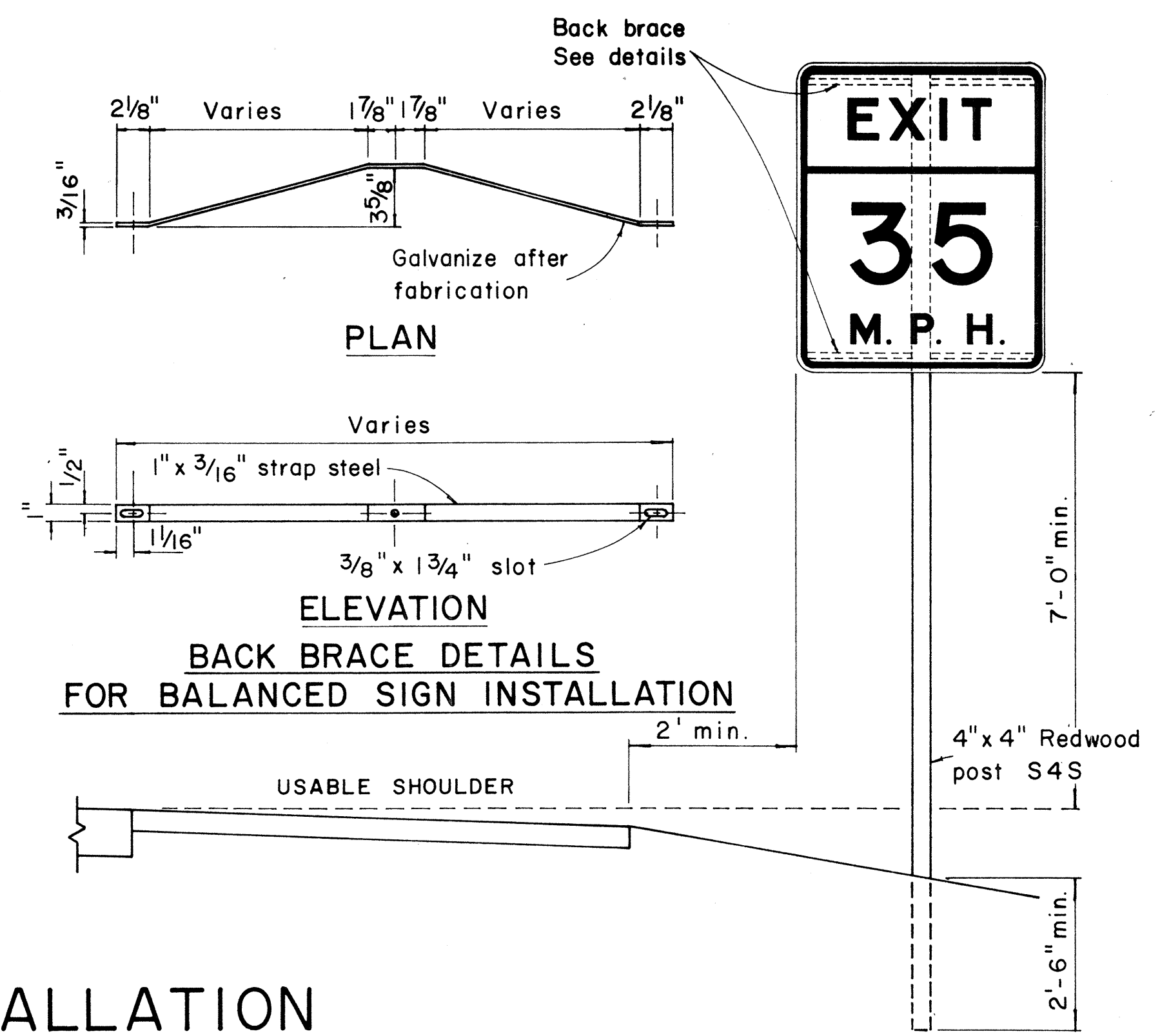
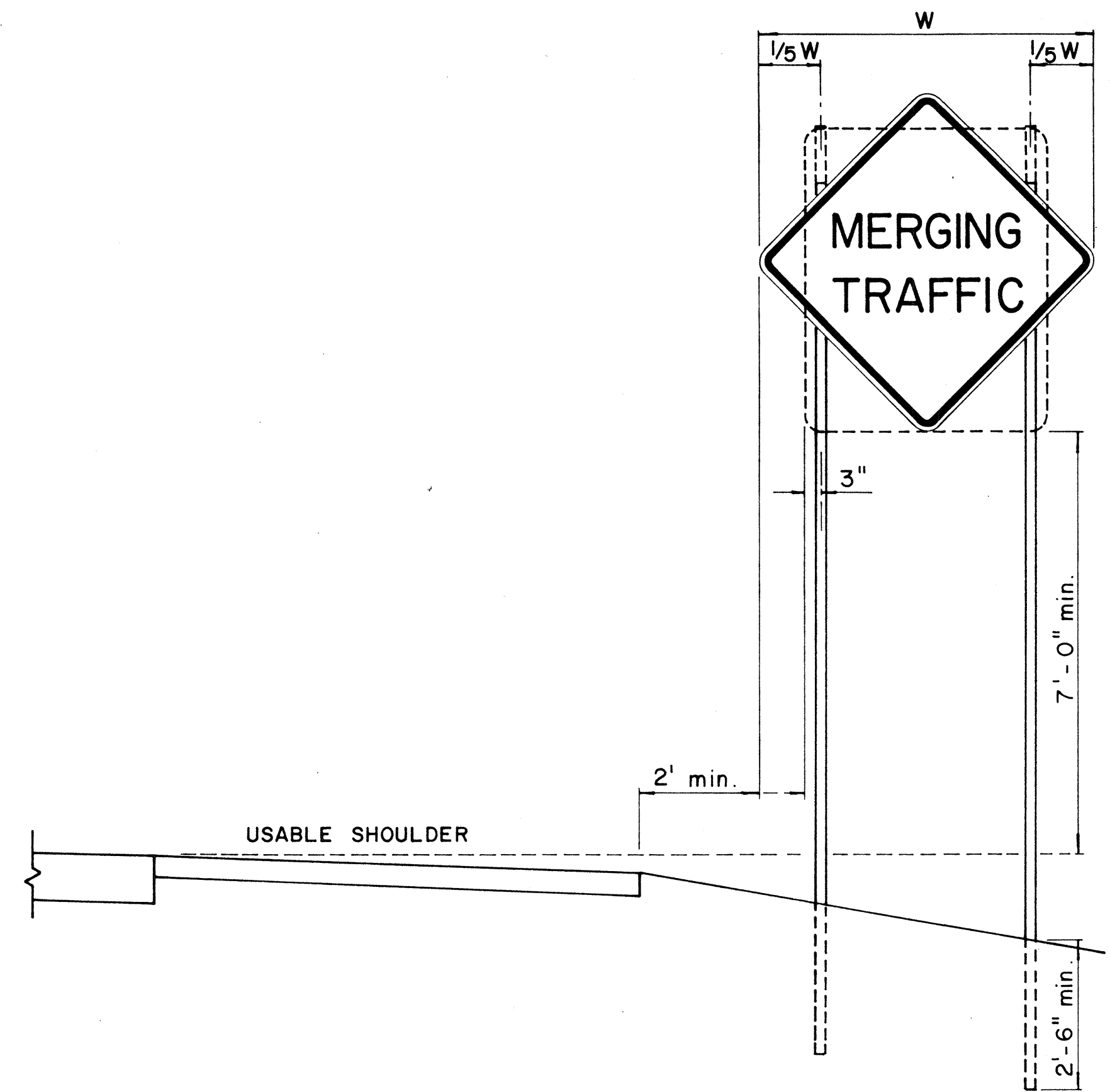
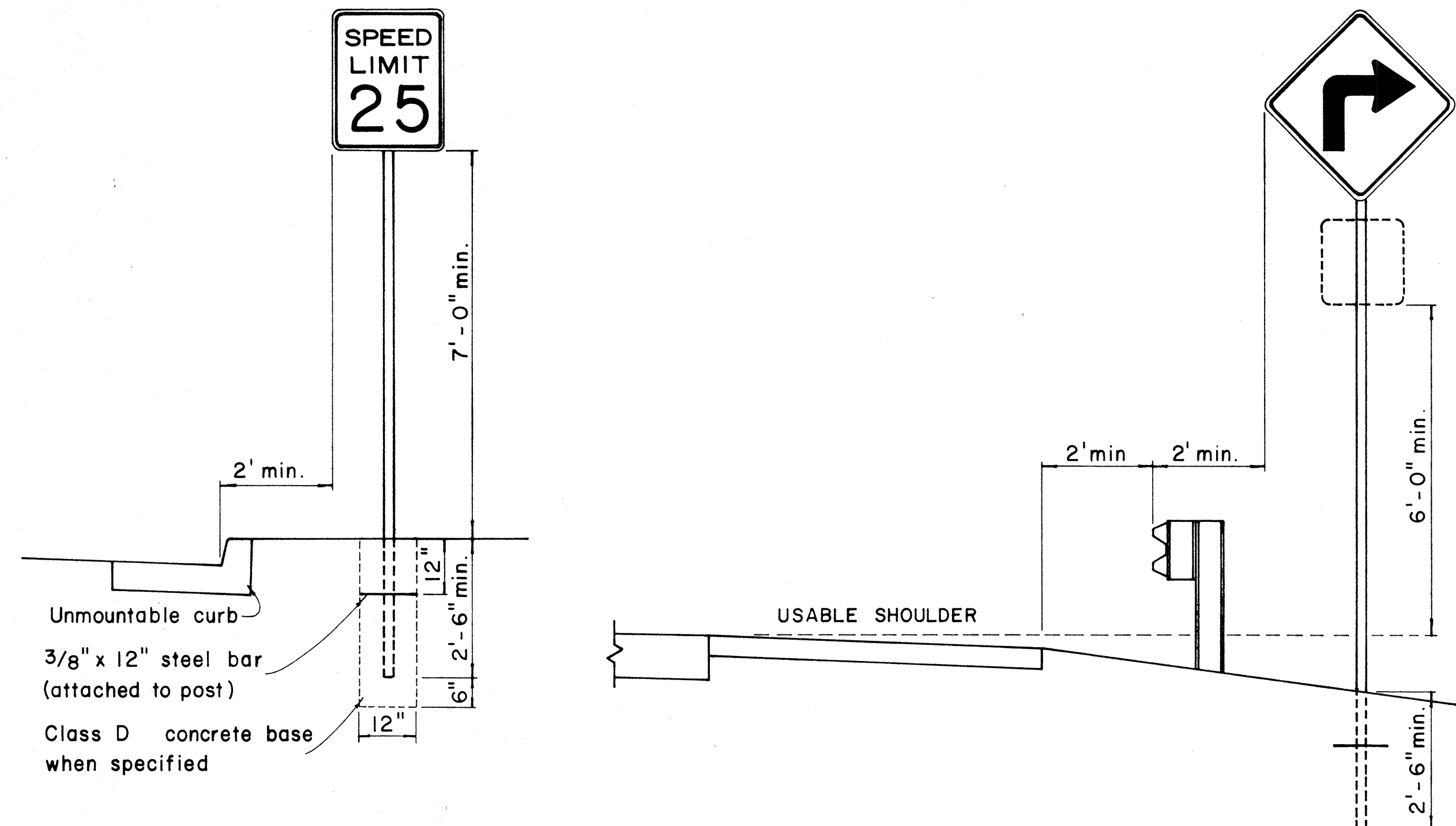
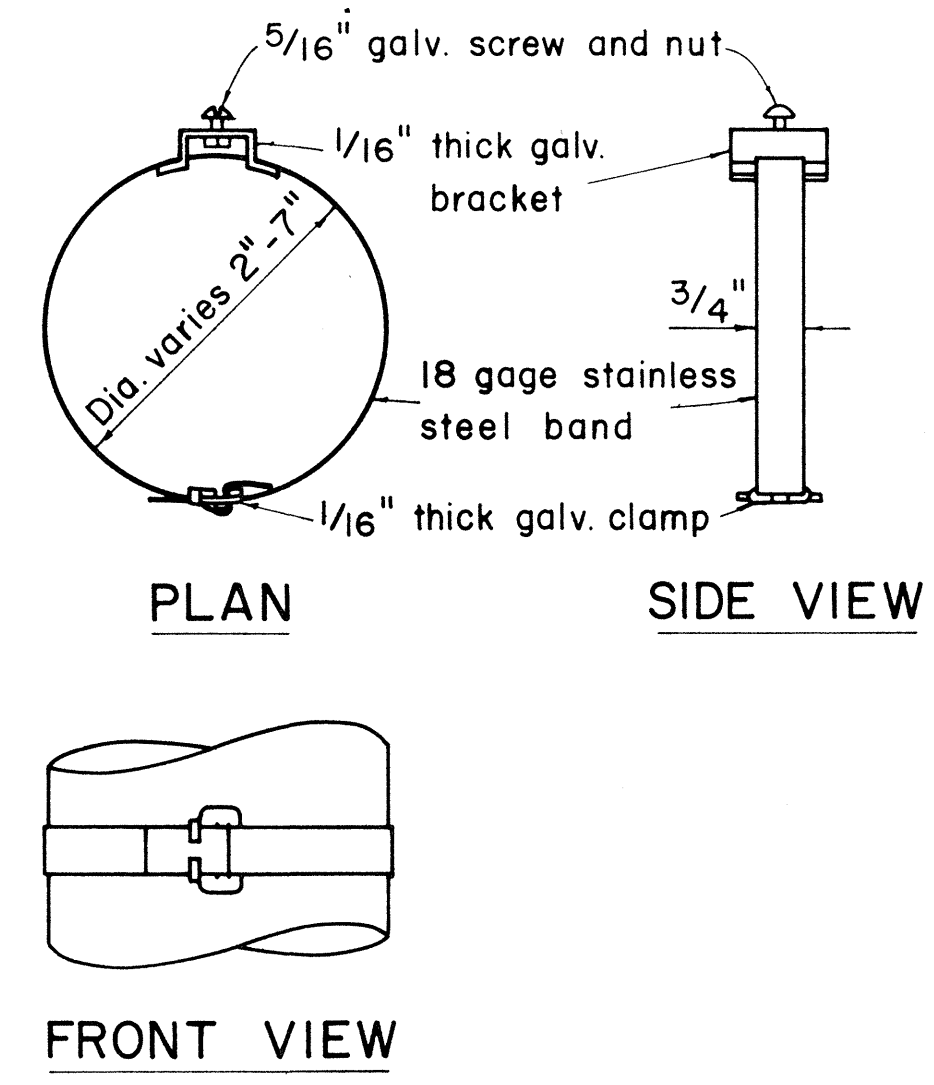
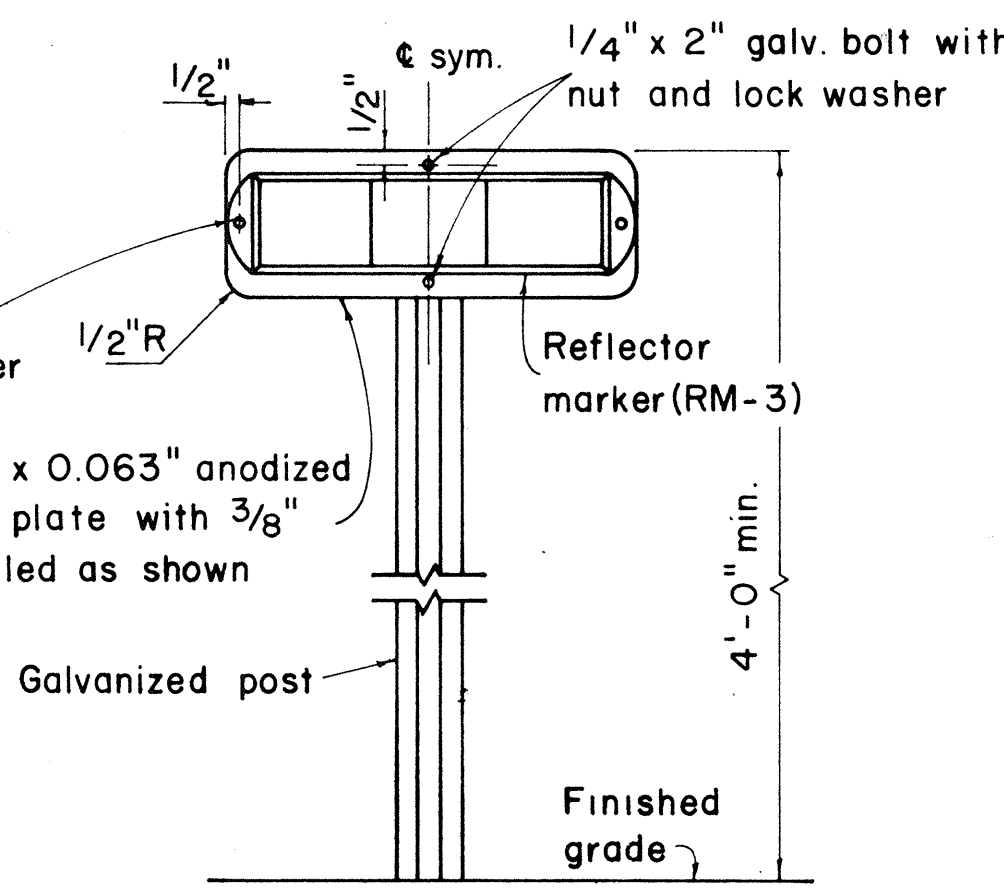
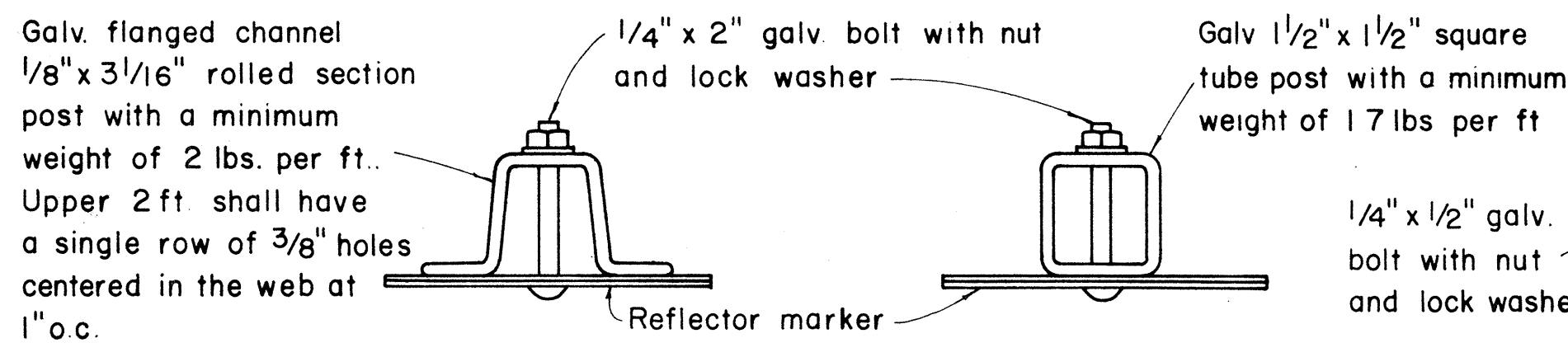
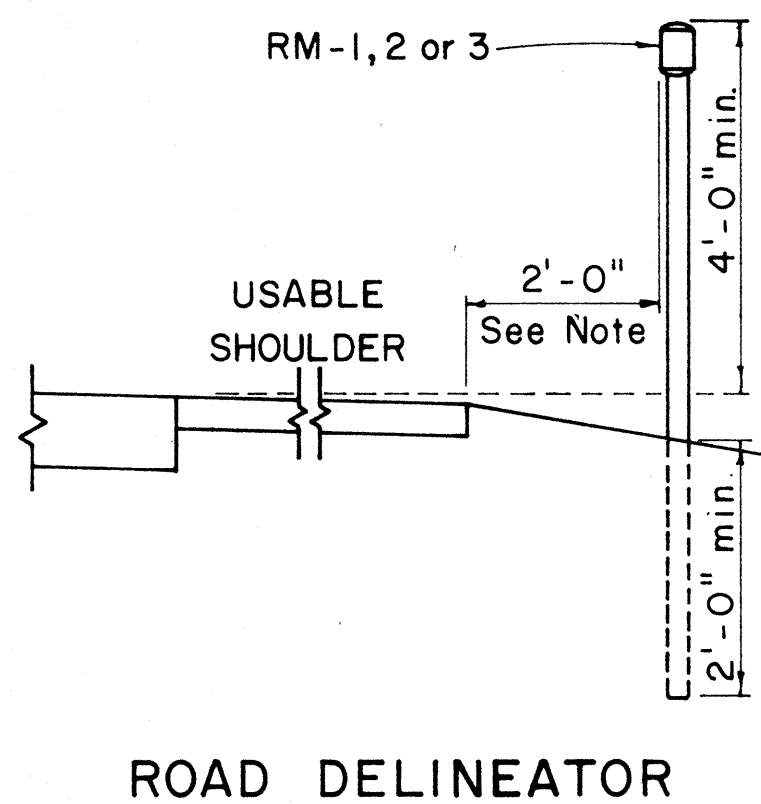


