



W7-2 48"x48"



W8-7 30"x30"



W14-1 30"x30"



W20-1a 48"x48"



W20-2d 48"x48"



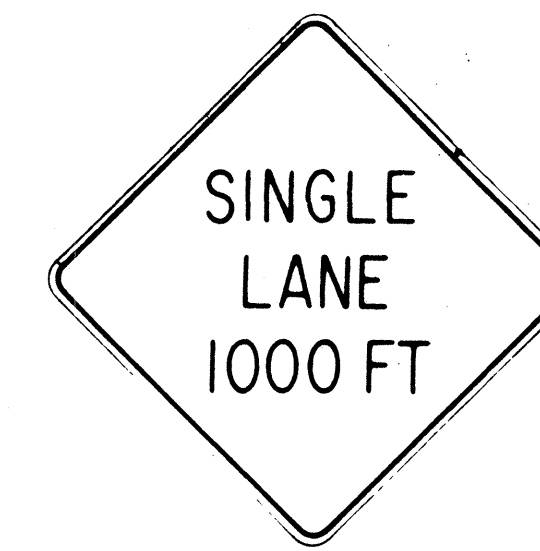
W20-3b 48"x48"



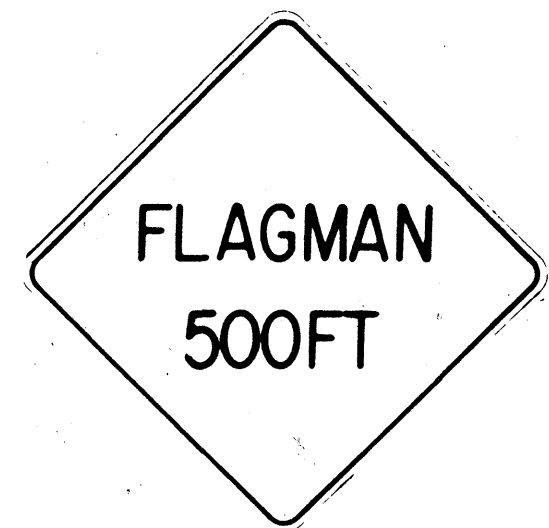
W20-4d 48"x48"



W20-5d(L) 48"x48"



W20-6b 48"x48"



W20-7c 48"x48"



W21-1 30"x30"



W21-2 24"x24"



W21-3 36"x36"



W21-4 30"x30"



W21-5 30"x30"



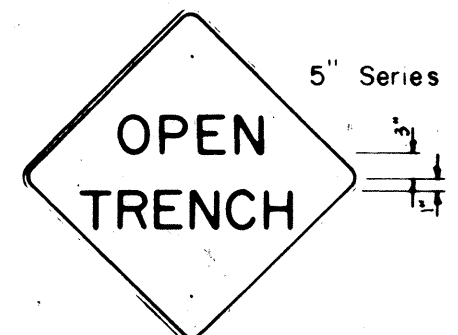
W21-6 30"x30"



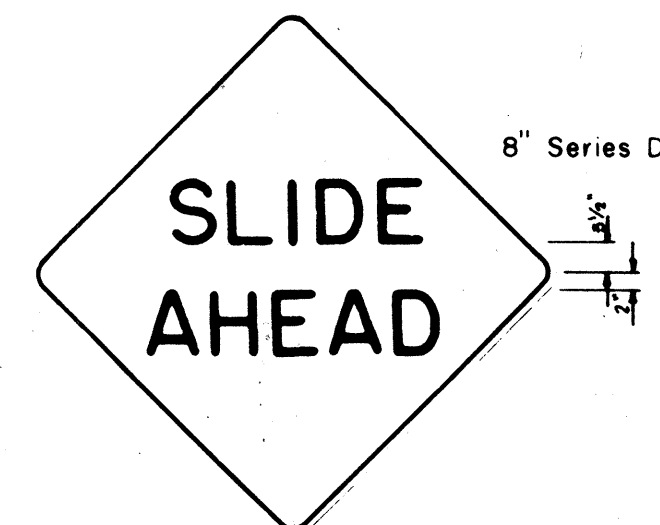
W22-1 30"x30"



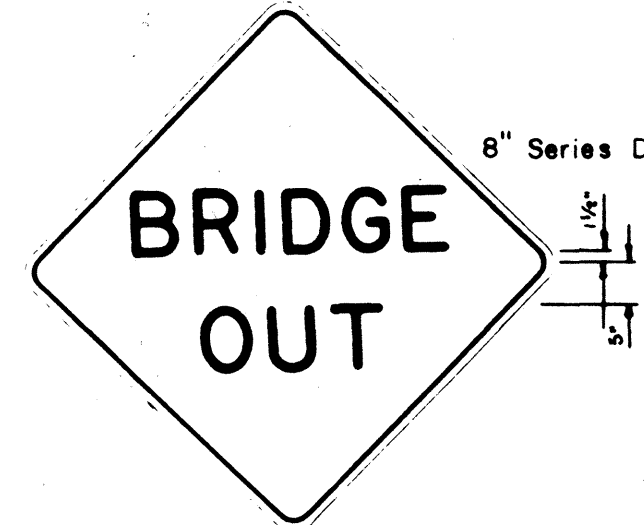
W22-2 30"x30"



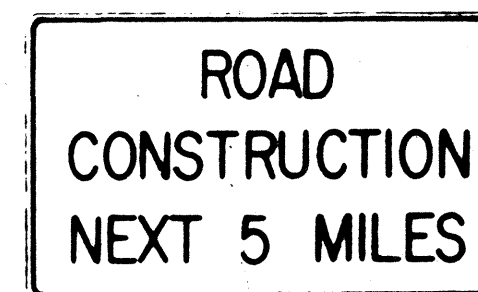
W22-3 30"x30"



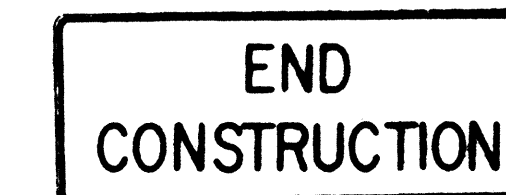
W22-4 48"x48"



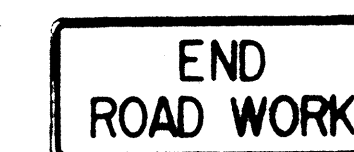
W22-5 48"x48"



G20-1(5) 60"x36"



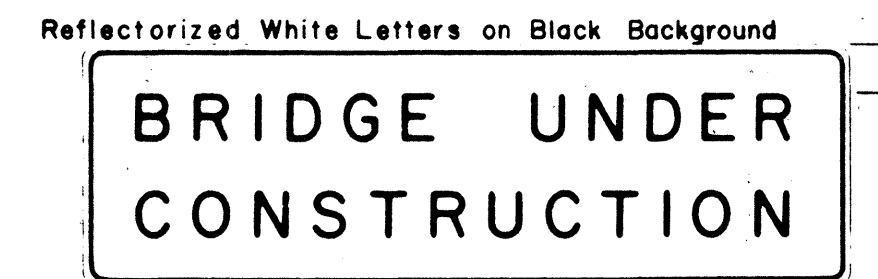
G20-2 60"x24"



G20-3 42"x18"



M5-7(L) 48"x18"



CW-1 96"x30"

NOTE:

- The shape, color, dimensions, symbols, wording, lettering and reflectorization of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
- All signs shall be reflectorized unless otherwise specified.
- All signs shall have $\frac{3}{8}$ " bolt holes drilled at appropriate locations unless otherwise noted.
- For W20 series signs, suffixes a,b,c and d are as follows a 1500 FT, b 1000 FT, c 500 FT and d AHEAD.
- (R) or (L) indicates right or left and shall be as shown on the plans.
- Number in () indicates miles and shall be as shown on the plans.

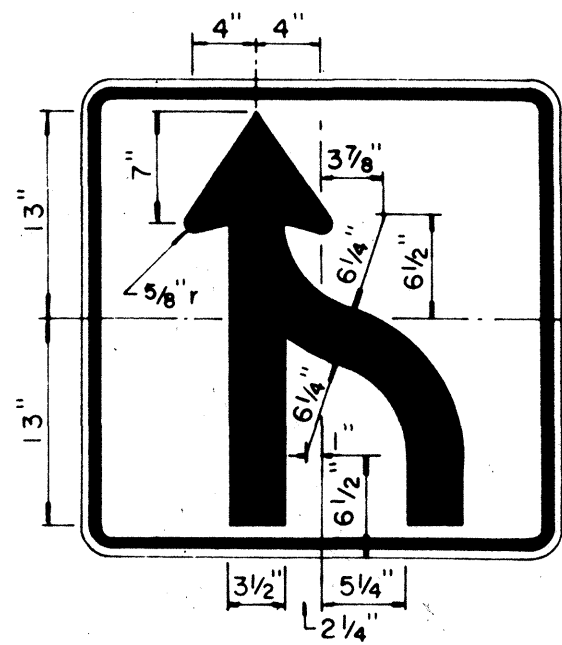
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONSTRUCTION SIGNS

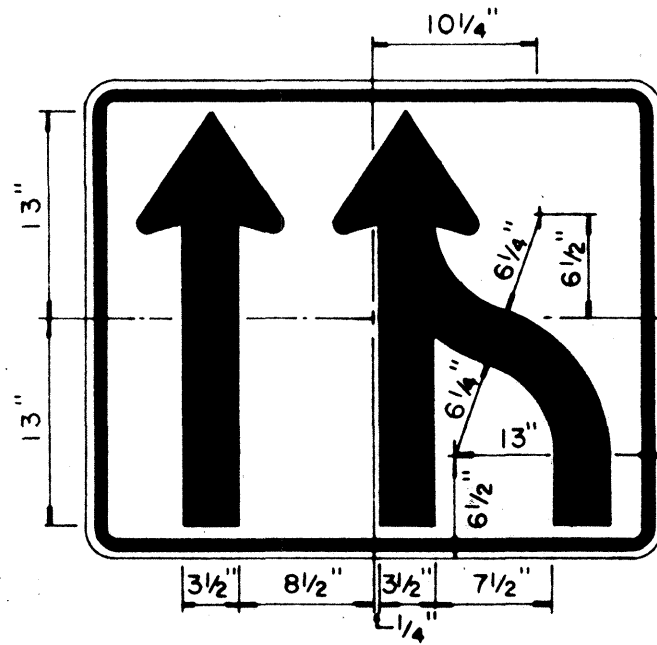
NOT TO SCALE

SHEET No. 2 OF 11 SHEETS

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITY BY	
CHECKED BY	



R3-9 30" x 30"

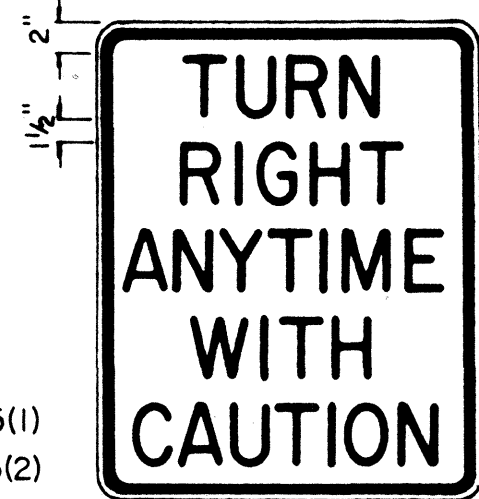


R3-10 36" x 30"

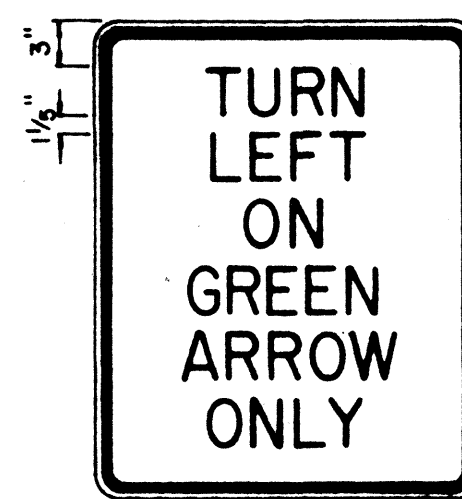


R5-5(1) 24" x 18"
R5-5(2) 36" x 24"

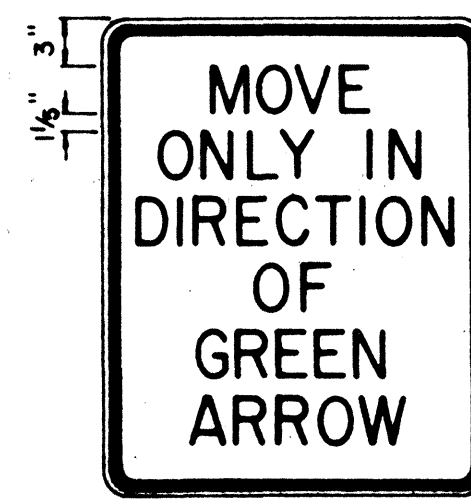
NOTE
White legend and border
on Red background



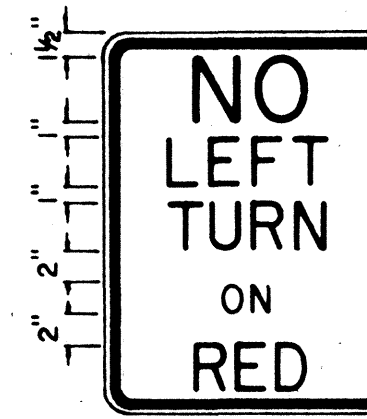
R15-1 24" x 30"



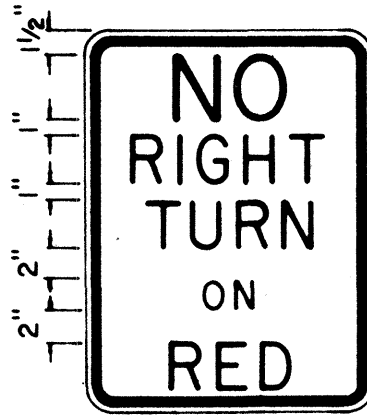
R16-1 24" x 30"



R16-2 24" x 30"



R17-1 18" x 24"



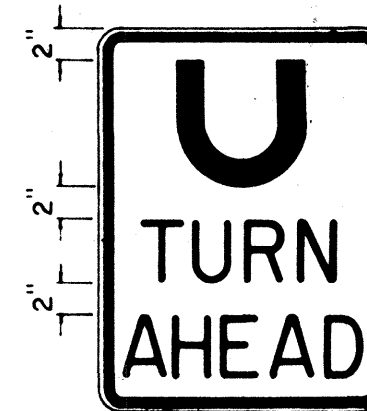
R17-2 18" x 24"

4" Series D
3" Series C
2" Series B

4" Series D
3" Series C
2" Series B



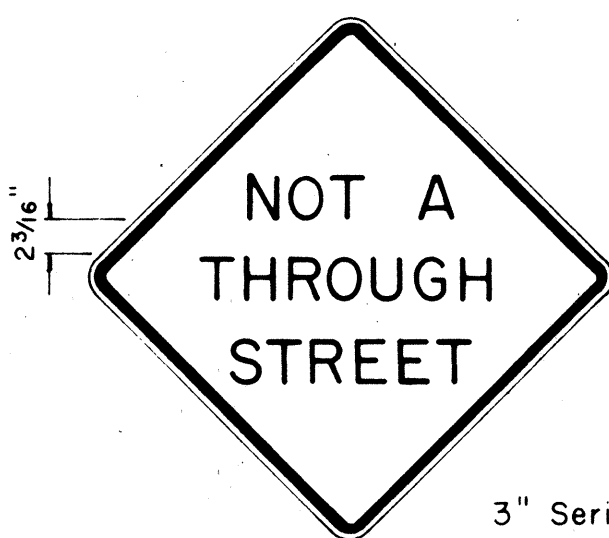
R18-1 36" x 30"



R19-1 18" x 24"

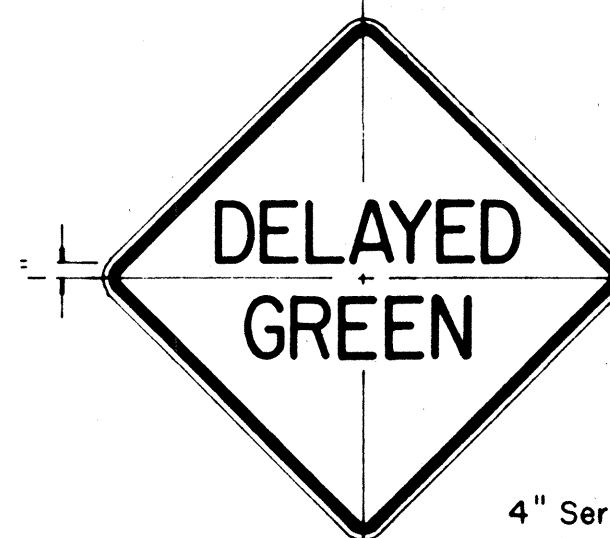
3" Series C
4" Series E

8" Series F
4" Series D



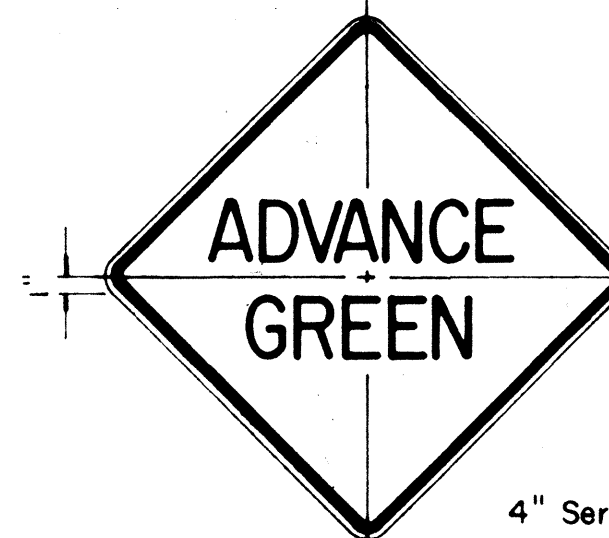
W13-4 24" x 24"

3" Series D



W15-1 24" x 24"

4" Series C



W15-2 24" x 24"

4" Series C

NOTE

1. The shape, color, plate details, lettering and reflectorization of Regulatory signs (Prefix R) and Warning signs (Prefix W) shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
2. All regulatory and warning signs shall be reflectorized unless otherwise specified.
3. All regulatory and warning signs shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.

