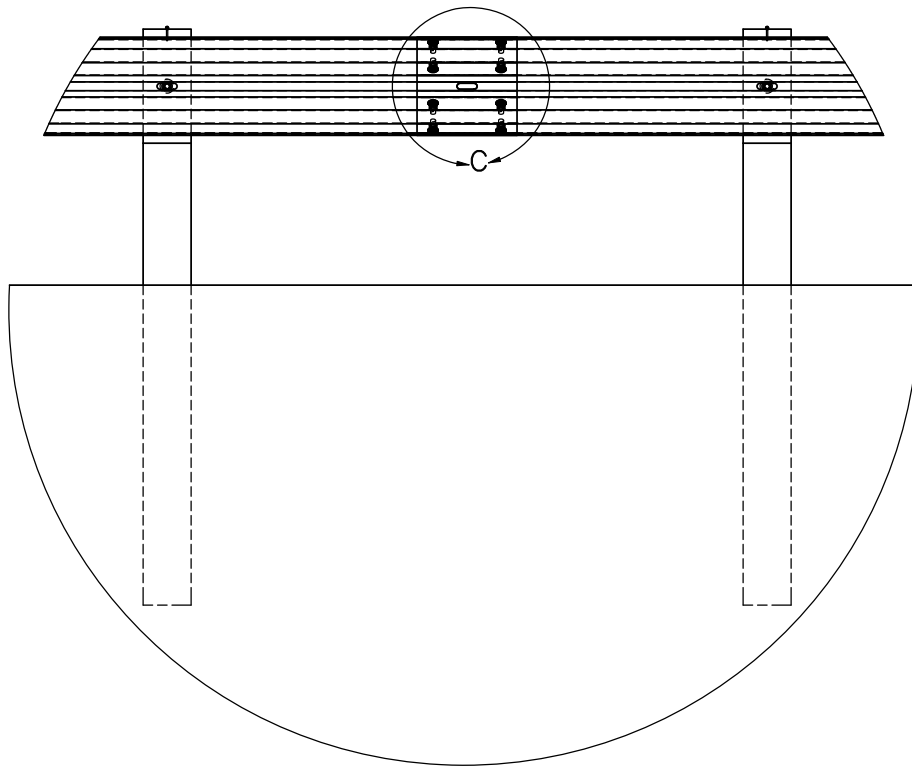


- Notes: (1) Test no. MGSWP-1 is to be performed according to test designation no. 3-11 of MASH.
- (2) The impact location is 13'-6" [4115] upstream from the midspan of the rail splice between post nos. 14 and 15.
- (3) The BCT anchor posts are placed in  $\phi$ 3' [914] holes.
- (4) Critical region located between post nos. 10 through 27.

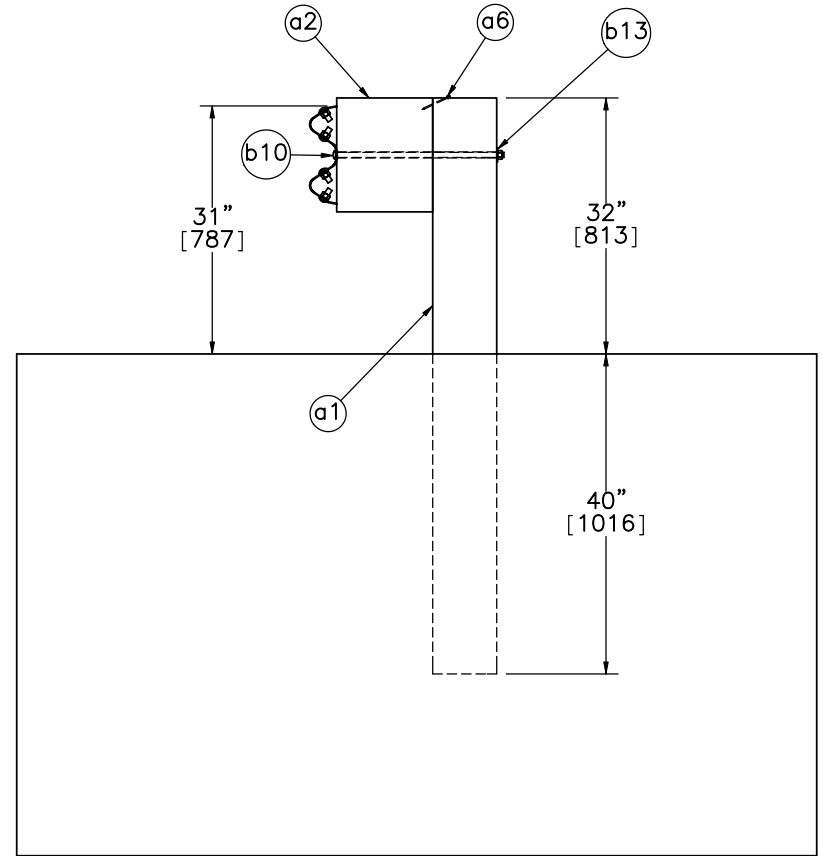


Midwest Roadside Safety Facility

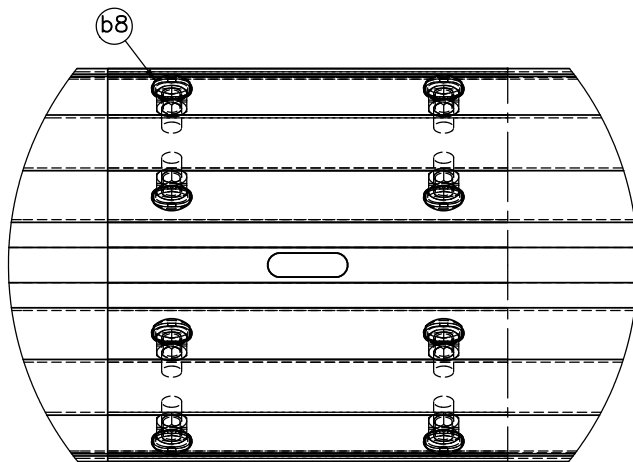
MGS White Pine Wood Posts		SHEET: 1 of 11
System Layout		DATE: 12/08/2010
DRAWN BY: MJW/RJT/MDM		REV. BY:
DWG. NAME: MGSWP-1_R9	SCALE: 1:220	UNITS: In.[mm]
		SKR/RWB/KAL/RKF



