METHOD 1: WOOD EMBEDMENT

STEPS:

Step 1. Determine sign height (Hs), width (Ws), average mounting height from bottom of sign to ground (Hbs), and temporary guide sign wind zone. Temporary guide sign wind zone is determined from Wind Velocity Worksheet. (Page 30A on the Traffic Standards web page) and Table 1.

TABLE 1

Wind Zone on Wind Velocity Worksheet	Temporary Guide Sign Wind Zone
90 mph	70 mph
80 mph	70 mph
70 mph	60 mph

Step 2. Determine number of posts and post size from temporary guide sign wind zone using Hs, Ws, Hbs below (Figure 1: 60 mph and Figure 2: 70 mph). Determine spacing of posts (A) and distance from edge of sign to outside posts (0.5A) from 'Post Spacing and Sign Placement' detail on TLRS(2).

Step 3. Determine minimum post embedment depth from Table 2. For cohesionless soils, another method should be used to determine embedment depth.

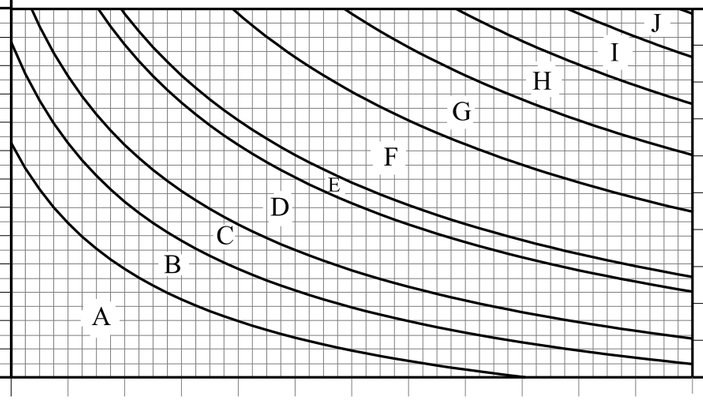
TABLE 2

Wooden Post Size	Embedment Depth (ft)
4x6	3
6x8	4
6x10	5

Step 4. Fabricate posts using 'Wood Post' detail on TLRS(2). Attach sign (plywood or extruded aluminum) using a method on TLRS(3). Wooden parts are not required to be painted.

FIGURE 1

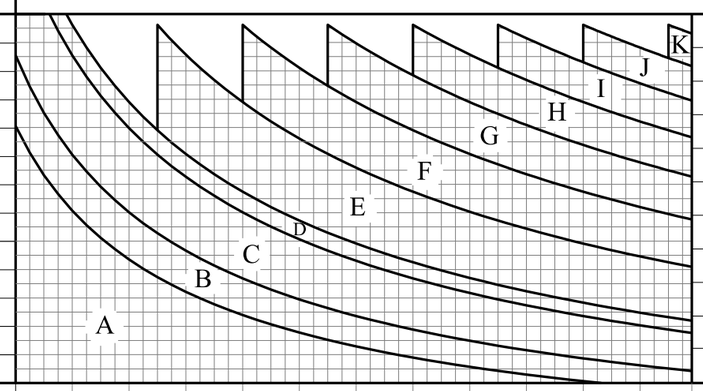
Average Height Above Ground (Hbs)(ft)	13-16	10-13	7-10
Sign Face Height (Hs) (ft)	13	14	15
	12	13	14
	11	12	13
	10	11	12
	9	10	11
	8	9	10
	7	8	9
	6	7	8
	5	6	7
	4	5	6
	3	4	5
	2	3	4
	1	2	3



Post Qty	Post Size
J 7	6" x 10"
I 6	6" x 10"
H 5	6" x 10"
G 4	6" x 10"
F 3	6" x 10"
E 2	6" x 10"
D 3	6" x 8"
C 2	6" x 8"
B 3	4" x 6"
A 2	4" x 6"

FIGURE 2

Average Height Above Ground (Hbs)(ft)	13-16	10-13	7-10
Sign Face Height (Hs) (ft)	13	14	15
	12	13	14
	11	12	13
	10	11	12
	9	10	11
	8	9	10
	7	8	9
	6	7	8
	5	6	7
	4	5	6
	3	4	5
	2	3	4
	1	2	3



