

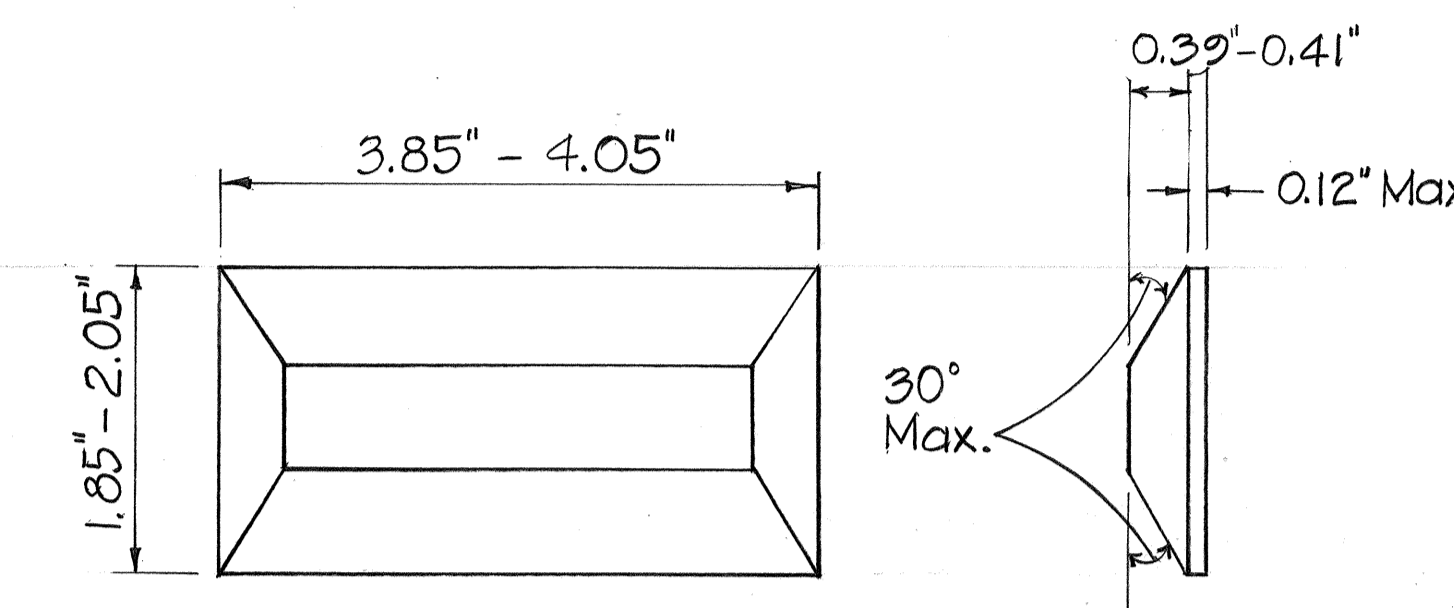
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (181)	1986	33	67

PAVEMENT MARKING AND SIGNING NOTES

- All existing signs shall not be removed until new signs are installed as replacements or until the messages are no longer applicable.
- Backing for all new Regulatory and Warning Signs shall not be spliced.
- The final locations of all signs shall be approved by the Engineer.
- The final locations of all Pavement Markers, Striping and Markings shall be staked out by the Contractor for approval by the Engineer prior to installation.
- Existing Pavement Markers, Striping and Markings not to be incorporated in the final traffic pattern shall be removed as directed by the Engineer.
- In the removal of concrete footings, the Contractor may elect to remove only the top portion of the footing. In such cases the Contractor shall ensure that the remaining footing shall be six (6) inches below the existing ground. The holes shall be backfilled and finished to match the existing area. Costs shall be considered incidental to the various contract items.
- The Contractor shall use paint for all 4-inch White Edge Stripe and 4-inch Yellow Edge Stripe. All other striping shall be tape or thermoplastic extrusion.
- Details of Type C and Type H Markers on Plan Sht. No. 63 shall be deleted and replaced with details of Type CL and Type HL Markers as shown on this sheet. All references to Type C and Type H Markers in the plans shall mean Type CL and Type HL Markers.

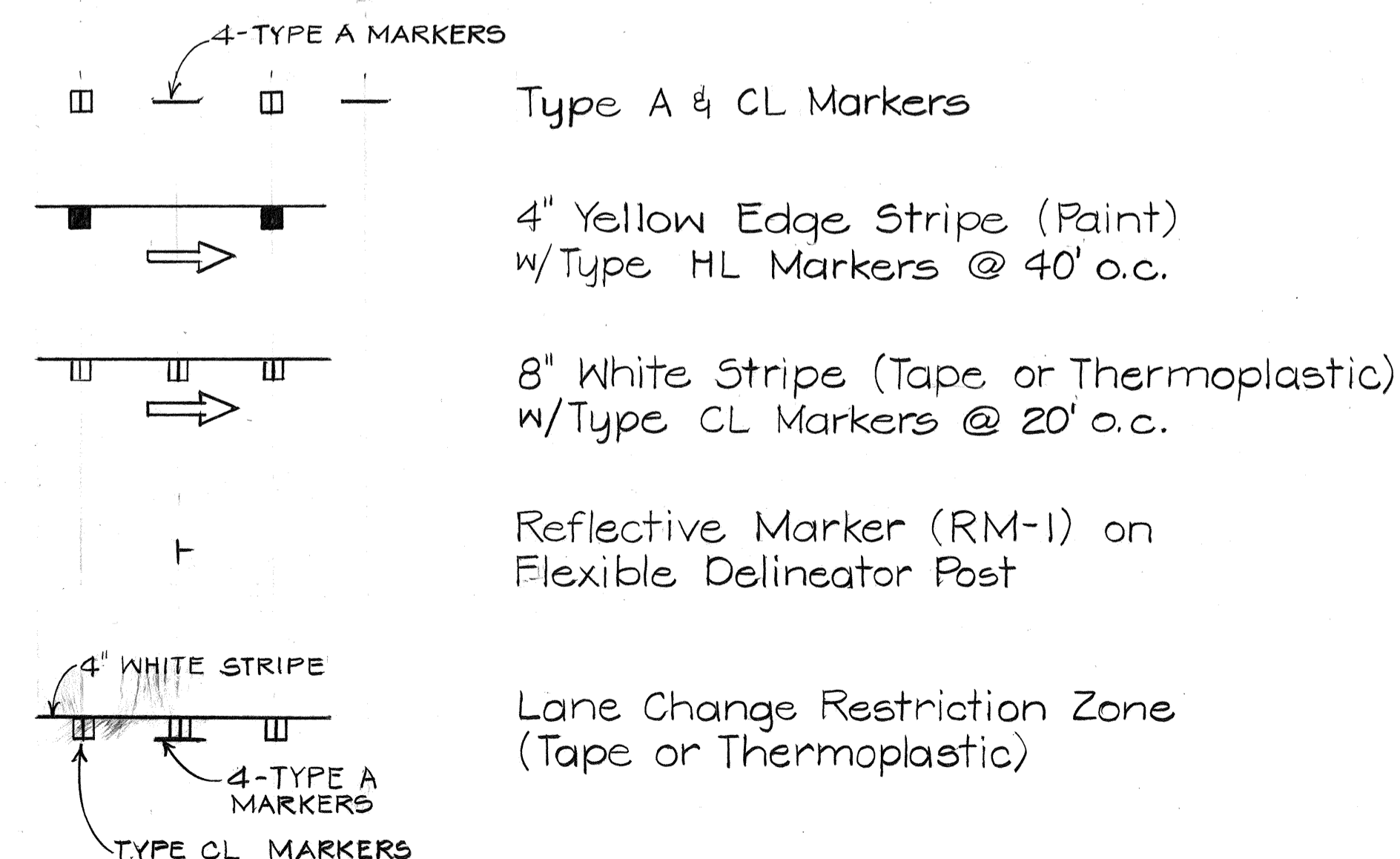
HIGHWAY LIGHTING NOTES

- The final locations of all highway lighting equipment shall be approved by the Engineer.
- All highway lighting equipment not incorporated into the final lighting system shall be abandoned or removed as directed by the Engineer. Costs shall be incidental to the various highway lighting contract items.
- The Contractor shall verify the locations of all existing utilities with the respective owners prior to start of construction.
- Existing highway lighting equipment to be reinstalled shall be cleaned prior to such installation. Costs shall be considered incidental to the various highway lighting contract items.
- Refer to Note #5 of Pavement Marking and Signing Notes for the removal of Highway Lighting foundations.
- In the relocation of Highway Lighting Standard w/Double Mastarm and Luminaires, the Contractor may elect to install the Double Mastarm Standard on the existing foundation. (Sta. 473+75± Lt. to 477+25± Lt. only)
- The Contractor shall install the relocated Highway Lighting Standards w/Single Mastarm and Luminaire on Ramp D approximately 12 feet offset from the edge of gutter.



TYPE CL, TYPE HL MARKERS
 RED-CLEAR REFLECTIVE MARKER (CL)
 OR
 ONE-WAY YELLOW REFLECTIVE MARKER (HL)

LEGEND



DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

DATE	REVISION
11/6/88	Added Note No. 8, revised Note No. 7 (Hwy. Ltg.), added Type CL & HL Marker details & revised legend.

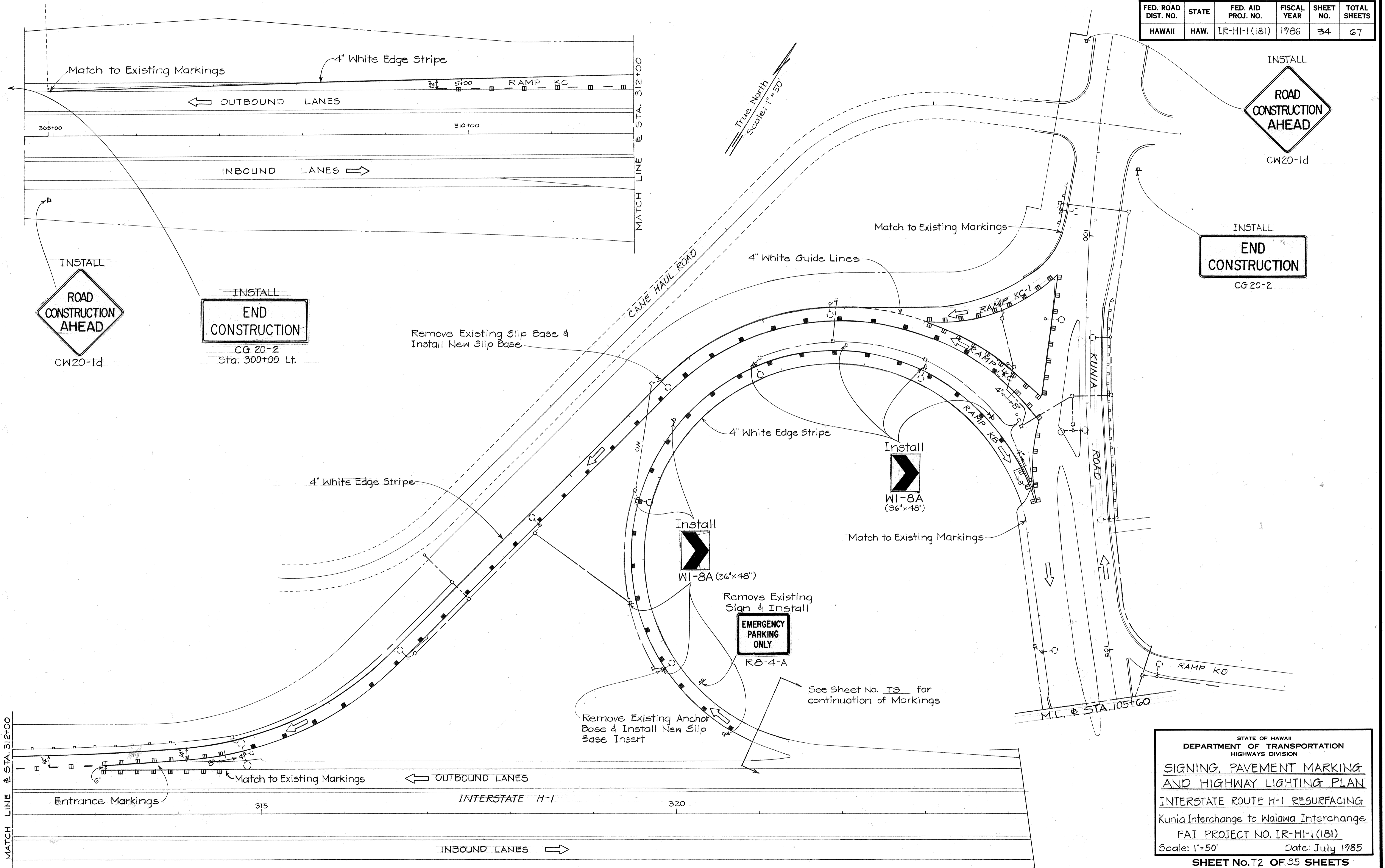
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

PAVEMENT MARKING, SIGNING,
 HIGHWAY LIGHTING NOTES & LEGEND

INTERSTATE ROUTE H-1 RESURFACING
 Kunia Interchange to Waiawa Interchange
 FAI PROJECT NO. IR-HI-1 (181)

Scale: As Shown Date: July 1985
 SHEET No. 33 OF 35 SHEETS

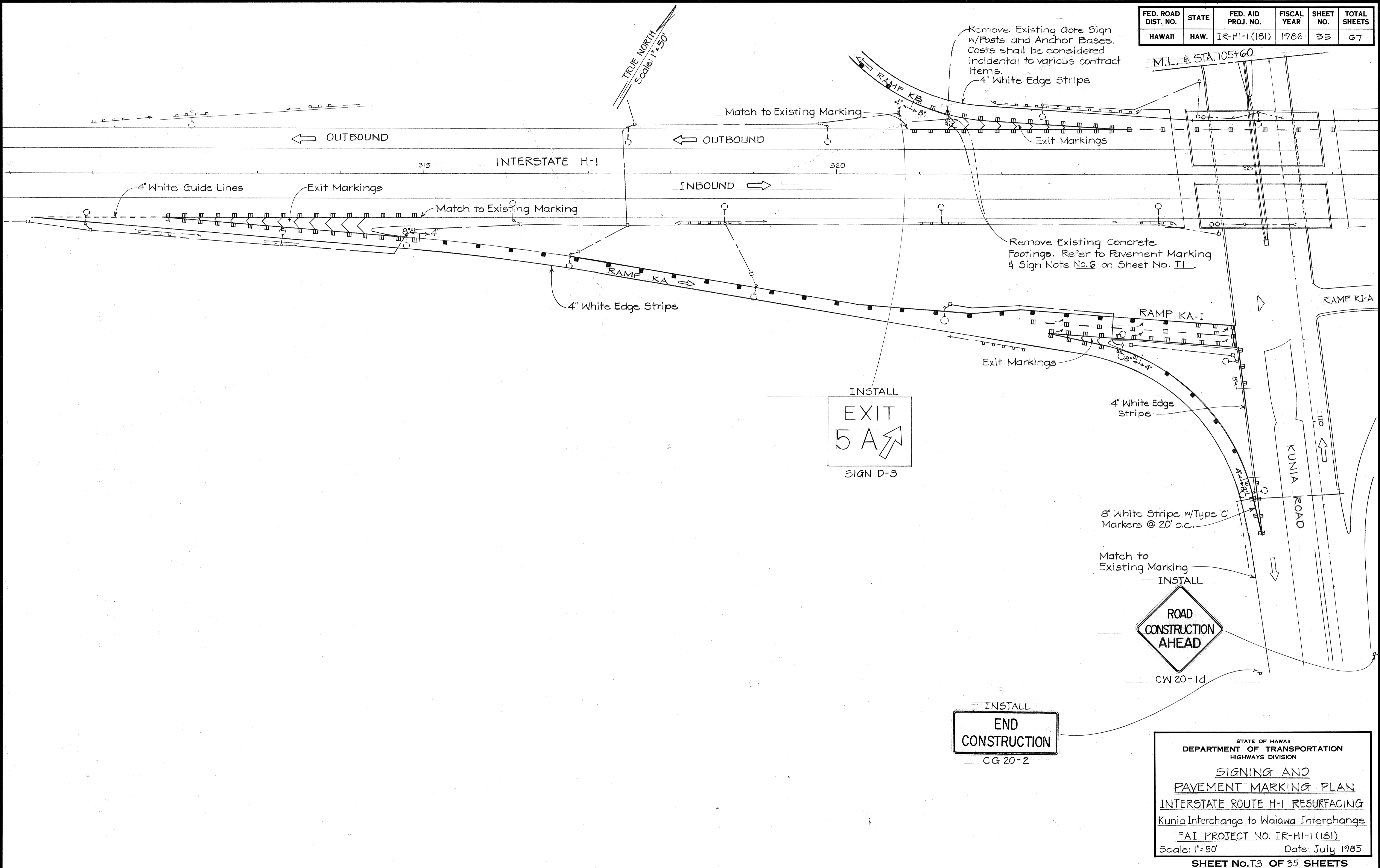
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	34	67



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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**SIGNING, PAVEMENT MARKING
 AND HIGHWAY LIGHTING PLAN**
 INTERSTATE ROUTE H-1 RESURFACING
 Kunia Interchange to Waiawa Interchange
 FAI PROJECT NO. IR-HI-1(181)
 Scale: 1"=50' Date: July 1985
SHEET No. T2 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	35	67



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

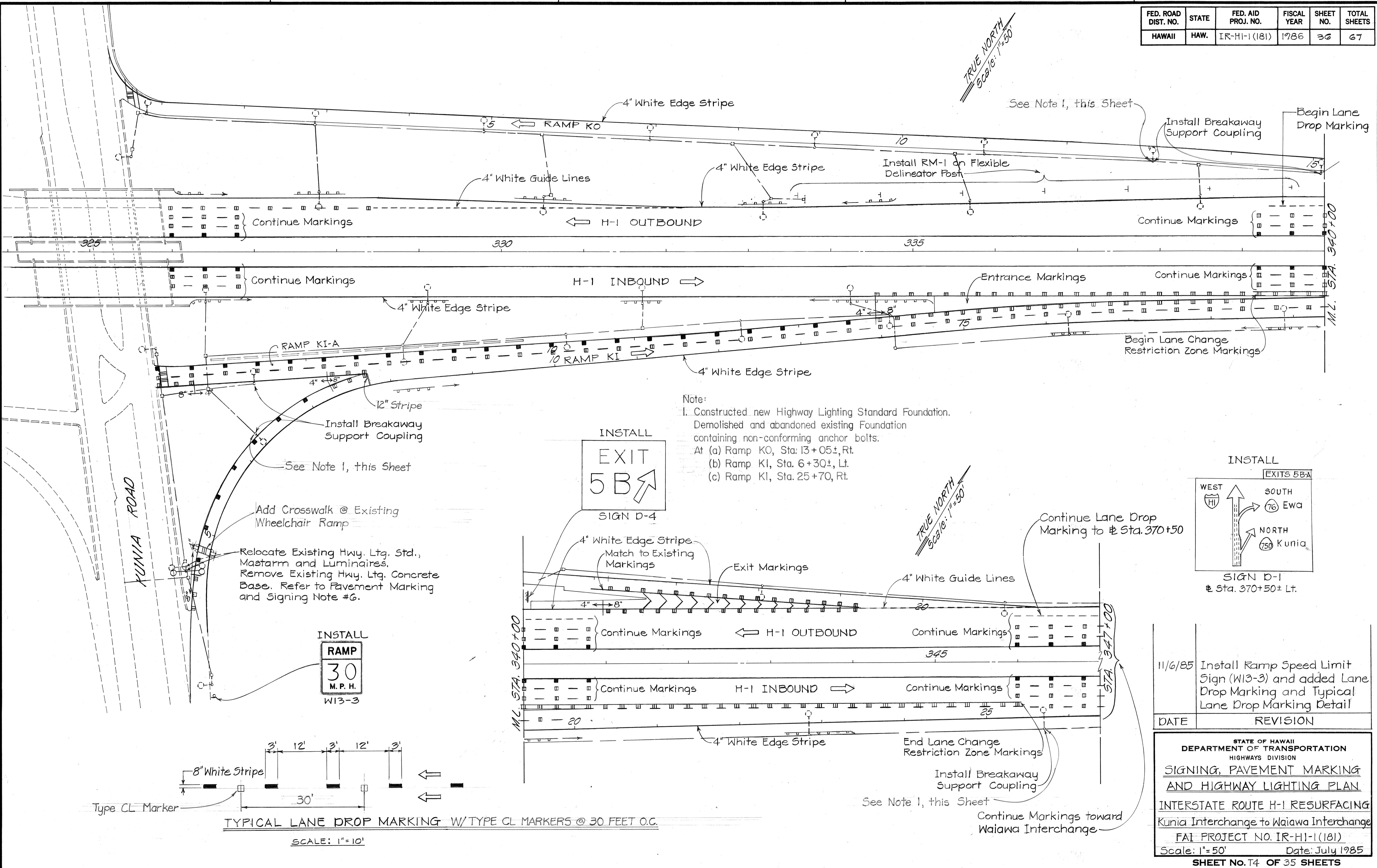
SIGNING AND PAVEMENT MARKING PLAN

INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange

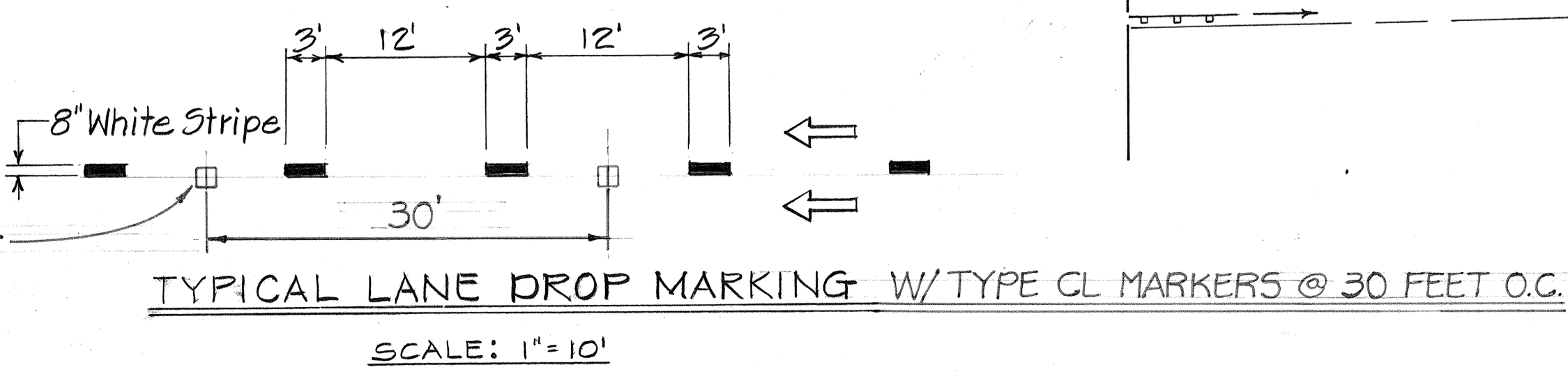
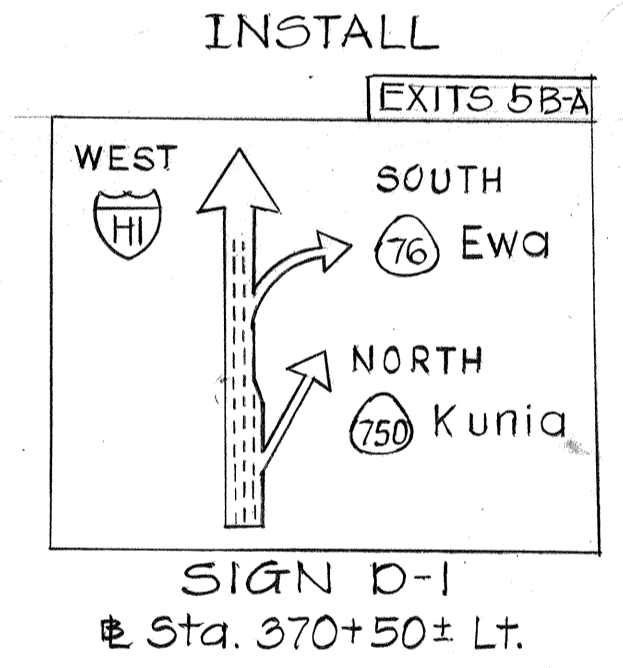
FAI PROJECT NO. IR-HI-1(181)
Scale: 1"=50' Date: July 1985

SHEET No. 35 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	36	67



Note:
 1. Constructed new Highway Lighting Standard Foundation. Demolished and abandoned existing Foundation containing non-conforming anchor bolts.
 At (a) Ramp KO, Sta. 13+05±, Rt.
 (b) Ramp KI, Sta. 6+30±, Lt.
 (c) Ramp KI, Sta. 25+70, Rt.

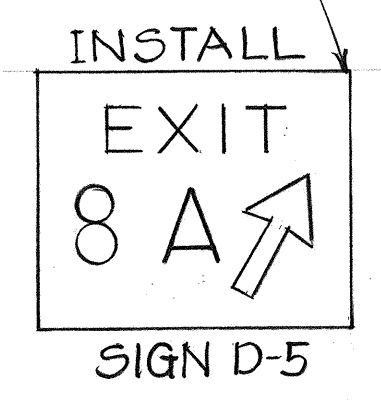
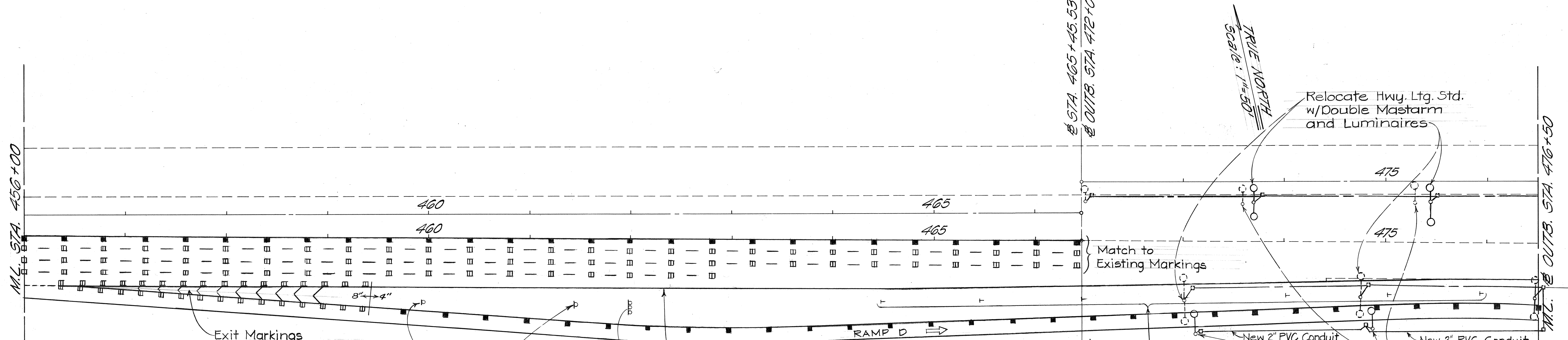
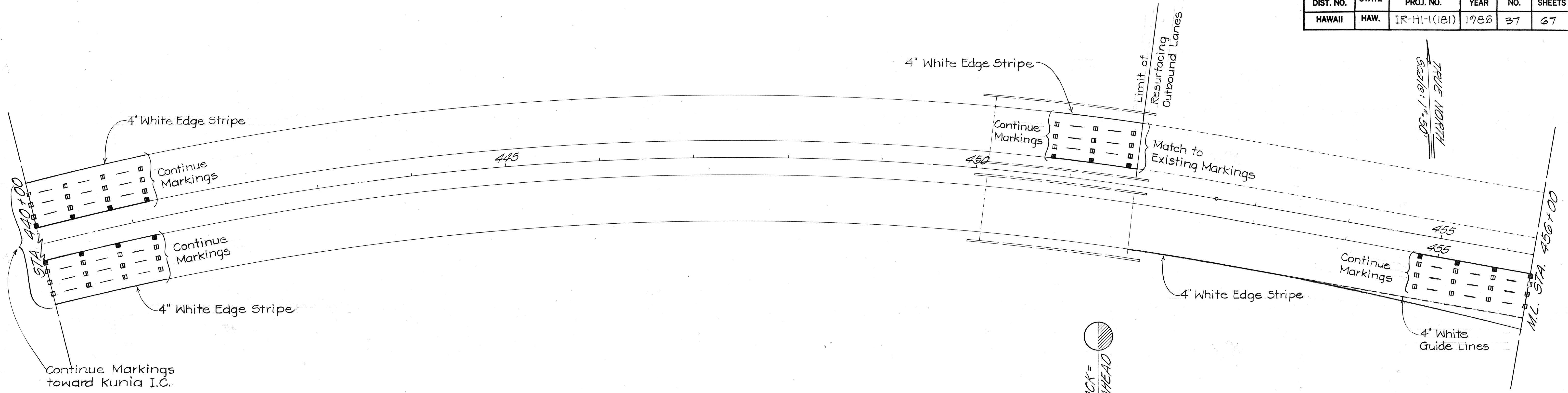


11/6/85	Install Ramp Speed Limit Sign (W13-3) and added Lane Drop Marking and Typical Lane Drop Marking Detail
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**SIGNING, PAVEMENT MARKING
 AND HIGHWAY LIGHTING PLAN**
 INTERSTATE ROUTE H-1 RESURFACING
 Kunia Interchange to Waiawa Interchange
 FAI PROJECT NO. IR-HI-1(181)
 Scale: 1"=50' Date: July 1985
 SHEET NO. 14 OF 35 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	37	67



Limit of Resurfacing Inbound Lanes
 @ STA. 465+45.55 BACK =
 @ OUTB. STA. 472+00 AHEAD

Limit of Resurfacing Outbound Lanes
 @ STA. 465+45.55 BACK =
 @ OUTB. STA. 472+00 AHEAD

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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**SIGNING, PAVEMENT MARKING
 AND HIGHWAY LIGHTING PLAN**

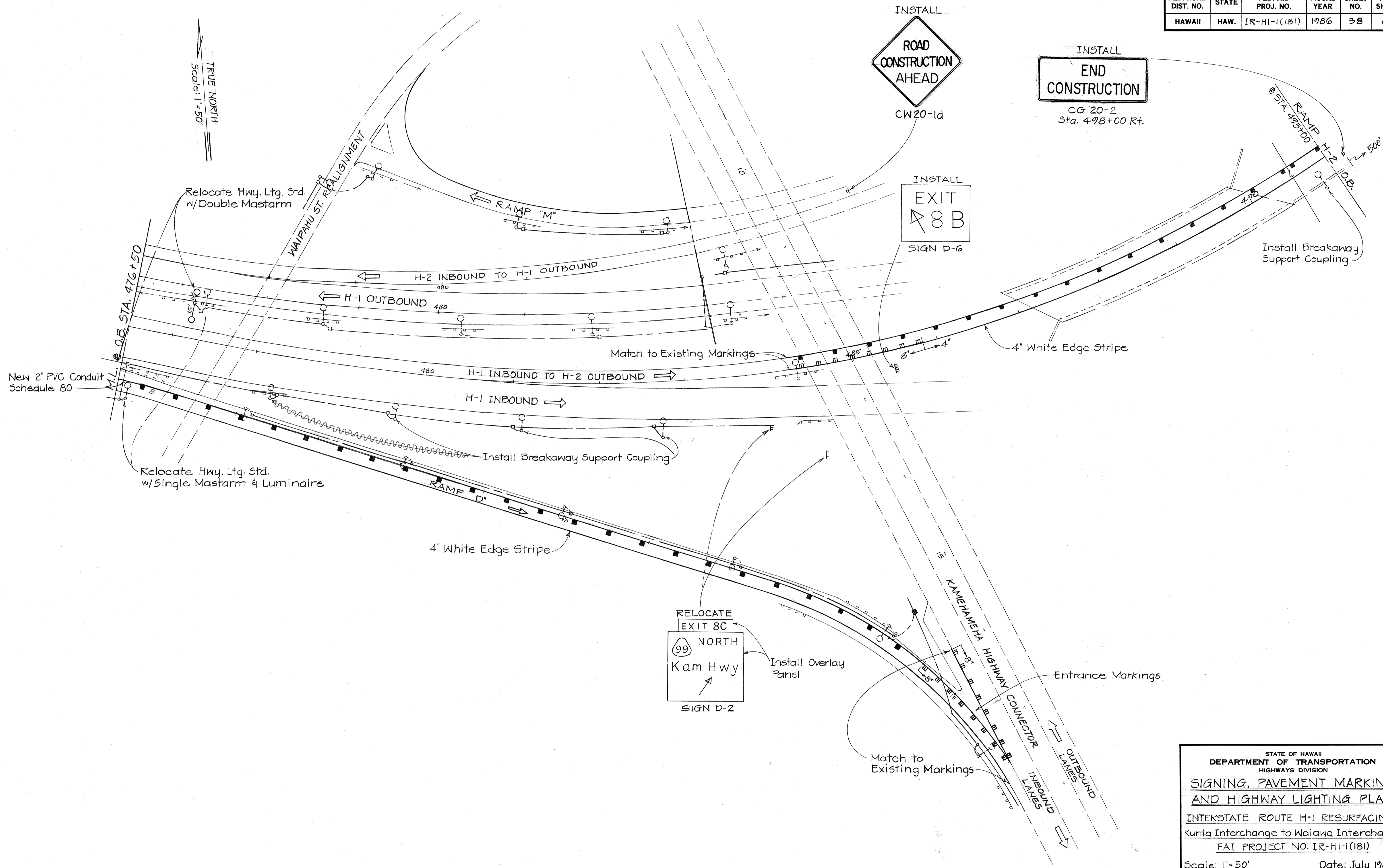
INTERSTATE ROUTE H-1 RESURFACING
 Kunia Interchange to Waiawa Interchange

FAI PROJECT NO. IR-HI-1(181)
 Scale: 1" = 50' Date: July 1985

SHEET No. 37 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	38	67

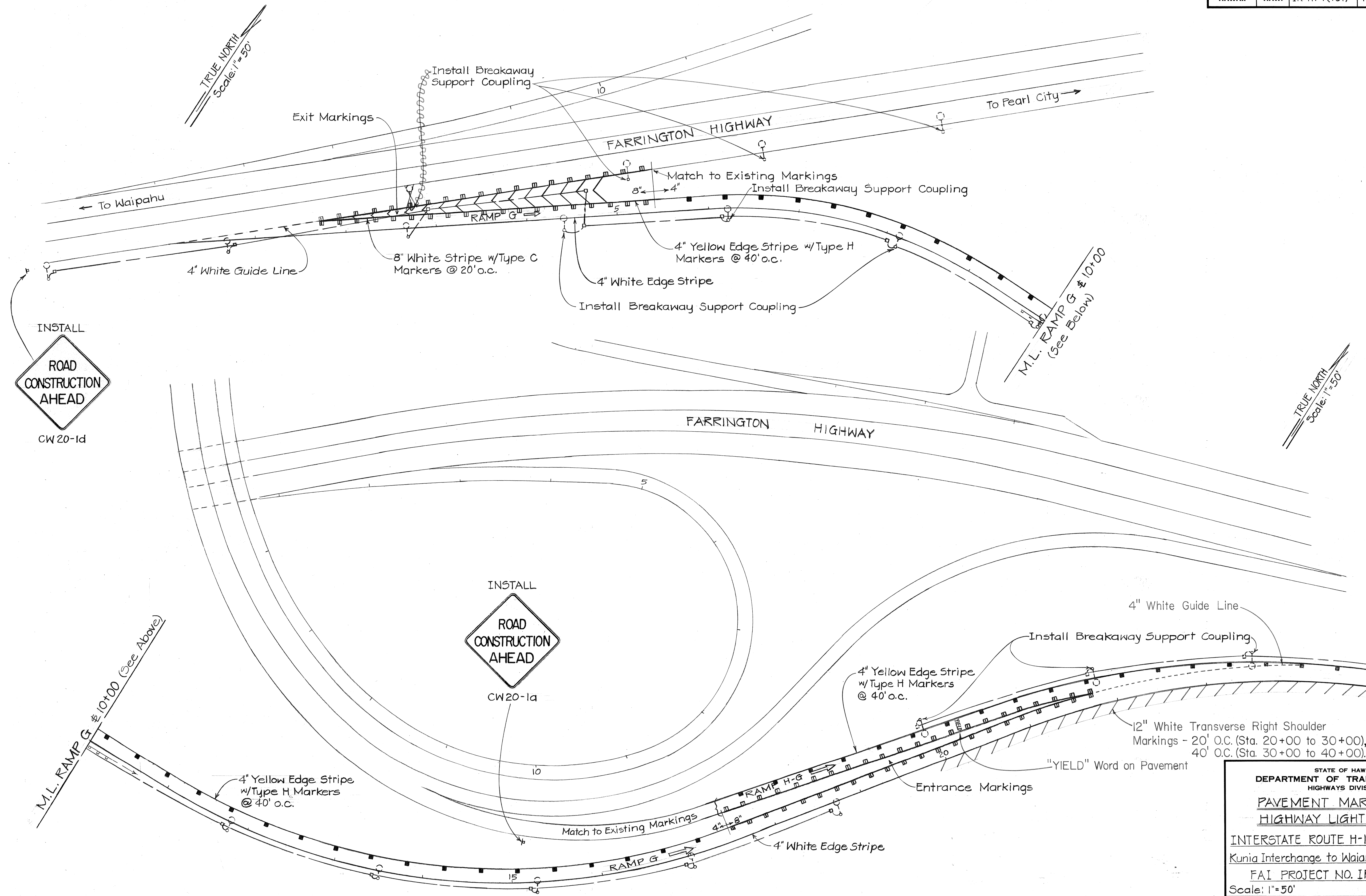
TRUE NORTH
Scale: 1"=50'



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**SIGNING, PAVEMENT MARKING
AND HIGHWAY LIGHTING PLAN**
INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange
FAI PROJECT NO. IR-HI-1(181)
Scale: 1"=50' Date: July 1985
SHEET NO. 38 OF 35 SHEETS

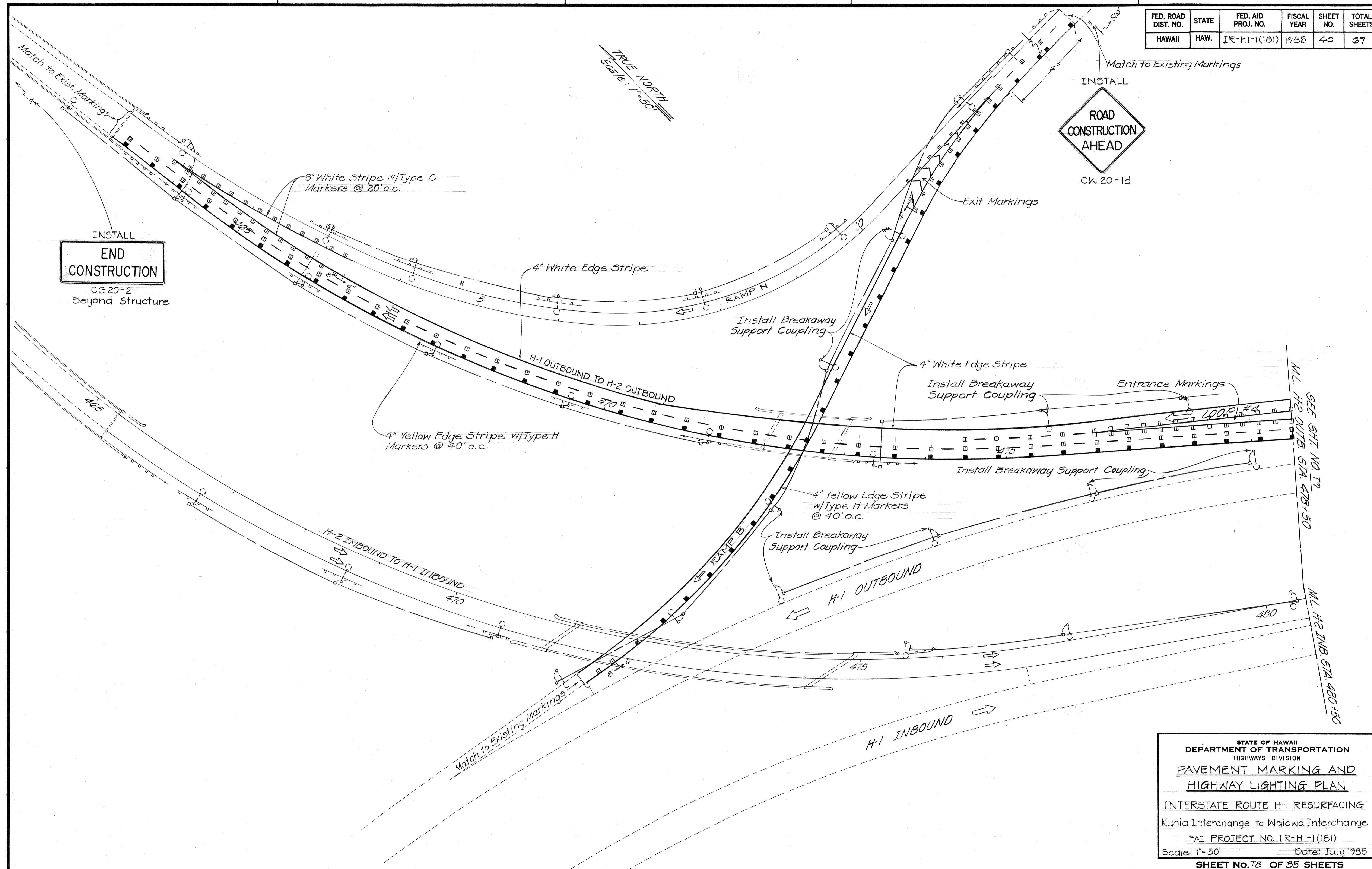
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	39	67



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**PAVEMENT MARKING AND
HIGHWAY LIGHTING PLAN**
INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange
FAI PROJECT NO. IR-HI-1(181)
Scale: 1"=50' Date: July 1985
SHEET No. 17 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	40	67



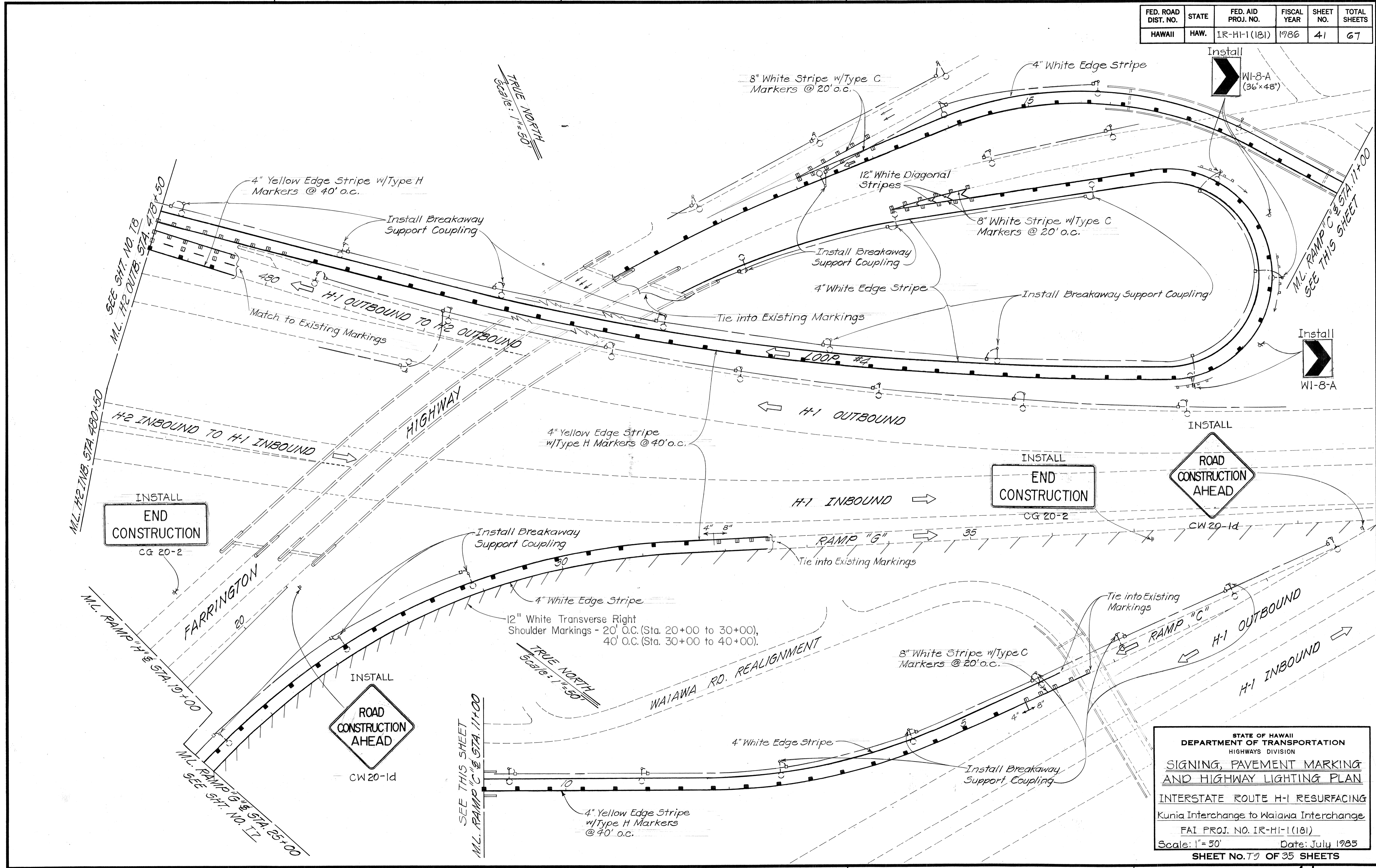
INSTALL
END CONSTRUCTION
 CG 20-2
 Beyond Structure

INSTALL
ROAD CONSTRUCTION AHEAD
 CW 20-1d

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**PAVEMENT MARKING AND
 HIGHWAY LIGHTING PLAN**
 INTERSTATE ROUTE H-1 RESURFACING
 Kunia Interchange to Waiawa Interchange
 FAI PROJECT NO. IR-HI-1(181)
 Scale: 1" = 50' Date: July 1985
SHEET NO. 78 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	41	67



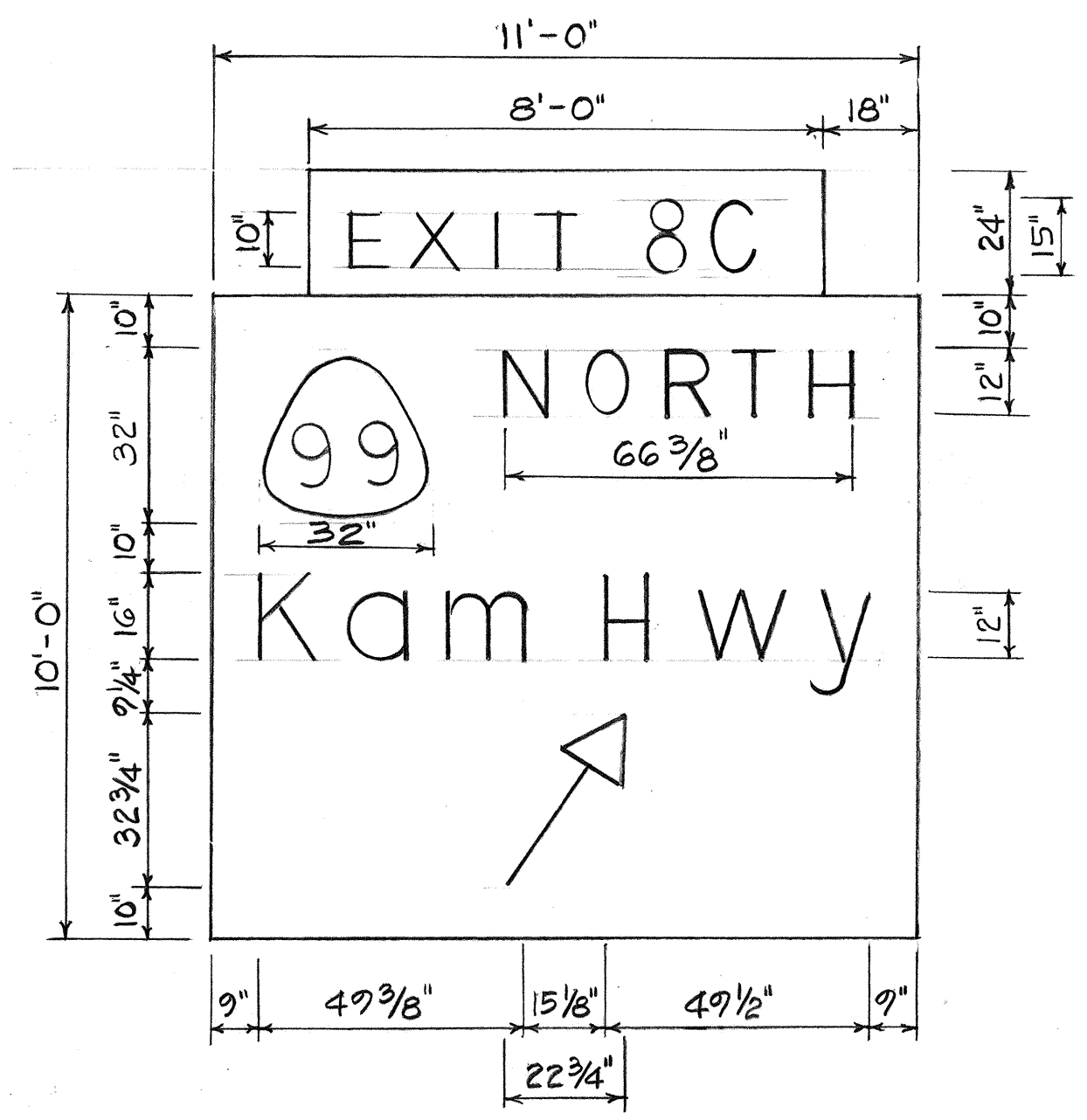
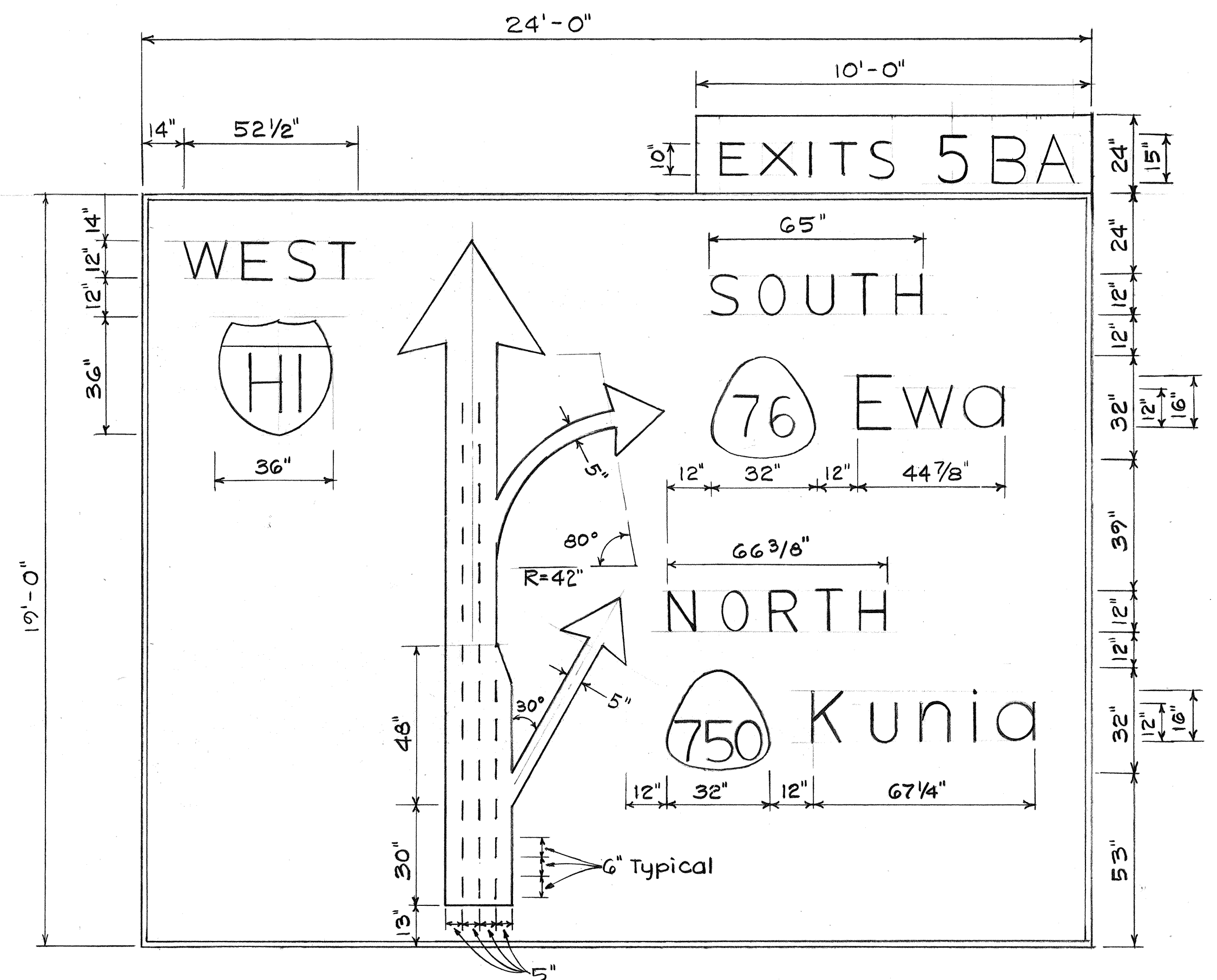
DATE	_____
SURVEY PLOTTED BY	_____
PLAN	_____
DESIGNED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SIGNING, PAVEMENT MARKING
AND HIGHWAY LIGHTING PLAN
INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange
FAI PROJ. NO. IR-HI-1(181)
Scale: 1" = 50' Date: July 1985
SHEET NO. 41 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	42	67

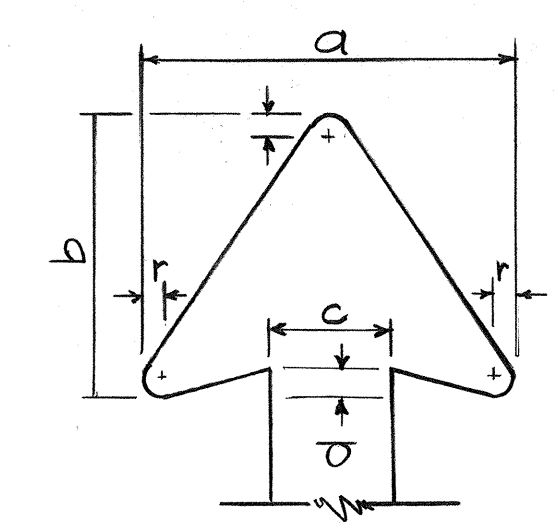
GENERAL NOTES

- A. Expressway (E) & Destination (D) Signs
- Signs shall conform to the latest editions and amendments of the following FHWA publications:
 - Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD),
 - Standard Highway Signs, and
 - Standard Alphabets for Highway Signs.
 - Letter Size
 - When letters are all uppercase, use Series "E".
 - When initial uppercase letter is used in conjunction with lowercase letters, use Series "E" (M) for uppercase letter.
 - Borders shall be 2-inches wide unless otherwise noted.
 - New sign panels shall be laminated aluminum or extruded aluminum.
 - Overlays shall be as specified in Section 621 of the Special Provisions.
 - The Contractor shall verify the locations and dimensions of existing Destination Sign panels and supports.
 - For details of Exit Number Panels, see this sheet.



