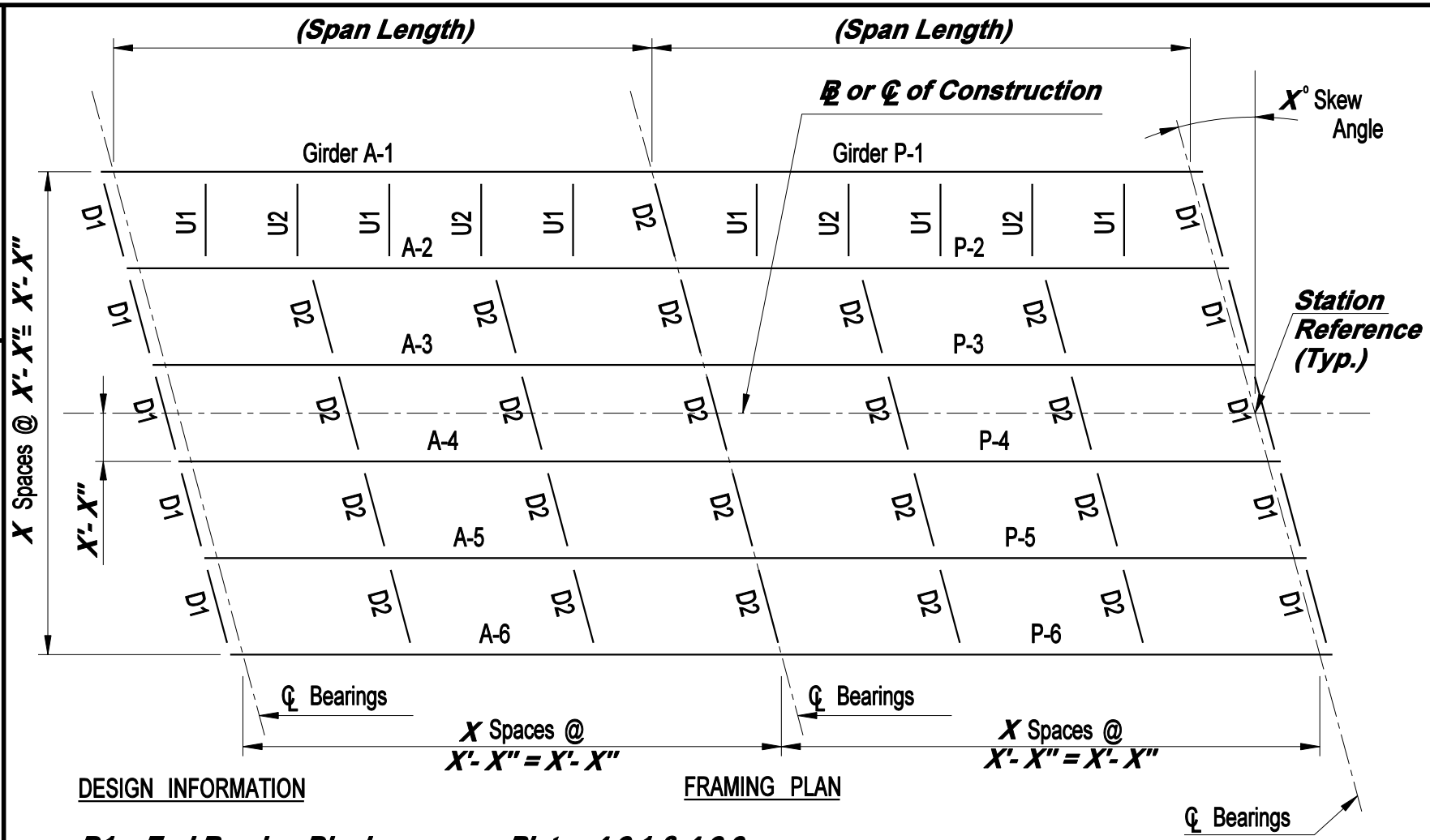
TYPICAL FRAMING PLAN
SKEW ANGLE ≤ 20°



DESIGN INFORMATION

FRAMING PLAN

D1 = End Bearing Diaphragm, see Plates 4.2.1 & 4.2.3
D2 = Intermediate Diaphragm, see Plates 4.2.2 & 4.2.4
U1 = Utility Support between diaphragms
U2 = Utility Support Diaphragms

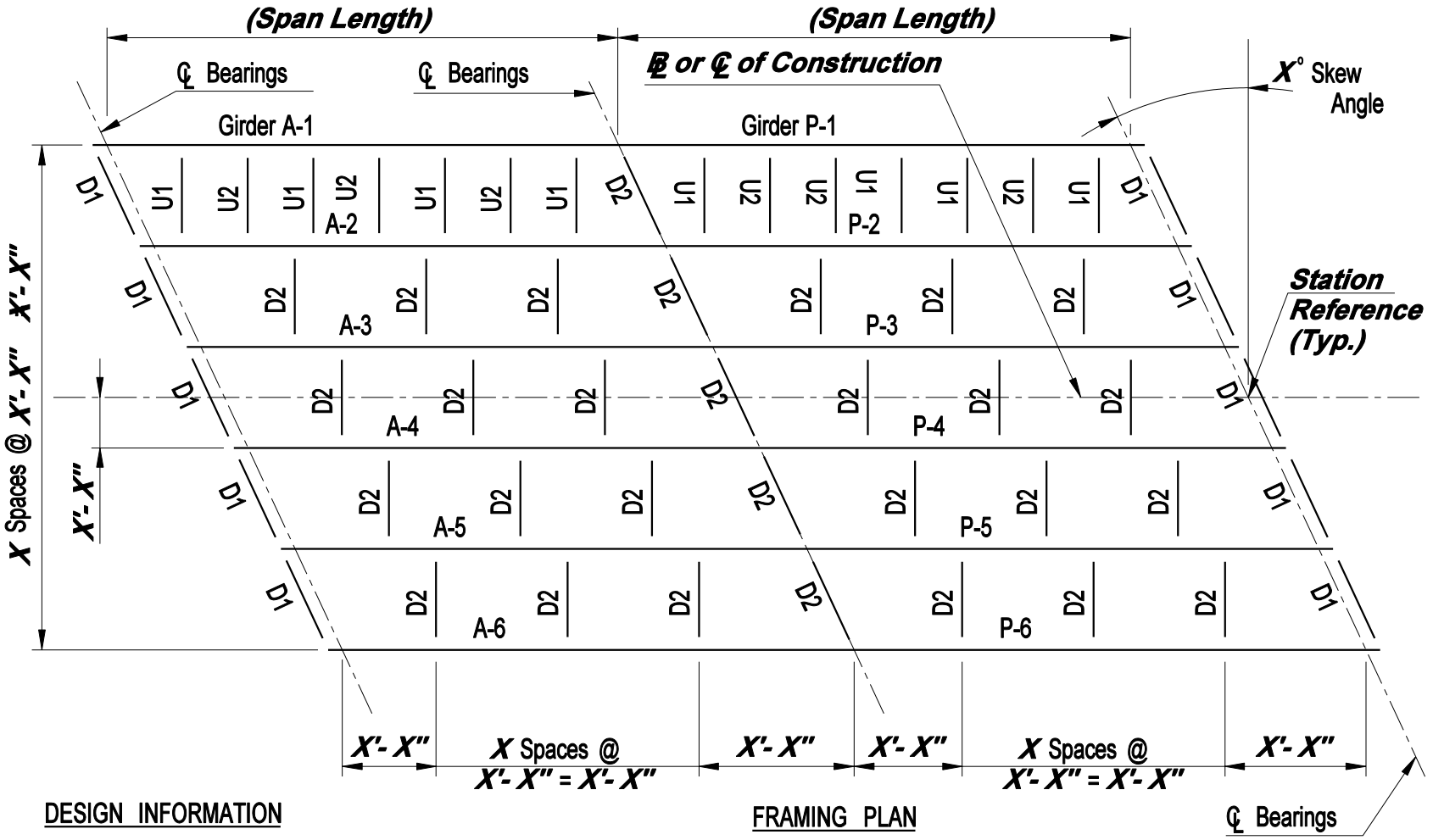
1. ***The framing plan shall be drawn full length without breaks and to scale on the plans. Include all relevant survey data and North arrow.***

2. ***Continuous two-span bridge shown, simple and multiple continuous span bridges are similar.***

3. ***Where utilities interfere with the typical end diaphragm, provide an alternative end diaphragm detail.***

