

### RM-3 REFLECTOR MARKER & TYPE II OBJECT MARKER SUMMARY

Begin Station	End Station	o/s	Spacing	Type II	RM-1	
					Single	Bi-Directional
137+70±		Rt., Lt.		2		
139+40±		Rt.		1		
<del>139+40±</del>		Lt.		1		
144+ <del>40±</del>		Rt.		1		
144+ <del>40±</del>		Lt.		1		
147+ <del>40±</del>		Rt.		1		
147+ <del>40±</del>		Lt.		1		
147+50±		Rt.		1		
147+ <del>45±</del>		Lt.		1		
198+15	<del>202+35</del>	Lt.	70'-0" o.c.			7 8
203+75		Lt.				+
205+ <del>60</del>		Lt.		1		
197+ <del>40</del>		Rt.		1		
205+ <del>40</del>		Rt.		1		
<del>234+70</del>		Rt.		1		
<del>236+50</del>	237+70	Rt.	70'-0" o.c.			2
238+ <del>30</del>	<del>240+70</del>	Rt.	60'-0" o.c.			5 4
<del>241+80</del>		Rt.		+		1
239+ <del>70</del>		Lt.		1		
<del>242+80</del>		Lt.		+		1
248+00		Rt.		1		
248+ <del>75</del>	250+10	Rt.	70'-0" o.c.			3 2
250+ <del>80</del>		Rt.		+		
248+ <del>50</del>		Lt.		1		
<del>251+00</del>		Rt.		1		
252+ <del>10</del>		Lt.		1		
259+ <del>00</del>		Lt.		1		
<del>259+10</del>	260+ <del>40</del>	Lt.	70'-0" o.c.			2
261+ <del>10</del>		Lt.		1		
259+ <del>30</del>		Rt.		1		
261+10		Rt.		1		
262+ <del>80</del>		Lt., Rt.		2		
263+ <del>40</del>		Lt., Rt.		2		
283+80		Lt.		1		
284+ <del>75</del>		Rt.		1		
285+ <del>60</del>		Rt.		1		
287+ <del>60</del>		Lt.		1		

### MARKER SUMMARY (continued)

Begin Station	End Station	o/s	Spacing	Type II	RM-1	
					Single	Bi-Directional
288+ <del>20</del>		Rt.		1		
288+30		Lt.		+		
289+ <del>50</del>		Rt.		+ 2		
<del>289+80</del>		Lt.		1		
307+ <del>70</del>		Rt., Lt.		2		
309+ <del>20</del>		Rt.		1		
309+ <del>40</del>		Lt.		1		
312+ <del>40</del>		Rt.		1		
313+ <del>60</del>		Lt.		1		
314+ <del>20</del>		Rt.		1		
315+00		Lt.		1		
TOTALS				44	5	49 14

### SIGNING, STRIPING & MARKER NOTES

1. Location of all new striping, signs & markers shall be staked out by the Contractor for approval by the Engineer prior to their installation. Reflector Markers & Object Markers shall be installed immediately after the guardrails are installed.
2. Striping removed by the project work shall be restored to existing conditions & shall be incidental to the various culvert items.
3. Removal of existing signs & reflector markers including posts & foundations shall not be paid for separately but shall be considered incidental to the various guardrail items.
4. RM-1 reflector markers shall be installed behind the new guardrail & mounted a minimum of 4'-0" above the projected roadway as shown on sht. # DT10.
5. Type II object markers shall be installed at approach & trailing ends of guardrail sections & mounted a minimum of 4'-0" above the projected roadway as shown plan sht. # 21. At earth mound end treatments, Type II object markers shall be installed at the longitudinal tip of the mound.
6. 4" white edge striping shall be installed wherever new guardrails are installed. Exact limits of striping shall be determined in the field by the Engineer.



### INSTALLATION OF STATE ROUTE MARKER ASSEMBLIES

Not to Scale

### STRIPING SUMMARY

STA. TO STA. ±	STRIPING	DISTANCE	STA. TO STA. ±	STRIPING	DISTANCE
137+50 139+43	LT. E.P.	193	285+50 241+74	RT. E.P.	624
137+60 139+20	RT. E.P.	100	248+50 252+28	LT. E.P.	378
145+25 147+97	LT. E.P.	272	248+00 251+14	RT. E.P.	314
144+70 147+80	RT. E.P.	310	258+90 261+04	LT. E.P.	214
197+17 205+05	LT. E.P.	788	259+20 261+00	RT. E.P.	179
197+10 204+80	RT. E.P.	769	262+75 264+17	LT. E.P.	142
239+10 242+80	LT. E.P.	369	262+75 264+00	RT. E.P.	125
TOTAL					4,843.0 L.F.

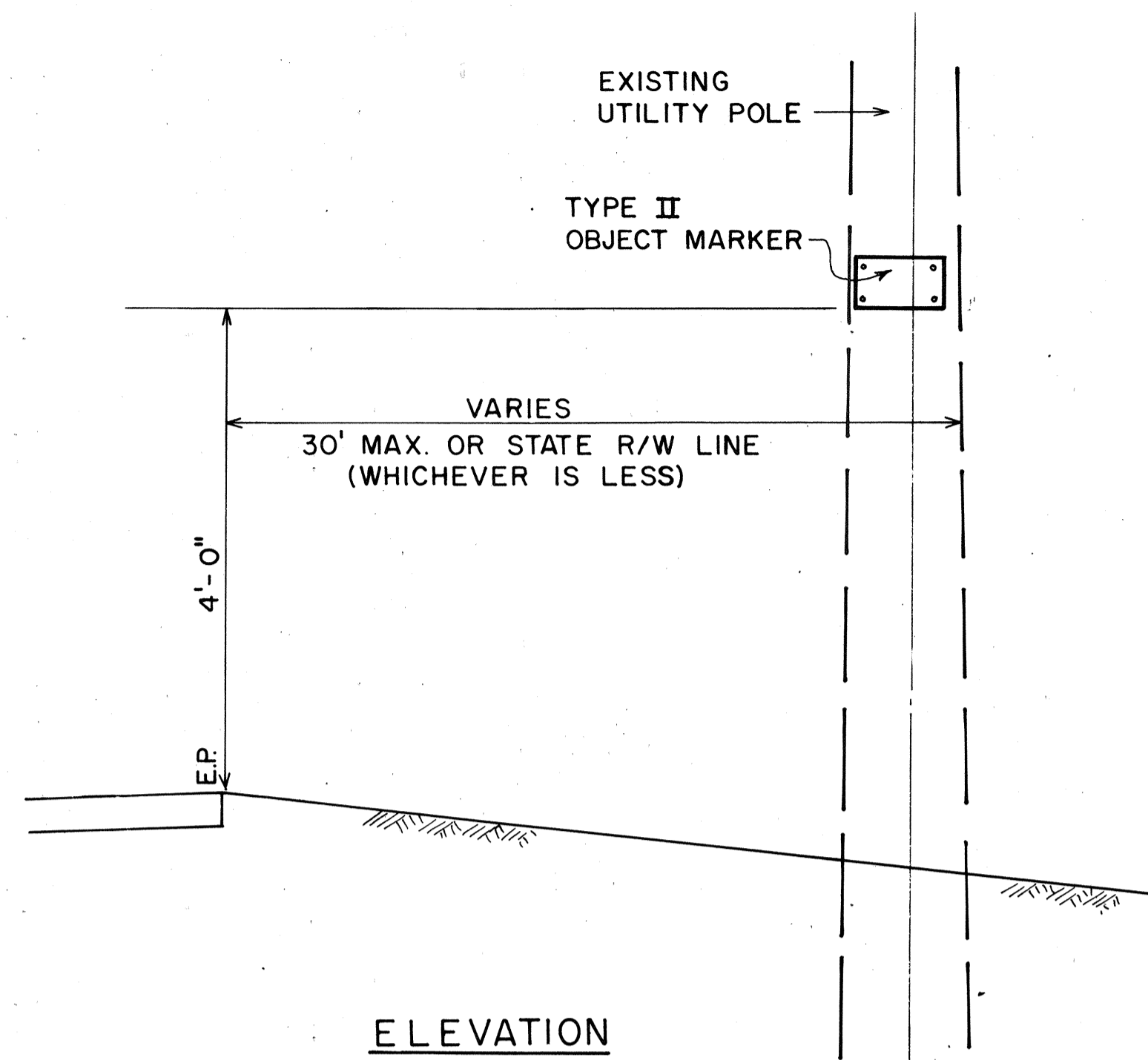
SURVEY PLOTTED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 ORIGINAL PLAN DRAWN BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 NOTE BOOK DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 No. \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**MARKER SUMMARY**  
 MAUNALOA HIGHWAY  
 Replacement of Culverts Phase I  
 F.A. Project No. RS-0460(4)  
 Not to Scale April 1982  
 SHEET No. 1 OF 6 SHEETS

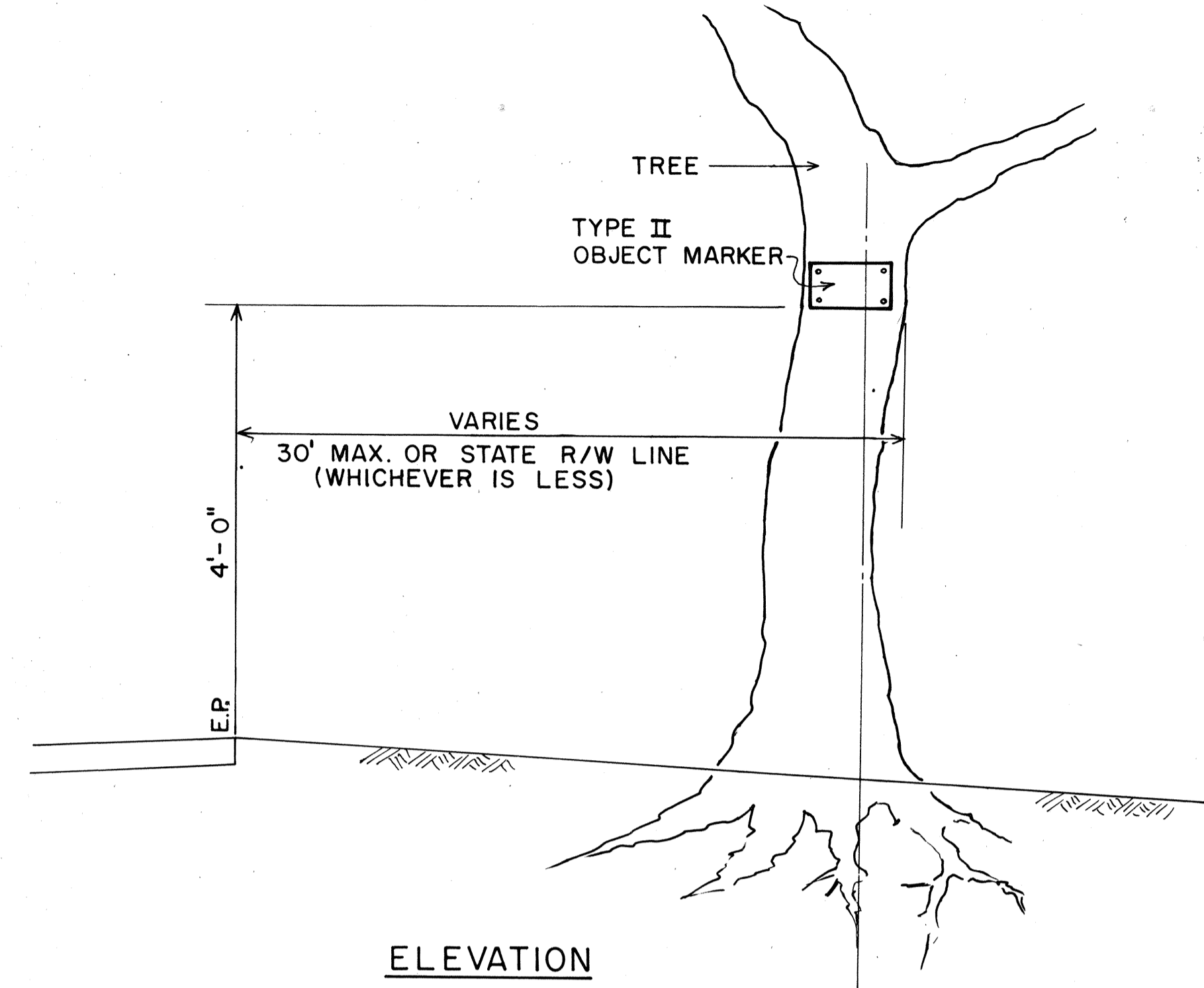
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BS-0460(6)	1982	21	25

