NOTES:
1. FOR SECTION A-A, SEE SHEET B123 (DECK SECTIONS).
2. FOR PANEL DETAILS, SEE SHEETS B125 TO B138 (DECK PANEL DETAILS).
3. FOR ADDITIONAL DECK PANEL DETAILS, SEE SHEET B122A-E (REVISED DECK PANEL LAYOUT BASED ON POST-CONSTRUCTION SURVEY).
5. FOR ADDITIONAL DECK PANEL NOTES, SEE SHEET B119 (DECK PLAN 1 OF 4).
6. FOR PANEL DETAILS, SEE SHEET B139 (DECK PANEL DETAILS).
7. CONTRACTOR TO FIELD VERIFY SPAN DIMENSIONS PRIOR TO SUBMITTING SHOP DRAWINGS.
8. THE BRIDGE TO TRAFFIC IS 15 KSI.
9. THE MINIMUM UHPC COMPRESSIVE STRENGTH REQUIRED PRIOR TO OPENING TO TRAFFIC IS 3,500.
10. CONTRACTOR SHALL FOLLOW THE SPECIAL PROVISIONS FOR CONSTRUCTION LOADS PERMITTED ON THE DECK PANELS.
11. CONTRACTOR SHALL NOT PLACE CONSTRUCTION EQUIPMENT ON THE DECK PANELS UNTIL THE UHPC ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 15 KSI.
12. CONSTRUCTION LOADS PERMITTED ON THE DECK PANELS UNTIL THE UHPC ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 15 KSI.
13. CONTRACTOR SHALL NOT PLACE CONSTRUCTION EQUIPMENT ON THE DECK PANELS UNTIL THE UHPC ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 15 KSI.
14. FOR ADDITIONAL DECK PANEL NOTES, SEE SHEET B119 (DECK PLAN 1 OF 4).

CLOSURE POUR SEQUENCING NOTES:
1. PLACE END DAMS WITHIN LONGITUDINAL CLOSURE POURS ON EACH SIDE OF EVERY TRANSVERSE CLOSURE POUR WHERE INDICATED IN THESE PLANS.
2. POUR ALL LONGITUDINAL CLOSURE POURS BETWEEN PLACED DECK PANELS WITHIN A GIVEN BAY PRIOR TO MOVING ON TO THE NEXT BAY.
3. COMPLETE LONGITUDINAL CLOSURE POURS ON EITHER SIDE OF A TRANSVERSE CLOSURE POUR AND REMOVE ALL END DAMS PRIOR TO CASTING TRANSVERSE CLOSURE POURS.
4. COMPLETE TRANSVERSE CLOSURE POURS OVER THE SPANDREL COLUMNS PRIOR TO TRANSVERSE CLOSURE POURS OVER THE BEAMS.
5. VERTICAL COLD JOINTS CONSTRUCTION JOINTS BETWEEN LONGITUDINAL AND TRANSVERSE CLOSURE POURS SHALL BE PERMITTED ONLY AT LOCATIONS INDICATED IN THESE PLANS OR AS ACCEPTED BY THE ENGINEER. HORIZONTAL COLD JOINTS WILL NOT BE PERMITTED.
6. EACH TRANSVERSE CLOSURE POUR SHALL BE CAST AS ONE CONTINUOUS POUR.

LEGEND:
- Indicates panel span type XN
- Indicates longitudinal UHPC closure pour
- Indicates transverse UHPC closure pour
- Indicates spandrel number

CONTRACTOR TO FIELD VERIFY SPAN DIMENSIONS PRIOR TO SUBMITTING SHOP DRAWINGS.

DANIEL F. ENSER, PROFESSIONAL ENGINEER
AS-BUILT - DECK PLAN (3 OF 4)

DATE: 8/14/2014

NOTES:

1. FOR SECTION A-A, SEE SHEET B120 SHEET DETAILS.
2. FOR PANEL DETAILS, SEE SHEETS B122 TO B123 SHEET DETAILS.
3. FOR ADDITIONAL DECK PANEL NOTES, SEE SHEET B123 SHEET DETAILS.
4. FOR ADDITIONAL DECK PANEL DETAILS, SEE SHEETS B122 TO B123 SHEET DETAILS.
5. CONTRACTOR TO FIELD VERIFY SPAN DIMENSIONS PRIOR TO SUBMITTING SHOP DRAWINGS.

CONTRACTOR SURVEY.

SEE SHEETS B122A-E FOR REVISED DECK PANEL LAYOUT BASED ON POST-
CONSTRUCTION SURVEY.

LEGEND:

- INDICATES DECK PANEL TYPE IN
- INDICATES LONGITUDINAL UHPC CLOSURE POUR
- INDICATES TRANSVERSE UHPC CLOSURE POUR
- INDICATES SPANDREL NUMBER

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CHECKED BY: EBR

C.S.A.H. S / HENNEPIN COUNTY PROJECT 0705
BRIDGE 2441 S.P. 027-605-029

Hennebique
DECK PANELS AND UHPC CLOSURE POURS

SIDE OF THE CAP BEAM AT 5-0. MODIFICATIONS PROPOSED BY THE CONTRACTOR ON 8-13-15 NOTED CONSTRUCTION (KNA/HTPO). SPANDREL COLUMN 1-2 WAS LOCATED CAP BEAMS WITH THE SURVEY POINTS PROVIDED BY KNA/HTPO AT JUNE 30, 2015 WEEKLY.

DRAWING DATA:
A. SPAN 1 AND 2
B. SPAN 3 AND 4
C. SPAN 5 AND 6
D. SPAN 7 AND 8
E. SPAN 9 AND 10

I. VERTICAL GROUTED JOINTS BETWEEN LONGITUDINAL DECK REINFORCING BARS
   A. IF PANEL ADJUSTMENTS OCCUR AT A BRIDGE CROSS SECTION transitional bars shall be placed in the panel.
   B. CONTRACTOR IS NOTIFIED THAT THE LOWER ENDS OF THE PANELS WILL BE MAPPED WITH A BAR LOCATION REQUIREMENTS IF DECK PANEL GEOMETRY IS CHANGED FROM THAT ON THE PLANS.
   C. THE MAXIMUM CHANGE IN TRANSVERSE SPANDREL COLUMN LOCATION IS 5 INCHES.
   D. THE MAXIMUM DECREASE IN THE OUTSIDE LEGS OF THE "E" PRECAST PANELS IS 1 INCH.
   E. THE MAXIMUM INCREASE IN THE OUTSIDE LEGS OF THE "E" PRECAST PANELS IS 2 INCHES.
   G. THE DISTANCE FROM THE FACE OF SPANDREL, PIER OR ABUTMENT PRECAST CAP BEAM FLUSH WITH EXISTING FACES:
   H. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   J. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   K. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   L. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   M. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   N. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   O. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   P. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   Q. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   R. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   S. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   T. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   U. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   V. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   W. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   X. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   Y. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.
   Z. THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON 8-JUNE 2015.

NOTE:
1. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
2. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
3. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
4. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
5. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
6. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
7. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
8. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
9. SEE PRECAST DECK PANEL SHOP DRAWING 120 FOR DETAILS.
NOTES:
1. AS-BUILT LENGTH OF PANEL 15-12 IS 13'-9" SEE NCR 03 FOR DETAILS.
2. MISPLACED STAINLESS STEEL PLATE PANEL 38-12, SEE NCR 04 FOR DETAILS.
3. MISPLACED STAINLESS STEEL PLATE PANEL 11-L5, SEE NCR 05 FOR DETAILS.

JOINTS.
MONOLITHIC, NO PANELS 1-8 CIP

MISPLACED STAINLESS STEEL PLATE PANEL 11-L5. SEE NCR
MISPLACED STAINLESS STEEL PLATE PANEL 38-L2. SEE AS-BUILT LENGTH OF PANEL 35-L2 IS 13'-9" SEE NCR 03

7" LONGITUDINAL UHPC 7-AS2 4-AS1 5 W Abut

SIDE OF THE CAP BEAM AT 5-0.
TO OBTAIN ADEQUATE DECK PANEL END BEARING ON THE EAST SIDE OF THE BRIDGE AT SPANDRELS 2-4 AND 2-5. SEE RFI 39 FOR DETAILS.