DETAIL A



SECTION B-B



DETAIL C  
SCALE 1 : 6



Midwest Roadside  
Safety Facility

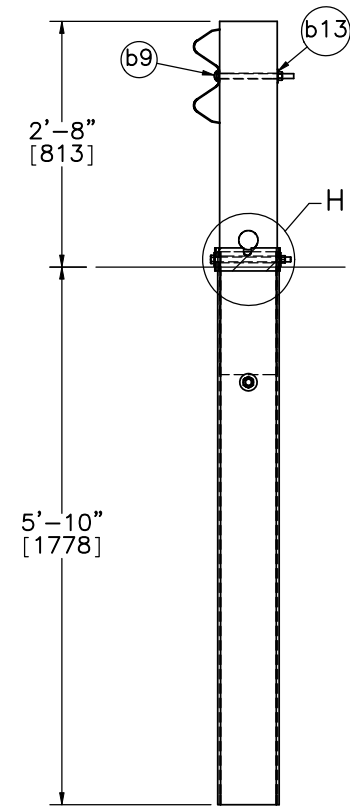
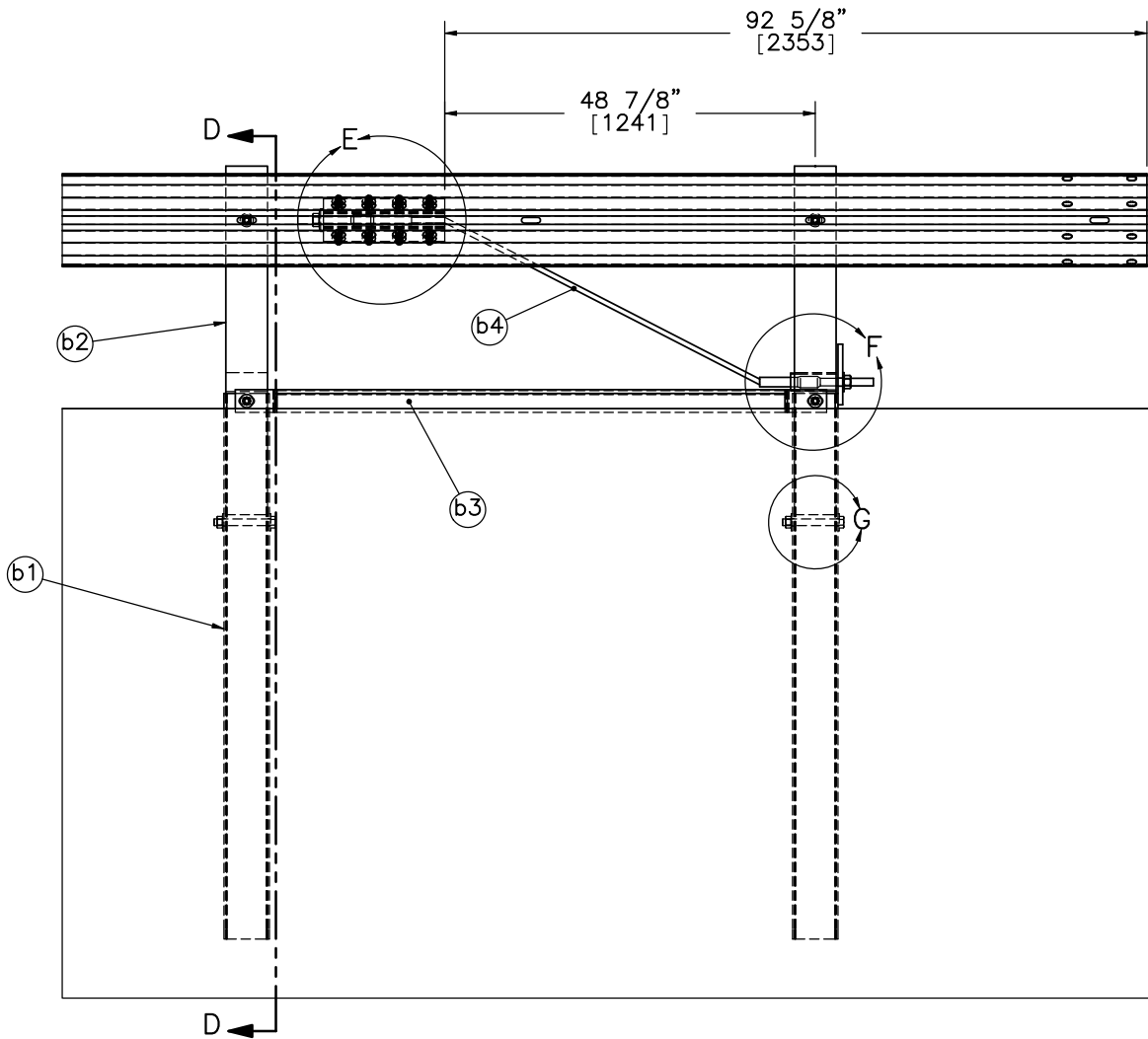
MGS with White Pine  
Wood Posts