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11C-01-69	1972	10	16



HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATION



- GENERAL NOTES:**
- Sign posts shall be 2" galv. standard pipe or 2" x 2" galv. sq. tube post.
 - Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two 2" galv. standard pipe or two 2" x 2" galv. sq. tube post or 4" x 4" redwood post S4S.
 - Signs shall be attached to post with 5/16" galv. bolts with nuts and 7/8" x 0.06 stainless steel washers with neoprene rubber gasket.
 - Sign posts shall extend 3 1/2" above sign where required for City and County street name signs.
 - Reflector markers RM-1, 2, 3 shall be glass sphere reflector markers with 4" x 5" reflector units (as shown) or plastic prismatic reflector markers with 3" diameter reflector units.
 - Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
 - (R) or (L) indicates right or left and shall be as shown on the plans.

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

APPROVED:
William J. J. J. 12-30-69
 ASSISTANT CHIEF, ENGINEERING DATE

TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS

NO.	REVISION	APPROVED BY	DATE

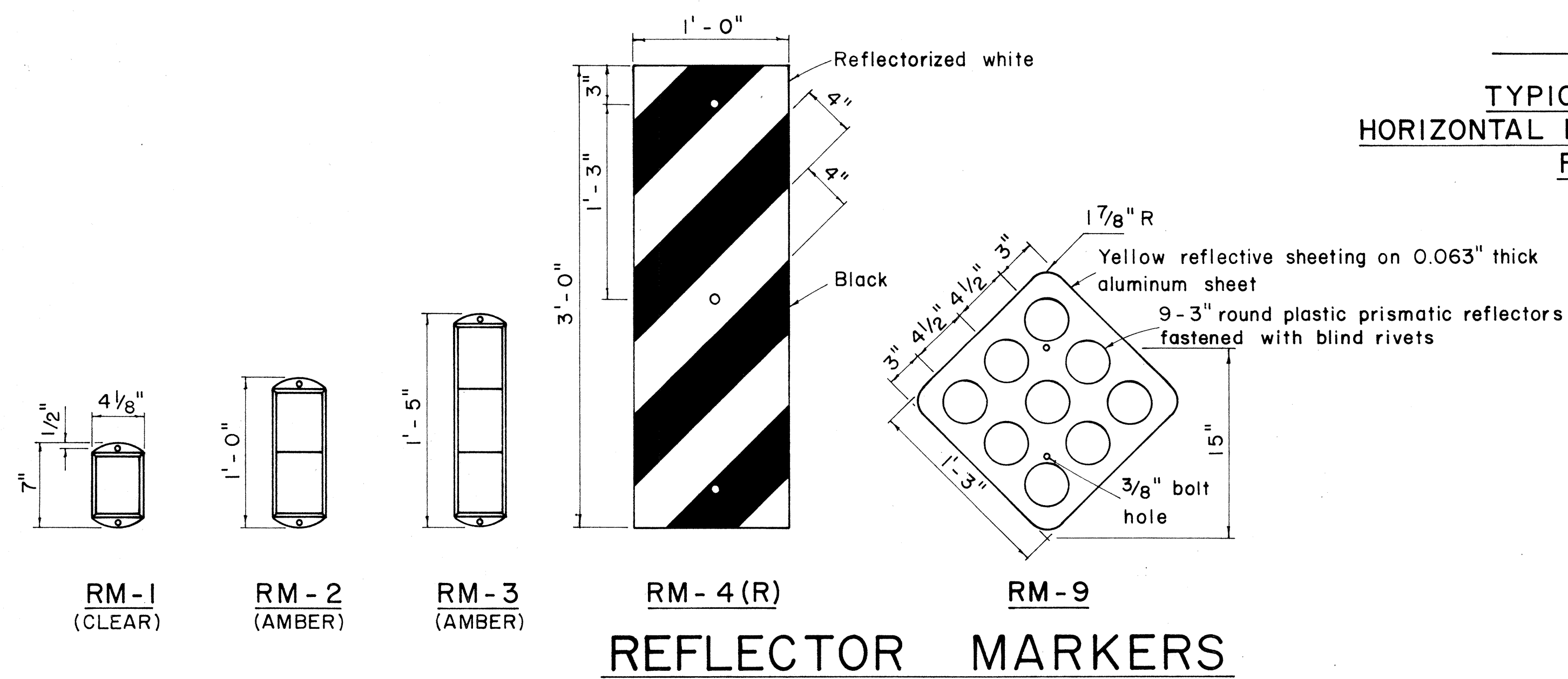
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 MISCELLANEOUS SIGN DETAILS

