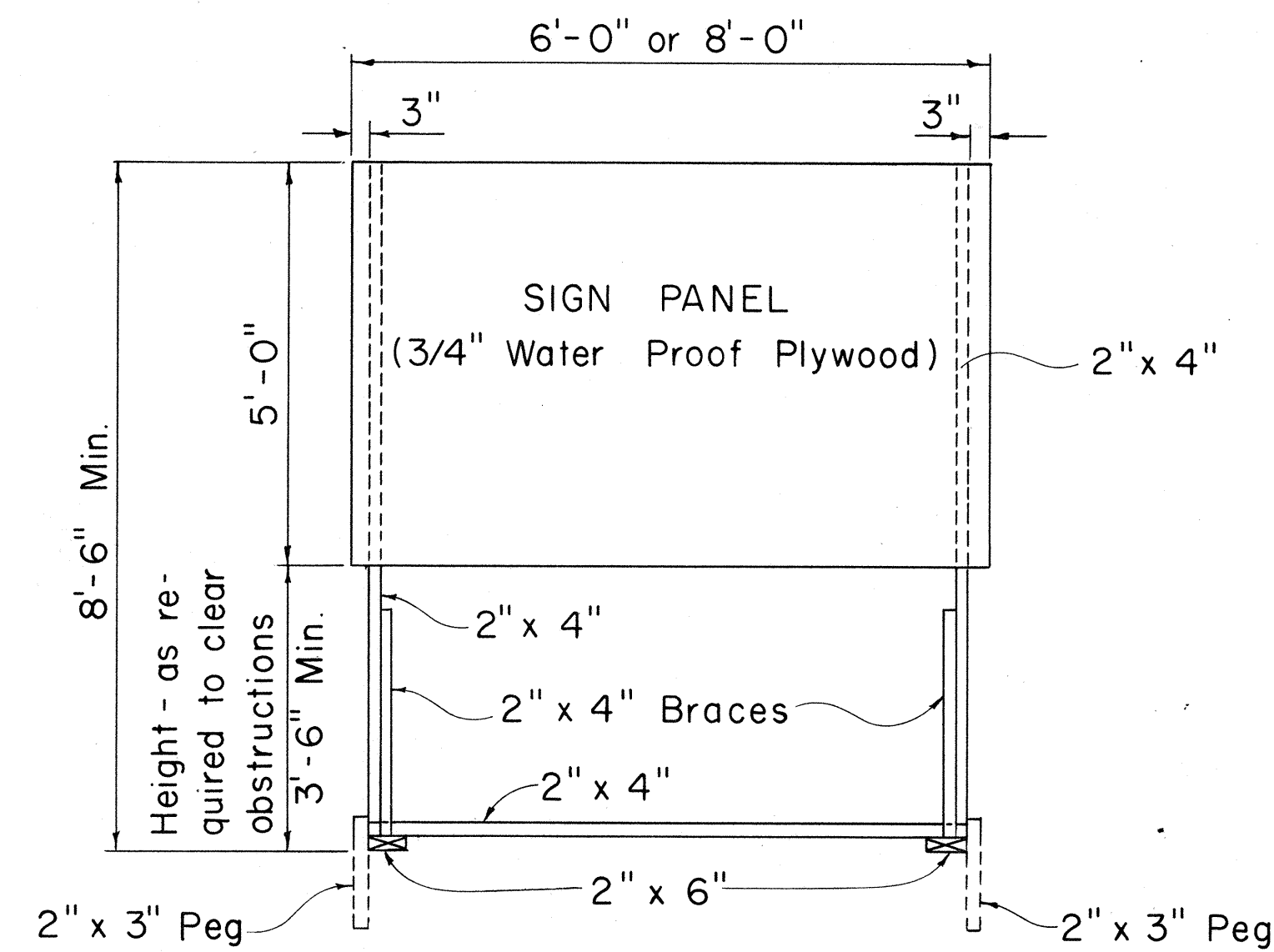
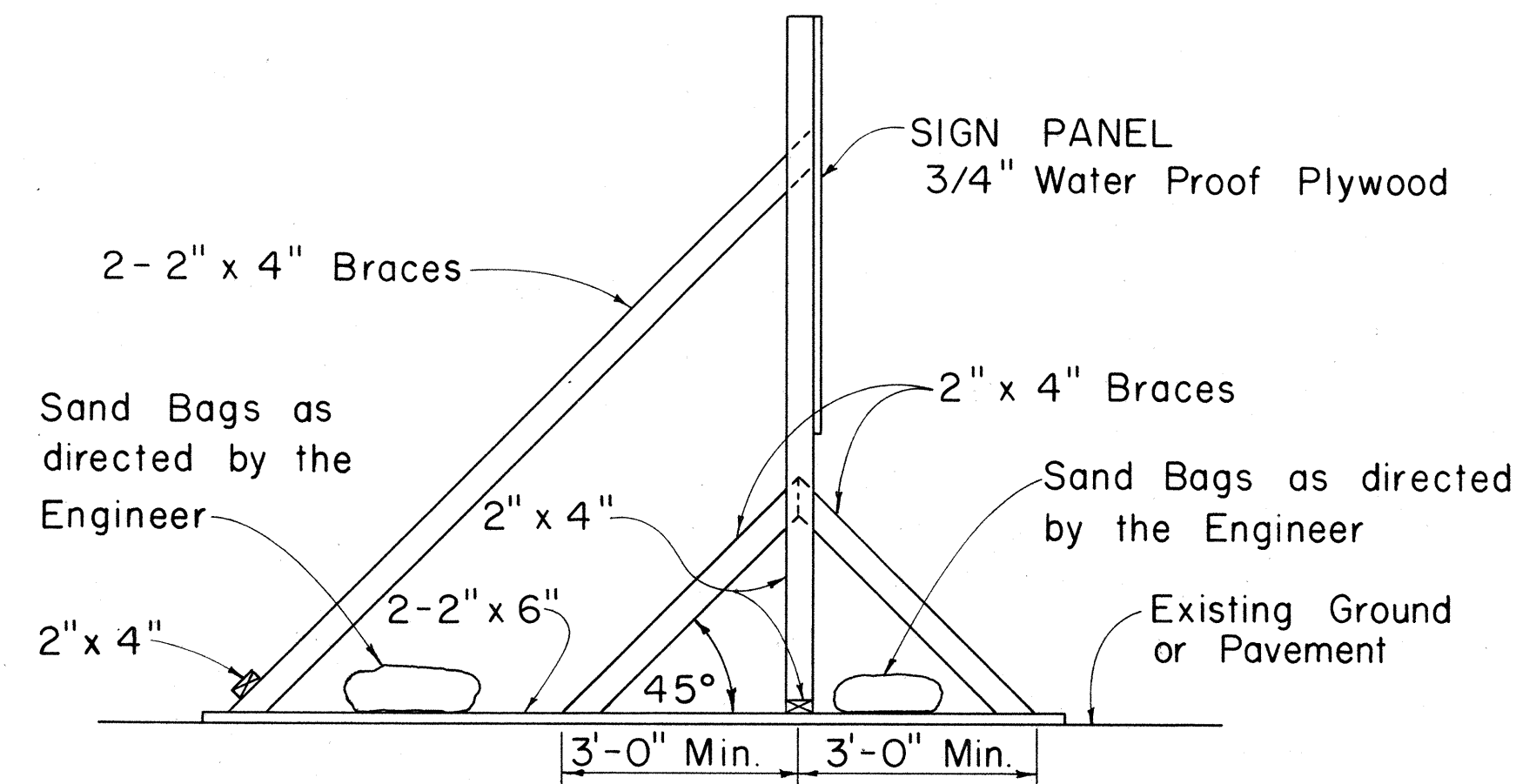


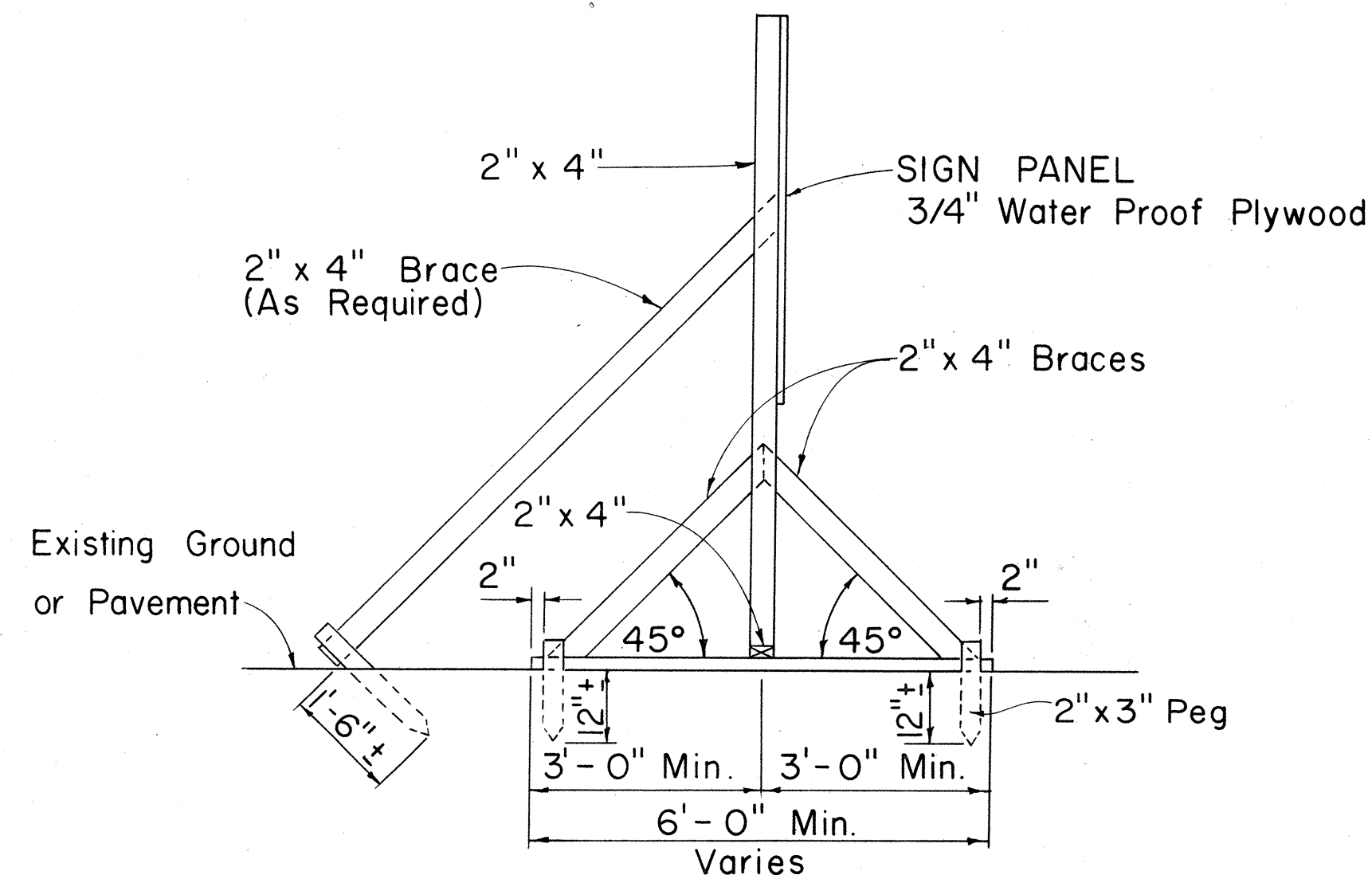
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-07-70	1969	5	11



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

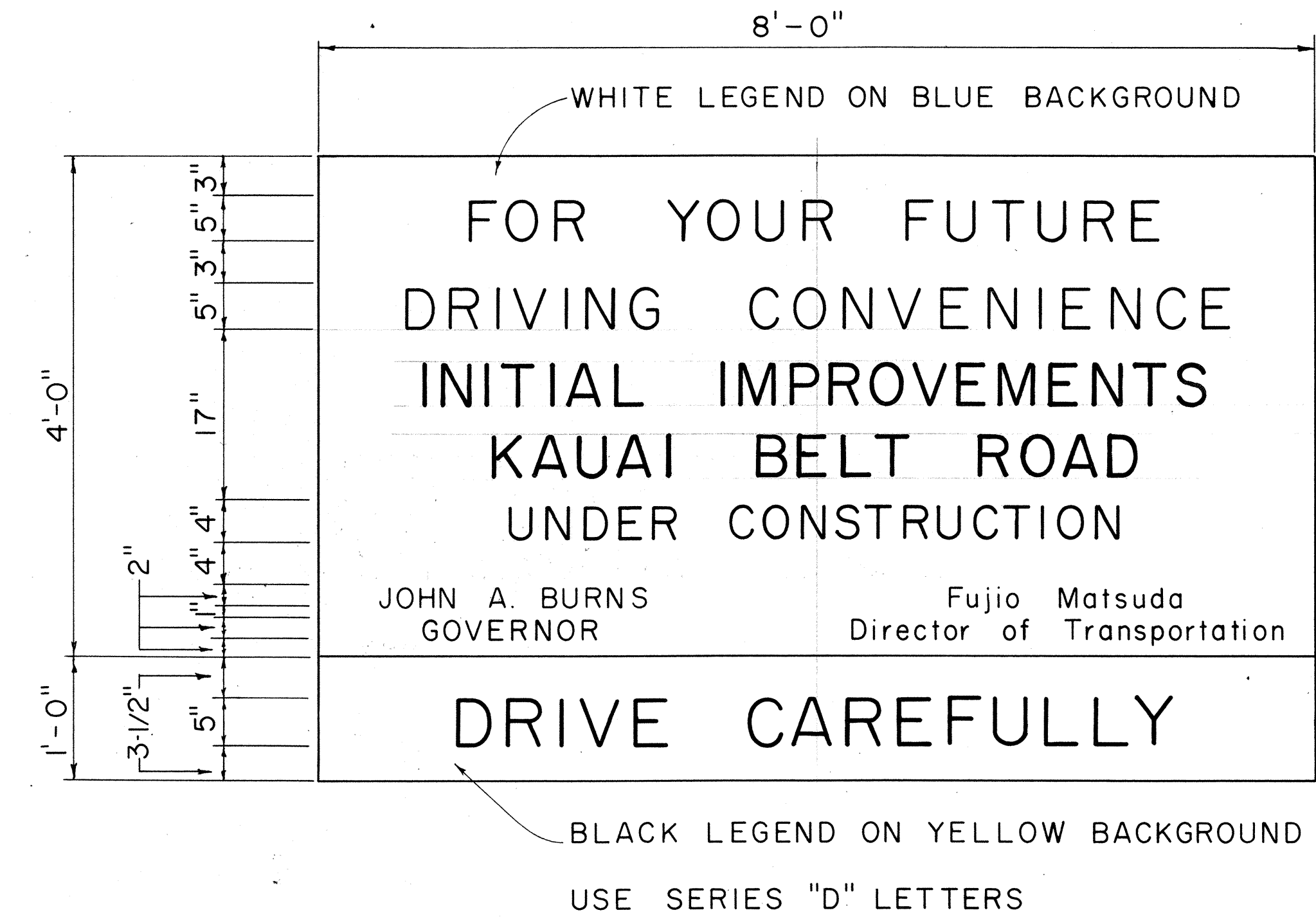


SIDE VIEW
(SIGN SUPPORT AND FRAME WEIGHTED DOWN)
Scale: 1/2" = 1'-0"



SIDE VIEW
(SIGN SUPPORT AND FRAME ANCHORED IN GROUND)
Scale: 1/2" = 1'-0"

SIGN SUPPORT AND FRAME
Scale: As Shown



GENERAL NOTES

- The sign panels will be constructed by the State and will be available for pick up by the Contractor from the State Highway Maintenance Yard.
- The Contractor shall construct the sign supports and frames and install the sign panels at the locations shown on the plans and as ordered by the Engineer.
- At the end of construction the Contractor shall remove the sign panels and return it to the State Highway Maintenance Yard. Sign supports and frames shall be removed and cleared from the project site.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS

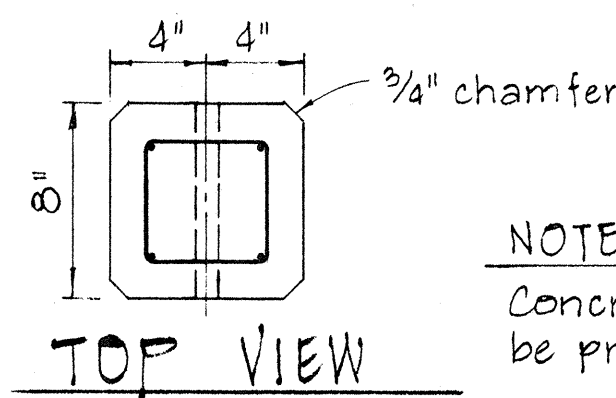
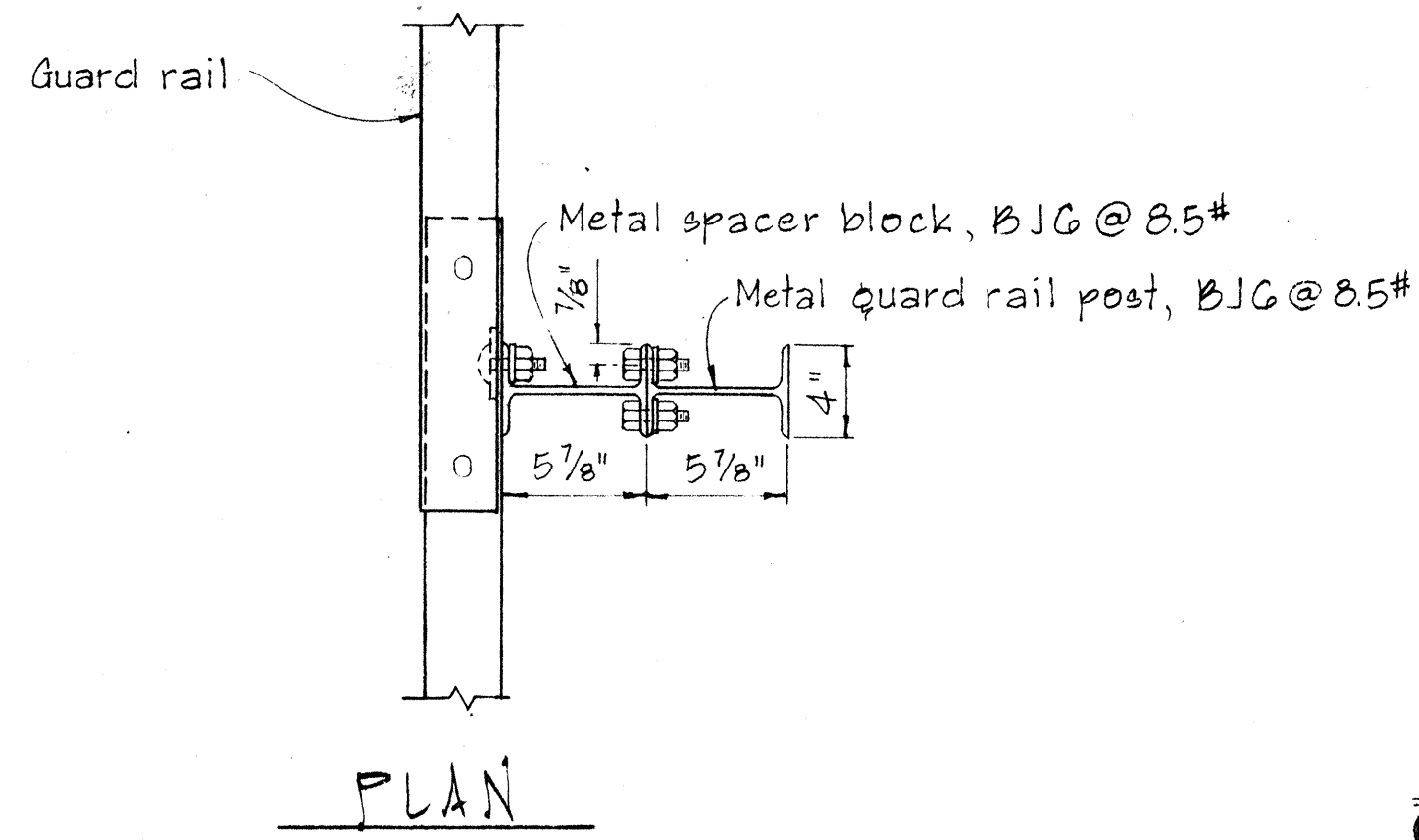
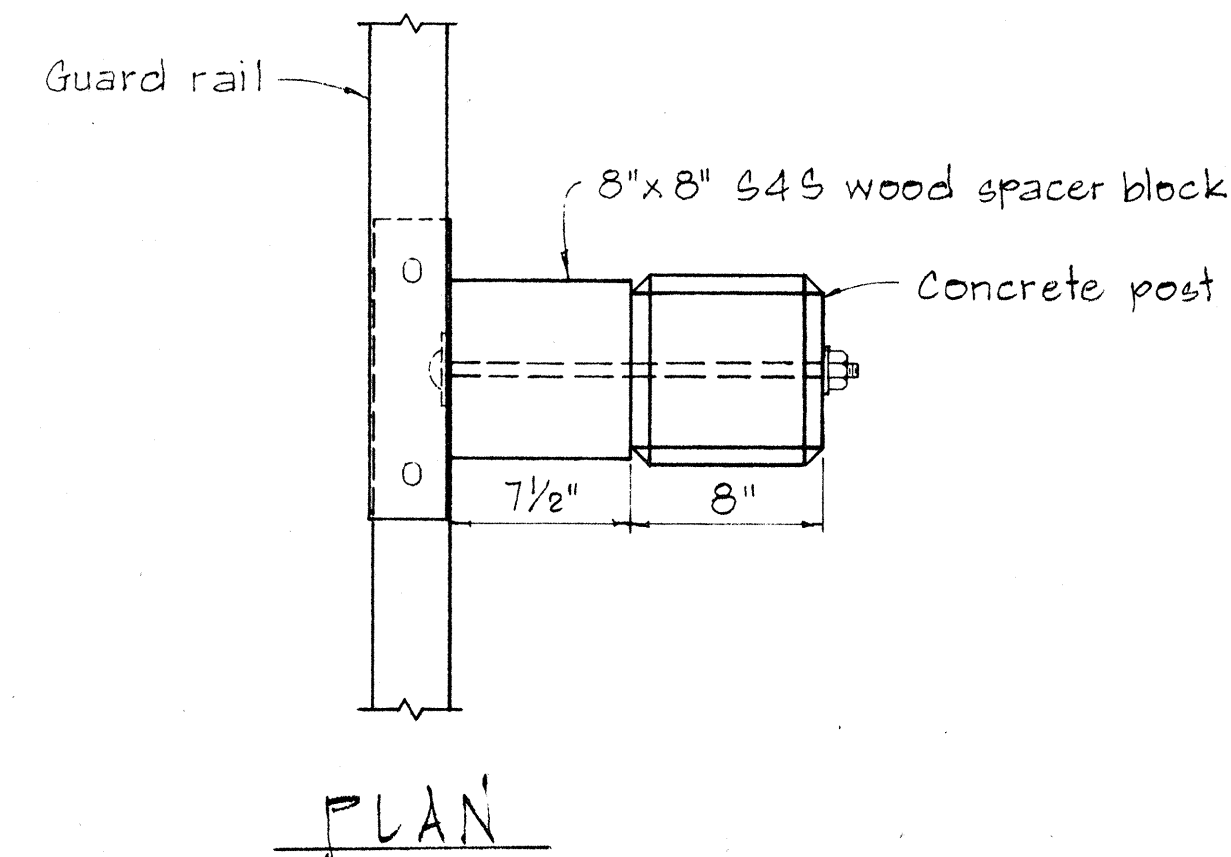
PROJECT INFORMATION SIGN

Scale: As Shown

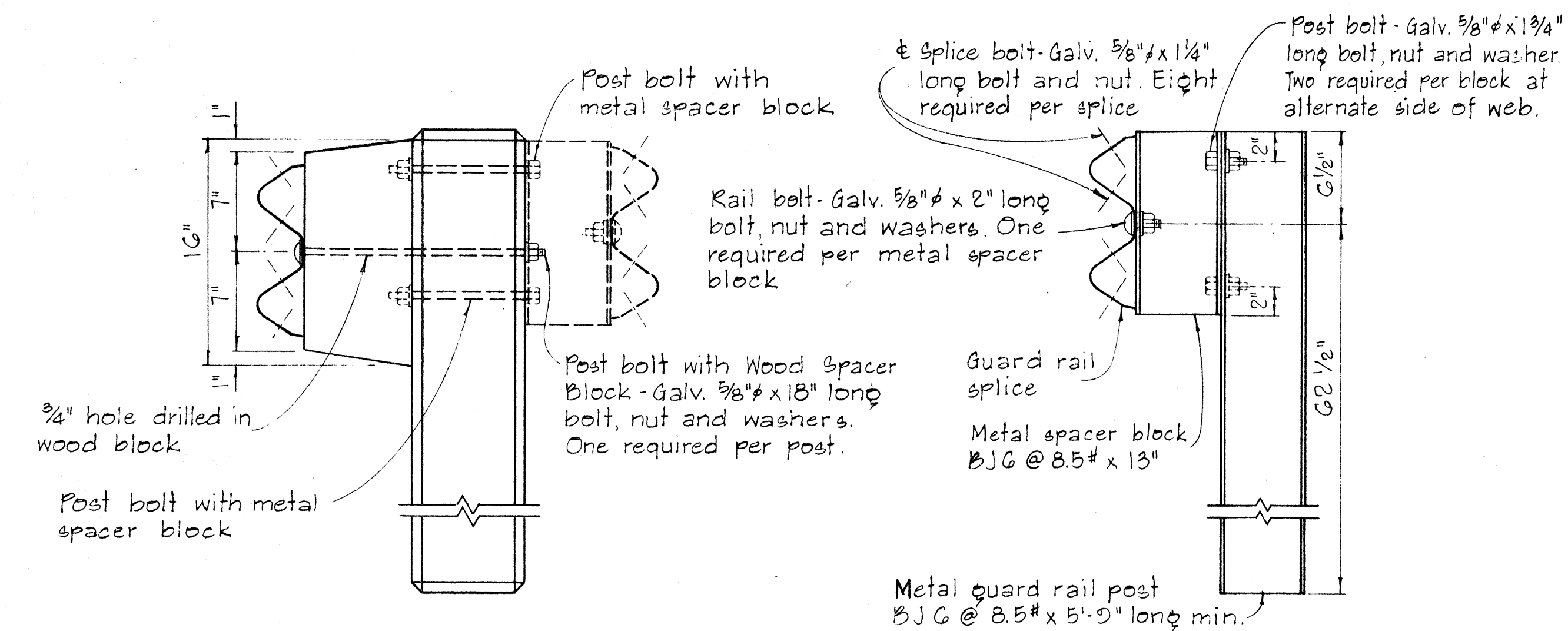
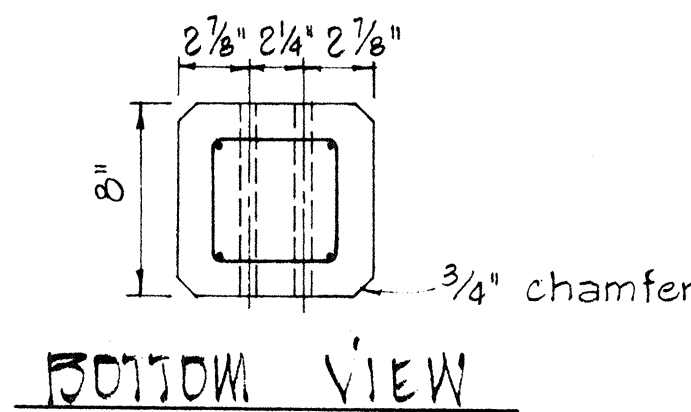
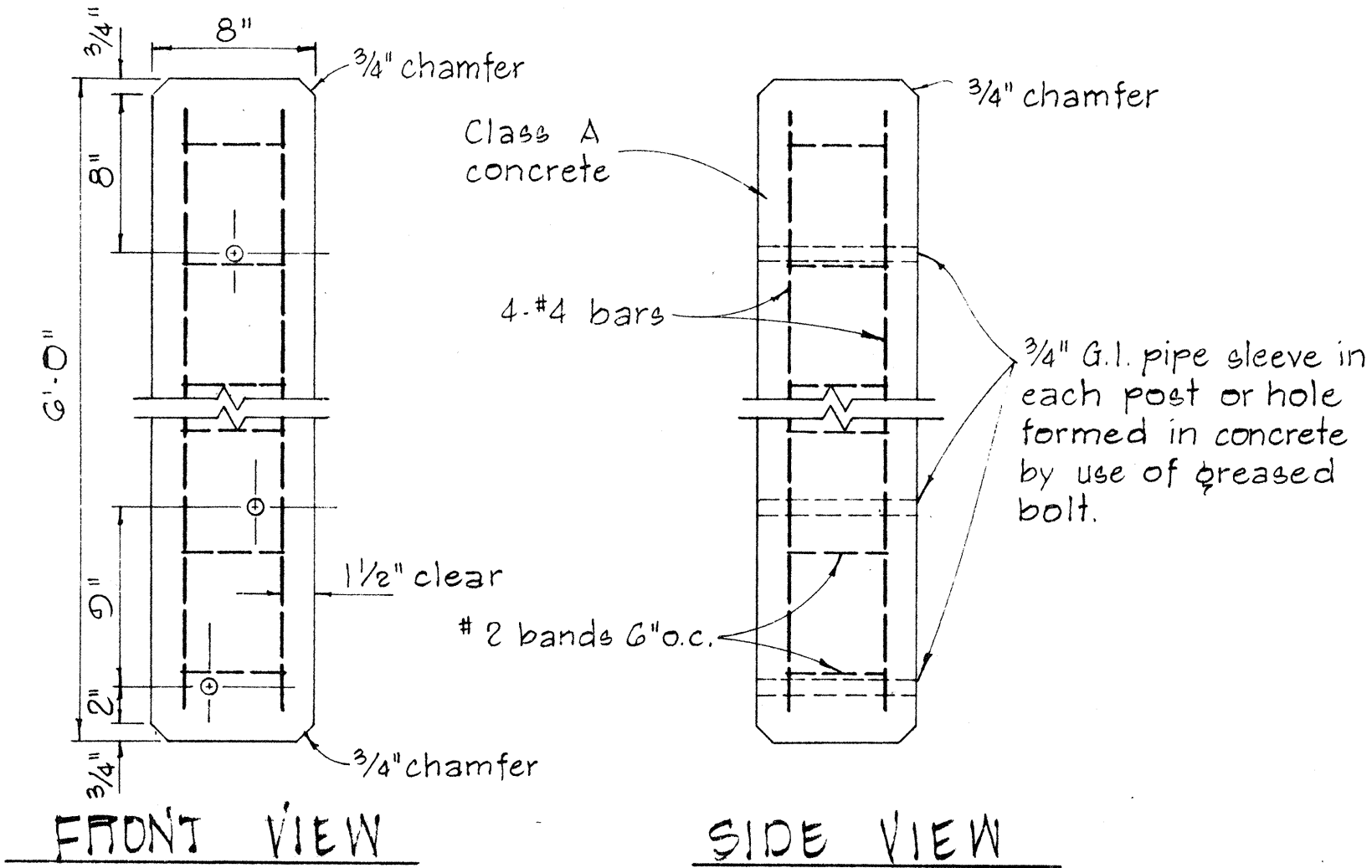
SHEET No. 1 OF 7 SHEETS

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

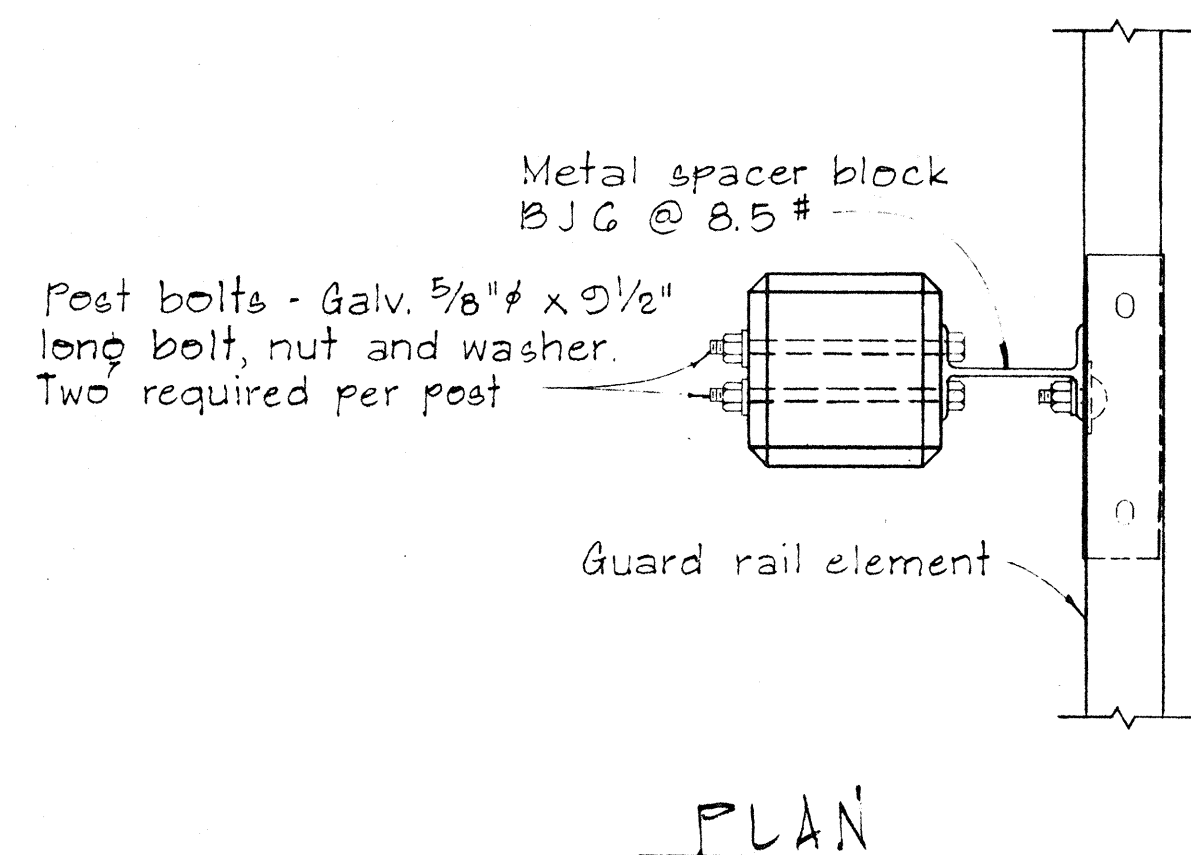
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-0770	1969	6	11