Post and Splice Details

DWG. NAME.  
MGSWP-1\_R9

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

SHEET:  
2 of 11  
DATE:  
12/08/2010  
DRAWN BY:  
MJW/RJT/  
MDM  
REV. BY:  
SKR/RWB/  
KAL/RKF



SECTION D-D



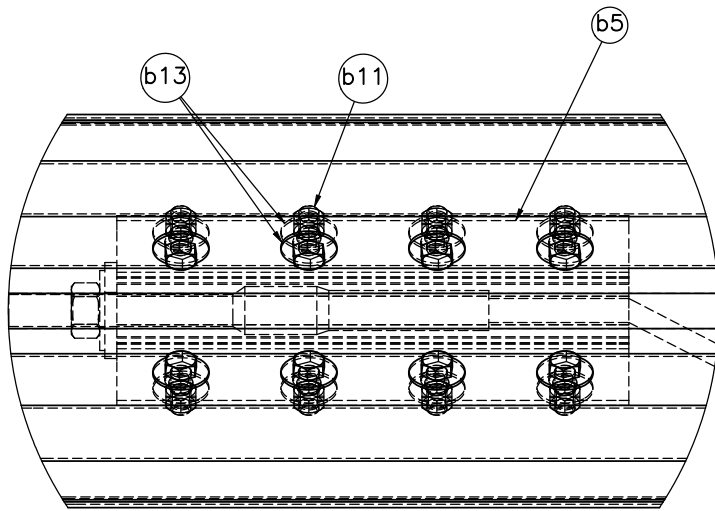
Midwest Roadside  
Safety Facility

MGS with White Pine  
Wood Posts  
End Rail Details

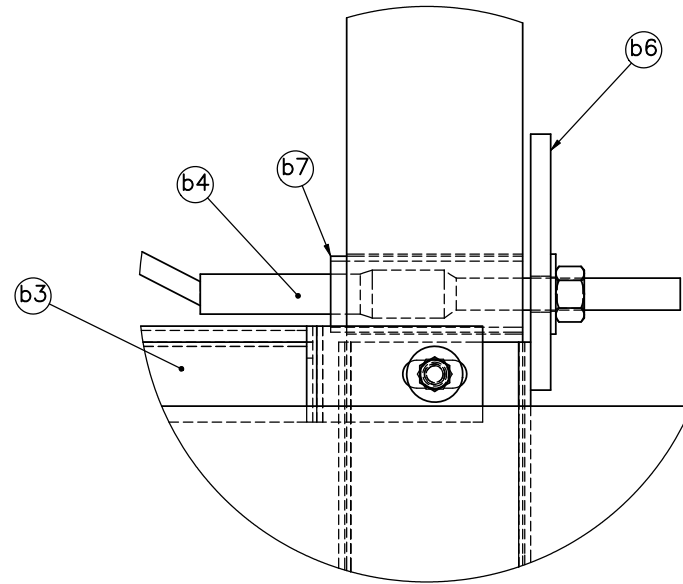
DWG. NAME.  
MGSWP-1\_R9

SCALE: None  
UNITS: In.[mm]

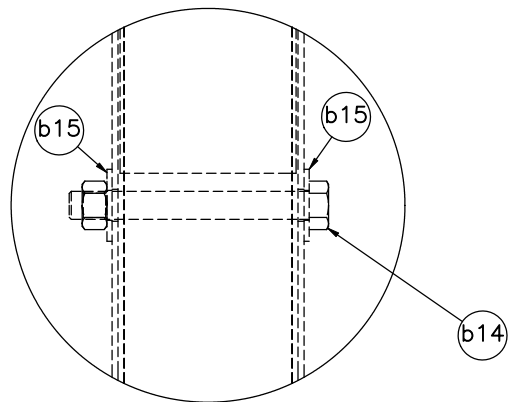
SHEET:  
3 of 11  
DATE:  
12/08/2010  
DRAWN BY:  
MJW/RJT/  
MDM  
REV. BY:  
SKR/KAL/  
RWB/RKF



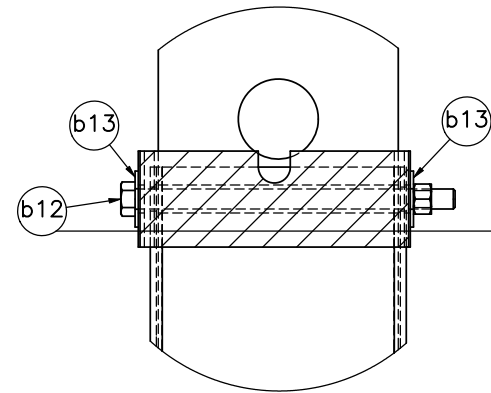
DETAIL E



DETAIL F



DETAIL G



DETAIL H



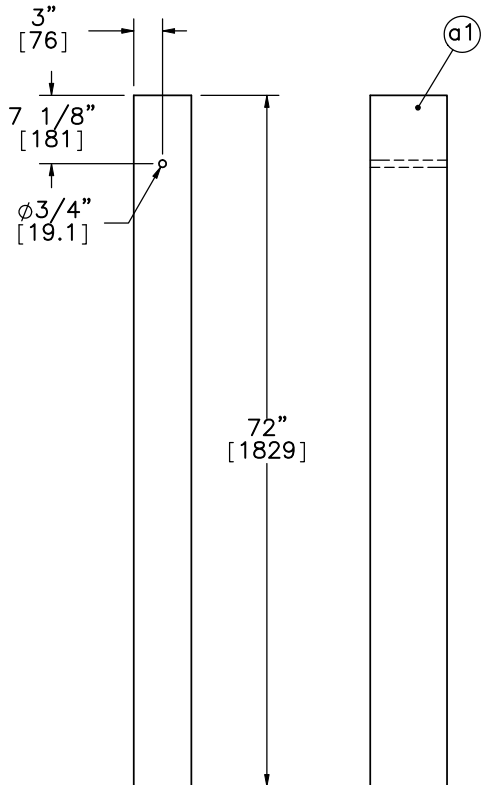
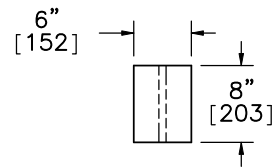
Midwest Roadside  
Safety Facility