Post Qty	Post Size
K 9	6" x 10"
J 8	6" x 10"
I 7	6" x 10"
H 6	6" x 10"
G 5	6" x 10"
F 4	6" x 10"
E 3	6" x 10"
D 2	6" x 10"
C 3	6" x 8"
B 2	6" x 8"
A 3	4" x 6"

DATE:
FILE:

GENERAL NOTES

1. See plans for specifications and pay item information. Temporary guide signs required for contractor changes to traffic control plan are subsidiary to item 502.
2. Contractor may use any of the 3 methods (Wood Embedment, Steel Embedment or Wood Skid) as long as sign height requirements are met and approved by the Engineer.
3. See SMD (2-3) for details on attaching panels and plaques to parent signs.
4. Nails are not allowed in temporary sign support structures.

METHOD 2: STEEL EMBEDMENT

STEPS:

Step 1. Determine sign height (Hs), width (Ws), average mounting height from bottom of sign to ground (Hbs), and wind zone from Wind Velocity Worksheet.

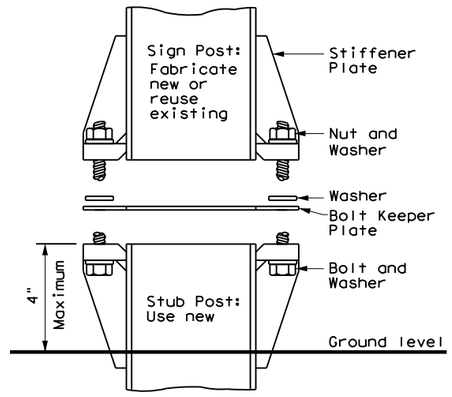
Step 2. Determine number of posts, post size, and post spacing from SMD(2-3) and SMD(8W1). Alternatively, the sign posts from an existing sign may be used if 7' minimum height from pavement to bottom of sign can be maintained at new location. In this case, only a new stub post without concrete foundation is required. See Detail A and SMD(2-2) for more information.

Step 3. Determine minimum stub post embedment depth from Table 3. No concrete foundation is required. For cohesionless soils, another method should be used to determine embedment depth.

TABLE 3

Steel Support Post Size	Embedment Depth (ft)
W6x9	4
W6x12	4.5
W6x15	5
W8x18	6
W8x21	6.5
W10x22	7.5
W10x26	8
W12x26	8.5
S3x5.7	3
S4x7.7	3.5

Step 4. Attach sign using SMD(2-3) for an extruded aluminum sign or using TLRS(3) for a plywood sign.



DETAIL A

SHEET 1 OF 4

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TEMPORARY LARGE ROADSIDE SIGNS

TLRS(1)-17

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METHOD 3: WOOD SKID

STEPS:

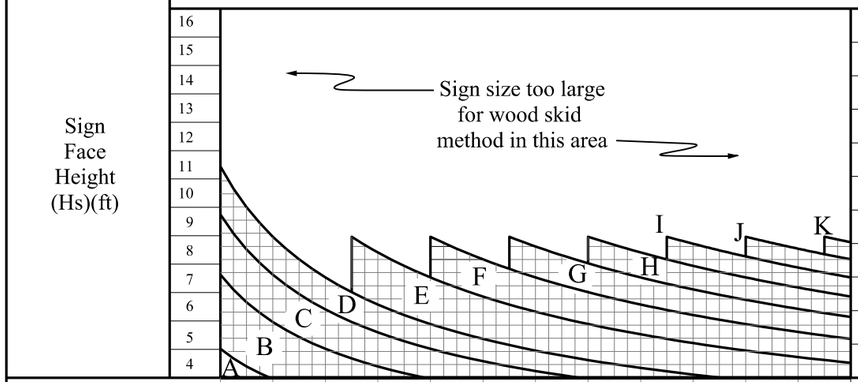
Step 1. Determine sign height (Hs) and width (Ws). Note that the wood skid method is only intended for use on level terrain. The skid height from ground to bottom of sign is 7'6". If this causes the distance from edge of pavement to the bottom of the sign to be less than 7', the wood skid method is not to be used.