Not to scale March, 1968

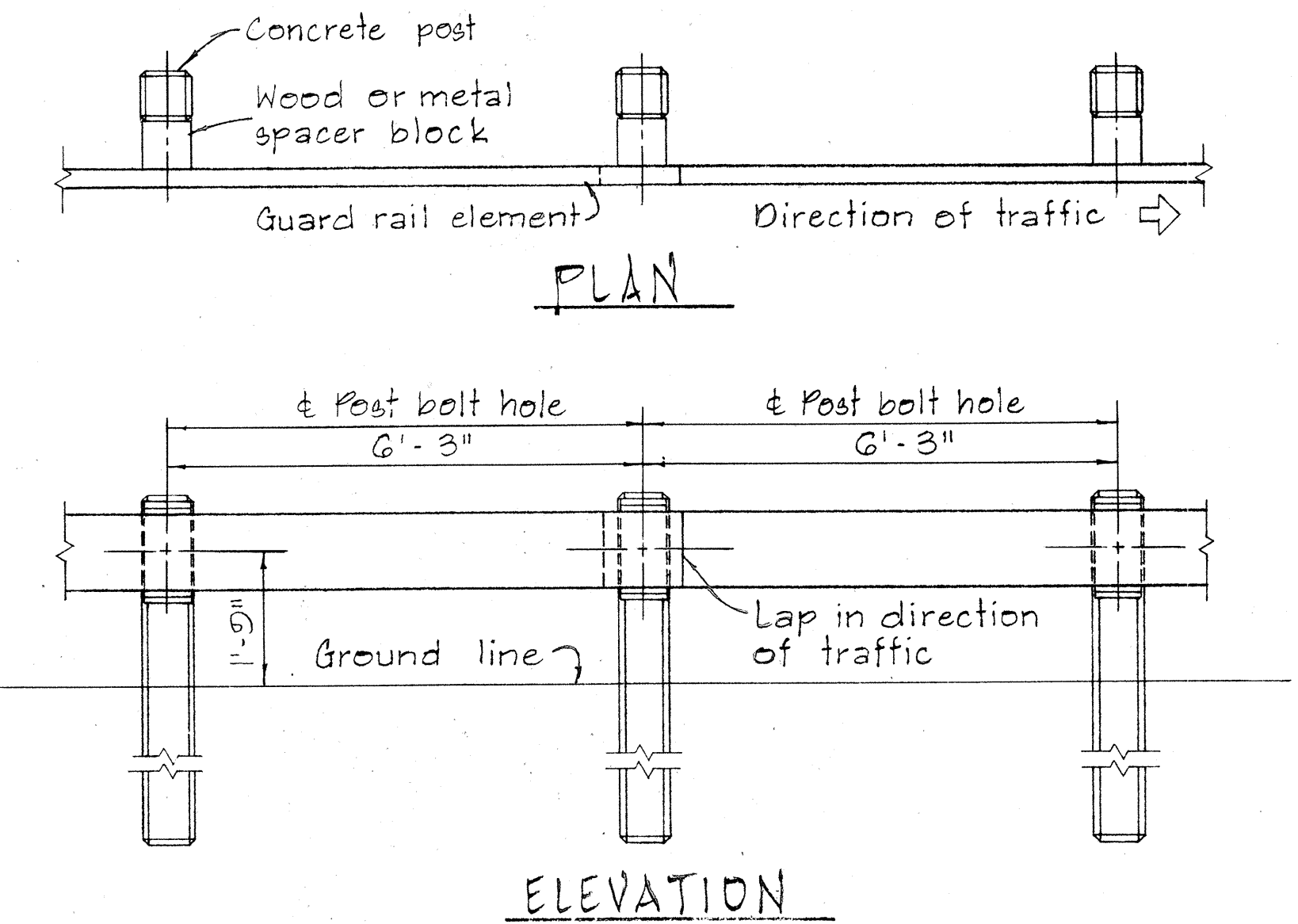
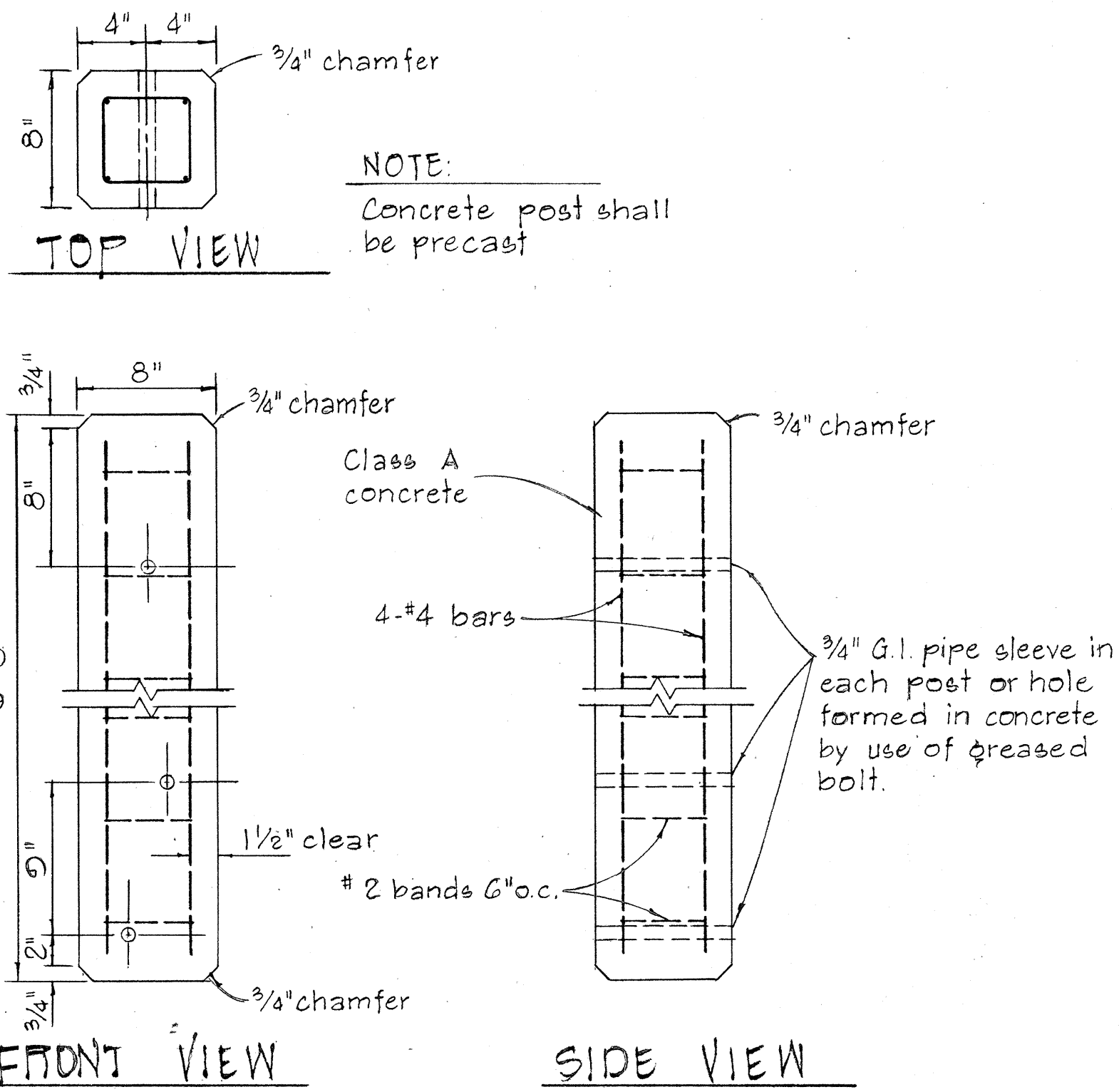
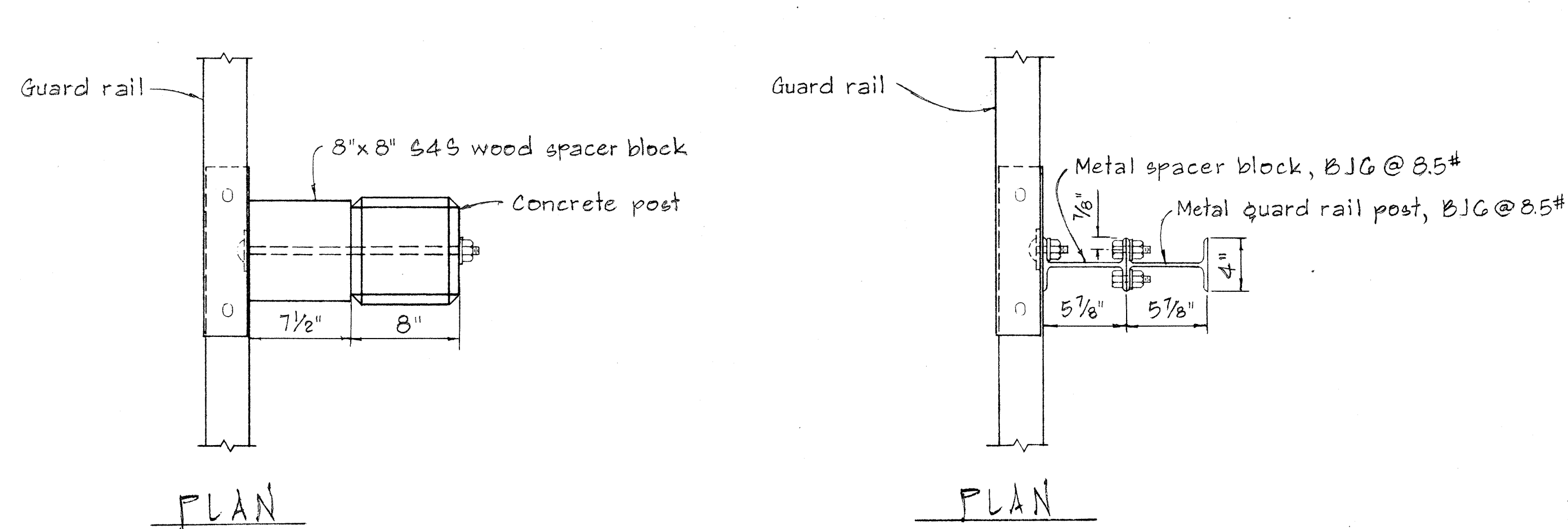
SHEET No. 1 OF 6 SHEETS DT 100

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

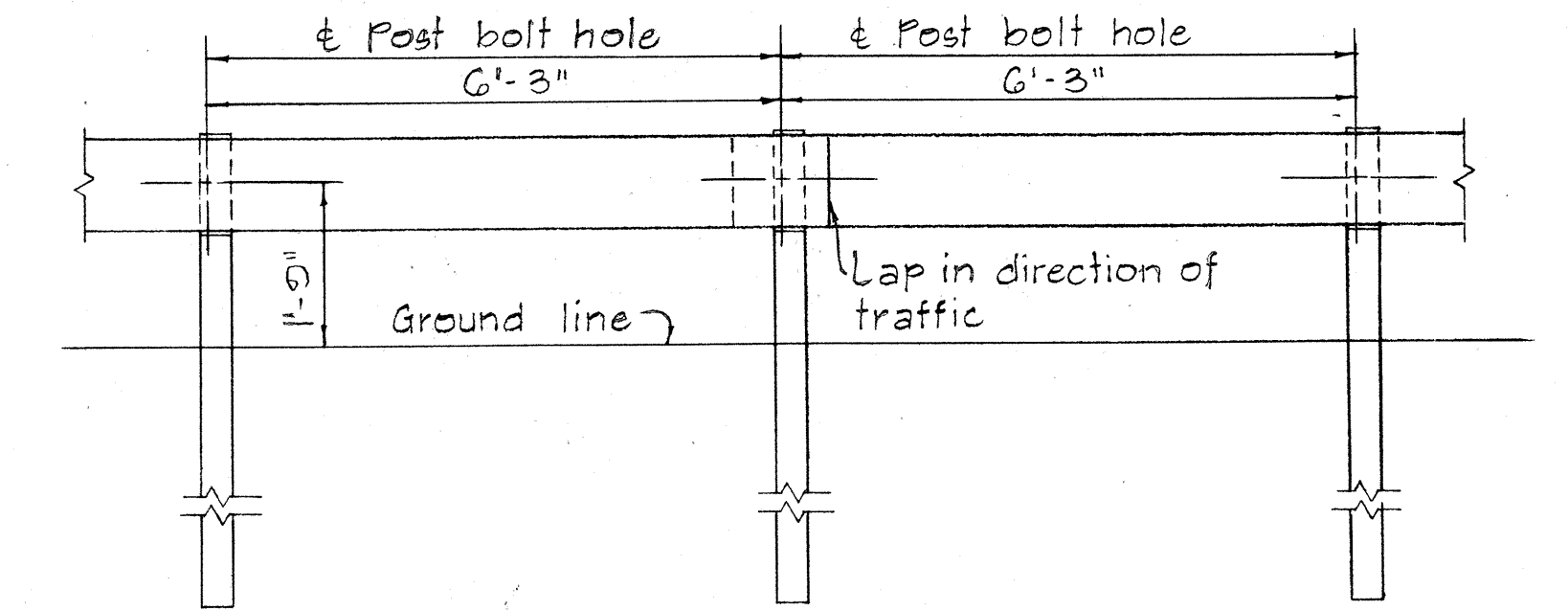
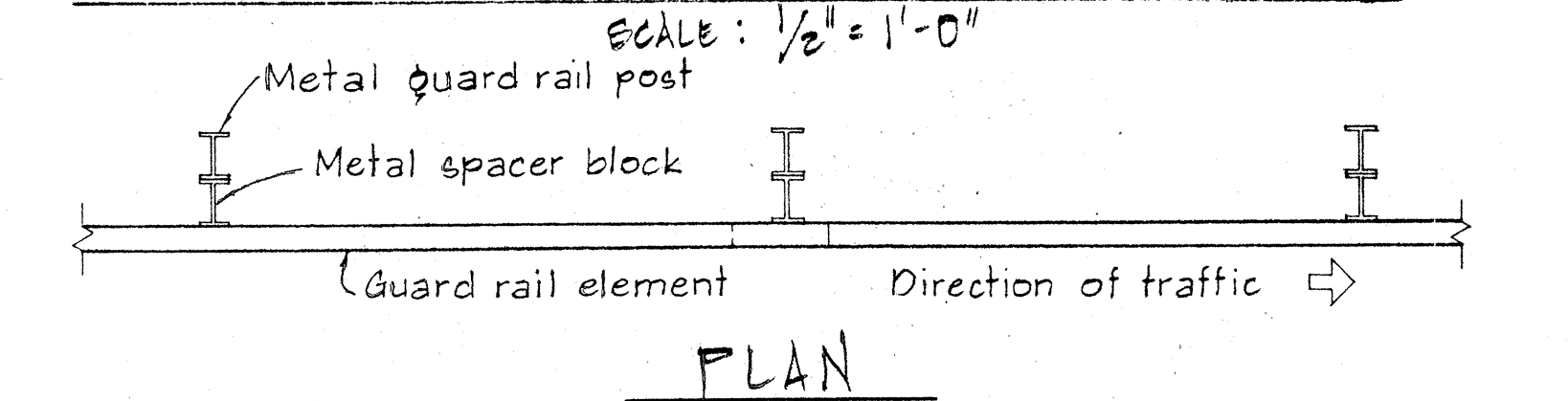


REFLECTOR MARKERS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11C-01-69	1972	11	16

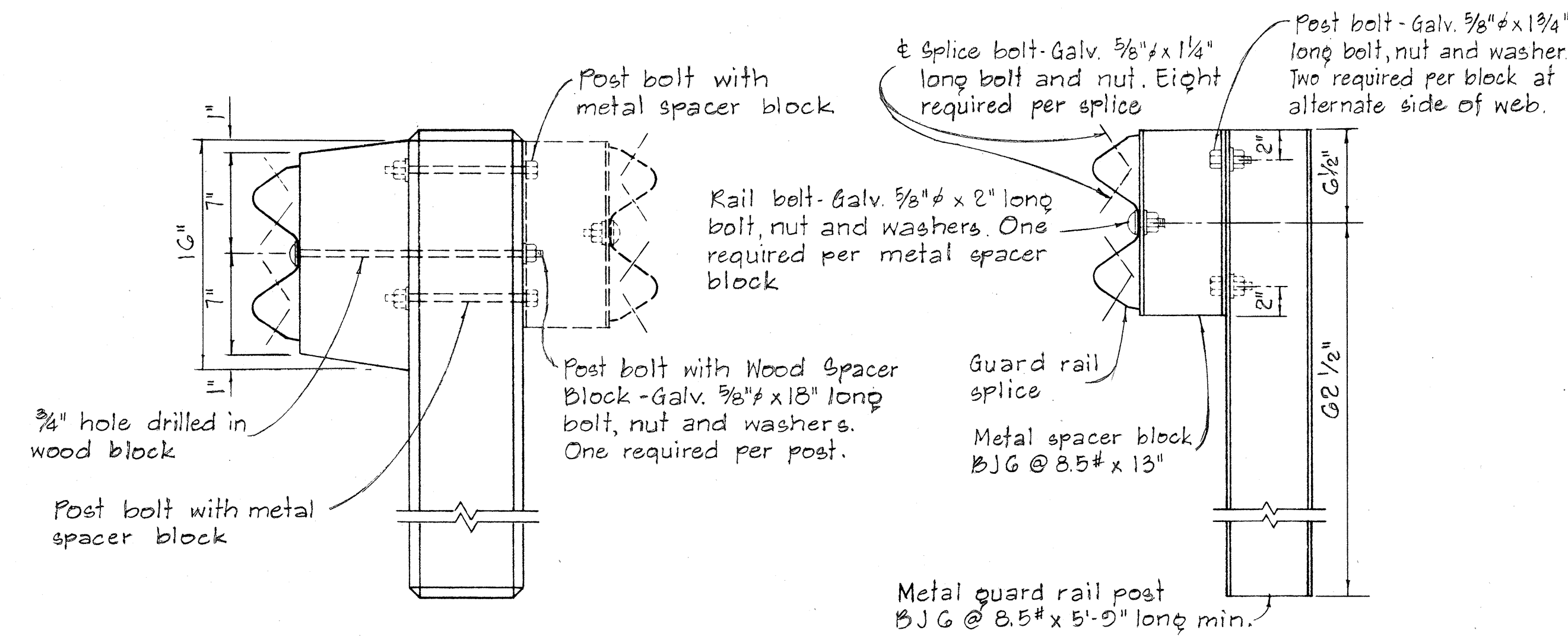


METAL GUARD RAIL ON CONCRETE POST WITH WOOD OR METAL SPACER BLOCK



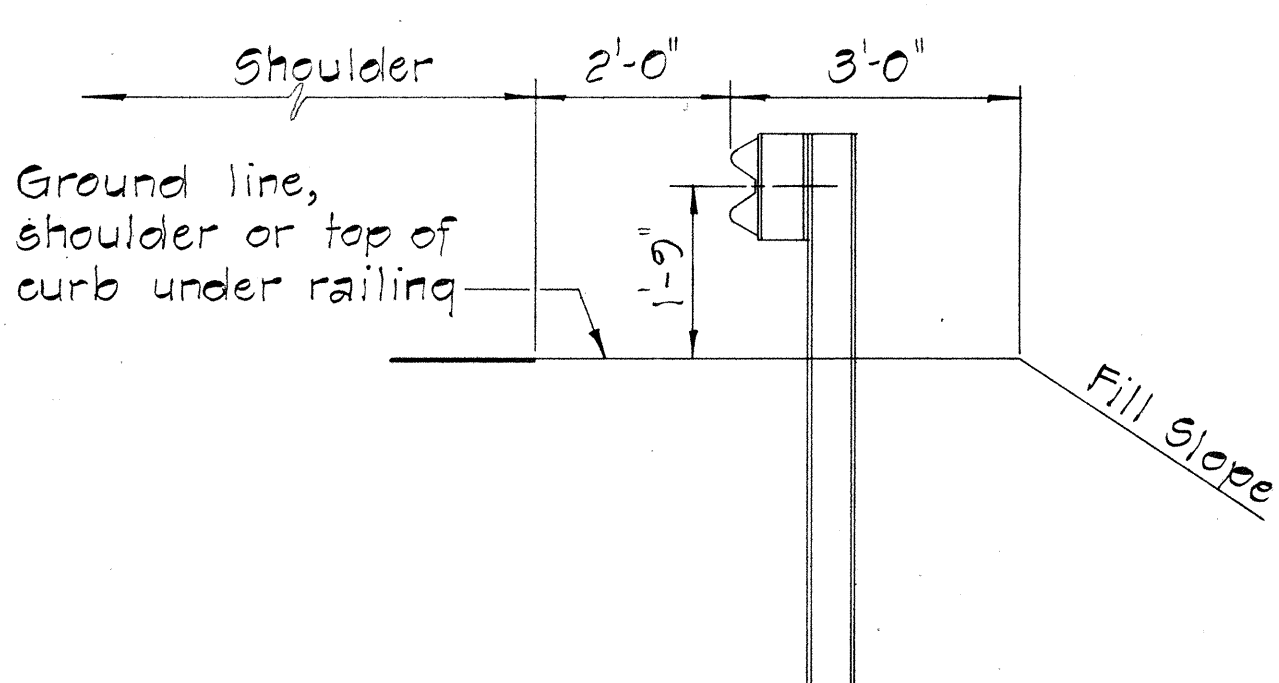
METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK

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



SINGLE METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK

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



AT SHOULDER SECTION

TYPICAL METAL GUARD RAIL DETAIL

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

SINGLE METAL GUARD RAIL ON PRECAST CONCRETE POST WITH WOOD OR METAL SPACER BLOCK.

