

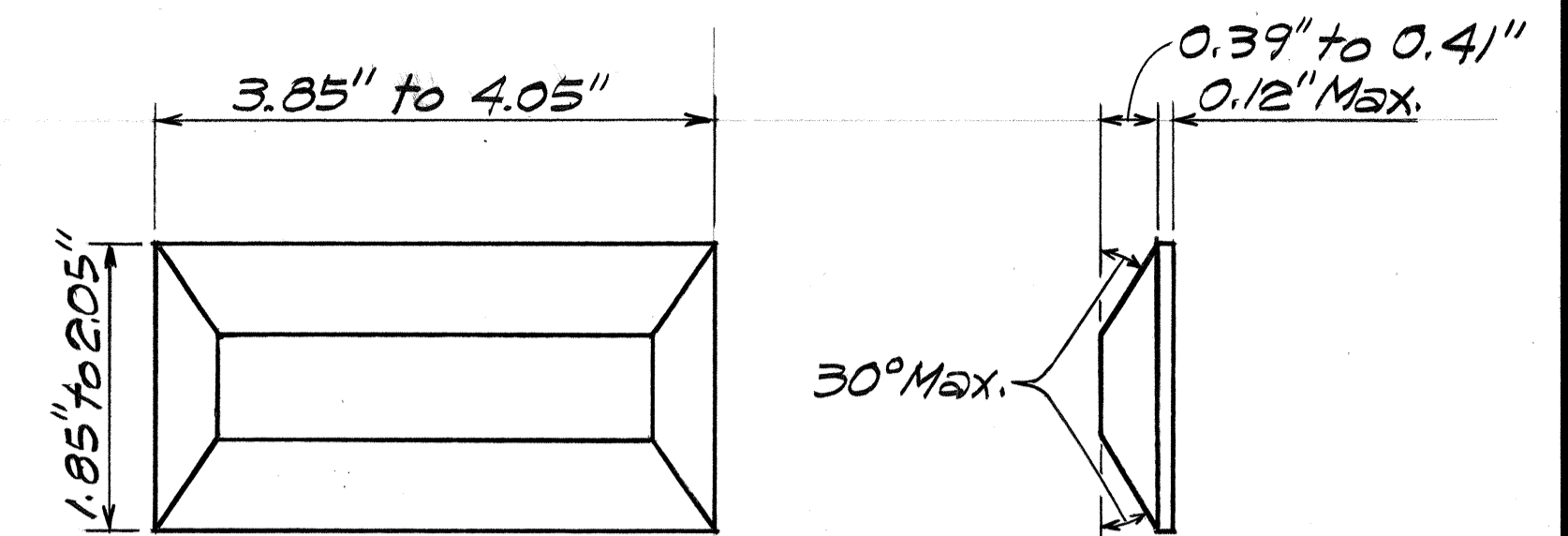
NOTES

- Locations of all new Pavement Markings shall be staked out by the Contractor for approval by the Engineer prior to installation.
- Existing Pavement Markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various contract items.
- Raised Pavement Markers shall not be placed within crosswalks.
- Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal of existing signs shall be incidental to the various contract items.
- Final locations of all signs shall be approved by the Engineer.
- Details of Type C, Type D and Type H Markers on Plan Sht. No. 44 shall be deleted and replaced with details of Type CL, Type DL and Type HL Markers as shown on this sheet. All references to Type C, Type D and Type H Markers in the plans shall mean Type CL, Type DL and Type HL Markers.
- The Contractor shall install Type II Object Markers on all unprotected utility poles within the project area as shown on Plan Sht. No. 39.

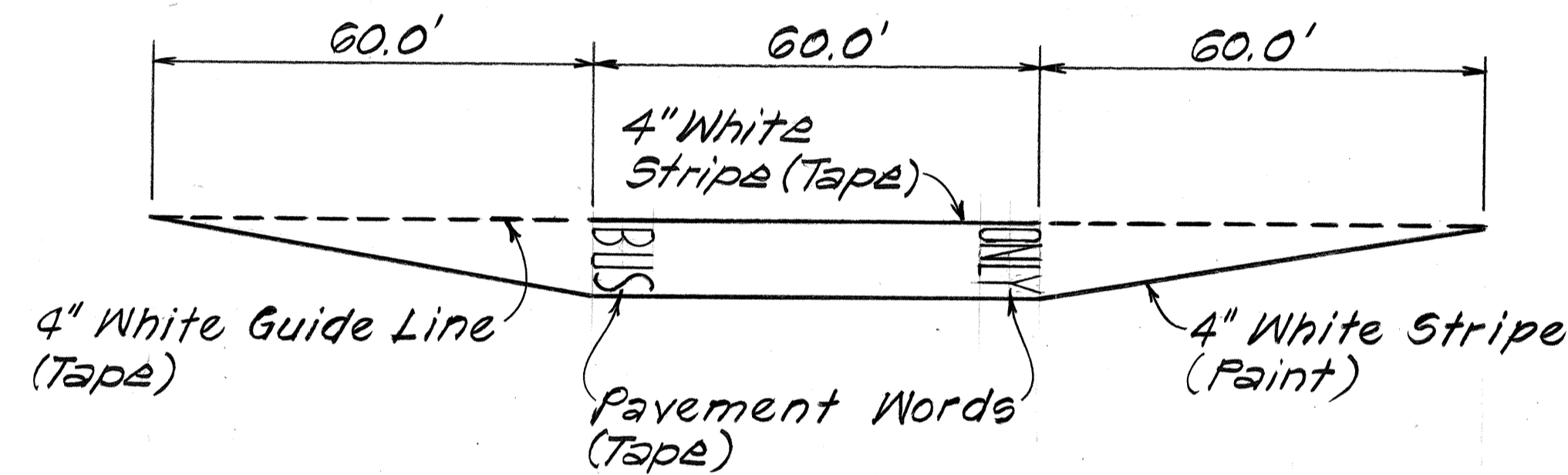
LEGEND

- 4 each Type A Raised Pavement Markers
Type CL Raised Pavement Markers at 40'-0" o.c.
- 8" White Stripe (Tape) with Type CL Raised Pavement Markers @ 20'-0" o.c.
- 4" Double Solid Yellow Stripes (Tape) with Type DL Raised Pavement Markers @ 20'-0" o.c.
- 4" Double Solid Yellow Stripes (Tape) with Type HL Raised Pavement Markers @ 20'-0" o.c.
- ② Crosswalk (Tape) & Stop Line (Tape). All Stop Lines shall be 5'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment.
- Pavement Arrow (Tape)

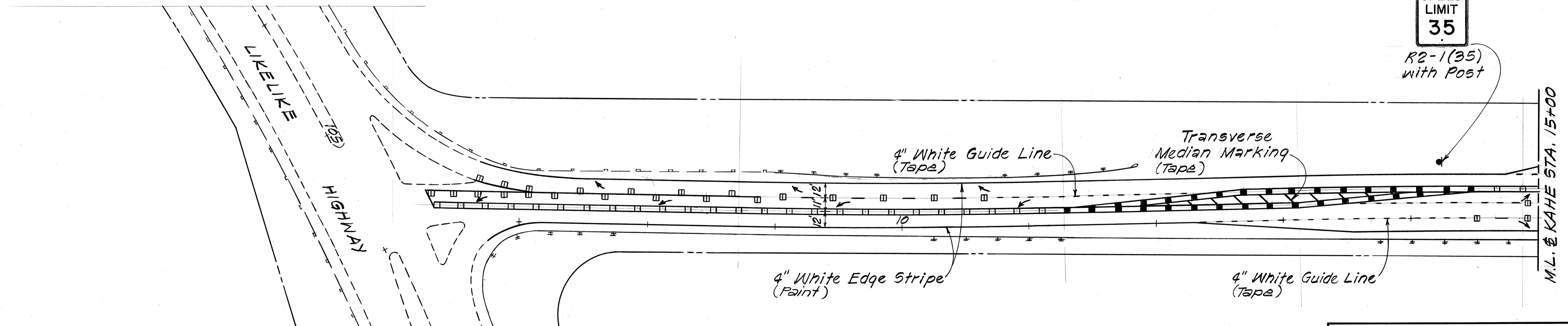
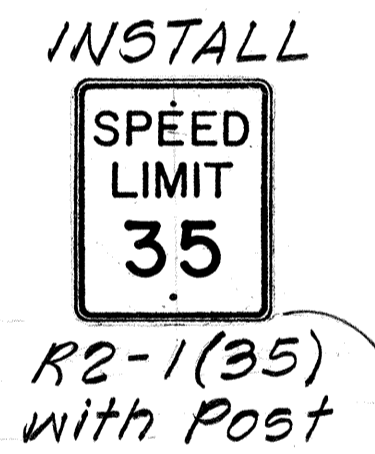
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	27	54



TYPE CL
Red-Clear Reflective Marker
or
TYPE DL
Two-Way Yellow Reflective Marker
or
TYPE HL
One-Way Yellow Reflective Marker
Not to Scale



TYPICAL BUS BAY STRIPING
Scale: 1" = 20'

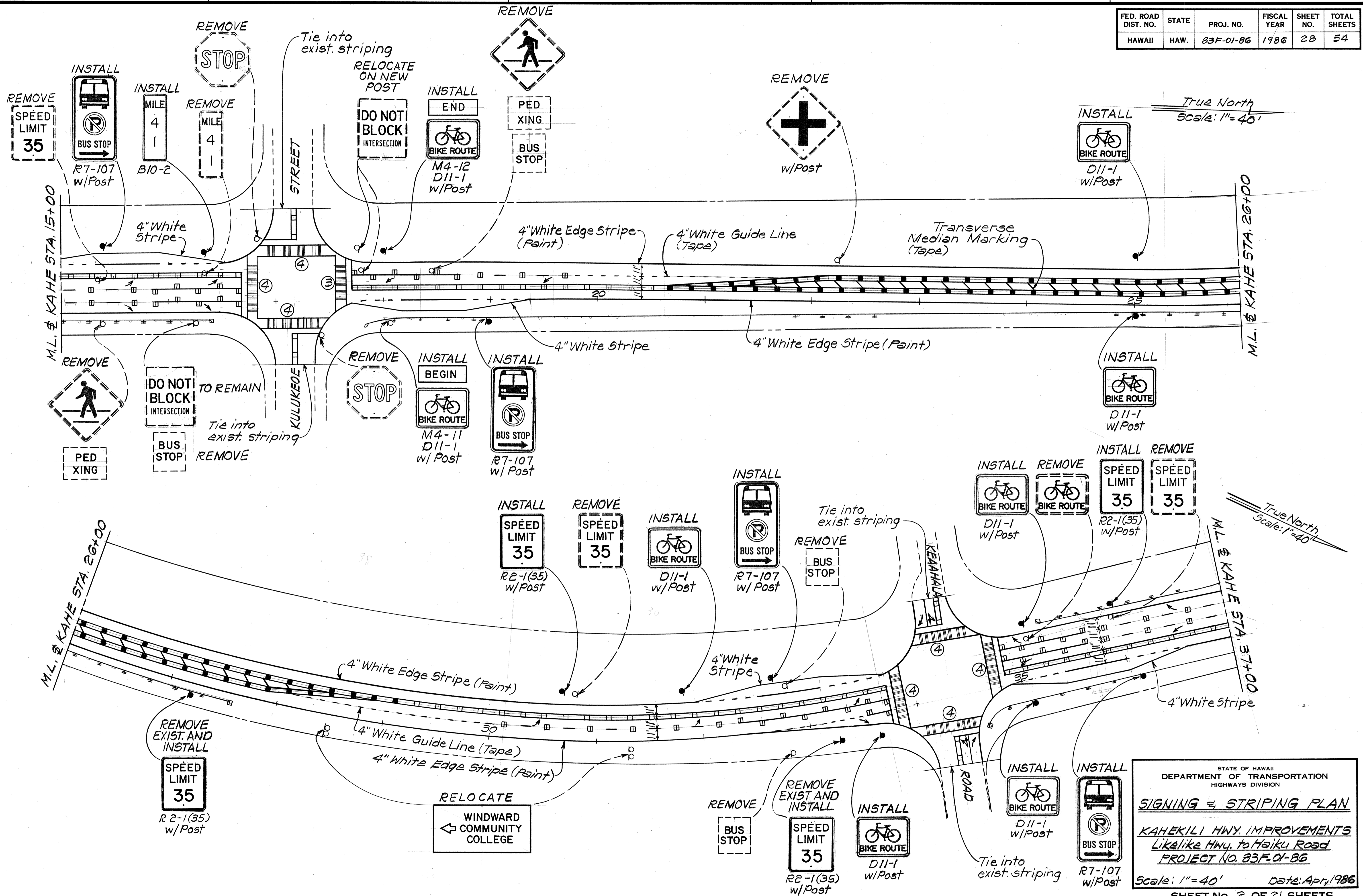


True North
Scale: 1" = 40'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SIGNING & STRIPING PLAN,
NOTES, LEGEND AND DETAIL
KAHEKILI HWY. IMPROVEMENTS
Likelike Hwy. to Haiku Road
PROJECT NO. 83F-01-86
Scale: As Shown Date: Apr, 1986
SHEET NO. 1 OF 21 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	28	54



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

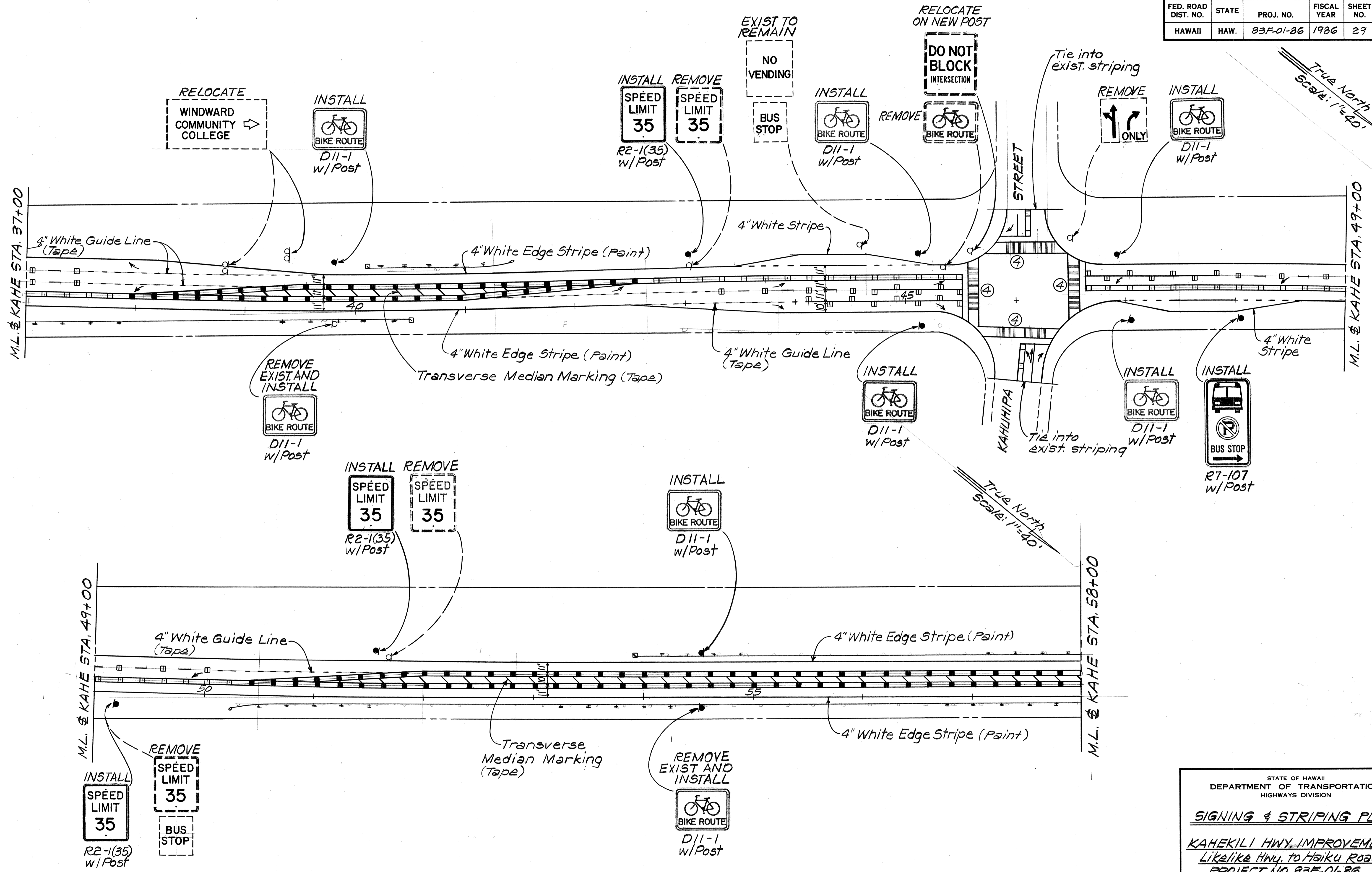
SIGNING & STRIPING PLAN

KAHEKILI HWY. IMPROVEMENTS
Likelike Hwy. to Haiku Road
PROJECT NO. 83F-01-86

Scale: 1" = 40' Date: Apr, 1986

SHEET NO. 2 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	29	54



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING & STRIPING PLAN

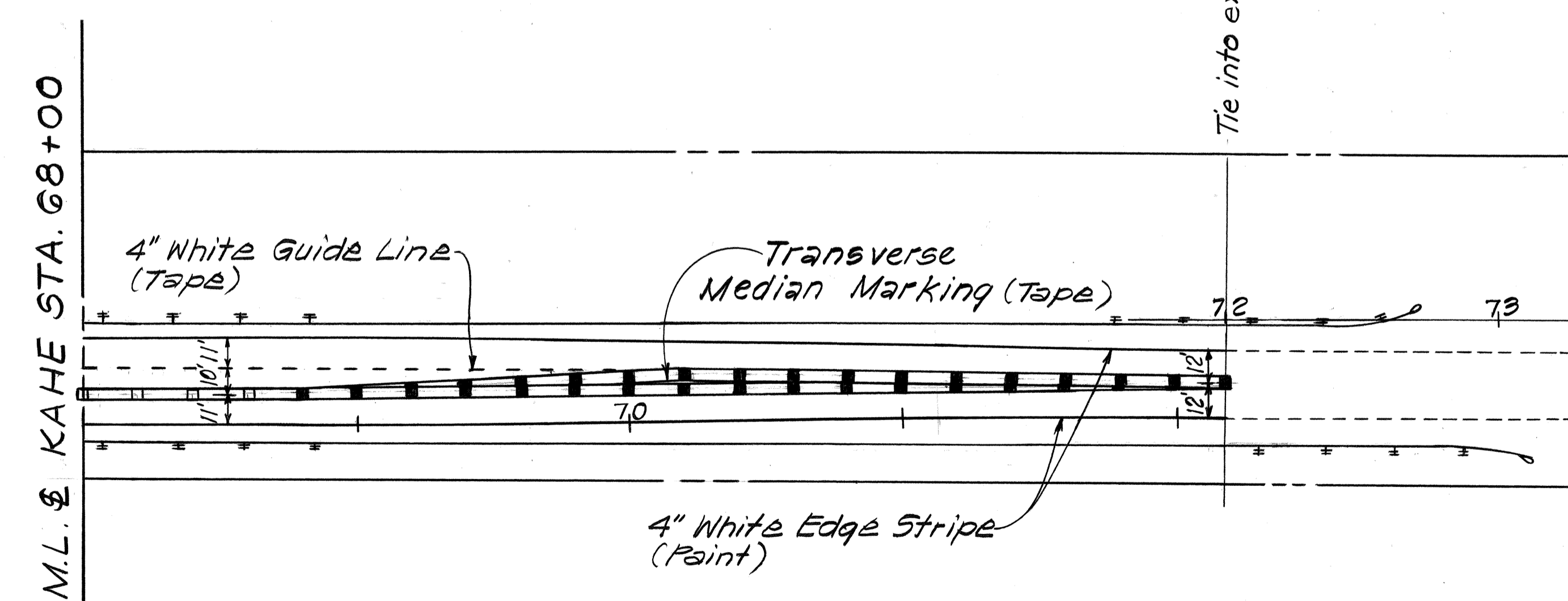
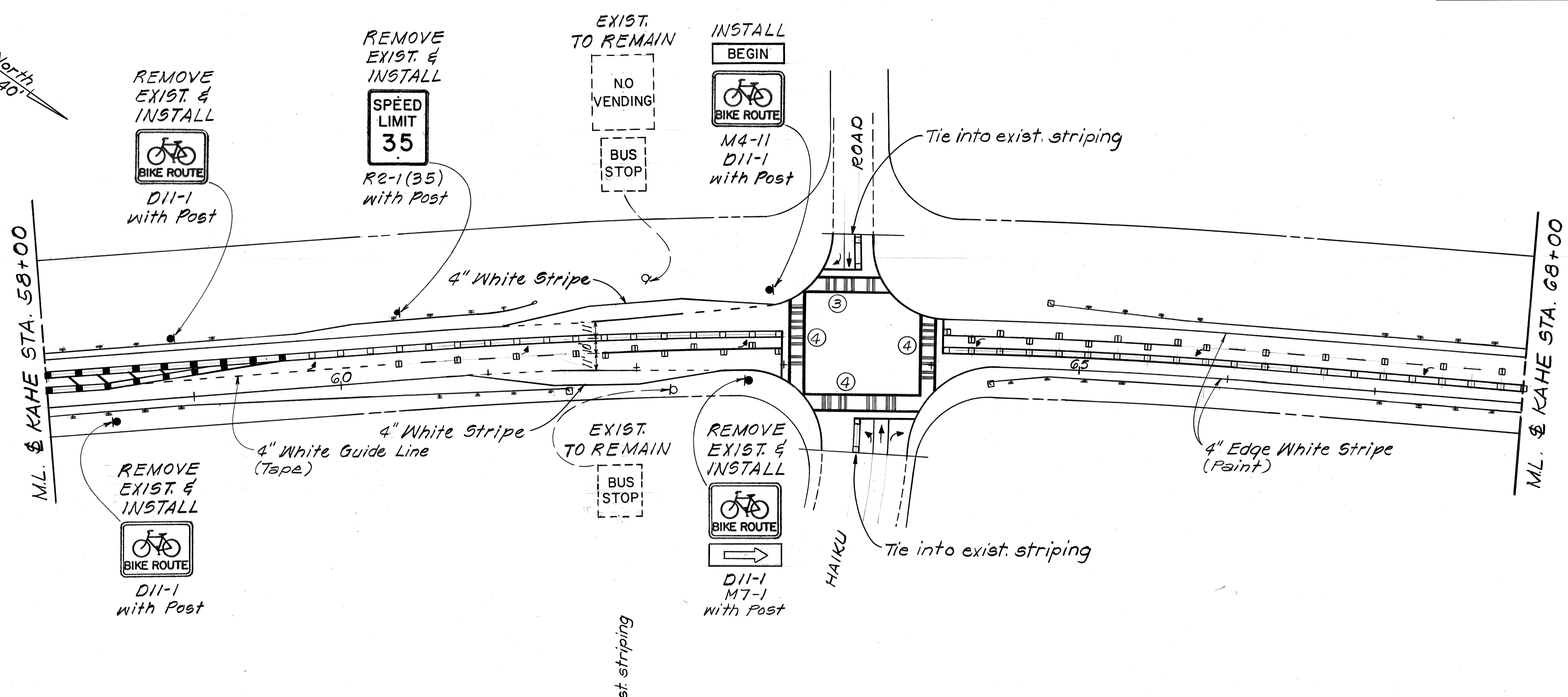
KAHEKILI HWY. IMPROVEMENTS
Likelike Hwy. to Haiku Road
PROJECT NO. 83F-01-86

Scale: 1" = 40' Date: Apr., 1986

SHEET NO. 3 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	30	54

True North
Scale: 1" = 40'



True North
Scale: 1" = 40'

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 & STRIPING PLAN

KAHEKILI HWY IMPROVEMENTS
Likelike Hwy. to Haiku Road
PROJECT NO. 83F-01-86

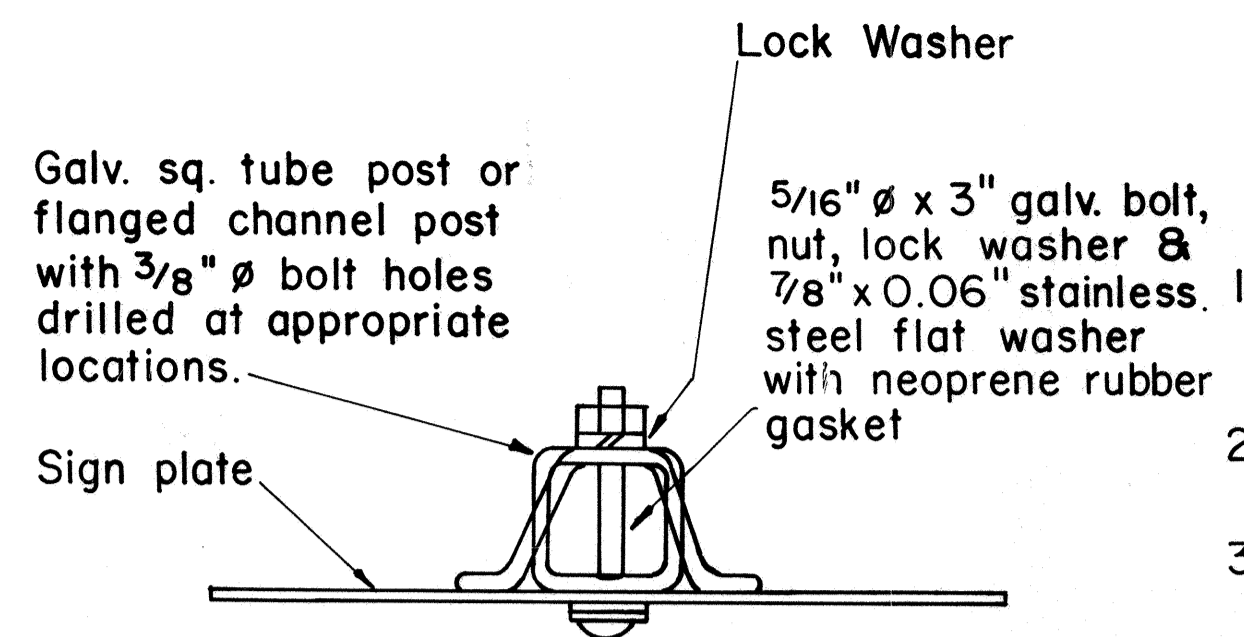
Scale: 1" = 40' Date: Apr, 1986

SHEET NO. 4 OF 21 SHEETS

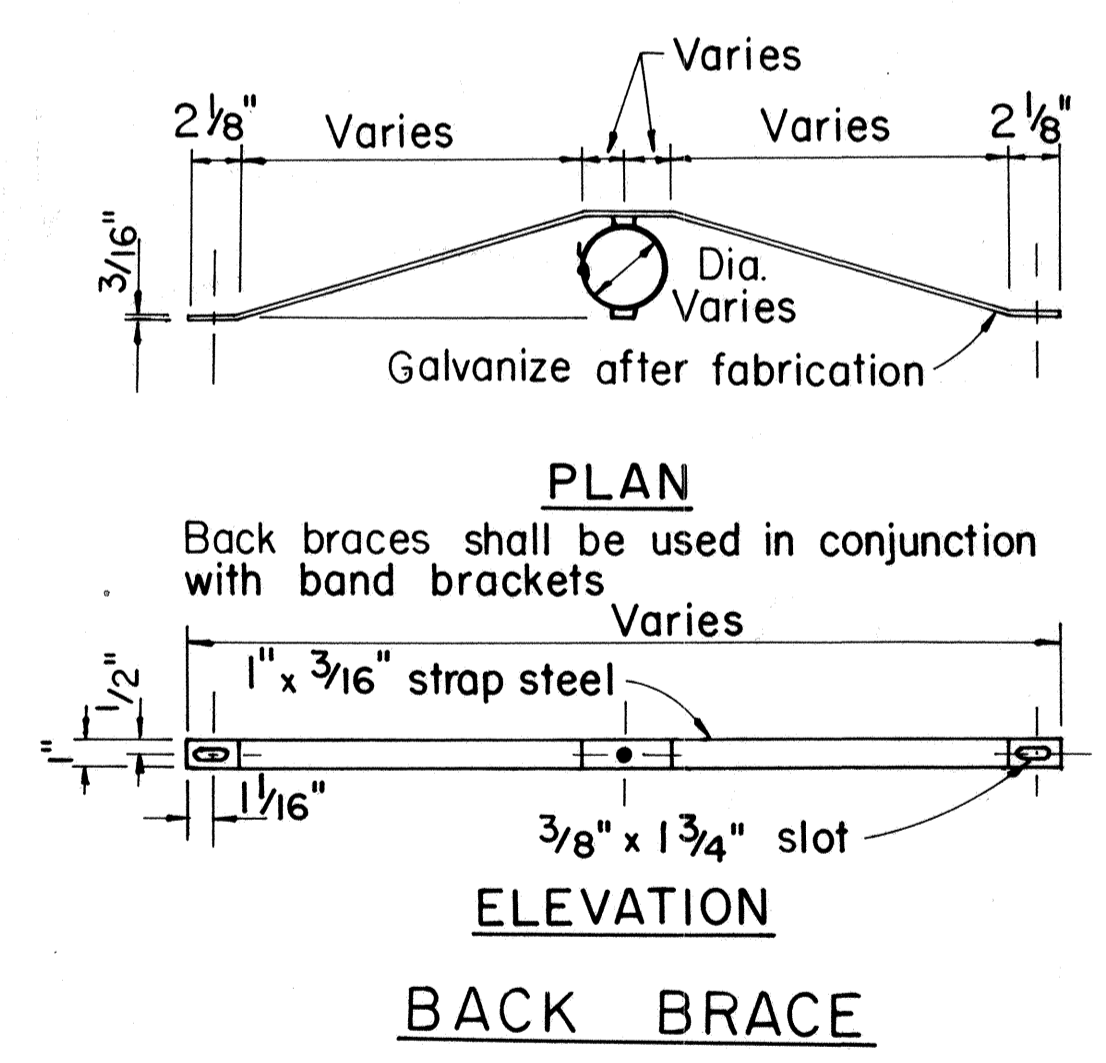
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	31	54