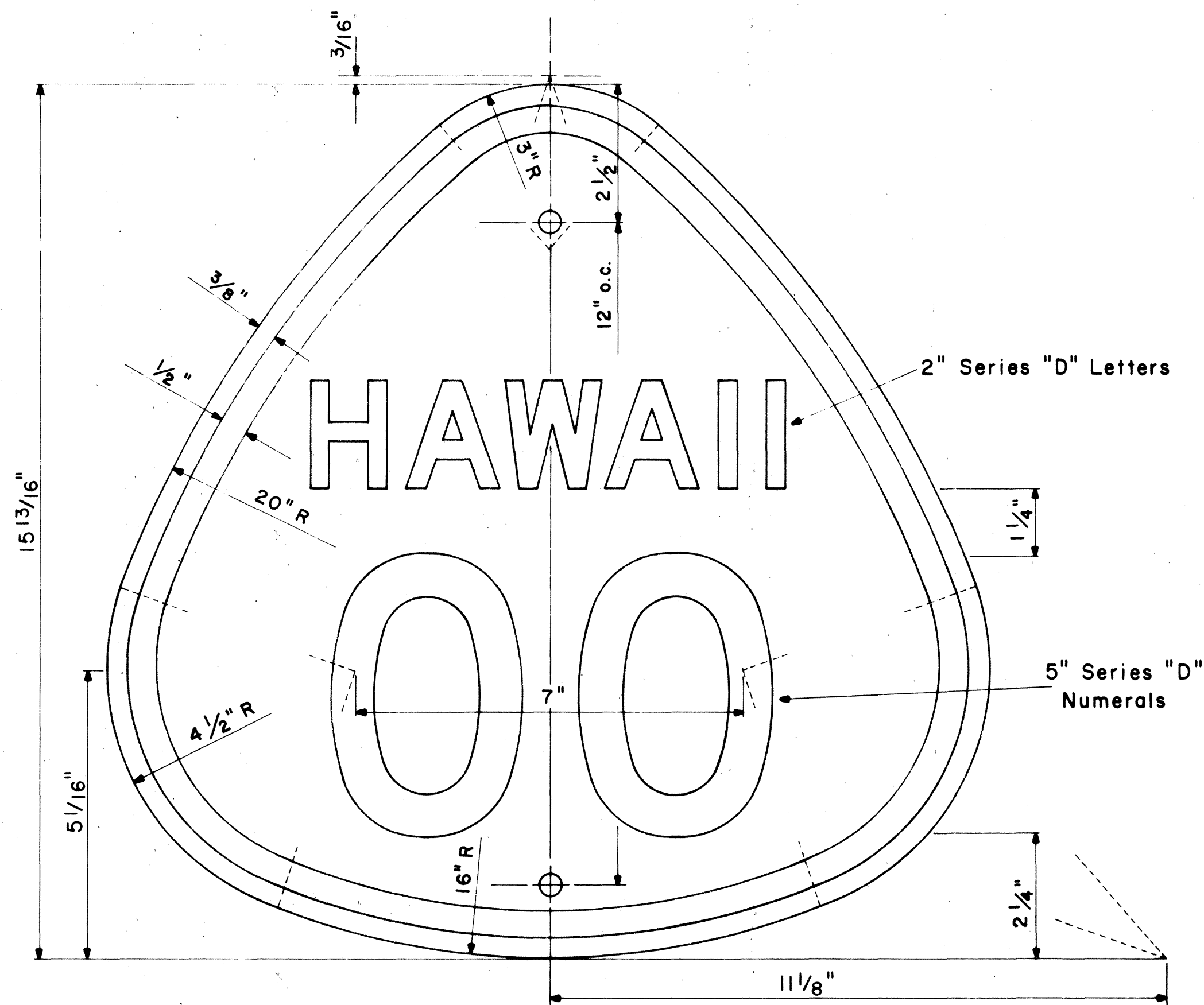
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

**MISCELLANEOUS
REGULATORY & WARNING SIGNS**

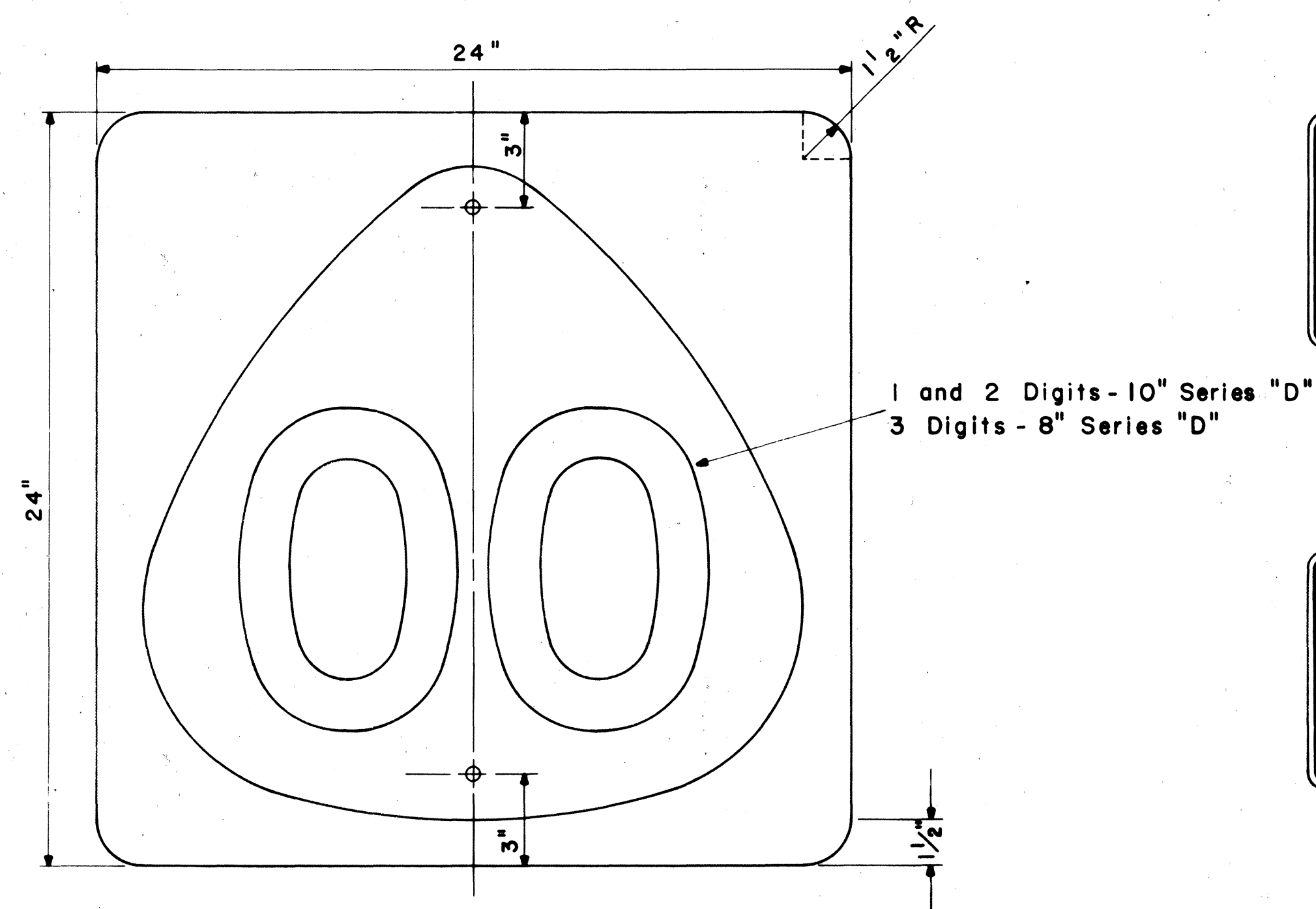
Scale: 1" = 1' - 0"

SHEET No. 3 OF 3 SHEETS



STATE ROUTE MARKER
MI-3(OO)

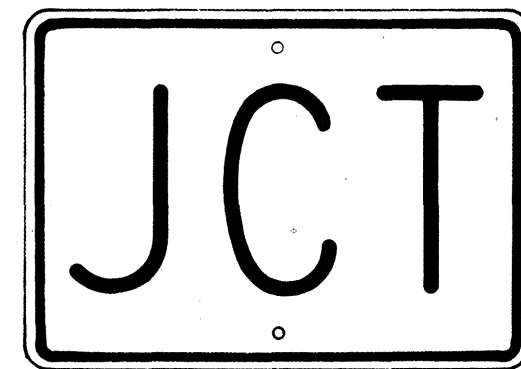
Scale: 1/2" = 1"



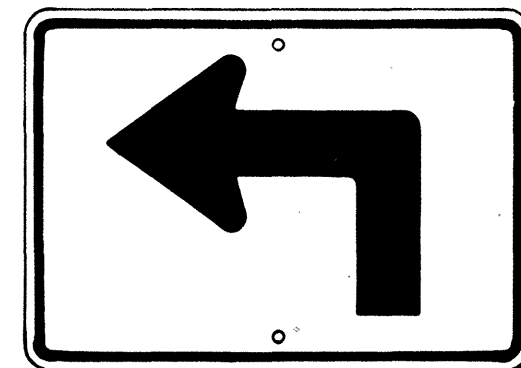
STATE ROUTE MARKER
MI-4(OO)

Scale: 1/4" = 1"

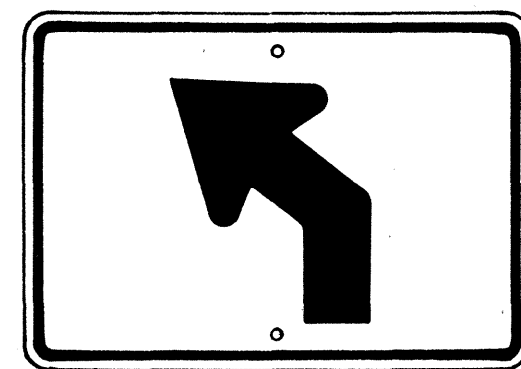
NOTE:
Multiply all dimensions of State Route Marker MI-3
by 1.3 for the dimensions of the shield for MI-4.



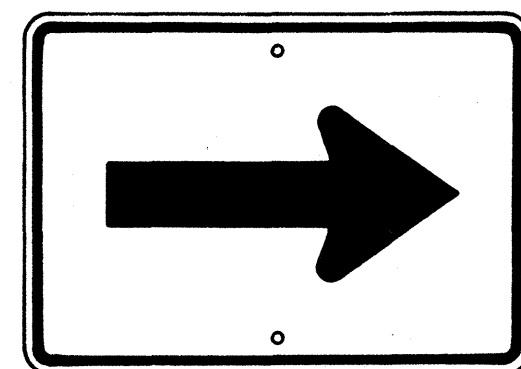
M2-1
21" x 15"



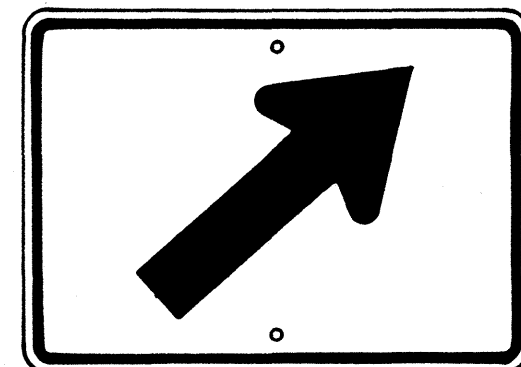
M3-1-L
* M3-1-R
21" x 15"



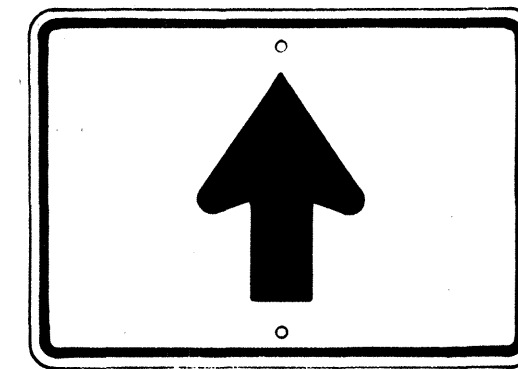
M3-2-L
* M3-2-R
21" x 15"



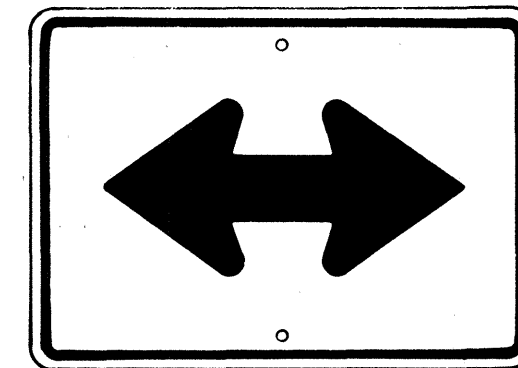
M4-1
21" x 15"



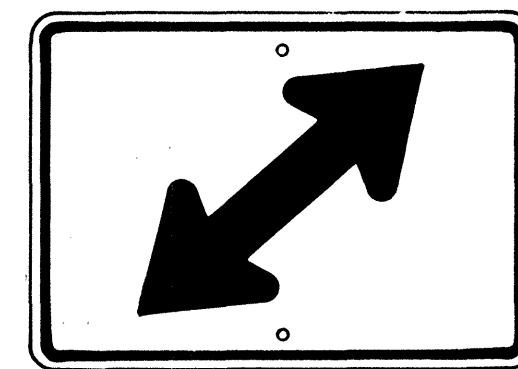
M4-2-R
* M4-2-L
21" x 15"



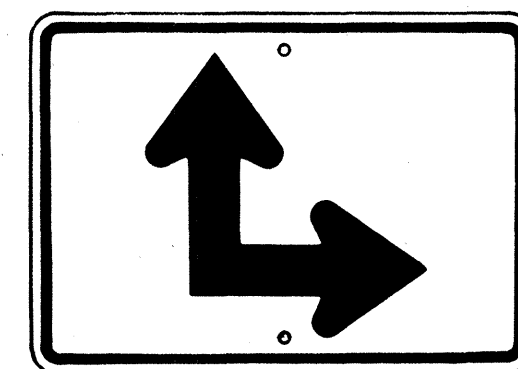
M4-3
21" x 15"



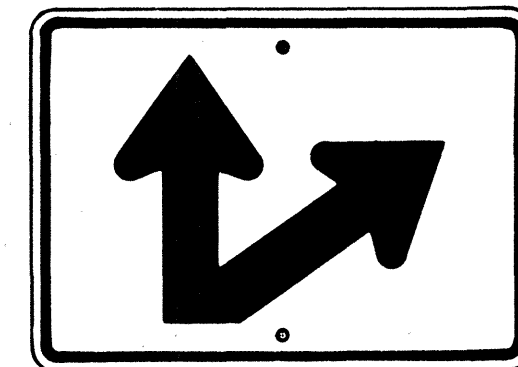
M4-4
21" x 15"



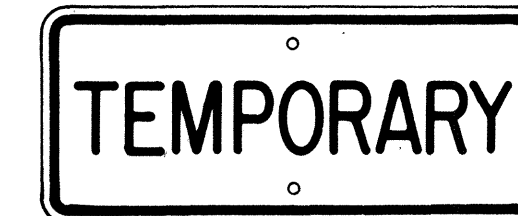
M4-5-R
* M4-5-L
21" x 15"



M4-6-R
* M4-6-L
21" x 15"



M4-7-R
* M4-7-L
21" x 15"



M5-1
21" x 9"



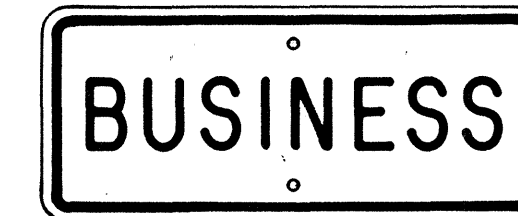
M5-2
21" x 9"



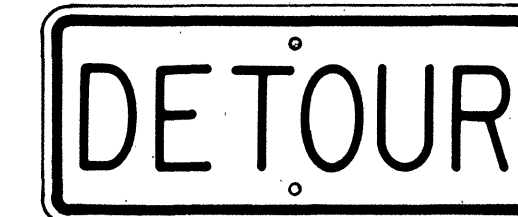
M5-3
21" x 9"



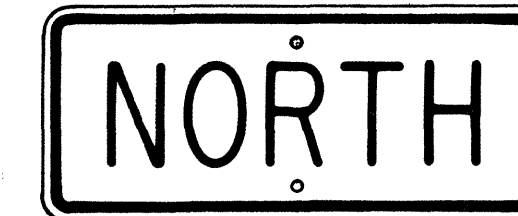
M5-4
21" x 9"



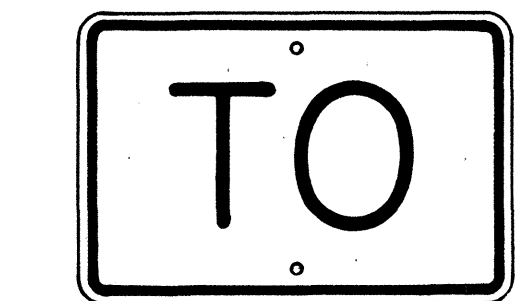
M5-5
21" x 9"



M5-6
21" x 9"



M6-1-N
21" x 9"
(See Note 6)



M7-1
18" x 12"

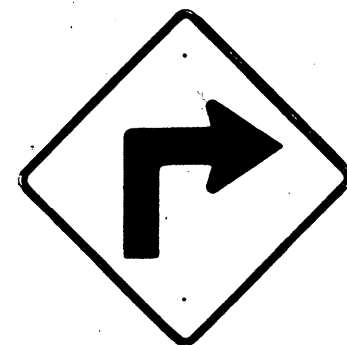
AUXILIARY MARKERS

Scale: 1/8" = 1"

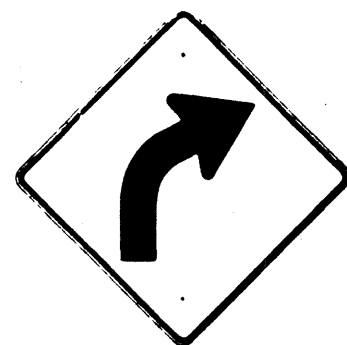
* NOTE:
Signs shall be similar but opposite in direction.

GENERAL NOTES

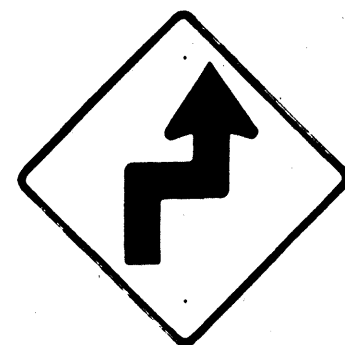
- The shape, color, dimensions, symbols, wording, lettering and reflectorizing of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961, unless otherwise specified.
- All letters and figures shall conform to the manual "Standard Alphabets for Highway Signs," Dept. of Commerce, Bureau of Public Roads, 1952.
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.
- All markers shall have a black legend on a white background unless otherwise specified.
- Sign message of Cardinal Direction Marker (M6-1) shall be denoted by the following suffixes:
M6-1-N : NORTH
M6-1-E : EAST
M6-1-S : SOUTH
M6-1-W : WEST
- Auxiliary markers denoted with the suffix "I": (M4-1-I) shall have a white legend on a blue background.
- Cardinal Direction Marker (M6-1) with suffix I (3) shall have a white legend on a blue background and shall be 30" x 15" in size.
- For MI-3 and MI-4 signs, number in () indicates route number and shall be as shown on the plan.



