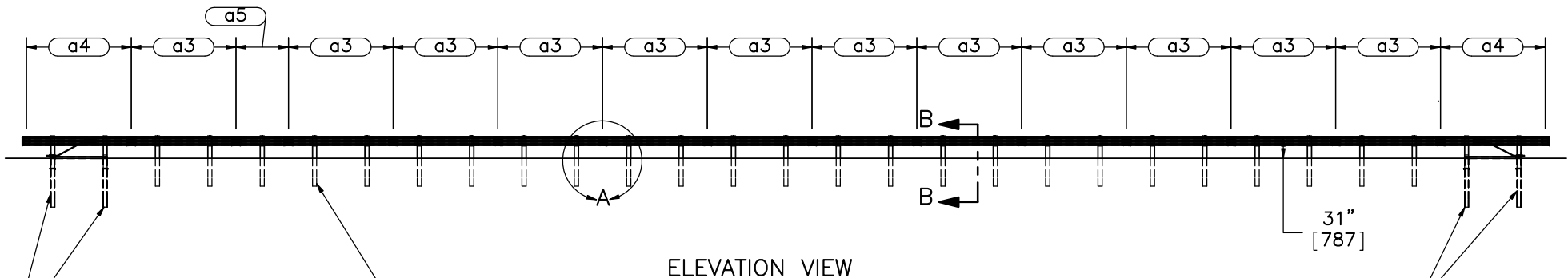


PLAN VIEW




ELEVATION VIEW

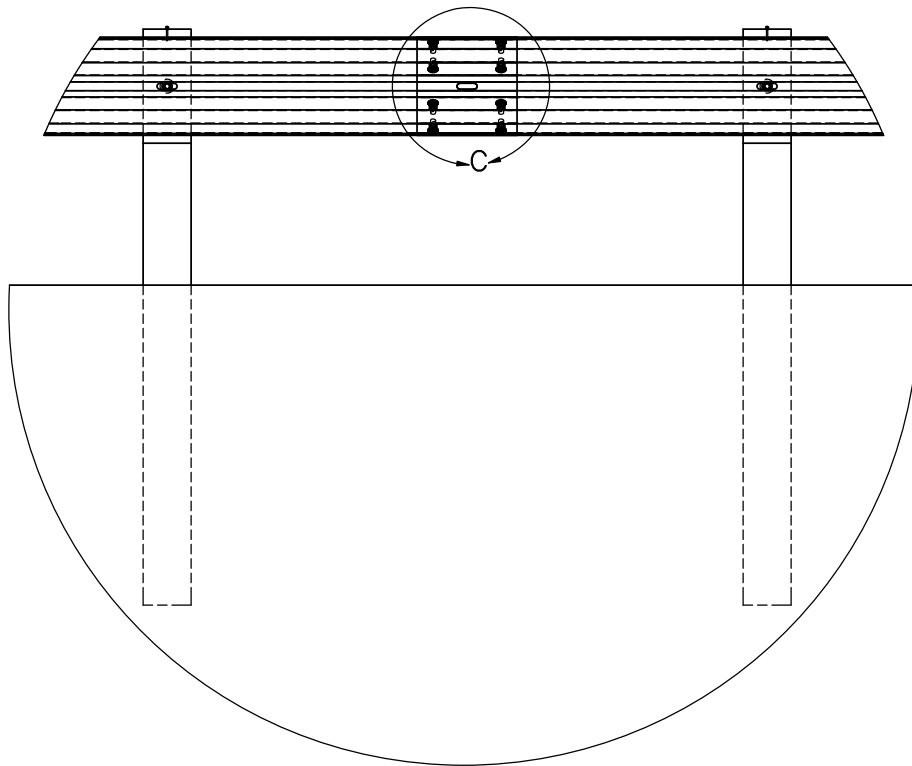
BCT Posts in 6' [1829] Long (Galvanized) Foundation Tubes, Ground Line Strut, and BCT Cable Anchor

6"x8" [152x203] 72" [1829] Long Posts with 6"x12"x14 1/4" [152x304x362] Blockouts

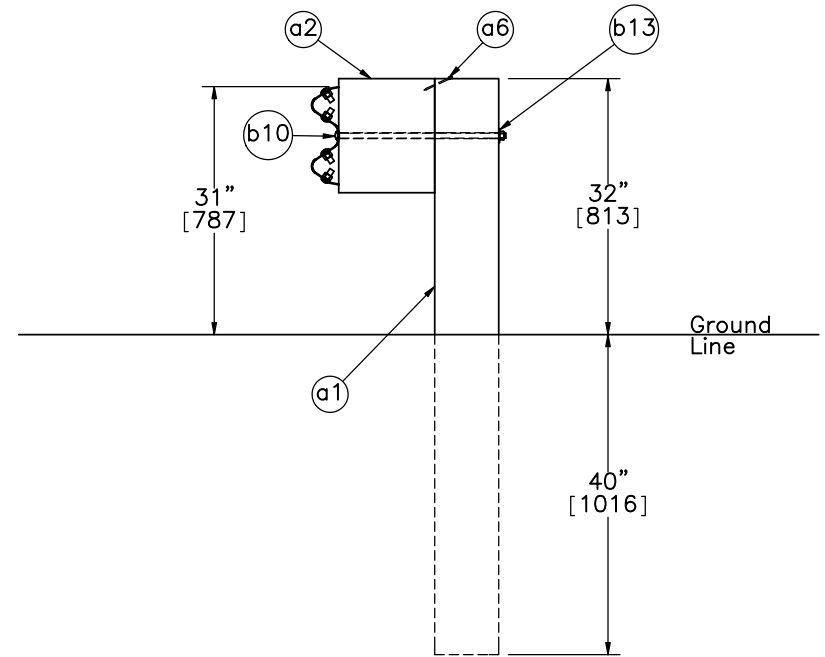
BCT Posts in 6' [1829] Long (Galvanized) Foundation Tubes, Ground Line Strut, and BCT Cable Anchor

- Notes: (1) Impact locations are measured from the centerline of post no. 15. Impact for the 2270P crash test is located 12'-0" [3658] upstream of the centerline of the post.
- (2) The BCT anchor posts are placed in  $\phi 3'$  [914] holes.
- (3) Critical region located between post nos. 9 and 19.
- (4) Install 3 static posts near impact.