Step 2. Determine number of 4"x6" (nominal 3.5"x 5.5") posts from Figure 3 below. Determine spacing of posts (A) and distance from edge of sign to outside posts (0.5A) from 'Post Spacing and Sign Placement' detail.

Step 3. Determine number of 40 pound sandbags from Figure 4.

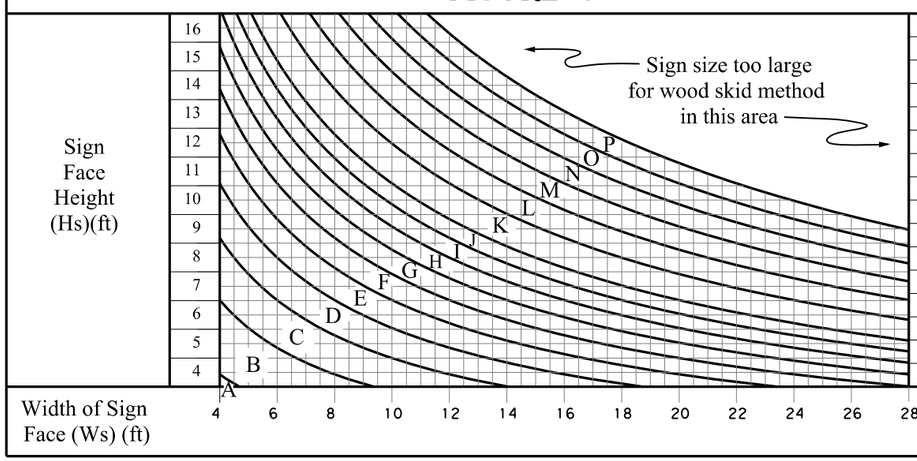
Step 4. Assemble skid as shown on TLRS(4) standard. Attach sign (plywood or extruded aluminum) using a method on TLRS(3). Wooden parts are not required to be painted.

FIGURE 3



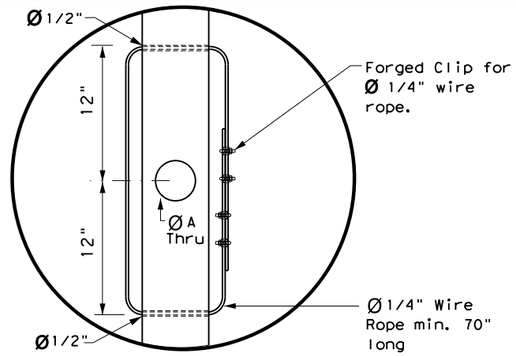
Post Qty	Post Size
K 9	3.5" x 5.5"
J 8	3.5" x 5.5"
I 7	3.5" x 5.5"
H 6	3.5" x 5.5"
G 5	3.5" x 5.5"
F 4	3.5" x 5.5"
E 3	3.5" x 5.5"
D 2	3.5" x 5.5"
C 3	3.5" x 3.5"
B 2	3.5" x 3.5"
A 1	3.5" x 3.5"

FIGURE 4



Bags
P 110
O 100
N 090
M 080
L 070
K 060
J 050
I 045
H 040
G 035
F 030
E 025
D 020
C 015
B 010
A 005

WIRE ROPE BREAKAWAY FEATURE

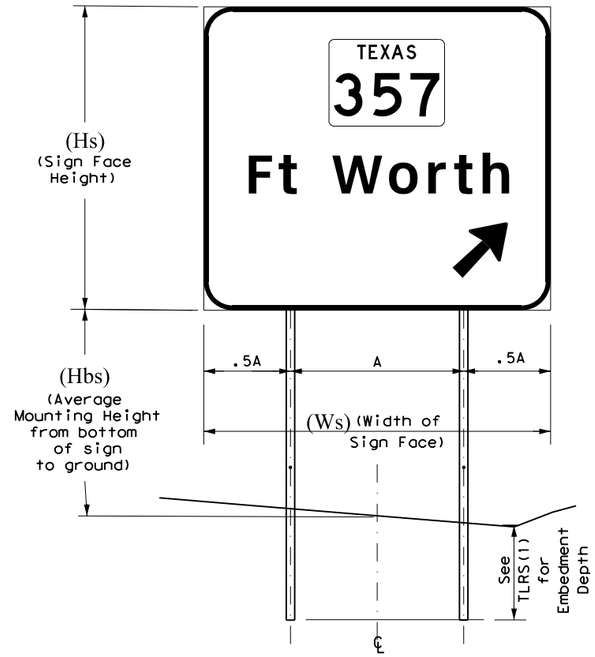


DETAIL B

NOTES:

1. Wire rope breakaway feature required on all wooden posts. This breakaway feature includes the clamped cable with 2 holes to mount the cable, 4 cable clips, and hole A which the cable surrounds.
2. Breakaway feature is designed so wooden post fractures at hole A, with post staying attached to sign structure via the clamped cable.

POST SPACING AND SIGN PLACEMENT



WOODEN POST SPACING NOTES:

1. Spacing between posts: A = Ws / # of posts required
2. Spacing between edge of sign and outside posts: 0.5A

STEEL POST SPACING NOTE:

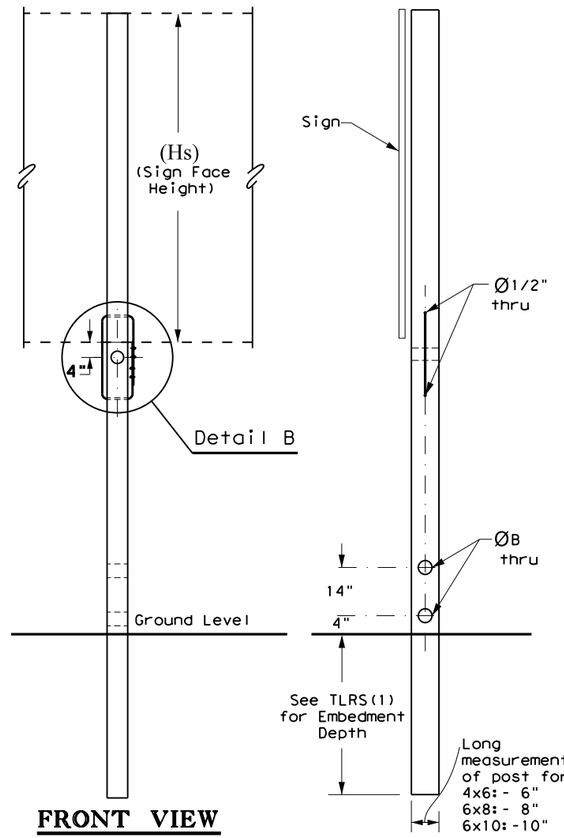
See SMD(2-3)for post spacing unless reusing existing sign posts.

SIGN PLACEMENT NOTE:

See SMD(2-3)for sign placement details.

WOOD POST

TABLE 1		
Support Size	ØA	ØB
4x6	1 1/2"	2"
6x8	3 5/8"	4"
6x10	3 5/8"	4"



NOTE:

All holes shown here are required for breakaway features to function properly.

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TEMPORARY LARGE ROADSIDE SIGNS

TLRS(2)-17

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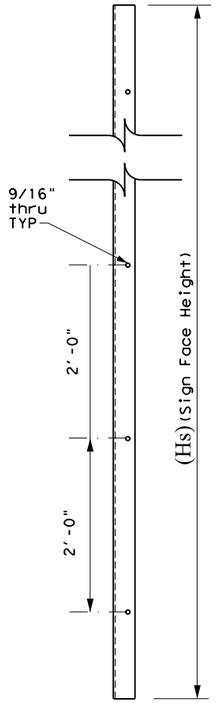
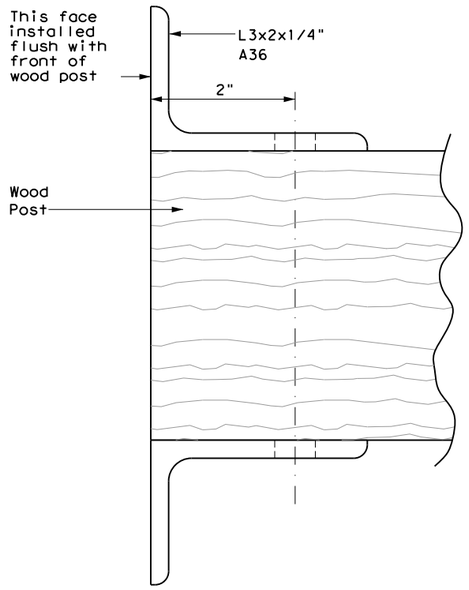
ANGLE STIFFENER METHOD (WOOD POST)