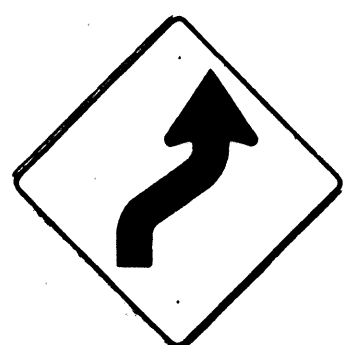
W1-1(R) 30" x 30"



W1-2(R) 30" x 30"



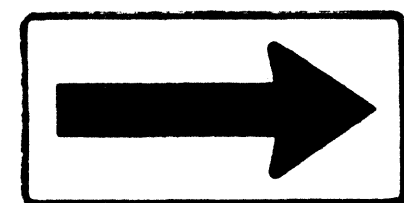
W1-3(R) 30" x 30"



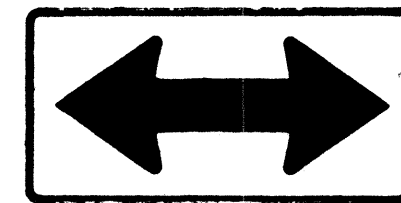
W1-4(R) 30" x 30"



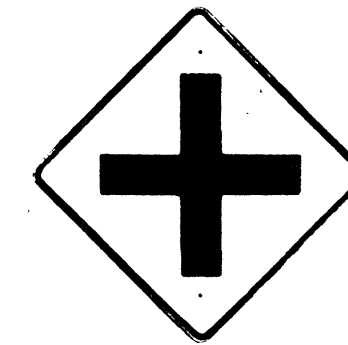
W1-5(R) 30" x 30"



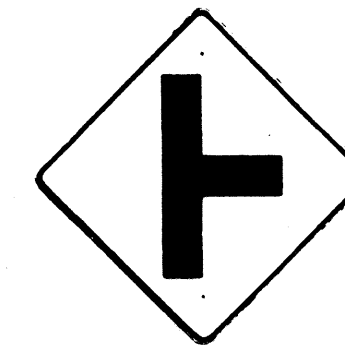
W1-6 48" x 24"



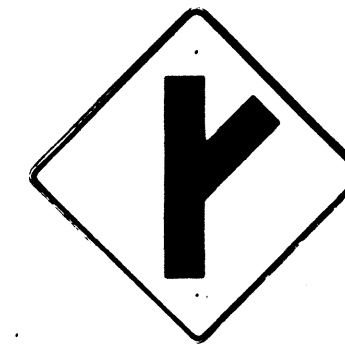
W1-7 48" x 24"



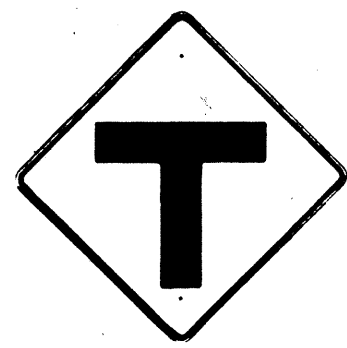
W2-1 30" x 30"



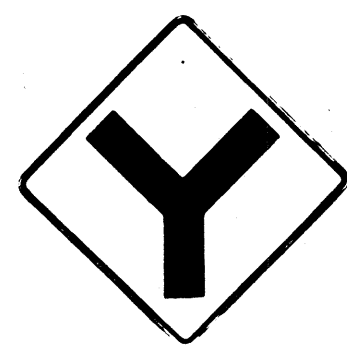
W2-2 30" x 30"



W2-3(R) 30" x 30"



W2-4 30" x 30"



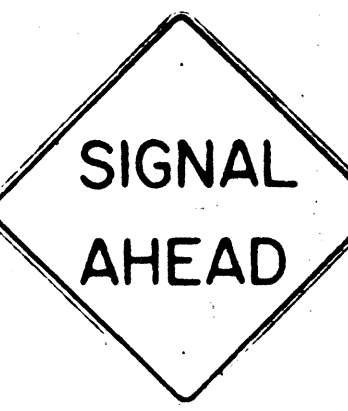
W2-5 30" x 30"



W3-1 30" x 30"



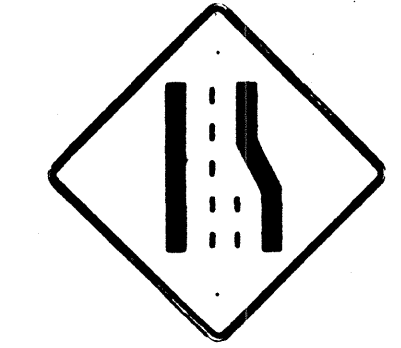
W3-2 30" x 30"



W3-3 36" x 36"



W4-1 30" x 30"
W4-1-E 36" x 36"
W4-1-I 48" x 48"



W4-2 30" x 30"
W4-2-E 36" x 36"



W5-1 30" x 30"
W5-1-E 36" x 36"



W5-2 30" x 30"



W5-3 30" x 30"



W6-1 36" x 36"



W6-2 36" x 36"



W7-1 30" x 30"



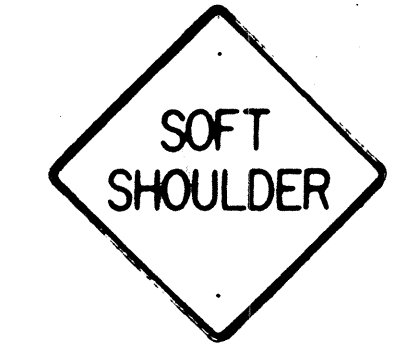
W8-1 30" x 30"



W8-2 30" x 30"



W8-3 30" x 30"



W8-4 30" x 30"



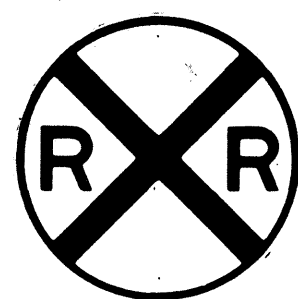
W8-5 30" x 30"



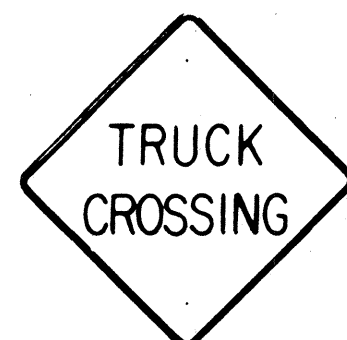
W9-1 30" x 30"



W9-2 30" x 30"



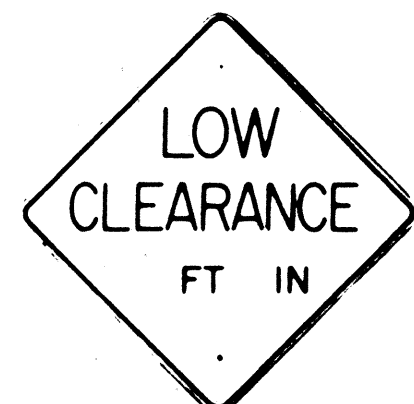
W10-1 36" DIAMETER



W11-1 30" x 30"



W11-5 30" x 30"



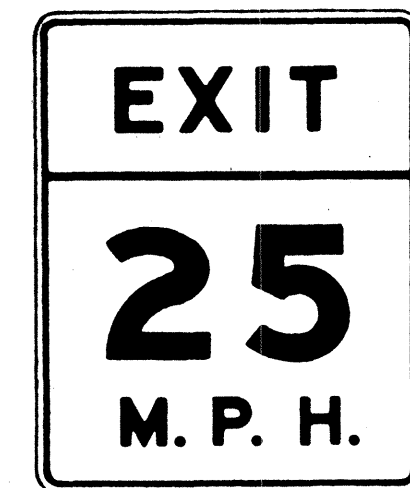
W12-2 36" x 36"



W13-1(35) 18" x 18"



W13-2(25) 12" x 18"

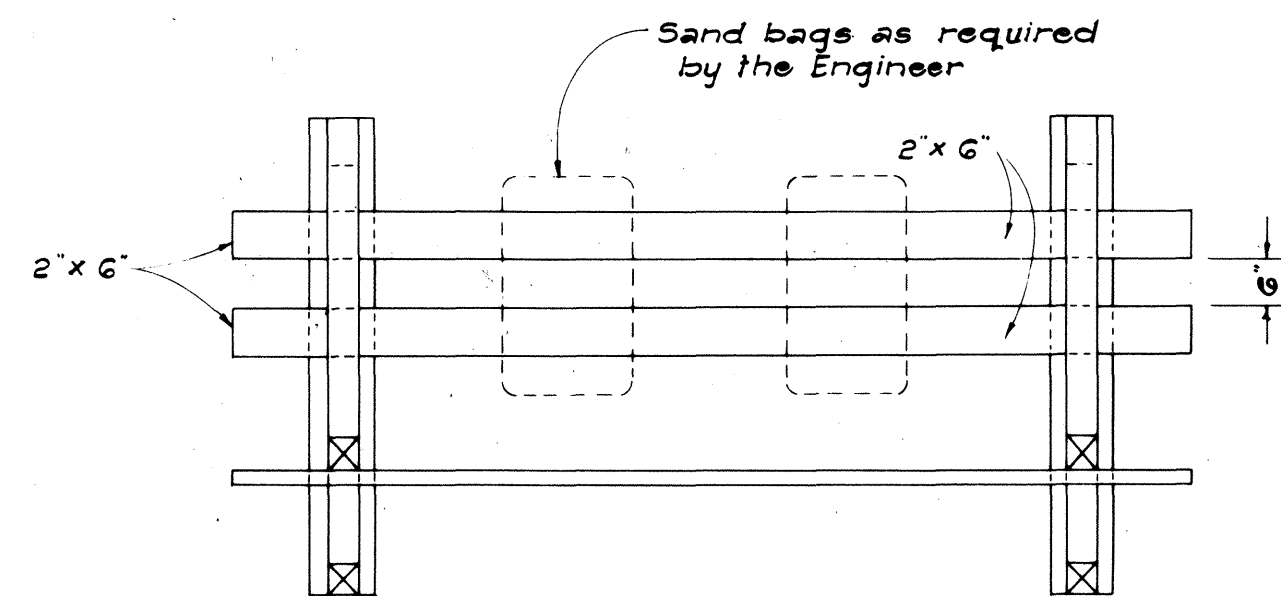


W13-3(25) 48" x 60"

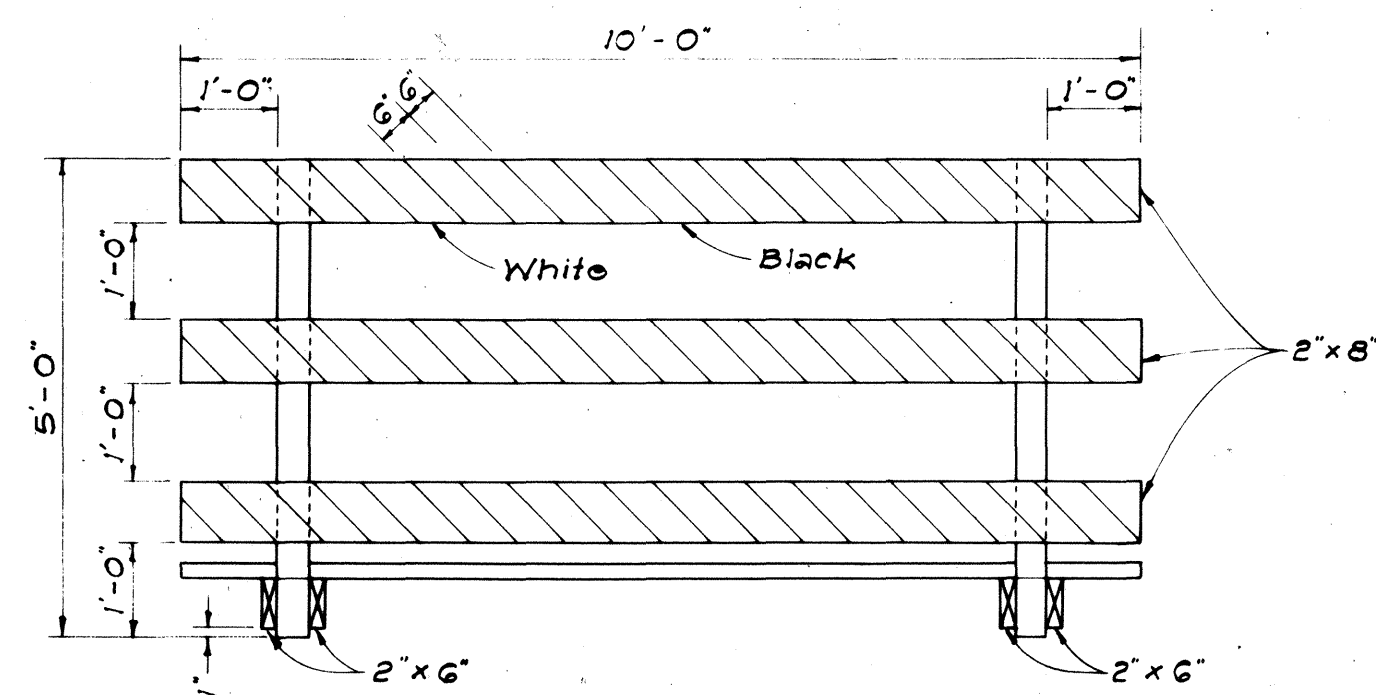
NOTE:

1. The shape, color, dimensions, symbols, wording, lettering and reflectorization of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961 unless otherwise specified.
2. All warning signs shall be reflectorized unless otherwise specified.
3. All warning signs shall have $\frac{3}{8}$ " bolt holes drilled at appropriate locations unless otherwise noted.
4. (R) or (L) indicates right or left and shall be as shown on the plan.
5. The suffix "E" denotes Expressway signs and "I" denotes Interstate signs.
6. For W13 sign, number in () indicates speed and shall be as shown on the plans.

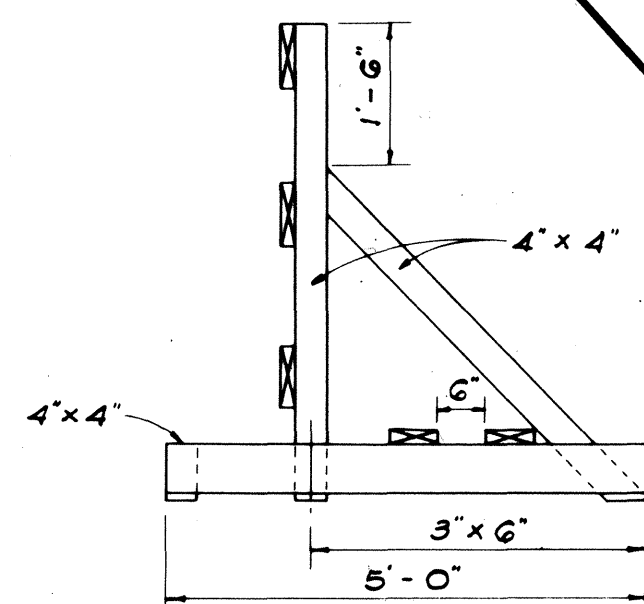
DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
NO.	_____