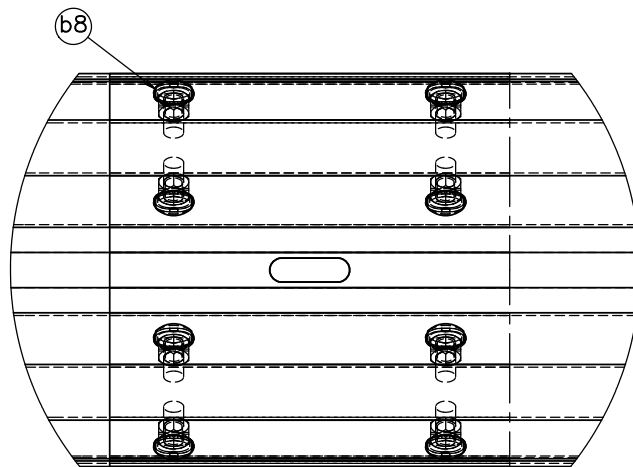
 <b>Midwest Roadside Safety Facility</b>	<b>MGS Southern Yellow Pine Wood Posts</b> System Layout		SHEET: 1 of 10
	DWG. NAME: MGSSYP-31_R5		DATE: 09/27/2011
		SCALE: 1:220 UNITS: In.[mm]	DRAWN BY: MDM/JGP/DMH
			REV. BY: KAL/JCH/CLM



DETAIL A



SECTION B-B



DETAIL C  
SCALE 1:6



Midwest Roadside  
Safety Facility

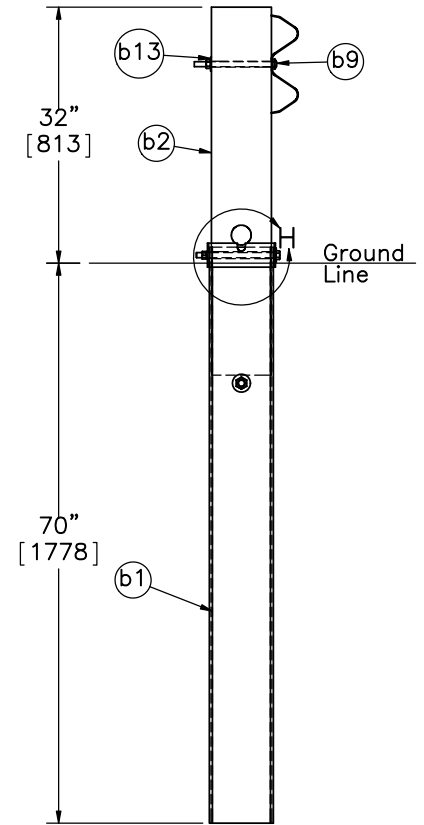
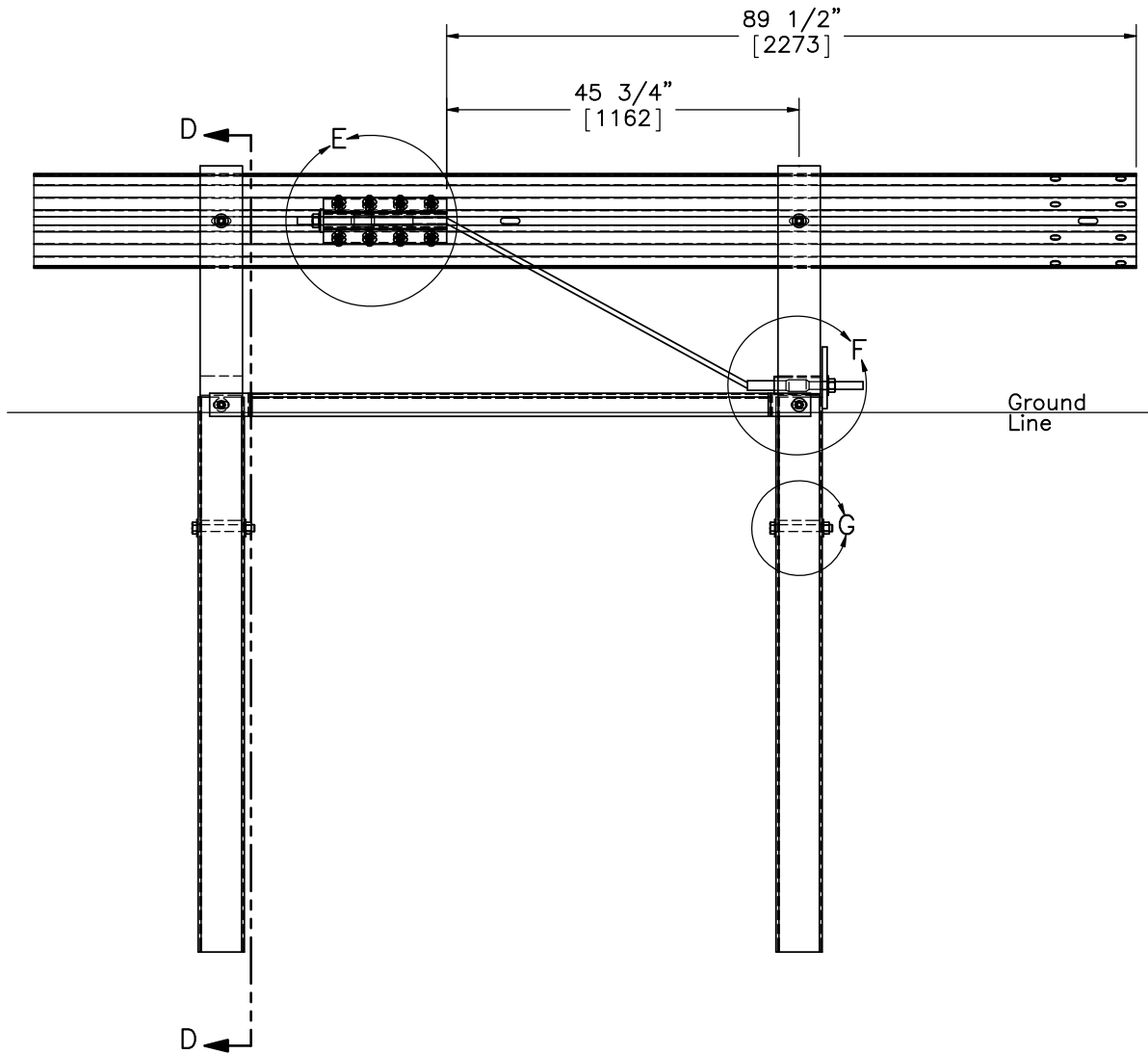
MGS Southern Yellow  
Pine Wood Posts