Issue Date: 10/03
Revision Date:
Plate Number: 4.1.1a

TYPICAL FRAMING PLAN
SKEW ANGLE > 20°



DESIGN INFORMATION

FRAMING PLAN

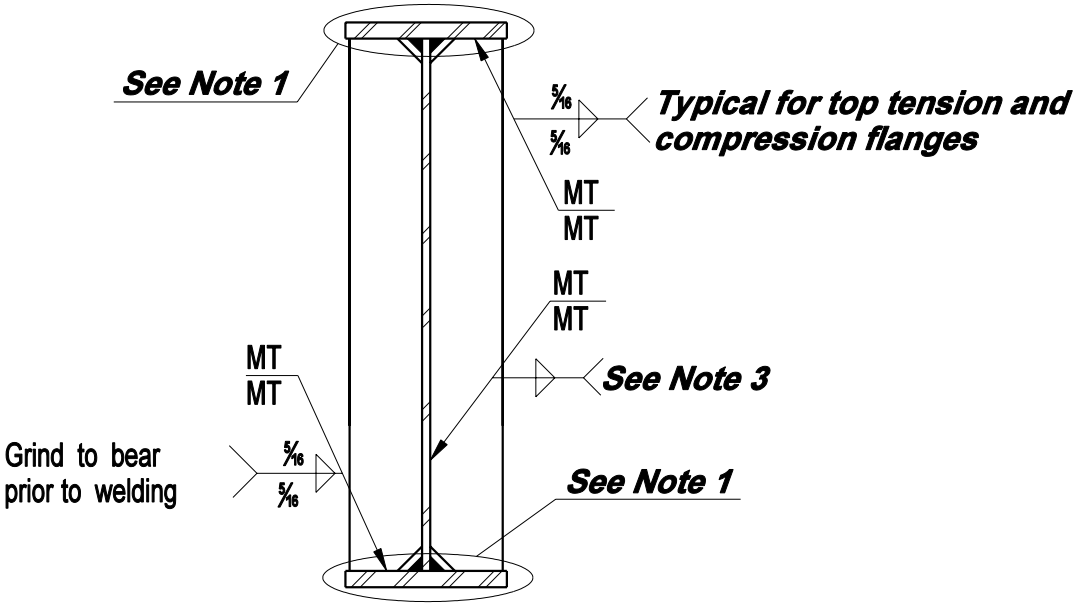
D1 = End Bearing Diaphragm, see Plates 4.2.1 & 4.2.3
D2 = Intermediate Diaphragm, see Plates 4.2.2 & 4.2.4
U1 = Utility Support between diaphragms.
U2 = Utility Support Diaphragm.

1. ***The framing plan shall be drawn full length without breaks and to scale on the plans. Include all relevant survey data and North arrow.***

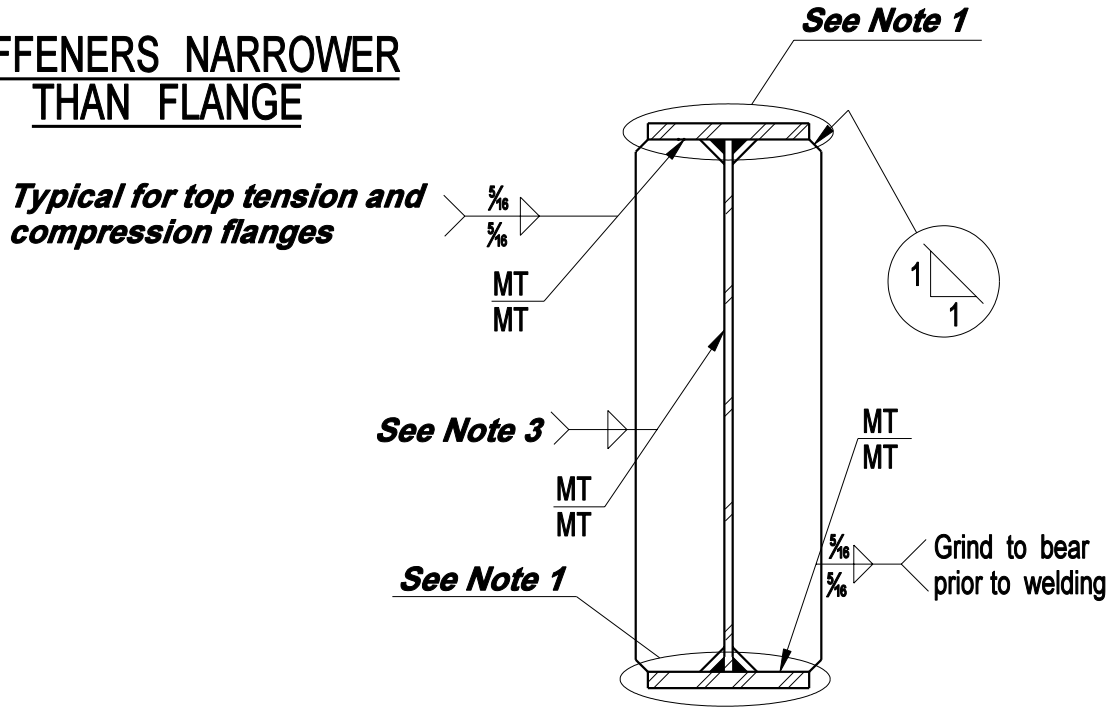
2. ***Continuous two-span bridge shown, simple and multiple continuous span bridges are similar.***

3. ***Where utilities interfere with the typical end diaphragm, provide an alternative end diaphragm detail.***

Issue Date: 10/03
Revision Date:
Plate Number: 4.1.1b



STIFFENERS NARROWER THAN FLANGE

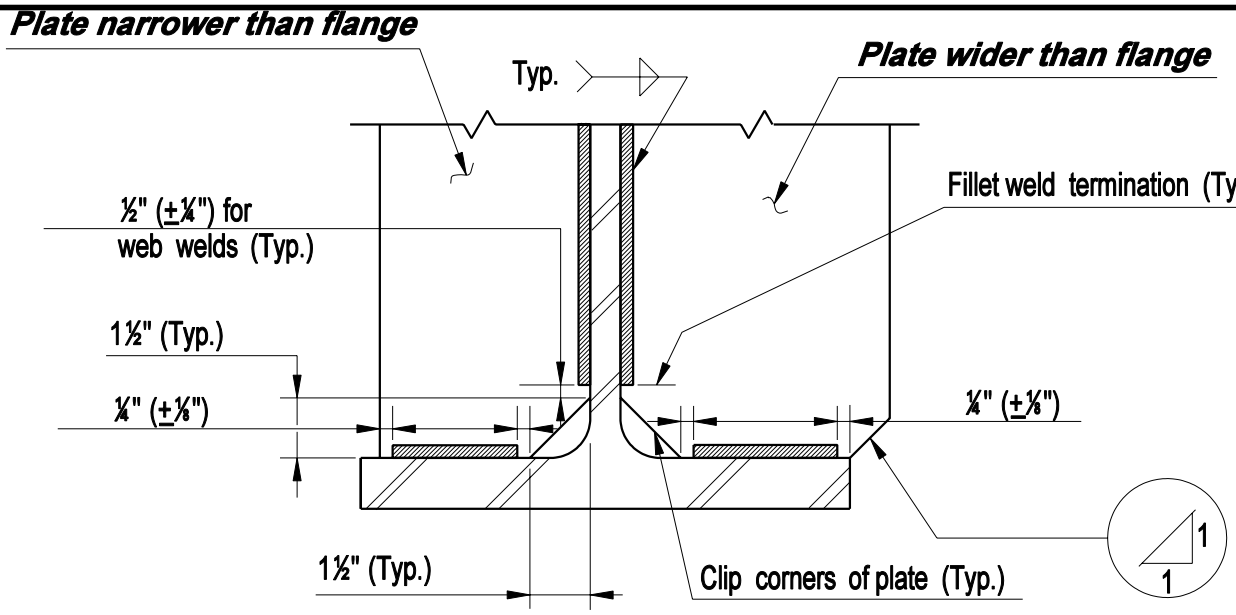


STIFFENERS WIDER THAN FLANGE

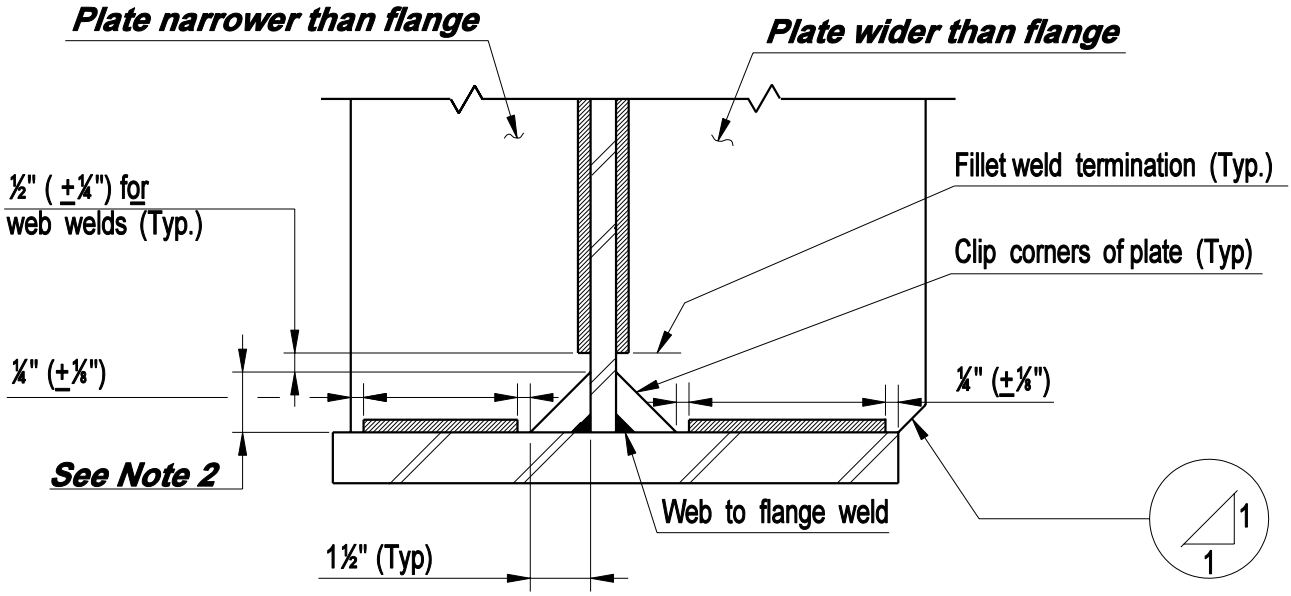
Notes:

