab supported by W steel beams. The existing substructure shall be widened with new caps and repaired as necessary to support the proposed superstructure. Traffic shall be maintained at all times utilizing stage construction.

No salvage:



CURVE DATA

Δ = 44°-1'  
D = 5°-0'-07"  
T = 463.00'  
L = 880.0'  
R = 1145.48'  
E = 90.03'

Proposed S.E. = 0.08%  
Proposed S.E. Transitions:  
Sta. 1109+93 to Sta. 1112+09  
Sta. 1119+44 to Sta. 1121+62

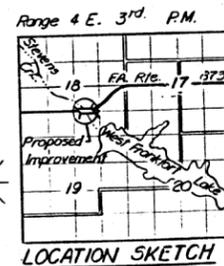
STATION 1112+75  
RE-BUILT 198 BY  
STATE OF ILLINOIS  
F.A. Rte. 873 SEC. 107B-DR-1  
PROJECT BR-F-873(12)  
LOADING HS 20  
STR. No. 723 054

NAME PLATE  
(See 5/d. 2113)

WATERWAY INFORMATION

Drainage Area = 7.94 sq. mi. Low Grade Elev. 422.42 @ Sta. 1115+00

| Flood       | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. |       | Head - Ft. |       | Exist. | Prop.  |        |
|-------------|-----------|----------|-----------------|-------|------------|-------|--------|--------|--------|
|             |           |          | Exist.          | Prop. | H.W.E.     | Prop. |        |        |        |
| Design      | 50        | 1780     | 519             | 519   | 418.4      | 0.38  | 0.38   | 418.78 | 418.78 |
| Base        | 100       | 2040     | 542             | 542   | 418.8      | 0.34  | 0.49   | 419.14 | 419.29 |
| Overtopping |           |          |                 |       |            |       |        |        |        |
| Max. Calc.  | 500       | 2660     | 546             | 555   | 419.5      | 0.58  | 0.56   | 420.08 | 420.06 |



Note: Width between the approach guardrails will be parallel and equal to width between bridge rail. Shoulder widening will be required at the approach roadway to the structure.

DESIGN STRESSES

FIELD UNITS  
f<sub>c</sub> = 3,500 psi  
f<sub>y</sub> = 60,000 psi (Reinf.)  
f<sub>y</sub> = 50,000 psi (Struct.) (M222)

PRECAST UNITS

f<sub>c</sub> = 4,500 psi  
f<sub>c</sub> = 4,800 psi  
f<sub>s</sub> = 20,000 psi

LOADING HS 20-44

Design Specifications: 1977 AASHTO; 1978, 1979, 1980 and 1981 Interim Specifications.

DESIGNED *M. P. ...*  
CHECKED *A. S. Brown*  
DRAWN *SGF skv.*  
CHECKED *A. S. Brown*

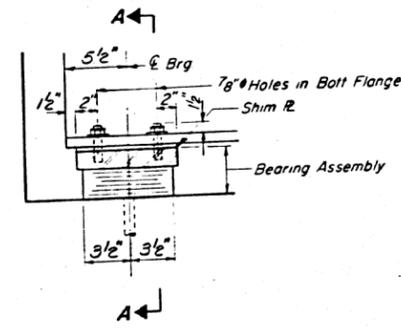
EXAMINED *James T. ...*  
PASSED  
APPROVED  
DIRECTOR OF HIGHWAYS

FOR INFORMATION ONLY 028-0041

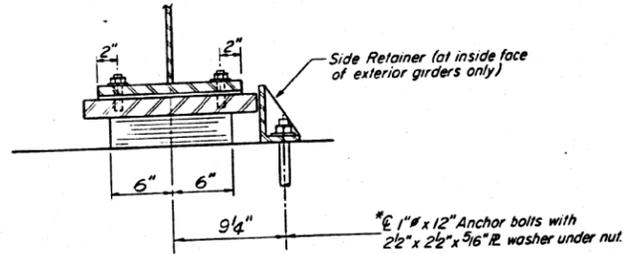
|                              |            |           |                              |                              |           |                        |                  |              |           |
|------------------------------|------------|-----------|------------------------------|------------------------------|-----------|------------------------|------------------|--------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS            | 028-0041                     | F.A. RTE. | SECTION                | COUNTY           | TOTAL SHEETS | SHEET NO. |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - | DEPARTMENT OF TRANSPORTATION | SCALE:                       | VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS          | 50           | 33        |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |                              | SHEET OF SHEETS STA. TO STA. |           |                        |                  |              |           |
|                              | DATE       | REVISED   |                              |                              |           | ILLINOIS               | FED. AID PROJECT |              |           |



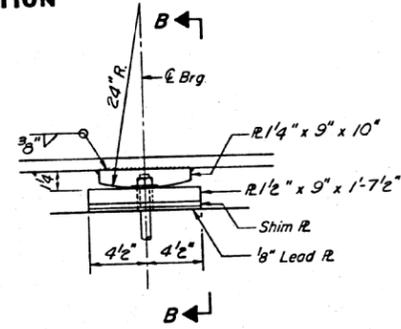
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



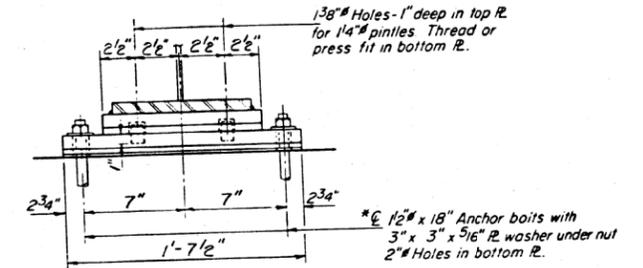
SECTION AT ABUTS.



SECTION A-A



ELEVATION AT PIER

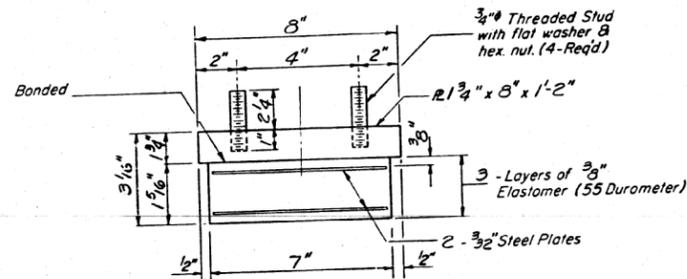


SECTION B-B

FIXED BEARING

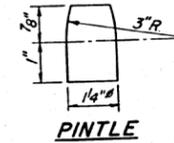
TYPE I ELASTOMERIC EXP. BRG.

\*Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry.

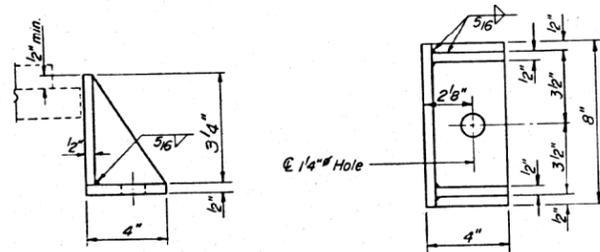


BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.



PINTLE



SIDE RETAINER

|                                 |                                  |
|---------------------------------|----------------------------------|
| DESIGNED <i>Peter M. Pitone</i> | EXAMINED <i>James J. Rayburn</i> |
| CHECKED <i>A. J. Benn</i>       | PASSED                           |
| DRAWN <i>Stu Ferchow</i>        | APPROVED                         |
| CHECKED <i>A. J. Benn</i>       | DIRECTOR OF HIGHWAYS             |

I-2-EI 8-30-80

FOR INFORMATION ONLY 028-0041

BEARING DETAILS  
F.A. RT. 873 SEC. 107B-DR-1  
FRANKLIN COUNTY  
STATION 1112+75.00

MODEL: Default  
 FILE NAME: I:\PROJECTS\873\DR-1\DOT\Drawings\I-2-EI 8-30-80.dwg  
 PROJECT: 873 DR-1  
 CADD: D:\CADD\Drawings\873\DR-1\DOT\Drawings\I-2-EI 8-30-80.dwg  
 DATE: 10/10/2018

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
|                              | DRAWN -    | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/10/2018       | DATE -     | REVISED - |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

028-0041

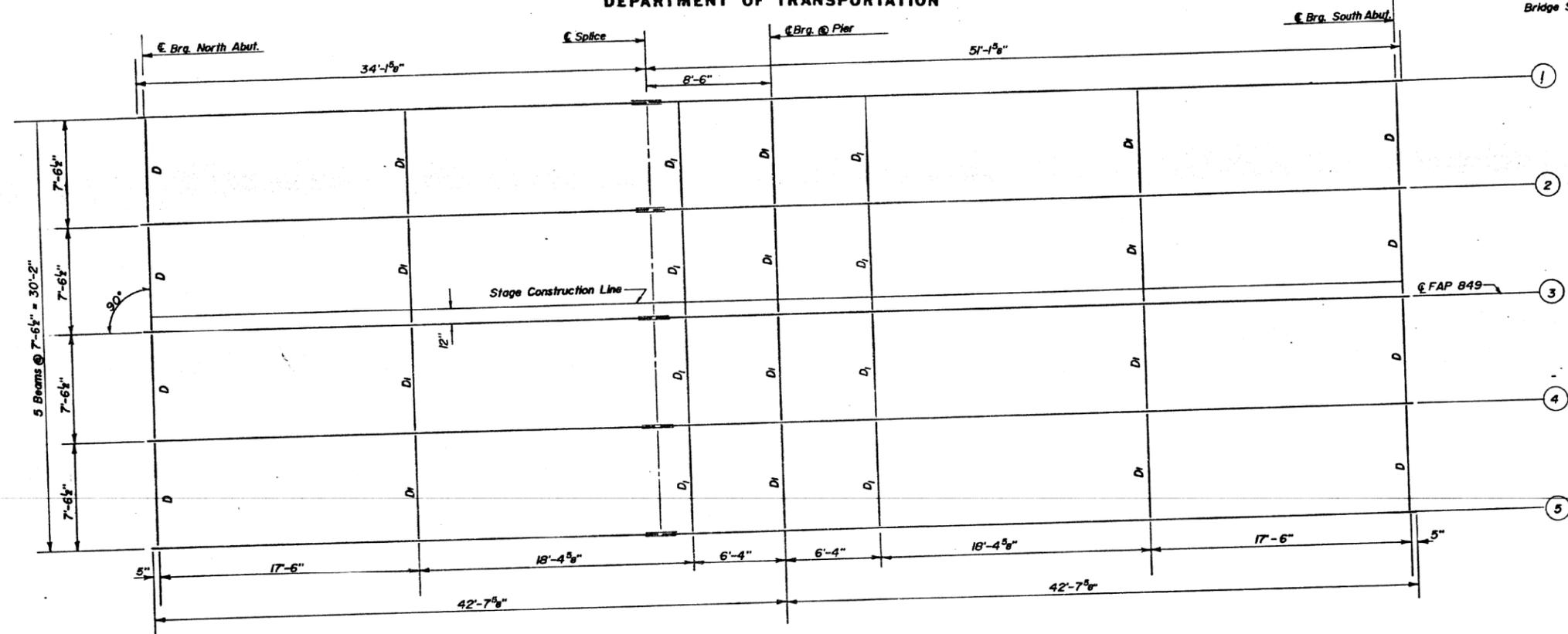
SCALE: SHEET OF SHEETS STA. TO STA.

