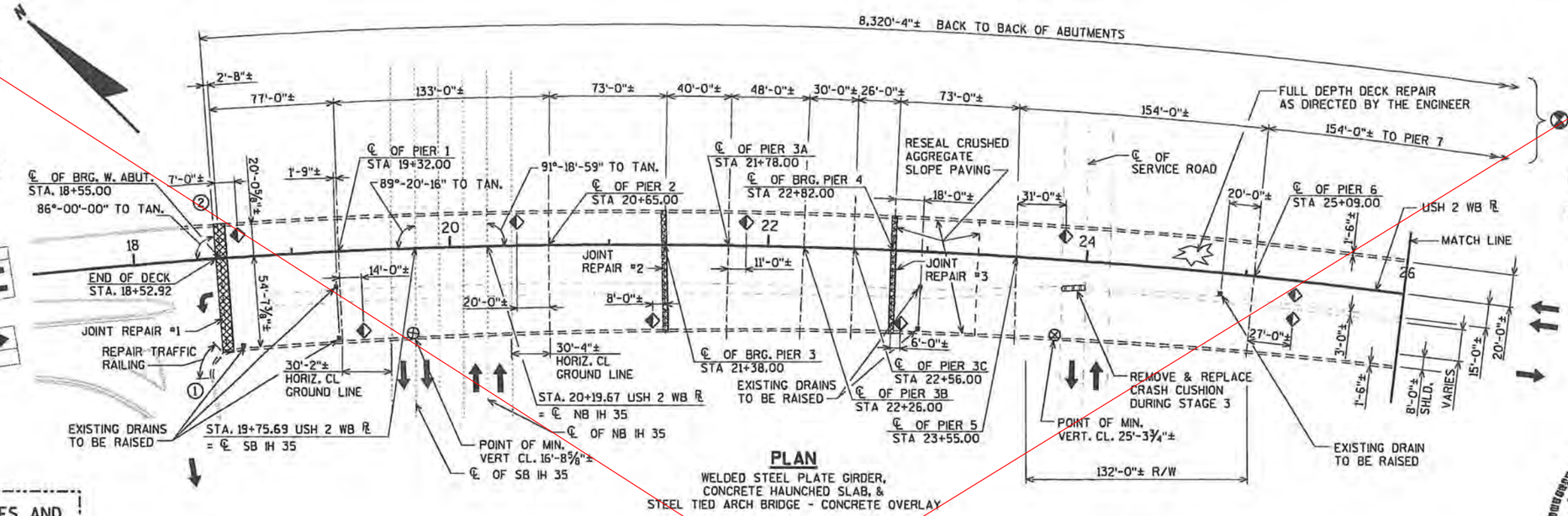
STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
Δ=43°-08'-06.4"
D=1°-30'
T=1,509.83'
L=2,875.67'
R=3,819.72'
S.E.=0.036'/'
P.C. STA. 14+32.17
P.T. STA. 43+07.85



○ DENOTES WING NUMBER

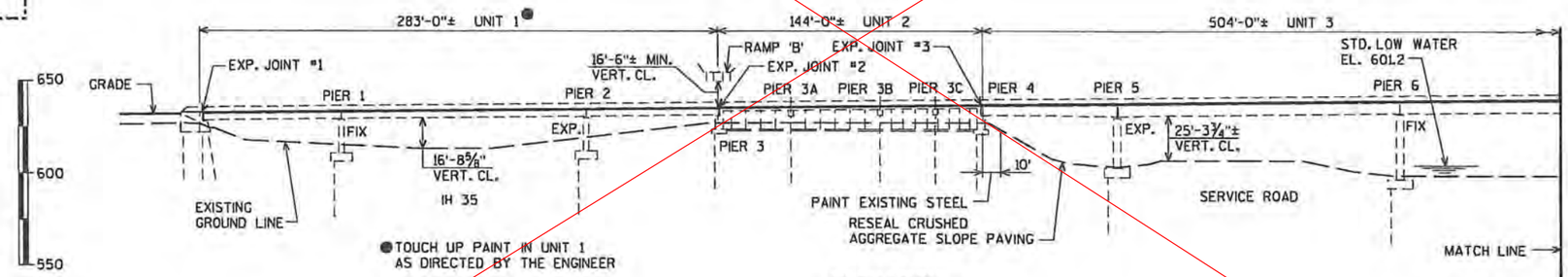
⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

FOR QUANTITIES AND DESIGN DATA SEE SHEET 16



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

LIST OF DRAWINGS

1. GENERAL PLAN UNITS 1 THRU 3
2. GENERAL PLAN UNITS 3 THRU 5
3. GENERAL PLAN UNITS 5 THRU 7
4. GENERAL PLAN UNITS 7 THRU 9
5. GENERAL PLAN UNITS 9 THRU 12
6. GENERAL PLAN UNITS 12 THRU 14
7. GENERAL PLAN UNITS 14 & 15
8. GENERAL PLAN UNITS 15 THRU 18
9. GENERAL PLAN UNITS 18 & 19
10. CROSS SECTIONS UNITS 1-3
11. CROSS SECTIONS UNIT 4
12. CROSS SECTIONS UNITS 5 & 6
13. CROSS SECTION UNITS 7-12, 14-19
14. CROSS SECTION UNIT 13
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16. DESIGN DATA, QUANTITIES AND NOTES
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19. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 29
20. SIDEWALK MANHOLE REPLACEMENT DTLS PIER 30
21. PIER CAP RAILING DETAILS
22. PIPE RAILING
23. NEW TIE GIRDER DOOR DETAILS
24. CABLE SHIM REPAIR DETAILS
25. CABLE SHIM REPAIR DETAILS
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32. STRIP SEAL EXPANSION JOINT 3 DETAILS
33. MODULAR EXPANSION JOINT 4 DETAILS
34. EXPANSION JOINT 4 DETAILS OUTSIDE PARAPET
35. MODULAR EXPANSION JOINT 4 DETAILS
36. MODULAR EXPANSION JOINT 5 DETAILS
37. EXPANSION JOINT 5 DETAILS OUTSIDE PARAPET
38. EXPANSION JOINT 5 DETAILS MEDIAN PARAPETS
39. MODULAR EXPANSION JOINT 5 DETAILS
40. MODULAR EXPANSION JOINT 6 DETAILS
41. EXPANSION JOINT 6 DETAILS OUTSIDE PARAPET
42. MODULAR EXPANSION JOINT 6 DETAILS
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95. FLOOR DRAIN SUMMARY
96. FLOOR DRAIN DETAILS
97. FLOOR DRAIN DETAILS
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99. BAR COUPLER DETAILS

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE WI
PROFESSIONAL ENGINEER
9/13/13

NO.	DATE	REVISION	BY

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

MINNESOTA BRIDGE NO. 69100

STH 2 OVER THE ST. LOUIS RIVER
I.H. 35 & RR

CITY OF DULUTH — ST. LOUIS COUNTY

APPROVED: Nancy Daubenberger STATE BRIDGE ENGINEER DATE 10/4/13

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED: William C. Dreher KAR CHIEF STRUCTURES DESIGN ENGINEER DATE 10/04/13

STRUCTURE B-16-38/69100

USH 2 OVER ST. LOUIS RIVER

COUNTY: DOUGLAS CO., WI / ST. LOUIS CO., MN — ~~TOWN/CITY/VILLAGE~~ SUPERIOR, WI & DULUTH, MN

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JCK	AEB	CLS	CBM

GENERAL PLAN UNITS 1 THRU 3

SHEET 1 OF 99
347

8

8

$PREFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gpl.dgn

DATE:
DATE:
DATE:

CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

9/13/2013

PENTABLE:BReau_shd_util.tbl

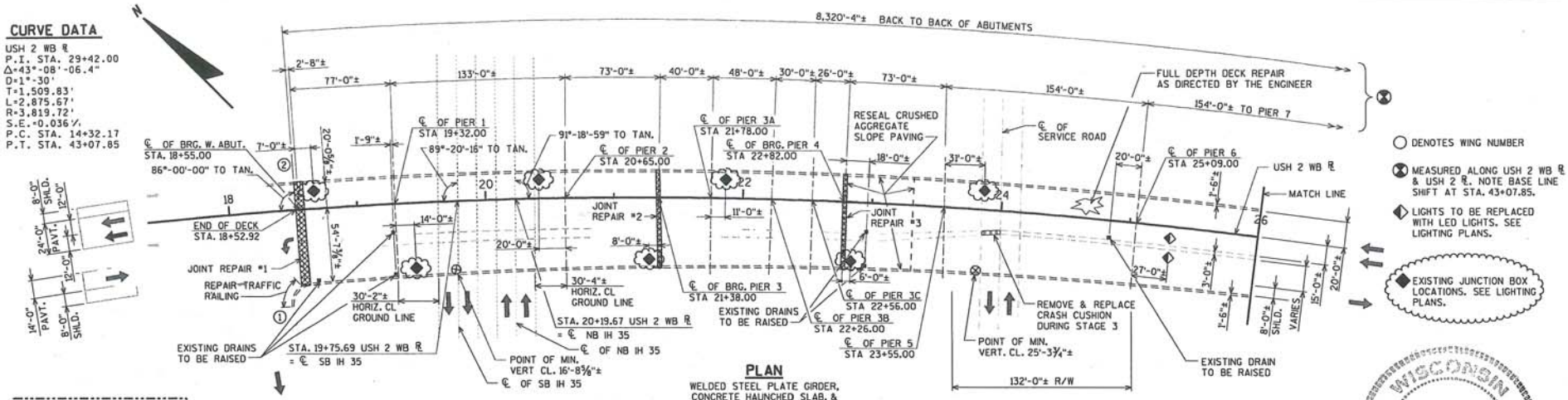
DATE:

STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
Δ=43°-08'-06.4"
D=1°-30'
T=1,509.83'
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P.C. STA. 14+32.17
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○ DENOTES WING NUMBER

⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

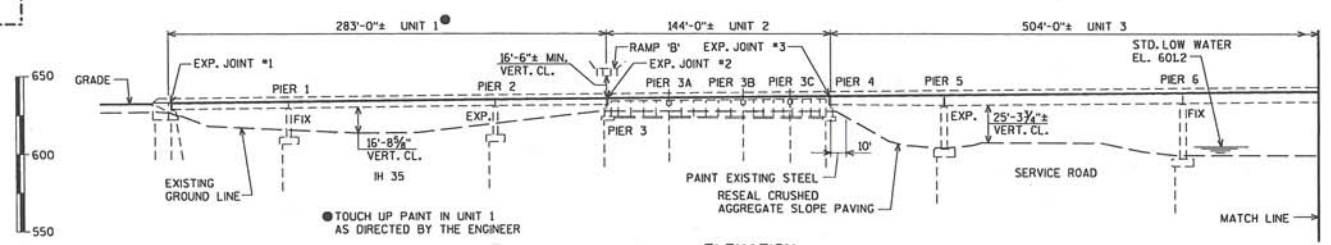
◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

◆ EXISTING JUNCTION BOX LOCATIONS. SEE LIGHTING PLANS.

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

FOR QUANTITIES AND DESIGN DATA SEE SHEET 16



● TOUCH UP PAINT IN UNIT 1 AS DIRECTED BY THE ENGINEER

ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

William C. Dreher KAR 12/17/13

LIST OF DRAWINGS

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BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

WISCONSIN
CHRISTOPHER B. McMAHON
E-29454
EAU CLAIRE
WI
PROFESSIONAL ENGINEER
12/16/13

NO.	DATE	REVISION	BY
1	12/13	CALL OUT JUNCTION BOXES	AYRES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

MINNESOTA BRIDGE NO. 69100

STH 2 OVER THE ST. LOUIS RIVER
I.H. 35 & RR

CITY OF DULUTH — ST. LOUIS COUNTY

APPROVED: Nancy Daubenberger STATE BRIDGE ENGINEER DATE 12/19/13

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-38/69100

USH 2 OVER ST. LOUIS RIVER

COUNTY: DOUGLAS CO., WI ~~TOWN/CITY/VILLAGE~~ SUPERIOR, WI & ST. LOUIS CO., MN DULUTH, MN

DESIGN SPEC. — REHABILITATION — N/A

DESIGNED BY	JCK	DESIGN CKD.	AEB	DRAWN BY	CLS	PLANS CKD.	CBM

GENERAL PLAN UNITS 1 THRU 3

SHEET 1 OF 99

I.D. — DATE:

Addendum No. 1
ID 8680-00-70
Revised Sheet 347
December 20, 2013

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:

$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 gpl.dgn

12/16/2013 PENTABLE:BReau.shd_utl.tbl

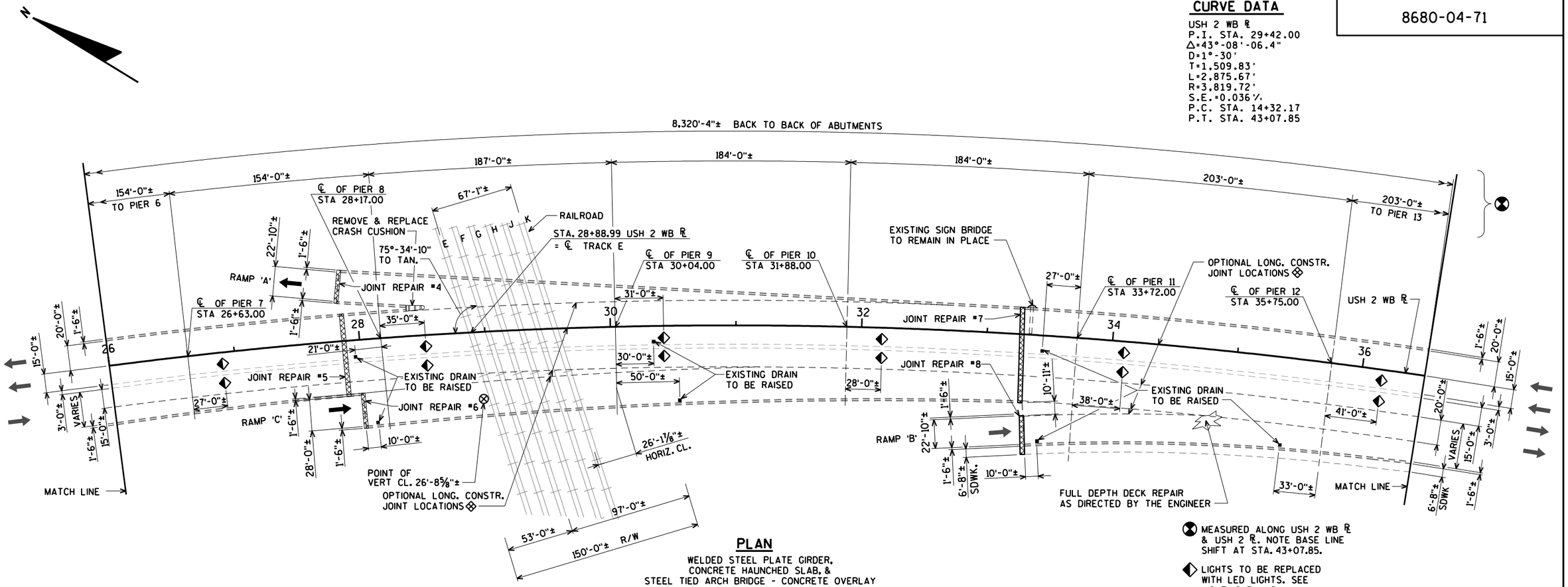
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STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
△=43°-08'-06.4"
D=1°-30'
T=1,509.83'
L=2,875.67'
R=3,819.72'
S.E.=0.036 ⅟
P.C. STA. 14+32.17
P.T. STA. 43+07.85



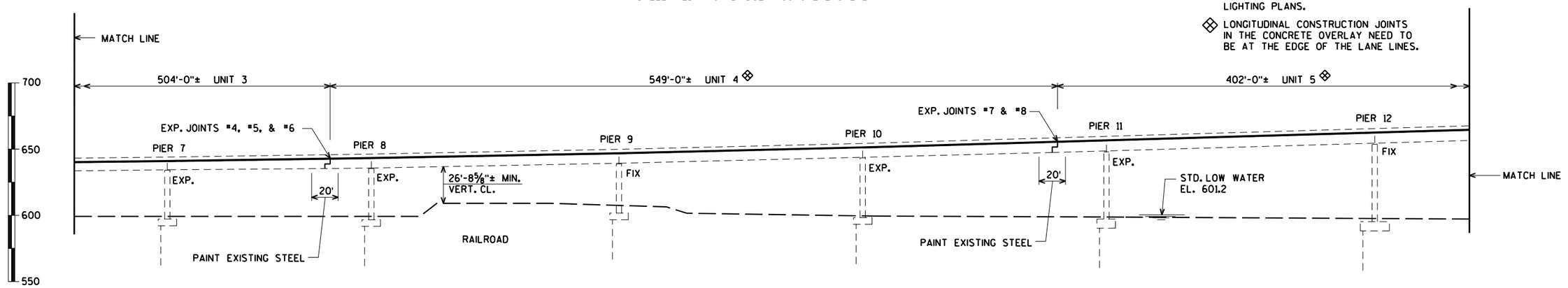
PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

℄ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊗ LONGITUDINAL CONSTRUCTION JOINTS IN THE CONCRETE OVERLAY NEED TO BE AT THE EDGE OF THE LANE LINES.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
3 THRU 5

SHEET 2 OF 99
348

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

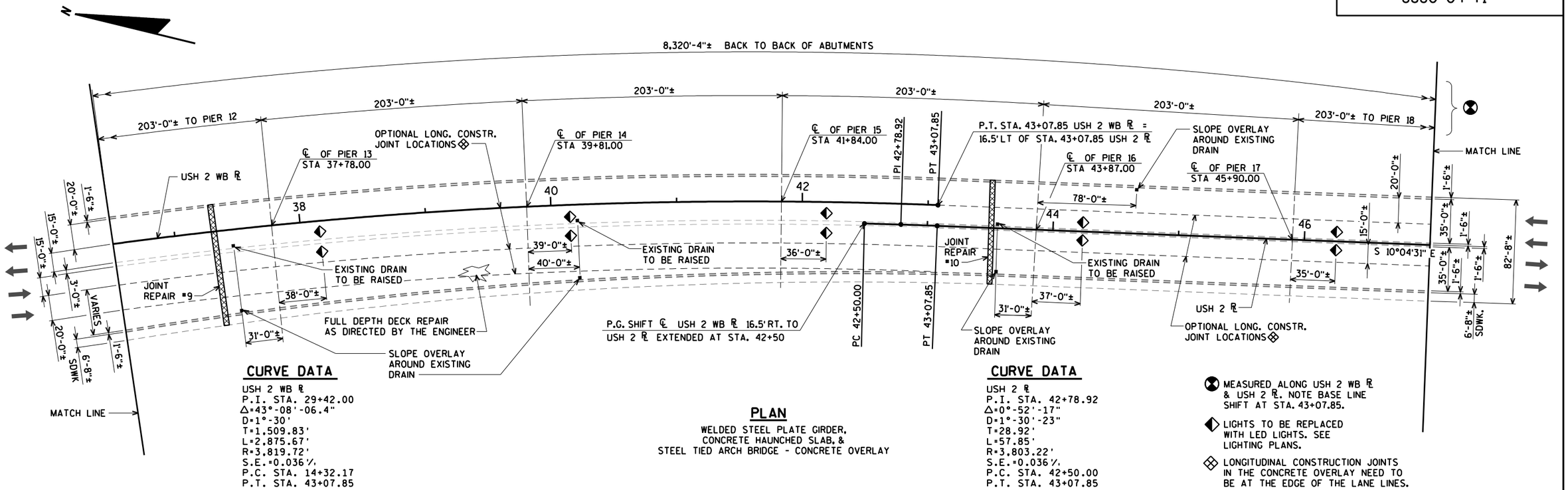
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9/12/2013

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STATE PROJECT NUMBER

8680-04-71



CURVE DATA

USH 2 WB ℄
P.I. STA. 29+42.00
Δ=43°-08'-06.4"
D=1°-30'
T=1,509.83'
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P.T. STA. 43+07.85

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

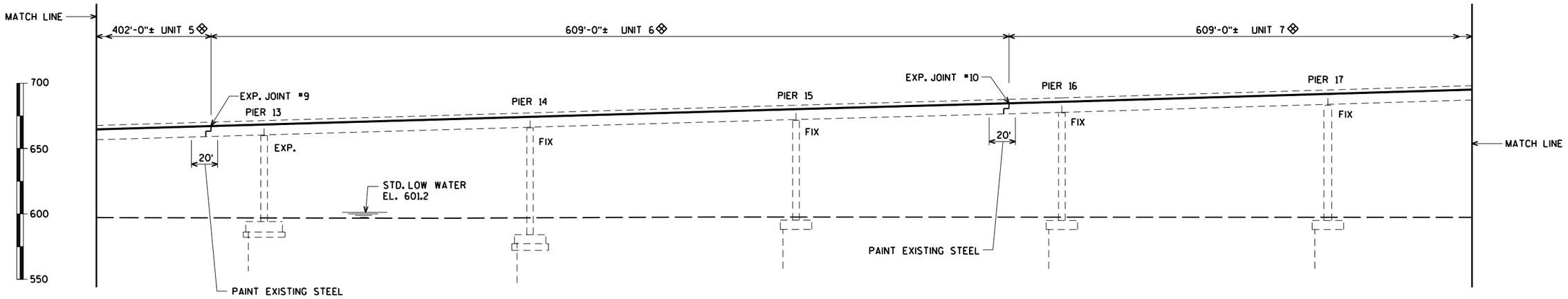
CURVE DATA

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P.I. STA. 42+78.92
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D=1°-30'-23"
T=28.92'
L=57.85'
R=3,803.22'
S.E.=0.036'/'
P.C. STA. 42+50.00
P.T. STA. 43+07.85

⊠ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◧ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊠ LONGITUDINAL CONSTRUCTION JOINTS IN THE CONCRETE OVERLAY NEED TO BE AT THE EDGE OF THE LANE LINES.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
5 THRU 7

SHEET 3 OF 99
349

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

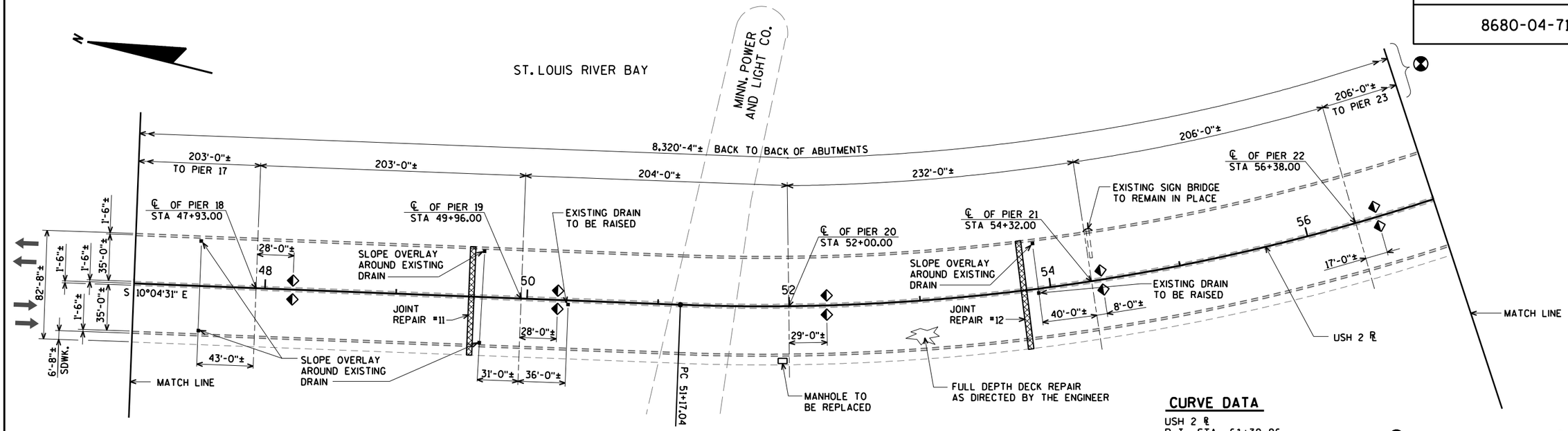
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9/12/2013

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

8680-04-71



PLAN

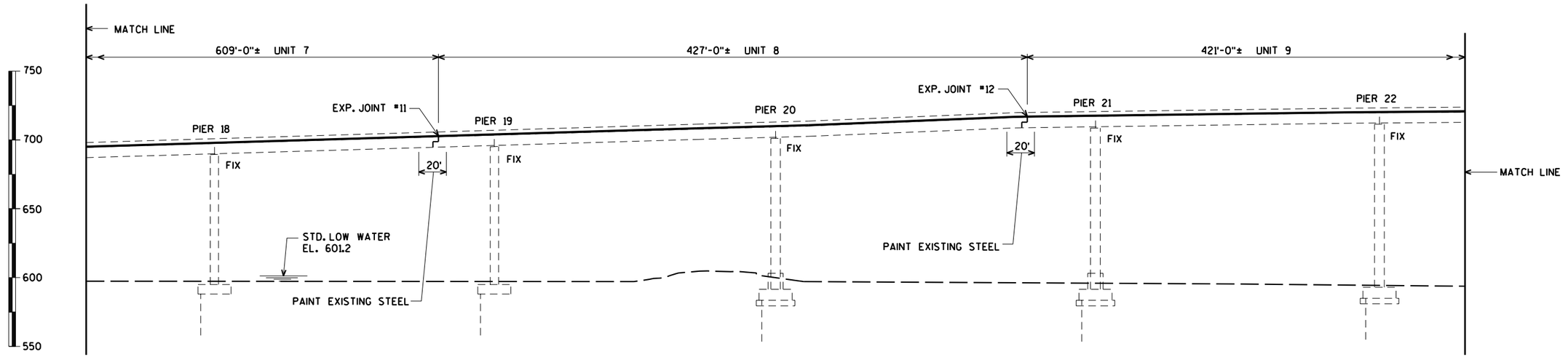
WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

CURVE DATA

USH 2 ℄
P.I. STA. 61+39.96
△=64°-00'-00.1"
D=3°-30'
T=1,022.93'
L=1,828.57'
R=1,637.02'
S.E.=0.052'/'
P.C. STA. 51+17.04
P.T. STA. 69+45.61

⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
7 THRU 9

SHEET 4 OF 99
350

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

$PRFNAME$
U:±42-0825.00 - USH 2 St. Louis River Bong Bridge±BRIDGE±42-0825 gp4.dgn

9/12/2013

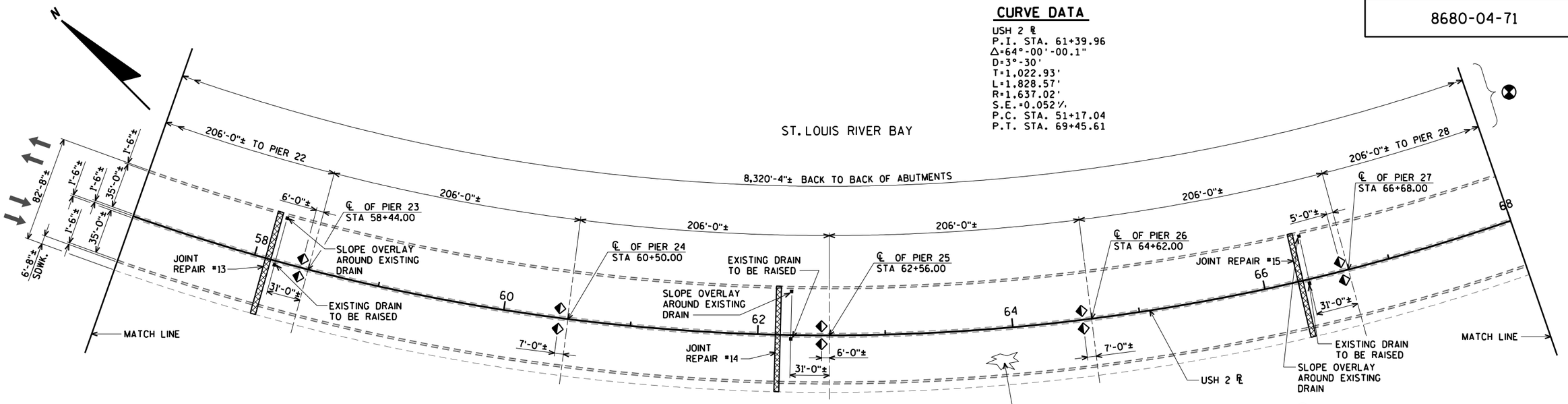
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STATE PROJECT NUMBER

8680-04-71

CURVE DATA

USH 2 ℄
P.I. STA. 61+39.96
Δ=64°-00'-00.1"
D=3°-30'
T=1,022.93'
L=1,828.57'
R=1,637.02'
S.E.=0.052 ⅟.
P.C. STA. 51+17.04
P.T. STA. 69+45.61

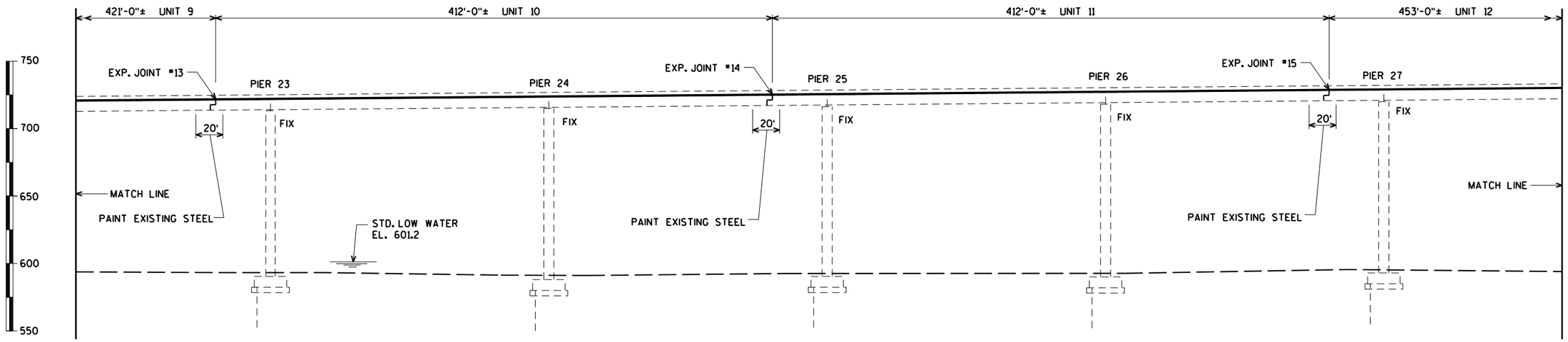


MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.

LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

GENERAL PLAN
UNITS
9 THRU 12

SHEET 5 OF 99
351

ORIGINAL PLANS PREPARED BY
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9/12/2013

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER

8680-04-71

N

ST. LOUIS RIVER

STATE LINE

400'-0" NAVIGATION SPAN

8,320'-4"± BACK TO BACK OF ABUTMENTS

● THE STATE LINE IS CURRENTLY MARKED IN THE EXISTING PARAPETS. THE CONTRACTOR WILL PLACE THE STATE LINE REFERENCE PLATES IN THE MARKED LOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE THAT THE EXISTING MARKS ARE NOT DESTROYED.

206'-0"± TO PIER 27

206'-0"±

500'-0"±

205'-0"±

205'-0"± TO PIER 32

CHANNEL LIMIT

℄ OF PIER 28 STA 68+74.00

℄ OF PIER 29 STA 70+80.00

STA. 72+21.39 USH 2 ℞ = BASE LINE OF CHANNEL

℄ OF PIER 30 STA 75+80.00

℄ OF PIER 31 STA 77+85.00

USH 2 ℞

SLOPE OVERLAY AROUND EXISTING DRAIN

82'-8"±

1'-6"±

1'-6"±

35'-0"±

1'-6"±

1'-6"±

35'-0"±

1'-6"±

6'-8"± SDWK.

68

70

72

74

76

78

6'-0"

74°-26'-52.8"

25'-0"±

4'-0"±

STATE LINE REFERENCE PLATE

JOINT REPAIR #16

JOINT REPAIR #17

JOINT REPAIR #18

7'-0"±

10'-0"±

39'-0"±

85'-0"±

MANHOLE TO BE REPLACED

S 74°04'31" E

HARBOR LINE

PT 69+45.61

MATCH LINE

CHANNEL LIMIT

BASE LINE OF CHANNEL

WISCONSIN MINNESOTA

FULL DEPTH DECK REPAIR AS DIRECTED BY THE ENGINEER

350'-0"±

500'-0"±

150'-0"±

DOLPHIN - TYP.

CURVE DATA

USH 2 ℞
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△=64°-00'-00.1"
D=3°-30'
T=1,022.93'
L=1,828.57'
R=1,637.02'
S.E.=0.052 ½
P.C. STA. 51+17.04
P.T. STA. 69+45.61

PLAN

WELDED STEEL PLATE GIRDER, CONCRETE HAUNCHED SLAB, & STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

✳ POLES TO BE REMOVED, BASES TO BE REPLACED, AND THEN THE POLES TO BE RE-INSTALLED ONTO THE EXISTING ANCHORS. LIGHTS TO ALSO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊗ MEASURED ALONG USH 2 WB ℞ & USH 2 ℞. NOTE BASE LINE SHIFT AT STA. 43+07.85.

◆ LIGHTS TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

500'-0"± UNIT 13

ARCH, TIED ARCH, GIRDERS, STRINGERS, FLOOR BEAMS, BEARINGS, AND ALL OTHER MISCELLANEOUS STEEL IN UNIT 13 TO BE PAINTED

MATCH LINE

453'-0"± UNIT 12

PIER 28

PIER 29

EXP. JOINT #16

EXP. JOINT #17

PIER 30

EXP. JOINT #18

570'-0"± UNIT 14

PIER 31

750

700

650

600

550

FIX

EXP. 10'

EXP.

120'-0"± VERT. CLEARANCE

180 DEGREES RED NAVIGATIONAL LIGHTS

NAVIGATIONAL LIGHTING TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS - TYP.

360 DEGREES GREEN NAVIGATIONAL LIGHTS

INSIDE OF THE TIED ARCH GIRDERS TO BE PAINTED

180 DEGREES RED NAVIGATIONAL LIGHTS

NAVIGATIONAL LIGHTING TO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS - TYP.

PAINT EXISTING STEEL

360 DEGREES RED NAVIGATIONAL LIGHTS TYP. @ DOLPHINS

STD. LOW WATER EL. 601.2

DOLPHIN - TYP.

STREAM BED EL. 572.7±

ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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GENERAL PLAN
UNITS
12 THRU 14

SHEET 6 OF 99
352

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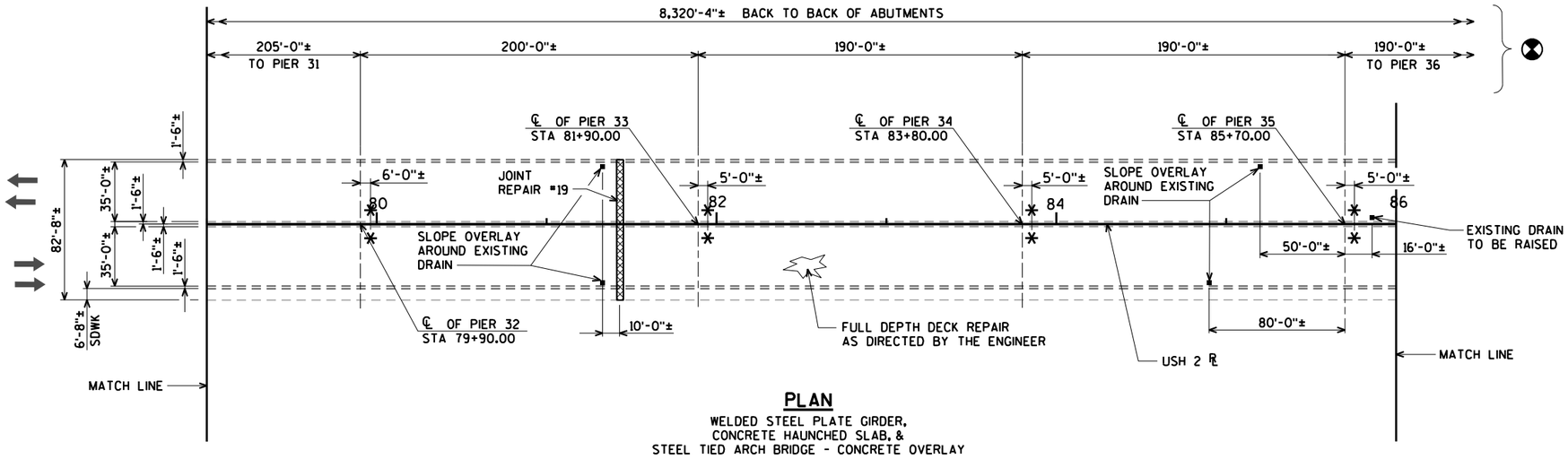
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9/12/2013

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STATE PROJECT NUMBER

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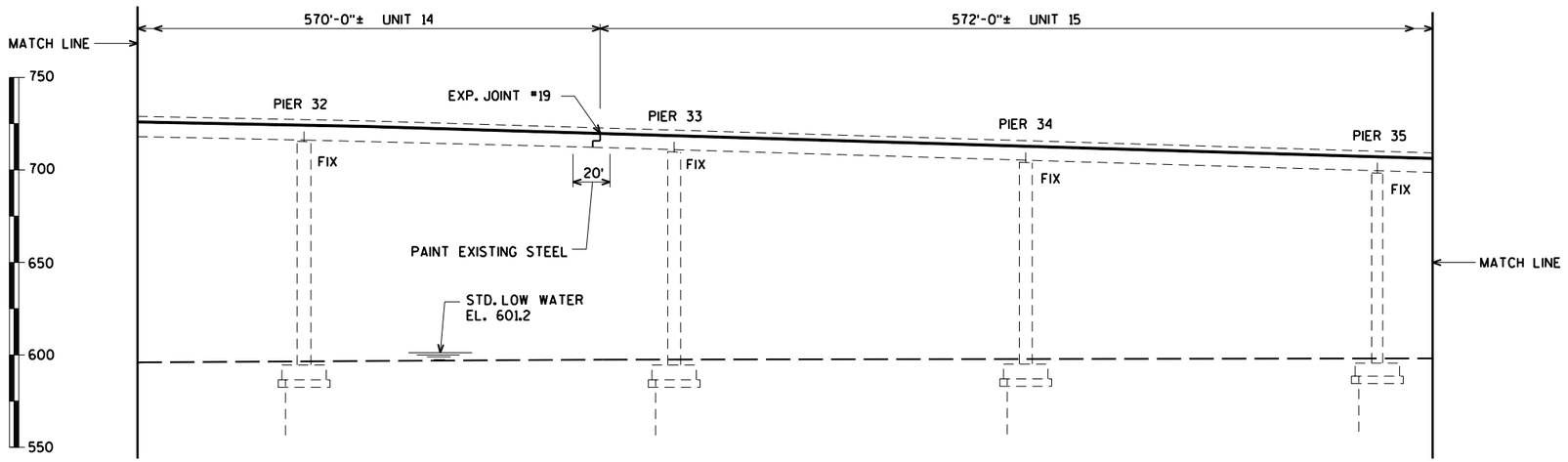


PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

* POLES TO BE REMOVED, BASES TO BE REPLACED, AND THEN THE POLES TO BE RE-INSTALLED ONTO THE EXISTING ANCHORS. LIGHTS TO ALSO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

⊗ MEASURED ALONG USH 2 WB ℄ & USH 2 ℄. NOTE BASE LINE SHIFT AT STA. 43+07.85.



ELEVATION

(NORMAL TO SUBSTRUCTURE UNITS)

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STRUCTURE B-16-38/69100

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GENERAL PLAN
UNITS
14 & 15

SHEET 7 OF 99
353

ORIGINAL PLANS PREPARED BY
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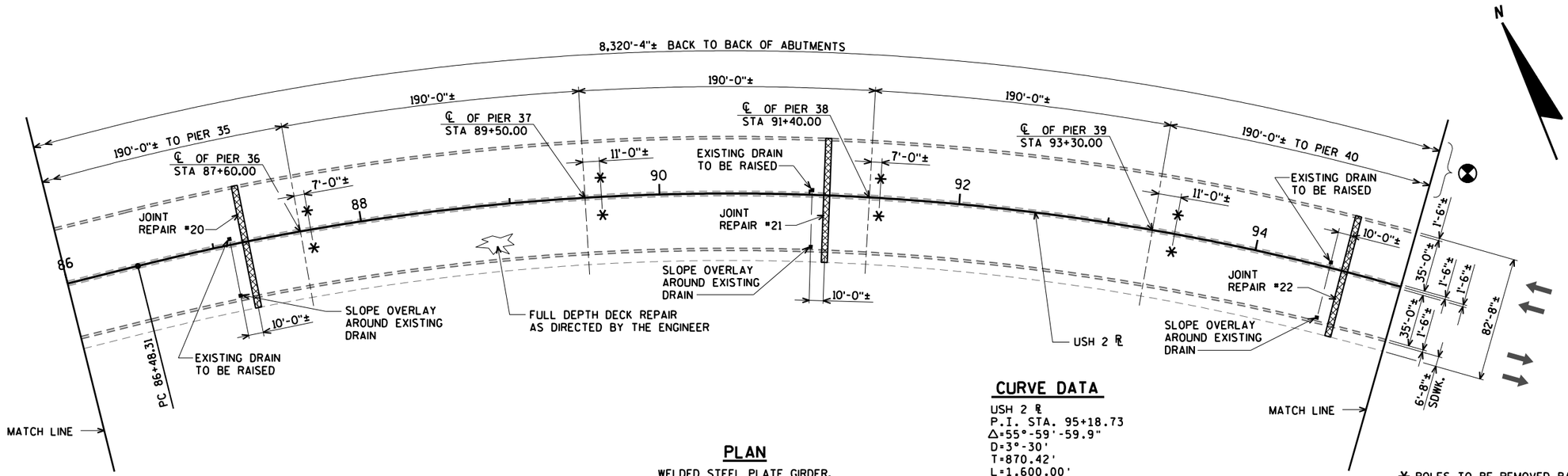
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9/12/2013

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PLAN

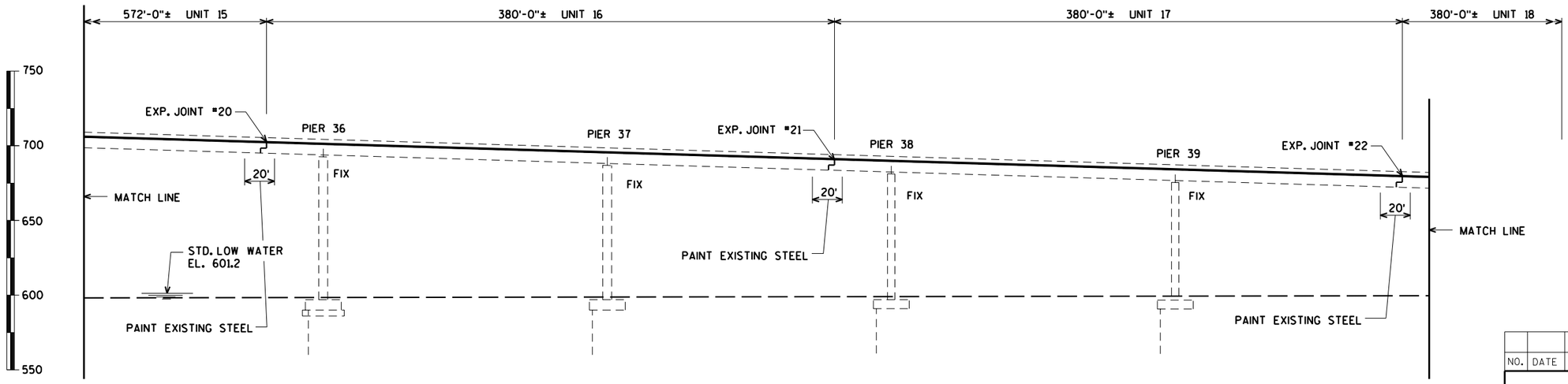
WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

CURVE DATA

USH 2 ℄
P.I. STA. 95+18.73
△=55°-59'-59.9"
D=3°-30'
T=870.42'
L=1,600.00'
R=1,637.02'
S.E.=0.052 ⅟.
P.C. STA. 86+48.31
P.T. STA. 102+48.31

* POLES TO BE REMOVED, BASES TO BE REPLACED, AND THEN THE POLES TO BE RE-INSTALLED ONTO THE EXISTING ANCHORS. LIGHTS TO ALSO BE REPLACED WITH LED LIGHTS. SEE LIGHTING PLANS.

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(NORMAL TO SUBSTRUCTURE UNITS)

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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GENERAL PLAN
UNITS
15 THRU 18

SHEET 8 OF 99
354

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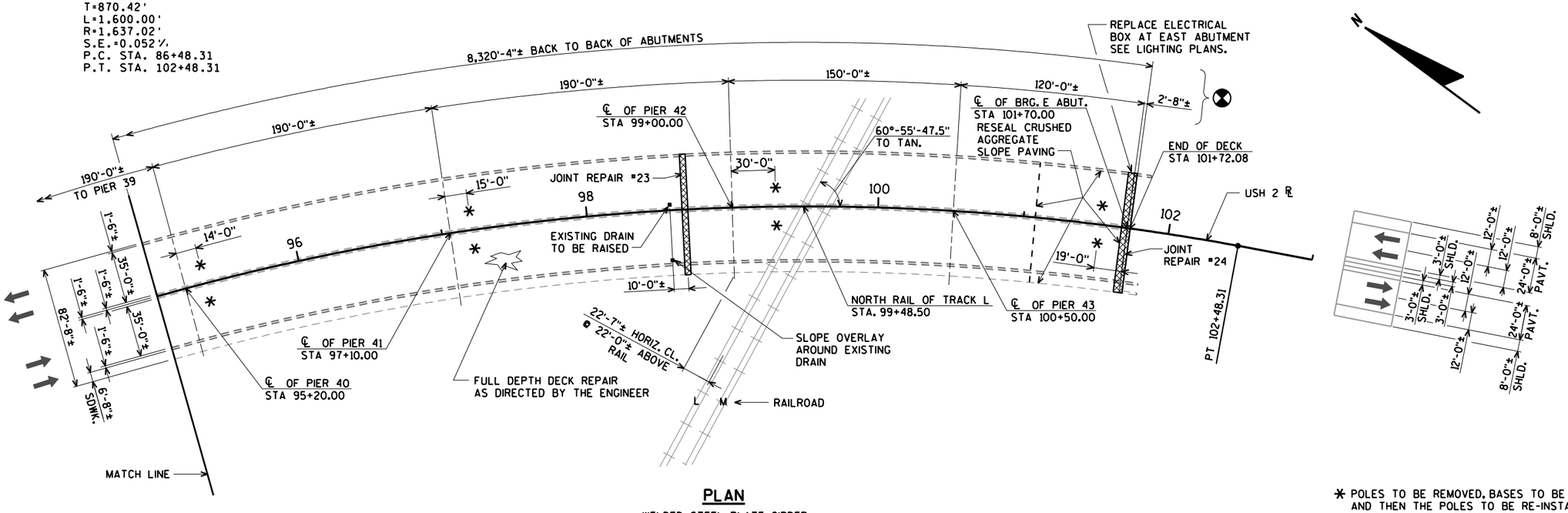
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STATE PROJECT NUMBER

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CURVE DATA

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P.I. STA. 95+18.73
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D=3°-30'
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R=1,637.02'
S.E.=0.052 ⅟.
P.C. STA. 86+48.31
P.T. STA. 102+48.31

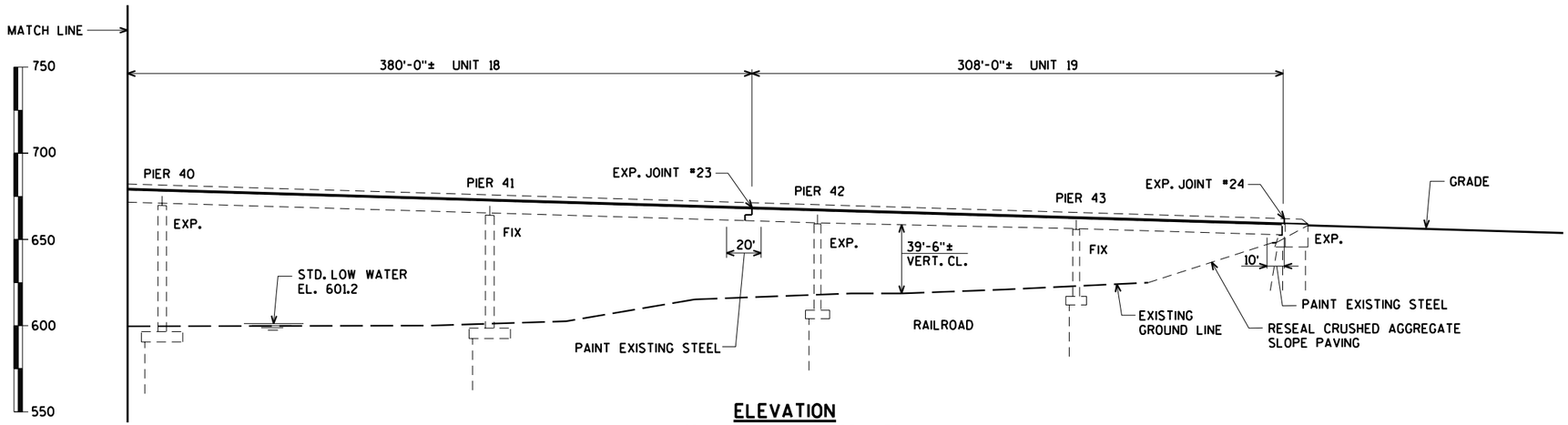


PLAN

WELDED STEEL PLATE GIRDER,
CONCRETE HAUNCHED SLAB, &
STEEL TIED ARCH BRIDGE - CONCRETE OVERLAY

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STRUCTURE B-16-38/69100

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GENERAL PLAN
UNITS
18 & 19

SHEET 9 OF 99
355

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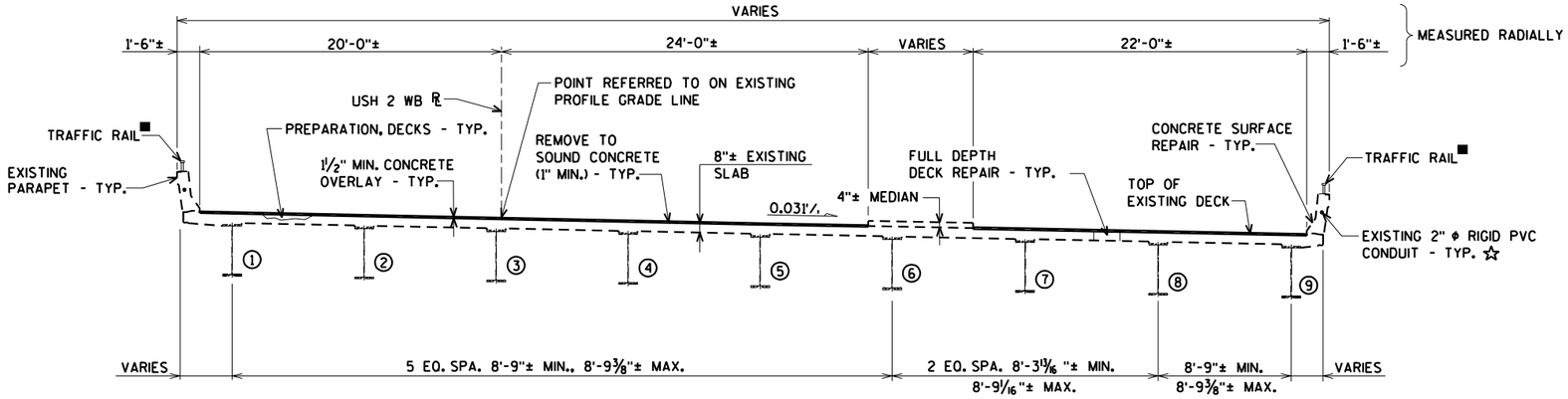
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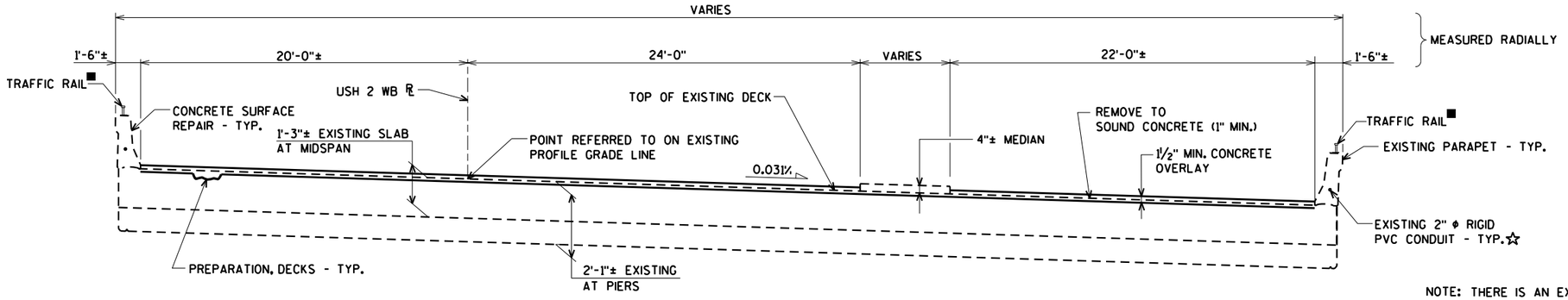
STATE PROJECT NUMBER

8680-04-71



CROSS SECTION THRU ROADWAY - UNIT 1

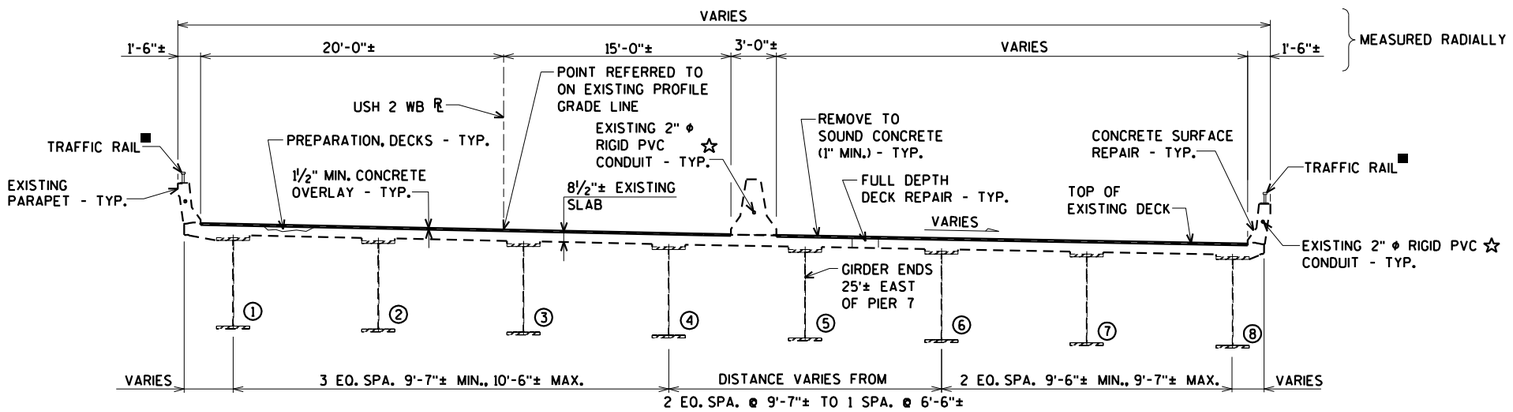
(LOOKING EAST)



CROSS SECTION THRU ROADWAY - UNIT 2

(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 2" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 22+35±



CROSS SECTION THRU ROADWAY - UNIT 3

(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 25+38±

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CROSS SECTIONS UNITS 1 - 3

SHEET 10 OF 99
356

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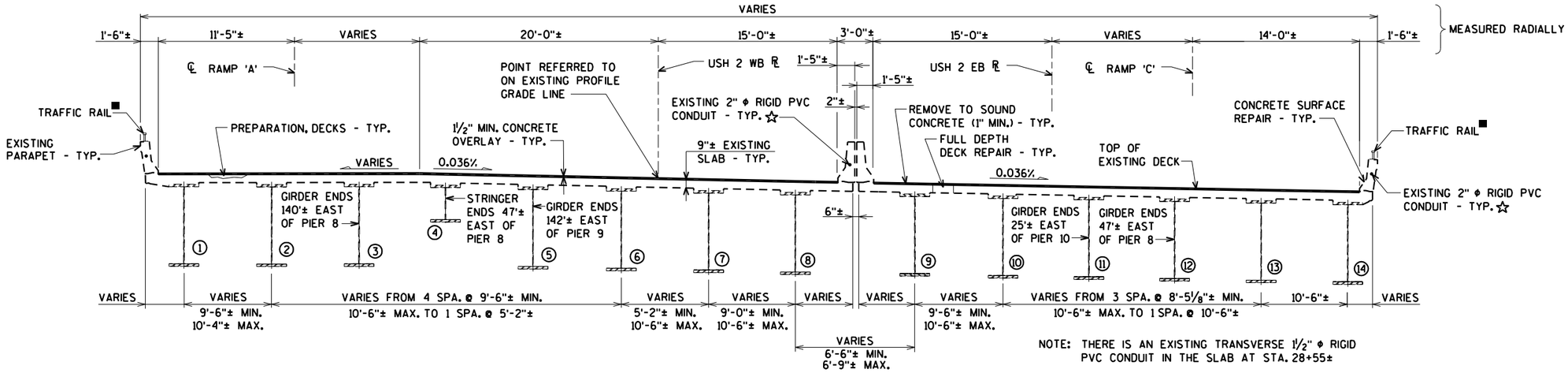
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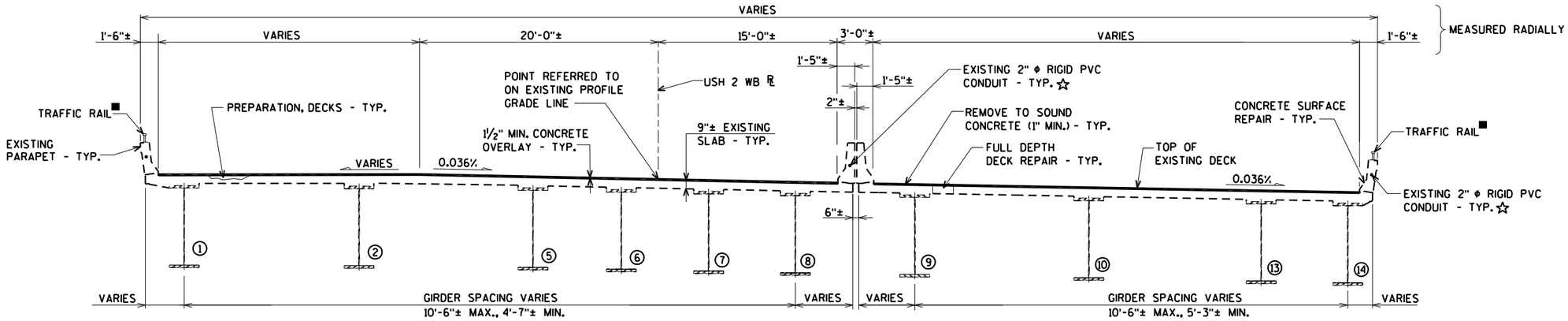
9/12/2013

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CROSS SECTION THRU ROADWAY - UNIT 4 @ WEST END NEAR RAMPS

(LOOKING EAST)



CROSS SECTION THRU ROADWAY - UNIT 4

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CROSS SECTIONS UNIT 4

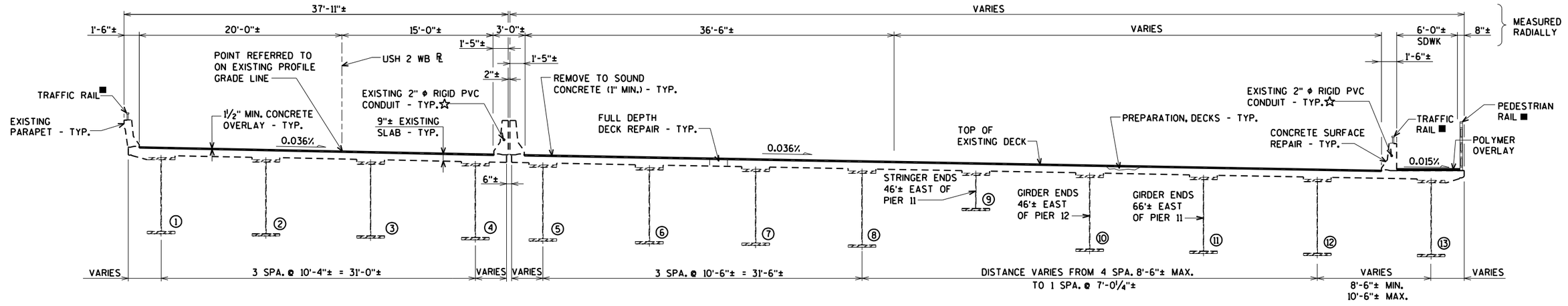
SHEET 11 OF 99
357

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STATE PROJECT NUMBER

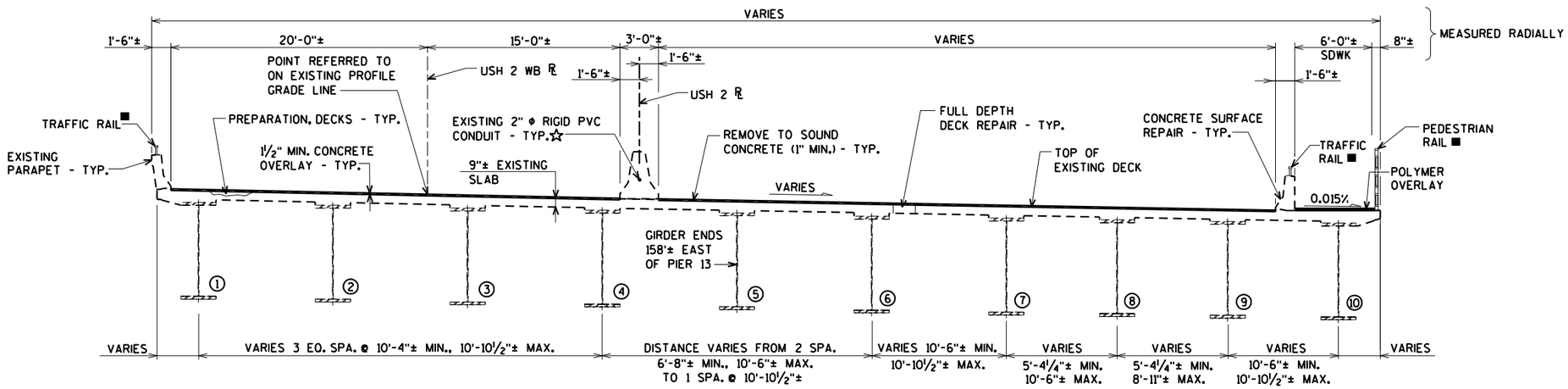
8680-04-71



CROSS SECTION THRU ROADWAY - UNIT 5

(LOOKING EAST)

NOTE: THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 34+25±



CROSS SECTION THRU ROADWAY - UNIT 6

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

CROSS SECTIONS UNITS 5 & 6

SHEET 12 OF 99
358

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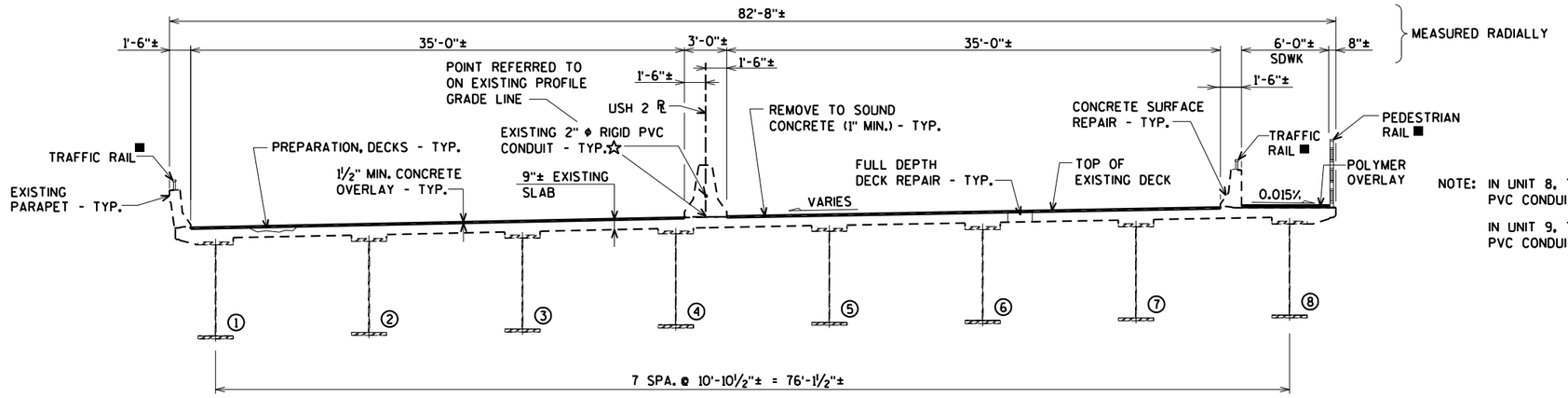
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9/12/2013

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STATE PROJECT NUMBER

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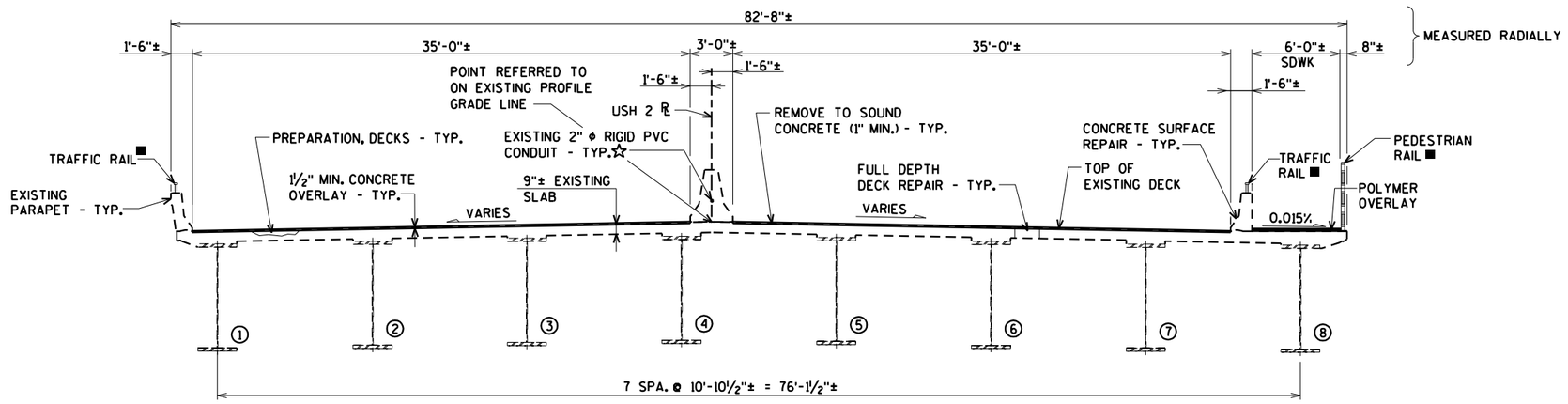


CROSS SECTION THRU ROADWAY - UNITS 8-12

(LOOKING EAST)

NOTE: IN UNIT 8, THERE IS AN EXISTING TRANSVERSE 2" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 52+00±

IN UNIT 9, THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 54+48±

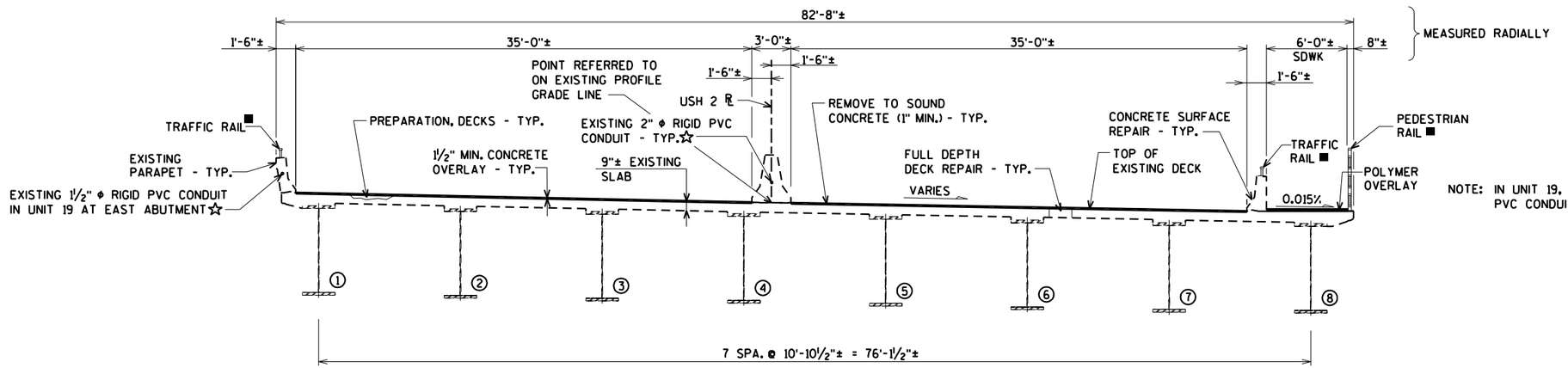


CROSS SECTION THRU ROADWAY - UNITS 7, 14-15

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

☆ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING JOINT REPLACEMENT CONSTRUCTION. SEE LIGHTING PLANS.



CROSS SECTION THRU ROADWAY - UNITS 16-19

(LOOKING EAST)

NOTE: IN UNIT 19, THERE IS AN EXISTING TRANSVERSE 1½" ϕ RIGID PVC CONDUIT IN THE SLAB AT STA. 101+51±

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CROSS SECTIONS UNITS 7-12, 14-19

SHEET 13 OF 99
359

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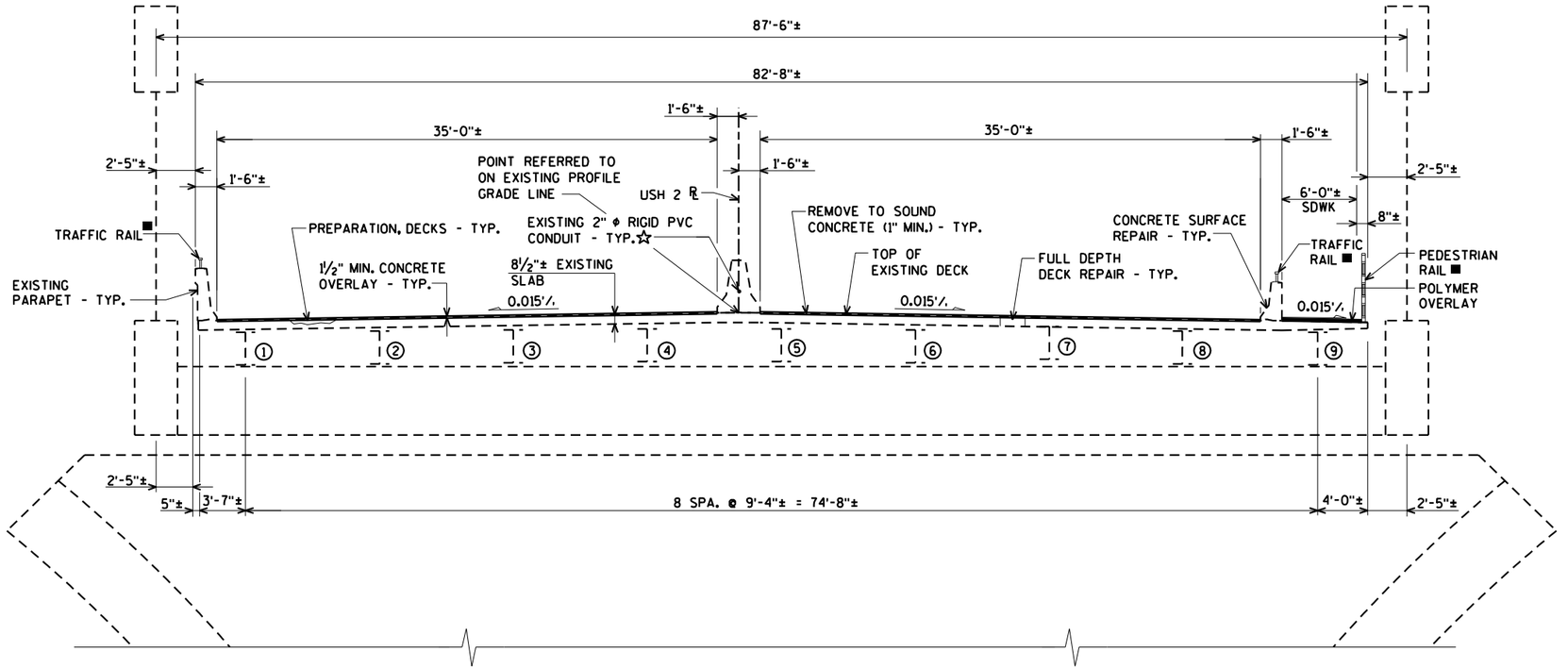
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9/12/2013

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STATE PROJECT NUMBER

8680-04-71



CROSS SECTION THRU ROADWAY - UNIT 13

(LOOKING EAST)

■ REMOVE THE EXISTING CAULK FROM AROUND THE BASE PLATES AND RE-CAULK.

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

CROSS SECTION
UNIT 13

SHEET 14 OF 99
360

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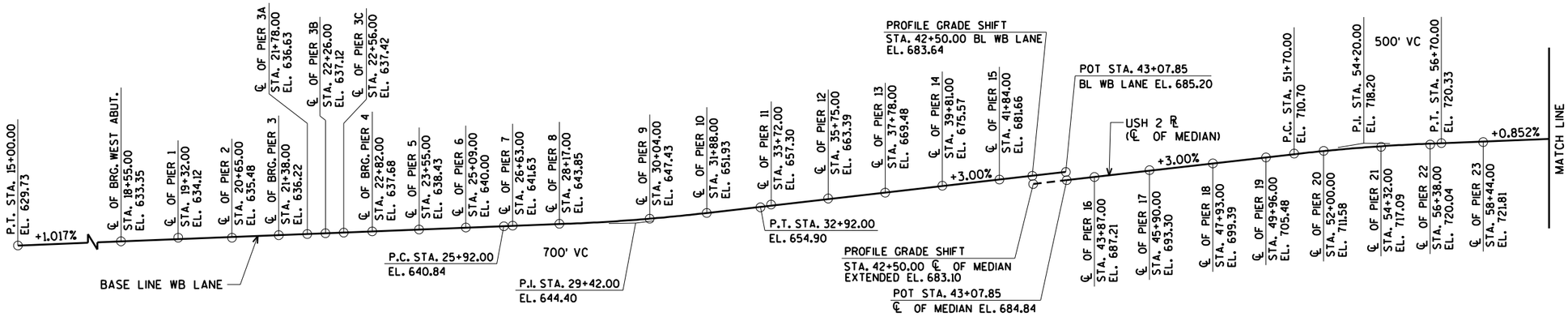
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9/12/2013

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STATE PROJECT NUMBER

8680-04-71



EXISTING PROFILE GRADE LINE - USH 2 ◪

NOTES

NEW PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 1¾".

VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

◪ EXISTING PROFILE BASED ON THE ORIGINAL PLANS

BENCH MARKS ON MN SIDE:

NAIL IN NW QUAD CALILIO DR./46TH AVE.
STA. 10+43.12, 67.30' RT.
EL. 629.66

NAIL IN NW QUAD USH 2 AND SB 35 OFF-RAMP
STA. 17+56.16, 85.30' RT.
EL. 629.74

BENCH MARKS ON WI SIDE:

REBAR EAST OF WB USH 2
STA. 105+61.66
EL. 648.19

REBAR EAST OF WB USH 2
STA. 103+06.32, 51.92' LT.
EL. 652.29

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXISTING PROFILE GRADE LINE

SHEET 15 OF 99
361

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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9/12/2013

PENTABLE:BReau_shd_util.tbl

TOTAL ESTIMATED QUANTITIES

	BID ITEM NUMBER	BID ITEMS	UNIT	TOTAL
	203.0225.S.01	DEBRIS CONTAINMENT B-16-38	LS	1
	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STATION 60+12	LS	1
	204.9060.S	REMOVING CRASH CUSHIONS	EACH	2
	502.0100	CONCRETE MASONRY BRIDGES	CY	160
	502.3100	EXPANSION DEVICE B-16-38	LS	1
	502.3110.S	EXPANSION DEVICE MODULAR B-16-38	LS	1
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	67,190
	502.5005	MASONRY ANCHORS TYPE L No. 5 BARS	EACH	459
	502.5010	MASONRY ANCHORS TYPE L No. 6 BARS	EACH	2,565
	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	91,630
	505.0904	BAR COUPLERS NO. 4	EACH	34
	505.0906	BAR COUPLERS NO. 6	EACH	285
	509.0301	PREPARATION DECKS TYPE 1	SY	6,680
	509.0302	PREPARATION DECKS TYPE 2	SY	670
	509.0500	CLEANING DECKS	SY	66,770
	509.1000	JOINT REPAIR	SY	1,417
◑	509.1500	CONCRETE SURFACE REPAIR	SF	1,000
	509.2000	FULL-DEPTH DECK REPAIR	SY	70
	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	3,750
	509.5100.S	POLYMER OVERLAY	SY	4,650
	513.2050.S	RAILING PIPE	LF	110
	514.0900	ADJUSTING FLOOR DRAINS	EACH	26
▲	517.0900.S	PREPARATION AND COATING OF TOP FLANGES B-16-38	LS	1
	517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-16-38	LS	1
	517.4000.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-38	LS	1
	517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-16-38	LS	1
	517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1
	604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	1,300
	614.0800	CRASH CUSHIONS PERMANENT	EACH	2
	SPV.0060.01	CABLE SHIM REPLACEMENT	EACH	44
	SPV.0060.02	TEMPORARY MEDIAN GUARDRAIL	EACH	18
	SPV.0060.03	FIBERGLASS DOWNSPOUTS	EACH	49
	SPV.0060.04	DRAIN GRATE CASTINGS	EACH	54
	SPV.0060.05	TIE GIRDER DOOR REPLACEMENT	EACH	4
	SPV.0060.06	STRUCTURE SIDEWALK MANHOLE	EACH	3
	SPV.0060.07	CLEANING AND PAINTING CABLE COLLARS	EACH	44
	SPV.0090.01	SUSPENDER CABLE COATING	LF	2,210
	SPV.0105.01	STRUCTURE REPAINTING INSIDE TIED ARCH RECYCLED ABRASIVE STRUCTURE B-16-38	LS	1
	SPV.0105.02	REPAIR TRAFFIC RAILING	LS	1
	SPV.0105.15	RE-CAULK RAILING BASE PLATES	LS	1
☆	SPV.0165.01	OVERHEAD CONCRETE SURFACE REPAIR	SF	5,300
	SPV.0180.01	EPOXY SEALER	SY	3,450
	SPV.0180.02	RESEAL PARAPETS	SY	15,000
		NON-BID ITEMS		
		FILLER	SIZE	½"

◑ UNDISTRIBUTED FOR PARAPETS AS DIRECTED IN THE FIELD BY THE ENGINEER.

☆ SIDEWALK OVERHANG

▲ EXPOSED BEAMS AT THE JOINT REPAIR AREAS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-21
OPERATING RATING: HS-35
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 210 KIPS

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY { SLAB ____ f'_c = 4,000 p.s.i.
ALL OTHER ____ f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ____ f_y = 60,000 p.s.i.
STRUCTURAL CARBON STEEL (A.S.T.M. A588 GRADE 50) ____ f_y = 50,000 p.s.i.

TRAFFIC DATA:

A.D.T. = 19,000 (2015)
A.D.T. = 23,000 (2035)
R.D.S. = 55 M.P.H.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL PLANS.

THE FIRST DIGIT OF A THREE DIGIT BAR NO. OR THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT.

PREPARATION DECKS AND CONCRETE SURFACE REPAIR AND FULL DEPTH DECK REPAIR SHALL BE AS DETERMINED BY THE ENGINEER IN THE FIELD.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE TOP OF THE OVERLAY AND THE TOPS AND SIDES OF THE MEDIAN PER MANUFACTURERS RECOMMENDATIONS.

PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 1¾". VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER THE BID ITEM "PREPARATION DECKS".

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM, "CLEANING DECKS", BUT LESS THAN 1½" MAXIMUM.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR PAVING BLOCKS AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM 'CONCRETE MASONRY OVERLAY DECKS'.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

ORIGINAL CONSTRUCTION YEAR IS 1981.

THE COLOR OF THE FINISH EPOXY TOP COAT FOR THE OUTSIDE OF THE ARCH, TIED ARCH GIRDERS, STRINGERS, FLOOR BEAMS, BEARINGS, AND ALL OTHER MISCELLANEOUS STEEL IN UNIT 13 SHALL BE BLUE (FEDERAL STANDARD COLOR NO. 25240).

THE COLOR OF THE FINISH EPOXY TOP COAT FOR ALL THE AREAS AROUND THE JOINT REPAIRS SHALL BE BROWN (FEDERAL STANDARD COLOR NO. 20059).

THE COLOR OF THE FINISH EPOXY TOP COAT FOR ALL THE INSIDE OF THE TIED ARCH GIRDERS OF UNIT 13 SHALL BE WHITE (FEDERAL STANDARD COLOR NO. 27925).

PIGMENTED PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED TO THE INSIDE FACES AND TOPS OF THE PARAPETS PER MANUFACTURERS RECOMMENDATIONS UNDER THE BID ITEM "RESEAL PARAPETS". THE COVER OF THE PIGMENTED PROTECTIVE SURFACE TREATMENT SHALL BE WHITE.

THE COLOR OF THE POLYMER OVERLAY SHALL BE BROWN.

THE INSIDE FACES AND TOP SURFACES OF THE OUTSIDE PARAPETS, THE MEDIAN PARAPETS, AND THE SIDEWALK PARAPETS WILL BE RESEALED. SEE SPECIAL PROVISIONS.

THE CONCRETE APPROACH SLABS WILL NEED TO BE 1'-0½"± THICK AT THE ABUTMENTS.

LONGITUDINAL CONSTRUCTION JOINTS IN THE CONCRETE OVERLAY NEED TO BE PLACED AT THE EDGE OF THE LANE LINES.

SALVAGE AND REINSTALL THE EXISTING NAME PLATES IF THEY WILL BE DISTURBED DURING JOINT REPAIR OPERATIONS. COST FOR SALVAGING AND REINSTALLING EXISTING NAME PLATES, IF REQ'D., WILL BE INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

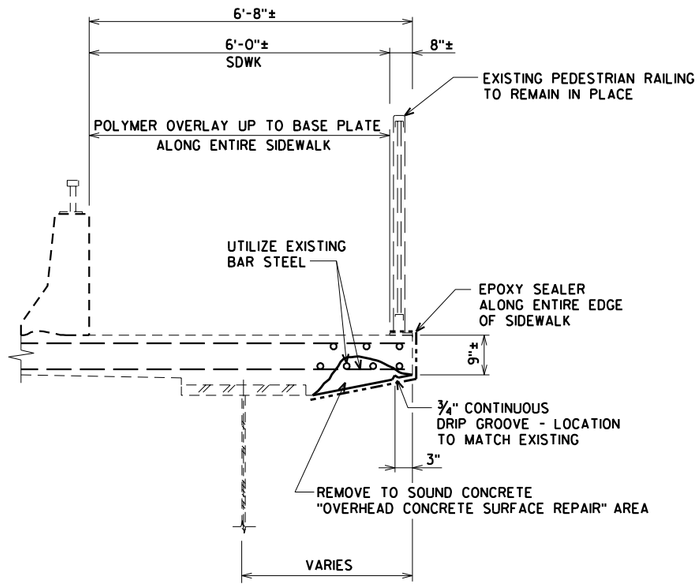
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DESIGN DATA, QUANTITIES AND NOTES

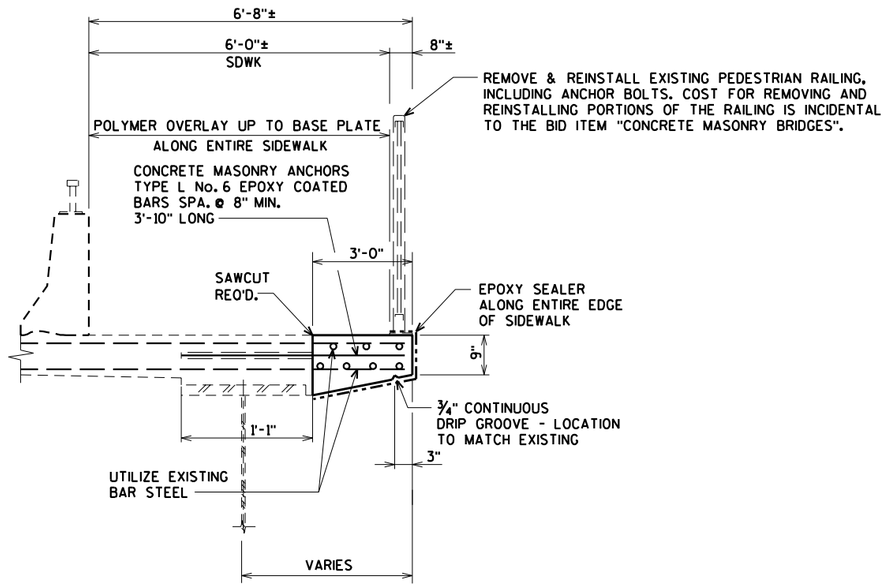
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OVERHANG REPAIR TYPE I



OVERHANG REPAIR TYPE II

ESTIMATED QUANTITIES FOR OVERHANG REPAIR TYPE II

CONCRETE MASONRY BRIDGES - 160 CY
BAR STEEL REINFORCEMENT HS COATED BRIDGES - 14,760 LBS
CONCRETE MASONRY ANCHORS TYPE L No. 6 BARS - 2,565 EACH

NOTES:

THE COLOR OF THE POLYMER OVERLAY SHALL BE BROWN.

OVERHANG REPAIR AREAS TYPE I AND II WILL BE DETERMINED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR WILL PROVIDE ACCESS TO THE SIDEWALK OVERHANG AREA FOR THE ENGINEER IN ORDER TO DETERMINE THE SIDEWALK REPAIR AREAS. COST FOR PROVIDING ACCESS TO THE SIDEWALK OVERHANG AREAS FOR THE ENGINEER IS INCIDENTAL TO THE BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STATION 60+12".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-16-38/69100

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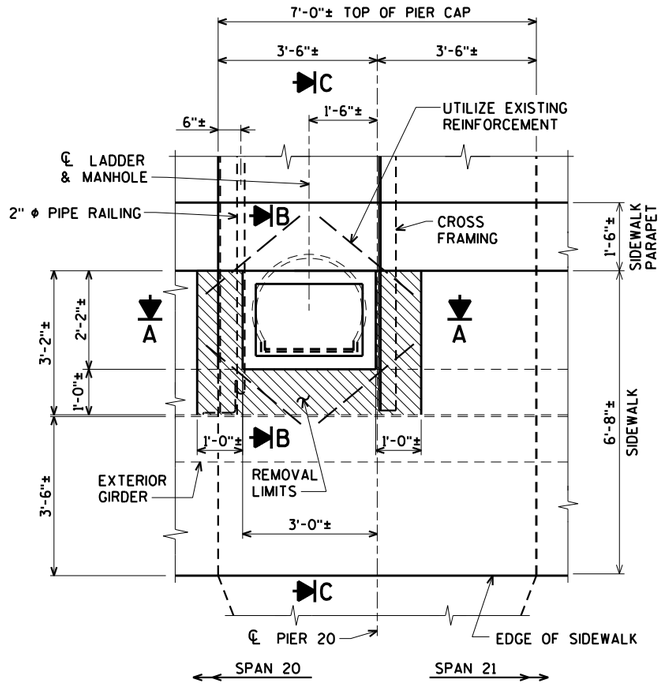
SIDEWALK OVERHANG REPAIR DETAILS

SHEET 17 OF 99
363

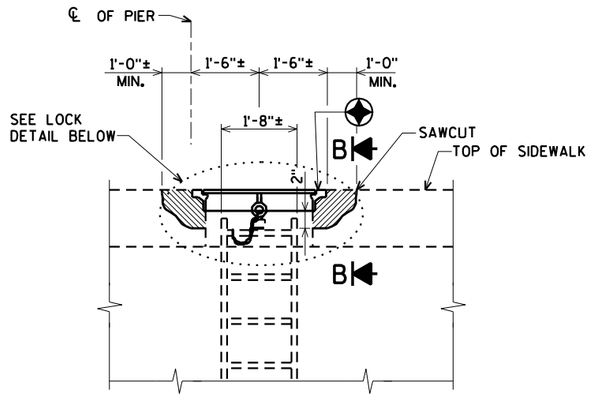
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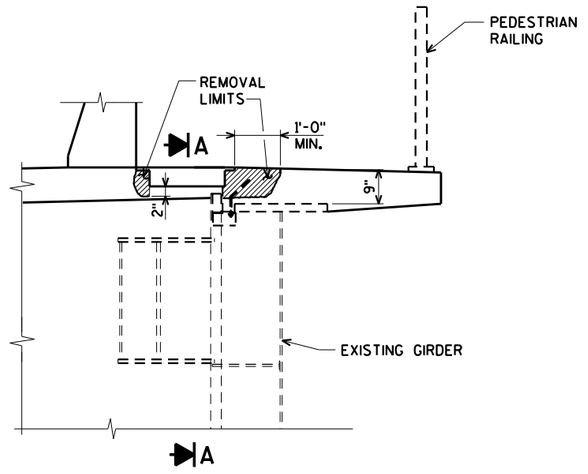
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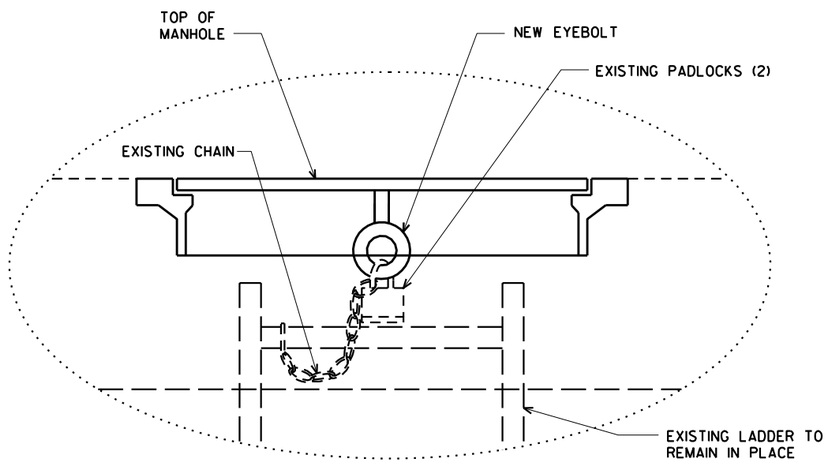
PLAN @ PIER 20



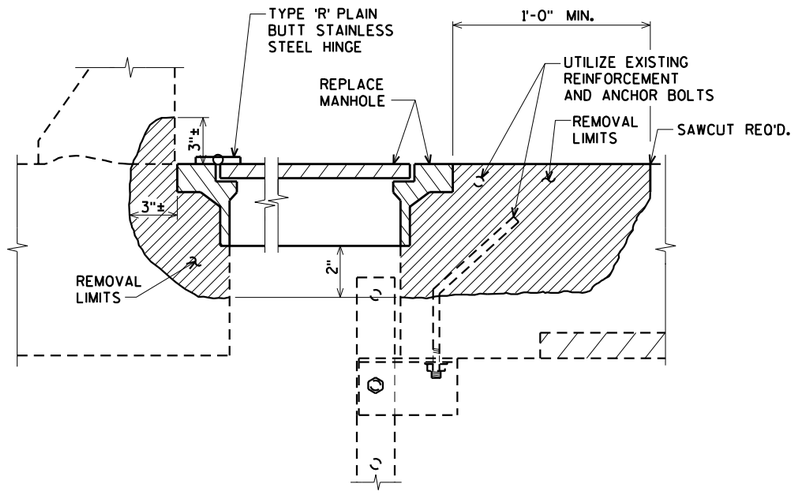
SECTION A



SECTION C



LOCK DETAIL



SECTION B

GENERAL NOTES

BID ITEM WILL BE "STRUCTURAL SIDEWALK MANHOLE", WHICH INCLUDES ALL ITEMS SHOWN.

◈ MANHOLE - (NEENAH R6665-3FH) OR APPROVED EQUAL. COUNTERSUNK FLAT HEAD STAINLESS STEEL BOLTS & TYPE 'R' PLAIN BUTT STAINLESS STEEL HINGE. TYPE 'C' DROP HANDLE REQ'D. EYEBOLT REQ'D. ON BOTTOM OF CASTING.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK MANHOLE REPLACEMENT DTLS PIER 20

SHEET 18 OF 99
364

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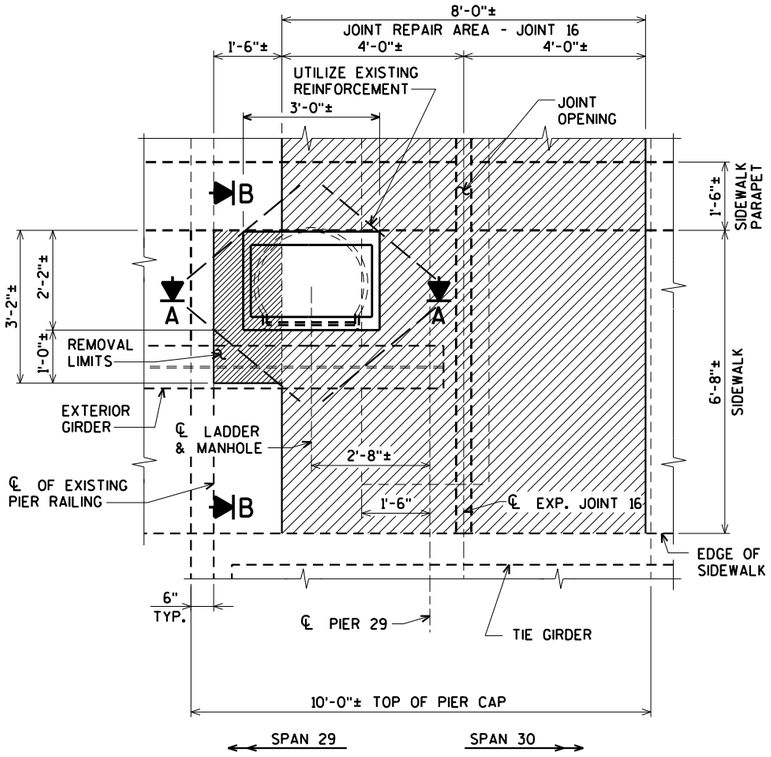
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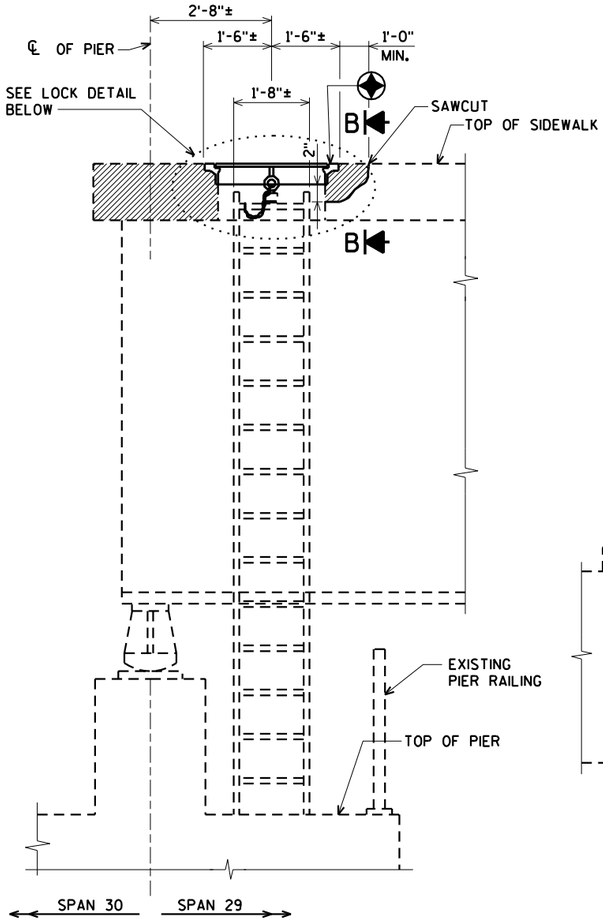
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STATE PROJECT NUMBER

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PLAN @ PIER 29

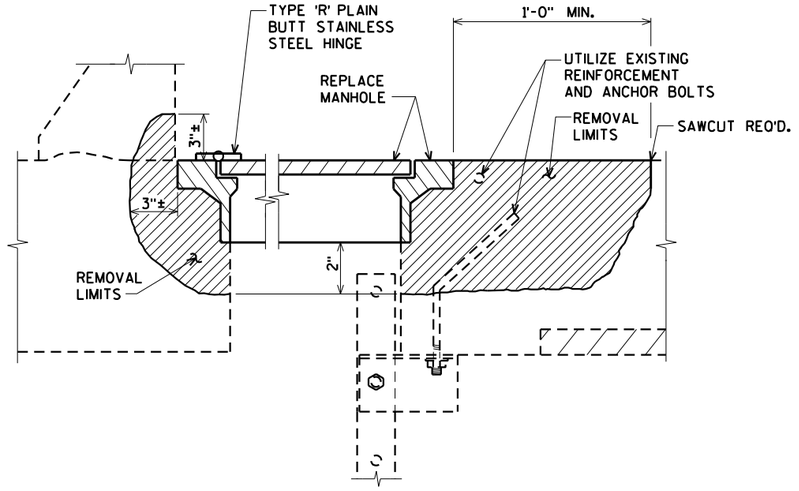


SECTION A

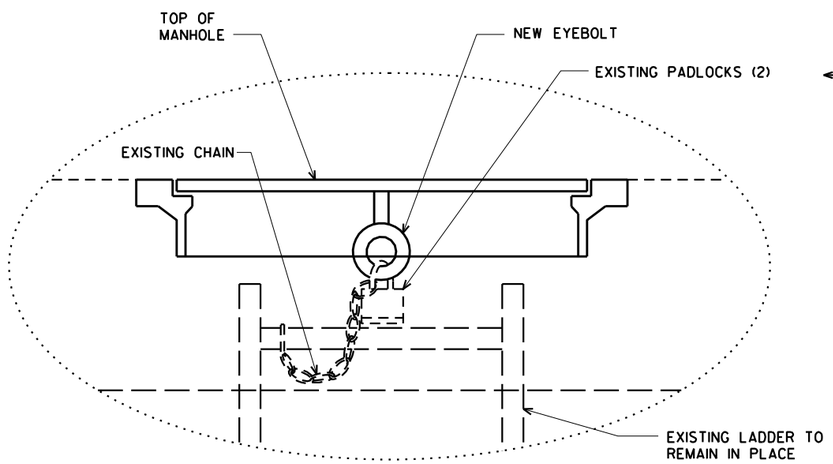
GENERAL NOTES

BID ITEM WILL BE "STRUCTURAL SIDEWALK MANHOLE", WHICH INCLUDES ALL ITEMS SHOWN.

MANHOLE - (NEENAH R6665-3FH) OR APPROVED EQUAL. COUNTERSUNK FLAT HEAD STAINLESS STEEL BOLTS & TYPE 'R' PLAIN BUTT STAINLESS STEEL HINGE. TYPE 'C' DROP HANDLE REQ'D. EYEBOLT REQ'D. ON BOTTOM OF CASTING.



SECTION B



LOCK DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK MANHOLE REPLACEMENT DTLS PIER 29

SHEET 19 OF 99
365

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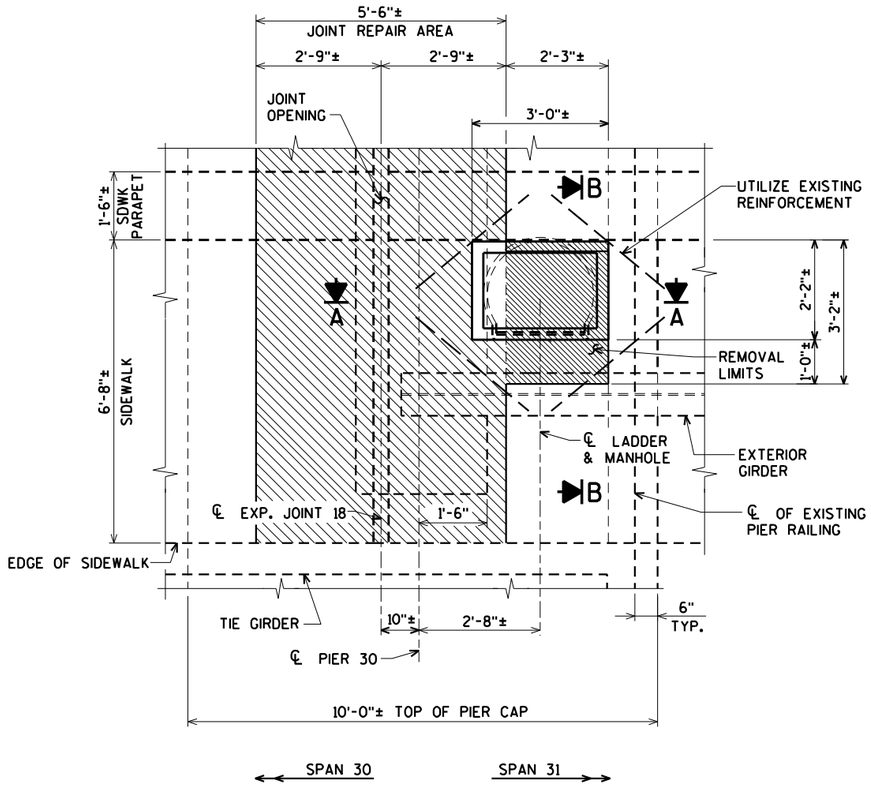
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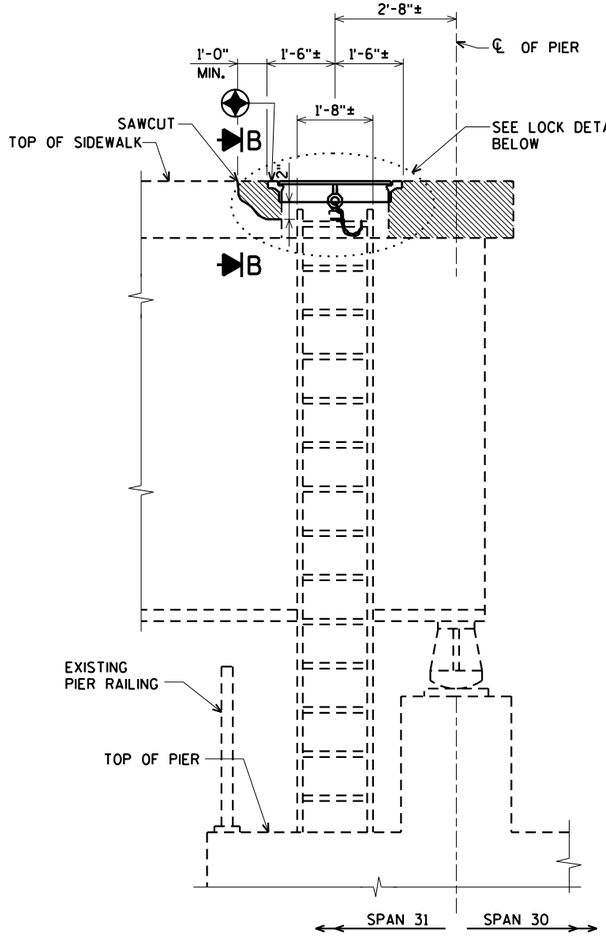
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STATE PROJECT NUMBER

8680-04-71



PLAN @ PIER 30

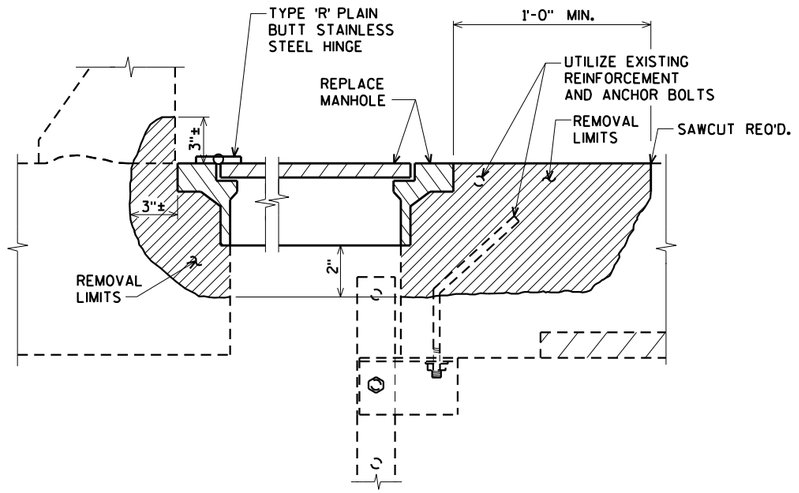


SECTION A

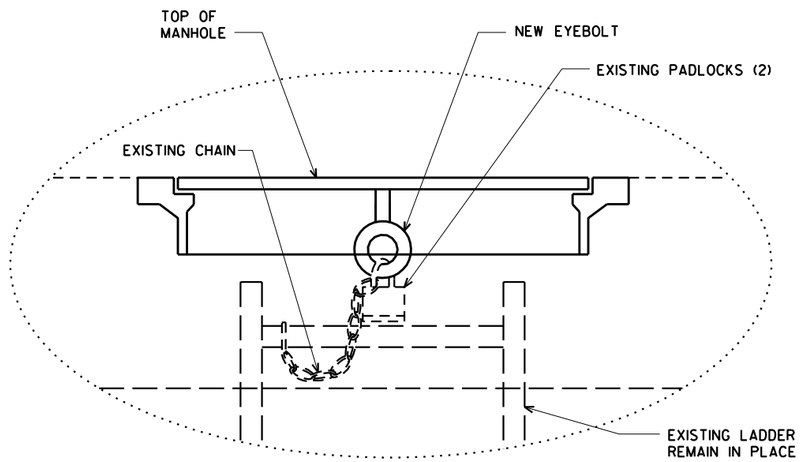
GENERAL NOTES

BID ITEM WILL BE "STRUCTURAL SIDEWALK MANHOLE", WHICH INCLUDES ALL ITEMS SHOWN.

MANHOLE - (NEENAH R6665-3FH) OR APPROVED EQUAL. COUNTERSUNK FLAT HEAD STAINLESS STEEL BOLTS & TYPE 'R' PLAIN BUTT STAINLESS STEEL HINGE. TYPE 'C' DROP HANDLE REQ'D. EYEBOLT REQ'D. ON BOTTOM OF CASTING.



SECTION B



LOCK DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK MANHOLE REPLACEMENT DTLS PIER 30

SHEET 20 OF 99
366

ORIGINAL PLANS PREPARED BY
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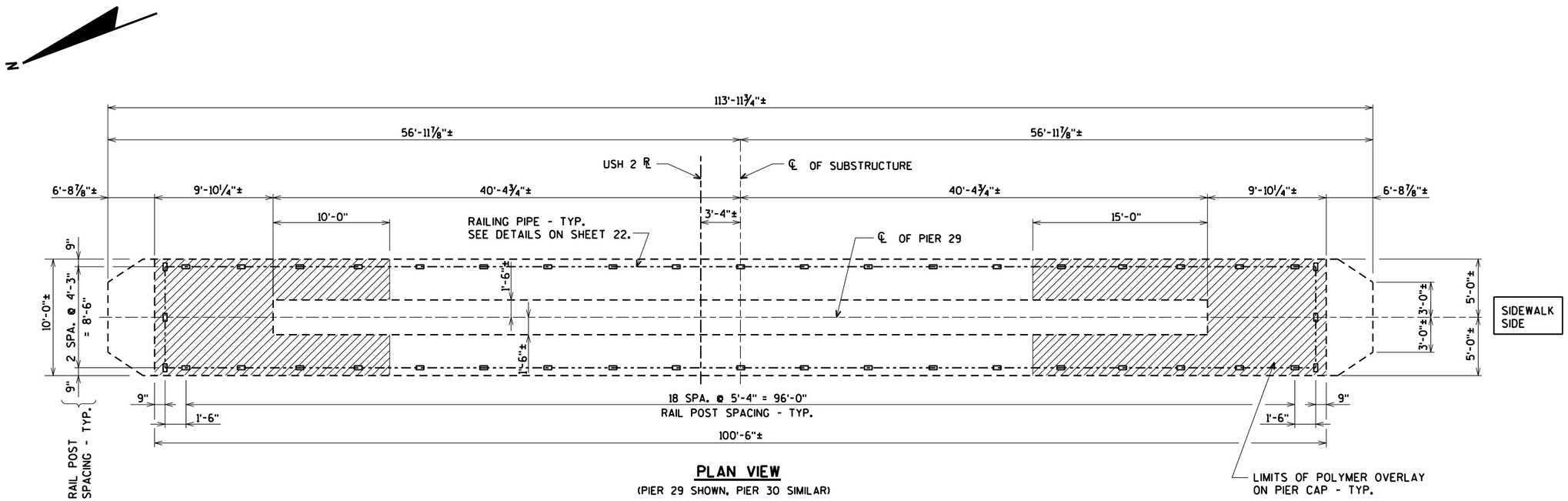
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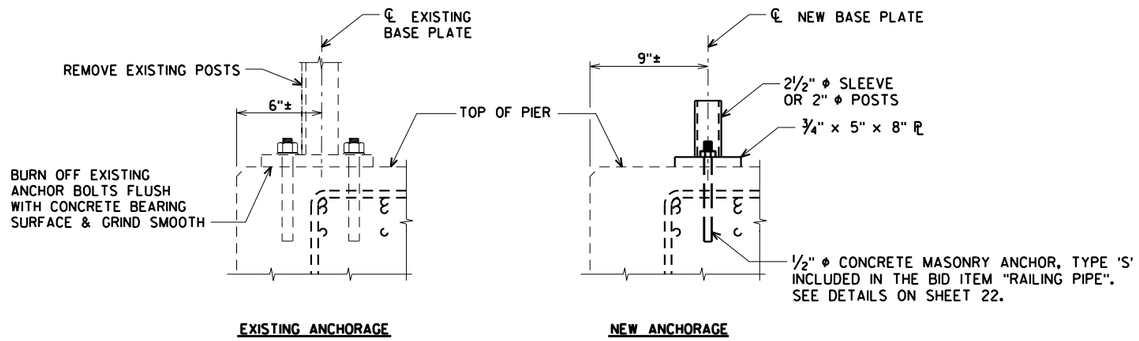
STATE PROJECT NUMBER

8680-04-71



PLAN VIEW

(PIER 29 SHOWN, PIER 30 SIMILAR)



EXISTING ANCHORAGE **NEW ANCHORAGE**

ANCHORAGE DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

PIER CAP RAILING DETAILS

SHEET 21 OF 99
367

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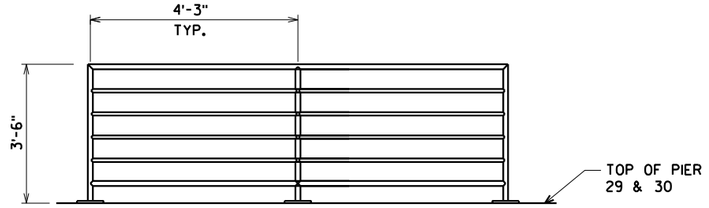
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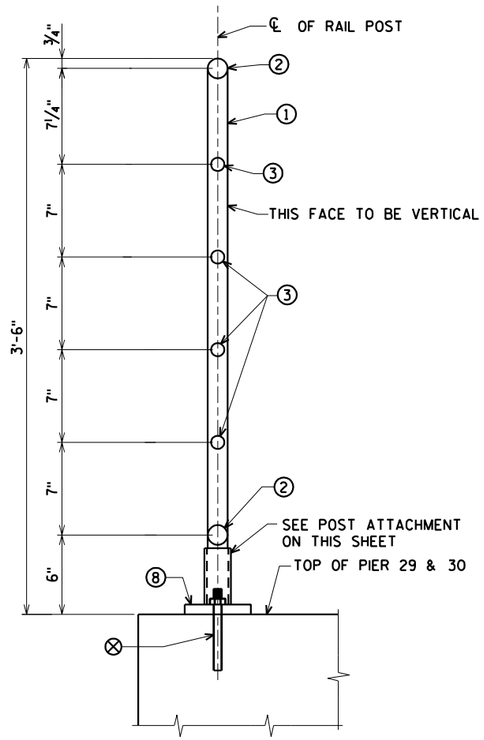
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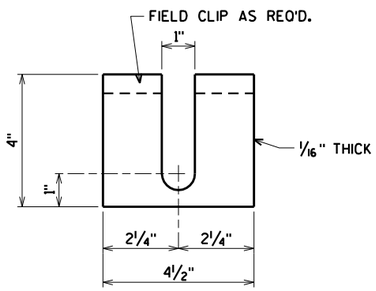
PART ELEVATION OF RAILING AT PIER SIDES



ELEVATION OF RAILING AT PIER ENDS

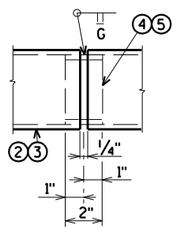


SECTION THRU RAILING



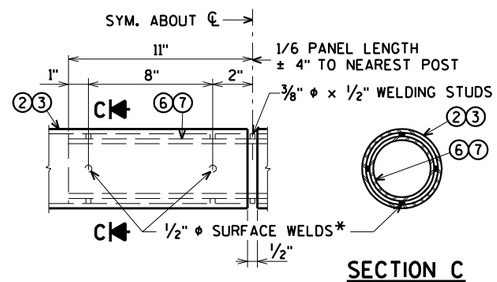
POST SHIM DETAILS

PROVIDE 4 SHIMS PER POST.



SHOP RAIL SPLICE DETAIL

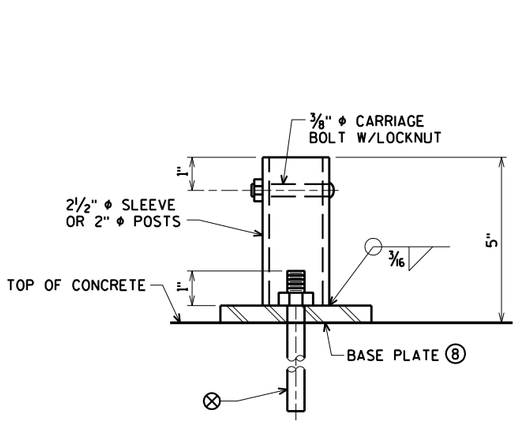
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



FIELD ERECTION JOINT DETAIL

*MIN. 5/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

SECTION C



POST ATTACHMENT

UNIT WILL BE GALV. AFTER FABRICATION

LEGEND

1. 2" ϕ STEEL PIPE FOR POST. PLACE POSTS VERTICAL.
2. 2" ϕ STEEL PIPE FOR TOP & BOT. RAIL. WELD TO NO. 1.
3. 1" ϕ STEEL PIPE FOR INTERMEDIATE RAILS. WELD TO NO. 1.
4. 1" ϕ PIPE SLEEVE FOR NO. 2. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 1 9/16".
5. 1/2" ϕ ROD SLEEVE FOR NO. 3. PROVIDE "SLIDING FIT" WITH A MINIMUM OUT TO OUT DIMENSION OF 15/16".
6. 1" ϕ PIPE SLEEVE x 1'-10" LONG FOR NO. 2. PROVIDE 1/2" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 2. PROVIDE 3/8" ϕ x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
7. 1/2" ϕ ROD SLEEVE x 1'-10" LONG FOR NO. 3. PROVIDE 1/2" ϕ SURFACE WELDS ON ALL SIDES AS SHOWN. GRIND WELDS TO FIT FREE INTO I.D. OF NO. 3. PROVIDE 3/8" ϕ x 1/2" WELDING STUDS ON TOP AND BOTTOM SURFACES AT CENTERLINE.
8. PLATE 3/4" x 5" x 8", WITH 5/8" ϕ HOLE FOR ANCHOR BOLTS NO. 9. WELD TO NO. 1 OR PIPE SLEEVE AS SHOWN.

GENERAL NOTES

BID ITEM WILL BE "RAILING PIPE", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING WILL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

POST BASE PLATES WILL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS WILL BE MACHINE OR MACHINE FLAME CUT.

ALL MATERIAL WILL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND STEEL TUBING WILL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL MATERIALS USED IN FABRICATION WILL BE MADE FROM MATERIALS CONFORMING TO A.S.T.M. DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.

ALL RAILS, POSTS AND SLEEVES ARE STANDARD WEIGHT PIPE, SCHEDULE 40.

PLACE ALL NUTS ON OUTSIDE OF POSTS.

⊗ 1/2" ϕ CONCRERE MASONRY ANCHOR, TYPE "S", 6" EMBEDMENT (EPOXY ANCHORED) MIN. PULLOUT OF 10 KIPS. THREADED LENGTH OF ANCHOR, WASHER AND NUT WILL BE GALVANIZED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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PIPE RAILING

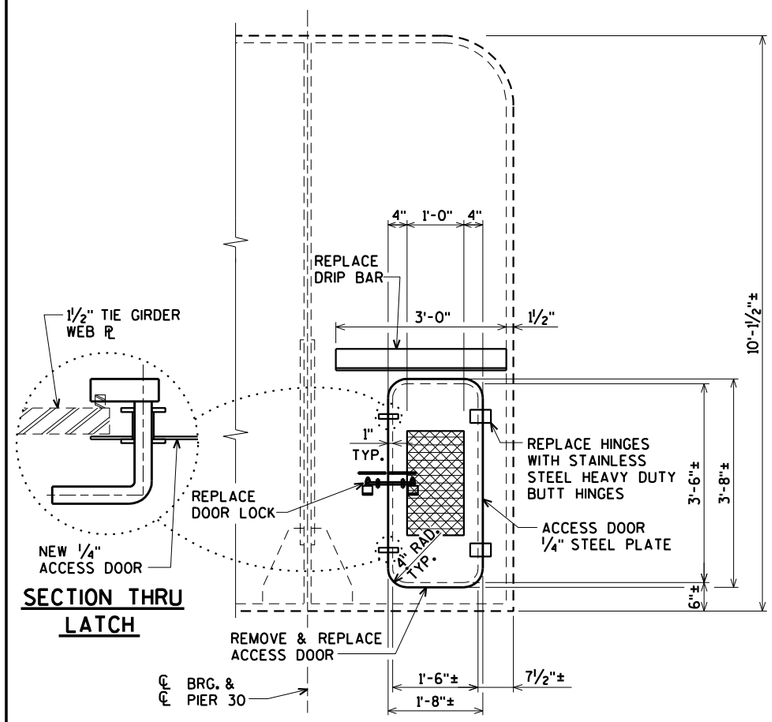
SHEET 22 OF 99
368

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 railing.dgn
9/12/2013
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STATE PROJECT NUMBER

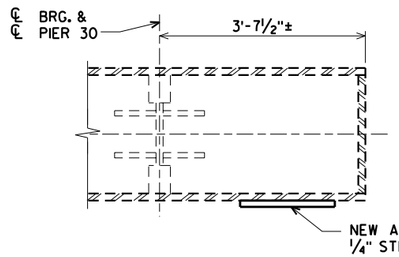
8680-04-71



SECTION THRU LATCH

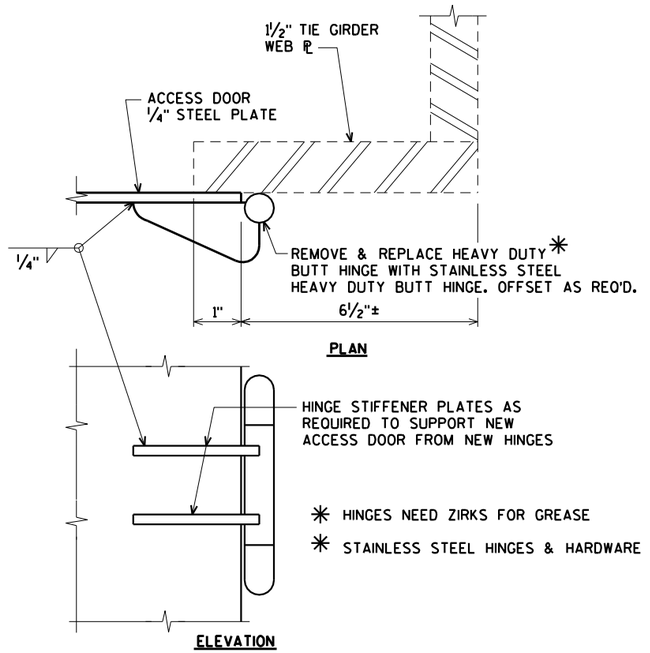
DOOR IN TIE GIRDER ELEVATION

(PIER 30 NORTH TIE GIRDER SHOWN,
PIER 30 SOUTH TIE GIRDER AND PIER 29 TIE GIRDERS SIMILAR)
4 REQUIRED



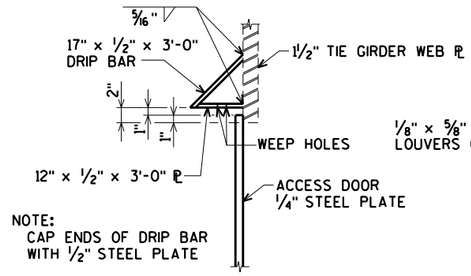
DOOR IN TIE GIRDER PLAN

(PIER 30 NORTH TIE GIRDER SHOWN,
PIER 30 SOUTH TIE GIRDER AND PIER 29 TIE GIRDERS SIMILAR)
4 REQUIRED



DOOR HINGE DETAIL

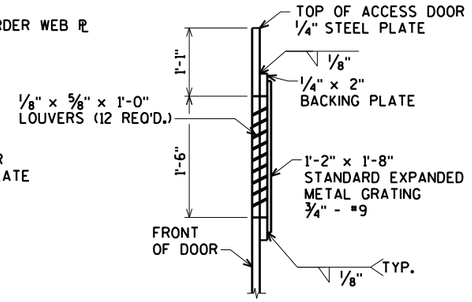
INCIDENTAL TO THE BID ITEM
"TIE GIRDER DOOR REPLACEMENT"



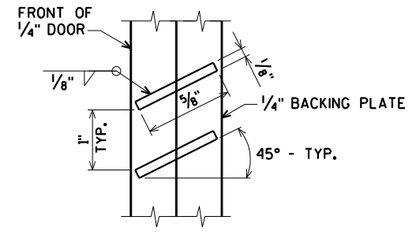
NOTE:
CAP ENDS OF DRIP BAR WITH ½" STEEL PLATE

SECTION THRU ACCESS DOOR AT DRIP BAR

INCIDENTAL TO THE BID ITEM
"TIE GIRDER DOOR REPLACEMENT"

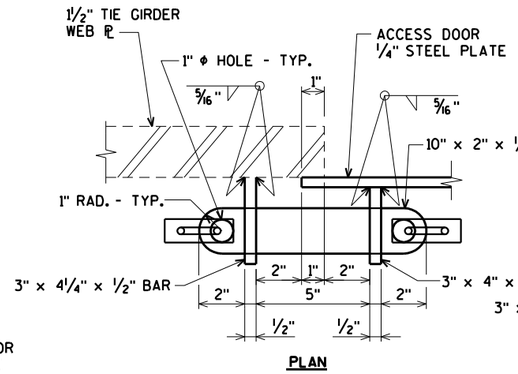


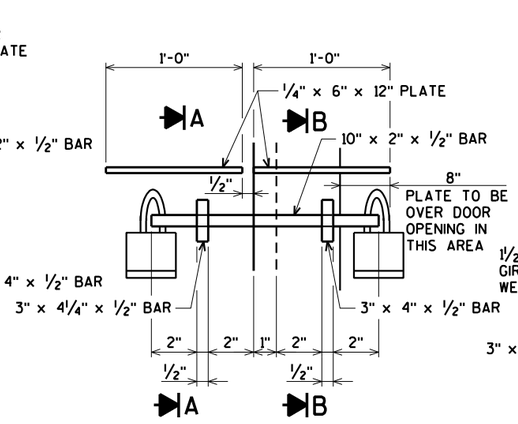
SECTION THRU DOOR

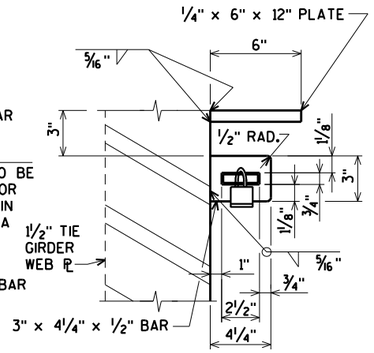


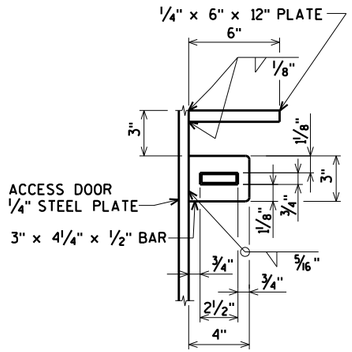
LOUVER DETAIL

12 LOUVERS REQ'D. PER DOOR









DOOR LOCK DETAILS

INCIDENTAL TO THE BID ITEM
"TIE GIRDER DOOR REPLACEMENT"

GENERAL NOTES

BID ITEM SHALL BE "TIE GIRDER DOOR REPLACEMENT", WHICH INCLUDES ALL ITEMS SHOWN.

ALL WELDS MADE TO THE TIE GIRDER SHALL BE MADE BY A CERTIFIED WELDER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

NEW TIE GIRDER DOOR DETAILS

SHEET 23 OF 99
369

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

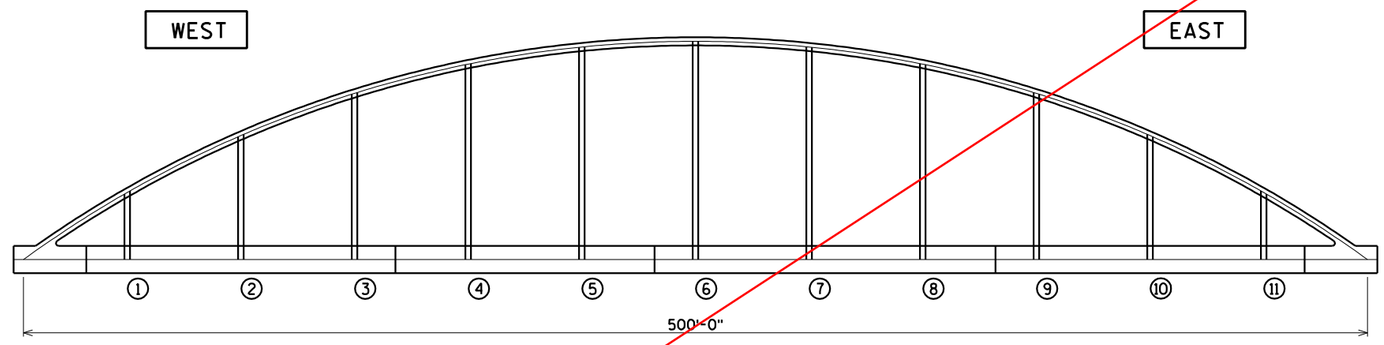
$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 TRUSS dtls.dgn

STATE PROJECT NUMBER

8680-04-71

SHIM THICKNESS - NORTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE
1	WEST	1 1/8"	1 5/8"	1 @ 1", 1 @ 1/2", 1 @ 1/8"	73 KIPS
	EAST	1 1/8"	1 1/4"	1 @ 1", 2 @ 1/8"	73 KIPS
2	WEST	7/8"	1 1/2"	1 @ 3/4", 1 @ 1/2", 2 @ 1/8"	93 KIPS
	EAST	7/8"	1 3/16"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	93 KIPS
3	WEST	7/8"	3/4"	1 @ 3/4", 1 @ 1/8"	97 KIPS
	EAST	3/4"	5/8"	1 @ 5/8", 1 @ 1/8"	97 KIPS
4	WEST	1 1/16"	1/2"	1 @ 1/2", 1 @ 1/4", 1 @ 1/8", 1 @ 3/16"	100 KIPS
	EAST	15/16"	1/2"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	100 KIPS
5	WEST	15/16"	5/8"	1 @ 1/2", 2 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	13/16"	5/8"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	102 KIPS
6	WEST	1"	5/8"	1 @ 5/8", 3 @ 1/8"	103 KIPS
	EAST	1"	5/8"	1 @ 5/8", 3 @ 1/8"	103 KIPS
7	WEST	1 1/16"	5/8"	1 @ 5/8", 2 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	1 1/16"	3/8"	1 @ 1/2", 1 @ 3/8", 1 @ 3/16"	102 KIPS
8	WEST	11/16"	1/2"	1 @ 1/2", 1 @ 3/16"	100 KIPS
	EAST	3/4"	3/4"	1 @ 1/2", 2 @ 1/8"	100 KIPS
9	WEST	7/8"	3/4"	1 @ 5/8", 2 @ 1/8"	97 KIPS
	EAST	7/8"	1/2"	1 @ 1/2", 3 @ 1/8"	97 KIPS
10	WEST	1 1/8"	1 1/8"	1 @ 1", 1 @ 1/8"	93 KIPS
	EAST	15/16"	1 3/8"	1 @ 3/4", 1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	93 KIPS
11	WEST	1 7/16"	1 5/8"	1 @ 1 1/4", 3 @ 1/8", 1 @ 3/16"	73 KIPS
	EAST	1 9/16"	1 3/4"	1 @ 1 3/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS

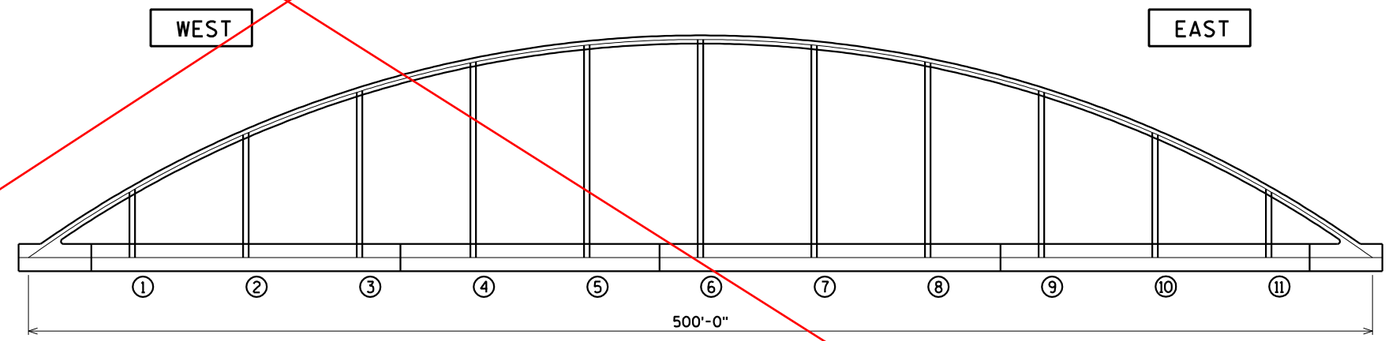


○ DENOTES CABLE NUMBER

NORTH TRUSS
(LOOKING NORTH)

SHIM THICKNESS - SOUTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE
1	WEST	1 1/4"	1 1/2"	1 @ 1 1/8", 3 @ 1/8"	73 KIPS
	EAST	1 1/4"	1 1/4"	1 @ 1 1/8", 1 @ 1/8"	73 KIPS
2	WEST	1 3/8"	1 1/8"	1 @ 1", 3 @ 1/8"	93 KIPS
	EAST	1 3/8"	1"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	93 KIPS
3	WEST	1 5/16"	1"	1 @ 7/8", 2 @ 1/8", 1 @ 3/16"	97 KIPS
	EAST ●	----	1/8"	1 @ 1/8"	97 KIPS
4	WEST	1 3/8"	1"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	100 KIPS
	EAST	1 1/2"	1"	1 @ 7/8", 1 @ 1/2", 1 @ 1/8"	100 KIPS
5	WEST	1 5/16"	3/4"	1 @ 5/8", 1 @ 3/8", 1 @ 1/8", 1 @ 3/16"	102 KIPS
	EAST	1 1/4"	3/8"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	102 KIPS
6	WEST	1 3/16"	7/8"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	103 KIPS
	EAST	1 1/4"	3/8"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	103 KIPS
7	WEST	1 1/8"	1/2"	2 @ 1/2", 1 @ 1/8"	102 KIPS
	EAST ●	----	0"	1 @ 3/4", 1 @ 3/16"	102 KIPS
8	WEST	11/16"	1/4"	1 @ 1/4", 2 @ 1/8", 1 @ 3/16"	100 KIPS
	EAST	5/8"	1/16"	1 @ 1/2", 1 @ 1/8"	100 KIPS
9	WEST	5/8"	1/8"	1 @ 1/2", 1 @ 1/8"	97 KIPS
	EAST	5/8"	3/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	97 KIPS
10	WEST	3/4"	7/8"	1 @ 5/8", 2 @ 1/8"	93 KIPS
	EAST	11/16"	1/2"	1 @ 1/2", 1 @ 3/16"	93 KIPS
11	WEST	1 1/4"	1 1/4"	1 @ 1", 2 @ 1/8"	73 KIPS
	EAST	1 5/16"	1 1/2"	1 @ 1 1/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS



○ DENOTES CABLE NUMBER

SOUTH TRUSS
(LOOKING NORTH)

● NEW CABLE THAT WAS INSTALLED IN 2010.

★ ALSO PROVIDE 44 - 1/8" THICK SHIMS AND 44 - 3/16" THICK SHIMS TO ADJUST TOTAL SHIM THICKNESS AS NEEDED IN THE FIELD.

NOTE:

EXISTING SHIM THICKNESSES SHOWN ARE TO BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO ACCEPTANCE. TOTAL THICKNESS OF THE SHIMS AT EACH CABLE SHALL MATCH THE EXISTING THICKNESS AS MEASURED IN THE FIELD DURING CONSTRUCTION.

WORK THIS SHEET WITH SHEET 25

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CABLE SHIM REPAIR DETAILS

SHEET 24 OF 99
370

ORIGINAL PLANS PREPARED BY
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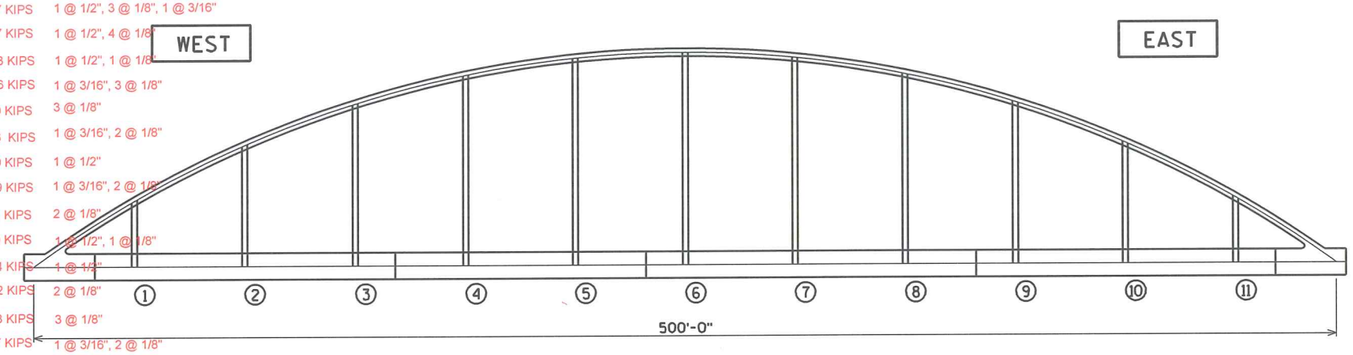
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STATE PROJECT NUMBER

8680-04-71

SHIM THICKNESS - NORTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE	ACTUAL KIPS	ACTUAL SHIMS USED
1	WEST	1 1/8"	1 5/8" 1 5/16"	1 @ 1", 1 @ 1/2", 1 @ 1/8"	73 KIPS	76.64 KIPS	2 @ 1/2", 1 @ 1/8", 1 @ 3/16"
	EAST	1 1/8"	1 1/4" 1"	1 @ 1", 2 @ 1/8"	73 KIPS	117.90 KIPS	2 @ 1/2"
2	WEST	7/8"	1 1/2" 1 1/16"	1 @ 3/4", 1 @ 1/2", 2 @ 1/8"	93 KIPS	113.97 KIPS	1 @ 1/2", 3 @ 1/8", 1 @ 3/16"
	EAST	7/8"	1 3/16" 1"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	93 KIPS	153.27 KIPS	1 @ 1/2", 4 @ 1/8"
3	WEST	7/8"	3/4" 5/8"	1 @ 3/4", 1 @ 1/8"	97 KIPS	200.43 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	3/4"	5/8" 9/16"	1 @ 5/8", 1 @ 1/8"	97 KIPS	204.36 KIPS	1 @ 3/16", 3 @ 1/8"
4	WEST	1 1/16"	1/2" 3/8"	1 @ 1/2", 1 @ 1/4", 1 @ 1/8", 1 @ 3/16"	100 KIPS	196.50 KIPS	3 @ 1/8"
	EAST	15/16"	1/2" 7/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	100 KIPS	204.36 KIPS	1 @ 3/16", 2 @ 1/8"
5	WEST	15/16"	5/8" 1/2"	1 @ 1/2", 2 @ 1/8", 1 @ 3/16"	102 KIPS	196.50 KIPS	1 @ 1/2"
	EAST	13/16"	5/8" 7/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	102 KIPS	208.29 KIPS	1 @ 3/16", 2 @ 1/8"
6	WEST	1"	5/8" 1/4"	1 @ 5/8", 3 @ 1/8"	103 KIPS	194.54 KIPS	2 @ 1/8"
	EAST	1"	5/8" 5/8"	1 @ 5/8", 3 @ 1/8"	103 KIPS	196.50 KIPS	1 @ 1/2", 1 @ 1/8"
7	WEST	1 1/16"	5/8" 1/2"	1 @ 5/8", 2 @ 1/8", 1 @ 3/16"	102 KIPS	188.64 KIPS	1 @ 1/8"
	EAST	1 1/16"	3/8" 1/4"	1 @ 1/2", 1 @ 3/8", 1 @ 3/16"	102 KIPS	212.22 KIPS	2 @ 1/8"
8	WEST	11/16"	1/2" 3/8"	1 @ 1/2", 1 @ 3/16"	100 KIPS	200.43 KIPS	3 @ 1/8"
	EAST	3/4"	3/4" 7/16"	1 @ 1/2", 2 @ 1/8"	100 KIPS	192.57 KIPS	1 @ 3/16", 2 @ 1/8"
9	WEST	7/8"	3/4" 9/16"	1 @ 5/8", 2 @ 1/8"	97 KIPS	176.85 KIPS	1 @ 3/16", 3 @ 1/8"
	EAST	7/8"	1/2" 3/8"	1 @ 1/2", 3 @ 1/8"	97 KIPS	157.20 KIPS	3 @ 1/8"
10	WEST	1 1/8"	1 1/8" 3/4"	1 @ 1", 1 @ 1/8"	93 KIPS	157.20 KIPS	1 @ 1/2", 2 @ 1/8"
	EAST	15/16"	1 3/8" 13/16"	1 @ 3/4", 1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	93 KIPS	165.06 KIPS	1 @ 1/2", 1 @ 3/16", 1 @ 1/8"
11	WEST	1 7/16"	1 5/8" 1 5/16"	1 @ 1 1/4", 3 @ 1/8", 1 @ 3/16"	73 KIPS	78.60 KIPS	2 @ 1/2", 1 @ 3/16", 1 @ 1/8"
	EAST	1 9/16"	1 3/4" 1 7/16"	1 @ 1 3/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS	76.64 KIPS	2 @ 1/2", 1 @ 3/16", 2 @ 1/8"

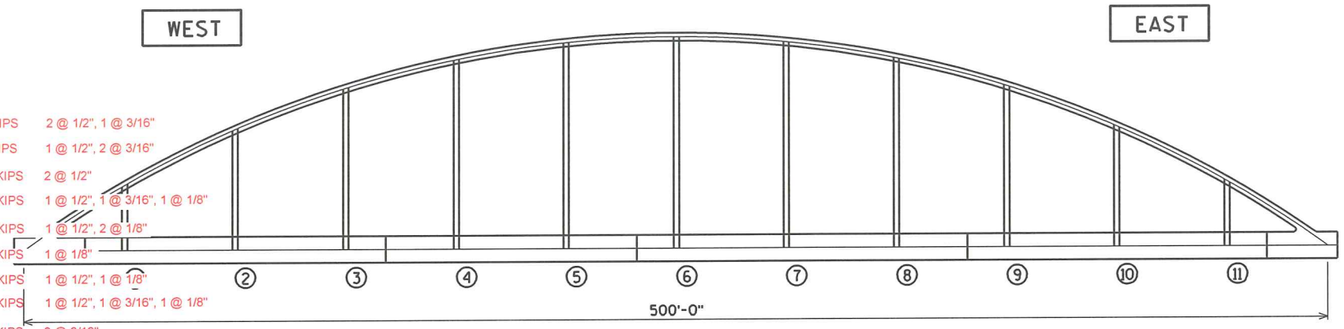


NORTH TRUSS
(LOOKING NORTH)

◯ DENOTES CABLE NUMBER

SHIM THICKNESS - SOUTH TRUSS

CABLE	LOCATION	EXISTING SHIM THICKNESS PER ORIGINAL SHOP DRAWINGS	EXISTING SHIM THICKNESS BASED ON FIELD MEASUREMENTS	SHIMS REQ'D. ★	MINIMUM TENSILE LOAD REQUIRED IN CABLE	ACTUAL KIPS	ACTUAL SHIMS USED
1	WEST	1 1/4"	1 1/2" 1 3/16"	1 @ 1 1/8", 3 @ 1/8"	73 KIPS	74.67 KIPS	2 @ 1/2", 1 @ 3/16"
	EAST	1 1/4"	1 1/4" 7/8"	1 @ 1 1/8", 1 @ 1/8"	73 KIPS	74.67 KIPS	1 @ 1/2", 2 @ 3/16"
2	WEST	1 3/8"	1 1/8" 1"	1 @ 1", 3 @ 1/8"	93 KIPS	172.92 KIPS	2 @ 1/2"
	EAST	1 3/8"	1" 13/16"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	93 KIPS	153.27 KIPS	1 @ 1/2", 1 @ 3/16", 1 @ 1/8"
3	WEST	1 5/16"	1" 3/4"	1 @ 7/8", 2 @ 1/8", 1 @ 3/16"	97 KIPS	168.99 KIPS	1 @ 1/2", 2 @ 1/8"
	EAST ●	----	1/8" 1/8"	1 @ 1/8"	97 KIPS	180.78 KIPS	1 @ 1/8"
4	WEST	1 3/8"	1" 5/8"	1 @ 7/8", 1 @ 3/8", 1 @ 1/8"	100 KIPS	188.64 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	1 1/2"	1" 13/16"	1 @ 7/8", 1 @ 1/2", 1 @ 1/8"	100 KIPS	212.22 KIPS	1 @ 1/2", 1 @ 3/16", 1 @ 1/8"
5	WEST	1 5/16"	3/4" 9/16"	1 @ 5/8", 1 @ 3/8", 1 @ 1/8", 1 @ 3/16"	102 KIPS	200.43 KIPS	3 @ 3/16"
	EAST	1 1/4"	3/8" 5/16"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	102 KIPS	200.43 KIPS	1 @ 3/16", 1 @ 1/8"
6	WEST	1 3/16"	7/8" 5/8"	1 @ 3/4", 2 @ 1/8", 1 @ 3/16"	103 KIPS	212.22 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	1 1/4"	3/8" 5/16"	1 @ 7/8", 1 @ 1/4", 1 @ 1/8"	103 KIPS	188.64 KIPS	1 @ 3/16", 1 @ 1/8"
7	WEST	1 1/8"	1/2" 7/16"	2 @ 1/2", 1 @ 1/8"	102 KIPS	192.57 KIPS	1 @ 3/16", 2 @ 1/8"
	EAST ●	----	0"	1 @ 3/4", 1 @ 3/16"	102 KIPS	220.08 KIPS	
8	WEST	11/16"	1/4" 3/16"	1 @ 1/4", 2 @ 1/8", 1 @ 3/16"	100 KIPS	196.50 KIPS	1 @ 3/16", 2 @ 1/8"
	EAST	5/8"	1/16" 1/16"	1 @ 1/2", 1 @ 1/8"	100 KIPS	192.57 KIPS	1 @ 1/8"
9	WEST	5/8"	1/8" 1/8"	1 @ 1/2", 1 @ 1/8"	97 KIPS	180.78 KIPS	1 @ 1/8"
	EAST	5/8"	3/16" 3/16"	1 @ 1/2", 1 @ 1/8", 1 @ 3/16"	97 KIPS	180.78 KIPS	1 @ 3/16"
10	WEST	3/4"	7/8" 5/8"	1 @ 5/8", 2 @ 1/8"	93 KIPS	168.99 KIPS	1 @ 1/2", 1 @ 1/8"
	EAST	11/16"	1/2" 7/16"	1 @ 1/2", 1 @ 3/16"	93 KIPS	149.34 KIPS	1 @ 3/16", 2 @ 1/8"
11	WEST	1 1/4"	1 1/4" 15/16"	1 @ 1", 2 @ 1/8"	73 KIPS	86.46 KIPS	1 @ 1/2", 1 @ 3/16", 2 @ 1/8"
	EAST	1 5/16"	1 1/2" 1 1/4"	1 @ 1 1/8", 3 @ 1/8", 1 @ 3/16"	73 KIPS	74.67 KIPS	2 @ 1/2", 2 @ 1/8"



SOUTH TRUSS
(LOOKING NORTH)

◯ DENOTES CABLE NUMBER

● NEW CABLE THAT WAS INSTALLED IN 2010.

▲ ALSO PROVIDE 44 - 1/8" THICK SHIMS AND 44 - 3/16" THICK SHIMS TO ADJUST TOTAL SHIM THICKNESS AS NEEDED IN THE FIELD.

NOTE:
EXISTING SHIM THICKNESSES SHOWN ARE TO BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO ACCEPTANCE. TOTAL THICKNESS OF EACH CABLE SHALL MATCH THE EXISTING THICKNESS AS MEASURED IN THE FIELD DURING CONSTRUCTION.

WORK THIS SHEET WITH SHEET 25

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CABLE SHIM REPAIR DETAILS

SHEET 24 OF 99
370

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
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www.AyresAssociates.com

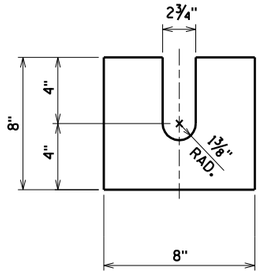
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9/12/2013

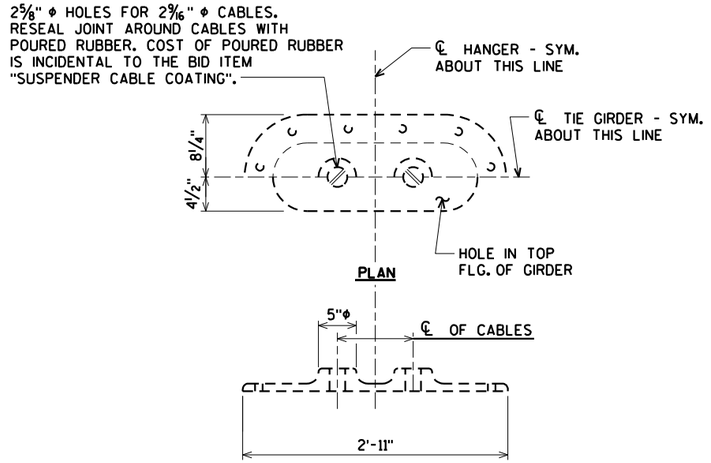
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CABLE SHIM DETAILS

(NOTE THAT THICKNESS OF THE SHIMS IS SHOWN ON SHEET 24)

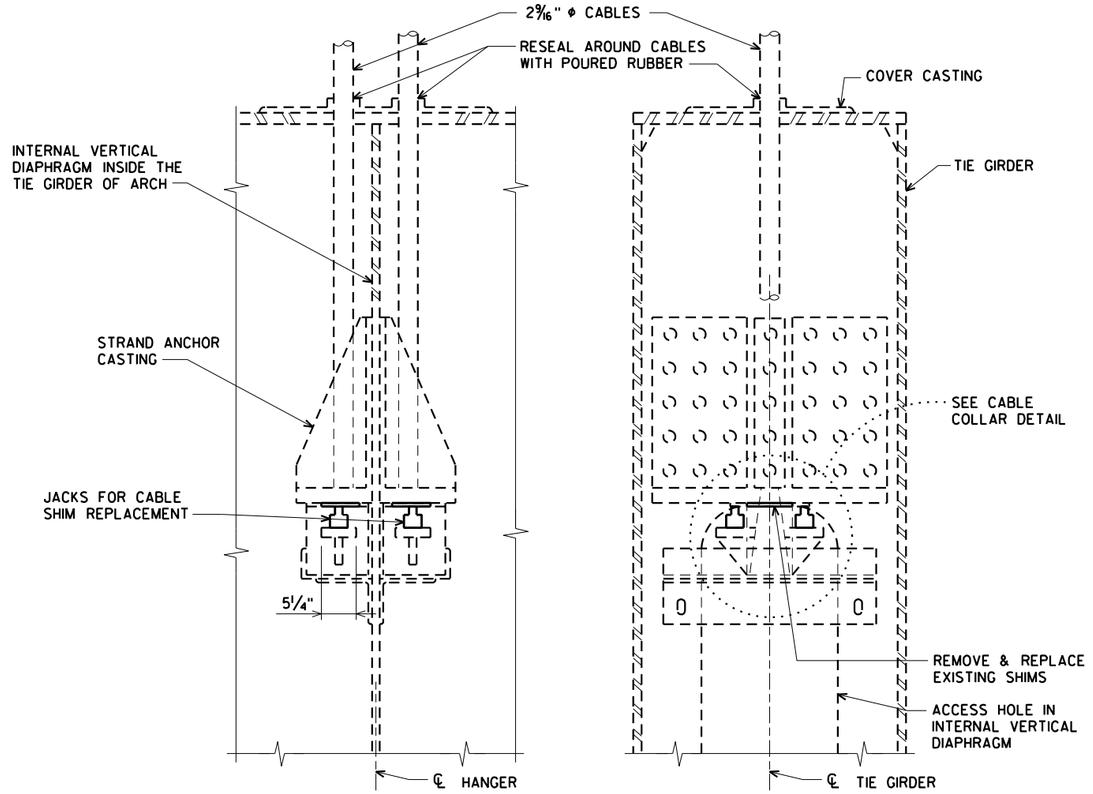
CABLE SHIMS SHALL BE STAINLESS STEEL.