THE MINIMUM REQUIRED. THIS WAS FURTHER CLARIFIED ON AUGUST 12, 2015 KRAEMER (KNA) WHICH IS BELOW THE MINIMUM REQUIRED OF 8' INCH

LEGEND:
CAST IN PLACE
SHAFTED DECK PANEL
WOODFILL DECK PANEL
CAP BEAM
XX-X PANEL NO. AND TYPE
PIPE SPIN LOCATION.
NOTES:
1. Panel 104-1.5 Transverse bars in the top mat were damaged, spliceed and installed 5 in. IE in Bar with a 15° Bend at Joint. Top mat displacement is not to be for details.

LEGEND:
- Shaded Deck Panel
- Modified Deck Panel
- Cap Beam
- Panel No. and Type
- Pipe Shim Location

AS-BUILT DECK PLAN - POST CONTRACTOR SURVEY (2 OF 4)
C.S.A.H.S / HENNEPIN COUNTY PROJECT 0705
BRIDGE 2441 S.P. 027-605-029
SHEET
NOTES:
1. PANELS 127-180, PUSH THE PLATE BACK TO 1/16" PROJECTIONS AT SPAN END S-1, SEE AJP 29 FOR DETAILS.
NOTES:

1. HARDPLACED 15" E PANEL 301-310, SEE NO. 06 FOR DETAILS.

2. PANELS 277-286, PUSH PLATE BACK TO 1/2" PROJECTION AT SPANFILLS 4-2 AND 4-3, SEE RFI 35 FOR DETAILS.

3. TRANVERSE UHPC JOIN WAS ELIMINATED IN FAVOR OF CIP APPROACH SPAN. MECHANICAL COUPLERS WERE USED. SEE RFI 68 FOR DETAILS.

LEGEND:
- CAST-IN-PLACE
- SHAPED DECK PANEL
- CAP BEAM
- EX-XX PANEL NO. AND TYPE
- PIPE SHIM LOCATION
NOTES:

1. For locations of sections A-A and B-B, see sheets B125 to B128 (DECK PLAN).
2. For typical panel details and reinforcement, see sheets B119 to B122 (DECK PLAN details).
3. For closure pour details and reinforcement, see sheets B139 and B140 (DECK PLAN details).
4. For watermain support details, see sheets B172 and B173 (WATERMAIN SUPPORT DETAILS).
5. Parapets shall be cast on deck panels such that they are plumb in the final condition.
6. For utility support details, see sheets U1 to U4.

LEGEND:

[Diagram with various symbols and notations indicating different structural elements and features.]

Temperature indications:

- Indicates UHPC closure pour
NOTES:
1. FOR LOCATIONS OF SECTIONS C-C AND D-D,
   SEE SHEETS B97 TO B99 AND B102 TO B104.
2. PRE-CAST DECK PANELS REPLACED BY SINGLE CIP SLAB,
   ROADWAY WIDTH DECREASED BY 1" AND SHARED USE PATH INCREASED BY 1".
3. PARAPETS SHALL BE CAST ON DECK PANELS SUCH THAT
   THEY ARE PLUMB IN THE FINAL CONDITION.
4. CONCRETE PARAPET TYPE P-2 MOD. REBAR OFF BY 1".
5. SEE SHEETS B119 AND B122 (DECK PLANS).
6. SEE SHEETS B125 TO B138 (DECK PANEL DETAILS).
7. CONCRETE PARAPET TYPE P-2 MOD. RENSH OFF BY 1"
   ELIMINATING THE UHPC JOINTS. SEE RFI 68 FOR DETAILS.
DECK PANEL DEBRIS - TYPES G AND H

**DECK PANEL TYPE G - PLAN**

**DECK PANEL TYPE H - PLAN**

**DECK PANEL DIMENSION TABLE**

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<td>G4</td>
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**NOTES:**
1. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B144 DECK DETAILS 2 OF 4.
2. FOR DECK PANEL ELEVATION, SEE SHEETS B141 AND B128 DECK ELEVATION TABLE.
3. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B144 DECK DETAILS 2 OF 4.
4. FOR DECK PANEL DEBRIS DETAIL SEE SHEET B140 DECK PANEL DETAILS 1 OF 2.

**DECK PANEL DETAILS - TYPES G AND H**

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**NOTES:**
1. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B144 DECK DETAILS 2 OF 4.
2. FOR DECK PANEL ELEVATION, SEE SHEETS B141 AND B128 DECK ELEVATION TABLE.
3. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B144 DECK DETAILS 2 OF 4.
4. FOR DECK PANEL DEBRIS DETAIL SEE SHEET B140 DECK PANEL DETAILS 1 OF 2.

**DECK PANEL DEBRIS - TYPES G AND H**

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**NOTES:**
1. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B144 DECK DETAILS 2 OF 4.
2. FOR DECK PANEL ELEVATION, SEE SHEETS B141 AND B128 DECK ELEVATION TABLE.
3. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B144 DECK DETAILS 2 OF 4.
4. FOR DECK PANEL DEBRIS DETAIL SEE SHEET B140 DECK PANEL DETAILS 1 OF 2.
DECK PANEL DIMENSION TABLE

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</table>

DECK PANEL DETAILS - TYPES J AND K

NOTES:
1. FOR DECK PANEL SHEAR KEY DETAIL, CAMBER
2. FOR ADDITIONAL NOTES, SEE SHEET B119 (DECK DETAILS 1 OF 4).
3. FOR DECK PANEL ELEVATIONS, SEE SHEETS B141 (DECK DETAILS 2 OF 2).
4. FOR CURB DETAILS, CURB DETAILS, AND ORNAMENTAL RAILING CONNECTION DETAIL, SEE SHEET B140 (DECK DETAILS 3 OF 2).
5. SECTION A-A INDICATES TOP COVER TO CONCRETE FACE AT THIS END ONLY.
6. SECTION B-B INDICATES TOP COVER TO CONCRETE FACE AT THIS END ONLY.
7. SECTION C-C INDICATES TOP COVER TO CONCRETE FACE AT THIS END ONLY.
8. COVER TO CONCRETE FACE AT THIS END ONLY.
9. SHEET B129R3
DECK PANEL TYPE N - PLAN

DECK PANEL TYPE P - PLAN

SECTION A-A

SECTION B-B

SECTION C-C

DECK PANEL DIMENSION TABLE

NOTES:
1. FOR DECK PANEL SHEAR KEY DETAIL AND CAMBER DETAIL SEE SHEET B140 (DECK DETAILS 2 OF 2) AND SHEET B142 (DECK ELEVATION TABLE).
2. FOR DECK PANEL ELEVATIONS SEE SHEETS B141 AND B151 (CONCRETE PARAPET TYPE P-2).
3. FOR ADDITIONAL NOTES SEE SHEET B119 (DECK AND PARAPET SHEAR KEY DETAIL).
4. FOR ADDITIONAL NOTICES SEE SHEET B130 (DECK AND PARAPET SHEAR KEY DETAIL).
5. WHEN THE DECK PANELS ARE INSTALLED, THE PARAPETS SHALL BE PLUMB.

ALT. W/ S5046E @ 12" (T)
15-S5007E @ 12" (T)
ADDITIONAL PARAPET REINFORCEMENT

16-S6044E (TYPE N) OR 16-S6060E (TYPE N1) @ 12" (B)
16-S5004E (TYPE N) OR 16-S5061E (TYPE N1) @ 12" (T)
PARAPET REINFORCEMENT

15-S5007E @ 12" (T)
16-S6060E (TYPE N1) @ 12" (T)
S 5004E (TYPE N) OR S5061E (TYPE N1) @ 12" (T)

INDICATES BOTTOM
INDICATES TOP (B)
INDICATES TOP (T)

20-S7059E @ 5"
20-S8058E @ 5"

Rough Finish

CONCRETE PARAPET TYPE P-2
WITH W/ STRUCTURAL TUBE RAILING.

C5007E @ 12" (B)
C5046E @ 12" (T)

PARAPET SHALL BE PLUMB.