### GENERAL NOTES

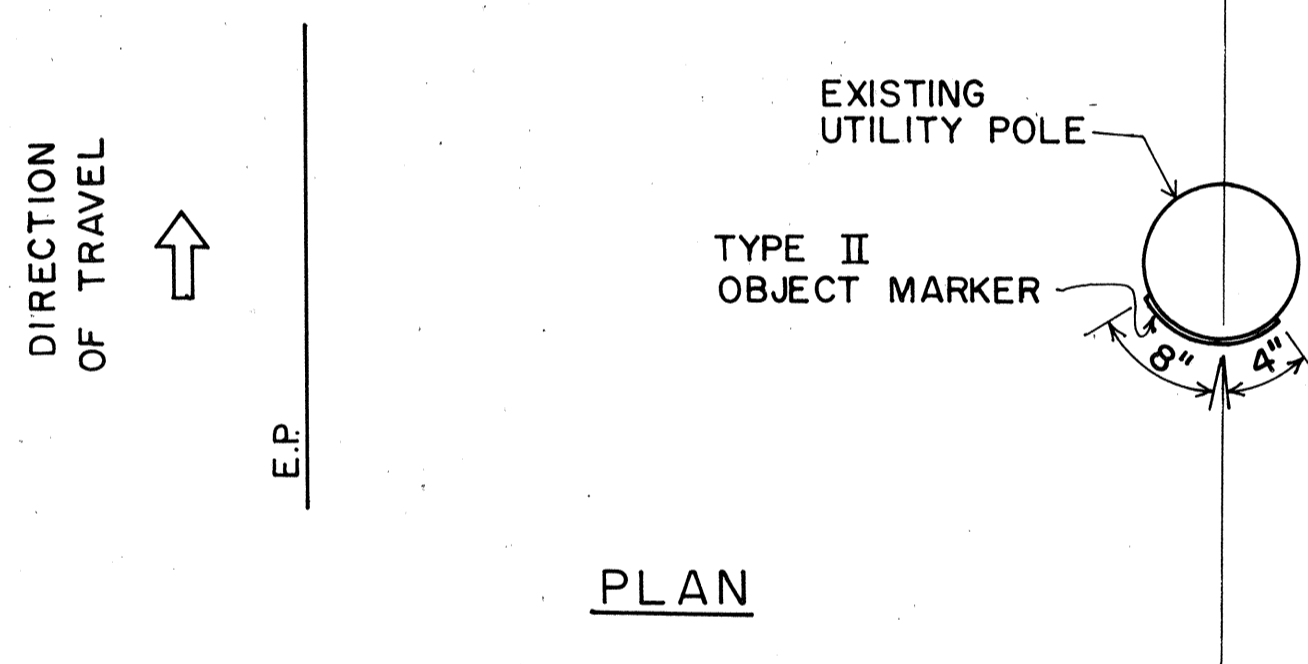
- Type II Object Markers shall be of amber reflective sheeting material overlaid on 0.020" aluminum sheeting.
- Type II Object Markers shall be mounted on utility poles and trees, as shown on the plans, with 4d nails (4 ea.).
- The Contractor shall prepare the surface (of the utility pole or the tree etc.), on which the Type II Object Marker is to be placed to provide the most optimum reflecting surface to the motorist.
- Branches of trees which will obscure the object markers shall be trimmed. (Payment shall be incidental to Contract Item No. 621.4800 Type II Object Markers.)
- 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.
- All objects to be marked will be determined in the field by the Engineer.
- Objects such as concrete posts, concrete or rock walls and boxes, metal posts (greater than 2 inches 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:
  - It shall consist of amber reflective sheeting material overlaid on 0.063 inch thick sheet aluminum backing of the dimensions shown on the plans.
  - It shall be mounted on 1/2" x 1/2", 12-gage square tube posts with 1/4" x 2" galv. bolts, nuts, and washers. Galvanized flanged 1/8" x 3/16" channel posts, 2 lbs. per ft., may be used as an option.