SIDE VIEW

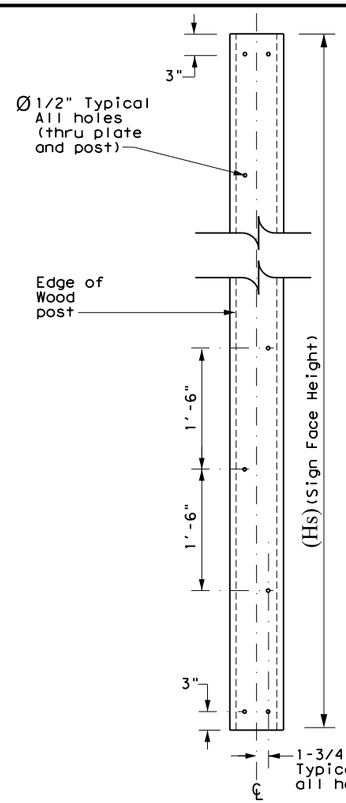


TOP VIEW

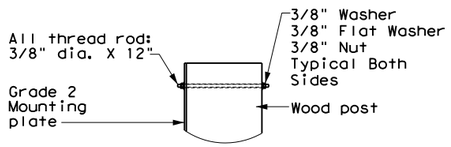
NOTES:

1. Drill holes evenly spaced from each edge of angle stiffener, with 2' between holes.
2. Attach 2 angle stiffeners to each post using A307 1/2" dia. x 2" long lag screws for 4x6 post, or A307 1/2" dia. x 3" long lag screws for 6x8 or 6x10 post.

MOUNTING PLATE METHOD (WOOD POST)



FRONT VIEW

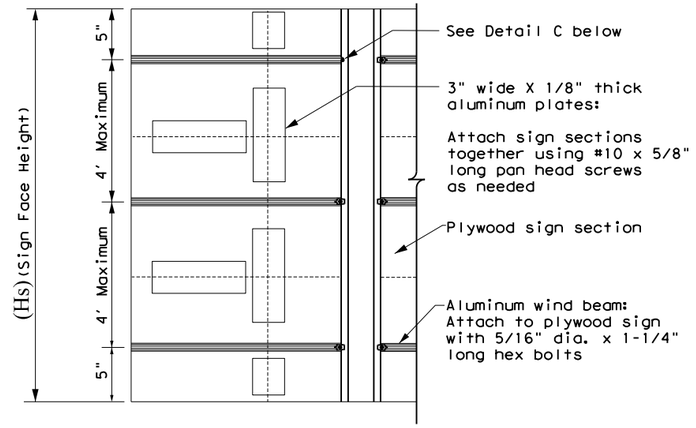


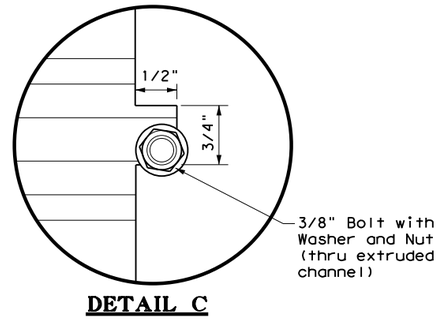
SIDE VIEW

NOTES:

1. Drill holes evenly spaced from each edge of mounting plate, with 1'6" between holes.
2. Two holes drilled 3" from each end of mounting plate.
3. Steel mounting plate 6" wide x 1/4" thick for 4x6 post, or 8" wide x 1/4" thick for 6x8 or 6x10 post.
4. Install mounting plate so plate overhang is the same on both sides of wood post. Drill 1/2" dia. holes thru wood post before attaching mounting plate using 3/8" threaded rod.