1. ***For clip and weld termination details, see Plate No. 4.2.2***
2. ***For additional bearing stiffener details, see Plate No. 4.2.5***
3. ***Weld shall be designed, see Division I, Section 7***

CONNECTICUT BRIDGE DESIGN MANUAL	BEARING STIFFENERS	Issue Date: 10/03 Revision Date: Plate Number: 4.2.1



TYPICAL SECTION - ROLLED BEAMS



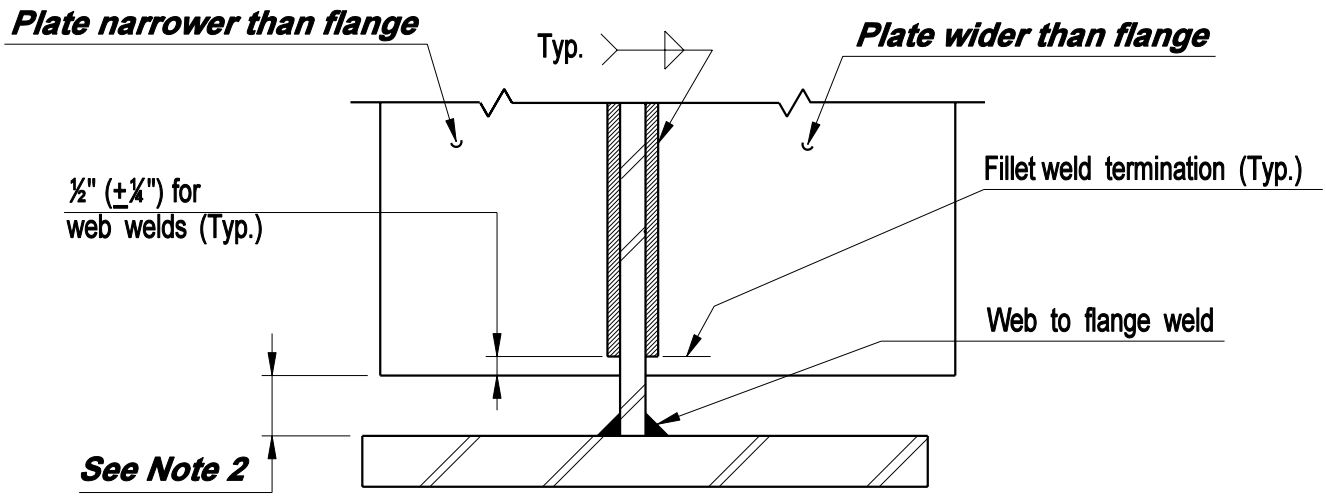
TYPICAL SECTION - PLATE GIRDERS

Notes:

1. Details are shown for bottom flange, top flange is similar.

2. Designer shall determine this dimension.

CONNECTICUT BRIDGE DESIGN MANUAL	CLIP AND WELD TERMINATION FOR CONNECTION PLATES AND BEARING STIFFENERS	Issue Date: 10/03 Revision Date: Plate Number: 4.2.2

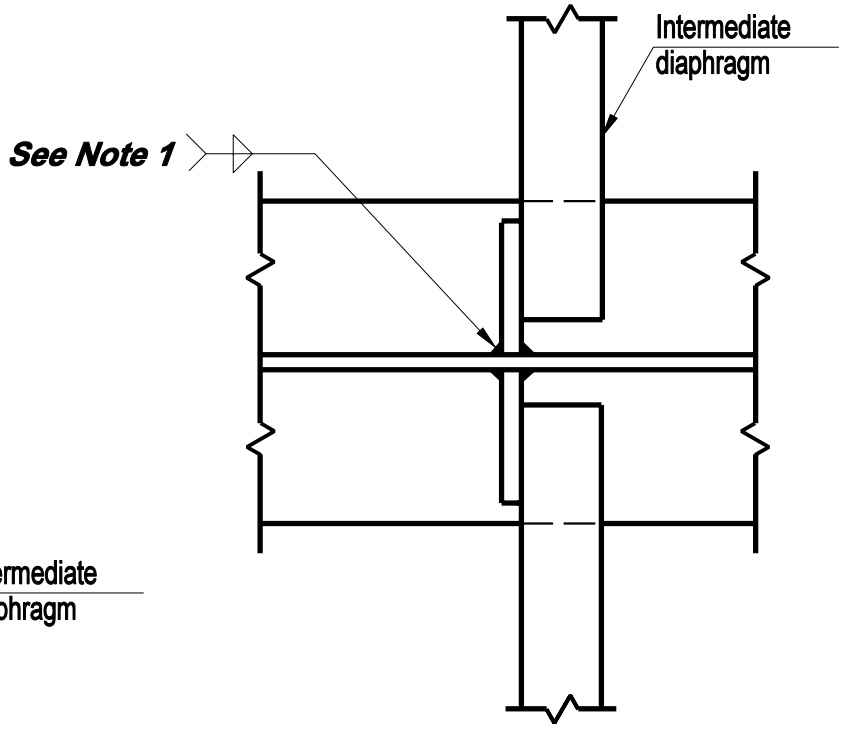


TYPICAL SECTION - PLATE GIRDERS

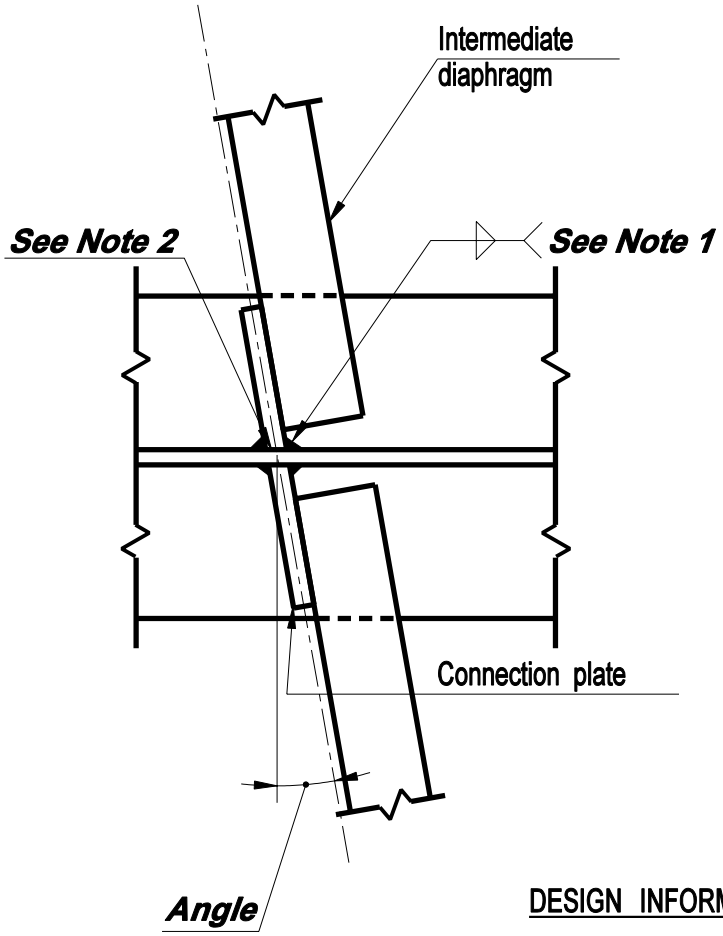
DESIGN INFORMATION:

1. ***Details are shown for bottom flange, top flange is similar.***
2. ***Design shall determine this dimension.***

CONNECTICUT BRIDGE DESIGN MANUAL	CLIP AND WELD TERMINATION FOR INTERMEDIATE STIFFENERS	Issue Date: 10/03 Revision Date: Plate Number: 4.2.3