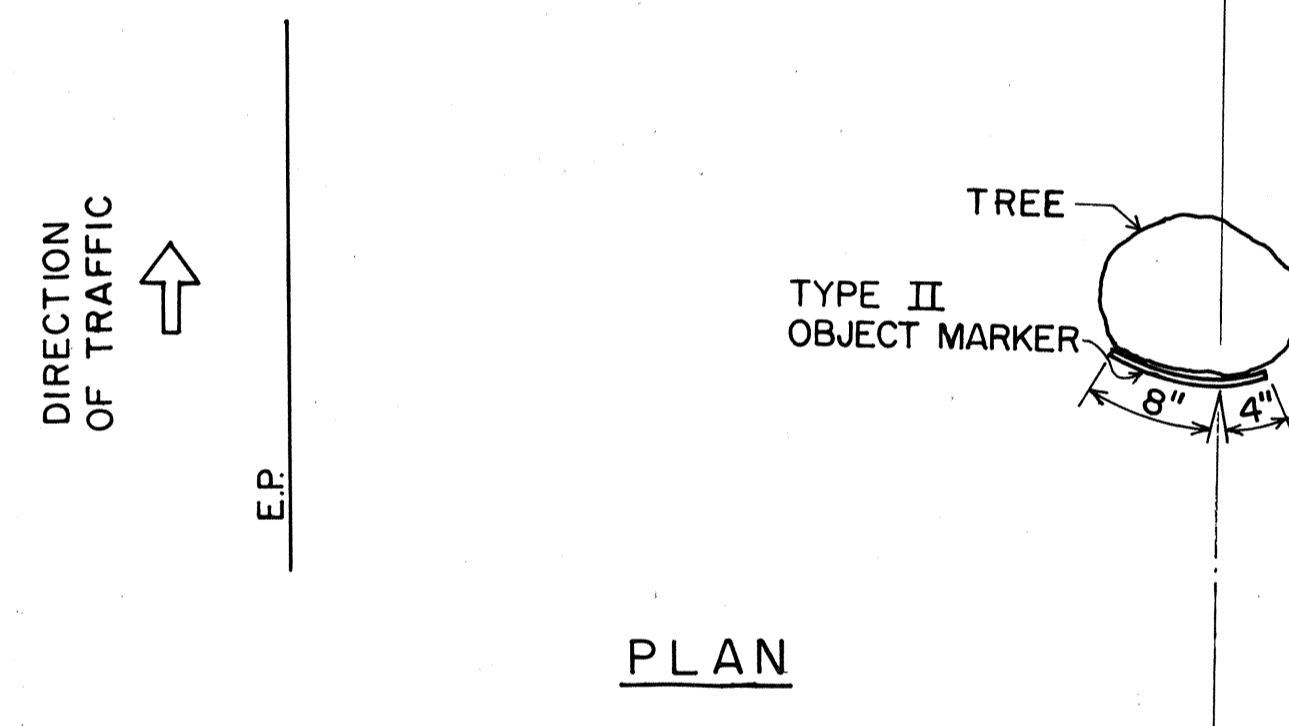
ELEVATION



ELEVATION



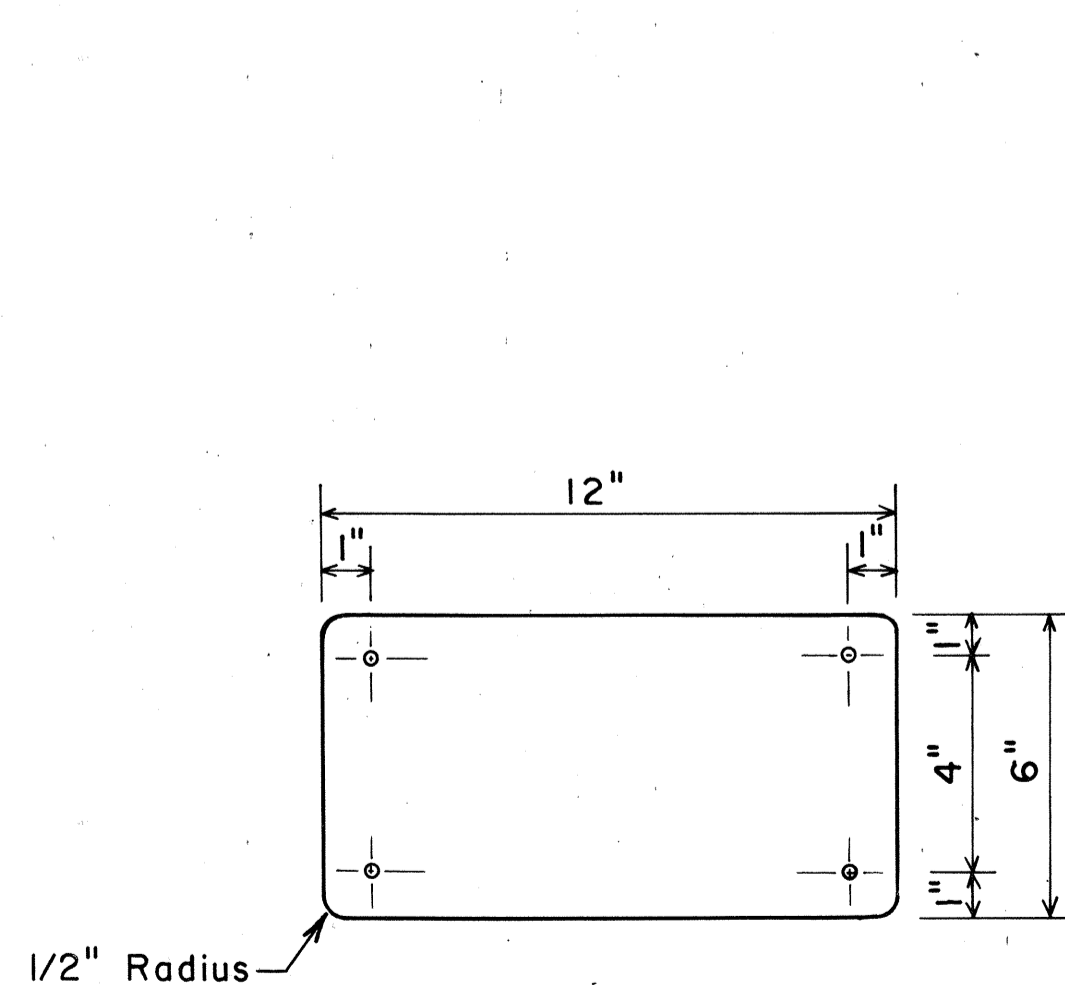
PLAN



PLAN

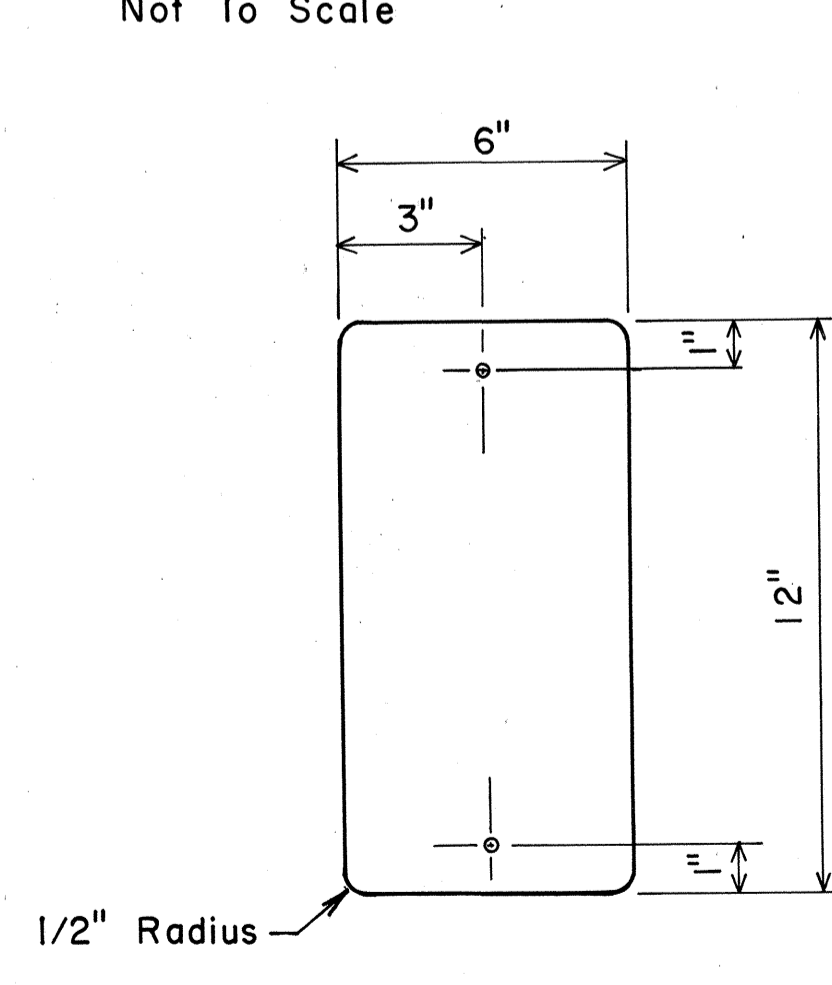
### TYPICAL TYPE II OBJECT MARKER MOUNTING DETAIL

Not To Scale



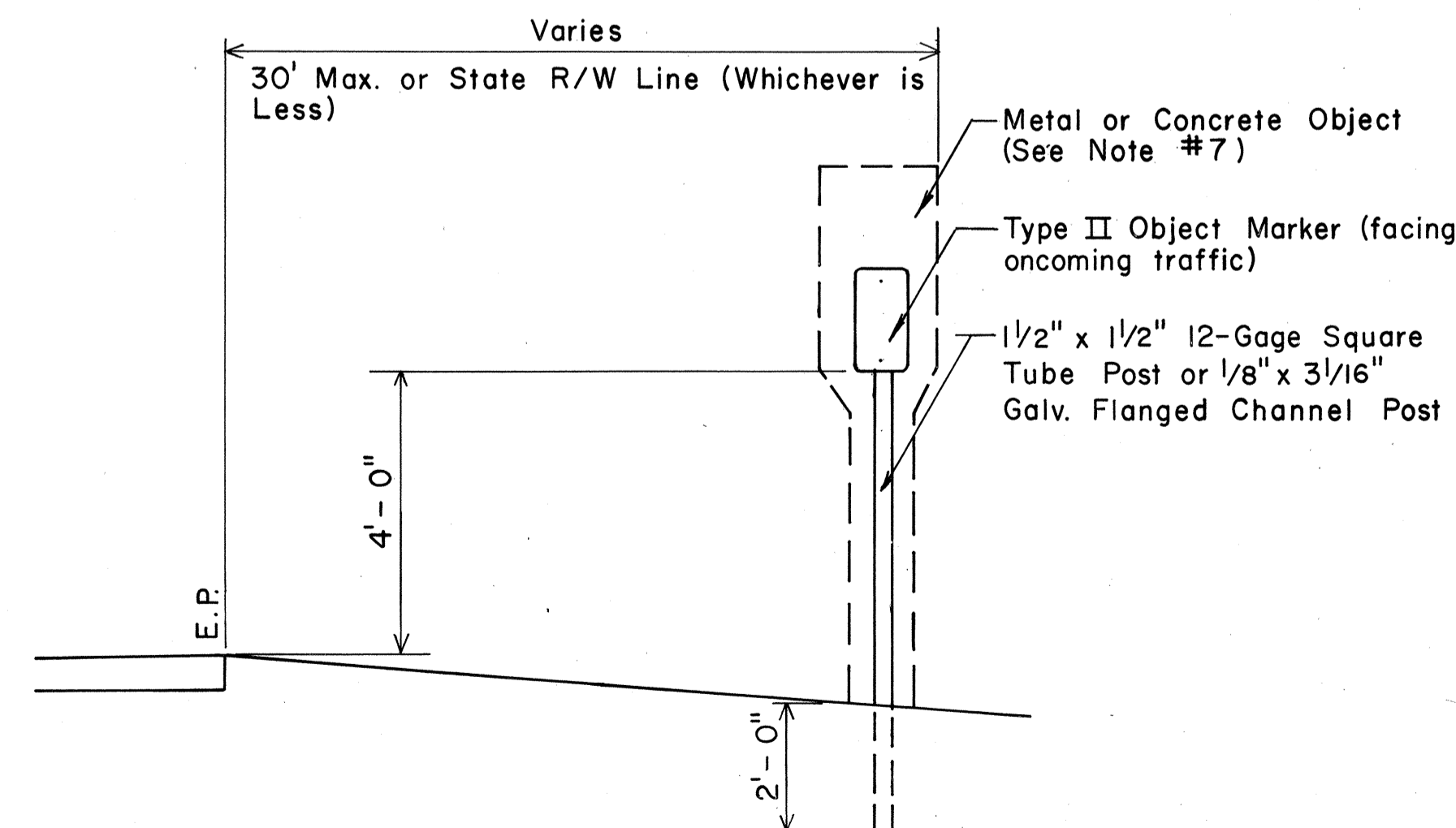
TYPICAL TYPE II OBJECT MARKER

Not To Scale



TYPICAL TYPE II OBJECT MARKER POST MOUNTED

Not To Scale



TYPICAL TYPE II POST MOUNTED OBJECT MARKER DETAIL

Not To Scale

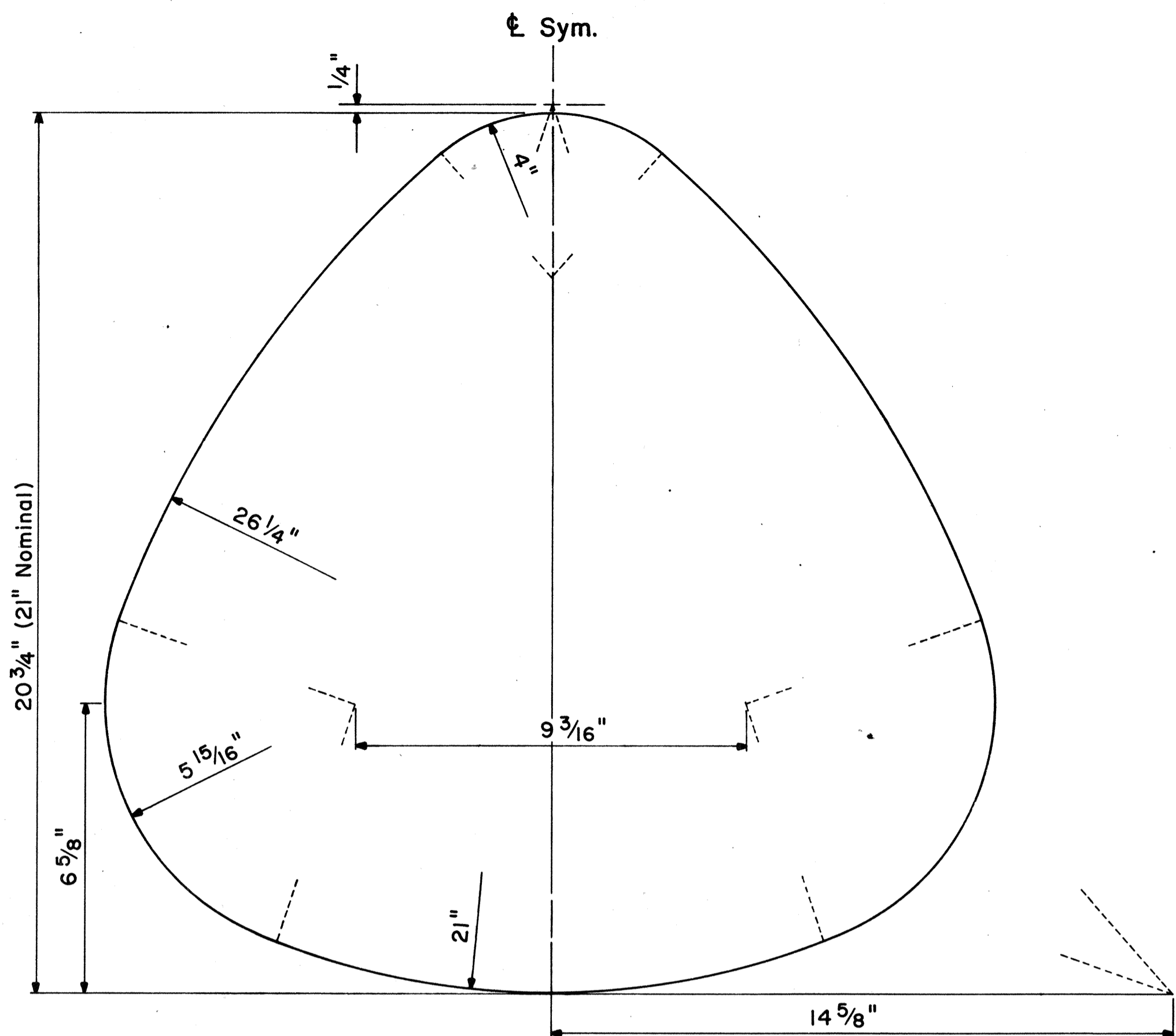
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
LAND TRANSPORTATION FACILITIES DIVISION

