

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	16	32

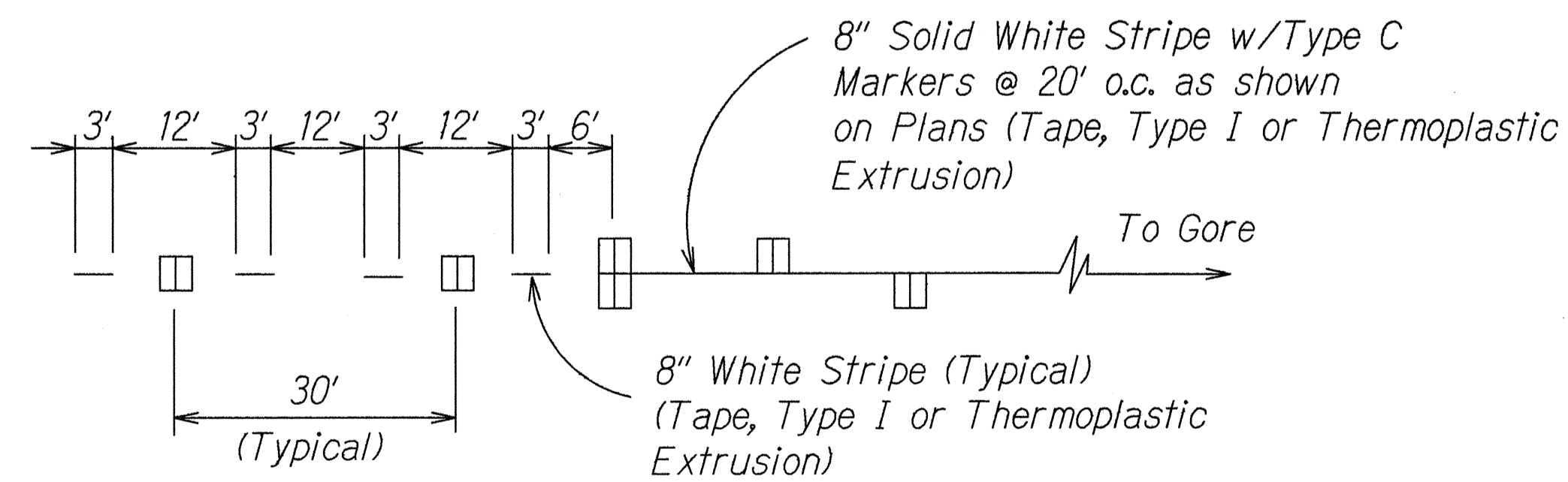
LEGEND

- 4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 40'-0" o.c.
- 4 each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.
- 8" White Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- 4" Double Solid Yellow with Type D Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- 4" Double Solid Yellow Stripes with Type H Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" Yellow Edge Stripe with Type H Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" Double Solid White Stripes with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- Lane Change Restriction Marking
4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 20'-0" o.c.
4" White Stripe (Tape, Type I or Thermoplastic Extrusion)
- 4" or 8" White Edge Stripe with Type C Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" White Guide Lines (Tape, Type III or Thermoplastic Extrusion except for bus bays)
- Transverse Median Marking (Tape, Type II or Thermoplastic Extrusion)
- Transverse Shoulder Marking (Tape, Type II or Thermoplastic Extrusion)
- Channelizing Island or Deceleration Lane Gore (Tape, Type II or Thermoplastic Extrusion)
- Crosswalk and Stop Line. All Stop Lines shall be 10'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment (Tape, Type III or Thermoplastic Extrusion)
- Pavement Arrow (Tape, Type III or Thermoplastic Extrusion)
- Pavement Word (Tape, Type III or Thermoplastic Extrusion)
- 4 Each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.
Type H Raised Pavement Markers (Reflective Surface facing no-passing direction)
4" Single Solid Yellow Stripe (Tape, Type I or Thermoplastic Extrusion)
- Extension of Edge Line, 4" Wide x 2'-0" Long White Stripe @ 10'-0" o.c. w/Type C Markers @ 40'-0" o.c. (Tape, Type III or Thermoplastic Extrusion)

LEGEND

- II- Reflector Marker (RM-2) with Post
- III- Reflector Marker (RM-3) with Post
- IIII- Reflector Marker (RM-4) with Post
- FA II- Reflector Marker (RM-2) with Flexible Delineator Post (Type A)
- FB II- Reflector Marker (RM-2) with Flexible Delineator Post (Type B)
- B II- Reflector Marker (RM-2) Mounted on Existing Concrete Barrier
- WI- Reflector Marker (RM-2) Mounted on Existing Concrete Retaining Wall

SURVEY PLOTTED BY	DATE	9/93
DRAWN BY	DR. ACH	
DESIGNED BY	C. ABE	
QUANTITIES BY		
CHECKED BY		
ORIGINAL PLAN		
NOTE BOOK		
REVISIONS		



LANE DROP MARKING

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**PAVEMENT MARKING
LEGEND & DETAILS**

MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)

Scale: As Shown Date: Nov., 1993
SHEET No. 11 OF 17 SHEETS

NOTES

1. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
2. 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 pavement marking items.
3. Raised pavement markers shall not be installed within crosswalks.
4. All pavement striping shall be as noted on the legend or plans.
5. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as directed by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
6. Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
7. Final locations of all signs shall be approved by the Engineer prior to any installation work.
8. Existing signs that are to be replaced, shall not be removed until new signs are installed as replacements, or the messages are no longer necessary.
9. Backing for all new Regulatory and Warning Signs shall not be spliced.
10. Interstate Route Marker Symbols shall conform to details shown on the plans and as specified in the MUTCD.
11. All sign panels shall conform to Section 621 of Special Provisions and the latest editions and amendments of the following FHWA publications:
 - a. "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
 - b. "Standard Highway Signs."
 - c. "Standard Alphabets for Highway Signs."
12. Borders, messages, arrows, symbols and shields shall conform to details as shown on the plans and as specified in the MUTCD.
13. Sign messages shall be as indicated on the plan.
14. All panels shall be reflectorized in accordance with Section 712.20 of the Standard Specifications. Minimum width of panels shall be 2 ft. abutting edges of panels shall be in only one direction if vertical abutting edges are used, no horizontal abutting edges shall be allowed and vice versa.
15. All new and relocated signs and markers installed on pipe post, light standards or expressway sign posts are to be mounted with band brackets and steel braces.
16. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans or as directed by the engineer shall be incidental to the various signing items.

17. All bolt holes resulting from the removal of existing Signs mounted on existing Concrete Barriers or Concrete Retaining Walls shall be plugged with an Engineer approved mortar. Any damages to the existing concrete barriers or concrete retaining walls caused by the Contractor's operation shall be repaired by the Contractor at his own expense and to the satisfaction of the Engineer. This work shall not be paid for separately but considered incidental to the various signing items.
18. Removal of Existing Delineators and Posts as designated on these plans or as directed by the engineer shall be considered incidental to the various signing items.
19. Removing and reinstalling existing Street Name Signs on Regulatory and Warning Sign Post shall not be paid for separately but shall be considered incidental to the various signing items.
20. The Contractor shall notify the Traffic Signal Branch, Department of Transportation Services, City & County of Honolulu, 2 weeks prior to commencing any loop detector work.
 21. Dept. of Transportation Services, City & County of Honolulu, will assist the Engineer in construction inspection for the loop detector work.
 22. The exact locations of the new loop detectors shall be determined in the field by the Engineer. See sheet no. T15 for Loop Detector Details.
 23. Loop detectors damaged during the Contractor's reconstruction of pavement areas or cold planing operation, shall be replaced within 48 hours. Replacement and location of the new loop detectors shall be as directed by the Engineer.
 24. The Contractor shall erect at the beginning of the project and at the end of the project advance construction warning signs placed as indicated on the plans or as directed by the Engineer for the duration of the highway project and shall be maintained by the Contractor. These signs shall be placed in addition to the required traffic control signs called for in Section 645 - Traffic Control. The advance construction warning signs shall be new and become the property of the State. The Contractor shall remove, clean, and deliver the signs and posts to the Oahu District Baseyard upon the completion of the project.
 25. The first letter of the Cardinal Directional words (North, South, East, & West) shall be 10 percent larger, rounded up to the nearest whole number size.
 26. The Contractor shall remove all existing Reflector Markers and supports mounted on the existing Concrete Barriers and Concrete Retaining Wall. The Contractor shall install new RM-2 (white or yellow) with supports, on the existing Concrete Barriers and Retaining Walls, see sheet no. T14 for details. The removal of the existing Reflector Markers & support shall not be paid for separately but considered incidental to the various Reflector Marker items. All bolt holes resulting from the removal of existing Reflector Marker mounted on the existing Concrete Barriers and Retaining Walls, shall be plugged with an Engineer approved mortar. Any damages to the existing concrete barriers or concrete retaining walls caused by the Contractor's operation shall be repaired by the Contractor at his own expense and to the satisfaction of the Engineer. This work shall not be paid for separately but considered incidental to the various Reflector Marker items.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	17	32

EXPRESSWAY (E) AND DESTINATION (D) SIGN NOTES

1. The Contractor shall verify the locations of the existing Sign Panels and supports.
2. New sign panels shall be laminated aluminum or extruded aluminum.
3. Contractor shall submit all sign splicing details to the Engineer for approval. All backing for signs 4 feet by 6 feet or less shall be of one sheet.
4. Destination Sign Posts and Foundation shall be as noted on the plans.
5. Incidental parts and services, not shown on the plans or specified but deemed necessary for the sign installation, shall be furnished and installed by the Contractor as part of the work contracted.
6. Removal and disposal of existing sign panels, posts with foundations and supports will not be paid for separately, but shall be considered incidental to the various signing items.
7. Letter Size:
 - a. When letters are all uppercase, use series "E".
 - b. When initial uppercase letter is used in conjunction with lowercase letters, use series "E" (M) for uppercase.
8. Background for all illuminated ("E" destination), non-illuminated ("D" destination) sign and exit number panels shall be reflectorized with Type III of retroreflective sheeting (High Intensity or High Performance Grade).
9. The message, arrows, and borders of expressway signs ("E" and "D" destinations) and exit number panels shall be reflectorized with porcelain enameled aluminum cut-outs with acrylic plastic reflexreflectors or Type III or IV retroreflective sheeting (High Intensity or High Performance Grade).

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC NOTES

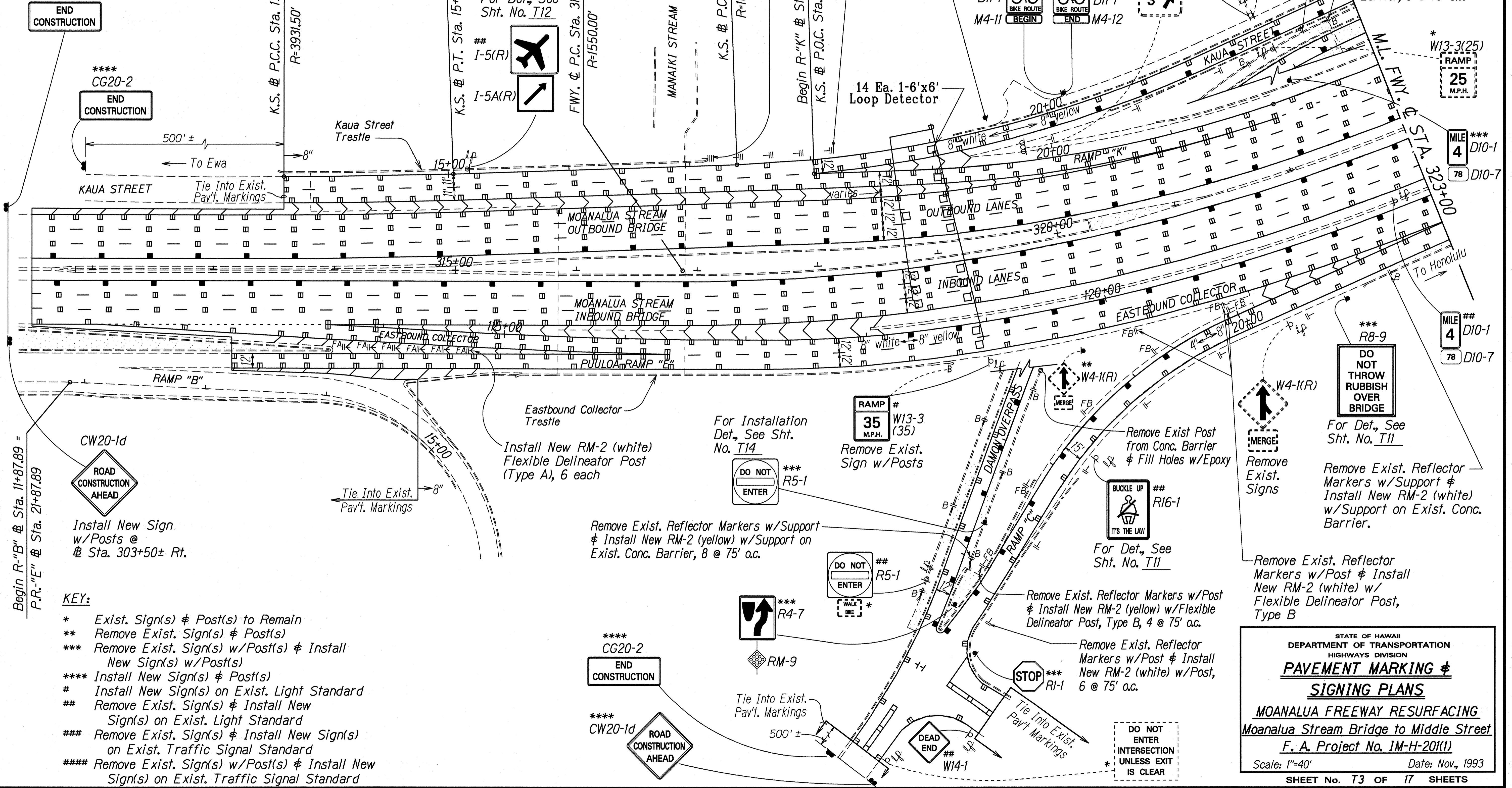
MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)

Date: Nov., 1993

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	18	32

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

Install New Sign w/Posts @ Sta. 306+50± Lt.



Begin R-"B" @ Sta. 11+87.89 = P.R. "E" @ Sta. 21+87.89

- KEY:**
- * Exist. Sign(s) & Post(s) to Remain
 - ** Remove Exist. Sign(s) & Post(s)
 - *** Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) w/Post(s)
 - **** Install New Sign(s) & Post(s)
 - # Install New Sign(s) on Exist. Light Standard
 - ## Remove Exist. Sign(s) & Install New Sign(s) on Exist. Light Standard
 - ### Remove Exist. Sign(s) & Install New Sign(s) on Exist. Traffic Signal Standard
 - #### Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) on Exist. Traffic Signal Standard

ORIGINAL PLAN	DATE: 5-2-88
DRAWN BY: M. Hinds / R. Ahi	
NOTES BOOK	
QUANTITIES BY: C. Ahi	
CHECKED BY: M. Hinds	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

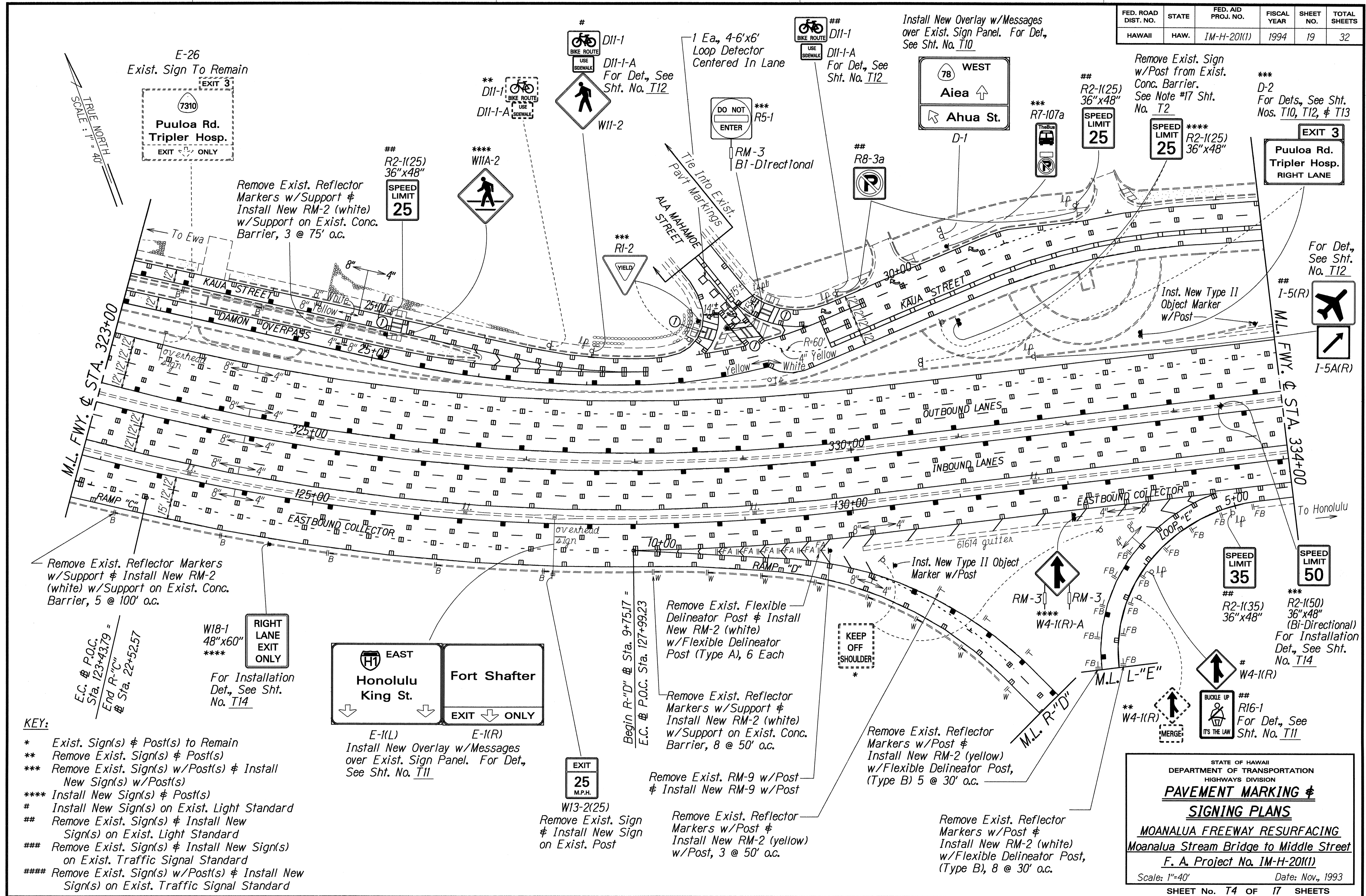
PAVEMENT MARKING & SIGNING PLANS

MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)

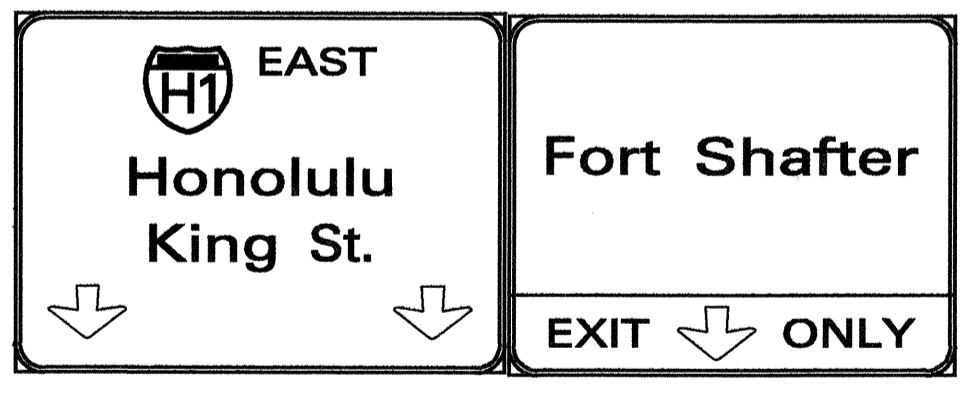
Scale: 1"=40' Date: Nov., 1993
SHEET No. T3 OF 17 SHEETS

"AS BUILT"

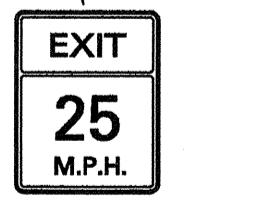
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-H-20(1)	1994	19	32



- KEY:**
- * Exist. Sign(s) & Post(s) to Remain
 - ** Remove Exist. Sign(s) & Post(s)
 - *** Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) w/Post(s)
 - **** Install New Sign(s) & Post(s)
 - # Install New Sign(s) on Exist. Light Standard
 - **# Remove Exist. Sign(s) & Install New Sign(s) on Exist. Light Standard
 - ***# Remove Exist. Sign(s) & Install New Sign(s) on Exist. Traffic Signal Standard
 - ****# Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) on Exist. Traffic Signal Standard



E-1(L) Honolulu King St.
E-1(R) Fort Shafter
Install New Overlay w/Messages over Exist. Sign Panel. For Det., See Sht. No. T11

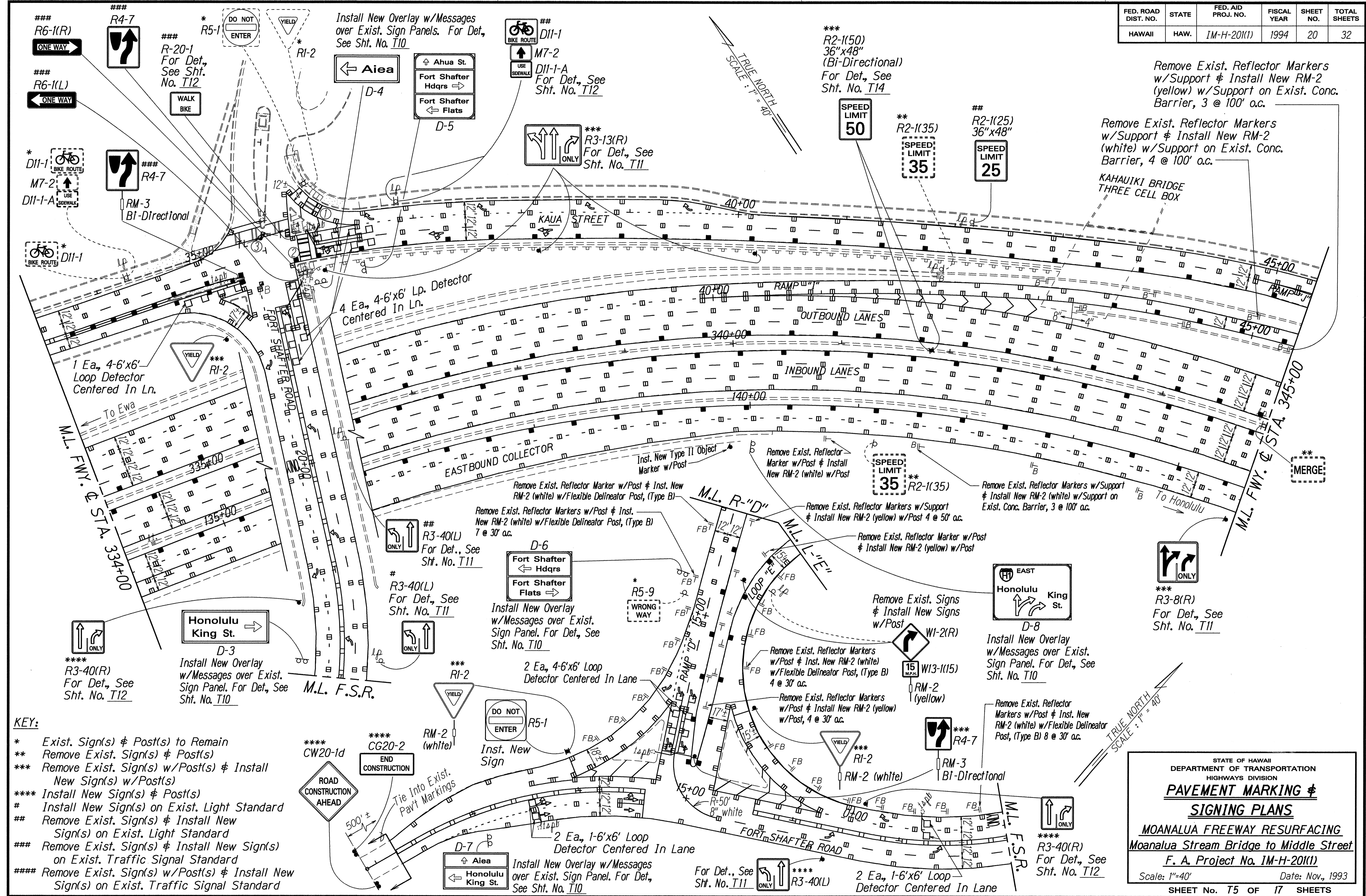


W13-2(25)
Remove Exist. Sign & Install New Sign on Exist. Post

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PAVEMENT MARKING & SIGNING PLANS
MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. 1M-H-20(1)
Scale: 1"=40' Date: Nov., 1993
SHEET No. T4 OF 17 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	3-2-88
DESIGNED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
BOUNDARY	
QUANTITIES	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-H-20(1)	1994	20	32