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

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

APPROVED:
Hubert J. Zelen
 ASSISTANT CHIEF, ENGINEERING
 DATE: 12-30-69

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 METAL GUARD RAIL

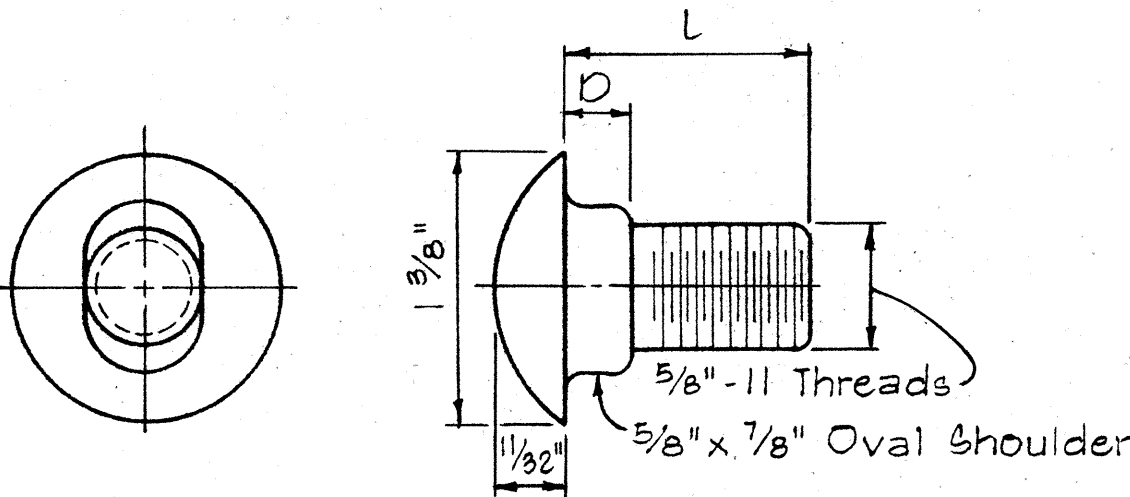
SCALE: AS SHOWN NOV. 1968
 SHEET No. 2 OF 6 SHEETS DT 500

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

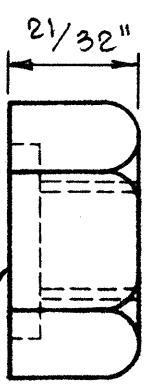
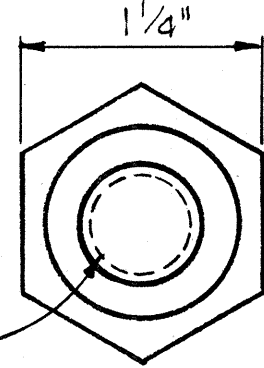
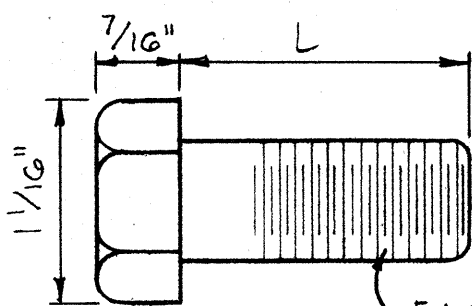
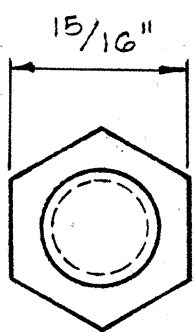
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11C-01-09	1972	12	16

BOLT DIMENSIONS		
TYPE A BOLT		
Splice Bolt	5/16"	1 1/4"
Post Bolt for Conc. Post w/ Double Wood Blocks	3/32"	24"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	18"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS	
TYPE B BOLT	
Post Bolt for Conc. Post w/ Metal Blocks	5 1/2"
Post Bolt for Metal Post w/ Metal Block	1 3/4"



TYPE A BOLT



5/32" Deep x 1 5/16" Dia. C Bore for Type A Bolt only. Plain nut for Type B Bolt.

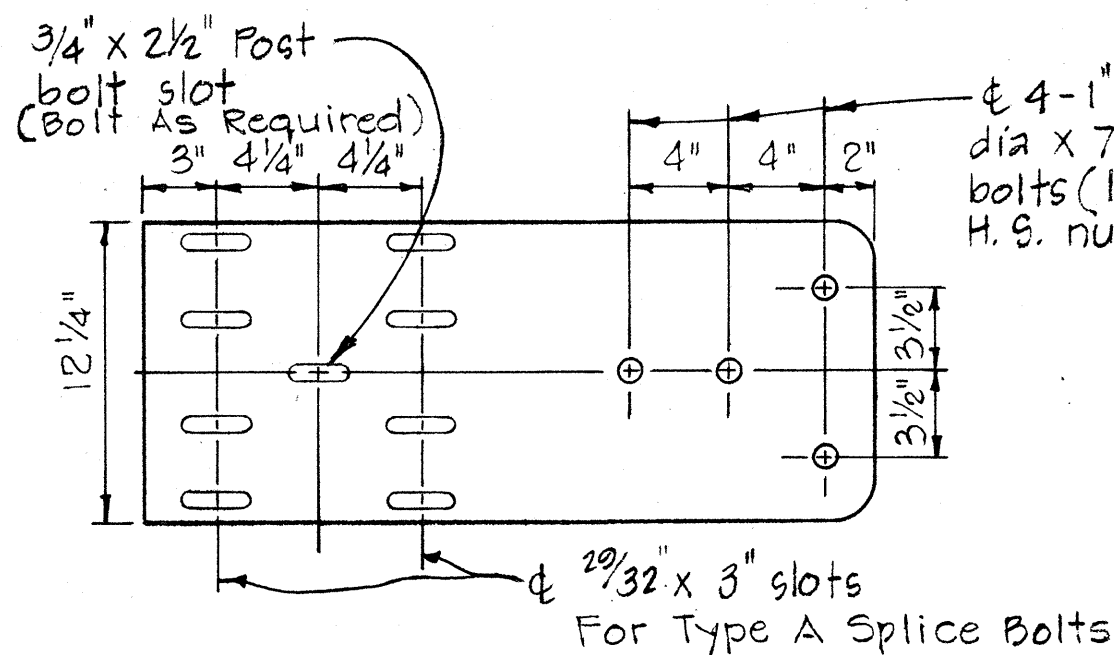
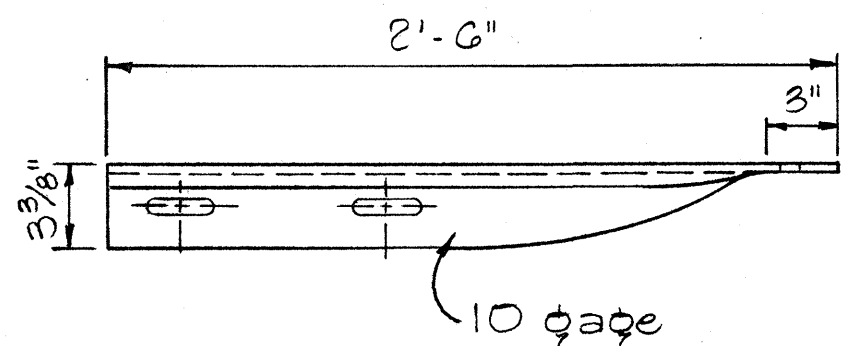
TYPE B BOLT

SPUCE RAIL AND POST BOLTS

Scale: Full Size

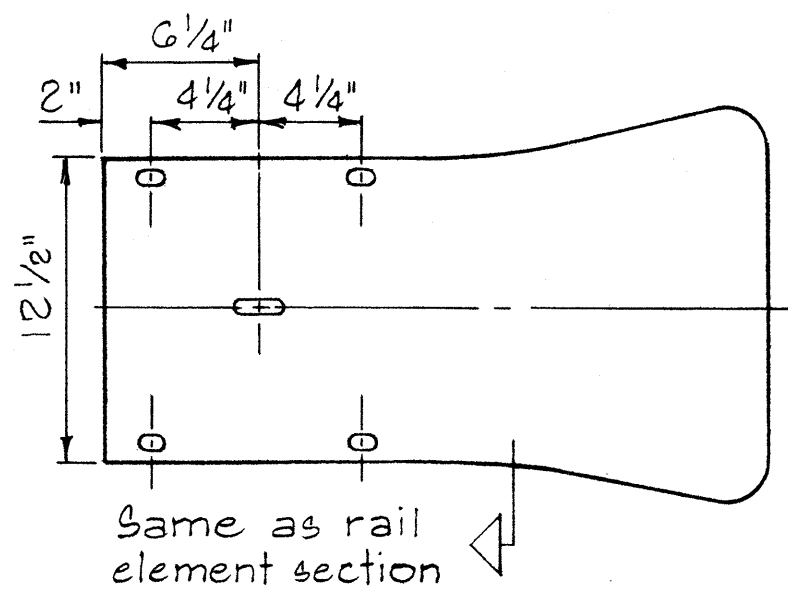
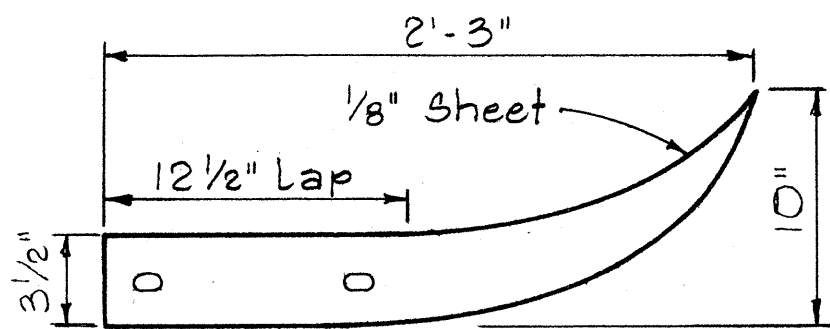
HEXAGON NUT

Scale: Full Size



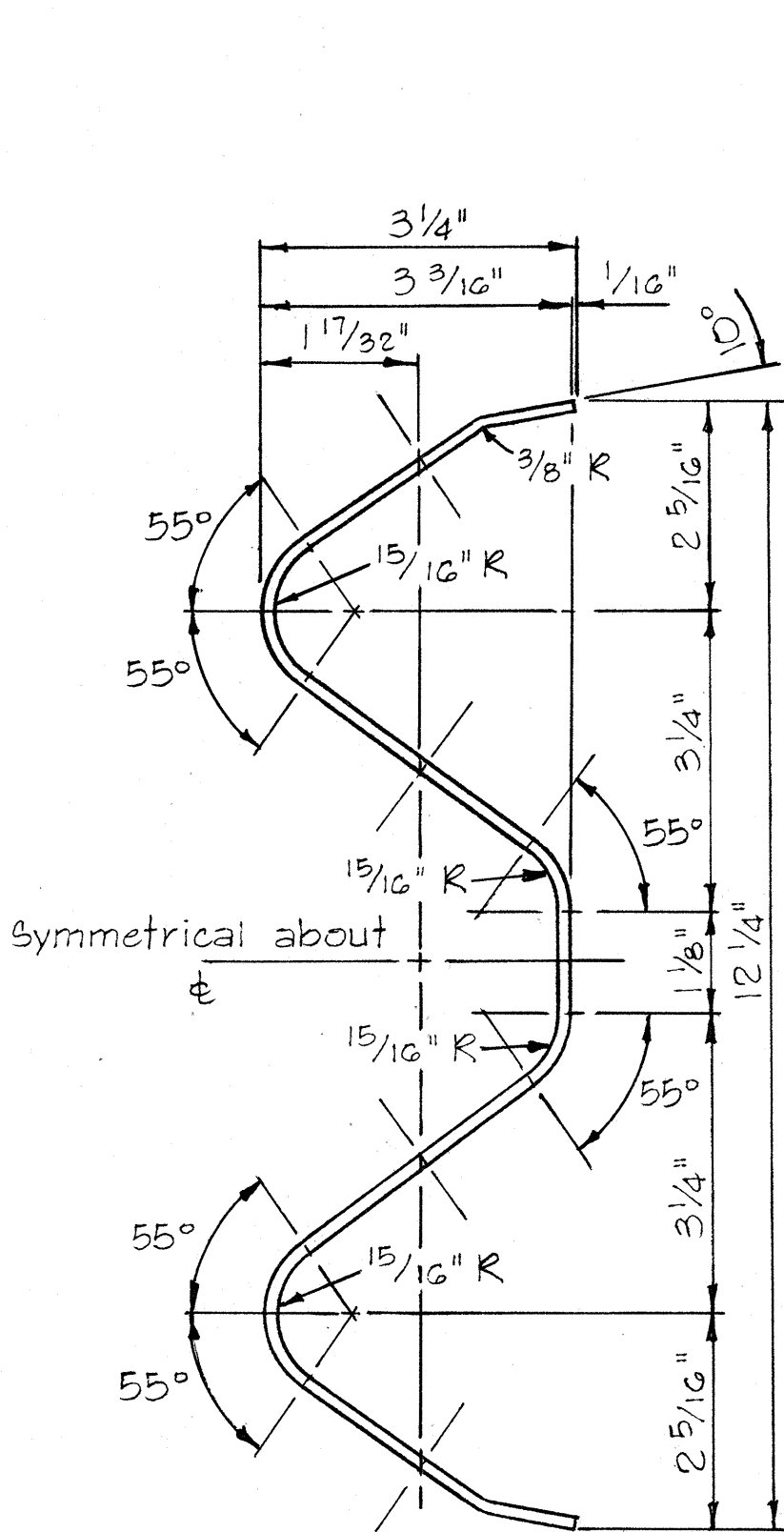
SPECIAL END SHOE

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



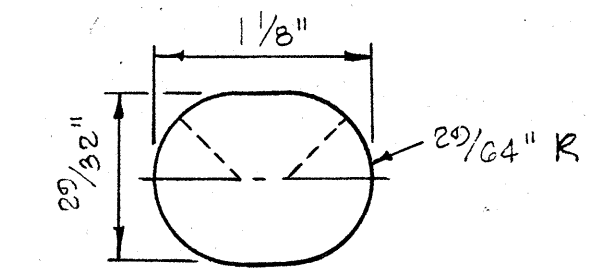
FLARED END

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



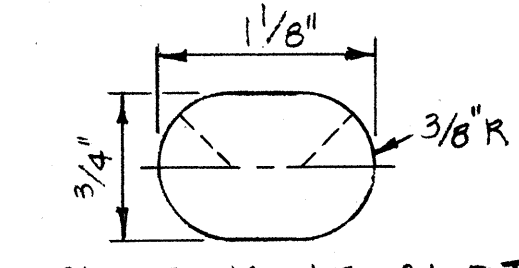
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

