

BOX BEAM FABRICATION
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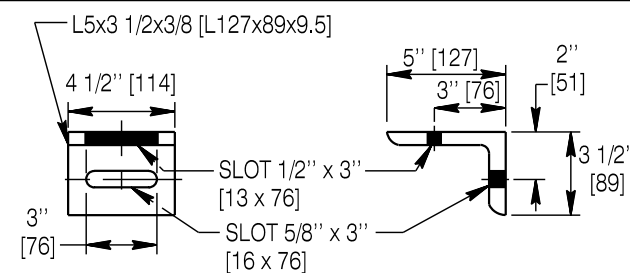
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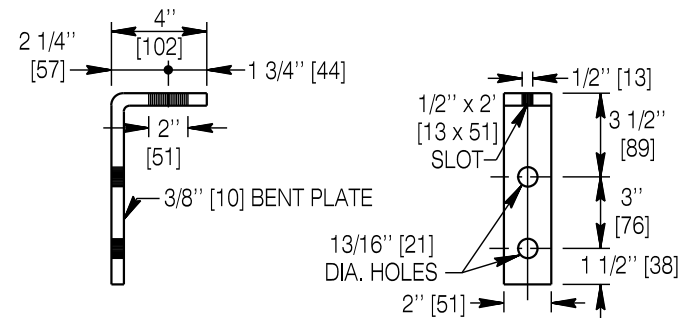
MPN [] = Maintenance Part Number



B1 STANDARD BOX BEAM SUPPORT ANGLE

USE (1) - (P1) BOLT AND EITHER (1) - (R7) BOLT FOR HSS 6x6 [HSS 152x152] RAIL OR (1) - (R3) BOLT FOR HSS 6x2 [HSS 152x51] RAIL

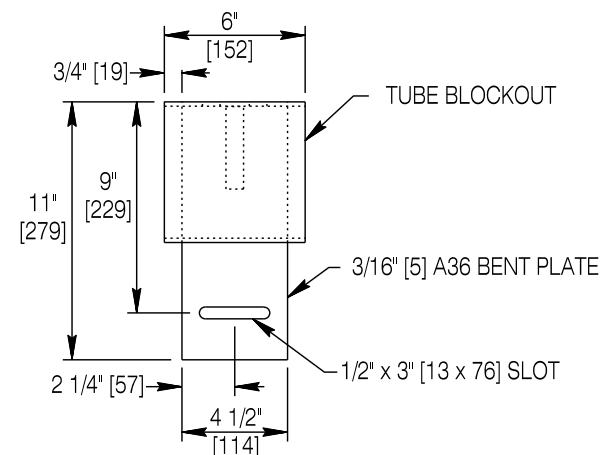
MPN 101278



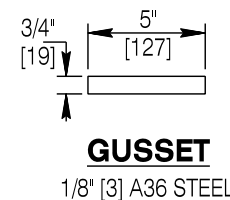
B2 MEDIAN BARRIER SUPPORT BRACKET

USE (2) - (M1) & (1) - (R7) BOLTS

MPN 101246

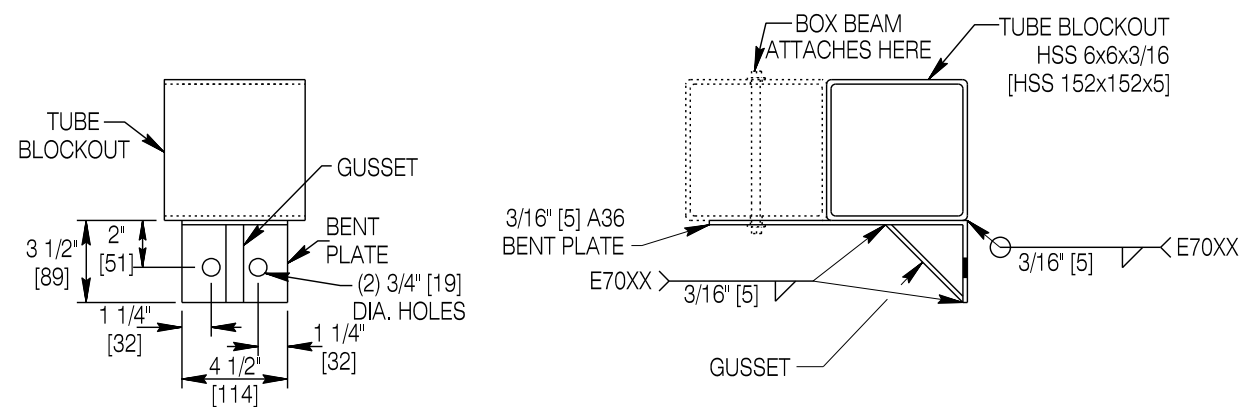


TOP VIEW



GUSSET

1/8" [3] A36 STEEL



FRONT VIEW

SIDE VIEW

B8 TRANSITION C & D RAIL SUPPORT BRACKET DETAIL

5 REQUIRED PER TRANSITION
FOR POSTS T3, T4, T5, T6, T7

BOLT REQUIREMENTS

3/4" A307 HEX BOLTS (TYP. MEDIAN POST BOLT)

(M1) 3/4" x 1 1/2" [19 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

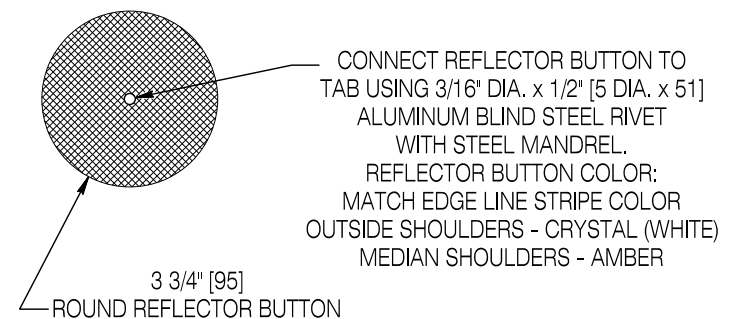
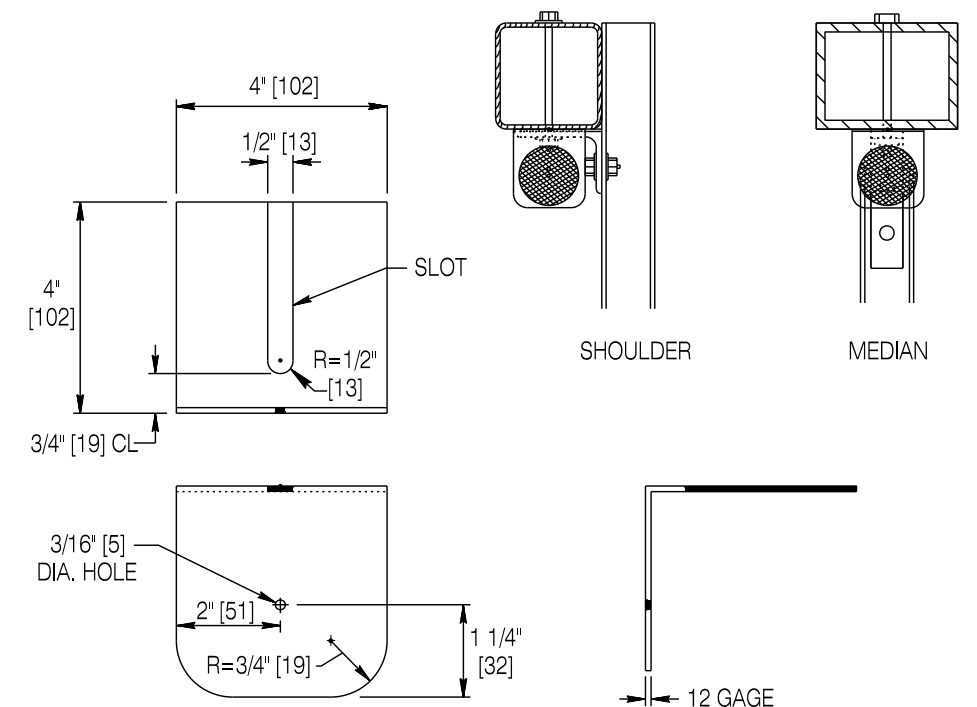
1/2" A307 HEX BOLTS (TYP. POST)

(P1) 1/2" x 1 1/2" [13 x 40] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

3/8" A307 HEX BOLTS (TYP. RAIL BOLT)

(R3) 3/8" x 3 1/2" [10 x 90] (A307) + 2 WASHERS (F844) + 1 NUT (A563)

(R7) 3/8" x 7 1/2" [10 x 190] (A307) + 2 WASHERS (F844) + 1 NUT (A563)



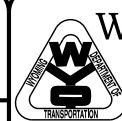
REFLECTOR TAB DETAIL

Manufacture reflector tabs from 12 gage [2.8 thick] steel. Place a reflective tab on every fourth post for standard runs of box beam & 2 tabs (one each direction) for box beam median barrier. Place a standard bolt washer under the head and nut.

Designed by: WBW
Drawn by: JK
Checked by: WBW
Previous Dwg. No. 606-7

STANDARD HARDWARE -
RAIL/POST ATTACHMENTS AND REFLECTOR TABS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



WYOMING DEPARTMENT
OF
TRANSPORTATION



BOX BEAM GUARDRAIL FABRICATION STANDARDS

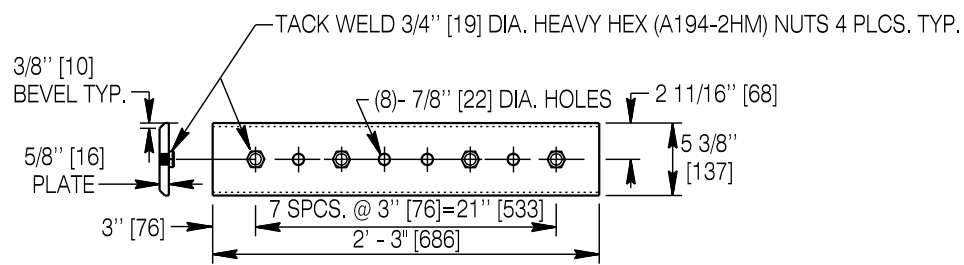
STANDARD PLAN

STANDARD PLAN NUMBER

606-7A

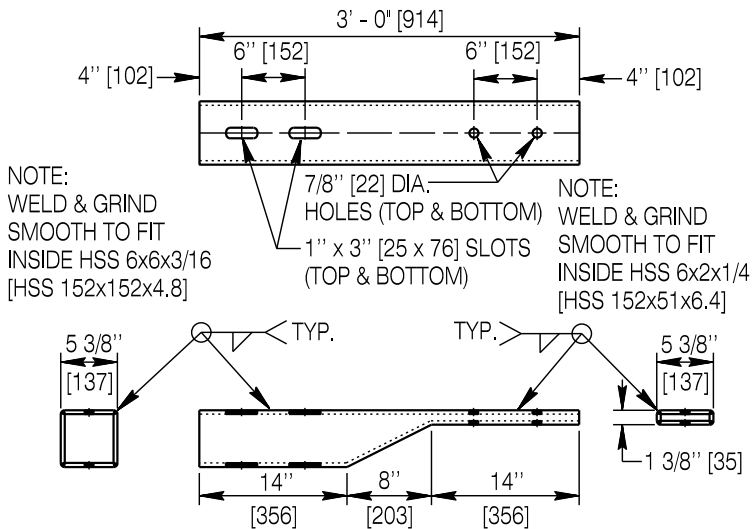
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Date Issued: JULY 2015



C1 STANDARD BOX BEAM SPLICE PLATE

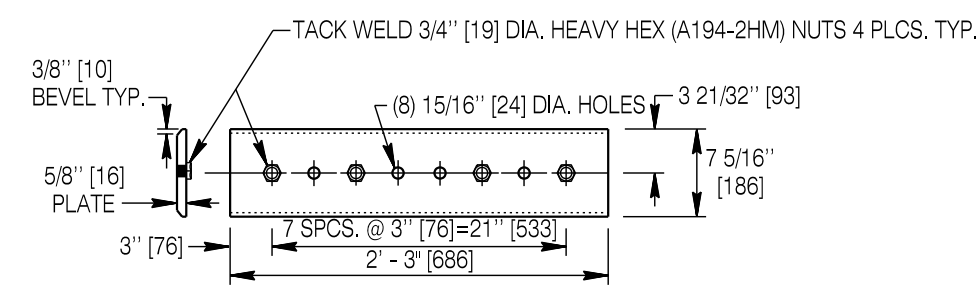
(Use 2 per splice)
USE (4) - (HS2) BOLTS FOR EACH SPLICE PLATE
[MPN 101258]



NOTE: Fabricate sleeve from 3/8" [10] A36 steel. Cut top & side walls to shape. Bend bottom wall as shown.