ANGLE > 20°

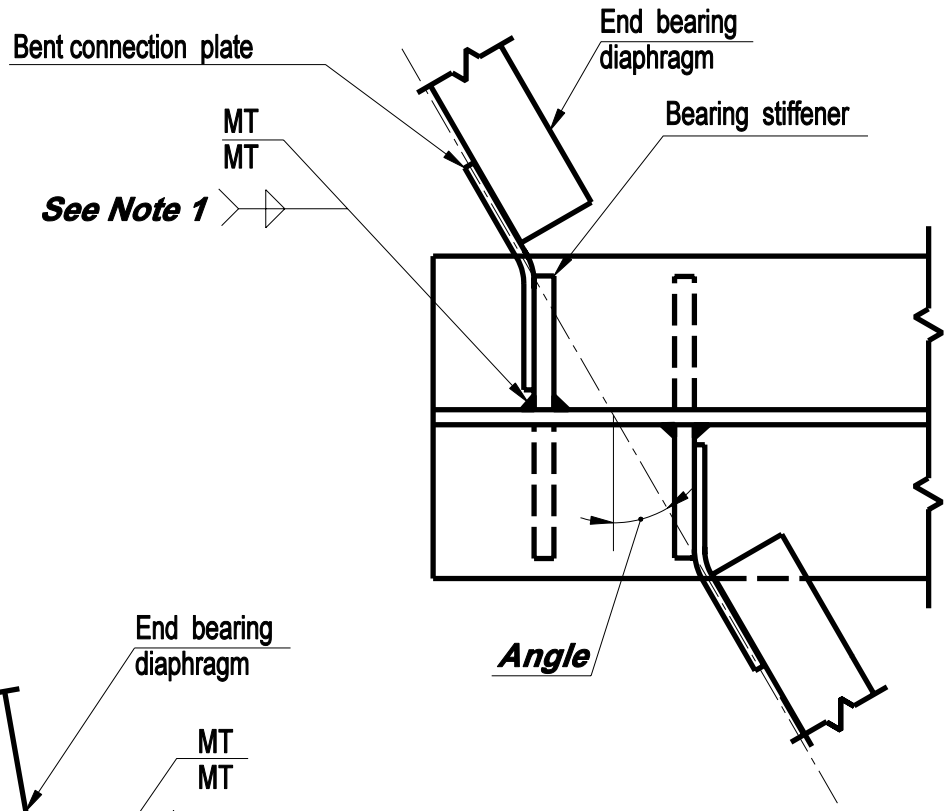


ANGLE ≤ 20°

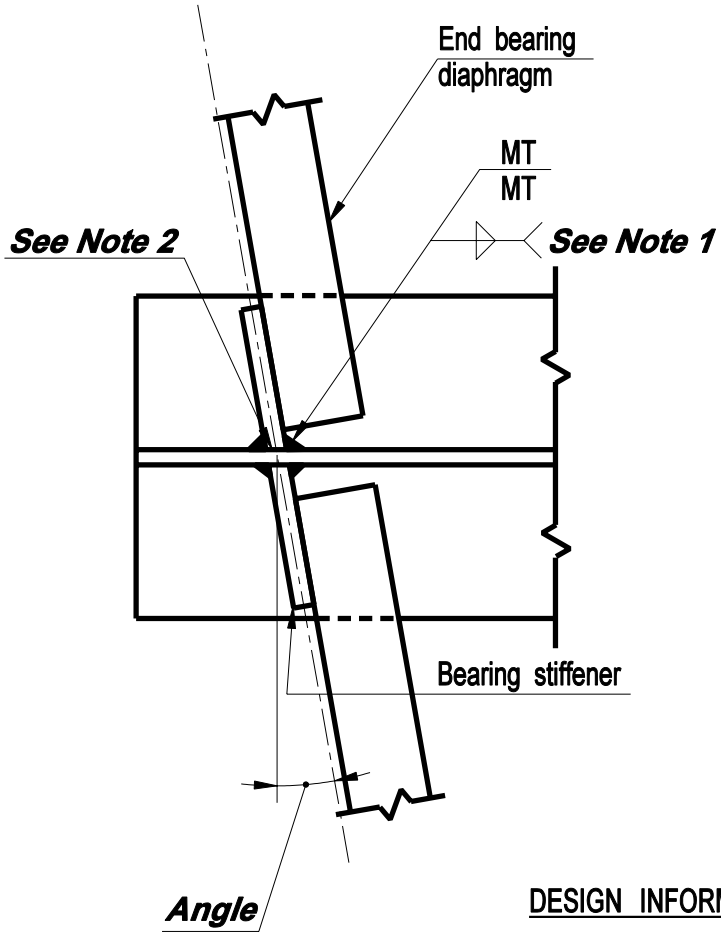
DESIGN INFORMATION

1. ***Welds shall be designed, see Division I, Section 7***
2. ***For skewed plates, plate edge may be beveled or square.***

CONNECTICUT BRIDGE DESIGN MANUAL	CONNECTION PLATES AT INTERMEDIATE DIAPHRAGMS	Issue Date: 10/03 Revision Date: Plate Number: 4.2.4



ANGLE > 15°

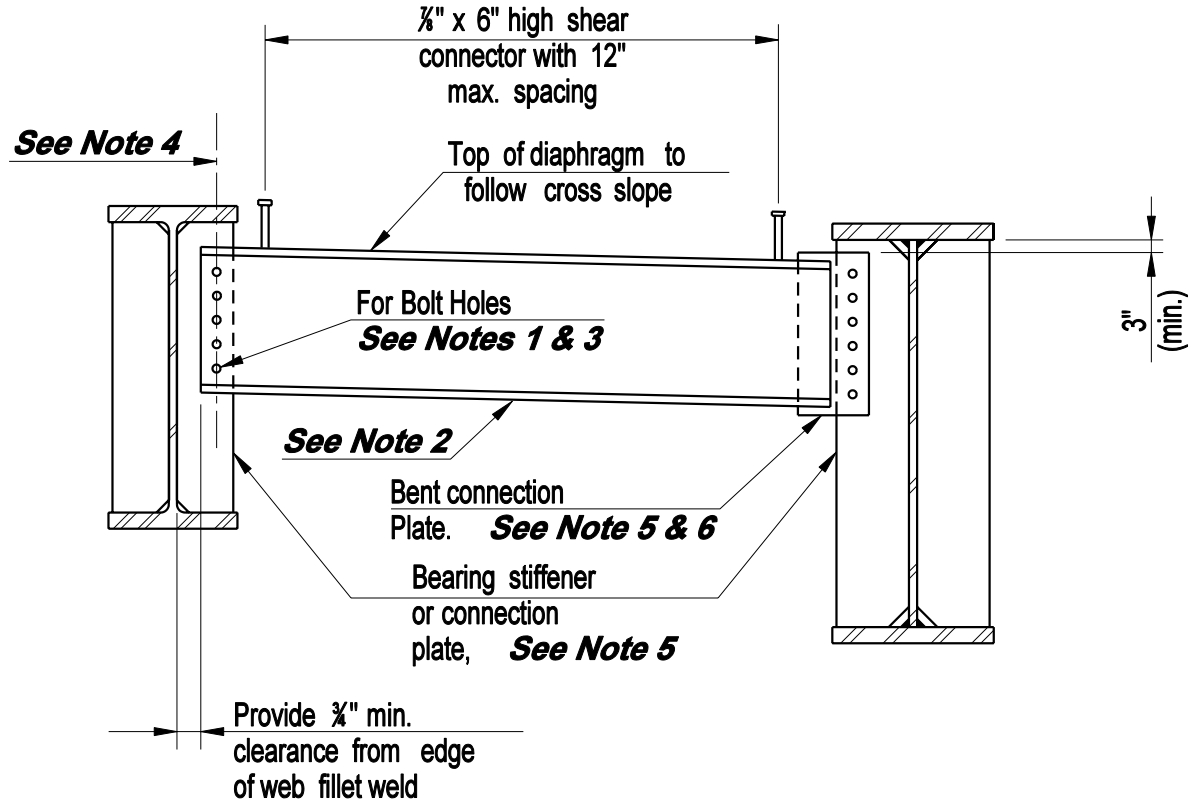


ANGLE ≤ 15°

DESIGN INFORMATION

1. ***Welds shall be designed, see Division I, Section 7***
2. ***For skewed plates, plate edge may be beveled or square.***

CONNECTICUT BRIDGE DESIGN MANUAL	CONNECTION PLATES AT END BEARING DIAPHRAGMS	Issue Date: 10/03 Revision Date: Plate Number: 4.2.5



ROLLED BEAM

PLATE GIRDER

Notes:

1. Bolt holes in channels shall be 15/16" diameter (standard) for ⅞" dia. bolts. Bolt holes in connection or stiffener plates shall be 1 1/16" diameter (oversized).