GENERAL NOTES

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

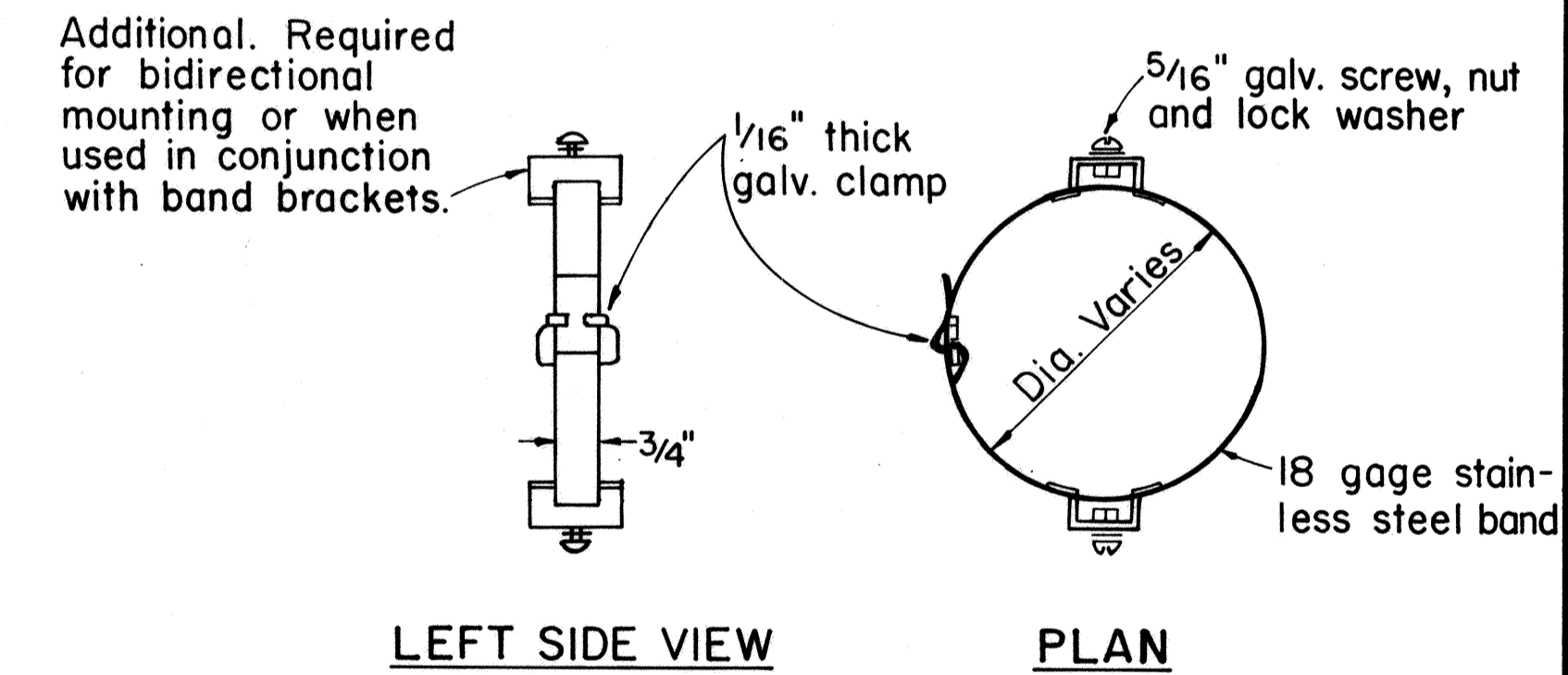


GALVANIZED SQUARE TUBE OR FLANGED CHANNEL POST



TYPICAL MOUNTING DETAILS

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



BAND BRACKET

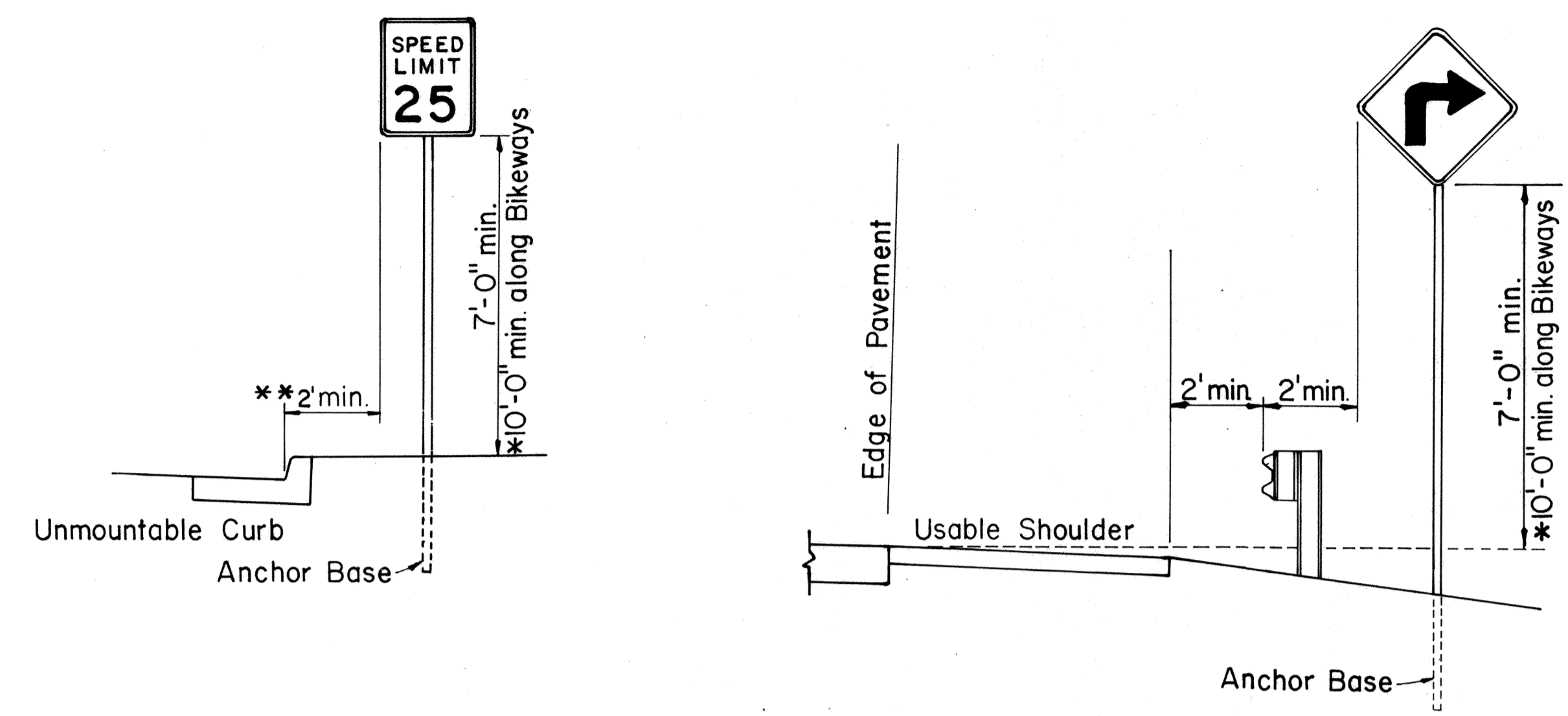
APPROVAL RECOMMENDED:
 [Signature] 10/18/83
 TRAFFIC ENGINEER DATE

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

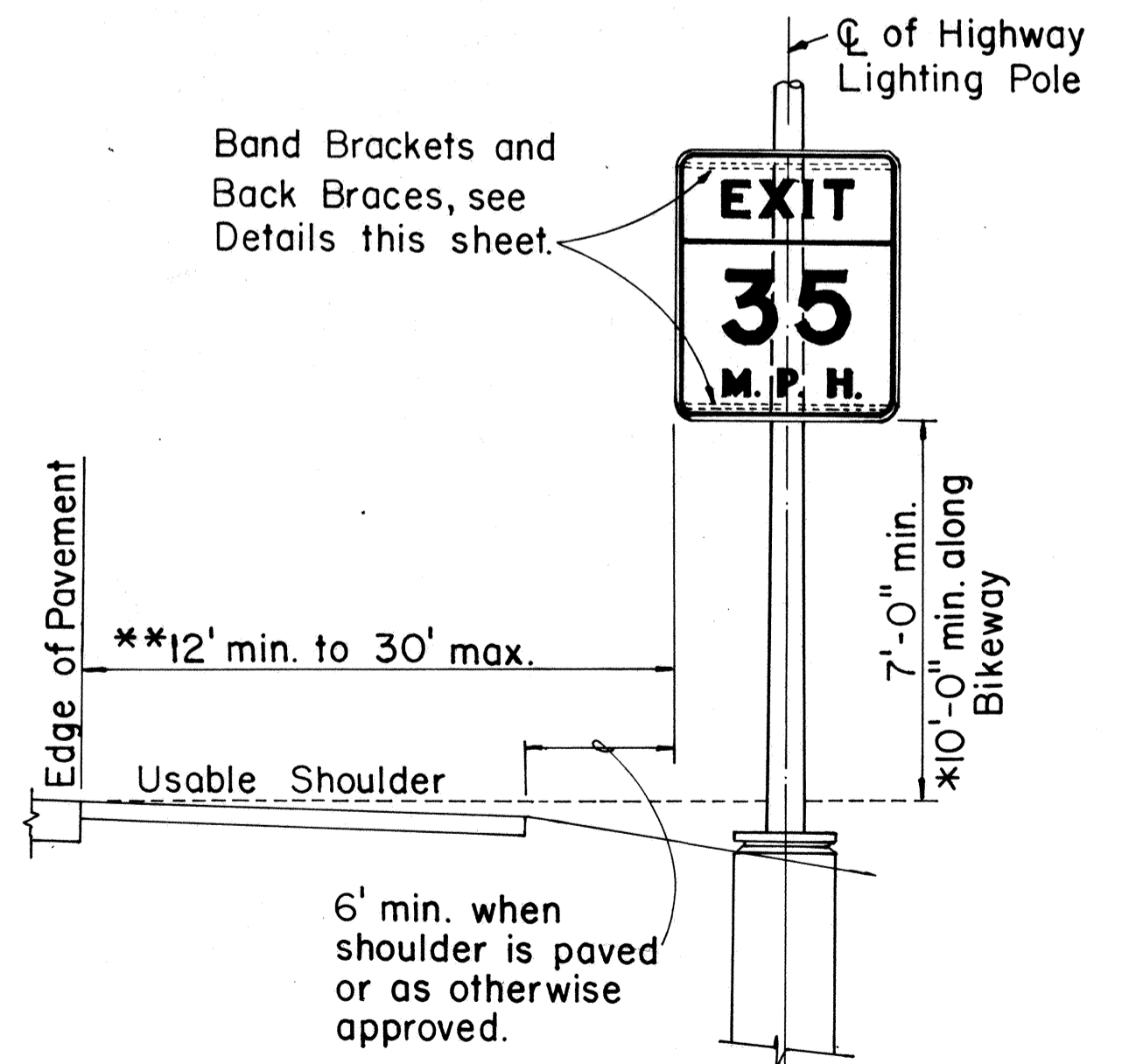
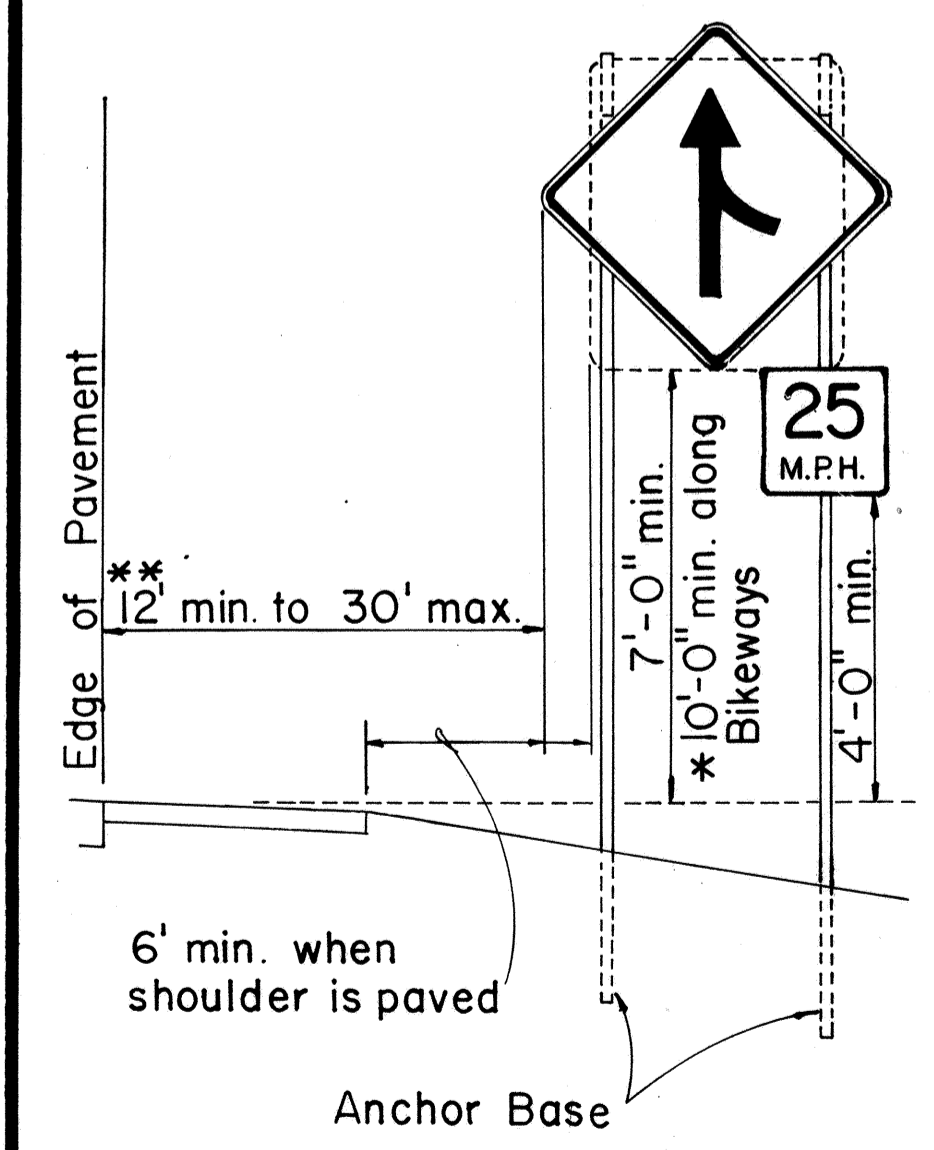
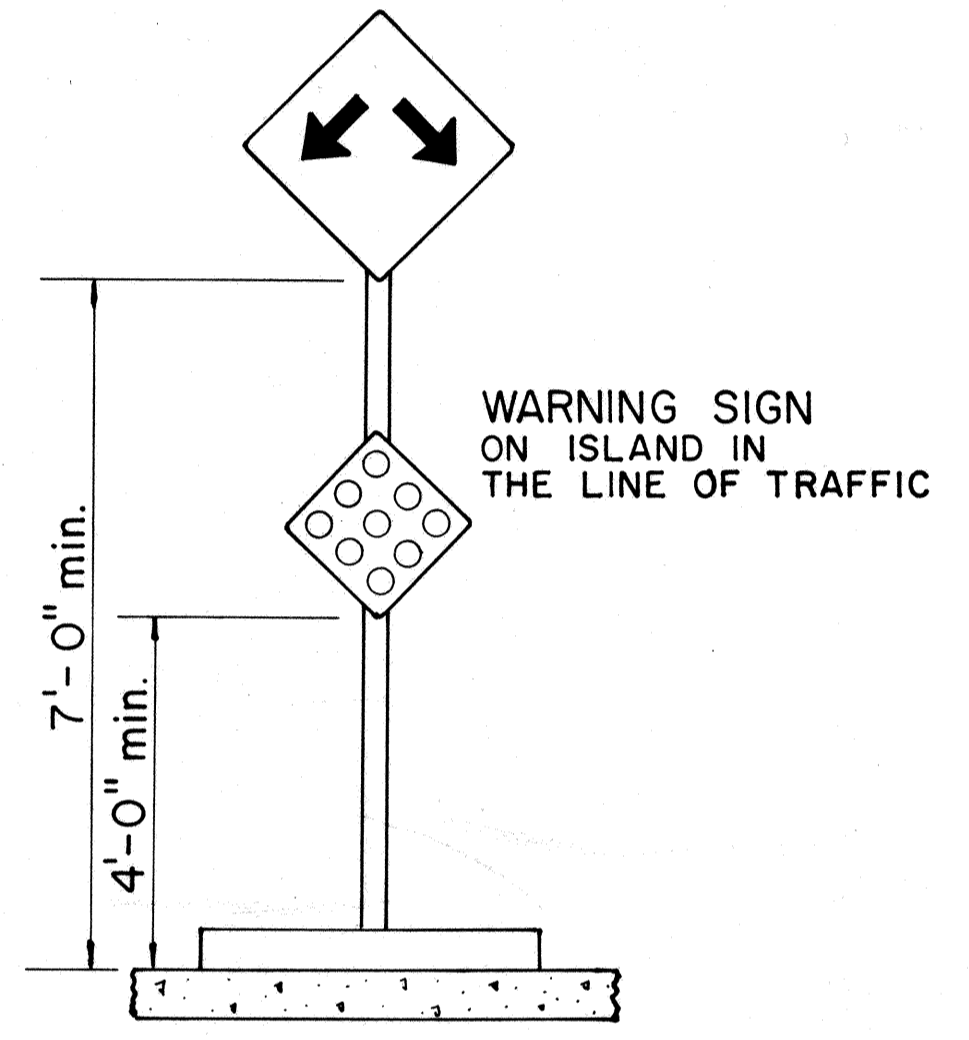
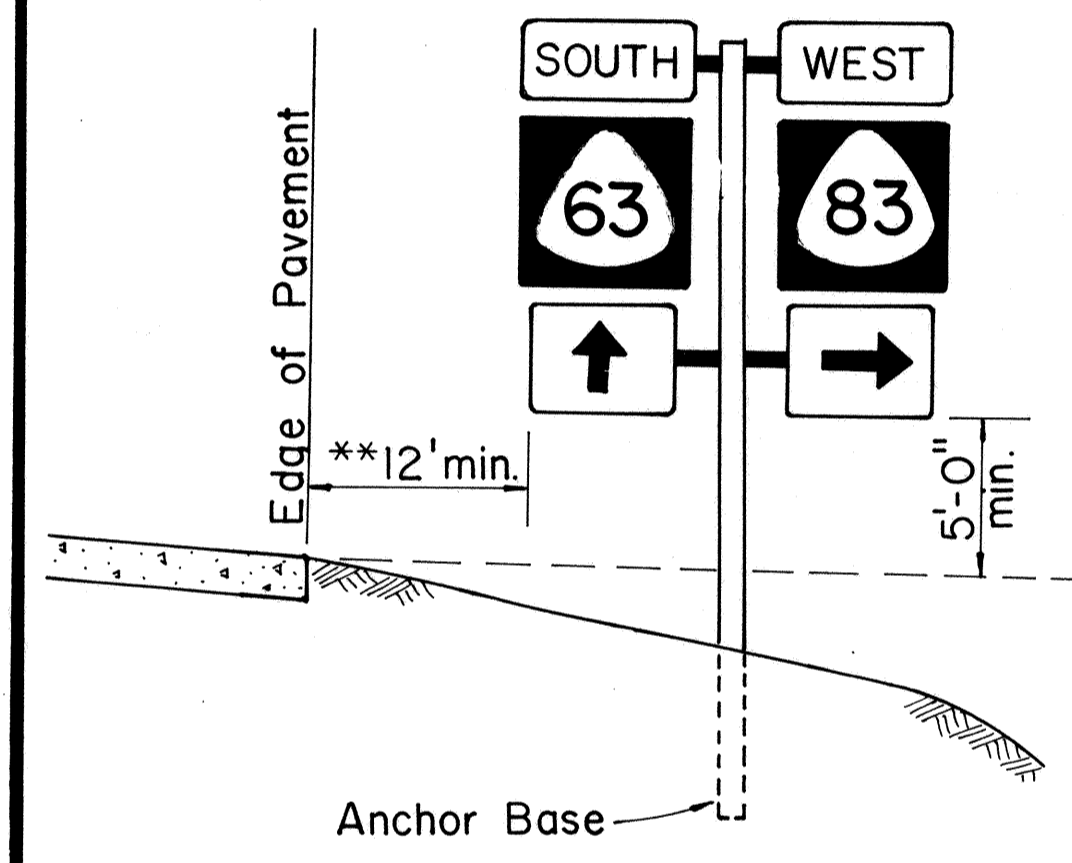
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS SIGN DETAILS

Not to Scale: Oct. 1983
 SHEET No. 5 OF 21 SHEETS DT 100



ROADSIDE ASSEMBLY RURAL DISTRICT



HEIGHT AND LATERAL LOCATION OF SIGNS TYPICAL INSTALLATION

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	32	54

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

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

GENERAL NOTES

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

Eichi Tanaka 9/21/82
TRAFFIC ENGINEER DATE

APPROVED:

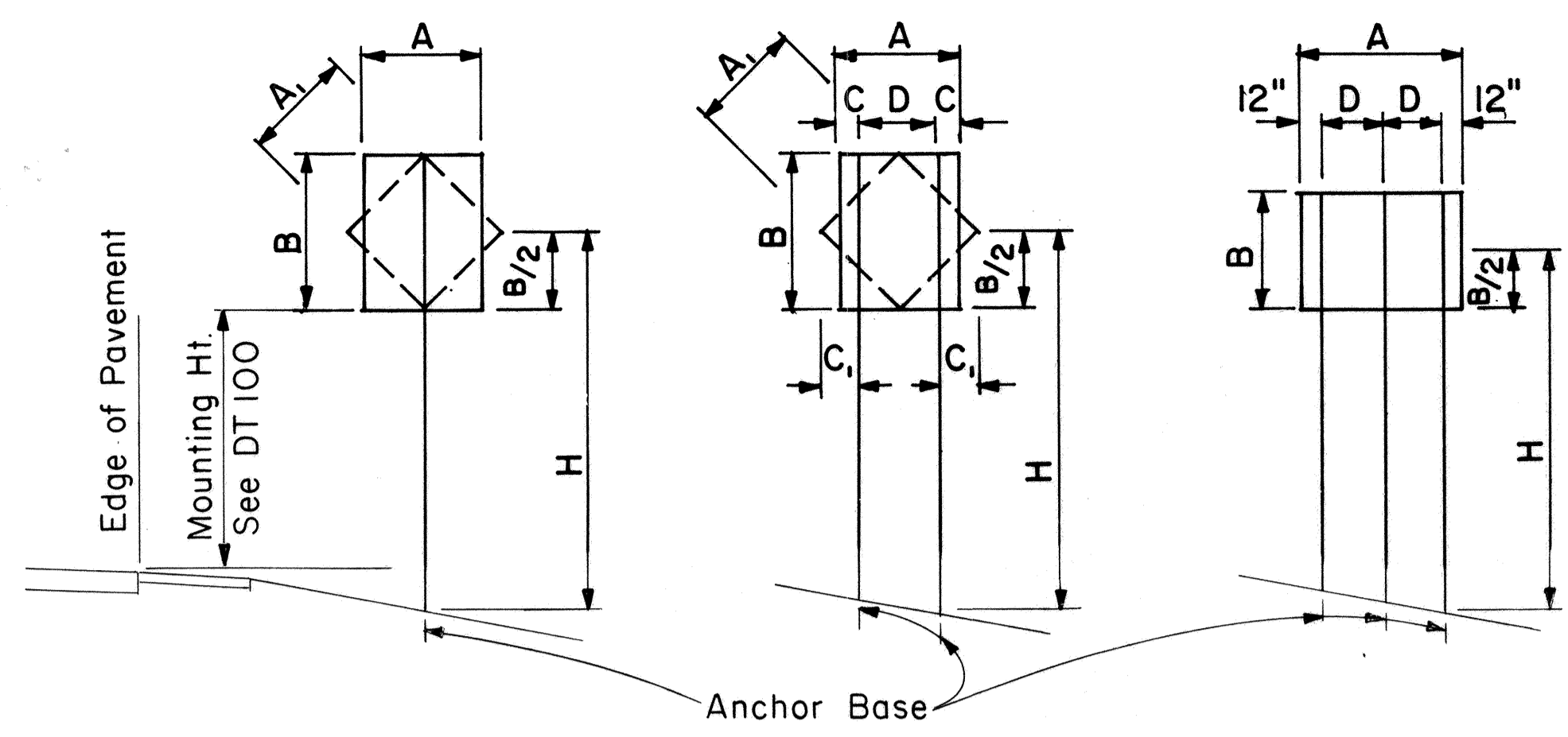
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
GALVANIZED FLANGED CHANNEL
SIGN POST MOUNTING

Scale: As Shown Date: Sept. 1982

SHEET No. 6 OF 2 / SHEETS DT100A



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

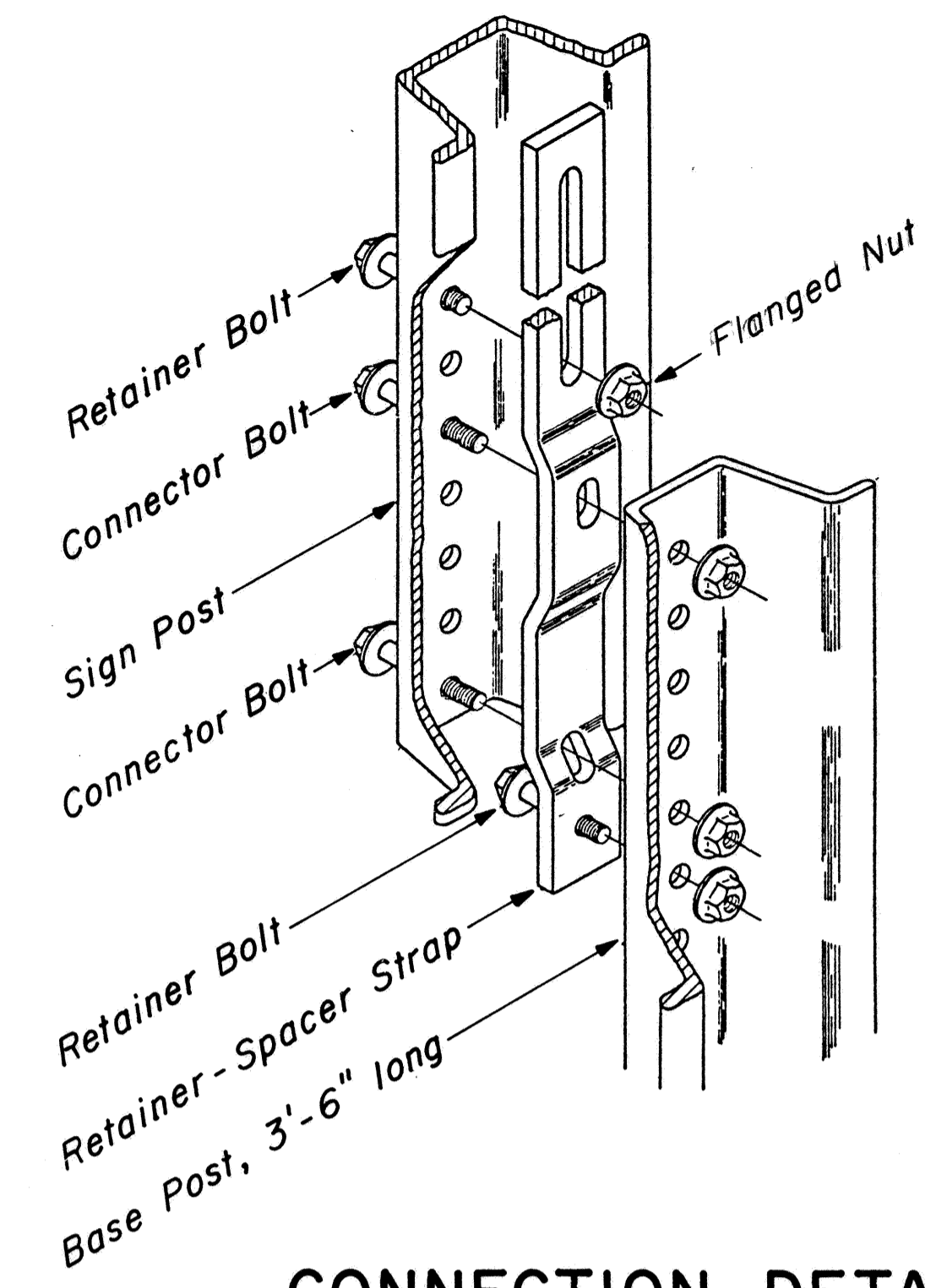
FLANGED CHANNEL: 1-POST INSTALLATION							
Post Size	A x B x H (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2.50 lbs./ft.	57	8.14	7.13	6.33	5.70	5.18	4.75
4.00 lbs./ft.	112	-	-	-	-	-	9.33

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

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

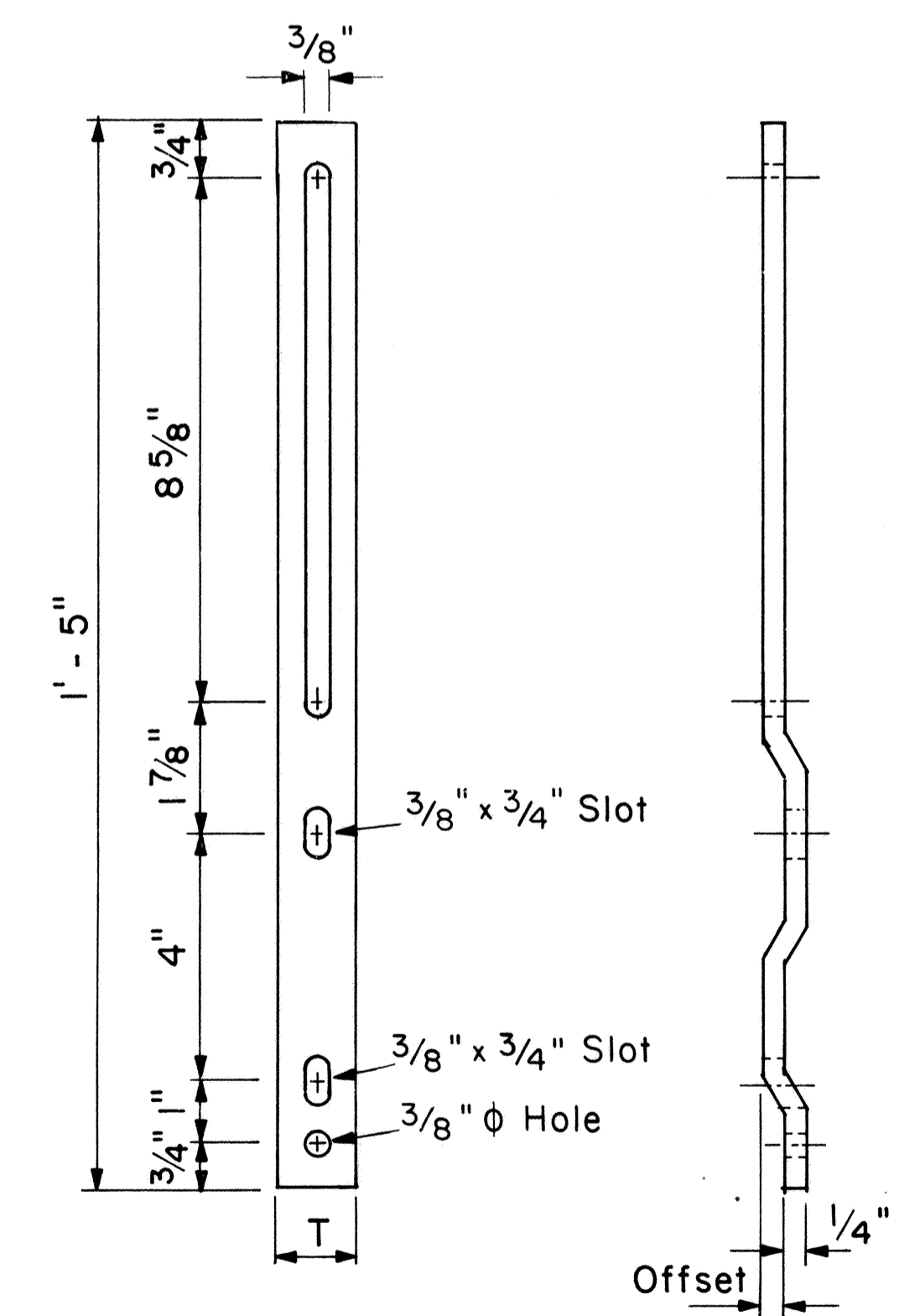
WINDLOAD CHARTS

NO.	REVISION	APPROVED BY	DATE



CONNECTION DETAIL

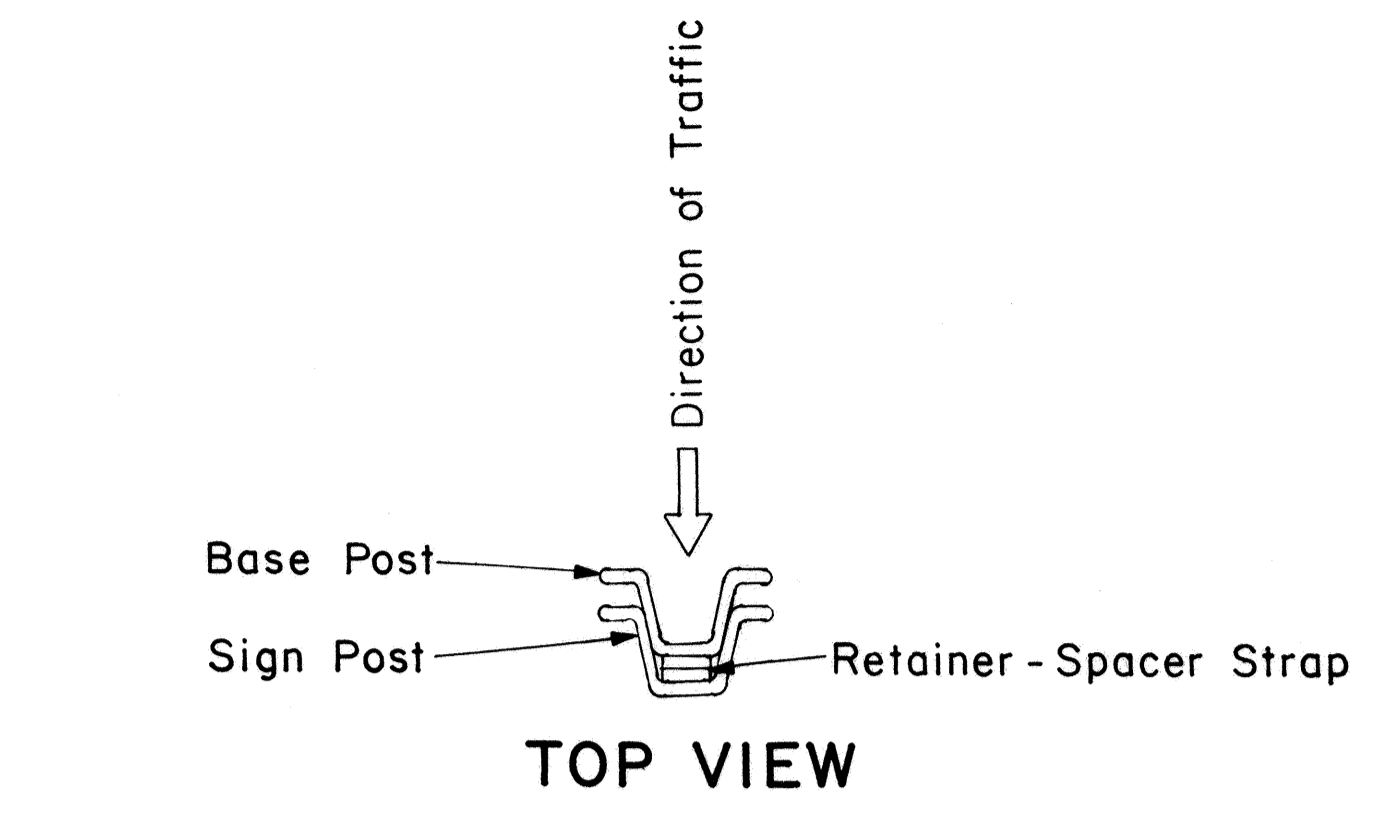
Not to Scale



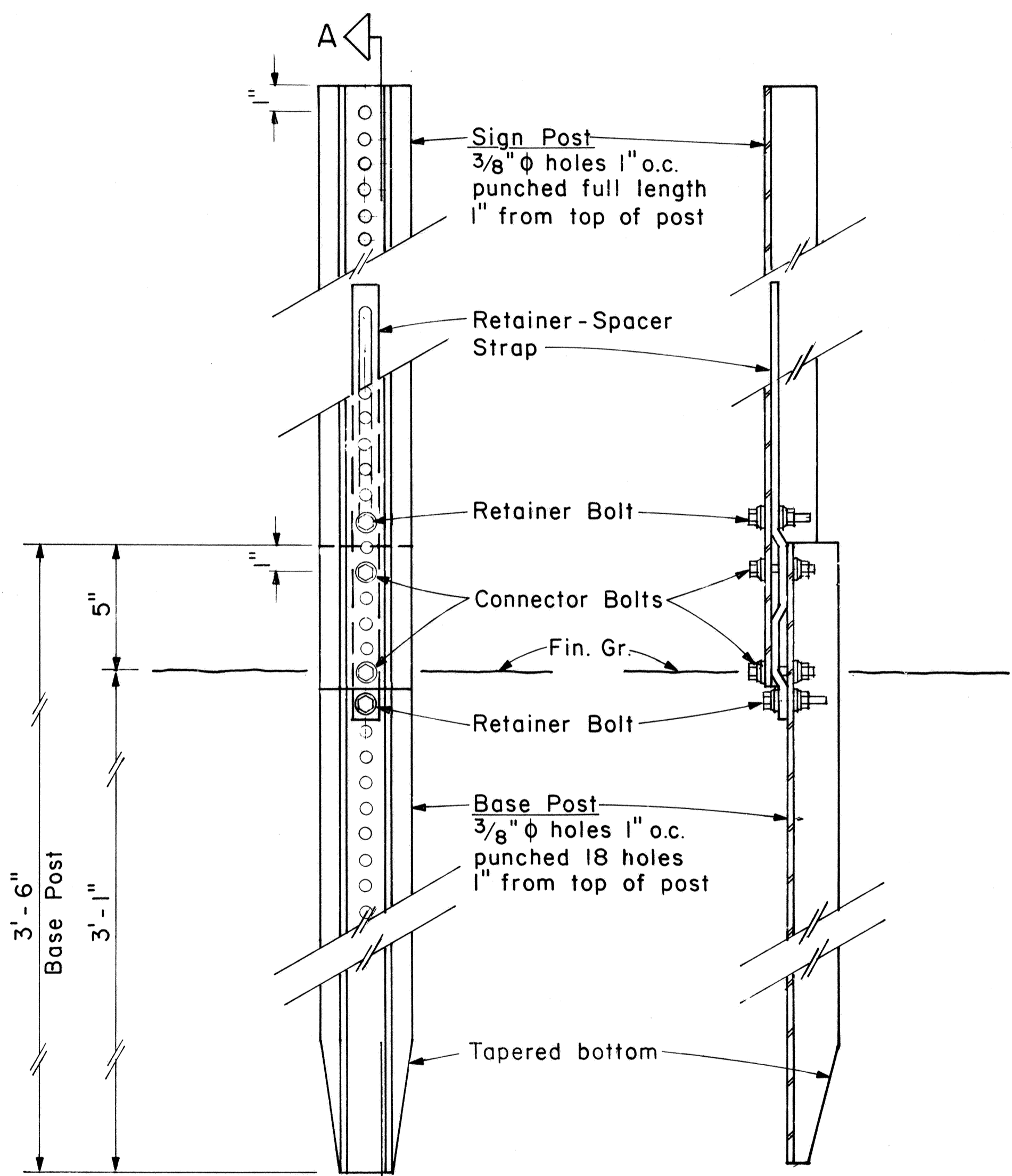
RETAINER-SPACER STRAP

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"