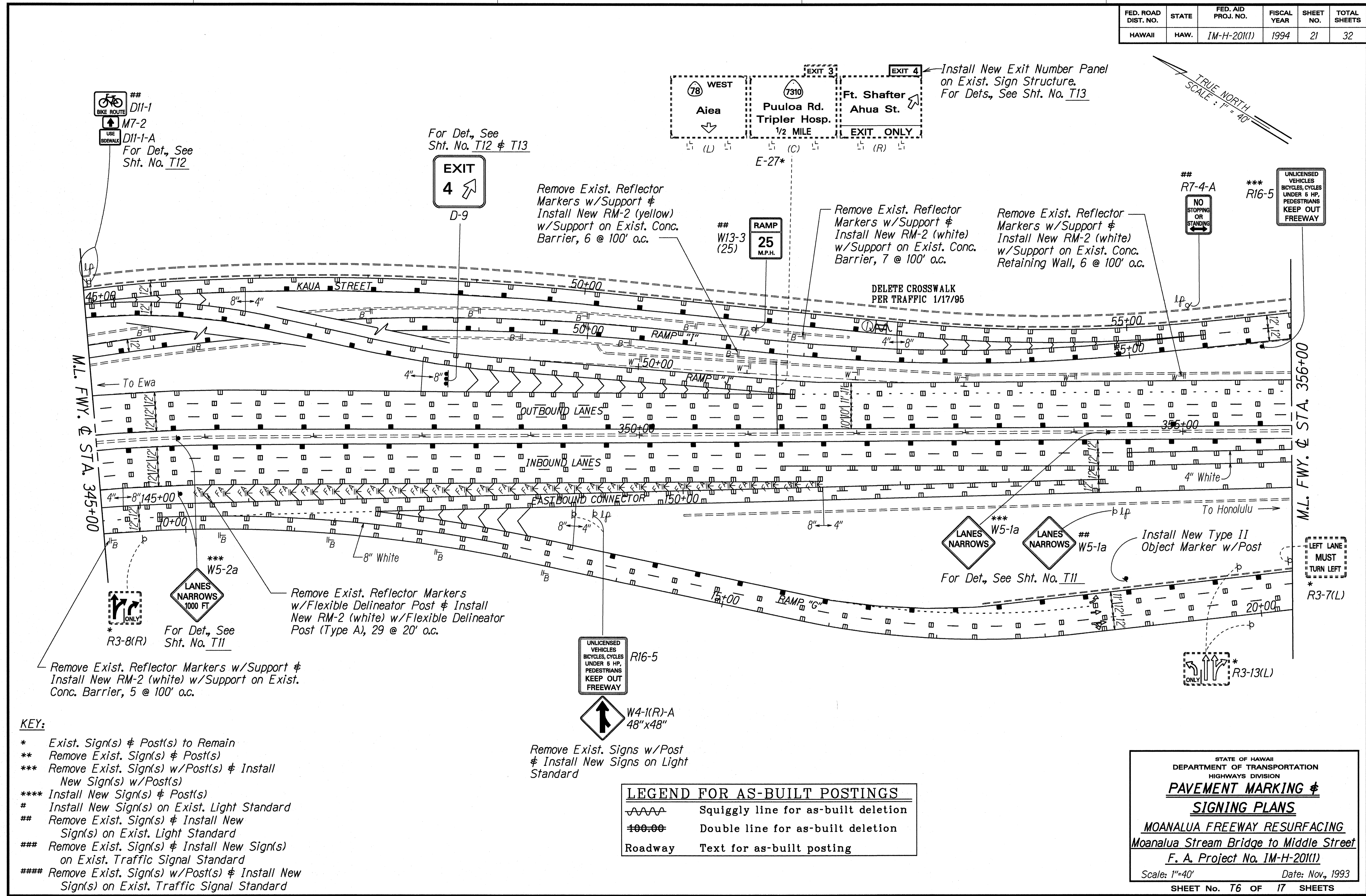


- KEY:**
- * Exist. Sign(s) & Post(s) to Remain
 - ** Remove Exist. Sign(s) & Post(s)
 - *** Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) w/Post(s)
 - **** Install New Sign(s) & Post(s)
 - # Install New Sign(s) on Exist. Light Standard
 - ## Remove Exist. Sign(s) & Install New Sign(s) on Exist. Light Standard
 - ### Remove Exist. Sign(s) & Install New Sign(s) on Exist. Traffic Signal Standard
 - #### Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) on Exist. Traffic Signal Standard

SURVEY PLOTTED BY: DATE: 9-2-93
 DRAWN BY: M. HOBBS
 CHECKED BY: C. AN
 NOTE BOOK: light: mh
 QUANTITIES BY: N. Young
 CHECKED BY:

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PAVEMENT MARKING & SIGNING PLANS
MOANALUA FREEWAY RESURFACING
 Moanalua Stream Bridge to Middle Street
 F. A. Project No. 1M-H-20(1)
 Scale: 1"=40' Date: Nov., 1993
 SHEET No. T5 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	21	32



- KEY:**
- * Exist. Sign(s) & Post(s) to Remain
 - ** Remove Exist. Sign(s) & Post(s)
 - *** Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) w/Post(s)
 - **** Install New Sign(s) & Post(s)
 - # Install New Sign(s) on Exist. Light Standard
 - ## Remove Exist. Sign(s) & Install New Sign(s) on Exist. Light Standard
 - ### Remove Exist. Sign(s) & Install New Sign(s) on Exist. Traffic Signal Standard
 - #### Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) on Exist. Traffic Signal Standard

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT MARKING & SIGNING PLANS

MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)

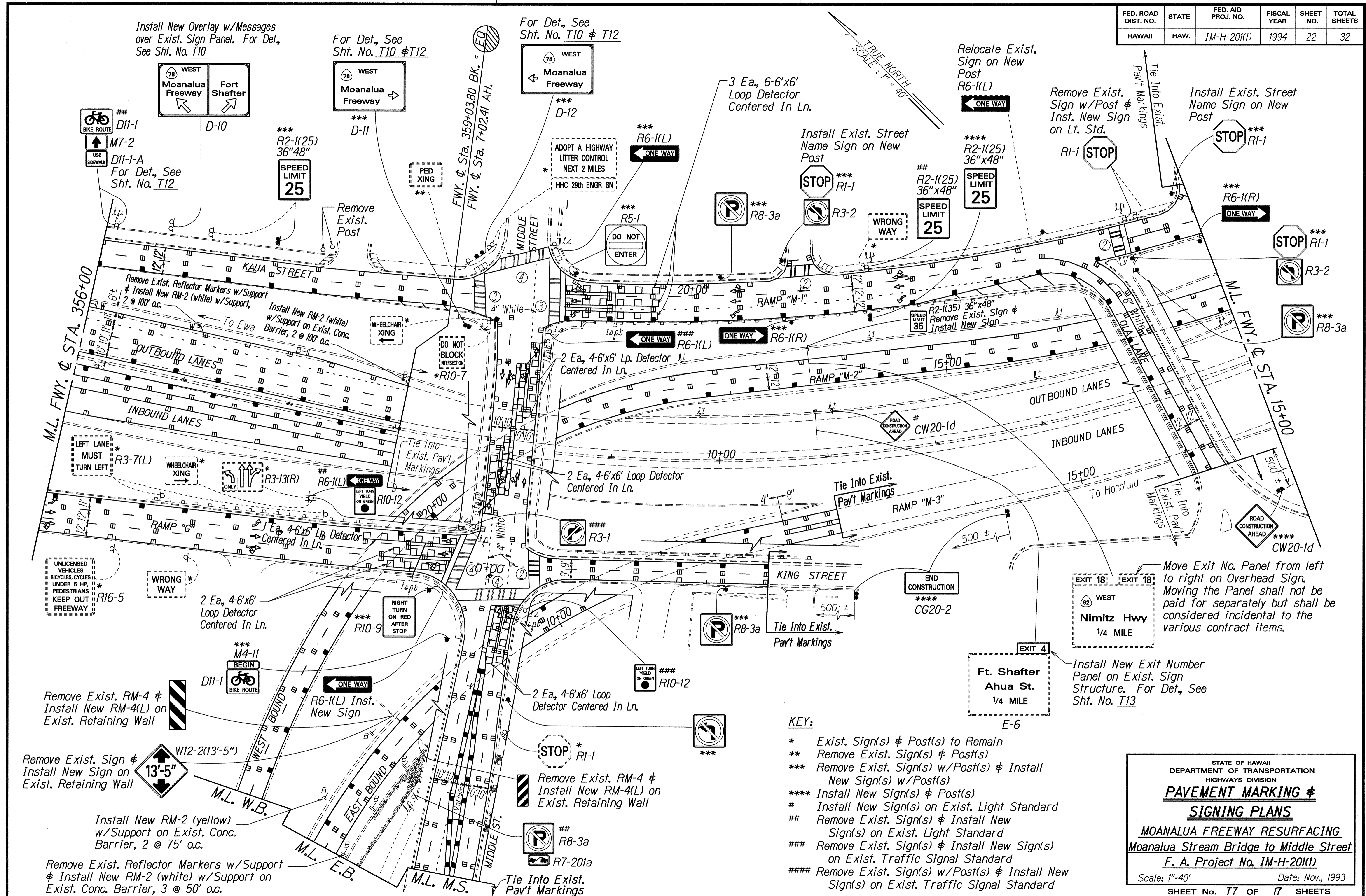
Scale: 1"=40' Date: Nov., 1993

SHEET No. T6 OF 17 SHEETS

DATE: 9-5-93
SURVEY PLATTED BY: M. H. H. / R. A. H.
DRAWN BY: C. A. B.
NOTES BOOK: M. H. H. / R. A. H.
QUANTITIES BY: M. H. H. / R. A. H.
CHECKED BY: M. H. H. / R. A. H.

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-H-20(1)	1994	22	32



Install New Overlay w/Messages over Exist. Sign Panel. For Det., See Sht. No. T10

For Det., See Sht. No. T10 #T12

For Det., See Sht. No. T10 # T12

Relocate Exist. Sign on New Post R6-1(L)

Remove Exist. Sign w/Post # Inst. New Sign on Lt. Std.

Install Exist. Street Name Sign on New Post

Remove Exist. Reflector Markers w/Support # Install New RM-2 (white) w/Support, 2 @ 100' o.c.

Install New RM-2 (white) w/Support on Exist. Conc. Barrier, 2 @ 100' o.c.

LEFT LANE MUST TURN LEFT

UNLICENSED VEHICLES, BICYCLES, CYCLES UNDER 5 HP, PEDESTRIANS KEEP OUT FREEWAY

Remove Exist. RM-4 # Install New RM-4(L) on Exist. Retaining Wall

Remove Exist. Sign # Install New Sign on Exist. Retaining Wall

Install New RM-2 (yellow) w/Support on Exist. Conc. Barrier, 2 @ 75' o.c.

Remove Exist. Reflector Markers w/Support # Install New RM-2 (white) w/Support on Exist. Conc. Barrier, 3 @ 50' o.c.

ADOPT A HIGHWAY LITTER CONTROL NEXT 2 MILES HHC 29th ENGR BN

Install Exist. Street Name Sign on New Post

Remove Exist. Sign # Install New Sign

Move Exit No. Panel from left to right on Overhead Sign. Moving the Panel shall not be paid for separately but shall be considered incidental to the various contract items.

Install New Exit Number Panel on Exist. Sign Structure. For Det., See Sht. No. T13

KEY:

- * Exist. Sign(s) # Post(s) to Remain
- ** Remove Exist. Sign(s) # Post(s)
- *** Remove Exist. Sign(s) w/Post(s) # Install New Sign(s) w/Post(s)
- **** Install New Sign(s) # Post(s)
- # Install New Sign(s) on Exist. Light Standard
- ** Remove Exist. Sign(s) # Install New Sign(s) on Exist. Light Standard
- *** Remove Exist. Sign(s) # Install New Sign(s) on Exist. Traffic Signal Standard
- **** Remove Exist. Sign(s) w/Post(s) # Install New Sign(s) on Exist. Traffic Signal Standard

SURVEY PLOTTED BY	DATE
DRAWN BY	9-2-88
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
REVISION	
DATE	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

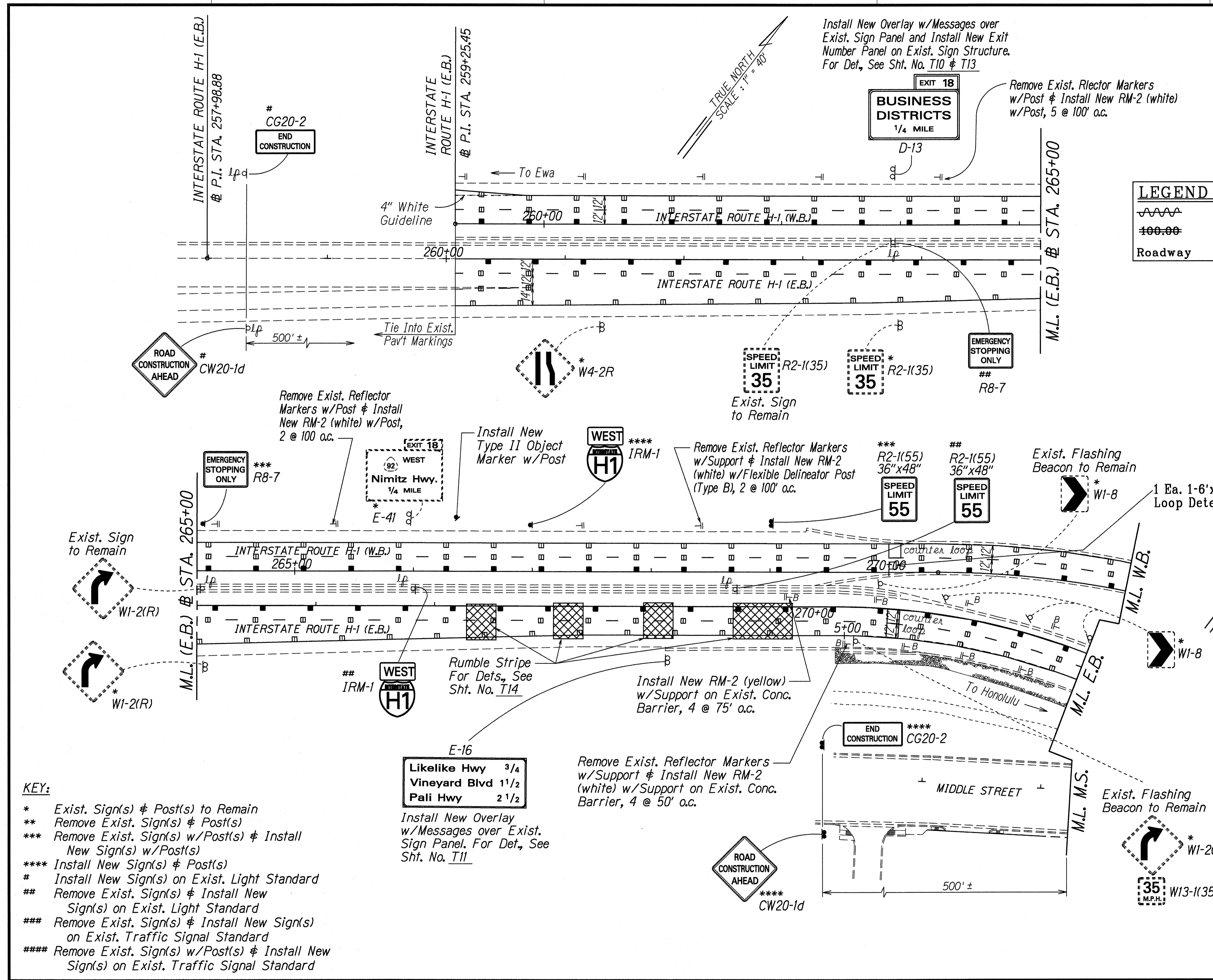
**PAVEMENT MARKING #
SIGNING PLANS**

**MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. 1M-H-20(1)**

Scale: 1"=40' Date: Nov., 1993

SHEET No. 77 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	23	32



LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
	Roadway Text for as-built posting

- KEY:**
- * Exist. Sign(s) & Post(s) to Remain
 - ** Remove Exist. Sign(s) & Post(s)
 - *** Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) w/Post(s)
 - **** Install New Sign(s) & Post(s)
 - # Install New Sign(s) on Exist. Light Standard
 - ## Remove Exist. Sign(s) & Install New Sign(s) on Exist. Light Standard
 - ### Remove Exist. Sign(s) & Install New Sign(s) on Exist. Traffic Signal Standard
 - #### Remove Exist. Sign(s) w/Post(s) & Install New Sign(s) on Exist. Traffic Signal Standard

E-16
Likelike Hwy 3/4
Vineyard Blvd 1 1/2
Pali Hwy 2 1/2
 Install New Overlay w/Messages over Exist. Sign Panel. For Det., See Sht. No. T11

Remove Exist. Reflector Markers w/Support & Install New RM-2 (white) w/Support on Exist. Conc. Barrier, 4 @ 50' o.c.

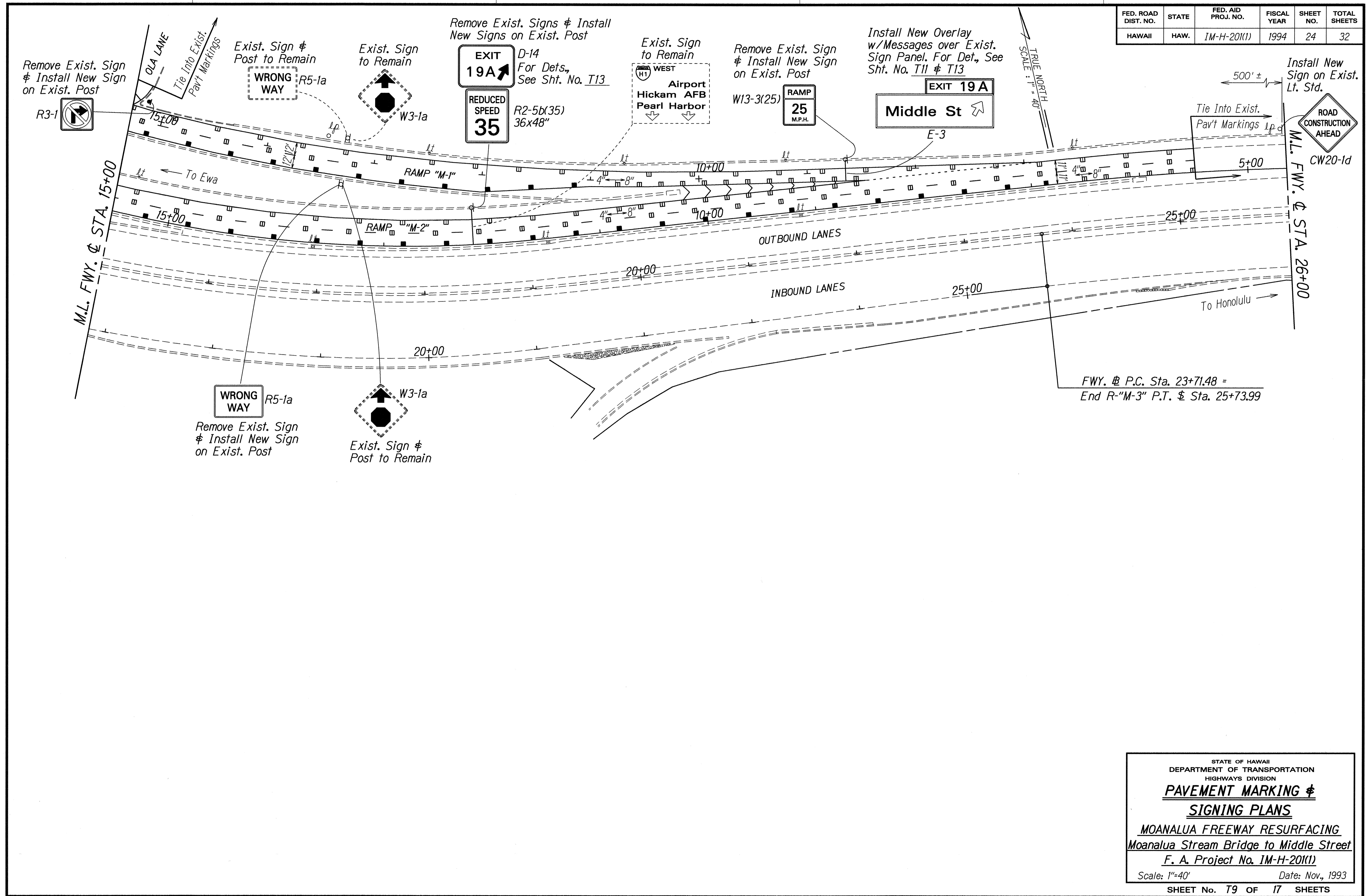


SURVEY PLOTTED BY	DATE
DRAWN BY	
NOTED BY	
CHECKED BY	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PAVEMENT MARKING & SIGNING PLANS
 MOANALUA FREEWAY RESURFACING
 Moanalua Stream Bridge to Middle Street
 F. A. Project No. IM-H-20(1)
 Scale: 1"=40' Date: Nov., 1993
 SHEET No. T8 OF 17 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-H-201(1)	1994	24	32



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	8-19-93
QUANTITIES BY	DESIGNED BY	
CHECKED BY	C.A.S.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