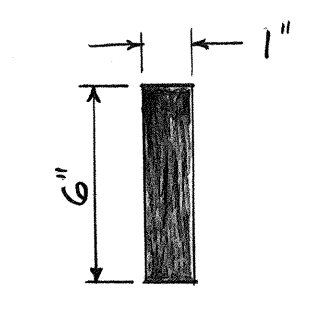
SIGN D-2
(# Sta. 484+50 Rt.)
Scale: 3/8" = 1'-0"

SIGN D-1
(# Sta. 370+50 Lt.)
Scale: 3/8" = 1'-0"



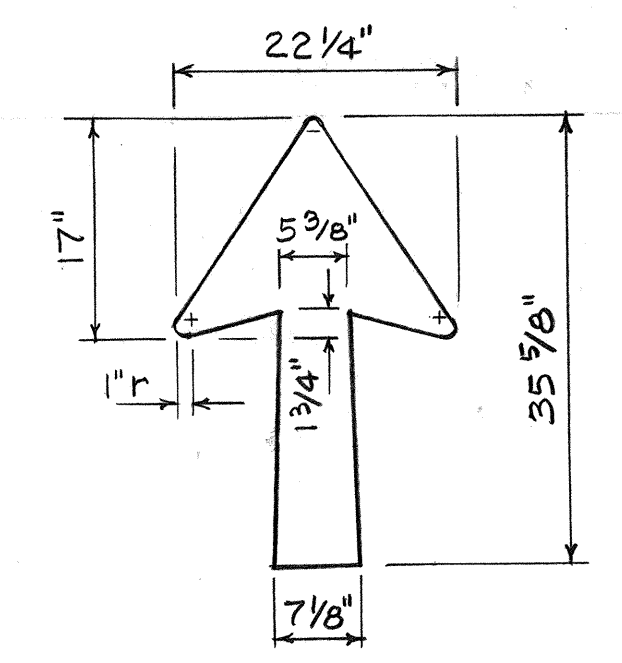
ARROW DIMENSIONS (INCHES)				
a	b	c	d	r
44 1/2	34	15	3 1/2	2
22 1/4	17	5	1 3/4	1

ARROW DETAIL
N.T.S.

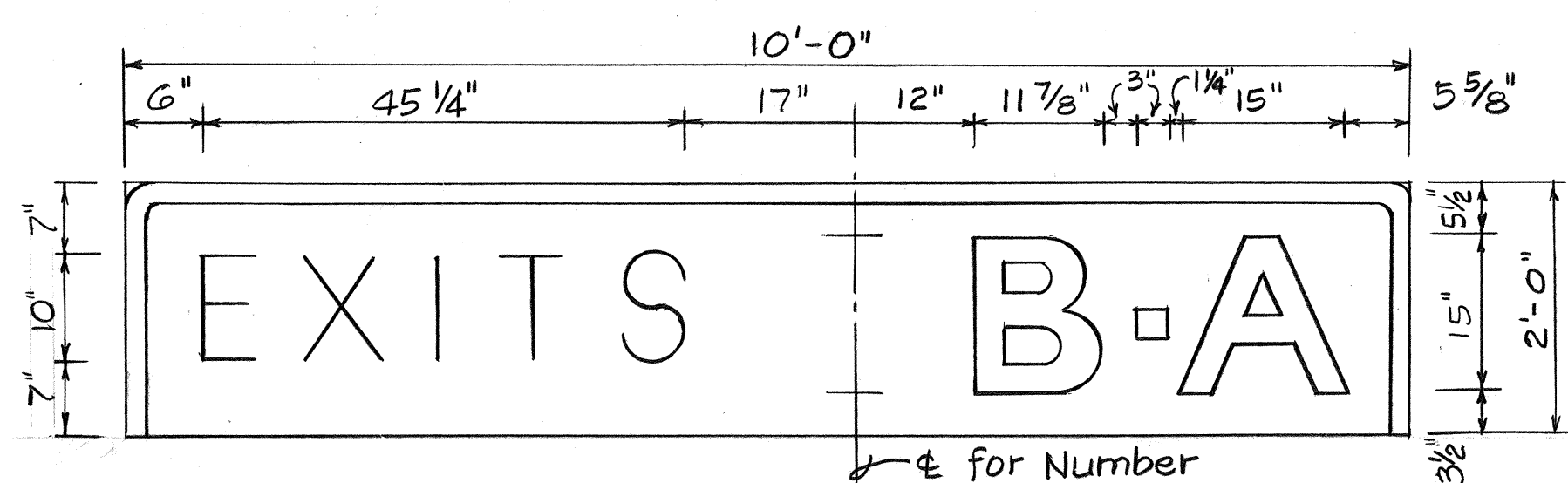


LANE LINE DETAIL
Scale: 2" = 1'-0"

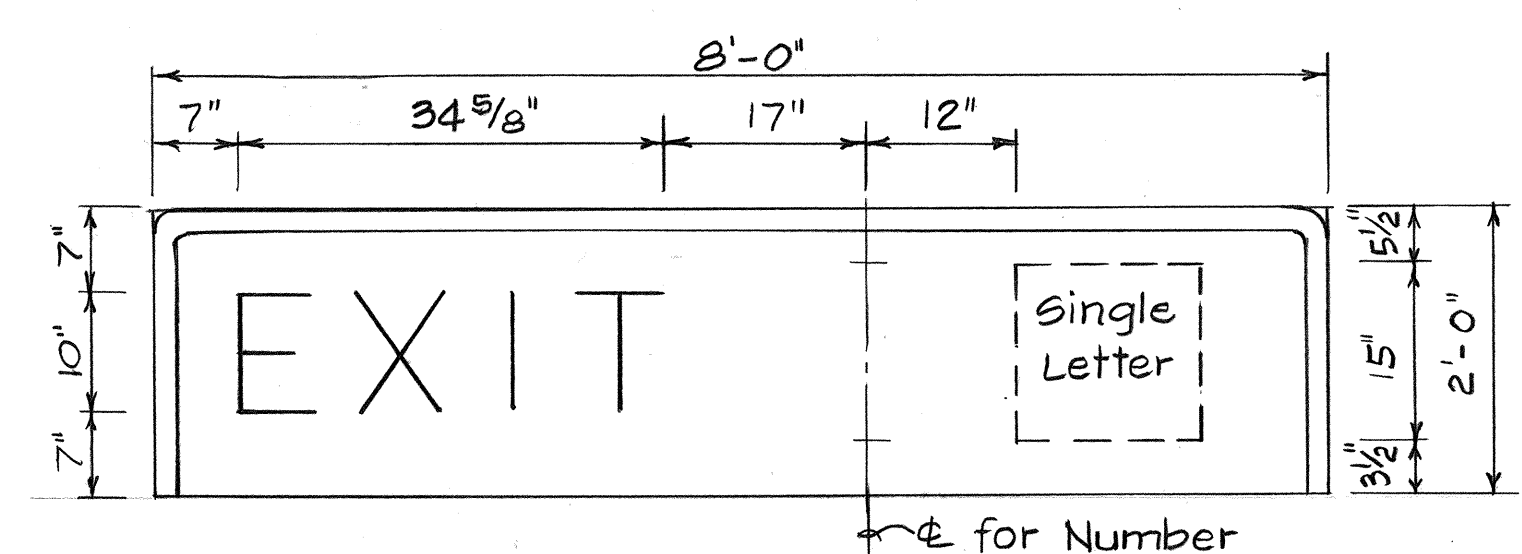
Black sheeting on demountable aluminum cutouts mounted on white background.



ARROW DETAIL
N.T.S.



EXIT NUMBER PANEL
N.T.S.



EXIT NUMBER PANEL
N.T.S.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

11/6/85	Deleted Part B of General Notes
DATE	REVISION

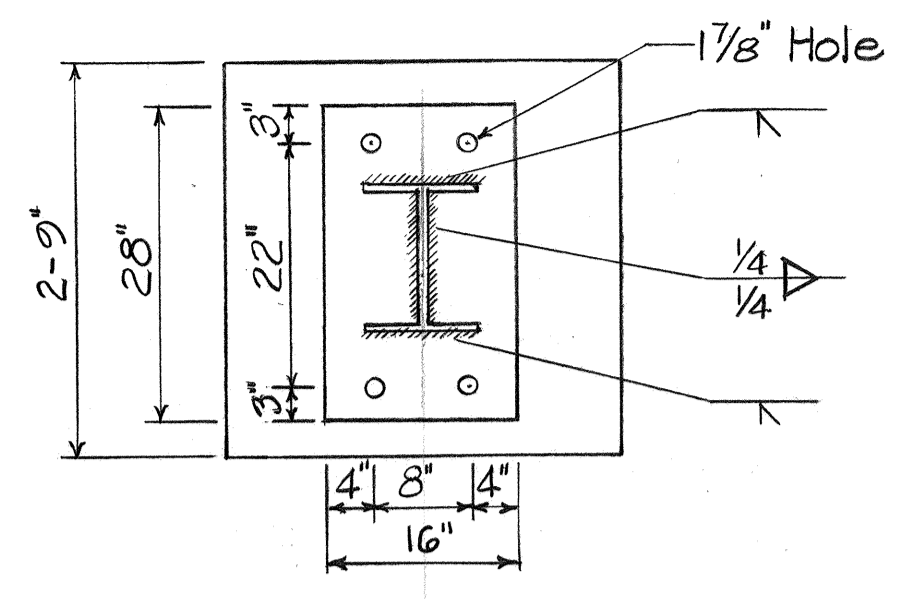
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PANEL LAYOUT

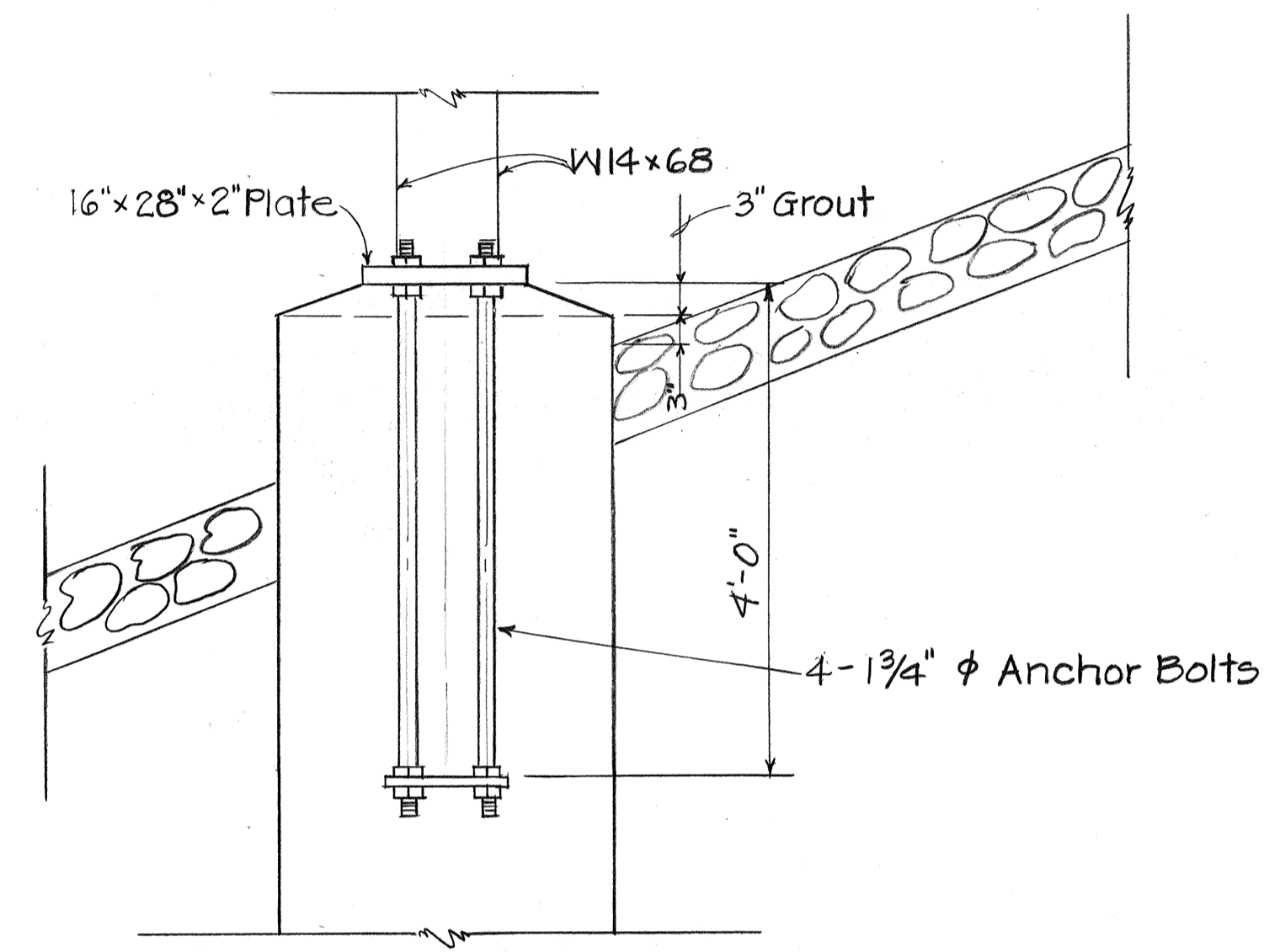
INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange
FAI PROJECT NO. IR-HI-1(181)

Scale: As Shown Date: July 1985
SHEET No. 110 OF 35 SHEETS

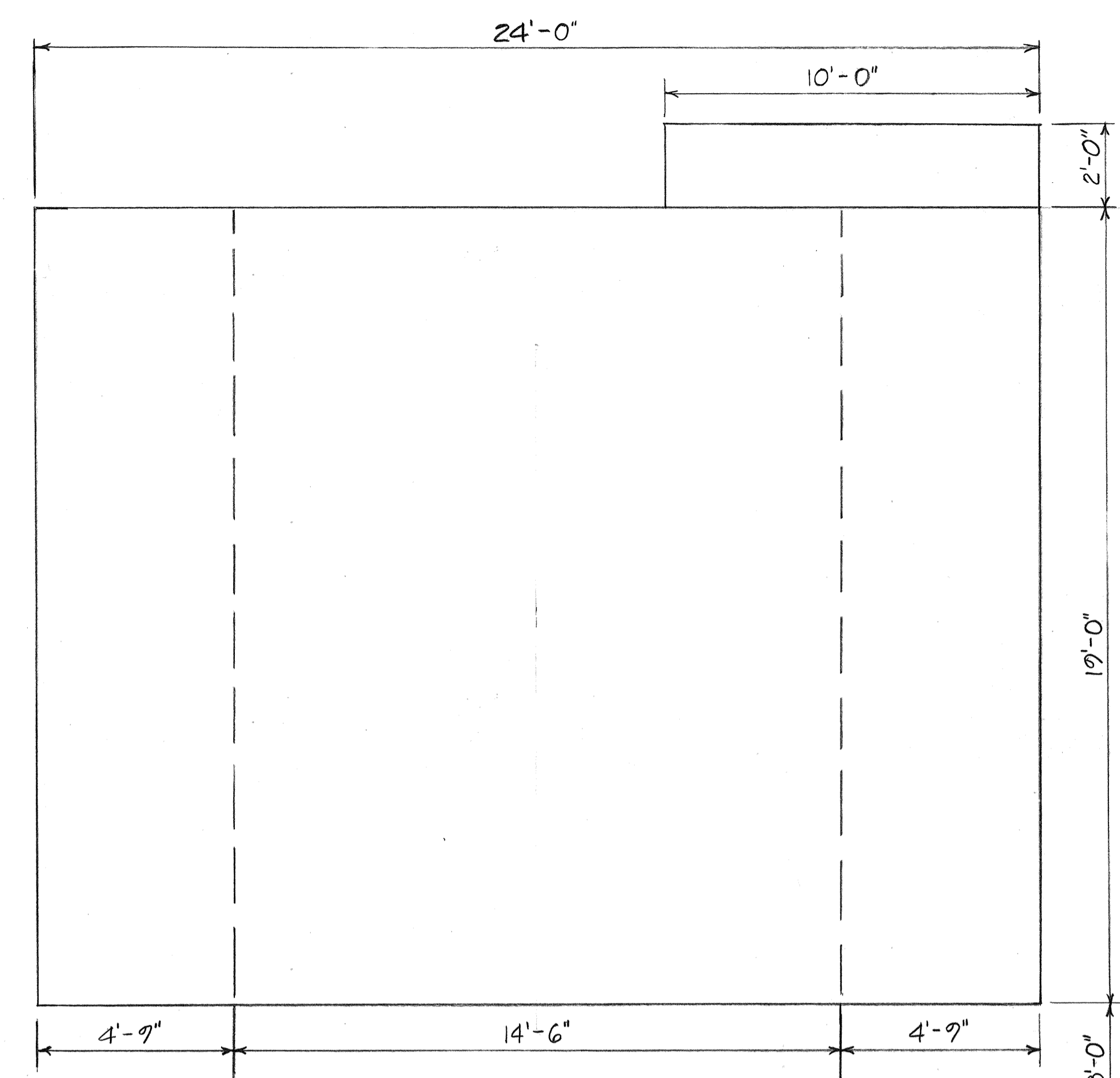
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	43	67



TOP VIEW



ELEVATION
DETAIL "A"
TYPE VIII FOOTING
Scale: 3/4" = 1'-0"



Shoulder - 10'-0"
Gutter - 6'-0"
14'-0" (Min.)

Existing Elev.
⊕ Footing 143.87

Existing Elev.
⊕ Footing 150.39

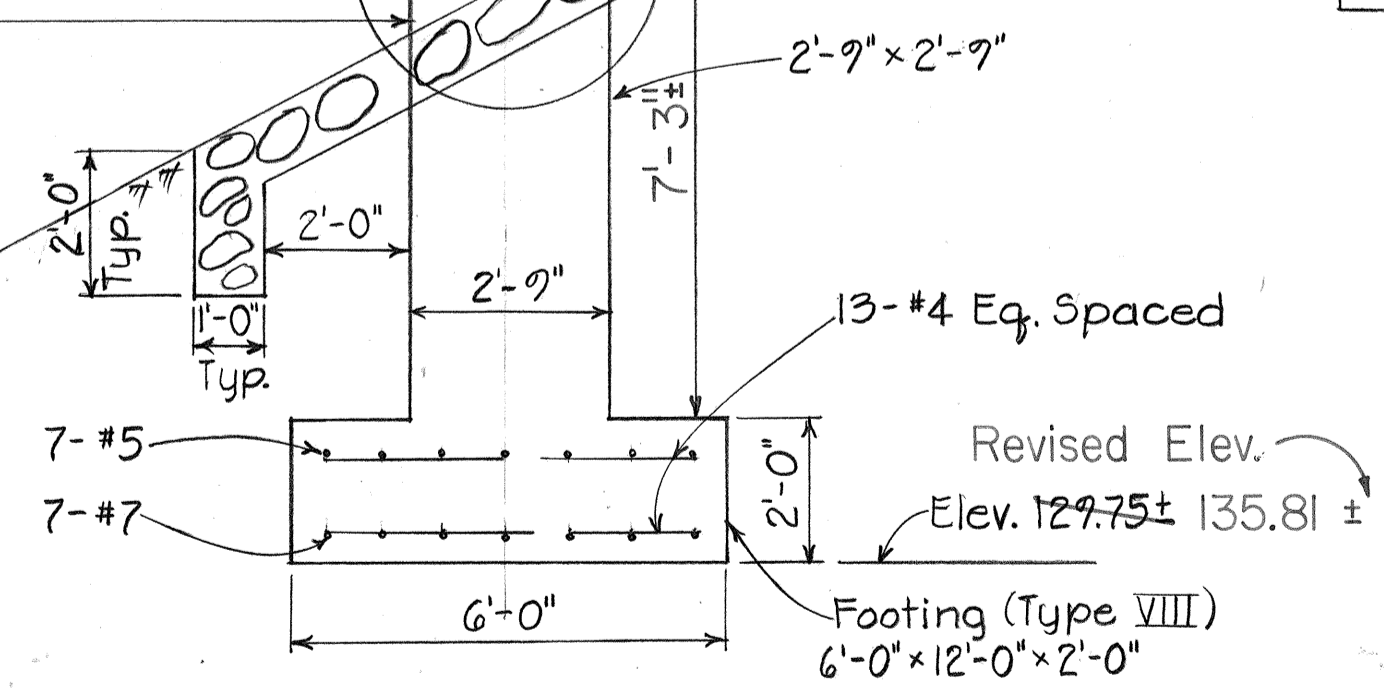
Existing Elev. 152.41

GRP extends 7'-0" each longitudinal direction from ⊕ of column.

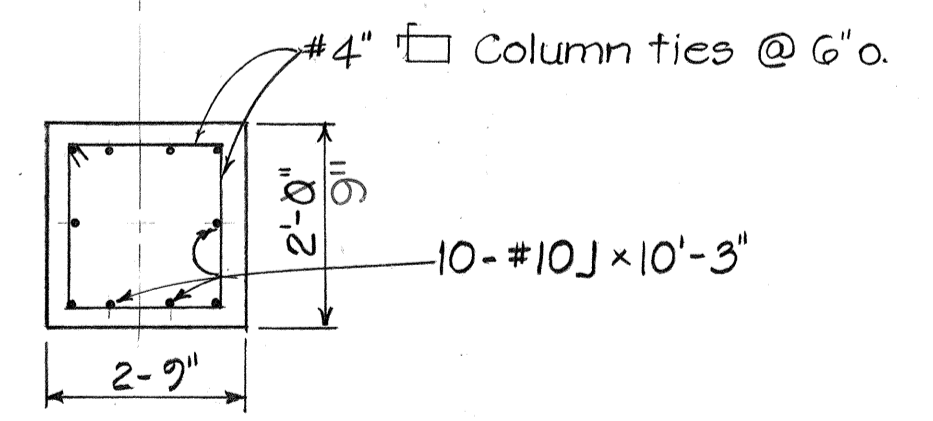
#4 □ Column ties @ 6" o.c.
10- #10J x 10'-3"

Revised Elev.
Elev. 137.0 ± 143.06 ±

SEE DETAIL "A"



SECTION A-A



SIGN D-1

H-1 @ Sta. 370+50 Lt.
Scale: 3/4" = 1'-0"

3/8"

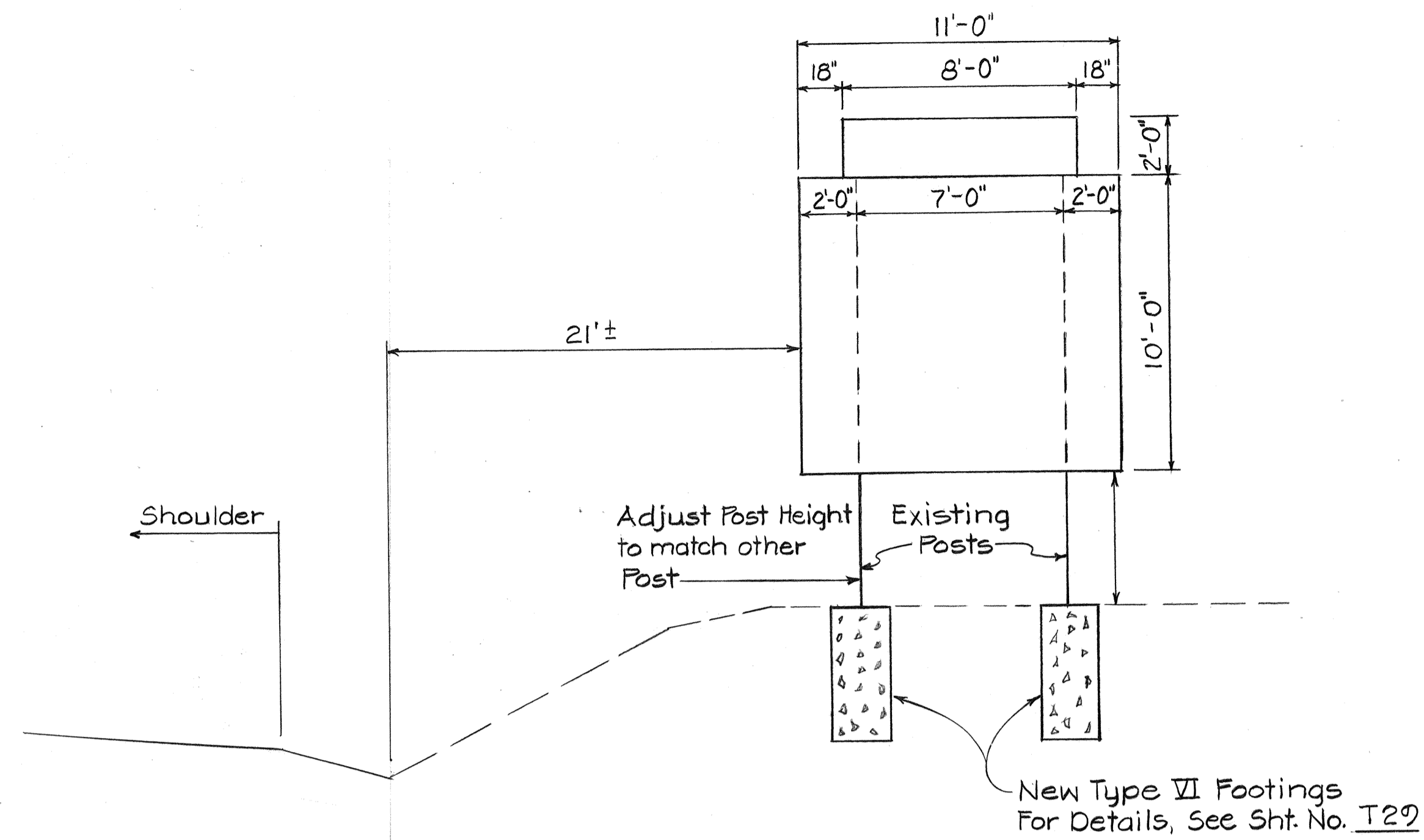
SURVEY PLOTTED BY	DATE
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FRAME LAYOUT, TYPE VIII FOOTING
& GRP DETAILS FOR SIGN D-1
INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange
FAI PROJECT NO. IR-HI-1(181)

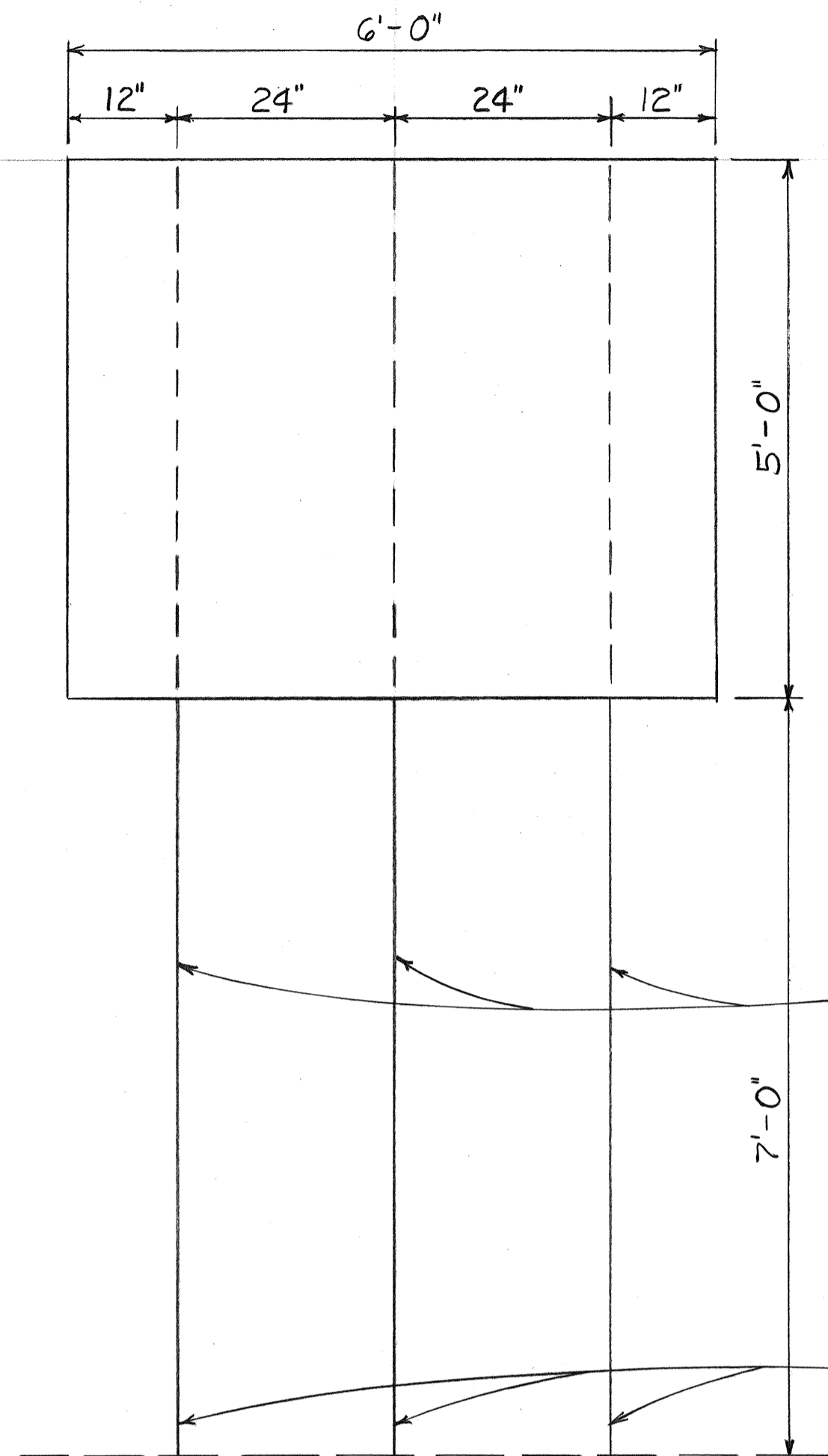
Scale: As Shown Date: July 1985
SHEET No. 43 OF 67 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	44	67



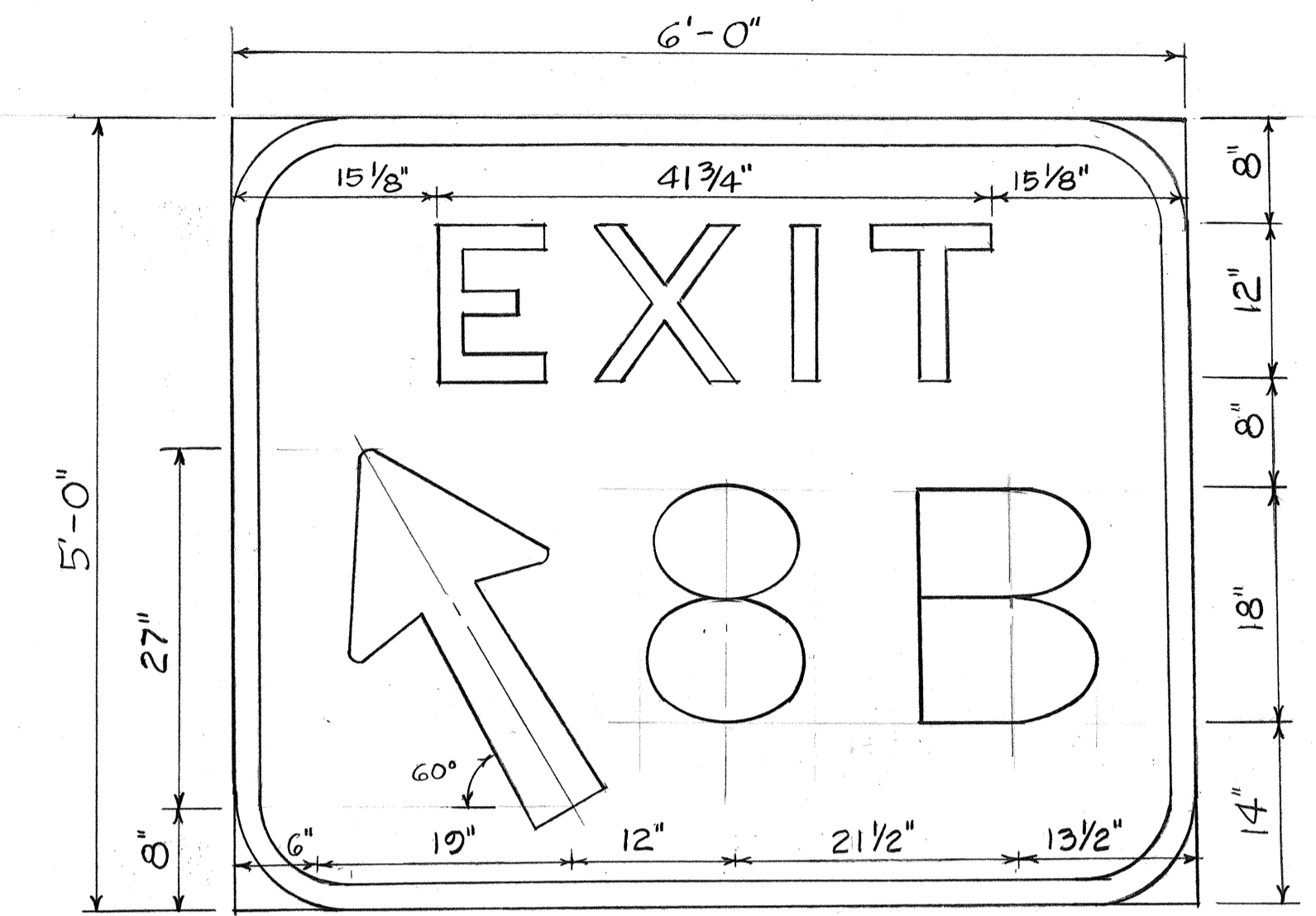
SIGN D-2

H-1 I.B. Sta. 484+50± Rt.
Scale: 1/4"=1'-0"

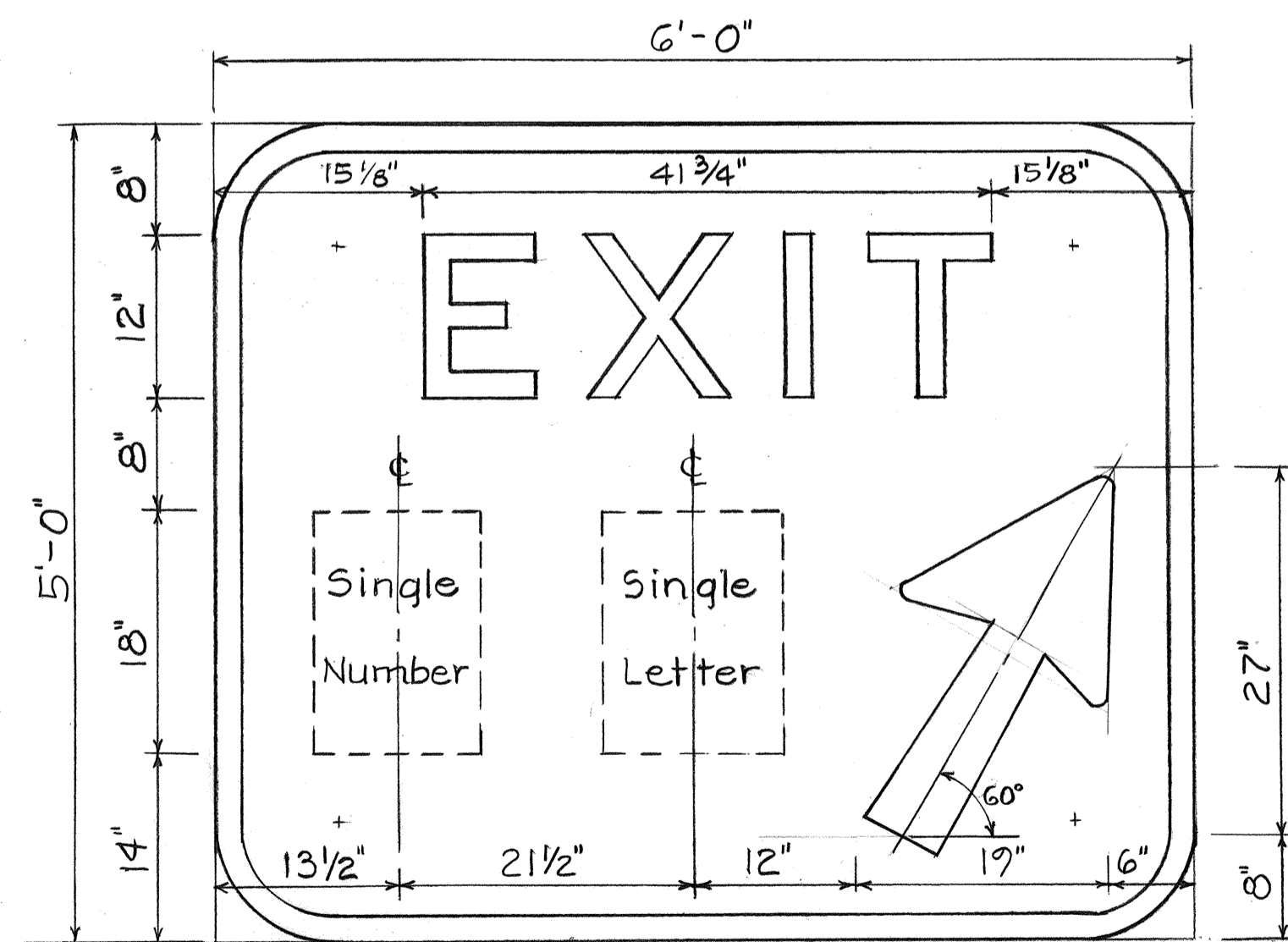


SIGNS D-3, D-4, D-5 & D-6

Scale: 3/8"=1'-0"
3/4"

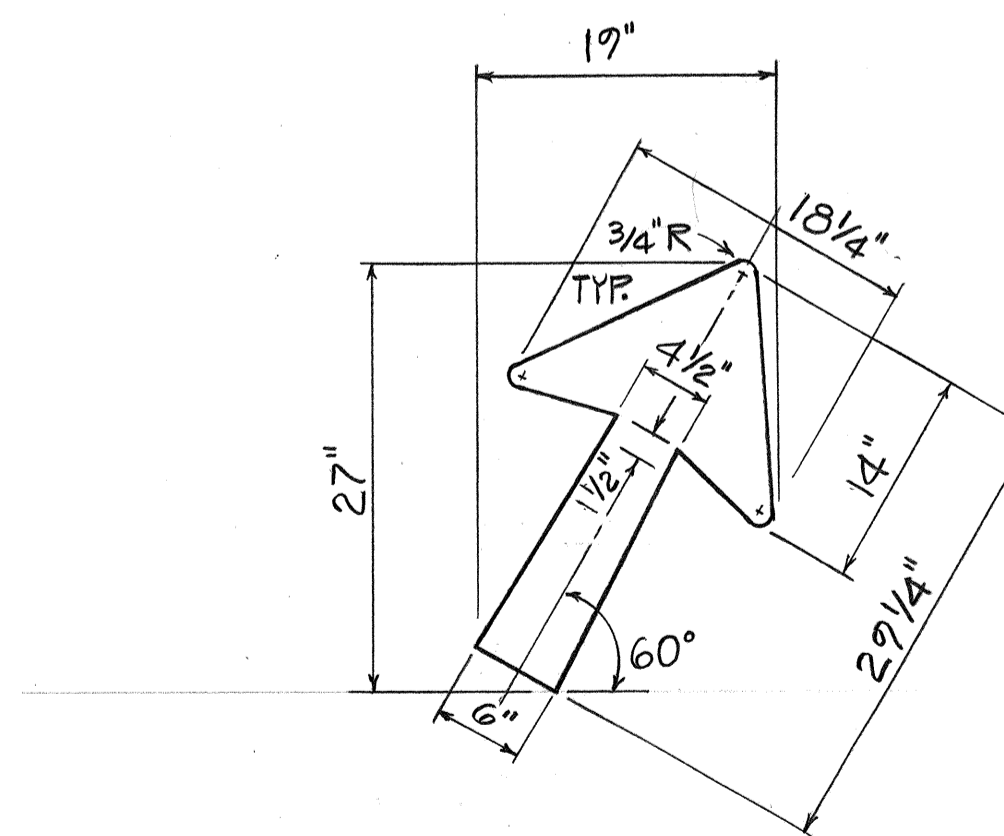


SIGN D-6
Scale: 1"=1'-0"



SIGNS D-3, D-4 & D-5

Scale: 1"=1'-0"



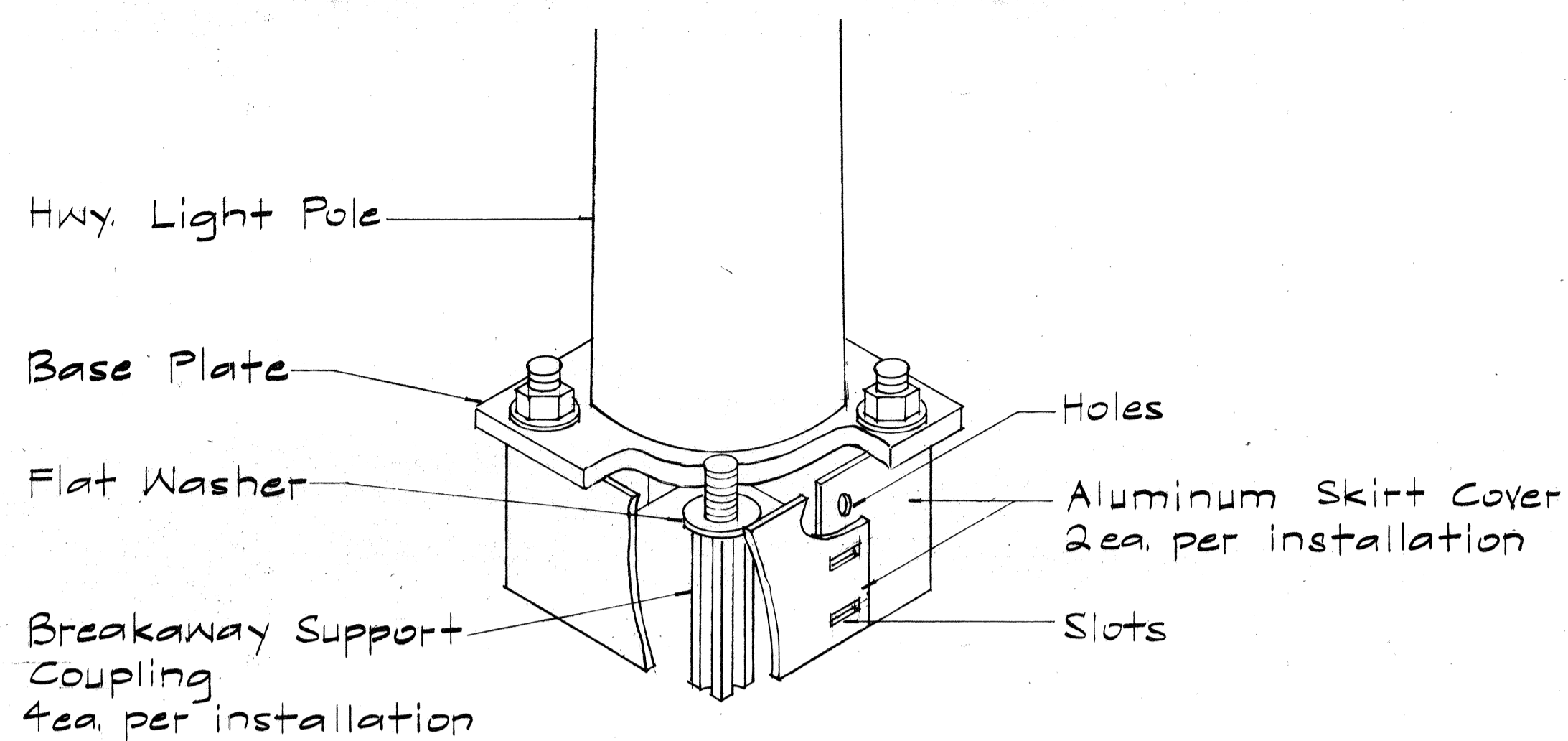
TYPE "A" DIAGONAL ARROW DETAIL

Scale: 1"=1'-0"

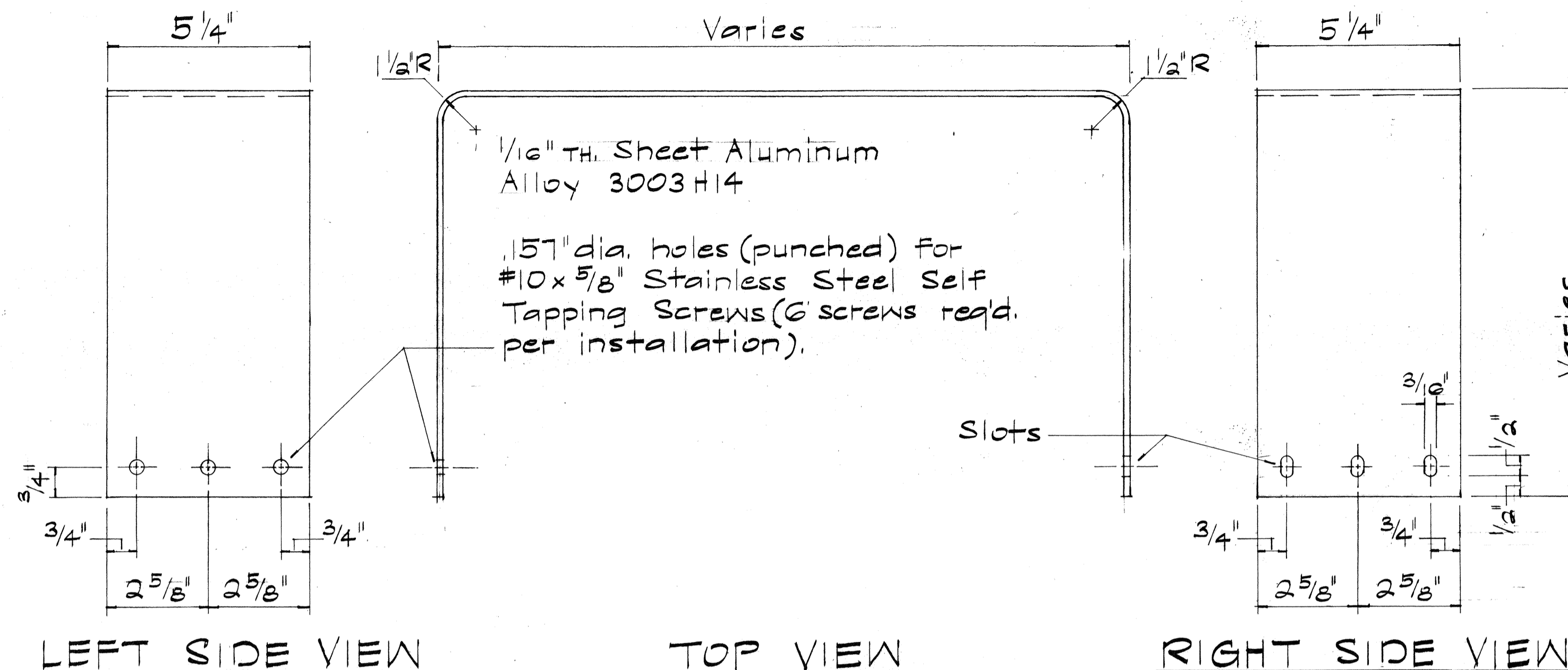
SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DATE	REVISION
11/6/85	Delete 2 1/2" Sq. Tube Post & Add Note.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
FRAME LAYOUT AND GORE EXIT SIGN DETAILS
INTERSTATE ROUTE H-1 RESURFACING
Kunia Interchange to Waiawa Interchange
FAI PROJECT NO. IR-HI-1(181)
Scale: As Shown Date: July 1985
SHEET NO. T12 OF 35 SHEETS

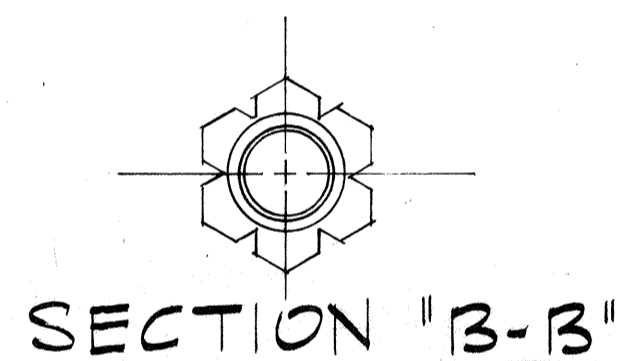


SKIRT COVER DETAIL

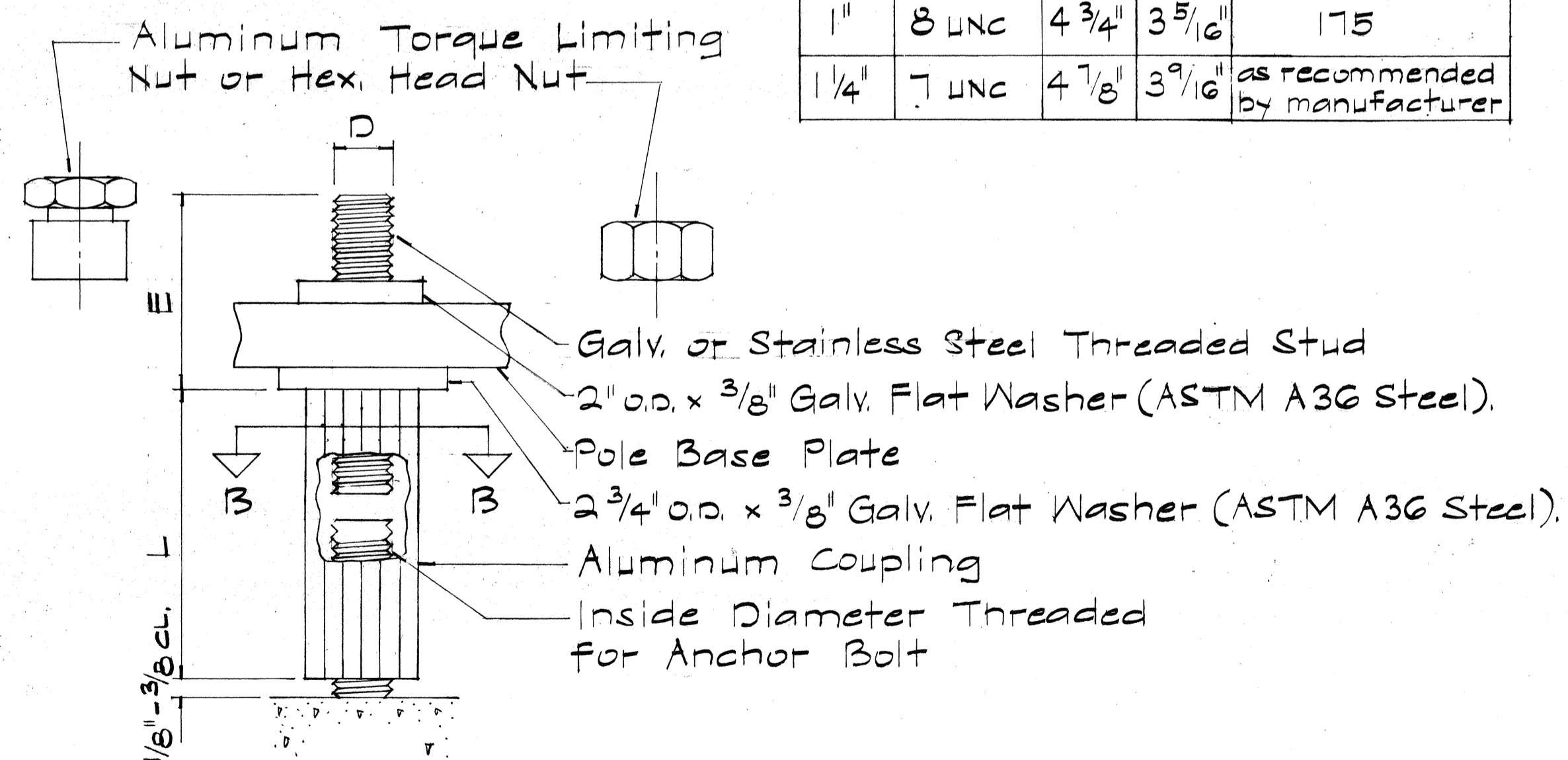


SKIRT COVER FOR BREAKAWAY SUPPORT COUPLING

Not to Scale



SECTION "B-B"

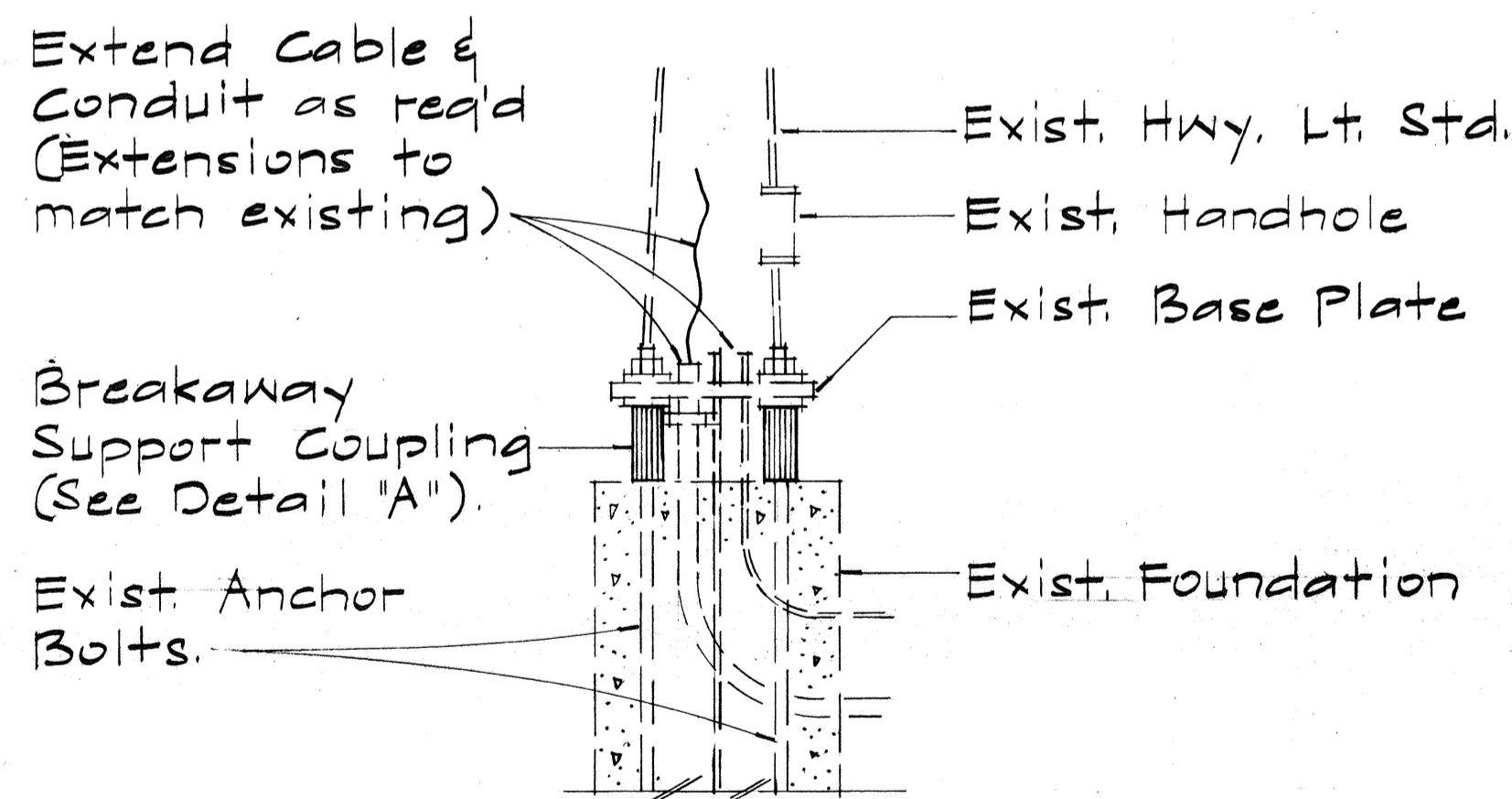


DETAIL "A"
Not to Scale

BREAKAWAY SUPPORT COUPLING

Scale: As Shown

DIMENSION SCHEDULE				
D	THREAD	L	E	NUT TORQUE ± 25 FT. LBS.
1"	8 UNC	4 3/4"	3 5/16"	175
1/4"	7 UNC	4 1/8"	3 9/16"	as recommended by manufacturer



MOUNTING DETAIL

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

GENERAL NOTES:

- Contractor shall verify size of exist. anchor bolts & base plates prior to ordering couplings & skirt covers.
- Breakaway support coupling shall conform to the applicable requirements of AASHTO standards & shall be fabricated from either die cast aluminum alloy 380 according to ASTM B385, or extruded from alloy 2024-T8511 according to ASTM B221.
- Hex. nut shall meet the requirements of ASTM A563 grade A, and ANSI B18.2.2.
- Torque nut shall be fabricated from aluminum alloy and grooved to separate at the specified torque.
- Threaded stud shall meet the requirements of ASTM A G75 grade 90 or AISI stainless steel.