**TYPICAL DETAILS**  
**TYPE II OBJECT MARKERS**

SCALE: AS SHOWN      DATE: April 1982  
SHEET No. 2 OF 6 SHEETS

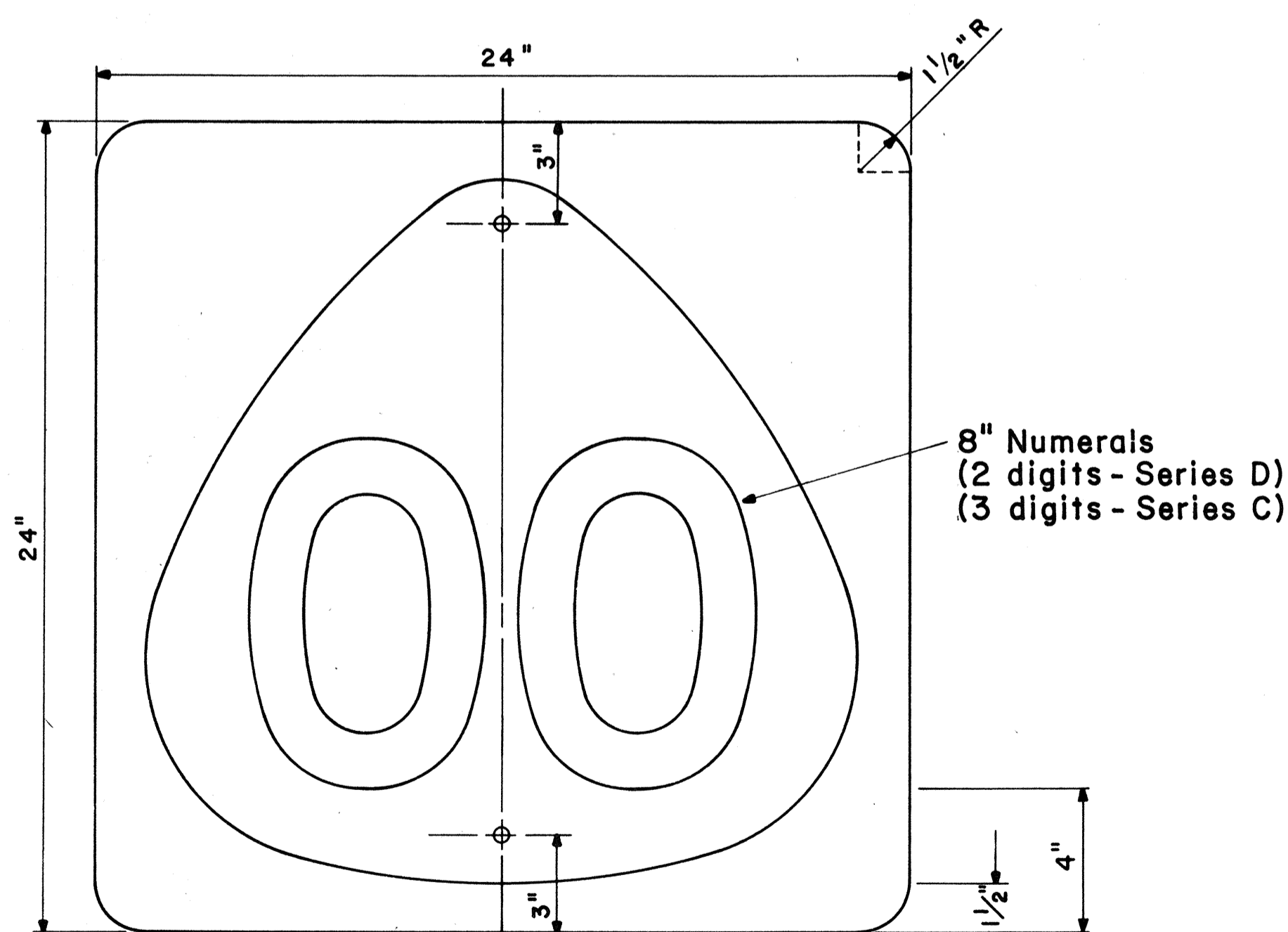
DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
DESIGNED BY	_____
TRACED BY	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-0460(4)	1962	22	25



**STATE ROUTE MARKER DETAIL**

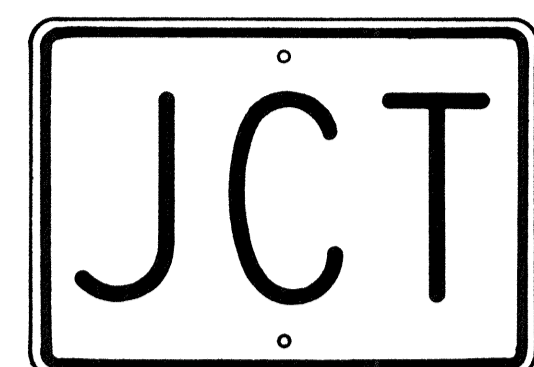
Not to Scale



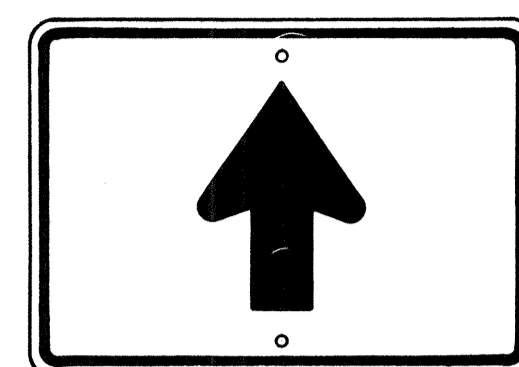
**STATE ROUTE MARKER**

MI-6 (00) 24" x 24"

Scale: 1/4" = 1"



M2-1 21" x 15"



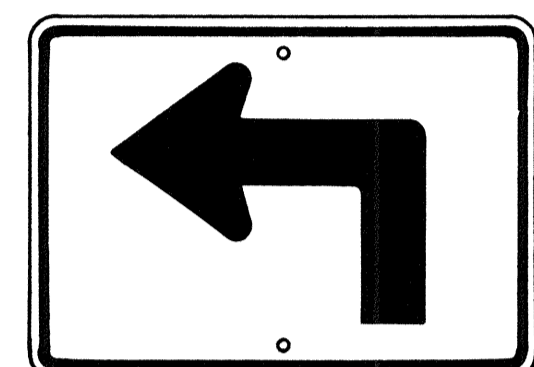
M6-3 21" x 15"



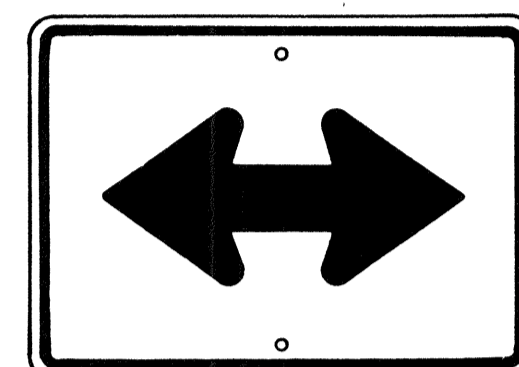
M3-1 24" x 12"  
M3-1-A 36" x 18"



M4-1 24" x 12"



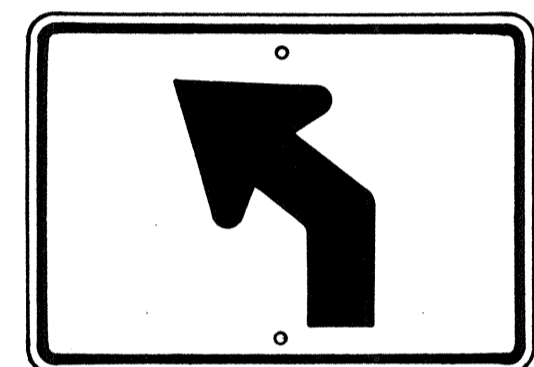
M5-1(L) 21" x 15"



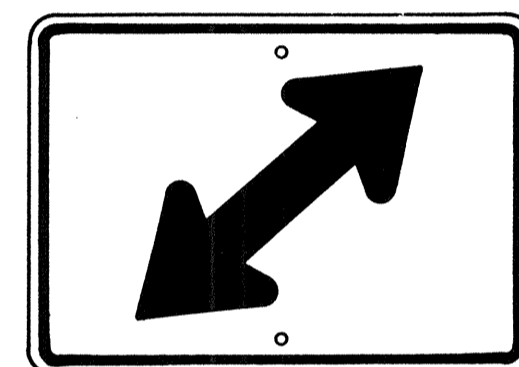
M6-4 21" x 15"



M4-2 24" x 12"



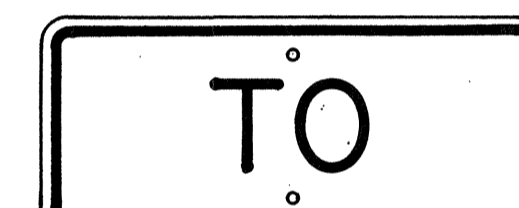
M5-2(L) 21" x 15"



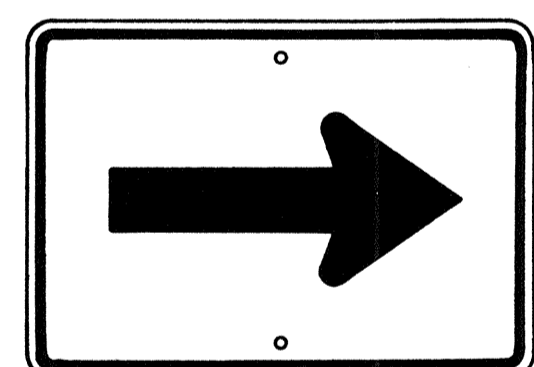
M6-5(R) 21" x 15"



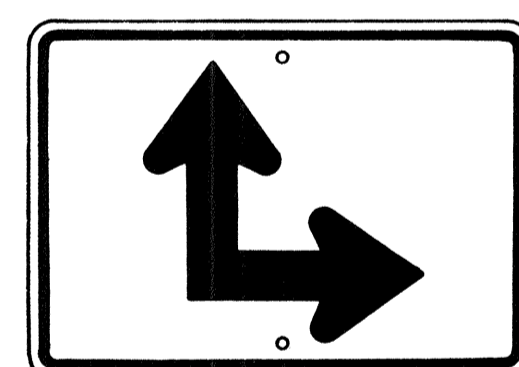
M4-3 24" x 12"



M4-5 24" x 12"



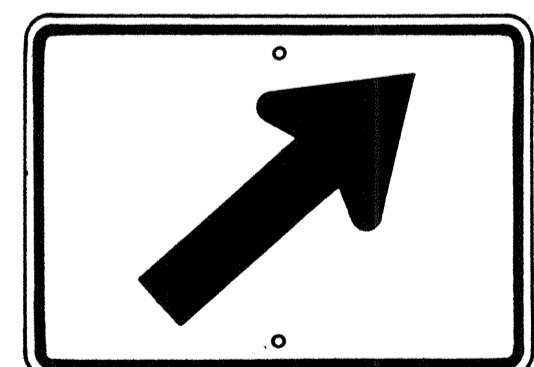
M6-1 21" x 15"



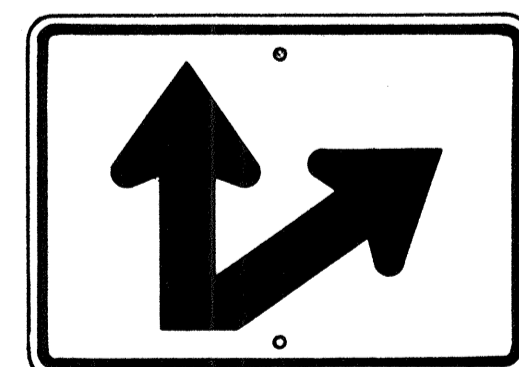
M6-6(R) 21" x 15"



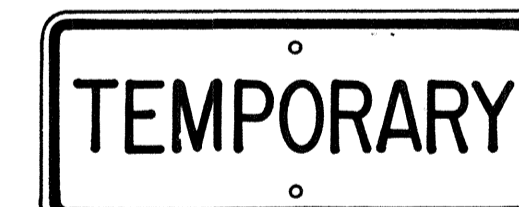
M4-6 24" x 12"



M6-2(R) 21" x 15"



M6-7(R) 21" x 15"



M4-7 24" x 12"



M4-8 24" x 12"

**AUXILIARY MARKERS**

Not to Scale

**GENERAL NOTES**

- Marker details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, "Standard Alphabets for Highway Signs," 1966, and "Standard Highway Signs," 1972, and as amended.
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for marker message. (R) or (L) indicates right or left.
- 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
- Markers prefixed with "IM" on the plans shall have a white legend on a blue background.