Post and Splice Details

DWG. NAME.  
MGSSYP-31\_R5

SCALE: 1:24  
UNITS: In.[mm]

SHEET:  
2 of 10  
DATE:  
09/27/2011  
DRAWN BY:  
MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM



SECTION D-D



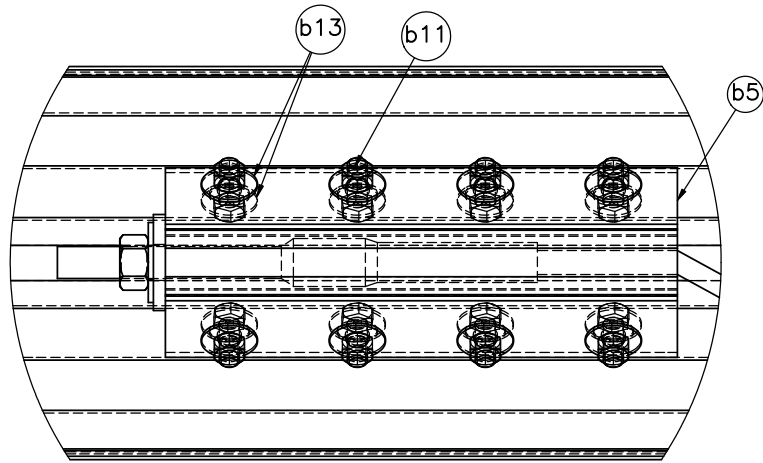
Midwest Roadside  
Safety Facility

MGS Southern Yellow  
Pine Wood Posts  
End Rail Details

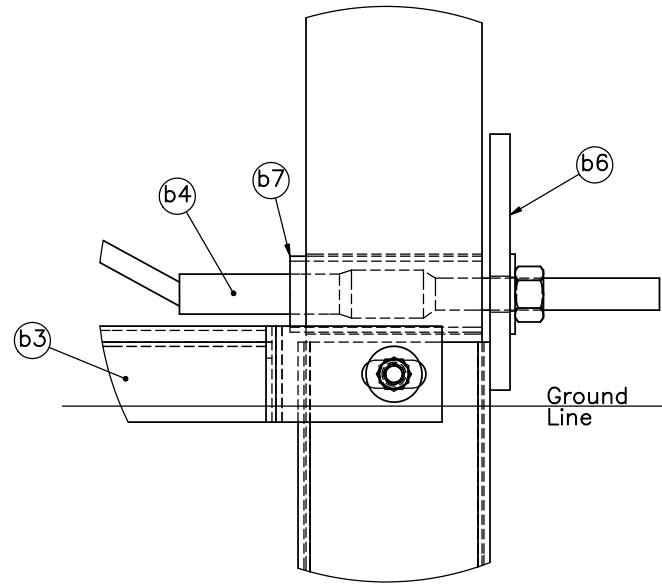
DWG. NAME.  
MGSSYP-31\_R5

SCALE: 1:24  
UNITS: In.[mm]

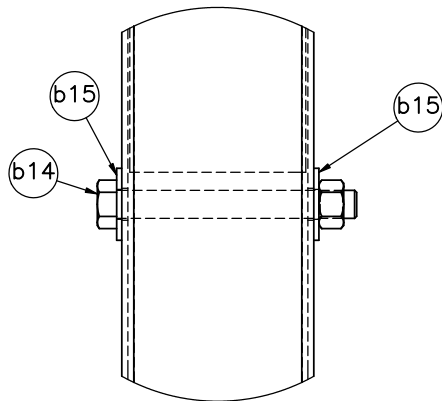
SHEET:  
3 of 10  
DATE:  
09/27/2011  
DRAWN BY:  
MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM



