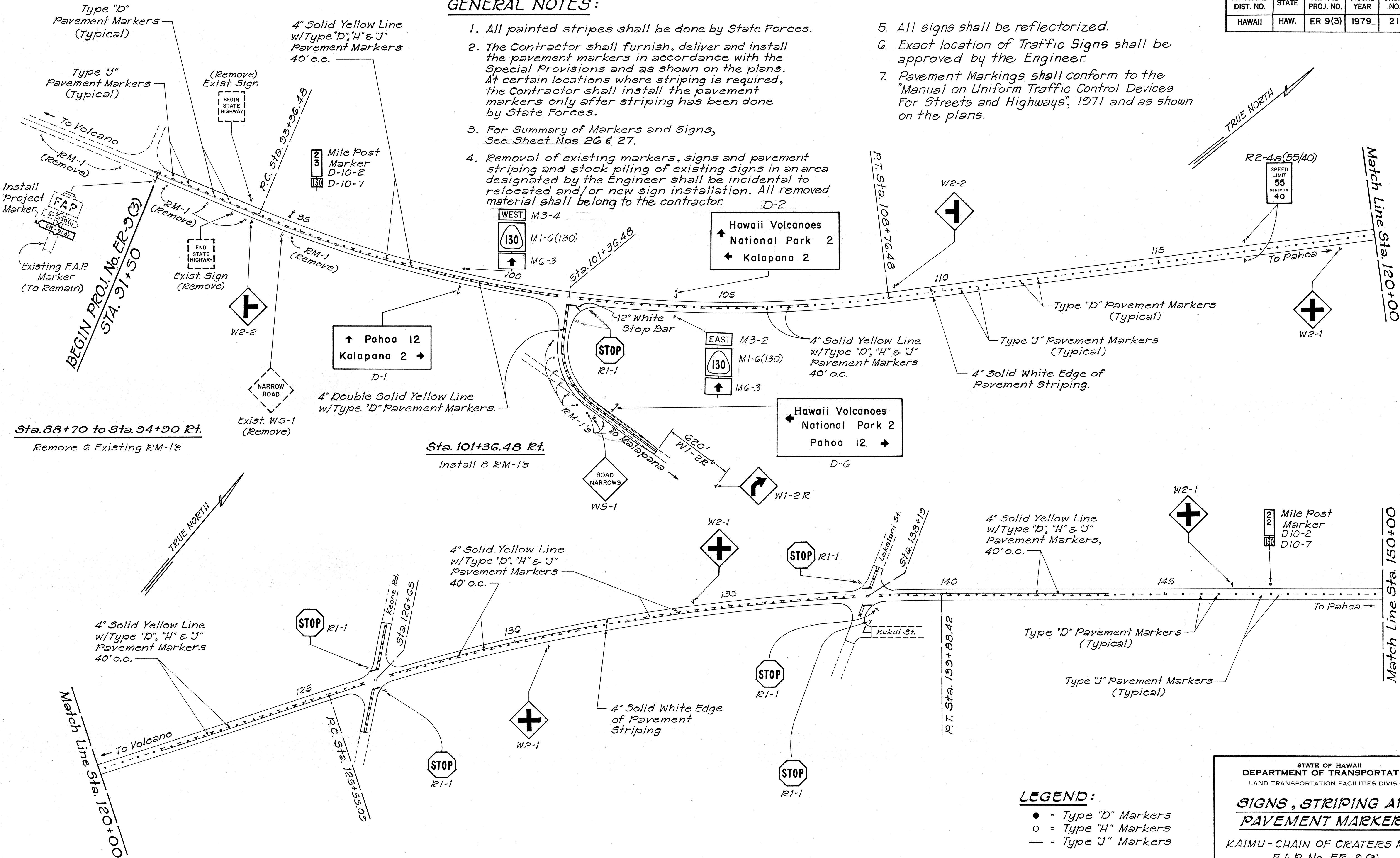


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER 9(3)	1979	21	89

GENERAL NOTES:

1. All painted stripes shall be done by State Forces.
2. The Contractor shall furnish, deliver and install the pavement markers in accordance with the Special Provisions and as shown on the plans. At certain locations where striping is required, the Contractor shall install the pavement markers only after striping has been done by State Forces.
3. For Summary of Markers and Signs, See Sheet Nos. 26 & 27.
4. Removal of existing markers, signs and pavement striping and stock piling of existing signs in an area designated by the Engineer shall be incidental to relocated and/or new sign installation. All removed material shall belong to the contractor.
5. All signs shall be reflectorized.
6. Exact location of Traffic Signs shall be approved by the Engineer.
7. Pavement Markings shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highways", 1971 and as shown on the plans.



- LEGEND:**
- = Type "D" Markers
 - o = Type "H" Markers
 - = Type "J" Markers

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

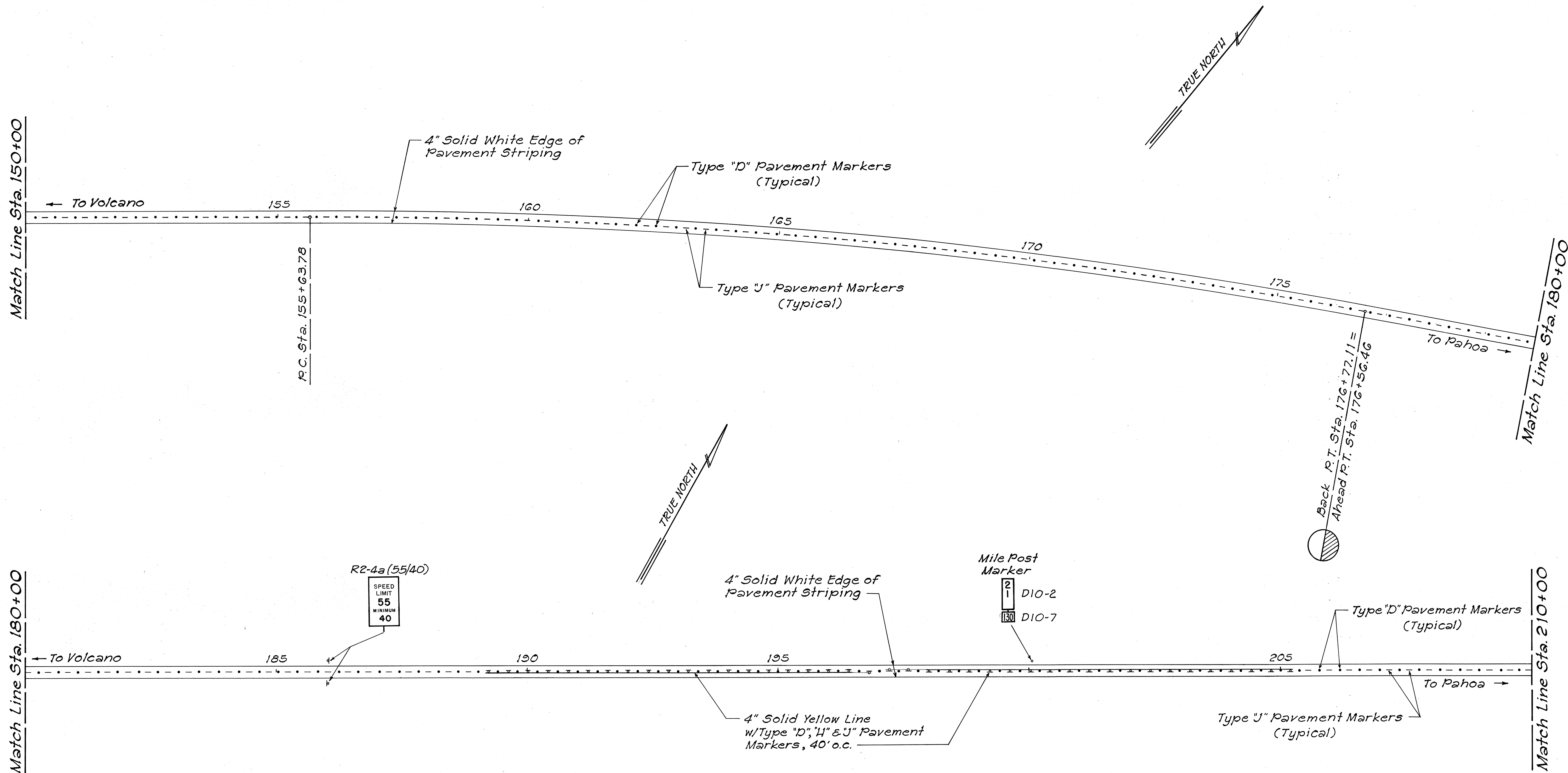
**SIGNS, STRIPING AND
PAVEMENT MARKERS**

KAIMU - CHAIN OF CRATERS ROAD
F.A.P. No. ER-9 (3)

Scale: 1"=100' Date: April 1978
SHEET No. 1 OF 7 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER 9(3)	1979	22	89



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SIGNS, STRIPING AND PAVEMENT MARKERS

KAIMU - CHAIN OF CRATERS ROAD
F.A.R. No. ER-9 (3)

Scale: 1" = 100' Date: April 1978

SHEET No. 2 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER 9(3)	1979	23	89

Match Line Sta. 210+00

To Volcano

215

220

225

230

4" Solid White Edge of Pavement Striping

Type "D" Pavement Markers (Typical)

Type "J" Pavement Markers (Typical)

4" Double Solid Yellow Line w/Type "D" Pavement Markers, 20' o.c.