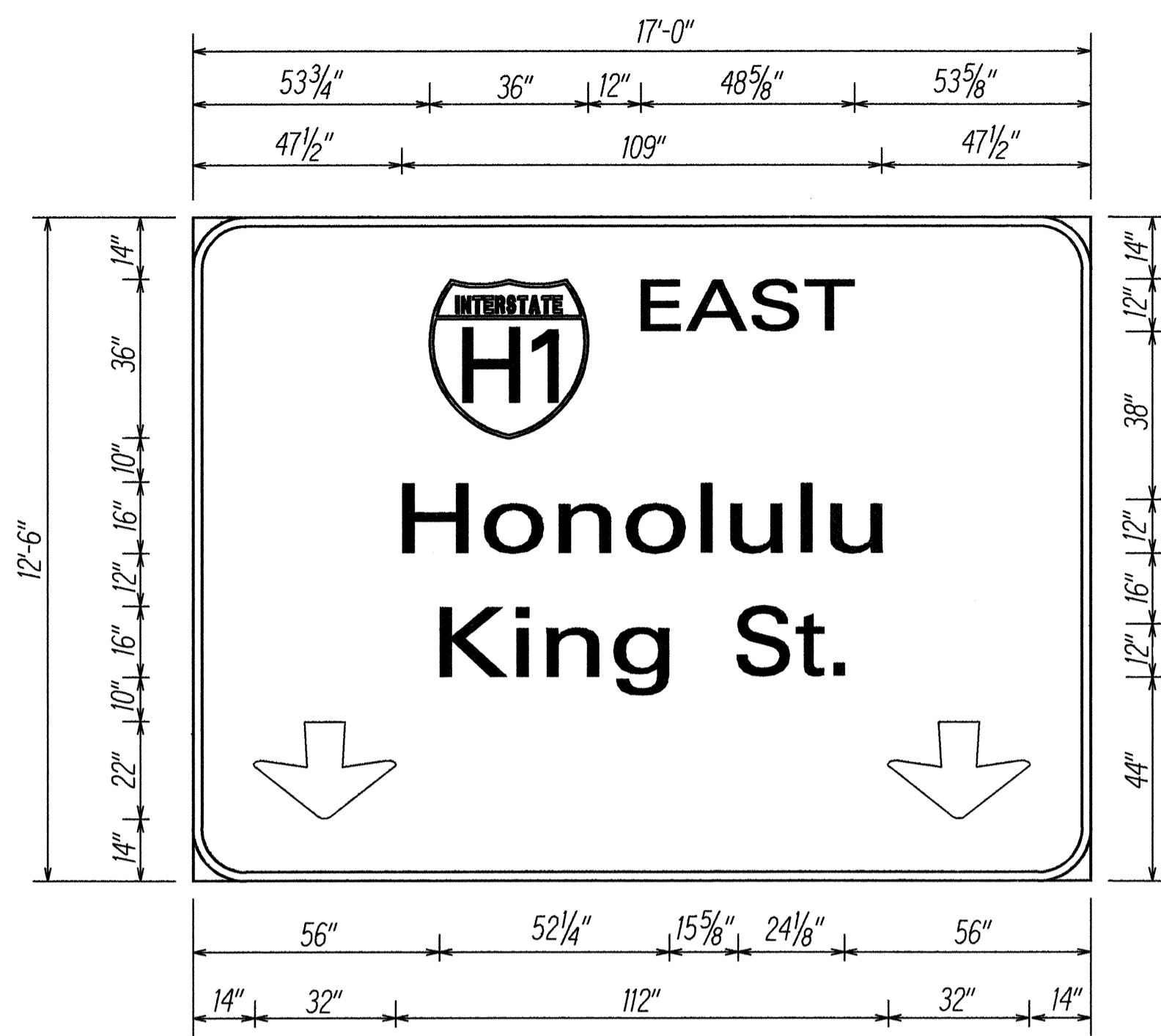
**PAVEMENT MARKING &
SIGNING PLANS**

MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. 1M-H-201(1)

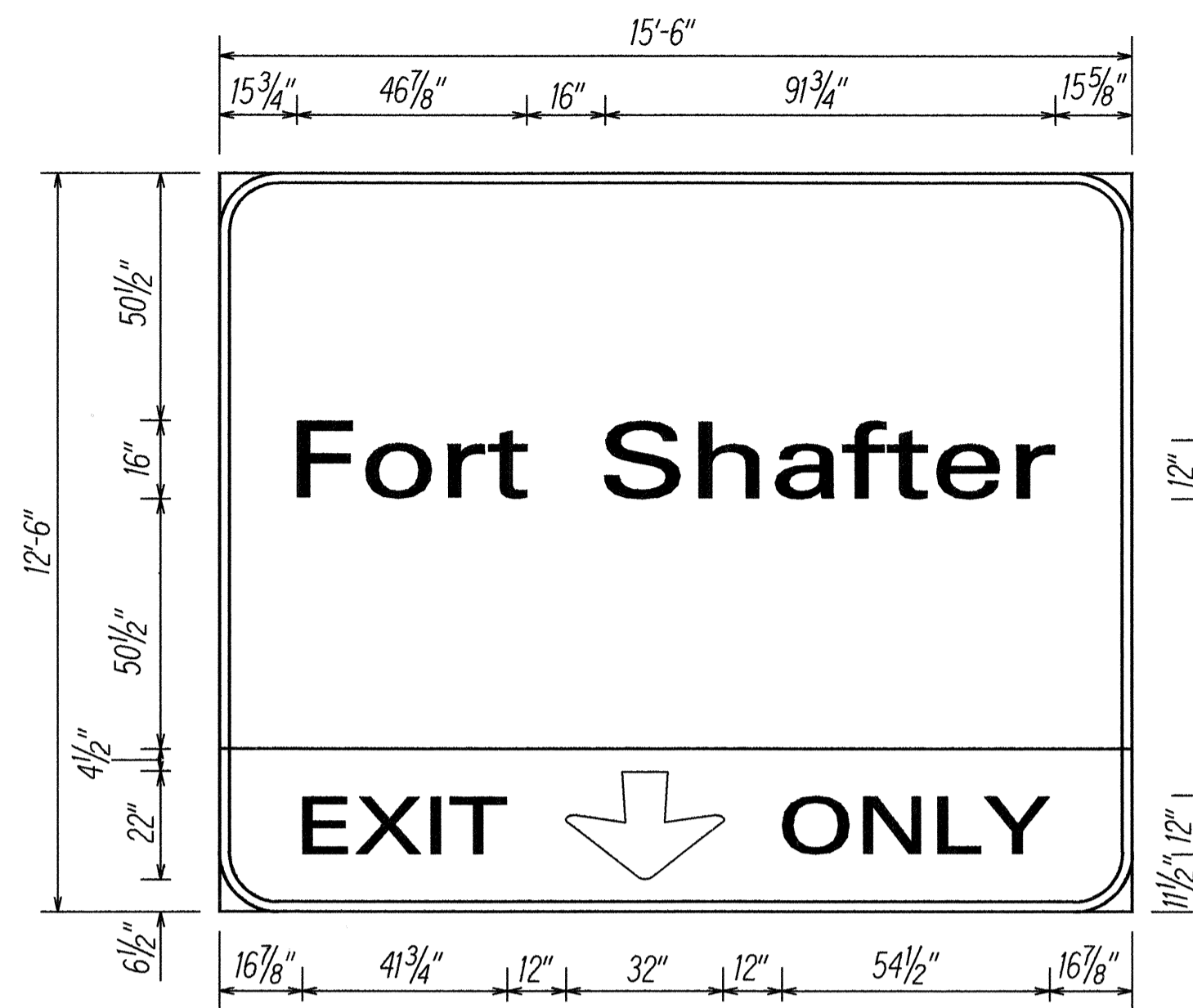
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SHEET No. 24 OF 17 SHEETS

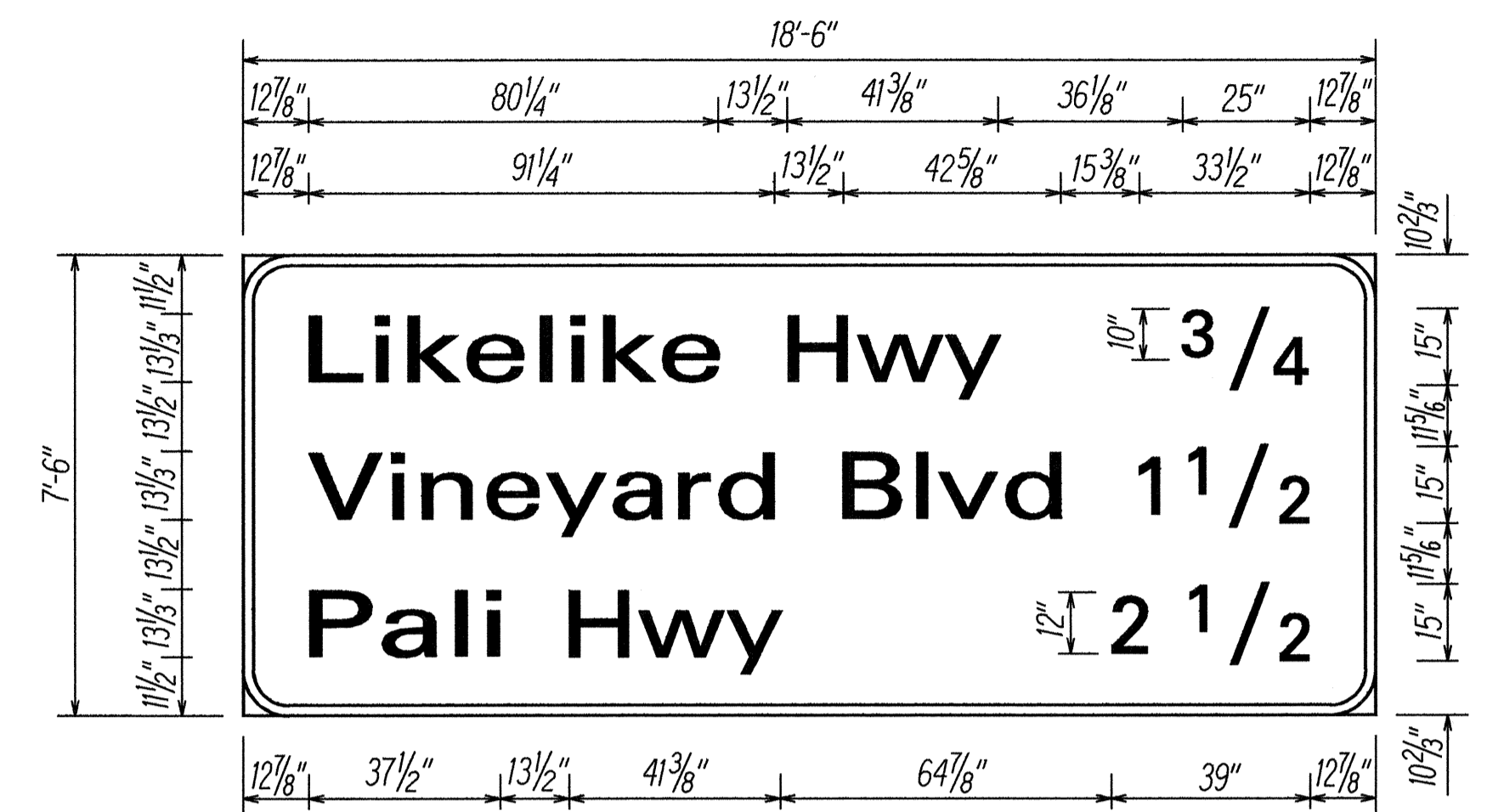
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	26	32



