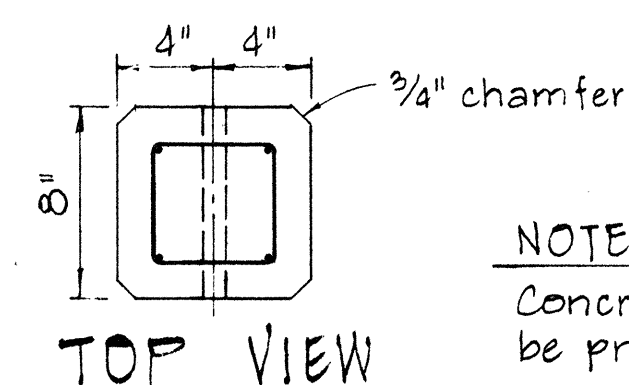
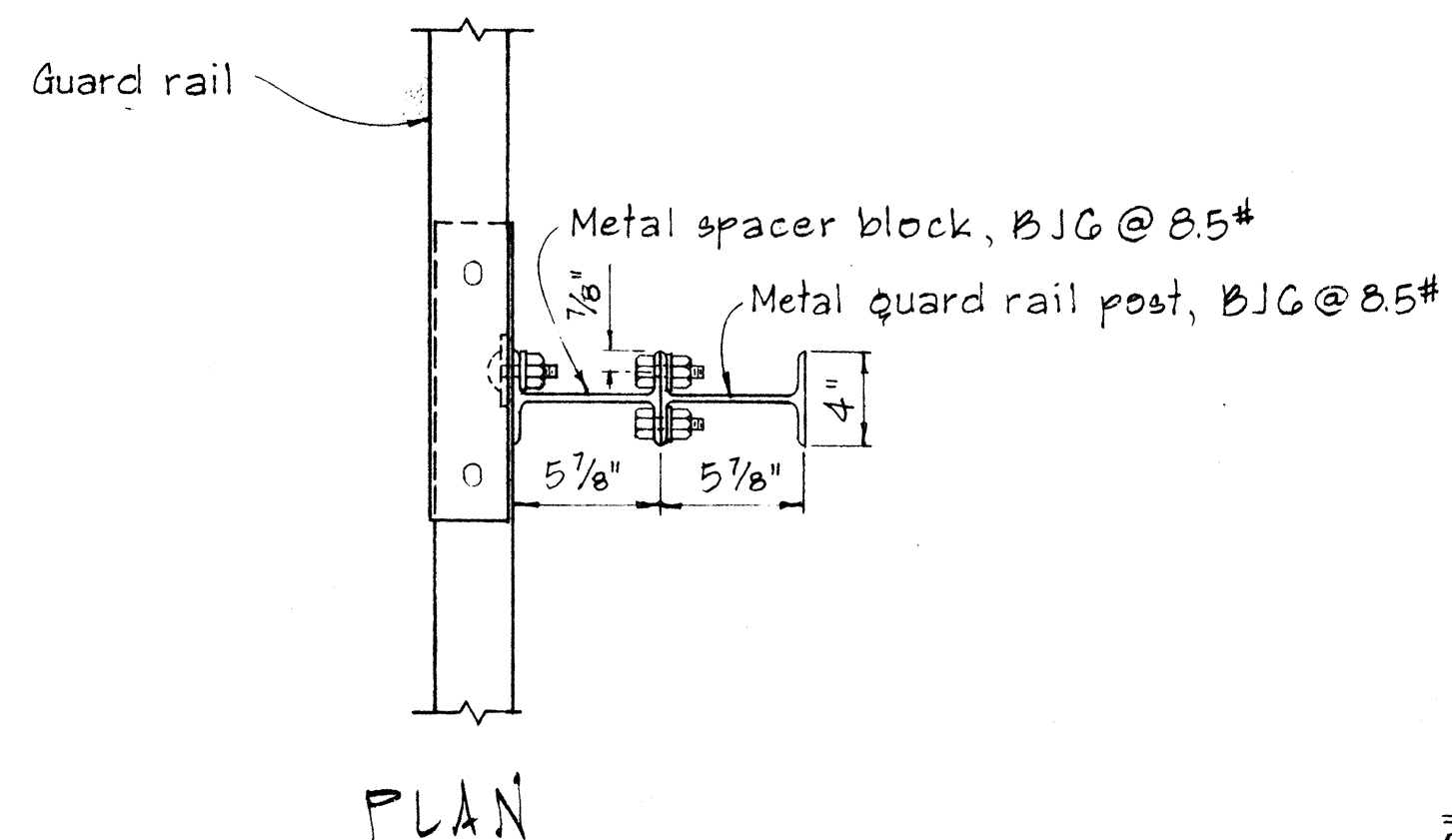
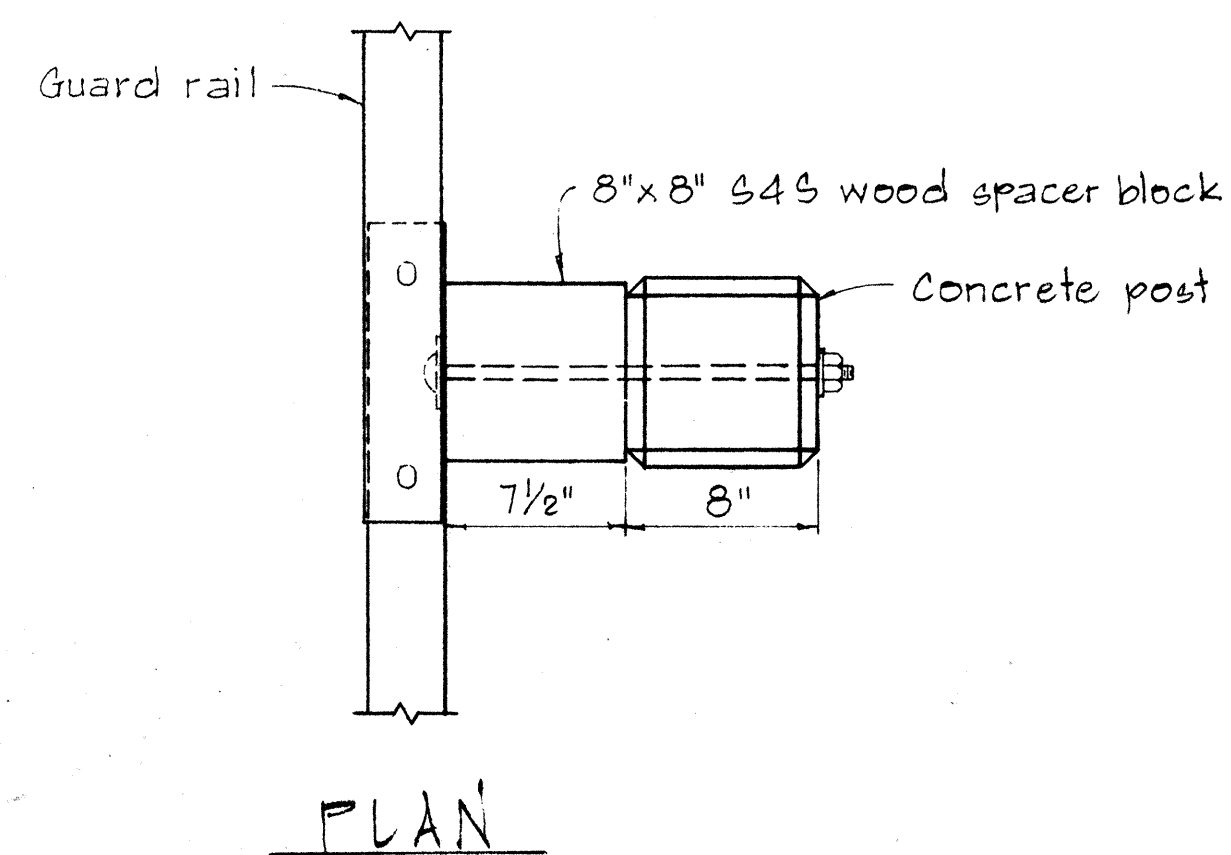
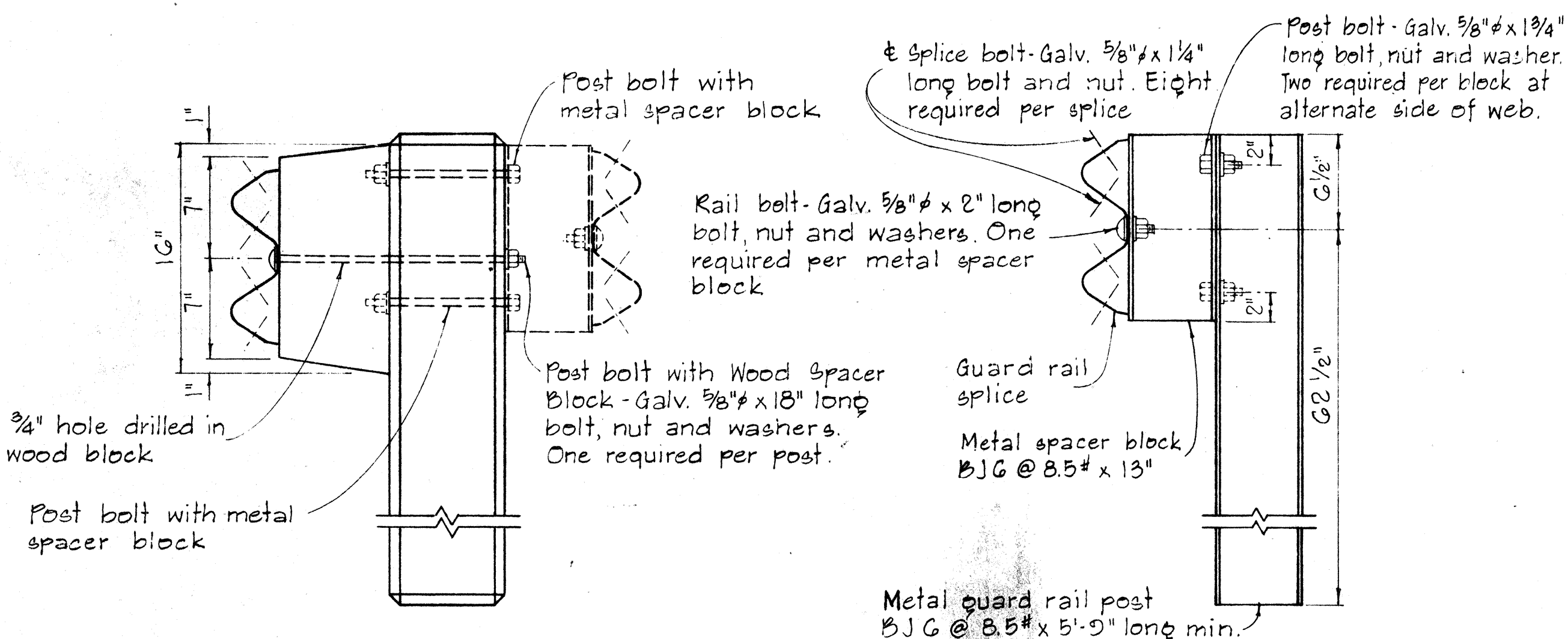
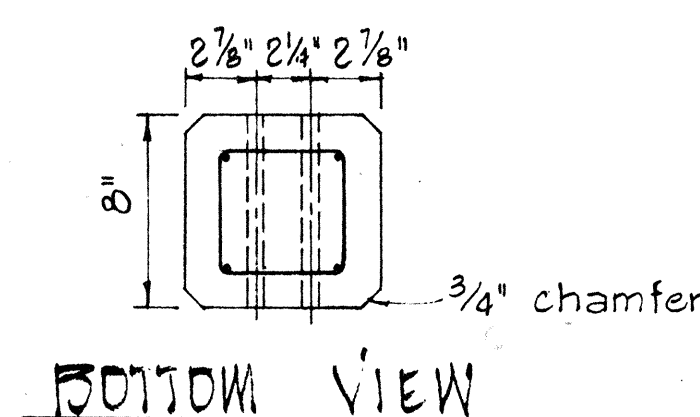
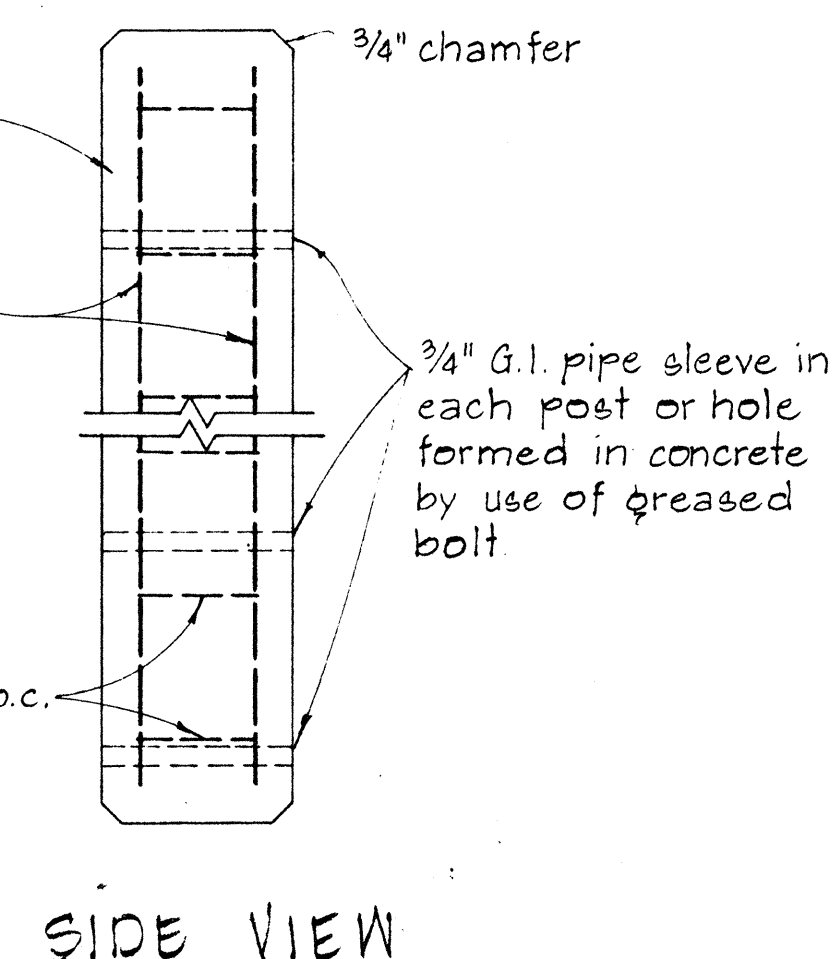
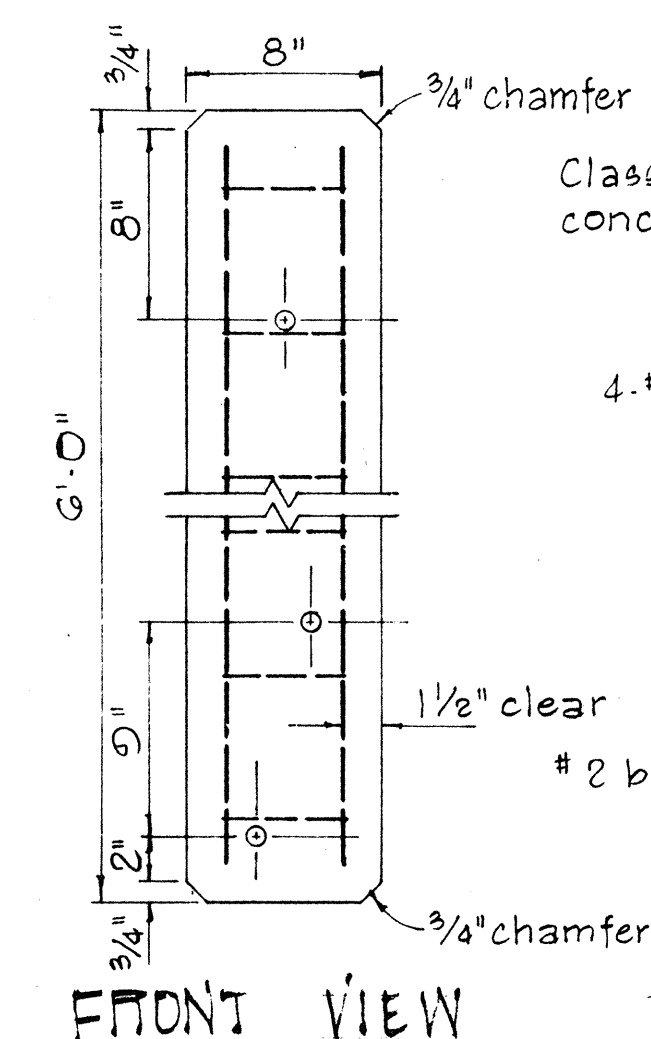