S5004E @ 12"
S5046E @ 12"
S6062E @ 12"
S7059E @ 5"
S8058E @ 5"

DECK PANEL DETAILS - TYPES N AND P
DECK PANEL TYPE Q - PLAN

DECK PANEL TYPE R - PLAN

DECK PANEL CAMBER TABLE

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LEGEND
1. FOR DECK PANEL SHEAR KEY DETAIL, CURB DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING DETAIL, SEE SHEET B140 (DECK DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING)
2. FOR DECK PANEL SHEAR KEY DETAIL, CURB DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING DETAIL, SEE SHEET B140 (DECK DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING)
3. FOR MANHOLE DETAILS, SEE SHEET B171 (MANHOLE)
4. FOR MANHOLE DETAILS, SEE SHEET B171 (MANHOLE)
5. FOR DECK PANEL SHEAR KEY DETAIL, CURB DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING DETAIL, SEE SHEET B140 (DECK DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING)
6. FOR ADDITIONAL NOTES, SEE SHEET B119 (DECK AND B142 (DECK ELEVATION TABLE)

NOTES
1. WHEN THE DECK PANELS ARE INSTALLED, THE TOP OF CURB SHALL BE LEVEL, AND THE FACE OF CURB SHALL BE VERTICAL.
2. ALL DECK REINFORCEMENT TO BE CUT 2" CLEAR OF MANHOLE.
3. WHEN THE DECK PANELS ARE INSTALLED, THE TOP OF CURB SHALL BE LEVEL, AND THE FACE OF CURB SHALL BE VERTICAL
4. FOR MANHOLE DETAILS, SEE SHEET B171 (MANHOLE)
5. FOR DECK PANEL SHEAR KEY DETAIL, CURB DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING DETAIL, SEE SHEET B140 (DECK DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING)
6. FOR ADDITIONAL NOTES, SEE SHEET B119 (DECK AND B142 (DECK ELEVATION TABLE)

DECK PANEL DETAILS - TYPES Q AND R

SECTION A-A

SECTION B-B

SECTION C-C
DECK PANEL Type U - PLAN

DECK PANEL Type V - PLAN

DECK PANEL dimension table

LEGEND:
1. INDICATES TOP
2. INDICATES BOTTOM

NOTES:
1. FOR DECK PANEL SHEAR KEY DETAIL, CAMBER DETAIL CURT DETAILS AND ORNAMENTAL RAILING DETAIL SEE SHEET B142 (DECK RAILING). FOR ADDITIONAL NOTES SEE SHEET B119 (DECK DETAILS 2 OF 2).
2. FOR DECK PANEL ELEVATIONS, SEE SHEET B141 (DECK ELEVATION TABLE).
3. FOR DECK PANEL SHEAR KEY DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING DETAIL, SEE SHEET B140 (DECK DETAIL, CURB DETAILS, AND ORNAMENTAL RAILING). FOR DECK PANEL SHEAR KEY DETAIL, CAMBER DETAIL.

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BRIDGE 2441 S.P. 027-605-029

DECK PANEL DETAILS - TYPES U AND V

DESIGN BY: EBR
CHECKED BY: FP
LAST REVISION: 8/14/2015

DATE: 8/14/2014

FILE: \pw-int.hntb.org:PWGreat_Lakes\Documents\Minneapolis Projects\49799 Franklin Bridge\Design\CADD-BRIDGE\CD\As-Built\CBR2441_SUP016.dgn

DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

FILE: \pw-int.hntb.org:PWGreat_Lakes\Documents\Minneapolis Projects\49799 Franklin Bridge\Design\CADD-BRIDGE\CD\As-Built\CBR2441_SUP016.dgn

DANIEL F. ENSER, PROFESSIONAL ENGINEER

DECK PANEL DIMENSION TABLE

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C.S.A.H. 5 / HENNEPIN COUNTY PROJECT 0706
BRIDGE 2441 S.P. 027-605-029

DECK PANEL DETAILS - TYPES U AND V

DESIGN BY: EBR
CHECKED BY: FP
LAST REVISION: 8/14/2015

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DANIEL F. ENSER, PROFESSIONAL ENGINEER

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C.S.A.H. 5 / HENNEPIN COUNTY PROJECT 0706
BRIDGE 2441 S.P. 027-605-029

DECK PANEL DETAILS - TYPES U AND V

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CHECKED BY: FP
LAST REVISION: 8/14/2015

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DANIEL F. ENSER, PROFESSIONAL ENGINEER

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</table>
DECK PANEL TYPE Y - PLAN

SECTION B-B

DECK PANEL DETAILS - TYPE Y

NOTES:
1. FOR DECK PANEL SHEAR KEY DETAIL CAMBER
   CONNECTION DETAIL SEE SHEET B139 (DECK DETAILS 1 OF 2).
2. FOR DECK PANEL SHEAR KEY DETAIL CAMBER
   AND SHEAR WALL CONNECTION DETAIL SEE SHEET B139 (DECK
   DETAILS 1 OF 2).
3. FOR DECK PANEL SHEAR KEY DETAIL CAMBER
   CONNECTION DETAIL SEE SHEET B139 (DECK DETAILS 1 OF 2).
4. FOR ADDITIONAL NOTES, SEE SHEET B138 (DECK
   PLAN 1 OF 2).
5. WHERE THE DECK PANELS ARE INSTALLED, THE TOP
   OF CURB SHALL BE LEVEL AND THE SIDE OF CURB
   SHALL BE VERTICAL.

DECK PANEL DIMENSION TABLE

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<thead>
<tr>
<th>PANEL TYPE</th>
<th>#1</th>
<th>#2</th>
<th>R 1</th>
<th>R 2</th>
<th>R 3</th>
<th>CAMBER</th>
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<tbody>
<tr>
<td>2</td>
<td>6-S6010E</td>
<td>3-S8110E</td>
<td>5-S8115E</td>
<td>5-S8115E</td>
<td>5-S8115E</td>
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<td>3</td>
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<td>3-S8110E</td>
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<td>5-S8115E</td>
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</table>

DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DANIEL F. ENSER, PROFESSIONAL ENGINEER

DECK PANEL DETAILS - TYPE Y

LEGEND:
1. FOR DECK PANEL SHEAR KEY DETAIL CAMBER
   CONNECTION DETAIL SEE SHEET B139 (DECK DETAILS 1 OF 2).
2. FOR DECK PANEL SHEAR KEY DETAIL CAMBER
   AND SHEAR WALL CONNECTION DETAIL SEE SHEET B139 (DECK DETAILS 1 OF 2).
3. FOR DECK PANEL SHEAR KEY DETAIL CAMBER
   CONNECTION DETAIL SEE SHEET B139 (DECK DETAILS 1 OF 2).
4. FOR ADDITIONAL NOTES, SEE SHEET B138 (DECK PLAN 1 OF 2).
5. WHERE THE DECK PANELS ARE INSTALLED, THE TOP
   OF CURB SHALL BE LEVEL AND THE SIDE OF CURB
   SHALL BE VERTICAL.
### Deck Elevation Table

<table>
<thead>
<tr>
<th>Location</th>
<th>Station</th>
<th>Point</th>
<th>Working Line Offset (ft)</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Left Approach Cap Beam</td>
<td>1043-75</td>
<td>1</td>
<td>80.00</td>
<td>80.00</td>
<td>80.00</td>
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<td></td>
<td></td>
<td>3</td>
<td>80.00</td>
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<td>80.00</td>
</tr>
<tr>
<td>1. Left Approach Cap Beam</td>
<td>1043-75</td>
<td>West</td>
<td>80.00</td>
<td>80.00</td>
<td>80.00</td>
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</tr>
<tr>
<td>1. Cap Beam Pier 3-Red</td>
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<tr>
<td>1. Cap Beam Pier 3-Red</td>
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### Deck Elevation Table (2 of 2)

<table>
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<th>Location</th>
<th>Station</th>
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<td>5. Span #2 Column 2-3</td>
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</table>

**Notes:**
1. For profiles, see Sheet B142 (Deck Elevation Table 2 of 2).
2. Provide data to engineer for review. Overlay shall not be placed until the review is completed.
3. Contractor shall survey the top of deck elevations after deck panels are set.
4. Contraction shall survey the top of deck elevations after deck panels are set and small corrections shall be made. Elevations shall not be placed until the review is completed and any profile adjustments are made.
5. For legend, see Sheet B175 Deck Elevation Table 2 of 2.
<table>
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<tr>
<th>LOCATION</th>
<th>STATION</th>
<th>POINT</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>WORKING LINE OFFSET (FT)</th>
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<td>15-472.00</td>
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<td>826.25</td>
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<td>827.38</td>
<td>827.40</td>
<td>827.42</td>
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</tbody>
</table>

**Legend:**

1. Elevations at top of roadway
2. Elevations at top of deck panels
3. Estimated overlay thickness (inch)

**Notes:**

1. Contractor shall survey the top of deck panels and the deck shall be placed on the survey results. The survey shall be performed by an independent, third-party engineer.