PLAN VIEW

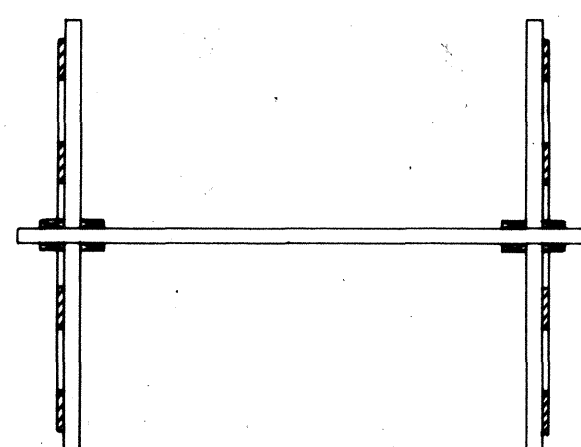


FRONT VIEW

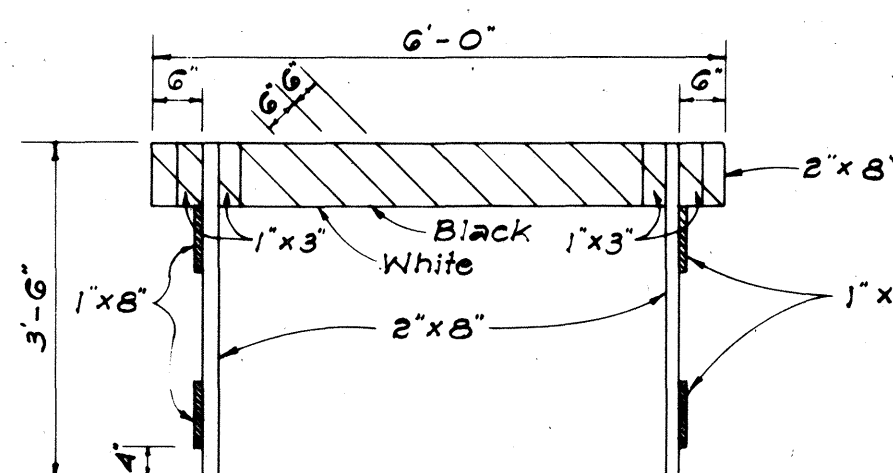


END VIEW

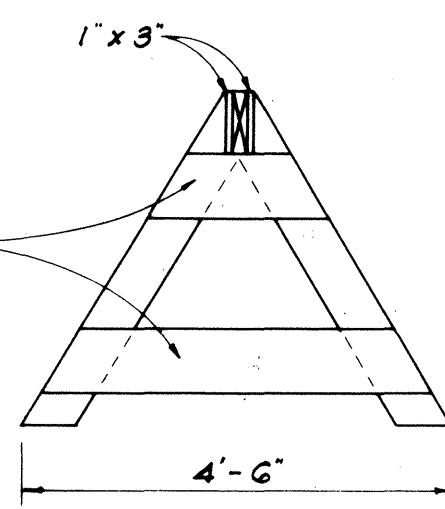
CLASS I BARRICADE



PLAN VIEW



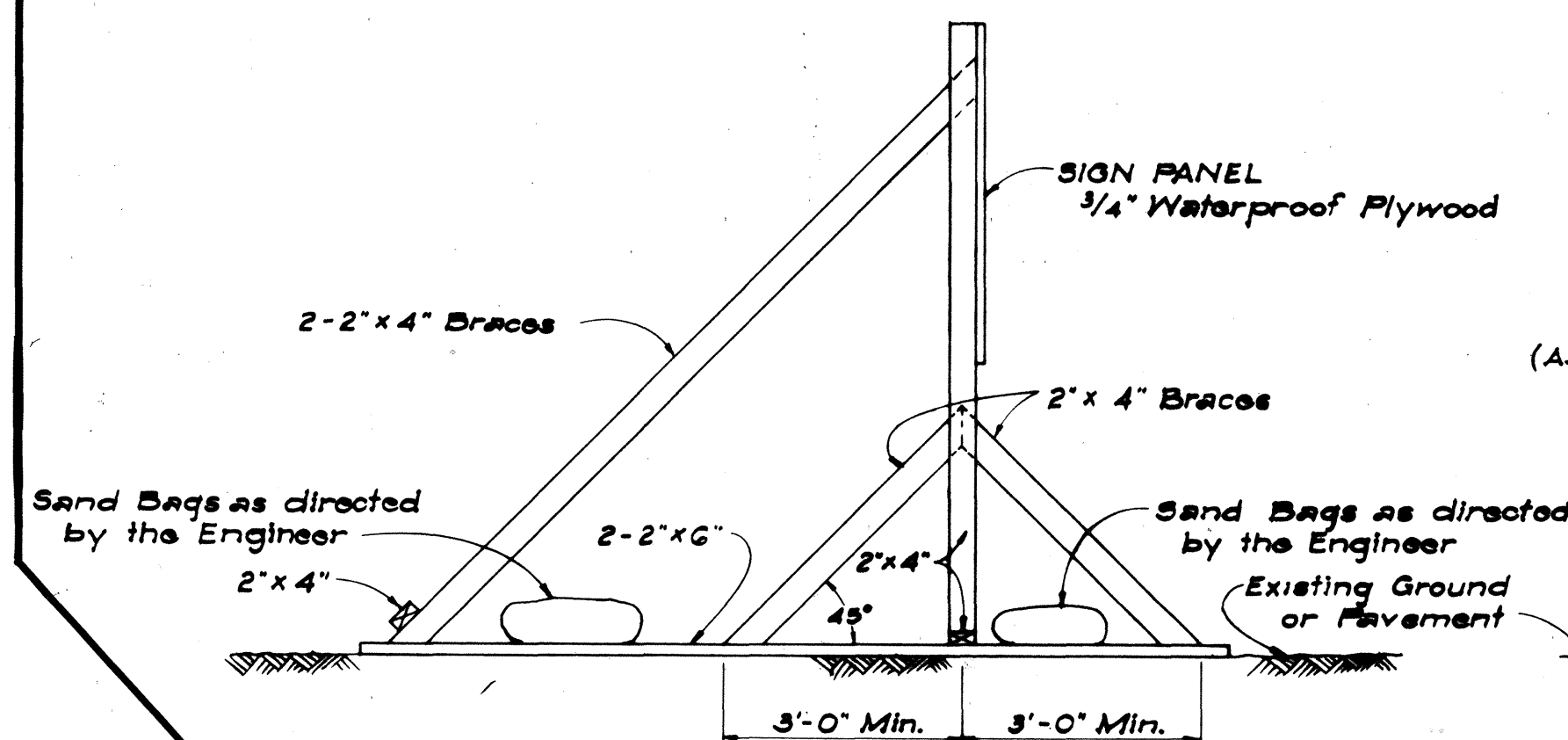
FRONT VIEW



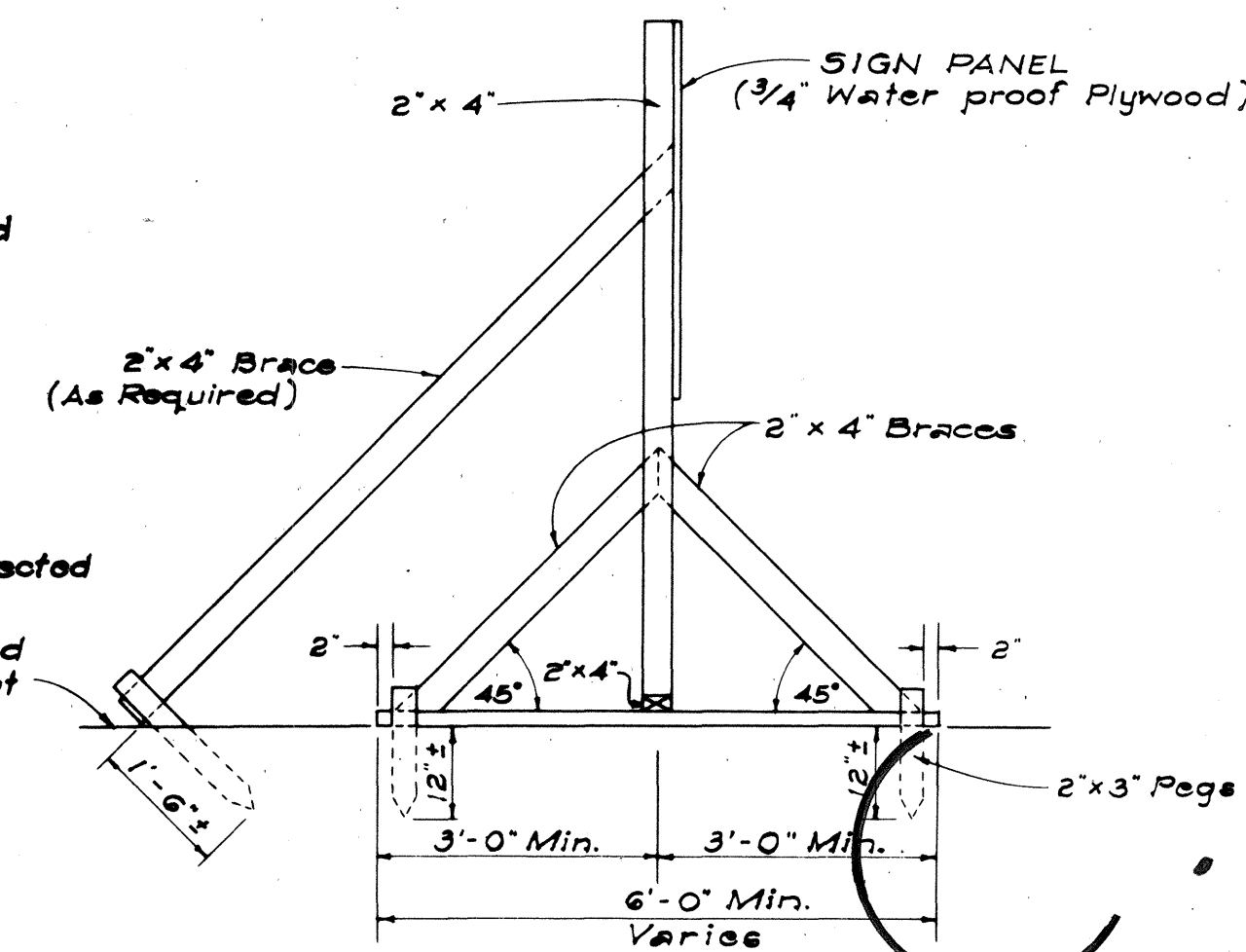
END VIEW

CLASS II BARRICADE

Scale: 1/2" = 1'-0"



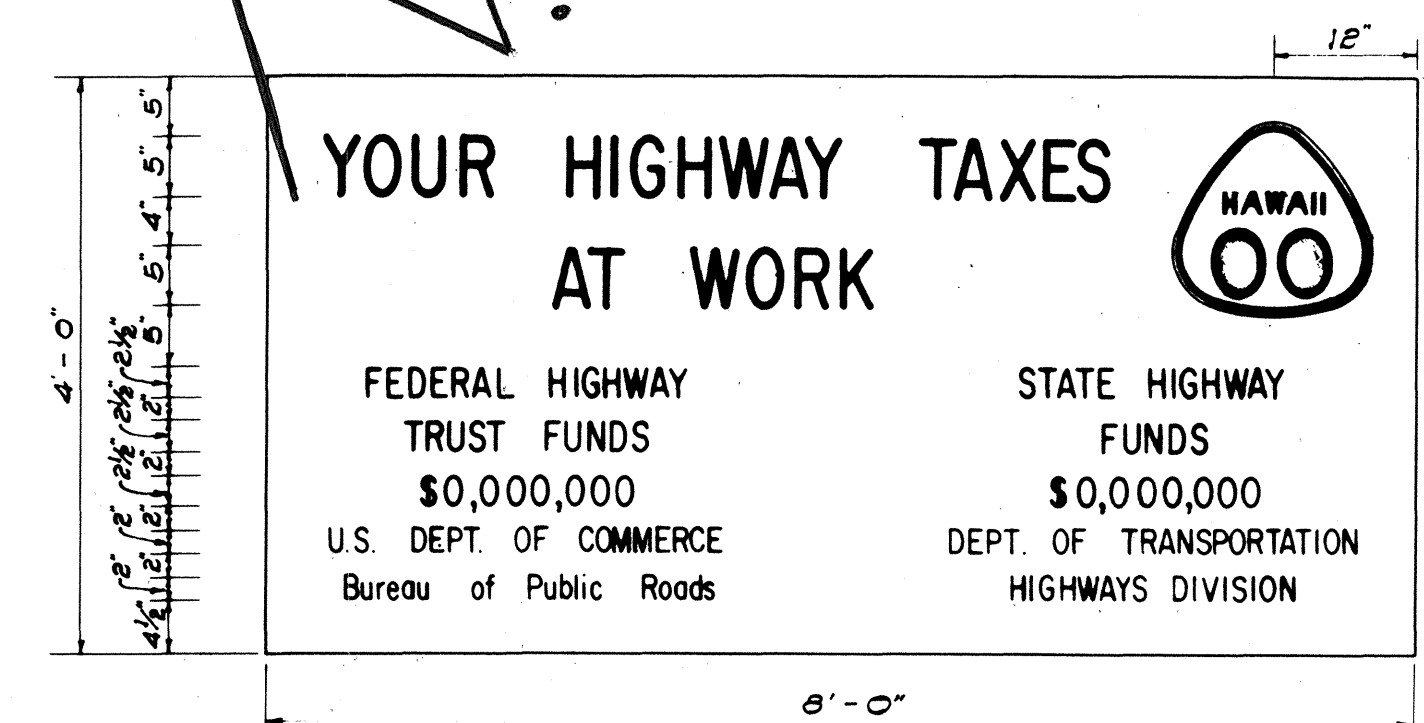
SIDE VIEW
(SIGN FRAME WEIGHTED DOWN)



SIDE VIEW
(SIGN FRAME ANCHORED IN GROUND)

ELEVATIONS

Scale: 1/2" = 1'-0"

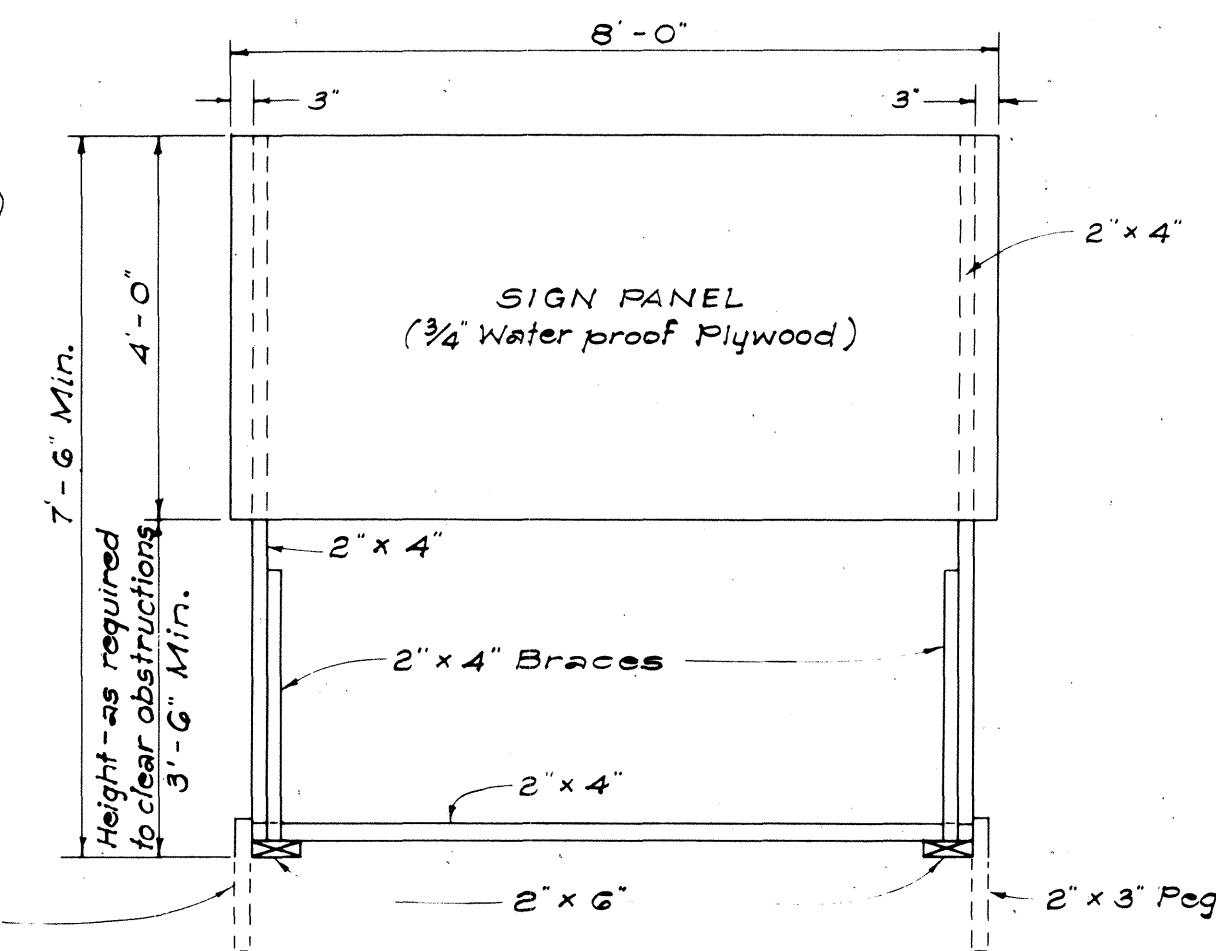


SIGN PANEL

Scale: 3/4" = 1'-0"

**PRIMARY AND SECONDARY SYSTEMS
CONSTRUCTION IDENTIFICATION SIGN**

Scale: As Shown



FRONT VIEW

NOTES:

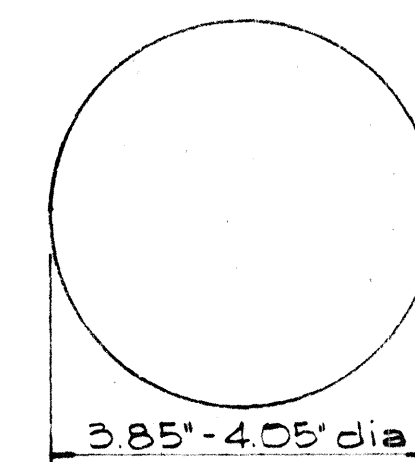
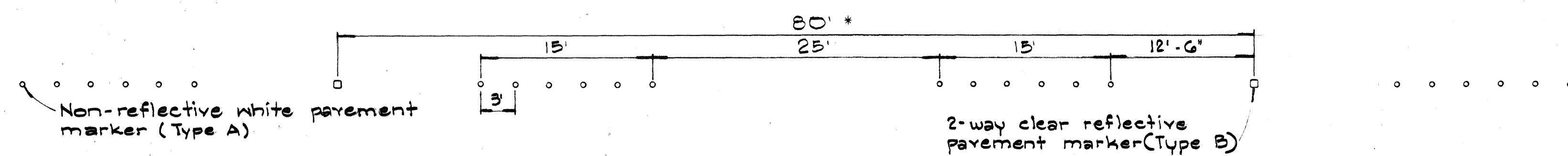
- A. **CONSTRUCTION IDENTIFICATION SIGNS**
1. The sign legend shall be black on white background.
 2. The Contractor shall construct, install and maintain the project signs at the locations shown on the plans and as ordered by the Engineer.
 3. The signs shall be removed and stockpiled upon completion of the project as ordered by the Engineer and are to become State property.
 4. Letters shall be Series "C" of the sizes shown on the plan and shall conform with the "Standard Alphabet for Highway Signs", Bureau of Public Roads, 1952.
 5. The Contractor shall fill in the proper numerals in place of ciphers as ordered by the Engineer.
- B. **WOOD BARRICADES**
1. The Contractor shall construct, install and maintain the wood barricades at the locations shown on the plans.
 2. The permanent wood barricades shall be left in place or relocated upon completion of the project as ordered by the Engineer and are to become State property.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**TYPICAL DETAILS
CONSTRUCTION IDENTIFICATION SIGN
AND
WOOD BARRICADES**

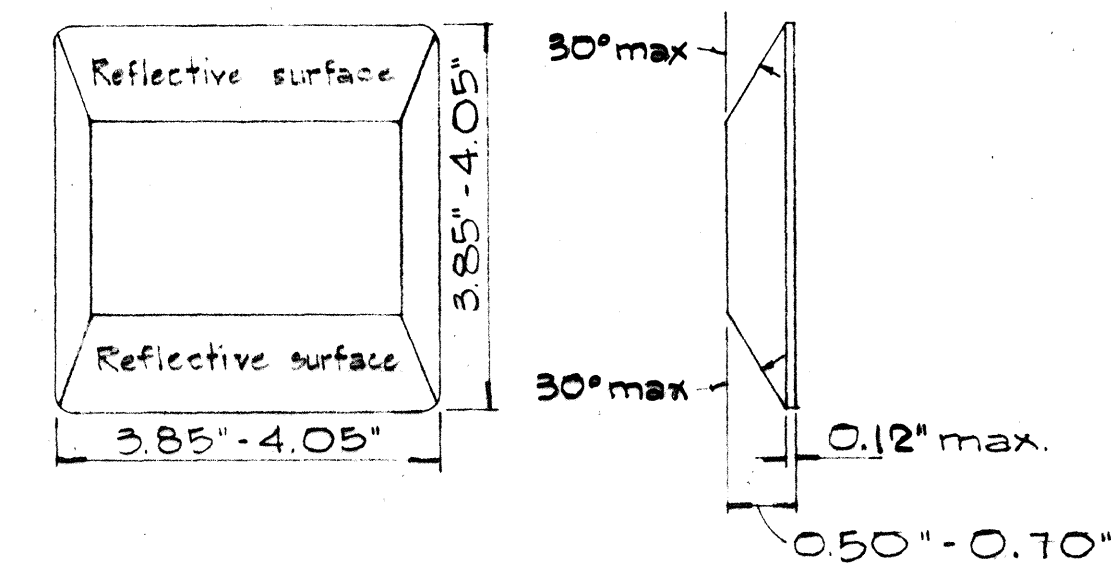
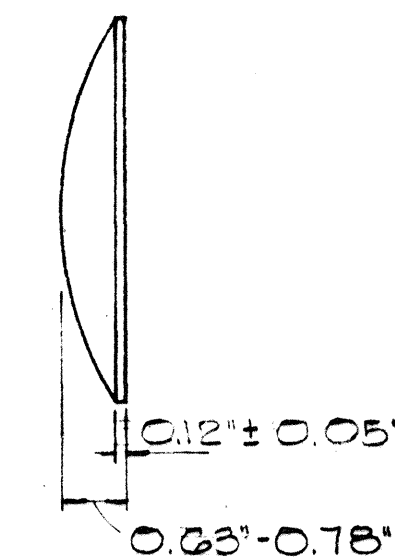
SCALE: As Shown DATE:

SHEET No. 6 OF 11 SHEETS

① CENTER LINES ON TWO-LANE RURAL ROADS AND CITY STREETS



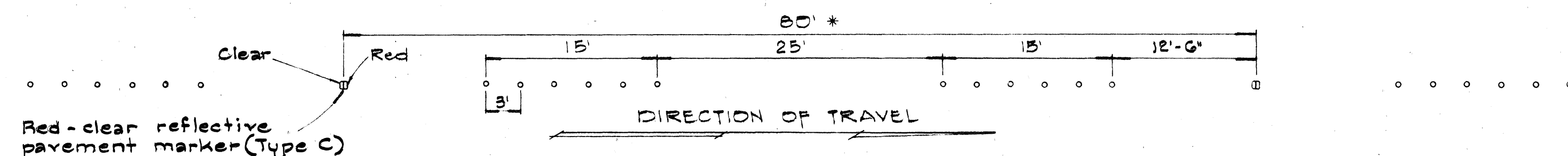
TYPE A
Non-reflective white marker



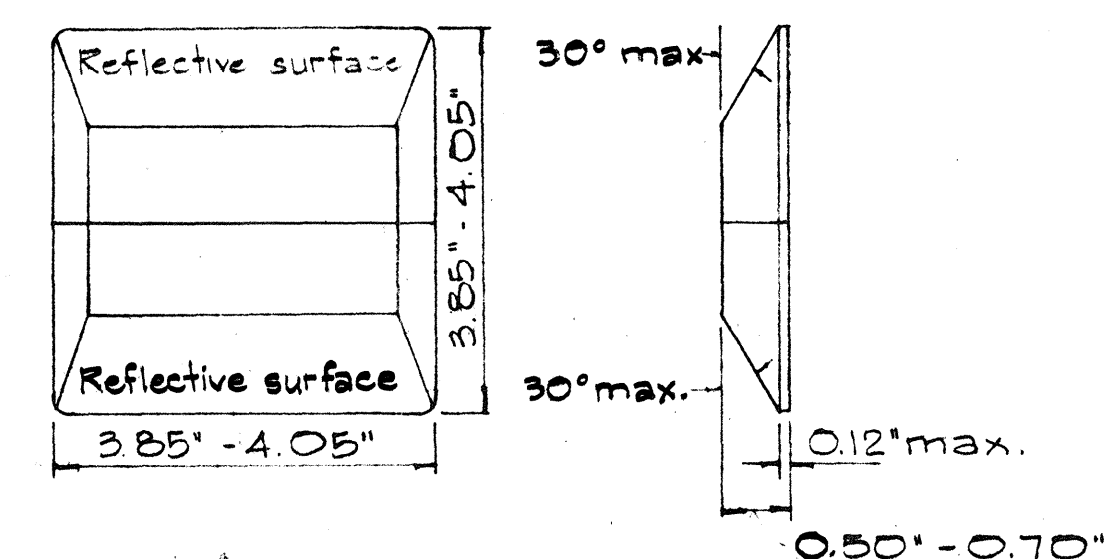
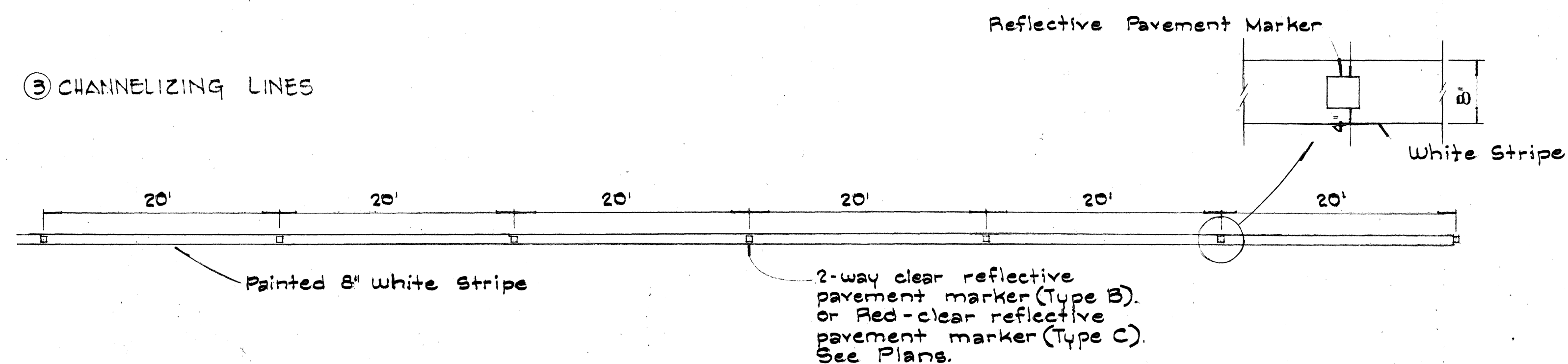
TYPE B
2-way clear reflective surface