4" Solid Yellow Line w/Type "D", "H" & "J" Pavement Markers, 40' o.c.

S.C. Sta. 232+98.42

12" White Stop Bar

WEST M3-4
M1-G(130)
MG-3

235

M3-2
M1-G(130)
MG-3

TO M4-5
M1-G(137)
MG-1

(Relocated Sign)
R2-1(35)
SPEED LIMIT 35

D-5 (see below)
4" Double Solid Yellow Line w/Type "D" Pavement Markers, 20' o.c.

Sta. 239+10 R/L
Install 8 RM-1's

MINIMUM SPEED 40
R2-4 (Remove)

(Remove)
R2-5a
REDUCED SPEED AHEAD

(Relocate to Sta. 17+00 Lf.)
R2-1(35)
SPEED LIMIT 35

SPEED LIMIT 55
R2-1(55) (Remove)

Hawaii Volcanoes National Park 5
Pahoa 9

D-5

SUPERSEDED (See Pg. 23A)

Sta. 34+40 to Sta. 37+60

Remove 320± Lin. Ft. of Existing Pavement Markers and Center Line Striping. Install New Pavement Markers as shown.

END PROJ. No. ER-9(3)
S.I. STA. 253+71.09
Proj. Sta. 34+40.00

(Relocate) Exist. Mile Post Marker
D10-2
D10-7

F.A.P.
S-0130(12)
ER-9(3)

SPEED LIMIT 55
MINIMUM 40

Install New F.A.P. Marker w/Project Plates See Details Sht. No. 26.

(Remove)
END STATE HIGHWAY

(Remove)
BEGIN STATE HIGHWAY

Begin Temporary Connection
Sta. 1+50

Destination Sign (D-5)

RC Sta. 2+86.49

RC Sta. 2+35.86

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

RC Sta. 1+50

Install M3-2 (incidental to reset sign)
M1-G(137)
MG-1

EXIST. pipe

(Detail) Reset Signs

EXIST. pipe

(Detail) Reset Signs

EXIST. pipe

(Detail) Reset Signs

Reset Exist. M1-G(137) & MG-1 to center of pipe (See Detail)

Remove M1-G(130) & MG-1

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

EXIST. WI-7, RM-3 & Pipe to Remain

Continued on 23A

DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
TRACED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

D-4
Hawaii Volcanoes National Park 5
Kalapana 1

W2-2

EAST M3-2
M1-G(130)
MG-3

4" Double Solid Yellow Line w/Type "D" Pavement Markers 20' o.c.

4" Solid Yellow Line w/Type "D", "H" & "J" Pavement Markers, 40' o.c.

Type "J" Pavement Markers (Typical)

4" Solid White Edge of Pavement Striping

Type "D" Pavement Markers (Typical)

C.S. Sta. 247+71.09

Match Line Sta. 240+00

To Volcano

245

245

245

245

245

245

245

245

245

245

245

245

245

245

245

245

245

245

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

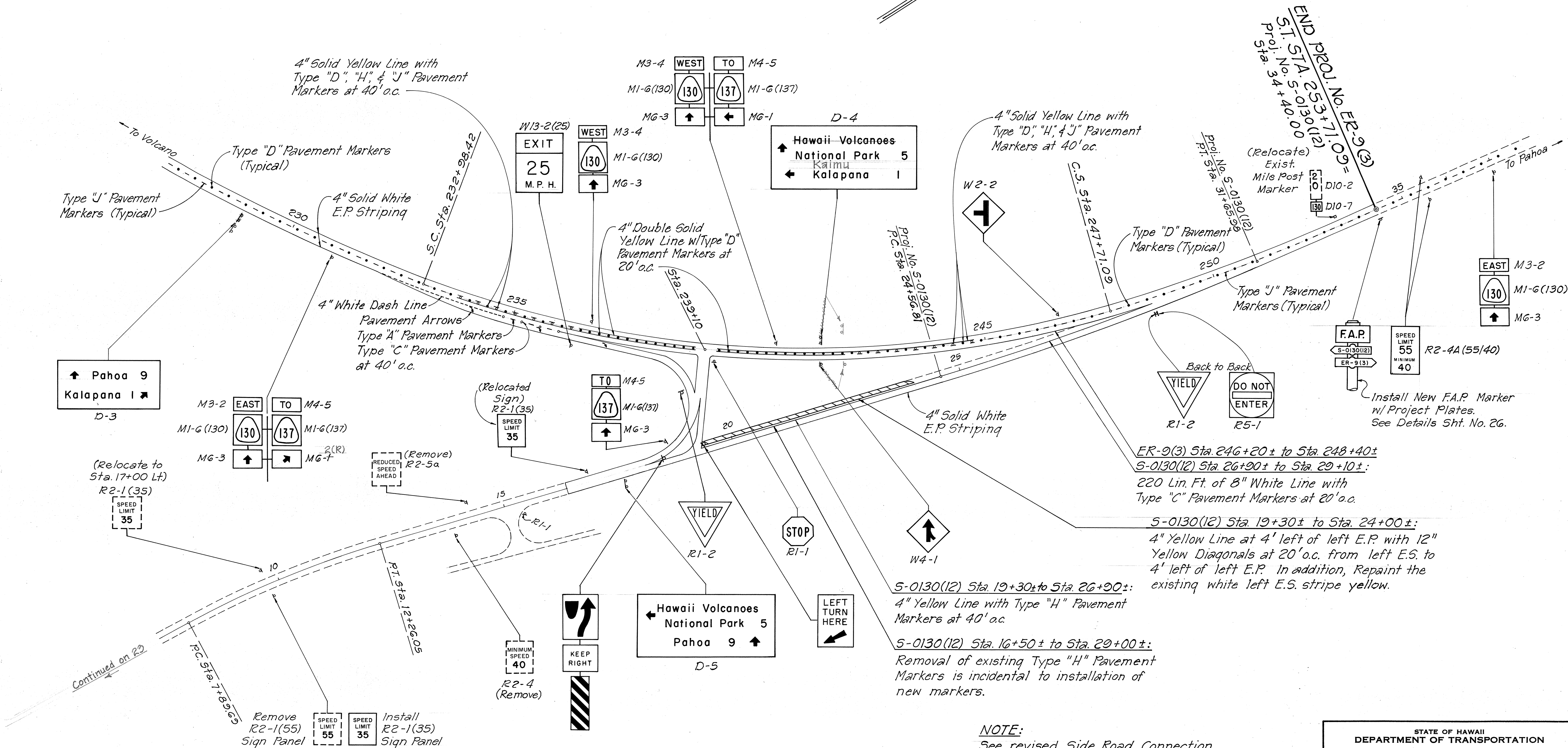
SIGNS, STRIPING AND PAVEMENT MARKERS

KAIMU - CHAIN OF CRATERS ROAD
F.A.P. No. ER-9(3)

Scale: 1" = 100' Date: April 1978
SHEET NO. 3 OF 7 SHEETS

23

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-9(3)	1979	23A	



NOTE:
See revised Side Road Connection Detail at Sta. 239+10 for additional Pavement Markers and Striping.
C.C.O. #4.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