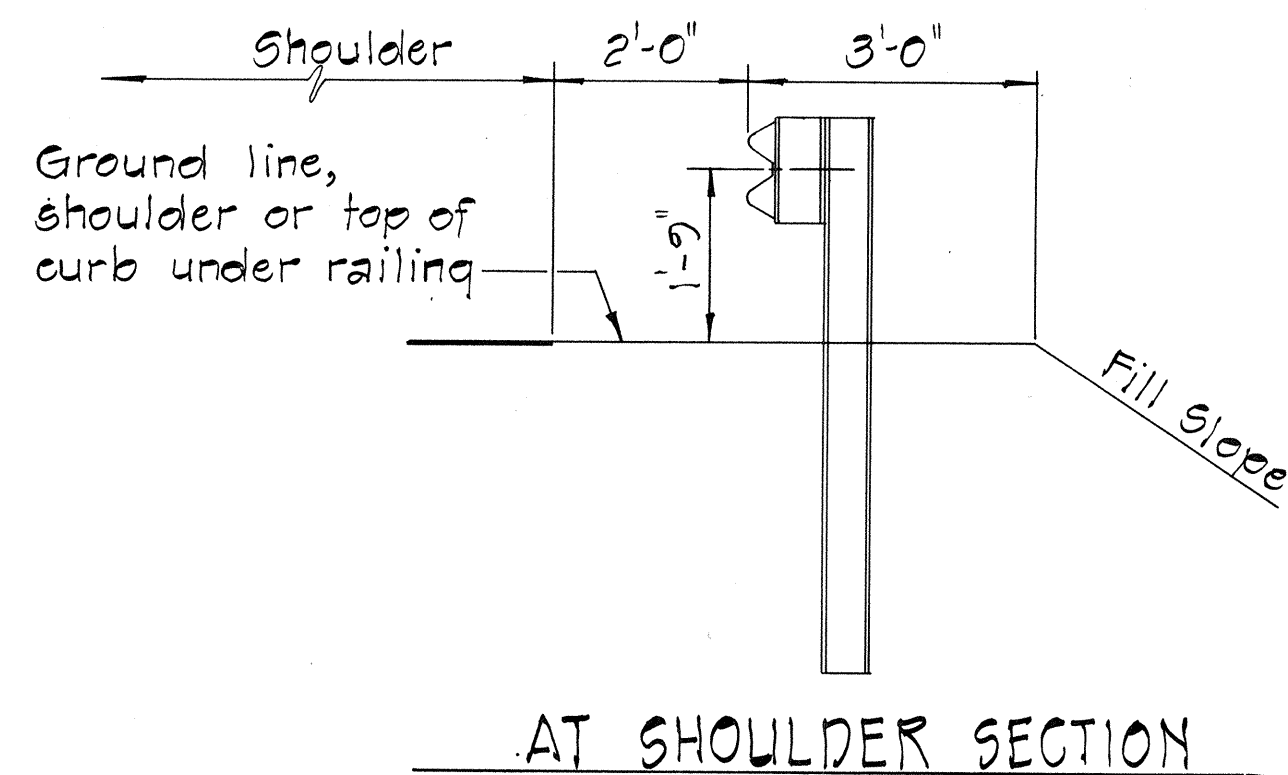
NOTE:
Concrete post shall be precast



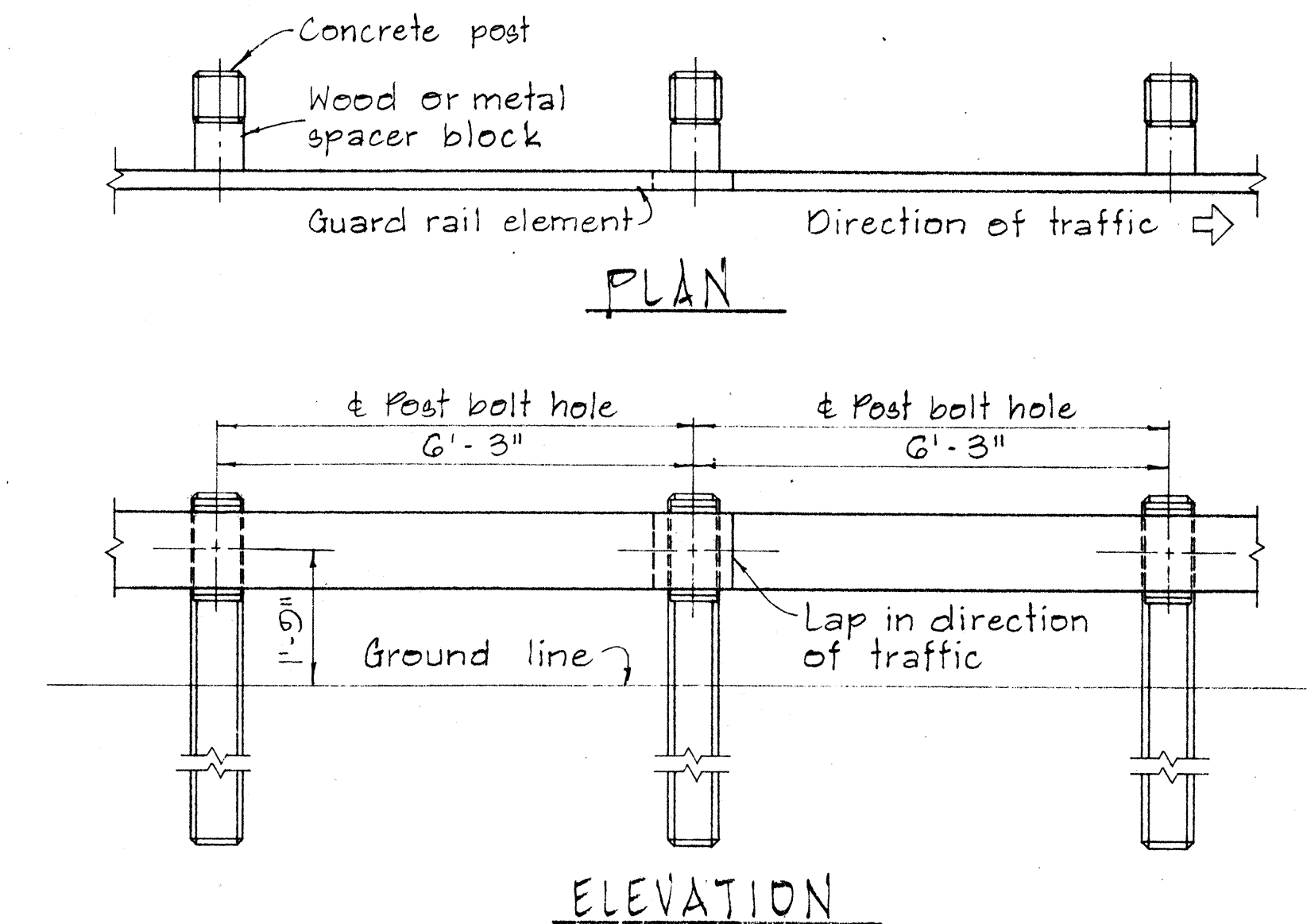
SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



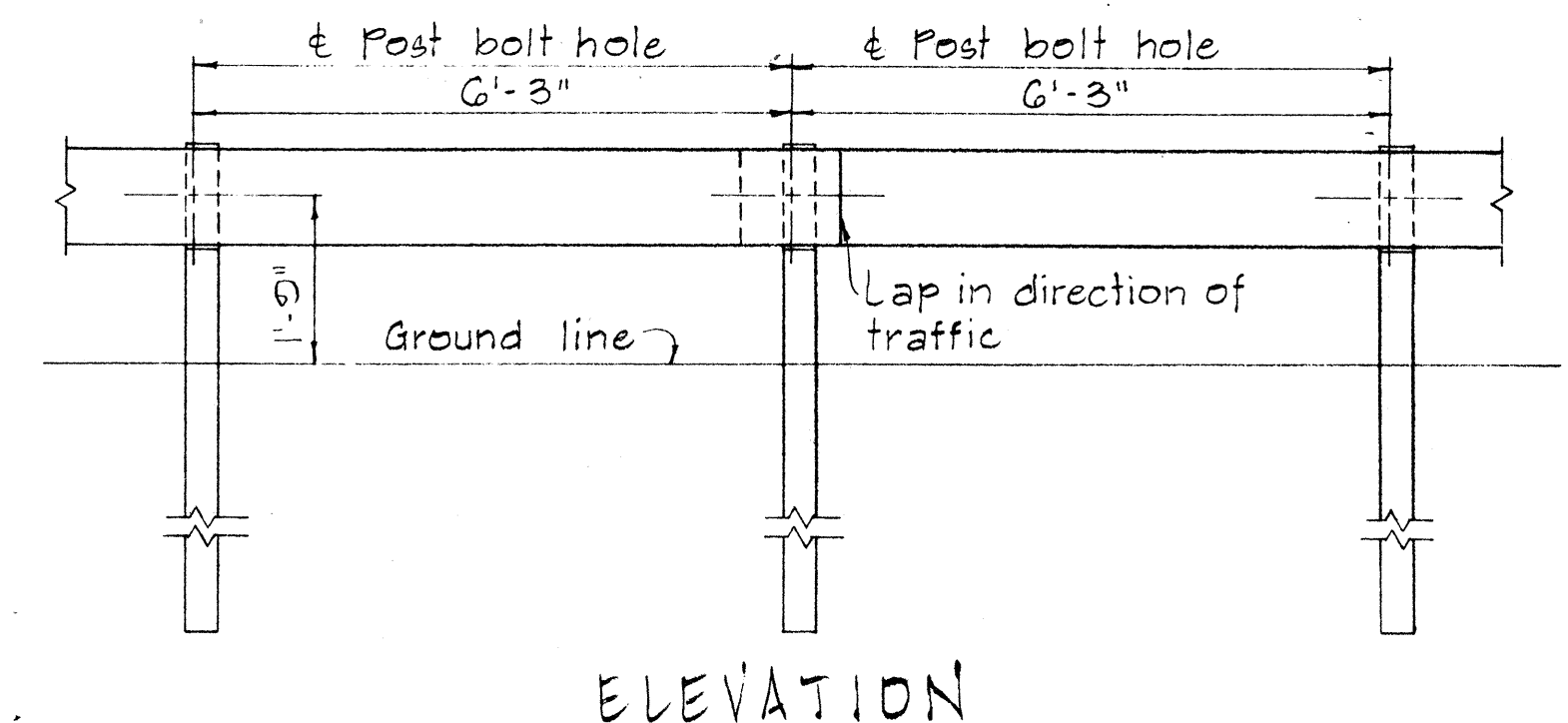
SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



TYPICAL METAL GUARD
RAIL DETAIL
SCALE: 1/2" = 1'-0"



METAL GUARD RAIL ON CONCRETE POST
WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"

NO.	REVISION	APPROVED BY	DATE

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

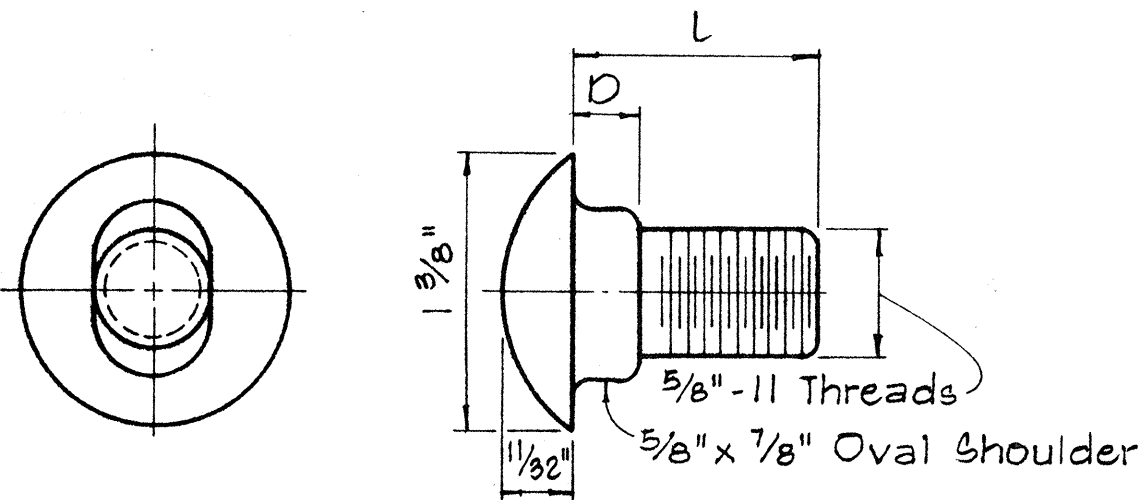
STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN NOV. 1968

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-07-70	1969	7	11

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

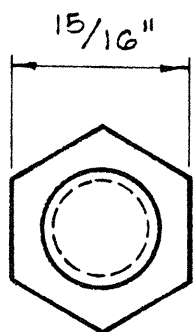
BOLT DIMENSIONS		
TYPE B BOLT		
Post Bolt for Conc. Post w/ Metal Blocks		L
Post Bolt for Metal Post w/ Metal Block		5 1/2"
		1 3/4"



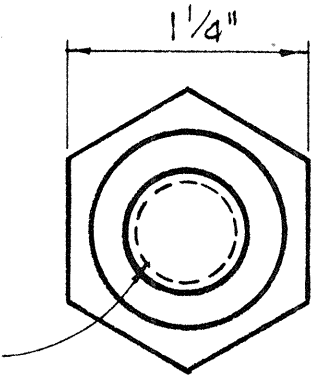
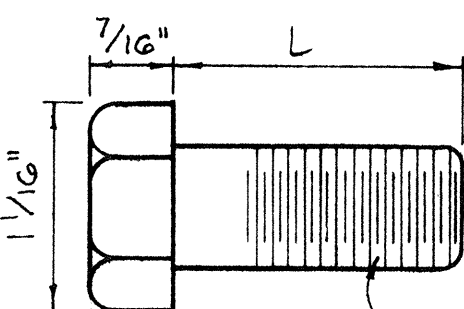
TYPE A BOLT

SPlice RAIL AND POST BOLTS

Scale: Full Size

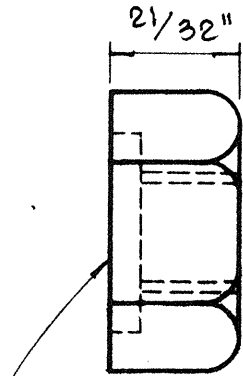


TYPE B BOLT

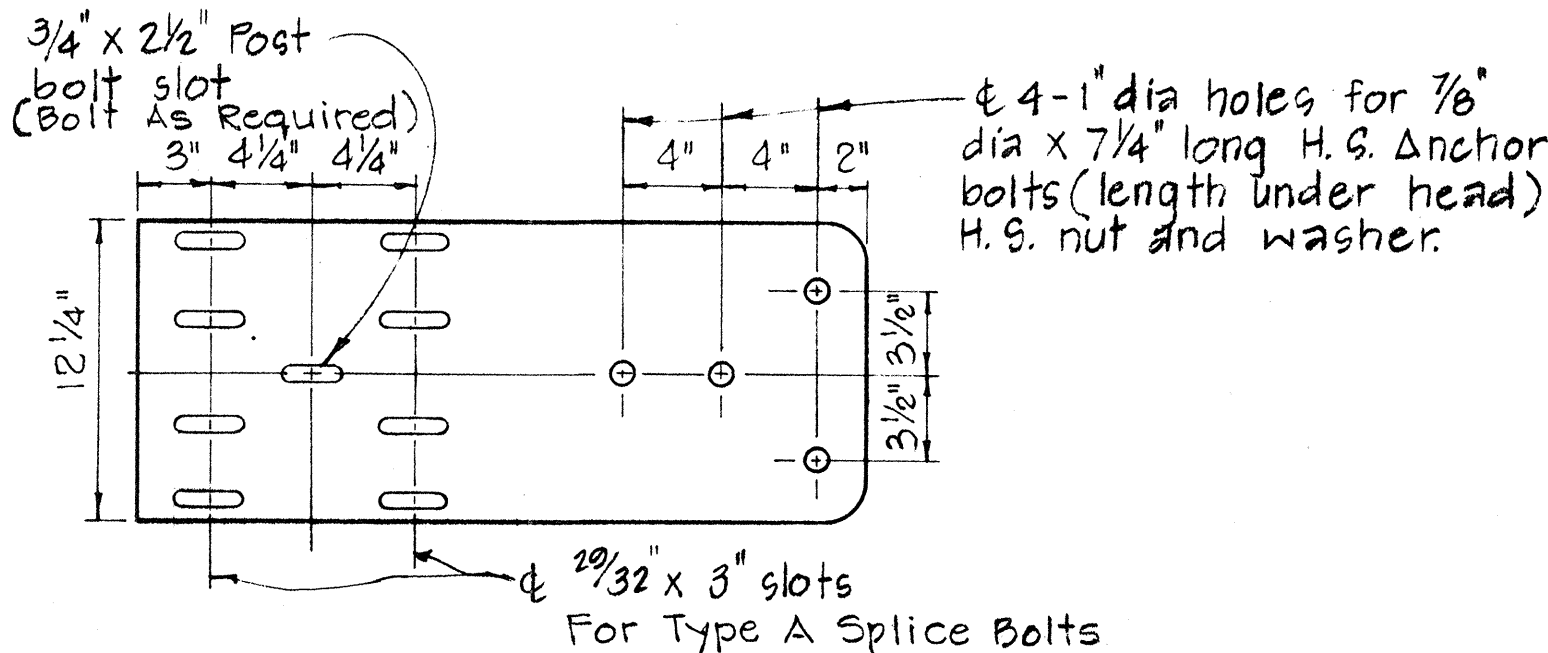
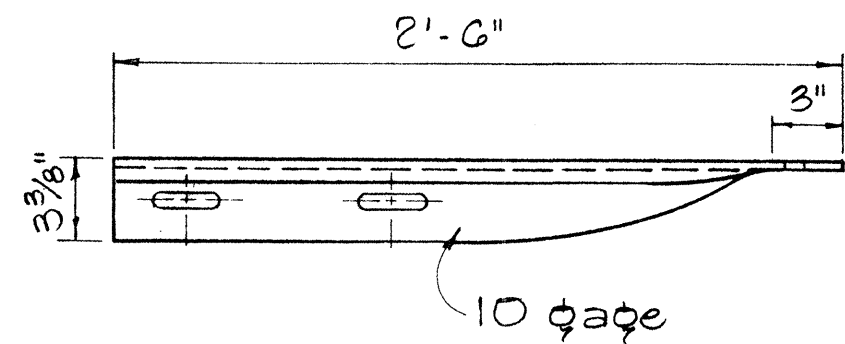