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

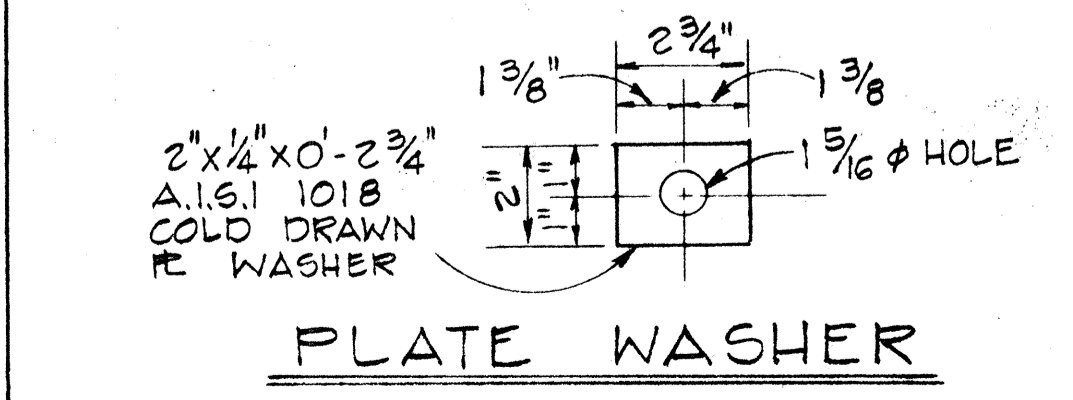
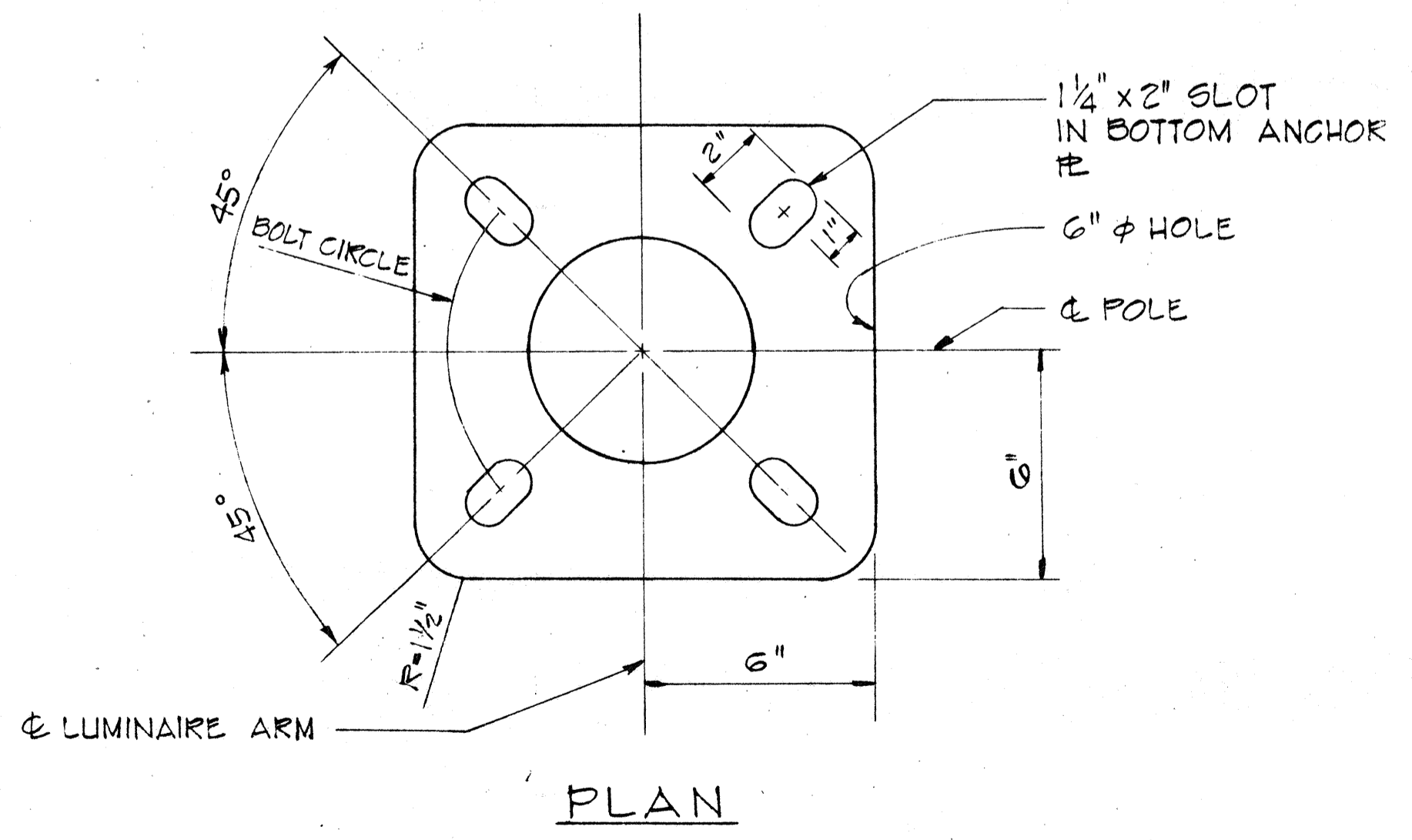
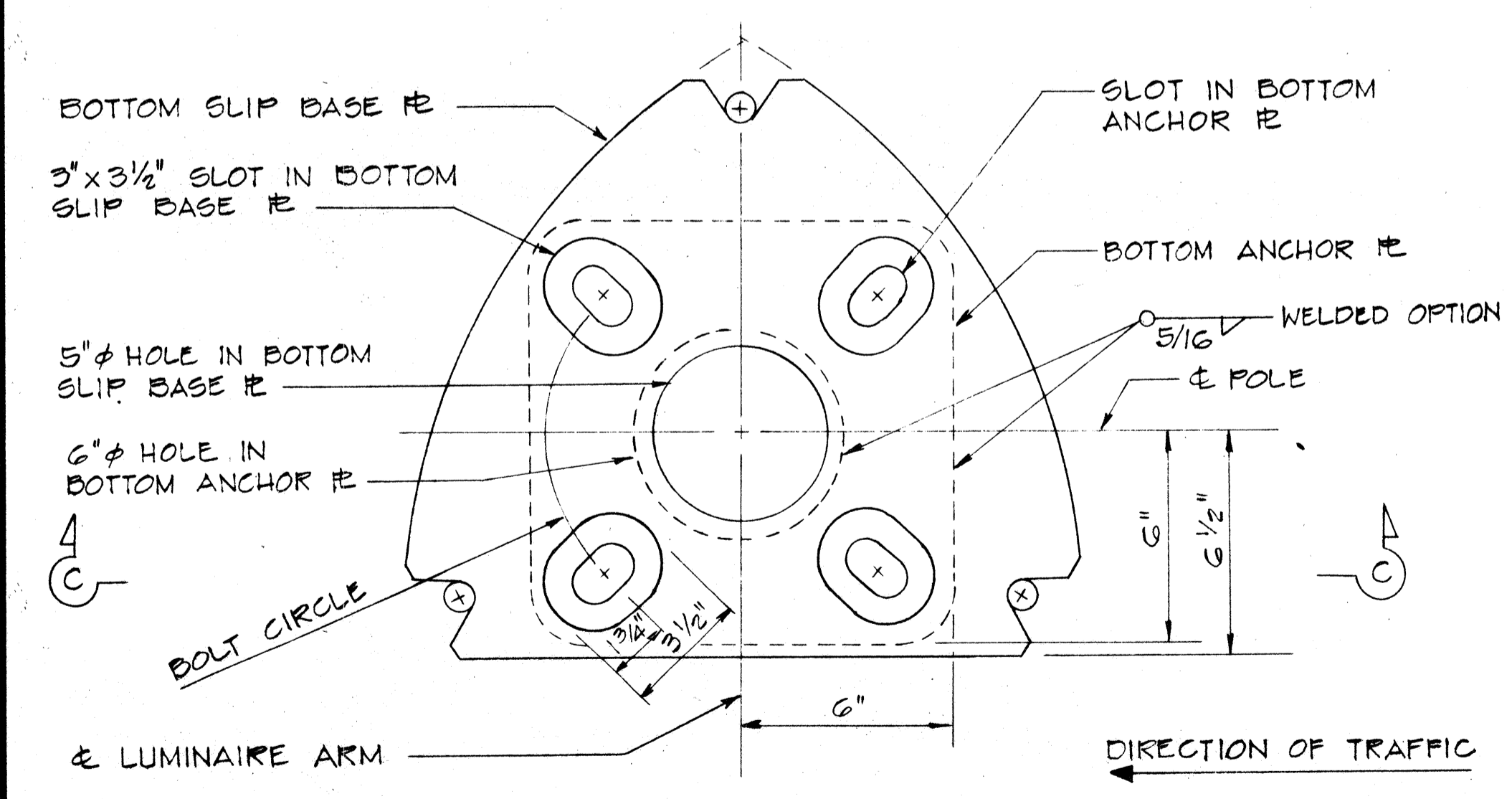
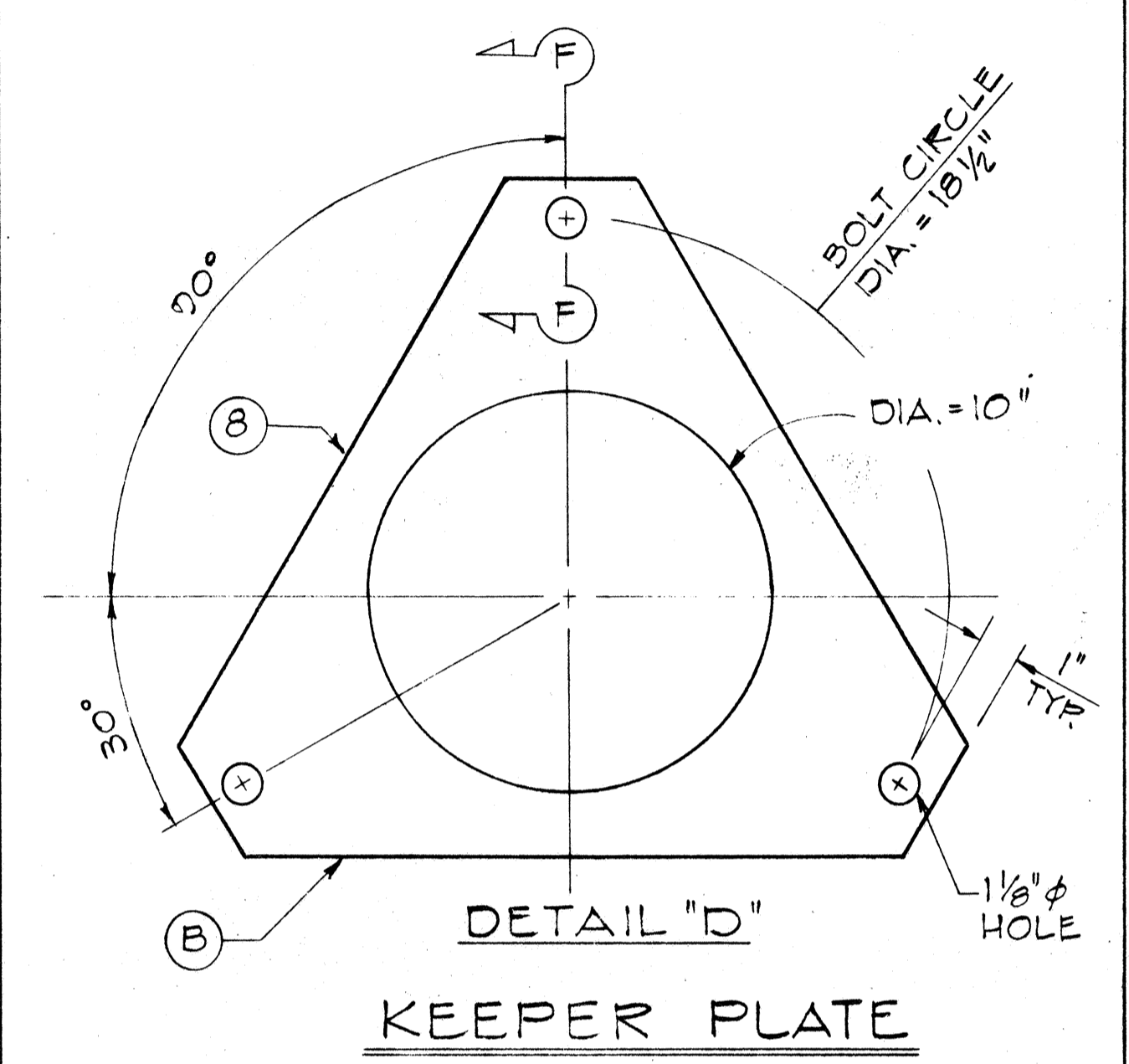
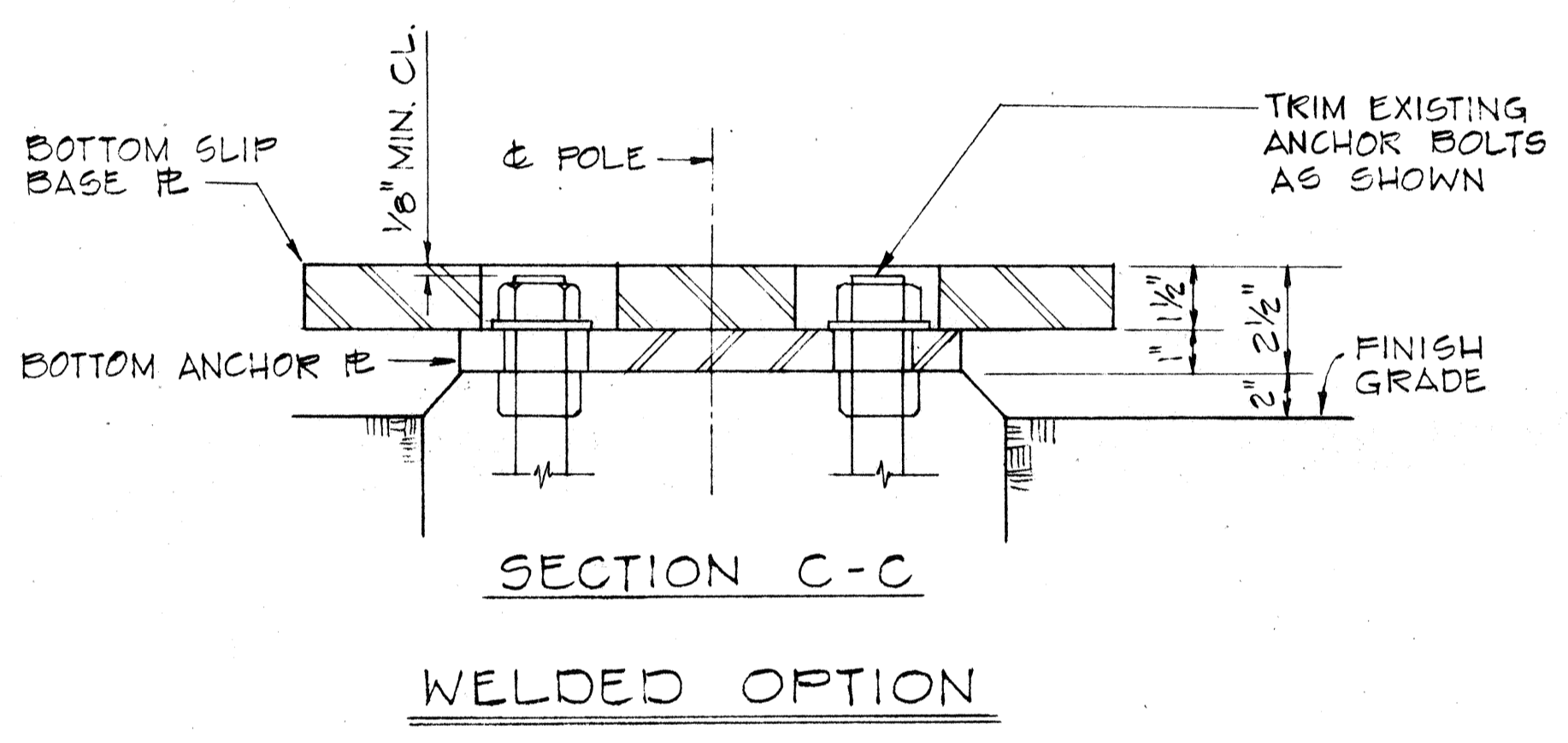
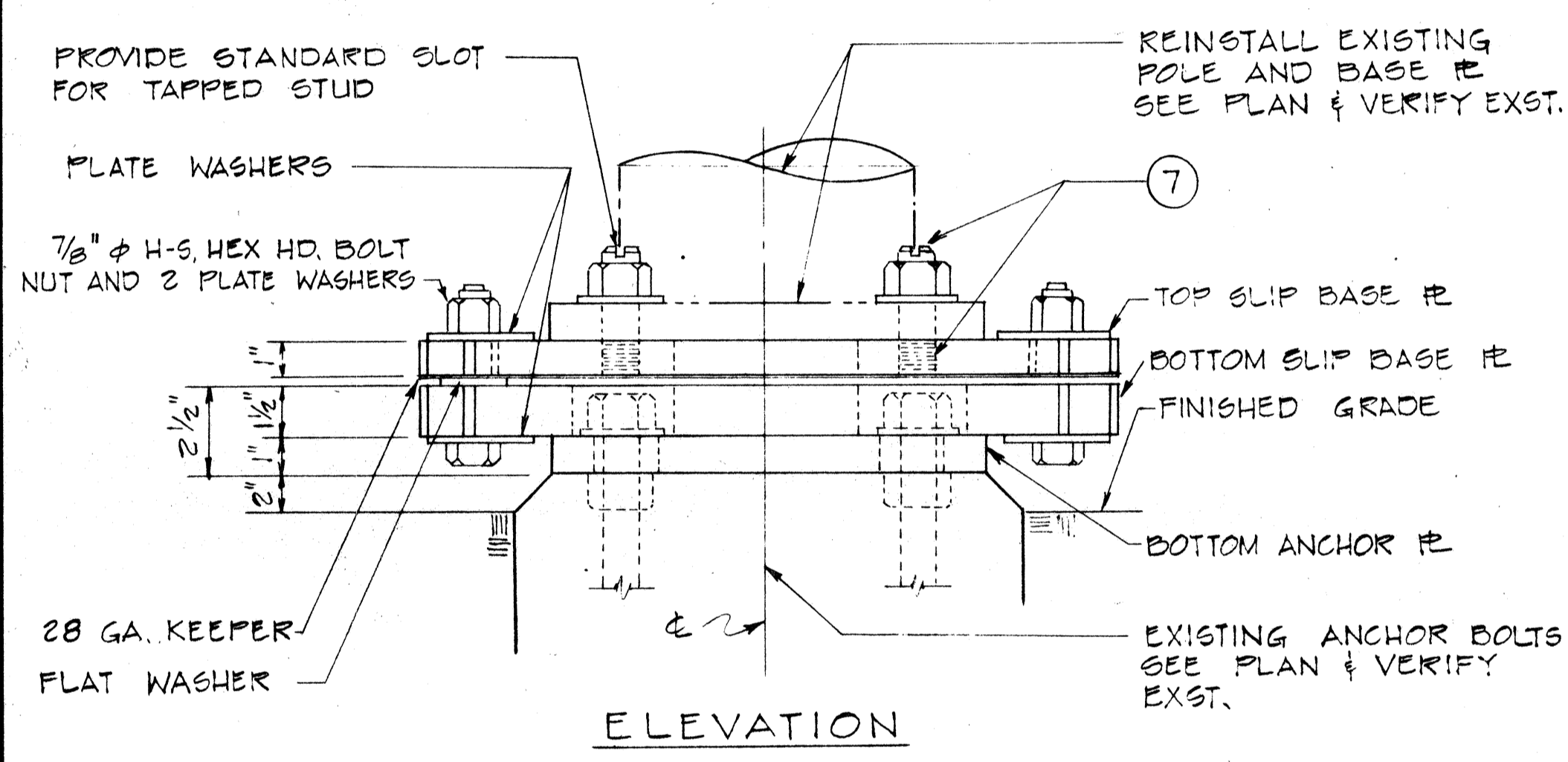
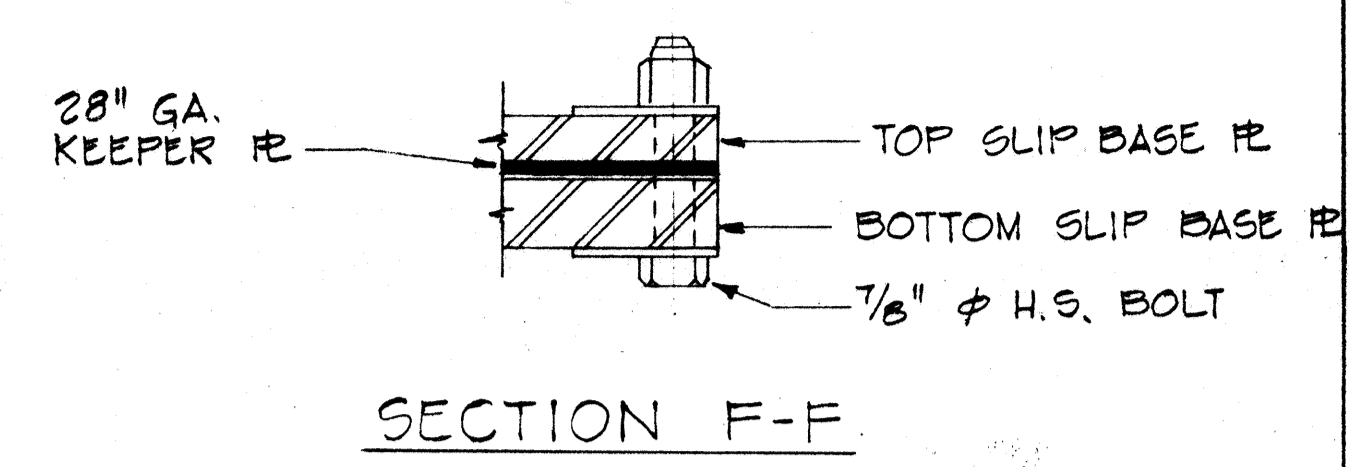
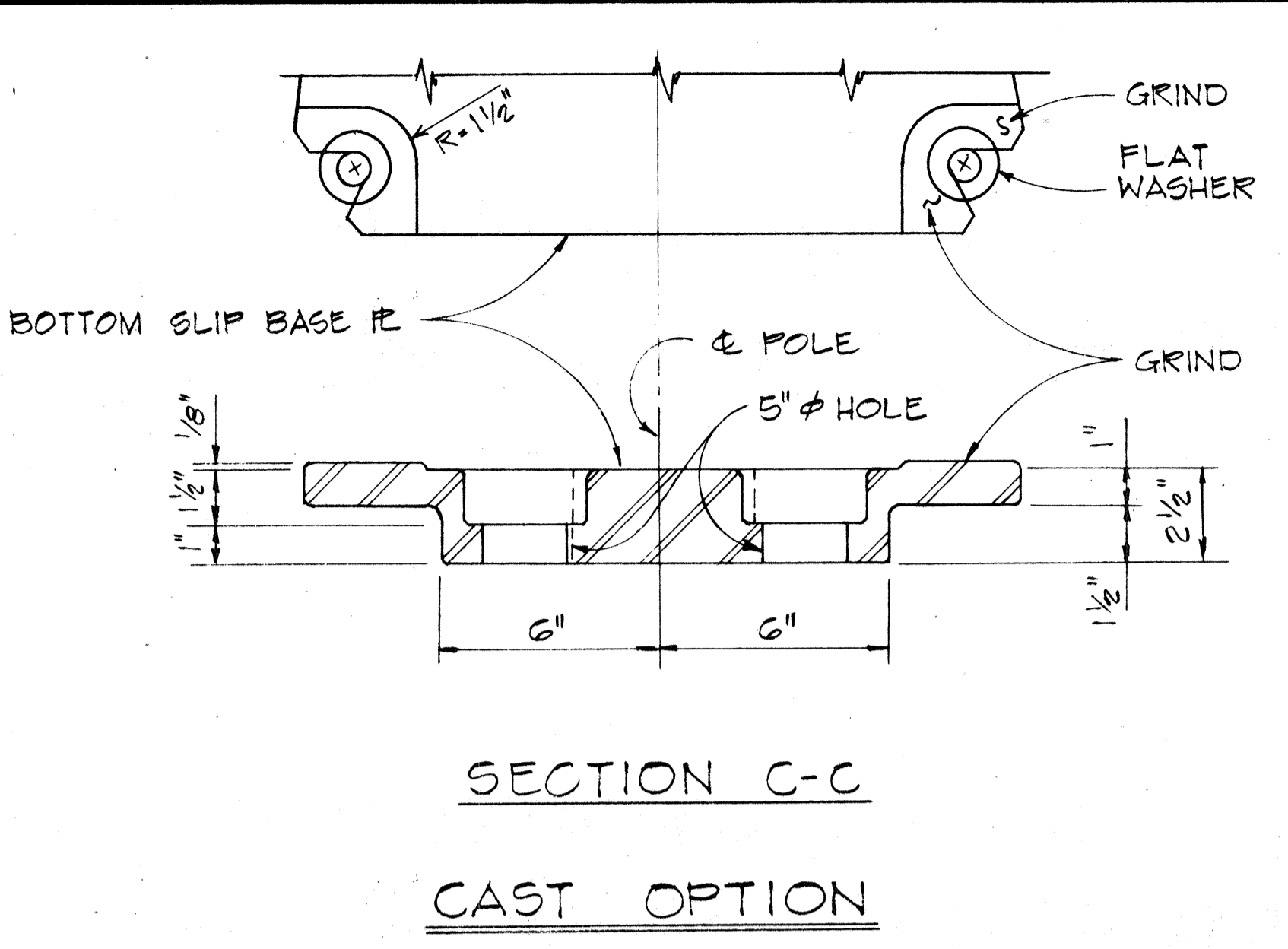
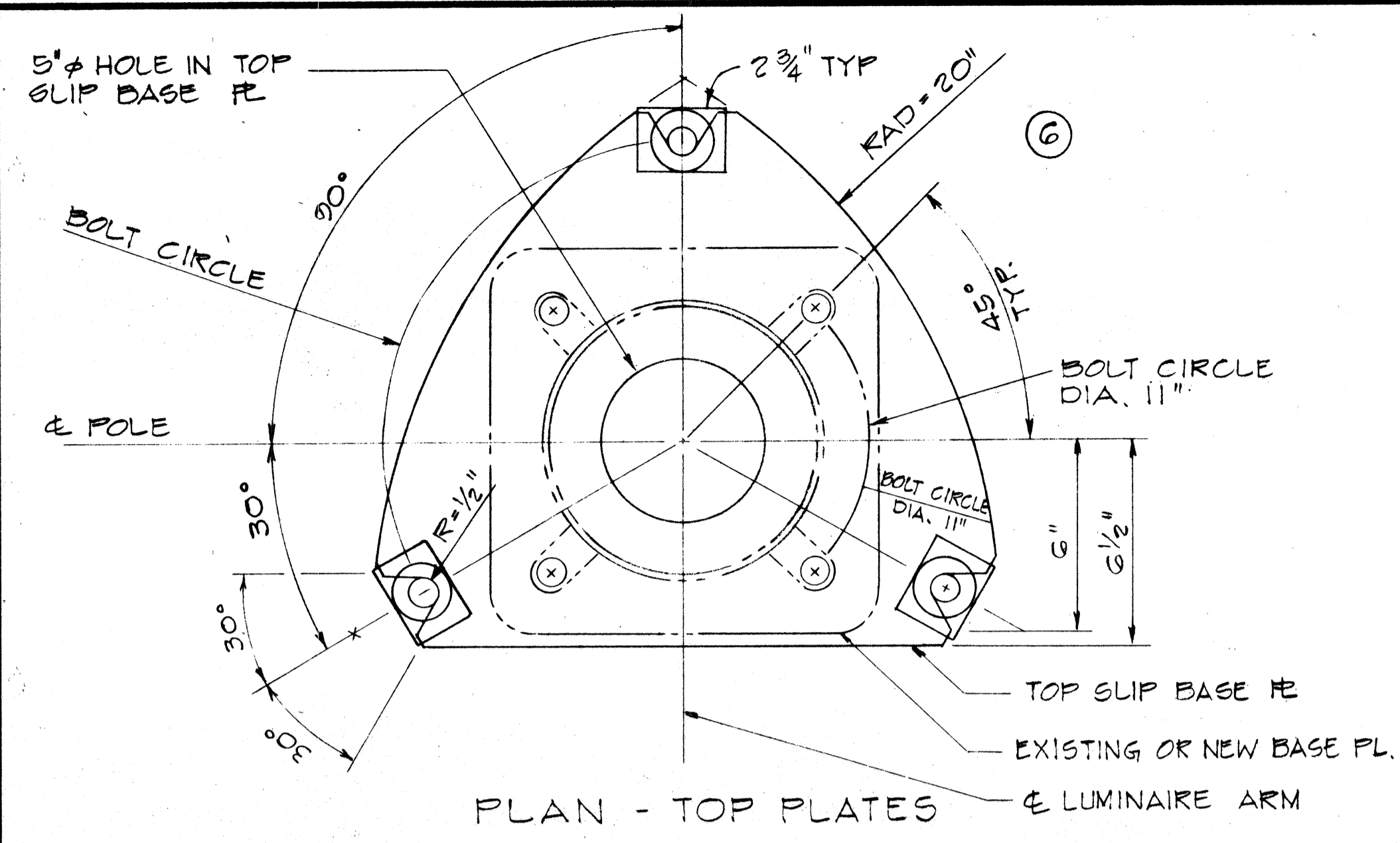
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
TYPICAL DETAILS
 BREAKAWAY SUPPORT
 COUPLING & SKIRT COVER

INTERSTATE ROUTE H-1 RESURFACING
 KUNIA INTERCHANGE TO WAIAWA INTERCHANGE
 FAI PROJECT NO. IR-HI-1(181)
 Scale: As Shown Date: July 1985
 SHEET NO. T13 OF 35 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	46	67

NOTES

1. ALL NEW MATERIAL TO BE GALV. AFTER FABRICATION.
2. TORQUE 7/8" H.S. SLIP BASE PLATE BOLTS TO 84 FT. LBS.
3. ALL SLOTS TO BE FILLED W/MASTIC
4. PLATES SHALL CONFORM TO A.S.T.M. A-36
5. CAST OPTION SHALL CONFORM TO A.S.T.M. A-486-CL. 90.
6. FLAT WASHER SHALL CONFORM TO A.S.T.M. A-325
7. 1" DRILLED & TAPPED STUD IN TOP SLIP BASE PLATE. INSERT STUD & CENTER PUNCH @ BOTTOM PERIPHERY TO LOCK TAPPED BOLT IN PLACE PRIOR TO GALV. OR 1" THREADED STUDS CONN. W/ FULL PENETRATION BUTT WELD.
8. 28 GA. KEEPER PLATE. PLACE ON TOP OF MIDDLE FLAT WASHER A.S.T.M. A526, 125 COMMERCIAL.



PLAN - BOTTOM PLATES
 NOTE: THIS DETAIL APPLICABLE TO EXISTING POLE REQUIRING SLIP BASE INSERT

BOTTOM ANCHOR PLATE DETAILS

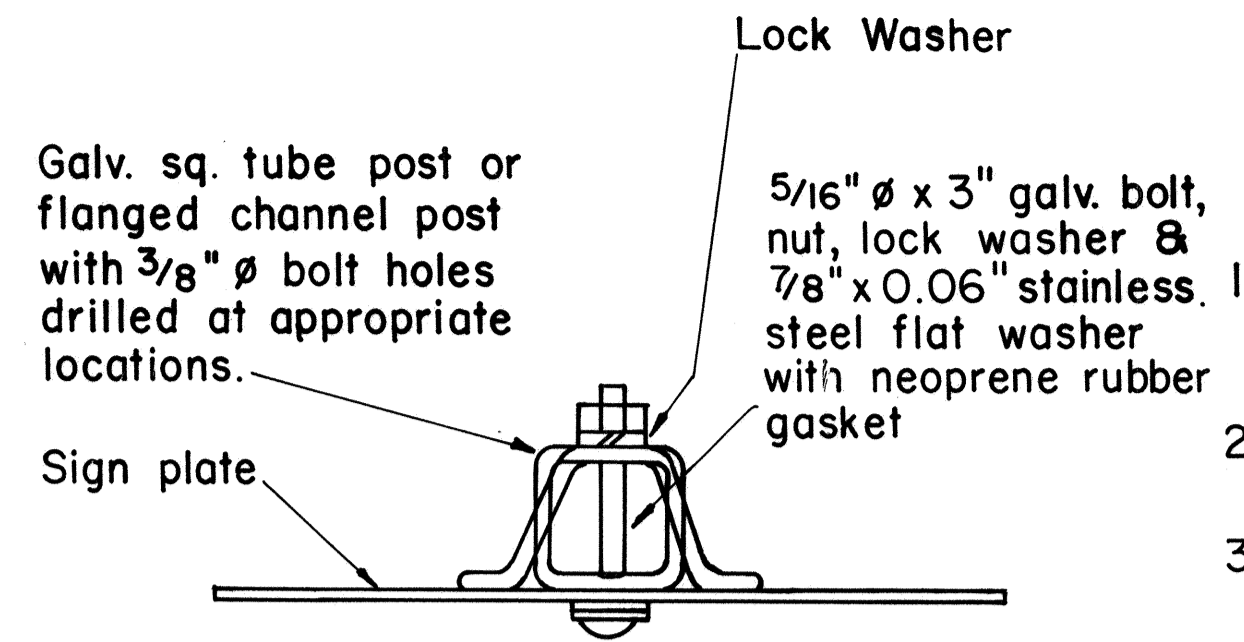
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
NOTE BOOK	_____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 TYPICAL DETAILS
 HIGHWAY LIGHTING
 SLIP BASE INSERT STANDARD
 INTERSTATE ROUTE H-1 RESURFACING
 KUNIA INTERCHANGE TO WAIANA INTERCHANGE
 FAI PROJECT NO. IR-HI-1(181)
 Not to Scale Date: July 1985
 SHEET No. 14 OF 35 SHEETS

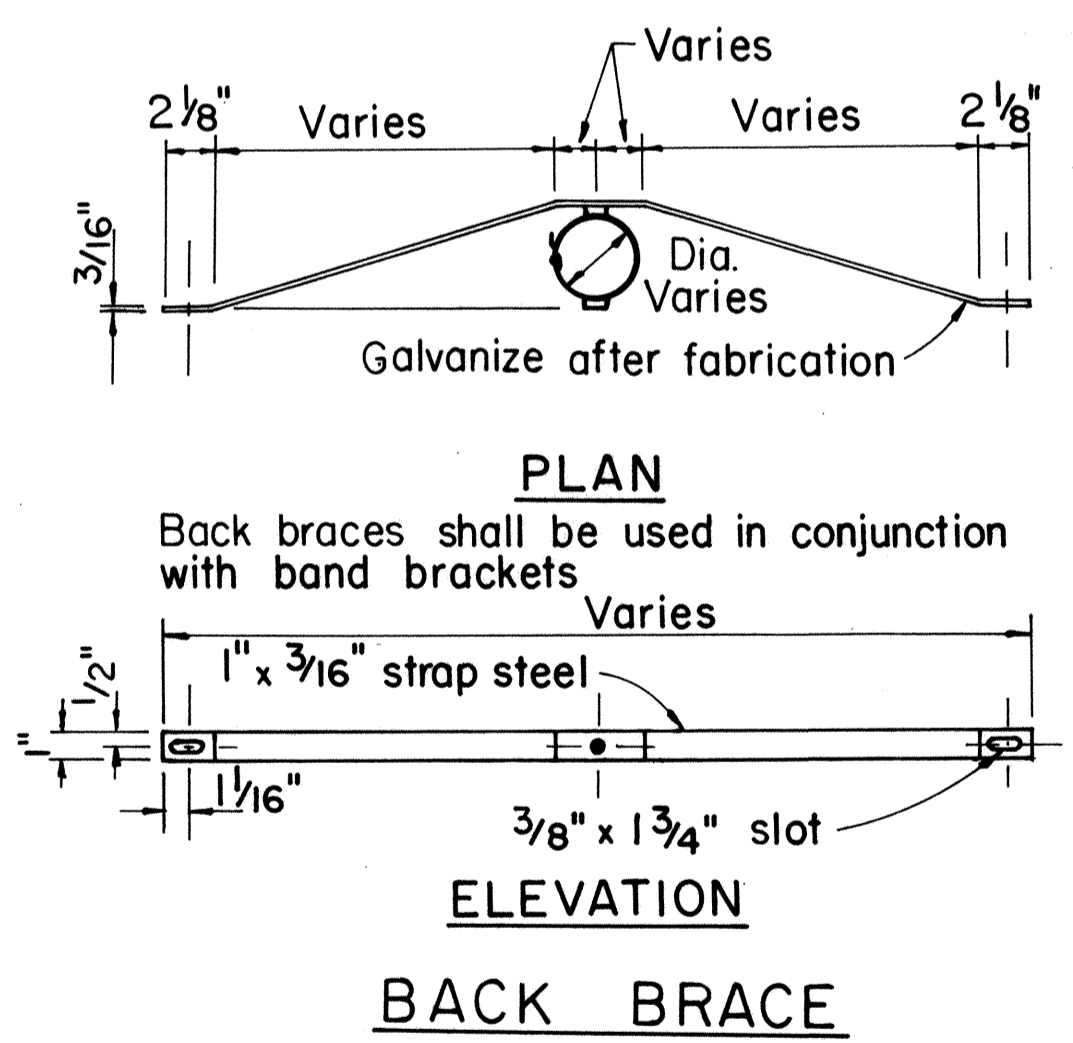
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	48	64

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-2I, 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.

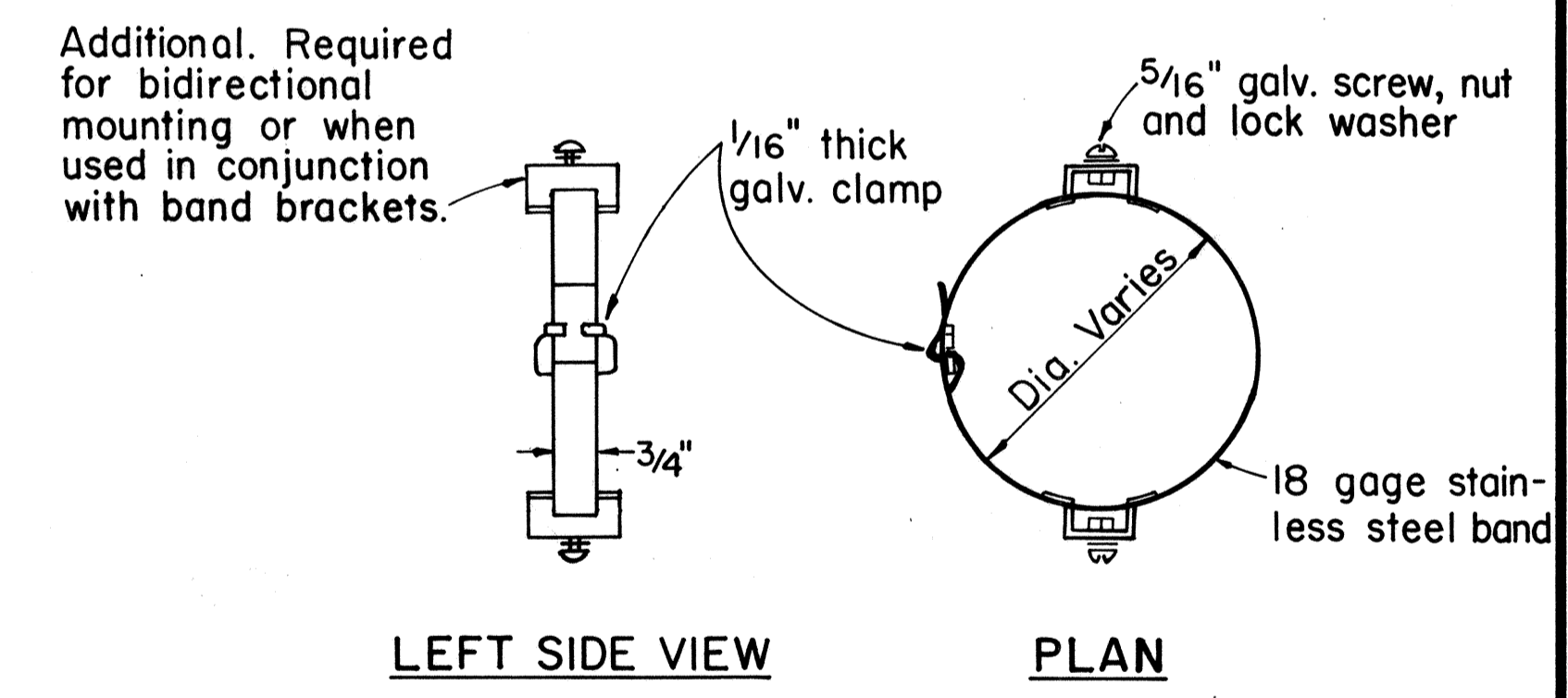


GALVANIZED SQUARE TUBE OR FLANGED CHANNEL POST



TYPICAL MOUNTING DETAILS

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



BAND BRACKET

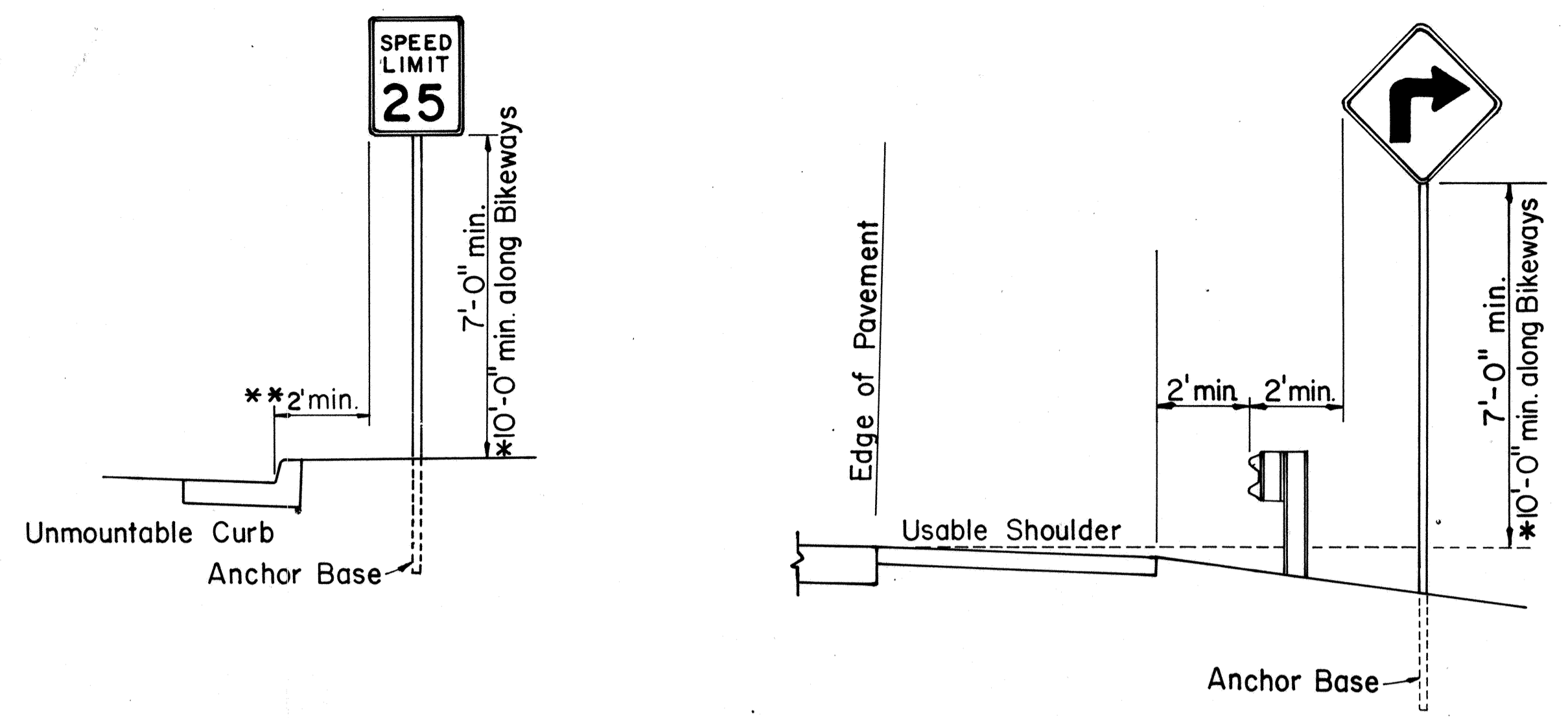
APPROVAL RECOMMENDED:
Erichi Tanaka 10/18/83
 TRAFFIC ENGINEER DATE

