

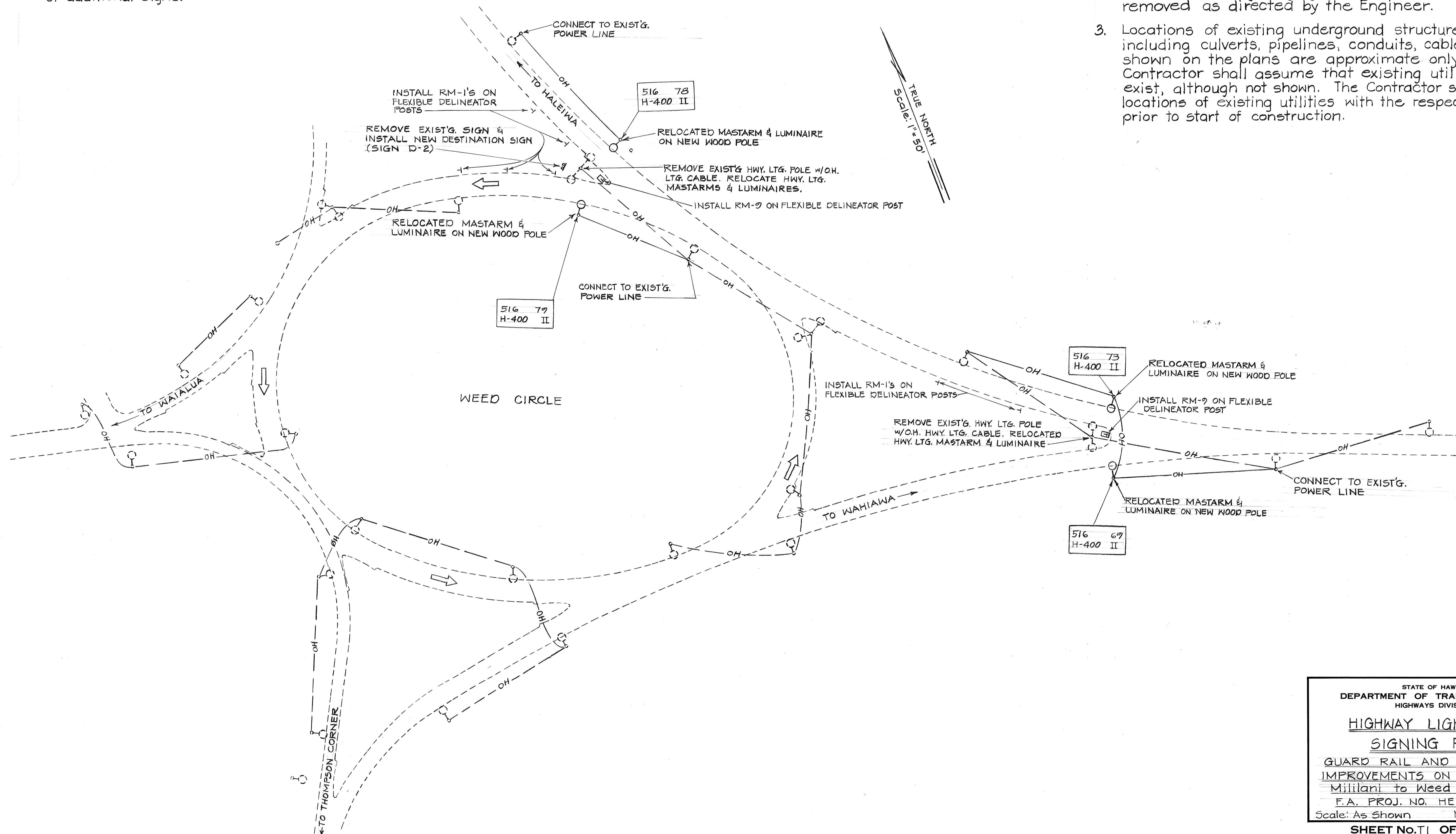
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	27	43

GENERAL NOTES FOR SIGNING

1. The final locations of all signs shall be approved by the Engineer.
2. All existing signs not incorporated on the final traffic pattern shall be removed unless otherwise specified or directed by the Engineer.
3. Refer to Plan Sheet No. 5 for installation of additional signs.

GENERAL NOTES FOR HIGHWAY LIGHTING

1. The final locations of all highway lighting equipment shall be approved by the Engineer.
2. All existing highway lighting equipment not incorporated into the final lighting system shall be abandoned or removed as directed by the Engineer.
3. Locations of existing underground structures & utilities including culverts, pipelines, conduits, cables, etc., as shown on the plans are approximate only. The Contractor shall assume that existing utilities may exist, although not shown. The Contractor shall verify the locations of existing utilities with the respective owners prior to start of construction.



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
NO.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

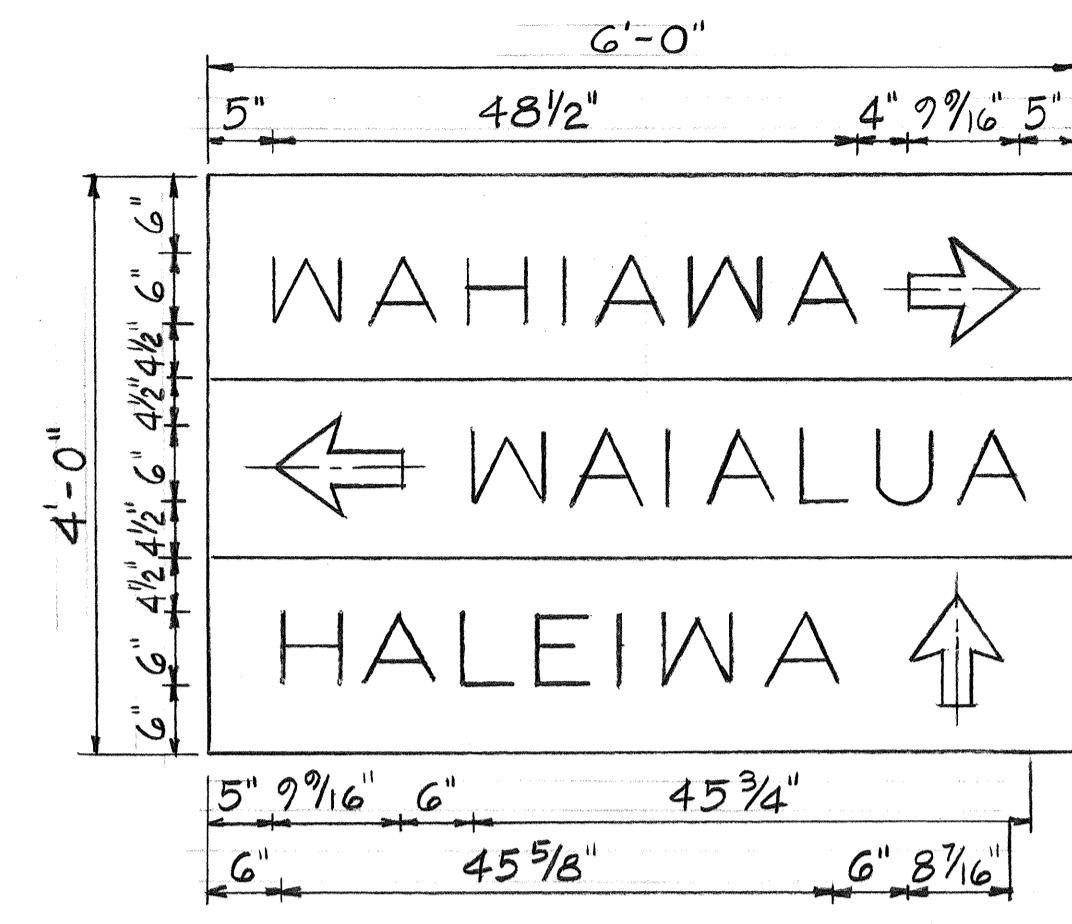
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**HIGHWAY LIGHTING &
SIGNING PLAN**

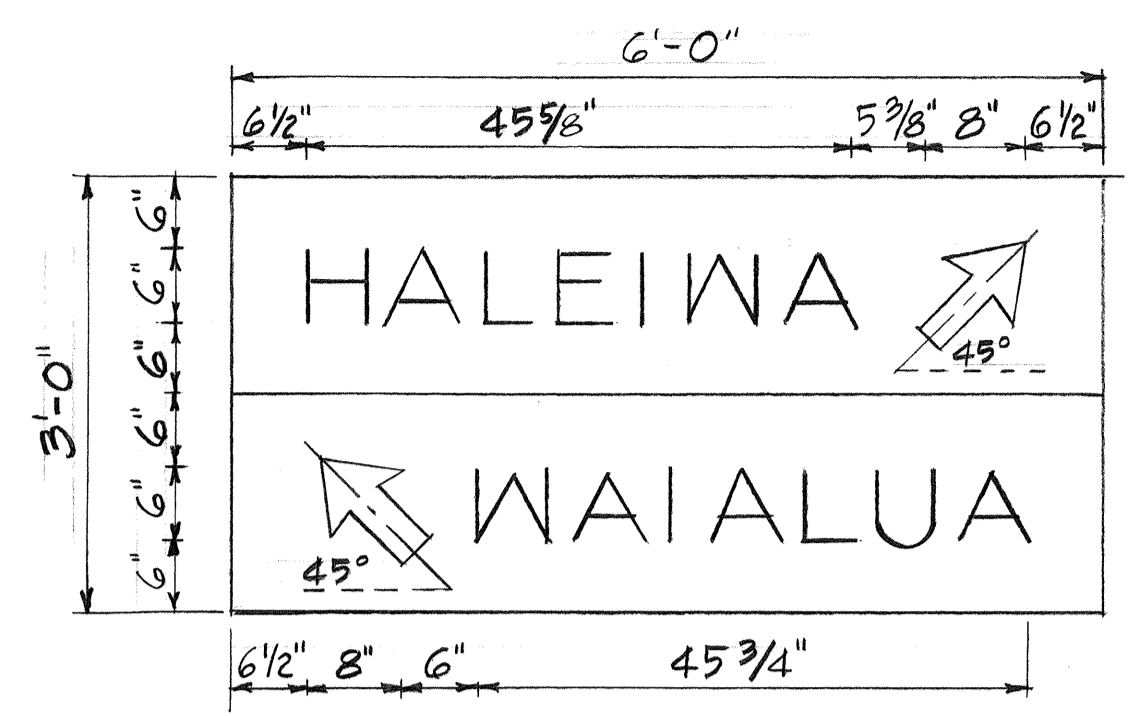
GUARD RAIL AND SHOULDER
IMPROVEMENTS ON ROUTE 99
Mililani to Weed Junction
F.A. PROJ. NO. HES-099-1(8)
Scale: As Shown Date: Jan. 1985

SHEET No. 27 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-077-1(B)	1985	28	43



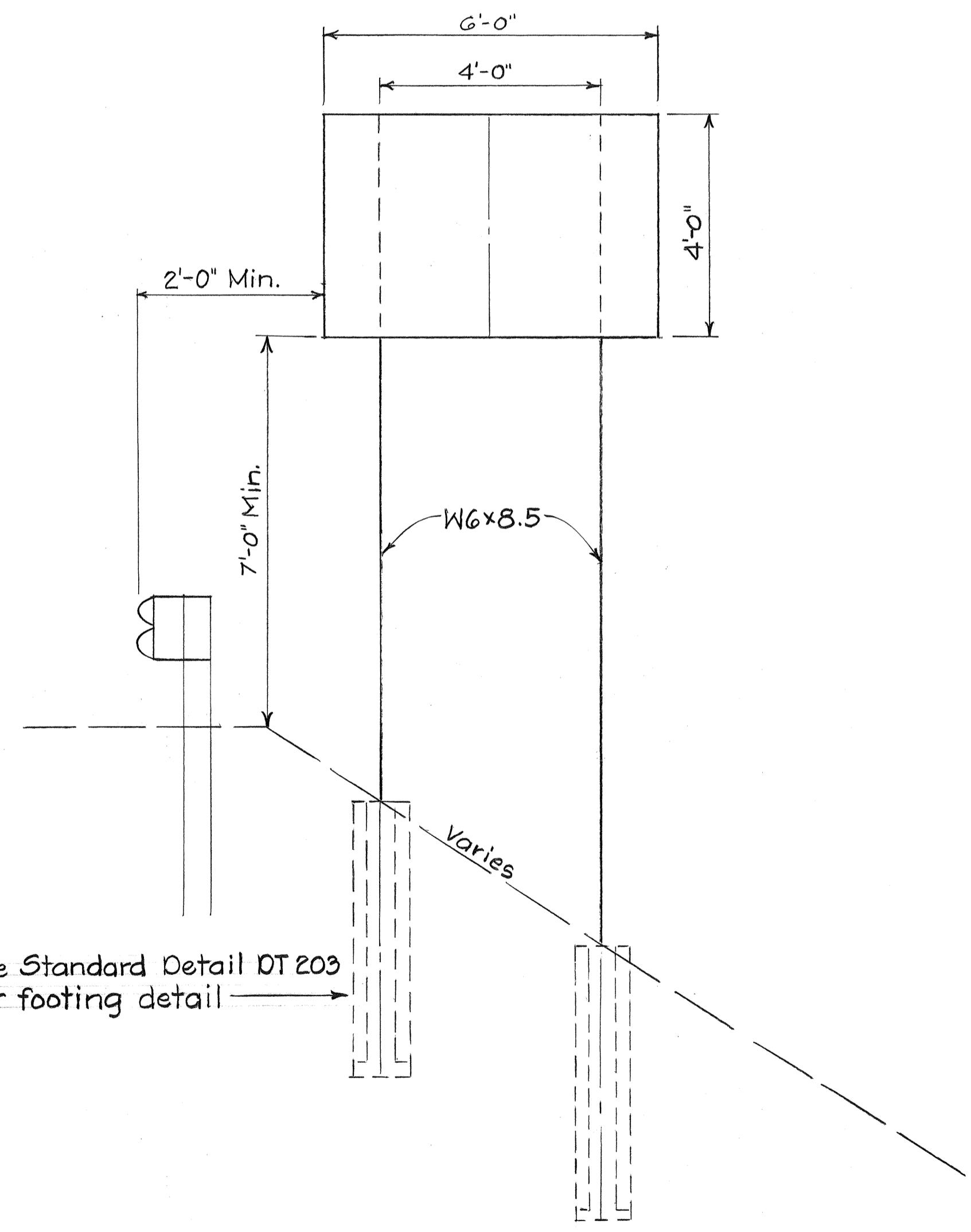
SIGN D-1
SCALE: 3/4"=1'-0"



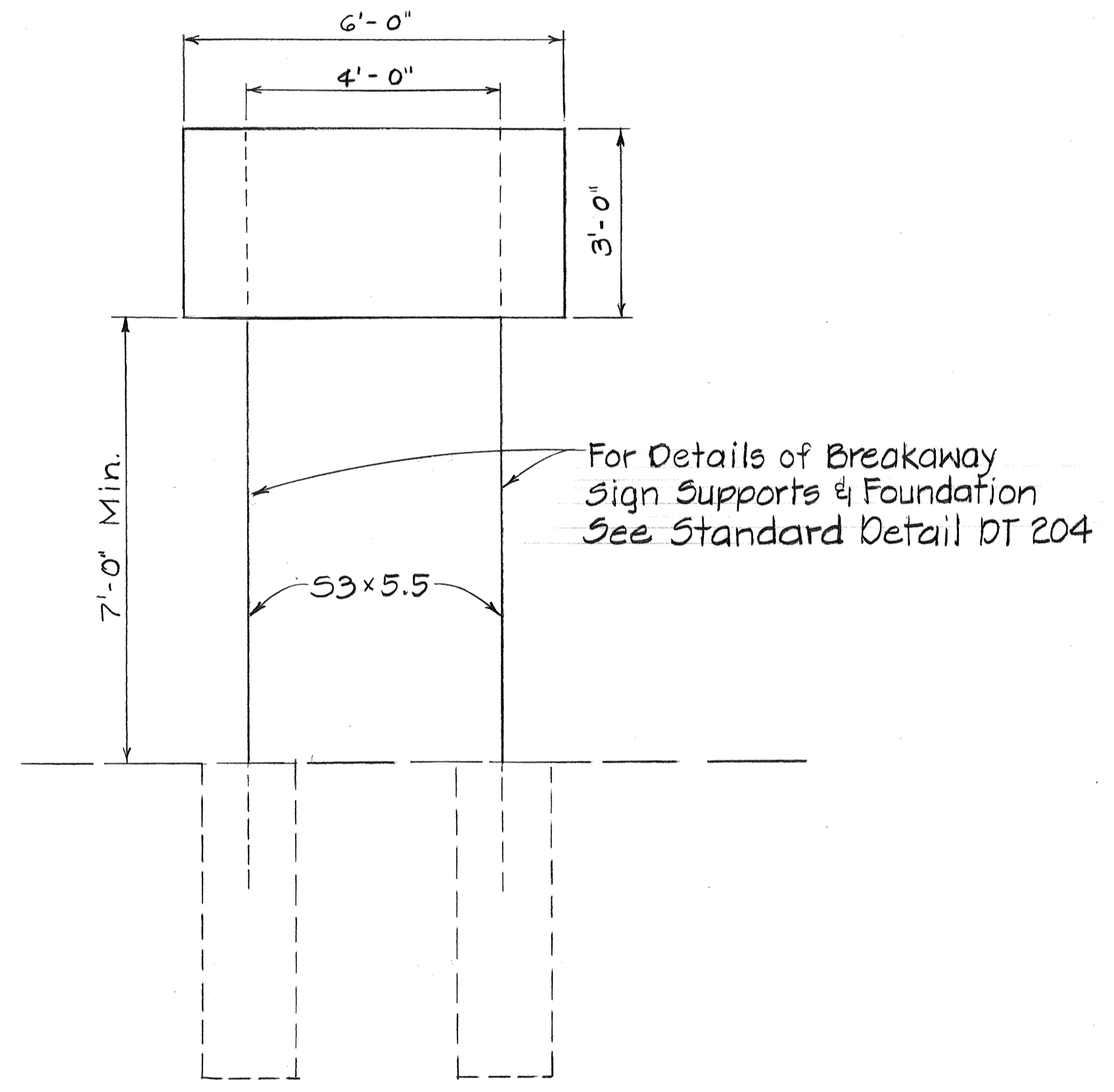
SIGN D-2
SCALE: 3/4"=1'-0"

GENERAL NOTES

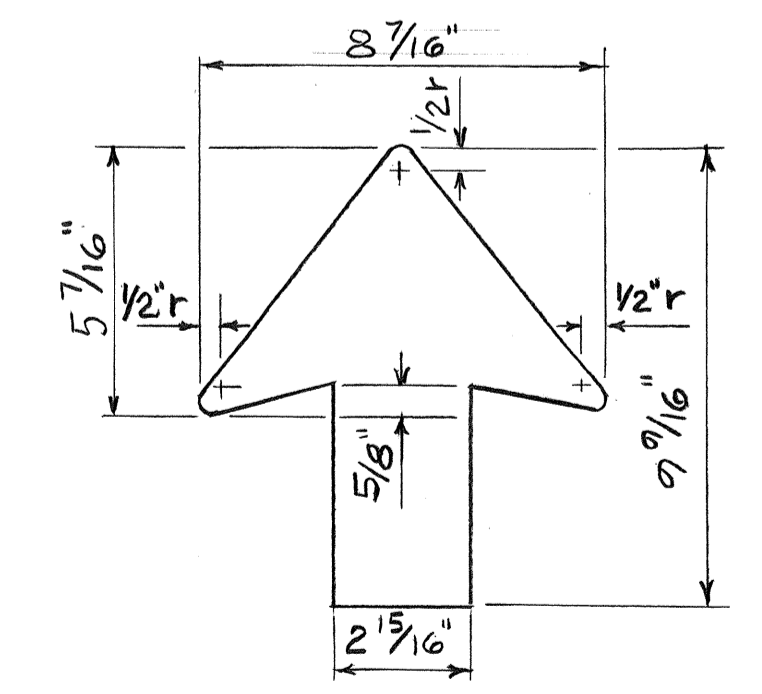
- Signs shall conform to the latest editions & amendments of the following FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets & Highways" (MUTCD).
 - "Standard Highway Signs".
 - "Standard Alphabets for Highway Signs".
- Use Series "E" numerals & letters.
- The final locations of sign frames & panels shall be determined in the field by the Engineer.
- Messages, arrows and borders shall be reflectorized with porcelain enameled aluminum cutouts with acrylic plastic reflex reflectors. Background shall be reflectorized with Type B reflective sheeting.



SIGN D-1
SCALE: 1/2"=1'-0"



SIGN D-2
SCALE: 1/2"=1'-0"



TYPE "B" ARROW DETAIL
SCALE: 1/4"=1'-0"

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PANEL AND FRAME LAYOUT

GUARD RAIL AND SHOULDER
IMPROVEMENTS ON ROUTE 99
Mililani to Weed Junction

F.A. PROJ. NO. HES-077-1(B)

Scale: As Shown Date: Jan. 1985

SHEET No. 28 OF 17 SHEETS

MATERIAL LIST

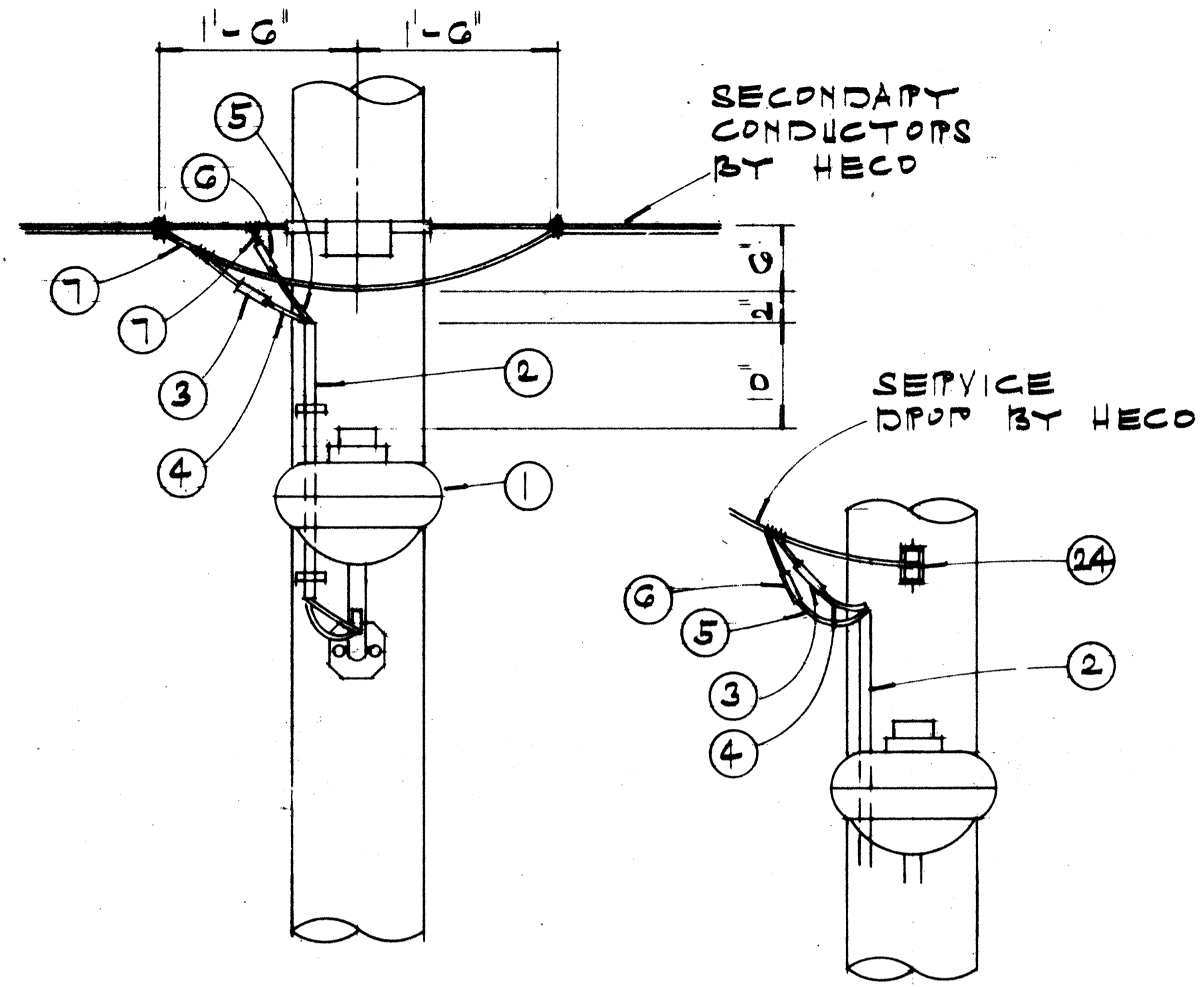
ITEM NO.	DESCRIPTION
1	LUMINAIRE (TYPE AS REQ'D. ON PLANS) & BRACKET (AS REQ'D.) WITH PHOTO-ELECTRIC CONTROL (AS REQ'D.).
2	CONDUIT, 3/4" PVC SCHEDULE 80 & STRAPS.
3	IN LINE FUSE HOLDER W/10A FUSE.
4	WIPE, #10 AWG STRANDED COPPER, TYPE PHW BLACK.
5	WIPE, #10 AWG STRANDED COPPER, TYPE PHW WHITE.
6	IN LINE UNFUSED, INSULATED SEPARABLE CONNECTOR.
7	WIPE #8 AWG 7-STRAND ALUMINUM, TYPE PHW.
8	THIMBLE CLEVIS, ALUM. ALLOY W/ ALUM. ALLOY EYELET.
9	WIPES, 2-#1/0 CROSS-LIMITED POLYETHYLENE ALUM. W/ #3/0 AAAC NEUTRAL MESSANGER.
10	PREFORMED GUY GRIP
11	GUY WIPE, 3/8" EHS, GALV.
12	ANCHOR GUY HOOK W/3/4" ϕ THRU BOLT & 2 1/4" SQ. WASHER.
13	MESSANGER HANGER, CAST ALUM. W/5/8" ϕ ALUM. ALLOY THRU BOLT & 2 1/4" ALUM. ALLOY SQ. WASHER.
14	ALUM. SHEET WRAP (AROUND MESSANGER)
15	5/8" ϕ ALUM. ALLOY THRU BOLT W/2 1/2" SQ. ALUM. ALLOY CURVED WASHER (LENGTH AS REQ'D.).
16	ALUM. ALLOY SUSPENSION CLAMPS W/ LINE GUARD & ALUM. ALLOY EYELET.
17	ALUM. ALLOY PREFORMED DEADEND.
18	ANCHOR ROD 1" ϕ x 8'-0" COPPER CLAD.
19	CONCRETE DEADMAN 1'-6" ϕ W/ GALV. SQ. WASHER.
20	GUY WIPE GUARD, GALV.
21	INSULATOR, PORCELAIN.
22	LAG SCREW (SIZE AS REQ'D.)
23	5/8" ϕ GALV. THRU BOLT W/ 2 1/2" SQ. GALV. WASHER (LENGTH AS REQ'D.).
24	DEADEND SPOOL & FORK
25	ALUM. COMPRESSION TAP CONDUCTOR, #1/0 ALUM.
26	ALUM. COMPRESSION TAP CONDUCTOR, #3/0 ALUM.