APPROVAL RECOMMENDED:  
*Erich Tanaka* 6/6/72  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Abul K. Siddiqui* 6-7-72  
 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

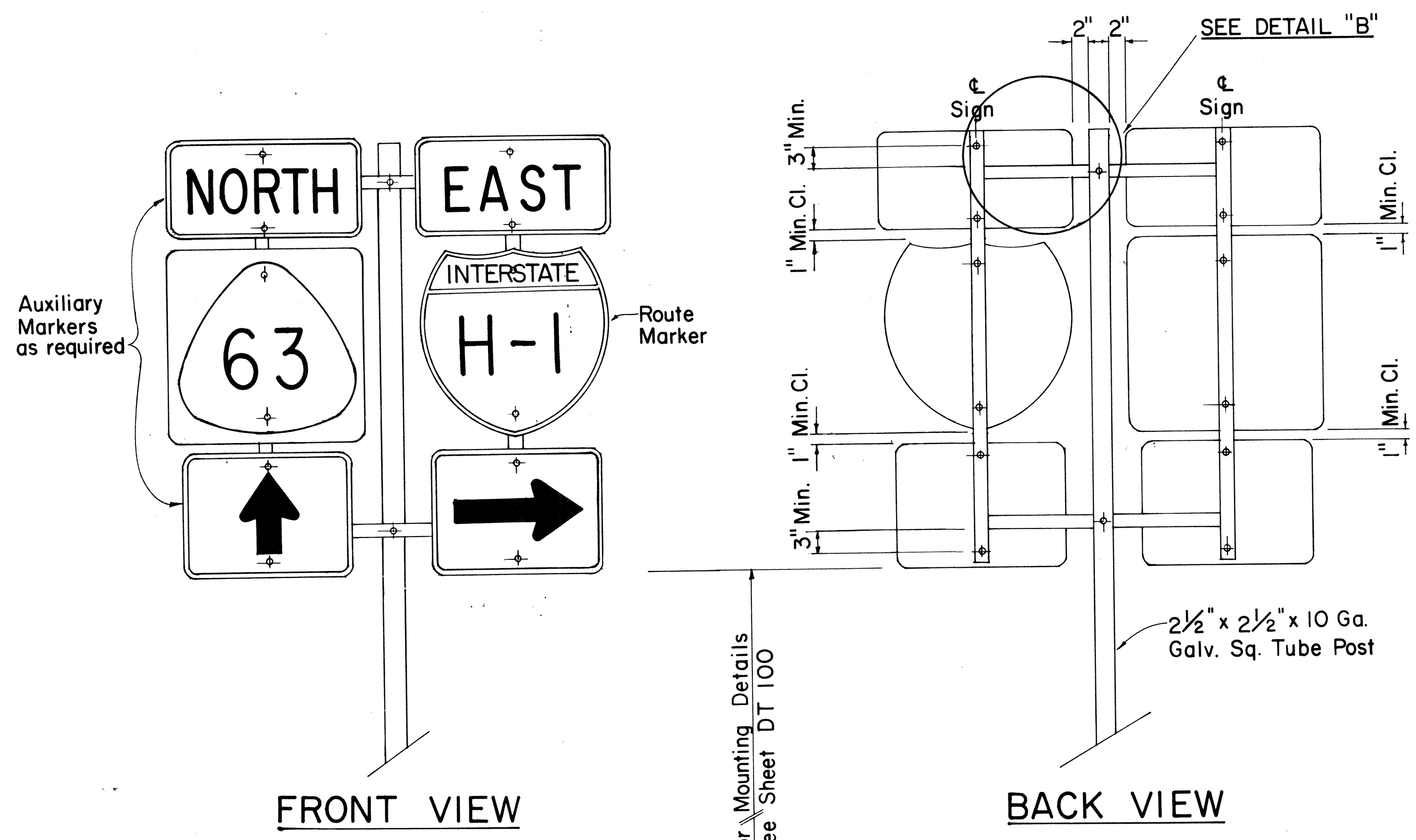
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 LAND TRANSPORTATION FACILITIES DIVISION

**STANDARD DETAILS**  
**STATE ROUTE MARKER**  
**AND AUXILIARY MARKERS**

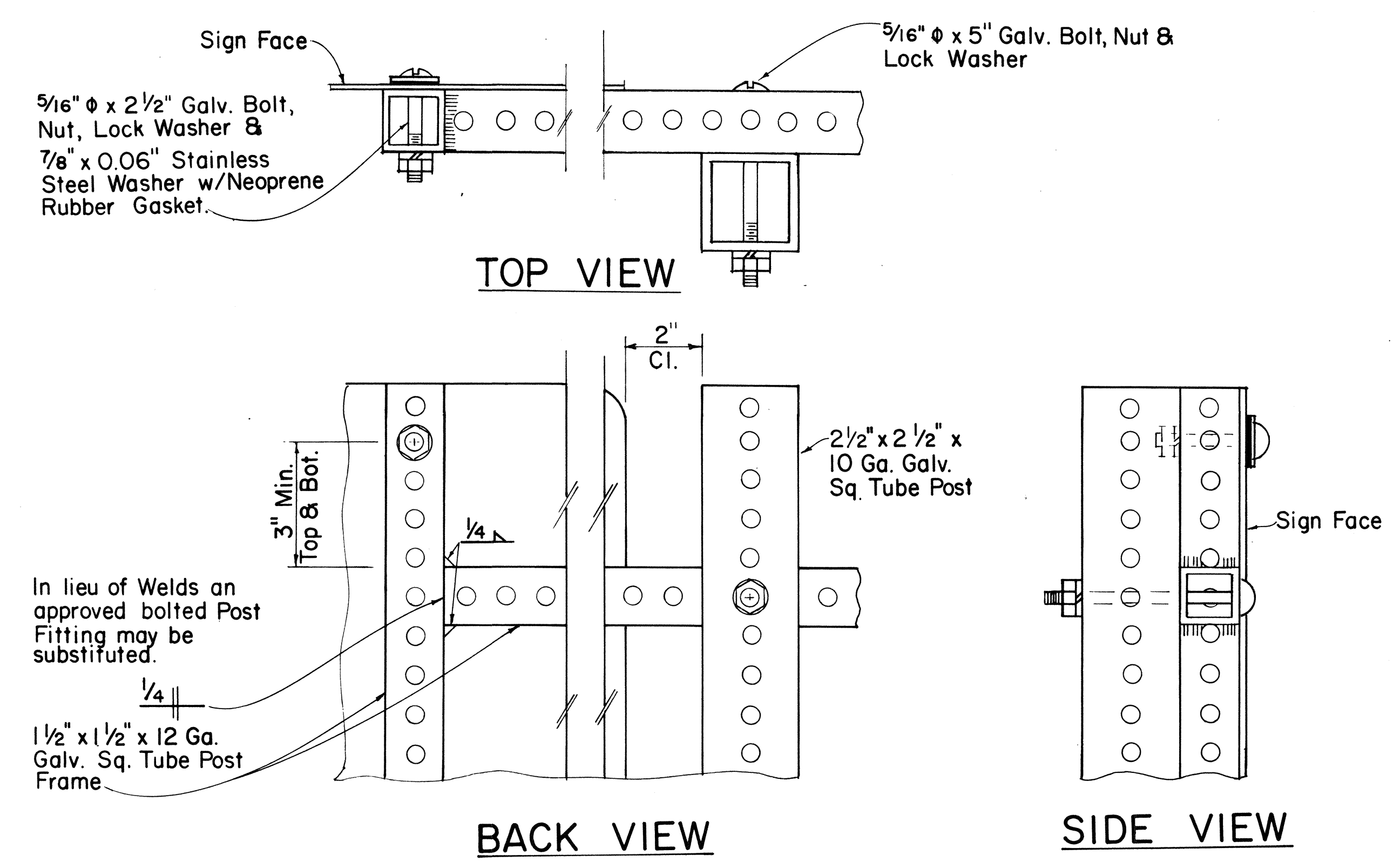
Scale: As Shown  
 SHEET NO. 3 OF 6 SHEETS DT105

DATE	_____
DESIGNED BY	_____
TRACED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
NO.	_____

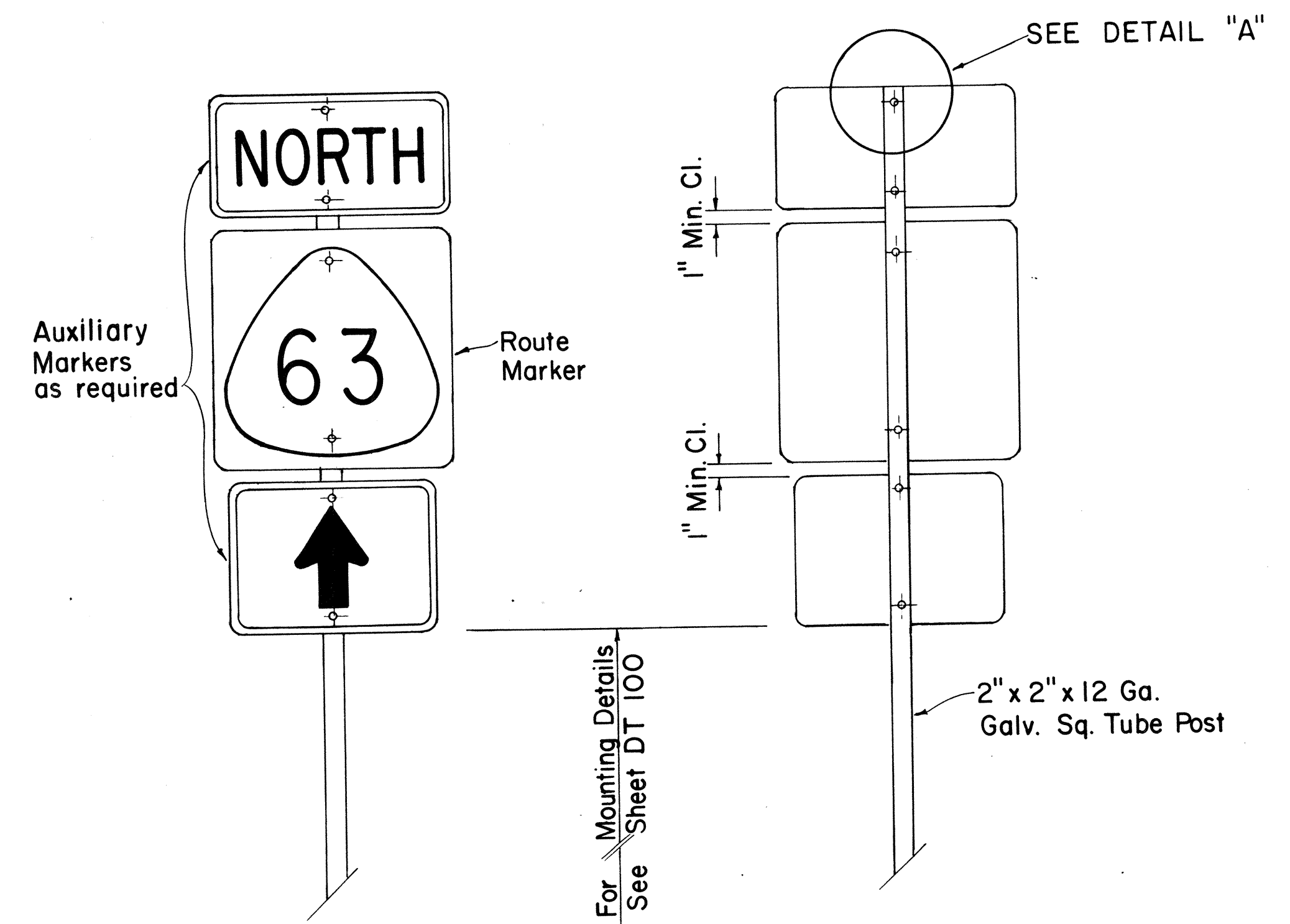
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-0460(4)	1982	23	25