MGS with White Pine  
Wood Posts  
Anchor Details

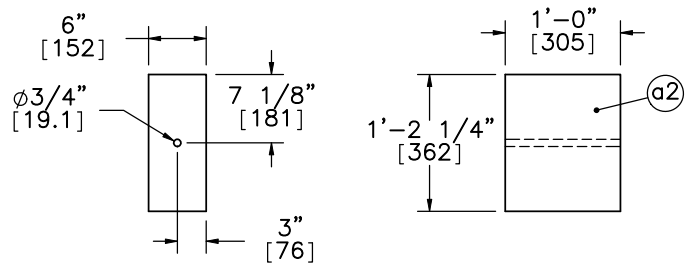
DWG. NAME.  
MGSWP-1\_R9

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

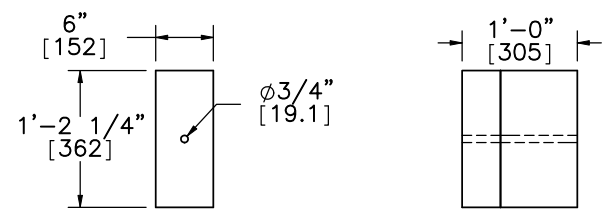
SHEET:  
4 of 11  
DATE:  
12/08/2010  
DRAWN BY:  
MJW/RJT/  
MDM  
REV. BY:  
SKR/RWB/  
KAL/RKF