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-04-60(4)	1982	6	25

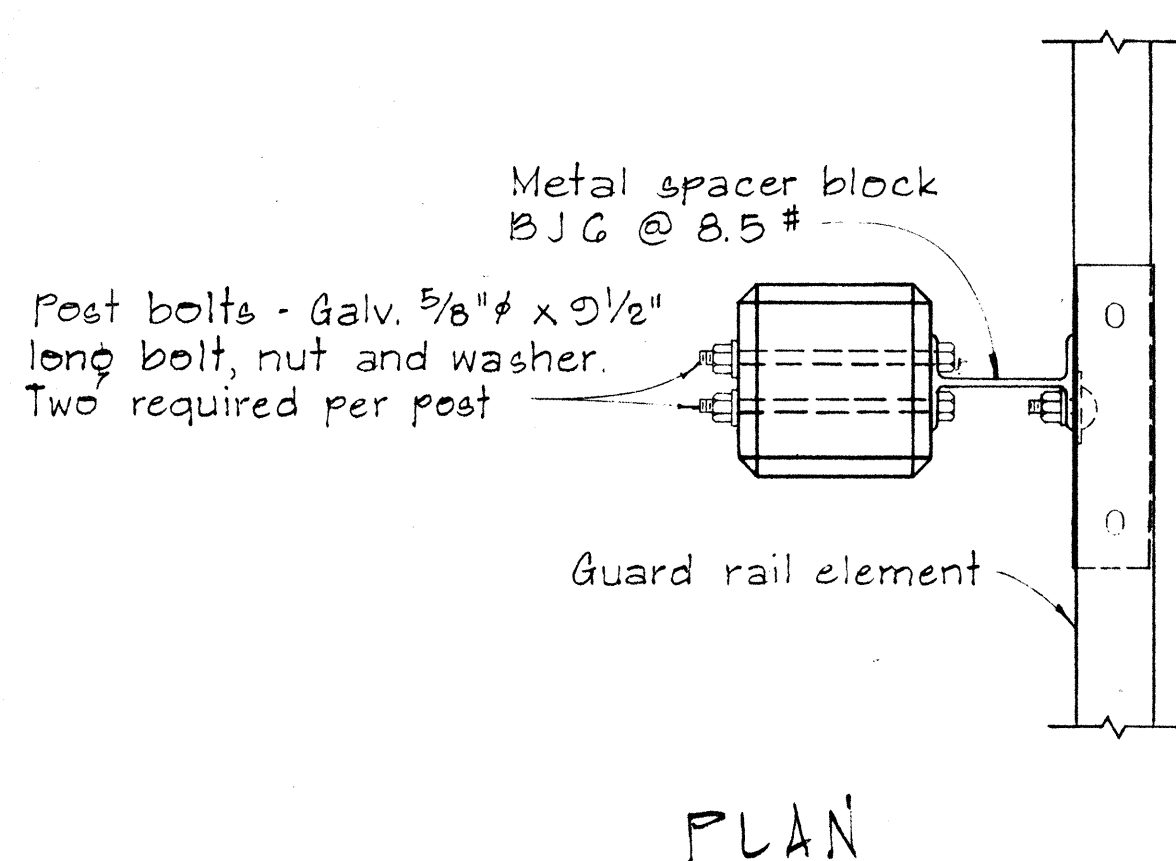


NOTE:
Concrete post shall be precast

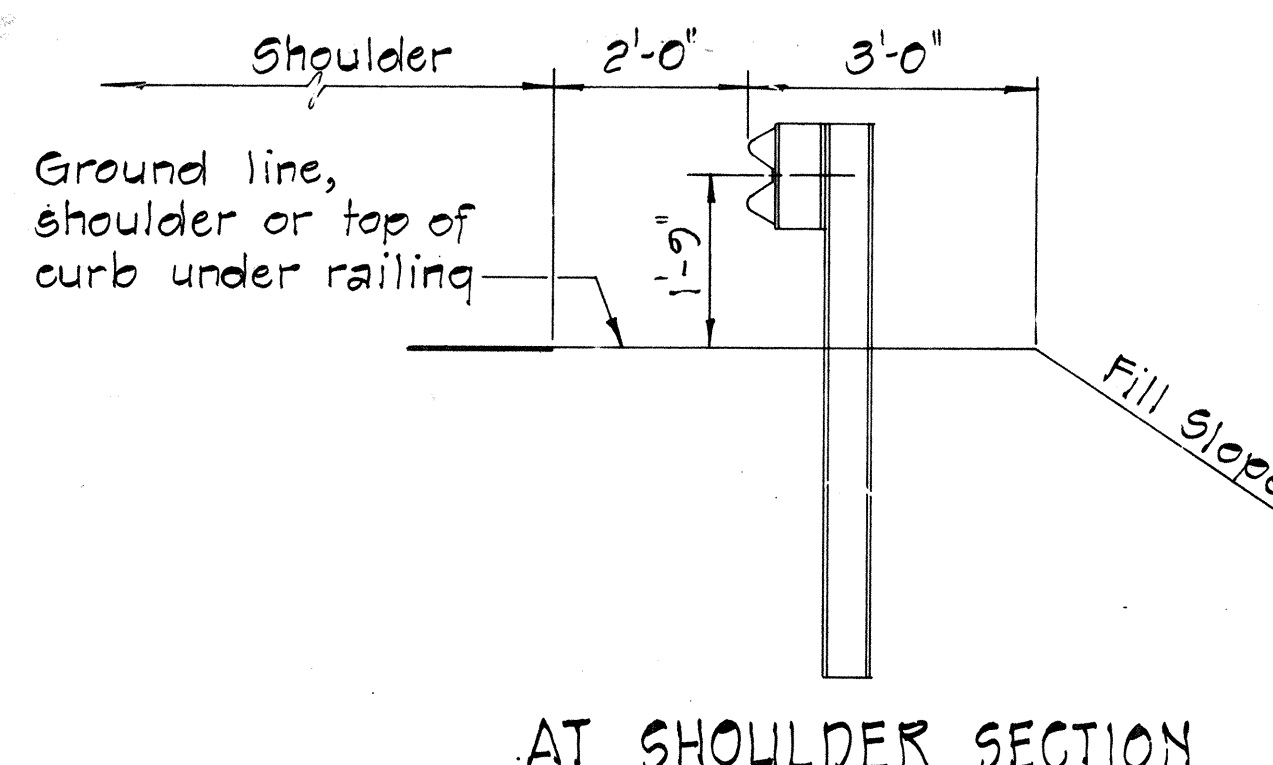


SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"