TIE GIRDER COVER CASTING

NOTE:

CABLES TO BE COATED WHERE EXPOSED OUTSIDE OF TIE GIRDERS TO HELP PREVENT LEAKING INTO THE TIE GIRDERS. COST TO BE INCLUDED IN THE BID ITEM "SUSPENDER CABLE COATING".



PART ELEV. OF TIE GIRDER @ ℄ OF HANGERS

JACKING NOTES

THE CONTRACTOR SHALL RECORD JACKING FORCES REQUIRED TO RELEASE THE CABLE COLLAR FROM THE SHIMS AND BOTTOM SUPPORT BRACKET.

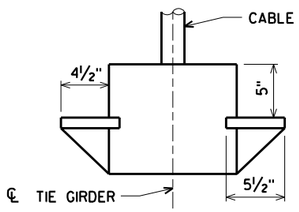
THE JACKING FORCE PER JACK USED IN 2010 WAS 5,200 psi. THIS PROVIDED A FORCE IN EACH CABLE OF 204.2 KIPS. (5,200 psi x 2 JACKS x 19.635 SQ. IN. = 204,204 LBS.)

THE MAXIMUM FORCE PER CABLE THAT WILL BE ALLOWED IS 220.3 KIPS. (THIS IS EQUIVALENT TO 5,600 psi PER JACK). IF THIS MAXIMUM FORCE DOES NOT RELEASE THE CABLE COLLAR AND SHIMS FROM THE BOTTOM SUPPORT BRACKET, CONTACT THE STRUCTURES DESIGN SECTION.

THE CONTRACTOR WILL ONLY BE ALLOWED TO JACK ONE CABLE AT A TIME.

THE CABLES NEED TO BE JACKED AND SHIMS REPLACED PRIOR TO PERFORMING "SUSPENDER CABLE COATING" OPERATIONS.

AFTER THE NEW SHIMS ARE IN PLACE, MAKE SURE THE TENSION IN THE CABLES ARE GREATER THAN OR EQUAL TO THE MINIMUM TENSILE LOAD REQUIRED IN CABLE AS SHOWN ON SHEET 24.



CABLE COLLAR DETAIL

CABLE COLLARS TO BE CLEANED AND PAINTED. COST INCLUDED IN THE BID ITEM "CLEANING AND PAINTING CABLE COLLARS".

AFTER REMOVAL OF THE EXISTING CABLE SHIMS, BUT BEFORE THE NEW CABLE SHIMS ARE INSTALLED, THE BEARING AREAS THAT ARE IN THE CONTRACT WITH THE CABLE SHIMS ON THE BOTTOM OF THE STRAND ANCHOR CASTINGS AND ON TOP OF THE CABLE COLLARS SHALL BE CLEANED BY WIRE BRUSHING AND GIVEN ONE COAT OF AN APPROVED ZINCH RICH PRIMER. COST IS INCIDENTAL TO "CLEANING AND PAINTING CABLE COLLARS".

WORK THIS SHEET WITH SHEET 24

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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CABLE SHIM REPAIR DETAILS

SHEET 25 OF 99
371

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
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www.AyresAssociates.com

STATE PROJECT NUMBER

8680-04-71

JOINT REPAIR SUMMARY

EXPANSION JOINT NO.	APPROX. STATION	EXPANSION JOINT LOCATION	QUANTITIES						EXPANSION JOINT TYPE	STAGES	SHEET NUMBERS
			JOINT REPAIR	CONCRETE MASONRY OVERLAY DECKS	BAR STEEL REINFORCEMENT HS COATED BRIDGES	CONCRETE MASONRY ANCHORS TYPE L No. 5 BARS	BAR COUPLERS No. 4	BAR COUPLERS No. 6			
● 1	18+55	WEST ABUTMENT	35 SY	12 CY	2,410 LBS	76 EACH	4 EACH	12 EACH	STRIP SEAL	1 & 3	27 - 28
2	21+38	PIER 3	34 SY	12 CY	2,710 LBS	152 EACH	4 EACH	12 EACH	STRIP SEAL	1 & 3	29 - 30
3	22+82	PIER 4	33 SY	12 CY	2,650 LBS	148 EACH	4 EACH	12 EACH	STRIP SEAL	1 & 3	31 - 32
4	27+86	BTWN RAMP 'A' & UNIT 4	24 SY	9 CY	1,460 LBS	-----	-----	-----	MODULAR 3 CELL	1	33 - 35
5	27+86	BTWN UNITS 3 & 4	58 SY	21 CY	3,550 LBS	-----	-----	-----	MODULAR 3 CELL	1 & 3	36 - 39
6	27+86	BTWN RAMP 'C' & UNIT 4	25 SY	9 CY	1,530 LBS	-----	-----	-----	MODULAR 3 CELL	3	40 - 42
7	33+35	BTWN UNITS 4 & 5	68 SY	24 CY	4,060 LBS	-----	-----	-----	MODULAR 3 CELL	1 & 3	43 - 46
8	33+35	BTWN RAMP 'B' & UNIT 5	29 SY	11 CY	1,790 LBS	-----	-----	-----	MODULAR 3 CELL	3	47 - 50
9	37+37	BTWN UNITS 5 & 6	84 SY	30 CY	5,150 LBS	-----	6 EACH	25 EACH	MODULAR 3 CELL	1 & 3	51 - 55
10	43+46	BTWN UNITS 6 & 7	74 SY	27 CY	4,630 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	56 - 60
11	49+55	BTWN UNITS 7 & 8	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
12	53+82	BTWN UNITS 8 & 9	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
13	58+03	BTWN UNITS 9 & 10	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
14	62+15	BTWN UNITS 10 & 11	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
15	66+27	BTWN UNITS 11 & 12	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
16	70+80	BTWN UNITS 12 & 13	74 SY	28 CY	4,610 LBS	-----	4 EACH	20 EACH	MODULAR 4 CELL	1 & 3	66 - 70
17	73+25	MIDSPAN UNIT 13	51 SY	19 CY	3,960 LBS	-----	8 EACH	24 EACH	STRIP SEAL	1 & 3	71 - 74
18	75+80	BTWN UNITS 13 & 14	51 SY	19 CY	3,960 LBS	-----	4 EACH	19 EACH	STRIP SEAL	1 & 3	75 - 78
19	81+50	BTWN UNITS 14 & 15	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
20	87+22	BTWN UNITS 15 & 16	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
21	91+02	BTWN UNITS 16 & 17	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 2 CELL	1 & 3	79 - 83
22	94+82	BTWN UNITS 17 & 18	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 3 CELL	1 & 3	61 - 65
23	98+62	BTWN UNITS 18 & 19	74 SY	27 CY	4,640 LBS	-----	-----	14 EACH	MODULAR 2 CELL	1 & 3	79 - 83
24	101+70	EAST ABUTMENT	37 SY	16 CY	2,760 LBS	83 EACH	-----	7 EACH	STRIP SEAL	1 & 3	84 - 87

NOTES:

JOINT REPAIRS #4, #6, & #8 ARE AT THE ENDS OF APPROACH STRUCTURES. THE MNDOT WILL OVERLAY THESE STRUCTURES AT THE SAME TIME AS THIS PROJECT.

SALVAGE AND REINSTALL THE EXISTING NAME PLATES IF THEY WILL BE DISTURBED DURING JOINT REPAIR OPERATIONS. COST FOR SALVAGING AND REINSTALLING EXISTING NAME PLATES, IF REQUIRED, WILL BE INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

● A TEMPORARY NEOPRENE STRIP SEAL (4-INCH) WILL BE REQUIRED AFTER STAGE 1 IS COMPLETED. THE TEMPORARY NEOPRENE STRIP SEAL WILL EXTEND FROM THE OUTSIDE WING PARAPET AT WING 2 TO THE CONSTRUCTION JOINT. THE APPROXIMATE LENGTH OF THE TEMPORARY NEOPRENE STRIP SEAL IS 45 FEET. THE TEMPORARY NEOPRENE STRIP SEAL WILL BE REPLACED WHEN THE NEW NEOPRENE STRIP SEAL IS INSTALLED DURING STAGE 3 CONSTRUCTION. COST OF FURNISHING, INSTALLING AND REMOVING THE TEMPORARY NEOPENE STRIP SEAL (4-INCH) IS INCIDENTAL TO THE BID ITEM "EXPANSION DEVICE B-16-38".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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JOINT REPAIR SUMMARY

SHEET 26 OF 99
372

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www.AyresAssociates.com

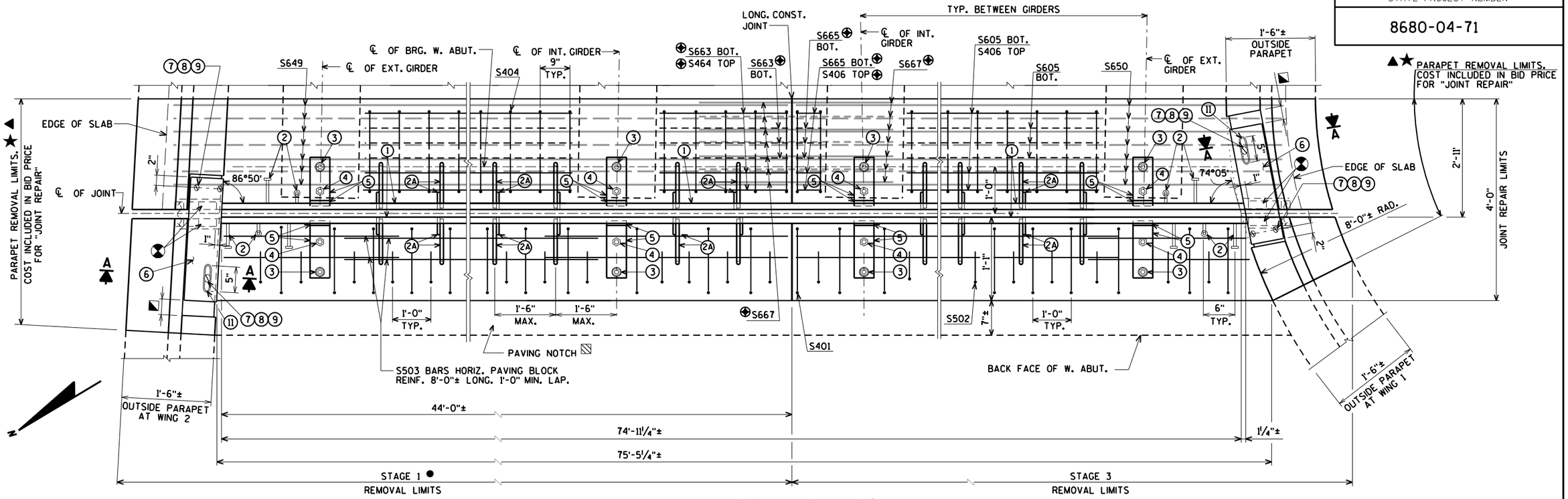
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 1

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

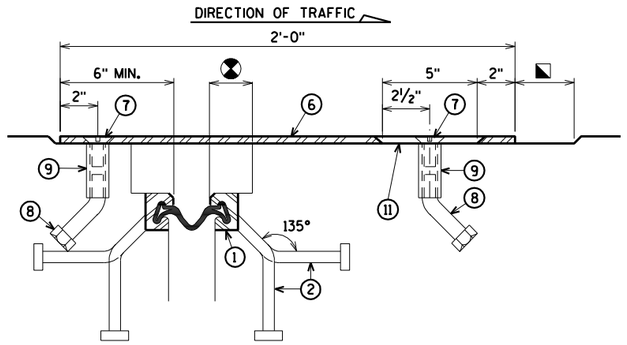
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.

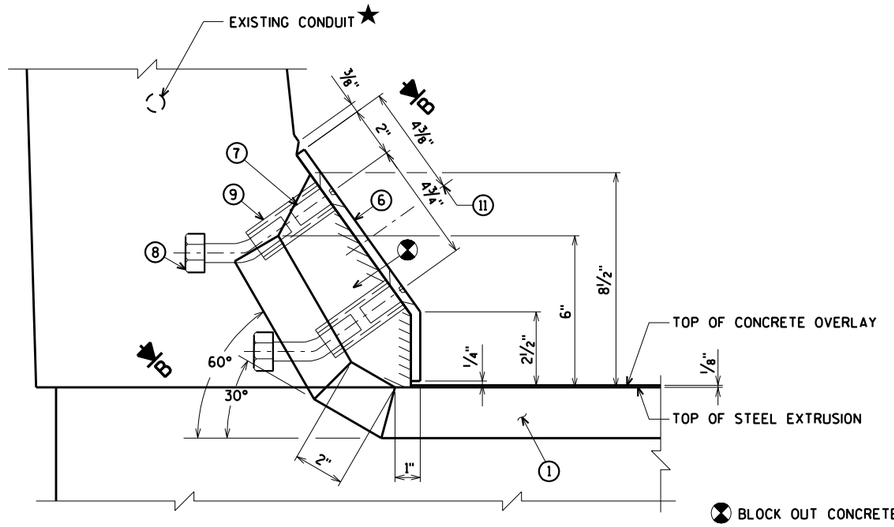
▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

● A TEMPORARY NEOPRENE STRIP SEAL (4-INCH) WILL BE REQUIRED AFTER STAGE 1 IS COMPLETED. THE TEMPORARY NEOPRENE STRIP SEAL WILL EXTEND FROM THE OUTSIDE WING PARAPET AT WING 2 TO THE CONSTRUCTION JOINT. THE APPROXIMATE LENGTH OF THE TEMPORARY NEOPRENE STRIP SEAL IS 45 FEET. THE TEMPORARY NEOPRENE STRIP SEAL WILL BE REPLACED WHEN THE NEW NEOPRENE STRIP SEAL IS INSTALLED DURING STAGE 3 CONSTRUCTION. COST OF FURNISHING, INSTALLING AND REMOVING THE TEMPORARY NEOPENE STRIP SEAL (4-INCH) IS INCIDENTAL TO THE BID ITEM "EXPANSION DEVICE B-16-38".

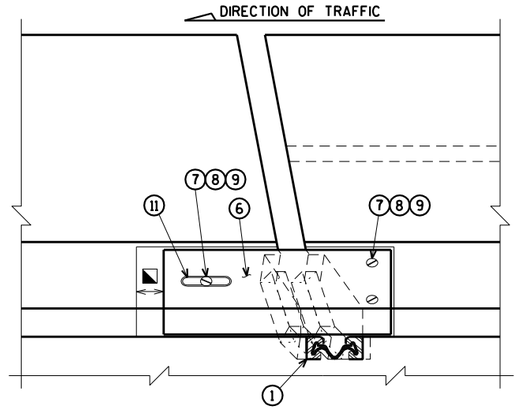
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



SECTION B



SECTION A
OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY
PARAPET AT WING 2 SHOWN, WING 1 SIMILAR

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

WORK THIS SHEET WITH SHEET 28

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 1 DETAILS

SHEET 27 OF 99
373

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www.AyresAssociates.com

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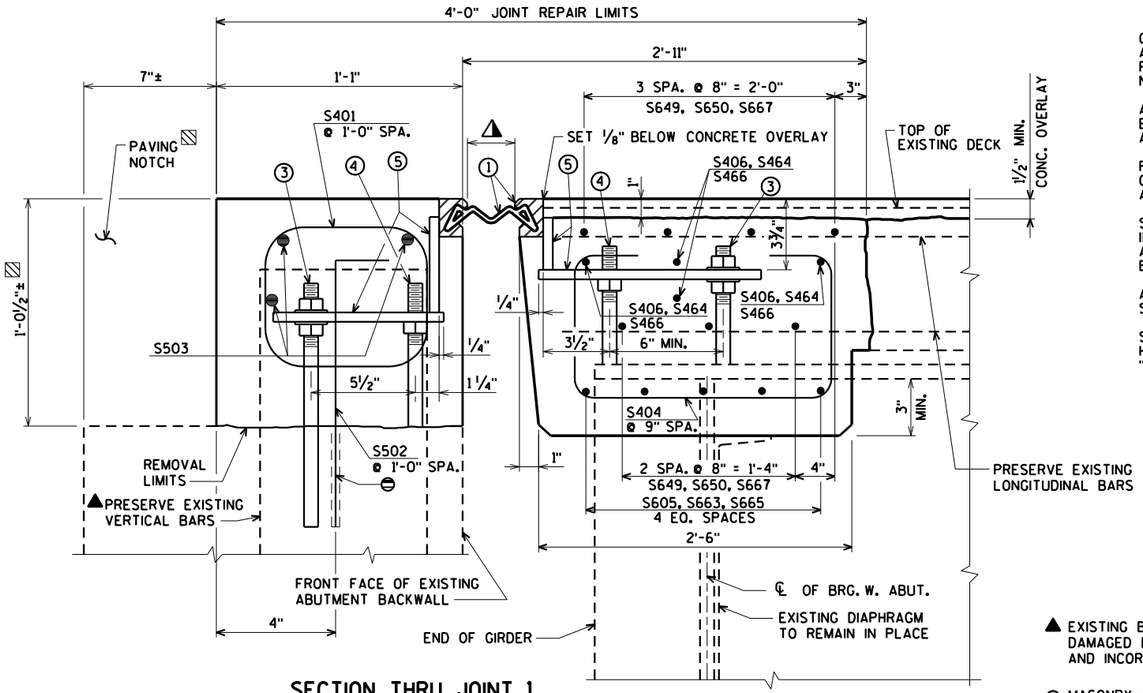
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 1

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

LEGEND

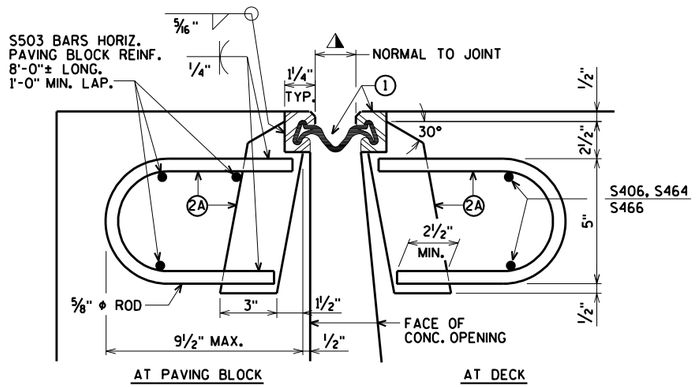
- ● (1) NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
- (2) STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- (2A) ½" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- (3) ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- (4) ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- (5) FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
- (6) GALVANIZED PLATE ⅜" X 10½" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
- (7) ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- (8) ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- (9) ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
- (11) 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

▲ EXISTING BARS LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL.

⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

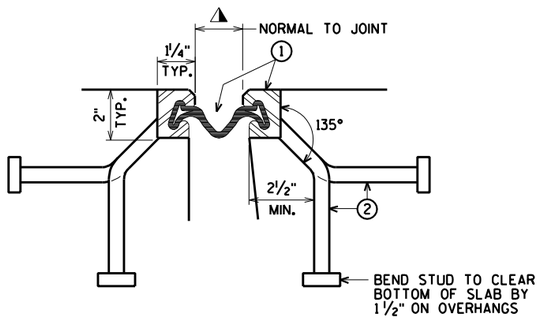
● A TEMPORARY NEOPRENE STRIP SEAL (4-INCH) WILL BE REQUIRED AFTER STAGE 1 IS COMPLETED. THE TEMPORARY NEOPRENE STRIP SEAL WILL EXTEND FROM THE OUTSIDE WING PARAPET AT WING 2 TO THE CONSTRUCTION JOINT. THE APPROXIMATE LENGTH OF THE TEMPORARY NEOPRENE STRIP SEAL IS 45 FEET. THE TEMPORARY NEOPRENE STRIP SEAL WILL BE REPLACED WHEN THE NEW NEOPRENE STRIP SEAL IS INSTALLED DURING STAGE 3 CONSTRUCTION. COST OF FURNISHING, INSTALLING AND REMOVING THE TEMPORARY NEOPENE STRIP SEAL (4-INCH) IS INCIDENTAL TO THE BID ITEM "EXPANSION DEVICE B-16-38".



SECTION THRU JOINT

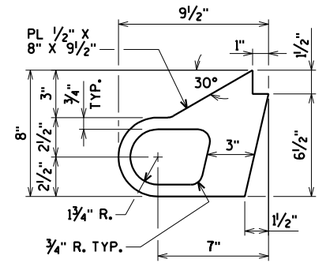
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS



ALTERNATE STRIP SEAL ANCHOR

▲ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1¼"
75°	1½"
65°	1¾"
55°	2"
45°	2¼"
35°	2½"
25°	2¾"
15°	3"
5°	3¼"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

WORK THIS SHEET WITH SHEET 27

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 1 DETAILS

SHEET 28 OF 99
374

ORIGINAL PLANS PREPARED BY
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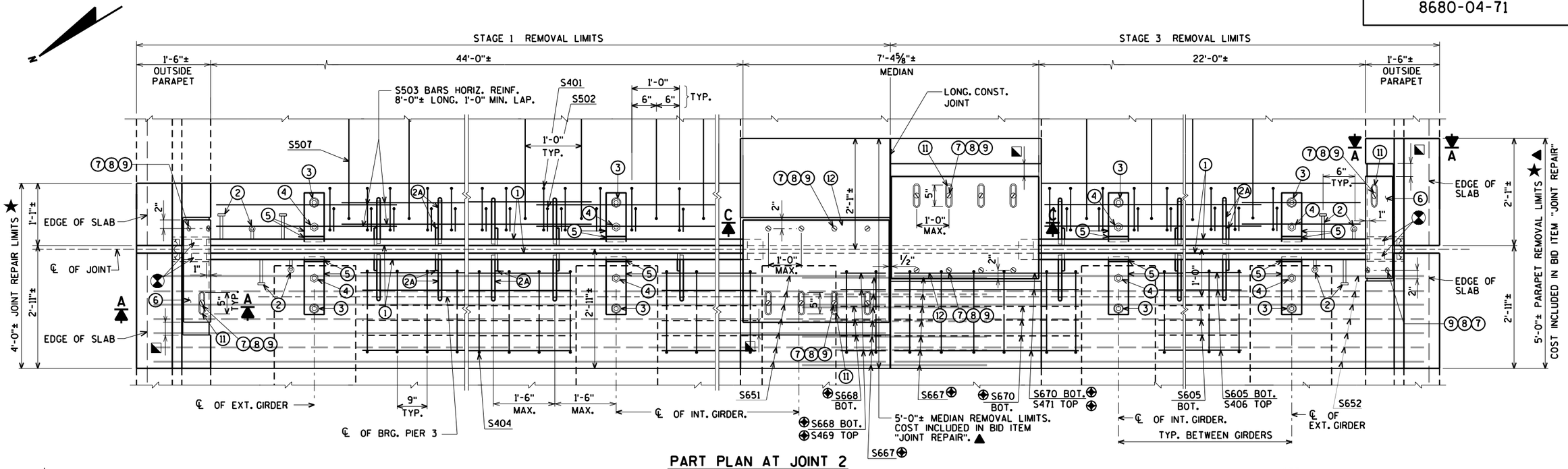
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8680-04-71

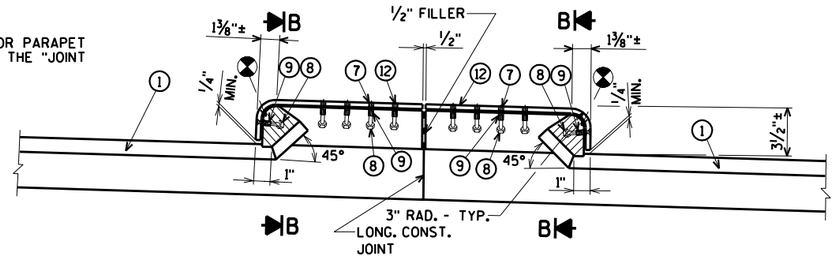


PART PLAN AT JOINT 2

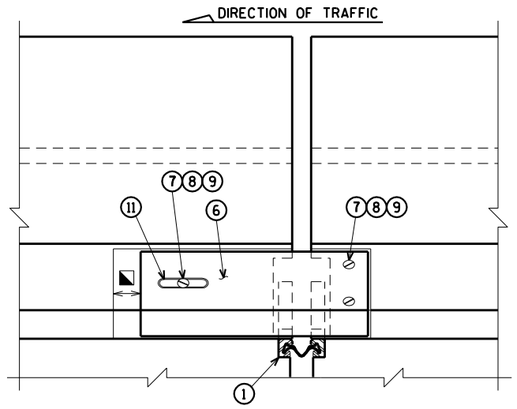
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET AND MEDIAN REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.

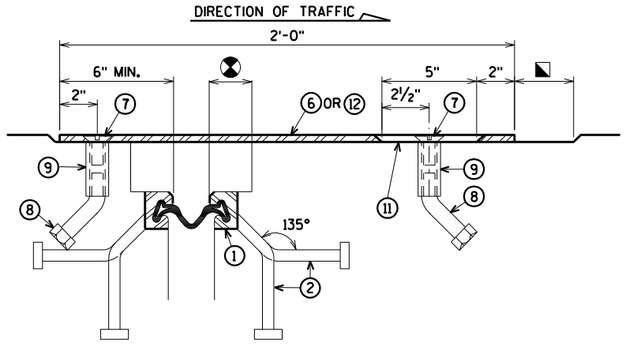
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



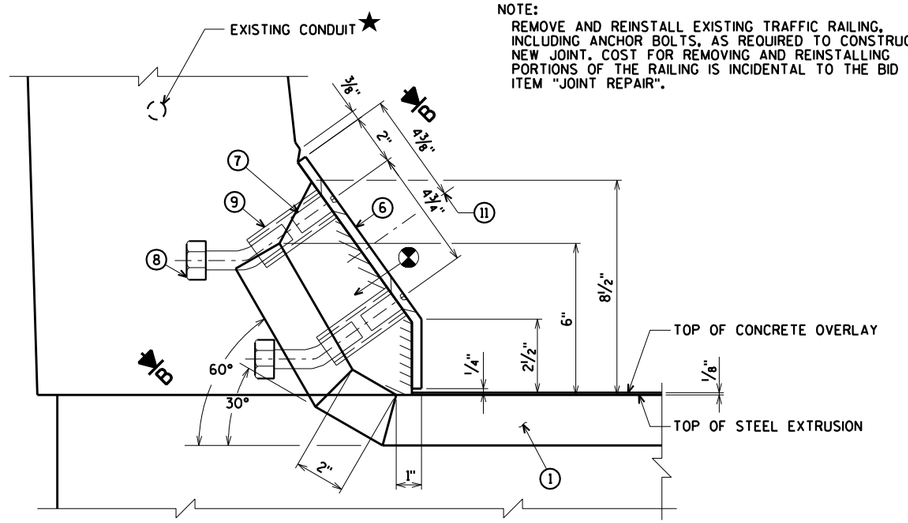
SECTION C
MEDIAN



VIEW OF PARAPET PLATES FROM ROADWAY



SECTION B



NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

SECTION A
OUTSIDE PARAPET

⊠ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

WORK THIS SHEET WITH SHEET 30

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 2 DETAILS

SHEET 29 OF 99
375

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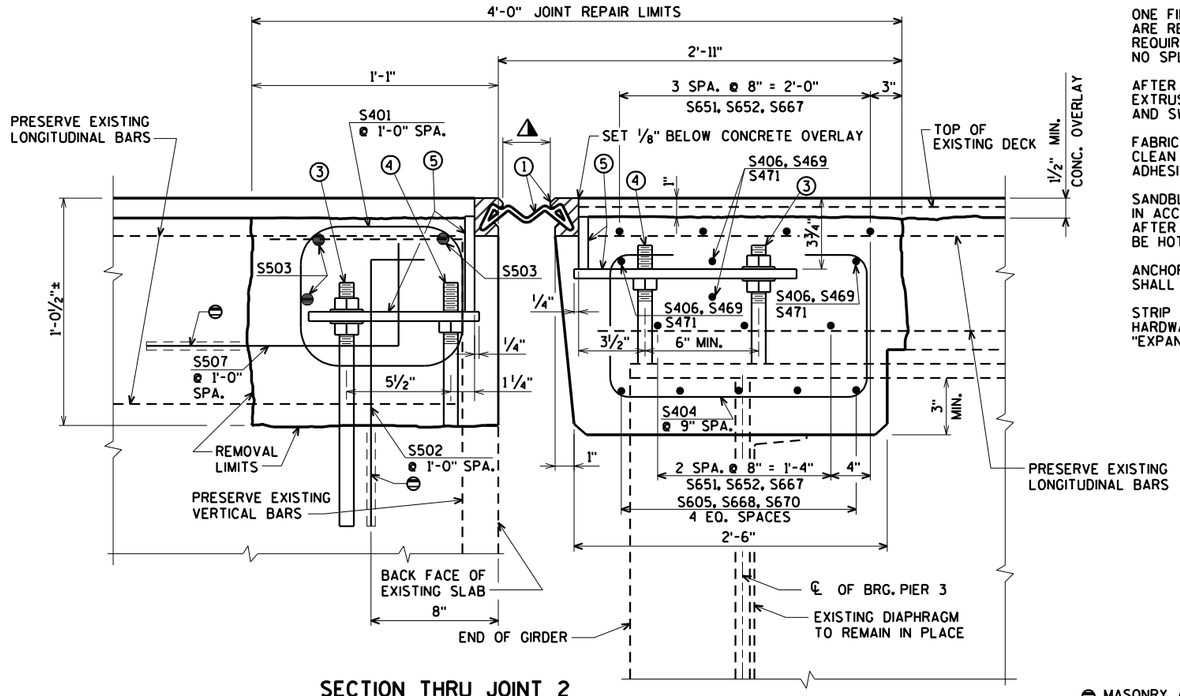
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 2

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

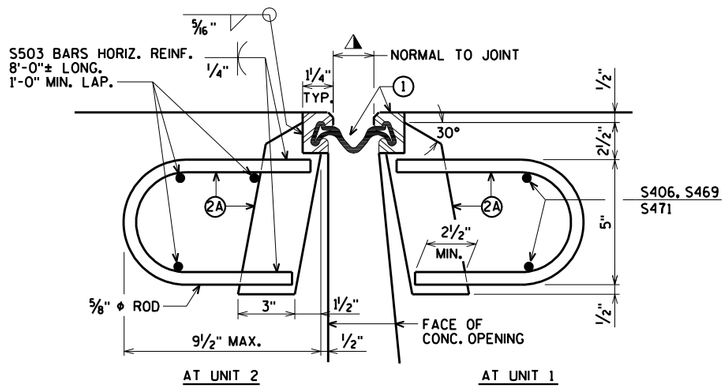
ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. 1/2" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. 3/4" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON UNIT 2 SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES AS SHOWN.
4. 3/4"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE 3/8" X 10 1/2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. 3/4"Φ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. 3/4"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. 3/4"Φ X 2 1/4" GALVANIZED THREADED COUPLING.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE 3/8" X 3'-9" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

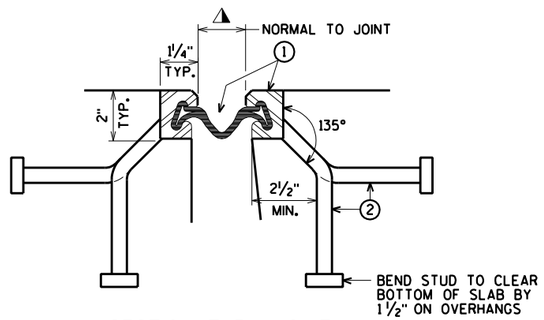
⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.



SECTION THRU JOINT

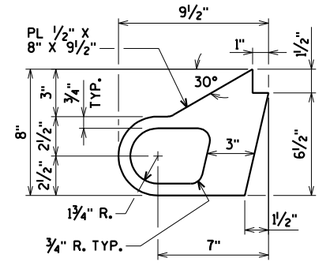
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND MEDIANS



ALTERNATE STRIP SEAL ANCHOR

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/4"
75°	1 1/2"
65°	1 3/4"
55°	2"
45°	2 1/4"
35°	2 1/2"
25°	2 3/4"
15°	3"
5°	3 1/4"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

WORK THIS SHEET WITH SHEET 29

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 2 DETAILS

SHEET 30 OF 99
376

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
www.AyresAssociates.com

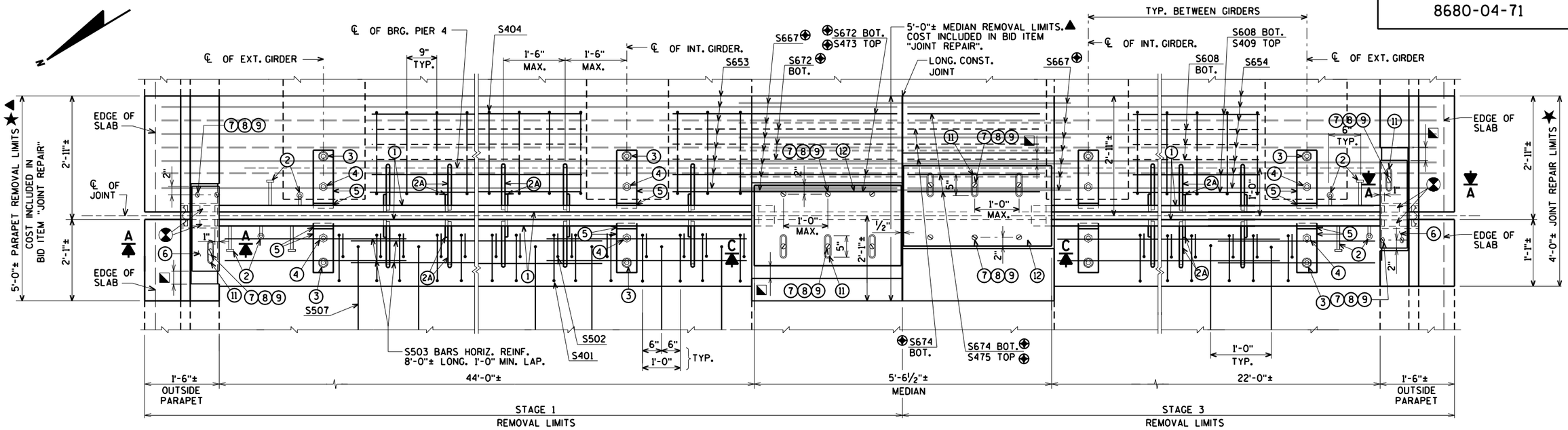
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STATE PROJECT NUMBER

8680-04-71

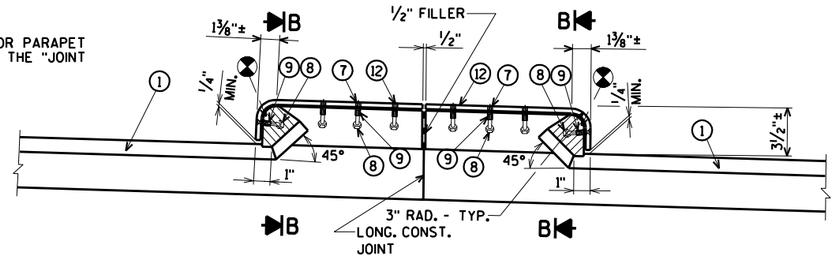


PART PLAN AT JOINT 3

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

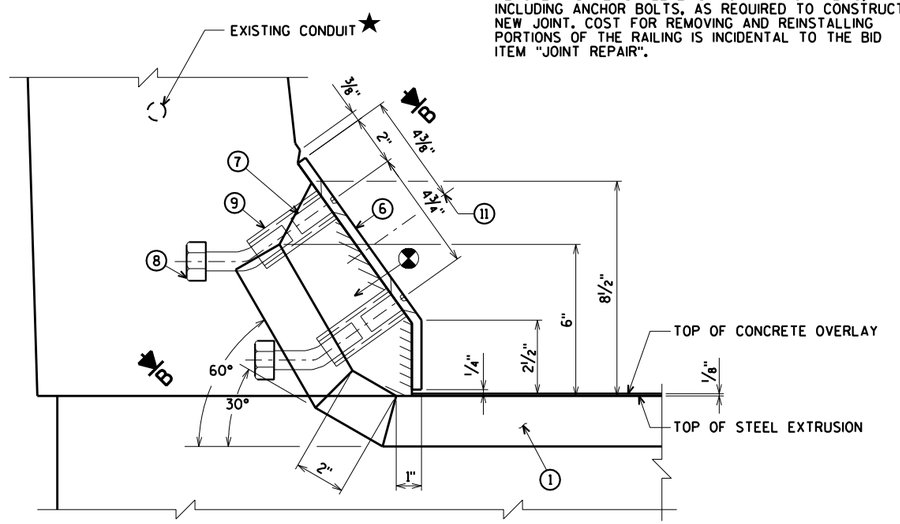
▲ UTILIZE EXISTING VERTICAL BAR STEEL FOR PARAPET AND MEDIAN REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

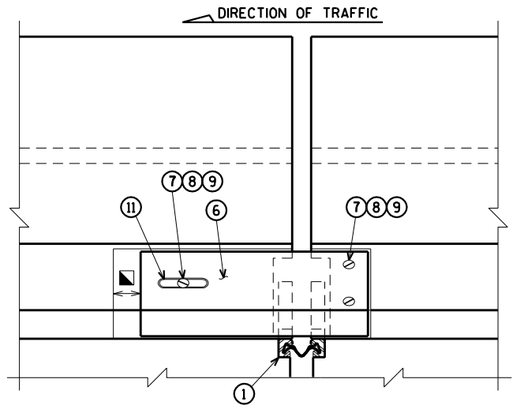


SECTION C
MEDIAN

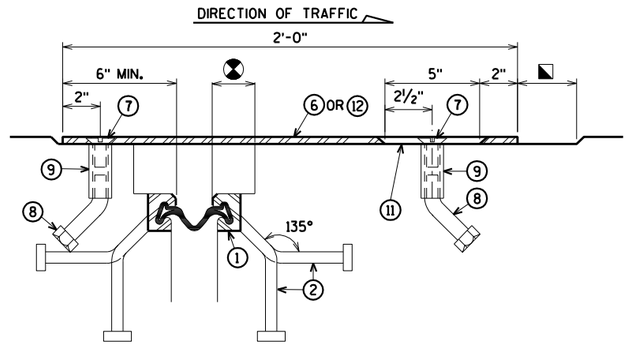
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SECTION A
OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY



SECTION B

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEET 32

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 3 DETAILS

SHEET 31 OF 99
377

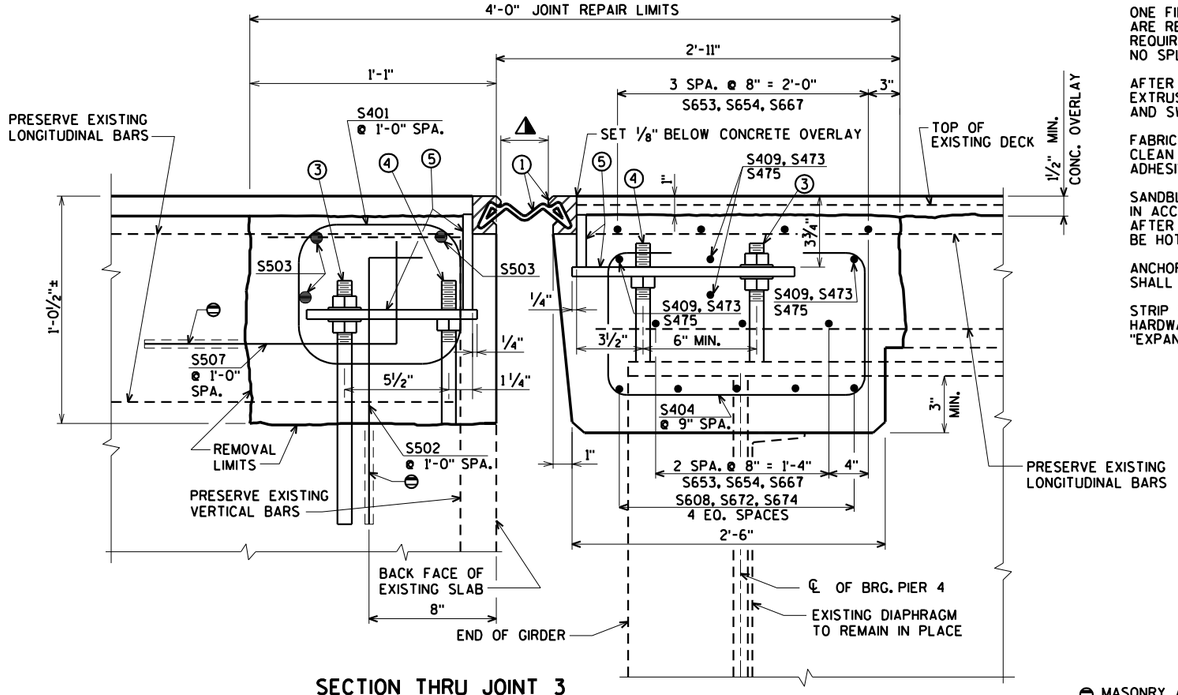
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SECTION THRU JOINT 3

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

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AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

LEGEND

(1) NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.

(2) STUDS 5/8"Φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.

(2A) 1/2" THICK ANCHOR PLATE WITH 5/8"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.

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(5) FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.

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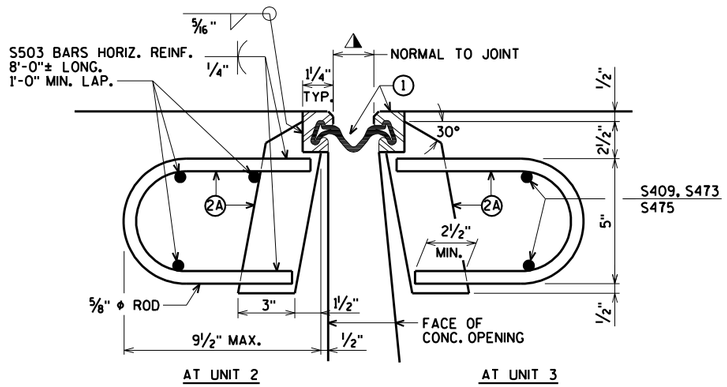
(8) 3/4"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.

(9) 3/4"Φ X 2 1/4" GALVANIZED THREADED COUPLING.

(11) 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

(12) GALVANIZED PLATE 3/8" X 3'-9" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.

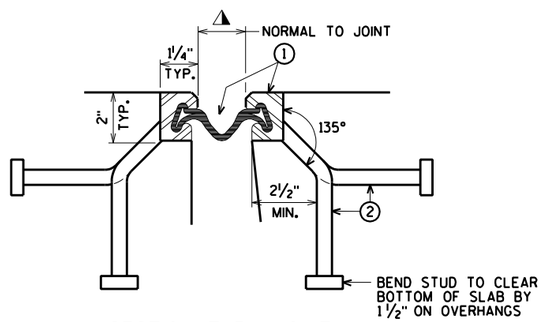
⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.



SECTION THRU JOINT

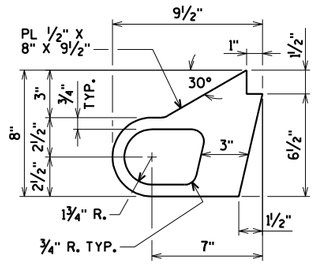
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND MEDIANS



ALTERNATE STRIP SEAL ANCHOR

⚠ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/4"
75°	1 1/2"
65°	1 3/4"
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A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

WORK THIS SHEET WITH SHEET 31

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 3 DETAILS

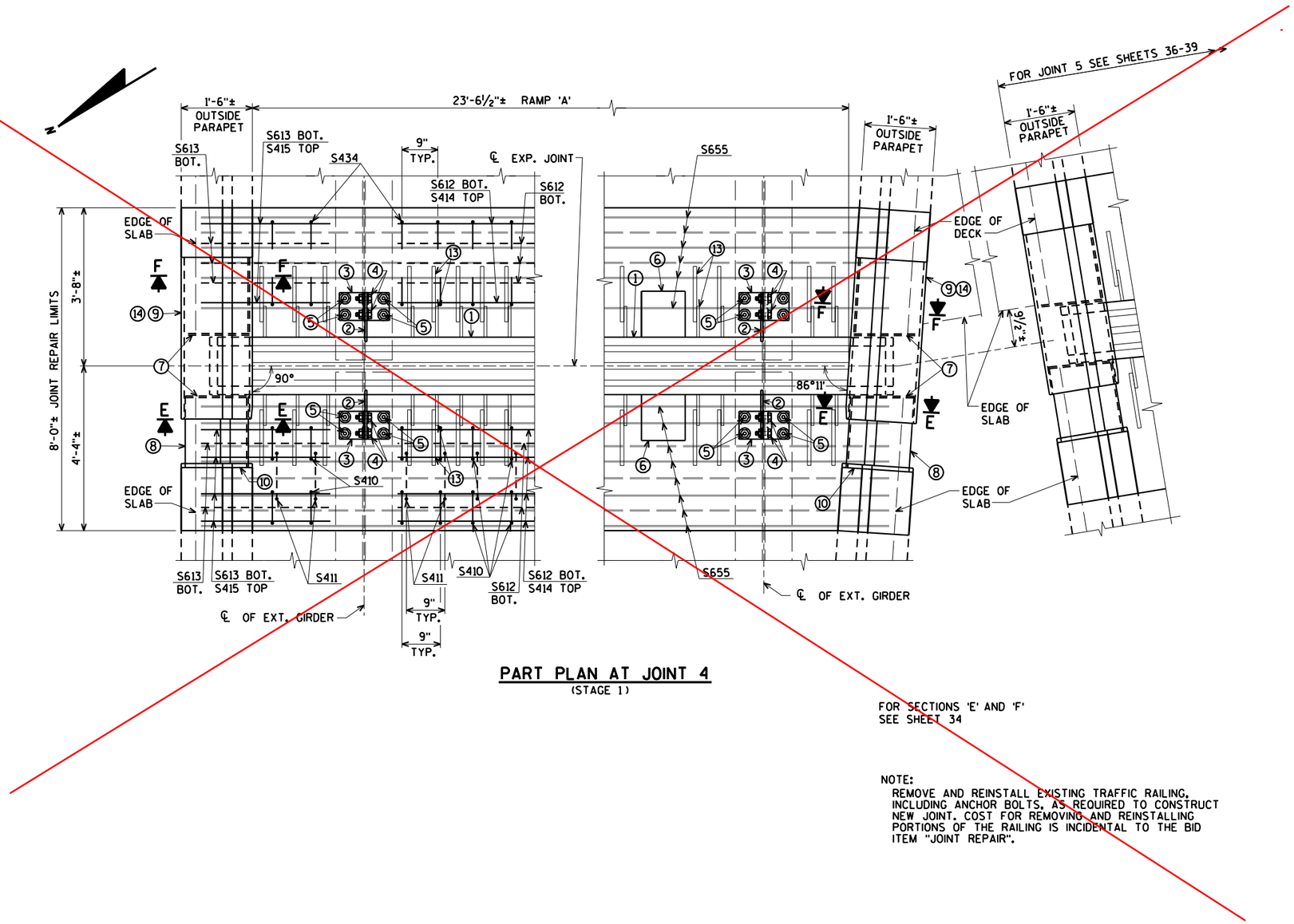
SHEET 32 OF 99
378

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 4
(STAGE 1)

FOR SECTIONS 'E' AND 'F'
SEE SHEET 34

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details

WORK THIS SHEET WITH SHEETS 34-35

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 4 DETAILS

SHEET 33 OF 99
379

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REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

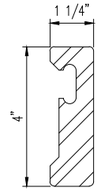
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

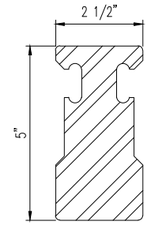
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 3p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)



CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1) FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.

2) PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)

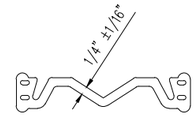
3) BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.

4) REMOVE BLOCKING & BANDING AND ADJUST JOINT TO PROPER JOINT OPENING AS DIRECTED.

5) FIELD LOCATE AND DRILL HOLES IN EXISTING GIRDER FLANGES FOR JOINT SUPPORT HARDWARE. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT ASSEMBLY CONNECTIONS. TACK WELD WT'S TO SUPPORT PLATES (IF REQUIRED).

6) CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.

7) POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. THEN REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 1
- SEE RAIL AND SEAL DETAILS ON SHEET 1
- SEE INSTALLATION PROCEDURES ON SHEET 1
- SEE SPLICE DETAILS ON SHEET 2
- SEE UPTURN DETAILS ON SHEET 2
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 3
- SEE SPRING & BEARING DIAGRAM ON SHEET 3
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 3
- SEE 'D-240' PLAN VIEW FOR JOINT #4 ON SHEET 4
- SEE 'D-240' PLAN VIEW FOR JOINT #5 ON SHEET 5
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 6
- SEE JOINT SUPPORT DETAILS ON SHEET 6
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 7
- SEE SUPPORT BOX DETAILS ON SHEET 8
- SEE SUPPORT BAR DETAILS ON SHEET 9
- SEE BILL OF MATERIALS ON SHEET 10

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

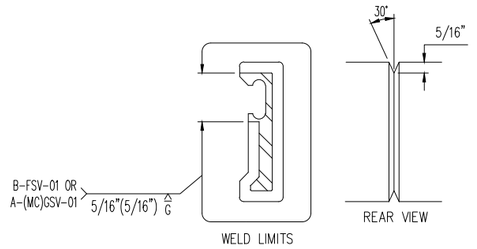
DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	1 OF 10

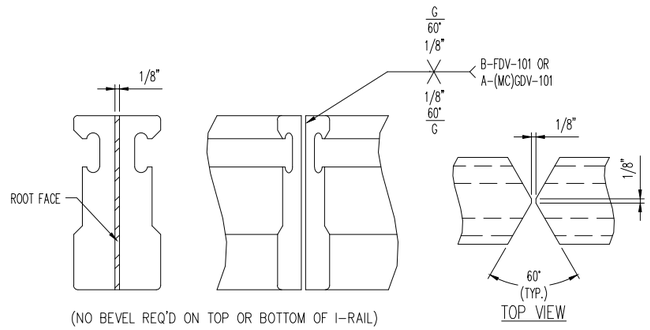
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	1

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING



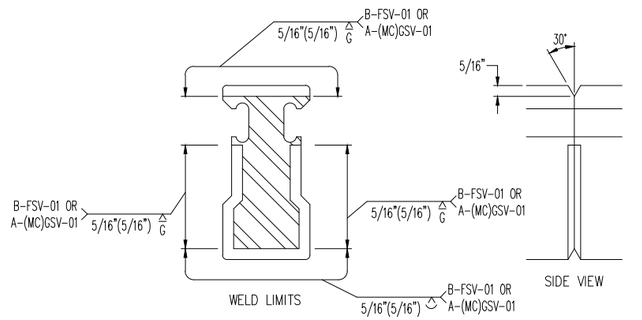
EDGE BEAM SHOP SPLICE DETAIL



(NO BEVEL REQ'D ON TOP OR BOTTOM OF I-RAIL)

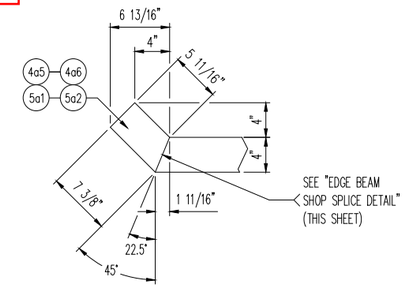
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

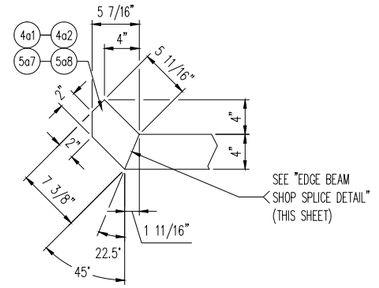


CENTER BEAM UPTURN SHOP SPLICE DETAIL

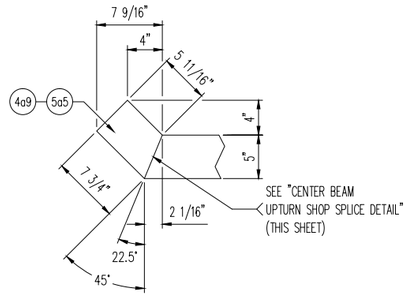
PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



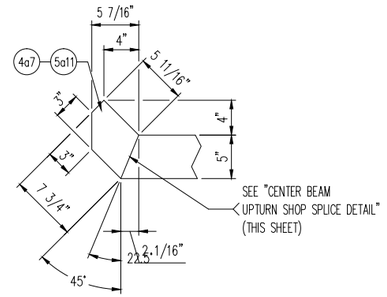
EDGE BEAM UPTURN 1 DETAIL



EDGE BEAM UPTURN 2 DETAIL



CENTER BEAM UPTURN 1 DETAIL



CENTER BEAM UPTURN 2 DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

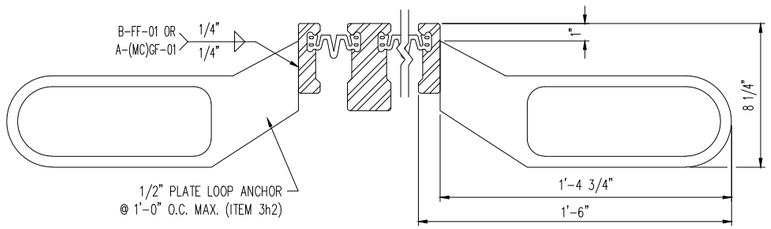
D.S. BROWN
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WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

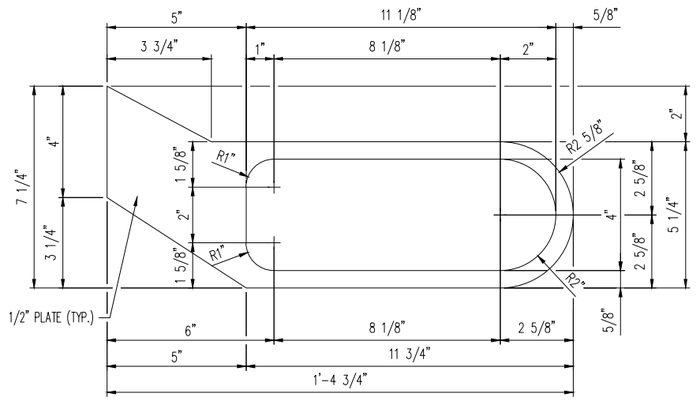
DESCRIPTION:
STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	2 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	2

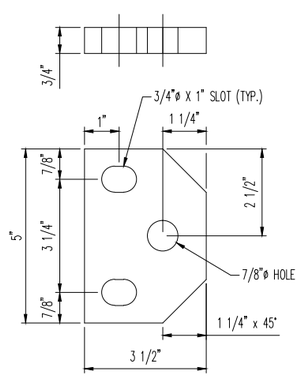


SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



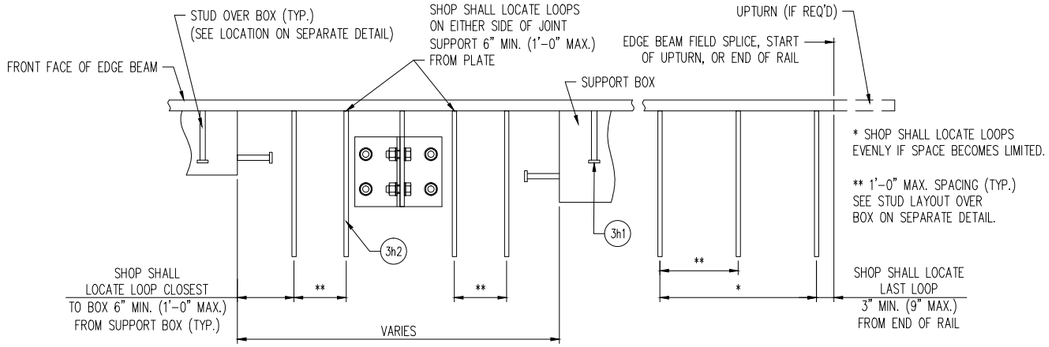
ITEM NO. 3h2
(96) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 3p1
(54) REQ'D.

SPRING ACCESS PLATE DETAIL

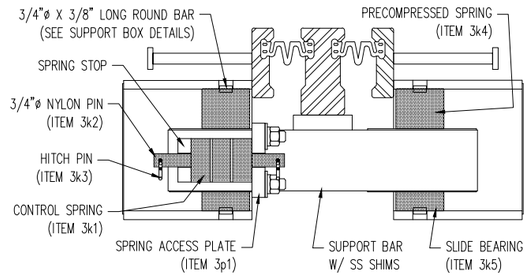


TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

IF INTERFERENCE OCCURS WITH A GIRDER SUPPORT PLATE,
SHOP SHALL SHIFT STUD AS INDICATED ABOVE.

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

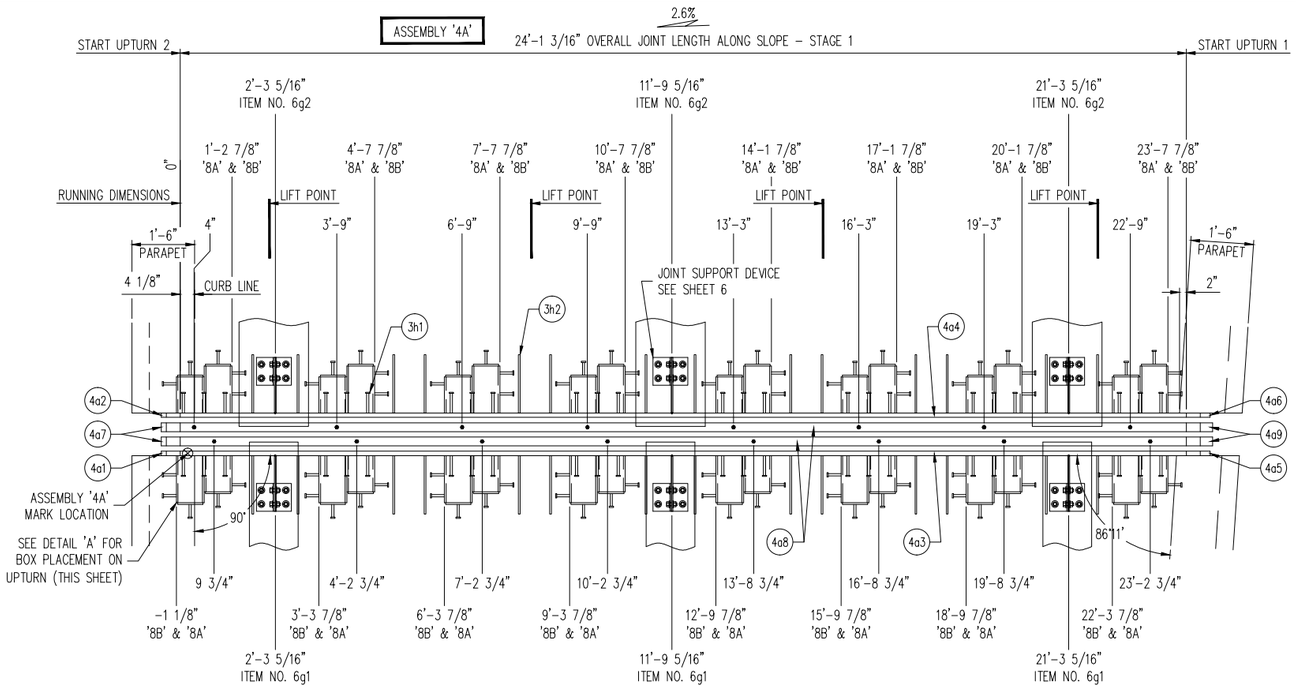
D.S. BROWN
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	3 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	3



'D-240' MODULAR EXPANSION JOINT PLAN VIEW

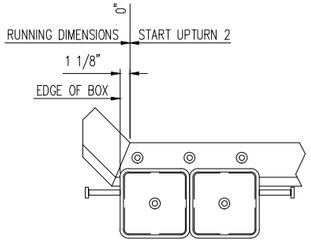
USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #4 LOCATED AT WESTBOUND LANES RAMP 'A' (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-6" MAX.)
(1) JOINT REQUIRED

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 1
- SEE RAIL AND SEAL DETAILS ON SHEET 1
- SEE INSTALLATION PROCEDURES ON SHEET 1
- SEE SPLICE DETAILS ON SHEET 2
- SEE UPTURN DETAILS ON SHEET 2
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 3
- SEE SPRING & BEARING DIAGRAM ON SHEET 3
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 3
- SEE 'D-240' PLAN VIEW FOR JOINT #4 ON SHEET 4
- SEE 'D-240' PLAN VIEW FOR JOINT #5 ON SHEET 5
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 6
- SEE JOINT SUPPORT DETAILS ON SHEET 6
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 7
- SEE SUPPORT BOX DETAILS ON SHEET 8
- SEE SUPPORT BAR DETAILS ON SHEET 9
- SEE BILL OF MATERIALS ON SHEET 10



DETAIL 'A'

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REV.	DESCRIPTION	DATE	DET.	CKD.

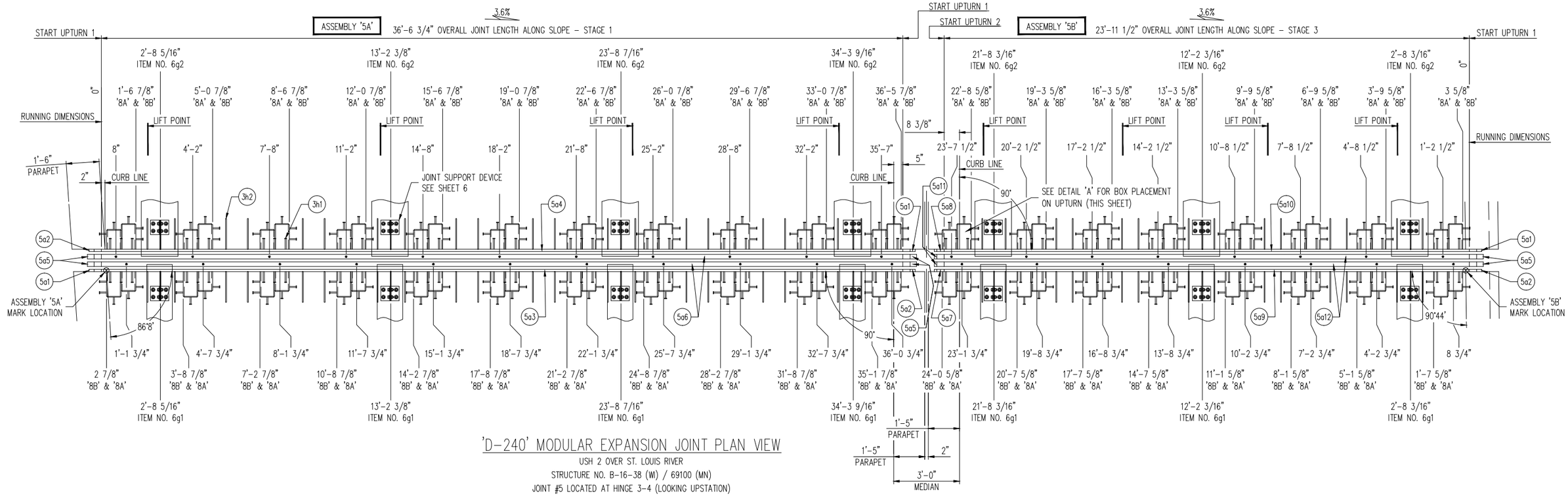
D.S. BROWN
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
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FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	4 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	4



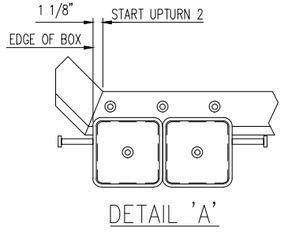
'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #5 LOCATED AT HINGE 3-4 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-6" MAX.)
(1) JOINT EA. REQUIRED

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING



DETAIL 'A'

FABRICATION NOTE:

– SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

- SEE GENERAL NOTES ON SHEET 1
- SEE RAIL AND SEAL DETAILS ON SHEET 1
- SEE INSTALLATION PROCEDURES ON SHEET 1
- SEE SPLICE DETAILS ON SHEET 2
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- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 3
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- SEE JOINT SUPPORT DETAILS ON SHEET 6
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 7
- SEE SUPPORT BOX DETAILS ON SHEET 8
- SEE SUPPORT BAR DETAILS ON SHEET 9
- SEE BILL OF MATERIALS ON SHEET 10

REV.	DESCRIPTION	DATE	DET.	CKD.

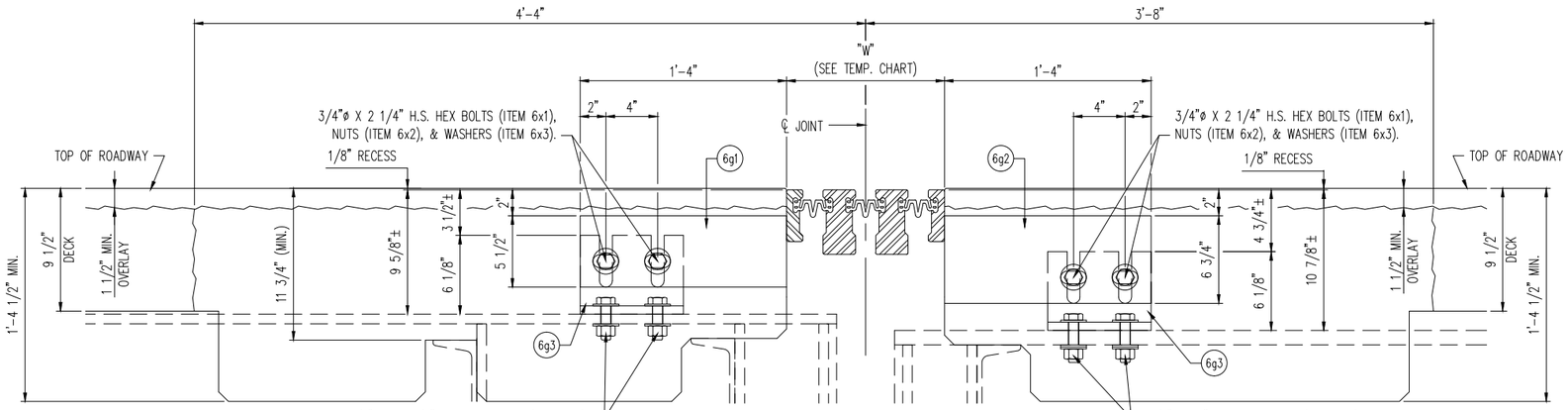
D.S. BROWN
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
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FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN

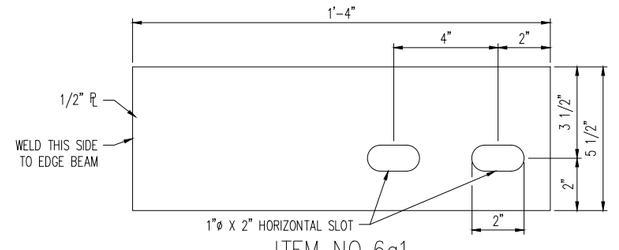
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	5 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	5



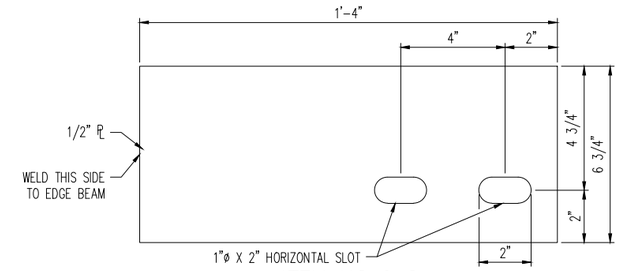
SECTION OF 'D-240' SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F



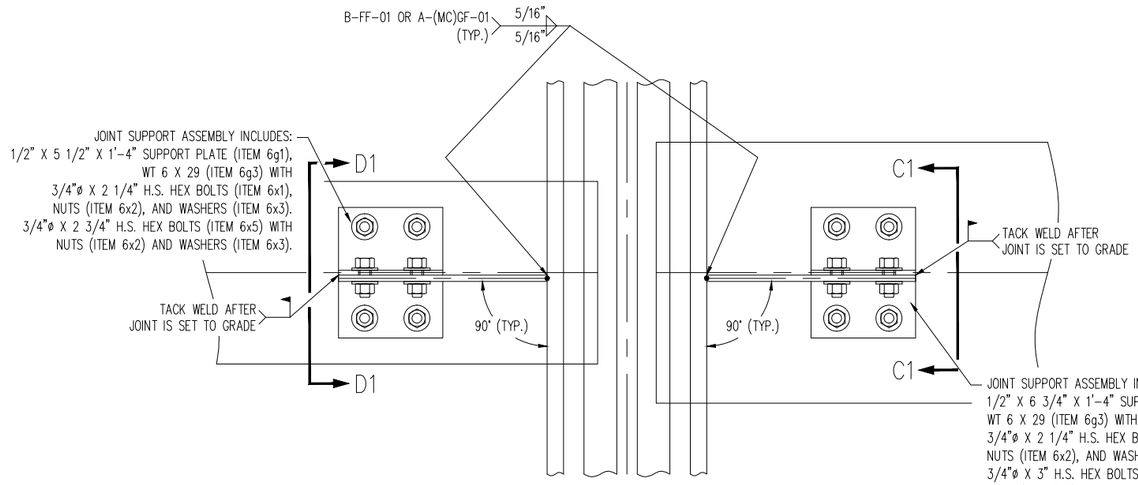
ITEM NO. 6g1

(10) REQ'D.



ITEM NO. 6g2

(10) REQ'D.



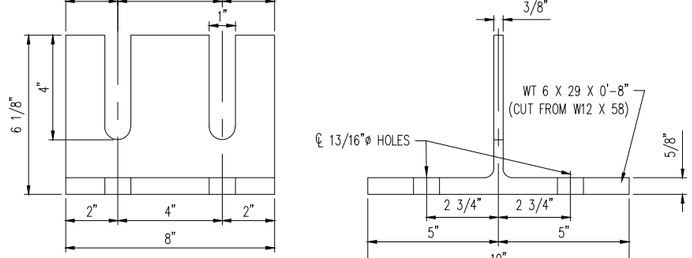
PLAN VIEW OF SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



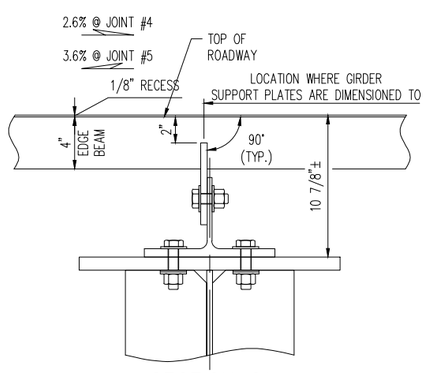
WT6x29 JOINT SUPPORT

ITEM 6g3
(20) REQUIRED

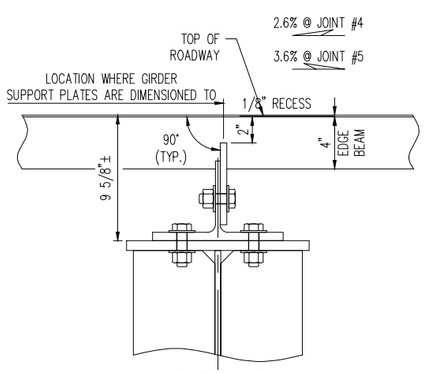
'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINT #4 & #5
MAX.	7 1/2"
95°F	9 3/4"
85°F	10 1/4"
75°F	10 3/4"
65°F	11 1/4"
55°F	11 3/4"
MID. @ 45°F	1'-0 1/4"
35°F	1'-0 3/4"
25°F	1'-1 1/4"
15°F	1'-1 3/4"
5°F	1'-2 1/4"
-5°F	1'-2 3/4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINT #4 & #5



SECTION C1



SECTION D1

PAGE 379 F

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

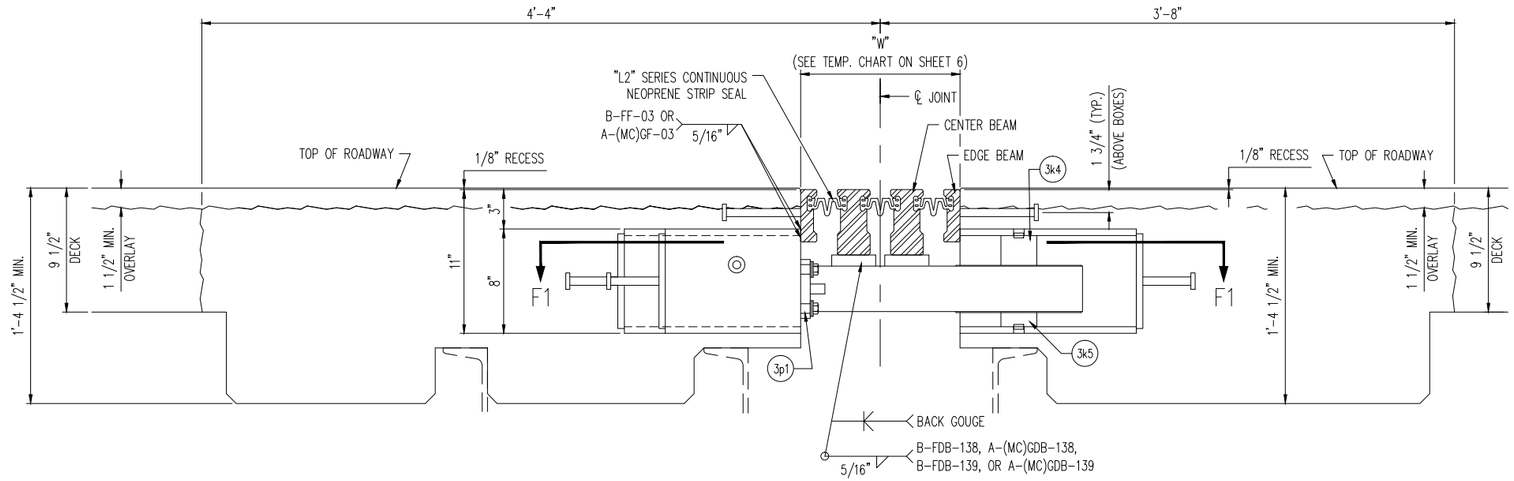
LOCATION — USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)
P.O. NO. — SH9468
DESIGNER — AYRES ASSOCIATES
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)

ITEM	QUANTITY
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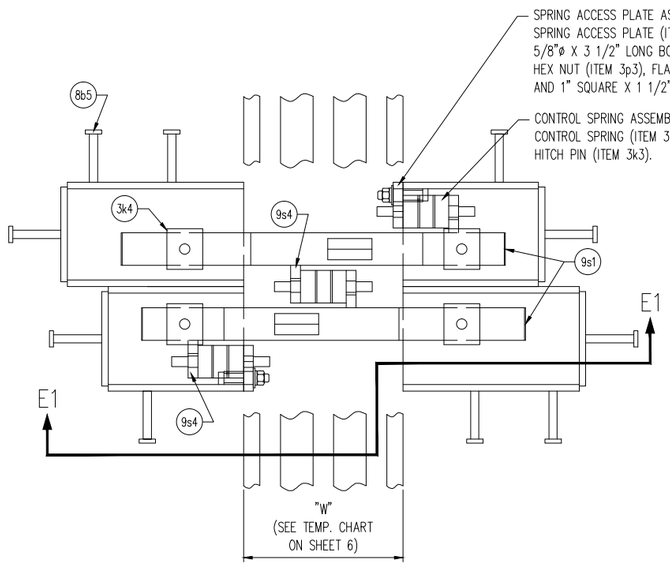
DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	6 OF 10

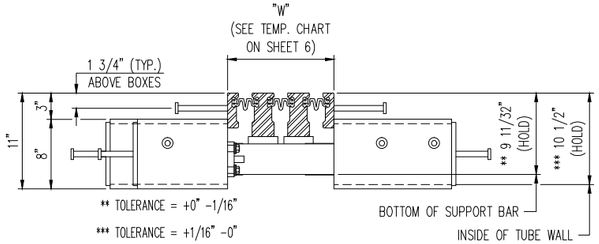
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	6



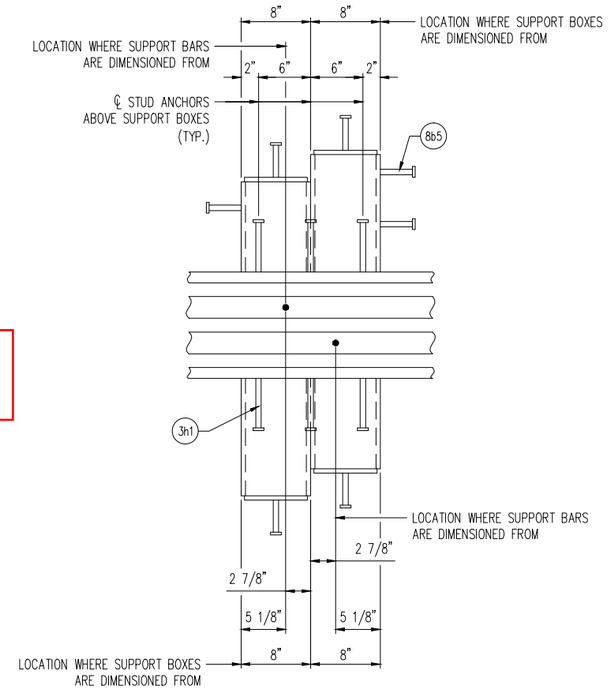
SECTION E1



SECTION F1



SECTION THRU 'D-240' @ SUPPORT BOX



'D-240' SUPPORT BOX DETAIL

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

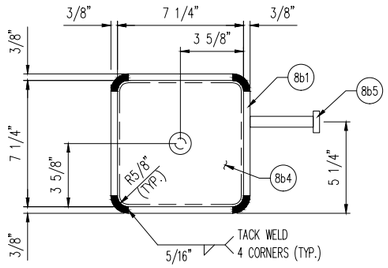
DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

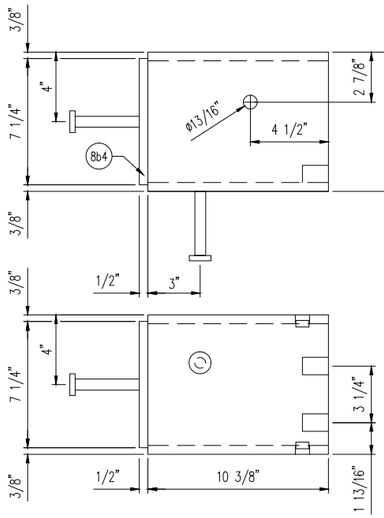
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	7 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	7

REVISED
Modular Expansion Joints 4 & 5
DETAILS

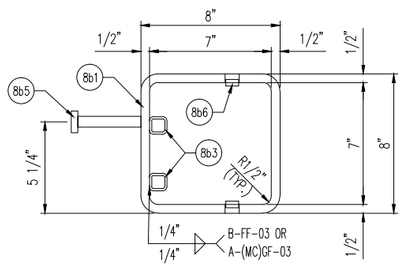
CONSTRUCTION
SHOP DRAWING



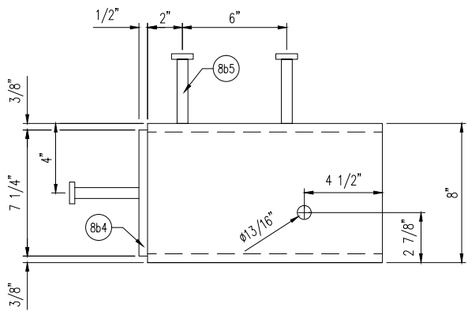


ITEM	DESCRIPTION	QTY.
8b1	1/2" THICK SUPPORT BOX TUBE	54
8b3	1" SQUARE X 1 1/2" LONG TUBING	108
8b4	1/2" PLATE END CAP	54
8b5	5/8"ø X 4" STUD ANCHOR	108
8b6	3/4"ø X 3/8" BAR	108

FOR SHOP USE ONLY

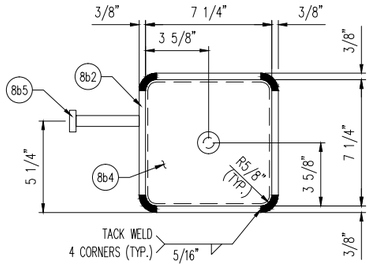


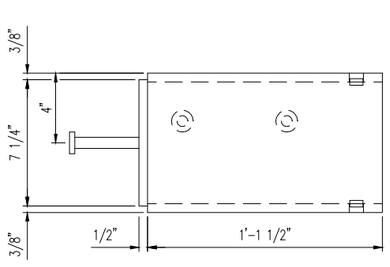
'D-240' SUPPORT BOX DETAIL "8A"
(54) REQUIRED

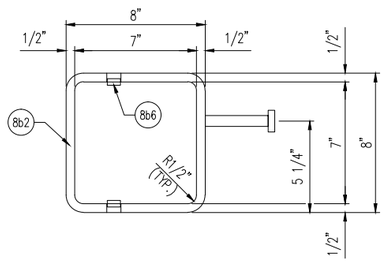


ITEM	DESCRIPTION	QTY.
8b2	1/2" THICK SUPPORT BOX TUBE	54
8b4	1/2" PLATE END CAP	54
8b5	5/8"ø X 4" STUD ANCHOR	162
8b6	3/4"ø X 3/8" BAR	108

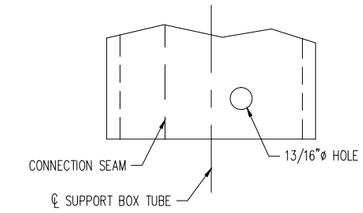
FOR SHOP USE ONLY





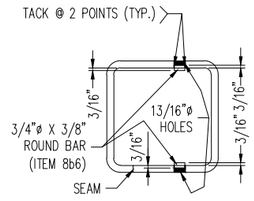


'D-240' SUPPORT BOX DETAIL "8B"
(54) REQUIRED



SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



SUPPORT BOX PIN DETAILS
(W/ RUBBER SPRINGS & BEARINGS)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

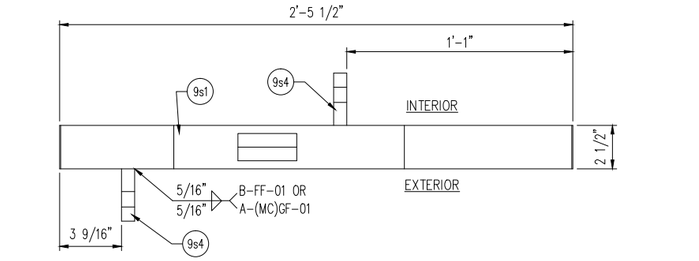
DESCRIPTION:
'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	8 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	8

REVISED
Modular Expansion Joints 4 & 5
DETAILS

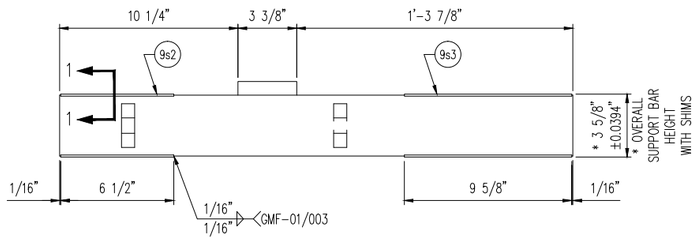
CONSTRUCTION
SHOP DRAWING

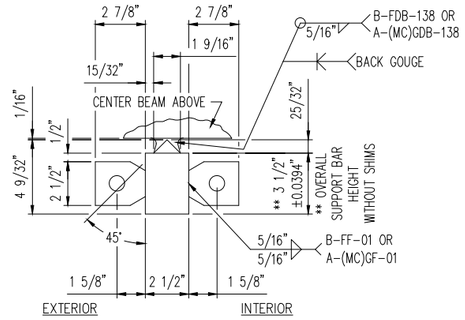


ITEM	DESCRIPTION	QTY.
9s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	54
9s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	108
9s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	108
9s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	108

FOR SHOP USE ONLY

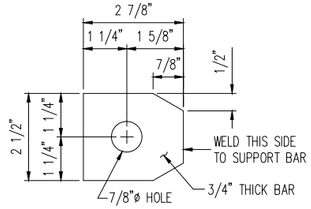
NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.





'D-240' SUPPORT BAR DETAILS

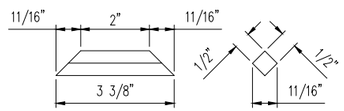
(54) REQUIRED



ITEM NO. 9s4

(108) REQ'D.

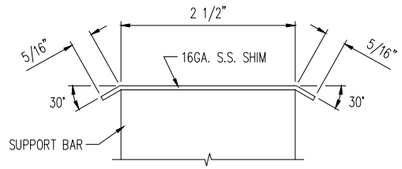
SPRING STOP DETAIL



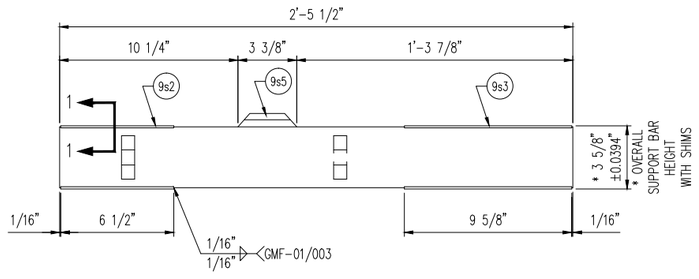
ITEM NO. 9s5

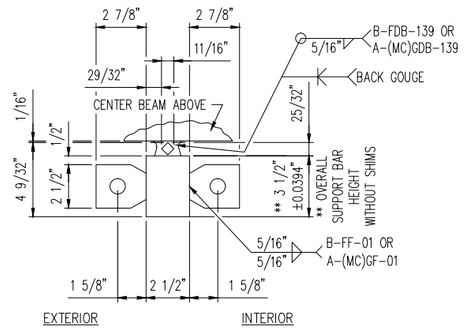
(54) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	9 OF 10

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	9

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
4A	1	"D-240" MODULAR EXPANSION JOINT			25'-2 3/16"	6764	
3h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
3h2	28	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
3k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
3k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
3k3	48	HITCH PIN	-		PLAIN	< 1	
3k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
3k5	32	SLIDE BEARING	-		PLAIN	1	
3p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
3p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
3p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
4a1	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a2	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-4 9/16	A123-HDG	315	
4a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-4 9/16	A123-HDG	315	
4a5	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a6	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
4a7	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
4a8	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	24'-5 5/16	A123-HDG	843	
4a9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
4y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
4y2	3	L2-400 GLAND	NEOPRENE	26'-0	78'-0" TOTAL;	42	
6g1	3	1/2 X 5 1/2	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	12	
6g2	3	1/2 X 6 3/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
8b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
8b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
8b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
8b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
8b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
8b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
9s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
9s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
9s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
9s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			3/13/2014 12:06:33 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
5A	1	"D-240" MODULAR EXPANSION JOINT			37'-9 7/8"	9583	
3h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
3h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
3k1	33	CONTROL SPRING (80MM)	-		PLAIN	1	
3k2	33	NYLON PIN (80MM)	-		PLAIN	< 1	
3k3	66	HITCH PIN	-		PLAIN	< 1	
3k4	44	PRECOMPRESSED SPRING	-		PLAIN	< 1	
3k5	44	SLIDE BEARING	-		PLAIN	1	
3p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
3p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
3p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
5a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-10 1/8	A123-HDG	476	
5a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-10 1/8	A123-HDG	476	
5a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
5a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-10 7/8	A123-HDG	1272	
5y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
5y2	3	L2-400 GLAND	NEOPRENE	39'-0	117'-0" TOTAL;	62	
6g1	4	1/2 X 5 1/2	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	12	
6g2	4	1/2 X 6 3/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
8b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
8b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
8b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
8b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
8b5	110	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
8b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
9s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
9s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
9s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
9s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
5B	1	"D-240" MODULAR EXPANSION JOINT			25'-0 1/2"	6750	
3h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
3h2	28	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
3k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
3k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
3k3	48	HITCH PIN	-		PLAIN	< 1	
3k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
3k5	32	SLIDE BEARING	-		PLAIN	1	
3p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
3p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
3p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
3p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
5a1	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a2	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a5	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
5a7	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a8	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-7 3/8	A123-HDG	8	
5a9	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-2 7/8	A123-HDG	313	
5a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	24'-2 7/8	A123-HDG	313	
5a11	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-7 3/4	A123-HDG	22	
5a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	24'-3 5/8	A123-HDG	838	
5y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
5y2	3	L2-400 GLAND	NEOPRENE	26'-0	78'-0" TOTAL;	42	
6g1	3	1/2 X 5 1/2	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	12	
6g2	3	1/2 X 6 3/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
8b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
8b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
8b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
8b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
8b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
8b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
9s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
9s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
9s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
9s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			3/13/2014 12:06:33 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
6GA	20	JOINT SUPPORT ITEM				19	
6g3	20	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
6XA	40	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
6x1	40	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XB	120	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
6x2	120	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
6XC	280	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
6x3	280	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
6XD	40	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
6x4	40	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XE	40	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
6x5	40	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
6XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
6t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XBT	9	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
6t2	9	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
6XCT	18	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
6t3	18	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
6XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
6t1	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
6XET	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
6t1	3	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			3/13/2014 12:06:33 PM		

REVISED
Modular Expansion Joints 4 & 5
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

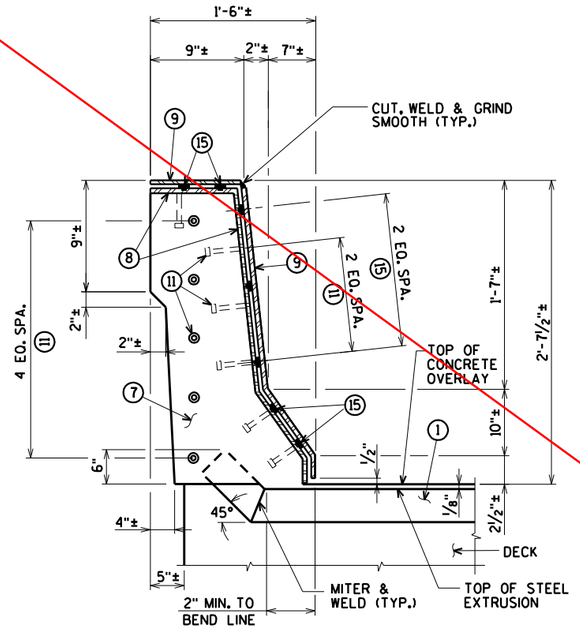
DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	02/2014	10 OF 10

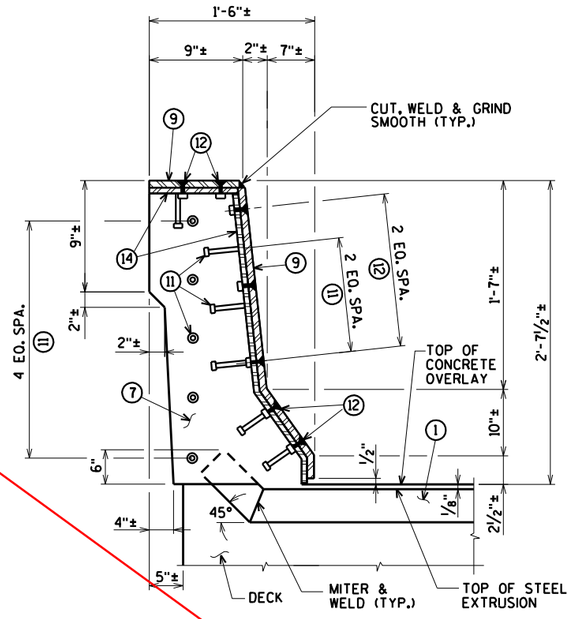
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	10

STATE PROJECT NUMBER

8680-04-71



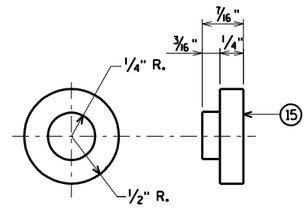
SECTION E



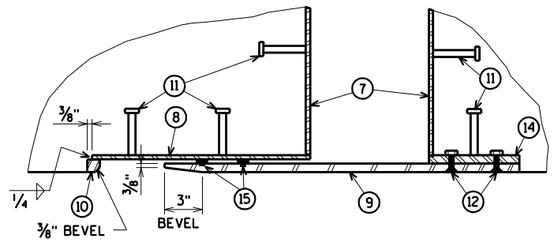
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

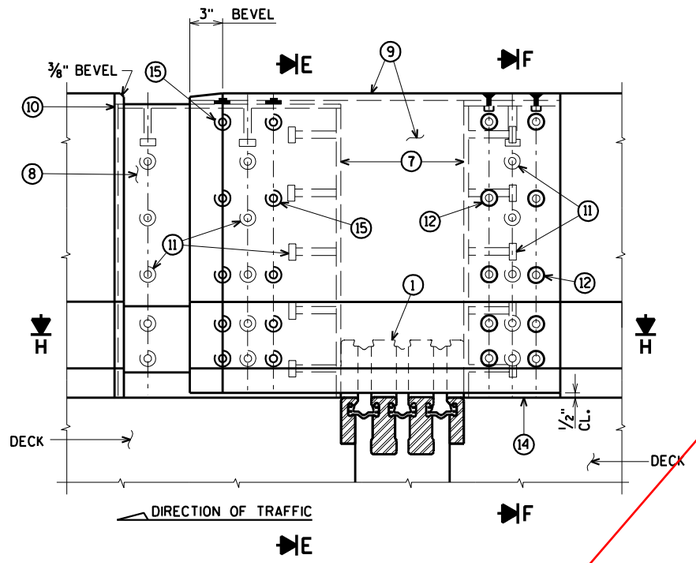
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 33



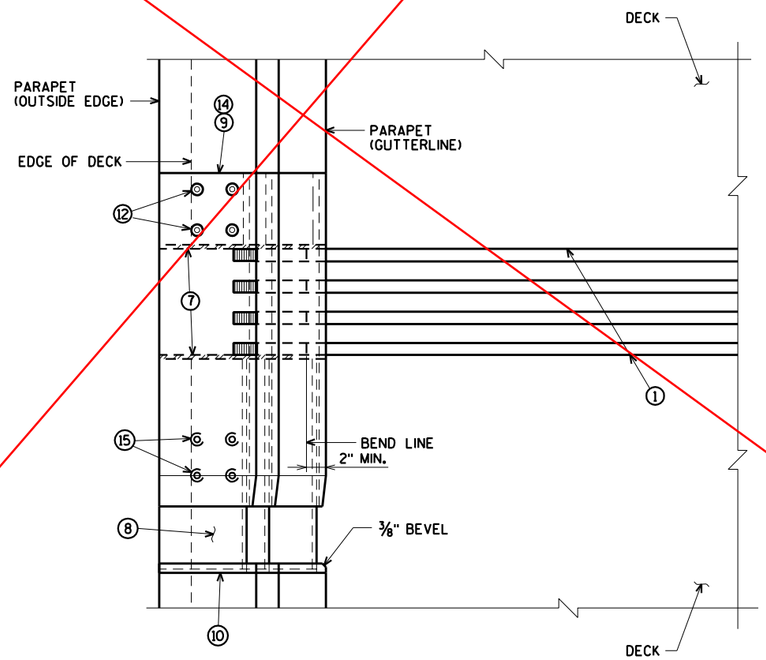
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET
(NORTH PARAPET SHOWN, OTHER SIDE SIMILAR)



PLAN OF OUTSIDE PARAPET
(NORTH PARAPET SHOWN, OTHER SIDE SIMILAR)

See revised joint details PAGE 379.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 33 & 35

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 4 DETAILS OUTSIDE PARAPET

SHEET 34 OF 99
380

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

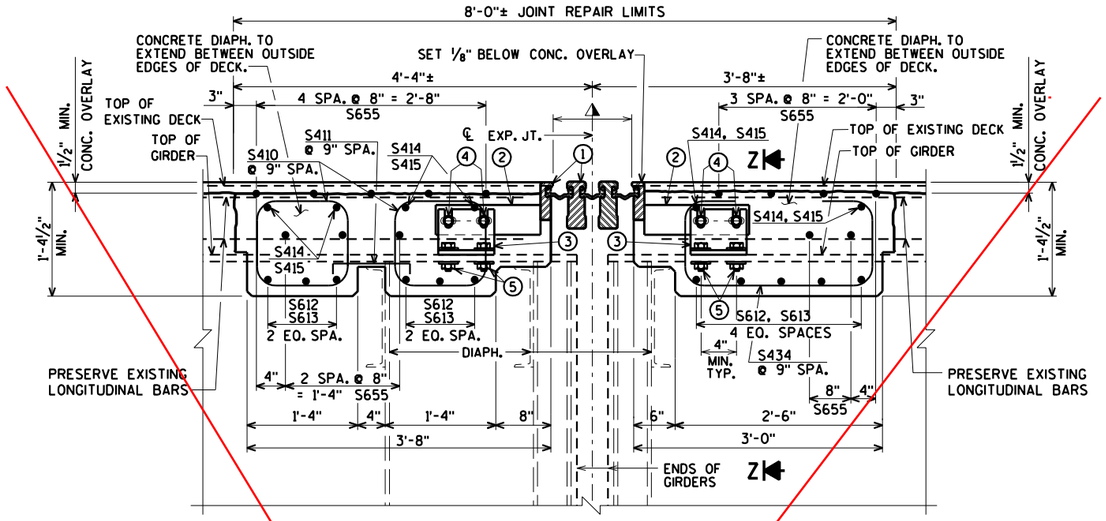
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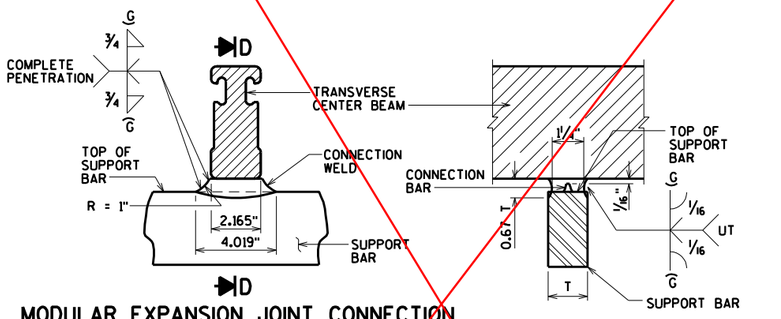
STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 4

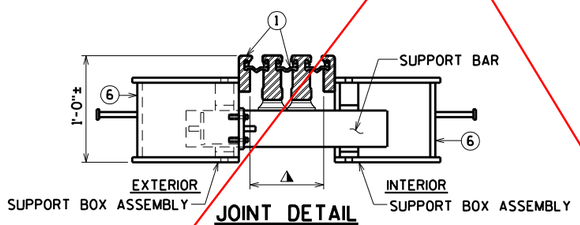
NORMAL TO ℄ OF JOINT



D

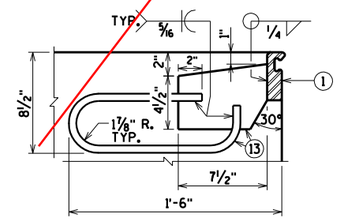
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D



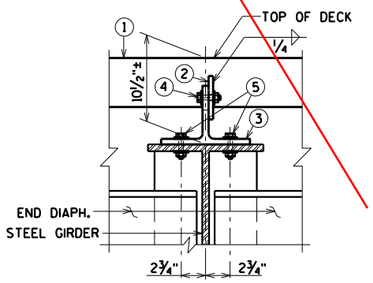
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

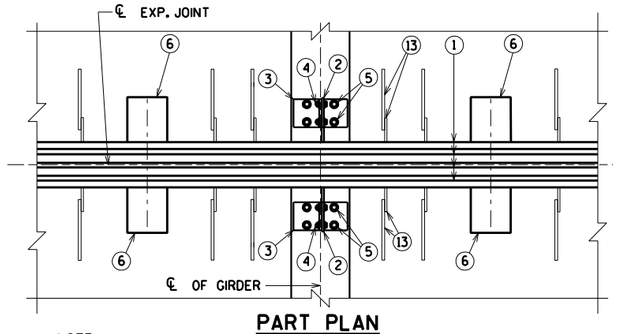


ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ⊄ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details PAGE 379.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 33-34

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 4 DETAILS

SHEET 35 OF 99
381

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

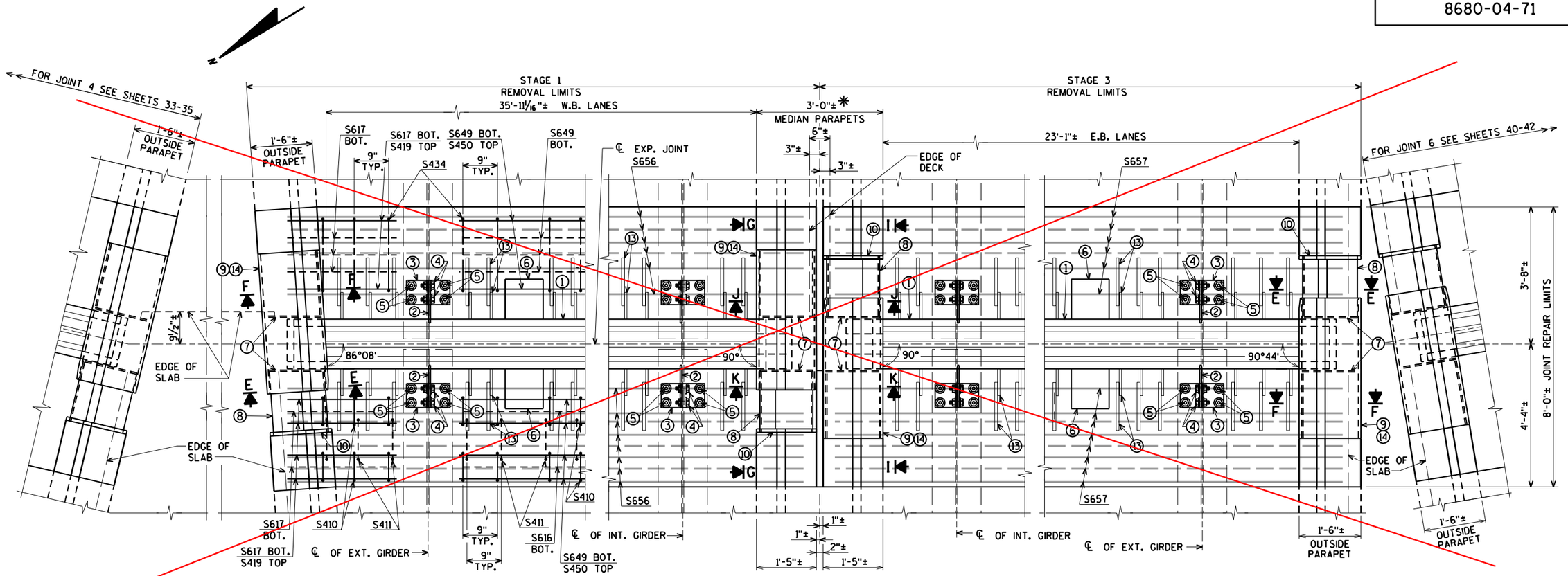
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8

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 5

* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTIONS 'E' AND 'F'
SEE SHEET 37

FOR SECTIONS 'G', 'I', 'J' AND 'K'
SEE SHEET 38

See revised joint details PAGE 379.
Cover plate details PAGE 409.

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

WORK THIS SHEET WITH SHEETS 37-39

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 5 DETAILS

SHEET 36 OF 99
382

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

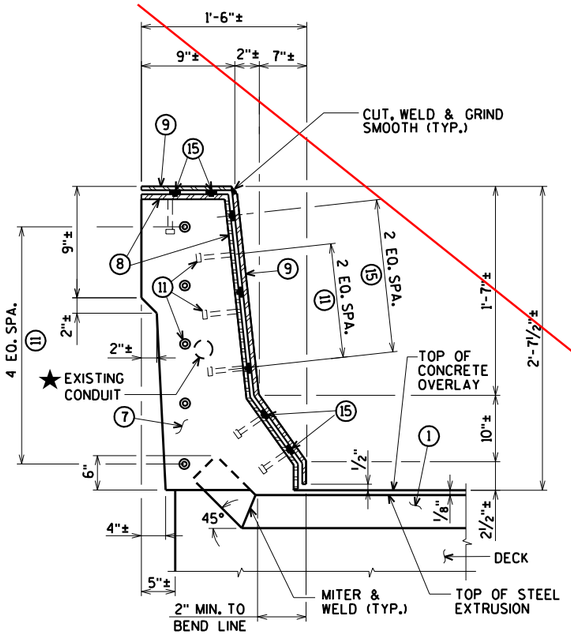
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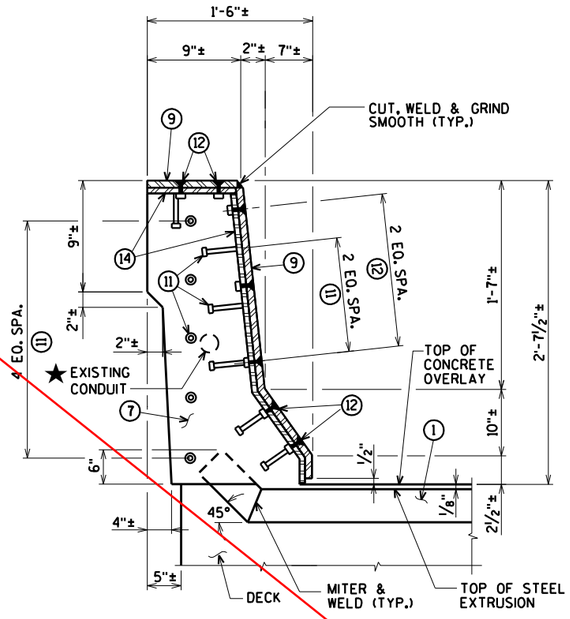
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STATE PROJECT NUMBER

8680-04-71



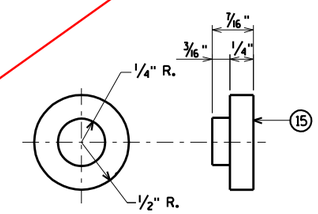
SECTION E



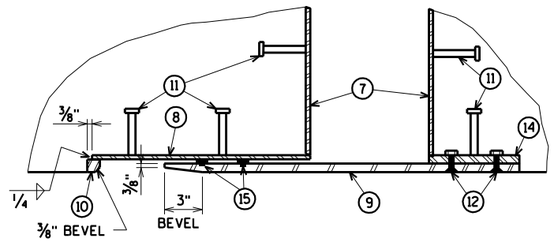
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

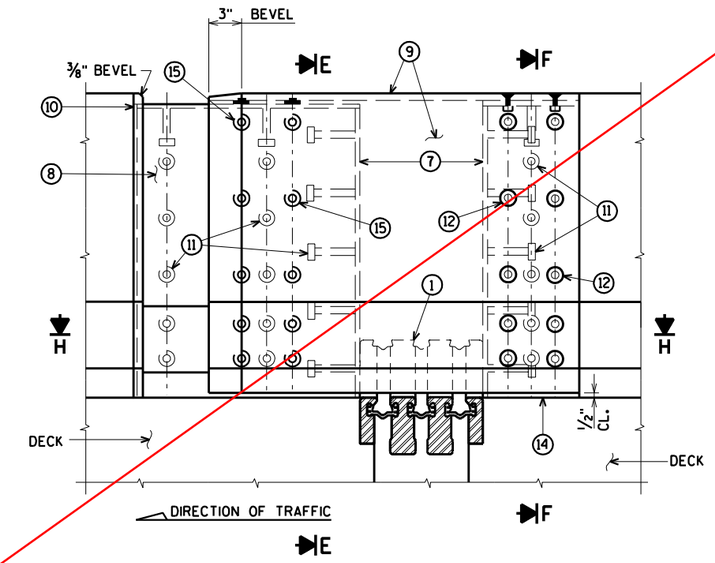


ADIPRENE BUTTON DETAIL

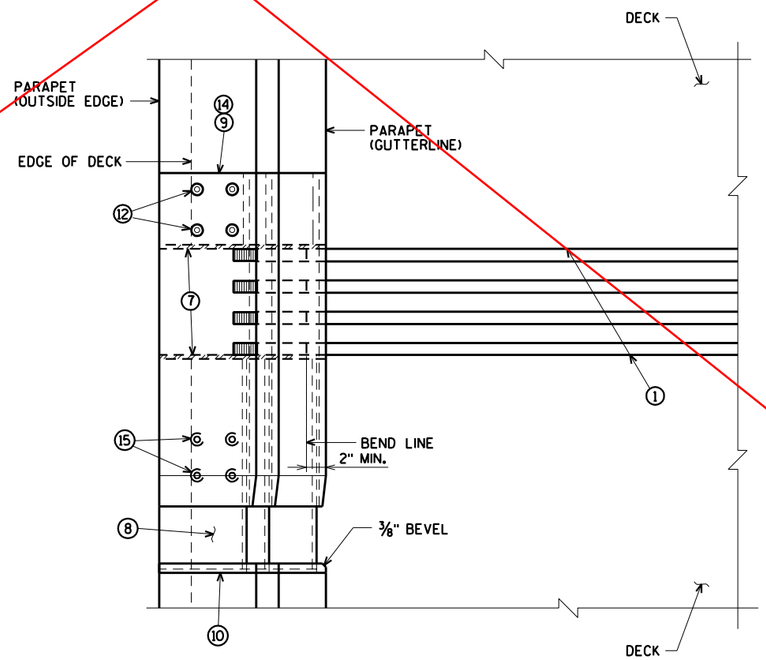


SECTION H

FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 36



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 379.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 36, 38-39

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 5 DETAILS OUTSIDE PARAPET

SHEET 37 OF 99
383

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42-0825 EXPJT 5.dgn

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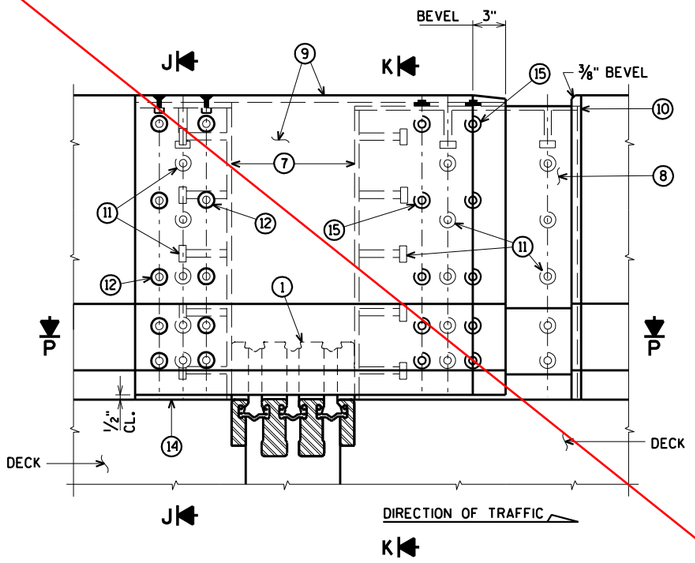
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9/12/2013

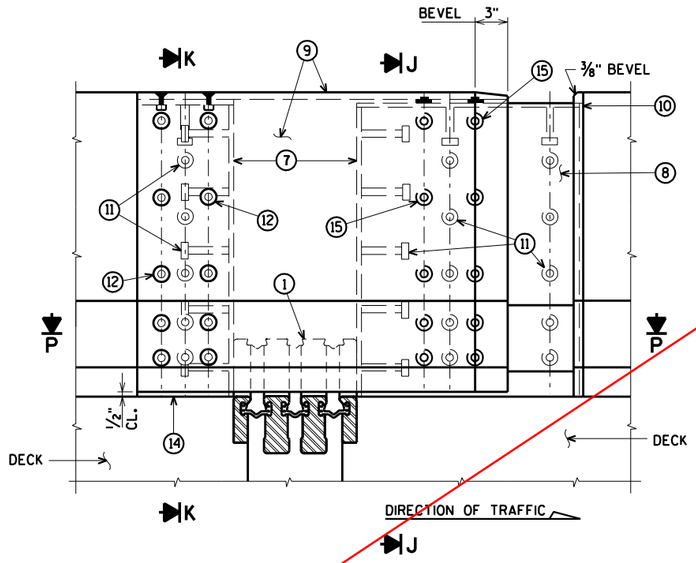
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STATE PROJECT NUMBER

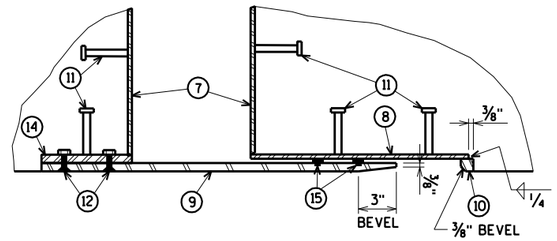
8680-04-71



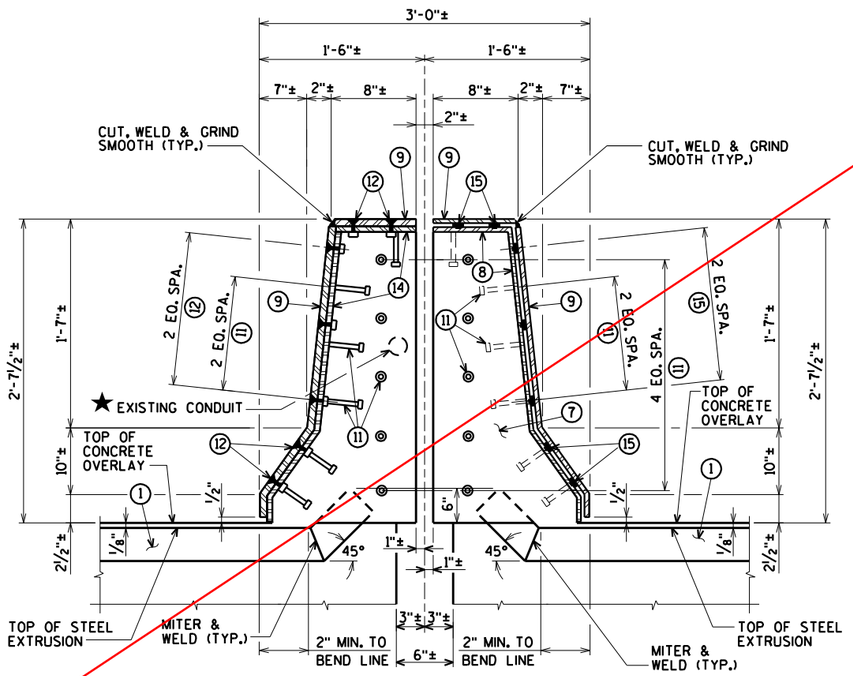
ELEVATION OF MEDIAN PARAPET
SECTION G



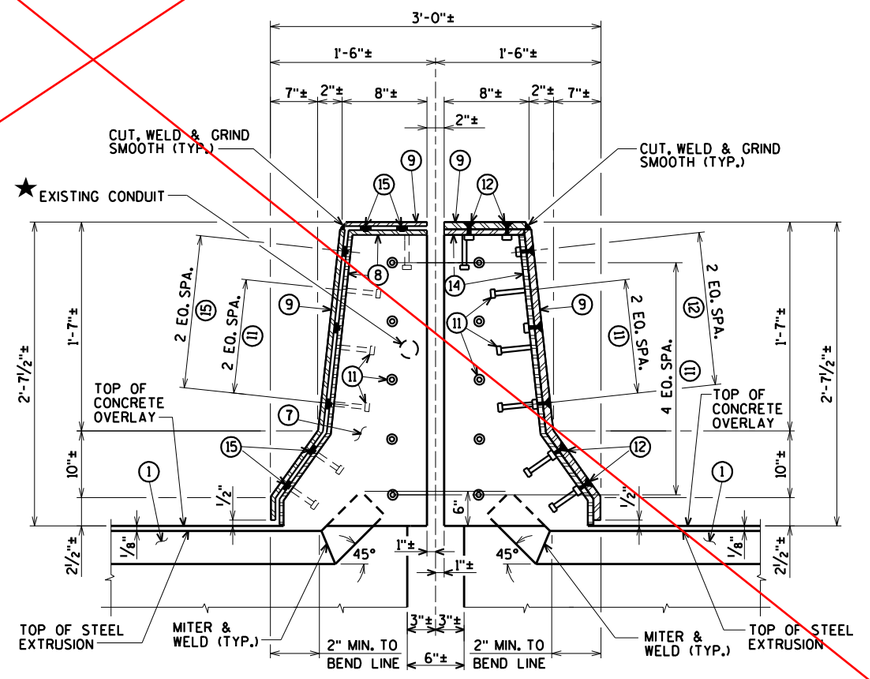
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 36

See revised joint details
PAGE 379.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 36-37, 39

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION
JOINT 5 DETAILS
MEDIAN PARAPETS

SHEET 38 OF 99
384

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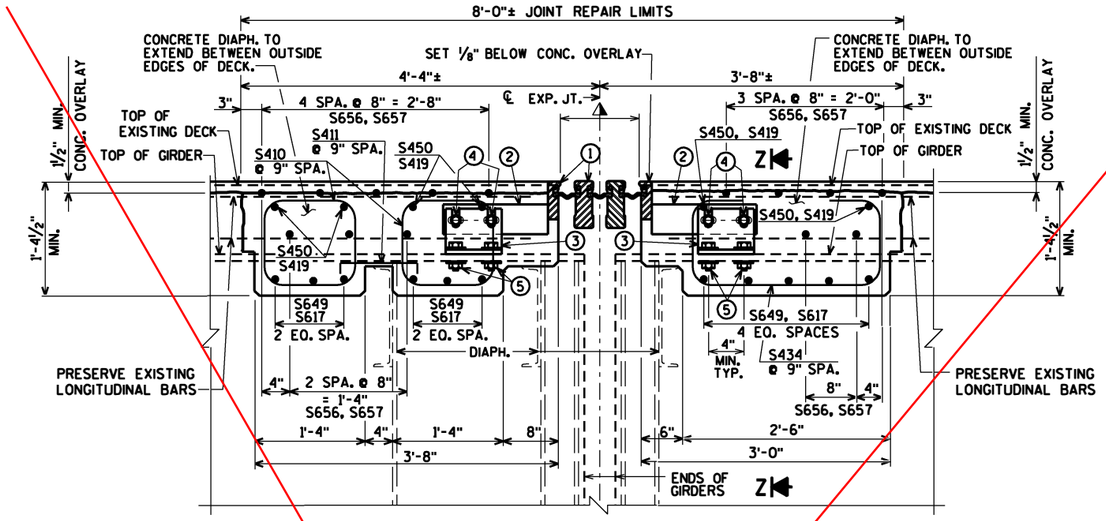
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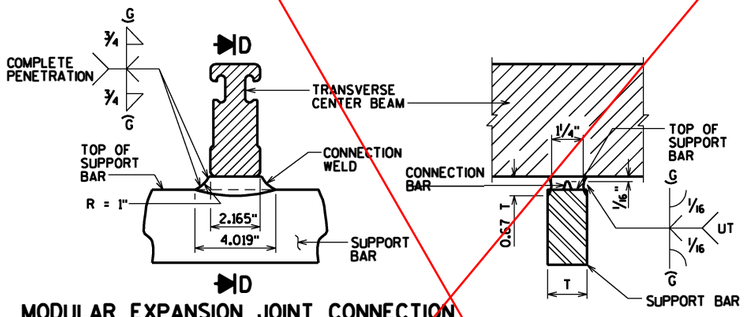
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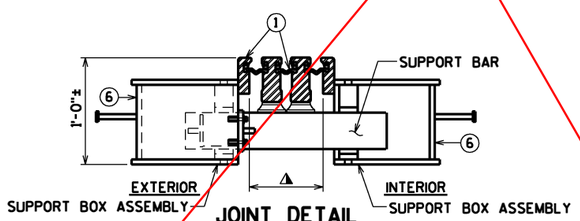
SECTION THRU JOINT 5

NORMAL TO ℄ OF JOINT



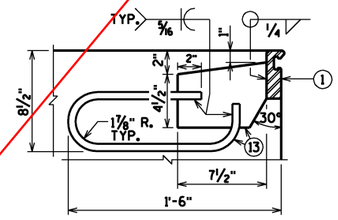
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D



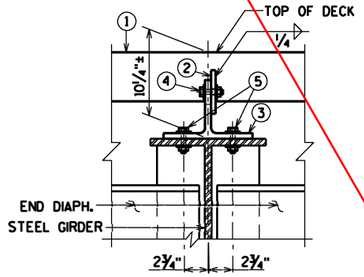
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

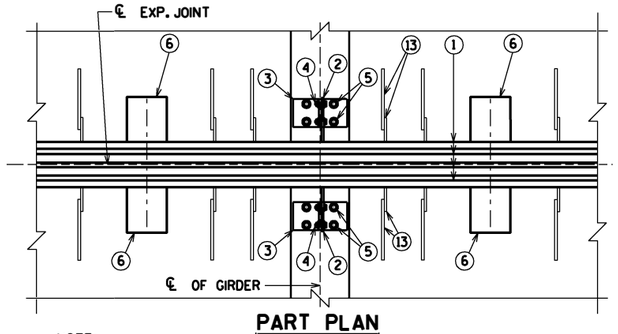


ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

STATE PROJECT NUMBER

8680-04-71

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SO. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details PAGE 379.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 36-38

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 5 DETAILS

SHEET 39 OF 99
385

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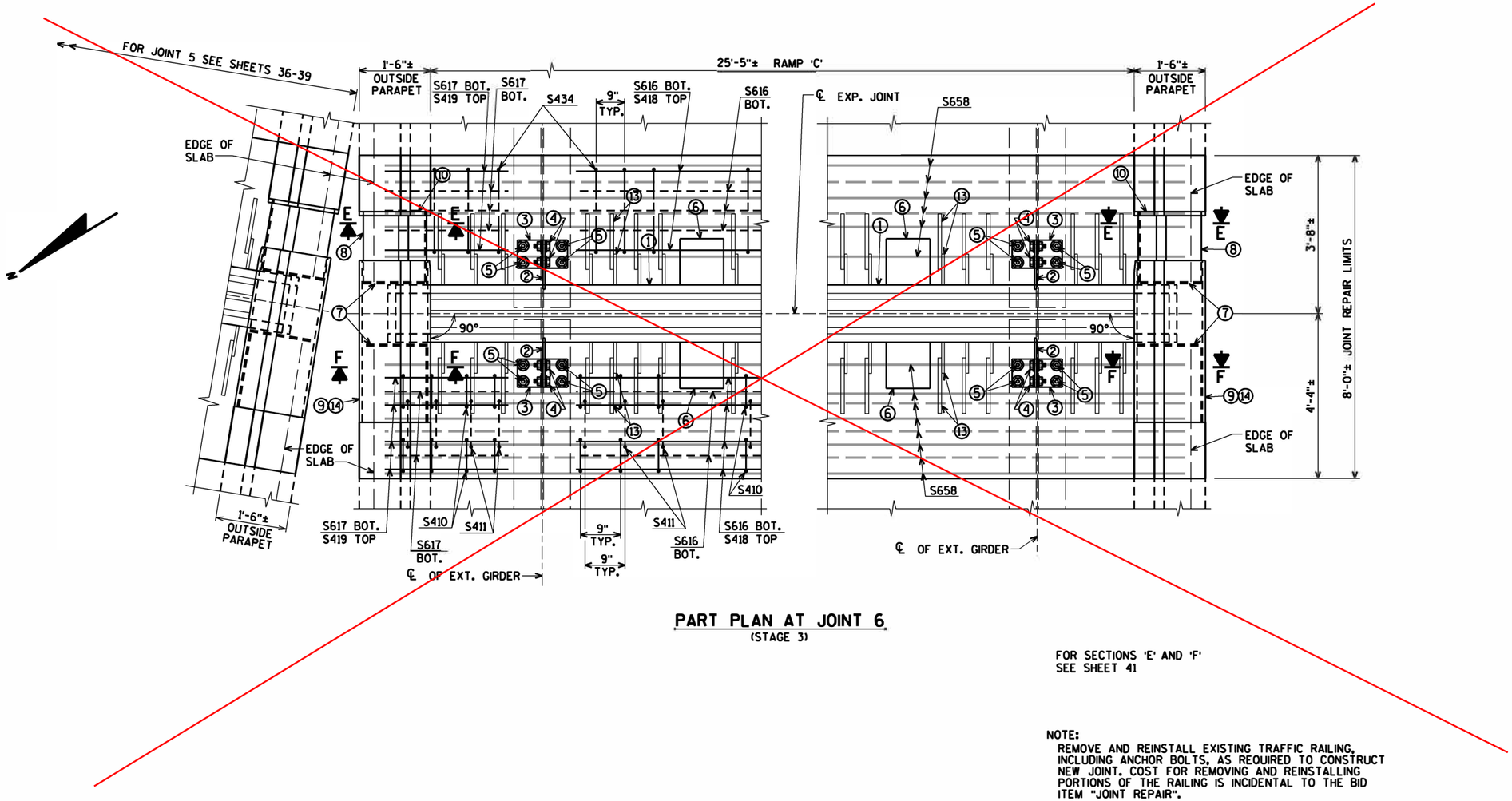
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 6
(STAGE 3)

FOR SECTIONS 'E' AND 'F'
SEE SHEET 41

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details
PAGE 386 A

WORK THIS SHEET WITH SHEETS 41-42

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 6 DETAILS

SHEET 40 OF 99
386

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42-0825 EXPJT 6 .dgn

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REVISED
Modular Expansion Joints 6 & 8
DETAILS

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

SUPPORT BOXES SHALL BE ASTM–A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM–A240, TYPE 304, WITH A 20 MICRO–INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM–A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A–SM–STUD–REP–01, B–FF–STUD–REP–01, OR A–(MC)GF–STUD–REP–01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT–DIPPED GALVANIZED IN ACCORDANCE WITH ASTM–A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM–A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP–6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT–BRIDGE UNIT–INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

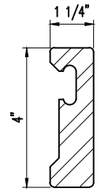
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

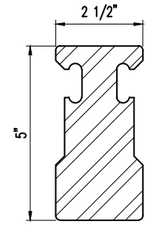
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 77p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.
(LOCATED ON 'D–240' MODULAR EXPANSION JOINTS.)



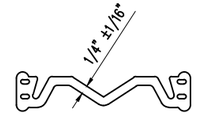
CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

CONSTRUCTION
SHOP DRAWING

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2–400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 75
- SEE RAIL AND SEAL DETAILS ON SHEET 75
- SEE INSTALLATION PROCEDURES ON SHEET 75
- SEE SPLICE DETAILS ON SHEET 76
- SEE UPTURN DETAILS ON SHEET 76
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 77
- SEE SPRING & BEARING DIAGRAM ON SHEET 77
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 77
- SEE 'D–240' PLAN VIEW FOR JOINTS #6 & #8 ON SHEET 78
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 79
- SEE JOINT SUPPORT DETAILS ON SHEET 79
- SEE 'D–240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 80
- SEE SUPPORT BOX DETAILS ON SHEET 81
- SEE SUPPORT BAR DETAILS ON SHEET 82
- SEE BILL OF MATERIALS ON SHEET 83

REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

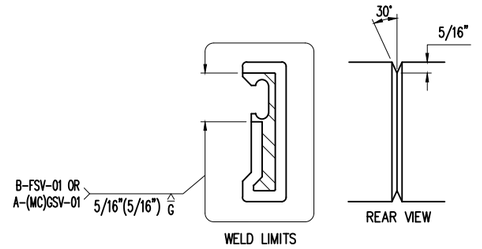
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DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	1 OF 9

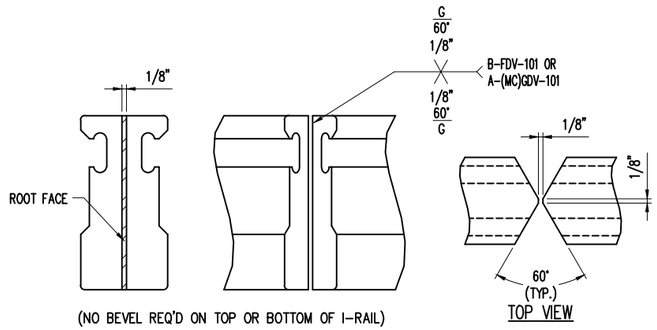
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	75

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REVISED
Modular Expansion Joints 6 & 8
DETAILS

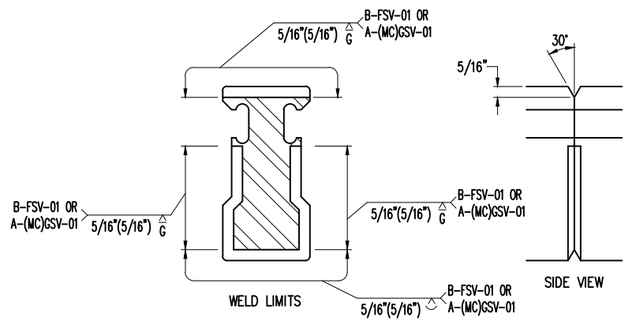


EDGE BEAM SHOP SPLICE DETAIL



CENTER BEAM SHOP SPLICE DETAIL

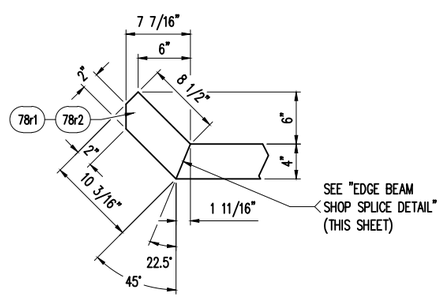
COMPLETE PENETRATION WELD



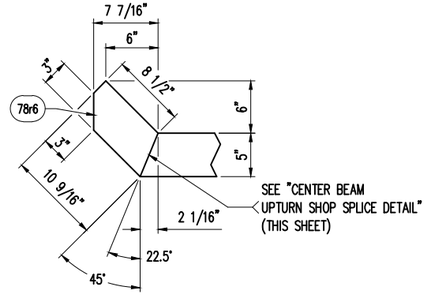
CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)

CONSTRUCTION
SHOP DRAWING



EDGE BEAM UPTURN DETAIL



CENTER BEAM UPTURN DETAIL

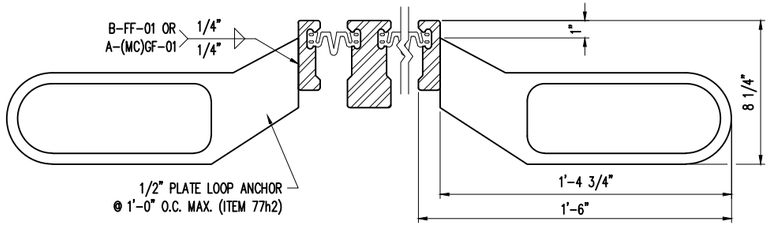
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

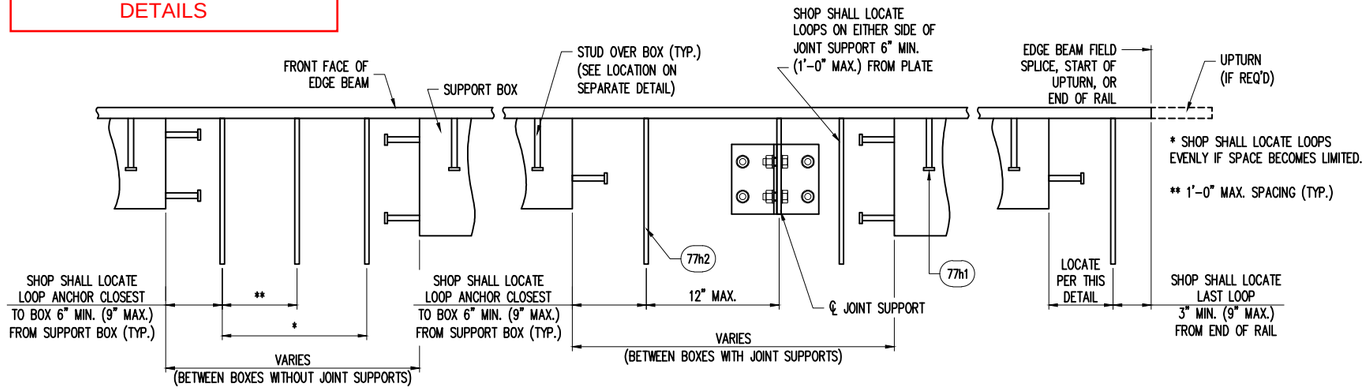
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	BLB	JLW	04/04/14	2 OF 9
PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 76		

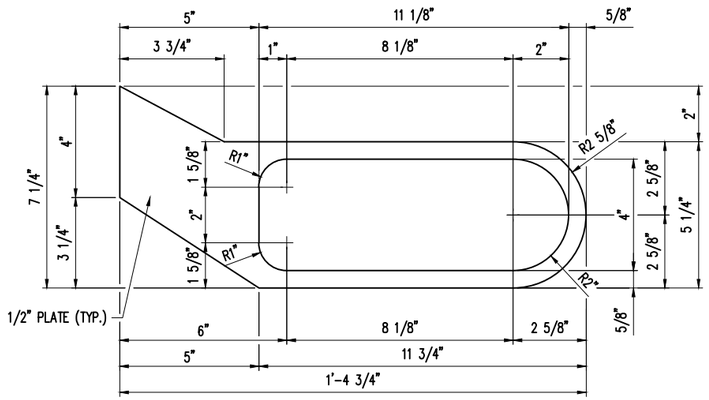
REVISED
Modular Expansion Joints 6 & 8
DETAILS



SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)

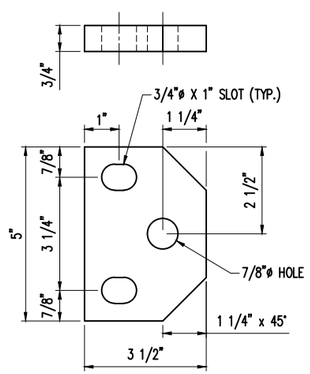


TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM



ITEM NO. 77h2
(60) REQ'D.

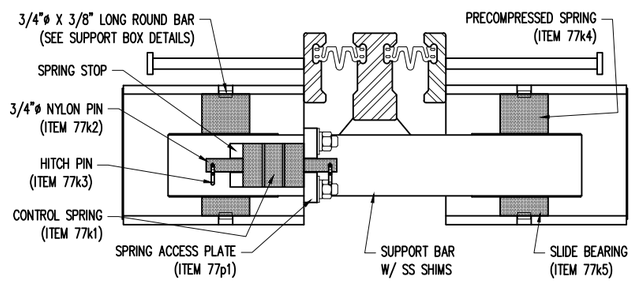
PLATE ANCHOR DETAIL



ITEM NO. 77p1
(32) REQ'D.

SPRING ACCESS PLATE DETAIL

CONSTRUCTION
SHOP DRAWING



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-240" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

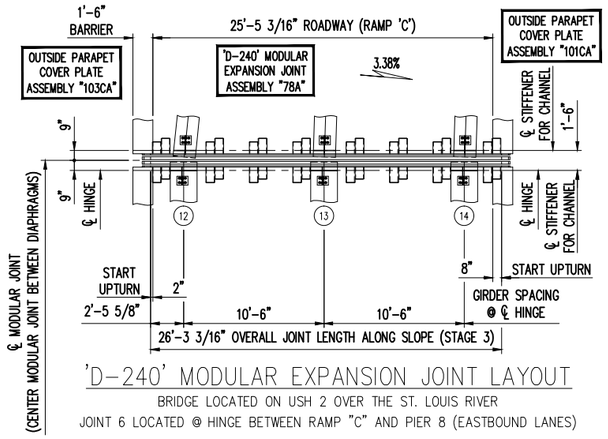
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

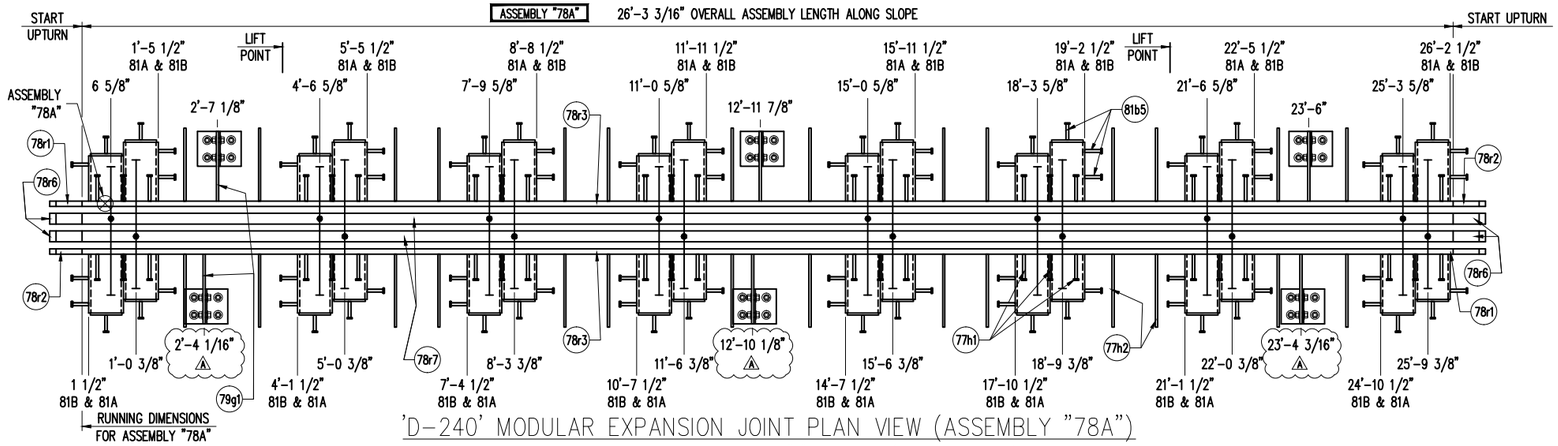
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	3 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	77



'D-240' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 6 LOCATED @ HINGE BETWEEN RAMP "C" AND PIER 8 (EASTBOUND LANES)

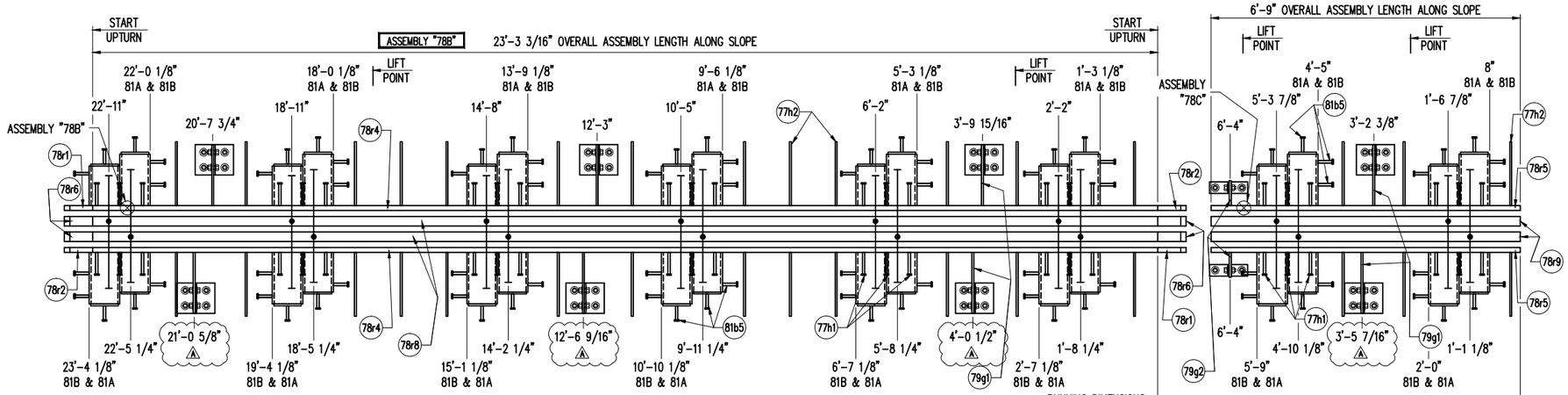


'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "78A")

JOINT 6 LOCATED @ HINGE BETWEEN RAMP "C" AND PIER 8 (EASTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-3" MIN.

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 75
- SEE RAIL AND SEAL DETAILS ON SHEET 75
- SEE INSTALLATION PROCEDURES ON SHEET 75
- SEE SPLICE DETAILS ON SHEET 76
- SEE UPTURN DETAILS ON SHEET 76
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 77
- SEE SPRING & BEARING DIAGRAM ON SHEET 77
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 77
- SEE 'D-240' PLAN VIEWS ON SHEET 78
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 79
- SEE JOINT SUPPORT DETAILS ON SHEET 79
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 80
- SEE SUPPORT BOX DETAILS ON SHEET 81
- SEE SUPPORT BAR DETAILS ON SHEET 82
- SEE BILL OF MATERIALS ON SHEET 83
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS AFTER 100 FOR COVER PLATE DETAILS)

NORTH APPROX.

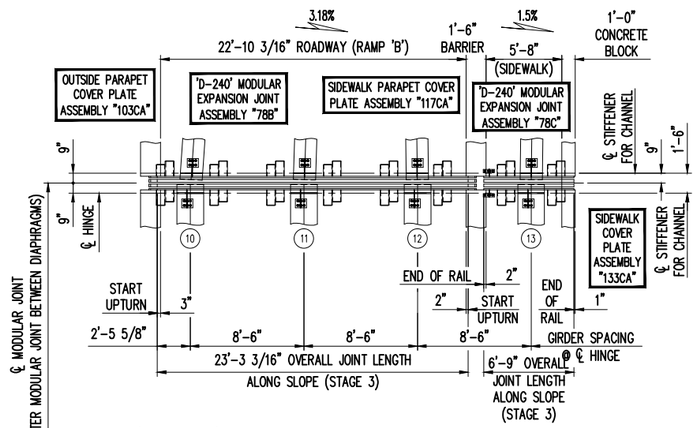


'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "78B")

JOINT 8 LOCATED @ HINGE BETWEEN RAMP "B" AND PIER 11 (EASTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3" MAX. & 4'-0" MIN.

'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "78C")

JOINT 8 LOCATED @ HINGE
BETWEEN RAMP "B" AND PIER 11 (SIDEWALK)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 3'-9"



'D-240' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 8 LOCATED @ HINGE BETWEEN RAMP "B" AND PIER 11 (EASTBOUND LANES)

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joints 6 & 8
DETAILS

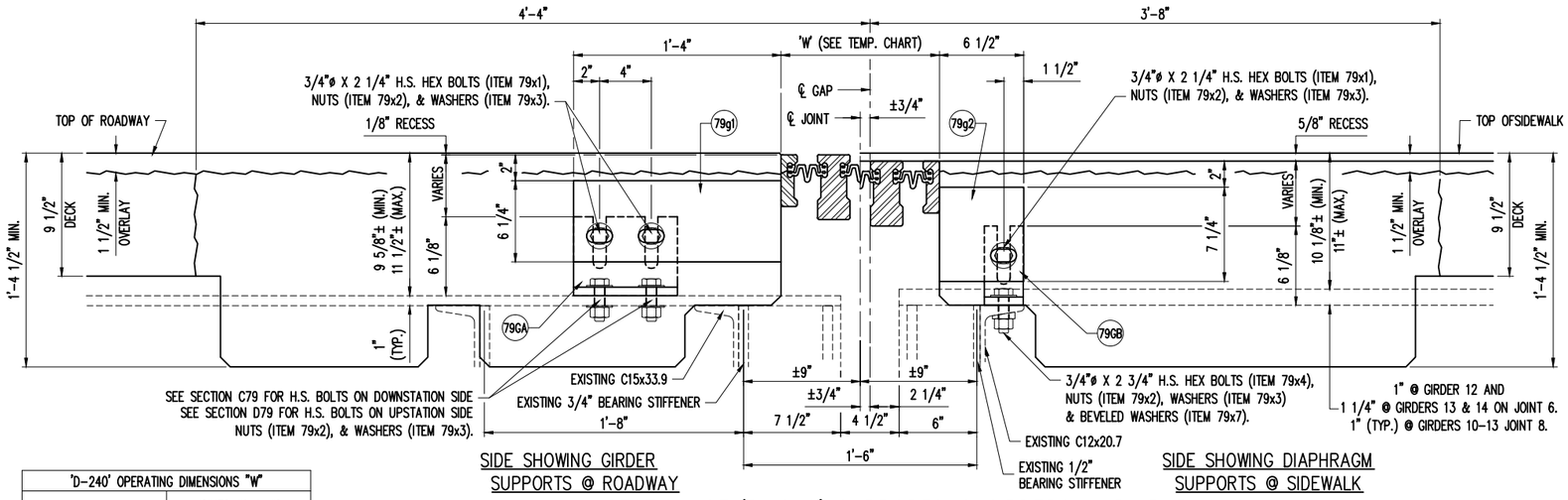
CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.
1	REVISED JOINT SUPPORT LOCATIONS	10/24/14	BLB	JLW

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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION	SCALE	DRAWN BY	CHECKED BY	DATE	BRIDGE SHEET
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	BLB	JLW	04/04/14	4 OF 9
	PROJECT NUMBER 42790	PRODUCT CODE 1021	RELEASE 1	SHEET 78	



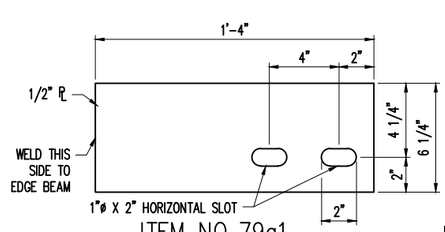
SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SIDE SHOWING DIAPHRAGM SUPPORTS @ SIDEWALK

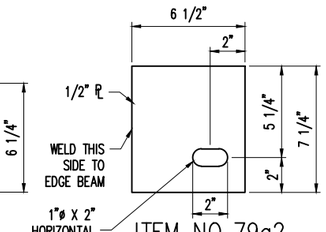
SECTION OF 'D-240' SUPPORTS @ GIRDERS & DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F

HIGH STRENGTH BOLT SCHEDULE (FOR ALL SUPPORTS)						
JOINT LOCATION	GIRDER / LOCATOIN	SIDE OF JOINT	CONNECTION TYPE OR TOP FLANGE THICKNESS	BOLT LENGTH	MK#	QTY
#6 & #8	ALL SUPPORTS	BOTH	PLATE TO WT	2 1/4"	79x1	30
#6 & #8	DIAPHRAGM	BOTH	CHANNEL	2 3/4"	79x4	4
#6	12	UPSTATION	1"	3"	79x5	4
#6	13 & 14	UPSTATION	1 1/4"	3 1/4"	79x6	8
#8	10 – 13	UPSTATION	1"	3"	79x5	16
#6 & #8	ALL GIRDERS	BACKSTATION	1" (ASSUMED)	3"	79x5	28



ITEM NO. 79g1
(14) REQ'D.

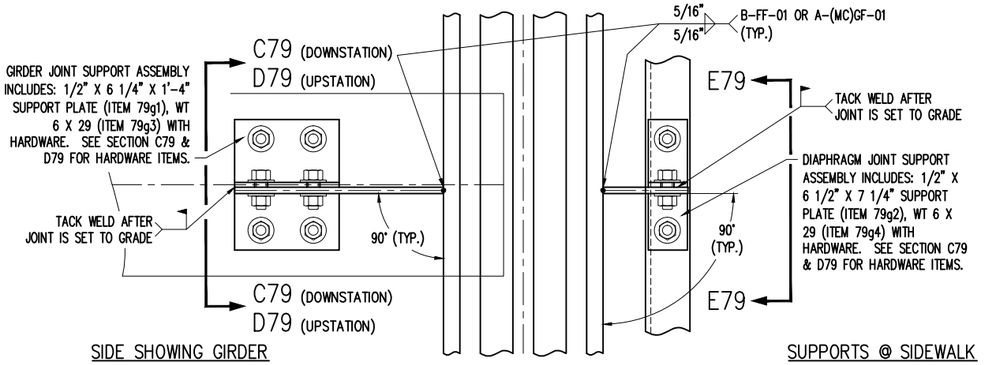


ITEM NO. 79g2
(2) REQ'D.