APPROVED:
[Signature] 10-18-83
 ASSISTANT CHIEF, ENGINEERING DATE

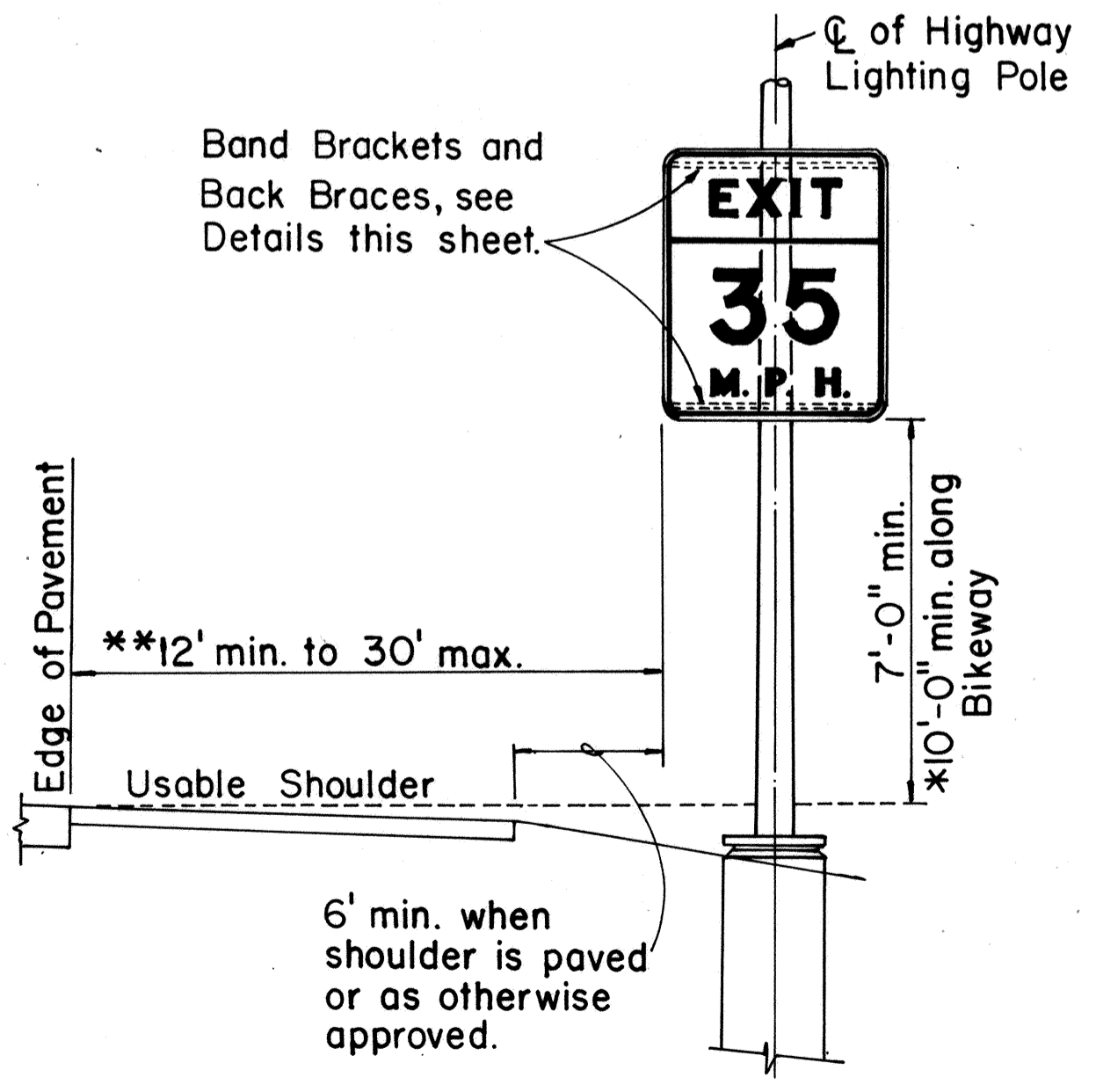
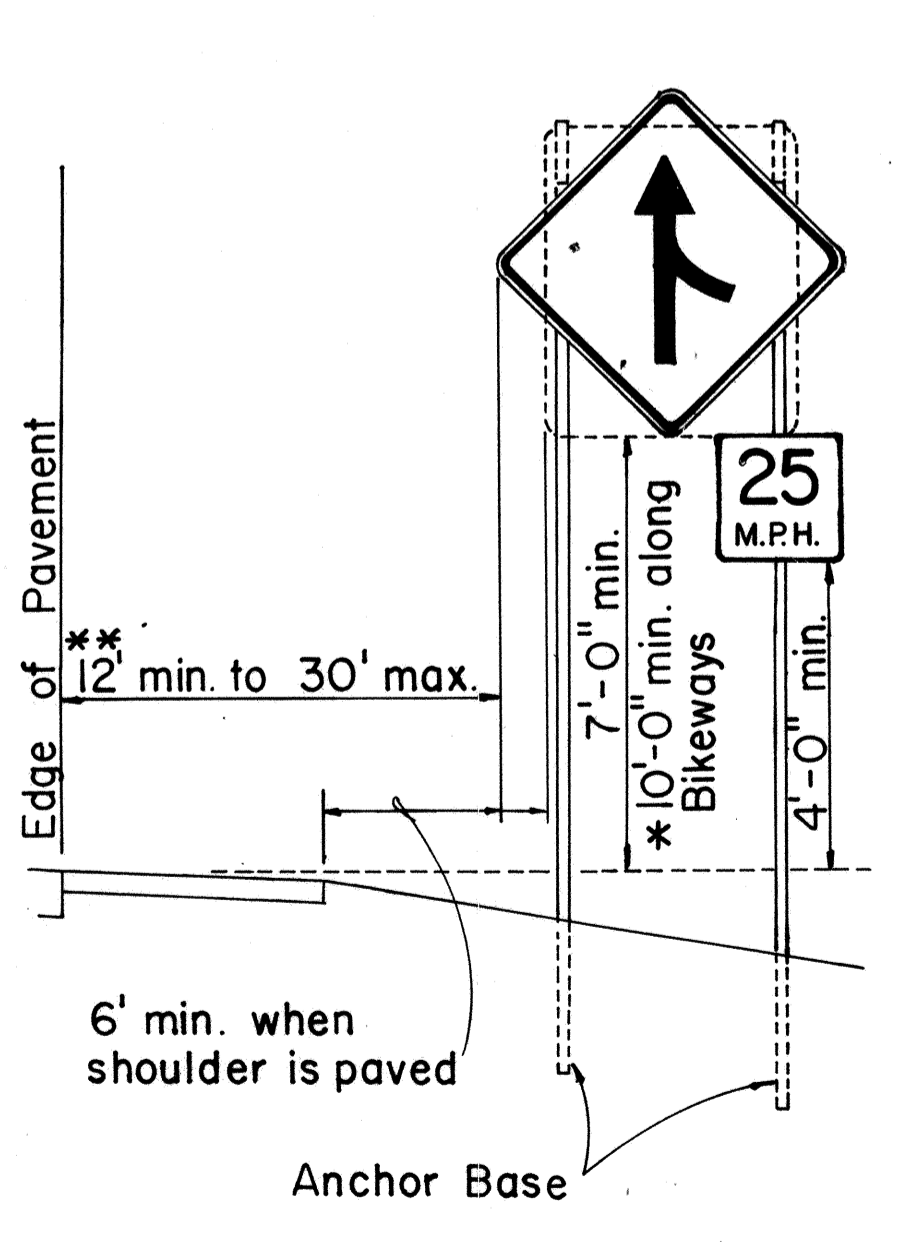
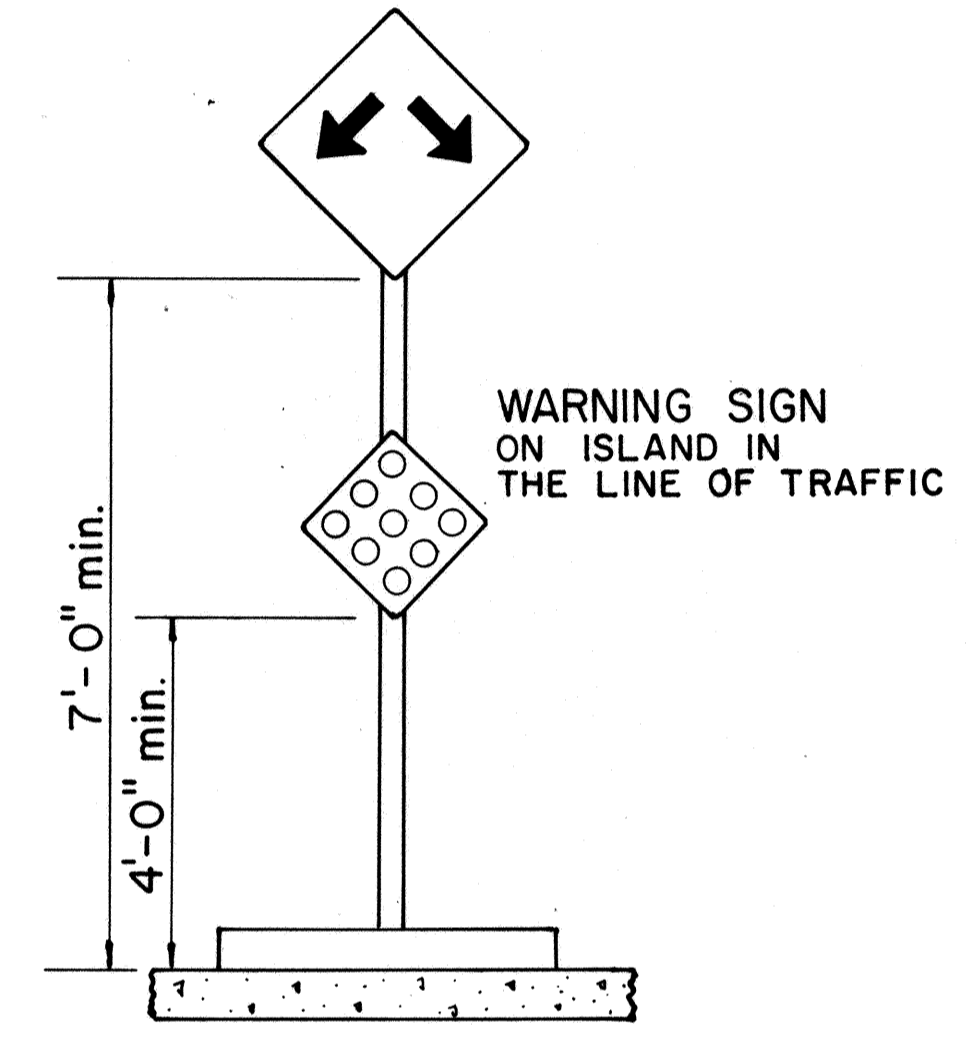
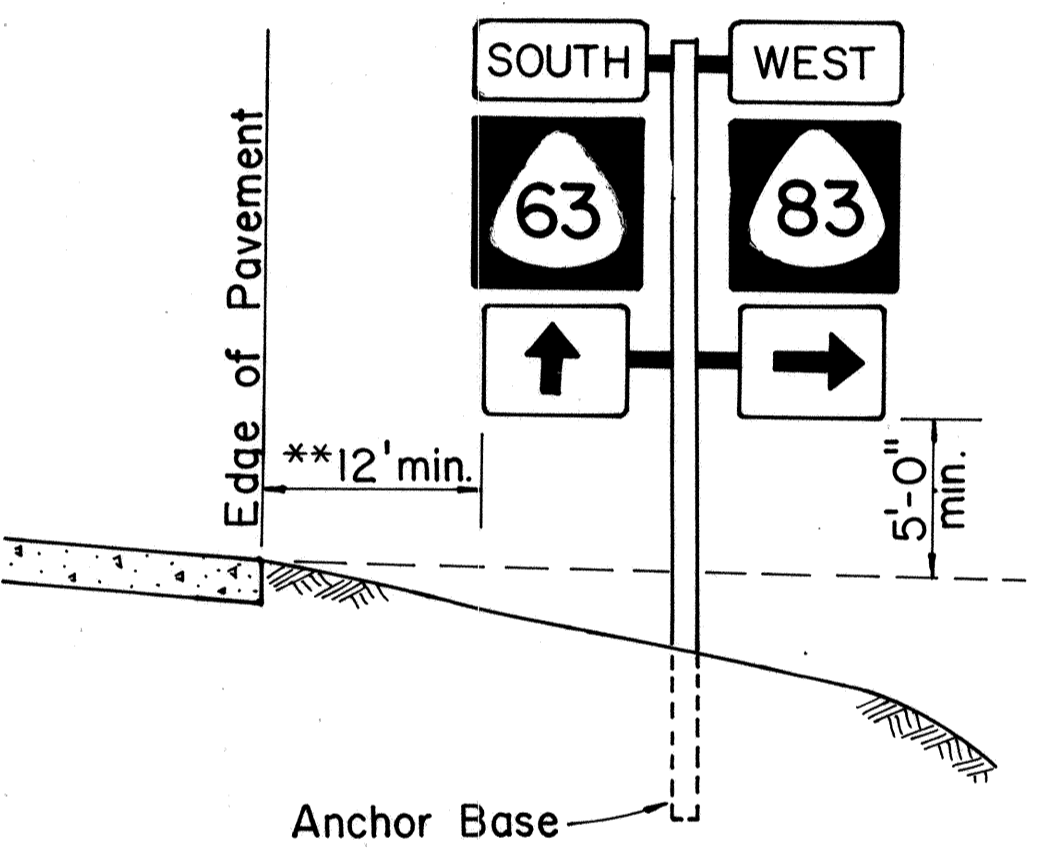
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS SIGN DETAILS

Not to Scale: Oct. 1983
 SHEET No. 116 OF 35 SHEETS DT 100



ROADSIDE ASSEMBLY RURAL DISTRICT



HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	49	67

A or A,	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 x B x 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:

Eiichi Tanaka 9/21/82
TRAFFIC ENGINEER DATE

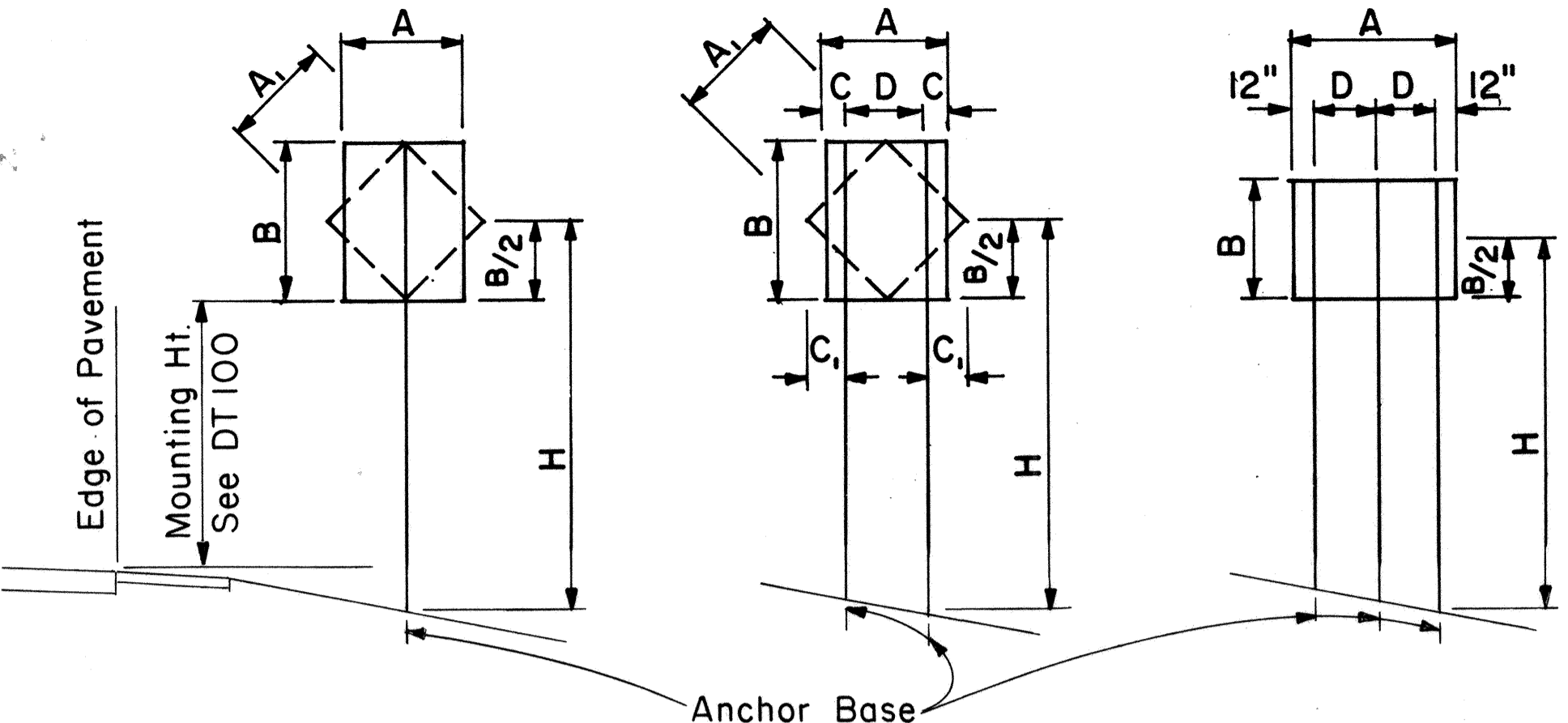
APPROVED:
Robert J. ... 9/21/82
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
GALVANIZED FLANGED CHANNEL
SIGN POST MOUNTING

Scale: As Shown Date: Sept. 1982

SHEET No. 117 OF 35 SHEETS DT 100A



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

FLANGED CHANNEL: 1-POST INSTALLATION

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

FLANGED CHANNEL: 2-POST INSTALLATION

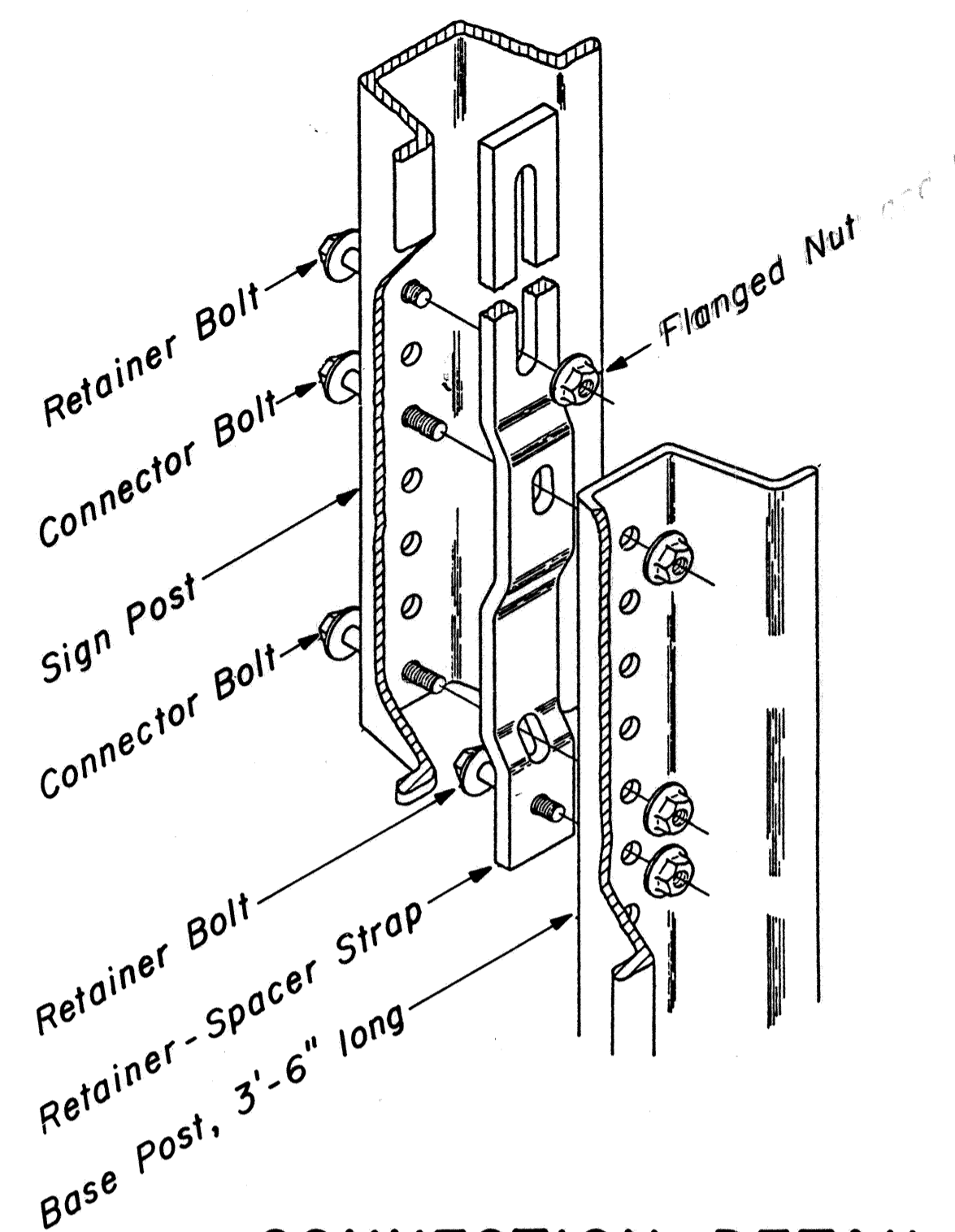
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)						A x B (Area, sq. ft.)
		7	8	9	10	11	12	
2.50 lbs./ft.	124	17.71	15.50	13.77	12.40	11.27	10.33	A x B (Area, sq. ft.)
4.00 lbs./ft.	241	34.43	30.13	26.78	24.10	21.91	20.08	

FLANGED CHANNEL: 3-POST INSTALLATION

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

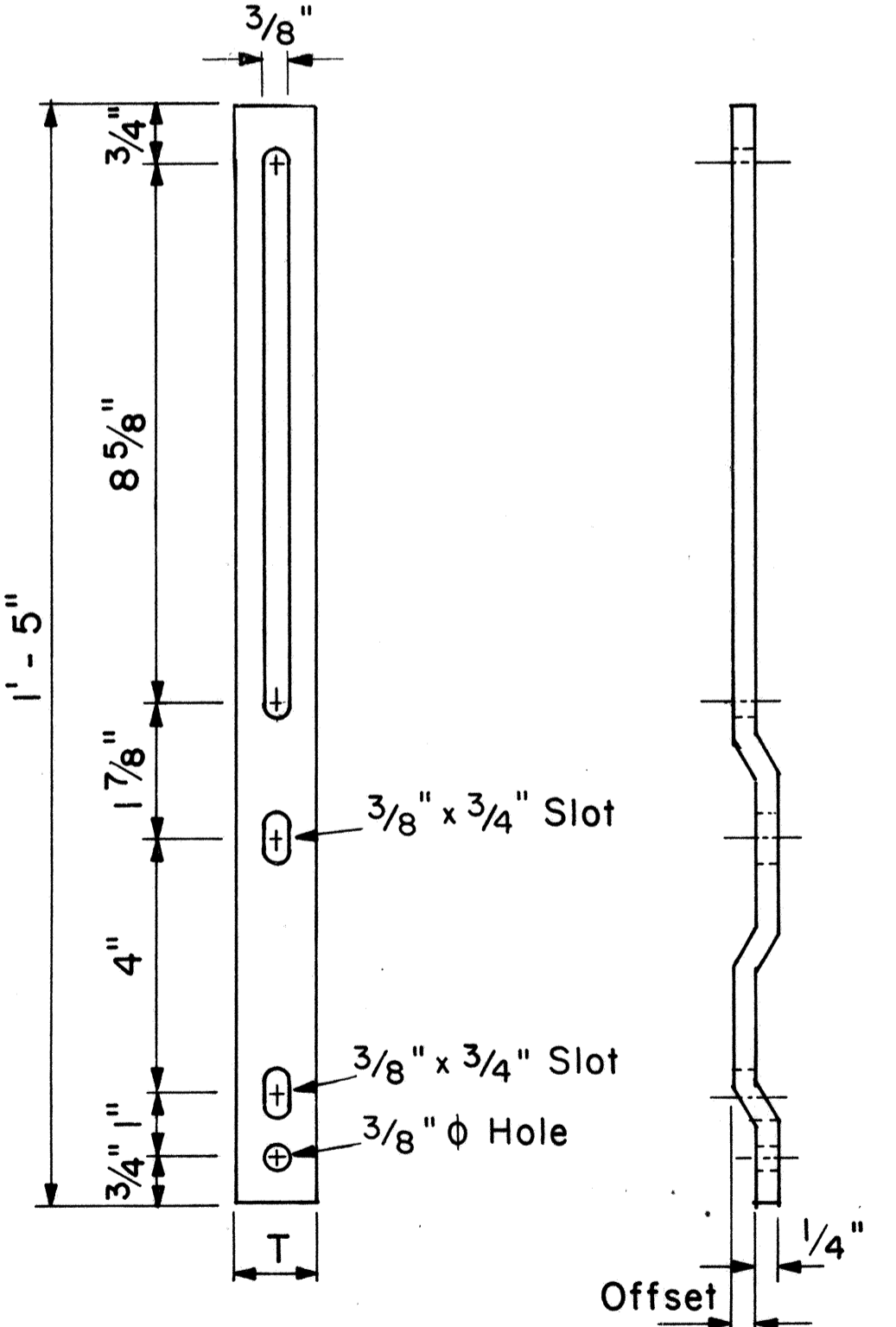
WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE



CONNECTION DETAIL

Not to Scale

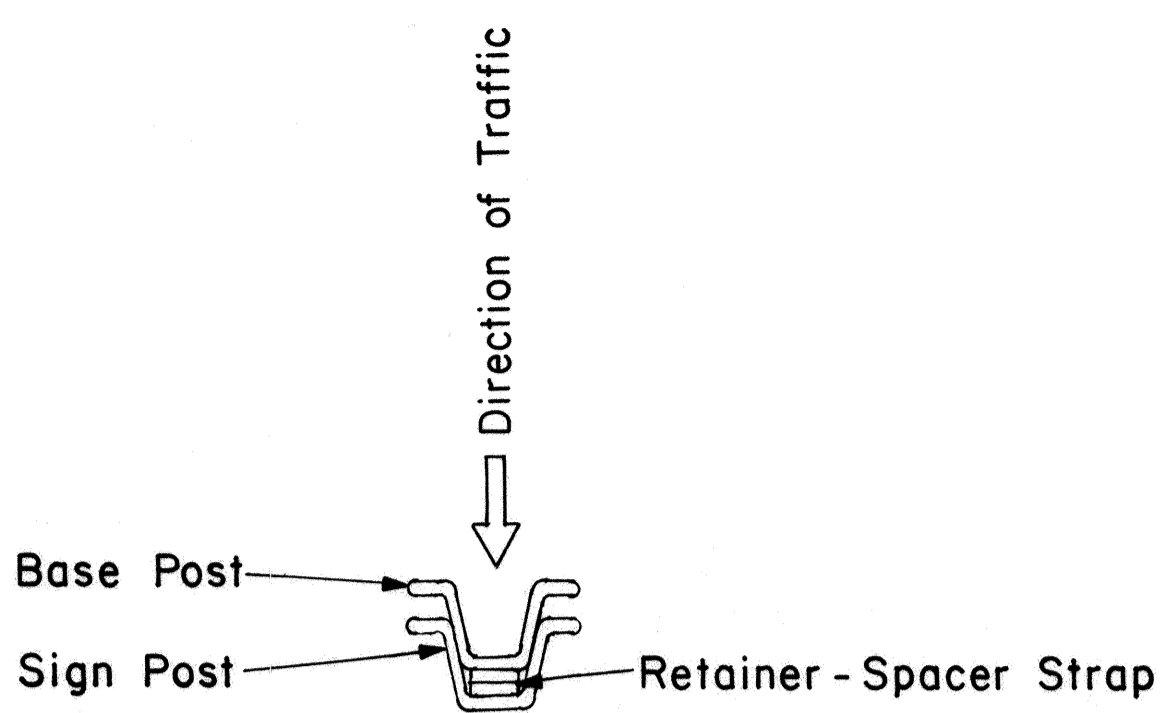


RETAINER-SPACER STRAP

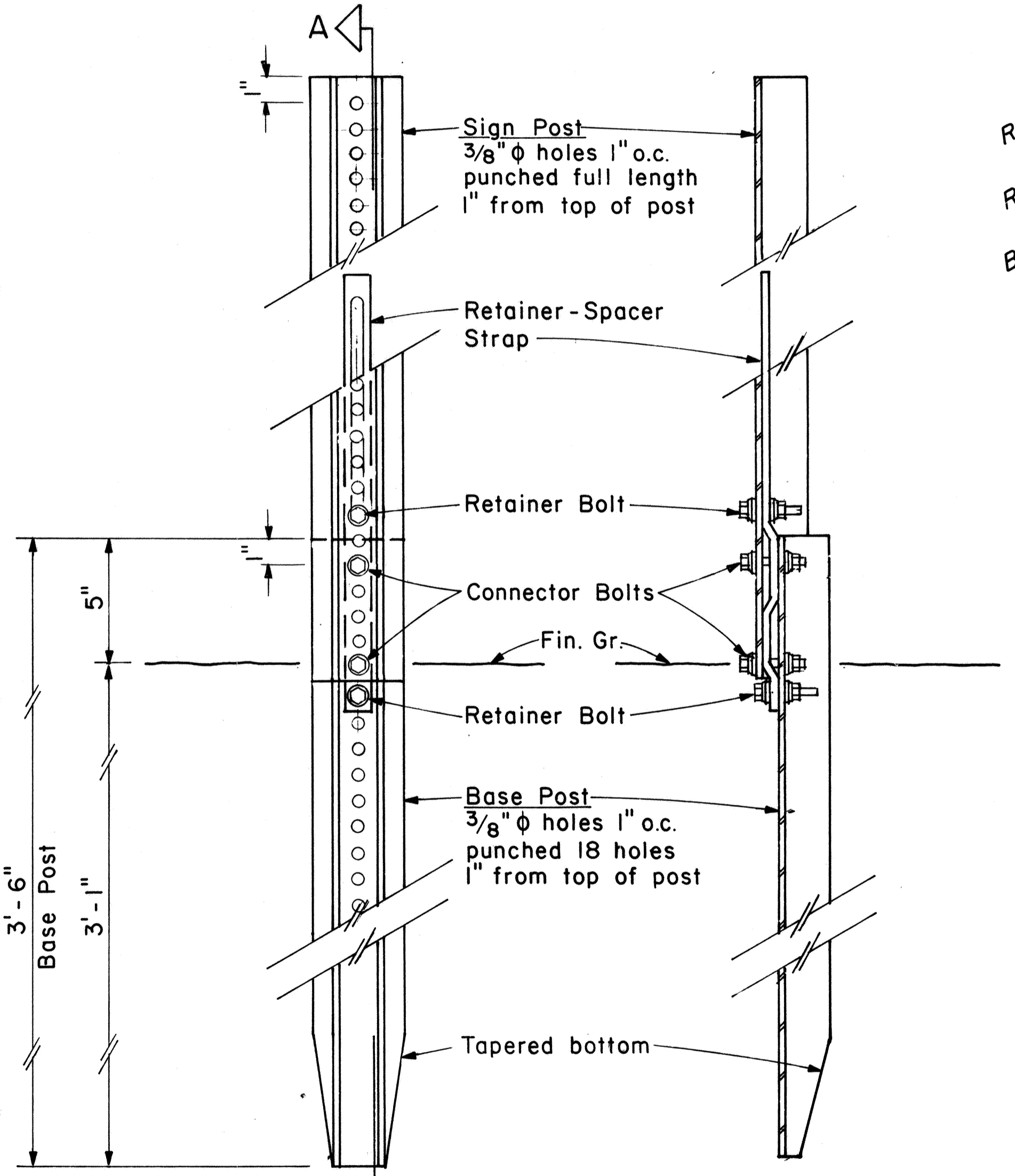
Not to Scale

RETAINER-SPACER STRAP

Post Size	T	Offset
2.50 lbs./ft.	1.00"	0.145"
4.00 lbs./ft.	1.12"	0.280"



TOP VIEW



SECTION "A-A"

BACK VIEW

ANCHOR BASE DETAIL

Scale: 3" = 1'-0"

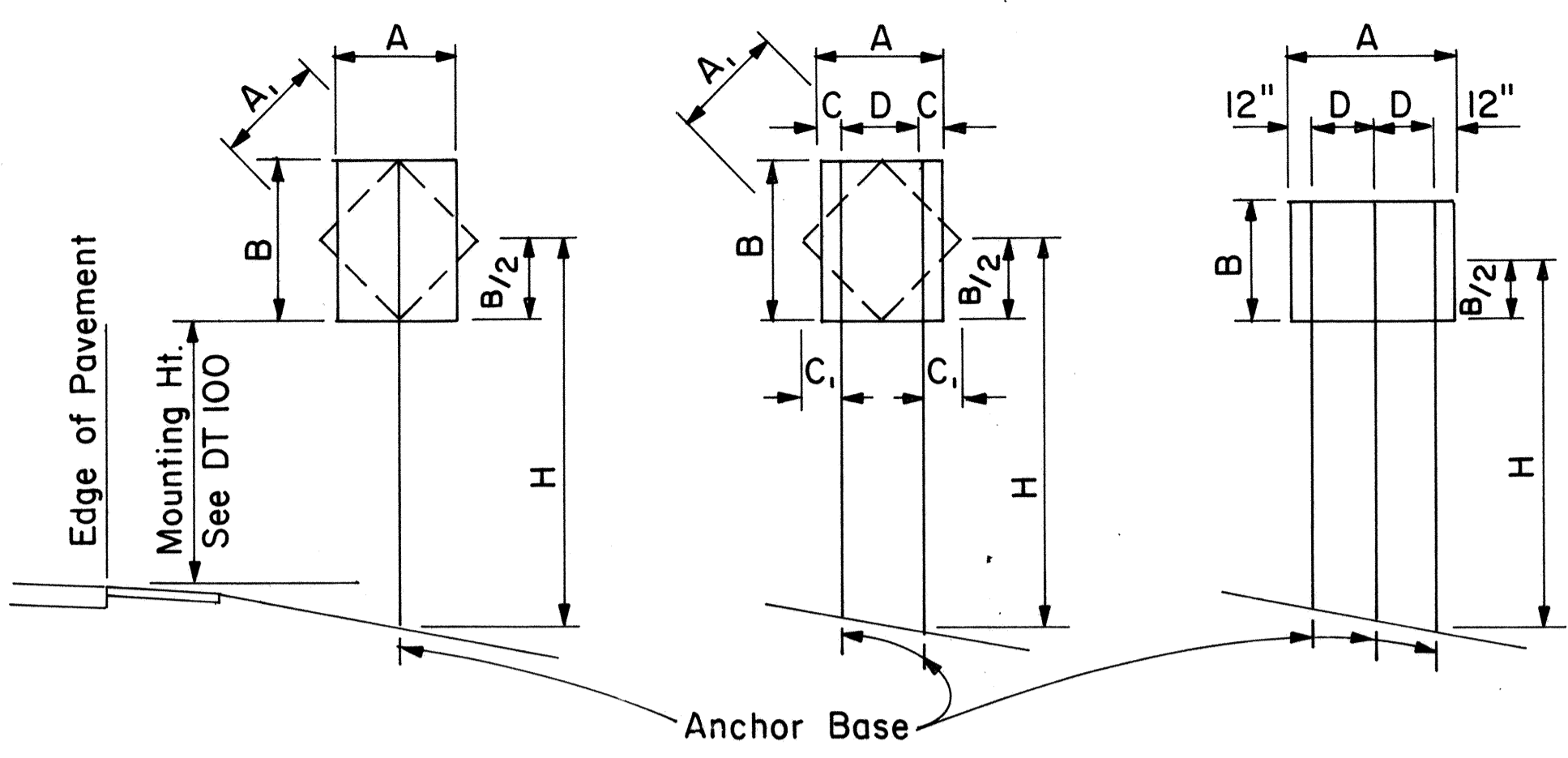
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

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.)

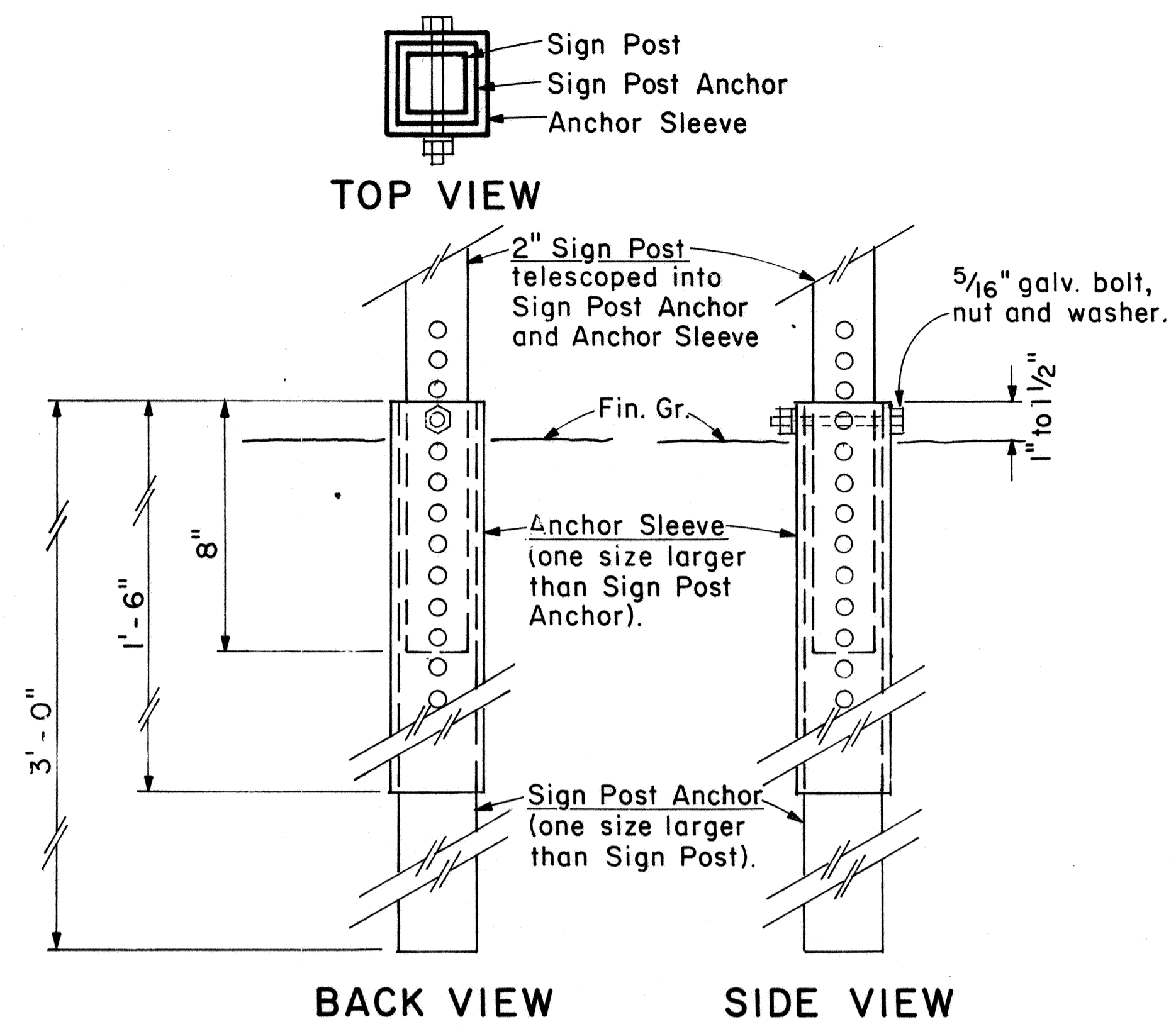
SQUARE TUBE: 2-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	122	17.4	15.2	13.5	12.2	11.0	10.1
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5

A x B (Area, sq. ft.)

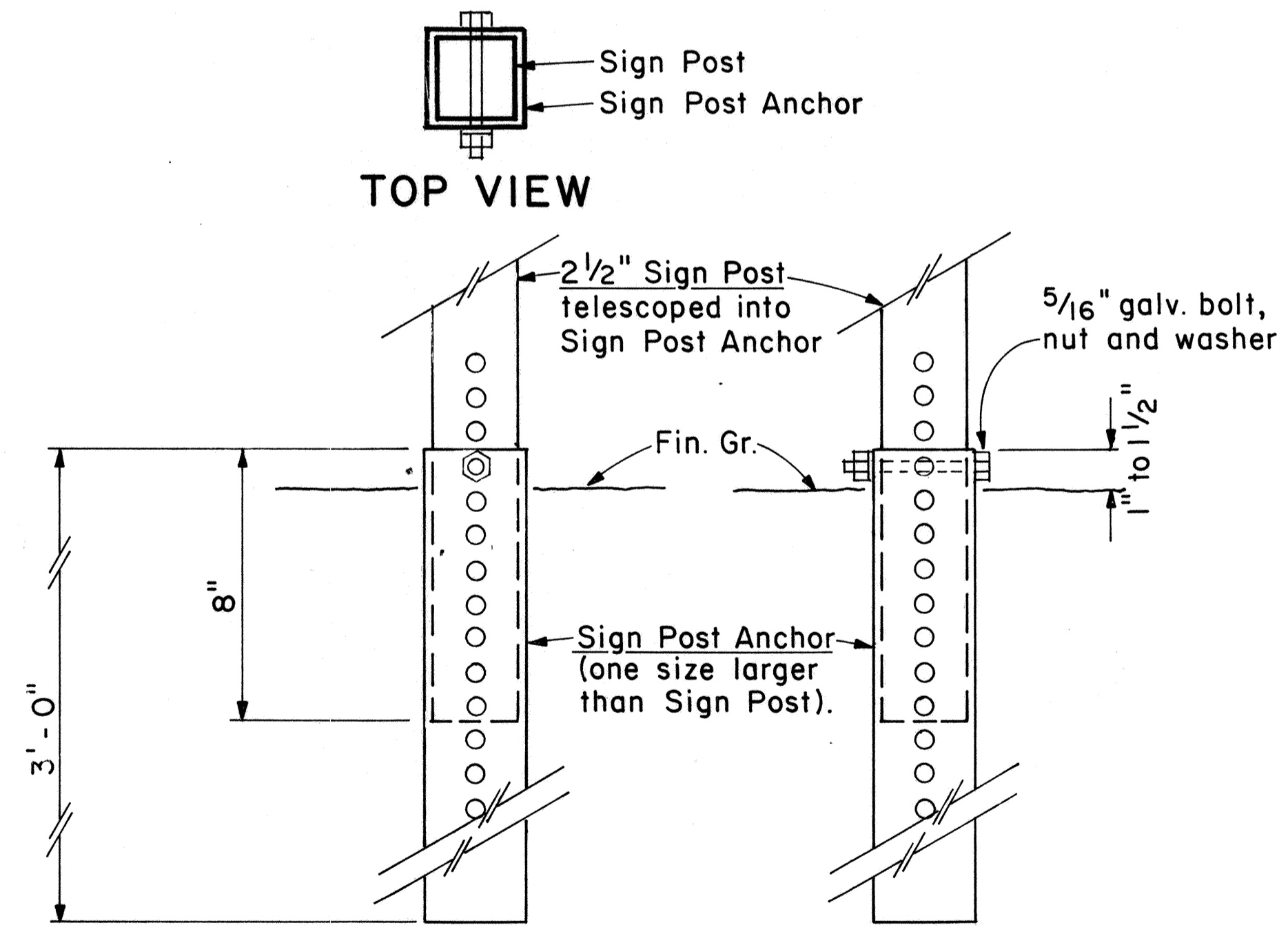
SQUARE TUBE: 3-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	183	26.0	22.8	20.3	18.2	16.6	15.2
2 1/2"	318	45.4	39.5	35.2	31.5	28.8	26.5
2 1/2", 10 ga.	388	55.0	48.5	43.0	38.5	35.0	32.0

A x B (Area, sq. ft.)

WINDLOAD CHARTS



2" SIGN POST INSTALLATION



2 1/2" SIGN POST INSTALLATION

ANCHOR BASE DETAIL

Scale: 3" = 1'-0"

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

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

APPROVED:
Albert S. Salsich 9/22/82
 ASSISTANT CHIEF, ENGINEERING DATE


NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

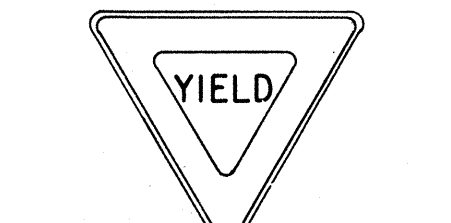
 STANDARD DETAILS
 GALVANIZED SQUARE TUBE
 SIGN POST MOUNTING

 Scale: As Shown Date: Sep: 1982
 SHEET No. 718 OF 35 SHEETS DT100B

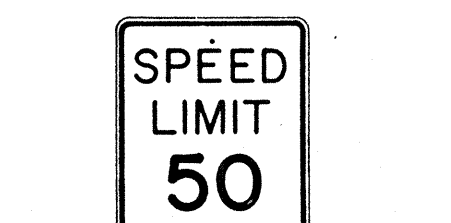
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(18)	1986	51	67



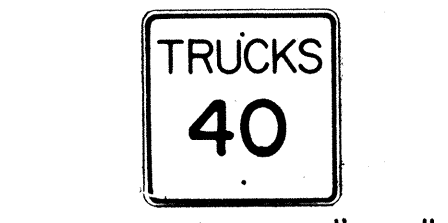
R1-1 30" x 30"
R1-1-A 36" x 36"
4-WAY
R1-3 12" x 6"
R1-3-A 18" x 9"



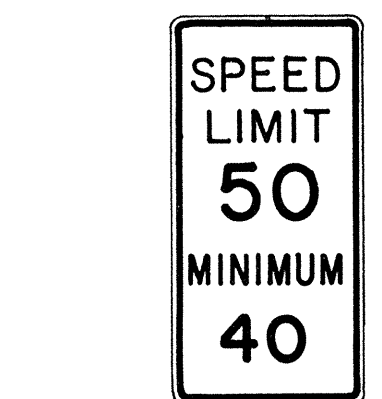
R1-2 36" x 36" x 36"
R1-2-A 48" x 48" x 48"




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



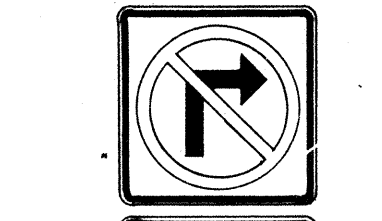
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R2-2(40)-A 48" x 48"



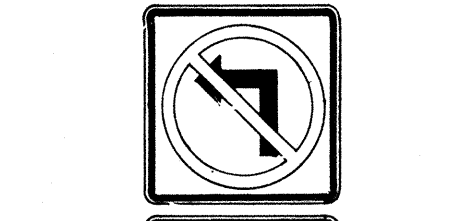
R2-4a(50/40) 24" x 48"
R2-4a(50/40)-A 48" x 96"




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



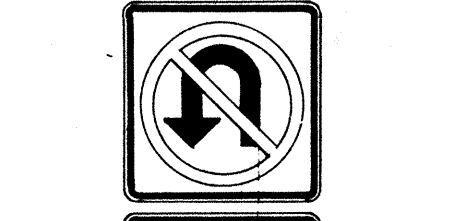
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24" x 18"
R3-1-A 48" x 48"
48" x 36"



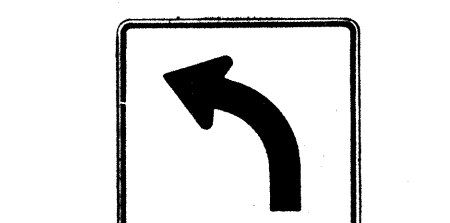
R3-2 24" x 24"
24" x 18"
R3-2-A 48" x 48"
48" x 36"



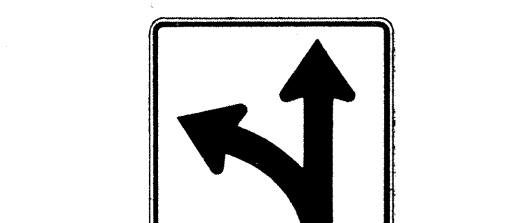
R3-3 24" x 24"
R3-3-A 48" x 48"




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



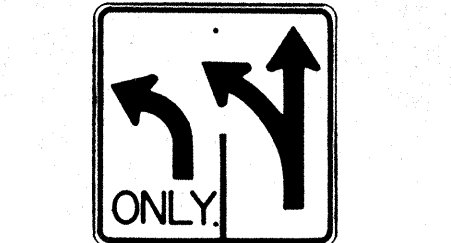
R3-5(L) 30" x 36"
R3-5(L)-A 48" x 60"



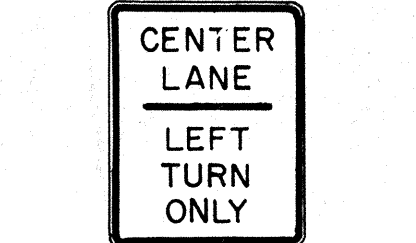
R3-6(L) 30" x 36"
R3-6(L)-A 48" x 60"




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"



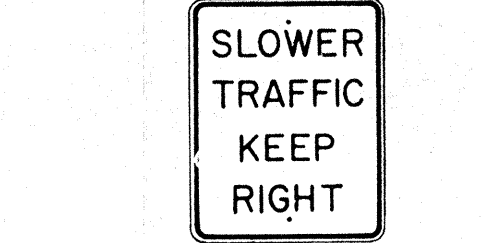
R3-9 24" x 30"



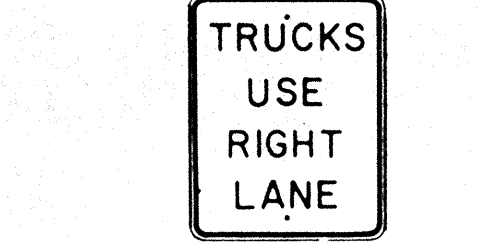
R4-1 24" x 30"
R4-1-A 48" x 60"



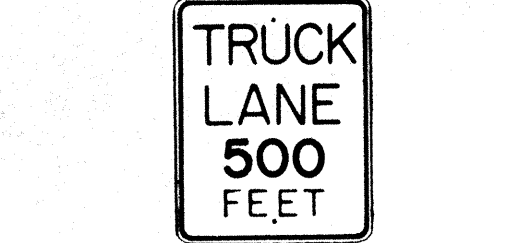
R4-2 24" x 30"
R4-2-A 48" x 60"



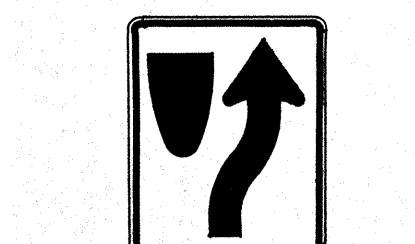
R4-3 24" x 30"
R4-3-A 48" x 60"



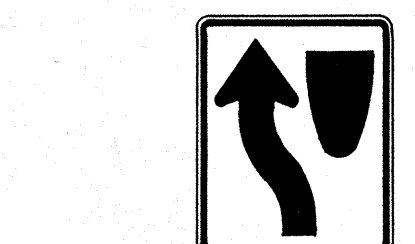
R4-5 24" x 30"
R4-5-A 48" x 60"



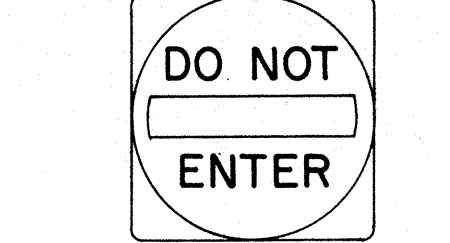
R4-6(500) 24" x 30"
R4-6(500)-A 48" x 60"



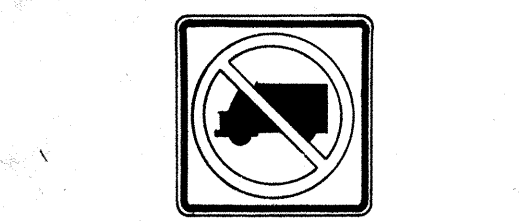
R4-7 24" x 30"
24" x 18"
R4-7-A 48" x 60"



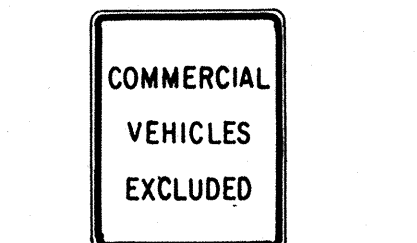
R4-8 24" x 30"
24" x 18"
R4-8-A 48" x 60"




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



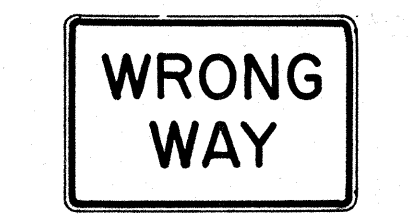
R5-2 24" x 24"
24" x 18"




R5-4 24" x 30"
R5-4-A 48" x 60"




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




R5-9 36" x 24"



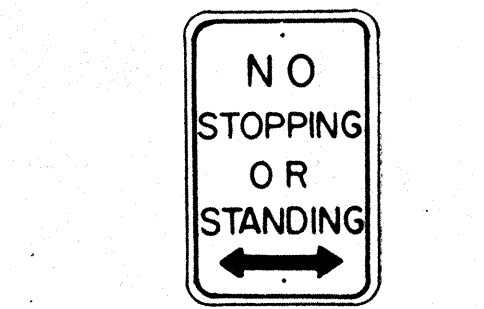
R6-1(R) 36" x 12"




R6-2(R) 18" x 24"




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



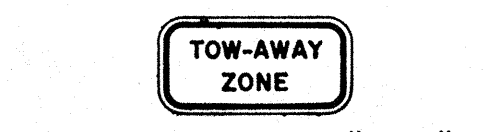
R7-4 12" x 18"
R7-4-A 24" x 30"




R7-107(R) 12" x 18"




R7-108 12" x 18"




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



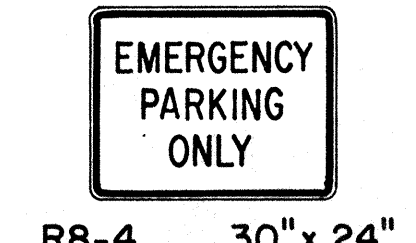
R8-1 24" x 30"
R8-1-A 48" x 60"




R8-2 24" x 30"
R8-2-A 48" x 60"




R8-3 24" x 30"
R8-3-A 48" x 48"



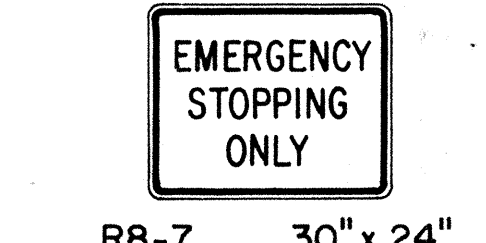
R8-4 30" x 24"
R8-4-A 48" x 36"



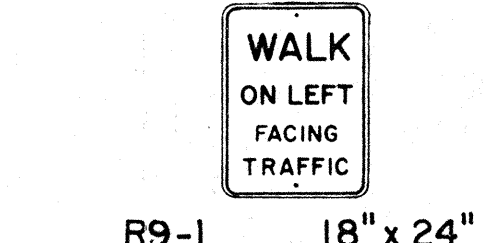
R8-5 24" x 30"
R8-5-A 48" x 60"



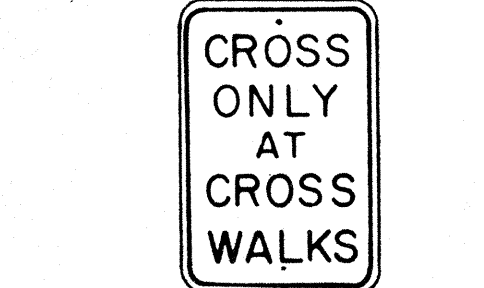
R8-6 24" x 30"
R8-6-A 48" x 60"




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



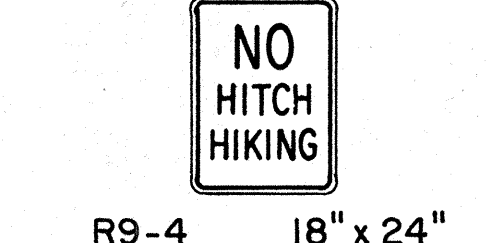
R9-1 18" x 24"



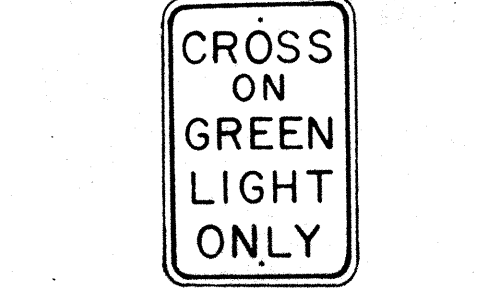
R9-2 12" x 18"



R9-3 12" x 18"



R9-4 18" x 24"



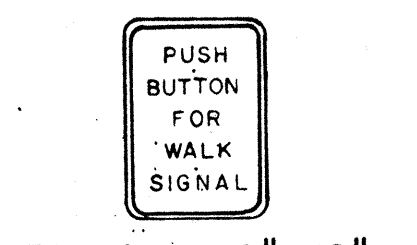
R10-1 12" x 18"



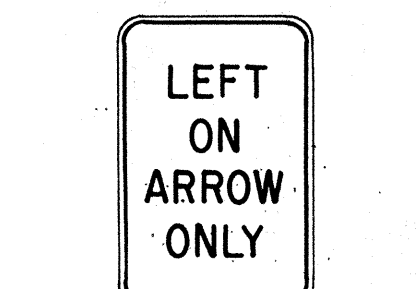
R10-2 12" x 18"



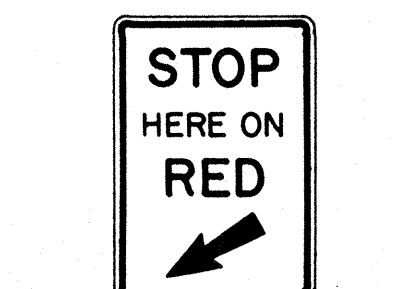
R10-3 9" x 12"



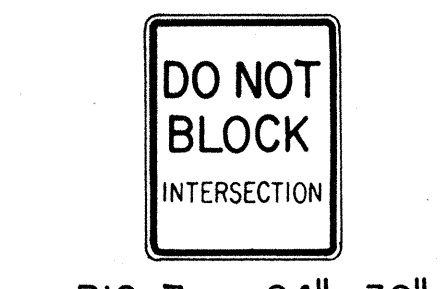
R10-4 9" x 12"



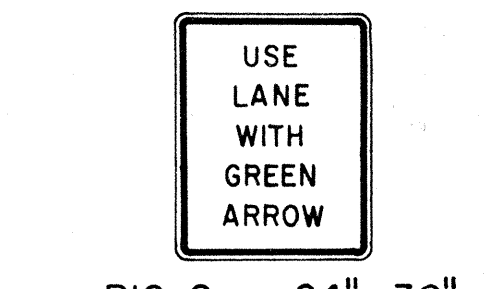
R10-5 24" x 30"



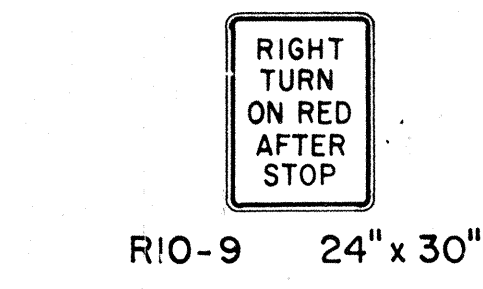
R10-6 24" x 36"



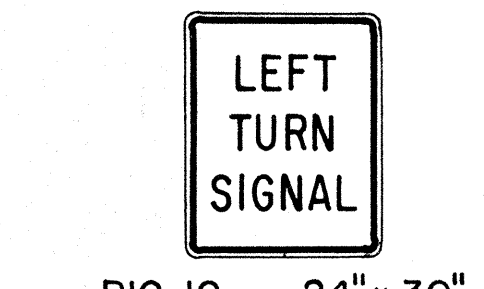
R10-7 24" x 30"




R10-8 24" x 30"




R10-9 24" x 30"



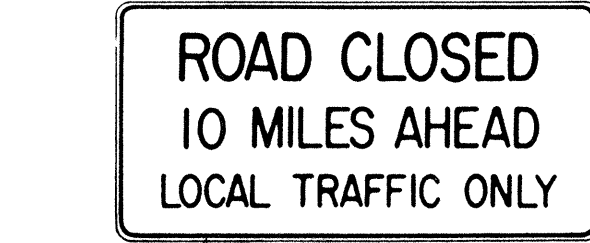
R10-10 24" x 30"



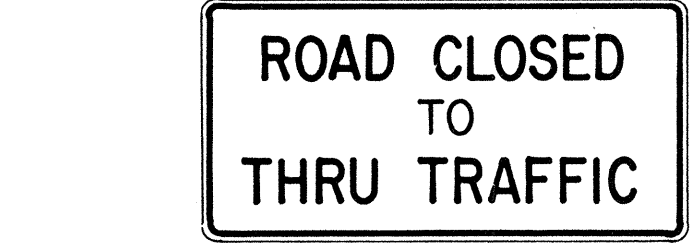
R11-1 24" x 30"




R11-2 48" x 30"



R11-3(10) 60" x 30"



R11-4 60" x 30"



R12-1(10) 24" x 30"

GENERAL NOTES

- Sign details shall conform to the latest editions of FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," "Standard Alphabets for Highway Signs," and "Standard Highway Signs," and as amended.
- All regulatory signs shall be reflectorized unless otherwise specified.
- All regulatory 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.
- All signs shall be erected without educational plaques unless called for in the plans.