NOTE:
ALL HARDWARE, UNLESS INDICATED AS ALUM. OR ALUM. ALLOY, SHALL BE HOT DIPPED GALV. STEEL.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

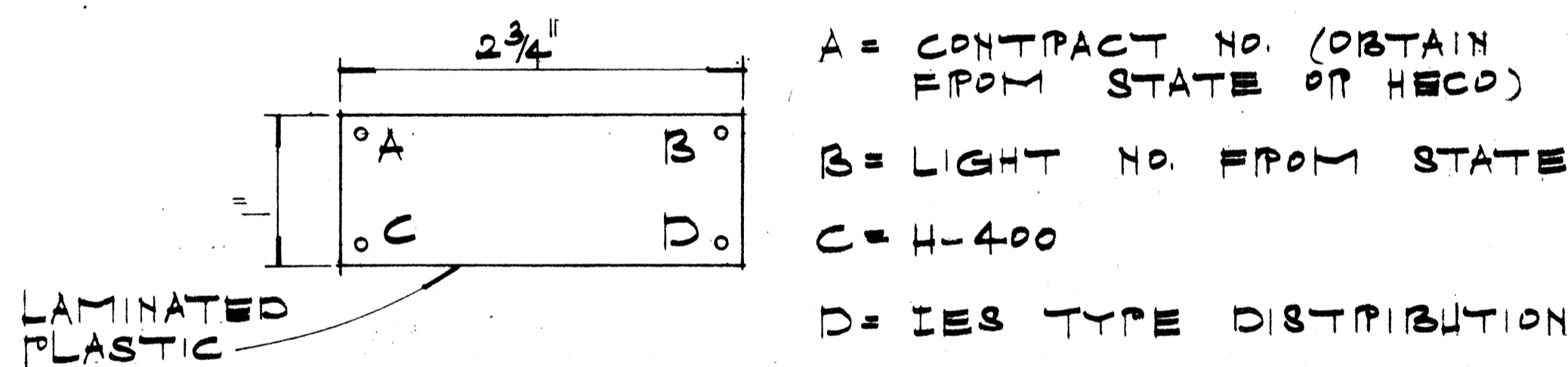
**TYPICAL DETAILS
HIGHWAY LIGHTING
LUMINAIRE MOUNTED
ON WOOD POLE**

NOT TO SCALE MAY 1976
SHEET NO. 29 OF 17 SHEETS



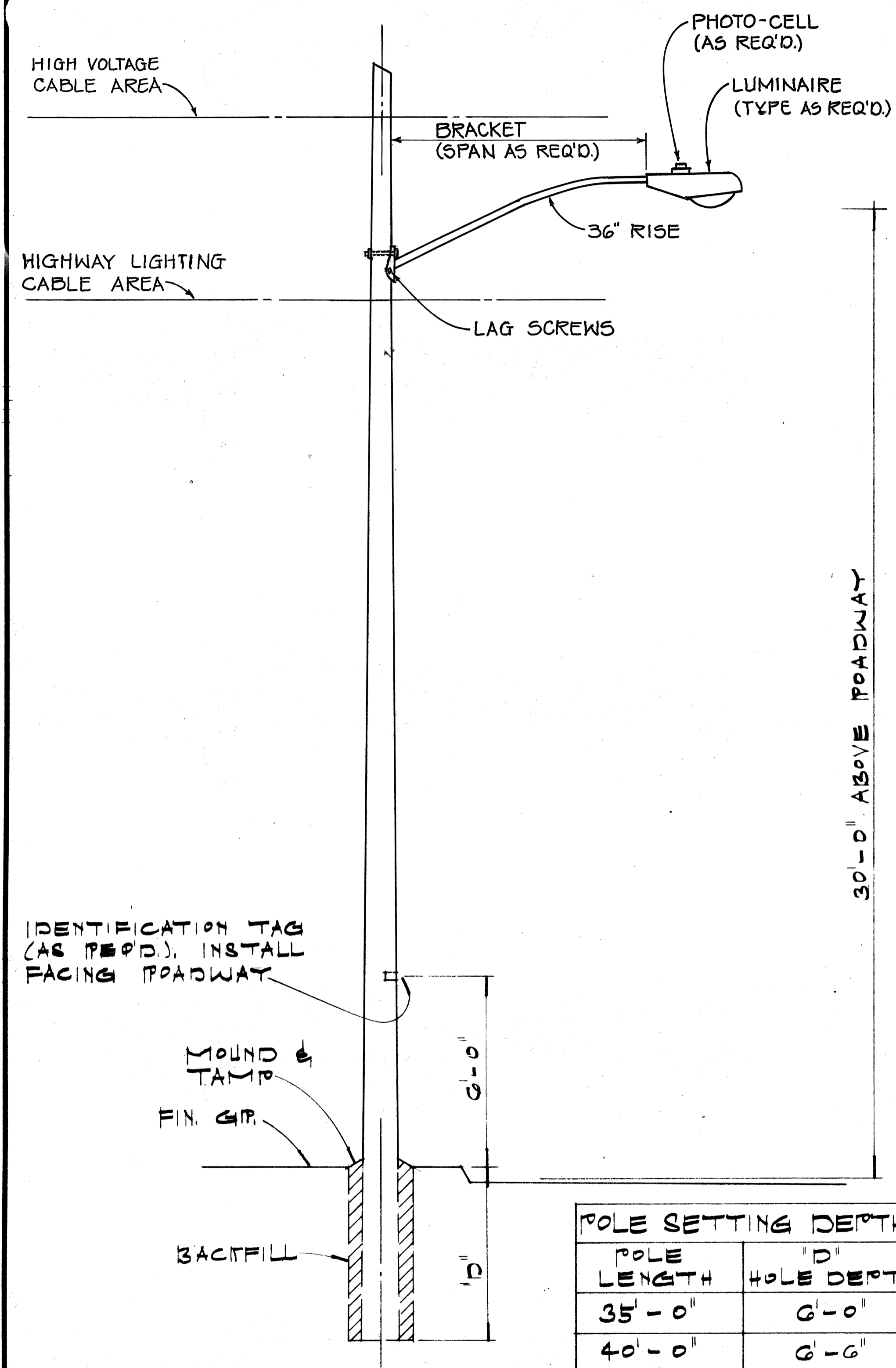
NOTE:
PROVIDE ENOUGH CABLE SLACK FOR HECO TO TAKE UP & TAKE CONNECTION.

HECO SECONDARY CONNECTION DETAIL



IDENTIFICATION TAG

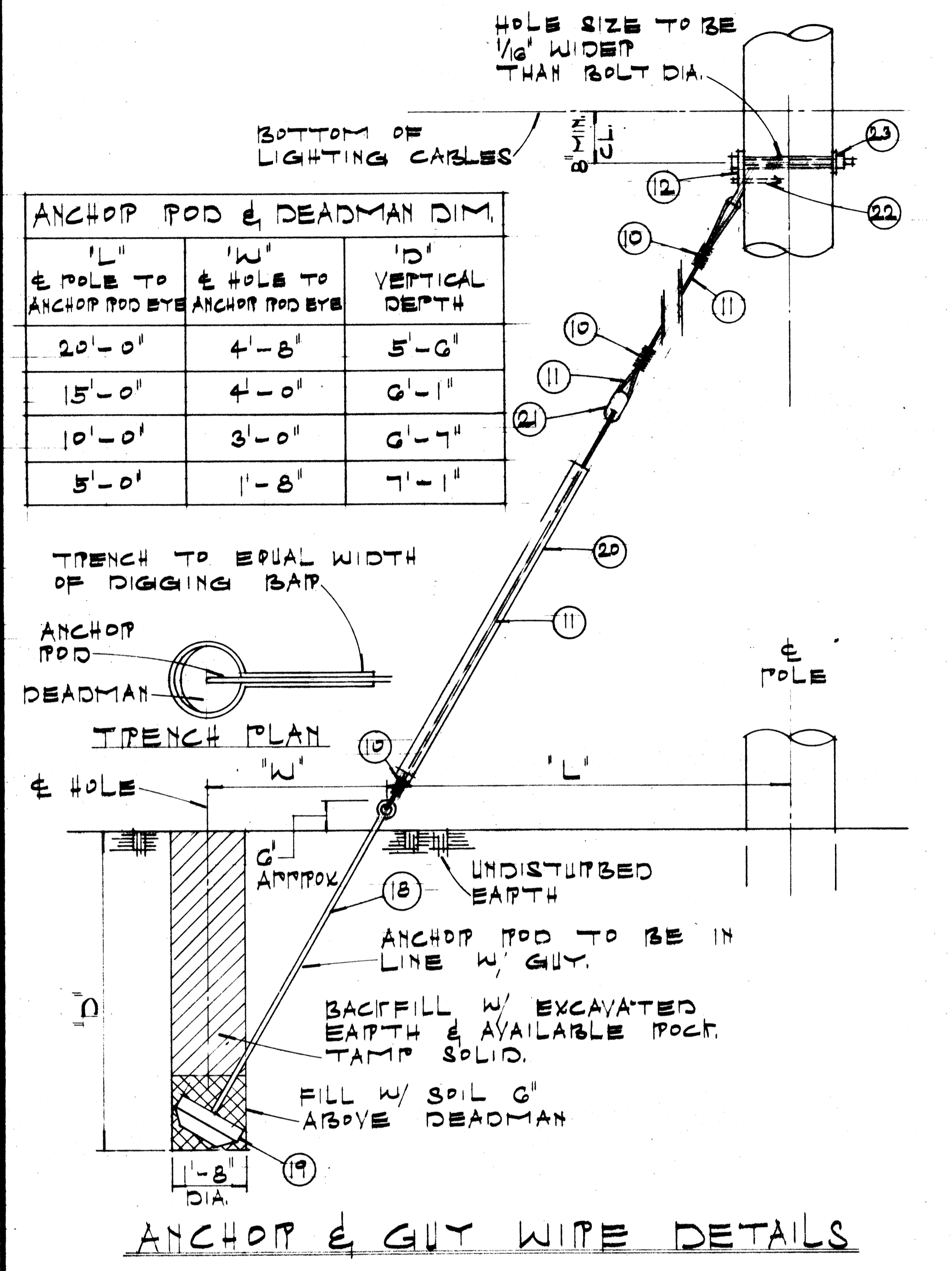
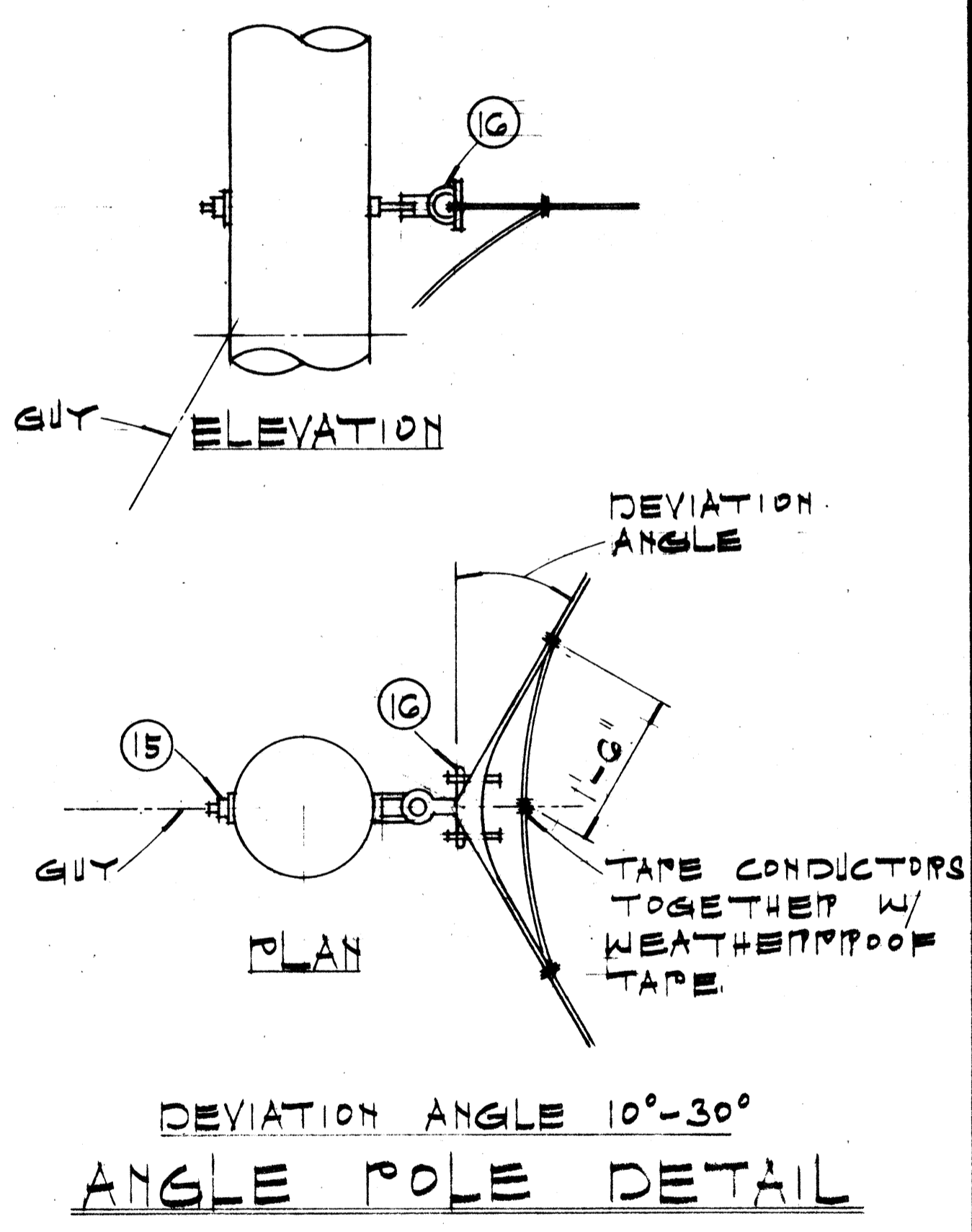
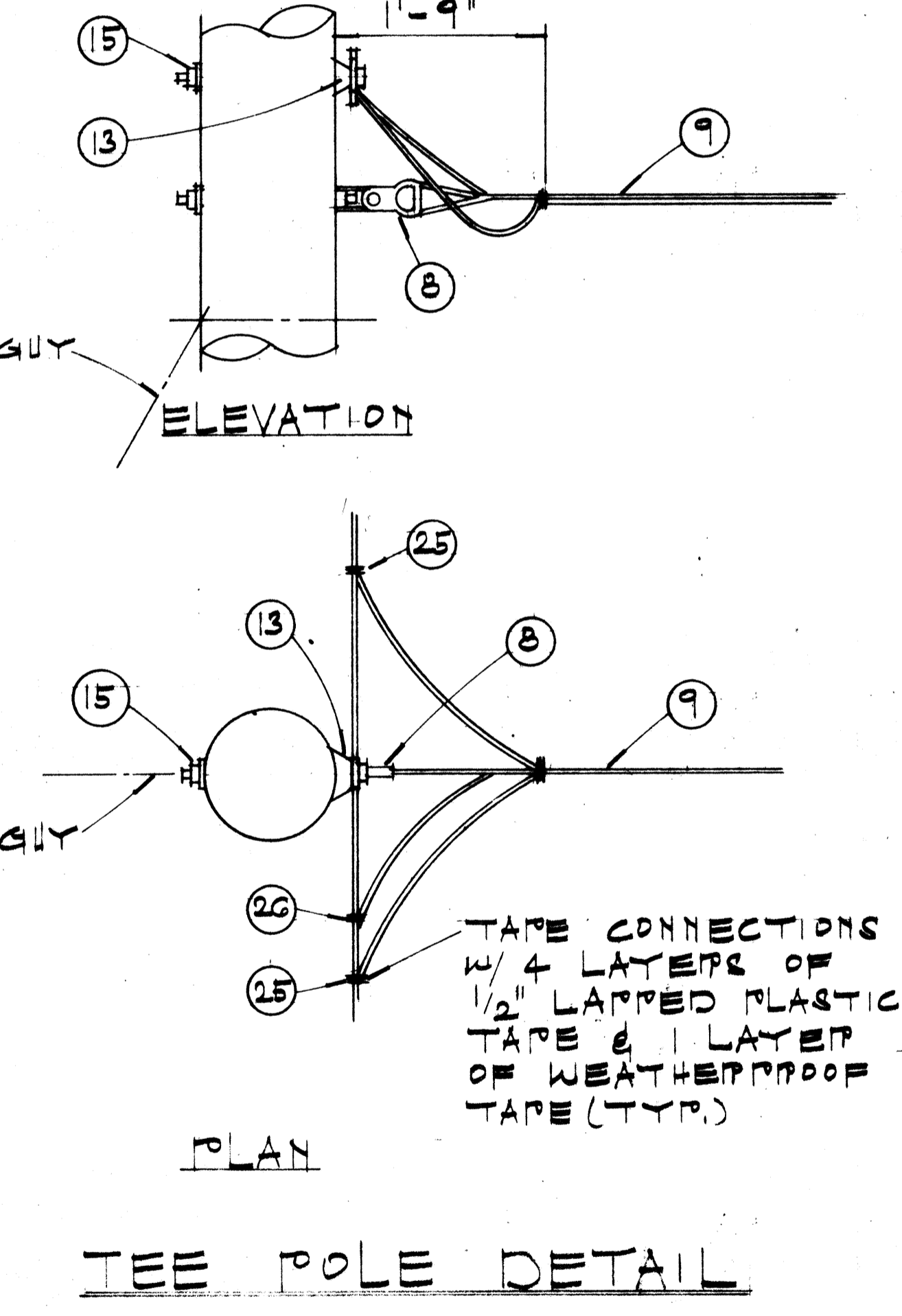
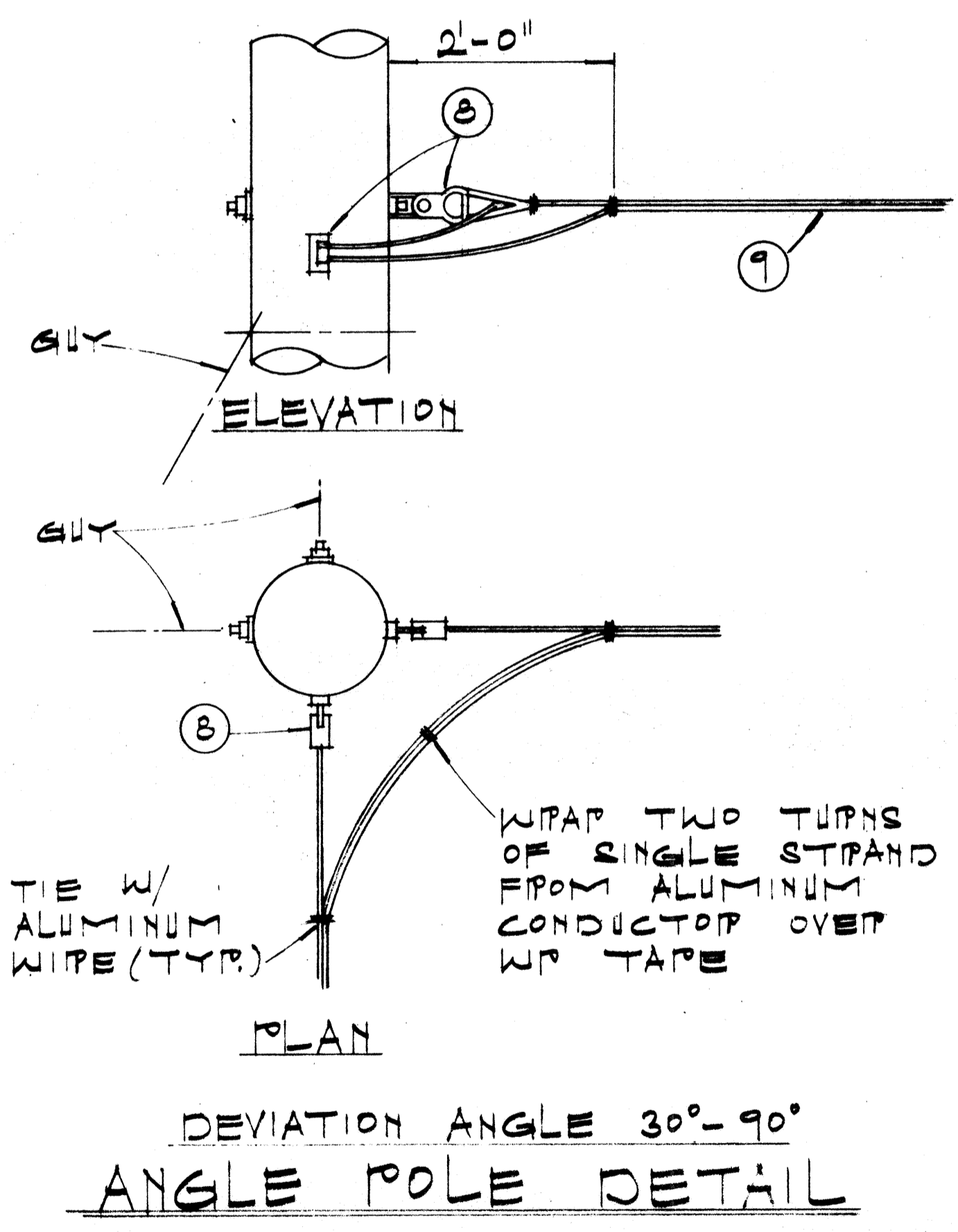
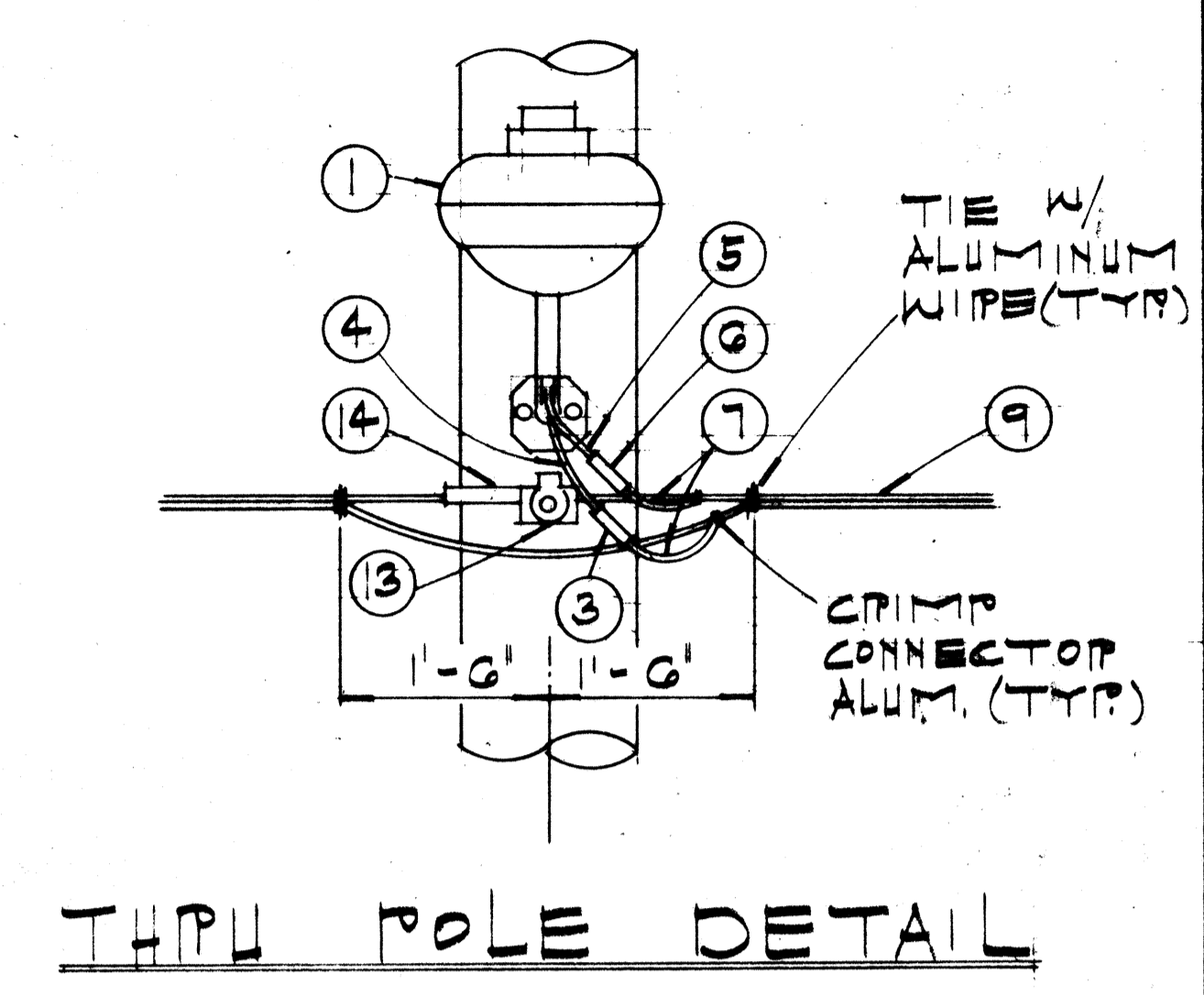
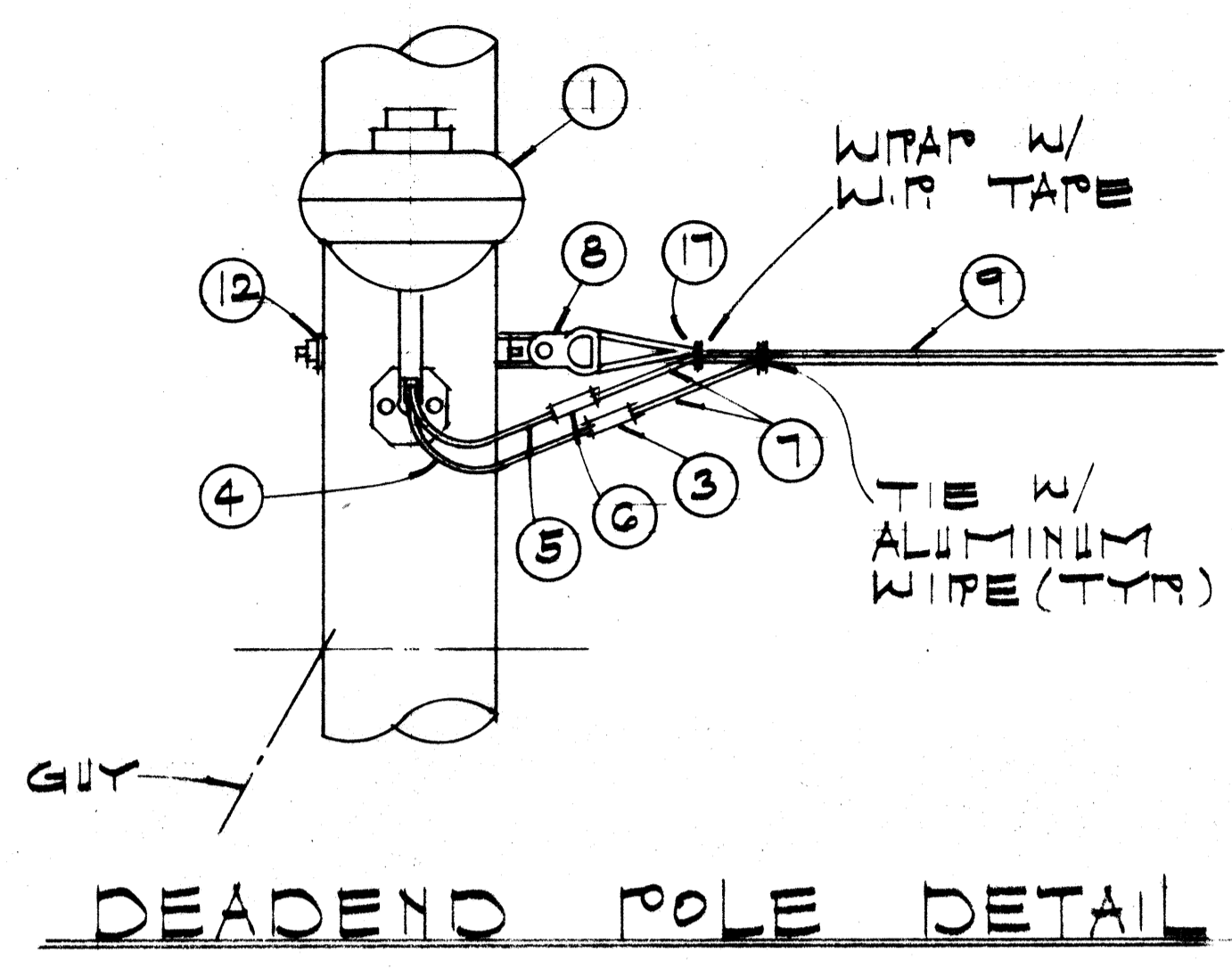
NOTE:
1. PROVIDE IDENTIFICATION TAG ON ALL POLES UNLESS OTHERWISE SPECIFIED.
2. HIGHWAY LIGHT NUMBERS ON PLANS MAY NOT CORRESPOND W/ NUMBERS ON IDENTIFICATION TAGS. VERIFY LIGHT NUMBERS W/ STATE OF HAWAII.