2. For additional notes, see deck elevation table (2 of 2).

**As-Built - Deck Elevation Table (2 of 2)**
<table>
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<tr>
<th>PANEL</th>
<th>BAR</th>
<th>NO.</th>
<th>LENGTH</th>
<th>D/T (T) SERIES</th>
<th>LOCATION</th>
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<td>11'-9&quot;</td>
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<td>16</td>
<td>25</td>
<td>31'-8&quot;</td>
<td>C/L (T)</td>
<td>11'-9&quot;</td>
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<tr>
<td></td>
<td>18</td>
<td>25</td>
<td>31'-8&quot;</td>
<td>C/L (T)</td>
<td>11'-9&quot;</td>
</tr>
<tr>
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<td>19</td>
<td>25</td>
<td>31'-8&quot;</td>
<td>C/L (T)</td>
<td>11'-9&quot;</td>
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<tr>
<td></td>
<td>20</td>
<td>25</td>
<td>31'-8&quot;</td>
<td>C/L (T)</td>
<td>11'-9&quot;</td>
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<tr>
<td>ASB</td>
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<td>25</td>
<td>31'-8&quot;</td>
<td>C/L (T)</td>
<td>11'-9&quot;</td>
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<td>31'-8&quot;</td>
<td>C/L (T)</td>
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<td>31'-8&quot;</td>
<td>C/L (T)</td>
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<td>25</td>
<td>31'-8&quot;</td>
<td>C/L (T)</td>
<td>11'-9&quot;</td>
</tr>
</tbody>
</table>

**Bill of Reinforcement**

**Deck Panels**

**Panel Type:**

- **AS1**
- **AS2**
- **AS3**
- **AS4**

**Specifications:**

- **Bar Bending Diagrams for Bars S5014E, S5015E, and S5016E:**
  - Varies from 19'-6" to 19'-9" (S7140E)
  - Varies from 9'-3" to 9'-0" (S6153E)
  - Varies from 20'-9" to 20'-4" (S8146E)
  - Varies from 8'-11" to 8'-1" (S6119E)

**License No.:**

- **41308**

**Design By:**

- **CB**

**Checked By:**

- **CB**

**Last Revision:**

- **8/14/2014**

**Sheet:**

- **B146**

**Project:**

- **C S A H 5 / HENNEPIN COUNTY PROJECT 0706**

**Notes:**

1. Bar bending diagrams for bars S7132E, S7140E, S7142E, S7126E, S7128E, S7130E, S7124E, & S7135E
2. Bill of Reinforcement located on Sheet B143 (Superstructure Slab Bar List 1 of 5).
### Bill of Reinforcement

**Ultra-High Performance C.I.P. Concrete Closure Pours**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>LENGTH</th>
<th>SHAPE</th>
<th>LOCATION</th>
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</thead>
<tbody>
<tr>
<td>1)</td>
<td>28'</td>
<td>9&quot;</td>
<td>CL P2, CL P3</td>
</tr>
<tr>
<td>2)</td>
<td>28'</td>
<td>9&quot;</td>
<td>P4-W, P4-E, AB-E</td>
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<tr>
<td>3)</td>
<td>28'</td>
<td>9&quot;</td>
<td>P2-W, P2-E, P3-W, P3-E</td>
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<tr>
<td>4)</td>
<td>28'</td>
<td>9&quot;</td>
<td>P1-E TO 2-2, 2-4 TO 2-6, 3-1 TO 3-4, 3-6 TO 3-8, 3-10 TO 3-13, 4-1</td>
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<td>5)</td>
<td>28'</td>
<td>9&quot;</td>
<td>AB-W</td>
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<td>6)</td>
<td>1'-2&quot; TO P1-W</td>
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<tr>
<td>7)</td>
<td>1'-0&quot; TO 1-1</td>
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### Summary of Quantities for Superstructure Slab

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<th>ITEM</th>
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<td>2)</td>
<td>EACH</td>
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<td>7)</td>
<td>LIN FT</td>
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</tbody>
</table>

**Notes:**
- Pre-cast deck panels.
- Included in the bid price for all pre-cast deck panels.
PLAN VIEW STA. 16+50 TO 19+75

PLAN VIEW STA. 19+75 TO 20+13.79

LEGEND:
- CAP BEAM
- ORNAMENTAL RAIL PILASTER TYPE 1 UNLESS OTHERWISE NOTED
- ORNAMENTAL RAIL PILASTER W/ LIGHT
- ORNAMENTAL RAIL PANEL TYPE 2
- EXPANSION J.T.
- ORNAMENTAL RAILING

NOTE:
1. RAILINGS ARE SYMMETRICAL ABOUT E. OF BRIDGE.
2. SEE ORNAMENTAL RAILING DETAIL SHEETS FOR PILASTER AND PANEL DETAILS.
3. CONCRETE PARAPET W/ STRUCTURAL TUBE RAILING
4. CONTRACTOR HAS OPTION TO PRECAST CONCRETE PARAPET TUBE RAILING
5. SURVEYED CAP BEAM LOCATION AND ARE ADJUSTED HERE FOR FIT-UP WITH PRECAST DECK PANELS PER RFI 21.
6. REVISED PER RFI21 LOCATION OF CAP BEAMS SHOWN ON THIS SHEET ARE DETERMINED FROM EXISTING PLANS. PILASTERS MAY NOT BE CENTERED ON SUPPORTED CAP BEAM LOCATION AND ARE ADJUSTED HERE FOR FIT-UP WITH PRECAST DECK PANELS PER RFI 21.
DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOTE:
1. SEE ORNAMENTAL RAILING DETAIL SHEETS FOR PILASTER PANEL DETAILS.
2. SEE SHEET B151 FOR MORE INFORMATION.
3. SPECIAL PROVISIONS
   IMPACT ATTENUATOR, SEE SPECIAL PROVISIONS.

LEGEND:
- ORNAMENTAL RAIL PANEL
- ORNAMENTAL RAIL PANEL WITH LIGHT
- ORNAMENTAL RAIL PANEL TYPE

NOTE:
1. SEE ORNAMENTAL RAILING DETAIL SHEETS FOR PILASTER AND PANEL DETAILS.
2. SEE SHEET B151 FOR MORE INFORMATION.
3. SPECIAL PROVISIONS
   IMPACT ATTENUATOR, SEE SPECIAL PROVISIONS.
NOTES:
1. SEE SHEET RISER FOR ADDITIONAL INFORMATION.
2. 3" CENTER RAILING THICKNESS
3. LENGTH FOR PAYMENT, SEE SPECIAL PROVISIONS
4. MEASURED ALONG OUTSIDE FACE

SECTION A-A
PLASTER AND ARCHITECTURAL LINES
IN RAILING TOP SCREENED FOR CLARITY

TYPE B
PLASTER AND ARCHITECTURAL LINES
IN RAILING TOP SCREENED FOR CLARITY

SECTION B-B
PLASTER AND ARCHITECTURAL LINES
IN RAILING TOP SCREENED FOR CLARITY

ORNAMENTAL RAILING DETAILS (4 OF 11)
C.S.A.H.S / HENNEPIN COUNTY PROJECT 0706
BRIDGE 2441 S.P. 027-605-029

DRAWN BY: AARON J. NELSON, PROFESSIONAL ENGINEER
PLATTED BY: cfahey
PLATTED DATE: 3/24/2017
MODEL: SHEET
FILE: pw:\pw-int.hntb.org:PWGreat_Lakes\Documents\Minneapolis Projects\49799 Franklin Bridge\Design\CADD-BRIDGE\CD\As-Built\CBR2441_RAL010.dgn