|           |                        |          |                    |           |
|-----------|------------------------|----------|--------------------|-----------|
| F.A. RTE. | SECTION                | COUNTY   | TOTAL SHEETS       | SHEET NO. |
| VAR       | D9 BRIDGE PAINT 2019-1 | VARIOUS  | 50                 | 35        |
|           |                        |          | CONTRACT NO. 78677 |           |
|           |                        | ILLINOIS | FED. AID PROJECT   |           |



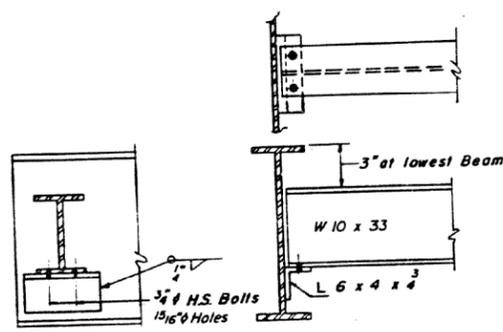
|                             |         |          |       |              |
|-----------------------------|---------|----------|-------|--------------|
| ROUTE                       | SECTION | COUNTY   | SHEET | TOTAL SHEETS |
| FAP 849                     | 114BR-1 | HAMILTON | 17    | 9            |
| ILLINOIS FED. AID PROJECT - |         |          |       |              |
| Bridge Sheet 5 of 13.       |         |          |       |              |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION



NOTE: All beams W24 x 76

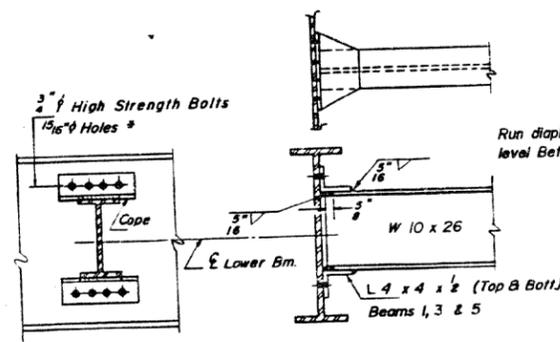
FRAMING PLAN



DIAPHRAGM D

8 Required

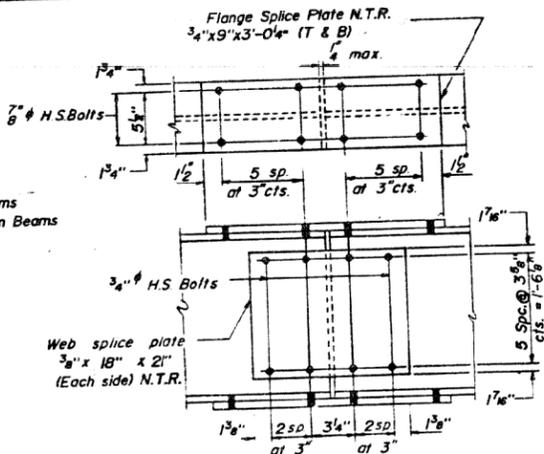
Note: Two hardened washers shall be required over all 3/16 inch holes. All contact surfaces of joints shall be free of paint or lacquer.



DIAPHRAGM D1

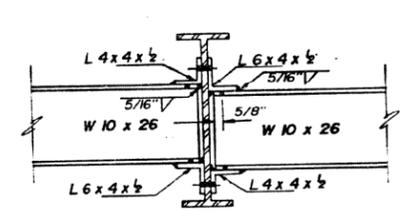
20 Required

\* Beams 2 and 3 shall have 1 1/2 inch long x 1/8 inch slotted holes for the intermediate diaphragm connection. The slotted holes shall have a 3/8 inch plate washer placed over them. Bolts shall be finger tightened until the placement of Stage II deck concrete. Long dimension of slots shall be vertical.



SPLICE

N.T.R. - Must conform to Supplemental Requirements for Notch Toughness Zone 2. See General Note No. 5.



DIAPHRAGM D1 at Beams 2 and 4 (Beam 4 is shown)

FRAMING PLAN

FAP RTE. 849 over MIDDLE CREEK  
SECTION 114BR-1  
STATION 269+59.83  
HAMILTON COUNTY

GREENE & BRADFORD, INC.  
OF SPRINGFIELD  
CONSULTING ENGINEERS  
100 STEVENSON DR. 217/229-6400 SPRINGFIELD, IL

FOR INFORMATION ONLY 033-0012

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |
|                              | DATE -     | REVISED - |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

033-0012

SCALE: SHEET OF SHEETS STA. TO STA.

|                           |                        |         |              |           |
|---------------------------|------------------------|---------|--------------|-----------|
| F.A. RTE.                 | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |
| VAR                       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 37        |
| CONTRACT NO. 78677        |                        |         |              |           |
| ILLINOIS FED. AID PROJECT |                        |         |              |           |





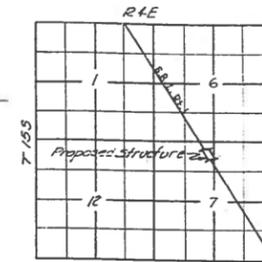
B.M. Cut N.W. Corner N.W. Wing of Bridge Sta. 755+10 - Elev. 347.60  
 Existing Structure - R.C.T.G. 7 span @ 46'-3" with a 21' Rdwy. E.C. abuts.  
 Bridge Contractor to remove exist. superstructure  
 and portions of exist. substructure as shown on the plans.

STATE OF ILLINOIS  
 DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
 DIVISION OF HIGHWAYS

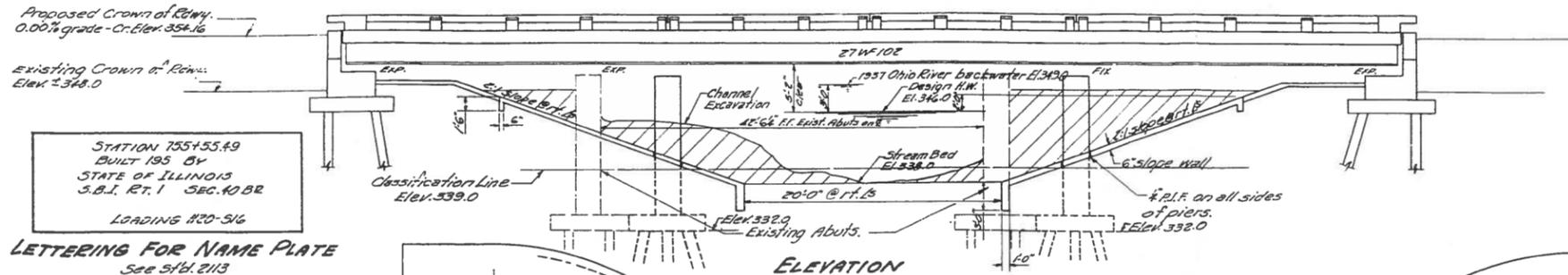
|           |          |                  |              |           |           |
|-----------|----------|------------------|--------------|-----------|-----------|
| ROUTE NO. | SECTION  | COUNTY           | TOTAL SHEETS | SHEET NO. | SHEET NO. |
| 1         | 390-1    | Massac           | 98           | 52        | 7 SHEETS  |
| F.A. RTE. | ILLINOIS | FED. AID PROJECT |              |           |           |

GENERAL NOTES

Class X concrete shall be used throughout except in handrails and piers.  
 Class A concrete shall be used in the piers.  
 Handrail concrete shall be used in handrails.  
 The concrete floor slab shall be finished in accordance with Article 5.19(a) of the Standard Specifications.  
 Slope wall shall be reinforced with welded wire fabric 6"x6" mesh, #4 wires, weighing 58#/1000 ft. Layout of slope walls may be varied to suit ground conditions in the field, as directed by the Engineer.  
 The handrail concrete in the rail posts and railing shall be poured in separate operations.  
 Rivets 3/4" open holes 1/2", unless noted.  
 Field connections riveted, unless noted.  
 Railings shall be adjusted to true alignment after curbs have been poured.  
 All bolsters, rockers, bearing plates, lead plates, pintles and anchor bolts shall be fabricated and set in accordance with Article 5.15 of the Standard Specifications and are included in quantity of Structural Steel.  
 Pin-exposed surfaces of 4"x4"x2" angles with two shop coats of red lead paint.  
 Expansion guards are included in quantity of Structural Steel, Est. Wt. 2125 lbs.  
 Except as otherwise provided, all structural steel shall receive one shop coat of red lead paint and two field coats of aluminum paint. See Articles 56.1 to 56.5 inclusive of the Standard Specifications.  
 All paint shall be furnished and applied by the contractor.  
 Anchor bolts shall be set before riveting diaphragms over supports.  
 The contractor shall drive 4 test piles (in permanent locations) as directed by the Engineer before ordering remainder of piles. (One R.C. test pile each at N.F.S. Abut. and one timber pile each at piers 1 & 2.)