TYPE D
2-way yellow reflective surface

② LANE LINES

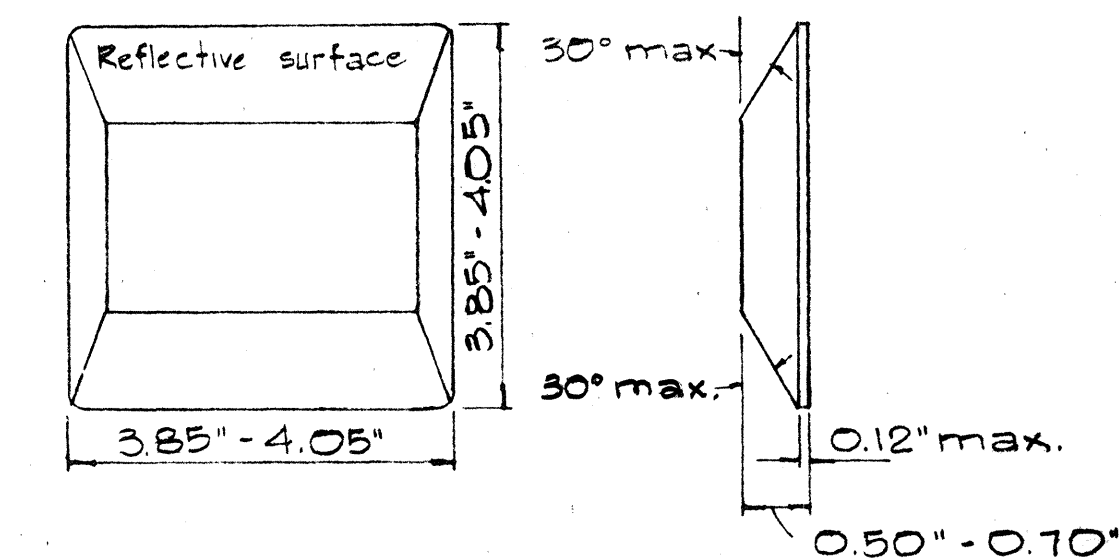


③ CHANNELIZING LINES



TYPE C
Red-clear reflective surface

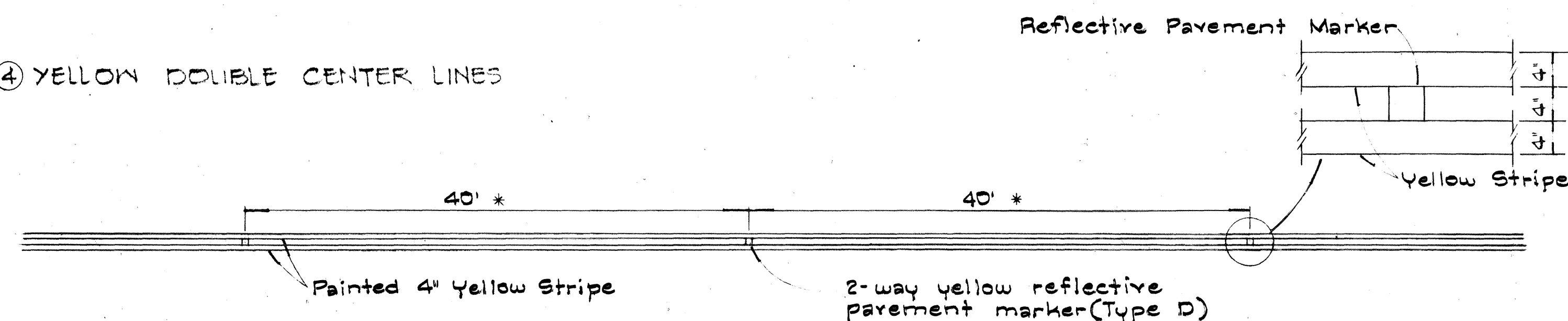
TYPE E
Yellow-clear reflective surface



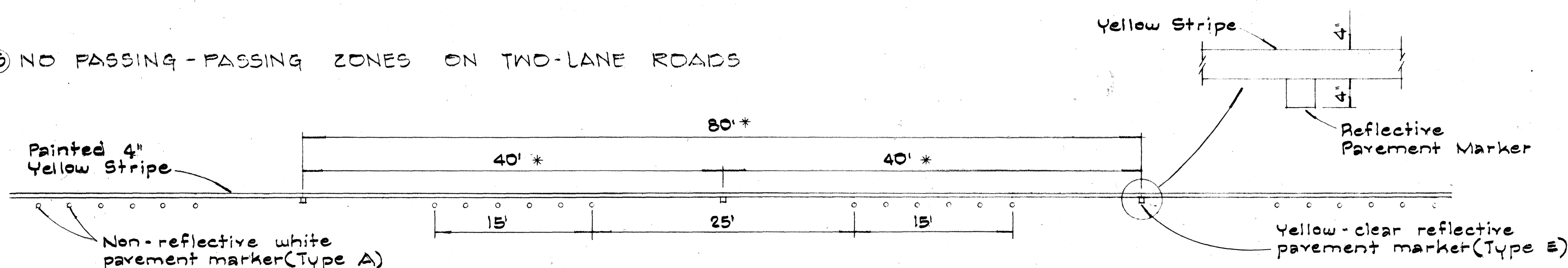
TYPE H
One-way yellow reflective surface

TYPE G
One-way clear reflective surface

④ YELLOW DOUBLE CENTER LINES



⑤ NO PASSING - PASSING ZONES ON TWO-LANE ROADS



NOTE:
Painted stripes to be done by State forces.

REVISED: April 14, 1967
REVISED: April 13, 1967

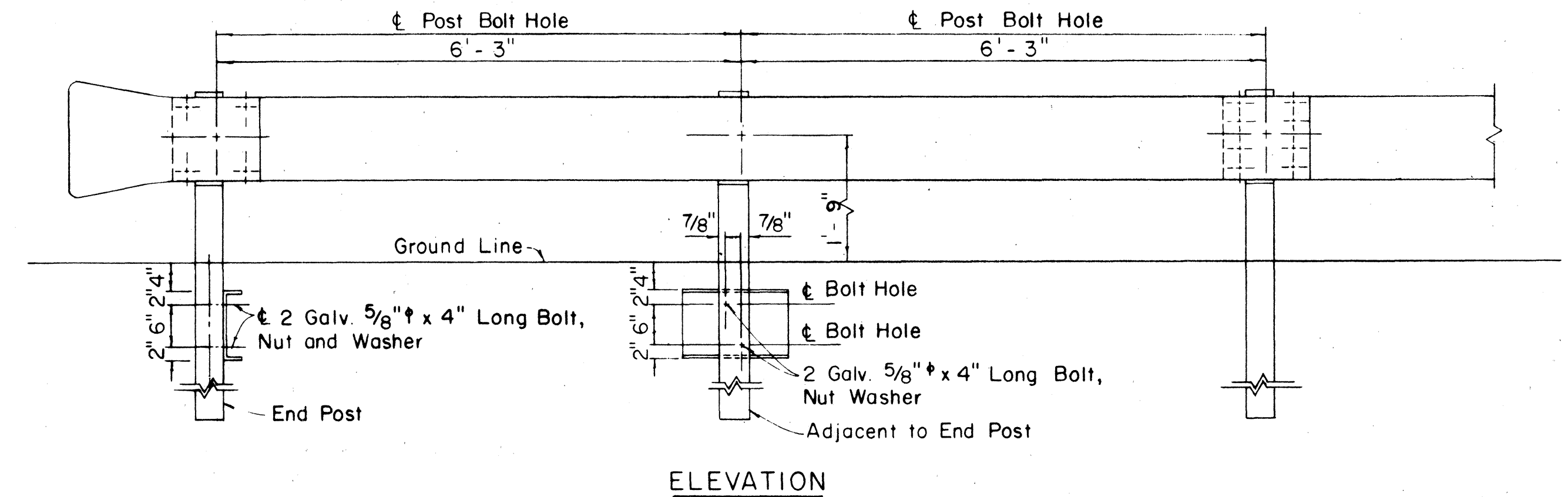
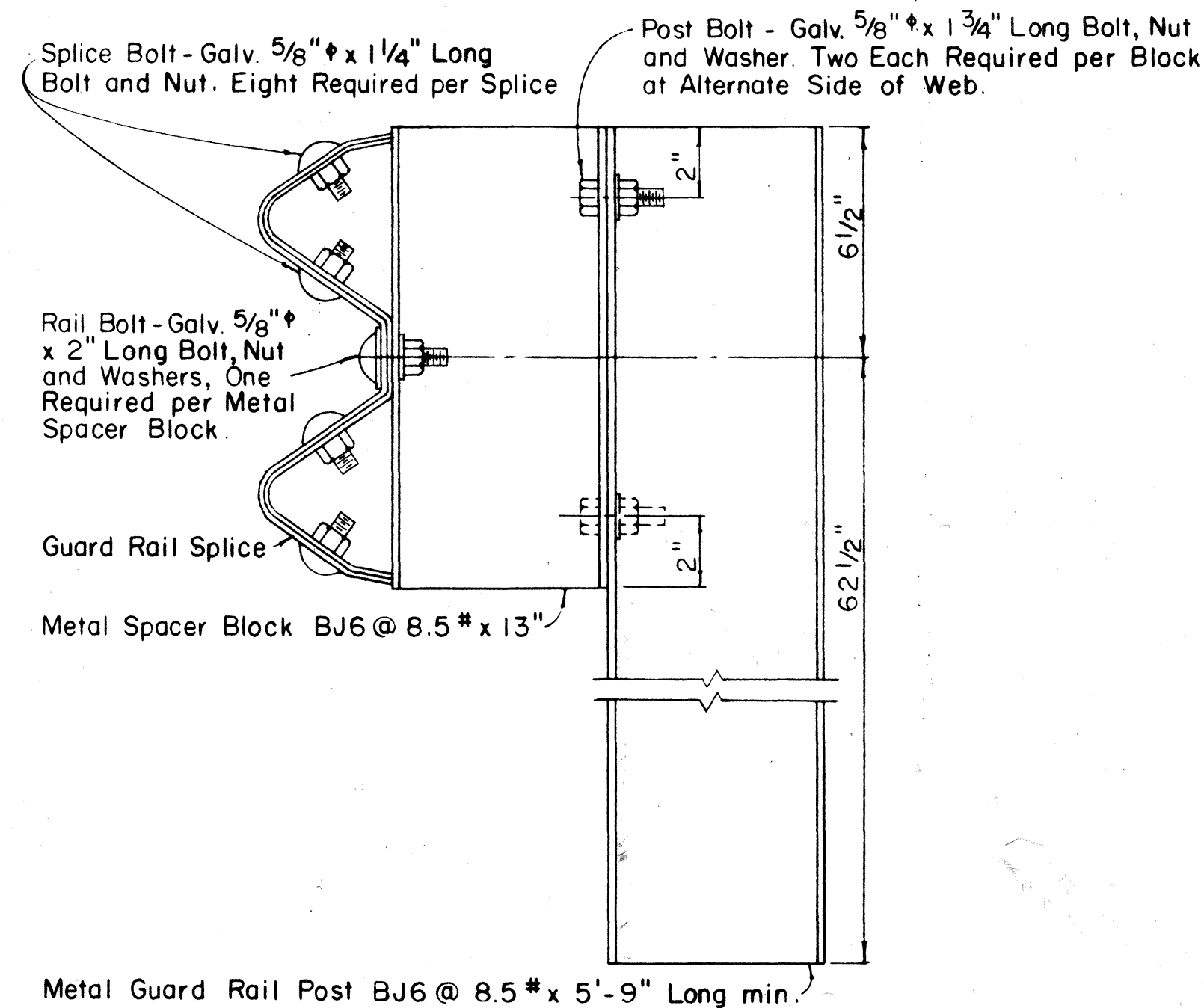
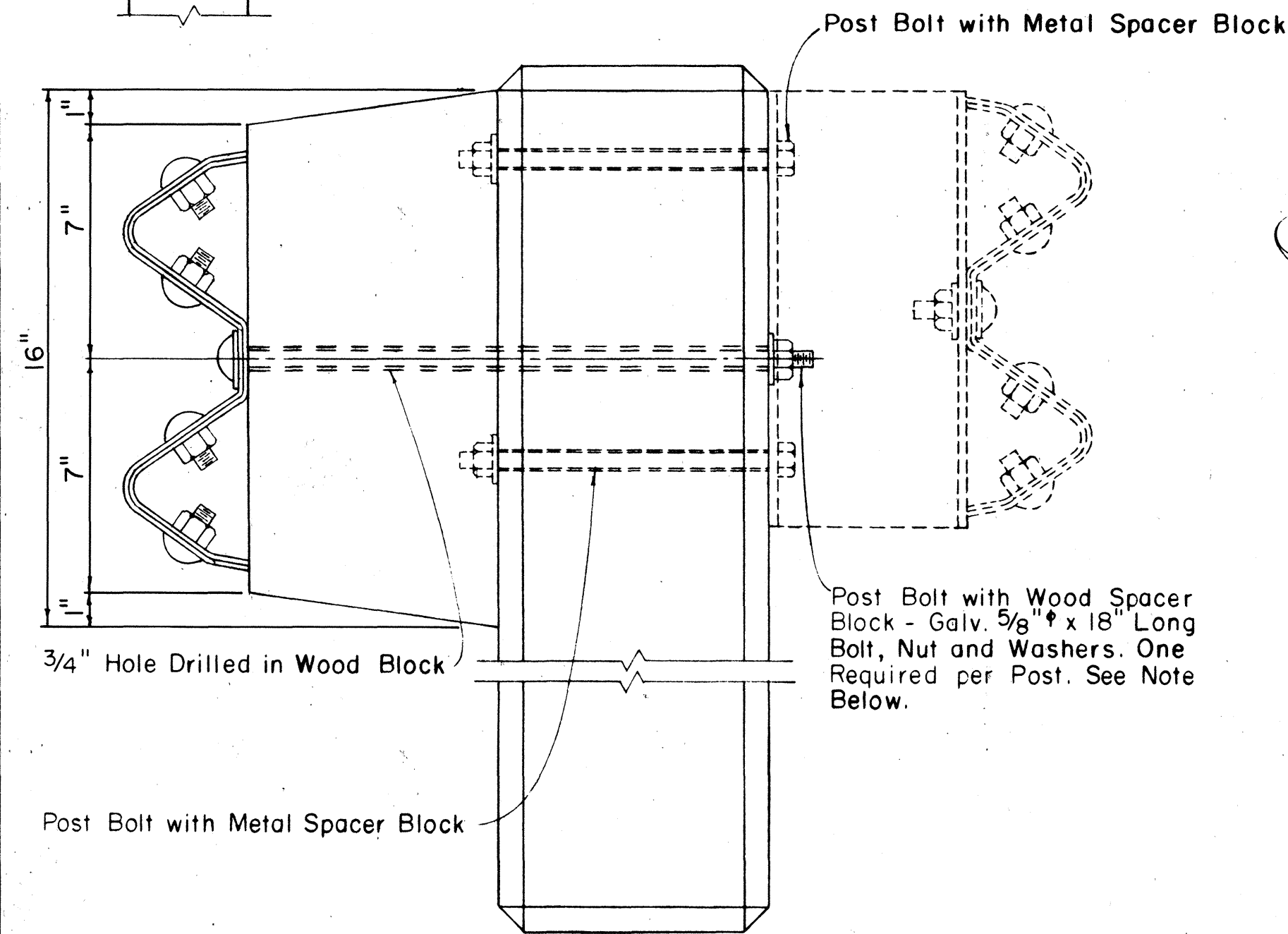
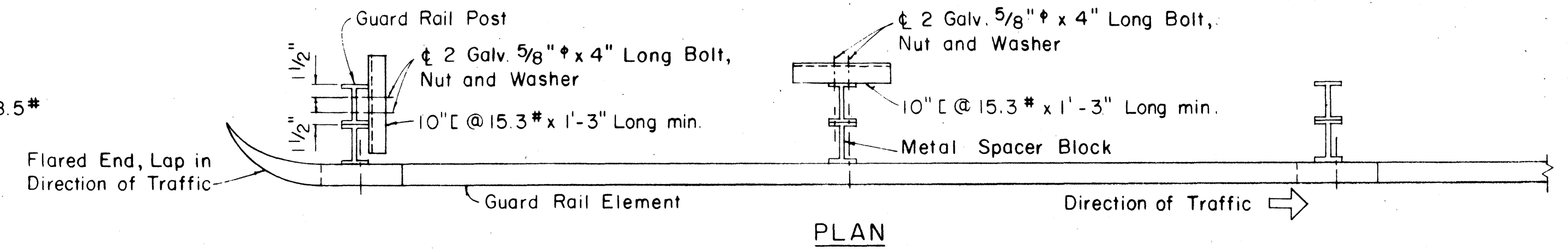
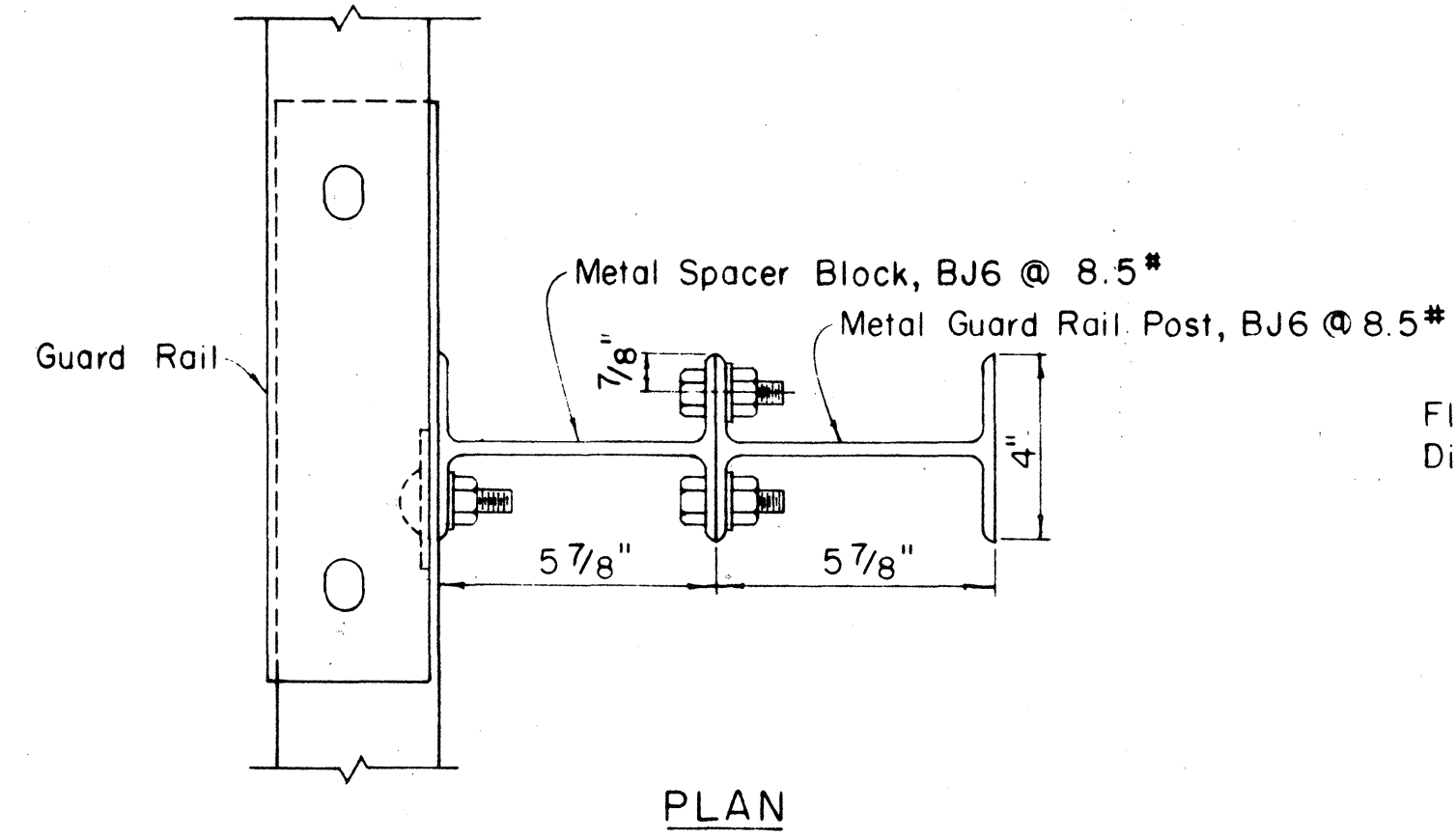
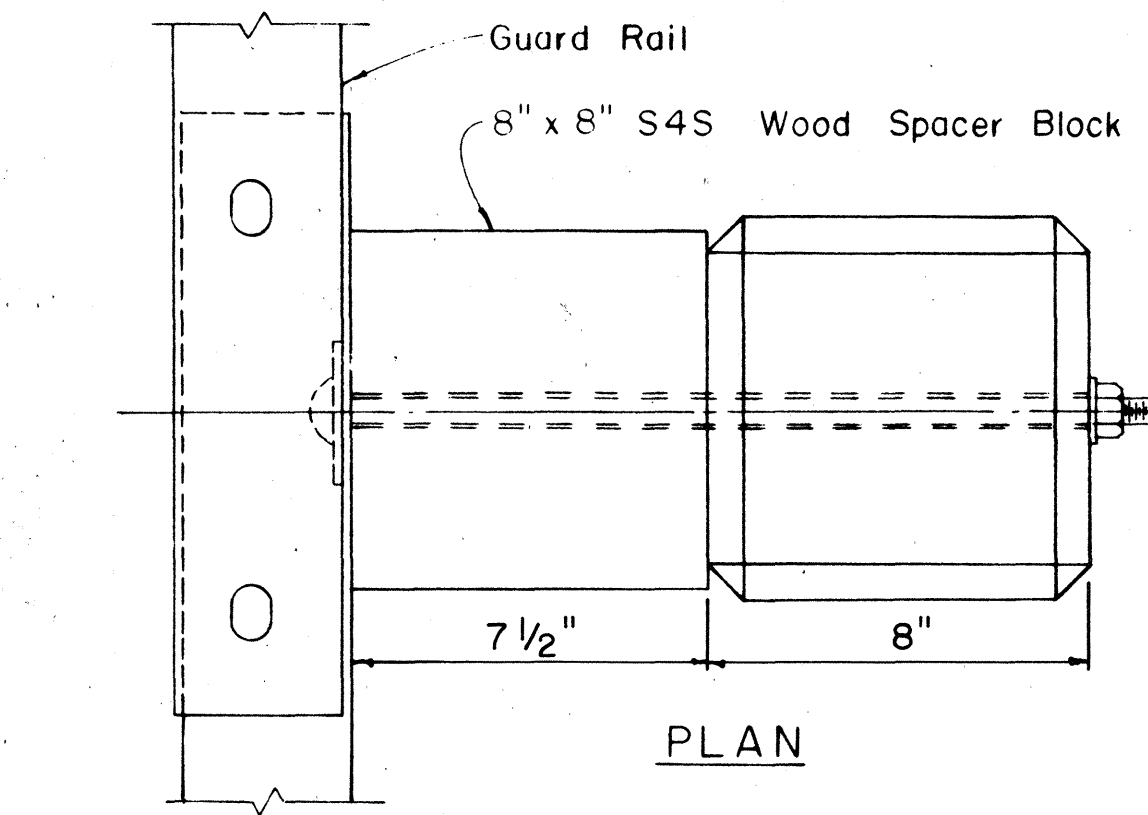
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
RAISED PAVEMENT MARKERS