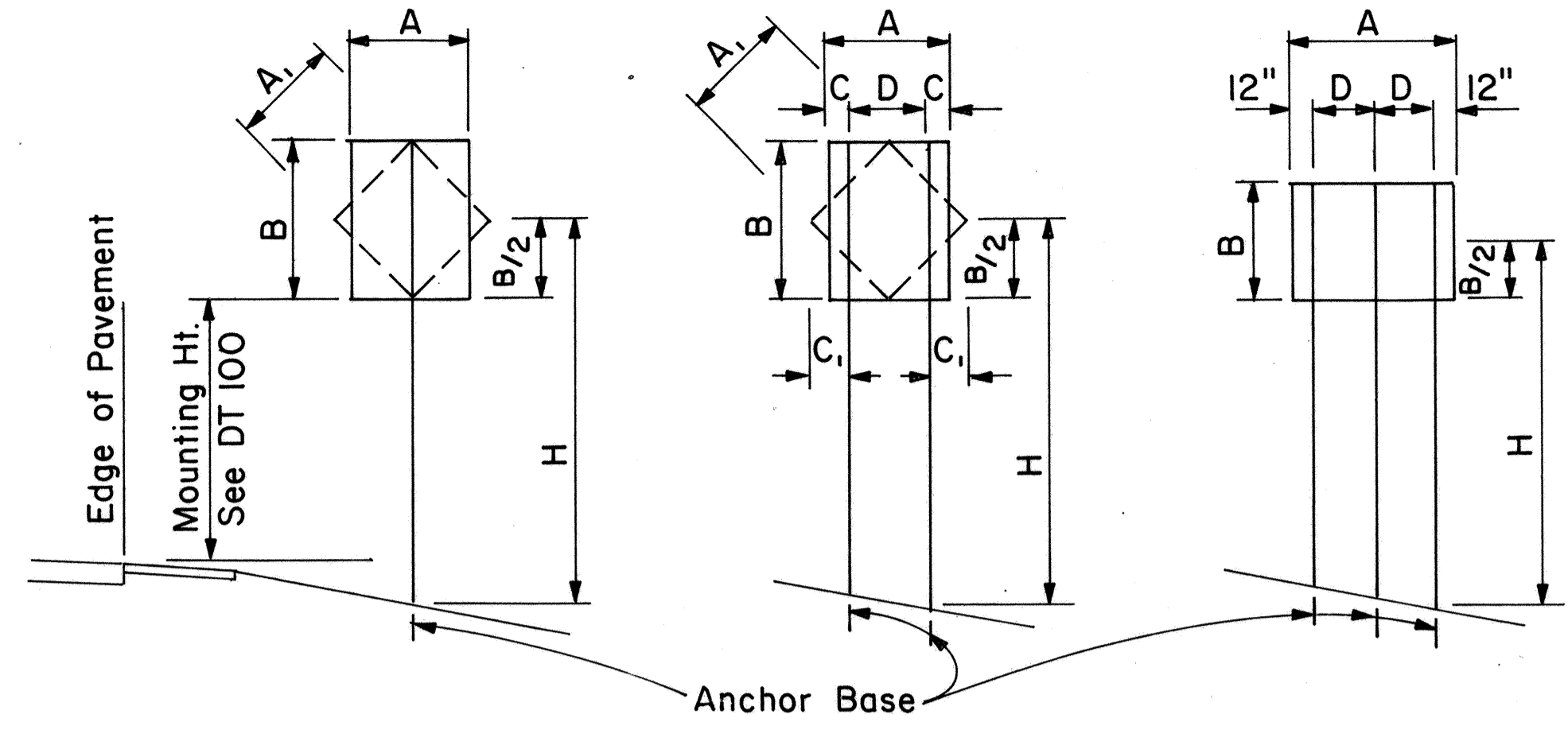
DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN: _____
 NOTE BOOK: _____
 No. _____

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	AxBxH (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.)

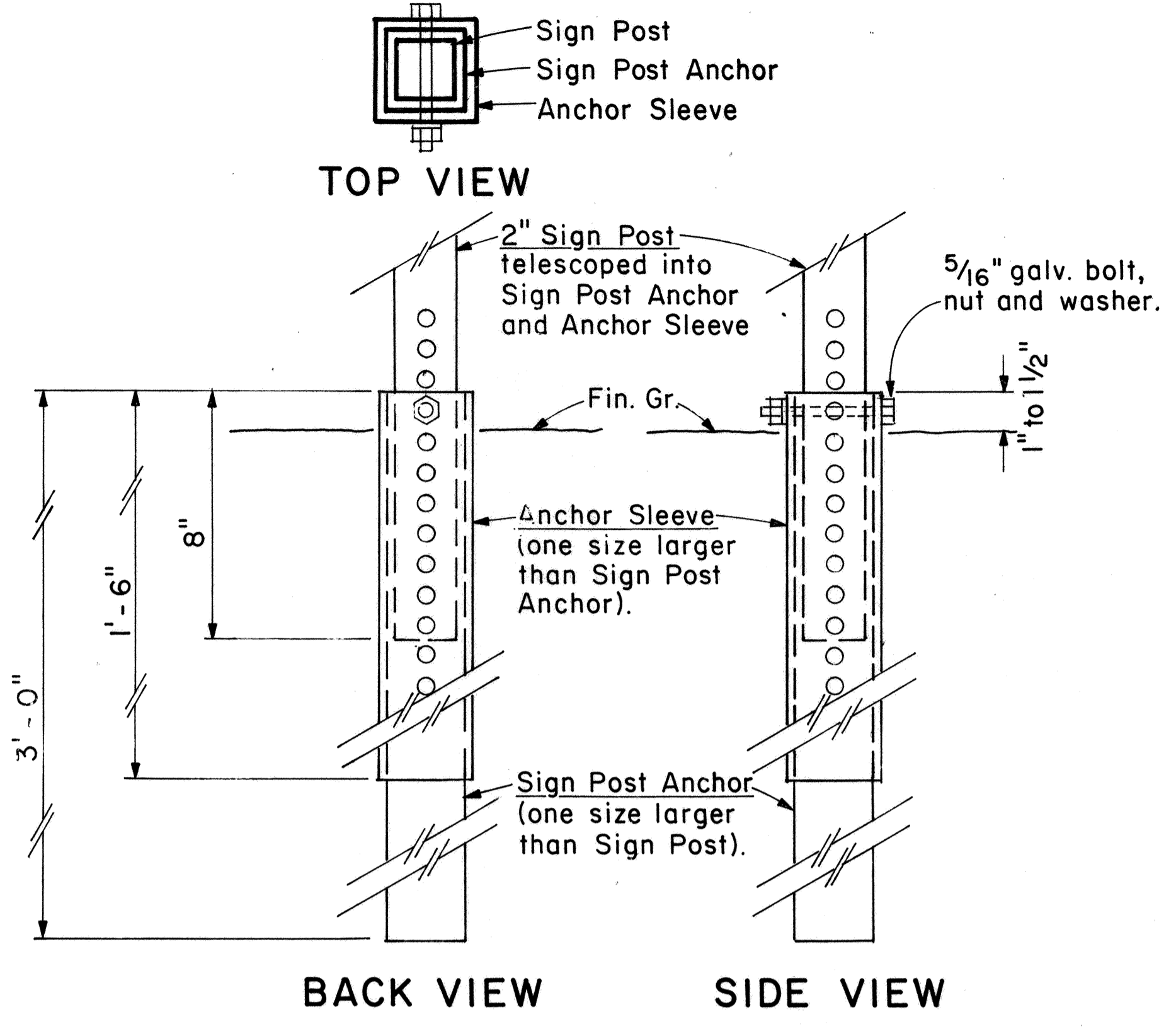
SQUARE TUBE: 2-POST INSTALLATION							
Post Size	AxBxH (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	122	17.4	15.2	13.5	12.2	11.0	10.1
2 1/2"	212	30.2	26.5	23.5	21.1	19.2	17.6
2 1/2", 10 ga.	260	37.0	32.0	28.6	26.0	23.5	21.5

A x B (Area, sq. ft.)

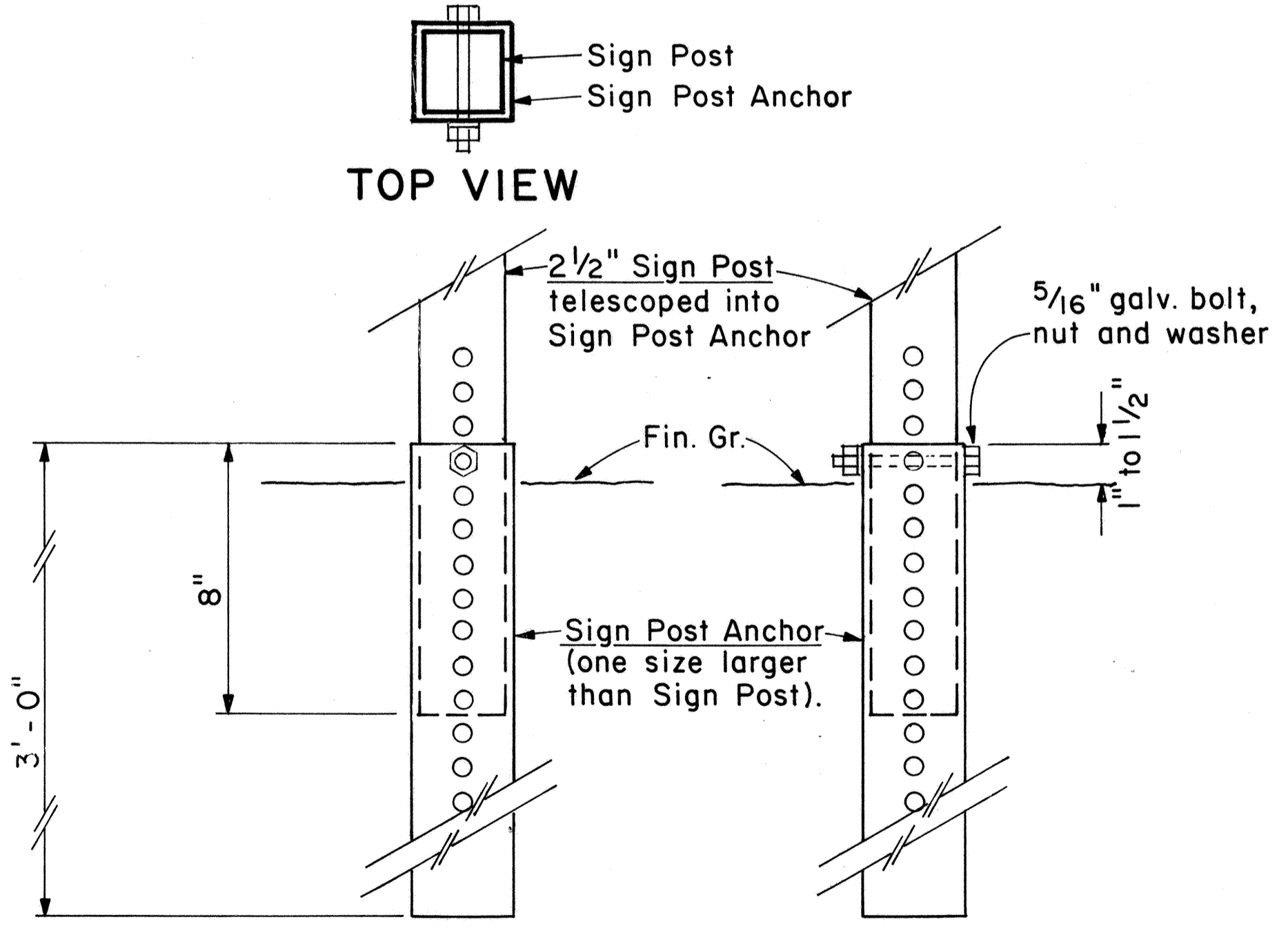
SQUARE TUBE: 3-POST INSTALLATION							
Post Size	AxBxH (Factor)	H = Ground Level to Midpoint (ft.)					
		7	8	9	10	11	12
2"	183	26.0	22.8	20.3	18.2	16.6	15.2
2 1/2"	318	45.4	39.5	35.2	31.5	28.8	26.5
2 1/2", 10 ga.	388	55.0	48.5	43.0	38.5	35.0	32.0

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 PROVIDED BY: _____ DATE: _____
 DRAWN BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN: _____
 NOTE BOOK: _____
 No. _____

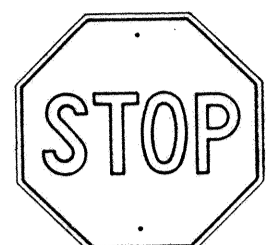
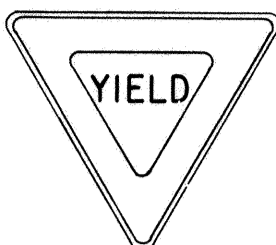

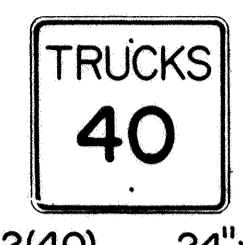
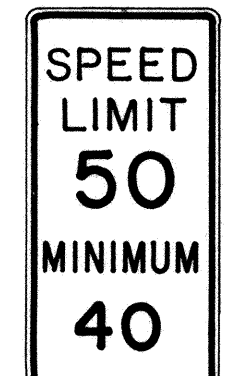


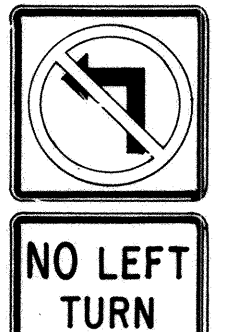



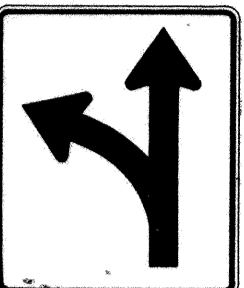
APPROVAL RECOMMENDED:
Eishi Tanaka 9/21/82
TRAFFIC ENGINEER DATE



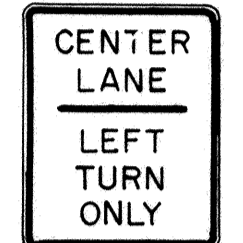


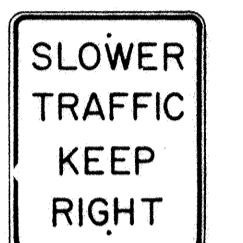
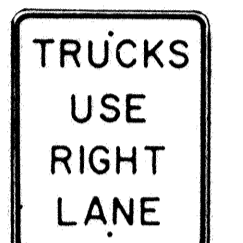



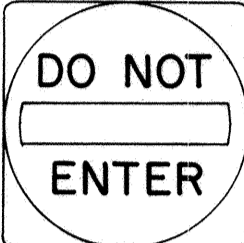
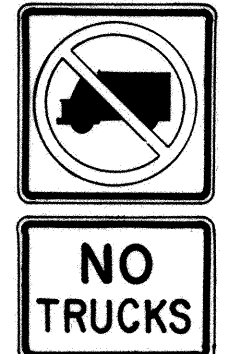
APPROVED:
Albert S. Salschi 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

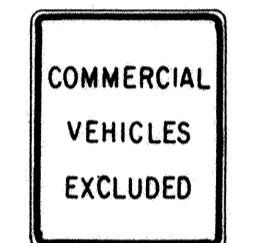







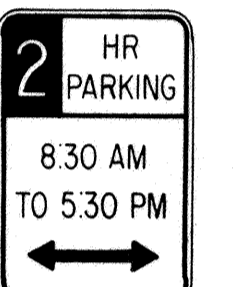



NO.	REVISION	APPROVED BY	DATE






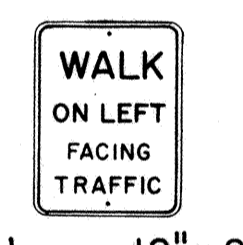


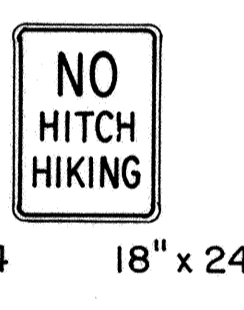
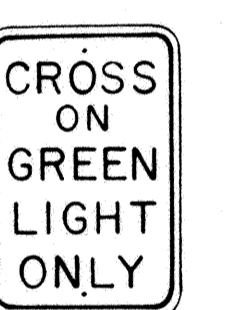

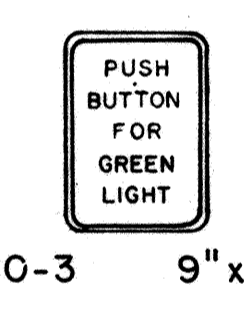
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 STANDARD DETAILS
 GALVANIZED SQUARE TUBE
 SIGN POST MOUNTING
 Scale: As Shown Date: Sept. 1982
 SHEET No. 7 OF 21 SHEETS DT100B

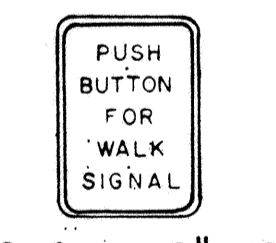


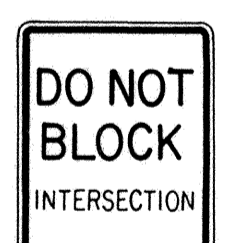
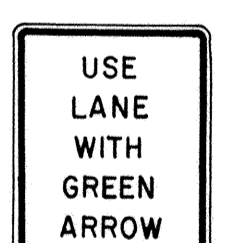
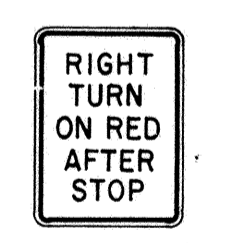
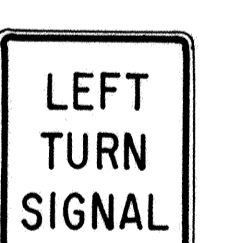
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	34	54

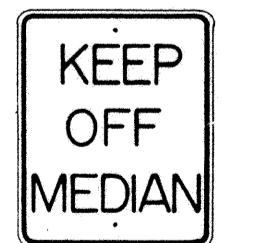
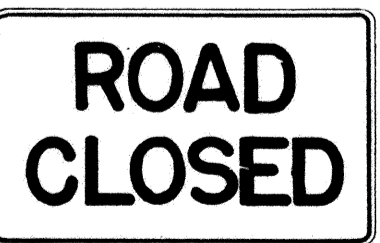
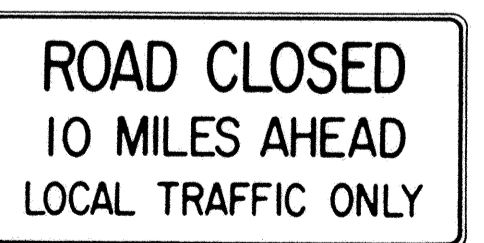
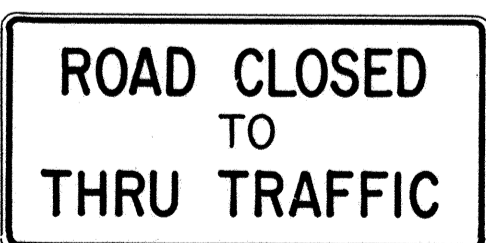

 R1-1 30" x 30" R1-1-A 36" x 36"	 R1-2 36" x 36" x 36" R1-2-A 48" x 48" x 48"	 R2-1(50) 24" x 30" R2-1(50)-A 48" x 60"	 R2-2(40) 24" x 24" R2-2(40)-A 48" x 48"	 R2-4a(50/40) 24" x 48" R2-4a(50/40)-A 48" x 96"	 R2-5b(30) 24" x 30" R2-5b(30)-A 48" x 60"	 R3-1 24" x 24" 24" x 18" R3-1-A 48" x 48" 48" x 36"	 R3-2 24" x 24" 24" x 18" R3-2-A 48" x 48" 48" x 36"	 R3-3 24" x 24" R3-3-A 48" x 48"	 R3-4 24" x 24" 24" x 18" R3-4-A 4" x 4" 48" x 36"	 R3-5(L) 30" x 36" R3-5(L)-A 48" x 60"	 R3-6(L) 30" x 36" R3-6(L)-A 48" x 60"
---	---	---	--	---	---	---	---	---	---	---	---

 R3-7(R) 30" x 30" R3-7(R)-A 48" x 48"	 R3-8(L) 30" x 30" R3-8(L)-A 36" x 36" R3-8(L)-B 48" x 48"	 R3-9 24" x 30"	 R4-1 24" x 30" R4-1-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

1. 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.
2. All regulatory signs shall be reflectorized unless otherwise specified.
3. All regulatory signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
5. All signs shall be erected without educational plaques unless called for in the plans.

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

APPROVED:
Julius Roberts 3-20-72
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.T.	9/20/72
2	Revised General Note 1	H.T.	10/10/74
3	Added General Note 5	H.T.	11/10/75
4	Revised Signs and General Note 1	E.T.	9/1/82

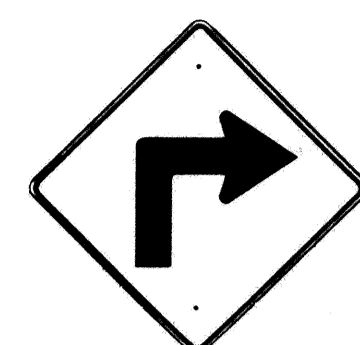
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**STANDARD DETAILS
 REGULATORY SIGNS**

NOT TO SCALE
 SHEET No. 8 OF 21 SHEETS DT 101

DATE: _____
 SURVEY PLANNED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DESIGNED BY: _____
 NOTE BOOK NO. _____

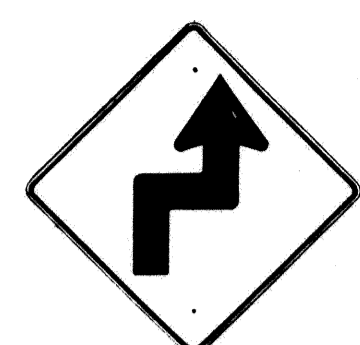
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII *	HAW.	83F-01-86	1986	35	54



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



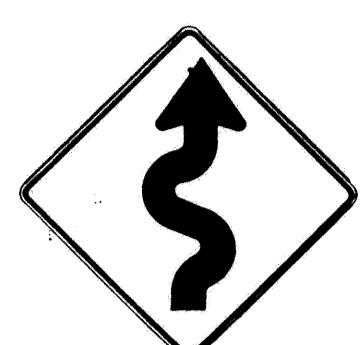
W1-2(R) 30"x30"
W1-2(R)-A 48"x48"



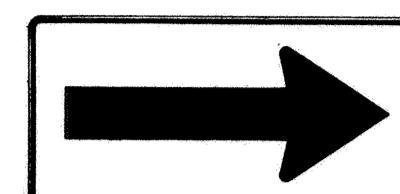
W1-3(R) 30"x30"
W1-3(R)-A 48"x48"



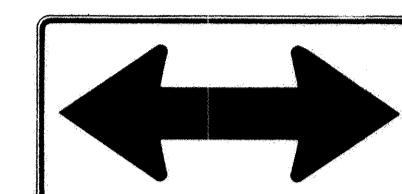
W1-4(R) 30"x30"
W1-4(R)-A 48"x48"



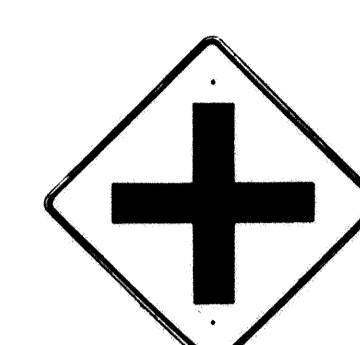
W1-5(R) 30"x30"
W1-5(R)-A 48"x48"



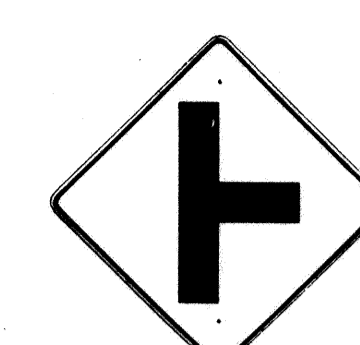
W1-6 48"x24"



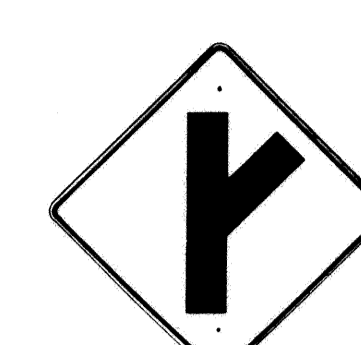
W1-7 48"x24"



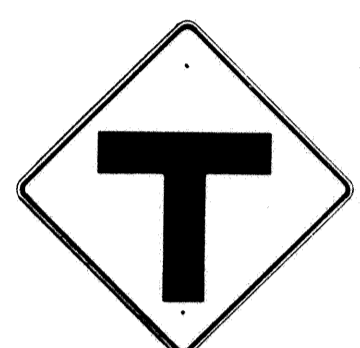
W2-1 30"x30"
W2-1-A 48"x48"



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"



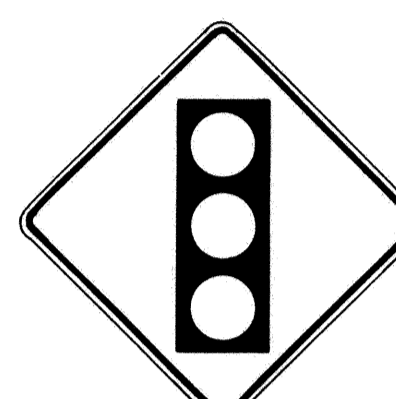
W2-5 30"x30"
W2-5-A 48"x48"



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



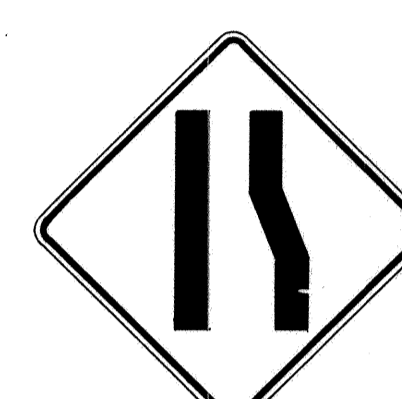
W3-2 30"x30"
W3-2-A 36"x36"



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"



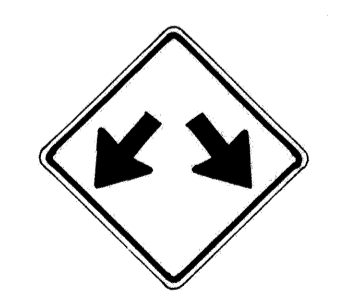
W11A-2 30"x30"
24"x18"
W11A-2-A 36"x36"
24"x18"
W11A-2-B 48"x48"
24"x18"



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



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



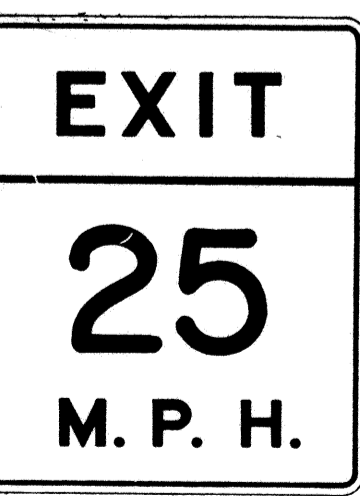
W12-1 24"x24"
W12-1-A 36"x36"
W12-1-B 48"x48"



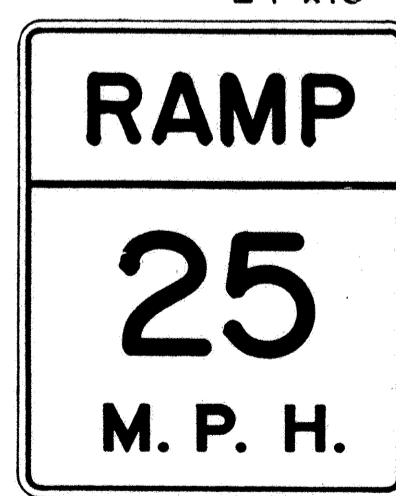
W12-2(12'-6") 36"x36"
24"x18"
W12-2(12'-6") 48"x48"



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

- 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.
- All warning signs shall be reflectorized unless otherwise specified.
- All warning signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs, and shall be reflectorized.