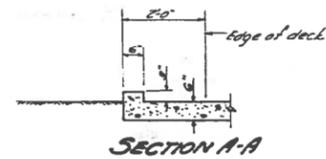
LOCATION SKETCH



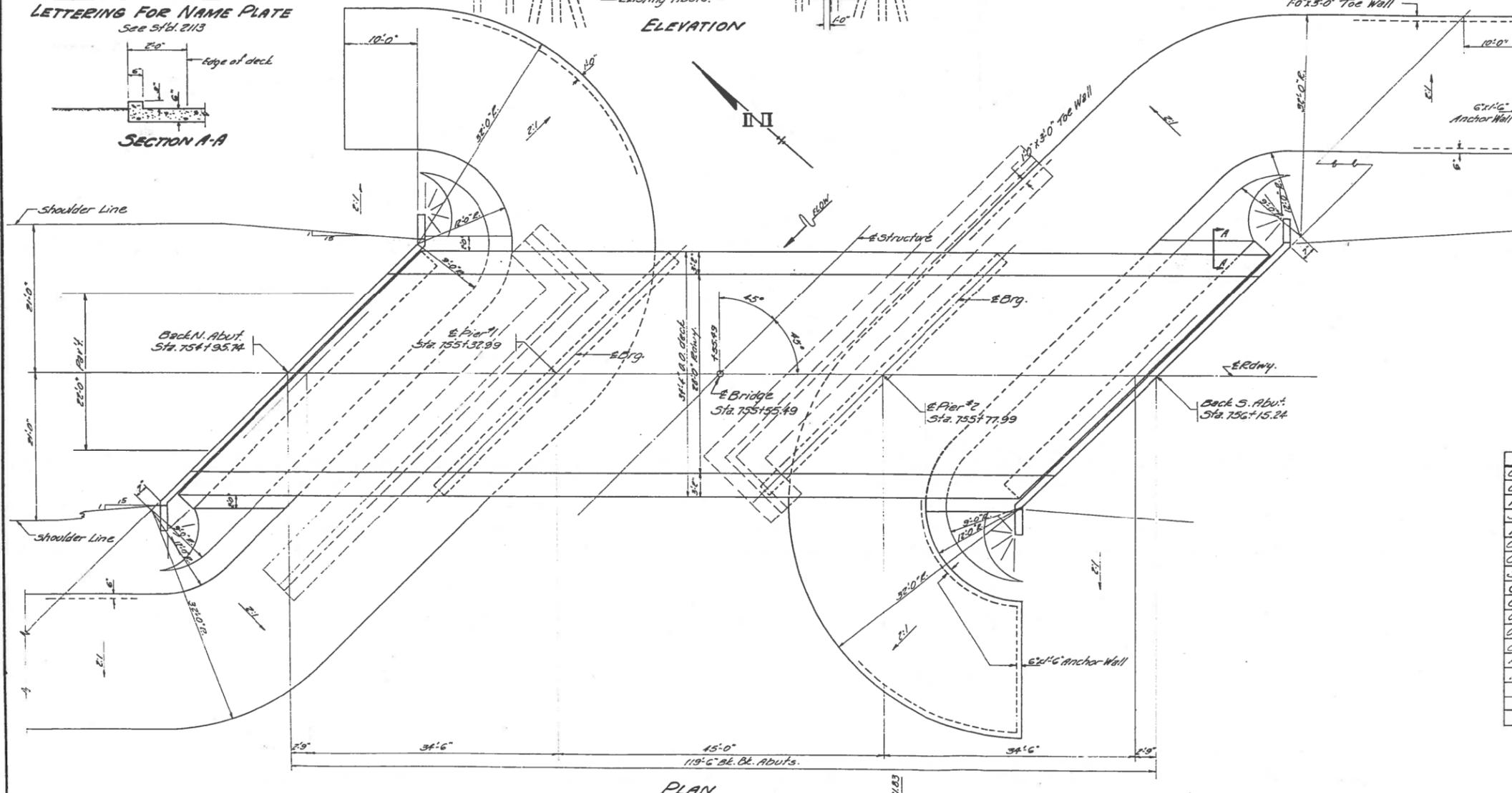
ELEVATION

STATION 755+55.49  
 BUILT 195 BY  
 STATE OF ILLINOIS  
 S.B.I. RT. 1 SEC. 40 BR  
 LOADING 120-516

LETTERING FOR NAME PLATE  
 See S.B.I. 2113



SECTION A-A



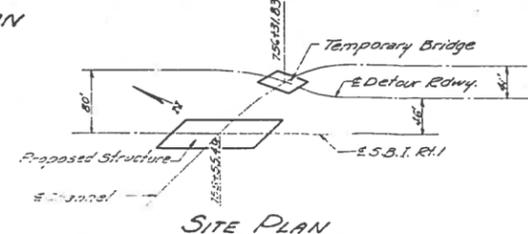
PLAN

TOTAL BILL OF MATERIAL

| Item                        | Unit     | Superstr. | Substr. | Total  |
|-----------------------------|----------|-----------|---------|--------|
| Class X Concrete            | Cu. Yds. | 105.3     | 95.0    | 200.3  |
| Class A Concrete            | Cu. Yds. |           | 194.3   | 194.3  |
| Reinforcement Bars          | Lbs.     | 19,940    | 12,350  | 32,290 |
| Structural Steel            | Lbs.     | 72080     |         | 72080  |
| Handrail Concrete           | Cu. Yds. | 5.6       |         | 5.6    |
| Class B Excav. for Struct.  | Cu. Yds. |           | 261     | 261    |
| Class B Excav. for Struct.  | Cu. Yds. |           | 328     | 328    |
| Slope Wall                  | Sq. Yds. |           | 1,110   | 1,110  |
| Concrete Piles              | Lin. Ft. |           | 576     | 576    |
| Concrete Test Piles         | Each     |           | 2       | 2      |
| Untreated Timber Piles      | Lin. Ft. |           | 760     | 760    |
| Untreated Timber Test Piles | Each     |           | 2       | 2      |
| Channel Excavation          | Cu. Yds. |           |         | 347    |
| Removal of Existing Struct. | Each     |           |         | 1      |
| Name Plates                 | Each     | 1         |         | 1      |

WATERWAY INFORMATION

Drainage Area 2500 Acres  
 Required Opening 208 Sq. Ft.  
 Present Opening 202 Sq. Ft.  
 Proposed Opening 225 Sq. Ft.



SITE PLAN

DESIGN STRESSES

$f_c = 1400$  psi. Superstr.  
 $f_c = 20,000$  psi. Reinf.  
 $f_s = 18,000$  psi. Struct.  
 $V = 75$  lb./sq. ft. Pile Figs.  
 (S.B.I.)

DESIGNED *W. H. Kelly*  
 CHECKED *W. H. Kelly*  
 DRAWN *E. R. Koch*  
 CHECKED *W. H. Kelly*  
 EXAMINED *W. M. Romine*  
 PASSED *E. L. Smith*  
 APPROVED *R. R. Barkley*  
 AUGUST 19 19 58

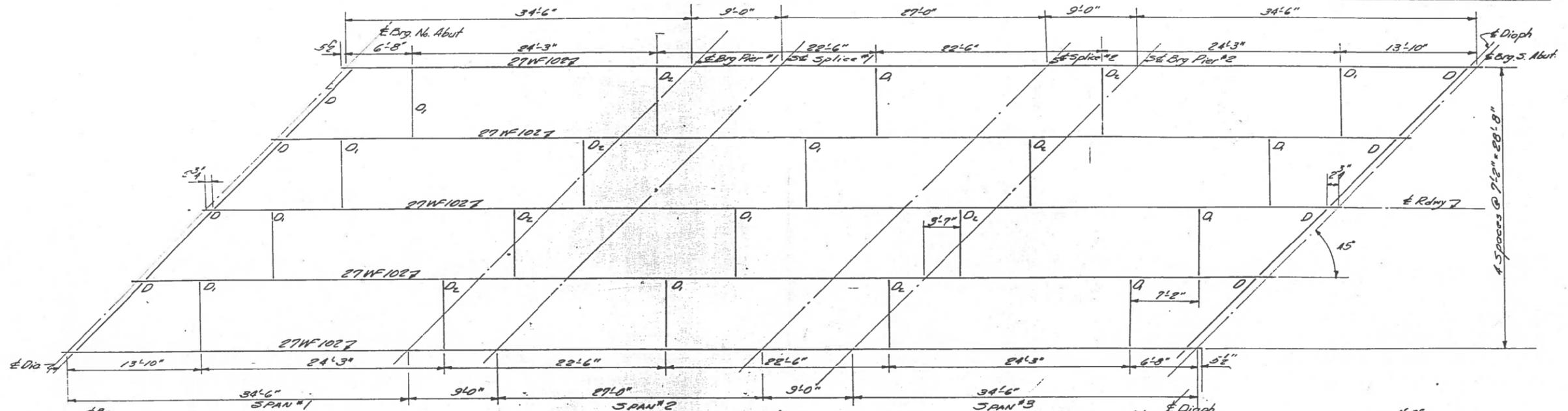
GENERAL PLAN & ELEVATION  
 OVER "Q" DITCH  
 S.B.I. RT. 1 SEC. 40 BR  
 MASSAC COUNTY  
 STA. 755+55.49

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
|                              | DRAWN -    | REVISED - |
| PLOT SCALE = 100.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/10/2018       | DATE -     | REVISED - |