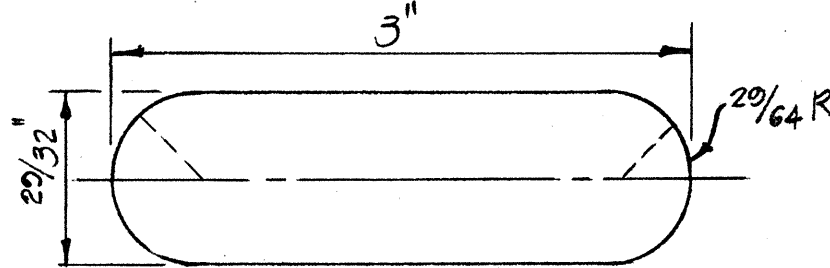


SPUCE BOLT SLOT

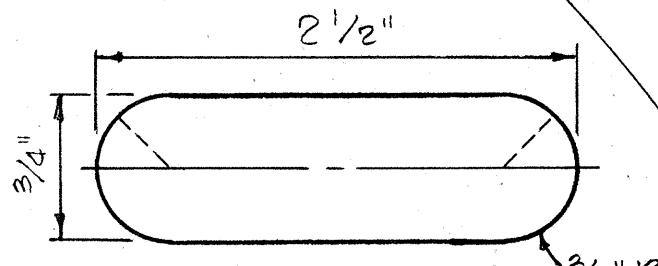
Scale: Full Size



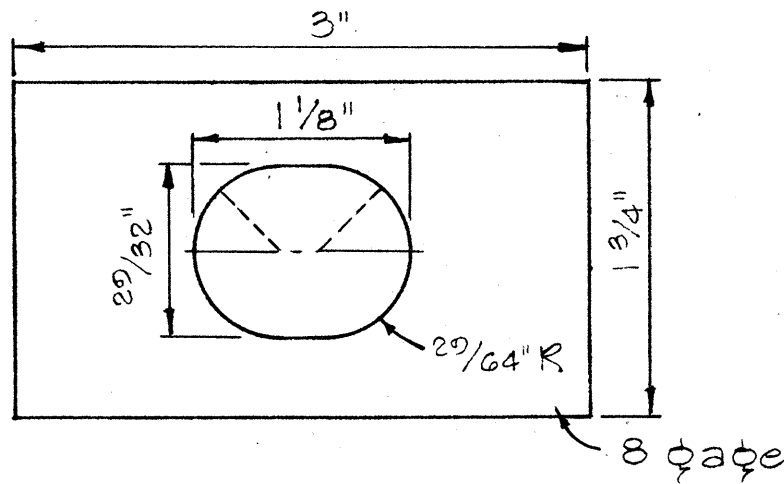
SPUCE BOLT SLOT FOR ALL ENDS



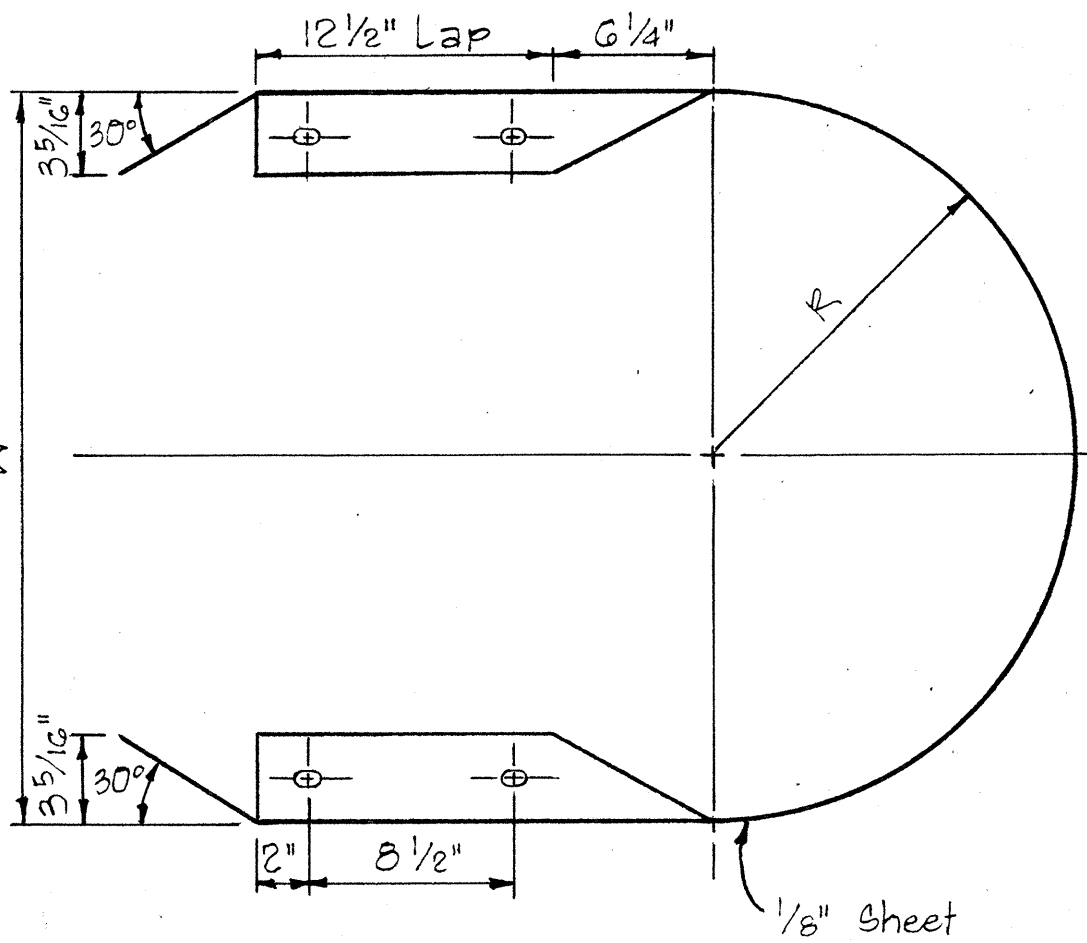
SPUCE BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT

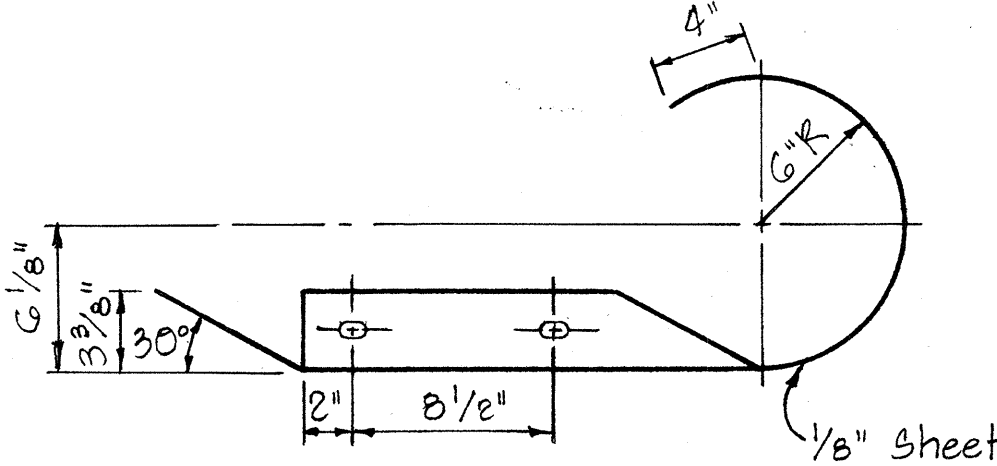


RAIL WASHER



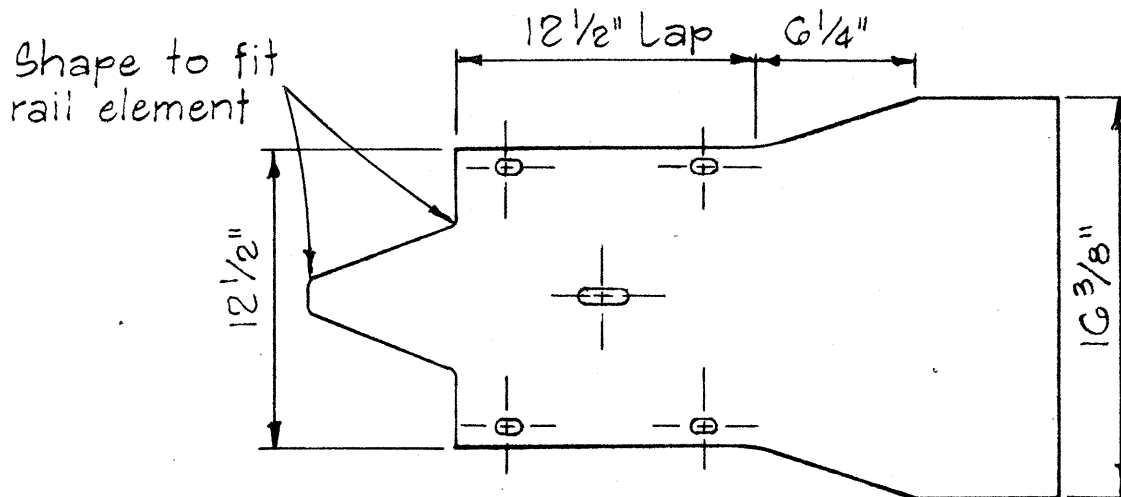
MEDIAN END

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



CURVED END

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



APPROVAL RECOMMENDED:

TRAFFIC ENGINEER

APPROVED:

ASSISTANT CHIEF, ENGINEERING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