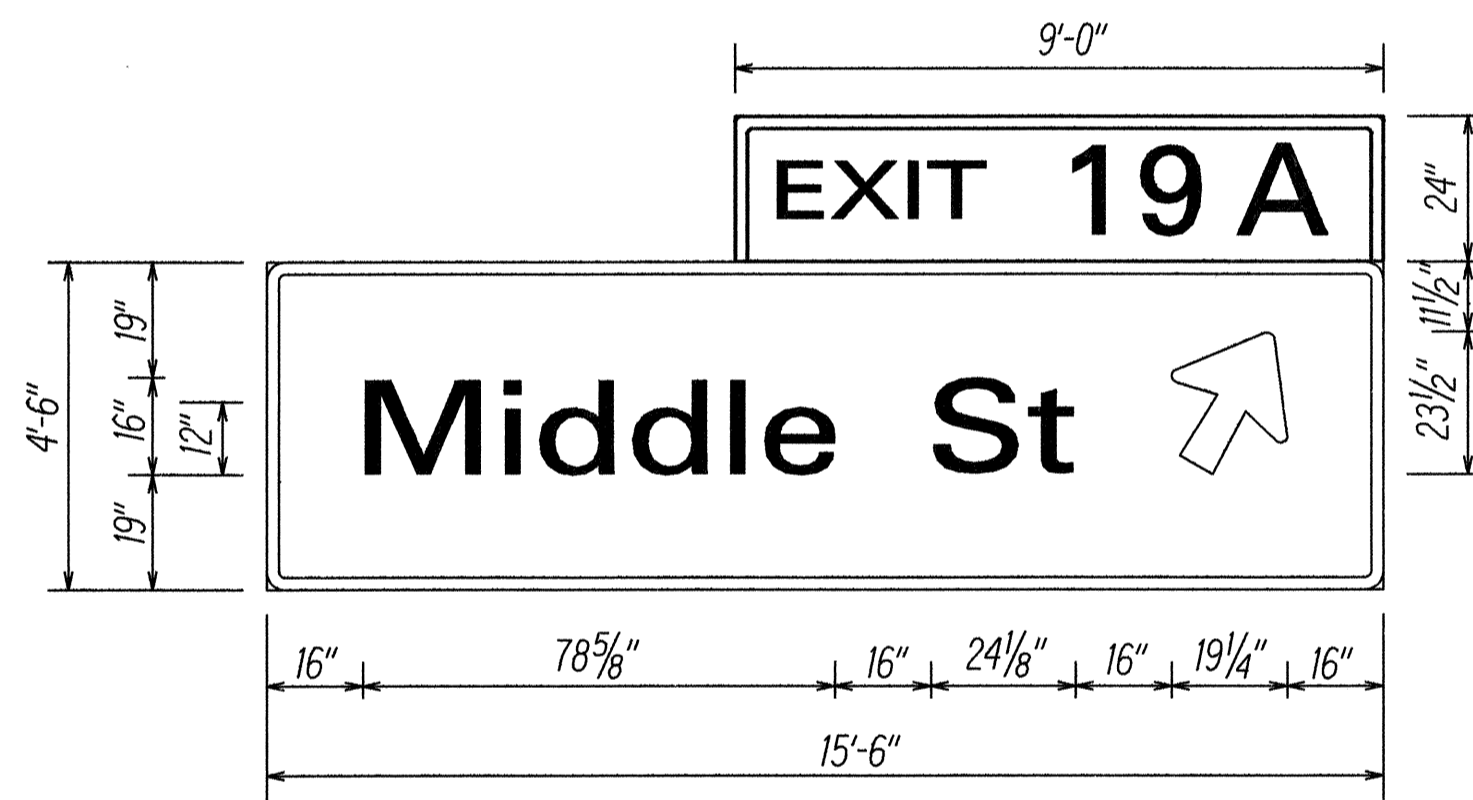
E-1(L)
Scale: $\frac{3}{8}'' = 1'-0''$



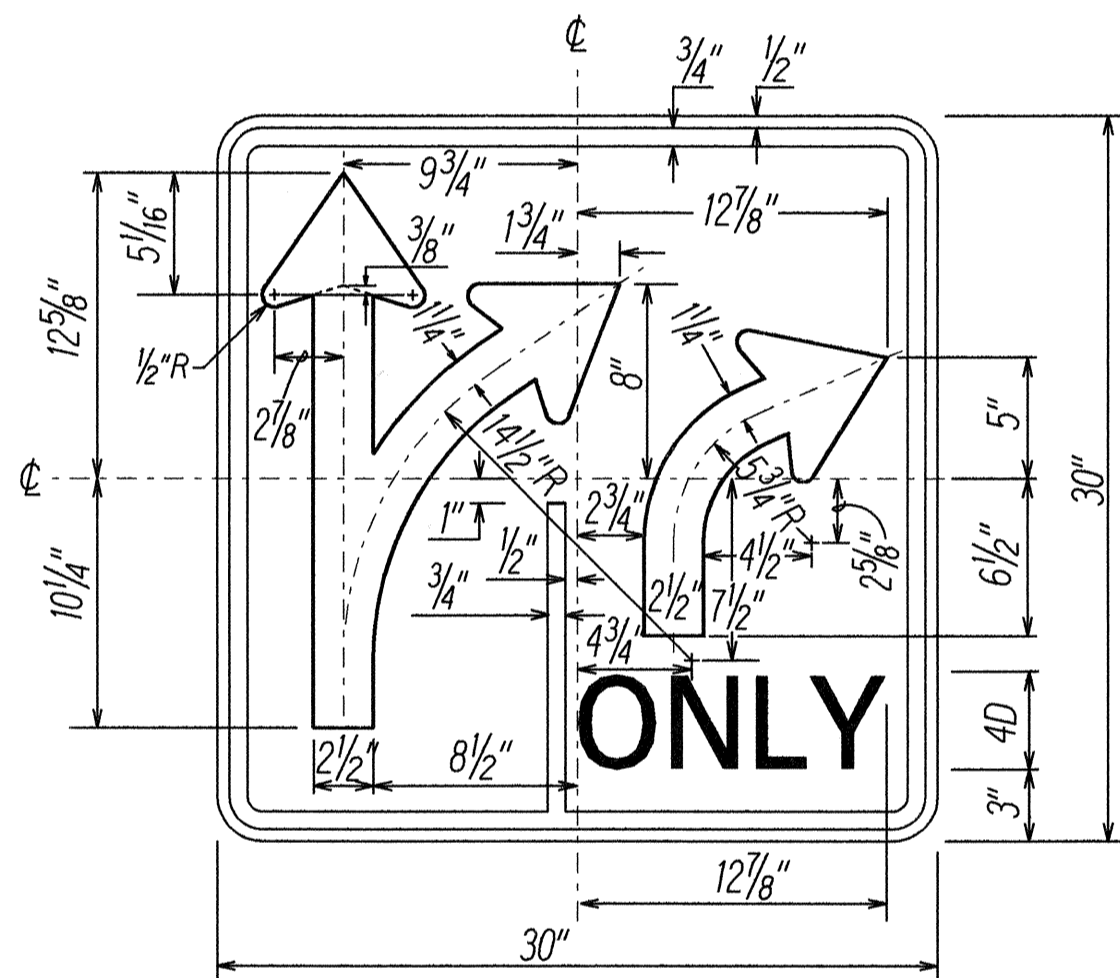
E-1(R)
Scale: $\frac{3}{8}'' = 1'-0''$



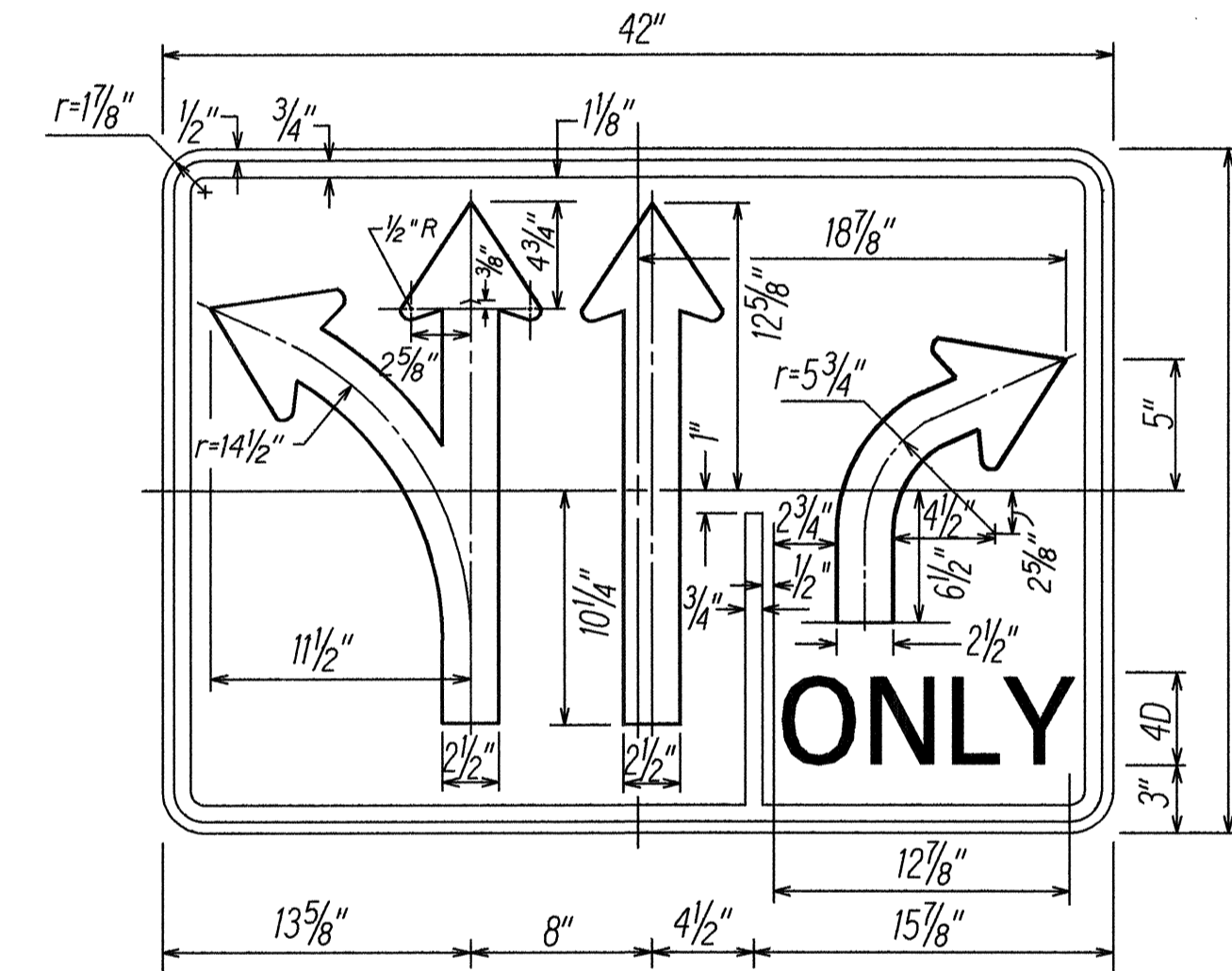
E-2
Scale: $\frac{3}{8}'' = 1'-0''$



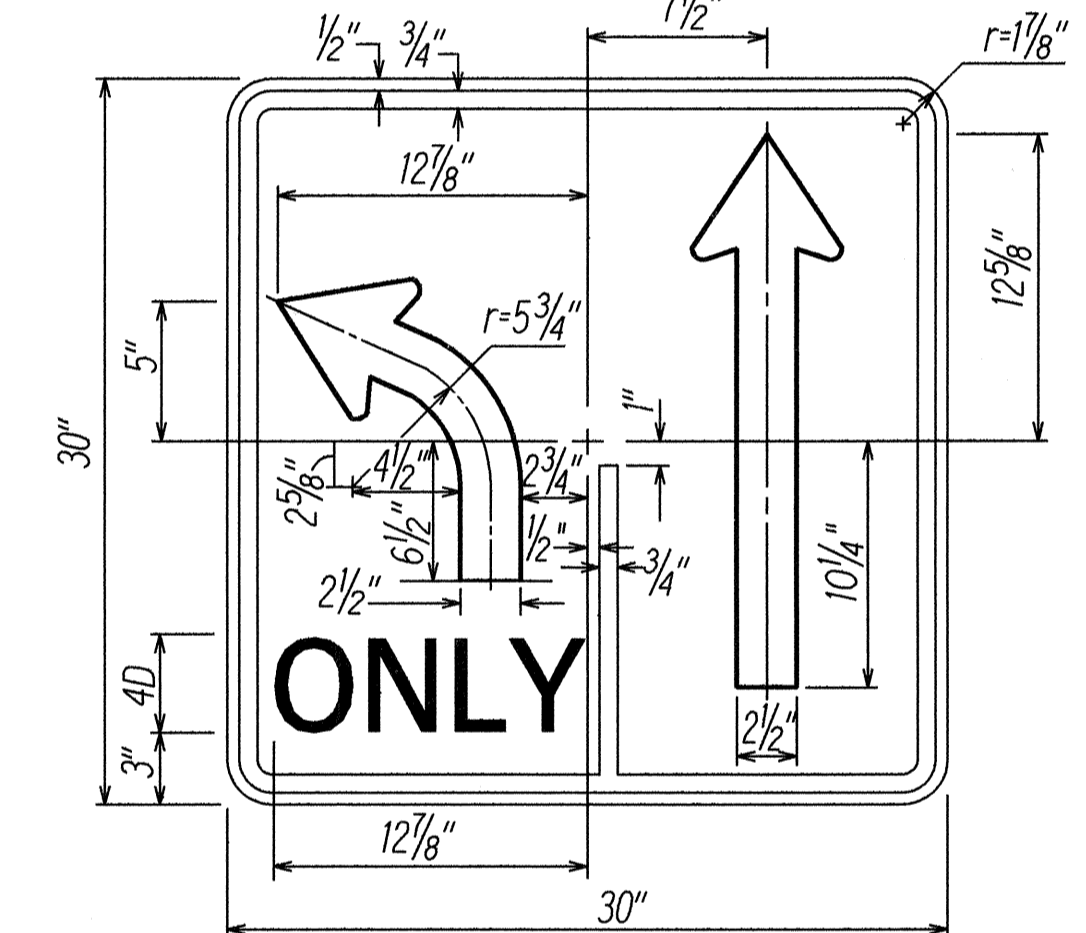
E-3
Scale: $\frac{3}{8}'' = 1'-0''$



R3-8(R)
Scale: $\frac{1}{2}'' = 1'-0''$

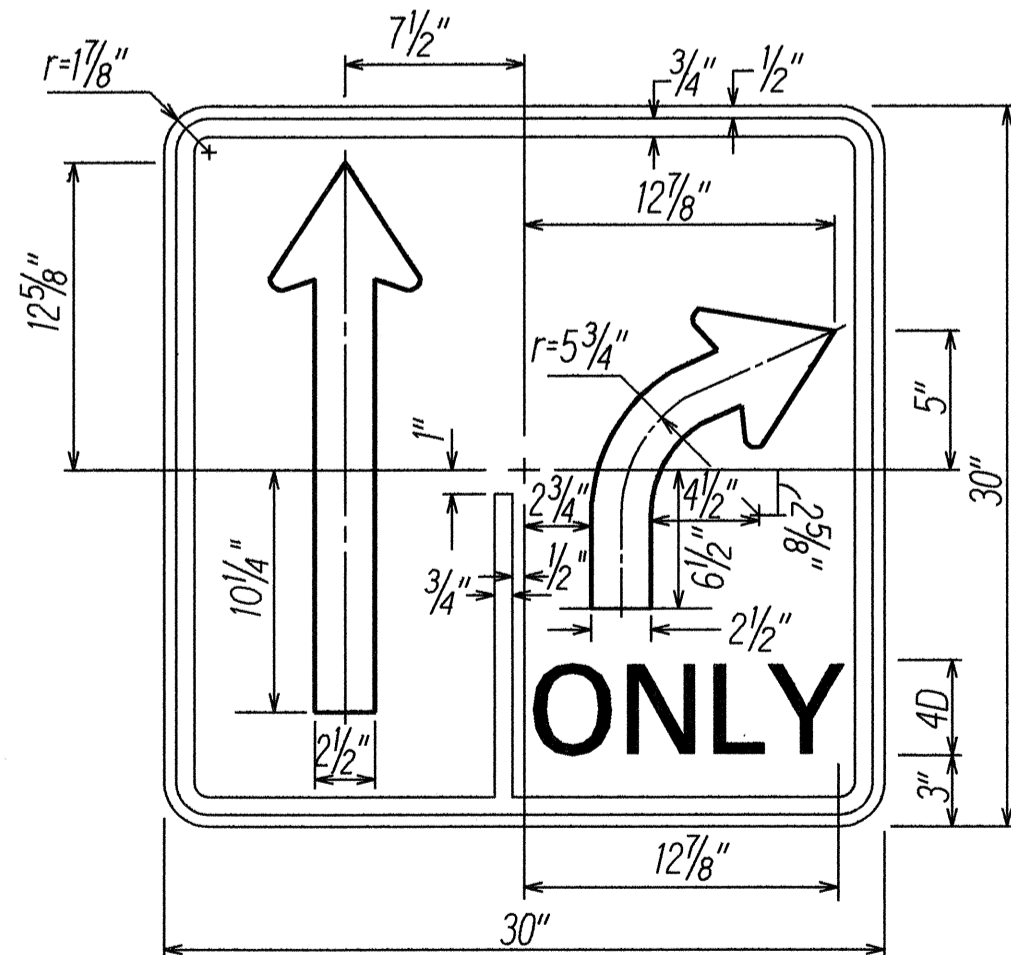


R3-13(R)
Scale: $\frac{1}{2}'' = 1'-0''$



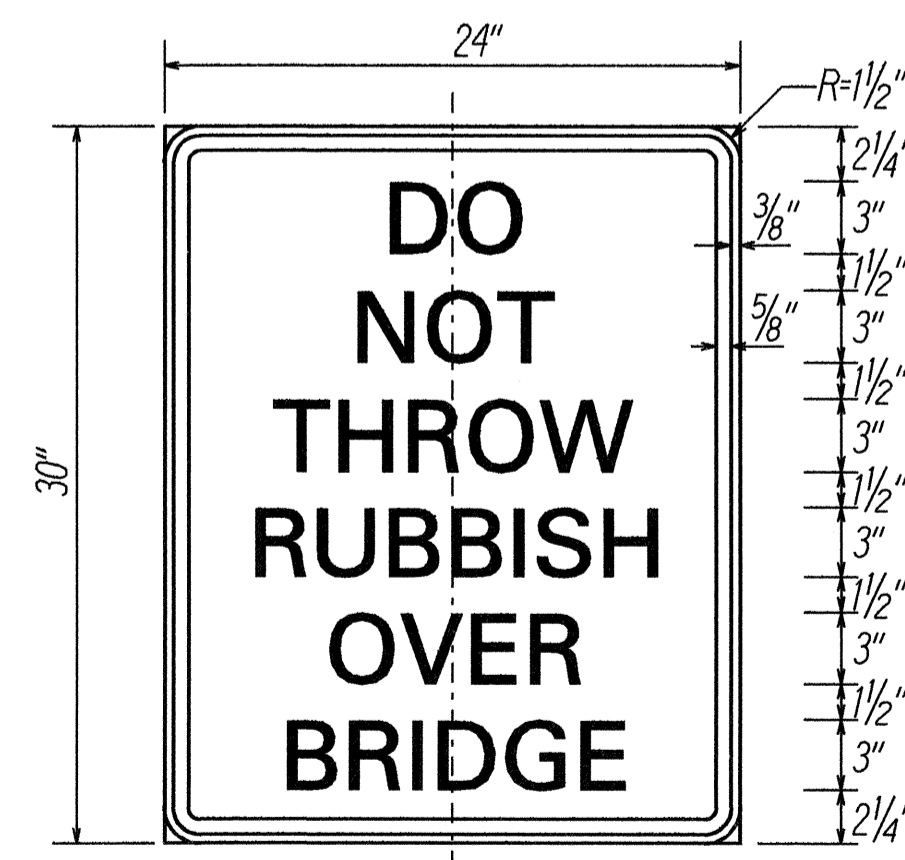
NOTE:
1. Sign R3-40 is a variation of sign R3-8. Plate and arrow details shall conform to sign R3-8.

R3-40(L)
Scale: $\frac{1}{2}'' = 1'-0''$



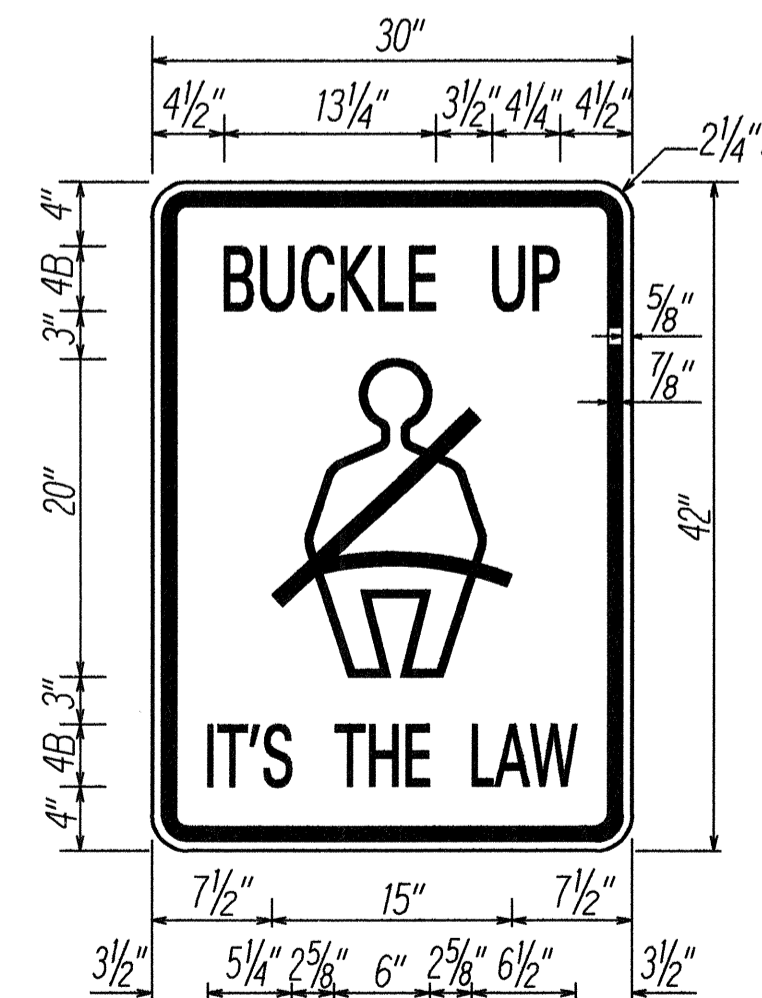
R3-40(R)
Scale: $\frac{1}{2}'' = 1'-0''$

NOTE:
1. Sign R3-40 is a variation of sign R3-8. Plate and arrow details shall conform to sign R3-8.

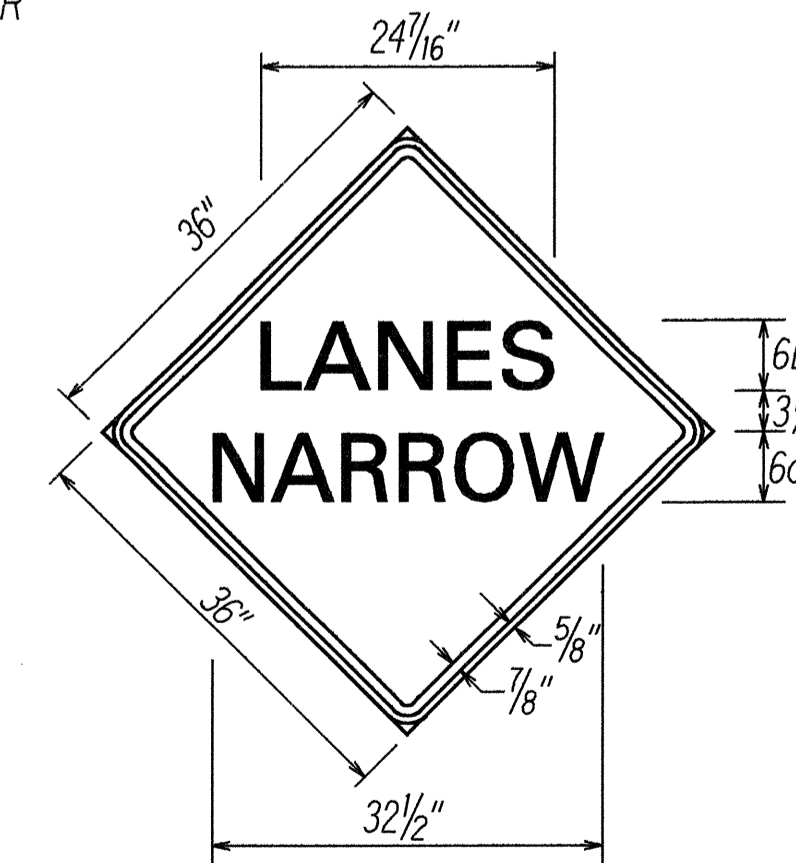


R8-9
Scale: $\frac{1}{2}'' = 1'-0''$

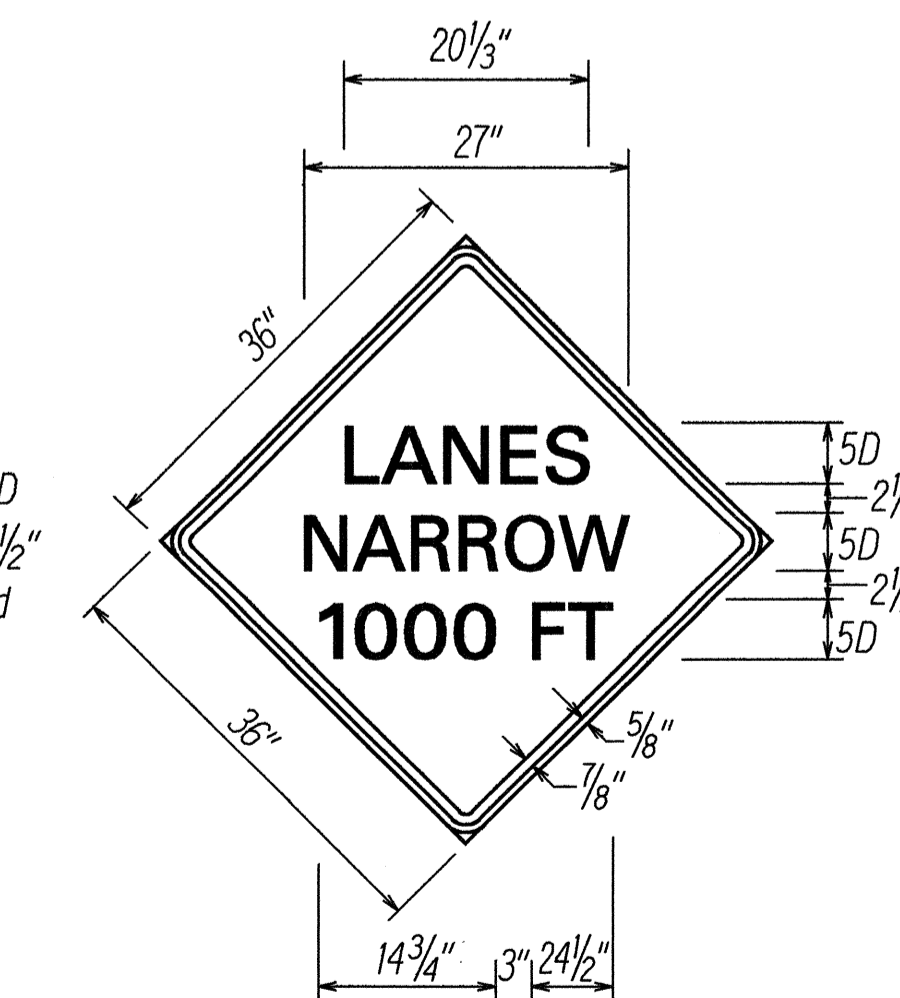
NOTE:
1. Use 3" Series C Letters
2. Reflectorized Red Legend and border on Reflectorized White Background



R16-1
Scale: $1'' = 1'-0''$



W5-1a
Scale: $\frac{3}{4}'' = 1'-0''$



W5-2a
Scale: $\frac{3}{4}'' = 1'-0''$

DATE
SURVEY PLOTTED BY
DRAWN BY	F. AHI
TRACED BY	C. ABE
QUANTITIES BY
CHECKED BY
ORIGINAL PLAN
NOTE BOOK
.....
.....
.....

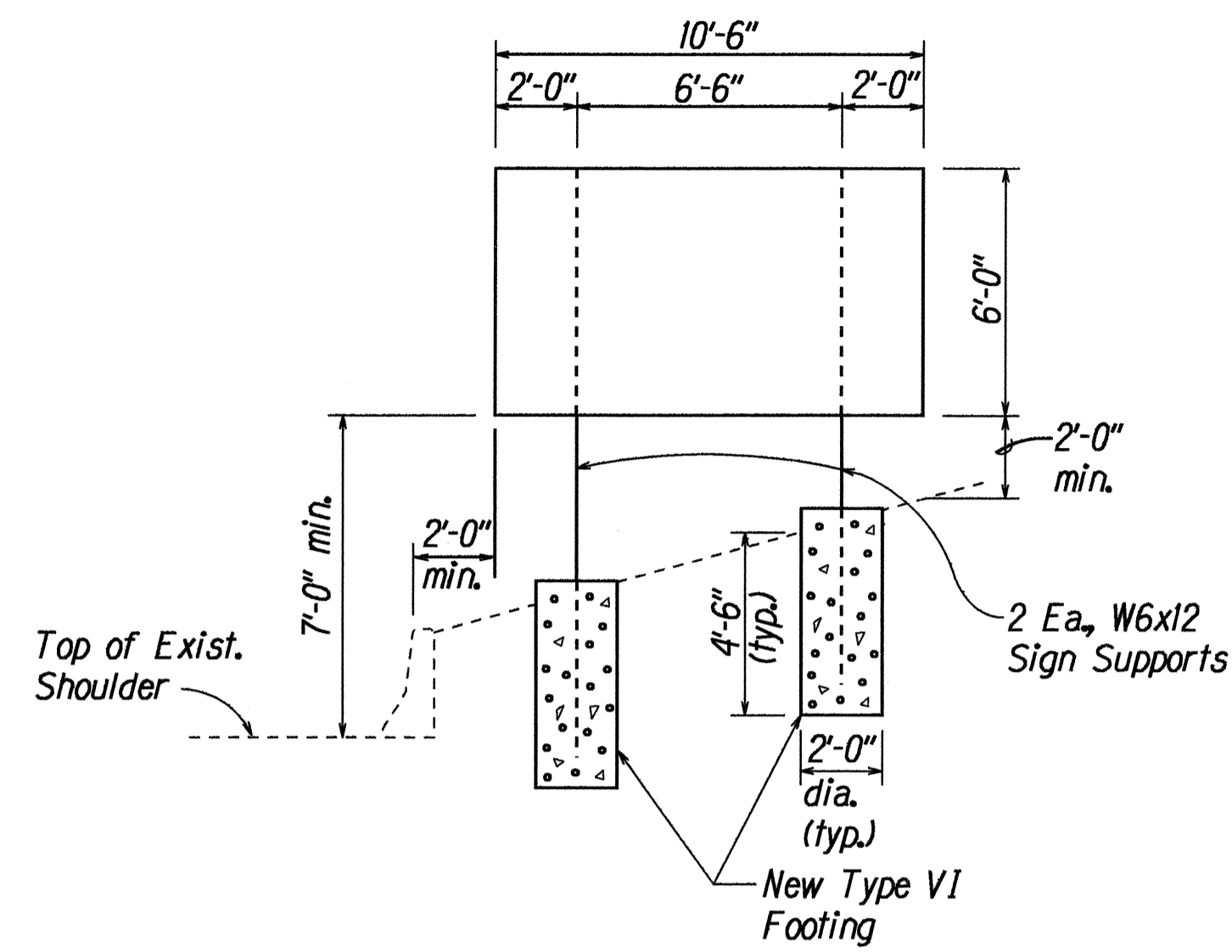
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN DETAILS

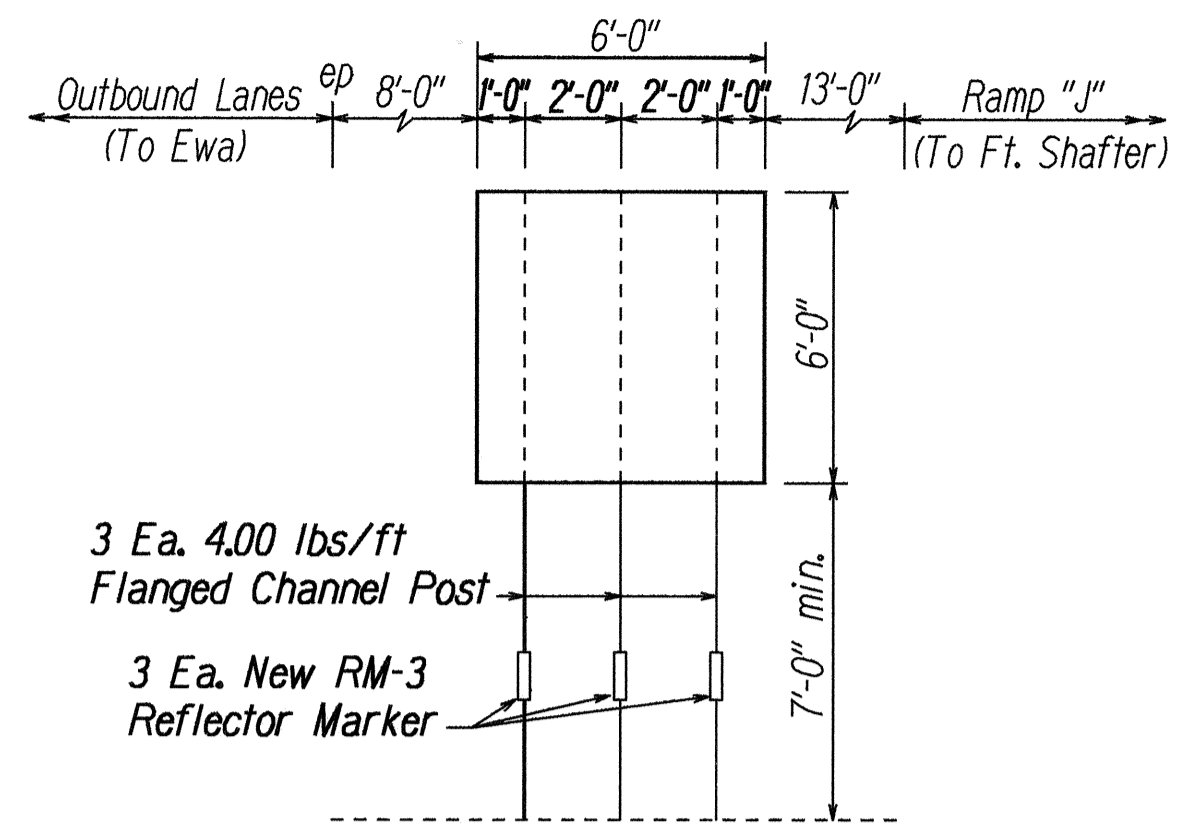
MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)

Scale: As shown Date: Nov., 1993
SHEET No. 11 OF 17 SHEETS

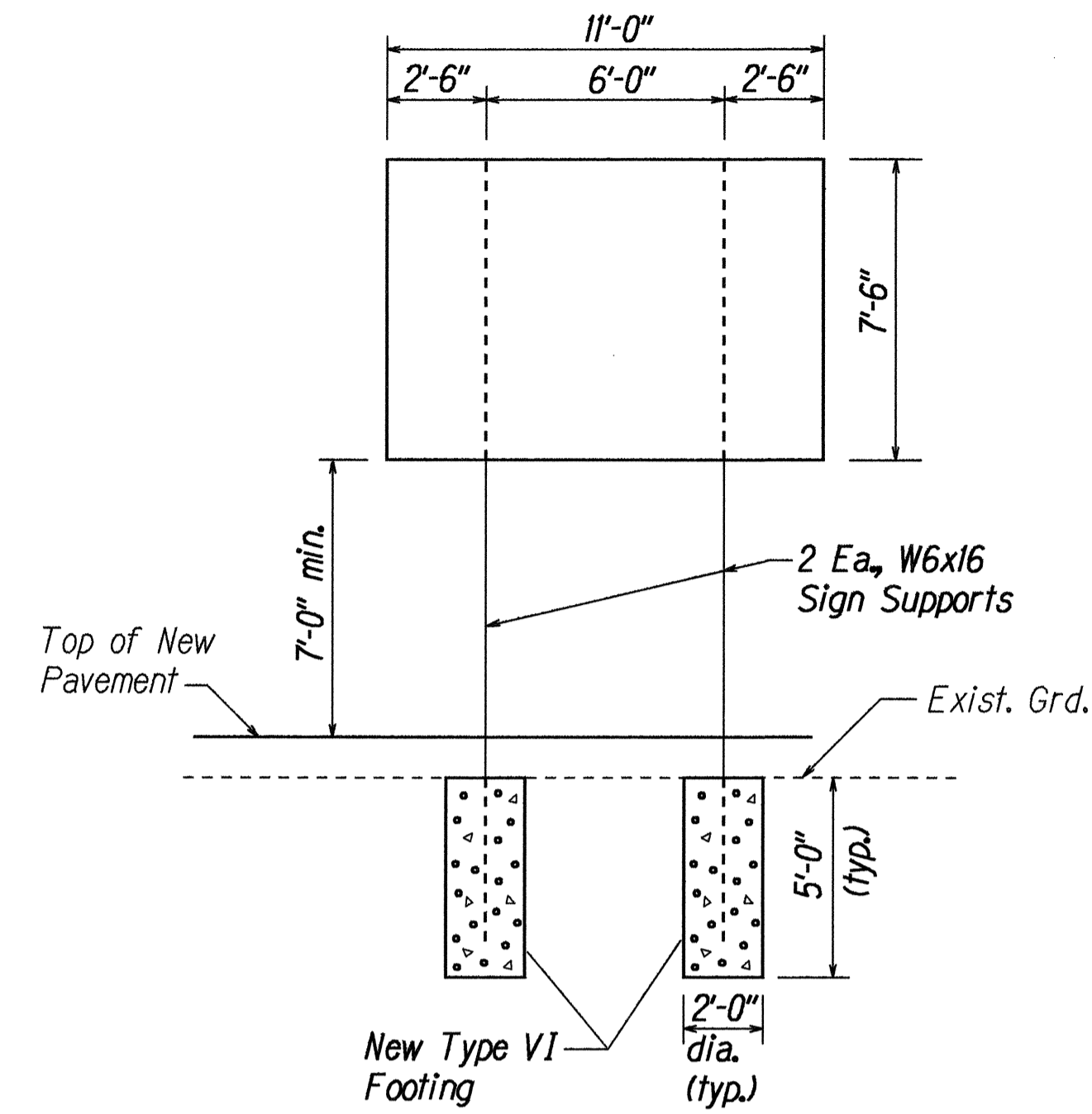
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	27	32