DESIGN BY: AMK
CHECKED BY: AMK
LAST REVISION: 11/24/2015
LICENSE NO.: 43101
DATE: 8/14/2014

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DUTY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

AARON J. NELSON, PROFESSIONAL ENGINEER

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ORNAMENTAL RAILING DIMENSION TABLE

<table>
<thead>
<tr>
<th>PANEL TYPE</th>
<th>L1</th>
<th>L2</th>
<th>L3</th>
<th>L4</th>
<th>L5</th>
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<tbody>
<tr>
<td>1A</td>
<td>9'-9&quot;</td>
<td>8'-2&quot;</td>
<td>9&quot;</td>
<td>1'-7&quot;</td>
<td>2'-7&quot;</td>
</tr>
<tr>
<td>1B</td>
<td>8'-6&quot;</td>
<td>8'-2&quot;</td>
<td>9&quot;</td>
<td>1'-7&quot;</td>
<td>2'-7&quot;</td>
</tr>
<tr>
<td>1C</td>
<td>8'-6&quot;</td>
<td>8'-2&quot;</td>
<td>9&quot;</td>
<td>1'-7&quot;</td>
<td>2'-7&quot;</td>
</tr>
<tr>
<td>1D</td>
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<td>8'-2&quot;</td>
<td>9&quot;</td>
<td>1'-7&quot;</td>
<td>2'-7&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. SEE SHEET B152 FOR ADDITIONAL INFORMATION.
2. 9" CENTER RAILING THICKNESS
3. 5" CENTER RAILING THICKNESS
4. LENGTH FOR PAYMENT SEE SPECIAL PROVISIONS.
5. SEE SHEET B153 FOR STEEL POST DETAILS.
6. REVISED PER RFI 21
NOTES:
1. Pilaster Flange is architectural and not designed for significant loading.
2. Use for welded wire fabric shall be included in the bid price for item number 2401.
3. Heaved stud and bars shall be galvanized per MNDOT Spec 641.
4. See sheet B152 for additional Pilaster and Entablature Details.
5. Heaved stud and bars shall be galvanized per MNDOT Spec 641.
6. Concrete pour back material shall be same material used for precast deck panels.

LEGEND

- Denotes side of Pilaster connected to deck panel
- Denotes side of Cap connected to structure (Pilaster and Railing)
- Denotes gap between Cap and structure (Pilaster and Railing)

AS-BUILT - ORNAMENTAL RAILING DETAILS (9 OF 11)

1. Use #3 (E) bars with #3 (E) ties instead W.W.F.
2. Use #3 (E) bars each way instead W.W.F.
3. Provide reinforcing for significant loading.
4. Concrete pour back material shall be same material used for precast deck panels.
LEGEND

- 1/2" thick structural foam to stay in place
- Bit felt material to stay in place

PILASTER ELEVATION - TYPE 5

SECTION A - A

SECTION B - B

SECTION C - C

AS-BUILT - ORNAMENTAL RAILING DETAILS (10A OF 11)
ORNAMENTAL RAILING DETAILS (11 OF 11)

1. All dimensions to be field verified prior to construction.
2. See notes for plaster reinforcement.
3. 1/2" cork joint shall conform to MnDOT Spec 3702 and shall be included in the cost for each number included "structural concrete (TYP)
4. Concrete for wall connection shall be structural concrete (TYP) and paid for under item number 2401.501 "structural concrete (TYP)"

ANGLES ON NORTH FACE OF POST NOT REQUIRED

CONSTRUCTION JOINT
EXISTING METAL RAILING
BRIDGE TO REMOVE

NOTE:

119°54'12"

ITEM NUMBER 2401.501 "STRUCTURAL CONCRETE (TYP)

AND SHALL BE INCLUDED IN THE COST FOR ITEM NUMBER 2401.501 "STRUCTURAL CONCRETE (TYP)

MANUFACTURER GROUT, DEPTH PER DRILL AND ADHESIVE

CONSTRUCTION JOINT
EXISTING BRIDAL FALLS, PRESERVE AND PROTECT

F354E 6"
F354E 9"
F354E 3"
F354E 10" APPROXIMATE

F354E 6"
F354E 9"
F354E 3"
F354E 10"

GROUT, DEPTH PER DRILL AND ADHESIVE
MANUFACTURER

PLASTER REINFORCEMENT

DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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Aaron J. Nelson, Professional Engineer

POST AT TYPE 1 & 2 PILASTER

POST AT TYPE 3 & 4 PILASTER

POST AT TYPE 5 PILASTER

DETAIL 3/8" x 8" x 8" OR CHANNEL CONDUIT (TYP)

Section B-B

Section C-C

Section E-E

Spacing (TYP)

Notes:

1. Provide correct alignment for ornamental railings by placing them accurately and securely; see special provisions.

2. Provide structural steel per Mn/Dot Spec. 3310, provide structural tubing per A36, ASTM Grade B, as specified in Mn/Dot Spec. 3392.

3. Galvanize bolts, nuts, and washers per Mn/Dot Spec. 3392.

4. Galvanize all other structural steel per Mn/Dot Spec. 3392.

5. Provide hole details for posts at pilasters.

6. Steel post at the end pilasters at the end of the panels require angles on only one side for connections.

7. Include bolts, nuts, and washers in the cost for ORD 2113, where angles are described per Mn/Dot Spec. 3392.

8. 4" hole shall be plugged after conduit drawn through for lighting.

9. All 4" holes and 1/2" deep holes shall be plugged prior to casting pilasters.


11. Steel post at the end pilasters at the end of the panels require angles on only one side for connections.

12. Include bolts, nuts, and washers in the cost for ORD 2113, where angles are described per Mn/Dot Spec. 3392.

13. Provide ornamental railing post shop drawing for details.

14. See ornamental railing post shop drawing for details.

15. Provide structural steel per Mn/Dot Spec. 3310. Provide them accurately and securely; see special provisions.

16. Provide correct alignment for ornamental railings by placing them accurately and securely; see special provisions.

17. Provide structural steel per Mn/Dot Spec. 3310, provide structural tubing per A36, ASTM Grade B, as specified in Mn/Dot Spec. 3392.

18. Galvanize bolts, nuts, and washers per Mn/Dot Spec. 3392.

19. Galvanize all other structural steel per Mn/Dot Spec. 3392.

20. Provide hole details for posts at pilasters.

21. Steel post at the end pilasters at the end of the panels require angles on only one side for connections.

22. Include bolts, nuts, and washers in the cost for ORD 2113, where angles are described per Mn/Dot Spec. 3392.

23. Steel post at the end pilasters at the end of the panels require angles on only one side for connections.

24. Include bolts, nuts, and washers in the cost for ORD 2113, where angles are described per Mn/Dot Spec. 3392.

25. Provide ornamental railing post shop drawing for details.

26. See ornamental railing post shop drawing for details.

27. Provide structural steel per Mn/Dot Spec. 3310. Provide correct alignment for ornamental railings by placing them accurately and securely; see special provisions.

28. Provide structural steel per Mn/Dot Spec. 3310, provide structural tubing per A36, ASTM Grade B, as specified in Mn/Dot Spec. 3392.