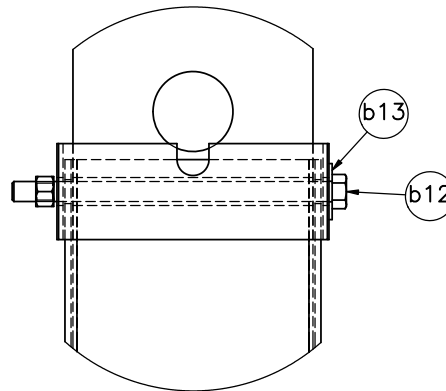
DETAIL E



DETAIL F



DETAIL G



DETAIL H



Midwest Roadside  
Safety Facility

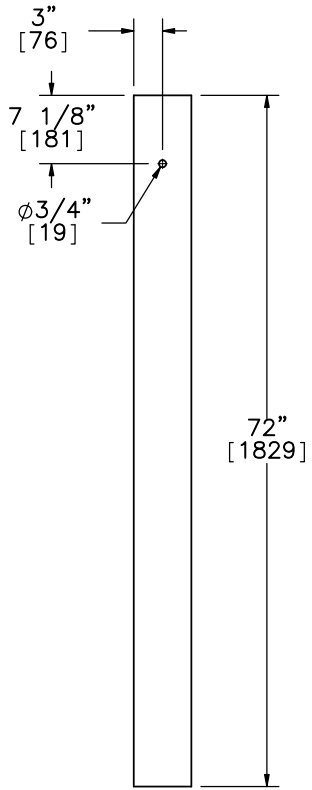
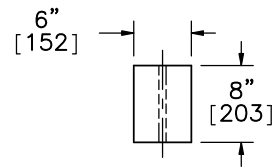
MGSSYP Southern Yellow  
Pine Wood Posts

Anchor Details

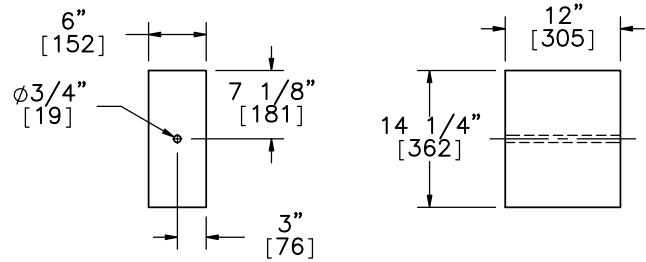
DWG. NAME.  
MGSSYP-31\_R5

SCALE: 1:6  
UNITS: In.[mm]

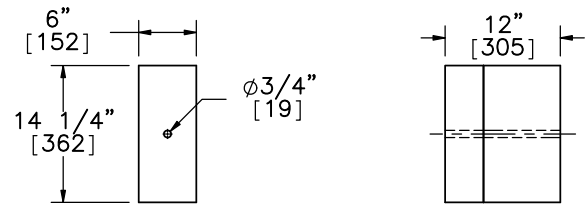
SHEET:  
4 of 10  
DATE:  
09/27/2011  
DRAWN BY:  
MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM



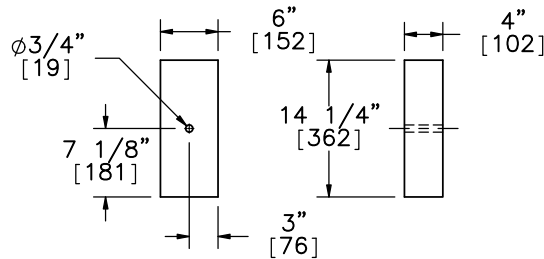
Line Post  
Part a1



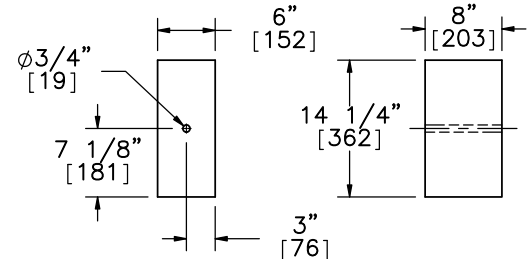
Blockout  
Part a2



Alternate Blockout Option -  
6"x4"x14 1/4" [152x102x362] Blockout  
with 6"x8"x14 1/4" [152x203x362] Blockout