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

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

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.I.	2/20/72
2	Revised General Note 1.	H.I.	10/14/74
3	Added General Note 5	H.I.	6/2/75
4	Revised Signs and General Note 1	E.T.	9/18/82

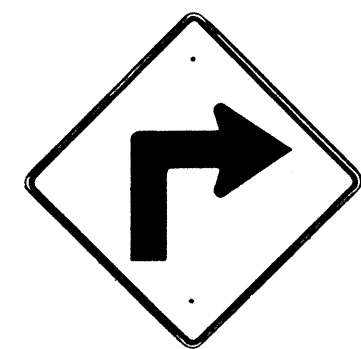
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
REGULATORY SIGNS

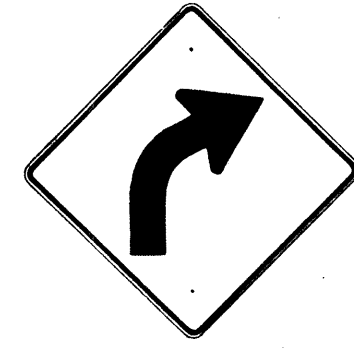
NOT TO SCALE

DATE: _____
DESIGNED BY: _____
CHECKED BY: _____
ORIGINAL PLAN NO. _____
NOTE BOOK NO. _____

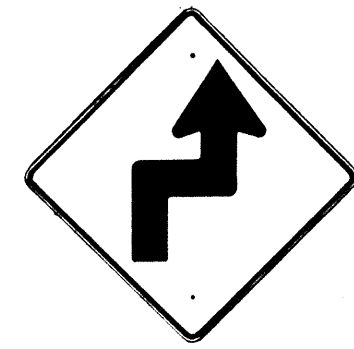
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII*	HAW.	IR-HI-1(18)	1986	52	67



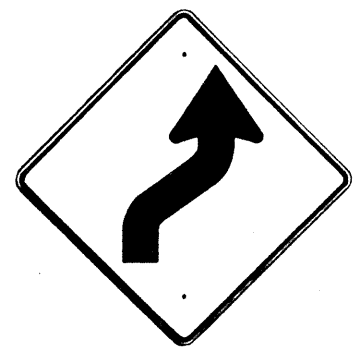
W1-1(R) 30"x30"
W1-1(R)-A 48"x48"



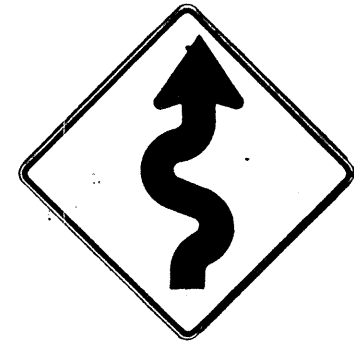
W1-2(R) 30"x30"
W1-2(R)-A 48"x48"



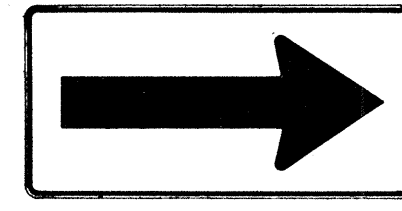
W1-3(R) 30"x30"
W1-3(R)-A 48"x48"



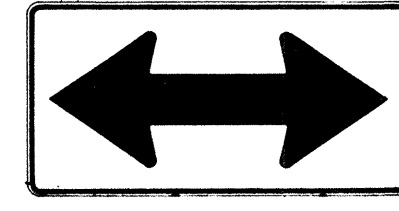
W1-4(R) 30"x30"
W1-4(R)-A 48"x48"



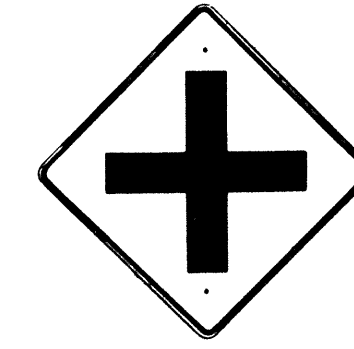
W1-5(R) 30"x30"
W1-5(R)-A 48"x48"



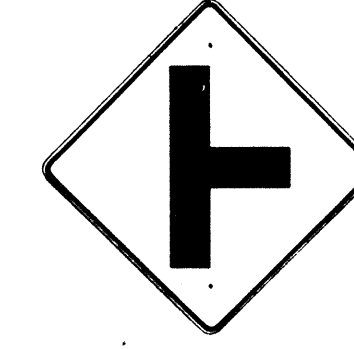
W1-6 48"x24"



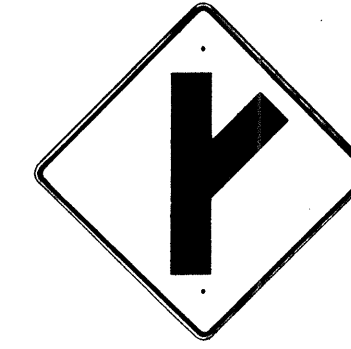
W1-7 48"x24"



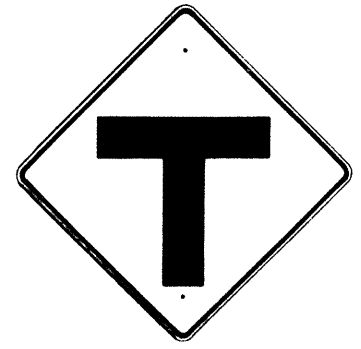
W2-1 30"x30"
W2-1-A 48"x48"



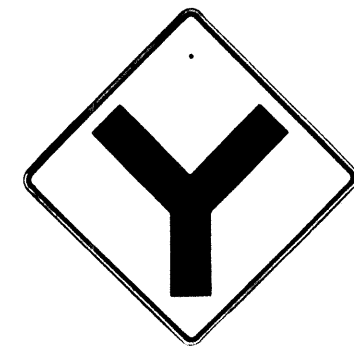
W2-2 30"x30"
W2-2-A 48"x48"



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



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



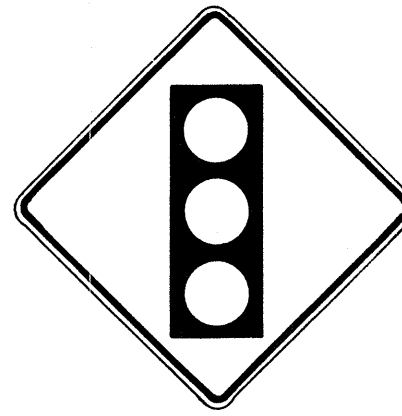
W2-5 30"x30"
W2-5-A 48"x48"



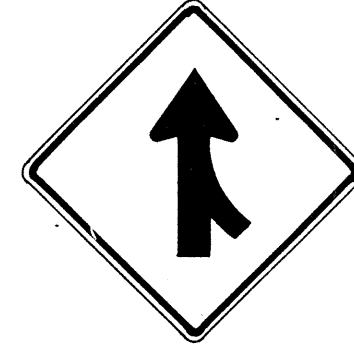
W3-1 30"x30"
W3-1-A 36"x36"



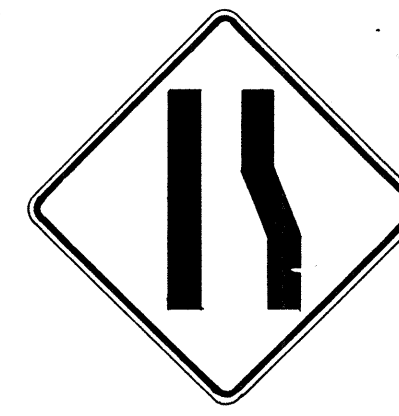
W3-2 30"x30"
W3-2-A 36"x36"



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"
W5-1-A 48"x48"



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



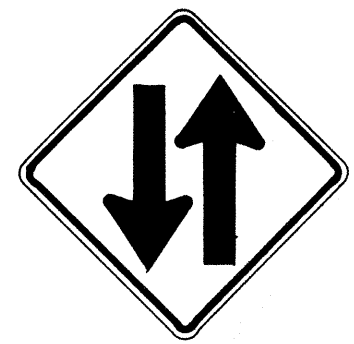
W5-3 36"x36"
W5-3-A 48"x48"



W6-1 36"x36"
24"x18"
W6-1-A 48"x48"
24"x18"



W6-2 36"x36"
24"x18"
W6-2-A 48"x48"
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 48"x48"
24"x18"



W7-2 24"x18"



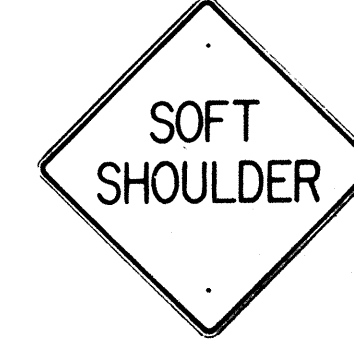
W8-1 30"x30"
W8-1-A 36"x36"
W8-1-B 48"x48"



W8-2 30"x30"
W8-2-A 36"x36"
W8-2-B 48"x48"



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



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



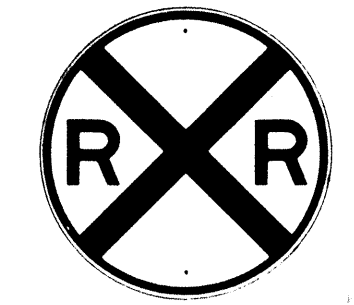
W8-5 30"x30"
24"x18"
W8-5-A 36"x36"
24"x18"



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"
W11-1-B 48"x48"
24"x18"



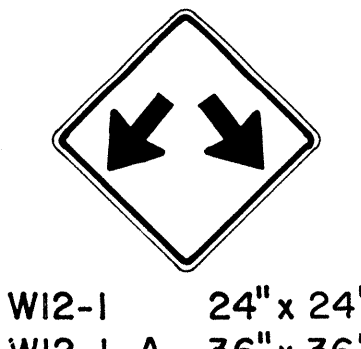
W11A-2 30"x30"
24"x18"
W11A-2-A 36"x36"
24"x18"
W11A-2-B 48"x48"
24"x18"



W11-4 30"x30"
24"x18"
W11-4-A 36"x36"
24"x18"
W11-4-B 48"x48"
24"x18"



W11-5 30"x30"
24"x18"
W11-5-A 36"x36"
24"x18"
W11-5-B 48"x48"



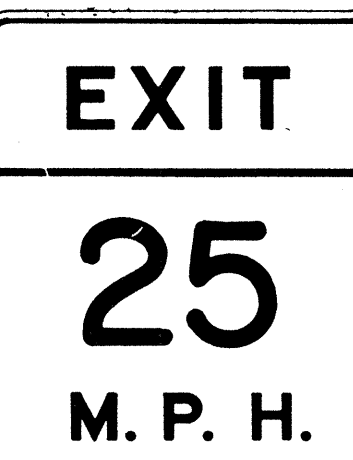
W12-1 24"x24"
W12-1-A 36"x36"
W12-1-B 48"x48"



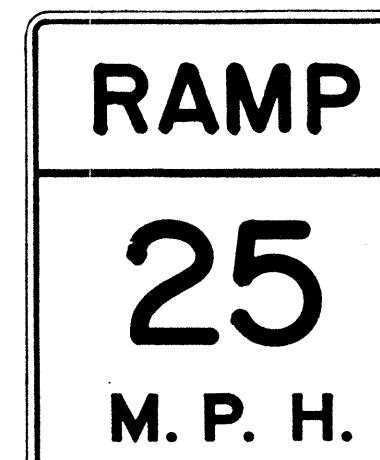
W12-2(12'-6") 36"x36"
24"x18"
W12-2(12'-6")-A 48"x48"



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"
W14-1-A 36"x36"



W14-3 36"x48"x48"
W14-3-A 48"x64"x64"

NOTE

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

GENERAL NOTES

1. Sign details shall conform to the latest editions of FHWA publications, "Manual on Uniform Traffic Control Devices for Streets and Highways", "Standard Alphabet for Highway Signs", and "Standard Highway Signs", and as amended.
2. All warning signs shall be reflectorized unless otherwise specified.
3. All warning 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. Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized.

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

APPROVED:
John J. Salsido 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	H.T.	3/20/72
2	Revised General Note 1	H.T.	10/16/72
3	Revised General Note 5	M.P.	9-16-75
4	Revised General Note 5	H.T.	9-14-76
5	Added Note 1	H.T.	11-3-77
6	Revised Signs & General Note 1	E.T.	9/18/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
WARNING SIGNS

NOT TO SCALE

SHEET No. T20 OF 35 SHEETS DT 102

DATE: _____
DESIGNED BY: _____
CHECKED BY: _____
QUANTITIES BY: _____
NOTE BOOK: _____
NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1R-HI-1(B1)	1986	53	67

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 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 R2-5a 24" x 30"
R2-5a-A 48" x 60"

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

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

BUS STOP R7-107 12" x 24"

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

ANY TIME 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"
R9-3b(L) 18" x 12"

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

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

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

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

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

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

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

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

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 W3-4 48" x 48"
6" Series C

TRUCK CROSSING W8-6 30" x 30"
W8-6-A 36" x 36"
W8-6-B 48" x 48"

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

W4-3 36" x 36"
W4-3-A 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"

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

ADVANCE GREEN W15-2 24" x 24"

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

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

SCHOOL BUS STOP AHEAD S3-1 30" x 30"
S3-1-A 36" x 36"

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

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

APPROVAL RECOMMENDED:
Eiichi Tanaka 5/3/78
TRAFFIC ENGINEER DATE

APPROVED:
Harbor S. Dakeiaku 5/3/78
ASSISTANT CHIEF, ENGINEERING DATE

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.	11/9/75
3	Revised Signs and added Sign W4-3	E.T.	9/28/86

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978
SHEET No. T21 OF 35 SHEETS DT 103

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-H-1(10)	1986	54	67



CW20-1a 48" x 48"



CW20-2d 48" x 48"



CW20-3b 48" x 48"



CW20-4d 48" x 48"



CW20-5d(L) 48" x 48"



CW21-1 30" x 30"



CW21-2 30" x 30"



CW20-7c 36" x 36"
24" x 18"
CW20-7c-A 48" x 48"
24" x 18"



CW21-3 36" x 36"



CW21-4 36" x 36"



CW21-5 30" x 30"



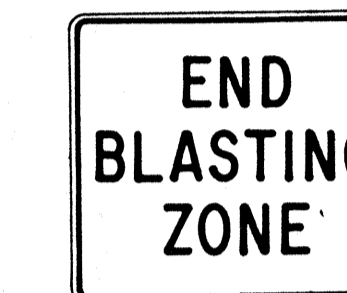
CW21-6 30" x 30"



CW22-1b 48" x 48"



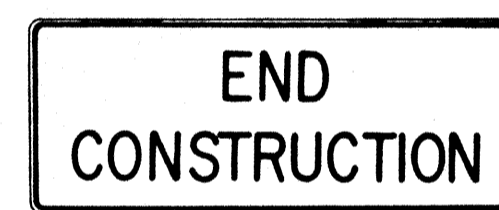
CW22-2 42" x 36"



CW22-3 42" x 36"



CG20-1(5) 60" x 36"



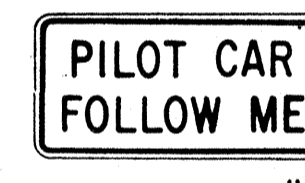
CG20-2 60" x 24"



CM4-9(R) 30" x 24"



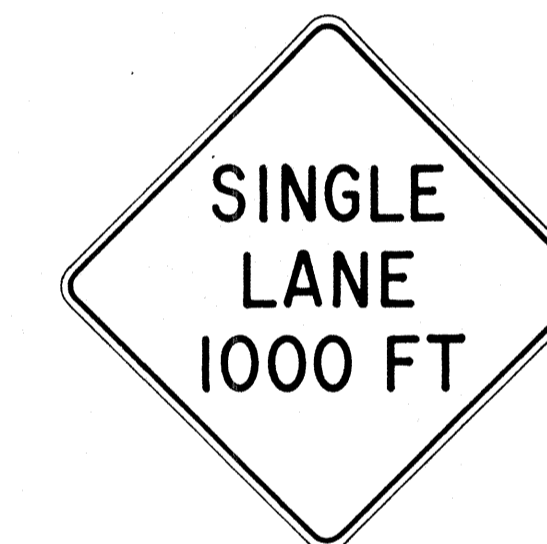
CM4-10(R) 48" x 18"



CG20-4 36" x 18"



CW23-1 36" x 36"



CW23-2b 48" x 48"



CW23-3(R) 48" x 48"

GENERAL NOTES

- Sign details shall conform to the latest editions of FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," "Standard Alphabets for Highway Signs," and "Standard Highway Signs," 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:

Edward Sakai 2/23/72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	2/23/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	H.T.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76
5	Revised General Note 1 and sign CW20-7c	E.T.	2/18/85

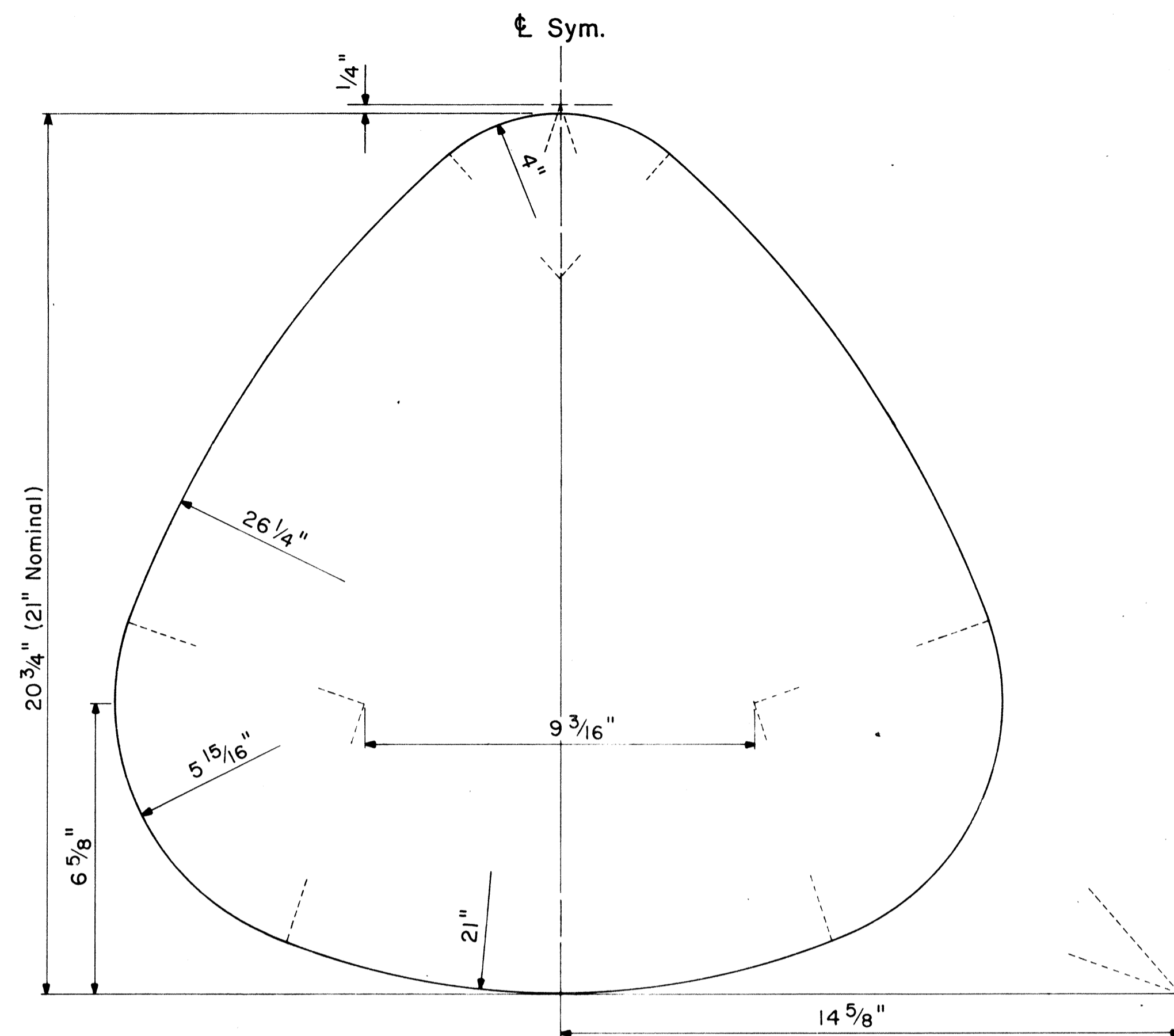
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONSTRUCTION SIGNS

NOT TO SCALE

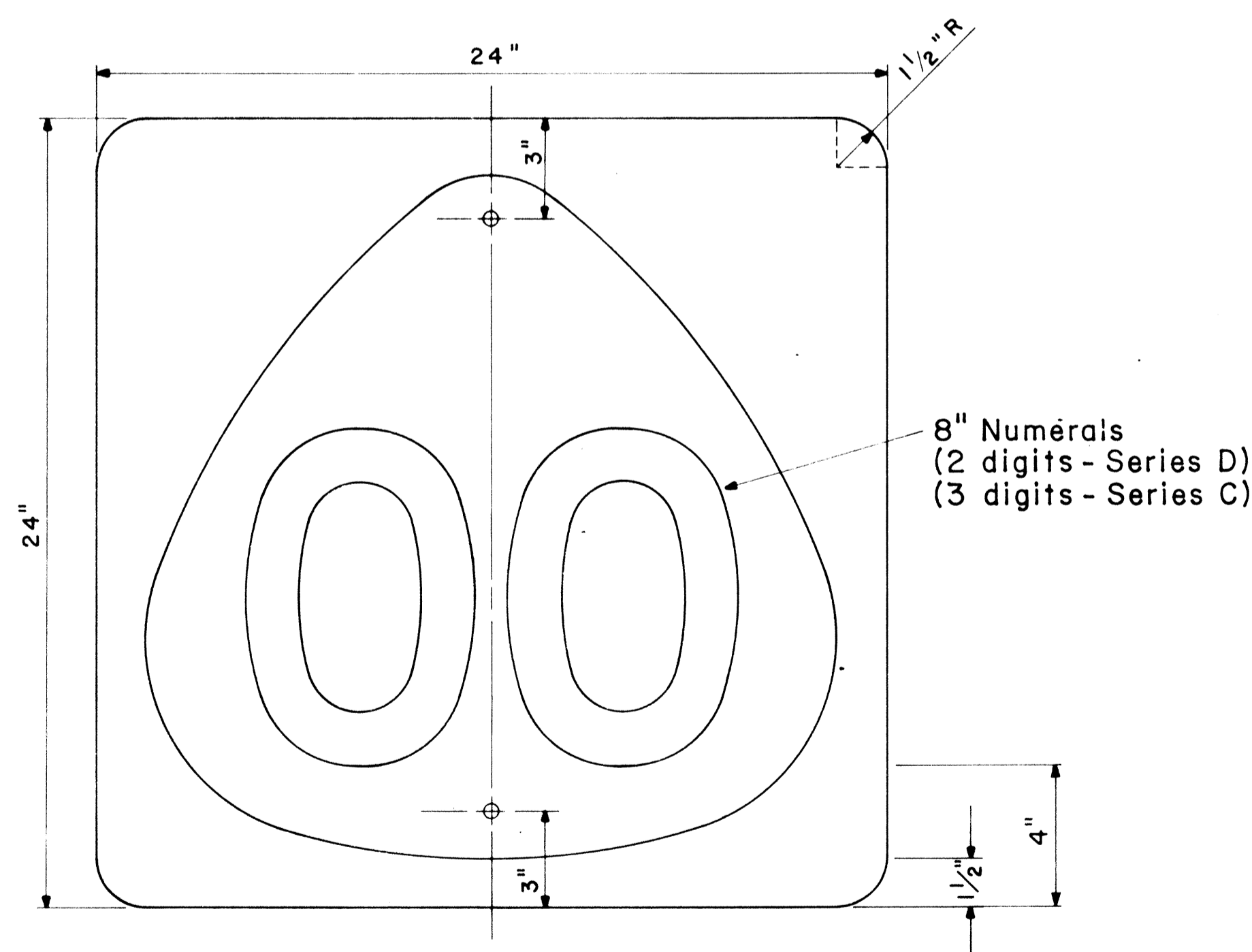
DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(181)	1986	55	67



STATE ROUTE MARKER DETAIL

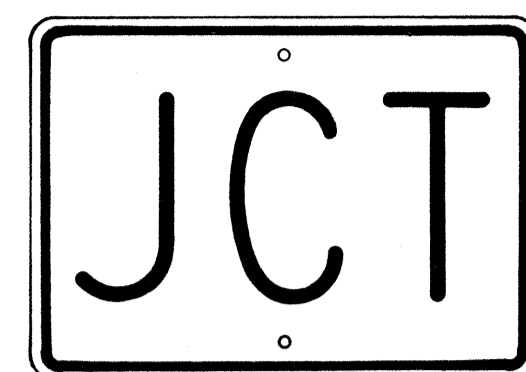
Not to Scale



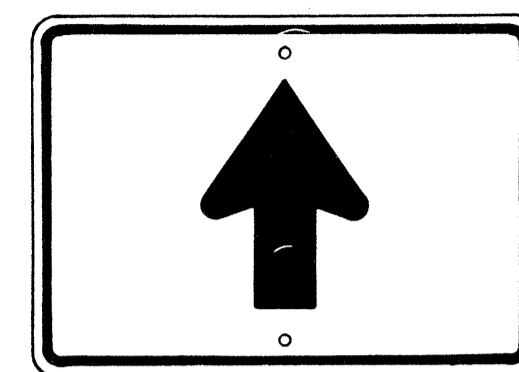
STATE ROUTE MARKER

M1-6 (00) 24" x 24"

Scale: 1/4" = 1"



M2-1 21" x 15"



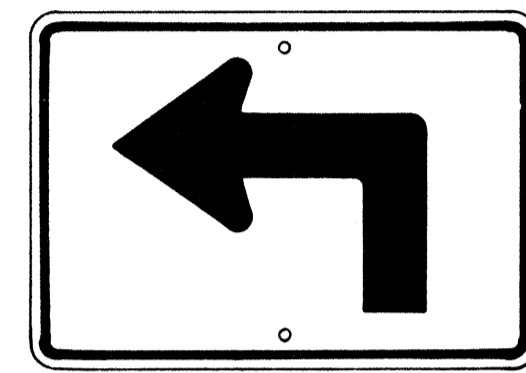
M6-3 21" x 15"



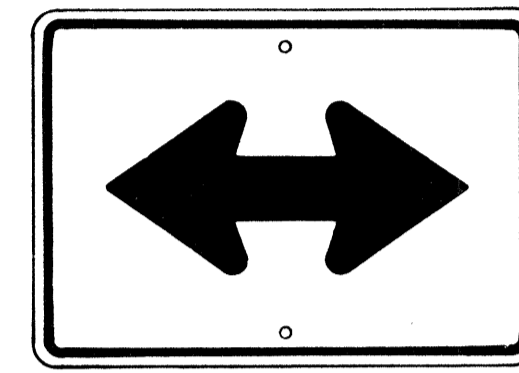
M3-1 24" x 12"
M3-1-A 36" x 18"



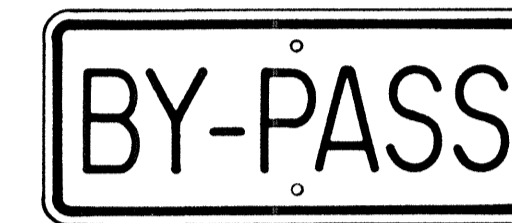
M4-1 24" x 12"



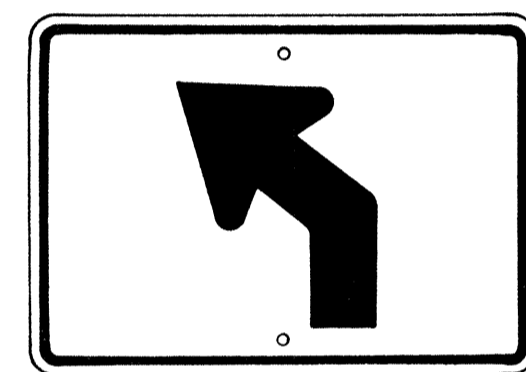
M5-1(L) 21" x 15"



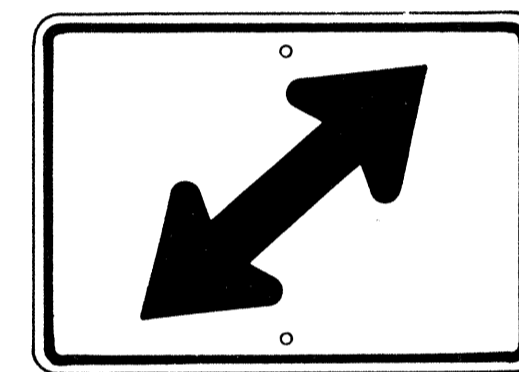
M6-4 21" x 15"



M4-2 24" x 12"



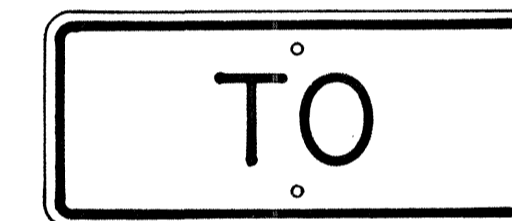
M5-2(L) 21" x 15"



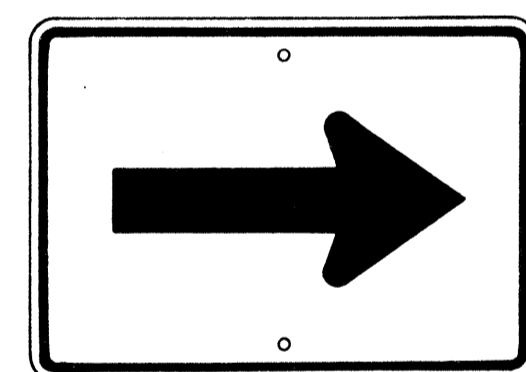
M6-5(R) 21" x 15"



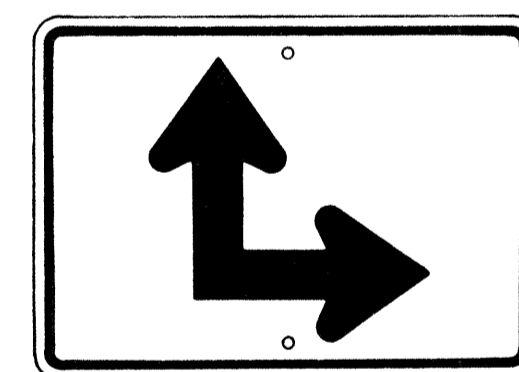
M4-3 24" x 12"



M4-5 24" x 12"



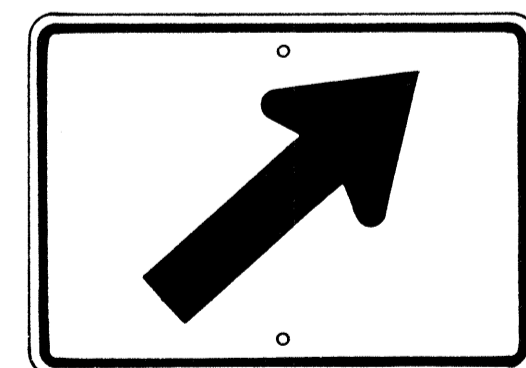
M6-1 21" x 15"



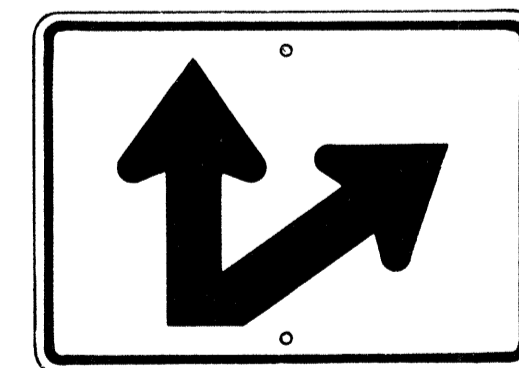
M6-6(R) 21" x 15"



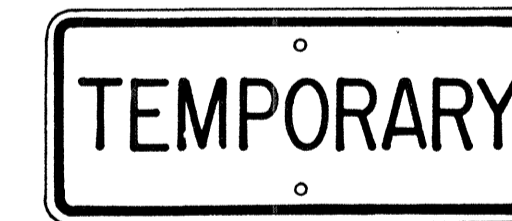
M4-6 24" x 12"



M6-2(R) 21" x 15"



M6-7(R) 21" x 15"



M4-7 24" x 12"



M4-8 24" x 12"

GENERAL NOTES

1. Marker details shall conform to the latest editions of FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," "Standard Alphabets for Highway Signs," and "Standard Highway Signs," and as amended.
2. All markers shall be reflectorized unless otherwise specified.
3. All markers shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in () indicates numerals to be inserted for marker message. (R) or (L) indicates right or left.
5. Sign message of Cardinal Direction Marker (M3 series) shall be denoted by the following:
 - M3-1 : NORTH
 - M3-2 : EAST
 - M3-3 : SOUTH
 - M3-4 : WEST
6. Markers prefixed with "IM" on the plans shall have a white legend on a blue background.

AUXILIARY MARKERS

Not to Scale

APPROVAL RECOMMENDED:

Eichi Tanaka 6/6/72
TRAFFIC ENGINEER DATE

APPROVED:

Shigeru S. Sakai 6-1-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 105 Approved 12-30-69	H.T.	6/1/72
2	Revised General Note 1	H.T.	10/16/74
3	Revised General Note 1	E.T.	9/16/85

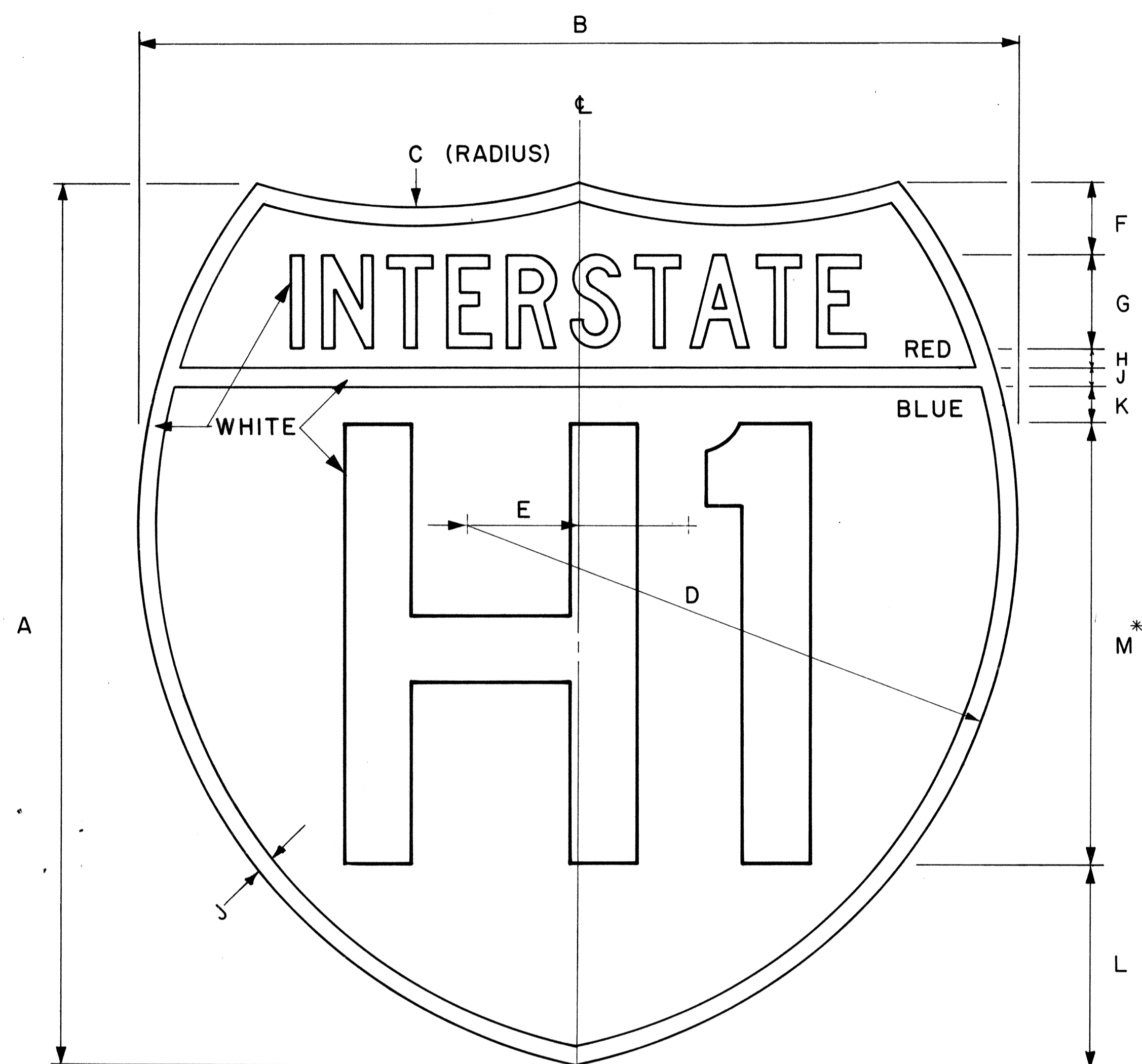
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
STATE ROUTE MARKER
AND AUXILIARY MARKERS

Scale: As Shown
SHEET No. T23 OF 35 SHEETS DT 105

DATE: _____
DRAWN BY: _____
CHECKED BY: _____
DESIGNED BY: _____
NOTED BY: _____
No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(8)	1986	56	67



INTERSTATE ROUTE MARKER
IM-1()

Scale: 3/8" = 1"

GENERAL NOTES

- Interstate route marker details shall conform to the latest FHWA publications:
 - "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
 - "Standard Alphabets for Highway Signs," and as amended.
 - "Standard Highway Signs," and as amended.
- All Interstate route markers shall be reflectorized with reflective sheeting.
- All Interstate route markers shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.
- The Interstate route marker shall be a cut-out shield in a red, white and blue design as shown on the plans.

INTERSTATE ROUTE MARKER SCHEDULE (INCHES)												
SIZE ()	A	B	C	D	E	F	G	H	J	K	L	M
1	24	24	15	15	3	2	2 1/2 C	1/2	1/2	1	5 1/2	12D
2	36	36	22 1/2	22 1/2	4 1/2	3	3 3/4 C	3/4	3/4	1 1/2	8 1/4	18D
3	48	48	30	30	6	4	5 C	1	1	2	11	24D

* If letters and numerals cannot be accommodated within available space, Series C letters may be used.

APPROVAL RECOMMENDED:

Eiichi Tanaka 4/17/78
TRAFFIC ENGINEER DATE

APPROVED:

Herbert S. Zaleishi 4/18/78
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Replaces DT 106 Approved 12/30/69.	H.T.	4-18-78

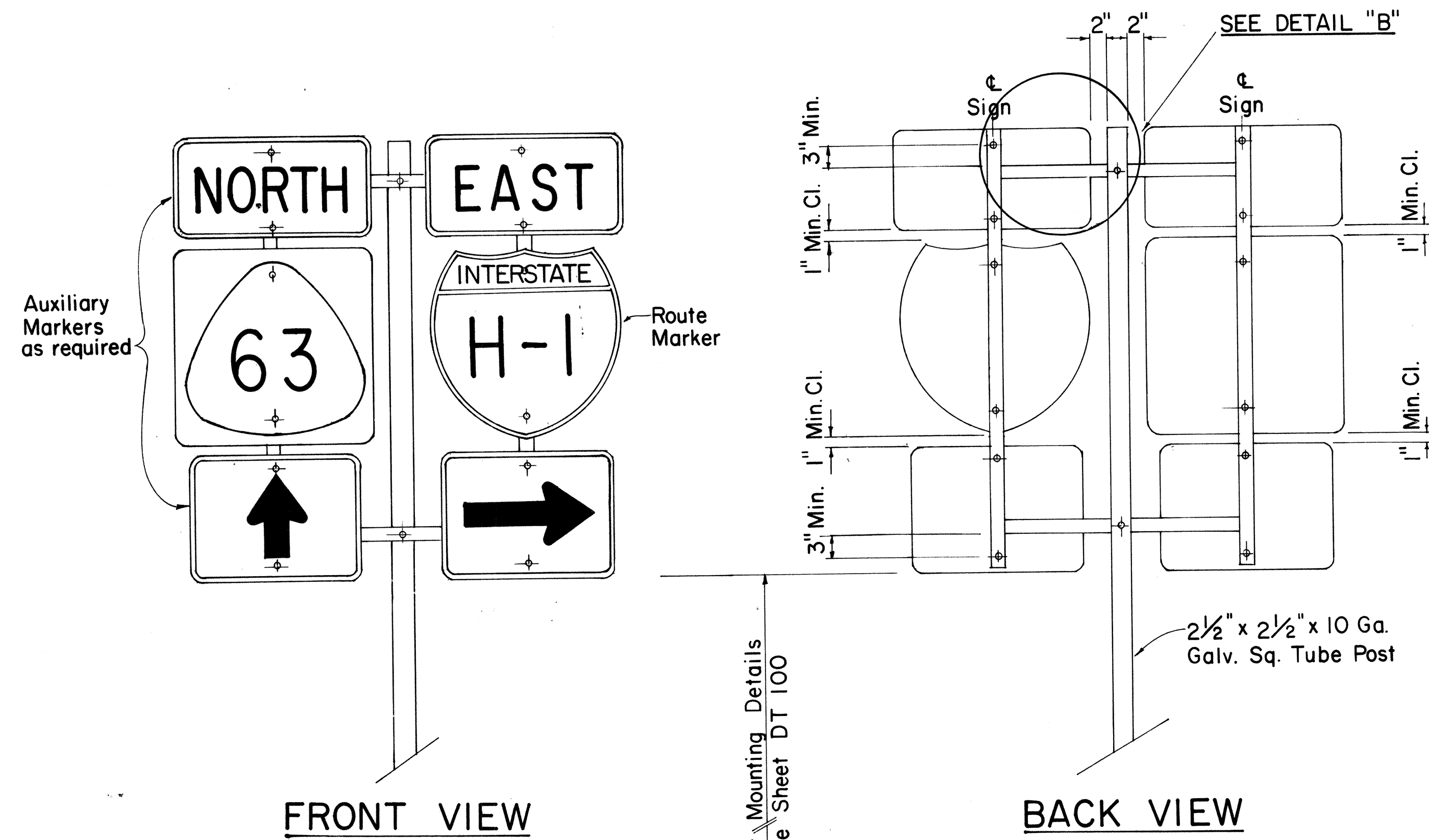
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
INTERSTATE ROUTE MARKER

Scale: 3/8" = 1" Date: January, 1978

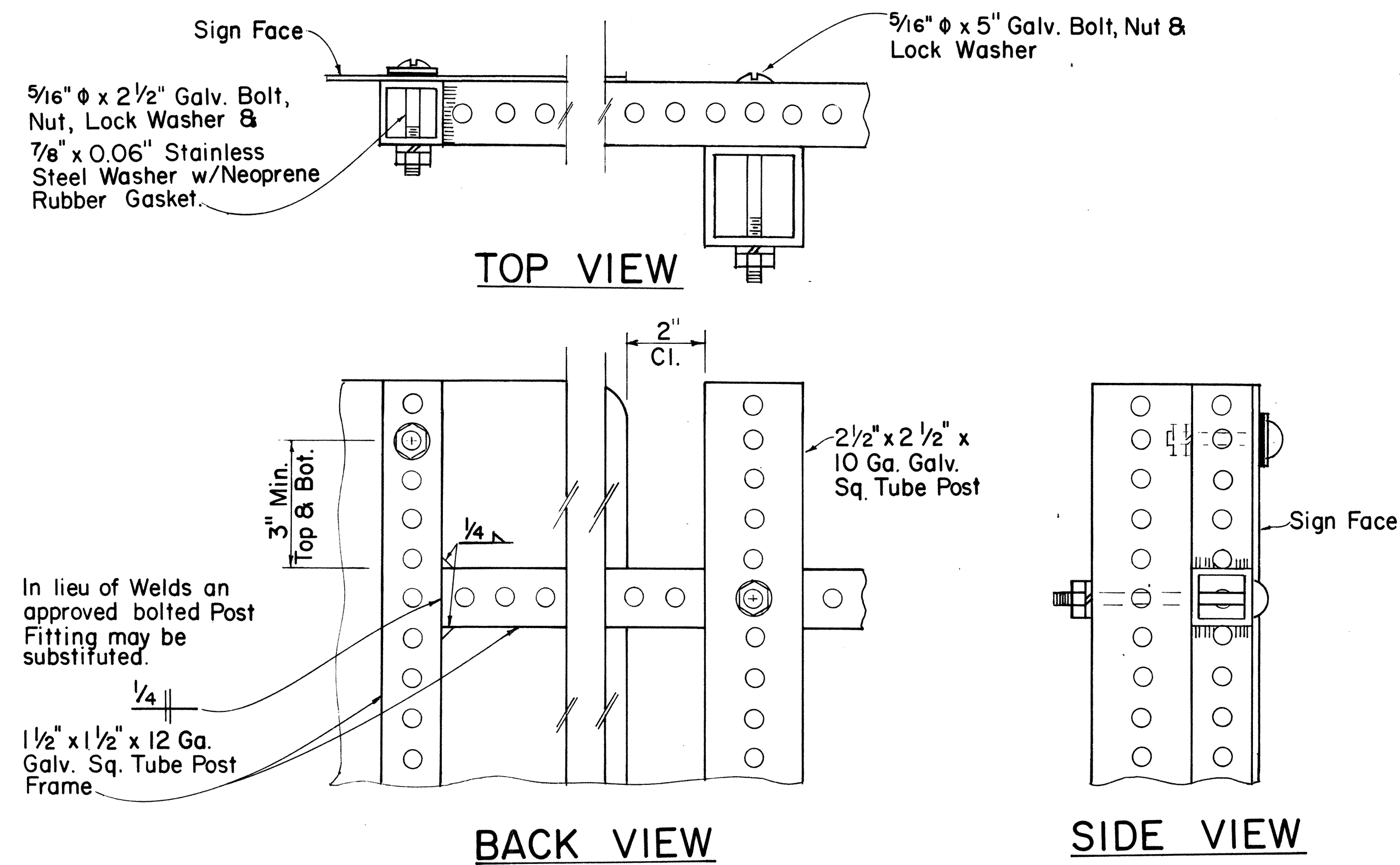
SURVEY PLOTTED BY _____ DATE _____
 DRAWN BY _____
 TRACED BY _____
 QUANTITIES BY _____
 CHECKED BY _____
 ORIGINAL PLAN _____
 NOTE BOOK _____
 No. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(18)	1986	57	67



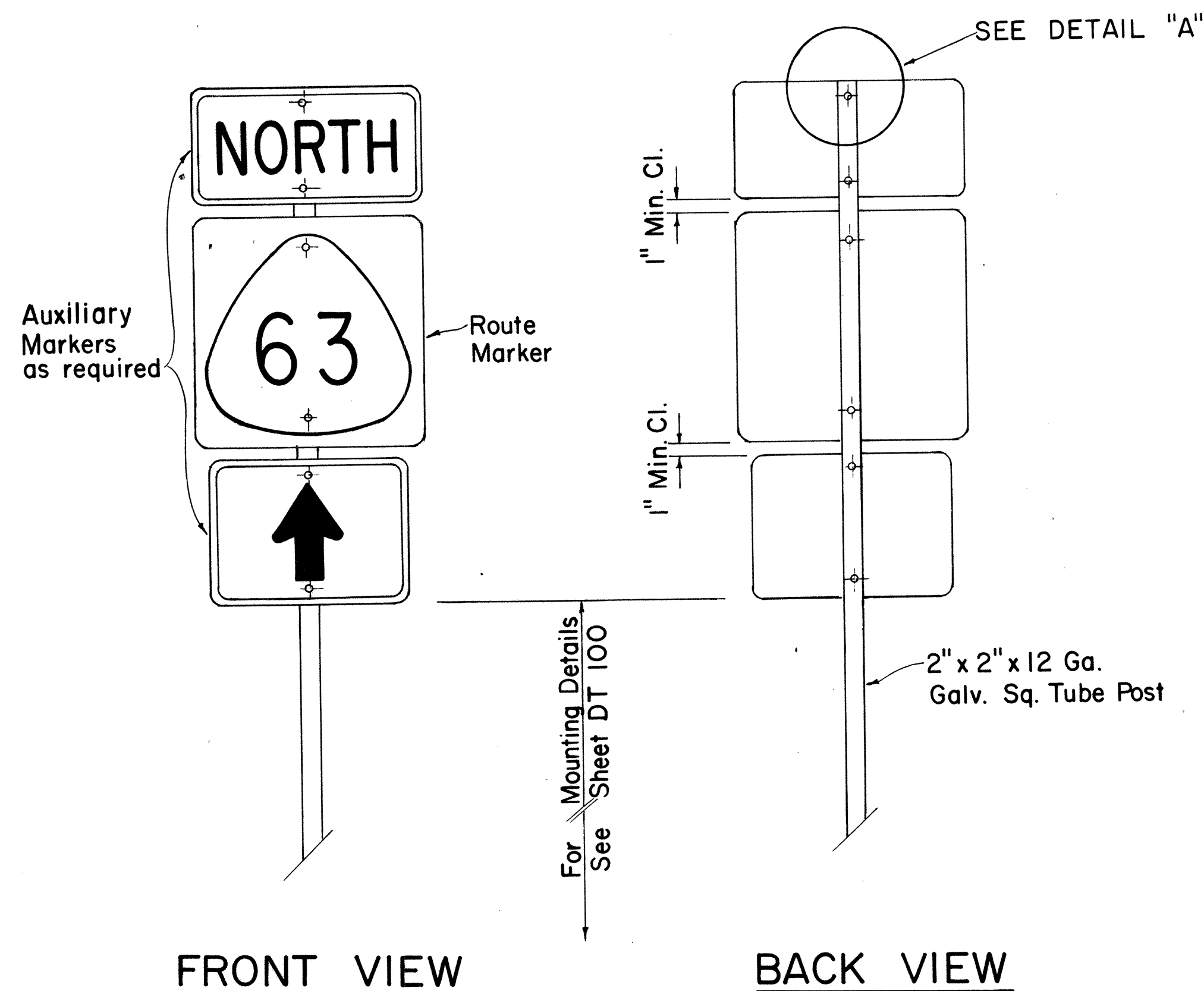
TYPE "B" ASSEMBLY

SCALE: 1" = 1'-0"



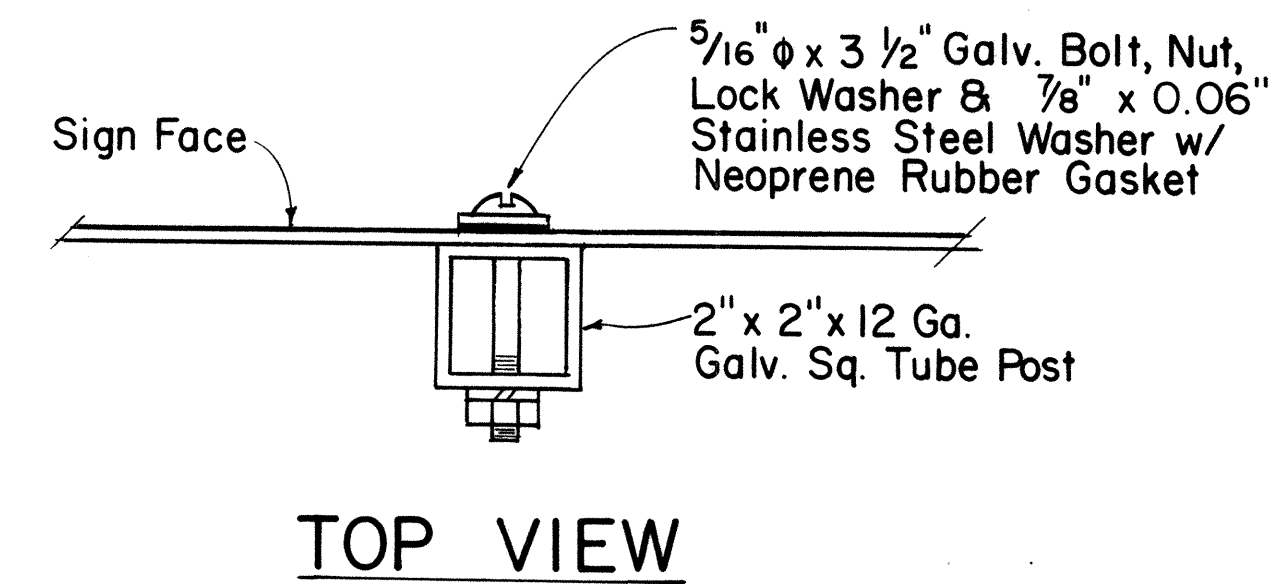
DETAIL "B"

SCALE: 3/8" = 1"



TYPE "A" ASSEMBLY

SCALE: 1" = 1'-0"



DETAIL "A"

SCALE: 3/8" = 1"

APPROVAL RECOMMENDED:

Etschi Tanaka 7/31/80
TRAFFIC ENGINEER DATE

APPROVED:

Herbert Zakeishi 7/31/80
ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 107 dated 12/30/69.	H.R.	1/31/80

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
ROUTE MARKER
ASSEMBLIES

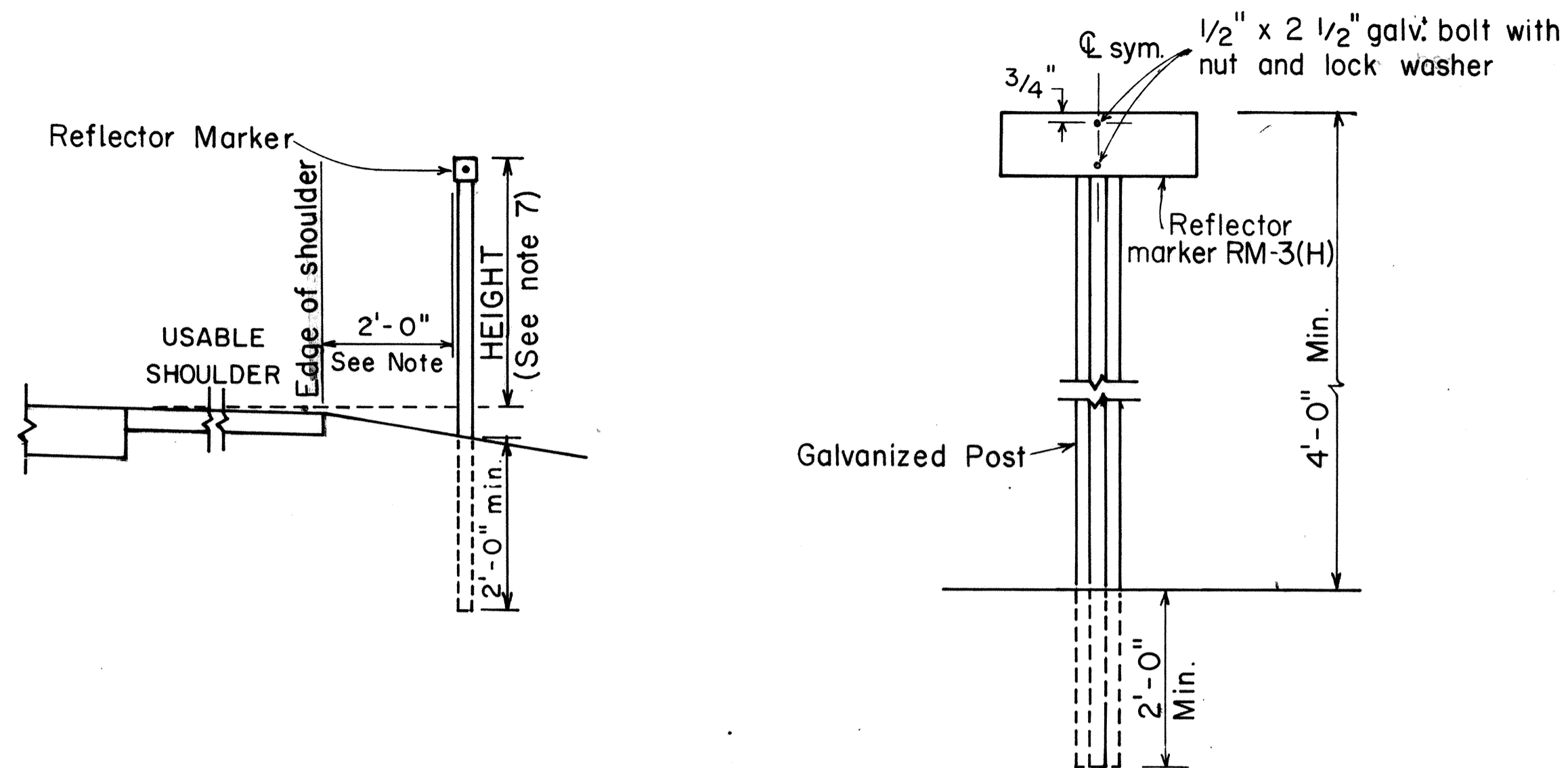
SCALE: AS SHOWN

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
QUANTITIES BY	
NO.	