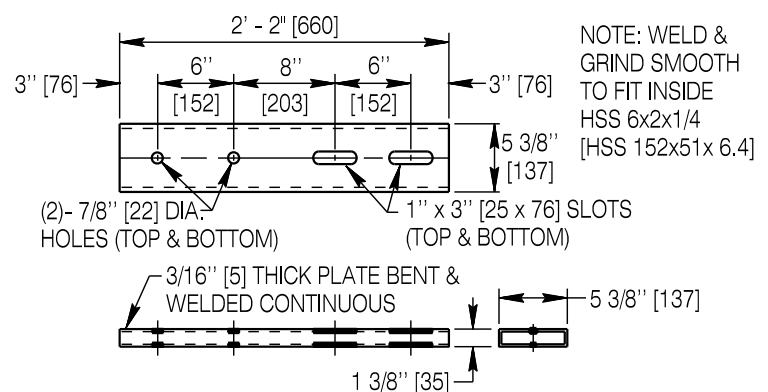
C3 UPPER BRIDGE RAIL CONNECTION SLEEVE

USE (2) - (HS3) & (2) - (HS8) BOLTS [MPN 101287]



C2 STANDARD BOX BEAM MEDIAN BARRIER SPLICE PLATE

(Use 2 per splice)
USE (4) - (HS2) BOLTS FOR EACH SPLICE PLATE
[MPN 101292]

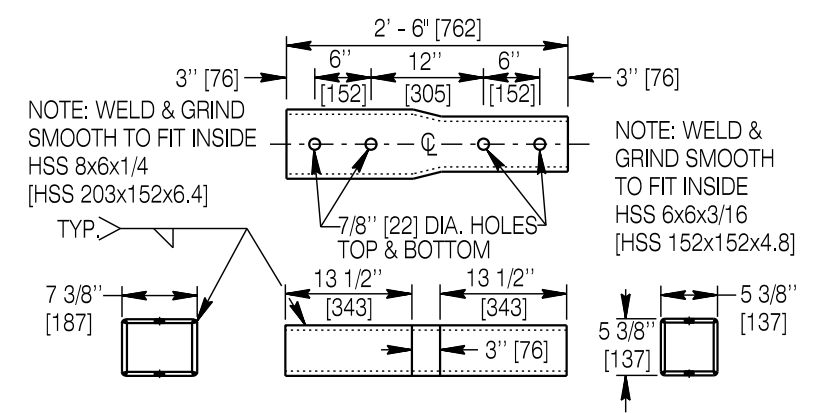


C4 LOWER BRIDGE RAIL CONNECTION SLEEVE

USE (4) - (HS3) BOLTS [MPN 100241]

BOLT REQUIREMENTS

3/4" A325 HIGH STRENGTH HEAVY HEX BOLTS (TYP. SPLICE BOLT)	
(HS2)	3/4" x 2" [19 x 50] (A325) + 1 HARDENED WASHER (F436)
(HS3)	3/4" x 3 1/2" [19 x 90] (A325) + 2 HARDENED WASHERS (F436) + 1 NUT (A194-2HM)
(HS8)	3/4" X 8" [19 X 205] (A325) + 2 HARDENED WASHERS (F436) + NUT (A194-2HM)



NOTE: Fabricate sleeve from 3/8" [10] A36 steel. Cut each top & bottom wall from continuous steel plate. Weld side walls at all junctions.

C5 MEDIAN BARRIER CONNECTION SLEEVE

USE (4) - (HS8) BOLTS [MPN 101323]

Designed by: WVBW
Drawn by: JK
Checked by: WVBW
Previous Dwg. No. 606-7

STANDARD HARDWARE - RAIL SPLICES

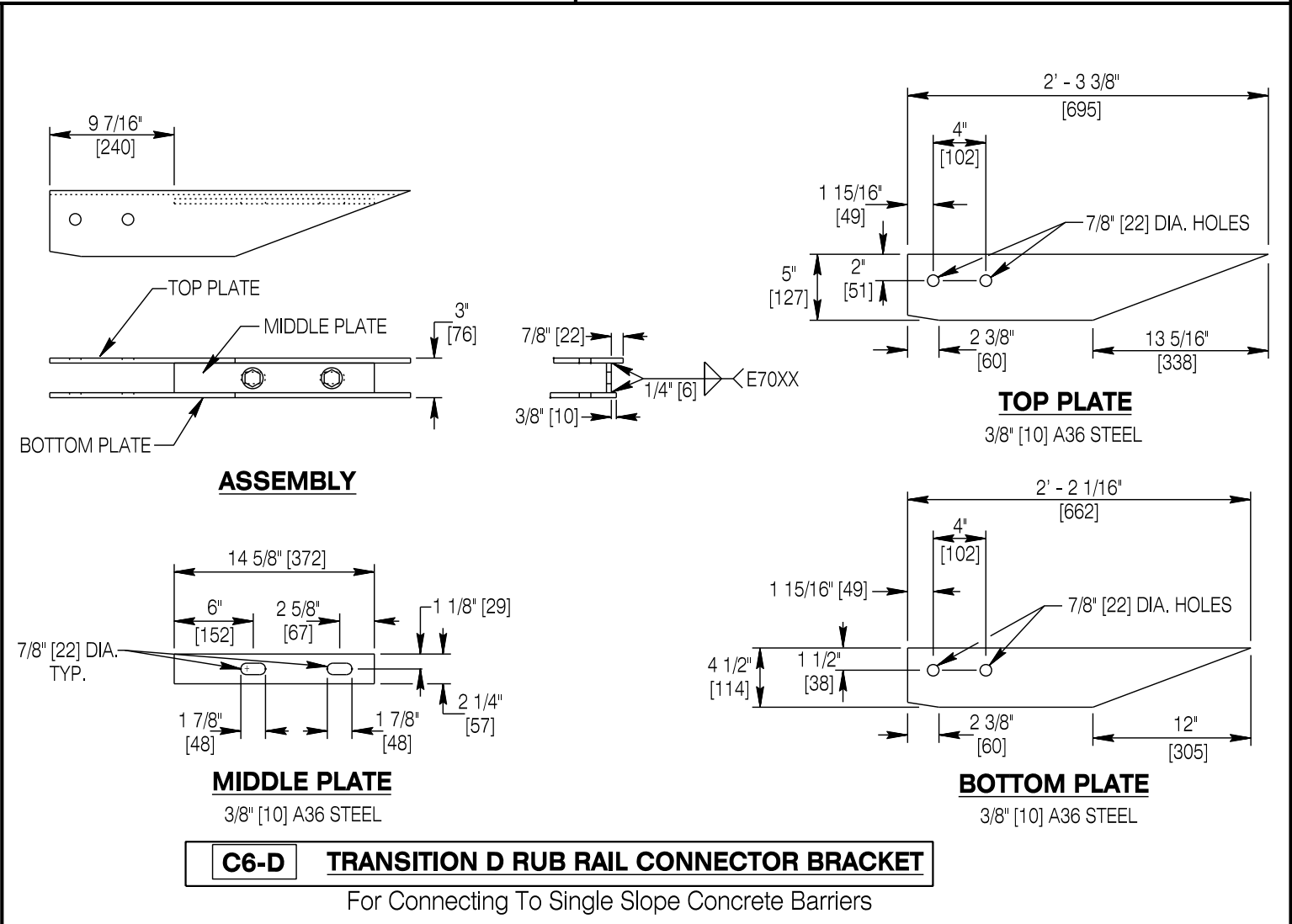
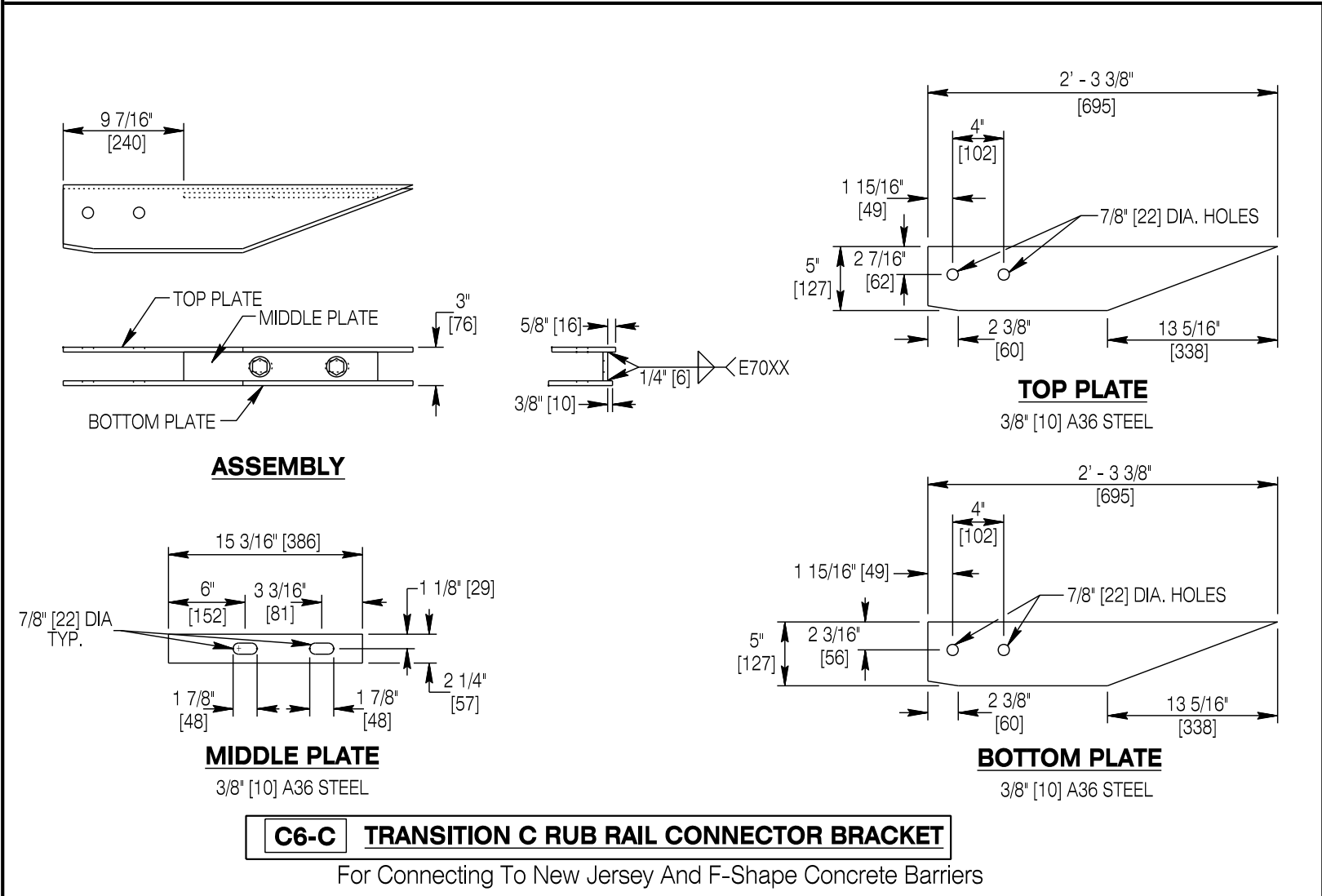
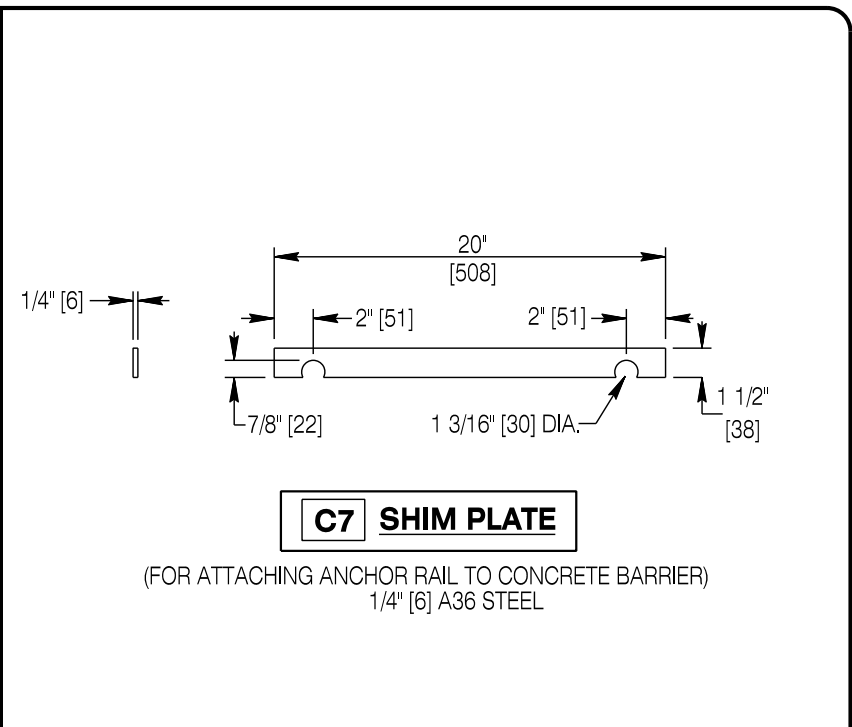
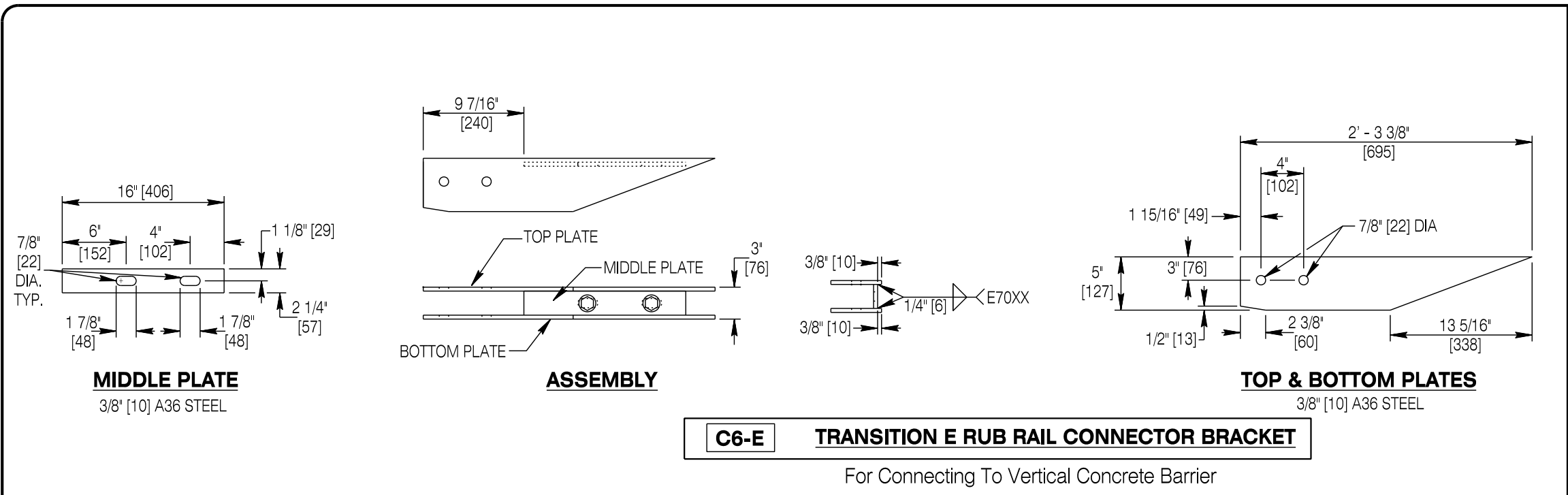
Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.