POLE SETTING DEPTH	
POLE LENGTH	"D" HOLE DEPTH
35'-0"	6'-0"
40'-0"	6'-6"
45'-0"	6'-6"

LUMINAIRE MOUNTED ON WOOD POLE

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	



'L' & POLE TO ANCHOR ROD EYE	'W' & POLE TO ANCHOR ROD EYE	'D' VERTICAL DEPTH
20'-0"	4'-8"	5'-0"
15'-0"	4'-0"	6'-1"
10'-0"	3'-0"	6'-1"
5'-0"	1'-8"	7'-1"

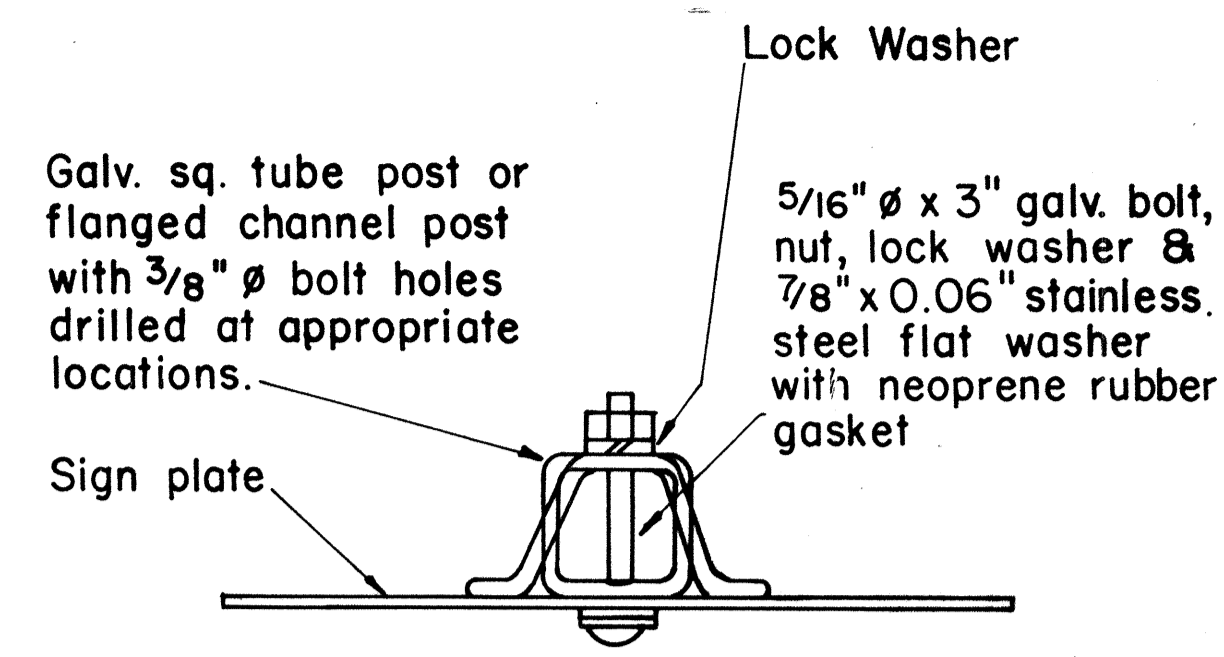
DATE _____
 SURVEY PLOTTED BY _____
 DRAWN BY _____
 TRACED BY _____
 QUANTITIES BY _____
 CHECKED BY _____
 ORIGINAL PLAN _____
 NOTE BOOK _____
 No. _____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TYPICAL DETAILS
HIGHWAY LIGHTING
LUMINAIRE MOUNTED
ON WOOD POLE
 NOT TO SCALE MAY 1976
 SHEET NO. 14 OF 17 SHEETS

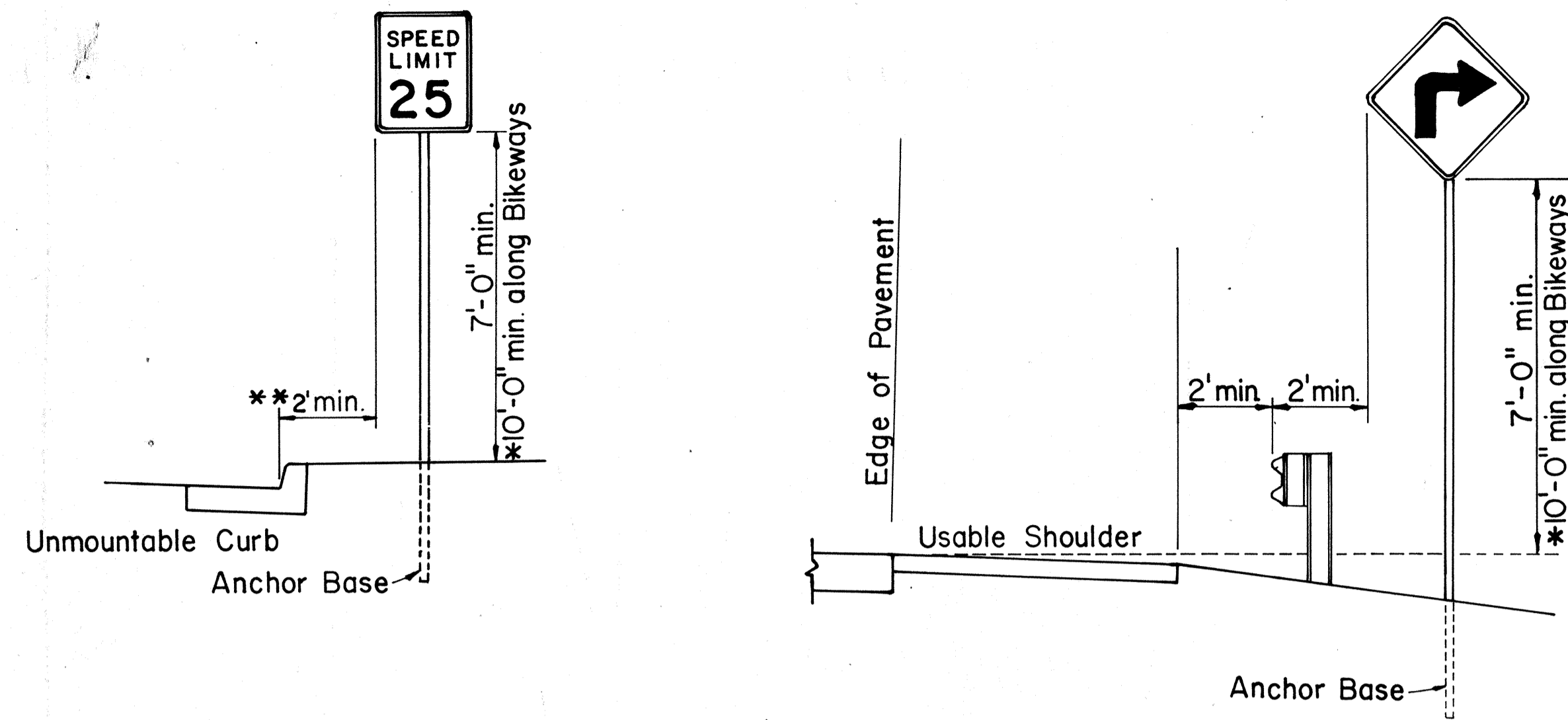
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	31	43

GENERAL NOTES

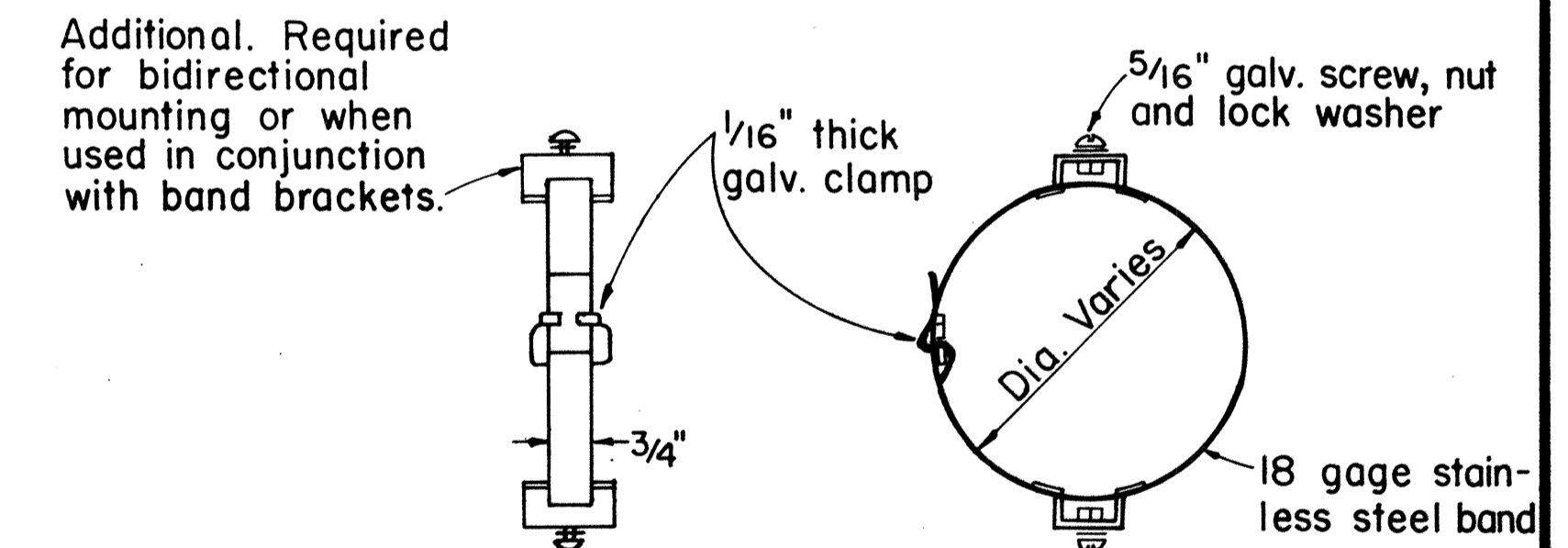
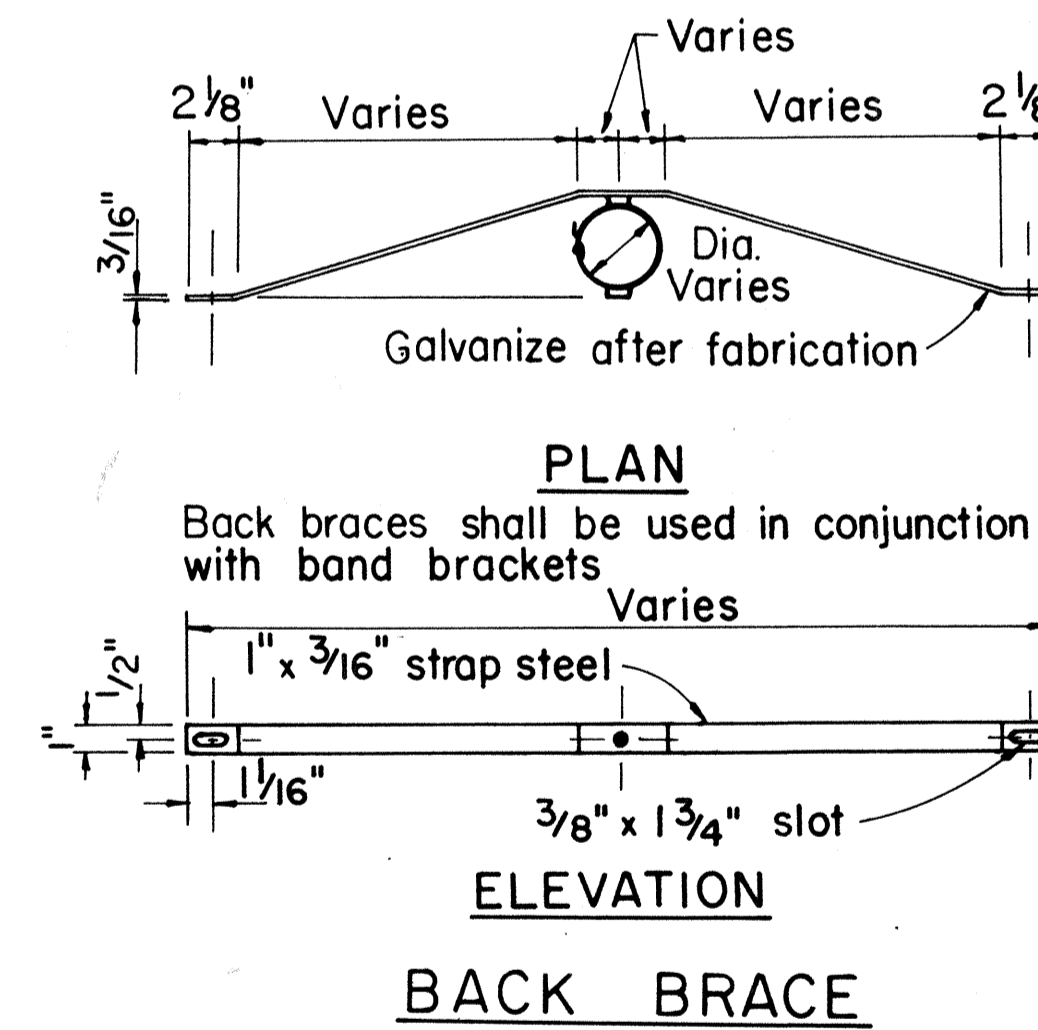
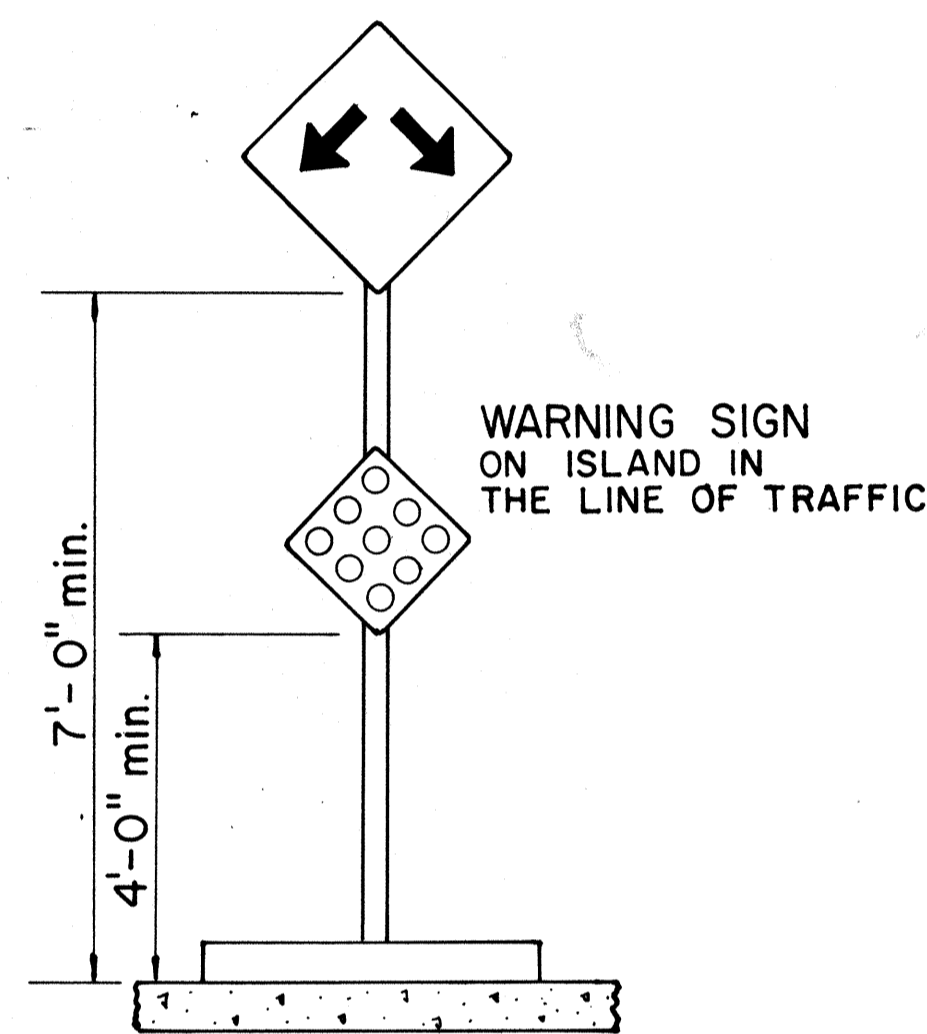
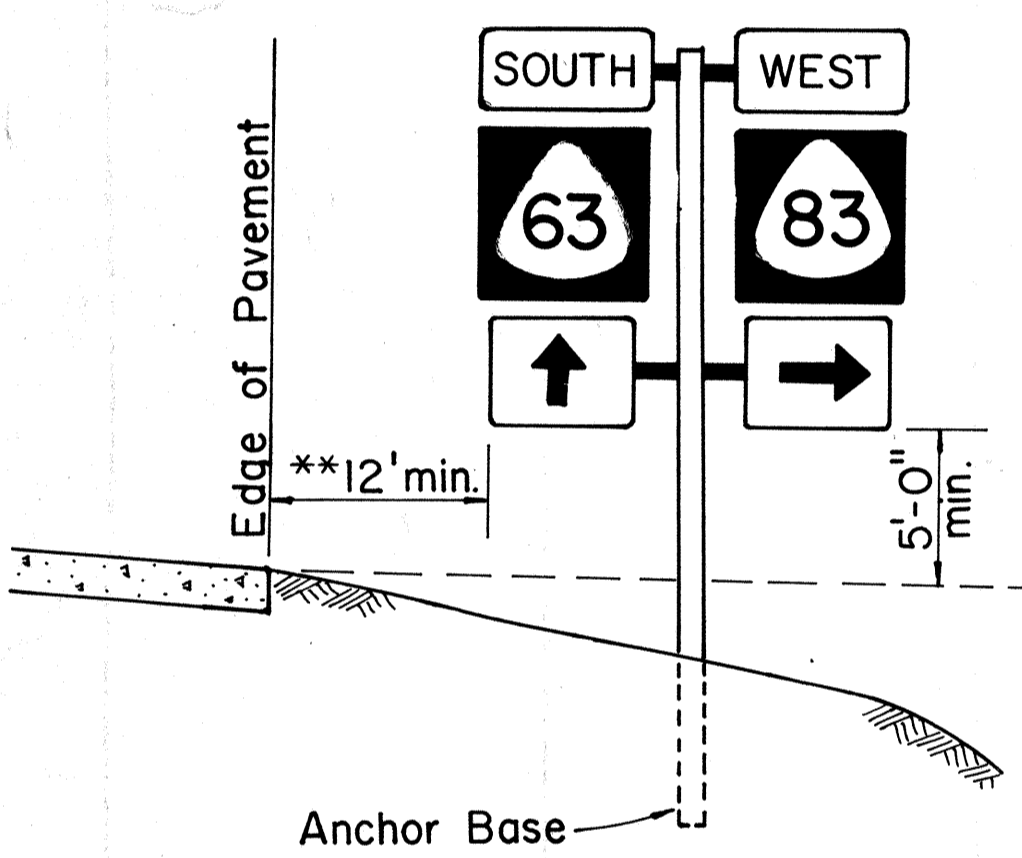
- Signs shall be placed in conformance with positions shown and described in the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1978, Part II, Section 2A-21, as amended, and as supplemented herein.
- Sign 48" and wider or larger than 10 sq. ft. in area shall be mounted on two or more sign posts except as noted below.
- Signs 48" and wider or larger than 10 sq. ft. in area may be mounted on objects other than sign posts (i.e. on highway lighting poles) as follows:
 - Signs 48" and wider but less than 10 sq. ft. in area shall be mounted with a minimum of two sets of band bracket and back braces.
 - Signs larger than 10 sq. ft. and less than 28 sq. ft. in area shall be mounted with a minimum of two sets of band brackets and back braces.
 - Signs larger than 28 sq. ft. in area shall be mounted with a minimum of three sets of band bracket and back braces.
- All parking restriction signs with arrows shall be mounted 45° to the line of traffic flow.
- Sign posts shall extend 3 1/2" above each sign, where required, for attachment of City and County street name signs.
- (R) or (L) indicates right or left and shown on the plans.
- See plans for special details of signs along bikeways.
- The minimum lateral distances shown are guidelines and shall be exceeded whenever possible. The Contractor shall place signs at the maximum practical lateral distance from the edge of the traveled way up to 30 feet and shall utilize protected locations whenever possible. Final locations of all signs shall be approved by the Engineer.
- Signs in medians shall be placed at midpoint of median up to a maximum distance of 30 feet from the edge of traveled way. When appropriate, signs for opposing directions shall be placed back to back.
- Anchor bases shall be installed for all signpost installations, unless otherwise shown or directed. See sheets DT 100A and DT 100B.



GALVANIZED SQUARE TUBE OR FLANGED CHANNEL POST



ROADSIDE ASSEMBLY RURAL DISTRICT



BAND BRACKET

APPROVAL RECOMMENDED:
Eiichi Tanaka 10/14/83
 TRAFFIC ENGINEER DATE

APPROVED:
H. Fujiyama 10-18-83
 ASSISTANT CHIEF, ENGINEERING DATE

TYPICAL MOUNTING DETAILS

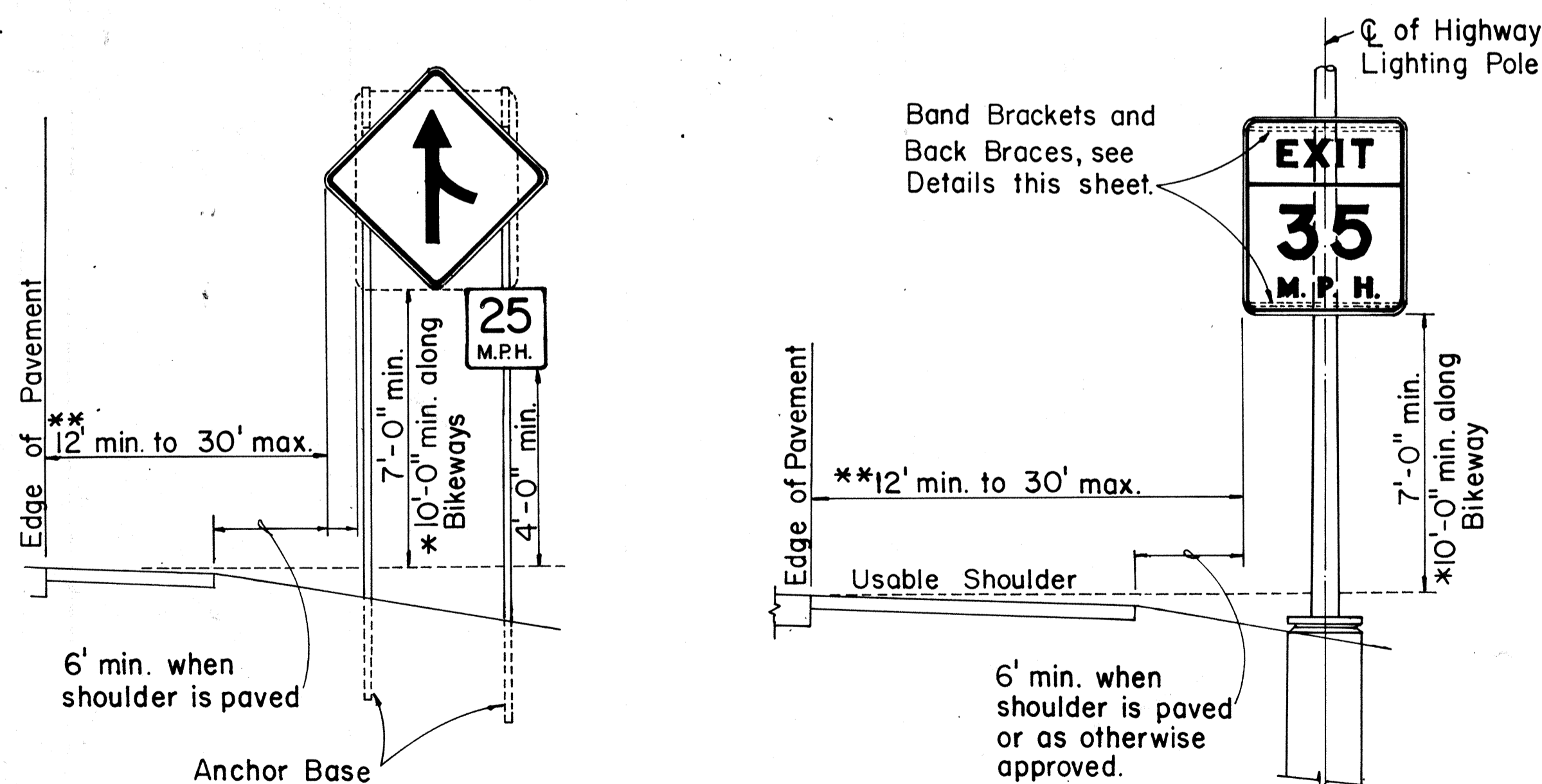
NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 100 approved 11/15/77	<i>[Signature]</i>	10-18-83

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGN DETAILS

Not to Scale: Oct. 1983
 SHEET NO. 15 OF 17 SHEETS DT 100



HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HE5-077-1(8)	1985	32	43

A or A ₁	C	C ₁
36"	6"	-
48"	9"	19"
60"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 4.

GENERAL NOTES

- Sign posts and base posts shall be flanged channel type structural steel conforming to ASTM A 499 and galvanized in accordance with ASTM A 123.
NOMINAL DIMENSIONS:
2.50 lbs./ft. - 3.125" x 1.562"
4.00 lbs./ft. - 3.500" x 1.750"
- Retainer - Spacer Strap shall be AISI 1020 steel and galvanized in accordance with ASTM A 123.
- Retainer and Connector Bolts shall be 5/16 - 18 UNC x 1.75" long hex. head, integral flange conforming to ASTM A 354 Grade BC. Nuts shall be 5/16 - 18 UNC hex. head, integral flange conforming to ASTM A 563 Grade D. All bolts and nuts shall be cadmium plated per Federal spec. QQP 416 B, Class 2, Type 2.
- All accessories, fittings and stiffener details (as required) shall be submitted to Engineer for approval 20 days prior to installation.
- For additional details see sht. DT 100.
- Basic formulas for use with the windload charts:
Factor = $A \times B \times H$
Therefore, if sign area (A x B) is known,
Maximum H = $\frac{\text{Factor}}{\text{sign area (A x B)}}$
and if H is known,
Maximum sign area (A x B) = $\frac{\text{Factor}}{H}$

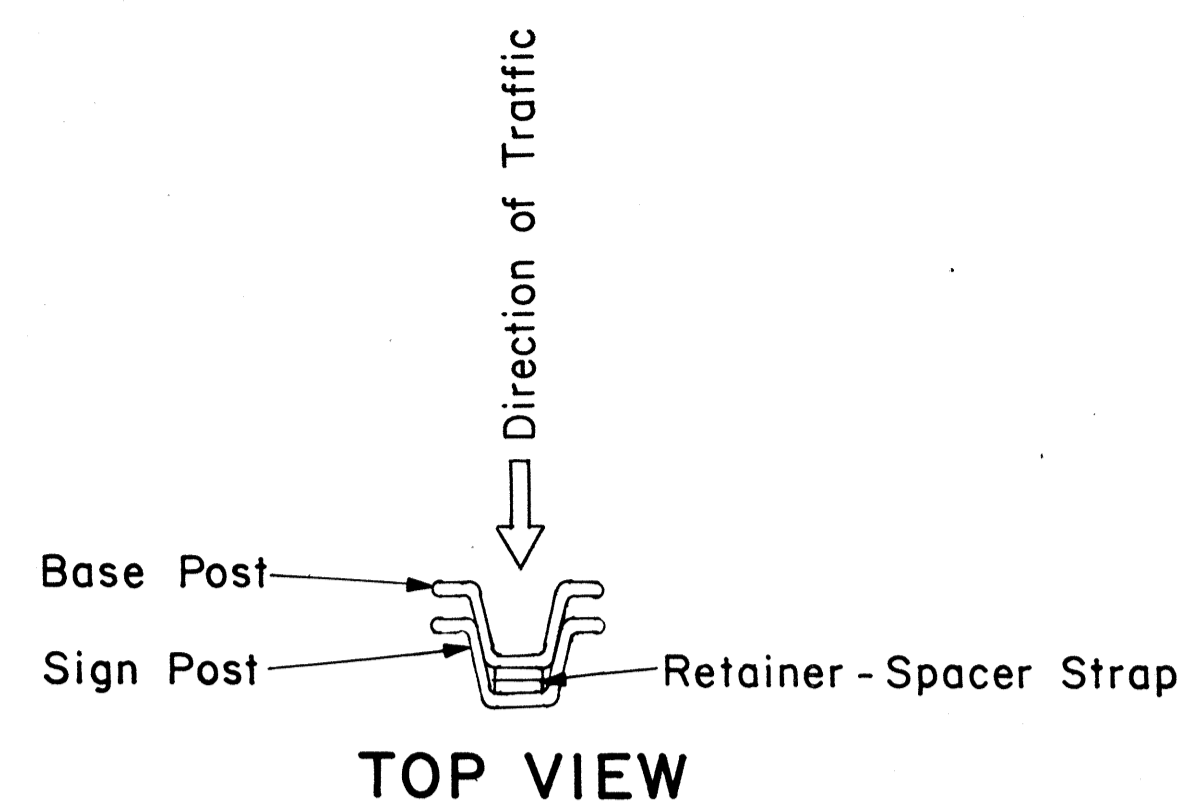
APPROVAL RECOMMENDED:
Erich Tanaka 9/21/82
TRAFFIC ENGINEER DATE

APPROVED:
Shirley J. ... 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

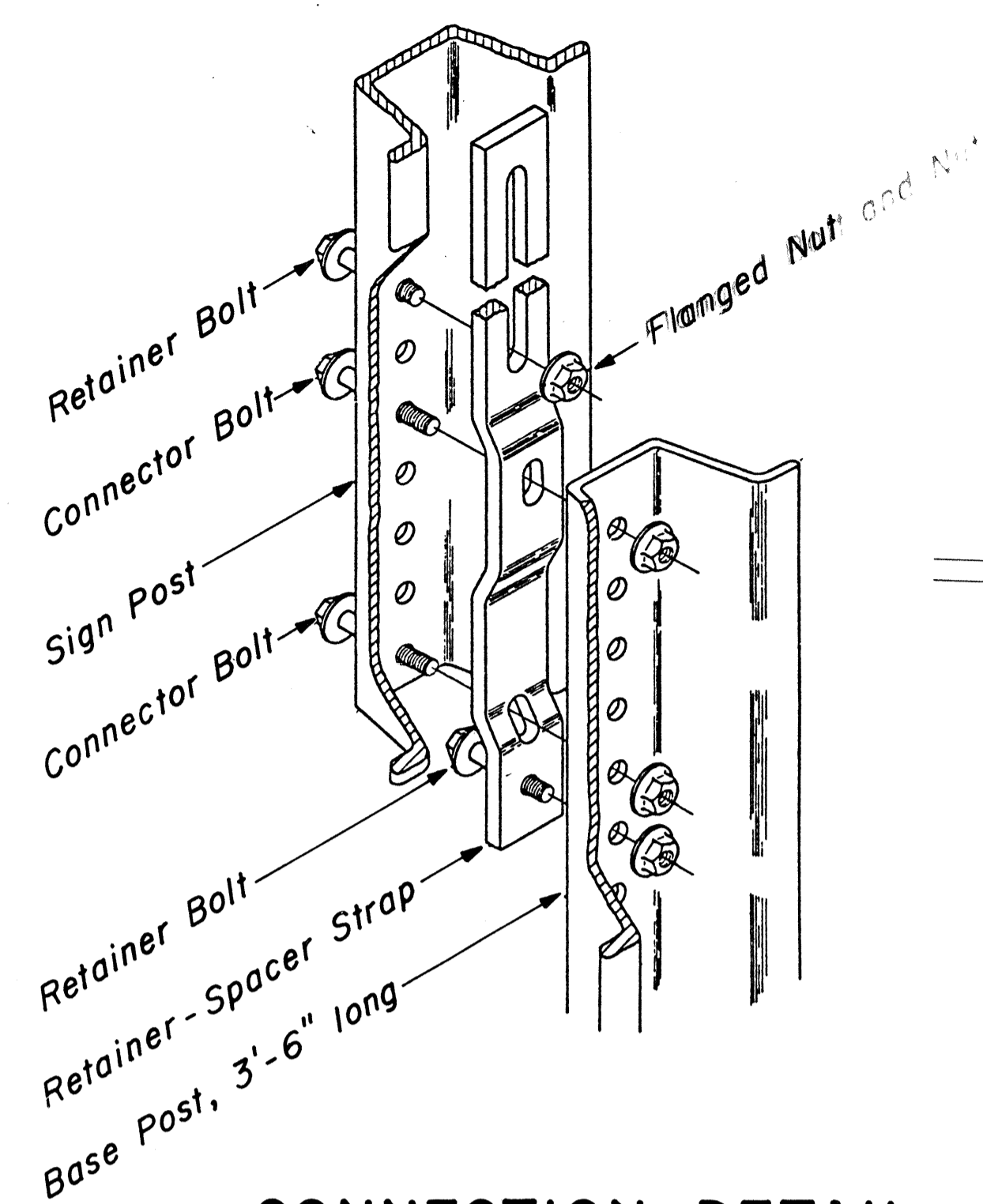
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
GALVANIZED FLANGED CHANNEL
SIGN POST MOUNTING