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

APPROVED:
Walter Dalsin 3-20-72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	H.C.	3/20/72
2	Revised General Note 1	H.C.	10/16/74
3	Revised General Note 5	MT	9-16-75
4	Revised General Note 5	H.C.	9-14-76
5	Added Note 1	H.C.	11-1-77
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. 9 OF 21 SHEETS DT 102

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	36	54

General Notes

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

ALL WAY
R1-4 18" x 6"

REDUCED SPEED AHEAD
R2-5a 24" x 30"
R2-5a-A 48" x 60"

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

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

BUS STOP
R7-107 12" x 24"

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

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

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

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

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

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

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

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

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

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

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

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

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

W17-1(L) 60" x 60"

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

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

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

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

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

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

ADVANCE GREEN
W15-2 24" x 24"

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

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

SI-1 36" x 36"
SI-1-A 48" x 48"

S2-1 36" x 36"
S2-1-A 48" x 48"

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

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

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

APPROVED:
Robert J. Dakeishi 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.	11/9/78
3	Revised Signs and added Sign W4-3	E.T.	9/18/86

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

MISCELLANEOUS SIGNS

NOT TO SCALE DATE: MAY, 1978
SHEET No. 10 OF 21 SHEETS DT 103

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	37	54



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"



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



CW21-1 30" x 30"



CW21-2 30" x 30"



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"



CG 20-1(5) 60" x 36"



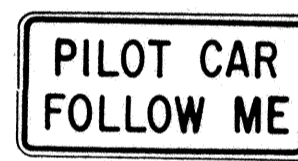
CG 20-2 60" x 24"



CM4-9(R) 30" x 24"



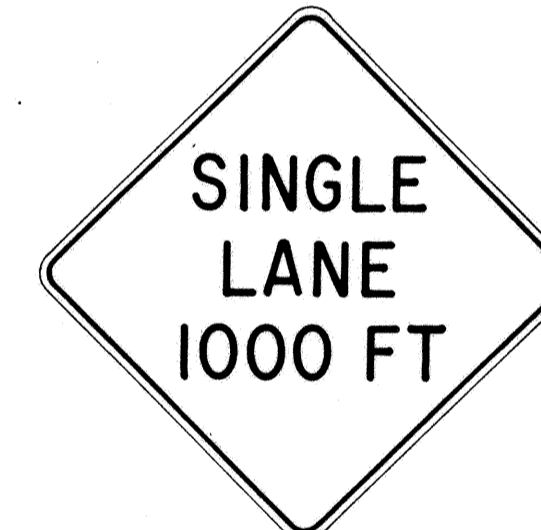
CM4-10(R) 48" x 18"



CG 20-4 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:
E. T. ... 3/23/72
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	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.	3/10/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONSTRUCTION SIGNS

NOT TO SCALE

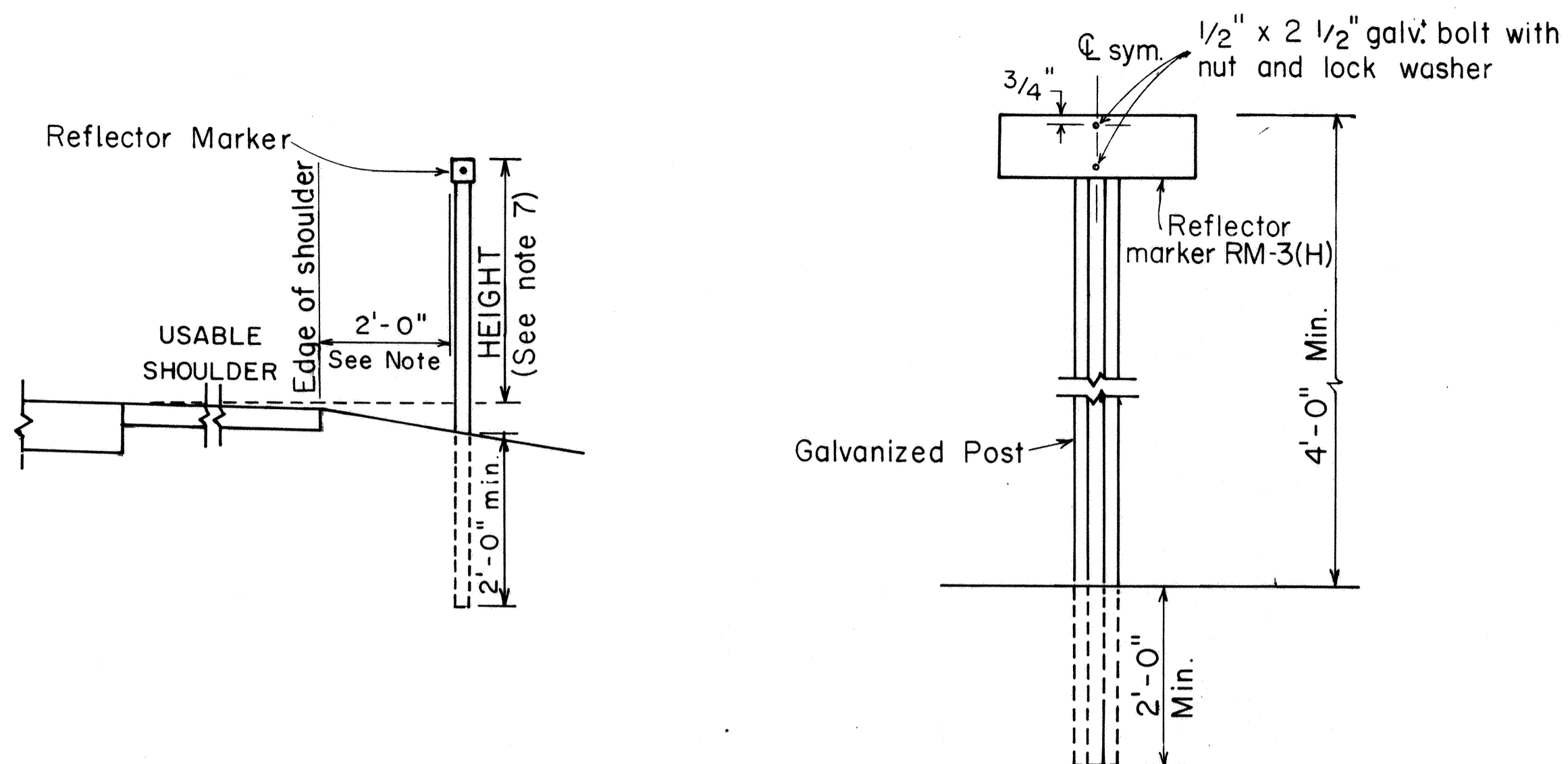
SHEET No. 11 OF 21 SHEETS DT 104

DESIGNED BY	DATE
CHECKED BY	
APPROVED BY	
DATE	
NO.	

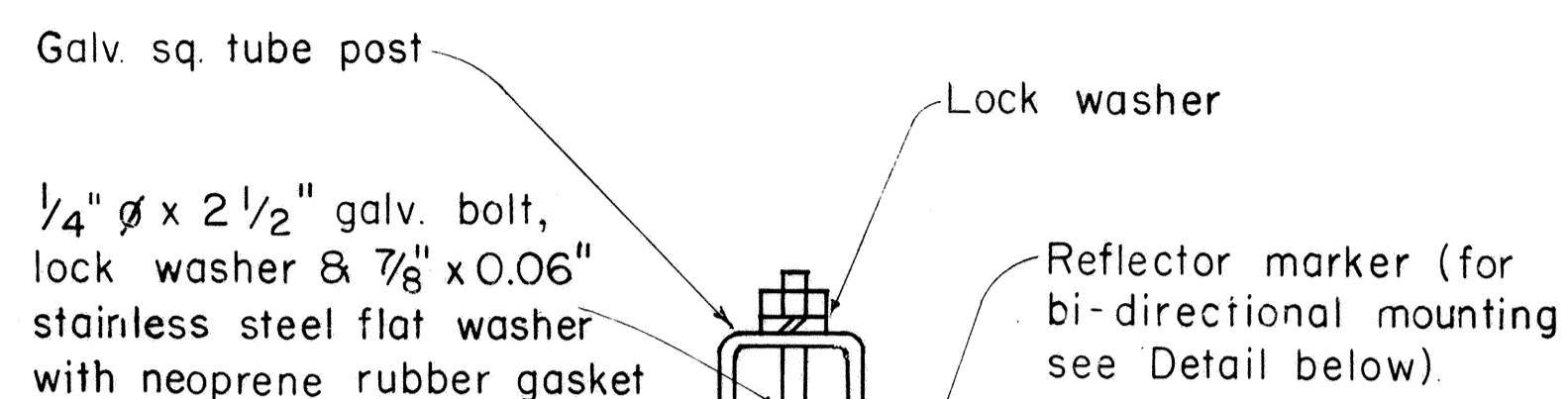
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	38	54

GENERAL NOTES:

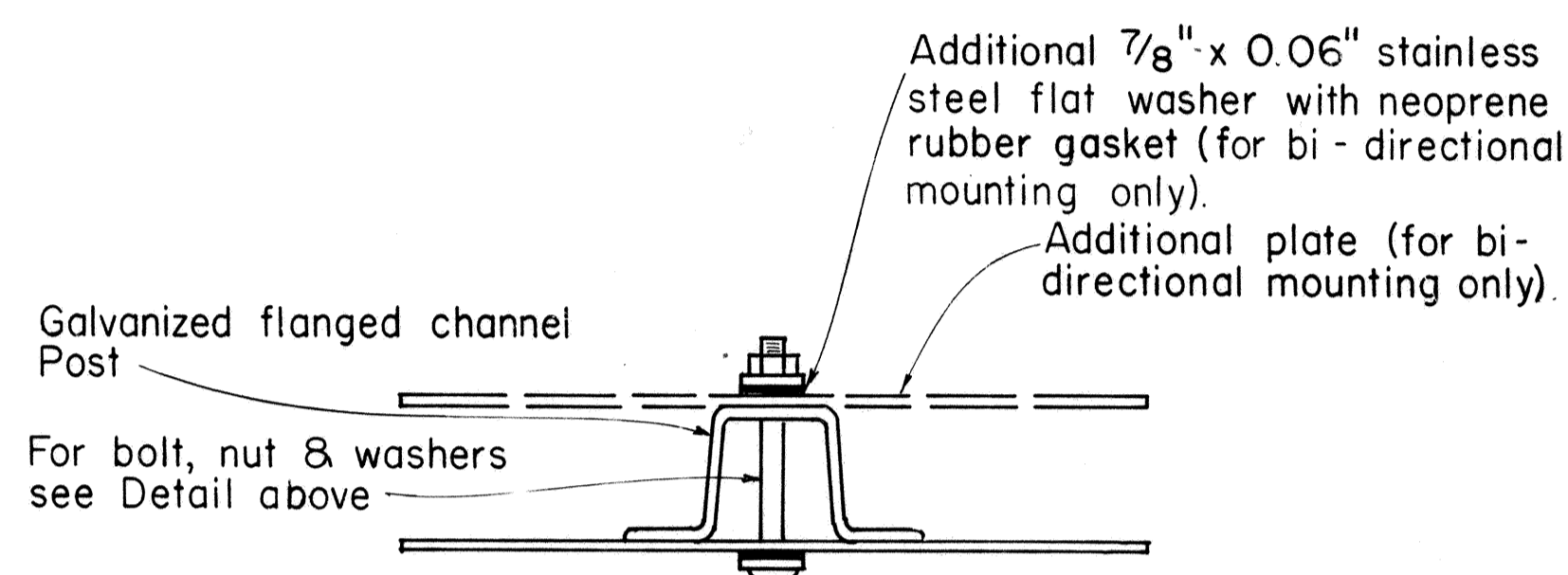
1. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
2. (R) or (L) indicates right or left and shall be as shown on the plans.
3. Reflector markers RM-1 and RM-2 shall be:
 - a) Yellow if placed along the left edge of divided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

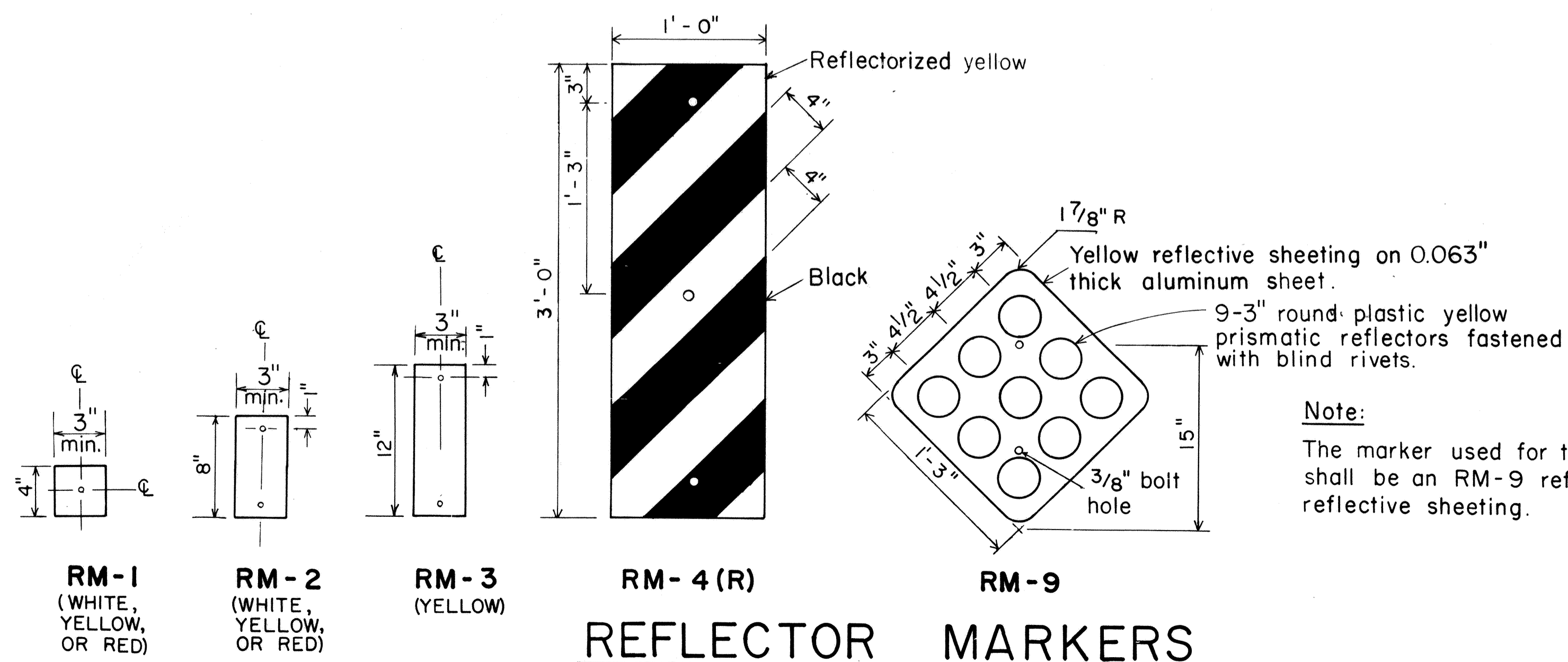


GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

TYPICAL MOUNTING DETAILS



REFLECTOR MARKERS

APPROVAL RECOMMENDED:
Etschi Tanaka 11/1/77
 TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE
1	Revised Mounting Details	H.H.	4/23/80
2	Revised General Notes, Mounting Details and Reflector Markers.	<i>[Signature]</i>	7-28-83
3	Eliminated White for RM-4	<i>[Signature]</i>	1-30-85

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

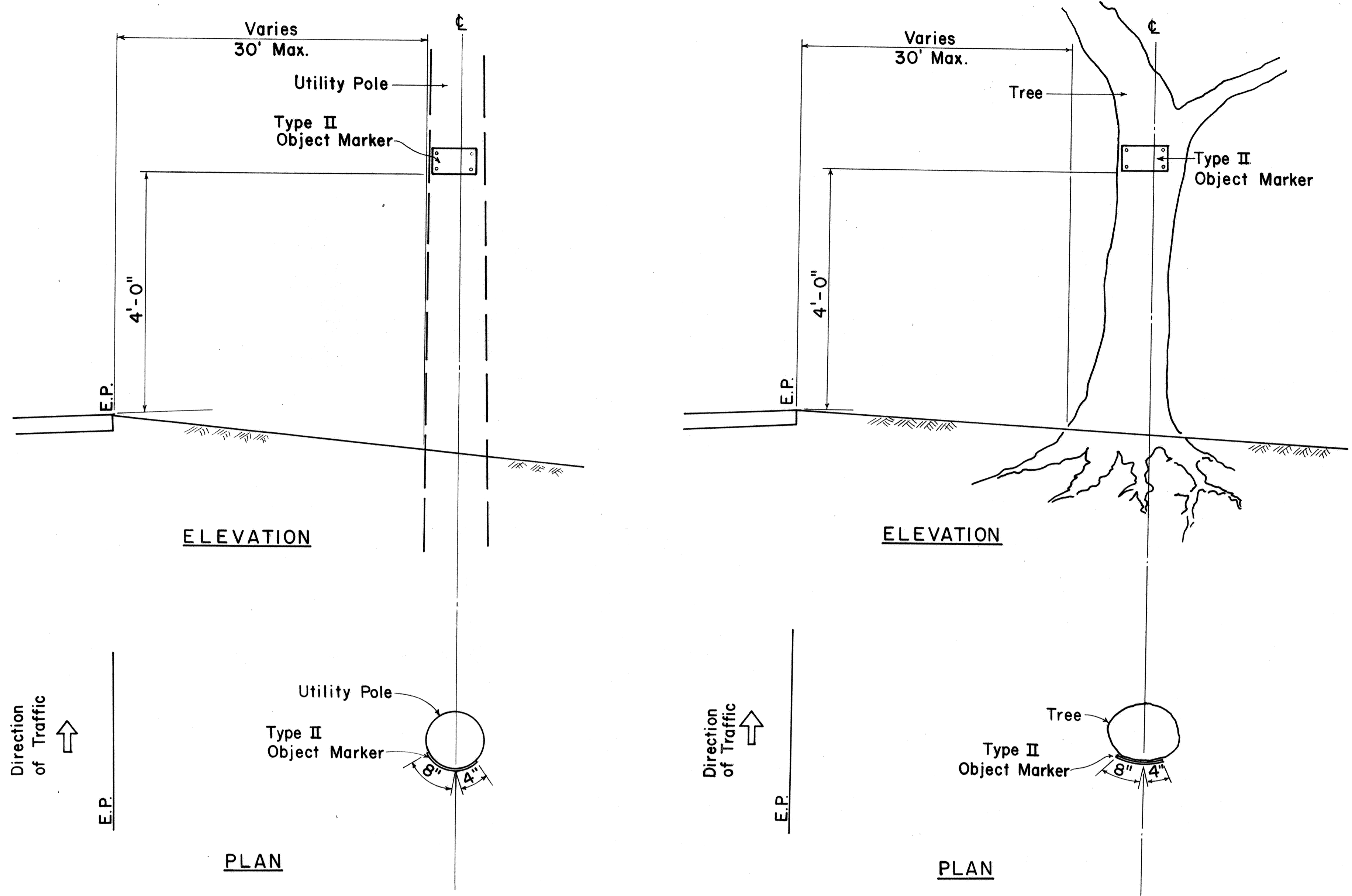
STANDARD DETAILS
 MISCELLANEOUS REFLECTOR MARKERS

Not to scale June, 1977

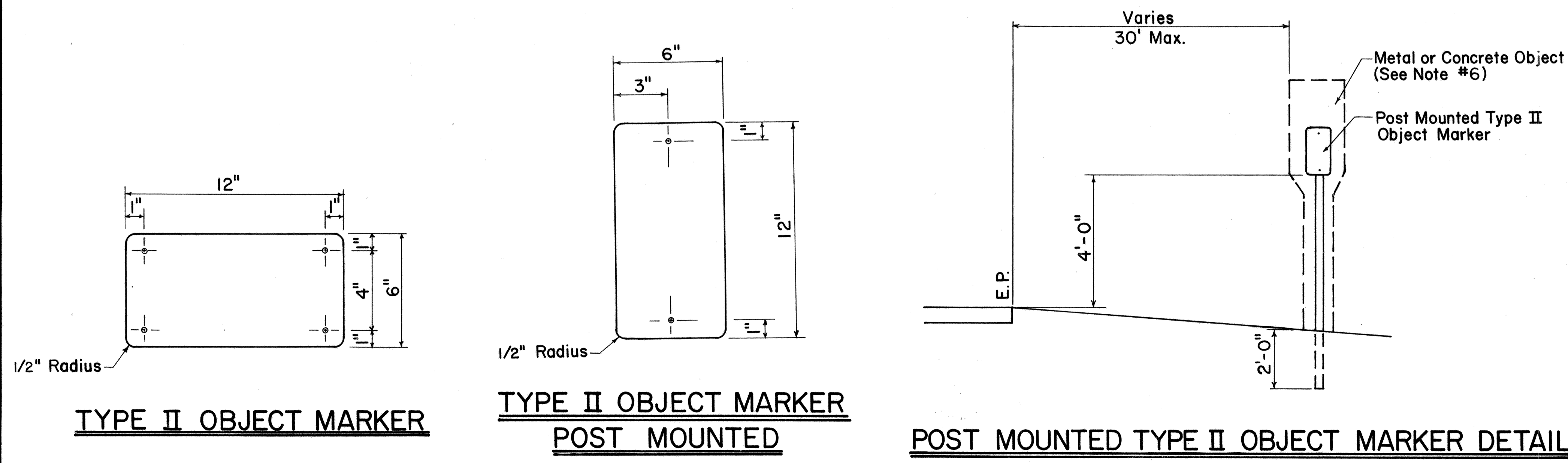
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	39	54

GENERAL NOTES

1. All objects (utility poles or trees) that are within the State highway right of way and within 30 feet of the roadway edge of pavement shall be marked as directed by the Engineer.
2. The Contractor shall prepare the mounting surface of each object as directed by the Engineer and place the Type II Object Marker as shown on this plan.
3. Type II Object Markers shall be mounted on utility poles and trees with 1 3/4" galv. roofing nails (4 ea.).
4. Branches of trees which obscure the object markers shall be trimmed. (Payment shall be incidental to Type II Object Markers as shown in the proposal).
5. Type II Object Markers for utility poles and trees, etc., shall be made of amber reflective sheeting material overlayed on 0.020" aluminum sheeting.
6. Objects such as concrete posts, concrete or rock walls and boxes, metal posts (greater than 2" in diameter), or metal boxes shall be marked with post mounted object markers. Post mounted Type II Object Markers shall conform to the following requirements:
 - a. It shall consist of amber reflective sheeting material overlayed on 0.063" thick sheet aluminum backing of the dimensions shown on the plans.
 - b. It shall be mounted on either metal posts or flexible delineator posts with 1/4"x2" galv. bolts, nuts and washers. Metal posts shall be galvanized and shall be either 1/2"x1/2", 12 gage square tube posts or 1.12 lbs. per ft. flanged channel posts.



TYPICAL TYPE II OBJECT MARKER MOUNTING DETAIL



APPROVAL RECOMMENDED:
Eishi Tanaka 3/30/83
 TRAFFIC ENGINEER DATE

APPROVED:
S. Fujiyama 3-31-83
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

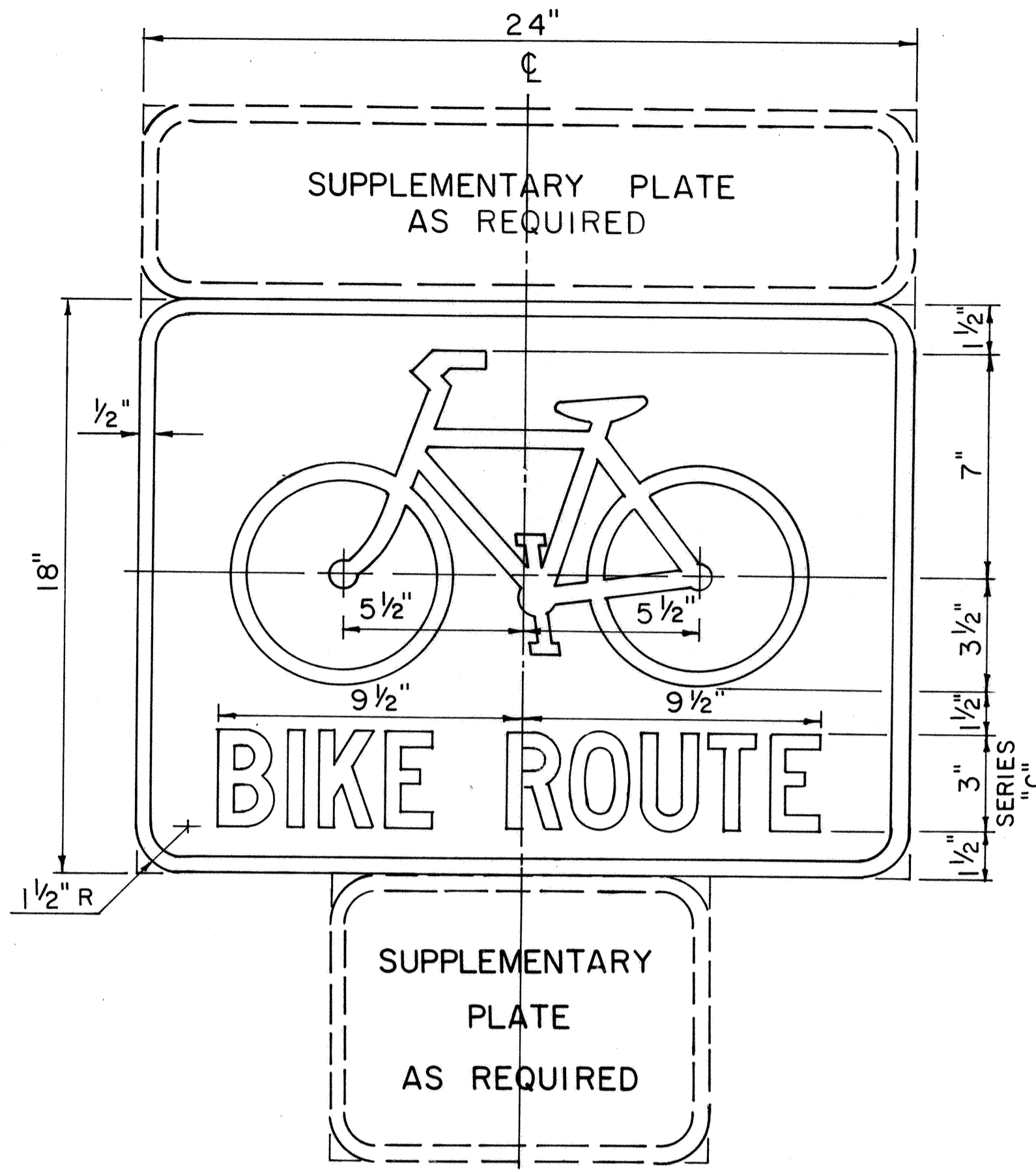
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 TYPE II OBJECT MARKERS

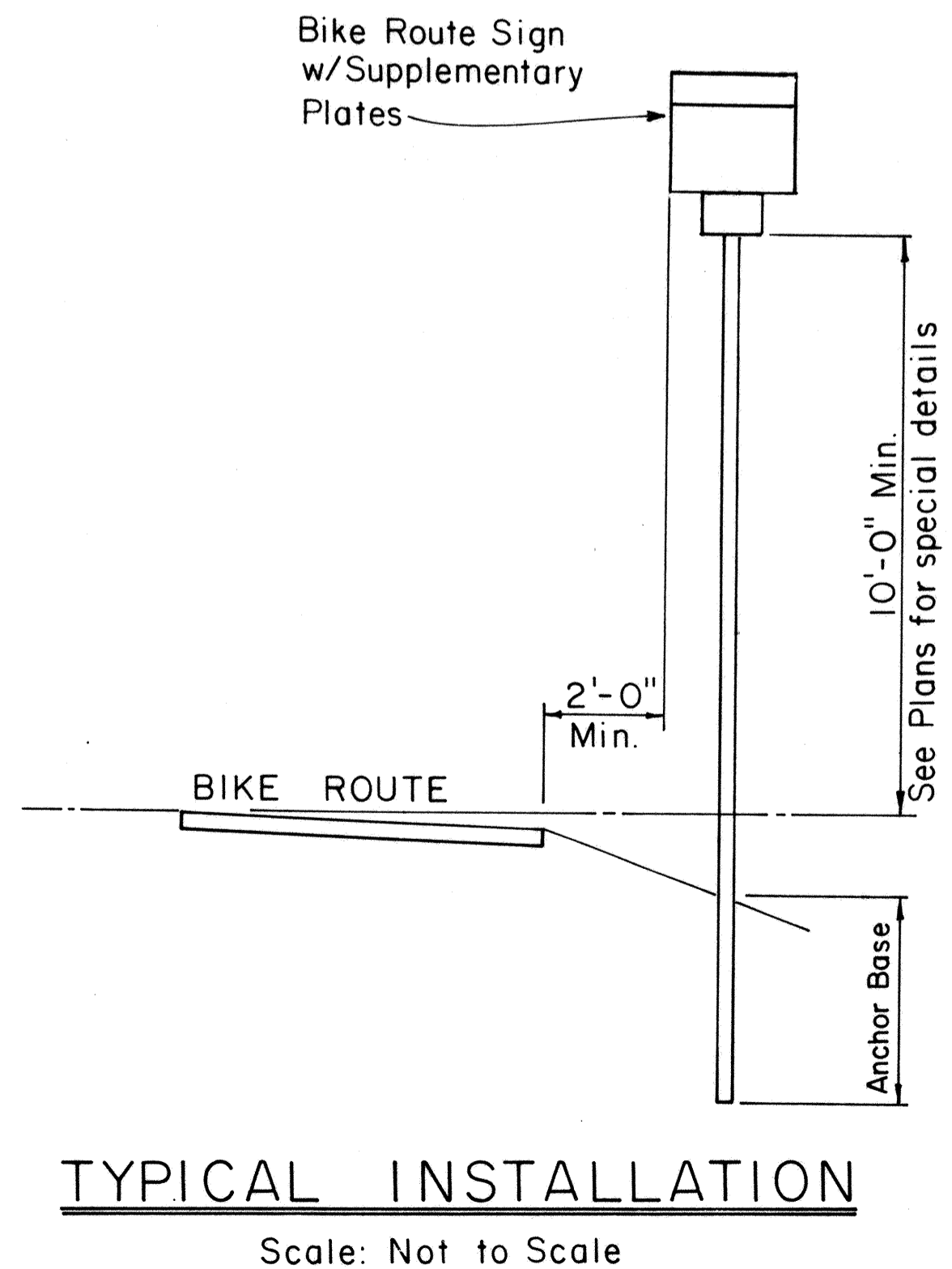
Scale: Not to scale Date: March 1983
 SHEET NO. 13 OF 21 SHEETS DT III

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

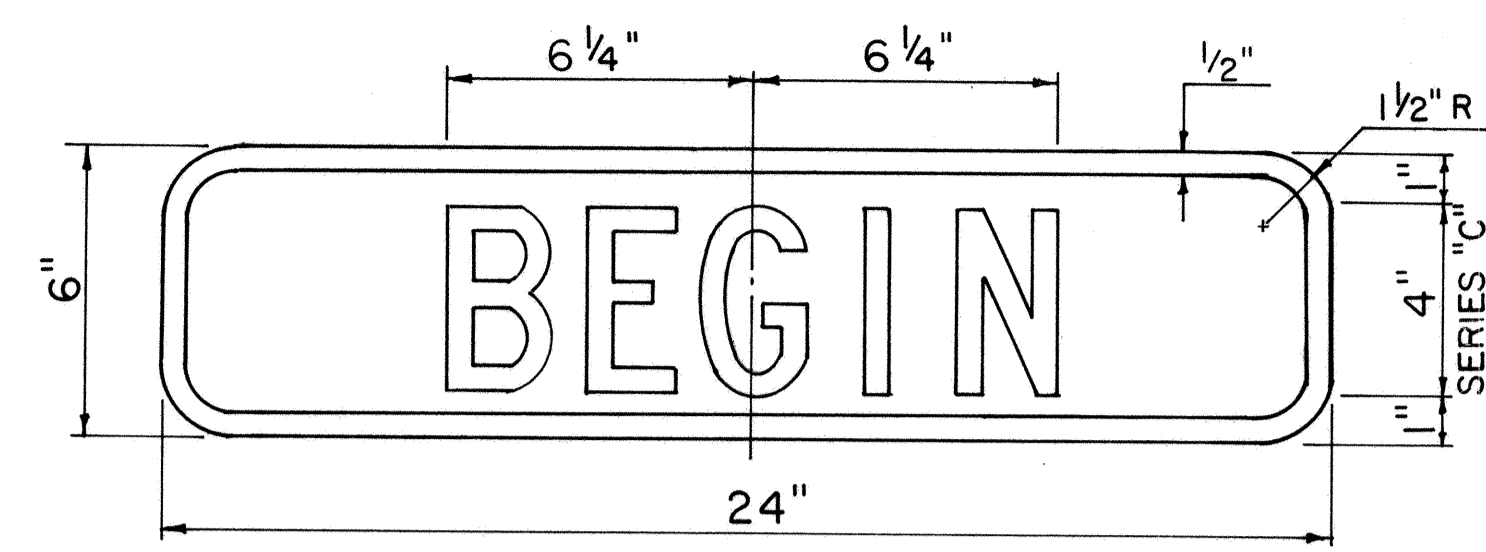
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	40	54



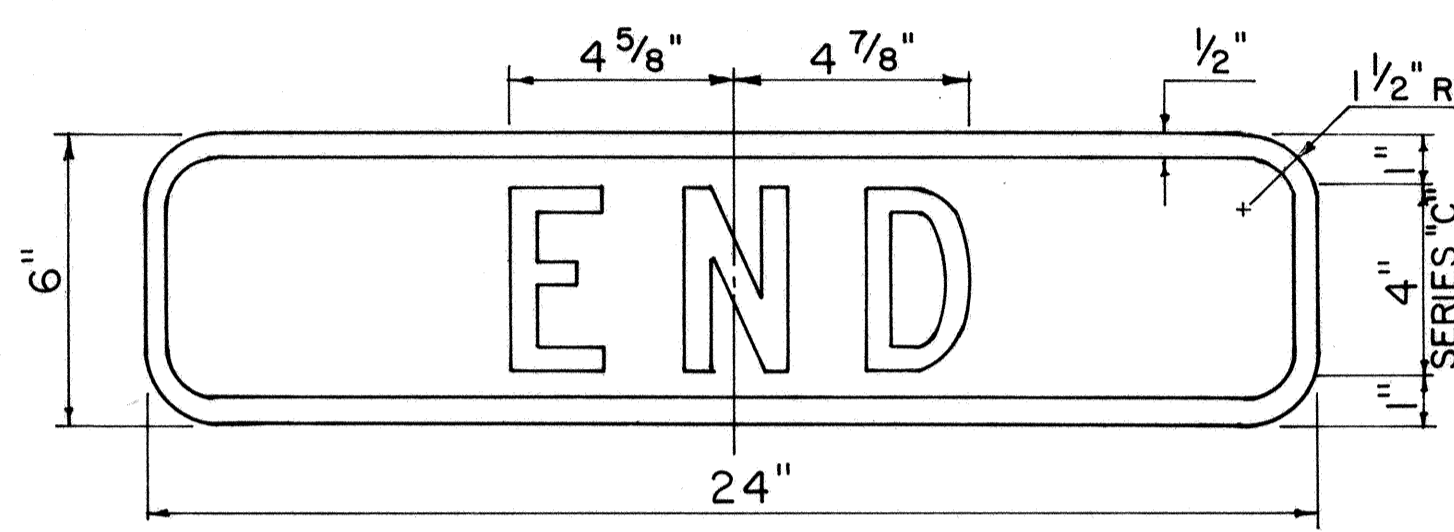
BIKE ROUTE SIGN
Scale: 3" = 1'-0"