DESIGN INFORMATION

2. Channel members shall be used for "I" shaped members. Size as determined by designer. C15 x 33.9 minimum.

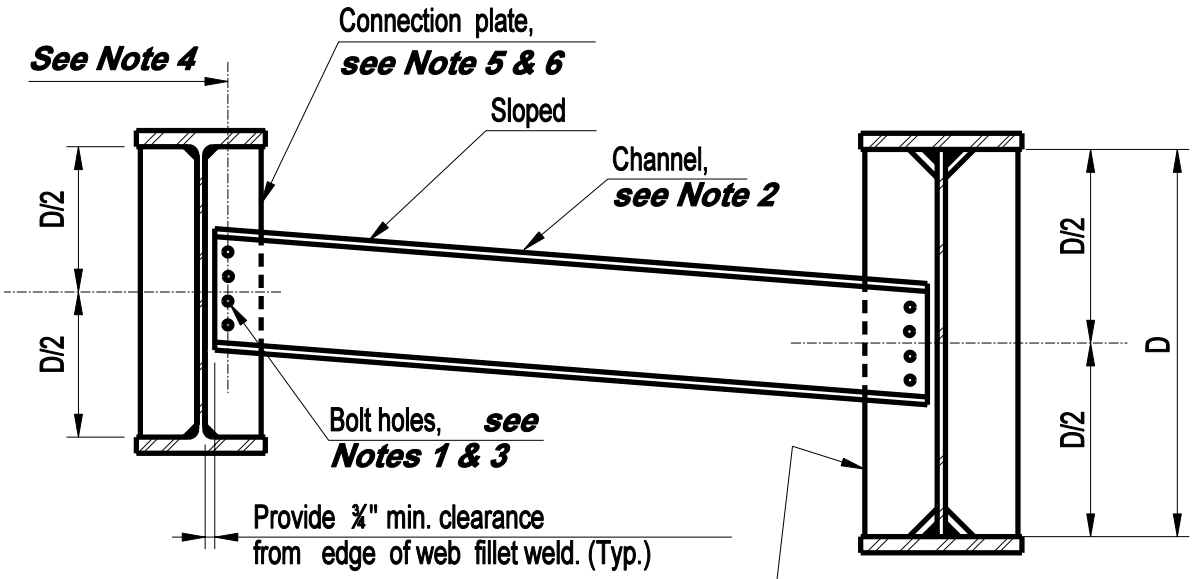
3. Number of bolts shall be determined by the designer.

4. Centerline of bolt holes shall be vertical.

5. For connection and stiffener plate details, see Plate Nos. 4.2.1, 4.2.2 and 4.2.5.

6. Bent connection plate to be used for rolled beams or plate girders where skew angle > 15°. See Plate 4.2.5.

CONNECTICUT BRIDGE DESIGN MANUAL	END BEARING DIAPHRAGM WEB DEPTH ≤ 4'- 0"	Issue Date: 10/03 Revision Date: Plate Number: 4.3.1



Member Depth *	Diaphragm	H.S. Bolts
33" - 48"	MC18 x 42.7	10
27" - 30"	C15 x 33.9	8
21" - 24"	C12 x 20.7	6

*** See Note 7***

Notes:

1. Bolt holes in channels shall be 15/16" diameter (standard) for ⅞" dia. bolts. Bolt holes in connection or stiffener plates shall be 1⅛" diameter (oversized).

DESIGN INFORMATION

2. Channel members shall be used for "I" shaped members.

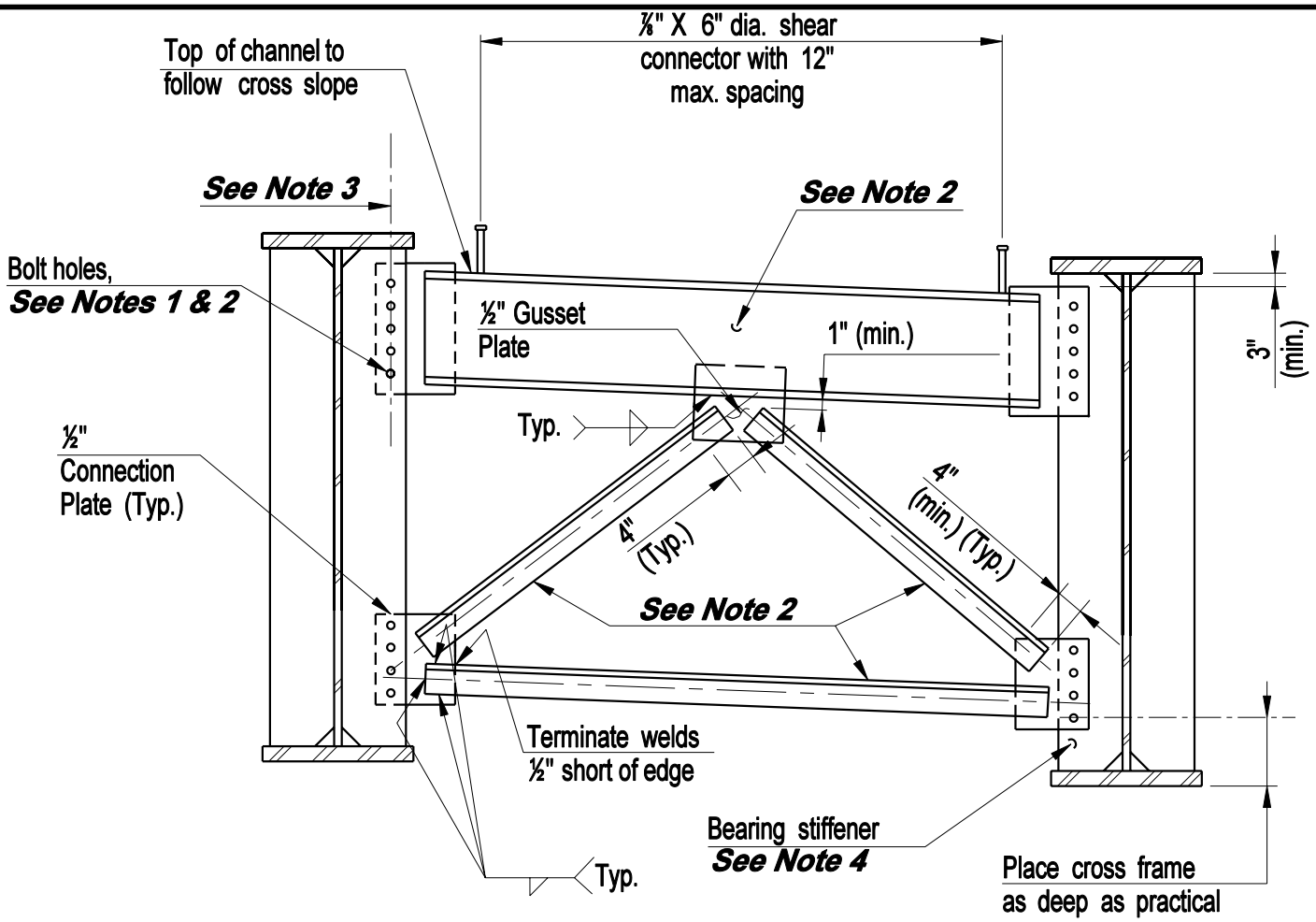
3. Number of bolts shall be determined by the designer.

4. Centerline of bolt holes shall be vertical.

5. For connection and stiffener plate details, see Plates 4.2.2 - 4.2.4.

6. Connection plates shall be placed on skew for skew angle < 20°.

7. Member depth is nominal depth for rolled beams, actual web depth for plate girders.



Notes:

1. Bolt holes in channels shall be 15/16" diameter (standard) for ⅞" dia. bolts. Bolt holes in bearing stiffener shall be 1⅛" diameter (oversized).