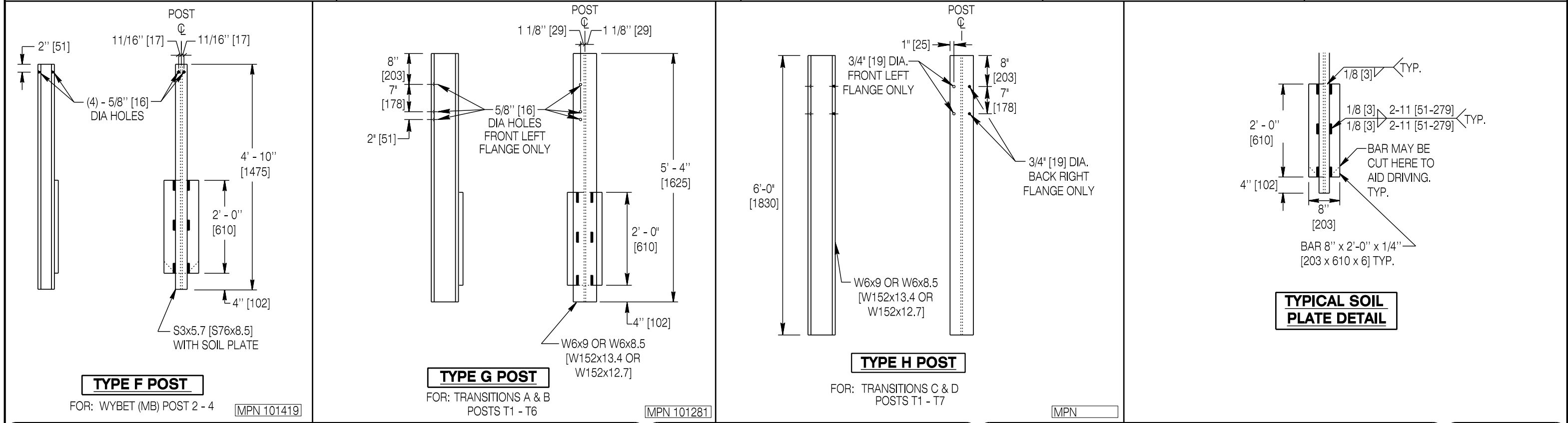
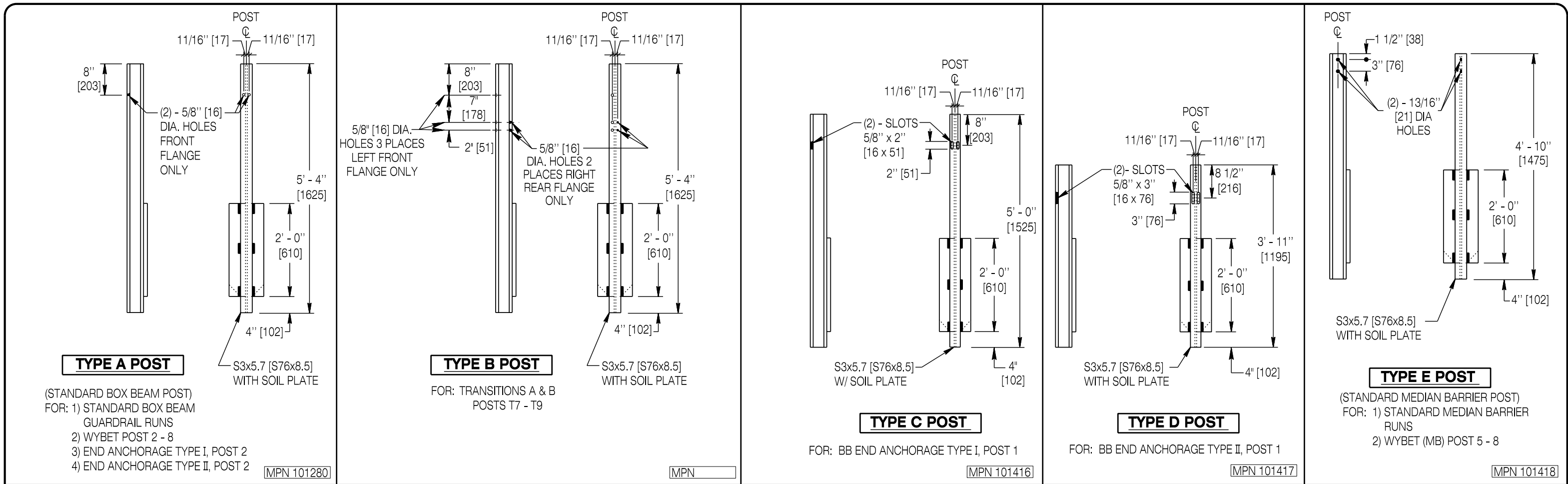


BOX BEAM GUARDRAIL FABRICATION STANDARD

STANDARD PLAN

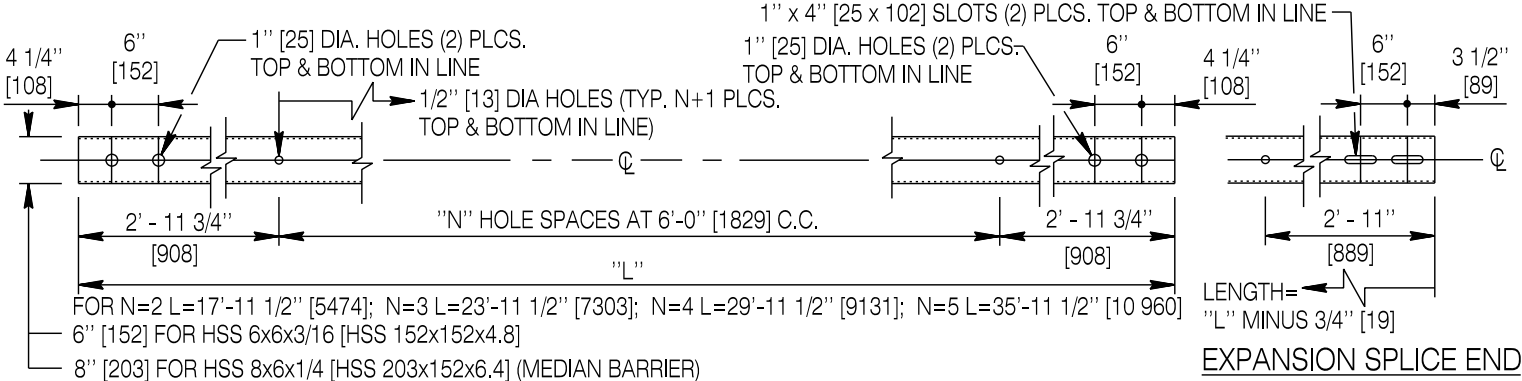
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Issued by: ENGINEERING SERVICES
Date Issued: JULY 2015





GENERAL FABRICATION NOTES

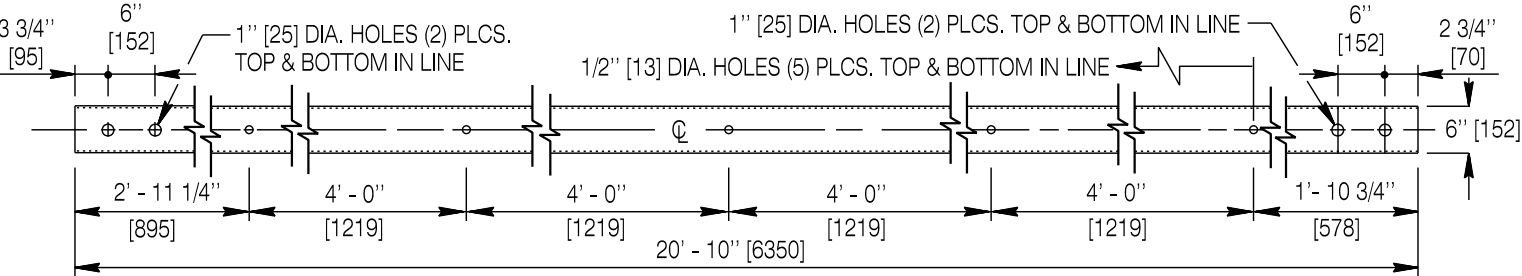
- 1. Galvanize all steel components after fabrication (including welding) is complete.
- 2. Typical rail elements are depicted here. Use standard rail elements wherever possible; certain guardrail layouts may require specially fabricated components.
- 3. Ensure a minimum nominal rail length of 18 ft. [5485] unless otherwise approved by the engineer.



STANDARD RAIL ELEMENTS (6'-0" [1829] POST SPACING) FOR:

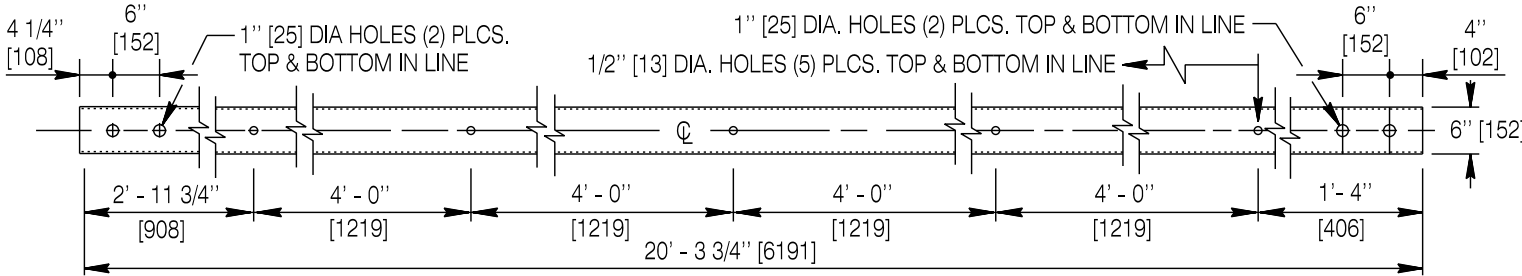
- 1) BOX BEAM GUARDRAIL HSS 6x6x3/16 [HSS 152x152x4.8]
- 2) BOX BEAM MEDIAN BARRIER (MB) HSS 8x6x1/4 [HSS 203x152x6.4]

MPN 101241



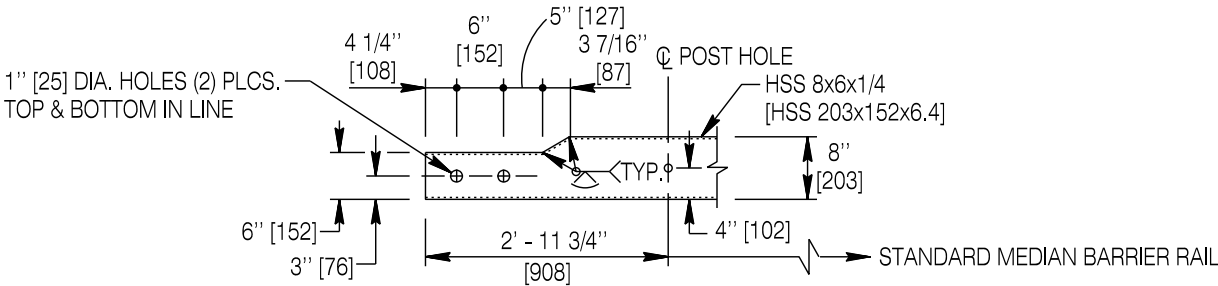
BRIDGE RAIL CONNECTION - TRANSITION SECT. (1st LOWER TUBE) HSS 6x2x1/4 [HSS 152x51x6.4]