Not to Scale

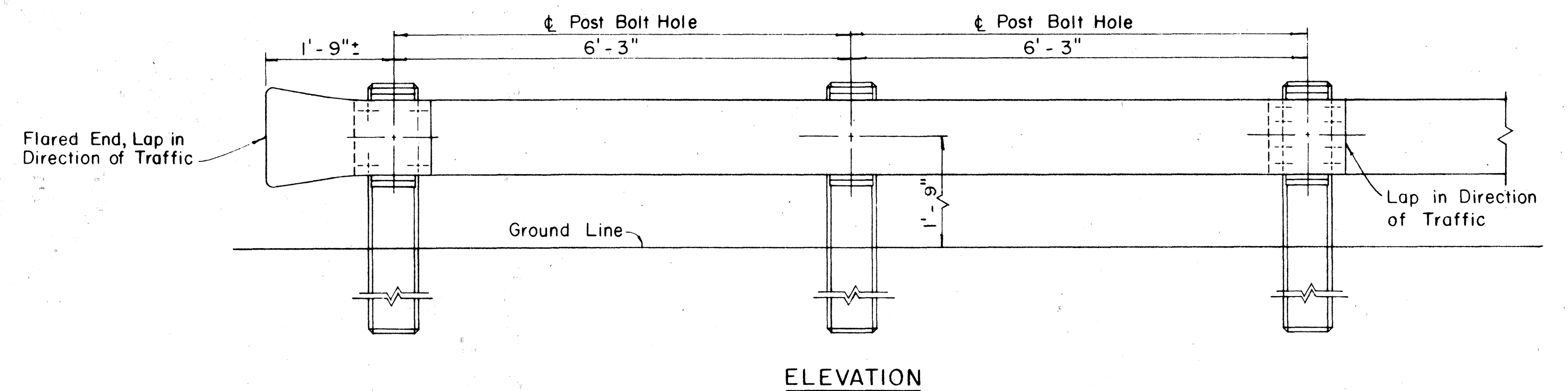
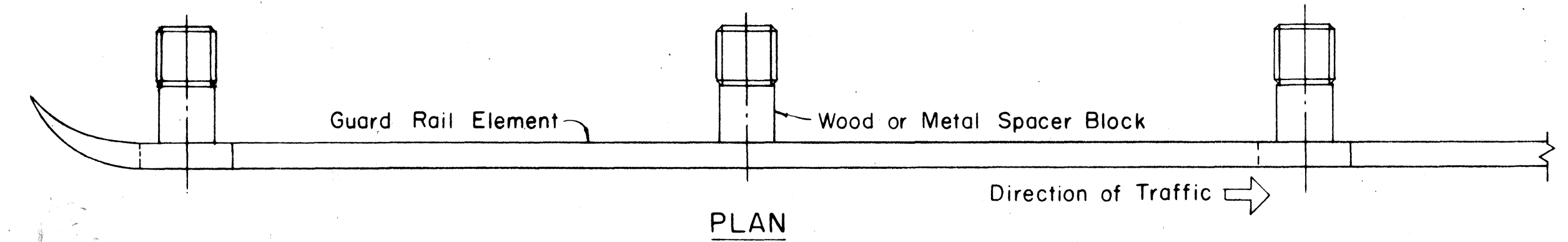
SHEET No. 8 OF 11 SHEETS

DATE
SURVEY PLOTTED BY
DRAWN BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY



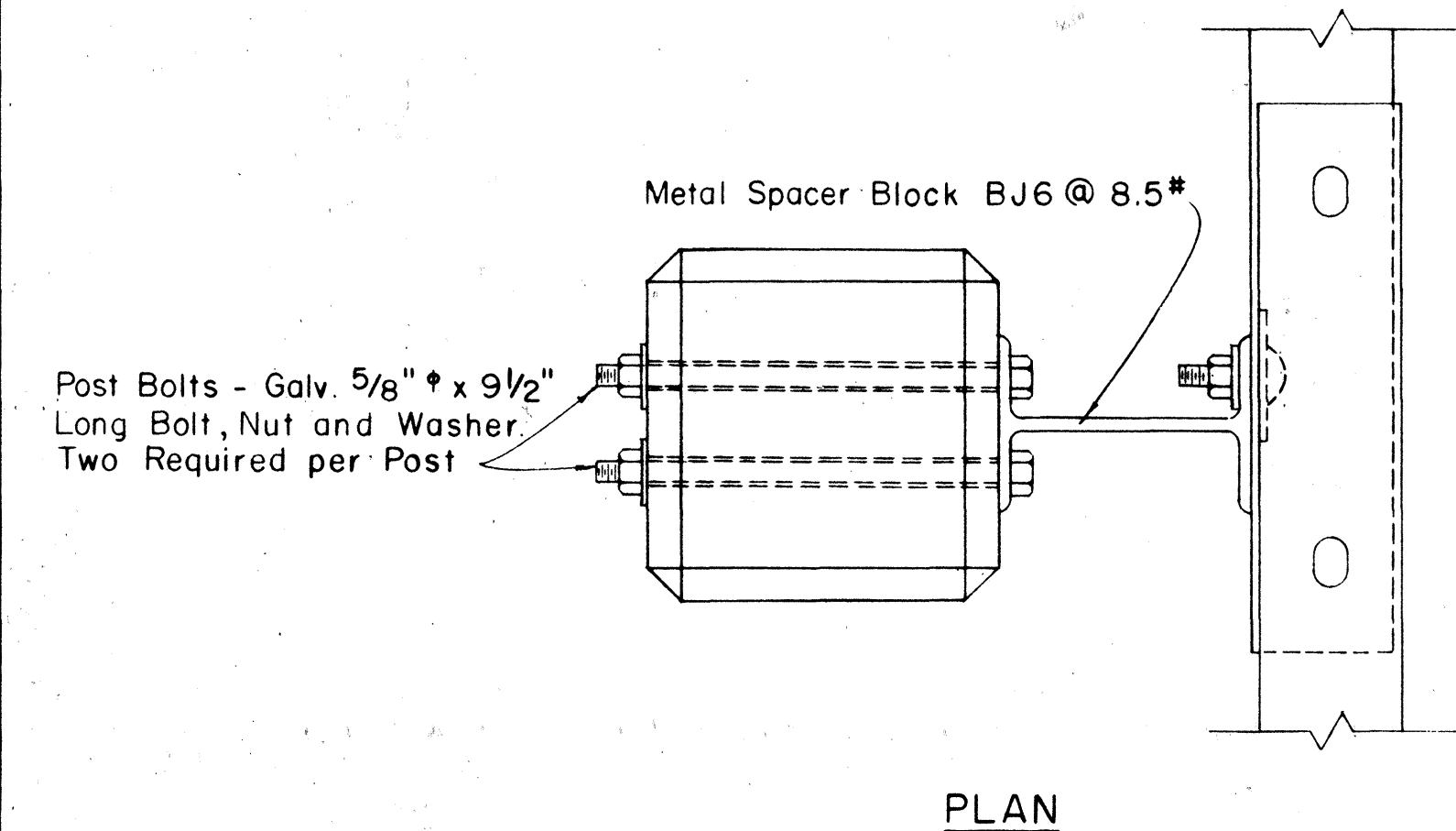
METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK

Scale: 3/4" = 1' - 0"



METAL GUARD RAIL ON CONCRETE POST WITH WOOD OR METAL SPACER BLOCK

Scale: 3/4" = 1' - 0"



SINGLE METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK

Scale: 3" = 1' - 0"

SINGLE METAL GUARD RAIL ON PRECAST CONCRETE POST WITH WOOD OR METAL SPACER BLOCK

Scale: 3" = 1' - 0"

NOTE:

Single Guard Rails Shown. For Double Guard Rails Additional Spacer Blocks and Rail Elements Required on Opposite Side of Posts. See Bolt Schedule for Required Bolt Lengths.

DETAILS FOR SINGLE GUARD RAIL

REVISED: August 10, 1967

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

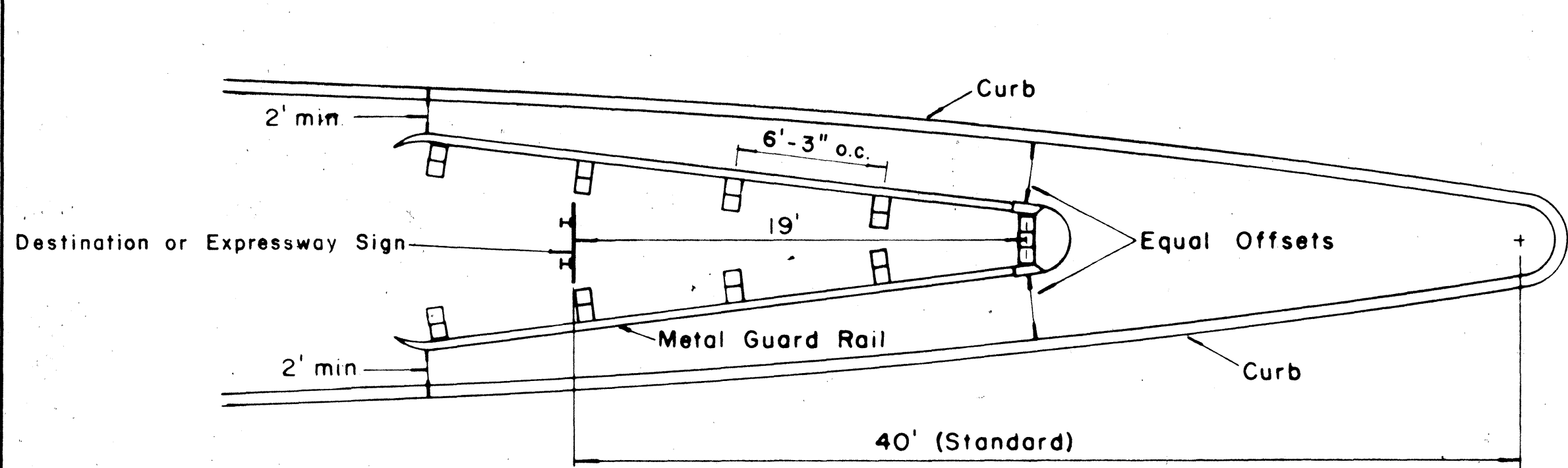
STANDARD DETAILS

METAL GUARD RAIL

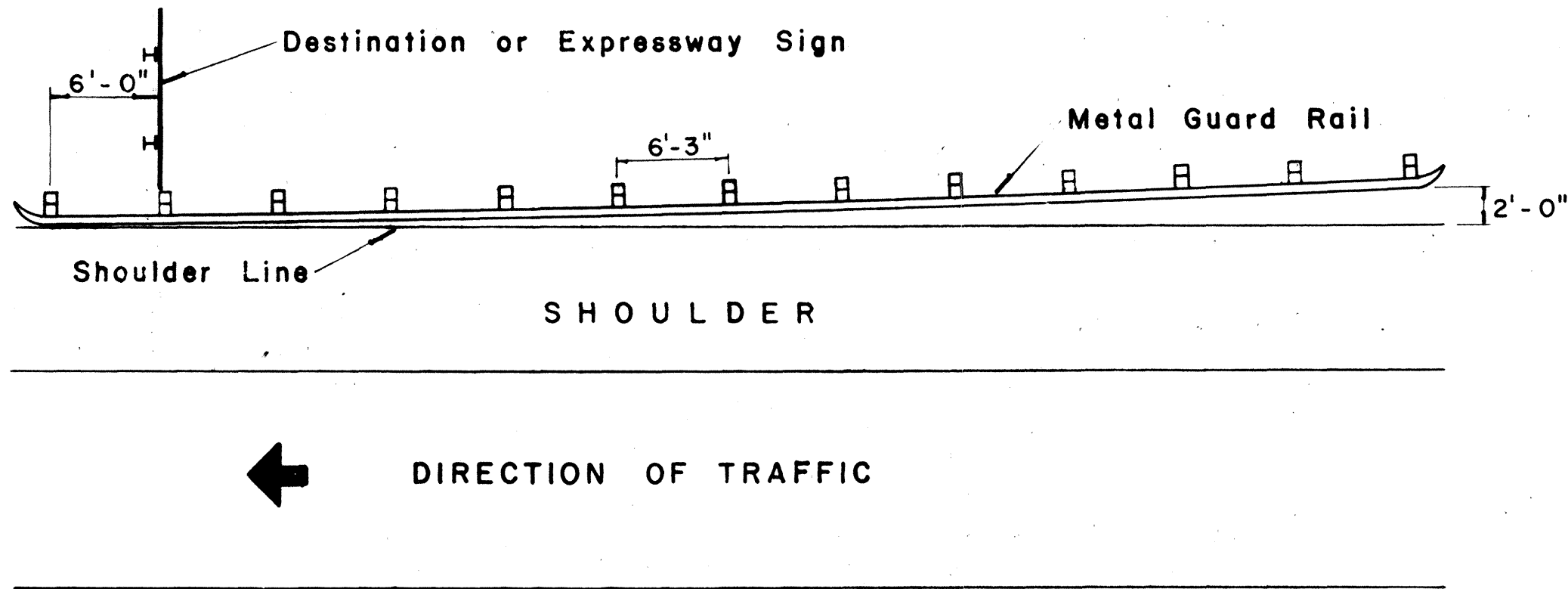
Scale: as noted

SHEET No. 39 OF 11 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
QUANTITIES BY	
NOTED BY	
ORIGINAL PLAN	
NO.	