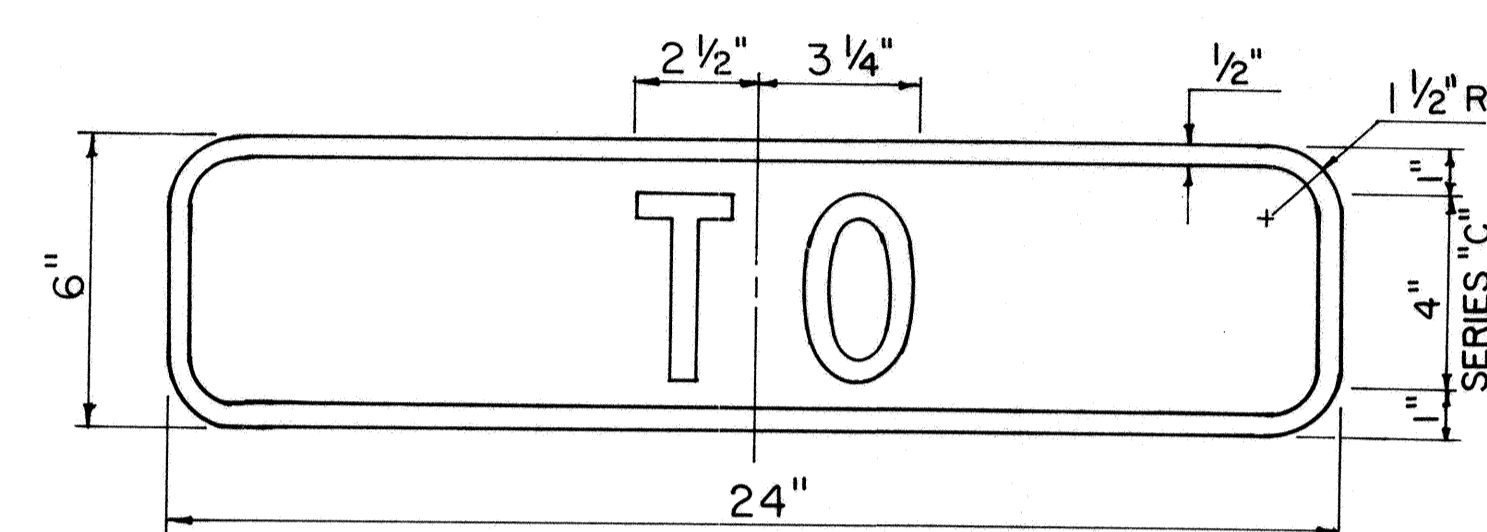
TYPICAL INSTALLATION
Scale: Not to Scale



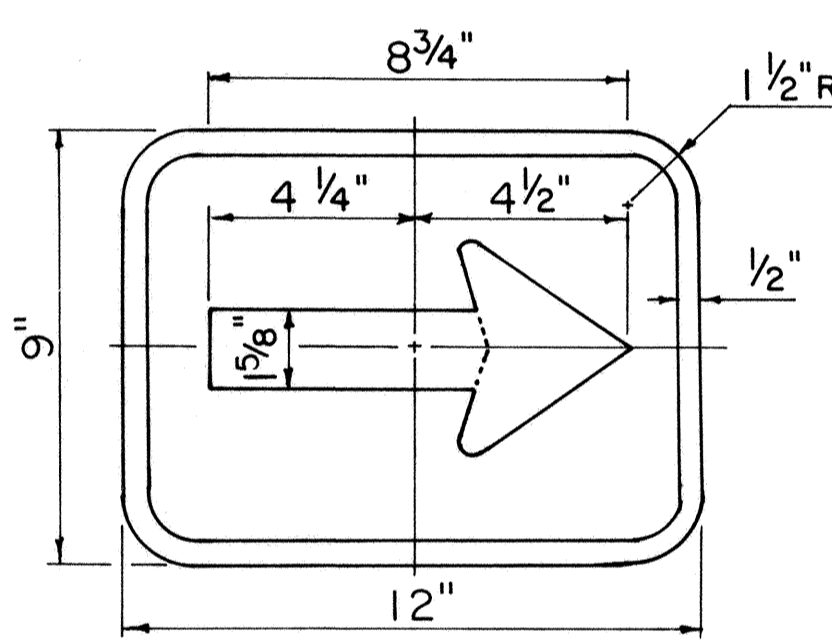
M4-11



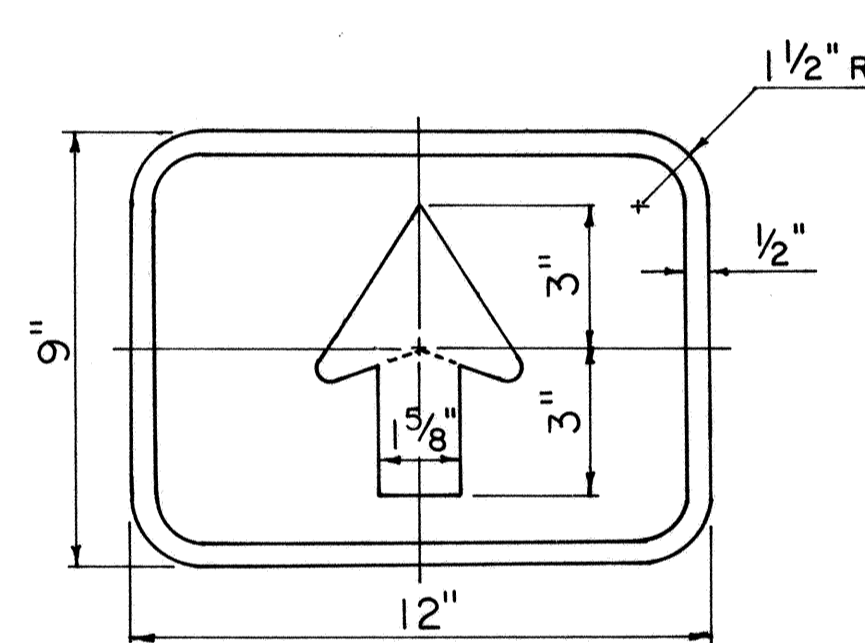
M4-12



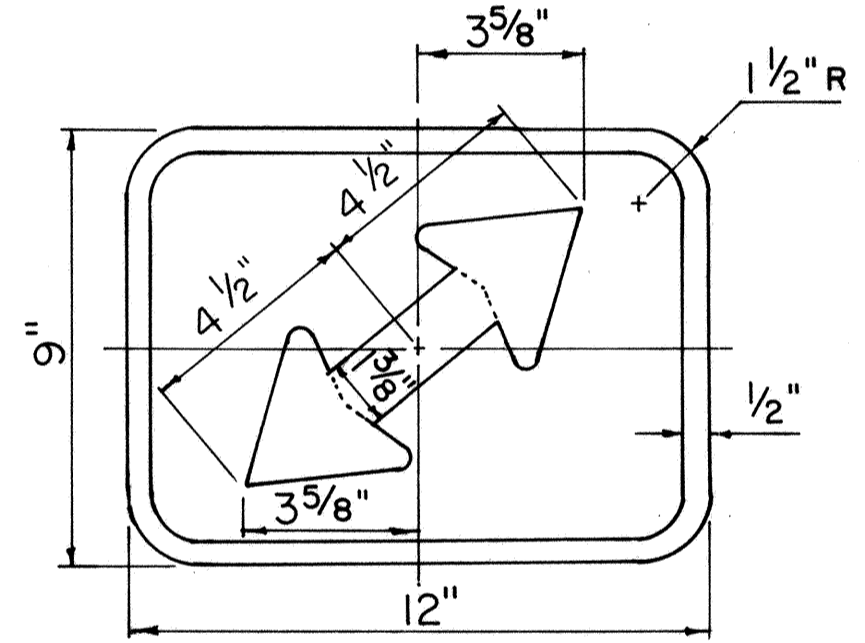
M4-13



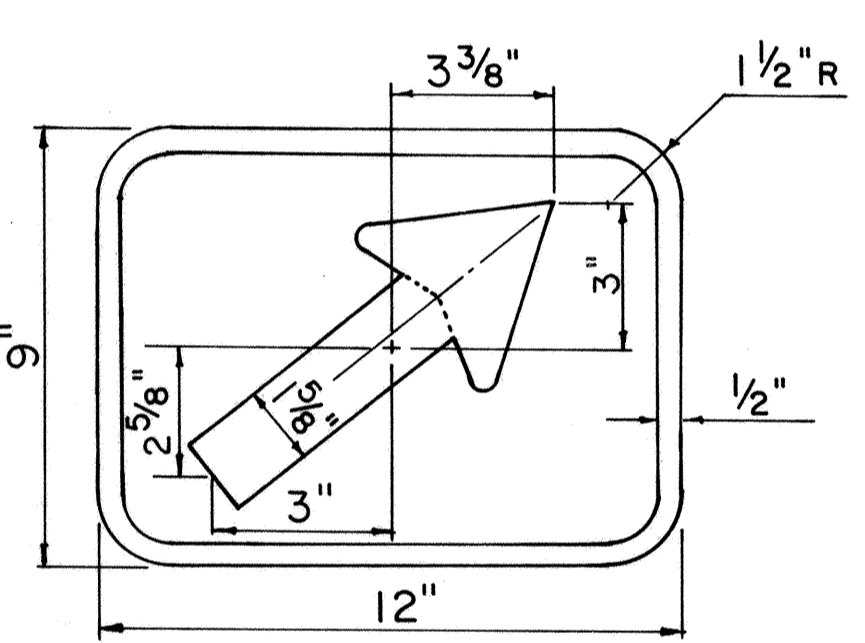
M7-1



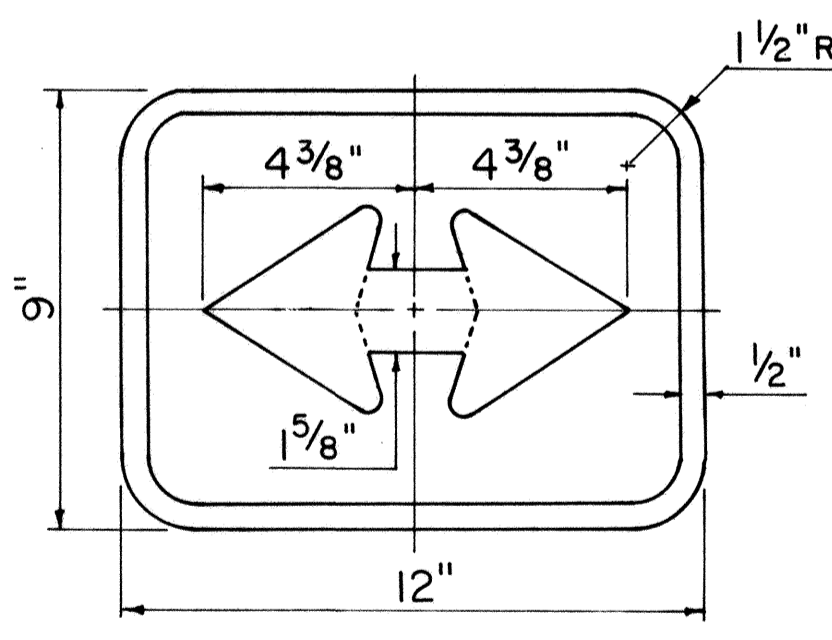
M7-2



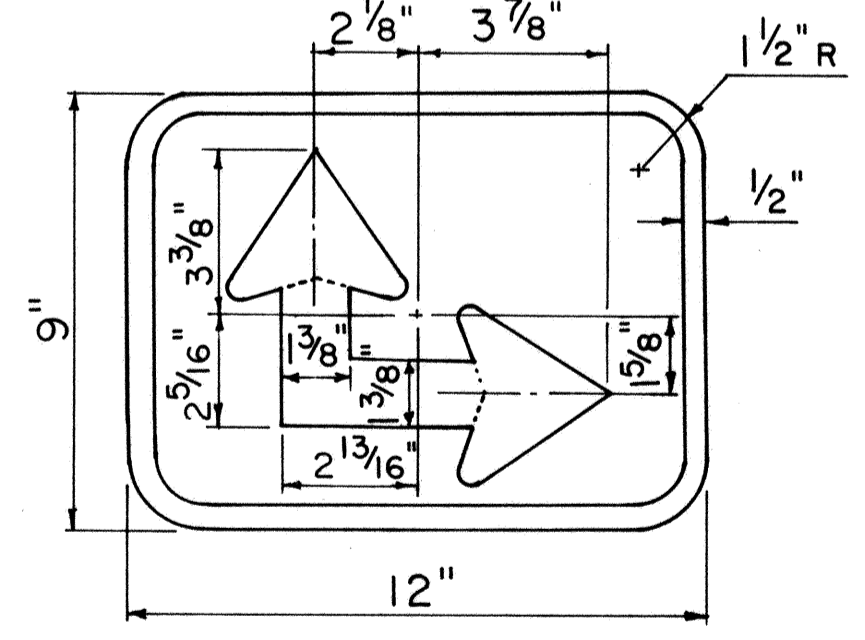
M7-3



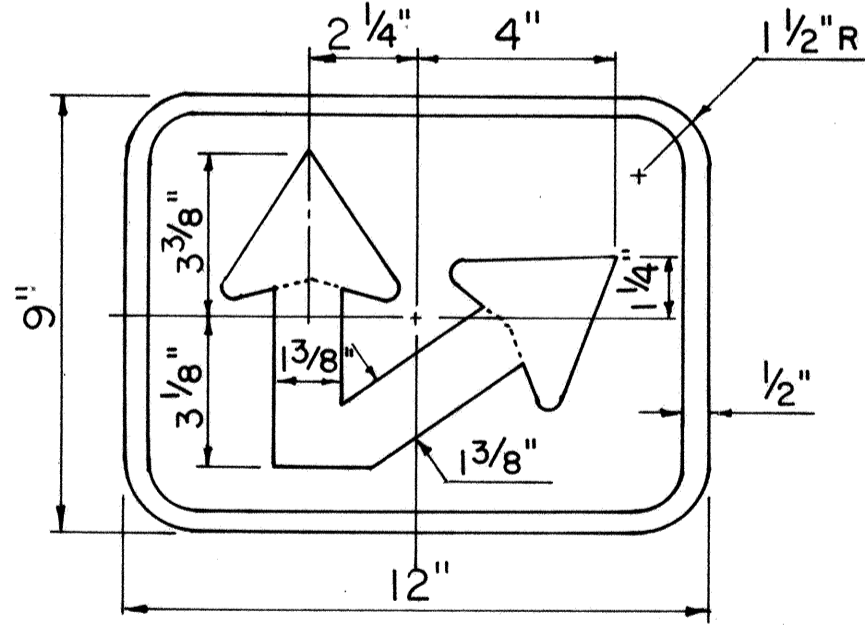
M7-4



M7-5



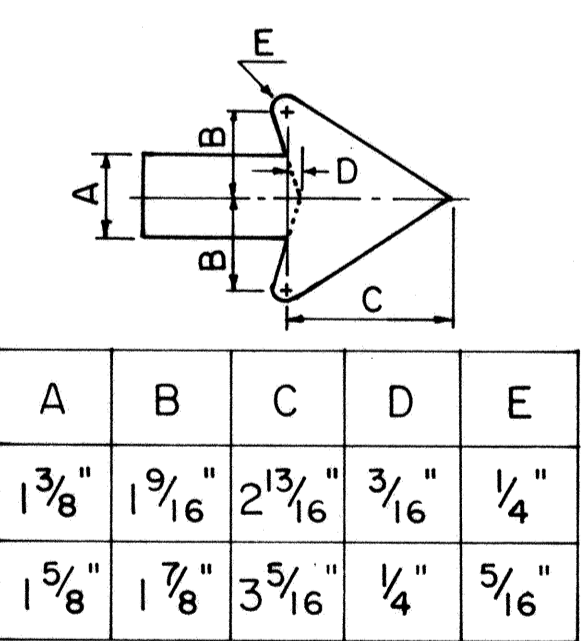
M7-6



M7-7

SUPPLEMENTARY PLATES

Scale: 3" = 1'-0"



A	B	C	D	E
3/8"	1 9/16"	2 13/16"	3/16"	1/4"
1 5/8"	1 7/8"	3 5/16"	1/4"	5/16"

ARROW DETAILS

- GENERAL NOTES**
1. Sign details shall conform to the latest editions and amendments of the following FHWA publications: "Manual on Uniform Traffic Control Devices for Streets and Highways", "Standard Highway Signs" and "Standard Alphabets for Highway Signs".
 2. Legend and borders shall be white (reflectORIZED) on a green (reflectORIZED) background.
 3. Drill 3/8" φ bolt holes (for mounting) at appropriate locations.
 4. Sign panel backing shall be sheet aluminum conforming to the requirements specified in Subsection 712.20(B)(1) Sheet Aluminum.
 5. Corners of sign panels shall be rounded to fit the border.
 6. See shts. DT 100, DT 100A and DT 100B for additional signpost installation and anchor base details.

APPROVAL RECOMMENDED:

Euchi Tanaka 9/7/82
TRAFFIC ENGINEER DATE

APPROVED:

Shubert Salsiki 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes DT 114 Approved 11/7/77	H.C.	9/22/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

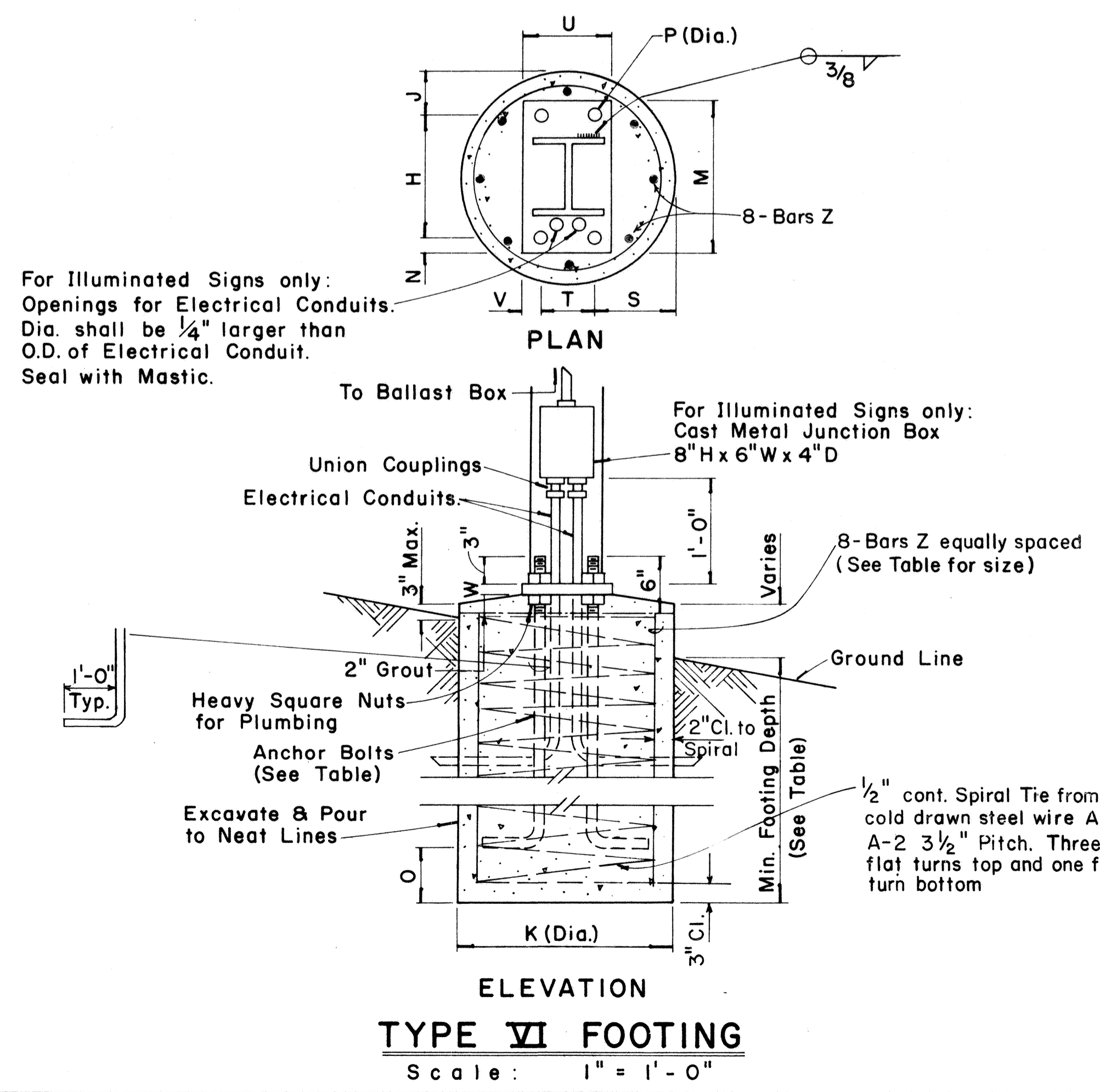
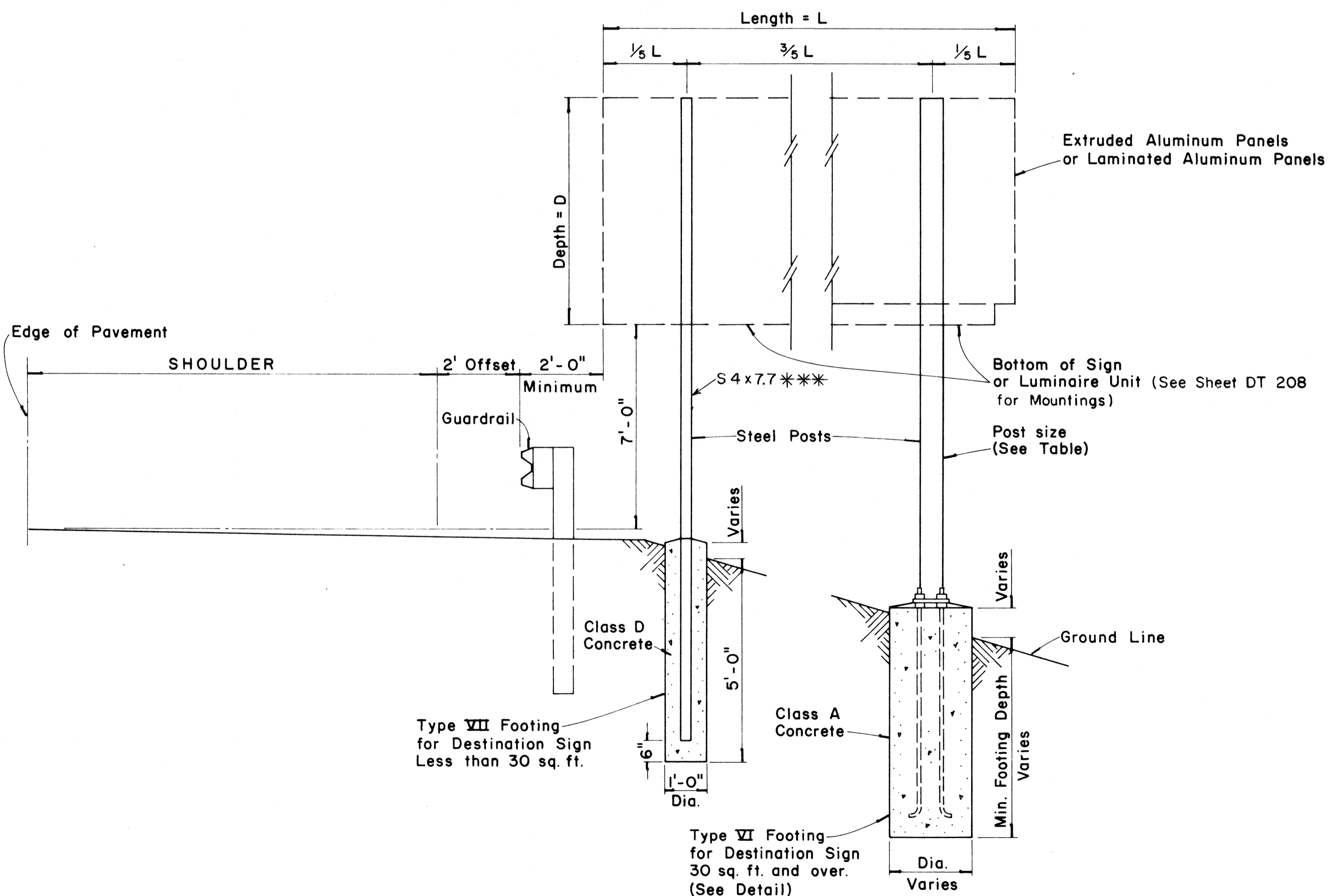
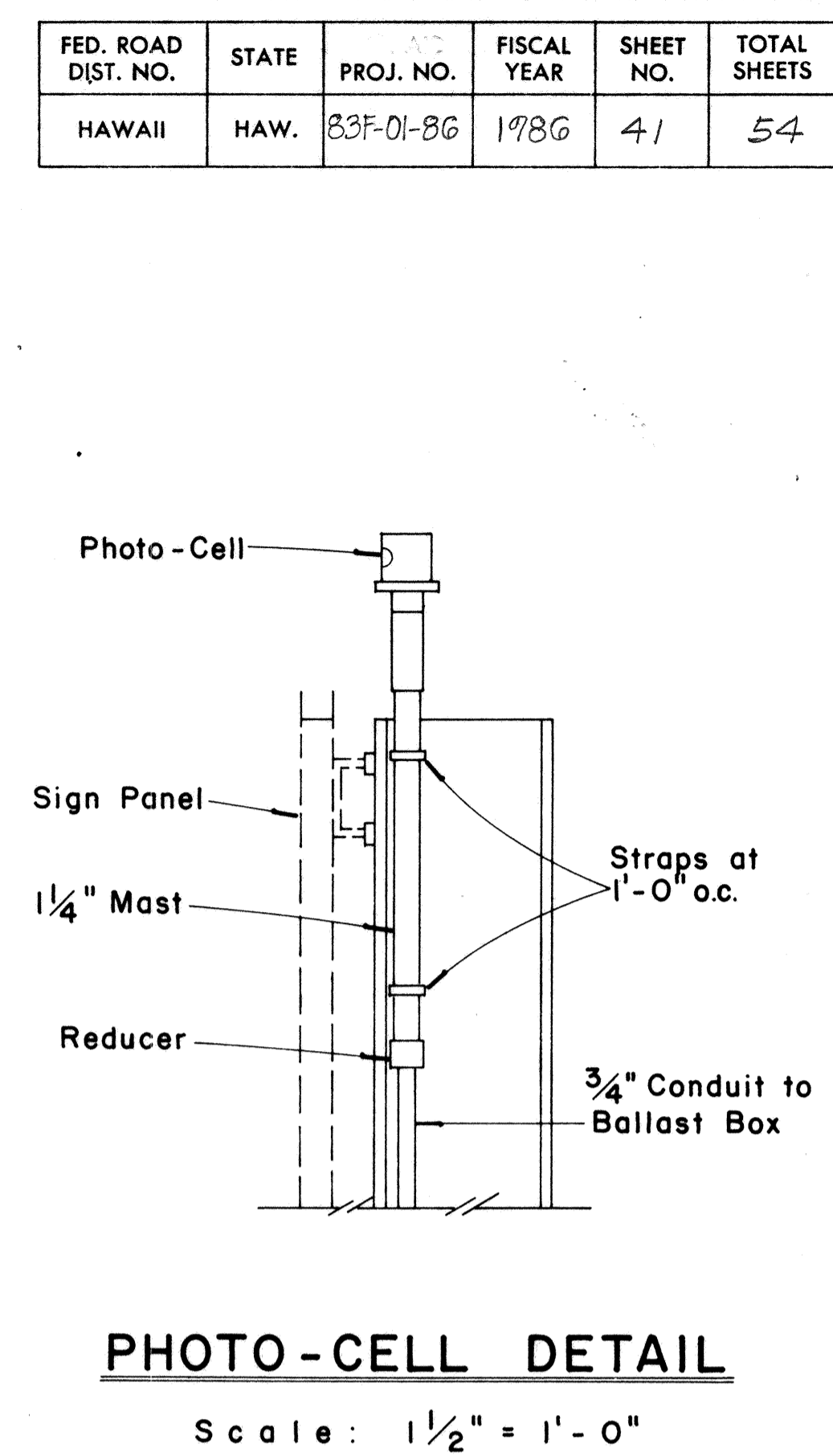
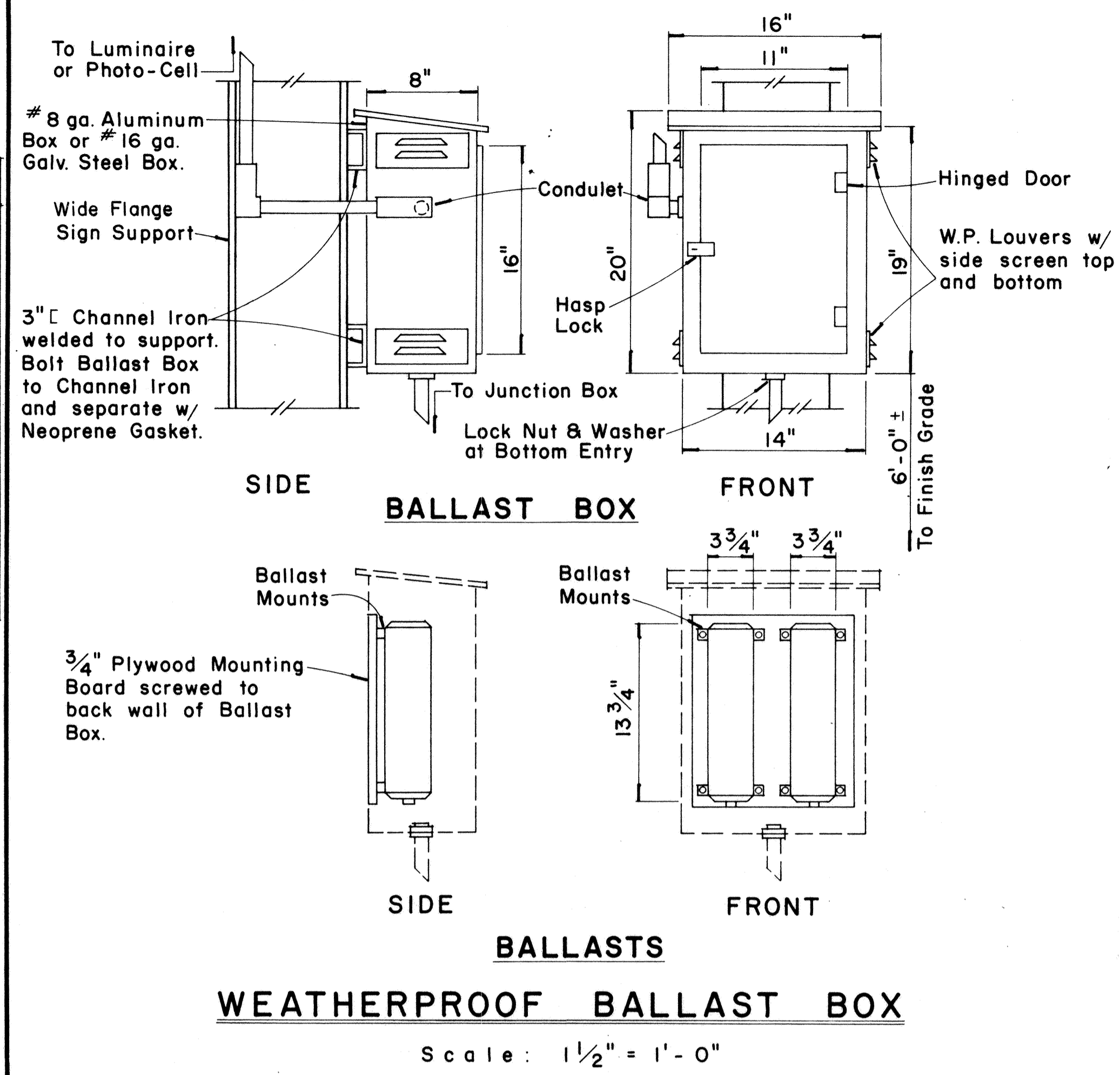
BIKE ROUTE SIGN
& SUPPLEMENTARY PLATES

Scale: As Shown July 1982
SHEET No. 14 OF 21 SHEETS/DT 114

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
NOTE BOOK	_____
ORIGINAL PLAN	_____
SURVEY PLOTTED BY	_____

* 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

DATA TABLE FOR TYPE VI FOOTING																	
POST SIZE ***	MAXIMUM SIGN AREA	POST HEIGHT TOP OF FOUNDATION TO CENTER OF SIGN *	DIMENSIONS											ANCHOR BOLT DIA.	MINIMUM FOOTING DEPTH		BARS Z SIZE
			H	J	K	M	N	O	P	S	T	U	V		W	CUT	
W6x12	70 sq. ft.	10'	14"	5"	24"	17 1/4"	15 3/8"	6"	1 1/4"	9"	6"	10"	2"	1 1/8" Ø	4 1/2'	4 1/2'	# 7
W6x16	110 sq. ft.	13'							1 3/8"					1 1/4"		5'	# 7
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"	5'	5 1/2'	# 8
W8x28	170 sq. ft.	20'							1 1/2"				1 3/4"	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" Ø	6'		# 8
W10x33	230 sq. ft.	20'	20 1/4"	4 7/8"		24"			2"	10 7/8"	8 1/4"	12"	2"		7'	7'	# 8
W10x39	250 sq. ft.	20'													7 1/2'	7 1/2'	# 8