MOUNTING A PLYWOOD SIGN



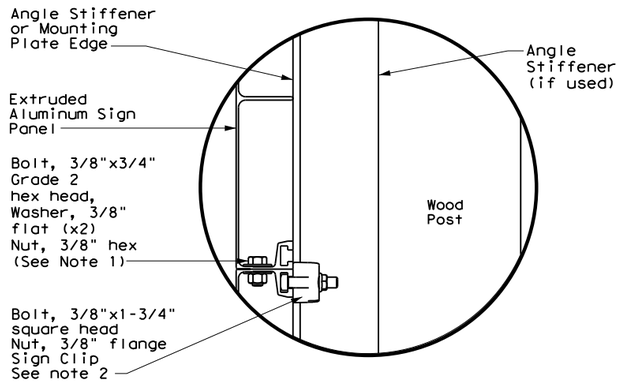


DETAIL C

NOTES:

1. Recommended sign thickness 5/8".
2. Attach an aluminum wind beam approx. 5" from the top and bottom of sign thru the width of the sign and then as needed so there is a maximum 4' spacing between beams.
3. Attach sign sections with aluminum plates as needed.
4. Attach sign to post using bolts with sign clips as shown in 'Mounting Plate and Angle Stiffener Attachment to Extruded Aluminum Sign' detail. On the top bolt, cut out a 1/2" wide x 3/4" tall notch and tighten the bolt in the notch with a nut and washer. A sign clip is not used here. See Detail C.
5. This option works for the angle stiffener or mounting plate methods. Clamp plate method not recommended with aluminum wind beams.
6. Alternatively, contractor may drill holes thru plywood sign and attach to post using angle stiffener, mounting plate, or clamp plate method. Vertical bolt spacing should not be greater than 12" with 3/8" bolts.

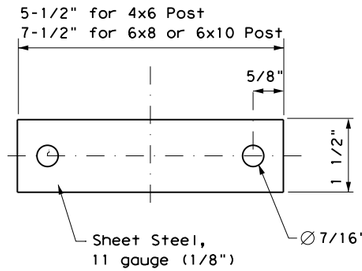
MOUNTING PLATE AND ANGLE STIFFENER ATTACHMENT TO EXTRUDED ALUMINUM SIGN

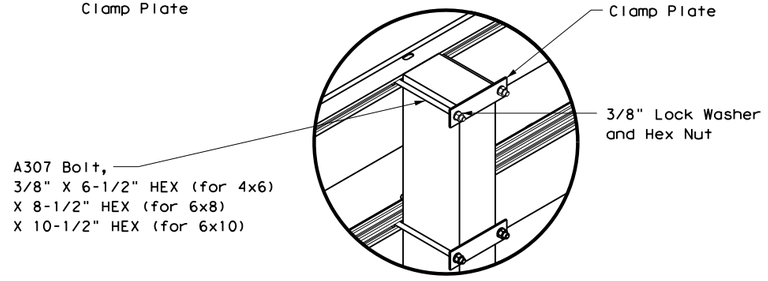


NOTES:

1. Space this hardware at 24" at each joint between panels.
2. Install this hardware on both sides of the wood post for proper attachment.

CLAMP PLATE METHOD (WOOD POST)