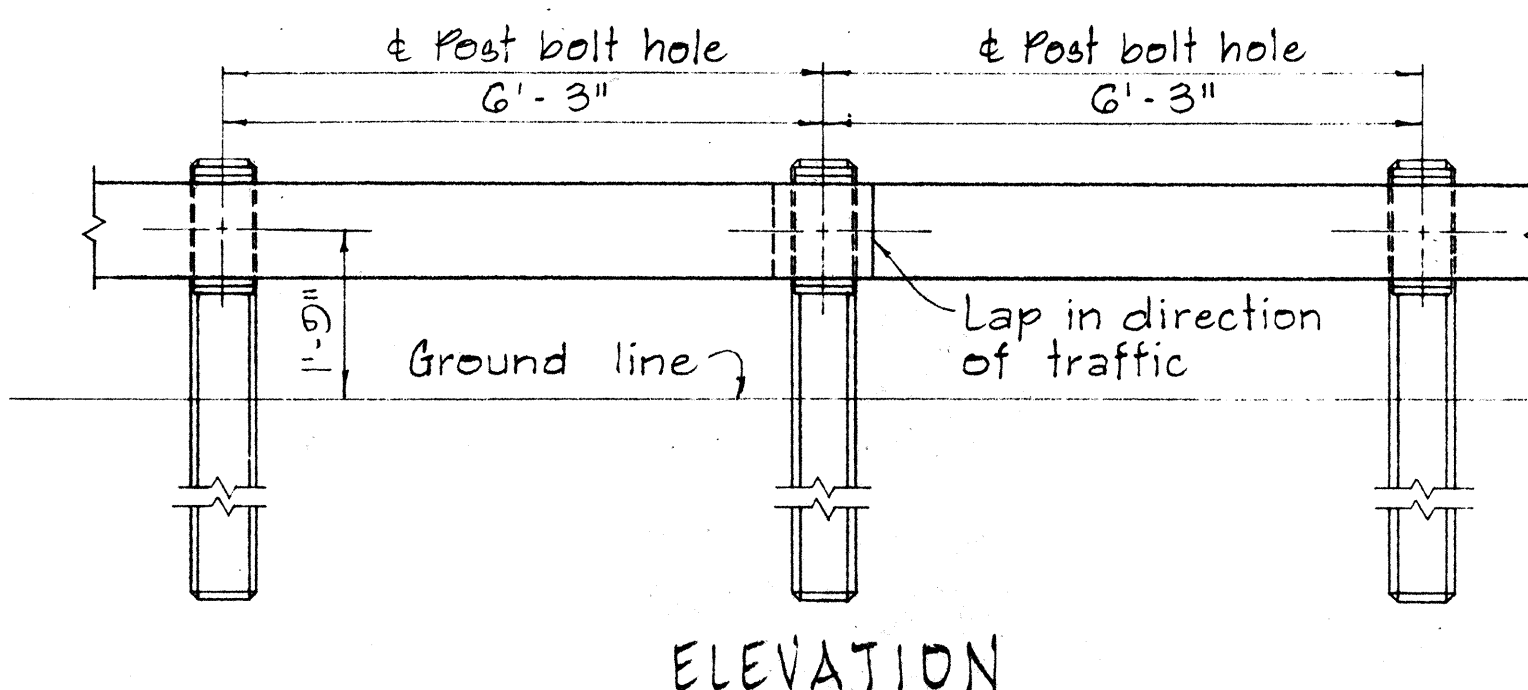
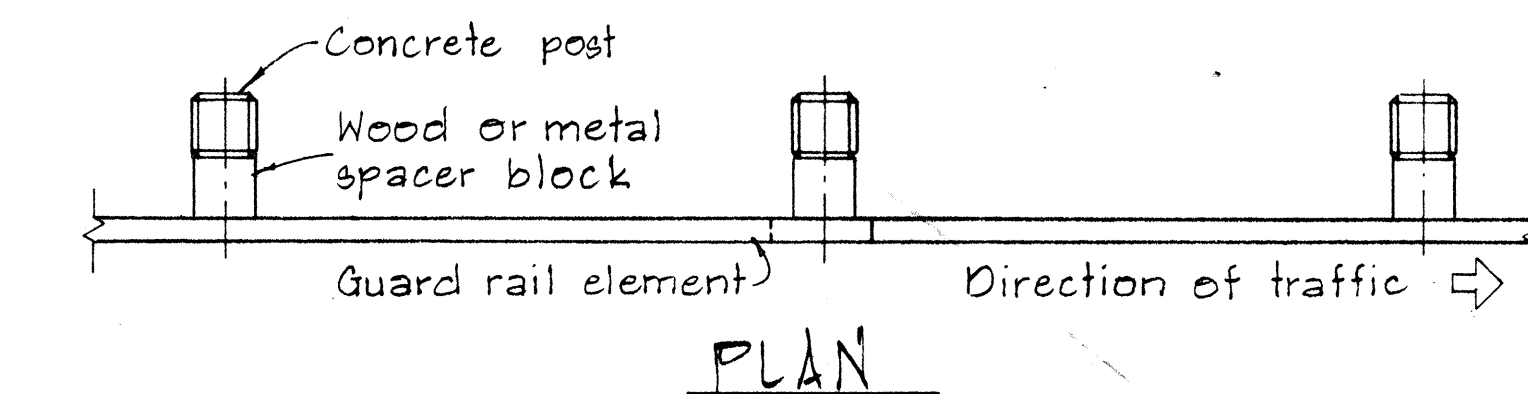
DETAIL OF CONCRETE POST
SCALE: 1 1/2" = 1'-0"



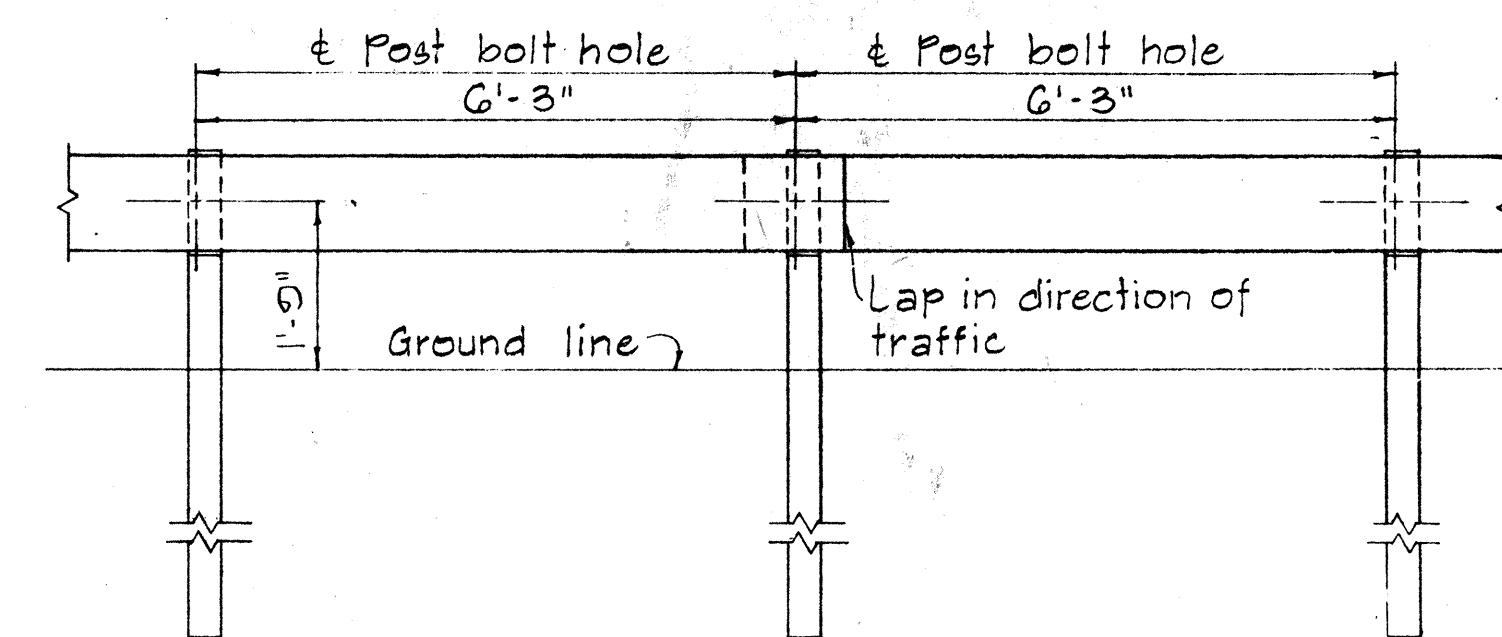
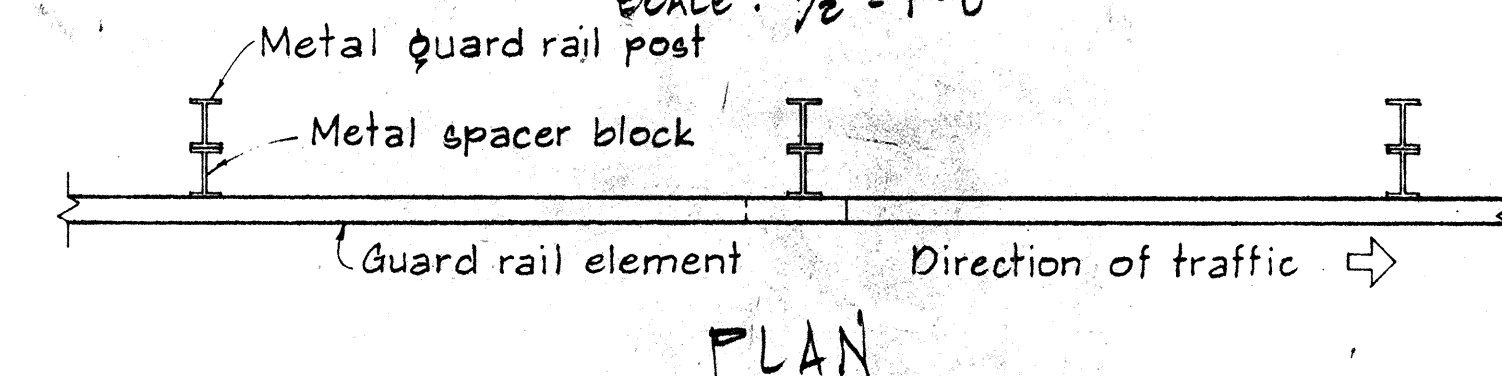
SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