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

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

NO.	REVISION	APPROVED BY	DATE
1	Add note for luminaire mounting.	H.I.	6/3/50
2	Revised Data Table, Typical Expressway Sign, Ballasts and Footing	OTM c	10/21/85

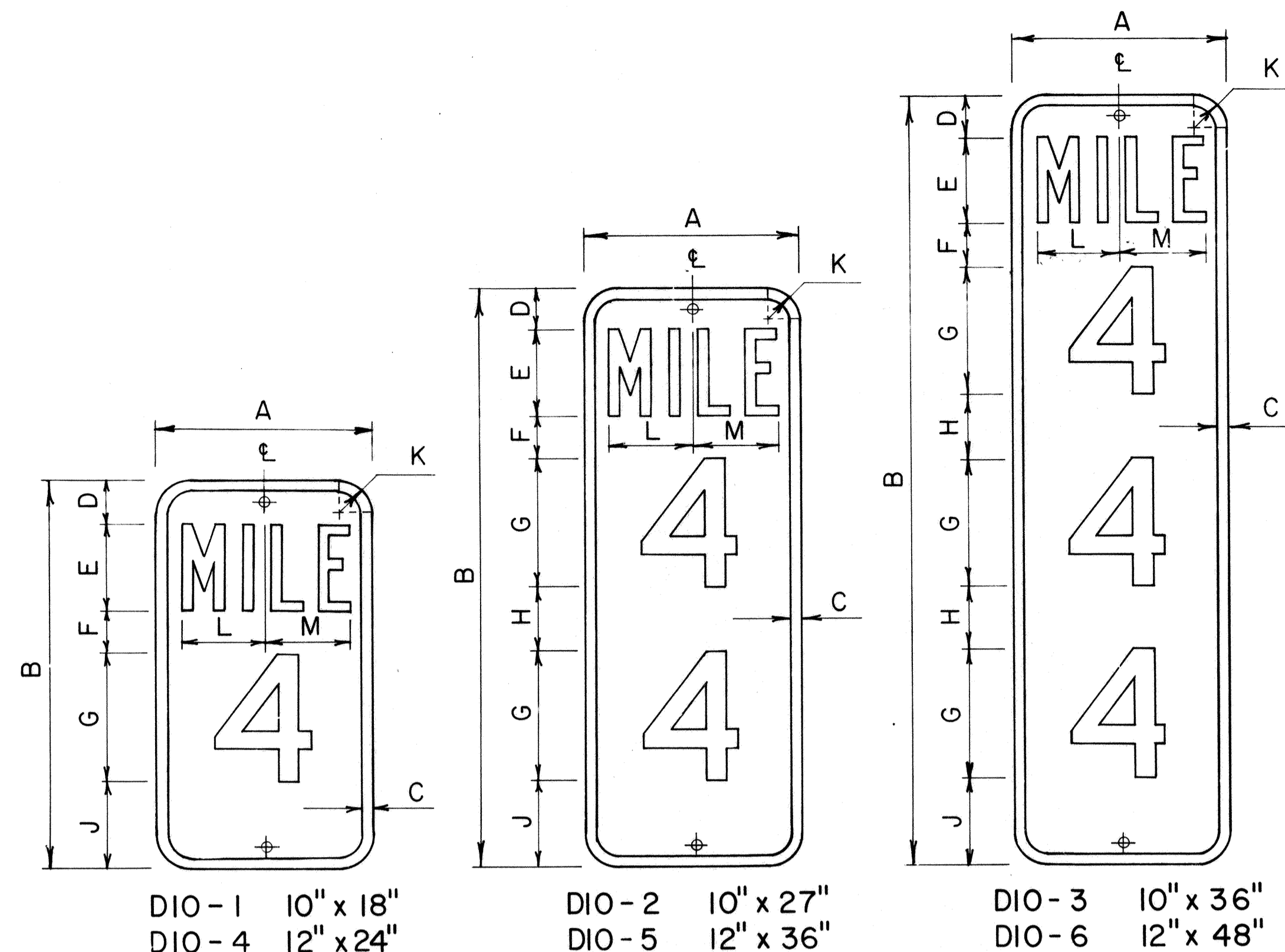
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 DESTINATION & GROUND MOUNTED
 EXPRESSWAY SIGN

Scale: As Shown
 SHEET No. 15 OF 21 SHEETS DT 203

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	42	54



DIO-1 10" x 18"
DIO-4 12" x 24"
DIO-2 10" x 27"
DIO-5 12" x 36"
DIO-3 10" x 36"
DIO-6 12" x 48"

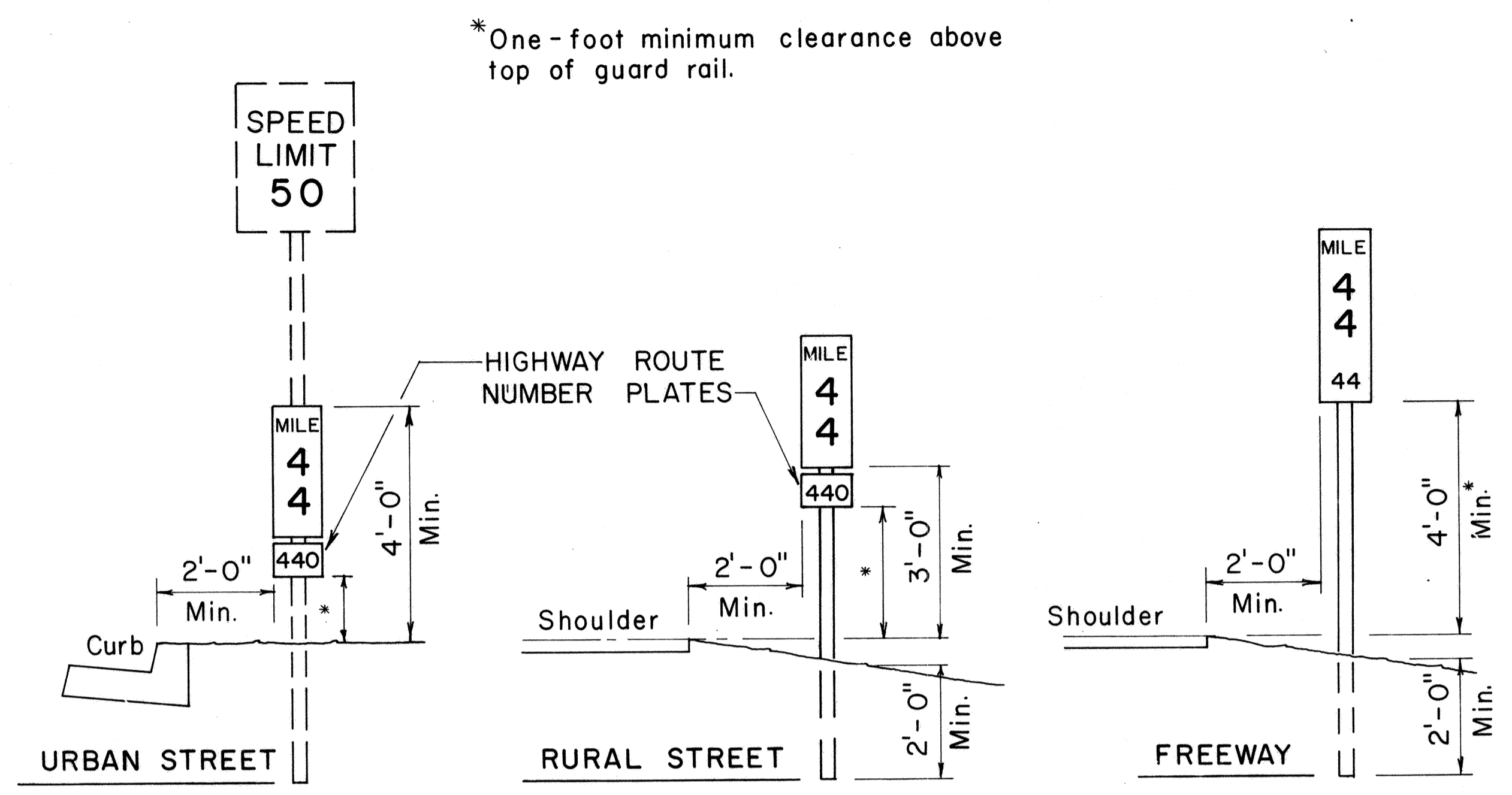
MILEPOST MARKER PLATE DETAILS

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 3/8	3 3/8	B	C
DIO-4	12 x 24	12	24	1/2	3	4	3	10		4	1 1/2	4 3/8	4 3/8	C	C
DIO-2	10 x 27	10	27	1/2	2	4	2	6	3	4	1 1/2	3 3/8	3 3/8	B	C
DIO-5	12 x 36	12	36	1/2	3	4	3	10	3	3	1 1/2	4 3/8	4 3/8	C	C
DIO-3	10 x 36	10	36	1/2	2	4	2	6	3	4	1 1/2	3 3/8	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 3/8	4 3/8	C	C

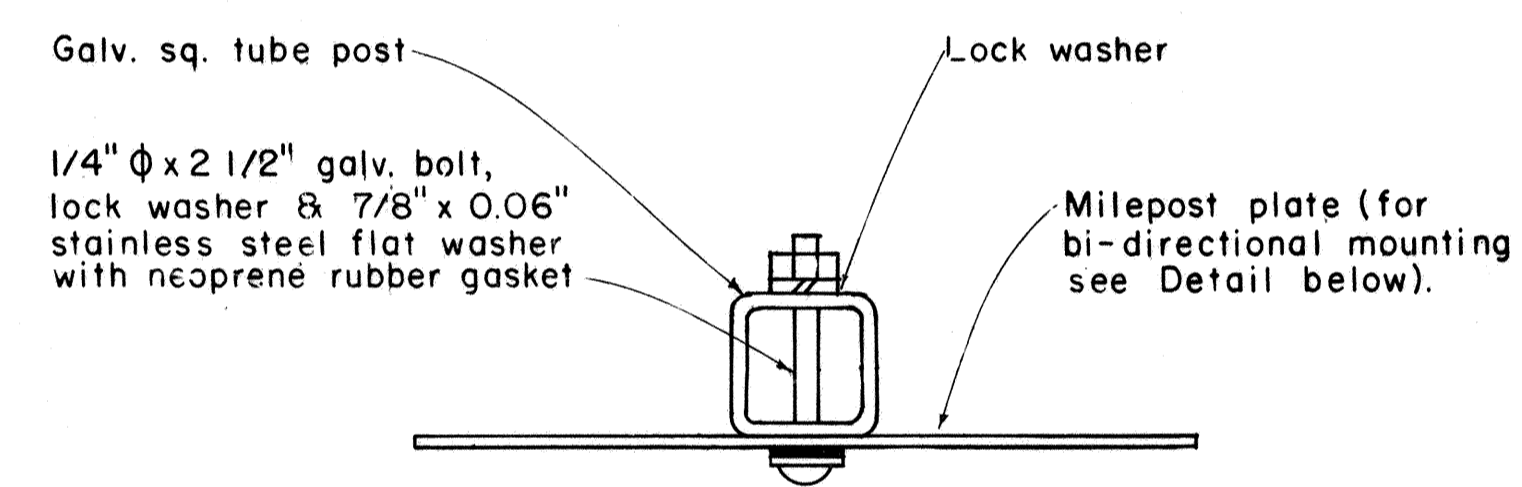
GENERAL NOTES:

- 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.)

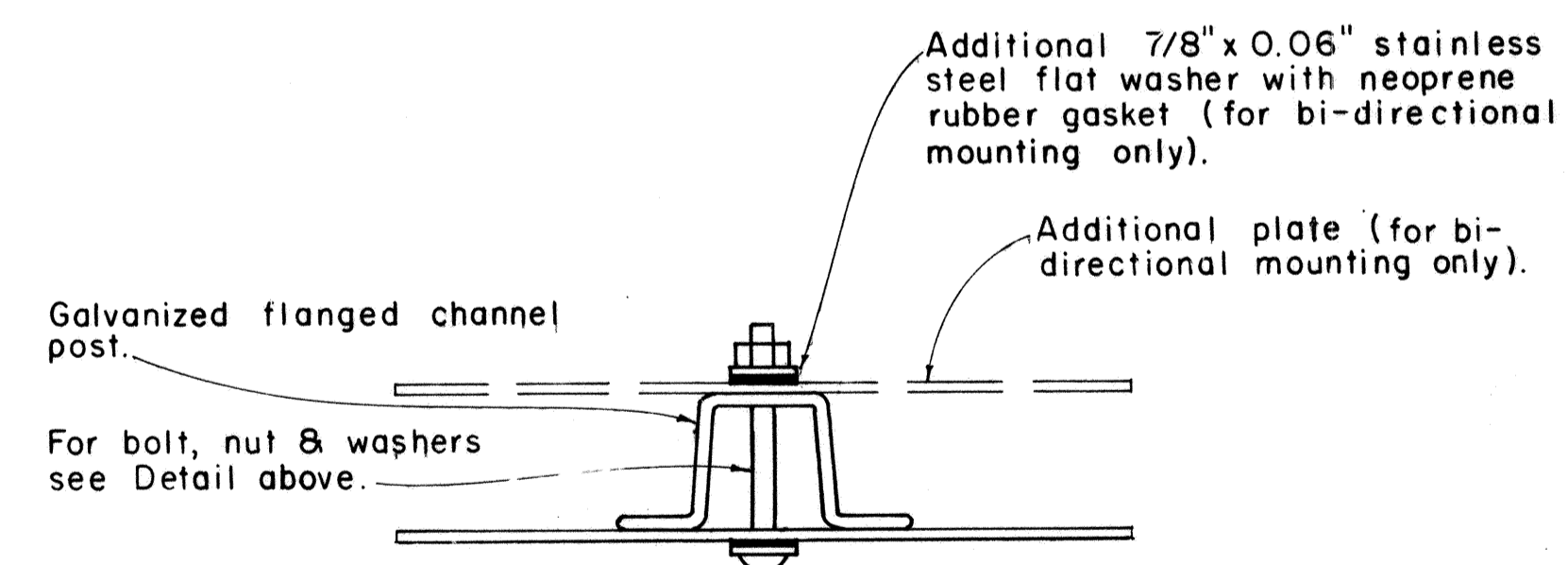


TYPICAL ROADSIDE INSTALLATION

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



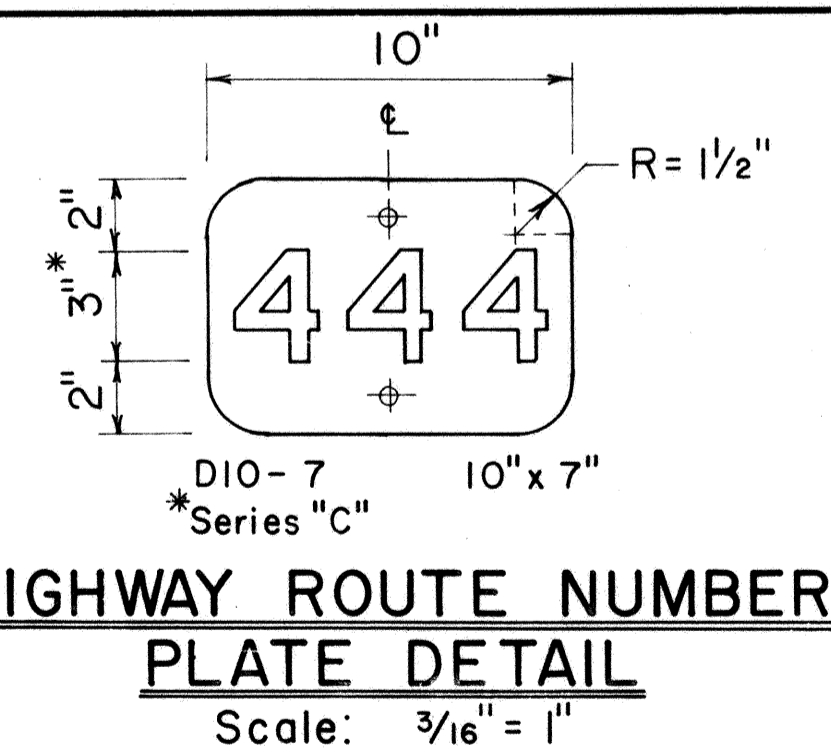
GALVANIZED SQUARE TUBE POST



GALVANIZED FLANGED CHANNEL POST

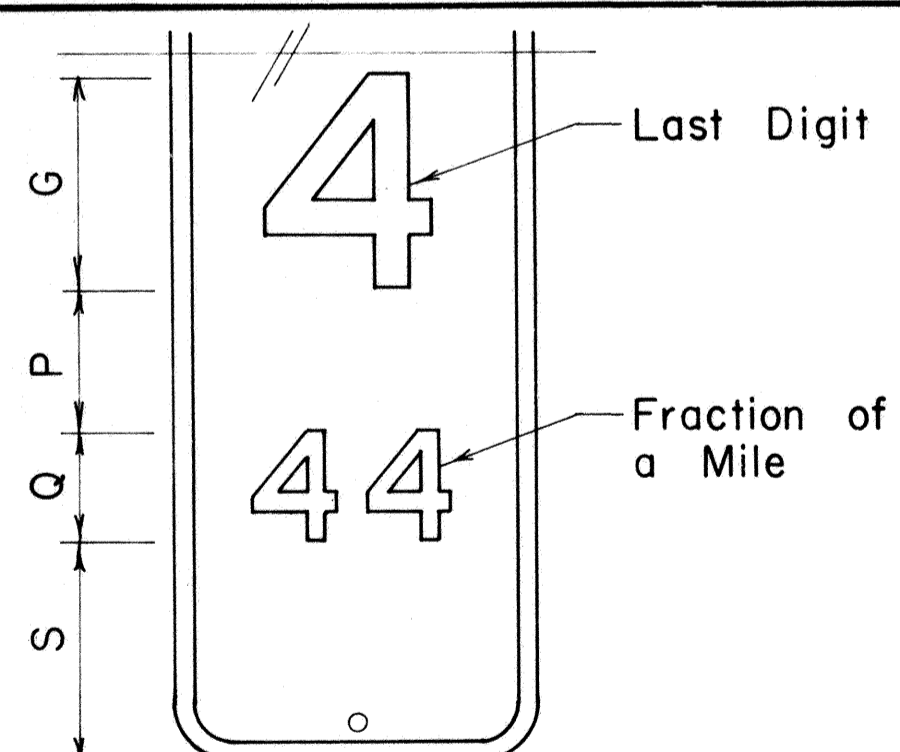
TYPICAL MOUNTING DETAILS

Scale: 1/2" = 1"



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

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

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

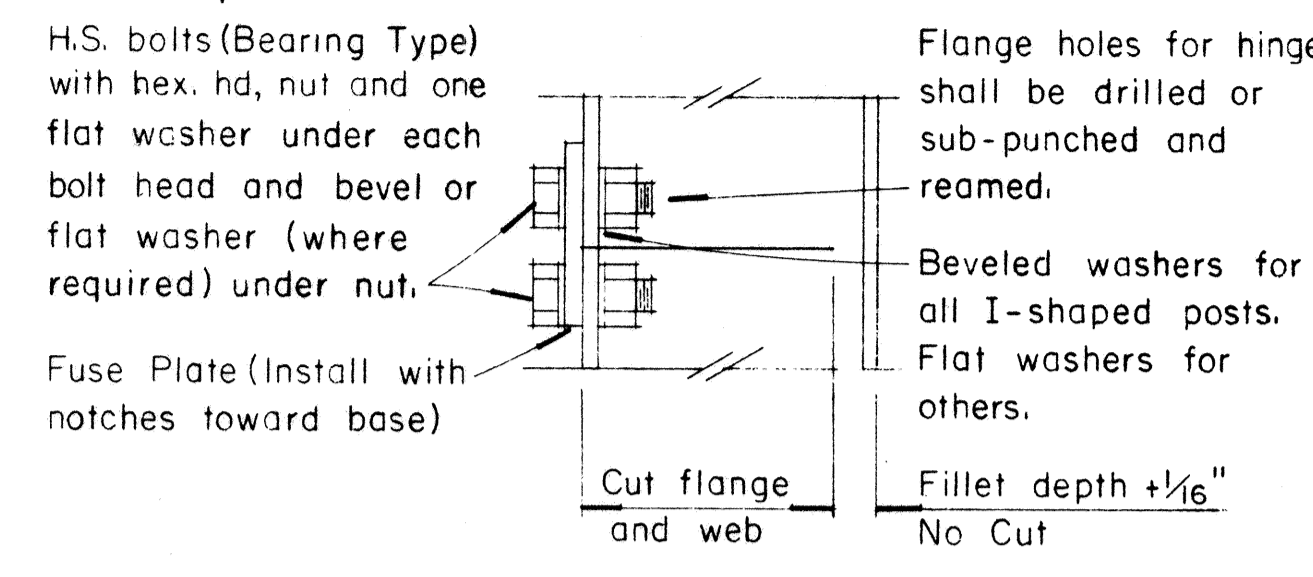
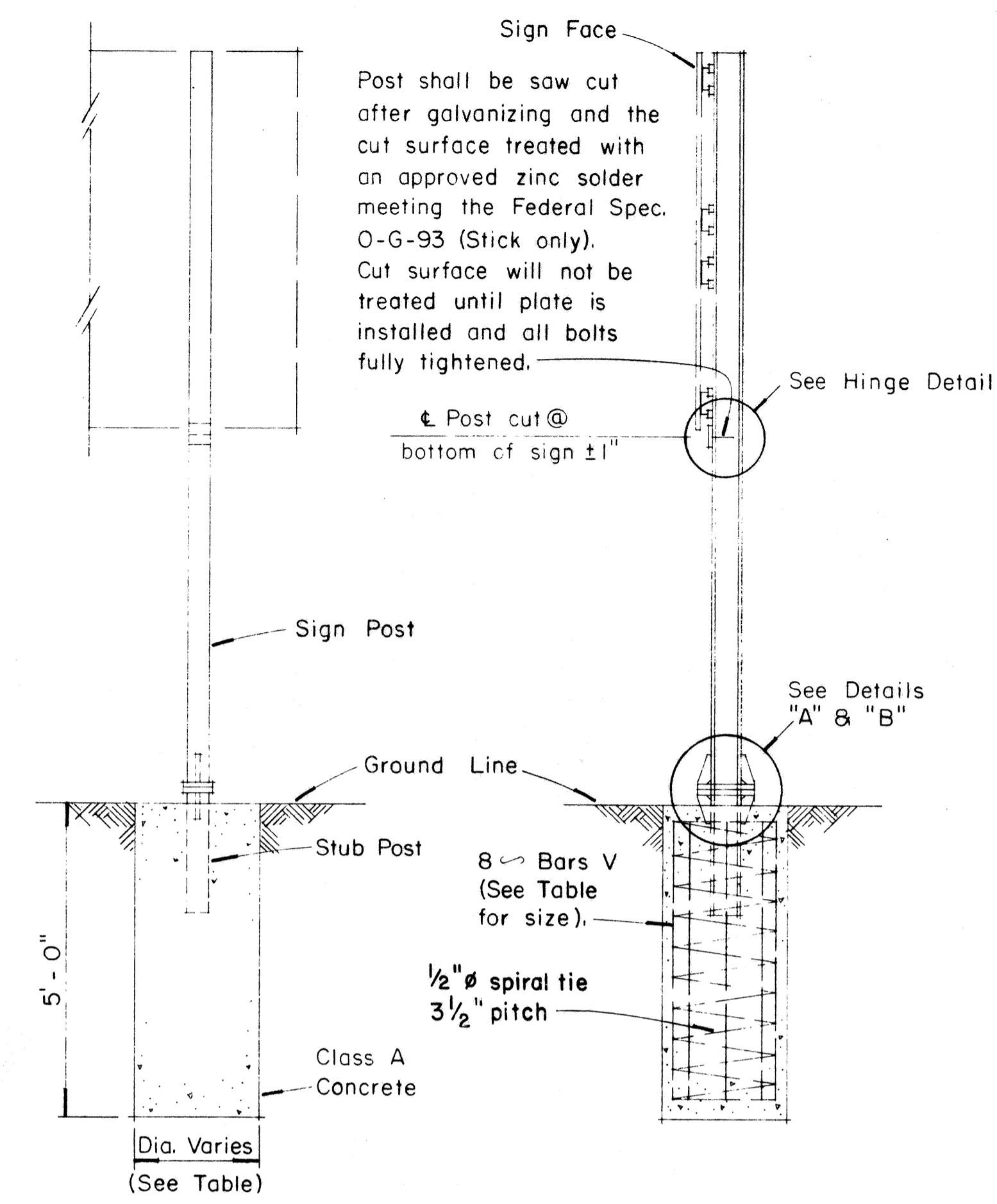
APPROVED:
Robert S. Sakai 1/18/78
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
MILEPOSTS
SCALE: As Shown DATE: December, 1977
SHEET NO. 16 OF 21 SHEETS DT 116

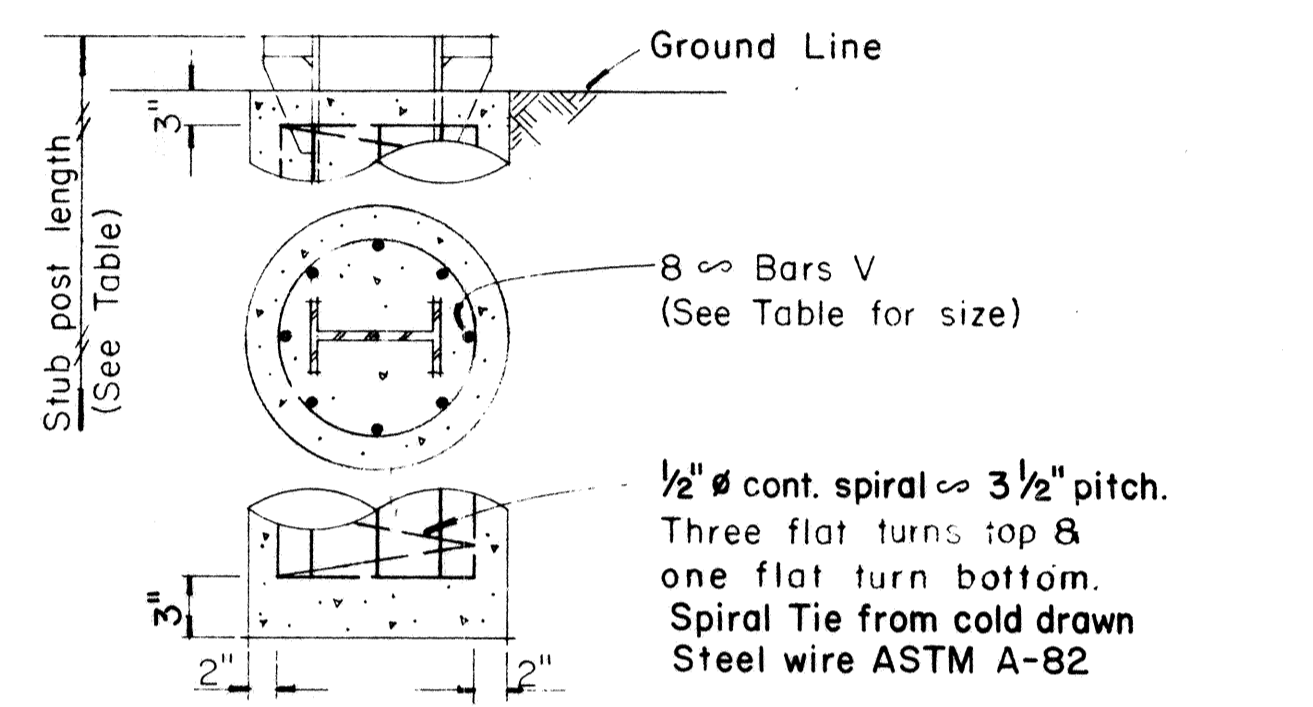
SURVEY PLOTTED BY: _____ DATE: _____
 DESIGNED BY: _____
 NOTE BOOK NO. _____
 QUANTITIES BY: _____
 CHECKED BY: _____
 No. _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	43	54

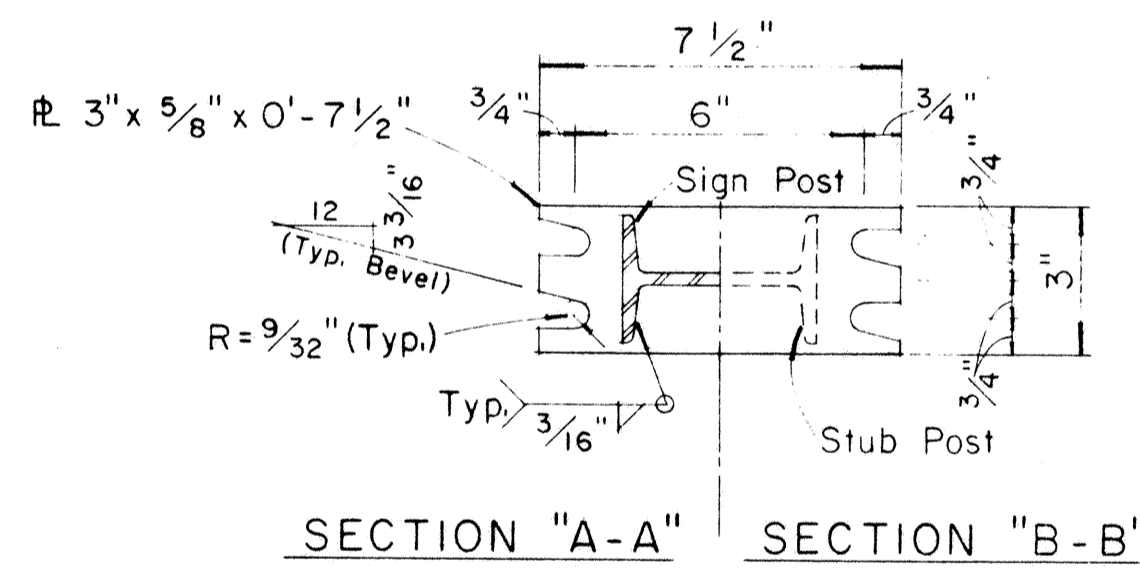
Post Size	Bolt Size & Torque	BASE CONNECTION DATA TABLE										FUSE PLATE DATA TABLE										FOUNDATION DATA													
		A	B	C	D	E	t1	t2	W	R	F	G	H	J	K	L	N	d1	t3	Bolt Dia.	Wt. of each Fuse #	Stub Length	Stub Projection	Footing Diameter	Bars V Size										
W6x9																					3 5/8"	2"	1 1/8"	4"	2 1/4"	7/8"	1/2"	9/16"	1/4"	1/2"	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"	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 3/4"	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 3/4"	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"	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"	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"	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"	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"	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"	0.64#	1'-6"	3 1/2"	1'-6"	#5									



HINGE DETAIL

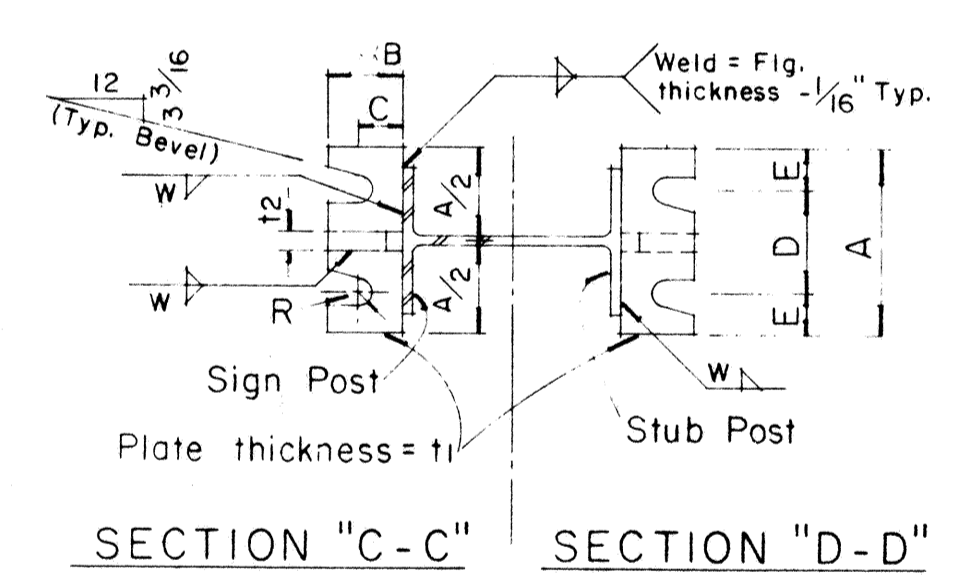


FOUNDATION DETAIL

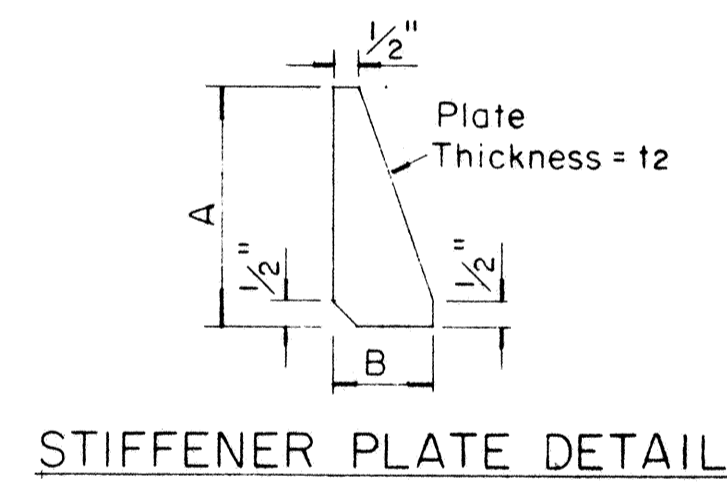


SECTION "A-A" SECTION "B-B"

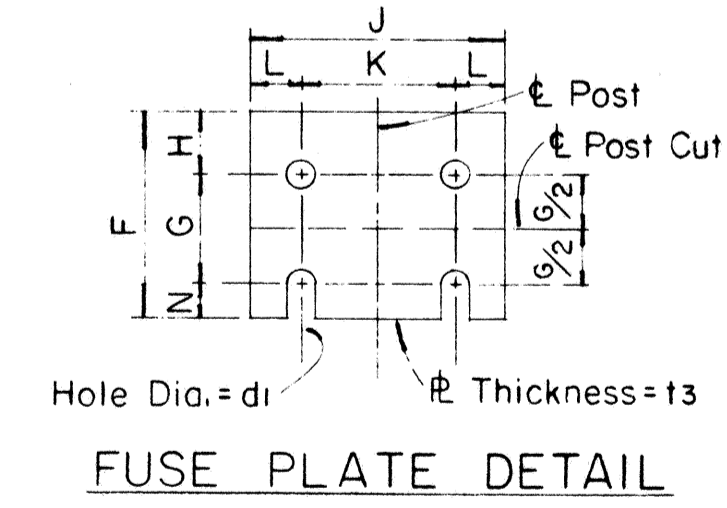
NOTE: Sections shown are for installations on right shoulder and in gore. Reverse plate slot bevels for installations on left shoulder.