SIGNS, STRIPING AND PAVEMENT MARKERS

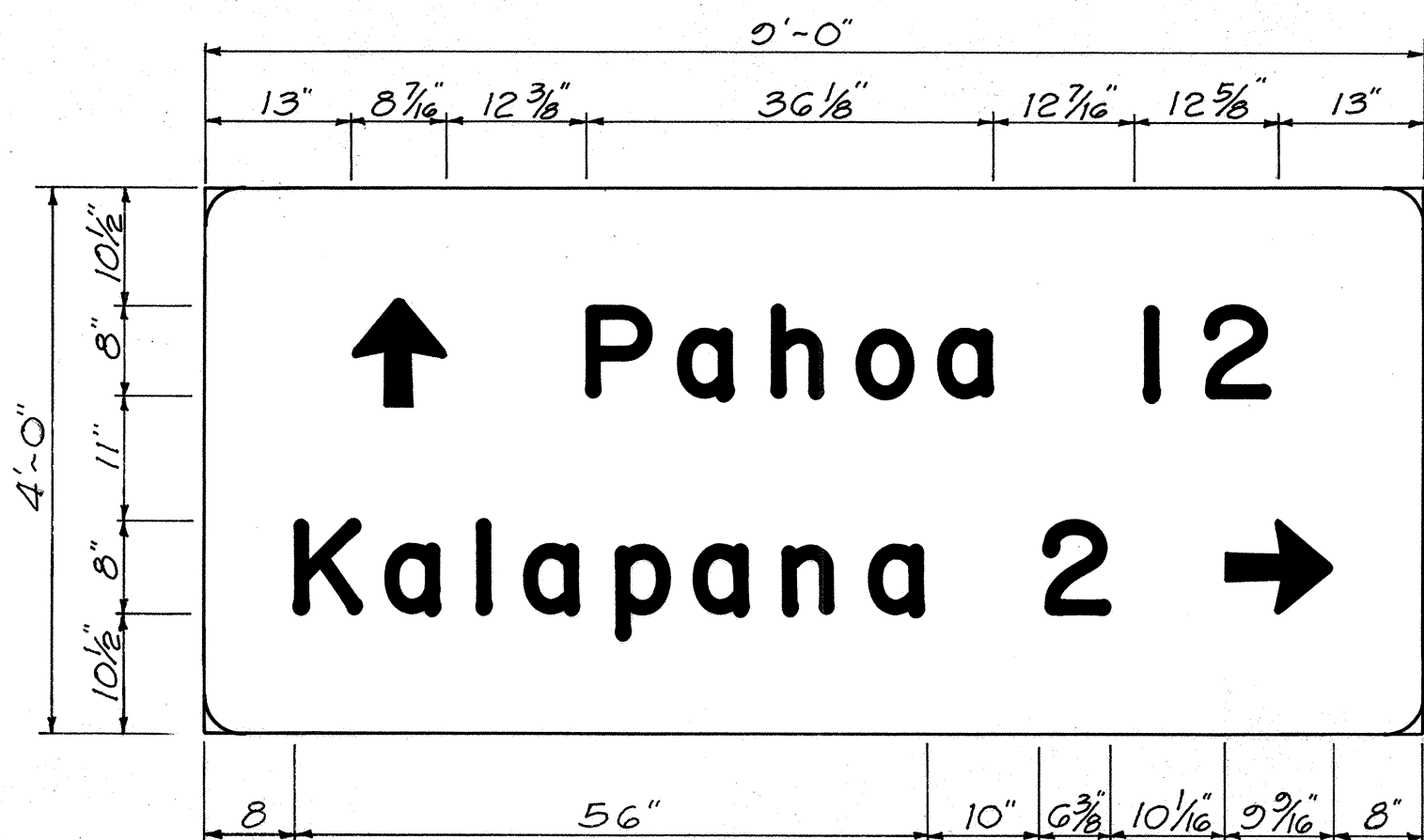
KAIMU - CHAIN OF CRATERS ROAD
F.A.P. No. ER-9(3)

Scale: 1" = 100' Date: June 1979

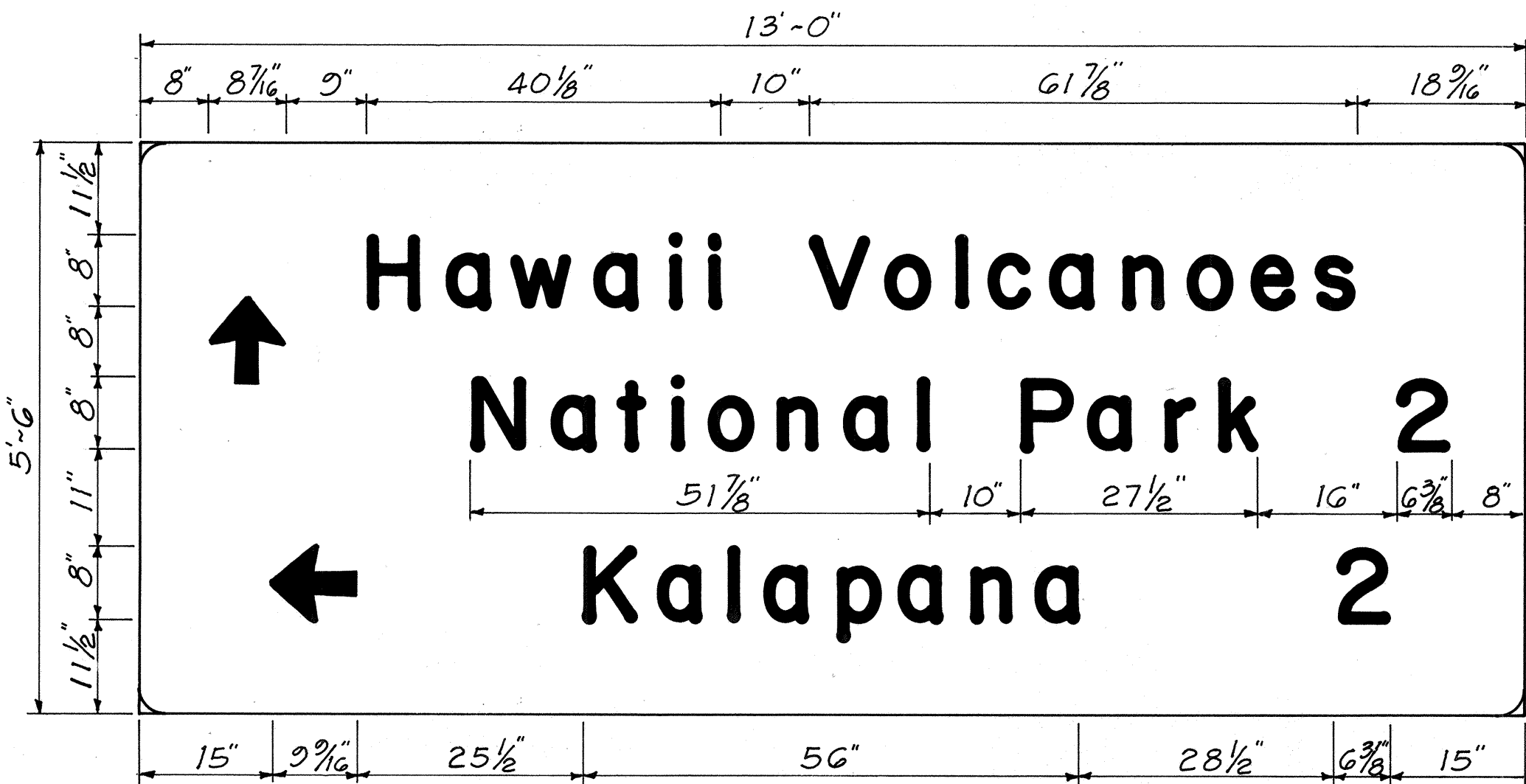
SHEET NO. 23A OF 23A

DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
QUANTITIES BY	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____