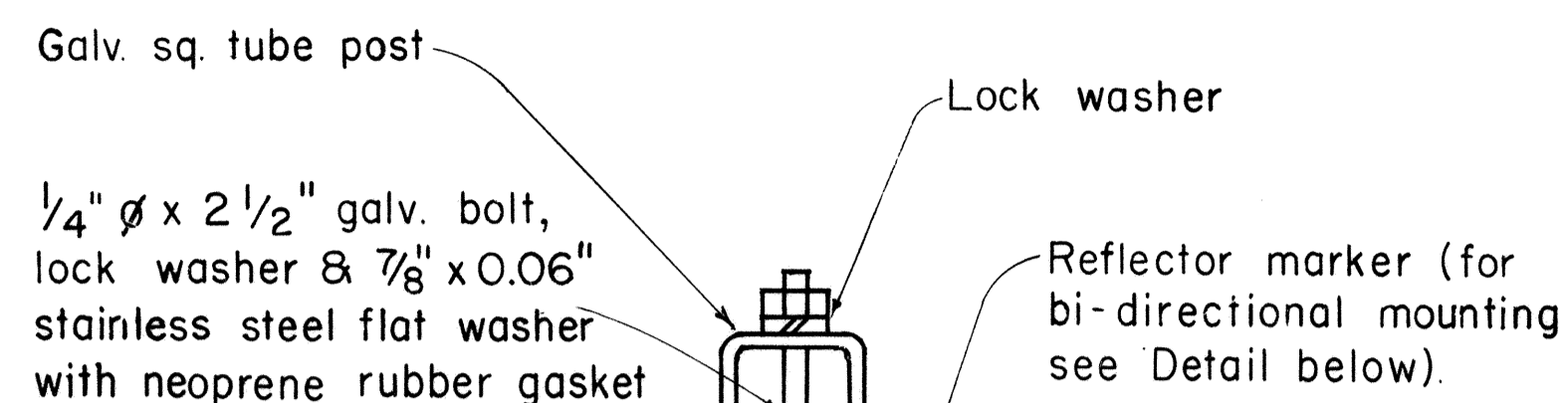
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(18)	1986	58	67

GENERAL NOTES:

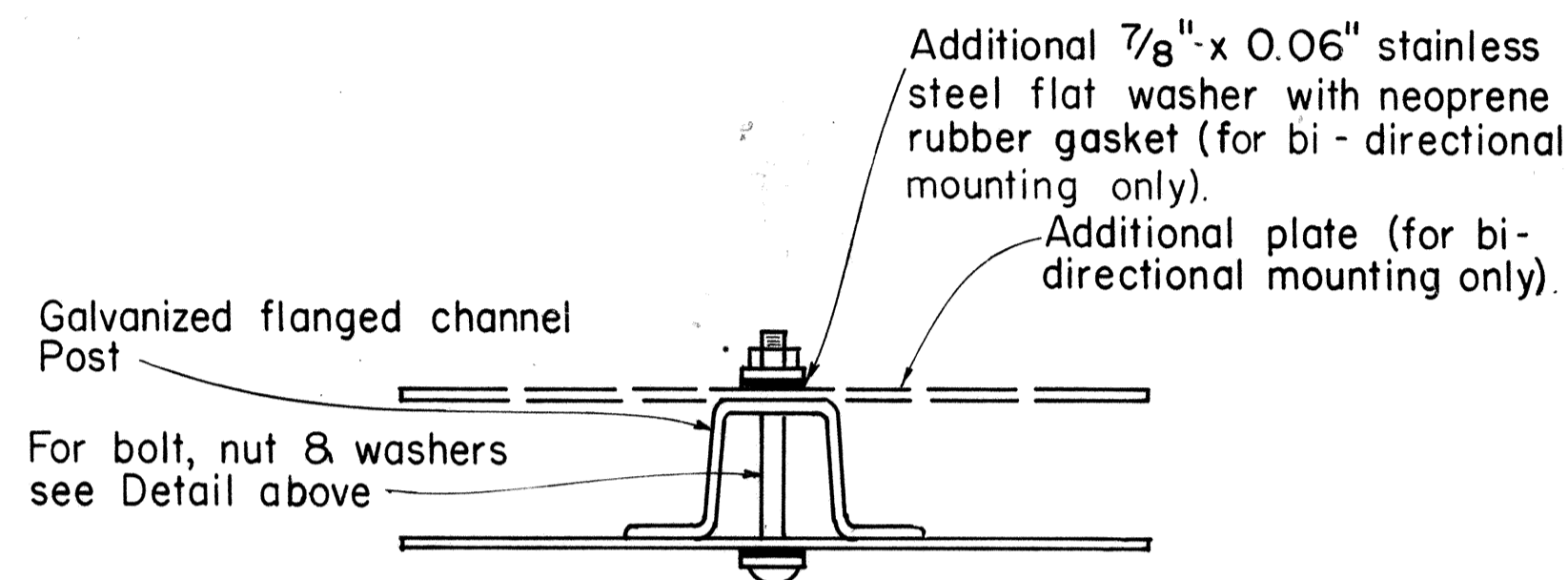
1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
 - a) Yellow if placed along the left edge of divided 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

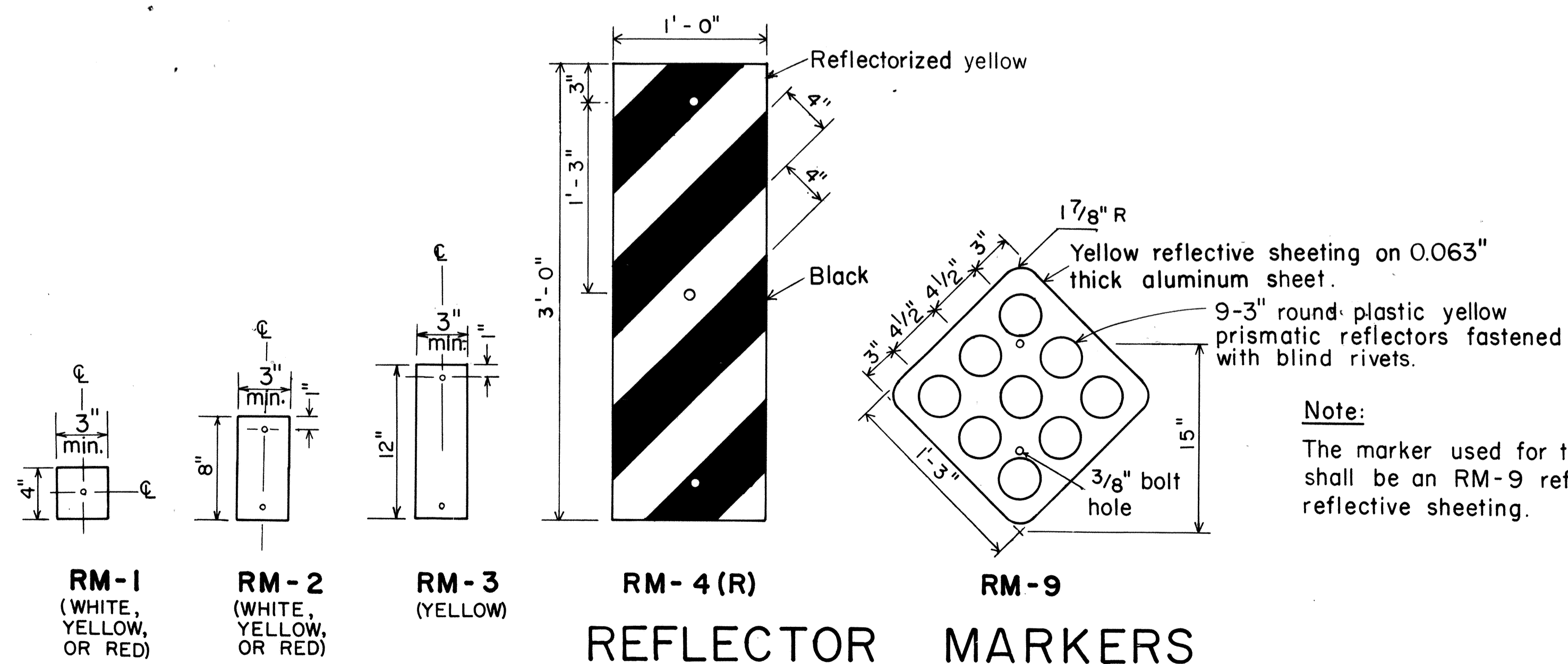


GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS



REFLECTOR MARKERS

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

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

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

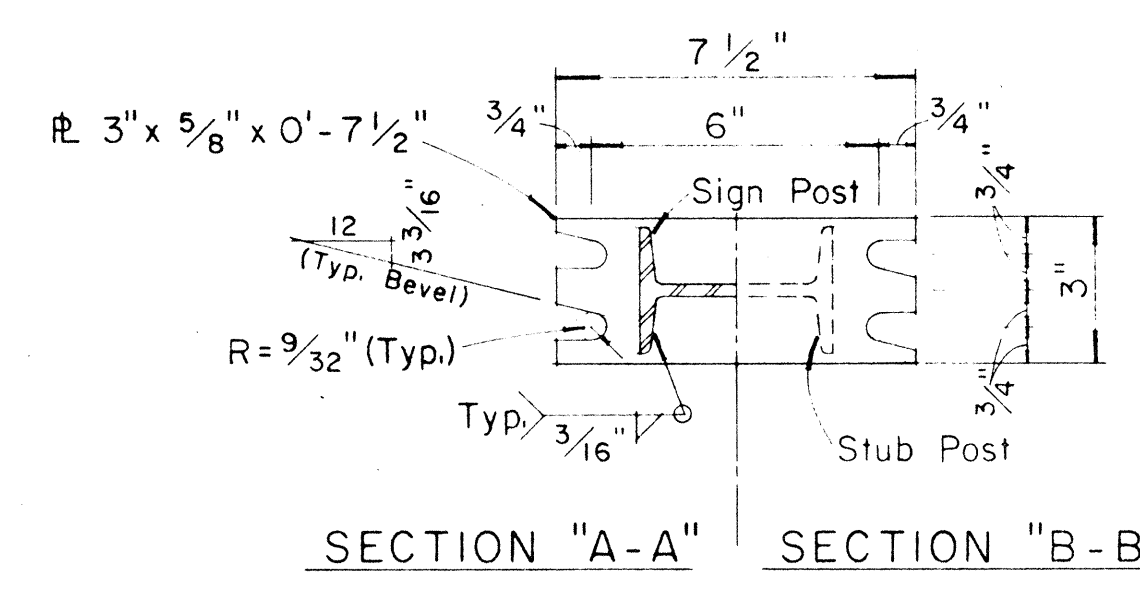
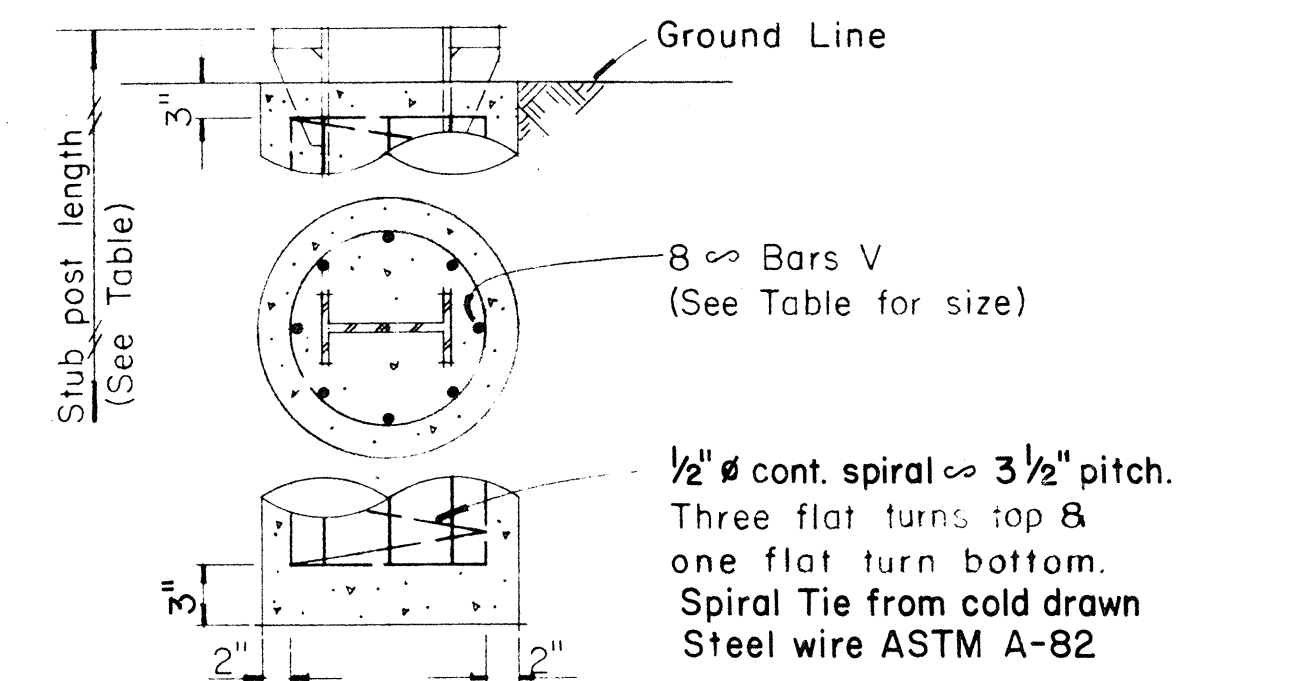
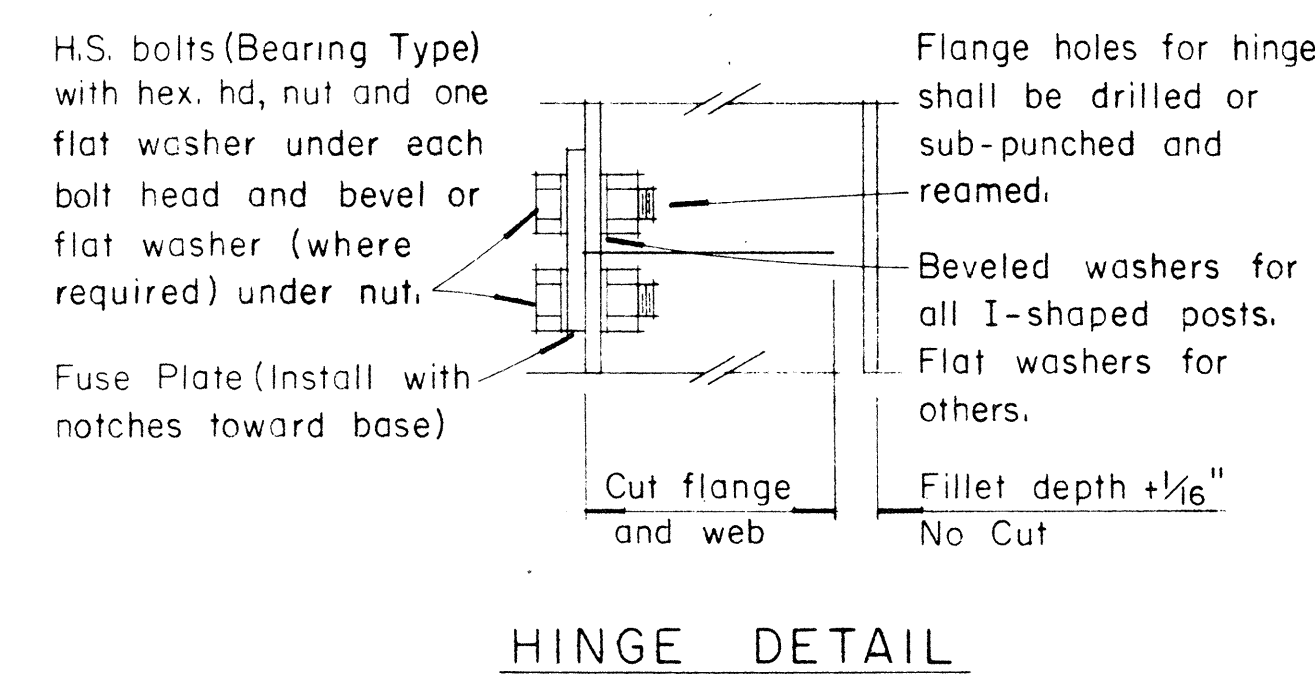
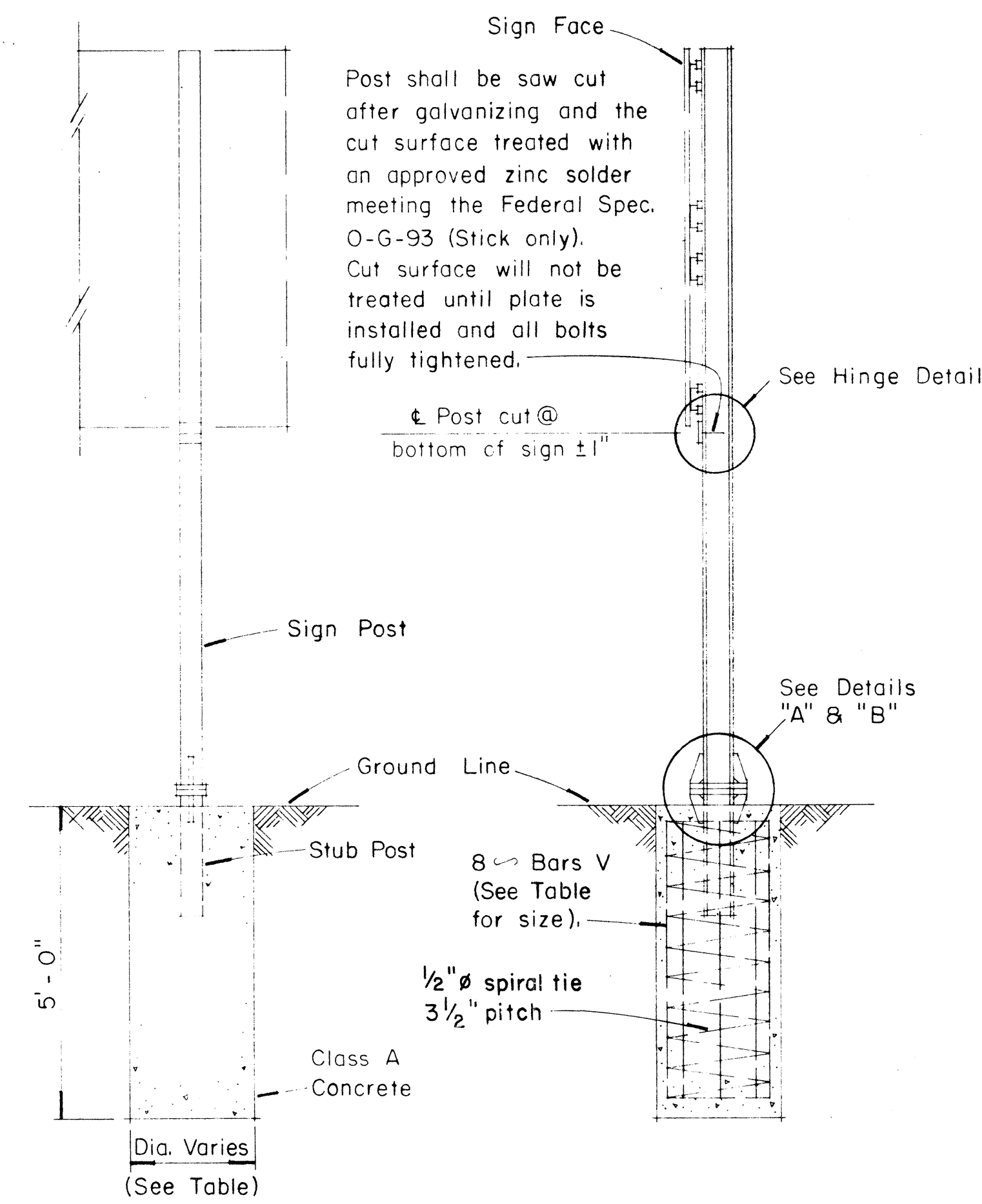
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 MISCELLANEOUS REFLECTOR MARKERS

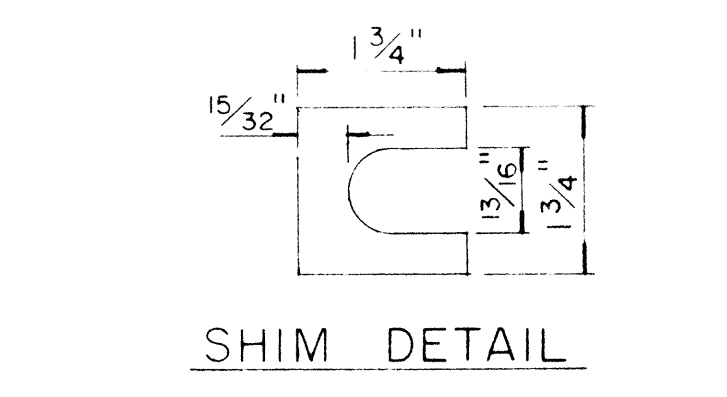
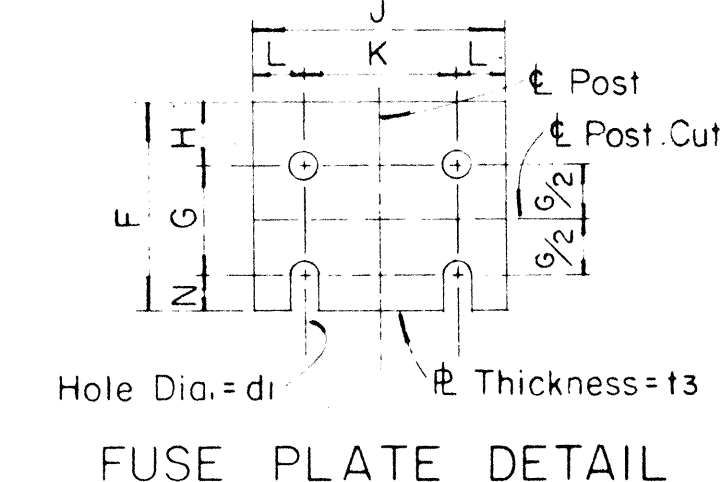
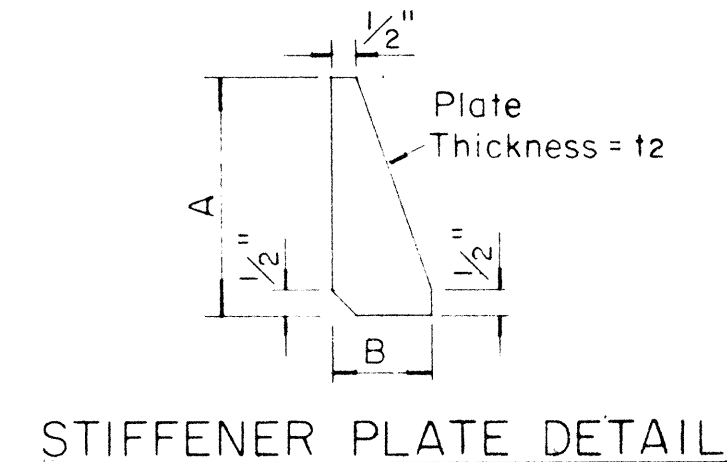
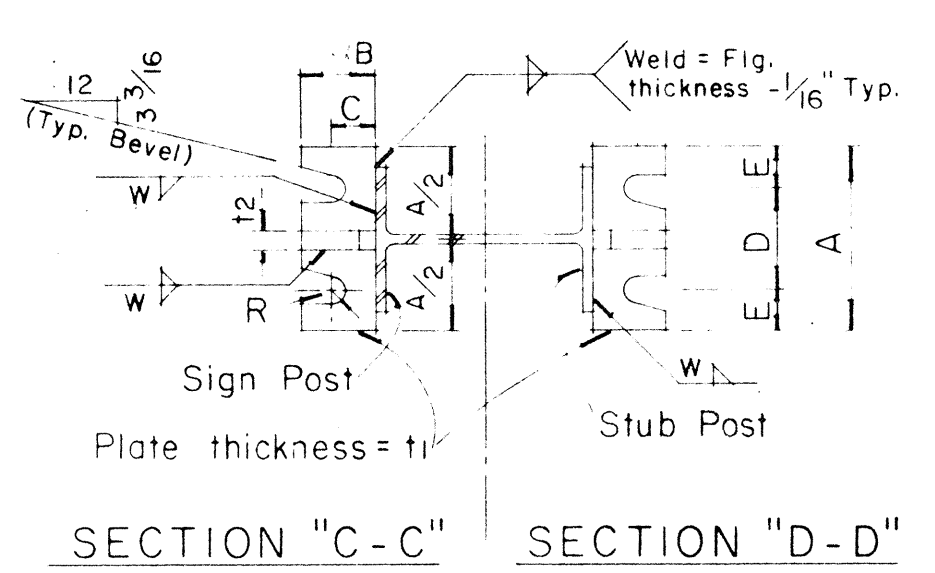
Not to scale June, 1977

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (181)	1986	59	67

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 Pl.	Stub Length	Stub Projection	Footing Diameter	Bars V Size
W6x9											3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2" ϕ	1.09#	2'-0"	3"	2'-0"	#7
W6x12	5/8" ϕ 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" ϕ	1.60#	2'-0"	3"	2'-0"	#7
W6x16											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" ϕ	3.75#	2'-6"	3"	2'-0"	#7
W8x18											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" ϕ	3.27#	2'-6"	3"	2'-0"	#7
W8x21											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" ϕ	3.93#	3'-0"	2 1/2"	2'-0"	#8
W10x22	3/4" ϕ 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" ϕ	4.75#	3'-0"	2 1/2"	2'-0"	#9
W10x26											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" ϕ	4.79#	3'-0"	2 1/2"	2'-0"	#10
W12x30											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" ϕ	5.42#	3'-0"	2 1/2"	2'-0"	#11
S3x5.7	1/2" ϕ 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" ϕ	0.64#	1'-6"	3 1/2"	1'-6"	#5
S4x7.7		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" ϕ	0.64#	1'-6"	3 1/2"	1'-6"	#5



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



GENERAL NOTES

- Design shall conform with AASHTO Specifications for the design and Construction of Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- 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" ϕ	12050 Lbs.	3/4" ϕ	28400 Lbs.
5/8" ϕ	19200 Lbs.	7/8" ϕ	36050 Lbs.
- Supplemental Sign shall not be installed below the Breakaway Hinges.

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

APPROVED:
John J. [Signature] 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Added General Note No. 9	HT	4/3/80
2	Revised description of Post Size and Foundation Detail.	TRMC	10/21/85

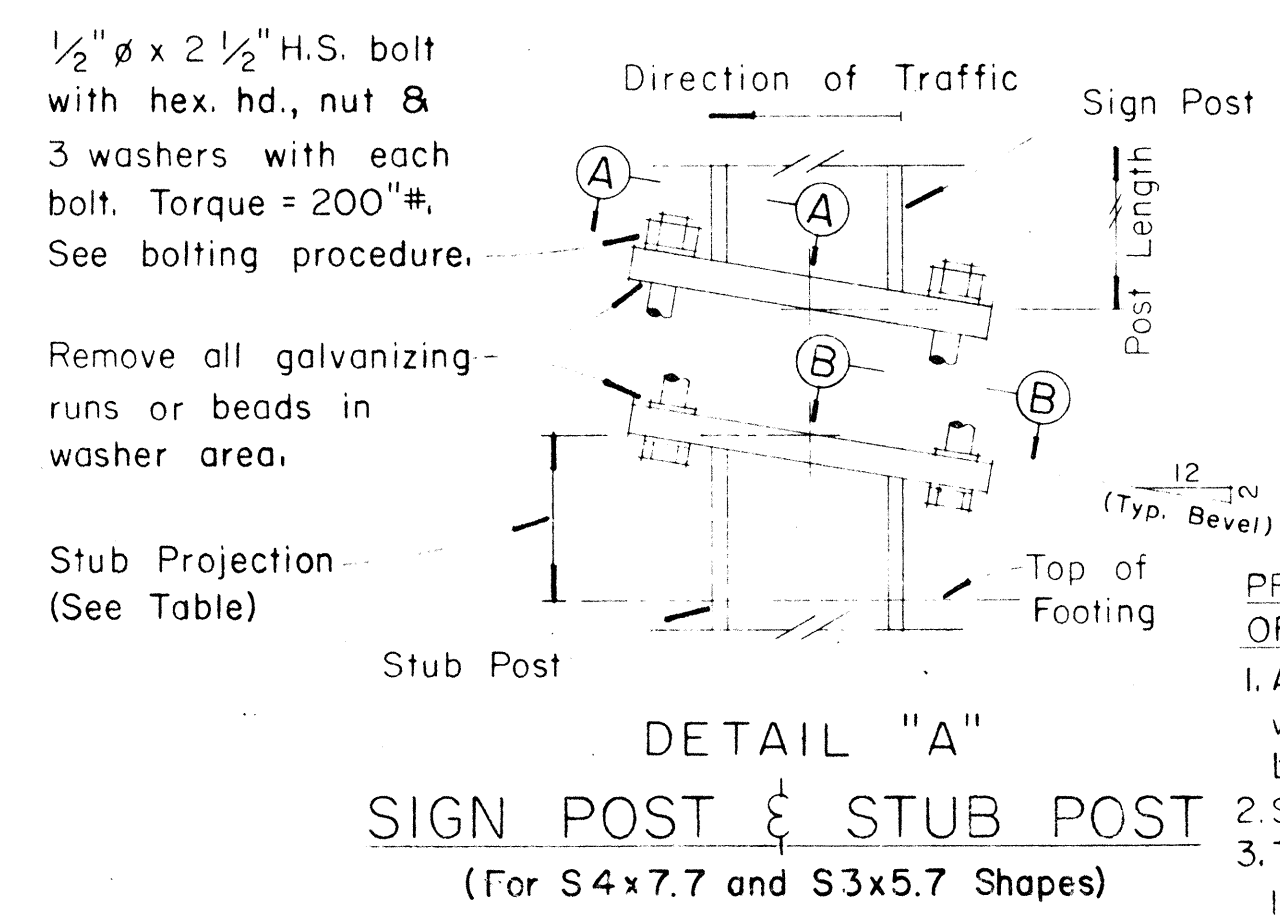
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

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

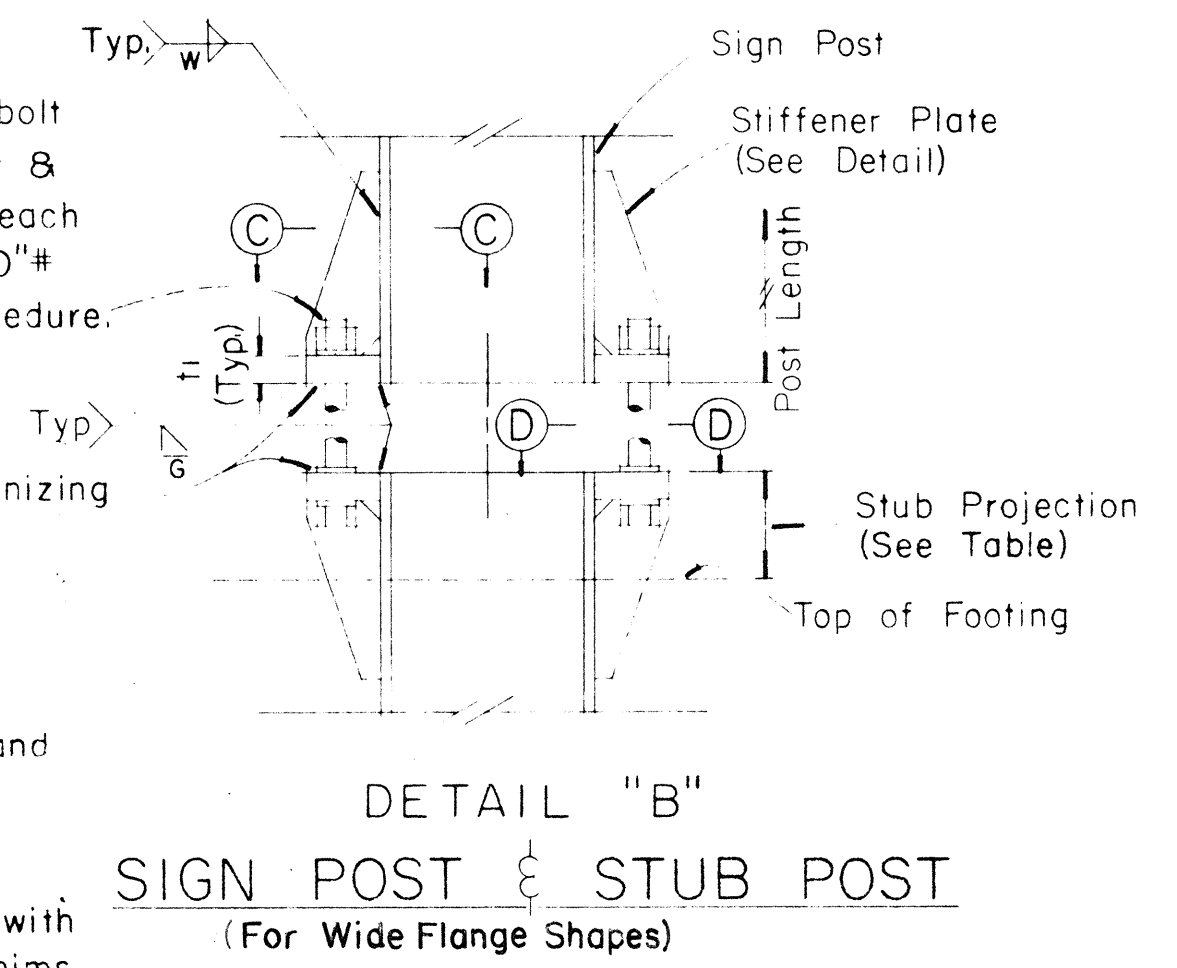
Not to Scale

SHEET No. 27 OF 35 SHEETS DT204

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



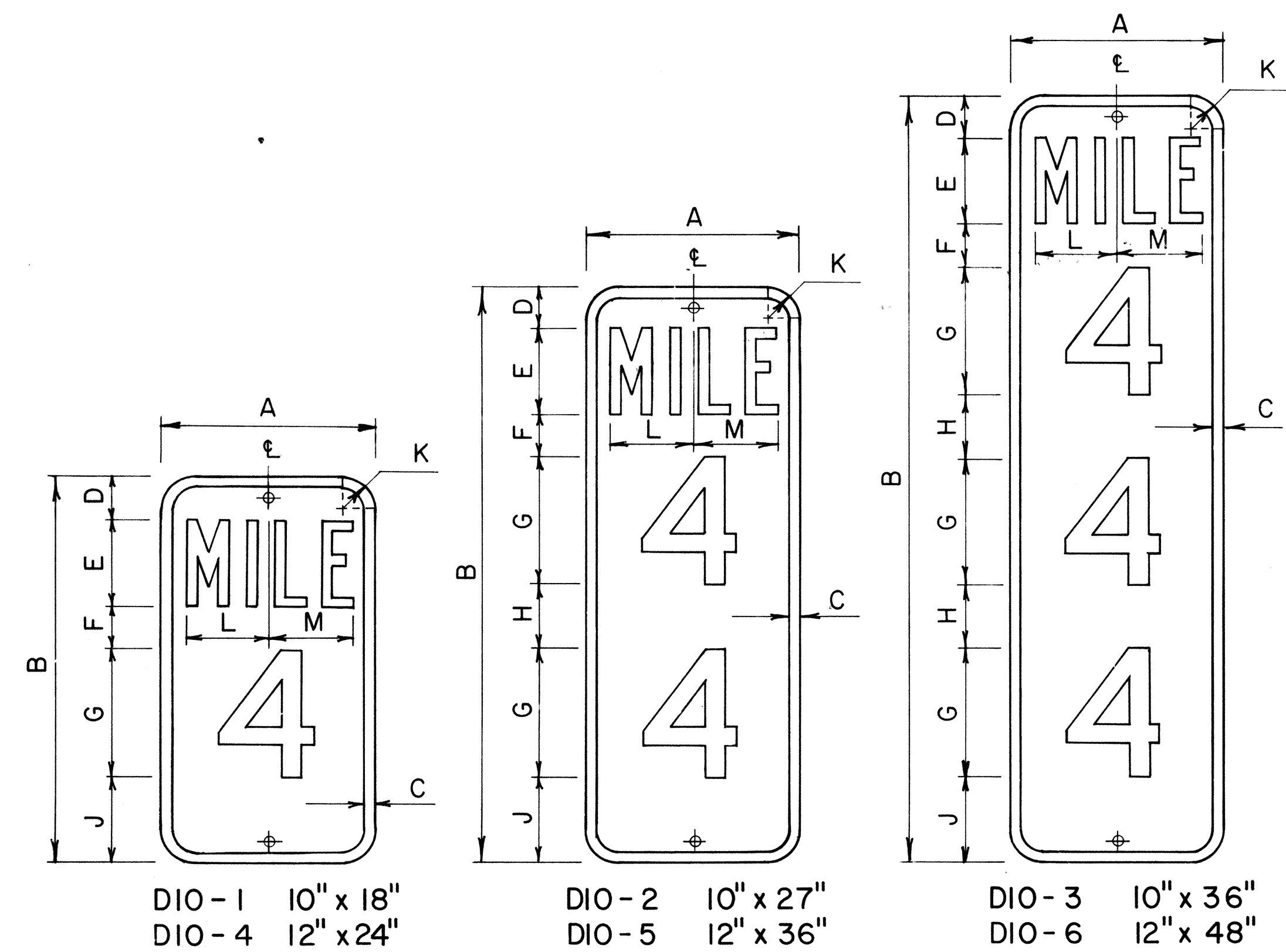
PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:
1. Assemble post to stub with bolts and with one flat washer on each bolt between plates.
2. Shim as required to plumb post.
3. Tighten all bolts the max. possible with 12" to 15" wrench to bed washers & shims and to clean bolt threads then loosen each bolt in turn & retighten bolts in systematic order to prescribed torque. (See Table)
4. 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.	IR-HI-1(18)	1986	60	67

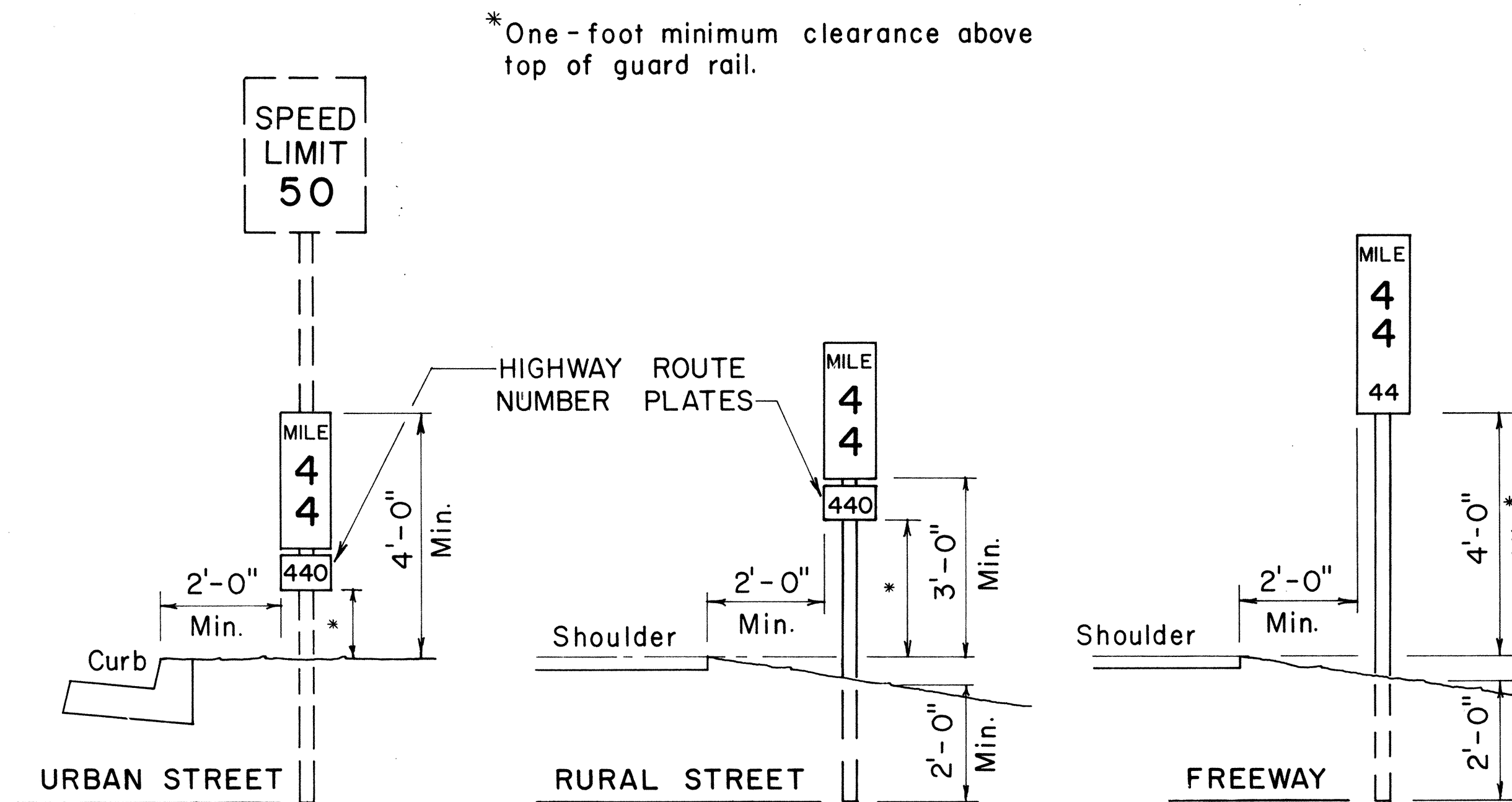
GENERAL NOTES:

- Milepost marker and highway route number plates 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.
- Milepost markers and highway route numbers shall be completely reflectorized with reflective sheeting as follows:
 - Milepost markers shall have white legends and border on a green background.
 - Highway route numbers shall have black numerals on a white background.
- The plate backings for milepost markers and highway route numbers shall conform to the requirements for standard highway signs. The plates shall have 3/8" bolt holes drilled at appropriate locations.
- Highway route number plates shall be used in conjunction with milepost marker plates on all roadways, except Interstate freeways. Fabrication and installation costs of highway route number plates shall be considered incidental to the milepost marker assembly.
- Milepost markers shall be installed on all roadways as follows:
 - One milepost on each side of multi-lane roadways.
 - Back-to-back mileposts on one side of 2-lane roadways. (Right side of roadway in direction of increasing mileage.)