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #6 & #8
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #6 & #8



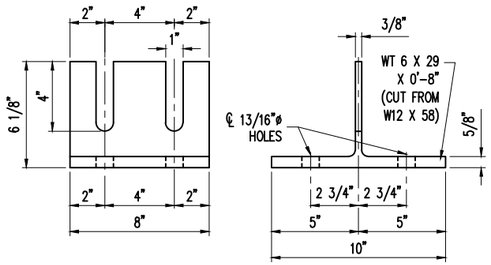
SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

PLAN VIEW OF SUPPORTS @ GIRDERS AND DIAPHRAGMS

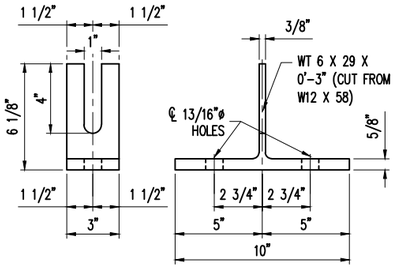
DIMENSIONS SHOWN ARE AT 45°F

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01

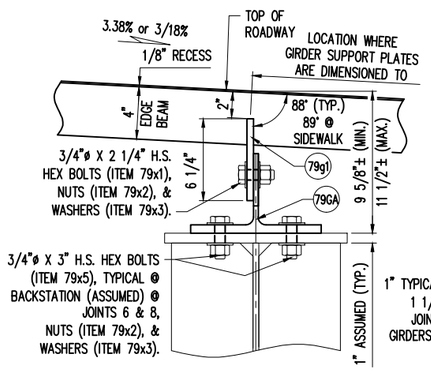


WT6x29 JOINT SUPPORT
ASSEMBLY 79GA (ITEM 79g3)
(14) REQUIRED

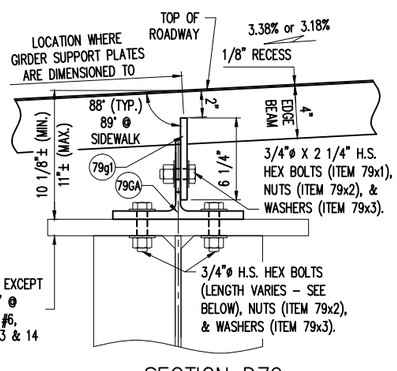
NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



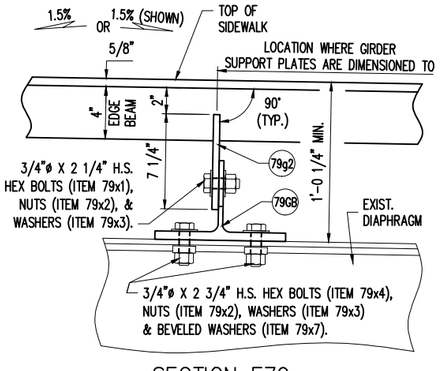
WT6x29 JOINT SUPPORT
ASSEMBLY 79GB (ITEM 79g4)
(2) REQUIRED



SECTION C79
(ON DOWNSTATION SIDE OF JOINT – LOOKING UPSTATION)



SECTION D79
(ON UPSTATION SIDE OF JOINT – LOOKING DOWNSTATION)
3/4"ø X 3" H.S. BOLTS (ITEM 79x5) (TYP.) TYPICAL, EXCEPT
3/4"ø X 3 1/4" H.S. BOLTS (ITEM 79x6) @ JOINT 6 GIRDERS 13 & 14.



SECTION E79
(HARDWARE TYPICAL DOWNSTATION & UPSTATION SIDE OF JOINT)

REVISED
Modular Expansion Joints 6 & 8
DETAILS

CONSTRUCTION SHOP DRAWING

PAGE 386 E

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
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NORTH BALTIMORE, OHIO 45872
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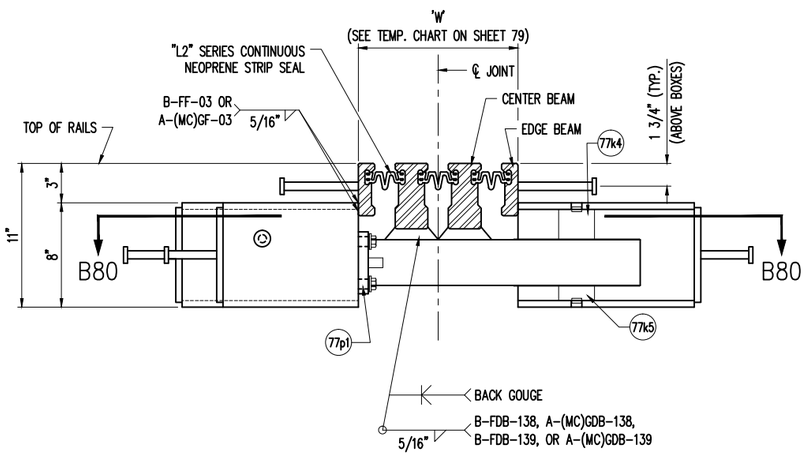
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

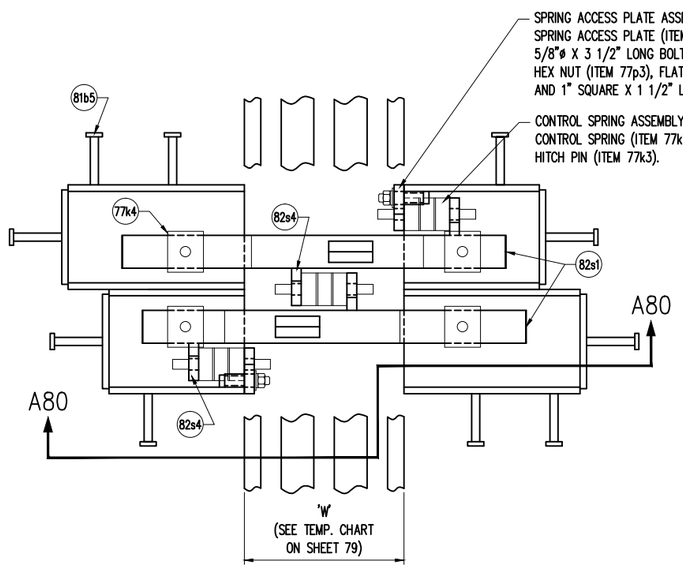
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	5 OF 9
PROJECT NUMBER	PRODUCT CODE		RELEASE	SHEET
42790	1021		1	79

REVISED
Modular Expansion Joints 6 & 8
DETAILS

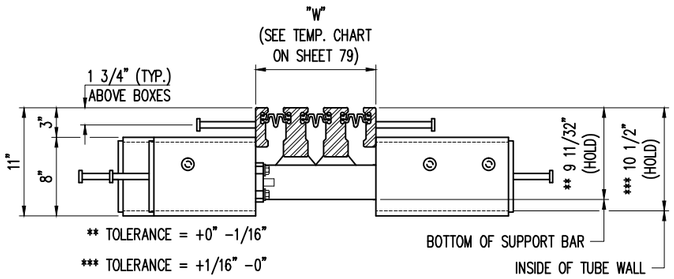
CONSTRUCTION
SHOP DRAWING



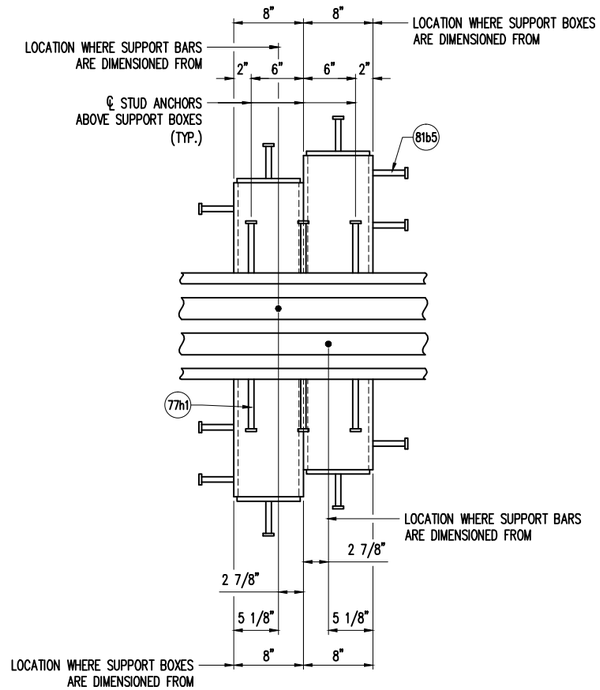
SECTION A80



SECTION B80



SECTION THRU 'D-240' @ SUPPORT BOX



'D-240' SUPPORT BOX DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

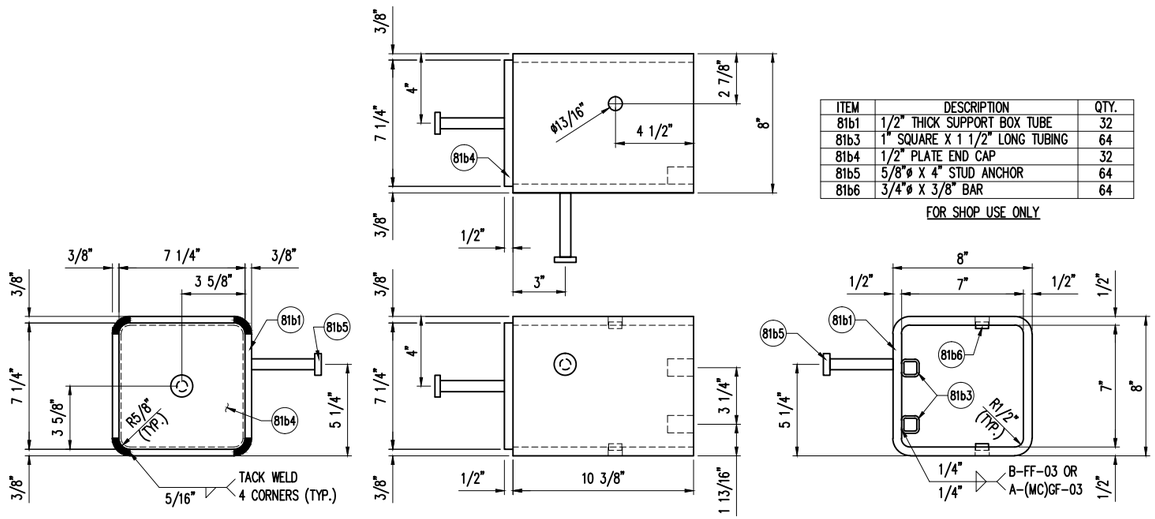
D.S. BROWN
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419.257.3561
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WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	6 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	80

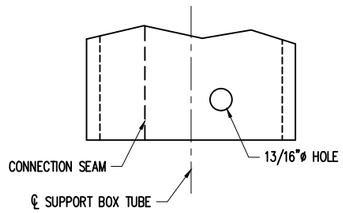


ITEM	DESCRIPTION	QTY.
81b1	1/2" THICK SUPPORT BOX TUBE	32
81b3	1" SQUARE X 1 1/2" LONG TUBING	64
81b4	1/2" PLATE END CAP	32
81b5	5/8"ø X 4" STUD ANCHOR	64
81b6	3/4"ø X 3/8" BAR	64

FOR SHOP USE ONLY

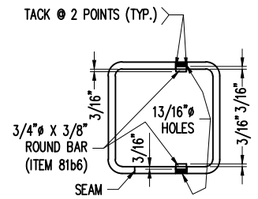
'D-240' SUPPORT BOX DETAIL '81A'

(32) REQUIRED



SHOP NOTE:

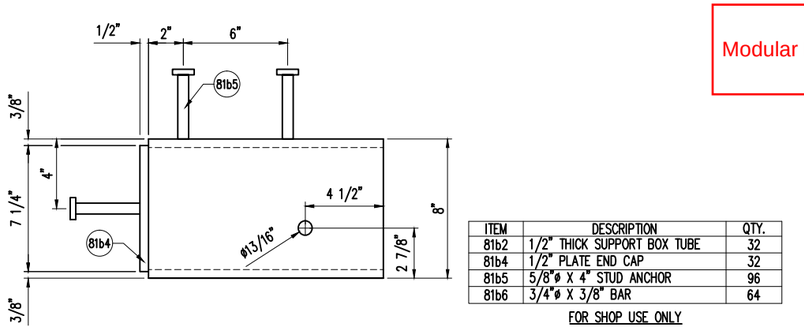
WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



SUPPORT BOX PIN DETAILS

(W/ RUBBER SPRINGS & BEARINGS)

REVISED
Modular Expansion Joints 6 & 8
DETAILS

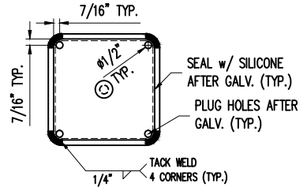


ITEM	DESCRIPTION	QTY.
81b2	1/2" THICK SUPPORT BOX TUBE	32
81b4	1/2" PLATE END CAP	32
81b5	5/8"ø X 4" STUD ANCHOR	96
81b6	3/4"ø X 3/8" BAR	64

FOR SHOP USE ONLY

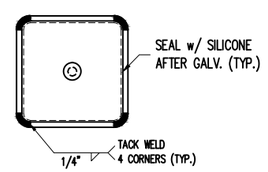
'D-240' SUPPORT BOX DETAIL '81B'

(32) REQUIRED



SUPPORT BOX BACK PLATE OPTION NO. 1

(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE OPTION NO. 2

(ATTACH AFTER GALV.)

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

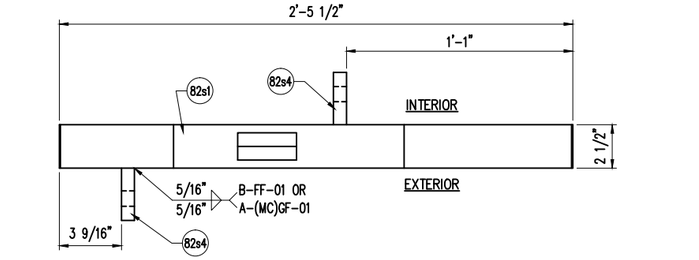
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	7 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	81

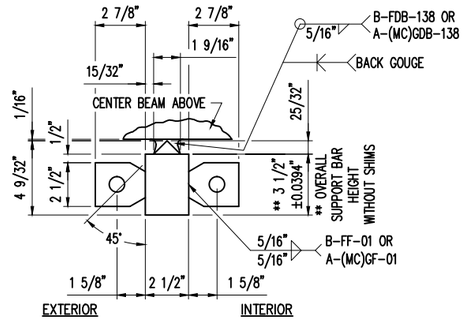
REVISED
Modular Expansion Joints 6 & 8
DETAILS



ITEM	DESCRIPTION	QTY.
82s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	32
82s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	64
82s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	64
82s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	64

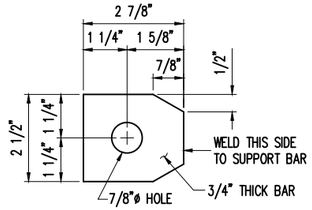
FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



'D-240' SUPPORT BAR DETAILS

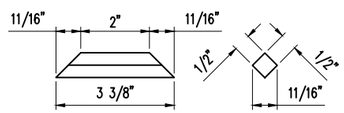
(32) REQUIRED



ITEM NO. 82s4

(64) REQ'D.

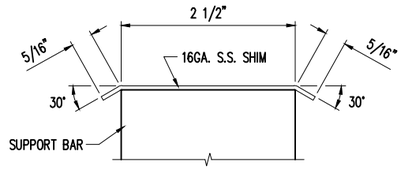
SPRING STOP DETAIL



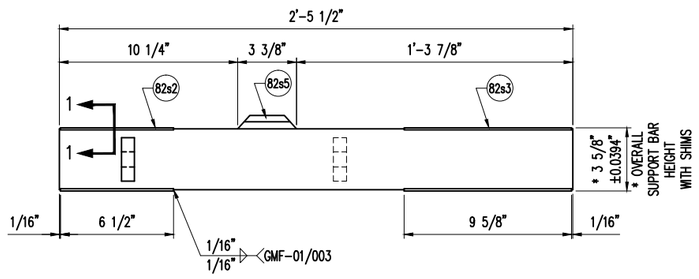
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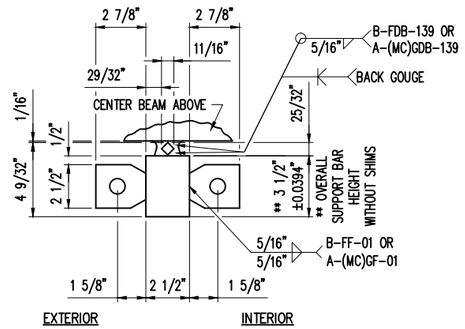
(32) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

CONSTRUCTION
SHOP DRAWING

PAGE 386 H

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
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419.257.3561
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WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	8 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	82

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
78A	1	"D-240" MODULAR EXPANSION JOINT			27'-6 1/16" - JOINT 6 (@ RAMP C, EASTBOUND)	7029	
77h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
77h2	28	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
77k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
77k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
77k3	48	HITCH PIN	-		PLAIN	< 1	
77k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
77k5	32	SLIDE BEARING	-		PLAIN	1	
77p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
77p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
77p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
78r1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r3	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	26'-6 9/16	A123-HDG	343	
78r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
78r7	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	26'-7 5/16	A123-HDG	917	
78y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
78y2	3	L2-400 GLAND	NEOPRENE	29'-0	87'-0" TOTAL;	46	
79g1	6	1/2 X 6 1/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
81b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
81b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
81b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
81b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
81b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
81b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
82s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
82s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
82s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
82s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
78B	1	"D-240" MODULAR EXPANSION JOINT			24'-6 1/16" - JOINT 8 (@ RAMP B, EASTBOUND)	5789	
77h1	36	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
77h2	26	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
77k1	18	CONTROL SPRING (80MM)	-		PLAIN	1	
77k2	18	NYLON PIN (80MM)	-		PLAIN	< 1	
77k3	36	HITCH PIN	-		PLAIN	< 1	
77k4	24	PRECOMPRESSED SPRING	-		PLAIN	< 1	
77k5	24	SLIDE BEARING	-		PLAIN	1	
77p1	12	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
77p2	24	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p3	24	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p4	24	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
77p5	24	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
78r1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
78r4	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	23'-6 9/16	A123-HDG	304	
78r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
78r8	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	23'-7 5/16	A123-HDG	814	
78y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
78y2	3	L2-400 GLAND	NEOPRENE	26'-0	78'-0" TOTAL;	42	
79g1	6	1/2 X 6 1/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
81b1	12	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
81b2	12	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
81b3	24	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
81b4	24	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
81b5	60	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
81b6	48	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
82s1	12	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
82s2	24	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
82s3	24	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
82s4	24	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
78C	1	"D-240" MODULAR EXPANSION JOINT			6'-9" - JOINT 8 (@ RAMP B, SIDEWALK)	1736	
77h1	12	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
77h2	6	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
77k1	6	CONTROL SPRING (80MM)	-		PLAIN	1	
77k2	6	NYLON PIN (80MM)	-		PLAIN	< 1	
77k3	12	HITCH PIN	-		PLAIN	< 1	
77k4	8	PRECOMPRESSED SPRING	-		PLAIN	< 1	
77k5	8	SLIDE BEARING	-		PLAIN	1	
77p1	4	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
77p2	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p3	8	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
77p4	8	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
77p5	8	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
78r5	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
78r9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
78y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
78y2	3	L2-400 GLAND	NEOPRENE	7'-0	21'-0" TOTAL;	11	
79g1	2	1/2 X 6 1/4	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
79g2	2	1/2 X 6 1/2	A36	0'-7 1/4	DIAPHRAGM SUPPORT PLATE; A123-HDG	7	
81b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
81b2	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
81b3	8	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
81b4	8	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
81b5	20	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
81b6	16	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
82s1	4	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
82s2	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
82s3	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
82s4	8	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			9/17/2014 10:36:56 AM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
79GA	14	JOINT SUPPORT ITEM				19	
79g3	14	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
79GB	2	JOINT SUPPORT ITEM				7	
79g4	2	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
79XA	30	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x1	30	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XB	90	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
79x2	90	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
79XC	176	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
79x3	176	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
79XD	4	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x4	4	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XE	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x5	48	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XF	8	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
79x6	8	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XG	4	JOINT SUPPORT HARDWARE - BEVELED WASHER (ROCAP)				< 1	
79x7	4	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
79XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
79t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XBT	24	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
79t2	24	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
79XCT	48	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
79t3	48	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
79XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
79t4	3	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XET	3	TESTING HARDWARE - HEX BOLT (ROCAP)				1	
79t5	6	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XFT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				1	
79t6	6	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
79XGT	6	TESTING HARDWARE - BEVELED WASHER (ROCAP)				< 1	
79t7	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			9/17/2014 10:36:56 AM		

REVISED
Modular Expansion Joints 6 & 8
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
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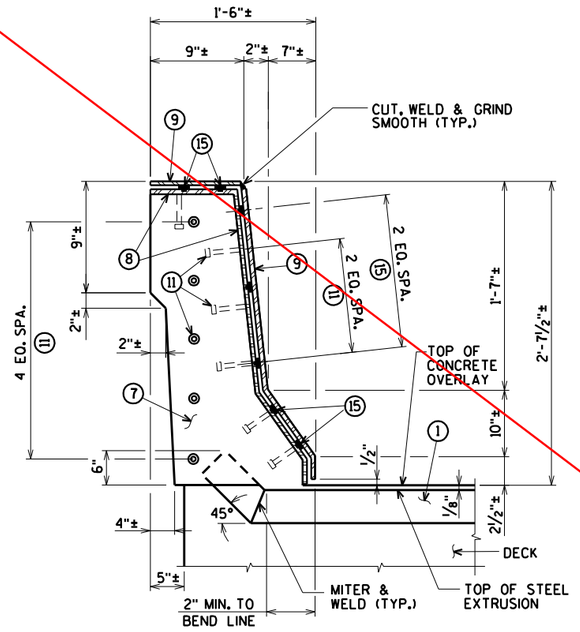
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

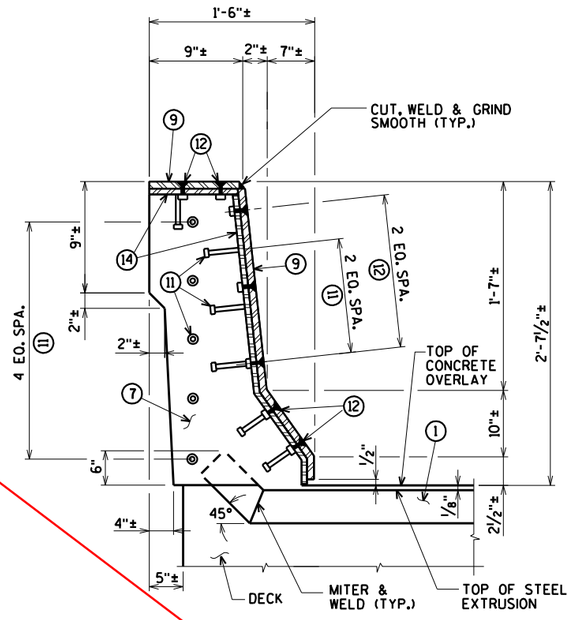
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	9 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	83	

STATE PROJECT NUMBER

8680-04-71

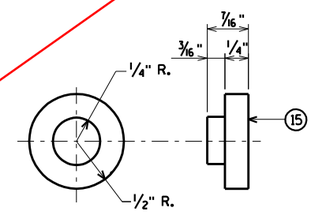


SECTION E



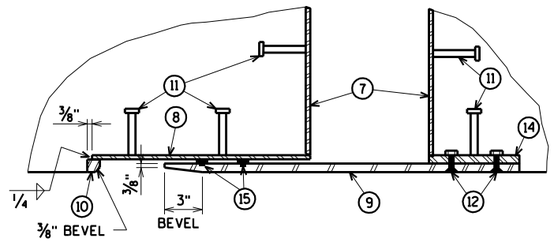
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

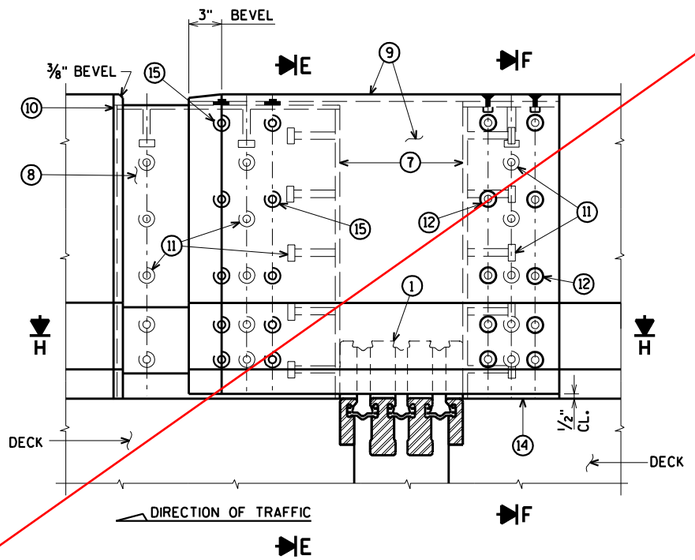


ADIPRENE BUTTON DETAIL

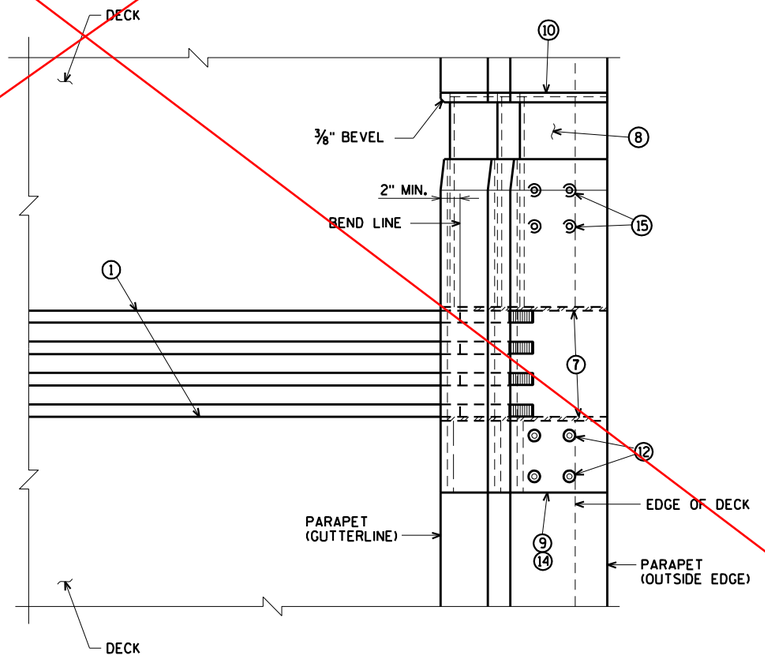
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 40



SECTION H



ELEVATION OF OUTSIDE PARAPET
(SOUTH PARAPET SHOWN, OTHER SIDE SIMILAR)



PLAN OF OUTSIDE PARAPET
(SOUTH PARAPET SHOWN, OTHER SIDE SIMILAR)

See revised joint details PAGE 386. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 40 & 42

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 6 DETAILS OUTSIDE PARAPET

SHEET 41 OF 99
387

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

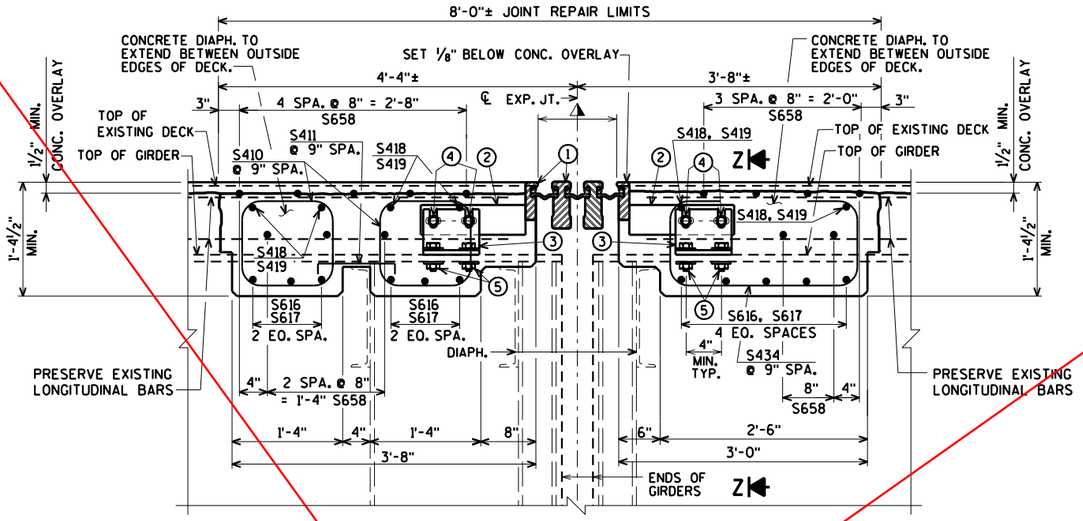
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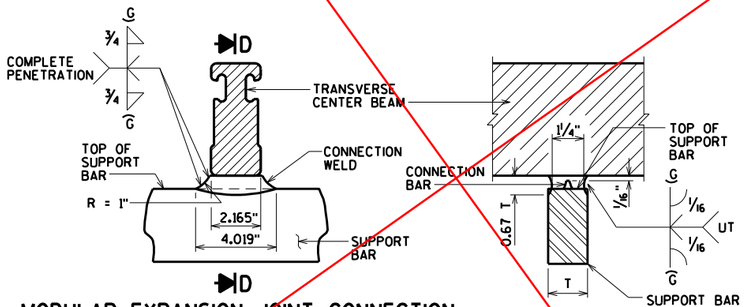
9/12/2013

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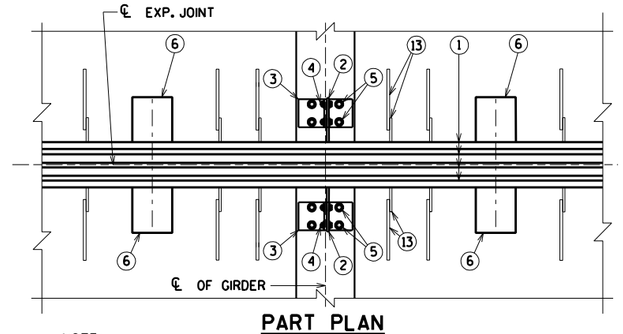
SECTION THRU JOINT 6

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

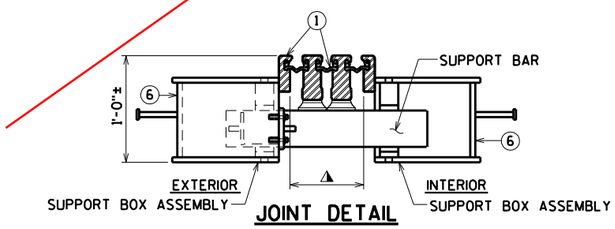
SECTION D



PART PLAN

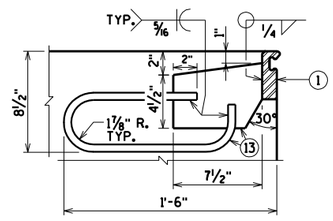
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



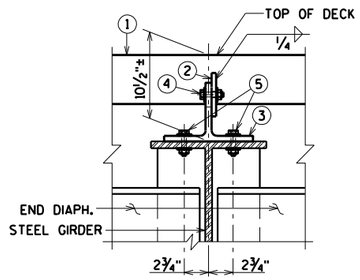
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

1. MODULAR EXPANSION JOINT DEVICE, 3 CELLS.
2. 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.
3. WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.
4. 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)
5. 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).
6. SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.
7. 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.
8. INSIDE PLATE. FABRICATE FROM 3/8" PLATE.
9. OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.
10. 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.
11. 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.
12. 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.
13. 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.
14. INSIDE PLATE. FABRICATE FROM 5/8" PLATE.
15. ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details PAGE 386.
Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 40-41

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

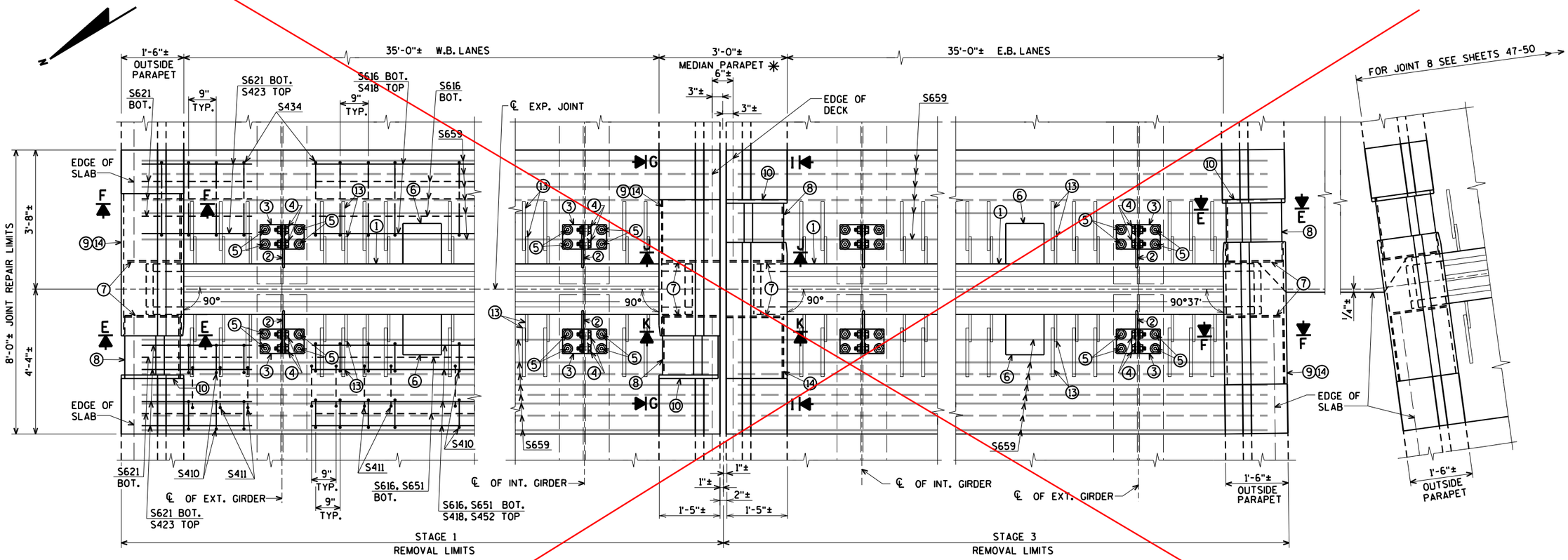
MODULAR EXPANSION JOINT 6 DETAILS

SHEET 42 OF 99
388

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 7

* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTIONS 'E' AND 'F' SEE SHEET 44

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 45

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details PAGE 389 A

WORK THIS SHEET WITH SHEETS 44-46

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 7 DETAILS

SHEET 43 OF 99
389

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
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9/12/2013

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GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

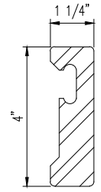
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 28p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.

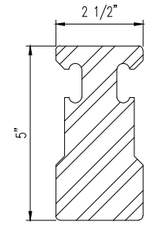


4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

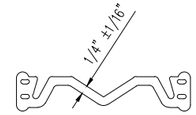


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 28
- SEE SPRING & BEARING DIAGRAM ON SHEET 28
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 28
- SEE 'D-240' PLAN VIEW FOR JOINT #7 ON SHEET 29
- SEE 'D-240' PLAN VIEW FOR JOINT #9 ON SHEET 30
- SEE 'D-240' PLAN VIEW FOR JOINT #10 ON SHEET 31
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 32
- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36-38

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

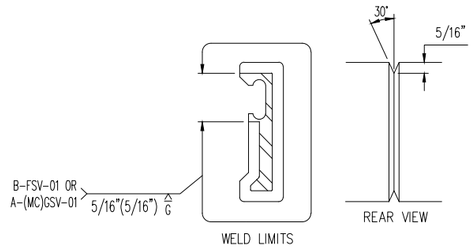
DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	1 OF 13

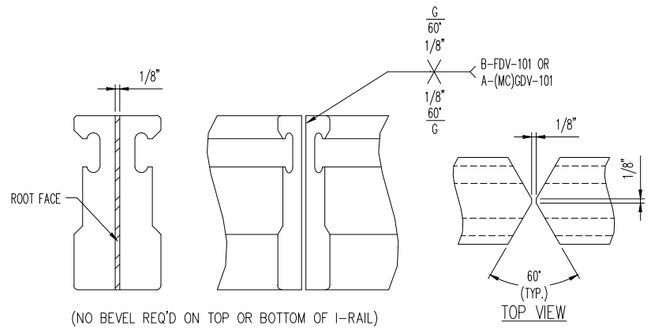
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	26

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING



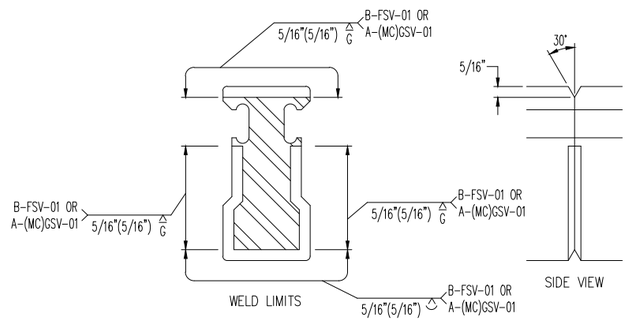
EDGE BEAM SHOP SPLICE DETAIL



(NO BEVEL REQ'D ON TOP OR BOTTOM OF I-RAIL)

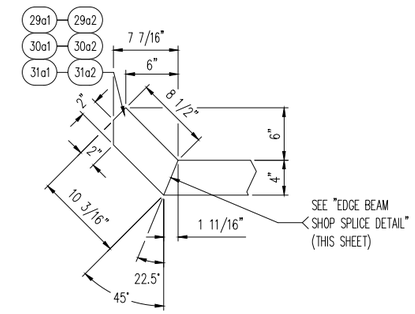
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

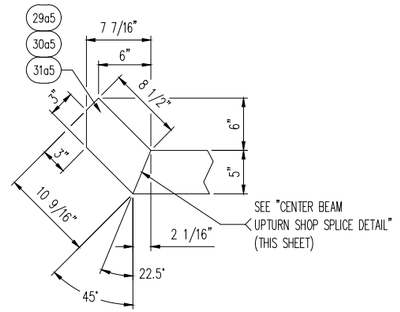


CENTER BEAM UPTURN SHOP SPLICE DETAIL

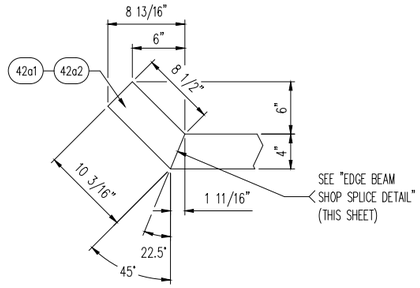
PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



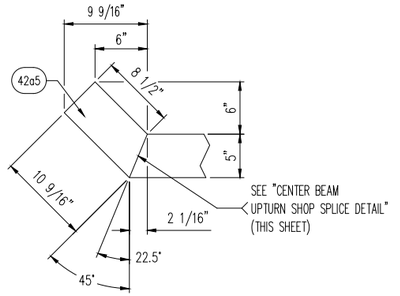
EDGE BEAM UPTURN 1 DETAIL



CENTER BEAM UPTURN 1 DETAIL



EDGE BEAM UPTURN 2 DETAIL



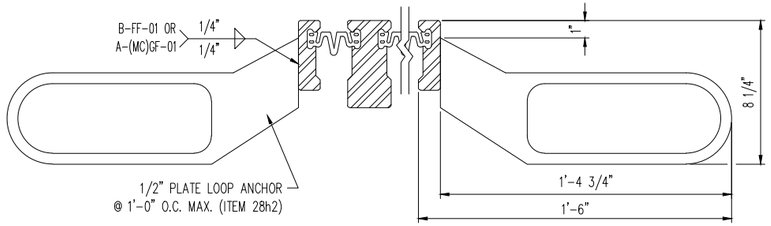
CENTER BEAM UPTURN 2 DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

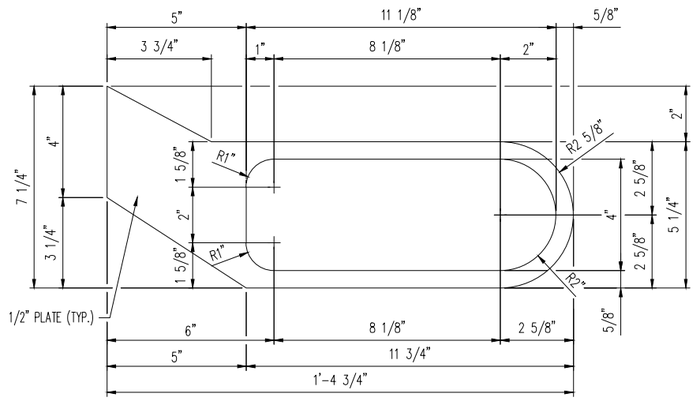
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	2 OF 13
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET		
42790	1021	1	27		

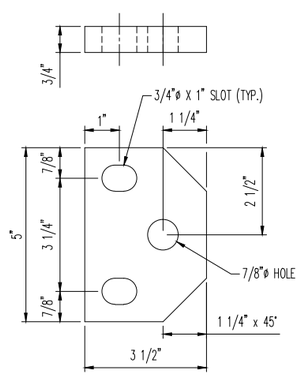


SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



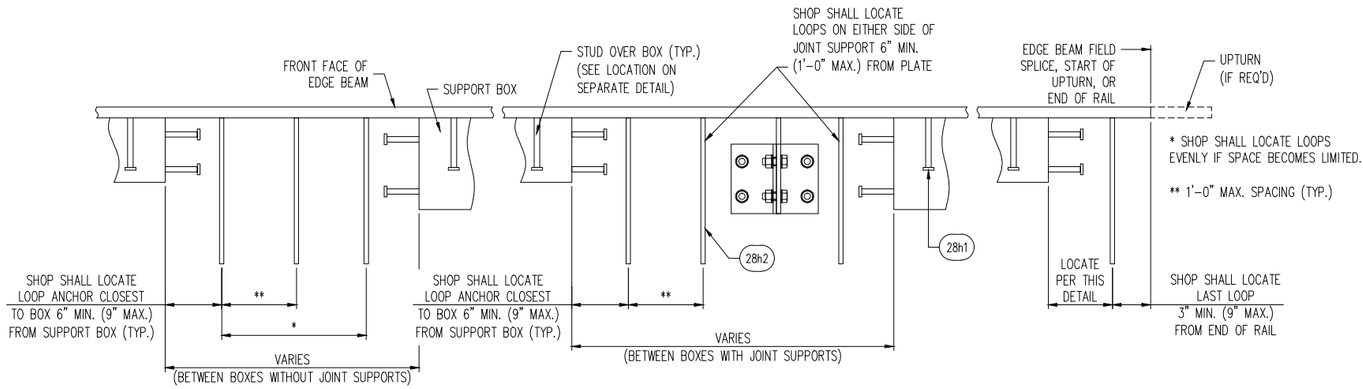
ITEM NO. 28h2
(265) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 28p1
(144) REQ'D.

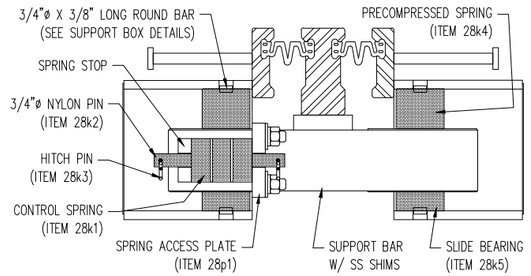
SPRING ACCESS PLATE DETAIL



TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING



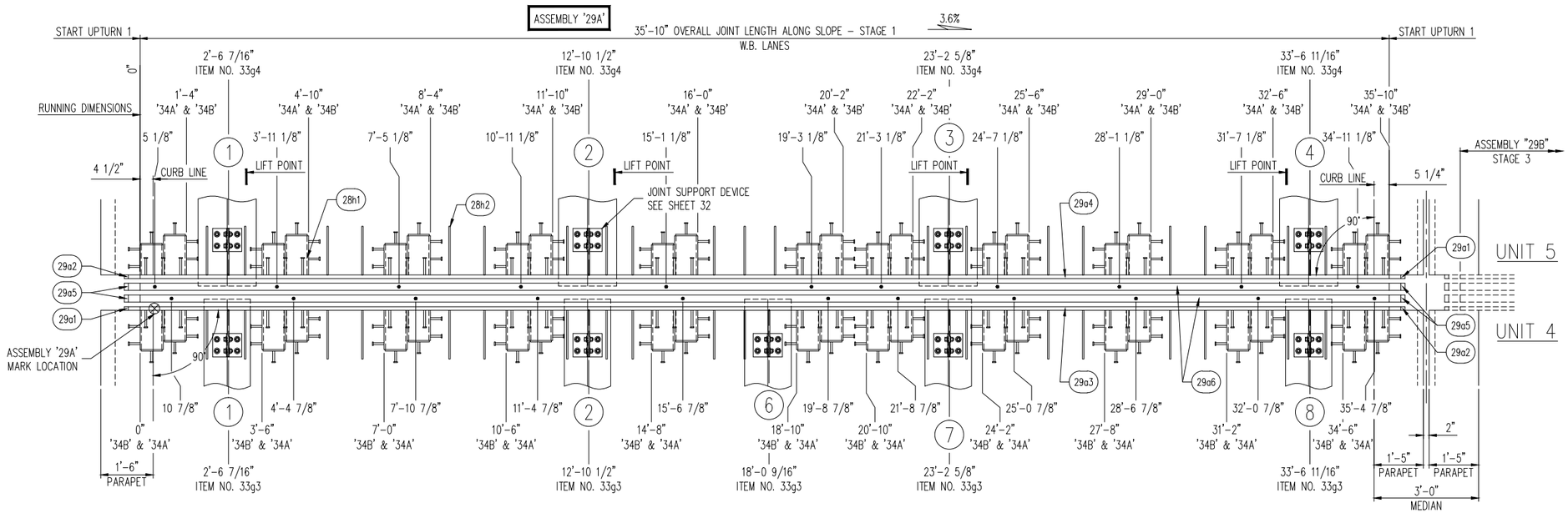
TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)

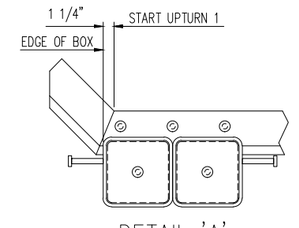
REV.	DESCRIPTION	DATE	DET.	CKD.

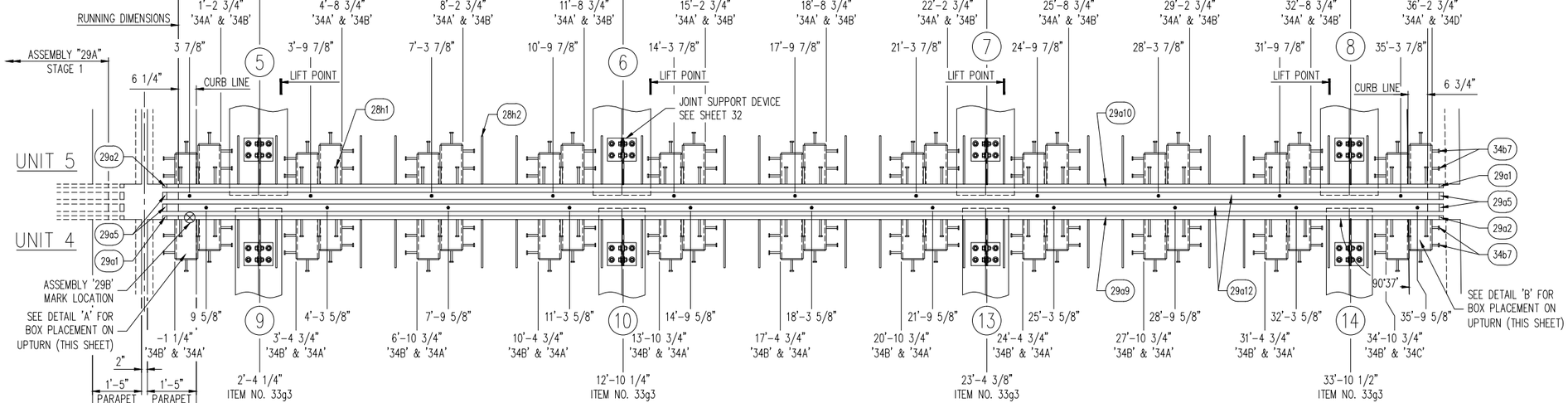
D.S. BROWN
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300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
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FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
SECTIONS & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	3 OF 13
	PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
	42790	1021	1	28	







'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #7 LOCATED AT HINGE 4-5 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = 3'-6"
(1) JOINT EA. REQUIRED

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

FABRICATION NOTE:

– SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

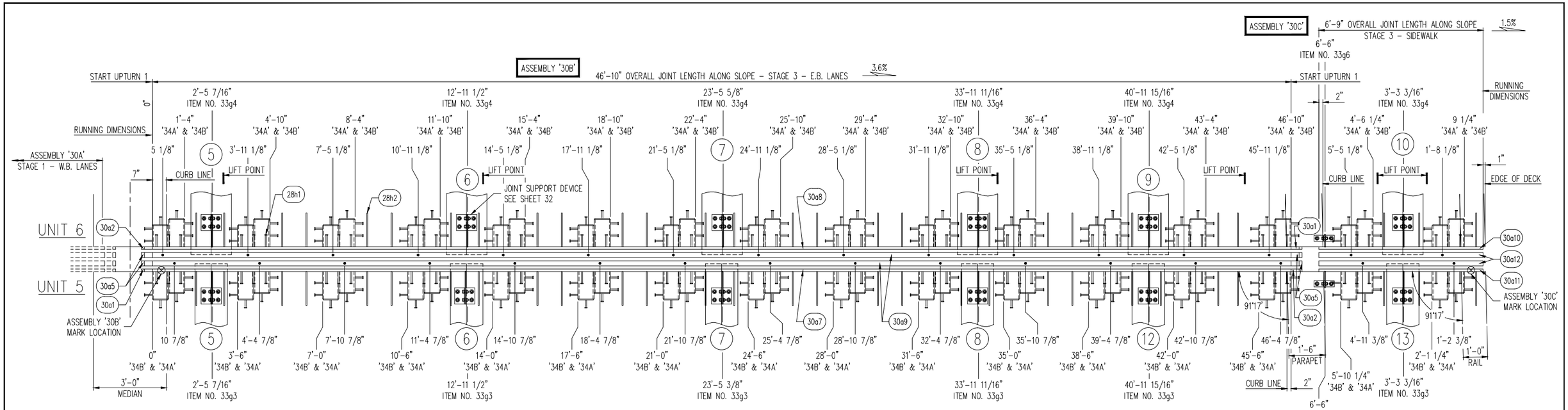
- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 28
- SEE SPRING & BEARING DIAGRAM ON SHEET 28
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 28
- SEE 'D-240' PLAN VIEW FOR JOINT #7 ON SHEET 29
- SEE 'D-240' PLAN VIEW FOR JOINT #9 ON SHEET 30
- SEE 'D-240' PLAN VIEW FOR JOINT #10 ON SHEET 31
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 32
- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36 & 37

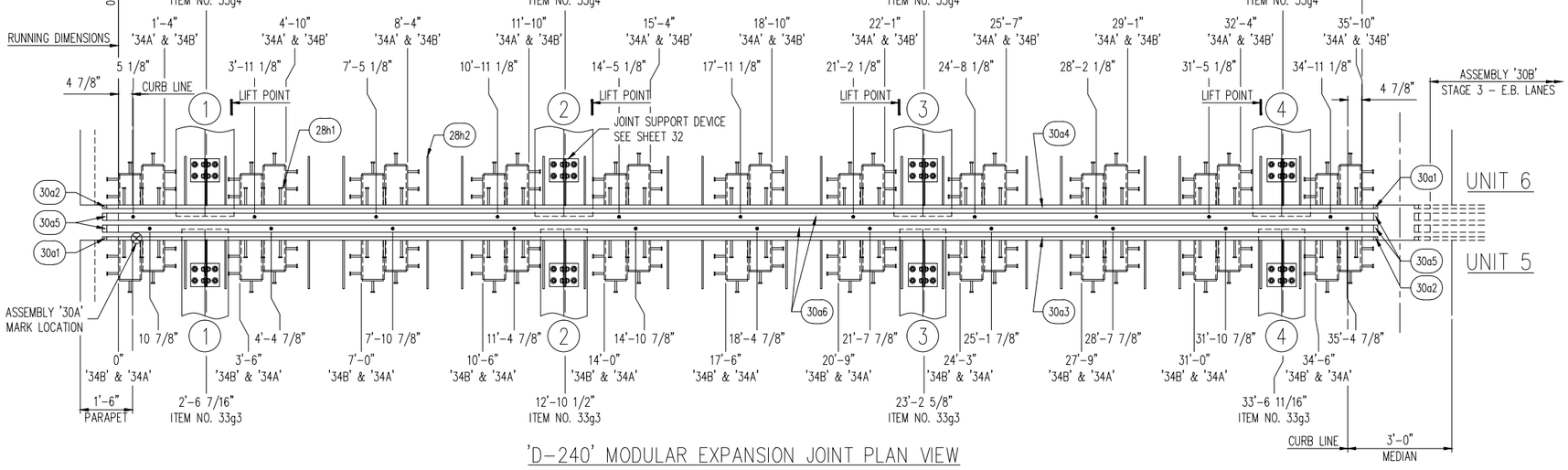
REV.	DESCRIPTION	DATE	DET.	CKD.

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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION	SCALE	DRAWN BY	CHECKED BY	DATE	BRIDGE SHEET
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	4 OF 13
	PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
	42790	1021	1	29	





'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #9 LOCATED AT HINGE 5-6 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-6" MAX.)
(1) JOINT EA. REQUIRED

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 28
- SEE SPRING & BEARING DIAGRAM ON SHEET 28
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 28
- SEE 'D-240' PLAN VIEW FOR JOINT #7 ON SHEET 29
- SEE 'D-240' PLAN VIEW FOR JOINT #9 ON SHEET 30
- SEE 'D-240' PLAN VIEW FOR JOINT #10 ON SHEET 31
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 32
- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36 & 37

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

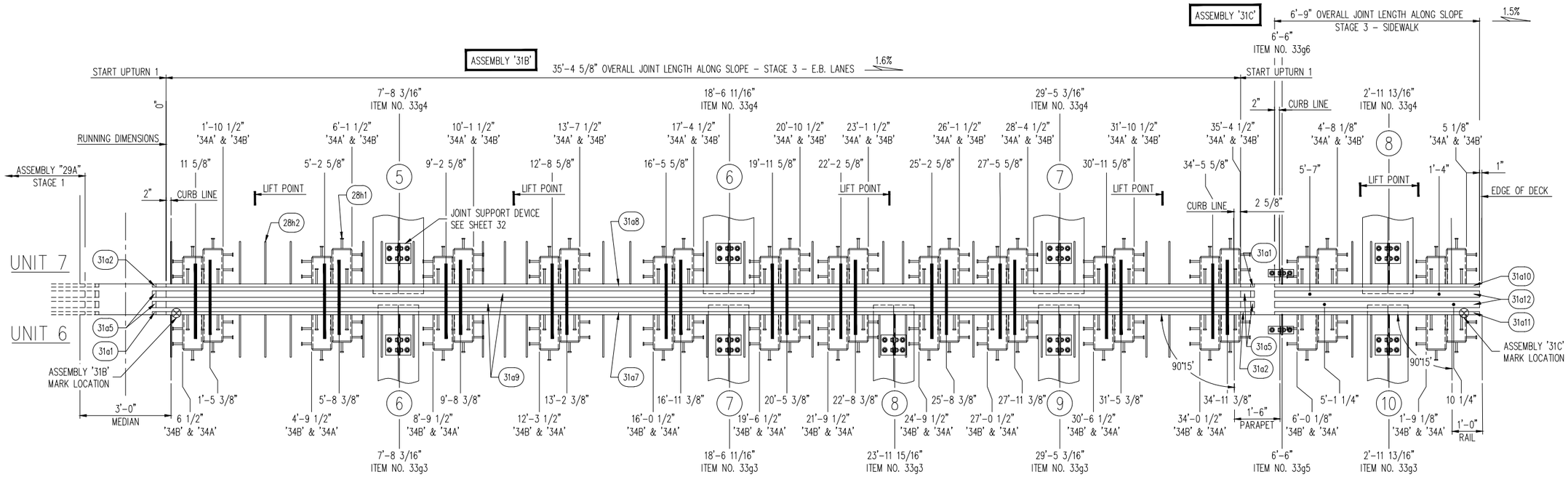
REV.	DESCRIPTION	DATE	DET.	CKD.

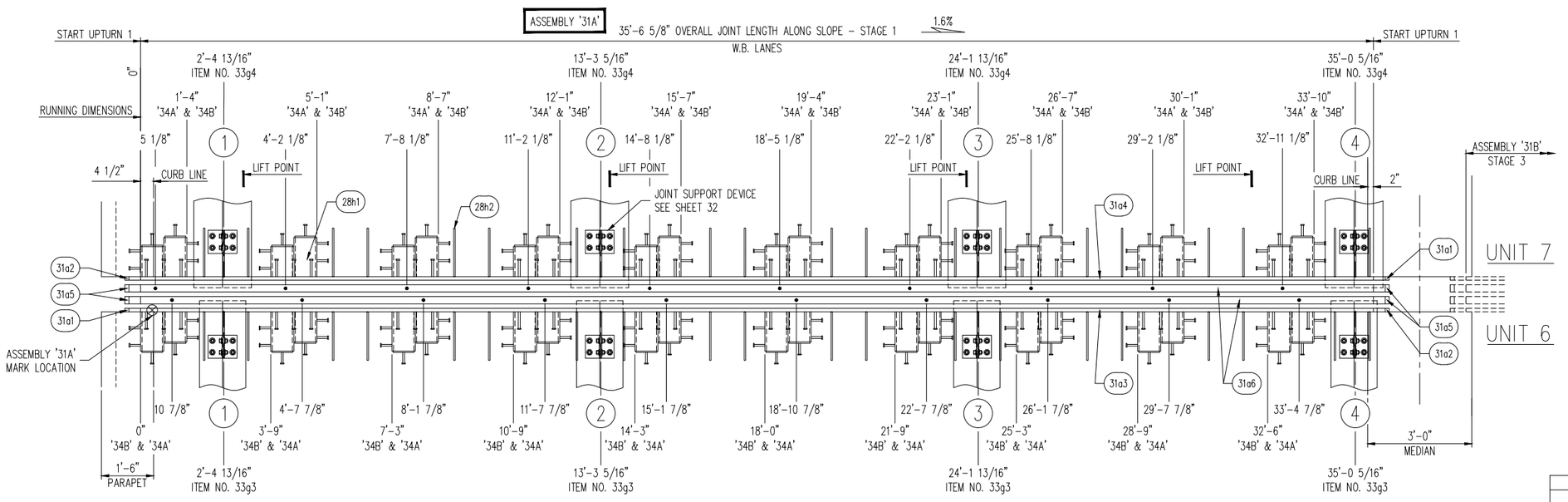
D.S. BROWN
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	JLW	03/2014	5 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	30





'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #10 LOCATED AT HINGE 6-7 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (3'-9" MAX.)
(1) JOINT EA. REQUIRED

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

- SEE GENERAL NOTES ON SHEET 26
- SEE RAIL AND SEAL DETAILS ON SHEET 26
- SEE INSTALLATION PROCEDURES ON SHEET 26
- SEE SPLICE DETAILS ON SHEET 27
- SEE UPTURN DETAILS ON SHEET 27
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 28
- SEE SPRING & BEARING DIAGRAM ON SHEET 28
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 28
- SEE 'D-240' PLAN VIEW FOR JOINT #7 ON SHEET 29
- SEE 'D-240' PLAN VIEW FOR JOINT #9 ON SHEET 30
- SEE 'D-240' PLAN VIEW FOR JOINT #10 ON SHEET 31
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 32
- SEE JOINT SUPPORT DETAILS ON SHEET 32
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 33
- SEE SUPPORT BOX DETAILS ON SHEET 34
- SEE SUPPORT BAR DETAILS ON SHEET 35
- SEE BILL OF MATERIALS ON SHEET 36 & 37

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

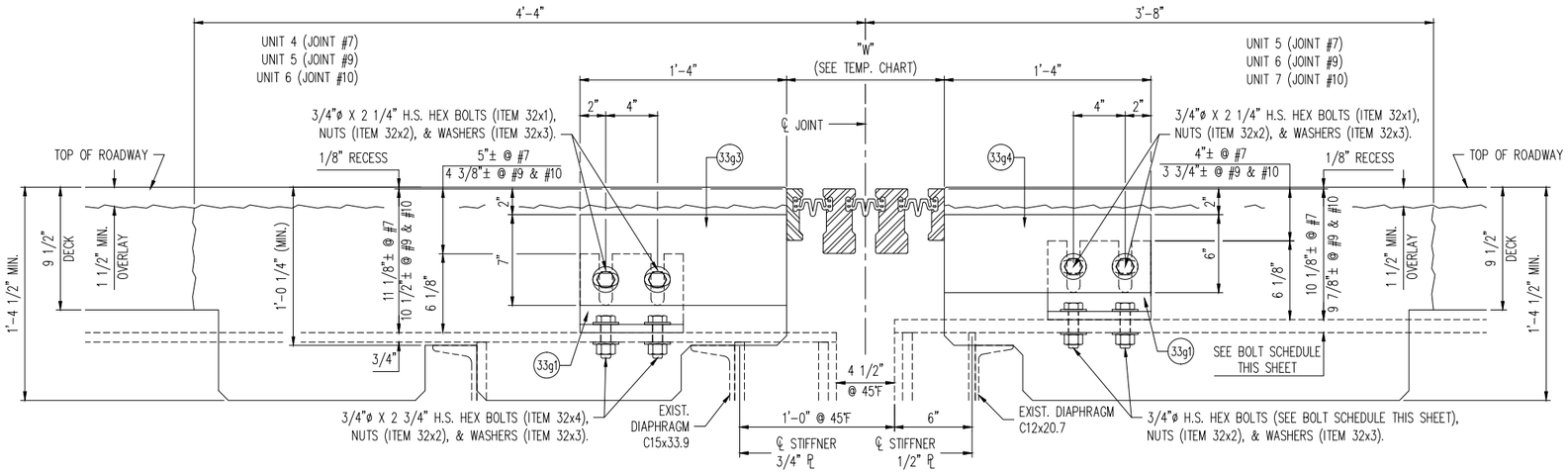
REV.	DESCRIPTION	DATE	DET.	CKD.

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

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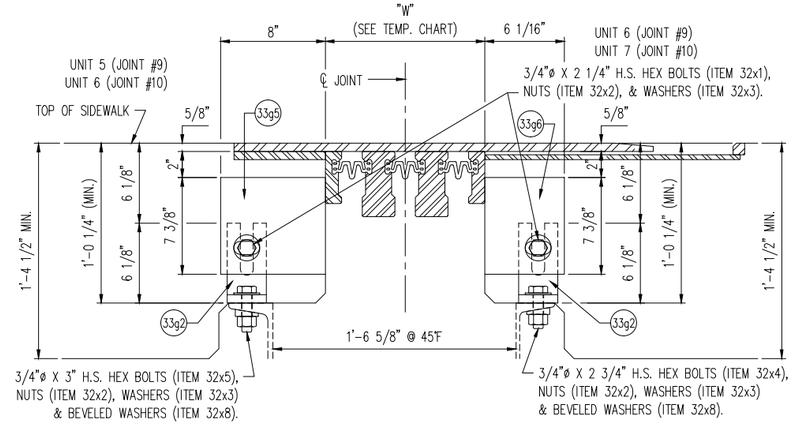
DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	6 OF 13
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	31	



SECTION OF 'D-240' SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F



SECTION OF 'D-240' SUPPORTS ON DIAPHRAGMS @ SIDEWALK

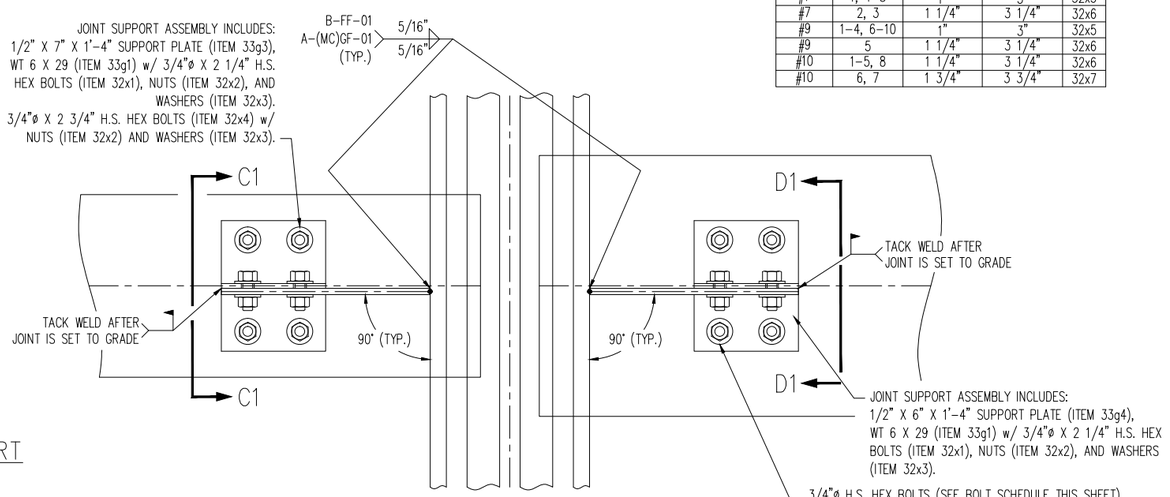
DIMENSIONS SHOWN ARE AT 45°F

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #7, #9 & #10
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #7, #9 & #10

JOINT SUPPORT ASSEMBLY INCLUDES: 1/2" X 7" X 1'-4" SUPPORT PLATE (ITEM 33g3), WT 6 X 29 (ITEM 33g1) w/ 3/4"ø X 2 1/4" H.S. HEX BOLTS (ITEM 32x1), NUTS (ITEM 32x2), AND WASHERS (ITEM 32x3). 3/4"ø X 2 3/4" H.S. HEX BOLTS (ITEM 32x4) w/ NUTS (ITEM 32x2) AND WASHERS (ITEM 32x3).



PLAN VIEW OF SUPPORTS @ GIRDERS

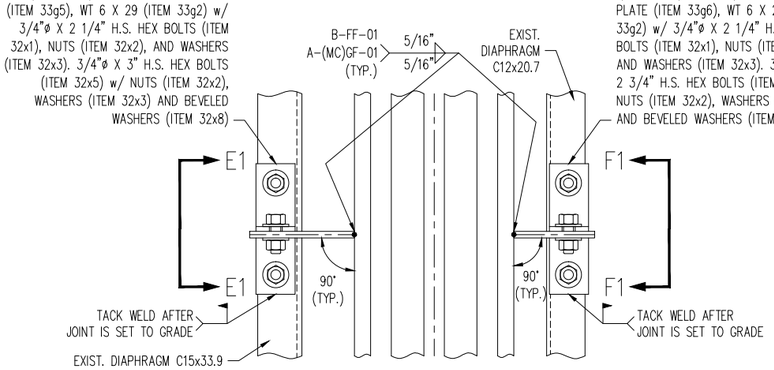
DIMENSIONS SHOWN ARE AT 45°F

BOLT SCHEDULE				
JOINT	GIRDER	℄ THICKNESS	BOLT LENGTH	MK#
#7	1, 4-8	1"	3"	32x5
#7	2, 3	1 1/4"	3 1/4"	32x6
#9	1-4, 6-10	1"	3"	32x5
#9	5	1 1/4"	3 1/4"	32x6
#10	1-5, 8	1 1/4"	3 1/4"	32x6
#10	6, 7	1 3/4"	3 3/4"	32x7

JOINT SUPPORT ASSEMBLY INCLUDES: 1/2" X 7 3/8" X 8" SUPPORT PLATE (ITEM 33g5), WT 6 X 29 (ITEM 33g2) w/ 3/4"ø X 2 1/4" H.S. HEX BOLTS (ITEM 32x1), NUTS (ITEM 32x2), AND WASHERS (ITEM 32x3). 3/4"ø X 3" H.S. HEX BOLTS (ITEM 32x5) w/ NUTS (ITEM 32x2), WASHERS (ITEM 32x3) AND BEVELED WASHERS (ITEM 32x8)

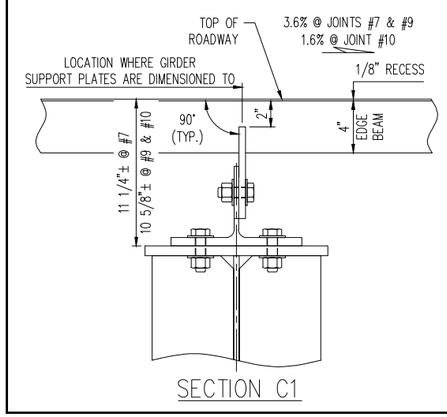
COVER PLATE HARDWARE NOT SHOWN FOR CLARITY
SEE SHEETS 133-136 FOR COVER PLATE DETAILS

JOINT SUPPORT ASSEMBLY INCLUDES: 1/2" X 7 3/8" X 6 1/16" SUPPORT PLATE (ITEM 33g6), WT 6 X 29 (ITEM 33g2) w/ 3/4"ø X 2 1/4" H.S. HEX BOLTS (ITEM 32x1), NUTS (ITEM 32x2), AND WASHERS (ITEM 32x3). 3/4"ø X 2 3/4" H.S. HEX BOLTS (ITEM 32x4) w/ NUTS (ITEM 32x2), WASHERS (ITEM 32x3) AND BEVELED WASHERS (ITEM 32x8)

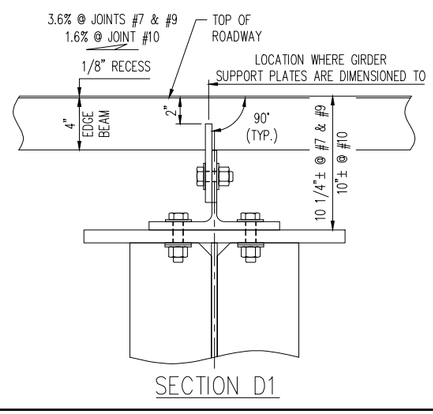


PLAN VIEW OF SUPPORTS @ SIDEWALK DIAPHRAGMS

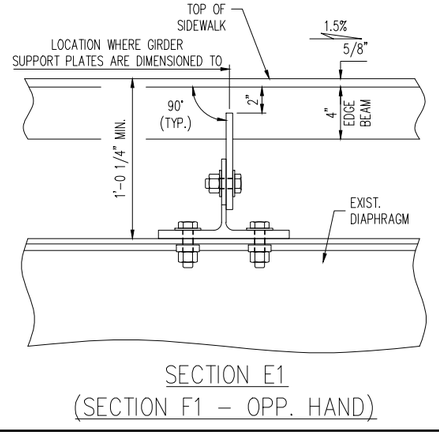
DIMENSIONS SHOWN ARE AT 45°F



SECTION C1



SECTION D1



SECTION E1
(SECTION F1 - OPP. HAND)

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
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300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
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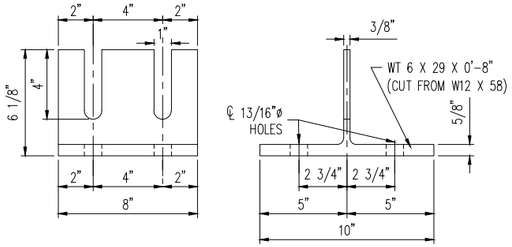
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	7 OF 13

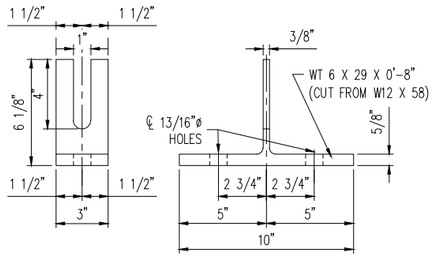
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	32

NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01

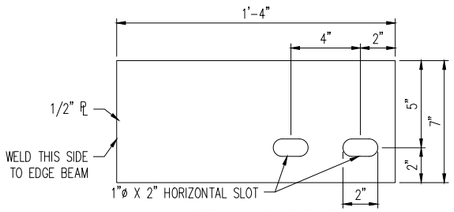


WT6x29 JOINT SUPPORT
ITEM 33g1
(54) REQUIRED

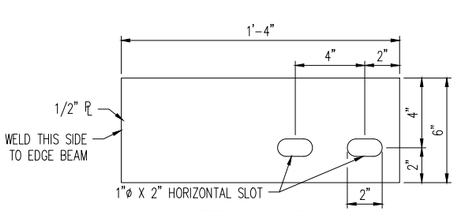
NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01



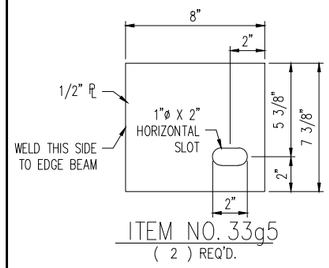
WT6x29 JOINT SUPPORT
ITEM 33g2
(4) REQUIRED



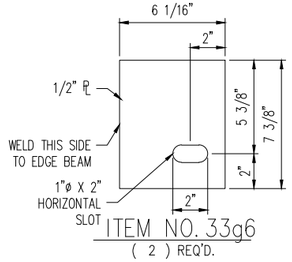
ITEM NO. 33g3
(28) REQ'D.



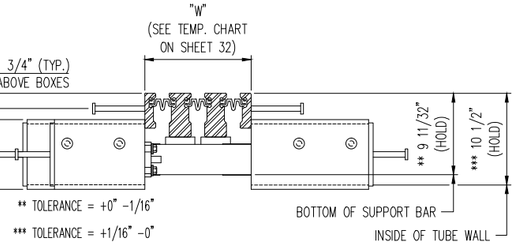
ITEM NO. 33g4
(26) REQ'D.



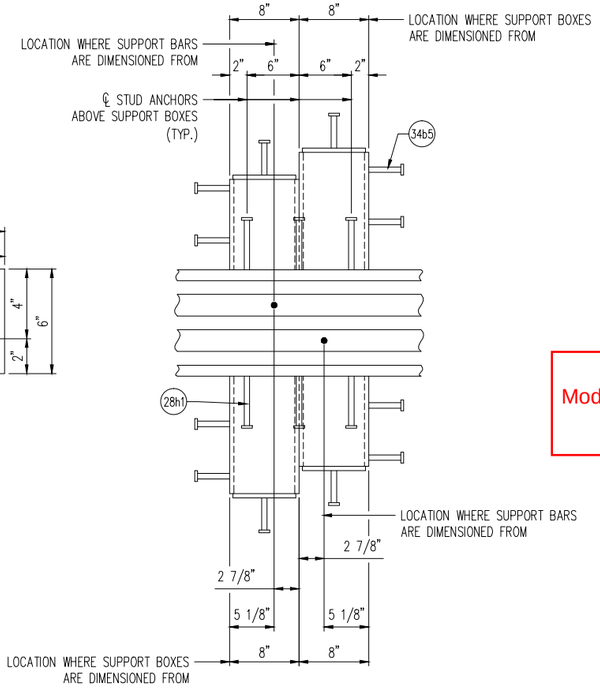
ITEM NO. 33g5
(2) REQ'D.



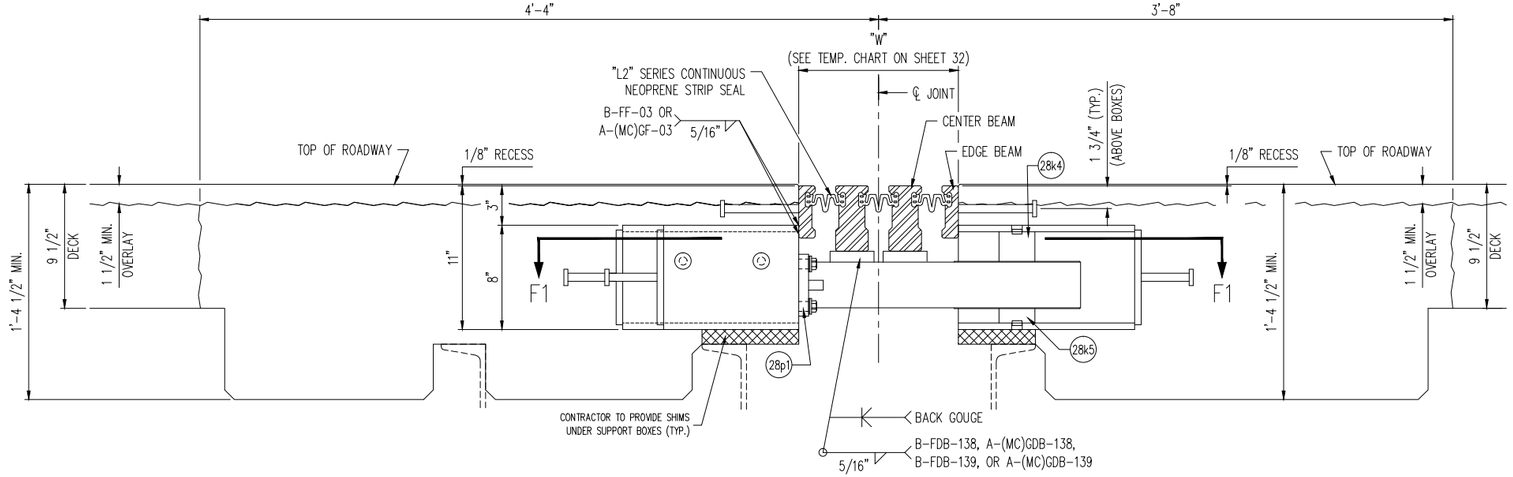
ITEM NO. 33g6
(2) REQ'D.



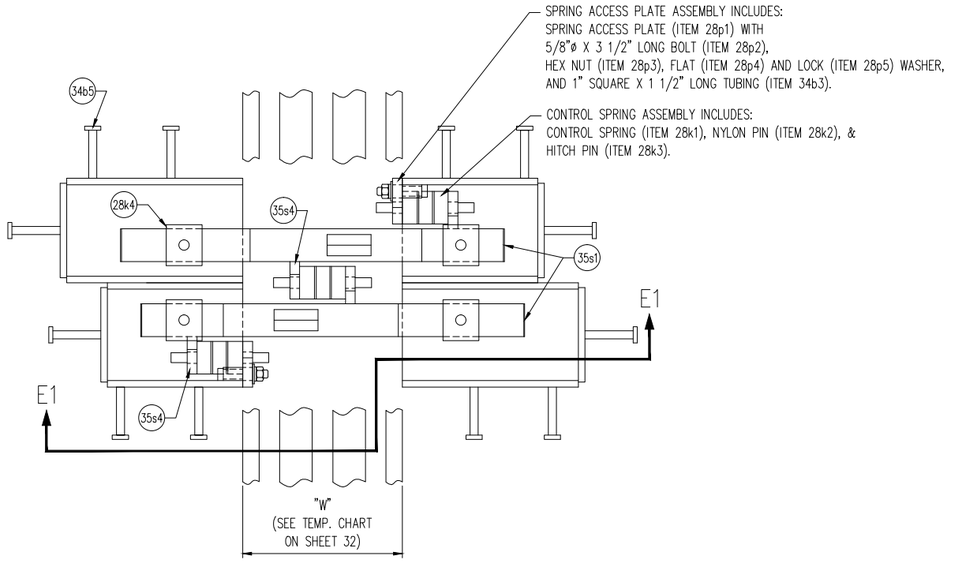
SECTION THRU 'D–240' @ SUPPORT BOX



'D–240' SUPPORT BOX DETAIL



SECTION E1



SECTION F1

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 389 H

REV.	DESCRIPTION	DATE	DET.	CKD.

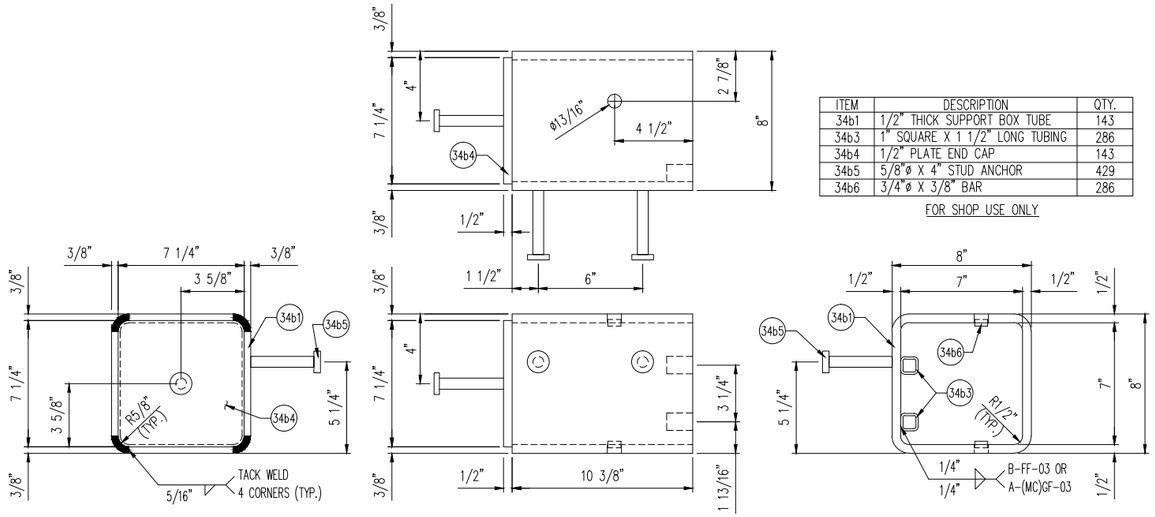
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D–240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	8 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	33

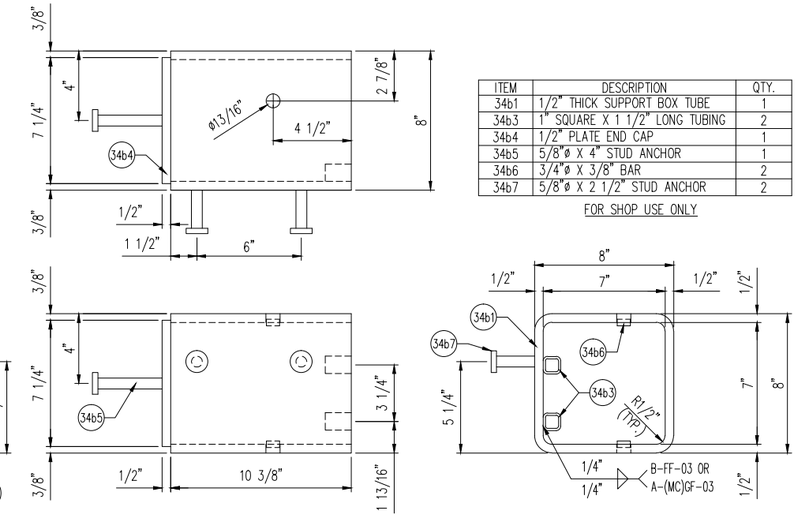


ITEM	DESCRIPTION	QTY.
34b1	1/2" THICK SUPPORT BOX TUBE	143
34b3	1" SQUARE X 1 1/2" LONG TUBING	286
34b4	1/2" PLATE END CAP	143
34b5	5/8"ø X 4" STUD ANCHOR	429
34b6	3/4"ø X 3/8" BAR	286

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '34A'

(143) REQUIRED



ITEM	DESCRIPTION	QTY.
34b1	1/2" THICK SUPPORT BOX TUBE	1
34b3	1" SQUARE X 1 1/2" LONG TUBING	2
34b4	1/2" PLATE END CAP	1
34b5	5/8"ø X 4" STUD ANCHOR	1
34b6	3/4"ø X 3/8" BAR	2
34b7	5/8"ø X 2 1/2" STUD ANCHOR	2

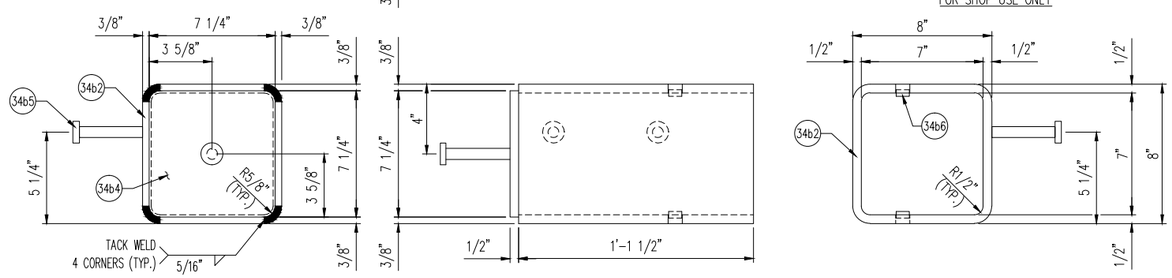
FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '34C'

(1) REQUIRED

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

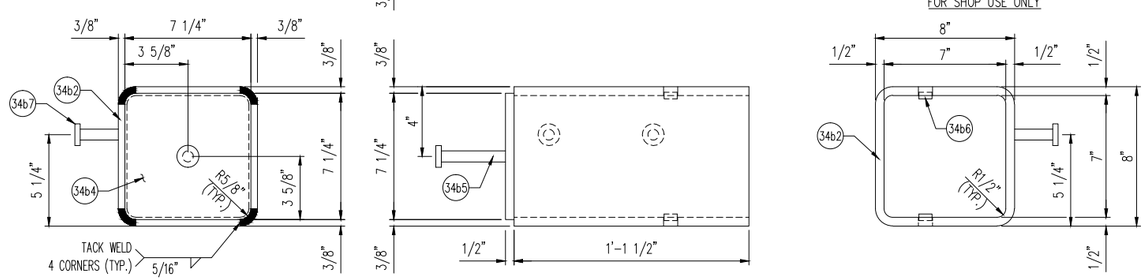


ITEM	DESCRIPTION	QTY.
34b2	1/2" THICK SUPPORT BOX TUBE	143
34b4	1/2" PLATE END CAP	143
34b5	5/8"ø X 4" STUD ANCHOR	429
34b6	3/4"ø X 3/8" BAR	286

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '34B'

(143) REQUIRED

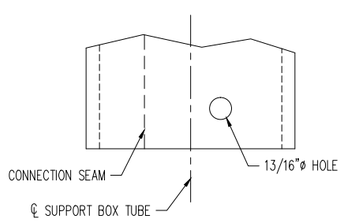


ITEM	DESCRIPTION	QTY.
34b2	1/2" THICK SUPPORT BOX TUBE	1
34b4	1/2" PLATE END CAP	1
34b5	5/8"ø X 4" STUD ANCHOR	1
34b6	3/4"ø X 3/8" BAR	2
34b7	5/8"ø X 2 1/2" STUD ANCHOR	2

FOR SHOP USE ONLY

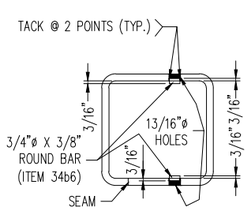
'D-240' SUPPORT BOX DETAIL '34D'

(1) REQUIRED



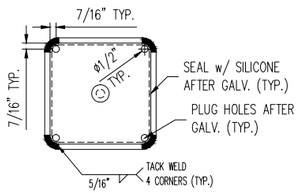
SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



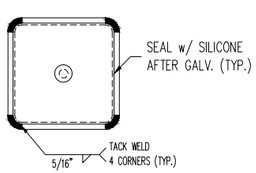
SUPPORT BOX PIN DETAILS

(W/ RUBBER SPRINGS & BEARINGS)



SUPPORT BOX BACK PLATE OPTION NO. 1

(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE OPTION NO. 2

(ATTACH AFTER GALV.)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

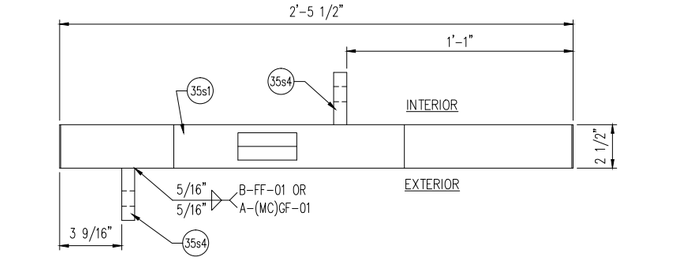
DESCRIPTION: 'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	9 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	34

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

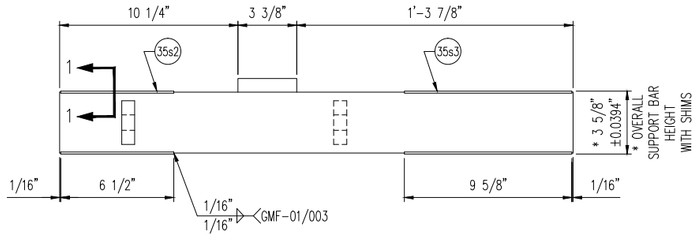
CONSTRUCTION
SHOP DRAWING

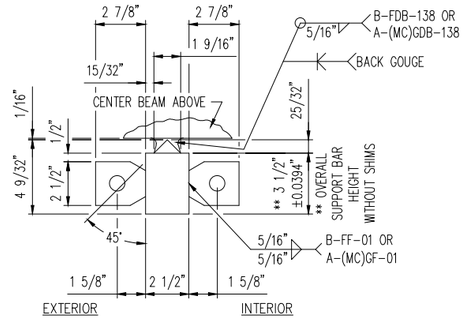


ITEM	DESCRIPTION	QTY.
35s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	144
35s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	288
35s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	288
35s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	288

FOR SHOP USE ONLY

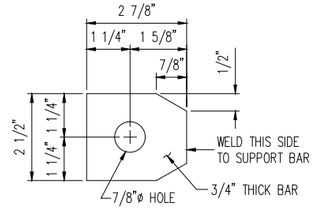
NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.





'D-240' SUPPORT BAR DETAILS

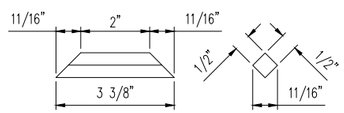
(144) REQUIRED



ITEM NO. 35s4

(288) REQ'D.

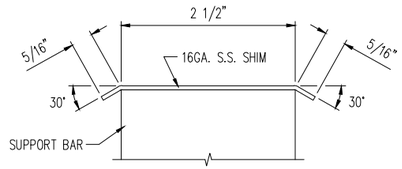
SPRING STOP DETAIL



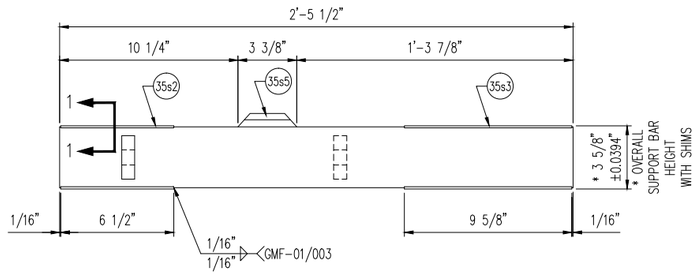
ITEM NO. 35s5

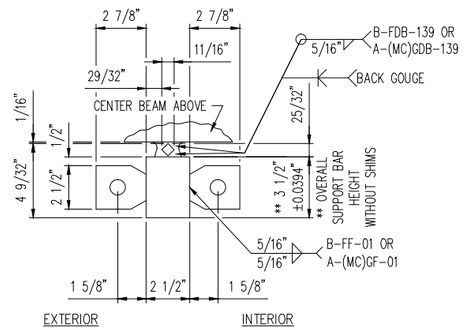
(144) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	10 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	35

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
29A	1	"D-240" MODULAR EXPANSION JOINT			37'-0 7/8"	9585	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	39	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	33	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	66	HITCH PIN	–		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	44	SLIDE BEARING	–		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
29a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
29a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
29a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
29a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-2 1/8	A123-HDG	1247	
29y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
29y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	5	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	132	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
29B	1	"D-240" MODULAR EXPANSION JOINT			37'-4 1/8"	9612	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	33	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	66	HITCH PIN	–		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	44	SLIDE BEARING	–		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
29a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
29a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
29a9	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-4 5/8	A123-HDG	470	
29a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-4 5/8	A123-HDG	470	
29a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-5 3/8	A123-HDG	1257	
29y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
29y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	128	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
34b7	4	Ø3/4 X 2 1/2 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	11 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	36

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
30A	1	"D-240" MODULAR EXPANSION JOINT			37'-0 7/8"	9587	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	33	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	66	HITCH PIN	–		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	44	SLIDE BEARING	–		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
30a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
30a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	36'-1 3/8	A123-HDG	467	
30a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
30a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-2 1/8	A123-HDG	1247	
30y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
30y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	132	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
30B	1	"D-240" MODULAR EXPANSION JOINT			48'-0 7/8"	12275	
28h1	84	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	52	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	42	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	42	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	84	HITCH PIN	–		PLAIN	< 1	
28k4	56	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	56	SLIDE BEARING	–		PLAIN	1	
28p1	28	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	56	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	56	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	56	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	56	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
30a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
30a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
30a7	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	47'-1 3/8	A123-HDG	609	
30a8	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	47'-1 3/8	A123-HDG	609	
30a9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	47'-2 1/8	A123-HDG	1626	
30y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
30y2	3	L2-400 GLAND	NEOPRENE	48'-0	144'-0" TOTAL;	77	
33g3	5	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	5	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	28	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	28	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	56	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	56	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	168	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	112	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	28	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	56	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	56	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	56	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
30C	1	"D-240" MODULAR EXPANSION JOINT			6'-9"	1740	
28h1	12	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	6	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	6	CONTROL SPRING (80MM)	–		PLAIN	1	
28k2	6	NYLON PIN (80MM)	–		PLAIN	< 1	
28k3	12	HITCH PIN	–		PLAIN	< 1	
28k4	8	PRECOMPRESSED SPRING	–		PLAIN	< 1	
28k5	8	SLIDE BEARING	–		PLAIN	1	
28p1	4	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	8	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	8	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	8	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
30a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
30a11	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
30a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
30y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
30y2	3	L2-400 GLAND	NEOPRENE	7'-0	21'-0" TOTAL;	11	
33g3	1	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	1	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
33g5	1	1/2 X 7 3/8	A36	0'-8	JOINT SUPPORT PLATE; A123-HDG	8	
33g6	1	1/2 X 7 3/8	A36	0'-6 1/16	JOINT SUPPORT PLATE; A123-HDG	6	
34b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	8	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	8	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	24	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	16	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	4	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	8	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
32XA	112	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x1	112	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XB	336	JOINT SUPPORT HARDWARE – HEX NUT (ROCAP)				< 1	
32x2	336	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
32XC	664	JOINT SUPPORT HARDWARE – FLAT WASHER (ROCAP)				< 1	
32x3	664	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
32XD	116	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x4	116	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XE	64	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x5	64	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XF	36	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x6	36	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XG	8	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
32x7	8	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
32XH	8	JOINT SUPPORT HARDWARE – BEVELED WASHER (ROCAP)				< 1	
32x8	8	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
32XAT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XBT	21	TESTING HARDWARE – HEX NUT (ROCAP)				< 1	
32t2	21	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
32XCT	36	TESTING HARDWARE – FLAT WASHER (ROCAP)				< 1	
32t3	36	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
32XDT	6	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t4	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XET	6	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t5	6	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XFT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t6	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
32XGT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
32t7	3	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
32XHT	6	TESTING HARDWARE – BEVELED WASHER (ROCAP)				< 1	
32t8	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 389 L

REV.	DESCRIPTION	DATE	DET.	CKD.

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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	12 OF 13
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	37	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
31A	1	"D-240" MODULAR EXPANSION JOINT			36'-9 1/2"	9106	
28h1	60	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	40	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	30	CONTROL SPRING (80MM)	-		PLAIN	1	
28k2	30	NYLON PIN (80MM)	-		PLAIN	< 1	
28k3	60	HITCH PIN	-		PLAIN	< 1	
28k4	40	PRECOMPRESSED SPRING	-		PLAIN	< 1	
28k5	40	SLIDE BEARING	-		PLAIN	1	
28p1	20	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	40	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	40	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	40	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	40	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
31a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a3	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
31a4	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
31a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
31a6	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-10 3/4	A123-HDG	1238	
31y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
31y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	4	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	20	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	20	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	40	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	40	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	120	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	80	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	20	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	40	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	40	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	40	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
31B	1	"D-240" MODULAR EXPANSION JOINT			36'-7 1/2"	9599	
28h1	66	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	44	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	33	CONTROL SPRING (80MM)	-		PLAIN	1	
28k2	33	NYLON PIN (80MM)	-		PLAIN	< 1	
28k3	66	HITCH PIN	-		PLAIN	< 1	
28k4	44	PRECOMPRESSED SPRING	-		PLAIN	< 1	
28k5	44	SLIDE BEARING	-		PLAIN	1	
28p1	22	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	44	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	44	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	44	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
31a1	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a2	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
31a5	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
31a7	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-8	A123-HDG	461	
31a8	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-8	A123-HDG	461	
31a9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 3/4	A123-HDG	1232	
31y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
31y2	3	L2-400 GLAND	NEOPRENE	38'-0	114'-0" TOTAL;	61	
33g3	4	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	3	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
34b1	22	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	22	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	44	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	44	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	132	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	88	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	22	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	44	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	44	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
31C	1	"D-240" MODULAR EXPANSION JOINT			6'-9"	1705	
28h1	12	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
28h2	4	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
28k1	6	CONTROL SPRING (80MM)	-		PLAIN	1	
28k2	6	NYLON PIN (80MM)	-		PLAIN	< 1	
28k3	12	HITCH PIN	-		PLAIN	< 1	
28k4	8	PRECOMPRESSED SPRING	-		PLAIN	< 1	
28k5	8	SLIDE BEARING	-		PLAIN	1	
28p1	4	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
28p2	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p3	8	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
28p4	8	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
28p5	8	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
31a10	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
31a11	1	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
31a12	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
31y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
31y2	3	L2-400 GLAND	NEOPRENE	7'-0	21'-0" TOTAL;	11	
33g3	1	1/2 X 7	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	16	
33g4	1	1/2 X 6	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
33g5	1	1/2 X 7 3/8	A36	0'-8	JOINT SUPPORT PLATE; A123-HDG	8	
33g6	1	1/2 X 7 3/8	A36	0'-6 1/16	JOINT SUPPORT PLATE; A123-HDG	6	
34b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
34b2	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
34b3	8	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
34b4	8	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
34b5	24	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
34b6	16	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
35s1	4	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
35s2	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
35s3	8	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
35s4	8	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REVISED
Modular Expansion Joints 7, 9 & 10
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
33GA	54	JOINT SUPPORT ITEM				52	
33g1	146	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
33GB	4	JOINT SUPPORT ITEM				19	
33g2	4	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
		*Approx. Gross Wt. Lbs Per Single Unit			4/14/2014 3:05:29 PM		

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

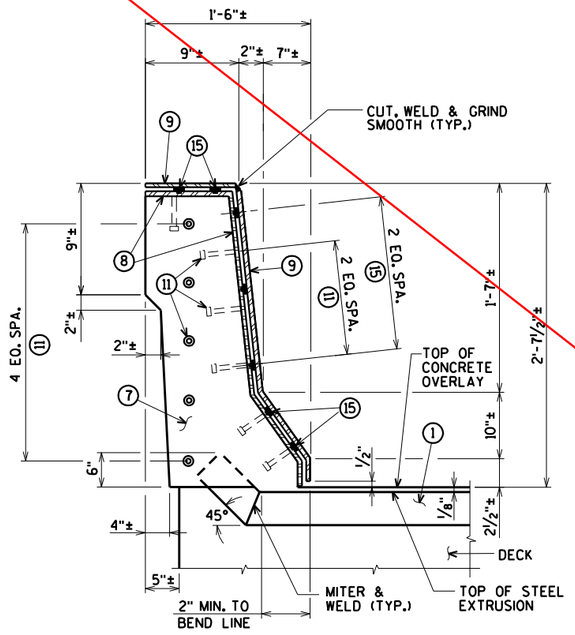
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	JLW	03/2014	13 OF 13

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
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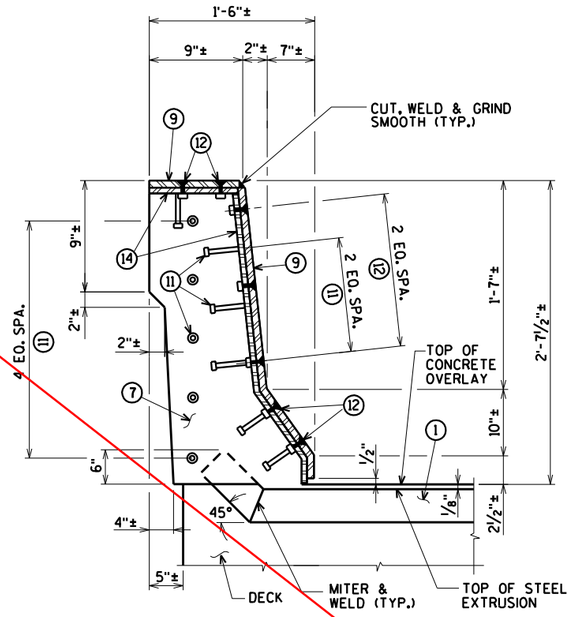
PAGE 389 M

STATE PROJECT NUMBER

8680-04-71



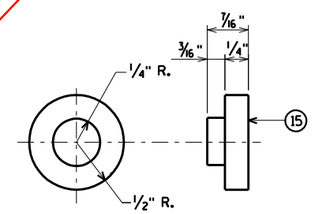
SECTION E



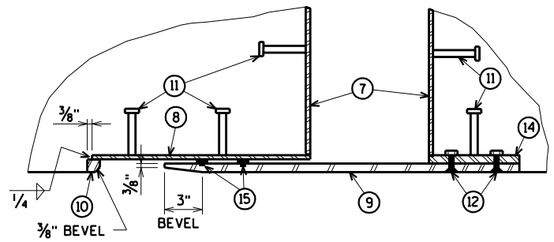
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

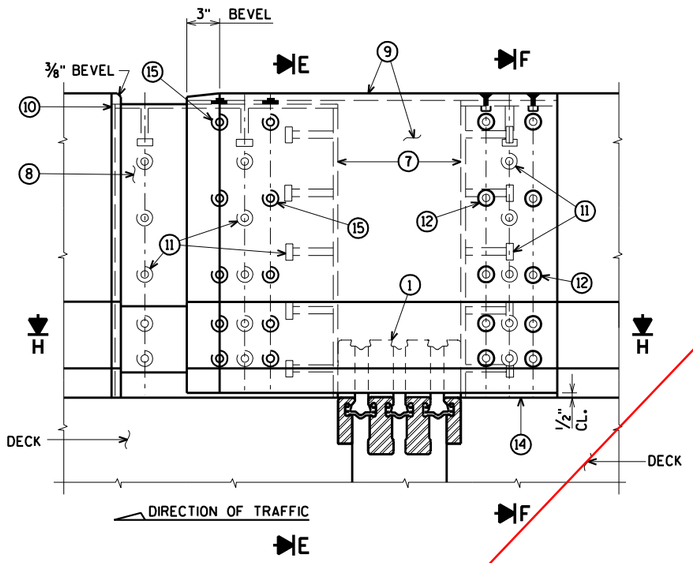
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 43



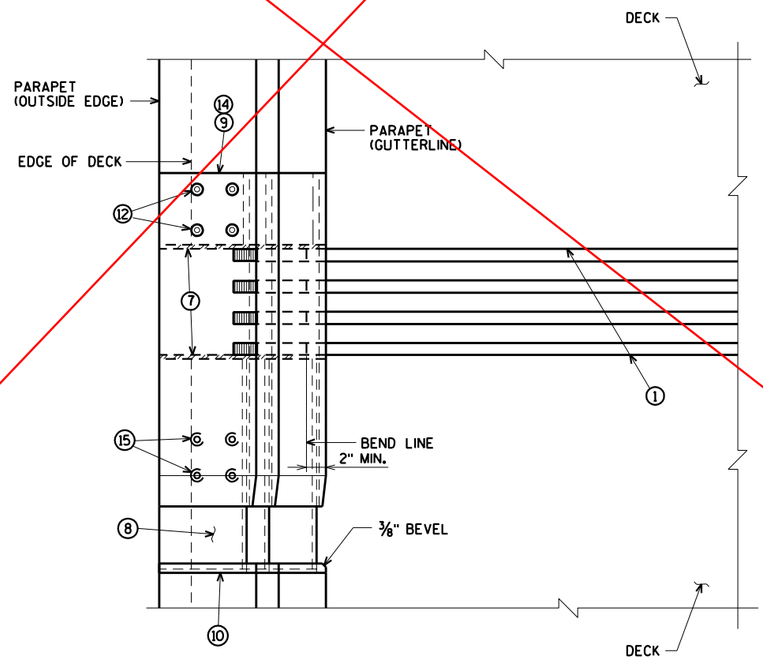
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 43, 45-46

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 7 DETAILS OUTSIDE PARAPET

SHEET 44 OF 99
390

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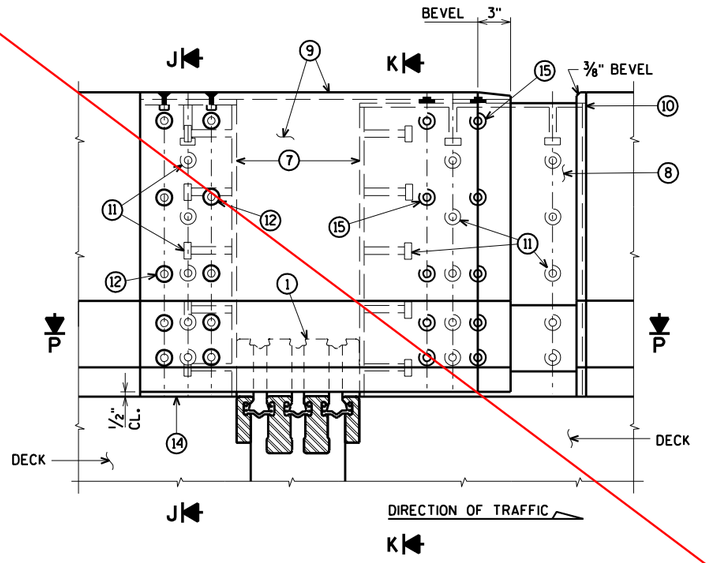
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9/12/2013

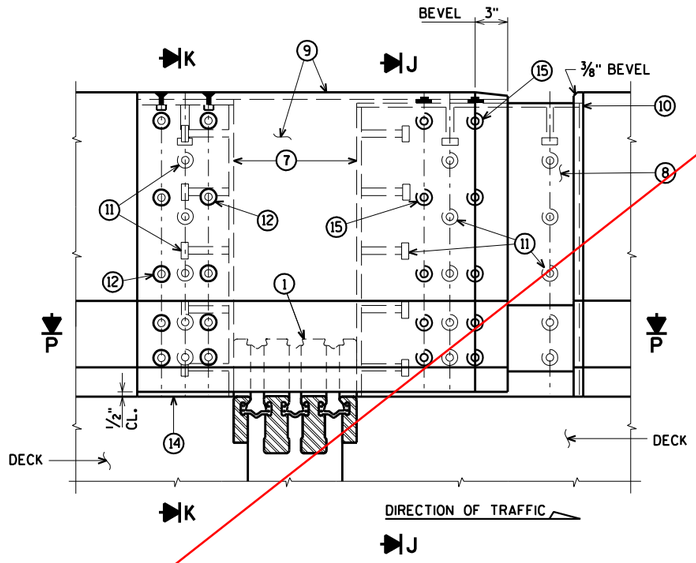
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STATE PROJECT NUMBER

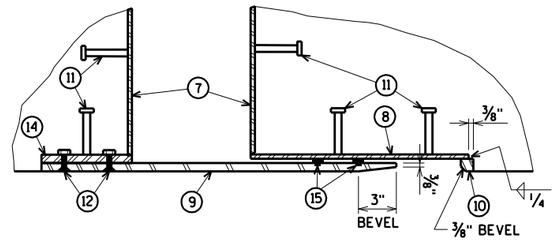
8680-04-71



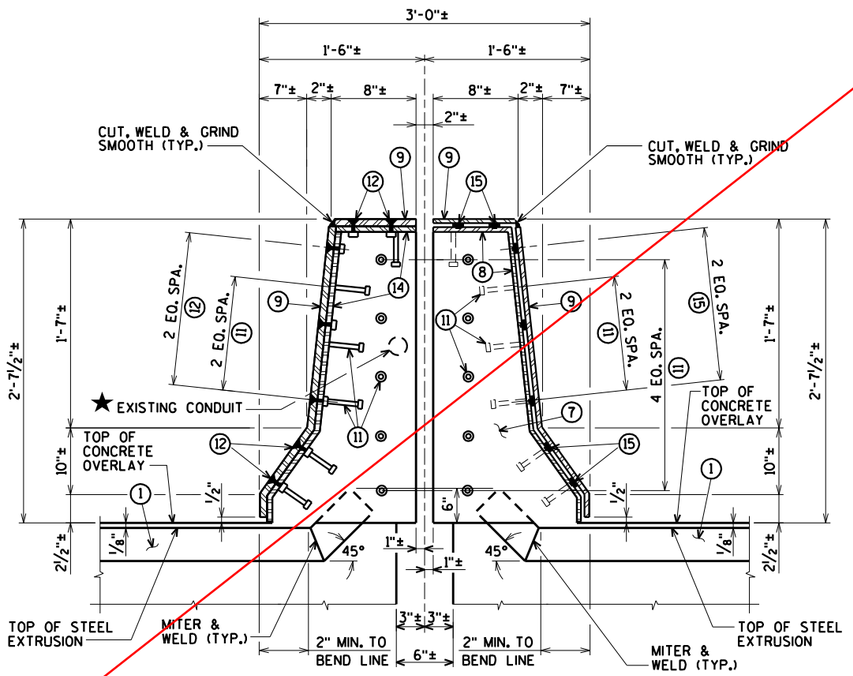
ELEVATION OF MEDIAN PARAPET
SECTION G



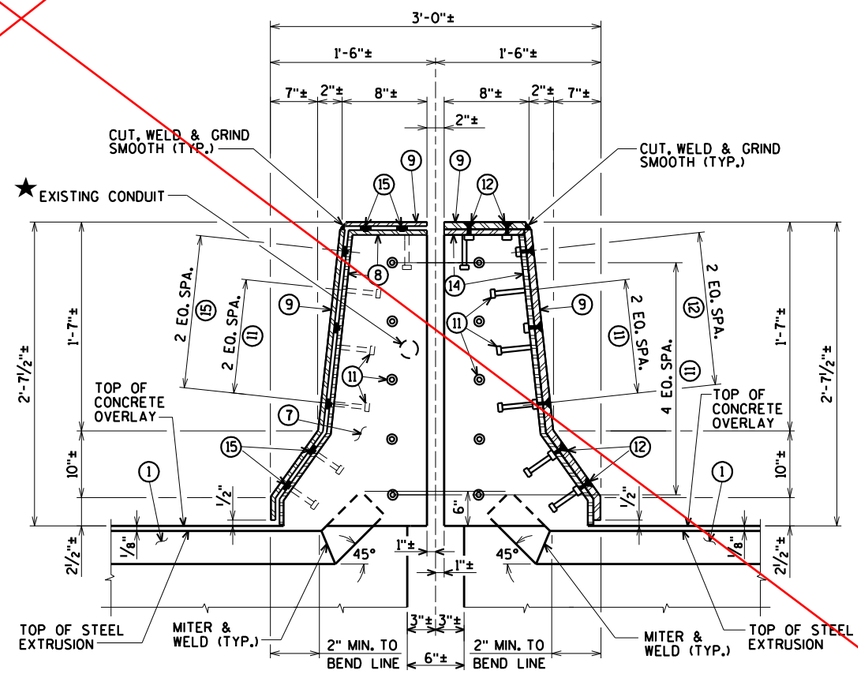
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 43

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 43-44, 46

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 7 DETAILS MEDIAN PARAPET

SHEET 45 OF 99
391

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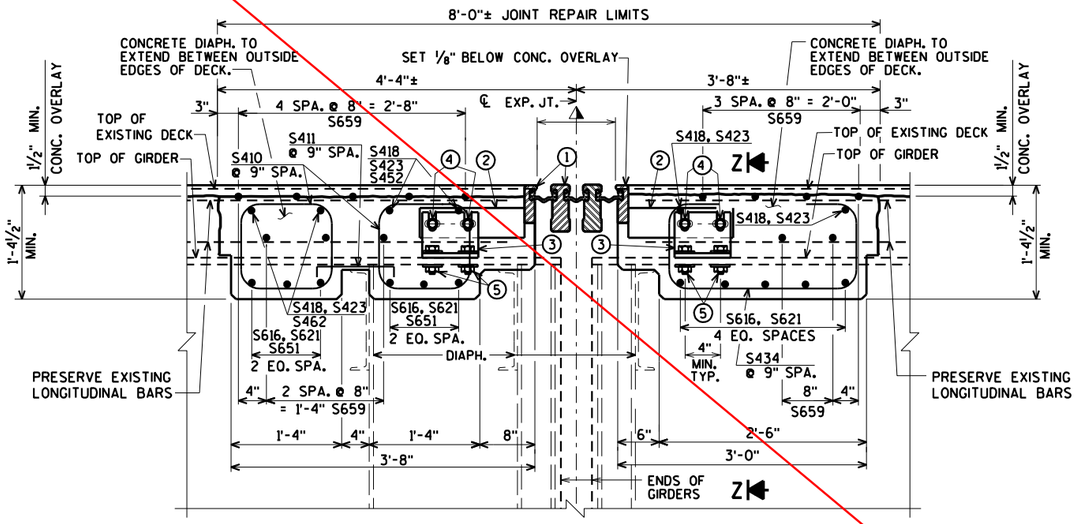
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9/12/2013

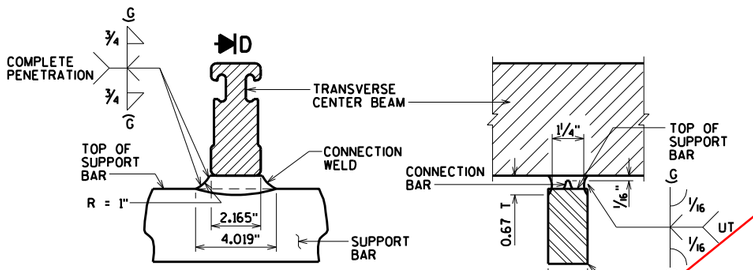
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STATE PROJECT NUMBER
8680-04-71



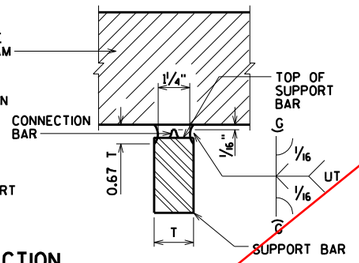
SECTION THRU JOINT 7

NORMAL TO ℄ OF JOINT

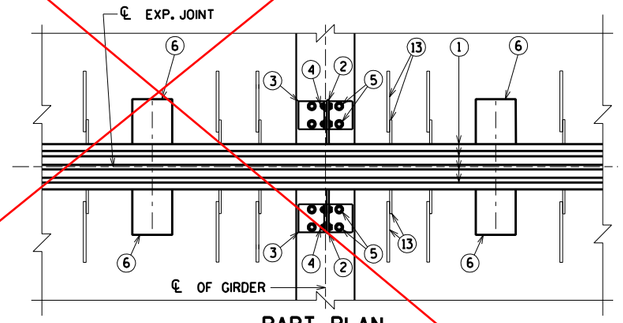


D

MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION



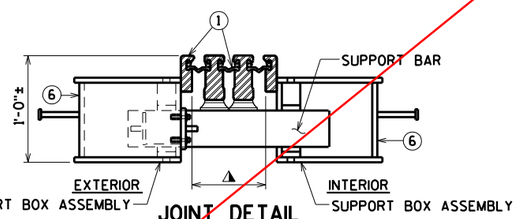
SECTION D



PART PLAN

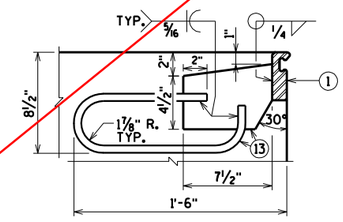
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



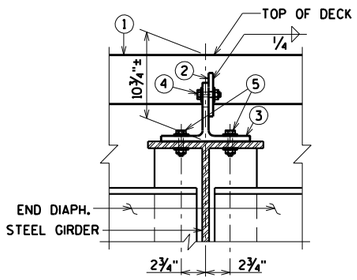
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED.

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION), ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 43-45

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 7 DETAILS

SHEET 46 OF 99
392

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
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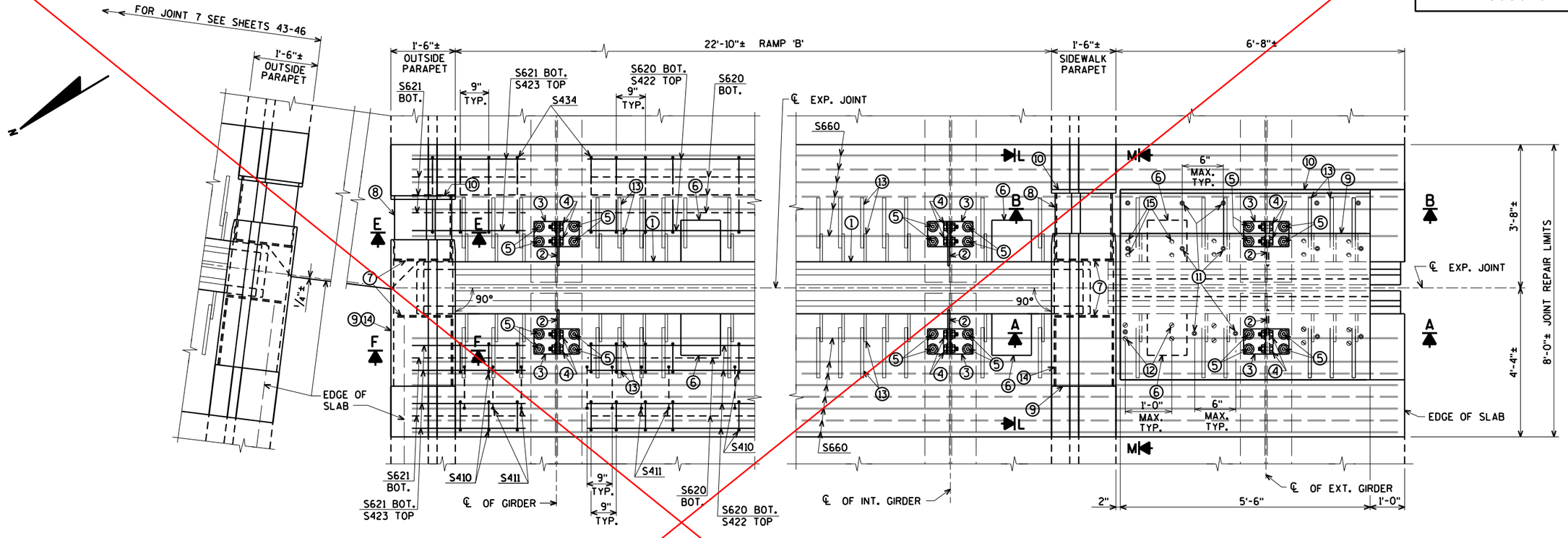
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STATE PROJECT NUMBER

8680-04-71



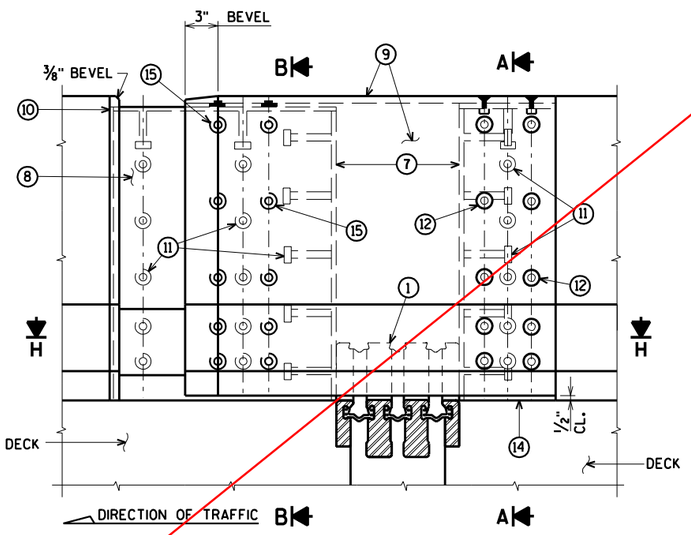
PART PLAN AT JOINT 8

(STAGE 3)

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

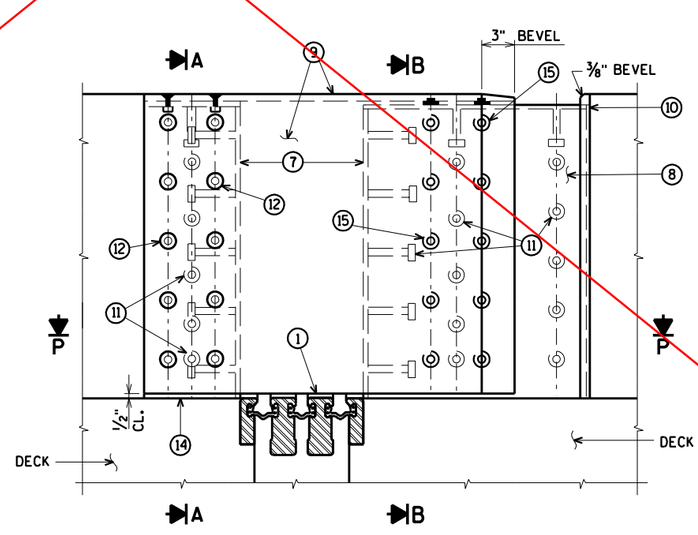
FOR SECTIONS 'A' AND 'B' SEE SHEET 49

FOR SECTIONS 'E' AND 'F' SEE SHEET 48

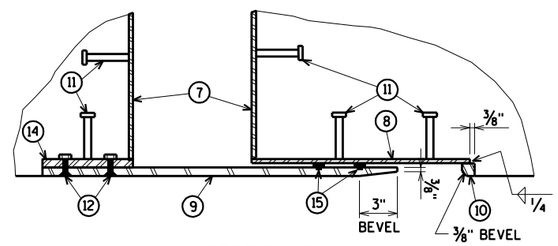


ELEVATION OF SIDEWALK PARAPET
SECTION L

FOR SECTION 'H' SEE SHEET 48



ELEVATION OF SIDEWALK PARAPET
SECTION M



SECTION P

See revised joint details PAGE 386. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 48-50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 8 DETAILS

SHEET 47 OF 99
393

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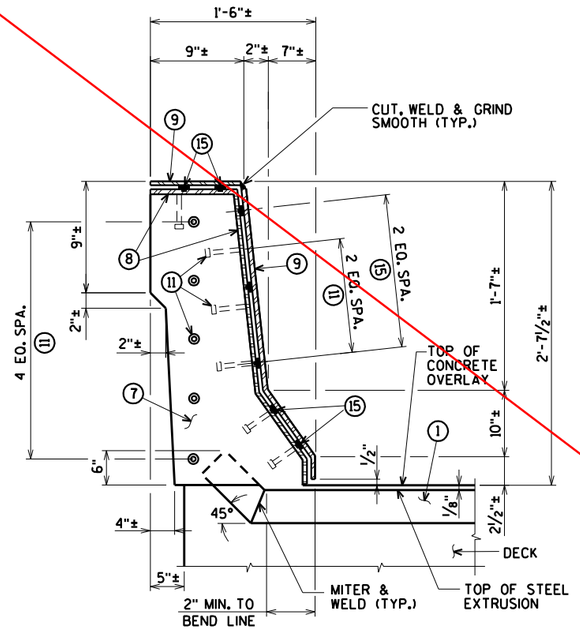
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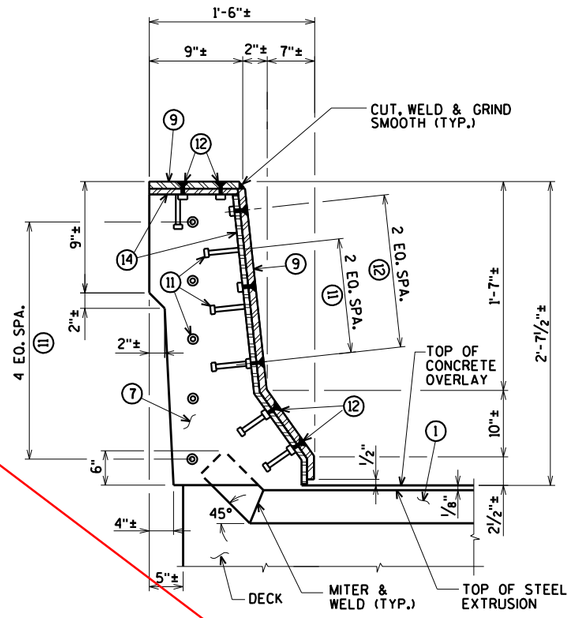
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STATE PROJECT NUMBER

8680-04-71



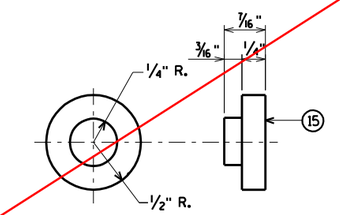
SECTION E



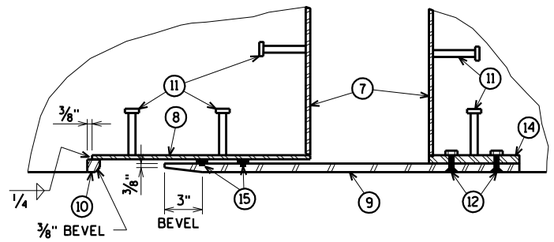
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

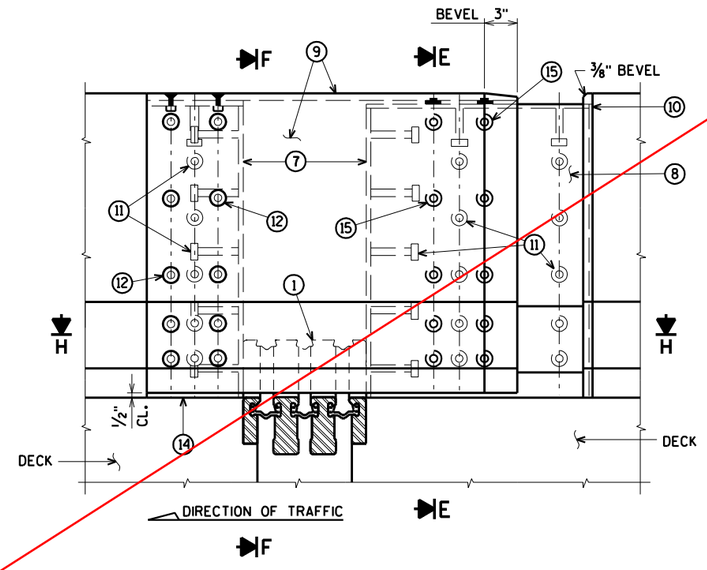
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 47



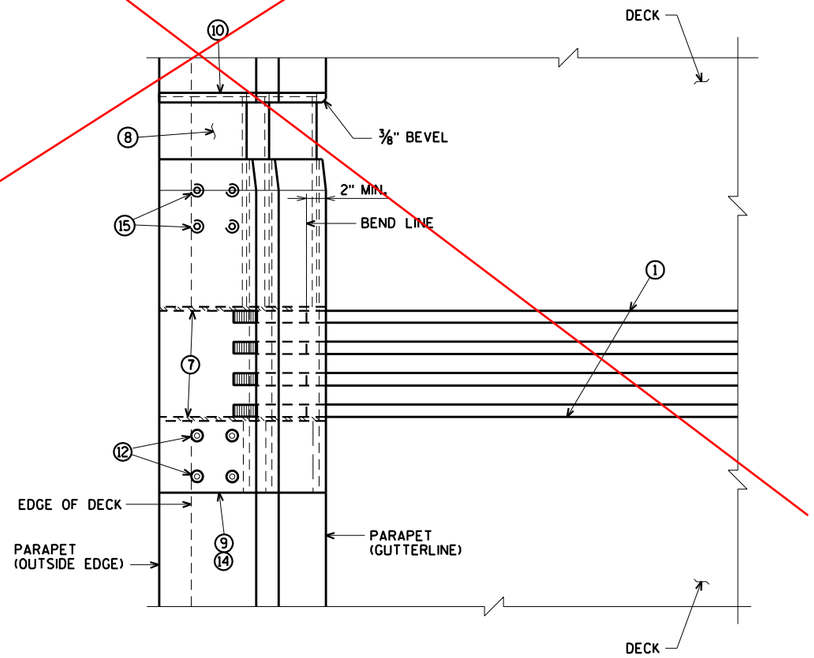
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 386.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 47, 49-50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 8 DETAILS OUTSIDE PARAPET

SHEET 48 OF 99
394

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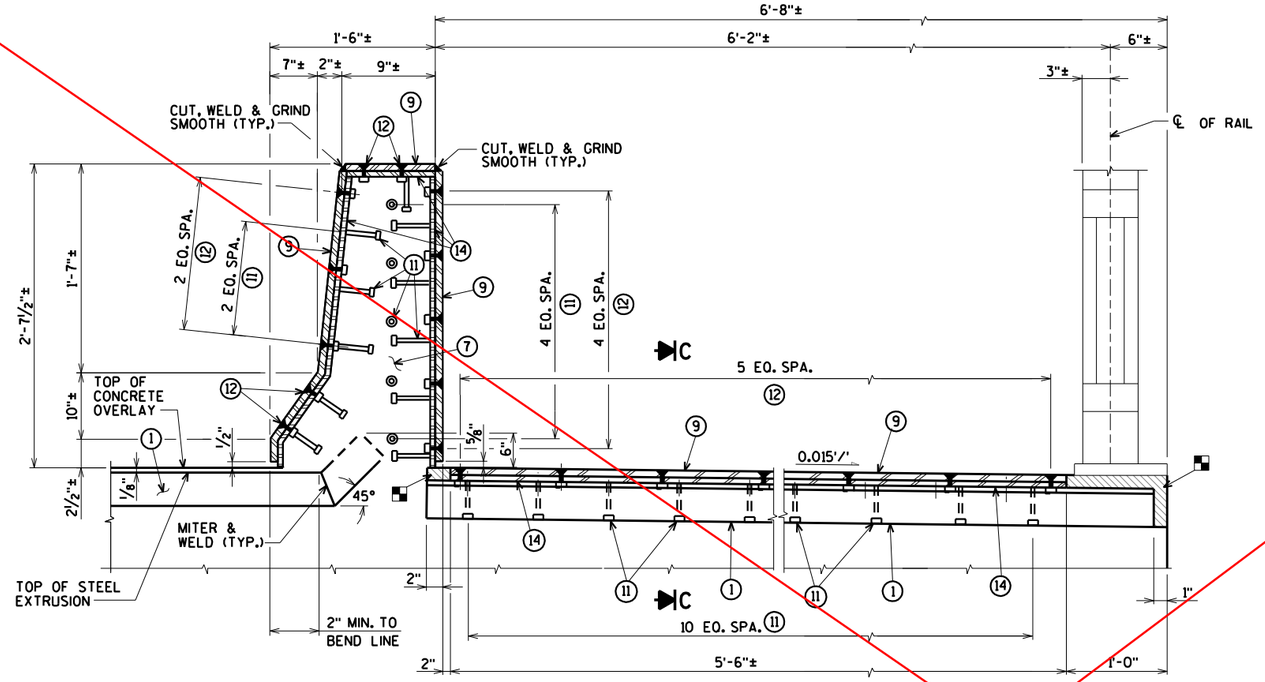
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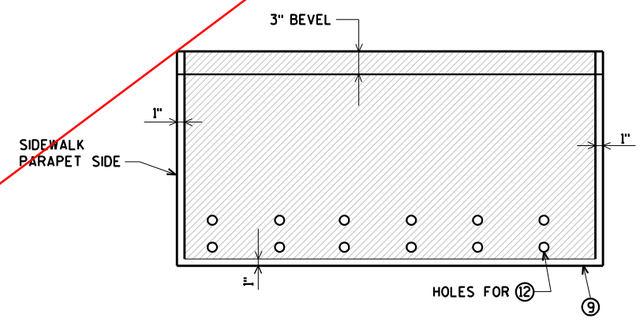
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ELEVATION OF SIDEWALK W/PARAPET SECTION A

FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 47

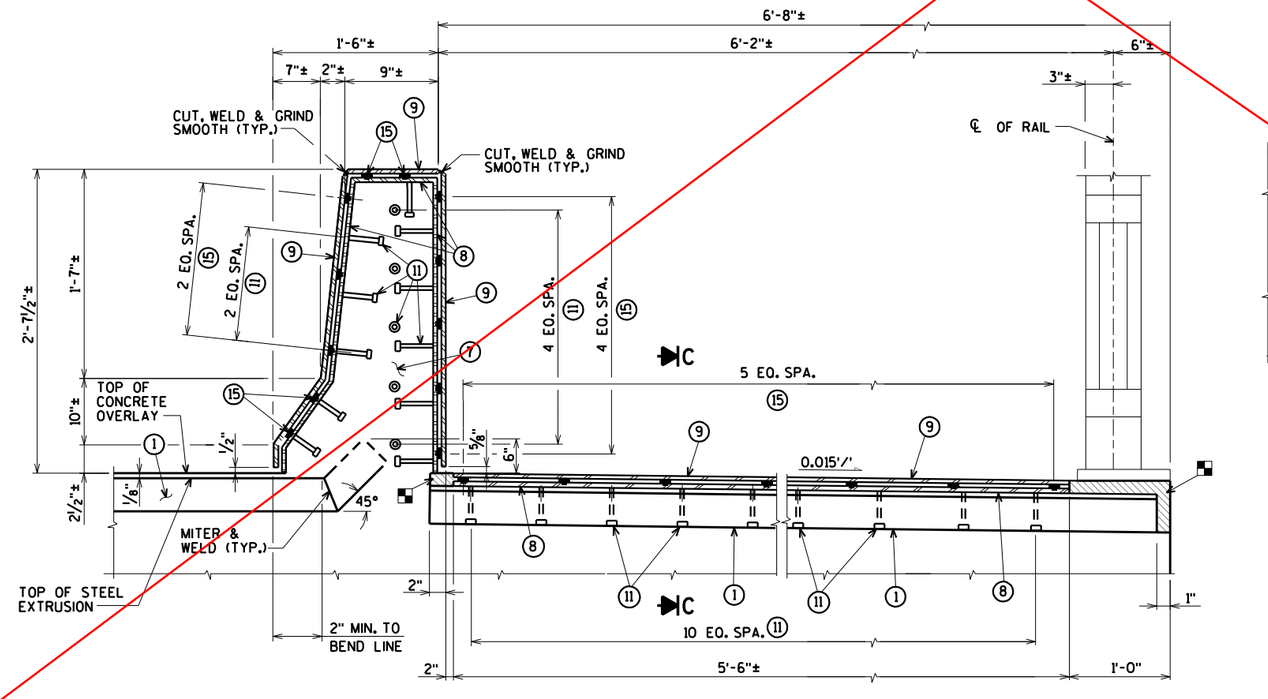
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



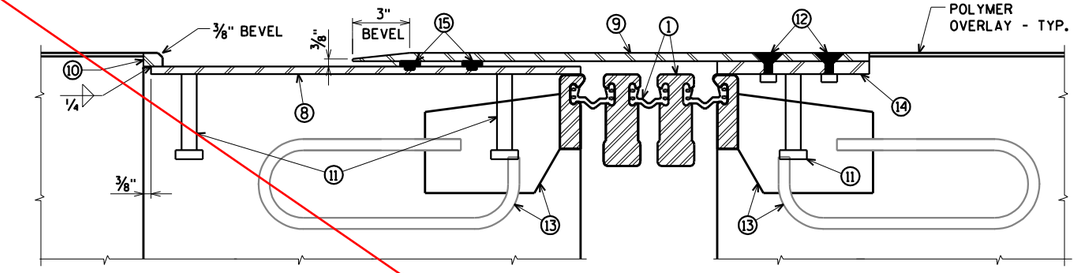
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details PAGE 386.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 47-48, 50

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-16-38/69100

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EXPANSION JOINT 8 DETAILS SIDEWALK & PARAPET

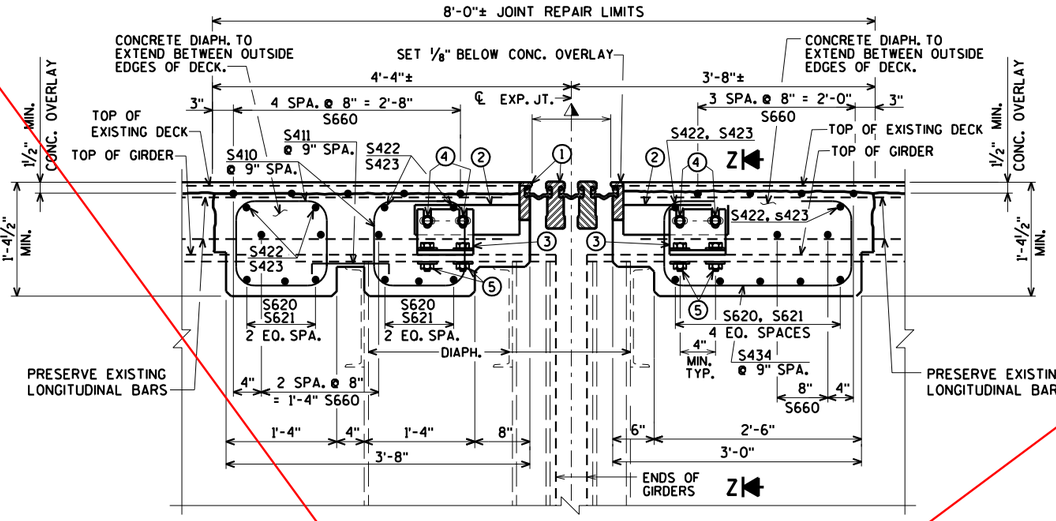
SHEET 49 OF 99
395

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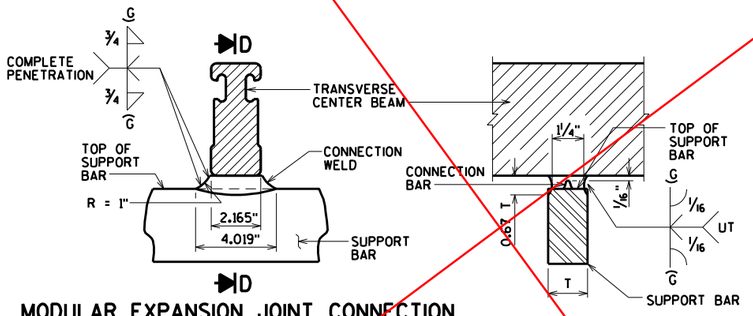
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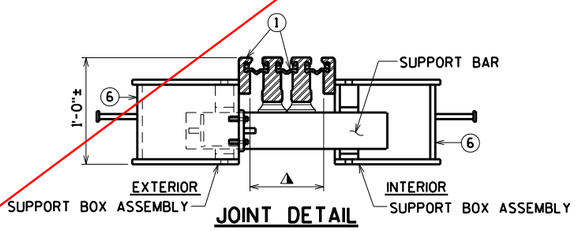


SECTION THRU JOINT 8
NORMAL TO ℄ OF JOINT

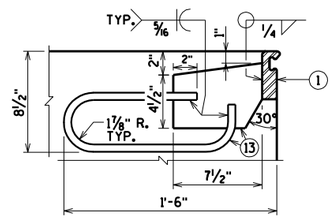


MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

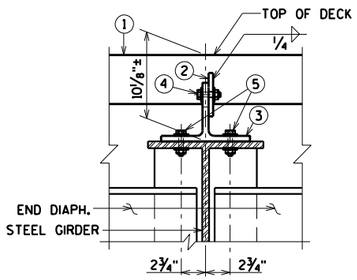
SECTION D



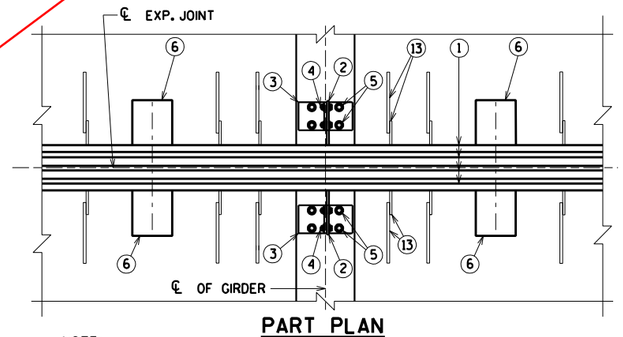
JOINT DETAIL
AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL
PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 1/2 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

See revised joint details PAGE 386.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 47-49

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 8 DETAILS

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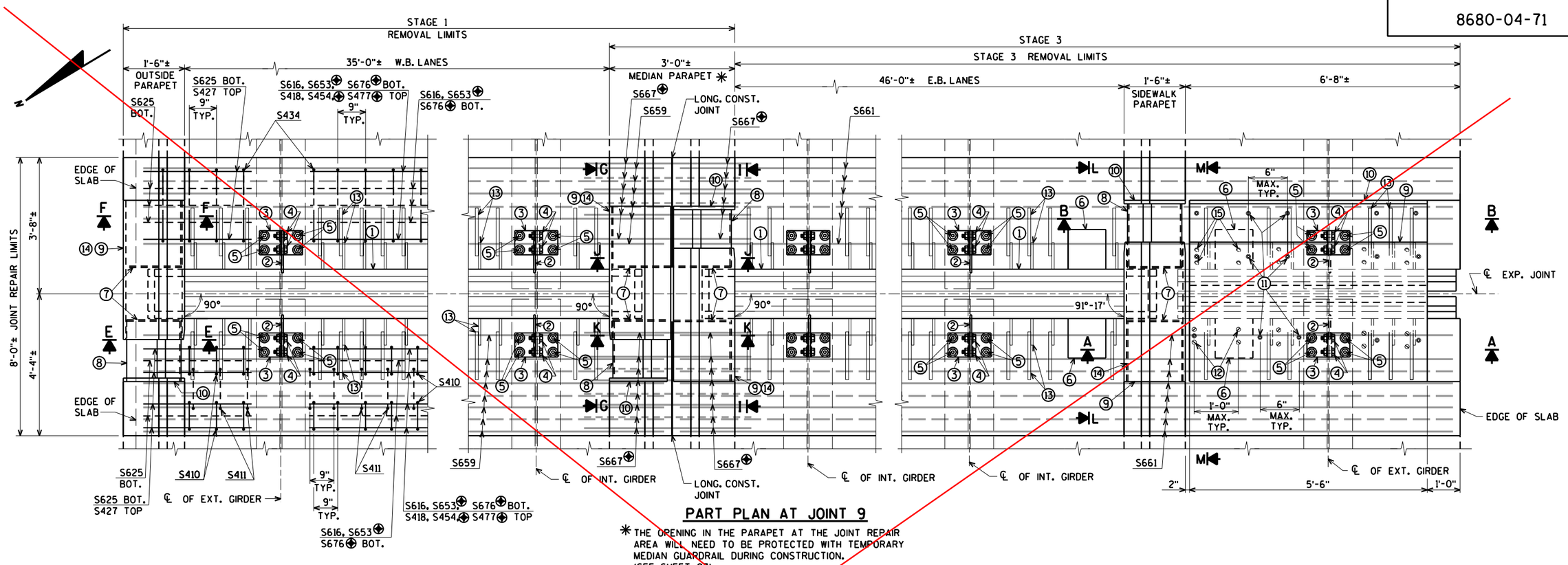
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 9

* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

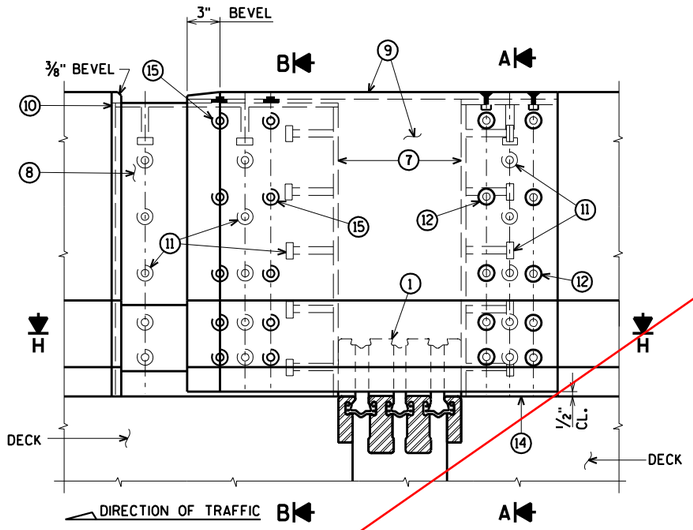
⊕ BARS WITH COUPLERS, SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 54

FOR SECTIONS 'E' AND 'F' SEE SHEET 52

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 53

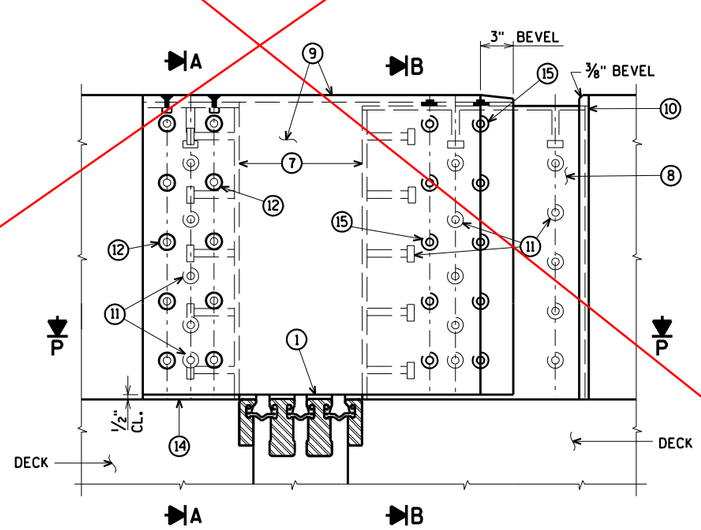
NOTE:
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ELEVATION OF SIDEWALK PARAPET SECTION L

FOR SECTION 'H' SEE SHEET 52

FOR SECTION 'P' SEE SHEET 53



ELEVATION OF SIDEWALK PARAPET SECTION M

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 52-55

NO.	DATE	REVISION	BY

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STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 9 DETAILS

SHEET 51 OF 99
397

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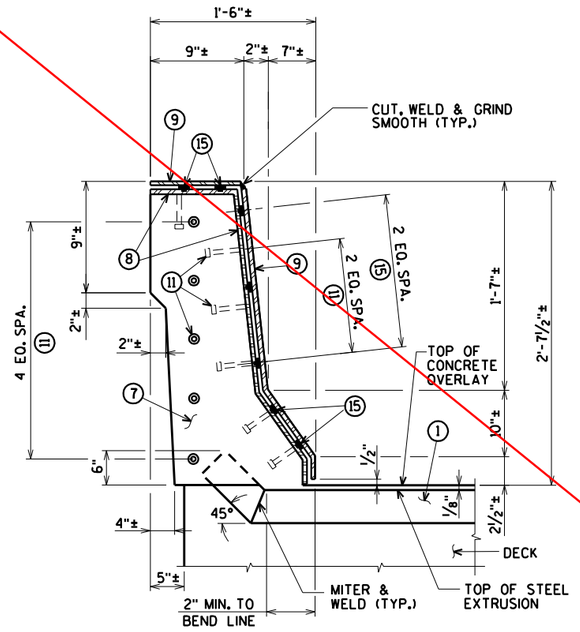
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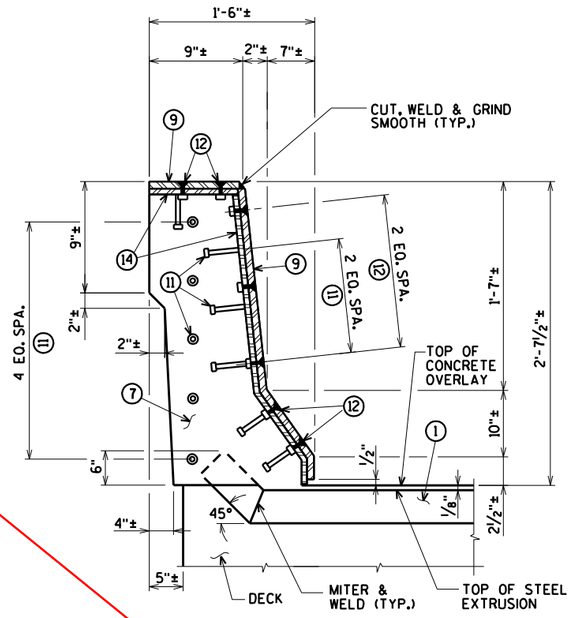
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STATE PROJECT NUMBER

8680-04-71



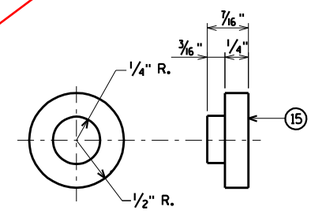
SECTION E



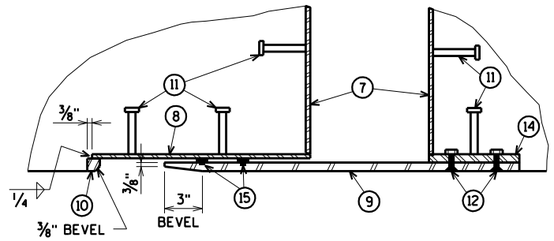
SECTION F

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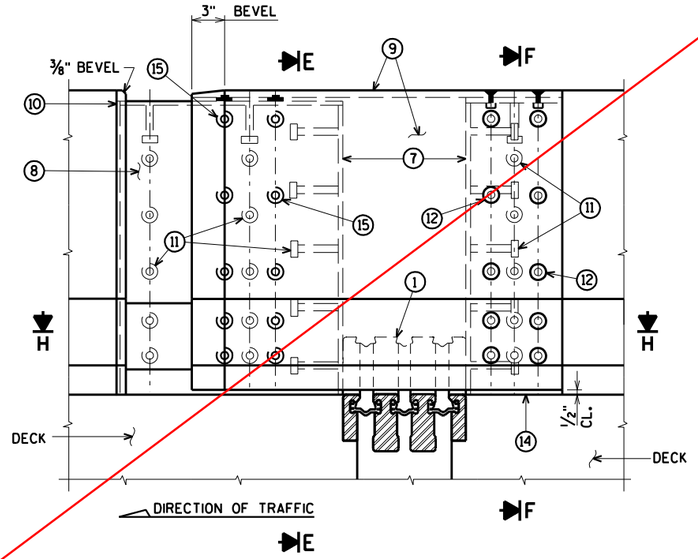
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 51