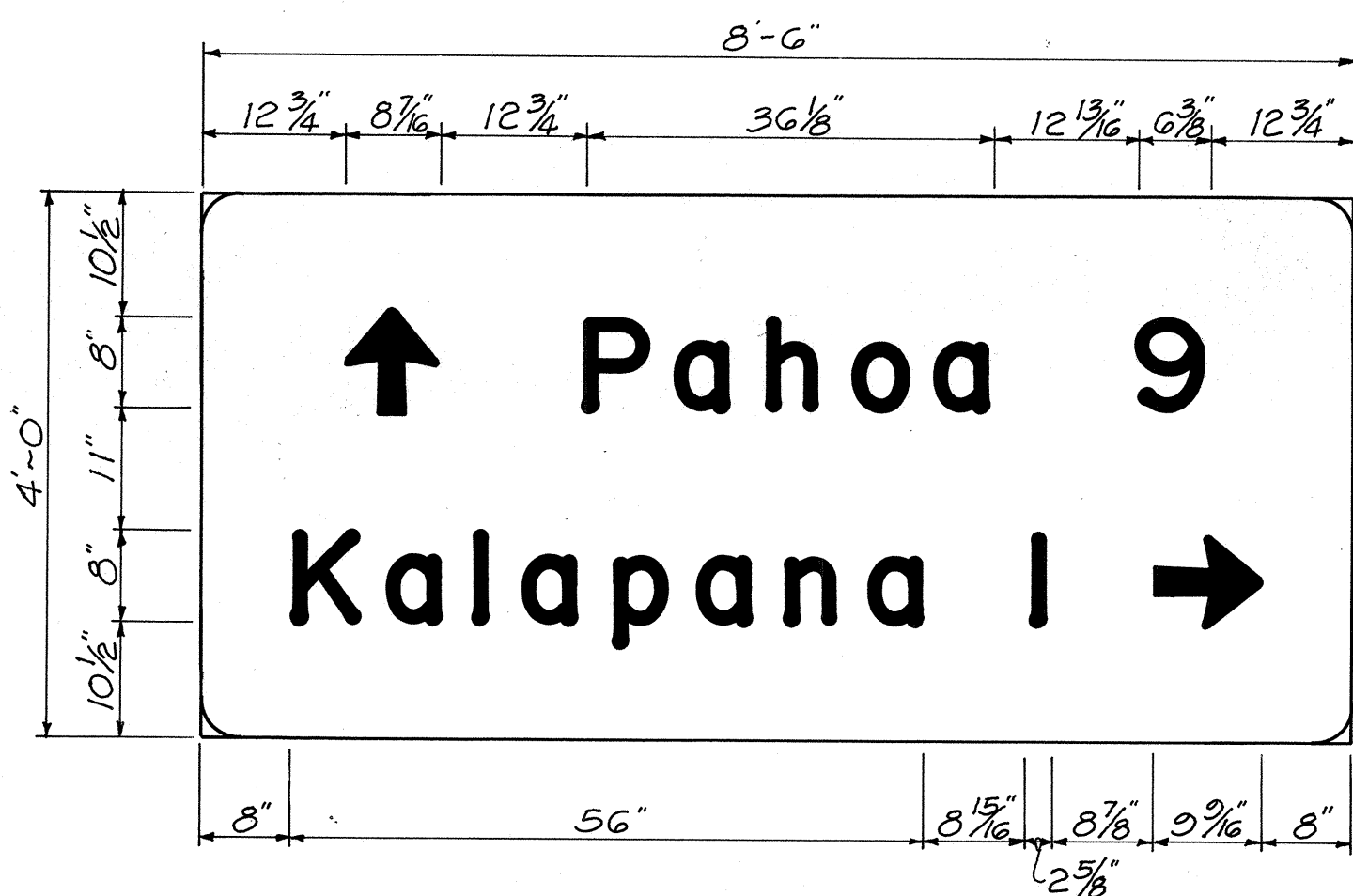
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER 9(3)	1979	24	89



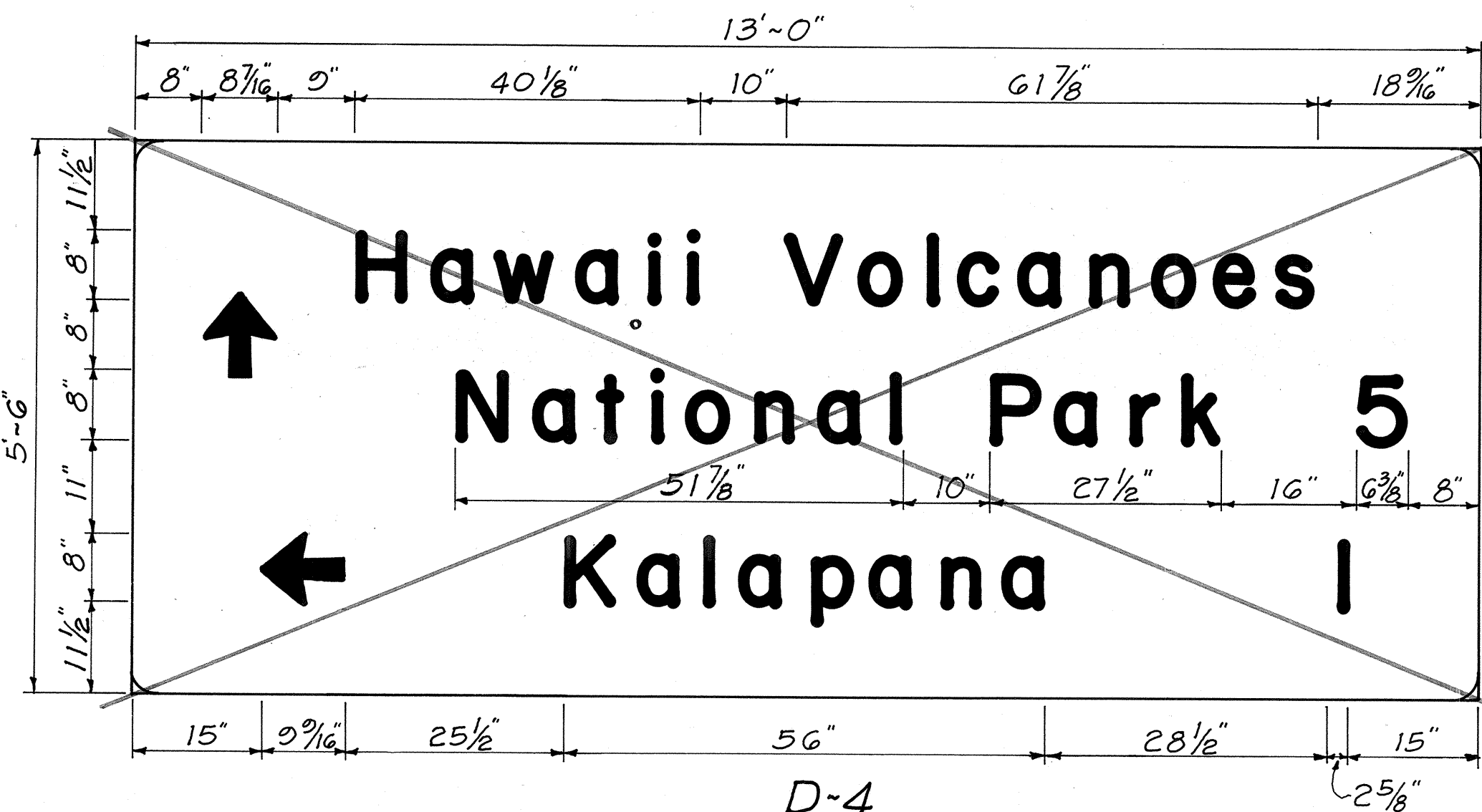
D-1
(AT STA. 98+85)



D-2
(AT STA. 103+85)