MPN



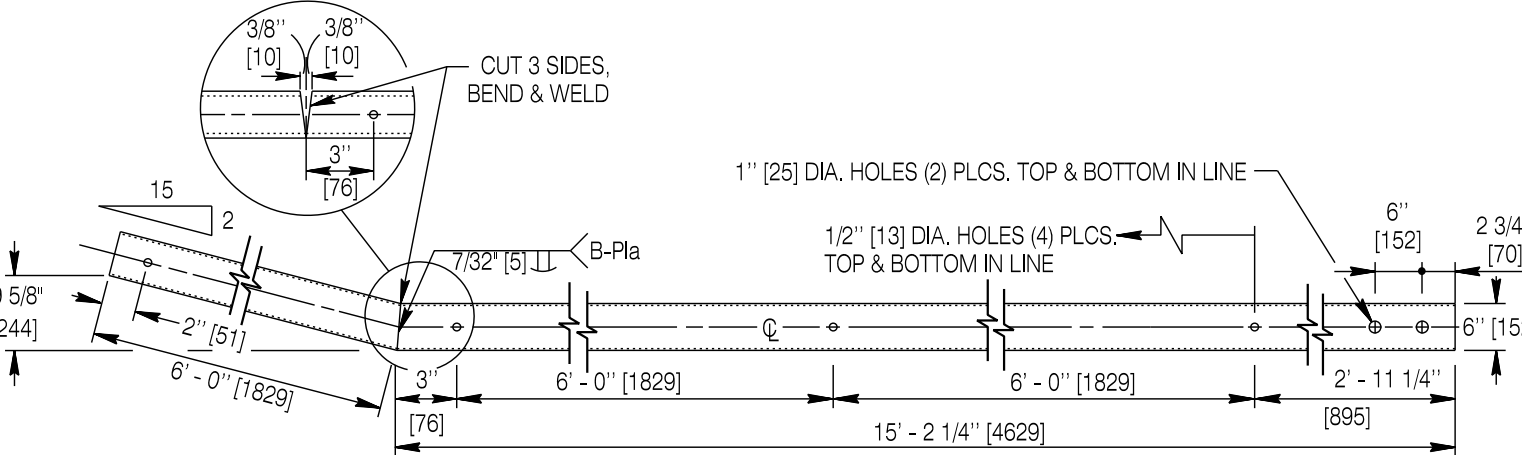
BRIDGE RAIL CONNECTION - TRANSITION SECT. (1st UPPER TUBE) HSS 6x6x3/16 [HSS 152x152x4.8]

MPN 100242



EXIT END BRIDGE CONNECTION DETAIL FOR MEDIAN BARRIER RAIL

(ONE-WAY TRAFFIC BRIDGES ONLY)



BRIDGE RAIL CONNECTION - TRANSITION SECT. (FLARED LOWER TUBE) HSS 6x2x1/4 [HSS 152x51x6.4]

MPN 100265

Designed by: WVBW
Drawn by: JK
Checked by: WVBW
Previous Dwg. No. 606-7

STANDARD POST & RAIL ELEMENTS -
GUARDRAIL RAIL ELEMENTS, TRANSITION A & B RAIL ELEMENTS

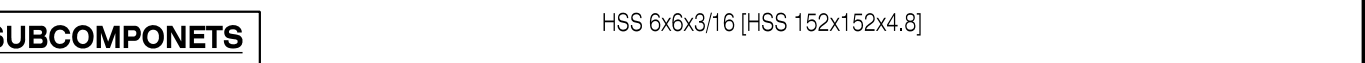
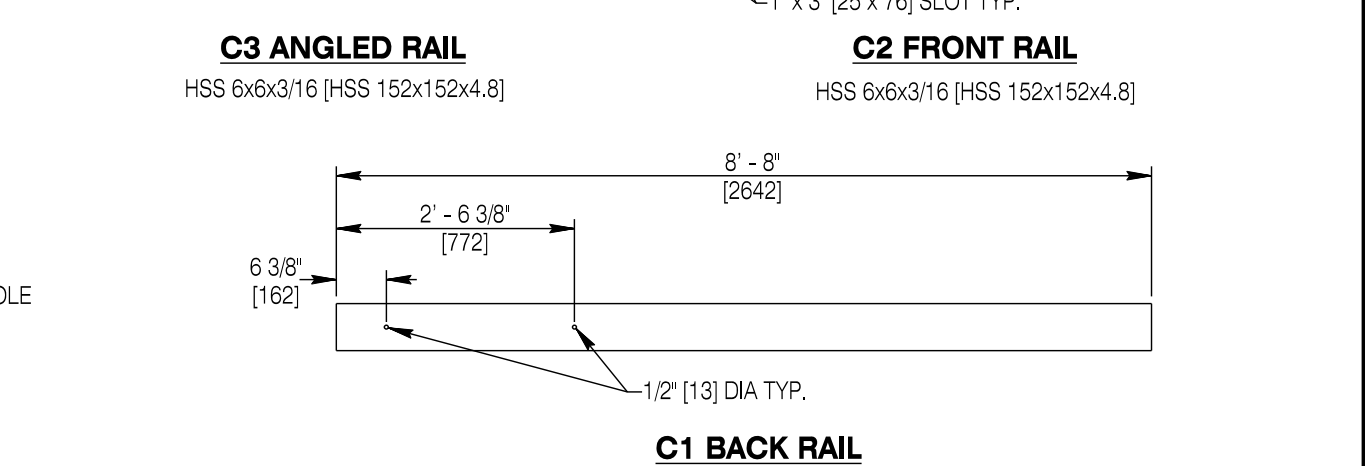
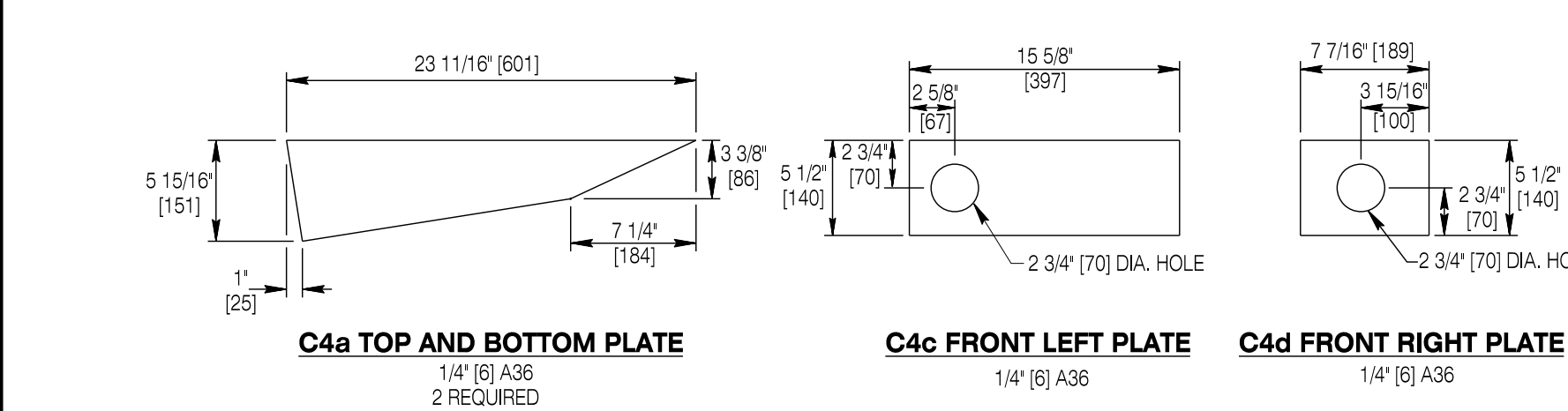
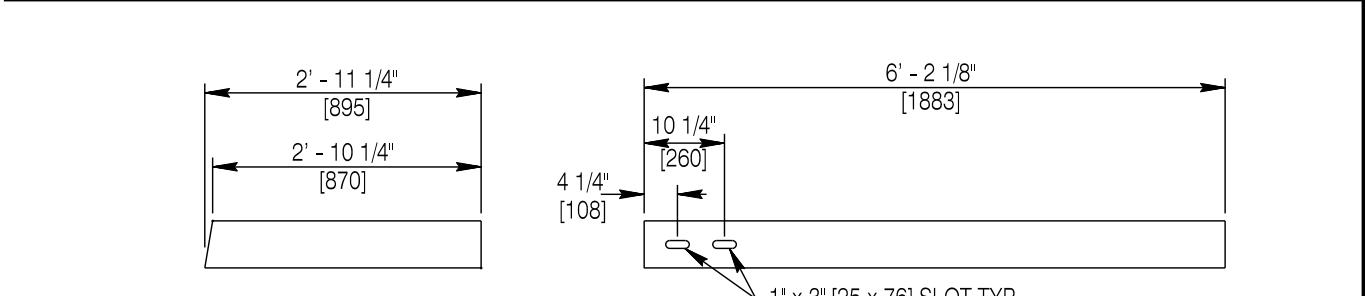
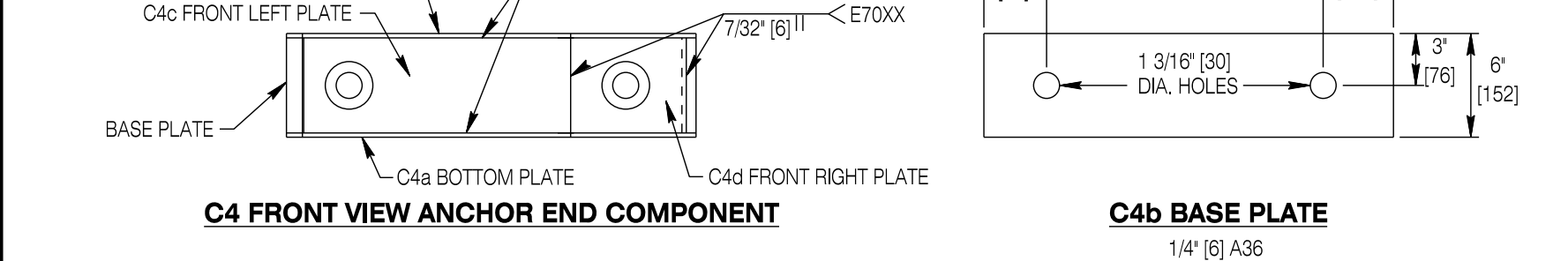
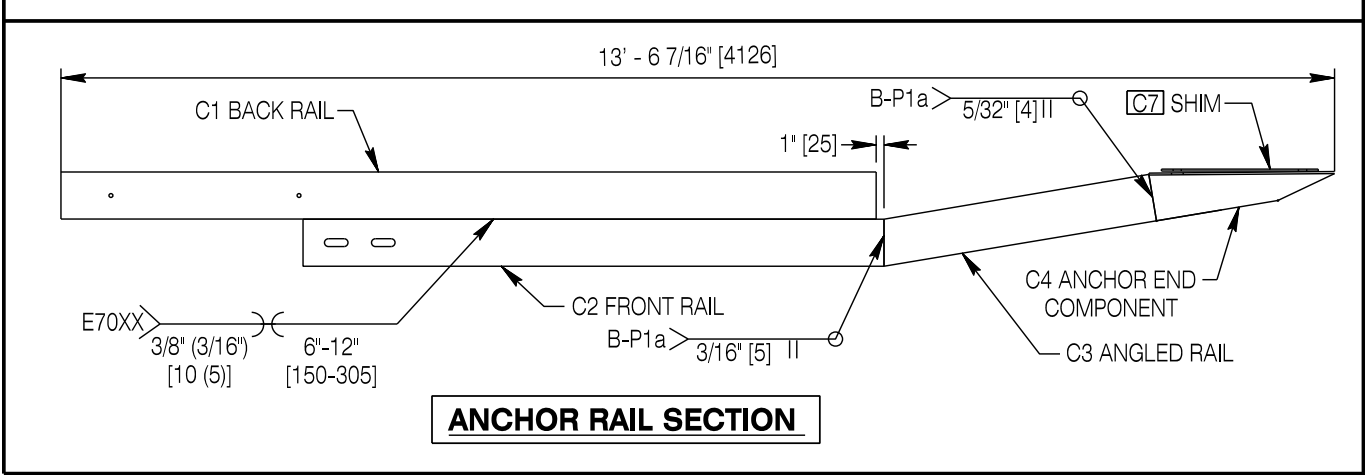
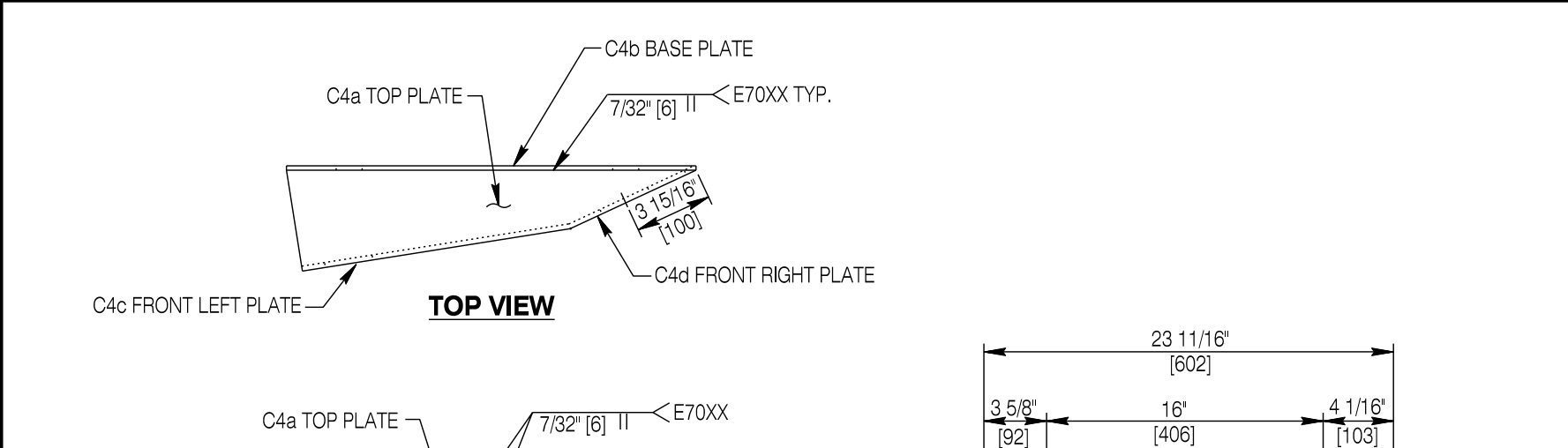
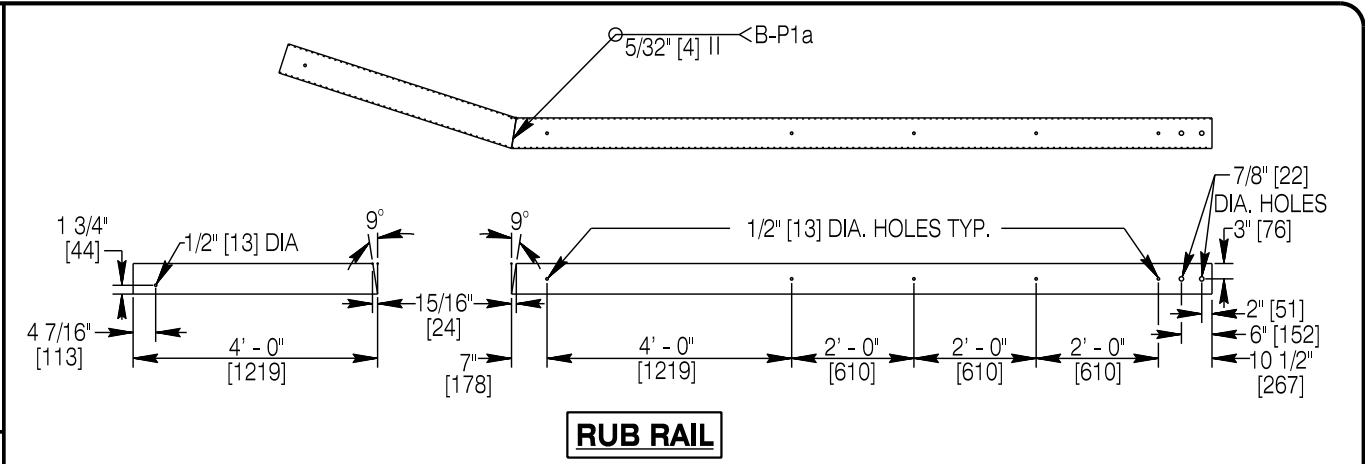
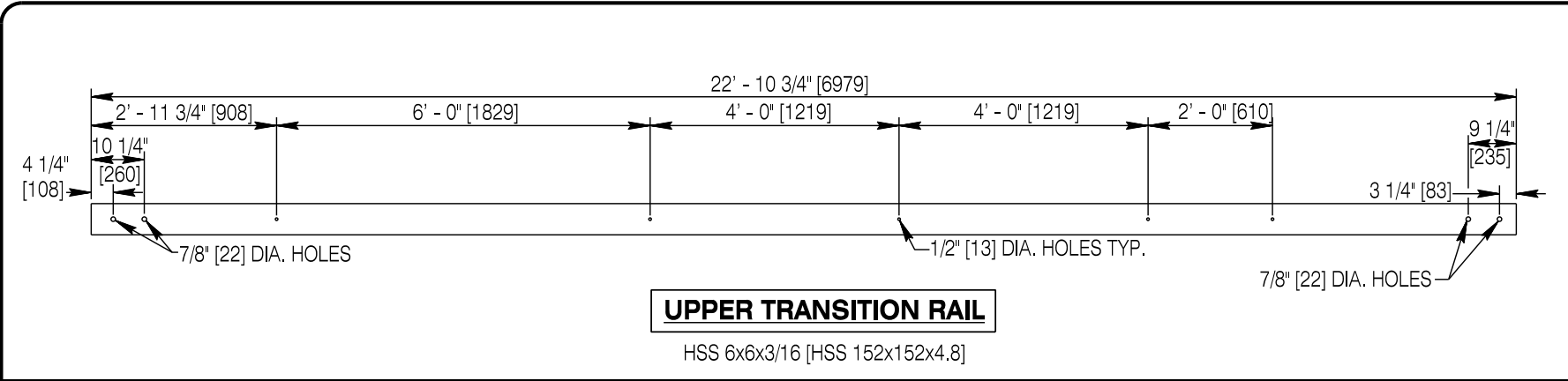
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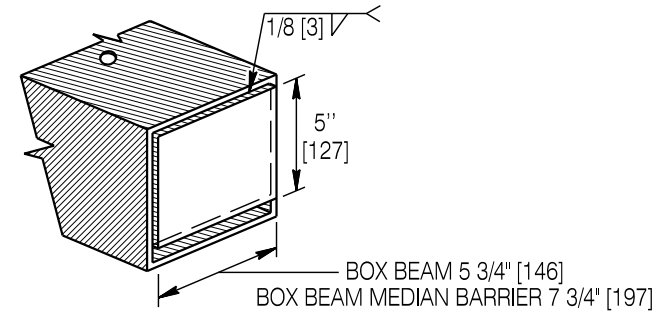
BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