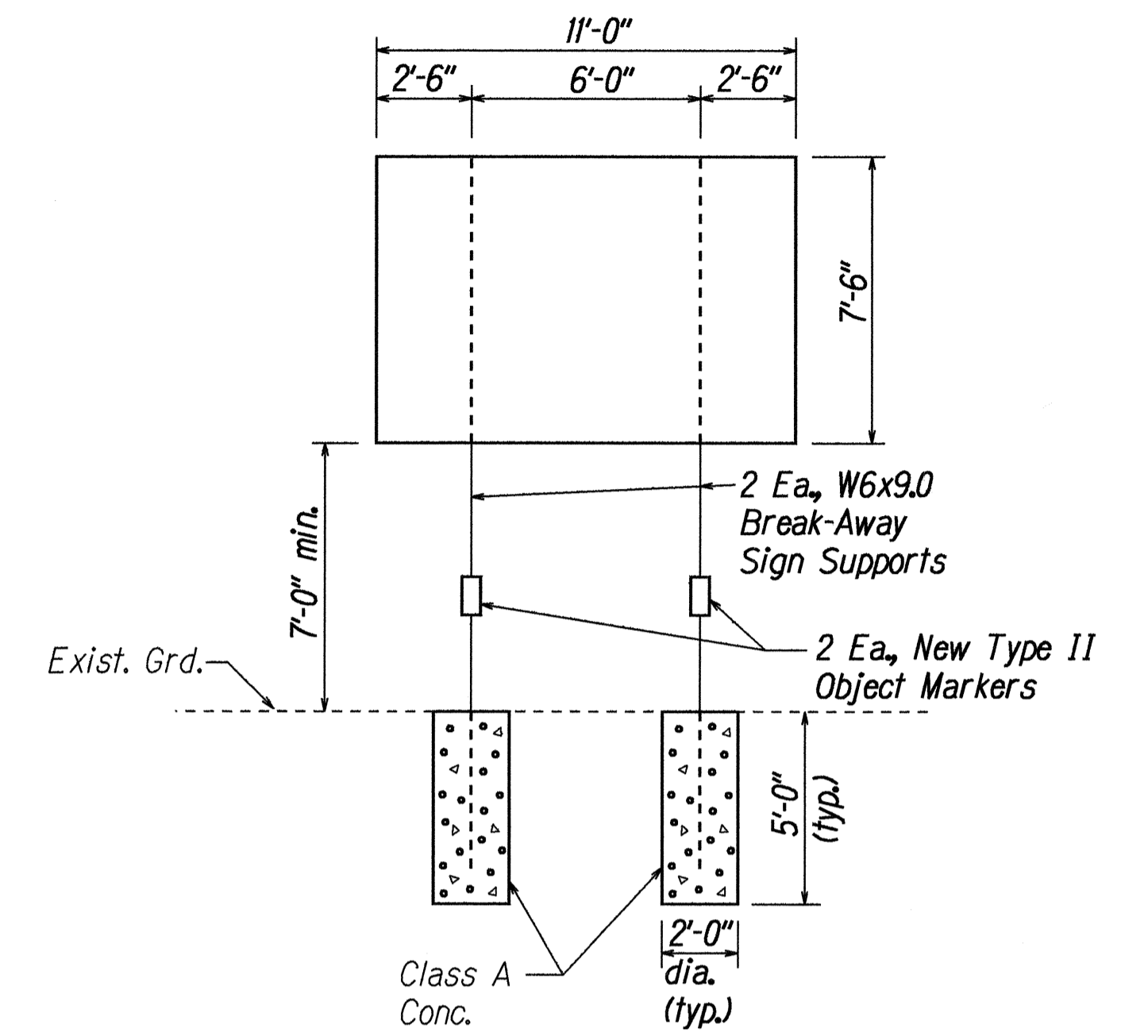
D-2
Scale: 1/4" = 1'-0"



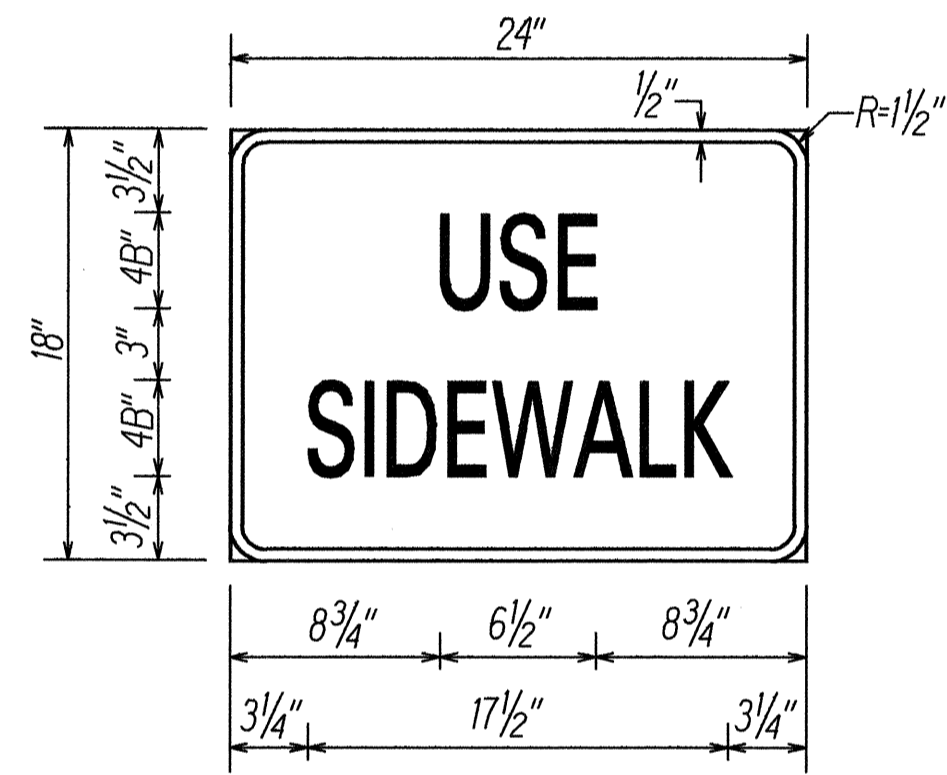
D-9
Scale: 1/4" = 1'-0"



D-11
Scale: 1/4" = 1'-0"

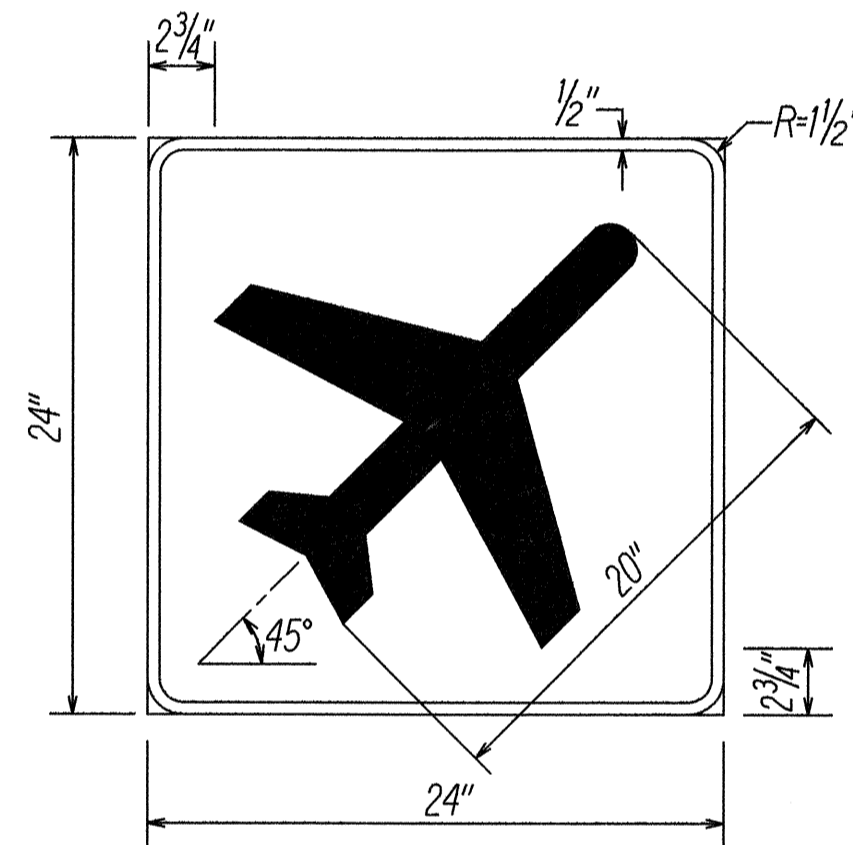


D-12
Scale: 1/4" = 1'-0"



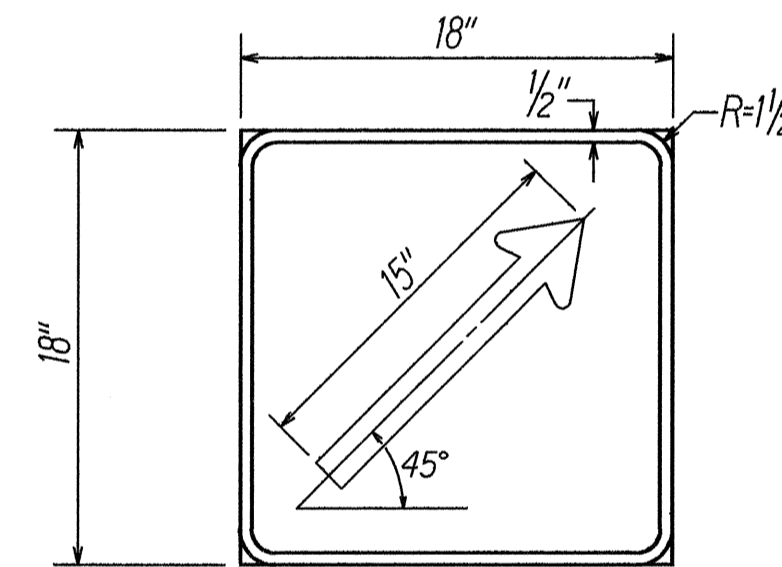
NOTE:
1. Sign D11-1A is a supplement to Sign D11-1.
2. Reflectorized White Legend and Border on Green Background.

D11-1A
Scale: 1/2" = 1'-0"

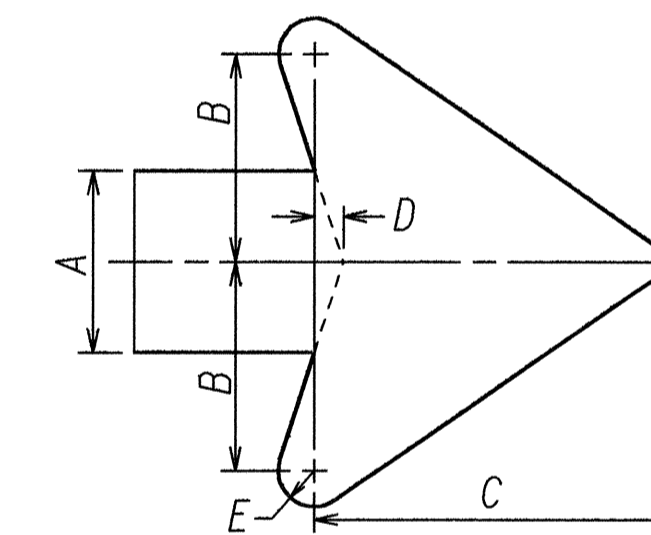


NOTE:
Reflectorized White Legend and Border on Green Background

I-5(R)
Scale: 1/2" = 1'-0"

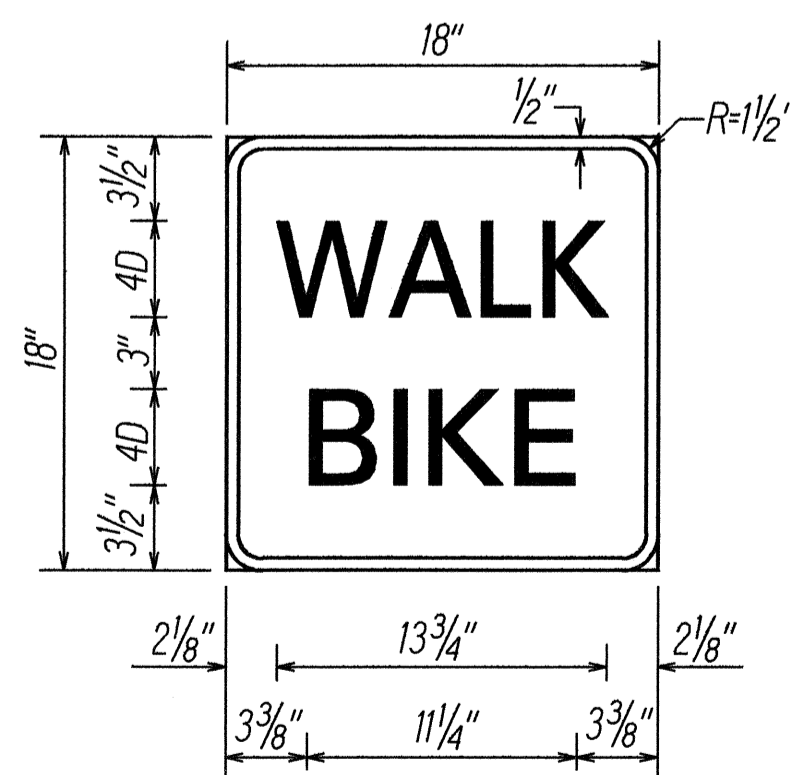


I-5A(R)
Scale: 1/2" = 1'-0"



ARROW DIMENSIONS (inches)				
A	B	C	D	E
1/2	1 3/4	3	1/4	1/3

ARROW DETAIL FOR SIGN I-5A(R)
Not to Scale



R-20-1
Scale: 1/2" = 1'-0"

ORIGINAL PLAN	DATE: 11/23
SURVEY PLOTTED BY	
DRAWN BY B. Achi	
CHECKED BY C. Abo	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN DETAILS

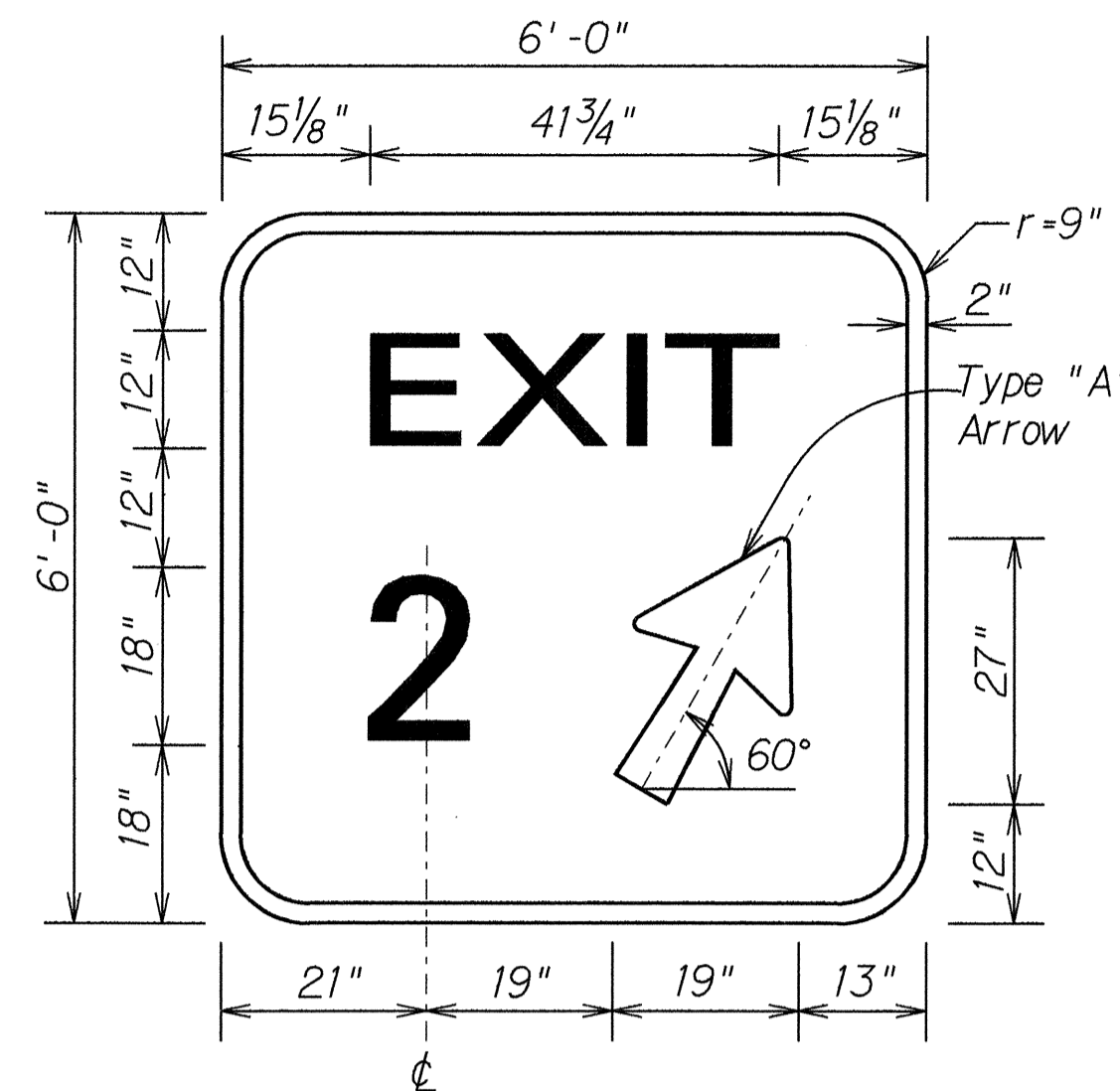
FRAME LAYOUT

MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)

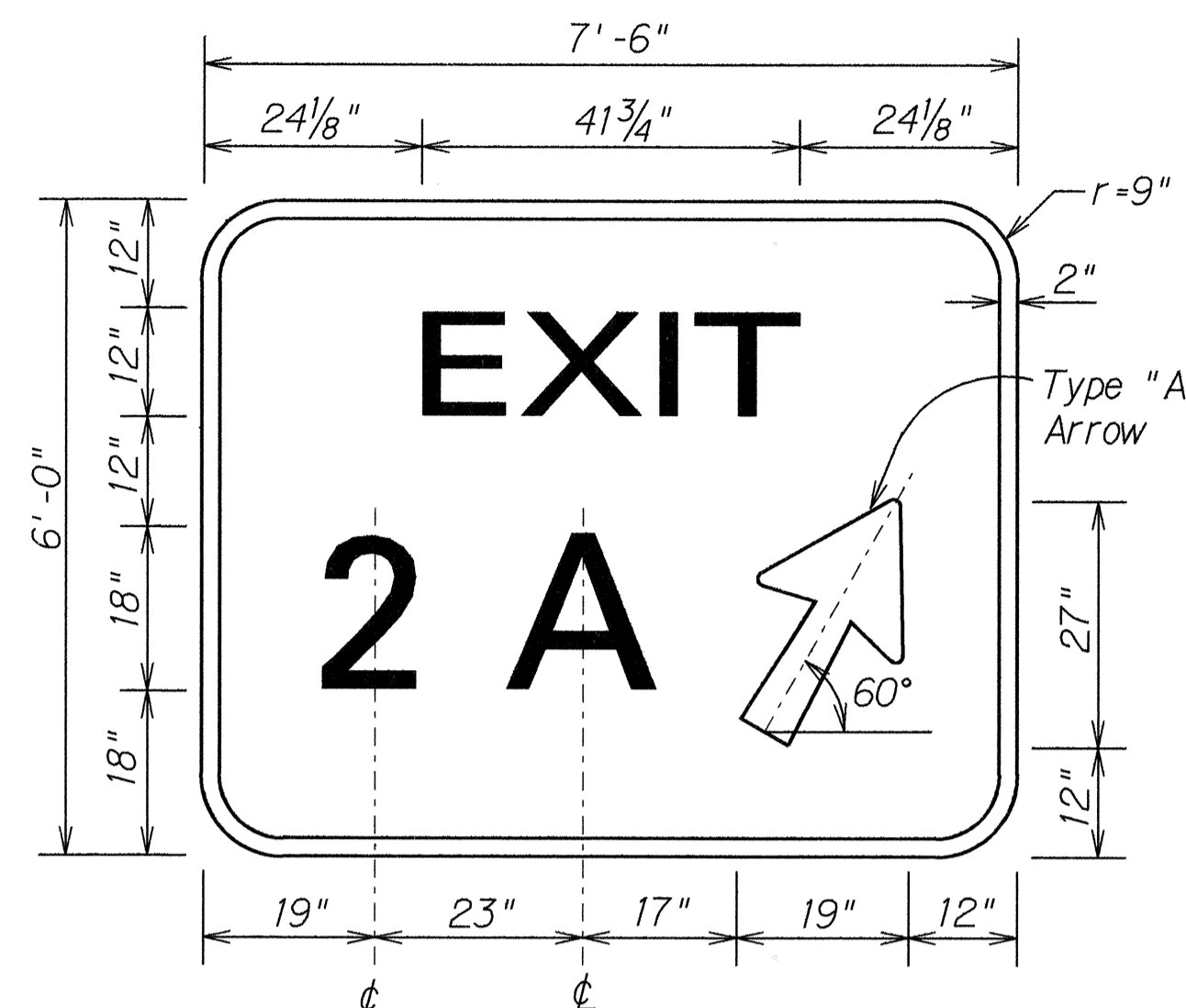
Scale: As Shown Date: Nov., 1993

SHEET No. 27 OF 17 SHEETS

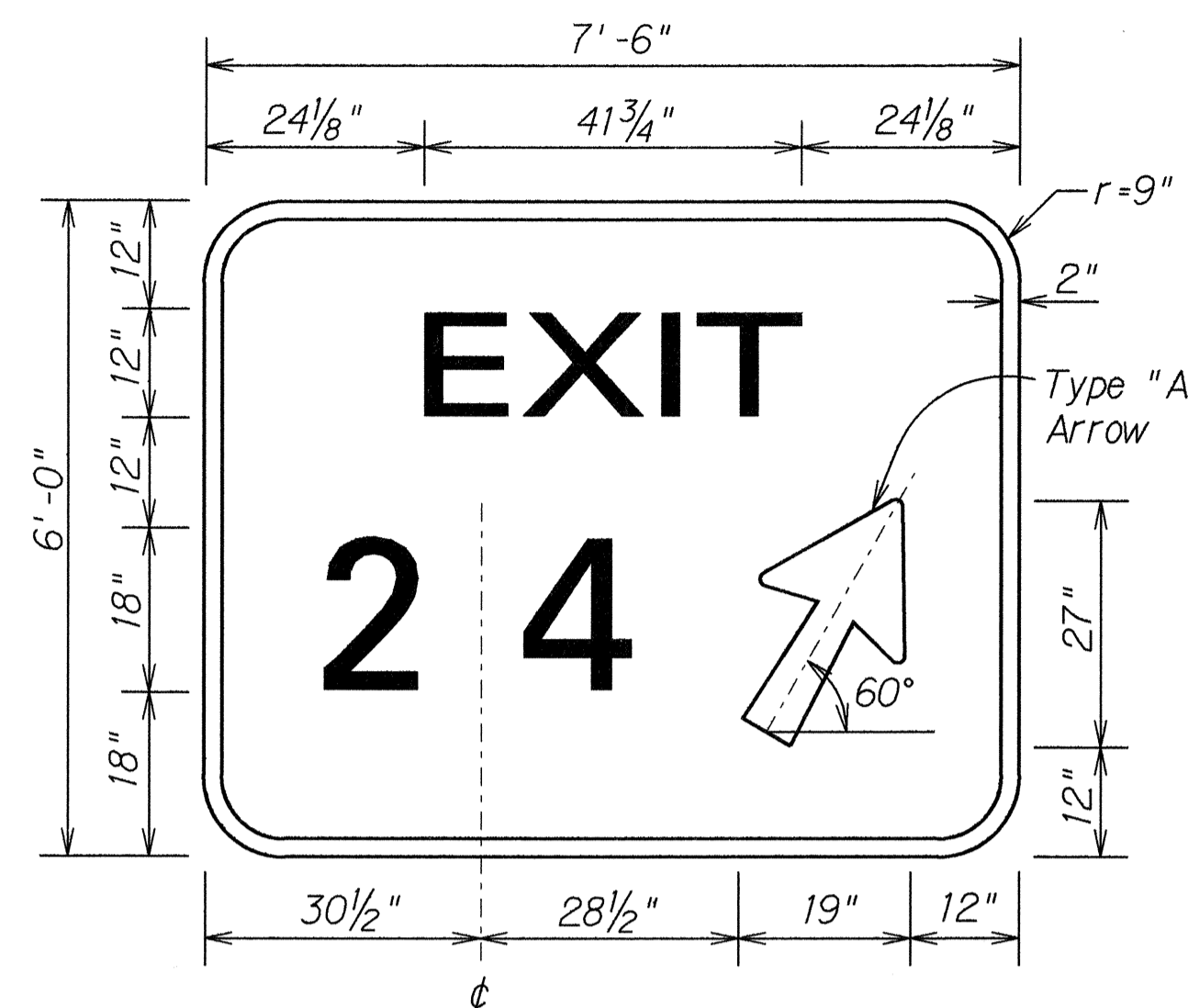
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	28	32