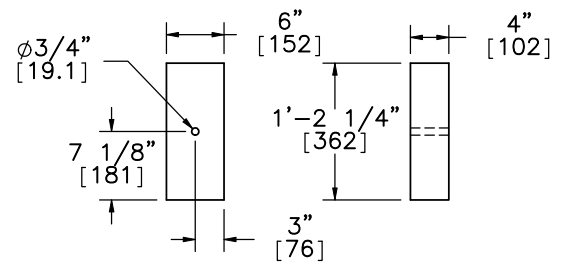
Line Post



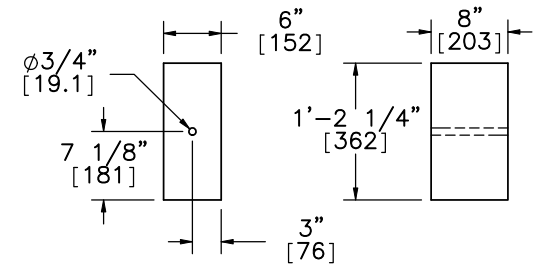
W-Beam Blockout



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



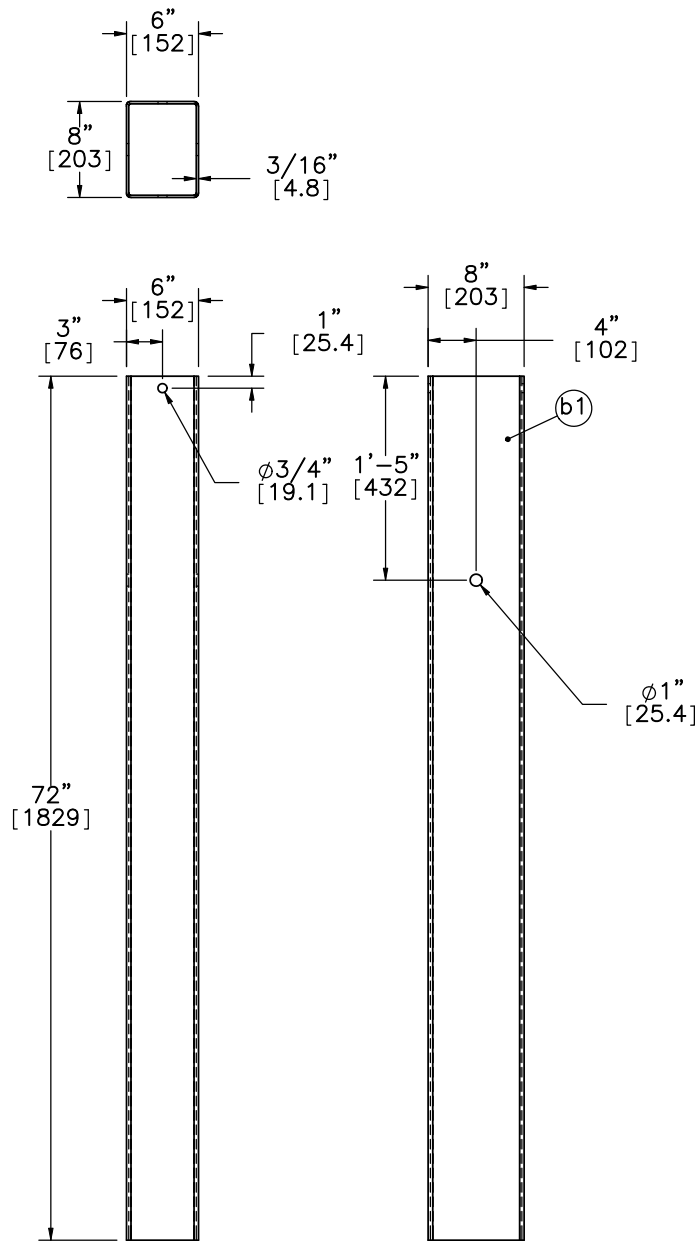
Midwest Roadside Safety Facility

MGS with White Pine Wood Posts  
Posts 3-27 Details

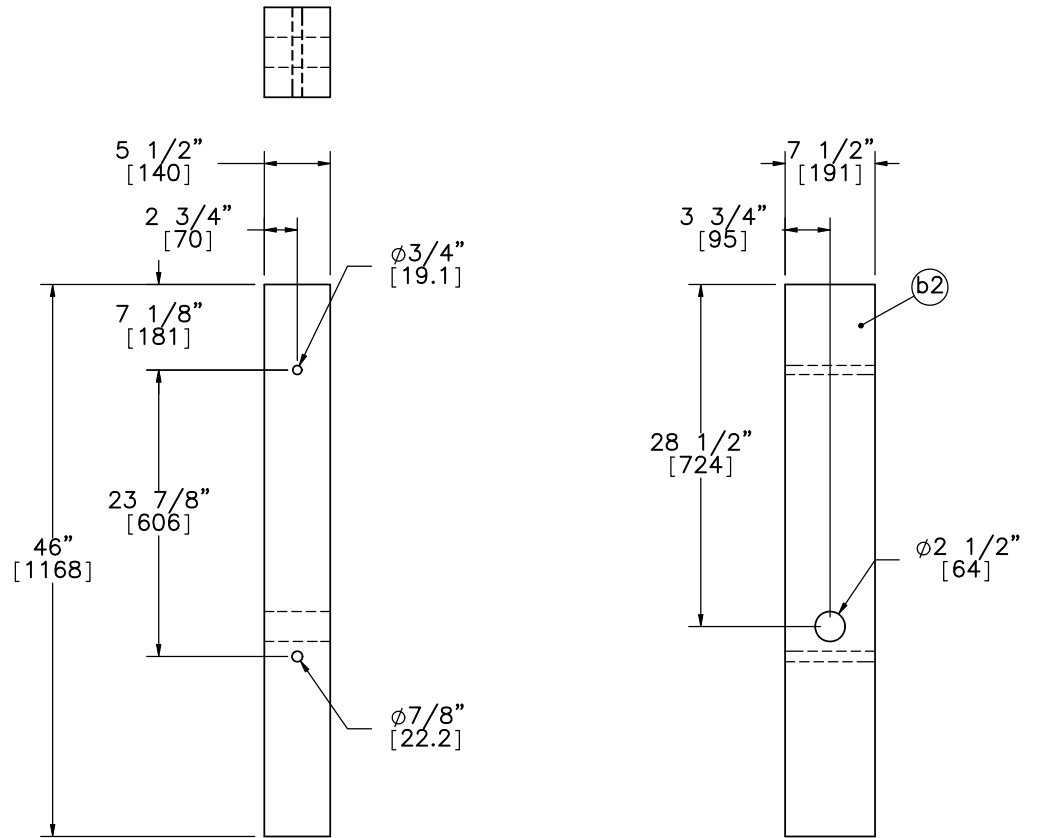
DWG. NAME:  
MGSWP-1\_R9

SCALE: 1:20  
UNITS: In./mm

SHEET:  
5 of 11  
DATE:  
12/08/2010  
DRAWN BY:  
MJW/RJT/  
MDM  
REV. BY:  
SKR/RWB/  
KAL/RKF



Foundation Tube



BCT (MGS) Timber Post



Midwest Roadside  
Safety Facility

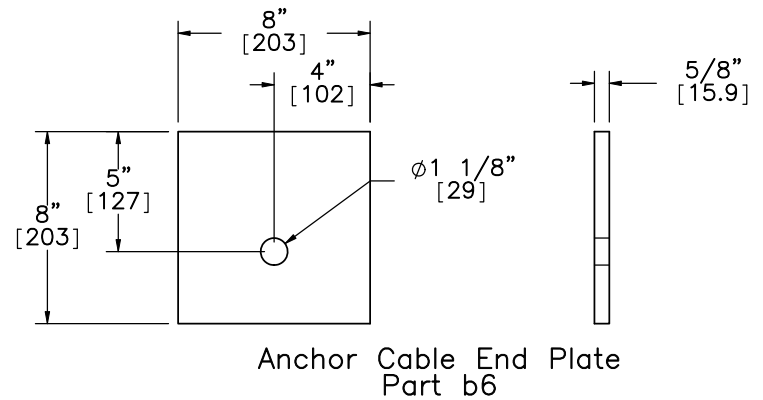
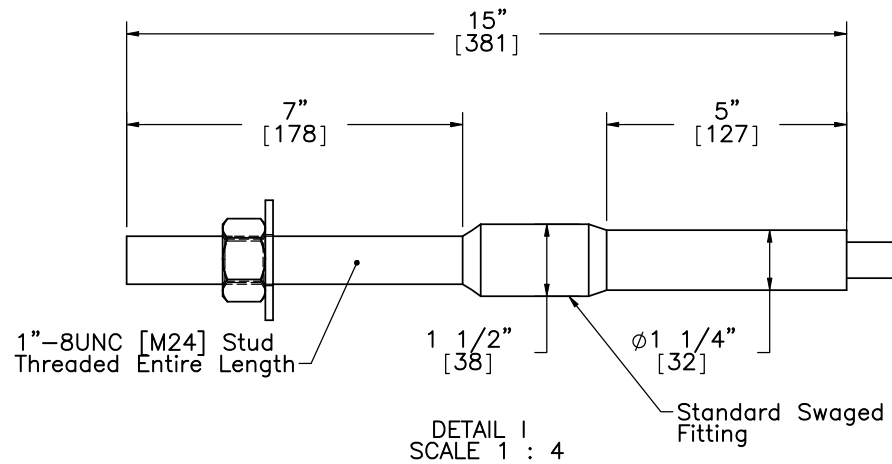
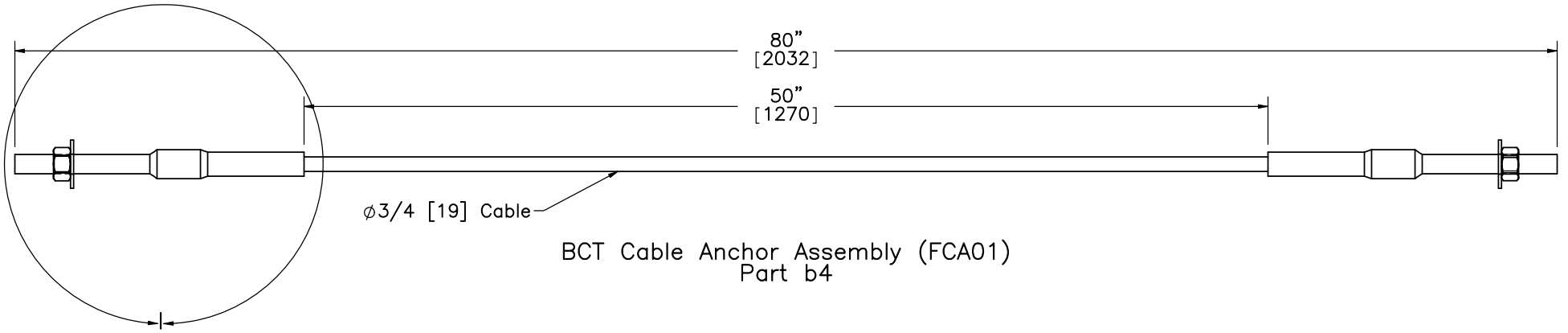
MGS White Pine Wood Posts  
BCT Timber Post & Foundation Tube Details