SHEET 3 OF 4

Texas Department of Transportation | Traffic Operations Division Standard

TEMPORARY LARGE ROADSIDE SIGNS: MOUNTING DETAILS

TLRS(3)-17

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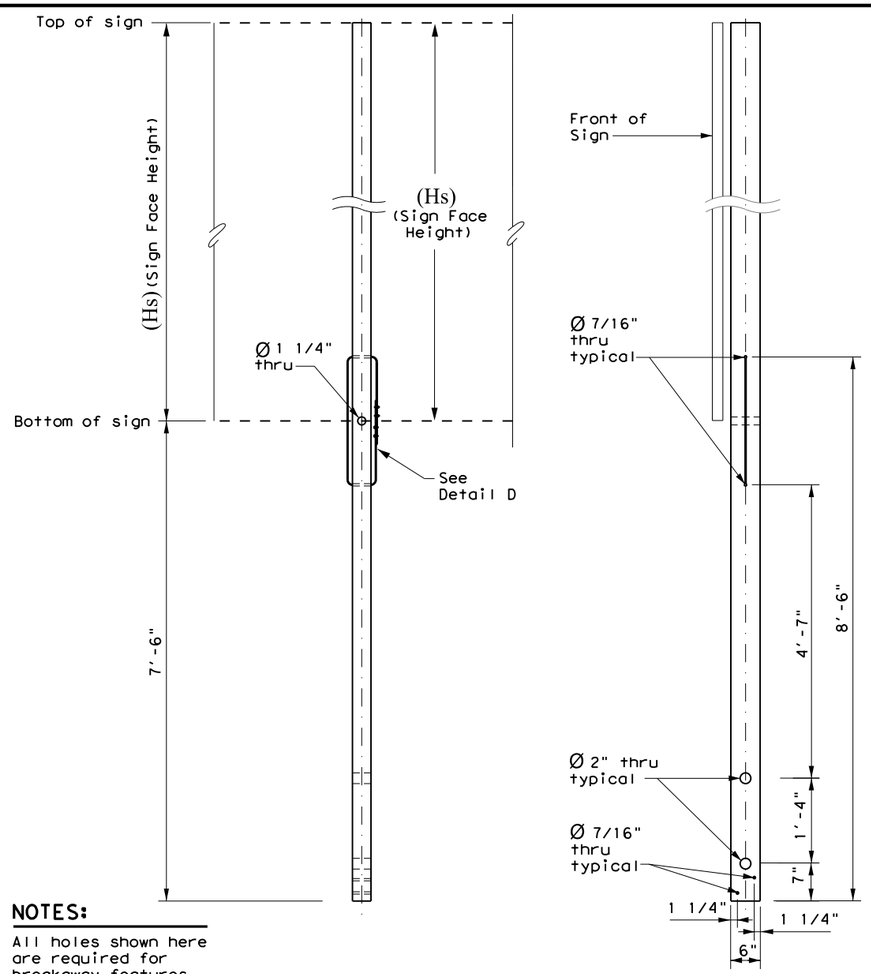
WOOD POST (4 x 6)



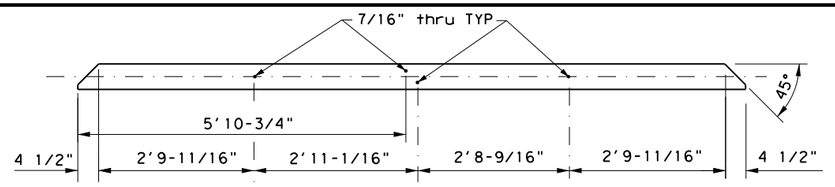
NOTES:

All holes shown here are required for breakaway features to function properly.

FRONT VIEW

SIDE VIEW

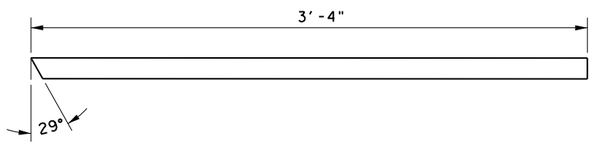
SKID (2 x 6)



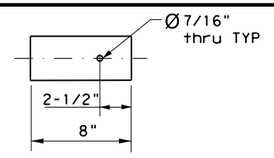
NOTES:

The 2 center holes are drilled 1-1/4" above and below skid centerline for attachment to post.

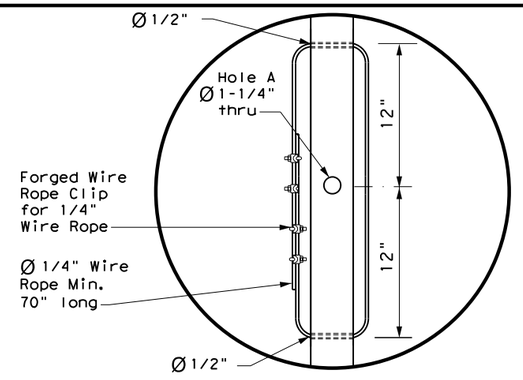
BRACE (2 x 4)



BRACE BLOCK (4 x 4)