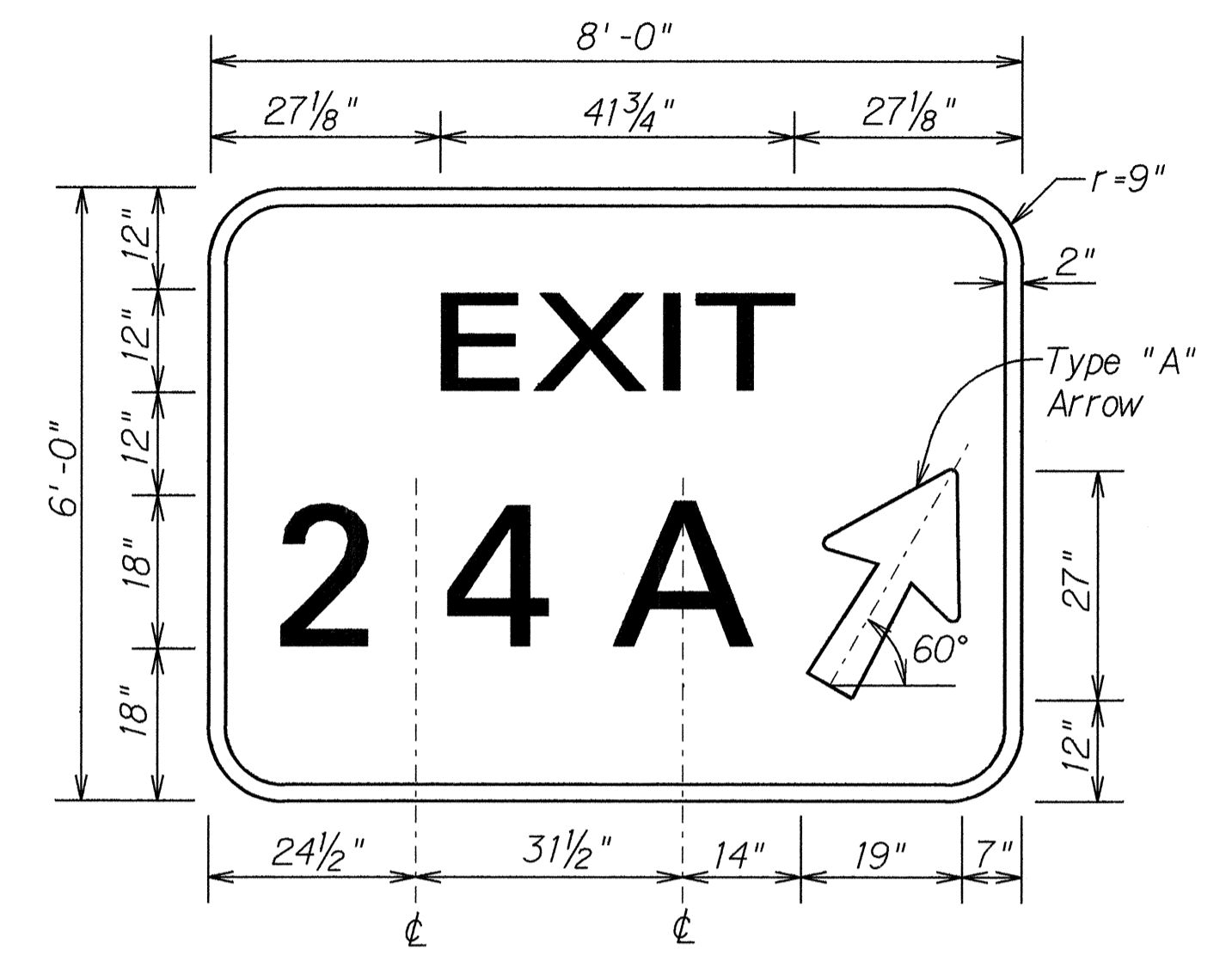
SINGLE NUMBER



SINGLE NUMBER
SINGLE LETTER

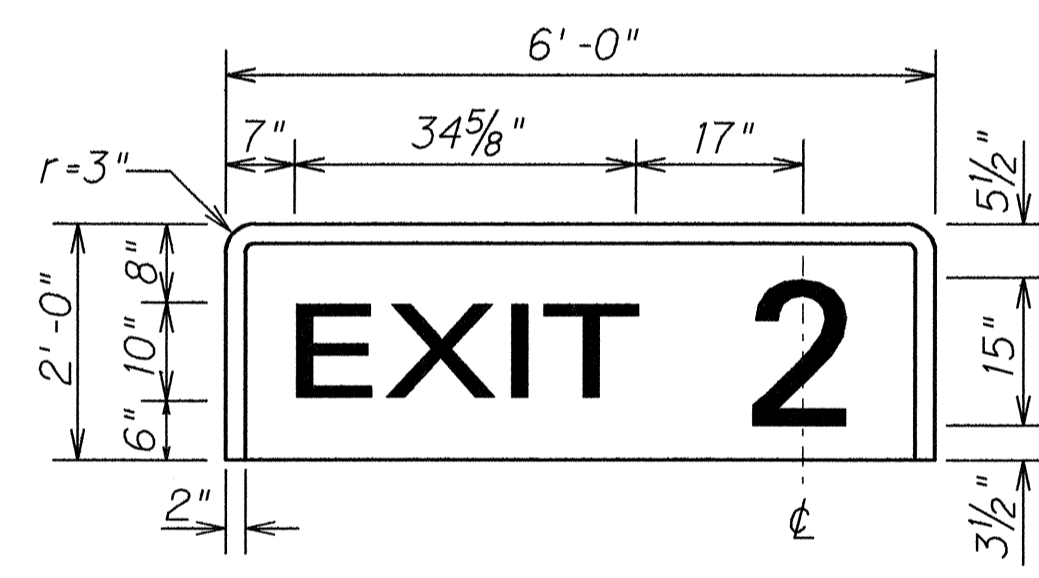


DOUBLE NUMBER

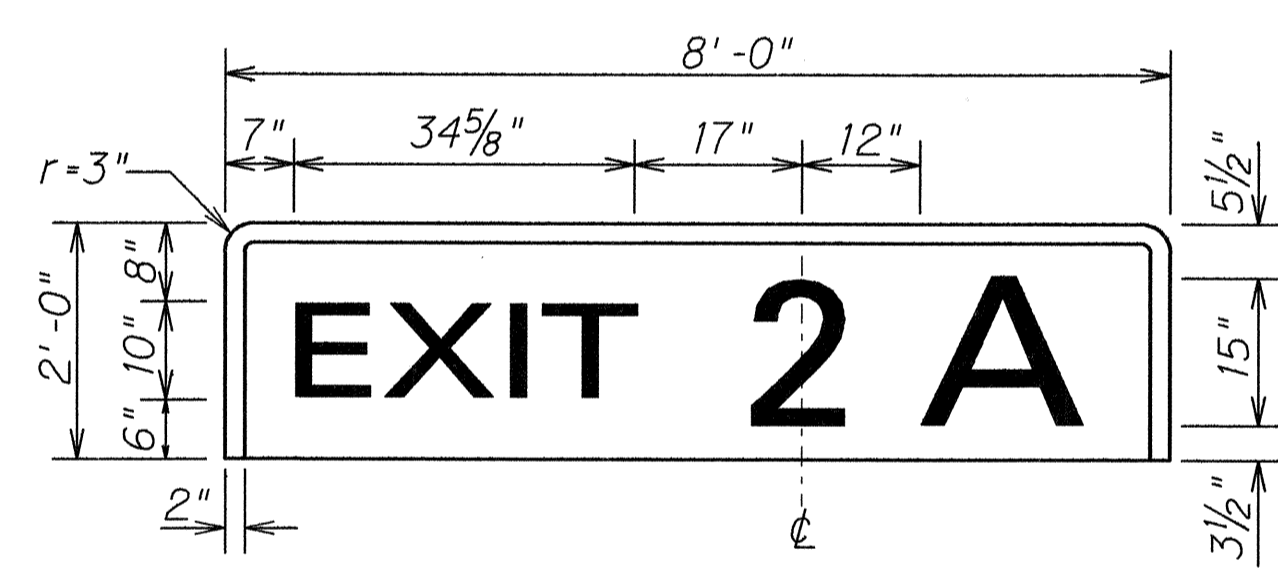


DOUBLE NUMBER
SINGLE LETTER

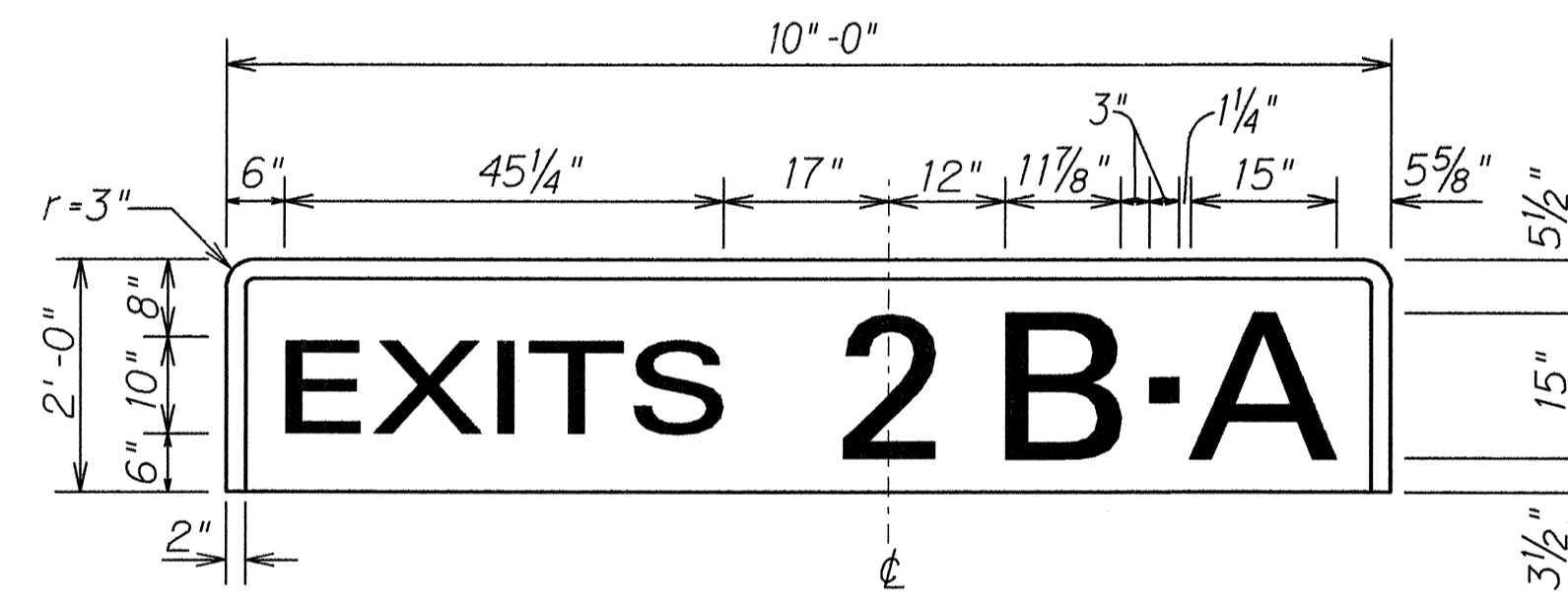
GORE EXIT SIGNS
Not to Scale



SINGLE NUMBER

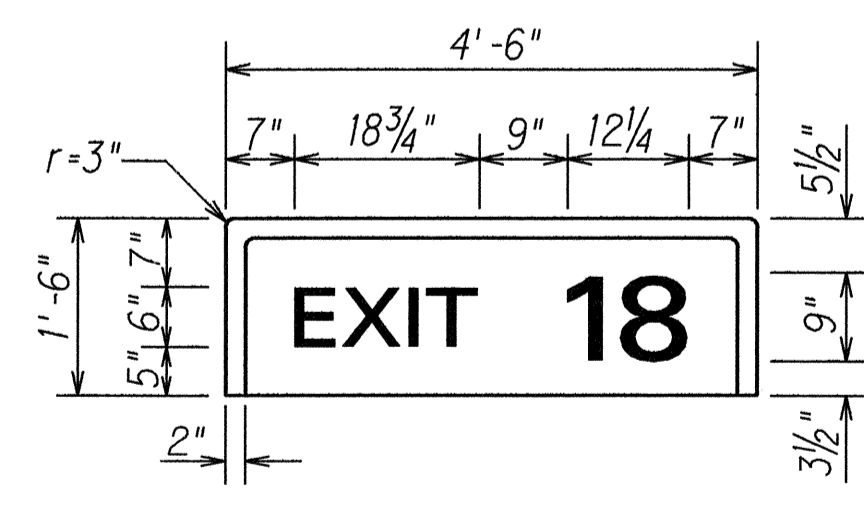


SINGLE NUMBER
W/SINGLE LETTER

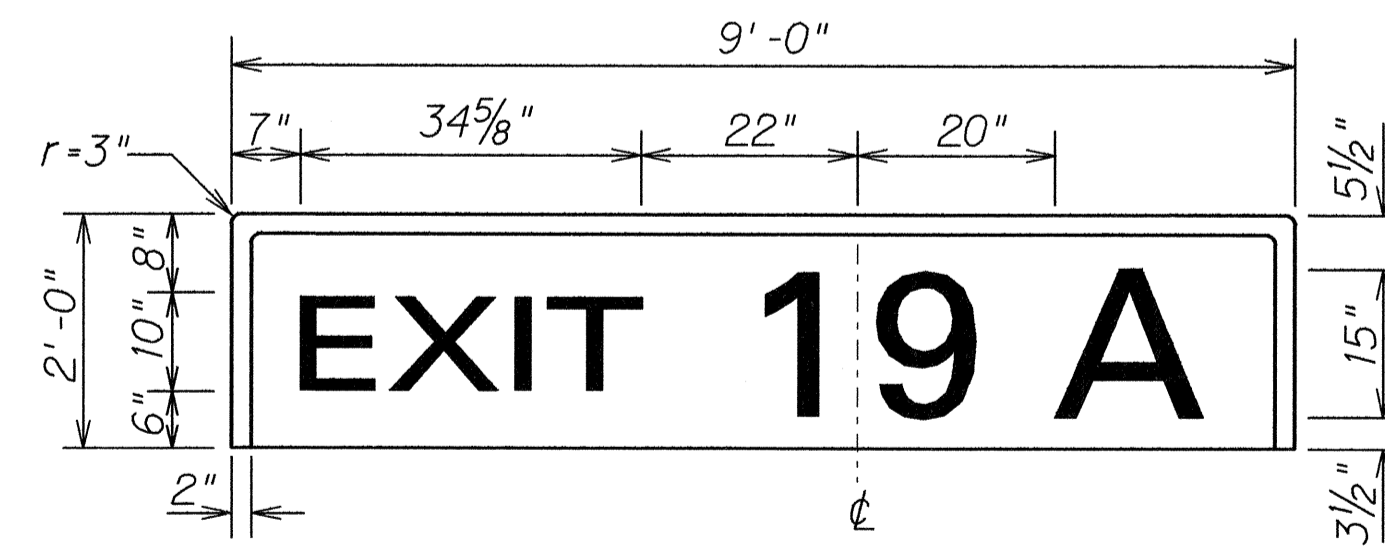


SINGLE NUMBER
W/DOUBLE LETTER

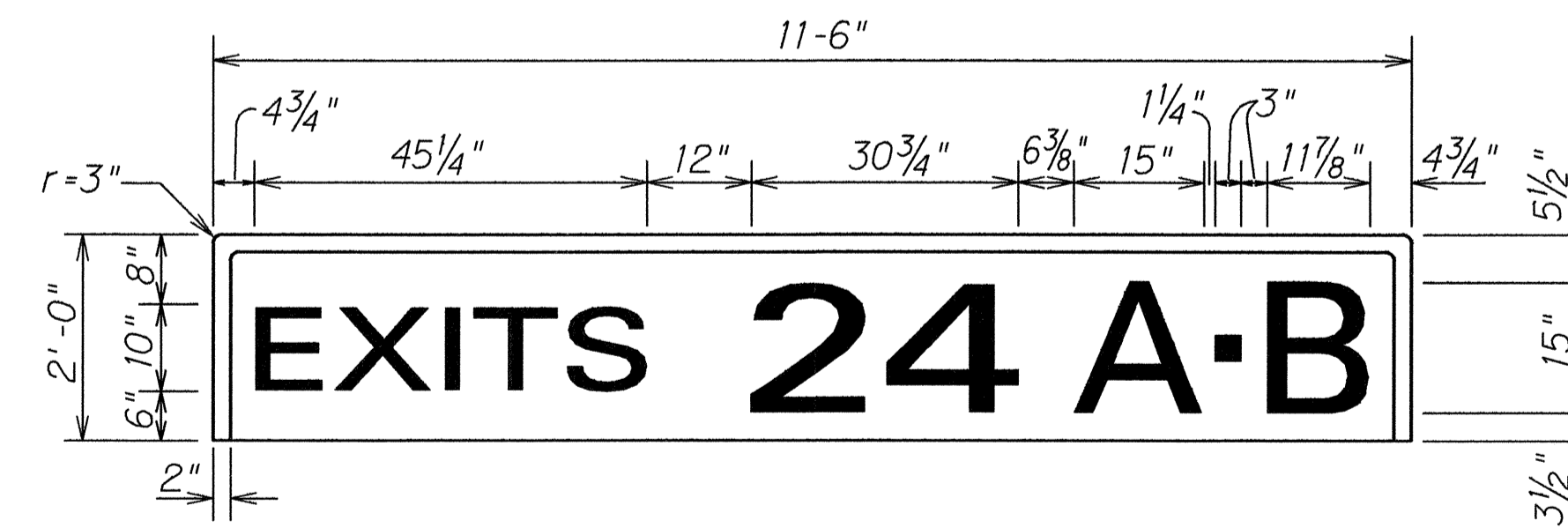
1. Design of Exit Number Panels shall conform to plans and specifications for either the Expressway or Destination Sign to which the Exit Number Panel will be attached.
2. Sign message shall be lettered in uppercase according to Standard Alphabets for Highway Signs, FHWA, 1966. Use Series "E" letters unless otherwise noted.
3. Arrows, Borders, and Route Markers shall conform with details as shown on standard plans and/or as specified in the MUTCD.
4. Contractor shall submit for approval, shop drawings for the attachment of Exit Number Panels to Sign Panels.