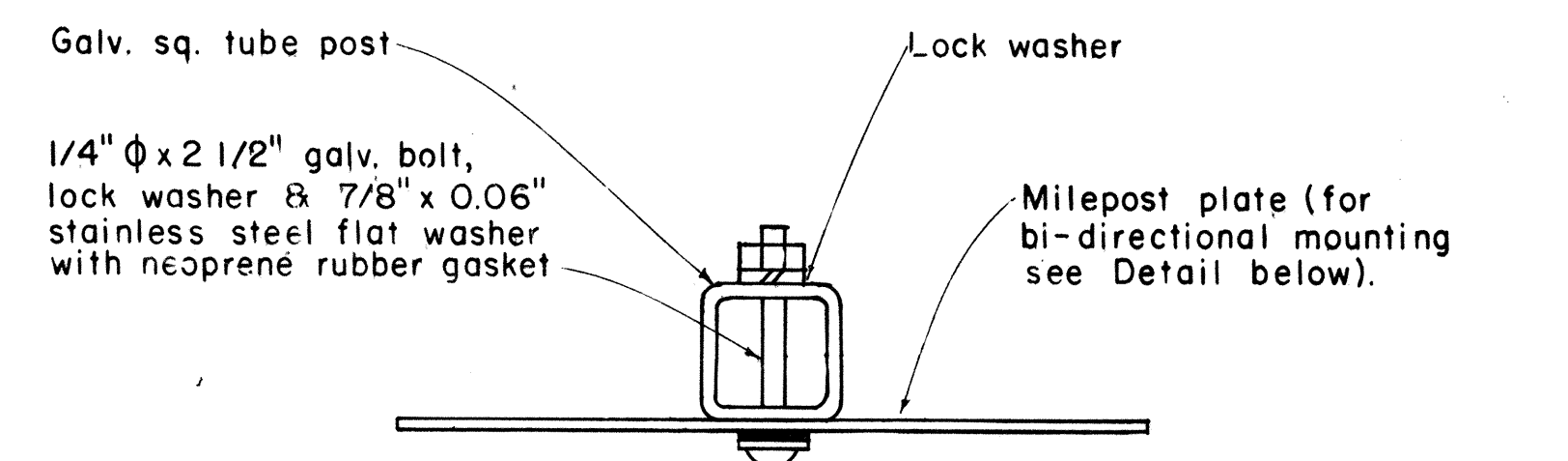


MILEPOST MARKER PLATE DETAILS
Scale: 3/16" = 1"

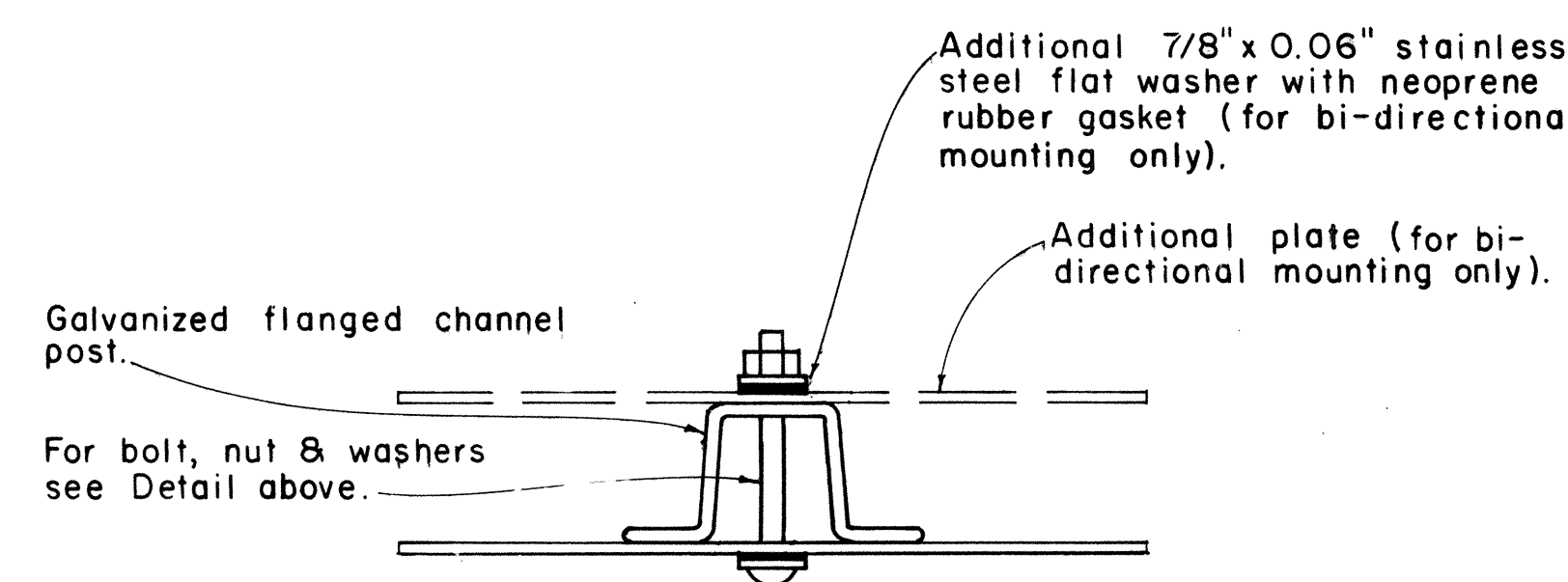
MILEPOST PLATE SCHEDULE (INCHES)															
NAME	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	LETTER SERIES	NUMERAL SERIES
DIO-1	10 x 18	10	18	1/2	2	4	2	6	4	1 1/2	3 5/8	3 3/8		B	C
DIO-4	12 x 24	12	24	1/2	3	4	3	10	4	1 1/2	4 5/8	4 3/8		C	C
DIO-2	10 x 27	10	27	1/2	2	4	2	6	3	4	1 1/2	3 5/8	3 3/8	B	C
DIO-5	12 x 36	12	36	1/2	3	4	3	10	3	3	1 1/2	4 5/8	4 3/8	C	C
DIO-3	10 x 36	10	36	1/2	2	4	2	6	3	4	1 1/2	3 5/8	3 3/8	B	C
DIO-6	12 x 48	12	48	1/2	3	4	3	10	2 1/2	3	1 1/2	4 5/8	4 3/8	C	C



TYPICAL ROADSIDE INSTALLATION
Scale: 1/2" = 1'-0"



GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS
Scale: 1/2" = 1"

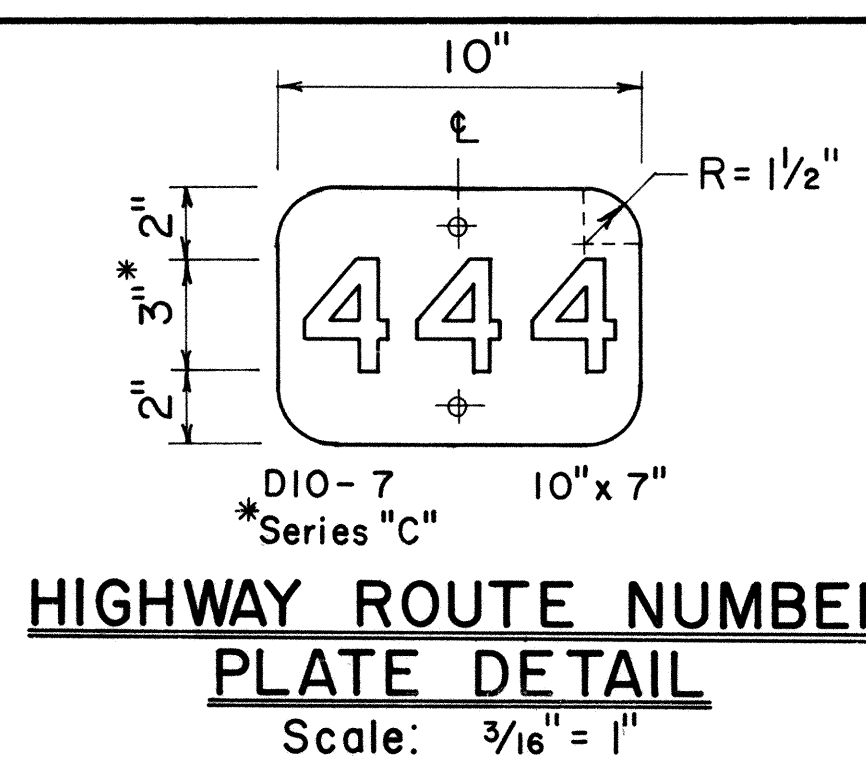
NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.K.	4/23/80

APPROVAL RECOMMENDED:
Etschi Tanaka
 TRAFFIC ENGINEER
 DATE: 1/17/78

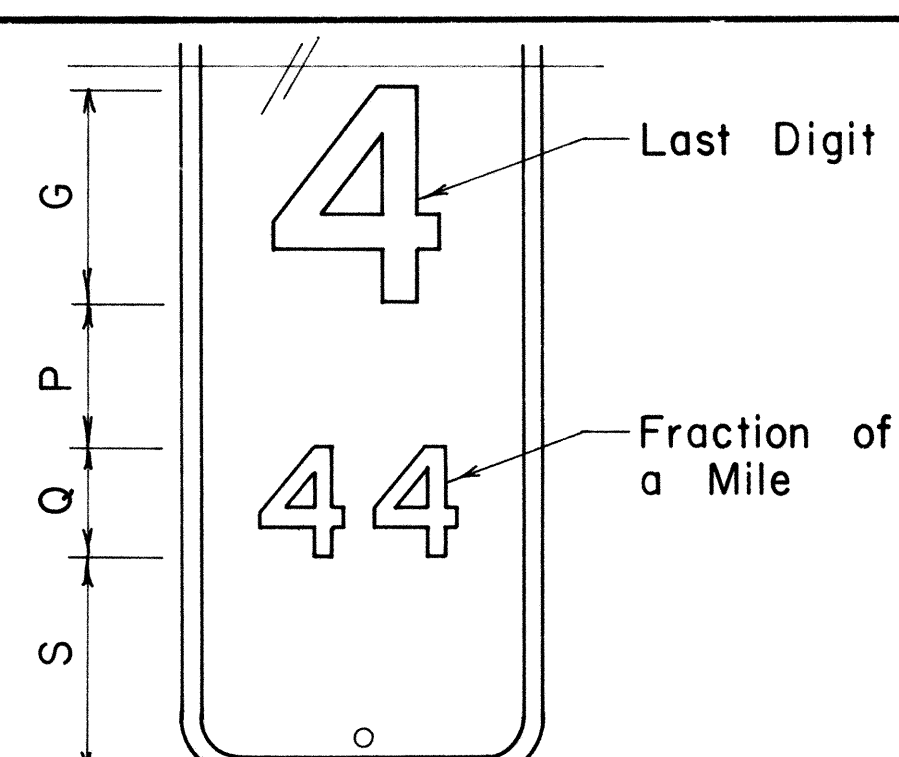
APPROVED:
Robert A. Sakai
 ASSISTANT CHIEF, ENGINEERING
 DATE: 1/12/78

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
MILEPOSTS
 SCALE: As Shown DATE: December, 1977
 SHEET No. 728 OF 35 SHEETS DT 116

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



HIGHWAY ROUTE NUMBER PLATE DETAIL
Scale: 3/16" = 1"



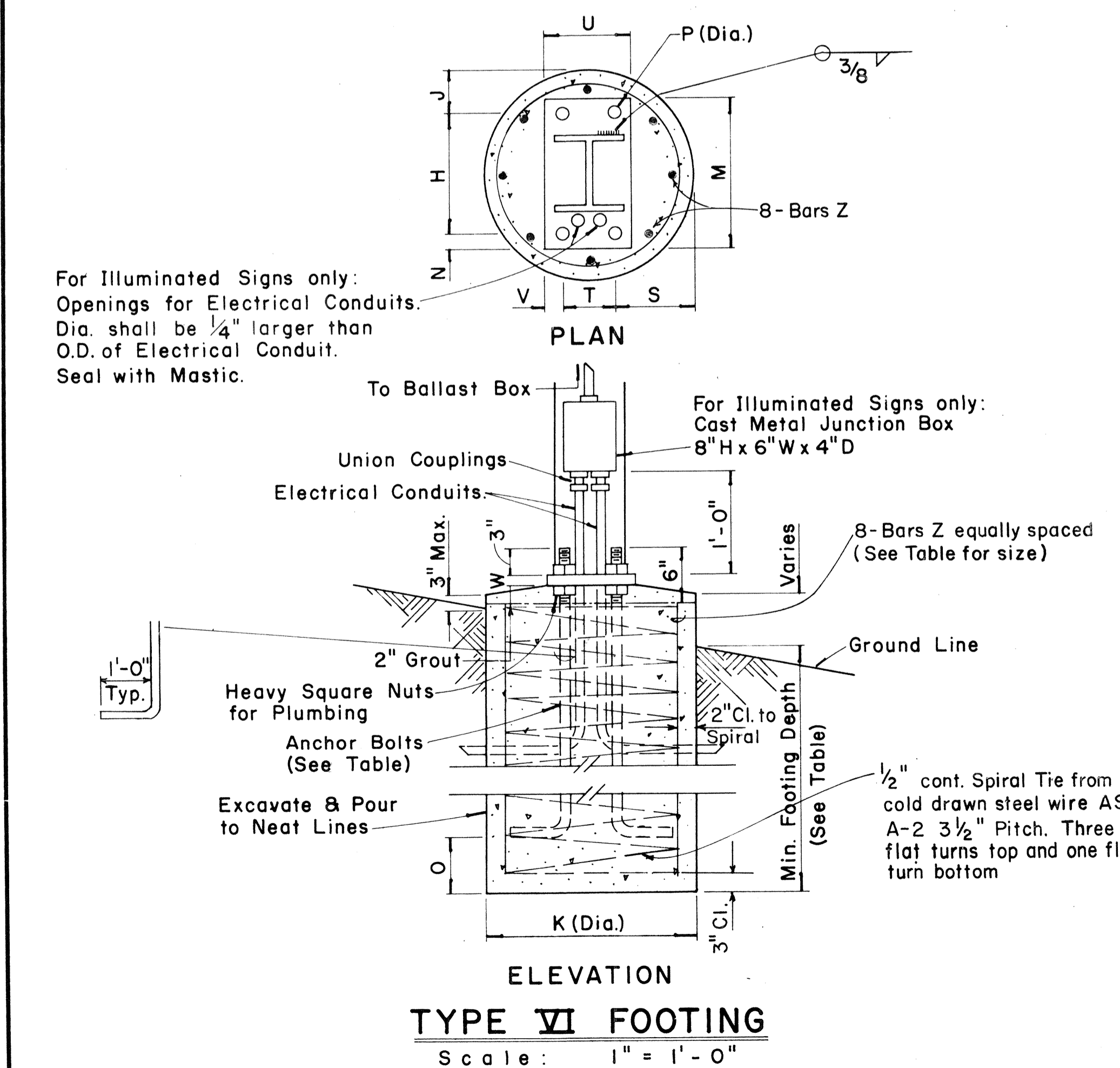
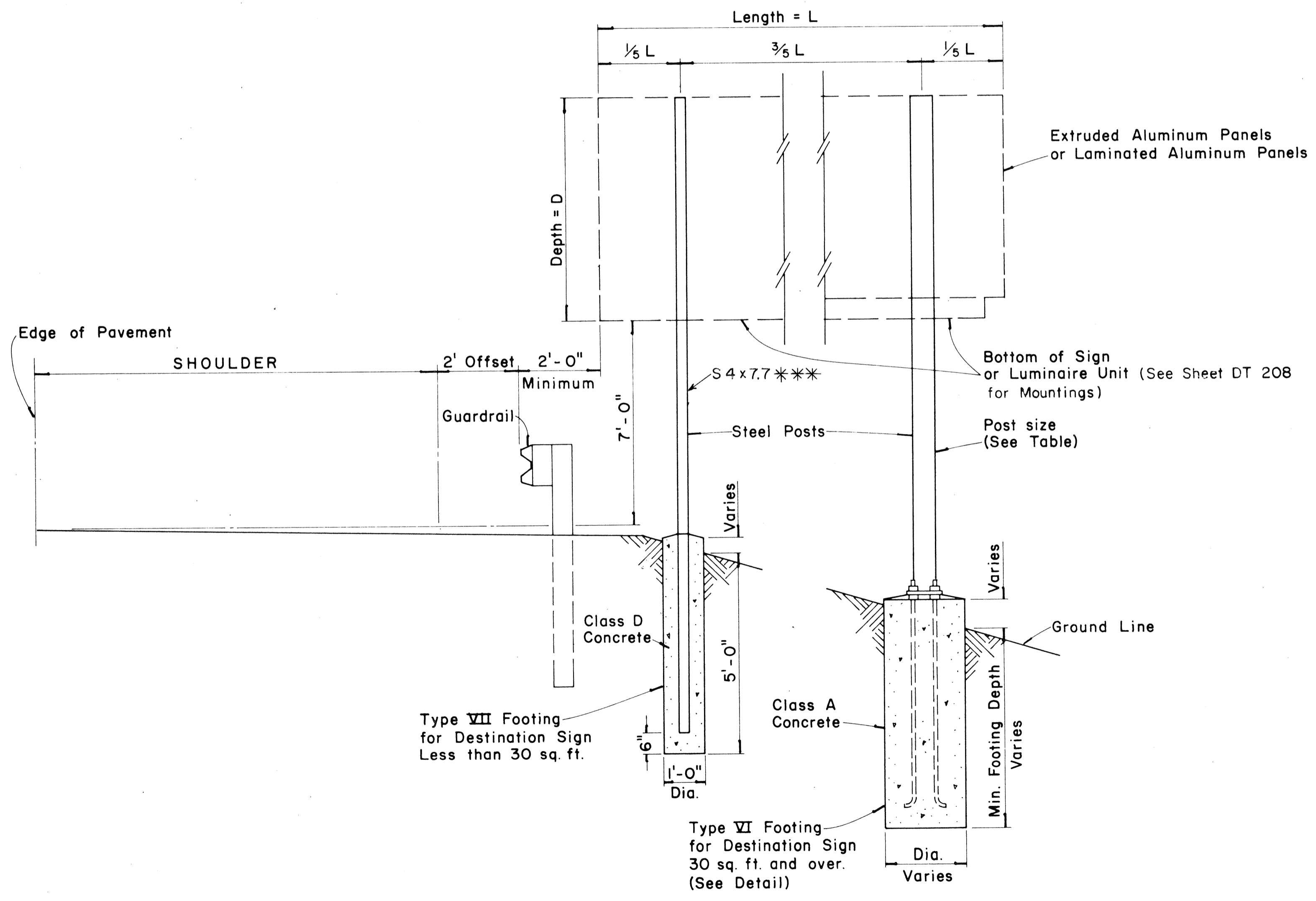
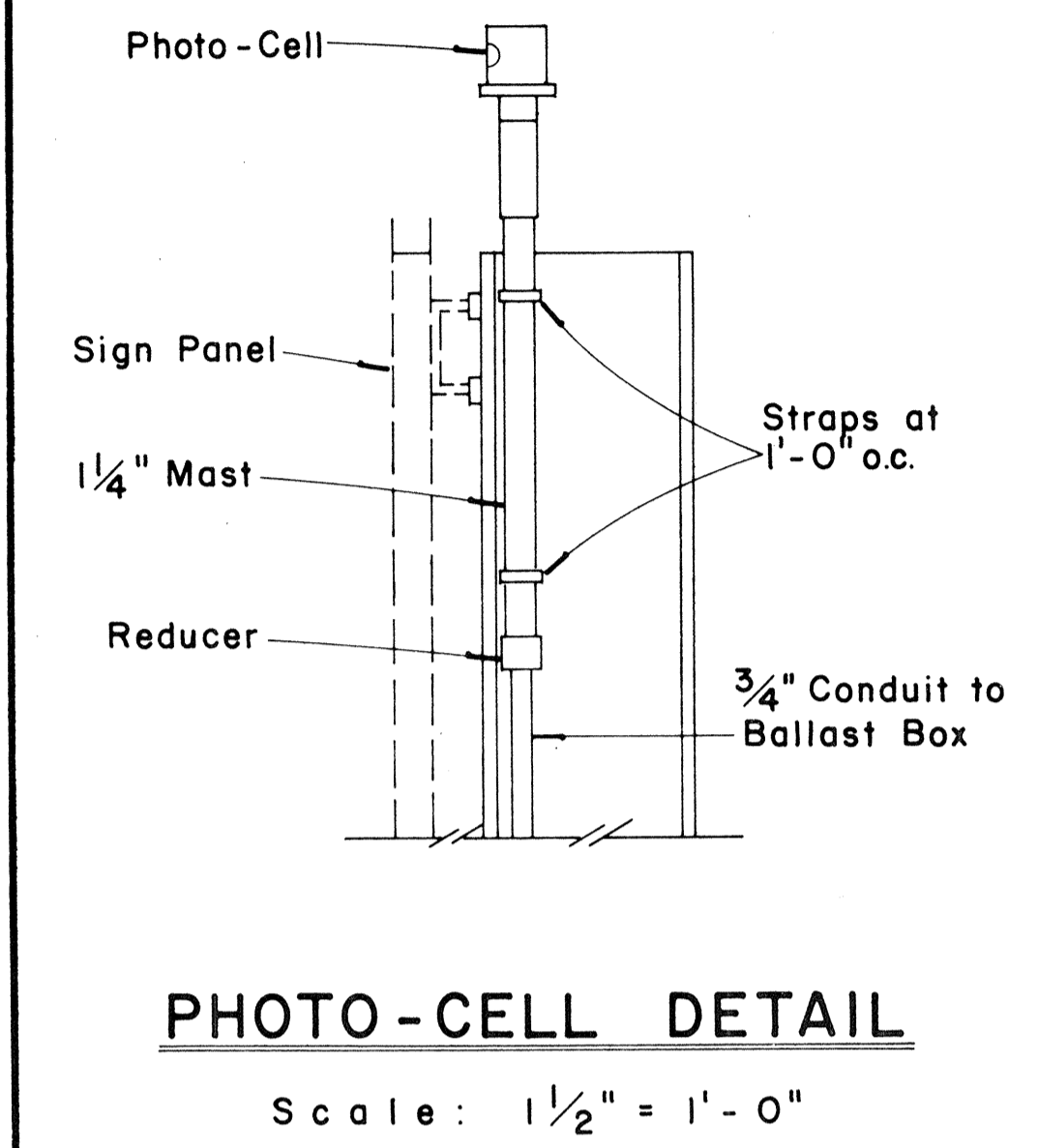
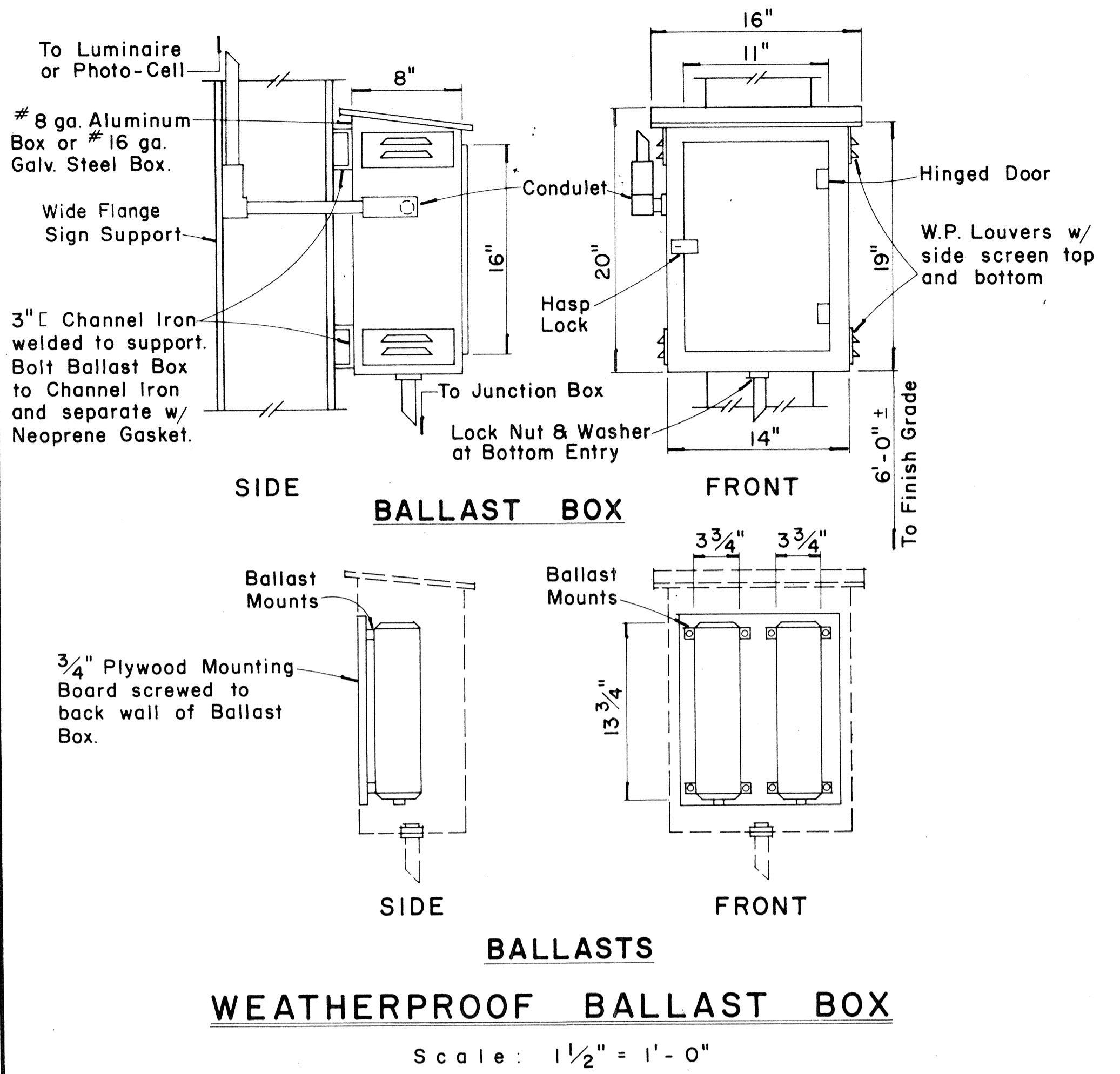
MILEPOST MARKER FRACTION DETAIL
Scale: 3/16" = 1"

MILEPOST PLATE SCHEDULE WITH FRACTION OF A MILE						
NAME	SIZE	G	P	Q	S	NUMERAL SERIES
DIO-1a	10" x 27"	6"	4"	3"	6"	C
DIO-4a	12" x 36"	10"	4"	5"	7"	C
DIO-2a	10" x 36"	6"	4"	3"	6"	C
DIO-5a	12" x 48"	10"	4"	5"	6"	C
DIO-3a	10" x 45"	6"	4"	3"	6"	C
DIO-6a	12" x 60"	10"	4"	5"	6"	C

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1 (181)	1986	61	67

* 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.
 *** All posts shall conform to ASTM A36

POST SIZE ***	MAXIMUM SIGN AREA	POST HEIGHT TOP OF FOUNDATION TO CENTER OF SIGN *	DIMENSIONS													ANCHOR BOLT DIA.	MINIMUM FOOTING DEPTH		BARS Z SIZE
			H	J	K	M	N	O	P	S	T	U	V	W	CUT		FILL**		
W6x12	70 sq. ft.	10'	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'	# 7	
W6x16	110 sq. ft.	13'							1 3/8"						1 1/4"	5'	5'	# 8	
W8x24	150 sq. ft.	16'	16 1/2"	6 3/4"	30"	20"	1 3/4"		1 1/2"	11 3/4"	6 1/2"		1 3/4"	1 1/2"	1 1/4" ø	5 1/2'	6 1/2'	# 8	
W8x28	170 sq. ft.	20'							1 1/2"						1 3/8" ø	5 1/2'	6 1/2'	# 8	
W8x31	190 sq. ft.	20'	16 1/4"	6 7/8"			1 7/8"		1 5/8"	11 7/8"	6 1/4"		1 7/8"	1 1/2"	1 1/2" ø	6'	7'	# 8	
W10x33	230 sq. ft.	20'	20 1/4"	4 7/8"		24"			1 5/8"	10 7/8"	8 1/4"	12"	2"		1 1/2" ø	7'	7'	# 8	
W10x39	250 sq. ft.	20'							1 5/8"						1 1/2" ø	7'	7 1/2'	# 8	



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

APPROVED:
John E. Salter 12-30-69
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Add note for luminaire mounting.	H.I.	6/2/50
2	Revised Data Table, Typical Expressway Sign, Ballasts and Footing	GJM c	10/21/85

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 DESTINATION & GROUND MOUNTED
 EXPRESSWAY SIGN

Scale: As Shown
 SHEET No. T 29 OF 35 SHEETS DT 203

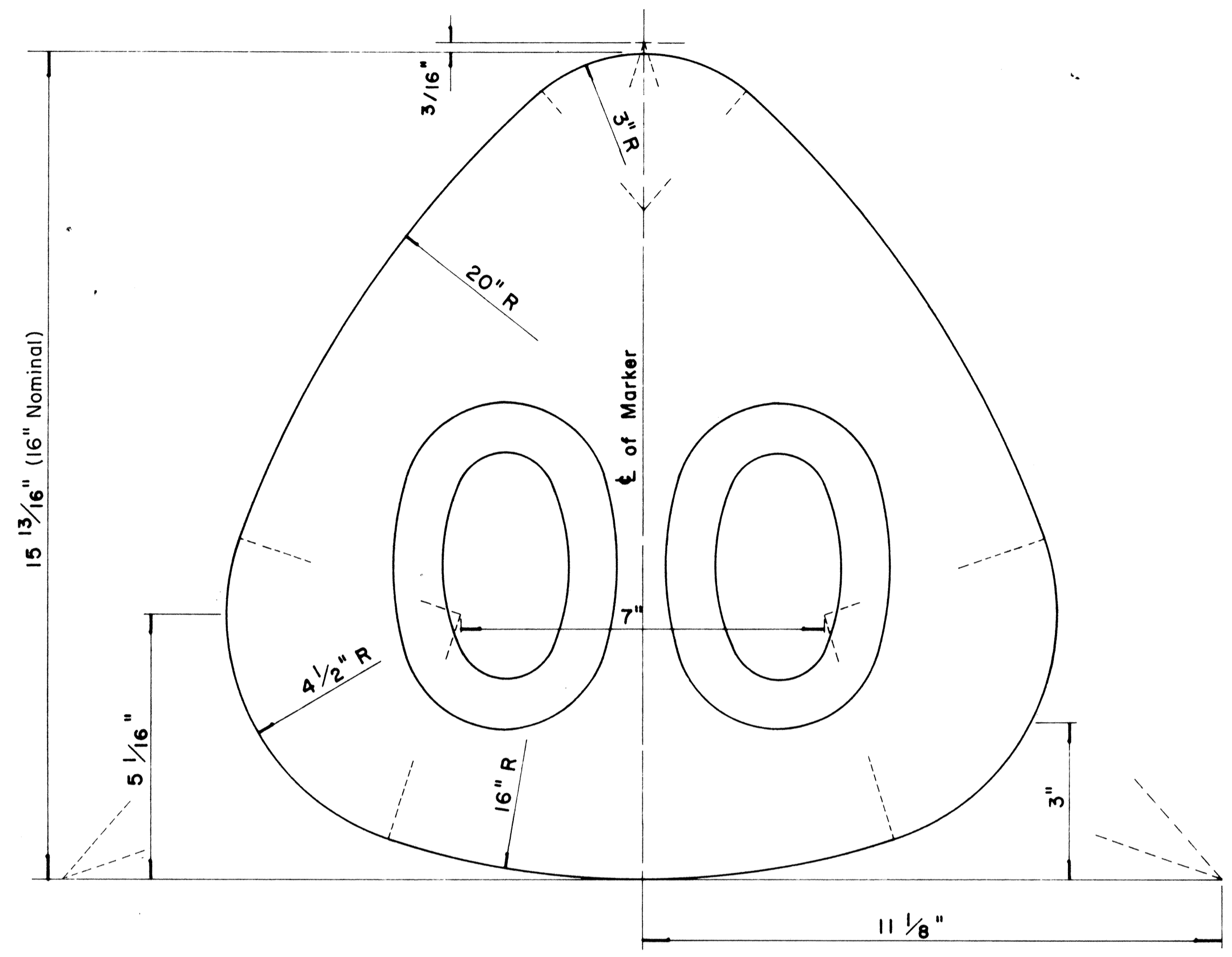
DATE
 SURVEY PLACED BY
 DRAWN BY
 TRACED BY
 CHECKED BY
 QUANTITIES BY
 ORIGINAL PLAN
 NOTE BOOK
 No.

TYPICAL DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

Not to Scale

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(161)	1966	62	67

MARKER SIZE	MULTIPLY DIMENSIONS BY	NUMERAL SIZE
21"	1.3	8"
32"	2.0	12"
42"	2.63	16"



**STATE ROUTE MARKER
FOR GUIDE SIGNS**

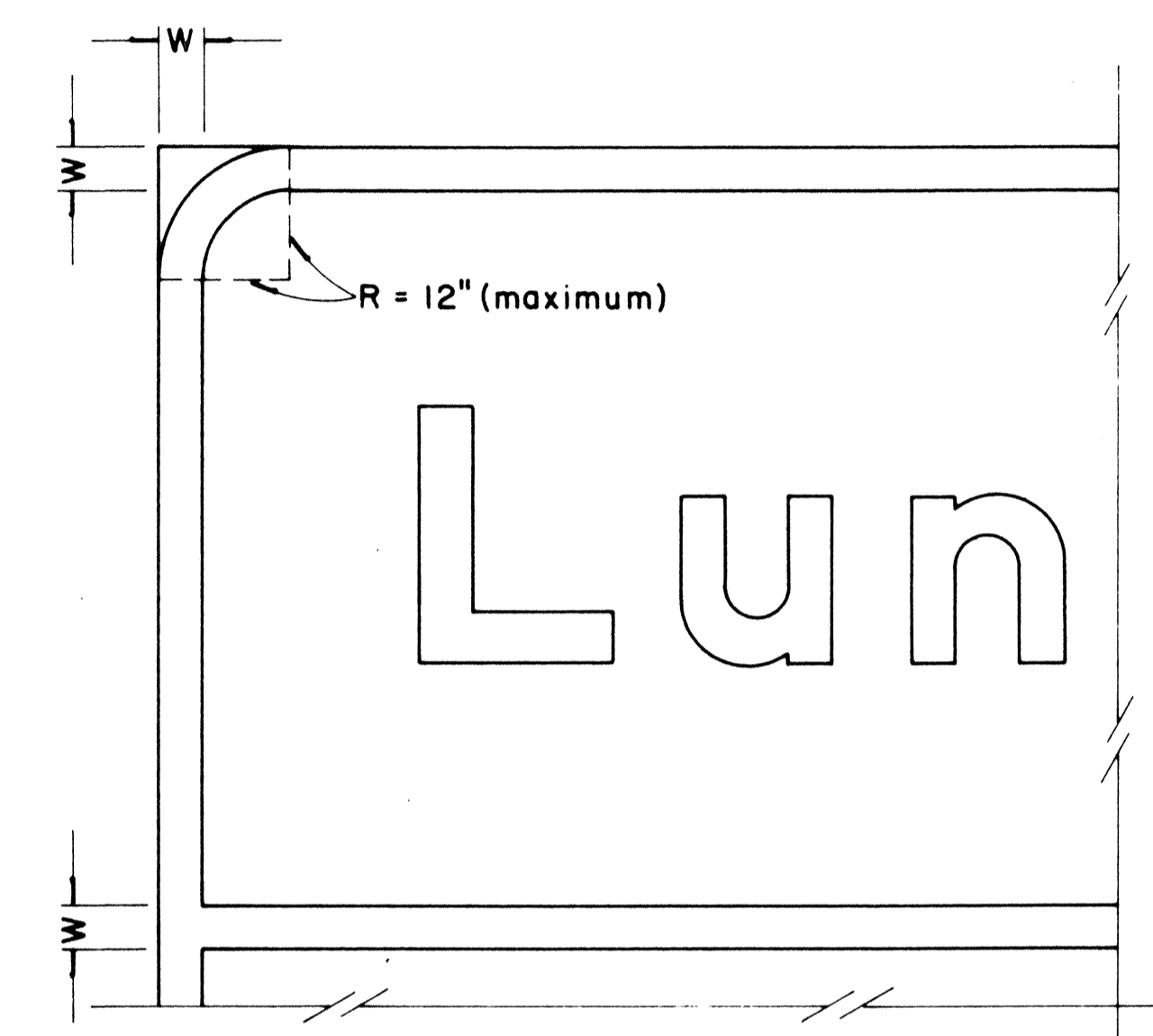
Scale: Half Size

NOTE:

1. State Route Markers on Guide signs shall have black numerals on a white reflectorized background mounted on a flat aluminum cut-out.
2. Numerals shall conform to the FHWA publication "Standard Alphabets for Highway Signs," 1966.
3. Cut-outs shall be fastened on sign panel with aluminum blind rivets. See Standard Specifications.

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

RADI FOR SIGNS		
Least Dimension of Sign	W	R
2' - 0" to 4' - 6"	2"	3"
4' - 9" to 5' - 6"	2"	6"
5' - 9" to 7' - 6"	2"	9"
7' - 9" and greater	2"	12"



**BORDER DETAIL
FOR GUIDE SIGNS**

Not to Scale

NOTE:

1. Area outside corner radius need not be trimmed.
2. All borders shall be white reflectorized cut-outs.
3. All Guide signs shall have borders.

APPROVAL RECOMMENDED:

Etsuki Tanaka 4/11/72
TRAFFIC ENGINEER DATE

APPROVED:

Malu S. Salsinski 4/12/72
ASSISTANT CHIEF, ENGINEERING DATE

NO	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 209 Approved 12-30-69	H.C.	4/12/72
2	Revised Notes and Schedules	H.C.	7-14-70

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

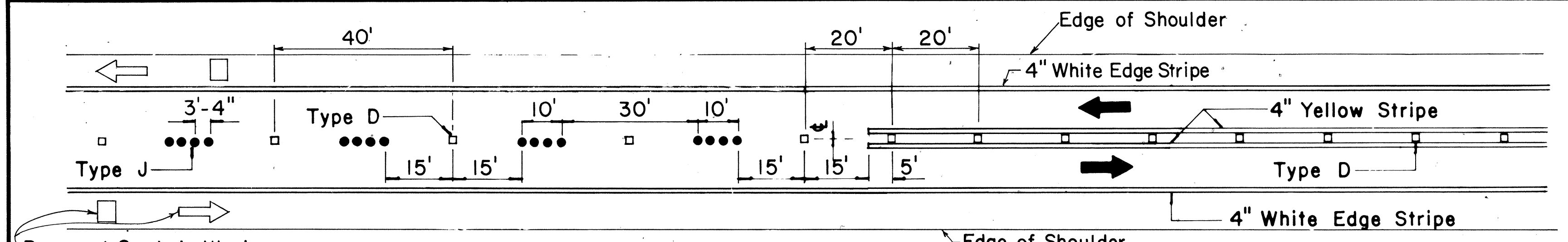
STANDARD DETAILS

**STATE ROUTE MARKER
AND BORDER DETAIL
FOR GUIDE SIGNS**

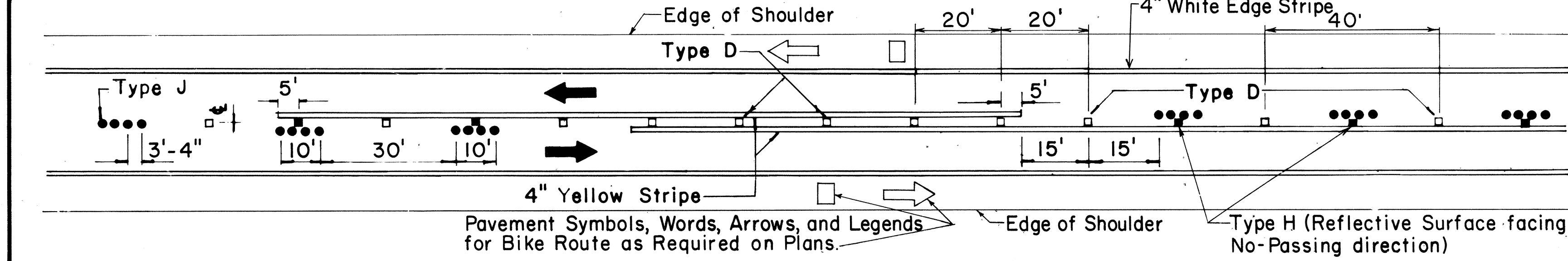
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SHEET No. 730 OF 35 SHEETS DT 209

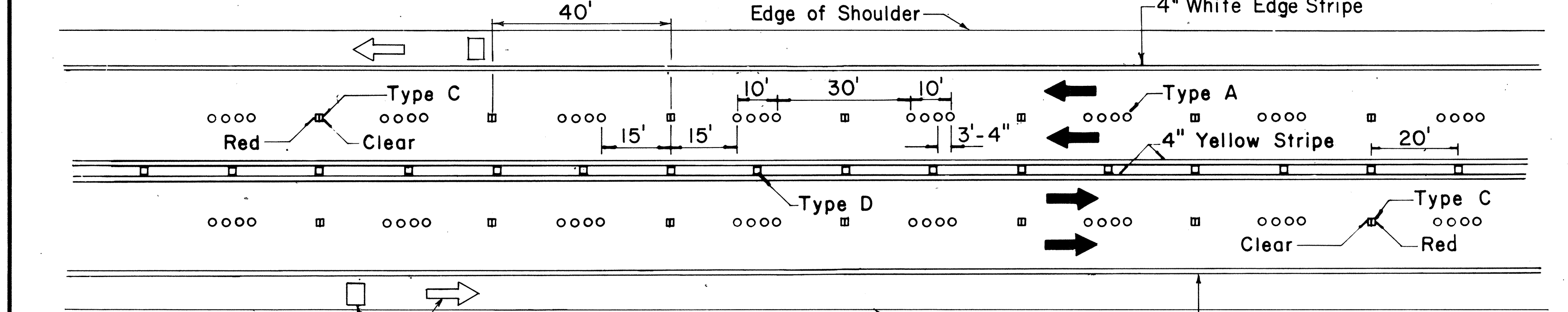
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1 (181)	1986	63	67



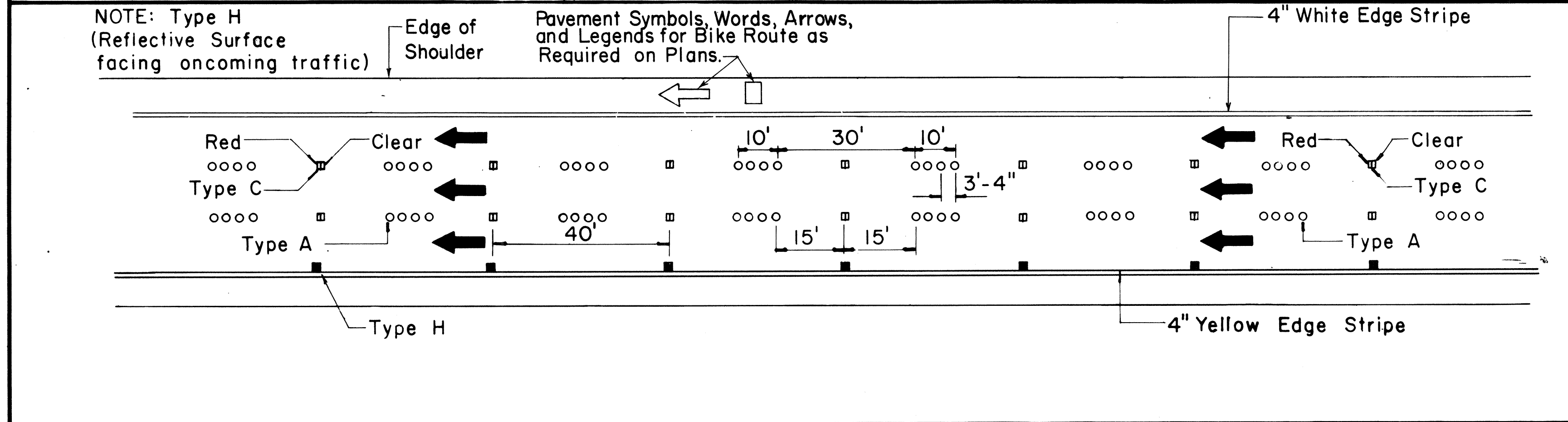
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PERMITTED AND PASSING PROHIBITED**



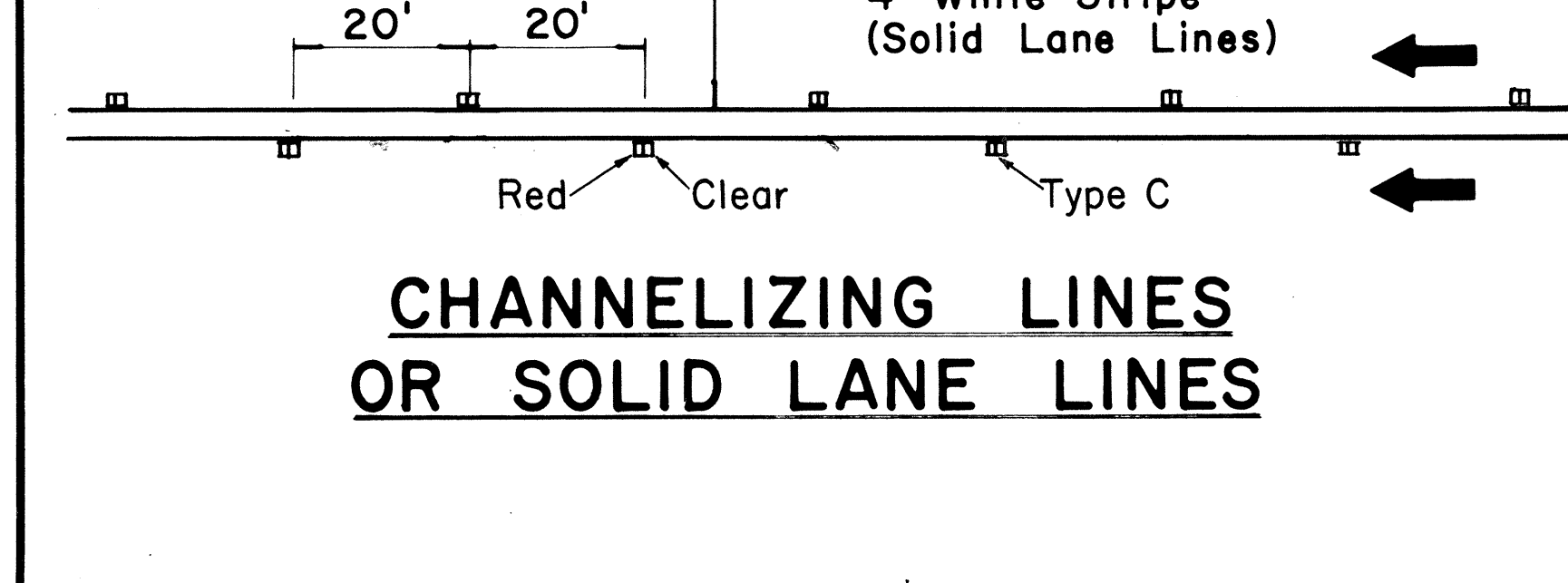
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans. **PASSING PROHIBITED ZONES**



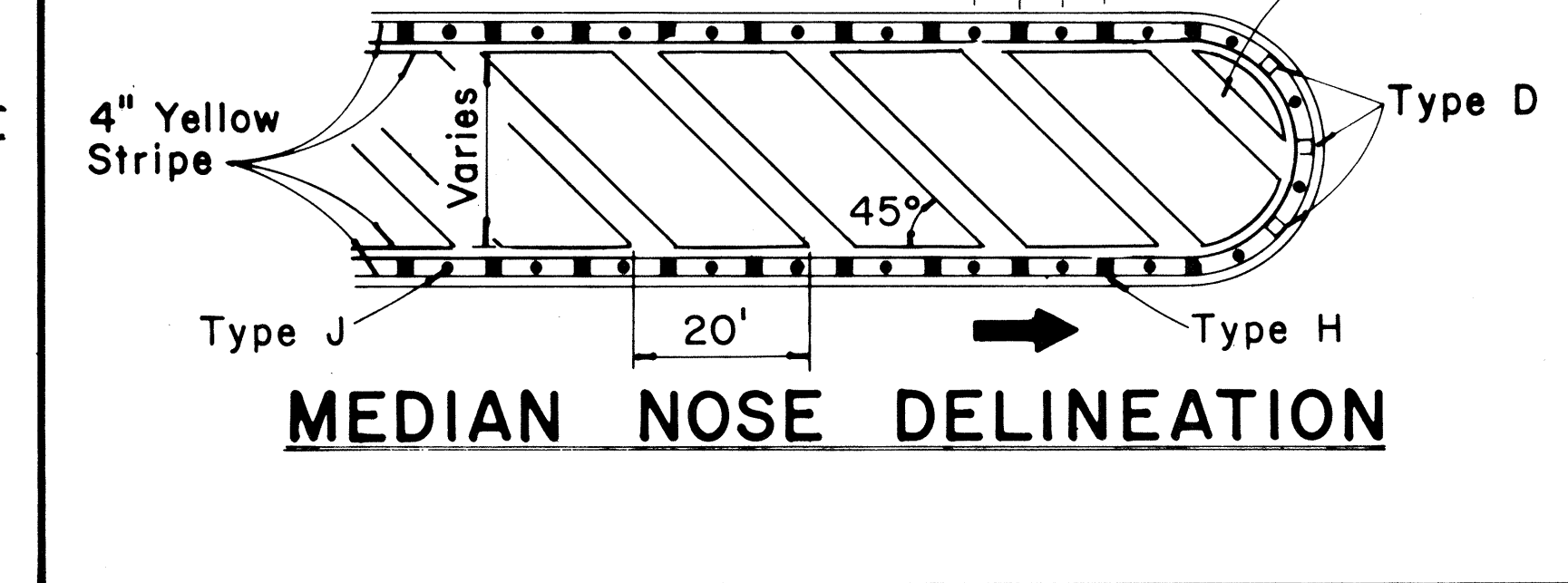
Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.



NOTE: Type H (Reflective Surface facing oncoming traffic) Pavement Symbols, Words, Arrows, and Legends for Bike Route as Required on Plans.



CHANNELIZING LINES OR SOLID LANE LINES



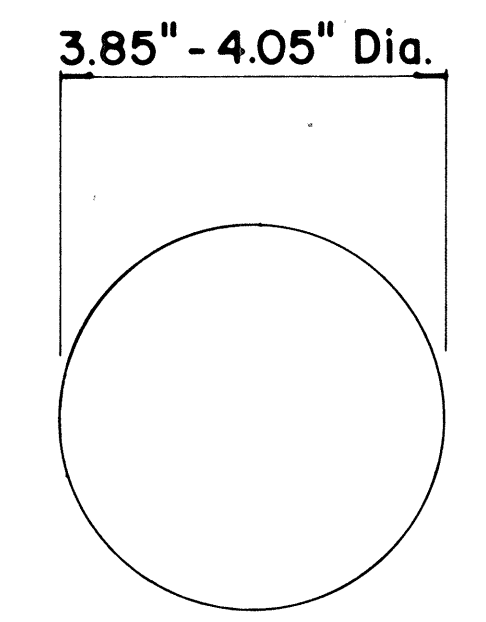
NOTE: Type H (Reflective surface facing oncoming traffic) **MEDIAN NOSE DELINEATION**

TWO - LANE

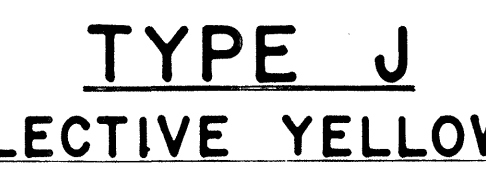
MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

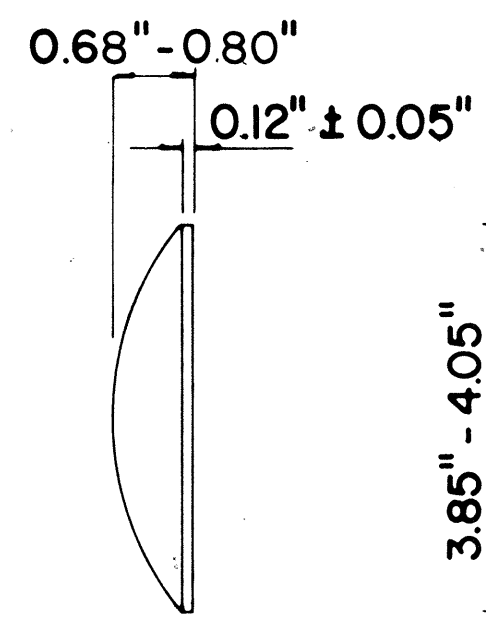
MISCELLANEOUS



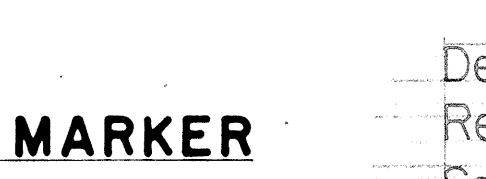
TYPE A
NON-REFLECTIVE WHITE MARKER



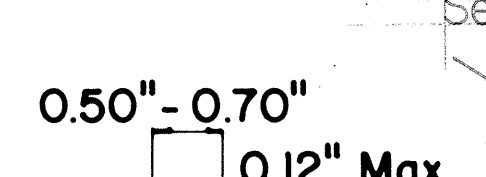
TYPE J
NON-REFLECTIVE YELLOW MARKER



TYPE C
RED-CLEAR REFLECTIVE MARKER



TYPE D
TWO-WAY YELLOW REFLECTIVE MARKER



TYPE H
ONE-WAY YELLOW REFLECTIVE MARKER

GENERAL NOTES

1. Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
2. Layout and installation of pavement marking and striping shall be done by the Contractor. The Contractor shall check the layouts with the Engineer prior to performing work.
3. Edge lines shall not be continued through intersections and shall not be broken for driveways unless otherwise shown or directed.

LEGEND

- Type A
- ◻ Type C
- ◻ Type D
- Type H
- Type J

APPROVAL RECOMMENDED:
Eiichi Tanaka 7/21/78
 TRAFFIC ENGINEER DATE

APPROVED:
Robert D. Zelenka 1/24/78
 ASSISTANT CHIEF, ENGINEERING DATE

No.	REVISION	APPROVED BY	DATE
1	Supersedes DT 300 approved 11/18/71.	H.T.	1/24/78
2	Delete Type A Markers from Bike Route Delineation.	H.T.	10/15/79
3	Added General Note 3. Revised left edge stripe.	H.T.	9-28-83
4	Revised Channelizing Lines or Solid Lane Lines.	E.T.	9/18/85

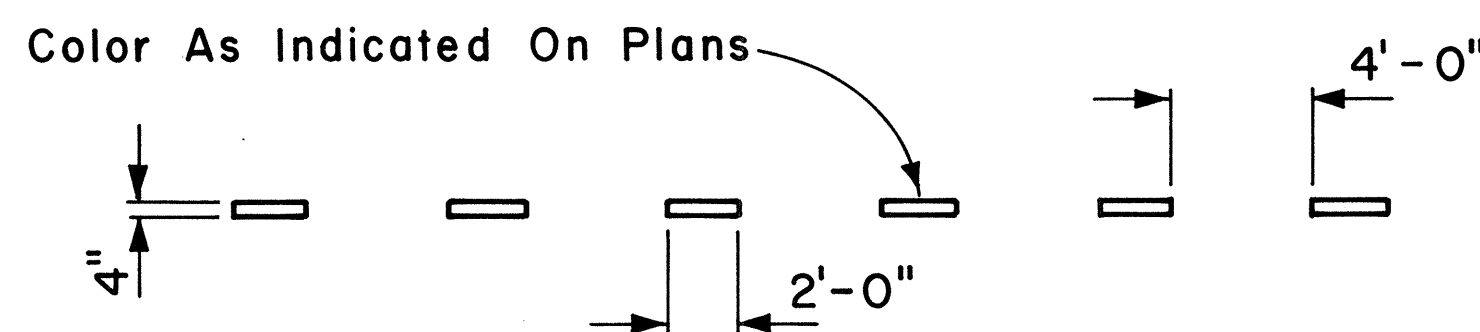
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
RAISED PAVEMENT MARKERS
AND STRIPING

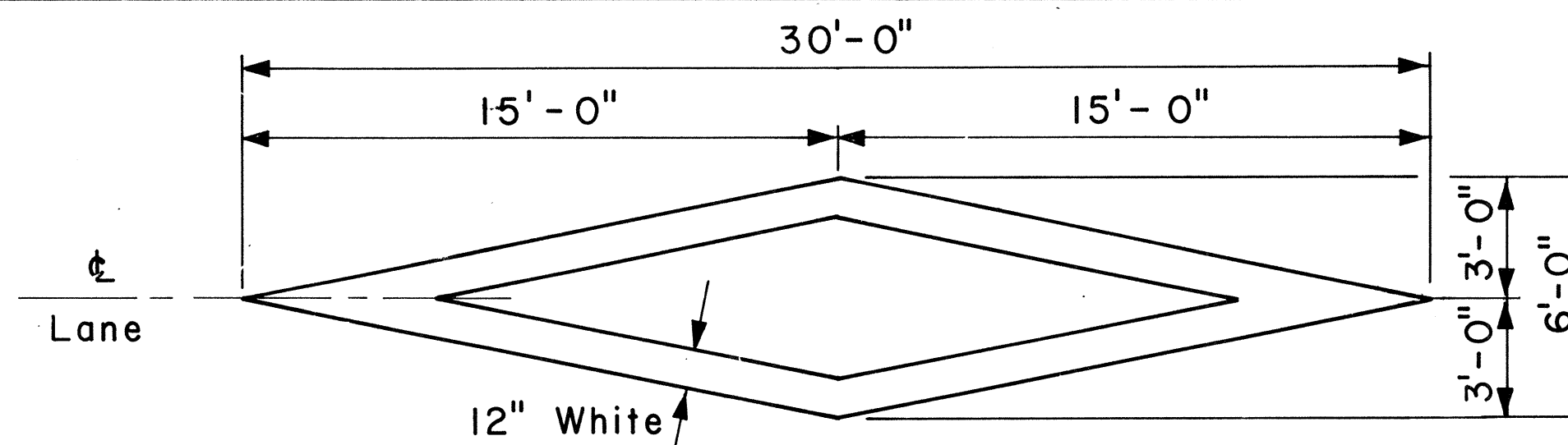
Not to Scale July 1978
 SHEET No. 31 OF 35 SHEETS DT 300

DATE
DESIGNED BY
TRACED BY
QUANTITIES BY
CHECKED BY
NOTE BOOK
NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI(18)	1986	64	67



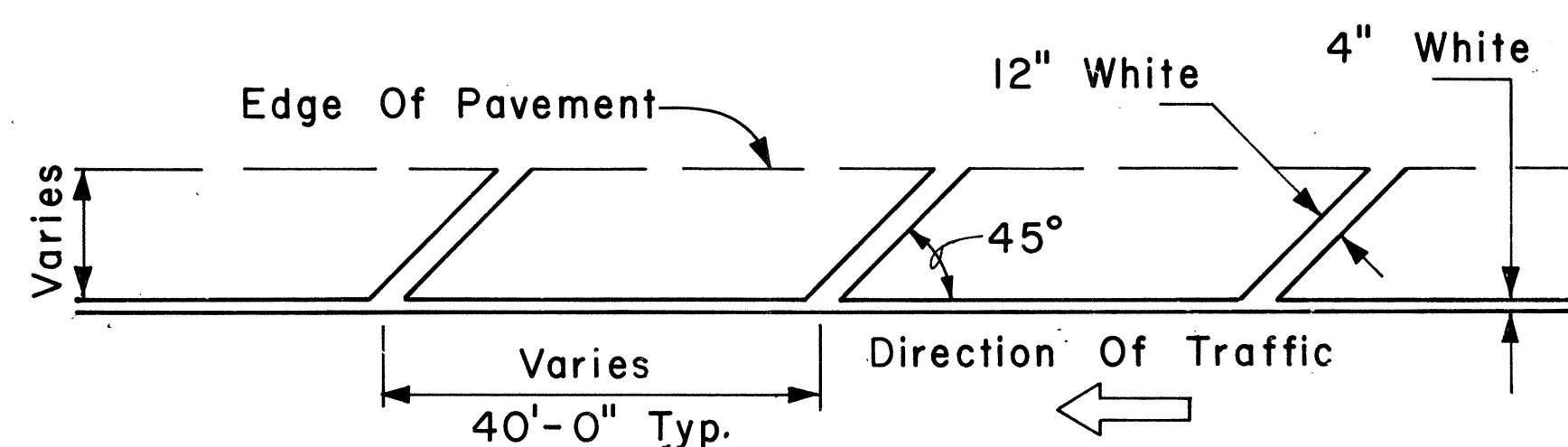
4" GUIDE LINE



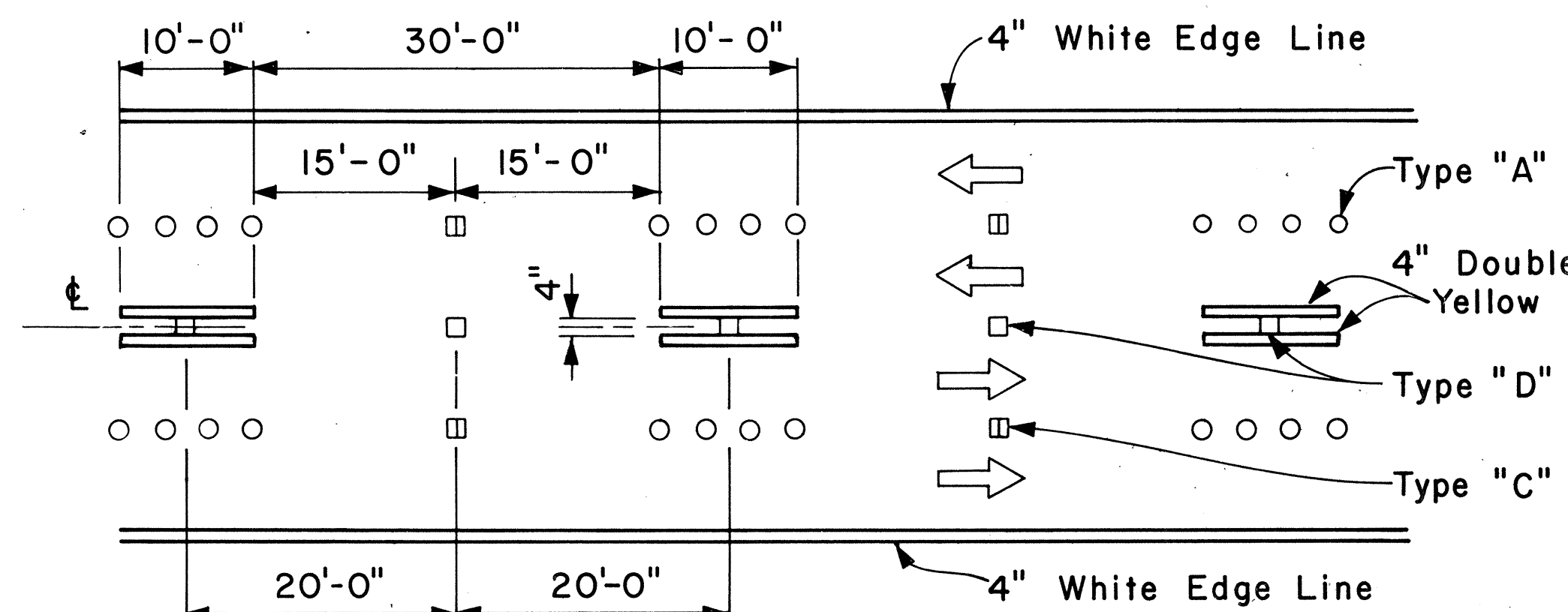
PAVEMENT DIAMOND

GENERAL NOTES:

1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see sheet DT 300.