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Date Issued: JULY 2015

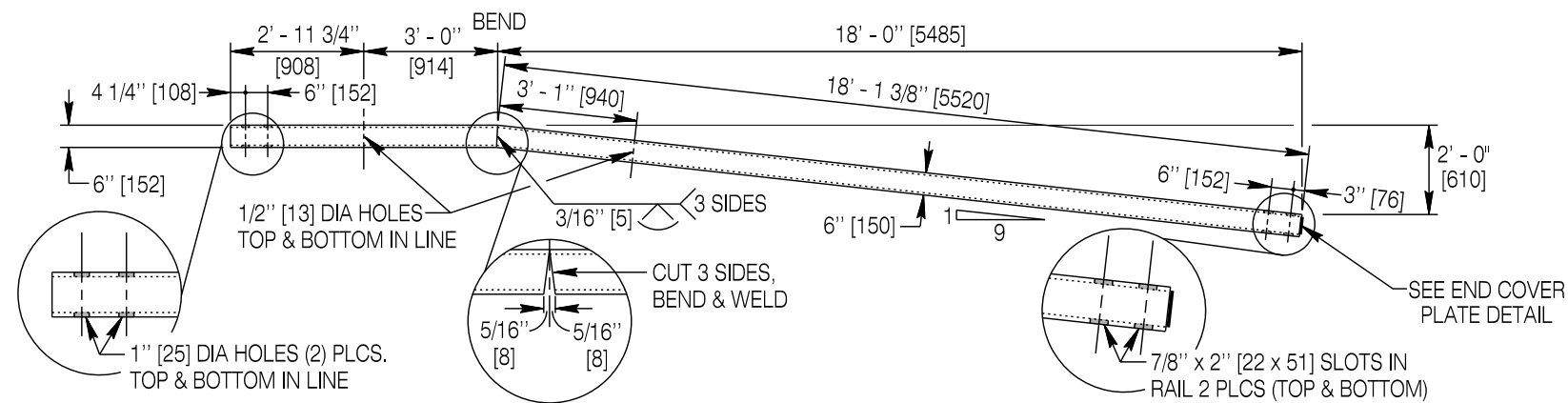


ANCHOR RAIL SUBCOMPONENTS



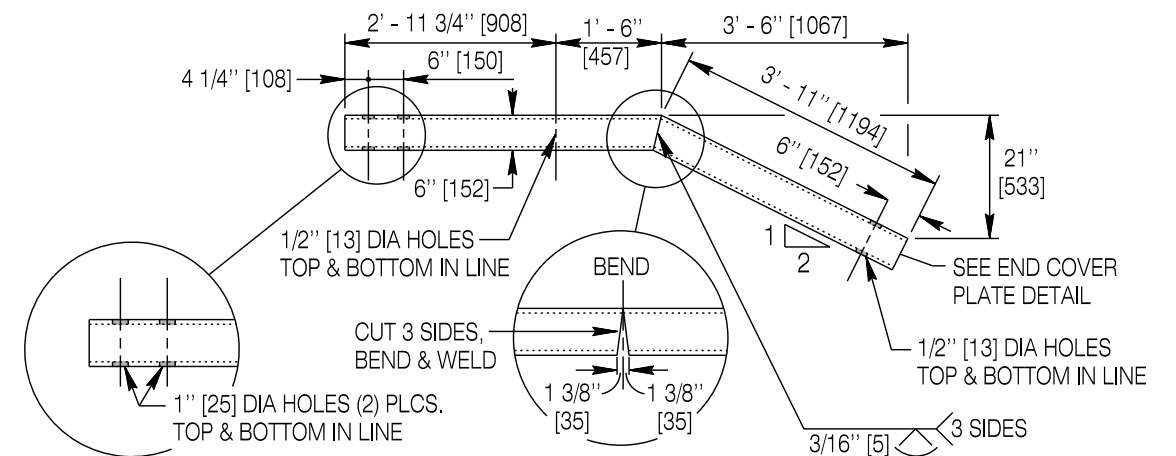
END COVER PLATE DETAIL

1/8" [3] THICK A36 STEEL



END ANCHORAGE TYPE I -

BOX BEAM GUARDRAIL - HSS 6x6x3/16 [HSS 152x152x4.8] [MPN 101256]
BOX BEAM MEDIAN BARRIER - HSS 8x6x1/4 [HSS 203x152x6.4] [MPN 101262]



END ANCHORAGE TYPE II -

BOX BEAM GUARDRAIL - HSS 6x6x3/16 [HSS 152x152x4.8] [MPN 101257]
BOX BEAM MEDIAN BARRIER - HSS 8x6x1/4 [HSS 203x152x6.4] [MPN]

Designed by: WBW
Drawn by: JK
Checked by: WBW
Previous Dwg. No. 606-7

STANDARD POST & RAIL ELEMENTS -
END ANCHORAGE TYPE I & TYPE II RAIL ELEMENTS

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



WYOMING DEPARTMENT
OF
TRANSPORTATION



BOX BEAM GUARDRAIL FABRICATION STANDARD

STANDARD PLAN

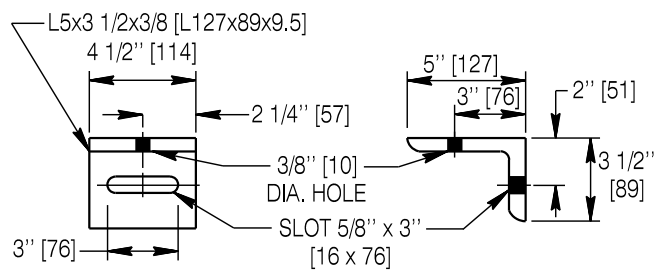
STANDARD PLAN NUMBER

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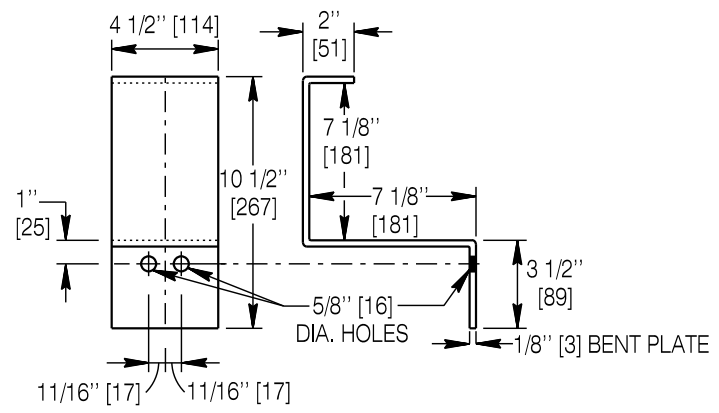
Issued by: ENGINEERING SERVICES

Date Issued: JULY 2015



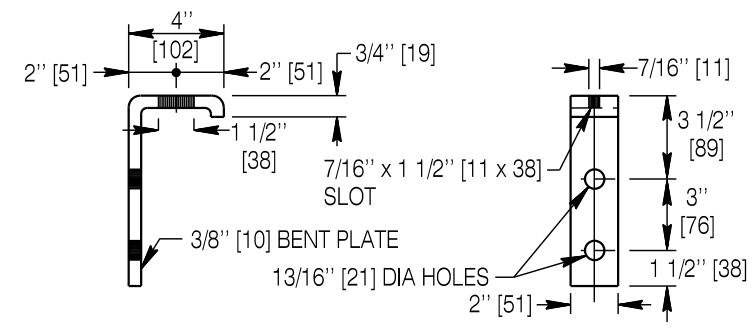
**W1 WYBET SHEAR CONNECTION
SUPPORT ANGLE**

USE (1) - (P1) & (1) - (5/16x7) BOLT PER CONNECTION
WYBET POSTS 6, 7, 8
[MPN 101424]



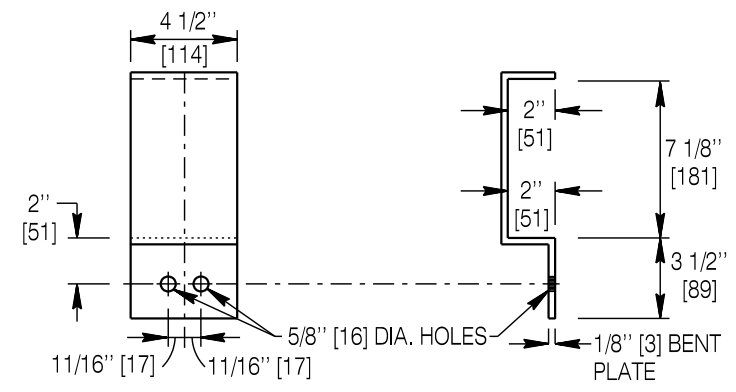
W2 WYBET OUTER RAIL SUPPORT BRACKET

USE (2) - (P1) BOLTS PER BRACKET
WYBET POSTS 2, 3, 4
[MPN 101319]



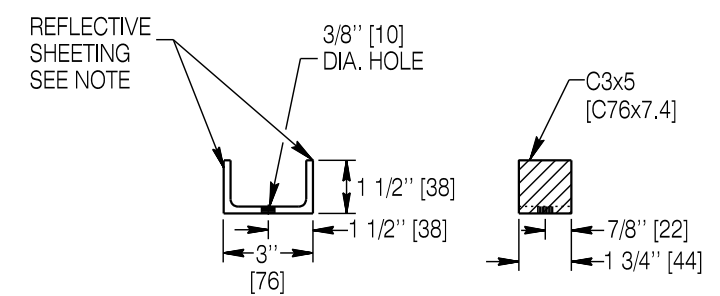
**W3 MEDIAN BARRIER WYBET SHEAR CONNECTION
SUPPORT BRACKET**

USE (2) - (M1) & (1) - (5/16x7) BOLTS
MEDIAN BARRIER WYBET POSTS 5, 6, 7, 8
[MPN 101315]



W4 WYBET (MB) OUTER RAIL SUPPORT BRACKET

(2) REQ'D PER POST
USE (2) - (P1) BOLTS PER BRACKET
MEDIAN BARRIER WYBET POSTS 2, 3, 4
[MPN 101318]



NOTE: Use reflective sheeting that is yellow for all median installations and white for all shoulder installations.