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



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



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

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Evelyn Tanaka
TRAFFIC ENGINEER
DATE: 12/22/62

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

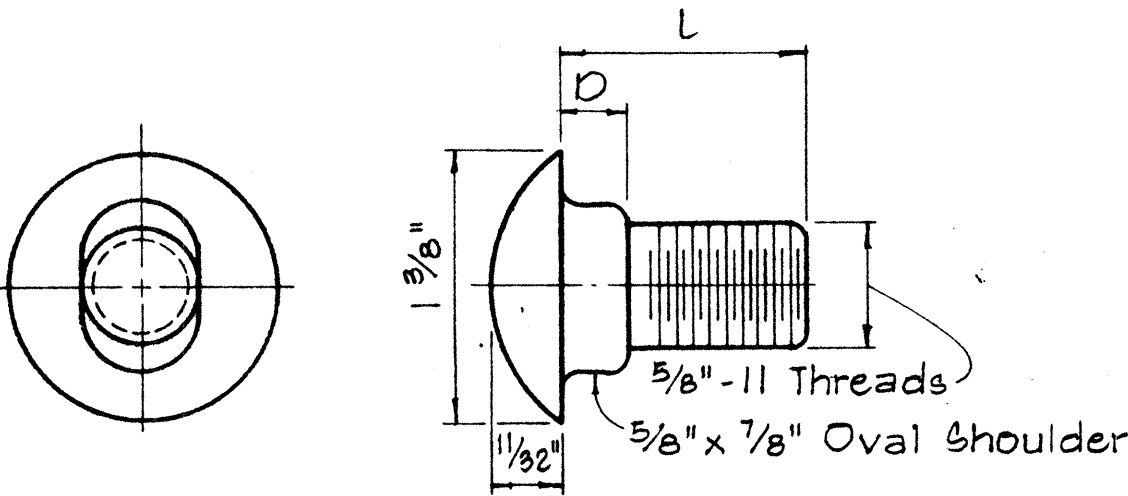
STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN NOV. 1968
SHEET No. 1 OF 5 SHEETS DT 500

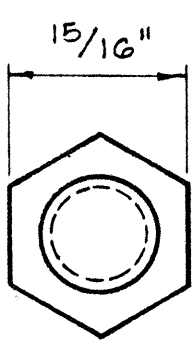
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-0460(4)	1982	7	25

BOLT DIMENSIONS		
TYPE A BOLT		
	D	L
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"

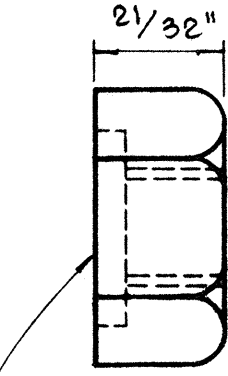
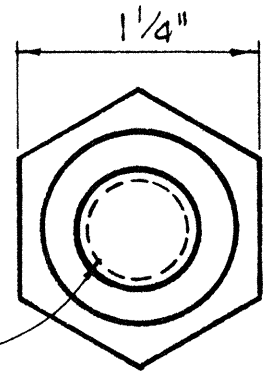
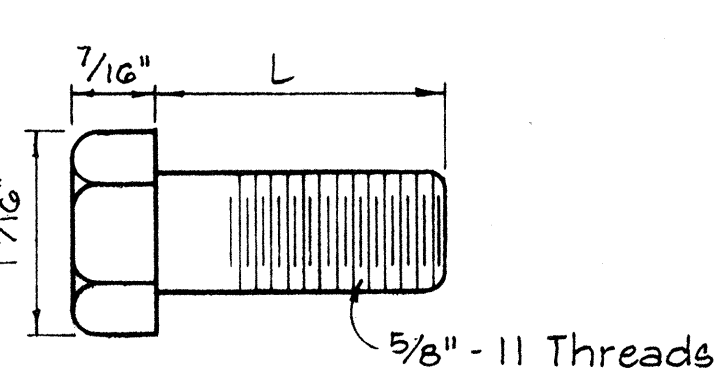
BOLT DIMENSIONS		
TYPE B BOLT		
		L
Post Bolt for Conc. Post w/ Metal Blocks		2 1/2"
Post Bolt for Metal Post w/ Metal Block		1 3/4"



TYPE A BOLT



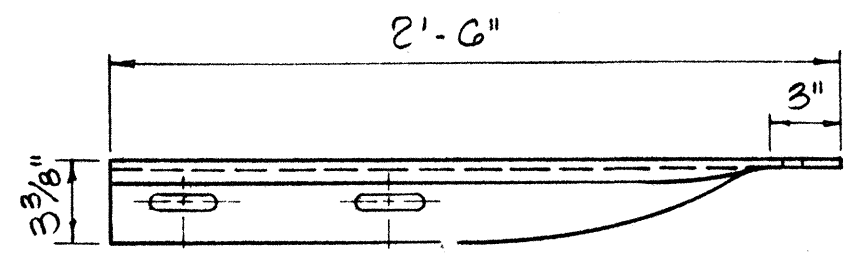
TYPE B BOLT



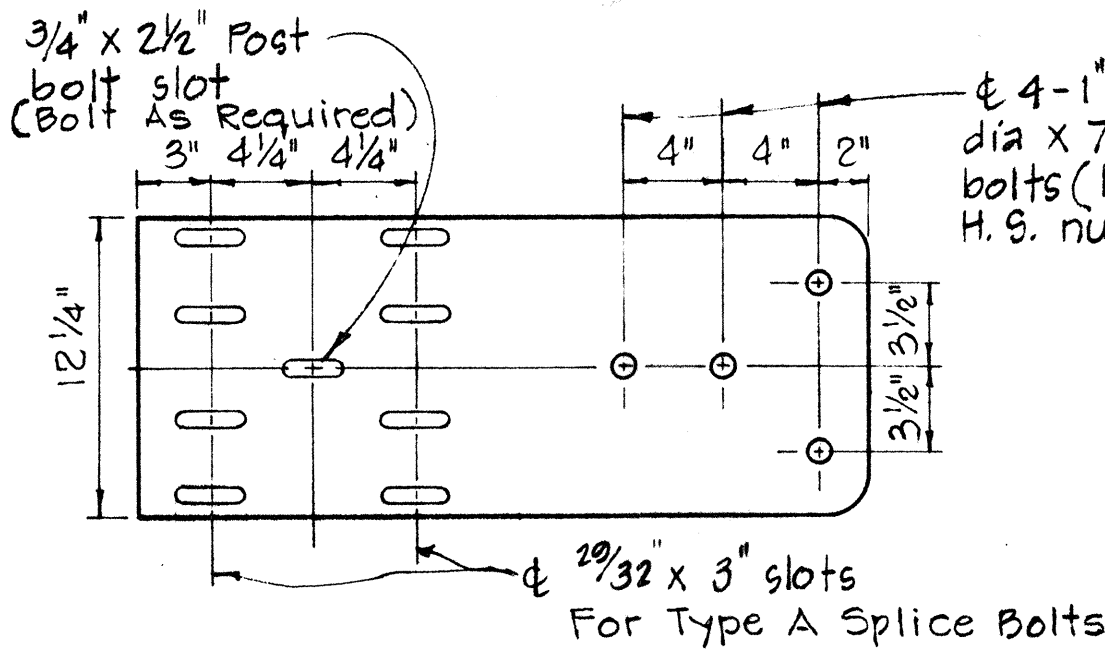
5/32" Deep x 1 5/16" Dia. C' Bore for Type A Bolt only.
Plain nut for Type B Bolt.

HEXAGON NUT

Scale: Full Size



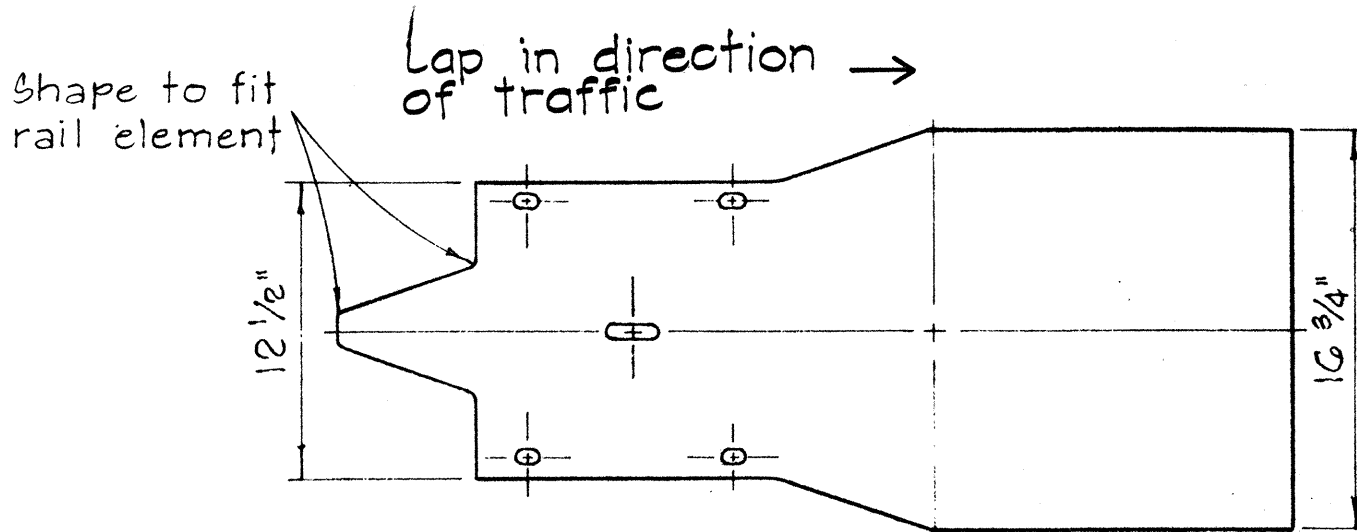
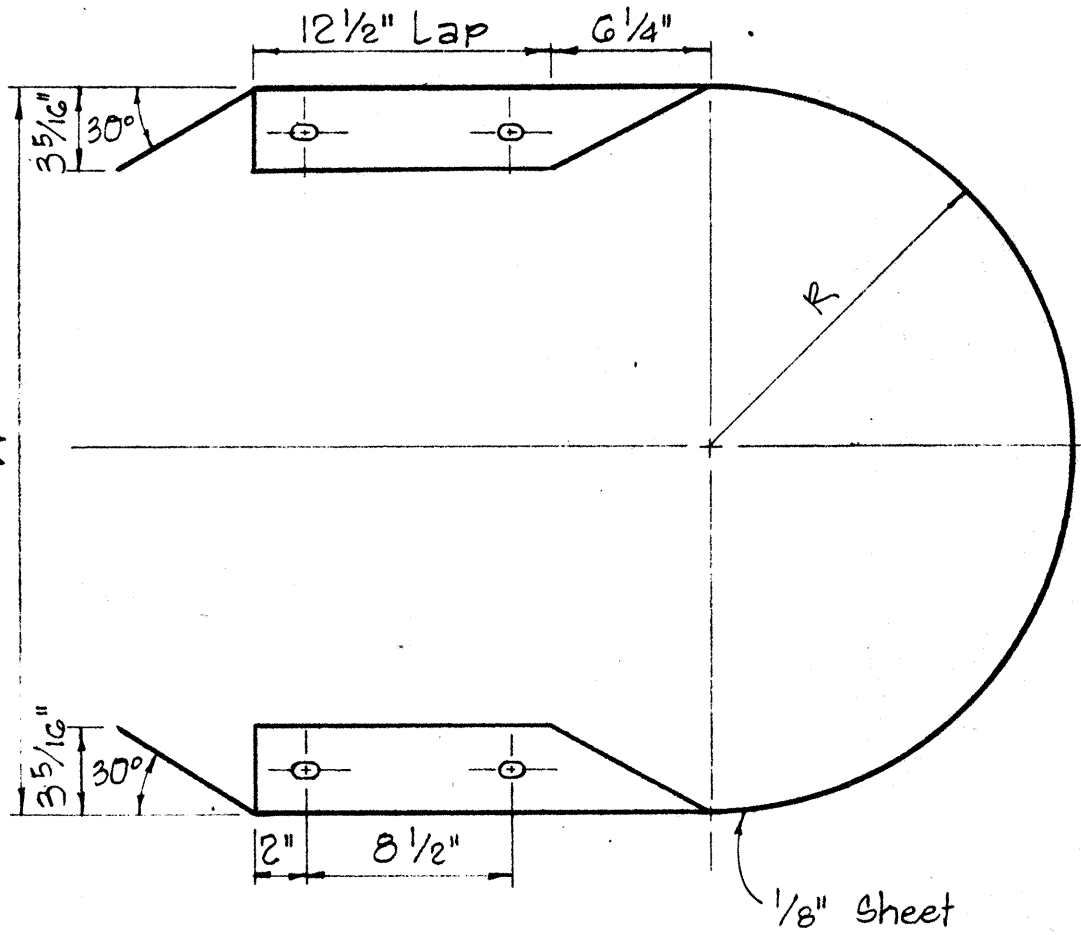
← Lap in direction of traffic