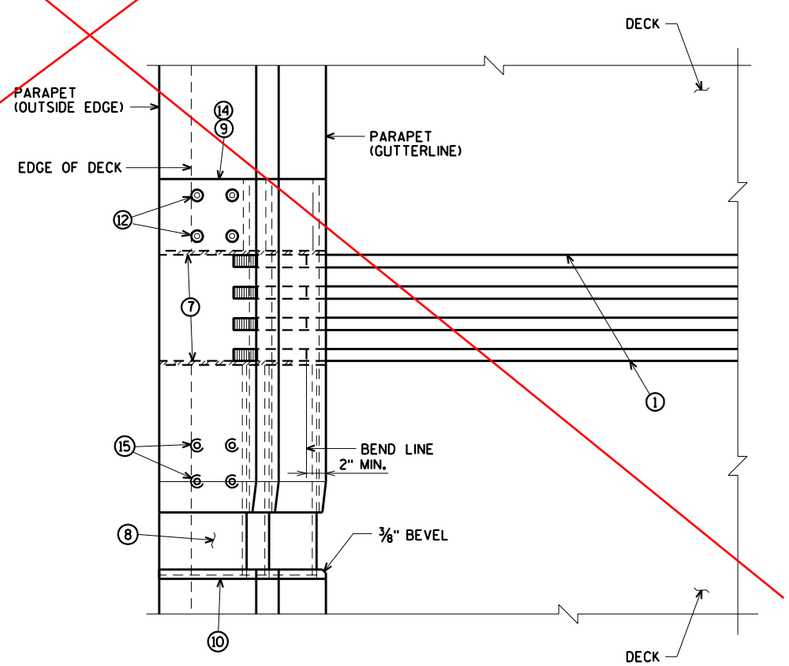
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 51, 53-55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
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STRUCTURE B-16-38/69100

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EXPANSION JOINT 9 DETAILS OUTSIDE PARAPET

SHEET 52 OF 99
398

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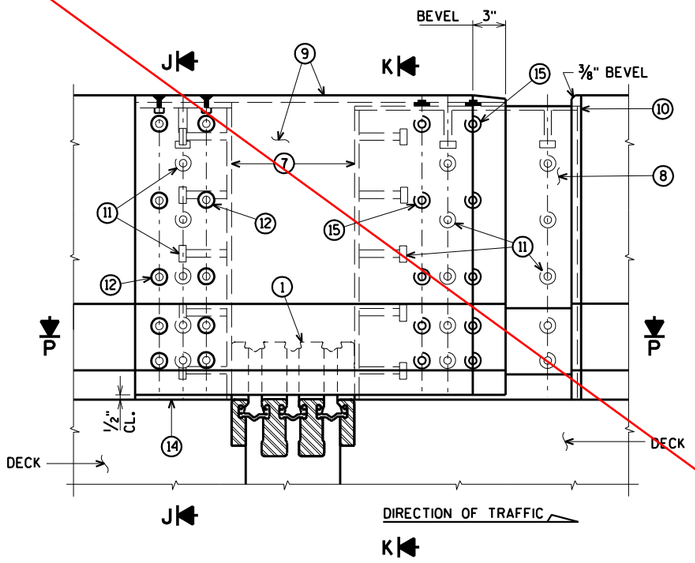
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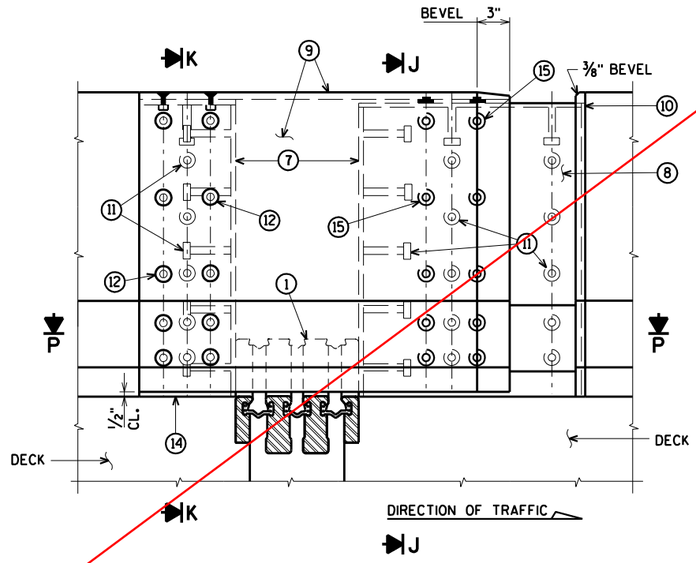
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STATE PROJECT NUMBER

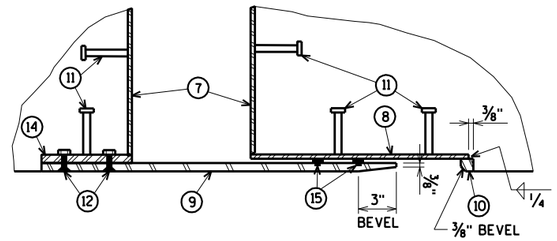
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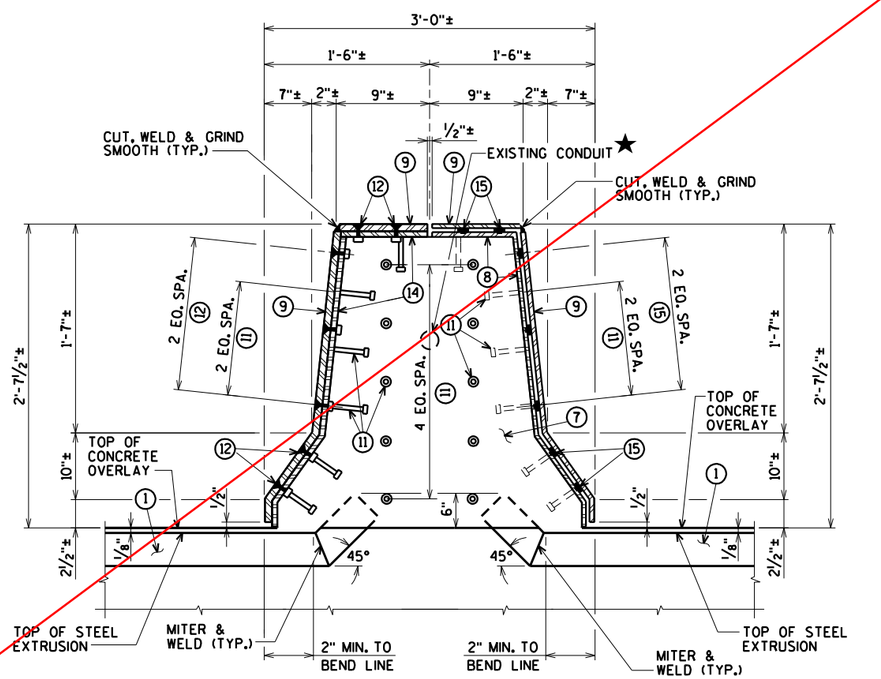
ELEVATION OF MEDIAN PARAPET
SECTION G



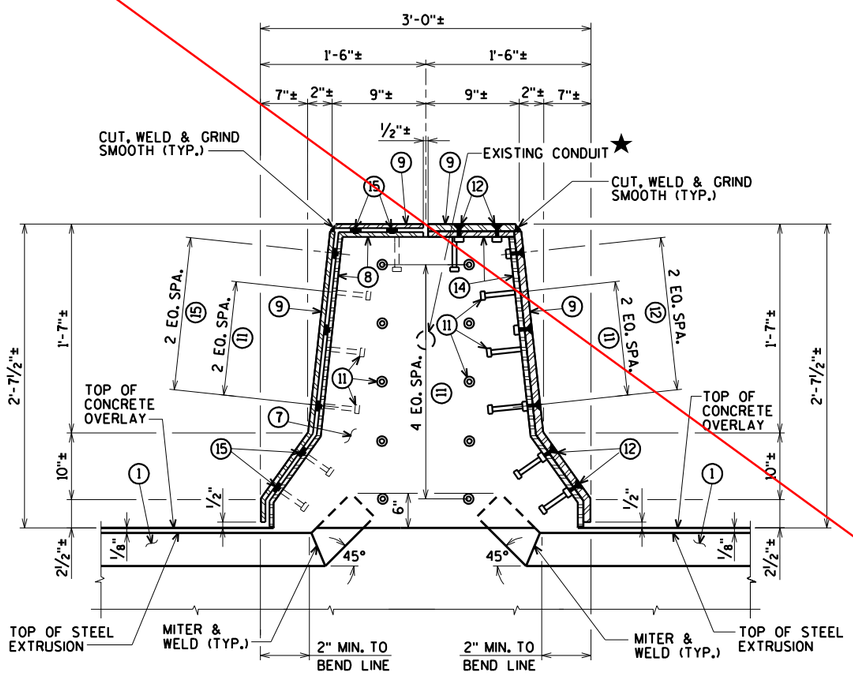
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 51

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 51-52, 54-55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 9 DETAILS MEDIAN PARAPET

SHEET 53 OF 99
399

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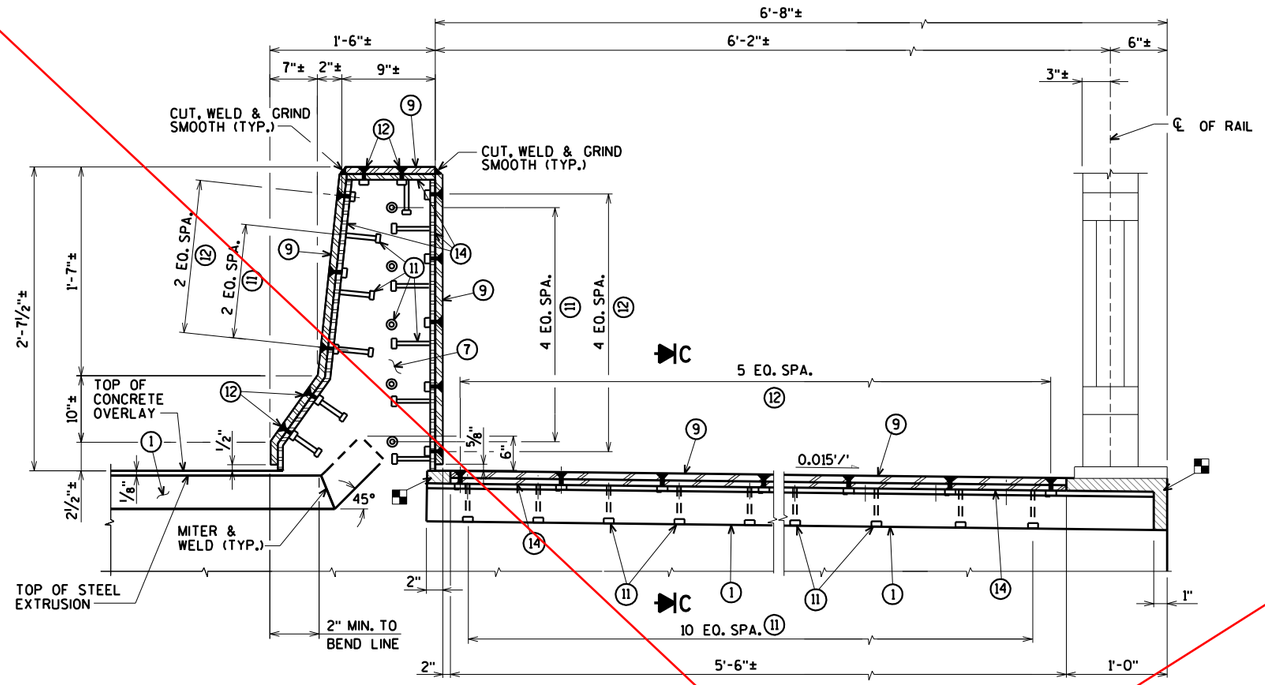
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9/12/2013

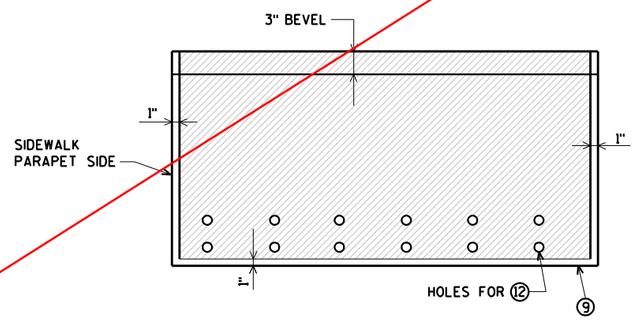
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ELEVATION OF SIDEWALK W/PARAPET SECTION A

FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 51

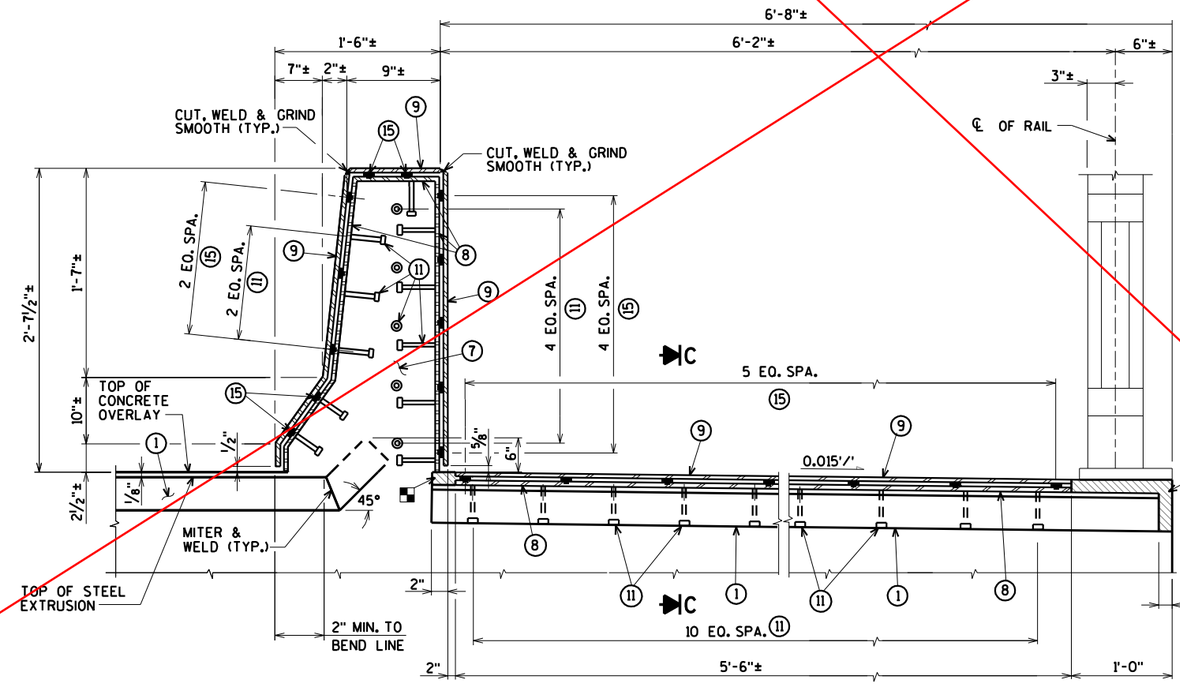
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



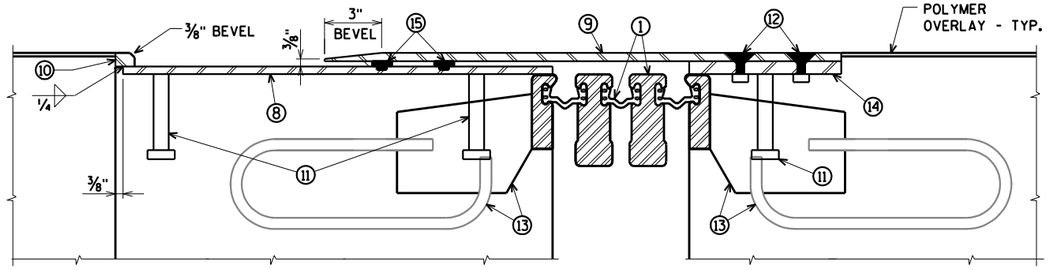
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 51-53, 55

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 9 DETAILS SIDEWALK & PARAPET

SHEET 54 OF 99
400

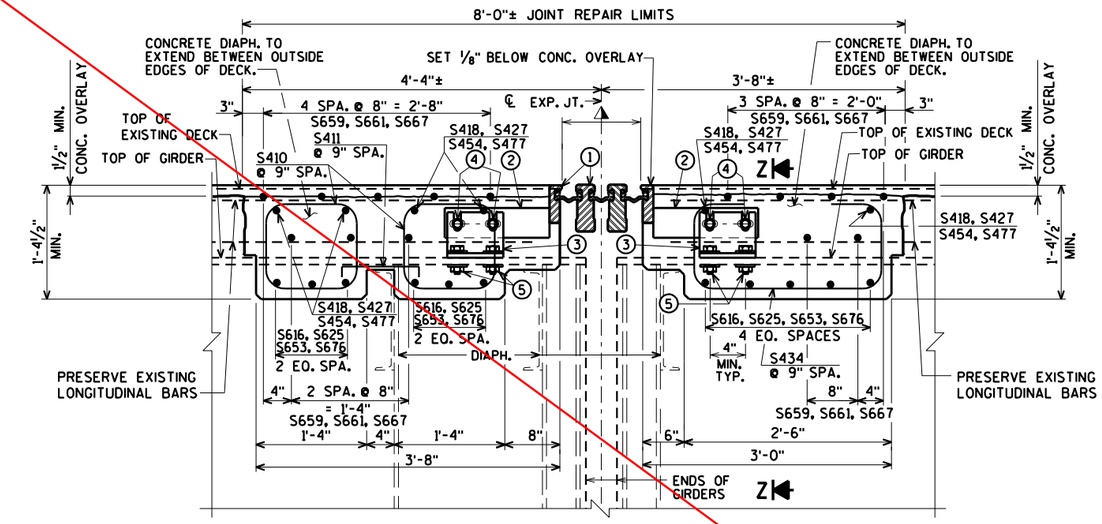
ORIGINAL PLANS PREPARED BY
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$PRFNAME$
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9/12/2013
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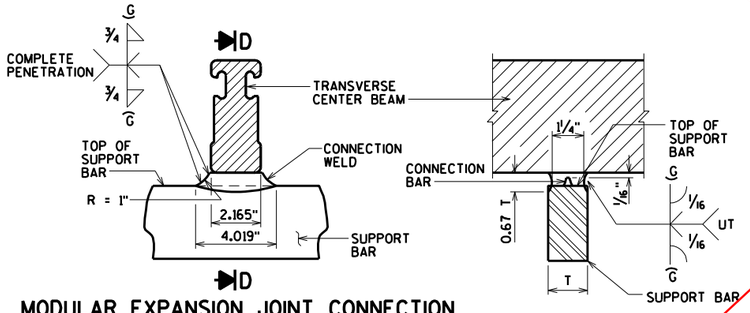
STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 9

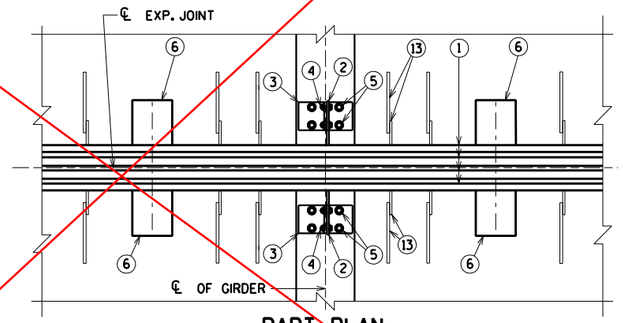
NORMAL TO ℄ OF JOINT



D

MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

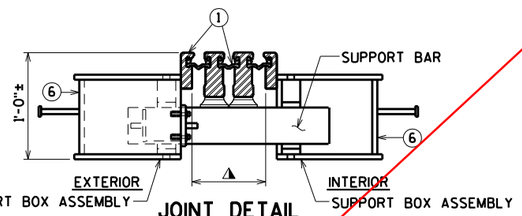
SECTION D



PART PLAN

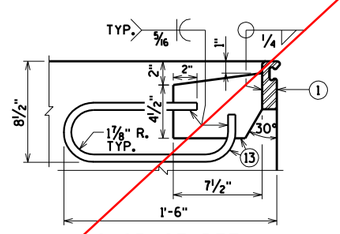
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



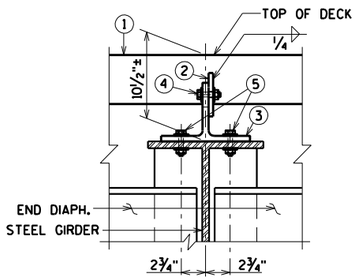
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 51-54

See revised joint details PAGE 389. Cover plate details PAGE 409.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 9 DETAILS

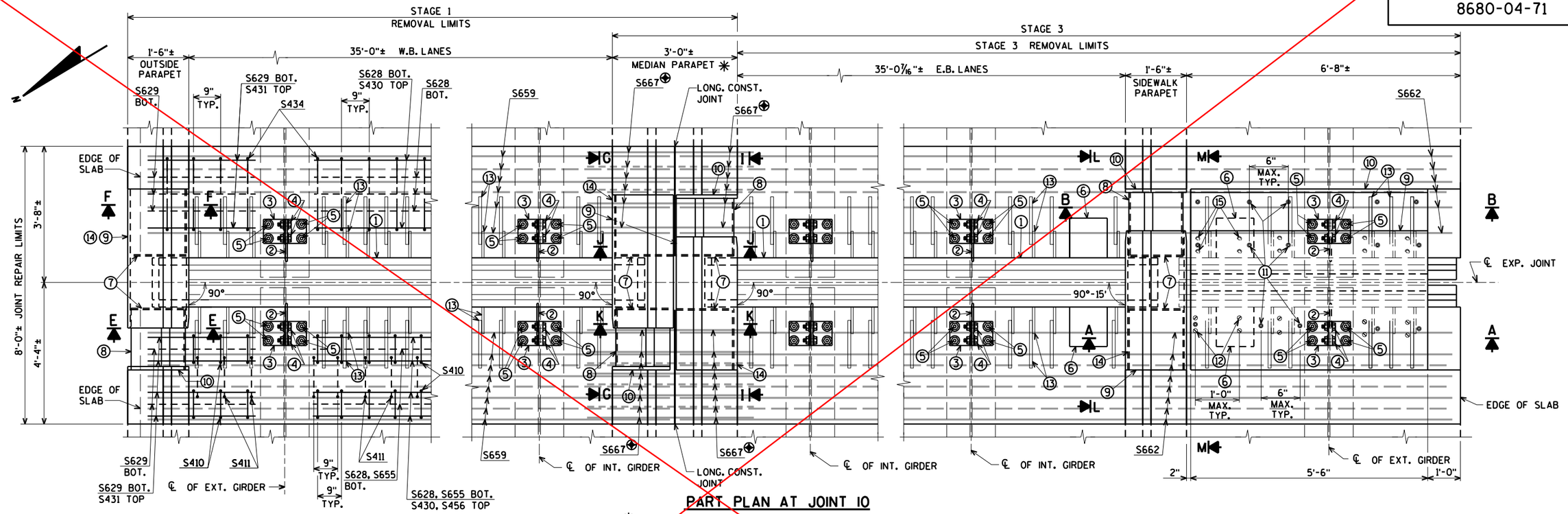
SHEET 55 OF 99
401

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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 10

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

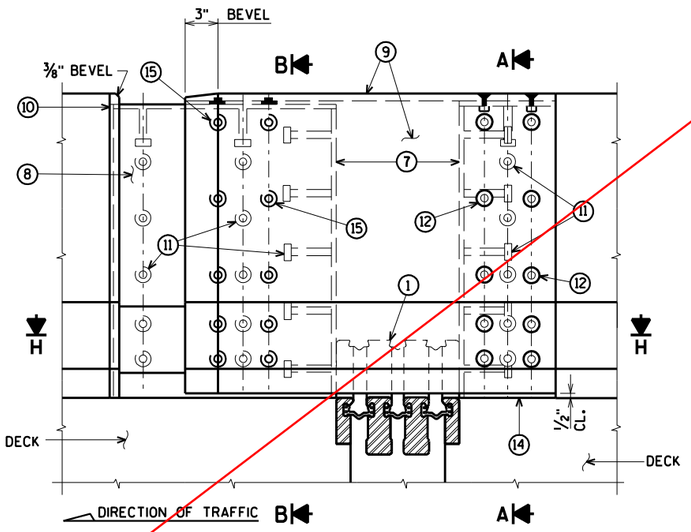
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 59

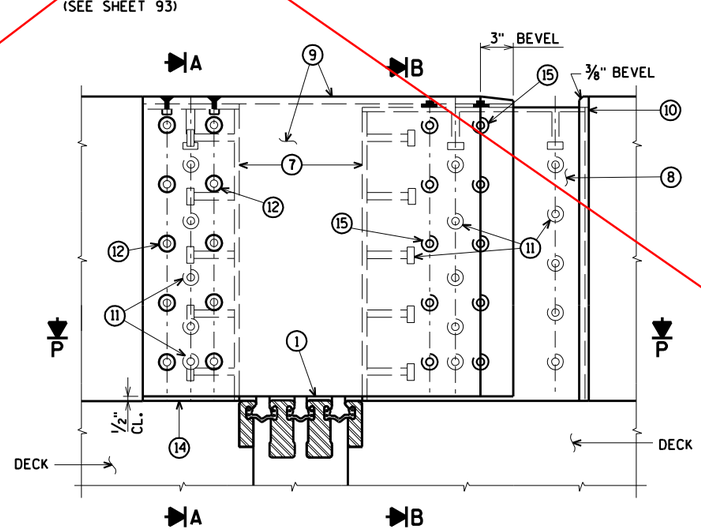
FOR SECTIONS 'E' AND 'F' SEE SHEET 57

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 58

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



ELEVATION OF SIDEWALK PARAPET SECTION L



ELEVATION OF SIDEWALK PARAPET SECTION M

FOR SECTION 'H' SEE SHEET 57

FOR SECTION 'P' SEE SHEET 58

See revised joint details PAGE 389. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 57-60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MODULAR EXPANSION JOINT 10 DETAILS

SHEET 56 OF 99
402

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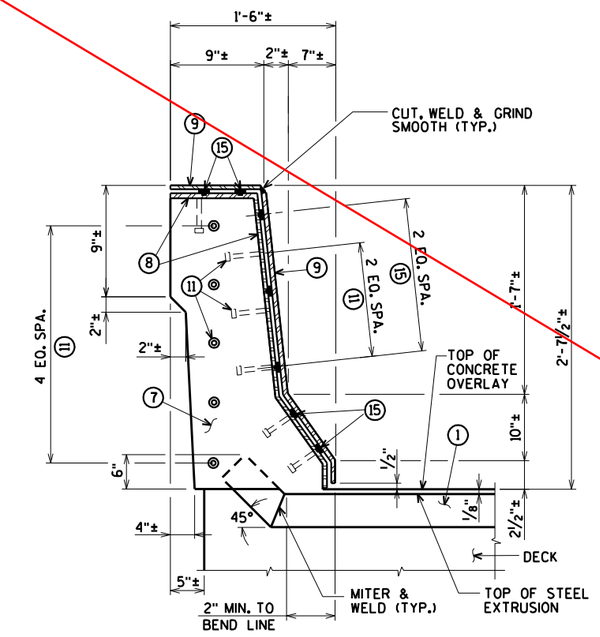
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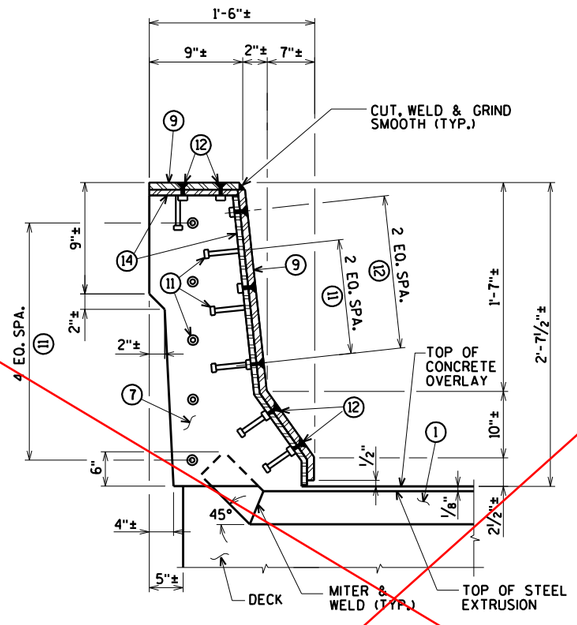
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STATE PROJECT NUMBER

8680-04-71



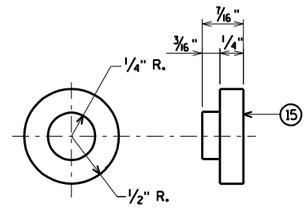
SECTION E



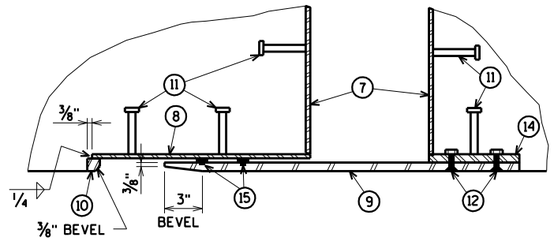
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

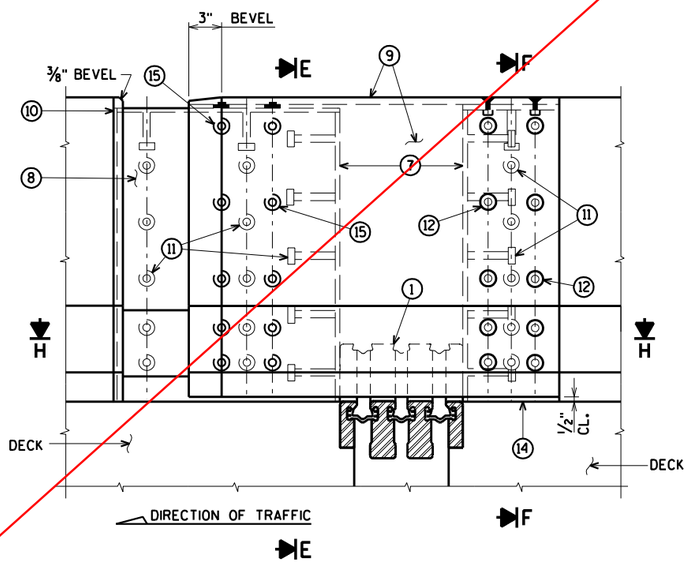
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 56



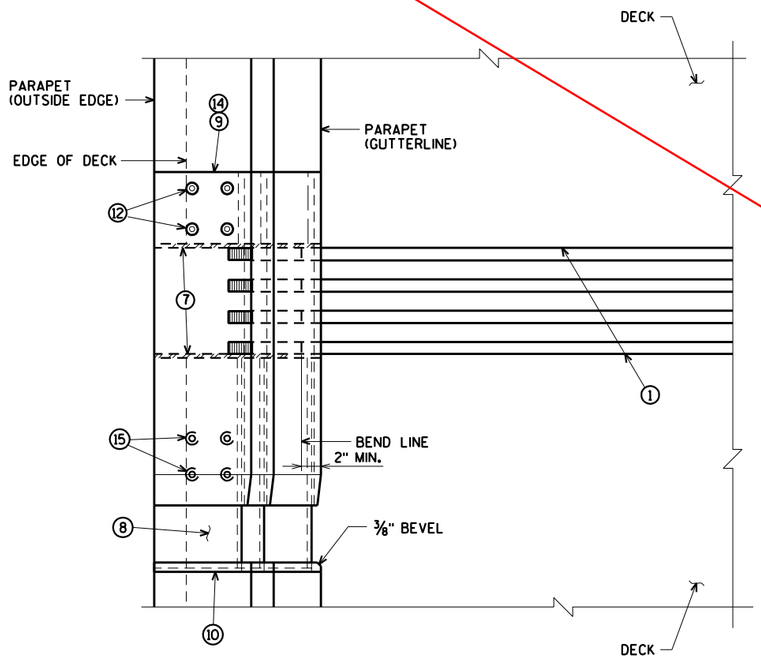
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 56, 58-60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 10 DETAILS OUTSIDE PARAPET

SHEET 57 OF 99
403

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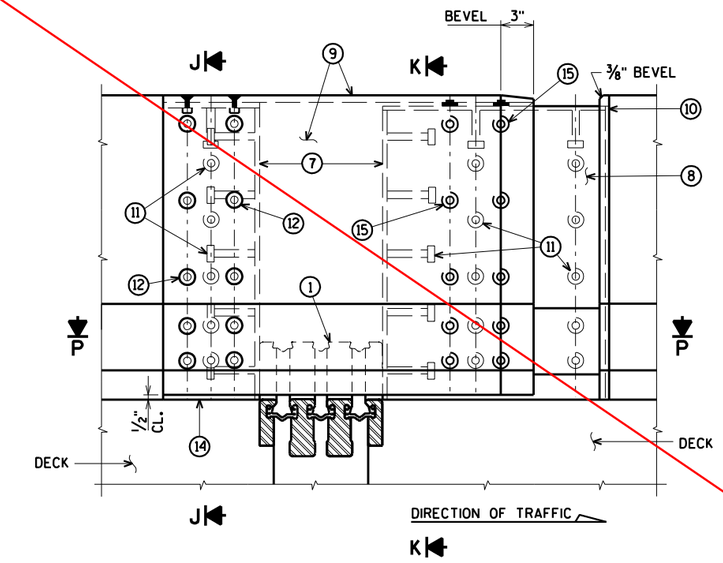
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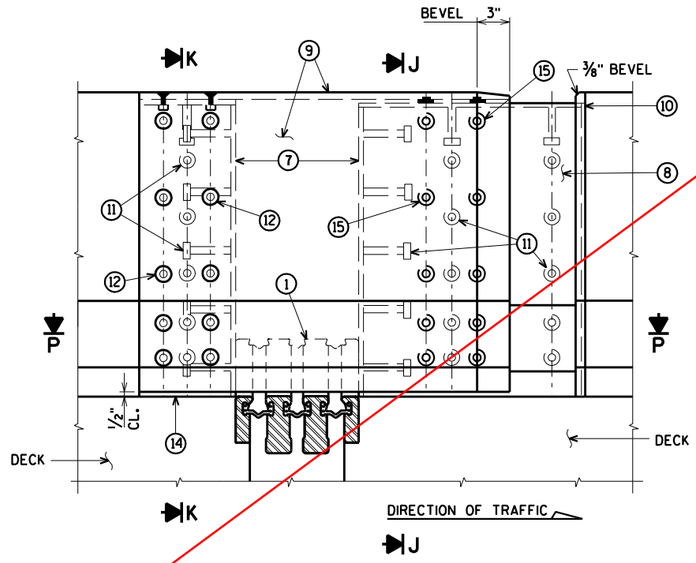
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STATE PROJECT NUMBER

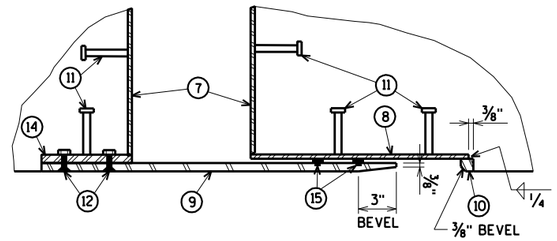
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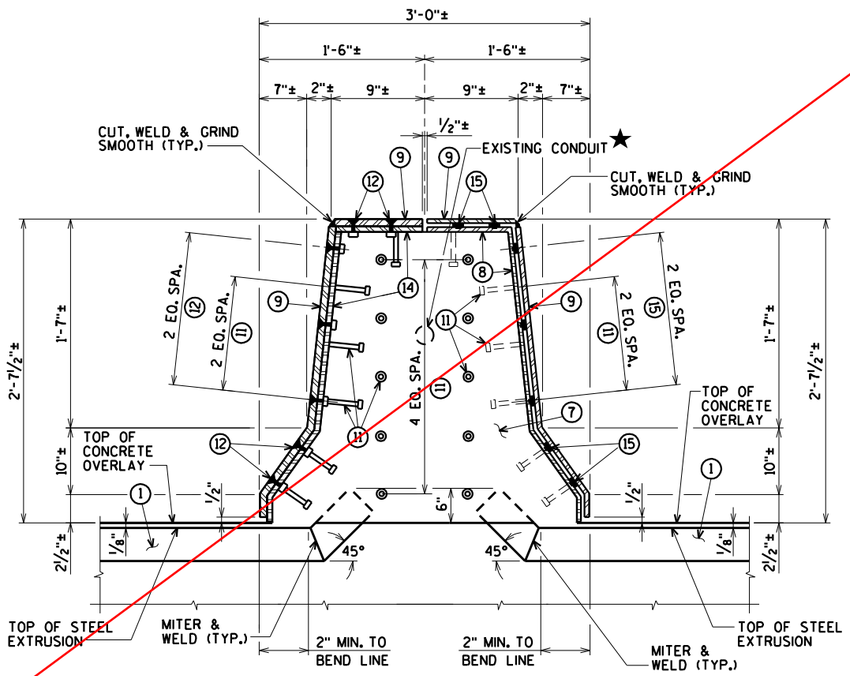
ELEVATION OF MEDIAN PARAPET
SECTION G



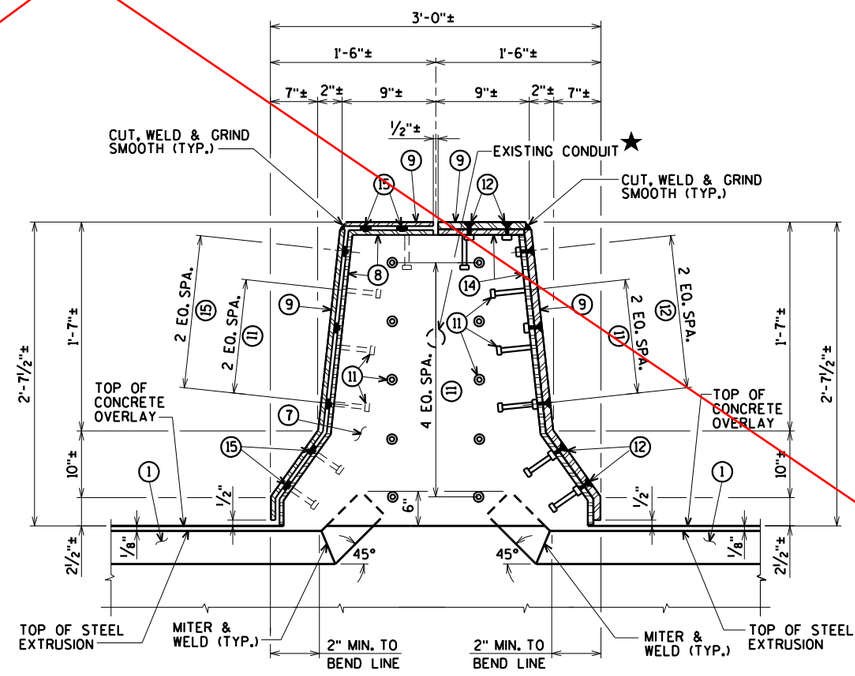
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 56

See revised joint details
PAGE 389.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 56-57, 59-60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINT 10 DETAILS MEDIAN PARAPET

SHEET 58 OF 99
404

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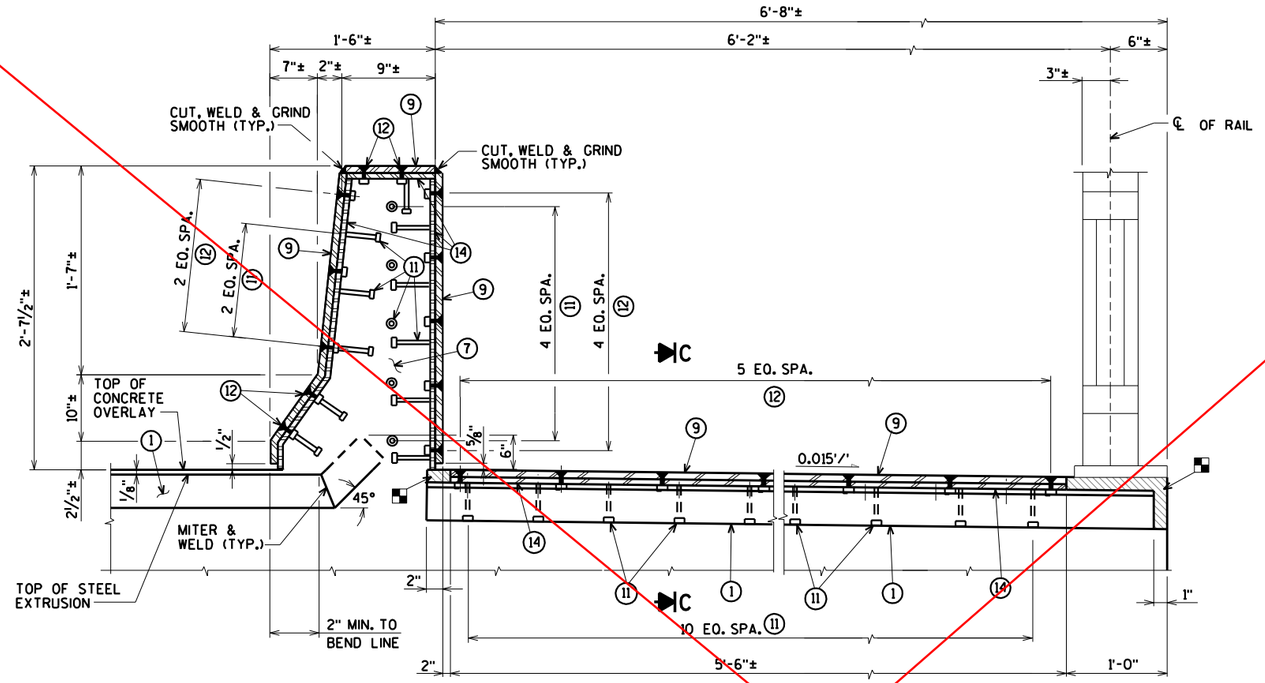
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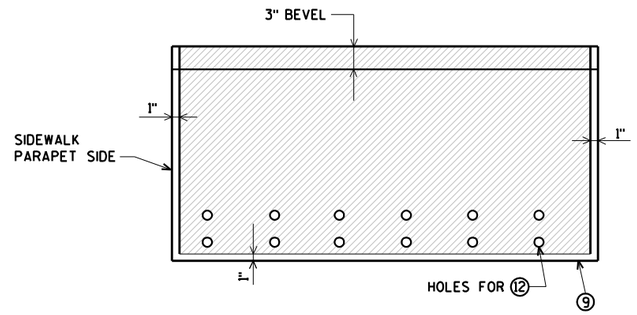
STATE PROJECT NUMBER

8680-04-71



ELEVATION OF SIDEWALK W/PARAPET
SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

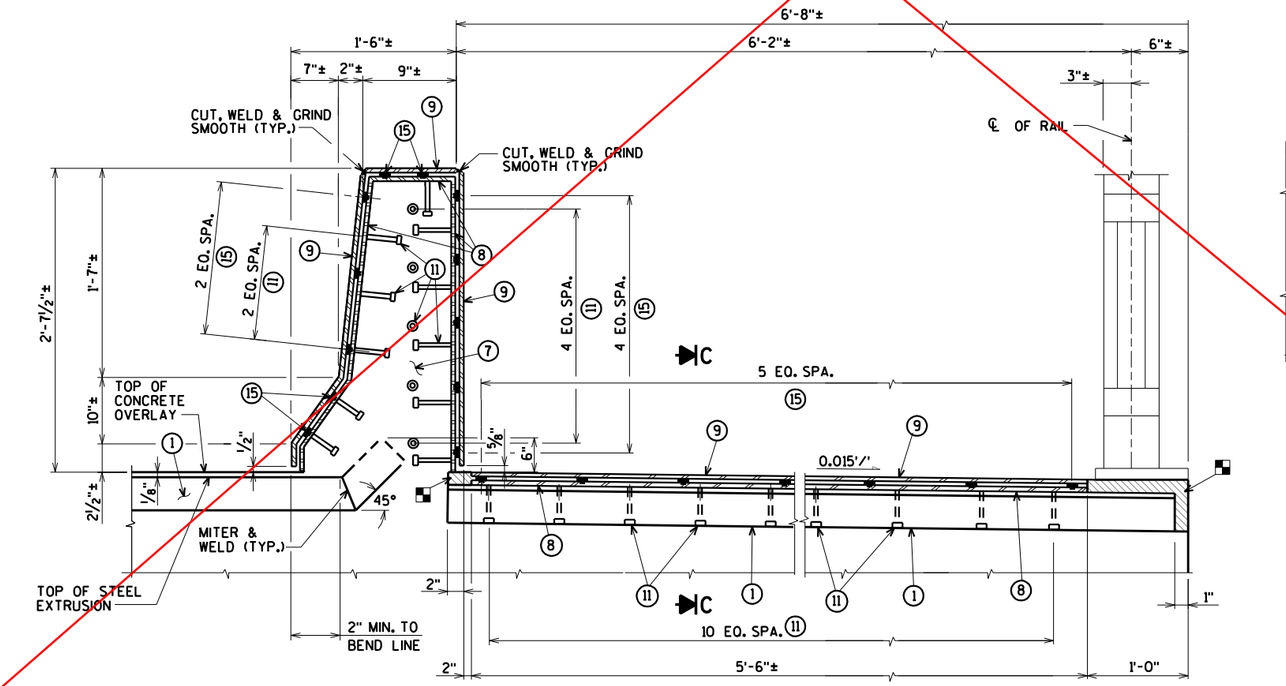


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

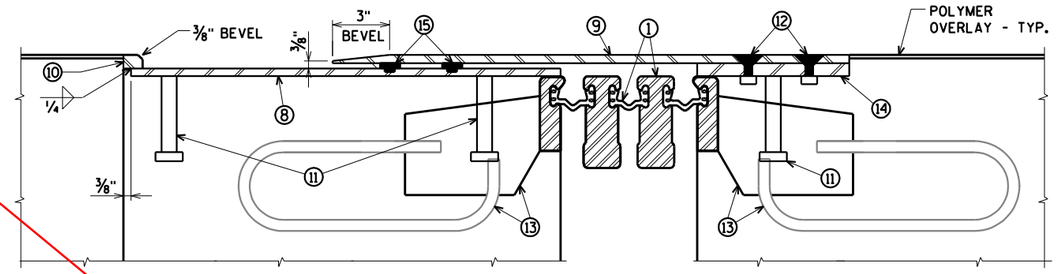
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 56

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET
SECTION B



SECTION C

▲ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details PAGE 389.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 56-58, 60

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 10 DETAILS SIDEWALK & PARAPET

SHEET 59 OF 99
405

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

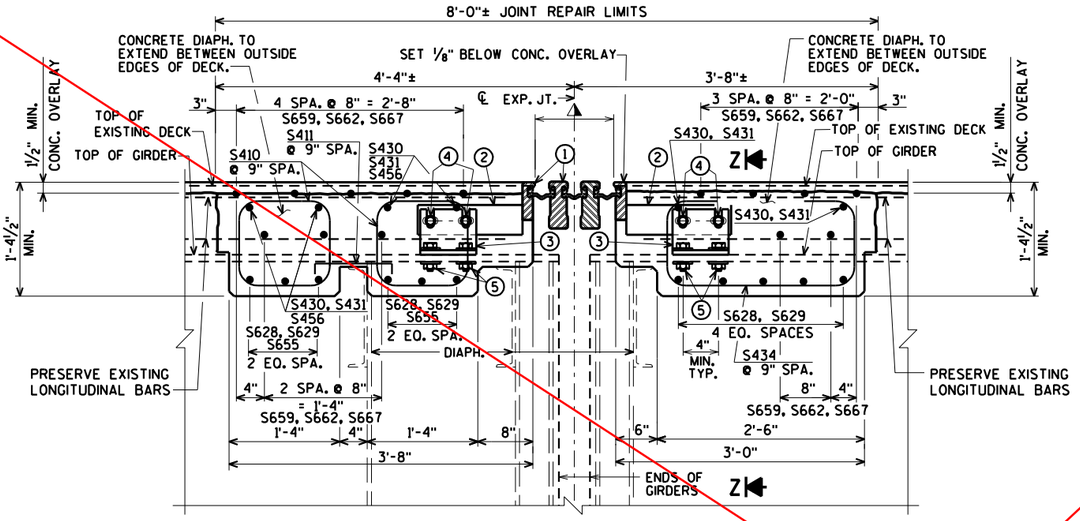
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9/12/2013
PENTABLE:BRequ_shd_util.tbl

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8

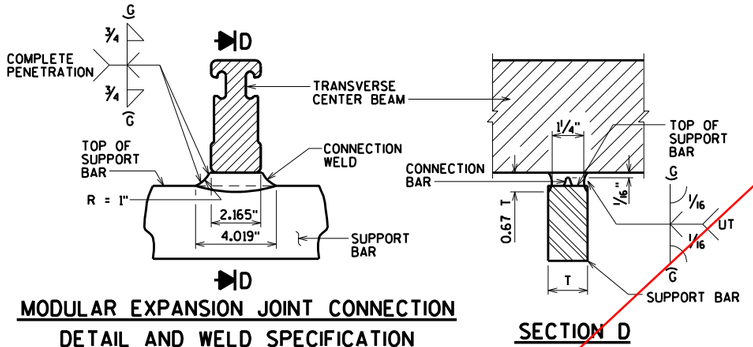
STATE PROJECT NUMBER

8680-04-71



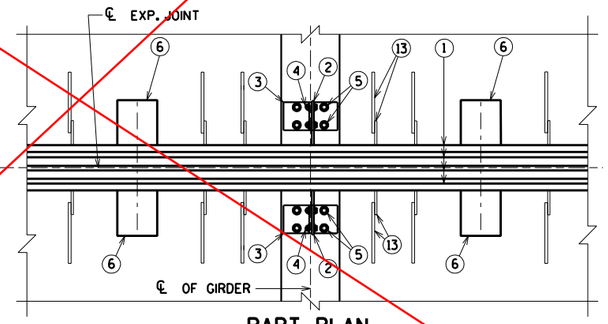
SECTION THRU JOINT 10

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

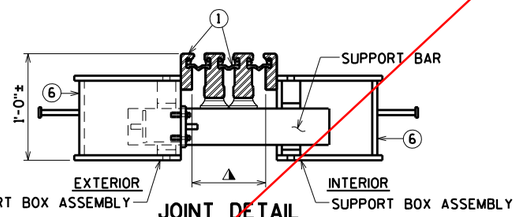
SECTION D



PART PLAN

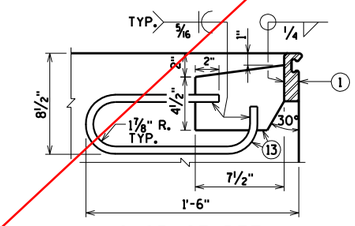
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



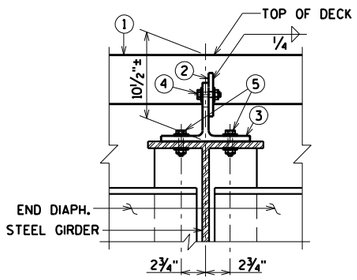
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ⊕ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION), ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

See revised joint details PAGE 389. Cover plate details PAGE 409.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 56-59

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 10 DETAILS

SHEET 60 OF 99
406

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

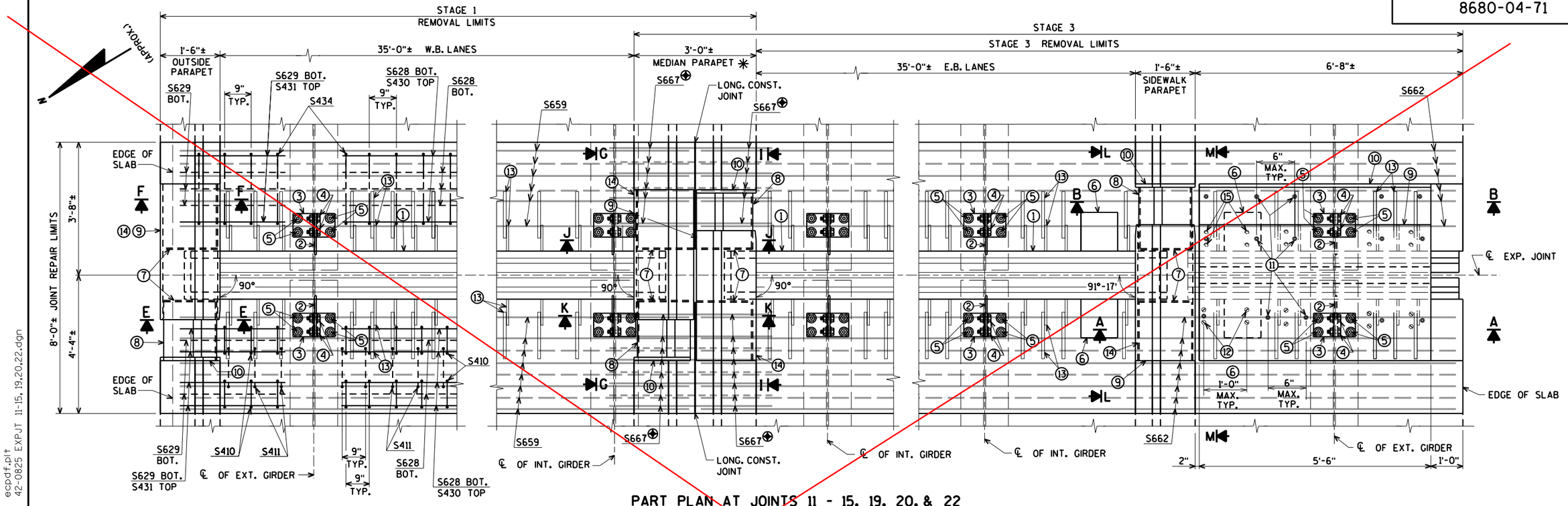
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42-0825 EXPJT 10.dgn

9/12/2013

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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINTS 11 - 15, 19, 20, & 22

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

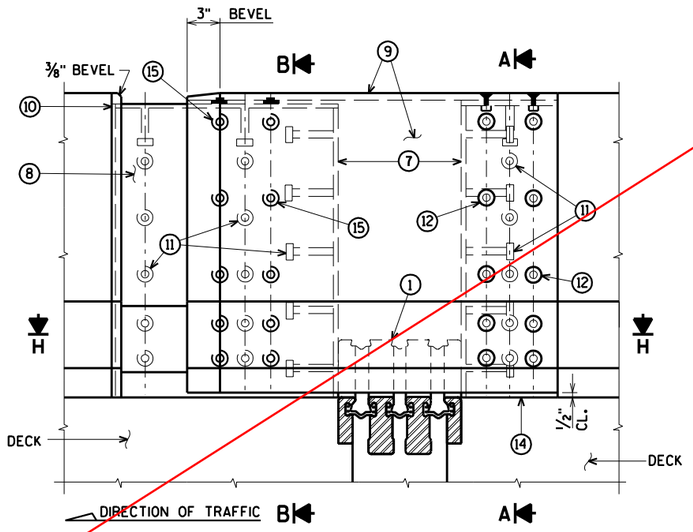
⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 64

FOR SECTIONS 'E' AND 'F' SEE SHEET 62

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 63

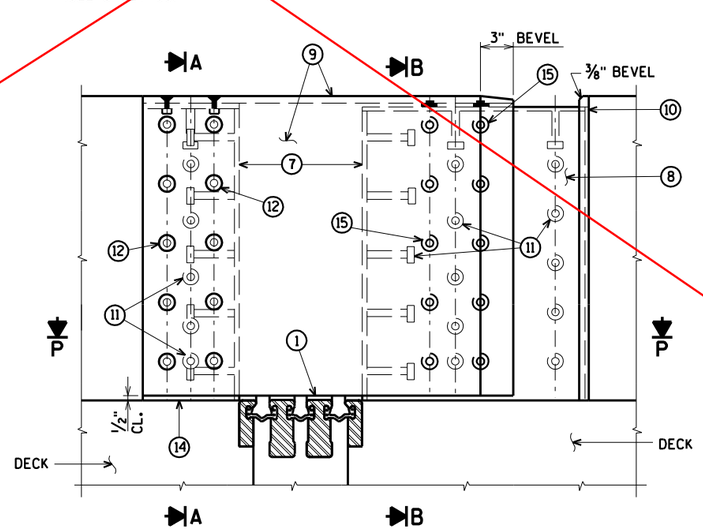
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".



ELEVATION OF SIDEWALK PARAPET SECTION L

FOR SECTION 'H' SEE SHEET 62

FOR SECTION 'P' SEE SHEET 63



ELEVATION OF SIDEWALK PARAPET SECTION M

WORK THIS SHEET WITH SHEETS 62-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS

SHEET 61 OF 99
407

See revised details

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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42-0825 EXPJT 11-15, 19,20,22.dgn

9/13/2013

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REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

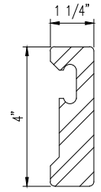
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

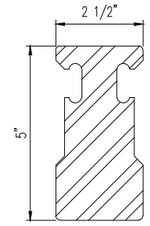
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 41p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)

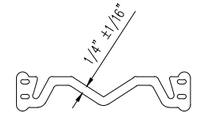


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 39
- SEE RAIL AND SEAL DETAILS ON SHEET 39
- SEE INSTALLATION PROCEDURES ON SHEET 39
- SEE SPLICE DETAILS ON SHEET 40
- SEE UPTURN DETAILS ON SHEET 40
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 41
- SEE SPRING & BEARING DIAGRAM ON SHEET 41
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 41
- SEE 'D-240' PLAN VIEW FOR JOINTS #11 & #19 ON SHEET 42
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 43
- SEE JOINT SUPPORT DETAILS ON SHEET 43
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 44
- SEE SUPPORT BOX DETAILS ON SHEET 45
- SEE SUPPORT BAR DETAILS ON SHEET 46
- SEE BILL OF MATERIALS ON SHEET 47

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

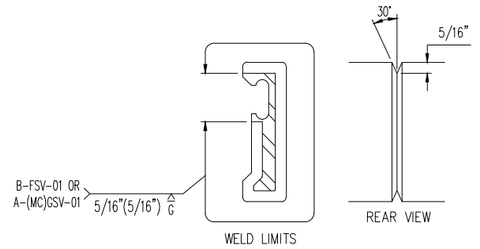
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	1 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
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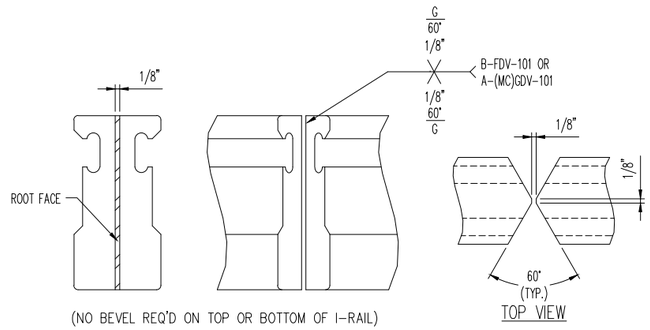
PAGE 407 A

REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

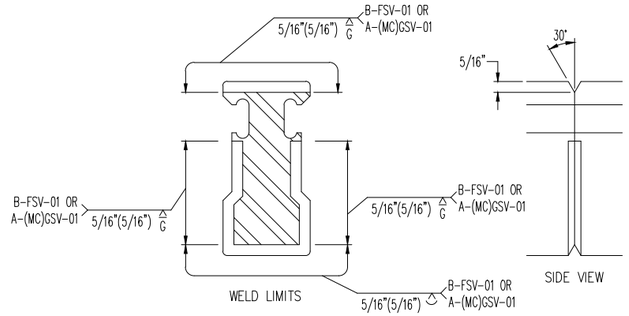


EDGE BEAM SHOP SPLICE DETAIL



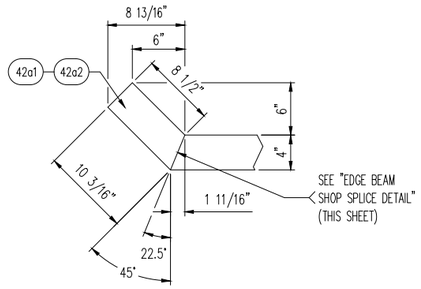
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

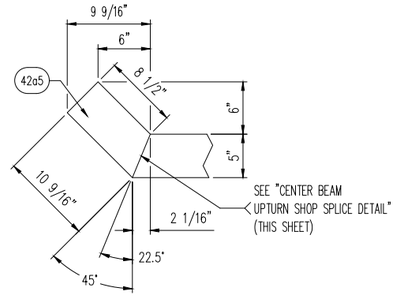


CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM UPTURN DETAIL



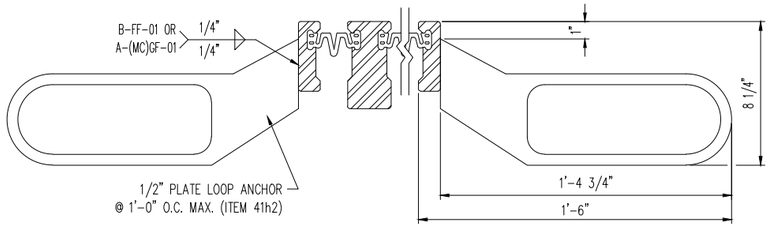
CENTER BEAM UPTURN DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

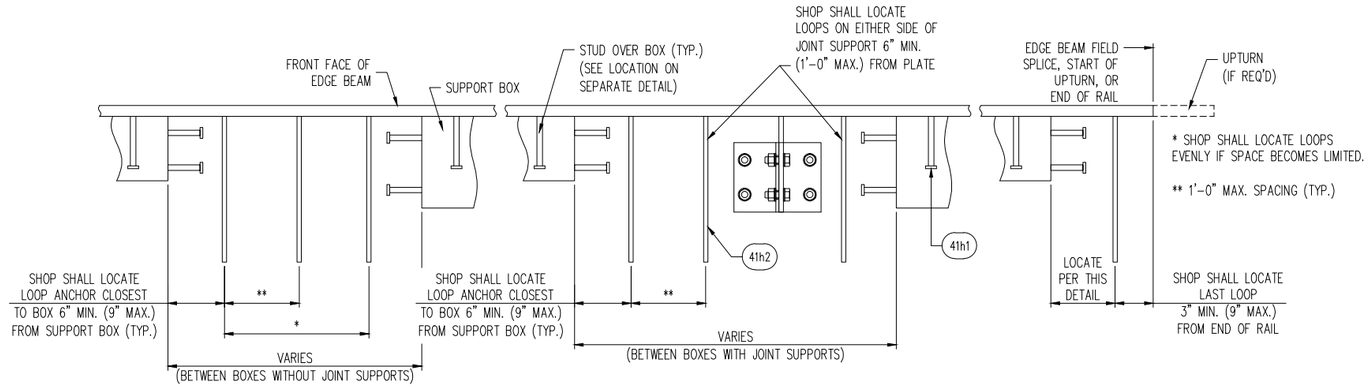
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	MJS	03/2014	2 OF 9
PROJECT NUMBER	PRODUCT CODE		RELEASE	SHEET	
42790	1021		1	40	



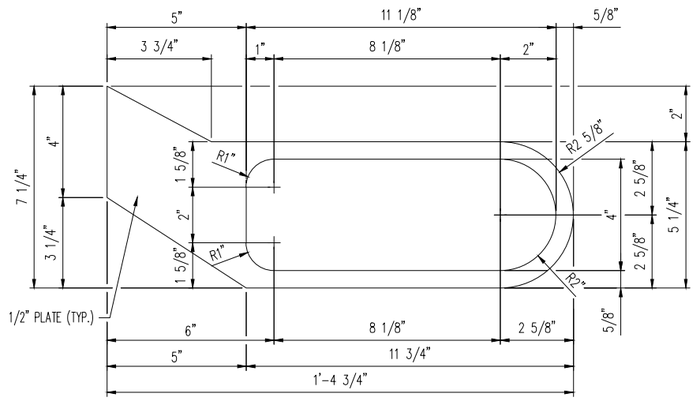
SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

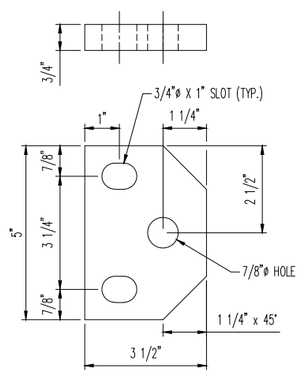
REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING



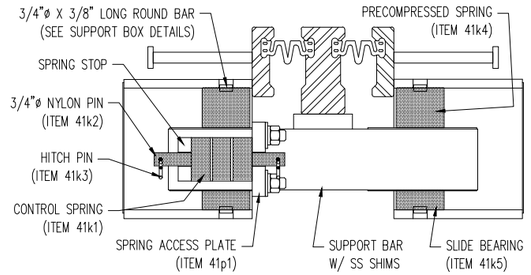
ITEM NO. 41h2
(180) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 41p1
(88) REQ'D.

SPRING ACCESS PLATE DETAIL



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

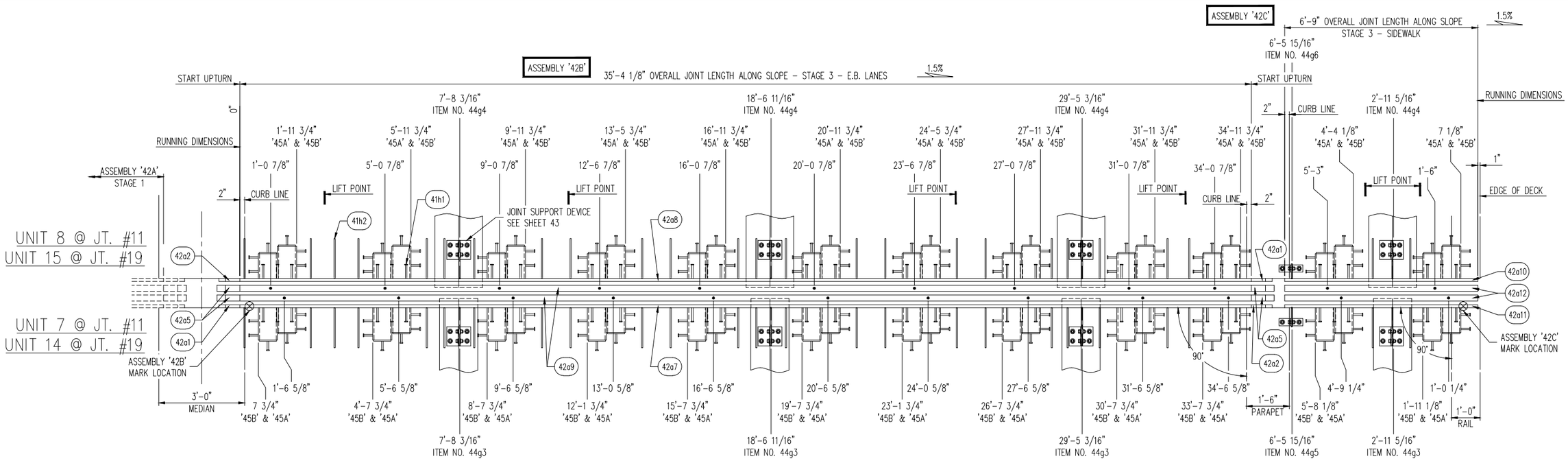
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
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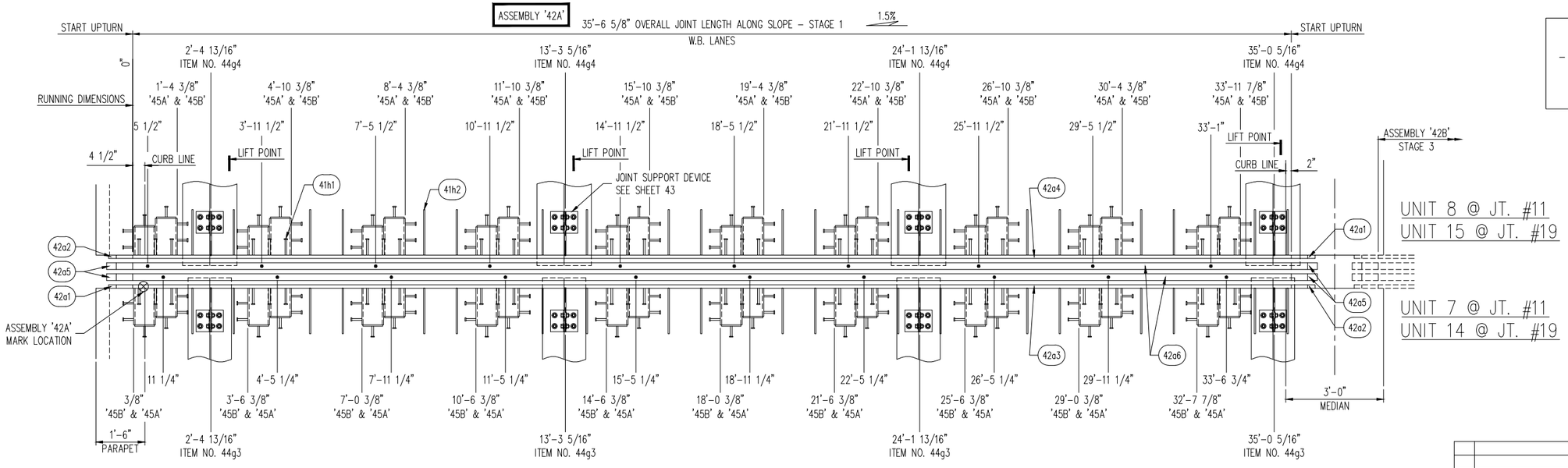
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	3 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	41

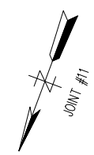


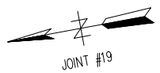


'D-240' MODULAR EXPANSION JOINT PLAN VIEW

USH 2 OVER ST. LOUIS RIVER
STRUCTURE NO. B-16-38 (WI) / 69100 (MN)
JOINT #11 LOCATED AT HINGE 7-8 (LOOKING UPSTATION)
JOINT #19 LOCATED AT HINGE 14-15 (LOOKING UPSTATION)
PAY ITEM NO. 502.3110.S (LINE ITEM NO. 0650)

BOX SPACING = VARIES (4'-0" MAX.)
(2) JOINTS EA. REQUIRED





REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

FABRICATION NOTE:

– SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

SHOP NOTES:

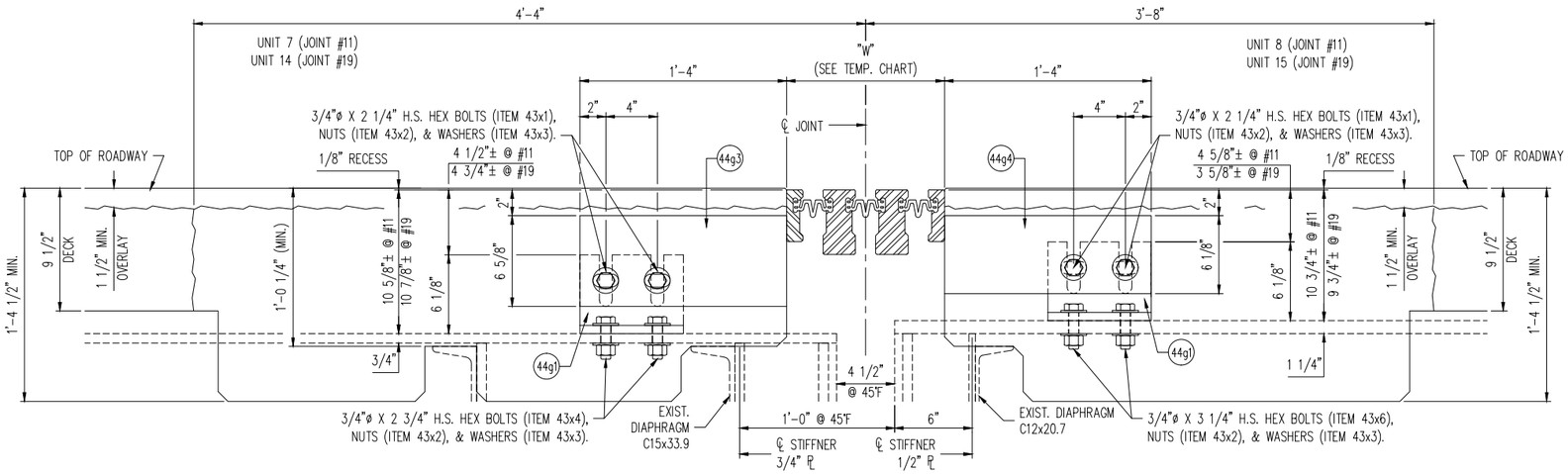
- SEE GENERAL NOTES ON SHEET 39
- SEE RAIL AND SEAL DETAILS ON SHEET 39
- SEE INSTALLATION PROCEDURES ON SHEET 39
- SEE SPLICE DETAILS ON SHEET 40
- SEE UPTURN DETAILS ON SHEET 40
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 41
- SEE SPRING & BEARING DIAGRAM ON SHEET 41
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 41
- SEE 'D-240' PLAN VIEW FOR JOINTS #11 & #19 ON SHEET 42
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 43
- SEE JOINT SUPPORT DETAILS ON SHEET 43
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 44
- SEE SUPPORT BOX DETAILS ON SHEET 45
- SEE SUPPORT BAR DETAILS ON SHEET 46
- SEE BILL OF MATERIALS ON SHEET 47

REV.	DESCRIPTION	DATE	DET.	CKD.

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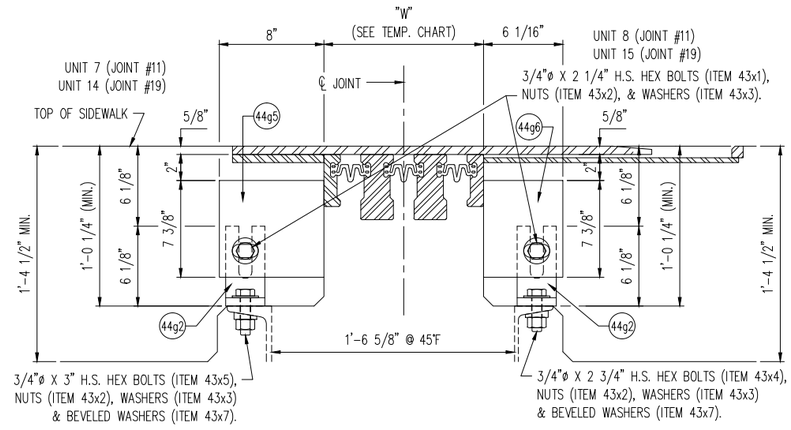
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	MJS	03/2014	4 OF 9
	PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 42	



SECTION OF 'D-240' SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F



SECTION OF 'D-240' SUPPORTS ON DIAPHRAGMS @ SIDEWALK

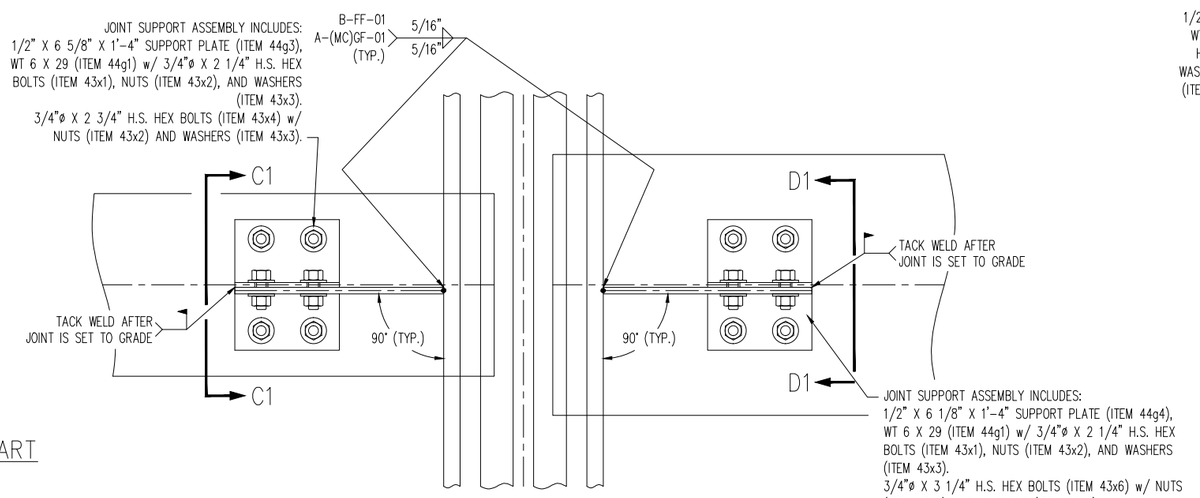
DIMENSIONS SHOWN ARE AT 45°F

COVER PLATE HARDWARE NOT SHOWN FOR CLARITY
SEE SHEETS 135-136 FOR COVER PLATE DETAILS

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #11 & #19
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

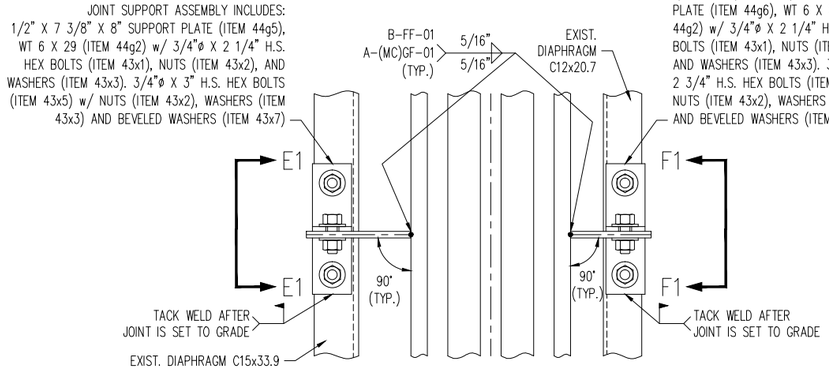
TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #11 & #19



PLAN VIEW OF SUPPORTS @ GIRDERS

DIMENSIONS SHOWN ARE AT 45°F

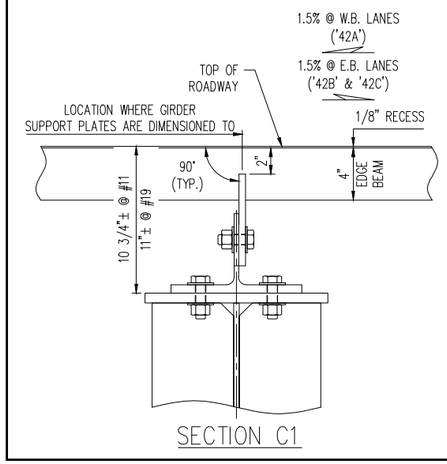


PLAN VIEW OF SUPPORTS @ SIDEWALK DIAPHRAGMS

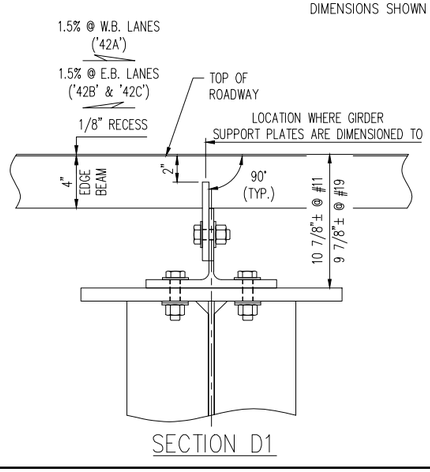
DIMENSIONS SHOWN ARE AT 45°F

REVISED
Modular Expansion Joints 11 & 19
DETAILS

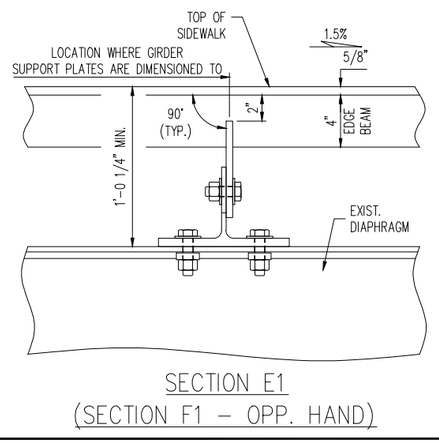
CONSTRUCTION
SHOP DRAWING



SECTION C1



SECTION D1



SECTION E1
(SECTION F1 - OPP. HAND)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

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NORTH BALTIMORE, OHIO 45872
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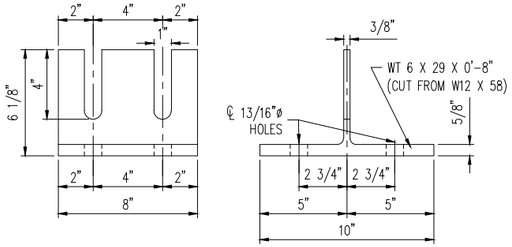
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	5 OF 9

PROJECT NUMBER	PROJECT CODE	RELEASE	SHEET
42790	1021	1	43

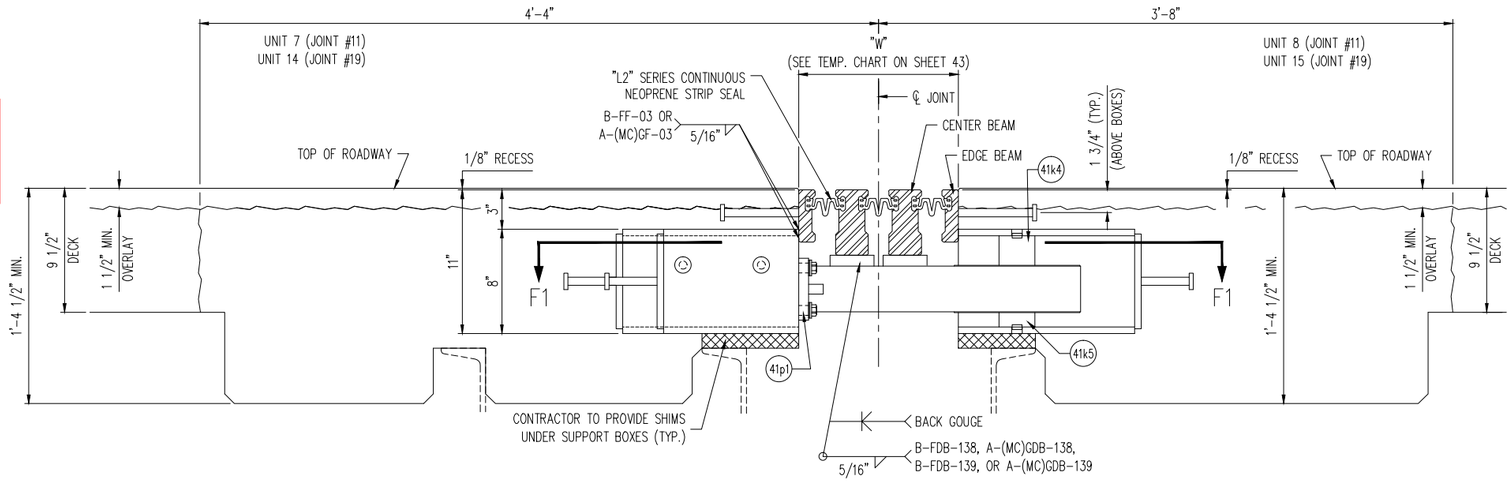
NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01



WT6x29 JOINT SUPPORT
ITEM 44g1
(32) REQUIRED

REVISED
Modular Expansion Joints 11 & 19
DETAILS

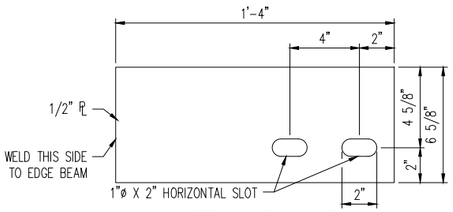
CONSTRUCTION
SHOP DRAWING



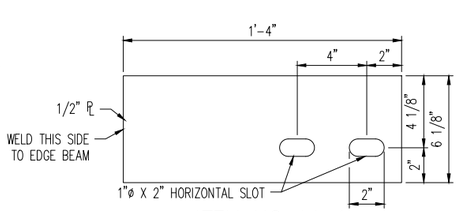
NOTE:
– IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  – 3/8" VERTICAL PLATE
  – 5/8" BASE PLATE
  – 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A–(MC)GF–01 OR B–FF–01

WT6x29 JOINT SUPPORT
ITEM 44g2
(4) REQUIRED

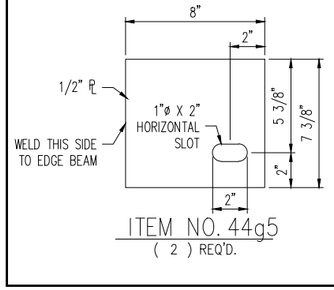
SECTION THRU 'D–240' @ SUPPORT BOX



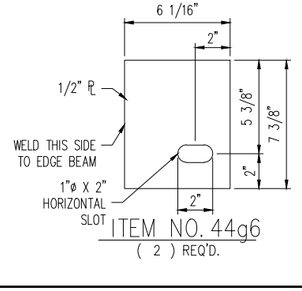
ITEM NO. 44g3
(16) REQ'D.



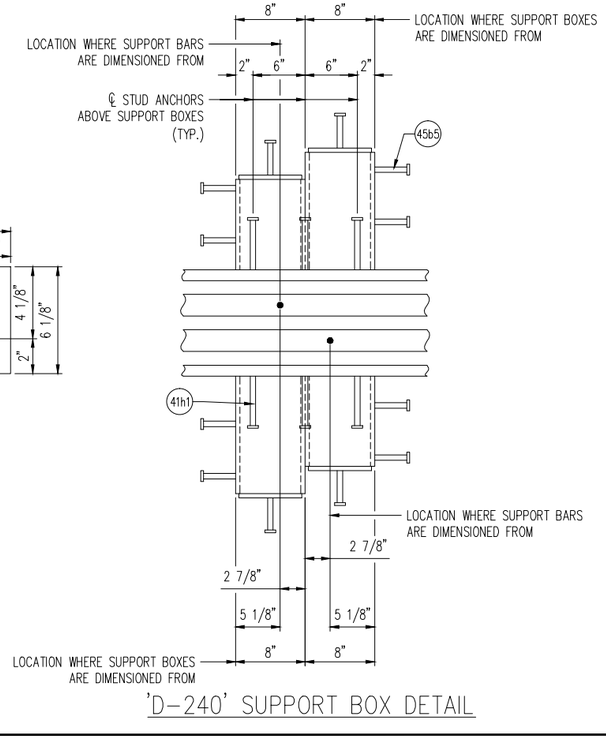
ITEM NO. 44g4
(16) REQ'D.



ITEM NO. 44g5
(2) REQ'D.



ITEM NO. 44g6
(2) REQ'D.



'D–240' SUPPORT BOX DETAIL

SECTION E1
THRU SUPPORT BOXES

SECTION F1
PLAN VIEW THRU SUPPORT BOXES

REV.	DESCRIPTION	DATE	DET.	CKD.

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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

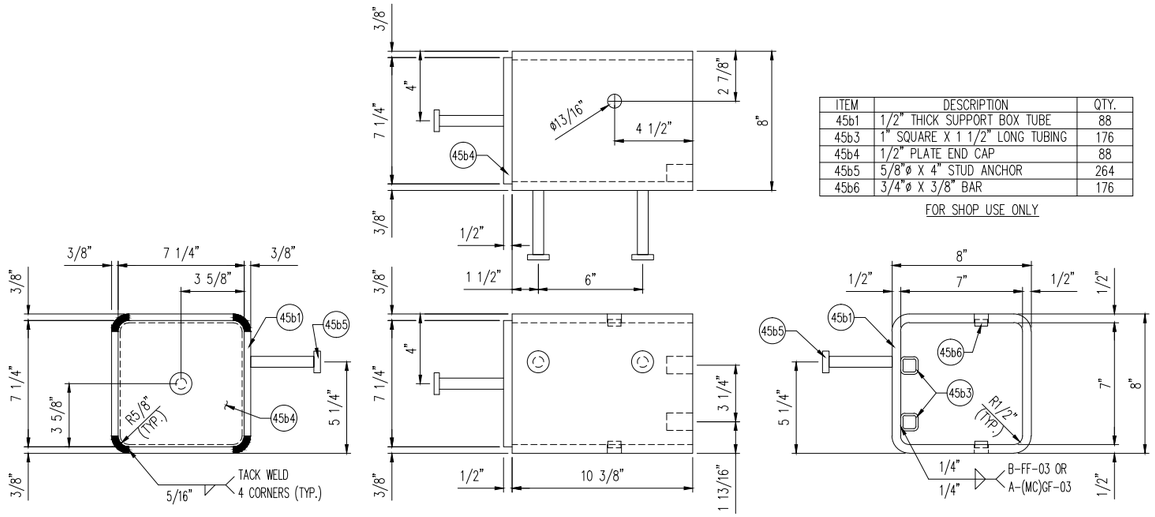
DESCRIPTION: 'D–240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	6 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	44

REVISED
Modular Expansion Joints 11 & 19
DETAILS

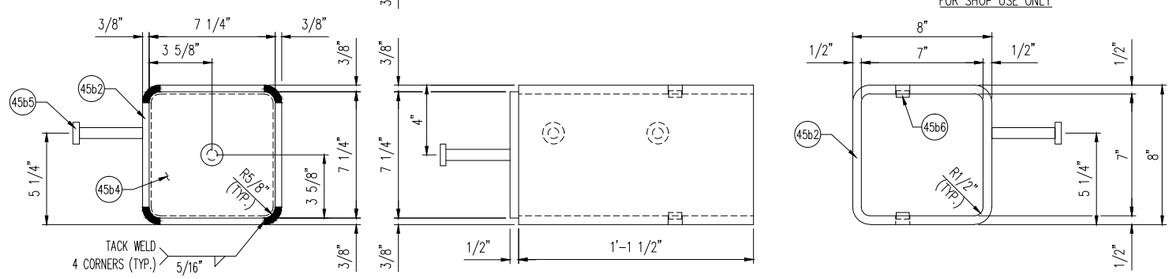
CONSTRUCTION
SHOP DRAWING



ITEM	DESCRIPTION	QTY.
45b1	1/2" THICK SUPPORT BOX TUBE	88
45b3	1" SQUARE X 1 1/2" LONG TUBING	176
45b4	1/2" PLATE END CAP	88
45b5	5/8"ø X 4" STUD ANCHOR	264
45b6	3/4"ø X 3/8" BAR	176

FOR SHOP USE ONLY

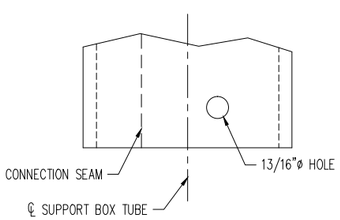
'D-240' SUPPORT BOX DETAIL '45A'
(88) REQUIRED



ITEM	DESCRIPTION	QTY.
45b2	1/2" THICK SUPPORT BOX TUBE	88
45b4	1/2" PLATE END CAP	88
45b5	5/8"ø X 4" STUD ANCHOR	264
45b6	3/4"ø X 3/8" BAR	176

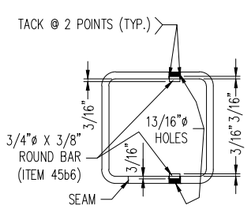
FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '45B'
(88) REQUIRED

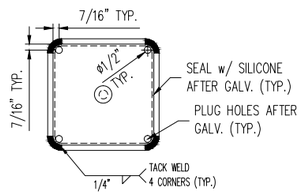


SHOP NOTE:

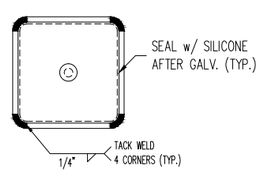
WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



SUPPORT BOX PIN DETAILS
(W/ RUBBER SPRINGS & BEARINGS)



SUPPORT BOX BACK PLATE
OPTION NO. 1
(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE
OPTION NO. 2
(ATTACH AFTER GALV.)

PAGE 407 G

REV.	DESCRIPTION	DATE	DET.	CKD.

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300 E. CHERRY STREET
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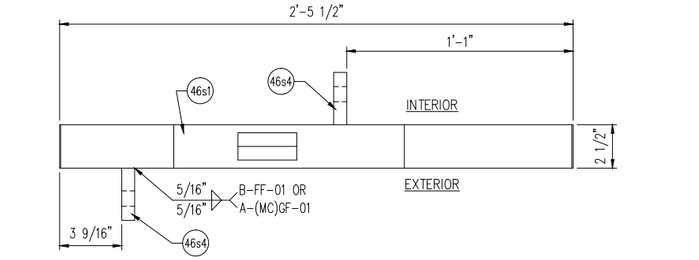
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
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DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' SUPPORT BOX DETAILS DOUGLAS COUNTY, WISCONSIN	N.T.S.	J.KIS	MJS	03/2014	7 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	45

REVISED
Modular Expansion Joints 11 & 19
DETAILS

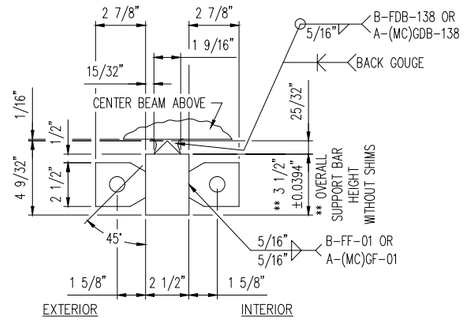
CONSTRUCTION
SHOP DRAWING



ITEM	DESCRIPTION	QTY.
46s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	88
46s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	176
46s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	176
46s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	176

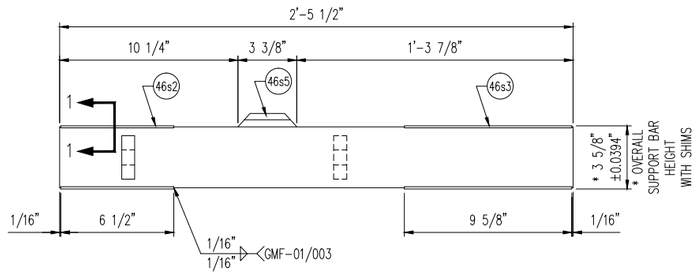
FOR SHOP USE ONLY

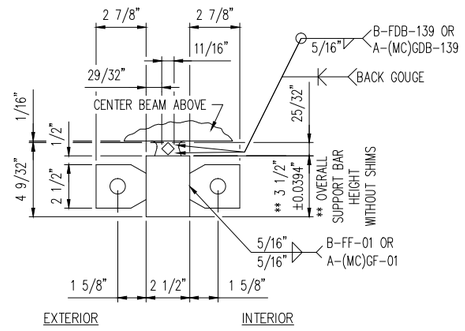
NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



'D-240' SUPPORT BAR DETAILS

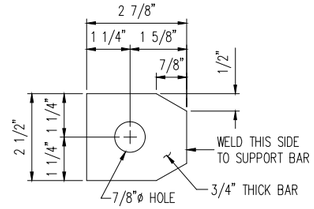
(88) REQUIRED





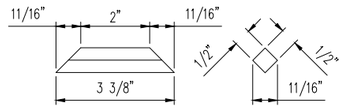
OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)



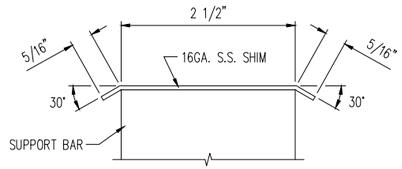
ITEM NO. 46s4
(176) REQ'D.

SPRING STOP DETAIL



ITEM NO. 46s5
(88) REQ'D.

RIDER BAR DETAIL



SECTION 1-1

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	8 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	46

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
42A	2	"D-240" MODULAR EXPANSION JOINT			37'-1 3/4"	9104	
41h1	120	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
41h2	80	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
41k1	60	CONTROL SPRING (80MM)	–		PLAIN	1	
41k2	60	NYLON PIN (80MM)	–		PLAIN	< 1	
41k3	120	HITCH PIN	–		PLAIN	< 1	
41k4	80	PRECOMPRESSED SPRING	–		PLAIN	< 1	
41k5	80	SLIDE BEARING	–		PLAIN	1	
41p1	40	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
41p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p3	80	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p4	80	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
41p5	80	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
42a1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a3	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
42a4	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-10	A123-HDG	463	
42a5	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
42a6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-10 3/4	A123-HDG	1238	
42y1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
42y2	6	L2-400 GLAND	NEOPRENE	38'-0	228'-0" TOTAL;	61	
44g3	8	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
44g4	8	1/2 X 6 1/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
45b1	40	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
45b2	40	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
45b3	80	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
45b4	80	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
45b5	240	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
45b6	160	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
46s1	40	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
46s2	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
46s3	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
46s4	80	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
42B	2	"D-240" MODULAR EXPANSION JOINT			36'-11 1/4"	9158	
41h1	120	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
41h2	92	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
41k1	60	CONTROL SPRING (80MM)	–		PLAIN	1	
41k2	60	NYLON PIN (80MM)	–		PLAIN	< 1	
41k3	120	HITCH PIN	–		PLAIN	< 1	
41k4	80	PRECOMPRESSED SPRING	–		PLAIN	< 1	
41k5	80	SLIDE BEARING	–		PLAIN	1	
41p1	40	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
41p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p3	80	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p4	80	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
41p5	80	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
42a1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
42a5	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
42a7	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 1/2	A123-HDG	461	
42a8	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 1/2	A123-HDG	461	
42a9	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 1/4	A123-HDG	1230	
42y1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
42y2	6	L2-400 GLAND	NEOPRENE	38'-0	228'-0" TOTAL;	61	
44g3	6	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
44g4	6	1/2 X 6 1/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
45b1	40	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
45b2	40	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
45b3	80	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
45b4	80	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
45b5	240	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
45b6	160	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
46s1	40	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
46s2	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
46s3	80	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
46s4	80	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
42C	2	"D-240" MODULAR EXPANSION JOINT			6'-9"	1694	
41h1	24	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
41h2	8	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
41k1	12	CONTROL SPRING (80MM)	–		PLAIN	1	
41k2	12	NYLON PIN (80MM)	–		PLAIN	< 1	
41k3	24	HITCH PIN	–		PLAIN	< 1	
41k4	16	PRECOMPRESSED SPRING	–		PLAIN	< 1	
41k5	16	SLIDE BEARING	–		PLAIN	1	
41p1	8	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
41p2	16	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p3	16	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
41p4	16	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
41p5	16	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
42a10	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
42a11	2	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
42a12	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
42y3	6	L2-400 GLAND	NEOPRENE	7'-0	42'-0" TOTAL;	11	
44g3	2	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
44g4	2	1/2 X 6 1/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	14	
44g5	2	1/2 X 8	A36	0'-7 3/8	JOINT SUPPORT PLATE; A123-HDG	8	
44g6	2	1/2 X 6 1/16	A36	0'-7 3/8	JOINT SUPPORT PLATE; A123-HDG	6	
45b1	8	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
45b2	8	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
45b3	16	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
45b4	16	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
45b5	48	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
45b6	32	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
46s1	8	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR – MACHINE TO DETAILED DIMS.; A123-HDG	94	
46s2	16	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
46s3	16	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
46s4	16	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/17/2014 3:19:47 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
43XA	68	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x1	68	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XB	204	JOINT SUPPORT HARDWARE – HEX NUT (ROCAP)				< 1	
43x2	204	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
43XC	400	JOINT SUPPORT HARDWARE – FLAT WASHER (ROCAP)				< 1	
43x3	400	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
43XD	68	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x4	68	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XE	4	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x5	4	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XF	64	JOINT SUPPORT HARDWARE – HEX BOLT (ROCAP)				< 1	
43x6	64	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XG	8	JOINT SUPPORT HARDWARE – BEVELED WASHER (ROCAP)				< 1	
43x7	8	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
43XAT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XBT	15	TESTING HARDWARE – HEX NUT (ROCAP)				< 1	
43t2	15	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
43XCT	24	TESTING HARDWARE – FLAT WASHER (ROCAP)				< 1	
43t3	24	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
43XDT	6	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t4	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XET	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t5	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XFT	3	TESTING HARDWARE – HEX BOLT (ROCAP)				< 1	
43t6	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
43XGT	6	TESTING HARDWARE – BEVELED WASHER (ROCAP)				< 1	
43t7	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			4/17/2014 3:19:47 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
44GA	32	JOINT SUPPORT ITEM				19	
44g1	32	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
44GB	4	JOINT SUPPORT ITEM				7	
44g2	4	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
		*Approx. Gross Wt. Lbs Per Single Unit			4/17/2014 3:19:47 PM		

REVISED
Modular Expansion Joints 11 & 19
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

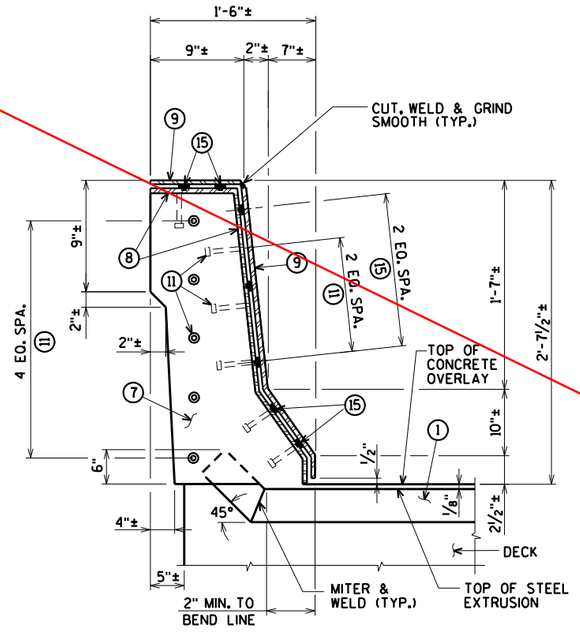
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

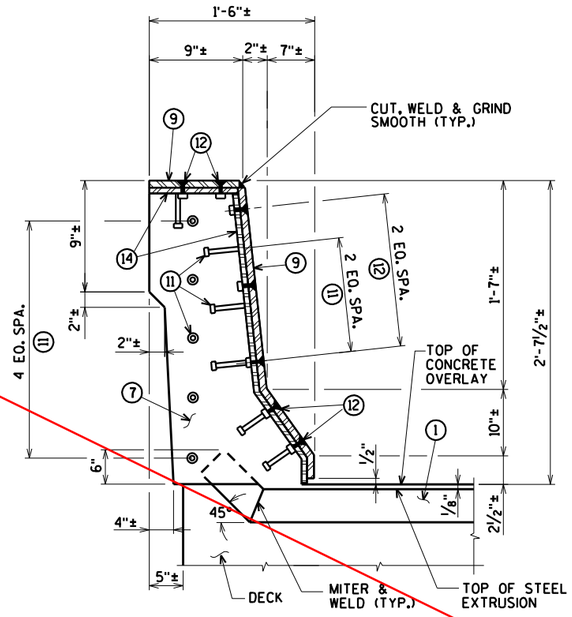
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	J.KIS	MJS	03/2014	9 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	47	

STATE PROJECT NUMBER

8680-04-71



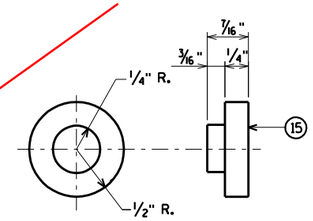
SECTION E



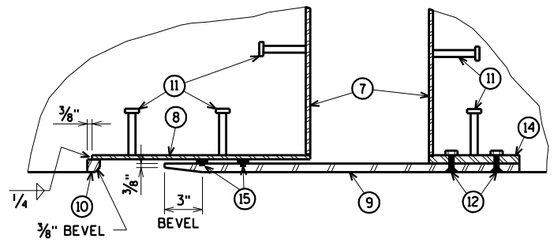
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

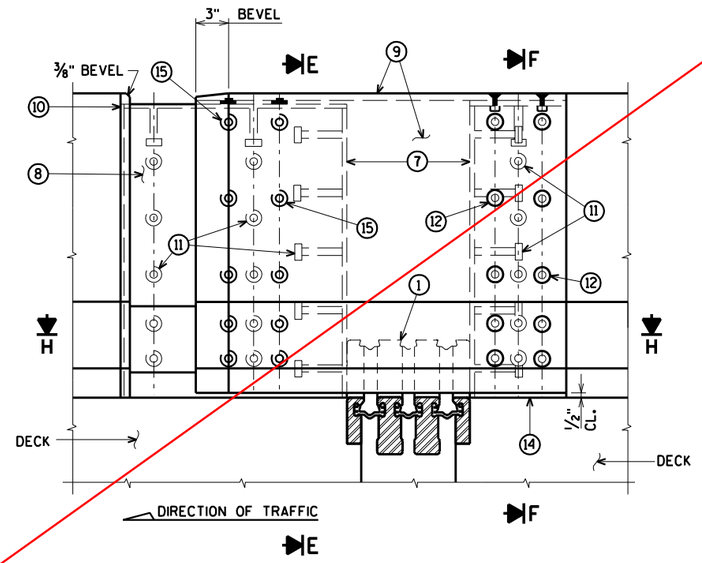
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 61



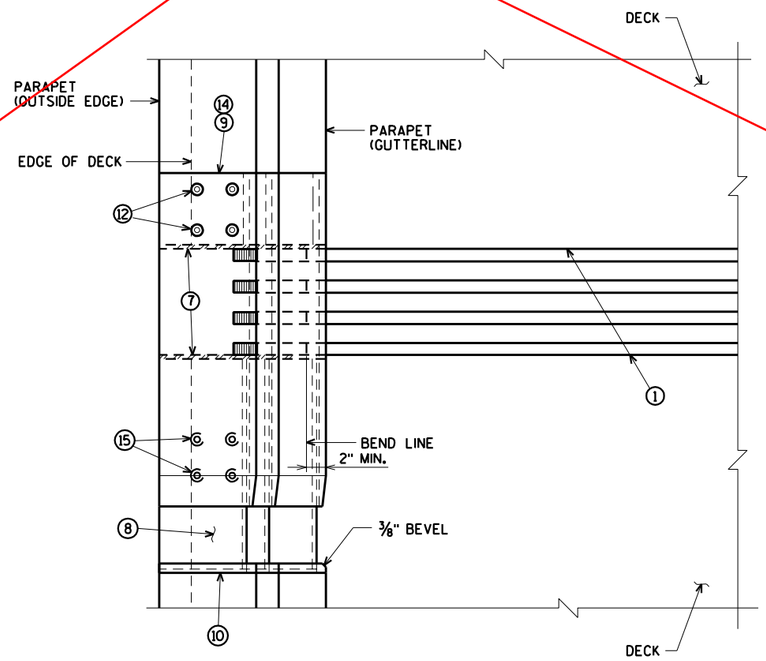
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 407 & PAGE 408. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 61, 63-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS 11-15, 19, 20 & 22 OUTSIDE PARAPET

SHEET 62 OF 99
408

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

ecpdf.plt
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9/12/2013

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GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE. IF JOINT HAS MORE THAN ONE ASSEMBLY, THE NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE ONLY IN THE FIRST ASSEMBLY. REMAINDER OF SEAL SHALL BE ROLLED UP ON THE FIELD SPLICE END. SEAL SHALL THEN BE FIELD INSTALLED WITH A LUBRICANT ADHESIVE AFTER FIELD WELDING IS COMPLETE. NO FIELD SPLICES OF THE STRIP SEAL GLANDS SHALL BE PERMITTED. CONTRACTOR SHALL PROTECT SEAL DURING THE INSTALLATION OF 1ST JOINT SECTION TO PREVENT DAMAGE PRIOR TO THE INSTALLATION OF THE 2ND JOINT SECTION.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

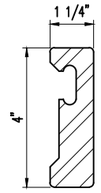
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 68p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.

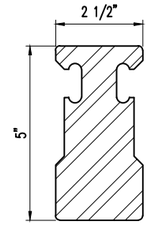


4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON 'D-240' MODULAR EXPANSION JOINTS.)

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

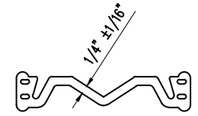


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 66
- SEE RAIL AND SEAL DETAILS ON SHEET 66
- SEE INSTALLATION PROCEDURES ON SHEET 66
- SEE SPLICE DETAILS ON SHEET 67
- SEE UPTURN DETAILS ON SHEET 67
- SEE STUD AND LOOP ANCHOR LOCATION & SPACING DETAILS ON SHEET 68
- SEE SPRING & BEARING DIAGRAM ON SHEET 68
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 68
- SEE 'D-240' PLAN VIEW FOR JOINTS #12, #13, #14 & #15 ON SHEET 69
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 70
- SEE JOINT SUPPORT DETAILS ON SHEET 70
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 71
- SEE SUPPORT BOX DETAILS ON SHEET 72
- SEE SUPPORT BAR DETAILS ON SHEET 73
- SEE BILL OF MATERIALS ON SHEET 74

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

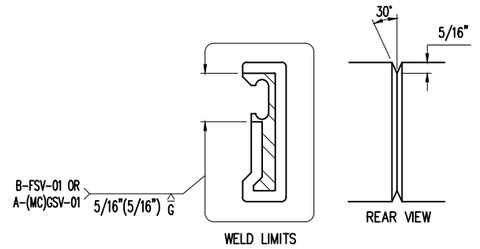
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	1 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	66

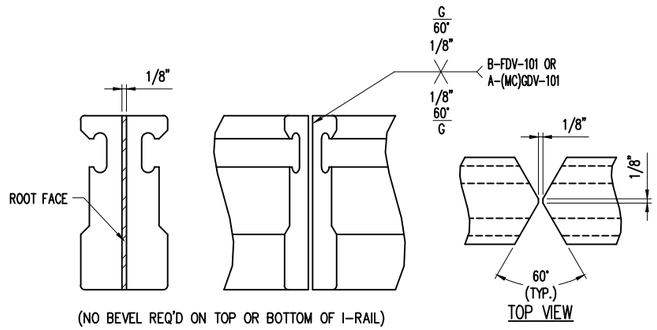
PAGE 408 A

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

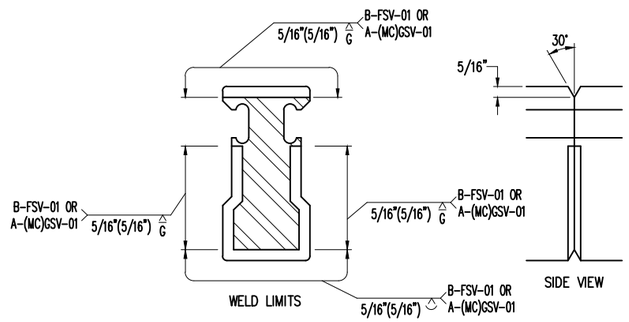


EDGE BEAM SHOP SPLICE DETAIL



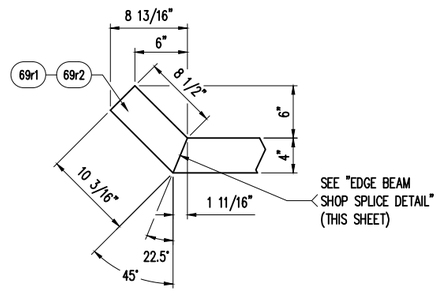
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

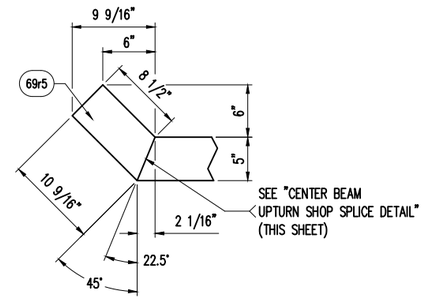


CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM UPTURN DETAIL



CENTER BEAM UPTURN DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

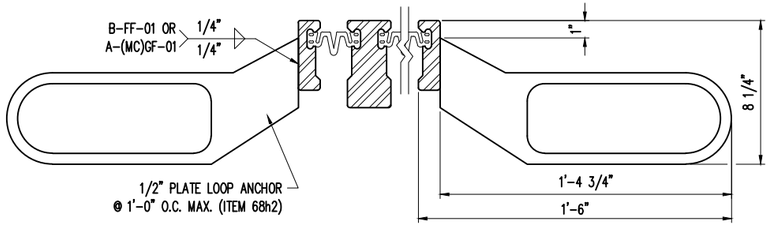
D.S. BROWN
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

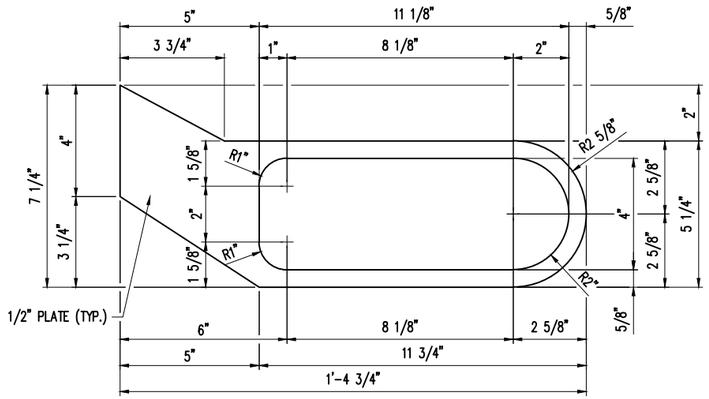
DESCRIPTION:
STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	2 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	67

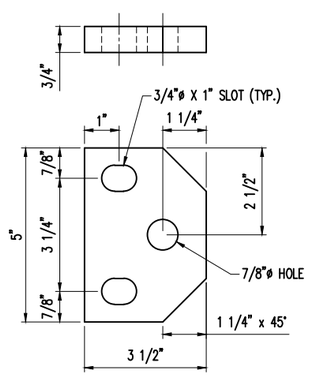


SECTION THRU 'D-240' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



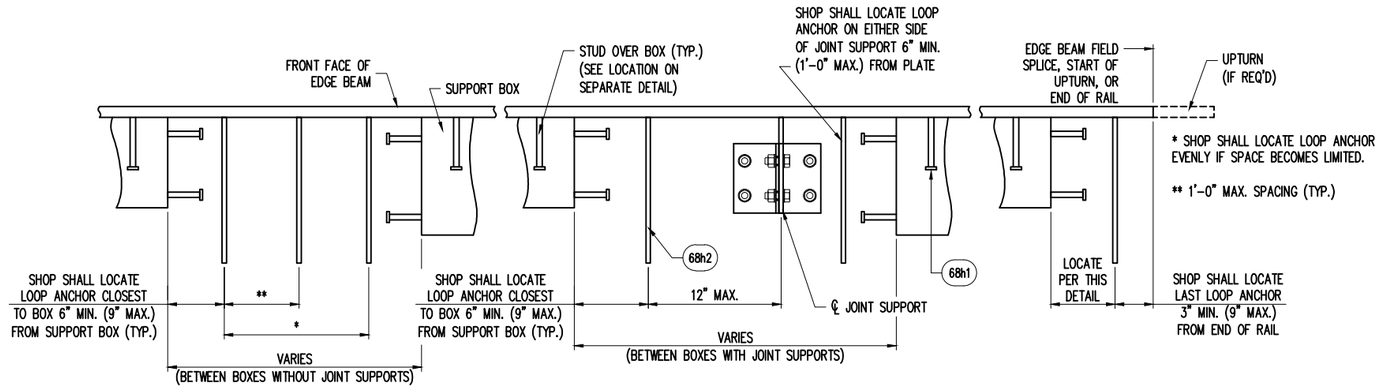
ITEM NO. 68h2
(328) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 68p1
(176) REQ'D.

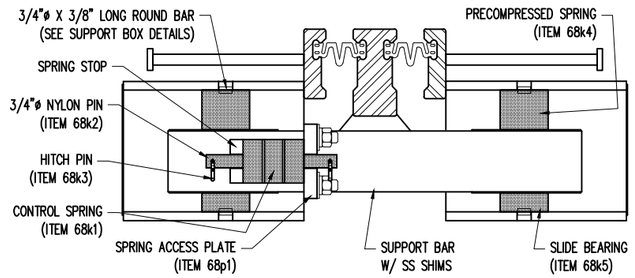
SPRING ACCESS PLATE DETAIL



TYP. LOOP ANCHOR LAYOUT SEQUENCE ALONG EDGE BEAM

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-240" SHOWN - OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

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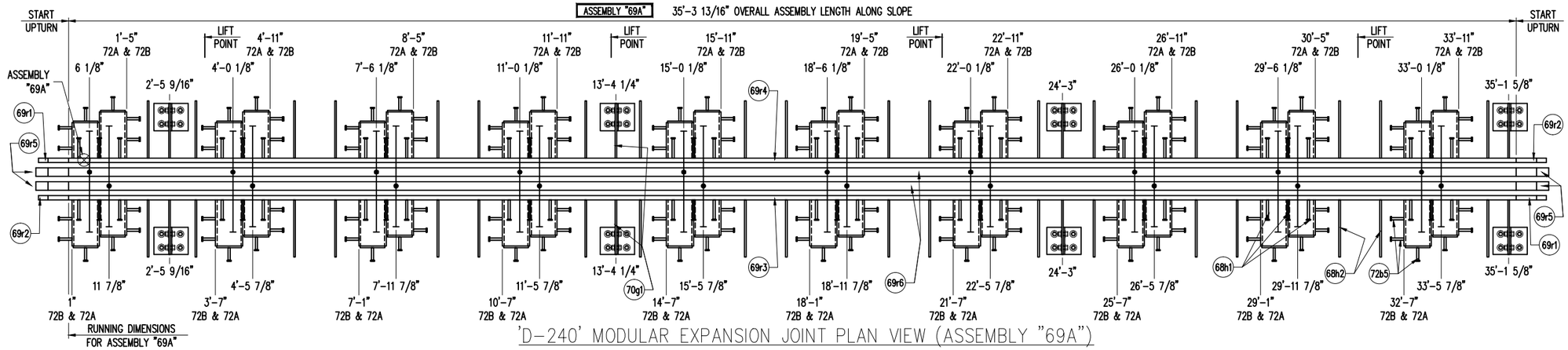
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	3 OF 9

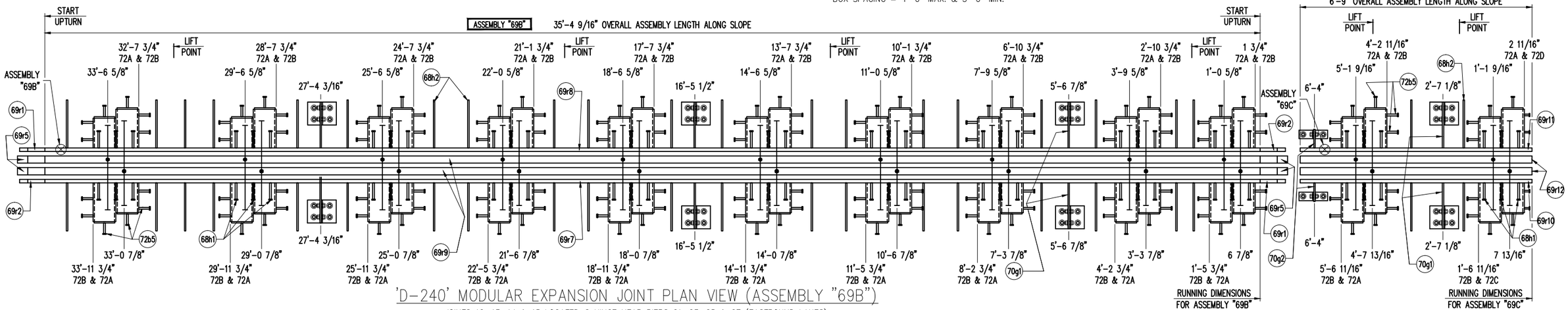
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	68

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 66
- SEE RAIL AND SEAL DETAILS ON SHEET 66
- SEE INSTALLATION PROCEDURES ON SHEET 66
- SEE SPLICE DETAILS ON SHEET 67
- SEE UPTURN DETAILS ON SHEET 67
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 68
- SEE SPRING & BEARING DIAGRAM ON SHEET 68
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 68
- SEE 'D-240' PLAN VIEWS ON SHEET 69
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 70
- SEE JOINT SUPPORT DETAILS ON SHEET 70
- SEE 'D-240' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 71
- SEE SUPPORT BOX DETAILS ON SHEET 72
- SEE SUPPORT BAR DETAILS ON SHEET 73
- SEE BILL OF MATERIALS ON SHEET 74
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS AFTER 100 FOR COVER PLATE DETAILS)



'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "69A")

JOINTS 12, 13, 14 & 15 LOCATED @ HINGE NEAR PIERS 21, 23, 25 & 27 (WESTBOUND LANES)
(4) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-0" MIN.

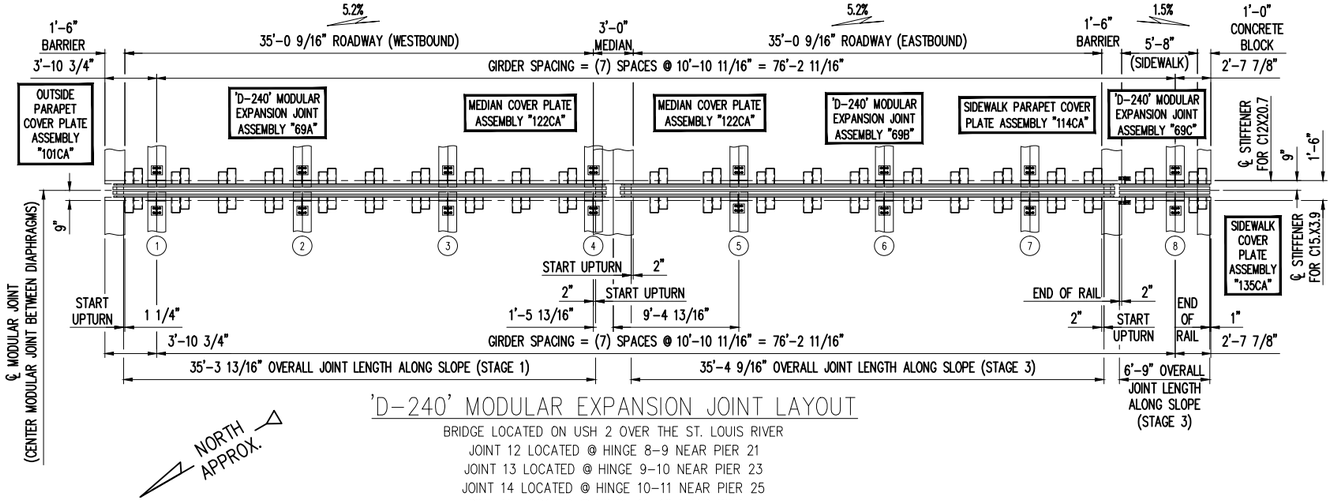


'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "69B")

JOINTS 12, 13, 14 & 15 LOCATED @ HINGE NEAR PIERS 21, 23, 25 & 27 (EASTBOUND LANES)
(4) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-0" MIN.

'D-240' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "69C")

JOINTS 12, 13, 14 & 15 LOCATED @ HINGE
NEAR PIERS 21, 23, 25 & 27 (SIDEWALK)
(4) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0"



'D-240' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 12 LOCATED @ HINGE 8-9 NEAR PIER 21
JOINT 13 LOCATED @ HINGE 9-10 NEAR PIER 23
JOINT 14 LOCATED @ HINGE 10-11 NEAR PIER 25
JOINT 15 LOCATED @ HINGE 11-12 NEAR PIER 27

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION SHOP DRAWING

PAGE 408 D

REV.	DESCRIPTION	DATE	DET.	CKD.

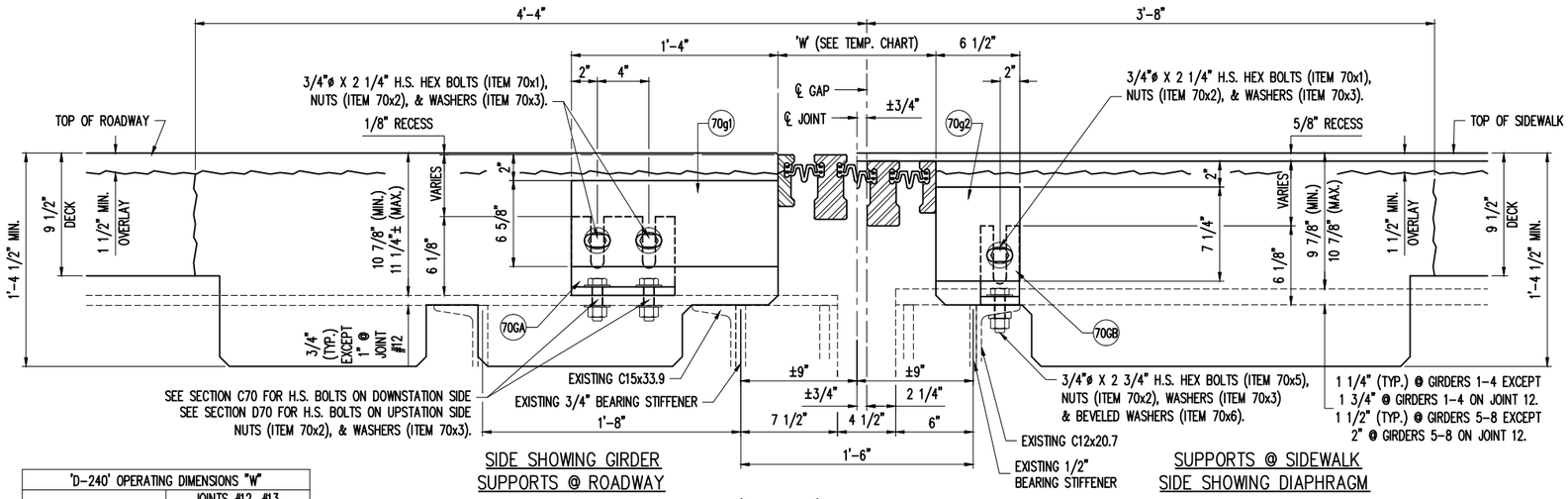
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-240' PLAN VIEW & STANDARD DETAILS DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	4 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	69



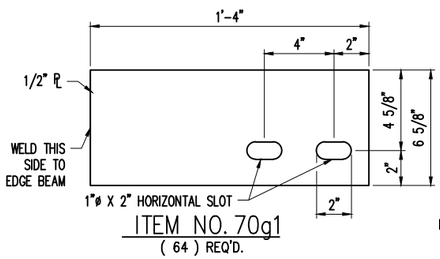
SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

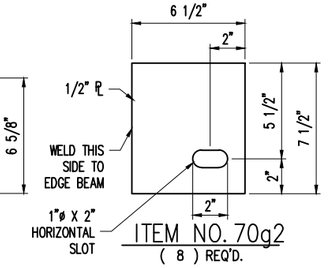
SECTION OF 'D-240' SUPPORTS @ GIRDERS & DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F

HIGH STRENGTH BOLT SCHEDULE (FOR ALL SUPPORTS)						
JOINT LOCATION	GIRDER / LOCATOIN	SIDE OF JOINT	CONNECTION TYPE OR TOP FLANGE THICKNESS	BOLT LENGTH	MK#	QTY
#12, #13, #14 & #15	ALL SUPPORTS	BOTH	PLATE TO WT	2 1/4"	70x1	136
#12, #13, #14 & #15	DIAPHRAGM	BOTH	CHANNEL	2 3/4"	70x5	16
#13, #14 & #15	1 - 8	DOWNSTATION	3/4"	2 3/4"	70x5	96
#12	1 - 8	DOWNSTATION	1"	3"	70x4	32
#13, #14 & #15	1 - 4	UPSTATION	1 1/4"	3 1/4"	70x7	48
#12	1 - 4	UPSTATION	1 3/4"	3 3/4"	70x8	16
#13, #14 & #15	5 - 8	UPSTATION	1 1/2"	3 1/2"	70x9	48
#12	5 - 8	UPSTATION	2"	4"	70x10	16



ITEM NO. 70g1
(64) REQ'D.

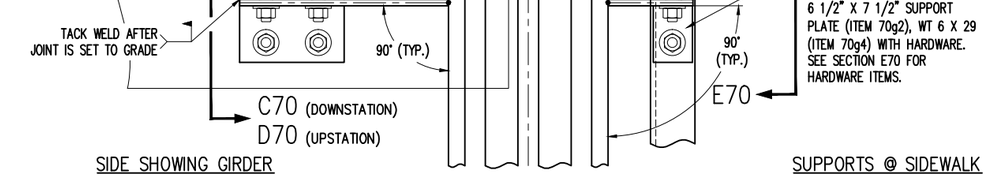


ITEM NO. 70g2
(8) REQ'D.

'D-240' OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINTS #12, #13, #14 & #15
MAX.	7 1/2"
120°F	8 1/2"
110°F	9"
100°F	9 1/2"
90°F	10"
80°F	10 1/2"
70°F	11"
60°F	11 1/2"
50°F	1'-0"
MID. @ 45°F	1'-0 1/4"
40°F	1'-0 1/2"
30°F	1'-1"
20°F	1'-1 1/2"
10°F	1'-2"
0°F	1'-2 1/2"
-10°F	1'-3"
-20°F	1'-3 1/2"
-30°F	1'-4"
MIN.	1'-4 15/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
1/2" PER 10°F @ JOINTS #12, #13, #14 & #15

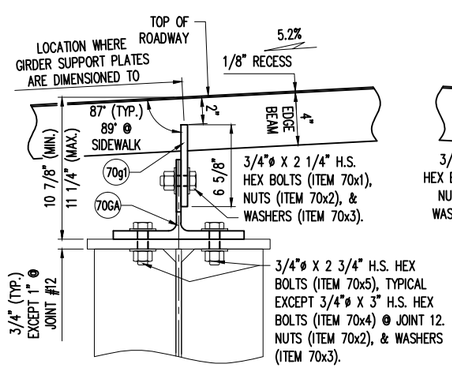


SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

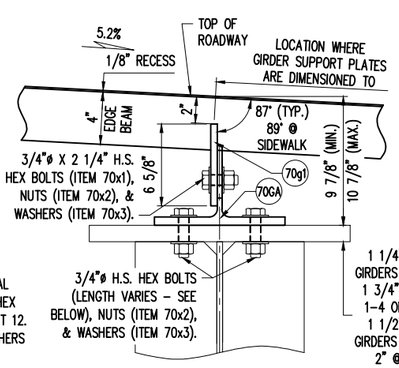
PLAN VIEW OF SUPPORTS @ GIRDERS AND DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F



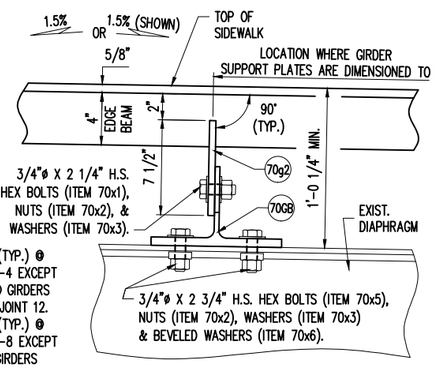
SECTION C70

(ON DOWNSTATION SIDE OF JOINT – LOOKING UPSTATION)



SECTION D70

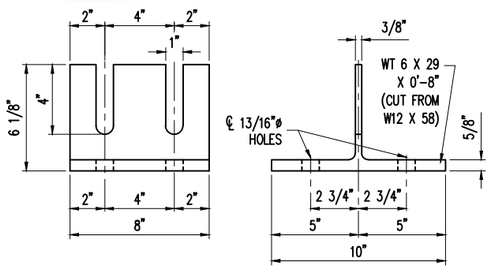
(ON UPSTATION SIDE OF JOINT – LOOKING DOWNSTATION)
3/4"ø X 3 1/4" H.S. BOLTS (ITEM 70x7) (TYP.) @ GIRDERS 1-4 EXCEPT
3/4"ø X 3 3/4" H.S. BOLTS (ITEM 70x8) @ GIRDERS 1-4 ON JOINT 12.
3/4"ø X 3 1/2" H.S. BOLTS (ITEM 70x9) (TYP.) @ GIRDERS 5-8 EXCEPT
3/4"ø X 4" @ H.S. BOLTS (ITEM 70x10) GIRDERS 5-8 ON JOINT 12.



SECTION E70

(HARDWARE TYPICAL DOWNSTATION & UPSTATION SIDE OF JOINT)

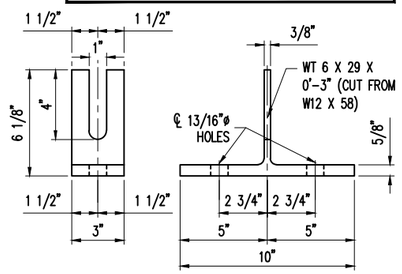
NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT6x29 JOINT SUPPORT

ASSEMBLY 70GA (ITEM 70g3)
(64) REQUIRED

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT6x29 JOINT SUPPORT

ASSEMBLY 70GB (ITEM 70g4)
(8) REQUIRED

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION SHOP DRAWING

PAGE 408 E

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

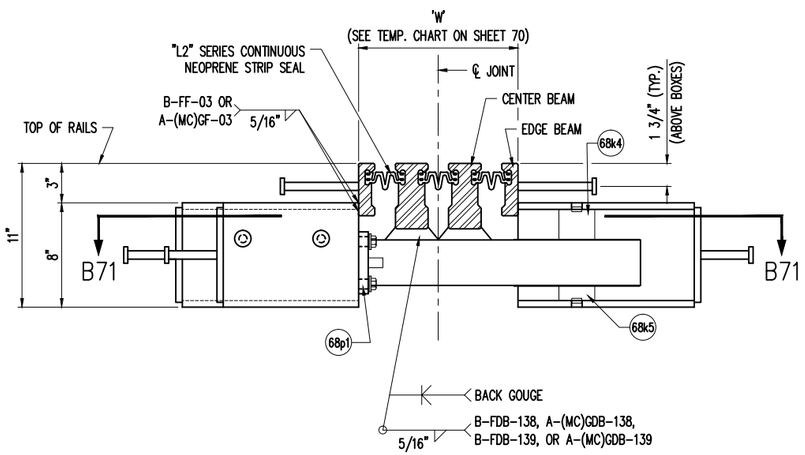
DESCRIPTION: 'D-240' SECTIONS & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	5 OF 9

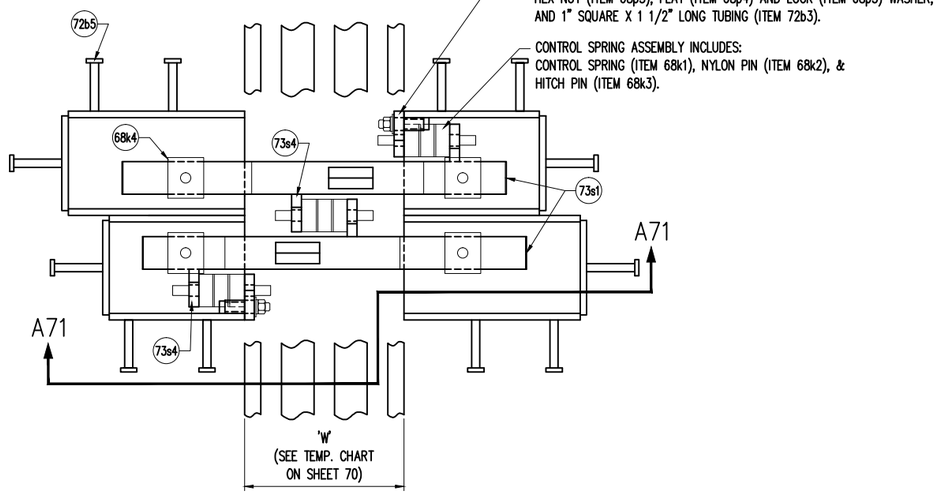
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	70

REVISED
Modular Expansion Joints 12 - 15
DETAILS

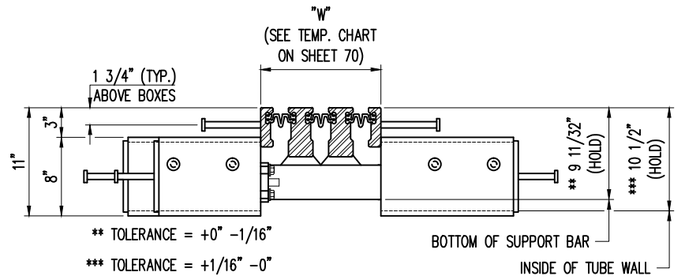
CONSTRUCTION
SHOP DRAWING



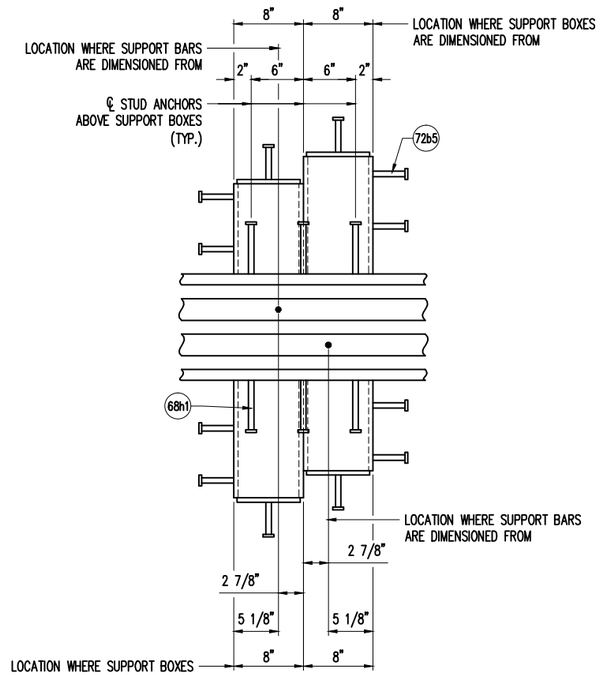
SECTION A71



SECTION B71



SECTION THRU 'D-240' @ SUPPORT BOX



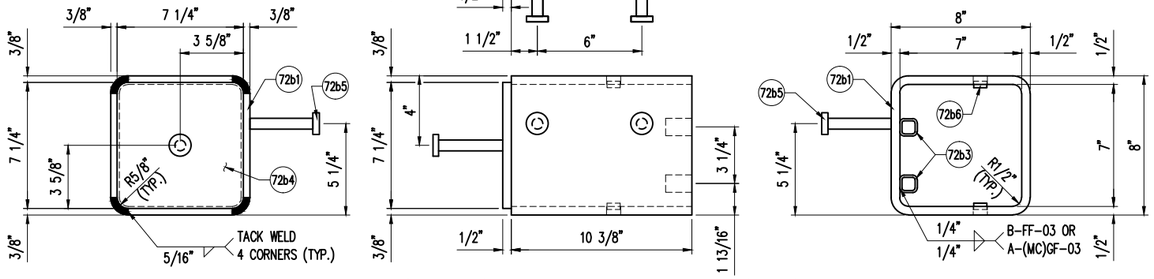
'D-240' SUPPORT BOX DETAIL

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
'D-240' SECTIONS & STANDARD DETAILS	N.T.S.	BLB	JLW	04/04/14	6 OF 9
DOUGLAS COUNTY, WISCONSIN	PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 71	

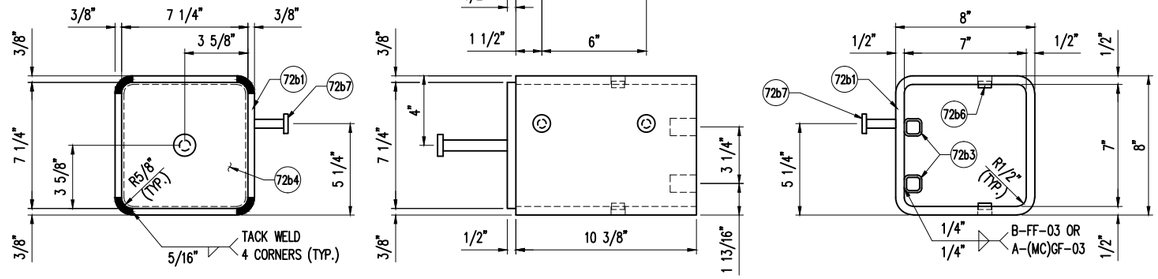


ITEM	DESCRIPTION	QTY.
72b1	1/2" THICK SUPPORT BOX TUBE	172
72b3	1" SQUARE X 1 1/2" LONG TUBING	344
72b4	1/2" PLATE END CAP	172
72b5	5/8"ø X 4" STUD ANCHOR	516
72b6	3/4"ø X 3/8" BAR	344

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '72A'

(172) REQUIRED



ITEM	DESCRIPTION	QTY.
72b1	1/2" THICK SUPPORT BOX TUBE	4
72b3	1" SQUARE X 1 1/2" LONG TUBING	8
72b4	1/2" PLATE END CAP	4
72b7	1/2"ø X 2" STUD ANCHOR	12
72b6	3/4"ø X 3/8" BAR	8

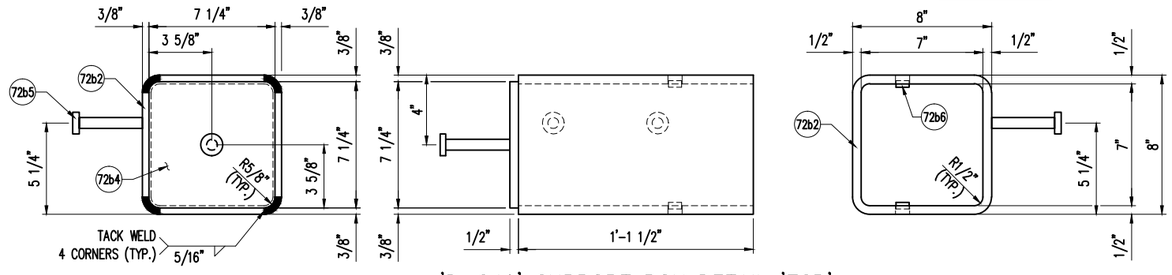
FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '72C'

(4) REQUIRED

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

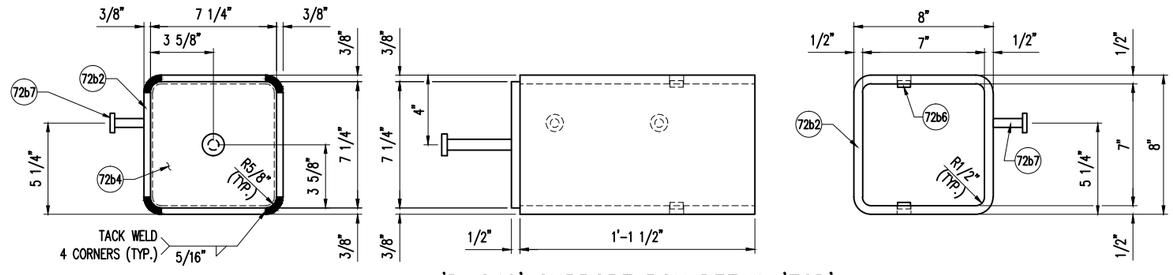


ITEM	DESCRIPTION	QTY.
72b2	1/2" THICK SUPPORT BOX TUBE	172
72b4	1/2" PLATE END CAP	172
72b5	5/8"ø X 4" STUD ANCHOR	516
72b6	3/4"ø X 3/8" BAR	344

FOR SHOP USE ONLY

'D-240' SUPPORT BOX DETAIL '72B'

(172) REQUIRED

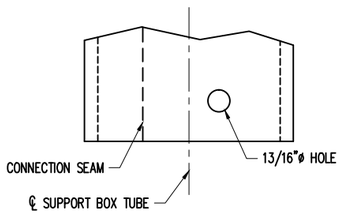


ITEM	DESCRIPTION	QTY.
72b2	1/2" THICK SUPPORT BOX TUBE	4
72b4	1/2" PLATE END CAP	4
72b7	1/2"ø X 2" STUD ANCHOR	12
72b6	3/4"ø X 3/8" BAR	8

FOR SHOP USE ONLY

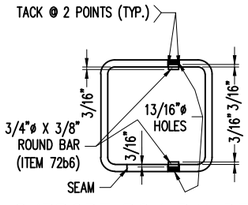
'D-240' SUPPORT BOX DETAIL '72D'

(4) REQUIRED



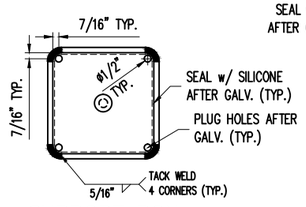
SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE ℄ OF BOX.



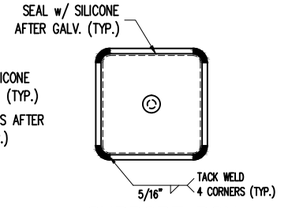
SUPPORT BOX PIN DETAILS

(W/ RUBBER SPRINGS & BEARINGS)



SUPPORT BOX BACK PLATE OPTION NO. 1

(ATTACH PRIOR TO GALV.)



SUPPORT BOX BACK PLATE OPTION NO. 2

(ATTACH AFTER GALV.)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
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300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
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WWW.DSBROWN.COM

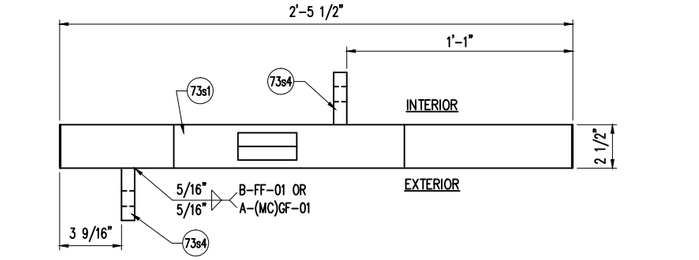
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	7 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	72	

REVISED
Modular Expansion Joints 12 - 15
DETAILS

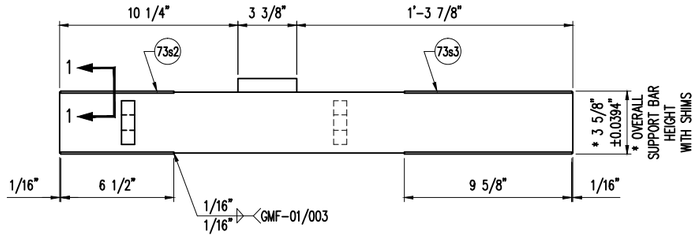
CONSTRUCTION
SHOP DRAWING

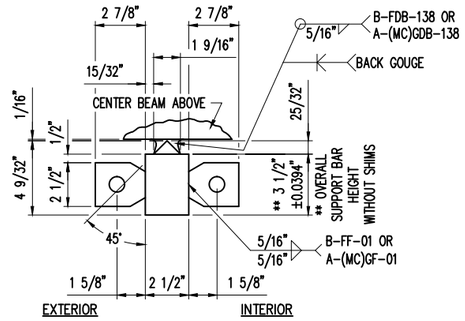


ITEM	DESCRIPTION	QTY.
73s1	2 1/2" X 4 9/32" X 2'-5 1/2" BAR	176
73s2	16GA. X 3 1/8" X 6 1/2" S.S. SHIM	352
73s3	16GA. X 3 1/8" X 9 5/8" S.S. SHIM	352
73s4	3/4" X 2 1/2" X 2 7/8" FLAT BAR	352

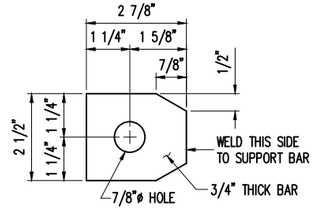
FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



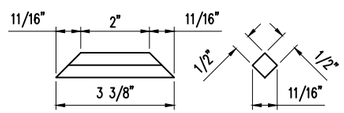


'D-240' SUPPORT BAR DETAILS
(176) REQUIRED



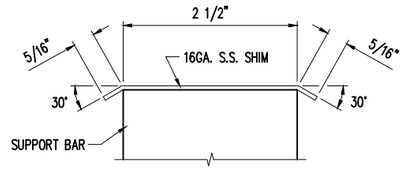
ITEM NO. 73s4
(352) REQ'D.

SPRING STOP DETAIL

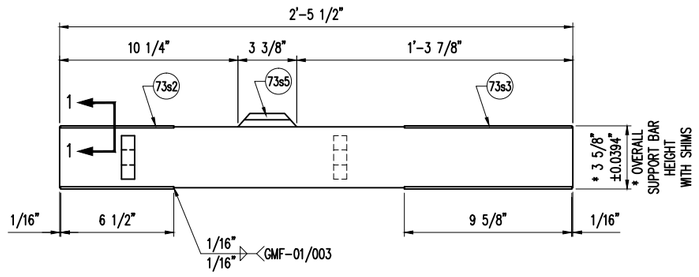


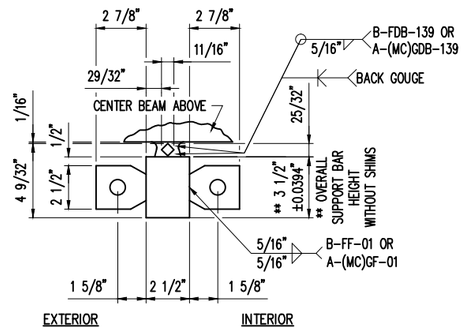
ITEM NO. 73s5
(176) REQ'D.