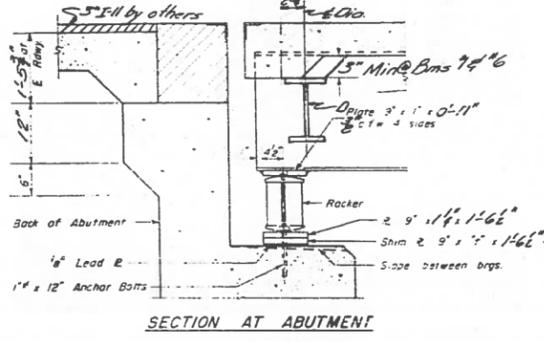
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|---------------------------|-------|----|--------|------|----|------|-----------|---------------------|---------|--------------|-----------|
| SCALE:                    | SHEET | OF | SHEETS | STA. | TO | STA. | F.A. RTE. | SECTION             | COUNTY  | TOTAL SHEETS | SHEET NO. |
|                           |       |    |        |      |    |      | D9        | BRIDGE PAINT 2019-1 | VARIOUS | 50           | 40        |
| CONTRACT NO. 78677        |       |    |        |      |    |      |           |                     |         |              |           |
| ILLINOIS FED. AID PROJECT |       |    |        |      |    |      |           |                     |         |              |           |

STATE OF ILLINOIS  
DEPARTMENT OF PUBLIC WORKS & BUILDINGS  
DIVISION OF HIGHWAYS

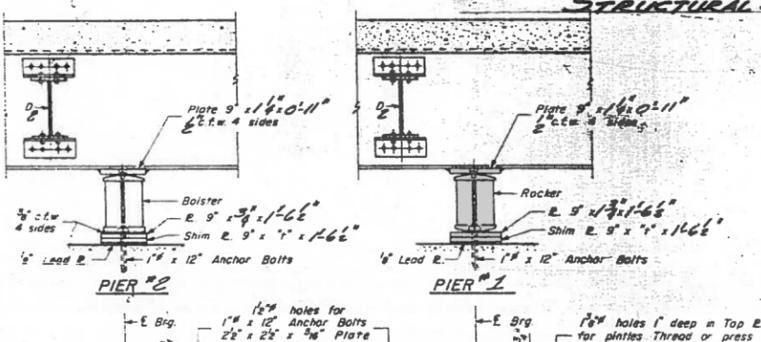
|              |        |              |           |
|--------------|--------|--------------|-----------|
| SECTION      | COUNT  | TOTAL SHEETS | SHEET NO. |
| 59W-1<br>DOW | Massac | 98           | 53        |
| SHEET NO. 2  |        | 7 SHEETS     |           |



STRUCTURAL STEEL LAYOUT

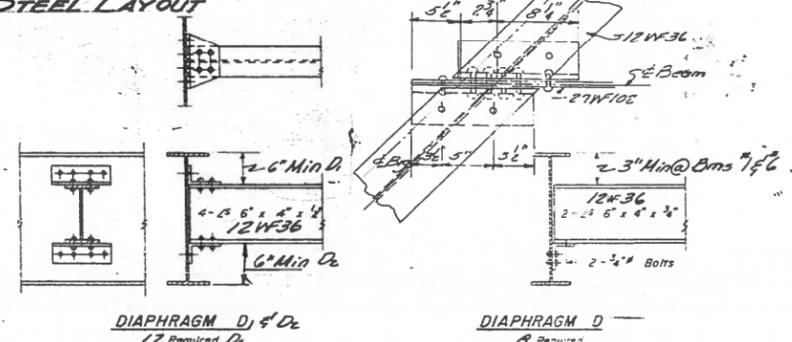


SECTION AT ABUTMENT



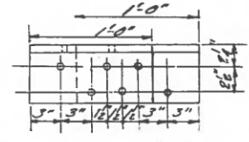
PIER #2

PIER #1



DIAPHRAGM D1 & D2

DIAPHRAGM D

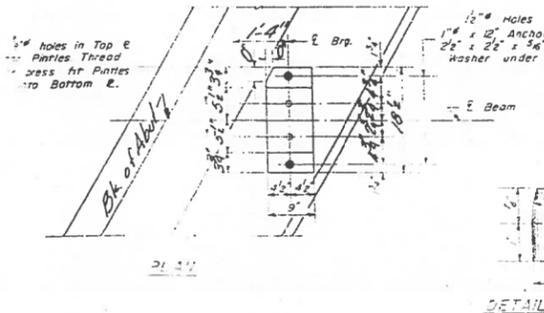


DETAIL OF DIAPHRAGM D

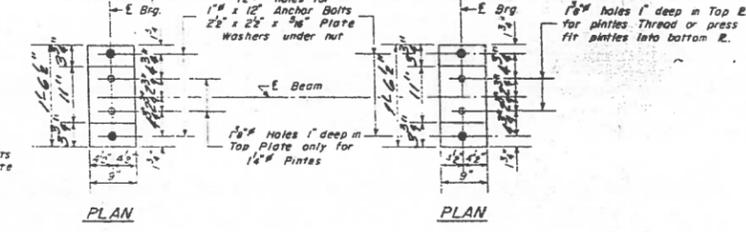
ELEVATION TOP OF BEAMS

| Beam Location   | #1     | #2     | #3     | #4     | #5     |
|-----------------|--------|--------|--------|--------|--------|
| E. Brg. N. Abut | 353.38 | 353.50 | 353.54 | 353.50 | 353.38 |
| E. Brg. Pier #1 | 353.38 | 353.50 | 353.54 | 353.50 | 353.38 |
| E. Splice #1    | 353.38 | 353.50 | 353.54 | 353.50 | 353.38 |
| E. Splice #2    | 353.38 | 353.50 | 353.54 | 353.50 | 353.38 |
| E. Brg. Pier #2 | 353.38 | 353.50 | 353.54 | 353.50 | 353.38 |
| E. Brg. S. Abut | 353.38 | 353.50 | 353.54 | 353.50 | 353.38 |

Note: Elevations top of beams does not include @ Deflection.

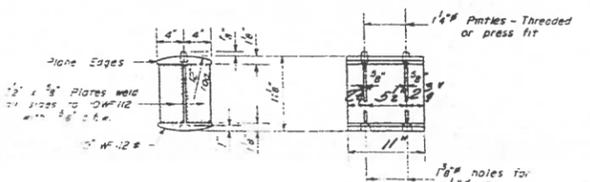


DETAIL OF PINTLE

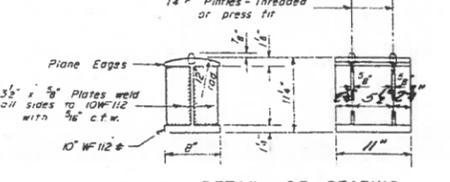


PLAN

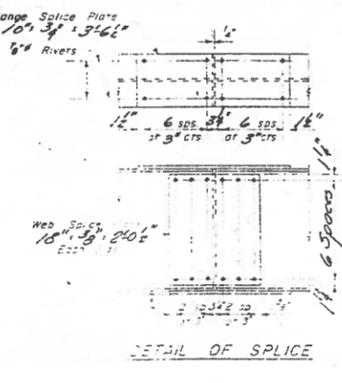
PLAN



DETAIL OF BEARING AT PIER #1



DETAIL OF BEARING AT PIER #2



DETAIL OF SPLICE

TABLE OF "4" DIMENSIONS

| Beam Location   | #1 | #2 | #3  | #4 | #5 |
|-----------------|----|----|-----|----|----|
| E. Brg. N. Abut | 0  | 0  | 1/2 | 0  | 0  |
| E. Brg. Pier #1 | 0  | 0  | 1/2 | 0  | 0  |
| E. Brg. Pier #2 | 0  | 0  | 1/2 | 0  | 0  |
| E. Brg. S. Abut | 0  | 0  | 1/2 | 0  | 0  |

See Sheet #3 for Structural Steel Quantities

STRUCTURAL STEEL  
OVER Q DITCH  
S.B.I.Rt.1 SEC. 40 BR  
MASSAC COUNTY  
STATION 755+55.49

DESIGNED: *Walter Kelly*  
CHECKED: *...*  
DRAWN: *...*  
EXAMINED: *...*  
DATE: AUGUST 19, 1958

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |
|                              | DATE -     | REVISED - |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

064-0003

SCALE: SHEET OF SHEETS STA. TO STA.

|                           |                        |         |                    |           |
|---------------------------|------------------------|---------|--------------------|-----------|
| F.A. RTE.                 | SECTION                | COUNTY  | TOTAL SHEETS       | SHEET NO. |
| VAR                       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50                 | 41        |
| ILLINOIS FED. AID PROJECT |                        |         | CONTRACT NO. 78677 |           |