29. Galvanize bolts, nuts, and washers per Mn/Dot Spec. 3392.

30. Galvanize all other structural steel per Mn/Dot Spec. 3392.
NOTES:

1. CONSTRUCTION OF SHIMS AND EDGE CLIPS ARE USED ON ALL PANELS TO ADDRESS MISPLACED EMBEDDED BOLTS AND THE LOCATIONS WHERE THE SHIMS WERE PLACED OTHER THAN THE PLAN SHEET.
### Bill of Reinforcement - Pilasters with Integral Ornamental Railings

<table>
<thead>
<tr>
<th>BAR MARK</th>
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<th>SHAPE</th>
<th>LOCATION</th>
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<tbody>
<tr>
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<td>3'-6&quot;</td>
<td>STR</td>
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</tr>
<tr>
<td>FACE</td>
<td>2</td>
<td>3'-10&quot;</td>
<td>STR</td>
<td>SINGLE-FLANGE</td>
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<tr>
<td>FACE</td>
<td>3</td>
<td>3'-10&quot;</td>
<td>STR</td>
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</tr>
<tr>
<td>EDGE</td>
<td>2</td>
<td>3'-0&quot;</td>
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<td>DOUBLE-FLANGE</td>
</tr>
<tr>
<td>EDGE</td>
<td>3</td>
<td>3'-0&quot;</td>
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### Bill of Reinforcement - Bridal Veil Falls Connection

<table>
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<tr>
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<th>SHAPE</th>
<th>LOCATION</th>
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</table>

### Summary of Quantities for Ornamental Railing

- **Notations**:
  1. Includes pilasters and Bridal Veil Falls connection.
  2. Includes plates, shapes, and angles.
  3. Includes HSS shapes.
  4. Includes cast-in-place interior parapets.
  5. Includes 11,130 lbs reinforcement bars (epoxy coated).
  6. "SER" indicates a series bar.

### Parapet and Railing Bar List and Quantities (2 of 2)

<table>
<thead>
<tr>
<th>ITEM</th>
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<th>QUANTITY</th>
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<tr>
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<td>153</td>
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<tr>
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<td>LF</td>
<td>3'</td>
</tr>
<tr>
<td>4</td>
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<td>1454</td>
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</tr>
<tr>
<td>39</td>
<td>LF</td>
<td>1'-10&quot;</td>
</tr>
</tbody>
</table>

**Notes**: Indicates a series bar.
NOTES:
1. REMOVE EXISTING ABOVE GROUND DRAINAGE PIPES, SCUPPERS, AND SUPPORT BRACKETS ON PIER 1, 2, 3 AND 4, REMOVAL PAID AS PART OF "REPLACE CONCRETE BRIDGE DECK".
2. DRAINAGE ELEMENTS SHALL REMAIN IN PLACE AND FUNCTIONAL UNTIL THE REMOVAL OF THE DECK.
3. REMOVE EXISTING MANHOLE AT PIER ONE. FILL THE HOLLOW WITH DRAINAGE PIPES AND FITTINGS PRIOR TO FILLING.
4. REMOVE EXISTING GROUND EXCEPT FOR A 1 FOOT BURIED RAILING, RAILING CAP, AND RESTORE EXISTING GROUND.
5. ALTERNATE SCUPPER DESIGN MUST HAVE EQUAL OR GREATER FREE OPEN AREA AND BE SUBMITTED FOR REVIEW AND ACCEPTANCE BY THE ENGINEER.
6. ALL ELEVATIONS AND PIPE OFFSET DIMENSIONS ARE BASED ON THEORETICAL DRAWINGS. INCLUDING, BUT NOT LIMITED TO, ALL ITEMS DETAILED ON DRAINAGE DETAIL SHEETS.
7. UNIT PIPE DIMENSIONS SHALL BE THE INDUSTRY STANDARD AS SHOWN ON THE PLAN, SEE SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED, ENTIRE DRAINAGE SYSTEM SHALL BE CONSTRUCTED OF FIBERGLASS PIPE OF THE DIAMETER SHOWN ON THE PLAN.
8. MAXIMUM STAYING RIGIDITY OF THE PIPE IS REQUIRED TO BE ACCEPTED BY THE ENGINEER.
9. MAXIMUM PIVOTING RIGIDITY OF THE PIPE IS REQUIRED TO BE ACCEPTED BY THE ENGINEER.
10. DRAINAGE PIPE UNIT SHALL BE ADEQUATELY BRACE AND SUPPORTED DURING PRECAST CONCRETE INSTALLATION.
11. DRAINAGE SYSTEM SHOULDN'T EXCEED 300 FEET IN LENGTH.
12. ALL ELEVATIONS AND PIPE OFFSET DIMENSIONS ARE BASED ON THEORETICAL DRAWINGS. ALL PIPE SIZES SHOWN ON THE PLAN ARE ESTIMATED. ACTUAL ELEVATIONS AND DIMENSIONS MAY DIFFER FROM THE ESTIMATES.

SUMMARY OF QUANTITIES FOR BRIDGE DRAINAGE SYSTEM

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
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<td>HANGER TYPE I-A</td>
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<tr>
<td>HANGER TYPE II</td>
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<tr>
<td>HANGER TYPE III</td>
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</tr>
<tr>
<td>CLEANOUT</td>
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</tr>
<tr>
<td>8&quot; DRAIN PIPE</td>
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<tr>
<td>6&quot; DRAIN PIPE</td>
<td>LIN. FT.</td>
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</tr>
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<tr>
<td>8&quot; DRAIN 135° ELBOW</td>
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</tr>
<tr>
<td>6&quot; DRAIN 75° OFFSET TEE</td>
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</tr>
<tr>
<td>6&quot; DRAIN 75° ELBOW W/ CLEANOUT</td>
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<td>2</td>
</tr>
<tr>
<td>6&quot; DRAIN 45° LATERAL</td>
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<td>2</td>
</tr>
<tr>
<td>6&quot; DRAIN 45° LATERAL W/ CLEANOUT</td>
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<td>8&quot; X 8&quot; X 6&quot; LATERAL W/ 8&quot; CLEANOUT</td>
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<td>8&quot; X 8&quot; X 6&quot; LATERAL W/ 8&quot; CLEANOUT BUSHING</td>
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<tr>
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</tbody>
</table>

APPROPRIATE QUANTITIES PROVIDED ARE FOR INFORMATION ONLY AND ARE NOT INTENDED TO BE ALL INCLUSIVE OF REQUIREMENTS OF THE DRAINAGE SYSTEM. PAYMENTS WILL BE MADE UNDER THE LUMP SUM ITEM "DRAINAGE SYSTEM BRIDGE DECK".
NOTES:

1. ALL STEEL PLATES PER Mn/DOT SPEC. 3306. CAST IRON MAY BE USED AS AN ALTERNATE.
2. CAST IRON GRATE, PER Mn/DOT SPEC. 3306, CLASS 25B, MAY BE USED AS AN ALTERNATE.
3. WORKMANSHIP AND FABRICATION PER Mn/DOT SPEC. 2471.
4. BLAST CLEAN FLOOR DRAIN AND GRATE AFTER FABRICATION, GALVANIZE, EXCEPT CAST IRON, PER Mn/DOT SPEC. 3393.
5. GALVANIZE HARDWARE PER Mn/DOT SPEC. 3393.
6. INSTALL GRATE WITH ARROW ON CURB SIDE AND IN DIRECTION OF FLOW.
7. MATERIAL ON THIS DETAIL SHALL BE INCLUDED IN SCUPPER ASSEMBLY.
8. GRATE OPENING AREA IS 106 SQ. IN.

MATERIAL ON THIS DETAIL SHALL BE INCLUDED IN SCUPPER ASSEMBLY.

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NOTES:

1. ALL STEEL PLATES PER Mn/DOT SPEC. 3306. CAST IRON MAY BE USED AS AN ALTERNATE.
2. MANUFACTURE AND FABRICATION PER Mn/DOT SPEC. 3394.
3. BLAST CLEAN MANHOLE CASTING AFTER FABRICATION. GALVANIZE. EXCEPT CAST IRON, PER Mn/DOT SPEC. 3394.
4. GALVANIZE HARDWARE PER Mn/DOT SPEC. 3392.
5. FOR MANHOLE COVER DETAILS, SEE STANDARD PLATE NO. 33800A-HQ, STANDARD MANHOLE.
6. CASTING TO PROJECT BELOW BRIDGE DECK TO ACT AS A DRIP CATCH.
7. MANHOLE COVER SHALL BE RATED FOR A WHEEL LOAD CAPACITY OF AT LEAST 16,000 POUNDS.
8. COVER SHALL BE LOCKABLE WITH TAMPERPROOF BOLTS THAT ARE RECESSED.