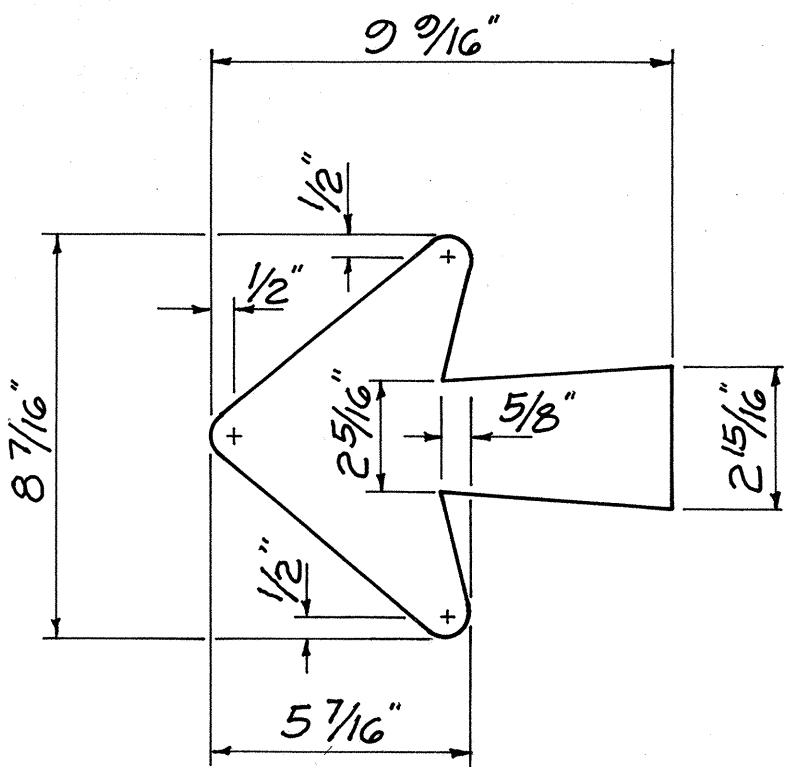
D-3
(AT STA. 236+60)
229+00



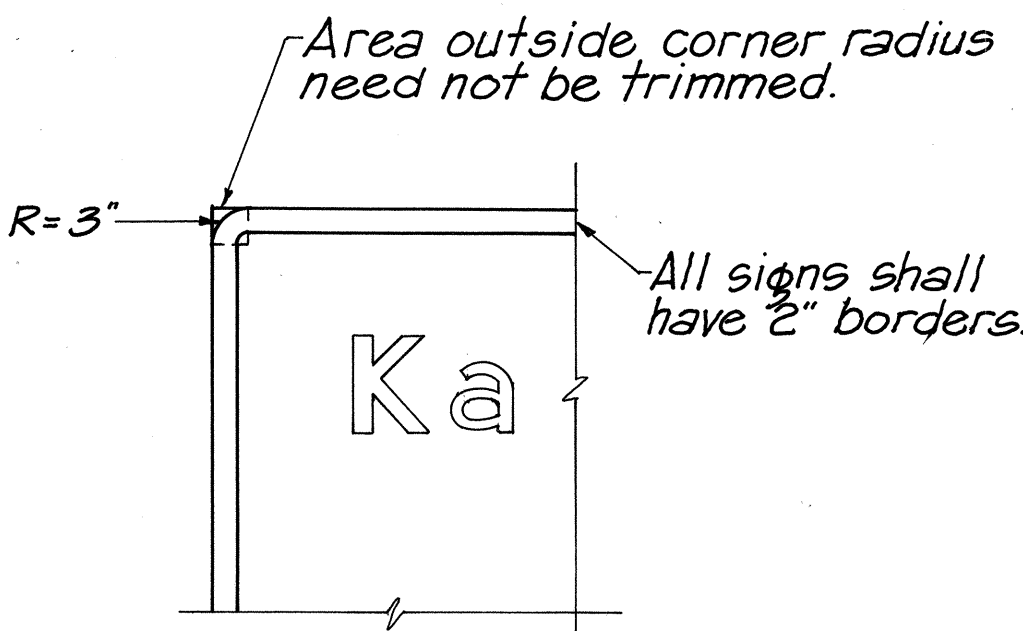
D-4
(AT STA. 241+60) See Sht. No. 25 for detail of
242+00 Destination Sign D-4

DESTINATION SIGNS

Not To Scale



ARROW DETAIL
Not To Scale

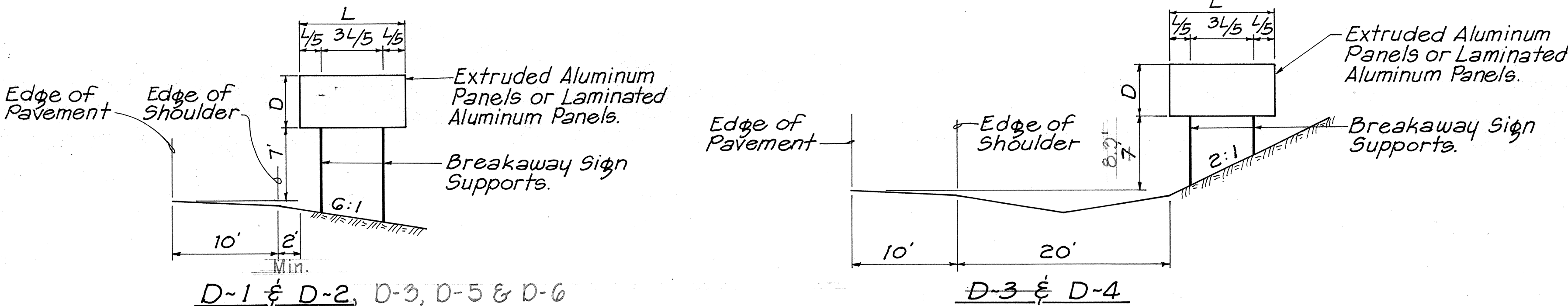


TYPICAL BORDER DETAIL
Not To Scale

GENERAL NOTES:

- Letters and numerals shall conform to the manual "Standard Alphabets for Highway Signs", Bureau of Public Roads, 1966. Use Series "E" modified letters and numerals.
- Arrows and borders shall conform with details as shown on plans.
- Sign message and borders shall have white reflective sheeting on demountable aluminum cut-outs on green reflective sheeting background.
- Cut-outs shall be fastened to sign panel with aluminum blind rivets.
- All destination signs shall be mounted on breakaway posts. See Standard Details DT 203 and DT 204 (Sheet Nos. 83 & 84)
- All signs shall conform to the "Manual on Uniform Traffic Control Devices", U.S. Department of Transportation, 1971. Use high intensity reflective sheeting for all permanent and temporary roadside signs.
- Signs shall be 0.10 inch thick aluminum.
- Shop drawings for splicing on sign panel shall be submitted for approval.

SUMMARY OF DESTINATION SIGNS			
SIGN NO.	DESCRIPTION	SQ. FT.	TYPE POST
D-1	↑ Pahoa 12 Kalapana 2 →	36	4 I 7.7
D-2	↑ Hawaii Volcanoes National Park 2 ← Kalapana 2	71.5	6 B 8.5
D-3	↑ Pahoa 9 Kalapana 1 →	34	4 I 7.7
D-4	↑ Hawaii Volcanoes National Park 5 ← Kalapana 1	71.5	6 B 8.5
D-5	← Hawaii Volcanoes National Park 5 Pahoa 9 ↑	71.5	6 B 8.5
D-6	← Hawaii Volcanoes National Park 2 Pahoa 12 →	71.5	6 B 8.5