Scale: As Shown Date: Sept. 1982

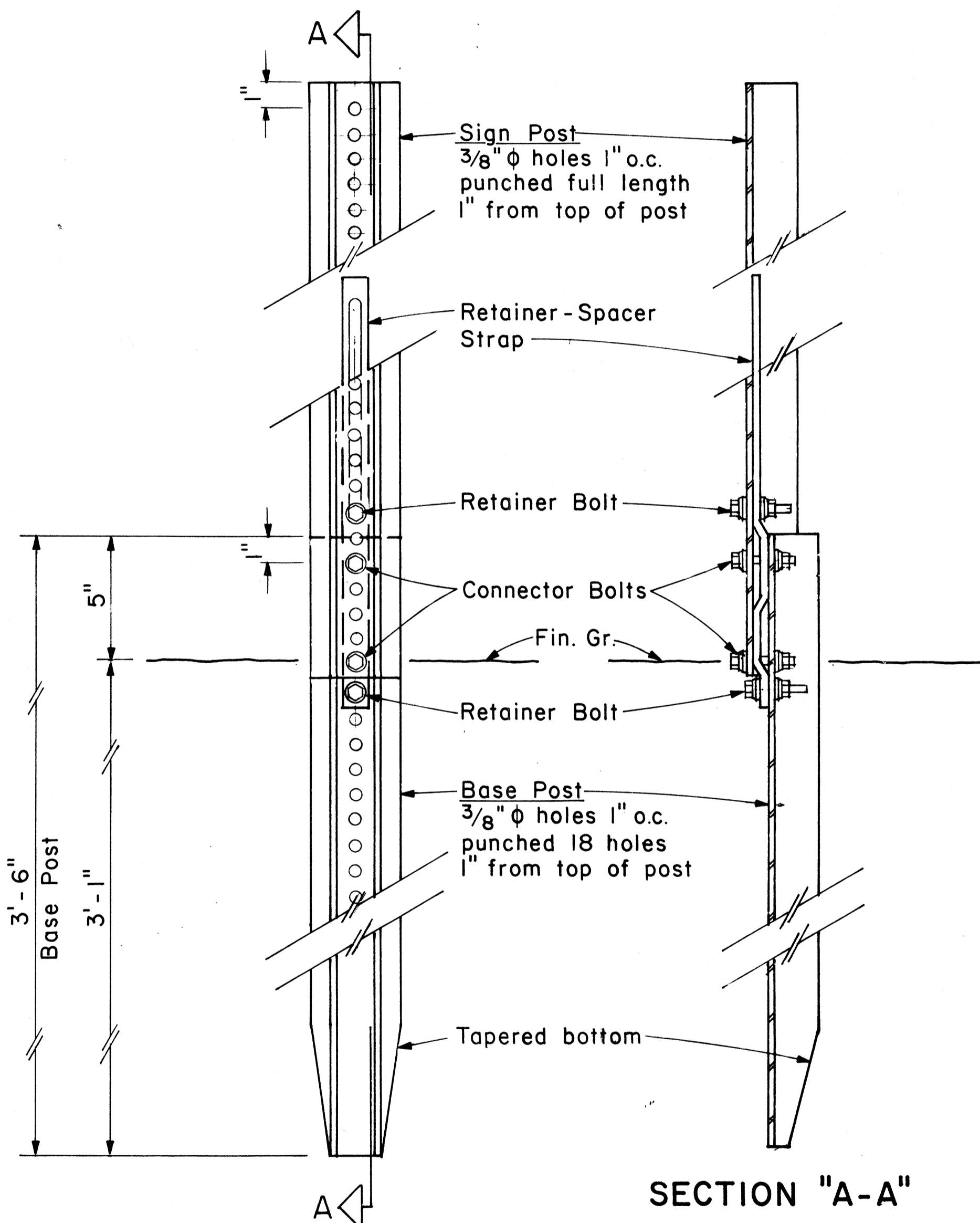


TOP VIEW



CONNECTION DETAIL

Not to Scale

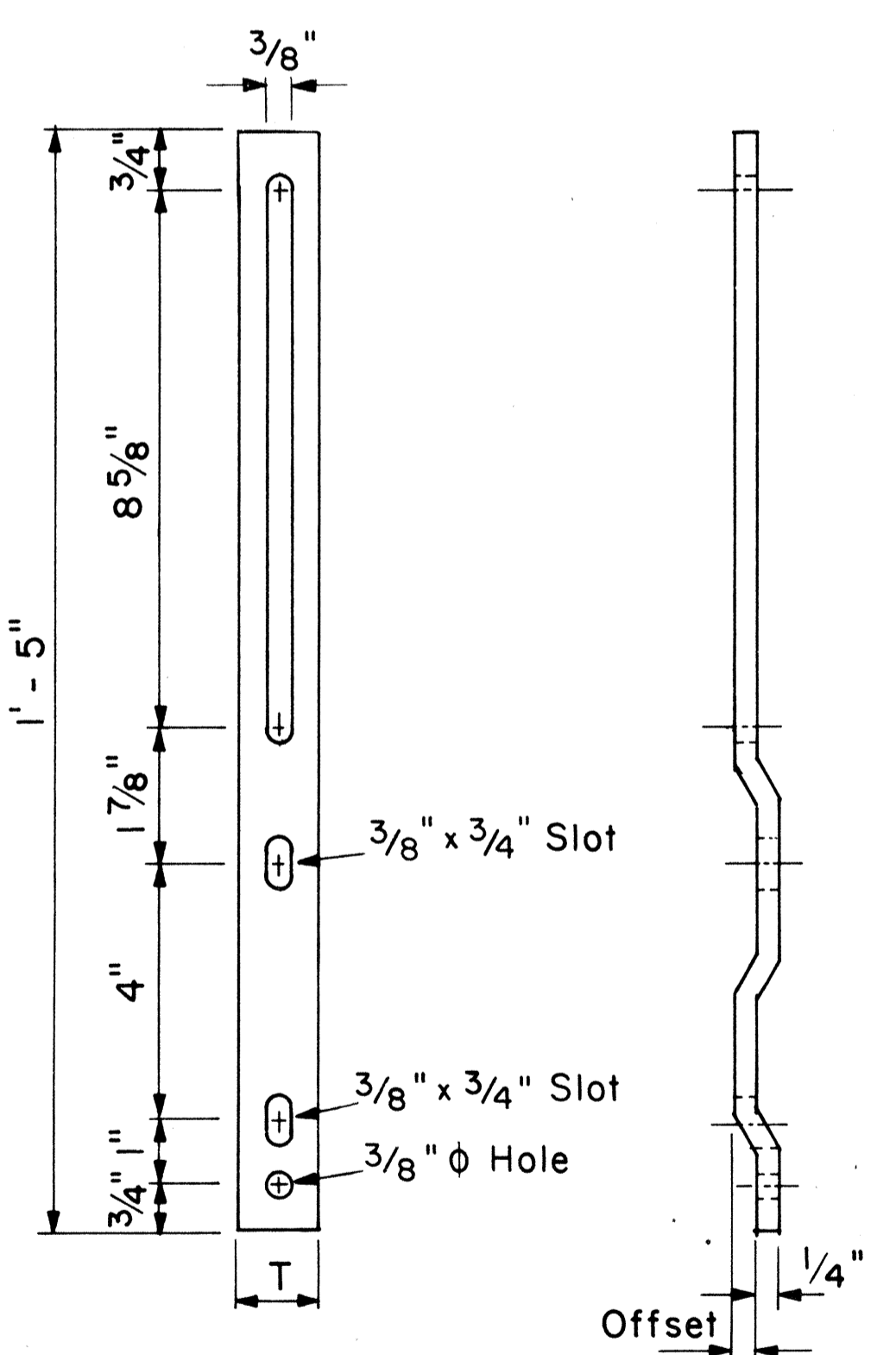


SECTION "A-A"

BACK VIEW

ANCHOR BASE DETAIL

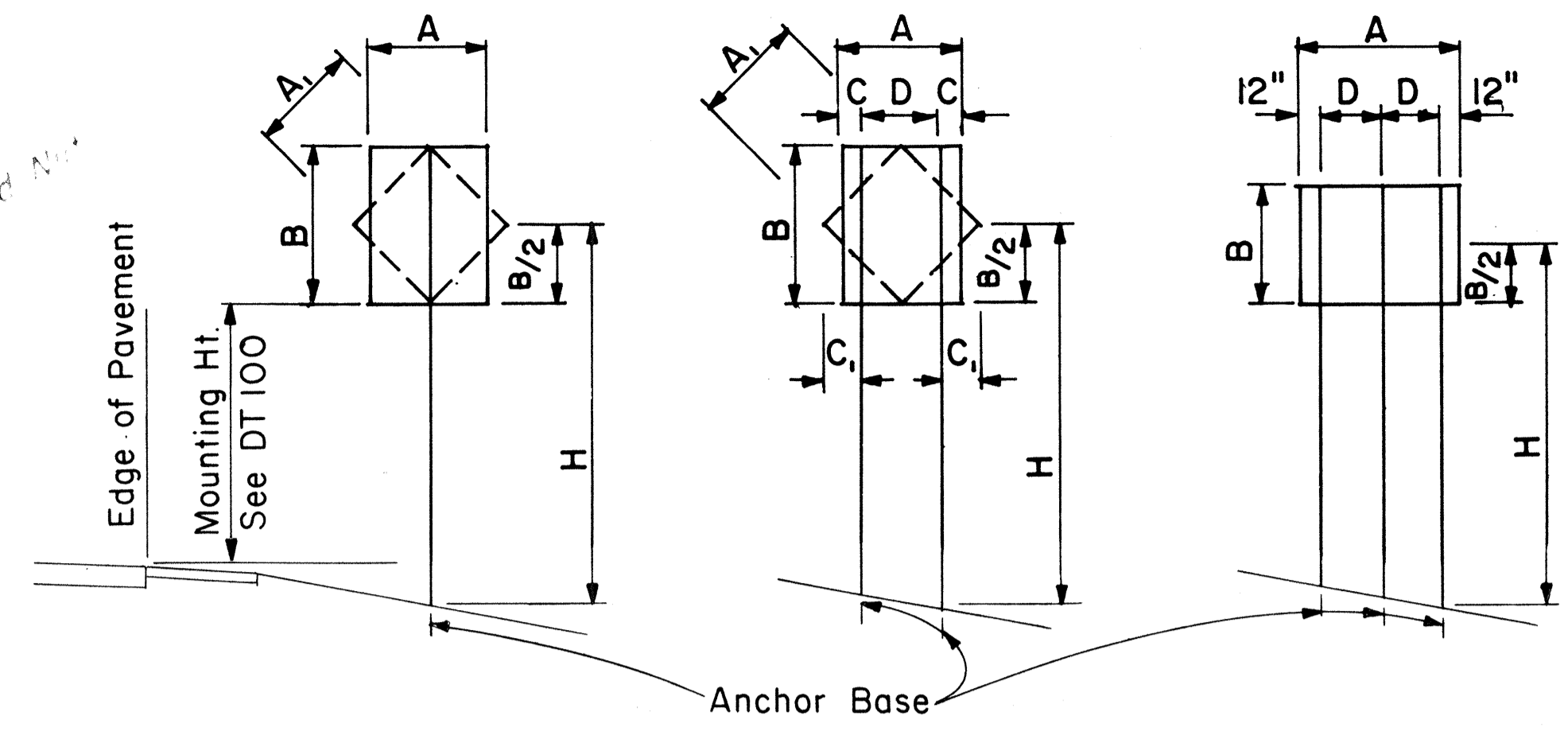
Scale: 3" = 1'-0"



RETAINER-SPACER STRAP

Not to Scale

RETAINER-SPACER STRAP		
Post Size	T	Offset
2.50 lbs./ft.	1.00"	0.145"
4.00 lbs./ft.	1.12"	0.280"



TYPICAL INSTALLATION

Not to Scale

1-POST Sign area 10 sq. ft. and less
2-POST Sign area greater than 10 sq. ft. or A = 48" - 60"
3-POST A = greater than 60"

FLANGED CHANNEL: 1-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2.50 lbs./ft.	57	8.14	7.13	6.33	5.70	5.18	4.75
4.00 lbs./ft.	112	-	-	-	-	-	9.33

FLANGED CHANNEL: 2-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2.50 lbs./ft.	124	17.71	15.50	13.77	12.40	11.27	10.33
4.00 lbs./ft.	241	34.43	30.13	26.78	24.10	21.91	20.08

FLANGED CHANNEL: 3-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2.50 lbs./ft.	187	26.71	23.38	20.78	18.70	17.00	15.58
4.00 lbs./ft.	362	51.71	45.25	40.22	36.20	32.91	30.17

WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE

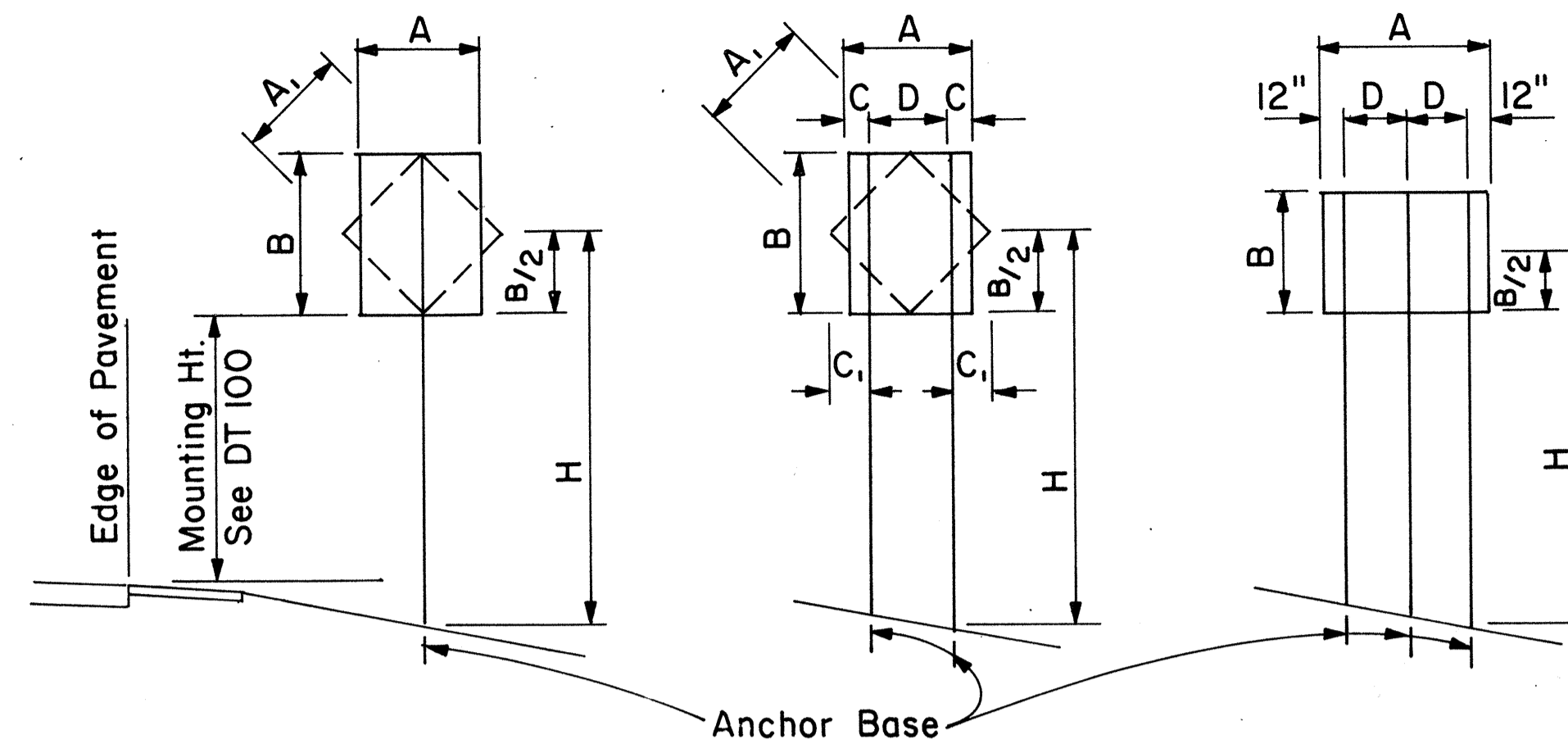
DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
TRACED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____
ORIGINAL PLAN No. _____
NOTE BOOK No. _____

GENERAL NOTES

- Square tube sign posts shall conform to Subsection 713.11(C) Square Tube Posts of the Specifications.
- All accessories, fittings and stiffener details (as required) shall be submitted to Engineer for approval 20 days prior to installation.
- Square tube posts shall be perforated with $\frac{7}{16}$ " ϕ holes, 1" o.c., 4 sides, along entire length of post.
- All posts shall be 12 gage unless otherwise specified or shown on the plans.
- For additional details see sht. DT 100.
- Basic formulas for use with the windload charts:
 $Factor = A \times B \times H$
Therefore, if sign area (A x B) is known,
 $Maximum H = \frac{Factor}{sign\ area(A \times B)}$
and if H is known,
 $Maximum\ sign\ area(A \times B) = \frac{Factor}{H}$

A or A ₁	C	C ₁
36"	6"	-
48"	9"	19"
60"	12"	24"

NOTE: Frame stiffeners are required when D is greater than 24". See Gen. Note 2.



1 - POST Sign area 10 sq. ft. and less
2 - POST Sign area greater than 10 sq. ft. or A = 48" - 60"
3 - POST A = greater than 60"

TYPICAL INSTALLATION

Not to Scale

SQUARE TUBE: 1-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	62	8.8	7.7	6.8	6.1	5.6	4.8
2 1/2"	107	-	-	-	-	9.6	8.8

A x B (Area, sq. ft.)

SQUARE TUBE: 2-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	122	17.4	15.2	13.5	12.2	11.0	10.1
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5

A x B (Area, sq. ft.)

SQUARE TUBE: 3-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	183	26.0	22.8	20.3	18.2	16.6	15.2
2 1/2"	318	45.4	39.5	35.2	31.5	28.8	26.5
2 1/2", 10 ga.	388	55.0	48.5	43.0	38.5	35.0	32.0

A x B (Area, sq. ft.)

WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:

Eishi Tanaka 9/21/82
TRAFFIC ENGINEER DATE

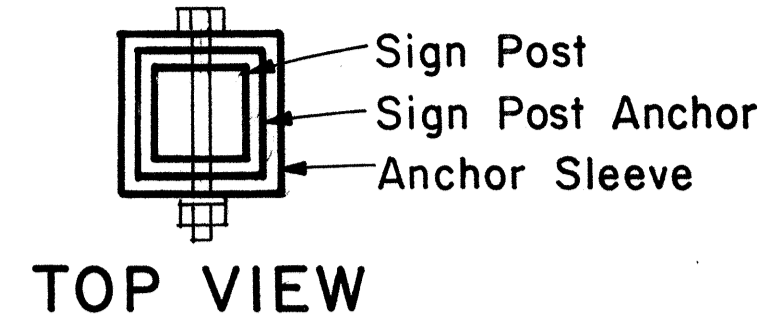
APPROVED:

Harbert S. S. S. S. 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

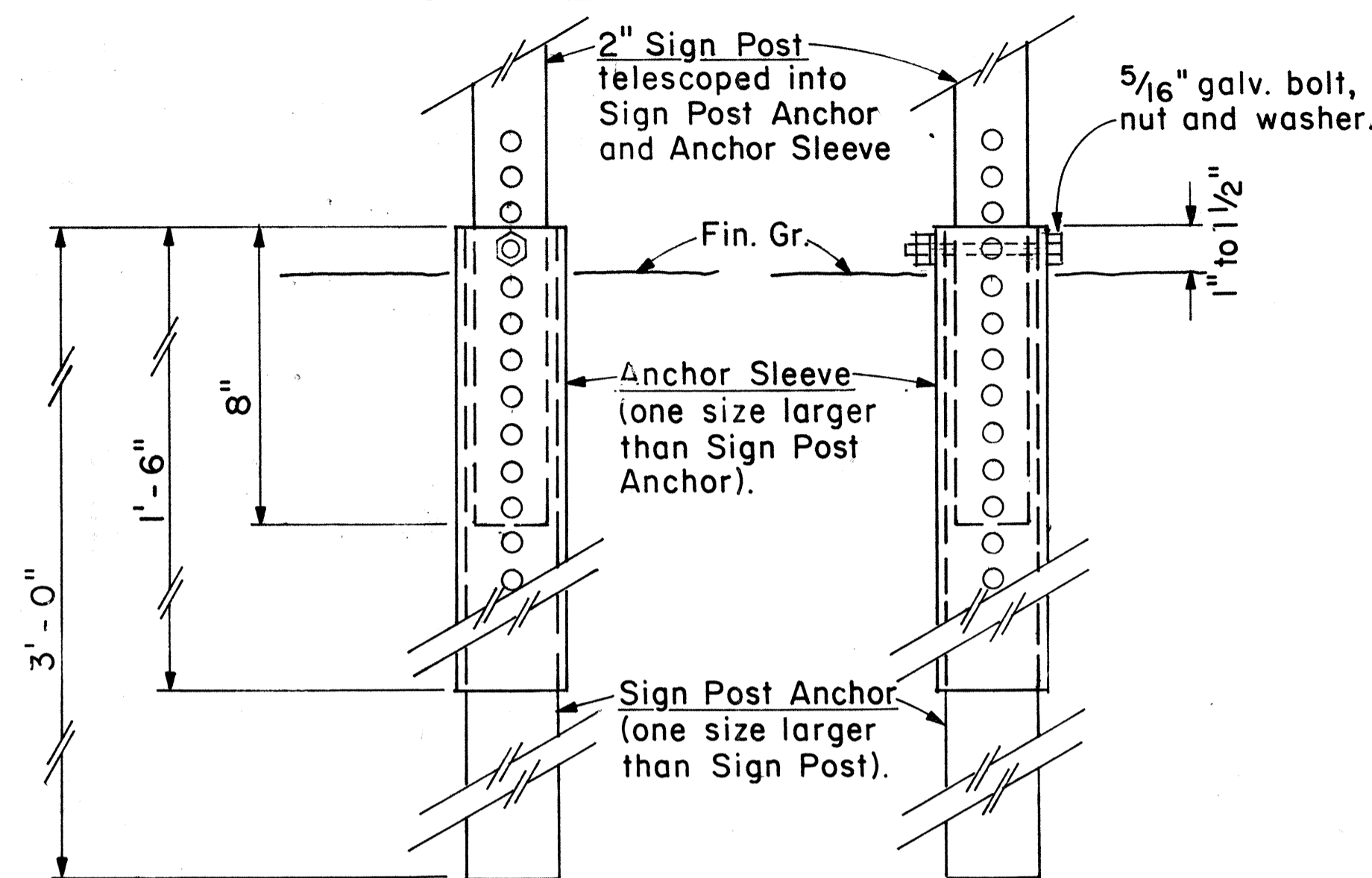
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
GALVANIZED SQUARE TUBE
SIGN POST MOUNTING

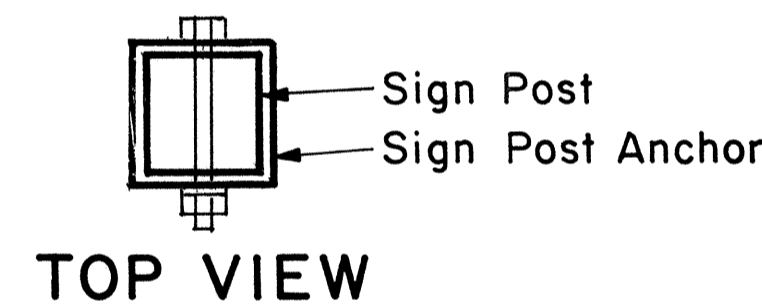
Scale: As Shown Date: Sep 1982
SHEET NO. 17 OF 17 SHEETS DT 100B



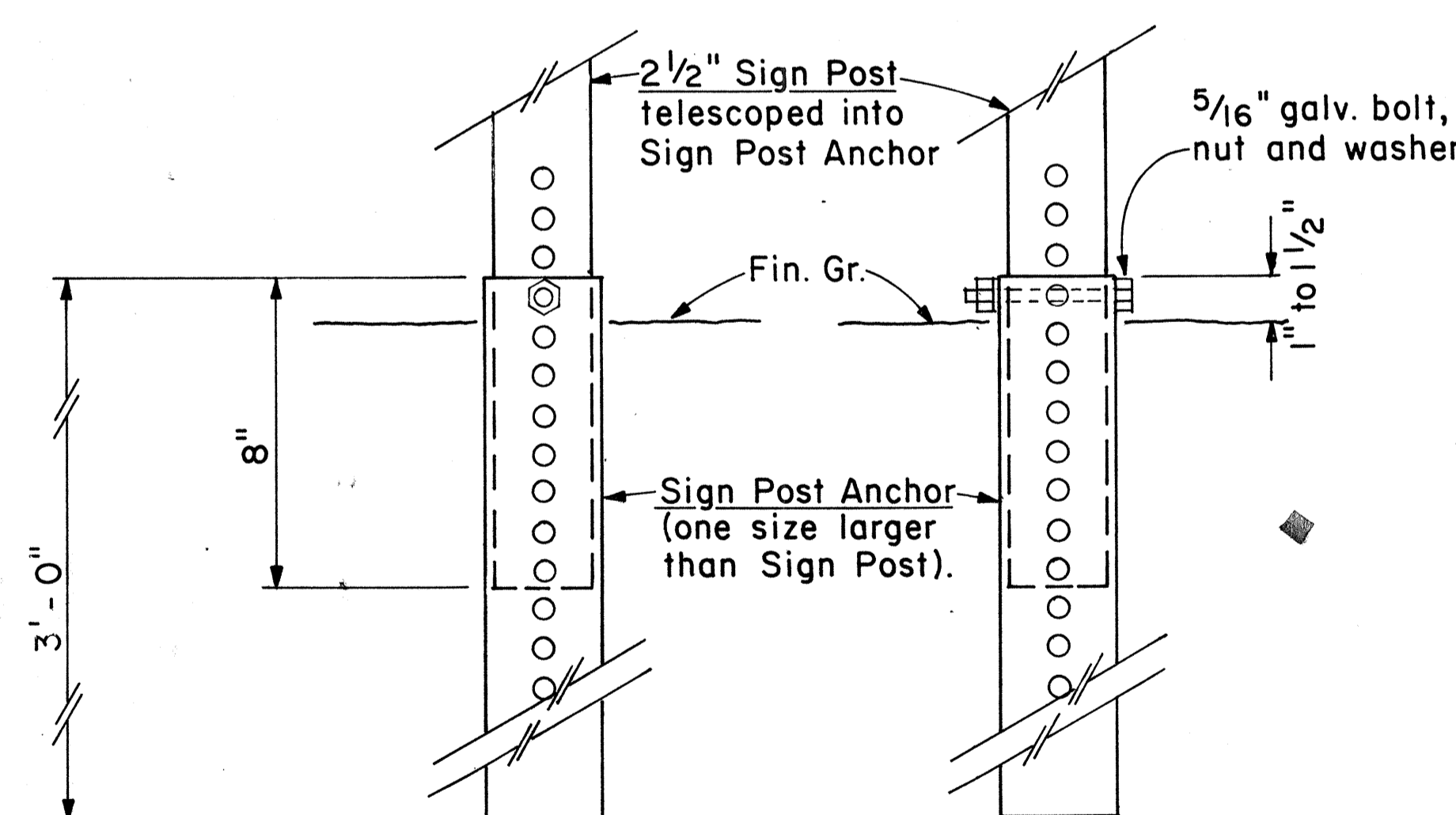
TOP VIEW



BACK VIEW SIDE VIEW
2" SIGN POST INSTALLATION



TOP VIEW



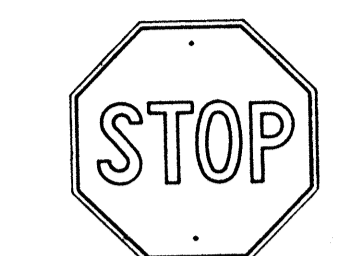
BACK VIEW SIDE VIEW
2 1/2" SIGN POST INSTALLATION