W5 WYBET SHEAR BOLT REFLECTIVE CHANNEL DETAIL

WYBET POSTS 6, 7, 8
SHARES BOLT WITH SUPPORT ANGLE
OR BRACKET
MEDIAN BARRIER WYBET POSTS 6, 7, 8
[MPN 101396]

Designed by: WBMW
Drawn by: JK
Checked by: WBMW
Previous Dwg. No.
606-7

WYBET SPECIALIZED COMPONENTS -
POST/RAIL CONNECTION HARDWARE

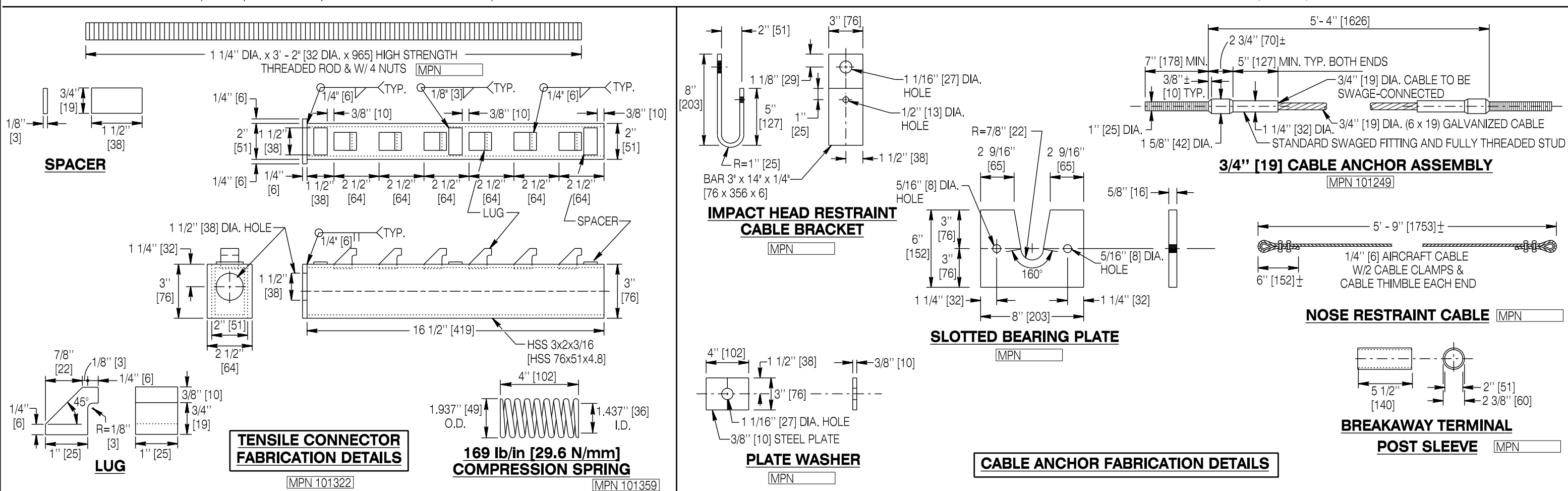
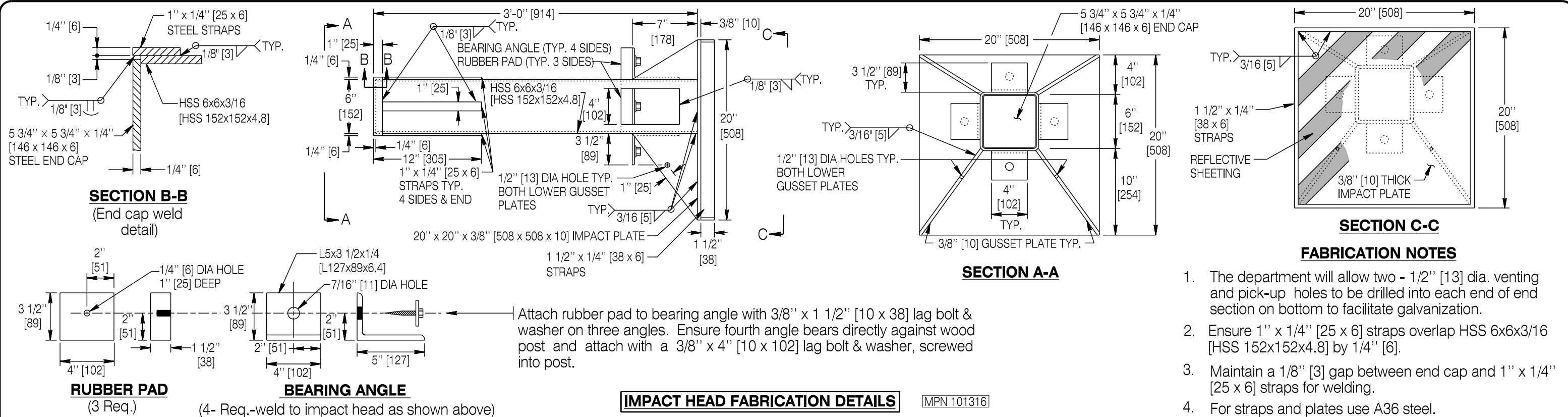
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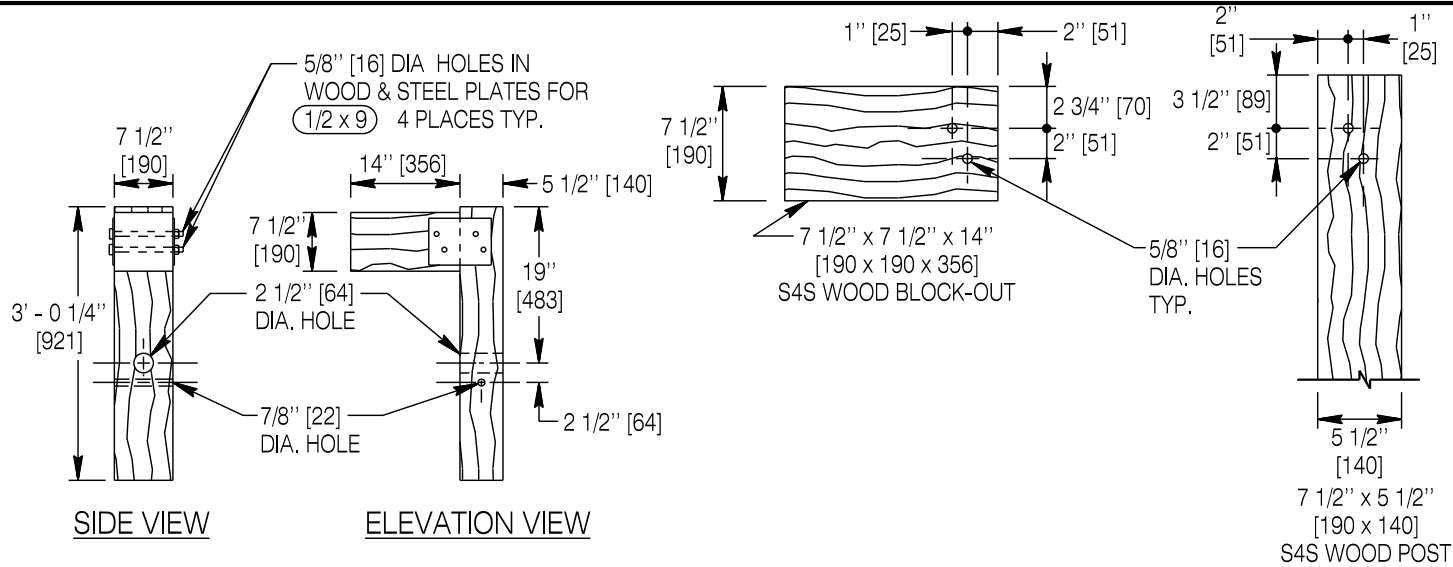
BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