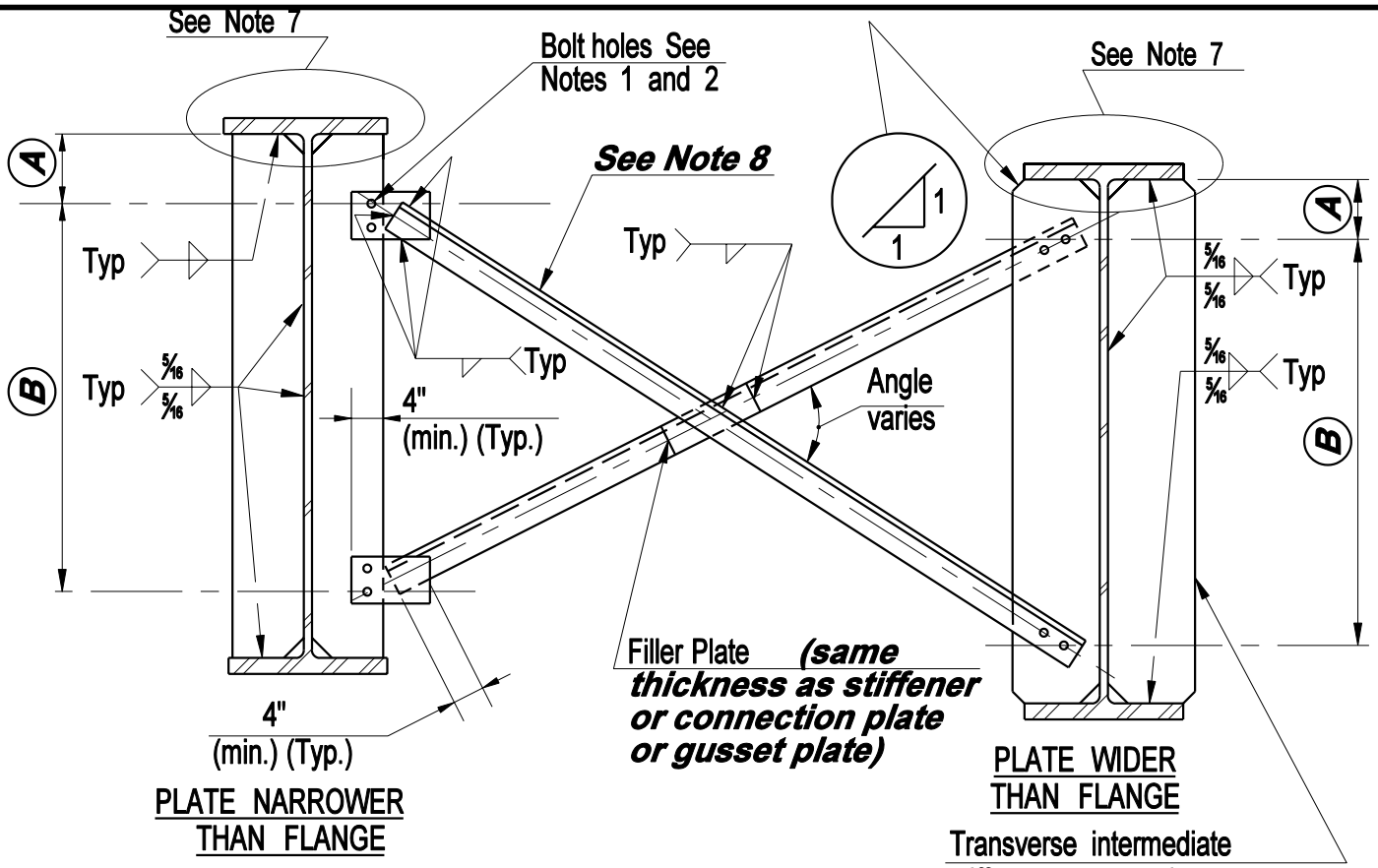
DESIGN INFORMATION

2. Channel and angle sizes along with the number of bolts shall be determined by the designer. Minimum angle size shall be L4 x 4 x 5/16.

3. Centerline of bolt holes shall be vertical.

4. For bearing stiffener details, see Plate Nos. 4.2.1, 4.2.2 and 4.2.5.

CONNECTICUT BRIDGE DESIGN MANUAL	END BEARING CROSS FRAMES WEB DEPTH > 4'- 0"	Issue Date: 10/03 Revision Date: Plate Number: 4.3.3



Notes:

1. Bolt holes in angles and gusset plates shall be 15/16" diameter (standard) for 7/8" dia. bolts. Bolt holes in transverse intermediate stiffener or connection plates shall be 1 1/16" diameter (oversized).

2. Two bolts per connection shall be used.

3. Gusset plates shall be square or rectangular.

DESIGN INFORMATION

4. Designer may detail narrower stiffeners or connection plates with gusset plates, wider stiffeners or connection plates with angles connected directly thereto.

5. Dimensions A and B shall be the same for each girder. Cross frames shall be as deep as practical

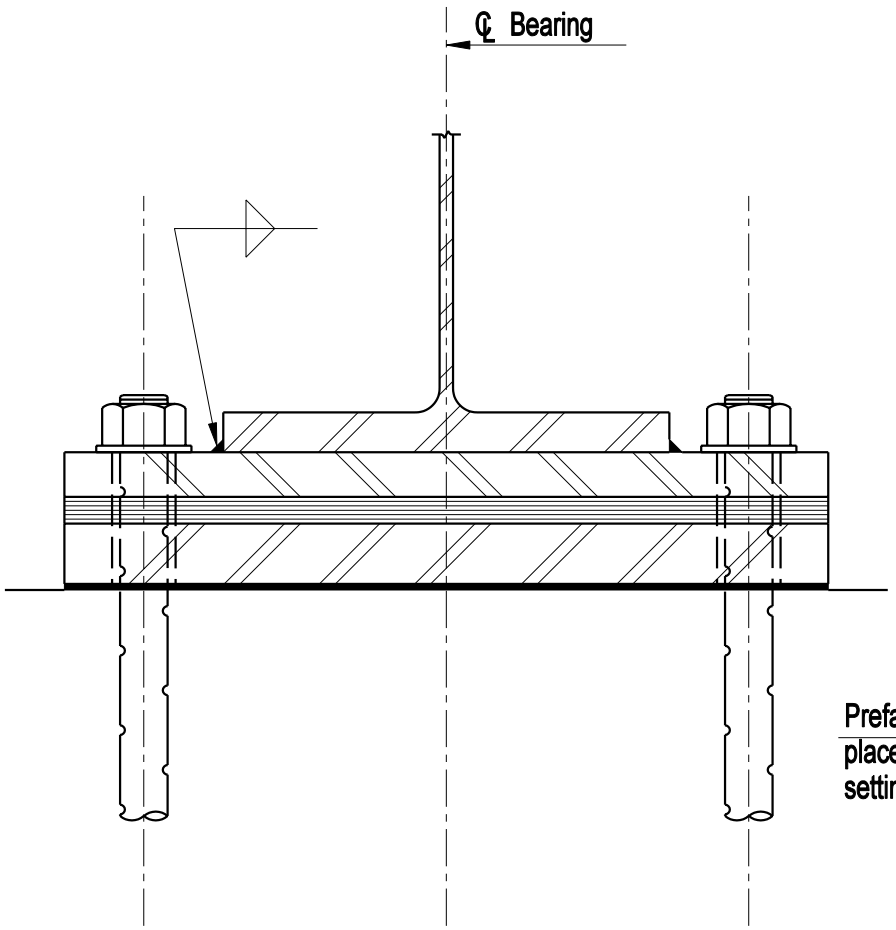
6. For connection and stiffener plate details, see Plate Nos. 4.2.2, and 4.2.4.

7. For clip and weld termination details, see Plate No. 4.2.2.

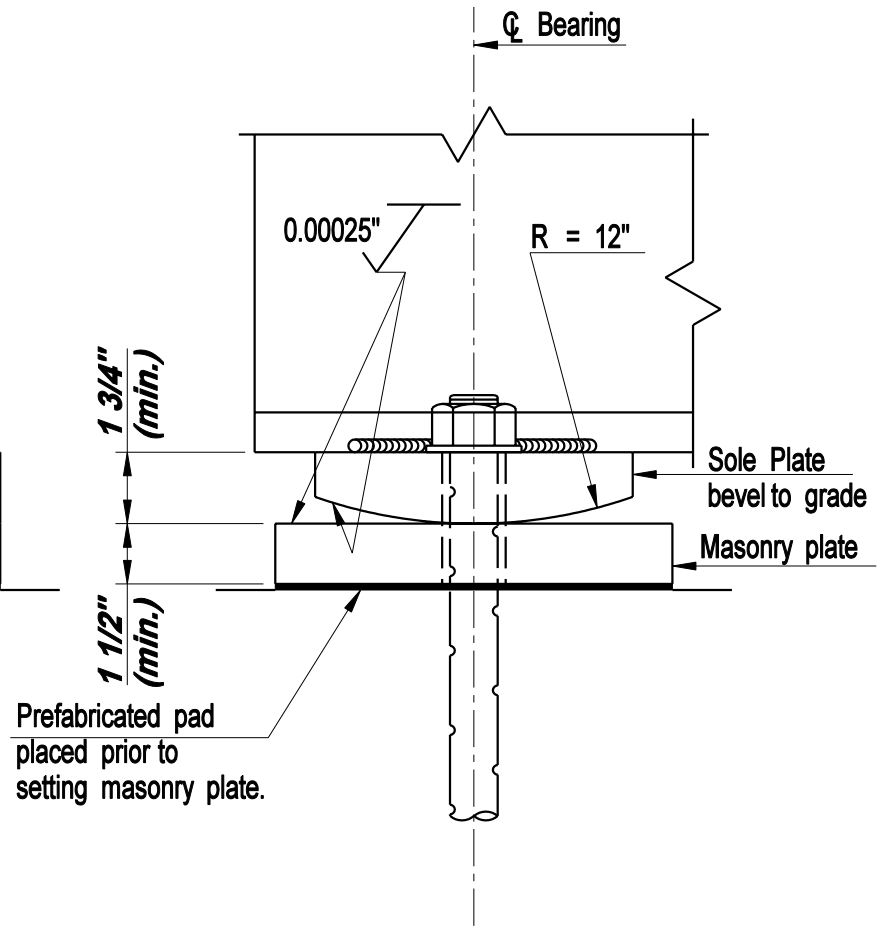
8. Angles to be sized by designer.