HEXAGON NUT

Scale: Full Size

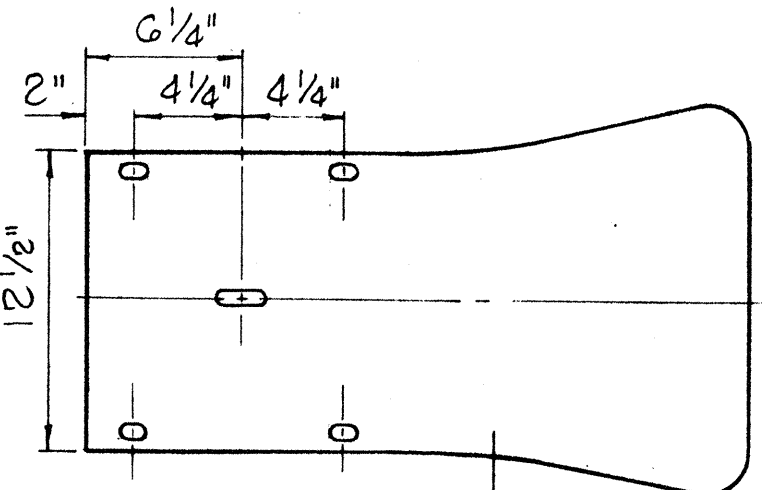
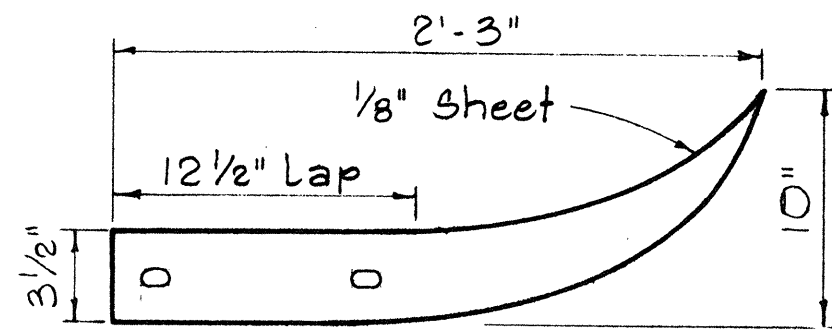


5/32" Deep x 15/16" Dia. C' Bore for Type A Bolt only.
Plain nut for Type B Bolt.



SPECIAL END SHOE

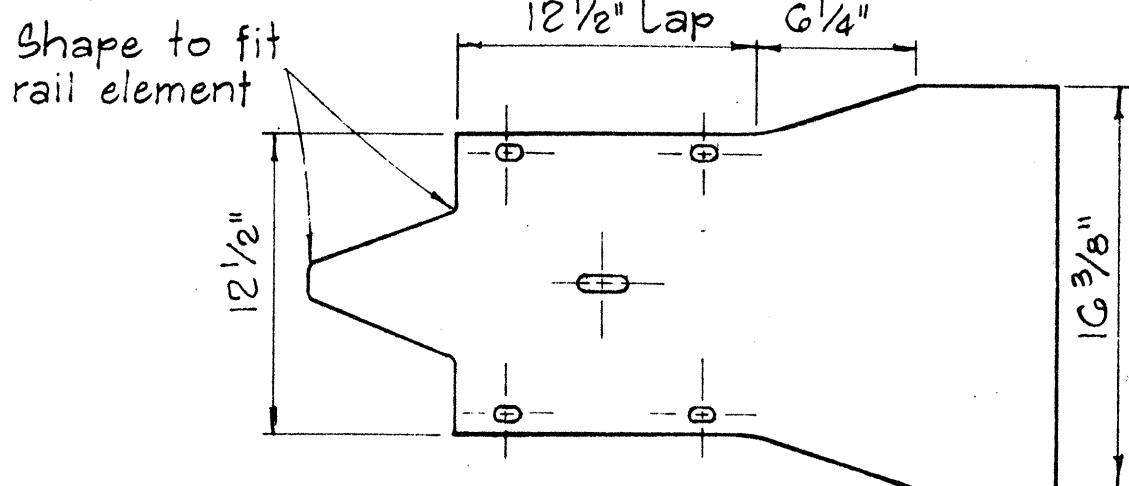
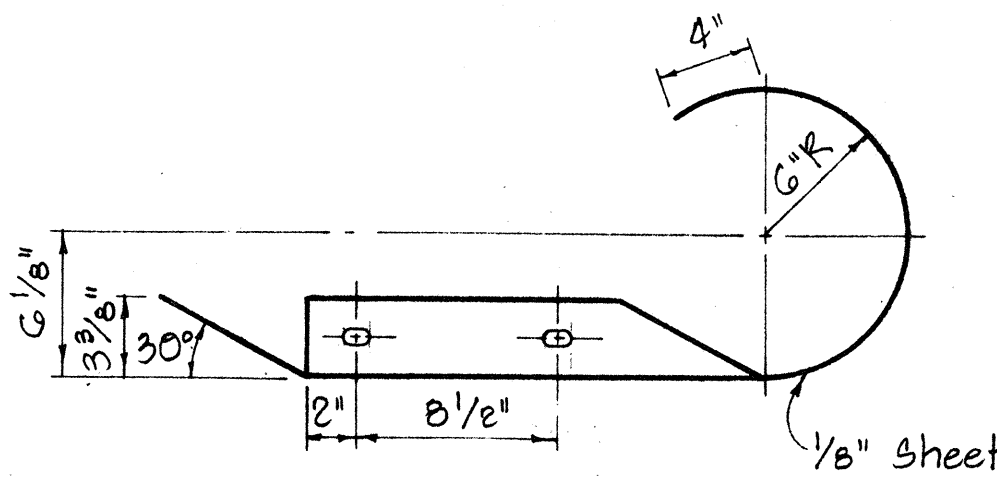
Scale: 1 1/2" = 1'-0"



Same as rail element section

FLARED END

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



CURVED END

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

APPROVAL RECOMMENDED:

TRAFFIC ENGINEER

APPROVED:

ASSISTANT CHIEF, ENGINEERING

12/23/69

DATE

12-30-69

DATE

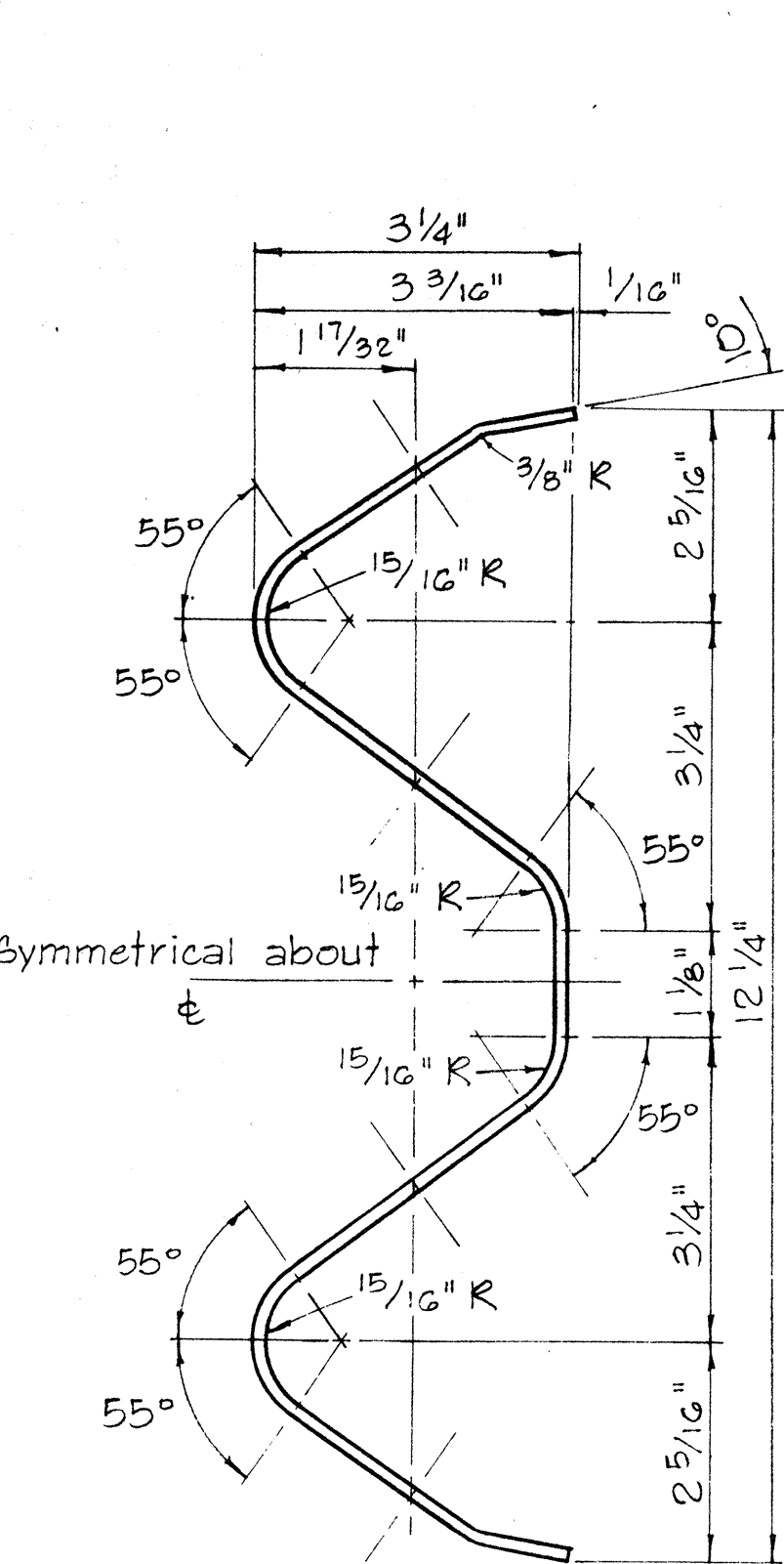
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS METAL GUARD RAIL

Scale: As Noted

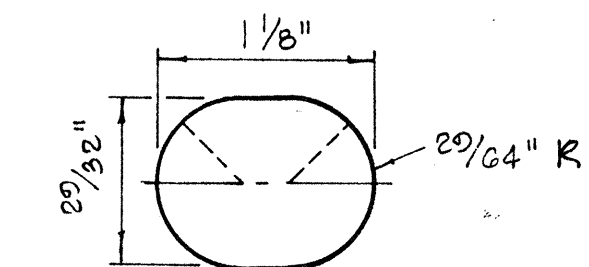
August, 1968

SHEET No. 3 OF 7 SHEETS DT 501



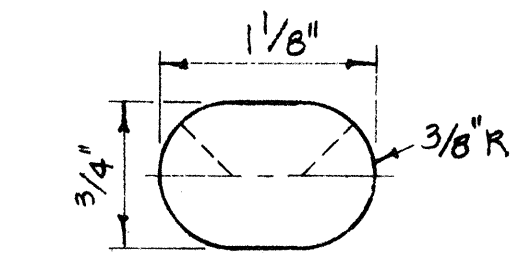
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

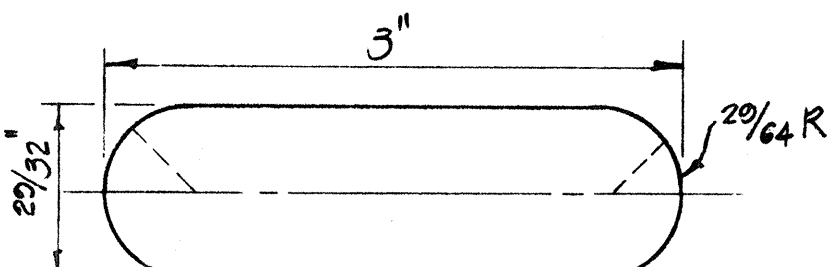


SPlice BOLT SLOT

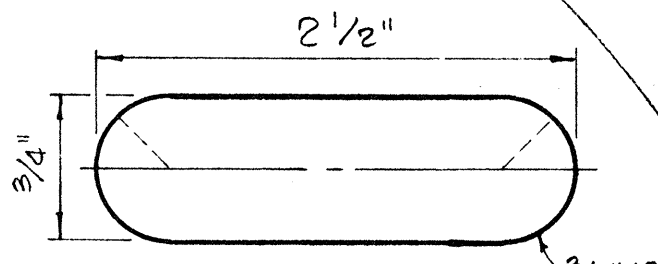
Scale: Full Size



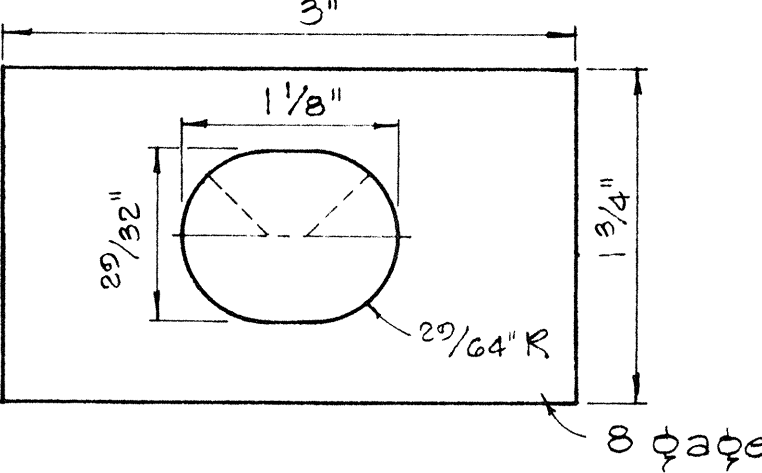
SPlice BOLT SLOT FOR ALL ENDS



SPlice BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT



RAIL WASHER

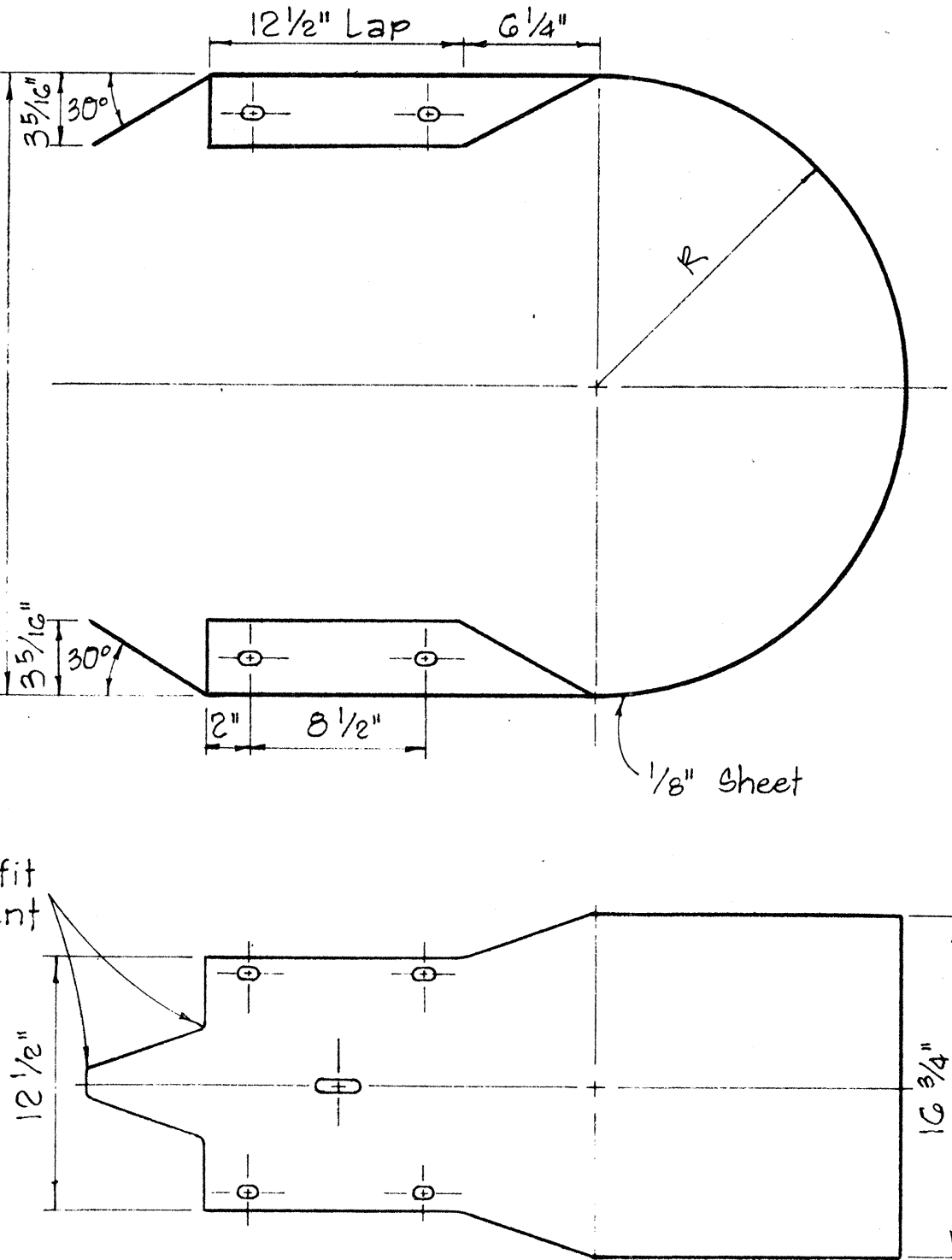
NOTES:

- 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"

MEDIAN END

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

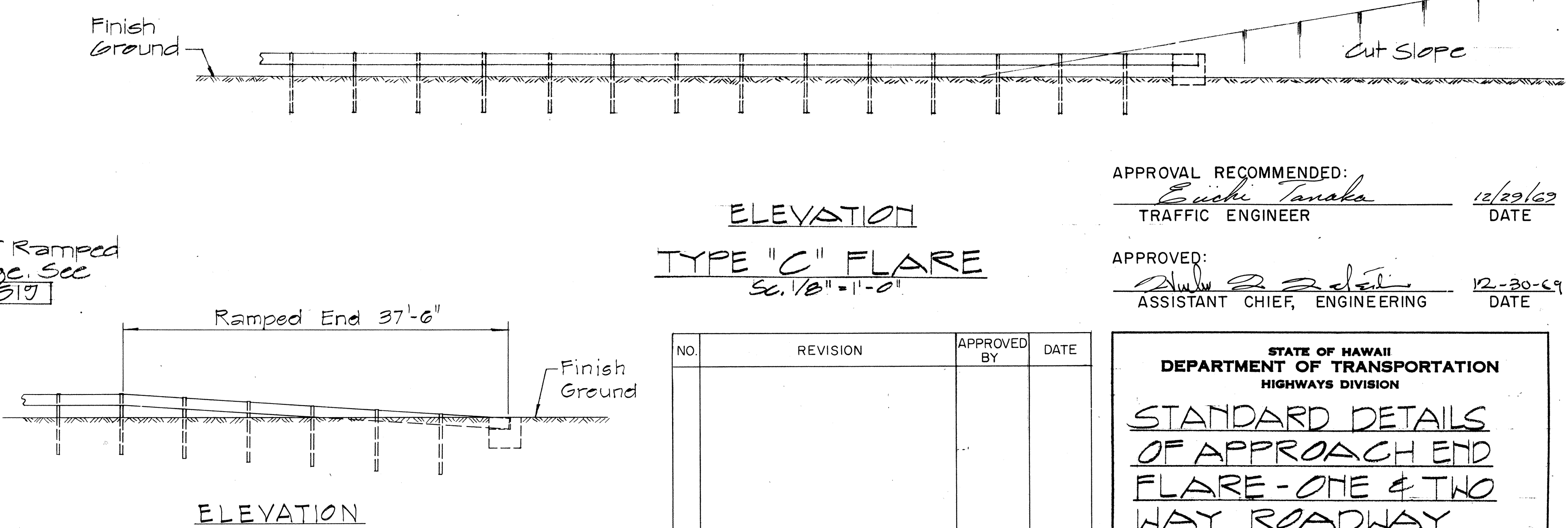
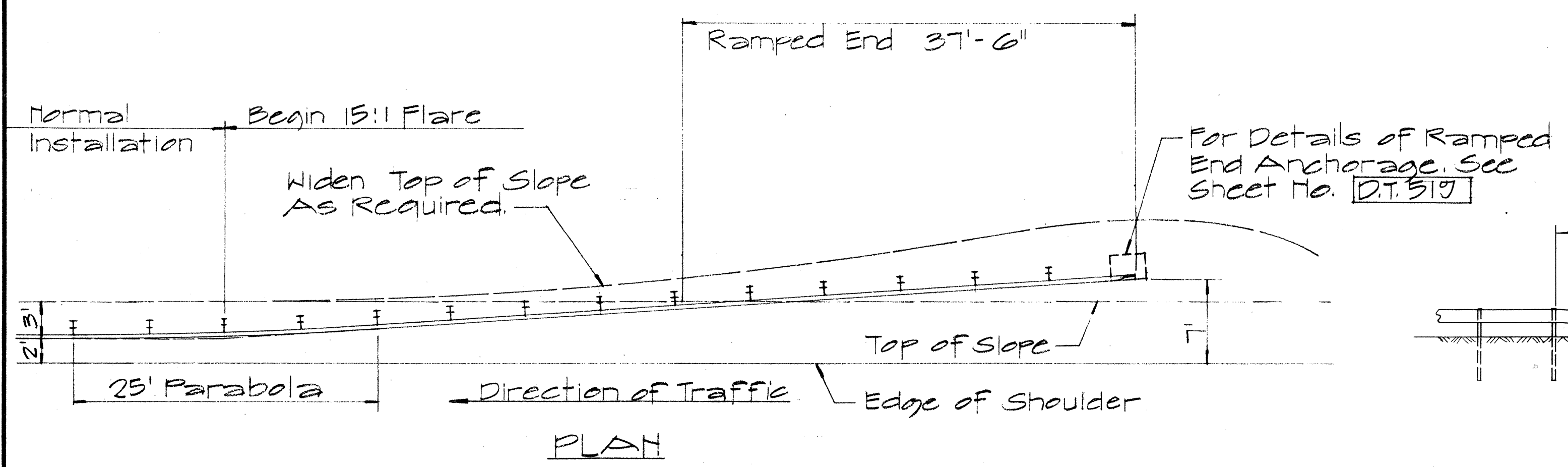
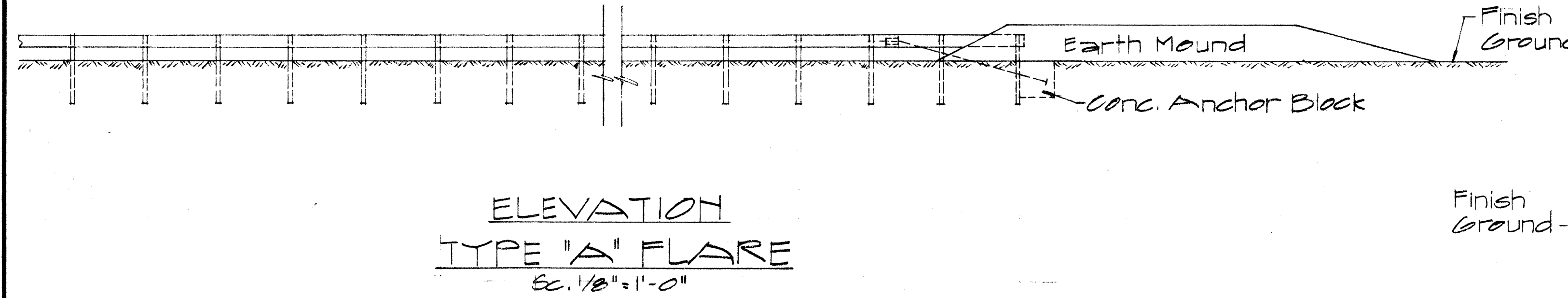
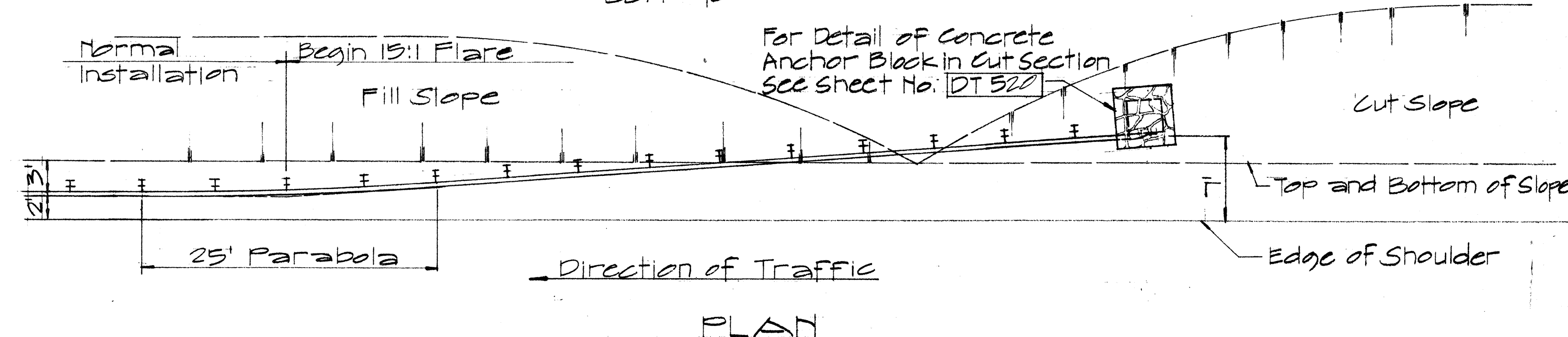
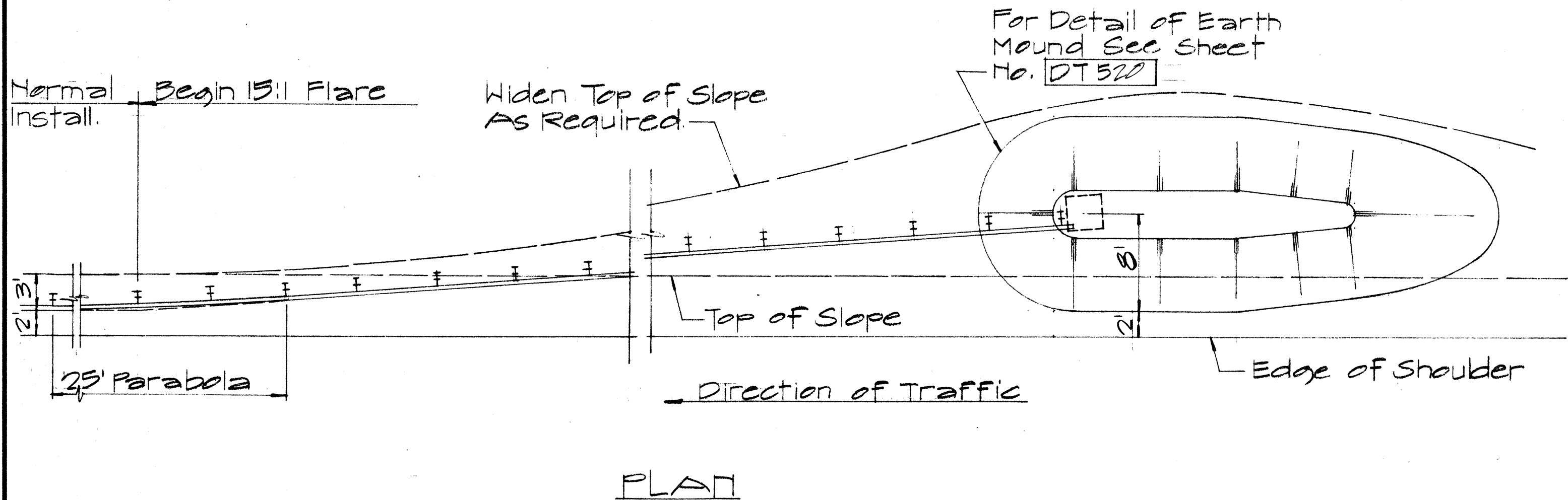
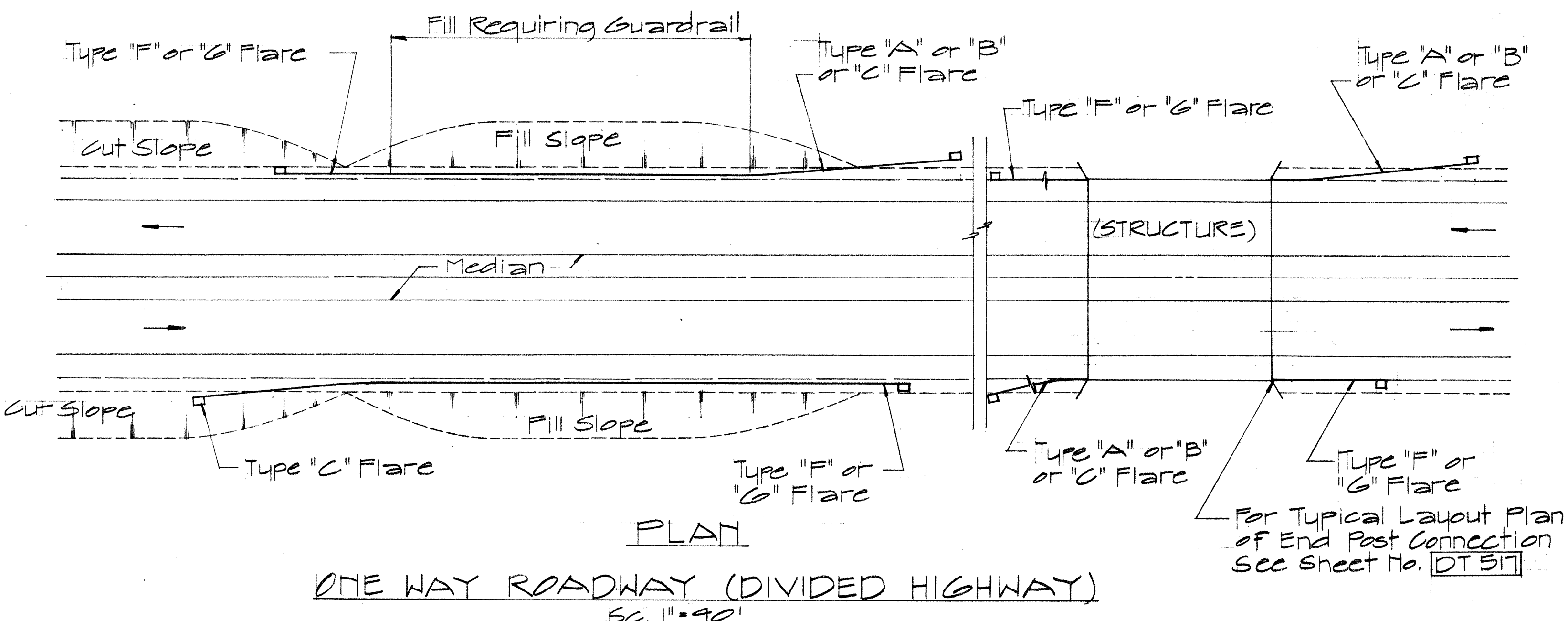
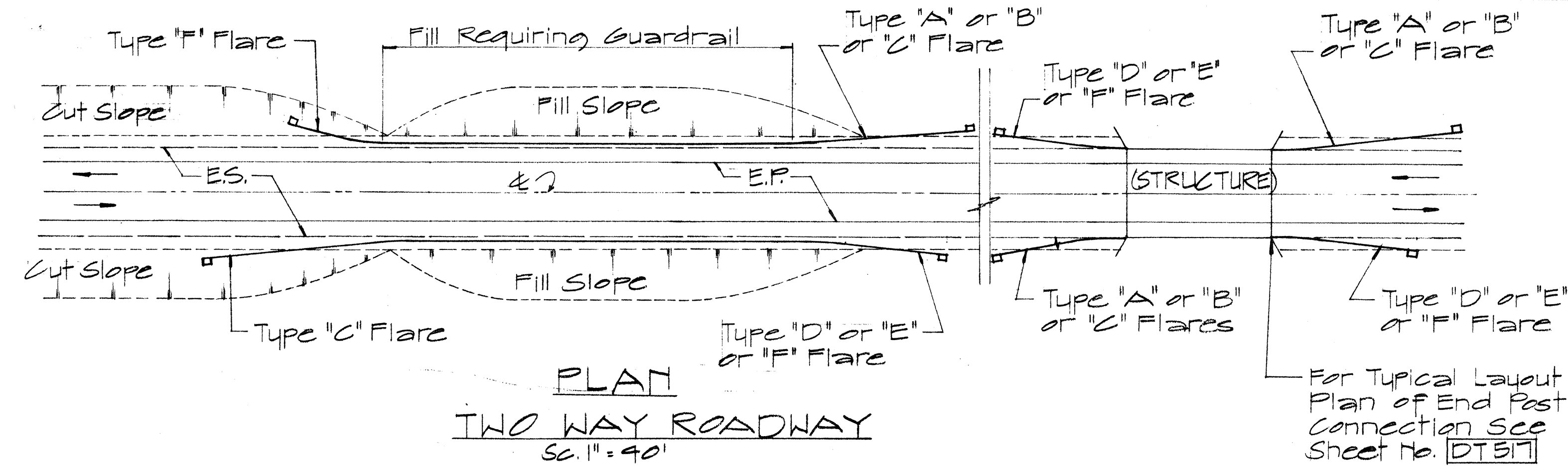