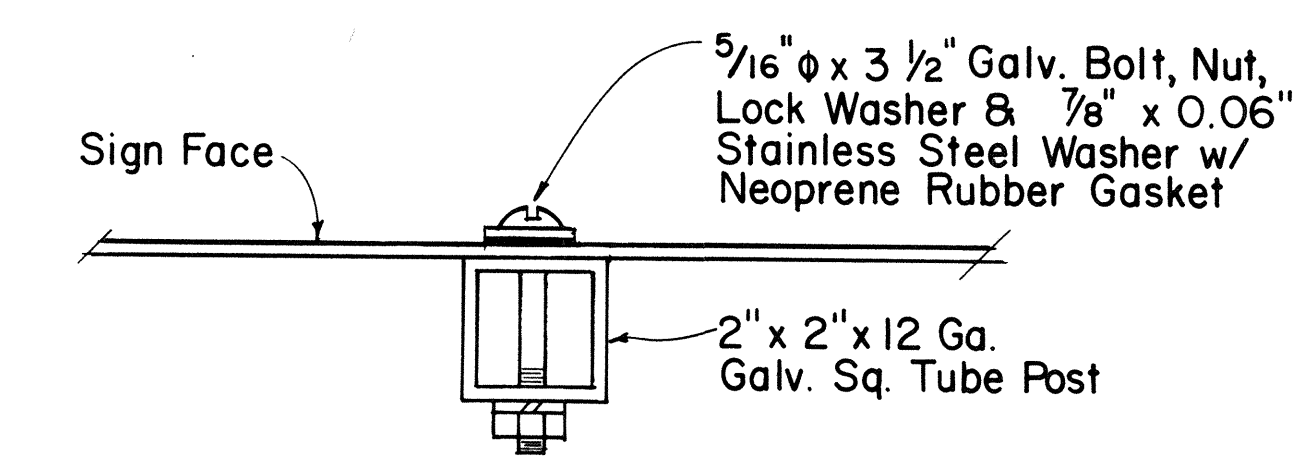
**TYPE "B" ASSEMBLY**  
SCALE: 1" = 1'-0"



**DETAIL "B"**  
SCALE: 3/8" = 1"



**TYPE "A" ASSEMBLY**  
SCALE: 1" = 1'-0"



**DETAIL "A"**  
SCALE: 3/8" = 1"

APPROVAL RECOMMENDED:  
*Eiichi Tanaka* 7/31/80  
TRAFFIC ENGINEER DATE

APPROVED:  
*Herbert Zaleishi* 1/31/80  
ASSISTANT CHIEF, ENGINEERING DATE

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

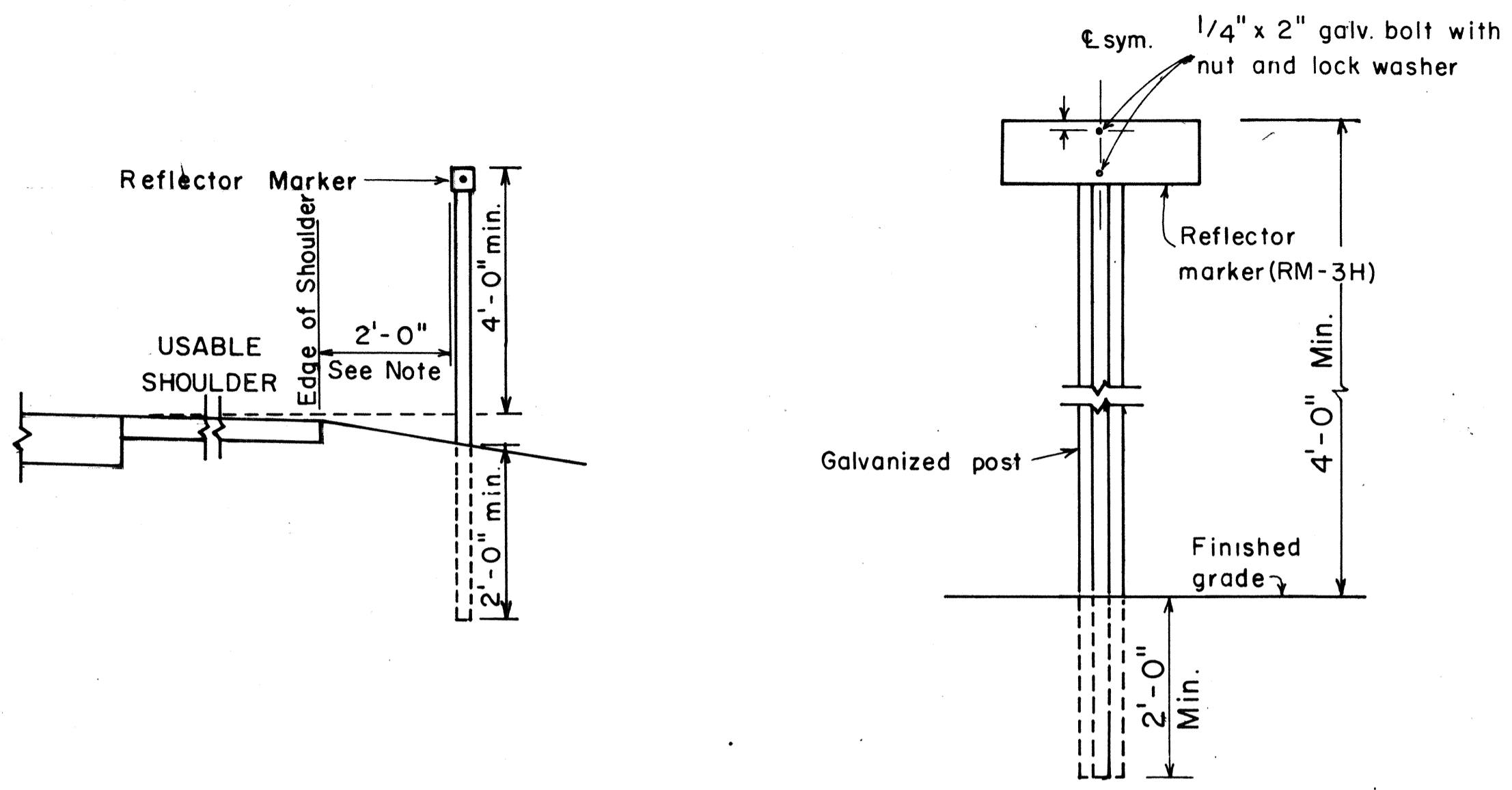
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**ROUTE MARKER**  
**ASSEMBLIES**

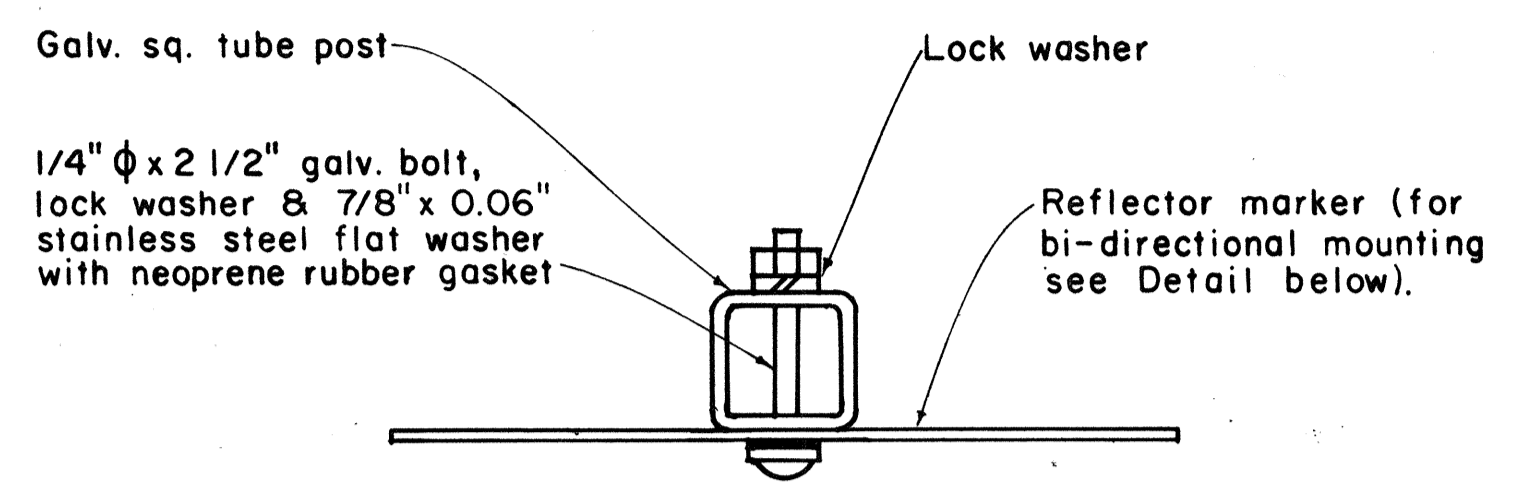
SCALE: AS SHOWN  
SHEET No. 4 OF 6 SHEETS DT 107

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

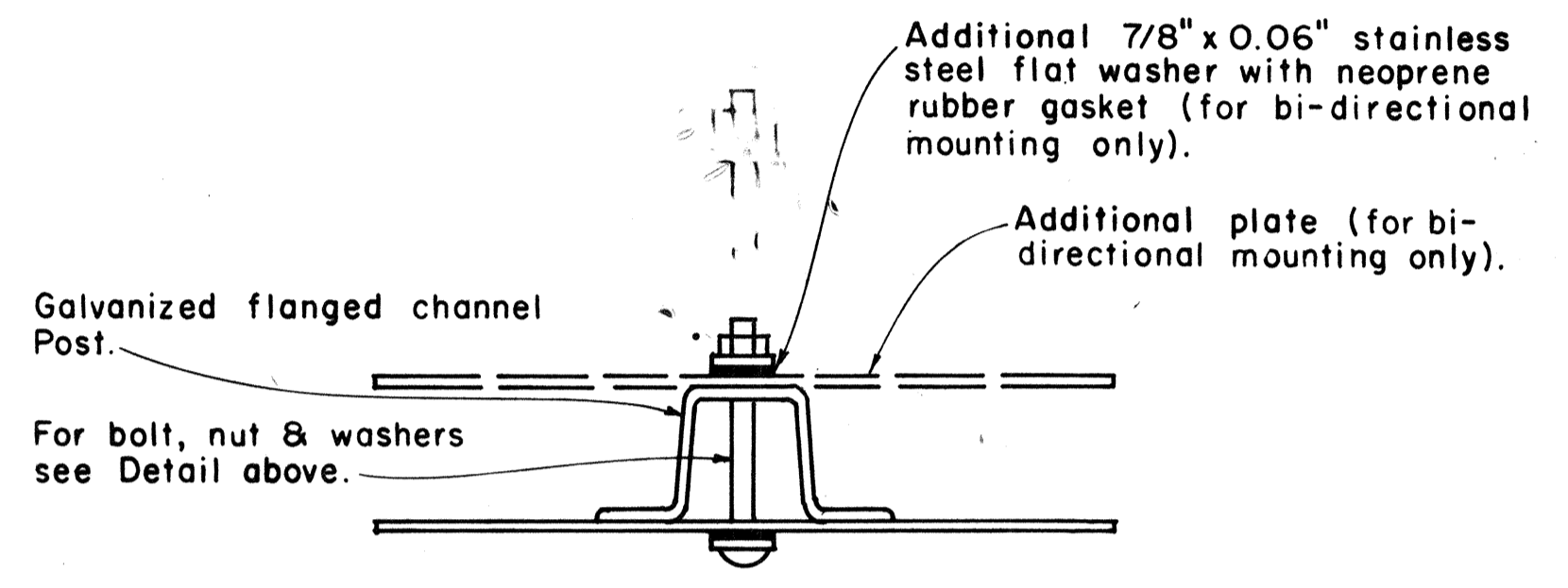
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-0400(4)	1982	24	25