CONNECTICUT BRIDGE DESIGN MANUAL	INTERMEDIATE CROSS FRAMES WEB DEPTH > 4'- 0"	Issue Date: 10/03 Revision Date: Plate Number: 4.3.4

FIXED BEARING



SECTION



ELEVATION

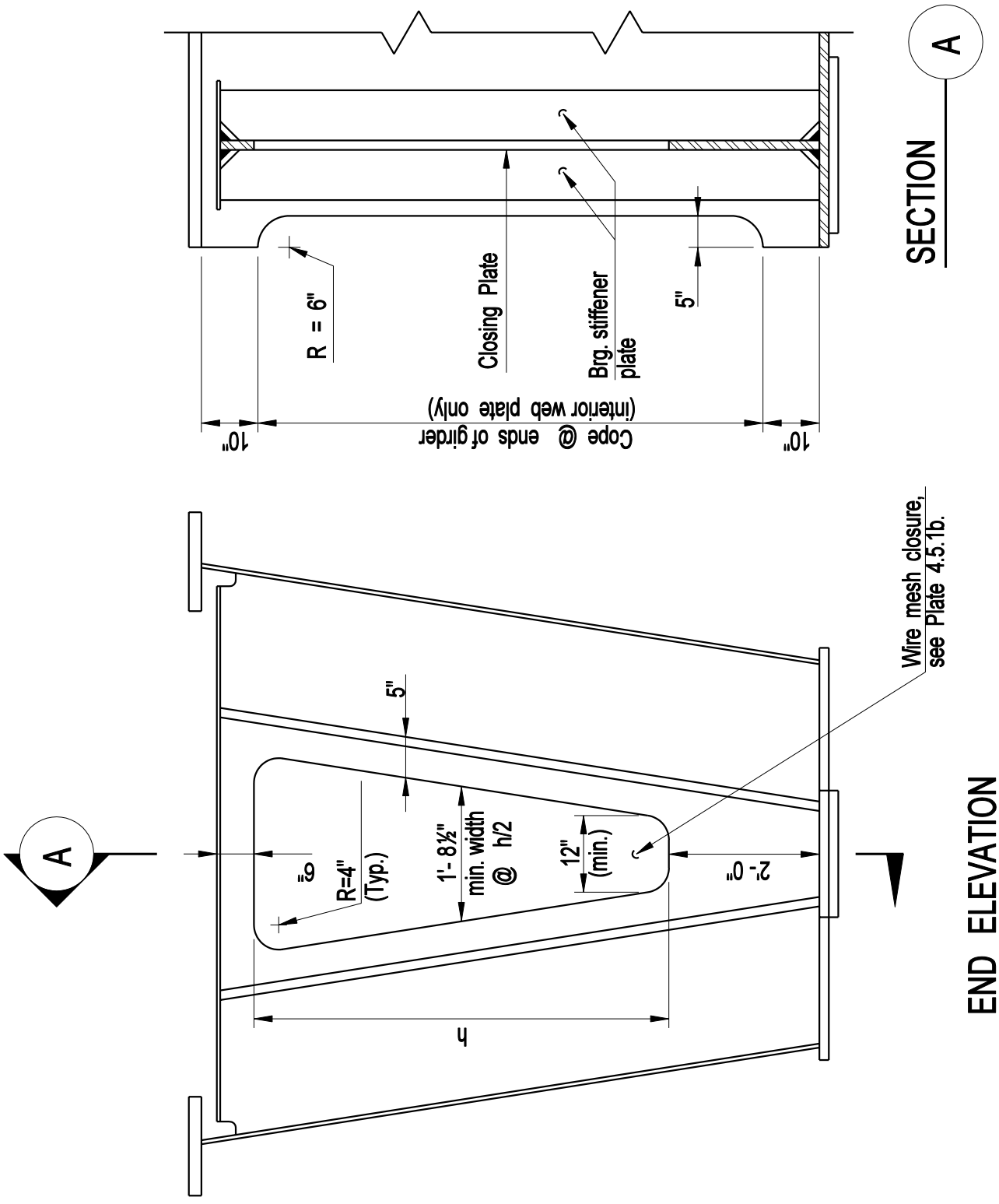
NOTES:

1. Nut to be drawn up finger tight then backed off 1/8th turn and threads of anchor bolt burred off at face of nut with a pointed tool.

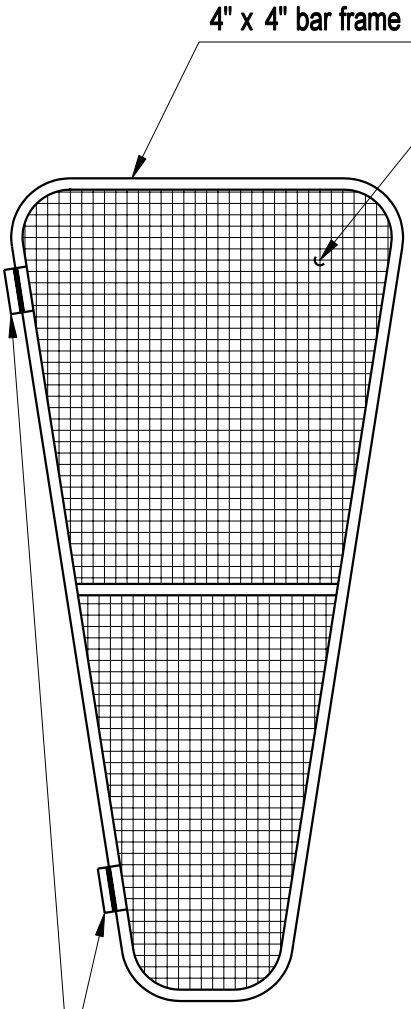
2. All steel bearings shall conform to AASHTO M270, Grade 50.

NOTES:

3. This type of bearing is to be used for fixed end of spans under 130'- 0".

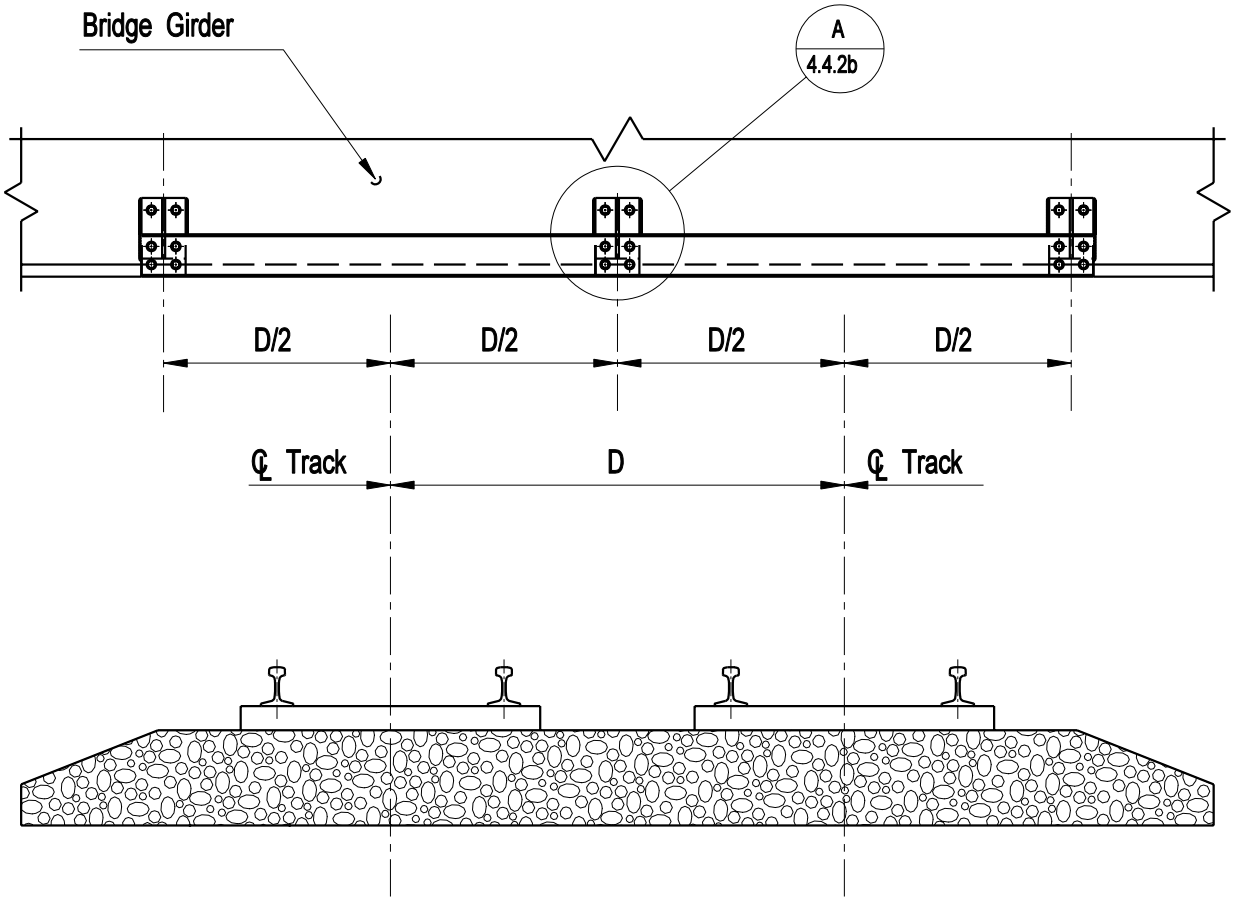


CONNECTICUT BRIDGE DESIGN MANUAL	STEEL BOX GIRDER END DIAPHRAGM ACCESS DETAILS	Issue Date: 10/03 Revision Date: Plate Number: 4.5.1a