DWG. NAME:  
MGSWP-1\_R9

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

SHEET:  
6 of 11  
DATE:  
12/08/2010  
DRAWN BY:  
MJW/RJT/  
MDM  
REV. BY:  
SKR/RWB/  
KAL/RKF

Note: (1) 6x19 and 6x25 IWRC cables are equivalent.



Midwest Roadside  
Safety Facility

MGS White Pine Wood  
Posts

BCT Anchor Cable

DWG. NAME.  
MGSWP-1\_R9

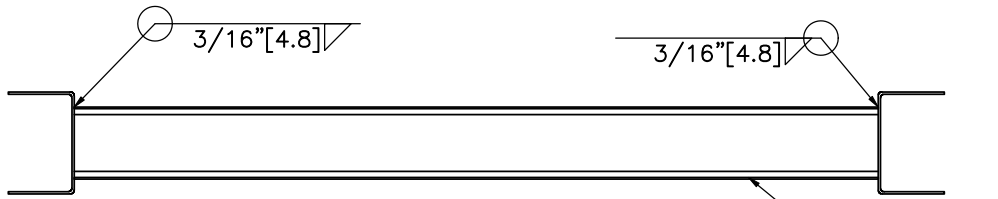
SCALE: 1:8  
UNITS: In.[mm]

SHEET:  
7 of 11

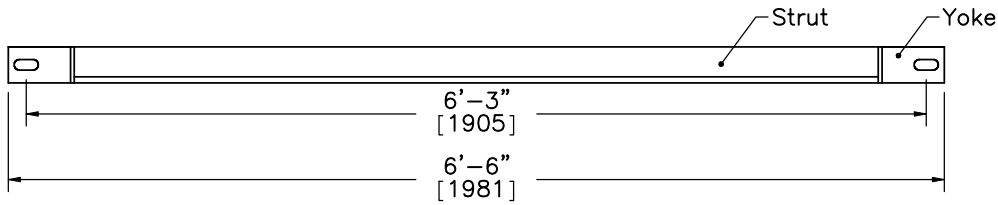
DATE:  
12/08/2010

DRAWN BY:  
MJW/RJT/  
MDM

REV. BY:  
SKR/RWB/  
KAL/RKF

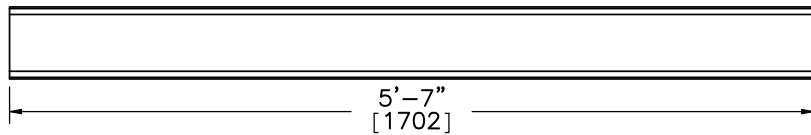


PLAN VIEW

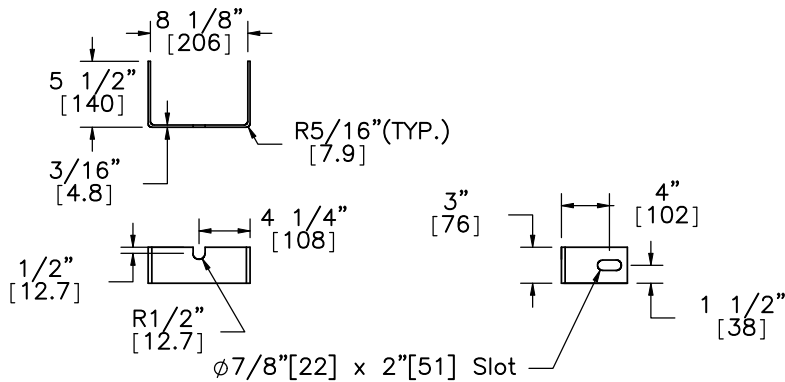
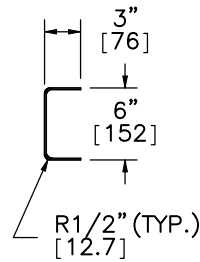