NO.	REVISION	APPROVED BY	DATE

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-07-70	1969	8	11

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



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

APPROVED:
W. S. S. S. 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

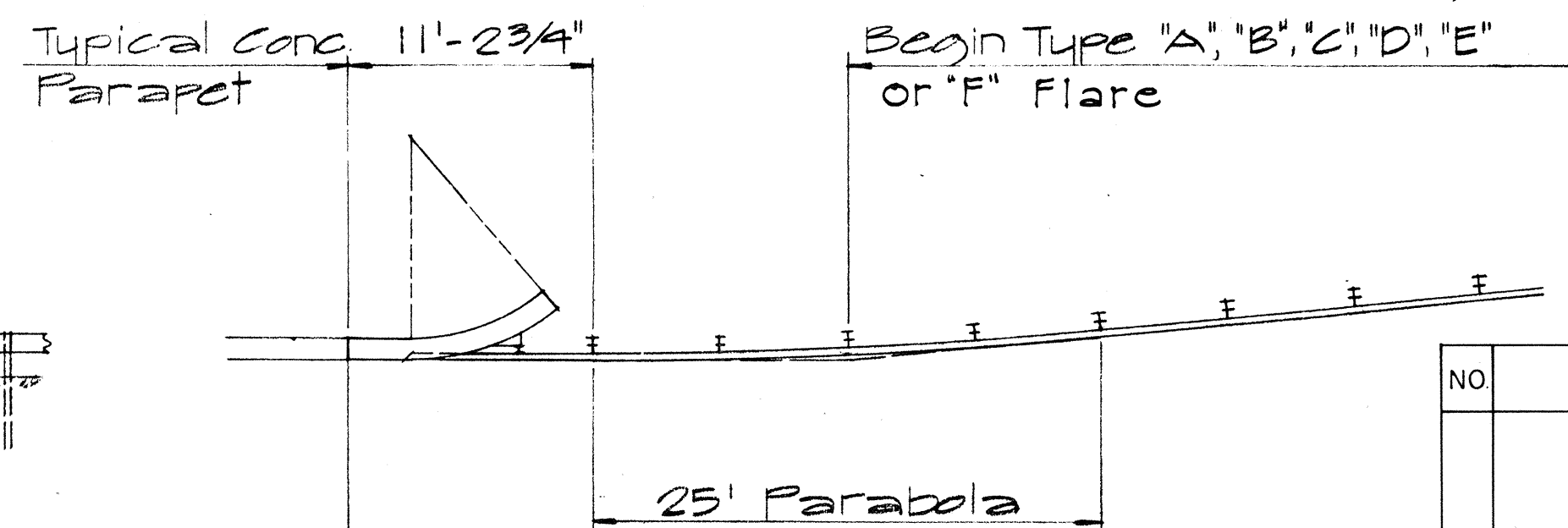
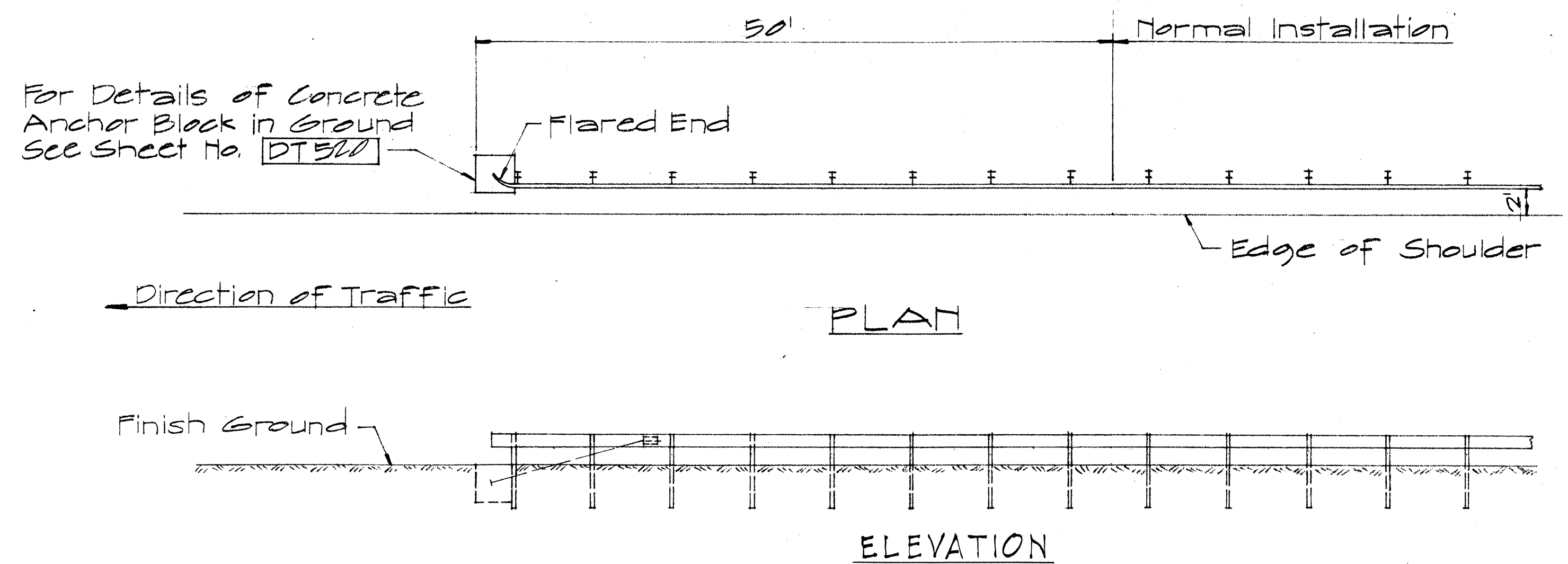
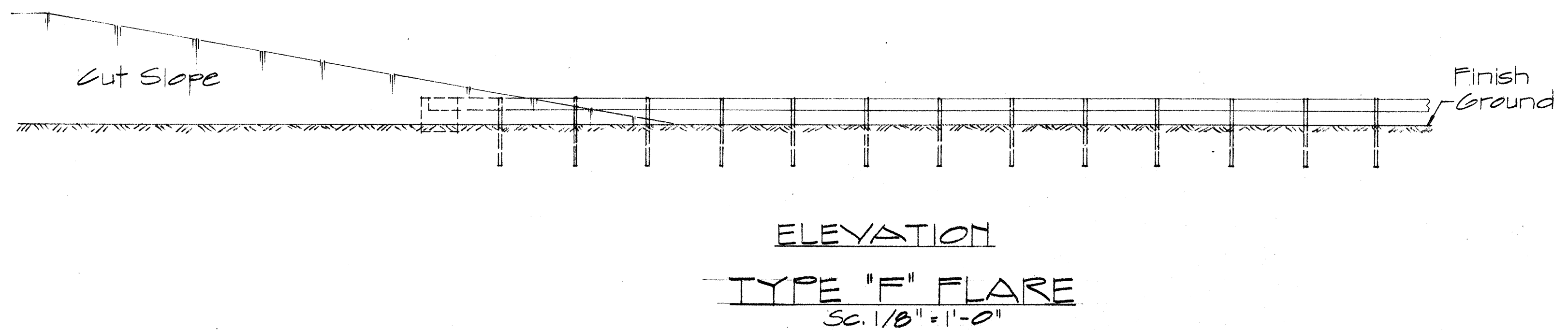
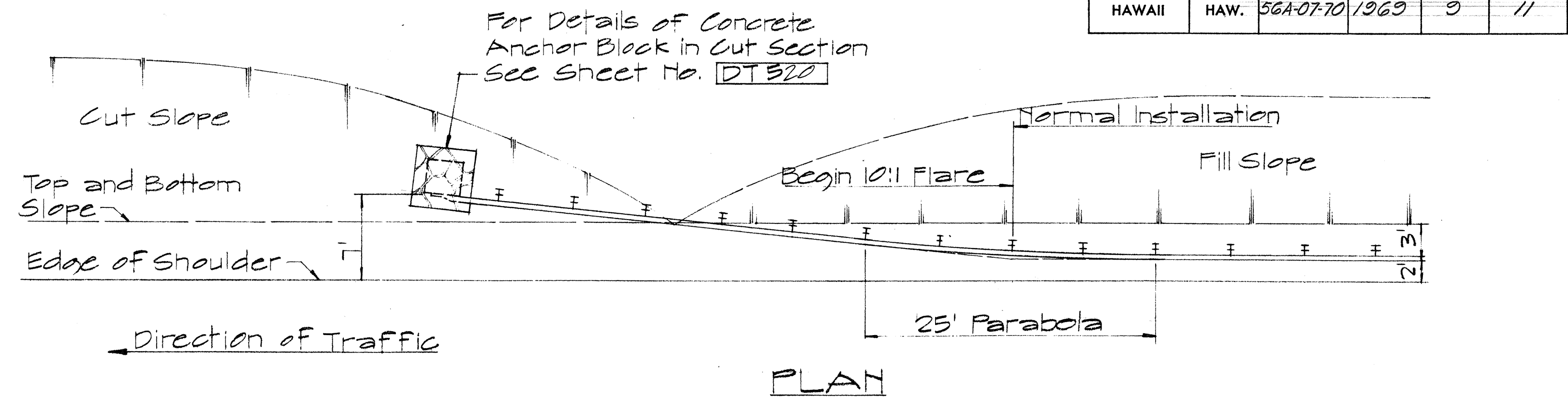
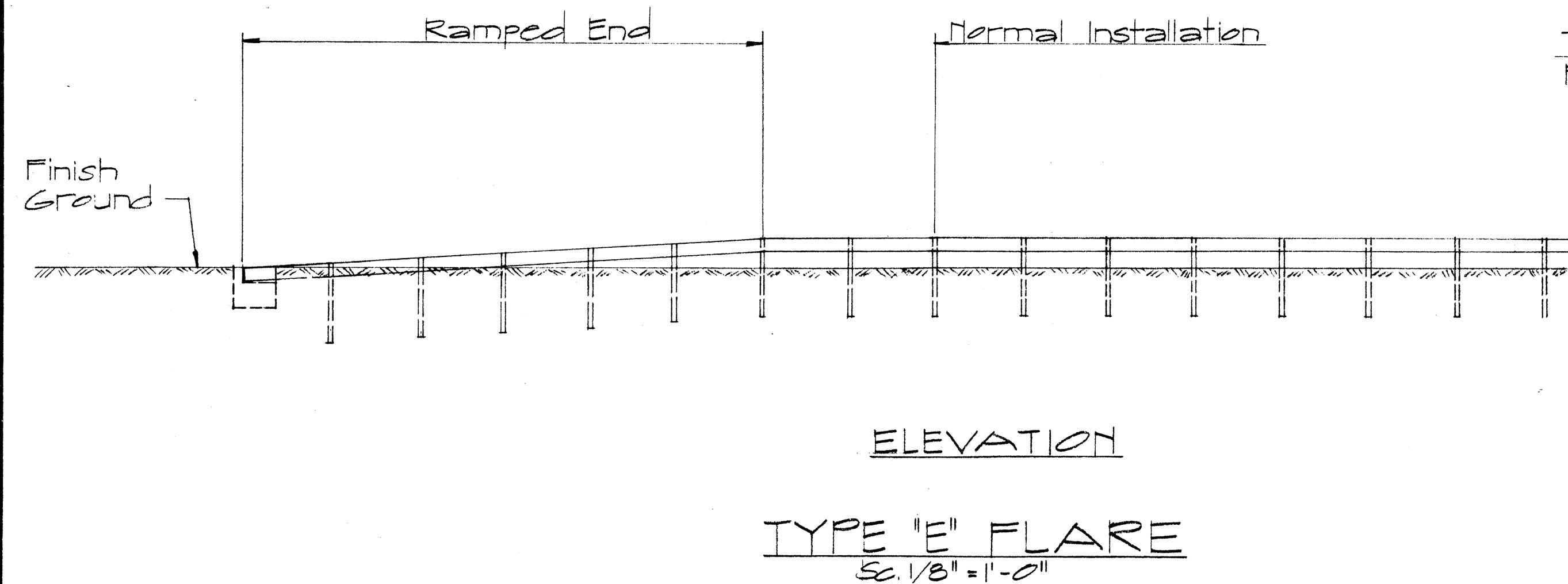
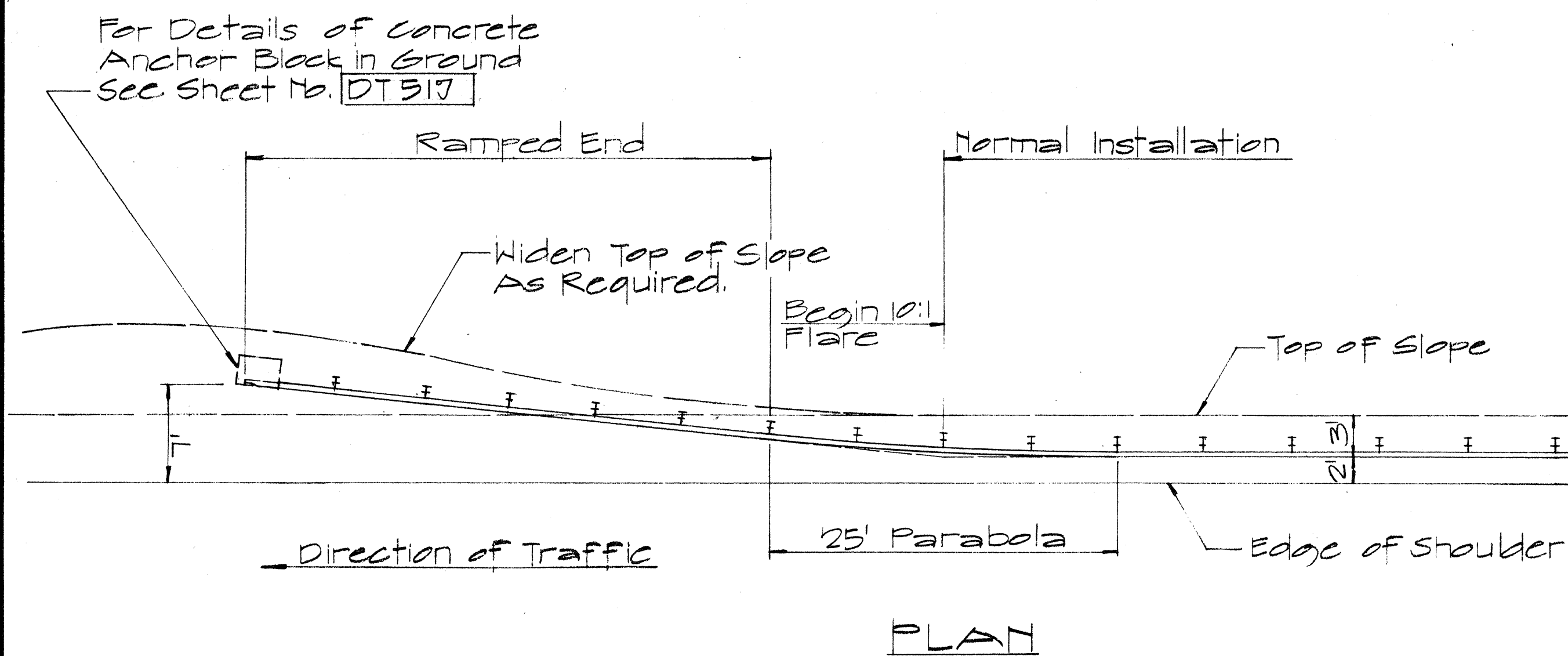
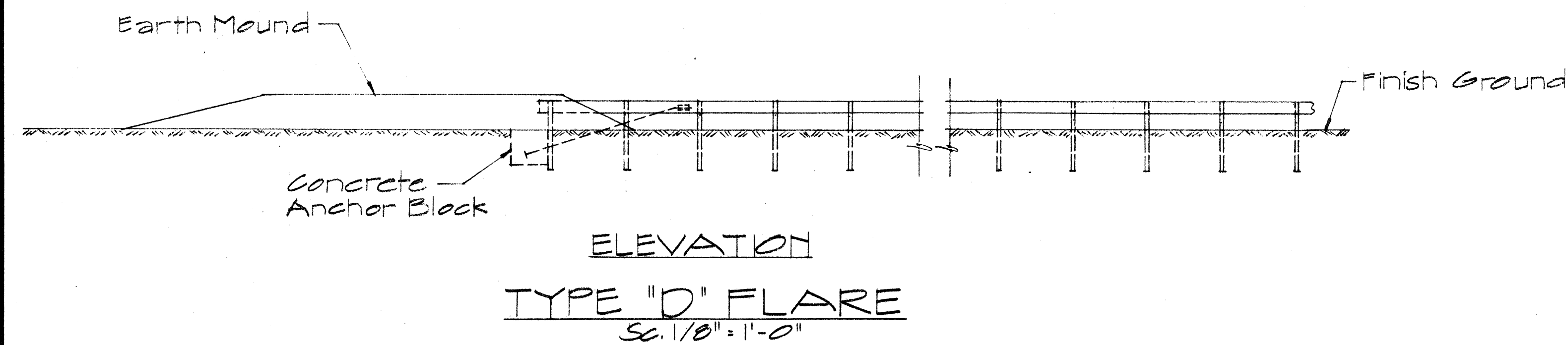
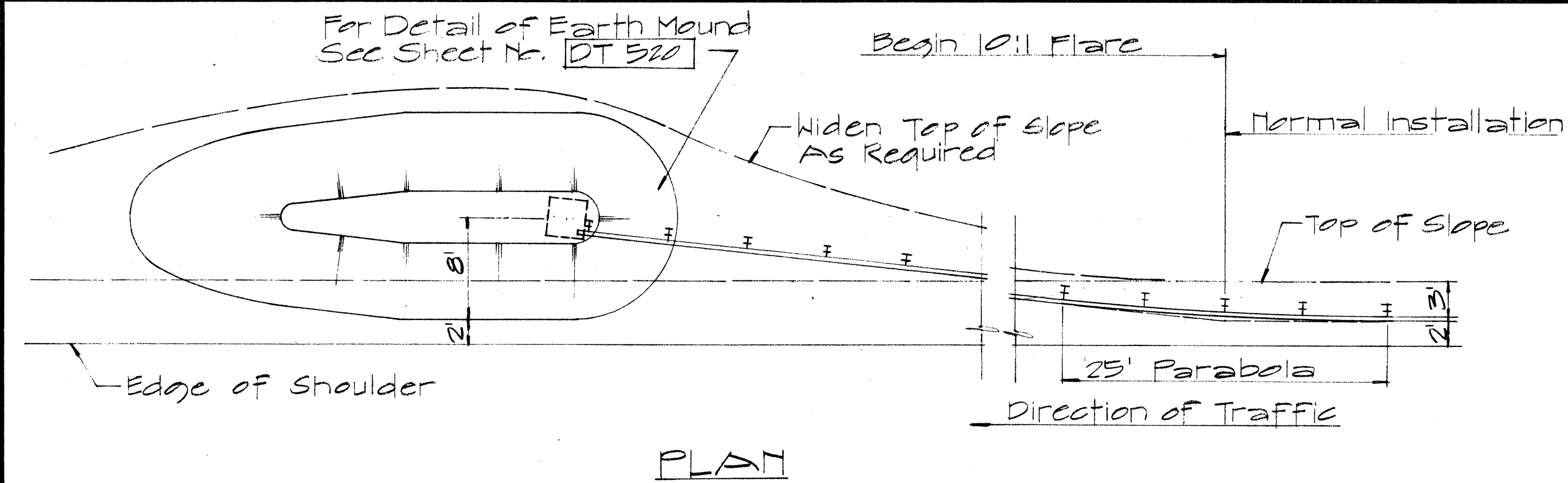
STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY

Sc. As Noted April 1969

SHEET No. 4 OF 7 SHEETS [DT 516]

DATE: _____
SURVEY PLOTTED BY: _____
DRAWN BY: _____
CHECKED BY: _____
DESIGNED BY: _____
NOTED BY: _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-07-70	1969	9	11



TYPICAL LAYOUT PLAN OF END POST CONNECTION

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

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

APPROVED: Wm. J. Sal 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

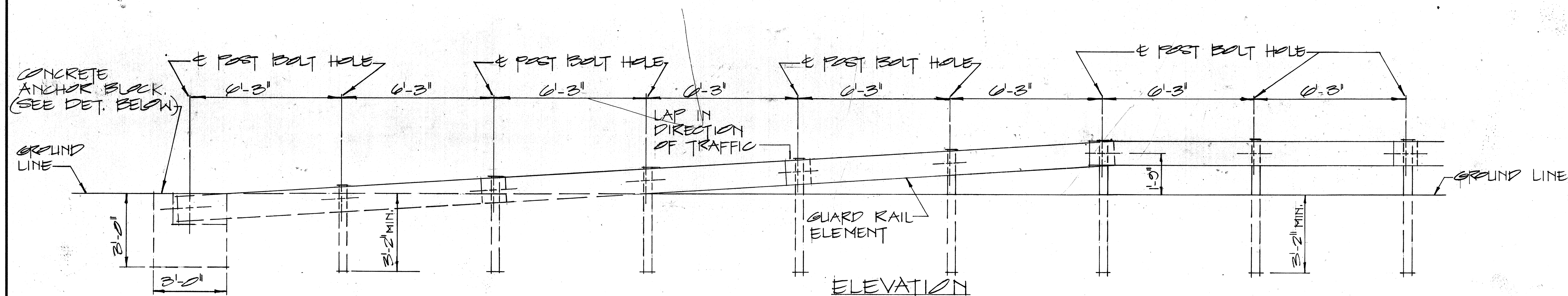
Sc. As Noted April 1969

SHEET No. 5 OF 7 SHEETS DT 517

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
CHECKED BY	
NO.	

Hand-drawn plan view of a guard rail assembly. The diagram shows a top rail and a bottom rail connected by vertical posts. The top rail has five "FAST BOLT HOLE" labels with 6'-3" spacing between them. The bottom rail has "GUARD RAIL POST" and "SPACER BLOCK" labels with 8.5' spacing. A dimension of 1'-0" is shown for the bottom rail segments. The title "GUARD RAIL ELEMENT PLAN" is at the bottom right.

GUARD RAIL ELEMENT PLAN

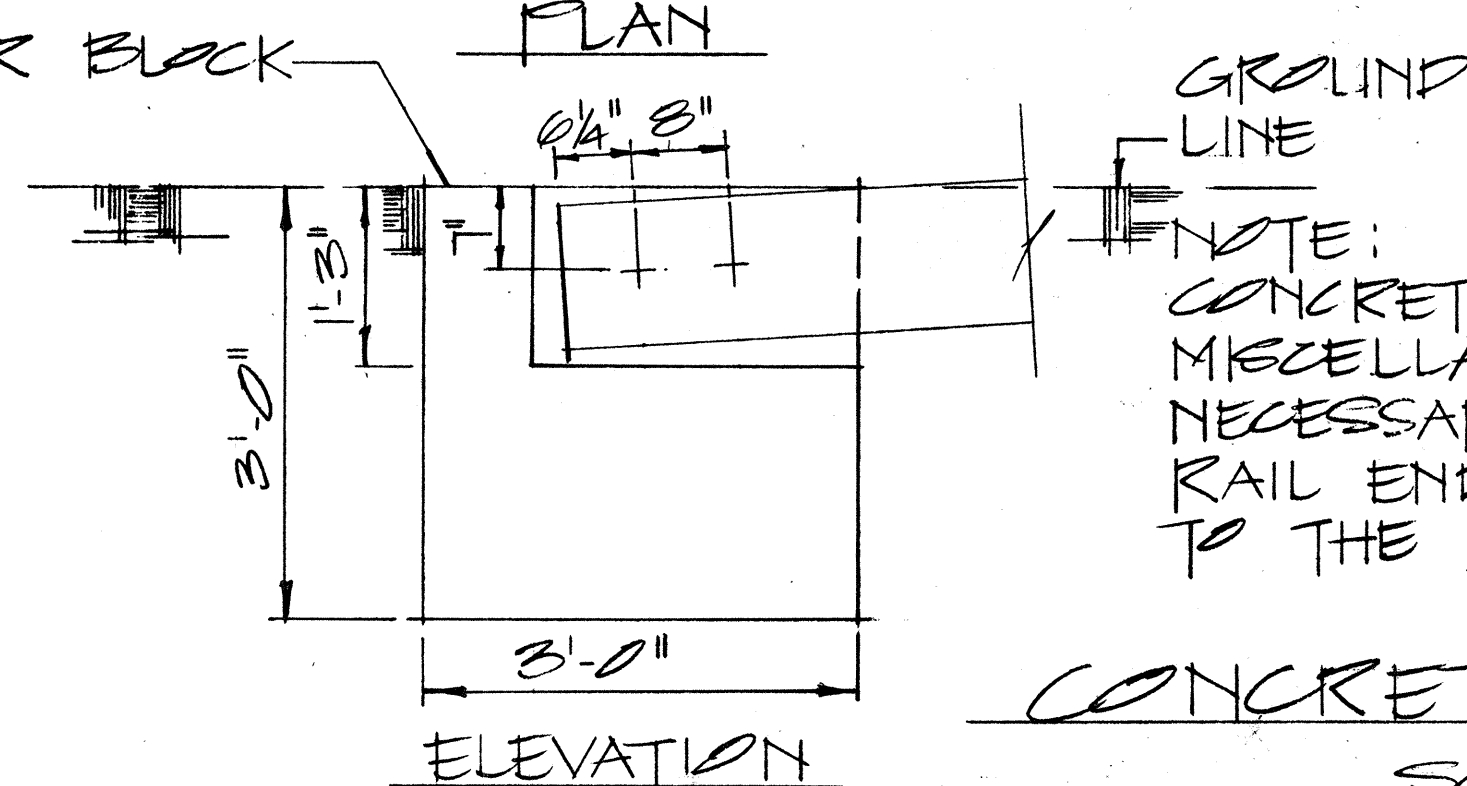


RAMP END ANCHORAGE

SCALE: $\frac{1}{2}'' = 1'-0''$

Diagram illustrating the Plan view of the base plate. The overall dimensions are 2'-0" (height) and 3'-0" (width). The base plate is 3 1/2" thick. The distance from the top edge to the center of the base plate is 9". The distance from the center of the base plate to the center of the slot for the guard rail is 3'-0". The slot for the guard rail is 3'-0" wide. The base plate is labeled "PLAN".

TOP OF ANCHOR BLOCK
TO BE FLUSH
w/ GROUND.