ANCHOR BASE DETAIL

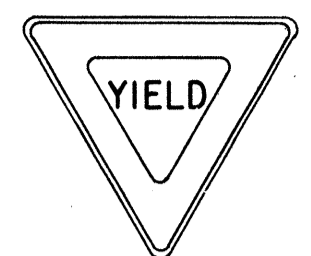
Scale: 3" = 1'-0"

DATE: _____
SURVEY ELICITED BY: _____
DRAWN BY: _____
TRACED BY: _____
DESIGNED BY: _____
QUANTITIES BY: _____
CHECKED BY: _____

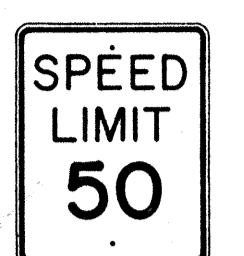
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(2)	1985	34	43



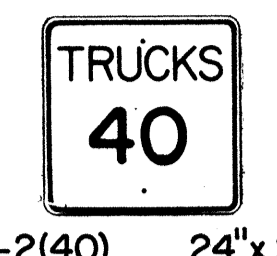
R1-1 30" x 30"
R1-1-A 36" x 36"
4-WAY
R1-3 12" x 6"
R1-3-A 18" x 9"



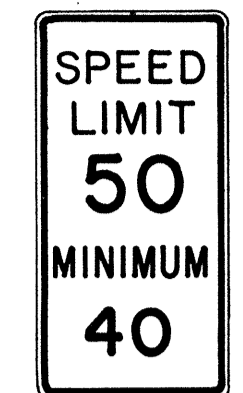
R1-2 36" x 36" x 36"
R1-2-A 48" x 48" x 48"



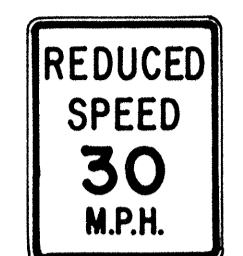
R2-1(50) 24" x 30"
R2-1(50)-A 48" x 60"



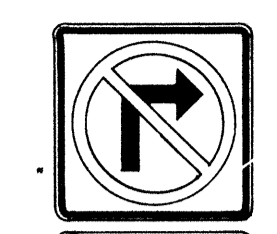
R2-2(40) 24" x 24"
R2-2(40)-A 48" x 48"



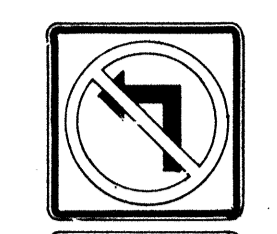
R2-4a(50/40) 24" x 48"
R2-4a(50/40)-A 48" x 96"



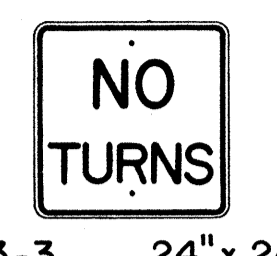
R2-5b(30) 24" x 30"
R2-5b(30)-A 48" x 60"



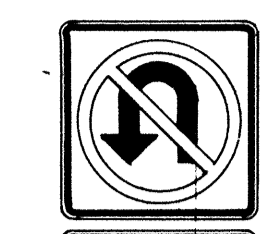
R3-1 24" x 24"
24" x 18"
R3-1-A 48" x 48"
48" x 36"



R3-2 24" x 24"
24" x 18"
R3-2-A 48" x 48"
48" x 36"



R3-3 24" x 24"
R3-3-A 48" x 48"



R3-4 24" x 24"
24" x 18"
R3-4-A 4" x 4"
48" x 36"



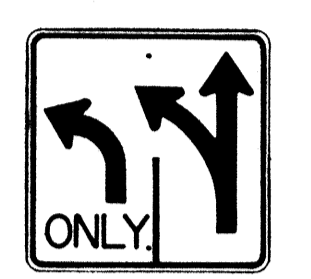
R3-5(L) 30" x 36"
R3-5(L)-A 48" x 60"



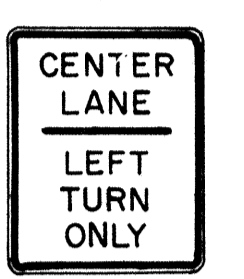
R3-6(L) 30" x 36"
R3-6(L)-A 48" x 60"



R3-7(R) 30" x 30"
R3-7(R)-A 48" x 48"



R3-8(L) 30" x 30"
R3-8(L)-A 36" x 36"
R3-8(L)-B 48" x 48"



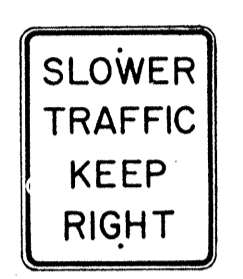
R3-9 24" x 30"



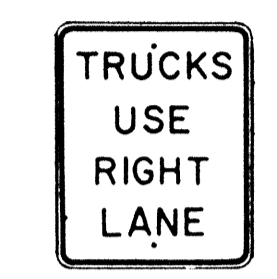
R4-1 24" x 30"



R4-2 24" x 30"



R4-3 24" x 30"
R4-3-A 48" x 60"



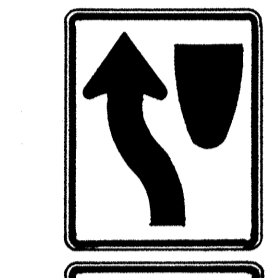
R4-5 24" x 30"



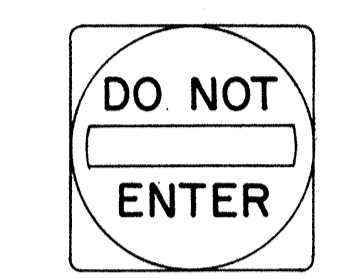
R4-6(500) 24" x 30"



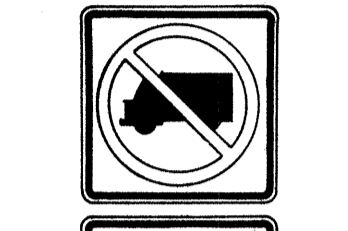
R4-7 24" x 30"
24" x 18"



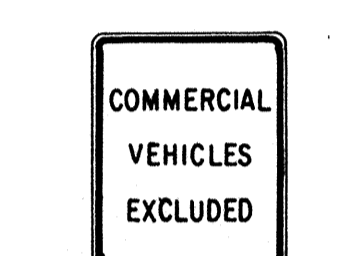
R4-8 24" x 30"
24" x 18"



R5-1 30" x 30"
R5-1-A 48" x 48"



R5-2 24" x 24"
24" x 18"



R5-4 24" x 30"



R5-6 24" x 24"
24" x 18"



R5-9 36" x 24"



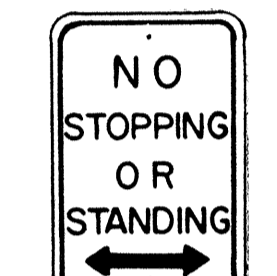
R6-1(R) 36" x 12"



R6-2(R) 18" x 24"



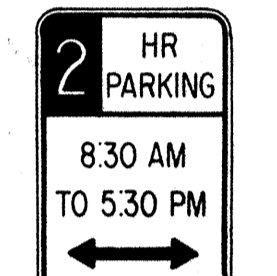
R7-1 12" x 18"
R7-1-A 24" x 30"



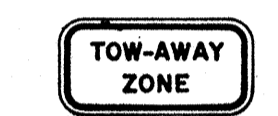
R7-4 12" x 18"
R7-4-A 24" x 30"



R7-1-7(R) 12" x 18"



R7-108 12" x 18"



R7-201 12" x 6"
R7-201-A 24" x 12"



R8-1 24" x 30"



R8-2 24" x 30"



R8-3 24" x 30"



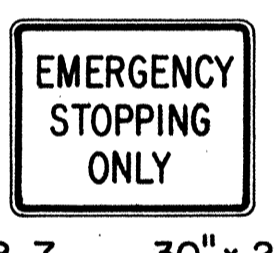
R8-4 30" x 24"
R8-4-A 48" x 36"



R8-5 24" x 30"



R8-6 24" x 30"



R8-7 30" x 24"
R8-7-A 48" x 36"



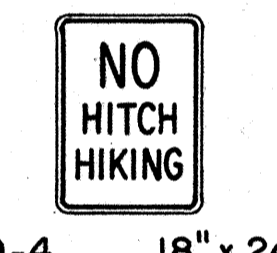
R9-1 18" x 24"



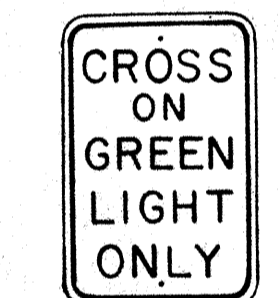
R9-2 12" x 18"



R9-3 12" x 18"



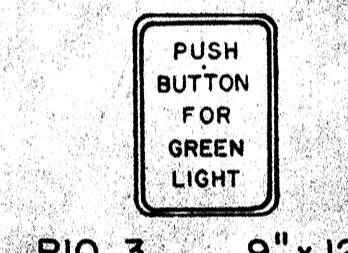
R9-4 18" x 24"



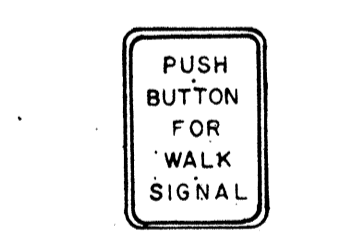
R10-1 12" x 18"



R10-2 12" x 18"



R10-3 9" x 12"



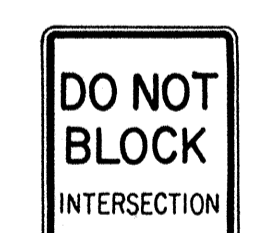
R10-4 9" x 12"



R10-5 24" x 30"



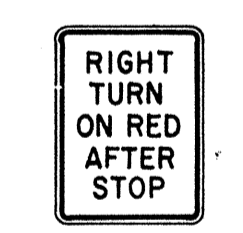
R10-6 24" x 36"



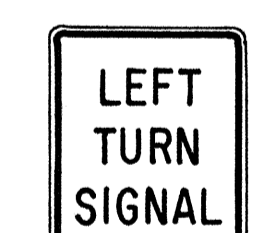
R10-7 24" x 30"



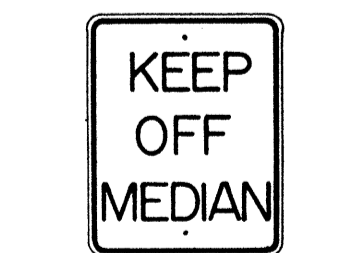
R10-8 24" x 30"



R10-9 24" x 30"



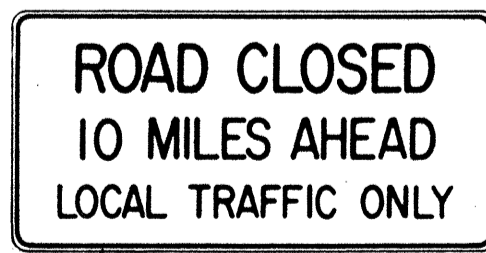
R10-10 24" x 30"



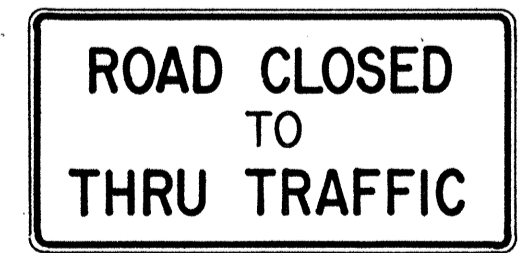
R11-1 24" x 30"



R11-2 48" x 30"



R11-3(10) 60" x 30"



R11-4 60" x 30"



R12-1(10) 24" x 30"

GENERAL NOTES

1. Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
2. All regulatory signs shall be reflectorized unless otherwise specified.
3. All regulatory signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:
Eiichi Tanaka 3/17/72
TRAFFIC ENGINEER DATE

APPROVED:
Robert J. Sisk 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.I.	3/20/72
2	Revised General Note 1	H.I.	10/12/74
3	Added General Note 5	H.I.	6/9/79

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

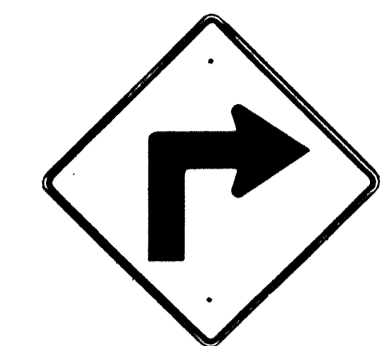
STANDARD DETAILS
REGULATORY SIGNS

NOT TO SCALE

SHEET No. 34 OF 17 SHEETS DT 101

DATE: _____
SURVEY PLOTTED BY: _____
ORIGINAL PLAN: _____
DRAWN BY: _____
NOTE BOOK: _____
DESIGNED BY: _____
CHECKED BY: _____
No. _____

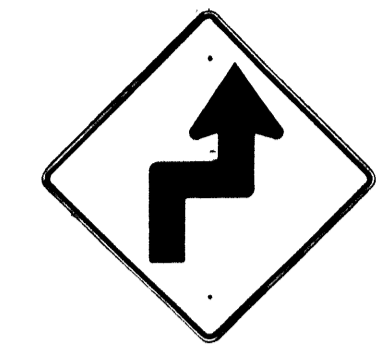
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII*	HAW.	HE-099-1(8)	1985	35	43



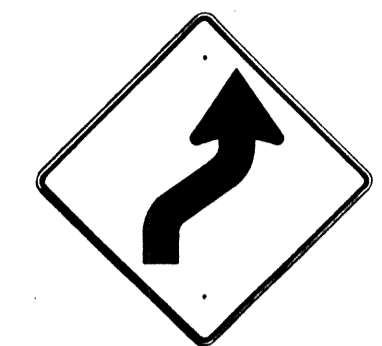
W1-1(R) 30"x30"
W1-1(R)-A 48"x48"



W1-2(R) 30"x30"
W1-2(R)-A 48"x48"



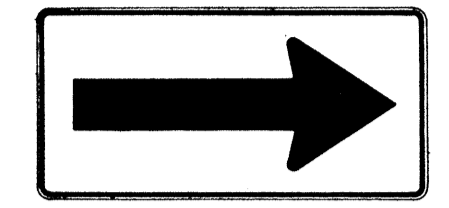
W1-3(R) 30"x30"
W1-3(R)-A 48"x48"



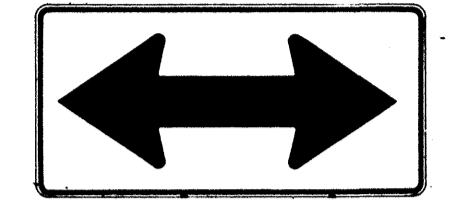
W1-4(R) 30"x30"
W1-4(R)-A 48"x48"



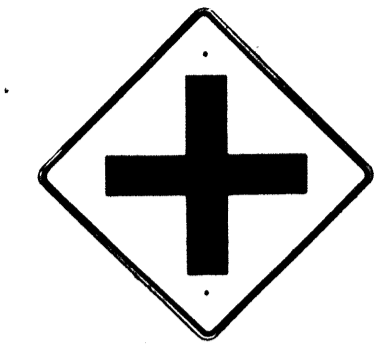
W1-5(R) 30"x30"
W1-5(R)-A 48"x48"



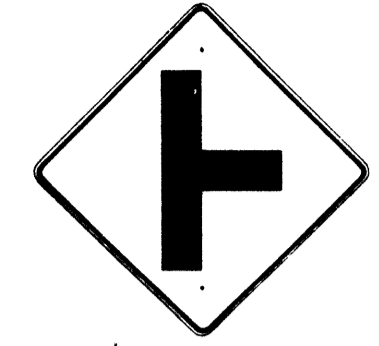
W1-6 48"x24"



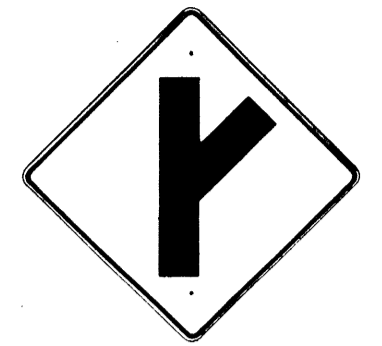
W1-7 48"x24"



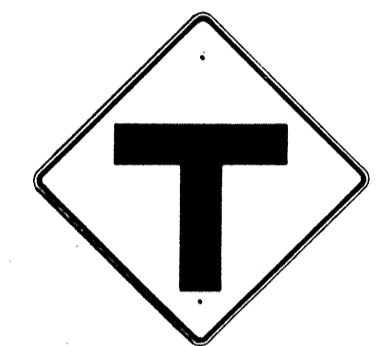
W2-1 30"x30"
W2-1-A 48"x48"



W2-2 30"x30"
W2-2-A 48"x48"



W2-3(R) 30"x30"
W2-3(R)-A 48"x48"



W2-4 30"x30"
W2-4-A 48"x48"



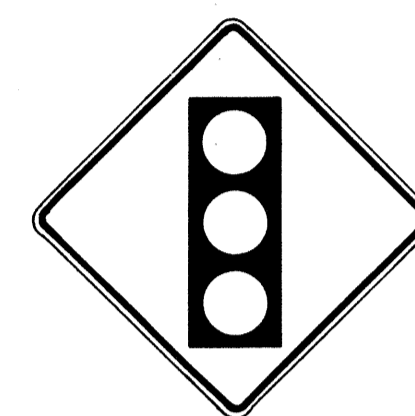
W2-5 30"x30"
W2-5-A 48"x48"



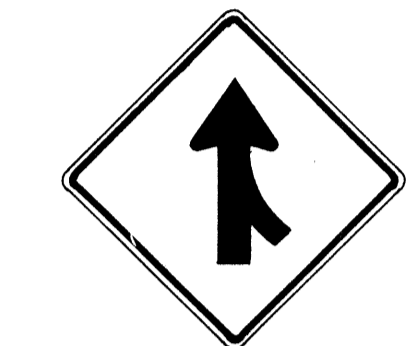
W3-1 30"x30"
W3-1-A 36"x36"



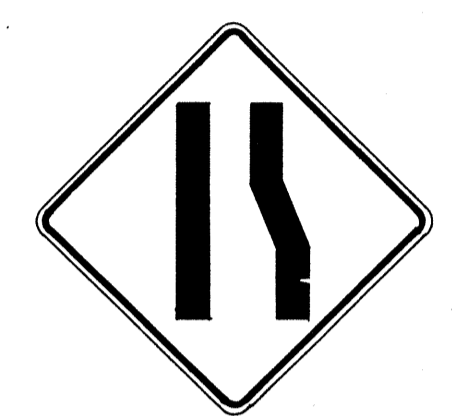
W3-2 30"x30"
W3-2-A 36"x36"



W3-3 36"x36"
24"x18"



W4-1(R) 30"x30"
24"x18"
W4-1(R)-A 48"x48"
24"x18"



W4-2(R) 36"x36"
W4-2(R)-A 48"x48"



W5-1 36"x36"



W5-2 30"x30"
W5-2-A 36"x36"



W5-3 36"x36"



W6-1 36"x36"
24"x18"



W6-2 36"x36"
24"x18"



W6-3 30"x30"
24"x18"
W6-3-A 36"x36"
24"x18"
W6-3-B 48"x48"
24"x18"



W7-1 30"x30"
24"x18"
W7-1-A 36"x36"
24"x18"



W7-2 24"x18"



W8-1 30"x30"
W8-1-A 36"x36"



W8-2 30"x30"
W8-2-A 36"x36"



W8-3 30"x30"
W8-3-A 36"x36"



W8-4 30"x30"
W8-4-A 36"x36"



W8-5 30"x30"
24"x18"
W8-5-A 36"x36"
24"x18"



W9-1(R) 30"x30"
W9-1(R)-A 36"x36"
W9-1(R)-B 48"x48"



W9-2(L) 36"x36"
W9-2(L)-A 48"x48"



W10-1 36" Diameter



W11-1 30"x30"
24"x18"
W11-1-A 36"x36"
24"x18"



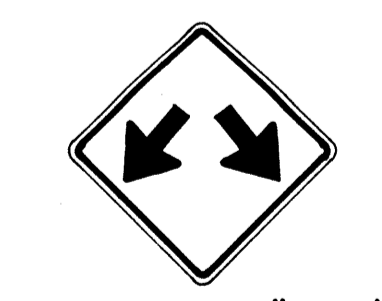
W11-2 30"x30"
24"x18"
W11-2-A 36"x36"
24"x18"



W11-4 30"x30"
24"x18"
W11-4-A 36"x36"
24"x18"



W11-5 30"x30"
24"x18"
W11-5-A 36"x36"
24"x18"



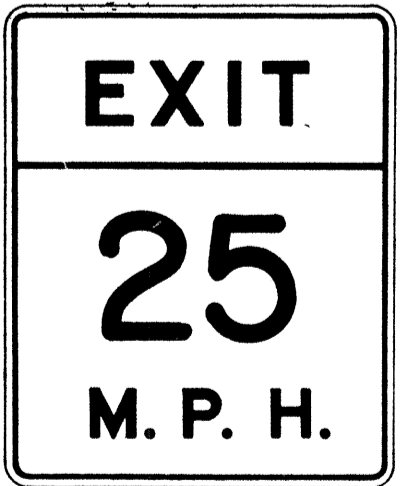
W12-1 24"x24"
W12-1-A 36"x36"
W12-1-B 48"x48"



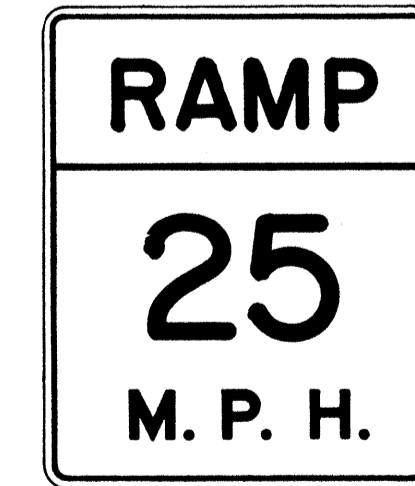
W12-2(12'-6") 36"x36"
24"x18"



W13-1(25) 18"x18"
W13-1(25)-A 24"x24"



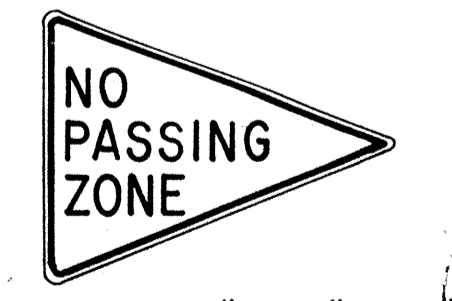
W13-2(25) 48"x60"



W13-3(25) 48"x60"



W14-1 30"x30"



W14-3 36"x48"x48"

GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All warning signs shall be reflectorized unless otherwise specified.
- All warning signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized.

APPROVAL RECOMMENDED:
Eishi Tanaka 3/17/82
TRAFFIC ENGINEER DATE

APPROVED:
Walter Belsie 3-20-82
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	HT	3/20/82
2	Revised General Note 1	HT	10/16/84
3	Revised General Note 5	MA	9-16-75
4	Revised General Note 5	HT	9-14-70
5	Added Note 1	HT	11-9-79

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
WARNING SIGNS

NOT TO SCALE

SHEET No. 17 OF 17 SHEETS DT 102

SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____

NOTE
1. All signs shall be erected without educational plaques unless called for in the plans.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HE5-099-1(8)	1985	36	43

General Notes

- Sign details shall conform to the latest editions of the following FHWA publications:
 - "Standard Alphabets for Highway Signs," and as amended.
 - "Standard Highway Signs," and as amended.
 - "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- All signs shall be reflectorized with reflective sheeting, unless otherwise specified.
- All signs shall have $\frac{3}{8}$ " bolt holes drilled at appropriate locations.
- Numerals in () indicate numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized with reflective sheeting.
- All signs shall be erected without educational plaques unless called for in the plans.

ALL WAY
R1-4 18"x 6"

REDUCED SPEED AHEAD
35
R2-5d(35) 24"x 30"
R2-5d(35)-A 48"x 60"

SPEED LIMIT ENFORCED BY VASCAR
4" Series D
- 4" Series C
- 3" Series D
- 5" Series C
R2-10 24"x 30"

CENTER LANE ONLY
R3-9b 24"x 36"

BUS STOP
R7-107(R) 12"x 24"

RESERVED PARKING
R7-8 12"x 18"
R7-8-A 24"x 30"

ANY TIME - 4" Series C
1 1/2"
R8-3a 24"x 24"
24"x 18"
R8-3a-A 48"x 48"

NO PED XING
R9-3a 18"x 18"
18"x 12"
R9-3a-A 24"x 24"
24"x 18"

USE CROSSWALK
R9-3b(R) 18"x 12"

USE CROSSWALK
R9-3b(L) 18"x 12"

NO TURN ON RED
R10-11a 24"x 30"

TURN RIGHT ANY TIME WITH CAUTION 4" Series C
R16-1 24"x 30"

NO LEFT TURN ON RED - 4" Series D -
- 3" Series D -
- 2" Series D -
- 3" Series D -
R16-3 18"x 24"

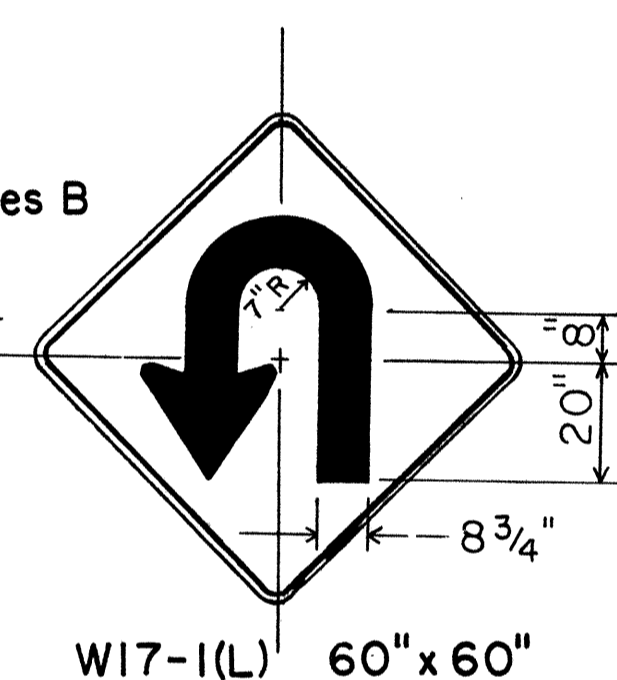
NO RIGHT TURN ON RED
R16-4 18"x 24"

UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 H.P., PEDESTRIANS KEEP OUT FREEWAY 3" Series C
4" Series E
R16-5 36"x 42"

U TURN AHEAD - 8" Series F
- 5" Series D
R16-6 24"x 30"

U TURN OK 8" Series F
5" Series D
R16-7 24"x 30"

MOTOR-DRIVEN CYCLES PROHIBITED 4" Series B
R5-8 30"x 24"



W17-1(L) 60"x 60"

STOP AHEAD
W3-1a 36"x 36"
24"x 18"
W3-1a-A 48"x 48"
24"x 18"

YIELD AHEAD
W3-2a 36"x 36"
24"x 18"
W3-2a-A 48"x 48"
24"x 18"

STOP AHEAD WHEN FLASHING 6" Series C
W3-4 48"x 48"

TRUCK CROSSING
W8-6 30"x 30"
W8-6-A 36"x 36"

THRU TRAFFIC MERGE LEFT 6" Series E
W9-3(L) 48"x 48"

EQUESTRIAN XING
W11-7 36"x 36"
24"x 18"
W11-7-A 48"x 48"
24"x 18"

FIRE STATION
W11-8 36"x 36"
24"x 18"
W11-8-A 48"x 48"
24"x 18"

WHEELCHAIR
W11-9 36"x 36"
W11-9-A 48"x 48"

LIMITED SIGHT DISTANCE
W14-4 36"x 36"
W14-4-A 48"x 48"

DELAYED GREEN - 4" Series C
W15-1 24"x 24"

ADVANCE GREEN
W15-2 24"x 24"

END FREEWAY 1/2 MI 8" Series E
CW16-1(1/2) 60"x 60"

RIGHT LANE EXIT ONLY 8" Series E
W18-1 48"x 60"

SCHOOL BUS STOP AHEAD
S1-1 36"x 36"

SCHOOL BUS STOP AHEAD
S2-1 36"x 36"

SCHOOL BUS STOP AHEAD
S3-1 30"x 30"

8:00 AM TO 3:30 PM
S4-1 24"x 10"
WHEN CHILDREN ARE PRESENT
S4-2 24"x 10"

SCHOOL
S4-3 24"x 8"
WHEN FLASHING
S4-4 24"x 10"

SIDEWALK CLOSED 7" Series D
CW23-4 48"x 48"

USE SIDEWALK 4" Series C
R18-1 24"x 18"

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
TRACED BY: _____
DESIGNED BY: _____
CHECKED BY: _____
NO. _____

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT103 approved 3/20/72	H.T.	5/3/78
2	Added General Note 6	H.T.	11/9/78

APPROVAL RECOMMENDED:
Eishi Tanaka 5/2/78
TRAFFIC ENGINEER DATE

APPROVED:
Robert Z. Zakeichis 5/3/78
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978
SHEET No. 10 OF 17 SHEETS DT 103

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	37	43



CW20-1a 48"x48"



CW20-2d 48"x48"



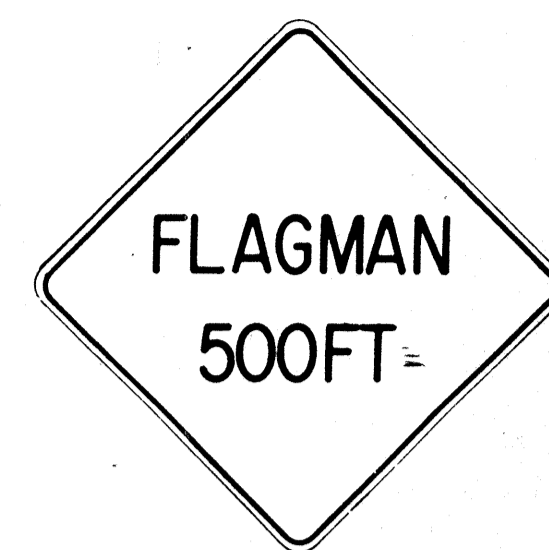
CW20-3b 48"x48"



CW20-4d 48"x48"



CW20-5d(L) 48"x48"



CW20-7c 48"x48"



CW21-1 30"x30"



CW21-2 30"x30"



CW21-3 36"x36"



CW21-4 36"x36"



CW21-5 30"x30"



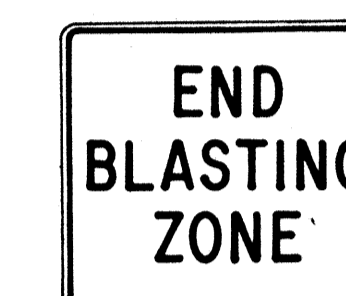
CW21-6 30"x30"



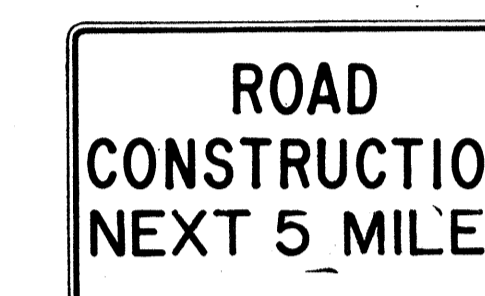
CW22-1b 48"x48"



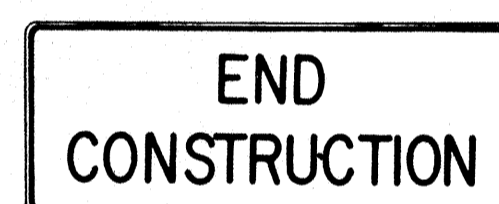
CW22-2 42"x36"



CW22-3 42"x36"



CG20-1(5) 60"x36"



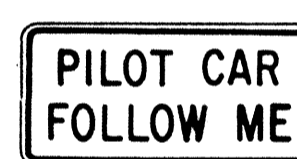
CG20-2 60"x24"



CM4-9(R) 30"x24"



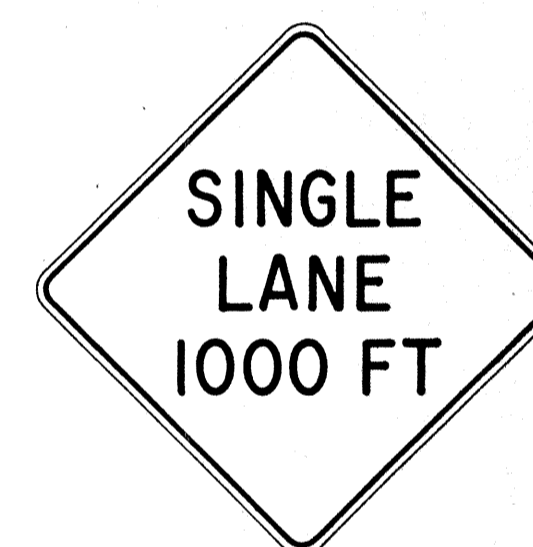
CM4-10(R) 48"x18"



CG20-4 36"x18"



CW23-1 36"x36"



CW23-2b 48"x48"



CW23-3(R) 48"x48"

GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All construction signs shall be reflectorized.
- All construction signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- For "CW" series signs, suffixes a,b,c and d are as follows:
a-1500 FT, b-1000 FT, c-500 FT and d-AHEAD.