FRONT VIEW

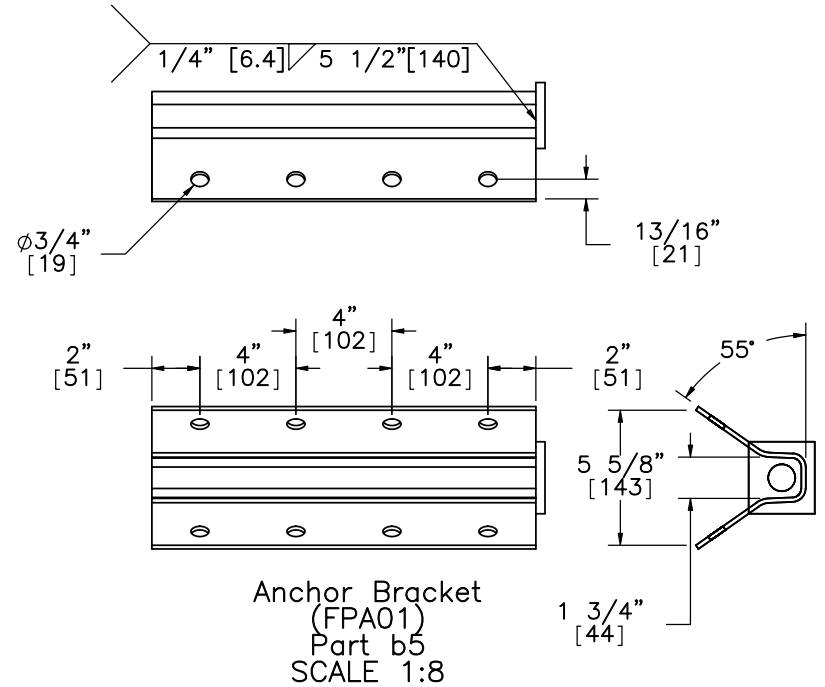
Strut and Yoke Assembly



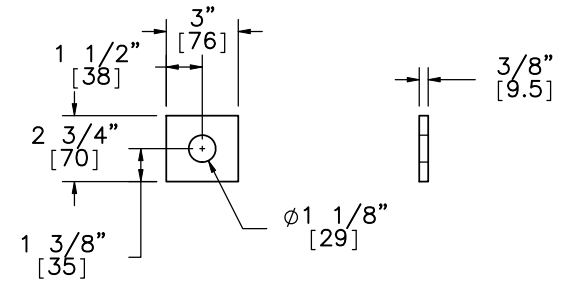
6"x3" [152x76] 10 Gauge  
Strut



Yoke



Anchor Bracket  
(FPA01)  
Part b5  
SCALE 1:8



Anchor Bracket Bearing Plate  
SCALE 1:8



Midwest Roadside  
Safety Facility

MGS with White Pine  
Wood Posts

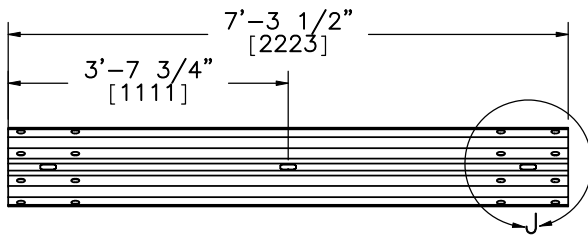
Ground Strut & Anchor  
Bracket Details

DWG. NAME.  
MGSWP-1\_R9

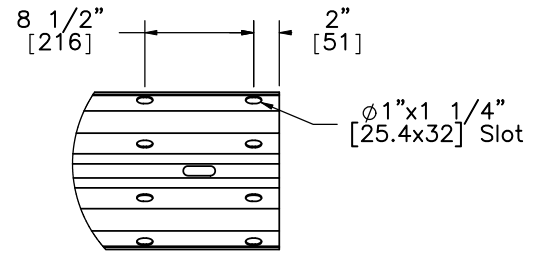
SCALE: 1:16  
UNITS: In.[mm]

SHEET:  
8 of 11  
DATE:  
12/08/2010  
DRAWN BY:  
MJW/RJT/  
MDM  
REV. BY:  
SKR/RWB/  
KAL/RKF

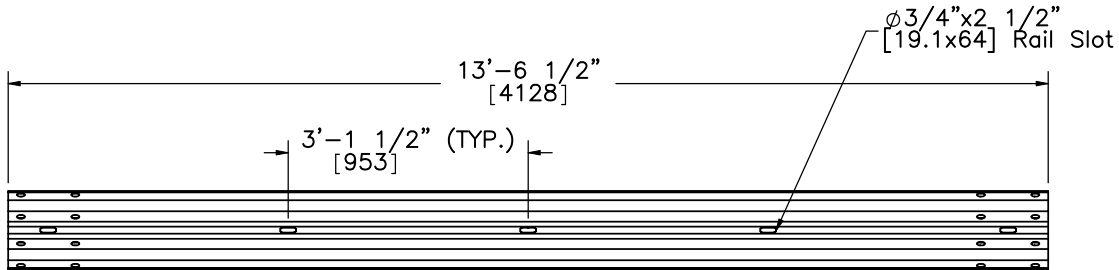




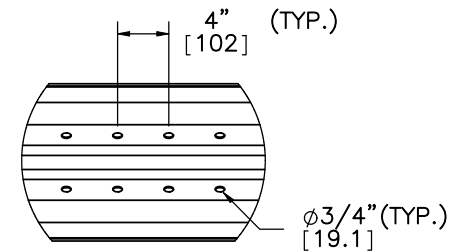
6'-3" [1905] W-Beam Section, 12 gauge [2.7]  
Part a5