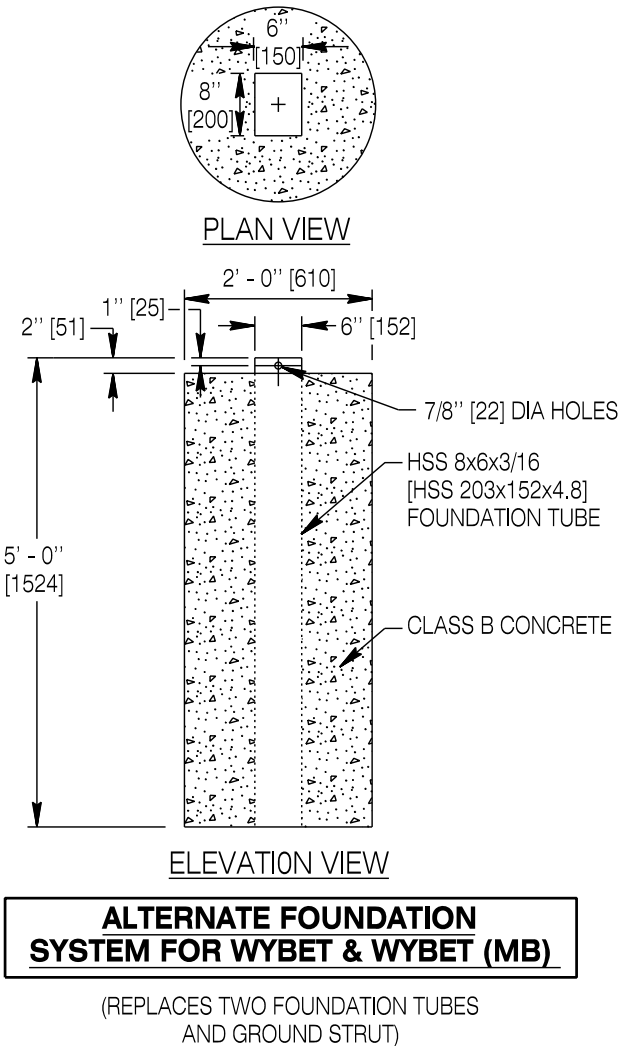
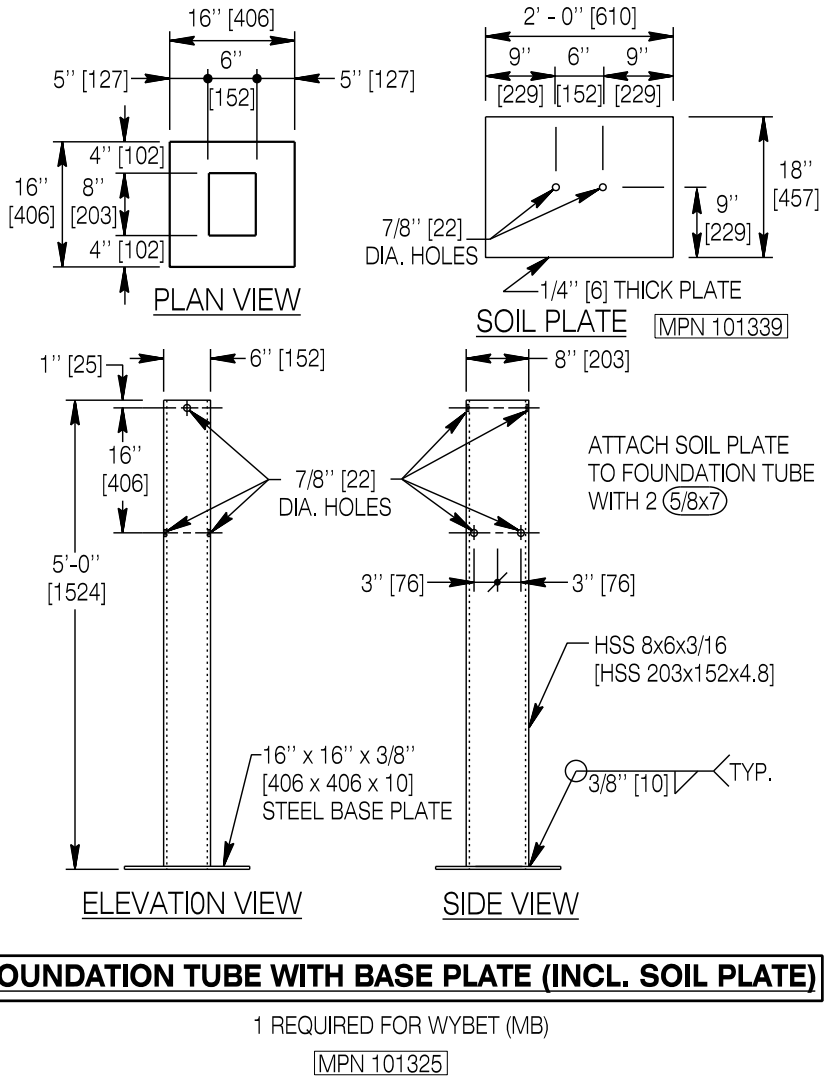
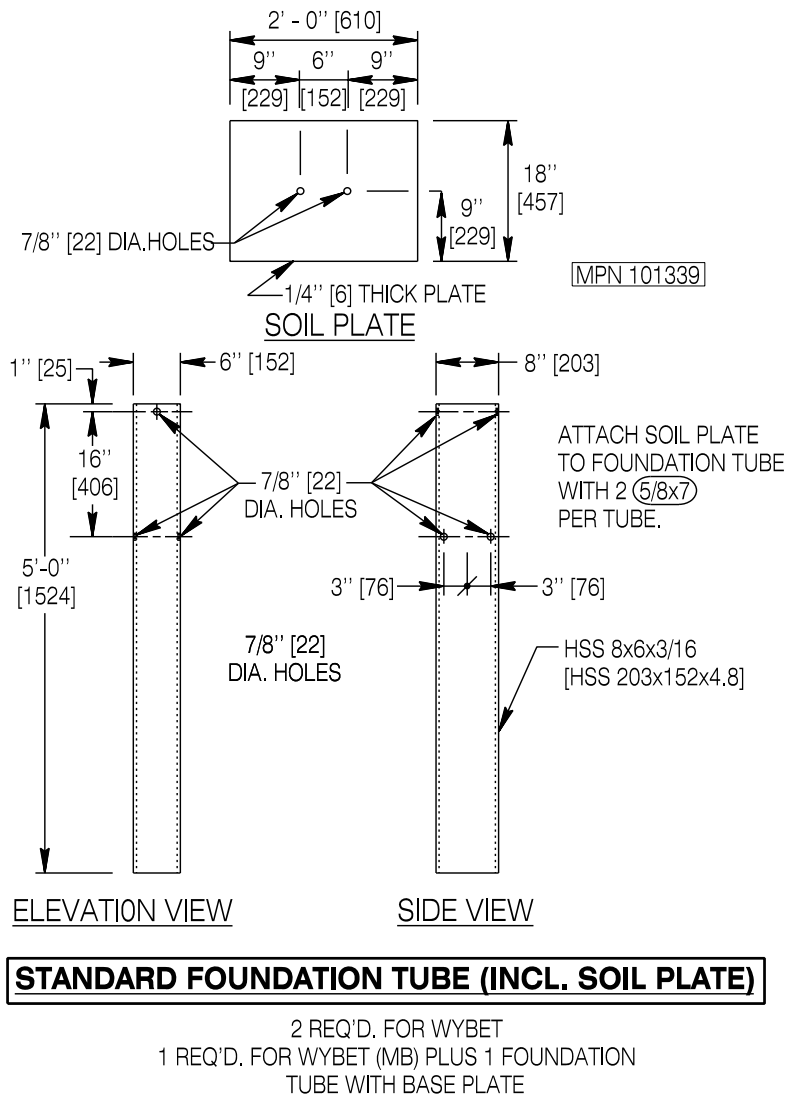
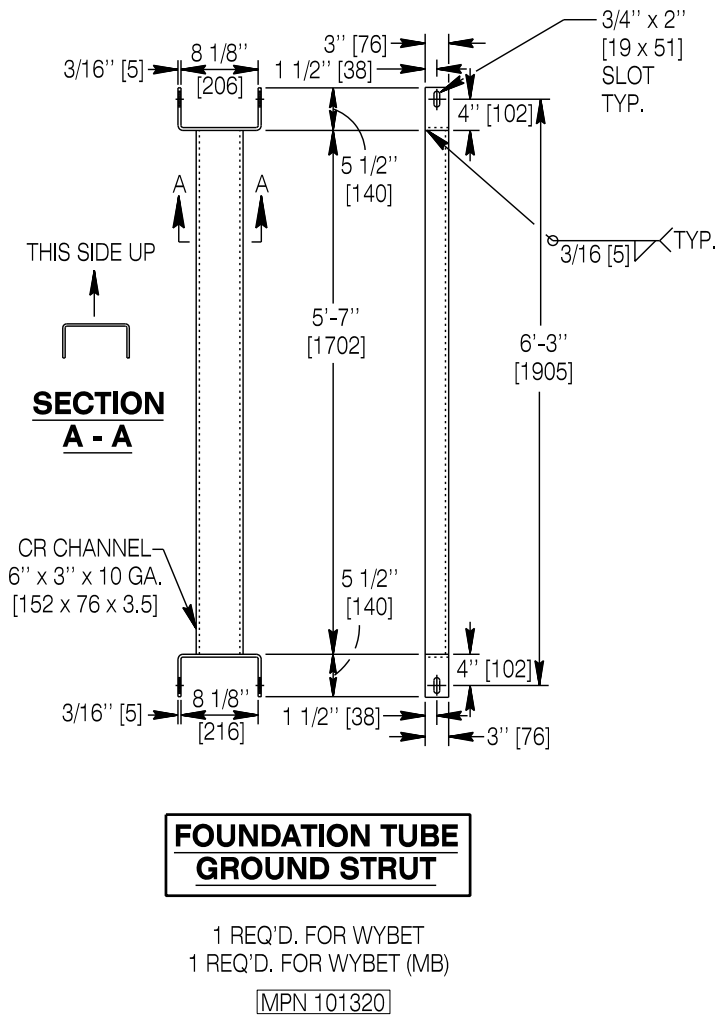
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Date Issued: JULY 2015



BOLT REQUIREMENTS	
SPECIAL APPLICATION BOLTS	
<u>1/2 x 9</u>	1/2" x 9" [13 x 230] (A307) BOLT + 2 WASHERS (F844) + 1 NUT (A563) 4 REQUIRED TO ATTACH BLOCK-OUT TO POST
<u>5/8 x 7</u>	5/8" x 7 1/2" [16 x 190] (A307) BOLT + 2 WASHERS (F844) + 1 NUT (A563) 2 REQUIRED TO ATTACH SOIL PLATE TO EACH FOUNDATION TUBE
<u>5/8 x 9</u>	5/8" x 9 1/2" [16 x 240] (A307) BOLT + 2 WASHERS (F844) + 1 NUT (A563) 2 REQUIRED (ONE EACH END) TO CONNECT GROUND STRUT TO FOUNDATION TUBES



WYBET BREAKAWAY WOOD POST
FOR WYBET & WYBET (MB) POST #1 [MPN 102601] ENLARGED DETAILS



Designed by: VVBW
Drawn by: JK
Checked by: VVBW
Previous Dwg. No. 606-7

WYBET SPECIALIZED COMPONENTS -
POST #1 AND FOUNDATION TUBES

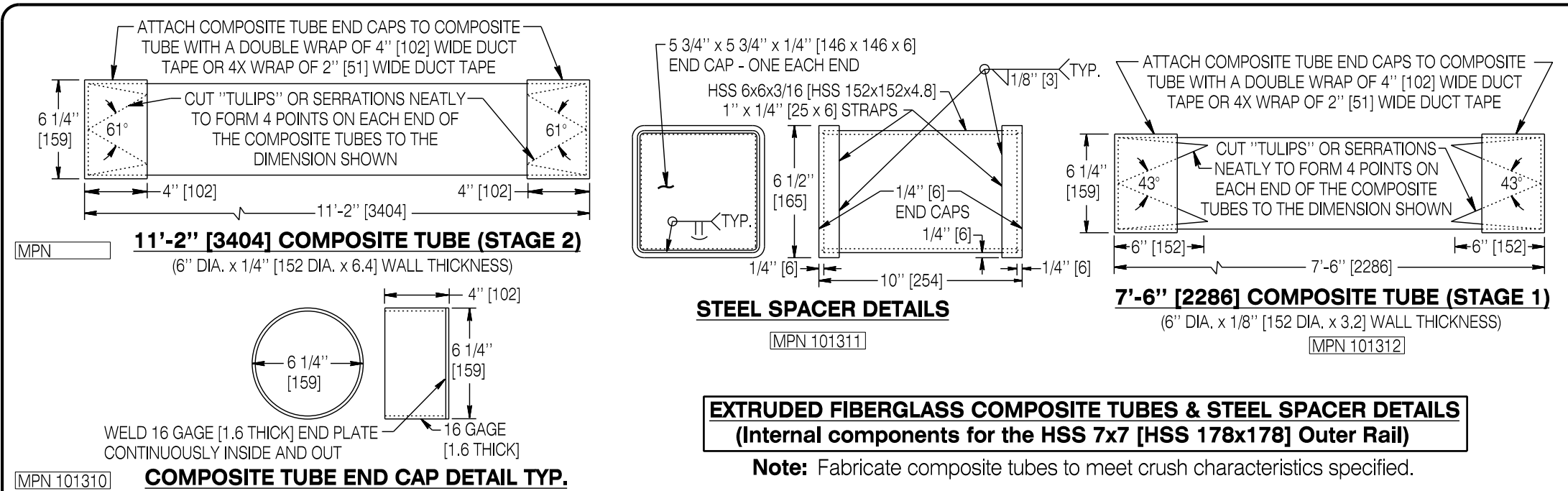
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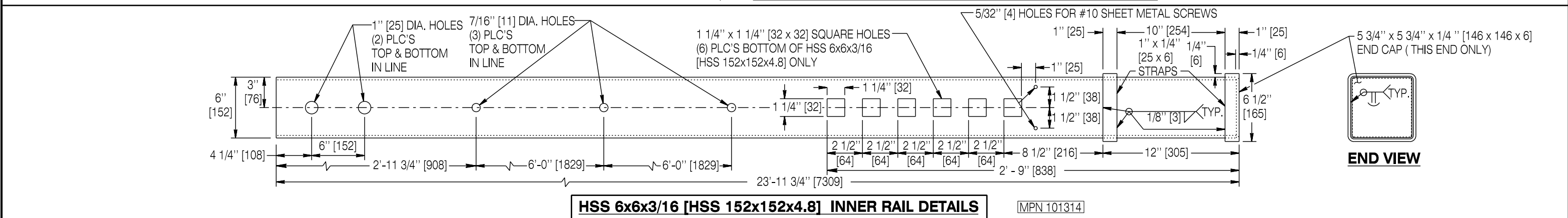
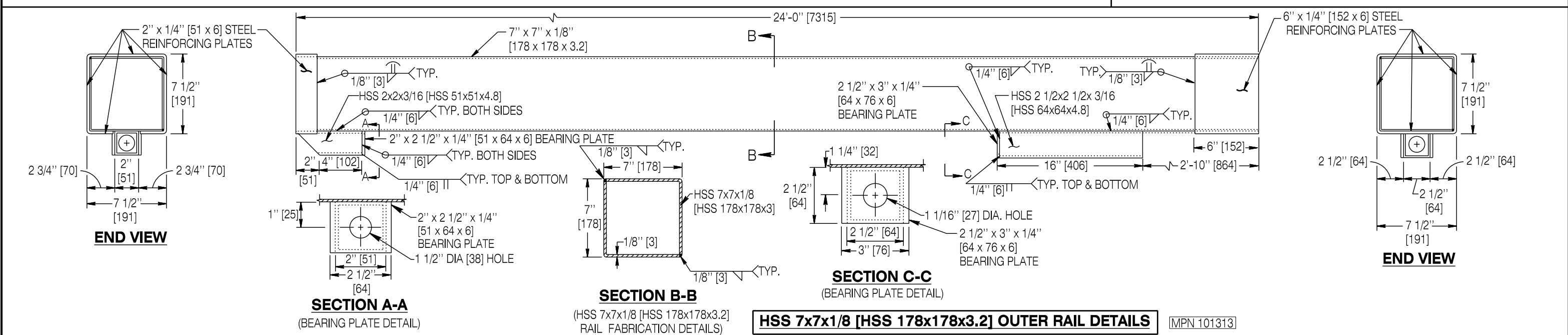
BOX BEAM GUARDRAIL FABRICATION STANDARDS