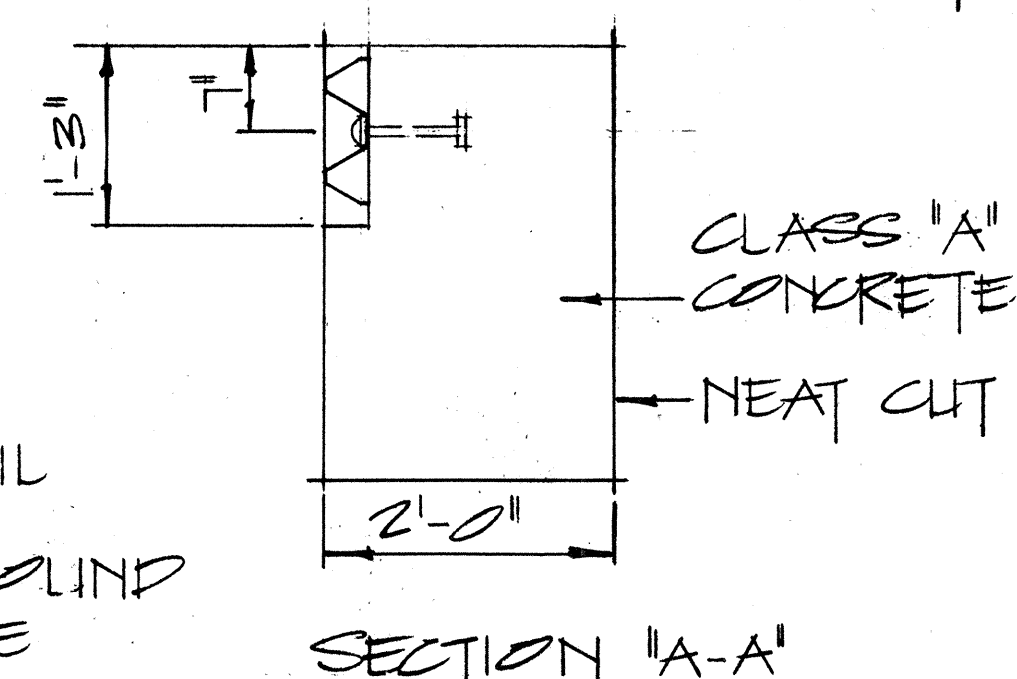


GROUND
- LINE

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



CLASS "A"
- CONCRETE
- NEAT CUT

12/29/69
DATE

12-30-69
DATE

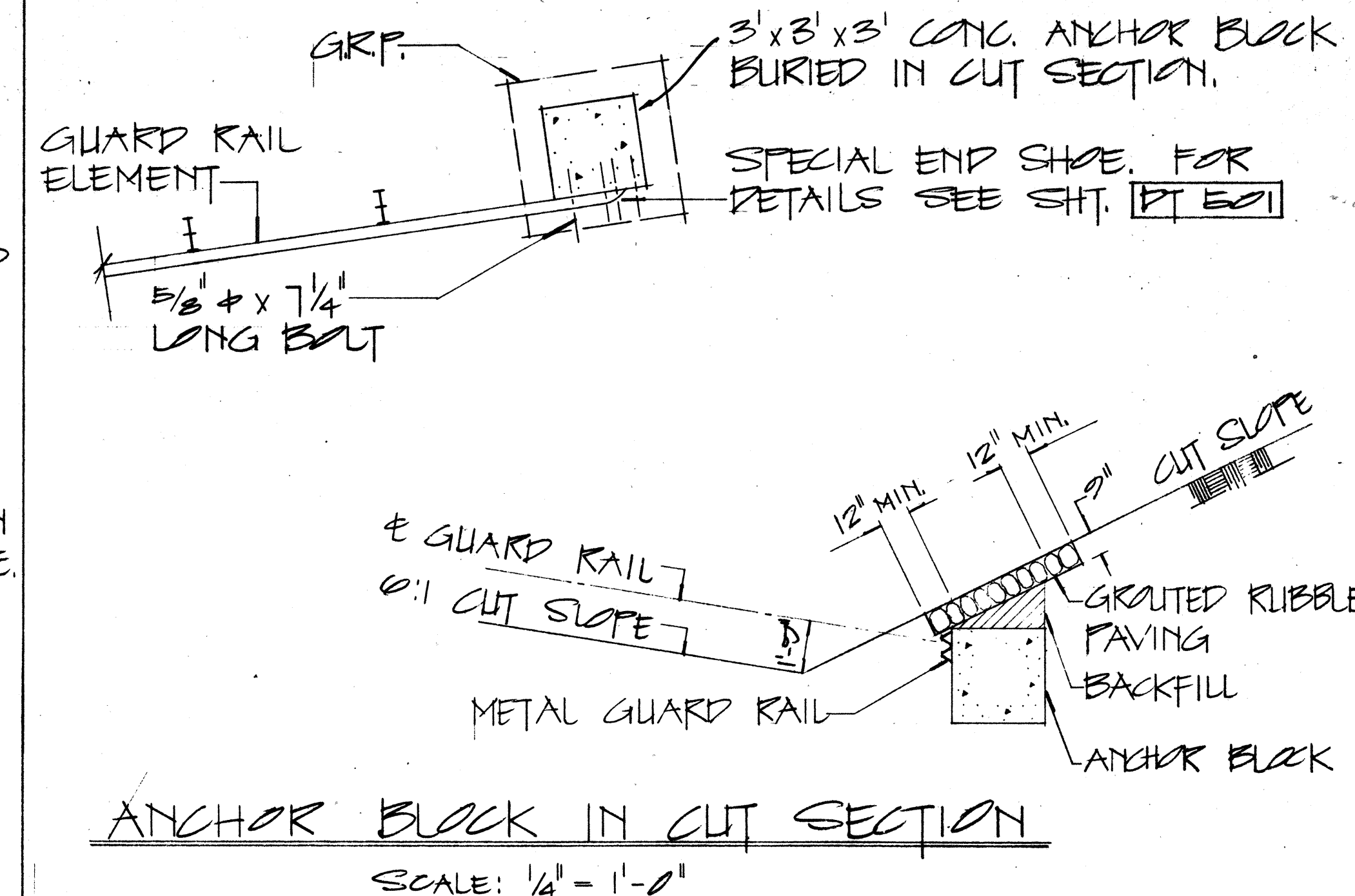
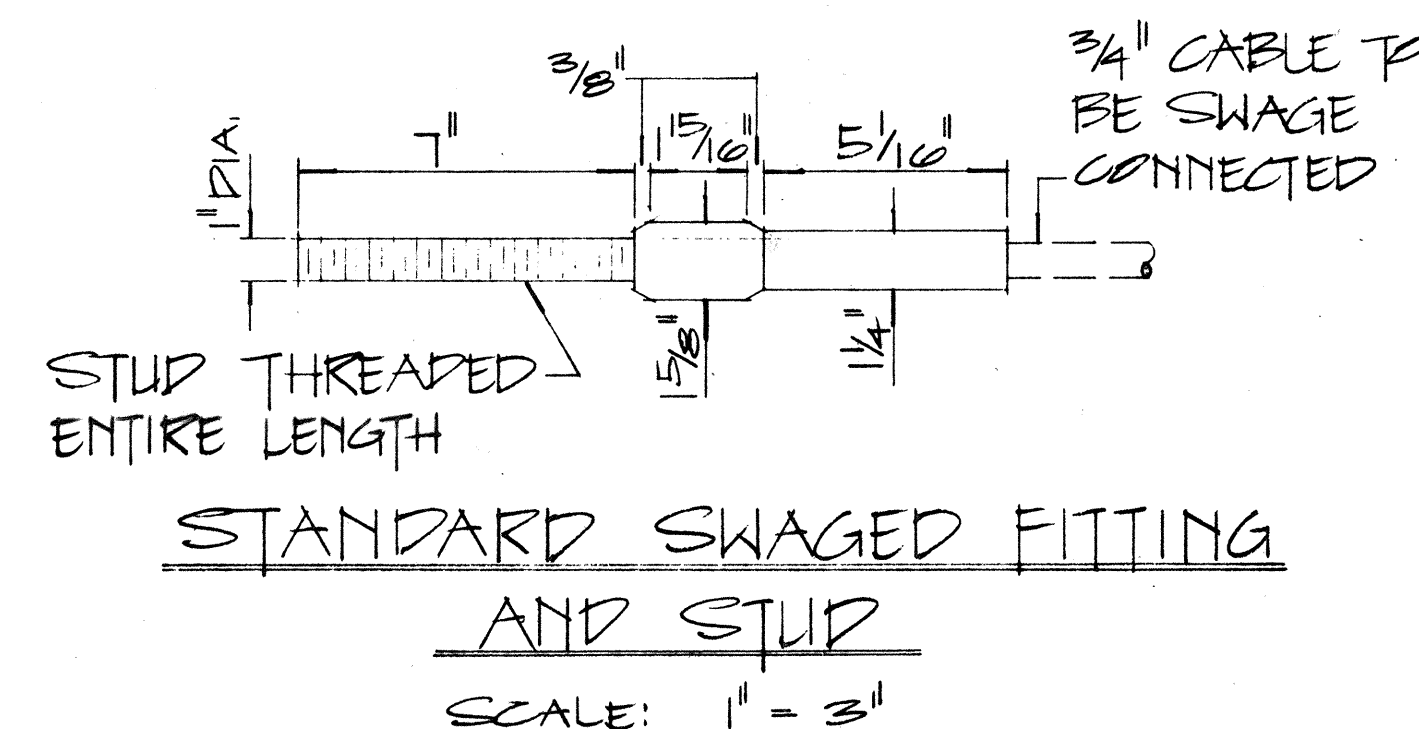
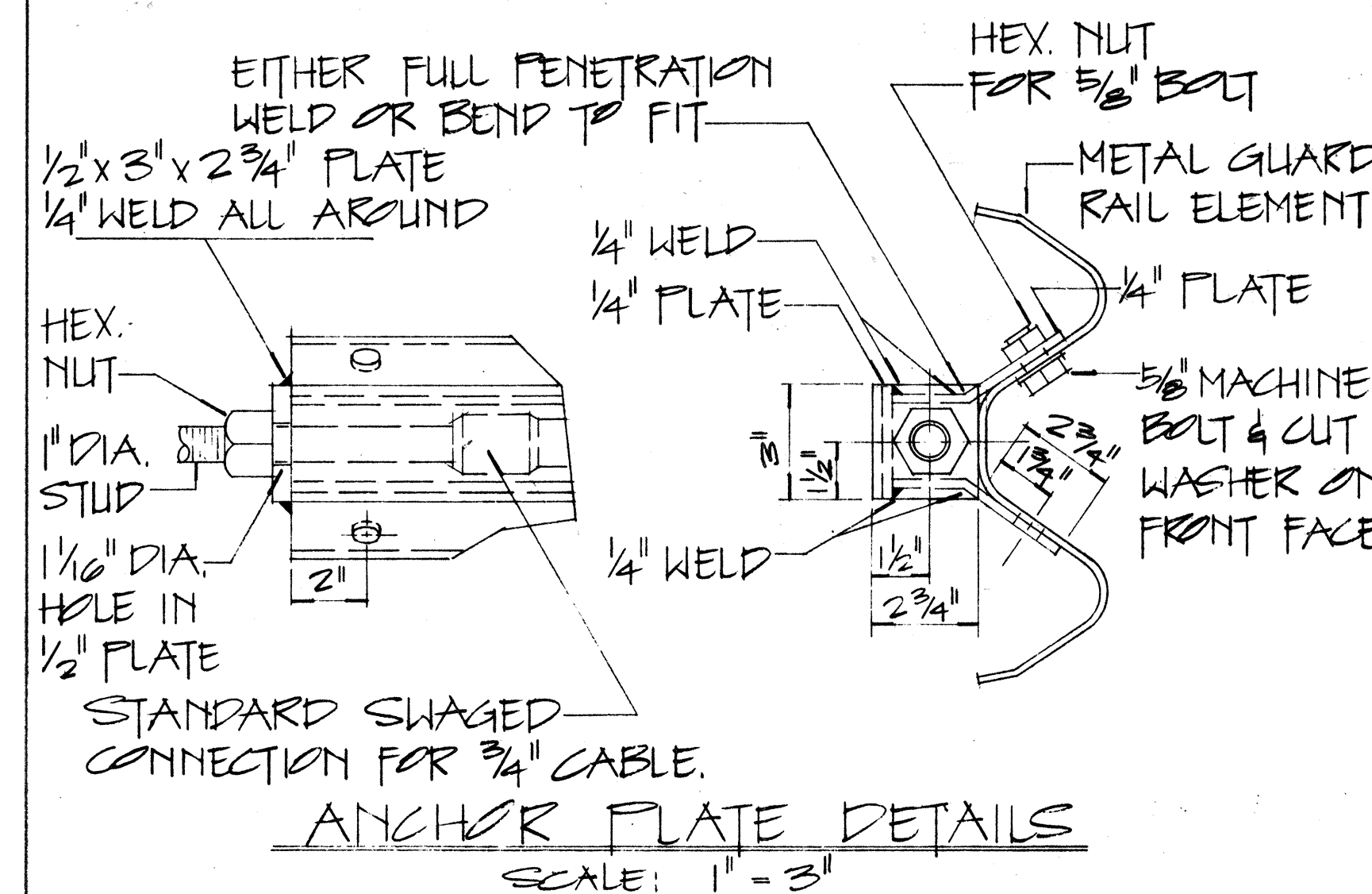
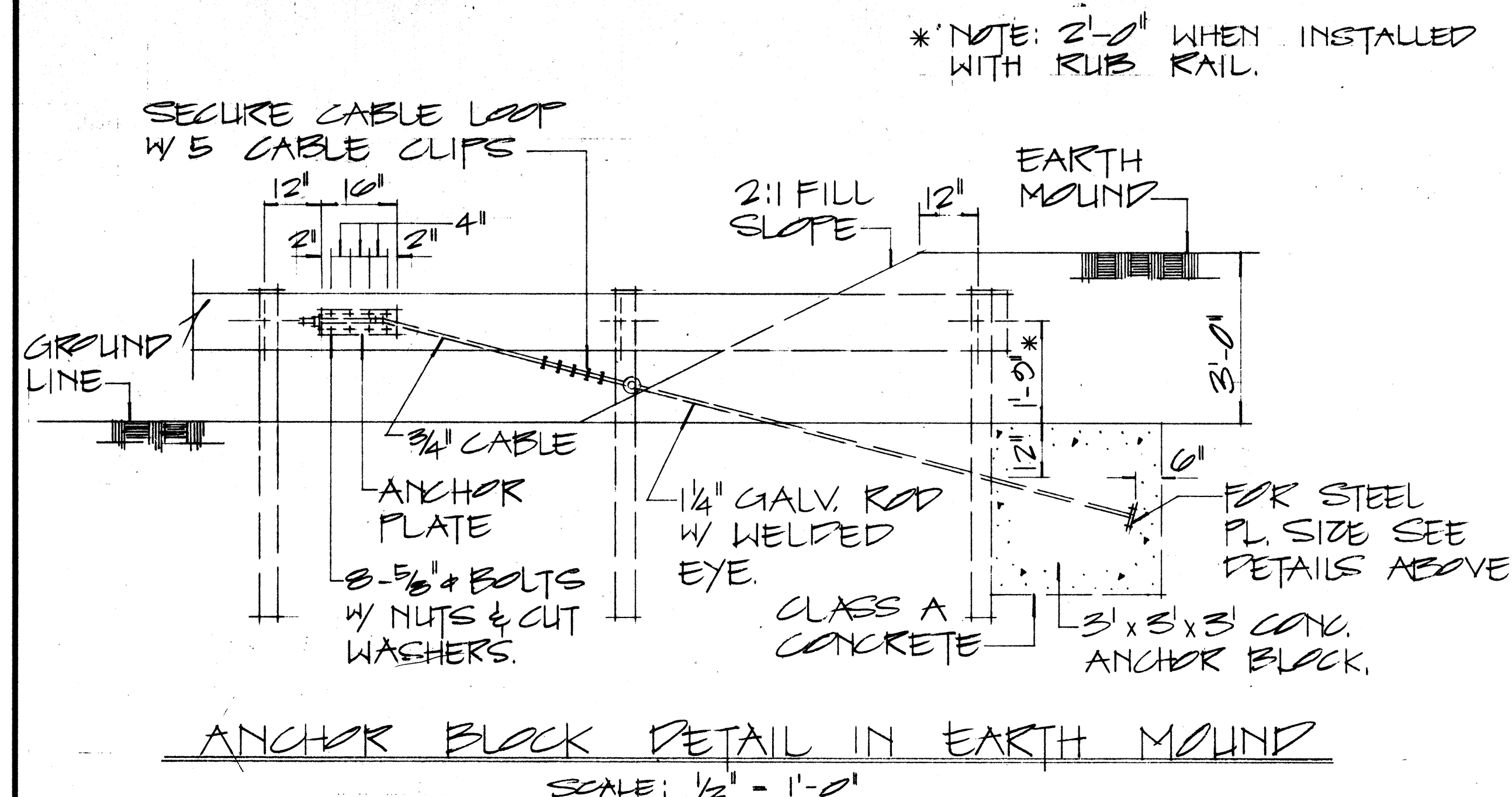
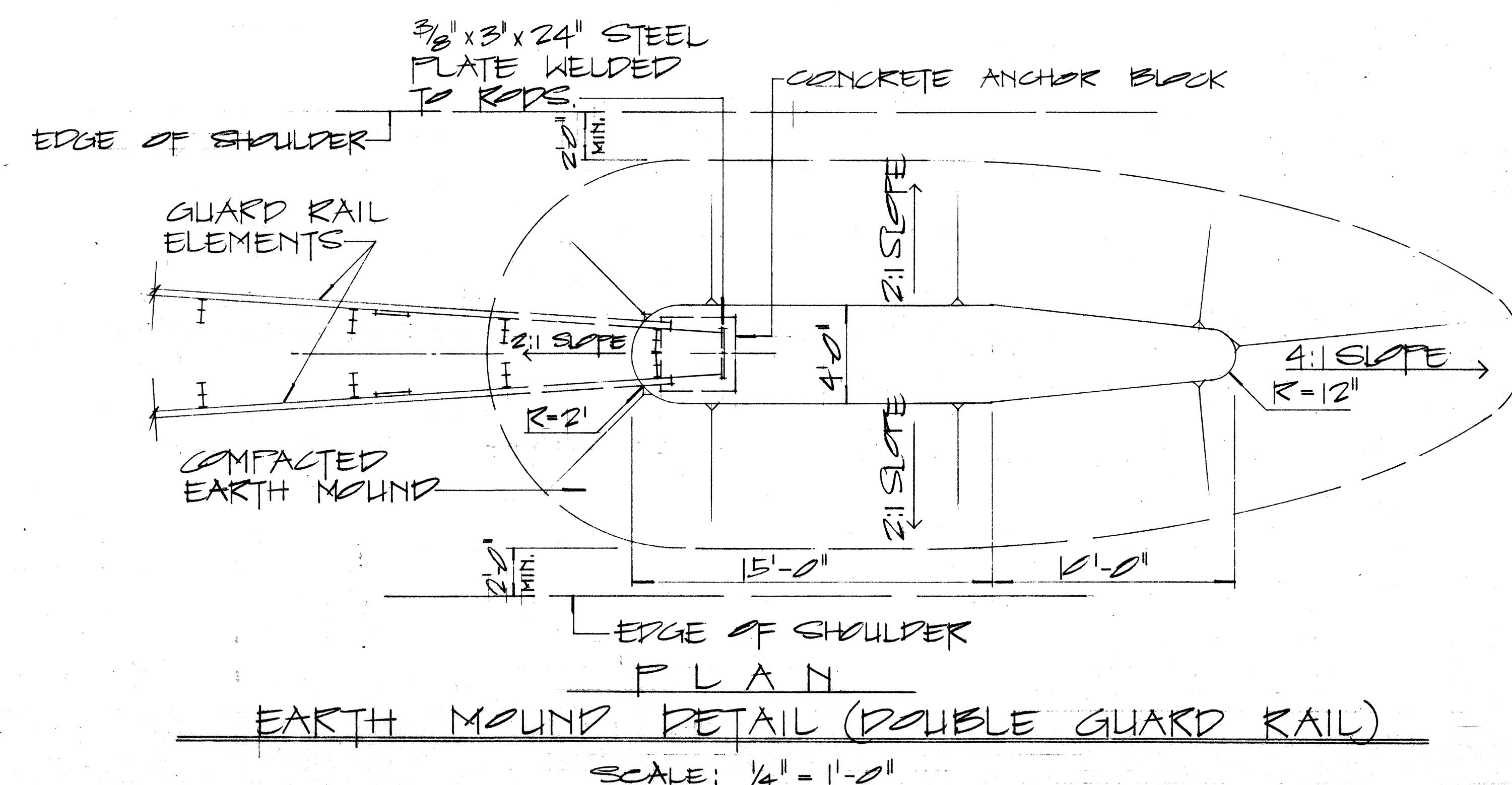
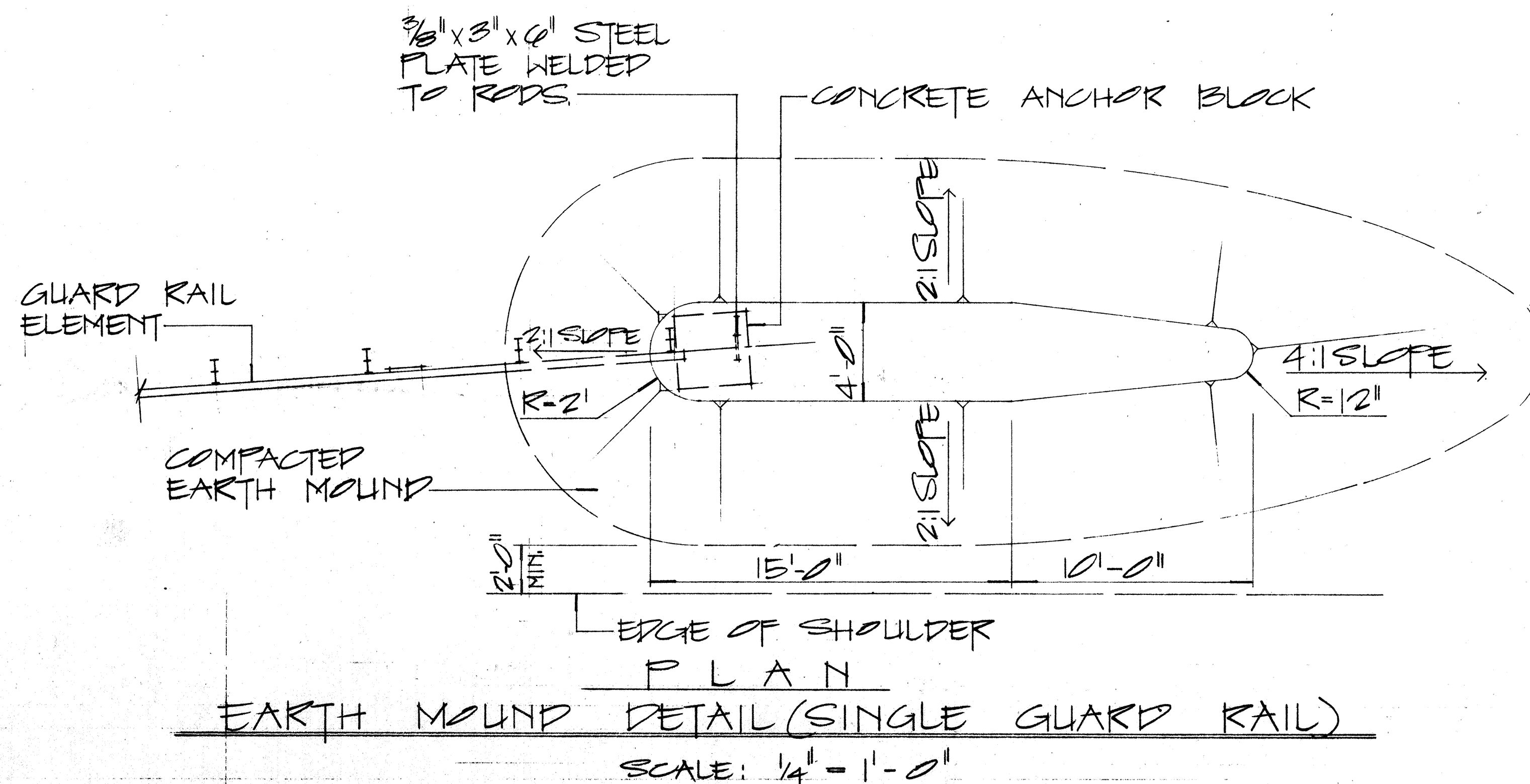
NO.	REVISION	APPROVED BY	DATE

STANDARD DETAILS
GUARD RAIL, TYPE 3
RAMP END ANCHORAGE

SCALE: AS SHOWN

SHEET No. 6 OF 7 SHEETS DT512

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-07-70	1969	11	11



APPROVAL RECOMMENDED:		12/22/69	
<u>Erich Tanaka</u>			
TRAFFIC ENGINEER		DATE	
APPROVED:			
<u>W. W. [Signature]</u>		12-30-69	
ASSISTANT CHIEF, ENGINEERING		DATE	
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
STANDARD DETAILS	
EARTH MOUND AND ANCHOR BLOCK DETAILS	
SCALE: AS SHOWN	
SHEET No. 7 OF 7 SHEETS	

- NOTE:
1. GALVANIZED ANCHOR ROD, METAL GUARD RAIL AND FAST BURIED IN GROUND SHALL BE COVERED WITH a Min. 20-Mil thickness of COAL TAR ENAMEL, conforming to AWWA Standard: C 203
 2. CONCRETE, GRP, EXCAVATION, EARTH MOUND, ANCHOR RODS AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS SHALL BE INCIDENTAL TO THE METAL GUARD RAIL.

DATE	
SURVEY PLANNED BY	
DRAWN BY	
TRACED BY	
QUANTITY BY	
CHECKED BY	
NOTE BOOK	
NO.	