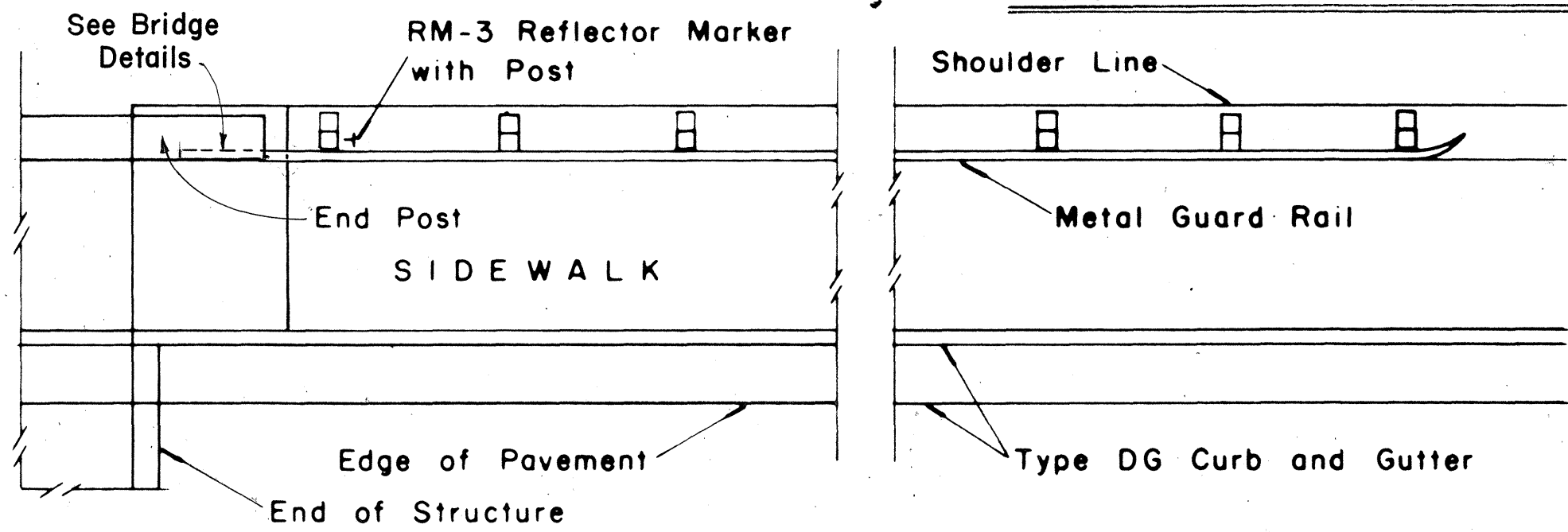


GORE MOUNTED SIGN
Scale: $\frac{3}{16}" = 1' - 0"$

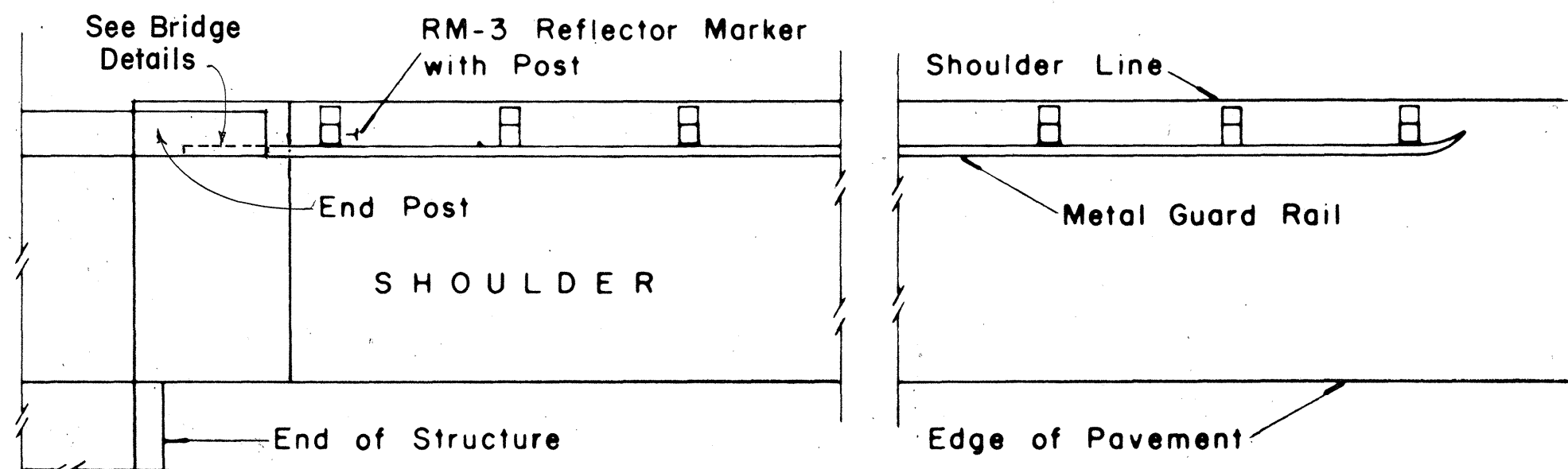


SHOULDER MOUNTED SIGN
Scale: $\frac{1}{8}" = 1' - 0"$

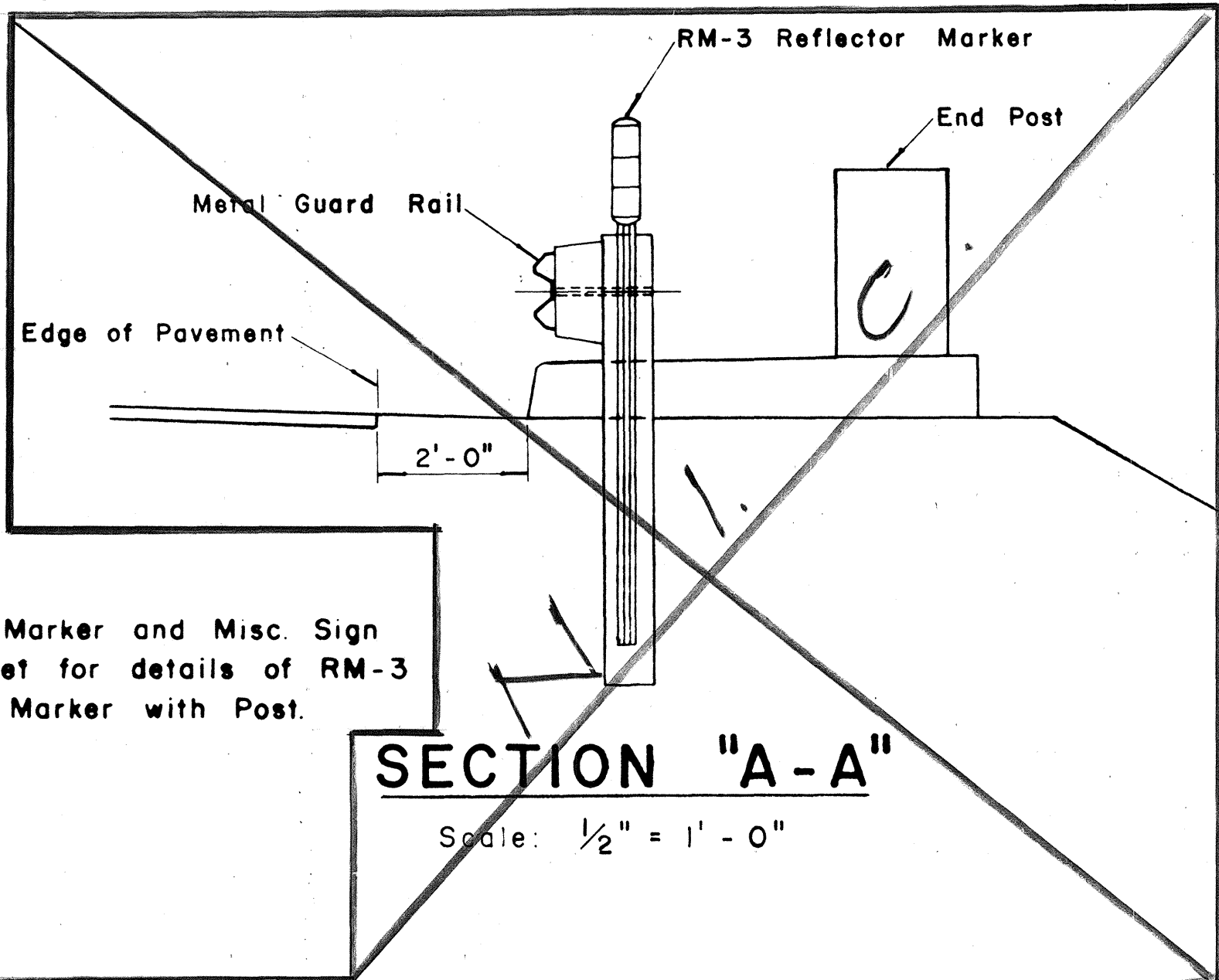
INSTALLATION OF METAL GUARD RAIL FOR DESTINATION AND EXPRESSWAY SIGNS



SIDEWALK CARRIED THROUGH STRUCTURE

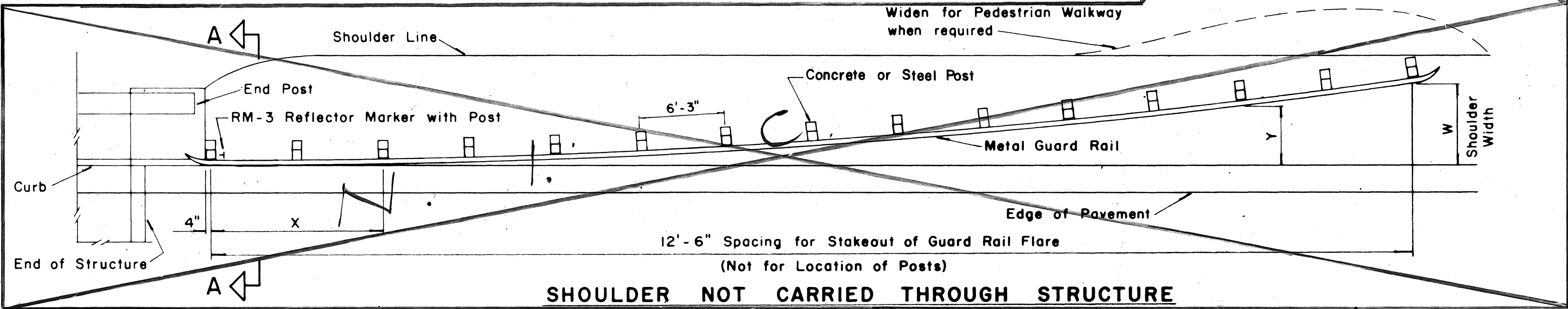


SHOULDER CARRIED THROUGH STRUCTURE



NOTE
See F.A. Marker and Misc. Sign
Detail sheet for details of RM-3
Reflector Marker with Post.

SECTION "A-A"
Scale: $\frac{1}{2}" = 1' - 0"$



SHOULDER NOT CARRIED THROUGH STRUCTURE
INSTALLATION OF METAL GUARD RAIL FLARE AT STRUCTURES
Scale: $\frac{3}{16}" = 1' - 0"$

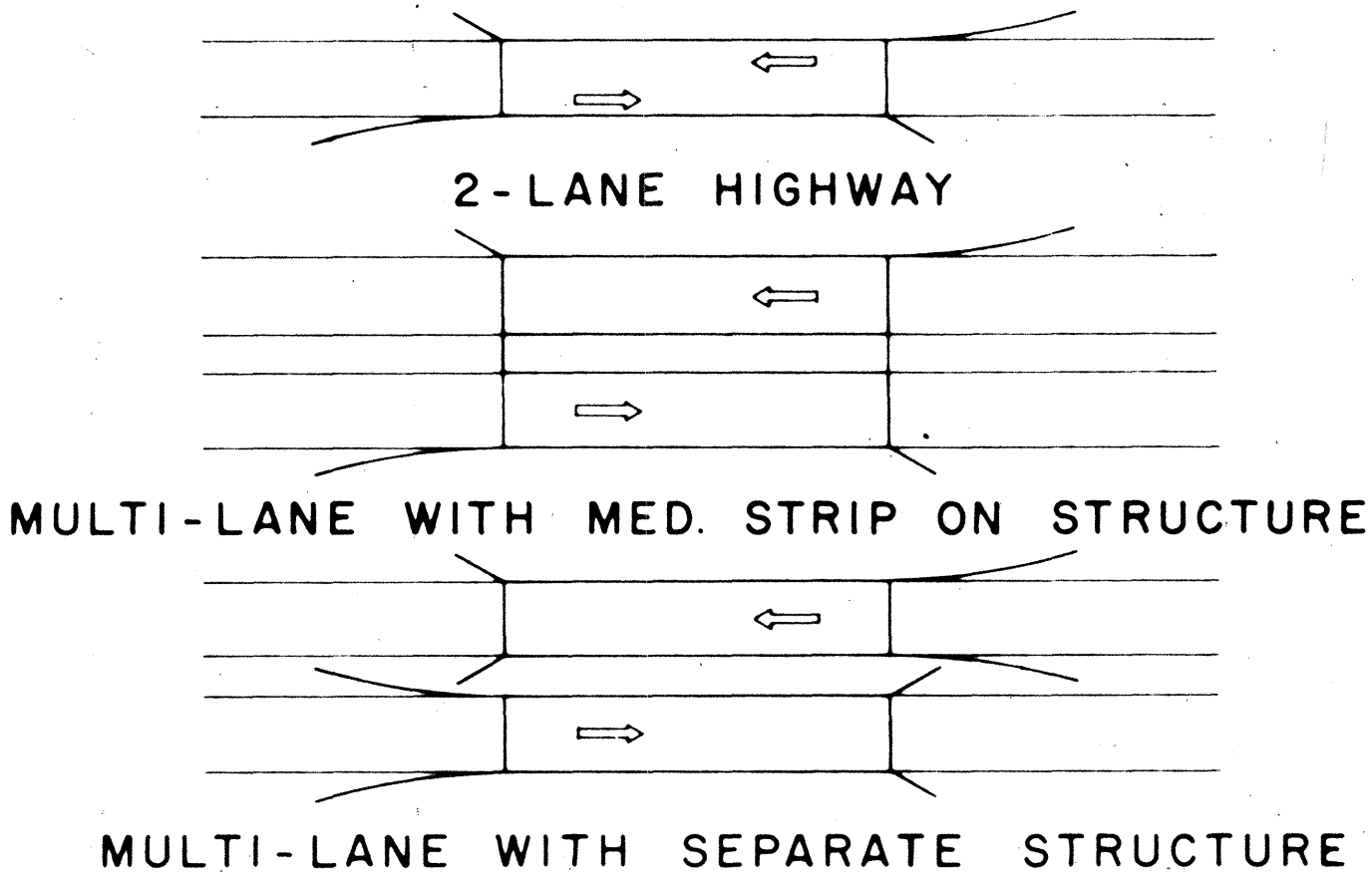
X	Y					
	W=3'	W=4'	W=5'	W=6'	W=7'	W=8'
12.5	0.19	0.16	0.14	0.12	0.09	0.08
25.0	0.75	0.64	0.55	0.49	0.35	0.32
37.5	1.69	1.44	1.25	1.10	0.78	0.72
50.0	3.00	2.56	2.22	1.96	1.38	1.28
62.5		4.00	3.47	3.06	2.16	2.00
75.0			5.00	4.41	3.11	2.85
87.5				6.00	4.23	3.92
100.0					5.53	5.12
112.5					7.00	6.48
125.0						8.00

W = GUARD RAIL FLARE

X = DISTANCE FROM POST AT
BRIDGE TO OFFSET POINTS

Y = GUARD RAIL FLARE OFFSET

GUARD RAIL OFFSET



TYPICAL GUARD RAIL FLARES AT STRUCTURE APPROACHES

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

STANDARD DETAILS

METAL GUARD RAILS

AT

STRUCTURES & GUIDE SIGNS

Scale: As Noted

SHEET No. 10 OF 11 SHEETS

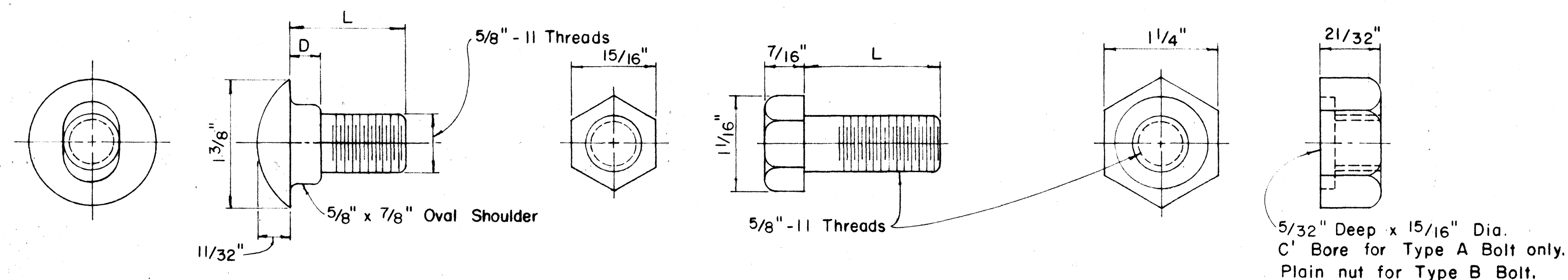
DATE
DRAWN BY
CHECKED BY
DESIGNED BY
NOTED BY
QUANTITIES BY
THE ALLIANCE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1968	41	95

PROJECT NO. B-900-01-64 UNIT II

BOLT DIMENSIONS		
TYPE A BOLT	D	L
Splice Bolt	5/16"	1 1/4"
Post Bolt for Conc. Post w/Double Wood Blocks	3/32"	2 5"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	1 8"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS	
TYPE B BOLT	L
Post Bolt for Conc. Post ^{w/} Metal Blocks	9 1/2"
Post Bolt for Metal Post ^{w/} Metal Block	13/4"



TYPE A BOLT

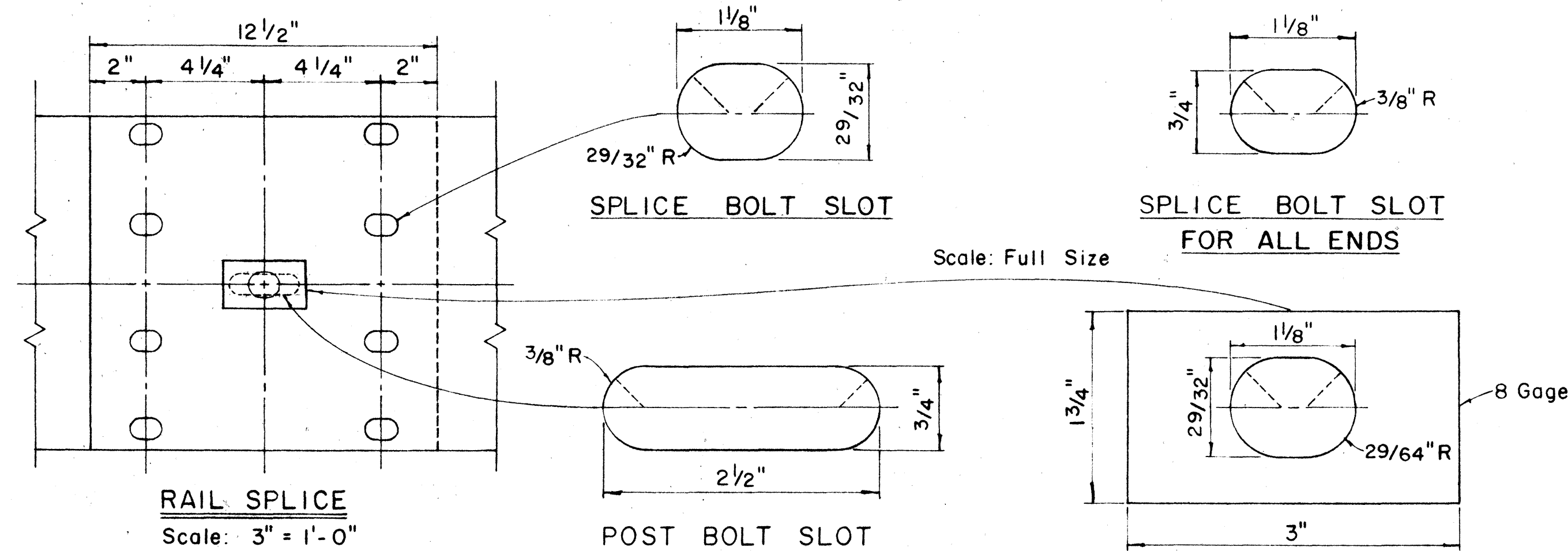
TYPE B BOLT

HEXAGON NUT

Scale: Full Size

SPLICE RAIL AND POST BOLTS

Scale: Full Size

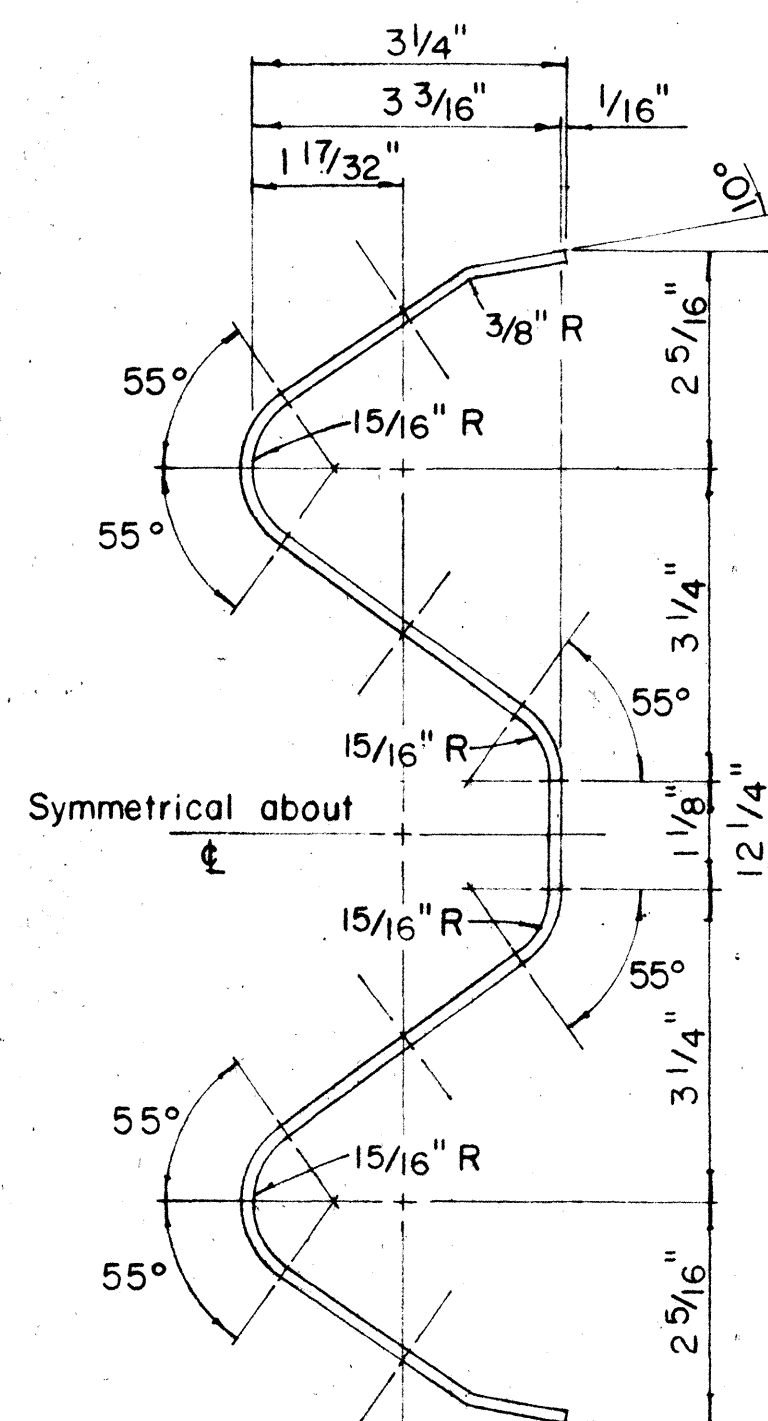


RAIL SPLICE

Scale: 3" = 1'-0"