RIDER BAR DETAIL



SECTION 1-1





OPTIONAL 'D-240' SUPPORT BAR DETAIL (WITH RIDER BAR)
(IN LIEU OF MACHINED SUPPORT BAR)

PAGE 408 H

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
'D-240' SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	8 OF 9

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	73

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
69A	4	"D-240" MODULAR EXPANSION JOINT			36'-10 15/16" - JOINT 12, 13, 14 & 15 (WESTBOUND)	9046	
68h1	240	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
68h2	152	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
68k1	120	CONTROL SPRING (80MM)	-		PLAIN	1	
68k2	120	NYLON PIN (80MM)	-		PLAIN	< 1	
68k3	240	HITCH PIN	-		PLAIN	< 1	
68k4	160	PRECOMPRESSED SPRING	-		PLAIN	< 1	
68k5	160	SLIDE BEARING	-		PLAIN	1	
68p1	80	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
68p2	160	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p3	160	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p4	160	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
68p5	160	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
69r1	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r2	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r3	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 3/16	A123-HDG	460	
69r4	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 3/16	A123-HDG	460	
69r5	16	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
69r6	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	1229	
69y1	4	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
69y2	12	L2-400 GLAND	NEOPRENE	37'-0	444'-0" TOTAL;	59	
70g1	32	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
72b1	80	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
72b2	80	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
72b3	160	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
72b4	160	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
72b5	480	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
72b6	320	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
73s1	80	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
73s2	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
73s3	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
73s4	160	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
69B	4	"D-240" MODULAR EXPANSION JOINT			36'-11 11/16" - JOINT 12, 13, 14 & 15 (EASTBOUND)	9056	
68h1	240	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
68h2	160	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
68k1	120	CONTROL SPRING (80MM)	-		PLAIN	1	
68k2	120	NYLON PIN (80MM)	-		PLAIN	< 1	
68k3	240	HITCH PIN	-		PLAIN	< 1	
68k4	160	PRECOMPRESSED SPRING	-		PLAIN	< 1	
68k5	160	SLIDE BEARING	-		PLAIN	1	
68p1	80	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
68p2	160	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p3	160	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p4	160	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
68p5	160	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
69r1	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r2	8	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
69r5	16	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
69r7	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
69r8	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
69r9	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 11/16	A123-HDG	1232	
69y1	4	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
69y2	12	L2-400 GLAND	NEOPRENE	37'-0	444'-0" TOTAL;	59	
70g1	24	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
72b1	80	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
72b2	80	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
72b3	160	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
72b4	160	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
72b5	480	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
72b6	320	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
73s1	80	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
73s2	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
73s3	160	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
73s4	160	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
69C	4	"D-240" MODULAR EXPANSION JOINT			6'-9" - JOINT 12, 13, 14 & 15 (SIDEWALK)	1696	
68h1	48	Ø5/8 X 6 WELD STUD	A108		EDGE BEAM ANCHORAGE; A123-HDG	< 1	
68h2	16	1/2 X 7 1/4	A36	1'-4 3/4	EDGE BEAM ANCHORAGE (SHAPE CUT); A123-HDG	17	
68k1	24	CONTROL SPRING (80MM)	-		PLAIN	1	
68k2	24	NYLON PIN (80MM)	-		PLAIN	< 1	
68k3	48	HITCH PIN	-		PLAIN	< 1	
68k4	32	PRECOMPRESSED SPRING	-		PLAIN	< 1	
68k5	32	SLIDE BEARING	-		PLAIN	1	
68p1	16	3/4 X 3 1/2	A36	0'-5	ACCESS PLATE (SHAPE CUT); A123-HDG	4	
68p2	32	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p3	32	Ø5/8 HEX NUT	A563 GR A		ACCESS PLATE ITEM; B695-MG	< 1	
68p4	32	Ø5/8 FLAT WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
68p5	32	Ø5/8 LOCK WASHER	F844		ACCESS PLATE ITEM; B695-MG	< 1	
69r10	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
69r11	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
69r12	8	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
69y1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
69y2	12	L2-400 GLAND	NEOPRENE	7'-0	84'-0" TOTAL;	11	
70g1	8	1/2 X 6 5/8	A36	1'-4	JOINT SUPPORT PLATE; A123-HDG	15	
70g2	8	1/2 X 6 1/2	A36	0'-7 1/2	DIAPHRAGM SUPPORT PLATE; A123-HDG	7	
72b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 3/8	SUPPORT BOX; A123-HDG	42	
72b2	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 1/2	SUPPORT BOX; A123-HDG	55	
72b3	32	HSS 1 X 1 X 1/8	A513	0'-1 1/2	A123-HDG	< 1	
72b4	32	1/2 X 7 1/4	A36	0'-7 1/4	A123-HDG	7	
72b5	80	Ø5/8 X 4 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
72b6	64	Ø3/4 X 3/8 PLAIN ROD	A36		A123-HDG	< 1	
72b7	16	Ø1/2 X 2 WELD STUD	A108		SUPPORT BOX ANCHORAGE; A123-HDG	< 1	
73s1	16	2 1/2 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/2	SUPPORT BAR - MACHINE TO DETAILED DIMS.; A123-HDG	94	
73s2	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-6 1/2	SUPPORT BAR SHIM; PLAIN	< 1	
73s3	32	16 GA. X 3 1/8	A240 T304, #8 & 2B	0'-9 5/8	SUPPORT BAR SHIM; PLAIN	< 1	
73s4	32	3/4 X 2 1/2	A36	0'-2 7/8	SPRING STOP; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			4/28/2014 11:11:32 AM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
70GA	64	JOINT SUPPORT ITEM				19	
70g3	64	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
70GB	8	JOINT SUPPORT ITEM				7	
70g4	8	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
70XA	136	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x1	136	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XB	408	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
70x2	408	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
70XC	800	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
70x3	800	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
70XD	32	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x4	32	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XE	112	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x5	112	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XF	16	JOINT SUPPORT HARDWARE - BEVELED WASHER (ROCAP)				< 1	
70x6	16	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
70XG	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x7	48	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XH	16	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x8	16	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
70XJ	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x9	48	Ø3/4 X 3 1/2 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XK	16	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70x10	16	Ø3/4 X 4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
70t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XBT	24	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
70t2	24	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
70XCT	48	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
70t3	48	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
70XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
70t4	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
70XET	6	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
70t5	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XFT	6	TESTING HARDWARE - BEVELED WASHER (ROCAP)				< 1	
70t6	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
70XGT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t7	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XHT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t8	3	Ø3/4 X 3 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XJT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t9	3	Ø3/4 X 3 1/2 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
70XKT	3	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
70t10	3	Ø3/4 X 4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			4/28/2014 11:11:32 AM		

REVISED
Modular Expansion Joints 12 - 15
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 408 I

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

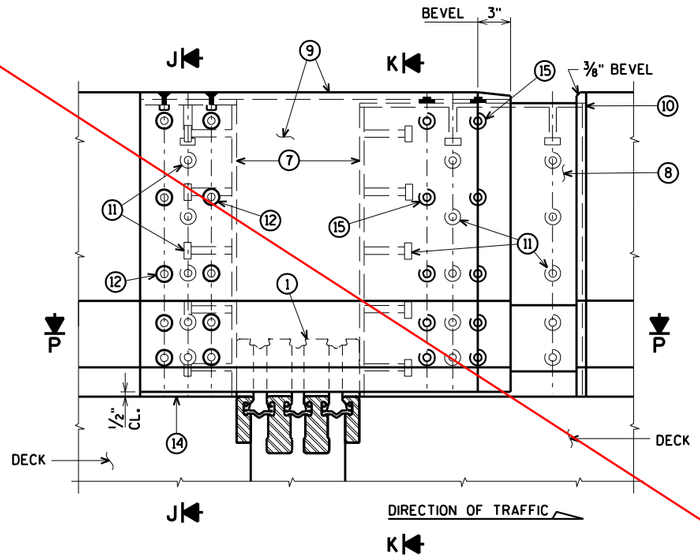
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL-OF-MATERIALS
DOUGLAS COUNTY, WISCONSIN

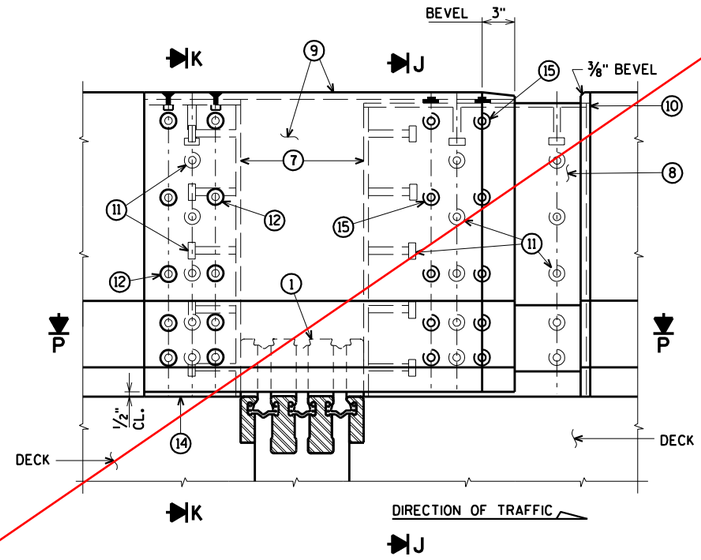
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET:
N.T.S.	BLB	JLW	04/04/14	9 OF 9
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	74	

STATE PROJECT NUMBER

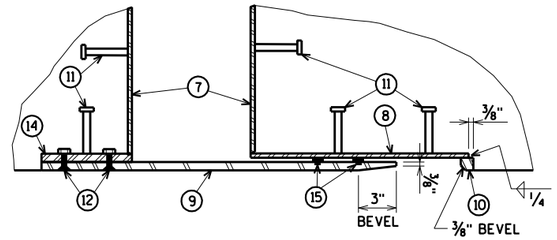
8680-04-71



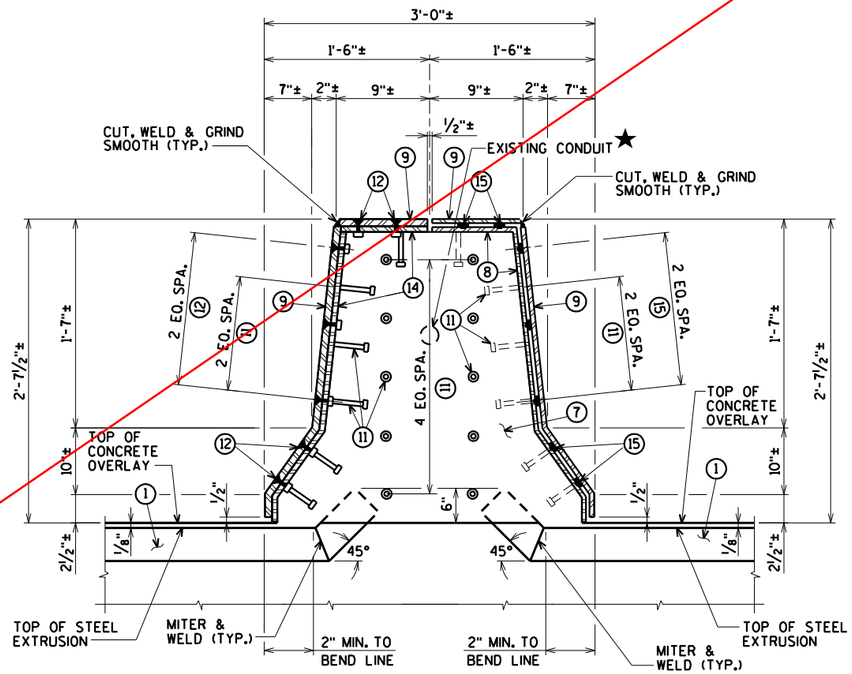
ELEVATION OF MEDIAN PARAPET
SECTION G



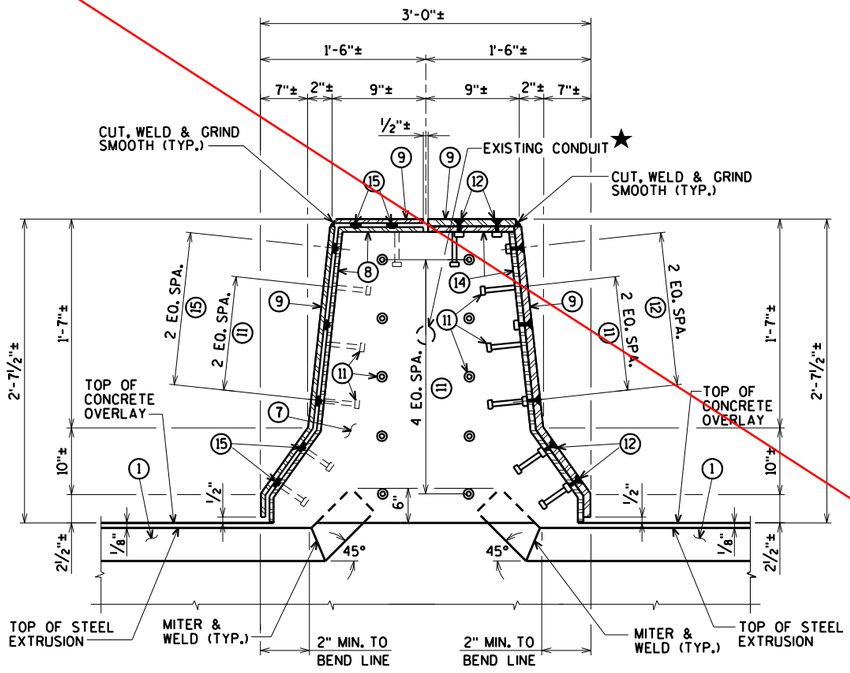
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 61

See revised joint details
PAGE 407 &
PAGE 408.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 61-62, 64-65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS
11-15, 19, 20 & 22
MEDIAN PARAPET

SHEET 63 OF 99
409

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

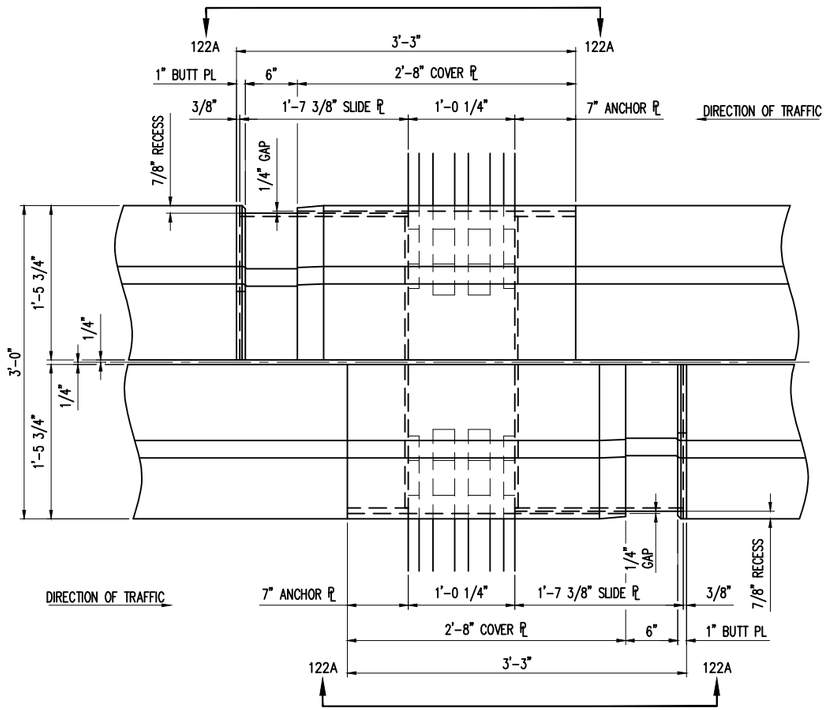
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8

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9/12/2013

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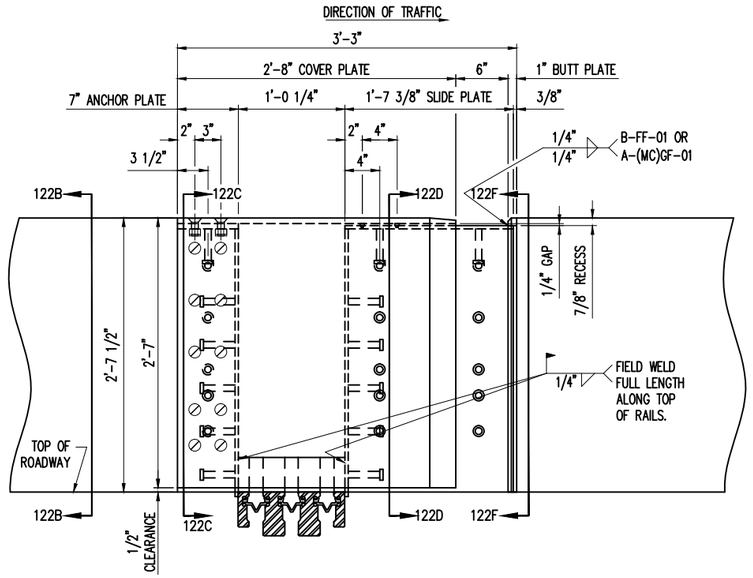


MEDIAN PARAPET COVER PLATE PLAN VIEW

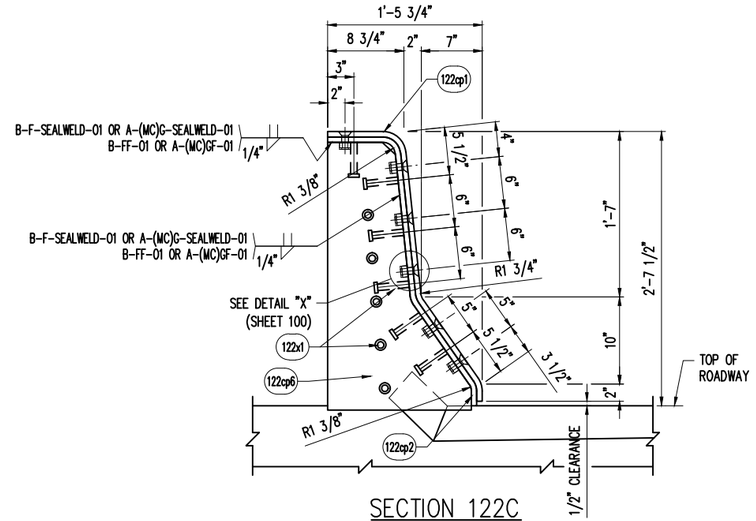
COVER PLATE ASSEMBLY "122CA"
LOCATED AT JOINTS 9, 10, 11–15, 19, 20 & 22 (STRUCTURE B–16–38/69100)
– LOOKING AHEAD STATION –
(20) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

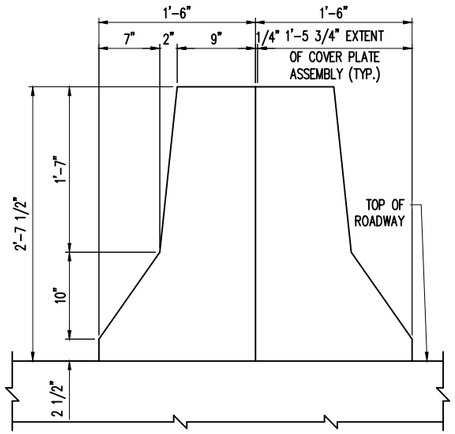


VIEW 122A – MEDIAN PARAPET COVER PLATE ELEVATION



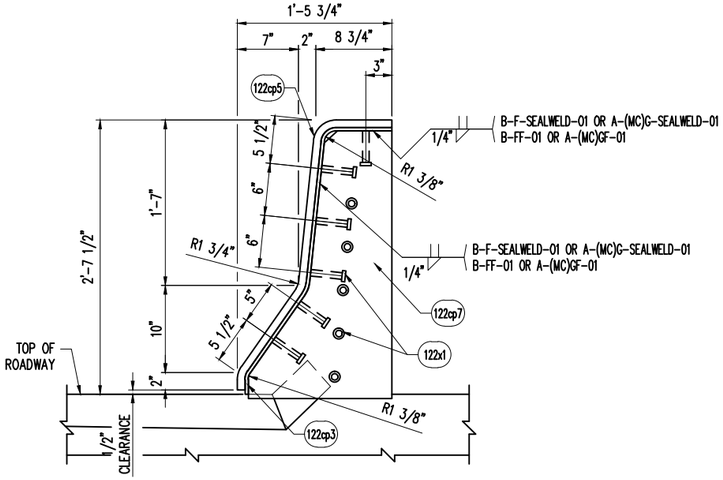
SECTION 122C

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



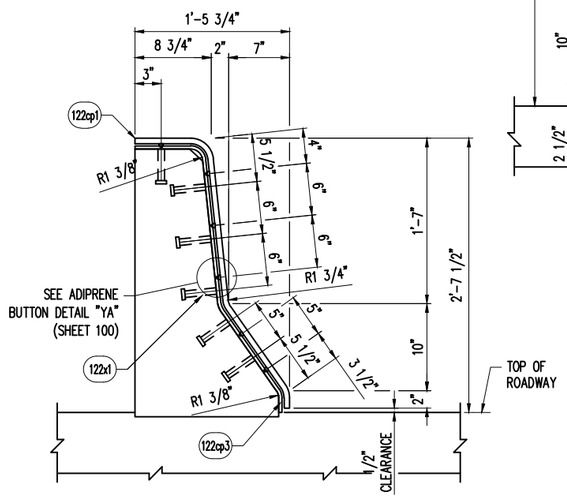
SECTION 122B

THROUGH MEDIAN BARRIER



SECTION 122F

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE



SECTION 122D

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
122CA	20	MEDIAN PARAPET COVER PLATE ASSEMBLY				530	-
100x1	240	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	240	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	240	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	240	ADIPRENE BUTTONS	-		PLAIN	< 1	-
122cp1	20	5/8 X 32	A36	3'-7 5/8	COVER PLATE; A123-HDG	247	-
122cp2	20	5/8 X 7	A36	3'-7 1/8	ANCHOR PLATE; A123-HDG	53	-
122cp3	20	3/8 X 19 3/8	A36	3'-6 15/16	SLIDE PLATE; A123-HDG	88	-
122cp5	20	7/8 X 1	A36	3'-7 3/8	BUTT PLATE; A123-HDG	11	-
122cp6	20	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
122cp7	20	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
122x1	560	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 123
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

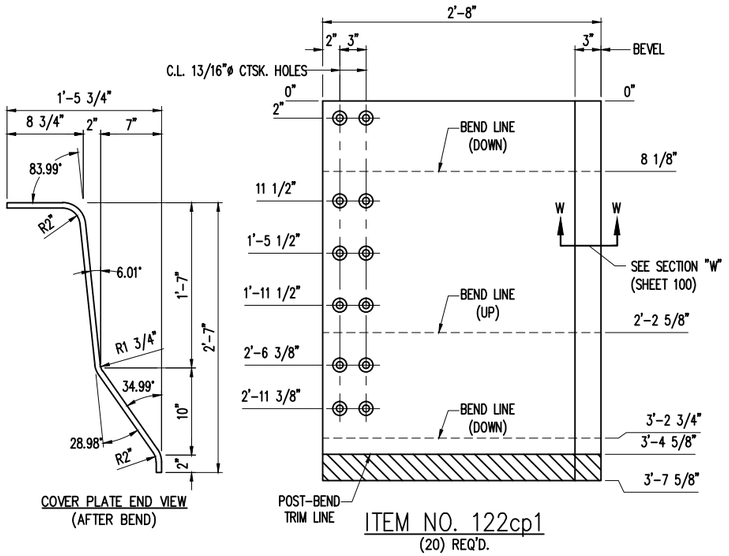
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

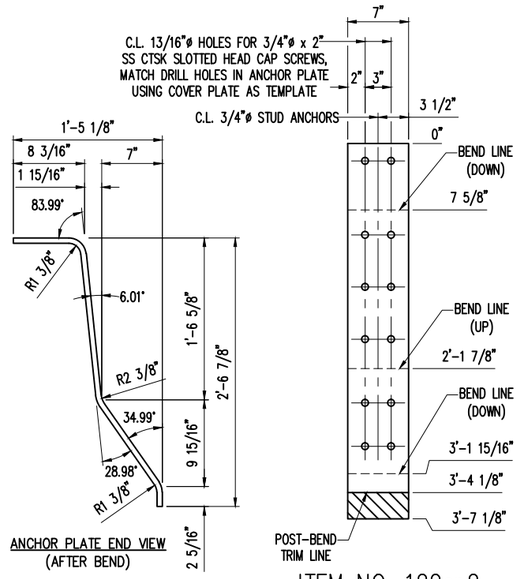
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	23 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	122



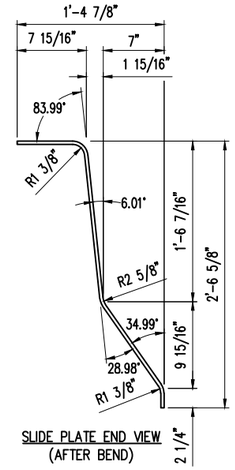
ITEM NO. 122cp1
(20) REQ'D.

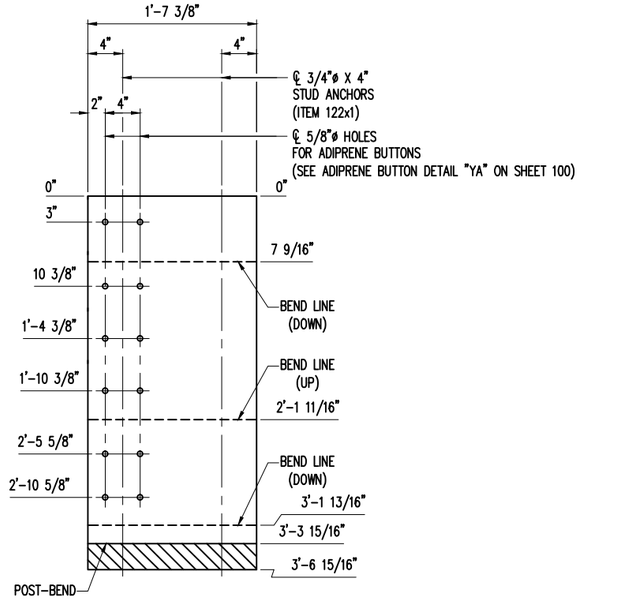
COVER PLATE



ITEM NO. 122cp2
(20) REQ'D.

ANCHOR PLATE



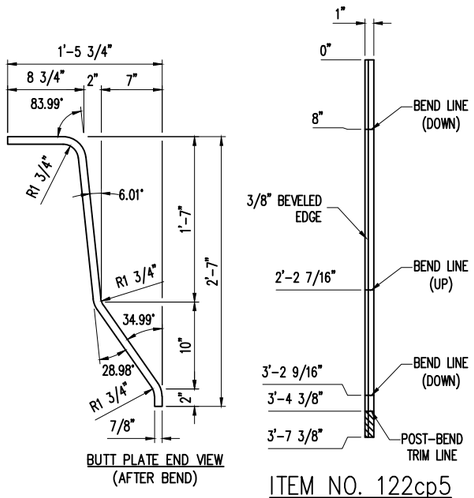


ITEM NO. 122cp3
(20) REQ'D.

SLIDE PLATE

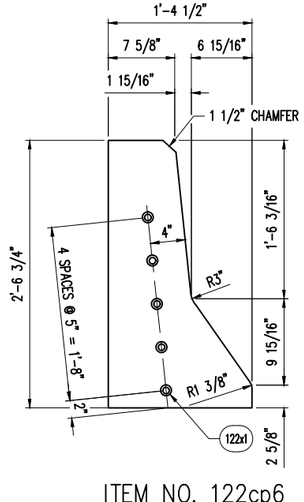
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



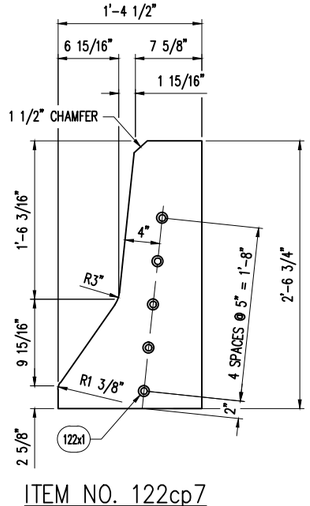
ITEM NO. 122cp5
(20) REQ'D.

FRONT BUTT PLATE



ITEM NO. 122cp6
(20) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 122cp7
(20) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

SHOP NOTES:

- SEE MEDIAN PARAPET DETAILS ON SHEET 122
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 122

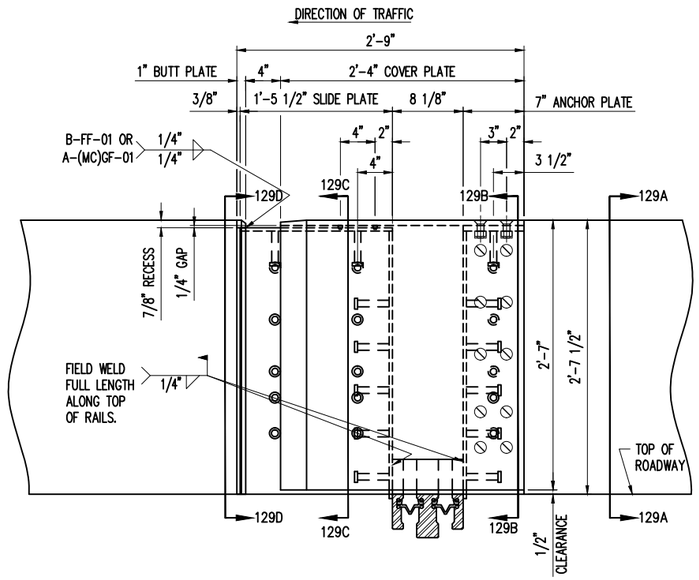
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	24 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	123	

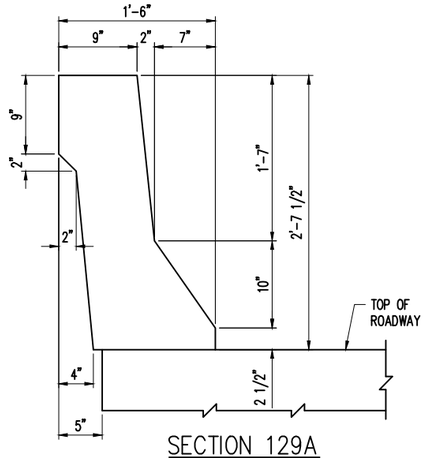


EXTERIOR PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "129CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

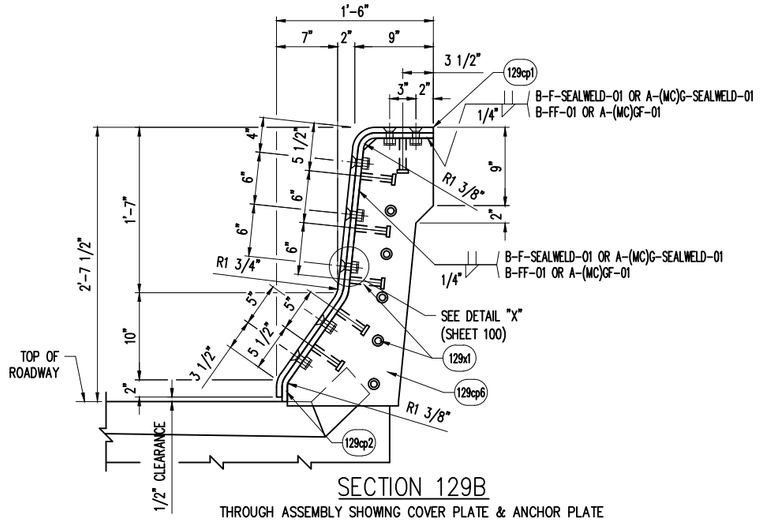
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



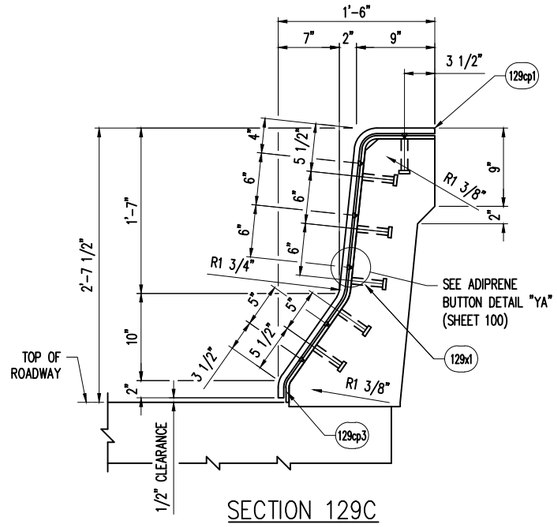
SECTION 129A

THROUGH EXTERIOR BARRIER



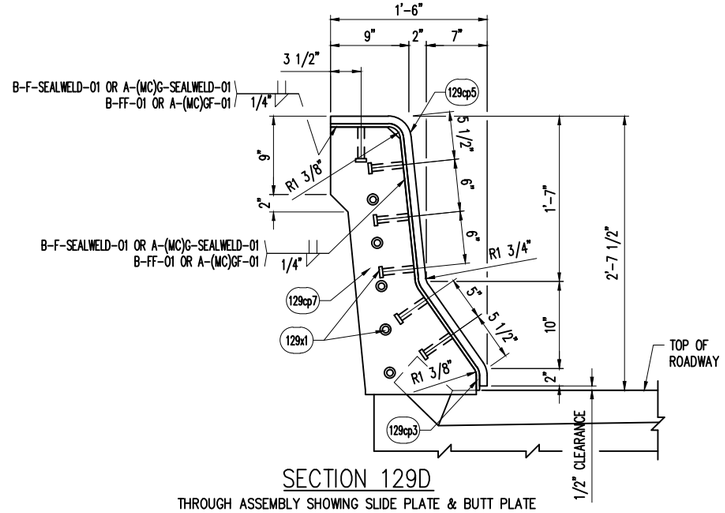
SECTION 129B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



SECTION 129C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 129D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
129CA	2	EXTERIOR PARAPET COVER PLATE ASSEMBLY				496	-
100x1	28	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	28	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	28	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	24	ADIPRENE BUTTONS	-		PLAIN	< 1	-
129cp1	2	5/8 X 28	A36	3'-7 7/8	COVER PLATE; A123-HDG	218	-
129cp2	2	5/8 X 7	A36	3'-7 3/8	ANCHOR PLATE; A123-HDG	54	-
129cp3	2	3/8 X 17 1/2	A36	3'-7 3/16	SLIDE PLATE; A123-HDG	80	-
129cp5	2	7/8 X 1	A36	3'-7 5/8	BUTT PLATE (FRONT); A123-HDG	11	-
129cp6	2	3/8 X 16 3/4	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	55	-
129cp7	2	3/8 X 16 3/4	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	55	-
129x1	56	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 130
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

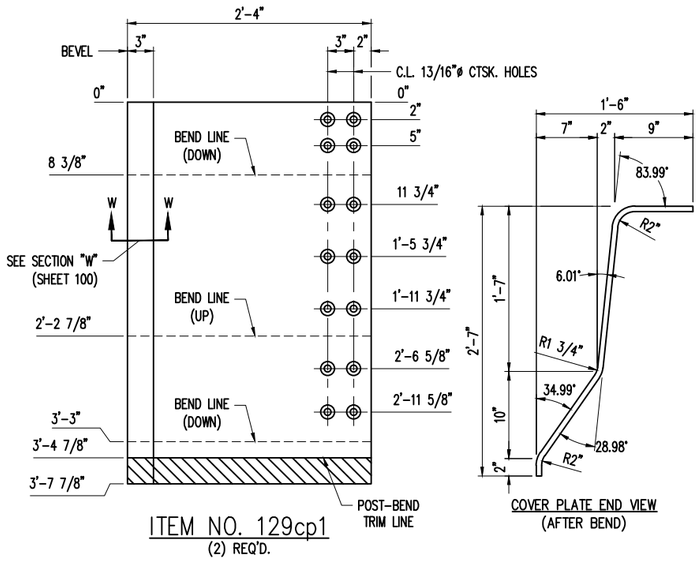
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-

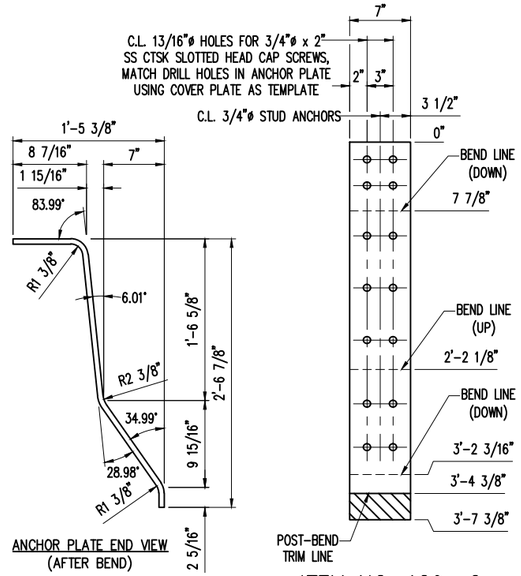
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	30 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	129	



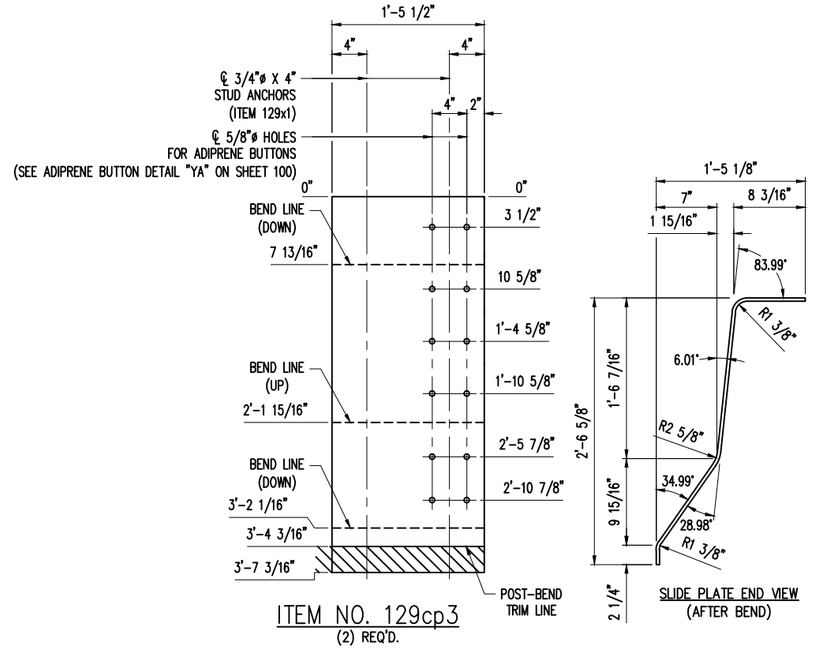
ITEM NO. 129cp1
(2) REQ'D.

COVER PLATE



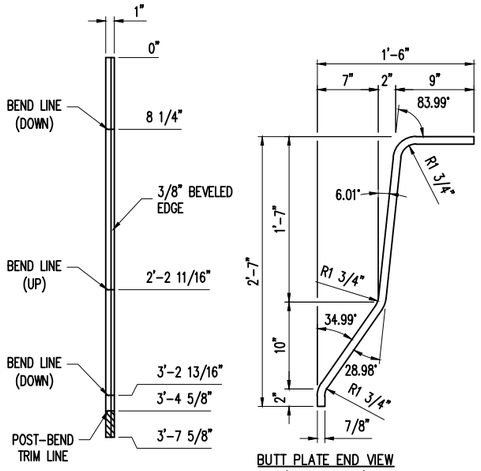
ITEM NO. 129cp2
(2) REQ'D.

ANCHOR PLATE



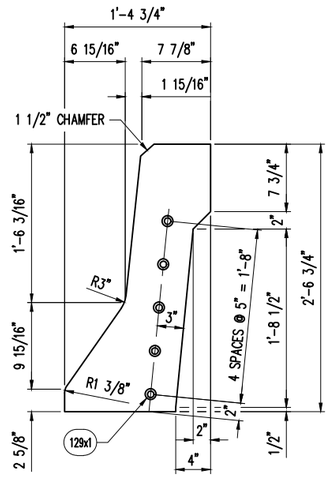
ITEM NO. 129cp3
(2) REQ'D.

SLIDE PLATE



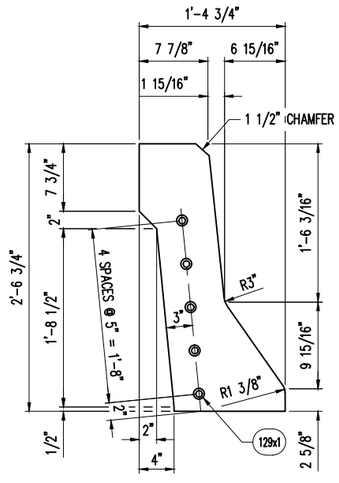
ITEM NO. 129cp5
(2) REQ'D.

FRONT BUTT PLATE



ITEM NO. 129cp6
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 129cp7
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE EXTERIOR PARAPET DETAILS ON SHEET 129
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 129

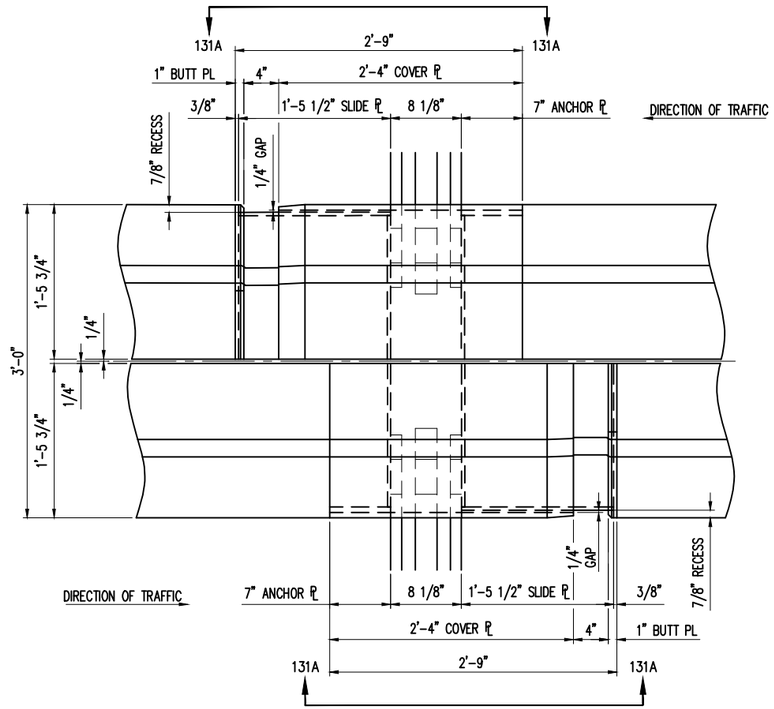
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	31 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	130	

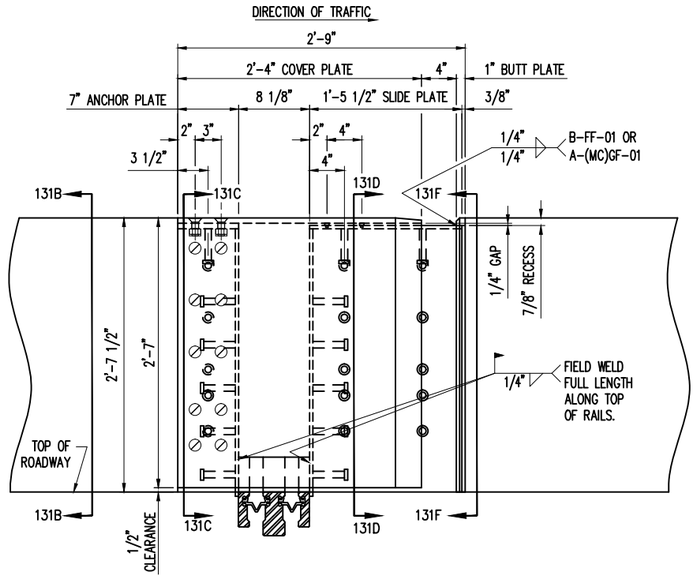


MEDIAN PARAPET COVER PLATE PLAN VIEW

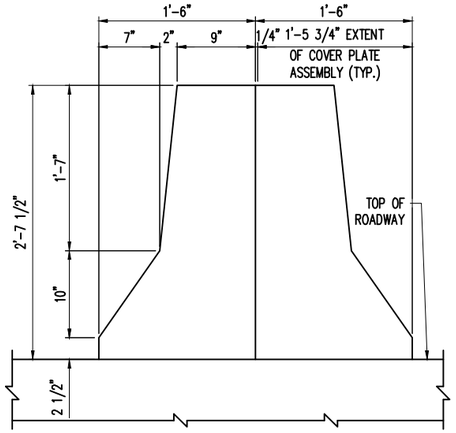
COVER PLATE ASSEMBLY "131CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
– LOOKING AHEAD STATION –
(4) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

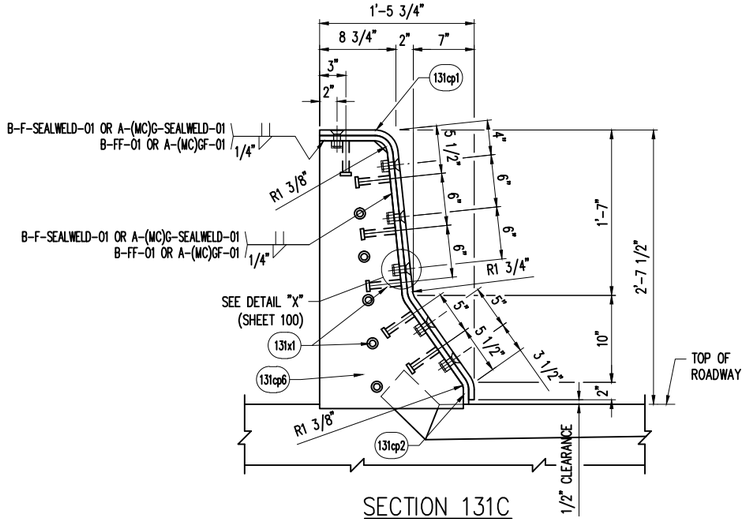


VIEW 131A – MEDIAN PARAPET COVER PLATE ELEVATION



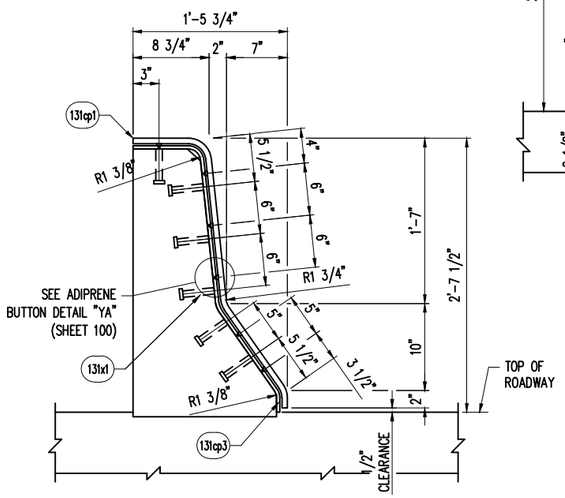
SECTION 131B

THROUGH MEDIAN BARRIER



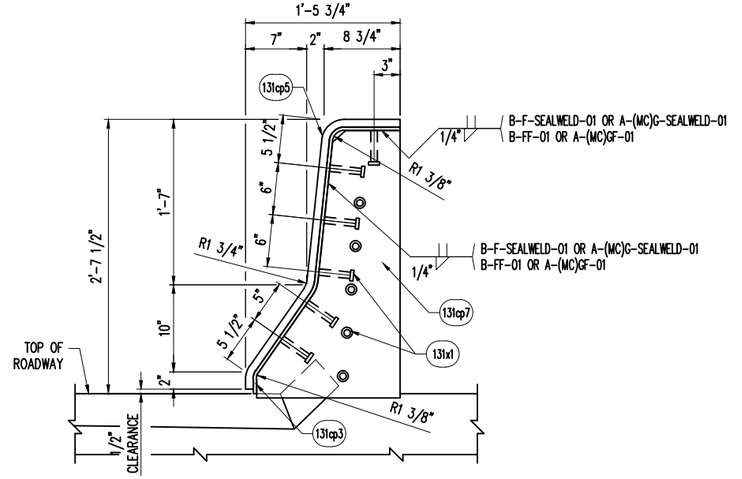
SECTION 131C

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



SECTION 131D

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 131F

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 132
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
131CA	4	MEDIAN PARAPET COVER PLATE ASSEMBLY				491	-
100x1	48	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	48	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	48	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	48	ADIPRENE BUTTONS	-		PLAIN	< 1	-
131cp1	4	5/8 X 28	A36	3'-7 5/8	COVER PLATE; A123-HDG	216	-
131cp2	4	5/8 X 7	A36	3'-7 1/8	ANCHOR PLATE; A123-HDG	53	-
131cp3	4	3/8 X 17 1/2	A36	3'-6 15/16	SLIDE PLATE; A123-HDG	80	-
131cp5	4	7/8 X 1	A36	3'-7 3/8	BUTT PLATE (FRONT); A123-HDG	11	-
131cp6	4	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
131cp7	4	3/8 X 16 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	54	-
131x1	112	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

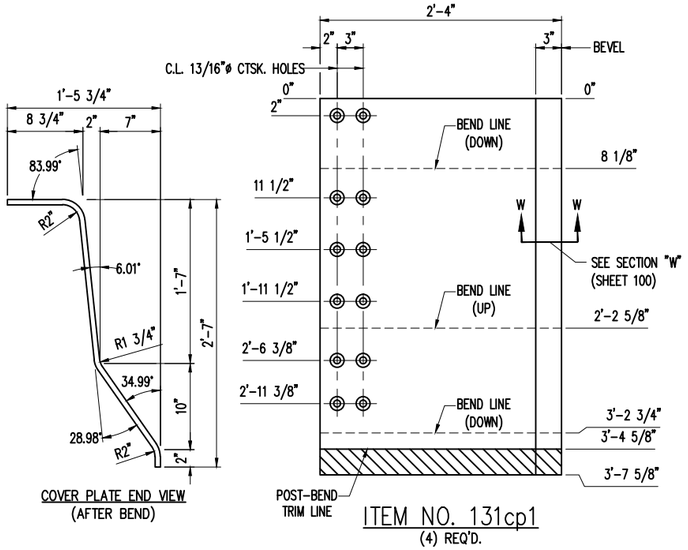
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

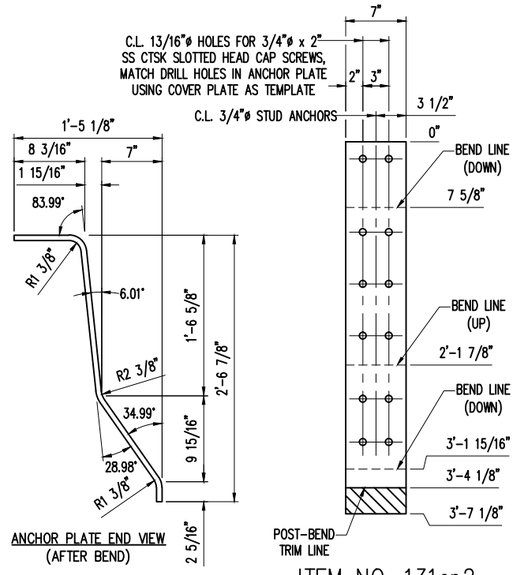
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	32 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	131	



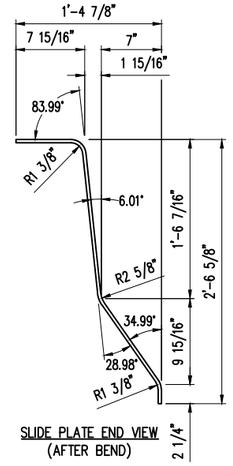
ITEM NO. 131cp1
(4) REQ'D.

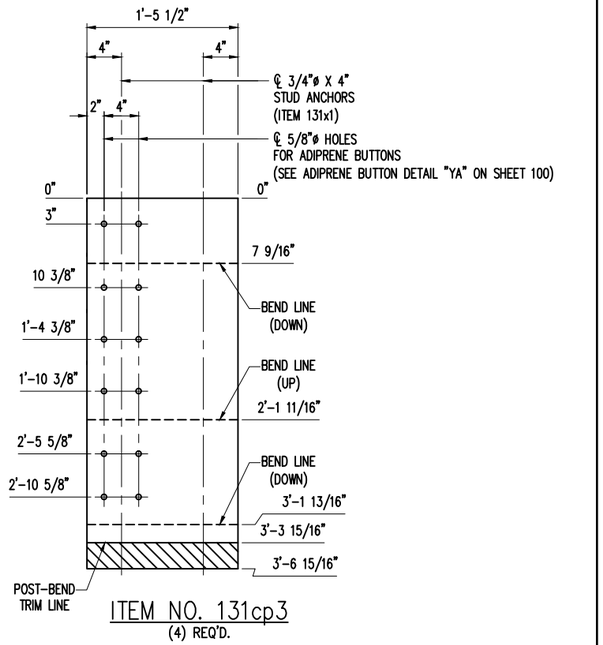
COVER PLATE



ITEM NO. 131cp2
(4) REQ'D.

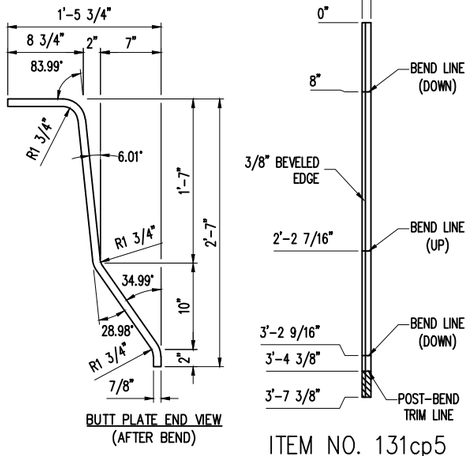
ANCHOR PLATE





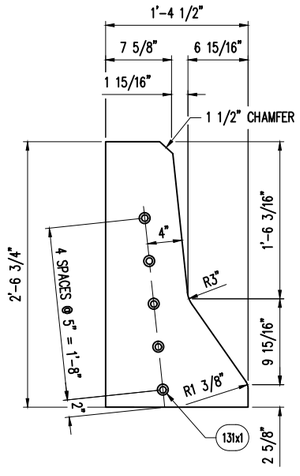
ITEM NO. 131cp3
(4) REQ'D.

SLIDE PLATE



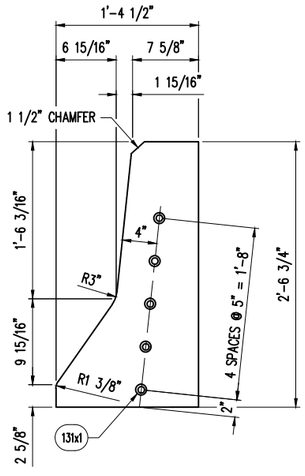
ITEM NO. 131cp5
(4) REQ'D.

FRONT BUTT PLATE



ITEM NO. 131cp6
(4) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 131cp7
(4) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE MEDIAN PARAPET DETAILS ON SHEET 131
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 131

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

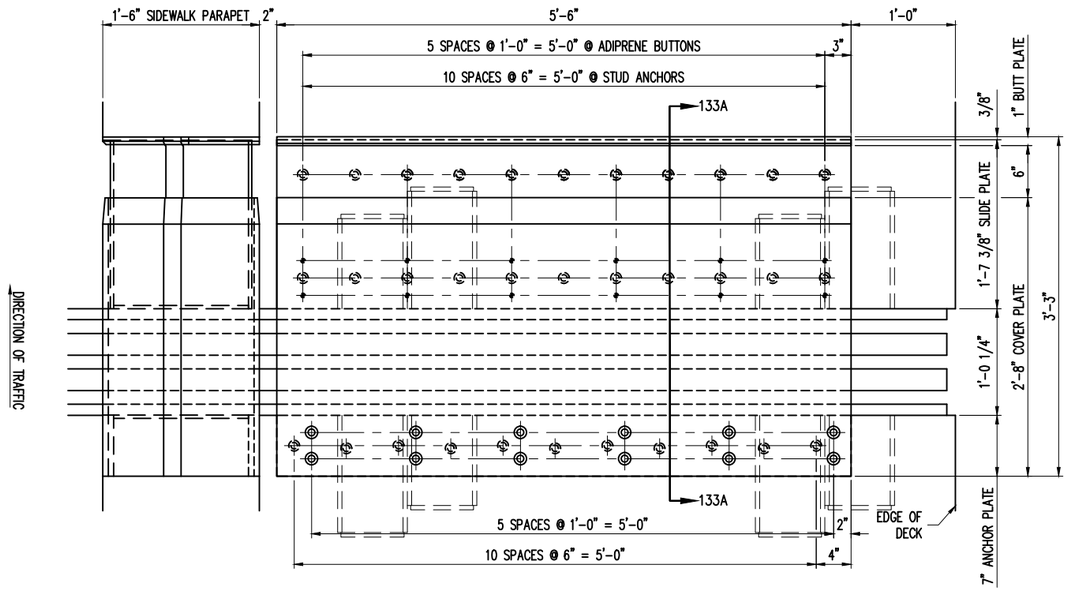
DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	33 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	132	

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
133CA	2	SIDEWALK COVER PLATE				628	-
100x1	24	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	24	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	24	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	24	ADIPRENE BUTTONS	-		PLAIN	< 1	-
133cp1	2	5/8 X 32	A36	5'-6	COVER PLATE; A123-HDG	374	-
133cp2	2	5/8 X 7	A36	5'-6	ANCHOR PLATE; A123-HDG	82	-
133cp3	2	3/8 X 19 3/8	A36	5'-6	SLIDE PLATE; A123-HDG	136	-
133cp4	2	7/8 X 1	A36	5'-6	BUTT PLATE; A123-HDG	16	-
133x1	36	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
133x2	30	Ø1/2 X 2 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

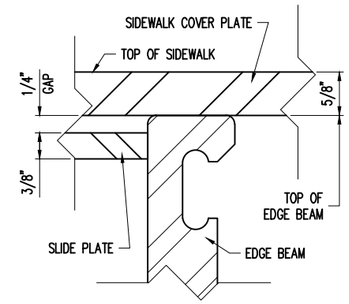
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

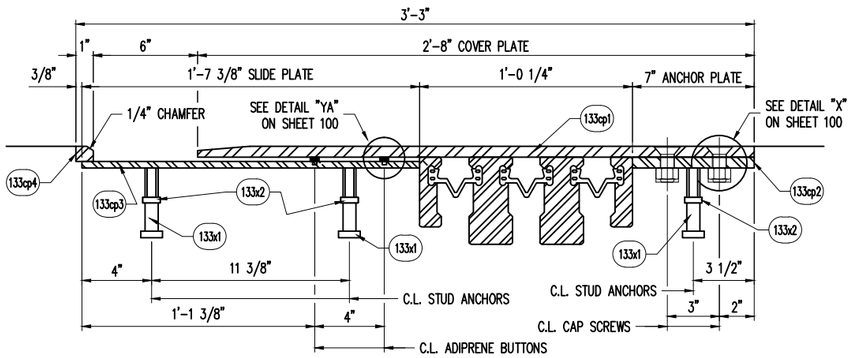


SIDEWALK COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "133CA"
LOCATED AT JOINTS 8 & 10 (STRUCTURE B-16-38/69100)
- LOOKING AHEAD STATION -
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

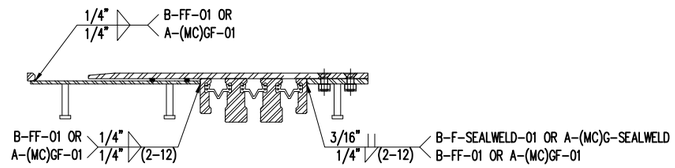


DETAIL @ SLIDE PLATE ONLY



SECTION 133A

(DIMENSIONS SHOWN ARE AT MID. JOINT OPENING)



COVER PLATE WELDS

SHOP NOTES:

- SEE PLATE DETAILS ON SHEET 134
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

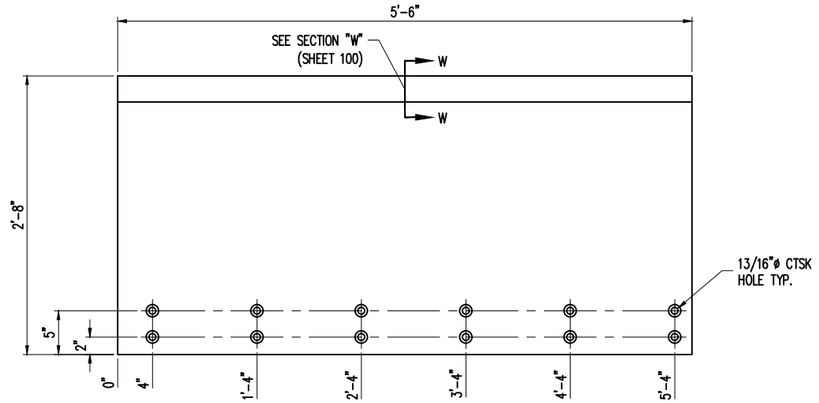
	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	34 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	133	

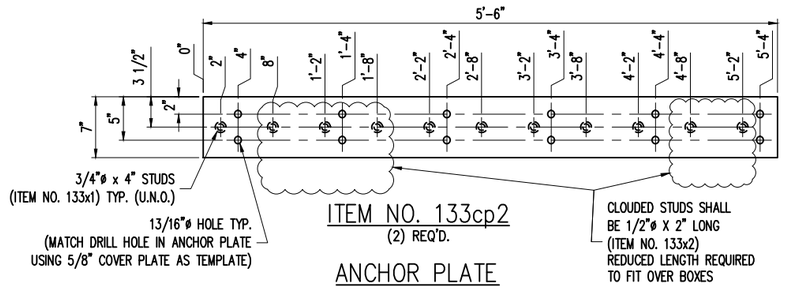
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



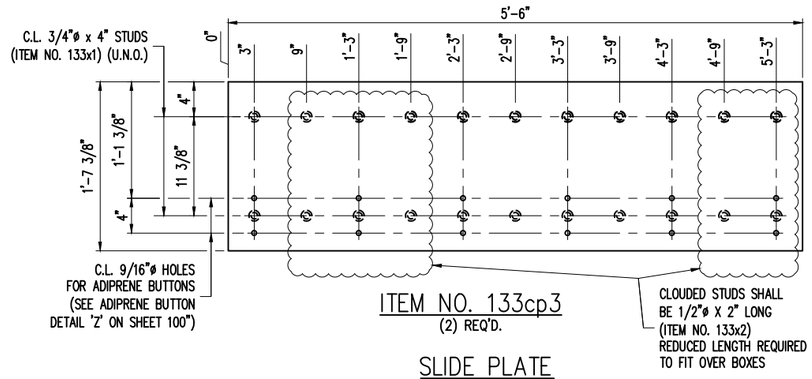
ITEM NO. 133cp1
(2) REQ'D.

COVER PLATE



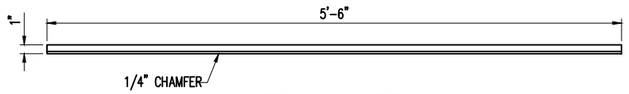
ITEM NO. 133cp2
(2) REQ'D.

ANCHOR PLATE



ITEM NO. 133cp3
(2) REQ'D.

SLIDE PLATE



ITEM NO. 133cp4
(2) REQ'D.

BUTT PLATE

SHOP NOTES:

- SEE SIDEWALK DETAILS ON SHEET 133
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

PAGE 409 H

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

LOCATION — OVER ST. LOUIS RIVER
BRIDGE — B-16-38/69100
PROJECT — 8680-04-71
FEDERAL PROJECT — WISC 2014007
P.O. NO. — -
DESIGNER — AYRES ASSOCIATES
CUSTOMER — LUNDA CONSTRUCTION

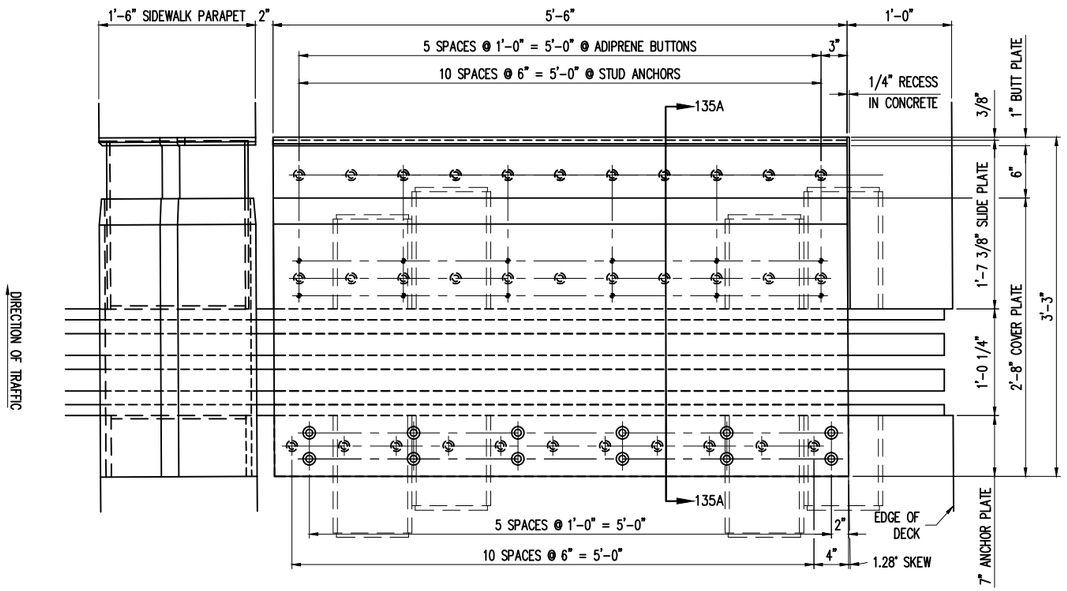
ITEM	QUANTITY
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-
-	-

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	35 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	134

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
135CA	9	SIDEWALK COVER PLATE				634	-
100x1	108	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	108	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	108	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	108	ADIPRENE BUTTONS	-		PLAIN	< 1	-
135cp1	9	5/8 X 32	A36	5'-6 11/16	COVER PLATE; SHAPE CUT; A123-HDG	378	-
135cp2	9	5/8 X 7	A36	5'-6 3/16	ANCHOR PLATE; SHAPE CUT; A123-HDG	82	-
135cp3	9	3/8 X 19 3/8	A36	5'-6 7/16	SLIDE PLATE; SHAPE CUT; A123-HDG	137	-
135cp4	9	7/8 X 1	A36	5'-6	BUTT PLATE; A123-HDG	16	-
135x1	189	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
135x2	108	Ø1/2 X 2 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

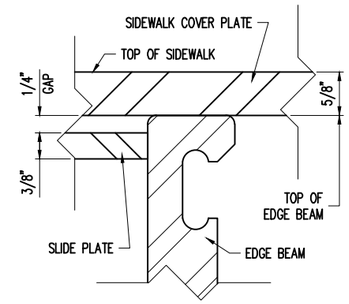


SIDEWALK COVER PLATE PLAN VIEW

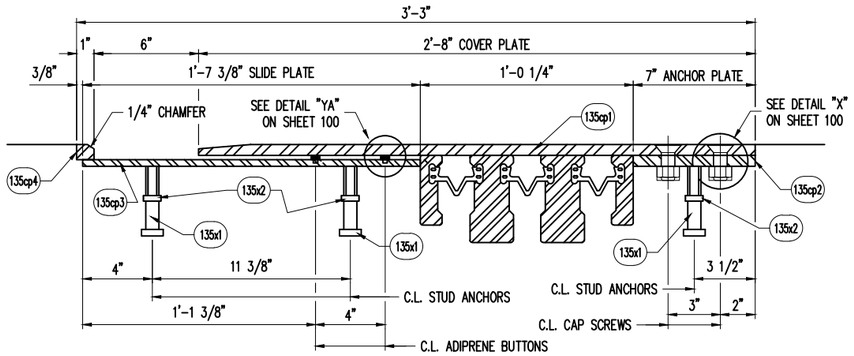
COVER PLATE ASSEMBLY "135CA"
LOCATED AT JOINTS 9, 11-15, 19, 20 & 22 (STRUCTURE B-16-38/69100)
- LOOKING AHEAD STATION -
(9) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

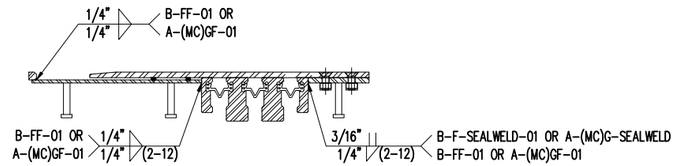


DETAIL @ SLIDE PLATE ONLY



SECTION 135A

(DIMENSIONS SHOWN ARE AT MID. JOINT OPENING)



COVER PLATE WELDS

SHOP NOTES:

- SEE PLATE DETAILS ON SHEET 136
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

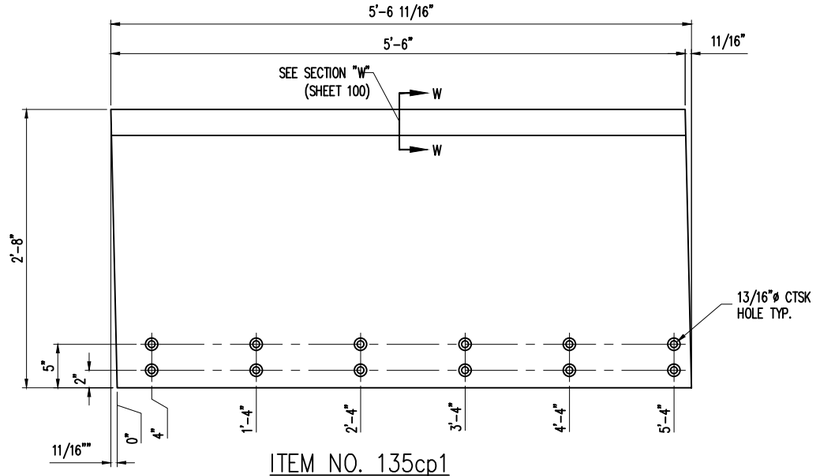
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

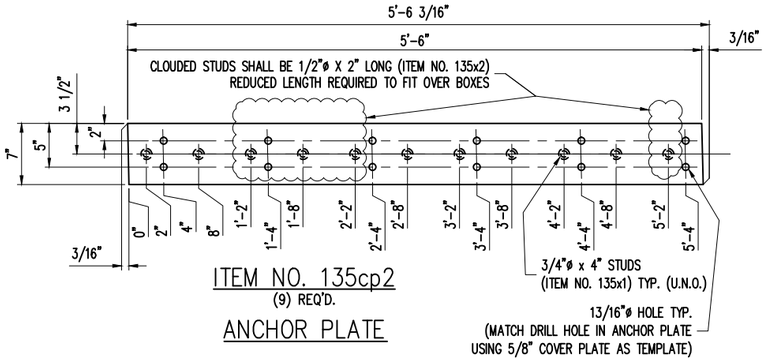
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	36 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	135	



ITEM NO. 135cp1
(9) REQ'D.

COVER PLATE

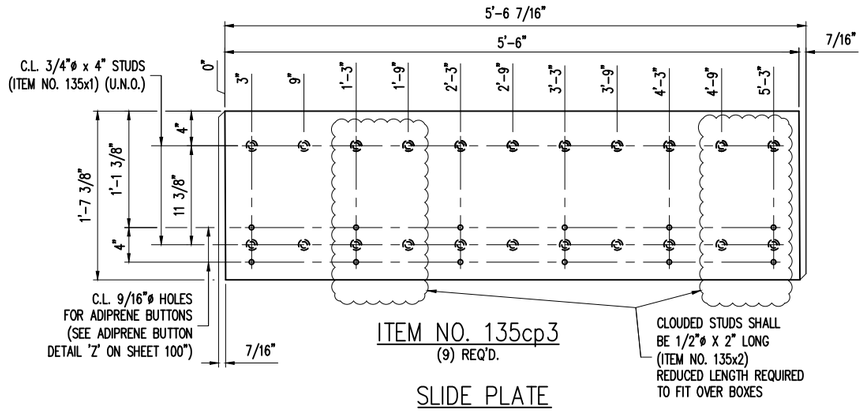


ITEM NO. 135cp2
(9) REQ'D.

ANCHOR PLATE

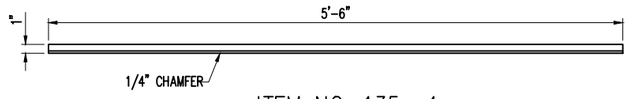
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING



ITEM NO. 135cp3
(9) REQ'D.

SLIDE PLATE



ITEM NO. 135cp4
(9) REQ'D.

BUTT PLATE

SHOP NOTES:

- SEE SIDEWALK DETAILS ON SHEET 135
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

LOCATION — OVER ST. LOUIS RIVER
BRIDGE — B-16-38/69100
PROJECT — 8680-04-71
FEDERAL PROJECT — WISC 2014007
P.O. NO. — –
DESIGNER — AYRES ASSOCIATES
CUSTOMER — LUNDA CONSTRUCTION

ITEM	QUANTITY
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	37 OF 47

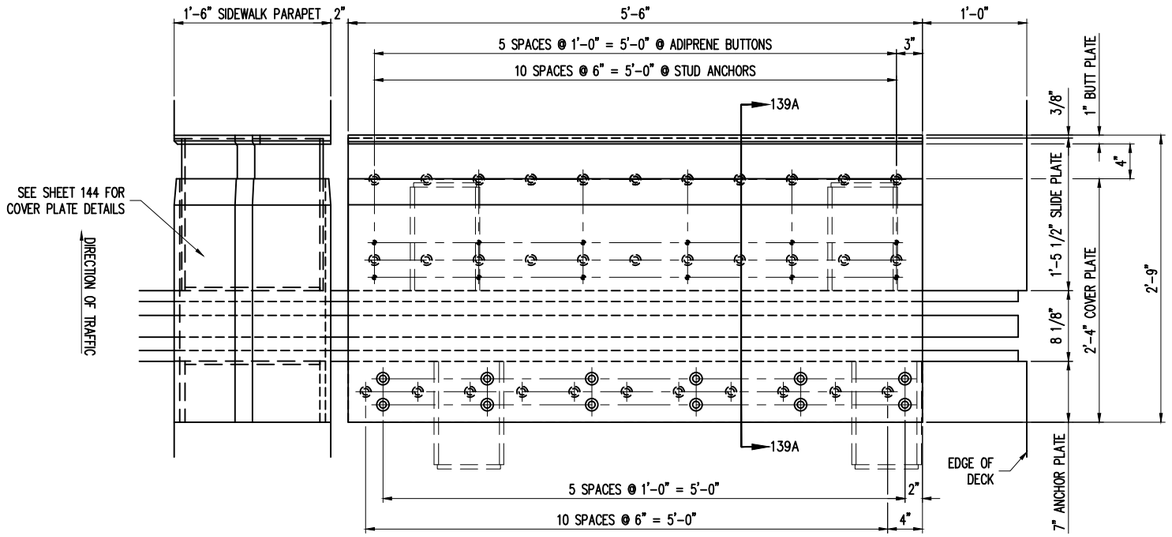
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	136

PAGE 409 J

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
139CA	2	SIDEWALK COVER PLATE				561	-
100x1	24	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	-
100x2	24	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	-
100x3	24	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	-
100x4	24	ADIPRENE BUTTONS	-		PLAIN	< 1	-
139cp1	2	5/8 X 28	A36	5'-6	COVER PLATE; A123-HDG	328	-
139cp2	2	5/8 X 7	A36	5'-6	ANCHOR PLATE; A123-HDG	82	-
139cp3	2	3/8 X 16 3/4	A36	5'-6	SLIDE PLATE; A123-HDG	118	-
139cp4	2	7/8 X 7/8	A36	5'-6	BUTT PLATE; A123-HDG	14	-
139x1	42	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	-
139x2	24	Ø1/2 X 2 WELD STUD	A108		A123-HDG	< 1	-
		*Approx. Gross Wt. Lbs Per Single Unit			5/29/2014 8:08:35 AM		

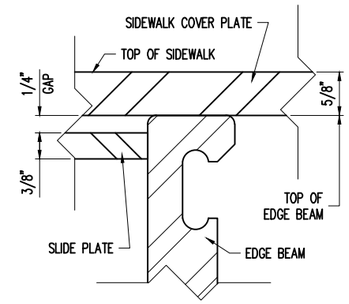
REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS

CONSTRUCTION
SHOP DRAWING

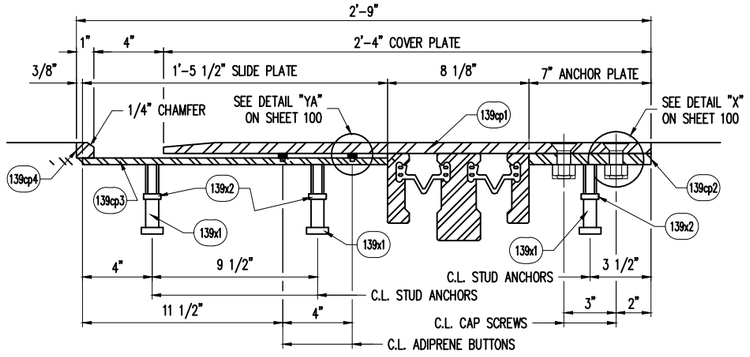


SIDEWALK COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "139CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
- LOOKING AHEAD STATION -
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING

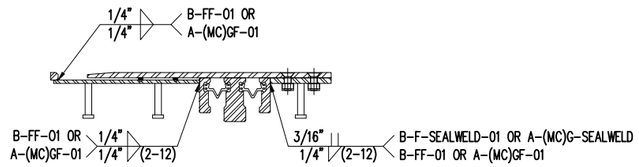


DETAIL @ SLIDE PLATE ONLY



SECTION 139A

(DIMENSIONS SHOWN ARE AT MID. JOINT OPENING)



COVER PLATE WELDS

SHOP NOTES:

- SEE PLATE DETAILS ON SHEET 140
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

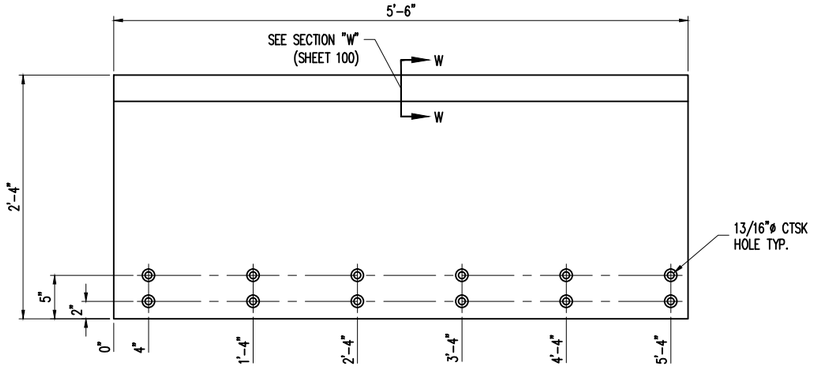
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

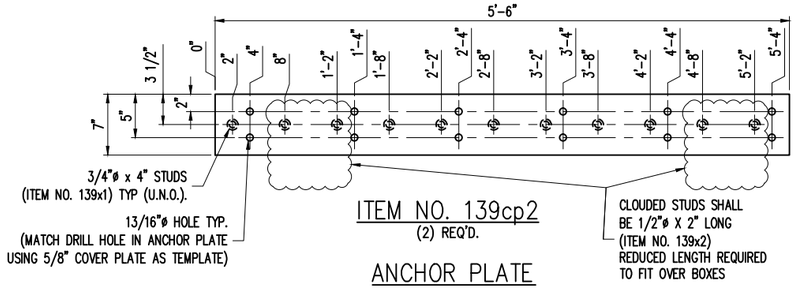
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	40 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	139



ITEM NO. 139cp1
(2) REQ'D.

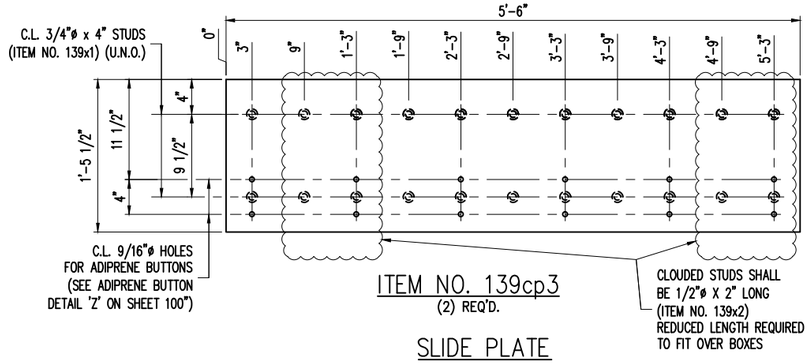
COVER PLATE



ITEM NO. 139cp2
(2) REQ'D.

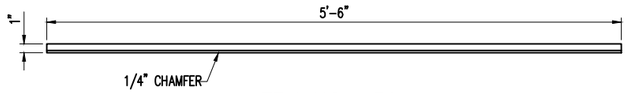
ANCHOR PLATE

REVISED
Joint cover plates 8 - 15, 19 - 23
DETAILS



ITEM NO. 139cp3
(2) REQ'D.

SLIDE PLATE



ITEM NO. 139cp4
(2) REQ'D.

BUTT PLATE

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE SIDEWALK DETAILS ON SHEET 139
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

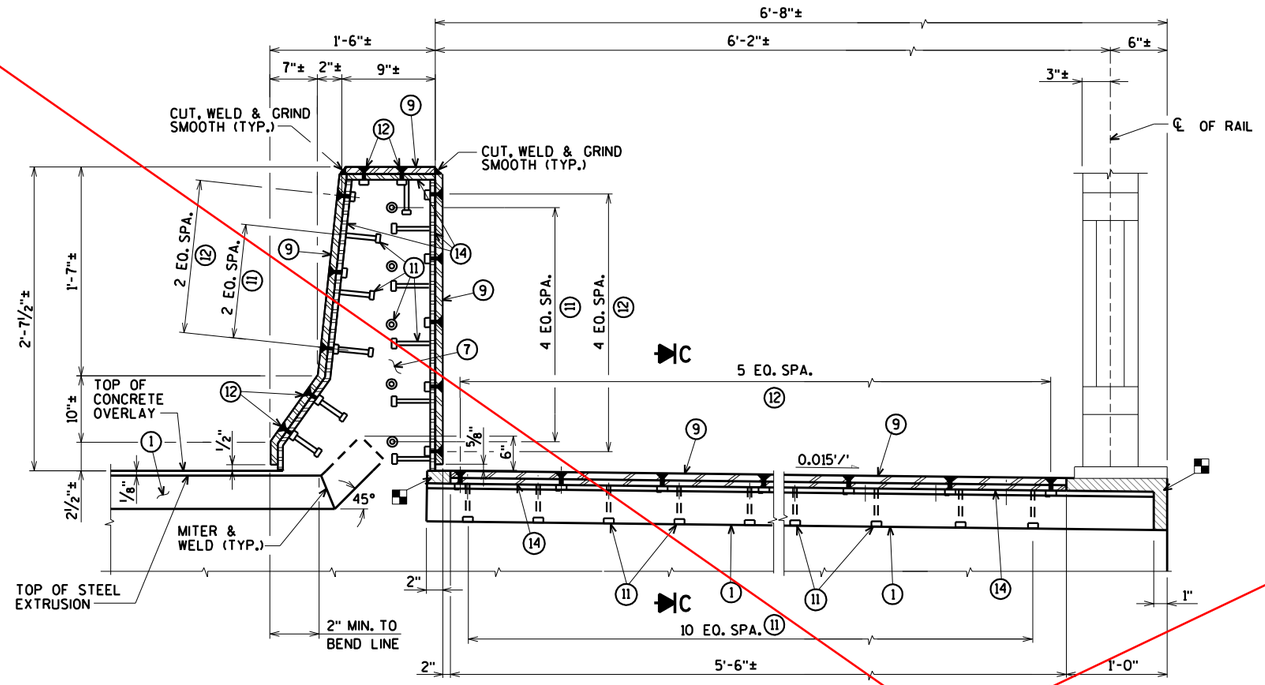
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

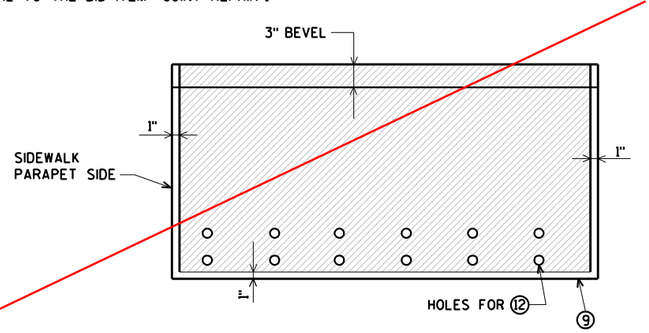
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	41 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	140



ELEVATION OF SIDEWALK W/PARAPET SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

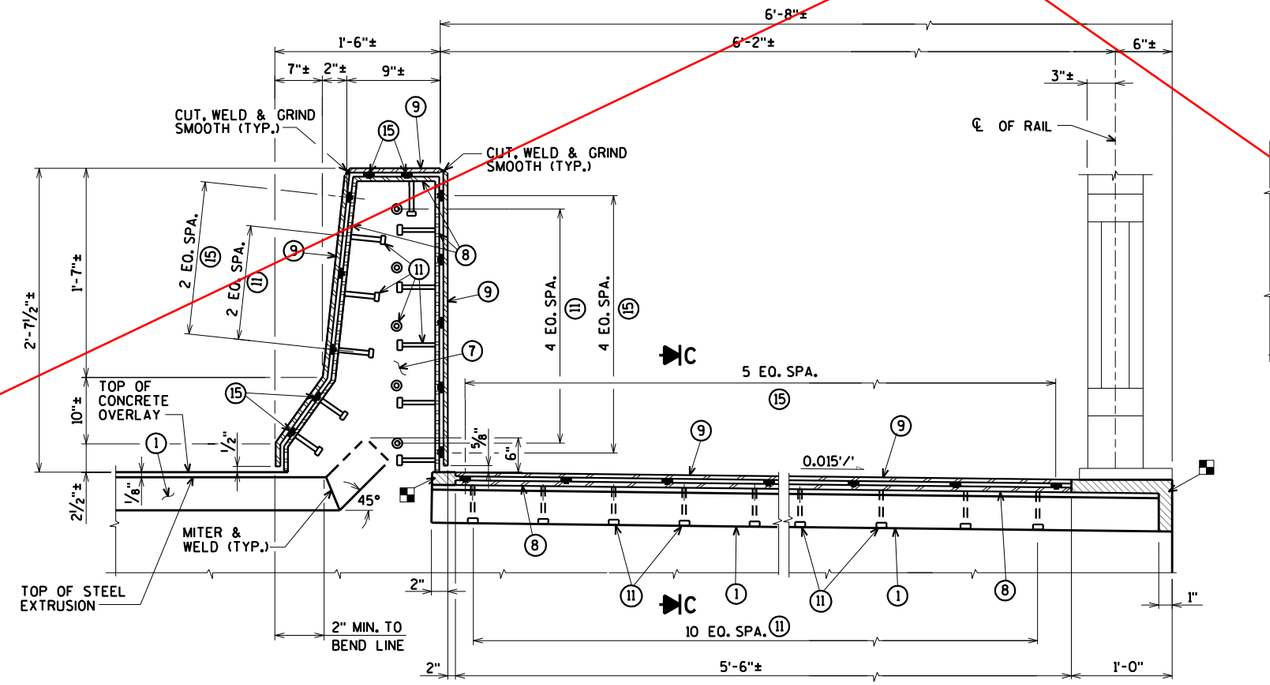


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

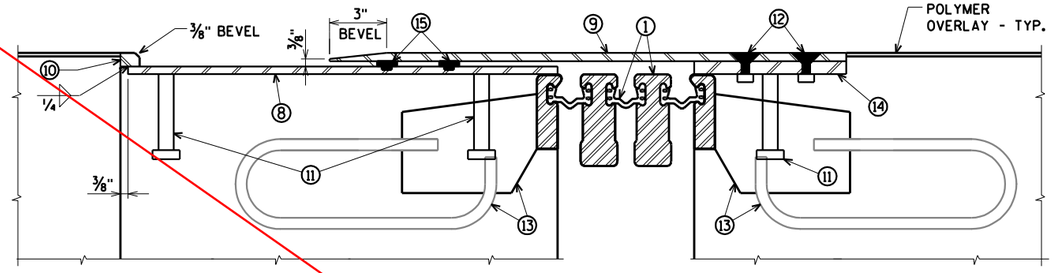
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 61

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details
PAGE 407 &
PAGE 408.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 61-63, 65

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS 11-15, 19, 20 & 22
SIDEWALK & PARAPET

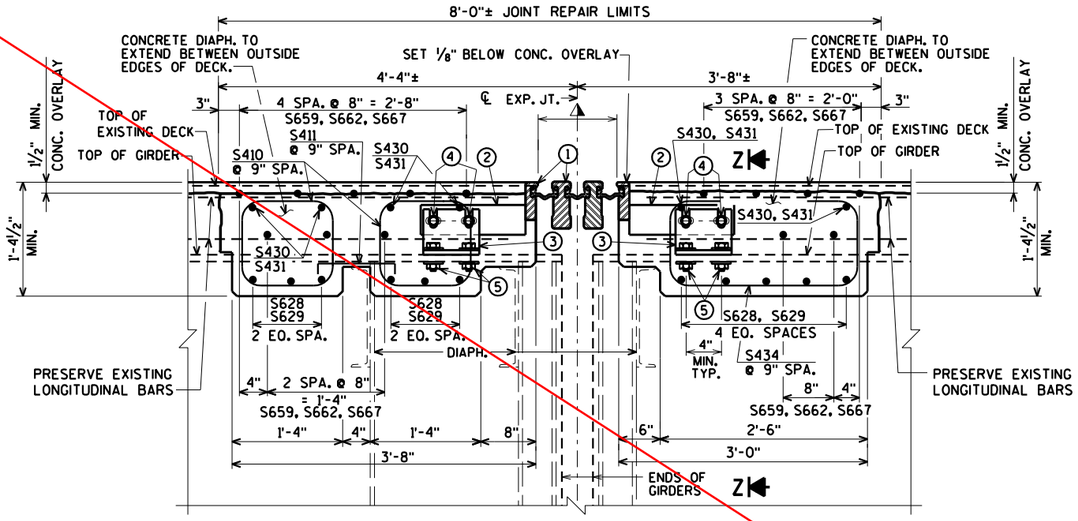
SHEET 64 OF 99
410

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
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Eau Claire, WI 54701
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8

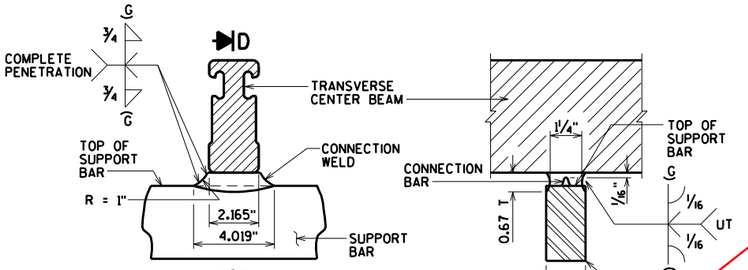
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$PRFNAME$
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9/12/2013
PENTABLE:SBReco_Shd_CTB.ctb



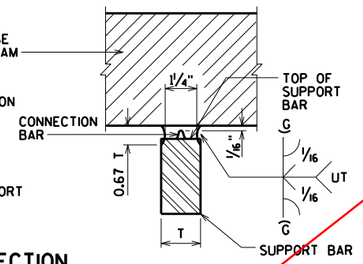
SECTION THRU JOINTS 11 - 15, 19, 20, & 22

NORMAL TO ℄ OF JOINT

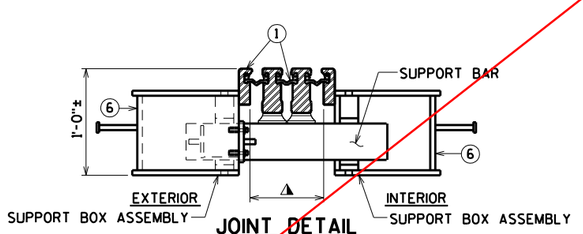


D

MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

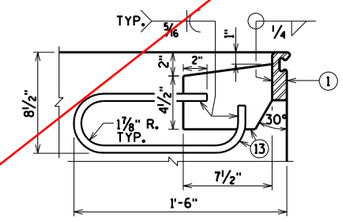


SECTION D



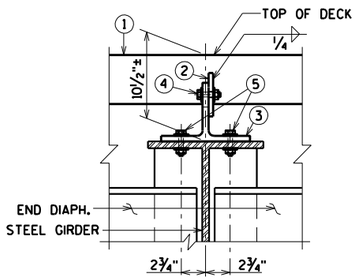
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY

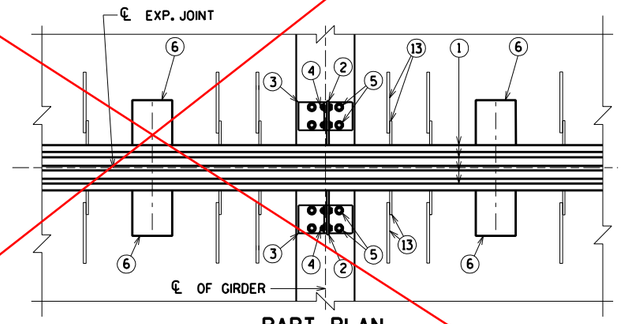


ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z



PART PLAN

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 3 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION), ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SO. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ½ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

See revised joint details
PAGE 407 &
PAGE 408.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 61-64

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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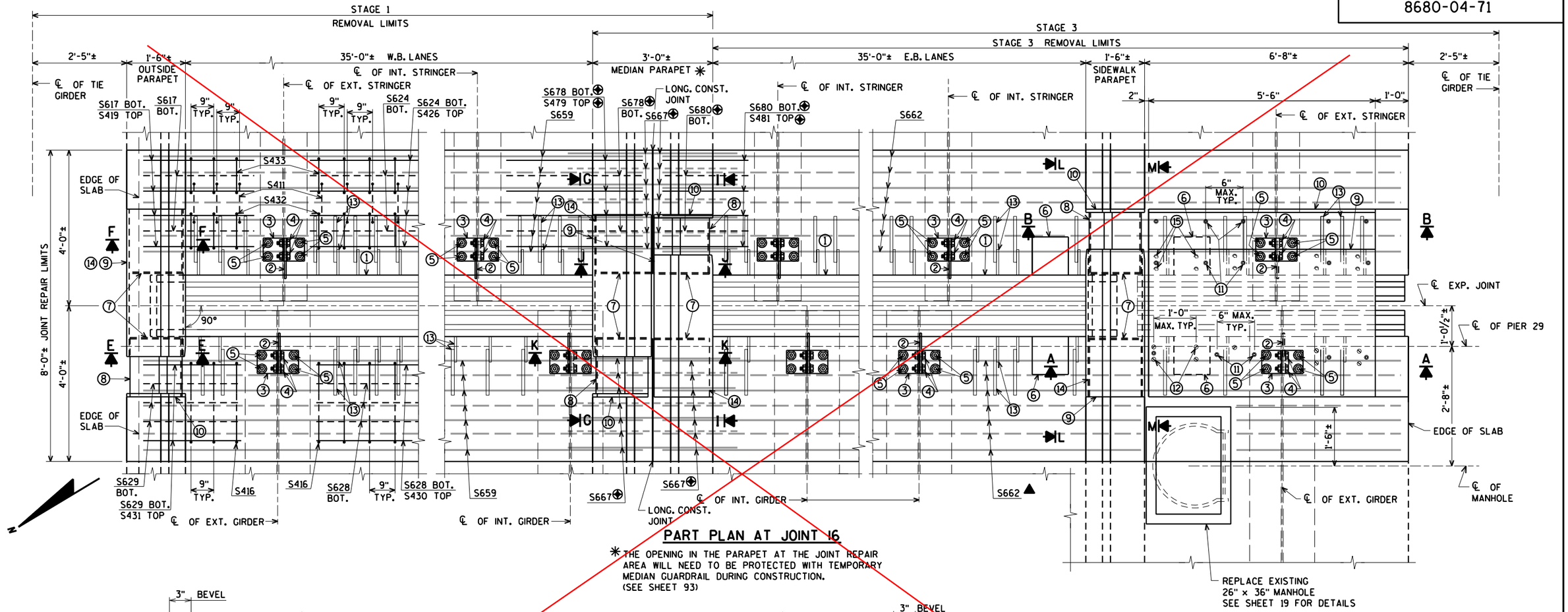
MODULAR EXP. JOINTS 11-15, 19, 20 & 22 DETAILS

SHEET 65 OF 99
411

ORIGINAL PLANS PREPARED BY
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Eau Claire, WI 54701
www.AyresAssociates.com

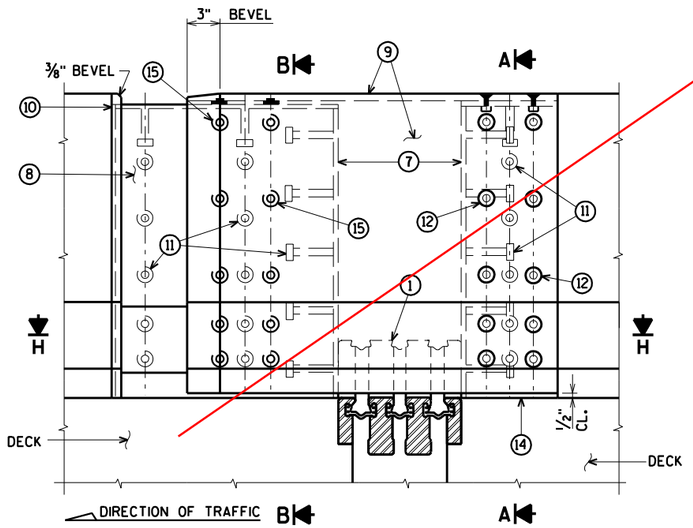
STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 16

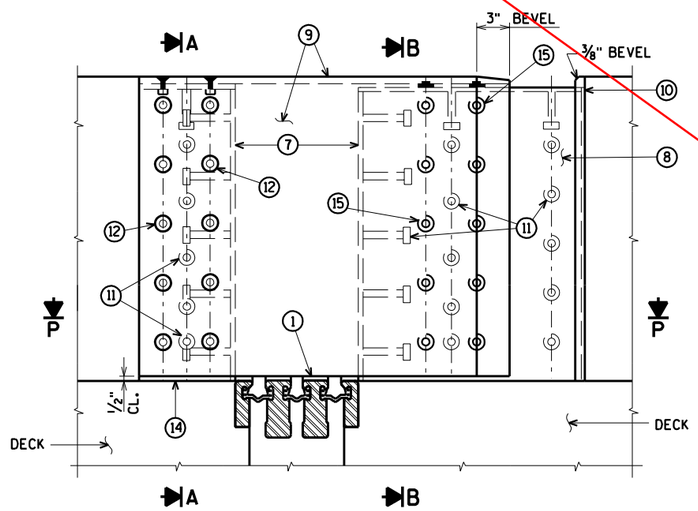
* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)



ELEVATION OF SIDEWALK PARAPET SECTION L

FOR SECTION 'H' SEE SHEET 67

FOR SECTION 'P' SEE SHEET 68



ELEVATION OF SIDEWALK PARAPET SECTION M

▲ CUT S662 BARS IN THE FIELD TO MISS THE NEW MANHOLE. COST OF CUTTING THE BARS AND COATING THE ENDS OF THE CUTS IS INCIDENTAL TO THE BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".

FOR SECTIONS 'A' AND 'B' SEE SHEET 69

FOR SECTIONS 'E' AND 'F' SEE SHEET 67

FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 68

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

See revised details

WORK THIS SHEET WITH SHEETS 67-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINT 16 DETAILS

SHEET 66 OF 99
412

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8

8

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9/13/2013

black.tbl

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

SUPPORT BOXES SHALL BE ASTM–A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM–A240, TYPE 304, WITH A 20 MICRO–INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM–A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A–SM–STUD–REP–01, B–FF–STUD–REP–01, OR A–(MC)GF–STUD–REP–01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT–DIPPED GALVANIZED IN ACCORDANCE WITH ASTM–A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM–A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP–6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT. QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT–BRIDGE UNIT–INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

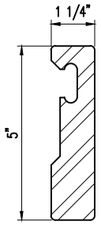
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B–F–REP–100 OR A–(MC)G–REP–100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

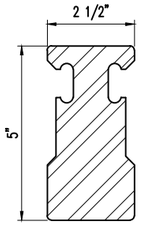
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 13p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



5" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.
(LOCATED ON "D–320" MODULAR EXPANSION JOINTS.)



CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM–A572) OR GRADE 50W (ASTM–A588) STEEL.

INSTALLATION PROCEDURES

1) FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.

2) PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)

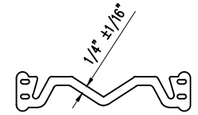
3) BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.

4) REMOVE BLOCKING & BANDING AND ADJUST JOINT TO PROPER JOINT OPENING AS DIRECTED.

5) FIELD LOCATE AND DRILL HOLES IN EXISTING GIRDER FLANGES FOR JOINT SUPPORT HARDWARE. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT ASSEMBLY CONNECTIONS. TACK WELD WT'S TO SUPPORT PLATES (IF REQUIRED).

6) CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.

7) POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. THEN REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2–400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 11
- SEE RAIL AND SEAL DETAILS ON SHEET 11
- SEE INSTALLATION PROCEDURES ON SHEET 11
- SEE SPLICE DETAILS ON SHEET 12
- SEE UPTURN DETAILS ON SHEET 12
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 13
- SEE SPRING & BEARING DIAGRAM ON SHEET 13
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 13
- SEE 'D–320' PLAN VIEW FOR JOINT #16 ON SHEET 14
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 15
- SEE JOINT SUPPORT DETAILS ON SHEET 15
- SEE 'D–320' SUPPORT BOX SECTIONS AND DETAILS ON SHEETS 16, 17 & 18
- SEE SUPPORT BOX DETAILS ON SHEETS 19, 20 & 21
- SEE SUPPORT BAR DETAILS ON SHEETS 22 & 23
- SEE BILL OF MATERIALS ON SHEETS 24 & 25

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B–16–38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680–04–71 (WI) / 6937–69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

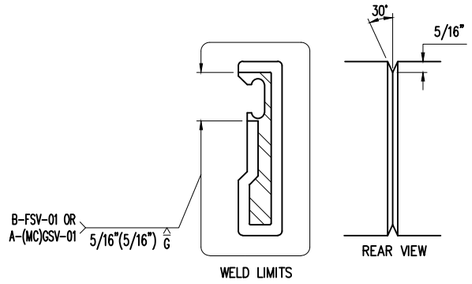
DESCRIPTION:
GENERAL NOTES & STANDARD DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11–25

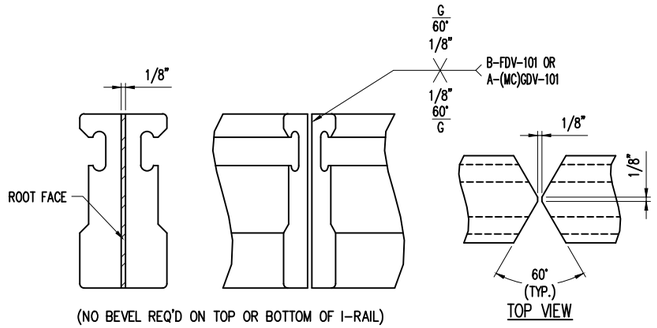
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	11

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

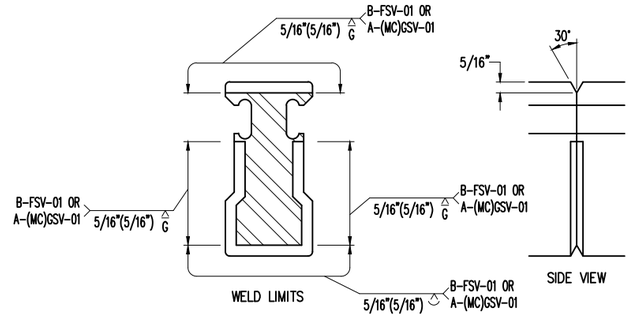


EDGE BEAM SHOP SPLICE DETAIL



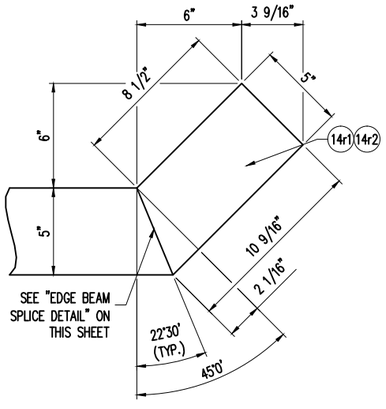
CENTER BEAM SHOP SPLICE DETAIL

COMPLETE PENETRATION WELD

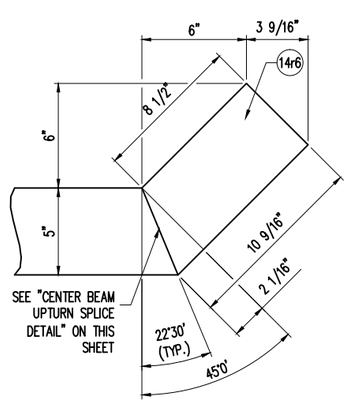


CENTER BEAM UPTURN SHOP SPLICE DETAIL

PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM
UPTURN DETAILS



CENTER BEAM
UPTURN DETAILS

REV.	DESCRIPTION	DATE	DET.	CKD.

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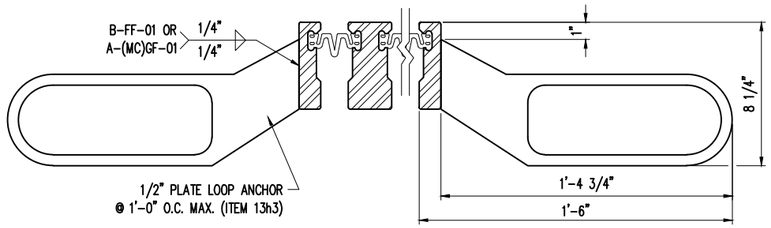
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	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
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DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

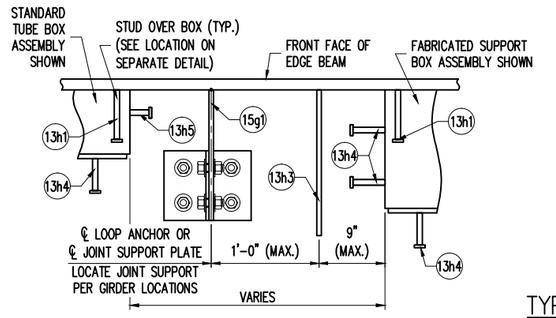
DESCRIPTION:
UPTURN & SPLICE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

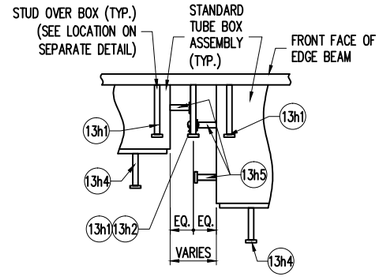
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	12



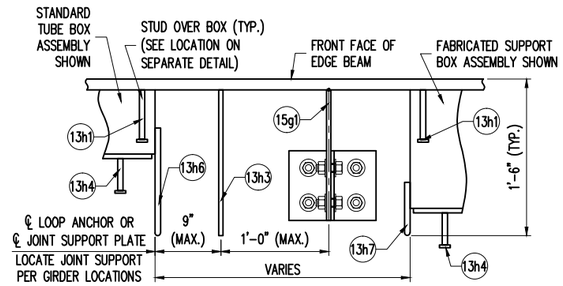
SECTION THRU 'D-320' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)



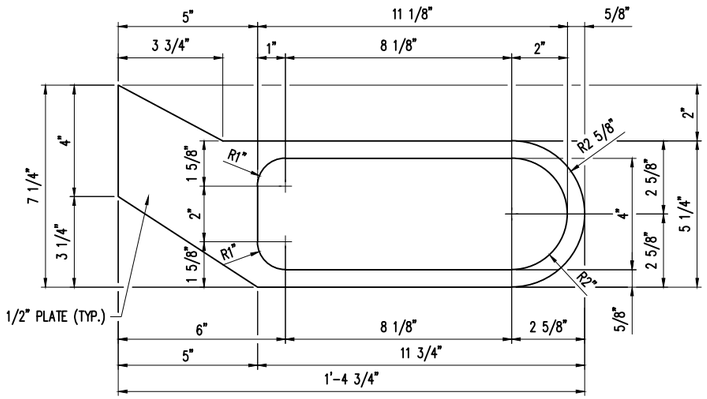
TYP. LOOP ANCHOR LAYOUT SEQUENCE
FOR 'D-320' MODULAR EXPANSION JOINT



TYP. STUD ANCHOR LAYOUT SEQUENCE
FOR 'D-320' MODULAR EXPANSION JOINT
BETWEEN BOXES WITHOUT A LOOP ANCHOR

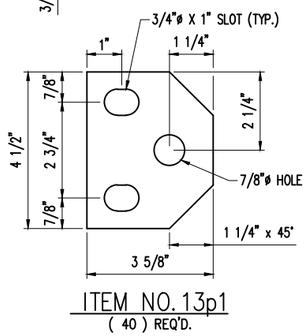


TYP. LOOP ANCHOR LAYOUT SEQUENCE
FOR 'D-320' MODULAR EXPANSION JOINT
@ SIDEWALK ASSEMBLY '14C' ONLY



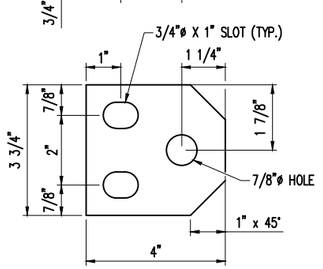
ITEM NO. 13h3
(44) REQ'D.

PLATE ANCHOR DETAIL



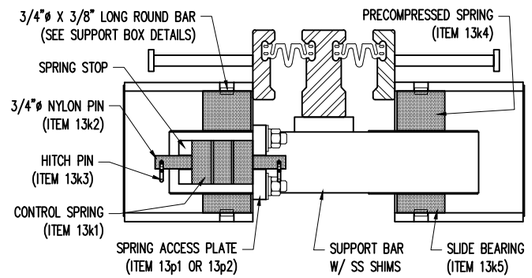
ITEM NO. 13p1
(40) REQ'D.

SPRING ACCESS PLATE DETAIL
FOR STANDARD BOXES

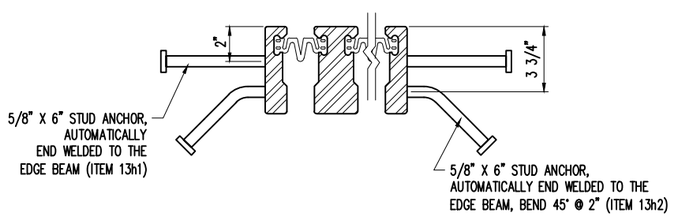


ITEM NO. 13p2
(6) REQ'D.

SPRING ACCESS PLATE DETAIL
FOR SHALLOW BOXES



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN - OTHER JOINT SIZES SIMILAR)



SECTION SHOWING STUDS
BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

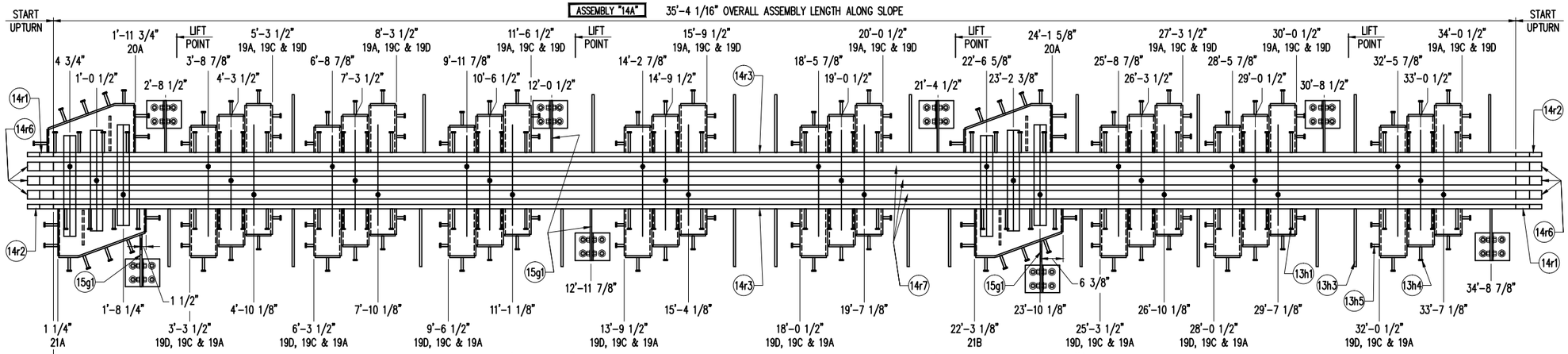
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
STANDARD SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

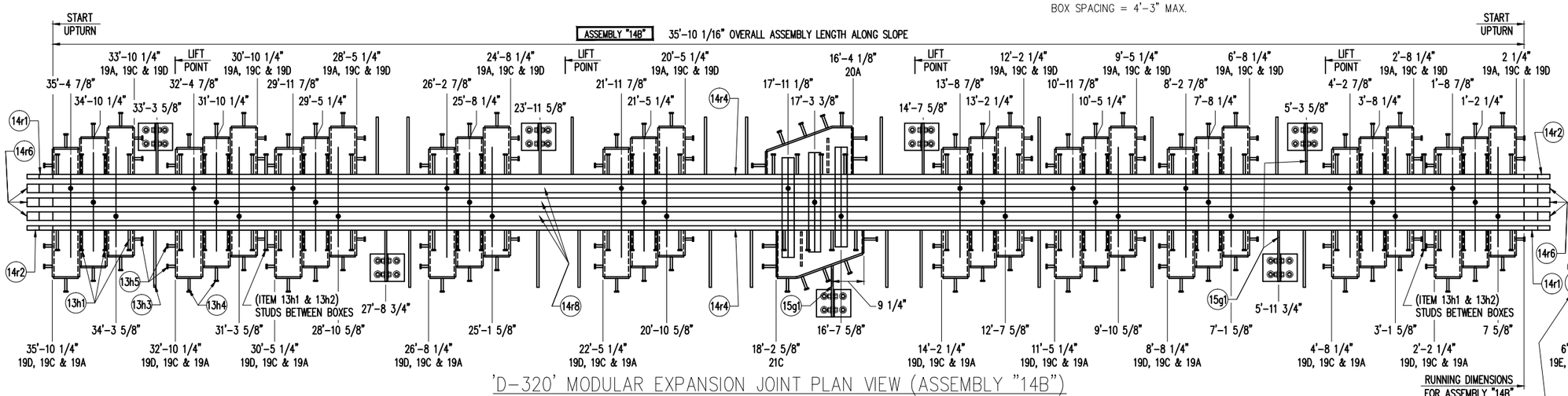
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	13

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 11
- SEE RAIL AND SEAL DETAILS ON SHEET 11
- SEE INSTALLATION PROCEDURES ON SHEET 11
- SEE SPLICE DETAILS ON SHEET 12
- SEE UPTURN DETAILS ON SHEET 12
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 13
- SEE SPRING & BEARING DIAGRAM ON SHEET 13
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 13
- SEE 'D-320' PLAN VIEWS ON SHEET 14
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 15
- SEE JOINT SUPPORT DETAILS ON SHEET 15
- SEE 'D-320' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 16, 17 & 18
- SEE SUPPORT BOX DETAILS ON SHEET 19 20 & 21
- SEE SUPPORT BAR DETAILS ON SHEET 22 & 23
- SEE BILL OF MATERIALS ON SHEET 24 & 25
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS 100-143 FOR COVER PLATE DETAILS)



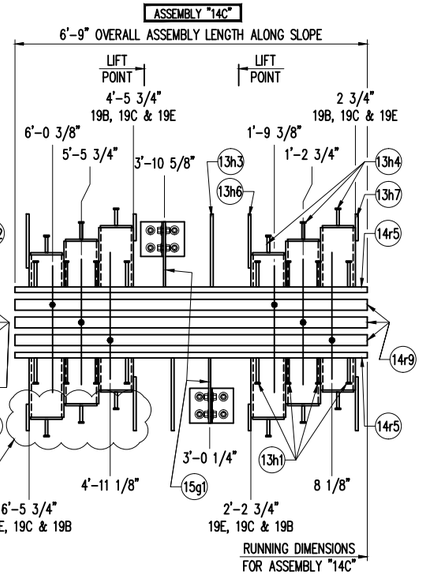
'D-320' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "14A")

JOINT 16 LOCATED @ PIER 29 (WESTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3" MAX.



'D-320' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "14B")

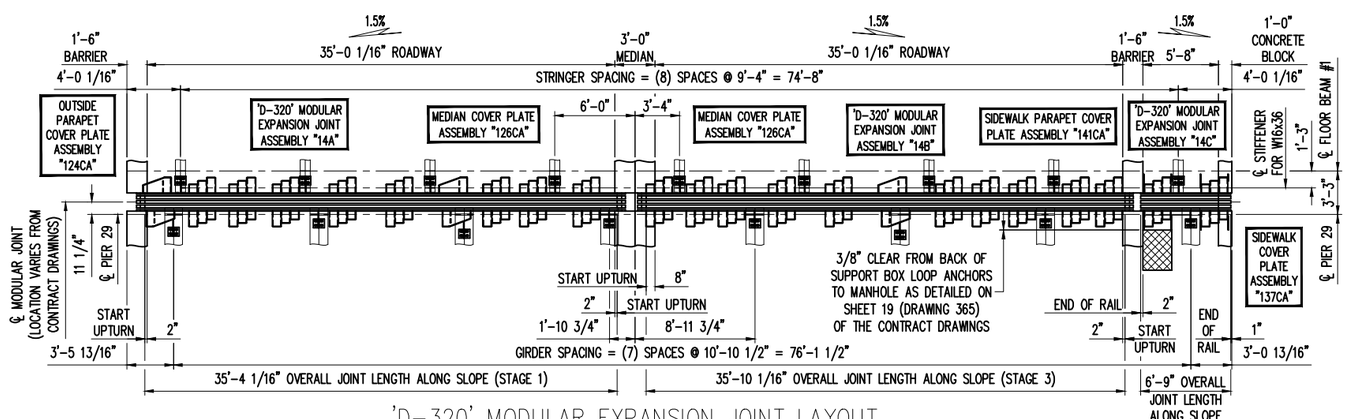
JOINT 16 LOCATED @ PIER 29 (EASTBOUND LANES)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3" MAX.



'D-320' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "14C")

JOINT 16 LOCATED @ PIER 29 (SIDEWALK)
(1) ASSEMBLY REQUIRED TOTAL
BOX SPACING = 4'-3"

NOTE:
CONTRACTOR MAY MODIFY LOOP ANCHOR & STUD IF INTERFERENCE OCCURS WITH MANHOLE LOCATION.



'D-320' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 16 LOCATED @ PIER 29

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 412 D

REV.	DESCRIPTION	DATE	DET.	CKD.

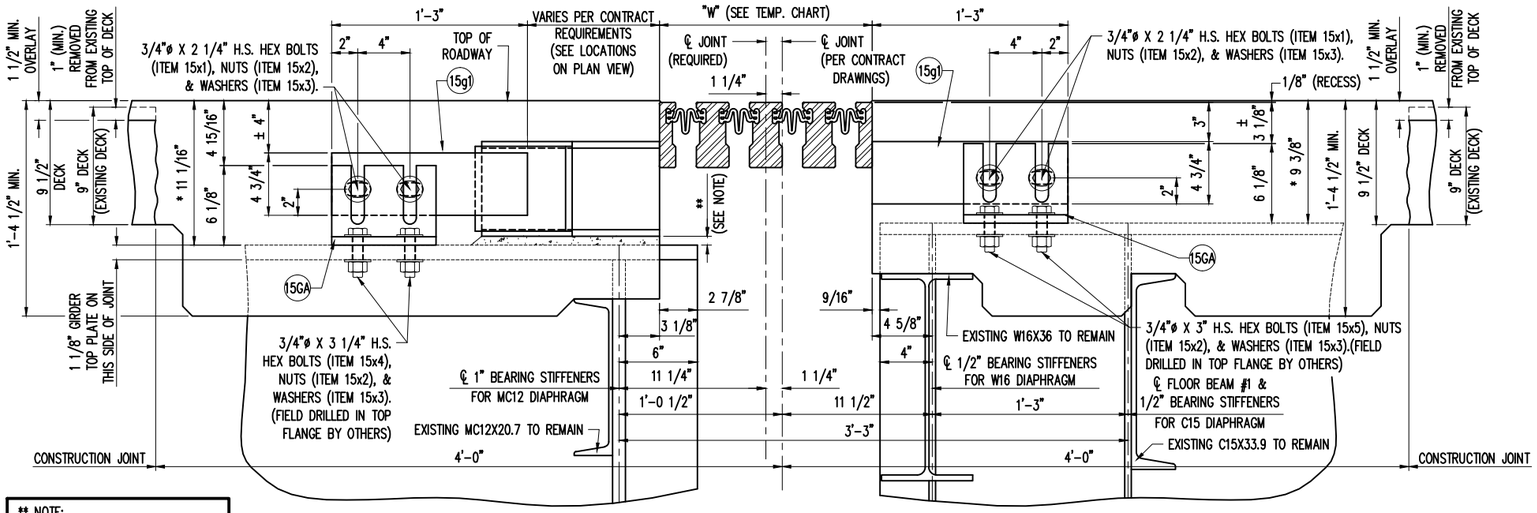
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

DESCRIPTION: 'D-320' LAYOUT & PLAN VIEWS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	14



SECTION OF 'D-320' SUPPORTS @ GIRDERS

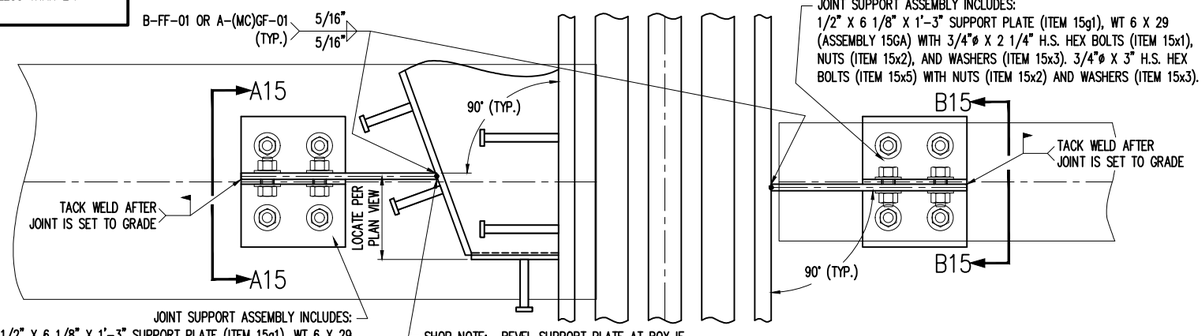
NOTE:
CONTRACTOR SHALL EITHER SHIM FULLY OR PLACE NON-SHRINK GROUT BENEATH SUPPORT BOXES WHERE CLEARANCE IS LESS THAN 2". (BY OTHERS)

"D-320" OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINT 16 (PIER 29)
MAX.	10"
120°F	11 5/8"
110°F	1'-0 1/4"
100°F	1'-0 7/8"
90°F	1'-1 1/2"
80°F	1'-2 1/8"
70°F	1'-2 3/4"
60°F	1'-3 3/8"
50°F	1'-4
45°F	1'-4 5/16"
40°F	1'-4 5/8"
30°F	1'-5 1/4"
20°F	1'-5 7/8"
10°F	1'-6 1/2"
0°F	1'-7 1/8"
-10°F	1'-7 3/4"
-20°F	1'-8 3/8"
-30°F	1'-9"
MIN.	1'-10 5/8"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT:
5/8" PER 10°F

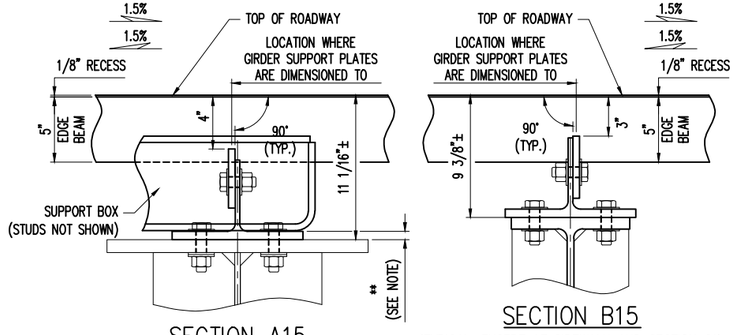
DIMENSIONS SHOWN ARE AT 45°F
SECTION THROUGH SIDEWALK VARIES



SHOP NOTE: BEVEL SUPPORT PLATE AT BOX IF REQUIRED TO ASSURE PROPER FIT-UP.

PLAN VIEW OF SUPPORTS @ GIRDERS

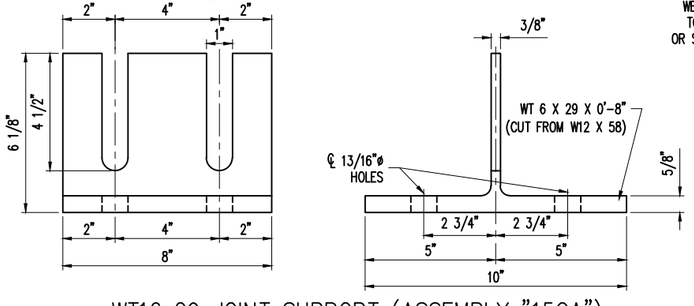
DIMENSIONS SHOWN ARE AT 45°F



SECTION A15
WHEN SUPPORTS ARE CONNECTED TO BOXES ONLY

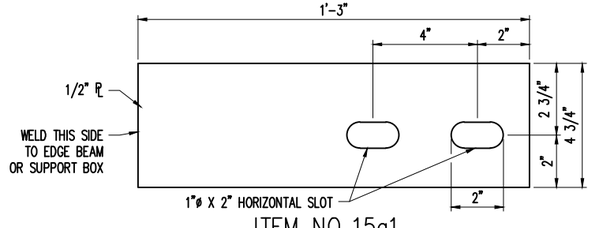
SECTION B15
(TYPICAL, EXCEPT AT SIDEWALK AND SECTION C1)
WHEN SUPPORTS ARE CONNECTED TO EDGE BEAMS

NOTE:
- IN LIEU OF WT16x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 5/8" BASE PLATE (ITEM 15ga1)
  - 3/8" VERTICAL PLATE (ITEM 15ga2)
    - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT16x29 JOINT SUPPORT (ASSEMBLY "15GA")

ITEM 15g2
(17) REQUIRED



ITEM NO. 15g1
(17) REQ'D.

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

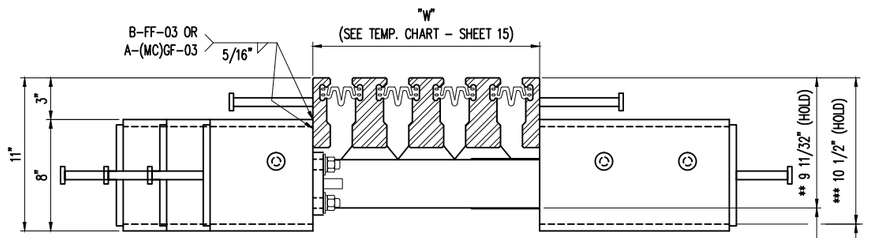
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

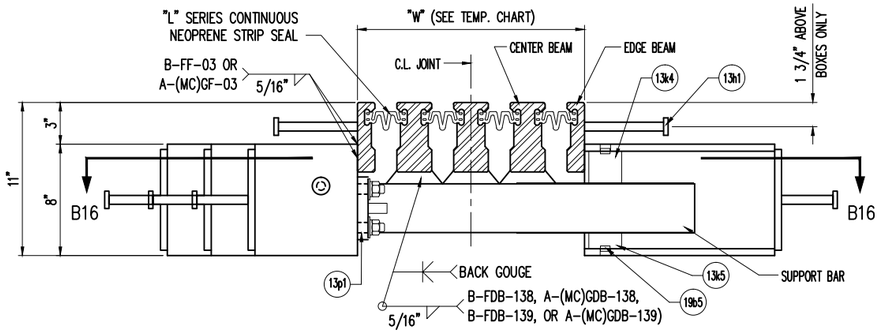
DESCRIPTION:
JOINT SUPPORT DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	15



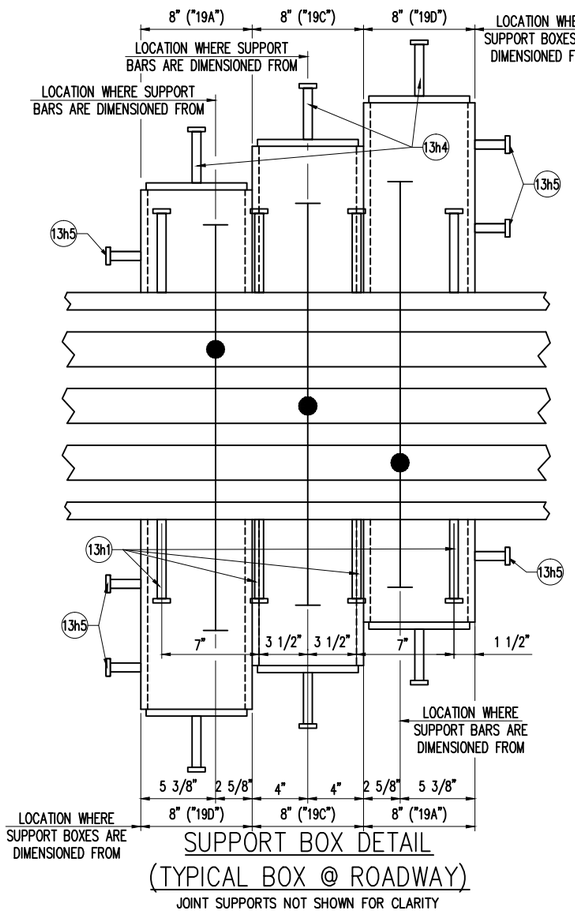
SECTION THROUGH 'D-320'
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



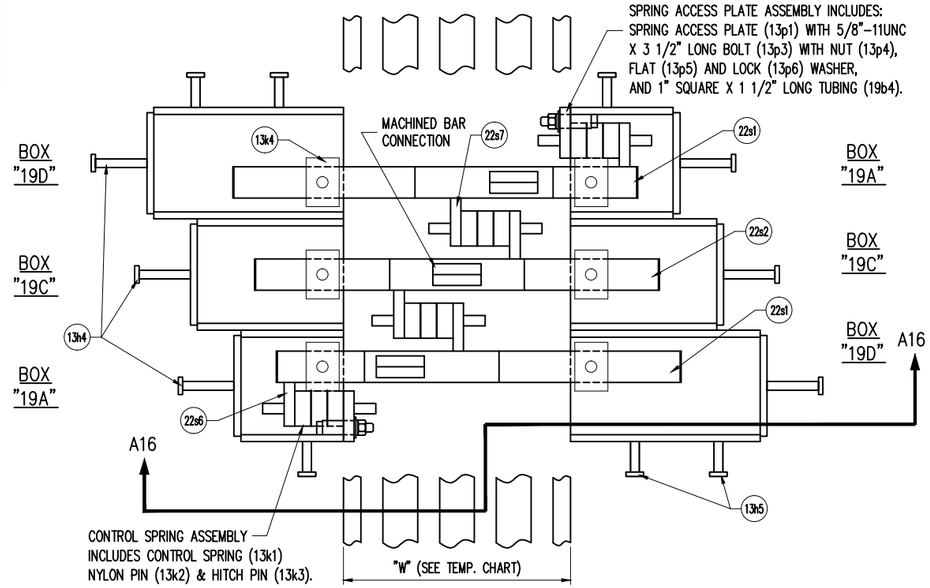
SECTION A16
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



SUPPORT BOX DETAIL
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B16
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REV.	DESCRIPTION	DATE	DET.	CKD.

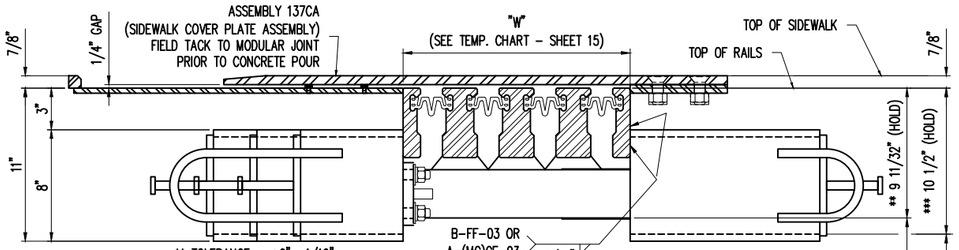
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
TYPICAL SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

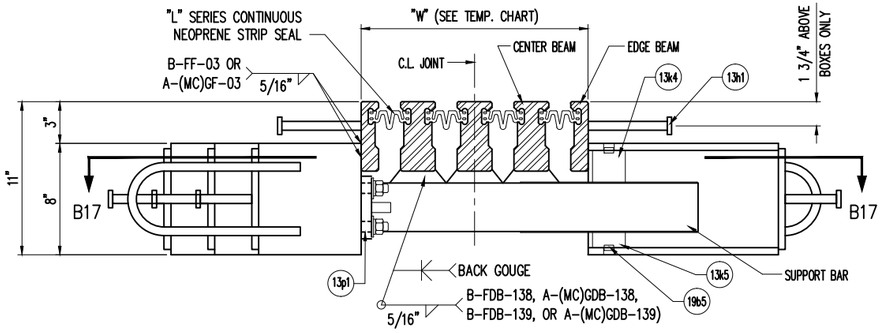
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	16



SECTION THROUGH 'D-320'
(@ SIDEWALK JOINT ONLY)

JOINT SUPPORTS NOT SHOWN FOR CLARITY

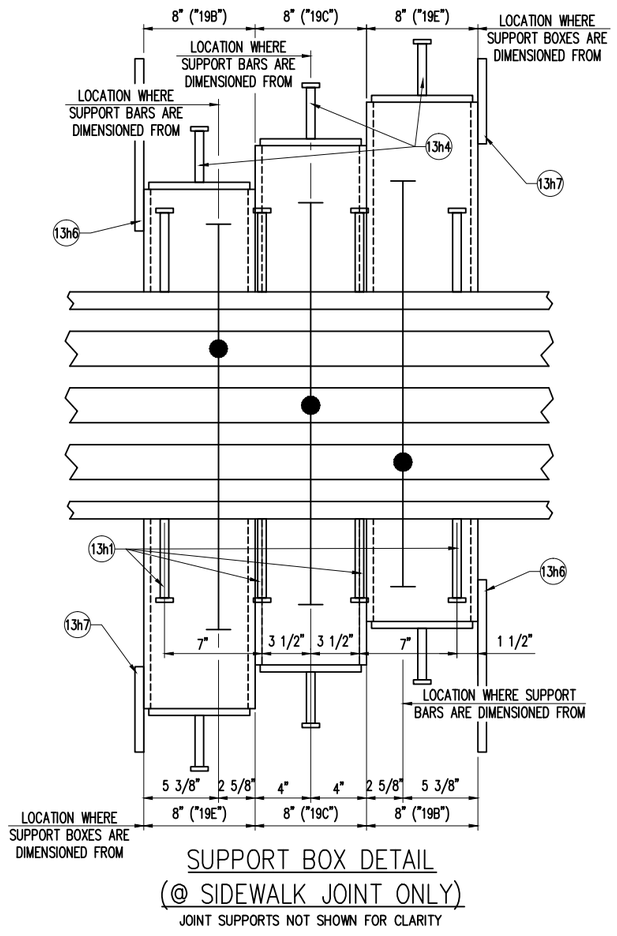


SECTION A17

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

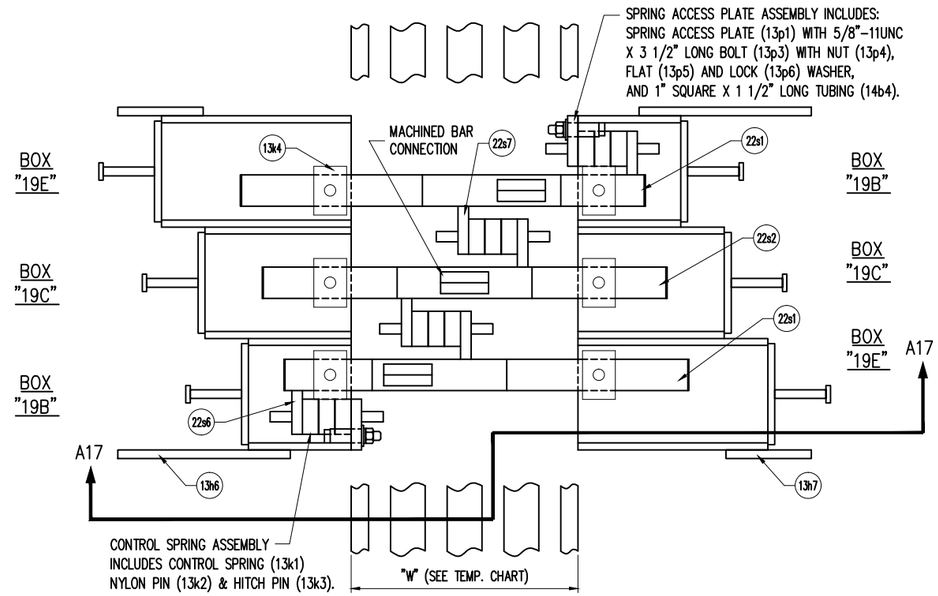
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



SUPPORT BOX DETAIL
(@ SIDEWALK JOINT ONLY)

JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B17

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REV.	DESCRIPTION	DATE	DET.	CKD.

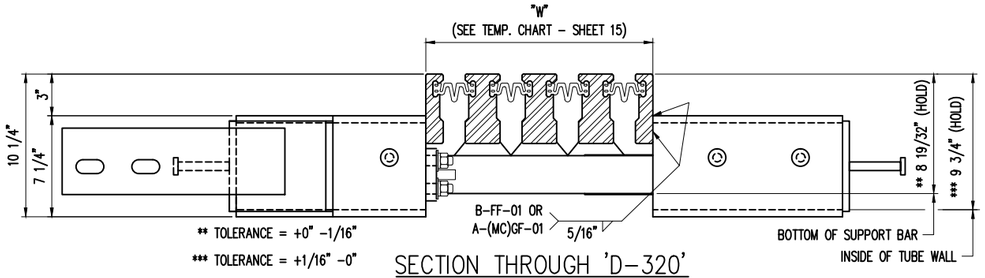
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SIDEWALK SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

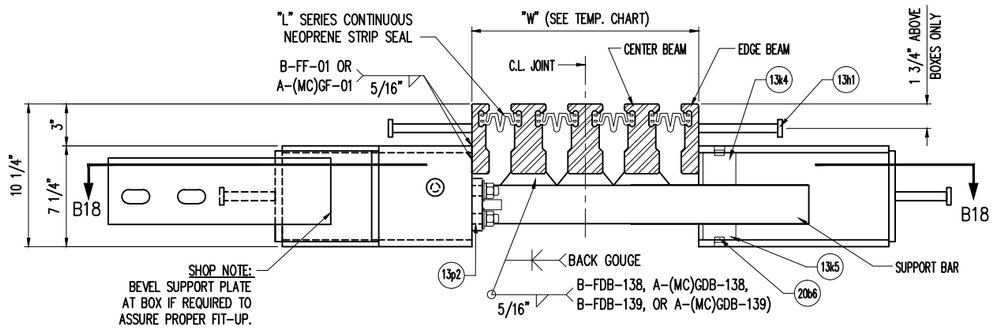
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	17



SECTION THROUGH 'D-320'
(SHALLOW BOXES OVER GIRDERS)

JOINT SUPPORTS NOT SHOWN FOR CLARITY

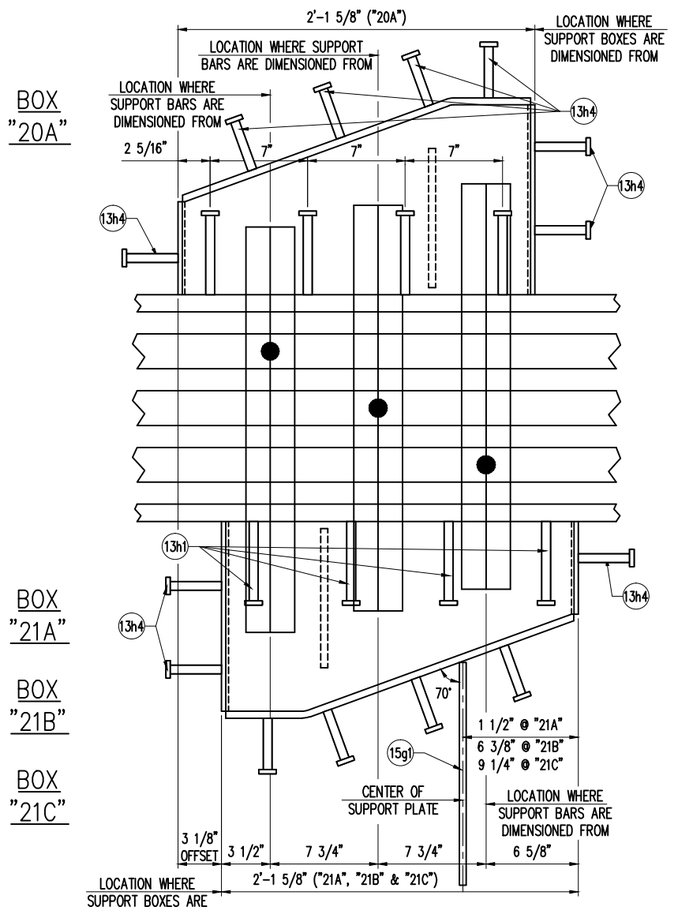


SECTION A18

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

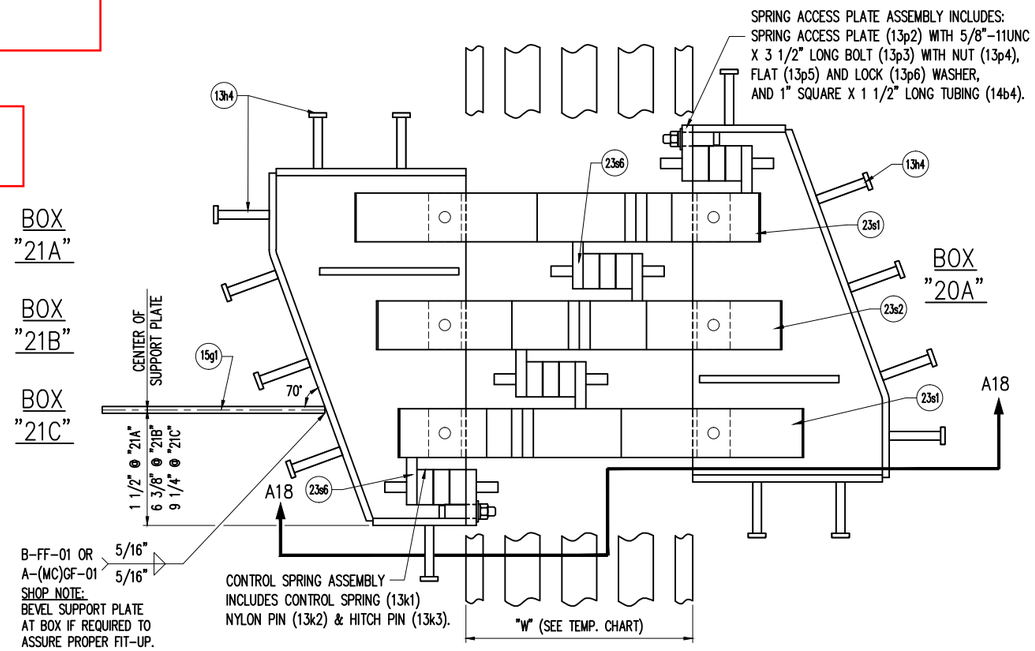
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



SUPPORT BOX DETAIL
(SHALLOW BOXES OVER GIRDERS)

JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B18

JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 15)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

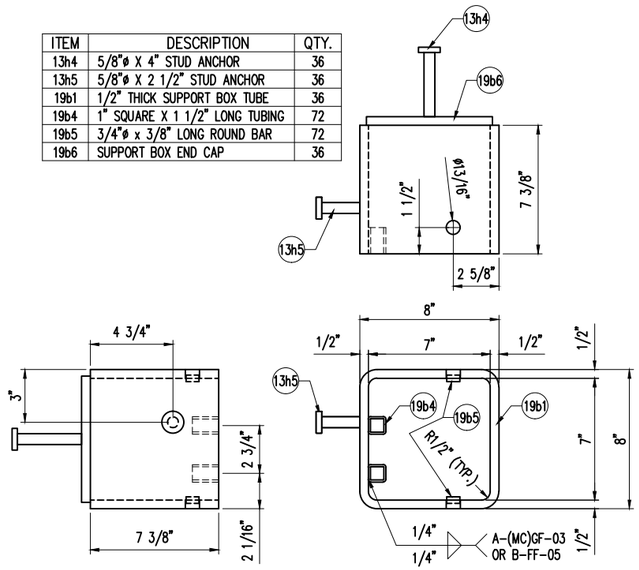
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SHALLOW SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	18

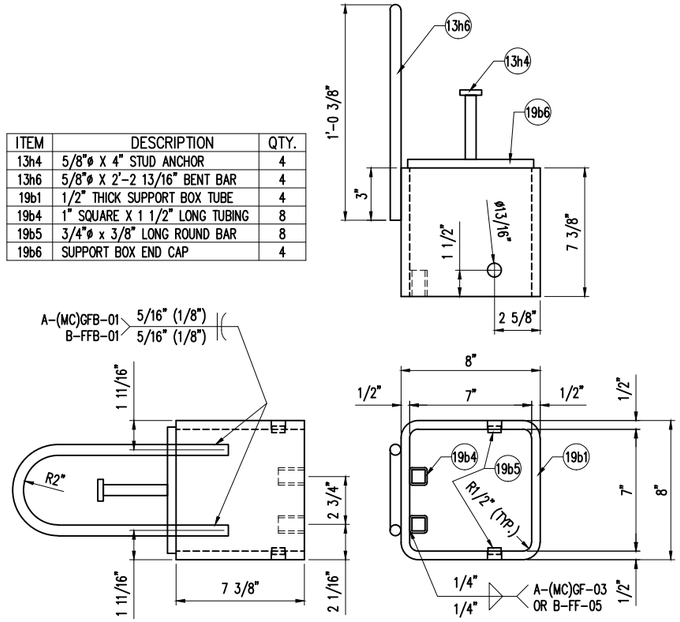
ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	36
13h5	5/8"ø X 2 1/2" STUD ANCHOR	36
19b1	1/2" THICK SUPPORT BOX TUBE	36
19b4	1" SQUARE X 1 1/2" LONG TUBING	72
19b5	3/4"ø x 3/8" LONG ROUND BAR	72
19b6	SUPPORT BOX END CAP	36



'D-320' SUPPORT BOX DETAIL "19A"

(36) REQUIRED

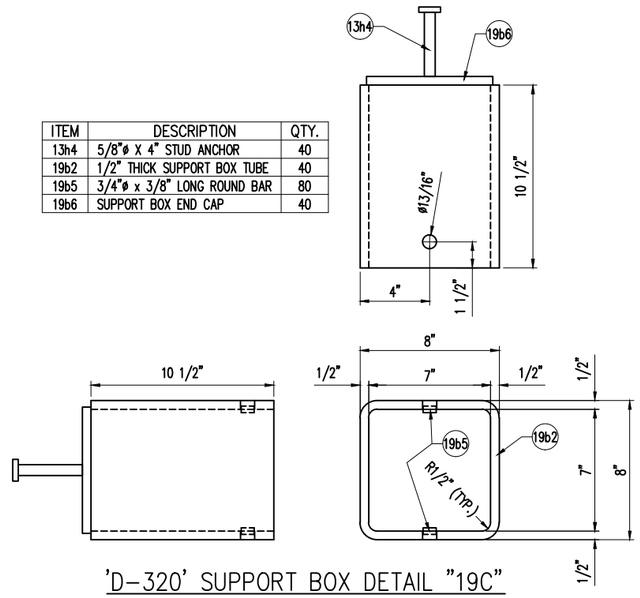
ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	4
13h6	5/8"ø X 2'-2 13/16" BENT BAR	4
19b1	1/2" THICK SUPPORT BOX TUBE	4
19b4	1" SQUARE X 1 1/2" LONG TUBING	8
19b5	3/4"ø x 3/8" LONG ROUND BAR	8
19b6	SUPPORT BOX END CAP	4



'D-320' SUPPORT BOX DETAIL "19B"

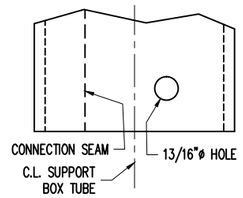
(4) REQUIRED

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	40
19b2	1/2" THICK SUPPORT BOX TUBE	40
19b5	3/4"ø x 3/8" LONG ROUND BAR	80
19b6	SUPPORT BOX END CAP	40



'D-320' SUPPORT BOX DETAIL "19C"

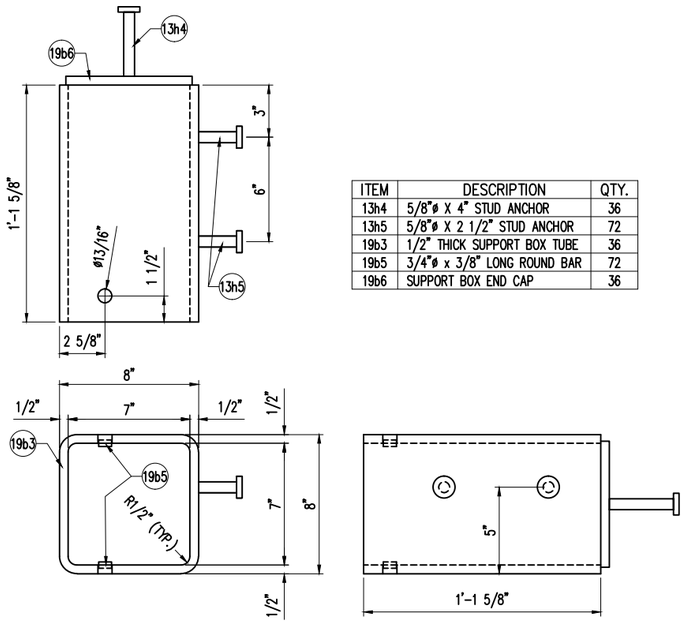
(40) REQUIRED



SHOP NOTE:

WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE C.L. OF BOX.