**BENCHMARK**

Southwest bolt on the north handrail base Lt. Sta. 9+75  
ELEV. 491.04

**EXISTING STRUCTURE DESCRIPTION**

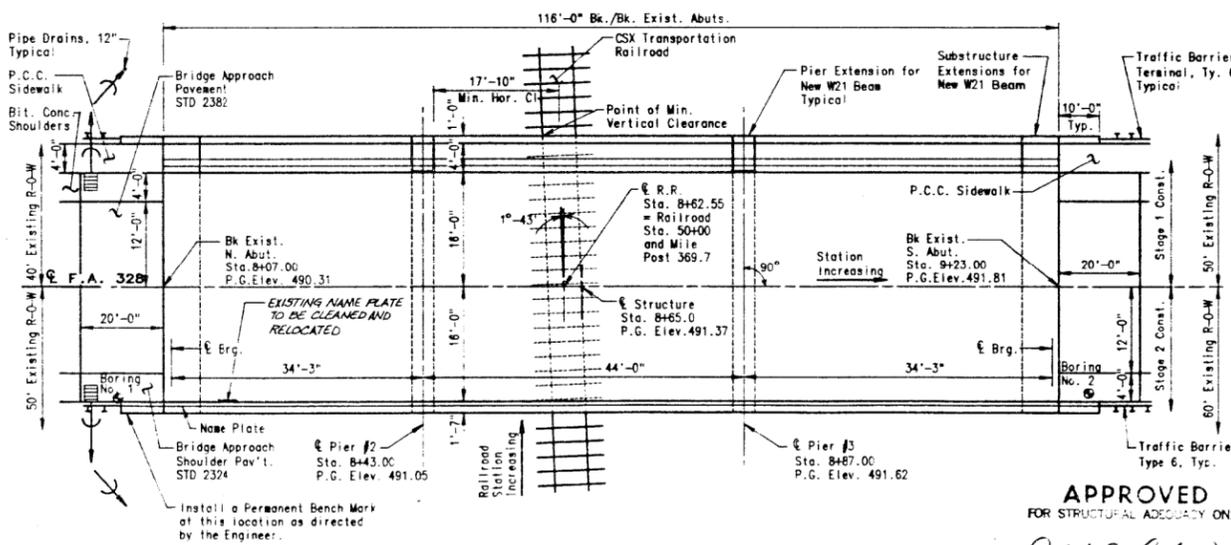
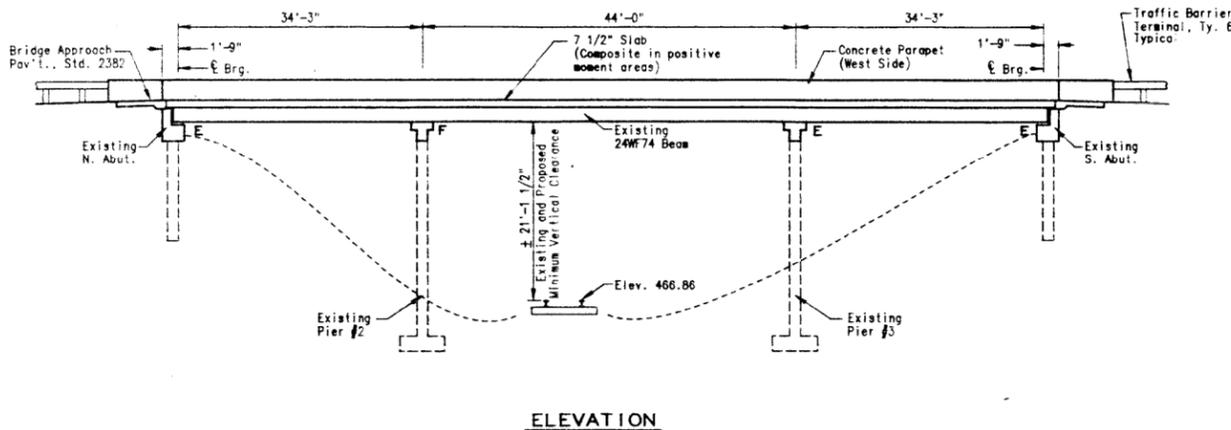
SN 097-0024 D.O.T No. 346-384-U  
Existing structure is a three span reinforced concrete slab on steel stringers, 116'-0" long and 34'-9" wide on open abutments built in 1939. Remove the existing concrete deck and handrails. No salvage. Traffic shall be maintained utilizing stage construction.

**NOTE:** After removal of the concrete deck, the intermittent welds of the top cover plate shall be inspected for fatigue cracks. If cracks are found, the cover plate shall be retrofitted. Contact the Bridge Engineer for method of retrofitting.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

- See Proposal for Boring Data.
- Fasteners shall be high strength bolts. Bolts 3/4" dia., open holes 15/16" dia., unless otherwise noted.
- Calculated weight of Structural Steel = 18,624 Pounds (M-183)
- All new structural steel shall be given one first prime coat and one final coat of the lead and chromate free alkyl paint system in the shop. The color of the final coat shall be Interstate Green, Munsell Color Std. 7.5G 46. The contractor shall touch up any damaged areas and areas not painted at the shop (such as bolt splices, etc.). Painting shall be incidental to the pay item of FURNISHING AND ERECTING STRUCTURAL STEEL.
- NO NOTE
- Field welding of construction accessories will not be permitted to the bottom flange of beams nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.
- Anchor bolts shall be set before bolting diaphragms over supports.
- The structural steel bearing plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 183
- The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Match Toughness Zone 2. These components are the wide flange beams and all splice plate material.
- Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.
- Pier dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- Bearing seat surfaces under Beam #1 shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. For Type I Elastomeric Bearings, shims of the dimensions of top plate shall be provided and placed as detailed.
- The contractor shall drive one steel HP 10 x 42 test pile in a permanent location at the South Abutment as directed by the Engineer before ordering the remainder of piles.
- For cantilever forming brackets, See Special Provisions.
- Bridge Seal Sealer shall be applied to seal area of the Abutment. Estimated Quantity = 141 Sq.Ft.
- The Contractor will be required to mark, on top of the concrete deck, the locations of the top flange of all the steel beams, prior to any removal of the bridge concrete deck. Saw cutting directly over the top of the beam flanges is not permitted.



**NAME PLATE (Std. 2113)**

STATION 8+65  
REBUILT BY  
STATE OF ILLINOIS  
U.S. RTE. 45 SEC. 108 VB-1  
F.A. PROJECT F-328-(1)  
LOADING HS 20  
STR. NO. 097-0024

**APPROVED**  
FOR STRUCTURAL ASSURANCE ONLY

Ralph E. Krauenhoffer  
Engineer of Bridges and Structures

**DESIGN LOADING**  
HS 20-44 and Allowance for  
25 P.S.F. Future Wearing Surface

**DESIGN STRESSES (New Construction)**  
fy = 60,000 p.s.i. Reinforcement  
f'c = 3,500 p.s.i. Concrete  
fy = 36,000 p.s.i. Structural Steel  
fs = 22,000 p.s.i. (AASHTO M-183, Gr. 36)

**DESIGN STRESSES (Existing Beams)**  
fy = 33,000 p.s.i. Structural Steel  
fs = 18,150 p.s.i.

**DESIGN SPECIFICATIONS**  
AASHTO 1989 & 1990 Interim Specifications  
& Seismic Retrofitting Guidelines for  
Highway Bridges.

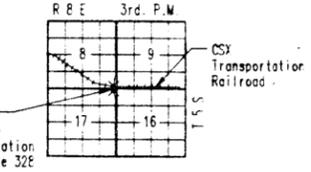
**TOTAL BILL OF MATERIAL**

| ITEM                                  | UNIT     | SUPER  | SUB   | TOTAL  |
|---------------------------------------|----------|--------|-------|--------|
| Structure Excavation                  | Cu. Yd.  |        | 122   | 122    |
| Concrete Removal                      | Cu. Yd.  |        | 17.4  | 17.4   |
| Class "X" Concrete                    | Cu. Yd.  |        | 50.7  | 50.7   |
| Class "X" Concrete Superstructure     | Cu. Yd.  | 137.6  |       | 137.6  |
| Protective Coat                       | Sq. Yd.  | 567    |       | 567    |
| F. & E. Structural Steel              | L. Sum.  | 1      |       | 1      |
| Stud Shear Connectors                 | Each     | 3,885  |       | 3,885  |
| Reinforcement Bars, Epoxy Coated      | Pound    | 32,790 | 6,536 | 39,320 |
| Name Plates                           | Each     | 1      |       | 1      |
| Preformed Joint Seal - 2 1/2"         | Lin. Ft. | 78     |       | 78     |
| Furnishing Steel Piles, HP 10 x 42    | Lin. Ft. |        | 227   | 227    |
| Driving Steel Piles                   | Lin. Ft. |        | 227   | 227    |
| Test Pile Steel, HP 10 x 42           | Each     | 1      |       | 1      |
| Aluminum Railing, Type I              | Lin. Ft. | 134    |       | 134    |
| Elastomeric Bearing Assembly, Type I  | Each     |        | 14    | 14     |
| Removal of Existing Concrete Deck     | Each     | 1      |       | 1      |
| Bridge Seal Sealer                    | L. Sum   |        | 1     | 1      |
| Cleaning and Painting Steel Bridge    | L. Sum   |        | 1     | 1      |
| Jack and Remove Existing Bearings     | Each     |        | 18    | 18     |
| Structural Steel Removal              | PXIN     |        | 3,348 | 3,348  |
| Elastomeric Bearing Assembly, Type II | Each     |        | 7     | 7      |



JOHN A. KRAUENHOFFER  
Illinois Registered Structural Engineer Number 4192

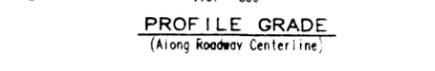
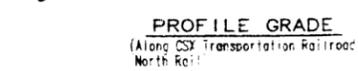
**LOCATION PLAN**



**GENERAL PLAN**  
F.A. ROUTE 328  
(SB1 140)(U.S. ROUTE 45)  
OVER CSX TRANSPORTATION RAILROAD  
SECTION 108 VB-1  
WHITE COUNTY  
STRUCTURE NO. 097-0024  
STA. 8+65

Sodemann and Associates, Inc.  
STRUCTURAL ENGINEERING  
PROJECT MANAGEMENT

DESIGNED: K. E.  
CHECKED: J. A. F.  
DRAWN: R. E. H.  
CHECKED: R. L. H.



|                             |            |           |   |          |                    |                        |          |                  |           |         |
|-----------------------------|------------|-----------|---|----------|--------------------|------------------------|----------|------------------|-----------|---------|
| USER NAME = WILSONDA        | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 097-0024 | F.A. RTE.          | SECTION                | COUNTY   | TOTAL SHEETS     | SHEET NO. |         |
| PLOT SCALE = 100,000' / in. | DRAWN -    | REVISED - |   |          | VAR                | D9 BRIDGE PAINT 2019-1 | VARIOUS  | 50               | 44        |         |
| PLOT DATE = 10/10/2018      | CHECKED -  | REVISED - |   |          | CONTRACT NO. 78677 |                        | ILLINOIS | FED. AID PROJECT |           |         |
|                             | DATE -     | REVISED - |   |          | SCALE:             | SHEET                  | OF       | SHEETS           | STA.      | TO STA. |