Scale: As Noted August, 1968

SHEET No. 3 OF 6 SHEETS DT 501

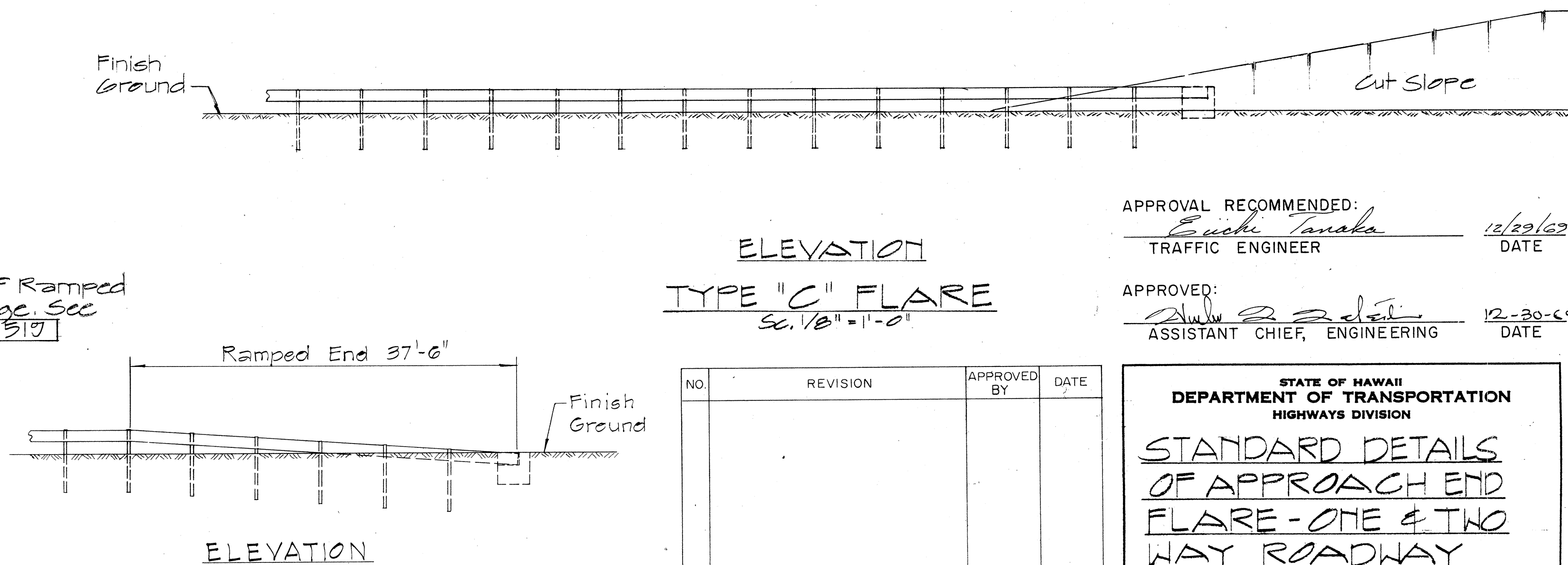
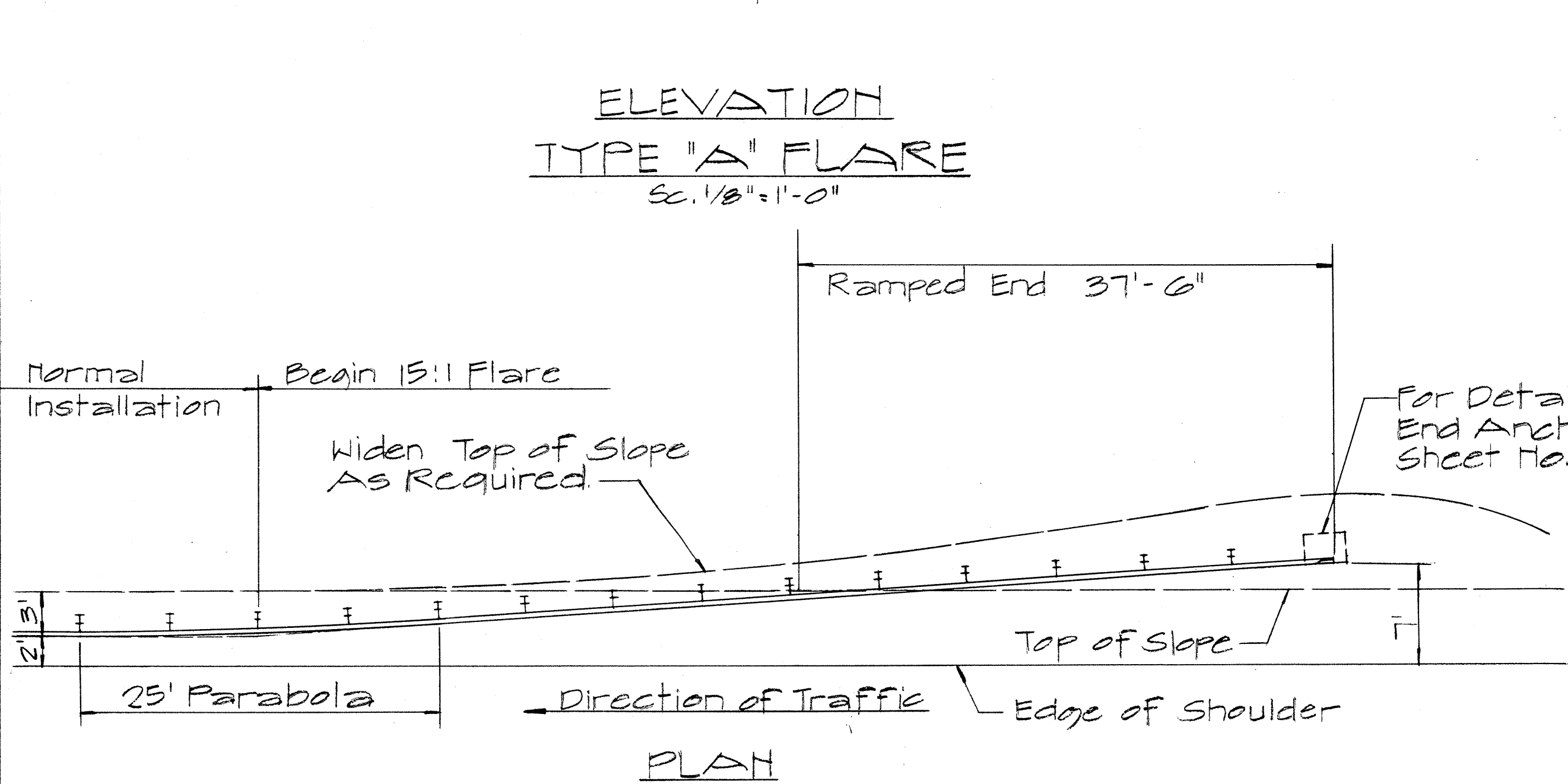
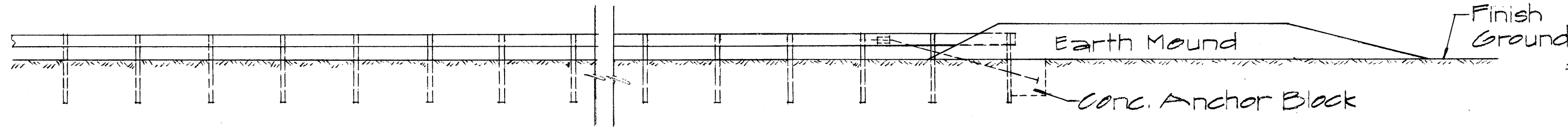
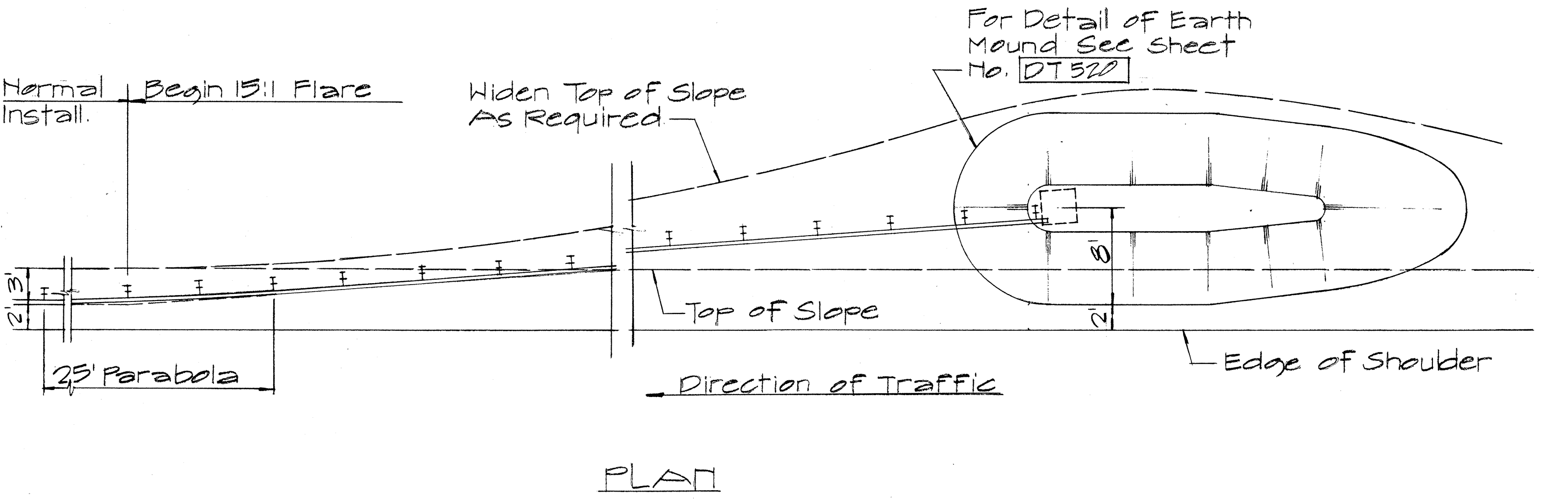
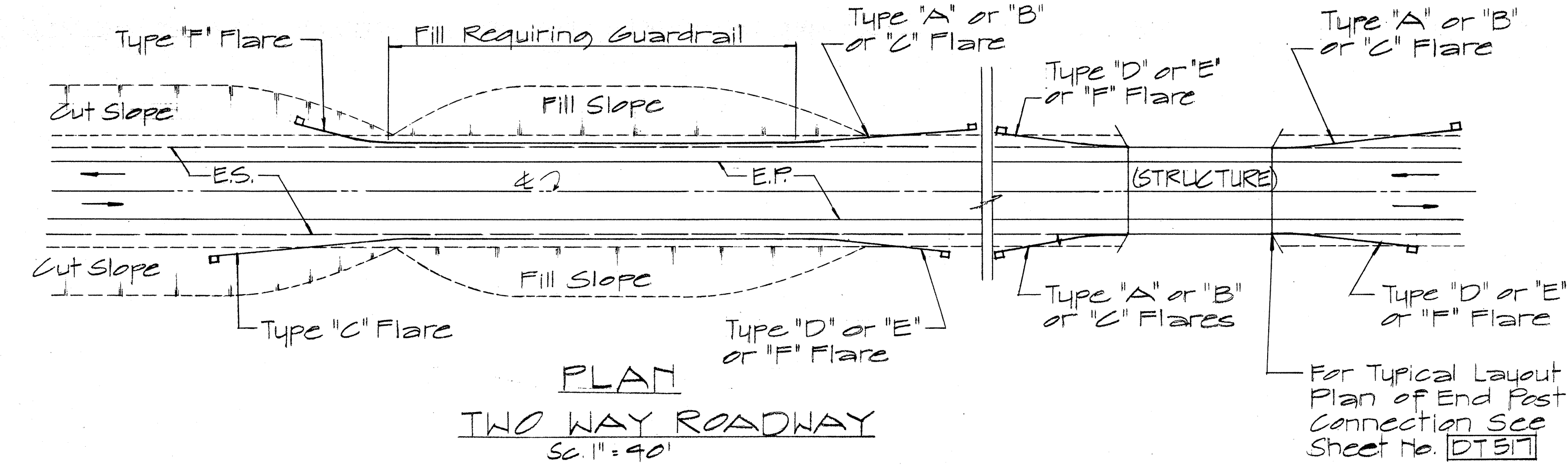
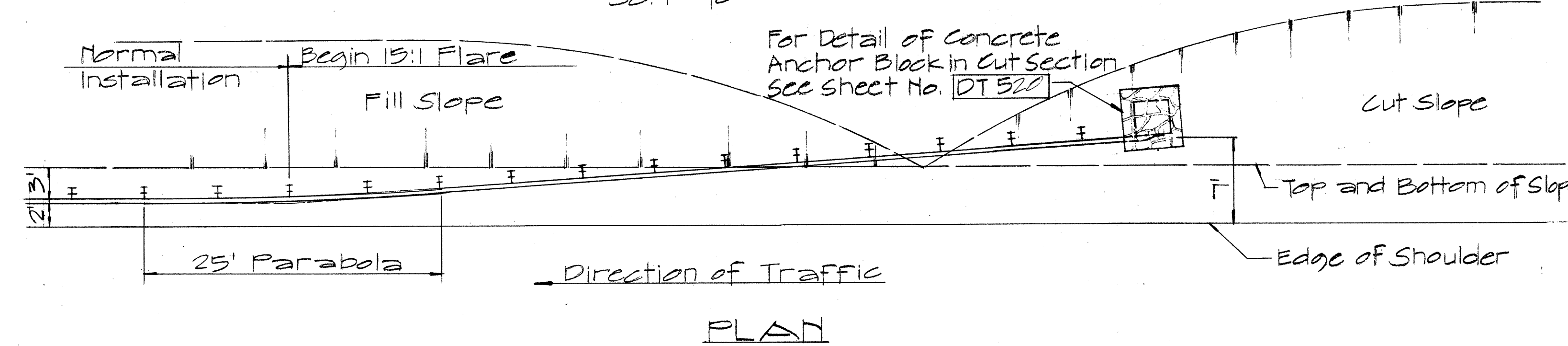
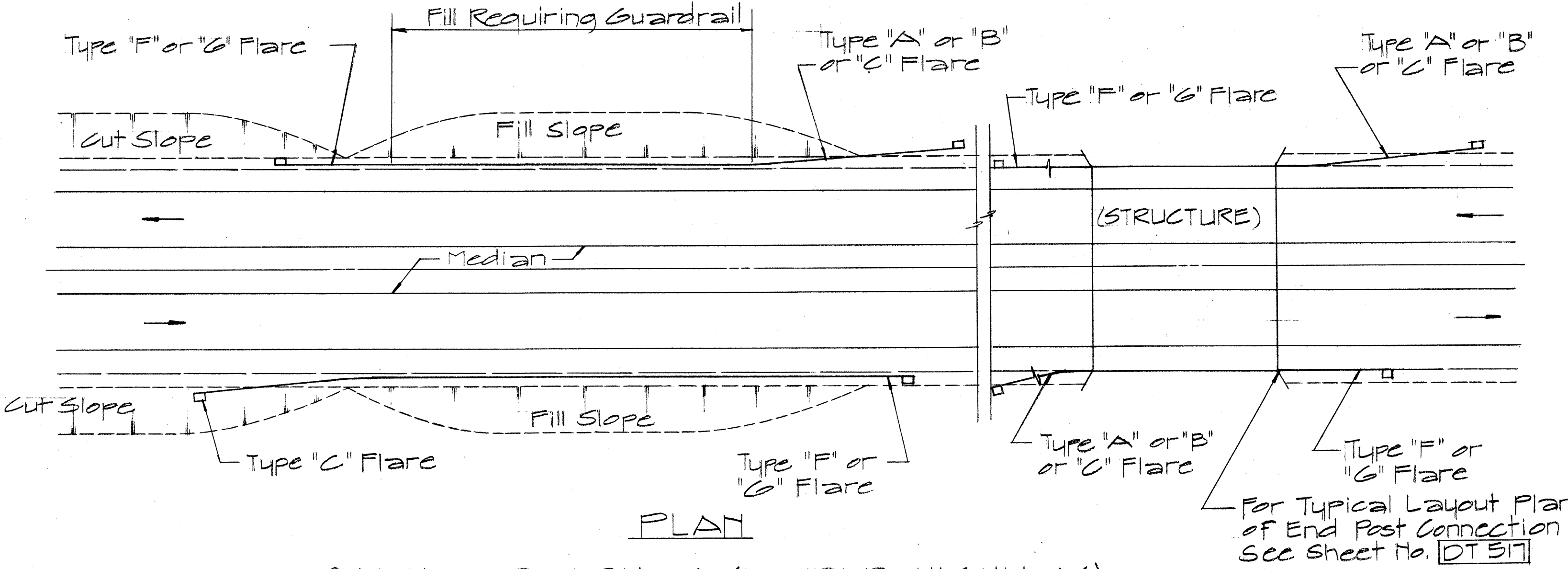
- NOTES:
- H.S. Bolts shall conform to the requirements of ASTM A 325.
 - Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHTO 180.

MEDIAN END DIMENSIONS		
TYPE OF POST AND BLOCK	W	R
Double Metal Guard Rail on Concrete Post with Wood Blocks	29 3/4"	14 7/8"
Double Metal Guard Rail on Concrete Post with Metal Blocks (BJG)	26 1/2"	13 1/4"
Double Metal Guard Rail on Metal Post with Metal Blocks (BJG)	24 3/8"	12 3/16"

NO	REVISION	APPROVED BY	DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	11C-01-69	1972	13	16

NOTE:
Metal guard rail connection to structures requires End Post Connection. See structure plans.