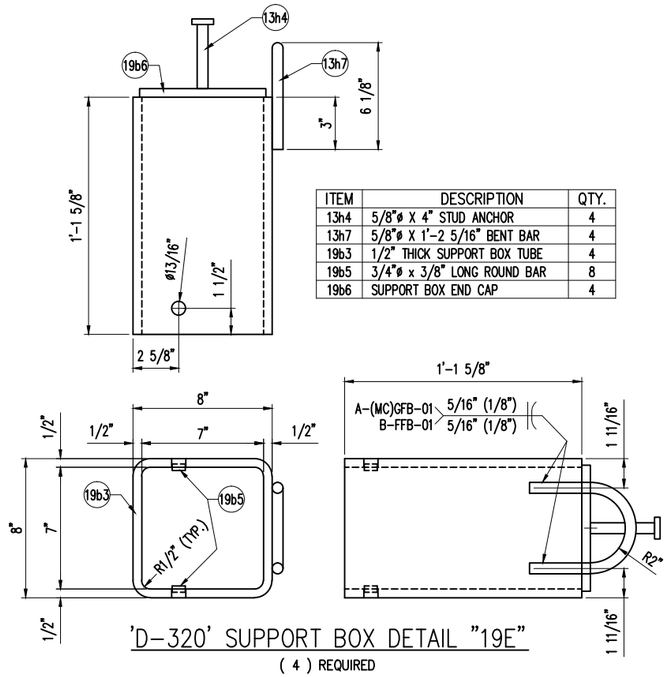
ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	36
13h5	5/8"ø X 2 1/2" STUD ANCHOR	72
19b3	1/2" THICK SUPPORT BOX TUBE	36
19b5	3/4"ø x 3/8" LONG ROUND BAR	72
19b6	SUPPORT BOX END CAP	36



'D-320' SUPPORT BOX DETAIL "19D"

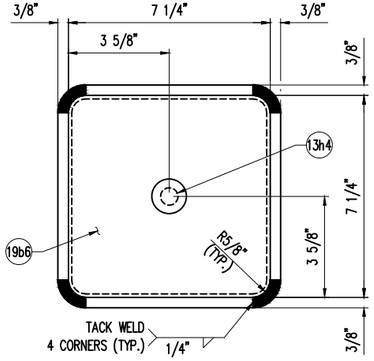
(36) REQUIRED

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	4
13h7	5/8"ø X 1'-2 5/16" BENT BAR	4
19b3	1/2" THICK SUPPORT BOX TUBE	4
19b5	3/4"ø x 3/8" LONG ROUND BAR	8
19b6	SUPPORT BOX END CAP	4



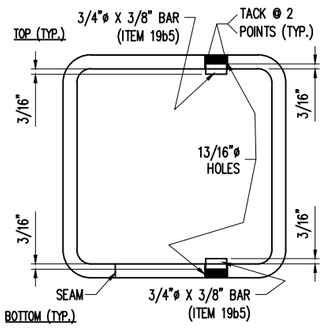
'D-320' SUPPORT BOX DETAIL "19E"

(4) REQUIRED



BACK PLATE DETAIL

(SUPPORT BOX END CAP)



BOX PIN DETAILS

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

THE D.S. BROWN COMPANY
A GIBRALTAR INDUSTRIES COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

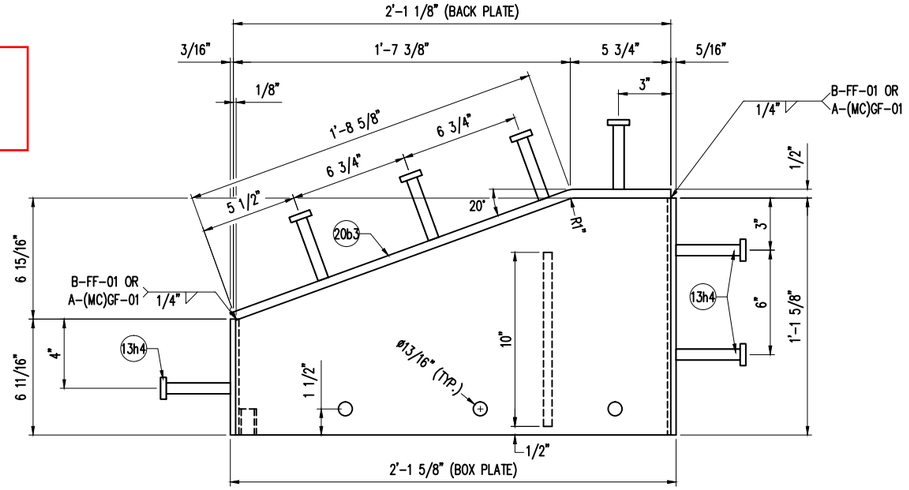
DESCRIPTION:
SUPPORT BOX TUBE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	19

REVISED
Modular Expansion Joint 16
DETAILS

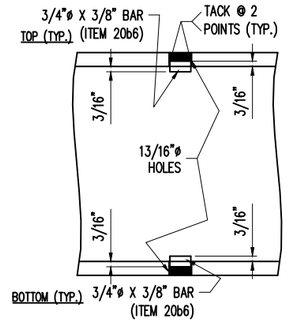
CONSTRUCTION
SHOP DRAWING



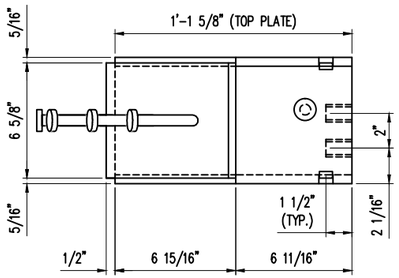
TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	21
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	3
20b2	1/2" X 13 5/8" X 2'-1" PLATE	3
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	3
20b4	1/2" X 6 1/4" X 10" PLATE	3
20b5	1" SQUARE X 1 1/2" LONG TUBING	6
20b6	3/4"ø x 3/8" LONG ROUND BAR	18
20b7	1/2"ø PLASTIC PLUGS	18

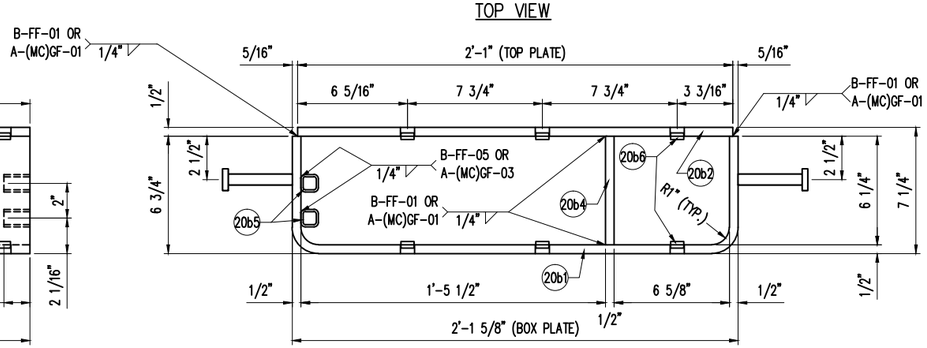
NOTE: QUANTITIES ARE FOR ASSEMBLY "20A" ONLY
SEE SHEET 21 FOR ADDITIONAL MATERIAL



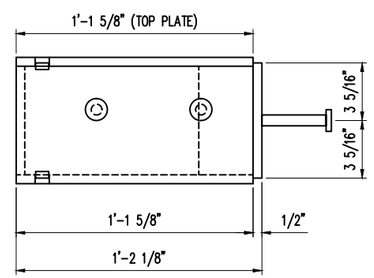
BOX PIN DETAILS



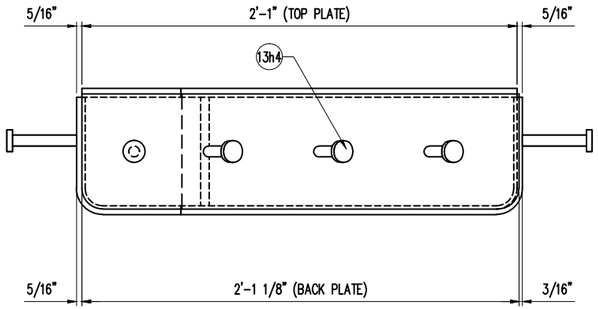
LEFT END



FRONT VIEW



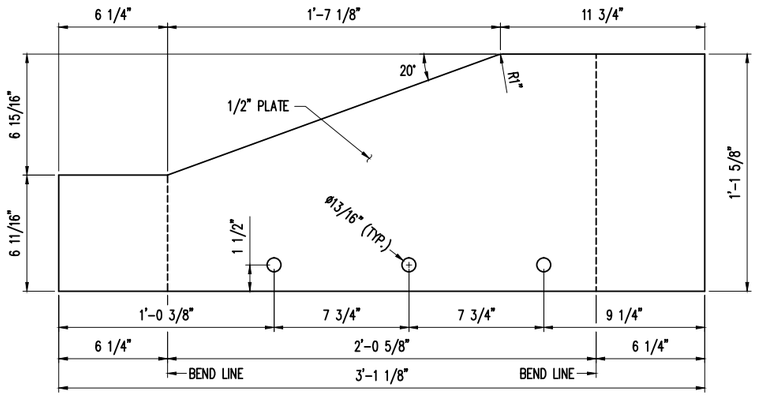
RIGHT END



BACK VIEW

'D-320' SHALLOW FABRICATED BOX DETAILS (ASSEMBLY '20A')

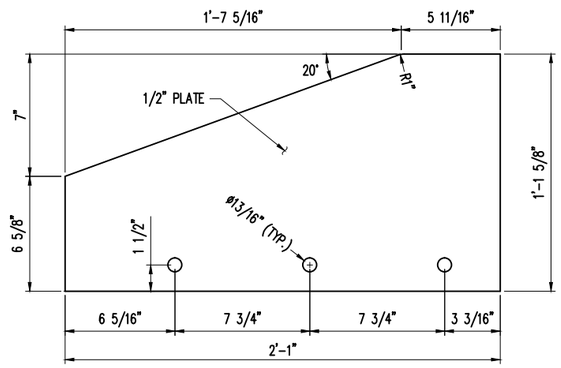
(3) REQUIRED



VIEWED FROM TOP OF BOX ASSEMBLY

ITEM NO. 20b1

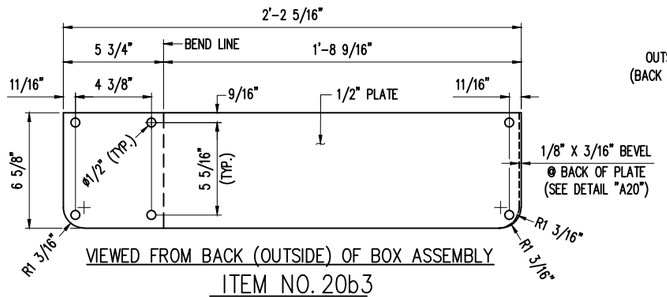
(6) REQ'D.



VIEWED FROM TOP OF BOX ASSEMBLY

ITEM NO. 20b2

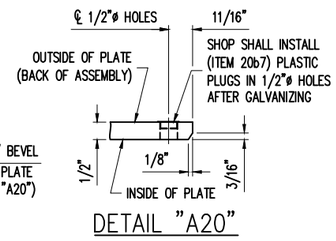
(6) REQ'D.



VIEWED FROM BACK (OUTSIDE) OF BOX ASSEMBLY

ITEM NO. 20b3

(6) REQ'D.



DETAIL "A20"

REV.	DESCRIPTION	DATE	DET.	CKD.

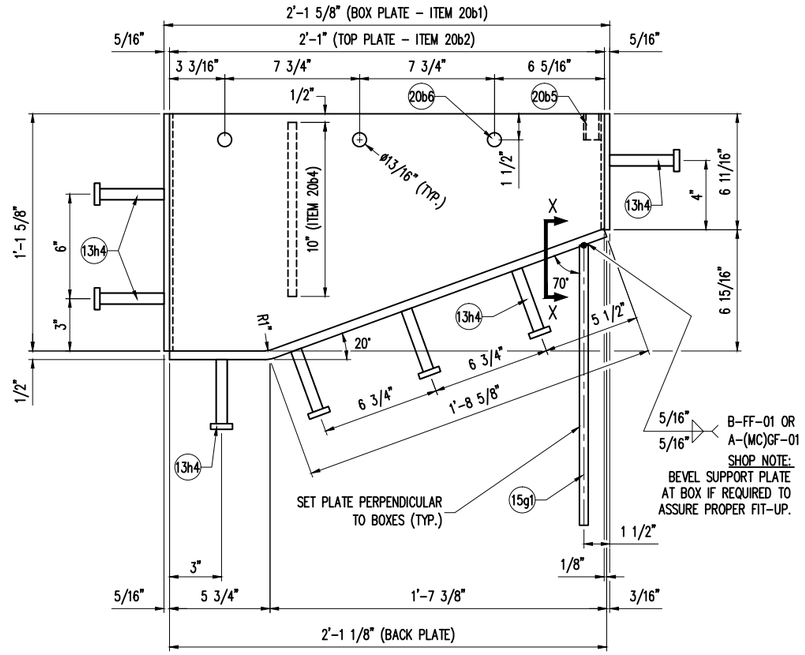
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SHALLOW FABRICATED BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

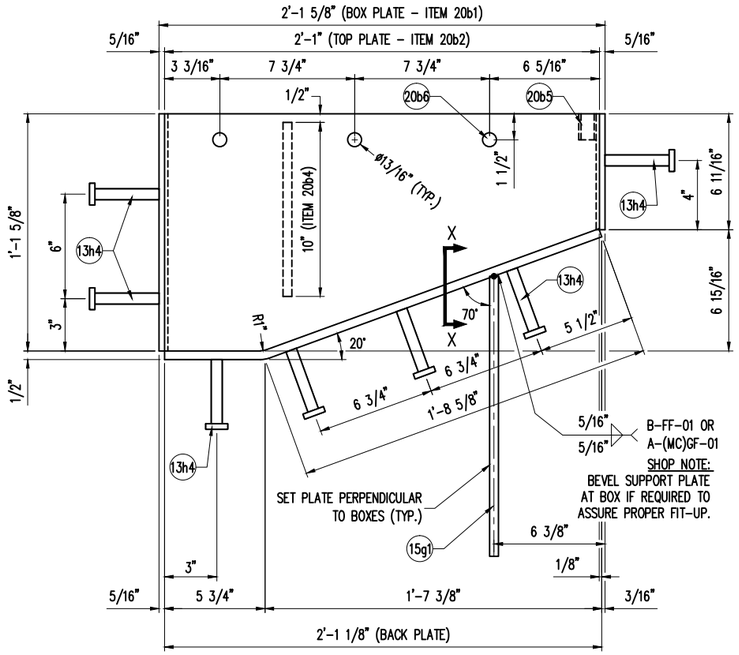
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	20



TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	7
15g1	1/2" X 4 3/4" X 1'-3" PLATE	1
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	1
20b2	1/2" X 13 5/8" X 2'-1" PLATE	1
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	1
20b4	1/2" X 6 1/4" X 10" PLATE	1
20b5	1" SQUARE X 1 1/2" LONG TUBING	2
20b6	3/4"ø x 3/8" LONG ROUND BAR	6
20b7	1/2"ø PLASTIC PLUGS	6

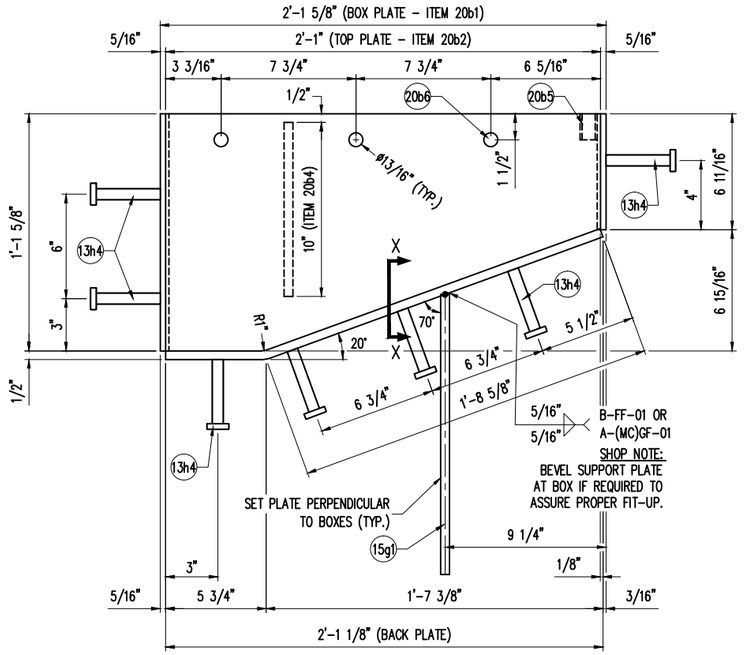
'D-320' SHALLOW FABRICATED BOX DETAIL
(ASSEMBLY '21A')
(1) REQUIRED



TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	7
15g1	1/2" X 4 3/4" X 1'-3" PLATE	1
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	1
20b2	1/2" X 13 5/8" X 2'-1" PLATE	1
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	1
20b4	1/2" X 6 1/4" X 10" PLATE	1
20b5	1" SQUARE X 1 1/2" LONG TUBING	2
20b6	3/4"ø x 3/8" LONG ROUND BAR	6
20b7	1/2"ø PLASTIC PLUGS	6

'D-320' SHALLOW FABRICATED BOX DETAIL
(ASSEMBLY '21B')
(1) REQUIRED

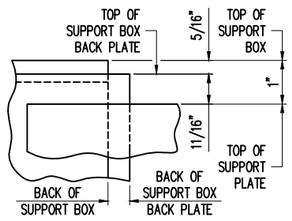


TOP VIEW

ITEM	DESCRIPTION	QTY.
13h4	5/8"ø X 4" STUD ANCHOR	7
15g1	1/2" X 4 3/4" X 1'-3" PLATE	1
20b1	1/2" X 13 5/8" X 3'-1 1/8" PLATE	1
20b2	1/2" X 13 5/8" X 2'-1" PLATE	1
20b3	1/2" X 6 5/8" X 2'-2 5/16" PLATE	1
20b4	1/2" X 6 1/4" X 10" PLATE	1
20b5	1" SQUARE X 1 1/2" LONG TUBING	2
20b6	3/4"ø x 3/8" LONG ROUND BAR	6
20b7	1/2"ø PLASTIC PLUGS	6

'D-320' SHALLOW FABRICATED BOX DETAIL
(ASSEMBLY '21C')
(1) REQUIRED

SHOP NOTES:
- SEE SUPPORT BOX FABRICATION DETAILS ON SHEET 20.



SECTION X-X

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

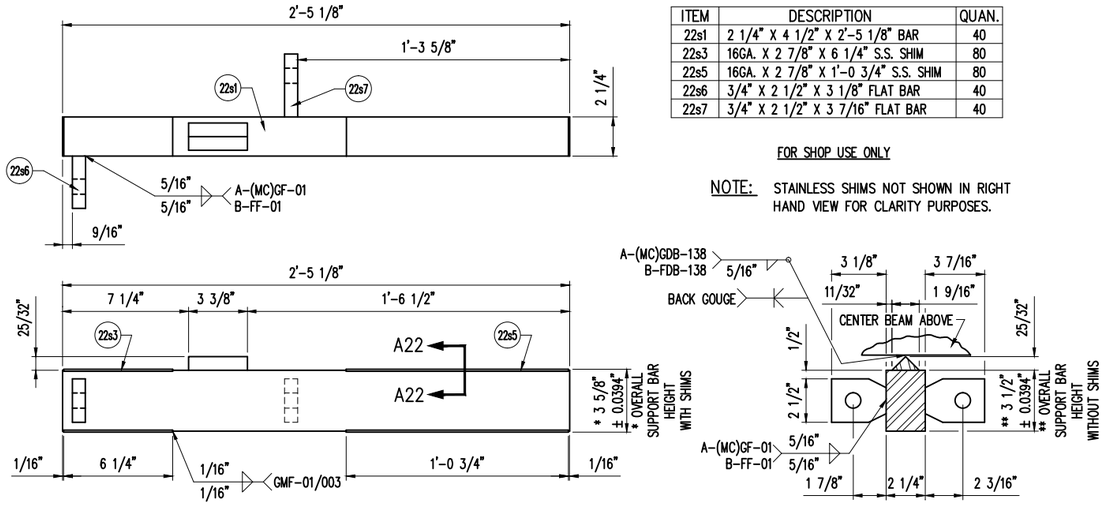
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
SHALLOW FABRICATED BOX DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	21



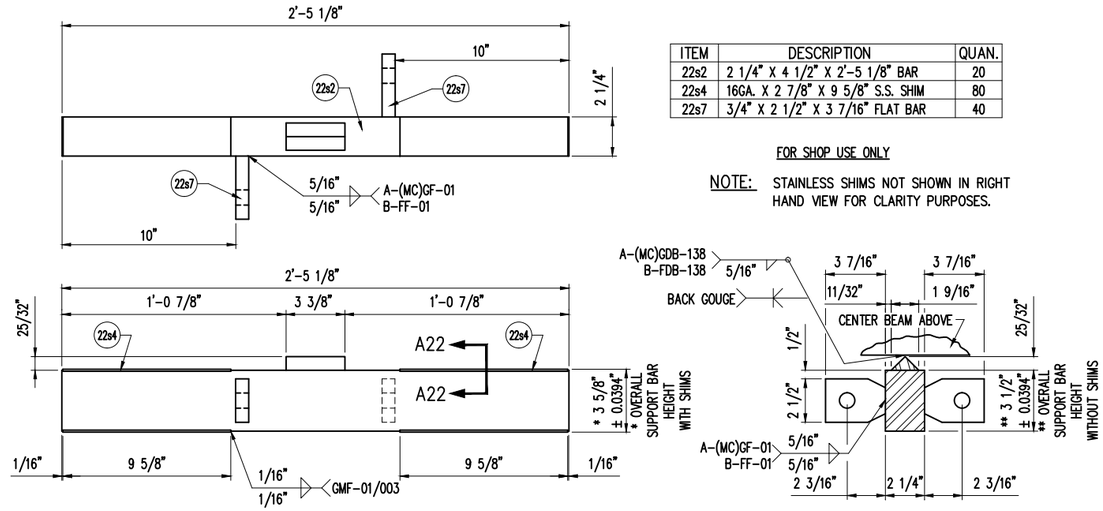
ITEM	DESCRIPTION	QUAN.
22s1	2 1/4" X 4 1/2" X 2'-5 1/8" BAR	40
22s3	16GA. X 2 7/8" X 6 1/4" S.S. SHIM	80
22s5	16GA. X 2 7/8" X 1'-0 3/4" S.S. SHIM	80
22s6	3/4" X 2 1/2" X 3 1/8" FLAT BAR	40
22s7	3/4" X 2 1/2" X 3 7/16" FLAT BAR	40

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

'D-320' MACHINED EXTERIOR SUPPORT BAR DETAIL

(40) REQUIRED



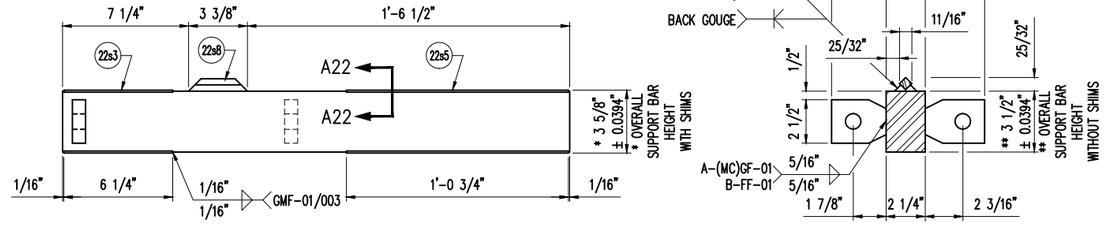
ITEM	DESCRIPTION	QUAN.
22s2	2 1/4" X 4 1/2" X 2'-5 1/8" BAR	20
22s4	16GA. X 2 7/8" X 9 5/8" S.S. SHIM	80
22s7	3/4" X 2 1/2" X 3 7/16" FLAT BAR	40

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

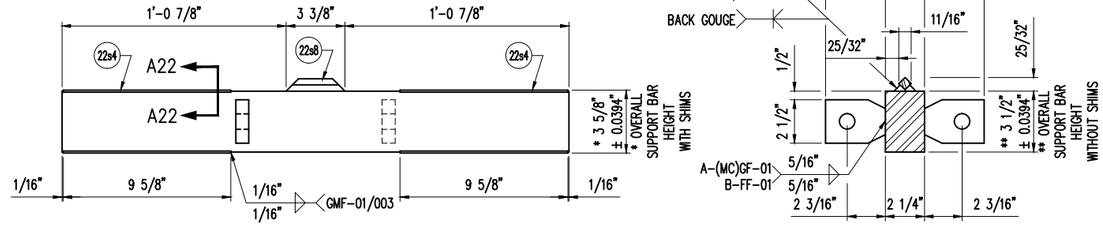
'D-320' MACHINED INTERIOR SUPPORT BAR DETAIL

(20) REQUIRED



OPTIONAL "D-320" EXTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

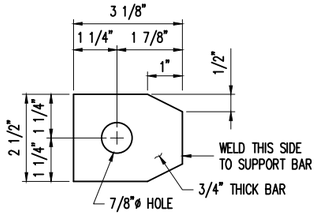


OPTIONAL "D-320" INTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

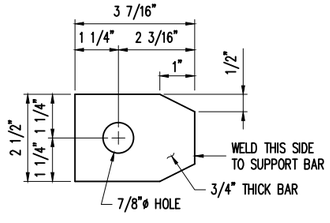
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



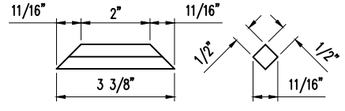
ITEM NO. 22s6
(40) REQ'D.

'D-320' EXTERIOR SPRING STOP DETAIL



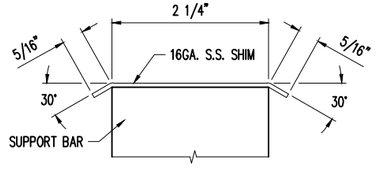
ITEM NO. 22s7
(80) REQ'D.

'D-320' INTERIOR SPRING STOP DETAIL



ITEM NO. 22s8
(60) REQ'D.

TYPICAL RIDER BAR DETAIL
USED @ OPTIONAL SUPPORT BAR DETAIL ONLY



SECTION A22

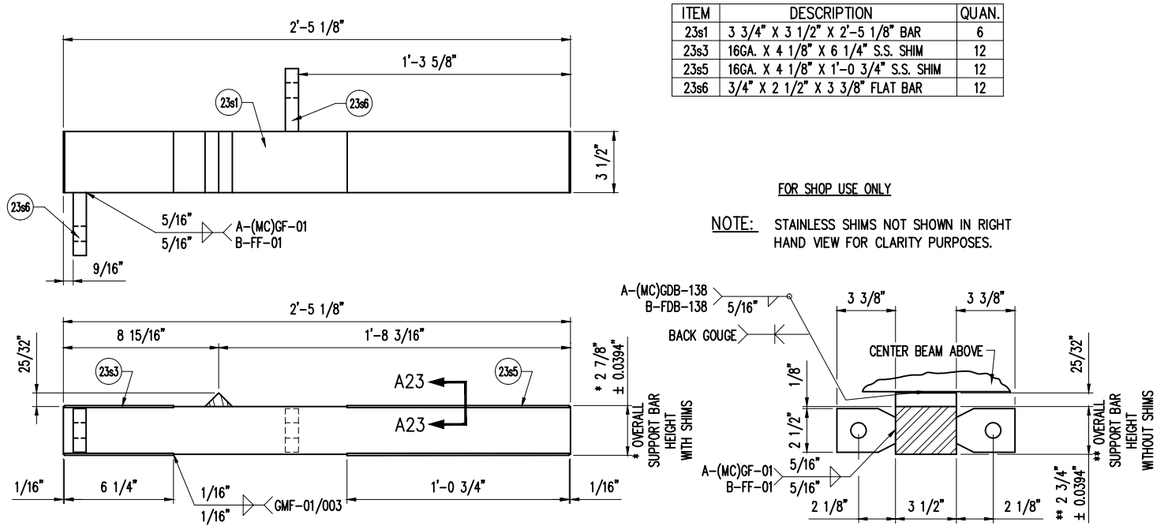
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
STANDARD SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	22	



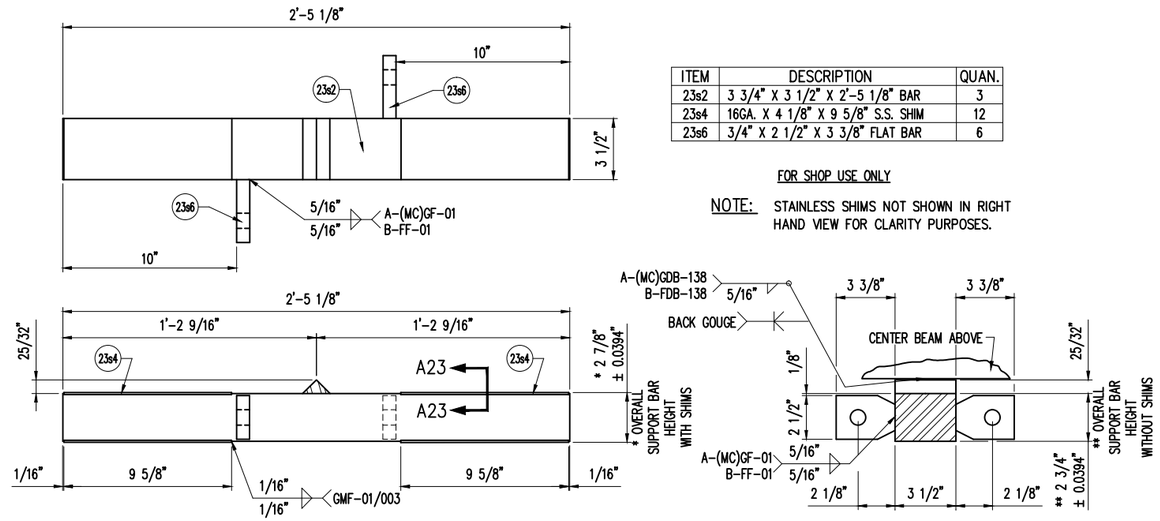
ITEM	DESCRIPTION	QUAN.
23s1	3 3/4" X 3 1/2" X 2'-5 1/8" BAR	6
23s3	16GA. X 4 1/8" X 6 1/4" S.S. SHIM	12
23s5	16GA. X 4 1/8" X 1'-0 3/4" S.S. SHIM	12
23s6	3/4" X 2 1/2" X 3 3/8" FLAT BAR	12

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

'D-320' SHALLOW MACHINED EXTERIOR SUPPORT BAR DETAIL

(6) REQUIRED



ITEM	DESCRIPTION	QUAN.
23s2	3 3/4" X 3 1/2" X 2'-5 1/8" BAR	3
23s4	16GA. X 4 1/8" X 9 5/8" S.S. SHIM	12
23s6	3/4" X 2 1/2" X 3 3/8" FLAT BAR	6

FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.

'D-320' MACHINED SHALLOW INTERIOR SUPPORT BAR DETAIL

(3) REQUIRED

OPTIONAL "D-320" SHALLOW EXTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

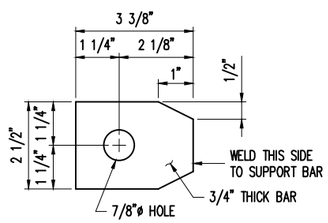
(IN LIEU OF MACHINED SUPPORT BAR)

OPTIONAL "D-320" SHALLOW INTERIOR SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

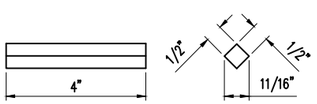
REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING



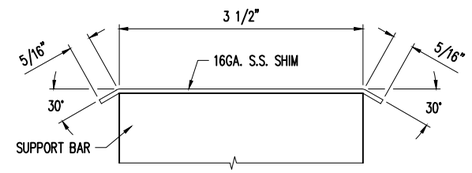
ITEM NO. 23s6
(18) REQ'D.

'D-320' SHALLOW SPRING STOP DETAIL



ITEM NO. 23s7
(9) REQ'D.

SHALLOW RIDER BAR DETAIL
USED @ OPTIONAL SUPPORT BAR DETAIL ONLY



SECTION A23

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: SHALLOW SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	23

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
14A	1	D-320' MODULAR JOINT			36'-11 3/16" - JOINT 16 (WESTBOUND)	12046	
13h1	80	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
13h3	22	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
13h4	76	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
13h5	48	Ø5/8 X 2 1/2 WELD STUD	A108		A123-HDG	< 1	
13k1	40	CONTROL SPRING (80MM)	-			1	
13k2	40	NYLON PIN (80MM)	-			< 1	
13k3	80	HITCH PIN	-			< 1	
13k4	60	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
13k5	60	SLIDE BEARING	-		RUBBER;	1	
13p1	16	3/4 X 3 5/8	A36	0'-4 1/2	SHAPE CUT; A123-HDG	3	
13p2	4	3/4 X 4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
13p3	40	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
13p4	40	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
13p5	40	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
13p6	40	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
14r1	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r2	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r3	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	35'-8 3/16	A123-HDG	614	
14r6	6	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
14r7	3	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 3/16	A123-HDG	1230	
14w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
14w2	4	L2-400 GLAND	NEOPRENE	37'-0	148'-0" TOTAL;	59	
15g1	8	1/2 X 4 3/4	A709 GR 36 OR 50	1'-3	SHAPE CUT; A123-HDG	10	
19b1	16	HSS 8 X 8 X 1/2	A500 GR B	0'-7 3/8	A123-HDG	30	
19b2	16	HSS 8 X 8 X 1/2	A500 GR B	0'-10 1/2	A123-HDG	43	
19b3	16	HSS 8 X 8 X 1/2	A500 GR B	1'-1 5/8	A123-HDG	55	
19b4	32	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
19b5	96	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
19b6	48	1/2 X 7 1/4	A709 GR 36 OR 50	0'-7 1/4	A123-HDG	7	
20b1	4	1/2 X 13 5/8	A709 GR 36 OR 50	3'-1 1/8	SHAPE CUT; A123-HDG	72	
20b2	4	1/2 X 13 5/8	A709 GR 36 OR 50	2'-1	SHAPE CUT; A123-HDG	48	
20b3	4	1/2 X 6 5/8	A709 GR 36 OR 50	2'-2 5/16	SHAPE CUT; A123-HDG	25	
20b4	4	1/2 X 6 1/4	A709 GR 36 OR 50	0'-10	A123-HDG	9	
20b5	8	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
20b6	24	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
20b7	24	Ø1/2 PLASTIC PLUG CAP	-		ATTACH AFTER GALV.; PLAIN	< 1	
22s1	16	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s2	8	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s3	32	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s4	32	16 GA. X 2 7/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s5	32	16 GA. X 2 7/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s6	16	3/4 X 2 1/2	A36	0'-3 1/8	SHAPE CUT; A123-HDG	2	
22s7	32	3/4 X 2 1/2	A36	0'-3 7/16	SHAPE CUT; A123-HDG	2	
23s1	4	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s2	2	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s3	8	16 GA. X 4 1/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s4	8	16 GA. X 4 1/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s5	8	16 GA. X 4 1/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s6	12	3/4 X 2 1/2	A36	0'-3 3/8	SHAPE CUT; A123-HDG	2	

14B	1	D-320' MODULAR JOINT			37'-5 3/16" - JOINT 16 (EASTBOUND)	12598	
13h1	92	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
13h2	4	Ø5/8 X 6 WELD STUD	A108		BEND 45° @ 2"; A123-HDG	< 1	
13h3	20	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
13h4	74	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
13h5	60	Ø5/8 X 2 1/2 WELD STUD	A108		A123-HDG	< 1	
13k1	44	CONTROL SPRING (80MM)	-			1	
13k2	44	NYLON PIN (80MM)	-			< 1	
13k3	88	HITCH PIN	-			< 1	
13k4	66	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
13k5	66	SLIDE BEARING	-		RUBBER;	1	
13p1	20	3/4 X 3 5/8	A36	0'-4 1/2	SHAPE CUT; A123-HDG	3	
13p2	2	3/4 X 4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
13p3	44	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
13p4	44	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
13p5	44	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
13p6	44	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
14r1	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r2	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	15	
14r4	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	36'-2 3/16	A123-HDG	623	
14r6	6	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
14r8	3	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	36'-2 3/16	A123-HDG	1247	
14w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
14w3	4	L2-400 GLAND	NEOPRENE	38'-0	152'-0" TOTAL;	61	
15g1	7	1/2 X 4 3/4	A709 GR 36 OR 50	1'-3	SHAPE CUT; A123-HDG	10	
19b1	20	HSS 8 X 8 X 1/2	A500 GR B	0'-7 3/8	A123-HDG	30	
19b2	20	HSS 8 X 8 X 1/2	A500 GR B	0'-10 1/2	A123-HDG	43	
19b3	20	HSS 8 X 8 X 1/2	A500 GR B	1'-1 5/8	A123-HDG	55	
19b4	40	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
19b5	120	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
19b6	60	1/2 X 7 1/4	A709 GR 36 OR 50	0'-7 1/4	A123-HDG	7	
20b1	2	1/2 X 13 5/8	A709 GR 36 OR 50	3'-1 1/8	SHAPE CUT; A123-HDG	72	
20b2	2	1/2 X 13 5/8	A709 GR 36 OR 50	2'-1	SHAPE CUT; A123-HDG	48	
20b3	2	1/2 X 6 5/8	A709 GR 36 OR 50	2'-2 5/16	SHAPE CUT; A123-HDG	25	
20b4	2	1/2 X 6 1/4	A709 GR 36 OR 50	0'-10	A123-HDG	9	
20b5	4	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
20b6	12	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
20b7	12	Ø1/2 PLASTIC PLUG CAP	-		ATTACH AFTER GALV.; PLAIN	< 1	
22s1	20	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s2	10	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s3	40	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s4	40	16 GA. X 2 7/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s5	40	16 GA. X 2 7/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s6	20	3/4 X 2 1/2	A36	0'-3 1/8	SHAPE CUT; A123-HDG	2	
22s7	40	3/4 X 2 1/2	A36	0'-3 7/16	SHAPE CUT; A123-HDG	2	
23s1	2	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s2	1	3 3/4 X 3 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	108	
23s3	4	16 GA. X 4 1/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s4	4	16 GA. X 4 1/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s5	4	16 GA. X 4 1/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
23s6	6	3/4 X 2 1/2	A36	0'-3 3/8	SHAPE CUT; A123-HDG	2	

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL OF MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	24

REVISED
Modular Expansion Joint 16
DETAILS

CONSTRUCTION
SHOP DRAWING

14C	1	D-320' MODULAR JOINT			6'-9" - JOINT 16 (SIDEWALK)	2253	
13h1	16	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
13h3	2	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
13h4	12	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
13h6	4	Ø5/8	A36	2'-2 13/16	A123-HDG	2	
13h7	4	Ø5/8	A36	1'-2 5/16	A123-HDG	1	
13k1	8	CONTROL SPRING (80MM)	-			1	
13k2	8	NYLON PIN (80MM)	-			< 1	
13k3	16	HITCH PIN	-			< 1	
13k4	12	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
13k5	12	SLIDE BEARING	-		RUBBER;	1	
13p1	4	3/4 X 3 5/8	A36	0'-4 1/2	SHAPE CUT; A123-HDG	3	
13p3	8	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
13p4	8	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
13p5	8	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
13p6	8	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
14r5	2	EDGE BEAM 1.25"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	116	
14r9	3	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
14w1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
14w4	4	L2-400 GLAND	NEOPRENE	7'-0	28'-0" TOTAL;	11	
15g1	2	1/2 X 4 3/4	A709 GR 36 OR 50	1'-3	SHAPE CUT; A123-HDG	10	
19b1	4	HSS 8 X 8 X 1/2	A500 GR B	0'-7 3/8	A123-HDG	30	
19b2	4	HSS 8 X 8 X 1/2	A500 GR B	0'-10 1/2	A123-HDG	43	
19b3	4	HSS 8 X 8 X 1/2	A500 GR B	1'-1 5/8	A123-HDG	55	
19b4	8	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
19b5	24	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
19b6	12	1/2 X 7 1/4	A709 GR 36 OR 50	0'-7 1/4	A123-HDG	7	
22s1	4	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s2	2	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-5 1/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	84	
22s3	8	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s4	8	16 GA. X 2 7/8	SEE REMARKS	0'-9 5/8	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s5	8	16 GA. X 2 7/8	SEE REMARKS	1'-0 3/4	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
22s6	4	3/4 X 2 1/2	A36	0'-3 1/8	SHAPE CUT; A123-HDG	2	
22s7	8	3/4 X 2 1/2	A36	0'-3 7/16	SHAPE CUT; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			3/24/2014 3:05:34 PM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
15GA	17	JOINT SUPPORT ITEM				19	
15g2	17	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
15XA	34	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
15x1	34	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XB	102	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
15x2	102	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
15XC	204	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
15x3	204	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
15XD	32	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
15x4	32	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XE	36	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
15x5	36	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
15t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XBT	9	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
15t2	9	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
15XCT	18	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
15t3	18	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
15XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
15t1	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
15XET	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
15t1	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			3/24/2014 3:05:34 PM		

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

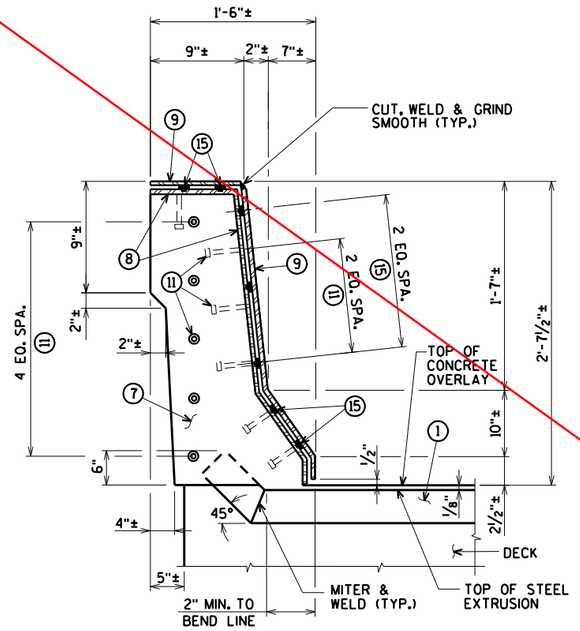
DESCRIPTION:
BILL OF MATERIALS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	TKE	03/2014	11-25

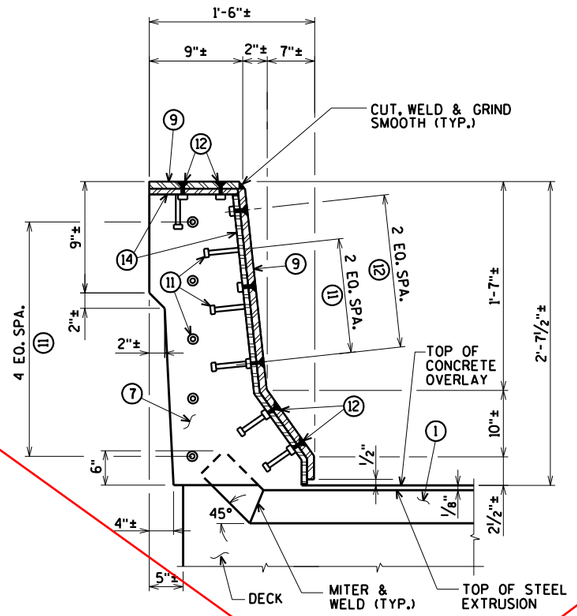
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	25

STATE PROJECT NUMBER

8680-04-71



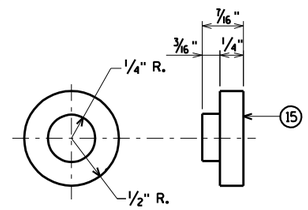
SECTION E



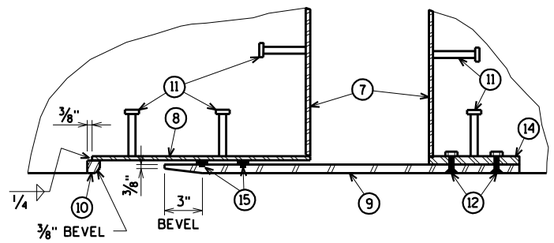
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

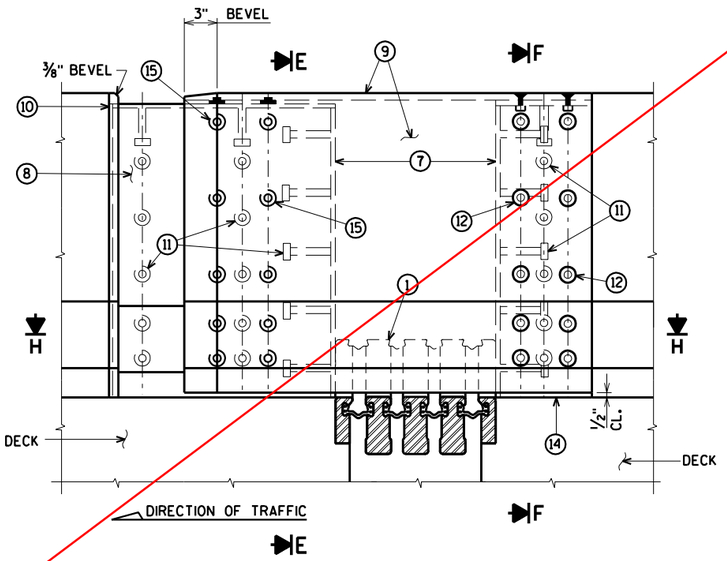
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 66



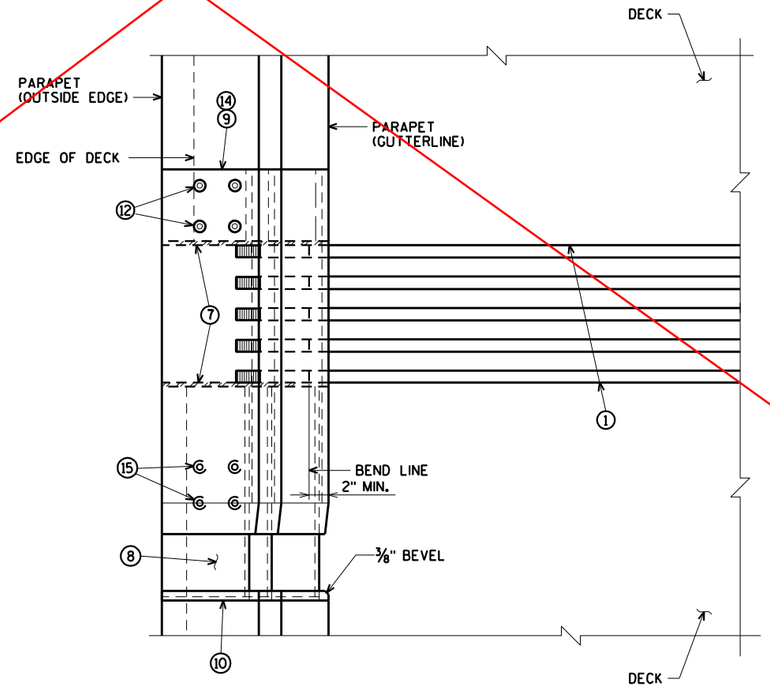
ADIPRENE BUTTON DETAIL



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 412.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 66, 68-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 16 DETAILS OUTSIDE PARAPET

SHEET 67 OF 99
413

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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42-0825 EXPJT 16.dgn

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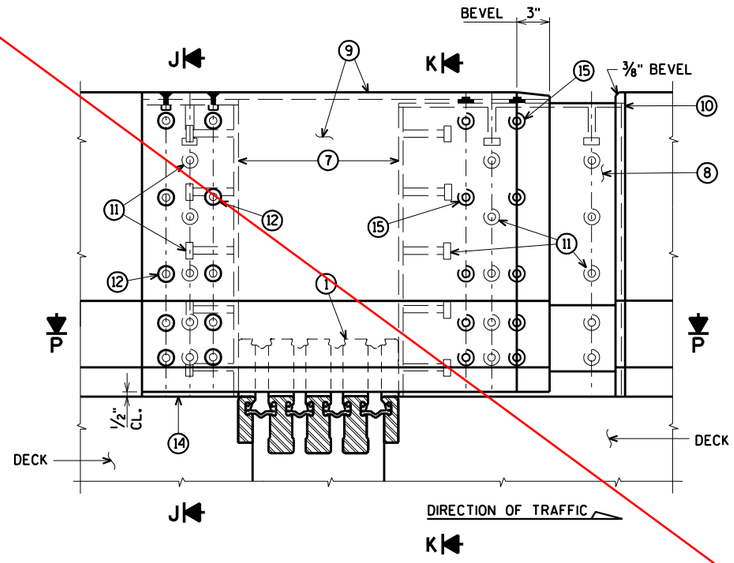
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9/12/2013

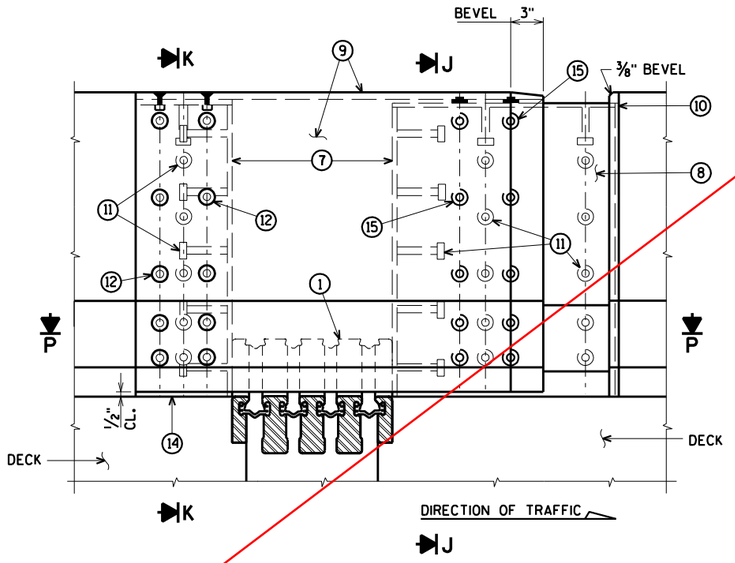
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STATE PROJECT NUMBER

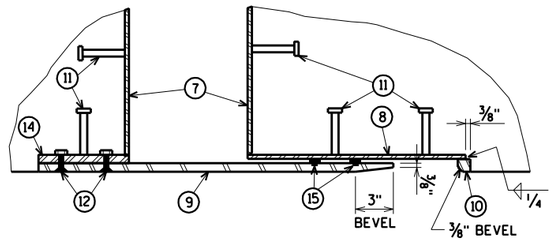
8680-04-71



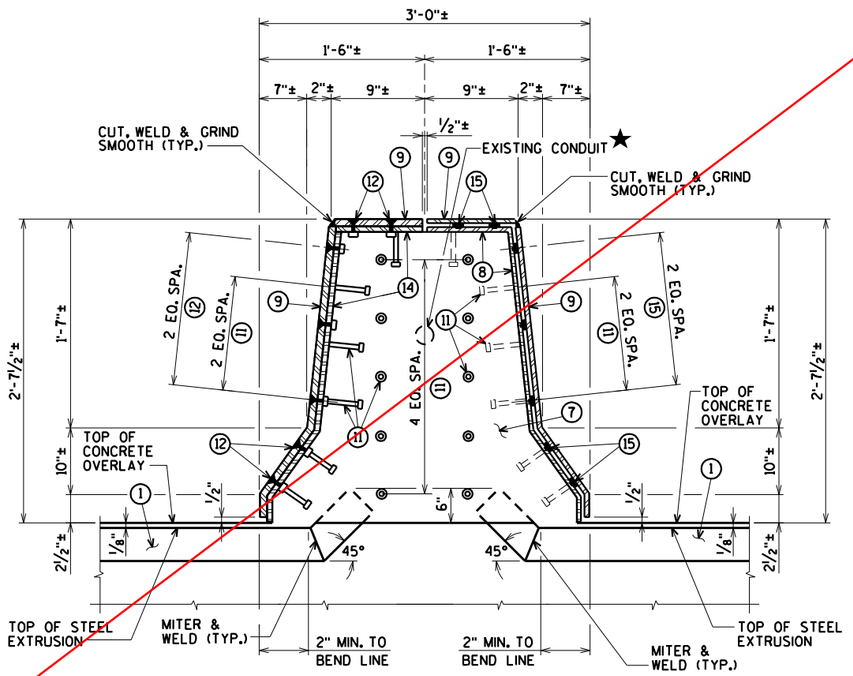
ELEVATION OF MEDIAN PARAPET
SECTION G



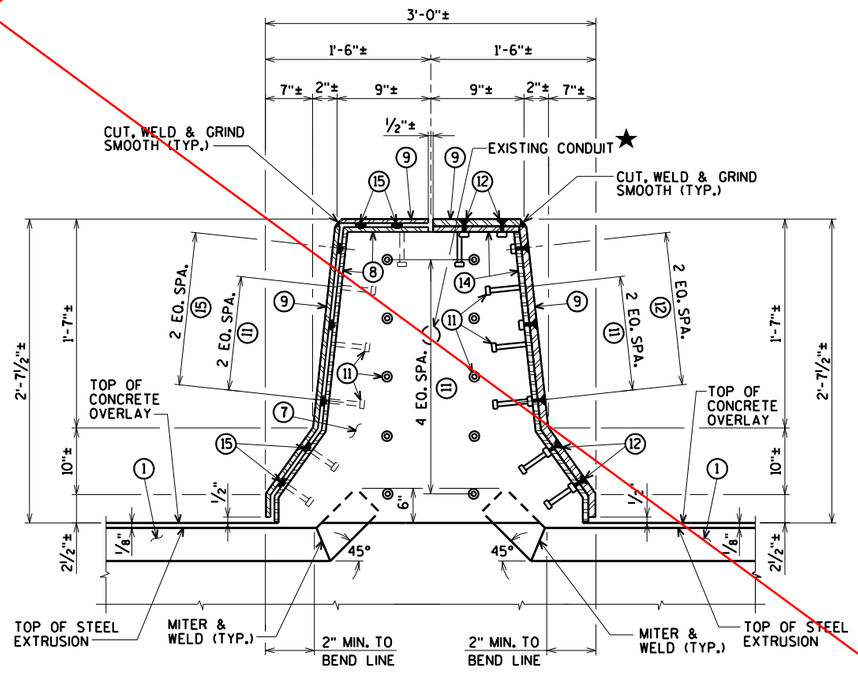
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 66

See revised joint details
PAGE 412.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

WORK THIS SHEET WITH SHEETS 66-67, 69-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 16 DETAILS MEDIAN PARAPET

SHEET 68 OF 99
414

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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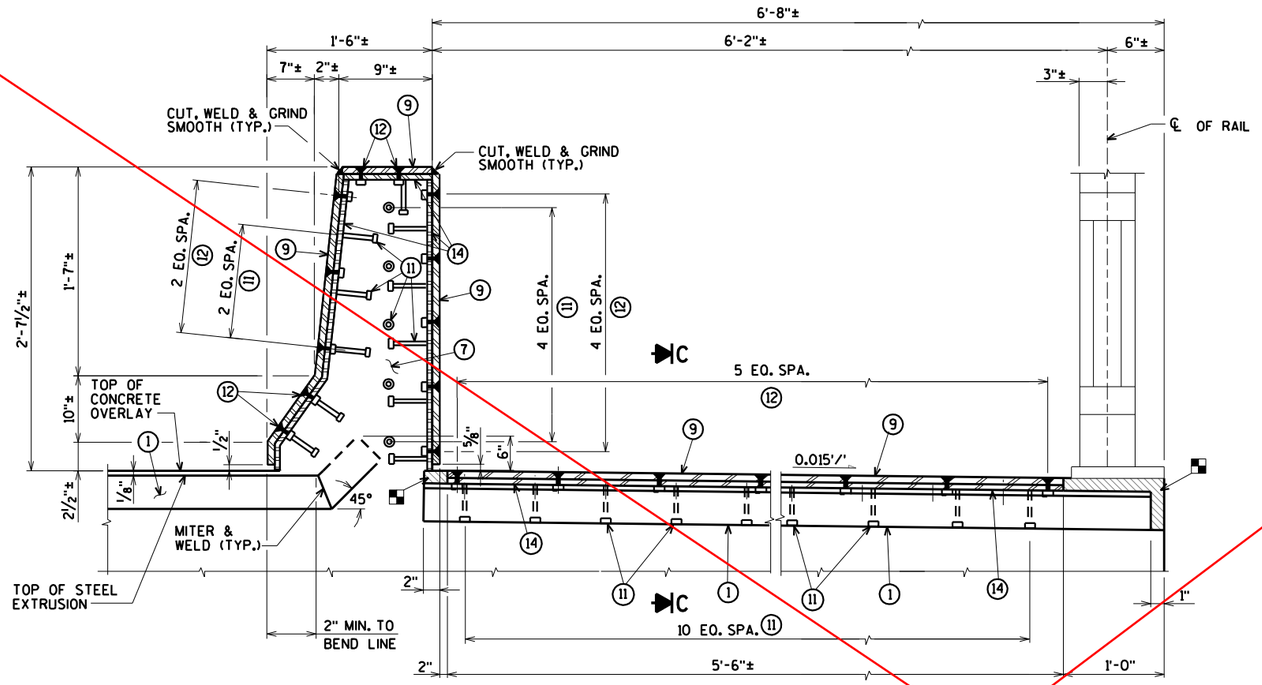
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9/12/2013

black.tbl

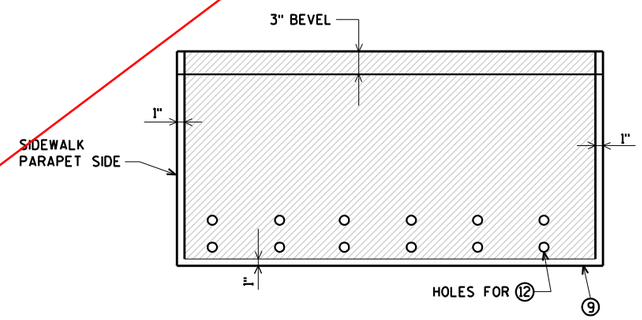
STATE PROJECT NUMBER

8680-04-71



ELEVATION OF SIDEWALK W/PARAPET
SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

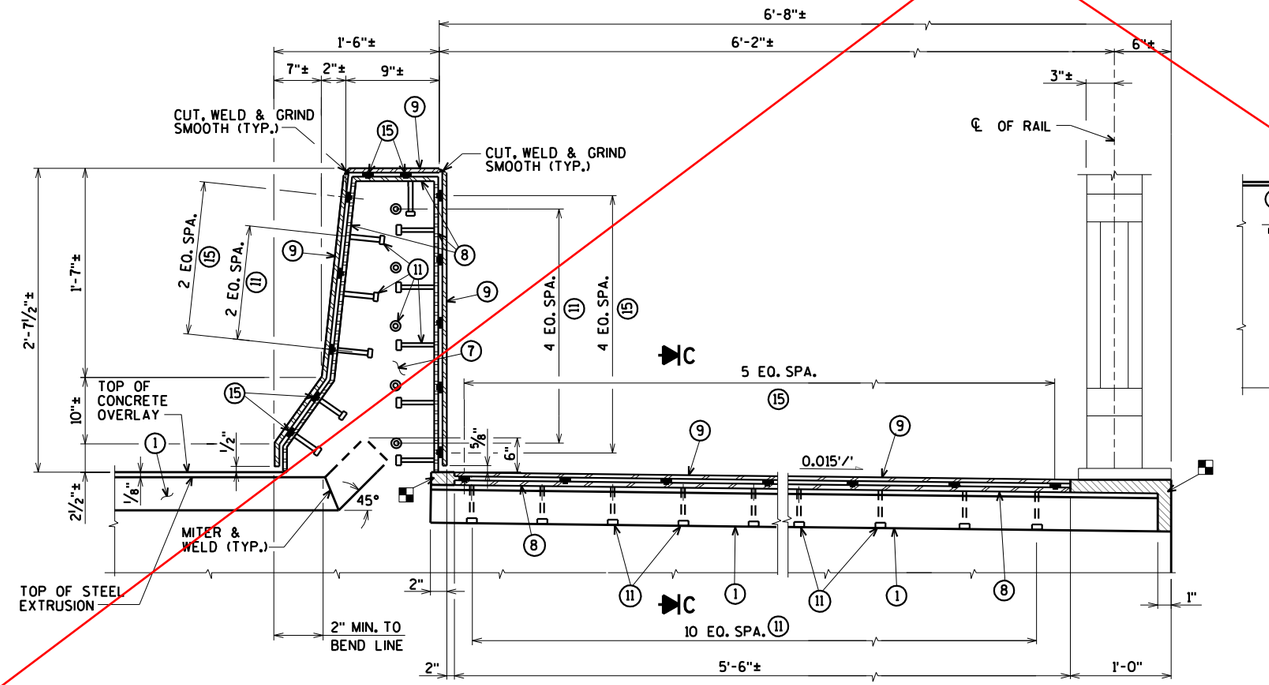


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE ▲

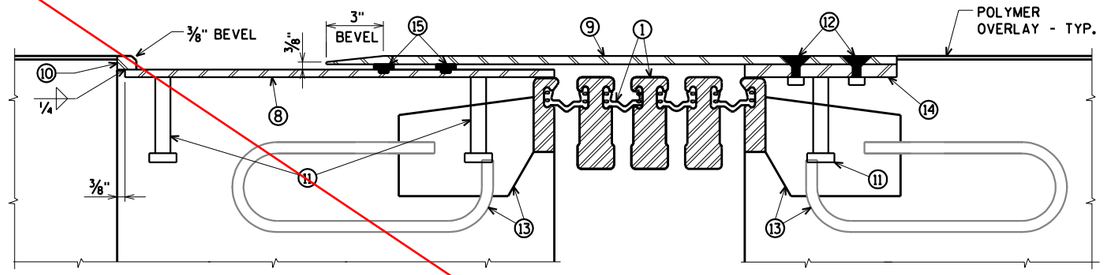
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 66

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET
SECTION B



SECTION C

See revised joint details
PAGE 412.
Cover plate details
PAGE 409.

▪ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 66-68, 70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINT 16 DETAILS SIDEWALK & PARAPET

SHEET 69 OF 99
415

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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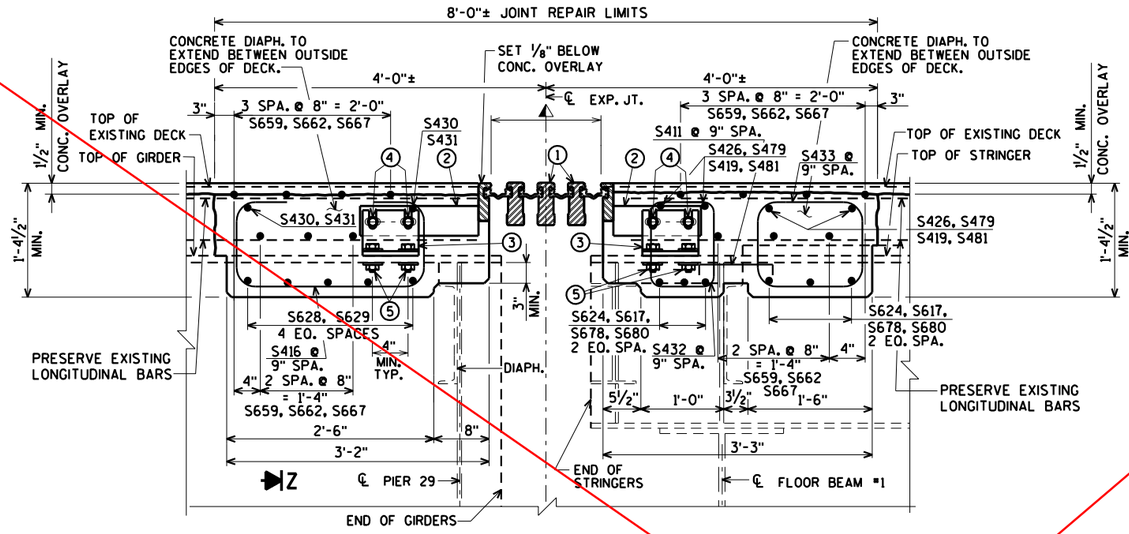
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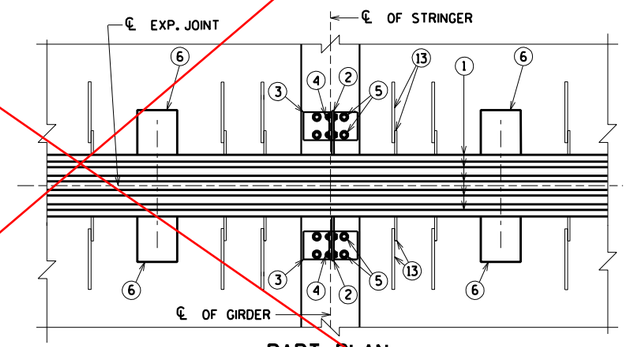
STATE PROJECT NUMBER

8680-04-71

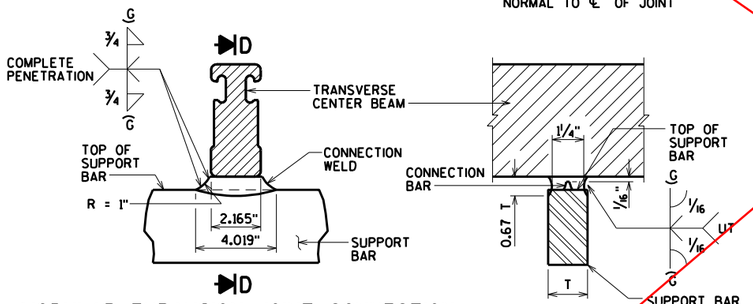


SECTION THRU JOINT 16

NORMAL TO ℄ OF JOINT

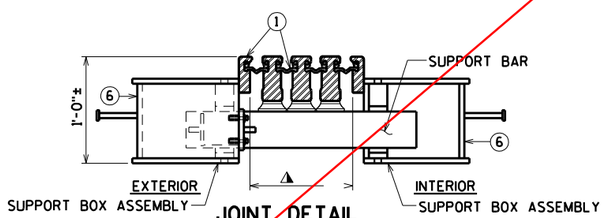


PART PLAN



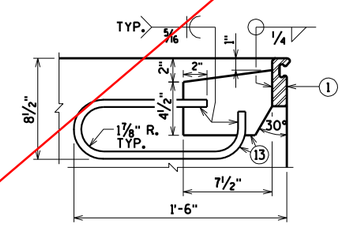
MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

SECTION D



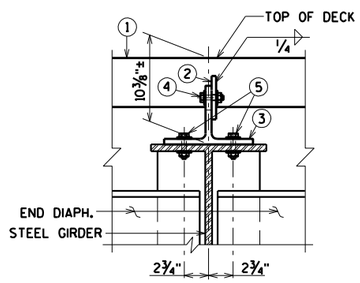
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK ℄ CONC. DIAPH.



SECTION Z-Z

NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 4 CELLS.

② 1/2" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ 3/4" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM 1/2" PLATES.

⑦ 3/8" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM 3/8" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑩ 7/8" SQ. BAR. WELD TO NO. 8 AS SHOWN.

⑪ 3/4" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ 3/4" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ 1/2" PLATE WITH 5/8" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM 5/8" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. 5/8 IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

See revised joint details PAGE 412.
Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 66-69

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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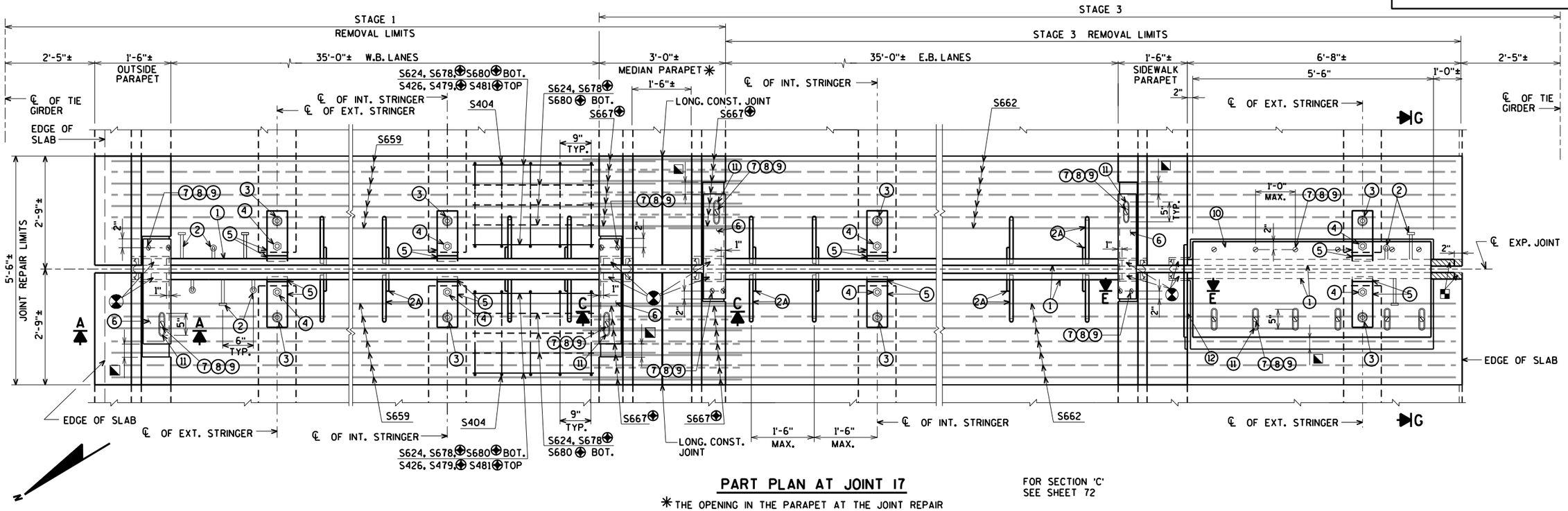
MODULAR EXPANSION JOINT 16 DETAILS

SHEET 70 OF 99
416

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINT 17

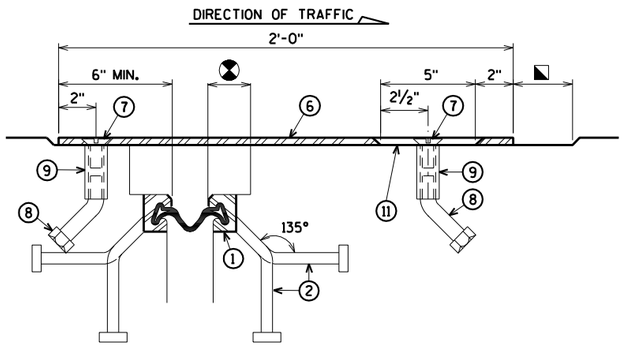
* THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTION 'C' SEE SHEET 72

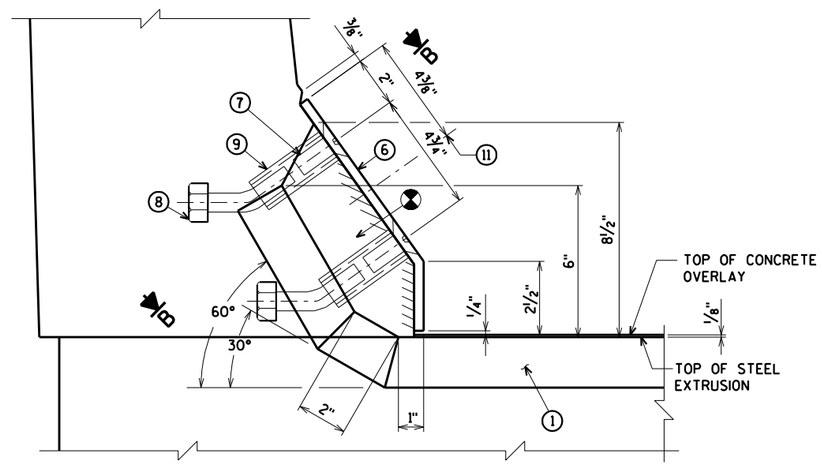
FOR SECTIONS 'E' AND 'G' SEE SHEET 73

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

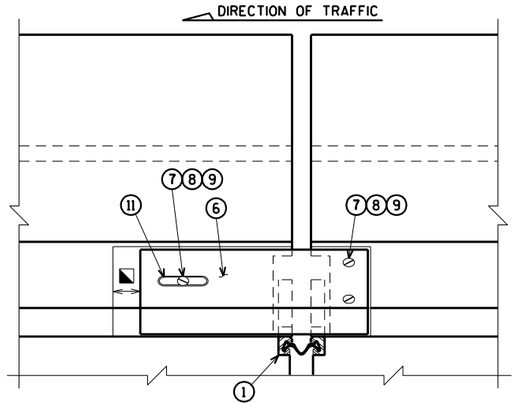


SECTION B



SECTION A

OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY

OUTSIDE PARAPET

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◺ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

◪ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 72-74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 17 DETAILS

SHEET 71 OF 99
417

ORIGINAL PLANS PREPARED BY
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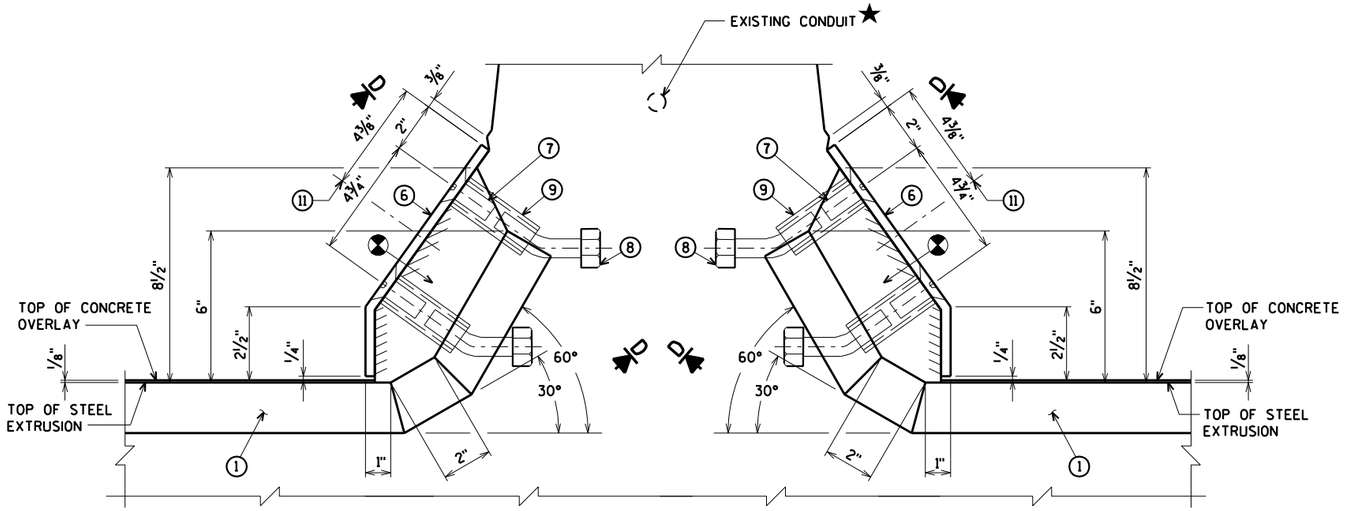
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STATE PROJECT NUMBER

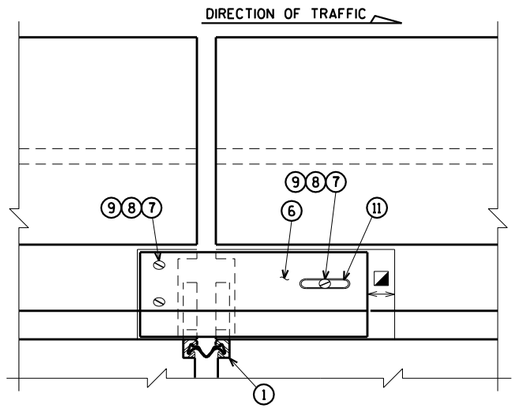
8680-04-71



SECTION C

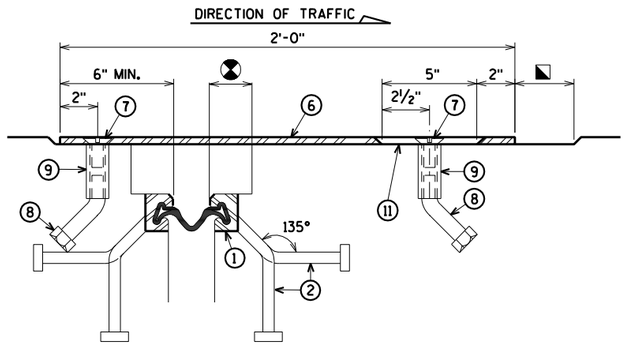
MEDIAN PARAPET

FOR LOCATION OF SECTION 'C' SEE SHEET 71



VIEW OF PARAPET PLATES FROM ROADWAY

MEDIAN PARAPET



SECTION D

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEETS 71, 73-74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MEDIAN PARAPET COVER PLATE JOINT 17 DETAILS

SHEET 72 OF 99
418

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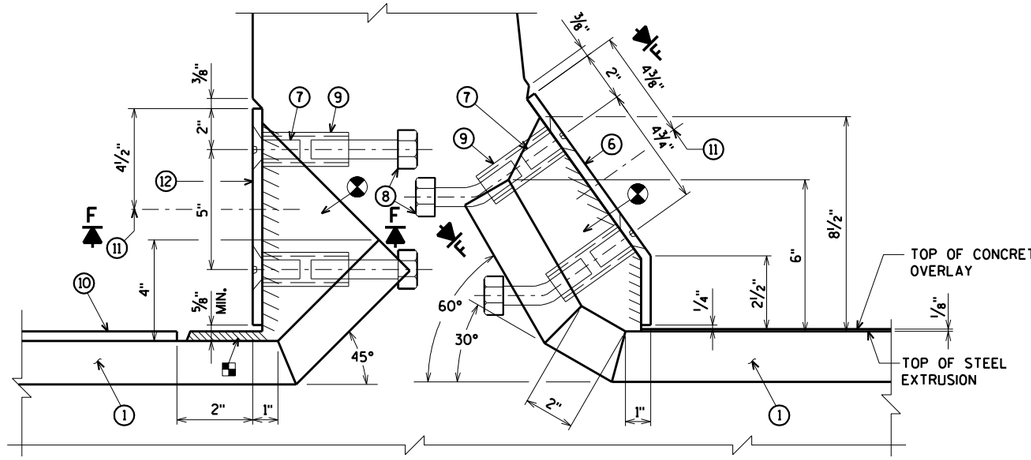
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STATE PROJECT NUMBER

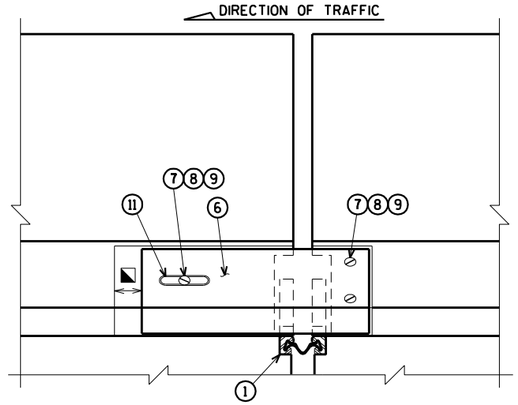
8680-04-71



SECTION E

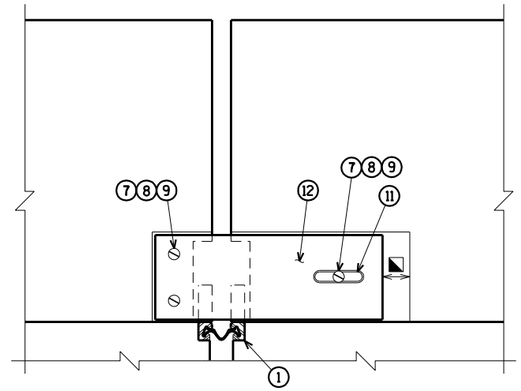
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G' SEE SHEET 71



VIEW OF PARAPET PLATES FROM ROADWAY

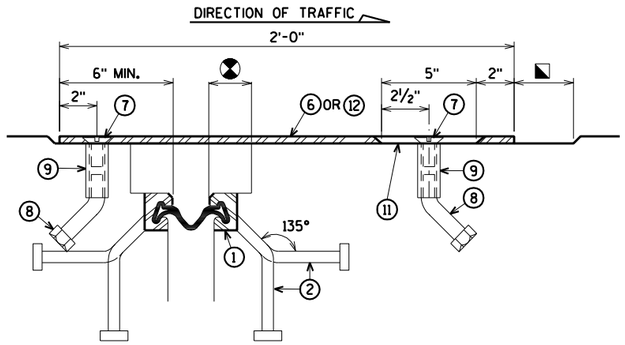
SIDEWALK PARAPET



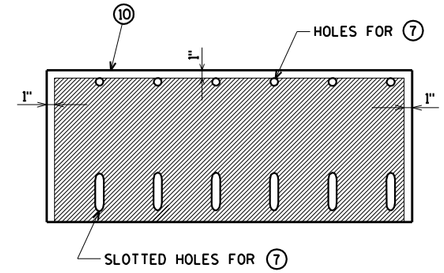
VIEW OF PARAPET PLATES FROM SIDEWALK

SIDEWALK PARAPET

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

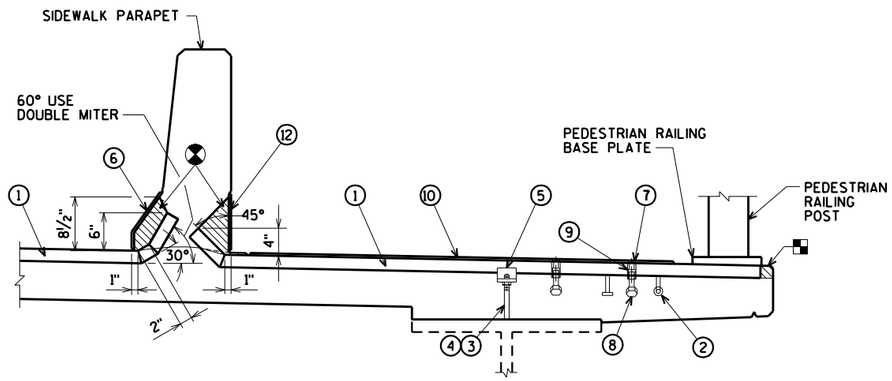


SECTION F

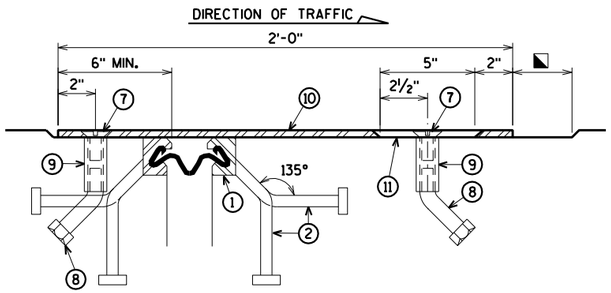


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.



SECTION AT SIDEWALK



SECTION G

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 71-72, 74

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK PARAPET COVER PLATE JOINT 17 DETAILS

SHEET 73 OF 99
419

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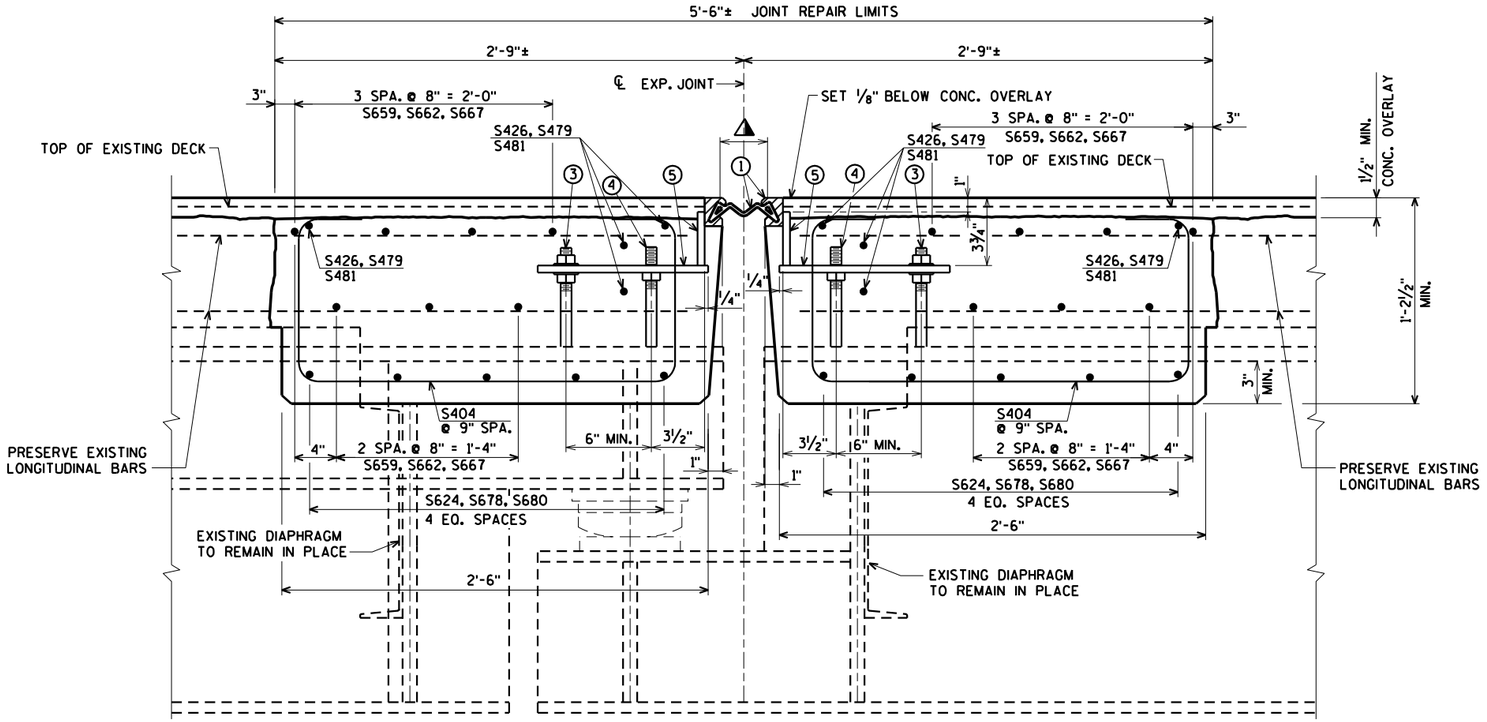
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 17

DIMENSIONS ARE NORMAL TO ℄ OF JOINT

LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 2¼".
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE. WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE ⅜" X 10½" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
10. SIDEWALK COVER PLATE ⅜" X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE ⅜" X 10" X 2'-0" LONG WITH HOLES FOR NO. 7.

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

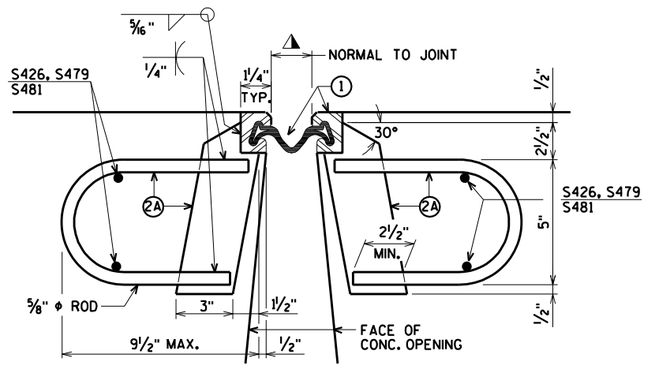
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

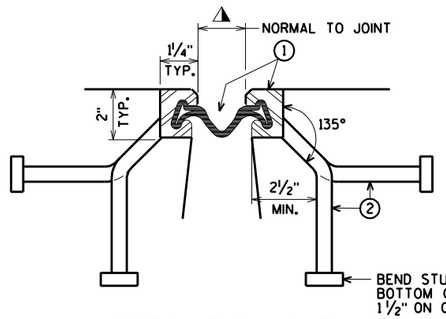
ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".



SECTION THRU JOINT

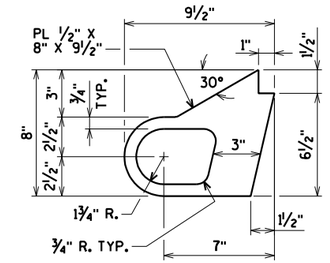
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR STRINGERS



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



ALTERNATE STRIP SEAL ANCHOR

WORK THIS SHEET WITH SHEETS 71-73

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 17 DETAILS

SHEET 74 OF 99
420

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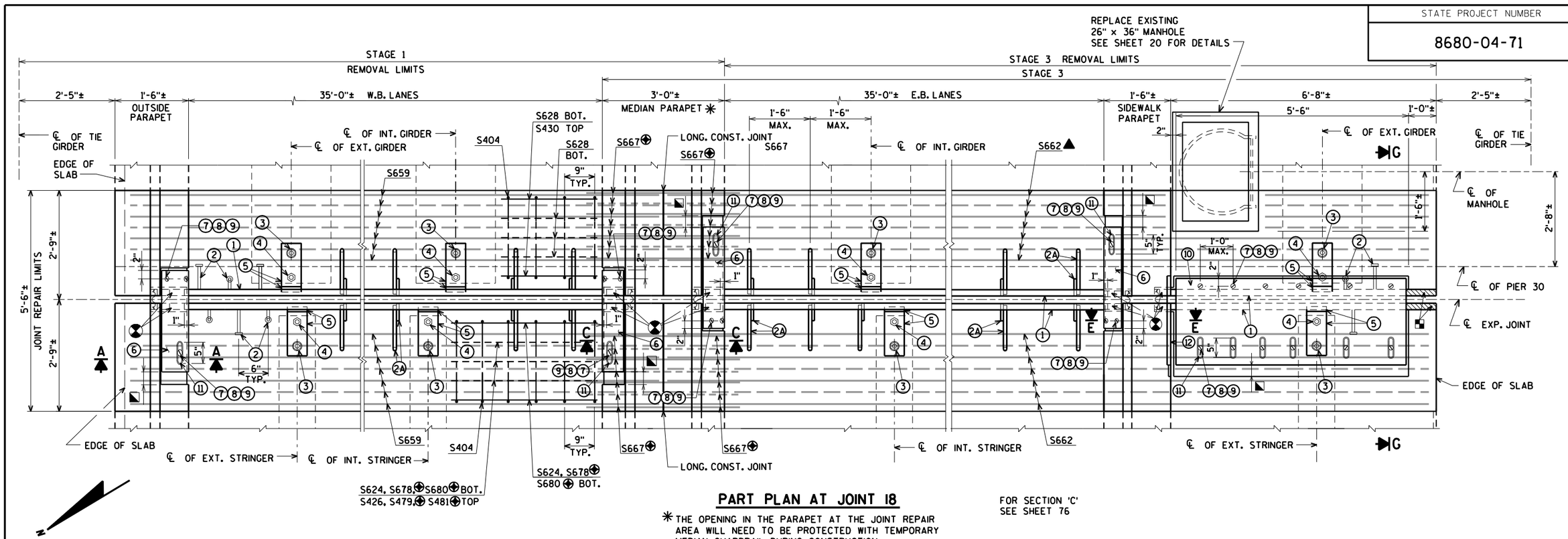
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STATE PROJECT NUMBER

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PART PLAN AT JOINT 18

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

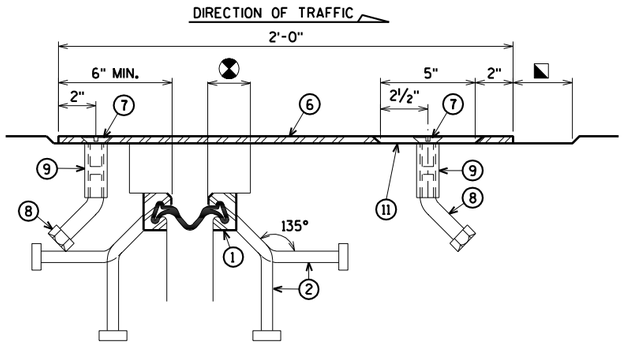
FOR SECTION 'C' SEE SHEET 76

FOR SECTIONS 'E' AND 'G' SEE SHEET 77

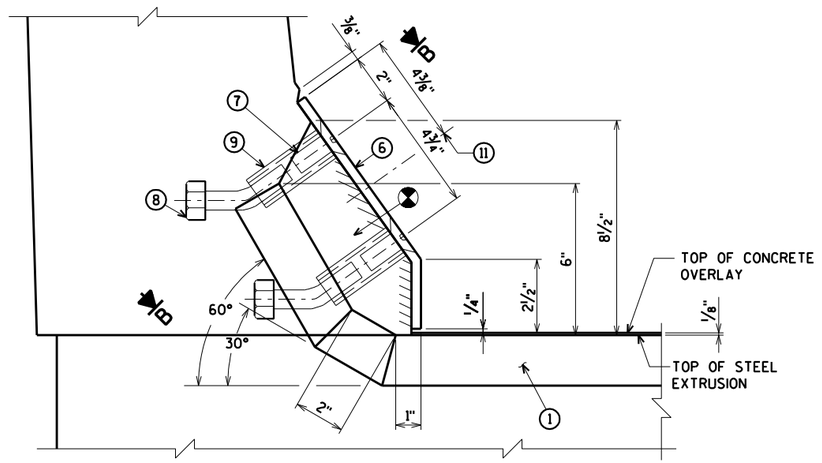
NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

▲ CUT S662 BARS IN THE FIELD TO MISS THE NEW MANHOLE. COST OF CUTTING THE BARS AND COATING THE ENDS OF THE CUTS IS INCIDENTAL TO THE BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

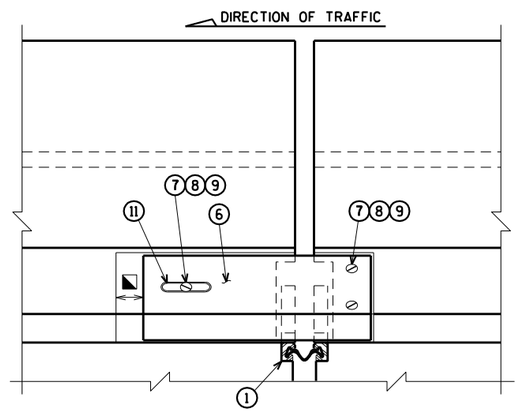


SECTION B



SECTION A

OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY

OUTSIDE PARAPET

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".
- ◪ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 76-78

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 18 DETAILS

SHEET 75 OF 99
421

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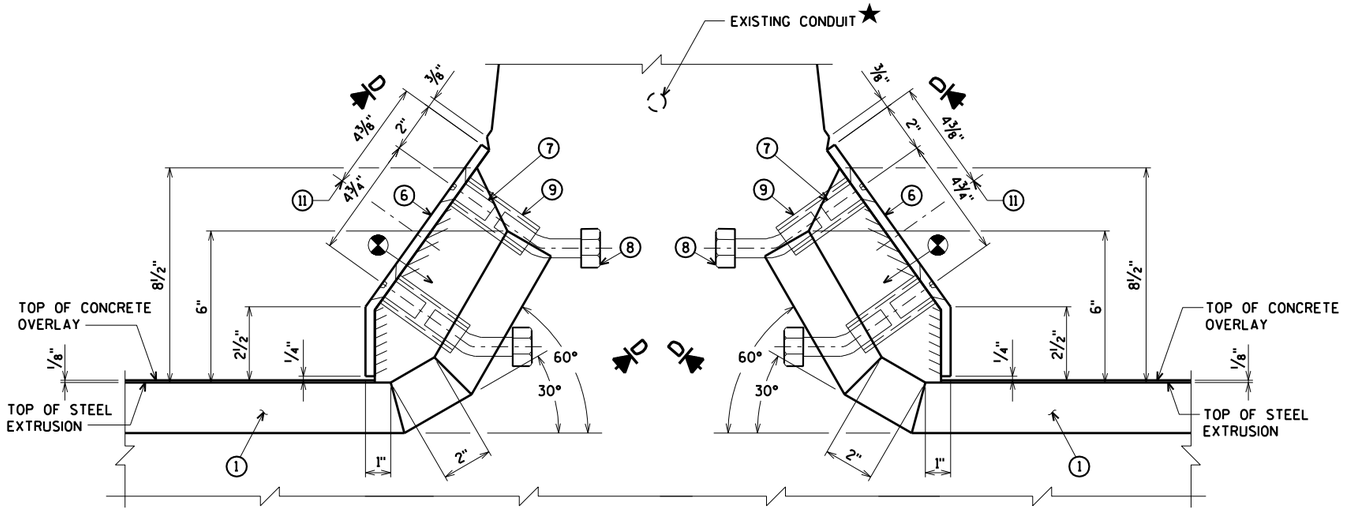
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STATE PROJECT NUMBER

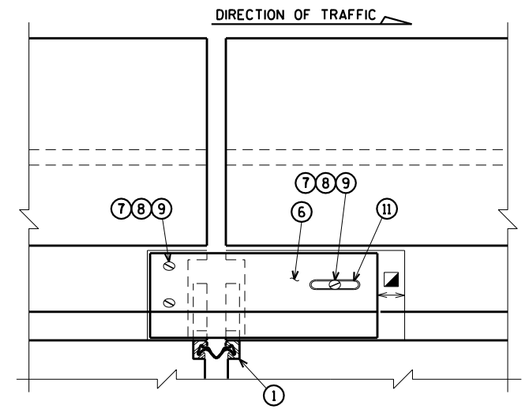
8680-04-71



SECTION C

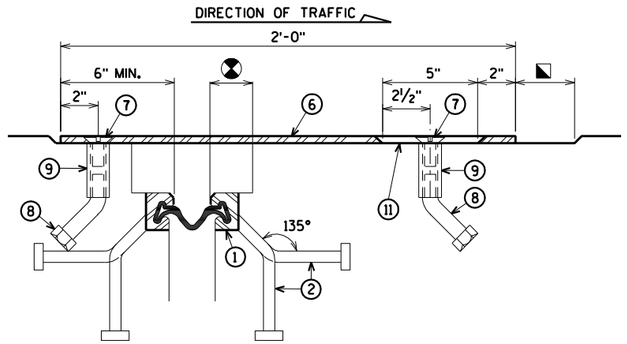
MEDIAN PARAPET

FOR LOCATION OF SECTION 'C' SEE SHEET 75



VIEW OF PARAPET PLATES FROM ROADWAY

MEDIAN PARAPET



SECTION D

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

WORK THIS SHEET WITH SHEETS 75, 77-78

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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MEDIAN PARAPET COVER PLATE JOINT 18 DETAILS

SHEET 76 OF 99

422

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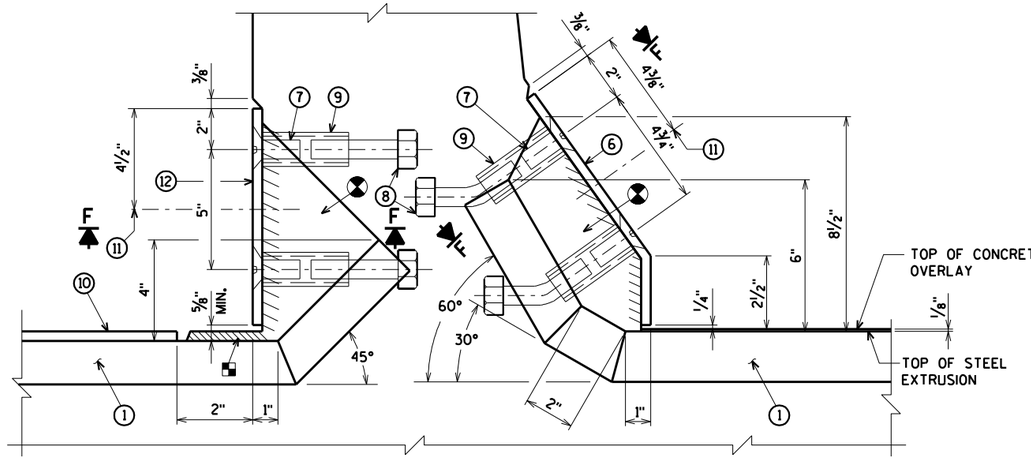
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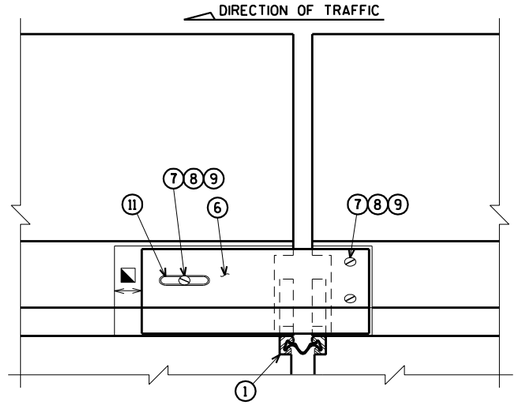
8680-04-71



SECTION E

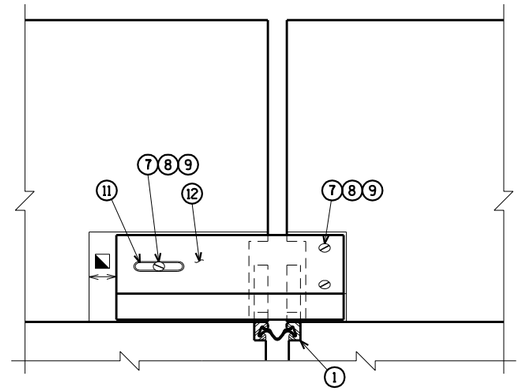
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G' SEE SHEET 75



VIEW OF PARAPET PLATES FROM ROADWAY

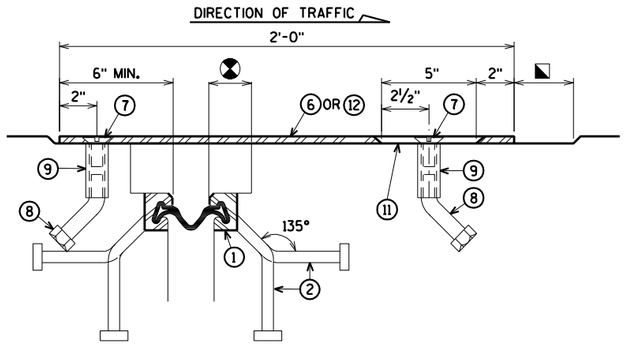
SIDEWALK PARAPET



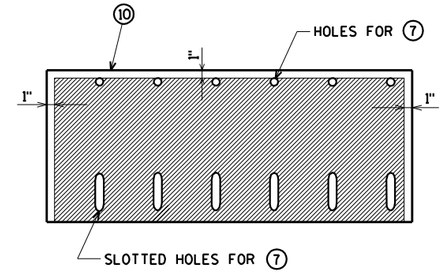
VIEW OF PARAPET PLATES FROM SIDEWALK

SIDEWALK PARAPET

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

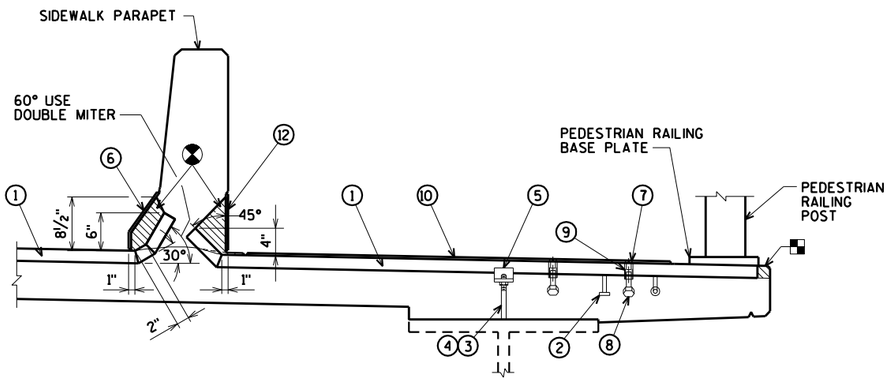


SECTION F

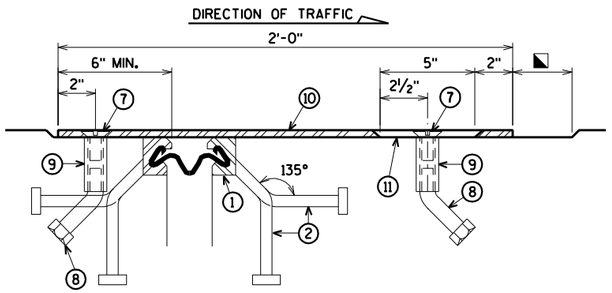


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.



SECTION AT SIDEWALK



SECTION G

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 75-76, 78

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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SIDEWALK PARAPET COVER PLATE JOINT 18 DETAILS

SHEET 77 OF 99
423

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42-0825 EXPJT 18 ss.dgn

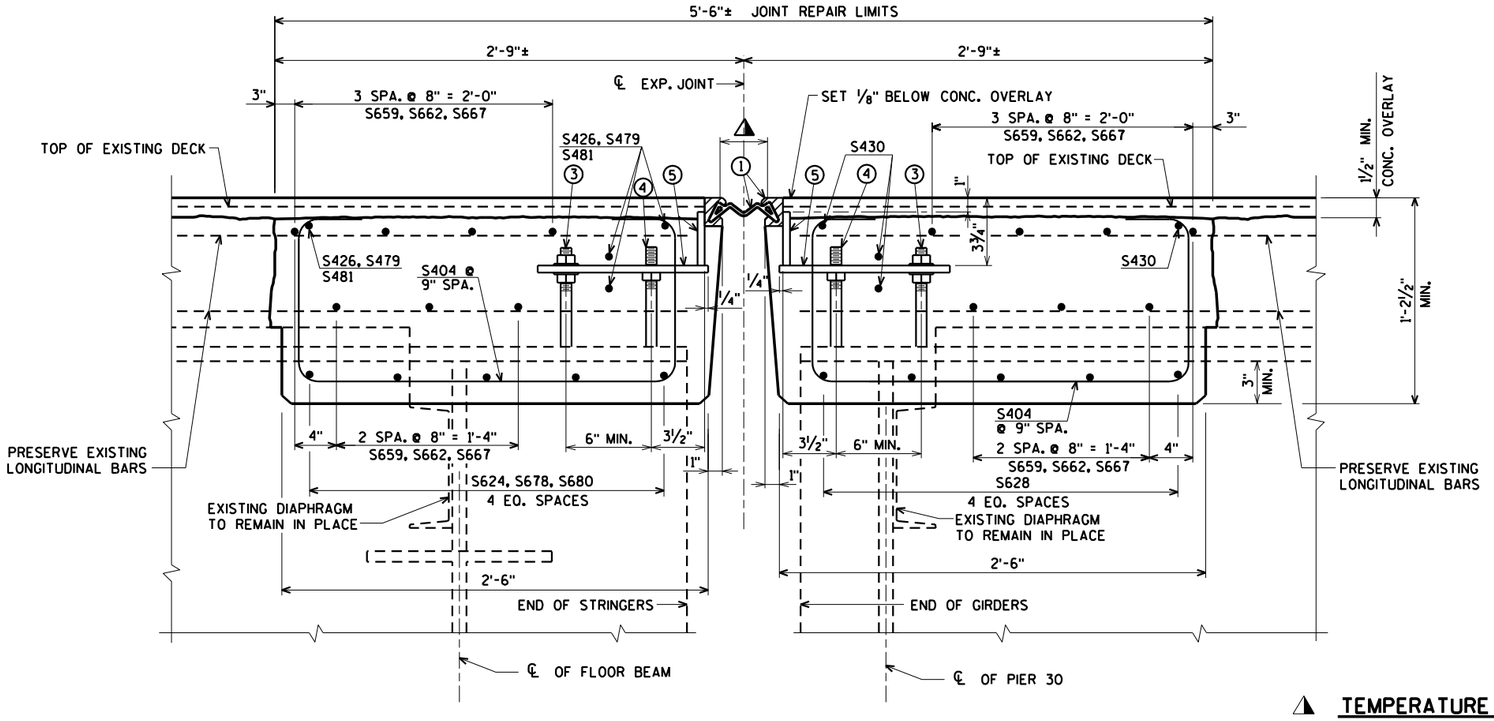
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STATE PROJECT NUMBER

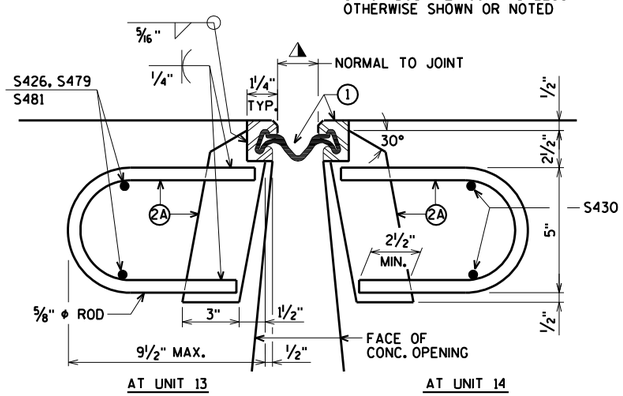
8680-04-71



SECTION THRU JOINT 18

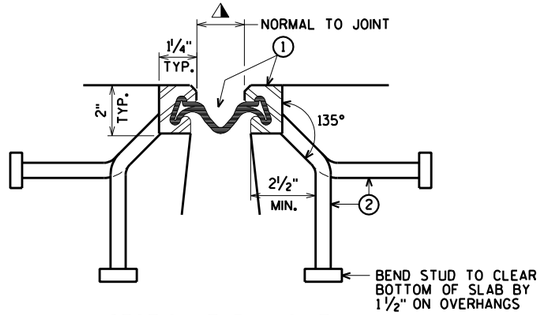
DIMENSIONS ARE NORMAL TO ℄ OF JOINT

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS

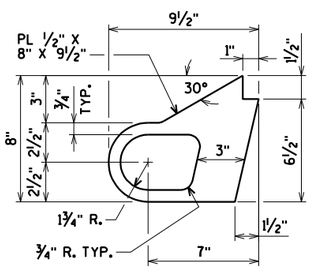
LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS 5/8"ϕ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. 1/2" THICK ANCHOR PLATE WITH 5/8"ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. 3/4" ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. 3/4"ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
6. GALVANIZED PLATE 3/8" X 10 1/2" X 2'-0" LONG WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. 3/4"ϕ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. 3/4"ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. 3/4"ϕ X 2 1/4" GALVANIZED THREADED COUPLING.
10. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
11. SIDEWALK COVER PLATE 3/8" X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
12. GALVANIZED PLATE 3/8" X 10" X 2'-0" LONG WITH HOLES FOR NO. 7.

⚠ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/4"
75°	1 1/2"
65°	1 3/4"
55°	2"
45°	2 1/4"
35°	2 1/2"
25°	2 3/4"
15°	3"
5°	3 1/4"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.



ALTERNATE STRIP SEAL ANCHOR

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. *6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

WORK THIS SHEET WITH SHEETS 75-77

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

STRIP SEAL EXPANSION JOINT 18 DETAILS

SHEET 78 OF 99
424

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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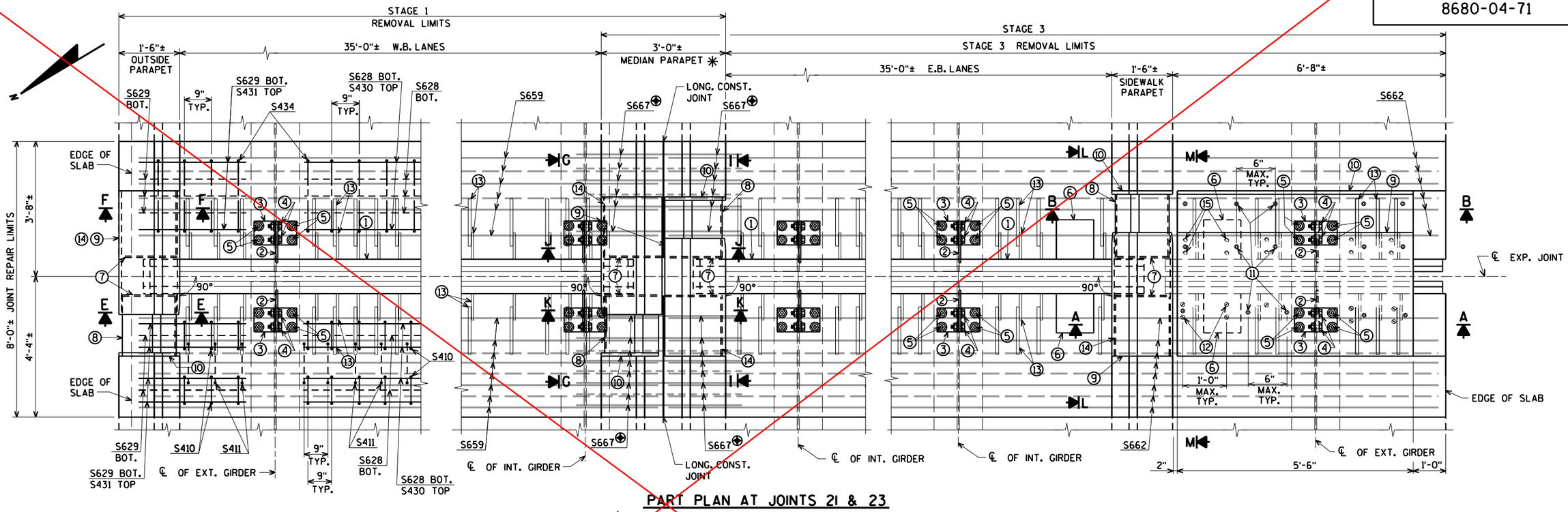
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STATE PROJECT NUMBER

8680-04-71



PART PLAN AT JOINTS 21 & 23

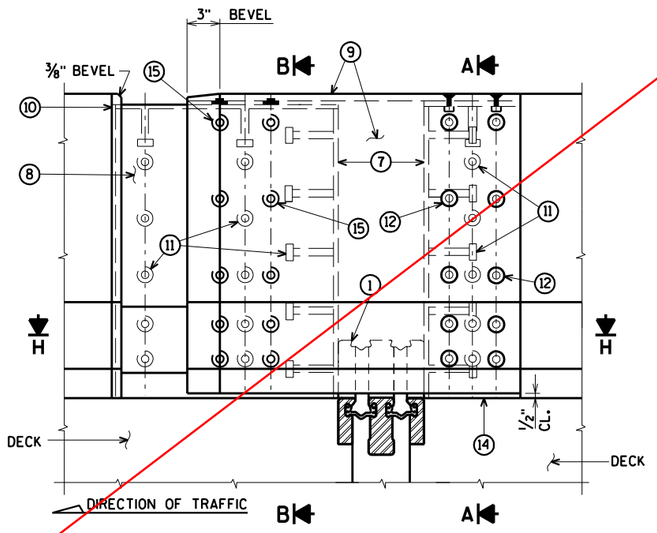
✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

FOR SECTIONS 'A' AND 'B' SEE SHEET 82

FOR SECTIONS 'E' AND 'F' SEE SHEET 80

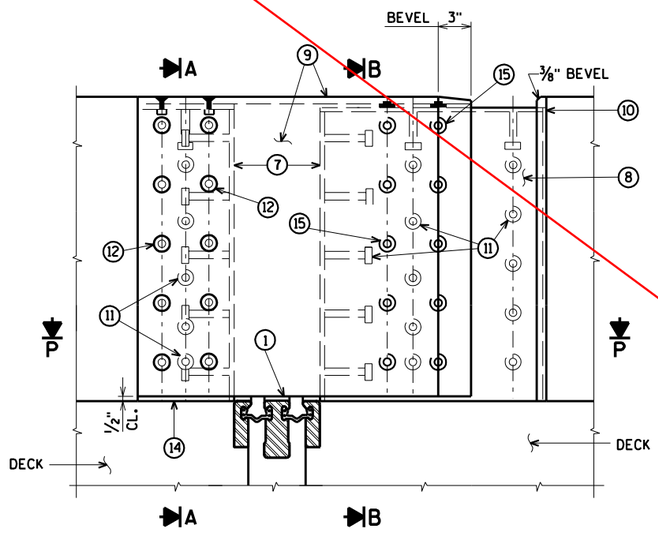
FOR SECTIONS 'G', 'I', 'J' AND 'K' SEE SHEET 81



ELEVATION OF SIDEWALK PARAPET
SECTION L

FOR SECTION 'H' SEE SHEET 80

FOR SECTION 'P' SEE SHEET 81



ELEVATION OF SIDEWALK PARAPET
SECTION M

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

See revised details

WORK THIS SHEET WITH SHEETS 80-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

MODULAR EXPANSION JOINTS 21 & 23 DETAILS

SHEET 79 OF 99
425

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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42-0825 EXPJT 2123.dgn

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9/13/2013

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REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

GENERAL NOTES

MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH SECTION 502 OF THE STANDARD SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, CONTRACT PLANS, AND THE SPECIAL PROVISIONS.

EDGE BEAMS, CENTER BEAMS, AND SUPPORT BARS SHALL BE ASTM A709 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

SUPPORT BOXES SHALL BE ASTM-A500 GRADE B STEEL.

STAINLESS STEEL SLIDING SURFACES SHALL BE ASTM-A240, TYPE 304, WITH A 20 MICRO-INCH RMS FINISH.

STUD ANCHORS SHALL BE ASTM-A108 STEEL AND AUTOMATICALLY END WELDED WITH COMPLETE FUSION. REPAIR STUDS USING WELD PROCEDURE NO. A-SM-STUD-REP-01, B-FF-STUD-REP-01, OR A-(MC)GF-STUD-REP-01.

MODULAR EXPANSION JOINTS SHALL BE DESIGNED TO ACCOMMODATE FATIGUE LOADING.

FULL PENETRATION CENTER BEAM TO SUPPORT BAR CONNECTIONS SHALL BE 100% ULTRASONICALLY TESTED.

ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLY (EXCEPT STAINLESS STEEL) SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM-A123 (AFTER FABRICATION).

DUE TO TANK LIMITATIONS, ASSEMBLIES MAY BE DIPPED IN SECTIONS AND SHOP SPLICED AFTER GALVANIZING. ANY GALVANIZED COATING DAMAGED MUST BE REPAIRED IN ACCORDANCE WITH ASTM-A780, ANNEX "A1, REPAIR USING ZINC BASED ALLOYS".

PRIOR TO GALVANIZING, ALL STEEL SURFACES IN THE MODULAR EXPANSION JOINT ASSEMBLIES (EXCEPT STAINLESS STEEL) SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6 "COMMERCIAL BLAST CLEANING" (AFTER FABRICATION).

AFTER FABRICATION, BUT BEFORE SHIPMENT, SHOP SHALL STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST, AND SWEEP.

LIFTING DEVICES MAY BE WELDED TO PARTS FOR GALVANIZING IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR GALVANIZE AREA PER ASTM A780.

MODULAR JOINTS SHALL BE SHIPPED BLOCKED AND BANDED. JOINT WIDTH ADJUSTMENTS DUE TO TEMPERATURE SHALL BE MADE PER FIELD ENGINEERS RECOMMENDATIONS.

NEOPRENE STRIP SEAL SHALL BE CONTINUOUS AND SHOP INSTALLED WITH A LUBRICANT ADHESIVE.

ALL STEEL SURFACES IN CONTACT WITH THE NEOPRENE SEAL SHALL BE CLEANED PRIOR TO THE INSTALLATION OF THE STRIP SEAL.

CARE SHALL BE TAKEN TO PREVENT DAMAGE DURING MOVING AND SHIPPING JOINTS.

MODULAR JOINT SHALL FOLLOW ROADWAY AND GRADE.

MODULAR JOINTS SHALL BE MARKED SHOWING JOINT TYPE AND PROPER LOCATION. MARKINGS SHALL BE VISIBLE AFTER JOINTS HAVE BEEN COMPLETELY INSTALLED.

QUALITY CONTROL INSPECTION WILL BE PERFORMED BY DSB QC DEPARTMENT.
QUALITY ASSURANCE INSPECTION WILL BE PERFORMED BY WISDOT-BRIDGE UNIT-INSPECTION.

ALL WELDING SHALL BE IN ACCORDANCE WITH AWS SPECIFICATIONS AND SHALL BE DONE BY CERTIFIED WELDERS.

REPAIR DEFECTS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

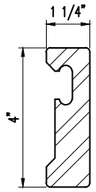
REPAIR THERMAL CUT GOUGES EXCEEDING AWS BY USING WELD PROCEDURE B-F-REP-100 OR A-(MC)G-REP-100.

ANY TIGHTLY ADHERENT WELD SPATTER NEED NOT BE REMOVED IN COATING AREAS TO BE CAST IN CONCRETE.

ALL HOLES MUST BE DRILLED OR PUNCHED.

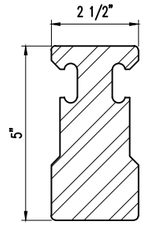
5/8"ø X 3 1/2" SQUARE HEAD A307 SPRING ACCESS PLATE BOLT (ITEM 50p2) MAY EITHER BE COATED WITH ZINC PLATING OR MECHANICALLY GALVANIZED.

IN ACCORDANCE WITH AISC STEEL BRIDGE COMPONENT CERTIFICATION REQUIREMENTS, CALCULATIONS AND DRAWINGS HAVE BEEN REVIEWED BY JOHN WOLFF P.E.



4" TALL EDGE BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.
(LOCATED ON "D-160" MODULAR EXPANSION JOINTS.)

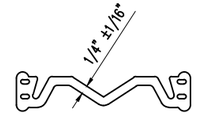


CENTER BEAM DETAIL

AASHTO M270 GRADE 50 (ASTM-A572) OR GRADE 50W (ASTM-A588) STEEL.

INSTALLATION PROCEDURES

1. FIELD ENGINEER SHALL DETERMINE JOINT OPENING ON DAY OF INSTALLATION.
2. PLACE JOINT IN BLOCKOUT AND PROPERLY ALIGN BOTH HORIZONTALLY AND VERTICALLY. (JOINT MUST FOLLOW ROADWAY GRADE.)
3. BEND OR REMOVE CONFLICTING REBAR AS DIRECTED BY FIELD ENGINEER.
4. BEFORE REMOVING BLOCK AND BANDING, ANCHOR ONE SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. FIELD LOCATE AND DRILL HOLES IN SUPPORTING STRUCTURAL STEEL FOR JOINT SUPPORT HARDWARE.
5. REMOVE BLOCK AND BANDING AFTER ONE SIDE HAS BEEN ATTACHED TO STRUCTURE.
6. ADJUST JOINT OPENING, AS DETERMINED BY THE FIELD ENGINEER.
7. ANCHOR THE OTHER SIDE OF THE JOINT USING SUPPORT ASSEMBLIES. AFTER SETTING JOINT TO GRADE, TIGHTEN ALL SUPPORT CONNECTIONS. IF NEEDED, CONTRACTOR MAY TACK WELD JOINT SUPPORTS AFTER FINAL ADJUSTMENT.
8. CONTRACTOR TO PLACE FORMWORK SO THAT NO CONCRETE FLOWS INTO BOXES AND JOINT GAP OPENINGS.
9. POUR AND VIBRATE CONCRETE INTO BLOCKOUT TO ENSURE PROPER CONSOLIDATION AROUND ALL EMBEDDED COMPONENTS. REMOVE FORMWORK AFTER CURE TIME, AS DETERMINED BY FIELD ENGINEER.



"L2" SERIES STRIP SEAL

L2-400 SEAL

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 48
- SEE RAIL AND SEAL DETAILS ON SHEET 48
- SEE INSTALLATION PROCEDURES ON SHEET 48
- SEE SPLICE DETAILS ON SHEET 49
- SEE UPTURN DETAILS ON SHEET 49
- SEE STUD AND LOOP ANCHORS LOCATION & SPACING DETAILS ON SHEET 50
- SEE SPRING & BEARING DIAGRAM ON SHEET 50
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 50
- SEE 'D-160' PLAN VIEW FOR JOINTS #21 & #23 ON SHEET 51
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 52
- SEE JOINT SUPPORT DETAILS ON SHEET 52
- SEE 'D-160' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 53
- SEE SUPPORT BOX DETAILS ON SHEET 54
- SEE SUPPORT BAR DETAILS ON SHEET 55
- SEE BILL OF MATERIALS ON SHEET 56

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

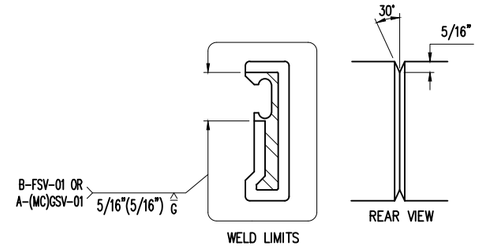
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DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

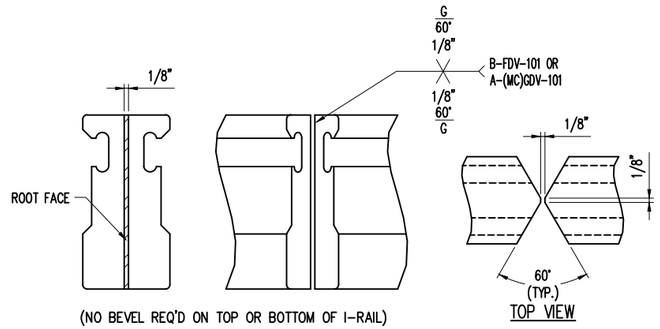
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	48

REVISED
Modular Expansion Joints 21 & 23
DETAILS

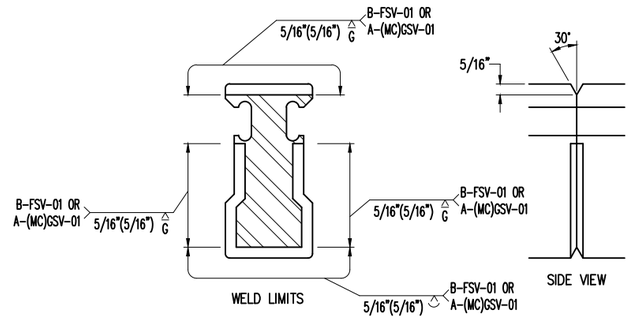
CONSTRUCTION
SHOP DRAWING



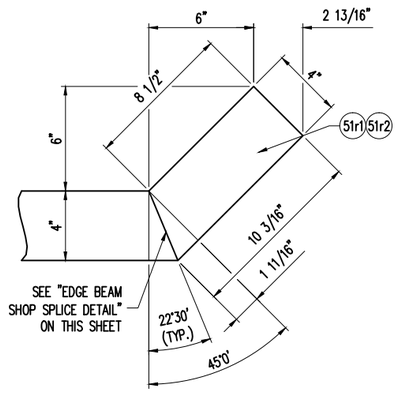
EDGE BEAM SHOP SPLICE DETAIL



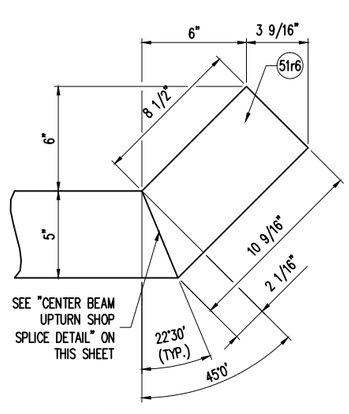
CENTER BEAM SHOP SPLICE DETAIL
COMPLETE PENETRATION WELD



CENTER BEAM UPTURN SHOP SPLICE DETAIL
PARTIAL PENETRATION WELD (@ UPTURNS ONLY U.N.O.)



EDGE BEAM
UPTURN DETAILS



CENTER BEAM
UPTURN DETAILS

REV.	DESCRIPTION	DATE	DET.	CKD.

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CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

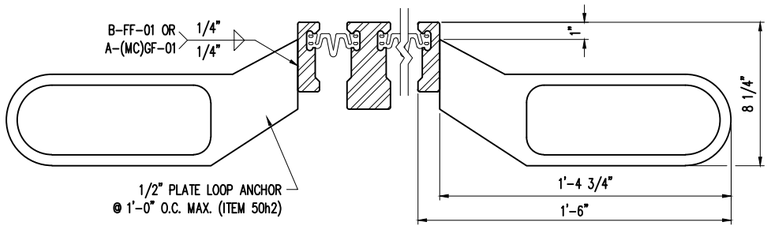
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UPTURN & SPLICE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

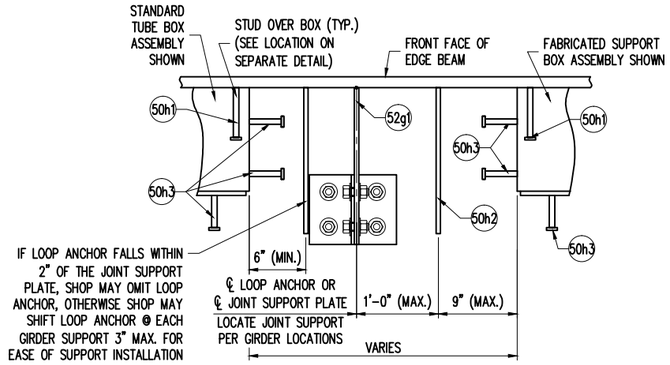
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	49

REVISED
Modular Expansion Joints 21 & 23
DETAILS

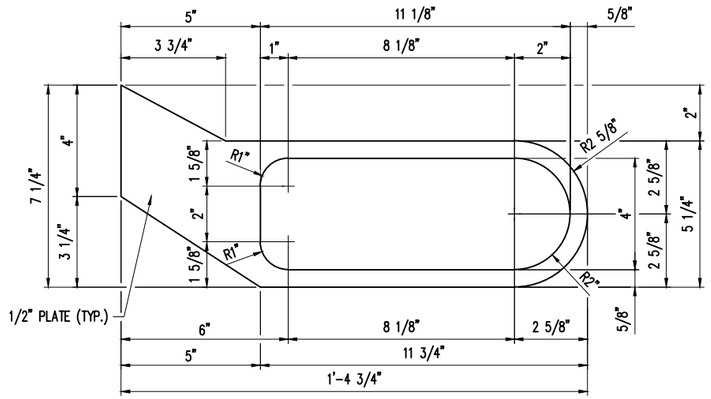
CONSTRUCTION
SHOP DRAWING



SECTION THRU 'D-160' BETWEEN SUPPORT BOXES
(EDGE BEAM ANCHORAGE)

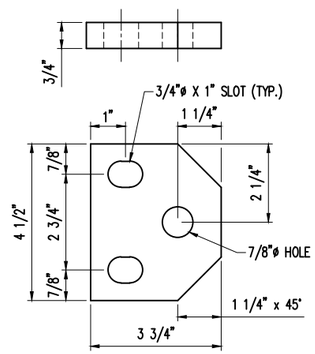


TYP. LOOP ANCHOR LAYOUT SEQUENCE
FOR 'D-160' MODULAR EXPANSION JOINT



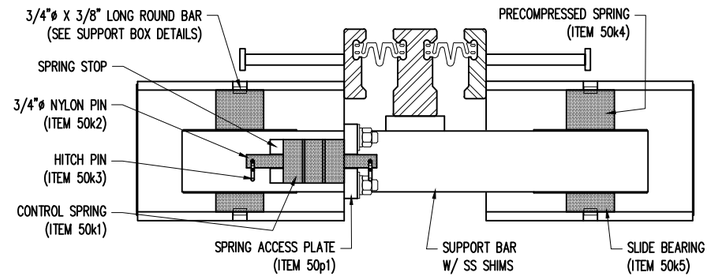
ITEM NO. 50h2
(234) REQ'D.

PLATE ANCHOR DETAIL



ITEM NO. 50p1
(88) REQ'D.

SPRING ACCESS PLATE DETAIL
FOR STANDARD BOXES



TYPICAL SECTION THROUGH
SPRING & BEARING COMPONENTS
("D-160" SHOWN – OTHER JOINT SIZES SIMILAR)

REV.	DESCRIPTION	DATE	DET.	CKD.

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A GIBRALTAR INDUSTRIES COMPANY
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FAX: 419.257.0332
WWW.DSBROWN.COM

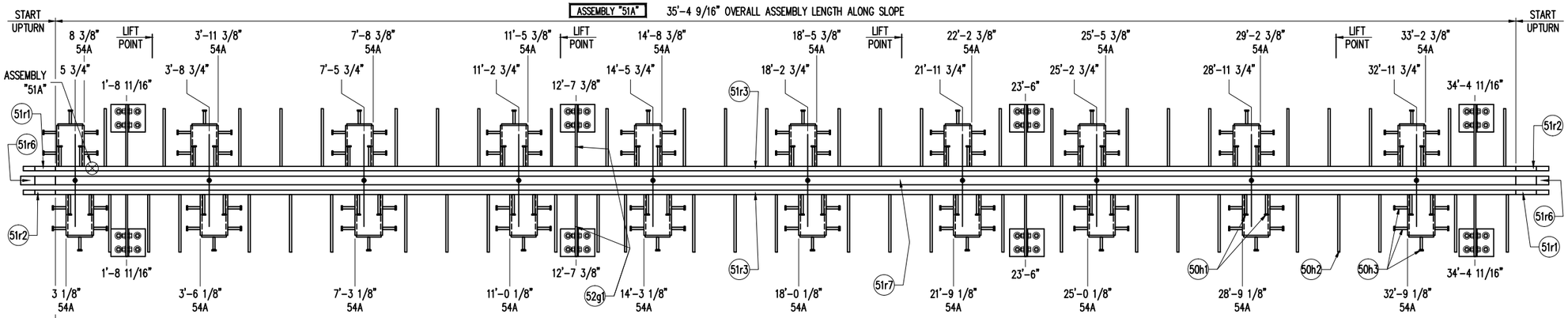
	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
STANDARD SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

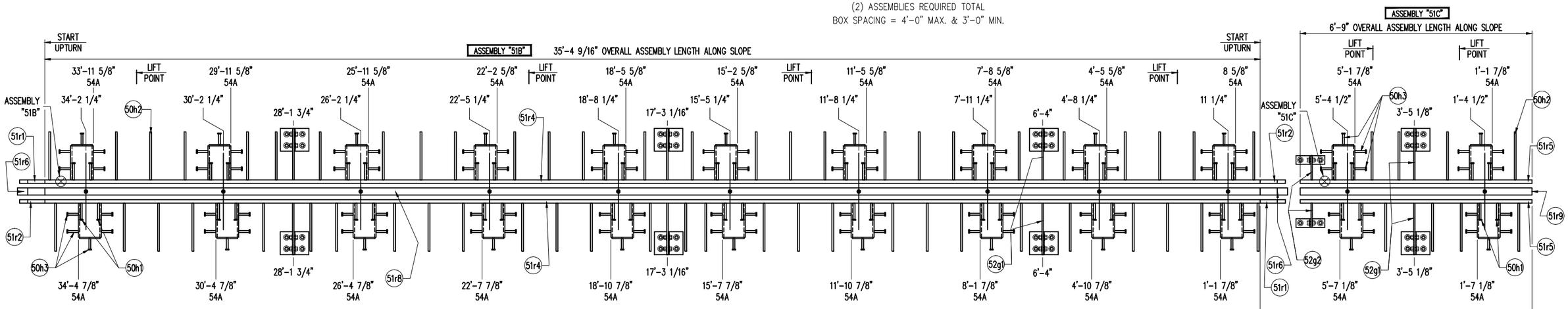
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	50

SHOP NOTES:
- SEE GENERAL NOTES ON SHEET 48
- SEE RAIL AND SEAL DETAILS ON SHEET 48
- SEE INSTALLATION PROCEDURES ON SHEET 48
- SEE SPLICE DETAILS ON SHEET 49
- SEE UPTURN DETAILS ON SHEET 49
- SEE STUD LOCATION & SPACING DETAILS ON SHEET 50
- SEE SPRING & BEARING DIAGRAM ON SHEET 50
- SEE SPRING ACCESS PLATE DETAILS ON SHEET 50
- SEE 'D-160' PLAN VIEWS ON SHEET 51
- SEE TEMPERATURE ADJUSTMENT CHART ON SHEET 52
- SEE JOINT SUPPORT DETAILS ON SHEET 52
- SEE 'D-160' SUPPORT BOX SECTIONS AND DETAILS ON SHEET 53
- SEE SUPPORT BOX DETAILS ON SHEET 54
- SEE SUPPORT BAR DETAILS ON SHEET 55
- SEE BILL OF MATERIALS ON SHEET 56
- COVER PLATES NOT SHOWN FOR CLARITY PURPOSES (SEE SHEETS AFTER 100 FOR COVER PLATE DETAILS)



'D-160' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "51A")

JOINTS 21 & 23 LOCATED @ HINGE NEAR PIERS 38 & 42 (WESTBOUND LANES)
(2) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-0" MIN.

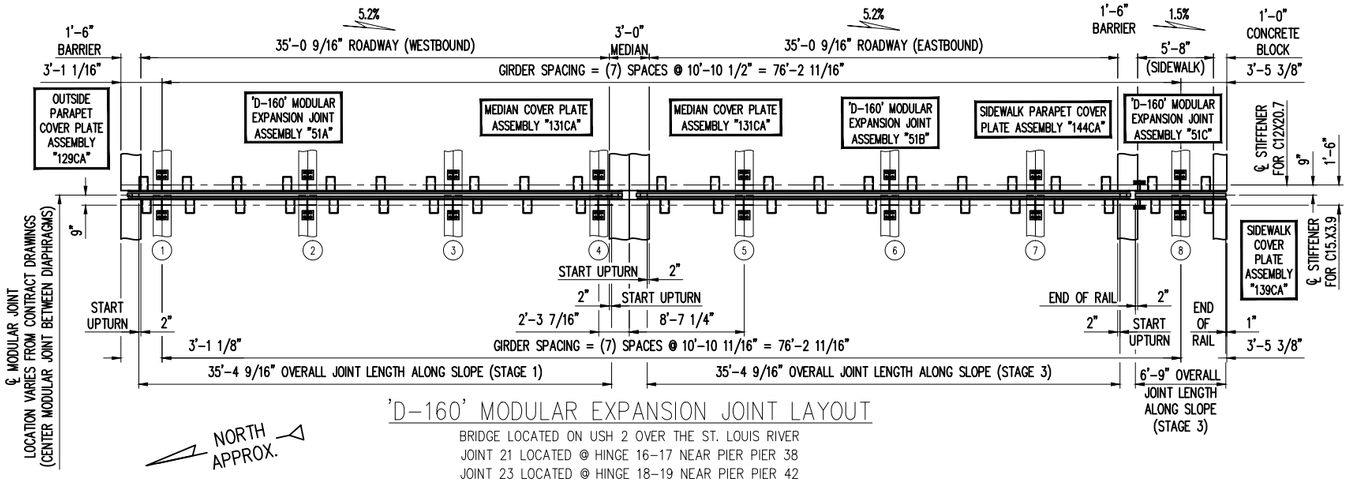


'D-160' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "51B")

JOINTS 21 & 23 LOCATED @ HINGE NEAR PIERS 38 & 42 (EASTBOUND LANES)
(2) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0" MAX. & 3'-3" MIN.

'D-160' MODULAR EXPANSION JOINT PLAN VIEW (ASSEMBLY "51C")

JOINTS 21 & 23 LOCATED @ HINGE NEAR PIERS 38 & 42 (SIDEWALK)
(2) ASSEMBLIES REQUIRED TOTAL
BOX SPACING = 4'-0"



'D-160' MODULAR EXPANSION JOINT LAYOUT

BRIDGE LOCATED ON USH 2 OVER THE ST. LOUIS RIVER
JOINT 21 LOCATED @ HINGE 16-17 NEAR PIER PIER 38
JOINT 23 LOCATED @ HINGE 18-19 NEAR PIER PIER 42

FABRICATION NOTE:

- SHOP SHALL LOCATE SPLICES IN EDGE & CENTER BEAMS. MINIMUM SPLICE LENGTH SHALL BE 2'-0" FOR EDGE BEAMS & 4'-0" FOR CENTER BEAMS.

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION SHOP DRAWING

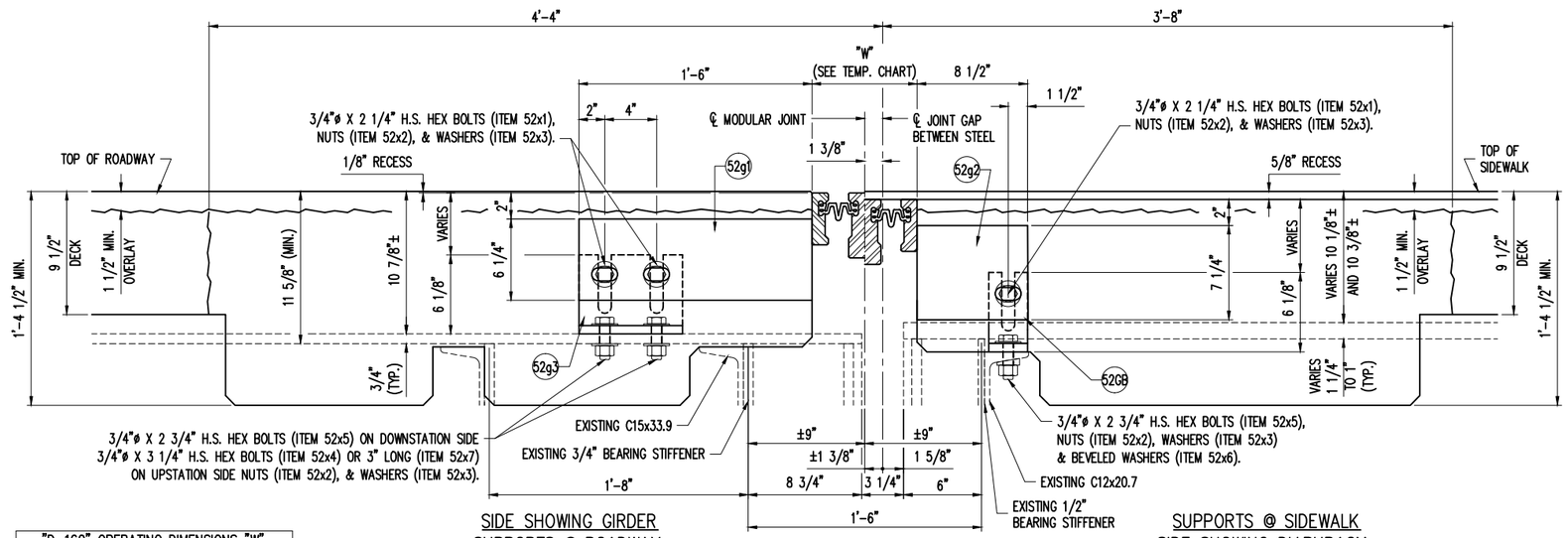
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

REV.	DESCRIPTION	DATE	DET.	CKD.

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION: 'D-160' LAYOUT & PLAN VIEWS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	51	



SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

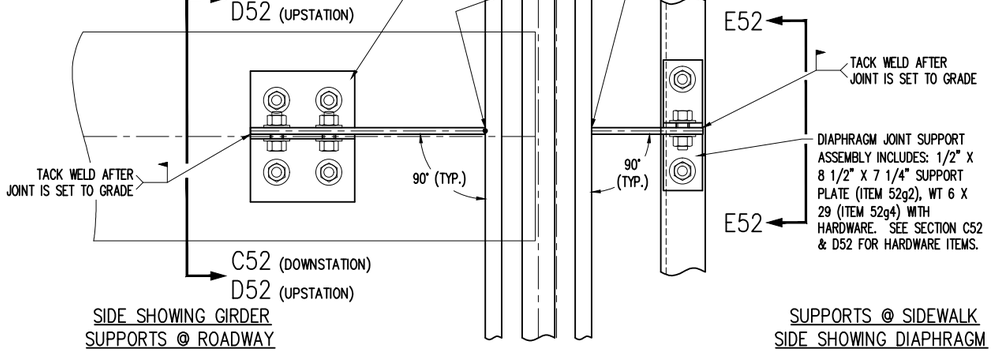
SECTION OF 'D-160' SUPPORTS @ GIRDERS & DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F

"D-160" OPERATING DIMENSIONS "W"	
STRUCT. TEMP.	JOINT #21 NEAR PIER 38 & JOINT #23 NEAR PIER 42
MAX.	5"
120°F	5 5/16"
110°F	5 11/16"
100°F	6 1/16"
90°F	6 7/16"
80°F	6 13/16"
70°F	7 3/16"
60°F	7 9/16"
50°F	7 15/16"
45°F	8 1/8"
40°F	8 5/16"
30°F	8 11/16"
20°F	9 1/16"
10°F	9 7/16"
0°F	9 13/16"
-10°F	10 3/16"
-20°F	10 9/16"
-30°F	10 15/16"
MIN.	11 5/16"

TEMPERATURE ADJUSTMENT CHART

THERMAL MOVEMENT: 3/8" PER 10°F

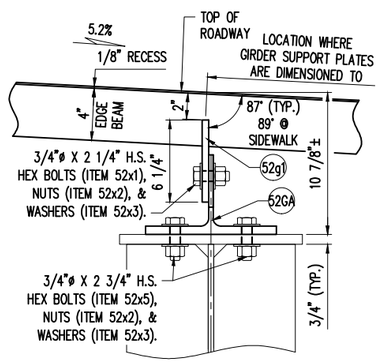


SIDE SHOWING GIRDER SUPPORTS @ ROADWAY

SUPPORTS @ SIDEWALK SIDE SHOWING DIAPHRAGM

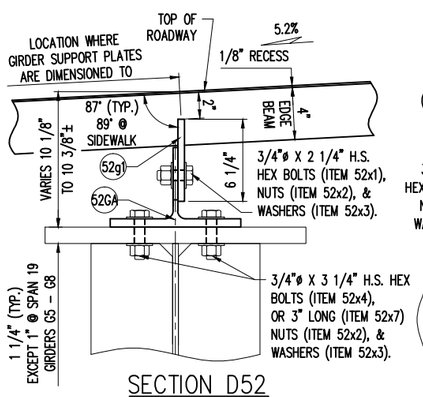
PLAN VIEW OF SUPPORTS @ GIRDERS AND DIAPHRAGMS

DIMENSIONS SHOWN ARE AT 45°F



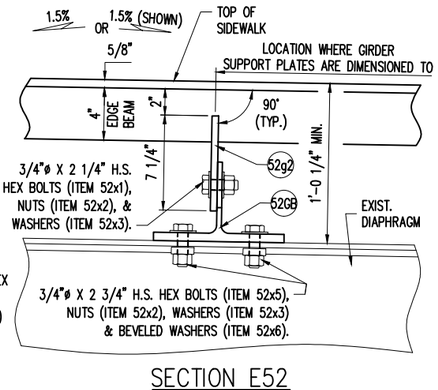
SECTION C52

(ON DOWNSTATION SIDE OF JOINT - LOOKING UPSTATION)



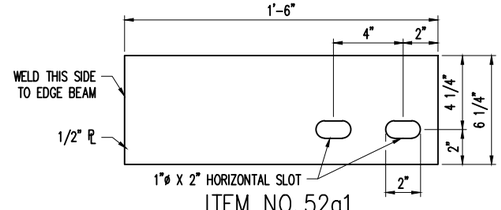
SECTION D52

(ON UPSTATION SIDE OF JOINT - LOOKING DOWNSTATION)



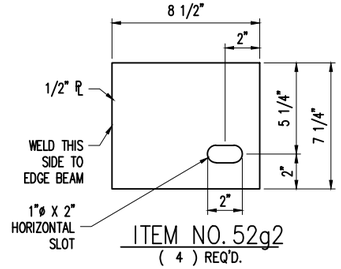
SECTION E52

(HARDWARE TYPICAL DOWNSTATION & UPSTATION SIDE OF JOINT)



ITEM NO. 52g1

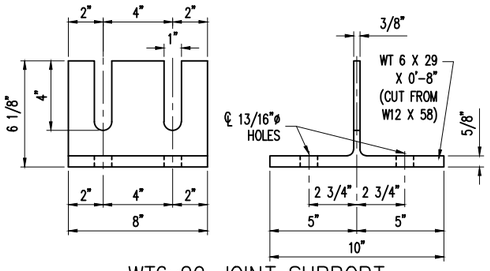
(32) REQ'D.



ITEM NO. 52g2

(4) REQ'D.