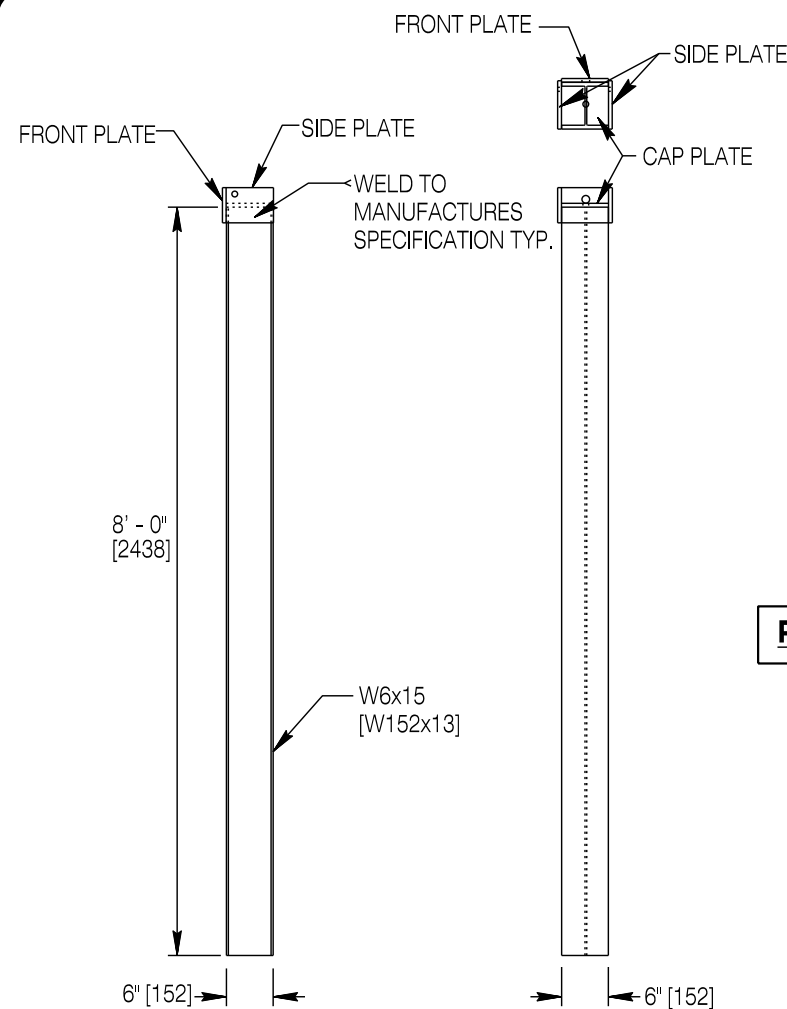
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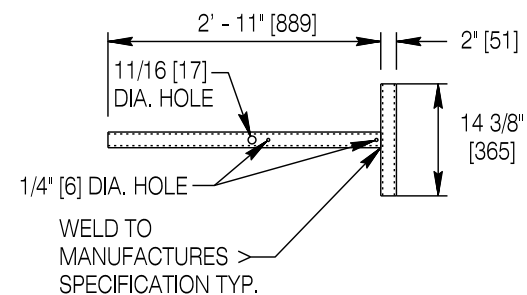
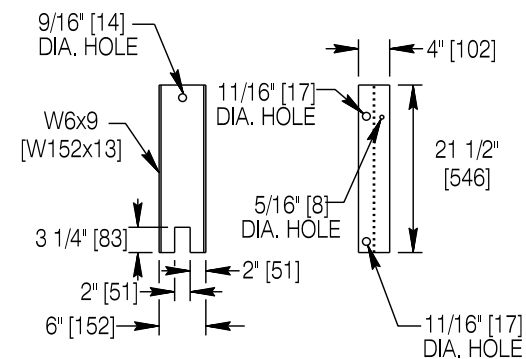
- ### FABRICATION NOTES
1. Proper performance of the end terminal depends on maintaining a relatively low mass for the 7" x 7" x 1/8" [178 x 178 x 3.2] Outer Rail, therefore the wall thickness cannot be altered.
 2. Extend the 1" x 1/4" [25 x 6] steel reinforcing straps 1/4" [6] beyond the end of the HSS 6x6x3/16 [HSS 152x152x4.8] inner rail and the intermediate spacer to facilitate welding of the end caps. Maintain a 1/8" [3] gap all around the end cap to facilitate a good weld all around the end cap.
 3. The department will allow two - 1/2" [13] holes to be drilled in the side of the intermediate spacer to act as vent holes during galvanization.
 4. For straps & plates, use A36 steel.
 5. After fabrication and galvanization and prior to shipment, confirm inner rail slides smoothly inside outer rail without any binding.



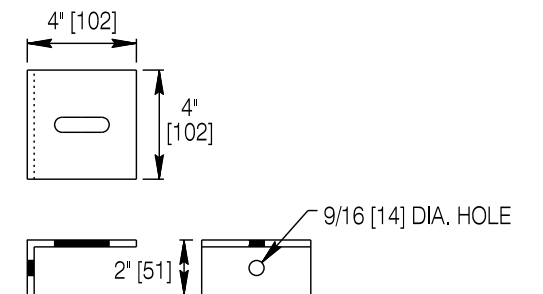


POST 1 LOWER (BELOW GRADE SECTION)

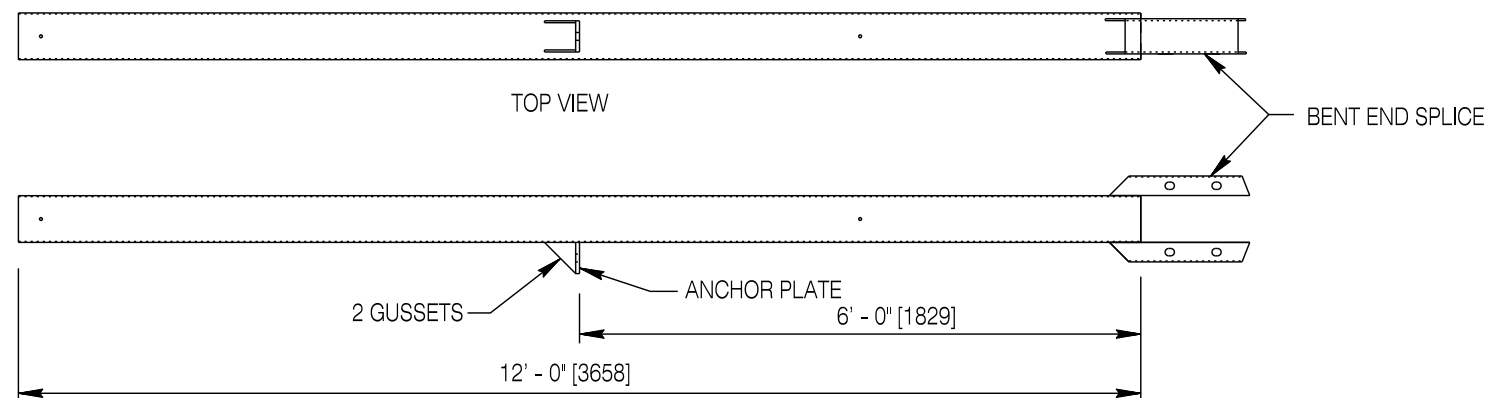
POST 1 UPPER (ABOVE GROUND) SECTION



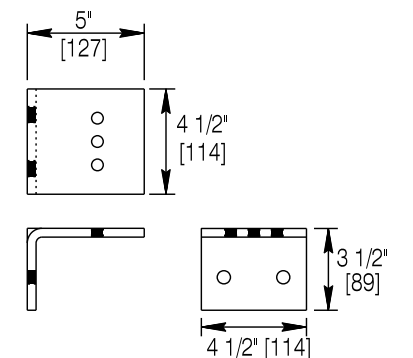
POST BREAKER HSS 2x2x1/4 [HSS 51x51x6.4]



SUPPORT BRACKET 10 GA. [3.5] BENT PLATE

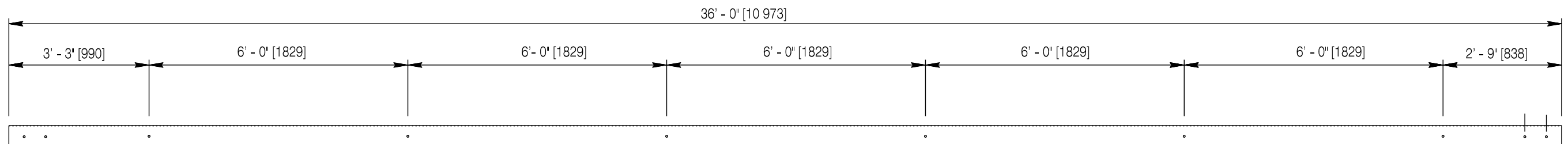


FIRST (END TUBE) RAIL HSS 6x6x1/8 [HSS 152x152x3]



RAIL SUPPORT BRACKET

L5x3 1/2x3/8
[L127x89x9.5]



SECOND BOX BEAM RAIL HSS 6x6x3/16 [HSS 152x152x4.8]

NOTE

Components shown are proprietary and approximate. Don't fabricate from these details. Consult the manufacturer's details for more exact requirements. Provide an additional nut on each end of all cable anchors to eliminate the chance of single nuts from "backing off".

Designed by: **WBW**
Drawn by: **JK**
Checked by: **WBW**
Previous Dwg. No. **606-7**

**BEAT SPECIALIZED COMPONENTS -
RAILS, POST #1, SUPPORT BRACKET, POST BREAKER**

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



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BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

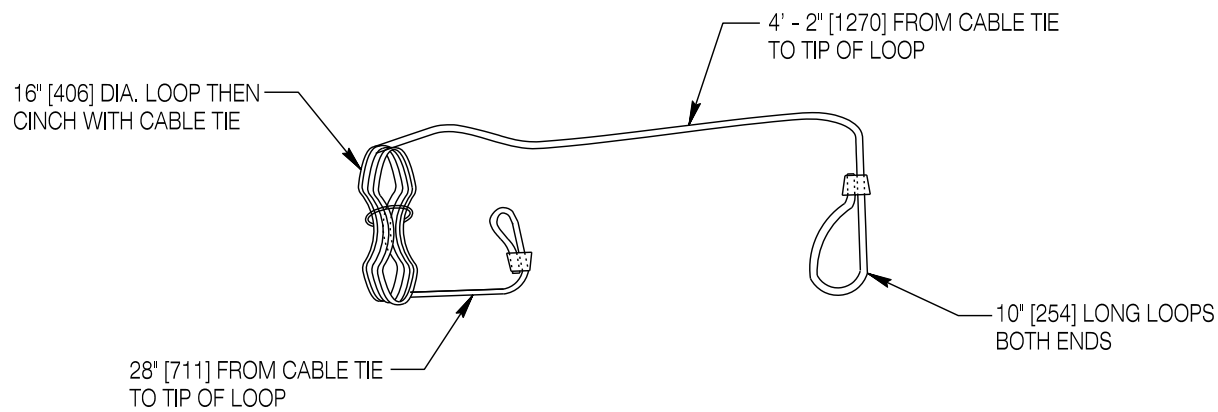
STANDARD PLAN NUMBER

606-7A

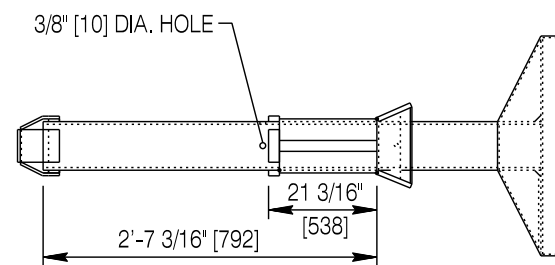
SHEET 12 of 13

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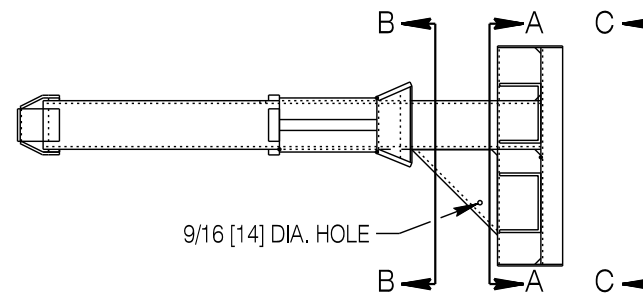
Date Issued: JULY 2015



3/8" x 20'-0" [10 x 6096] GALV. ANCHOR CABLE FOR BEAT MEDIAN

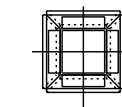


TOP VIEW

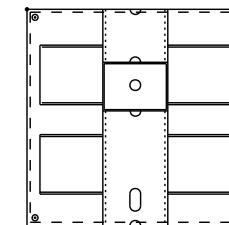


SIDE VIEW

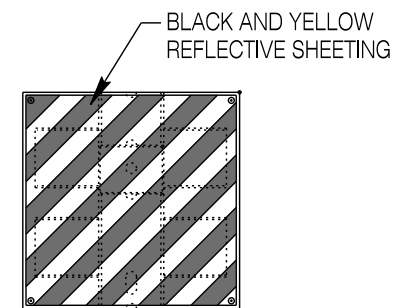
SIDE VIEW



SECTION B-B



SECTION A-A



SECTION C-C

IMPACT HEAD

NOTE

Components shown are proprietary and approximate. Don't fabricate from these details. Consult the manufacture's details for more exact requirements. Provide an additional nut on each end of all cable anchors to eliminate the chance of single nuts from "backing off".

Designed by: VBVW
Drawn by: JK
Checked by: VBVW
Previous Dwg. No.
606-6

**BEAT SPECIALIZED COMPONENTS (CON'T) -
IMPACT HEAD**

Note: Units shown in brackets [] are metric and are in millimeters (mm) unless other units are shown.



**WYOMING DEPARTMENT
OF
TRANSPORTATION**



BOX BEAM GUARDRAIL FABRICATION STANDARDS

STANDARD PLAN

STANDARD PLAN NUMBER

606-7A

SHEET 13 of 13

Issued by: ENGINEERING SERVICES
Date Issued: JULY 2015