White

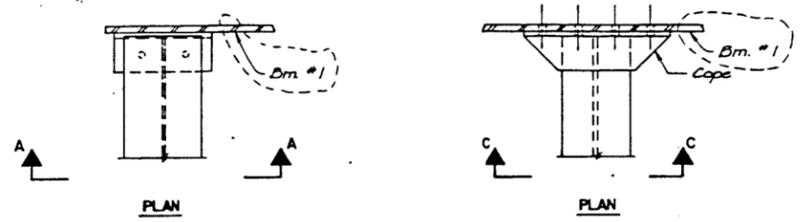
108 VB-1

IER copy

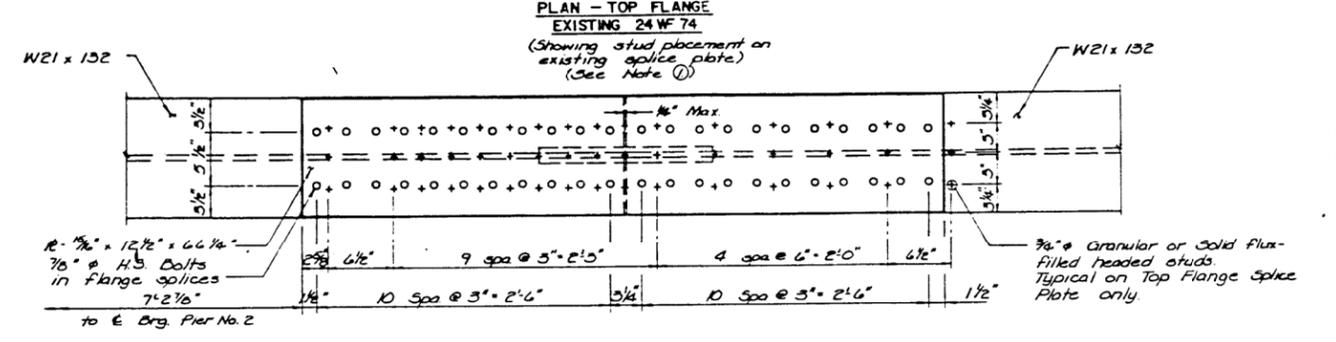
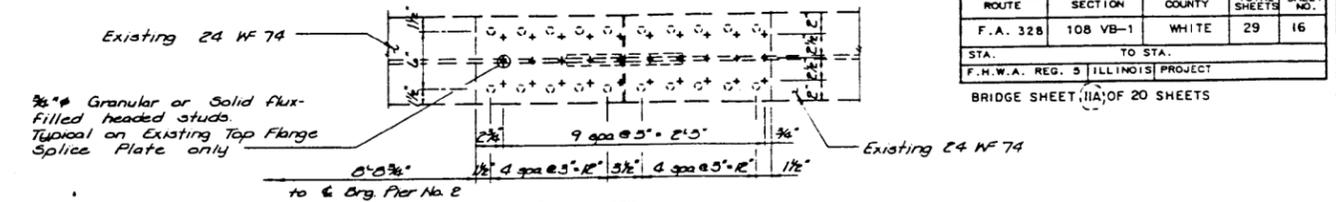
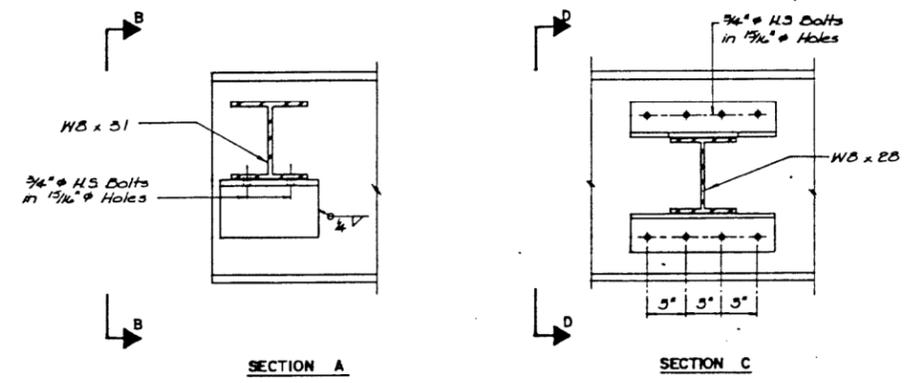
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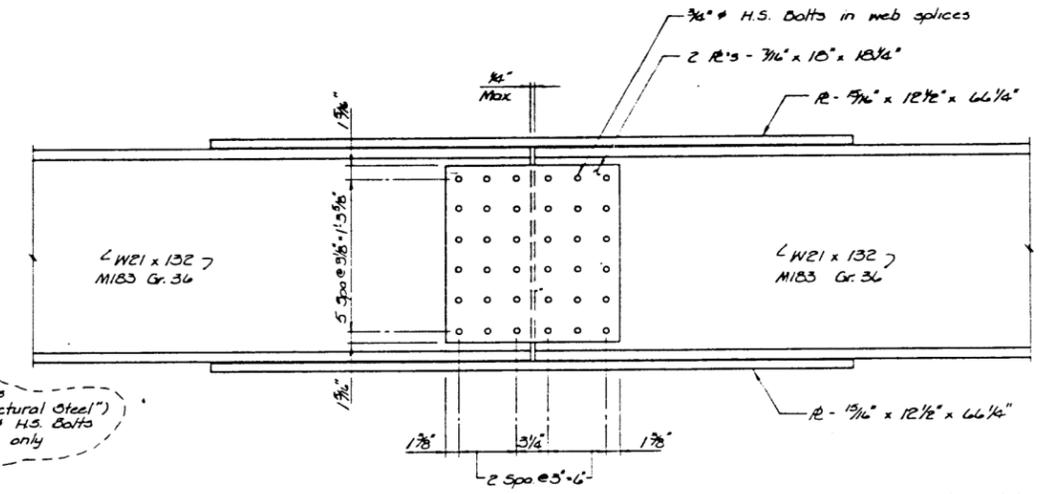
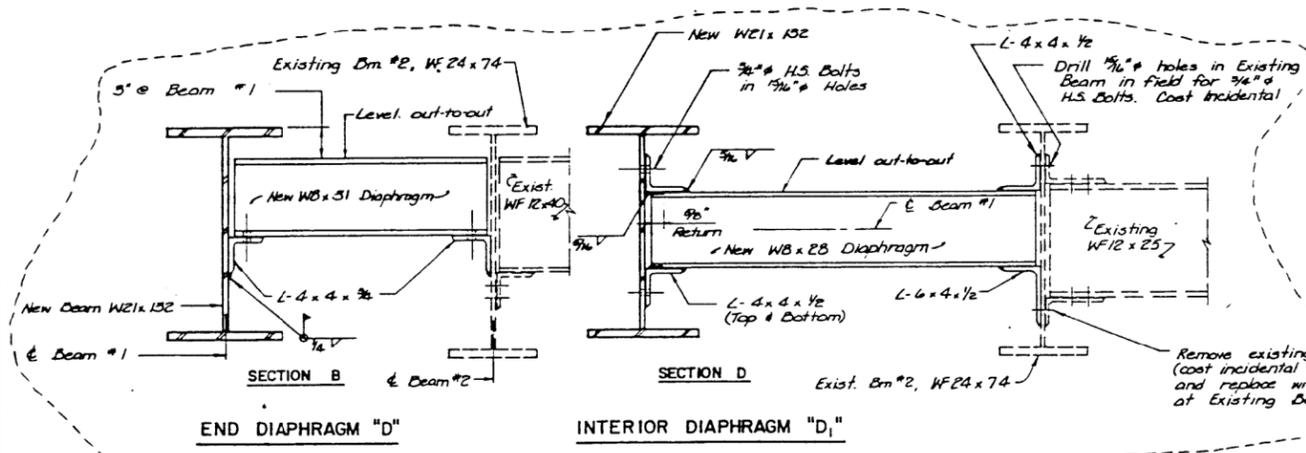
| ROUTE                         | SECTION  | COUNTY                           | TOTAL SHEETS | SHEET NO. |
|-------------------------------|----------|----------------------------------|--------------|-----------|
| F.A. 328                      | 108 VB-1 | WHITE                            | 29           | 16        |
| STA. TO STA.                  |          | F.H.W.A. REG. 5 ILLINOIS PROJECT |              |           |
| BRIDGE SHEET 11A OF 20 SHEETS |          |                                  |              |           |



Note: Two hardened washers shall be required over all oversize holes.



Note ① Splice No. 1 shown Granular or Solid flux filled stud location symmetrical about center span.

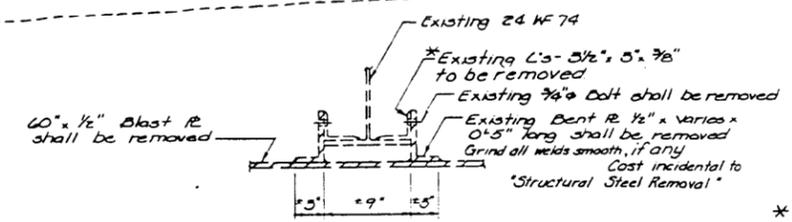


Note: All splice plates shall be NTR M183 Grade 36.

TOP OF BEAM ELEVATIONS\*

| Beam Location      | No 1   | No 2   |
|--------------------|--------|--------|
| É Drg. North Abut. | 489.29 | 489.26 |
| É Drg. Pier No 2   | 489.85 | 489.92 |
| É Splice No 1      | 490.05 | 490.11 |
| É Splice No 2      | 490.37 | 490.41 |
| É Drg. Pier No 3   | 490.45 | 490.47 |
| É Drg. South Abut. | 490.73 | 490.69 |

\*FOR FABRICATION ONLY



BLAST PLATE REMOVAL DETAIL

Note: Hatching indicates "Structural Steel Removal". Remove Blast R's and Bent R's including 3/4" bolts.