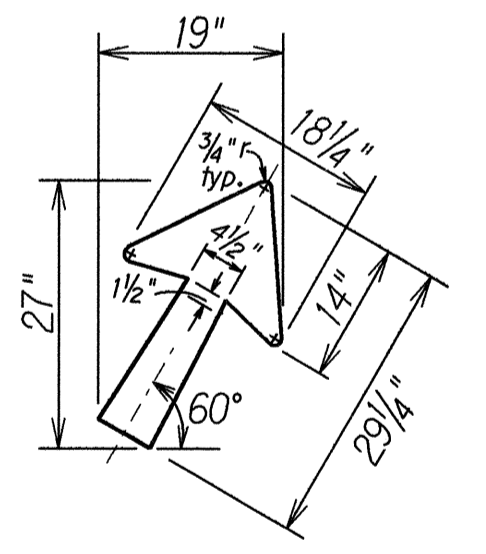
DOUBLE NUMBER



DOUBLE NUMBER
W/SINGLE LETTER



DOUBLE NUMBER
W/DOUBLE LETTER



TYPE "A" DIAGONAL
ARROW DETAIL

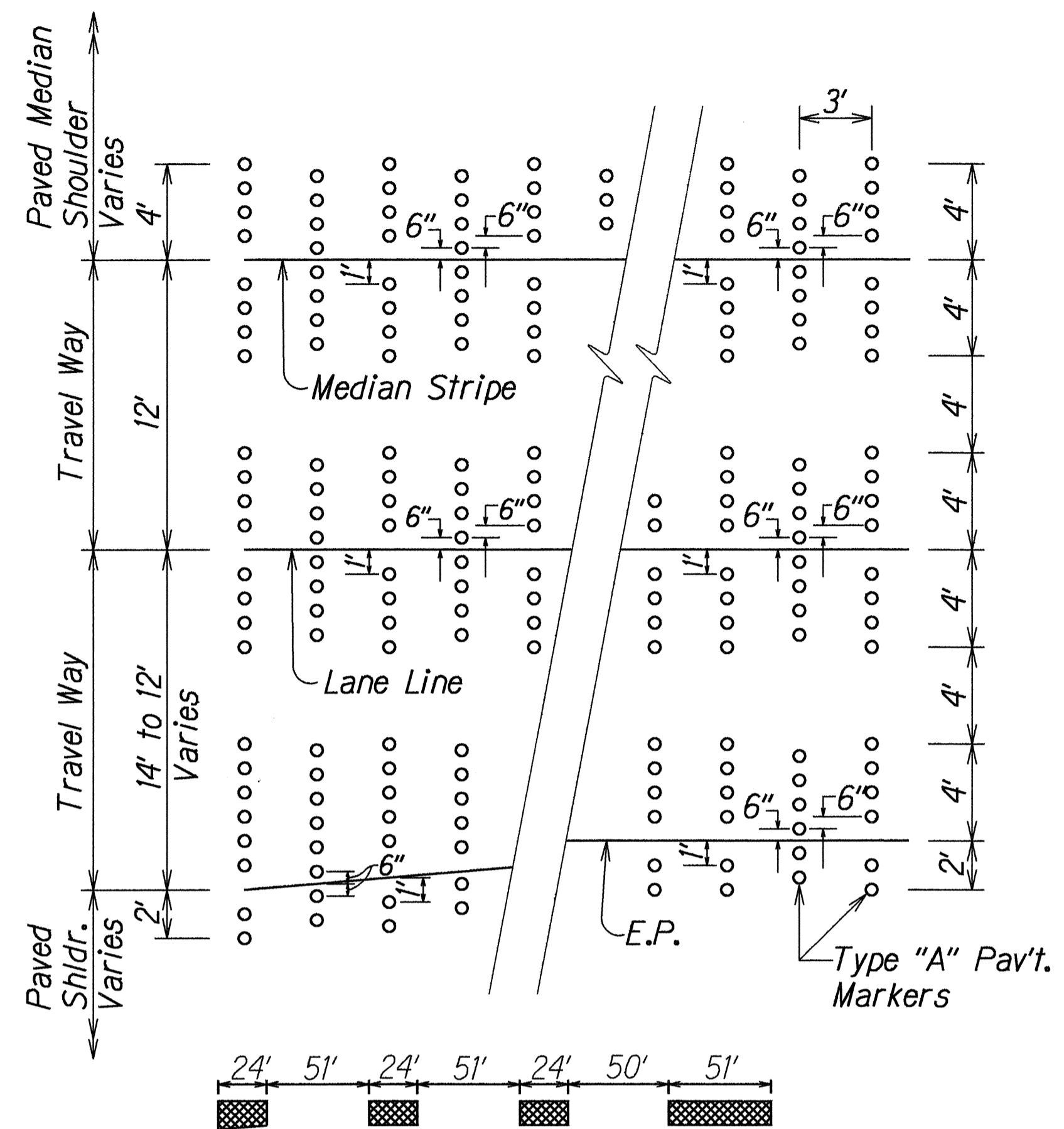
Scale: 5/8" = 1'-0"

EXIT NUMBER PANELS
Not to Scale

SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: H. A. J. I.
 CHECKED BY: _____
 QUANTITIES BY: _____
 ORIGINAL PLAN: _____
 NOTE BOOK: _____
 10/1/93
 3/20/93

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**TYPICAL EXIT NUMBER
SIGN PANEL LAYOUT**
 MOANALUA FREEWAY RESURFACING
 Moanalua Stream Bridge to Middle Street
 F. A. Project No. IM-H-20(1)
 Scale: As Shown Date: Nov., 1993
 SHEET No. T13 OF 17 SHEETS

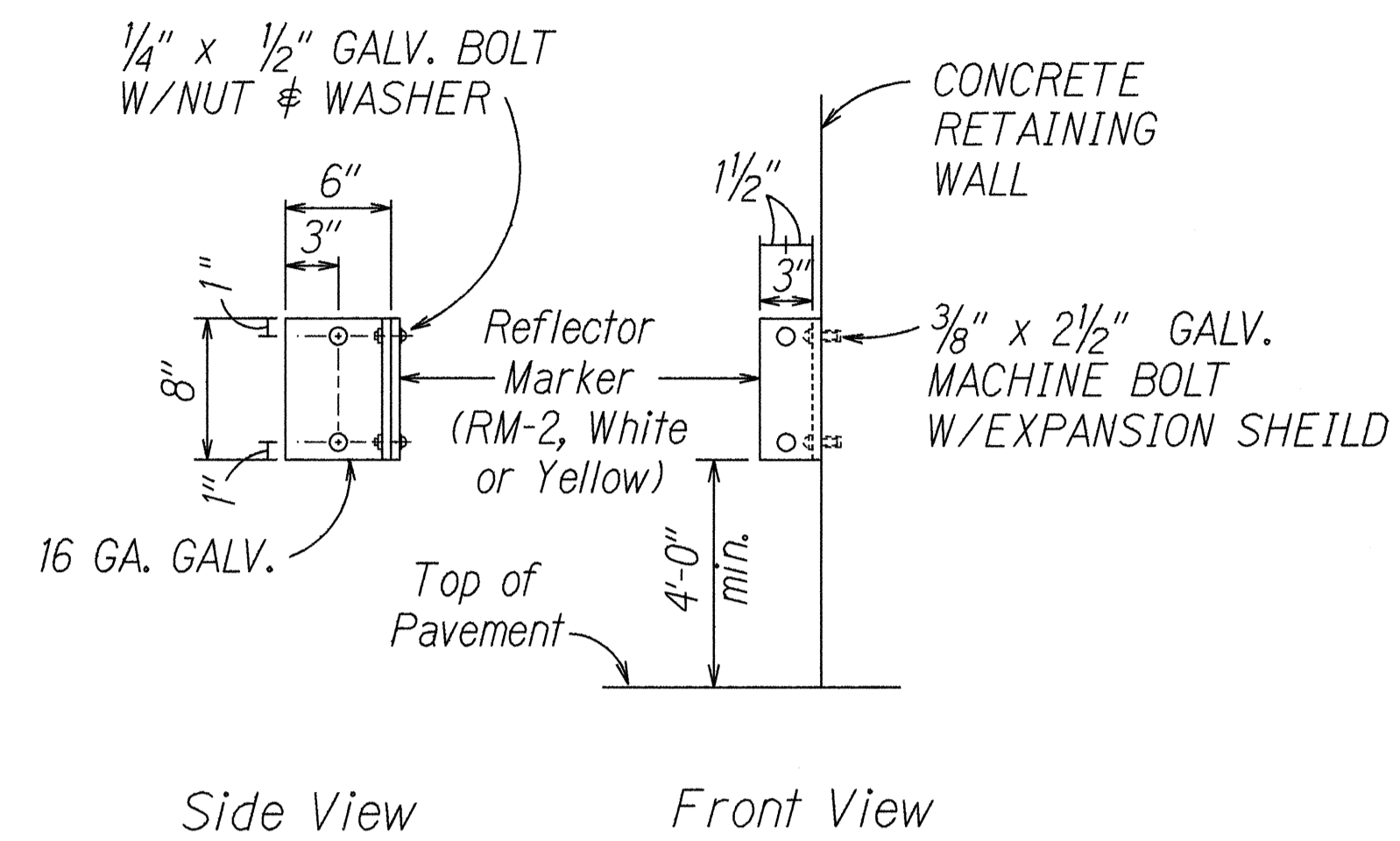
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-H-20(1)	1994	29	32



NOTE: Rumble Strip will be paid under "Type A" Pavement Marker

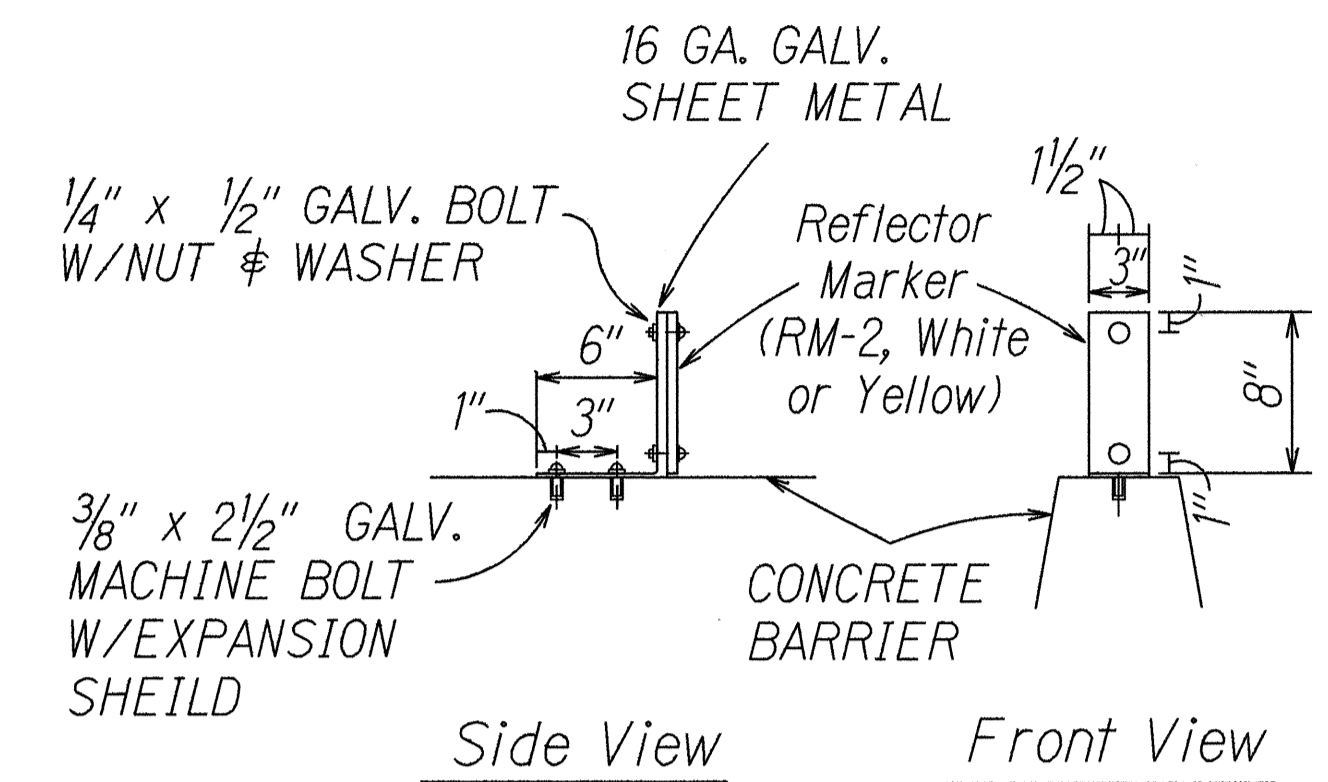
RUMBLE STRIP - LAYOUT AND DETAIL

Not to Scale



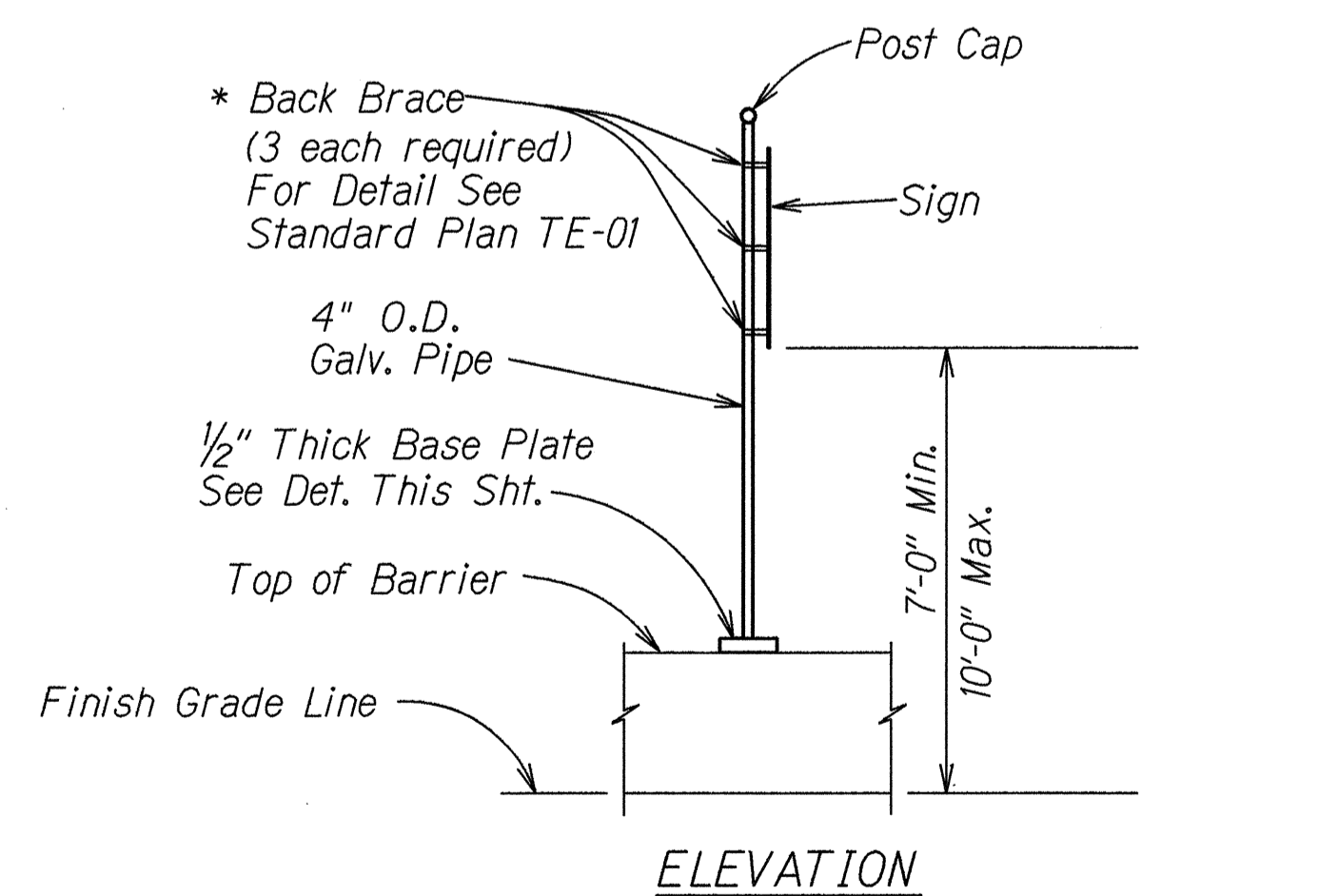
WALL MOUNTED REFLECTOR MARKER

Not to Scale



CONCRETE BARRIER MOUNTED REFLECTOR MARKER

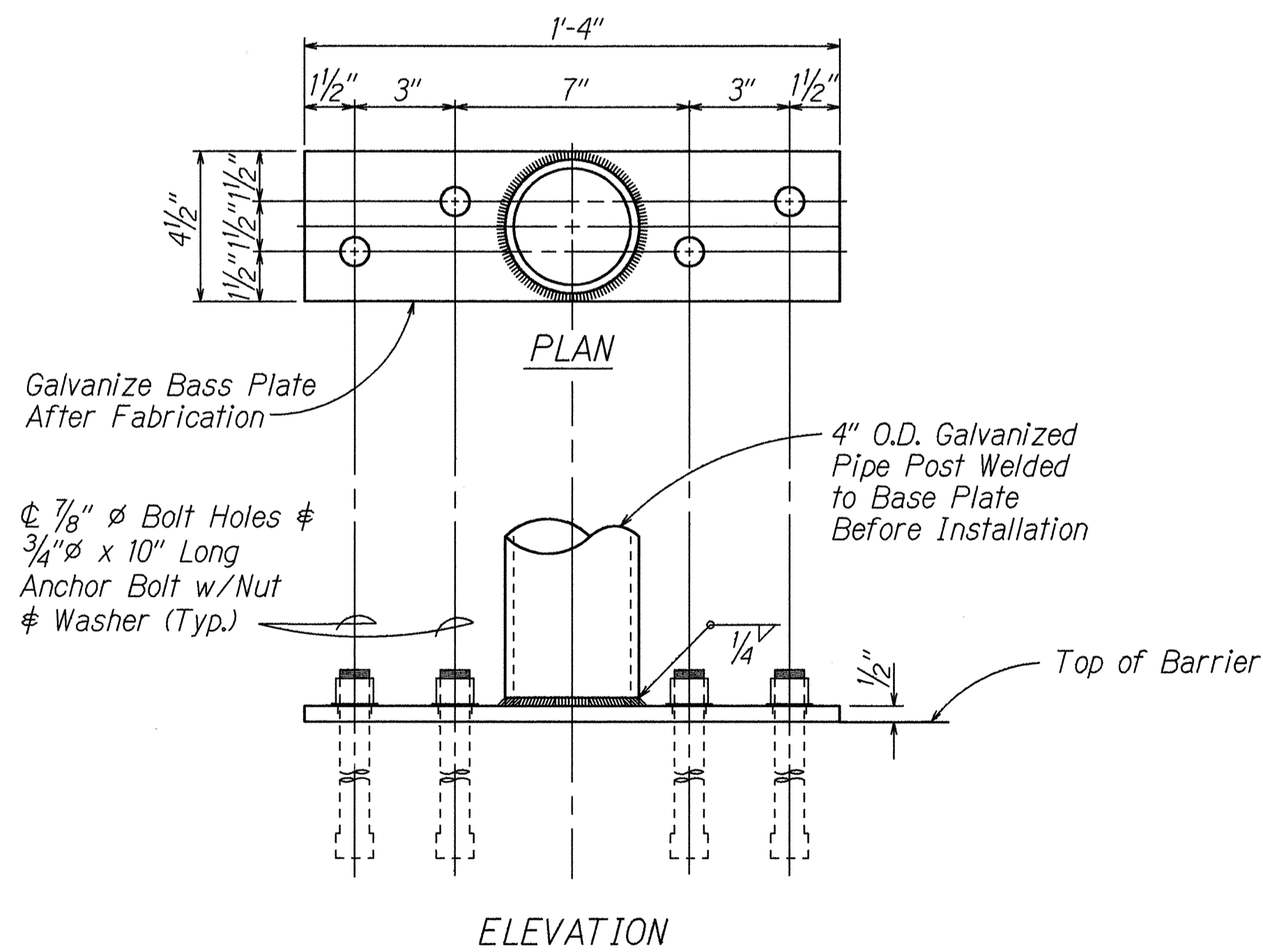
Not to Scale



SIGN MOUNTED ON CONCRETE BARRIER

Not to Scale

* 6 back braces (3 per sign) for Bi-Directional Sign installation



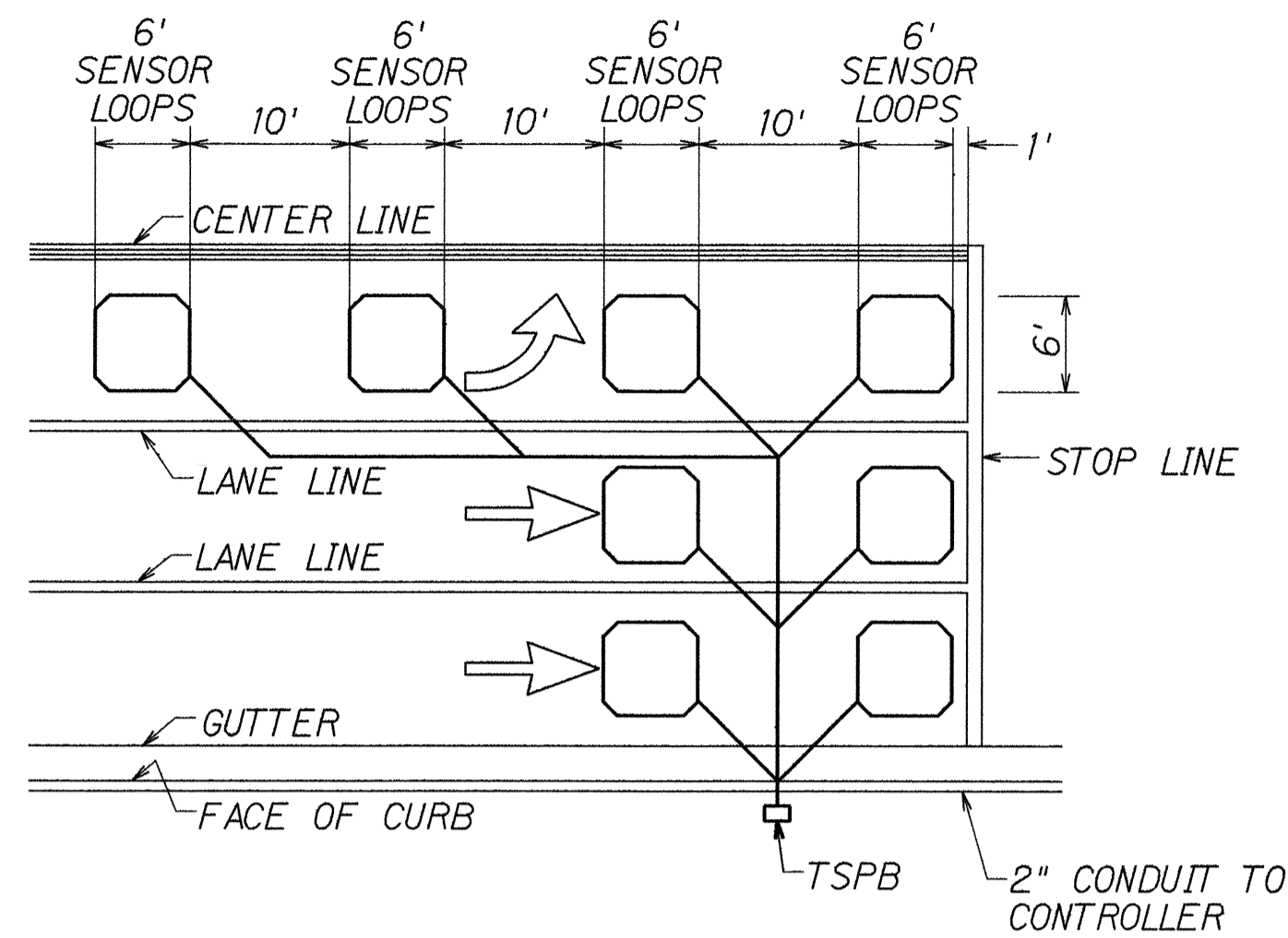
SIGN POST BASE PLATE DETAIL

Scale: 3"=1'-0"