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01

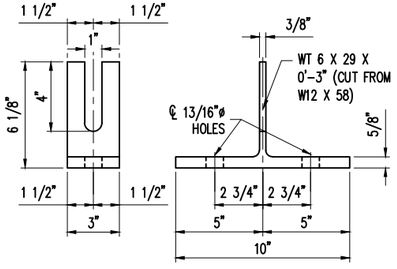


WT6x29 JOINT SUPPORT

ASSEMBLY 52GA (ITEM 52g3)

(32) REQUIRED

NOTE:
- IN LIEU OF WT6x29, A WELDED "T" SECTION MAY BE SUBSTITUTED, USING THE FOLLOWING:
  - 3/8" VERTICAL PLATE
  - 5/8" BASE PLATE
  - 5/16" FILLET WELD ON BOTH SIDES OF WEB SHALL BE A-(MC)GF-01 OR B-FF-01



WT6x29 JOINT SUPPORT

ASSEMBLY 52GB (ITEM 52g4)

(4) REQUIRED

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION SHOP DRAWING

REV.	DESCRIPTION	DATE	DET.	CKD.

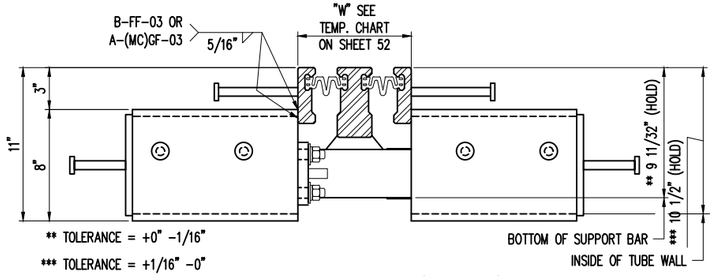
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-

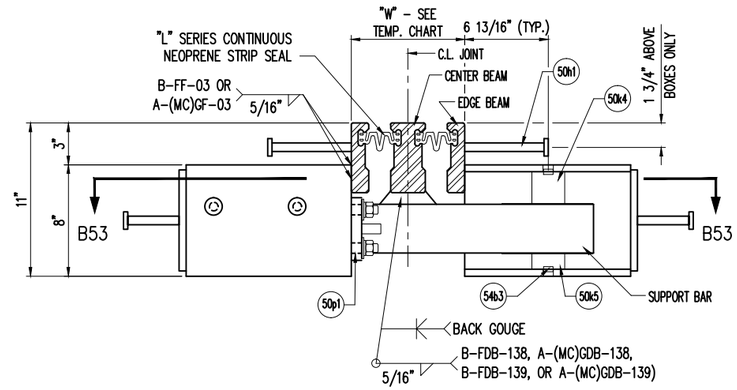
DESCRIPTION:	SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
JOINT SUPPORT DETAILS	N.T.S.	BLB	JLW	03/2014	48-56
DOUGLAS COUNTY, WISCONSIN	PROJECT NUMBER: 42790	PRODUCT CODE: 1021	RELEASE: 1	SHEET: 52	

REVISED
Modular Expansion Joints 21 & 23
DETAILS

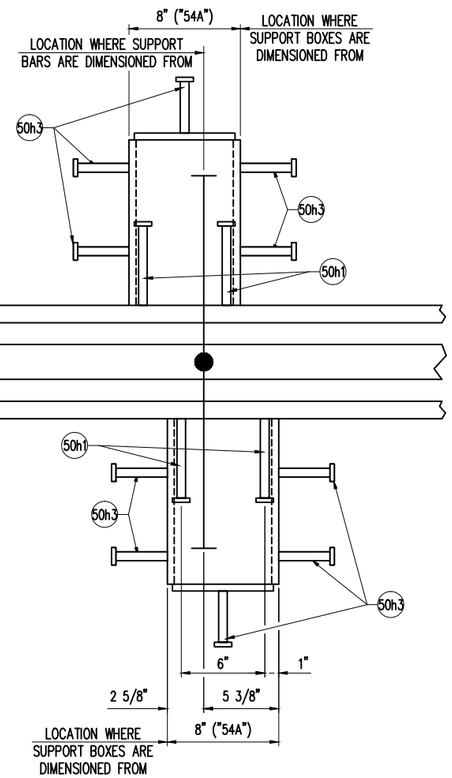
CONSTRUCTION
SHOP DRAWING



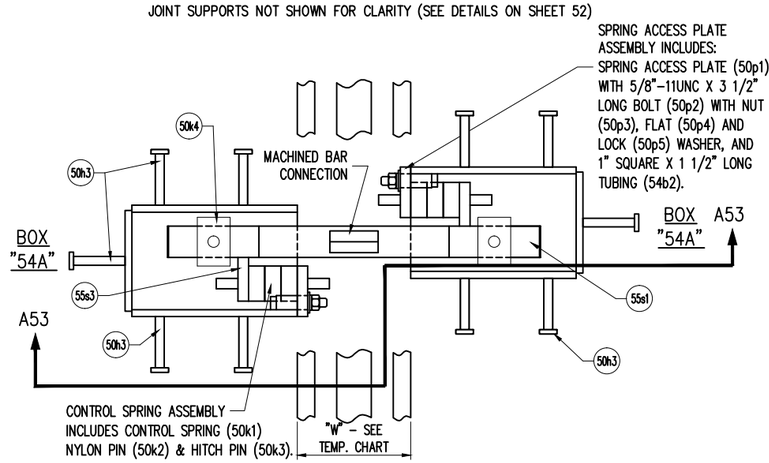
SECTION THROUGH 'D-160'
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION A53
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 52)



SUPPORT BOX DETAIL
(TYPICAL BOX @ ROADWAY)
JOINT SUPPORTS NOT SHOWN FOR CLARITY



SECTION B53
JOINT SUPPORTS NOT SHOWN FOR CLARITY (SEE DETAILS ON SHEET 52)

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

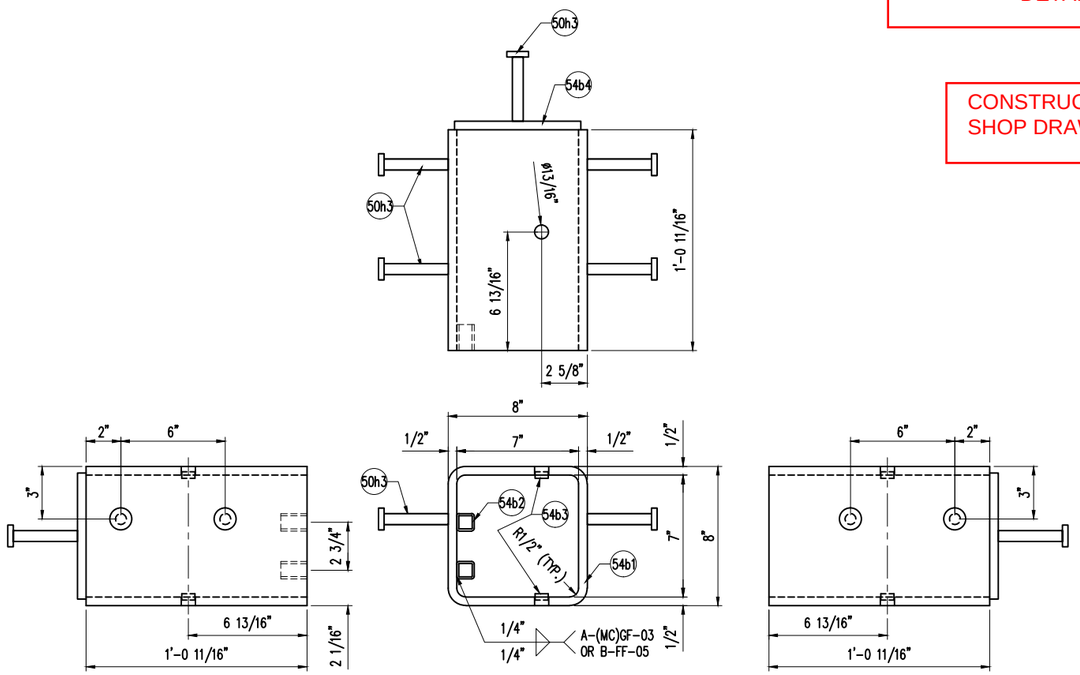
DESCRIPTION:
TYPICAL SECTIONS AND DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	53

REVISED
Modular Expansion Joints 21 & 23
DETAILS

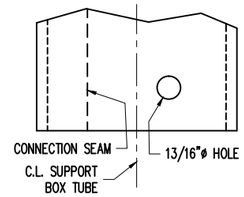
CONSTRUCTION
SHOP DRAWING



ITEM	DESCRIPTION	QTY.
50h3	5/8"ø X 4" STUD ANCHOR	440
54b1	1/2" THICK SUPPORT BOX TUBE	88
54b2	1" SQUARE X 1 1/2" LONG TUBING	176
54b3	3/4"ø x 3/8" LONG ROUND BAR	176
54b4	SUPPORT BOX END CAP	88

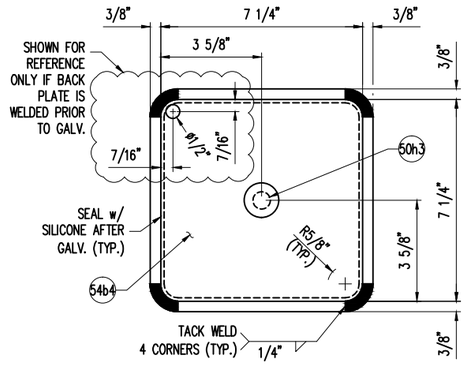
'D-160' SUPPORT BOX DETAIL "54A"

(88) REQUIRED



SHOP NOTE:

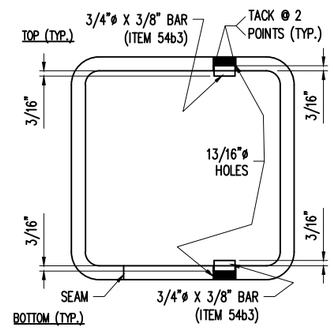
WHEN DRILLING 13/16"ø HOLES INTO SUPPORT BOX TUBE, BE SURE THE SEAM OF THE TUBE IS ON THE OPPOSITE SIDE IN RELATIONSHIP TO THE C.L. OF BOX.



BACK PLATE DETAIL

(SUPPORT BOX END CAP)

AT THE SHOPS OPTION IF ATTACHED PRIOR TO GALVANIZING, SHOP SHALL LOCATE 1/2"ø HOLES IN EACH CORNER 7/16" FROM EACH EDGE TO CENTER OF HOLE. AFTER GALVANIZING, HOLES SHALL BE PLUGGED USING PLASTIC PLUGS OR ANOTHER METHOD.



BOX PIN DETAILS

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–

DESCRIPTION:
SUPPORT BOX TUBE DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	54

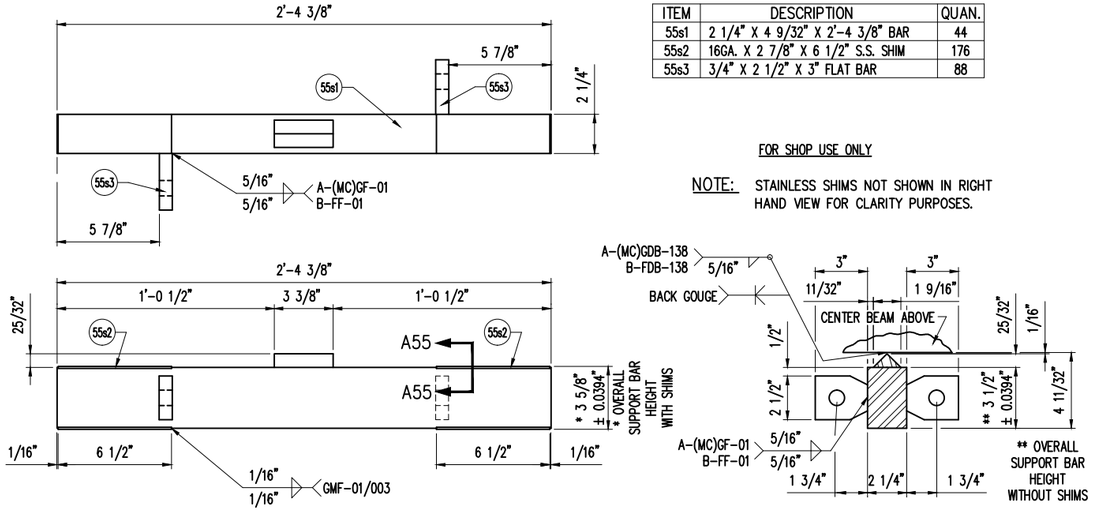
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

ITEM	DESCRIPTION	QUAN.
55s1	2 1/4" X 4 9/32" X 2'-4 3/8" BAR	44
55s2	16GA. X 2 7/8" X 6 1/2" S.S. SHIM	176
55s3	3/4" X 2 1/2" X 3" FLAT BAR	88

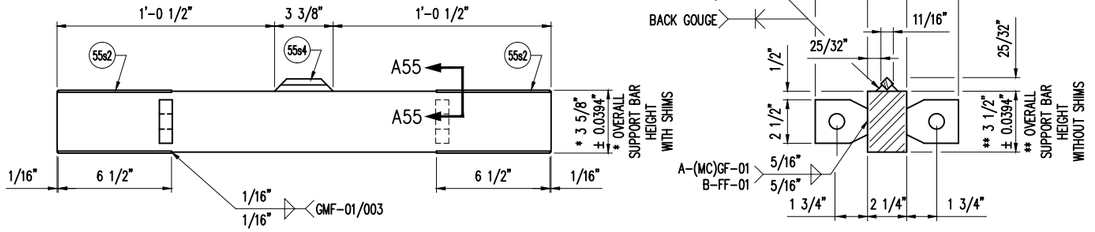
FOR SHOP USE ONLY

NOTE: STAINLESS SHIMS NOT SHOWN IN RIGHT HAND VIEW FOR CLARITY PURPOSES.



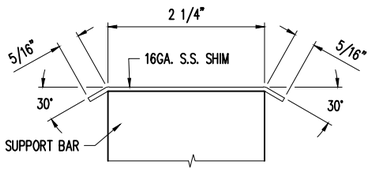
'D-160' MACHINED SUPPORT BAR DETAIL

(44) REQUIRED

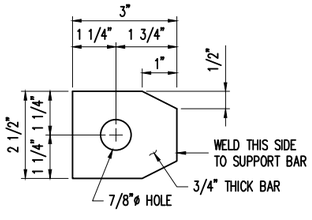


OPTIONAL "D-160" SUPPORT BAR DETAIL (WITH RIDER BAR)

(IN LIEU OF MACHINED SUPPORT BAR)

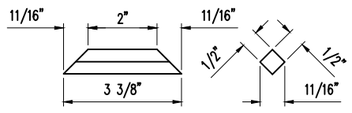


SECTION A55



ITEM NO. 55s3
(88) REQ'D.

'D-160' SPRING STOP DETAIL



ITEM NO. 55s4
(44) REQ'D.

TYPICAL RIDER BAR DETAIL

USED @ OPTIONAL SUPPORT BAR DETAIL ONLY

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	–	–
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	–	–
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	–	–
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	–	–
P.O. NO. — SH9468	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	–	–
	–	–

DESCRIPTION:
STANDARD SUPPORT BAR DETAILS
DOUGLAS COUNTY, WISCONSIN

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	55

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
51A	2	D-160' MODULAR JOINT			36'-11 11/16" - JOINT 21 & 23 (WESTBOUND)	5719	
50h1	80	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
50h2	108	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
50h3	200	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
50k1	40	CONTROL SPRING (80MM)	-			1	
50k2	40	NYLON PIN (80MM)	-			< 1	
50k3	80	HITCH PIN	-			< 1	
50k4	40	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
50k5	40	SLIDE BEARING	-		RUBBER;	1	
50p1	40	3/4 X 3 3/4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
50p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
50p3	80	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
50p4	80	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
50p5	80	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
51r1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r3	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
51r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
51r7	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 11/16	A123-HDG	1232	
51w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
51w2	4	L2-400 GLAND	NEOPRENE	38'-0	152'-0" TOTAL;	61	
52g1	16	1/2 X 6 1/4	A709 GR 36 OR 50	1'-6	A123-HDG	16	
54b1	40	HSS 8 X 8 X 1/2	A500 GR B	1'-0 11/16	A123-HDG	52	
54b2	80	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
54b3	80	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
54b4	40	1/2 X 7 1/4	A36	0'-7 1/4	SHAPE CUT; A123-HDG	7	
55s1	20	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-4 3/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	81	
55s2	80	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/2	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
55s3	40	3/4 X 2 1/2	A36	0'-3	SHAPE CUT; A123-HDG	2	

51B	2	D-160' MODULAR JOINT			36'-11 11/16" - JOINT 21 & 23 (EASTBOUND)	5704	
50h1	80	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
50h2	110	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
50h3	200	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
50k1	40	CONTROL SPRING (80MM)	-			1	
50k2	40	NYLON PIN (80MM)	-			< 1	
50k3	80	HITCH PIN	-			< 1	
50k4	40	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
50k5	40	SLIDE BEARING	-		RUBBER;	1	
50p1	40	3/4 X 3 3/4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
50p2	80	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
50p3	80	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
50p4	80	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
50p5	80	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
51r1	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r2	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	0'-10 3/16	A123-HDG	11	
51r4	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	35'-7 15/16	A123-HDG	461	
51r6	4	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	0'-10 9/16	A123-HDG	30	
51r8	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	35'-8 11/16	A123-HDG	1232	
51w1	2	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
51w2	4	L2-400 GLAND	NEOPRENE	38'-0	152'-0" TOTAL;	61	
52g1	12	1/2 X 6 1/4	A709 GR 36 OR 50	1'-6	A123-HDG	16	
54b1	40	HSS 8 X 8 X 1/2	A500 GR B	1'-0 11/16	A123-HDG	52	
54b2	80	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
54b3	80	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
54b4	40	1/2 X 7 1/4	A36	0'-7 1/4	SHAPE CUT;	7	
55s1	20	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-4 3/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	81	
55s2	80	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/2	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
55s3	40	3/4 X 2 1/2	A36	0'-3	SHAPE CUT; A123-HDG	2	

51C	2	D-160' MODULAR JOINT			6'-9" - JOINT 21 & 23 (SIDEWALK)	1080	
50h1	16	Ø5/8 X 6 WELD STUD	A108		A123-HDG	< 1	
50h2	16	1/2 X 7 1/4	A709 GR 36 OR 50	1'-4 3/4	SHAPE CUT; A123-HDG	17	
50h3	40	Ø5/8 X 4 WELD STUD	A108		A123-HDG	< 1	
50k1	8	CONTROL SPRING (80MM)	-			1	
50k2	8	NYLON PIN (80MM)	-			< 1	
50k3	16	HITCH PIN	-			< 1	
50k4	8	PRECOMPRESSED SPRING	-		RUBBER;	< 1	
50k5	8	SLIDE BEARING	-		RUBBER;	1	
50p1	8	3/4 X 3 3/4	A36	0'-4 1/2	SHAPE CUT; A123-HDG	4	
50p2	16	Ø5/8 X 3 1/2 SQUARE HEAD CAP SCREW	A307 GR A		B695-MG OR; ZINC PLATED	< 1	
50p3	16	Ø5/8 HEX NUT	A563 GR A		B695-MG	< 1	
50p4	16	Ø5/8 FLAT WASHER	F844		B695-MG	< 1	
50p5	16	Ø5/8 LOCK WASHER	ASME 18.21.1-1990		B695-MG	< 1	
51r5	4	EDGE BEAM 1.25"X4"	A709 GR 50 OR 50W	6'-9	A123-HDG	87	
51r9	2	CENTER BEAM 2.5"X5"	A709 GR 50 OR 50W	6'-9	A123-HDG	233	
51w1	1	LUBRICANT ADHESIVE (1 GAL. UNIT)	D4070			11	
51w2	4	L2-400 GLAND	NEOPRENE	8'-0	32'-0" TOTAL;	13	
52g1	4	1/2 X 6 1/4	A709 GR 36 OR 50	1'-6	A123-HDG	16	
52g2	4	1/2 X 7 1/4	A709 GR 36 OR 50	0'-8 1/2	A123-HDG	9	
54b1	8	HSS 8 X 8 X 1/2	A500 GR B	1'-0 11/16	A123-HDG	52	
54b2	16	HSS 1 X 1 X 1/8	A500 GR B	0'-1 1/2	A123-HDG	< 1	
54b3	16	Ø3/4	A709 GR 36	0'-0 3/8	A123-HDG	< 1	
54b4	8	1/2 X 7 1/4	A36	0'-7 1/4	SHAPE CUT;	7	
55s1	4	2 1/4 X 4 1/2	A709 GR 50 OR 50W	2'-4 3/8	MACHINE TO PLAN DIMENSIONS; A123-HDG	81	
55s2	16	16 GA. X 2 7/8	SEE REMARKS	0'-6 1/2	A167 OR A240, TYPE 304 (#8 MIRROR FINISH); PLAIN	< 1	
55s3	8	3/4 X 2 1/2	A36	0'-3	SHAPE CUT; A123-HDG	2	
		*Approx. Gross Wt. Lbs Per Single Unit			5/14/2014 11:01:38 AM		

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
52GA	32	JOINT SUPPORT ITEM				19	
52g3	32	WT6X29	A36	0'-8	CUT FROM W12 X 58; A123-HDG	19	
52GB	4	JOINT SUPPORT ITEM				7	
52g4	4	WT6X29	A36	0'-3	CUT FROM W12 X 58; A123-HDG	7	
52XA	68	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x1	68	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XB	204	JOINT SUPPORT HARDWARE - HEX NUT (ROCAP)				< 1	
52x2	204	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
52XC	400	JOINT SUPPORT HARDWARE - FLAT WASHER (ROCAP)				< 1	
52x3	400	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
52XD	48	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x4	48	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XE	72	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x5	72	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XF	8	JOINT SUPPORT HARDWARE - BEVELED WASHER (ROCAP)				< 1	
52x6	8	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
52XG	16	JOINT SUPPORT HARDWARE - HEX BOLT (ROCAP)				< 1	
52x5	16	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XAT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t1	3	Ø3/4 X 2 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XBT	12	TESTING HARDWARE - HEX NUT (ROCAP)				< 1	
52t2	12	Ø3/4 HEX NUT	A563-DH OR A194-2H HEAVY HEX		A153-HDG; ROCAP	< 1	
52XCT	21	TESTING HARDWARE - FLAT WASHER (ROCAP)				< 1	
52t3	21	Ø3/4 FLAT WASHER	F436		A153-HDG; ROCAP	< 1	
52XDT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t4	3	Ø3/4 X 3 1/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XET	6	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t5	6	Ø3/4 X 2 3/4 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
52XFT	6	TESTING HARDWARE - BEVELED WASHER (ROCAP)				< 1	
52t6	6	Ø3/4 BEVELED WASHER	F436		A153-HDG; ROCAP	< 1	
52XGT	3	TESTING HARDWARE - HEX BOLT (ROCAP)				< 1	
52t5	3	Ø3/4 X 3 HEX HEAD BOLT	A325		A153-HDG; ROCAP	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/14/2014 11:01:38 AM		

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

PAGE 425 I

REV.	DESCRIPTION	DATE	DET.	CKD.

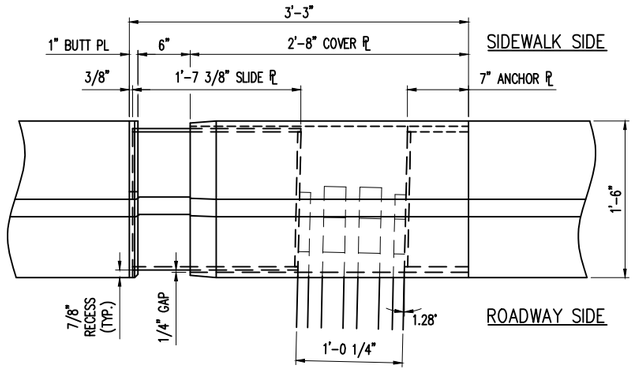
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — USH 2 OVER ST. LOUIS RIVER	-	-
STRUCTURE NO. — B-16-38 (WI) / 69100 (MN)	-	-
STATE PROJECT NO. — 8680-04-71 (WI) / 6937-69100D (MN)	-	-
FEDERAL PROJECT NO. — WISC 2014007 (WI) / NHPP 0002(328) (MN)	-	-
P.O. NO. — SH9468	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION (LUNDA JOB NO. 8971)	-	-
	-	-

DESCRIPTION:
BILL OF MATERIALS
DOUGLAS COUNTY, WISCONSIN

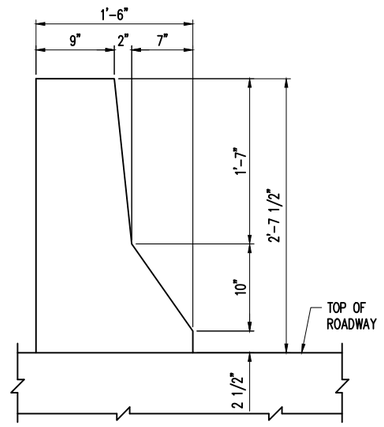
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	DRAWING FILE:
N.T.S.	BLB	JLW	03/2014	48-56

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	56



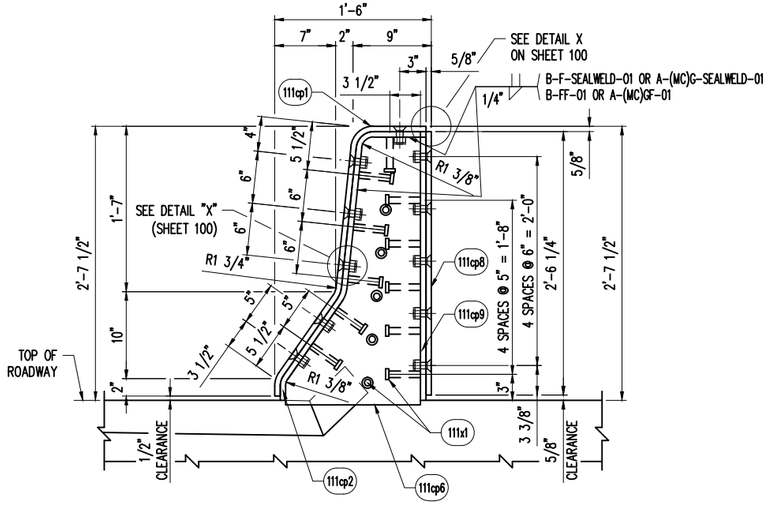
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "111CA"



SECTION 111A

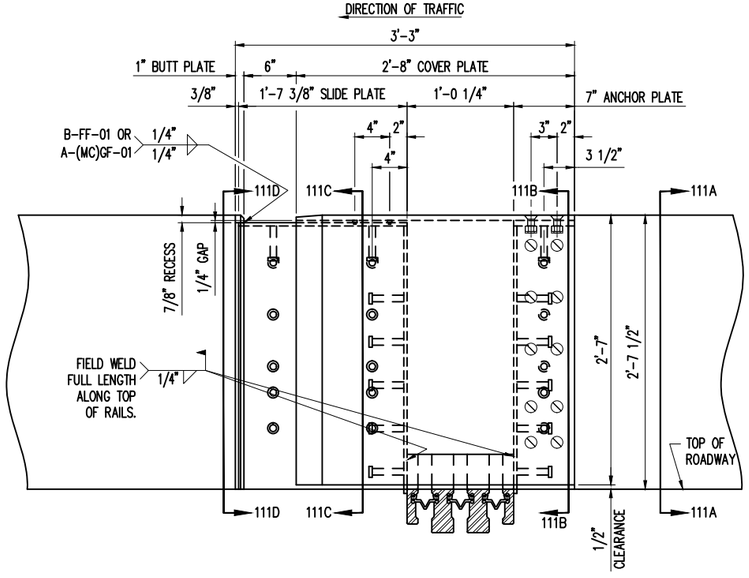
THROUGH SIDEWALK BARRIER



SECTION 111B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE

DIRECTION OF TRAFFIC



SIDEWALK PARAPET COVER PLATE ELEVATION

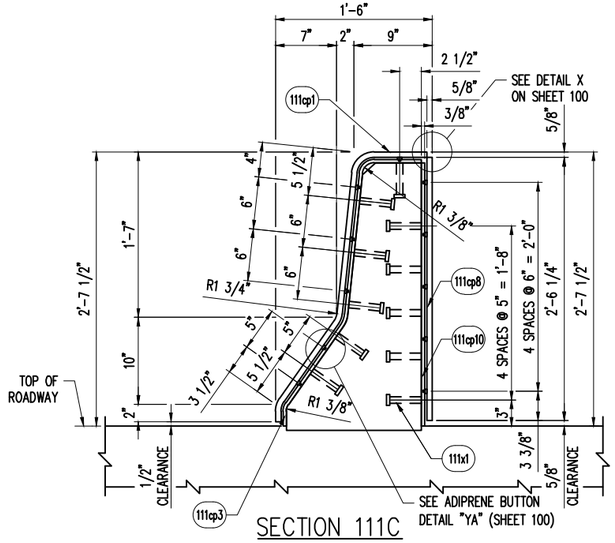
COVER PLATE ASSEMBLY "111CA"

LOCATED AT JOINTS 9, 11–15, 19, 20 & 22 (STRUCTURE B-16-38/69100)

– LOOKING FROM ROADWAY SIDE –

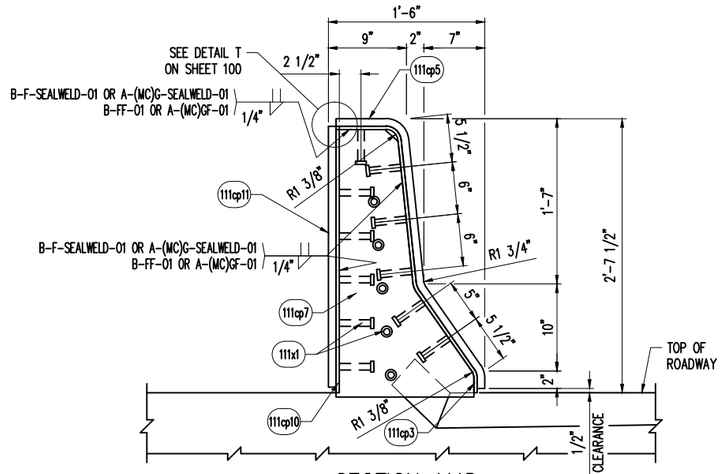
(9) REQUIRED

DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 111C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 111D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 112
- SEE BACK PLATE DETAILS ON SHEET 113
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 113

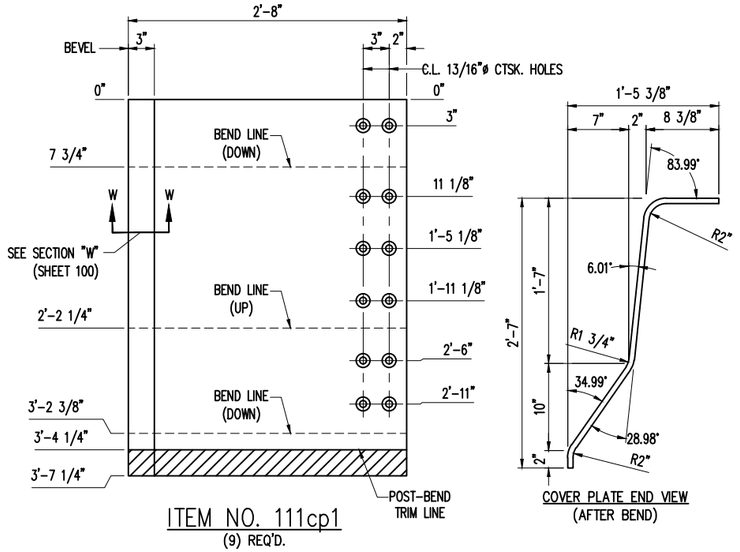
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
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300 E. CHERRY STREET
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WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

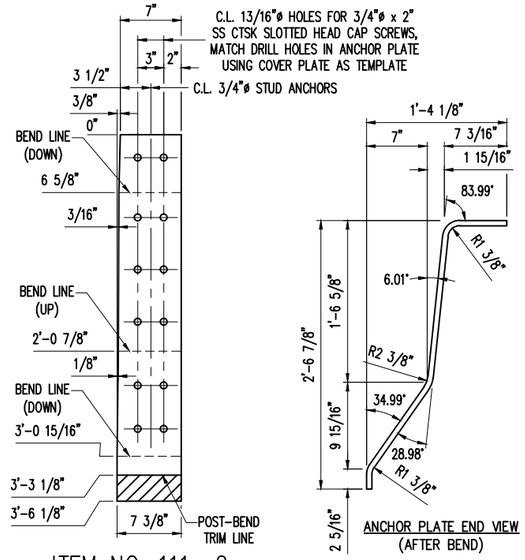
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	12 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	111	



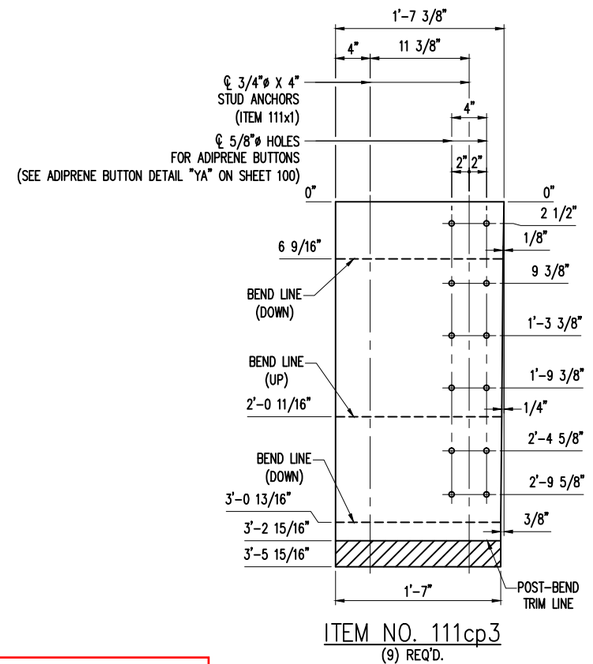
ITEM NO. 111cp1
(9) REQ'D.

COVER PLATE



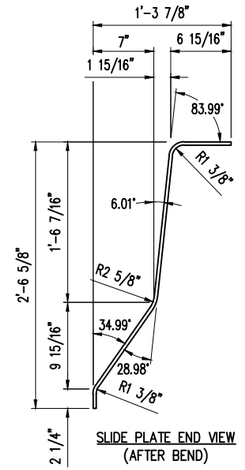
ITEM NO. 111cp2
(9) REQ'D.

ANCHOR PLATE



ITEM NO. 111cp3
(9) REQ'D.

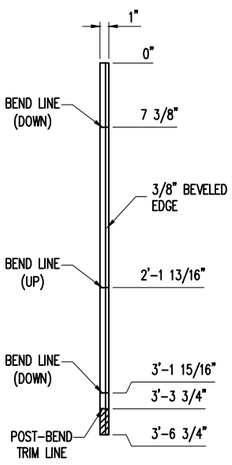
SLIDE PLATE



SLIDE PLATE END VIEW
(AFTER BEND)

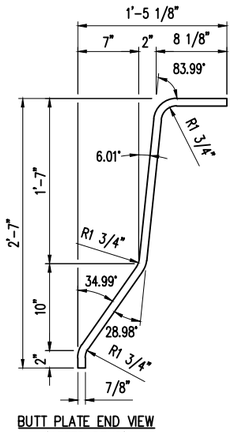
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

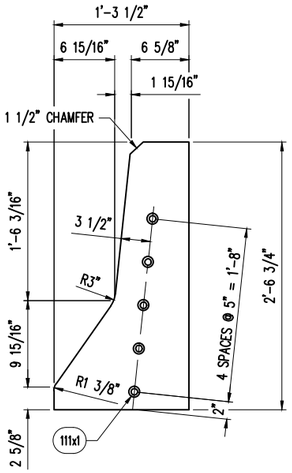


ITEM NO. 111cp5
(9) REQ'D.

FRONT BUTT PLATE

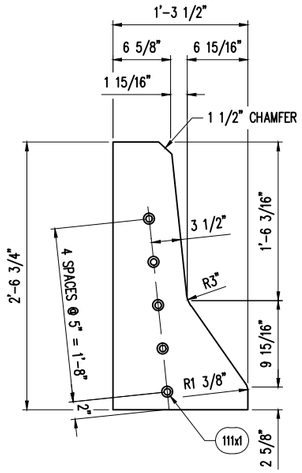


BUTT PLATE END VIEW
(AFTER BEND)



ITEM NO. 111cp6
(9) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 111cp7
(9) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 111
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 113

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
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	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–
	–	–

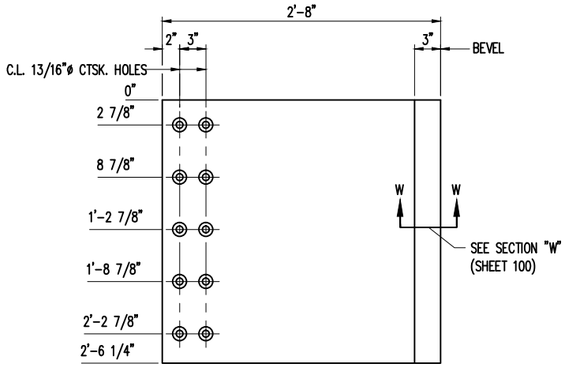
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	13 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	112

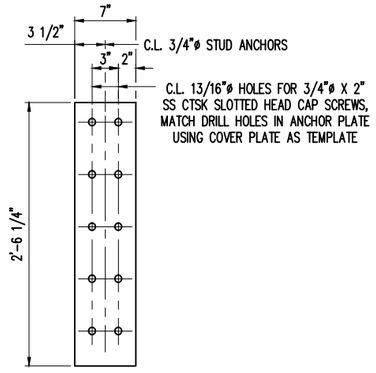
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING



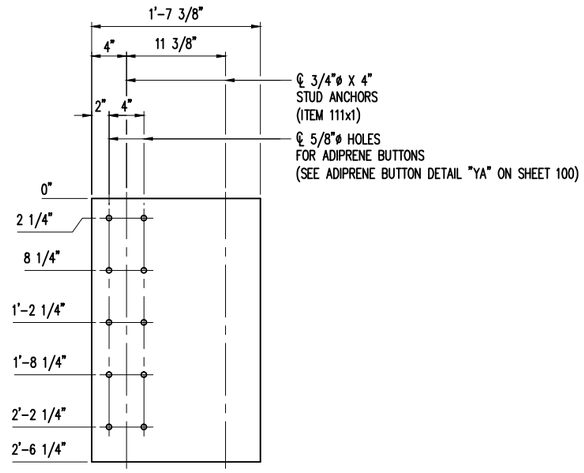
ITEM NO. 111cp8
(9) REQ'D.

BACK COVER PLATE



ITEM NO. 111cp9
(9) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 111cp10
(9) REQ'D.

BACK SLIDE PLATE

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
111CA	9	SIDEWALK PARAPET COVER PLATE ASSEMBLY				814	
100x1	198	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	198	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	198	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	
100x4	198	ADIPRENE BUTTONS	-		PLAIN	< 1	
111cp1	9	5/8 X 32	A36	3'-7 1/4	COVER PLATE; A123-HDG	245	
111cp2	9	5/8 X 7 3/8	A36	3'-6 1/8	SHAPE CUT ANCHOR PLATE; A123-HDG	55	
111cp3	9	3/8 X 19 3/8	A36	3'-5 15/16	SHAPE CUT SLIDE PLATE; A123-HDG	86	
111cp5	9	7/8 X 1	A36	3'-6 3/4	BUTT PLATE; A123-HDG	11	
111cp6	9	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
111cp7	9	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
111cp8	9	5/8 X 30 1/4	A36	2'-8	BACK COVER PLATE; A123-HDG	172	
111cp9	9	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
111cp10	9	3/8 X 19 3/8	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	62	
111cp11	9	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
111x1	387	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 111
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

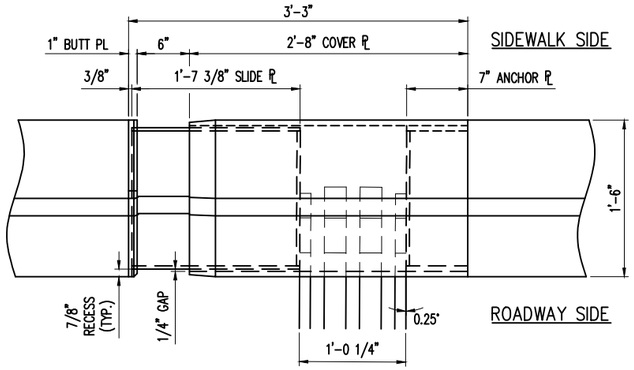
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

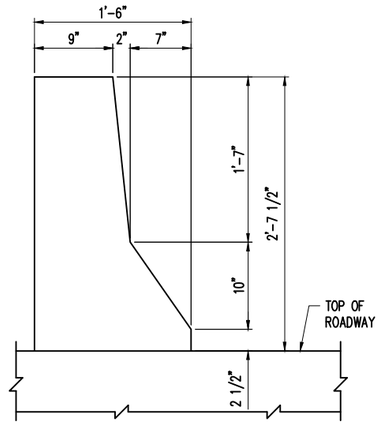
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	14 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	113	



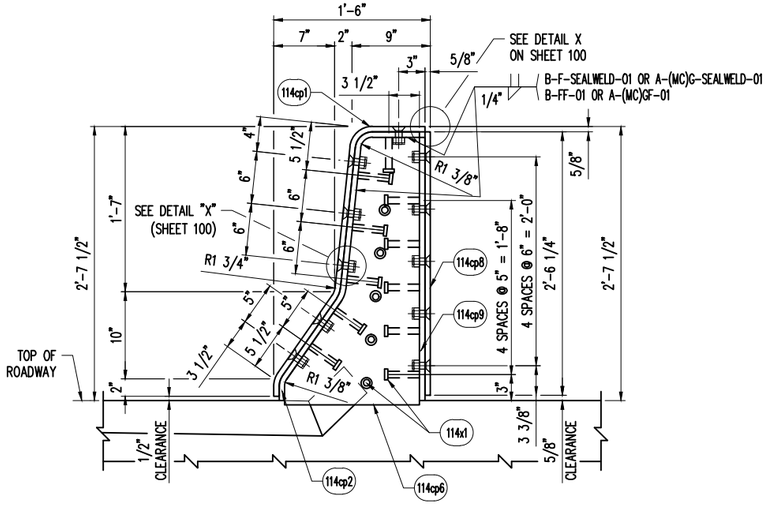
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "114CA"



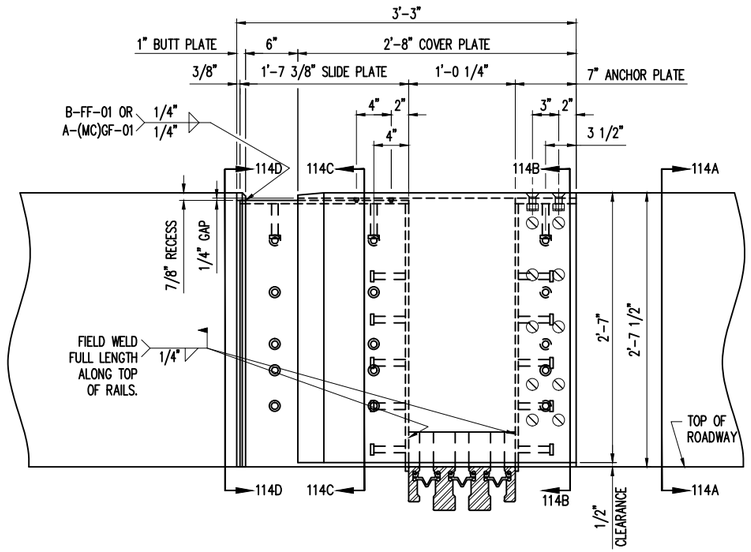
SECTION 114A

THROUGH SIDEWALK BARRIER



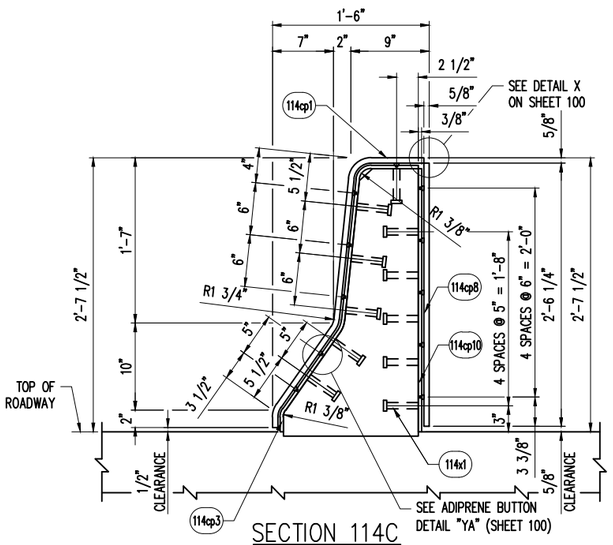
SECTION 114B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



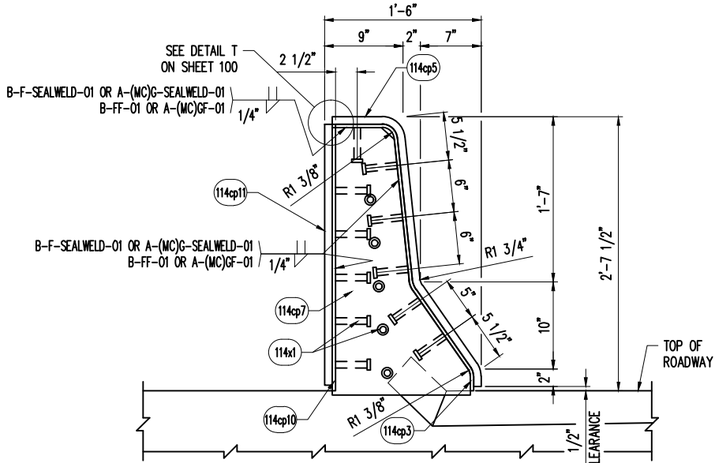
SIDEWALK PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "114CA"
LOCATED AT JOINT 10 (STRUCTURE B-16-38/69100)
– LOOKING FROM ROADWAY SIDE –
(1) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 114C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 114D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 115
- SEE BACK PLATE DETAILS ON SHEET 116
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 116

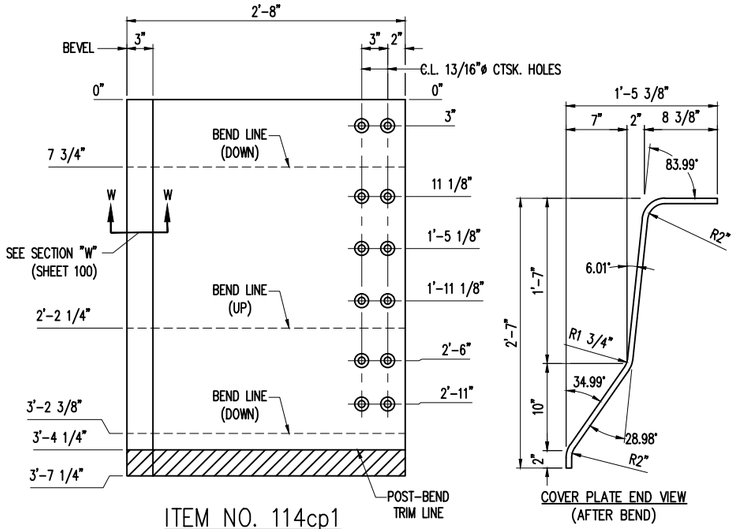
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

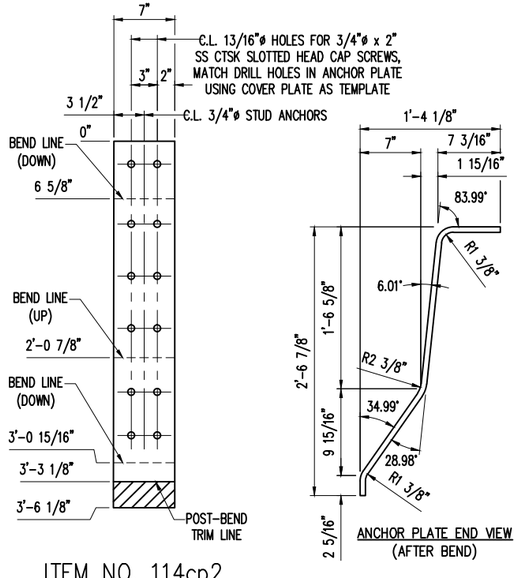
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	15 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	114	



ITEM NO. 114cp1
(1) REQ'D.

COVER PLATE

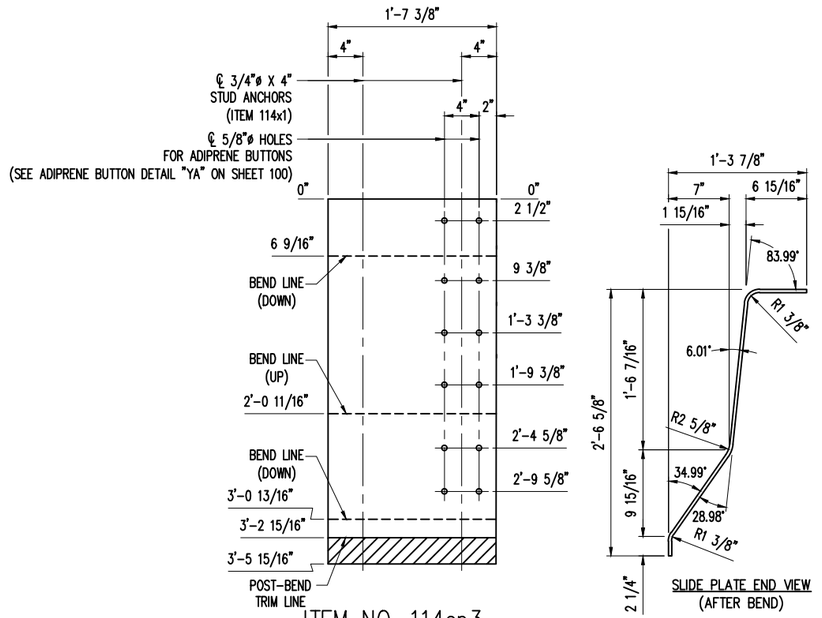
COVER PLATE END VIEW
(AFTER BEND)



ITEM NO. 114cp2
(1) REQ'D.

ANCHOR PLATE

ANCHOR PLATE END VIEW
(AFTER BEND)



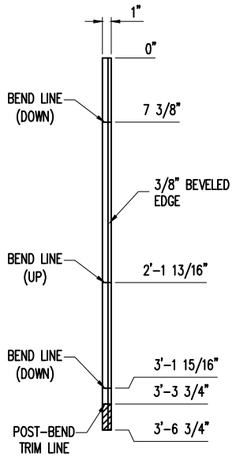
ITEM NO. 114cp3
(1) REQ'D.

SLIDE PLATE

SLIDE PLATE END VIEW
(AFTER BEND)

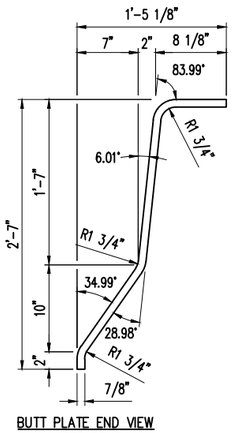
REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

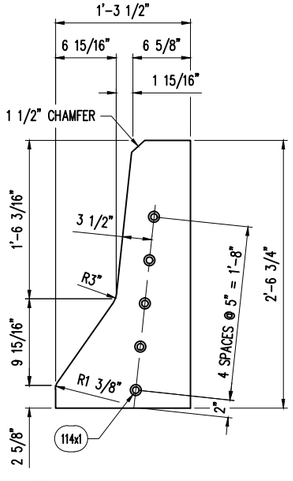


ITEM NO. 114cp5
(1) REQ'D.

FRONT BUTT PLATE

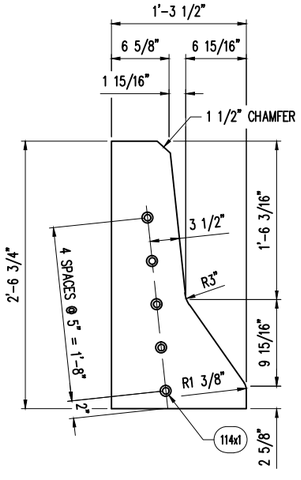


BUTT PLATE END VIEW
(AFTER BEND)



ITEM NO. 114cp6
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 114cp7
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 114
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 116

REV.	DESCRIPTION	DATE	DET.	CKD.

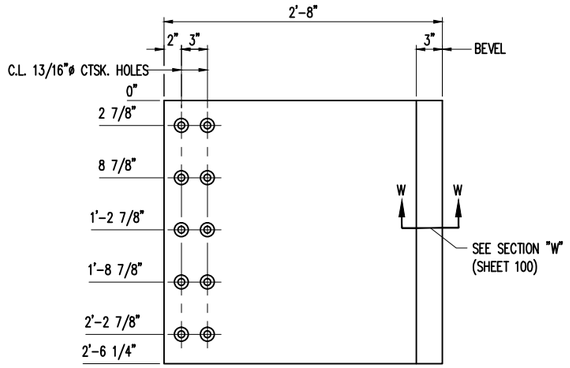
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

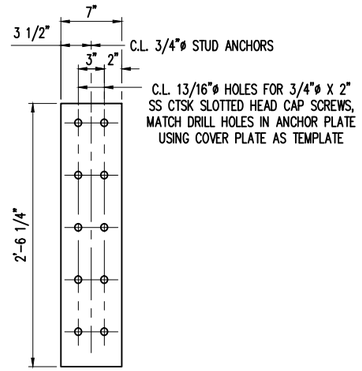
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	16 OF 47

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	115



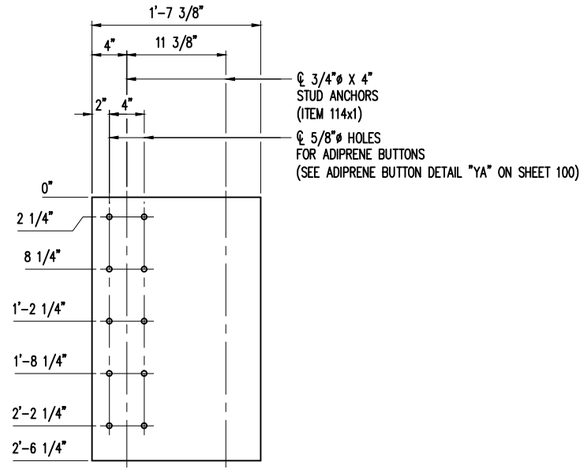
ITEM NO. 114cp8
(1) REQ'D.

BACK COVER PLATE



ITEM NO. 114cp9
(1) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 114cp10
(1) REQ'D.

BACK SLIDE PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
114CA	1	SIDEWALK PARAPET COVER PLATE ASSEMBLY				812	
100x1	22	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	22	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	22	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	
100x4	22	ADIPRENE BUTTONS	-		PLAIN	< 1	
114cp1	1	5/8 X 32	A36	3'-7 1/4	COVER PLATE; A123-HDG	245	
114cp2	1	5/8 X 7	A36	3'-6 1/8	ANCHOR PLATE; A123-HDG	52	
114cp3	1	3/8 X 19 3/8	A36	3'-5 15/16	SLIDE PLATE; A123-HDG	86	
114cp5	1	7/8 X 1	A36	3'-6 3/4	BUTT PLATE; A123-HDG	11	
114cp6	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
114cp7	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
114cp8	1	5/8 X 30 1/4	A36	2'-8	BACK COVER PLATE; A123-HDG	172	
114cp9	1	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
114cp10	1	3/8 X 19 3/8	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	62	
114cp11	1	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
114x1	43	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 114
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

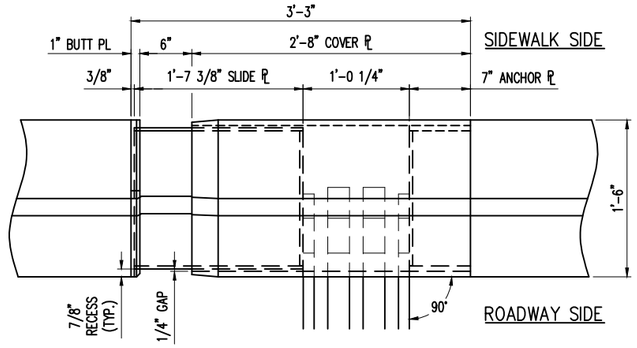
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

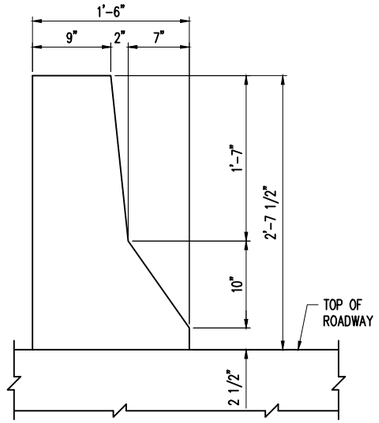
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	17 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	116	



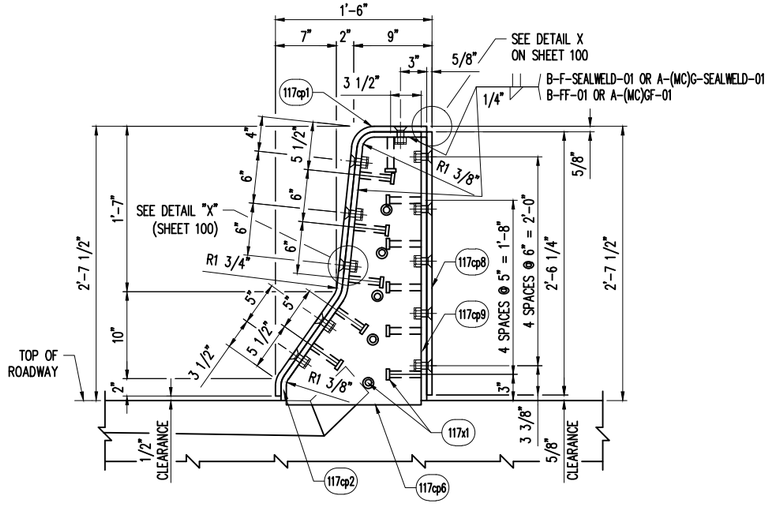
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "117CA"



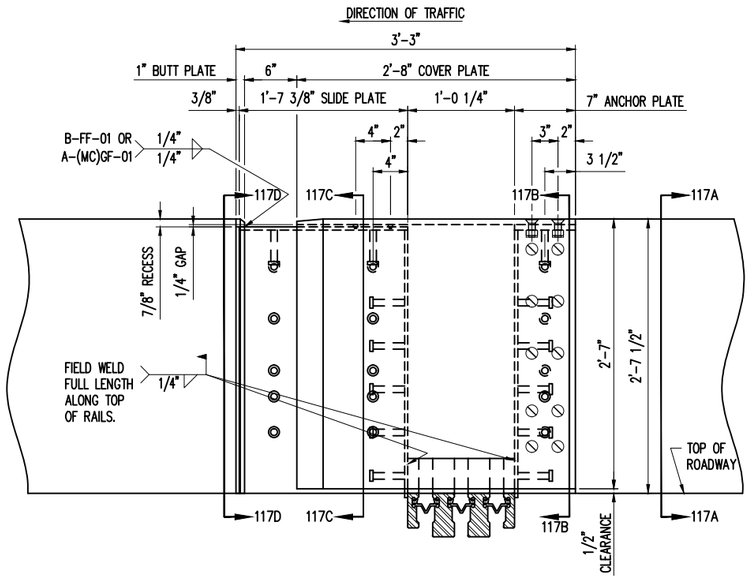
SECTION 117A

THROUGH SIDEWALK BARRIER



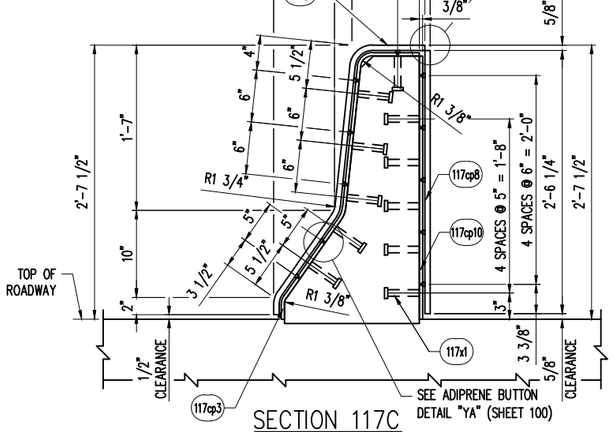
SECTION 117B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



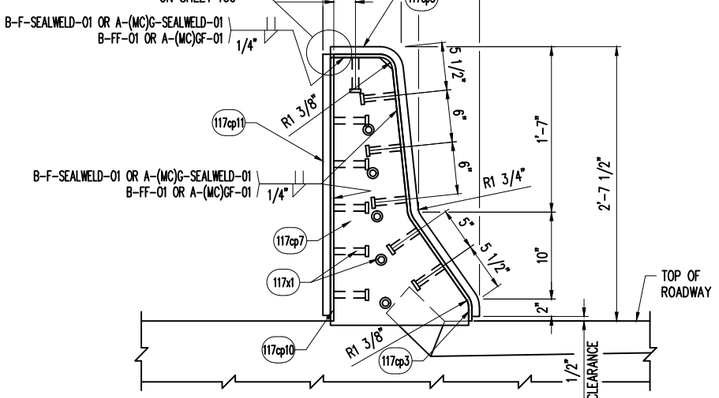
SIDEWALK PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "117CA"
LOCATED AT JOINT 8 (STRUCTURE B-16-38/69100)
- LOOKING FROM ROADWAY SIDE -
(1) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 117C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 117D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 118
- SEE BACK PLATE DETAILS ON SHEET 119
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 119

PAGE 425 P

REV.	DESCRIPTION	DATE	DET.	CKD.

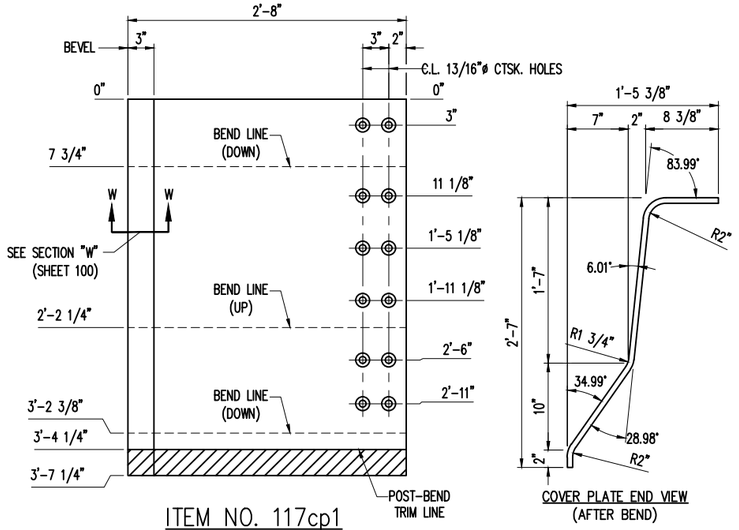
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

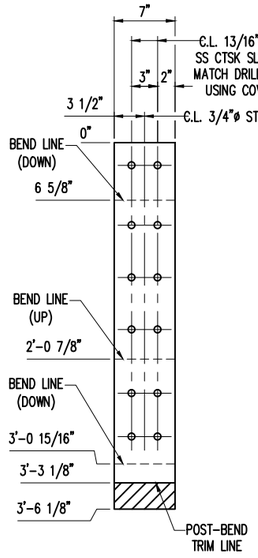
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	18 OF 47

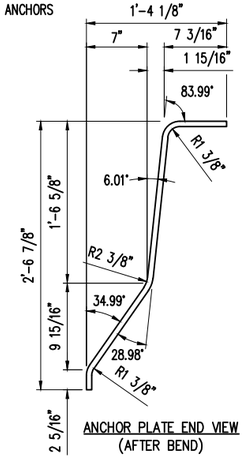
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
42790	1021	1	117



ITEM NO. 117cp1
(1) REQ'D.

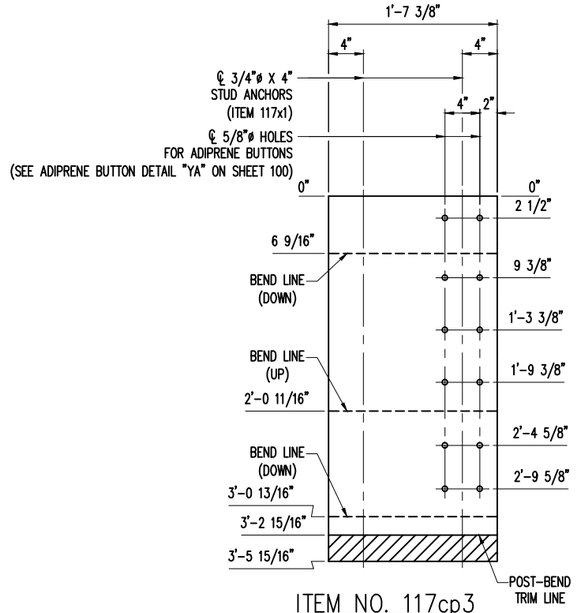
COVER PLATE

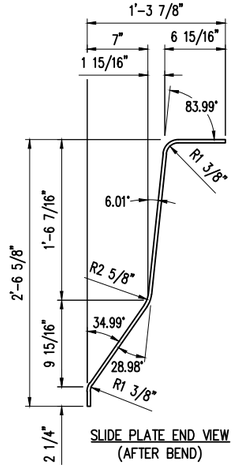




ITEM NO. 117cp2
(1) REQ'D.

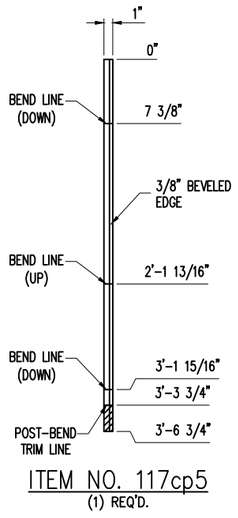
ANCHOR PLATE

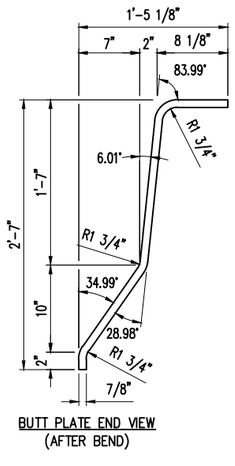




ITEM NO. 117cp3
(1) REQ'D.

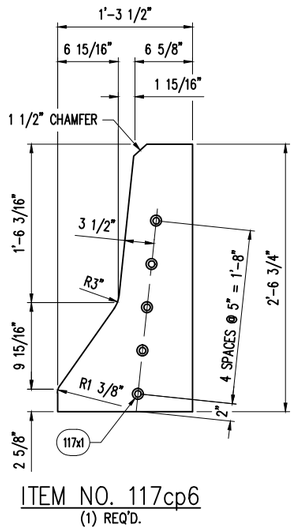
SLIDE PLATE





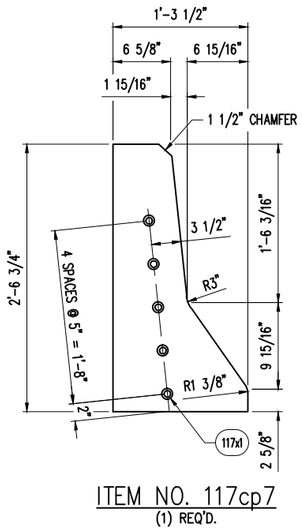
ITEM NO. 117cp5
(1) REQ'D.

FRONT BUTT PLATE



ITEM NO. 117cp6
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 117cp7
(1) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 117
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 119

REV.	DESCRIPTION	DATE	DET.	CKD.

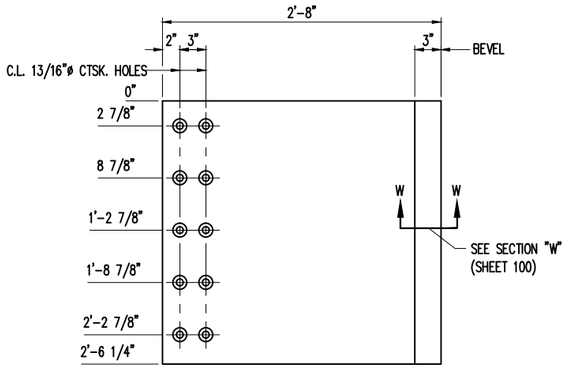
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

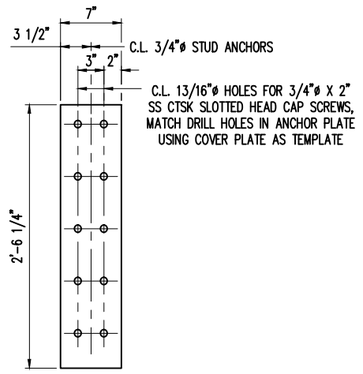
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	19 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	118	



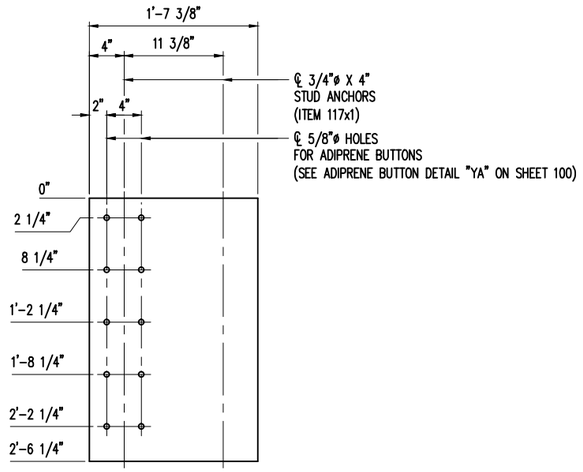
ITEM NO. 117cp8
(1) REQ'D.

BACK COVER PLATE



ITEM NO. 117cp9
(1) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 117cp10
(1) REQ'D.

BACK SLIDE PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
117CA	1	SIDEWALK PARAPET COVER PLATE ASSEMBLY				812	
100x1	22	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	22	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	22	Ø3/4 PLASTIC COVER CAP	-		PLAIN	< 1	
100x4	22	ADIPRENE BUTTONS	-		PLAIN	< 1	
117cp1	1	5/8 X 32	A36	3'-7 1/4	COVER PLATE; A123-HDG	245	
117cp2	1	5/8 X 7	A36	3'-6 1/8	ANCHOR PLATE; A123-HDG	52	
117cp3	1	3/8 X 19 3/8	A36	3'-5 15/16	SLIDE PLATE; A123-HDG	86	
117cp5	1	7/8 X 1	A36	3'-6 3/4	BUTT PLATE; A123-HDG	11	
117cp6	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
117cp7	1	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
117cp8	1	5/8 X 30 1/4	A36	2'-8	BACK COVER PLATE; A123-HDG	172	
117cp9	1	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
117cp10	1	3/8 X 19 3/8	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	62	
117cp11	1	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
117x1	43	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 117
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

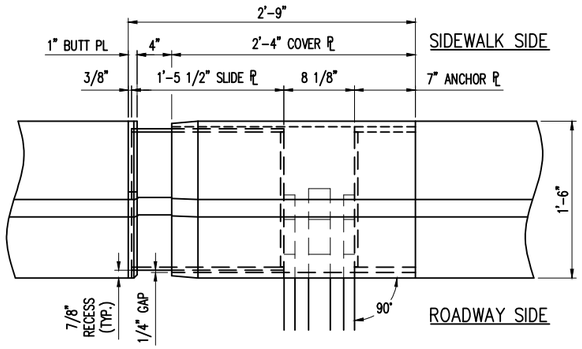
D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	-	-
BRIDGE — B-16-38/69100	-	-
PROJECT — 8680-04-71	-	-
FEDERAL PROJECT — WISC 2014007	-	-
P.O. NO. — -	-	-
DESIGNER — AYRES ASSOCIATES	-	-
CUSTOMER — LUNDA CONSTRUCTION	-	-
	-	-

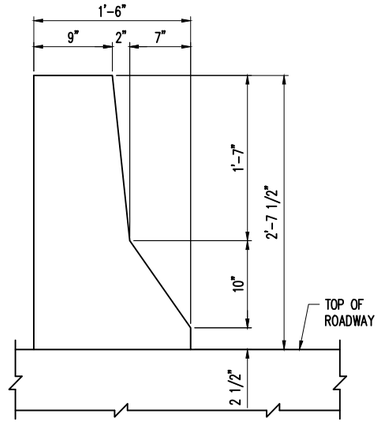
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	-	-	20 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	119	



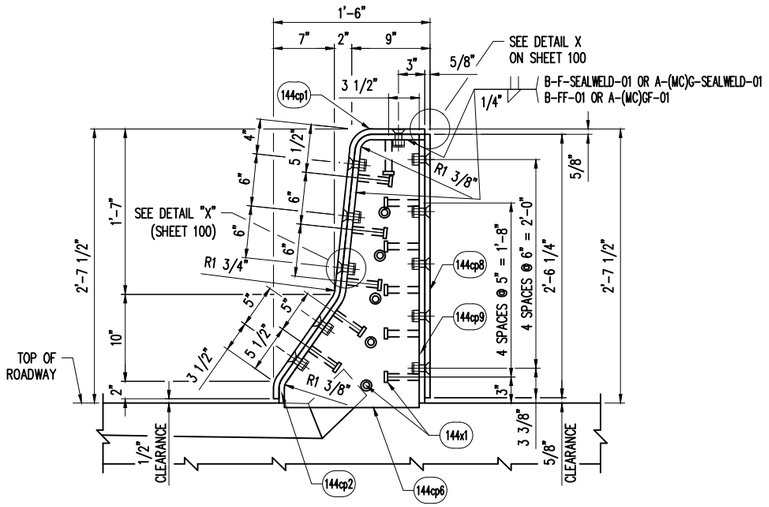
SIDEWALK PARAPET COVER PLATE PLAN VIEW

COVER PLATE ASSEMBLY "144CA"



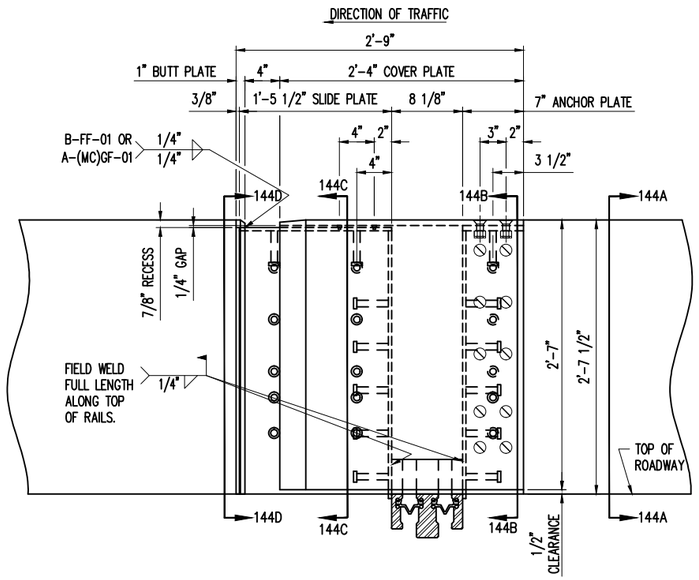
SECTION 144A

THROUGH SIDEWALK BARRIER



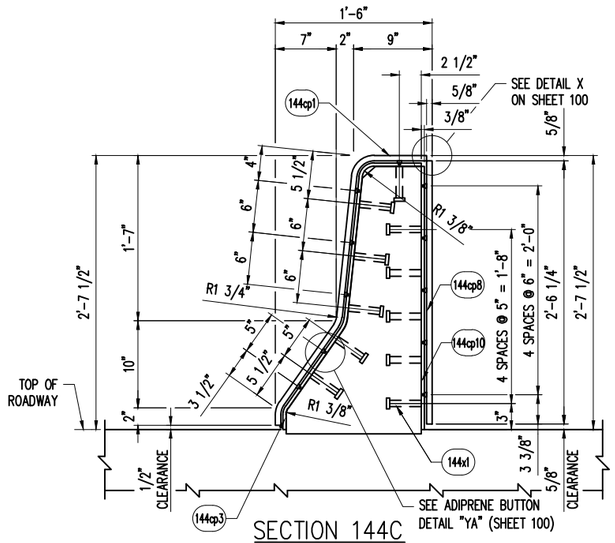
SECTION 144B

THROUGH ASSEMBLY SHOWING COVER PLATE & ANCHOR PLATE



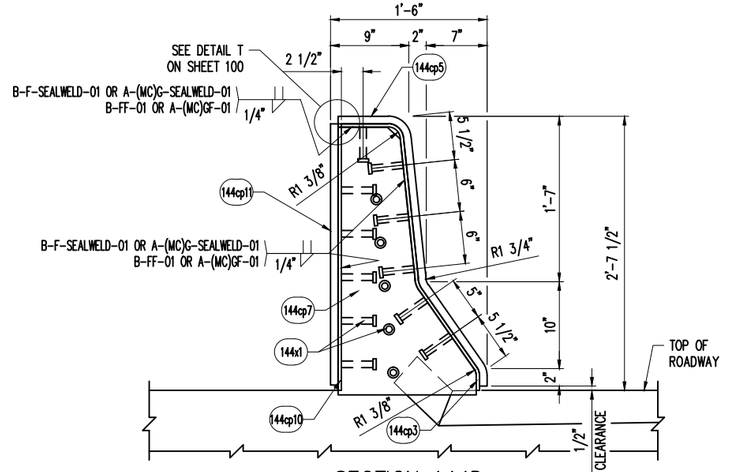
SIDEWALK PARAPET COVER PLATE ELEVATION

COVER PLATE ASSEMBLY "144CA"
LOCATED AT JOINTS 21 & 23 (STRUCTURE B-16-38/69100)
– LOOKING FROM ROADWAY SIDE –
(2) REQUIRED
DIMENSIONS SHOWN ARE AT MID. JOINT OPENING



SECTION 144C

THROUGH ASSEMBLY SHOWING COVER PLATE & SLIDE PLATE



SECTION 144D

THROUGH ASSEMBLY SHOWING SLIDE PLATE & BUTT PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE PLATE BEND DETAILS ON SHEET 145
- SEE BACK PLATE DETAILS ON SHEET 146
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 146

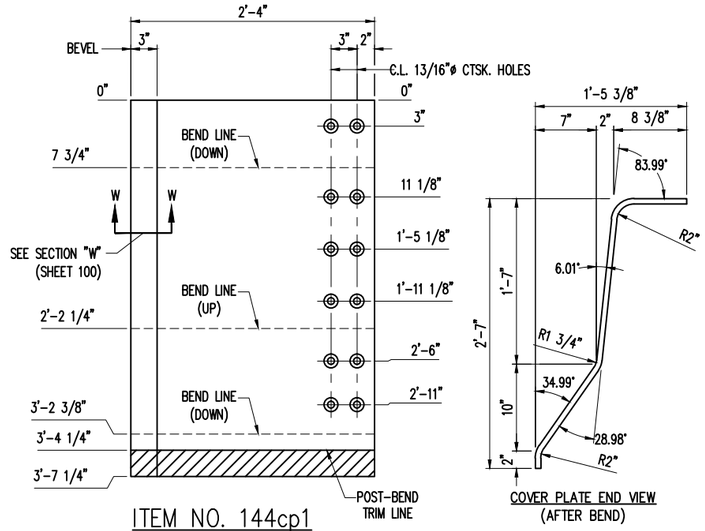
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION: COVER PLATE DETAILS
DOUGLAS COUNTY, WI

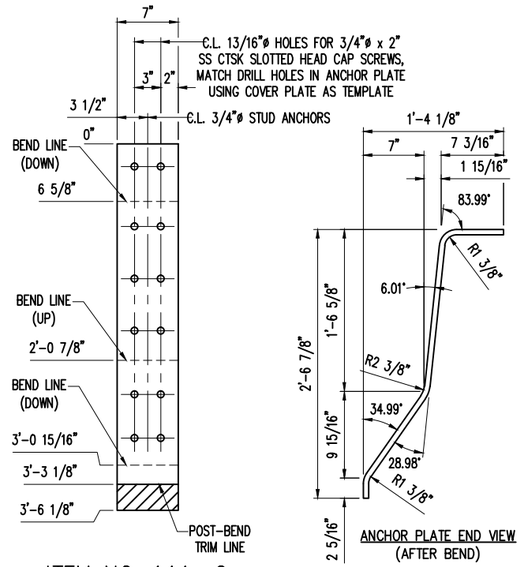
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	45 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	144	



ITEM NO. 144cp1
(2) REQ'D.

COVER PLATE

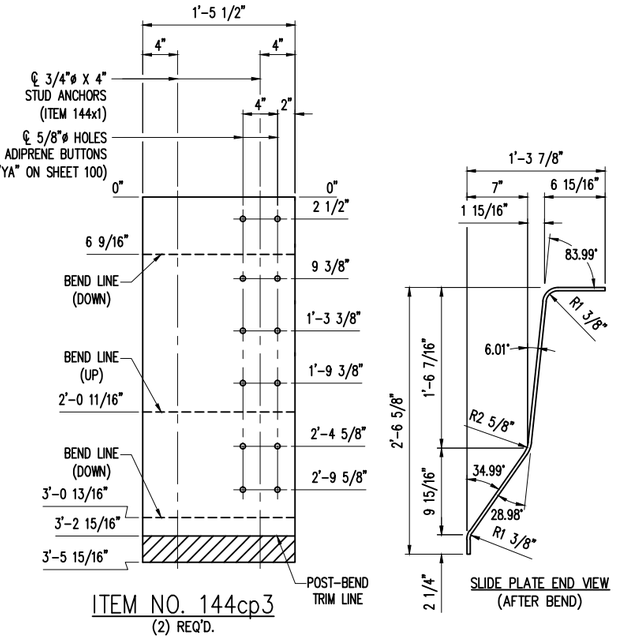
COVER PLATE END VIEW
(AFTER BEND)



ITEM NO. 144cp2
(2) REQ'D.

ANCHOR PLATE

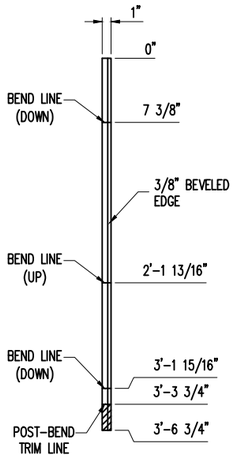
ANCHOR PLATE END VIEW
(AFTER BEND)



ITEM NO. 144cp3
(2) REQ'D.

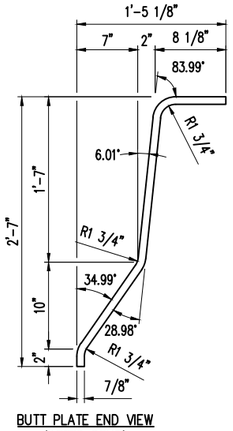
SLIDE PLATE

SLIDE PLATE END VIEW
(AFTER BEND)

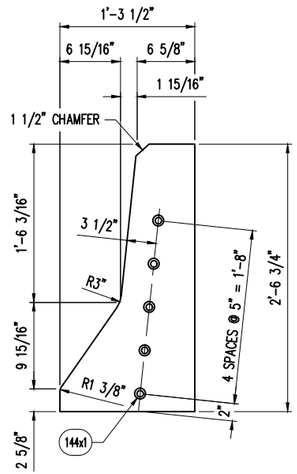


ITEM NO. 144cp5
(2) REQ'D.

FRONT BUTT PLATE

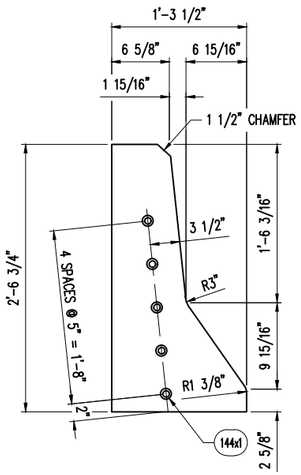


BUTT PLATE END VIEW
(AFTER BEND)



ITEM NO. 144cp6
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER ANCHOR PLATE)



ITEM NO. 144cp7
(2) REQ'D.

VERTICAL PLATE
(LOCATED UNDER SLIDE PLATE)

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 144
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100
- SEE BILL-OF-MATERIALS ON SHEET 146

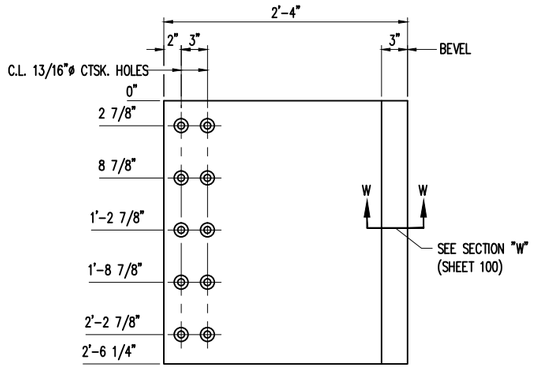
REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

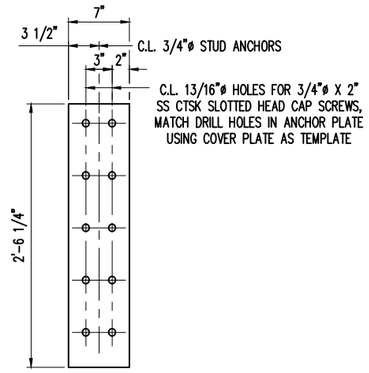
DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	46 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	145	



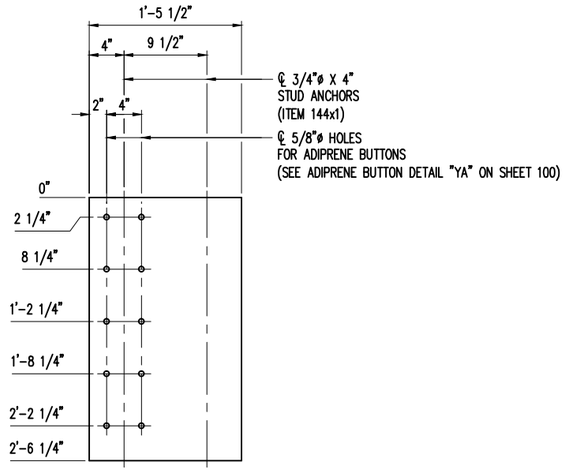
ITEM NO. 144cp8
(2) REQ'D.

BACK COVER PLATE



ITEM NO. 144cp9
(2) REQ'D.

BACK ANCHOR PLATE



ITEM NO. 144cp10
(2) REQ'D.

BACK SLIDE PLATE

REVISED
Modular Expansion Joints 21 & 23
DETAILS

CONSTRUCTION
SHOP DRAWING

MK	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	WT*	REV
144CA	2	SIDEWALK PARAPET COVER PLATE ASSEMBLY				745	
100x1	44	Ø3/4 X 2 SLOTTED FLAT CTSK HD CAP SCREW	A276 T304 OR T316		PLAIN	< 1	
100x2	44	Ø3/4 HEX NUT	A563 GR A OR GR DH		TACK WELD AFTER GALV.; B695-MG	< 1	
100x3	44	Ø3/4 PLASTIC COVER CAP	–		PLAIN	< 1	
100x4	44	ADIPRENE BUTTONS	–		PLAIN	< 1	
144cp1	2	5/8 X 28	A36	3'-7 1/4	COVER PLATE; A123-HDG	215	
144cp2	2	5/8 X 7	A36	3'-6 1/8	ANCHOR PLATE; A123-HDG	52	
144cp3	2	3/8 X 17 1/2	A36	3'-5 15/16	SLIDE PLATE; A123-HDG	78	
144cp5	2	7/8 X 1	A36	3'-6 3/4	BUTT PLATE (FRONT); A123-HDG	11	
144cp6	2	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
144cp7	2	3/8 X 15 1/2	A36	2'-6 3/4	VERTICAL PLATE; SHAPE CUT; A123-HDG	51	
144cp8	2	5/8 X 28	A36	2'-6 1/4	BACK COVER PLATE; A123-HDG	150	
144cp9	2	5/8 X 7	A36	2'-6 1/4	BACK ANCHOR PLATE; A123-HDG	38	
144cp10	2	3/8 X 17 1/2	A36	2'-6 1/4	BACK SLIDE PLATE; A123-HDG	56	
144cp11	2	7/8 X 1	A36	2'-6	BACK BUTT PLATE; A123-HDG	7	
144x1	86	Ø3/4 X 4 WELD STUD	A108		A123-HDG	< 1	
		*Approx. Gross Wt. Lbs Per Single Unit			5/6/2014 10:49:49 AM		

SHOP NOTES:

- SEE SIDEWALK PARAPET DETAILS ON SHEET 144
- SEE COVER PLATE NOTES ON SHEET 100
- SEE MISC. COVER PLATE DETAILS ON SHEET 100

REV.	DESCRIPTION	DATE	DET.	CKD.

D.S. BROWN
A GIBRALTAR INDUSTRIES COMPANY

THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
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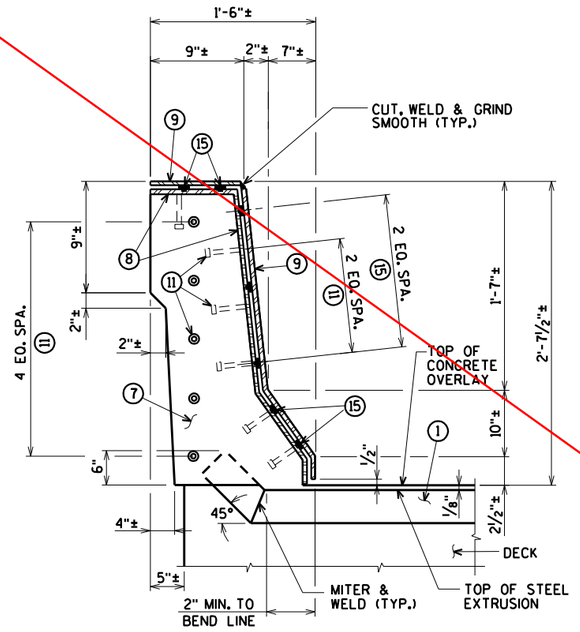
	ITEM	QUANTITY
LOCATION — OVER ST. LOUIS RIVER	–	–
BRIDGE — B-16-38/69100	–	–
PROJECT — 8680-04-71	–	–
FEDERAL PROJECT — WISC 2014007	–	–
P.O. NO. — –	–	–
DESIGNER — AYRES ASSOCIATES	–	–
CUSTOMER — LUNDA CONSTRUCTION	–	–
	–	–

DESCRIPTION:
COVER PLATE DETAILS
DOUGLAS COUNTY, WI

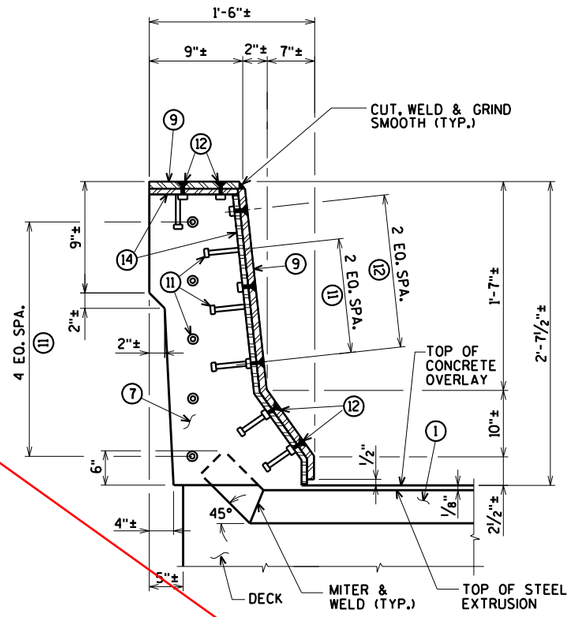
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	BRIDGE SHEET
N.T.S.	SLB	–	–	47 OF 47
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
42790	1021	1	146	

STATE PROJECT NUMBER

8680-04-71

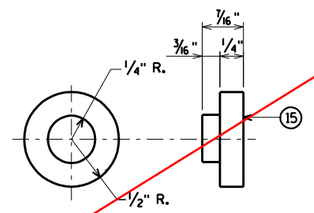


SECTION E



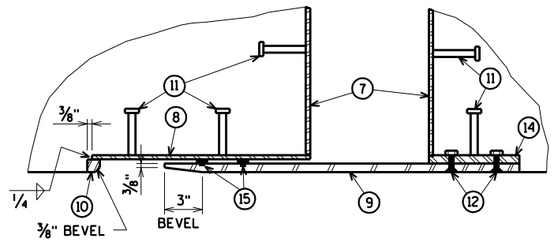
SECTION F

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

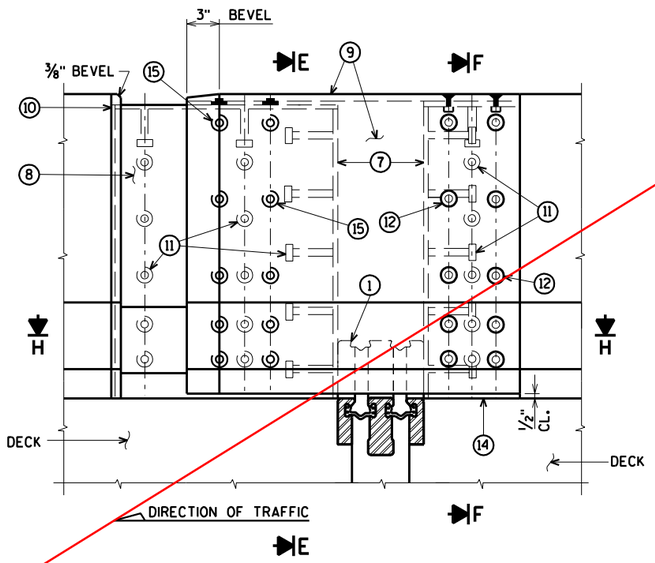


ADIPRENE BUTTON DETAIL

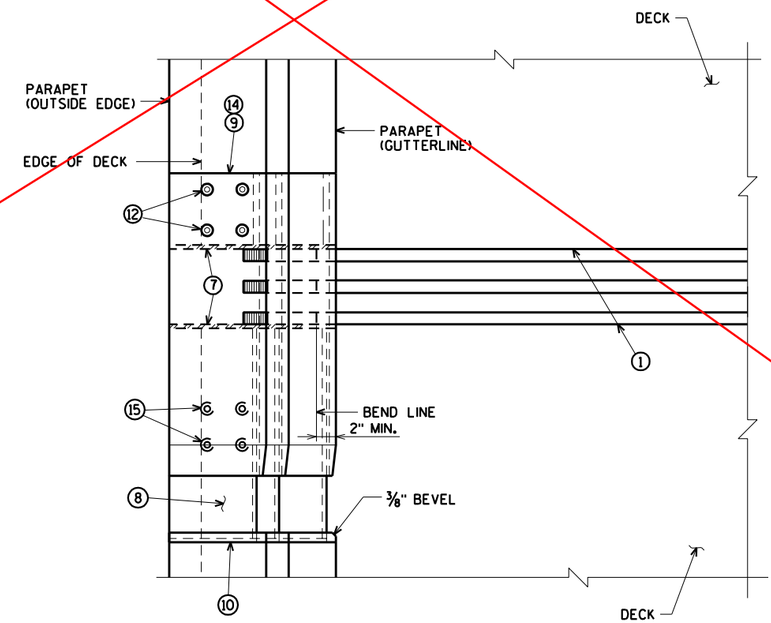
FOR LOCATION OF SECTIONS 'E' AND 'F' SEE SHEET 79



SECTION H



ELEVATION OF OUTSIDE PARAPET



PLAN OF OUTSIDE PARAPET

See revised joint details PAGE 425. Cover plate details PAGE 409.

WORK THIS SHEET WITH SHEETS 79, 81-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS 21 & 23 OUTSIDE PARAPET

SHEET 80 OF 99
426

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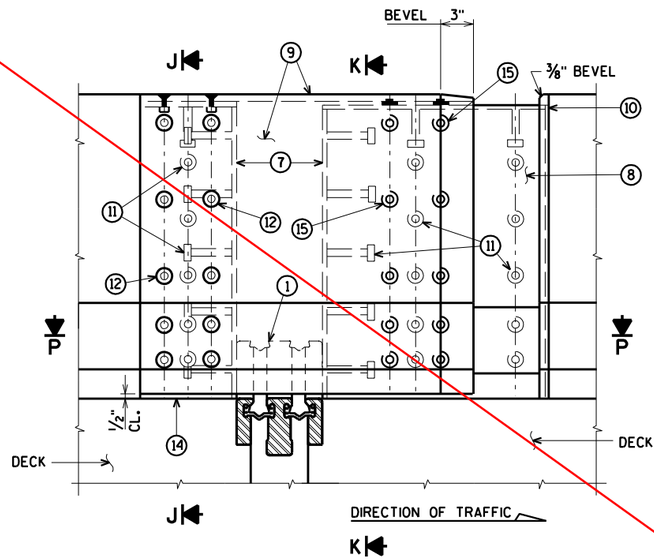
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9/12/2013

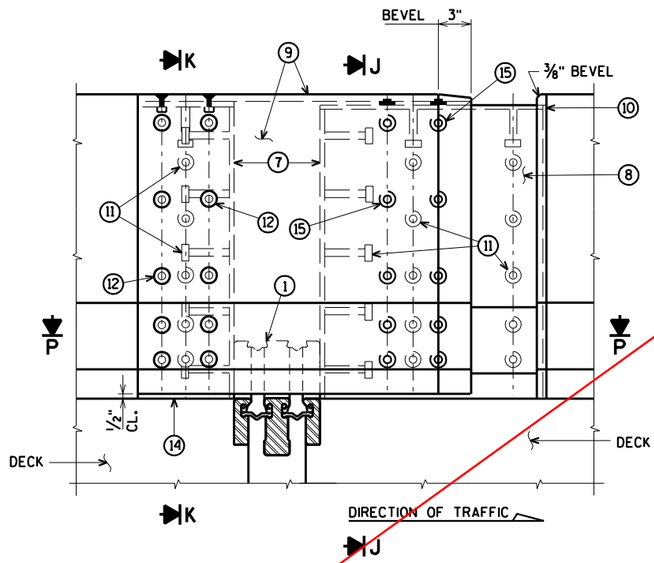
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STATE PROJECT NUMBER

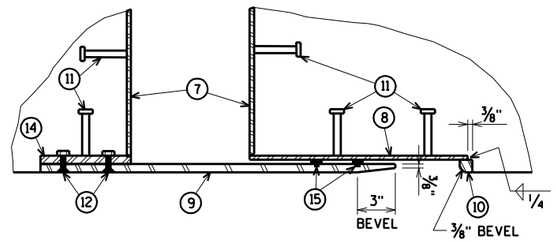
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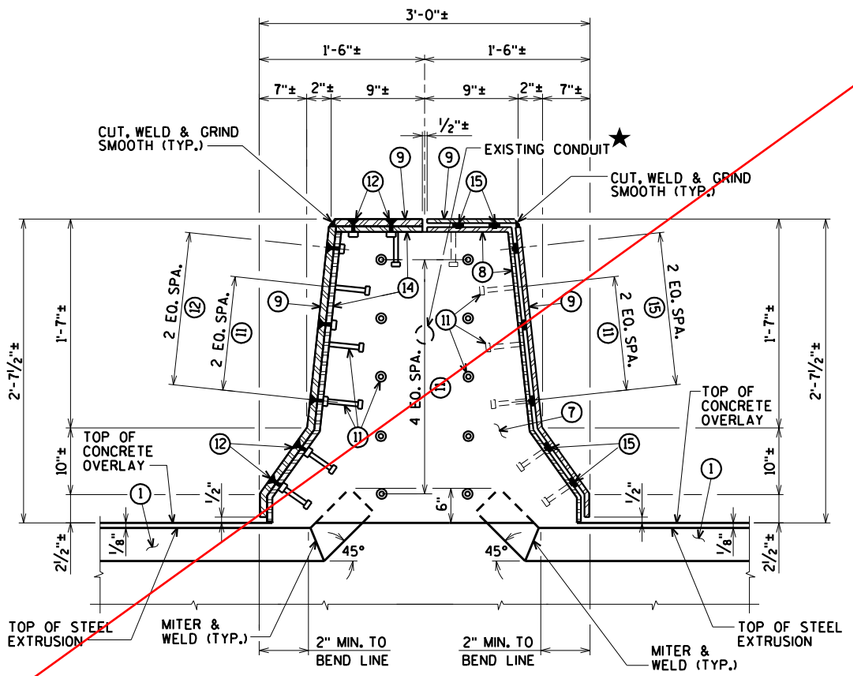
ELEVATION OF MEDIAN PARAPET
SECTION G



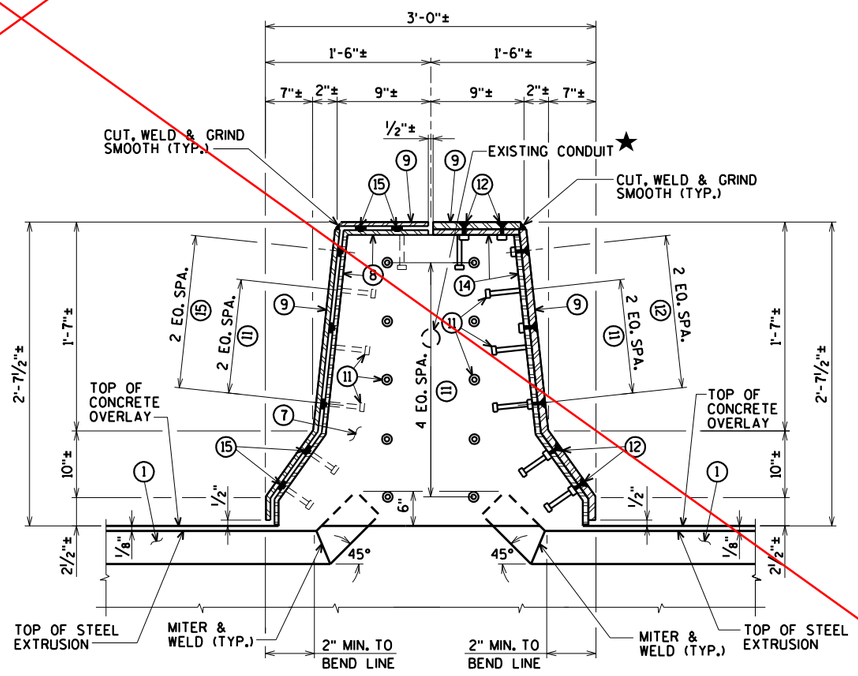
ELEVATION OF MEDIAN PARAPET
SECTION I



SECTION P



SECTION J



SECTION K

See revised joint details
PAGE 425.
Cover plate details
PAGE 409.

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

FOR LOCATION OF SECTIONS 'G', 'I', 'J', AND 'K'
SEE SHEET 79

WORK THIS SHEET WITH SHEETS 79-80, 82-83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY	CLS	PLANS CK'D.	CBM

EXP. JOINTS
21 & 23
MEDIAN PARAPET

SHEET 81 OF 99
427

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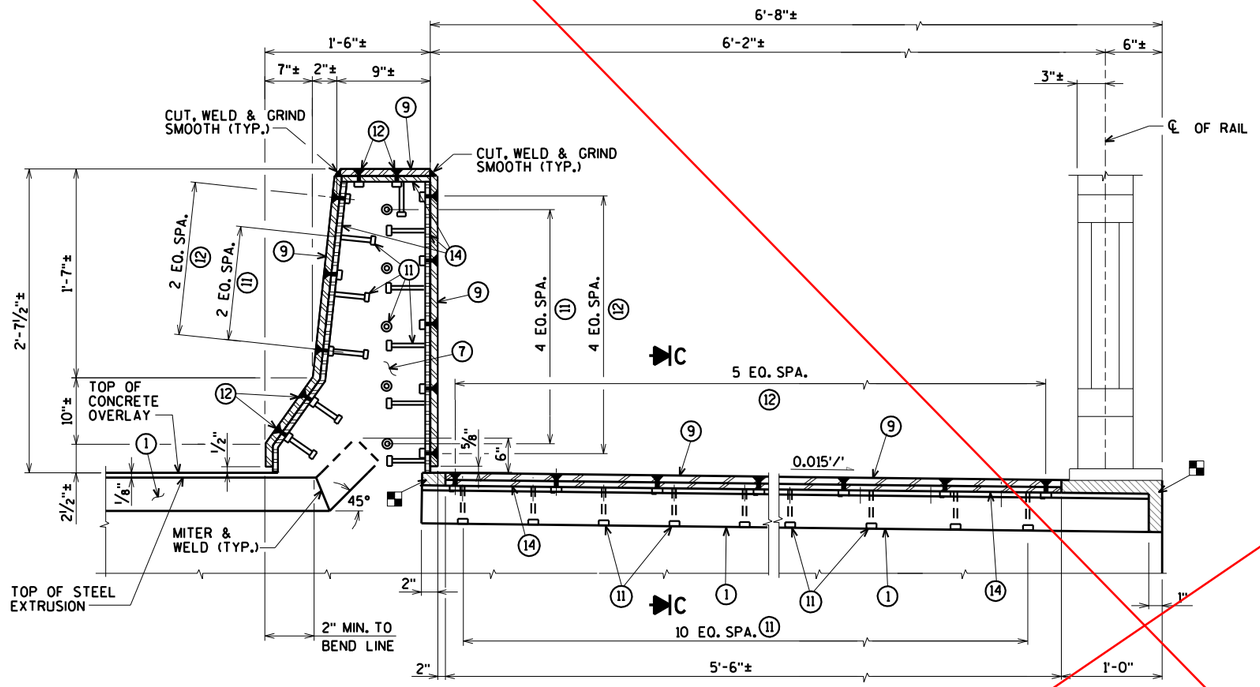
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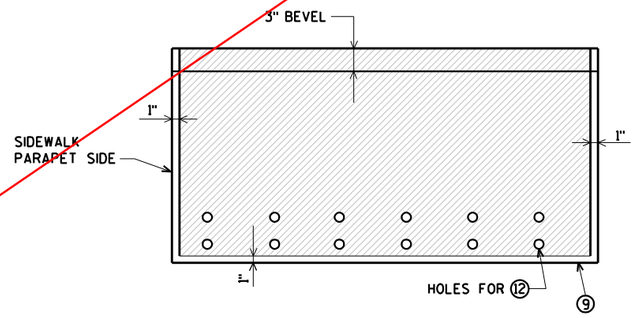
9/12/2013

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ELEVATION OF SIDEWALK W/PARAPET
SECTION A

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

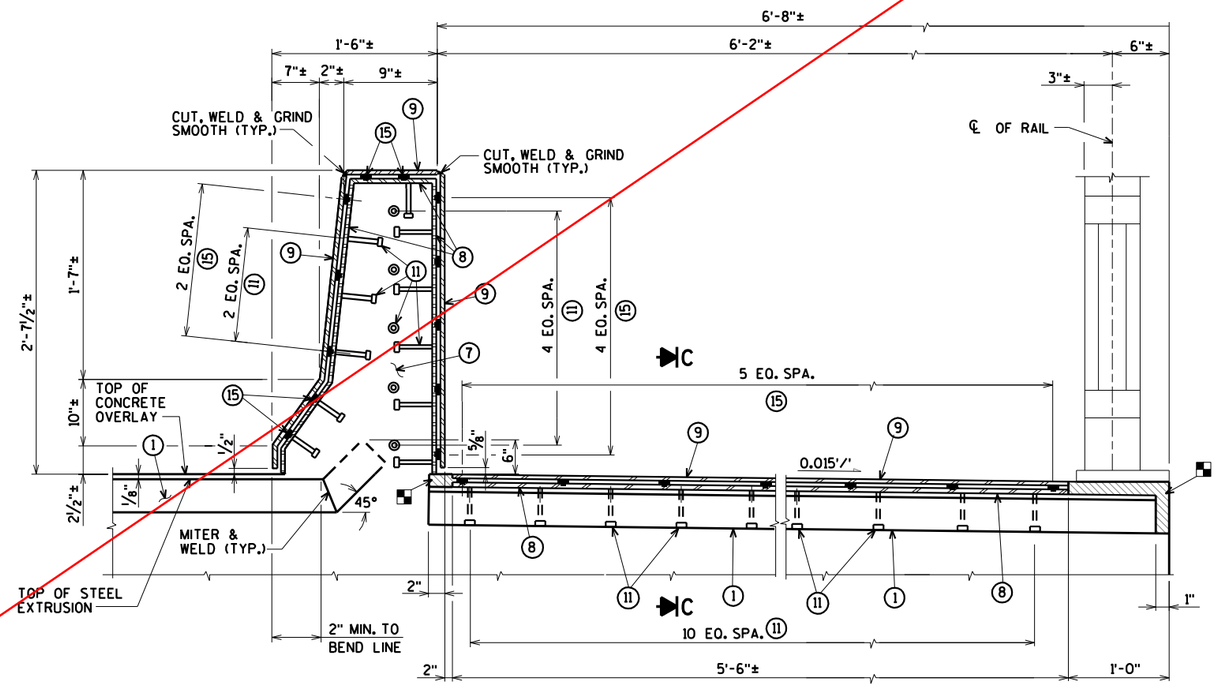


PLAN OF SIDEWALK COVER PLATE
WITH SLIP-RESISTANT SURFACE ▲

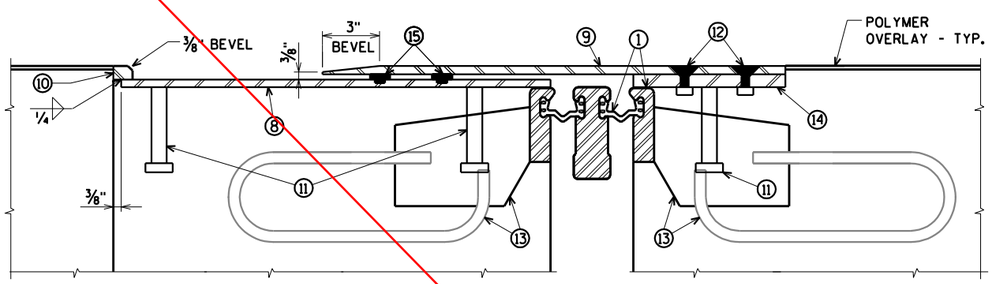
FOR LOCATIONS OF SECTIONS 'A' AND 'B' SEE SHEET 79

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

▲ PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



ELEVATION OF SIDEWALK W/PARAPET
SECTION B



SECTION C

■ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

See revised joint details
PAGE 425.
Cover plate details
PAGE 409.

WORK THIS SHEET WITH SHEETS 79-81, 83

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXP. JOINTS
21 & 23
SIDEWALK & PARAPET

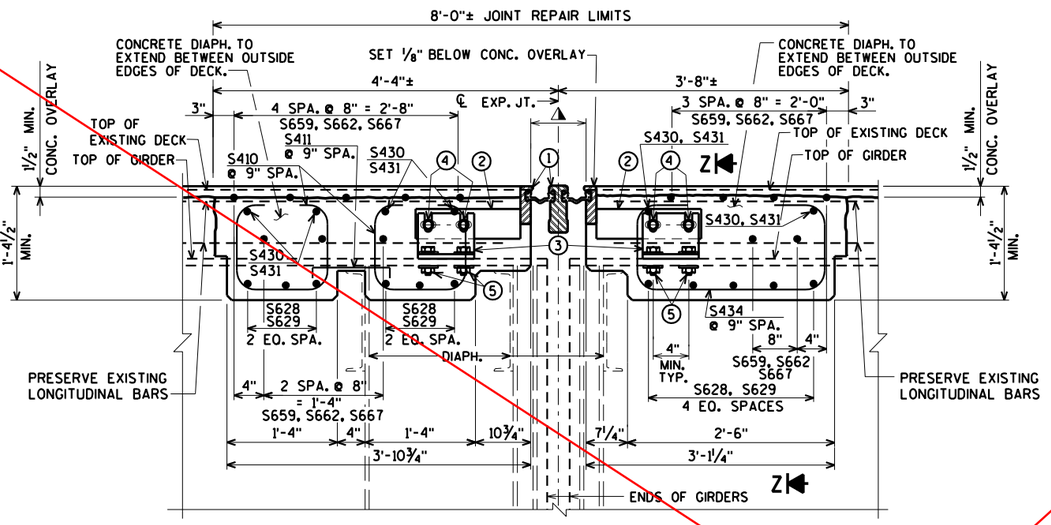
SHEET 82 OF 99
428

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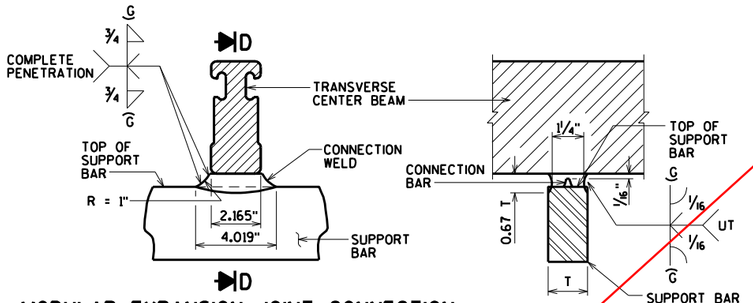
STATE PROJECT NUMBER

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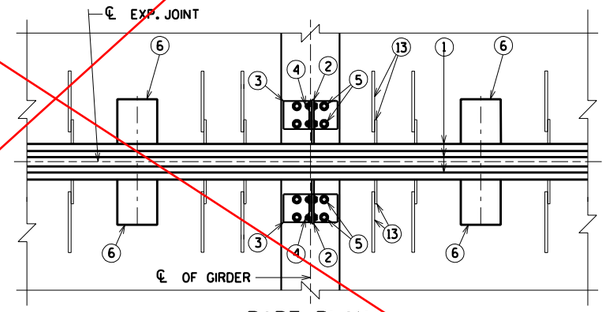
SECTION THRU JOINTS 21 & 23

NORMAL TO ℄ OF JOINT



MODULAR EXPANSION JOINT CONNECTION DETAIL AND WELD SPECIFICATION

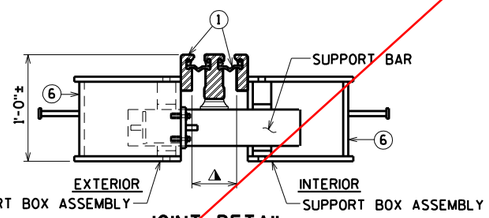
SECTION D



PART PLAN

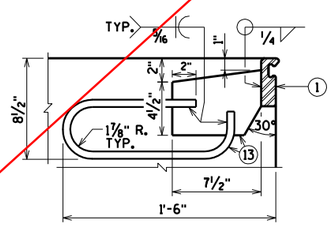
NOTE:
MODULAR EXPANSION DEVICE DESIGN AND DETAILS ARE SPECIFIC TO THE MANUFACTURER SELECTED FROM THOSE LISTED IN THE SPECIAL PROVISIONS. FABRICATION DRAWING IS SUBJECT TO THE APPROVAL OF THE BUREAU OF STRUCTURES.

SUPPORT BOXES ARE SHOWN FOR GENERAL INFORMATION AND LOCATION MAY VARY ACCORDING TO FABRICATOR DESIGN. SPACE SUPPORT BOXES TO MISS GIRDER TOP FLANGES WHEN POSSIBLE, BUT NOT TO EXCEED MAXIMUM SPACING PER SPECIAL PROVISIONS.



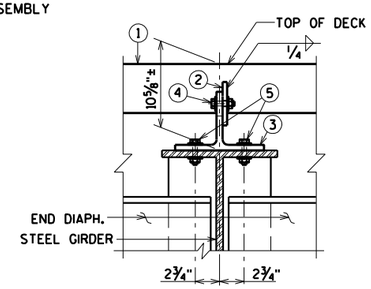
JOINT DETAIL

AT SUPPORT BAR & SUPPORT BOX ASSEMBLY



ANCHORAGE DETAIL

PLACE ADJACENT TO SUPPORT BOXES IN DECK @ CONC. DIAPH.



SECTION Z-Z

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PREMITTED IN NEOPRENE GLAND.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

NO EXPANSION JOINT PROTRUSIONS PERMITTED ABOVE ROADWAY SURFACE, ON PARAPET ROADWAY FACE OR ABOVE SIDEWALK SURFACE.

THE EXPANSION JOINT SEALS SHALL BE PLACED, BONDED AND SEALED AS RECOMMENDED BY THE MANUFACTURER. FORM WORK SHALL BE PLACED BETWEEN THE SUPPORT BOXES TO PREVENT CONCRETE INTRUSION INTO THE SUPPORT BOX. A TECHNICAL REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT DURING INSTALLATION. PRIOR TO SETTING THE JOINT ASSEMBLY INTO POSITION, THE PROJECT ENGINEER SHALL DETERMINE THE PROPER JOINT OPENING.

EXPANSION JOINT EXTRUSIONS SHALL BE FABRICATED TO CONFORM TO ROADWAY CROWN & GRADE. FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN & SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST BARS, PLATES, WT-SECTION, ANCHORAGE LOOP AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THIS ASSEMBLY SHALL BE HOT DIPPED GALVANIZED. ◓

COST OF FURNISHING & PLACING OF THE EXPANSION JOINTS COMPLETE WITH PARAPET PLATES & SIDEWALK PLATES SHALL BE PAID FOR UNDER THE PRICE BID FOR "EXPANSION DEVICE MODULAR B-16-38".

BAR STEEL REINF. IN DECK AND CONC. DIAPHRAGM SHALL BE RESPACED AS NECESSARY TO ALLOW REPLACEMENT OF JOINT ASSEMBLY. TOP TRANSVERSE BARS, ADJACENT TO MOD. JT. TO BE CUT AND PLACED BETWEEN JT. SUPPORT SYSTEM.

LEGEND

① MODULAR EXPANSION JOINT DEVICE, 2 CELLS.

② ½" PLATE, ONE PER GIRDER MIN. PROVIDE 2 - 1" x 2" MIN. SLOTTED HOLES PLACED HORIZONTALLY FOR NO. 4.

③ WT 6 x 29 (OR EQUIVALENT BUILT UP T- SECTION). ONE PER GIRDER. PROVIDE 2 - 1" x 3" MIN. SLOTTED HOLES PLACED VERTICALLY IN WEB OF WT FOR BOLTS NO. 4.

④ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. (A325 GALV.)

⑤ ¾" ø HIGH STRENGTH BOLTS WITH NUTS & WASHERS. FIELD DRILL HOLES IN GIRDER TOP FLANGE (A325 GALV.).

⑥ SUPPORT BOX ASSEMBLY FOR SUPPORT BAR (SPA. PER MANUFACTURER). FABRICATE BOX FROM ½" PLATES.

⑦ ⅜" BULKHEAD PLATE. WELD TO NO. 1 NO. 8 AND NO. 14. WHEN CONDUIT IS PRESENT IN PARAPET, ACCOMODATE FOR BY PROVIDING OPENING IN NO. 7.

⑧ INSIDE PLATE. FABRICATE FROM ⅜" PLATE.

⑨ OUTSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑩ ⅞" SO. BAR. WELD TO NO. 8 AS SHOWN.

⑪ ¾" ø x 4" LONG STUDS. WELD TO NO. 7, NO. 8 & NO. 14 AS SHOWN.

⑫ ¾" ø x 2" STAINLESS STEEL FLAT CTSK. SLOTTED HEAD CAP SCREWS W/ANTI-SEIZE LUBRICANT. RECESS 1/16" BELOW PLATE SURFACE.

⑬ ½" PLATE WITH ⅝" ø LOOP ANCHOR FABRICATED AS SHOWN. SPACED AT MANUFACTURER'S SPEC.

⑭ INSIDE PLATE. FABRICATE FROM ⅝" PLATE.

⑮ ADIPRENE BUTTON. SEE DETAIL. SET IN OUTSIDE PLATE.

⚠ MANUFACTURER'S RECOMMENDED JOINT OPENING BASED ON THE TEMPERATURE ON THE DAY OF PLACEMENT PER TEMPERATURE TABLE. THE MODULAR EXPANSION DEVICE SHALL HAVE THE NUMBER OF CELLS AS INDICATED IN ①.

◓ SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

TEMP. TABLE

TEMPERATURE TABLE FOR SETTING JOINT OPENINGS TO BE DETERMINED BY JOINT MANUFACTURER WITH THE FOLLOWING DESIGN DATA:

1. ⅜ IN. OF MOVEMENT PER 10° F
2. MEDIAN TEMPERATURE OF 45° F
3. TEMP. RANGE IN TABLE FROM (-5)°F) TO (+95°F).

A TABLE OF JOINT OPENINGS BASED ON ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

WORK THIS SHEET WITH SHEETS 79-82

See revised joint details PAGE 425.
Cover plate details PAGE 409.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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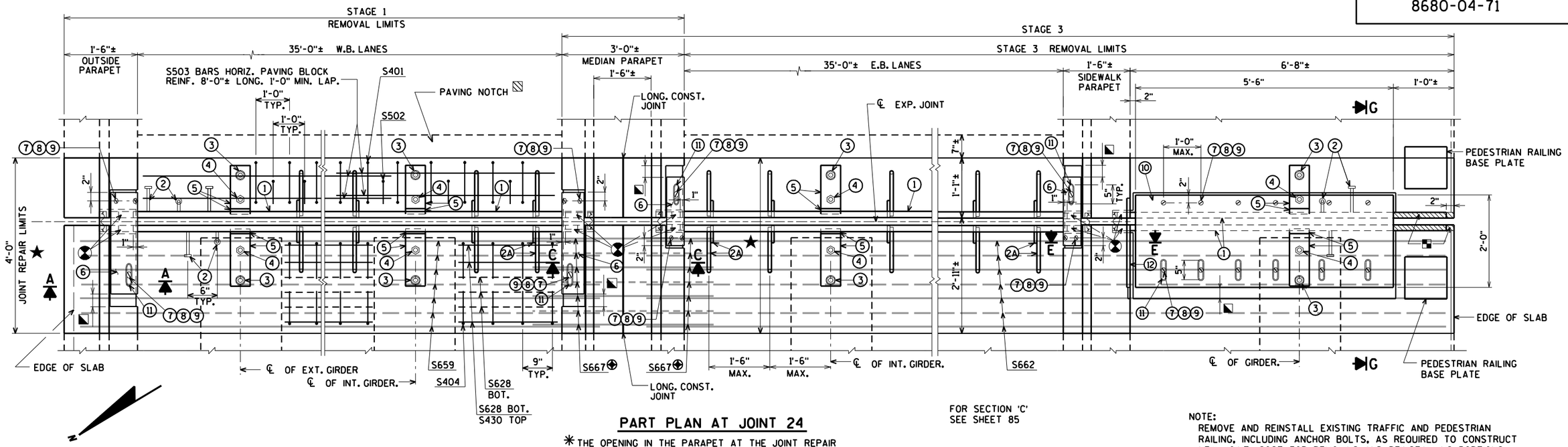
MODULAR EXPANSION JOINTS 21 & 23 DETAILS

SHEET 83 OF 99
429

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PART PLAN AT JOINT 24

✳ THE OPENING IN THE PARAPET AT THE JOINT REPAIR AREA WILL NEED TO BE PROTECTED WITH TEMPORARY MEDIAN GUARDRAIL DURING CONSTRUCTION. (SEE SHEET 93)

FOR SECTION 'C' SEE SHEET 85

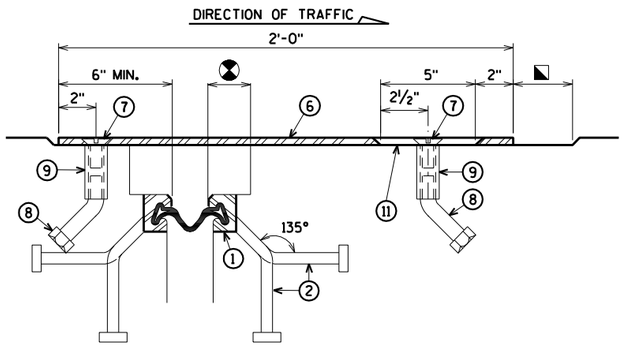
FOR SECTIONS 'E' AND 'G' SEE SHEET 86

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

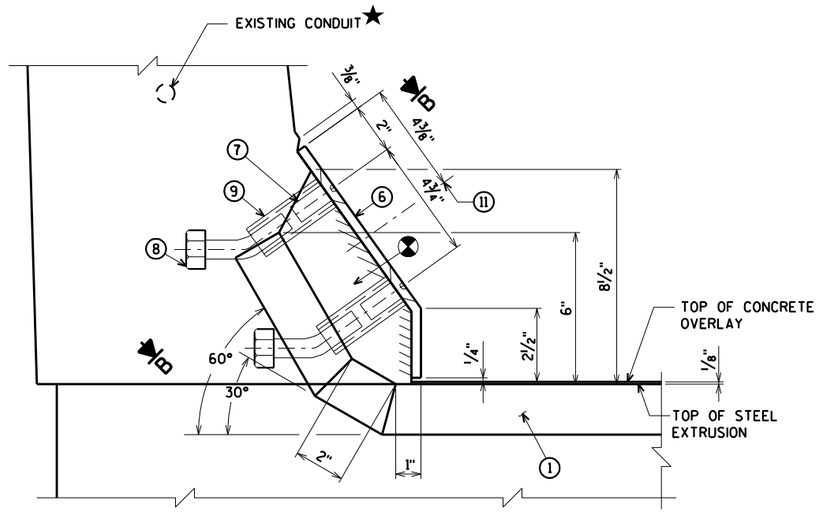
★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

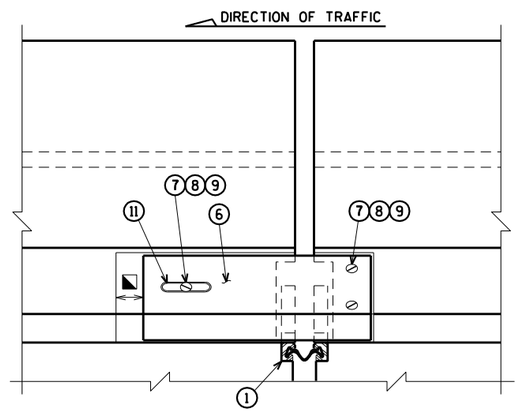


SECTION B



SECTION A

OUTSIDE PARAPET



VIEW OF PARAPET PLATES FROM ROADWAY

OUTSIDE PARAPET

⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◺ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

◪ BLOCK OUT CONCRETE ABOVE AND AT ENDS OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 85-87

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 24 DETAILS

SHEET 84 OF 99
430

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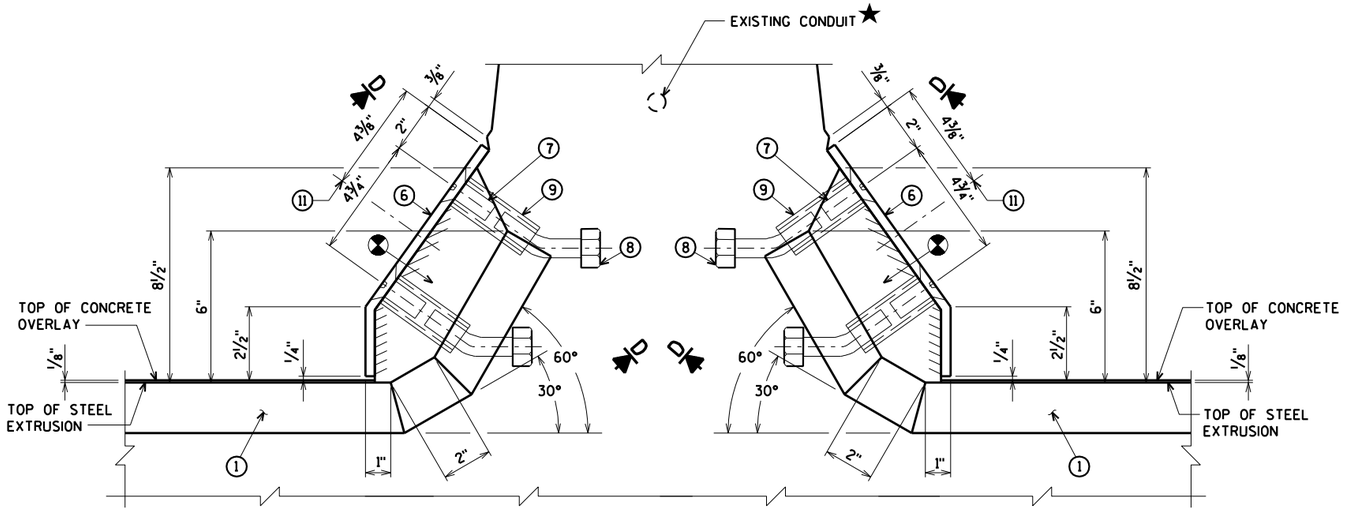
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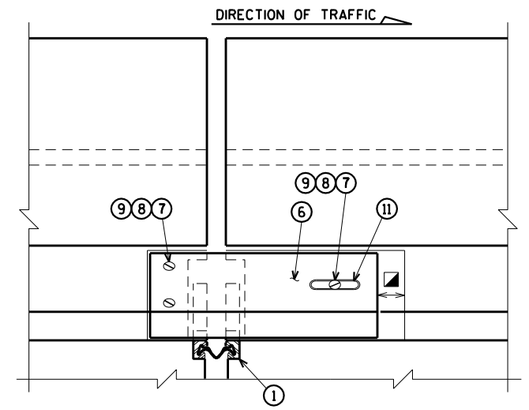
8680-04-71



SECTION C

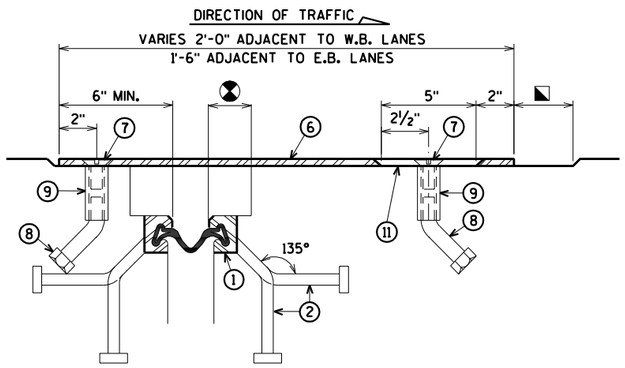
MEDIAN PARAPET

FOR LOCATION OF SECTION 'C'
SEE SHEET 84



VIEW OF PARAPET PLATES FROM ROADWAY

MEDIAN PARAPET



SECTION D

★ WIRING IN PARAPETS NEEDS TO BE TEMPORARY CONNECTED DURING CONSTRUCTION. SEE LIGHTING PLANS.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

WORK THIS SHEET WITH SHEETS 84, 86-87

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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INSIDE PARAPET COVER PLATE JOINT 24 DETAILS

SHEET 85 OF 99
431

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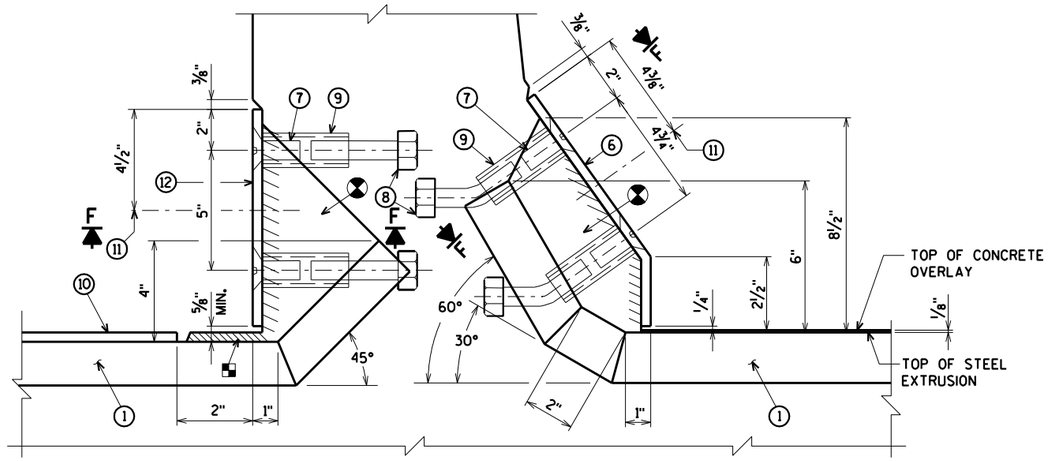
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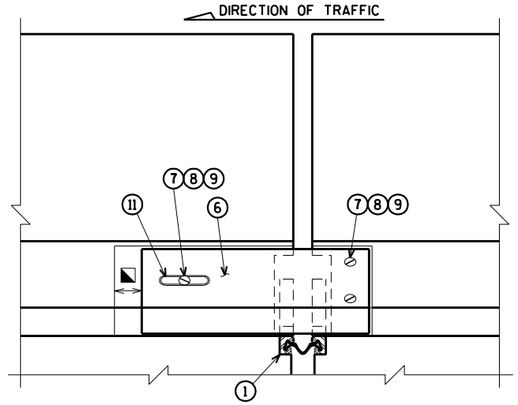
STATE PROJECT NUMBER

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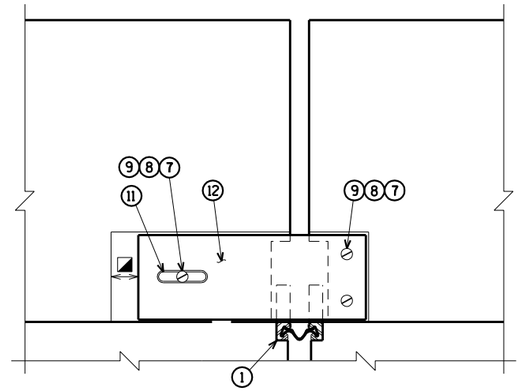


SECTION E
SIDEWALK PARAPET

FOR LOCATION OF SECTIONS 'E' AND 'G'
SEE SHEET 84

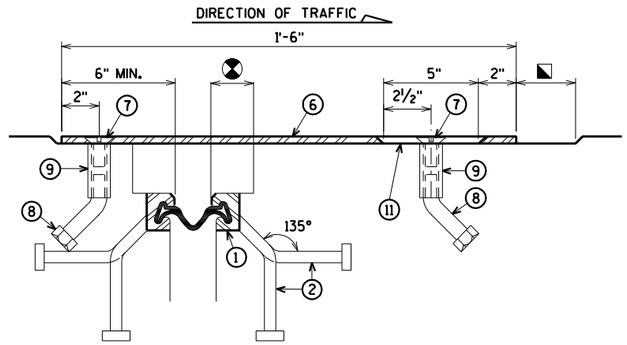


VIEW OF PARAPET PLATES FROM ROADWAY
SIDEWALK PARAPET

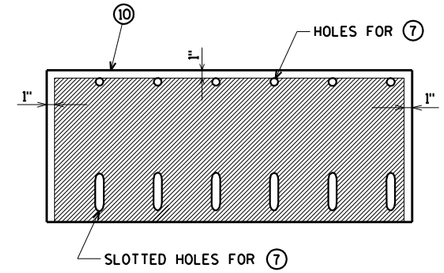


VIEW OF PARAPET PLATES FROM SIDEWALK
SIDEWALK PARAPET

NOTE:
REMOVE AND REINSTALL EXISTING TRAFFIC AND PEDESTRIAN RAILING, INCLUDING ANCHOR BOLTS, AS REQUIRED TO CONSTRUCT NEW JOINT. COST FOR REMOVING AND REINSTALLING PORTIONS OF THE RAILING IS INCIDENTAL TO THE BID ITEM "JOINT REPAIR".

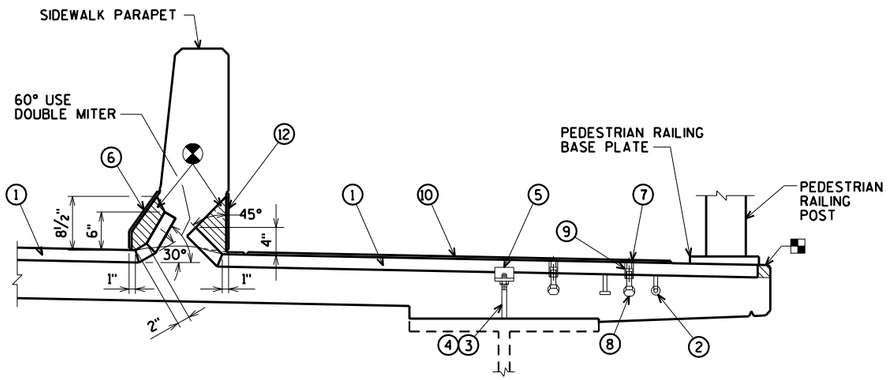


SECTION F

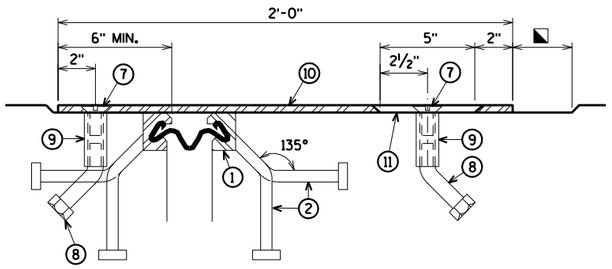


PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.



SECTION AT SIDEWALK



SECTION G

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

⊠ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

◪ JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

◪ BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

WORK THIS SHEET WITH SHEETS 84-85, 87

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

SIDEWALK PARAPET COVER PLATE JOINT 24 DETAILS

SHEET 86 OF 99
432

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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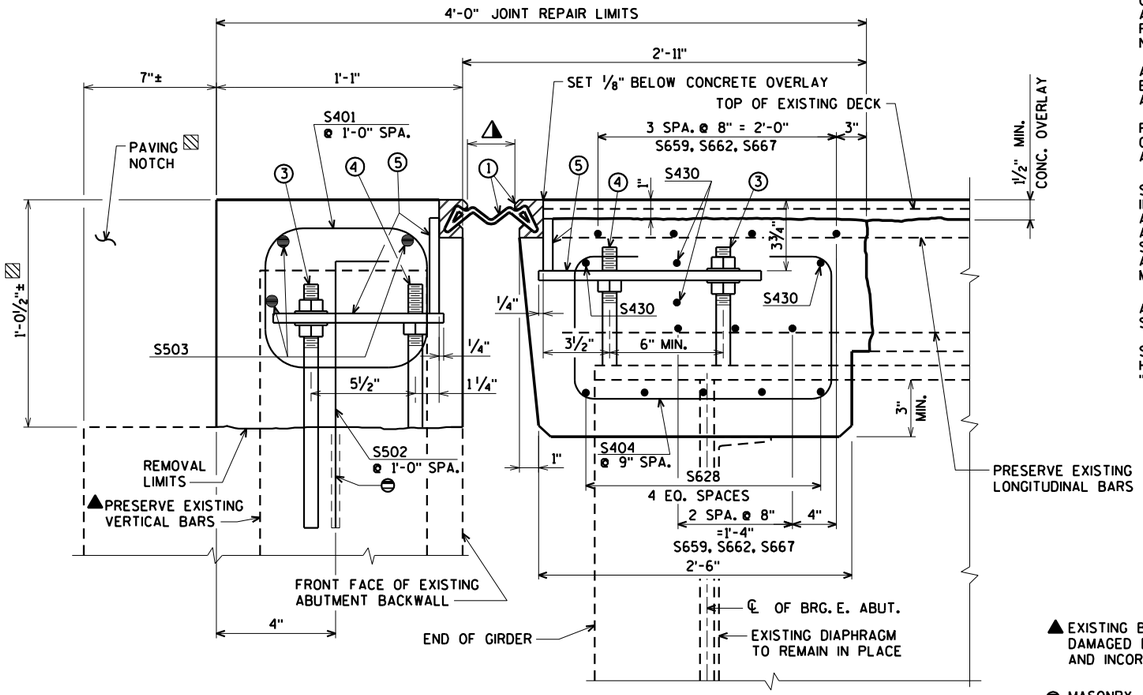
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STATE PROJECT NUMBER

8680-04-71



SECTION THRU JOINT 24

DIMENSIONS ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PROTECTION ANGLE, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-16-38".

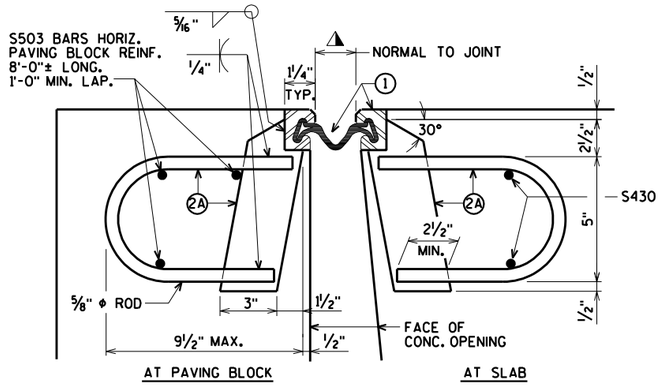
▲ EXISTING BARS LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. PRESERVE AND INCORPORATE AS MUCH REBAR AS PRACTICAL.

⊖ MASONRY ANCHORS TYPE L NO. 5 BARS MIN. PULLOUT CAPACITY OF 20 KIPS. EMBED A MINIMUM OF 1'-0" INTO CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

▨ THE CONCRETE APPROACH SLAB WILL NEED TO BE 1'-0½"± THICK AT THE PAVING NOTCH.

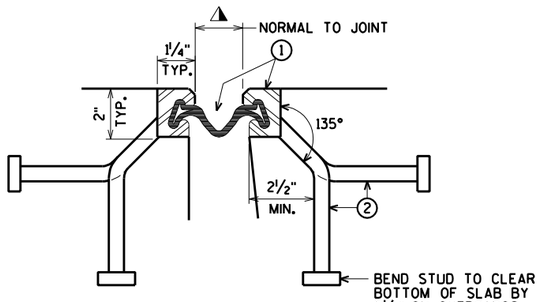
LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 AND 1" Φ HOLE FOR NO. 4.
6. GALVANIZED PLATE ⅜" X 10½" X 2'-0" LONG ADJACENT TO W.B. LANES AND 1'-6" LONG ADJACENT TO E.B. LANES WITH HOLES FOR NO. 7. BEND AS SHOWN.
7. ¾"Φ X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾"Φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾"Φ X 2¼" GALVANIZED THREADED COUPLING.
10. SIDEWALK COVER PLATE ⅜" X 2'-0" X LIMITS SHOWN WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
11. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
12. GALVANIZED PLATE ⅜" X 9" X 2'-0" LONG WITH HOLES FOR NO. 7.



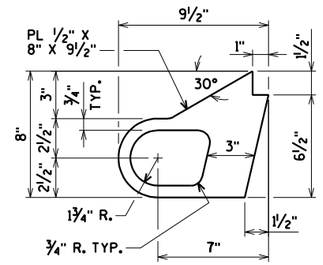
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN GIRDERS.



SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR

⚠ TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1¾"
75°	1⅞"
65°	2"
55°	2⅛"
45°	2¼"
35°	2⅜"
25°	2½"
15°	2⅝"
5°	2¾"

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

SYM. ABOUT ℄ JOINT UNLESS OTHERWISE SHOWN OR NOTED

WORK THIS SHEET WITH SHEETS 84-86

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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STRIP SEAL EXPANSION JOINT 24 DETAILS

SHEET 87 OF 99
433

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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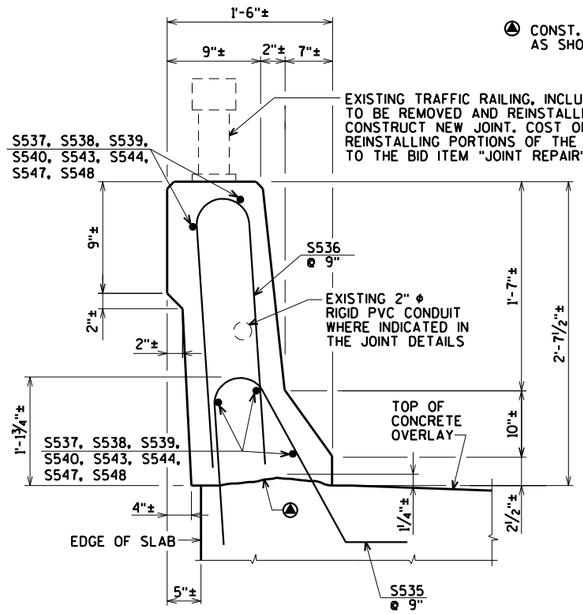
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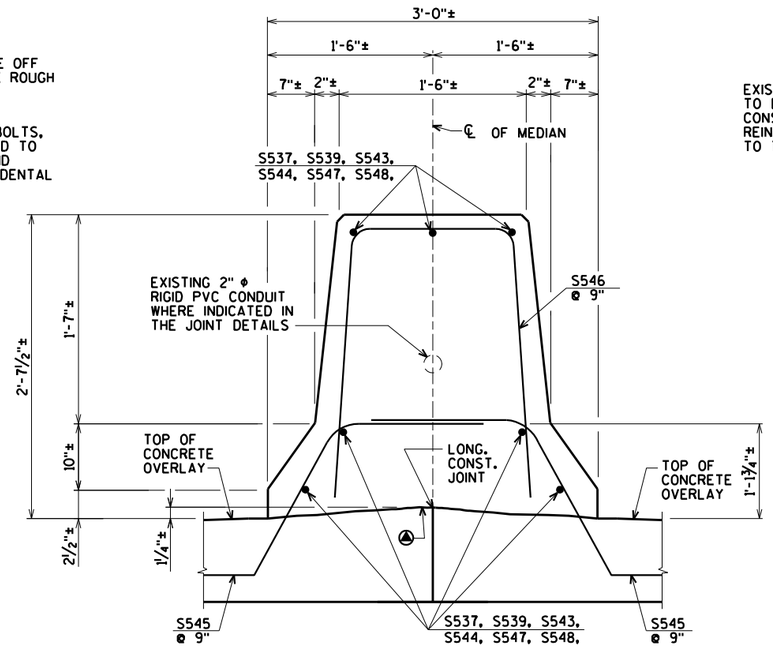
STATE PROJECT NUMBER

8680-04-71



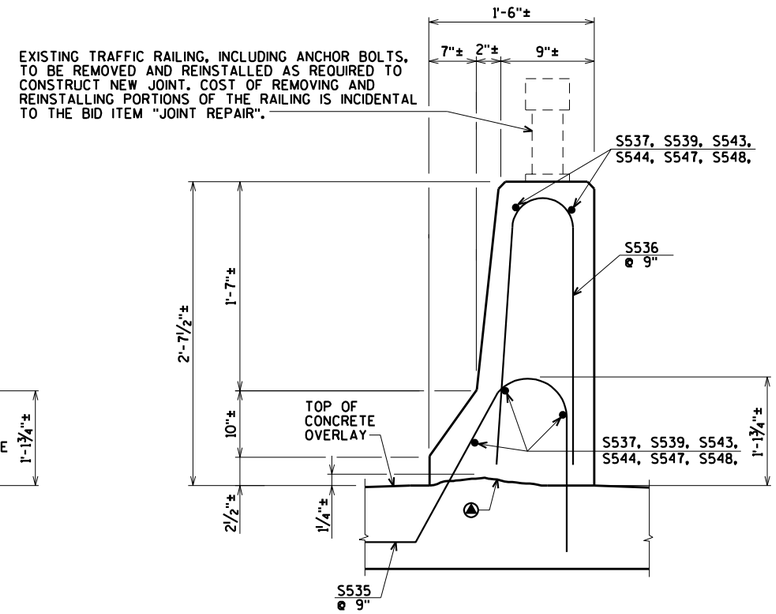
TYPICAL OUTSIDE PARAPET

(JOINTS 1-24)



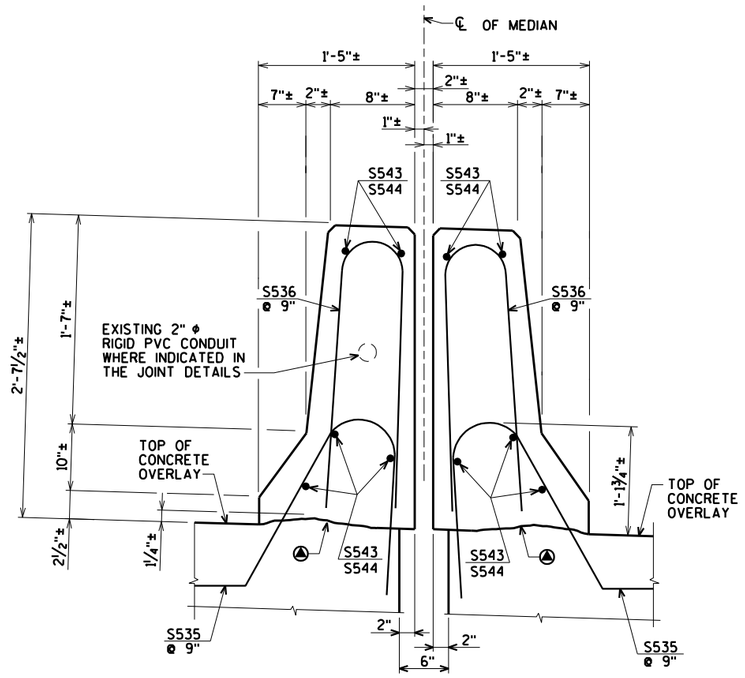
TYPICAL MEDIAN PARAPET

(JOINTS 9-24)



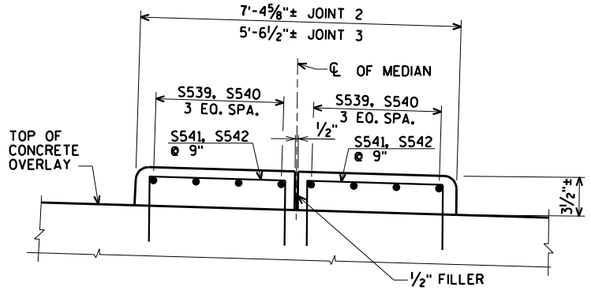
TYPICAL SIDEWALK PARAPET

(JOINTS 8-24)



TYPICAL MEDIAN PARAPET

(JOINTS 5 & 7)



TYPICAL MEDIAN

(JOINTS 2 & 3)

NOTE:

SEAL ALL EXPOSED HORIZONTAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE.)