\* REMOVE EXISTING ANGLES BY GRINDING EXISTING WELDS. FINAL GRIND 1/16" TO 1/8" DEEP IN FLANGES AT REMOVED WELDS TO REDUCE RESIDUAL STRESS CONCENTRATIONS. FINAL GRINDING SHALL BE PARALLEL TO THE WEB OF THE BEAMS. THE GROUND AREAS SHALL BE CHECKED FOR MICRO-CRACKS BY THE USE OF A DYE PENETRATION. ANY CRACKS DISCOVERED SHALL BE REMOVED BY GRINDING IF LESS THAN 1/8" DEEP. CRACKS OVER 1/8" DEEP SHALL BE REPORTED TO THE ENGINEER FOR RESOLUTION.

Revised 5-19-92 KEB

STRUCTURAL STEEL DETAILS  
F.A. ROUTE 328  
(SBI 140)(U.S. ROUTE 45)  
OVER CSX TRANSPORTATION RAILROAD  
SECTION 108 VB-1  
WHITE COUNTY  
STRUCTURE NO. 097-0024  
STA. 8+65

FOR INFORMATION ONLY 097-0024

F.A. ROUTE 328 SECTION 108 VB-1 WHITE CO.

SHEET 16 OF 29 SHEETS 90043

|                              |            |           |
|------------------------------|------------|-----------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / in. | DRAWN -    | REVISED - |
| PLOT DATE = 10/10/2018       | CHECKED -  | REVISED - |
|                              | DATE -     | REVISED - |

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

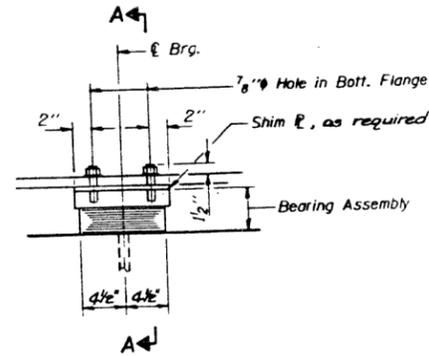
|          |                              |
|----------|------------------------------|
| 097-0024 |                              |
| SCALE:   | SHEET OF SHEETS STA. TO STA. |

| F.A. RTE.                 | SECTION                | COUNTY  | TOTAL SHEETS | SHEET NO. |
|---------------------------|------------------------|---------|--------------|-----------|
| VAR                       | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50           | 46        |
| CONTRACT NO. 78677        |                        |         |              |           |
| ILLINOIS FED. AID PROJECT |                        |         |              |           |

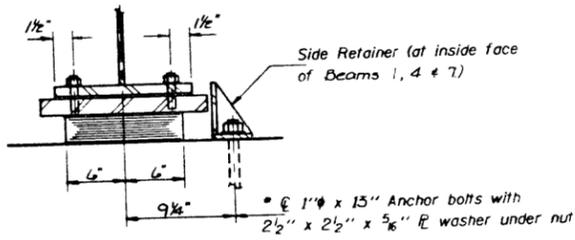


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

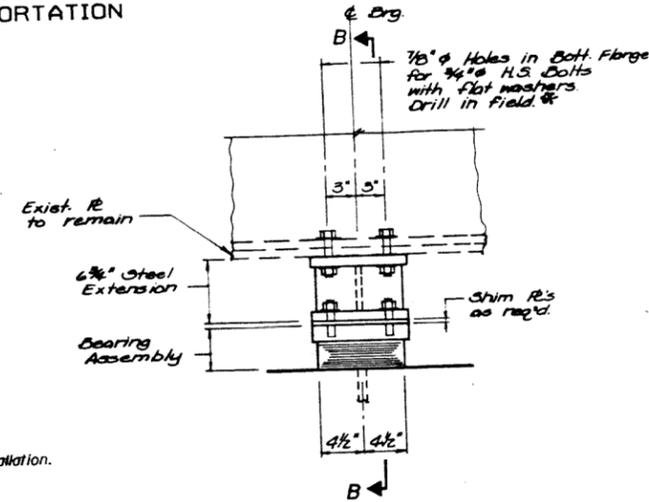
| ROUTE NO.                    | SECTION  | COUNTY  | TOTAL SHEETS | SHEET NO. |
|------------------------------|----------|---------|--------------|-----------|
| FA 328                       | * White  |         | 29           | 18        |
| STA.                         | TO STA.  |         |              |           |
| FED. ROAD DIST. NO. Y        | ILLINOIS | PROJECT |              |           |
| * 108 VB-1                   |          |         |              |           |
| BRIDGE SHEET 13 OF 20 SHEETS |          |         |              |           |



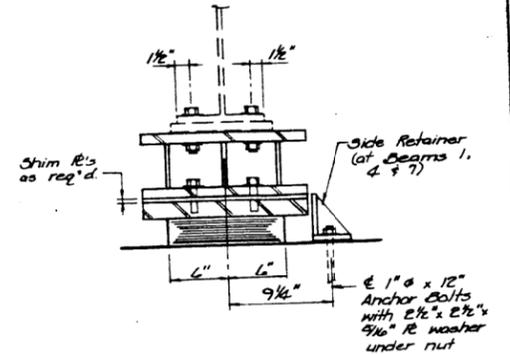
ELEVATION AT PIER 3



SECTION A-A



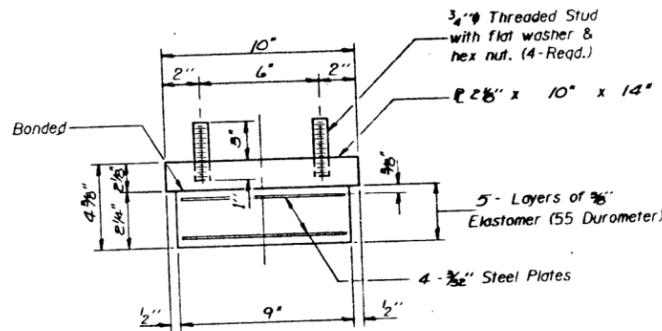
ELEVATION AT PIER 3



SECTION B-B

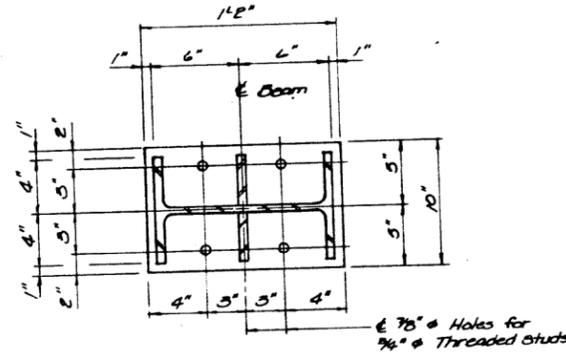
TYPE I ELASTOMERIC EXP. BRG.  
At Beam 1.

See Sheet No. 18 of 20 for Anchor Bolt Installation.

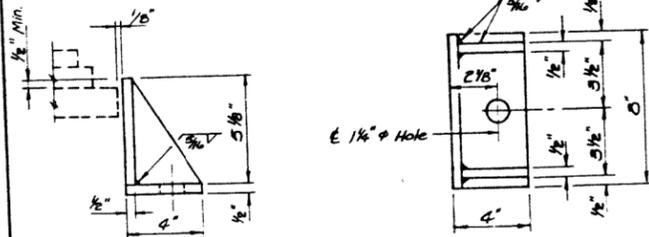


BEARING ASSEMBLY  
Typical of all beams

Note: Shim plates shall not be placed under Bearing Assembly.

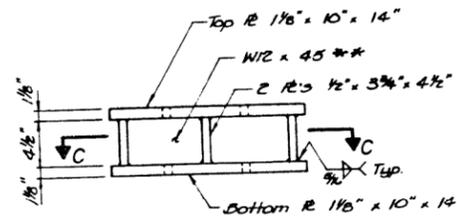


SECTION C-C



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



ELEVATION

STEEL EXTENSION

\*\* Equivalent welded plates will be allowed in lieu of W12 x 45

BILL OF MATERIAL

| Item                                | Unit | Total |
|-------------------------------------|------|-------|
| Elastomeric Bearing Assembly Type 1 | Each | 7     |

BEARING DETAILS - PIER NO 3  
F. A. ROUTE 328  
(SBI 140) (U. S. ROUTE 45)  
OVER CSX TRANSPORTATION RAILROAD  
SECTION 108 VB-1  
WHITE COUNTY  
STRUCTURE NO. 097-0024  
STA. 8+65