APPROVAL RECOMMENDED:
Erich Tanaka 3/21/72
 TRAFFIC ENGINEER DATE

APPROVED:
Sheldon Salsich 3/23/72
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	M	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STANDARD DETAILS
CONSTRUCTION SIGNS

NOT TO SCALE

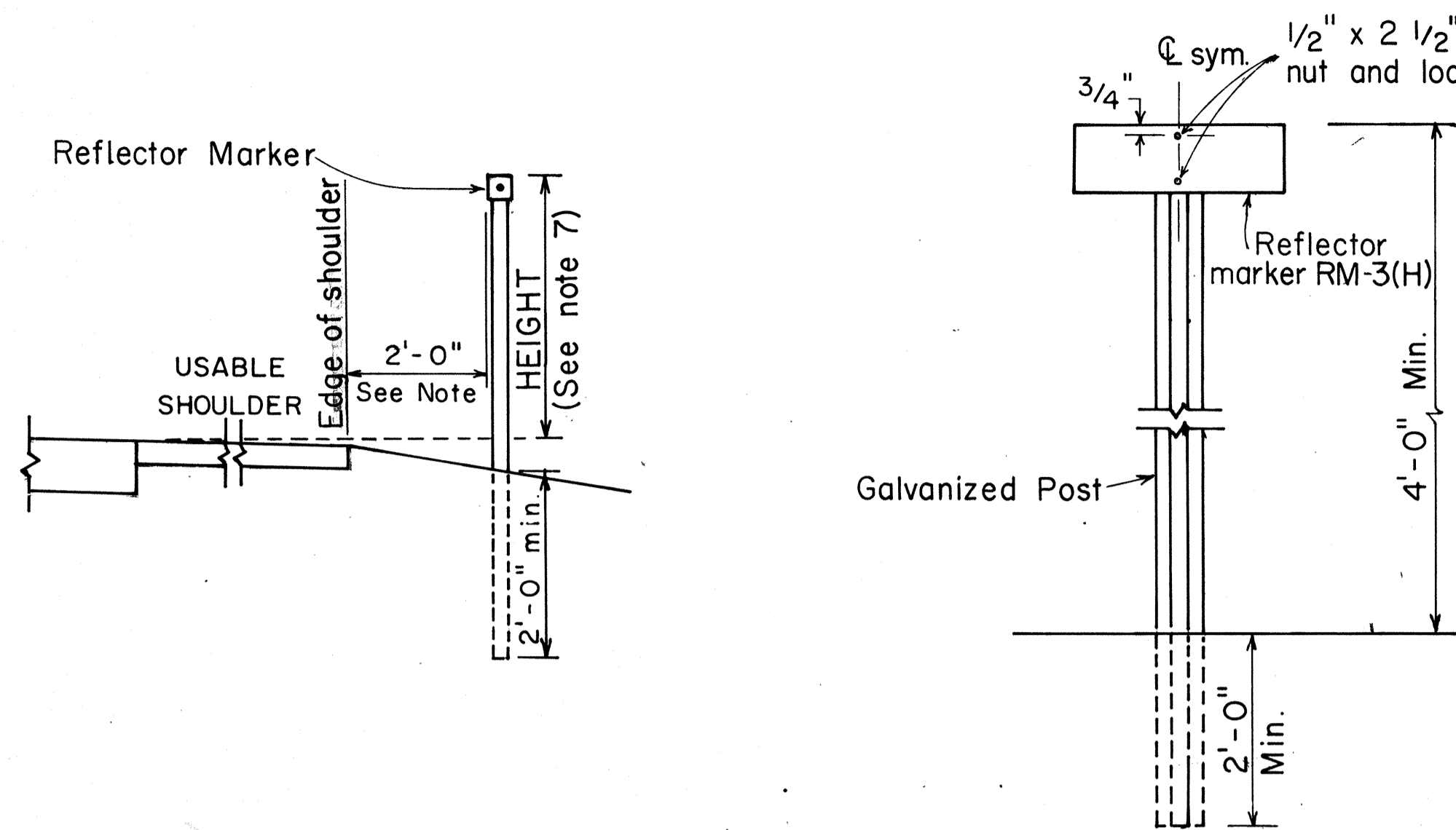
SHEET No. 37 OF 17 SHEETS DT 104

DESIGNED BY	DATE
CHECKED BY	
NO.	

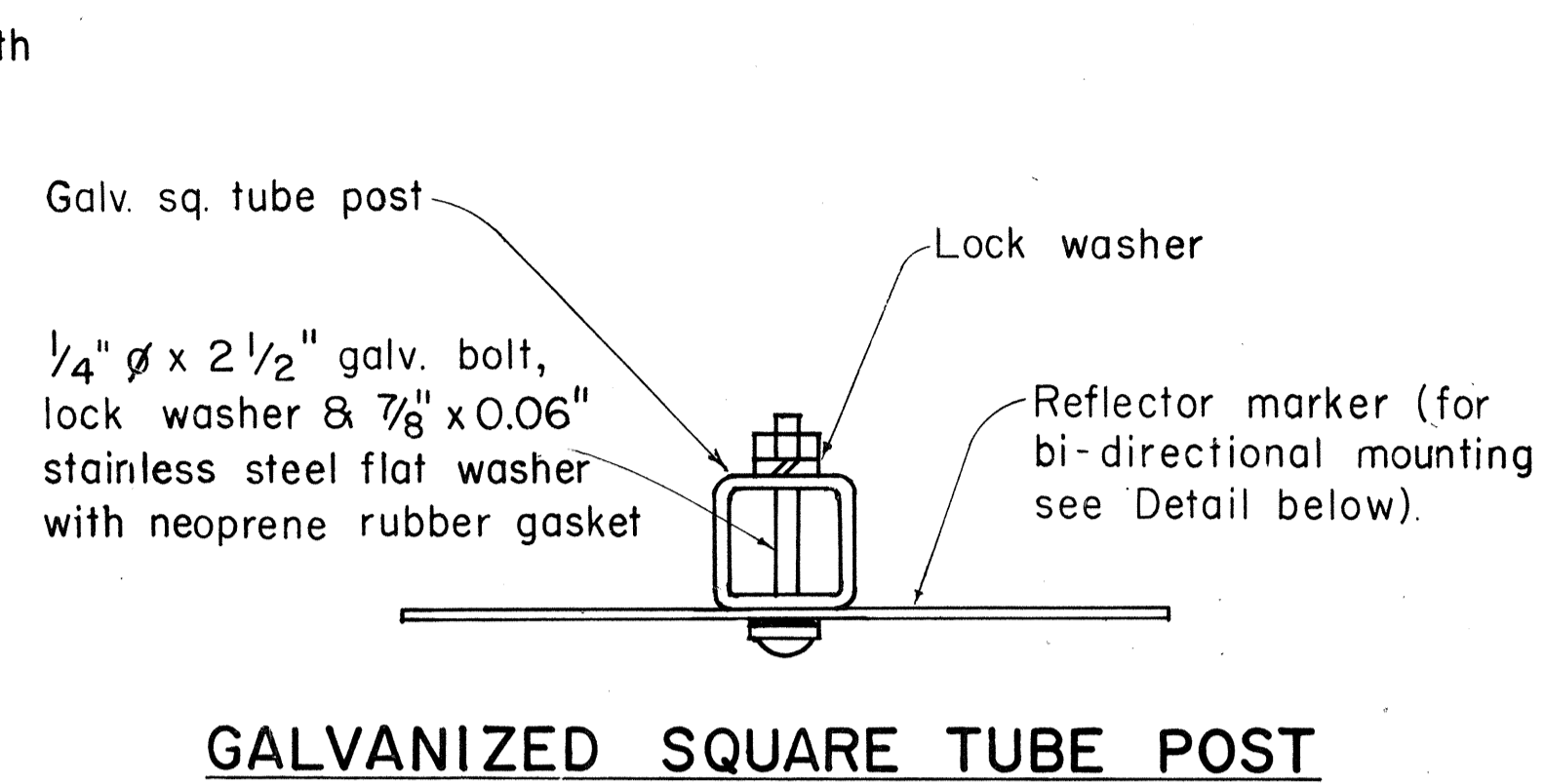
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	38	43

GENERAL NOTES:

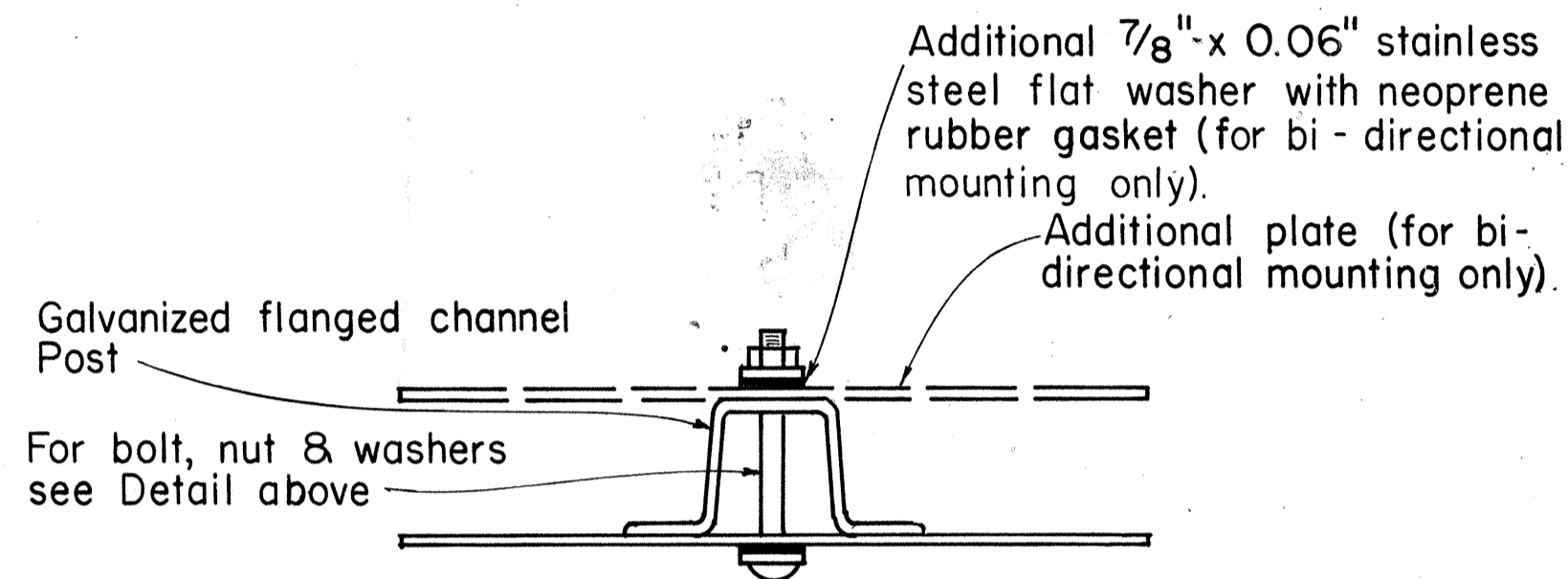
1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
 - a) Yellow if placed along the left edge of divided roadways, one-way roadways, and ramps in the direction of travel.
 - b) White if placed along the right edge of divided roadways, one-way roadways, and ramps in the direction of travel.
4. For RM-4, the stripes shall slope downward at an angle of 45° toward the side of the obstruction that traffic is to pass.
5. For reflector marker RM-9, reflective sheeting material may be used as an alternate.
6. (H) indicates horizontal mounting of reflector marker.
7. Height = 4'-0" min. for RM-1, RM-2 and RM-3.
Height = 5'-6" min. for RM-4 and RM-9.
8. Final locations of reflector markers shall be approved by the Engineer.



REFLECTOR MARKER MOUNTING DETAIL

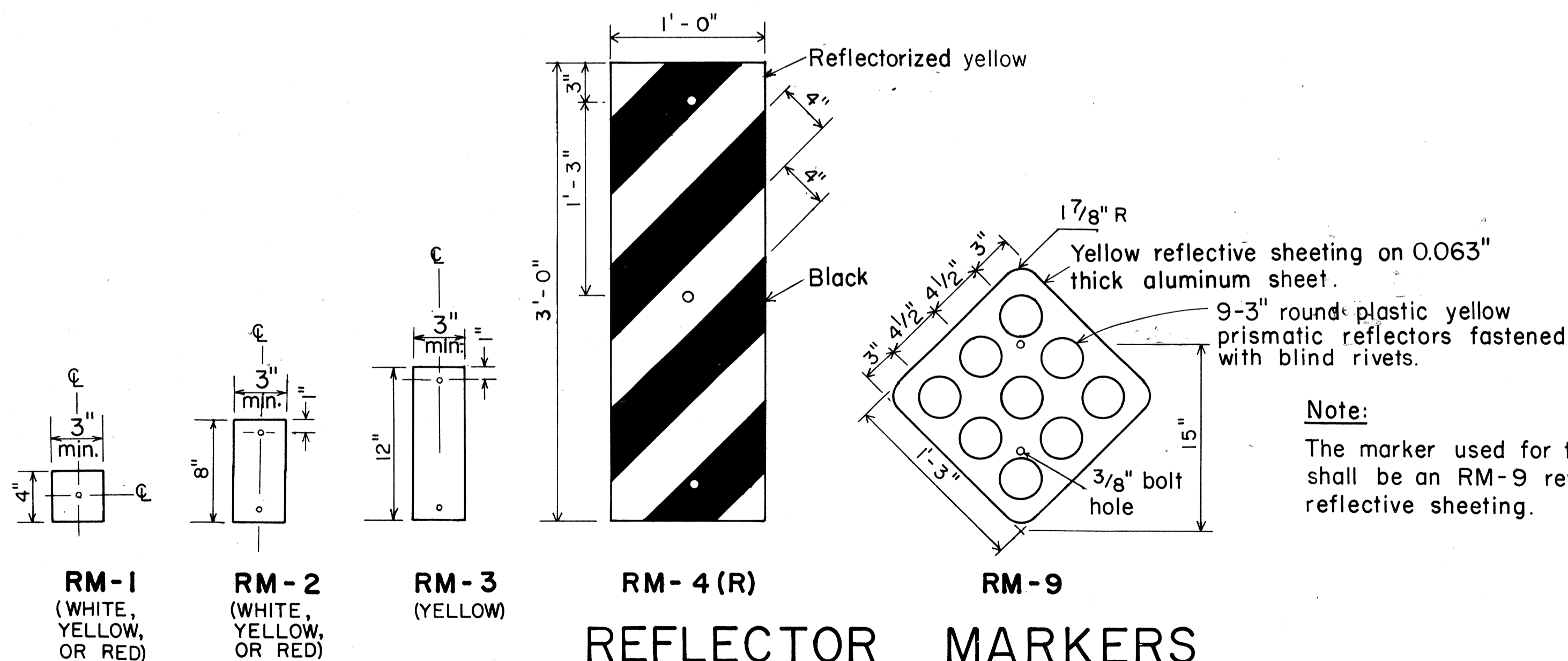


GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS



Note:
The marker used for the end of a roadway shall be an RM-9 reflectORIZED with red reflective sheeting.

NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.T.	4/25/80
2	Revised General Notes, Mounting Details and Reflector Markers.	H.T.	7-28-83
3	Eliminated White for RM-4	H.T.	1-30-88

APPROVAL RECOMMENDED:
Eishi Tanaka 11/2/77
TRAFFIC ENGINEER DATE

APPROVED:
Herbert B. Sakai 11/15/77
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS REFLECTOR MARKERS

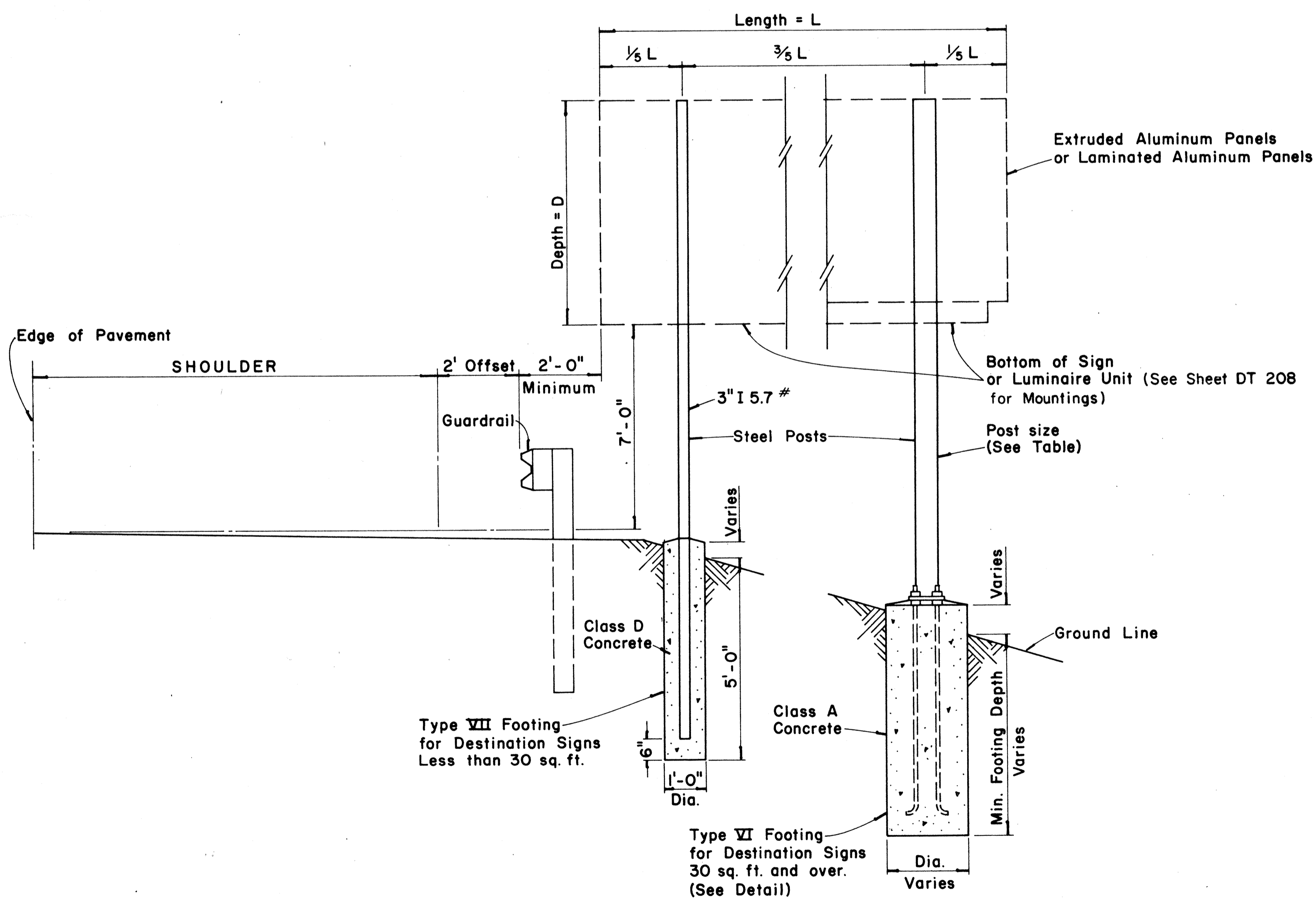
Not to scale June, 1977

SHEET NO. 12 OF 17 SHEETS DT 110

DATE
SURVEY PLOTTED BY
ORIGINAL PLAN
DESIGNED BY
NOTE BOOK
CHECKED BY
No.

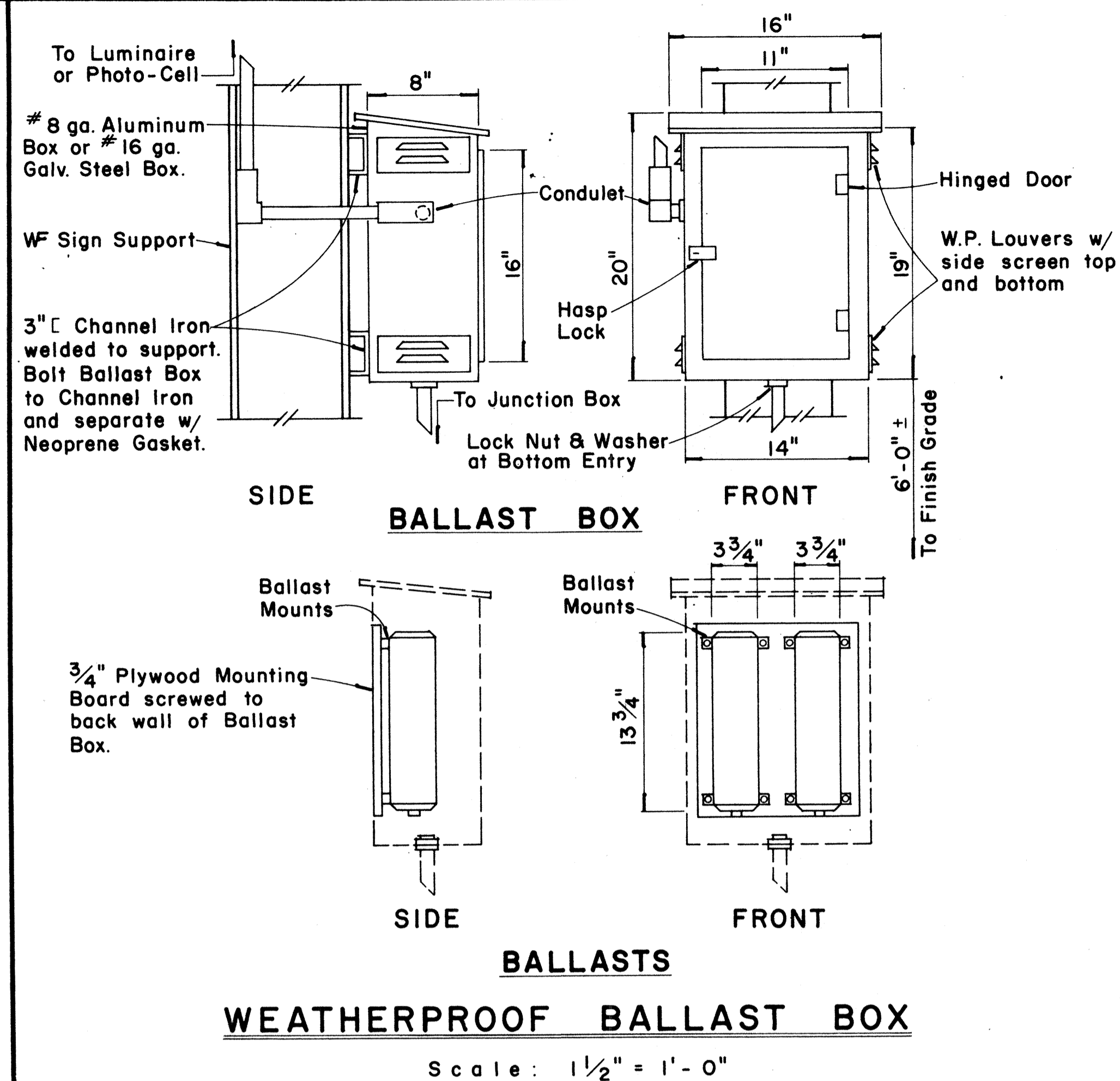
* For moment calculations only. Post shall be from top of foundation to top of sign.
 ** For fills with side slopes flatter than 4:1, Minimum Footing Depth shall be 4 1/2 feet.