PLACEMENT OF DESTINATION SIGNS

Not to Scale

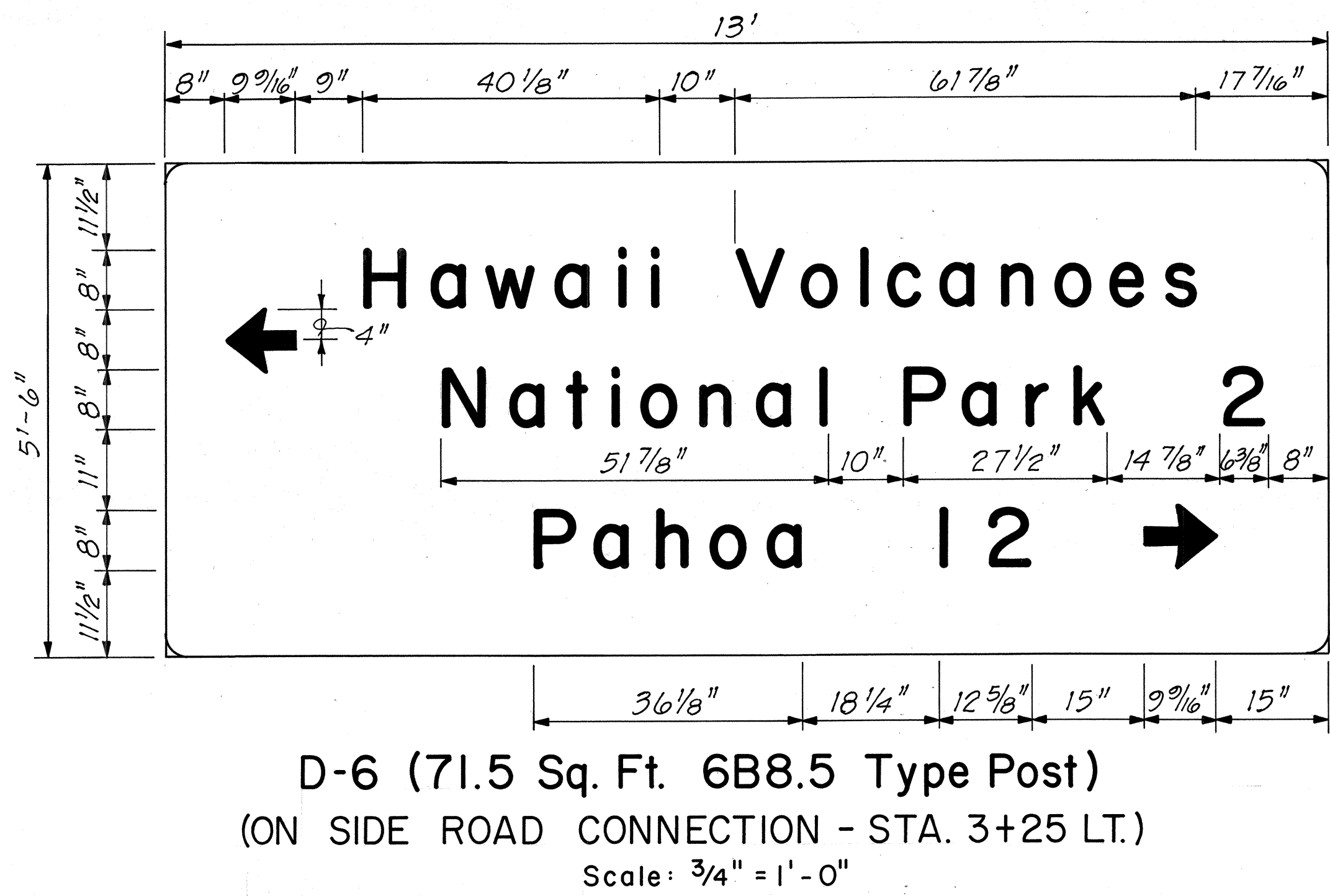
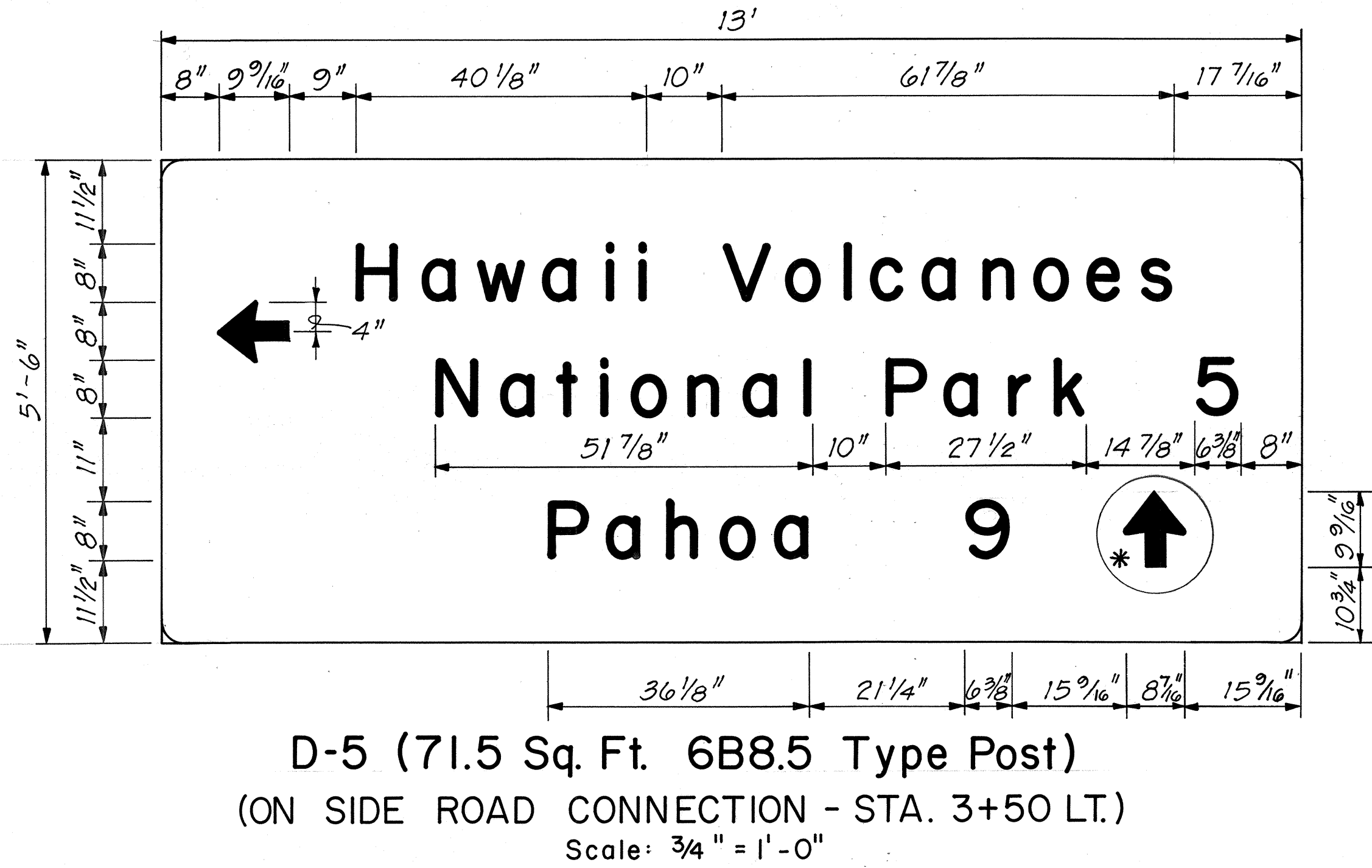
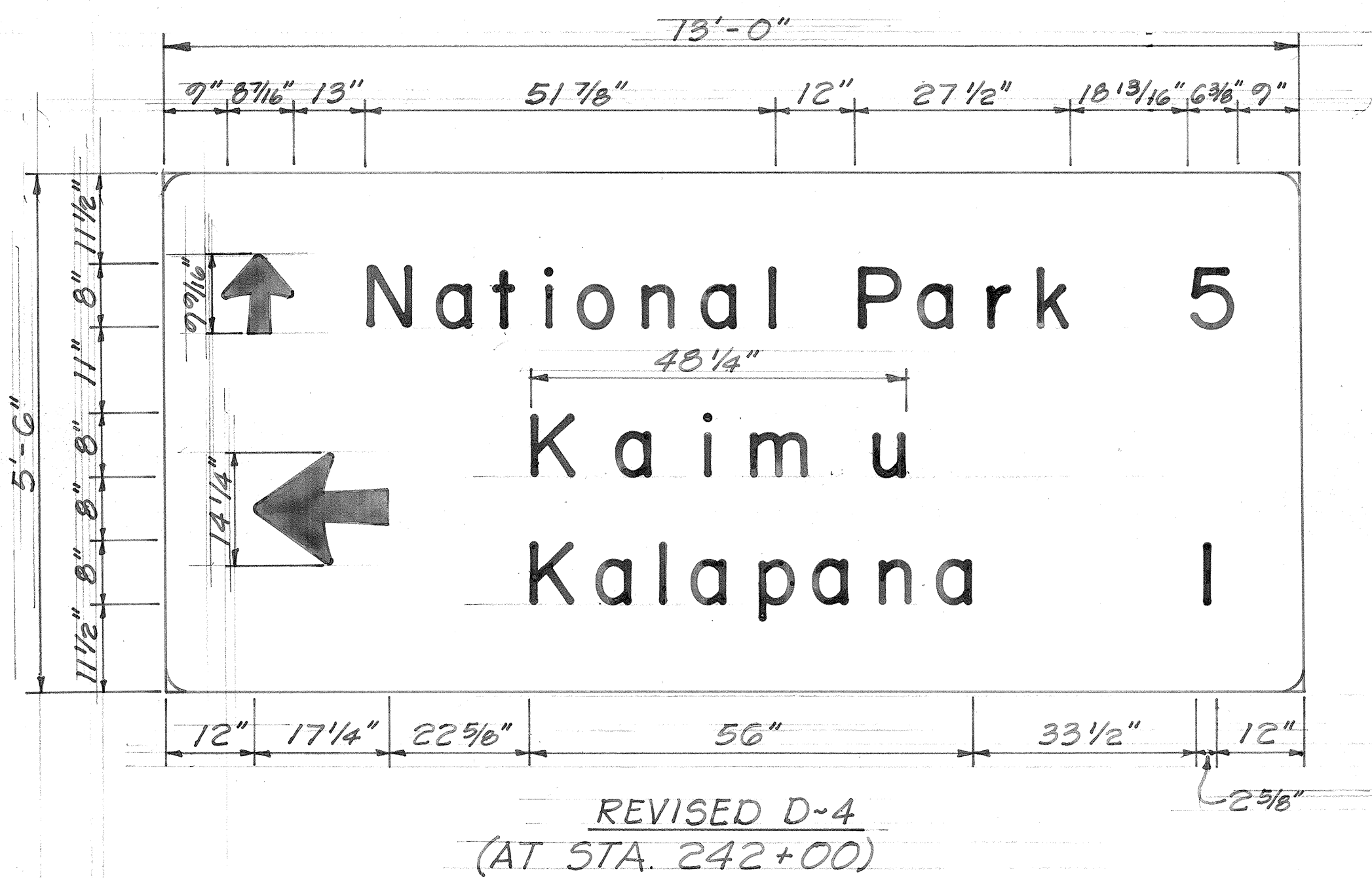
DATE	DATE
SURVEY PLANNED BY	SURVEY PLANNED BY
DESIGNED BY	DESIGNED BY
CHECKED BY	CHECKED BY
NOTED BY	NOTED BY
ORIGINAL PLAN	ORIGINAL PLAN
NO.	NO.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DESTINATION SIGNS
KAIMU ~ CHAIN OF CRATERS ROAD
F.A.P. NO. ER 9(3)