MANHOLE DETAILS

C.S.A.H. S / HENNEPIN COUNTY PROJECT 0706
BRIDGE 2441 S.P. 027-605-029
**WATERMAIN HANGER SYSTEM**

**NOTES:**
1. HANGERS SHALL COMPLY WITH SPEC. 3312, TYPE 1.
2. STEEL SHAPES AND PLATES SHALL COMPLY WITH SPEC. 3306.
3. CONCRETE PLINTS SHALL BE APPROVED TYPE B CONCRETE PLINTS.
4. GALVANIZED BOLTS, NUTS, WASHERS, RODS, INSERTS AND ANCHOR BOLTS AS PER SPEC. 3324, GRADE 350 STEEL.
5. DOUBLE NUTS.
6. ALL MATERIALS LISTED ABOVE ARE TO BE INCLUDED IN "WATERMAIN HANGER SYSTEM".
7. PRECAST CAP BEAMS SHALL BE FOR CONSTRUCTION CONVENIENCE ONLY.
8. CONCRETE PLINTS SHALL BE EXISTING.
9. PRECAST HANGERS SHALL BE FOR CONSTRUCTION CONVENIENCE ONLY.
10. HANGERS SHALL BE SUPPORTED BY EXISTING PLINTS AND HANGERS THROUGHOUT THE BRIDGE.

**TYPICAL SECTION**

**LOOKING UPSTREAM**

**WATERMAIN HANGER SYSTEM**

**SUMMARY OF QUANTITIES**

**WATER MAIN HANGER SYSTEM**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP BEAM</td>
<td>TYP</td>
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</tr>
<tr>
<td>HANGER ROD</td>
<td>1'-9&quot; DIAMETER</td>
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<tr>
<td>BRACKET</td>
<td>6X6X1</td>
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<tr>
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</tr>
<tr>
<td>PLATE</td>
<td>1'-11&quot;X11&quot;</td>
<td>10</td>
</tr>
<tr>
<td>PLATE</td>
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<tr>
<td>PLATE</td>
<td>3'-2&quot; LONG</td>
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</table>

**WATERMAIN SUPPORT DETAILS (1 OF 2)**

**TYPICAL SECTION**

**LOOKING UPSTREAM**

**HANGER SYSTEM ELEVATION**

**SECTION A-A**

**NOTES:**
1. HANGERS SHALL BE SUPPORTED BY EXISTING PLINTS AND HANGERS THROUGHOUT THE BRIDGE.
2. PRECAST CAP BEAMS SHALL BE FOR CONSTRUCTION CONVENIENCE ONLY.
3. CONCRETE PLINTS SHALL BE EXISTING.
4. GALVANIZED BOLTS, NUTS, WASHERS, RODS, INSERTS AND ANCHOR BOLTS AS PER SPEC. 3324, GRADE 350 STEEL.
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**TYPICAL SECTION**

**LOOKING UPSTREAM**

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**WATERMAIN SUPPORT DETAILS (1 OF 2)**

**TYPICAL SECTION**

**LOOKING UPSTREAM**

**HANGER SYSTEM ELEVATION**

**SECTION A-A**

**NOTES:**
1. HANGERS SHALL BE SUPPORTED BY EXISTING PLINTS AND HANGERS THROUGHOUT THE BRIDGE.
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**TYPICAL SECTION**

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</tr>
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<td>10</td>
</tr>
</tbody>
</table>
SECTION A-A

...STIFFENER

NOTES:

1. HIGH STRENGTH BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A325.

2. REPLACE BOLTS PRIOR TO REMOVAL OF TEMPORARY SUPPORT.

3. CONTRACTOR TO VERIFY IN FIELD AFTER DECK PANEL PLACEMENT.

4. DOUBLE NUTS OR JAM NUTS OR LOCK NUTS.

5. FIELD MEASURE EXISTING PLATE DIMENSIONS PRIOR TO MANUFACTURE OF NEW PLATES.

6. INCLUDE COST FOR BOLTS NUTS AND WASHERS IN COST FOR HANGER SYSTEM.

7. SEE SHEET B172 FOR ADDITIONAL INFORMATION.

8. HOLES PER PRINT.
The dashed numbers shown above are for illustration. Data to be shown on nameplate is as follows:

**SECTION A-A**

**PLAN VIEW**

10" MAX.

**ELEVATION**

**DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:**

**THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.**

**BRIDGE:** 2441

**YEAR:** 2016

**NOTES:**

**SHOP DRILLING REQUIRED**

Material: Small comply with Mn/DOT Spec. 3327.

Letters and Numbers: Small comply with those shown.

Dashes on letters and numbers shall not be more than 1" in 12".

Horizontal spacing of letters and numbers shall produce a balanced layout in proportion to spacing shown.

Top surface of letters, numbers and frames shall be burnished.

Finish: Steel bolts 5/8" dia., 3" long with each plate.

All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for 1" high letters and numbers.

Center nameplate on pilaster.

**SECTION A-A**

**PLAN VIEW**

16'-6" MAX.

**ELEVATION**

**DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:**

**THE DASHED TEXT SHOWN ABOVE IS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO FABRICATING THE NAMEPLATE.**

**NOTES:**

**SHOP DRILLING REQUIRED**

Material: Small comply with Mn/DOT Spec. 3327.

Letters and Numbers: Small comply with those shown.

Dashes on letters and numbers shall not be more than 1" in 12".

Horizontal spacing of letters and numbers shall produce a balanced layout in proportion to spacing shown.

Top surface of letters, numbers and frames shall be burnished.

Finish: Steel bolts 5/8" dia., 3" long with each plate.

All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for 1" high letters and numbers.

Center nameplate on pilaster.

**STATE OF MINNESOTA**

**DEPARTMENT OF TRANSPORTATION**

**BRIDGE NAMEPLATE**

(For Bridge Reconstruction)

**DETAIL NO:** B107

**SHOP DRAWING REQUIRED**

**STATE OF MINNESOTA**

**DEPARTMENT OF TRANSPORTATION**

**BRIDGE NAMEPLATE**

(For Bridge Reconstruction)

**DETAIL NO:** B107

**SHOP DRAWING REQUIRED**

**STATE OF MINNESOTA**

**DEPARTMENT OF TRANSPORTATION**

**AS-BUILT - BRIDGE DETAILS**

**B176**
CONCRETE WEARING COURSE

☐ LOW SLUMP
☐ OTHER POLYMER CONCRETE (PCC) - PREMIXED POLYMERS

EXPANSION JOINTS

JOINT MANUFACTURER

MANUFACTURER'S IDENTIFICATION: COMMERCIAL FABRICATOR INC.

GLAND MANUFACTURER

NAME AND ADDRESS (CITY, STATE):

SIZE OF GLAND

MANUFACTURER'S IDENTIFICATION: NAME AND ADDRESS (CITY, STATE):

ELASTOMERIC BEARING PADS

PAD MANUFACTURER WITH NAME:

NAME AND ADDRESS (CITY, STATE):

SPECIAL SURFACE FINISH

SYSTEM

FINISHING ROADWAY FACES OF BARRIER RAILING

TIPS

ANTI-GRAFFITI COATING

MANUFACTURER NOT APPLICABLE

NAME AND ADDRESS (CITY, STATE):

PRODUCT NAME

LOCATION

PAINT SYSTEM

MANUFACTURER

NAME AND ADDRESS (CITY, STATE):

PRIME COAT

MANUFACTURER'S IDENTIFICATION

INTERMEDIATE COAT

MANUFACTURER'S IDENTIFICATION

FINISH COAT

MANUFACTURER'S IDENTIFICATION

COLOR

PLAN QUALITY

RATING (AGREE, NEUTRAL, DISAGREE)

COMMENTS

COST:

SUPPLEMENTAL AGREEMENTS

NUMBER OF BRIDGE REMOVAL / BRIDGE OPENING

NAME AND ADDRESS (CITY, STATE):

DATE NEW BRIDGE WAS OPENED TO TRAFFIC

SPACE PROVIDED AT RIGHT.

LIST SIGNIFICANT ERRORS OR OMISSIONS IN PLAN DETAILS OR PAY QUANTITIES IN THE SPACE PROVIDED AT RIGHT.