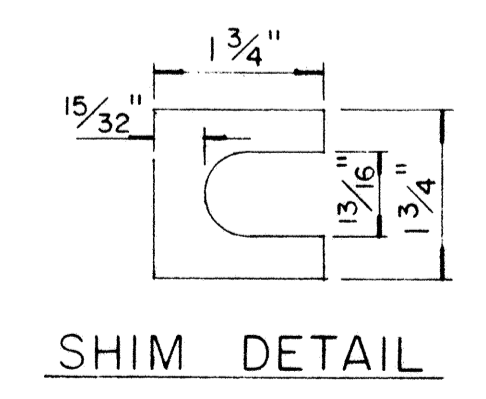
SECTION "C-C" SECTION "D-D"



STIFFENER PLATE DETAIL



FUSE PLATE DETAIL



SHIM DETAIL

Furnish 2-0.012" ± thick and 2-0.032" ± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM-B36.

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
 TRAFFIC ENGINEER 12/29/69 DATE

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

NO.	REVISION	APPROVED BY	DATE
1	Added General Note No. 9	[Signature]	12/29/69
2	Revised description of Post Size and Foundation Detail.	[Signature]	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

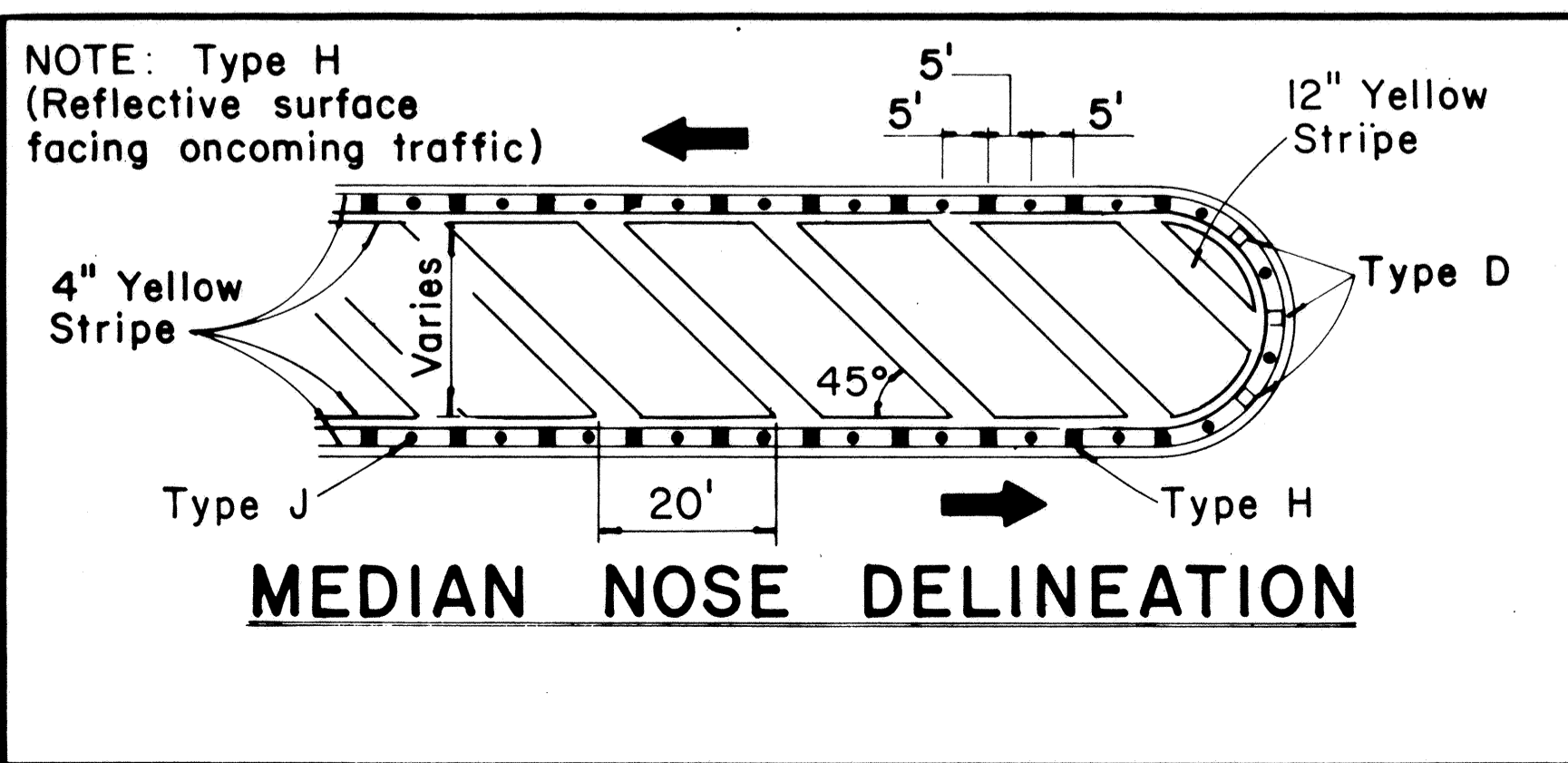
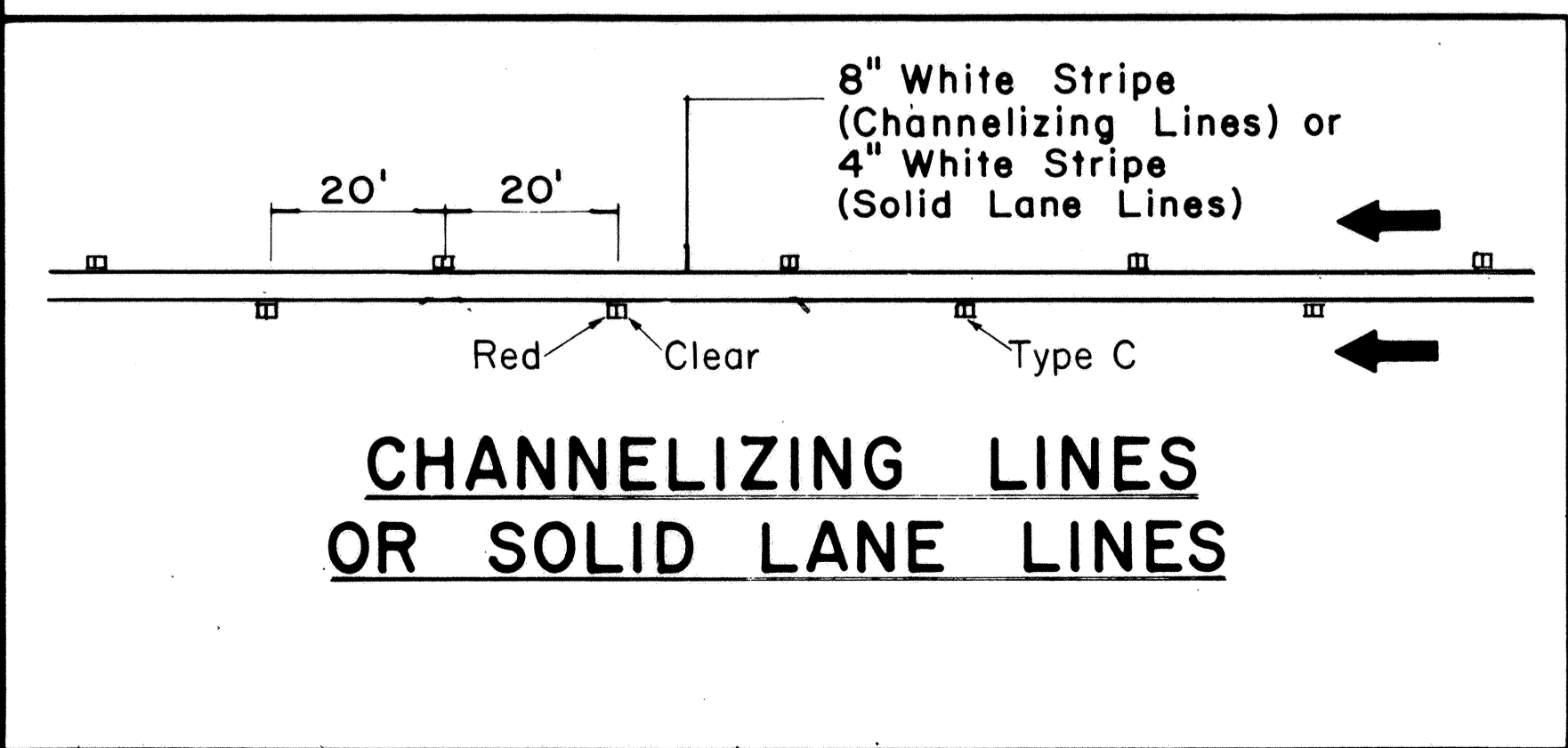
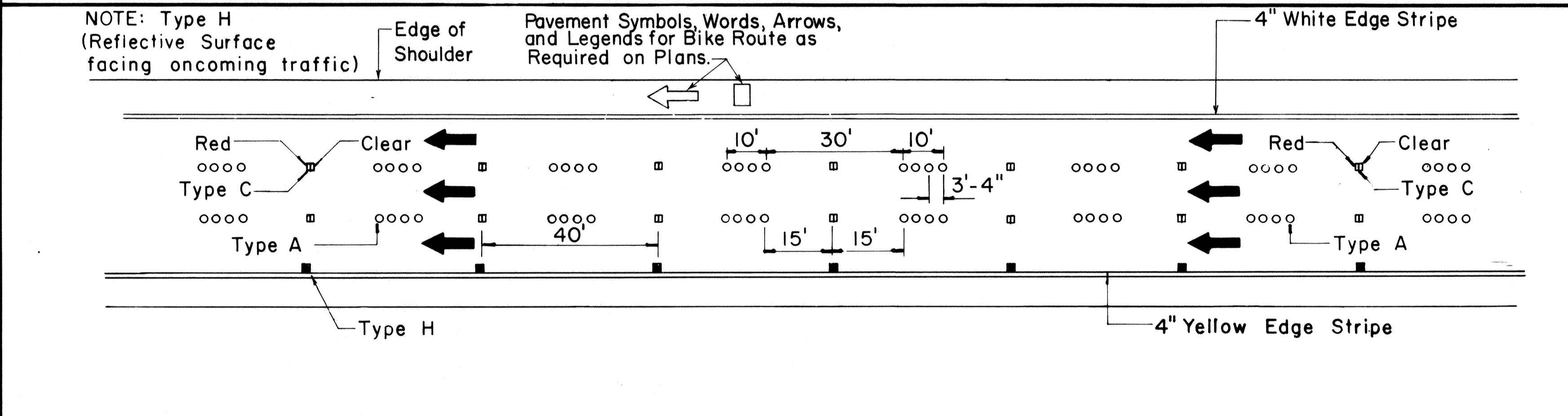
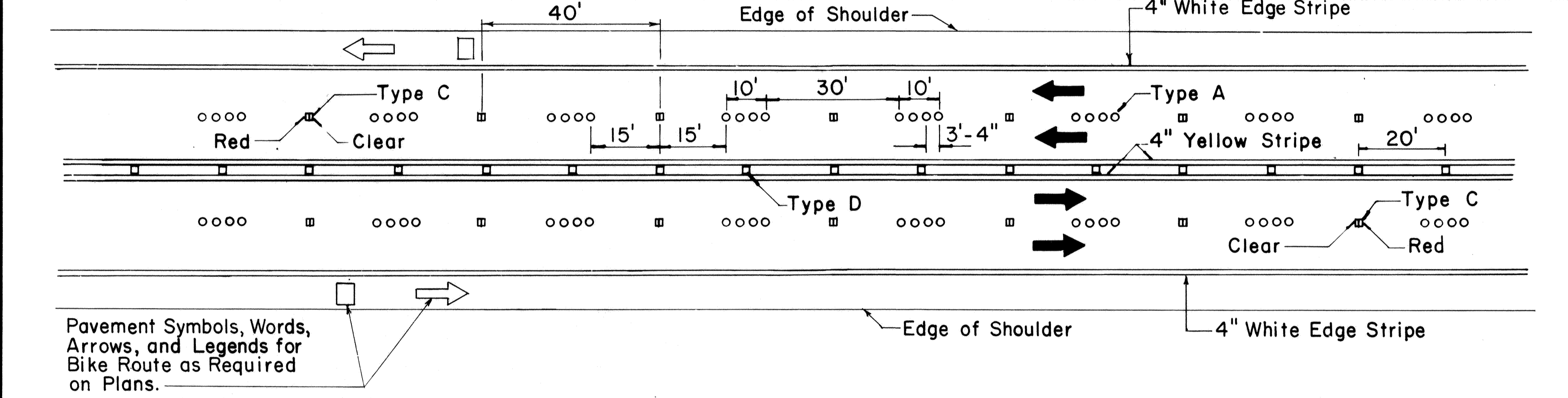
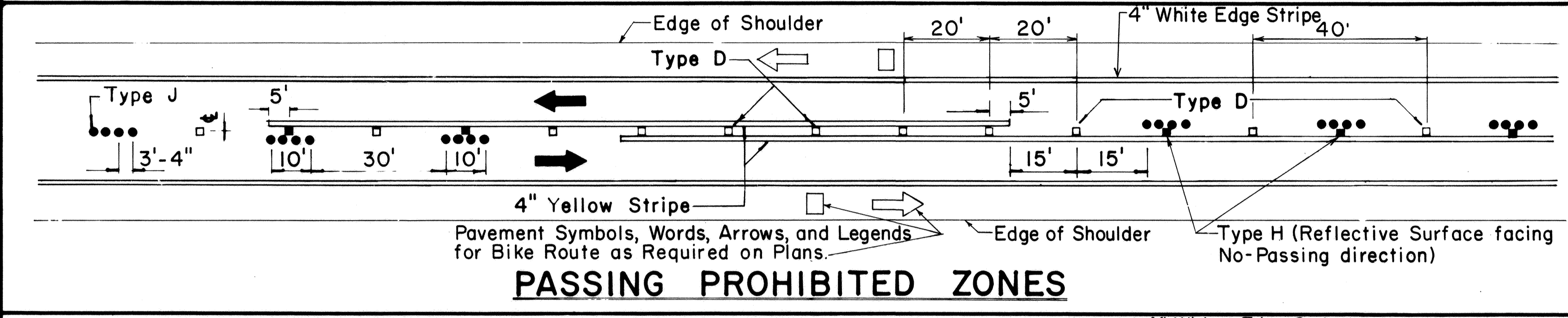
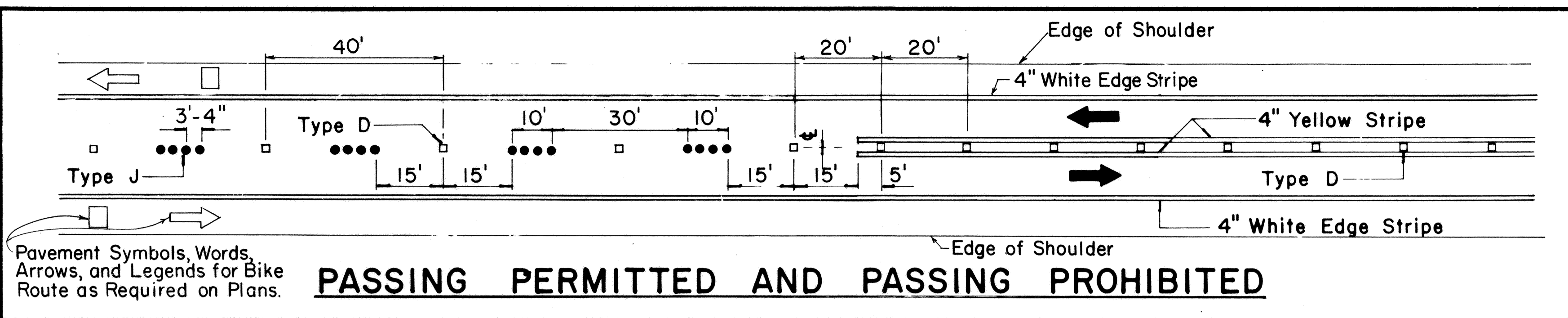
DATE
 SURVEY PLOTTED BY
 DRAWN BY
 DESIGNED BY
 QUANTITIES BY
 CHECKED BY
 ORIGINAL PLAN
 NOTE BOOK
 No.

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.

DETAIL "A"
 SIGN POST & STUB POST
 (For S4x7.7 and S3x5.7 Shapes)

DETAIL "B"
 SIGN POST & STUB POST
 (For Wide Flange Shapes)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	44	54

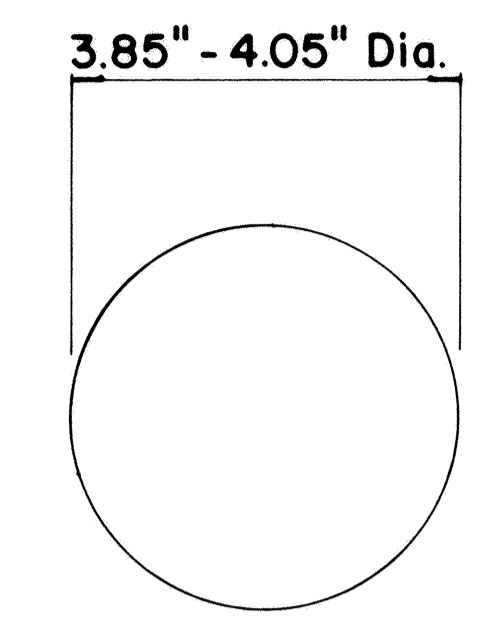


TWO - LANE

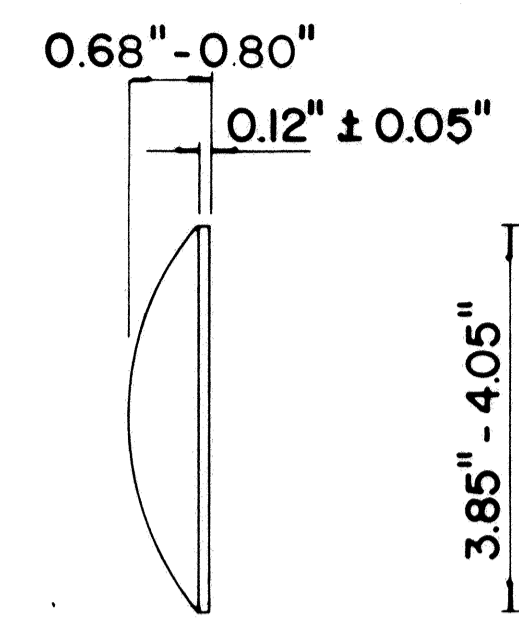
MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

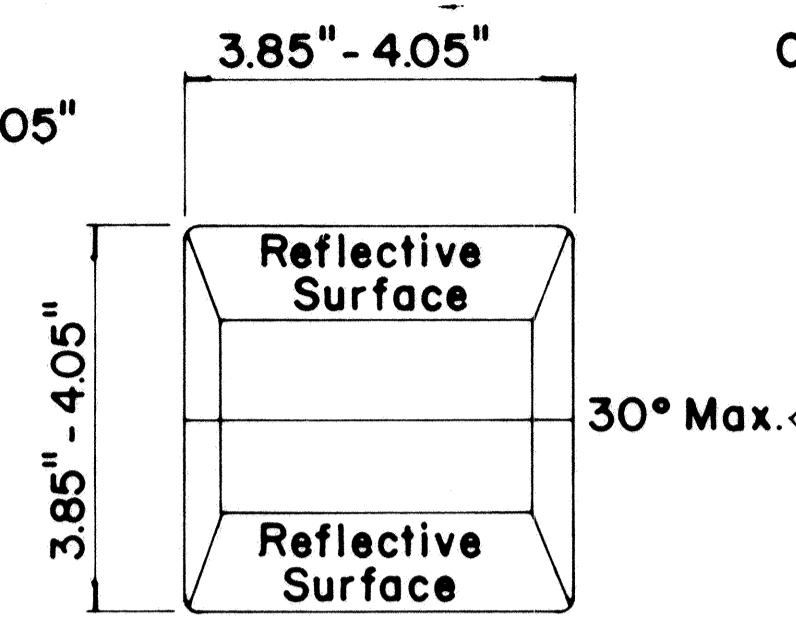
MISCELLANEOUS



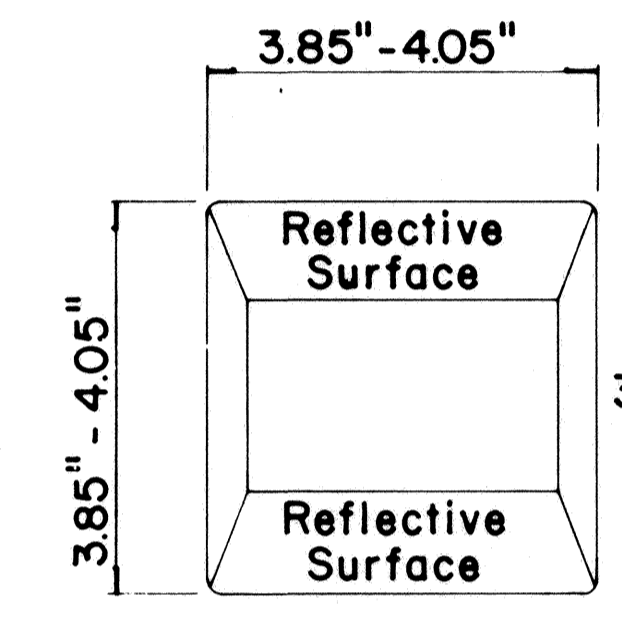
TYPE A
NON-REFLECTIVE WHITE MARKER



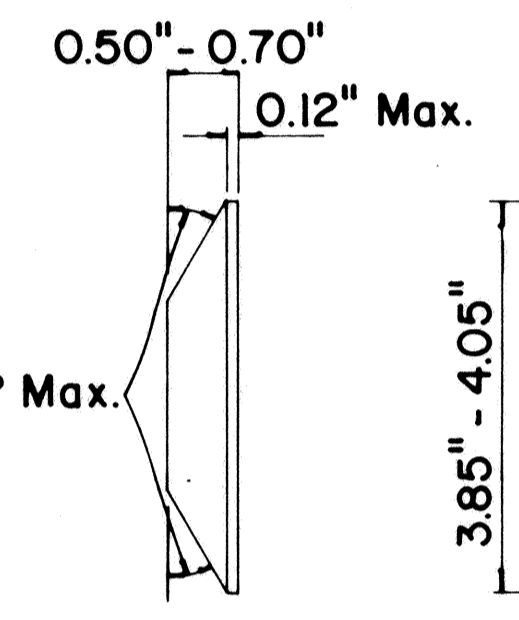
TYPE J
NON-REFLECTIVE YELLOW MARKER



TYPE C
RED-CLEAR REFLECTIVE MARKER



TYPE D
TWO-WAY YELLOW REFLECTIVE MARKER



TYPE H
ONE-WAY YELLOW REFLECTIVE MARKER

GENERAL NOTES

- Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- 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.
- 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:
Erich Tanaka 7/21/78
TRAFFIC ENGINEER DATE

APPROVED:
Robert J. Zekich 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.	H.T.	7/18/85

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

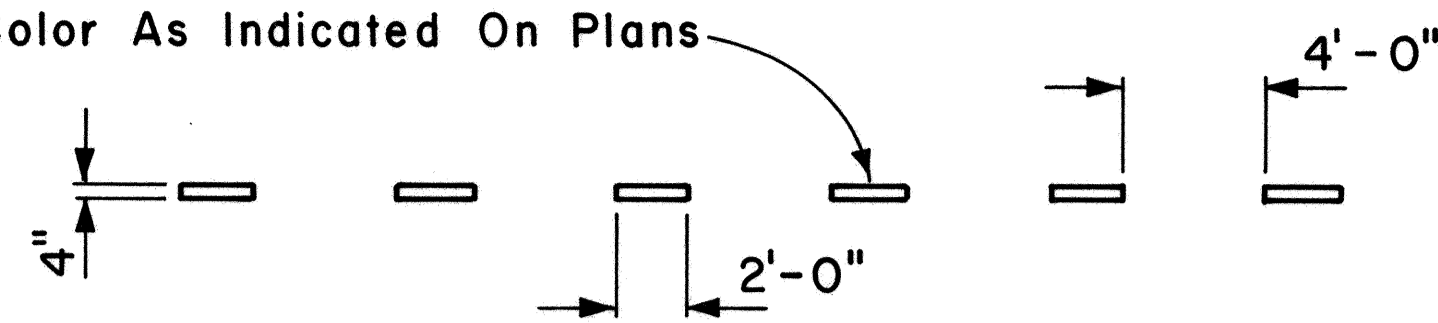
STANDARD DETAILS
RAISED PAVEMENT MARKERS
AND STRIPING

Not to Scale July 1978
SHEET No. 18 OF 21 SHEETS DT 300

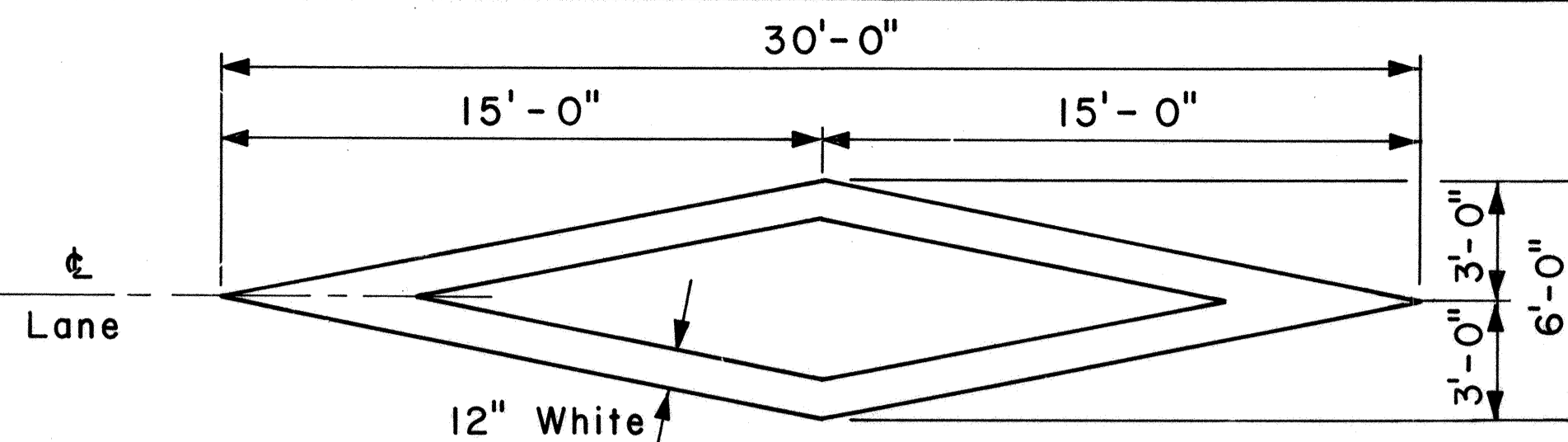
SURVEY PLOTTED BY: _____
 DATE: _____
 ORIGINAL PLAN: _____
 DRAWN BY: _____
 TRACED BY: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	89F-01-86	1986	45	54

Color As Indicated On Plans



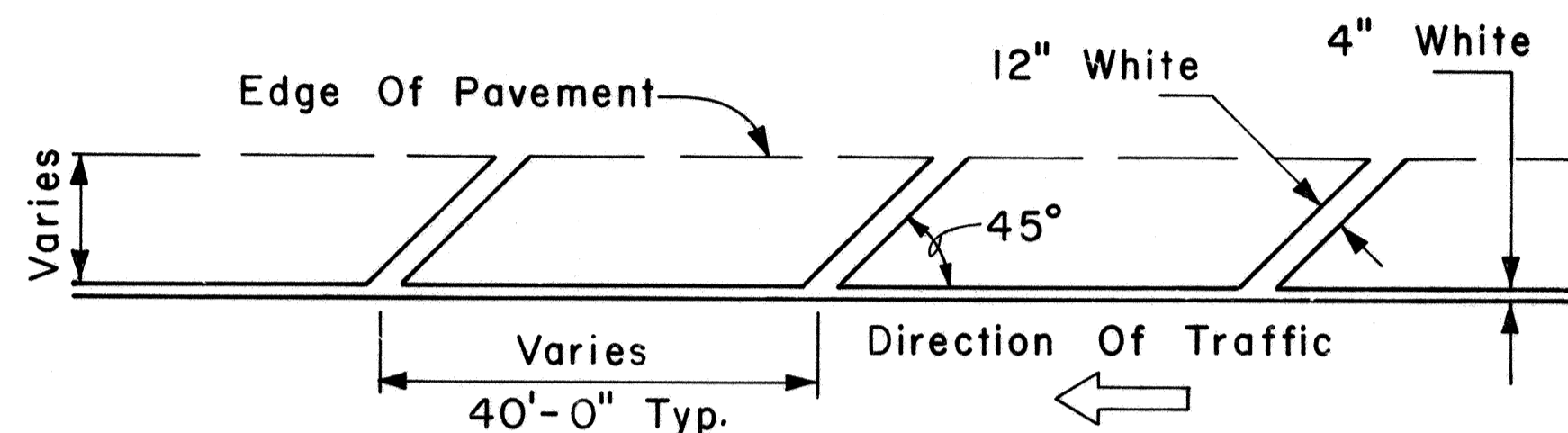
4" GUIDE LINE



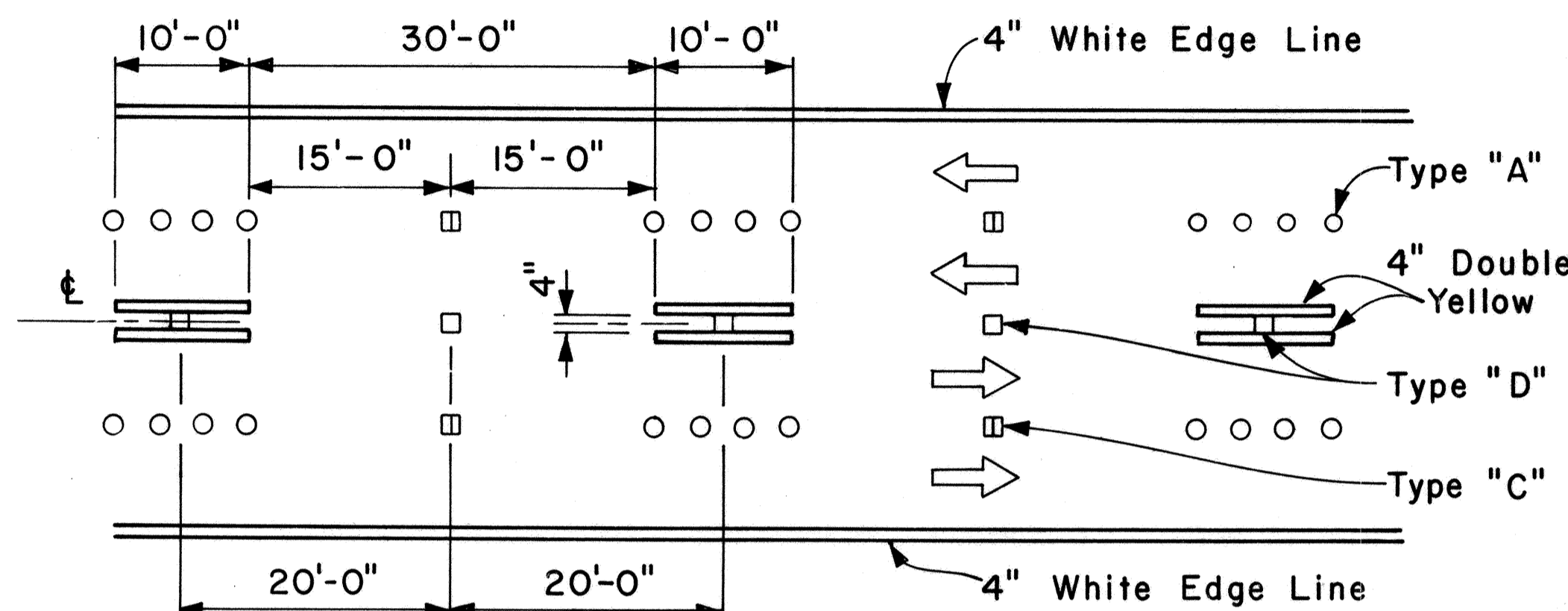
PAVEMENT DIAMOND

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.