DATA TABLE FOR TYPE VI FOOTING																	
POST SIZE	MAXIMUM SIGN AREA	POST HEIGHT TOP OF FOUNDATION TO CENTER OF SIGN *	DIMENSIONS											ANCHOR BOLT DIA.	MINIMUM FOOTING DEPTH		
			H	J	K	M	N	O	P	S	T	U	V		W	CUT	FILL**
8 J 10	50 sq. ft.	14'	14"	5"	24"	17 1/4"	1 5/8"	6"	1 1/4"	9"	6"	10"	2"	1"	1 1/8" ø	4 1/2'	4 1/2'
8 WF 24	90 sq. ft.	21'															5'
8 WF 35	190 sq. ft.	15'	16 1/2"	6 3/4"	30"	20"	1 3/4"	6"	1 3/8"	11 3/4"	6 1/2"	10"	1 3/4"	1"	1 1/4" ø	6'	7'
10 WF 45	190 sq. ft.	25'															
10 WF 45	200 sq. ft.	25'															
12 WF 50	230 sq. ft.	25'														7'	
12 WF 50	250 sq. ft.	23'															



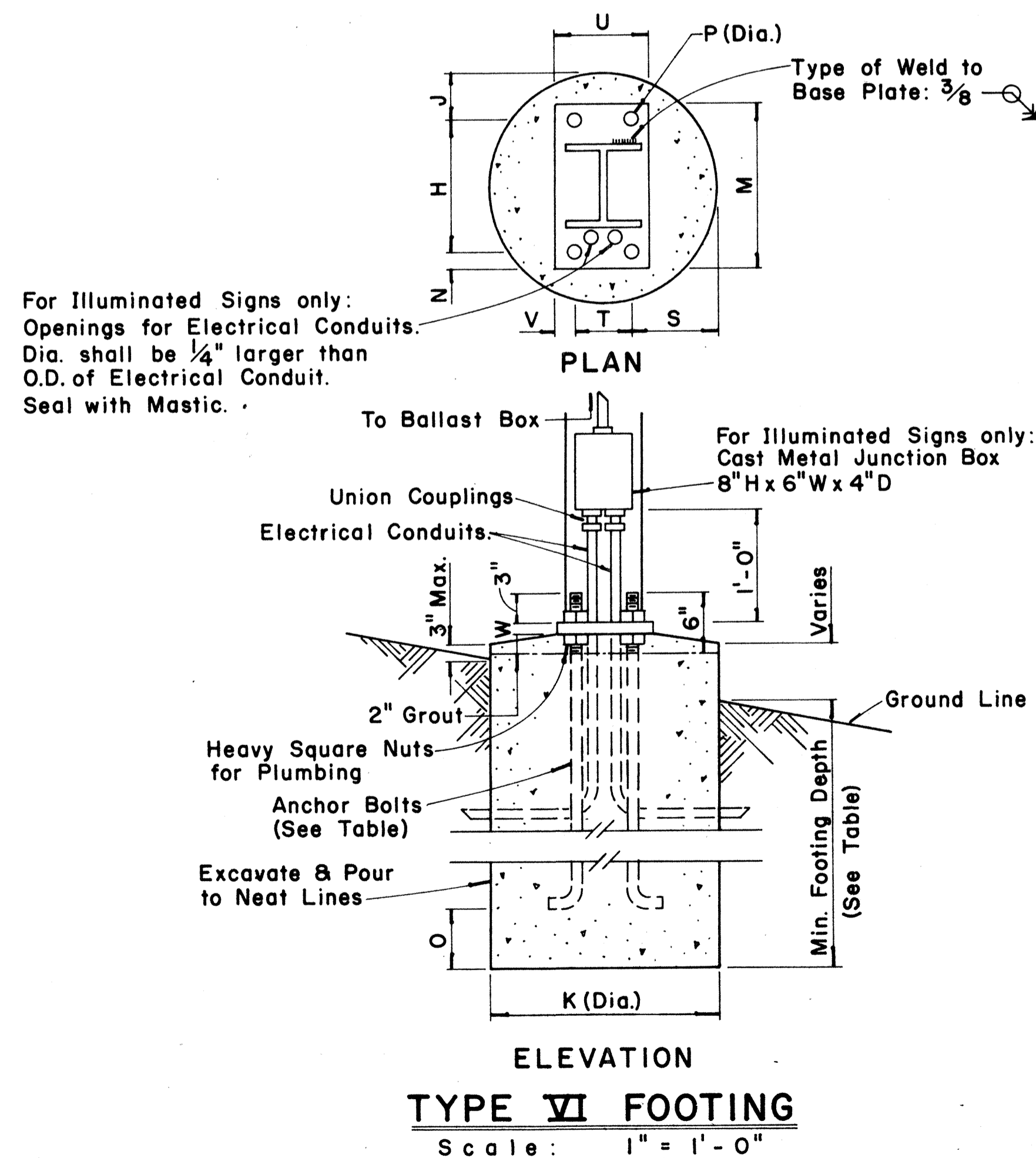
TYPICAL DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

Not to Scale



WEATHERPROOF BALLAST BOX

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



TYPE VI FOOTING

Scale: 1" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HEB-0999-1(B)	1985	39	43

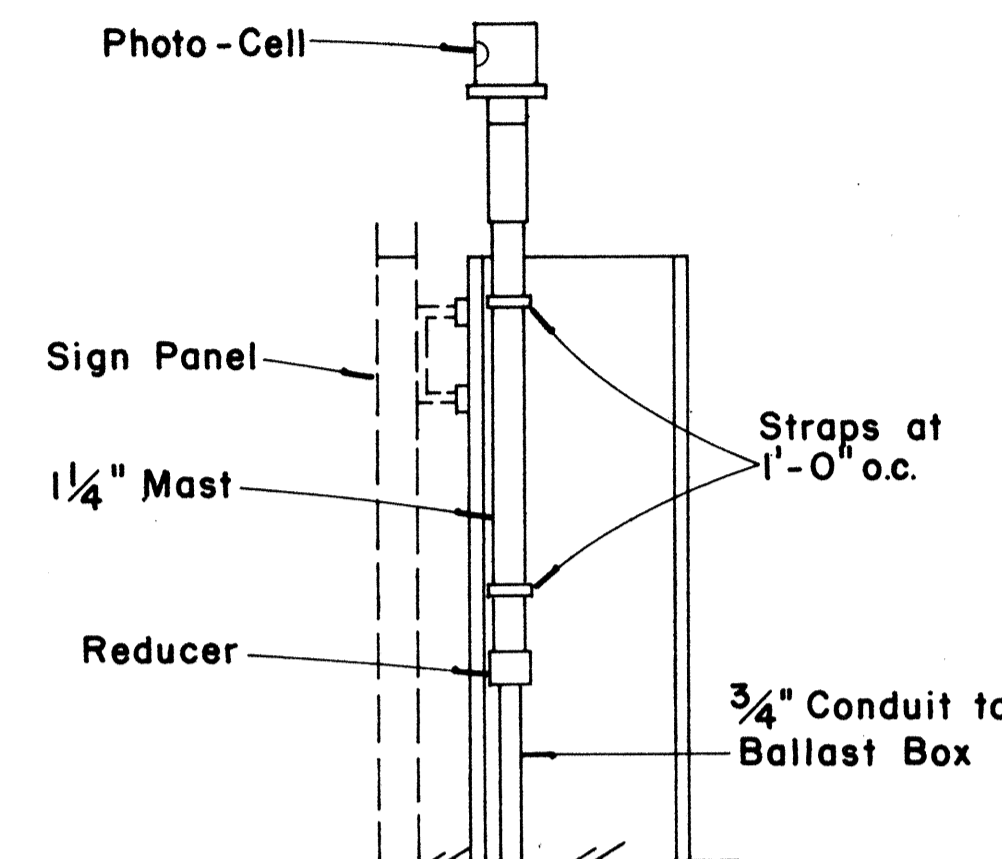


PHOTO-CELL DETAIL

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

APPROVAL RECOMMENDED:
Eishi Tanaka 12/29/62
 TRAFFIC ENGINEER DATE

APPROVED:
Andy S. Salas 12-20-69
 ASSISTANT CHIEF, ENGINEERING DATE

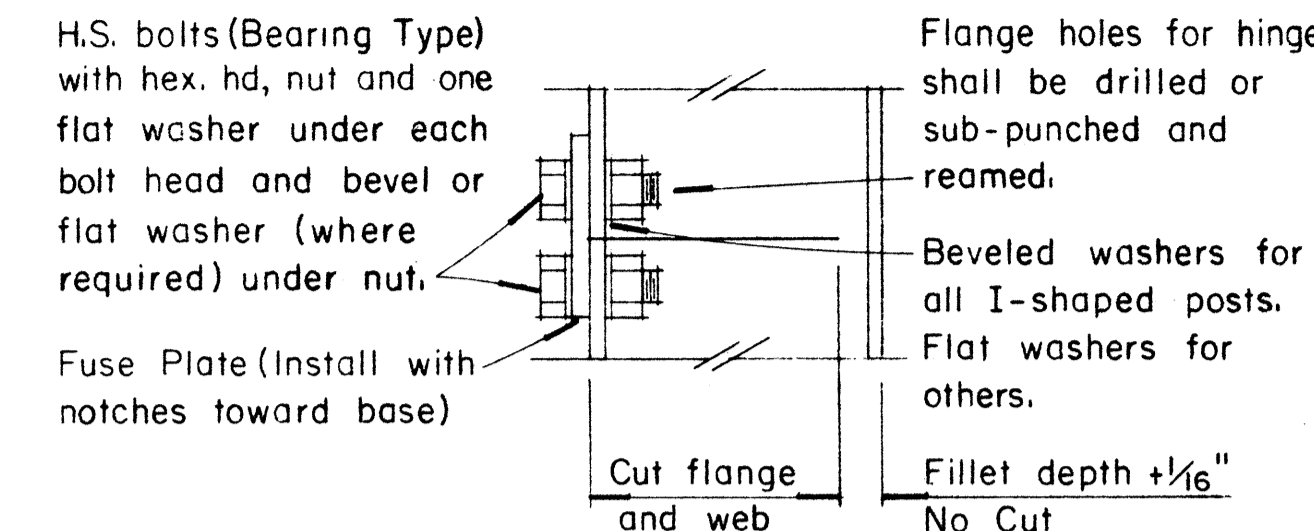
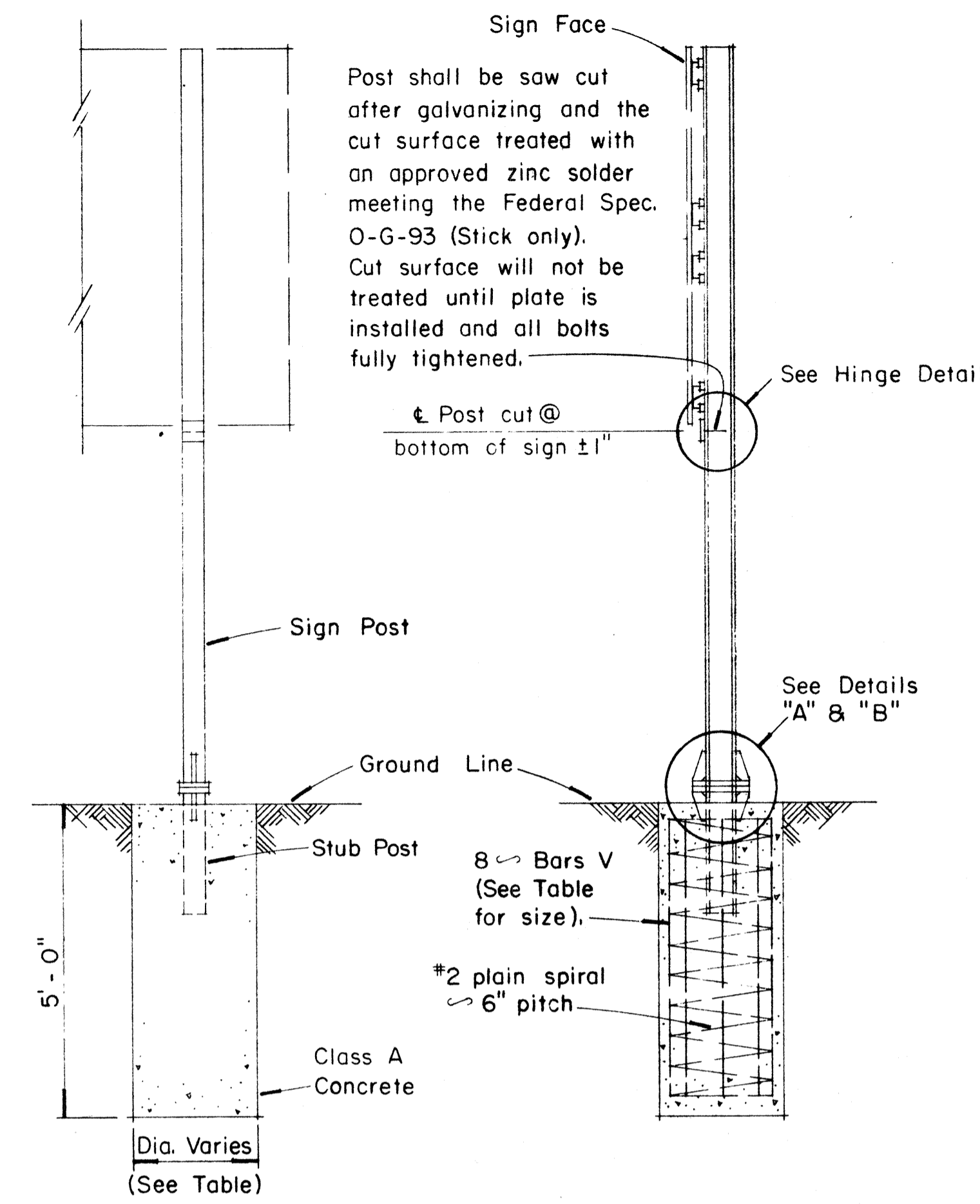
NO.	REVISION	APPROVED BY	DATE
1	Add note for luminaire mounting.	H.F.	6/3/80

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
 STANDARD DETAILS
 DESTINATION & GROUND MOUNTED
 EXPRESSWAY SIGNS

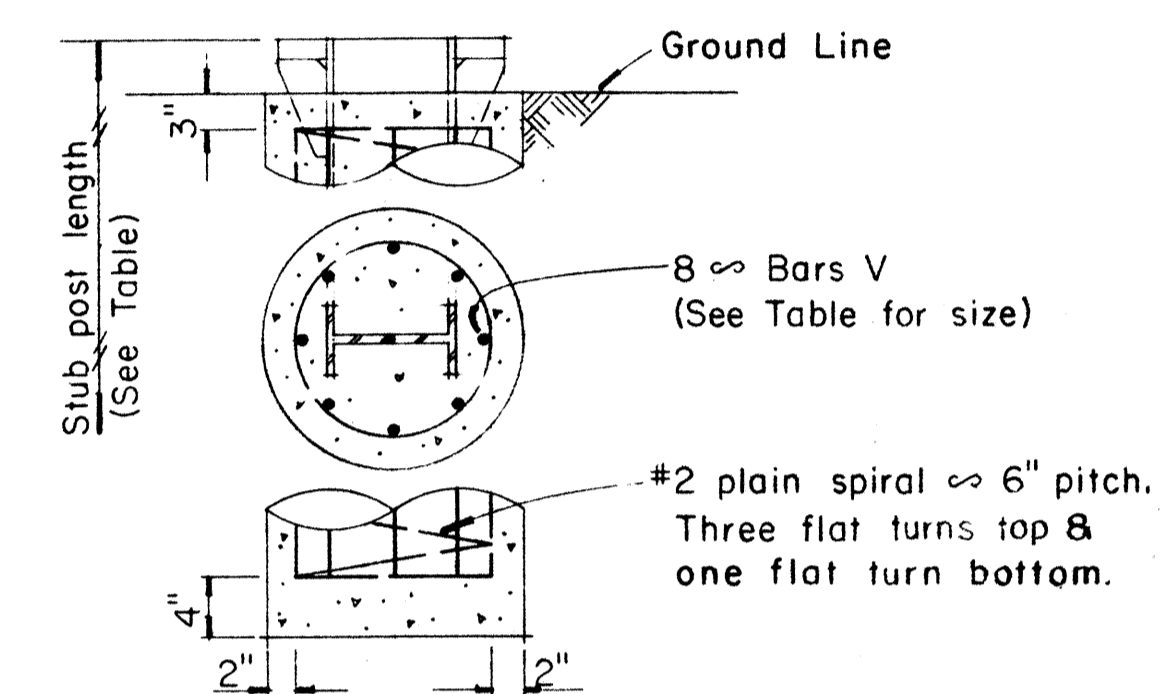
Scale: As Shown
 SHEET No. 113 OF 17 SHEETS DT 203

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-(8)	1985	40	43

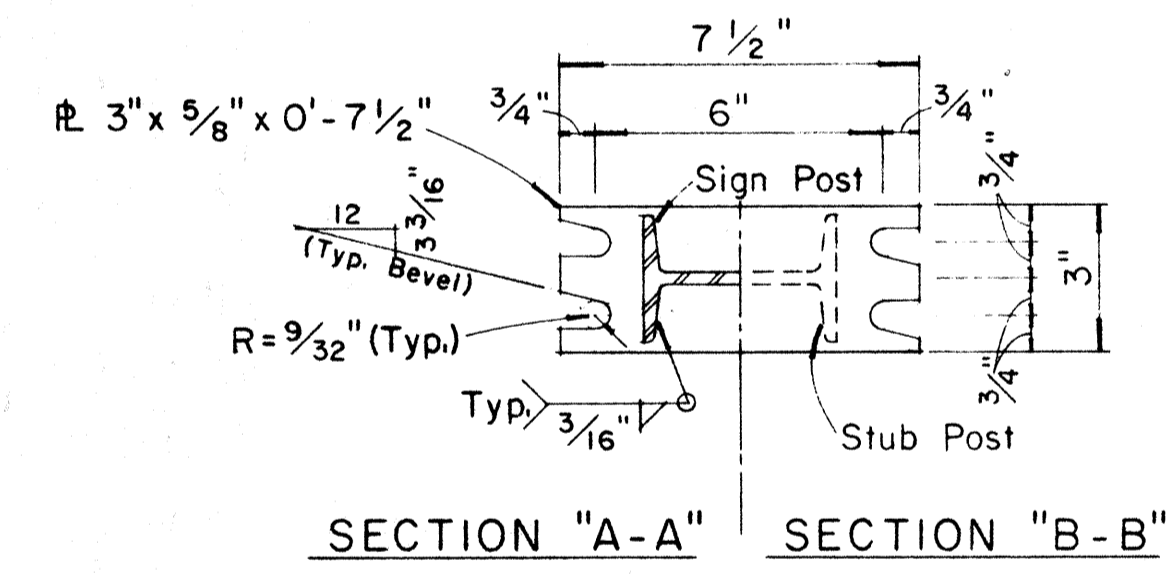
BASE CONNECTION DATA TABLE											FUSE PLATE DATA TABLE										FOUNDATION DATA				
Post Size	Bolt Size & Torque	A	B	C	D	E	t ₁	t ₂	W	R	F	G	H	J	K	L	N	d ₁	t ₃	Bolt Dia.	Wt. of each Fuse #	Stub Length	Stub Projection	Footing Diameter	Bars V Size
6 B 8.5											3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2" #	1.09#	2'-0"	3"	2'-0"	#5
6 B 12	5/8" # x 2 3/4" Torque = 450" #	5"	2"	1 1/4"	2 3/4"	1 1/8"	3/4"	1/2"	1/4"	1 1/32"	3 3/4"	2"	1 1/8"	4"	2 1/4"	7/8"	5/8"	1 1/16"	3/8"	5/8" #	1.60#	2'-0"	3"	2'-0"	#5
6 B 15.5											4 1/2"	2 1/2"	1 1/4"	6"	3 1/2"	1 1/4"	3/4"	1 3/16"	1/2"	3/4" #	3.75#	2'-6"	3"	2'-0"	#6
8 W 17											4 1/2"	2 1/2"	1 1/4"	5 1/4"	2 3/4"	1 1/4"	3/4"	1 3/16"	1/2"	3/4" #	3.27#	2'-6"	3"	2'-0"	#7
8 W 20											4 7/8"	2 1/2"	1 1/2"	5 1/4"	2 3/4"	1 1/4"	7/8"	1 5/16"	9/16"	7/8" #	3.93#	3'-0"	2 1/2"	2'-0"	#8
10 W 21	3/4" # x 3 1/2" Torque = 750" #	6"	2 1/4"	1 3/8"	3 1/2"	1 1/4"	1"	3/4"	5/16"	1 3/32"	5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" #	4.75#	3'-0"	2 1/2"	2'-0"	#9
10 W 25											5 3/8"	3"	1 1/2"	5 3/4"	2 3/4"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" #	4.79#	3'-0"	2 1/2"	2'-0"	#10
12 W 27											5 3/8"	3"	1 1/2"	6 1/2"	3 1/2"	1 1/2"	7/8"	1 5/16"	9/16"	7/8" #	5.42#	3'-0"	2 1/2"	2'-0"	#11
3 I 5.7	1/2" # x 2 1/2" Torque = 200" #	SEE DETAIL "A"									3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2" #	0.64#	1'-6"	3 1/2"	1'-6"	#5
4 I 7.7		SEE DETAIL "A"									3 1/8"	1 1/2"	1 1/8"	2 5/8"	1 1/2"	9/16"	1/2"	9/16"	1/4"	1/2" #	0.64#	1'-6"	3 1/2"	1'-6"	#5



HINGE DETAIL

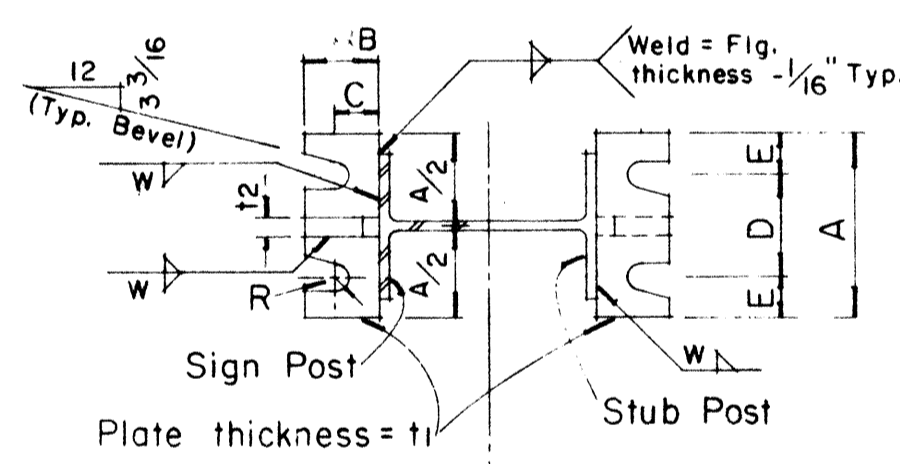


FOUNDATION DETAIL

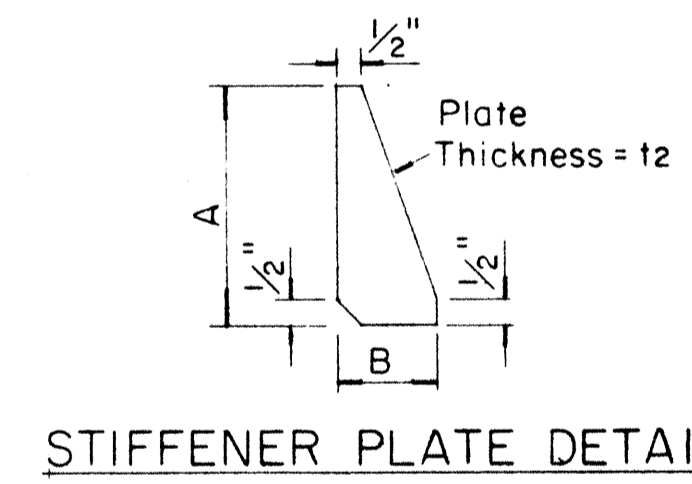


SECTION "A-A" SECTION "B-B"

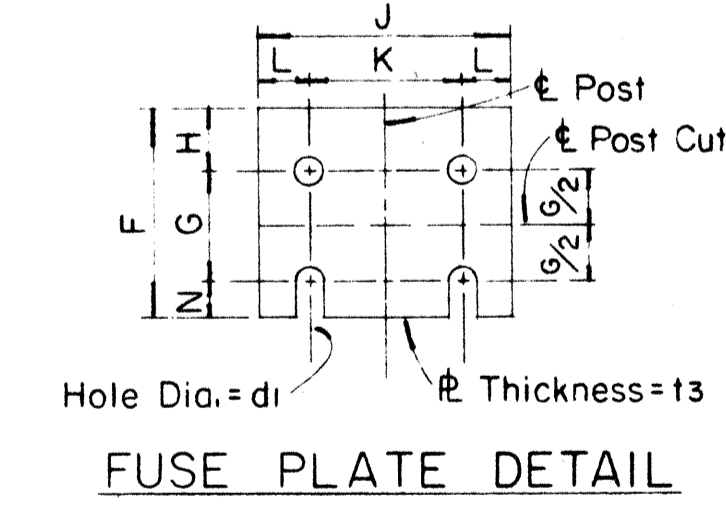
NOTE: Sections shown are for installations on right shoulder and in gore. Reverse plate slot bevels for installations on left shoulder.



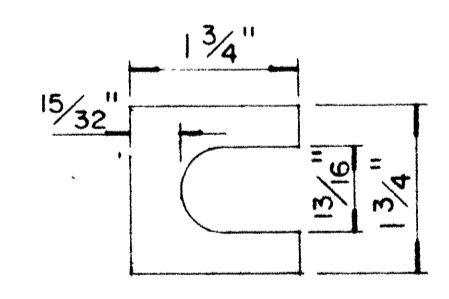
SECTION "C-C" SECTION "D-D"



STIFFENER PLATE DETAIL



FUSE PLATE DETAIL



SHIM DETAIL

Furnish 2-0.012" ± thick and 2-0.032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM - B 36.

GENERAL NOTES

- Design shall conform with AASHTO Specifications for the design and Construction of Structural Supports for Highway Signs.
- Materials and Fabrication shall conform to the requirements of the Standard Specifications and Special Provisions.
- All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.
- Tighten the high strength bolts in the base connection only to the torque shown, do not overtighten. All bolts other than high strength bolts shall conform to ASTM A 307, Class A.
- All structural steel, bolts, nuts and washers shall be galvanized as per the Standard Specifications and Special Provisions. Structural steel to be galvanized after fabrication except as noted.
- Structural steel shall conform to the requirements of ASTM A 441.
- Galvanize all of the post projecting above the concrete plus 6 inches - minimum.
- All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

Bolt Size	Min. Tension	Bolt Size	Min. Tension
1/2" #	12050 Lbs.	3/4" #	28400 Lbs.
5/8" #	19200 Lbs.	7/8" #	36050 Lbs.
- Supplemental Sign shall not be installed below the Breakaway Hinges.

APPROVAL RECOMMENDED:
Eishi Tanaka
 TRAFFIC ENGINEER
 DATE 12/29/69

APPROVED:
John S. Seal
 ASSISTANT CHIEF, ENGINEERING
 DATE 12-30-69

NO.	REVISION	APPROVED BY	DATE
1	Added General Note No. 9	H.T.	6/3/80

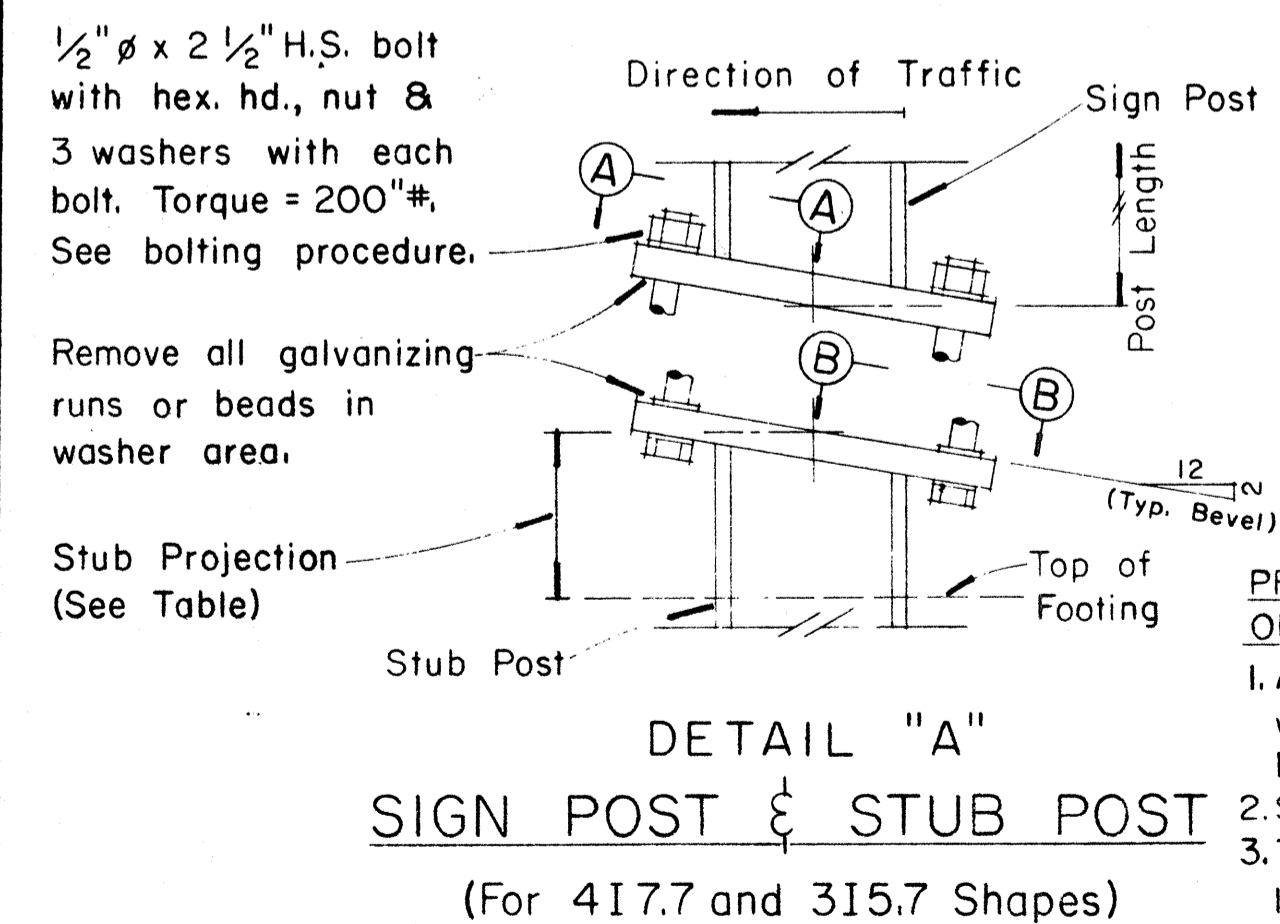
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
BREAK-AWAY SIGN SUPPORTS
FOR
GROUND MOUNTED GUIDE SIGNS