6"x4"x14 1/4"  
[152x102x362] Blockout



6"x8"x14 1/4"  
[152x203x362] Blockout



Midwest Roadside  
Safety Facility

MGS Southern Yellow  
Pine Wood Posts  
Post Nos. 3-27 Details

SHEET:  
5 of 10

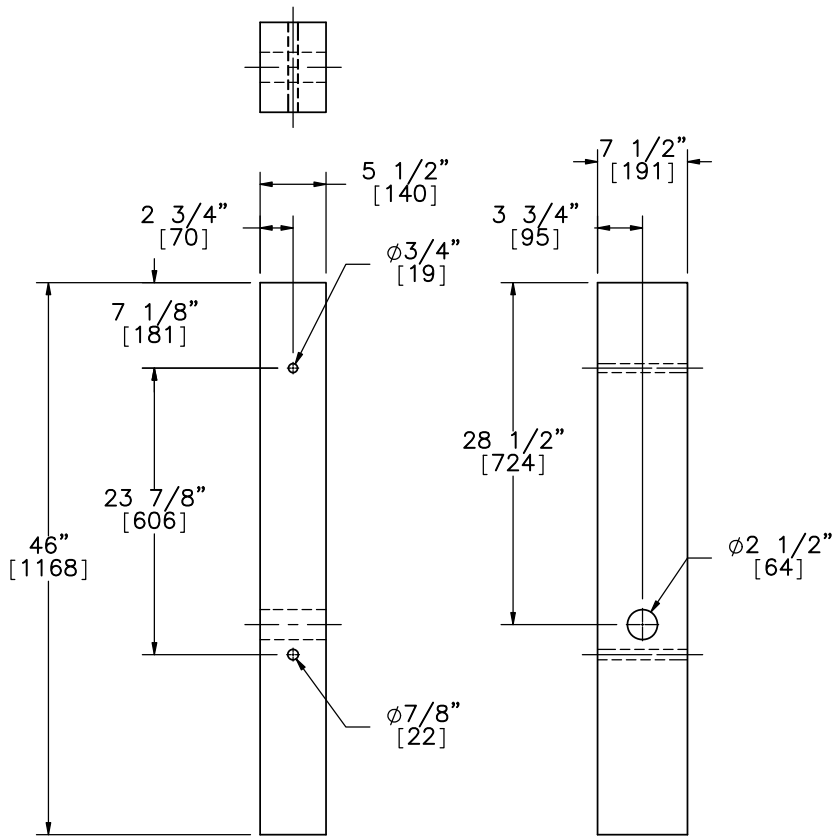
DATE:  
09/27/2011

DRAWN BY:  
MDM/JGP/  
DMH

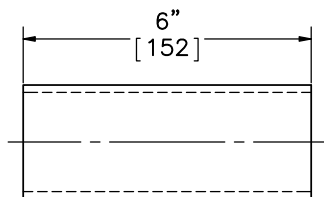
REV. BY:  
KAL/JCH/  
CLM

DWG. NAME:  
MGSSYP-31\_R5

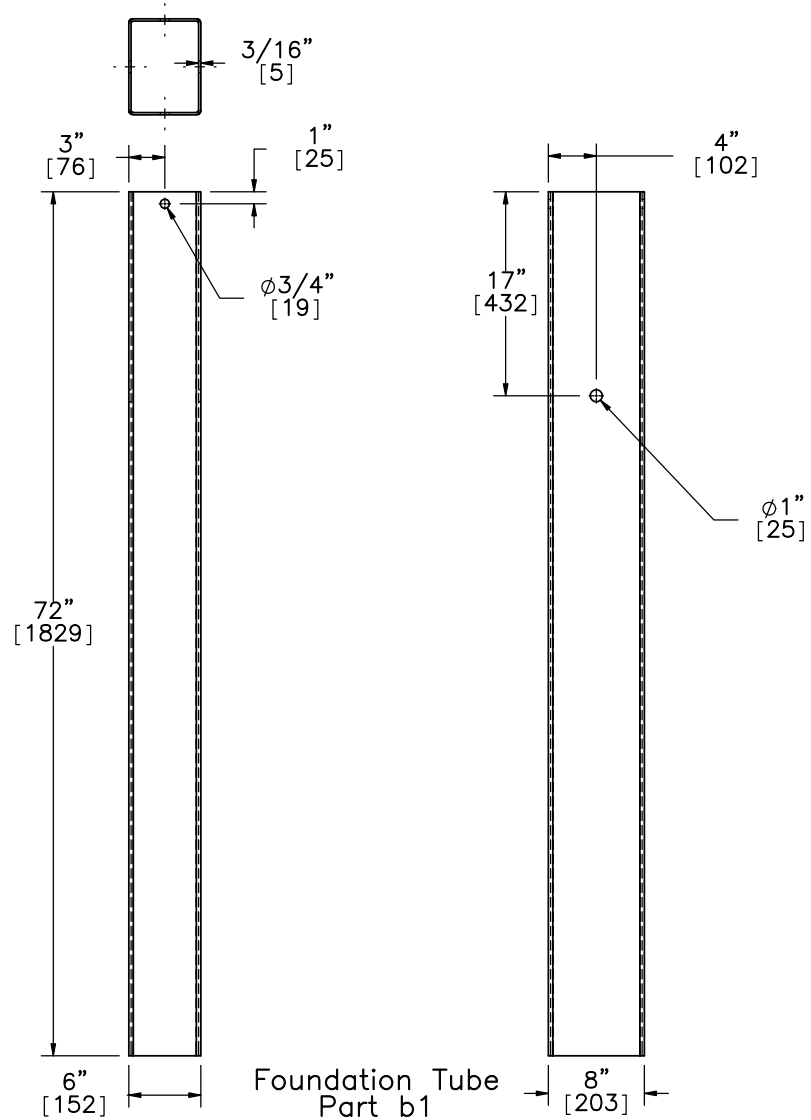
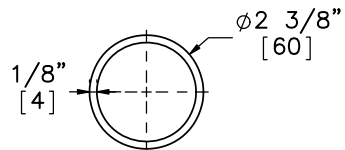
SCALE: 1:20  
UNITS: In.[mm]