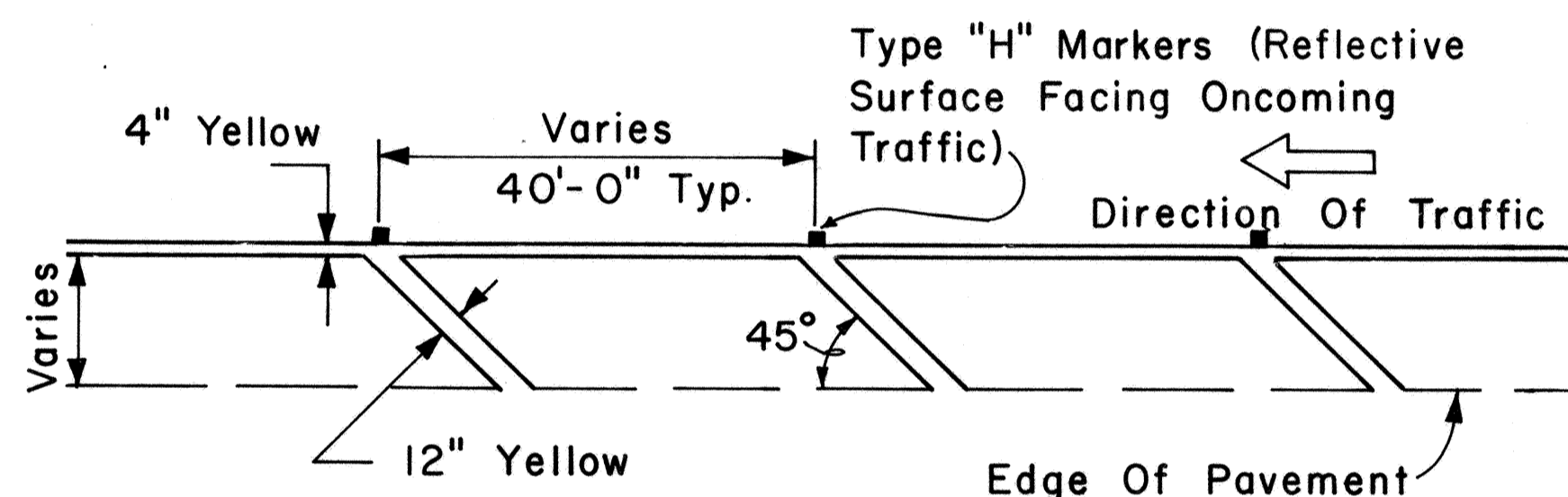


TRANSVERSE RIGHT SHOULDER MARKING

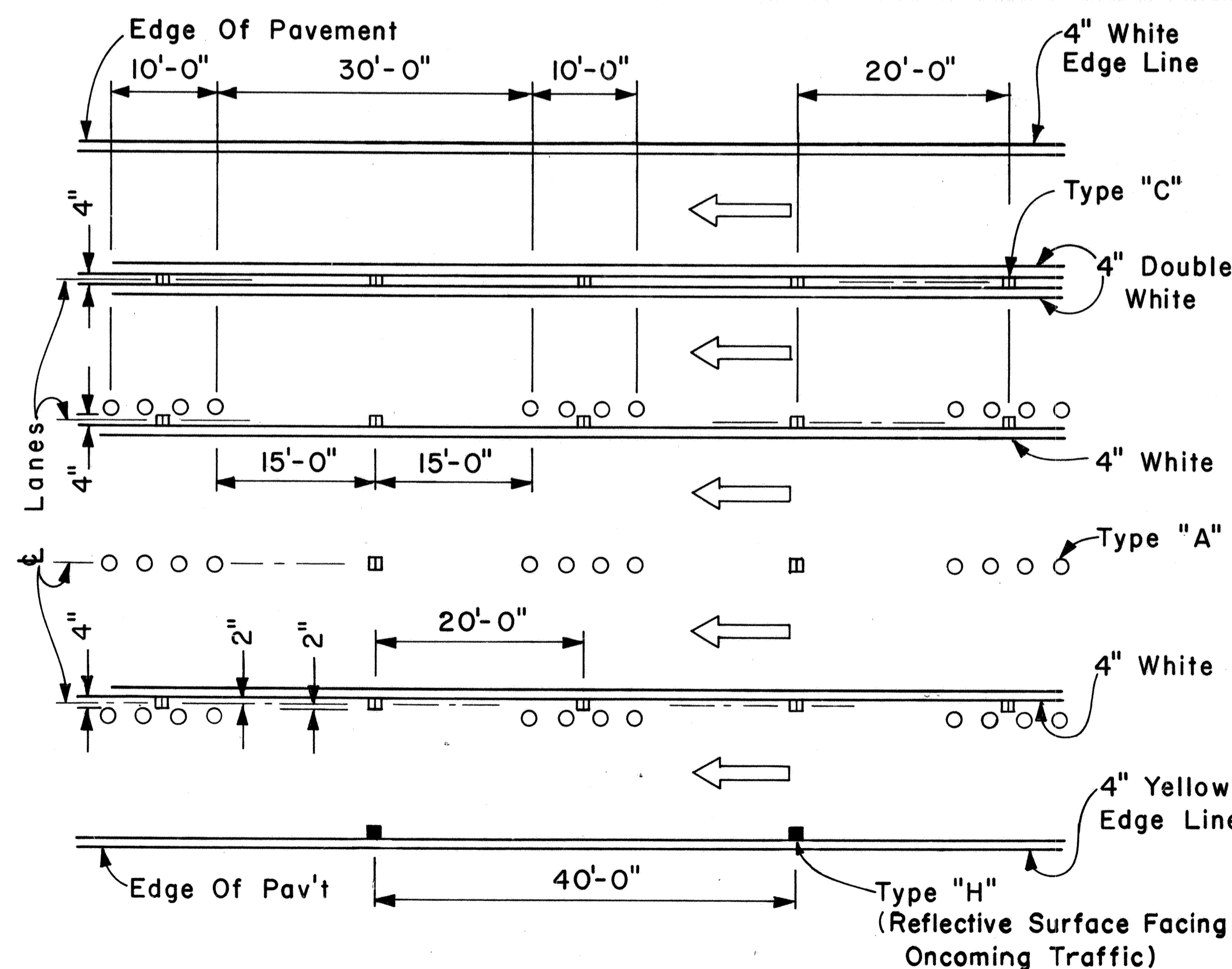


NOTE: Traffic Cone Usage Required.

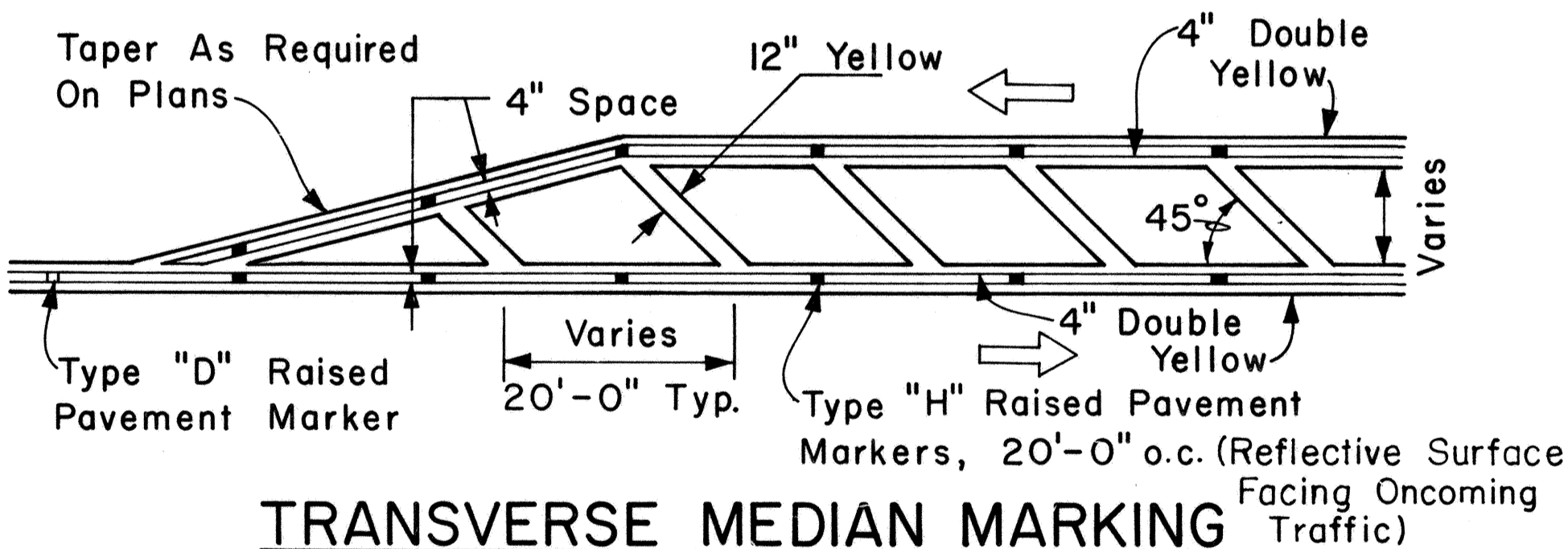
MULTI-LANE REVERSIBLE LANES



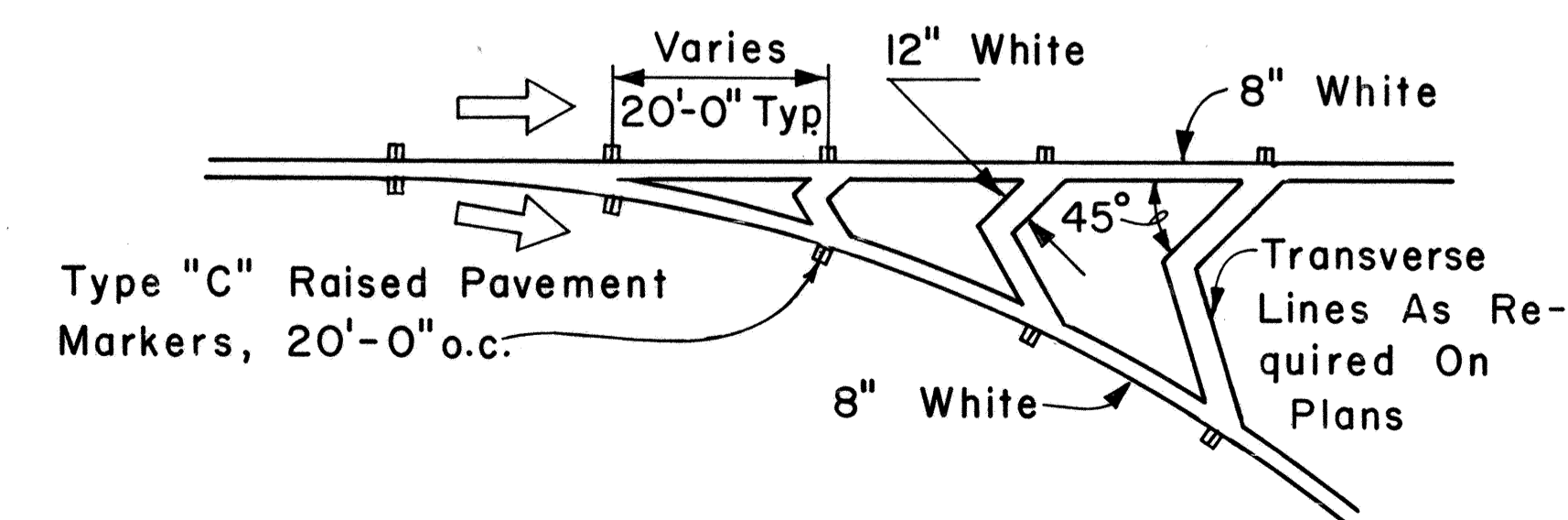
TRANSVERSE LEFT SHOULDER MARKING



MULTI-LANE LANE CHANGE RESTRICTION ZONES



TRANSVERSE MEDIAN MARKING



CHANNELIZING ISLAND

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

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

NO.	REVISION	APPROVED BY	DATE
1	Revised Transverse left Shoulder Marking, Channelizing Island & Lane Change Restriction Zones.	E. I.	5/2/78

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

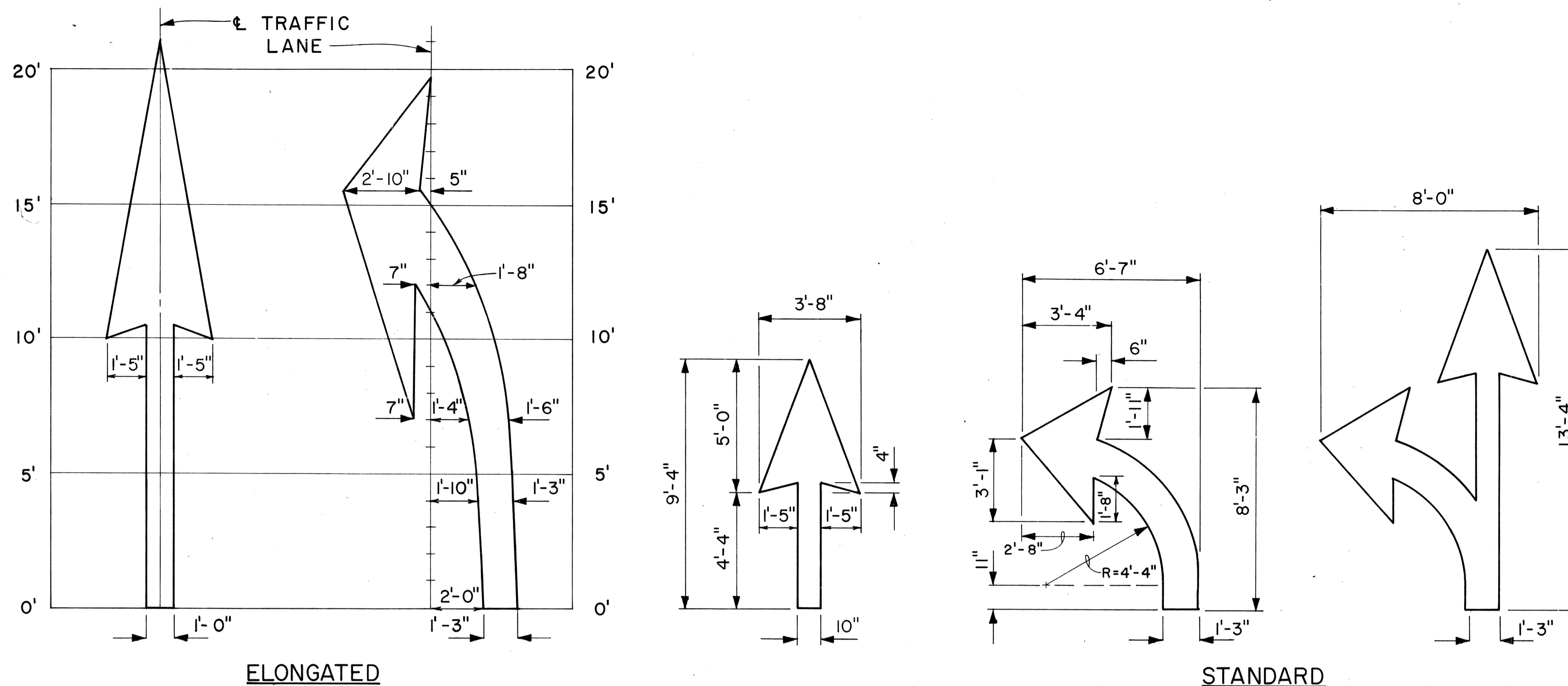
STANDARD DETAILS

MISCELLANEOUS
 PAVEMENT MARKINGS

Scale: Not to Scale Date: April, 1978
 SHEET No. 19 OF 21 SHEETS DT 302

DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 NOTE BOOK DESIGNED BY: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	88F-01-86	1986	46	54

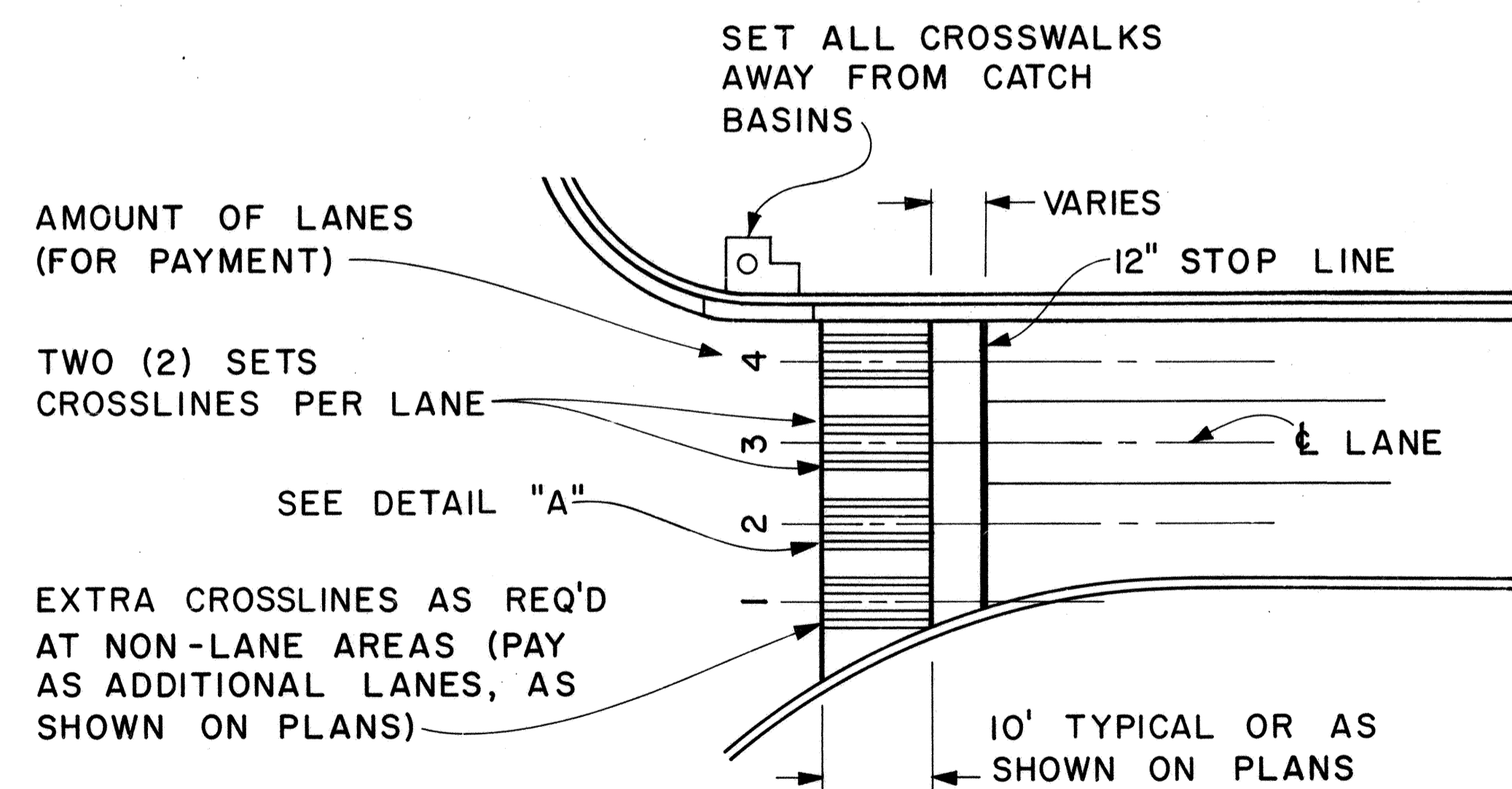


PAVEMENT ARROWS

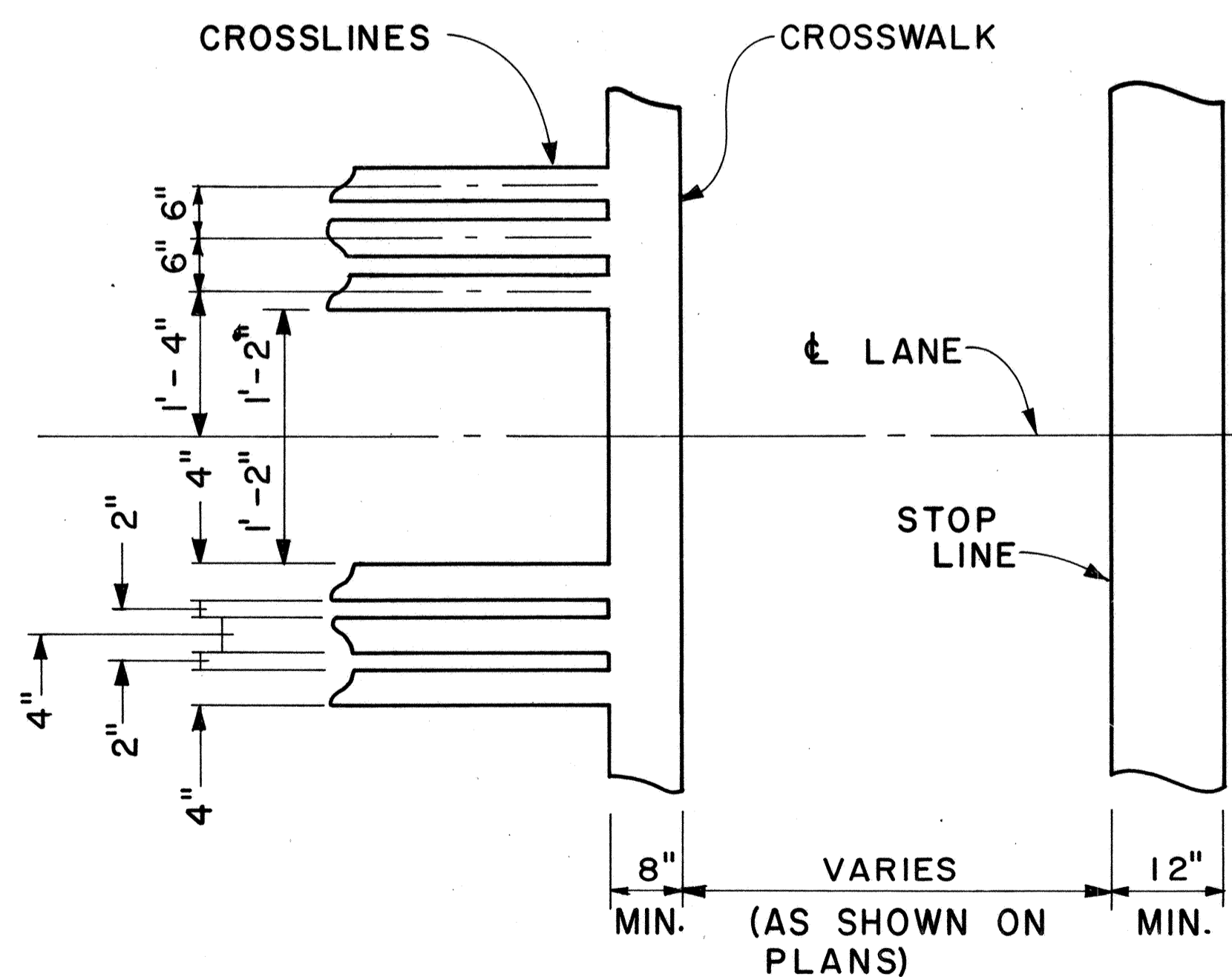
Scale: 3/8" = 1'

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.



PLAN



DETAIL "A"

CROSSWALK & STOP LINE

Scale: Not to Scale

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

APPROVED:
Harbert S. Sakai 5/2/78
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

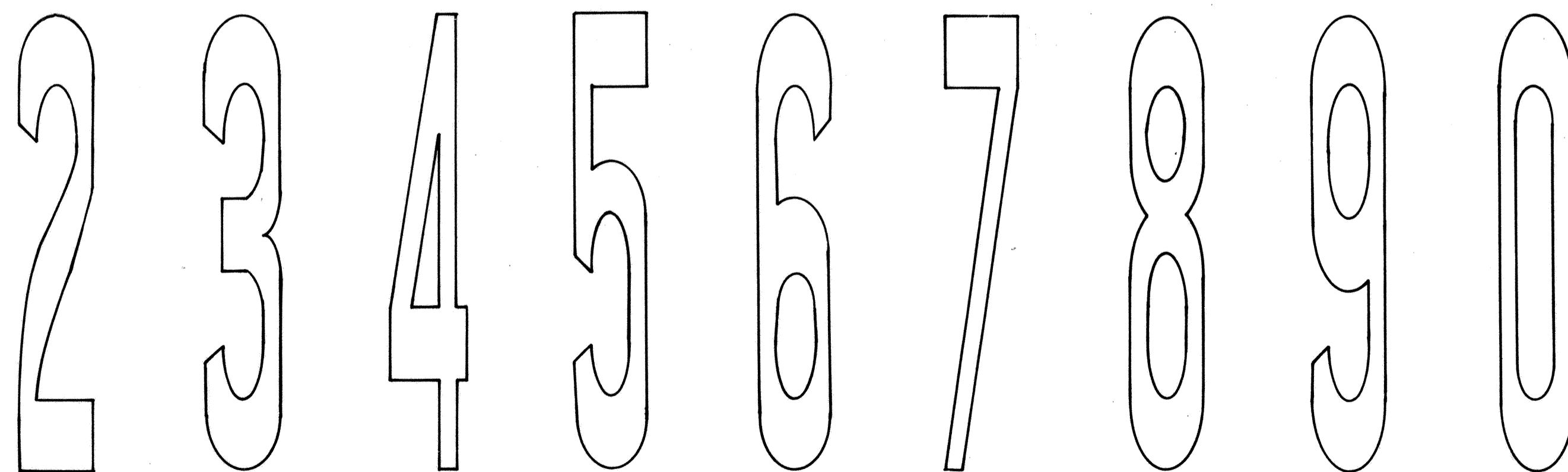
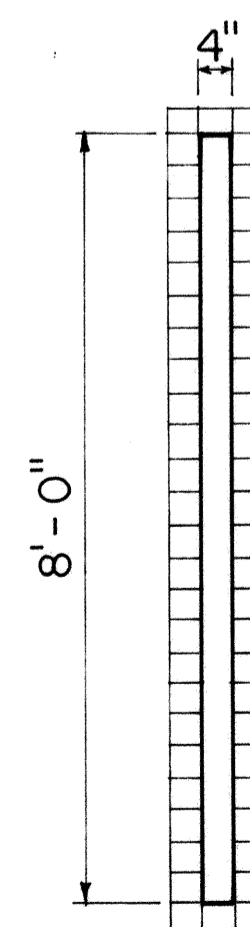
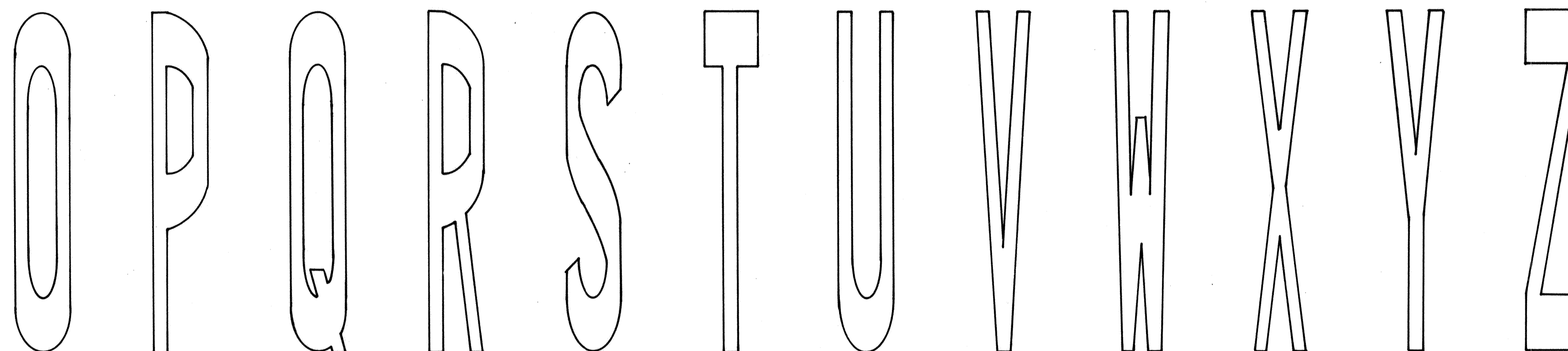
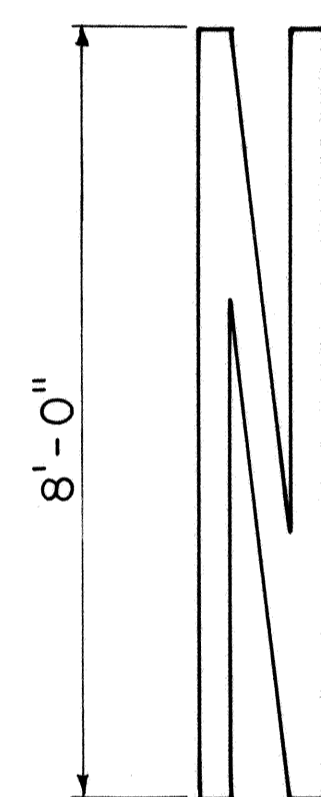
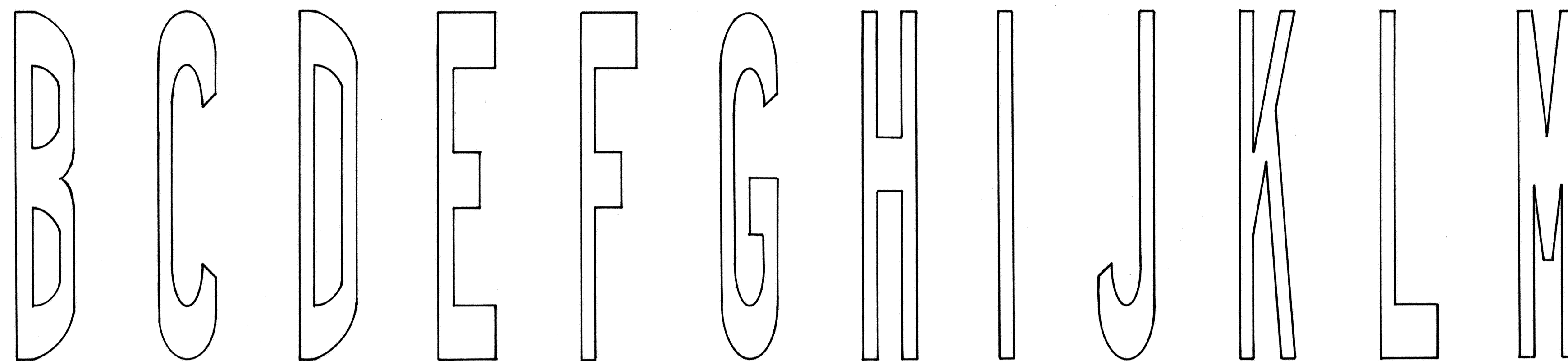
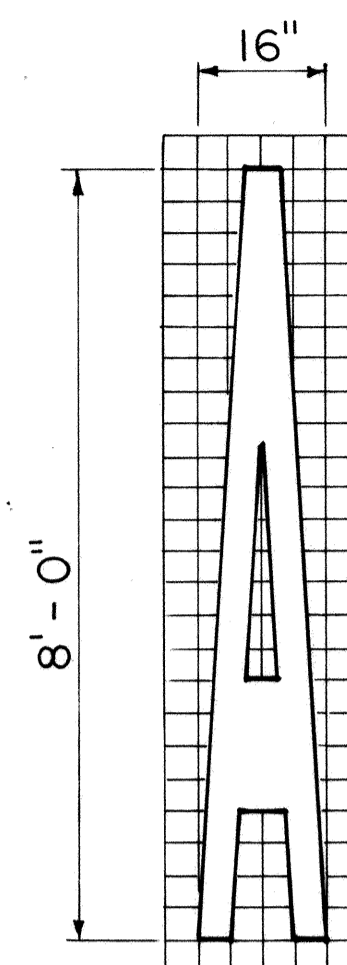
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
 MISCELLANEOUS
 PAVEMENT MARKINGS
 Scale: As Shown Date: March, 1978
 SHEET NO. 20 OF 21 SHEETS DT 306

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	83F-01-86	1986	47	54

GENERAL NOTES

1. Pavement Alphabets, Numbers and Symbols shall conform to the latest edition of the FHWA publication, "Manual on Uniform Traffic Control Devices for Streets and Highways" and its amendments.
2. The characters are based on a 24x4 (height x width) grid system to facilitate enlarging. Horizontal strokes are 4 units high and vertical strokes are 1 unit wide.
3. Unless otherwise noted, the typical height and width of each character shall respectively be 8'-0" and 1'-4". The horizontal strokes shall be 16" high and the vertical strokes shall be 4" wide.
4. All pavement messages and symbols shall be laid out by the Contractor and approved by the Engineer prior to installation.



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

APPROVAL RECOMMENDED:

Eishi Tanaka
TRAFFIC ENGINEER 1/28/83
DATE

APPROVED:

S. Fujiyama
ASSISTANT CHIEF, ENGINEERING 1-31-83
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

**PAVEMENT ALPHABETS,
NUMBERS & SYMBOLS**

Not to Scale

SHEET No. 21 OF 21 SHEETS DT 307