Scale: As Noted Date: April, 1978
SHEET NO. 4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER 9 (3)	1979	25	89



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DESTINATION SIGNS
KAIMU-CHAIN OF CRATERS ROAD
F. A. P. NO. ER9(3)

Scale: As Shown
SHEET NO. 5 OF 7 SHEETS

Date: Aug., 1978

* = Notes Revisions

REVISED BY C.C.O. # 4

25

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER 9(3)	1979	26	89

SUMMARY OF PAVEMENT MARKERS

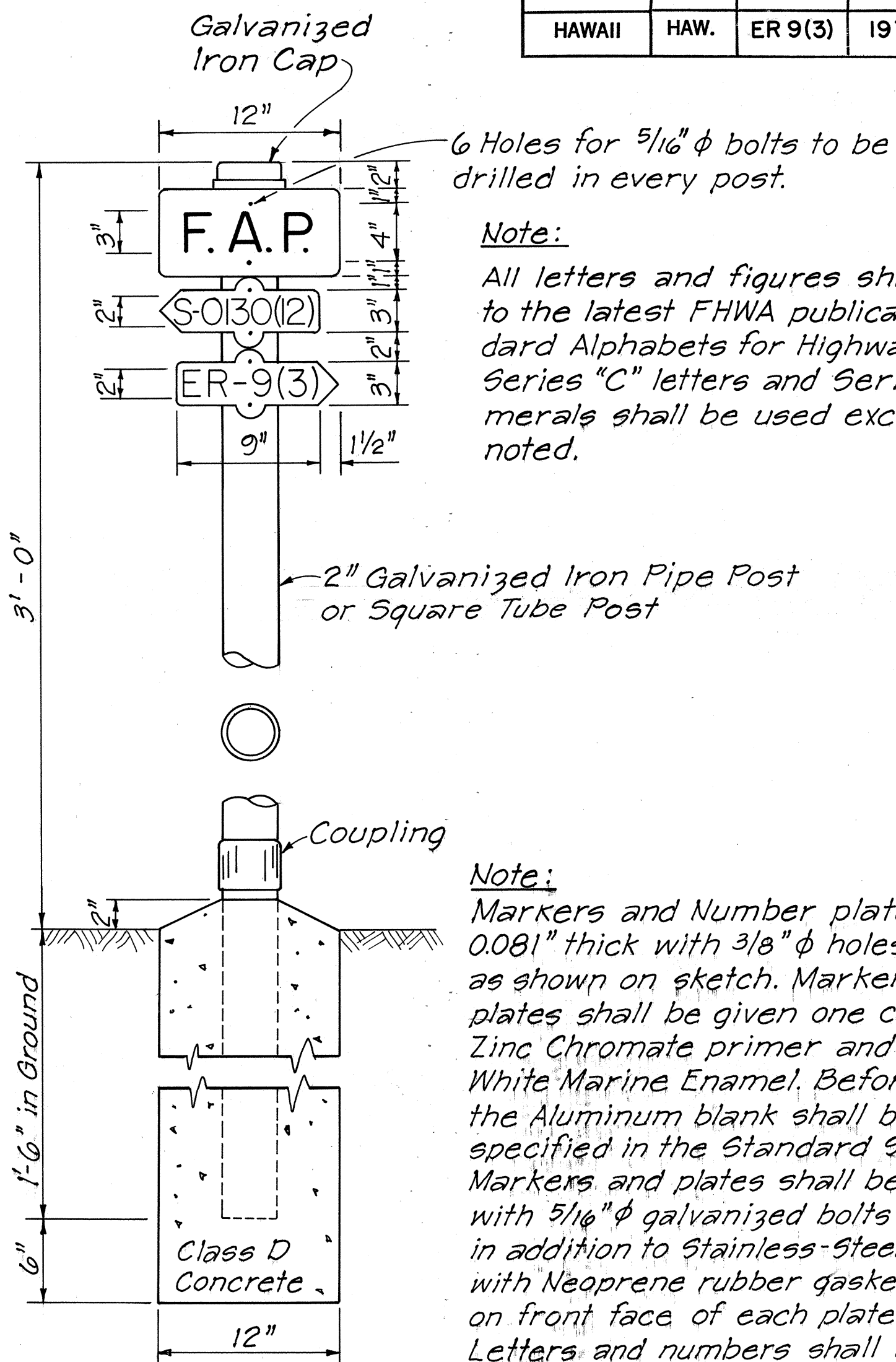
STATION	DESCRIPTION	TYPE D	TYPE H	TYPE J	TYPE C
91+50 to 96+20	Passing - Both Sides	12	0	48	
96+20 to 98+00	Passing - Left; No Passing - Right	22	4	21	84
98+00 to 100+00	No Passing - Both Sides	7	0	0	
101+36.48 Rt. Sideroad	No Passing - Both Sides	22	0	0	
101+60 to 106+90	No Passing - Left; Passing - Right	13	14	56	
106+90 to 121+50	Passing - Both Sides	37	0	148	
121+50 to 126+40	Passing - Left; No Passing - Right	12	13	52	
126+65 Lt. Sideroad	No Passing - Both Sides	6	0	0	
126+65 Rt. Sideroad	No Passing - Both Sides	6	0	0	
127+00 to 131+90	No Passing - Left; Passing - Right	12	13	52	
131+90 to 133+00	Passing - Both Sides	2	3	0	4
133+00 to 137+90	Passing - Left; No Passing - Right	12	13	52	
138+10 Lt. Sideroad	No Passing - Both Sides	3	0	0	
138+10 Rt. Sideroad	No Passing - Both Sides	2	0	0	
138+50 to 143+75	No Passing - Left; Passing - Right	13	14	56	
143+75 to 189+15	Passing - Both Sides	112	0	444	
189+15 to 196+45	No Passing - Left; Passing	18	19	76	
196+45 to 197+95	Passing - Both Sides	4	0	12	
197+95 to 205+20	No Passing - Left; Passing - Right	18	19	76	
205+20 to 233+75	Passing - Both Sides	49	0	192	
233+75 to 236+40	Passing - Left; No Passing - Right	23	6	23	98
236+40 to 238+90	No Passing - Both Sides	13	0	0	
239+10 Rt. Sideroad	No Passing - Both Sides - Off Ramp	22	19	20	39
239+35 to 242+00	No Passing - Both Sides	14	0	0	
242+00 to 244+75	No Passing - Left; Passing - Right	7	10	7	28
244+75 to 37+60	Passing - Both Sides	30	30	120	
19+25 to 248+50	On Ramp - One Way, Island		38		21
GRAND TOTAL		491	156	1,568	60
		496	257	1,524	