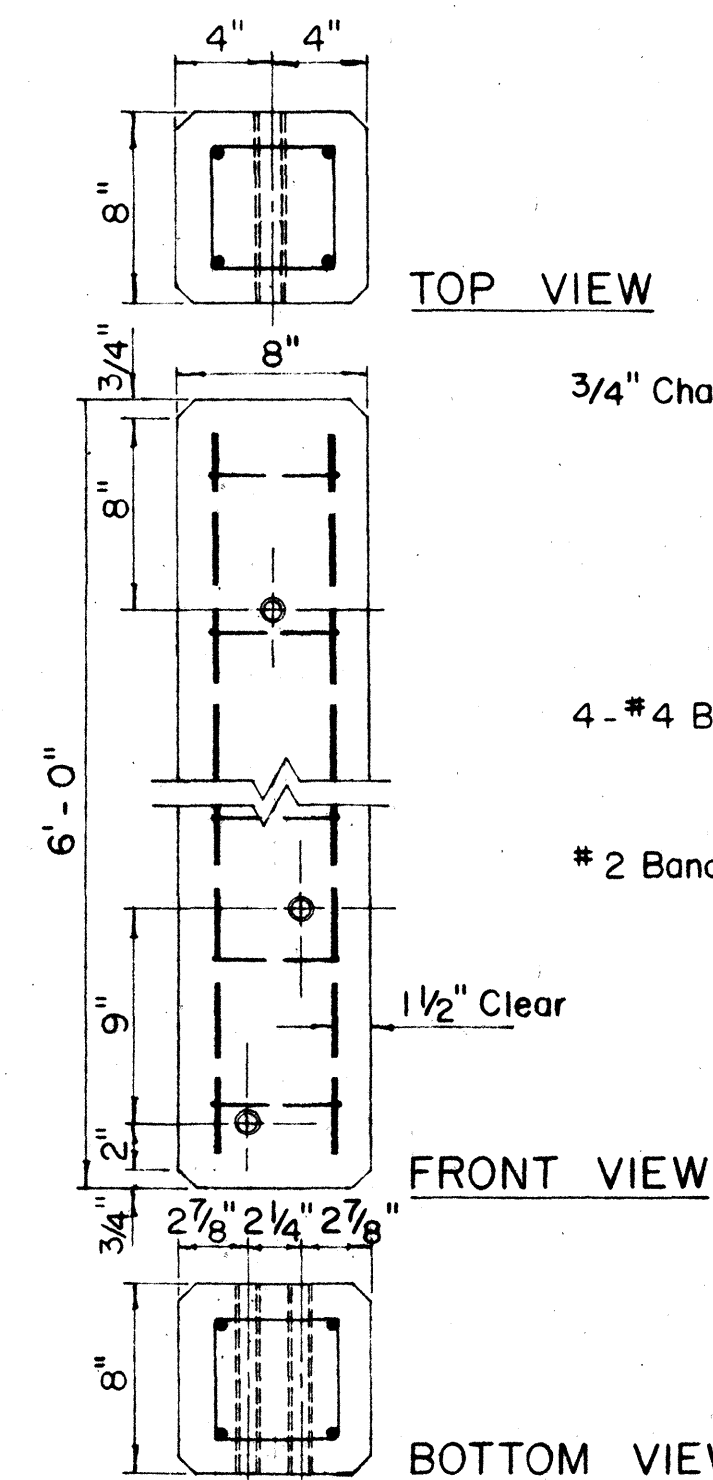
POST BOLT SLOT

RAIL WASHER



RAIL ELEMENT SECTION

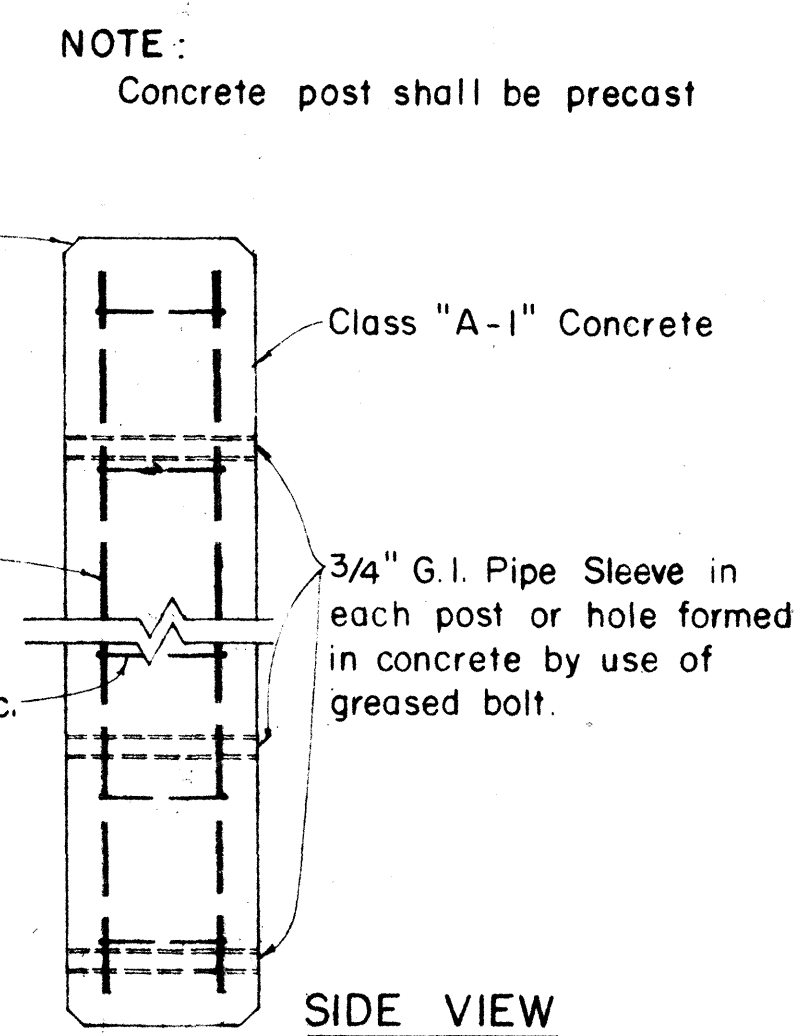
Scale: 6" = 1'-0"



TOP VIEW

FRONT VIEW

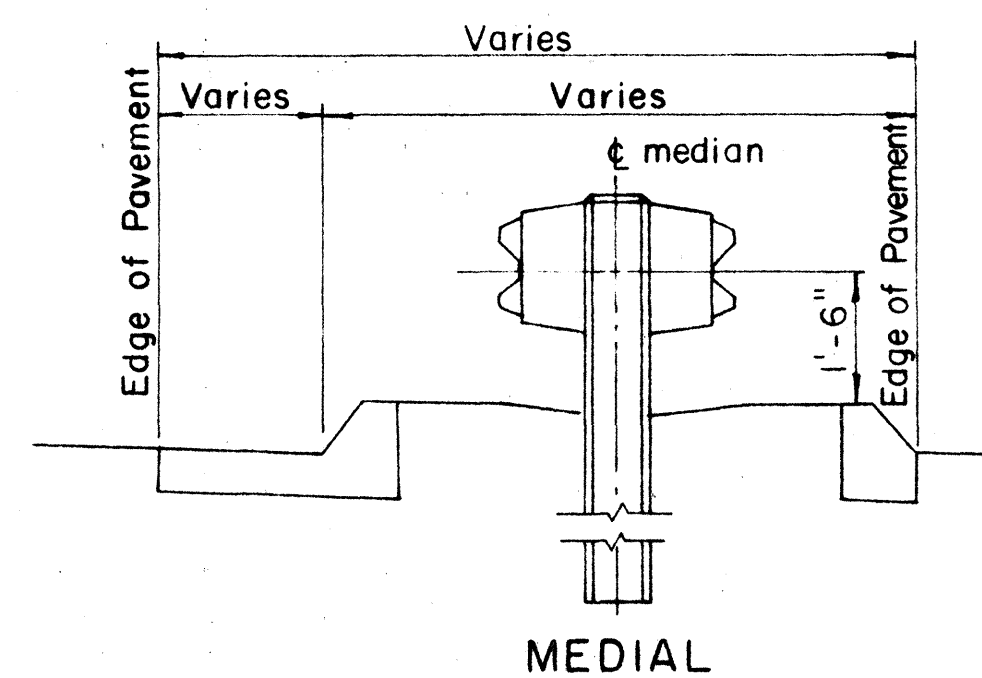
BOTTOM VIEW



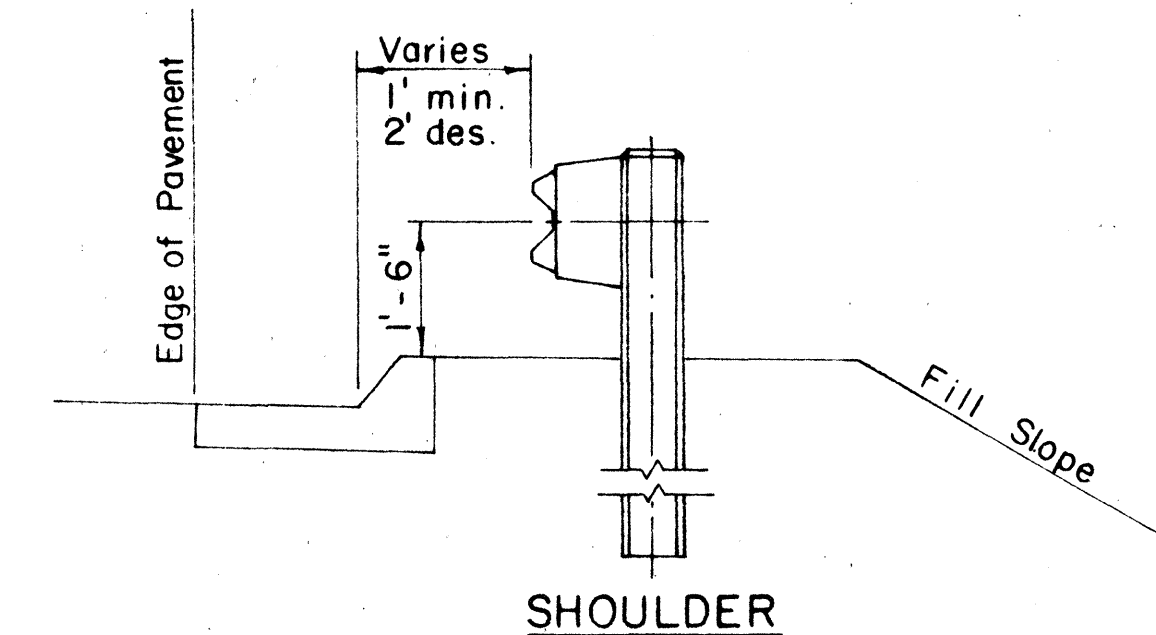
DETAIL OF CONCRETE POST

Scale: $1\frac{1}{2}" = 1' - 0"$

NOTE:
Concrete post shall be precast



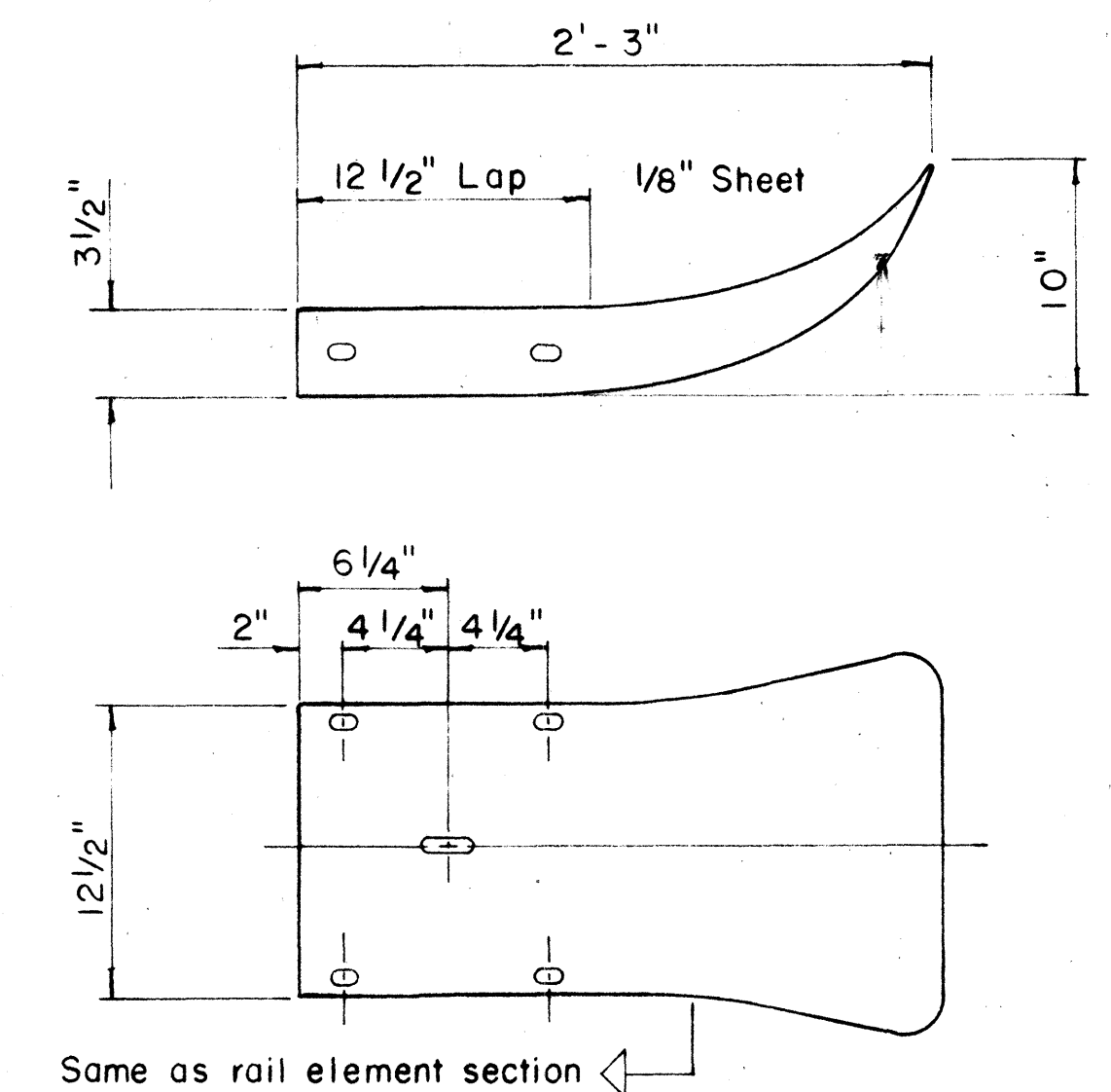
MEDIAL



SHOULDER

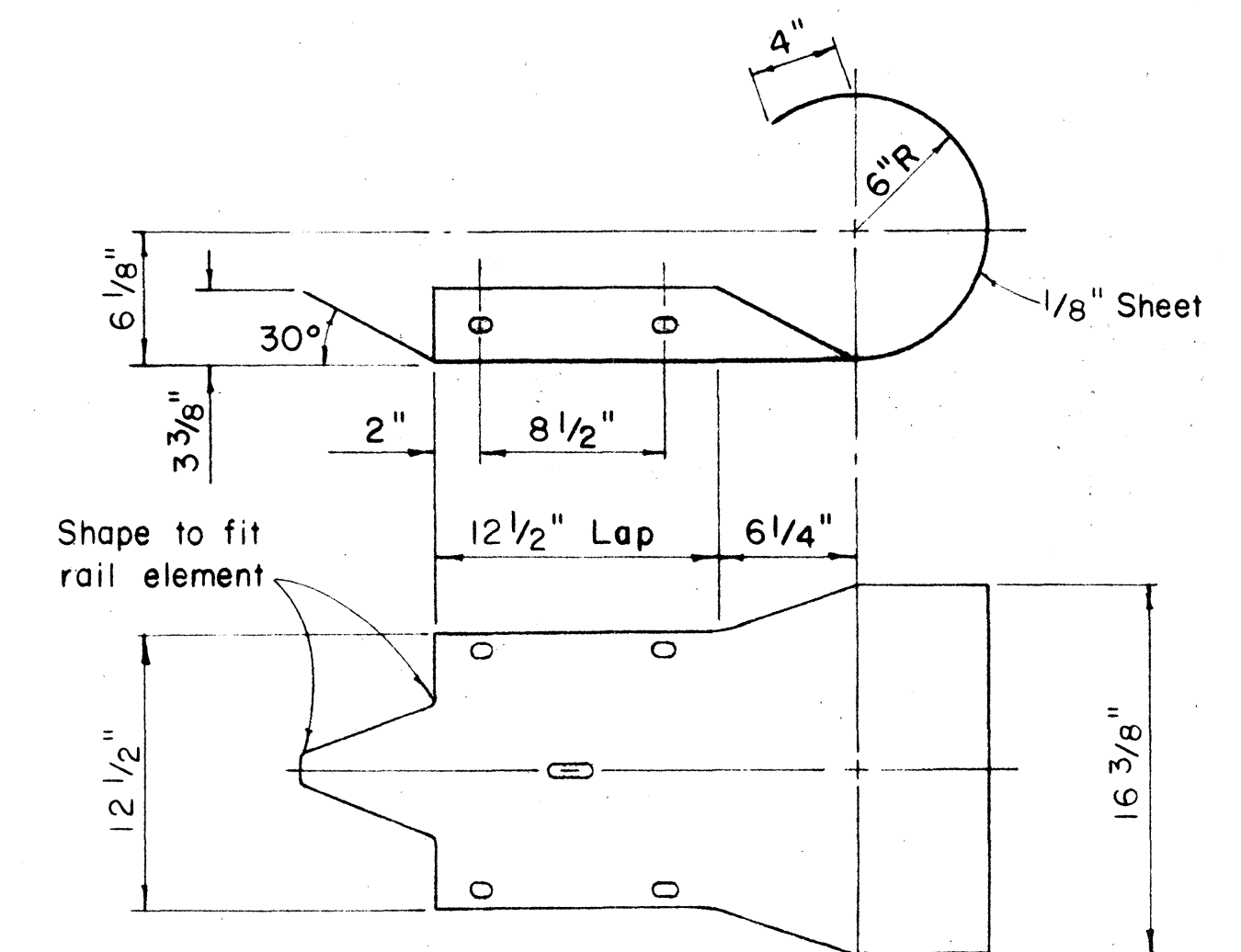
TYPICAL GUARD RAIL DETAIL

Scale: $1/2'' = 1' - 0''$



FLARED END

Scale: $1\frac{1}{2}" = 1' - 0"$



CURVED END

Scale: $1\frac{1}{2}" = 1' - 0"$

REVISED: June 2, 1967

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS

METAL GUARD RAIL

Scale: as noted

SHEET No. 11 OF 11 SHEETS