SPECIAL END SHOE

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

← Lap in direction of traffic



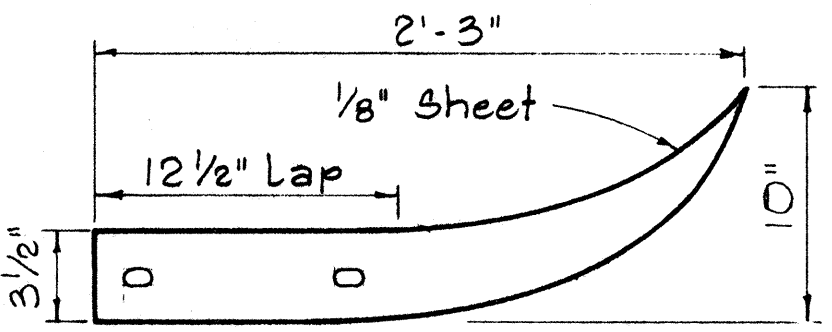
MEDIAN END

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

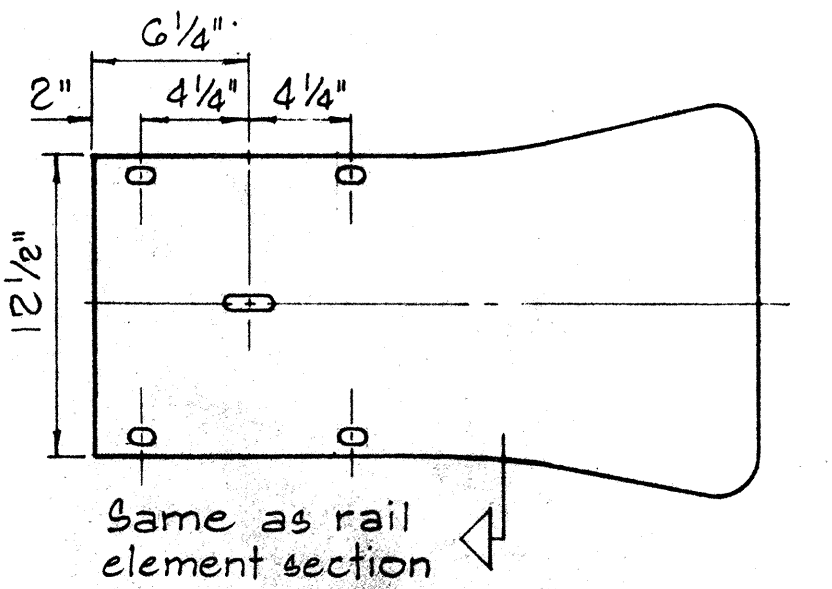
- NOTES:
- H.S. Bolts shall conform to the requirements of ASTM A 325.
 - Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHTO 180.

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
1	Revised Hole Size for Rectangular Rail Washer	H.T.	8/10/81