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

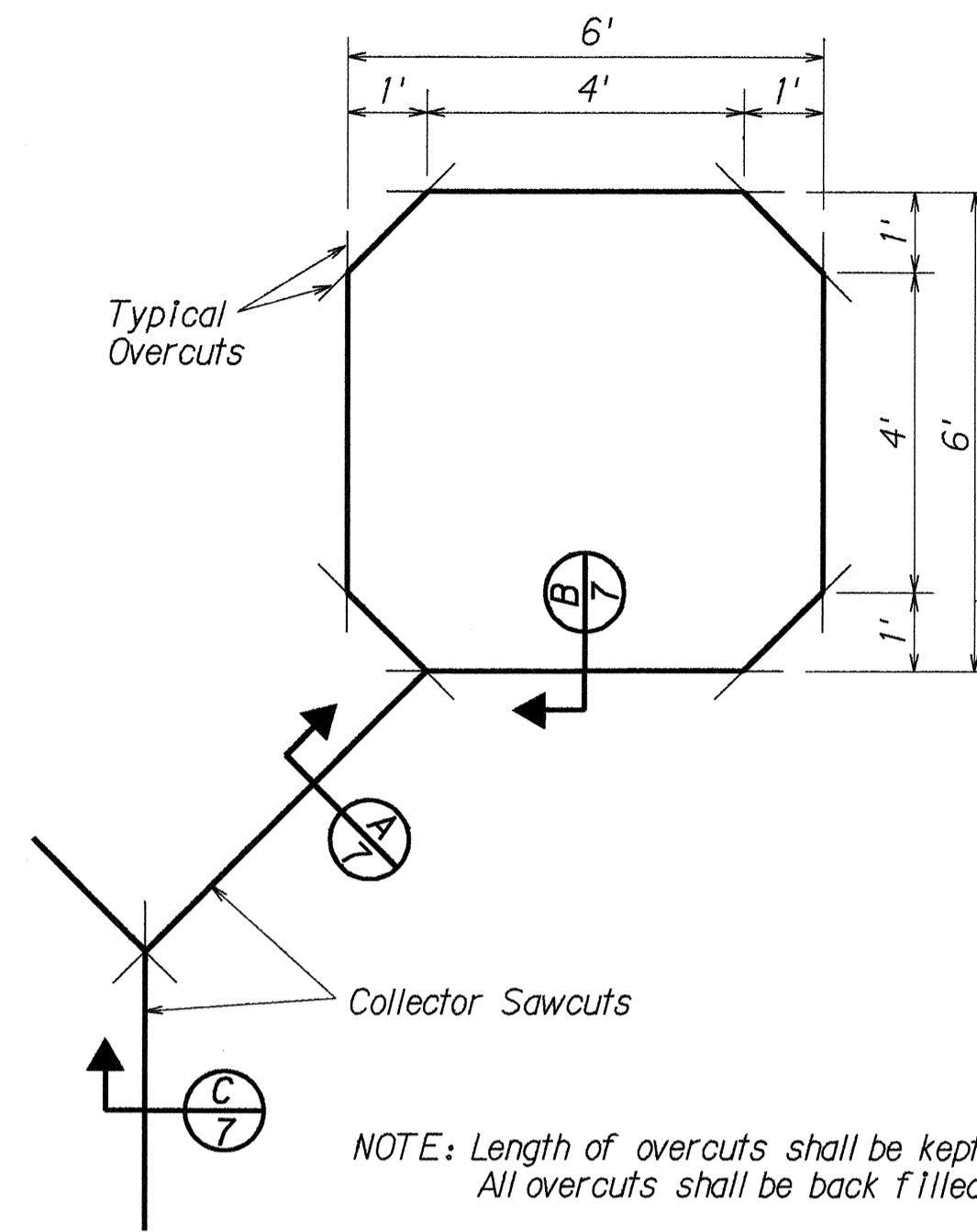
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
MISCELLANEOUS TRAFFIC DETAILS
MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. 1M-H-20(1)
Scale: As Shown Date: Nov., 1993
SHEET No. 114 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	30	32



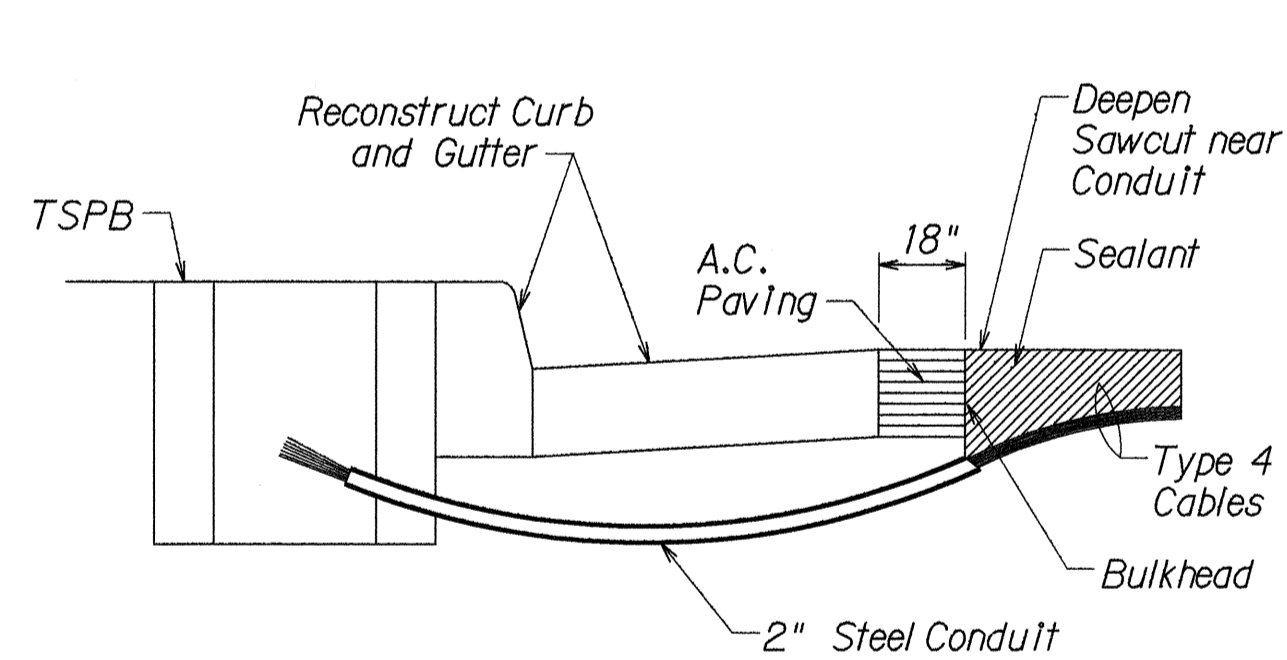
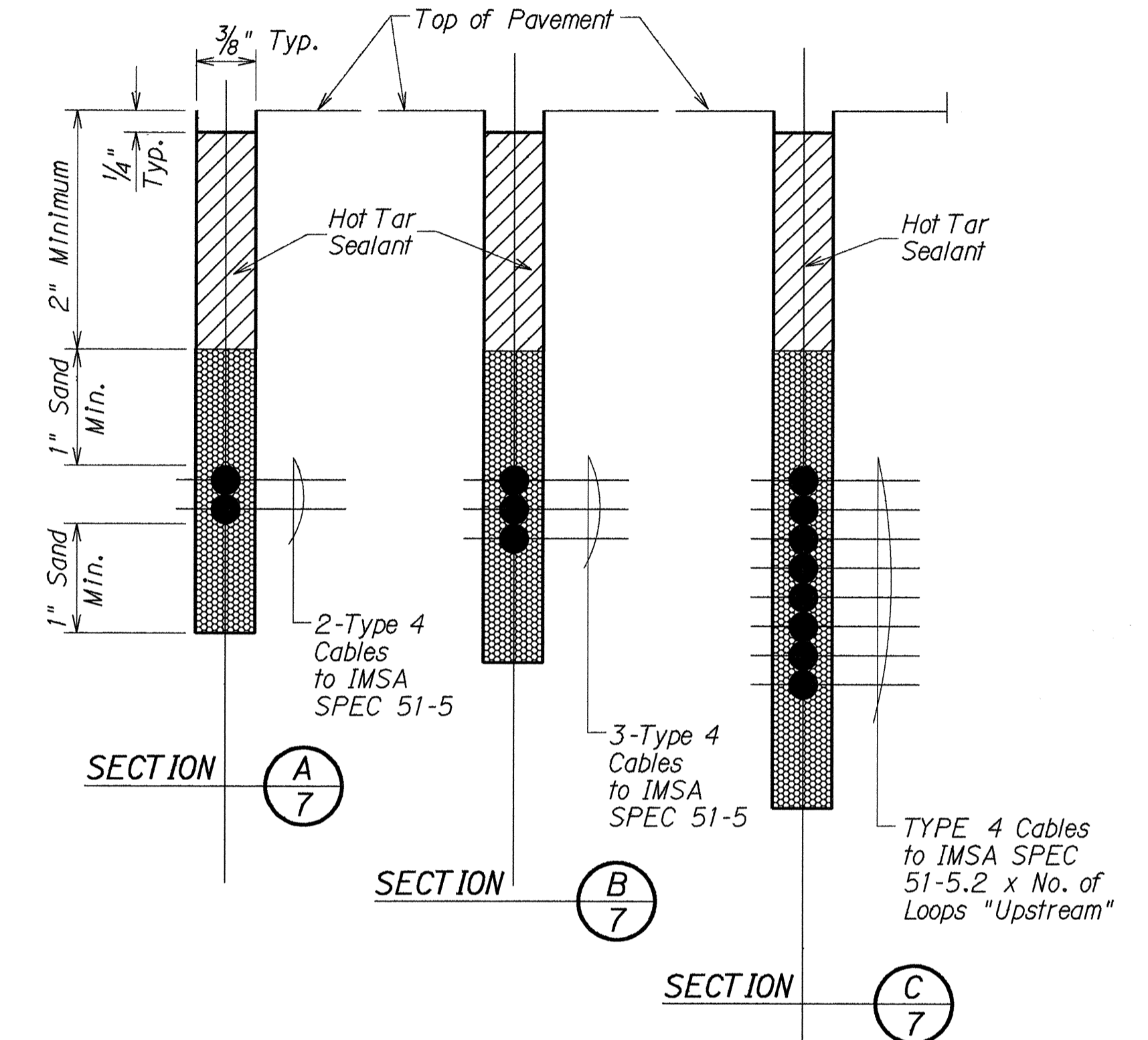
- NOTES:
- Center sensor loops in lanes.
 - Collector cables shall be twisted 2 turns per foot.
 - Number of loops and locations vary. See project plans.
 - Number and locations of collector sawcuts may be varied in the field to suit.

TYPICAL SENSOR LOOP LAYOUT



NOTE: Length of overcuts shall be kept to a minimum. All overcuts shall be back filled with hot tar.

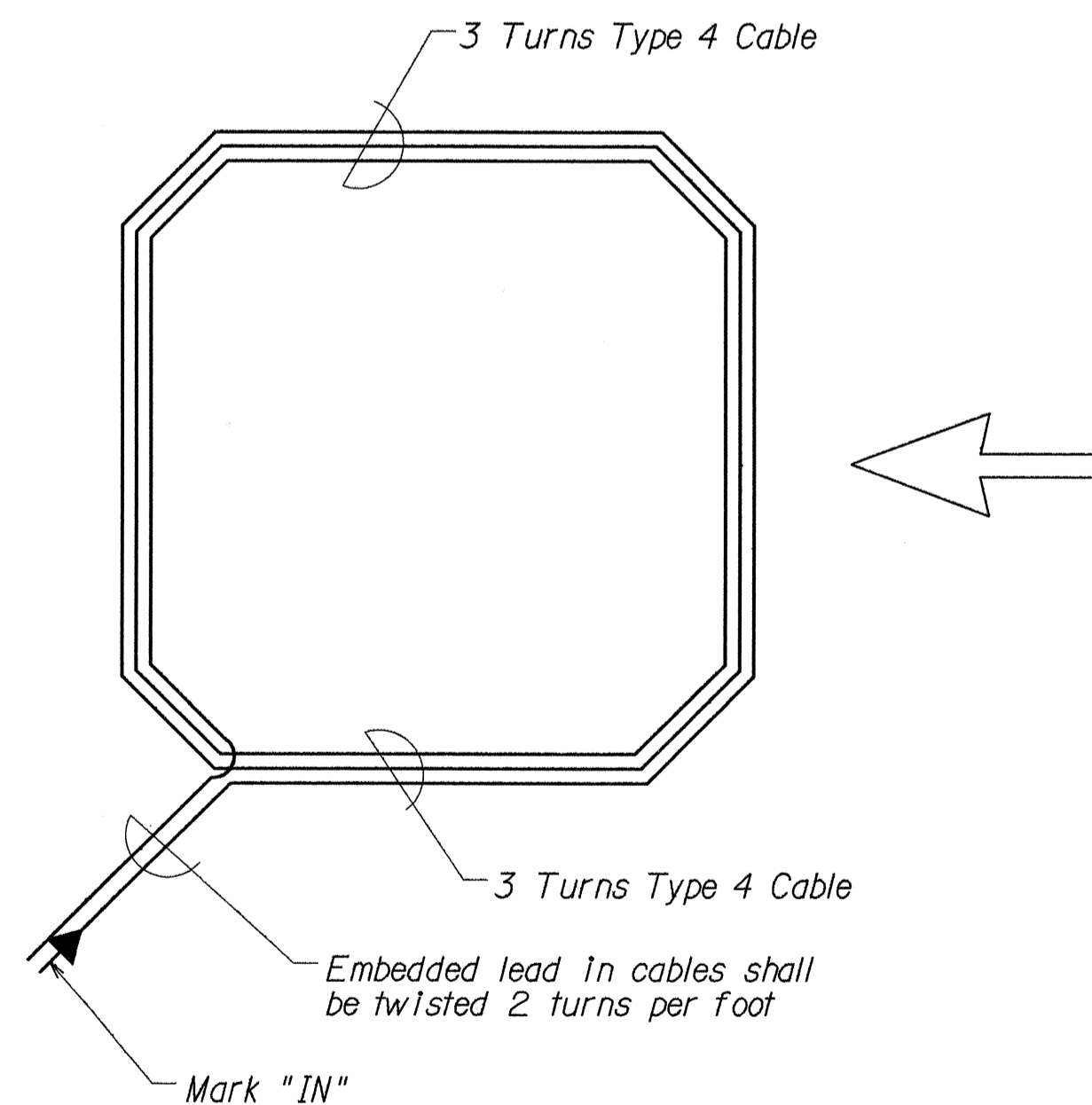
TYPICAL SENSOR LOOP SAWCUT DETAIL



NOTES ON CONSTRUCTION AT END OF SAWCUT

- Seal roadway end of conduit after installation of conductors.
- Install bulkhead across conduit trench.
- Place hot tar in sawcut.
- Backfill over conduit with new A.C.
- Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY



TYPICAL SENSOR LOOP WIRING DIAGRAM

TYPES OF CABLES

- TYPE 1 Signal Loop Cable: Stranded No. 14, 26 conductors
- TYPE 2 Detector Lead-In Cable and Pedestrian Push Button Circuit Cable: Stranded, No. 14, 2 Conductors
- TYPE 3 Interconnect Cable: Solid No. 20, 12 Pairs
- TYPE 4 Loop Sensor Cable: Solid No. 12, Single Conductor to IMSA SPEC 51-5
- TYPE 5 Cable from Signal Loop to Signal Head: Stranded, No. 14, Single Conductor
- TYPE 6 Service Cable: Solid, No. 6, 3 Conductors

SURVEY PLOTTED BY: DATE: 11/93
 DRAWN BY: J. A. Hill
 CHECKED BY: C. A. Hill
 NOTE BOOK NO.:
 QUANTITIES BY:
 CHECKED BY:

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
LOOP DETECTOR DETAILS
MOANALUA FREEWAY RESURFACING
Moanalua Stream Bridge to Middle Street
F. A. Project No. IM-H-20(1)
 Not to Scale Date: Nov., 1993
 SHEET No. 115 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1M-H-20(1)	1994	31	32

TRAFFIC SIGN SUMMARY

SIGN NO.	MESSAGE	QUANTITY					
		10 SQ. FT. OR LESS			GREATER THAN 10 SQ. FT.		
		W/POST ON CONC. BARRIER	W/POST	W/O POST	W/POST ON CONC. BARRIER	W/POSTS	W/O POST
R1-1	STOP		3	1			
R1-2	YIELD		4				
R2-1(25)	SPEED LIMIT 25					3	4
R2-1(35)	SPEED LIMIT 35						2
R2-1(50)	SPEED LIMIT 50				2 *		
R2-1(55)	SPEED LIMIT 55					1	1
R2-5b(35)	REDUCED SPEED 35						1
R3-1				1			
R3-2			1	2			
R3-8(R)			1				
R3-13(R)			3				
R3-40(L)			1	2			
R4-7			2	2			
R5-1		1	2	2			
R5-1a	WRONG WAY			2			
R6-1(R)			2	1			
R6-1(L)			1	4			
R7-4-A	NO STOPPING OR STANDING			1			
R7-107a			1				
R7-201a				1			
R8-3a			3	3			
R8-7	EMERGENCY STOPPING ONLY		1	1			
R8-9	DO NOT THROW RUBBISH OVER BRIDGE		1				
R10-9	RIGHT TURN ON RED AFTER STOP		1				
R10-12	LEFT TURN YIELD ON GREEN			2			
R16-1				2			
R16-5	UNLICENSED VEHICLES BICYCLES, CYCLES UNDER 5 HP, PEDESTRIANS KEEP OUT FREEWAY					1	1
R20-1	WALK BIKE			1			
I-5(R)				2 **			
D11-1			2	10			
D11-1-A	USE SIDEWALK			9			
M4-11	BEGIN			2			
M4-12	END			1			
M7-2				6			
W1-2(R)			1				
W4-1(R)				1		1	1
W5-1a	LANES NARROW	1					
W5-2a	LANES NARROW 1000 FT	2					
W18-1	RIGHT LANE EXIT ONLY				1		
W11-2				1			
W11A-2			1				
W12-2(13'-5")				1			
W13-1(15)	15 MPH			1			
W13-2(25)	EXIT 25 MPH						1
W13-3(25)	RAMP 25 MPH						1
W13-3(35)	RAMP 35 MPH						1
W14-1	DEAD END			1			
TOTAL		4	31	63	3	6	13

SURVEY PLOTTED BY: DATE: 11/23
 DRAWN BY: F. A. H.
 CHECKED BY: C. A. B.
 NOTE BOOK: 10/1/93
 QUANTITIES BY: C. A. B.
 CHECKED BY: F. A. H.

PAVEMENT MARKING SUMMARY	
DESCRIPTION	QUANTITY
PAVEMENT MARKERS	
TYPE A _____	5,112 Ea.
TYPE C _____	2,475 Ea.
TYPE D _____	62 Ea.
TYPE H _____	628 Ea.
TAPE - TYPE I OR THERMOPLASTIC EXTRUSION	
4-INCH PAVEMENT STRIPE (WHITE) _____	1,740 L.F.
8-INCH PAVEMENT STRIPE (WHITE) _____	1,550 L.F.
DOUBLE 4-INCH PAVEMENT STRIPE (YELLOW) _____	1,590 L.F.
TAPE - TYPE II OR THERMOPLASTIC EXTRUSION	
4-INCH PAVEMENT STRIPE (WHITE) _____	29,350 L.F.
4-INCH PAVEMENT STRIPE (YELLOW) _____	22,870 L.F.
8-INCH PAVEMENT STRIPE (WHITE) _____	14,240 L.F.
8-INCH PAVEMENT STRIPE (YELLOW) _____	3,815 L.F.
12-INCH PAVEMENT STRIPE (WHITE) _____	2,830 L.F.
12-INCH PAVEMENT STRIPE (YELLOW) _____	80 L.F.
DOUBLE 4-INCH PAVEMENT STRIPE (YELLOW) _____	630 L.F.
TAPE - TYPE III OR THERMOPLASTIC EXTRUSION	
4-INCH PAVEMENT STRIPE (WHITE) _____	3,040 L.F.
4-INCH PAVEMENT STRIPE (YELLOW) _____	70 L.F.
8-INCH PAVEMENT STRIPE (WHITE) _____	4,130 L.F.
12-INCH PAVEMENT STRIPE (WHITE) _____	625 L.F.
CROSSWALK MARKINGS _____	33 LANES
PAVEMENT ARROW _____	61 EA.
PAVEMENT WORDS _____	2 EA.

* Bi-Directional on 1-Post with Back Brackets
 ** Sign No. I-5A(R), , shall not be paid for separately but considered incidental to Sign No. I-5(R)

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
MISCELLANEOUS TRAFFIC SUMMARIES
 MOANALUA FREEWAY RESURFACING
 Moanalua Stream Bridge to Middle Street
 F. A. Project No. 1M-H-20(1)
 Date: Nov., 1993

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IM-H-20(1)	1994	32	32

DESTINATION SIGN SUMMARY

SIGN NO.	MESSAGE	SIZE	OVERLAY AREA (SQ. FT.)	NEW PANEL AREA (SQ. FT.)	
				W/O POST	W/POSTS
D-1	WEST 78 Aiea ↑ Ahua St.	9'-6"x7'-6"	71.25		
D-2	Puuloa Rd. Tripler Hosp. RIGHT LANE	10'-6"x6'-0"			63.00
D-3	Honolulu King St. ⇒	8'-0"x3'-0"	24.0		
D-4	← Aiea	6'-0"x2'-6"	15.0		
D-5	↑ Ahua St. Fort Shafter HdQRS ⇒ Fort Shafter Flats ←	8'-0"x8'-6"	68.0		
D-6	Fort Shafter ← HdQRS Fort Shafter Flats ⇒	8'-0"x6'-0"	48.0		
D-7	↑ Aiea ← Honolulu King St.	8'-0"x4'-6"	36.0		
D-8	78 EAST Honolulu ↑ King St.	12'-0"x8'-6"	102.0		
D-9	EXIT 4 ↗	6'-0"x6'-0"			36.0
D-10	78 WEST Moanalua Freeway ↘ Fort Shafter ↗	14'-0"x8'-0"	112.0		
D-11	78 WEST Moanalua Freeway ⇒	11'-0"x7'-6"			82.50
D-12	78 WEST ← Moanalua Freeway	11'-0"x7'-6"			82.50
D-13	BUSINESS DISTRICTS 1/4 MILE	9'-0"x5'-0"	45.0		
D-14	EXIT 19A ↗	8'-0"x6'-0"			48.0
TOTAL			521.25		312.0

EXIT NUMBER SIGN PANEL SUMMARY

SIGN NO.	MESSAGE	SIZE	OVERLAY AREA (SQ. FT.)	NEW PANEL AREA (SQ. FT.)
D-2	EXIT 3	6'-0" x 2'-0"		12.0
E-27(R)	EXIT 4	6'-0" x 2'-0"		12.0
E-6	EXIT 4	6'-0" x 2'-0"		12.0
D-18	EXIT 18	4'-6" x 1'-6"		6.75
E-3	EXIT 19A	9'-0" x 2'-0"	18.0	
TOTAL			18.0	42.75

EXPRESSWAY SIGN SUMMARY

SIGN NO.	MESSAGE	SIZE	OVERLAY AREA (SQ. FT.)	NEW PANEL AREA (SQ. FT.)	
				W/O POST	W/POSTS
E-1(L)	78 EAST Honolulu King St. ↓ ↓	17'-0"x12'-6"	212.50		
E-1(R)	Fort Shafter EXIT ↓ ONLY	15'-6"x12'-6"	193.75		
E-2	Likelike Hwy 3/4 Vineyard Blvd 1 1/2 Pali Hwy 2 1/2	18'-6"x7'-6"	138.75		
E-3	Middle St ↗	15'-6"x4'-6"	69.75		
TOTAL			614.75		

TYPE II OBJECT MARKER & REFLECTOR MARKER SUMMARY

TYPE	QUANTITY											
	W/O POST		W/STEEL POST		W/FLEXIBLE DELINEATOR (TYPE "A")		W/FLEXIBLE DELINEATOR (TYPE "B")		MOUNT ON CONCRETE BARRIER		MOUNT ON CONCRETE RETAINING WALL	
	YELLOW	WHITE	YELLOW	WHITE	YELLOW	WHITE	YELLOW	WHITE	YELLOW	WHITE	YELLOW	WHITE
RM-2	1	2	16	16		41	9	31	23	46		16
RM-3	11		4									
RM-4	2		1									
RM-9	1		1									
OM-II			4									

INTERSTATE ROUTE MARKER SUMMARY

SIGN ASSEMBLY	SIGN NO. AND MESSAGE	TYPE A ASSEMBLY	
		W/POST	W/O POST
IRM-1	IM3-4-A WEST IM-1(2) 78	1	1
TOTAL		1	1

CONSTRUCTION SIGN SUMMARY

SIGN NO.	MESSAGE	W/POST(S)	W/O POST
CG20-2	END CONSTRUCTION	7	1
CW20-1d	ROAD CONSTRUCTION AHEAD	5	3
TOTAL		12	4

SURVEY PLOTTED BY: DATE: 11/93
 DRAWN BY: J. A. C.
 CHECKED BY: J. A. C.
 ORIGINAL PLAN: 10/93
 NOTE: BOOK 10/93
 QUANTITIES BY: J. A. C.
 CHECKED BY: J. A. C.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**MISCELLANEOUS TRAFFIC
 SUMMARIES**
 MOANALUA FREEWAY RESURFACING
 Moanalua Stream Bridge to Middle Street
 F. A. Project No. IM-H-20(1)
 Date: Nov., 1993
 SHEET No. 117 OF 117 SHEETS