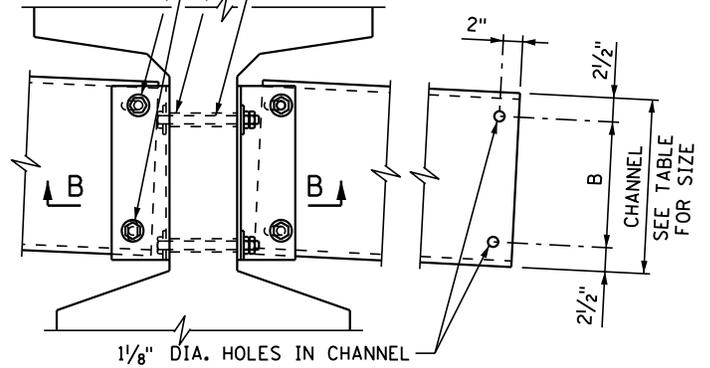


**PART TRANSVERSE SECTION AT DIAPHRAGM**

7/8" DIA. HIGH STRENGTH BOLTS PER SPEC. 3391.2.B WITH HEX NUT AND ONE 3" SQ. x 5/16" PLATE WASHER ON SLOTTED SIDE AND HARDENED WASHER ON DIAPHRAGM SIDE

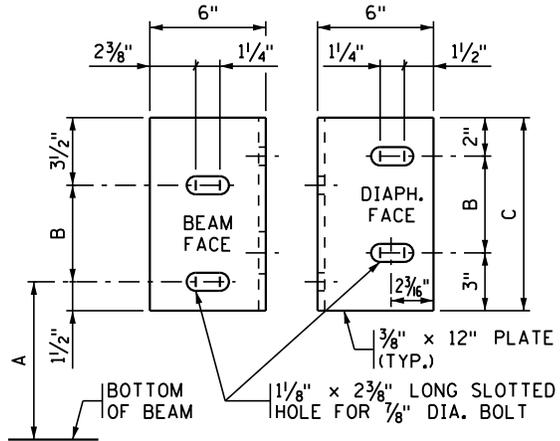
FORM 1/2" DIA. HOLES IN WEB (TYP.)

7/8" DIA. A307 BOLTS, PER SPEC. 3391.2.A, WITH TWO HEX NUTS, OR EQUAL, AND TWO HARDENED 3" SQ. x 5/16" PLATE WASHERS EACH AT ALL INTERIOR BEAM DIAPHRAGM CONNECTIONS



**DETAIL "A"**

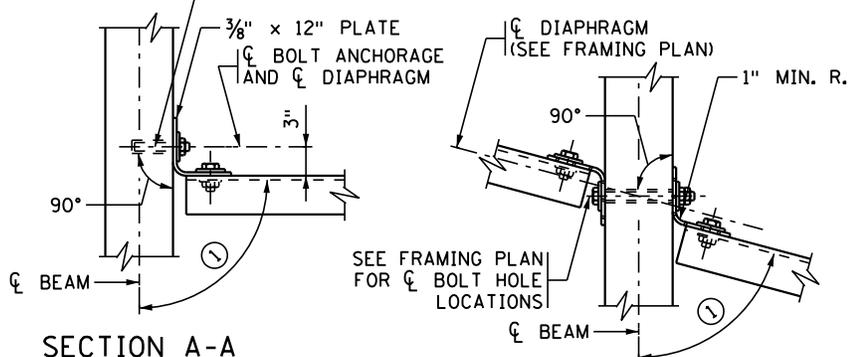
INTERIOR BEAM WITH CONTINUOUS LINE OF DIAPHRAGMS



**DIAPHRAGM CONNECTION**

FOR 36M, 40MH AND MN45 BEAMS

7/8" DIA. CAST-IN-PLACE BOLT ANCHORAGE, 7/8" x 2 1/4" H.S. BOLT PER SPEC. 3391.2.B AND 3" SQ. x 5/16" PLATE WASHER.

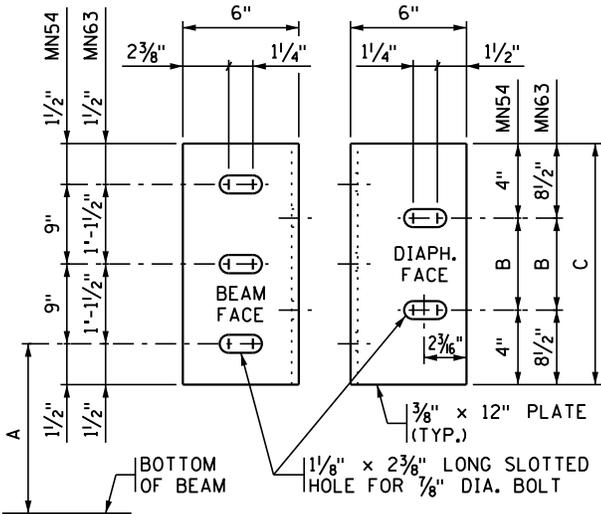


**SECTION A-A**

TYPICAL SECTION AT ALL FASCIA BEAMS

**SECTION B-B**

TYPICAL SECTION AT INTERIOR BEAM WITH CONTINUOUS OR STAGGERED INTERMEDIATE DIAPHRAGMS



**DIAPHRAGM CONNECTION**

FOR MN54 AND MN63 BEAMS

**NOTES:**

PROVIDE STEEL PER SPEC. 3306.

INSTALL PER SPEC. 2405.3.K.

TORQUE ALL BOLTS, INCLUDING ANCHOR BOLTS TO 80 FT.-LBS.

SHOP BEND THE LEG OF THE 12" PLATE TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

INCLUDE ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, IN UNIT PRICE BID FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

BENT PLATES MAY BE USED IN PLACE OF CHANNELS IF THE BENT PLATES HAVE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, ARE 5/16" IN THICKNESS, AND HAVE LEGS 5" LONG.

GALVANIZE STEEL PLATES AND SHAPES PER SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER SPEC. 3392.

① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.

BEAM HEIGHT	DISTANCE			CHANNEL SIZE
	A	B	C	
36M	1'-3"	7"	1'-0"	C12x20.7
40MH	1'-5"	7"	1'-0"	C12x20.7
MN45	1'-7 3/4"	7"	1'-0"	C12x20.7
MN54	1'-7 3/4"	1'-1"	1'-9"	MC18x42.7
MN63	1'-7 3/4"	1'-1"	2'-6"	MC18x42.7

APPROVED: NOVEMBER 03, 2015

*Kevin A. F. Sanaker*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

**STEEL INTERMEDIATE DIAPHRAGM**  
(FOR 36M, 40MH, MN45 - MN63 PRESTRESSED CONCRETE BEAMS)

REVISION  
01-05-2017  
12-20-2018

DETAIL NO.

**B403**