BCT MGS Timber Post  
Part b2



BCT Post Sleeve  
Part b7  
SCALE 1:4



Foundation Tube  
Part b1



Midwest Roadside  
Safety Facility

MGS Southern Yellow  
Pine Wood Posts

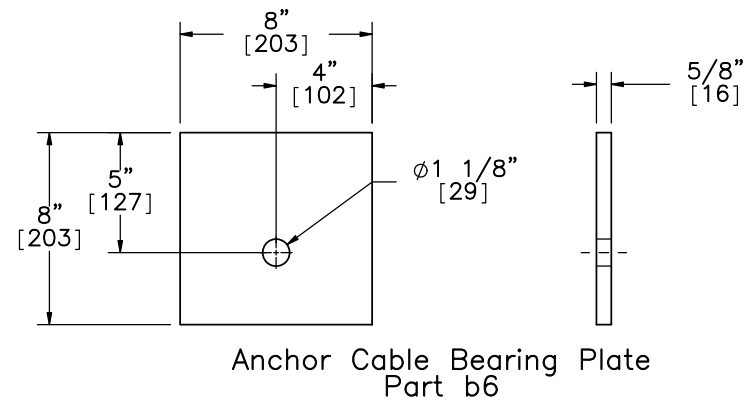
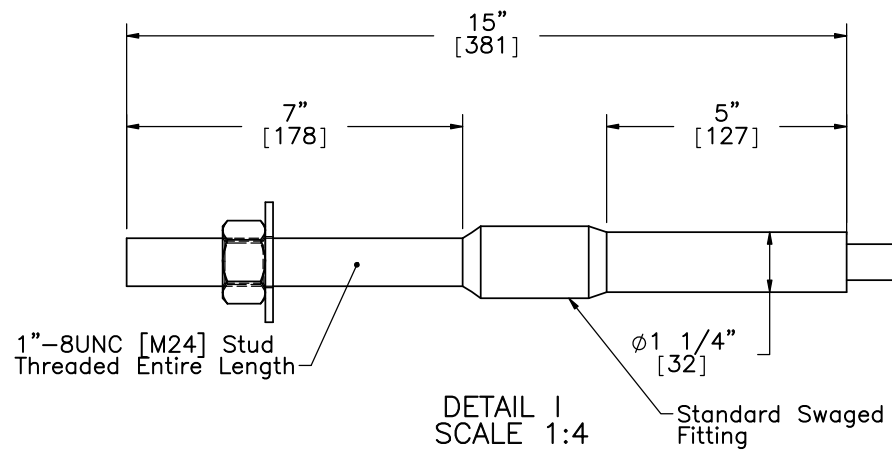
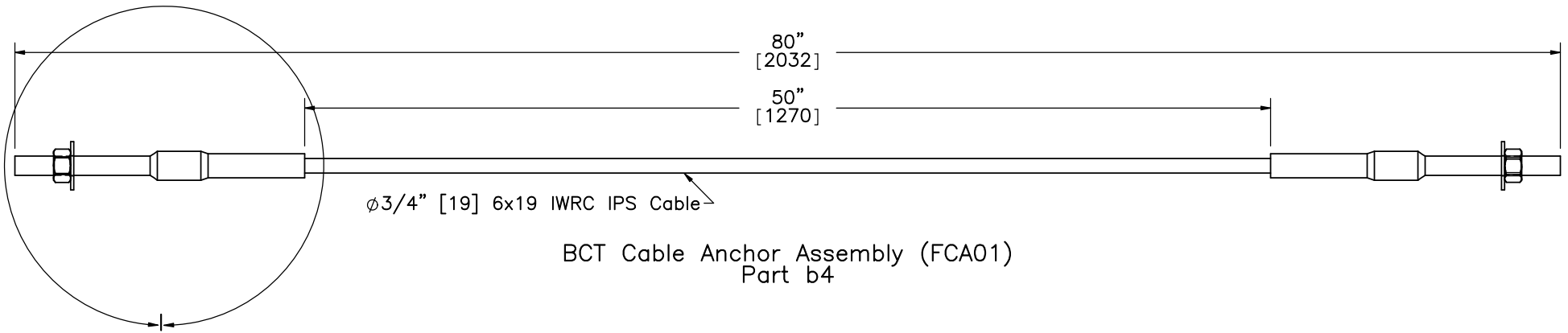
BCT Timber Post &  
Foundation Tube Details


DWG. NAME.  
MGSSYP-31\_R5

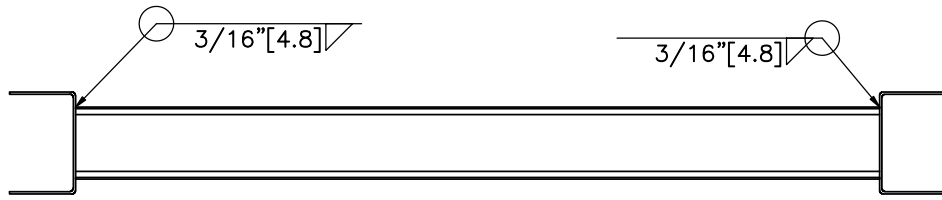
SCALE: 1:16  
UNITS: In.[mm]

SHEET:  
6 of 10  
DATE:  
09/27/2011  
DRAWN BY:  
MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM

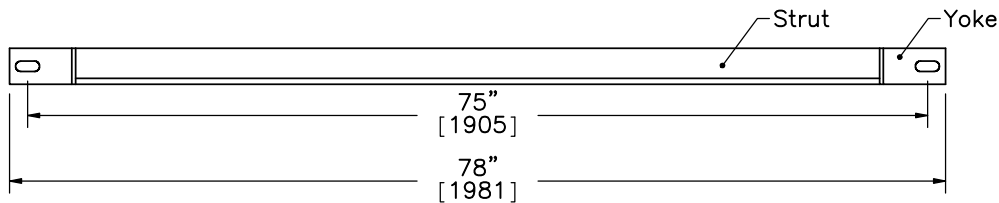
Note: (1) 6x25 IWRC IPS cables meet the minimum breaking strength of 42.7 kips [190 kN] and may be substituted for the 6x19 IWRC IPS cables.



 Midwest Roadside Safety Facility	MGS Southern Yellow Pine Wood Posts BCT Anchor Cable	SHEET: 7 of 10 DATE: 09/27/2011 DRAWN BY: MDM/JGP/ DMH
	DWG. NAME: MGSSYP-31_R5	SCALE: 1:8 UNITS: In.[mm]

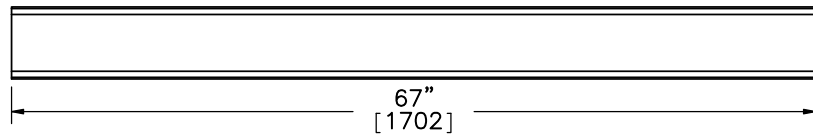


PLAN VIEW

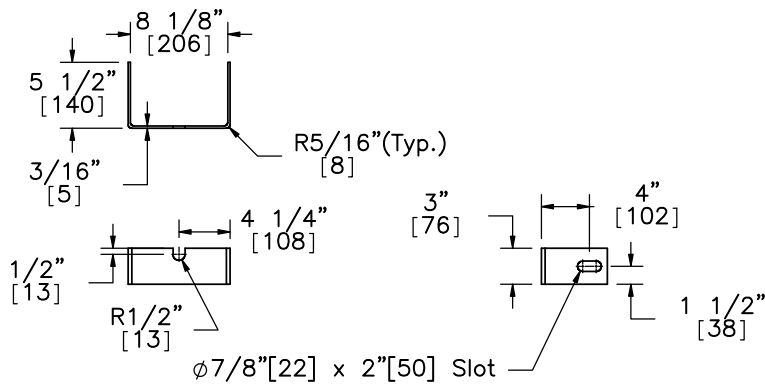
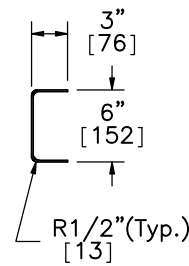