WIRE MESH CLOSURE

CONNECTICUT BRIDGE DESIGN MANUAL	STEEL BOX GIRDER END DIAPHRAGM ACCESS DETAILS	Issue Date: 10/03 Revision Date: Plate Number: 4.5.1b



DESIGN INFORMATION

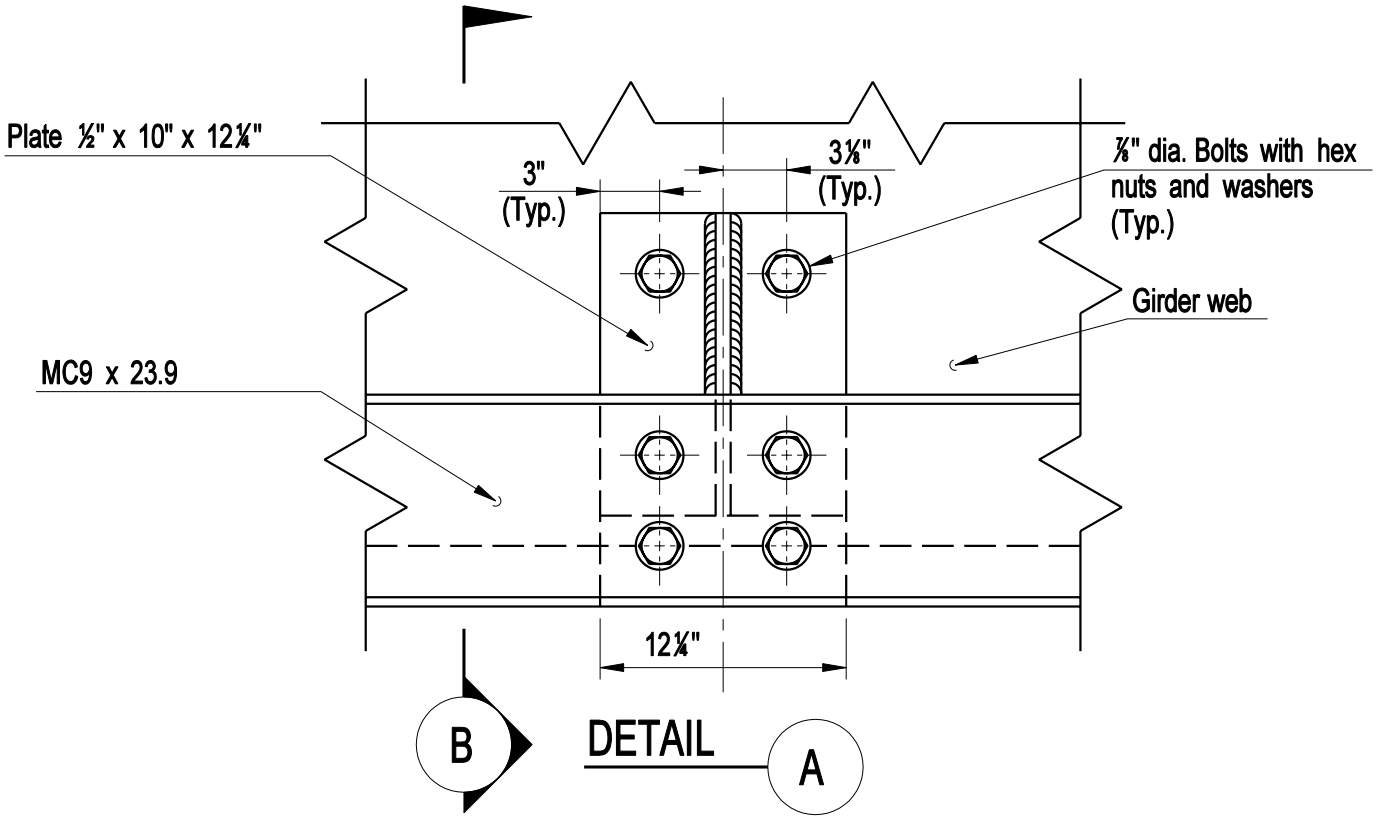
1. ***The information shown should be used only as a guide and must be reviewed by the Railroad prior to its use.***

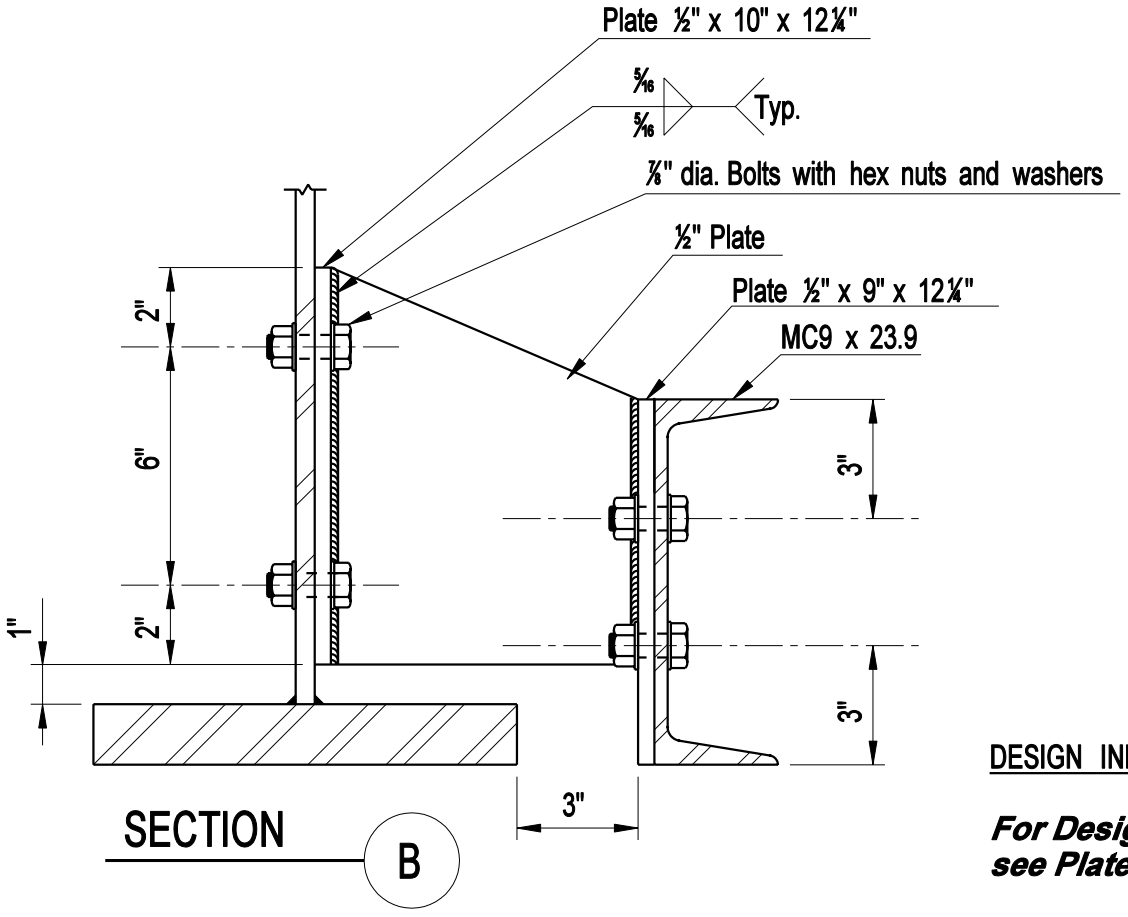
2. ***The bottom elevation of the channel is to be at the same elevation as the bottom of the girder.***

3. ***All steel shall be ASTM A709 Grade 50 unless the bridge is to be made of weathering steel. In this case all steel shall be ASTM A709 Grade 50W.***

4. ***All bolts used with ASTM A709 Grade 50 steel shall be 7/8" dia. ASTM A325. Bolts used with ASTM A709 Grade 50W steel shall be 7/8" dia. ASTM A325 Type 3.***

CONNECTICUT BRIDGE DESIGN MANUAL	CATENARY CONNECTION DETAIL FOR BRIDGES OVER ELECTRIFIED RAILROADS	Issue Date: 10/03 Revision Date: Plate Number: 4.5.2a





SECTION B

DESIGN INFORMATION

For Design information, see Plate 4.5.2a

CONNECTICUT BRIDGE DESIGN MANUAL	CATENARY CONNECTION DETAIL FOR BRIDGES OVER ELECTRIFIED RAILROADS	Issue Date: 10/03 Revision Date: Plate Number: 4.5.2b