NOTES:

UTILIZE EXISTING VERTICAL STEEL FOR PARAPET AND MEDIAN REMOVAL LIMITS OUTSIDE OF THE "JOINT REPAIR" LIMITS INDICATED IN THE PLANS. THIS APPLIES TO JOINTS 1-3.

PRESERVE AND INCORPORATE AS MUCH EXISTING LONGITUDINAL PARAPET AND MEDIAN REBAR AS PRACTICAL AND INCORPORATE IT INTO THE NEW WORK.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

PARAPET & MEDIAN REINFORCEMENT DETAILS

SHEET 88 OF 99
434

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 EXPJT bill of bars.dgn

STATE PROJECT NUMBER

8680-04-71

BILL OF BARS - JOINT 1

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,410# COATED LOCATION
	S401	X	76	3-4	X		W. ABUT. PAVING BLOCK VERT.
●	S502	X	76	2-5	X		W. ABUT. PAVING BLOCK VERT.
	S503	X	30	8-0			W. ABUT. PAVING BLOCK HORIZ.
	S404	X	80	4-5	X		DIAPH. VERT. UNIT 1
	S605	X	35	7-0			DIAPH. BOT. HORIZ. UNIT 1
	S406	X	28	7-0			DIAPH. HORIZ. UNIT 1
	S535	X	12	4-3	X		PARAPET VERT.
	S536	X	12	4-10	X		PARAPET VERT.
	S537	X	5	0-8			PARAPET HORIZ. WING 1
	S538	X	5	1-0			PARAPET HORIZ. WING 2
	S539	X	10	2-4			PARAPET HORIZ. UNIT 1
	S649	X	7	44-6			TRANSVERSE TOP & BOT. STAGE 1
	S650	X	7	29-3			TRANSVERSE TOP & BOT. STAGE 3
⊕	S663	X	5	6-0			DIAPH. BOT. HORIZ. UNIT 1 STAGE 1
⊕	S464	X	4	6-0			DIAPH. HORIZ. UNIT 1 STAGE 1
⊕	S665	X	5	1-0			DIAPH. BOT. HORIZ. UNIT 1 STAGE 3
⊕	S466	X	4	1-0			DIAPH. HORIZ. UNIT 1 STAGE 3
⊕	S667	X	14	3-2			TRANSVERSE TOP & BOT. @ LONG. JT.

BILL OF BARS - JOINT 2

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,710# COATED LOCATION
	S404	X	80	4-5	X		DIAPH. VERT. UNIT 1
	S605	X	35	7-0			DIAPH. BOT. HORIZ. UNIT 1
	S406	X	28	7-0			DIAPH. HORIZ. UNIT 1
	S401	X	76	3-4	X		UNIT 2 VERT.
●	S502	X	76	2-5	X		UNIT 2 VERT.
	S503	X	30	8-0			UNIT 2 HORIZ.
●	S507	X	76	2-7	X		UNIT 2 LONG.
	S535	X	12	4-3	X		PARAPET VERT.
	S536	X	12	4-10	X		PARAPET VERT.
	S539	X	10	2-4			PARAPET HORIZ. UNIT 1
	S537	X	5	0-8			PARAPET HORIZ. UNIT 2
	S540	X	5	1-7			PARAPET HORIZ. UNIT 2
	S541	X	12	4-8	X		MEDIAN VERT.
	S539	X	8	2-4			MEDIAN LONG. UNIT 1
	S540	X	8	1-7			MEDIAN LONG. UNIT 2
	S651	X	7	48-3			TRANSVERSE TOP & BOT. STAGE 1
	S652	X	7	26-3			TRANSVERSE TOP & BOT. STAGE 3
⊕	S668	X	5	1-9			DIAPH. BOT. HORIZ. UNIT 1 STAGE 1
⊕	S469	X	4	1-9			DIAPH. HORIZ. UNIT 1 STAGE 1
⊕	S670	X	5	5-3			DIAPH. BOT. HORIZ. UNIT 1 STAGE 3
⊕	S471	X	4	5-3			DIAPH. HORIZ. UNIT 1 STAGE 3
⊕	S667	X	14	3-2			TRANSVERSE TOP & BOT. @ LONG. JT.

BILL OF BARS - JOINT 3

	BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,650# COATED LOCATION
	S401	X	74	3-4	X		UNIT 2 VERT.
●	S502	X	74	2-5	X		UNIT 2 VERT.
	S503	X	30	8-0			UNIT 2 HORIZ.
●	S507	X	74	2-7	X		UNIT 2 LONG.
	S404	X	77	4-5	X		DIAPH. VERT. UNIT 3
	S608	X	30	7-10			DIAPH. BOT. HORIZ. UNIT 3
	S409	X	24	7-10			DIAPH. HORIZ. UNIT 3
	S535	X	12	4-3	X		PARAPET VERT.
	S536	X	12	4-10	X		PARAPET VERT.
	S540	X	5	1-7			PARAPET HORIZ. UNIT 2
	S537	X	5	0-8			PARAPET HORIZ. UNIT 2
	S539	X	10	2-4			PARAPET HORIZ. UNIT 3
	S542	X	12	3-9	X		MEDIAN VERT.
	S540	X	8	1-7			MEDIAN LONG. UNIT 2
	S539	X	8	2-4			MEDIAN LONG. UNIT 3
	S653	X	7	47-6			TRANSVERSE TOP & BOT. STAGE 1
	S654	X	7	25-6			TRANSVERSE TOP & BOT. STAGE 3
⊕	S672	X	5	5-5			DIAPH. BOT. HORIZ. UNIT 3 STAGE 1
⊕	S473	X	4	5-5			DIAPH. HORIZ. UNIT 3 STAGE 1
⊕	S674	X	5	2-5			DIAPH. BOT. HORIZ. UNIT 3 STAGE 3
⊕	S475	X	4	2-5			DIAPH. HORIZ. UNIT 3 STAGE 3
⊕	S667	X	14	3-2			TRANSVERSE TOP & BOT. @ LONG. JT.

BILL OF BARS - JOINT 4

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,460# COATED LOCATION
S410	X	56	4-4	X		DIAPH. VERT. RAMP 'A'
S411	X	28	1-7	X		DIAPH. VERT. RAMP 'A'
S612	X	12	8-6			DIAPH. BOT. HORIZ. INT. RAMP 'A'
S613	X	12	1-9			DIAPH. BOT. HORIZ. EXT. RAMP 'A'
S414	X	8	8-6			DIAPH. HORIZ. INT. RAMP 'A'
S415	X	8	1-9			DIAPH. HORIZ. EXT. RAMP 'A'
S434	X	28	4-11	X		DIAPH. VERT. UNIT 4
S612	X	10	8-6			DIAPH. BOT. HORIZ. INT. UNIT 4
S613	X	10	1-9			DIAPH. BOT. HORIZ. EXT. UNIT 4
S414	X	4	8-6			DIAPH. HORIZ. INT. UNIT 4
S415	X	4	1-9			DIAPH. HORIZ. EXT. UNIT 4
S535	X	18	4-3	X		PARAPET VERT.
S536	X	18	4-10	X		PARAPET VERT.
S543	X	10	3-4			PARAPET HORIZ. RAMP 'A'
S544	X	10	2-8			PARAPET HORIZ. UNIT 4
S655	X	14	25-0			TRANSVERSE TOP & BOT.

BILL OF BARS - JOINT 5

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	3,550# COATED LOCATION
S410	X	140	4-4	X		DIAPH. VERT. UNIT 3
S411	X	70	1-7	X		DIAPH. VERT. UNIT 3
S649	X	30	8-5			DIAPH. BOT. HORIZ. INT. UNIT 3
S617	X	24	2-6			DIAPH. BOT. HORIZ. EXT. UNIT 3
S450	X	20	8-5			DIAPH. HORIZ. INT. UNIT 3
S419	X	16	2-6			DIAPH. HORIZ. EXT. UNIT 3
S434	X	70	4-11	X		DIAPH. VERT. UNIT 4
S649	X	25	8-5			DIAPH. BOT. HORIZ. INT. UNIT 4
S617	X	20	2-6			DIAPH. BOT. HORIZ. EXT. UNIT 4
S450	X	10	8-5			DIAPH. HORIZ. INT. UNIT 4
S419	X	8	2-6			DIAPH. HORIZ. EXT. UNIT 4
S535	X	18	4-3	X		OUTSIDE PARAPET VERT.
S536	X	18	4-10	X		OUTSIDE PARAPET VERT.
S543	X	10	3-4			OUTSIDE PARAPET HORIZ. UNIT 3
S544	X	10	2-8			OUTSIDE PARAPET HORIZ. UNIT 4
S535	X	18	4-3	X		MEDIAN PARAPET VERT.
S536	X	18	4-10	X		MEDIAN PARAPET VERT.
S543	X	10	3-4			MEDIAN PARAPET HORIZ. UNIT 3
S544	X	10	2-8			MEDIAN PARAPET HORIZ. UNIT 4
S656	X	14	37-3			TRANSVERSE TOP & BOT. STAGE 1
S657	X	14	24-9			TRANSVERSE TOP & BOT. STAGE 3

BILL OF BARS - JOINT 6

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,530# COATED LOCATION
S410	X	64	4-4	X		DIAPH. VERT. RAMP 'C'
S411	X	32	1-7	X		DIAPH. VERT. RAMP 'C'
S616	X	12	8-9			DIAPH. BOT. HORIZ. INT. RAMP 'C'
S617	X	12	2-6			DIAPH. BOT. HORIZ. EXT. RAMP 'C'
S418	X	8	8-9			DIAPH. HORIZ. INT. RAMP 'C'
S419	X	8	2-6			DIAPH. HORIZ. EXT. RAMP 'C'
S434	X	32	4-11	X		DIAPH. VERT. UNIT 4
S616	X	10	8-9			DIAPH. BOT. HORIZ. INT. UNIT 4
S617	X	10	2-6			DIAPH. BOT. HORIZ. EXT. UNIT 4
S418	X	4	8-9			DIAPH. HORIZ. INT. UNIT 4
S419	X	4	2-6			DIAPH. HORIZ. EXT. UNIT 4
S535	X	18	4-3	X		PARAPET VERT.
S536	X	18	4-10	X		PARAPET VERT.
S543	X	10	3-4			PARAPET HORIZ. RAMP 'C'
S544	X	10	2-8			PARAPET HORIZ. UNIT 4
S658	X	14	24-3			TRANSVERSE TOP & BOT.

BILL OF BARS - JOINT 7

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,060# COATED LOCATION
S410	X	160	4-4	X		DIAPH. VERT. UNIT 4
S411	X	80	1-7	X		DIAPH. VERT. UNIT 4
S616	X	30	8-9			DIAPH. BOT. HORIZ. INT. UNIT 4
S621	X	24	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 4
S418	X	20	8-9			DIAPH. HORIZ. INT. UNIT 4
S423	X	16	2-3			DIAPH. HORIZ. EXT. UNIT 4
S651	X	12	3-2			DIAPH. BOT. HORIZ. INT. UNIT 4
S452	X	8	3-2			DIAPH. HORIZ. INT. UNIT 4
S434	X	80	4-11	X		DIAPH. VERT. UNIT 5
S616	X	30	8-9			DIAPH. BOT. HORIZ. INT. UNIT 5
S621	X	20	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 5
S418	X	12	8-9			DIAPH. HORIZ. INT. UNIT 5
S423	X	8	2-3			DIAPH. HORIZ. EXT. UNIT 5
S535	X	18	4-3	X		OUTSIDE PARAPET VERT.
S536	X	18	4-10	X		OUTSIDE PARAPET VERT.
S543	X	10	3-4			OUTSIDE PARAPET HORIZ. UNIT 4
S544	X	10	2-8			OUTSIDE PARAPET HORIZ. UNIT 5
S535	X	18	4-3	X		MEDIAN PARAPET VERT.
S536	X	18	4-10	X		MEDIAN PARAPET VERT.
S543	X	10	3-4			MEDIAN PARAPET HORIZ. UNIT 4
S544	X	10	2-8			MEDIAN PARAPET HORIZ. UNIT 5
S659	X	28	36-9			TRANSVERSE TOP & BOT.

BILL OF BARS - JOINT 8

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	1,790# COATED LOCATION
S410	X	76	4-4	X		DIAPH. VERT. RAMP 'B'
S411	X	38	1-7	X		DIAPH. VERT. RAMP 'B'
S620	X	18	6-9			DIAPH. BOT. HORIZ. INT. RAMP 'B'
S621	X	12	2-3			DIAPH. BOT. HORIZ. EXT. RAMP 'B'
S422	X	12	6-9			DIAPH. HORIZ. INT. RAMP 'B'
S423	X	8	2-3			DIAPH. HORIZ. EXT. RAMP 'B'
S434	X	38	4-11	X		DIAPH. VERT. UNIT 5
S620	X	15	6-9			DIAPH. BOT. HORIZ. INT. UNIT 5
S621	X	10	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 5
S422	X	6	6-9			DIAPH. HORIZ. INT. UNIT 5
S423	X	4	2-3			DIAPH. HORIZ. EXT. UNIT 5
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. RAMP 'B'
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 5
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. RAMP 'B'
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 5
S660	X	14	31-6			TRANSVERSE TOP & BOT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

● CONCRETE MASONRY ANCHORS TYPE L No. 5 BARS

FOR BAR BENDING DETAILS, SEE SHEET 92.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 90-92

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINTS 1 - 8 BILL OF BARS

SHEET 89 OF 99
435

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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PENTABLE:BReau_shd_util.tbl

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STATE PROJECT NUMBER

8680-04-71

BILL OF BARS - JOINT 9

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	5,150# COATED LOCATION
S410	X	232	4-4	X		DIAPH. VERT. UNIT 5
S411	X	116	1-7	X		DIAPH. VERT. UNIT 5
S616	X	42	8-9			DIAPH. BOT. HORIZ. INT. UNIT 5
S625	X	24	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 5
S418	X	28	8-9			DIAPH. HORIZ. INT. UNIT 5
S427	X	16	2-3			DIAPH. HORIZ. EXT. UNIT 5
⊕ S653	X	6	3-1			DIAPH. BOT. HORIZ. UNIT 5 STAGE 1
⊕ S454	X	4	3-1			DIAPH. HORIZ. UNIT 5 STAGE 1
S434	X	116	4-11	X		DIAPH. VERT. UNIT 6
S616	X	35	8-9			DIAPH. BOT. HORIZ. INT. UNIT 6
S625	X	10	2-3			DIAPH. BOT. HORIZ. EXT. UNIT 6
S418	X	14	8-9			DIAPH. HORIZ. INT. UNIT 6
S427	X	4	2-3			DIAPH. HORIZ. EXT. UNIT 6
⊕ S653	X	5	3-1			DIAPH. BOT. HORIZ. UNIT 6 STAGE 1
⊕ S454	X	2	3-1			DIAPH. HORIZ. UNIT 6 STAGE 1
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 5
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 6
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 5
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 6
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 5
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 6
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S661	X	14	54-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S676	X	6	2-9			DIAPH. BOT. HORIZ. UNIT 5 STAGE 3
⊕ S477	X	4	2-9			DIAPH. HORIZ. UNIT 5 STAGE 3
⊕ S676	X	5	2-9			DIAPH. BOT. HORIZ. UNIT 6 STAGE 3
⊕ S477	X	2	2-9			DIAPH. HORIZ. UNIT 6 STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 10

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,630# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 6
S411	X	103	1-7	X		DIAPH. VERT. UNIT 6
S628	X	36	9-0			DIAPH. BOT. HORIZ. INT. UNIT 6
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 6
S430	X	24	9-0			DIAPH. HORIZ. INT. UNIT 6
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 6
S655	X	12	4-3			DIAPH. BOT. HORIZ. INT. UNIT 6
S456	X	8	4-3			DIAPH. HORIZ. INT. UNIT 6
S434	X	103	4-11	X		DIAPH. VERT. UNIT 7
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 7
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 7
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 7
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 7
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 6
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 7
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 6
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 7
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 6
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 7
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 11

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 7
S411	X	103	1-7	X		DIAPH. VERT. UNIT 7
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 7
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 7
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 7
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 7
S434	X	103	4-11	X		DIAPH. VERT. UNIT 8
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 8
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 8
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 8
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 8
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 7
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 8
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 7
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 8
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 7
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 8
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 12

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 8
S411	X	103	1-7	X		DIAPH. VERT. UNIT 8
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 8
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 8
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 8
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 8
S434	X	103	4-11	X		DIAPH. VERT. UNIT 9
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 9
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 9
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 9
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 9
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 8
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 9
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 8
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 9
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 8
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 9
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 13

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 9
S411	X	103	1-7	X		DIAPH. VERT. UNIT 9
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 9
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 9
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 9
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 9
S434	X	103	4-11	X		DIAPH. VERT. UNIT 10
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 10
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 10
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 10
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 10
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 9
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 10
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 9
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 10
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 9
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 10
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 14

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X		DIAPH. VERT. UNIT 10
S411	X	103	1-7	X		DIAPH. VERT. UNIT 10
S628	X	42	9-0			DIAPH. BOT. HORIZ. INT. UNIT 10
S629	X	12	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 10
S430	X	28	9-0			DIAPH. HORIZ. INT. UNIT 10
S431	X	8	2-0			DIAPH. HORIZ. EXT. UNIT 10
S434	X	103	4-11	X		DIAPH. VERT. UNIT 11
S628	X	35	9-0			DIAPH. BOT. HORIZ. INT. UNIT 11
S629	X	10	2-0			DIAPH. BOT. HORIZ. EXT. UNIT 11
S430	X	14	9-0			DIAPH. HORIZ. INT. UNIT 11
S431	X	4	2-0			DIAPH. HORIZ. EXT. UNIT 11
S535	X	9	4-3	X		OUTSIDE PARAPET VERT.
S536	X	9	4-10	X		OUTSIDE PARAPET VERT.
S543	X	5	3-4			OUTSIDE PARAPET HORIZ. UNIT 10
S544	X	5	2-8			OUTSIDE PARAPET HORIZ. UNIT 11
S545	X	18	3-8	X		MEDIAN PARAPET VERT.
S546	X	9	5-4	X		MEDIAN PARAPET VERT.
S543	X	7	3-4			MEDIAN PARAPET HORIZ. UNIT 10
S544	X	7	2-8			MEDIAN PARAPET HORIZ. UNIT 11
S535	X	9	4-3	X		SIDEWALK PARAPET VERT.
S536	X	9	4-10	X		SIDEWALK PARAPET VERT.
S543	X	5	3-4			SIDEWALK PARAPET HORIZ. UNIT 10
S544	X	5	2-8			SIDEWALK PARAPET HORIZ. UNIT 11
S659	X	14	36-9			TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9			TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2			TRANSVERSE TOP & BOT. ℄ LONG. JT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR BAR BENDING DETAILS, SEE SHEET 92.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 89, 91-92

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINTS 9 - 14 BILL OF BARS

SHEET 90 OF 99

436

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STATE PROJECT NUMBER

8680-04-71

BILL OF BARS - JOINT 15

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 11
S411	X	103	1-7	X			DIAPH. VERT. UNIT 11
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 11
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 11
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 11
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 11
S434	X	103	4-11	X			DIAPH. VERT. UNIT 12
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 12
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 12
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 12
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 12
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 11
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 12
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 11
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 12
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 11
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 12
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 16

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,610# COATED LOCATION
S434	X	103	4-11	X			DIAPH. VERT. UNIT 12
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 12
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 12
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 12
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 12
S432	X	103	3-8	X			DIAPH. VERT. UNIT 13
S433	X	103	4-8	X			DIAPH. VERT. UNIT 13
S411	X	103	1-7	X			DIAPH. VERT. UNIT 13
S624	X	42	8-0				DIAPH. BOT. HORIZ. INT. UNIT 13
S617	X	12	2-6				DIAPH. BOT. HORIZ. EXT. UNIT 13
S426	X	28	8-0				DIAPH. HORIZ. INT. UNIT 13
S419	X	8	2-6				DIAPH. HORIZ. EXT. UNIT 13
S535	X	8	4-3	X			OUTSIDE PARAPET VERT.
S536	X	8	4-10	X			OUTSIDE PARAPET VERT.
S547	X	10	3-0				OUTSIDE PARAPET HORIZ. UNITS 12 & 13
S545	X	16	3-8	X			MEDIAN PARAPET VERT.
S546	X	8	5-4	X			MEDIAN PARAPET VERT.
S547	X	14	3-0				MEDIAN PARAPET HORIZ. UNITS 12 & 13
S535	X	8	4-3	X			SIDEWALK PARAPET VERT.
S536	X	8	4-10	X			SIDEWALK PARAPET VERT.
S547	X	10	3-0				SIDEWALK PARAPET HORIZ. UNITS 12 & 13
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S678	X	6	4-4				DIAPH. BOT. HORIZ. UNIT 13 STAGE 1
⊕ S479	X	4	4-4				DIAPH. HORIZ. UNIT 13 STAGE 1
⊕ S680	X	6	3-8				DIAPH. BOT. HORIZ. UNIT 13 STAGE 3
⊕ S481	X	4	3-8				DIAPH. HORIZ. UNIT 13 STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 17

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	3,960# COATED LOCATION
S404	X	192	4-5	X			DIAPH. VERT. UNIT 13
S624	X	70	8-0				DIAPH. BOT. HORIZ. UNIT 13
S426	X	56	8-0				DIAPH. HORIZ. UNIT 13
S535	X	6	4-3	X			OUTSIDE PARAPET VERT.
S536	X	6	4-10	X			OUTSIDE PARAPET VERT.
S548	X	10	2-1				OUTSIDE PARAPET UNIT 13
S545	X	12	3-8	X			MEDIAN PARAPET VERT.
S546	X	6	5-4	X			MEDIAN PARAPET VERT.
S548	X	14	2-1				MEDIAN PARAPET HORIZ. UNIT 13
S535	X	6	4-3	X			SIDEWALK PARAPET VERT.
S536	X	6	4-10	X			SIDEWALK PARAPET VERT.
S548	X	10	2-1				SIDEWALK PARAPET HORIZ. UNIT 13
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S678	X	10	4-4				DIAPH. BOT. HORIZ. UNIT 13 STAGE 1
⊕ S479	X	8	4-4				DIAPH. HORIZ. UNIT 13 STAGE 1
⊕ S680	X	10	3-8				DIAPH. BOT. HORIZ. UNIT 13 STAGE 3
⊕ S481	X	8	3-8				DIAPH. HORIZ. UNIT 13 STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 18

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	3,960# COATED LOCATION
S404	X	96	4-5	X			DIAPH. VERT. UNIT 13
S624	X	35	8-0				DIAPH. BOT. HORIZ. UNIT 13
S426	X	28	8-0				DIAPH. HORIZ. UNIT 13
S404	X	98	4-5	X			DIAPH. VERT. UNIT 14
S628	X	35	9-0				DIAPH. BOT. HORIZ. UNIT 14
S430	X	28	9-0				DIAPH. HORIZ. UNIT 14
S535	X	6	4-3	X			OUTSIDE PARAPET VERT.
S536	X	6	4-10	X			OUTSIDE PARAPET VERT.
S548	X	10	2-1				OUTSIDE PARAPET HORIZ. UNITS 13 & 14
S545	X	12	3-8	X			MEDIAN PARAPET VERT.
S546	X	6	5-4	X			MEDIAN PARAPET VERT.
S548	X	14	2-1				MEDIAN PARAPET HORIZ. UNITS 13 & 14
S535	X	6	4-3	X			SIDEWALK PARAPET VERT.
S536	X	6	4-10	X			SIDEWALK PARAPET VERT.
S548	X	10	2-1				SIDEWALK PARAPET HORIZ. UNITS 13 & 14
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S678	X	5	4-4				DIAPH. BOT. HORIZ. UNIT 13 STAGE 1
⊕ S479	X	4	4-4				DIAPH. HORIZ. UNIT 13 STAGE 1
⊕ S680	X	5	3-8				DIAPH. BOT. HORIZ. UNIT 13 STAGE 3
⊕ S481	X	4	3-8				DIAPH. HORIZ. UNIT 13 STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 19

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 14
S411	X	103	1-7	X			DIAPH. VERT. UNIT 14
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 14
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 14
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 14
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 14
S434	X	103	4-11	X			DIAPH. VERT. UNIT 15
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 15
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 15
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 15
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 15
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 14
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 15
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 14
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 15
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 14
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 15
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 20

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 15
S411	X	103	1-7	X			DIAPH. VERT. UNIT 15
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 15
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 15
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 15
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 15
S434	X	103	4-11	X			DIAPH. VERT. UNIT 16
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 16
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 16
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 16
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 16
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 15
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 16
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 15
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 16
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 15
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 16
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

FOR BAR BENDING DETAILS, SEE SHEET 92.

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.

WORK THIS SHEET WITH SHEETS 89-90, 92

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

EXPANSION JOINTS 15 - 20 BILL OF BARS

SHEET 91 OF 99
437

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
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BILL OF BARS - JOINT 21

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 16
S411	X	103	1-7	X			DIAPH. VERT. UNIT 16
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 16
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 16
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 16
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 16
S434	X	103	4-11	X			DIAPH. VERT. UNIT 17
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 17
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 17
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 17
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 17
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 16
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 17
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 16
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 17
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 16
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 17
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 22

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 17
S411	X	103	1-7	X			DIAPH. VERT. UNIT 17
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 17
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 17
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 17
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 17
S434	X	103	4-11	X			DIAPH. VERT. UNIT 18
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 18
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 18
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 18
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 18
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 17
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 18
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 17
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 18
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 17
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 18
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BILL OF BARS - JOINT 23

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	4,640# COATED LOCATION
S410	X	206	4-4	X			DIAPH. VERT. UNIT 18
S411	X	103	1-7	X			DIAPH. VERT. UNIT 18
S628	X	42	9-0				DIAPH. BOT. HORIZ. INT. UNIT 18
S629	X	12	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 18
S430	X	28	9-0				DIAPH. HORIZ. INT. UNIT 18
S431	X	8	2-0				DIAPH. HORIZ. EXT. UNIT 18
S434	X	103	4-11	X			DIAPH. VERT. UNIT 19
S628	X	35	9-0				DIAPH. BOT. HORIZ. INT. UNIT 19
S629	X	10	2-0				DIAPH. BOT. HORIZ. EXT. UNIT 19
S430	X	14	9-0				DIAPH. HORIZ. INT. UNIT 19
S431	X	4	2-0				DIAPH. HORIZ. EXT. UNIT 19
S535	X	9	4-3	X			OUTSIDE PARAPET VERT.
S536	X	9	4-10	X			OUTSIDE PARAPET VERT.
S543	X	5	3-4				OUTSIDE PARAPET HORIZ. UNIT 18
S544	X	5	2-8				OUTSIDE PARAPET HORIZ. UNIT 19
S545	X	18	3-8	X			MEDIAN PARAPET VERT.
S546	X	9	5-4	X			MEDIAN PARAPET VERT.
S543	X	7	3-4				MEDIAN PARAPET HORIZ. UNIT 18
S544	X	7	2-8				MEDIAN PARAPET HORIZ. UNIT 19
S535	X	9	4-3	X			SIDEWALK PARAPET VERT.
S536	X	9	4-10	X			SIDEWALK PARAPET VERT.
S543	X	5	3-4				SIDEWALK PARAPET HORIZ. UNIT 18
S544	X	5	2-8				SIDEWALK PARAPET HORIZ. UNIT 19
S659	X	14	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	14	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	28	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

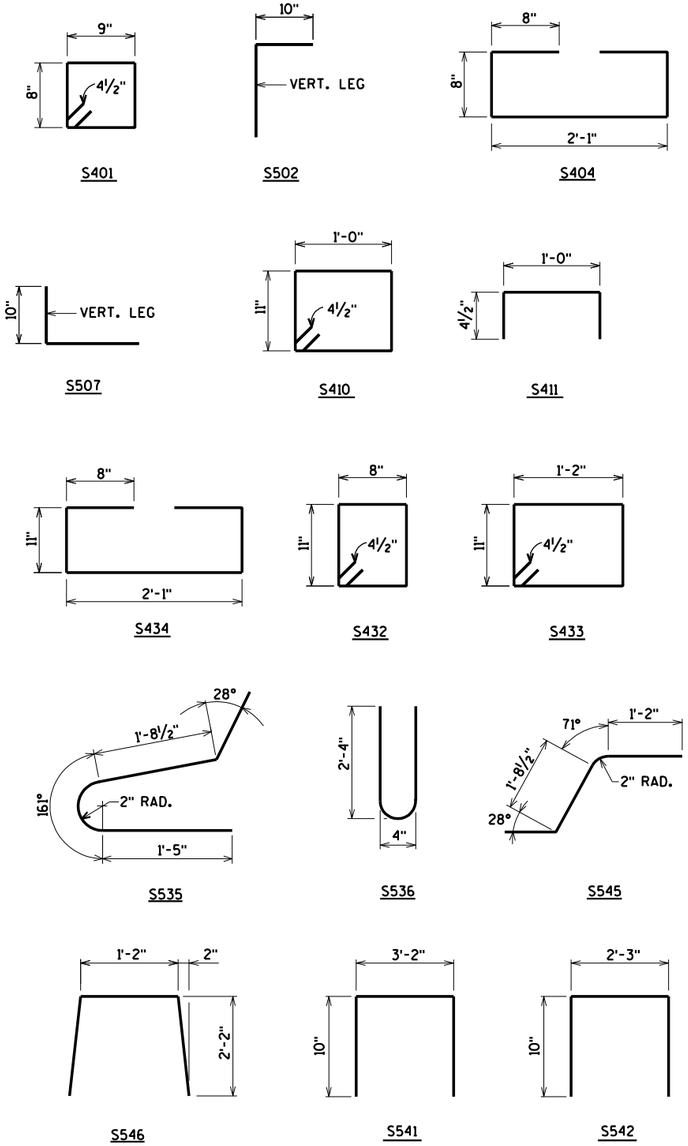
BILL OF BARS - JOINT 24

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR	SERIES	2,760# COATED LOCATION
S404	X	98	4-5	X			DIAPH. VERT. UNIT 19
S628	X	35	9-0				DIAPH. BOT. HORIZ. UNIT 19
S430	X	28	9-0				DIAPH. HORIZ. UNIT 19
S401	X	83	3-4	X			E. ABUT. PAVING BLOCK VERT.
● S502	X	83	2-5	X			E. ABUT. PAVING BLOCK VERT.
S503	X	33	8-0				E. ABUT. PAVING BLOCK HORIZ.
S535	X	6	4-3	X			OUTSIDE PARAPET VERT.
S536	X	6	4-10	X			OUTSIDE PARAPET VERT.
S539	X	5	2-4				OUTSIDE PARAPET HORIZ. UNIT 19
S537	X	5	0-8				OUTSIDE PARAPET HORIZ. E. ABUT.
S545	X	12	3-8	X			MEDIAN PARAPET VERT.
S546	X	6	5-4	X			MEDIAN PARAPET VERT.
S539	X	7	2-4				MEDIAN PARAPET HORIZ. UNIT 19
S537	X	7	0-8				MEDIAN PARAPET HORIZ. E. ABUT.
S535	X	6	4-3	X			SIDEWALK PARAPET VERT.
S536	X	6	4-10	X			SIDEWALK PARAPET VERT.
S539	X	5	2-4				SIDEWALK PARAPET HORIZ. UNIT 19
S537	X	5	0-8				SIDEWALK PARAPET HORIZ. E. ABUT.
S659	X	7	36-9				TRANSVERSE TOP & BOT. STAGE 1
S662	X	7	43-9				TRANSVERSE TOP & BOT. STAGE 3
⊕ S667	X	14	3-2				TRANSVERSE TOP & BOT. ℄ LONG. JT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

● CONCRETE MASONRY ANCHORS TYPE L No. 5 BARS

⊕ BARS WITH COUPLERS. SEE SHEET 99 FOR DETAILS.



WORK THIS SHEET WITH SHEETS 89-91

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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EXPANSION JOINTS 21 - 24 BILL OF BARS

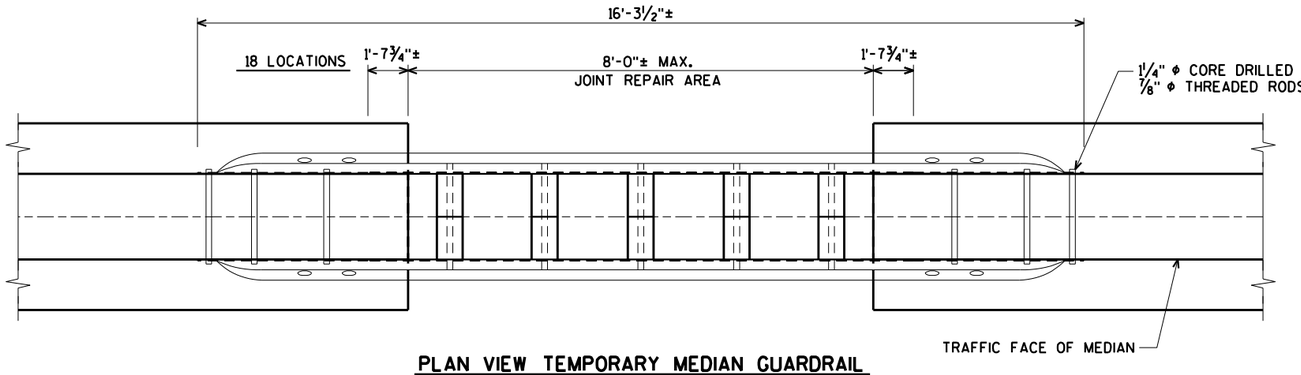
SHEET 92 OF 99
438

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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$PRFNAME$
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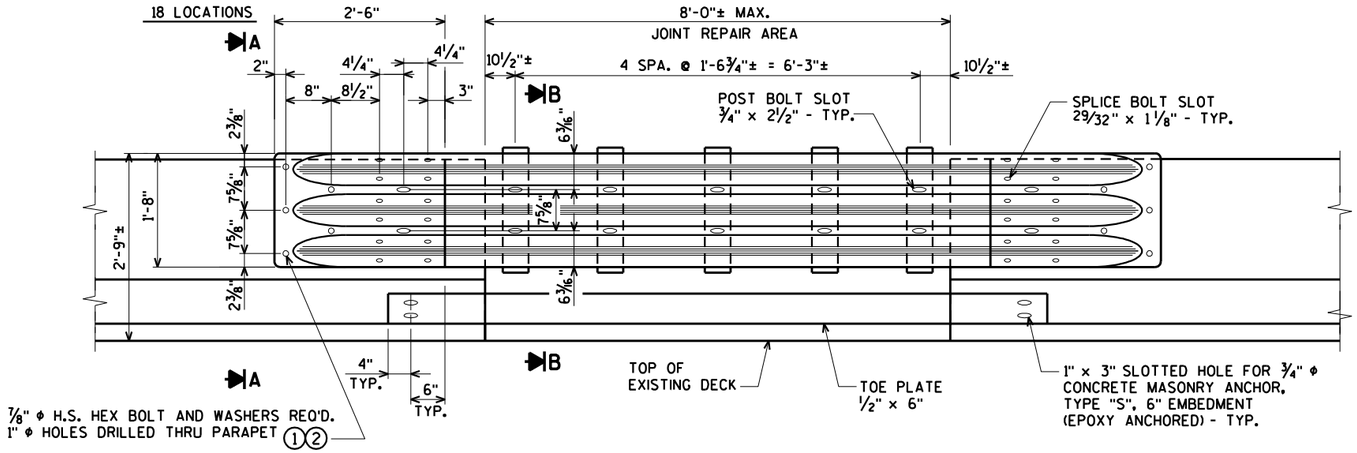
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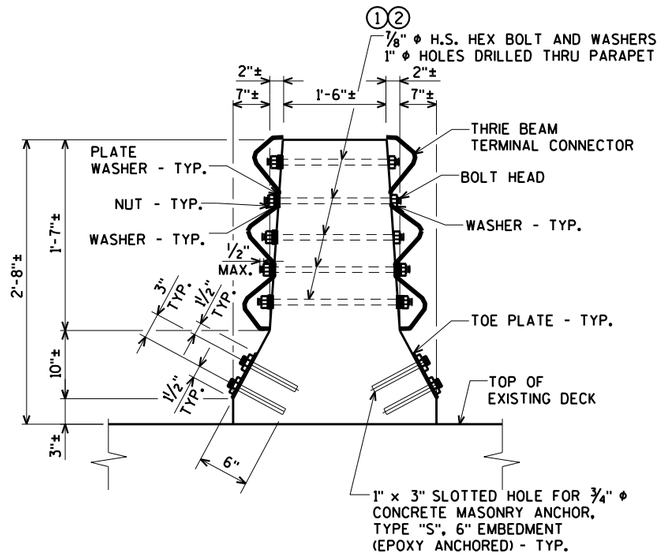
PLAN VIEW TEMPORARY MEDIAN GUARDRAIL

REQUIRED AT JOINTS 5, 7, & 9 - 24

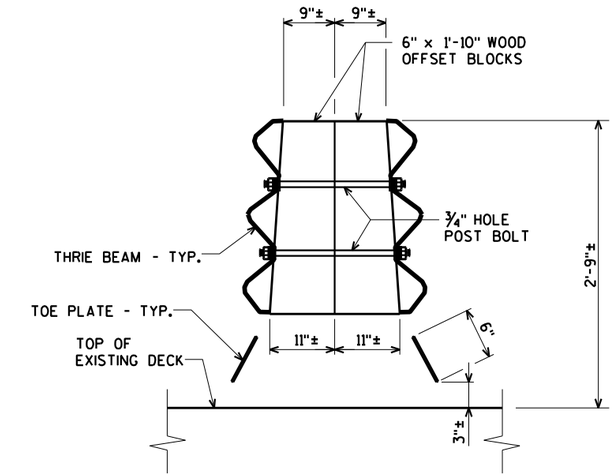


ELEVATION TEMPORARY MEDIAN GUARDRAIL

REQUIRED AT JOINTS 5, 7, & 9 - 24



SECTION A-A



SECTION B-B

GENERAL NOTES

BID ITEM WILL BE "TEMPORARY MEDIAN GUARDRAIL", WHICH INCLUDES ALL ITEMS SHOWN.

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

① DRILLING BOLT HOLES THROUGH THE PARAPET. BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② BOLTS MAY BE A325 OR A449 BOLTS. LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM THERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. x ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

REMOVE THREADED RODS & GROUT HOLES AFTER JOINT REPLACEMENT WORK IS COMPLETED.

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

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TEMPORARY MEDIAN GUARDRAIL

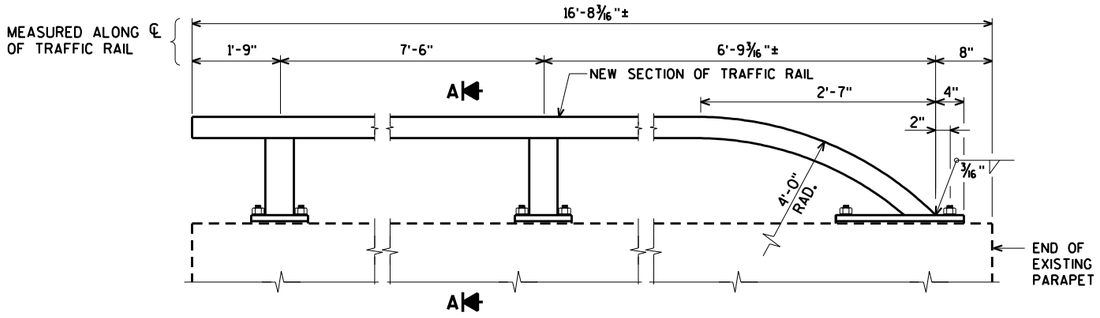
SHEET 93 OF 99
439

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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$PRFNAME$
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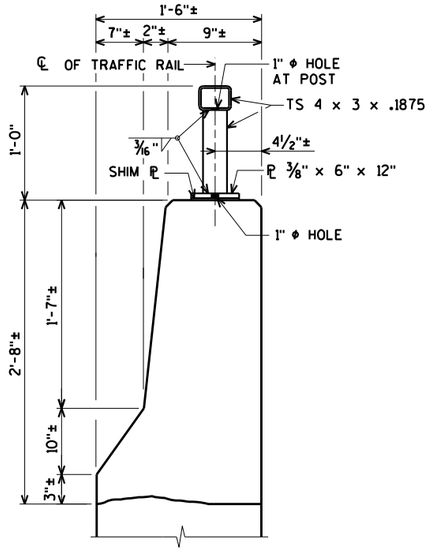
STATE PROJECT NUMBER

8680-04-71



ELEVATION OF TRAFFIC RAILING

WING 1 TRAFFIC RAILING REPAIR



SECTION A

GENERAL NOTES

BID ITEM WILL BE "REPAIR TRAFFIC RAILING", WHICH INCLUDES ALL ITEMS SHOWN. THE EXISTING ANCHOR BOLTS, NUTS AND WASHERS CAN BE RE-USED. IF NEW NUTS AND WASHERS ARE USED, THEY SHALL BE STAINLESS STEEL.

RAIL, POSTS, BASE PLATES, AND SHIMS TO BE ASTM A36. ALL MATERIAL WILL BE GALVANIZED AFTER FABRICATION.

ALL POST SPACINGS ARE TAKEN HORIZONTALLY ALONG CENTER LINE OF RAILING AT BASE OF POST.

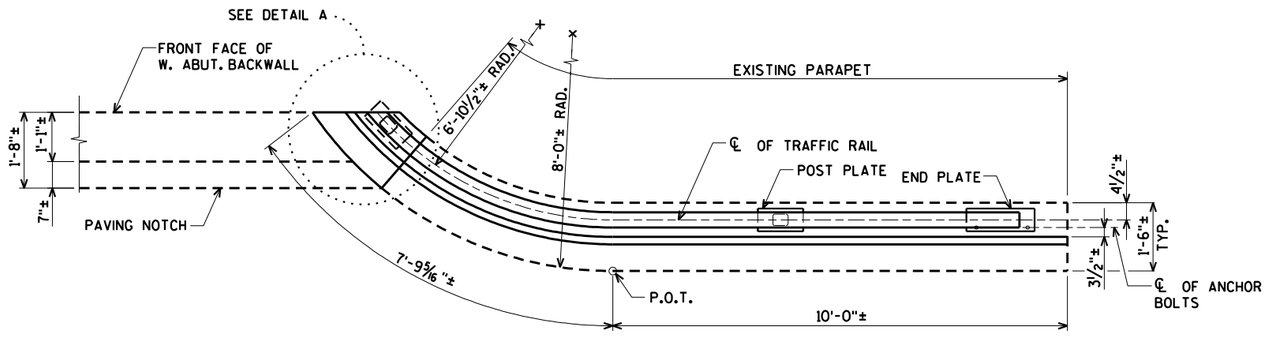
RAIL SHALL BE CURVED TO FIT THE STRUCTURE.

SHIMS SHALL BE USED UNDER POSTS AND UNDER END PLATES WHERE REQ'D. FOR ALIGNMENT.

CAULK EXPOSED OPENINGS BETWEEN SHIMS.

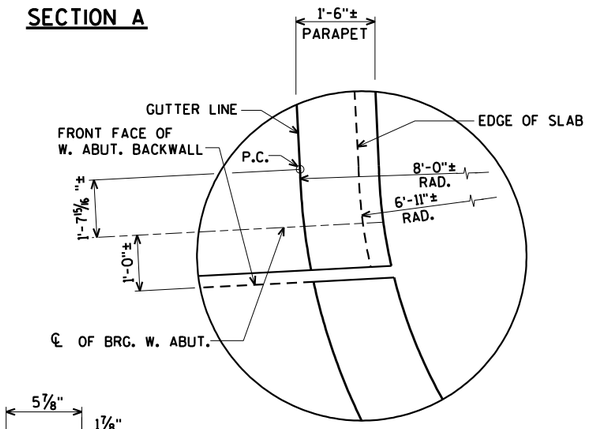
FILL POST ANCHOR BOLT HOLES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

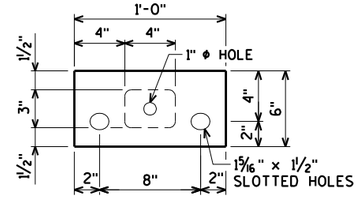


PLAN OF TRAFFIC RAILING

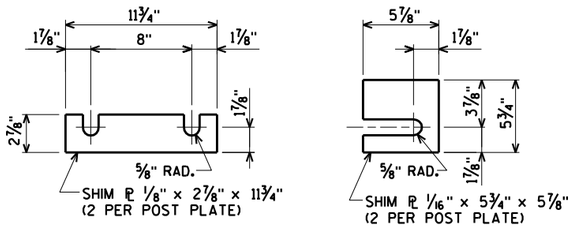
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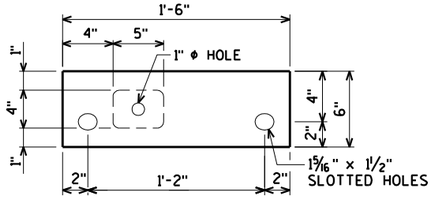
DETAIL A



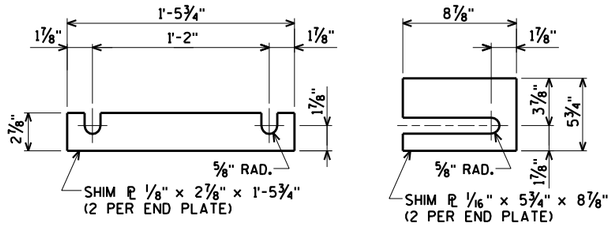
POST PLATE



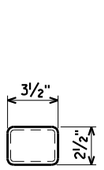
POST SHIM DETAILS



END PLATE

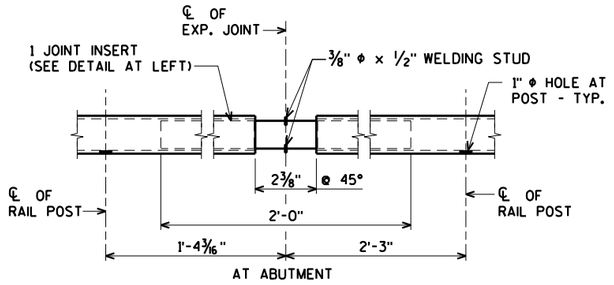


END PLATE SHIM DETAILS



JOINT INSERT

USE SOLID BAR 2 1/2" x 3 1/2" OR FABRICATED TUBE BY 1/4" THICK. SHAPE CORNERS TO PROVIDE 1/16" CLEAR EACH SIDE TO INSIDE OF TS 4 x 3



SPLICE DETAILS AT EXPANSION JOINT

GRIND ALL EDGES OF INSERT BAR TO FIT FREELY INSIDE OF RAIL TUBE.

NOTE THAT ONE SIDE IS THE EXISTING RAIL THAT WILL REMAIN IN PLACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

TRAFFIC RAILING REPAIR DETAILS

SHEET 94 OF 99
440

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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9/12/2013
PENTABLE:BReau_shd_util.tbl

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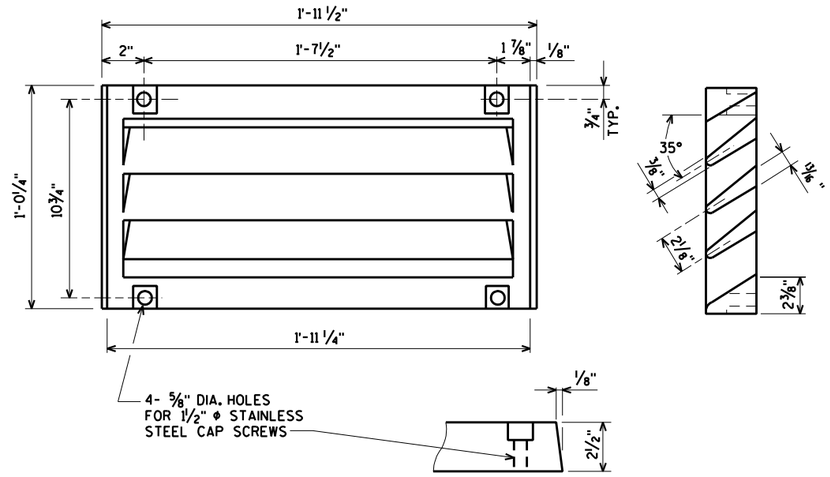
STATE PROJECT NUMBER

8680-04-71

FLOOR DRAIN SUMMARY

	DRAIN NUMBER	DRAIN APPROX. LOCATION	WORK TO BE PERFORMED	DETAIL ✳	EXTENSION	LENGTH OF NEW DOWNSPOUT	EXISTING DRAIN TYPE	QUANTITIES: ADJUSTING FLOOR DRAINS	QUANTITIES: FIBERGLASS DOWNSPOUTS	QUANTITIES: DRAIN GRATE CASTINGS
UNIT 1	1	STA. 18+60, 54.5' RT. EB	RAISE DRAIN & NEW GRATE	1	N/A	3'-7"	GC	1	-----	1
	2	STA. 19+29, 24' RT. WB	RAISE DRAIN & NEW GRATE	3	N/A	3'-7"	GC	1	-----	1
	3	STA. 19+29, 54.5' RT. EB	RAISE DRAIN & NEW GRATE	1	N/A	3'-7"	GC	1	-----	1
UNIT 3	4	STA. 23+00, 24' RT. WB	RAISE DRAIN & NEW GRATE	6	N/A	4'-5"	GC	1	-----	1
	5	STA. 23+00, 51.5' RT. EB	RAISE DRAIN & NEW GRATE	1	N/A	4'-5"	GC	1	-----	1
	6	STA. 24+90, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	9'-10"	GC	1	1	1
UNIT 4	7	STA. 27+96, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
	8	STA. 28+10, 64' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
	9	STA. 30+34, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
	10	STA. 30+54, 55' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	1	1	1
UNIT 5	11	STA. 33+45, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	1	1	1
	12	STA. 33+45, 83' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	1	1	1
	13	STA. 35+42, 68' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	1	1	1
UNIT 6	14	STA. 37+47, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	6	4 FT.	11'-6"	GC	1	1	1
	15	STA. 37+47, 63' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	16	STA. 40+21, 15' RT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	5	4 FT.	11'-6"	HC	1	1	1
	17	STA. 40+21, 60' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 7	18	STA. 43+56, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	6	4 FT.	11'-6"	GC	1	1	1
	19	STA. 43+56, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	20	STA. 44+65, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	21	STA. 47+50, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	22	STA. 47+50, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 8	23	STA. 49+65, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	24	STA. 49+65, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	25	STA. 50+32, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 9	26	STA. 53+92, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	27	STA. 53+92, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 10	28	STA. 58+13, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	29	STA. 58+13, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 11	30	STA. 62+25, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	31	STA. 62+25, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
UNIT 12	32	STA. 66+37, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	33	STA. 66+37, 3' RT. EB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	3	4 FT.	11'-6"	GC	1	1	1
	34	STA. 70+70, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	35	STA. 70+70, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 13	36	STA. 71+05, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	7	3 IN.	10'-0"	GC	-----	1	1
	37	STA. 71+19, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	8	3 IN.	9'-3"	GC	-----	1	1
	38	STA. 75+41, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	8	3 IN.	9'-3"	GC	-----	1	1
	39	STA. 75+55, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	7	3 IN.	10'-0"	GC	-----	1	1
UNIT 14	40	STA. 77+00, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	41	STA. 77+00, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
	42	STA. 81+40, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-6"	GC	-----	1	1
	43	STA. 81+40, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-6"	GC	-----	1	1
UNIT 15	44	STA. 84+90, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
	45	STA. 85+20, 36.5' LT. WB	NEW GRATE & NEW DOWNSPOUT	1	4 FT.	11'-0"	GC	-----	1	1
	46	STA. 85+86, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	47	STA. 87+12, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	48	STA. 87+12, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
UNIT 16	49	STA. 90+92, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	50	STA. 90+92, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
UNIT 17	51	STA. 94+72, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	52	STA. 94+72, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1
UNIT 18	53	STA. 98+52, 3' LT. WB	RAISE DRAIN, NEW GRATE & NEW DOWNSPOUT	2	4 FT.	11'-0"	GC	1	1	1
	54	STA. 98+52, 36.5' RT. EB	NEW GRATE & NEW DOWNSPOUT	4	4 FT.	11'-0"	GC	-----	1	1

✳ FOR DETAILS, SEE SHEET 96



NEW GRATE CASTING DETAIL

(54 GRATES REQUIRED)

NEW GRATE CASTINGS TO BE PAID FOR UNDER THE BID ITEM "DRAIN GRATE CASTINGS".

GENERAL NOTES

ALL MATERIAL FOR NEW GRATE CASTING, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30. (APPROX. WEIGHT = 225#)

MATERIAL FOR DRAIN RAISING FRAMES, CONNECTION TABS, AND SHIMS SHALL CONFORM TO ASTM A36.

NEW FLANGED 6" DIA. DOWNSPOUTS SHALL BE FIBERGLASS CONFORMING TO ASTM D2996, GRADE 1, CLASS A.

WORK THIS SHEET WITH SHEETS 96-97

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS/KAZ | PLANS CK'D. CBM

FLOOR DRAIN SUMMARY

SHEET 95 OF 99
441

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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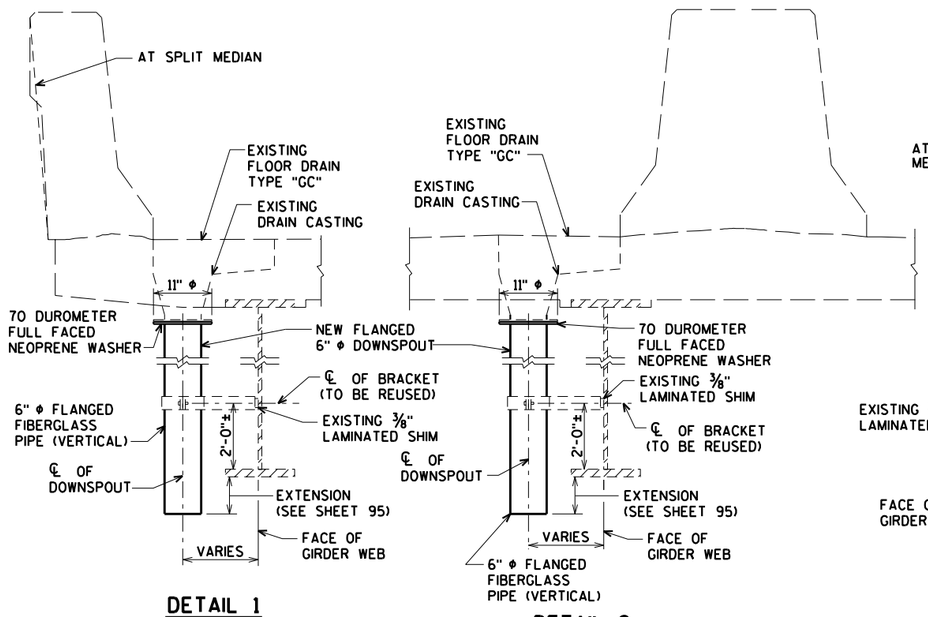
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9/12/2013

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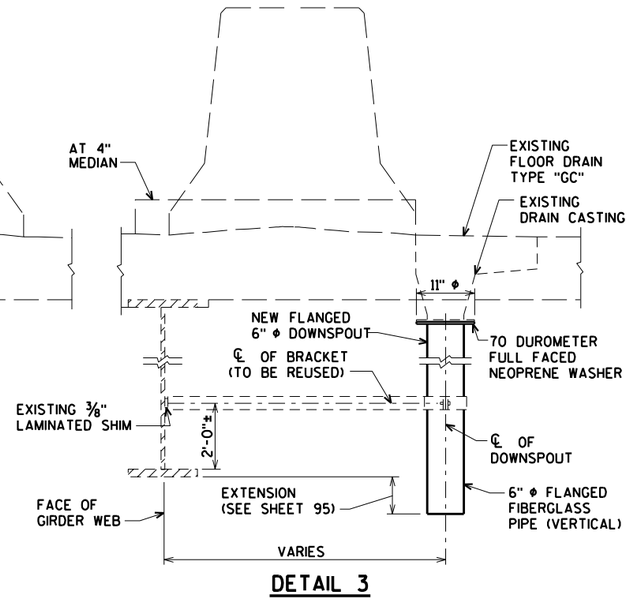
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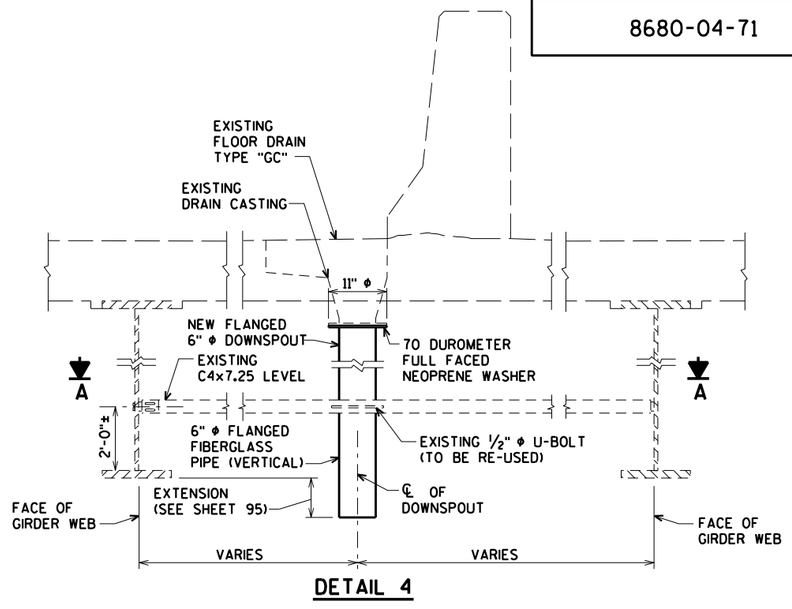


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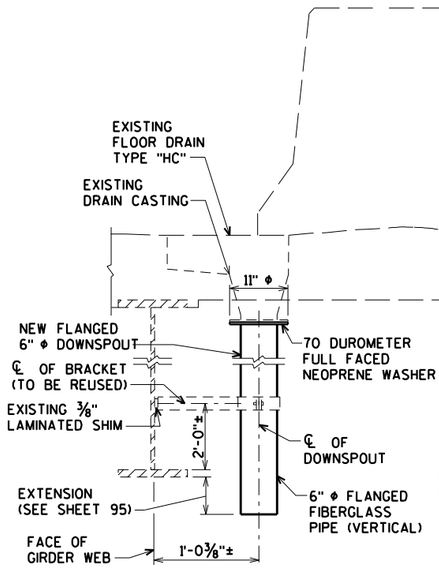
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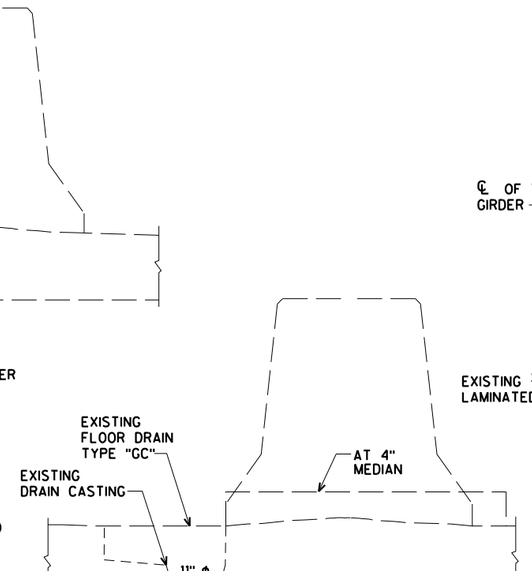
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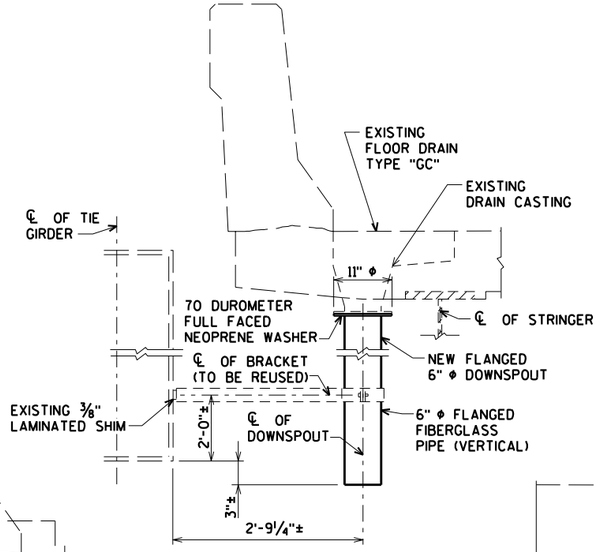
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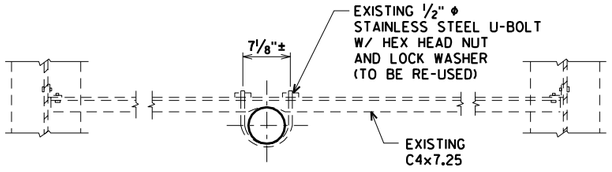
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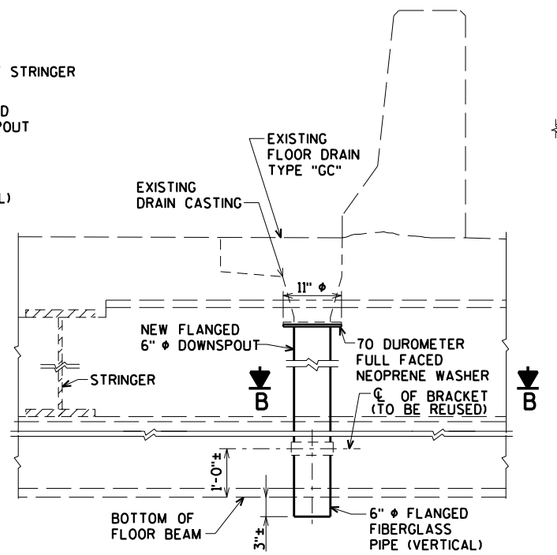
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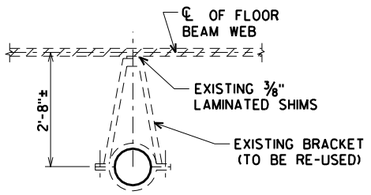
DETAIL 7



SECTION A



DETAIL 8



SECTION B

WORK THIS SHEET WITH SHEETS 95 & 97

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY KAZ | PLANS CK'D. CBM

FLOOR DRAIN DETAILS

SHEET 96 OF 99
442

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
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www.AyresAssociates.com

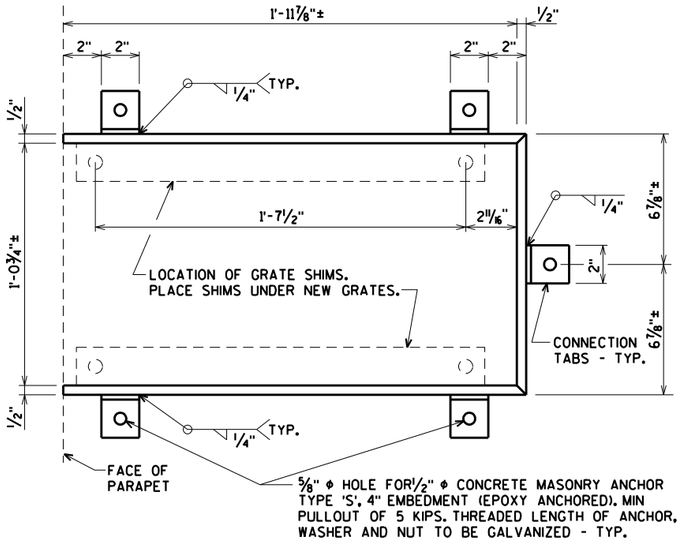
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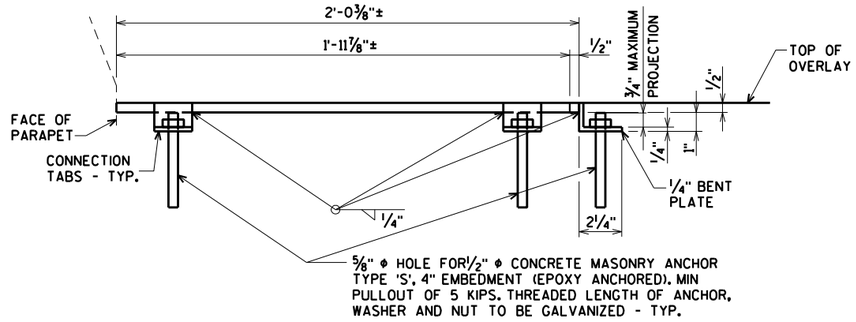
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STATE PROJECT NUMBER

8680-04-71



PLAN



ELEVATION

ADJUSTING FLOOR DRAIN FRAME DETAILS

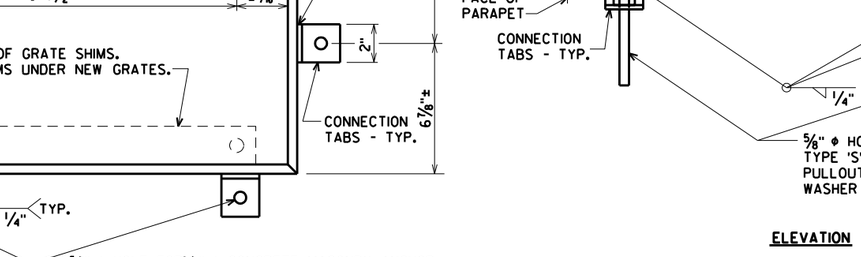
TYPICAL ⊗ DRAIN NUMBERS 1-14, 16, 18, 25, 27, 29, 31, 33, 46-47, 49, 51, & 53

GENERAL NOTES

BID ITEM WILL BE "ADJUSTING FLOOR DRAINS", WHICH INCLUDES ALL ITEMS SHOWN.

ALL MATERIAL WILL BE GALVANIZED AFTER FABRICATION, PRIOR TO GALVANIZING, ALL STEEL WILL BE GIVEN A No. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

MAKE SURE FRAMES ARE FLUSH WITH THE TOP OF THE EXISTING DRAIN CASTINGS.



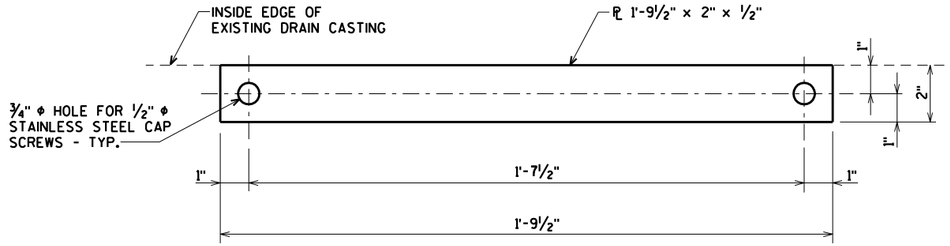
SECTION THRU DRAIN

SECTION C

SLOPE OVERLAY AROUND EXISTING DRAIN DETAIL

TYPICAL ⊗ DRAIN NUMBERS 15, 17, 19-24, 26, 28, 30, 32, 34-45, 48, 50, 52, & 54

COST TO SLOPE OVERLAY AROUND THE EXISTING DRAINS INDIACTED IS INCLUDED IN THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".



PLAN

GRATE SHIM DETAILS

2 REQUIRED PER GRATE WHERE DRAIN WILL BE RAISED.

COST OF SHIMS INCLUDED IN THE BID ITEM "ADJUSTING FLOOR DRAINS".

WORK THIS SHEET WITH SHEETS 95-96

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY KAZ | PLANS CK'D. CBM

FLOOR DRAIN DETAILS

SHEET 97 OF 99
443

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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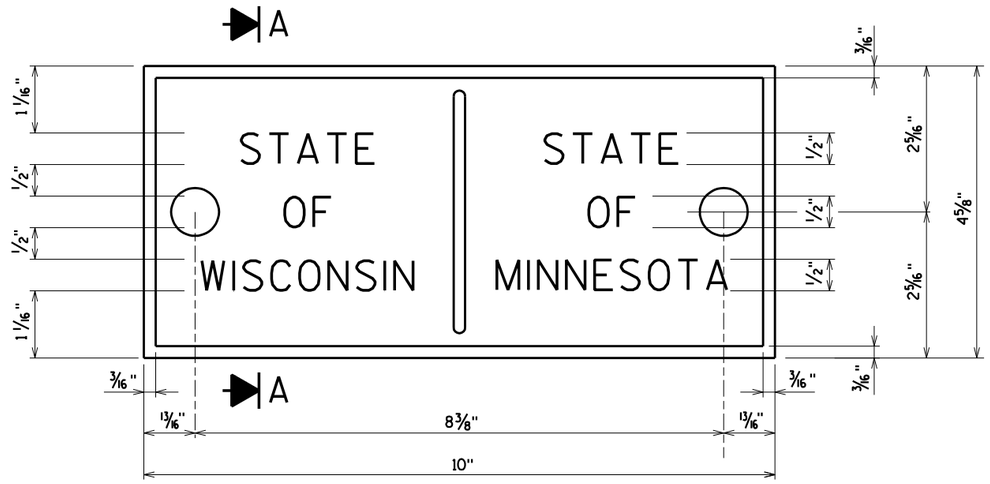
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9/12/2013

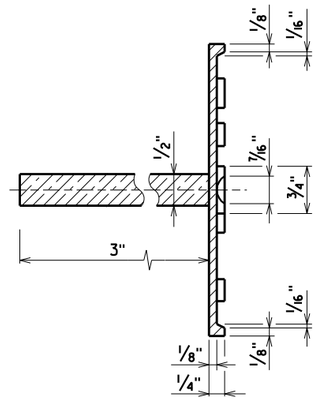
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STATE PROJECT NUMBER
8680-04-71

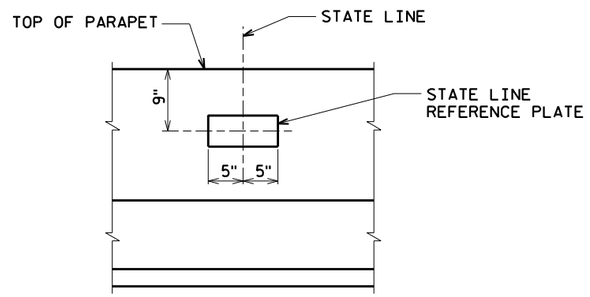


STATE LINE REFERENCE PLATE DETAIL

(RIGHT SIDE PARAPET SHOWN, LEFT SIDE PARAPET OPPOSITE)



SECTION A-A



PART PLAN OF PARAPET

GENERAL NOTES

STATE LINE REFERENCE PLATE TO BE INSTALLED SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

STATE LINE REFERENCE PLATE TO BE EPOXY ANCHORED INTO THE EXISTING PARAPETS AS SHOWN ON THE GENERAL PLAN SHEETS.

THE STATE LINE IS CURRENTLY MARKED IN THE EXISTING PARAPETS. THE CONTRACTOR WILL PLACE THE STATE LINE REFERENCE PLATES IN THE MARKED LOCATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO MAKE SURE THAT THE EXISTING MARKS ARE NOT DESTROYED.

COST FOR FURNISHING AND INSTALLING THE STATE LINE REFERENCE PLATES IS INCIDENTAL TO THE BID ITEM "RESEAL PARAPETS".

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY	CLS	PLANS CK'D.	CBM

STATE LINE REFERENCE PLATE

SHEET 08 OF 99
444

ORIGINAL PLANS PREPARED BY
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8

$PRFNAME$
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NOTES

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL BE OF MINIMUM 60 ksi YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

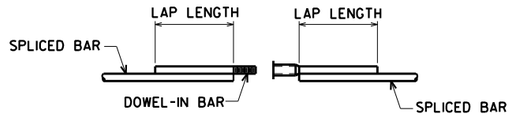
FOR DOWEL BAR SPLICERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

① MINIMUM CAPACITY = 1.25 X fy X AREA OF SPLICED REINFORCEMENT BAR.

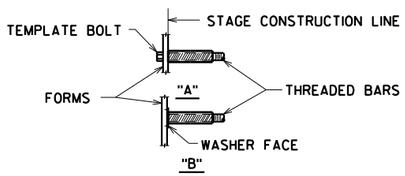
WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS



DOWEL BAR SPLICER

ONE PIECE THREADED SPLICER

SPLICER ALTERNATIVES



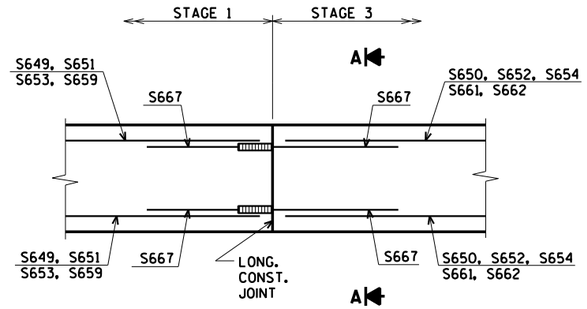
INSTALLATION AND SETTING METHODS

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT
"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

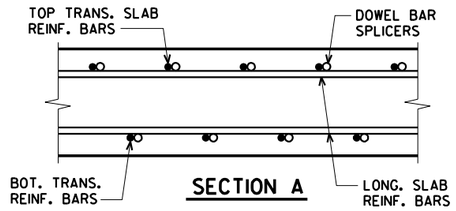
DOWEL BAR SPLICER LAP LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO ℄ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.



LONGITUDINAL CONST. JOINT AND BAR COUPLER DETAIL FOR TRANSVERSE BARS



SECTION A

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-38/69100

DRAWN BY CLS | PLANS CK'D. CBM

BAR COUPLER DETAILS

SHEET 99 OF 99
445

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

8

8

$PRFNAME$
U:\42-0825.00 - USH 2 St. Louis River Bong Bridge\BRIDGE\42-0825 couplers.dgn

9/12/2013

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER
8680-04-74

BENCHMARK

STA.	DESCRIPTION	ELEV.
129+50.46, 46.93' LT	¾" CAPPED REBAR 127' WEST OF WEST END OF BRIDGE, 13.7' NORTH OF WB LANE	656.65

DESIGN DATA

LIVE LOAD:
DESIGN LOADING = HS-20
INVENTORY RATING = HS-22
OPERATING RATING = HS-37
WIS. MAX. STD. PERMIT VEHICLE LOAD = 230 KIPS

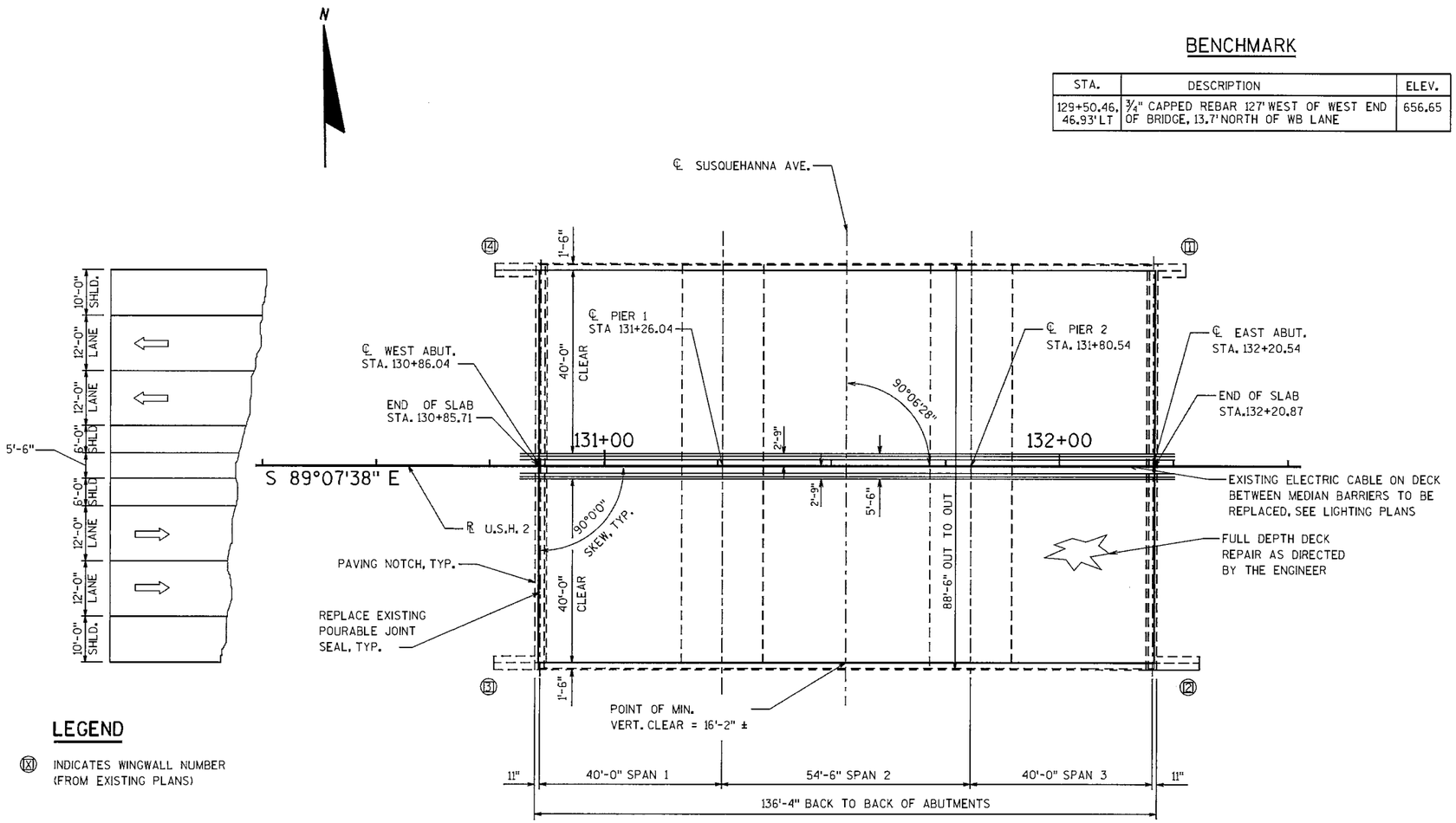
ULTIMATE DESIGN STRESSES (NEW WORK):
CONCRETE MASONRY DECK----------f'c = 4,000 psi
ALL OTHER-----f'c = 3,500 psi

TRAFFIC DATA U.S.H. 2

A.D.T. = 14,900 (2014)
= 17,700 (2034)

R.D.S. = 55 MPH

% TRUCKS = 16.5%

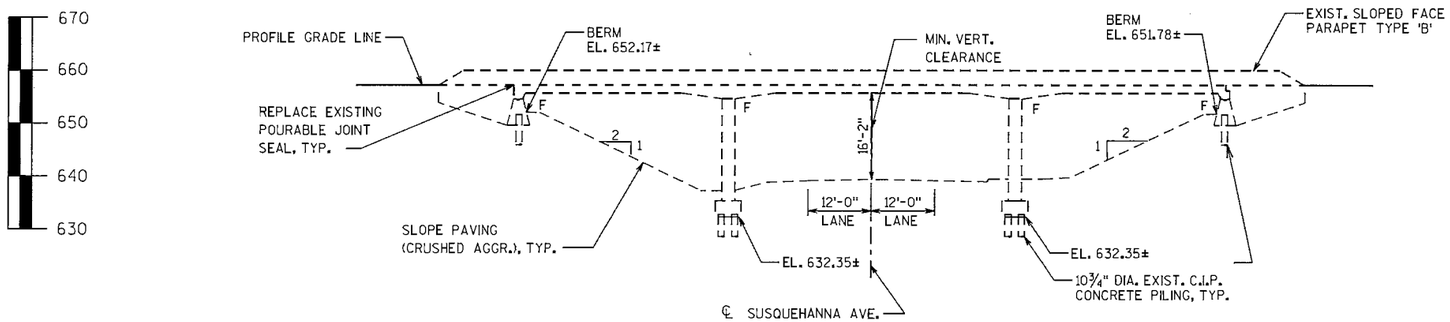


PLAN

(CONCRETE OVERLAY OF 3 SPAN HAUNCHED SLAB)

LEGEND

⑫ INDICATES WINGWALL NUMBER (FROM EXISTING PLANS)



ELEVATION

(NORMAL TO SUSQUEHANNA AVE. LOOKING NORTH)

LIST OF DRAWINGS

1. GENERAL PLAN
2. CONCRETE OVERLAY DETAILS

STRUCTURES DESIGN CONTACTS:
BUREAU OF STRUCTURES:
WILLIAM DREHER (608) 266-8489

CONSULTANT CONTACT:
MAHMOUD MALAS (262) 821-1171

WISCONSIN
YOON-MOON CHUN
E-39076
WHITEFISH BAY WIS.
PROFESSIONAL ENGINEER
8-1-2013

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Management Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher KAR 08/19/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-16-49

U.S.H. 2 OVER SUSQUEHANNA AVENUE

COUNTY	TOWN/CITY/VILLAGE
DOUGLAS	SUPERIOR

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
DRJ	MNM	DRJ	MNM

GENERAL PLAN

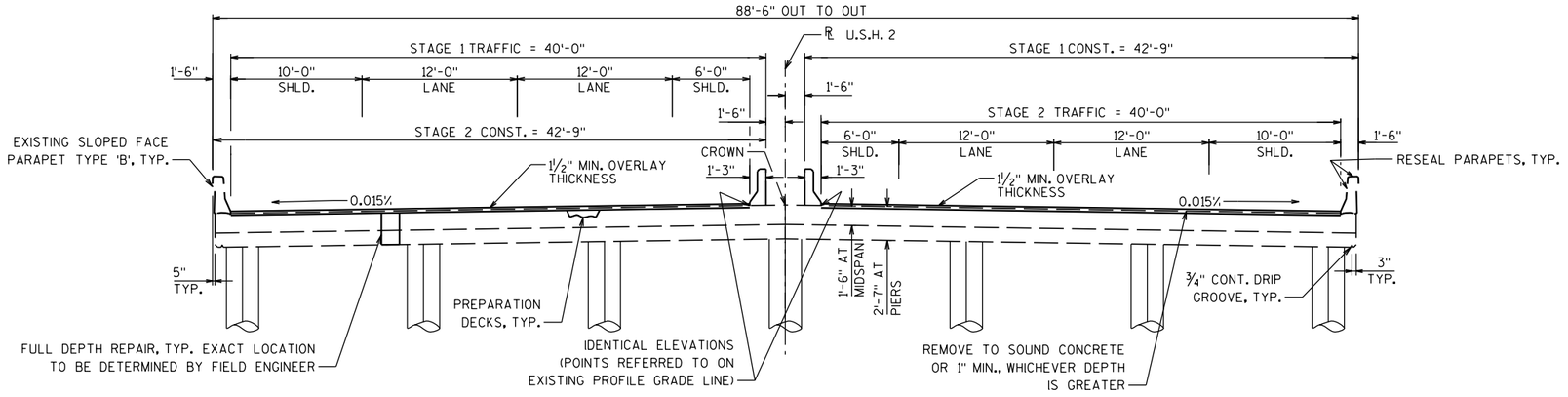
SHEET 1 OF 2
446

8

8

STATE PROJECT NUMBER

8680-04-74



CROSS SECTION THRU ROADWAY

(LOOKING EAST)

NOTE: EXISTING CROSS SLOPE OF 0.015% WILL BE MAINTAINED.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

TOP OF EXISTING DECK ELEVATIONS SHALL BE DETERMINED FROM A FIELD SURVEY AT LOCATIONS DEEMED NECESSARY FOR ESTABLISHING OVERLAY THICKNESS.

A MINIMUM OF 1" OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER CLEANING. EXPECTED AVERAGE OVERLAY THICKNESS IS 2" TO ACCOUNT FOR VARIATIONS IN THE DECK SURFACE AFTER CLEANING. VARIATIONS TO THE NEW GRADE LINE OVER ¼" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR PAVING BLOCK AT ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM, "CONCRETE MASONRY OVERLAY DECKS".

ALL CONCRETE REMOVAL NOT COVERED WTIH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1" DEEP SAW CUT.

EXISTING LONGITUDINAL AND TRANSVERSE CRACKS SHALL BE CLEANED AND FILLED WITH PENETRATING EPOXY AS DIRECTED BY THE FIELD ENGINEER. MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK IS INCIDENTIAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

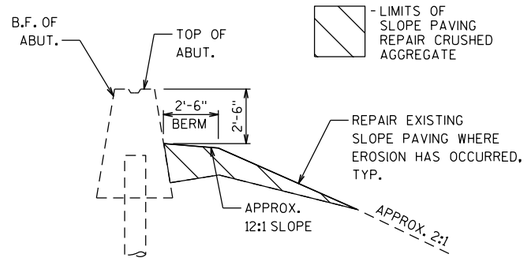
APPLY PIGMENTED PROTECTIVE SURFACE TREATMENT TO THE INSIDE FACES AND TOPS OF PARAPETS, INCLUDING PARAPETS ON ABUTMENT WINGS. WORK SHALL BE PAID FOR UNDER BID ITEM, "RESEAL PARAPETS".

APPLY PROTECTIVE SURFACE TREATMENT TO TOP OF DECK. WORK SHALL BE PAID FOR UNDER BID ITEM, "PROTECTIVE SURFACE TREATMENT".

REPLACING POURABLE JOINT SEAL IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

IF A NEW NAME PLATE IS REQUIRED, THE ORIGINAL CONSTRUCTION YEAR IS 1982.

RECONSTRUCTING INLETS WILL BE PAID FOR AS A PART OF THE ROADWAY WORK. SEE ROADWAY PLANS FOR FURTHER DETAIL.

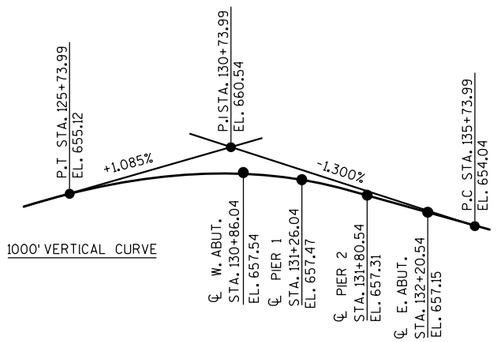


SLOPE PAVING AT ABUTMENTS (TYP.)

TOTAL ESTIMATED QUANTITIES

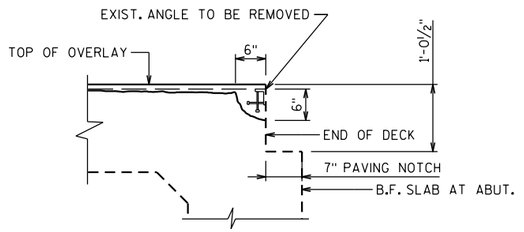
	NO.	BID ITEMS	UNIT	TOTAL
	203.0225.S.02	DEBRIS CONTAINMENT STRUCTURE (B-16-0049)	LS	1
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	1,215
	509.0301	PREPARATION DECKS TYPE 1	SY	305
	509.0302	PREPARATION DECKS TYPE 2	SY	75
	509.0500	CLEANING DECKS	SY	1,215
✳	509.1500	CONCRETE SURFACE REPAIR	SF	10
✳	509.2000	FULL DEPTH DECK REPAIR	SY	20
	509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	95
✳	604.9010.S	SLOPE PAVING REPAIR CRUSHED AGGREGATE	CY	13
	604.9015.S	RESEAL CRUSHED AGGREGATE SLOPE PAVING	SY	710
	SPV.0180.02	RESEAL PARAPETS	SY	235

✳ AS DIRECTED IN THE FIELD BY THE ENGINEER.



EXISTING PROFILE GRADE LINE - U.S.H 2

BASED ON ORIGINAL STRUCTURE PLANS



SECTION AT END OF SLAB

CONCRETE OVERLAY

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-49

DRAWN BY DRJ | PLANS CK'D. MNM

CONCRETE OVERLAY DETAILS

SHEET 2 OF 2

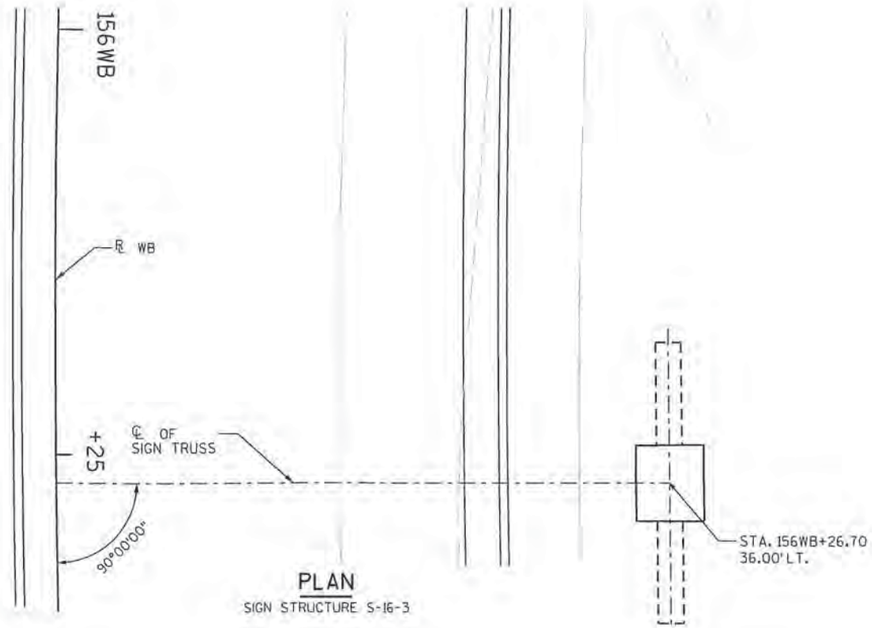
447

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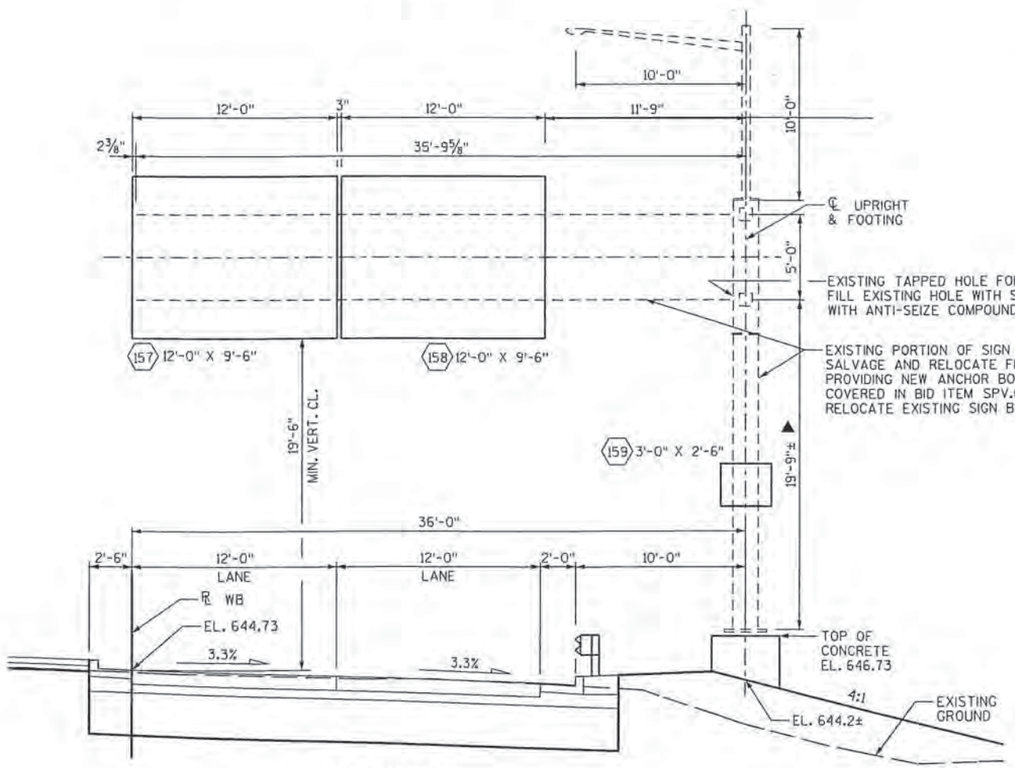
8

STATE PROJECT NUMBER
8680-04-74





PLAN
SIGN STRUCTURE S-16-3



ELEVATION
(LOOKING NORTHWEST AT FRONT FACE OF SIGNS)
STA. 156WB+26.70

⬡ SIGN NUMBER

▲ BASED ON INSPECTION PEPORT DATED 04-28-2009

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

CENTER SIGNS VERTICALLY ON TRUSS.

ELEVATIONS ARE IN FEET UNLESS OTHERWISE SHOWN OR NOTED.

ALTERNATE DESIGNS ARE NOT ALLOWED.

GROUND RODS ARE REQUIRED.

EXACT LOCATION OF SIGN BRIDGE SHALL BE DETERMINED BY THE DISTRICT TRAFFIC ENGINEER.

SIGN BRIDGE IDENTIFICATION PLAQUE SHALL BE CONSIDERED INCIDENTAL TO "REMOVE AND RELOCATE EXISTING SIGN BRIDGE CANTILEVERED S-16-3".

DESIGN DATA

DESIGN SIGN AREA = 264 SF
MAX. SIGN DEPTH = 12 FT

DEAD LOAD - WT. OF SIGN AND SUPPORTING STRUCTURE.
ICE LOAD - 3 PSF TO 1 FACE OF SIGN & AROUND SURFACE OF MEMBERS.
WIND VELOCITY - 90 MPH (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPNENTS	NORMAL	TRANSVERSE
COMBINATION 1	1.0	0.2
COMBINATION 2	0.6	0.3

GROUP LOADS	% OF ALLOWABLE STRESS
1. DEAD	100
2. DEAD + WIND	133
3. DEAD + ICE + 1/2 (WIND*)	133

* MIN. VALUE OF 25 PSF FOR GROUP 3.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	12
636.1000	SIGN SUPPORTS STEEL REINFORCEMENT HS	LB	1,580
SPV.0105.03	REMOVE AND RELOCATE EXISTING SIGN BRIDGE CANTILEVERED S-16-3	LS	1

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. CANTILEVER TRUSS FOOTING

WISCONSIN
YOON-MOON CHUN
E-39078
WHITEFISH BAY WIS.
PROFESSIONAL ENGINEER
8-1-2013

STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
WILLIAM DREHER, P.E. (608) 266-8489
CONSULTANT:
MAHMOUD MALAS, P.E. (262) 821-1171

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 10/09/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE S-16-3

USH 2 WB

COUNTY	~~TOWN~~/CITY/~~VILLAGE~~
DOUGLAS	SUPERIOR

DESIGN SPEC.	LOAD 90 MPH 3 SEC. SPEED
AASHTO SIGN SPEC.	

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
NA	YC	NA	YC

GENERAL PLAN & ELEVATION

SHEET 1 OF 2

SIGN BRIDGE VERTICAL CLEARANCE

Project Label
(Optional)

Project ID: 8680-04-74	Contract: 20140114014	Region: NW - Superior
Highway: USH2 over/under UNDER	County: Douglas	Bridge Number: S -16-03
	Contractor: Lunda\Mattison Contractor	Supervisor: Dave Ostrowski

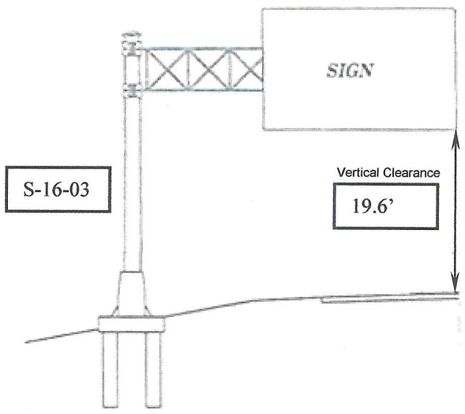
SHEET 348 A

Submit completed form to Regional Bridge Engineer before opening road to traffic.
To fill in form: Click on text boxes and enter applicable clearances.

Project Leader: Brian Mattson **Telephone #:** 715-395-3035

Recorded By: Rebecca Olson **Date:** 7-21-2015

Cardinal Direction: WEST

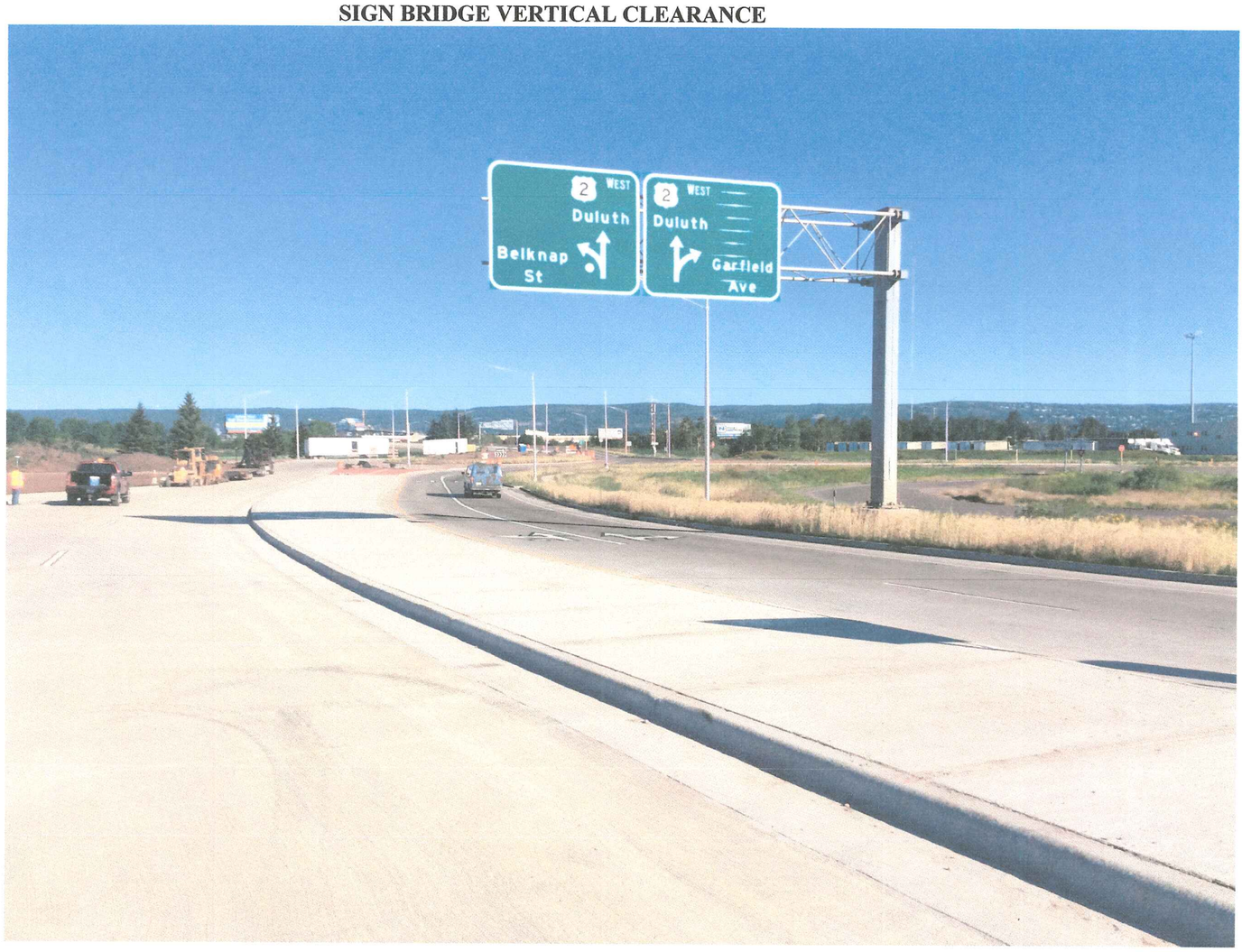


CANTILEVER STRUCTURE

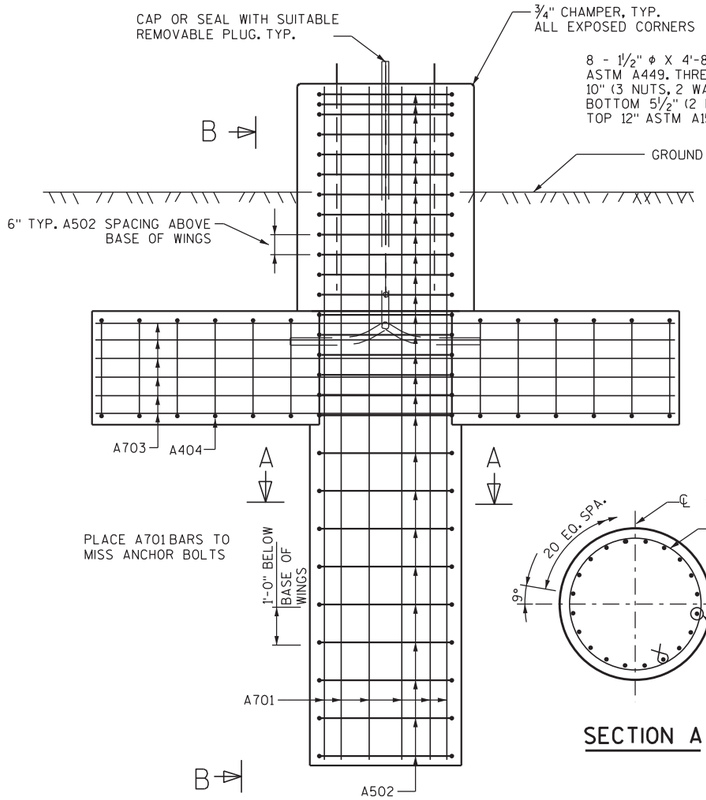
LOOKING WEST

NOTE: Structure is on the RT side of WB USH2. (not LH as shown)

SIGN BRIDGE VERTICAL CLEARANCE

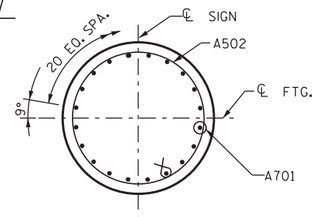


STATE PROJECT NUMBER
8680-04-74

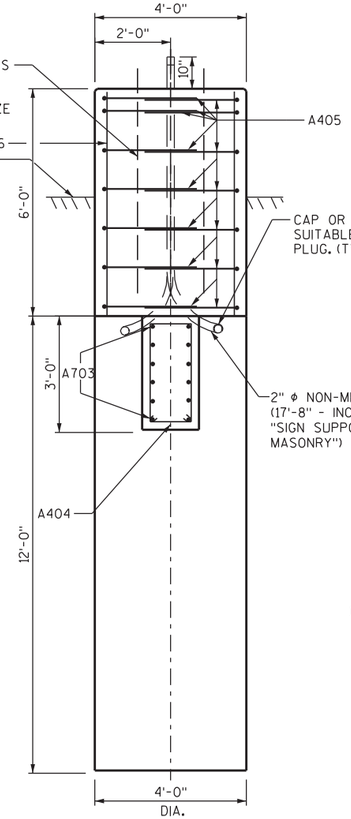


ELEVATION

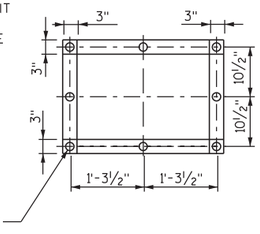
(12 CY)



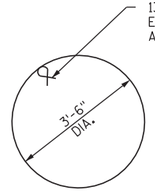
SECTION A



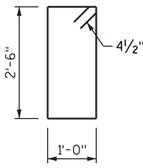
SECTION B



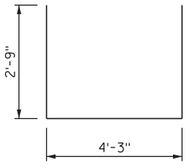
TOP VIEW OF TOP & BOTTOM TEMPLATES



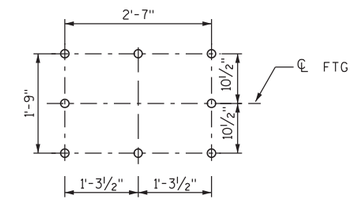
A502



A404
(STIRRUP)



A405



BILL OF BARS

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
BAR DIMENSIONS ARE OUT TO OUT OF BAR.

1580 LB

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	CUT. DIAG.	BUN-DLE	LOCATION
A701		20	17'-6"				FOOTING - COLUMN/TOP
A502		27	12'-0"	X			FOOTING - COLUMN/TOP
A703		12	15'-0"				FOOTING - WINGS
A404		12	7'-6"	X			FOOTING - WINGS
A405		14	9'-7"	X			FOOTING - TOP
A406		4	3'-6"				FOOTING - TOP - COLUMNS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

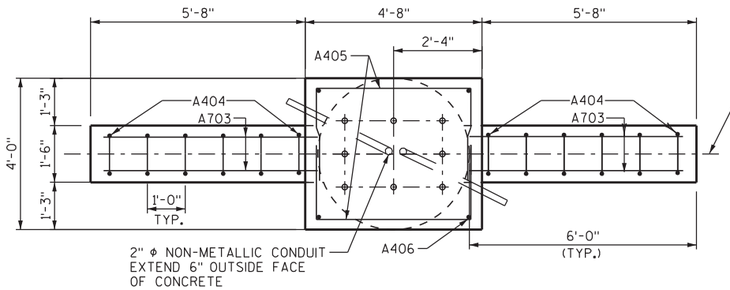
CONCRETE MASONRY	f'c=3.500 PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 PSI
ANCHOR BOLTS (1½" DIA.) ASTM A449	fy=81,000 PSI

FOUNDATION DATA

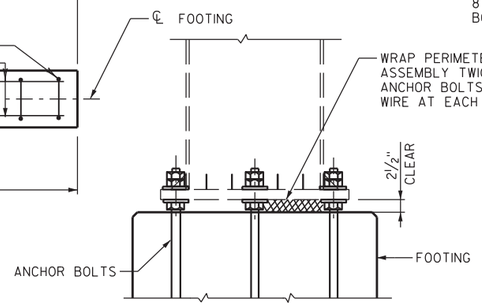
ALLOWABLE SOIL BEARING PRESSURE = 2.0T/SF

TOTAL ESTIMATED QUANTITIES (1 FTG.)

SIGN SUPPORTS CONCRETE MASONRY	12 CY
SIGN SUPPORTS STEEL REINFORCEMENT HS	1580 LB

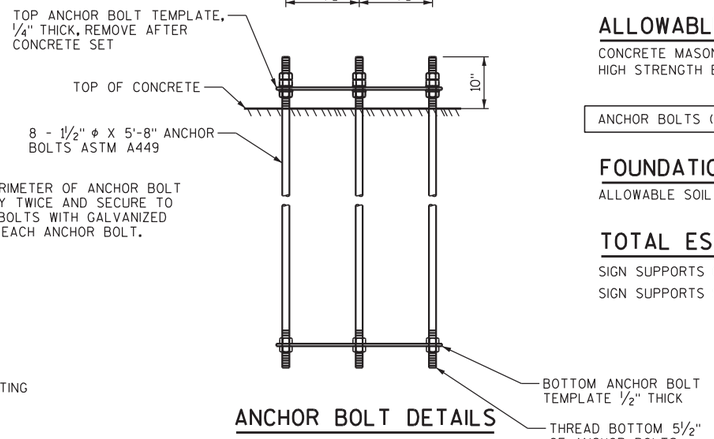


PLAN



RODENT SCREEN

(ONLY REQ'D WHEN ELECTRICAL DEVICES ARE INSTALLED)



ANCHOR BOLT DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-3

DRAWN BY NA | PLANS CK'D. YC

CANTILEVER TRUSS FOOTING

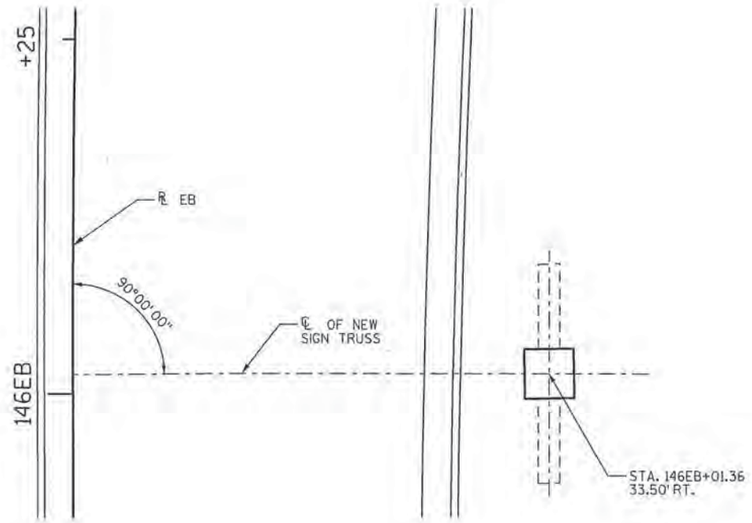
SHEET 2 OF 2
449

8

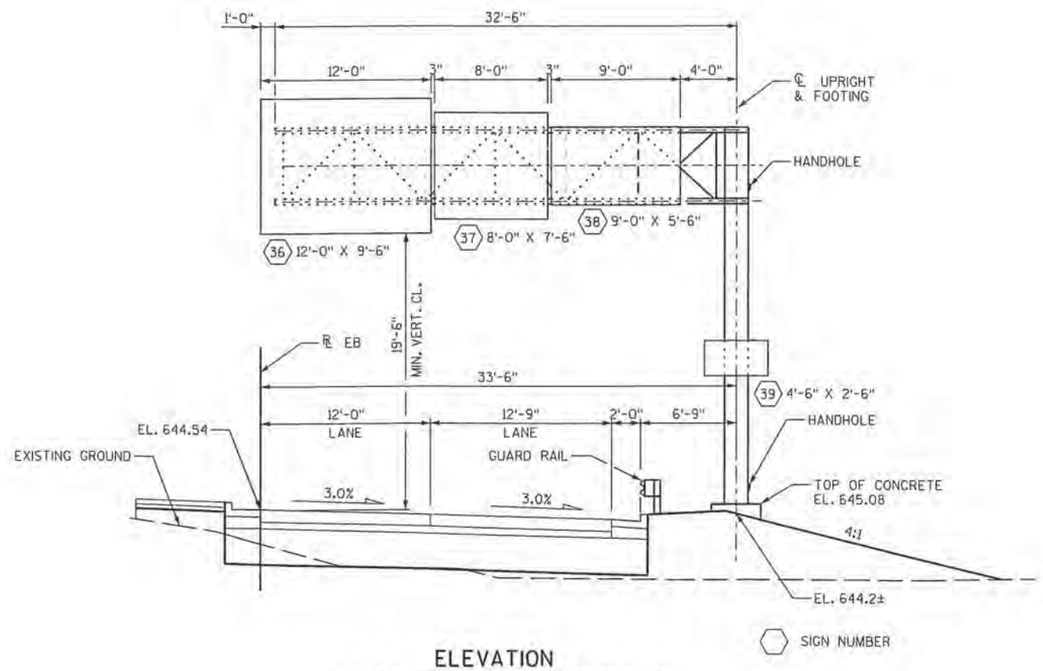
8

STATE PROJECT NUMBER
8680-04-74





PLAN
SIGN STRUCTURE S-16-13



ELEVATION
(LOOKING SOUTHEAST AT FRONT FACE OF SIGNS)
STA. 146EB+01.36

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

CENTER SIGNS VERTICALLY ON TRUSS.

ELEVATIONS ARE IN FEET UNLESS OTHERWISE SHOWN OR NOTED.

ALTERNATE DESIGNS ARE NOT ALLOWED.

GROUND RODS ARE REQUIRED.

HANDHOLES ARE REQUIRED.

EXACT LOCATION OF SIGN BRIDGE SHALL BE DETERMINED BY THE DISTRICT TRAFFIC ENGINEER.

SIGN BRIDGE IDENTIFICATION PLAQUE SHALL BE CONSIDERED INCIDENTAL TO "SIGN BRIDGE CANTILEVERED S-16-13".

DESIGN DATA

DESIGN SIGN AREA = 264 SF
MAX. SIGN DEPTH = 12 FT

DEAD LOAD - WT. OF SIGN AND SUPPORTING STRUCTURE.
ICE LOAD - 3 PSF TO 1 FACE OF SIGN & AROUND SURFACE OF MEMBERS.
WIND VELOCITY - 90 MPH (3-SECOND GUST SPEED) TO SIGN AREA & EXPOSED MEMBERS.

WIND COMPONENTS	NORMAL	TRANSVERSE
COMBINATION 1	1.0	0.2
COMBINATION 2	0.6	0.3

GROUP LOADS	% OF ALLOWABLE STRESS
1. DEAD	100
2. DEAD + WIND	133
3. DEAD + ICE + ½ (WIND*)	133

*MIN. VALUE OF 25 PSF FOR GROUP 3.

TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	TOTAL
636.0100	SIGN SUPPORTS CONCRETE MASONRY	CY	8
636.1000	SIGN SUPPORTS STEEL REINFORCEMENT HS	LB	1,380
641.1200	SIGN BRIDGE CANTILEVERED S-16-13	LS	1

LIST OF DRAWINGS

1. GENERAL PLAN & ELEVATION
2. GALVANIZED STEEL CANTILEVER SIGN TRUSS
3. GALVANIZED STEEL CANTILEVER SIGN TRUSS DETAILS
4. CANTILEVER TRUSS FOOTING
5. HANDHOLE DETAILS

WISCONSIN
YOON-MOON CHUN
E-39076
WHITEFISH BAY
WIS.
PROFESSIONAL ENGINEER

Yoon-Moon Chun
8-1-2013

NO.	DATE	REVISION	BY

KSA K. Singh & Associates, Inc.
Engineers, Scientists and Environmental Consultants

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR 10/09/13
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE S-16-13

USH 2 EB

COUNTY	TOWN/CITY/~~VILLAGE~~
DOUGLAS	SUPERIOR

DESIGN SPEC.	LOAD
AASHTO SIGN SPEC.	90 MPH 3 SEC. SPEED

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
NA	YC	NA	YC

GENERAL PLAN & ELEVATION

SHEET 1 OF 5

STRUCTURES DESIGN CONTACTS
BRIDGE OFFICE:
WILLIAM DREHER, P.E. (608) 266-8489
CONSULTANT:
MAHMOUD MALAS, P.E. (262) 821-1171

FILE NAME : P:\8359 Bong Memorial Bridge\8359B (S-16-013 & S-16-003)\Structural\CADD\S-16-13\S-16-13-001.dgn
PLOT DATE : 8/1/2013
PLOT BY : ychun
PLOT NAME : $FILE$
PLOT SCALE : 1:40

SIGN BRIDGE VERTICAL CLEARANCE

SHEET 350 A

Project Label
(Optional)

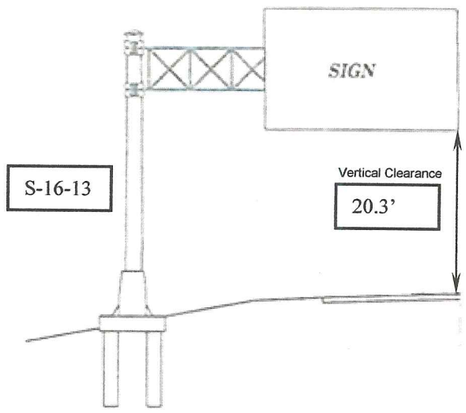
Project ID: 8680-04-74	Contract: 20140114014	Region: NW - Superior
Highway: USH2 over/under UNDER	County: Douglas	Bridge Number: S -16-13
	Contractor: Lunda\Mattison Contractor	Supervisor: Dave Ostrowski

Submit completed form to Regional Bridge Engineer before opening road to traffic.
To fill in form: Click on text boxes and enter applicable clearances.

Project Leader: Brian Mattson **Telephone #:** 715-395-3035

Recorded By: Rebecca Olson **Date:** 7-21-2015

Cardinal Direction: EAST

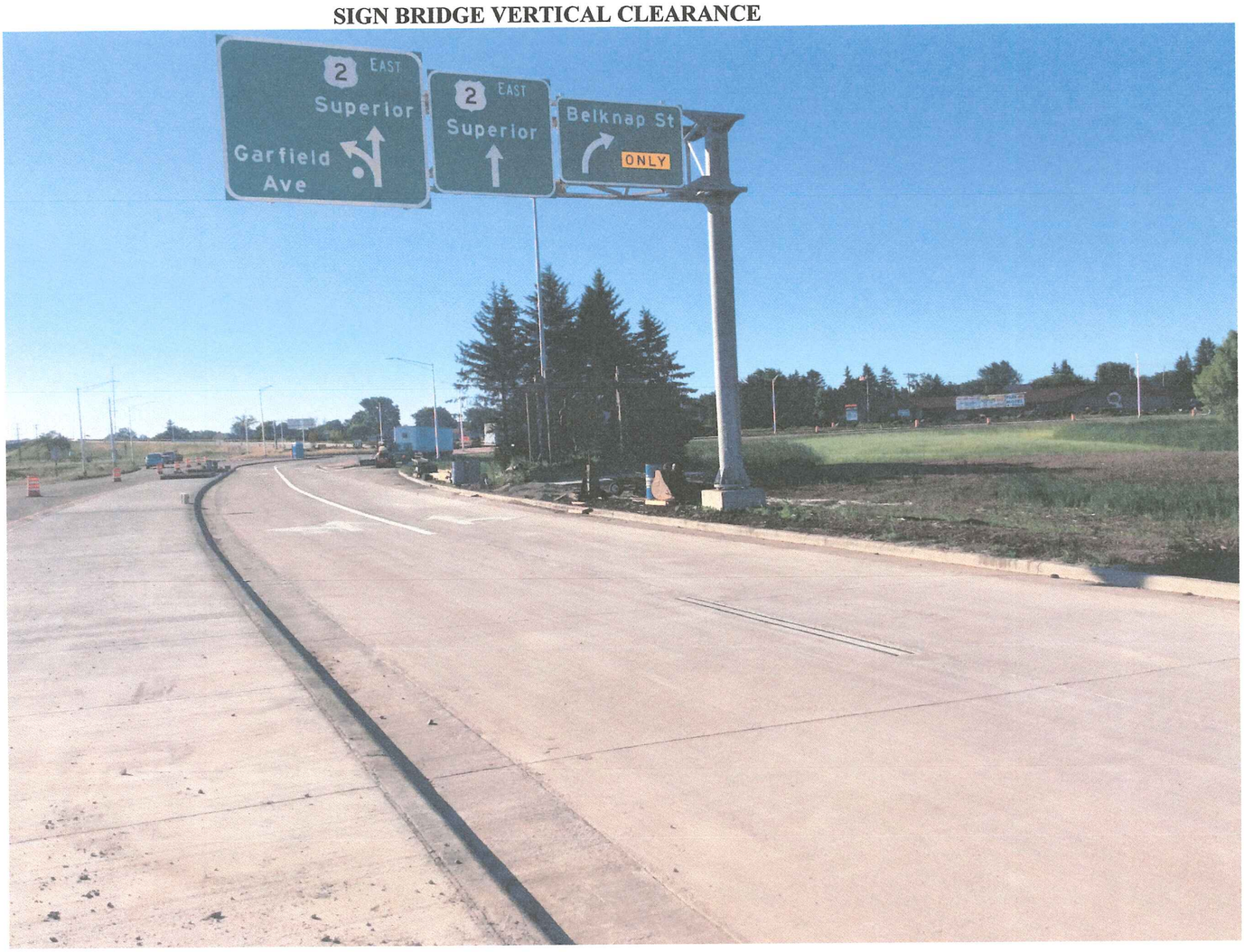


CANTILEVER STRUCTURE

LOOKING EAST

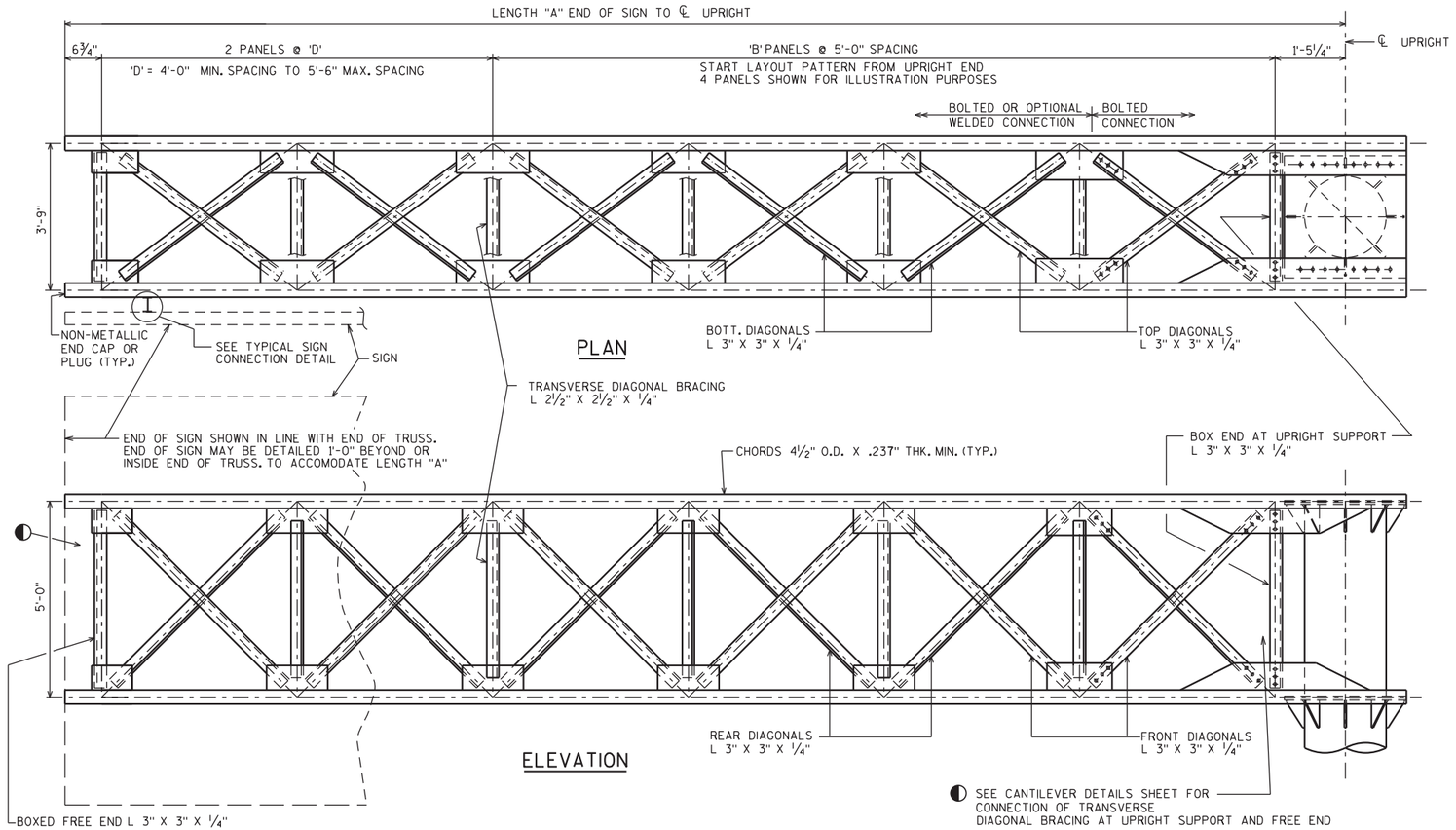
NOTE: Structure is on the RT side of EB USH2. (not LH as shown)

SIGN BRIDGE VERTICAL CLEARANCE



STATE PROJECT NUMBER

8680-04-74



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DESIGNED ACCORDING TO AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINARIES AND TRAFFIC SIGNALS"

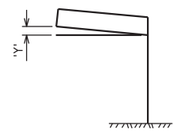
WIND VELOCITY = 90 MPH (3-SECOND GUST SPEED)

PREFABRICATE CAMBER INTO THE HORIZONTAL SUPPORT PROVIDING AN AMOUNT "Y" AT END OF TRUSS SHOWN IN "CAMBER DIAGRAM". DO NOT RAKE VERTICAL UPRIGHT BY ADJUSTMENT OF LEVELING NUTS.

ALLOWABLE DESIGN STRESSES

CHORDS & COLUMN (INCLD. HANDHOLE) — API-5L-X42 — fy=42,000 P.S.I.
STRUCTURAL ANGLES — A.S.T.M. A709 GRADE 36 — fy=36,000 P.S.I.
PLATES & BARS — A.S.T.M. A709 GRADE 36 — fy=36,000 P.S.I.
ANCHOR BOLTS — A.A.S.H.T.O. M314 — fy=55,000 P.S.I.
HIGH STRENGTH BOLTS- A325 — fy=92,000 P.S.I.
STRUCTURAL MEMBERS GALVANIZED A123
HARDWARE GALVANIZED — A153 CLASS C

STRUCTURE	"A"	"L"	"B"	"D"	"Y"
S-16-13	33'-6"	26'-0"	4	5'-3"	3"

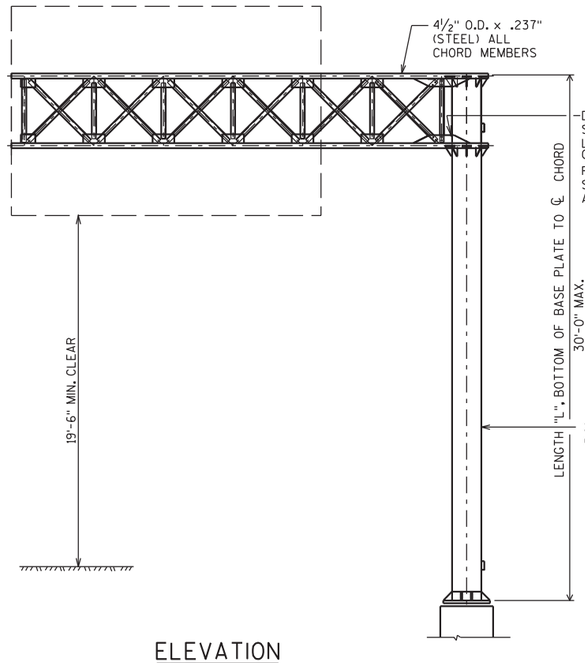


CAMBER DIAGRAM

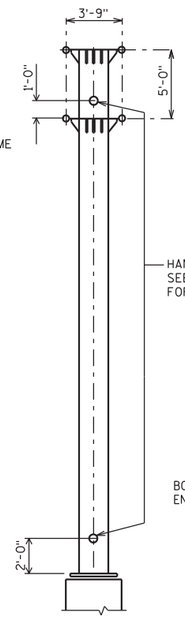
DESIGNER NOTES

CAMBER VALUES 'Y' (IN.)					
L \ A	32	30	28	26	24
30	4⅛	3½	2⅞	2⅜	1⅞
28	3⅞	3¼	2¾	2¼	1¾
26	3⅝	3	2½	2⅛	1¾
24	3⅜	2⅞	2⅜	2	1⅝
22	3⅛	2⅝	2¼	1⅞	1½

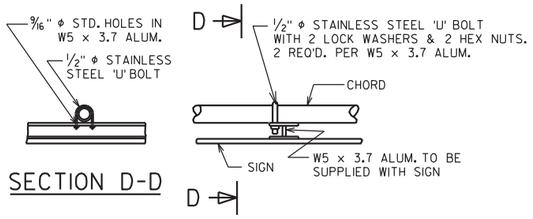
'A' & 'L' IN FT.
INTERPOLATE FOR VALUES NOT SHOWN
TABLES REFLECT CATWALK LOADING . FOR CAMBER VALUES WITHOUT CATWALK LOADING, MULTIPLY TABLE VALUES ABOVE AS FOLLOWS:
MULTIPLY 'Y' BY .72



ELEVATION

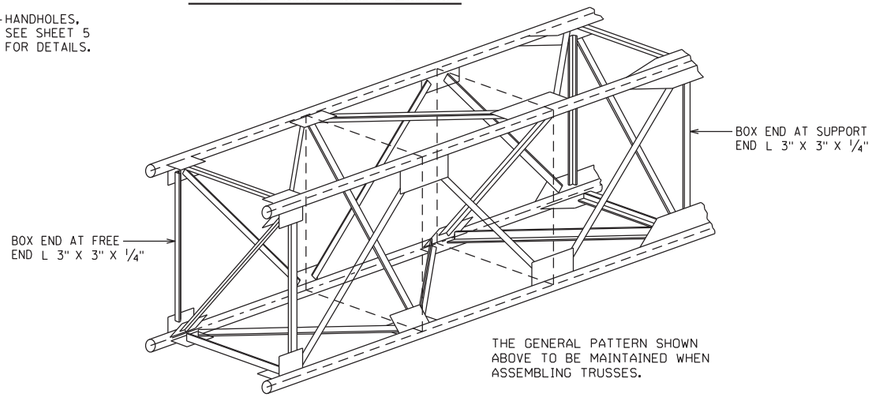


END VIEW



SECTION D-D

TYPICAL SIGN CONNECTION



TYPICAL TRUSS SECTION

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

GALVANIZED STEEL CANTILEVER SIGN TRUSS

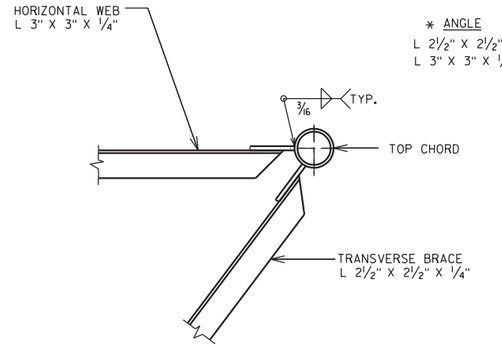
SHEET 2 OF 5
451

8

8

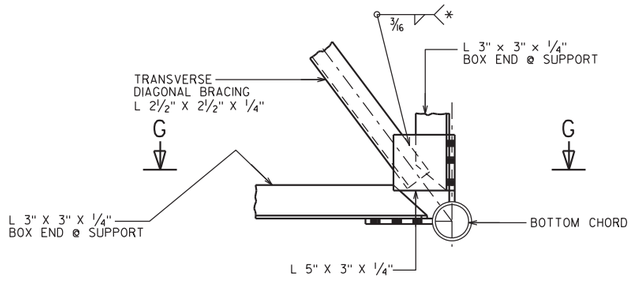
STATE PROJECT NUMBER

8680-04-74

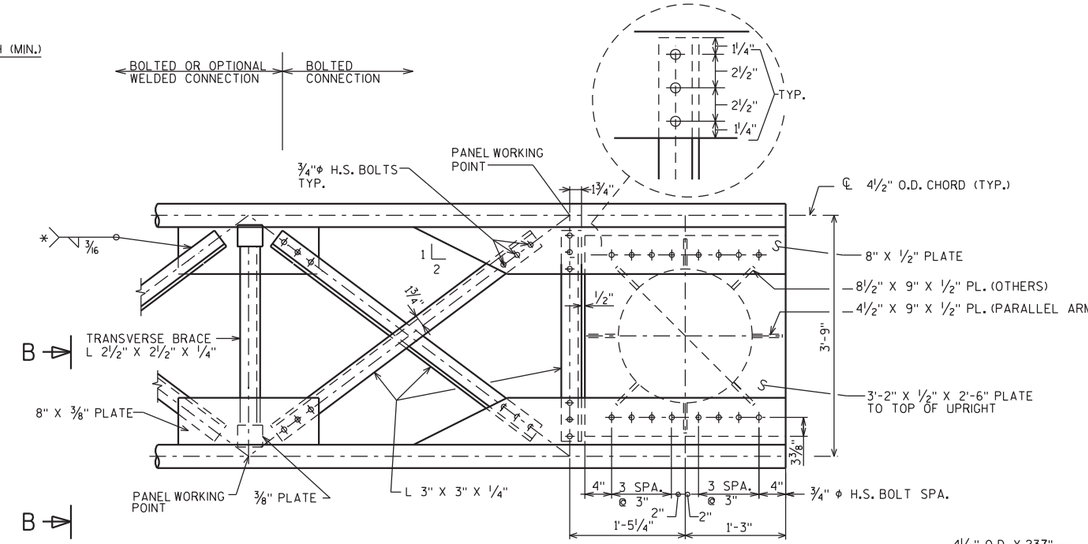


* ANGLE	WELD LENGTH (MIN.)
L 2 1/2" X 2 1/2" X 1/4"	7"
L 3" X 3" X 1/4"	8"

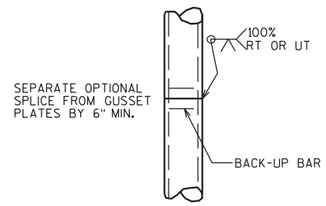
SECTION B-B



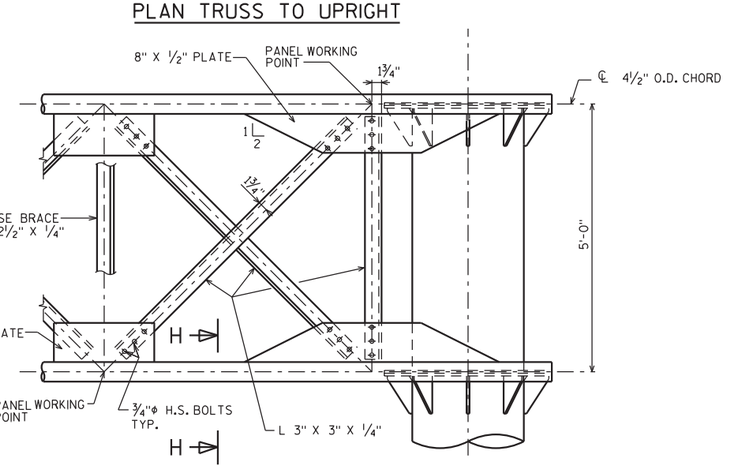
SECTION H-H



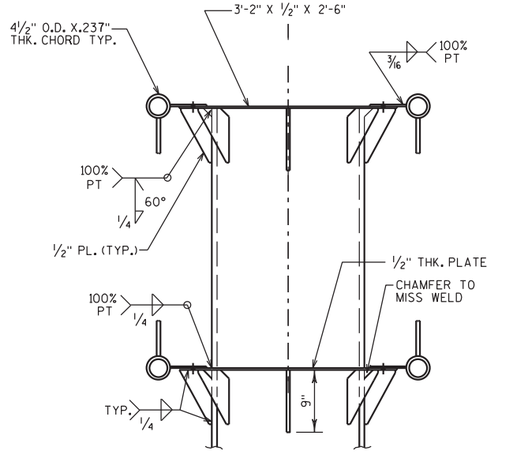
PLAN TRUSS TO UPRIGHT



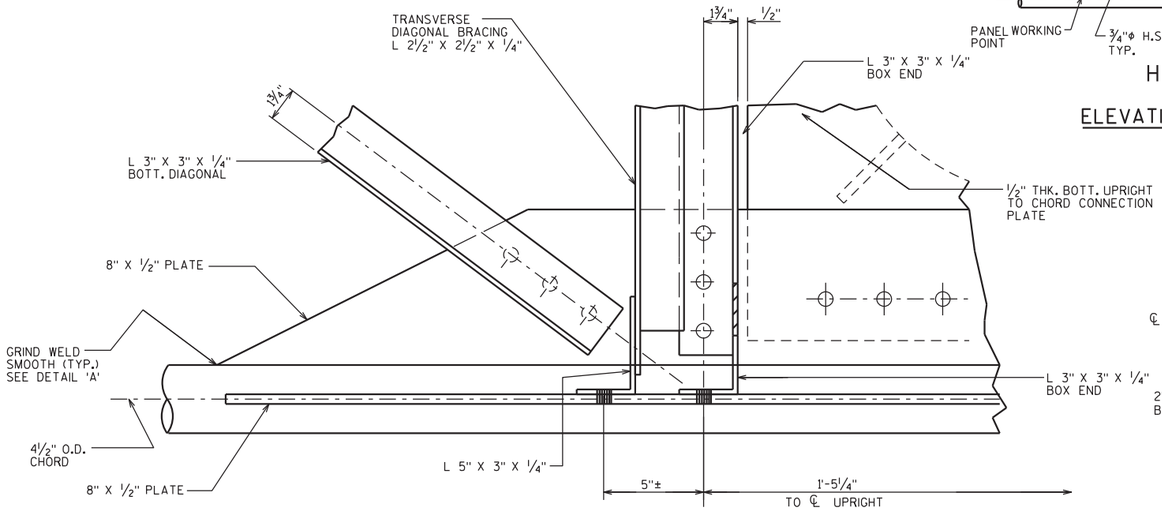
OPTIONAL COLUMN OR CHORD SPLICE DETAIL



ELEVATION TRUSS TO UPRIGHT

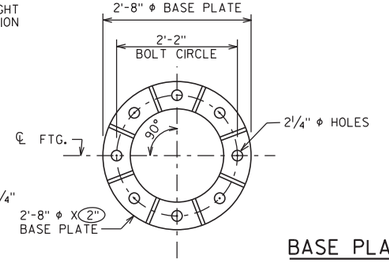


END VIEW
TRUSS TO UPRIGHT

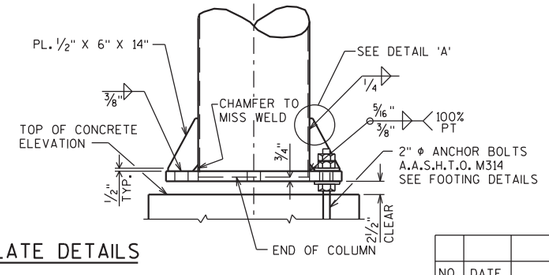


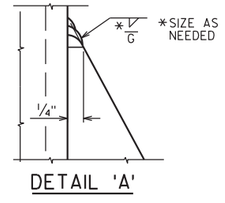
SECTION G-G

(LOOKING DOWN @ BOTT. HORIZ. PLANE @ FRONT CHORD)



BASE PLATE DETAILS





DETAIL 'A'

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

GALVANIZED STEEL CANTILEVER SIGN TRUSS DETAILS

SHEET 3 OF 5

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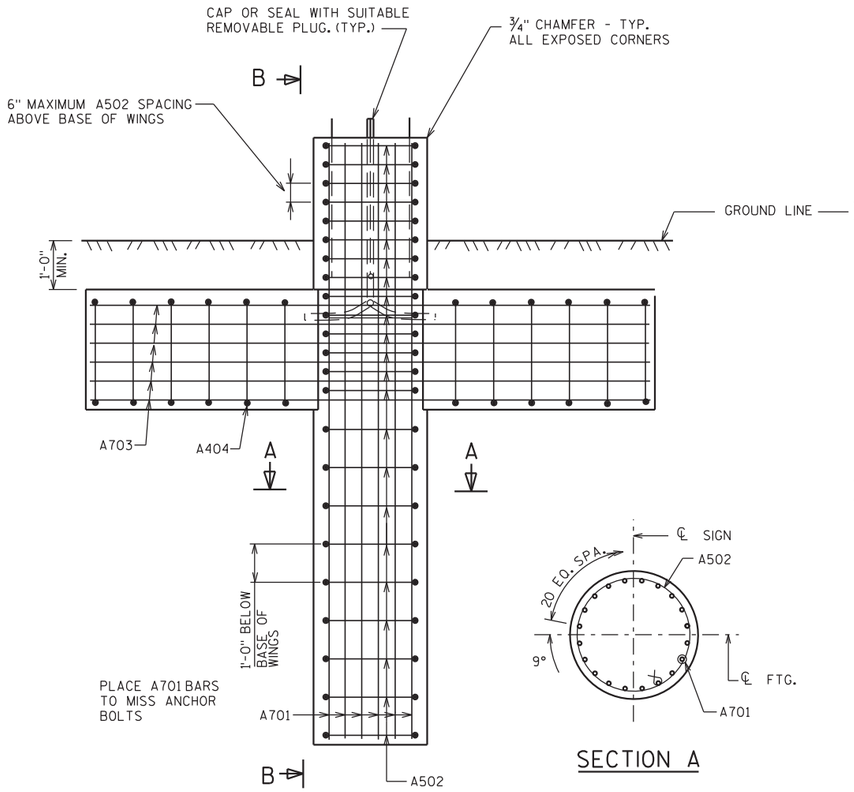
8

8

FILE NAME : P:\8359 Bong Memorial Bridge\8359B (S-16-013 & S-16-003)\Structural\CADD\S-16-13\S-16-13-003.dgn PLOT DATE : 8/1/2013 PLOT BY : ychun PLOT NAME : $FILE$ PLOT SCALE : 1:40.0001

STATE PROJECT NUMBER

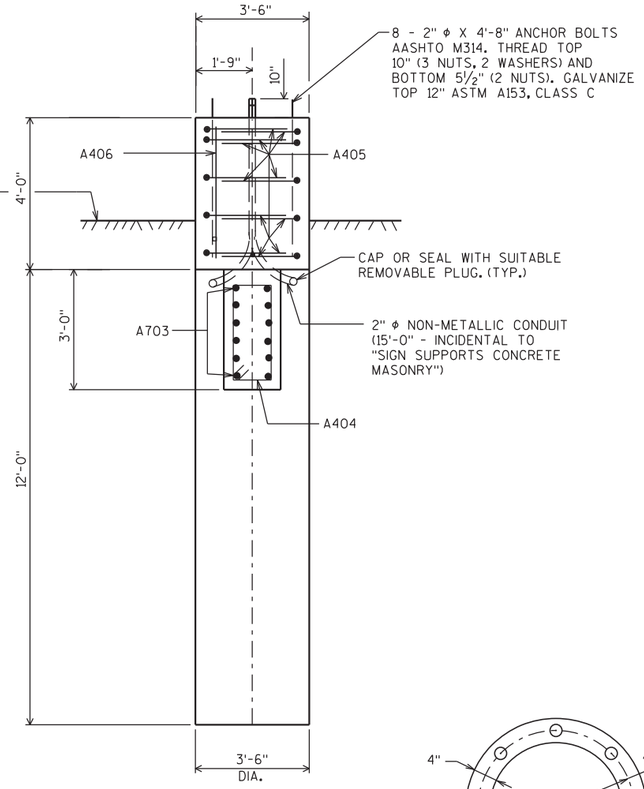
8680-04-74



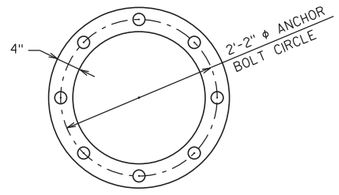
ELEVATION

(8 CY)

SECTION A



SECTION B



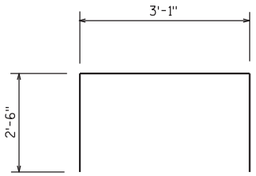
TOP VIEW OF TOP & BOTTOM TEMPLATES

BILL OF BARS

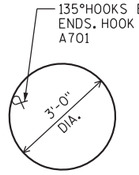
THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.
BAR DIMENSIONS ARE OUT TO OUT OF BAR.

1380 LB

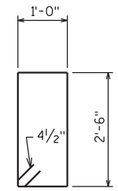
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	CUT. DIAG.	BUN-DLE	LOCATION
A701		20	15'-6"				FOOTING - COLUMN/TOP
A502		23	10'-5"	X			FOOTING - COLUMN/TOP
A703		12	15'-0"				FOOTING - WINGS
A404		12	7'-6"	X			FOOTING - WINGS
A405		10	7'-11"	X			FOOTING - TOP
A406		4	3'-6"				FOOTING - TOP - COLUMNS



A405



A502



A404
(STIRRUP)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 3" CLEAR UNLESS DETAILED OTHERWISE.

ALLOWABLE DESIGN STRESSES

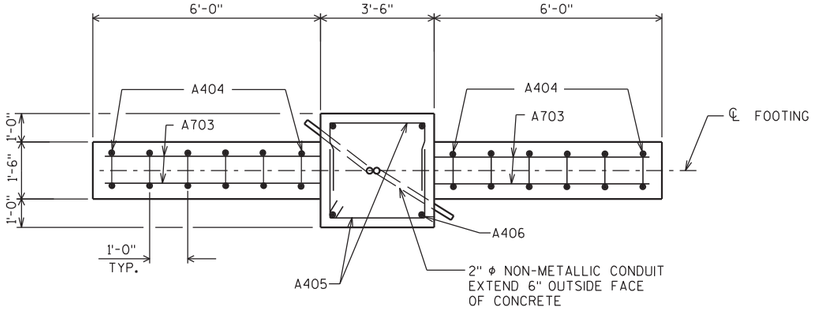
CONCRETE MASONRY ——— f'c=3,500 PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 ——— fy=60,000 PSI
ANCHOR BOLTS AASHTO M314 ——— fy=55,000 PSI

FOUNDATION DATA

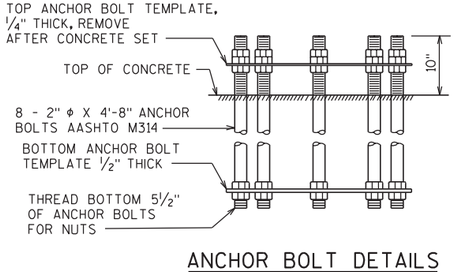
ALLOWABLE SOIL BEARING PRESSURE = 2.0T/SQ. FT.

TOTAL ESTIMATED QUANTITIES (1 FTG.)

SIGN SUPPORTS CONCRETE MASONRY ——— 8 CY
SIGN SUPPORTS STEEL REINFORCEMENT HS ——— 1380 LB



PLAN



ANCHOR BOLT DETAILS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

CANTILEVER TRUSS FOOTING

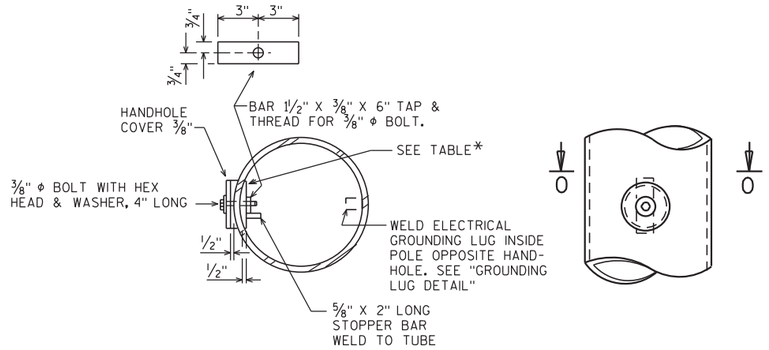
SHEET 4 OF 5
453

8

8

STATE PROJECT NUMBER

8680-04-74

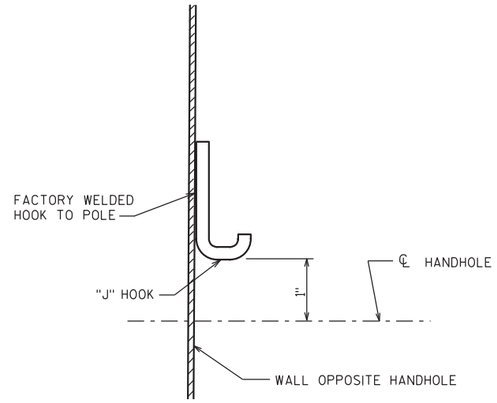


SECTION 'O'

HANDHOLE DETAILS

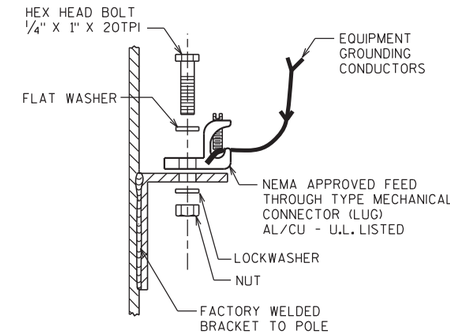
HANDHOLE NOTES

HANDHOLES SHALL BE LOCATED IN COLUMN AS DETAILED ON SHEET 3.



TYPICAL "J" HOOK LOCATION

THE "J" HOOK SHALL BE FACTORY WELDED TO THE INSIDE OF ALL COLUMNS CONTAINING ELECTRICAL WIRING. THE "J" HOOK SHALL BE ATTACHED ABOVE THE CENTERLINE OF THE UPPER HANDHOLE AND MOUNTED DIRECTLY OPPOSITE THE HANDHOLE AS SHOWN IN THE DRAWING.

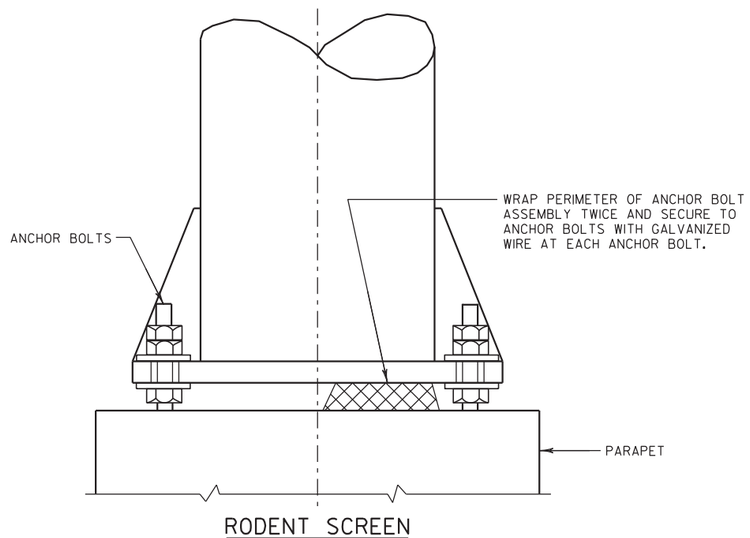


GROUNDING LUG DETAIL

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

✳

UPRIGHT DIAM. SIZE	HANDHOLE PIPE O.D. X MIN. THK.
UP TO AND INCLD. 16" X .375"	5.562" X .500"
GREATER THAN 16" X .375" TO AND INCLD. 24" X .562"	6.625" X .562"



RODENT SCREEN

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE S-16-13

DRAWN BY NA | PLANS CK'D. YC

HANDHOLE DETAILS

SHEET 5 OF 5
454