FRONT VIEW

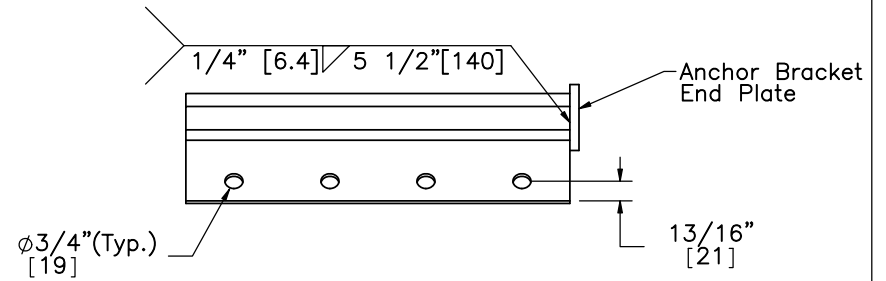
Strut and Yoke Assembly  
Part b3



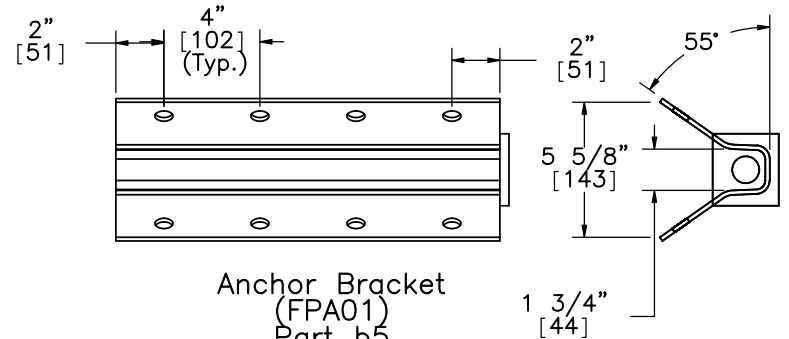
6" x 3" [152 x 76] 10 Gauge [3.4]  
Strut



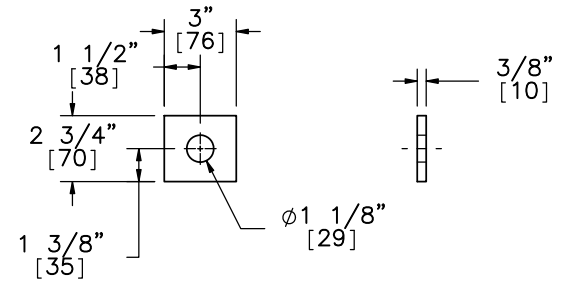
Yoke



Anchor Bracket  
End Plate



Anchor Bracket  
(FPA01)  
Part b5  
SCALE 1:8



Anchor Bracket End Plate  
SCALE 1:8



Midwest Roadside  
Safety Facility

MGS Southern Yellow  
Pine Wood Posts

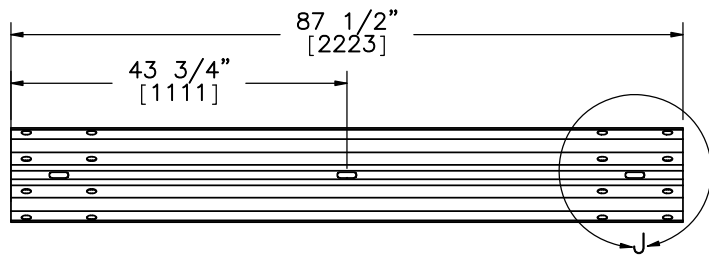
Ground Strut & Anchor  
Bracket Details

DWG. NAME.  
MGSSYP-31\_R5

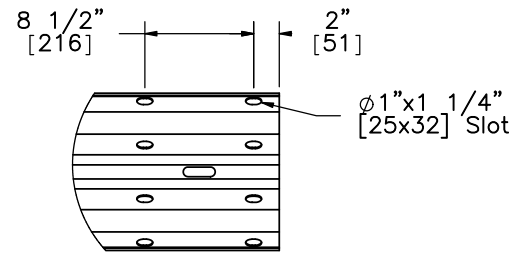
SCALE: 1:16  
UNITS: In.[mm]

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DRAWN BY:  
MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM

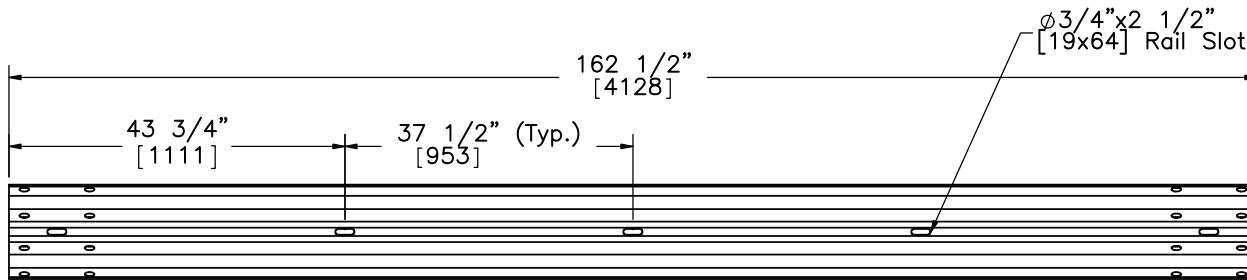




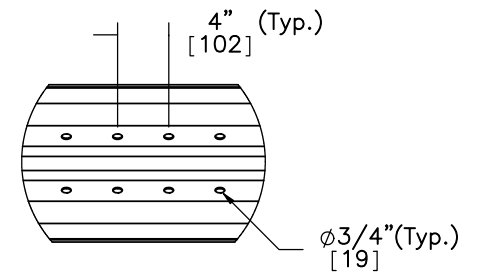
6'-3" [1905] W-Beam Section, 12 gauge [2.7]  
Part a5