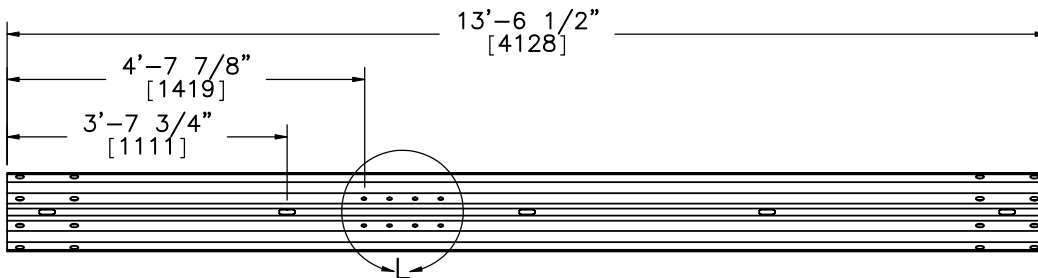
DETAIL J  
SCALE 1 : 15



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



DETAIL L  
SCALE 1 : 15



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



Midwest Roadside  
Safety Facility

MGS with White Pine  
Wood Posts

Rail Section Details

SHEET:

9 of 11

DATE:

12/08/2010

DRAWN BY:

MJW/RJT/  
MDM

REV. BY:

SKR/RWB/  
KAL/RKF


DWG. NAME.

MGSWP-1\_R9

SCALE: 1:30


UNITS: In.[mm]

Item No.	QTY.	Description	Material Specification	Hardware Guide
a1	25	6"x8"x72" [152x203x1829] White Pine Wood Post	Wisconsin 2009 Standard Specifications Sections 614.2.4, 614.2.6, 507.2.2.3, and 507.2.2.4	—
a2	25	6"x12"x14 1/4" [152x305x362] Blockout	SYP Grade No.1 or better	PDB10a-b
a3	12	12'-6" [3810] W-Beam MGS Section	12 gauge [2.7] AASHTO M180	RWM04a
a4	2	12'-6" [3810] W-Beam MGS End Section	12 gauge [2.7] AASHTO M180	RWM14a
a5	1	6'-3" [1905] W-Beam MGS Section	12 gauge [2.7] AASHTO M180	RWM01a
a6	25	16D Double Head Nail	—	—
b1	4	6"x8"x72" [152x203x1829] 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	4	BCT Cable Anchor Assembly	ø3/4" 6x19 IWRC IPS Galvanized Wire Rope	FCA01-02
b5	2	Anchor Bracket Assembly	ASTM A36 Galvanized	FPA01
b6	2	8"x8"x5/8" [203x203x15.9] Anchor Cable End Plate	ASTM A36 Galvanized	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" [16] Dia. x 1 1/4" [32] Long Guardrail Bolt and Nut	ASTM A307	FBB01
b9	4	5/8" [16] Dia. x 10" [254] Long Guardrail Bolt and Nut	ASTM A307	FBB03
b10	25	5/8" [16] Dia. x 22" [559] Long Guardrail Bolt and Nut	ASTM A307	FBB07
b11	16	5/8" [16] Dia. x 1 1/2" [38] Long Hex Head Bolt and Nut	ASTM A307	FBX16a
b12	4	5/8" [16] Dia. x 9.5" [241] Long Hex Head Bolt and Nut	ASTM A307	FBX16a
b13	69	5/8" [16] Dia. Flat Washer	ASTM F436 Grade 1	FWC14a
b14	4	7/8" [22] Dia. x 7 1/2" [191] Long Hex Head Bolt and Nut	ASTM A307	FBX22a
b15	8	7/8" [22] Dia. Flat Washer	ASTM F436 Grade 1	FWC22a

	MGS with White Pine Wood Posts		SHEET: 10 of 11
	Bill of Materials		DATE: 12/08/2010
Midwest Roadside Safety Facility	DWG. NAME: MGSWP-1_R9	SCALE: None	DRAWN BY: MJW/RJT/ MDM
		UNITS: In.[mm]	REV. BY: SKR/RWB/ KAL/RKF

SPECIES		WHITE PINE		
MAXIMUM SLOPE OF GRAIN		1 in 15		
NOMINAL WIDTH OF FACE		6" [152]	8" [203]	
SHAKES, CHECKS, AND SPLITS	GREEN	1" [25]	1 3/8" [35]	
	SEASONED	1 1/2" [38]	2" [51]	
MAXIMUM WANE		1" [25]	1 3/8" [35]	
MAXIMUM ALLOWABLE KNOTS	NARROW FACE	MIDDLE 1/3 OF LENGTH	1 3/8" [35]	1 5/8" [41]
		END (1)	2 3/4" [70]	3 1/4" [83]
		SUM IN MIDDLE 1/2 OF LENGTH (2)	11" [279]	13" [330]
	WIDE FACE	EDGE KNOT IN MIDDLE 1/3 OF LENGTH	1 3/8" [35]	1 5/8" [41]
		EDGE KNOT AT END (1)	2 3/4" [70]	3 1/4" [83]
		CENTERLINE	1 3/8" [35]	1 7/8" [48]
		SUM IN MIDDLE 1/2 OF LENGTH	5 1/2" [140]	7 1/2" [190]

- Notes: (1) Do not exceed the maximum allowable knot on the centerline of the wide face of the same piece.  
(2) Do not exceed 4 times the maximum allowable knot on the centerline of the wide face of the same piece.  
(3) This table was taken directly from the Wisconsin Department of Transportation's *2009 Standard Specifications*\_Section 614.2.4.2 page 402.

	MGS with White Pine Wood Posts	SHEET: 11 of 11
	Wisconsin White Pine Wood Post Specifications	DATE: 12/08/2010
Midwest Roadside Safety Facility		DRAWN BY: MJW/RJT/ MDM
	DWG. NAME: MGSWP-1_R9	UNITS: In.[mm] SCALE: 1:10