APPROVAL RECOMMENDED:
E. Tanaka 12/29/69
TRAFFIC ENGINEER DATE

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

NO.	REVISION	APPROVED BY	DATE

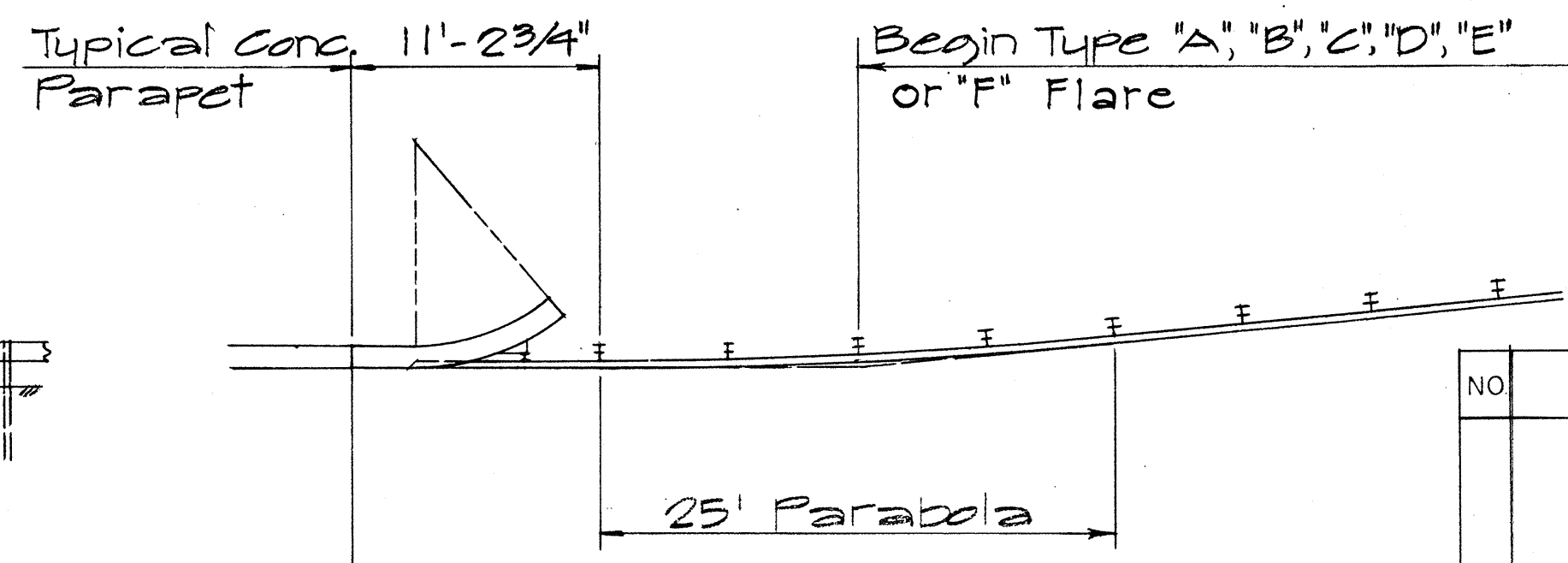
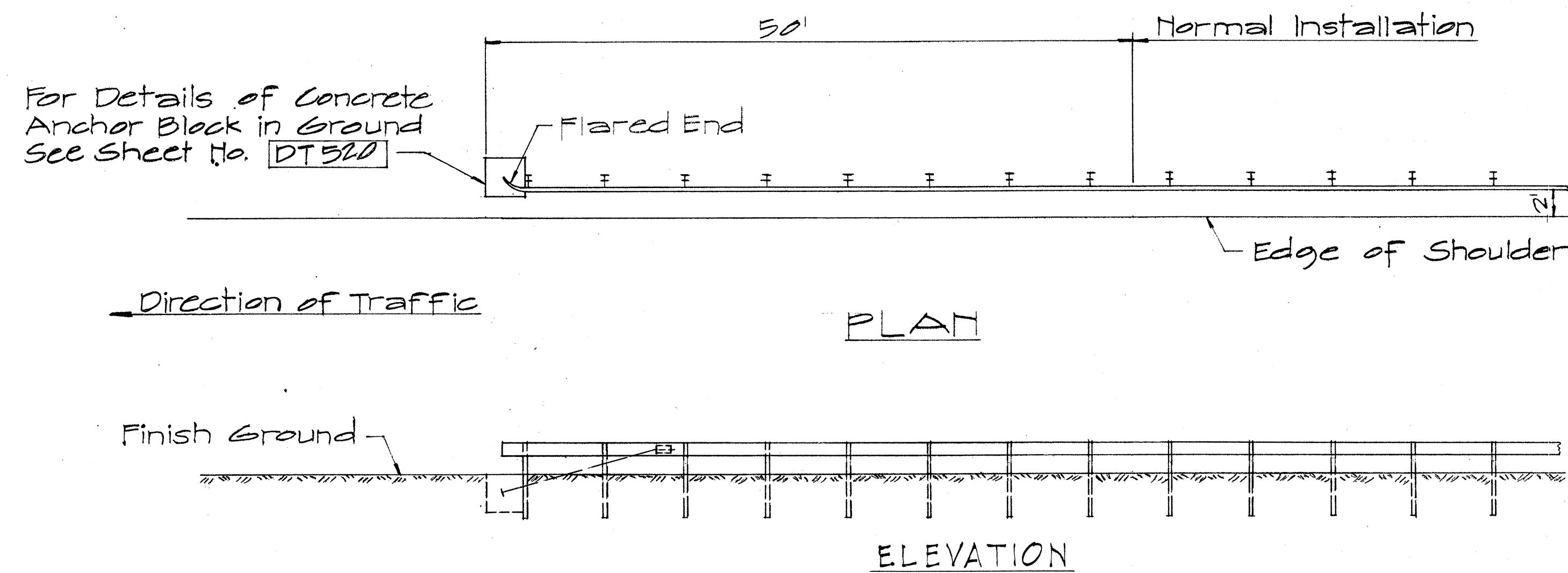
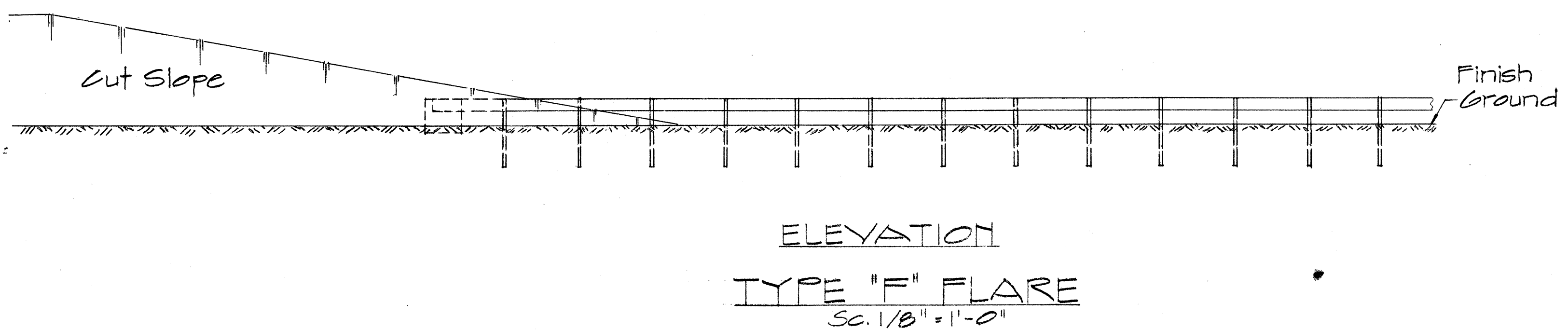
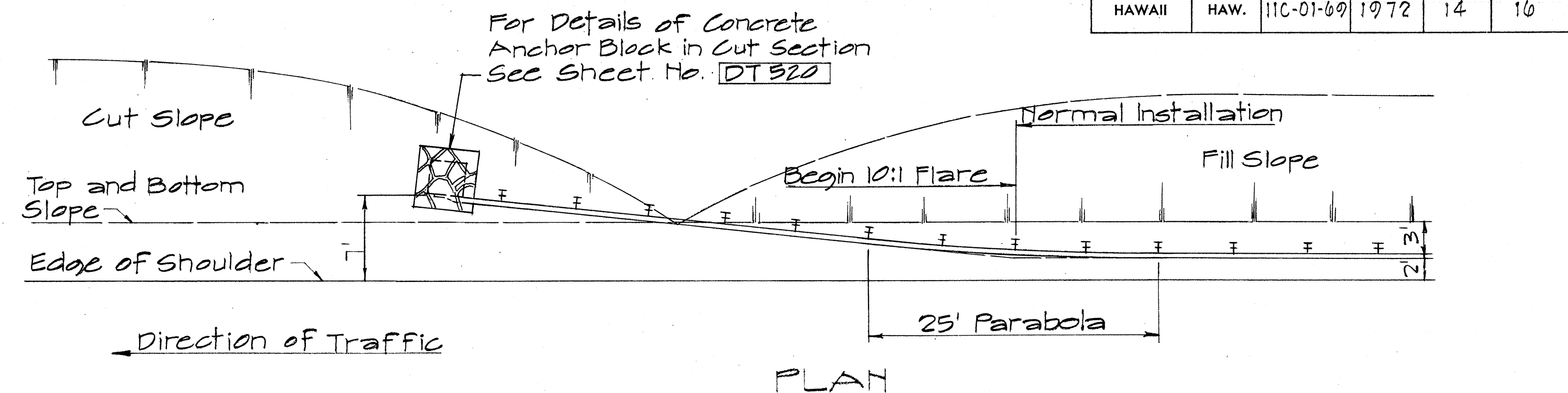
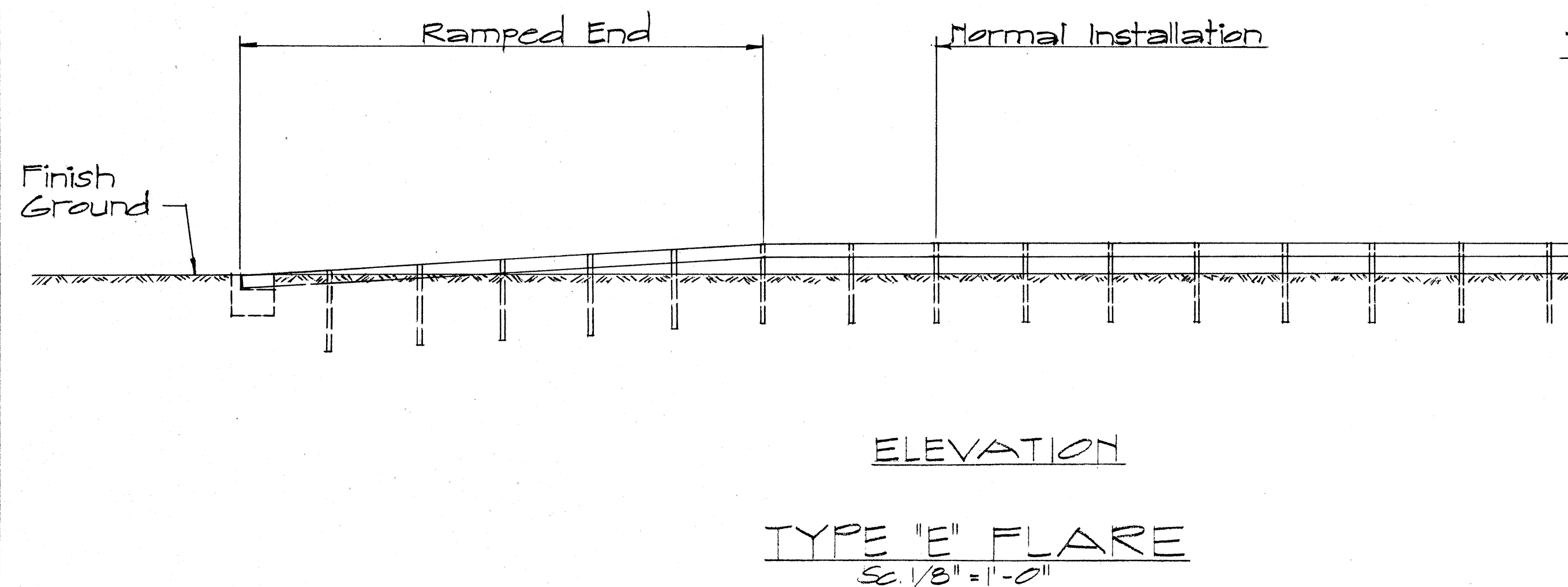
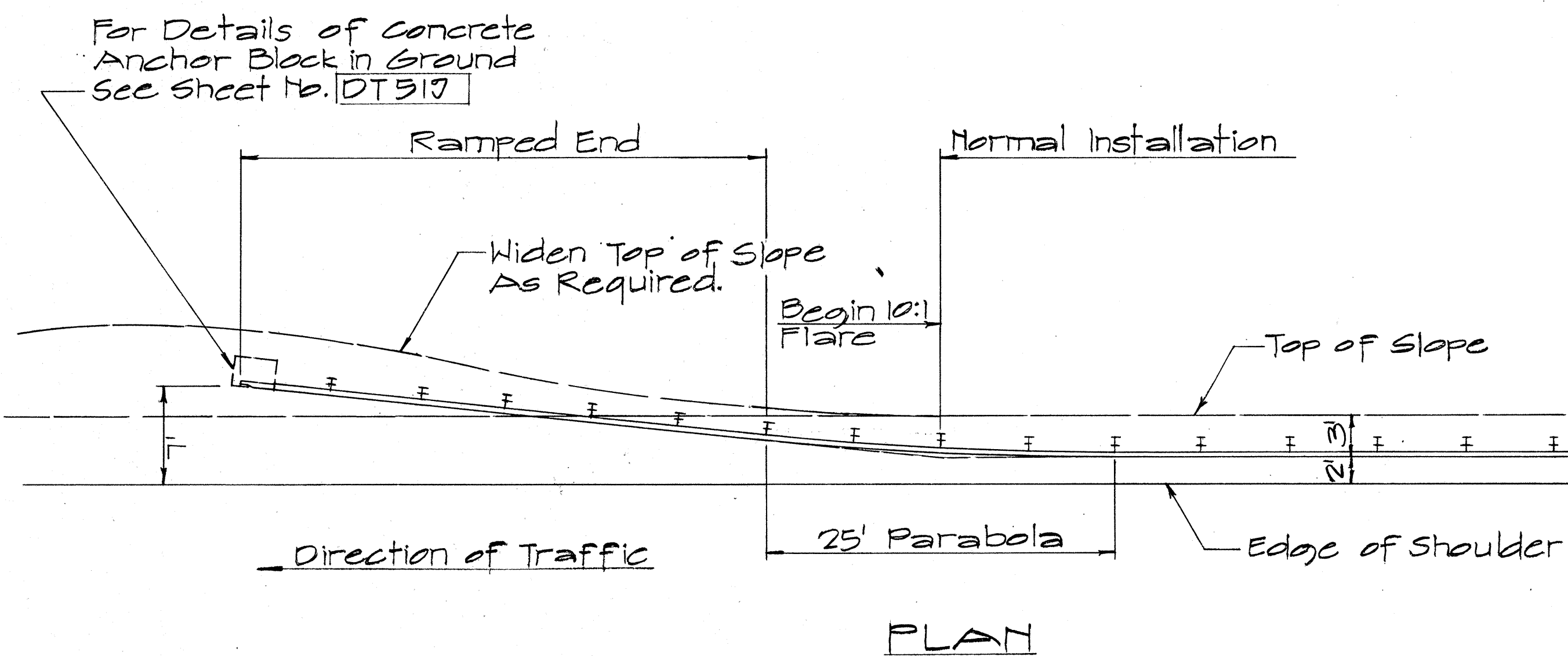
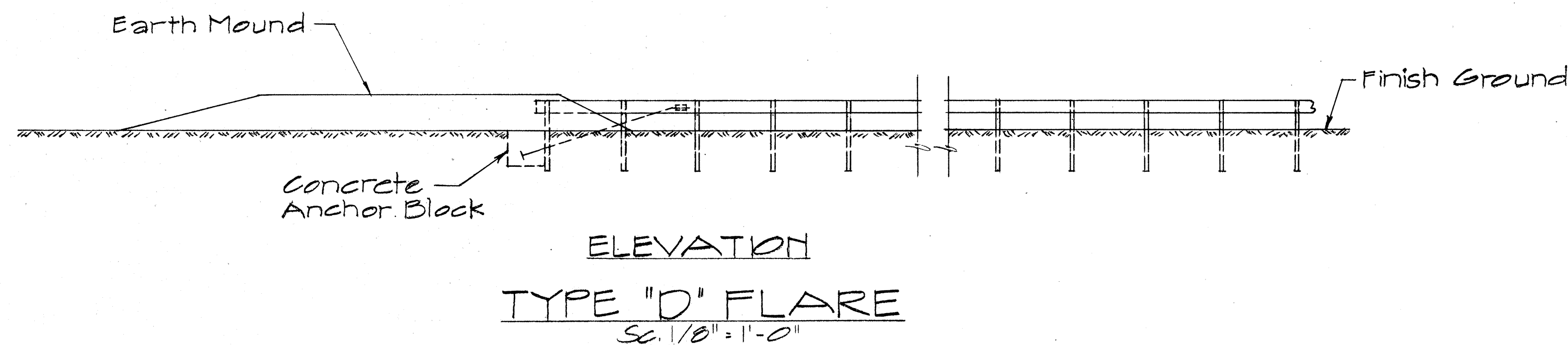
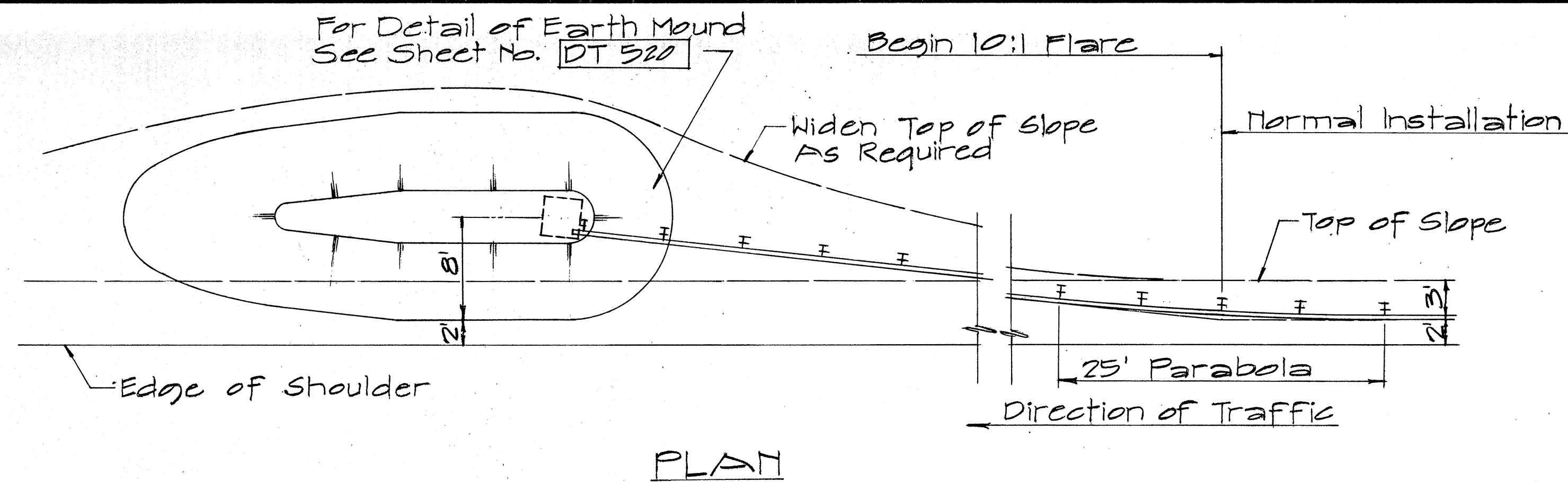
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY

SC. As Noted April 1969
SHEET No. 4 OF 6 SHEETS [DT 516]

SURVEY PLOTTED BY	DATE
DRAWN 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.	11C-01-69	1972	14	16



TYPICAL LAYOUT PLAN OF END POST CONNECTION

Sc. 1/8" = 1'-0"

APPROVAL RECOMMENDED:

Euske Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED:

W. J. J. J. 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

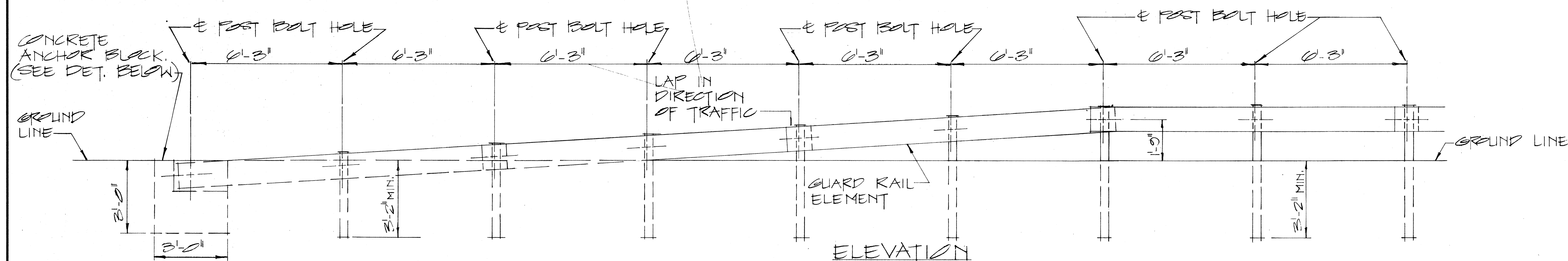
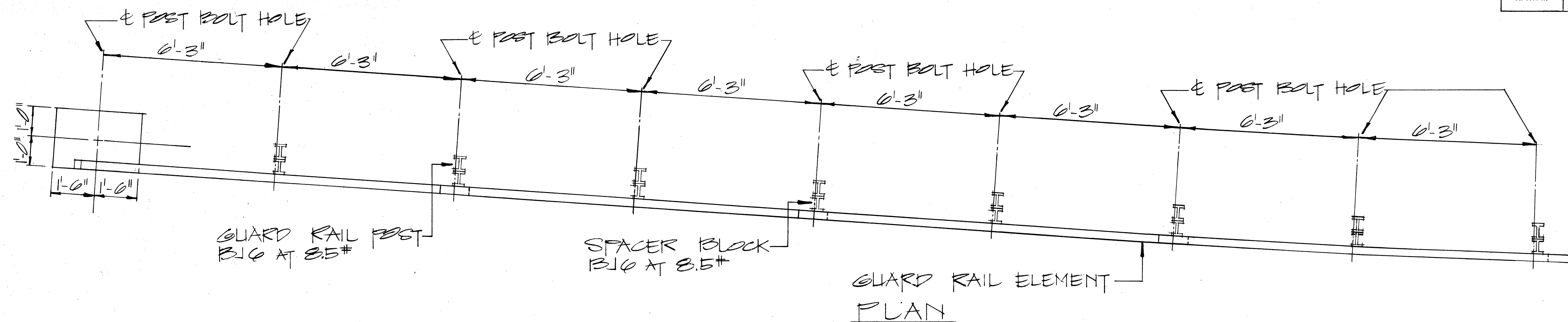
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
OF TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Sc. As Noted April 1969

SHEET No. 5 OF 6 SHEETS DT 517

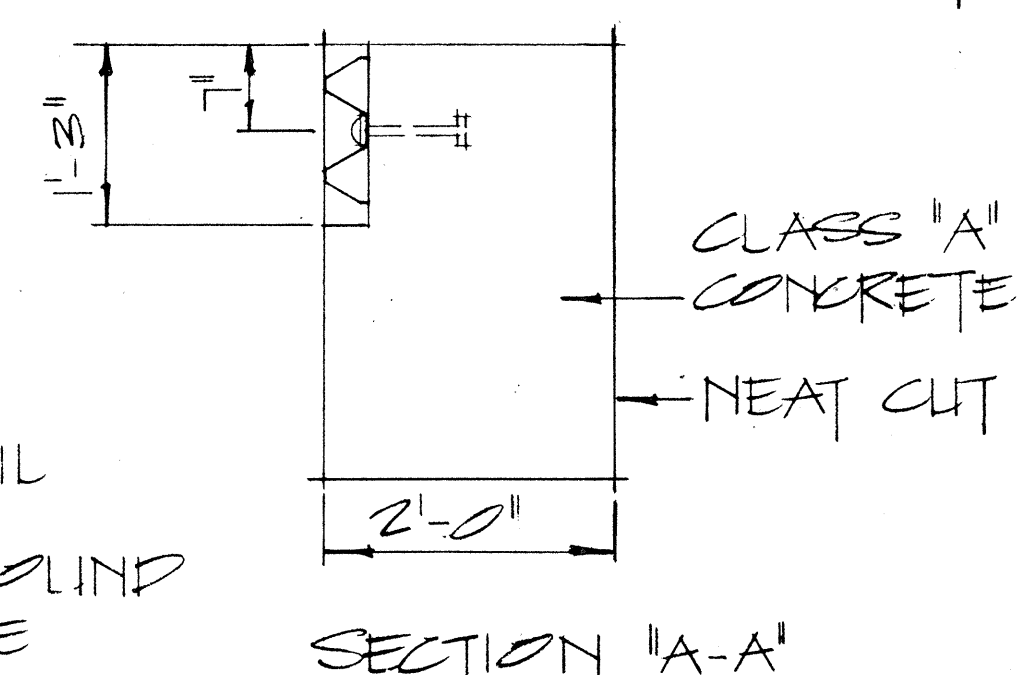
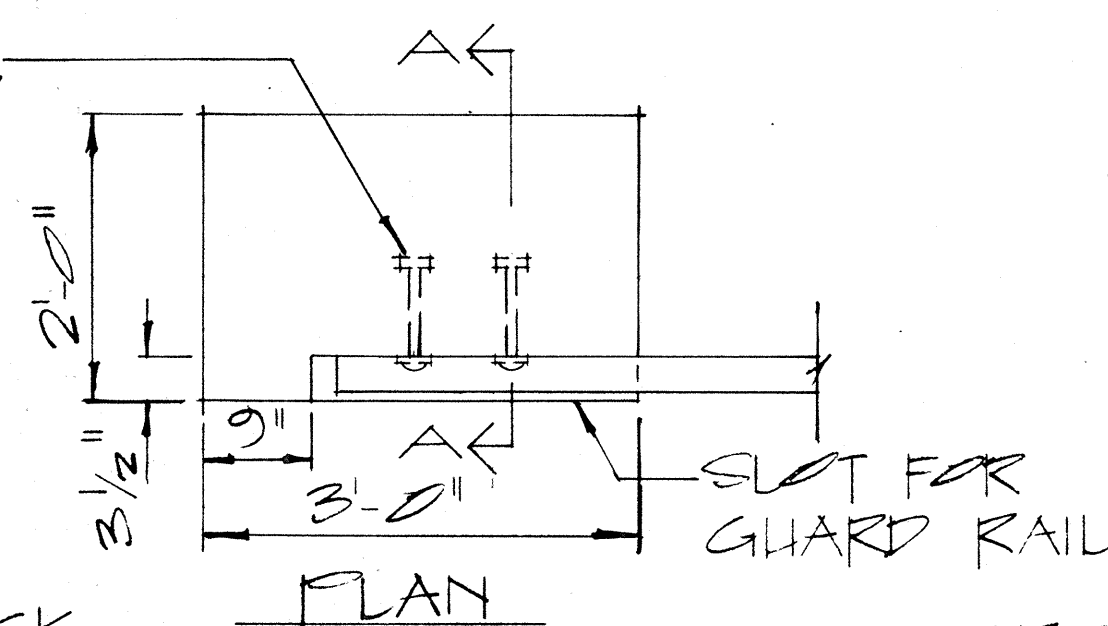
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HC-01-69	1972	15	16



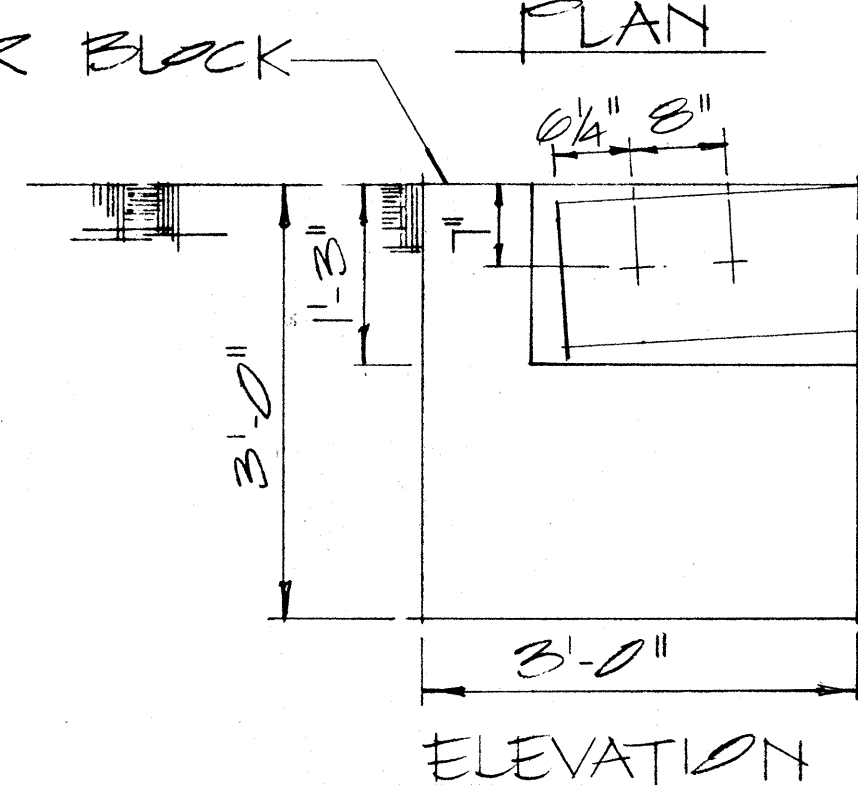
RAMP END ANCHORAGE

SCALE: $1/2'' = 1'-0''$

2-5/8" ϕ x 7 1/4" LONG BOLTS;
W/ NUTS & WASHERS
INCIDENTAL TO METAL
GUARD RAIL. ALL
METAL PIECES SHALL
BE GALVANIZED.



TOP OF ANCHOR BLOCK
TO BE FLUSH
W/ GROUND.



GROUND
— LINE

NOTE:
CONCRETE, EXCAVATION AND
MISCELLANEOUS APPURTENANCES
NECESSARY TO ANCHOR THE GUARD
RAIL ENDS, SHALL BE INCIDENTAL
TO THE METAL GUARD RAIL.

CONCRETE ANCHOR BLOCK

SCALE: $3/4'' = 1' - 0''$

APPROVAL RECOMMENDED:
Erich Tanaka 12/29/09
TRAFFIC ENGINEER DATE

APPROVED: John J. J. J. 12-30-59
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS
GUARD RAIL, TYPE 3
RAMP END ANCHORAGE

SCALE: AS SHOWN

SHEET No. 6 OF 6 SHEETS DT 512