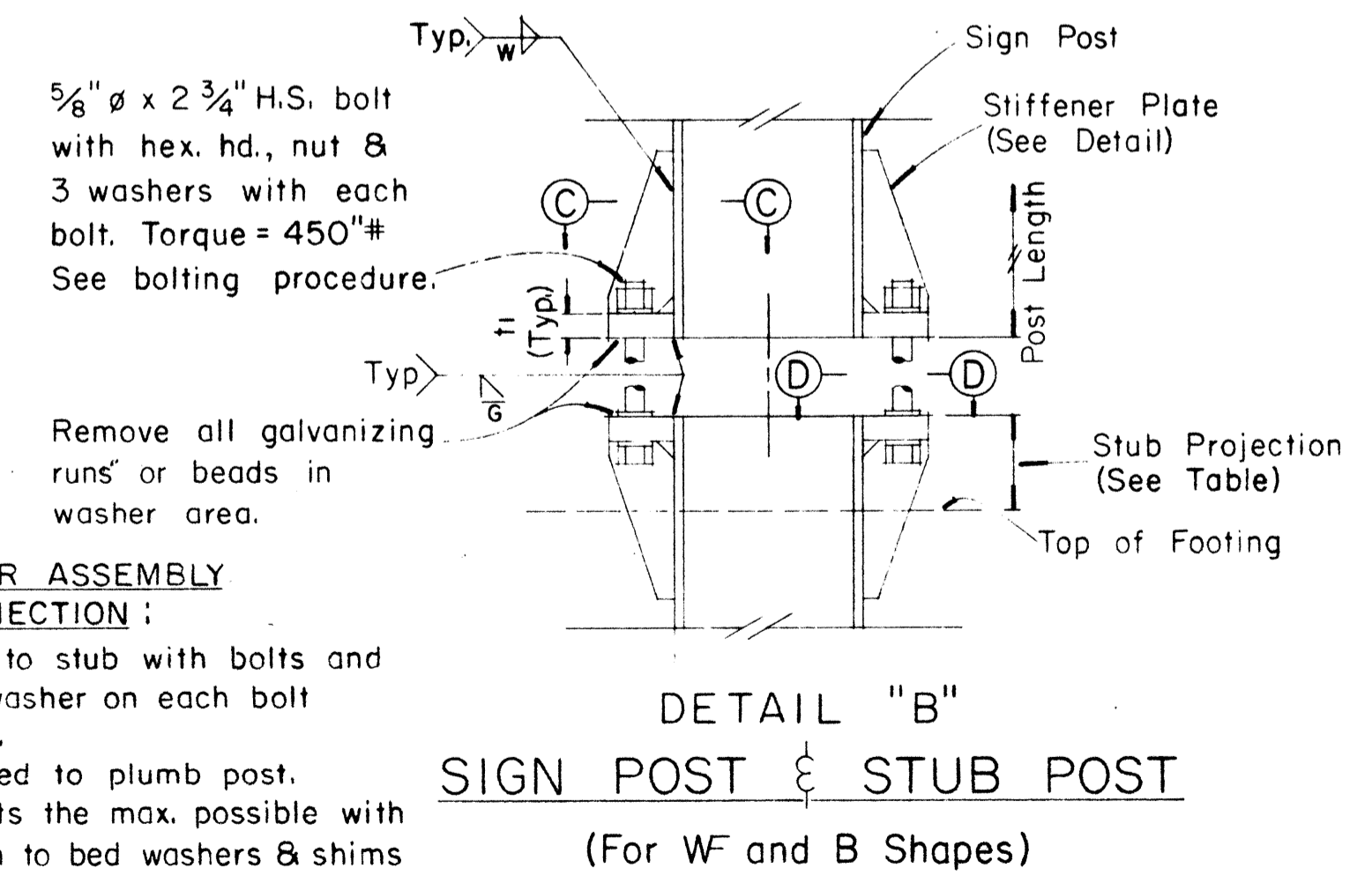
Not to Scale

SHEET No. 114 OF 17 SHEETS DT-204

DATE
 SURVEY PLOTTED BY
 PLAN
 TRACED BY
 DESIGNED BY
 QUANTITIES BY
 CHECKED BY



DETAIL "A"
 SIGN POST & STUB POST
 (For 4I7.7 and 3I5.7 Shapes)



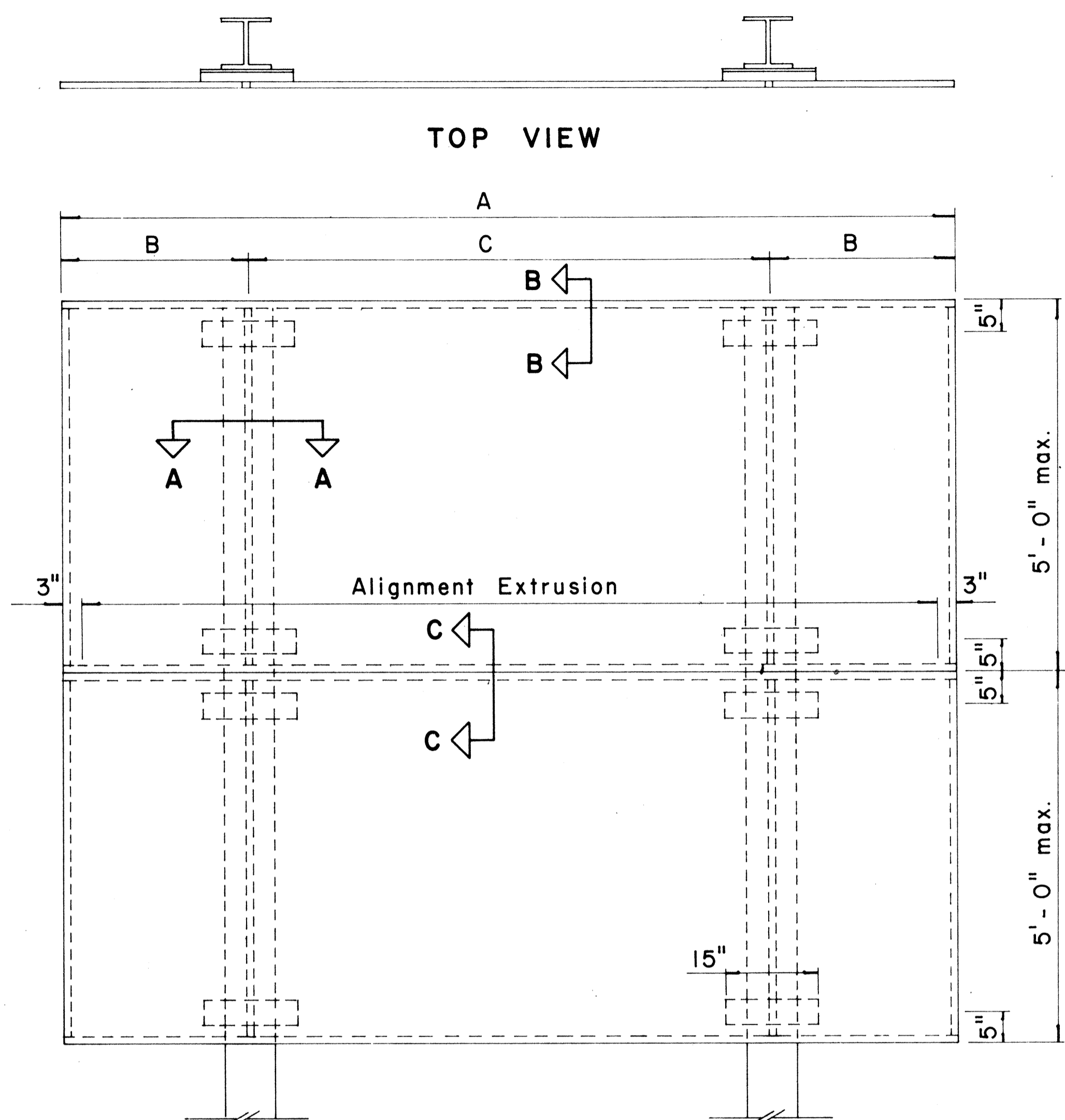
DETAIL "B"
 SIGN POST & STUB POST
 (For W and B Shapes)

- PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:
- Assemble post to stub with bolts and with one flat washer on each bolt between plates.
 - Shim as required to plumb post.
 - Tighten all bolts the max. possible with 12" to 15" wrench to bed washers & shims and to clean bolt threads then loosen each bolt in turn & retighten bolts in systematic order to prescribed torque. (See Table)
 - Burr threads at junction with nut using a center punch to prevent nut loosening.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	41	43

(GROUND MOUNTED SIGNS)
SUPPORT SPACING TABLE

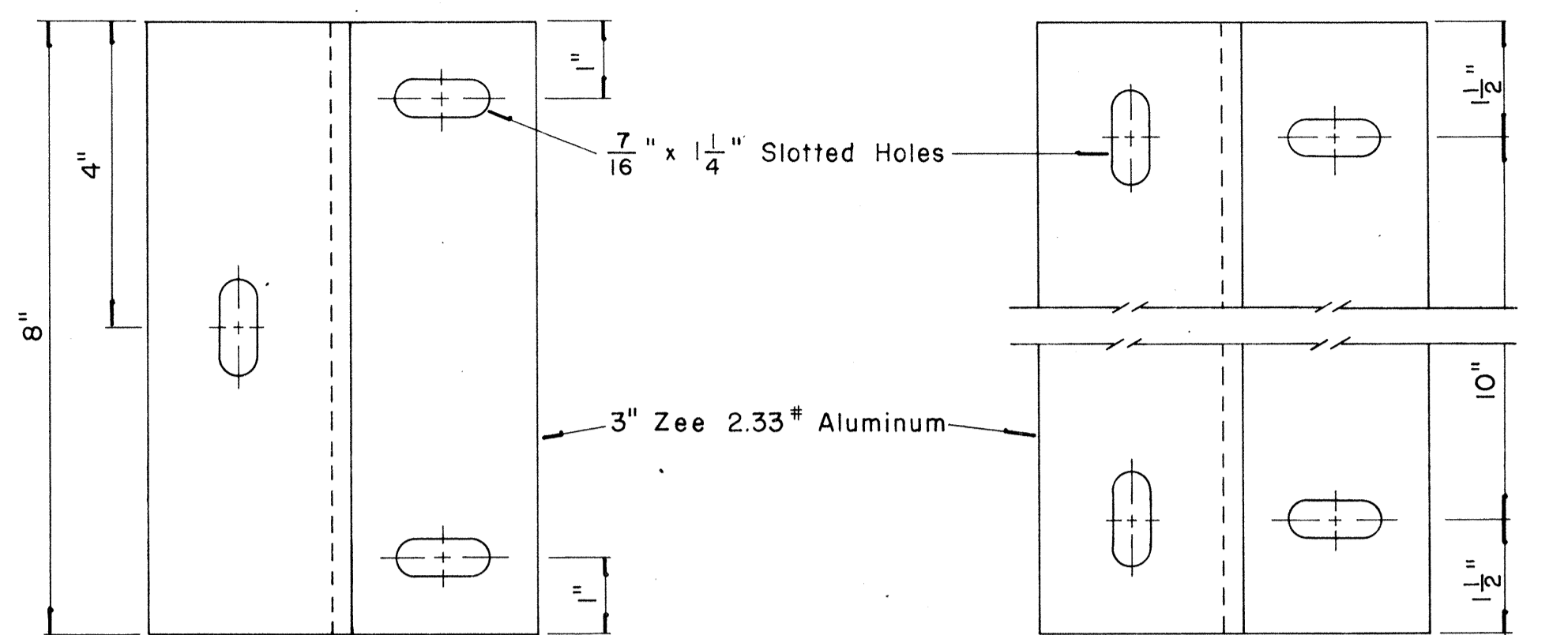
PANEL THICK.	LENGTH OF SIGN	NO. OF SUPPORTS	OVERHANG	SUPPORT SPACING
	A		B	C
1"	6'-0"	2	12"	48"
1"	6'-6"	2	15"	48"
1"	7'-0"	2	15"	54"
1"	7'-6"	2	18"	54"
1"	8'-0"	2	18"	60"
1"	8'-6"	2	20"	62"
1"	9'-0"	2	22"	64"
1"	9'-6"	2	23"	68"
1"	10'-0"	2	24"	72"
1"	10'-6"	2	24"	78"
1"	11'-0"	2	24"	84"
1"	11'-6"	2	27"	84"
1"	12'-0"	2	30"	84"
1"	12'-6"	2	30"	90"
1"	13'-0"	2	30"	96"
1"	13'-6"	2	30"	102"
1"	14'-0"	2	30"	108"
1"	14'-6"	2	36"	102"
1"	15'-0"	2	36"	108"
2.5"	15'-6"	2	36"	114"
2.5"	16'-0"	2	39"	114"
2.5"	16'-6"	2	39"	120"
2.5"	17'-0"	2	39"	126"
2.5"	17'-6"	2	42"	126"
2.5"	18'-0"	2	42"	132"
2.5"	18'-6"	2	45"	132"
2.5"	19'-0"	2	45"	138"
2.5"	19'-6"	2	45"	144"
2.5"	20'-0"	2	48"	144"
2.5"	20'-6"	2	48"	150"
2.5"	21'-0"	2	51"	150"
2.5"	21'-6"	2	51"	156"
2.5"	22'-0"	2	51"	162"
2.5"	22'-6"	2	54"	162"
2.5"	23'-0"	2	54"	168"
2.5"	23'-6"	2	54"	174"
2.5"	24'-0"	2	57"	174"



ELEVATION

TYPICAL SIGN ASSEMBLY

Scale: $\frac{3}{4}$ " = 1' - 0"

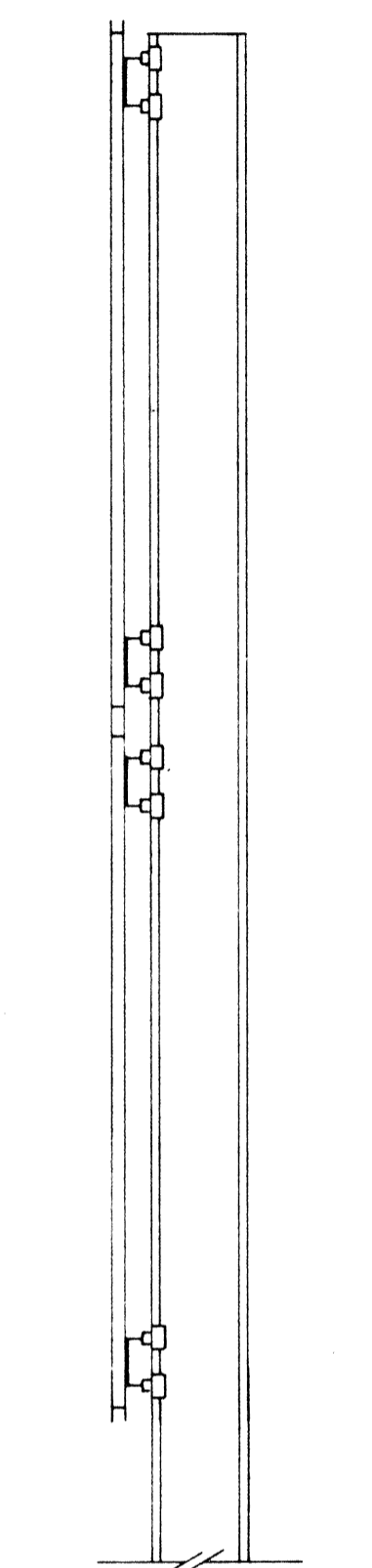


END MOUNTING

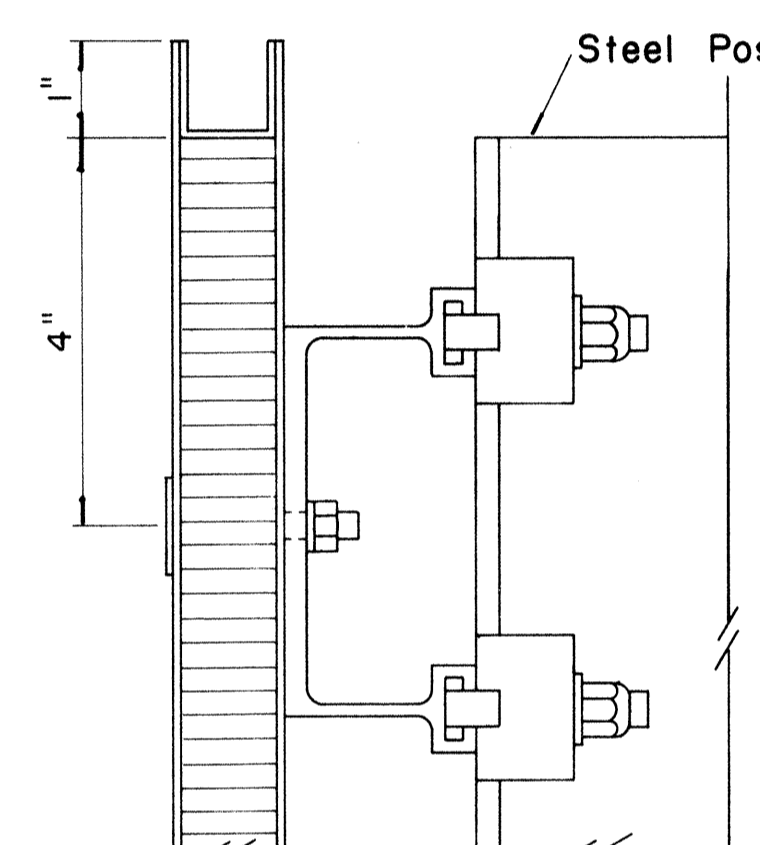
INTERMEDIATE MOUNTING

ZEE MOUNTING DETAILS

Scale: $\frac{1}{2}$ " = 1"

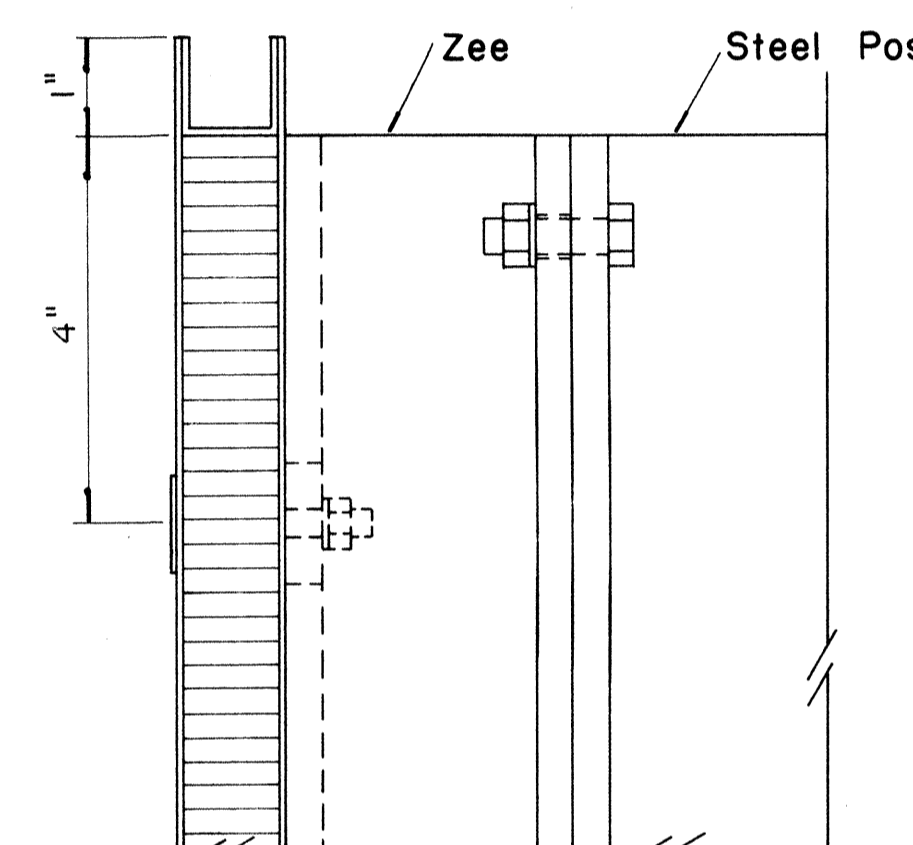


SIDE VIEW



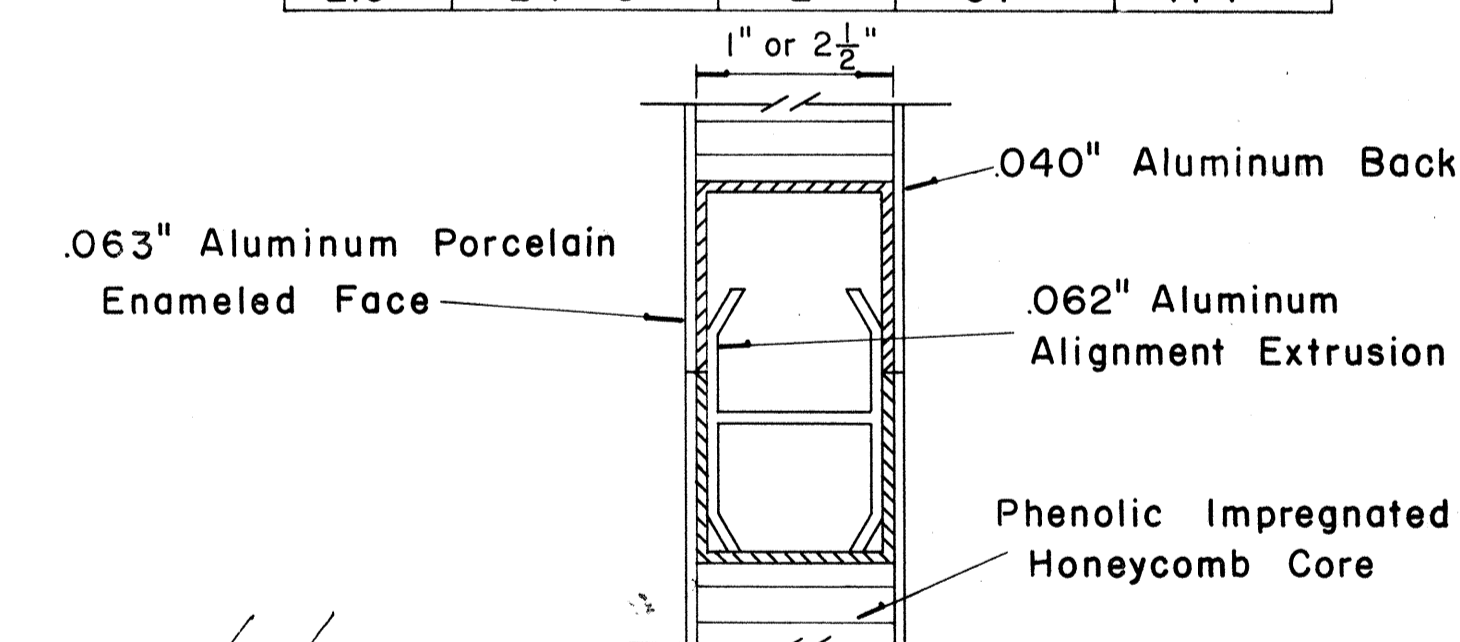
SECTION "B-B"

Scale: $\frac{1}{2}$ " = 1"



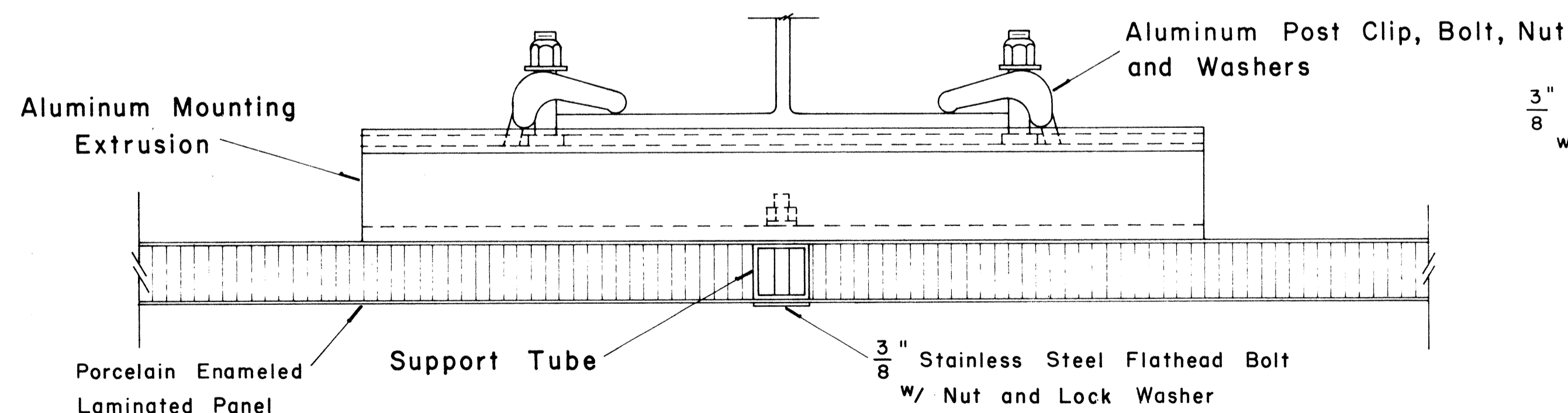
SECTION "B-B" (Alternate)

Scale: $\frac{1}{2}$ " = 1"



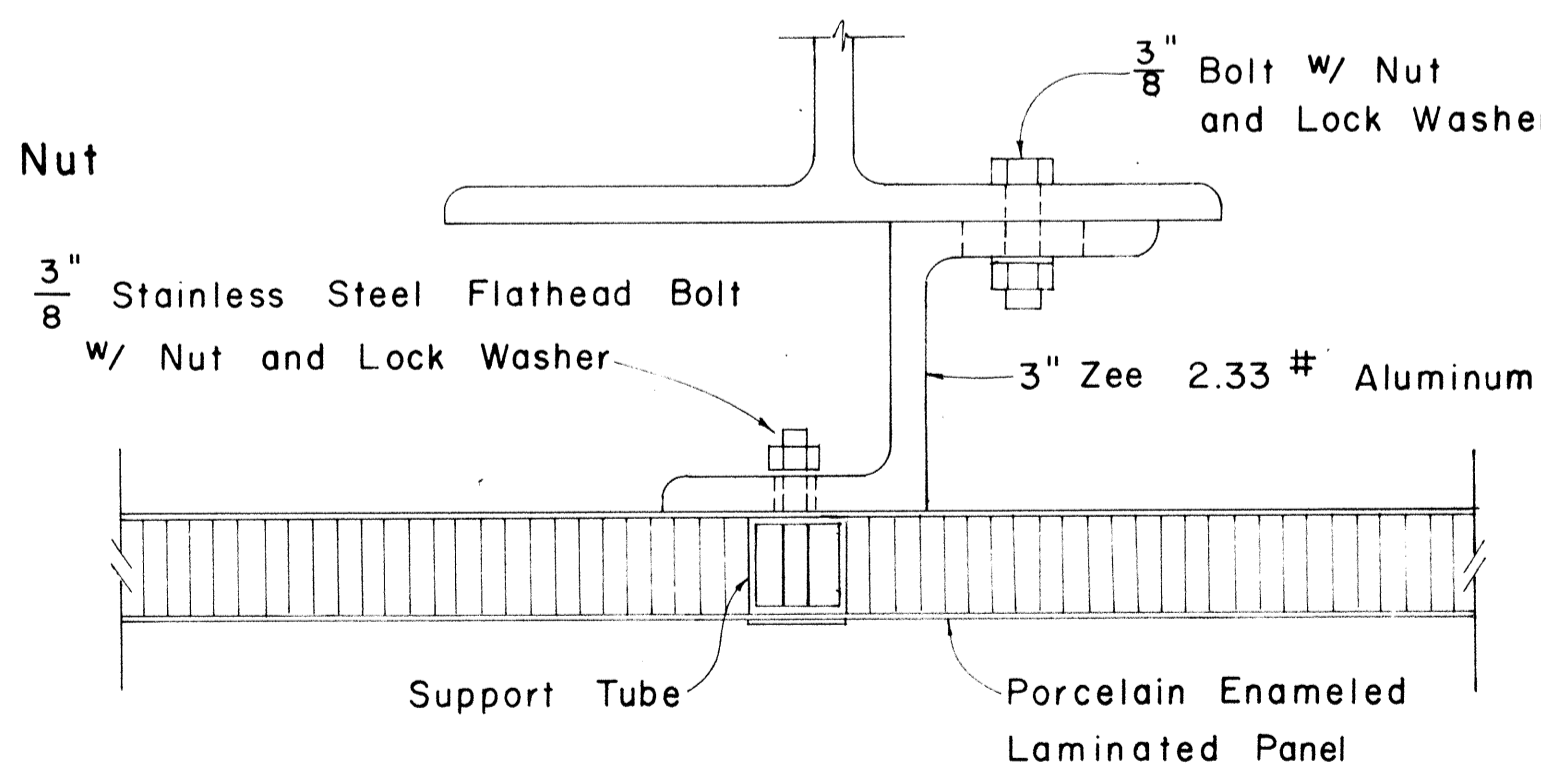
CLOSURE DETAIL SECTION "C-C"

FULL SCALE



SECTION "A-A"

Scale: $\frac{1}{2}$ " = 1"



SECTION "A-A" (Alternate)

Scale: $\frac{1}{2}$ " = 1"

APPROVAL RECOMMENDED:

Eishi Tanaka
TRAFFIC ENGINEER

12/29/69
DATE

APPROVED:

John S. Stein
ASSISTANT CHIEF, ENGINEERING

12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
LAMINATED ALUMINUM
SIGN PANELS
(GROUND MOUNTED)

Scale: As Shown

SHEET No. T15 OF 17 SHEETS DT 206

SURVEY PLOTTED BY _____ DATE _____
 DRAWN BY _____
 CHECKED BY _____
 NOTE BOOK No. _____