**REFLECTOR MARKER MOUNTING DETAIL**



**GALVANIZED SQUARE TUBE POST**

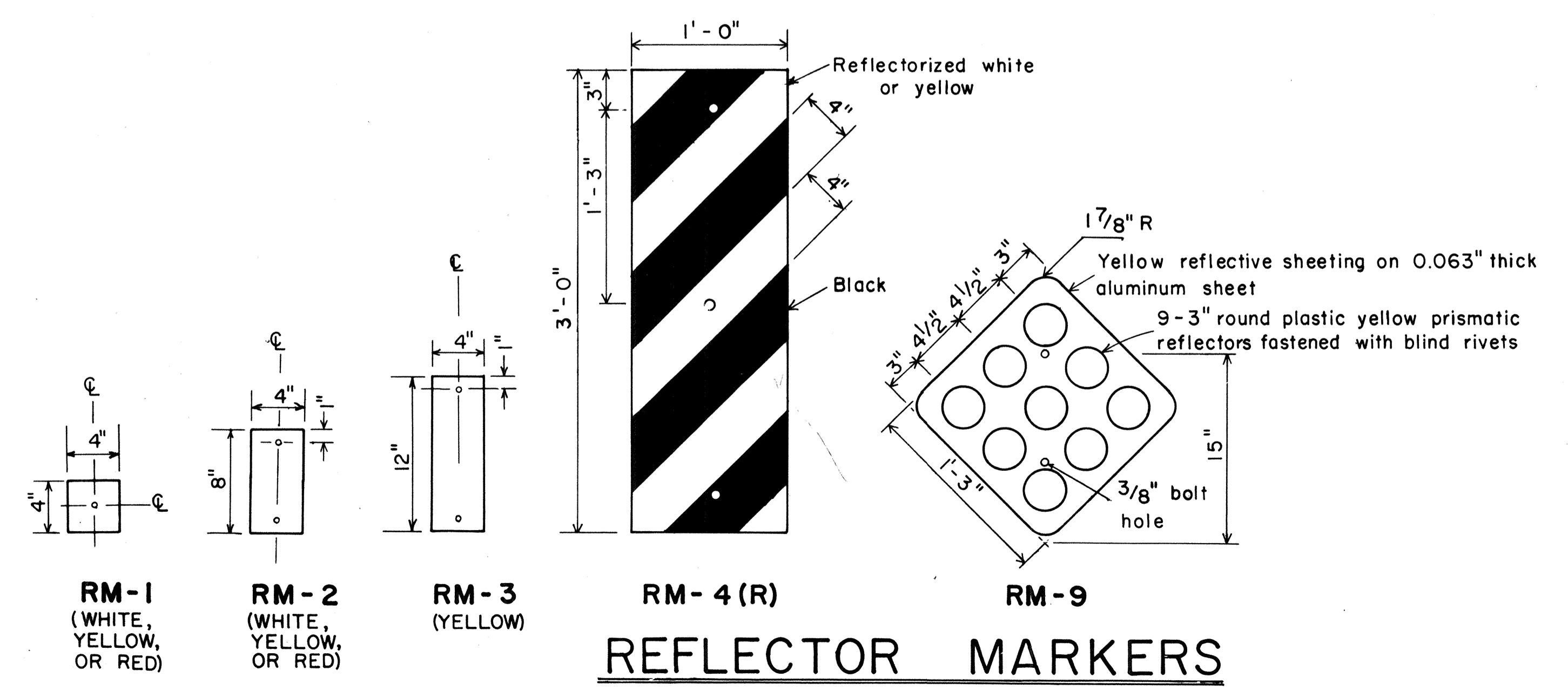


**GALVANIZED FLANGED CHANNEL POST**

**TYPICAL MOUNTING DETAILS**

**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 reflector marker RM-9, reflective sheeting material may be used as an alternate.
5. For RM-4, the stripes shall slope downward at an angle of 45° in the direction of traffic.



**REFLECTOR MARKERS**

APPROVAL RECOMMENDED:  
*Eusebio Tanaka* 11/17/77  
 TRAFFIC ENGINEER DATE

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

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

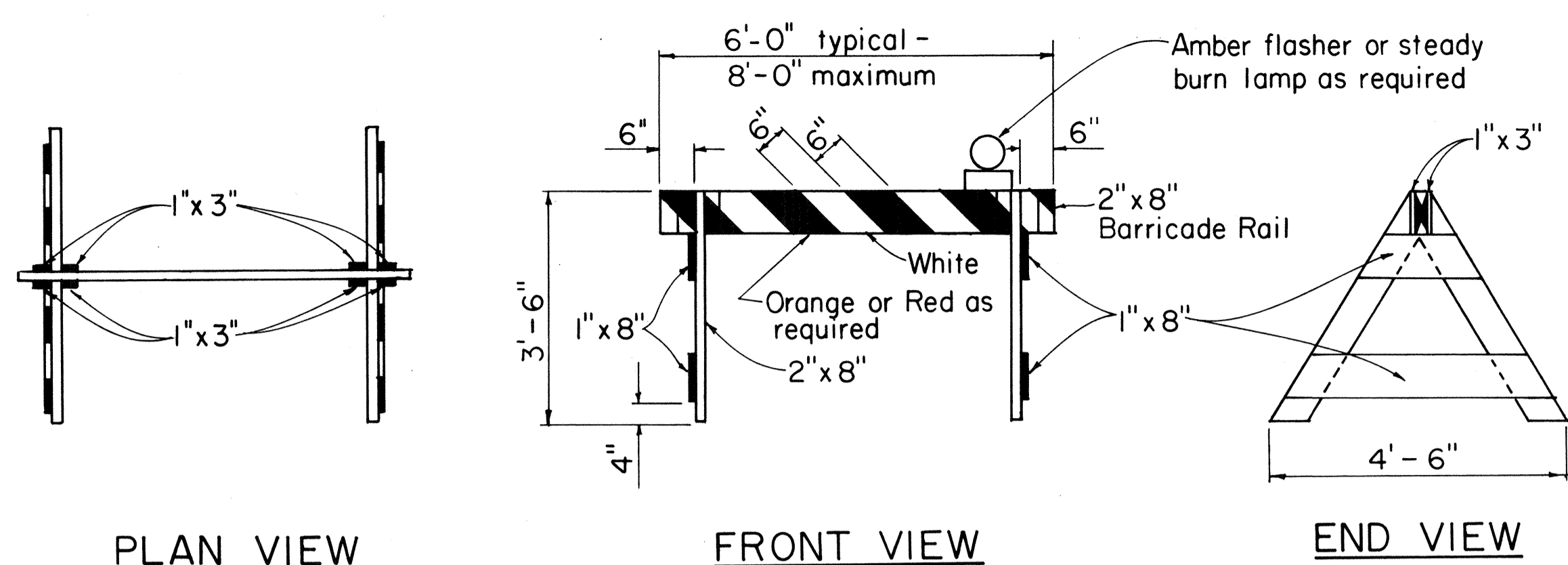
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**  
 MISCELLANEOUS REFLECTOR MARKERS

Not to scale June, 1977  
 SHEET No. 5 OF 6 SHEETS DT 110

DATE: \_\_\_\_\_  
 SURVEY PLOTTED BY: \_\_\_\_\_  
 DRAWN 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.	RS-0420(4)	1982	25	25