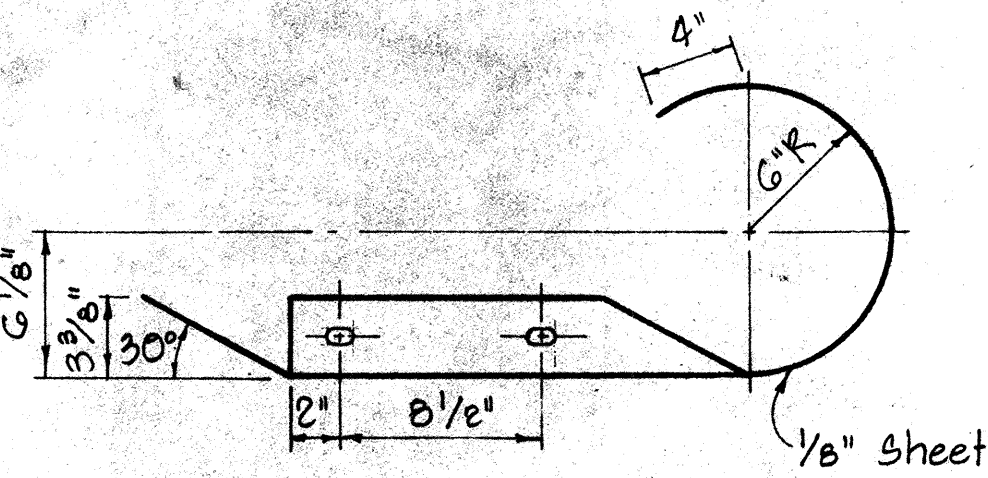


← Lap in direction of traffic

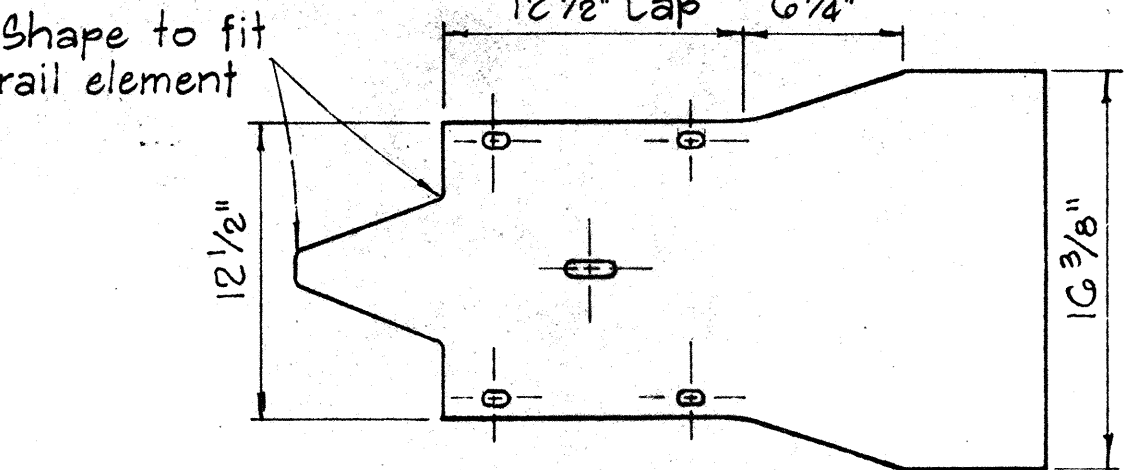


FLARED END

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



← Lap in direction of traffic

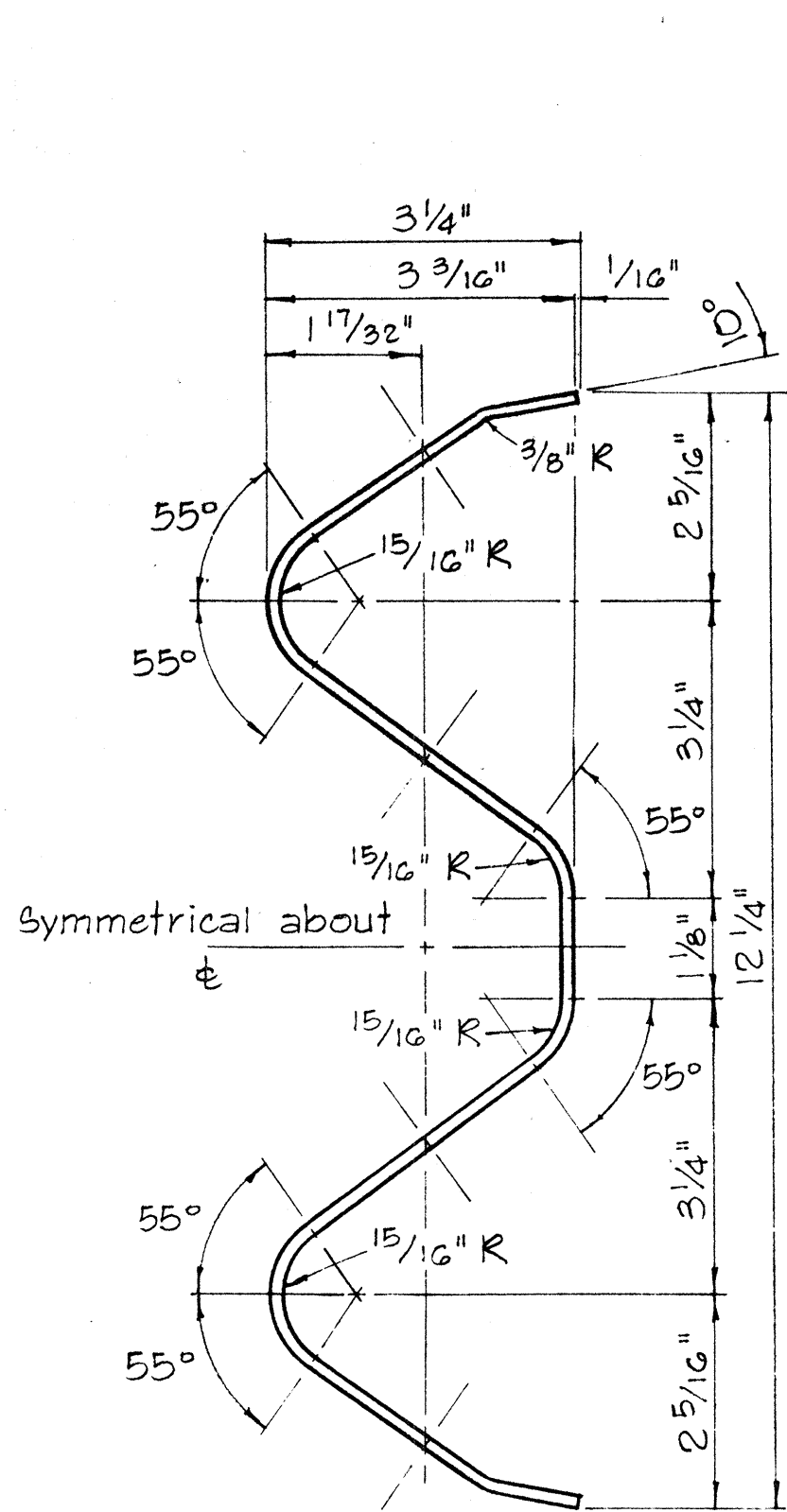


CURVED END

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

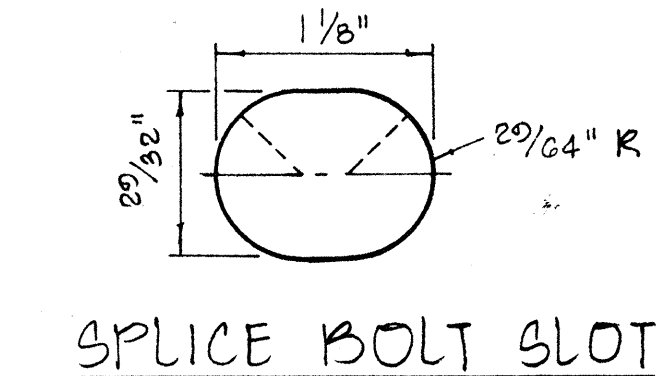
APPROVAL RECOMMENDED:
TRAFFIC ENGINEER
APPROVED:
ASSISTANT CHIEF, ENGINEERING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARD RAIL
Scale: As Noted
August, 1968
SHEET No. 2 OF 5 SHEETS DT 501



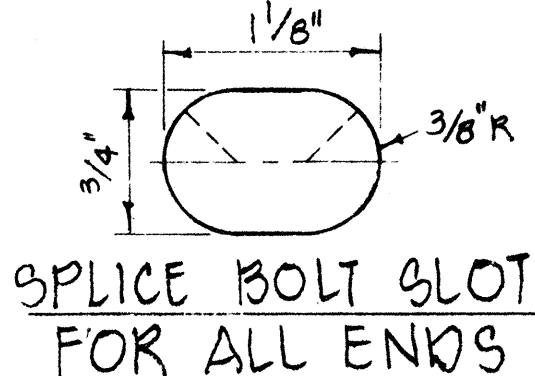
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

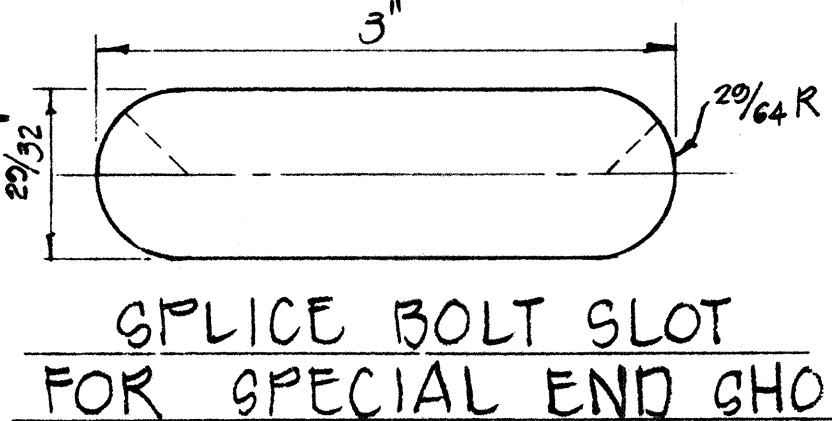


SPlice BOLT SLOT

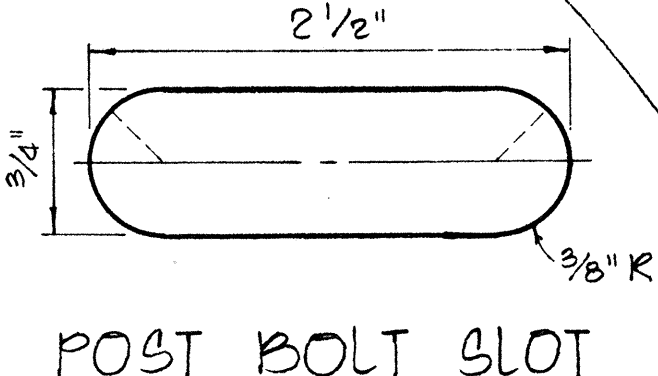
Scale: Full Size



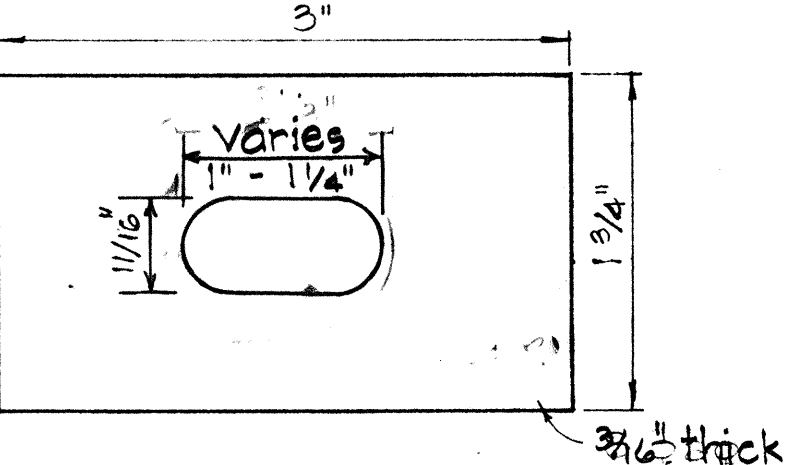
SPlice BOLT SLOT FOR ALL ENDS



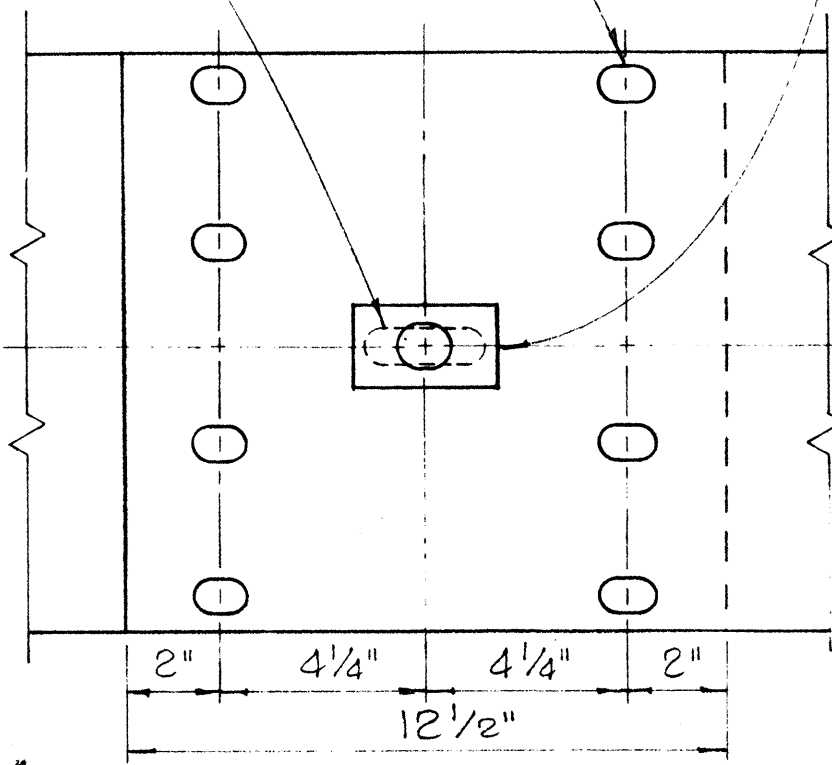
SPlice BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT



RAIL WASHER



RAIL SPlice

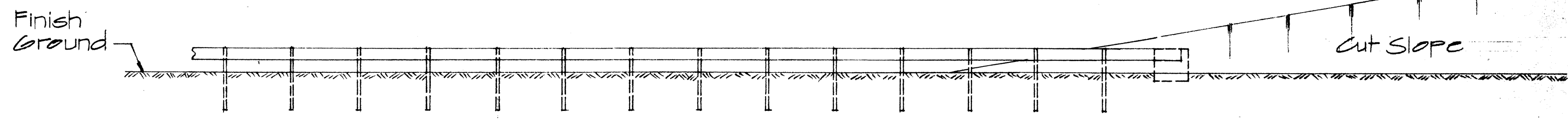
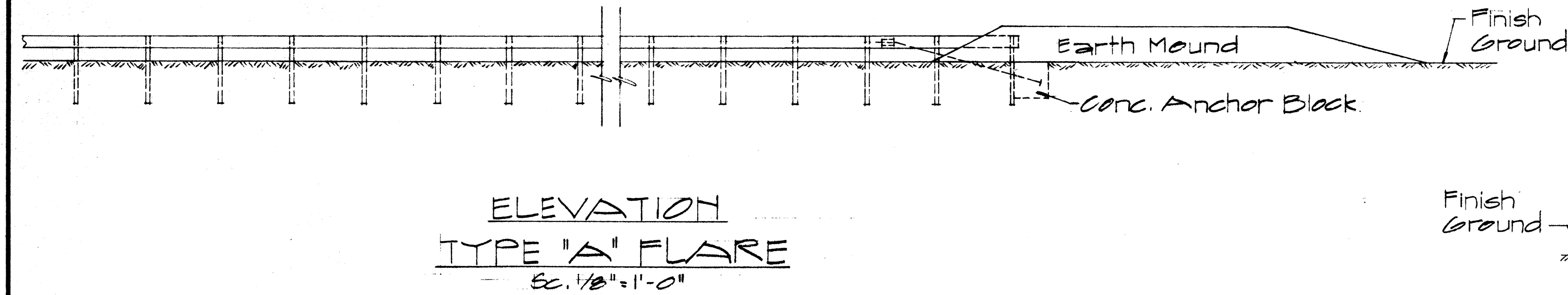
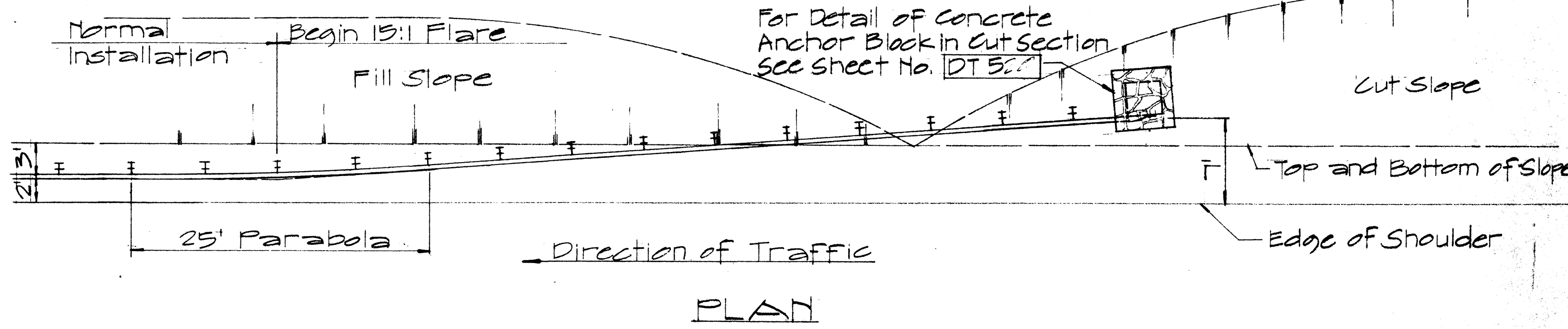
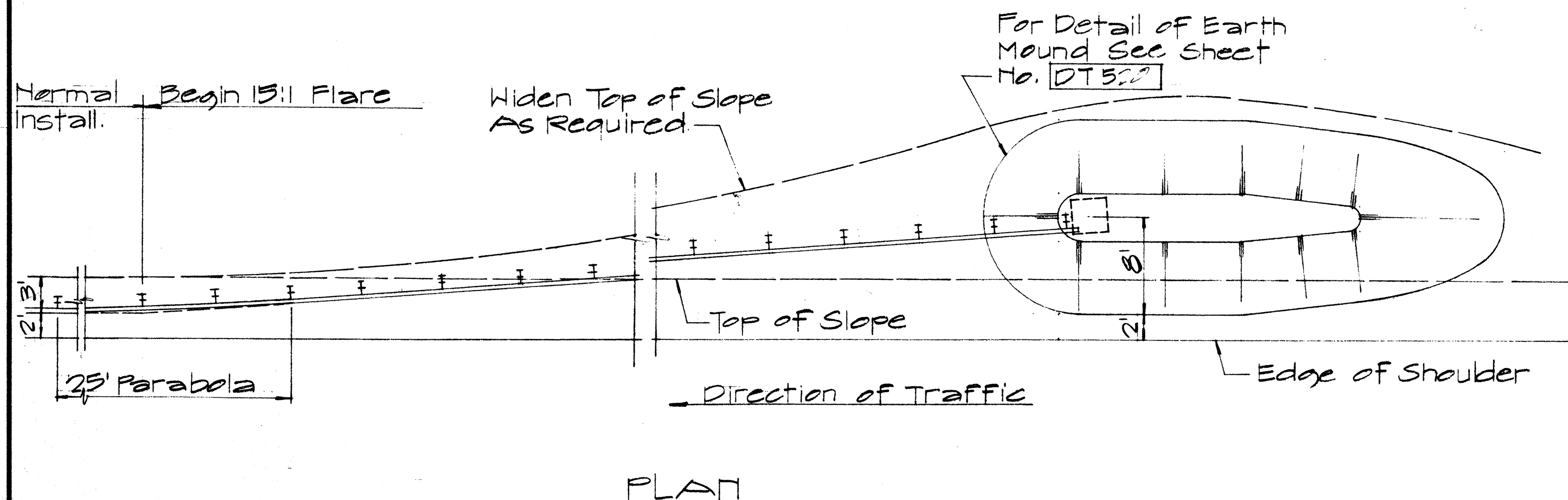
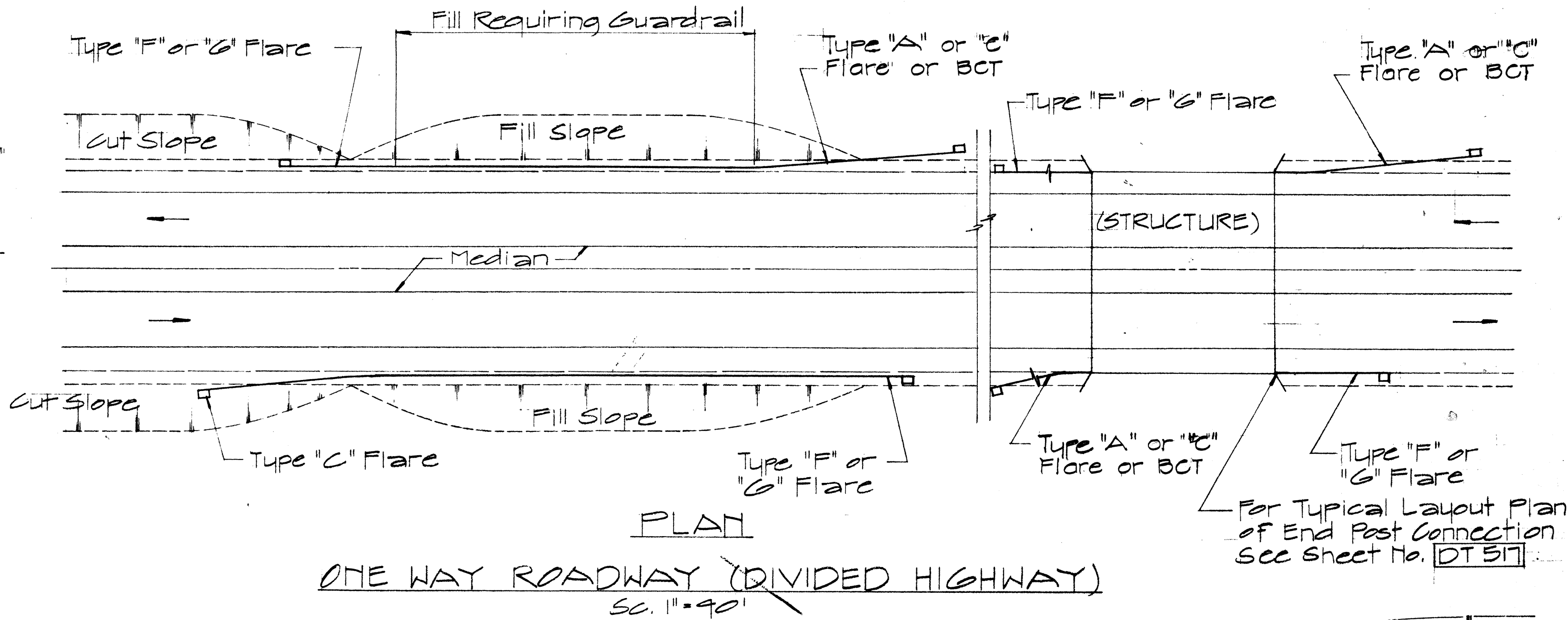
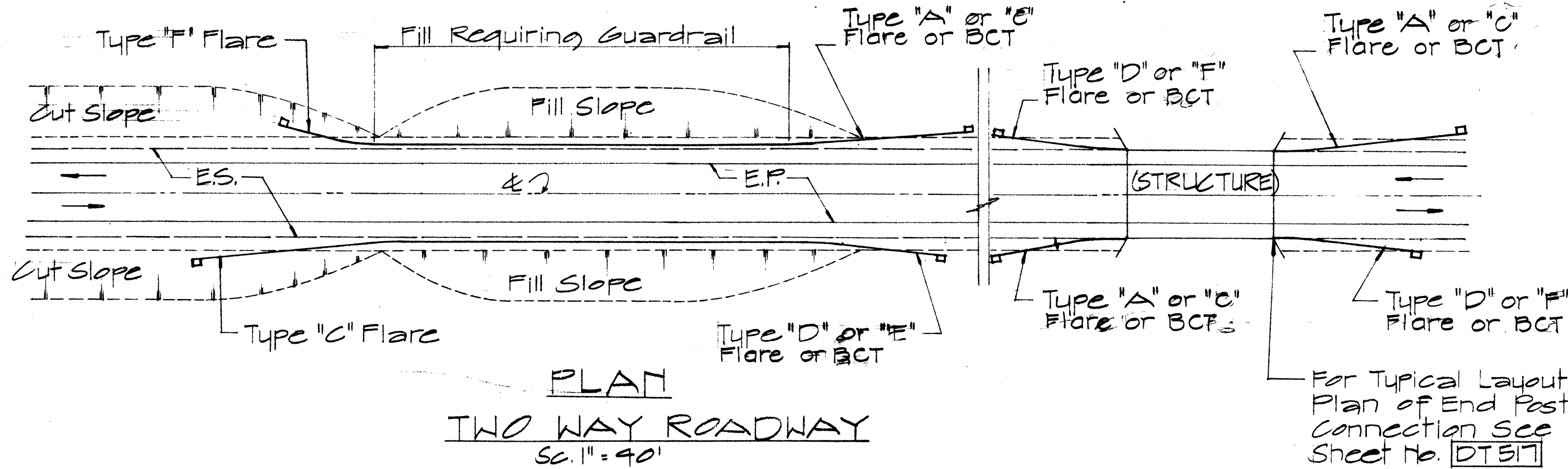
Scale: 3" = 1'-0"

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-0460(4)	1982	8	25

NOTE:

1. Metal guard rail connection to structures requires End Post Connection. See structure plans.
2. For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 519



APPROVAL RECOMMENDED:
Etsuki Tanaka
TRAFFIC ENGINEER
12/29/67
DATE

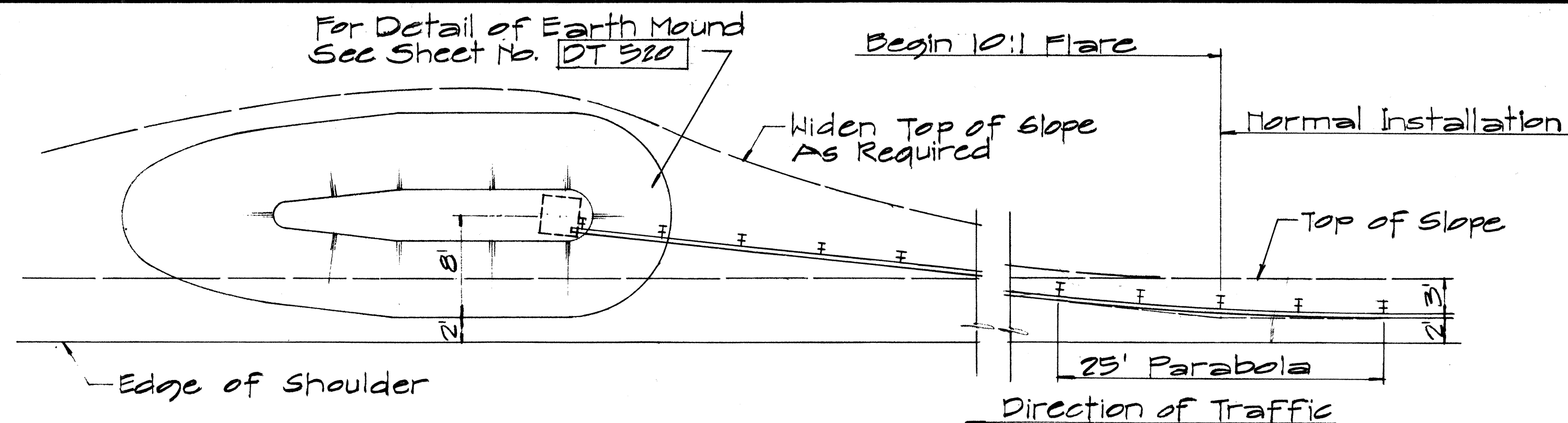
APPROVED:
W. B. B. B.
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.T.	6/15/82