SUMMARY OF SIGNIFICANT AS-BUILT CHANGES

NEW UTILITY CONDUIT AND SUBSTRUCTURE SYSTEM WERE INSTALLED UNTIL OF THE BRIDGE DECK. THESE CONDUITS BELONG TO THREE PRIVATE UTILITY COMPANIES. CONSULT LAW IF CONTESTS CONDUCTED OR COURT COMMUNICATIONS IF CONVULSIVE COMMON HOLE FOR ATTACHMENTS.

THE AS-BUILT INFORMATION WAS ADDED TO THE PLAN BY;

INSP/CONTRACTOR SIGNATURE

DATE

AS-BUILT BRIDGE DATA

C.S.A.H. 5 / HENNEPIN COUNTY PROJECT 0705

B941  S.P. 027-605-029

DESIGN BY:  AIN

GAD BY:  PDF

CHECKED BY:  DFE

LAST REVISION:  B176

SHEET

B176

B176
CONCEPTUAL ROLLER STAND REPLACEMENT SEQUENCE:

1. INSTALL JACK STAND ON TRANSVERSE BEAM
2. INSTALL HYDRAULIC JACKS POWERED BY A HAND OPERATED HYDRAULIC PUMP. PRESSURE IN THE HYDRAULIC JACKS SHALL BE EQUIL. AT ALL TIMES.
3. INSTALL CURVED LOAD PLATE
4. SLIGHTLY LOAD THE LOAD PLATE UNTIL THE ROLLERS ARE FREE OF THE WATERMAIN SUPPORT CHANNELS. GAP BETWEEN ROLLERS AND SUPPORT CHANNELS CANNOT EXCEED 3/4".
5. PROPERLY RESTRICT THE LOAD TO THE WATERMARK LOAD SUPPORTS, ENSURING BOTH ROLLERS ARE ENGAGED AND SUPPORTING THE WATERMAIN.
6. REMOVE CURVED LOAD PLATE, REMOVE HYDRAULIC JACKS, REMOVE JACK STAND.

BILL OF MATERIALS - REPLACEMENT ROLLER STAND

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<tr>
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<th>UNIT</th>
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<td></td>
<td></td>
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<td></td>
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<td>lbs</td>
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BILL OF MATERIALS - TEMPORARY 2-PIECE JACKING STAND

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<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lbs</td>
</tr>
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</table>

NOTES:
1. WELD PLATE ON Bracket opposite hand to hold line up once assembled into final position.
2. ALL STEEL WELDS MUST SPEC. 3309.
### BILL OF MATERIALS - TEMPORARY PIPE SUPPORT

<table>
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<th>Item</th>
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</tr>
<tr>
<td>5/8&quot; bar</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>3/4&quot; bar</td>
<td>2</td>
<td>0.8</td>
</tr>
</tbody>
</table>

### NOTES:
1. Use 6" pipe if support is to be used in a column or beam.
2. Provide stable contact between jack and adjoining pipe.
4. Support section: 12-1/2" pipe.
NOTES:
1. CUT HP 12x74 IN HALF ALONG MIDDLE.
2. CENTER PLATE ON BOTTOM OF EXISTING CHANNEL.
   NEW PLATE SHOULD BE APPROX. 18 INCHES WIDER THAN CHANNEL.

PLAN

ISOMETRIC VIEW 1

DETAIL "A"

SECTION A-B

ISOMETRIC VIEW 2

DETAIL "A"

EAST SIDE

WEST SIDE

Gleno & Haagfeld Engineering, P.S.C.
3115 Washington Ave. S., Suite 100
Rochester, MN 55906-2433

WATERMAIN REPAIR
DETAILS

REV:0
V4H4

SHEET NO. 4 OF 4 SHEETS
Extra holes were drilled in the bottom flange sections of the bent plates for constructibility.

NOTE:
① PLACE BENT PLATE INTO POSITION AND FIELD DRILL HOLES THROUGH EXISTING HOLES.
NOTES:

CONDUITS WERE BENT TO ACCOMMODATE THE ABANDONED CORE HOLE, SHRING THE BRIDGE 8' UPSTREAM.

1. 12" PROPOSED
2. 12" REMOVED LAST CROSS MEMBER
3. 12" END BEND
4. 12" BEGIN BEND
5. 12" DUCT BANK 8" UPSTREAM.
6. 12" CONDUITS WERE BENT TO ACCOMMODATE THE OBSTRUCTED CORE HOLE, SHIFTING THE BRIDGE 8' UPSTREAM.

NOTE:

CONDUITS WERE BENT TO ACCOMMODATE THE OBSTRUCTED CORE HOLE, SHRING THE BRIDGE 8' UPSTREAM.

1. BEGIN BEND
2. END BEND
NOTES:
1. High strength bolts shall meet the requirements of ASTM A325.
2. For additional notes see Sheet U1.
3. Grout and install 2"Ø bolts with galvanized anchors combined with Hit-Hy200 epoxy or similar, as accepted by the engineer, for anchor bolt connection to the existing cap beam.
4. Drill and install M16 threaded studs or similar, as accepted by the engineer, for anchor bolt connection to the proposed cap beams.
5. For interior bridging details, see Sheet U3.
6. Drill and install M16 galvanized anchors with Hit-Hy200 epoxy or similar, as accepted by the engineer, for the existing bridge and interior bridging details to the existing arch rib, standard columns, and substructure elements. Prior to installation, notify the engineer of the presence of existing concrete at the anchoring locations.
7. For final condition - install Dayton Superior expanded joint system or similar, as accepted by the engineer, for interior bridging connection to the existing cap beam.
8. Drill and install M16 threaded studs or similar, as accepted by the engineer, for anchor bolt connection to the existing cap beam.
9. For additional notes, see Sheet U1.

CAP BEAM PRECAST

EXPANSION JOINT LOCATIONS.

NOTES:
1. Grout and install 2"Ø bolts with galvanized anchors combined with Hit-Hy200 epoxy or similar, as accepted by the engineer, for anchor bolt connection to the existing cap beam.
2. For additional notes see Sheet U1.
3. Drill and install M16 threaded studs or similar, as accepted by the engineer, for anchor bolt connection to the proposed cap beams.
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7. For additional notes, see Sheet U1.

EXPANSION FITTING DETAIL

NOTES:
1. Grout and install 2"Ø bolts with galvanized anchors combined with Hit-Hy200 epoxy or similar, as accepted by the engineer, for anchor bolt connection to the existing cap beam.
2. For additional notes see Sheet U1.
3. Drill and install M16 threaded studs or similar, as accepted by the engineer, for anchor bolt connection to the proposed cap beams.
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6. Drill and install M16 threaded studs or similar, as accepted by the engineer, for anchor bolt connection to the existing cap beam.
7. For additional notes, see Sheet U1.

MC6x12 SPLICE DETAIL
NOTES:

1. HIGH STRENGTH BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A325.
2. FOR ADDITIONAL NOTES AND INFORMATION SEE SHEETS 8 AND 9.
3. AT PIER 2 AND 3, INTERNAL BOLTS & INTERNAL WALL.
4. CONSTRUCTION INCLUDES LATERAL STRUTS FOR SEGMENT 3 BAR AND INTERIOR SHEET U3.
   INCLUDED LATERAL BRACING FOR INCLINED LATERAL STRUTS LOCATED AT EACH END OF SEGMENT 3 ONLY.
5. AT LOCATIONS OF INTERNAL BRACING, ADJUST THE W36x30 ANGLE BEAMS 1'-0" FOR CONNECTIONS WITH CONNECTION HARDWARE.
6. ALL BOLTS FOR THE L3x3x3/8 ANGLES SHOWN TO BE APRONED WITH ONLY MATCHED NUTS AND NUTS ON JOINT NUTS ON PLACE.
7. FOR DETAILS ON 3/8" ANCHORING SEE SHEET 13.
8. ALL NUTS AND PREDICTED HOLES ARE TO BE PLACED IN THE ANGLE ON MY SECTIONS AS NOTED.

TYP MC6x12, LATERAL STRUT
L3x3x3/8, INTERNAL BRACE
L6x3x3

VIEW A-A

VIEW B-B

INCLINED LATERAL STRUT DETAIL
ELEVATION VIEW

INCLINED LATERAL STRUT DETAIL
PLAN VIEW