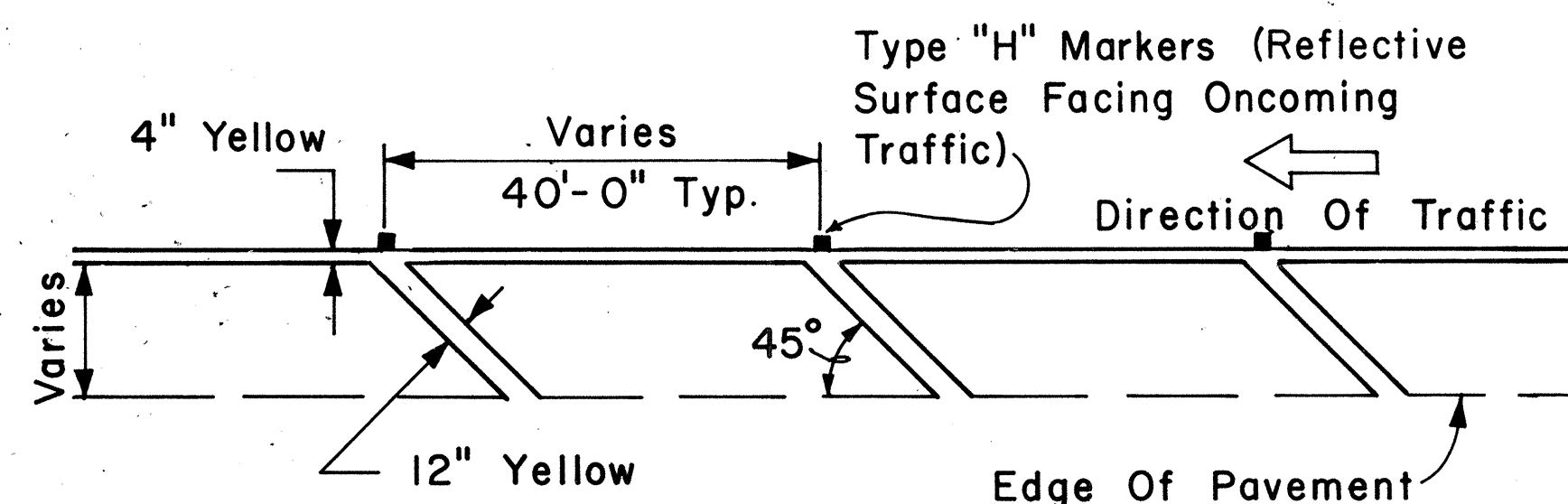


TRANSVERSE RIGHT SHOULDER MARKING

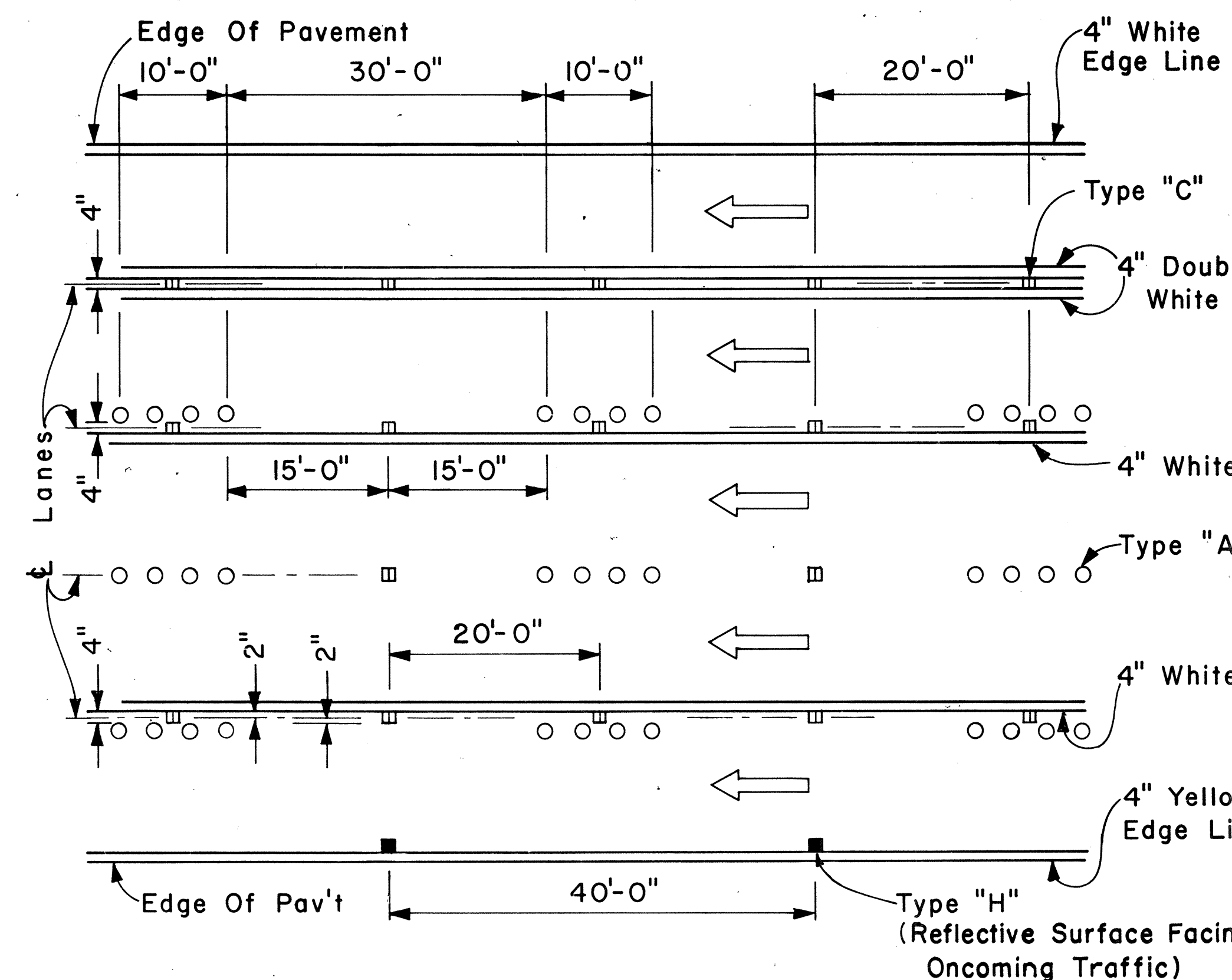


NOTE: Traffic Cone Usage Required.

MULTI-LANE REVERSIBLE LANES



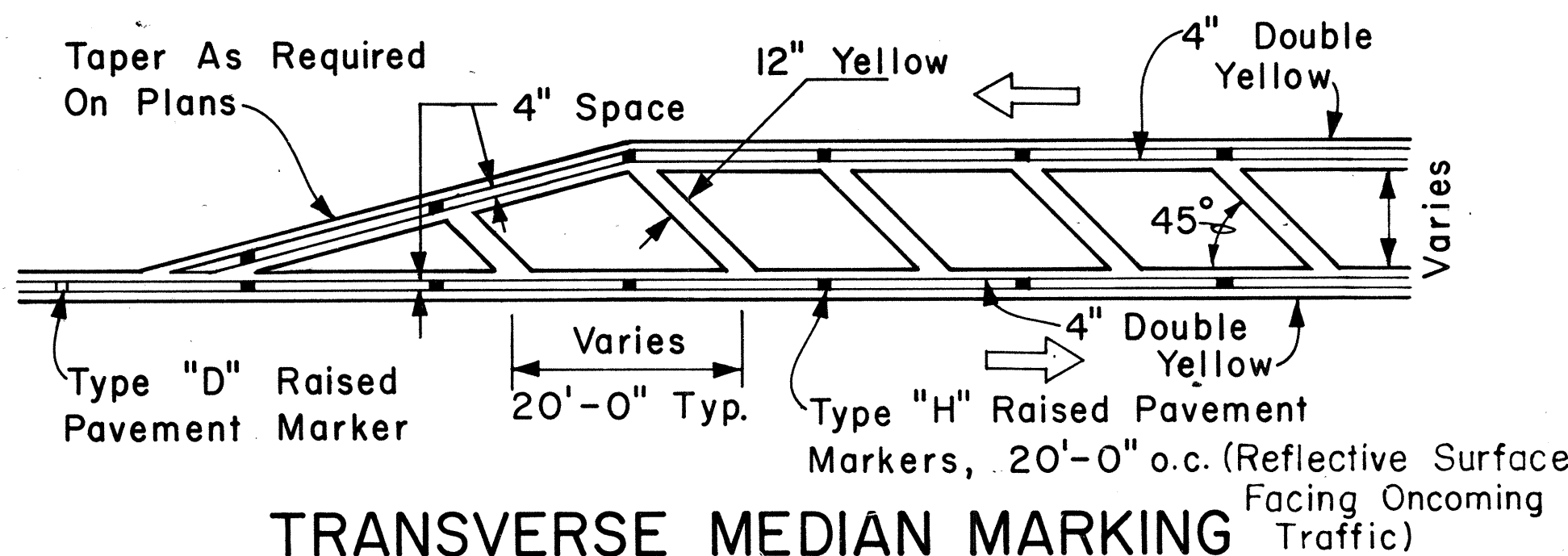
TRANSVERSE LEFT SHOULDER MARKING



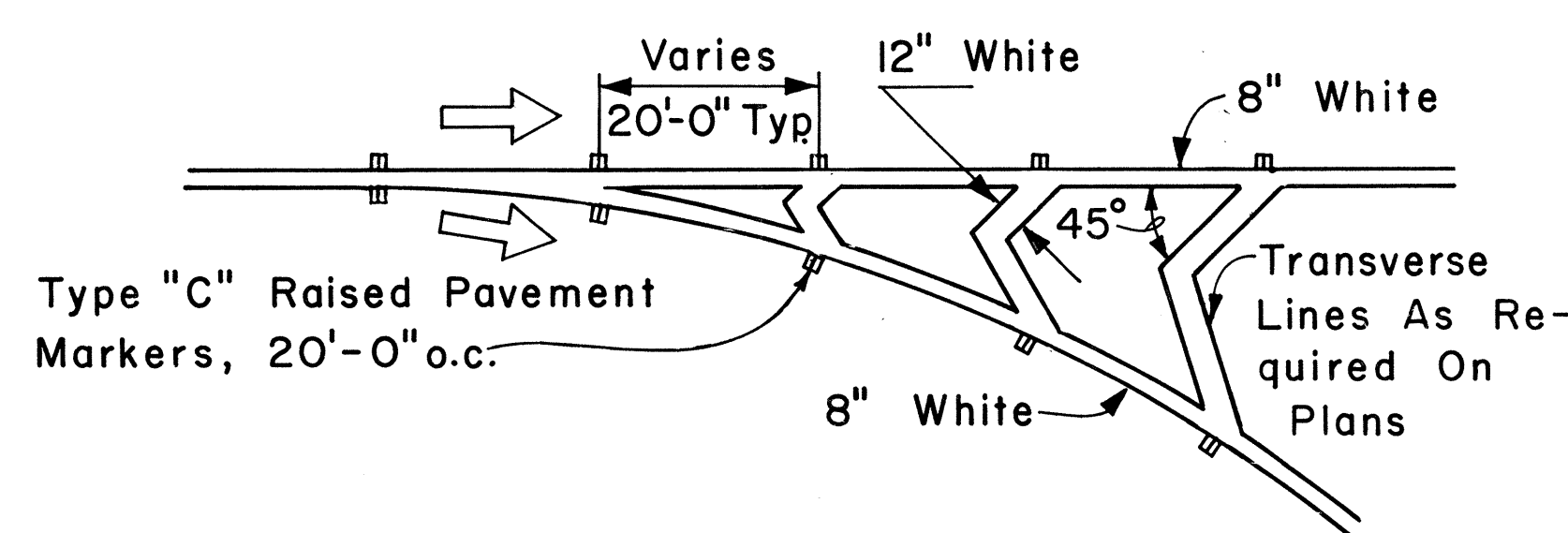
MULTI-LANE LANE CHANGE RESTRICTION ZONES

APPROVAL RECOMMENDED:
E. T. Tanaka 5/2/78
 TRAFFIC ENGINEER DATE

APPROVED:
Harbert S. Zaleski 5/3/78
 ASSISTANT CHIEF, ENGINEERING DATE



TRANSVERSE MEDIAN MARKING



CHANNELIZING ISLAND

NO.	REVISION	APPROVED BY	DATE
1	Revised Transverse left Shoulder Marking, Channelizing Island & Lane Change Restriction Zones.	E. T.	9/12/85

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS PAVEMENT MARKINGS

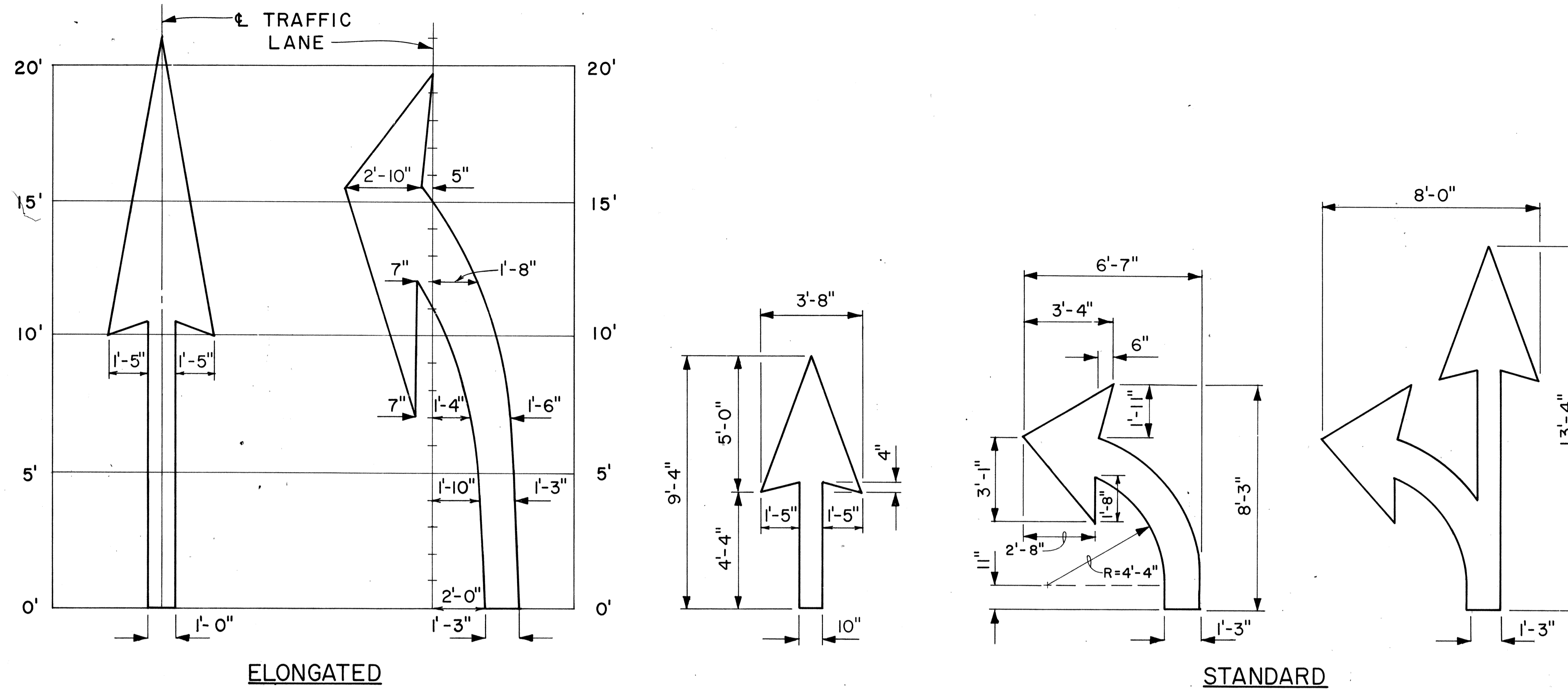
Scale: Not to Scale Date: April, 1978
 SHEET No. T32 OF 35 SHEETS DT 302

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	TR-HI-1(181)	1978	65	67

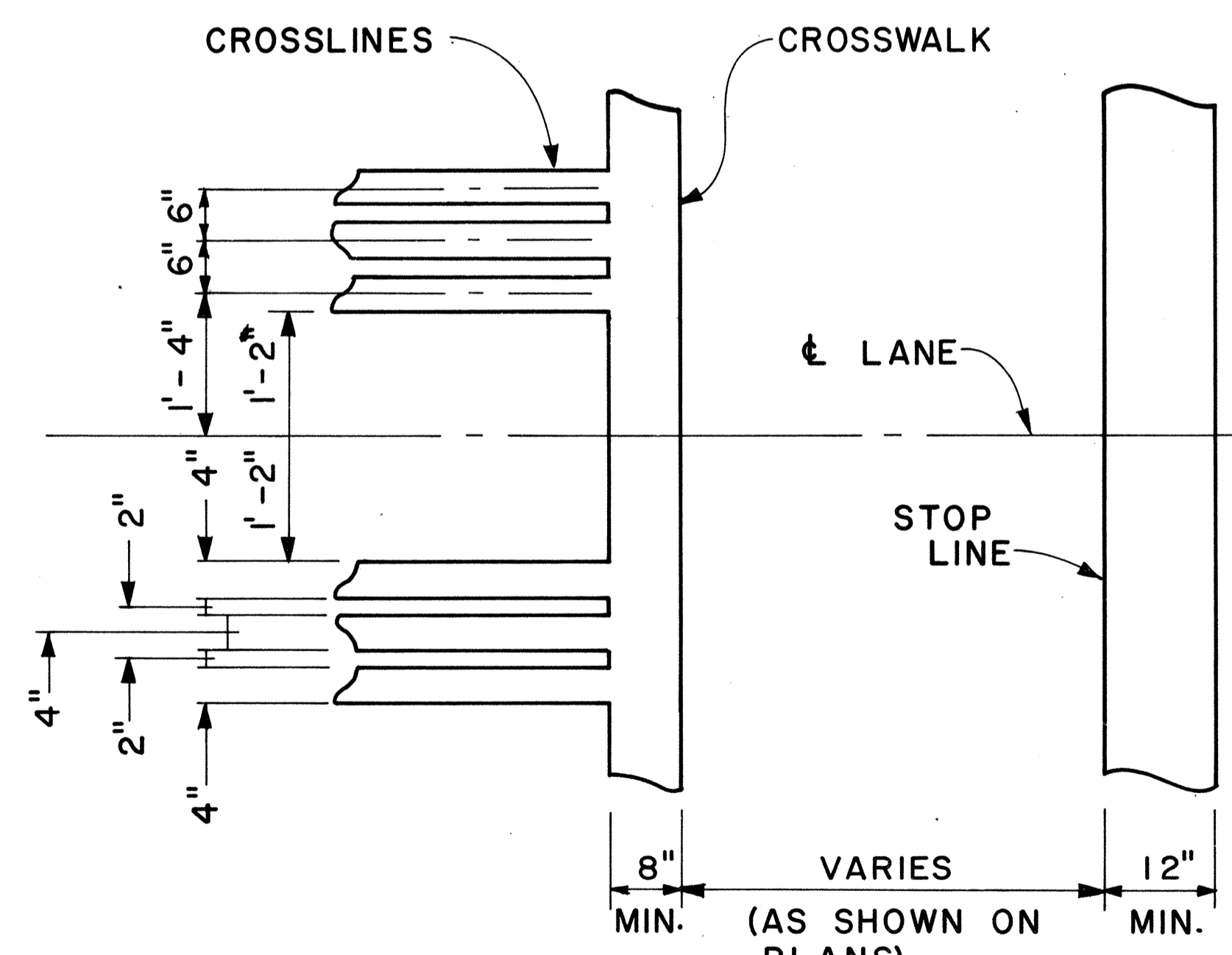
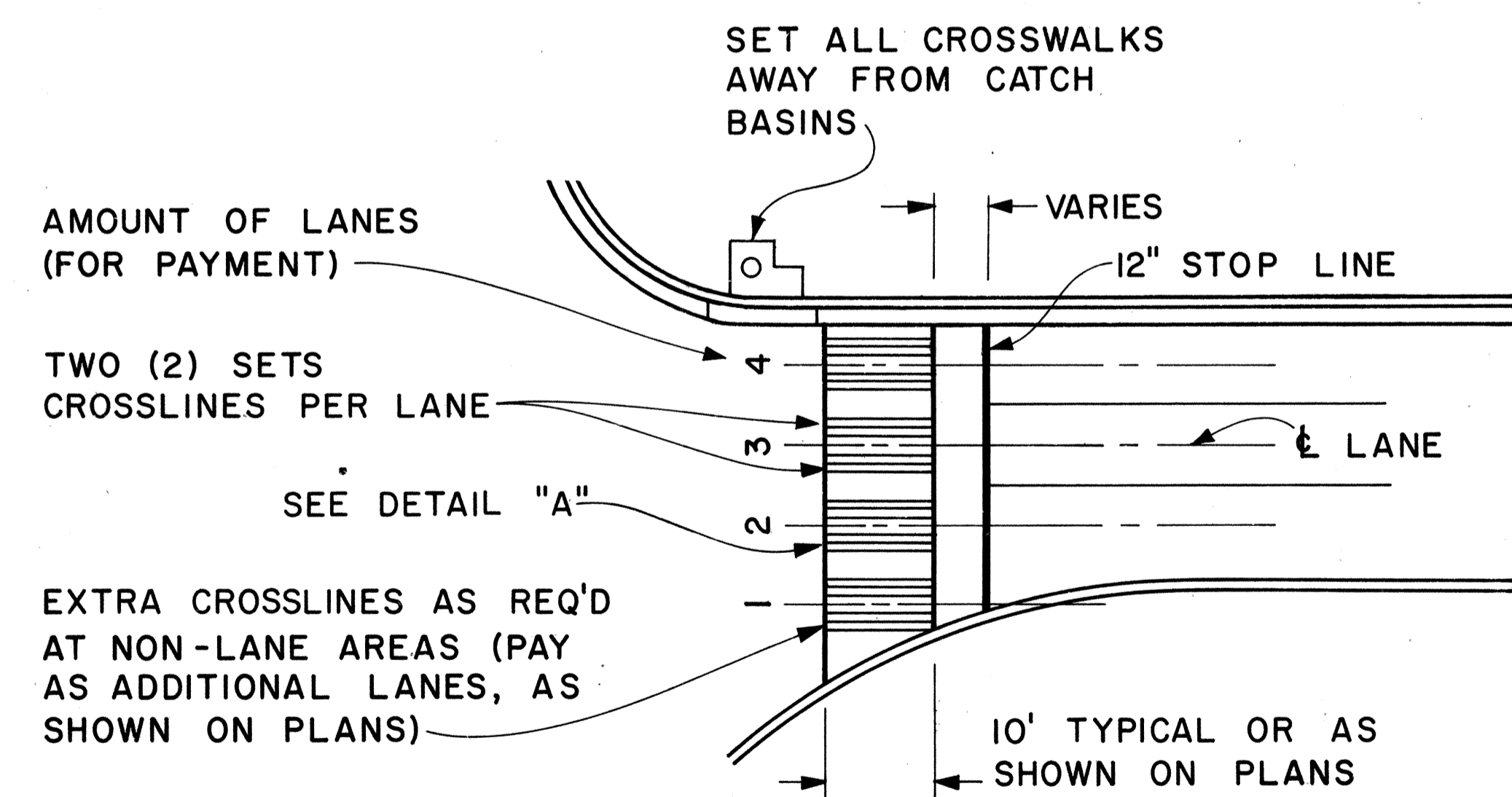
GENERAL NOTES:

1. Pavement marking and striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of pavement markings and striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional pavement marking details, see sheet DT 300.



PAVEMENT ARROWS

Scale: 3/8" = 1'



CROSSWALK & STOP LINE

Scale: Not to Scale

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

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

APPROVED:
Andrew S. Zaleski 5/3/78
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS

MISCELLANEOUS
 PAVEMENT MARKINGS

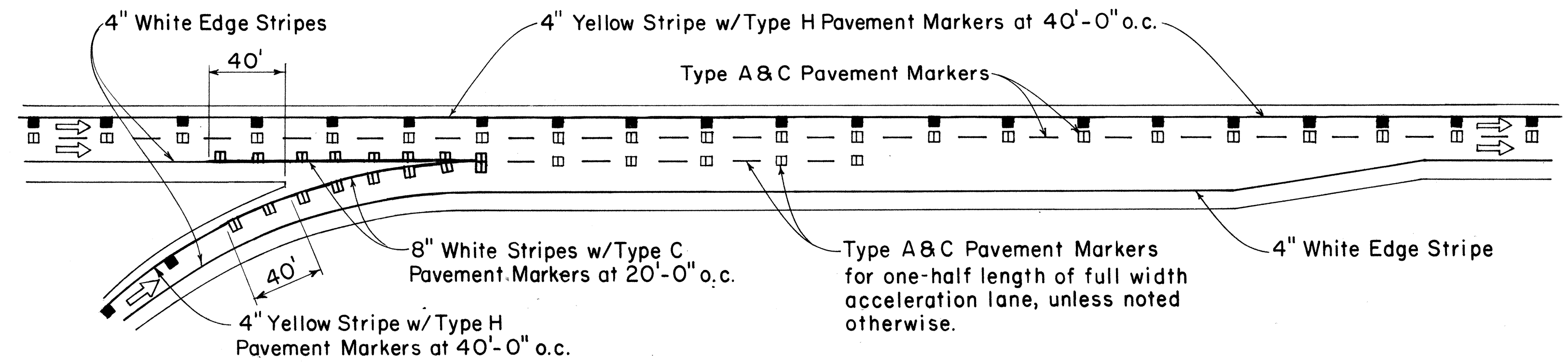
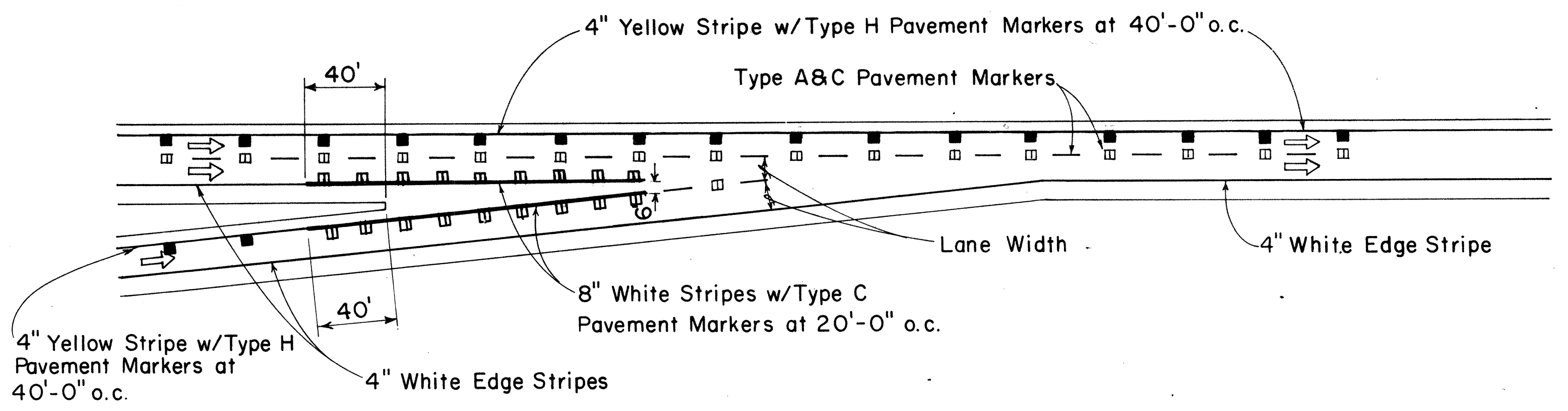
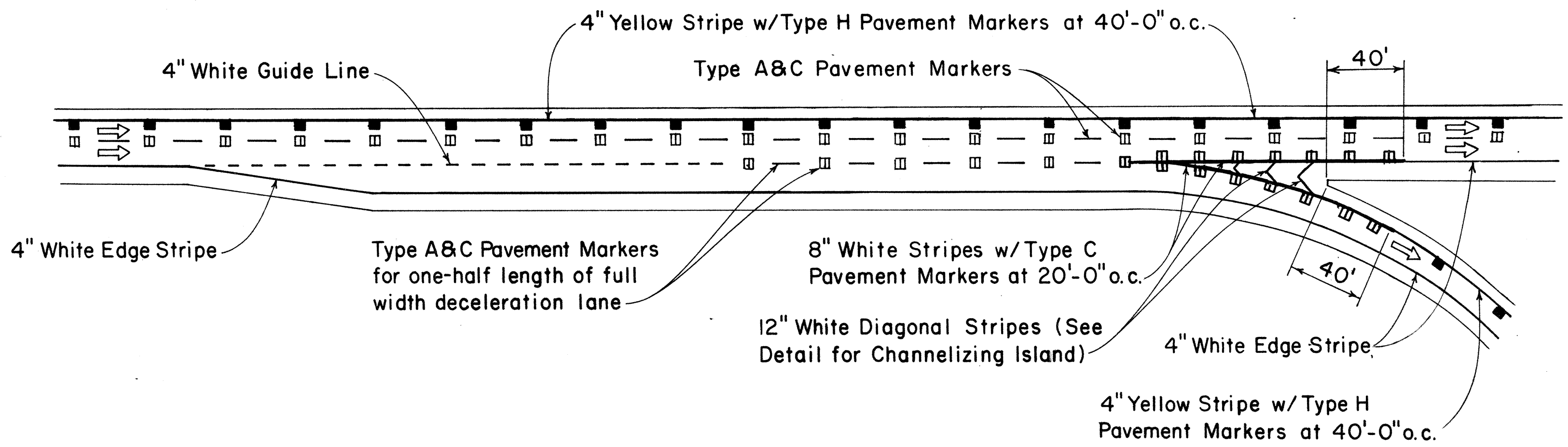
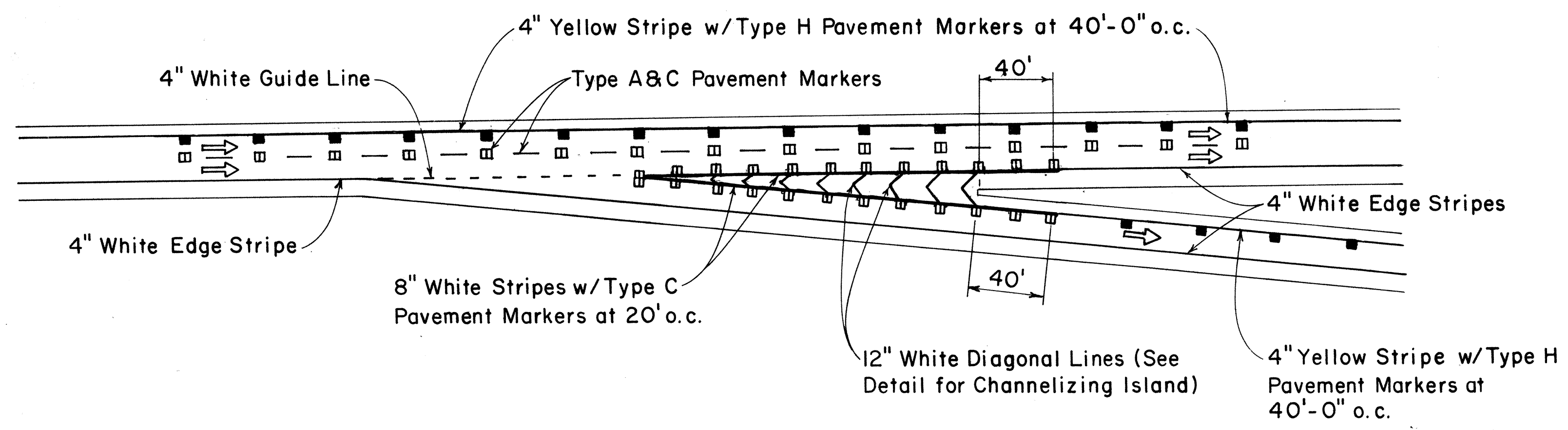
Scale: As Shown Date: March, 1978
 SHEET No. 733 OF 35 SHEETS DT 306

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	[R-HI-1(181)]	1986	66	67

GENERAL NOTES:

1. Pavement Markings and Striping shall conform to the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," by the FHWA, and as amended.
2. Layout of Pavement Markings and Striping shall be done by the Contractor. The Contractor shall check layout of markings and striping with the Engineer prior to performing work.
3. For additional details, see sheet DT 300.

TAPERED DECELERATION LANE
PARALLEL DECELERATION LANE
TAPERED ACCELERATION LANE
PARALLEL ACCELERATION LANE
TYPICAL ROADWAY EXIT MARKINGS
TYPICAL ROADWAY ENTRANCE MARKINGS



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

APPROVAL RECOMMENDED:
Eishi Tanaka 7/21/78
 TRAFFIC ENGINEER DATE

APPROVED:
Harold S. Sakaiishi 7/24/78
 ASSISTANT CHIEF, ENGINEERING DATE

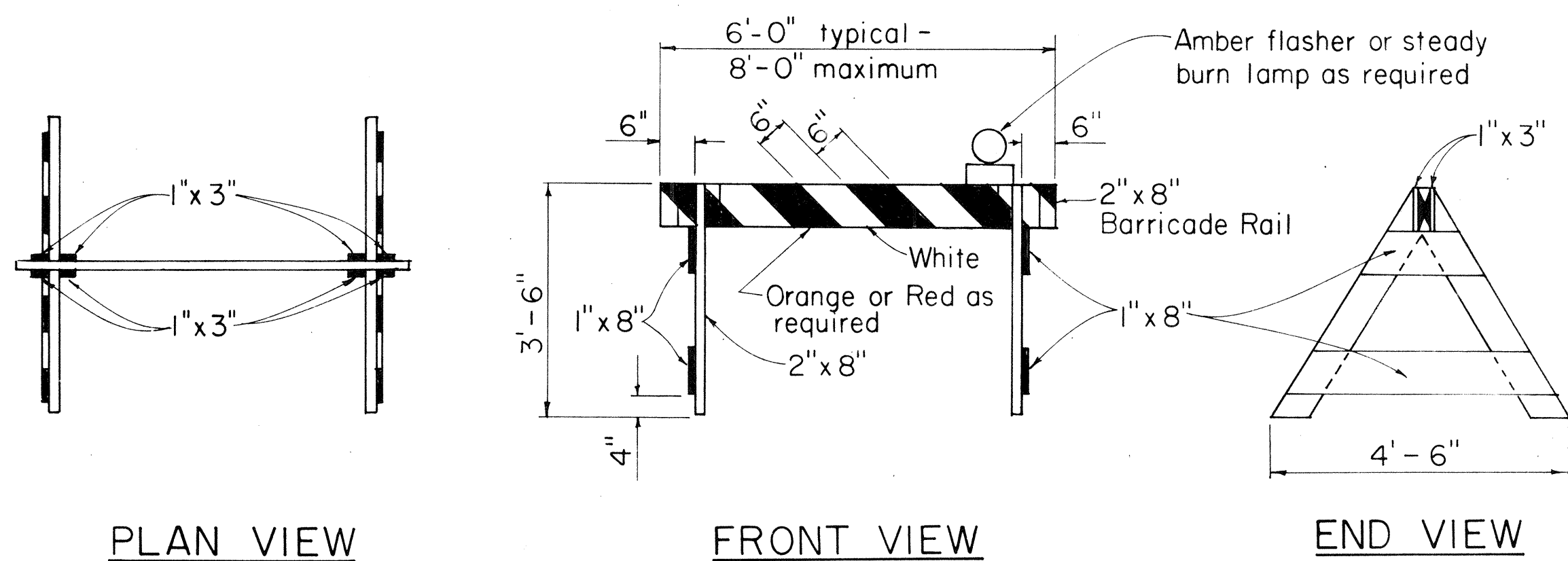
NO.	REVISION	APPROVED BY	DATE
1	Revised Typical Roadway Entrance Markings and Typical Roadway Exit Markings.	E.T.	7/18/78

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS
PAVEMENT MARKINGS

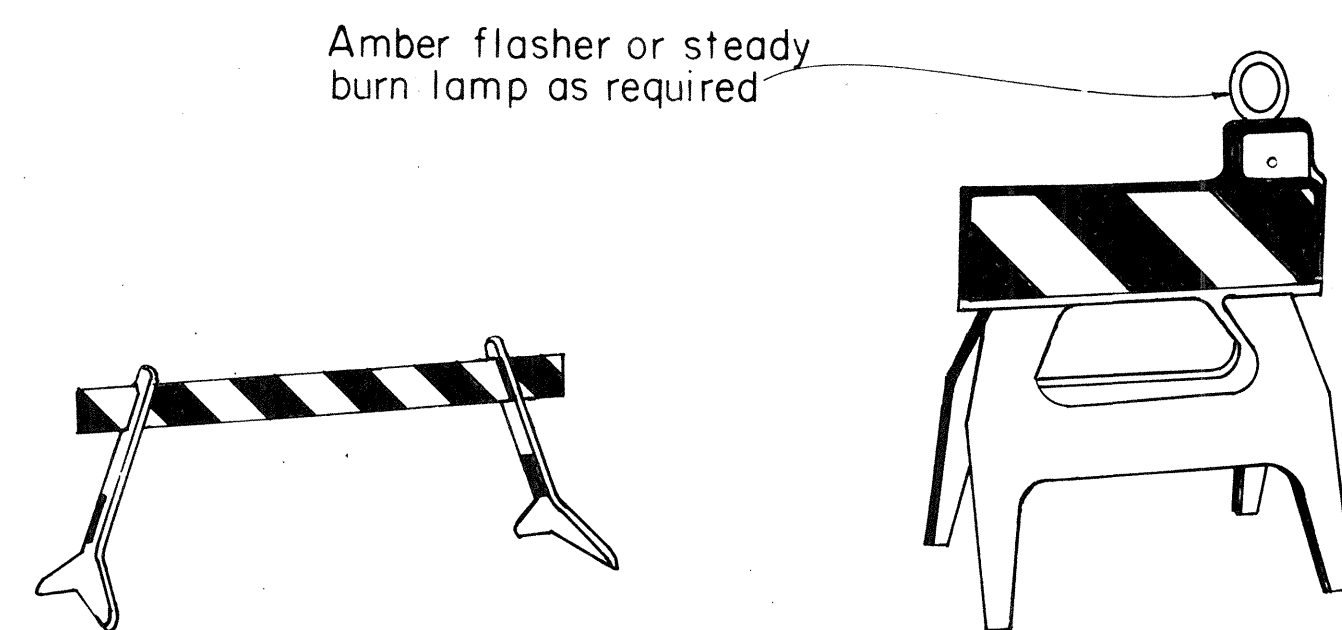
Not to Scale July 1978
 SHEET No. T34 OF 35 SHEETSDT 304

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	12-HI-1(18)	1986	67	67



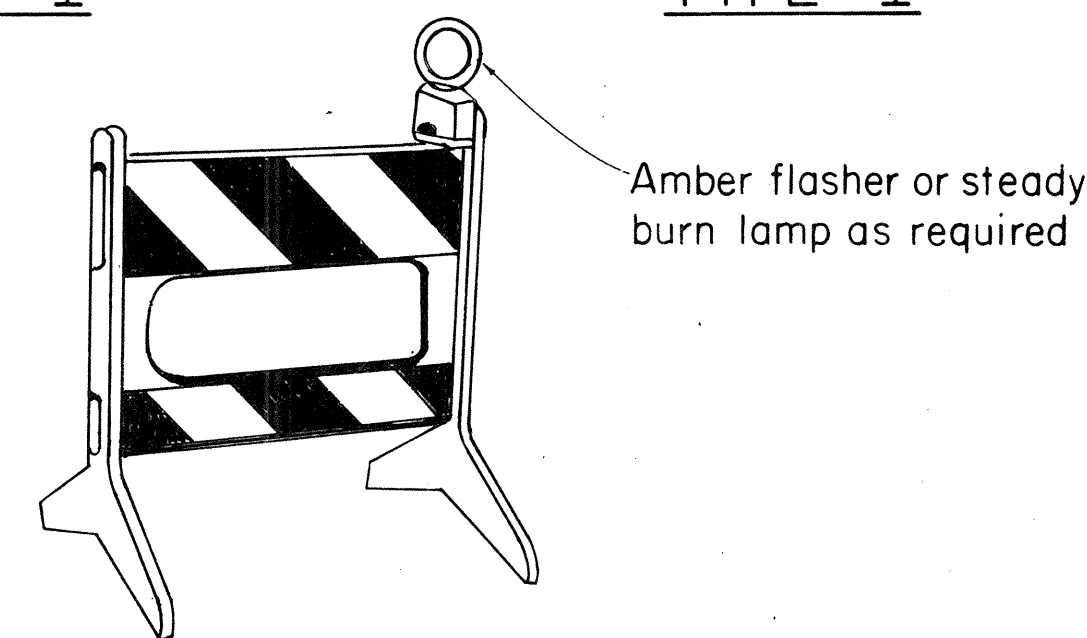
TYPE I BARRICADE

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



TYPE I

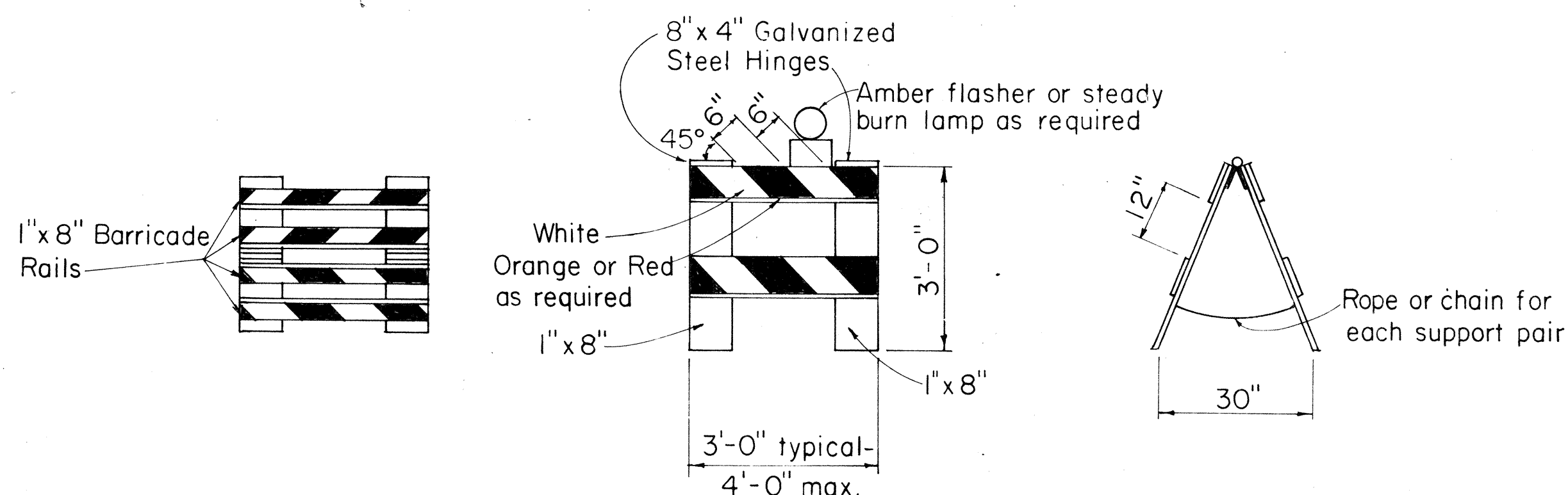
TYPE I



TYPE II

GENERAL NOTES

1. The front and back faces of each barricade rail shall be reflectorized with stripes sloping downward toward the same side (traveled way) of each barricade.
2. Contractor may submit alternate barricade designs for approval.
3. Sandbags or other approved weights shall not be placed on top of any striped rail.
4. The Contractor is directed to Section 626.



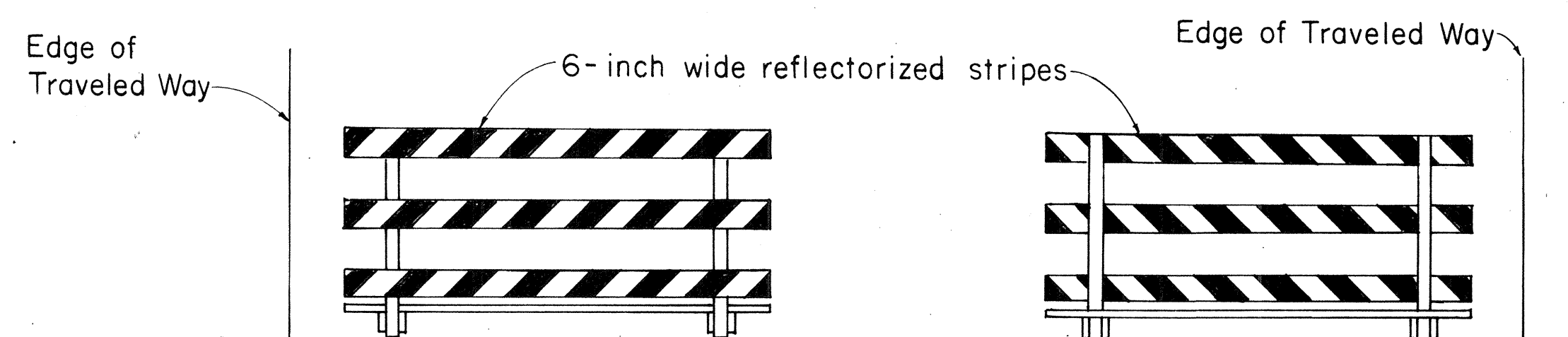
TYPE II BARRICADE

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

PLASTIC MOLDED BARRICADE OPTIONS*

Not to Scale

* Shop Drawings must be submitted for approval.



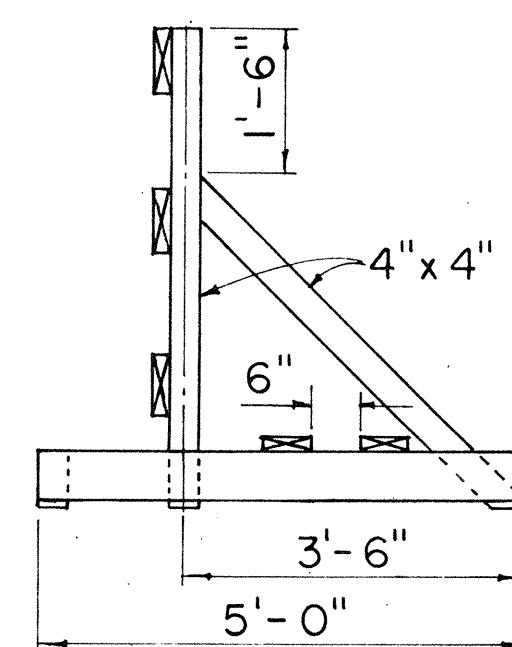
FRONT FACE

BACK FACE

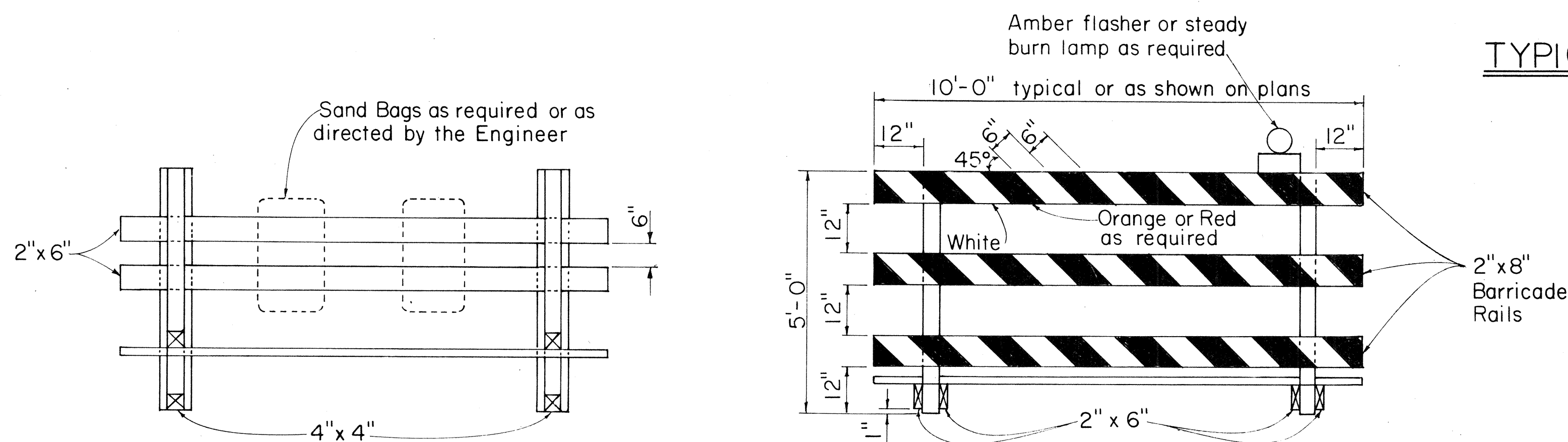
TYPICAL BARRICADE STRIPING DETAILS**

Not to Scale

** Similar for Types I & II



END VIEW



TYPE III BARRICADE

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

DATE	DATE
DESIGNED BY	CHECKED BY
DRAWN BY	
TRACED BY	
NO. _____	
ORIGINAL PLAN	
SURVEY PLOTTED BY	

NO.	REVISION	APPROVED BY	DATE
1	Supersedes DT 800 Approved 12/30/69	H.T.	10/21/81

APPROVAL RECOMMENDED:
Eichi Tanaka 10/21/81
 TRAFFIC ENGINEER DATE

APPROVED:
Robert S. Schickel 10/21/81
 ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

BARRICADES

SCALE: As Shown
 SHEET NO. 735 OF 35 SHEETS DT 800