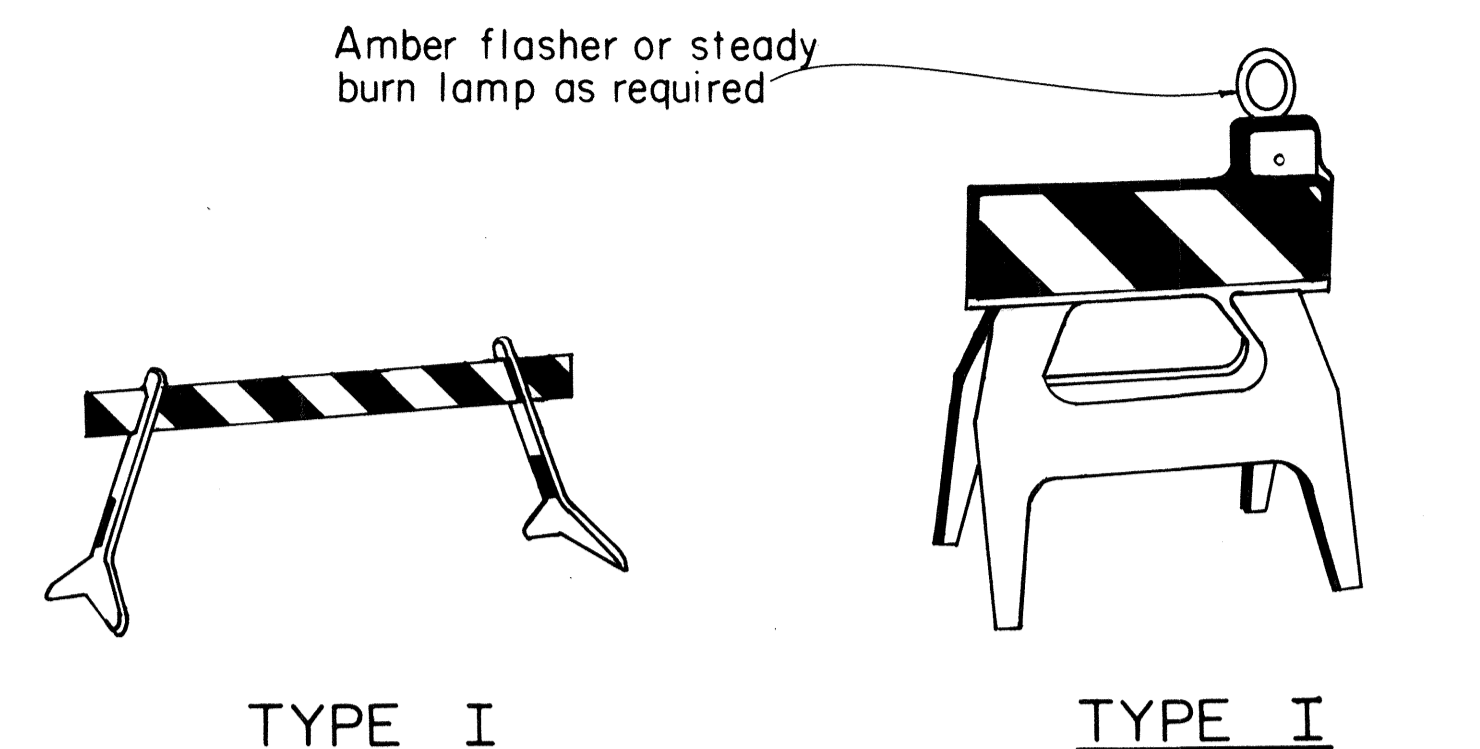
PLAN VIEW

FRONT VIEW

END VIEW

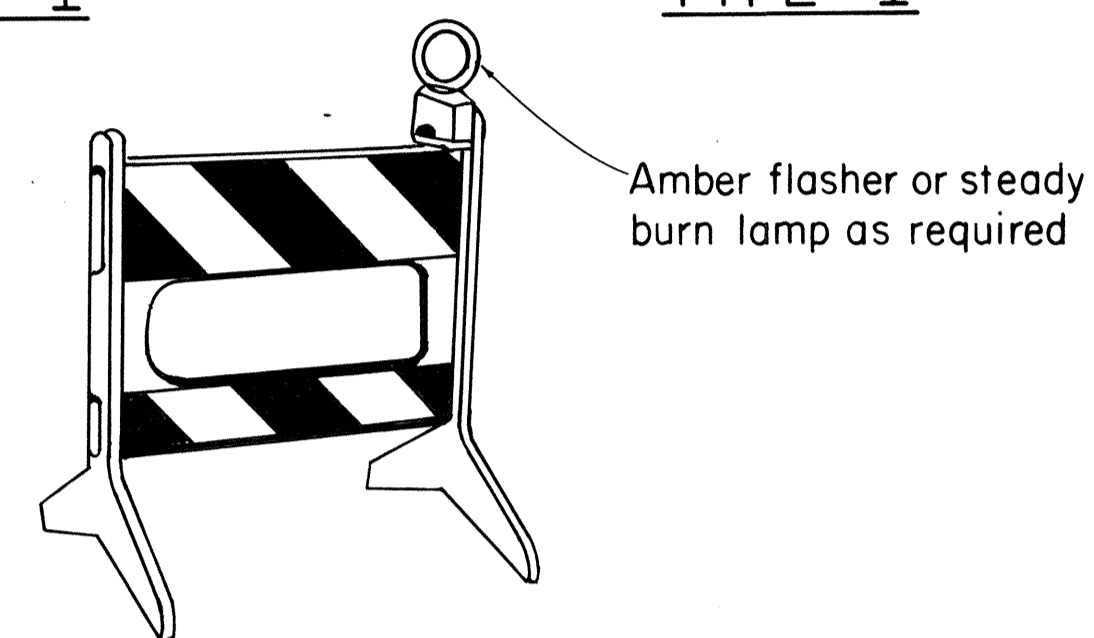
**TYPE I BARRICADE**

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



TYPE I

TYPE I

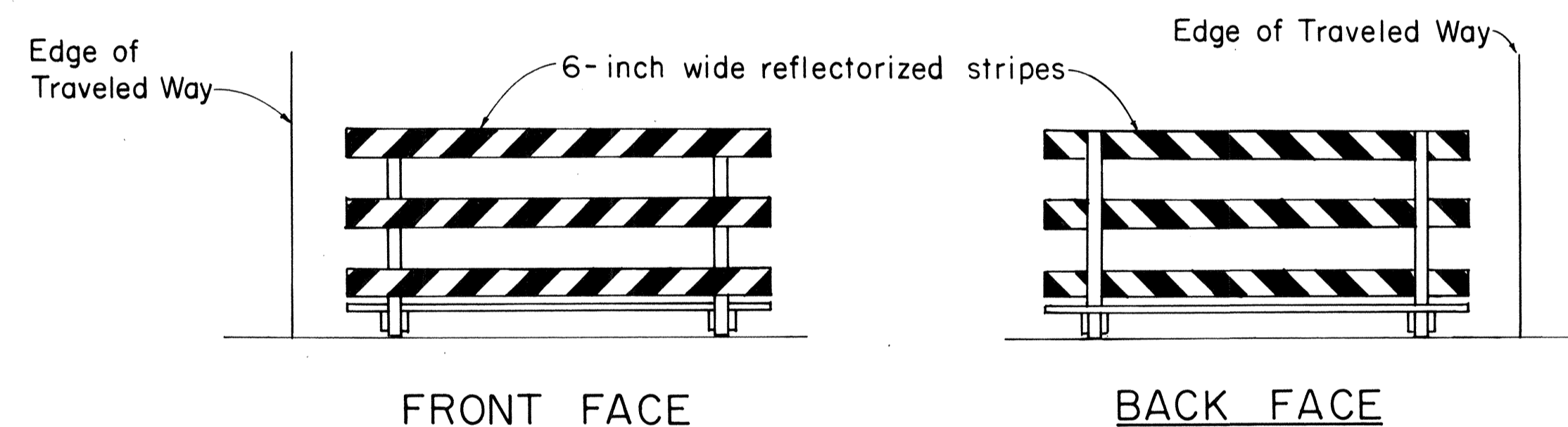


TYPE II

**PLASTIC MOLDED BARRICADE OPTIONS\***

Not to Scale

\* Shop Drawings must be submitted for approval.



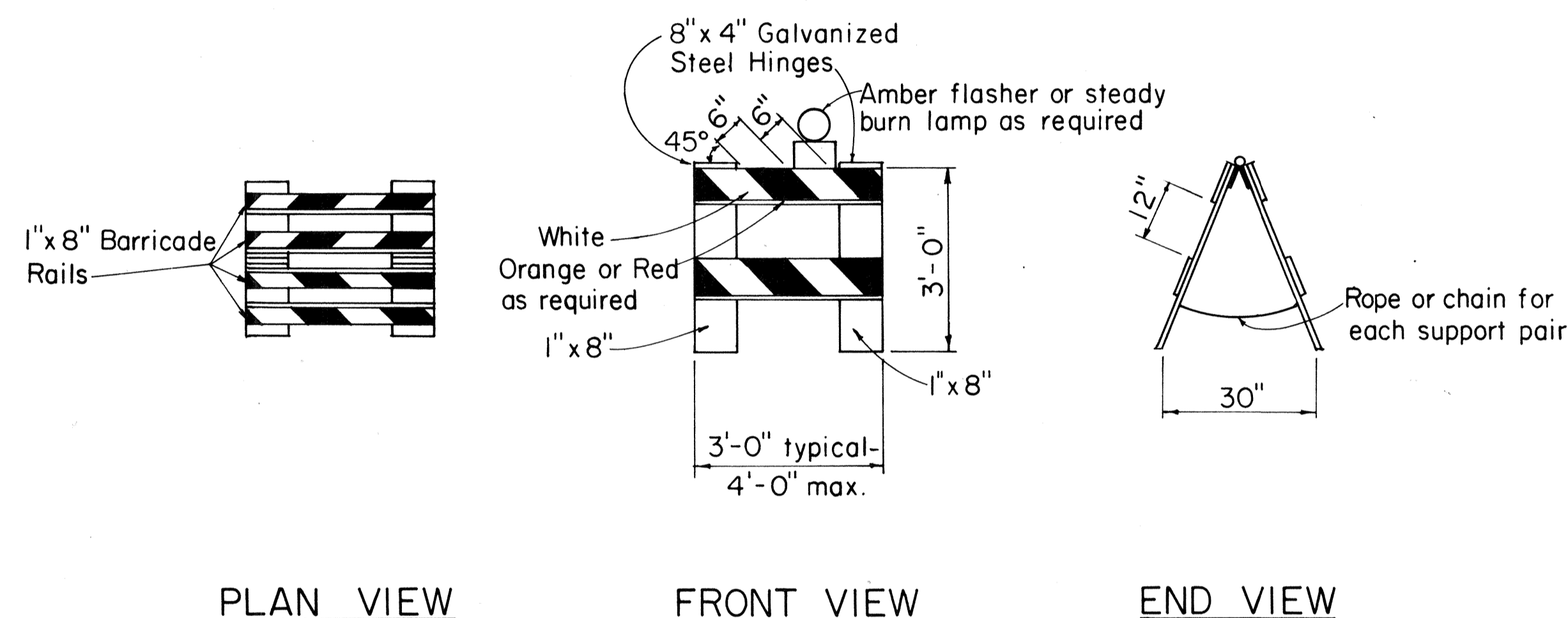
FRONT FACE

BACK FACE

**TYPICAL BARRICADE STRIPING DETAILS\*\***

Not to Scale

\*\* Similar for Types I & II



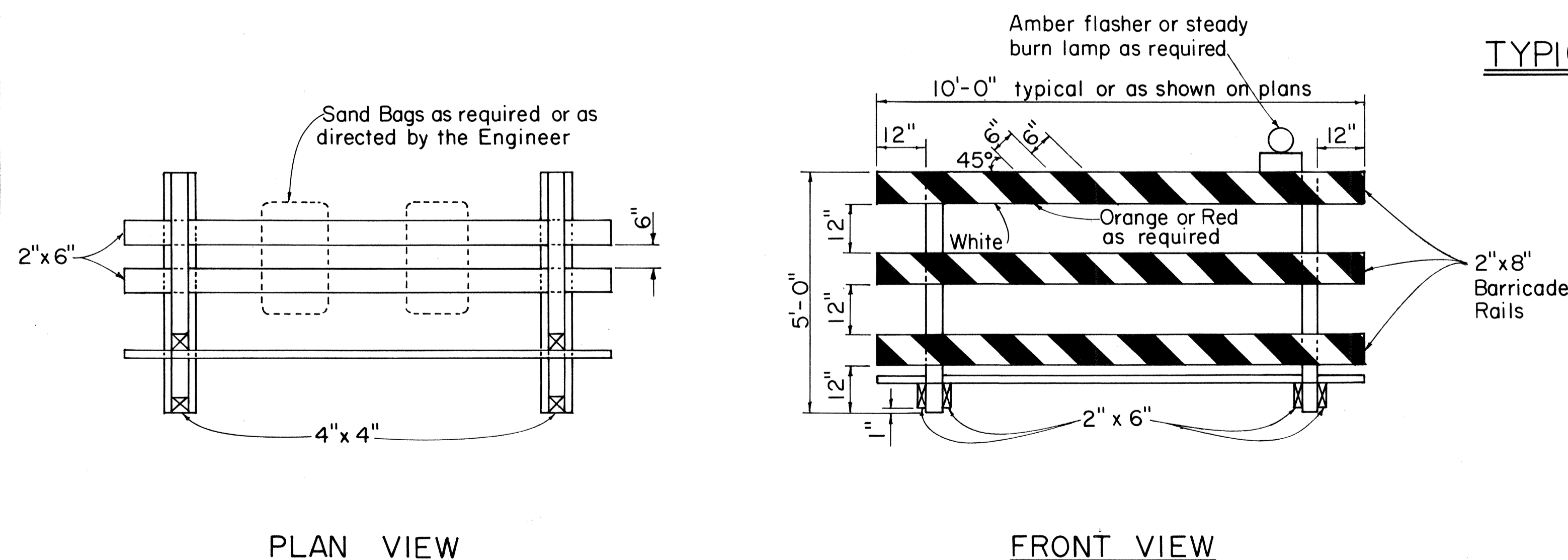
PLAN VIEW

FRONT VIEW

END VIEW

**TYPE II BARRICADE**

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



PLAN VIEW

FRONT VIEW

END VIEW

**TYPE III BARRICADE**

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

APPROVAL RECOMMENDED:  
*Eiichi Tanaka* 10/21/81  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Albert S. Sato* 10/23/81  
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes DT 800 Approved 12/30/69	H.T.	10/23/81

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**STANDARD DETAILS**

**BARRICADES**

SCALE: As Shown  
 SHEET NO. 25 OF 25 SHEETS DT 800

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