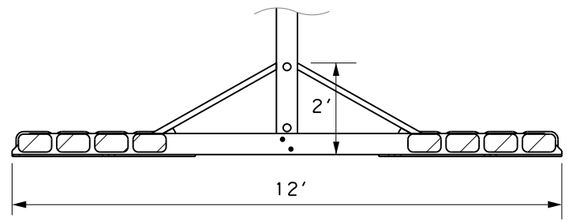
WIRE ROPE BREAKAWAY FEATURE



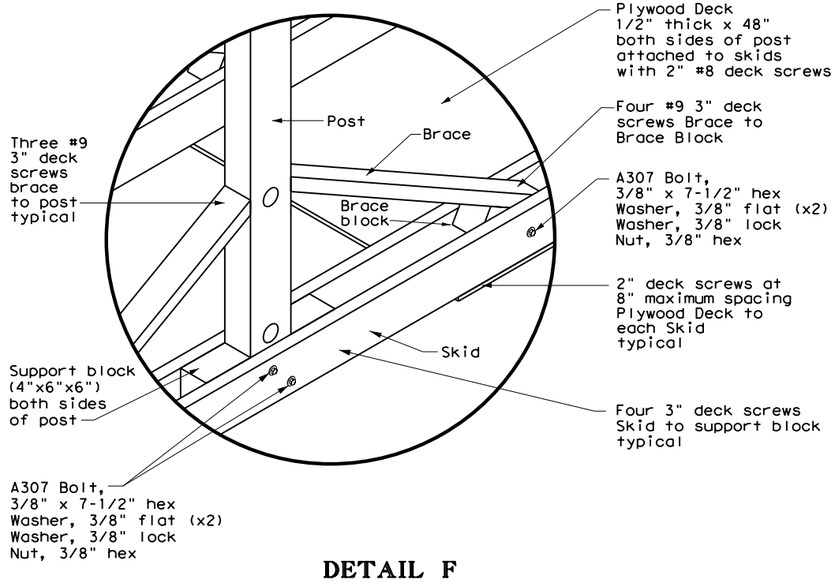
DETAIL D

NOTES:

1. Wire rope breakaway feature required on all wooden posts. This breakaway feature includes the clamped cable with 2 holes to mount the cable, 4 cable clips, and hole A which the cable surrounds.
2. Breakaway feature is designed so wood post fractures at hole A, with post staying attached to sign structure via the clamped cable.

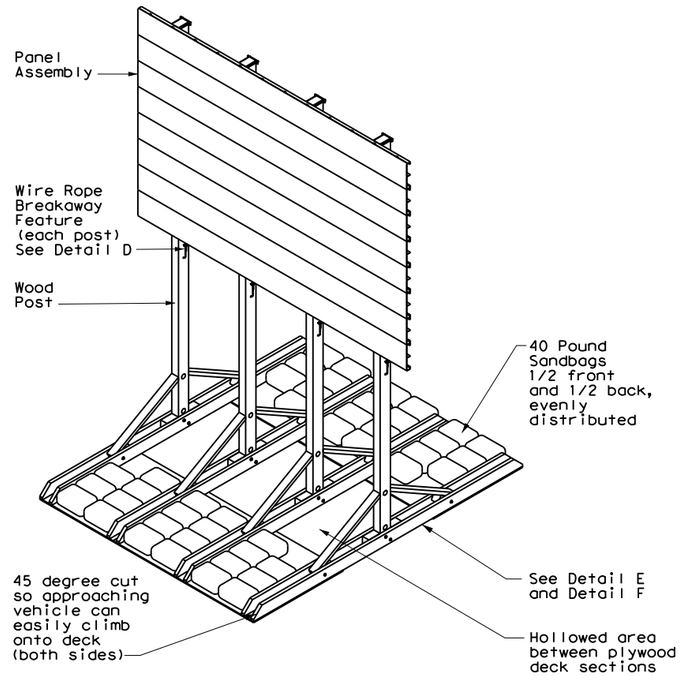


DETAIL E



DETAIL F

WOOD SKID



NOTE:

Contractor shall have the option to use another method to support the sandbags, provided the material under the sandbags does not exceed 0.75" in height. Examples include use of marine grade plywood or composite decking. Contractor may drill holes in plywood as needed for drainage.

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Texas Department of Transportation

Traffic Operations Division Standard

TEMPORARY LARGE ROADSIDE SIGNS: WOOD SKID

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