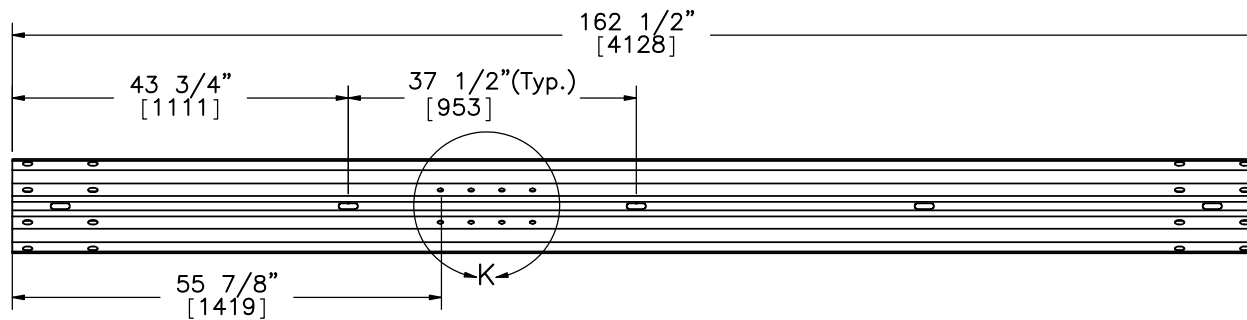
DETAIL J  
SCALE 1:15



12'-6" [3810] W-Beam Section, 12 gauge [2.7]  
Part a3



DETAIL K  
SCALE 1:15



12'-6" [3810] W-Beam Section, 12 gauge [2.7], End Section  
Part a4



Midwest Roadside  
Safety Facility

MGS Southern Yellow  
Pine Wood Posts

Rail Section Details

DWG. NAME:  
MGSSYP-31\_R5

SCALE: 1:25  
UNITS: In.[mm]

SHEET:  
9 of 10  
DATE:  
09/27/2011  
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MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM

Item No.	QTY.	Description	Material Specification	Hardware Guide
a1	25	6"x8"x72" [152x203x1829] Southern Yellow Pine Wood Post	SYP Grade No.1 or better	PDE02
a2	25	6"x12"x14 1/4" [152x305x362] MGS Timber Blockout	SYP Grade No.1 or better	PDB11a
a3	12	12'-6" [3810] 4-Space W-Beam Guardrail	12 gauge [2.7] AASHTO M180	RWM04a
a4	2	12'-6" [3810] BCT Terminal Rail Section	12 gauge [2.7] AASHTO M180	-
a5	1	6'-3" [1905] W-Beam Spacer Guardrail	12 gauge [2.7] AASHTO M180	RWM01a
a6	25	16D Double Head Nail	-	-
b1	4	72" [1829] Long Foundation Tube	ASTM A500 Gr. B	PTE06
b2	4	BCT Timber Post-MGS Height	SYP Grade No.1 or better	PDF01
b3	2	Strut and Yoke Assembly	ASTM A36 Steel Galvanized	-
b4	2	BCT Cable Anchor Assembly	ø3/4" 6x19 IWRC IPS Galvanized Wire Rope	FCA01-02
b5	2	Guardrail Anchor Bracket	ASTM A36 Steel	FPA01
b6	2	8"x8"x5/8" [203x203x16] BCT Bearing Plate	ASTM A36 Steel	FPB01
b7	2	2 3/8" [60] O.D.x 6" [152] Long BCT Post Sleeve	ASTM A53 Grade B Schedule 40	FMM02
b8	112	5/8" Dia. x 1 1/4" [M16x32] Long Guardrail Bolt and Double Recessed Nut	Bolt ASTM A307 or Grade 2 Steel/ Nut ASTM A563 A	FBB01
b9	4	5/8" Dia. x 10" [M16x254] Long Guardrail Bolt and Double Recessed Nut	Bolt ASTM A307 or Grade 2 Steel/ Nut ASTM A563 A	FBB03
b10	25	5/8" Dia. x 22" [M16x559] Long Guardrail Bolt and Double Recessed Nut	Bolt ASTM A307 or Grade 2 Steel/ Nut ASTM A563 A	FBB07
b11	16	5/8" Dia. x 1 1/2" [M16x38] Long Hex Bolt and Double Recessed Nut	Bolt ASTM A307 or Grade 2 Steel/ Nut ASTM A563 A	FBX16a
b12	4	5/8" Dia. x 9 1/2" [M16x241] Long Hex Bolt and Double Recessed Nut	Bolt ASTM A307 or Grade 2 Steel/ Nut ASTM A563 A	FBX16a
b13	69	5/8" [16] Dia. Plain Round Washer	ASTM F844 or Grade 2 Steel	FWC16a
b14	4	7/8" Dia. x 7 1/2" [M22x191] Long Hex Bolt and Double Recessed Nut	Bolt ASTM A307 or Grade 2 Steel/ Nut ASTM A563 A	FBX22a
b15	8	7/8" [22] Dia. Plain Round Washer	ASTM F844 or Grade 2 Steel	FWC22a



Midwest Roadside  
Safety Facility

MGS Southern Yellow  
Pine Wood Posts

Bill of Materials

SHEET:  
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DATE:  
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DRAWN BY:  
MDM/JGP/  
DMH  
REV. BY:  
KAL/JCH/  
CLM

DWG. NAME:  
MGSSYP-31\_R5

SCALE: None  
UNITS: In.[mm]