RELOCATE EXISTING SIGNS

STATION	TYPE W/POST	DESCRIPTION
Existing Kaimu-Pahoa Road - Sta. 17+00 Lt	R2-1 (35)	Speed Limit - 35
252+85 Lt.	D10-2	20-Mile Post

SUMMARY OF REGULATORY & WARNING SIGNS

STATION	TYPE W/POST	DESCRIPTION
93+85 Rt.	W2-2	Sideroad
102+00 Rt.	R1-1	STOP
109+00 Lt.	W2-2	Sideroad
117+00 Lt.	R2-4a (55/40)	Speed Limit 55 Minimum 40
117+00 Rt.	R2-4a (55/40)	Speed Limit 55 Minimum 40
119+00 Rt.	W2-1	Cross Road
126+50 Lt.	R1-1	STOP
126+90 Rt.	R1-1	STOP
130+70 Rt.	W2-1	Cross Road
134+10 Lt.	W2-1	Cross Road
138+00 Lt.	R1-1	STOP
138+20 Rt.	R1-1	STOP
138+50 Rt.	R1-1	STOP
146+50 Lt.	W2-1	Cross Road
186+00 Lt.	R2-4a (55/40)	Speed Limit 55 Minimum 40
186+00 Rt.	R2-4a (55/40)	Speed Limit 55 Minimum 40
236+30 Rt. (C.C.O. #4)	W13-2 (25)	Advisory Exit Speed 25 mph
231+50 Rt.	W2-2	Side Road
239+70 Rt.	R1-1	STOP
242+00 Rt. (C.C.O. #4)	W4-1	Merge
246+50 Lt.	W2-2	Side Road
35+50 Rt.	R2-4a (55/40)	Speed Limit 55 Minimum 40
35+50 Lt.	R2-4a (55/40)	Speed Limit 55 Minimum 40
Side Road @ 101+36.48 Rt. Sideroad Connection	W1-2 R	Right Curve
Existing Kaimu-Pahoa Road - Sta. 10+50 Rt.	W1-2 L	Left Curve
101+36.48 Rt. - Side Road @ 101+36.48 Lt. Sta. 2+60 Sideroad Connection	W5-1	Road Narrows
Off Ramp Sta. 209+95 Rt. (C.C.O. #4)	R1-2	Yield
Off Ramp Sta. 2+50 Lt. (C.C.O. #4)	R4-7 & RM-4	Keep Right
Off Ramp Sta. 2+00 Lt. (C.C.O. #4)		Left Turn Here
Proj. No. 5-0130(12) Sta. 9+70	R2-1 (35)	Speed Limit 35
248+50 Rt. (C.C.O. #4)	R1-2 & R5-1	Yield & Do Not Enter



Note:

All letters and figures shall conform to the latest FHWA publication "Standard Alphabets for Highway Signs". Series "C" letters and Series "D" numerals shall be used except where noted.

Note:

Markers and Number plates shall be 0.081" thick with 3/8" ϕ holes for fastening as shown on sketch. Markers on Number plates shall be given one coat of best Zinc Chromate primer and two coats of White Marine Enamel. Before painting, the Aluminum blank shall be treated as specified in the Standard Specifications. Markers and plates shall be fastened with 5/16" ϕ galvanized bolts and washers in addition to Stainless-Steel washers with Neoprene rubber gaskets attached on front face of each plate. Letters and numbers shall be of two coats of Black Marine Enamel.

FEDERAL AID MARKER

SCALE: 1 1/2" = 1' = 0"

SUMMARY OF F.A.P. MARKERS

STATION	TYPE W/O POST	TYPE W/POST
91+50 Rt.	ER-9(3)	
253+71.00 Rt.	S-0130(12)	F.A.P. ER-9(3)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISIONSUMMARY OF
PAVEMENT MARKERS
REGULATORY & WARNING SIGNS
KAIMU-CHAIN OF CRATERS ROAD
F.A.P. No. ER-9(3)Scale: As Noted Date: April, 1978
SHEET No. 6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-9(3)	1979	27	89

SUMMARY OF ROUTE MARKERS

STATION	TYPE W/POST	DESCRIPTION	REMARKS
98+86 Lt.	M1-G (130) MG-3 M3-4	Route Marker ~130 Directional Arrow (Ahead) Cardinal Direction Marker	Type A Assembly
103+86 Rt.	M1-G (130) MG-3 M3-2	Route Marker ~130 Directional Arrow (Ahead) Cardinal Direction Marker	Type A Assembly
236+60 Lt.	M1-G (130) MG-3 M3-4	Route Marker ~130 Directional Arrow (Ahead) Cardinal Direction Marker	Type A Assembly
231+00 237+60 Rt.	M1-G (130) MG-3 M1-G (137) M4-5 MG-1 2(R) M3-2	Route Marker ~130 Directional Arrow (Ahead) Route Marker ~137 "To" Marker Directional Arrow (Right) Cardinal Direction Marker	Type B Assembly
240+60 Lt.	M1-G (130) MG-3 M1-G (137) M4-5 MG-1 M3-4	Route Marker ~130 Directional Arrow (Ahead) Route Marker ~137 "To" Marker Directional Arrow (Left) Cardinal Direction Marker	Type B Assembly
Proj. No. S-0130(12) 241+60 Rt. 37+00 Rt.	M1-G (130) MG-3 M3-2	Route Marker ~130 Directional Arrow (Ahead) Cardinal Direction Marker	Type A Assembly
Off Ramp Sta. 2+30 Rt. 238+50 Rt. (Side Road Connection)	M4-5 M1-G (137) MG-3	"To" Marker Route Marker ~137 Directional Arrow (Ahead)	Type A Trailblazer
Proj. No. S-0130(12) 0+70 Lt. (Kaimu ~ Kalapana Junct.)	M1-G (137) MG-1 M3-2	Route Marker ~137 Directional Arrow (Left) Add Cardinal Direction Marker	Reset
NOTE: All Route Marker Assembly include the Directional Arrow & Cardinal Direction Marker.			

SUMMARY OF MILE MARKERS
WITH HIGHWAY ROUTE No. 130 PLATE

STATION	DESCRIPTION	TYPE		
		W/O POST	W/POST	D/O-7 W/O POST
94+45 Lt.	23 ~ Mile Post	1	1	2
147+25 Lt.	22 ~ Mile Post	1	1	2
200+05 Lt.	21 ~ Mile Post	1	1	2
252+85 Lt.	20 ~ Mile Post	2	—	2
TOTALS		35	3	8

SUMMARY OF REFLECTOR MARKERS

STATION	DESCRIPTION	REFLECTOR MARKER W/POST
101+36.48 Rt.	RM-1	810
239+10 Rt.	RM-1	8
TOTAL		1610

SUMMARY OF & MONUMENTS

STATION
P.C. 93+96.48
M.P.O.C. 101+36.48
P.T. 108+76.48
P.C. 125+55.09
M.P.O.C. 132+71.76
P.T. 139+82.42
P.C. 155+63.78
M.P.O.C. 166+20.45
P.T. 176+77.11 (Back) Eq.= P.T. 176+56.46 (Ahead)+20.65
P.O.T. 197+00
T.S. 226+98.42
S.C. 232+98.42
M.P.O.C. 240+34.76
C.S. 247+71.09
S.T. 253+71.09
Proj. No. S-0130(12) P.C. 24+56.87
Proj. No. S-0130(12) P.T. 31+65.98

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION SUMMARY OF ROUTE, MILE, REFLECTOR MARKERS & MONUMENTS KAIMU - CHAIN OF CRATERS ROAD F.A.P. No. ER-9(3) Scale: Date: July 1978 SHEET No. 7 OF 7 SHEETS

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