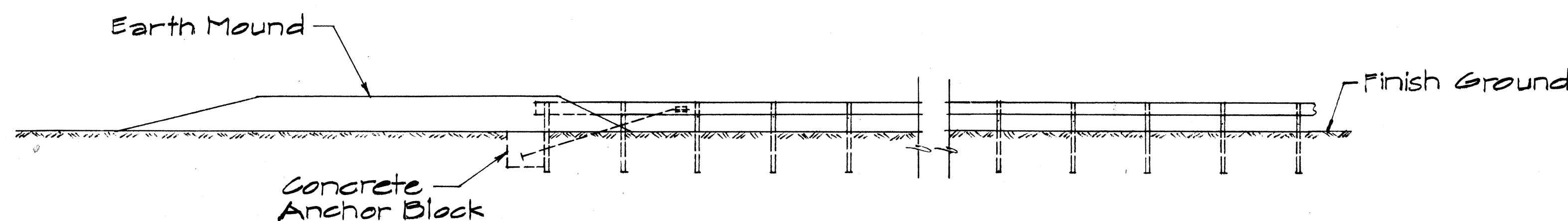
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY
SC. As Noted April 1967
SHEET No. 3 OF 5 SHEETS DT 516

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	RS-04-60(4)	1982	9	25

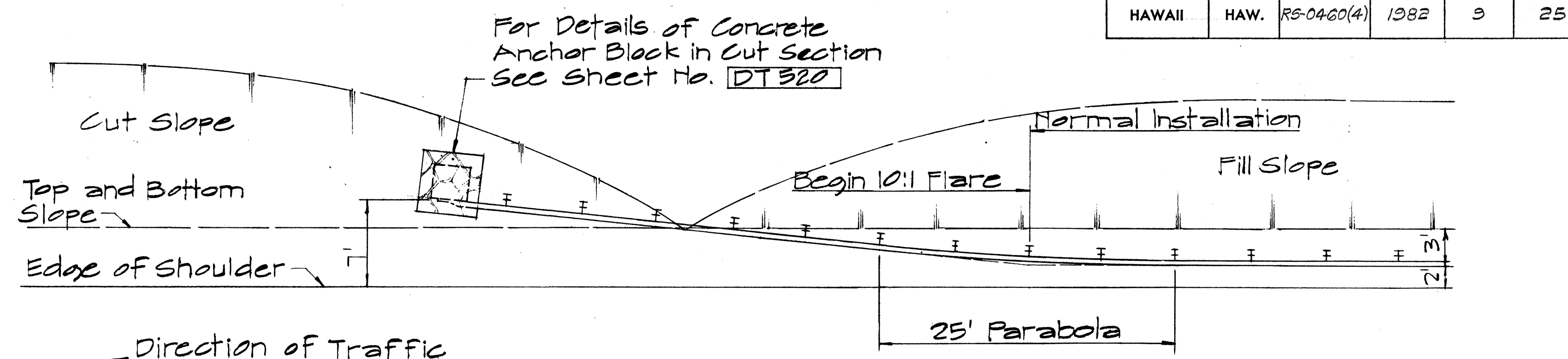


PLAN

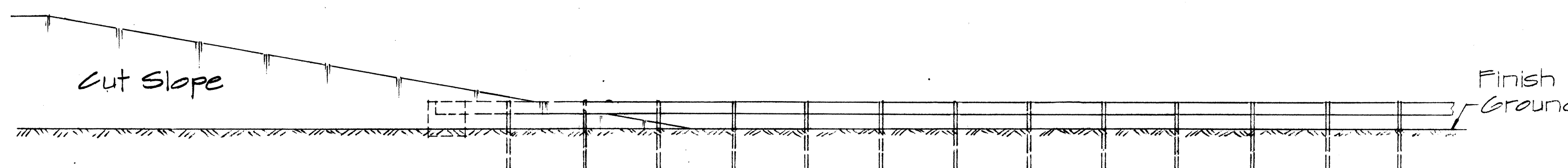


ELEVATION

TYPE "D" FLARE
Sc. 1/8" = 1'-0"

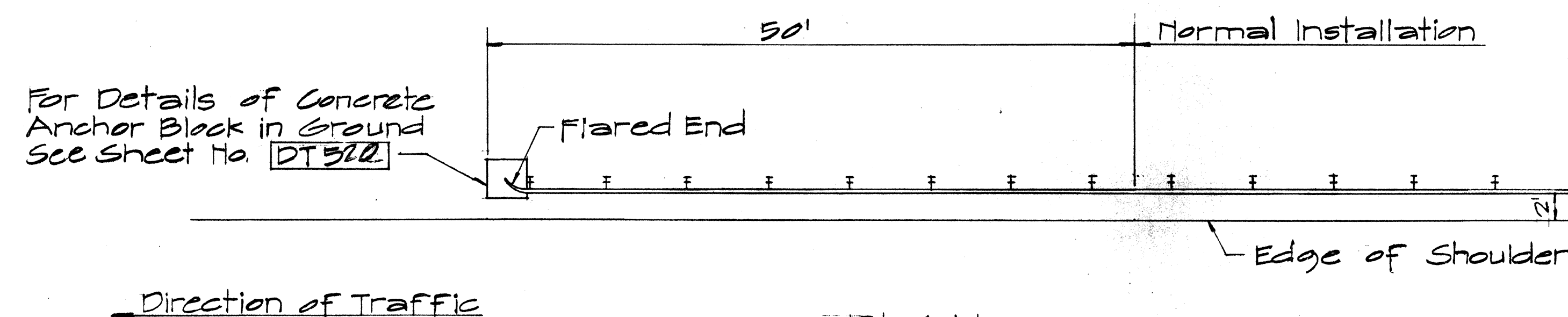


PLAN

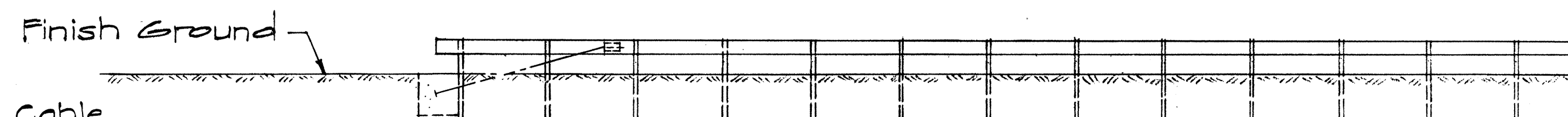


ELEVATION

TYPE "F" FLARE
Sc. 1/8" = 1'-0"



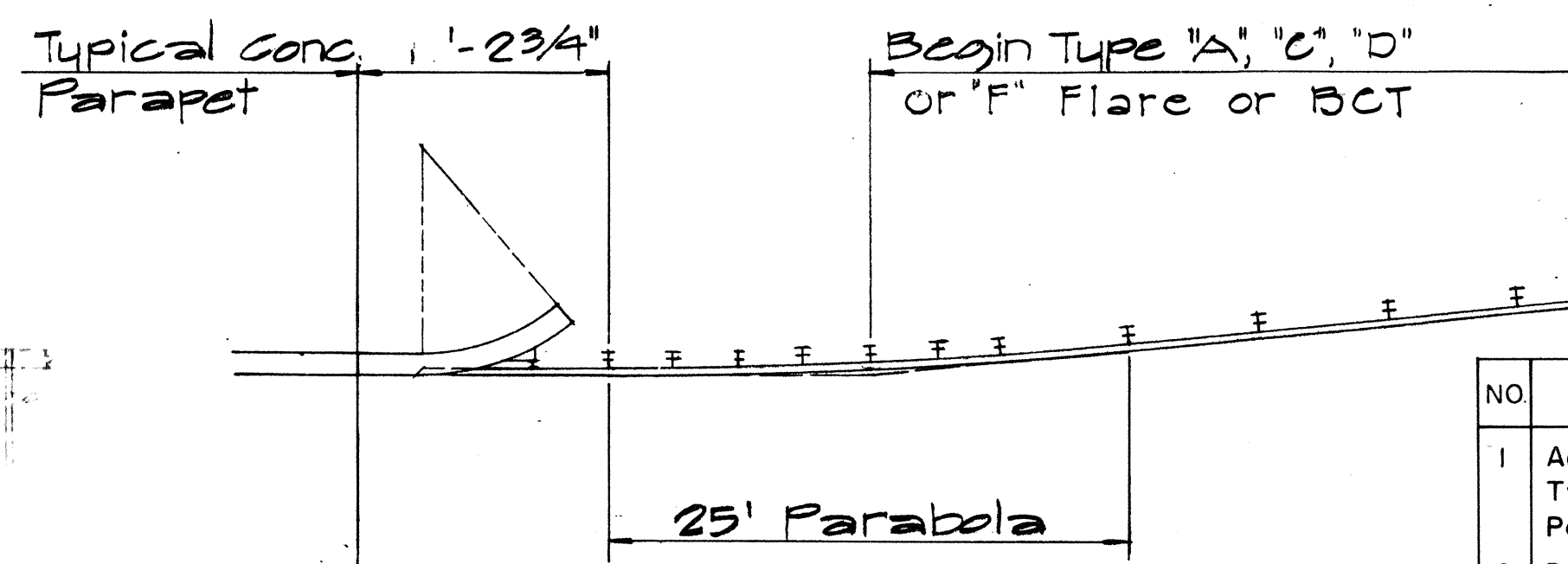
PLAN



ELEVATION

TYPE "G" FLARE
Sc. 1/8" = 1'-0"

NOTE:
For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 510



TYPICAL LAYOUT PLAN OF
END POST CONNECTION
Sc. 1/8" = 1'-0"

NO.	REVISION	APPROVED BY	DATE
1	Additional Posts Added to Typical Layout Plan Of End Post Connection	H.C.	4-12-72
2	Delete Type "B" Flare and Type "E" Flare	H.C.	6-15-78

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY
Scale: As Noted April 1967
SHEET No. 4 OF 5 SHEETS DT 517