|          |  |
|----------|--|
| DESIGNED |  |
| CHECKED  |  |
| DRAWN    |  |
| CHECKED  |  |

I-2-E1 12-1-83

F. A. ROUTE 328 SECTION 108 VB-1 WHITE CO.

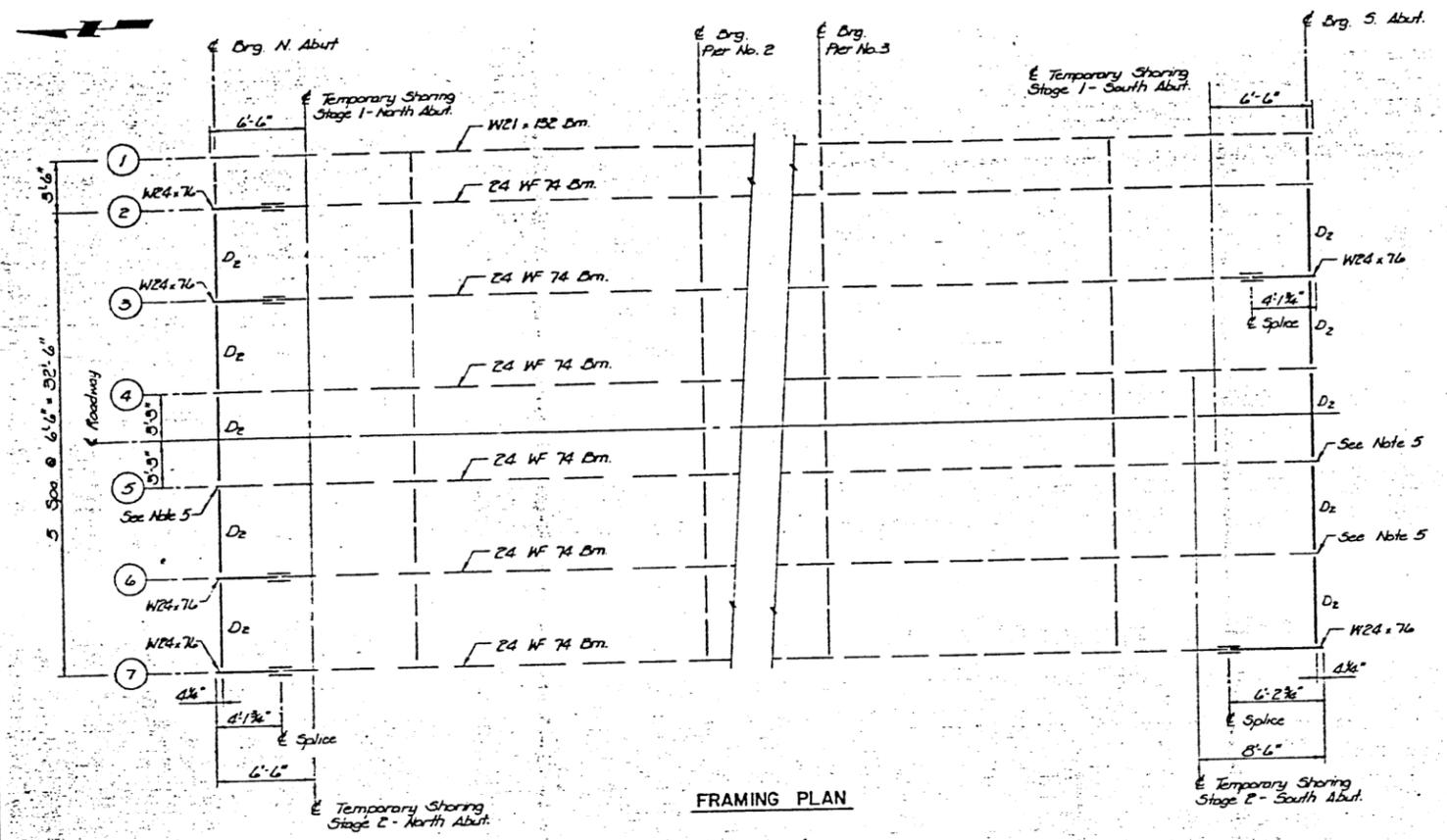
SHEET 18 OF 29 SHEETS 90043



|               |          |                  |              |           |
|---------------|----------|------------------|--------------|-----------|
| ROUTE NO.     | SECTION  | COUNTY           | TOTAL SHEETS | SHEET NO. |
| F.A. 328      | 108 VB-1 | WHITE            | 2            | 1         |
| STA.          |          | TO STA.          |              |           |
| F.H.W.A. REC. |          | ILLINOIS PROJECT |              |           |

Bridge Sheet 1 of 2 Sheets

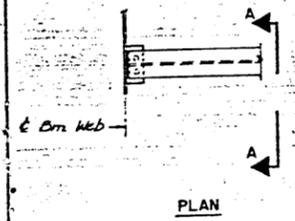
Note: Headed studs are shown in the area of the splice for reference only. The number and locations of headed studs shall be per previous contract documents as let.



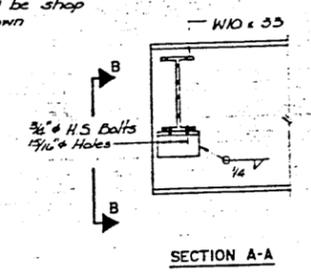
FRAMING PLAN

GENERAL NOTES

- Structural steel elements shown dashed are existing or proposed under a separate contract.
- The existing 24 WF 74 Beams shown above shall have the lengths shown removed from the ends and the remaining end ground and finished to accept the splice.
- Calculated weight of structural steel = 6210 pounds (M183 G.34)
- The Contractor shall drill all holes in the field with a magnetic drill. Torch or flame cutting of holes is prohibited.
- The North end of Beam 5 and the South ends of Beams 5 & 6 shall be inspected subsequent to deck removal to determine need to splice.
- Painting - Painting of all new structural steel shall be per previous contract documents as let.
- Bearings - The new structural steel shall be shop fabricated for the bearing details shown on previous contract documents.

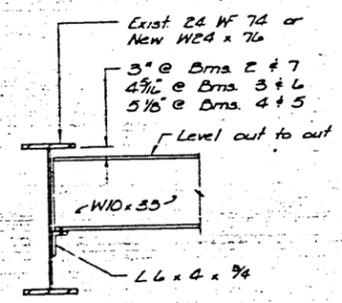


PLAN

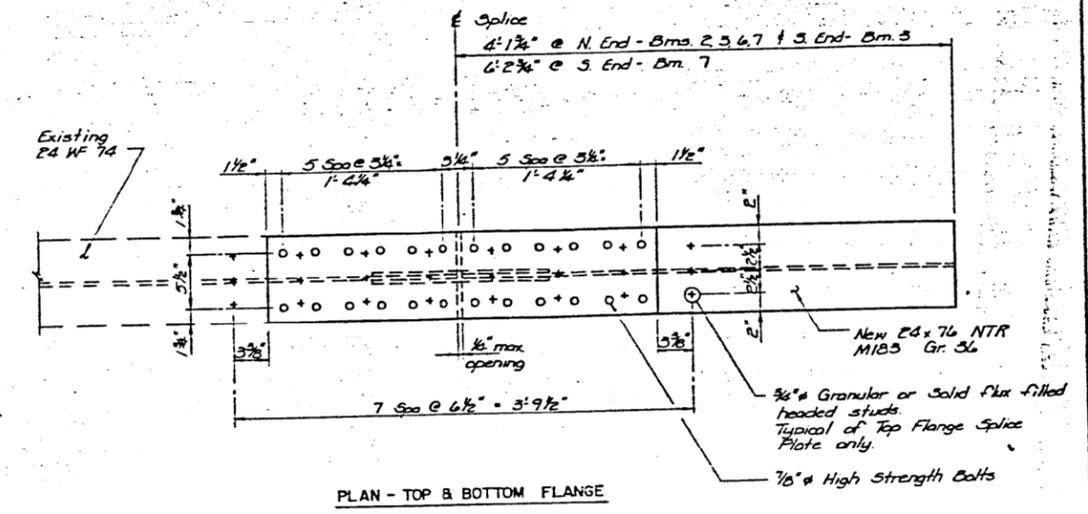


SECTION A-A

END DIAPHRAGM "D2"  
(10 Req'd)

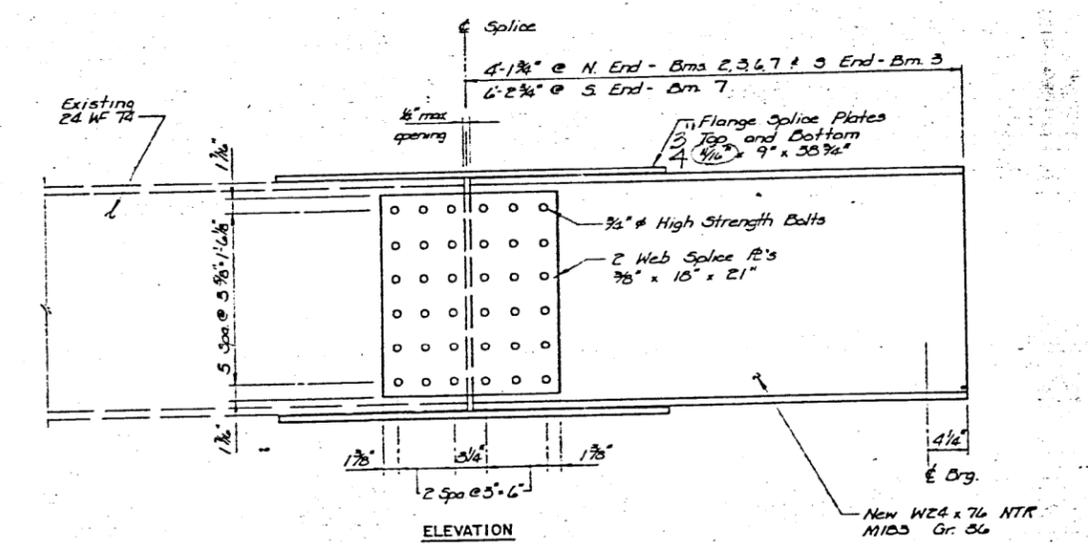


SECTION B-B



PLAN - TOP & BOTTOM FLANGE

Note: All splice plates shall be NTR M183 Gr. 36.



ELEVATION  
FIELD SPLICE DETAILS

NTR designates Notch Toughness Requirement

FIELD SPLICE DETAILS & DIAPHRAGMS  
F.A. ROUTE 328  
(SBI 140) (U.S. ROUTE 45)  
OVER CSX TRANSPORTATION RAILROAD  
SECTION 108 VB-1  
WHITE COUNTY  
STRUCTURE NO. 097-0024  
STA. 8+65

FOR INFORMATION ONLY 097-0024

Note: Two hardened washers shall be required over all oversize holes.

|                              |            |           |   |          |                        |         |        |              |           |    |      |
|------------------------------|------------|-----------|---|----------|------------------------|---------|--------|--------------|-----------|----|------|
| USER NAME = WILSONDA         | DESIGNED - | REVISED - | STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION | 097-0024 | F.A. RTE.              | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |    |      |
| DRAWN -                      | REVISED -  | VAR       |   |          | D9 BRIDGE PAINT 2019-1 | VARIOUS | 50     | 50           |           |    |      |
| PLOT SCALE = 100.0000' / in. | CHECKED -  | REVISED - |   |          | CONTRACT NO. 78677     |         |        |              |           |    |      |
| PLOT DATE = 10/10/2018       | DATE -     | REVISED - |   |          | SCALE:                 | SHEET   | OF     | SHEETS       | STA.      | TO | STA. |